

THE NATIONAL ARCHIVES
LITTERA SCRIPTA MANET
OF THE UNITED STATES

FEDERAL REGISTER

VOLUME 21 1934 NUMBER 99

Washington, Tuesday, May 22, 1956

TITLE 3—THE PRESIDENT

EXECUTIVE ORDER 10669

AMENDMENT OF EXECUTIVE ORDER NO. 10495,¹ PRESCRIBING THE ORDER OF SUCCESSION OF OFFICERS TO ACT AS SECRETARY OF DEFENSE, SECRETARY OF THE ARMY, SECRETARY OF THE NAVY, AND SECRETARY OF THE AIR FORCE

By virtue of the authority vested in me by section 179 of the Revised Statutes of the United States (5 U. S. C. 6), and as President of the United States, it is ordered that Executive Order No. 10495 of October 14, 1953, entitled "Prescribing the Order of Succession of Officers To Act as Secretary of Defense, Secretary of the Army, Secretary of the Navy, and Secretary of the Air Force", be, and it is hereby, amended as follows:

1. The item numbered 5 in Part II, "Chief of the United States Army Forces", is amended to read: "Commanding General, Continental Army Command."

2. The items numbered 2 and 3 in Part III, "Assistant Secretary of the Navy" and "Assistant Secretary of the Navy for Air", respectively, are renumbered as item 2 and amended to read: "Assistant Secretaries of the Navy and Assistant Secretary of the Navy for Air, in the order prescribed by the Secretary of the Navy, or if no order is prescribed by the Secretary, then in the order in which they have taken office as Assistant Secretaries."

3. The items numbered 4 and 5 in Part III are renumbered 3 and 4, respectively.

4. The item numbered 6 in Part IV, "Commanding General, Tactical Air Command", is amended to read "Commander, Air University."

DWIGHT D. EISENHOWER

THE WHITE HOUSE,
May 18, 1956.

[F. R. Doc. 56-4046; Filed, May 18, 1956; 4:55 p. m.]

¹ 18 F. R. 6585; 3 CFR, 1953 Supp., p. 111.

TITLE 7—AGRICULTURE

Chapter III—Agricultural Research Service, Department of Agriculture

PART 362—REGULATIONS FOR THE ENFORCEMENT OF THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

SUBPART—IMPORTS

By virtue of the authority vested in the Secretary of the Treasury and the Secretary of Agriculture by sections 6 and 10 of the Federal Insecticide, Fungicide, and Rodenticide Act, approved June 25, 1947 (Secs. 6, 10, 61 Stat. 168, 171; 7 U. S. C. 135d, 135h), Part 362, Chapter III, Title 7, Code of Federal Regulations (7 CFR Part 362), is hereby amended as follows:

Section 362.32 is amended by deleting ", made before a United States consular officer," following "shipper".

(Sec. 6, 61 Stat. 168; 7 U. S. C. 135d)

Issued this 16th day of May 1956.

DAVID W. KENDALL,
Acting Secretary of the Treasury.

[SEAL] E. L. PETERSON,
Assistant Secretary of Agriculture.

[F. R. Doc. 56-3984; Filed, May 21, 1956; 8:46 a. m.]

TITLE 8—ALIENS AND NATIONALITY

Chapter I—Immigration and Naturalization Service, Department of Justice

Subchapter A—General Provisions

MISCELLANEOUS AMENDMENTS TO CHAPTER

The following amendments to Chapter I of Title 8 of the Code of Federal Regulations are hereby prescribed.

PART 1—GENERAL

Paragraph (a) *Terms used in this chapter* and paragraph (b) *Terms used in Subchapter B of this chapter* of § 1.1 Definitions are amended in the following respects:

(Continued on p. 3337)

CONTENTS

THE PRESIDENT

	Page
Executive Order	
Amendment of Executive Order No. 10495, prescribing the order of succession of officers to act as Secretary of Defense, Secretary of the Army, Secretary of the Navy, and Secretary of the Air Force.....	3335

EXECUTIVE AGENCIES

Agricultural Marketing Service	
Notices:	
Gettysburg Livestock Sales Co.; posted stockyard.....	3392
Proposed rule making:	
Milk; handling in Philadelphia, Pa., marketing area.....	3386
Agricultural Research Service	
Rules and regulations:	
Federal Insecticide, Fungicide, and Rodenticide Act; enforcement; imports.....	3335

Agriculture Department

See also Agricultural Marketing Service; Agricultural Research Service.

Notices:	
Director, Agricultural Credit Services; designated to function as head of agency with respect to rural electrification and rural telephone programs.....	3393

Alien Property Office

Notices:	
Vested property, intention to return:	
Chopin, Marcel.....	3400
Electrical Fono Films Co. A/S.....	3400
Miguchi, Nobuko.....	3400
Mirone, Eligio.....	3400
State of Netherlands for benefit of Lea Polak et al.....	3400
Vesting orders:	
Banque Credit Bulgare S. A.	3399
Magyar Rezhengermuvek Reszvenytarsasag Azelo	
Chaudoir Gusztav Es Tarsa.....	3399
Sulcop S. A. R.....	3399



Published daily, except Sundays, Mondays, and days following official Federal holidays, by the Federal Register Division, National Archives and Records Service, General Services Administration, pursuant to the authority contained in the Federal Register Act, approved July 26, 1935 (49 Stat. 500, as amended; 44 U. S. C., ch. 8B), under regulations prescribed by the Administrative Committee of the Federal Register, approved by the President. Distribution is made only by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

The FEDERAL REGISTER will be furnished by mail to subscribers, free of postage, for \$1.50 per month or \$15.00 per year, payable in advance. The charge for individual copies (minimum 15 cents) varies in proportion to the size of the issue. Remit check or money order, made payable to the Superintendent of Documents, directly to the Government Printing Office, Washington 25, D. C.

The regulatory material appearing herein is keyed to the CODE OF FEDERAL REGULATIONS, which is published, under 50 titles, pursuant to section 11 of the Federal Register Act, as amended August 5, 1953. The CODE OF FEDERAL REGULATIONS is sold by the Superintendent of Documents. Prices of books and pocket supplements vary.

There are no restrictions on the republication of material appearing in the FEDERAL REGISTER, or the CODE OF FEDERAL REGULATIONS.

CFR SUPPLEMENTS

(As of January 1, 1956)

The following Supplement is now available:

Title 32A (Rev., 1955) (\$1.25)

Previously announced: Title 3, 1955 Supp. (\$2.00); Titles 4 and 5 (\$1.00); Title 7: Parts 1-209 (\$1.25); Title 8 (\$0.50); Title 9 (\$0.70); Titles 10-13 (\$0.70); Title 14: Part 400 to end (\$1.00); Title 15 (\$1.00); Title 16 (\$1.25); Title 17 (\$0.60); Title 18 (\$0.50); Title 19 (\$0.50); Title 20 (\$1.00); Title 21 (Rev., 1955) (\$5.50); Titles 22 and 23 (\$1.00); Title 24 (\$0.75); Title 25 (\$0.50); Title 26: Parts 1-79 (\$0.35), Parts 80-169 (\$0.50), Parts 170-182 (\$0.30), Parts 183-299 (\$0.35), Part 300 to end, Ch. 1, and Title 27 (\$1.00); Titles 30 and 31 (\$1.25); Title 32: Parts 1-399 (\$0.60), Parts 700-799 (\$0.35), Parts 800-1099 (\$0.40), Part 1100 to end (\$0.35); Titles 40-42 (\$0.65); Title 49: Parts 1-70 (\$0.60), Parts 71-90 (\$1.00), Parts 91-164 (\$0.50), Part 165 to end (\$0.65)

Order from Superintendent of Documents, Government Printing Office, Washington 25, D. C.

CONTENTS—Continued

Army Department	Page
See Engineers Corps.	
Atomic Energy Commission	
Notices:	
Construction permit; General Electric Co.	3395

RULES AND REGULATIONS

CONTENTS—Continued

Civil Aeronautics Board	Page
Notices:	
Hearings, etc.:	
New York-Nassau case	3396
Trans World Airlines, Inc.; India-Bangkok-Manila extension	3396
Proposed rule making:	
Identification of aircraft; extension of date	3387
Position and anti-collision light requirements and facilitation of experiments with exterior lighting systems	3388
Rules and regulations:	
Airplane airworthiness; normal, utility, and acrobatic categories	3339
Commerce Department	
See also Federal Maritime Board.	
Notices:	
Reports of appointment and statements of financial interests:	
Easterly, Eugene	3393
Lawrence, George E.	3393
Postweiler, Norval W.	3393
Engineers Corps	
Rules and regulations:	
Anchorage and bridge regulations; Ponce Harbor, Puerto Rico; Dorseys Creek, Maryland	3373
Federal Communications Commission	
Notices:	
Hearings, etc.:	
Black Hills Broadcast Co. of Rapid City and Heart of the Black Hills Stations	3396
Day-Nite Radio Message Service Corp.	3397
Gade, Harold M., and Monmouth County Broadcasters	3396
General Times Television Corp. and Columbia Broadcasting System, Inc.	3397
Henry County Broadcasting Co.	3397
Hughes, Polly B., and Holiday Isles Broadcasting Co.	3397
Mississippi Broadcasting Co. (WCCC-TV) and Laurel Television Co., Inc.	3396
Mt. Sterling Broadcasting Co.	3397
Southern Oregon Broadcasting Co. (KUIN)	3397
Proposed rule making:	
Industrial, scientific, and medical services; radio frequency stabilized arc welders	3391
Rules and regulations:	
Frequency allocations and radio treaty matters; amateur radio service; modifying areas of permissible sharing between amateur service and Loran stations	3371
Industrial radio services; addition to frequency band	3372
Industrial, scientific, and medical services; radio frequency stabilized arc welders	3373

CONTENTS—Continued

Federal Maritime Board	Page
Notices:	
Pacific Far East Line, Inc.; application to extend bareboat charter of vessels and tentative findings	3393
Federal Power Commission	
Notices:	
Hearings, etc.:	
Bennett, Mills estate, et al.	3397
Ohio Fuel Gas Co.	3398
Food and Drug Administration	
Rules and regulations:	
Streptomycin (or dihydrostreptomycin) and streptomycin (or dihydrostreptomycin) containing drugs; certification; streptomycin (or dihydrostreptomycin) sulfate powder oral veterinary	3398
Health, Education, and Welfare Department	
See Food and Drug Administration.	
Immigration and Naturalization Service	
Rules and regulations:	
General provisions; miscellaneous amendments to chapter	3335
Interior Department	
See Land Management Bureau; National Park Service.	
Internal Revenue Service	
Proposed rule making:	
Tobacco materials, tobacco products, cigarette papers and tubes; exportation without payment of tax or with drawback of tax	3374
Interstate Commerce Commission	
Notices:	
Fourth section applications for relief	3401
Illinois Central suburban fares	3401
Justice Department	
See Alien Property Office; Immigration and Naturalization Service.	
Labor Department	
See Wage and Hour Division.	
Land Management Bureau	
Notices:	
Wyoming; stock driveway withdrawal	3392
National Park Service	
Notices:	
Rocky Mountain National Park; Supervisory Park Rangers; delegation of authority to execute and approve certain permits	3392
Securities and Exchange Commission	
Notices:	
Hearings, etc.:	
Bailey Selburn Oil & Gas Ltd.	3398
Standards Shares, Inc.	3398
Treasury Department	
See Internal Revenue Service.	

CONTENTS—Continued

Veterans Administration	Page
Rules and regulations:	
Medical; miscellaneous amend-ments	3338
Wage and Hour Division	
Notices:	
Learner employment certifi-cates; issuance to various in-dustries	3394
Rules and regulations:	
Seaman exemption; who is "em-ployed as a seaman" for pur-poses of exemption	3371

CODIFICATION GUIDE

A numerical list of the parts of the Code of Federal Regulations affected by documents published in this issue. Proposed rules, as opposed to final actions, are identified as such.

Title 3	Page
Chapter II (Executive orders):	
10495 (amended by EO 10669)	3335
10669	3335
Title 7	
Chapter III:	
Part 362	3335
Chapter IX:	
Part 961 (proposed)	3386
Title 8	
Chapter I:	
Part 1	3335
Part 2	3337
Part 3	3337
Part 6	3337
Part 7	3338
Part 8	3338
Part 9	3388
Title 14	
Chapter I:	
Part 1 (proposed)	3387
Part 3	3339
Proposed rules	3388
Part 4b (proposed)	3388
Part 6 (proposed)	3388
Part 7 (proposed)	3388
Part 40 (proposed)	3388
Part 41 (proposed)	3388
Part 42 (proposed)	3388
Part 43 (proposed)	3388
Part 45 (proposed)	3388
Title 21	
Chapter I:	
Part 146b	3388
Title 26 (1939)	
Chapter I:	
Part 141 (see T. 26 (1954) Part 290).	
Part 142 (see T. 26 (1954) Part 290).	
Part 451 (see T. 26 (1954) Part 290).	
Title 26 (1954)	
Chapter I:	
Part 290 (proposed)	3374
Title 29	
Chapter V:	
Part 783	3371
Title 33	
Chapter II:	
Part 202	3373
Part 203	3373

CODIFICATION GUIDE—Con.

Title 38	Page
Chapter I:	
Part 17	3338
Title 47	
Chapter I:	
Part 2	3371
Part 11	3372
Part 12	3371
Part 18	3373
Proposed rules	3391

1. Subparagraph (12) of paragraph (a) is amended to read as follows:

(12) The term "officer in charge" means the Service Officer in charge of a suboffice.

2. Subparagraph (15) is added to paragraph (a) to read as follows:

(15) The term "suboffice" means any office or facility specifically designated as such in the statement of organization of the Service.

3. Subdivision (iii) of subparagraph (3) of paragraph (b) is amended by deleting the words "or officer in charge".

4. Subdivision (iii) of subparagraph (4) of paragraph (b) is amended by deleting the words "or the officer in charge".

PART 2—SERVICE RECORDS; FEES

The eleventh and twenty-first items in § 2.5 are amended so that when taken with the introductory material they will read as follows:

§ 2.5 *Fees for service, documents, papers, and records not specified in the Immigration and Nationality Act.* In addition to the fees enumerated in sections 281 and 344 of the Immigration and Nationality Act, the following fees and charges are prescribed:

For filing application for waiver of passport or visa of an individual alien prior to or at the time he applies for temporary admission to the United States. (This fee shall not be applicable to an admissible alien who is officially engaged in activities in connection with any multipartite treaty organization of which the United States is signatory, or who is a member of the armed forces of any foreign government, or who is seeking admission under section 101 (a) (15) (A) or (G) of the act)	10.00
---	-------

For filing application for waiver of passport of an individual alien prior to or at the time he applies for admission to the United States for permanent residence.	10.00
---	-------

PART 3—IMMIGRATION BONDS

1. Paragraph (b) *Approval; extension agreements; consent of surety; collateral security of § 3.1 Immigration bonds* is amended by deleting the words "and officers in charge" appearing in the first sentence.

2. Subparagraph (1) of paragraph (c) *Violation of conditions; cancellation of § 3.1 Immigration bonds* is amended to read as follows:

(1) Whenever it shall appear that a condition of a bond executed in connection with the administration of the immigration laws may have been violated, or when a request for release from liability is received from an obligor, the bond, all appurtenant documents, and a full report of the circumstances shall be forwarded to the district director having administrative jurisdiction over the office where the bond is retained for decision as to whether the conditions of the bond have been met so that it may be cancelled, or whether any condition of the bond has been violated so that liability thereunder should be enforced, or whether the circumstances are such that the bond should be continued in effect. If the obligors are adversely affected by the decision of the district director, they shall be notified by him in writing on Form I-323 of his decision. No appeal shall lie from the decision of the district director.

3. Subparagraph (2) of paragraph (c) of § 3.1 *Immigration bonds* is amended by deleting the words "or officer in charge" appearing in the first sentence.

PART 6—BOARD OF IMMIGRATION APPEALS; APPEALS; REOPENING AND RECONSIDERATION

1. Subparagraph (7) of paragraph (b) of § 6.1 *Board of Immigration Appeals* is amended so that when taken with the introductory material it will read as follows:

(b) *Appellate jurisdiction.* Appeals shall lie to the Board of Immigration Appeals from the following:

(7) Determinations of regional commissioners or district directors relating to bond, parole, or detention of an alien as provided in Part 242 of this chapter.

2. Section 6.11 *Notice of appeal* is amended by deleting the words "or officer in charge" appearing in the second sentence and by deleting the words "officer in charge," appearing in the third sentence.

3. Section 6.12 *Withdrawal of appeal* is amended by deleting the words "to the officer in charge" appearing in the third sentence.

4. Section 6.13 *Forwarding of record on appeal* is amended by deleting the words "or officer in charge".

5. Section 6.15 *Notice of certification* is amended by deleting the words "or the officer in charge" appearing in the fourth sentence, the words "or officer in charge" and ", officer in charge" appearing in the sixth sentence, and the words "or officer in charge" appearing in the eighth sentence.

6. The last sentence of paragraph (a) *Form of § 6.21 Motion to reopen or motion to reconsider* is amended to read as follows: "Execution of such decision shall proceed unless a stay of execution is specifically granted by the Board or the district director having administrative jurisdiction over the case."

7. Paragraph (b) *Distribution of motion papers when alien is moving party of § 6.21 Motion to reopen or motion to reconsider* is amended by deleting the words "or the officer in charge".

**PART 7—REGIONAL COMMISSIONERS:
APPEALS**

1. Section 7.11 *Notice of appeal* is amended by deleting the words "or with the officer in charge" appearing in the first sentence and the words "officer in charge" appearing in the fifth sentence.

2. Section 7.13 *Forwarding of record on appeal* is amended by deleting the words "or the officer in charge" appearing in the introductory material.

3. Section 7.15 *Notice of certification* is amended by deleting the words "or the officer in charge" appearing in the fourth sentence, the words "or officer in charge" and "officer in charge," appearing in the sixth sentence, and the words "or the officer in charge" appearing in the eighth sentence.

PART 8—REOPENING AND RECONSIDERATION

1. The first and last sentences of paragraph (a) *Filing of § 8.11 Motion to reopen or reconsider* are amended to read as follows: "When the alien is the moving party, a motion to reopen or to reconsider shall be filed in duplicate with the district director of the place where the proceeding was conducted for transmittal to the officer having jurisdiction to act on the motion, as provided in § 8.1." * * * "Execution of such decision shall proceed unless a stay is specifically granted by the district director of the place where the proceeding was conducted."

2. Paragraph (f) *Fees of § 3.11 Motion to reopen or reconsider* is amended by deleting the words "or officer in charge" appearing in the third sentence.

**PART 9—AUTHORITY OF COMMISSIONER,
REGIONAL COMMISSIONERS, AND AS-
SISTANT COMMISSIONERS**

1. Paragraph (o) of § 9.5a is amended so that when taken with the introductory material it will read as follows:

§ 9.5a *Authority of Regional Commissioners.* The powers, privileges, and duties conferred or imposed upon officers or employees of the Service under this chapter with respect to the following-described matters are hereby conferred or imposed upon the regional commissioners:

(o) Designation, and withdrawal of designation, of ports of entry for aliens arriving by vessel or by land transportation as provided in the statement of organization of the Service, and designation, and withdrawal of designation, of airports as international airports for entry of aliens as provided in Part 239 of this chapter.

2. Section 9.5b is amended to read as follows:

§ 9.5b *Authority of District Directors.* Except as otherwise provided, district directors are authorized to grant or deny any formal application or petition in any case provided for in this chapter.

(Sec. 501, 65 Stat. 290, sec. 103, 66 Stat. 173; 5 U. S. C. 140, 8 U. S. C. 1103)

This order shall become effective on the date of its publication in the FEDERAL

REGISTER. Compliance with the provisions of section 4 of the Administrative Procedure Act (60 Stat. 238; 5 U. S. C. 1003) as to notice of proposed rule making and delayed effective date is unnecessary in this instance because the rules prescribed by the order relate to agency management and procedure.

Dated: May 15, 1956.

HERBERT BROWNELL, Jr.,
Attorney General.

Recommended: April 30, 1956.

J. M. SWING,
Commissioner of Immigration
and Naturalization.

[F. R. Doc. 56-4026; Filed, May 21, 1956;
8:54 a. m.]

**TITLE 38—PENSIONS, BONUSES,
AND VETERANS' RELIEF**

Chapter I—Veterans Administration

PART 17—MEDICAL

**STATUTORY DISCHARGE; AUTHORITY FOR
DISCIPLINARY ACTION**

1. In § 17.65, paragraph (b) is amended to read as follows:

§ 17.65 *Statutory discharge.* * * *

(b) Actively tuberculous patients whose discharge from hospital treatment under paragraph (a) of this section is not disapproved by the Chief Medical Officer or Director, Professional Services, will be so discharged if proper investigation by the office concerned discloses the following necessities of home environment. A sanitary domicile where reasonable comforts and care can be provided, such as a well-ventilated room or porch, good food, fresh air, etc.; relatives or friends who can assume the obligations of continued nursing care, who know how to properly safeguard themselves from infection by proper disposition of the patient's sputum, and who can furnish, on forms supplied by the Veterans Administration, the information necessary for administrative supervision; feasibility of keeping infants and young children from infection by the patient; facilities to provide for not less than 18 hours a day in bed or in a "curing chair."

2. In § 17.66, paragraph (a) is amended to read as follows:

§ 17.66 *Authority for disciplinary action.* (a) The good conduct of beneficiaries receiving hospitalization for observation and examination or for treatment, or receiving domiciliary care in facilities under direct and exclusive jurisdiction of the Veterans Administration, will be maintained by corrective and disciplinary procedure formulated by the Veterans Administration. Such corrective and disciplinary measures, to be selectively applied in keeping with the comparative gravity of the particular offense, will consist, in respect to hospital patients, of such penalties as the withholding for a determined period of pass privileges, exclusion from entertainments, or disciplinary discharge; and, in respect to domiciled members, such

penalties as confinement to sections or grounds, deprivation of privileges, enforced furlough, or disciplinary discharge.

(Sec. 5. 43 Stat. 608, as amended, sec. 2. 46 Stat. 1016, sec. 7. 48 Stat. 9; 38 U. S. C. 11a, 426, 707. Interpret or apply secs. 1, 6, 48 Stat. 9, 301, 53 Stat. 652, as amended; 38 U. S. C. 706, 706a)

This regulation is effective May 22, 1956.

[SEAL] H. V. HIGLEY,
Administrator of Veterans' Affairs.

[F. R. Doc. 56-4002; Filed, May 21, 1956;
8:49 a. m.]

TITLE 21—FOOD AND DRUGS

Chapter I—Food and Drug Administration, Department of Health, Education, and Welfare

PART 146b—CERTIFICATION OF STREPTOMYCIN (OR DIHYDROSTREPTOMYCIN) AND STREPTOMYCIN- (OR DIHYDROSTREPTOMYCIN-) CONTAINING DRUGS

STREPTOMYCIN (OR DIHYDROSTREPTOMYCIN) SULFATE POWDER ORAL VETERINARY

By virtue of the authority vested in the Secretary of Health, Education, and Welfare by the Federal Food, Drug, and Cosmetic Act (sec. 507, 59 Stat. 463, 61 Stat. 11; 21 U. S. C. 357) and delegated to the Commissioner of Food and Drugs by the Secretary (20 F. R. 1996), the regulations for the certification of streptomycin and streptomycin-containing drugs (21 CFR, 1955 Edition, 146b; 21 F. R. 131, 1795, 2231) are amended by making the following changes in § 146b.115 *Streptomycin sulfate powder oral veterinary* * * *

1. In paragraph (a) *Standards of identity* * * *, the words "333 micrograms per milligram" in the second sentence are changed to read "3.75 grams per pound."

2. In paragraph (c) *Labeling*, subparagraph (1) (iv) is amended by changing the colon after the word "section" to a comma and adding the following clause: "and except that if the potency of the batch is less than 150 grams per pound the blank is filled in with the date that is 12 months after the month during which the batch was certified."

Notice and public procedure are not necessary prerequisites to the promulgation of this order, and I so find, since it was drawn in collaboration with interested members of the affected industry and since it would be against public interest to delay providing for the amendments set forth above.

Effective date. This order shall be effective on the date of its publication in the FEDERAL REGISTER.

(Sec. 701, 52 Stat. 1055, 21 U. S. C. 371. Interprets or applies sec. 507, 59 Stat. 463, as amended; 21 U. S. C. 357)

Dated: May 15, 1956.

[SEAL] GEO. P. LARRICK,
Commissioner of Food and Drugs.

[F. R. Doc. 56-3990; Filed, May 21, 1956;
8:47 a. m.]

TITLE 14—CIVIL AVIATION

Chapter I—Civil Aeronautics Board

Subchapter A—Civil Air Regulations

PART 3—AIRPLANE AIRWORTHINESS; NORMAL, UTILITY, AND ACROBATIC CATEGORIES

REVISION OF PART

Because of the number of outstanding amendments to Part 3 there follows a revision of Part 3 incorporating all amendments thereto which were in effect on May 15, 1956.

By the Civil Aeronautics Board.

[SEAL] **M. C. MULLIGAN,**
Secretary.

Subpart A—General

APPLICABILITY AND DEFINITIONS

- Sec. 3.0 Applicability of this part.
- 3.1 Definitions.

CERTIFICATION

- 3.10 Eligibility for type certificate.
- 3.11 Designation of applicable regulations.
- 3.12 Recording of applicable regulations.
- 3.13 Type certificate.
- 3.14 Data required.
- 3.15 Inspections and tests.
- 3.16 Flight tests.
- 3.17 Airworthiness, experimental, and production certificates.
- 3.18 Approval of materials, parts, processes, and appliances.
- 3.19 Changes in type design.

AIRPLANE CATEGORIES

- 3.20 Airplane categories.

Subpart B—Flight Requirements

GENERAL

- 3.61 Policy re proof of compliance.
- 3.62 Flight test pilot.
- 3.63 Noncompliance with test requirements.
- 3.64 Emergency egress.
- 3.65 Report.

WEIGHT RANGE AND CENTER OF GRAVITY

- 3.71 Weight and balance.
- 3.72 Use of ballast.
- 3.73 Empty weight.
- 3.74 Maximum weight.
- 3.75 Minimum weight.
- 3.76 Center of gravity position.

PERFORMANCE REQUIREMENTS

GENERAL

- 3.80 Alternate performance requirements.
- 3.81 Performance.
- 3.82 Definition of stalling speeds.
- 3.83 Stalling speed.

TAKE-OFF

- 3.84 Take-off.
- 3.84a Take-off requirements; airplanes of 6,000 lbs. or less.

CLIMB

- 3.85 Climb.
- 3.85a Climb requirements; airplanes of 6,000 lbs. or less.

LANDING

- 3.86 Landing.
- 3.87 Landing requirements; airplanes of 6,000 lbs. or less.

FLIGHT CHARACTERISTICS

- 3.105 Requirements.

CONTROLLABILITY

- 3.106 General.
- 3.107-U Approved acrobatic maneuvers.
- 3.108-A Acrobatic maneuvers.

- Sec. 3.109 Longitudinal control.
- 3.110 Lateral and directional control.
- 3.111 Minimum control speed (V_{mc}).

TRIM

- 3.112 Requirements.

STABILITY

- 3.113 General.
- 3.114 Static longitudinal stability.
- 3.115 Specific conditions.
- 3.116 Instrumented stick force measurements.
- 3.117 Dynamic longitudinal stability.
- 3.118 Directional and lateral stability.

STALLS

- 3.120 Stalling demonstration.
- 3.121 Climbing stalls.
- 3.122 Turning flight stalls.
- 3.123 One-engine-inoperative stalls.

SPINNING

- 3.124 Spinning.

GROUND AND WATER CHARACTERISTICS

- 3.143 Requirements.
- 3.144 Longitudinal stability and control.
- 3.145 Directional stability and control.
- 3.146 Shock absorption.
- 3.147 Spray characteristics.

FLUTTER AND VIBRATION

- 3.159 Flutter and vibration.

Subpart C—Strength Requirements

GENERAL

- 3.171 Loads.
- 3.172 Factor of safety.
- 3.173 Strength and deformations.
- 3.174 Proof of structure.

FLIGHT LOADS

- 3.181 General.
- 3.182 Definitions of flight load factor.

SYMMETRICAL FLIGHT CONDITIONS (FLAPS RETRACTED)

- 3.183 General.
- 3.184 Design air speeds.
- 3.185 Maneuvering envelope.
- 3.186 Maneuvering load factors.
- 3.187 Gust envelope.
- 3.188 Gust load factors.
- 3.189 Airplane equilibrium.

FLAPS EXTENDED FLIGHT CONDITIONS

- 3.190 Flaps extended flight conditions.

UNSYMMETRICAL FLIGHT CONDITIONS

- 3.191 Unsymmetrical flight conditions.

SUPPLEMENTARY CONDITIONS

- 3.194 Special condition for rear lift truss.
- 3.195 Engine torque effects.
- 3.196 Side load on engine mount.

CONTROL SURFACE LOADS

- 3.211 General.
- 3.212 Pilot effort.
- 3.213 Trim tab effects.

HORIZONTAL TAIL SURFACES

- 3.214 Horizontal tail surfaces.
- 3.215 Balancing loads.
- 3.216 Maneuvering loads.
- 3.217 Gust loads.
- 3.218 Unsymmetrical loads.

VERTICAL TAIL SURFACES

- 3.219 Maneuvering loads.
- 3.220 Gust loads.
- 3.221 Outboard fins.

AILERONS, WING FLAPS, TABS, ETC.

- 3.222 Ailerons.
- 3.223 Wing flaps.
- 3.224 Tabs.
- 3.225 Special devices.

CONTROL SYSTEM LOADS

- Sec. 3.231 Primary flight controls and systems.
- 3.232 Dual controls.
- 3.233 Ground gust conditions.
- 3.234 Secondary controls and systems.

GROUND LOADS

- 3.241 Ground loads.
- 3.242 Design weight.
- 3.243 Load factor for landing conditions.

LANDING CASES AND ATTITUDES

- 3.244 Landing cases and attitudes.
- 3.245 Level landing.
- 3.246 Tail down.
- 3.247 One-wheel landing.

GROUND ROLL CONDITIONS

- 3.248 Braked roll.
- 3.249 Side load.

TAIL WHEELS

- 3.250 Supplementary conditions for tail wheels.
- 3.251 Obstruction load.
- 3.252 Side load.

NOSE WHEELS

- 3.253 Supplementary conditions for nose wheels.
- 3.254 Aft load.
- 3.255 Forward load.
- 3.256 Side load.

SKIPLANES

- 3.257 Supplementary conditions for skiplanes.

WATER LOADS

- 3.265 Water load conditions.

Subpart D—Design and Construction

GENERAL

- 3.291 General.
- 3.292 Materials and workmanship.
- 3.293 Fabrication methods.
- 3.294 Standard fastenings.
- 3.295 Protection.
- 3.296 Inspection provisions.

STRUCTURAL PARTS

- 3.301 Material strength properties and design values.
- 3.302 Special factors.
- 3.303 Variability factor.
- 3.304 Castings.
- 3.305 Bearing factors.
- 3.306 Fitting factor.
- 3.307 Fatigue strength.

FLUTTER AND VIBRATION

- 3.311 Flutter and vibration prevention measures.

WINGS

- 3.317 Proof of strength.
- 3.318 Ribs.

CONTROL SURFACES (FIXED AND MOVABLE)

- 3.327 Proof of strength.
- 3.328 Installation.
- 3.329 Hinges.
- 3.330 Mass balance weights.

CONTROL SYSTEMS

- 3.335 General.
- 3.336 Primary flight controls.
- 3.337 Trimming controls.
- 3.338 Wing flap controls.
- 3.339 Flap interconnection.
- 3.340 Stops.
- 3.341 Control system locks.
- 3.342 Proof of strength.
- 3.343 Operation test.

CONTROL SYSTEM DETAILS

- 3.344 General.
- 3.345 Cable systems.
- 3.346 Joints.
- 3.347 Spring devices.

	LANDING GEAR				
	SHOCK ABSORBERS				
Sec.		Sec.		Sec.	
3.351	Tests.	3.437	Determination of unusable fuel supply and fuel system operation on low fuel.	3.610	Carburetor air preheater design.
3.352	Shock absorption tests.	3.438	Fuel system hot weather operation.	3.611	Induction system ducts.
3.353	Limit drop tests.	3.439	Flow between interconnected tanks.	3.612	Induction system screens.
3.354	Limit load factor determination.				EXHAUST SYSTEM
3.355	Reserve energy absorption drop tests.			3.615	General.
	RETRACTING MECHANISM			3.616	Exhaust manifold.
3.356	General.	3.440	General.	3.617	Exhaust heat exchangers.
3.357	Emergency operation.	3.441	Fuel tank tests.	3.618	Exhaust heat exchangers used in ventilating air heating systems.
3.358	Operation test.	3.442	Fuel tank installation.		FIRE WALL AND COWLING
3.359	Position indicator and warning device.	3.443	Fuel tank expansion space.	3.623	Fire walls.
3.360	Control.	3.444	Fuel tank sump.	3.624	Fire wall construction.
		3.445	Fuel tank filler connection.	3.625	Cowling.
	WHEELS AND TIRES	3.446	Fuel tank vents and carburetor vapor vents.		POWER-PLANT CONTROLS AND ACCESSORIES
3.361	Wheels.	3.447-A	Fuel tank vents.		CONTROLS
3.362	Tires.	3.448	Fuel tank outlet.	3.627	Power-plant controls.
	BRAKES			3.628	Throttle controls.
3.363	Brakes.	3.449	Fuel pump and pump installation.	3.629	Ignition switches.
	SKIS			3.630	Mixture controls.
3.364	Skis.	3.550	Fuel system lines, fittings, and accessories.	3.631	Propeller speed and pitch controls.
	HULLS AND FLOATS	3.551	Fuel valves.	3.632	Propeller feathering controls.
3.371	Seaplane main floats.	3.552	Fuel strainer.	3.633	Fuel system controls.
3.372	Buoyancy (boat seaplanes).			3.634	Carburetor air preheat controls.
3.373	Water stability.				ACCESSORIES
	FUSELAGE	3.553	Fuel system drains.	3.635	Power-plant accessories.
	PILOT COMPARTMENT	3.554	Fuel system instruments.	3.636	Engine battery ignition systems.
3.381	General.				POWER-PLANT FIRE PROTECTION
3.382	Vision.	3.561	Oil system.	3.637	Power-plant fire protection.
3.383	Pilot windshield and windows.	3.562	Oil cooling.		Subpart F—Equipment
3.384	Cockpit controls.			3.651	General.
3.385	Instruments and markings.			3.652	Functional and installational requirements.
	EMERGENCY PROVISIONS	3.563	Oil tanks.		BASIC EQUIPMENT
3.386	Protection.	3.564	Oil tank tests.	3.655	Required basic equipment.
3.387	Exits.	3.565	Oil tank installation.		INSTRUMENTS; INSTALLATION
3.388	Fire precautions.	3.566	Oil tank expansion space.		GENERAL
	PERSONNEL AND CARGO ACCOMMODATIONS	3.567	Oil tank filler connection.	3.661	Arrangement and visibility of instrument installations.
3.389	Doors.	3.568	Oil tank vent.	3.662	Instrument panel vibration characteristics.
3.390	Seats and berths.	3.569	Oil tank outlet.		FLIGHT AND NAVIGATIONAL INSTRUMENTS
3.392	Cargo compartments.			3.663	Air-speed indicating system.
3.393	Ventilation.			3.664	Air-speed indicator marking.
	MISCELLANEOUS			3.665	Static air vent system.
3.401	Leveling marks.			3.666	Magnetic direction indicator.
	Subpart E—Power-Plant Installations; Reciprocating Engines			3.667	Automatic pilot system.
	GENERAL			3.668	Gyroscopic indicators.
3.411	Components.			3.669	Flight director instrument.
	ENGINES AND PROPELLERS				POWER-PLANT INSTRUMENTS
3.415	Engines.			3.670	Operational markings.
3.416	Propellers.			3.671	Instrument lines.
3.417	Propeller vibration.			3.672	Fuel quantity indicator.
3.418	Propeller pitch and speed limitations.			3.673	Fuel flowmeter system.
3.419	Speed limitations for fixed pitch propellers, ground adjustable pitch propellers, and automatically varying pitch propellers which cannot be controlled in flight.			3.674	Oil quantity indicator.
3.420	Speed and pitch limitations for controllable pitch propellers without constant speed controls.			3.675	Cylinder head temperature indicating system for air-cooled engines.
3.421	Variable pitch propellers with constant speed controls.			3.676	Carburetor air temperature indicating system.
3.422	Propeller clearance.				ELECTRICAL SYSTEMS AND EQUIPMENT
	FUEL SYSTEM			3.681	Installation.
3.429	General.				BATTERIES
	ARRANGEMENT			3.682	Batteries.
3.430	Fuel system arrangement.			3.683	Protection against acid.
3.431	Multiengine fuel system arrangement.			3.684	Battery vents.
3.432	Pressure cross feed arrangements.				GENERATORS
	OPERATION			3.685	Generator.
3.433	Fuel flow rate.			3.686	Generator controls.
3.434	Fuel flow rate for gravity systems.			3.687	Reverse current cut-out.
3.435	Fuel flow rate for pump systems.				MASTER SWITCH
3.436	Fuel flow rate for auxiliary fuel systems and fuel transfer systems.			3.688	Arrangement.
				3.689	Master switch installation.
					PROTECTIVE DEVICES
				3.690	Fuses or circuit breakers.
				3.691	Protective devices installation.
				3.692	Spare fuses.

ELECTRIC CABLES	
3.693	Electric cables.
SWITCHES	
3.694	Switches.
3.695	Switch installation.
INSTRUMENT LIGHTS	
3.696	Instrument lights.
3.697	Instrument light installation.
LANDING LIGHTS	
3.698	Landing lights.
3.699	Landing light installation.
POSITION LIGHTS	
3.700	Position light system installation.
3.701	Position light system dihedral angles.
3.702	Position light distribution and intensities.
3.703	Color specifications.
RIDING LIGHT	
3.704	Riding light.
SAFETY EQUIPMENT; INSTALLATION	
3.711	Marking.
3.712	De-icers.
3.713	Flare requirements.
3.714	Flare installation.
3.715	Safety belts.
EMERGENCY FLOTATION AND SIGNALING EQUIPMENT	
3.716	Rafts and life preservers.
3.717	Installation.
3.718	Signaling device.
RADIO EQUIPMENT; INSTALLATION	
3.721	General.
MISCELLANEOUS EQUIPMENT; INSTALLATION	
3.725	Accessories for multiengine airplanes.
HYDRAULIC SYSTEMS	
3.726	General.
3.727	Tests.
3.728	Accumulators.
Subpart G—Operating Limitations and Information	
3.735	General.
LIMITATIONS	
3.737	Limitations.
AIR SPEED	
3.738	Air speed.
3.739	Never-exceed speed (V_{ne}).
3.740	Maximum structural cruising speed (V_{so}).
3.741	Maneuvering speed (V_p).
3.742	Flaps-extended speed (V_{fe}).
3.743	Minimum control speed (V_{mc}).
POWER PLANT	
3.744	Power plant.
3.745	Take-off operation.
3.746	Maximum continuous operation.
3.747	Fuel octane rating.
AIRPLANE WEIGHT	
3.748	Airplane weight.
MINIMUM FLIGHT CREW	
3.749	Minimum flight crew.
TYPES OF OPERATION	
3.750	Types of operations.
MARKINGS AND PLACARDS	
3.755	Markings and placards.
INSTRUMENT MARKINGS	
3.756	Instrument markings.
3.757	Air-speed indicator.
3.758	Magnetic direction indicator.
3.759	Power-plant instruments.
3.760	Oil quantity indicators.
3.761	Fuel quantity indicator.

CONTROL MARKINGS	
3.762	General.
3.763	Aerodynamic controls.
3.764	Power-plant fuel controls.
3.765	Accessory and auxiliary controls.
MISCELLANEOUS	
3.766	Baggage compartments, ballast location, and special seat loading limitations.
3.767	Fuel, oil, and coolant filler openings.
3.768	Emergency exit placards.
3.769	Approved flight maneuvers.
3.770	Operating limitations placard.
3.771	Airspeed placards.
AIRPLANE FLIGHT MANUAL	
3.777	Airplane Flight Manual.
3.778	Operating limitations.
3.779	Operating procedures.
3.780	Performance information.

Subpart H—Identification Data	
3.791	Identification plate.
3.792	Airworthiness certificate number.

AUTHORITY: §§ 3.0 to 3.792 issued under sec. 205, 52 Stat. 984; 49 U. S. C. 425. Interpret or apply sec. 601, 52 Stat. 1007; 49 U. S. C. 551.

SUBPART A—GENERAL APPLICABILITY AND DEFINITIONS

§ 3.0 *Applicability of this part.* This part establishes standards with which compliance shall be demonstrated for the issuance of and changes to type certificates for normal, utility, and acrobatic category airplanes. This part, until superseded or rescinded, shall apply to all airplanes for which applications for type certification under this part were made between the effective date of this part (November 13, 1945) and March 31, 1953. For applications for a type certificate made after March 31, 1953, this part shall apply only to airplanes which have a maximum weight of 12,500 pounds or less.

§ 3.1 *Definitions.* As used in this part terms are defined as follows:

(a) *Administration*—(1) *Administrator.* The Administrator is the Administrator of Civil Aeronautics.

(2) *Applicant.* An applicant is a person or persons applying for approval of an airplane or any part thereof.

(3) *Approved.* Approved, when used alone or as modifying terms such as means, devices, specifications, etc., shall mean approved by the Administrator. (See § 3.18.)

(b) *General design*—(1) *Standard atmosphere.* The standard atmosphere is an atmosphere defined as follows:

(i) The air is a dry, perfect gas,
(ii) The temperature at sea level is 59° F.,

(iii) The pressure at sea level is 29.92 inches Hg,

(iv) The temperature gradient from sea level to the altitude at which the temperature equals -67° F. is -0.003566° F./ft. and zero thereafter,

(v) The density ρ_0 at sea level under the above conditions is 0.002378 lb. sec.²/ft.⁴

(2) *Maximum anticipated air temperature.* The maximum anticipated air temperature is a temperature specified for the purpose of compliance with the powerplant cooling standards. (See § 3.583.)

(3) *Airplane configuration.* Airplane configuration is a term referring to the position of the various elements affecting the aerodynamic characteristics of the airplane (e. g. wing flaps, landing gear).

(4) *Aerodynamic coefficients.* Aerodynamic coefficients are nondimensional coefficients for forces and moments. They correspond with those adopted by the U. S. National Advisory Committee for Aeronautics.

(5) *Critical engine(s).* The critical engine(s) is that engine(s) the failure of which gives the most adverse effect on the airplane flight characteristics relative to the case under consideration.

(c) *Weights*—(1) *Maximum weight.* The maximum weight of the airplane is that maximum at which compliance with the requirements of this part of the Civil Air Regulations is demonstrated. (See § 3.74.)

(2) *Minimum weight.* The minimum weight of the airplane is that minimum at which compliance with the requirements of this part of the Civil Air Regulations is demonstrated. (See § 3.75.)

(3) *Empty weight.* The empty weight of the airplane is a readily reproducible weight which is used in the determination of the operating weights. (See § 3.73.)

(4) *Design maximum weight.* The design maximum weight is the maximum weight of the airplane at which compliance is shown with the structural loading conditions. (See § 3.181.)

(5) *Design minimum weight.* The design minimum weight is the minimum weight of the airplane at which compliance is shown with the structural loading conditions. (See § 3.181.)

(6) *Design landing weight.* The design landing weight is the maximum airplane weight used in structural design for landing conditions at the maximum velocity of descent. (See § 3.242.)

(7) *Design unit weight.* The design unit weight is a representative weight used to show compliance with the structural design requirements:

(i) Gasoline 6 pounds per U. S. gallon.
(ii) Lubricating oil 7.5 pounds per U. S. gallon.

(iii) Crew and passengers 170 pounds per person.

(d) *Speeds*—(1) *IAS.* Indicated air speed is equal to the pitot static air-speed indicator reading as installed in the airplane without correction for air-speed indicator system errors but including the sea level standard adiabatic compressible flow correction. (This latter correction is included in the calibration of the air-speed instrument dials.)

(2) *CAS.* Calibrated air speed is equal to the air-speed indicator reading corrected for position and instrument error. (As a result of the sea level adiabatic compressible flow correction to the air-speed instrument dial, CAS is equal to the true air speed TAS in standard atmosphere at sea level.)

(3) *EAS.* Equivalent air speed is equal to the air-speed indicator reading corrected for position error, instrument error, and for adiabatic compressible flow for the particular altitude. (EAS is equal to CAS at sea level in standard atmosphere.)

(4) *TAS*. True air speed of the airplane relative to undisturbed air. ($TAS = EAS(\rho_0/\rho)^{1/2}$).

(5) *V_c*. The design cruising speed. (See § 3.184.)

(6) *V_d*. The design diving speed. (See § 3.184.)

(7) *V_f*. The design flap speed for flight loading conditions with wing flaps in the landing position. (See § 3.190.)

(8) *V_{fe}*. The flap extended speed is a maximum speed with wing flaps in a prescribed extended position. (See § 3.742.)

(9) *V_h*. The maximum speed obtainable in level flight with rated rpm and power.

(10) *V_{mc}*. The minimum control speed with the critical engine inoperative. (See § 3.111.)

(11) *V_{ne}*. The never-exceed speed. (See § 3.739.)

(12) *V_{no}*. The maximum structural cruising speed. (See § 3.740.)

(13) *V_p*. The design maneuvering speed. (See § 3.184.)

(14) *V_{st}*. The stalling speed computed at the design landing weight with the flaps fully extended. (See § 3.190.)

(15) *V_{so}*. The stalling speed or the minimum steady flight speed with wing flaps in the landing position. (See § 3.82.)

(16) *V_{s1}*. The stalling speed or the minimum steady flight speed obtained in a specified configuration. (See § 3.82.)

(17) *V_z*. The speed for best angle of climb.

(18) *V_y*. The speed for best rate of climb.

(e) *Structural*—(1) *Limit load*. A limit load is the maximum load anticipated in normal conditions of operation. (See § 3.171.)

(2) *Ultimate load*. An ultimate load is a limit load multiplied by the appropriate factor of safety. (See § 3.173.)

(3) *Factor of safety*. The factor of safety is a design factor used to provide for the possibility of loads greater than those anticipated in normal conditions of operation and for uncertainties in design. (See § 3.172.)

(4) *Load factor*. The load factor is the ratio of a specified load to the total weight of the airplane; the specified load may be expressed in terms of any of the following: aerodynamic forces, inertia forces, or ground or water reactions.

(5) *Limit load factor*. The limit load factor is the load factor corresponding with limit loads.

(6) *Ultimate load factor*. The ultimate load factor is the load factor corresponding with ultimate loads.

(7) *Design wing area*. The design wing area is the area enclosed by the wing outline (including wing flaps in the retracted position and ailerons, but excluding fillets or fairings) on a surface containing the wing chords. The outline is assumed to be extended through the nacelles and fuselage to the plane of symmetry in any reasonable manner.

(8) *Balancing tail load*. A balancing tail load is that load necessary to place the airplane in equilibrium with zero pitch acceleration.

(9) *Fitting*. A fitting is a part or terminal used to join one structural member to another. (See § 3.306.)

(f) *Power installation*¹—(1) *Brake horsepower*. Brake horsepower is the power delivered at the propeller shaft of the engine.

(2) *Take-off power*. Take-off power is the brake horsepower developed under standard sea level conditions, under the maximum conditions of crankshaft rotational speed and engine manifold pressure approved for use in the normal take-off, and limited in use to a maximum continuous period as indicated in the approved engine specifications.

(3) *Maximum continuous power*. Maximum continuous power is the brake horsepower developed in standard atmosphere at a specified altitude under the maximum conditions of crankshaft rotational speed and engine manifold pressure approved for use during periods of unrestricted duration.

(4) *Manifold pressure*. Manifold pressure is the absolute pressure measured at the appropriate point in the induction system, usually in inches of mercury.

(5) *Critical altitude*. The critical altitude is the maximum altitude at which in standard atmosphere it is possible to maintain, at a specified rotational speed, a specified power or a specified manifold pressure. Unless otherwise stated, the critical altitude is the maximum altitude at which it is possible to maintain, at the maximum continuous rotational speed, one of the following:

(i) The maximum continuous power, in the case of engines for which this power rating is the same at sea level and at the rated altitude.

(ii) The maximum continuous rated manifold pressure, in the case of engines the maximum continuous power of which is governed by a constant manifold pressure.

(6) *Pitch setting*. Pitch setting is the propeller blade setting determined by the blade angle measured in a manner, and at a radius, specified in the instruction manual for the propeller.

(7) *Feathered pitch*. Feathered pitch is the pitch setting, which in flight, with the engines stopped, gives approximately the minimum drag and corresponds with a windmilling torque of approximately zero.

(8) *Reverse pitch*. Reverse pitch is the propeller pitch setting for any blade angle used beyond zero pitch (e. g., the negative angle used for reverse thrust).

(g) *Fire protection*—(1) *Fireproof*. Fireproof material means material which will withstand heat at least as well as steel in dimensions appropriate for the purpose for which it is to be used. When applied to material and parts used to confine fires in designated fire zones, fireproof means that the material or part will perform this function under the most severe conditions of fire and duration likely to occur in such zones.

¹For engine airworthiness requirements see Part 13 of this subchapter. For propeller airworthiness requirements see Part 14 of this subchapter.

(2) *Fire-resistant*. When applied to sheet or structural members, fire-resistant material means a material which will withstand heat at least as well as aluminum alloy in dimensions appropriate for the purpose for which it is to be used. When applied to fluid-carrying lines, other flammable fluid system components, wiring, air ducts, fittings, and powerplant controls, this term refers to a line and fitting assembly, component, wiring, or duct, or controls which will perform the intended functions under the heat and other conditions likely to occur at the particular location.

(3) *Flame-resistant*. Flame-resistant material means material which will not support combustion to the point of propagating, beyond safe limits, a flame after the removal of the ignition source.

(4) *Flash-resistant*. Flash-resistant material means material which will not burn violently when ignited.

(5) *Flammable*. Flammable pertains to those fluids or gases which will ignite readily or explode.

CERTIFICATION

§ 3.10 *Eligibility for type certificate*. An airplane shall be eligible for type certification under the provisions of this part if it complies with the airworthiness provisions hereinafter established or if the Administrator finds that the provision or provisions not complied with are compensated for by factors which provide an equivalent level of safety: *Provided*, That the Administrator finds no feature or characteristic of the airplane which renders it unsafe for the category in which it is certificated.

§ 3.11 *Designation of applicable regulations*. The provisions of this section shall apply to all airplane types certificated under this part irrespective of the date of application for type certificate.

(a) Unless otherwise established by the Board, the airplane shall comply with the provisions of this part together with all amendments thereto effective on the date of application for type certificate, except that compliance with later effective amendments may be elected or required pursuant to paragraphs (c), (d), and (e) of this section.

(b) If the interval between the date of application for type certificate and the issuance of the corresponding type certificate exceeds three years, a new application for type certificate shall be required, except that for applications pending on May 1, 1954, such three-year period shall commence on that date. At the option of the applicant, a new application may be filed prior to the expiration of the three-year period. In either instance the applicable regulations shall be those effective on the date of the new application in accordance with paragraph (a) of this section.

(c) During the interval between filing the application and the issuance of a type certificate, the applicant may elect to show compliance with any amendment of this part which becomes effective during that interval, in which case all other amendments found by the Administrator to be directly related shall be complied with.

(d) Except as otherwise provided by the Board, or by the Administrator pursuant to § 1.24 of this subchapter, a change to a type certificate (see § 3.13 (b)) may be accomplished, at the option of the holder of the type certificate, either in accordance with the regulations incorporated by reference in the type certificate pursuant to § 3.13 (c), or in accordance with subsequent amendments to such regulations in effect on the date of application for approval of the change, subject to the following provisions:

(1) When the applicant elects to show compliance with an amendment to the regulations in effect on the date of application for approval of a change, he shall show compliance with all amendments which the Administrator finds are directly related to the particular amendment selected by the applicant.

(2) When the change consists of a new design or a substantially complete redesign of a component, equipment installation, or system installation of the airplane, and the Administrator finds that the regulations incorporated by reference in the type certificate pursuant to § 3.13 (c) do not provide complete standards with respect to such change, he shall require compliance with such provisions of the regulations in effect on the date of application for approval of the change as he finds will provide a level of safety equal to that established by the regulations incorporated by reference at the time of issuance of the type certificate.

Note: Examples of new or redesigned components and installations which might require compliance with regulations in effect on the date of application for approval, are: New powerplant installation which is likely to introduce additional fire or operational hazards unless additional protective measures are incorporated; the installation of an auto-pilot or a new electric power system.

(e) If changes listed in subparagraphs (1) through (3) of this paragraph are made, the airplane shall be considered as a new type, in which case a new application for type certificate shall be required and the regulations together with all amendments thereto effective on the date of the new application shall be made applicable in accordance with paragraphs (a), (b), (c), and (d) of this section.

(1) A change in the number of engines;

(2) A change to engines employing different principles of operation or propulsion;

(3) A change in design, configuration, power, or weight which the Administrator finds is so extensive as to require a substantially complete investigation of compliance with the regulations.

§ 3.12 *Recording of applicable regulations.* The Administrator, upon the issuance of a type certificate, shall record the applicable regulations with which compliance was demonstrated. Thereafter, the Administrator shall record the applicable regulations for each change in the type certificate which is accomplished in accordance with regulations other than those recorded at the time

of issuance of the type certificate. (See § 3.11.)

§ 3.13 *Type certificate.* (a) An applicant shall be issued a type certificate when he demonstrates the eligibility of the airplane by complying with the requirements of this part in addition to the applicable requirements in Part 1 of this subchapter.

(b) The type certificate shall be deemed to include the type design (see § 3.14 (b)), the operating limitations for the airplane (see § 3.737), and any other conditions or limitations prescribed by the regulations in this subchapter.

(c) The applicable provisions of this part recorded by the Administrator in accordance with § 3.12 shall be considered as incorporated in the type certificate as though set forth in full.

§ 3.14 *Data required.* (a) The applicant for a type certificate shall submit to the Administrator such descriptive data, test reports, and computations as are necessary to demonstrate that the airplane complies with the requirements of this part.

(b) The descriptive data required in paragraph (a) of this section shall be known as the type design and shall consist of such drawings and specifications as are necessary to disclose the configuration of the airplane and all the design features covered in the requirements of this part, such information on dimensions, materials, and processes as is necessary to define the structural strength of the airplane, and such other data as are necessary to permit by comparison the determination of the airworthiness of subsequent airplanes of the same type.

§ 3.15 *Inspections and tests.* Inspections and tests shall include all those found necessary by the Administrator to insure that the airplane complies with the applicable airworthiness requirements and conforms to the following:

(a) All materials and products are in accordance with the specifications in the type design.

(b) All parts of the airplane are constructed in accordance with the drawings in the type design.

(c) All manufacturing processes, construction, and assembling are as specified in the type design.

§ 3.16 *Flight tests.* After proof of compliance with the structural requirements contained in this part, and upon completion of all necessary inspections and testing on the ground, and proof of the conformity of the airplane with the type design, and upon receipt from the applicant of a report of flight tests performed by him, the following shall be conducted:

(a) Such official flight tests as the Administrator finds necessary to determine compliance with the requirements of this part.

(b) After the conclusion of flight tests specified in paragraph (a) of this section, such additional flight tests, on airplanes having a maximum certificated take-off weight of more than 6,000 pounds, as the Administrator finds necessary to ascertain whether there is reasonable assurance that the airplane,

its components, and equipment are reliable and function properly. The extent of such additional flight tests shall depend upon the complexity of the airplane, the number and nature of new design features, and the record of previous tests and experience for the particular airplane type, its components, and equipment. If practicable, these flight tests shall be conducted on the same airplane used in the flight tests specified in paragraph (a) of this section.

§ 3.17 *Airworthiness, experimental, and production certificates.* (For requirements with regard to these certificates see Part 1 of this subchapter.)

§ 3.18 *Approval of materials, parts, processes, and appliances.* (a) Materials, parts, processes, and appliances shall be approved upon a basis and in a manner found necessary by the Administrator to implement the pertinent provisions of the regulations in this subchapter. The Administrator may adopt and publish such specifications as he finds necessary to administer this regulation, and shall incorporate therein such portions of the aviation industry, Federal, and military specifications respecting such materials, parts, processes, and appliances as he finds appropriate.

Note: The provisions of this paragraph are intended to allow approval of materials, parts, processes, and appliances under the system of Technical Standard Orders, or in conjunction with type certification procedures for an airplane, or by any other form of approval by the Administrator.

(b) Any material, part, process, or appliance shall be deemed to have met the requirements for approval when it meets the pertinent specifications adopted by the Administrator, and the manufacturer so certifies in a manner prescribed by the Administrator.

§ 3.19 *Changes in type design.* (For requirements with regard to changes in type design and the designation of applicable regulations therefor, see § 3.11 (d) and (e), and Part 1 of this subchapter.)

AIRPLANE CATEGORIES

§ 3.20 *Airplane categories.* (a) For the purpose of certification under this part, airplanes are divided upon the basis of their intended operation into the following categories:

(1) *Normal-suffix N.* Airplanes in this category are intended for nonacrobatic, nonscheduled passenger, and nonscheduled cargo operation.

(2) *Utility-suffix U.* Airplanes in this category are intended for normal operations and limited acrobatic maneuvers. These airplanes are not suited for use in snap or inverted maneuvers.

Note: The following interpretation of paragraph (a) (2) was issued May 15, 1947, 12 F. R. 3434: The phrase "limited acrobatic maneuvers" as used in § 3.6 (now § 3.20) is interpreted to include steep turns, spins, stalls (except whip stalls), lazy eights, and chandelles.

(3) *Acrobatic-suffix A.* Airplanes in this category will have no specific restrictions as to type of maneuver per-

mitted unless the necessity thereof is disclosed by the required flight tests.

(b) An airplane may be certificated under the requirements of a particular category, or in more than one category, provided that all of the requirements of each such category are met. Sections of this part which apply to only one or more, but not all, categories are identified in this part by the appropriate suffixes added to the section number, as indicated in paragraph (a) of this section. All sections not identified by a suffix are applicable to all categories except as otherwise specified.

SUBPART B—FLIGHT REQUIREMENTS

GENERAL

§ 3.61 *Policy re proof of compliance.* Compliance with the requirements specified in this subpart governing functional characteristics shall be demonstrated by suitable flight or other tests conducted upon an airplane of the type, or by calculations based upon the test data referred to above, provided that the results so obtained are substantially equal in accuracy to the results of direct testing. Compliance with each requirement must be provided at the critical combination of airplane weight and center of gravity position within the range of either for which certification is desired. Such compliance must be demonstrated by systematic investigation of all probable weight and center of gravity combinations or must be reasonably inferable from such as are investigated.

§ 3.62 *Flight test pilot.* The applicant shall provide a person holding an appropriate pilot certificate to make the flight tests, but a designated representative of the Administrator may pilot the airplane insofar as that may be necessary for the determination of compliance with the airworthiness requirements.

§ 3.63 *Noncompliance with test requirements.* Official type tests will be discontinued until corrective measures have been taken by the applicant when either:

(a) The applicant's test pilot is unable or unwilling to conduct any of the required flight tests; or

(b) Items of noncompliance with requirements are found which may render additional test data meaningless or are of such nature as to make further testing unduly hazardous.

§ 3.64 *Emergency egress.* Adequate provisions shall be made for emergency egress and use of parachutes by members of the crew during the flight tests.

§ 3.65 *Report.* The applicant shall submit to the representative of the Administrator a report covering all computations and tests required in connection with calibration of instruments used for test purposes and correction of test results to standard atmospheric conditions. The representative of the Administrator will conduct any flight tests which he finds to be necessary in order to check the calibration and correction report.

WEIGHT RANGE AND CENTER OF GRAVITY

§ 3.71 *Weight and balance.* (a) There shall be established, as a part of the type

inspection, ranges of weight and center of gravity within which the airplane may be safely operated.

(b) When low fuel adversely affects balance or stability, the airplane shall be so tested as to simulate the condition existing when the amount of usable fuel on board does not exceed 1 gallon for every 12 maximum continuous horsepower of the engine or engines installed.

§ 3.72 *Use of ballast.* Removable ballast may be used to enable airplanes to comply with the flight requirements in accordance with the following provisions:

(a) The place or places for carrying ballast shall be properly designed, installed, and plainly marked as specified in § 3.766.

(b) The Airplane Flight Manual shall include instructions regarding the proper disposition of the removable ballast under all loading conditions for which such ballast is necessary, as specified in §§ 3.766 and 3.777.

§ 3.73 *Empty weight.* The empty weight and corresponding center of gravity location shall include all fixed ballast, the unusable fuel supply (see § 3.437), undrainable oil, full engine coolant, and hydraulic fluid. The weight and location of items of equipment installed when the airplane is weighed shall be noted in the Airplane Flight Manual.

§ 3.74 *Maximum weight.* (a) The maximum weight shall not exceed any of the following:

(1) The weight selected by the applicant.

(2) The design weight for which the structure has been proven, except as provided in § 3.242 for multiengine airplanes.

(3) The maximum weight at which compliance with all of the applicable flight requirements has been demonstrated.

(b) The maximum weight shall not be less than the weights under the loading conditions prescribed in subparagraphs (1) and (2) of this paragraph assuming that the weight of the occupant in each of the seats is 170 pounds for the normal category and 190 pounds for the utility and acrobatic categories, unless placarded otherwise.

(1) All seats occupied, oil to full tank capacity, and at least a fuel supply for one-half hour operation at rated maximum continuous power.

(2) Fuel and oil to full tank capacities, and minimum crew.

§ 3.75 *Minimum weight.* The minimum weight shall not exceed the sum of the weights of the following:

(a) The empty weight as defined by § 3.73.

(b) The minimum crew necessary to operate the airplane (170 pounds for each crew member).

(c) One gallon of usable fuel (see § 3.437) for every 12 maximum continuous horsepower for which the airplane is certificated.

(d) Either 1 gallon of oil for each 25 gallons of fuel specified in (c) or 1 gallon of oil for each 75 maximum con-

tinuous horsepower for which the airplane is certificated, whichever is greater.

§ 3.76 *Center of gravity position.* If the center of gravity position under any possible loading condition between the maximum weight as specified in § 3.74 and the minimum weight as specified in § 3.75 lies beyond (a) the extremes selected by the applicant, or (b) the extremes for which the structure has been proven, or (c) the extremes for which compliance with all functional requirements were demonstrated, loading instructions shall be provided in the Airplane Flight Manual as specified in § 3.777-3.780.

PERFORMANCE REQUIREMENTS

GENERAL

§ 3.80 *Alternate performance requirements.* The provisions of §§ 3.84, 3.85, 3.86, and 3.112 (a) (2) (ii) shall not be applicable to airplanes having a maximum certificated take-off weight of 6,000 pounds or less. In lieu thereof, such airplanes shall comply with the provisions of §§ 3.84a, 3.85a, 3.87, and 3.112 (c).

§ 3.81 *Performance.* The following items of performance shall be determined and the airplane shall comply with the corresponding requirements in standard atmosphere and still air.

§ 3.82 *Definition of stalling speeds.* (a) V_s denotes the true indicated stalling speed, if obtainable, or the minimum steady flight speed at which the airplane is controllable, in miles per hour, with:

(1) Engines idling, throttles closed (or not more than sufficient power for zero thrust).

(2) Propellers in position normally used for take-off.

(3) Landing gear extended,

(4) Wing flaps in the landing position,

(5) Cowl flaps closed,

(6) Center of gravity in the most unfavorable position within the allowable landing range.

(7) The weight of the airplane equal to the weight in connection with which V_s is being used as a factor to determine a required performance.

(b) V_{s1} denotes the true indicated stalling speed, if obtainable, otherwise the calculated value in miles per hour, with:

(1) Engines idling, throttles closed (or not more than sufficient power for zero thrust).

(2) Propellers in position normally used for take-off, the airplane in all other respects (flaps, landing gear, etc.) in the particular condition existing in the particular test in connection with which V_{s1} is being used.

(3) The weight of the airplane equal to the weight in connection with which V_{s1} is being used as a factor to determine a required performance.

(c) These speeds shall be determined by flight tests using the procedure outlined in § 3.120.

§ 3.83 *Stalling speed.* V_s at maximum weight shall not exceed 70 miles per hour for (1) single-engine airplanes and (2) multiengine airplanes which do not have the rate of climb with critical engine inoperative specified in § 3.85 (b).

TAKE-OFF

§ 3.84 *Take-off.* (a) The distance required to take off and climb over a 50-foot obstacle shall be determined under the following conditions:

- (1) Most unfavorable combination of weight and center of gravity location.
- (2) Engines operating within the approved limitations.
- (3) Cowl flaps in the position normally used for take-off.

(b) Upon obtaining a height of 50 feet above the level take-off surface, the airplane shall have attained a speed of not less than $1.3 V_{st}$, unless a lower speed of not less than V_2 plus 5 can be shown to be safe under all conditions, including turbulence and complete engine failure.

(c) The distance so obtained, the type of surface from which made, and the pertinent information with respect to the cowl flap position, the use of flight-path control devices and landing gear retraction system shall be entered in the Airplane Flight Manual. The take-off shall be made in such a manner that its reproduction shall not require an exceptional degree of skill on the part of the pilot or exceptionally favorable conditions.

§ 3.84a *Take-off requirements; airplanes of 6,000 lbs. or less.* Airplanes having a maximum certificated take-off weight of 6,000 lbs. or less shall comply with the provisions of this section.

(a) The elevator control for tail wheel type airplanes shall be sufficient to maintain at a speed equal to $0.8 V_{st}$, an airplane attitude which will permit holding the airplane on the runway until a safe take-off speed is attained.

(b) The elevator control for nose wheel type airplanes shall be sufficient to raise the nose wheel clear of the take-off surface at a speed equal to $0.85 V_{st}$.

(c) The characteristics prescribed in Paragraphs (a) and (b) of this section shall be demonstrated with:

- (1) Take-off power.
- (2) Most unfavorable weight.
- (3) Most unfavorable c. g. position.

(d) It shall be demonstrated that the airplane will take off safely without requiring an exceptional degree of piloting skill.

CLIMB

§ 3.85 *Climb—(a) Normal climb condition.* The steady rate of climb at sea level shall be at least 300 feet per minute, and the steady angle of climb at least 1:12 for landplanes or 1:15 for seaplanes with:

- (1) Not more than maximum continuous power on all engines.
- (2) Landing gear fully retracted.
- (3) Wing flaps in take-off position.
- (4) Cowl flaps in the position used in cooling tests specified in §§ 3.581-3.596.

(b) *Climb with inoperative engine.* All multiengine airplanes having a stalling speed V_{so} greater than 70 miles per hour or a maximum weight greater than 6,000 pounds shall have a steady rate of climb of at least $0.02 V_{so}$ in feet per minute at an altitude of 5,000 feet with the critical engine inoperative and:

- (1) The remaining engines operating at not more than maximum continuous power.

(2) The inoperative propeller in the minimum drag position,

- (3) Landing gear retracted,
- (4) Wing flaps in the most favorable position,

(5) Cowl flaps in the position used in cooling tests specified in §§ 3.581-3.596.

(c) *Balked landing conditions.* The steady angle of climb at sea level shall be at least 1:30 with:

- (1) Take-off power on all engines,
- (2) Landing gear extended,
- (3) Wing flaps in landing position.

If rapid retraction is possible with safety without loss of altitude and without requiring sudden changes of angle of attack or exceptional skill on the part of the pilot, wing flaps may be retracted.

§ 3.85a *Climb requirements; airplanes of 6,000 lbs. or less.* Airplanes having a maximum certificated take-off weight of 6,000 lbs. or less shall comply with the requirements of this section.

(a) *Climb; take-off climb condition.* The steady rate of climb at sea level shall not be less than $10 V_{st}$, or 300 feet per minute, whichever is the greater, with:

- (1) Take-off power,
- (2) Landing gear extended,
- (3) Wing flaps in take-off position,
- (4) Cowl flaps in the position used in cooling tests specified in §§ 3.581 through 3.596.

(b) *Climb with inoperative engine.* All multiengine airplanes having a stalling speed V_{so} greater than 70 miles per hour shall have a steady rate of climb of at least $0.02 V_{so}$ in feet per minute at an altitude of 5,000 feet with the critical engine inoperative and:

- (1) The remaining engines operating at not more than maximum continuous power,

(2) The inoperative propeller in the minimum drag position,

- (3) Landing gear retracted,
- (4) Wing flaps in the most favorable position,

(5) Cowl flaps in the position used in cooling tests specified in §§ 3.581 through 3.596.

(c) *Climb; balked landing conditions.* The steady rate of climb at sea level shall not be less than $5 V_{so}$ or 200 feet per minute, whichever is the greater, with:

- (1) Take-off power,
- (2) Landing gear extended,
- (3) Wing flaps in the landing position.

If rapid retraction is possible with safety, without loss of altitude and without requiring sudden changes of angle of attack or exceptional skill on the part of the pilot, wing flaps may be retracted.

LANDING

§ 3.86 *Landing.* (a) The horizontal distance required to land and to come to a complete stop (to a speed of approximately 3 miles per hour for seaplanes or float planes) from a point at a height of 50 feet above the landing surface shall be determined as follows:

- (1) Immediately prior to reaching the 50-foot altitude, a steady gliding approach shall have been maintained, with a true indicated air speed of at least $1.3 V_{so}$.

(2) The landing shall be made in such a manner that there is no excessive vertical acceleration, no tendency to bounce, nose over, ground loop, porpoise, or water loop, and in such a manner that its reproduction shall not require any exceptional degree of skill on the part of the pilot or exceptionally favorable conditions.

(b) The distance so obtained, the type of landing surface on which made and the pertinent information with respect to cowl flap position, and the use of flight path control devices shall be entered in the Airplane Flight Manual.

§ 3.87 *Landing requirements; airplanes of 6,000 lbs. or less.* For an airplane having a maximum certificated take-off weight of 6,000 lbs. or less it shall be demonstrated that the airplane can be safely landed and brought to a stop without requiring an exceptional degree of piloting skill, and without excessive vertical acceleration, tendency to bounce, nose over, ground loop, porpoise, or water loop.

FLIGHT CHARACTERISTICS

§ 3.105 *Requirements.* The airplane shall meet the requirements set forth in §§ 3.106 to 3.124 at all normally expected operating altitudes under all critical loading conditions within the range of center of gravity and, except as otherwise specified, at the maximum weight for which certification is sought.

CONTROLLABILITY

§ 3.106 *General.* The airplane shall be satisfactorily controllable and maneuverable during take-off, climb, level flight, dive, and landing with or without power. It shall be possible to make a smooth transition from one flight condition to another, including turns and slips, without requiring an exceptional degree of skill, alertness, or strength on the part of the pilot, and without danger of exceeding the limit load factor under all conditions of operation probable for the type, including for multiengine airplanes those conditions normally encountered in the event of sudden failure of any engine. Compliance with "strength of pilots" limits need not be demonstrated by quantitative tests unless the Administrator finds the condition to be marginal. In the latter case they shall not exceed maximum values found by the Administrator to be appropriate for the type but in no case shall they exceed the following limits:

	Pitch	Roll	Yaw
(a) For temporary application:			
Stick.....	60	30	150
Wheel.....	75	60	150
(b) For prolonged application:			
Stick.....	10	5	20

¹ Applied to rim.

§ 3.107-U *Approved acrobatic maneuvers.* It shall be demonstrated that the approved acrobatic maneuvers can be performed safely. Safe entry speeds shall be determined for these maneuvers.

§ 3.108-A *Acrobatic maneuvers.* It shall be demonstrated that acrobatic maneuvers can be performed readily and

safely. Safe entry speeds shall be determined for these maneuvers.

§ 3.109 *Longitudinal control.* The airplane shall be demonstrated to comply with the following requirements:

(a) It shall be possible at all speeds below V_x to pitch the nose downward so that the rate of increase in air speed is satisfactory for prompt acceleration to V_x with:

(1) Maximum continuous power on all engines, the airplane trimmed at V_x .

(2) Power off, airplanes of more than 6,000 pounds maximum weight trimmed at $1.4 V_{s1}$, and airplanes of 6,000 pounds or less maximum weight trimmed at $1.5 V_{s1}$.

(3) (i) Wing flaps and landing gear extended and

(ii) Wing flaps and landing gear retracted.

(b) During each of the controllability demonstrations outlined below it shall not require a change in the trim control or the exertion of more control force than can be readily applied with one hand for a short period. Each maneuver shall be performed with the landing gear extended.

(1) With power off, flaps retracted, and the airplane trimmed as prescribed in paragraph (a) (2) of this section, the flaps shall be extended as rapidly as possible while maintaining the air speed at approximately 40 percent above the instantaneous value of the stalling speed.

(2) Same as subparagraph (1) of this paragraph, except the flaps shall be initially extended and the airplane trimmed as prescribed in paragraph (a) (2) of this section, then the flaps shall be retracted as rapidly as possible.

(3) Same as subparagraph (2) of this paragraph, except maximum continuous power shall be used.

(4) With power off, the flaps retracted, and the airplane trimmed as prescribed in paragraph (a) (2) of this section, take-off power shall be applied quickly while the same air speed is maintained.

(5) Same as subparagraph (4) of this paragraph, except with the flaps extended.

(6) With power off, flaps extended, and the airplane trimmed as prescribed in paragraph (a) (2) of this section, air speeds within the range of $1.1 V_x$ to $1.7 V_x$, or V_y , whichever is the lesser, shall be obtained and maintained.

(c) It shall be possible without the use of exceptional piloting skill to maintain essentially level flight when flap retraction from any position is initiated during steady horizontal flight at $1.1 V_x$ with simultaneous application of not more than maximum continuous power.

§ 3.110 *Lateral and directional control.* (a) It shall be possible with multi-engine airplanes to execute 15-degree banked turns both with and against the inoperative engine from steady climb at $1.4 V_{s1}$ or V_y for the condition with:

(1) Maximum continuous power on the operating engines,

(2) Rearmost center of gravity,

(3) (i) Landing gear retracted and

(ii) Landing gear extended.

(4) Wing flaps in most favorable climb position,

(5) Maximum weight,

(6) The inoperative propeller in its minimum drag condition.

(b) It shall be possible with multi-engine airplanes, while holding the wings level laterally within 5 degrees, to execute sudden changes in heading in both directions without dangerous characteristics being encountered. This shall be demonstrated at $1.4 V_{s1}$ or V_y up to heading changes of 15 degrees, except that the heading change at which the rudder force corresponds to that specified in § 3.106 need not be exceeded, with:

(1) The critical engine inoperative,

(2) Maximum continuous power on the operating engine(s),

(3) (i) Landing gear retracted and

(ii) Landing gear extended,

(4) Wing flaps in the most favorable climb position,

(5) The inoperative propeller in its minimum drag condition,

(6) The airplane center of gravity at its rearmost position.

§ 3.111 *Minimum control speed (V_{mc}).* (a) A minimum speed shall be determined under the conditions specified below, such that when any one engine is suddenly made inoperative at that speed, it shall be possible to recover control of the airplane, with the one engine still inoperative, and to maintain it in straight flight at that speed, either with zero yaw or, at the option of the applicant, with a bank not in excess of 5 degrees. Such speed shall not exceed $1.3 V_{s1}$, with:

(1) Take-off or maximum available power on all engines,

(2) Rearmost center of gravity,

(3) Flaps in take-off position,

(4) Landing gear retracted.

(b) In demonstrating this minimum speed, the rudder force required to maintain it shall not exceed forces specified in § 3.106, nor shall it be necessary to throttle the remaining engines. During recovery the airplane shall not assume any dangerous attitude, nor shall it require exceptional skill, strength, or alertness on the part of the pilot to prevent a change of heading in excess of 20 degrees before recovery is complete.

TRIM

§ 3.112 *Requirements.* (a) The means used for trimming the airplane shall be such that, after being trimmed and without further pressure upon or movement of either the primary control or its corresponding trim control by the pilot or the automatic pilot, the airplane will maintain:

(1) Lateral and directional trim in level flight at a speed of $0.9 V_A$ or at V_e , if lower, with the landing gear and wing flaps retracted;

(2) Longitudinal trim under the following conditions:

(i) During a climb with maximum continuous power at a speed between V_x and $1.4 V_{s1}$,

(a) With landing gear retracted and wing flaps retracted,

(b) With landing gear retracted and wing flaps in the take-off position.

(ii) During a glide with power off at a speed not in excess of $1.4 V_{s1}$,

(a) With landing gear extended and wing flaps retracted,

(b) With landing gear extended and wing flaps extended under the forward center of gravity position approved with the maximum authorized weight.

(c) With landing gear extended and wing flaps extended under the most forward center of gravity position approved, regardless of weight.

(iii) During level flight at any speed from $0.9 V_A$ to V_x or $1.4 V_{s1}$, with landing gear and wing flaps retracted.

(b) In addition to the above, multi-engine airplanes shall maintain longitudinal and directional trim at a speed between V_y and $1.4 V_x$, during climbing flight with the critical of two or more engines inoperative, with:

(1) The other engine(s) operating at maximum continuous power,

(2) The landing gear retracted,

(3) Wing flaps retracted,

(4) Bank not in excess of 5 degrees.

(c) For aircraft having a maximum certificated take-off weight of 6,000 lbs. or less, the value specified in paragraph (a) (2) (ii) of this section shall be $1.5 V_{s1}$, or, if the stalling speed V_{s1} is not obtainable in the particular configuration, 1.5 times the minimum steady flight speed at which the airplane is controllable.

STABILITY

§ 3.113 *General.* The airplane shall be longitudinally, directionally, and laterally stable in accordance with the following sections. Suitable stability and control "feel" (static stability) shall be required in other conditions normally encountered in service, if flight tests show such stability to be necessary for safe operation.

§ 3.114 *Static longitudinal stability.* In the configurations outlined in § 3.115 and with the airplane trimmed as indicated, the characteristics of the elevator control forces and the friction within the control system shall be such that:

(a) A pull shall be required to obtain and maintain speeds below the specified trim speed and a push to obtain and maintain speeds above the specified trim speed. This shall be so at any speed which can be obtained without excessive control force, except that such speeds need not be greater than the appropriate maximum permissible speed or less than the minimum speed in steady unstalled flight.

(b) The air speed shall return to within 10 percent of the original trim speed when the control force is slowly released from any speed within the limits defined in paragraph (a) of this section.

§ 3.115 *Specific conditions.* In conditions set forth in this section, within the speeds specified, the stable slope of stick force versus speed curve shall be such that any substantial change in speed is clearly perceptible to the pilot through a resulting change in stick force.

(a) *Landing.* The stick force curve shall have a stable slope and the stick

force shall not exceed 40 lbs. at any speed between $1.1 V_{st}$ and $1.8 V_{st}$, with:

- (1) Wing flaps in the landing position,
- (2) The landing gear extended,
- (3) Maximum weight,
- (4) Throttles closed on all engines,
- (5) Airplanes of more than 6,000 pounds maximum weight trimmed at $1.4 V_{st}$, and airplanes of 6,000 pounds or less maximum weight trimmed at $1.5 V_{st}$.

(b) *Climb.* The stick force curve shall have a stable slope at all speeds between $1.2 V_{st}$ and $1.6 V_{st}$, with:

- (1) Wing flaps retracted,
- (2) Landing gear retracted,
- (3) Maximum weight,
- (4) 75 percent of maximum continuous power,
- (5) The airplane trimmed at $1.4 V_{st}$.

(c) *Cruising.* (1) Between $1.3 V_{st}$ and the maximum permissible speed, the stick force curve shall have a stable slope at all speeds obtainable with a stick force not in excess of 40 pounds with:

- (i) Landing gear retracted,
- (ii) Wing flaps retracted,
- (iii) Maximum weight,
- (iv) 75 percent of maximum continuous power,
- (v) The airplane trimmed for level flight with 75 percent of the maximum continuous power.

(2) Same as subparagraph (1) of this paragraph, except that the landing gear shall be extended and the level flight trim speed need not be exceeded.

§ 3.116 *Instrumented stick force measurements.* Instrumented stick force measurements need not be made when changes in speed are clearly reflected by changes in stick forces and the maximum forces obtained in the above conditions are not excessive.

§ 3.117 *Dynamic longitudinal stability.* Any short period oscillation occurring between stalling speed and maximum permissible speed shall be heavily damped with the primary controls (1) free, and (2) in a fixed position.

§ 3.118 *Directional and lateral stability—(a) Three-control airplanes.* (1) The static directional stability, as shown by the tendency to recover from a skid with rudder free, shall be positive for all flap positions and symmetrical power conditions, and for all speeds from $1.2 V_{st}$ up to the maximum permissible speed.

(2) The static lateral stability as shown by the tendency to raise the low wing in a sideslip, for all flap positions and symmetrical power conditions, shall:

- (i) Be positive at the maximum permissible speed.
- (ii) Not be negative at a speed equal to $1.2 V_{st}$.

(3) In straight steady sideslips (unaccelerated forward slips), the aileron and rudder control movements and forces shall increase steadily, but not necessarily in constant proportion, as the angle of sideslip is increased; the rate of increase of the movements and forces shall lie between satisfactory limits up to sideslip angles considered appropriate to the operation of the type. At greater angles, up to that at which the full rudder control is employed or a rudder pedal force of 150 pounds is obtained, the rudder

pedal forces shall not reverse and increased rudder deflection shall produce increased angles of sideslip. Sufficient bank shall accompany sideslipping to indicate adequately any departure from steady unyawed flight.

(4) Any short-period oscillation occurring between stalling speed and maximum permissible speed shall be heavily damped with the primary controls (i) free and (ii) in a fixed position.

(b) *Two-control (or simplified) airplanes.* (1) The directional stability shall be shown to be adequate by demonstrating that the airplane in all configurations can be rapidly rolled from a 45-degree bank to a 45-degree bank in the opposite direction without exhibiting dangerous skidding characteristics.

(2) Lateral stability shall be shown to be adequate by demonstrating that the airplane will not assume a dangerous attitude or speed when all the controls are abandoned for a period of 2 minutes. This demonstration shall be made in moderately smooth air with the airplane trimmed for straight level flight at $0.9 V_h$ (or at V_c , if lower), flaps and gear retracted, and with rearward center of gravity loading.

(3) Any short period oscillation occurring between the stalling speed and the maximum permissible speed shall be heavily damped with the primary controls (i) free and (ii) in a fixed position.

STALLS

§ 3.120 *Stalling demonstration.* (a) Stalls shall be demonstrated under two conditions:

- (1) With power off, and
- (2) With a power setting of not less than that required to show compliance with the provisions of § 3.85 (a) for airplanes of more than 6,000 pounds maximum weight, or with 90 percent of maximum continuous power for airplanes of 6,000 pounds or less maximum weight.

(b) In either condition required by paragraph (a) of this section it shall be possible, with flaps and landing gear in any position, with center of gravity in the position least favorable for recovery, and with appropriate airplane weights, to show compliance with the applicable requirements of paragraphs (c) through (f) of this section.

(c) For airplanes having independently controlled rolling and directional controls, it shall be possible to produce and to correct roll by unreversed use of the rolling control and to produce and correct yaw by unreversed use of the directional control up until the time the airplane pitches in the maneuver prescribed in paragraph (g) of this section.

(d) For two-control airplanes having either interconnected lateral and directional controls or for airplanes having only one of these controls, it shall be possible to produce and to correct roll by unreversed use of the rolling control without producing excessive yaw up until the time the airplane pitches in the maneuver prescribed in paragraph (g) of this section.

(e) During the recovery portion of the maneuver, it shall be possible to prevent more than 15 degrees roll or yaw

by the normal use of controls, and any loss of altitude in excess of 100 feet or any pitch in excess of 30 degrees below level shall be entered in the Airplane Flight Manual.

(f) A clear and distinctive stall warning shall precede the stalling of the airplane, with the flaps and landing gear in any position, both in straight and turning flight. The stall warning shall begin at a speed exceeding that of stalling by not less than 5 but not more than 10 miles per hour and shall continue until the stall occurs.

(g) In demonstrating the qualities required by paragraphs (c) through (f) of this section, the procedure set forth in subparagraphs (1) and (2) of this paragraph shall be followed.

(1) With trim controls adjusted for straight flight at a speed of approximately $1.4 V_{st}$ for airplanes of more than 6,000 pounds maximum weight, or approximately $1.5 V_{st}$ for airplanes of 6,000 pounds or less maximum weight, the speed shall be reduced by means of the elevator control until the speed is slightly above the stalling speed; then

(2) The elevator control shall be pulled back at a rate such that the airplane speed reduction does not exceed 1 mile per hour per second until a stall is produced as evidenced by an uncontrollable downward pitching motion of the airplane, or until the control reaches the stop. Normal use of the elevator control for recovery shall be allowed after such pitching motion has unmistakably developed.

§ 3.121 *Climbing stalls.* When stalled from an excessive climb attitude it shall be possible to recover from this maneuver without exceeding the limiting air speed or the allowable acceleration limit.

§ 3.122 *Turning flight stalls.* When stalled during a coordinated 30-degree banked turn with 75 percent maximum continuous power on all engines, flaps and landing gear retracted, it shall be possible to recover to normal level flight without encountering excessive loss of altitude, uncontrollable rolling characteristics, or uncontrollable spinning tendencies. These qualities shall be demonstrated by performing the following maneuver: After a steady curvilinear level coordinated flight condition in a 30-degree bank is established and while maintaining the 30-degree bank, the airplane shall be stalled by steadily and progressively tightening the turn with the elevator control until the airplane is stalled or until the elevator has reached its stop. When the stall has fully developed, recovery to level flight shall be made with normal use of the controls.

§ 3.123 *One-engine-inoperative stalls.* Multiengine airplanes shall not display any undue spinning tendency and shall be safely recoverable without applying power to the inoperative engine when stalled with:

- (a) The critical engine inoperative,
- (b) Flaps and landing gear retracted,
- (c) The remaining engines operating at up to 75 percent of maximum continuous power, except that the power need not be greater than that at which the use of maximum control travel just

holds the wings laterally level in approaching the stall. The operating engines may be throttled back during the recovery from the stall.

SPINNING

§ 3.124 *Spinning*—(a) *Category N*. All airplanes of 4,000 lbs. or less maximum weight shall recover from a one-turn spin with the controls applied normally for recovery in not more than one additional turn and without exceeding either the limiting air speed or the limit positive maneuvering load factor for the airplane. In addition, there shall be no excessive back pressure either during the spin or in the recovery. It shall not be possible to obtain uncontrollable spins by means of any possible use of the controls. Compliance with these requirements shall be demonstrated at any permissible combination of weight and center of gravity positions obtainable with all or any part of the designed useful load. All airplanes in category N, regardless of weight, shall be placarded against spins or demonstrated to be "characteristically incapable of spinning" in which case they shall be so designated. (See paragraph (d) of this section.)

(b) *Category U*. Airplanes in this category shall comply with either the entire requirements of paragraph (a) of this section or the entire requirements of paragraph (c) of this section.

(c) *Category A*. All airplanes in this category shall be capable of spinning and shall comply with the following:

(1) At any permissible combination of weight and center of gravity position obtainable with all or part of the design useful load, the airplane shall recover from a six-turn spin, or from any point in a six-turn spin, in not more than $1\frac{1}{2}$ additional turns after the application of the controls in the manner normally used for recovery.

(2) It shall be possible to recover from the maneuver prescribed in subparagraph (1) of this paragraph without exceeding either the limiting air speed or the limit positive maneuvering load factor of the airplane.

(3) It shall not be possible to obtain uncontrollable spins by means of any possible use of the controls.

(4) A placard shall be placed in the cockpit of the airplane setting forth the use of the controls required for recovery from spinning maneuvers.

(d) *Category NU*. When it is desired to designate an airplane as a type "characteristically incapable of spinning," the flight tests to demonstrate this characteristic shall also be conducted with:

(1) A maximum weight 5 percent in excess of the weight for which approval is desired,

(2) A center of gravity at least 3 percent aft of the rearmost position for which approval is desired,

(3) An available up-elevator travel 4 degrees in excess of that to which the elevator travel is to be limited by appropriate stops.

(4) An available rudder travel 7 degrees, in both directions, in excess of that to which the rudder travel is to be limited by appropriate stops.

GROUND AND WATER CHARACTERISTICS

§ 3.143 *Requirements*. All airplanes shall comply with the requirements of §§ 3.144 to 3.147.

§ 3.144 *Longitudinal stability and control*. There shall be no uncontrollable tendency for landplanes to nose over in any operating condition reasonably expected for the type, or when rebound occurs during landing or take-off. Wheel brakes shall operate smoothly and shall exhibit no undue tendency to induce nosing over. Seaplanes shall exhibit no dangerous or uncontrollable porpoising at any speed at which the airplane is normally operated on the water.

§ 3.145 *Directional stability and control*. (a) There shall be no uncontrollable looping tendency in 90-degree cross winds up to a velocity equal to $0.2 V_{S_0}$ at any speed at which the aircraft may be expected to be operated upon the ground or water.

(b) All landplanes shall be demonstrated to be satisfactorily controllable with no exceptional degree of skill or alertness on the part of the pilot in power-off landings at normal landing speed and during which brakes or engine power are not used to maintain a straight path.

(c) Means shall be provided for adequate directional control during taxiing.

§ 3.146 *Shock absorption*. The shock-absorbing mechanism shall not produce damage to the structure when the airplane is taxied on the roughest ground which it is reasonable to expect the airplane to encounter in normal operation.

§ 3.147 *Spray characteristics*. For seaplanes, spray during taxiing, take-off, and landing shall at no time dangerously obscure the vision of the pilots nor produce damage to the propeller or other parts of the airplane.

FLUTTER AND VIBRATION

§ 3.159 *Flutter and vibration*. All parts of the airplane shall be demonstrated to be free from flutter and excessive vibration under all speed and power conditions appropriate to the operation

of the airplane up to at least the minimum value permitted for V_a in § 3.184. There shall also be no buffeting condition in any normal flight condition severe enough to interfere with the satisfactory control of the airplane or to cause excessive fatigue to the crew or result in structural damage. However, buffeting as stall warning is considered desirable and discouragement of this type of buffeting is not intended.

SUBPART C—STRENGTH REQUIREMENTS

GENERAL

§ 3.171 *Loads*. (a) Strength requirements are specified in terms of limit and ultimate loads. Limit loads are the maximum loads anticipated in service. Ultimate loads are equal to the limit loads multiplied by the factor of safety. Unless otherwise described, loads specified are limit loads.

(b) Unless otherwise provided, the specified air, ground, and water loads shall be placed in equilibrium with inertia forces, considering all items of mass in the airplane. All such loads shall be distributed in a manner conservatively approximating or closely representing actual conditions. If deflections under load would change significantly the distribution of external or internal loads, such redistribution shall be taken into account.

(c) Simplified structural design criteria shall be acceptable if the Administrator finds that they result in design loads not less than those prescribed in §§ 3.181 through 3.265.

§ 3.172 *Factor of safety*. The factor of safety shall be 1.5 unless otherwise specified.

§ 3.173 *Strength and deformations*. The structure shall be capable of supporting limit loads without suffering detrimental permanent deformations. At all loads up to limit loads, the deformation shall be such as not to interfere with safe operation of the airplane. The structure shall be capable of supporting ultimate loads without failure for at least 3 seconds, except that when proof of strength is demonstrated by dynamic tests simulating actual condi-

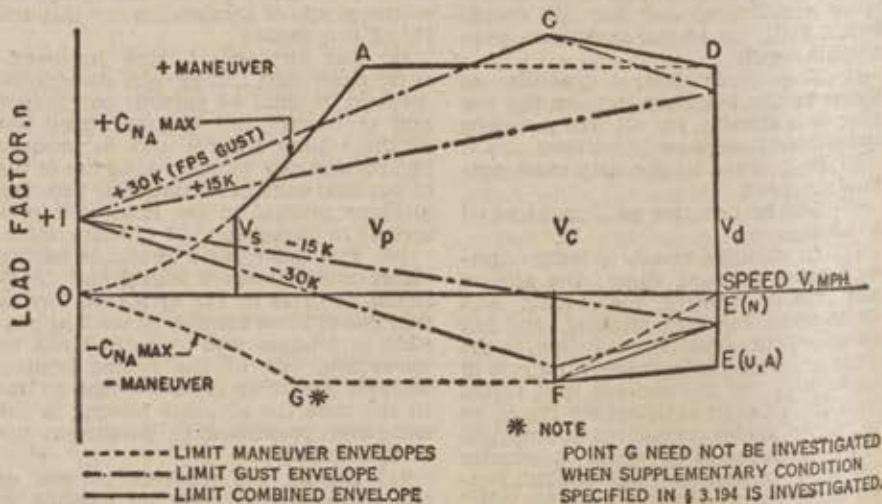


FIG. 3-1—(V-n) DIAGRAM (FLIGHT ENVELOPE)

tions of load application, the 3-second limit does not apply.

§ 3.174 *Proof of structure.* Proof of compliance of the structure with the strength and deformation requirements of § 3.173 shall be made for all critical loading conditions. Proof of compliance by means of structural analysis will be accepted only when the structure conforms with types for which experience has shown such methods to be reliable. In all other cases substantiating load tests are required. Dynamic tests including structural flight tests shall be acceptable, provided that it is demonstrated that the design load conditions have been simulated. In all cases certain portions of the structure must be subjected to tests as specified in Subpart D of this part.

FLIGHT LOADS

§ 3.181 *General.* Flight load requirements shall be complied with at critical altitudes within the range in which the airplane may be expected to operate and at all weights between the minimum design weight and the maximum design weight, with any practicable distribution of disposable load within prescribed operating limitations stated in §§ 3.777-3.780.

§ 3.182 *Definition of flight load factor.* The flight load factors specified represent the acceleration component (in terms of the gravitational constant *g*) normal to the assumed longitudinal axis of the airplane, and equal in magnitude and opposite in direction to the airplane inertia load factor at the center of gravity.

SYMMETRICAL FLIGHT CONDITIONS (FLAPS RETRACTED)

§ 3.183 *General.* The strength requirements shall be met at all combinations of air speed and load factor on and within the boundaries of a pertinent *V-n* diagram, constructed similarly to the one shown in Figure 3-1, which represents the envelope of the flight loading conditions specified by the maneuvering and gust criteria of §§ 3.185 and 3.187. This diagram will also be used in determining the airplane structural operating limitations as specified in Subpart G of this part.

§ 3.184 *Design air speeds.* The design air speeds shall be chosen by the designer except that they shall not be less than the following values:

$$V_c \text{ (design cruising speed)} \\ = 38 \sqrt{W/S} \text{ (N)} \\ = 42 \sqrt{W/S} \text{ (A)}$$

except that for values of *W/S* greater than 20, the above numerical multiplying factors shall be decreased linearly with *W/S* to a value of 33 at *W/S*=100: And further provided, That the required minimum value need be no greater than 0.9 *V_a* actually obtained at sea level.

$$V_d \text{ (design dive speed)} \\ = 1.40 V_{c \text{ min}} \text{ (N)} \\ = 1.50 V_{c \text{ min}} \text{ (U)} \\ = 1.55 V_{c \text{ min}} \text{ (A)}$$

except that for values of *W/S* greater than 20, the above numerical multiplying factors shall be decreased linearly

with *W/S* to a value of 1.35 at *W/S*=100. (*V_c min* is the required minimum value of design cruising speed specified above.)

V_p (design maneuvering speed)

$$= V_s \sqrt{n} \text{ where:} \\ V_s = \text{a computed stalling speed with flaps fully retracted at the design weight, normally based on the maximum airplane normal force coefficient, } C_{NA} \\ n = \text{limit maneuvering load factor used in design.}$$

except that the value of *V_p* need not exceed the value of *V_c* used in design.

§ 3.185 *Maneuvering envelope.* The airplane shall be assumed to be subjected to symmetrical maneuvers resulting in the following limit load factors, except where limited by maximum (static) lift coefficients:

(a) The positive maneuvering load factor specified in § 3.186 at all speeds up to *V_a*.

(b) The negative maneuvering load factor specified in § 3.186 at speed *V_c*; and factors varying linearly with speed from the specified value at *V_c* to 0.0 at *V_d* for the N category and -1.0 at *V_d* for the A and U categories.

§ 3.186 *Maneuvering load factors.* (a) The positive limit maneuvering load factors shall not be less than the following values:

$$n = 2.1 + \frac{24,000}{W + 10,000} \text{ Category N}$$

except that *n* need not be greater than 3.8 and shall not be less than 2.5.

$$n = 4.4 \text{ Category U} \\ n = 6.0 \text{ Category A}$$

(b) The negative limit maneuvering load factors shall not be less than -0.4 times the positive load factor for the N and U categories, and shall not be less than -0.5 times the positive load factor for the A category.

(c) Lower values of maneuvering load factor may be employed only if it be proven that the airplane embodies features of design which make it impossible to exceed such values in flight. (See also § 3.106.)

§ 3.187 *Gust envelope.* The airplane shall be assumed to encounter symmetrical vertical gusts as specified below while in level flight and the resulting loads shall be considered limit loads:

(a) Positive (up) and negative (down) gusts of 30 feet per second nominal intensity at all speeds up to *V_c*.

(b) Positive and negative 15 feet per second gusts at *V_a*. Gust load factors shall be assumed to vary linearly between *V_c* and *V_a*.

§ 3.188 *Gust load factors.* In applying the gust requirements, the gust load factors shall be computed by the following formula:

$$n = 1 + \frac{KUV_m}{575 (W/S)}$$

where: $K = \frac{1}{2} (W/S)^{1/4}$ (for *W/S* < 16 p. s. f.)

$$= 1.33 - \frac{2.67}{(W/S)^{1/4}}$$
 (for *W/S* > 16 p. s. f.)

U = nominal gust velocity, f. p. s. (Note that the "effective sharp-edged gust" equals *KU*.)

V = airplane speed, m. p. h.
m = slope of lift curve, *C_L* per radian, corrected for aspect ratio.
W/S = wing loading, p. s. f.

§ 3.189 *Airplane equilibrium.* In determining the wing loads and linear inertia loads corresponding to any of the above specified flight conditions, the appropriate balancing horizontal tail load (see § 3.215) shall be taken into account in a rational or conservative manner.

Incremental horizontal tail loads due to maneuvering and gusts (see §§ 3.216 and 3.217) shall be reacted by angular inertia of the complete airplane in a rational or conservative manner.

FLAPS EXTENDED FLIGHT CONDITIONS

§ 3.190 *Flaps extended flight conditions.* (a) When flaps or similar high lift devices intended for use at the relatively low air speeds of approach, landing, and take-off are installed, the airplane shall be assumed to be subjected to symmetrical maneuvers and gusts with the flaps fully deflected at the design flap speed *V_f* resulting in limit load factors within the range determined by the following conditions:

(1) Maneuvering, to a positive limit load factor of 2.0.

(2) Positive and negative 15-feet-per-second gusts acting normal to the flight path in level flight. The gust load factors shall be computed by the formula of § 3.188.

V_f shall be assumed not less than 1.4 *V_s* or 1.8 *V_{s,f}*, whichever is greater, where:

V_s = the computed stalling speed with flaps fully retracted at the design weight
V_{s,f} = the computed stalling speed with flaps fully extended at the design weight

except that when an automatic flap load limiting device is employed, the airplane may be designed for critical combinations of air speed and flap position permitted by the device. (See also § 3.338.)

(b) In designing the flaps and supporting structure, slipstream effects shall be taken into account as specified in § 3.223.

NOTE: In determining the external loads on the airplane as a whole, the thrust, slipstream, and pitching acceleration may be assumed equal to zero.

UNSYMMETRICAL FLIGHT CONDITIONS

§ 3.191 *Unsymmetrical flight conditions.* The airplane shall be assumed to be subjected to rolling and yawing maneuvers as described in the following conditions. Unbalanced aerodynamic moments about the center of gravity shall be reacted in a rational or conservative manner considering the principal masses furnishing the reacting inertia forces.

(a) *Rolling conditions.* The airplane shall be designed for (1) unsymmetrical wing loads appropriate to the category, and (2) the loads resulting from the aileron deflections and speeds specified in § 3.223, in combination with an airplane load factor of at least two-thirds of the positive maneuvering factor used in the design of the airplane. Only the wing and wing bracing need be investigated for this condition.

Note: These conditions may be covered as noted below:

(a) Rolling accelerations may be obtained by modifying the symmetrical flight conditions shown in Figure 3-1 as follows:

(1) *Acrobatic category.* In conditions A and F assume 100 percent of the wing air load acting on one side of the plane of symmetry and 60 percent on the other.

(2) *Normal and utility categories.* In condition A, assume 100 percent of the wing air load acting on one side of the airplane and 70 percent on the other. For airplanes over 1,000 pounds design weight, the latter percentage may be increased linearly with weight up to 80 percent at 25,000 pounds.

(b) The effect of aileron displacement on wing torsion may be accounted for by adding the following increment to the basic aileron moment coefficient over the aileron portion of the span in the critical condition as determined by the note under § 3.222:

$$\Delta c_{m} = -.01\delta$$

where:

$$\Delta c_{m} = \text{moment coefficient increment}$$

$$\delta = \text{down aileron deflection in degrees in critical condition}$$

(b) *Yawing conditions.* The airplane shall be designed for the yawing loads resulting from the vertical surface loads specified in §§ 3.219 to 3.221.

SUPPLEMENTARY CONDITIONS

§ 3.194 *Special condition for rear lift truss.* When a rear lift truss is employed, it shall be designed for conditions of reversed airflow at a design speed of:

$$V = 10\sqrt{W/S} + 10 \text{ (m. p. h.)}$$

Note: It may be assumed that the value of C_L is equal to -0.8 and the chordwise distribution is triangular between a peak at the trailing edge and zero at the leading edge.

§ 3.195 *Engine torque effects.* (a) Engine mounts and their supporting structures shall be designed for engine torque effects combined with certain basic flight conditions as described in subparagraphs (1) and (2) of this paragraph. Engine torque may be neglected in the other flight conditions.

(1) The limit torque corresponding to take-off power and propeller speed acting simultaneously with 75 percent of the limit loads from flight condition A. (See Fig. 3-1.)

(2) The limit torque corresponding to maximum continuous power and propeller speed, acting simultaneously with the limit loads from flight condition A. (See Fig. 3-1.)

(b) The limit torque shall be obtained by multiplying the mean torque by a factor of 1.33 in the case of engines having 5 or more cylinders. For 4-, 3-, and 2-cylinder engines, the factors shall be 2, 3, and 4, respectively.

§ 3.196 *Side load on engine mount.* The limit load factor in a lateral direction for this condition shall be at least equal to one-third of the limit load factor for flight condition A (see Fig. 3-1) except that it shall not be less than 1.33. Engine mounts and their supporting structure shall be designed for this condition which may be assumed independent of other flight conditions.

CONTROL SURFACE LOADS

§ 3.211 *General.* The control surface loads specified in the following sections shall be assumed to occur in the symmetrical and unsymmetrical flight

conditions as described in §§ 3.189-3.191. See Figures 3-3 to 3-10 for acceptable values of control surface loadings which are considered as conforming to the following detailed rational requirements.

§ 3.212 *Pilot effort.* In the control surface loading conditions described, the airloads on the movable surfaces and the corresponding deflections need not exceed those which could be obtained in flight by employing the maximum pilot control forces specified in Figure 3-11. In applying this criterion, proper consideration shall be given to the effects of control system boost and servo mechanisms, tabs, and automatic pilot systems in assisting the pilot.

§ 3.213 *Trim tab effects.* The effects of trim tabs on the control surface design conditions need be taken into account only in cases where the surface loads are limited on the basis of maximum pilot effort. In such cases the tabs shall be considered to be deflected in the direction which would assist the pilot and the deflection shall correspond to the maximum expected degree of "out of trim" at the speed for the condition under consideration.

HORIZONTAL TAIL SURFACES

§ 3.214 *Horizontal tail surfaces.* The horizontal tail surfaces shall be designed for the conditions set forth in §§ 3.215-3.218.

§ 3.215 *Balancing loads.* A horizontal tail balancing load is defined as that necessary to maintain the airplane in equilibrium in a specified flight condition with zero pitching acceleration. The horizontal tail surfaces shall be designed for the balancing loads occurring at any point on the limit maneuvering envelope, Figure 3-1, and in the flap conditions. (See § 3.190.)

Note: The distribution of Figure 3-7 may be used.

§ 3.216 *Maneuvering loads.* (a) At maneuvering speed V_p , assume a sudden deflection of the elevator control to the maximum upward deflection as limited by the control stops or pilot effort, whichever is critical.

Note: The average loading of Figure 3-3 and the distribution of Figure 3-8 may be used. In determining the resultant normal force coefficient for the tail under these conditions, it will be permissible to assume that the angle of attack of the stabilizer with respect to the resultant direction of air flow is equal to that which occurs when the airplane is in steady unaccelerated flight at a flight speed equal to V_p . The maximum elevator deflection can then be determined from the above criteria and the tail normal force coefficient can be obtained from the data given in NACA Report No. 688, "Aerodynamic Characteristics of Horizontal Tail Surfaces," or other applicable NACA reports.

(b) Same as case (a) except that the elevator deflection is downward.

Note: The average loading of Figure 3-3 and the distribution of Figure 3-8 may be used.

(c) At all speeds above V_p , the horizontal tail shall be designed for the maneuvering loads resulting from a sudden upward deflection of the elevator, followed by a downward deflection of

the elevator such that the following combinations of normal acceleration and angular acceleration are obtained:

Condition	Airplane normal acceleration n	Angular acceleration radian/sec. ²
Down load.....	1.0	$+ \frac{45}{V} n_m (n_m - 1.5)$
Up load.....	n_m	$- \frac{45}{V} n_m (n_m - 1.5)$

where:

n_m = positive limit maneuvering load factor used in the design of the airplane.

V = initial speed in miles per hour.

(d) The total tail load for the conditions specified in (c) shall be the sum of: (1) The balancing tail load corresponding with the condition at speed V and the specified value of the normal load factor n , plus (2) the maneuvering load increment due to the specified value of the angular acceleration.

Note: The maneuvering load increment of Figure 3-4 and the distributions of Figure 3-8 (for down loads) and Figure 3-9 (for up loads) may be used. These distributions apply to the total tail load.

§ 3.217 *Gust loads.* The horizontal tail surfaces shall be designed for loads occurring in the conditions specified in paragraphs (a) and (b) of this section.

(a) Positive and negative gusts of 30 feet per second nominal intensity at speed V_c corresponding with the flight condition specified in § 3.187 (a) with flaps retracted.

Note: The average loadings of Figures 3-5 (a) and (b) and the distribution of Figure 3-9 may be used for the total tail loading in this condition.

(b) Positive and negative gusts of 15 feet per second nominal intensity at speed V_f corresponding with the flight condition specified in § 3.190 (b) with flaps extended and at speed V_d corresponding with the flight condition specified in § 3.187 (b) with flaps retracted.

(c) In determining the total load on the horizontal tail for the conditions specified in paragraphs (a) and (b) of this section, the initial balancing tail loads shall first be determined for steady unaccelerated flight at the pertinent design speeds V_f , V_c , and V_d . The incremental tail load resulting from the gust shall be added to the initial balancing tail load to obtain the total tail load.

Note: The incremental tail load due to the gust may be computed by the following formula:

$$\Delta t = 0.1 KUVS_2 a_1 \left[1 - \frac{35a_w}{R_w} \right]$$

where:

Δt = the limit gust load increment on the tail in pounds.

K = gust coefficient K in § 3.188.

U = nominal gust intensity in feet per second.

V = airplane speed in miles per hour.

S_2 = tail surface area in square feet.

a_1 = slope of lift curve of tail surface, C_L per degree, corrected for aspect ratio.

a_w = slope of lift curve of wing, C_L per degree, and

R_w = aspect ratio of the wing.

- Acceptable values of limit average maneuvering control surface loadings can be obtained from Figure 3-3 (b) as follows:
- Horizontal Tail Surfaces*
- (1) Condition § 3.216 (a): Obtain \bar{w} as function of W/S and surface deflection;
 - (2) Condition § 3.216 (b): Obtain \bar{w} from Curve B. Use distribution of Figure 3-8.
- Use Curve C for deflection 10° or less;
 Use Curve B for deflection 20°;
 Use Curve A for deflection 30° or more;
 (Interpolate for other deflections);
 Use distribution of Figure 3-8.
- Vertical Tail Surfaces*
- (3) Condition § 3.219 (a): Obtain \bar{w} as function of W/S and surface deflection in same manner as outlined in (1) above, use distribution of Figure 3-8;
 - (4) Condition § 3.219 (b): Obtain \bar{w} from Curve C, use distribution of Figure 3-7;
 - (5) Condition § 3.219 (c): Obtain \bar{w} from Curve A, use distribution of Figure 3-9. (Note that condition § 3.220 generally will be more critical than this condition.)
- Ailerons*
- (6) In lieu of conditions § 3.222 (b): Obtain \bar{w} from Curve B, acting in both up and down directions. Use distribution of Figure 3-10.

FIG. 3-3(a)—LIMIT AVERAGE MANEUVERING CONTROL SURFACE LOADINGS

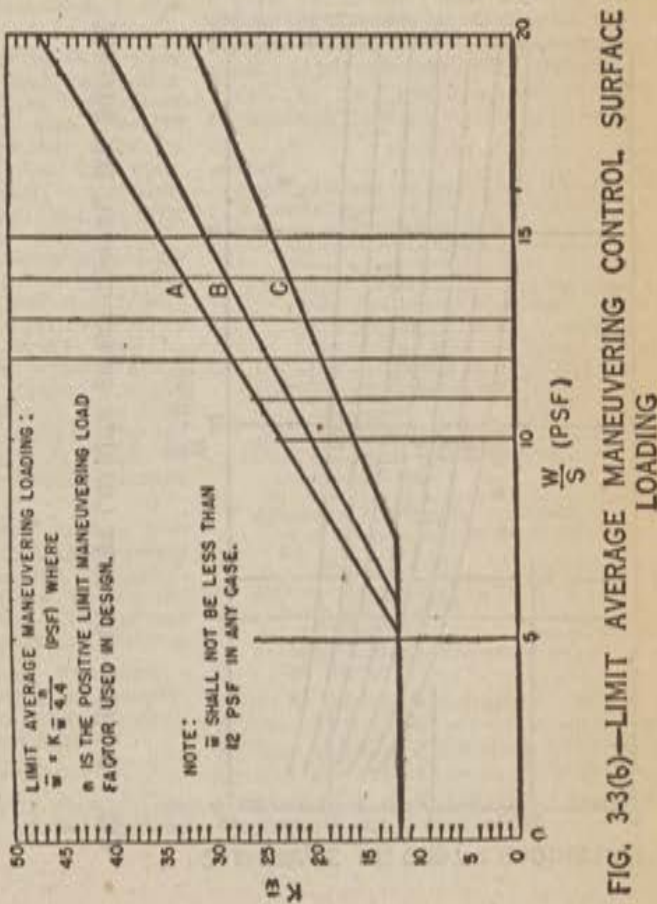


FIG. 3-3(b)—LIMIT AVERAGE MANEUVERING CONTROL SURFACE LOADING

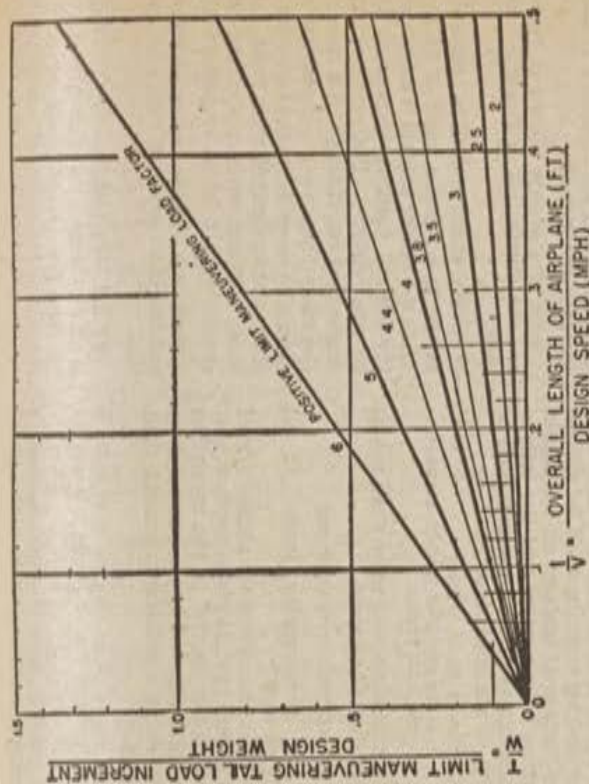


FIG. 3-4 — MANEUVERING TAIL LOAD INCREMENT (UP OR DOWN)

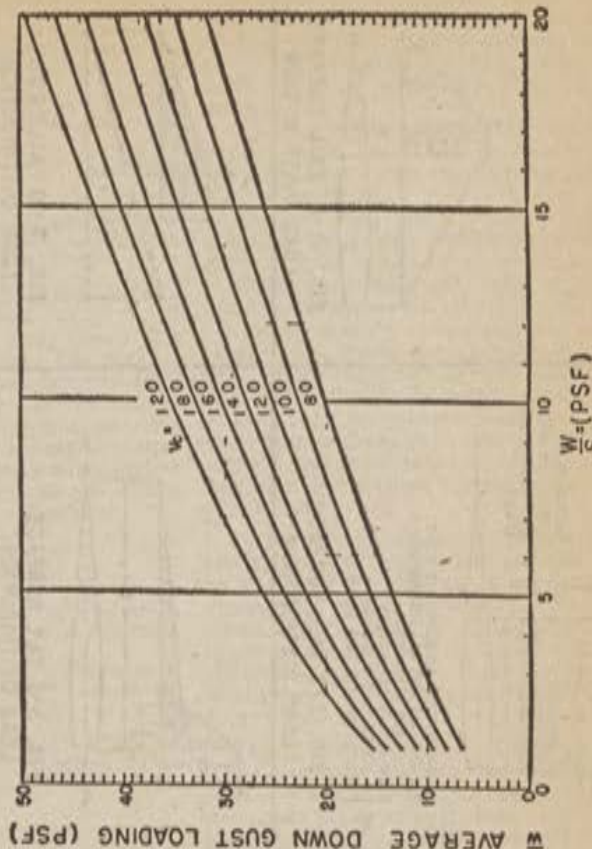


FIG. 3-5(a) — DOWN GUST LOADING ON HORIZONTAL TAIL SURFACE

(b) The gust loading shall be computed by the following formula:

$$\bar{w} = \frac{KUVm}{875}$$

where:

\bar{w} = average limit unit pressure in pounds per square foot,

$K = 1.33 - \frac{4.5}{(W/S_p)^{1/4}}$, except that K shall not be less than 1.0. A value of K obtained by rational determination may be used.

U = nominal gust intensity in feet per second,

V = airplane speed in miles per hour,

m = slope of lift curve of vertical surface, C_L per radian, corrected for aspect ratio,

W = design weight in pounds,

S_p = vertical surface area in square feet.

(c) This loading applies only to that portion of the vertical surfaces having a well-defined leading edge.

NOTE: The average loading of Figure 3-6 and the distribution of Figure 3-9 may be used.

§ 3.221 *Outboard fins.* When outboard fins are carried on the horizontal tail surface, the tail surfaces shall be designed for the maximum horizontal surface load in combination with the corresponding loads induced on the vertical surfaces by end plate effects. Such induced effects need not be combined with other vertical surface loads. When outboard fins extend above and below the horizontal surface, the critical vertical surface loading (load per unit area) as determined by §§ 3.219 and 3.220 shall be applied:

(a) To the portion of the vertical surfaces above the horizontal surface, and 80 percent of that loading applied to the portion below the horizontal surface,

(b) To the portion of the vertical surfaces below the horizontal surface, and 80 percent of that loading applied to the portion above the horizontal surface.

AILERONS, WING FLAPS, TABS, ETC.

§ 3.222 *Ailerons.* (a) In the symmetrical flight conditions (see §§ 3.183-3.189), the ailerons shall be designed for all loads to which they are subjected while in the neutral position.

(b) In unsymmetrical flight conditions (see § 3.191 (a)), the ailerons shall be designed for the loads resulting from the following deflections except as limited by pilot effort:

(1) At speed V_p it shall be assumed that there occurs a sudden maximum displacement of the aileron control. (Suitable allowance may be made for control system deflections.)

(2) When V_c is greater than V_p , the aileron deflection at V_c shall be that required to produce a rate of roll not less than that obtained in condition (1).

(3) At speed V_d the aileron deflection shall be that required to produce a rate of roll not less than one-third of that which would be obtained at the speed and aileron deflection specified in condition (1).

NOTE: For conventional ailerons, the deflections for conditions (2) and (3) may be computed from:

$$\delta_1 = \frac{V_p}{V_c} \delta_{11}; \quad \text{and} \quad \delta_2 = \frac{0.5V_p}{V_d} \delta_{21};$$

where:

δ_1 = total aileron deflection (sum of both aileron deflections) in condition (1).

δ_2 = total aileron deflection in condition (2).

δ_3 = total deflection in condition (3). In the equation for δ_3 , the 0.5 factor is used instead of 0.33 to allow for wing torsional flexibility.

(c) The critical loading on the ailerons should occur in condition (2) if V_d is less than $2V_c$ and the wing meets the torsional stiffness criteria. The normal force coefficient C_N for the ailerons may be taken as 0.04 δ , where δ is the deflection of the individual aileron in degrees. The critical condition for wing torsional loads will depend upon the basic airfoil moment coefficient as well as the speed, and may be determined as follows:

$$\frac{T_1}{T_2} = \frac{(C_m - 0.01\delta_{21})V_d^2}{(C_m - 0.01\delta_{22})V_c^2}$$

where:

T_1/T_2 is the ratio of wing torsion in condition (b) (3) to that in condition (b) (2).

δ_{21} and δ_{22} are the down deflections of the individual aileron in conditions (b) (2) and (3) respectively.

(d) When T_1/T_2 is greater than 1.0 condition (b) (3) is critical; when T_1/T_2 is less than 1.0 condition (b) (2) is critical.

(e) In lieu of the above rational conditions the average loading of Figure 3-3 and the distribution of Figure 3-10 may be used.

§ 3.223 *Wing flaps.* Wing flaps, their operating mechanism, and supporting structure shall be designed for critical loads occurring in the flap-extended flight conditions (see § 3.190) with the flaps extended to any position from fully retracted to fully extended; except that when an automatic flap load limiting device is employed these parts may be designed for critical combinations of air speed and flap position permitted by the device. (Also see §§ 3.338 and 3.339.) The effects of propeller slipstream corresponding to take-off power shall be taken into account at an airplane speed of not less than $1.4V_s$, where V_s is the computed stalling speed with flaps fully retracted at the design weight. For investigation of the slipstream condition, the airplane load factor may be assumed to be 1.0.

§ 3.224 *Tabs.* Control surface tabs shall be designed for the most severe combination of air speed and tab deflection likely to be obtained within the limit $V-n$ diagram (Fig. 3-1) for any usable loading condition of the airplane.

§ 3.225 *Special devices.* The loading for special devices employing aerodynamic surfaces, such as slots and spoilers, shall be based on test data.

CONTROL SYSTEM LOADS

§ 3.231 *Primary flight controls and systems.* (a) Flight control systems

and supporting structures shall be designed for loads corresponding to 125 percent of the computed hinge moments of the movable control surface in the conditions prescribed in §§ 3.211 to 3.225, subject to the following maxima and minima:

(1) The system limit loads need not exceed those which can be produced by the pilot and automatic devices operating the controls.

(2) The loads shall in any case be sufficient to provide a rugged system for service use, including consideration of jamming, ground gusts, taxiing tail to wind, control inertia, and friction.

(b) Acceptable maximum and minimum pilot loads for elevator, aileron, and rudder controls are shown in Figure 3-11. These pilot loads shall be assumed to act at the appropriate control grips or pads in a manner simulating flight conditions and to be reacted at the attachments of the control system to the control surface horn.

§ 3.232 *Dual controls.* When dual controls are provided, the systems shall be designed for the pilots operating in opposition, using individual pilot loads equal to 75 percent of those obtained in accordance with § 3.231, except that the individual pilot loads shall not be less than the minimum loads specified in Figure 3-11.

§ 3.233 *Ground gust conditions.* (a) The following ground gust conditions shall be investigated in cases where a deviation from the specific values for minimum control forces listed in Figure 3-11 is applicable. The following conditions are intended to simulate the loadings on control surfaces due to ground gusts and when taxiing with the wind.

(b) The limit hinge moment H shall be obtained from the following formula:

$$H = K_c Sq$$

where:

H = limit hinge moment (foot-pounds).

c = mean chord of the control surface aft of the hinge line (feet).

S = area of control surface aft of the hinge line (square feet).

q = dynamic pressure (pounds per square foot) to be based on a design speed not less than $10\sqrt{W/S} + 10$ miles per hour, except that the design speed need not exceed 60 miles per hour.

K = factor as specified below:

Surface	K
(a) Aileron	+ 0.75
Control column locked or lashed in mid-position.	
(b) Aileron	± 0.50
Ailerons at full throw; + moment on one aileron, - moment on the other.	
(c) (d) Elevator	± 0.75
Elevator (c) full up (-), and (d) full down (+).	
(e) (f) Rudder	± 0.75
Rudder (e) in neutral, and (f) at full throw.	

(c) As used in paragraph (b) in connection with ailerons and elevators, a positive value of K indicates a moment tending to depress the surface while a negative value of K indicates a moment tending to raise the surface.

(b) *Nose wheel type.* Two cases shall be considered:

(1) Nose and main wheels contacting the ground simultaneously.

(2) Main wheels contacting the ground, nose wheel just clear of the ground. (The angular attitude may be assumed the same as in subparagraph (1) of this paragraph for purposes of analysis.)

(c) *Drag components.* In this condition, drag components simulating the forces required to accelerate the tires and wheels up to the landing speed shall be properly combined with the corresponding instantaneous vertical ground reactions. The wheel spin-up drag loads may be based on vertical ground reactions, assuming wing lift and a tire-sliding coefficient of friction of 0.8, but in any case the drag loads shall not be less than 25 percent of the maximum vertical ground reactions neglecting wing lift.

§ 3.246 *Tail down—(a) Tail wheel type.* Main and tail wheels contacting ground simultaneously.

(b) *Nose wheel type.* Stalling attitude or the maximum angle permitting clearance of the ground by all parts of the airplane, whichever is the lesser.

assumed wing lift to the airplane weight. (See § 3.354 for requirements concerning the energy absorption tests which determine the limit load factor corresponding to the required limit descent velocities.) In no case, however, shall the inertia load factor used for design purposes be less than 2.67, nor shall the limit ground reaction load factor be less than 2.0, unless it is demonstrated that lower values of limit load factor will not be exceeded in taxiing the airplane over terrain having the maximum degree of roughness to be expected under intended service use at all speeds up to take-off speed.

LANDING CASES AND ATTITUDES

§ 3.244 *Landing cases and attitudes.* For conventional arrangements of main and nose, or main and tail wheels, the airplane shall be assumed to contact the ground at the specified limit vertical velocity in the attitudes described in §§ 3.245-3.247. (See Figs. 3-12 (a) and 3-12 (b) for acceptable landing conditions which are considered to conform with §§ 3.245-3.247.)

§ 3.245 *Level landing—(a) Tail wheel type.* Normal level flight attitude.

(2) The operating limitations shall limit the take-off weight in such a manner as to assure that landings in normal operation would not exceed the design landing weight.

(b) A design landing weight equal to less than 95 percent of the maximum weight shall be acceptable for multi-engine airplanes, meeting the one-engine-inoperative climb requirement of § 3.85 (b) or § 3.85a (b) if compliance is shown with the following sections of Part 4b of this subchapter in lieu of the corresponding requirement of this part: The ground load requirements of § 4b.230, the landing gear requirements of § 4b.331 through 4b.338, and the fuel jettisoning system requirements of § 4b.437.

§ 3.243 *Load factor for landing conditions.* In the following landing conditions the limit vertical inertia load factor at the center of gravity of the airplane shall be chosen by the designer but shall not be less than the value which would be obtained when landing the airplane with a descent velocity, in feet per second, equal to the following value:

$$V = 4.4 (W/S)^{1/2}$$

except that the descent velocity need not exceed 10 feet per second and shall not be less than 7 feet per second. Wing lift not exceeding two-thirds of the weight of the airplane may be assumed to exist throughout the landing impact and may be assumed to act through the airplane center of gravity. When such wing lift is assumed, the ground reaction load factor may be taken equal to the inertia load factor minus the ratio of the

LOWER FLIGHT LOADS

§ 3.234 *Secondary controls and systems.* Secondary controls, such as wheel brakes, spoilers, and flap controls, shall be designed for the loads based on the maximum which a pilot is likely to apply to the control in question.

GROUND LOADS

§ 3.241 *Ground loads.* The loads specified in the following conditions shall be considered as the external loads and the inertia forces which occur in an airplane structure. In each of the airplane load conditions specified the external reactions shall be placed in equilibrium with the linear and angular inertia forces in a rational or conservative manner.

§ 3.242 *Design weight.* The design landing weight shall not be less than the maximum weight for which the airplane is to be certificated, except as provided in paragraph (a) or (b) of this section.

(a) A design landing weight equal to not less than 95 percent of the maximum weight shall be acceptable if it is demonstrated that the structural limit load values at the maximum weight are not exceeded when the airplane is operated over terrain having the degree of roughness to be expected in service at all speeds up to the take-off speed. In addition, the following shall apply:

(1) The minimum fuel capacity shall not be less than the total of the capacity prescribed in § 3.440 and of the capacity equivalent to the weight of fuel equal in amount to that by which the maximum weight exceeds the design landing weight.

Control	Maximum loads for design weight W equal to or less than 5,000 lbs. ¹	Minimum loads: ²
Aileron:		
Stick:	67 pounds	40 pounds
Wheel:	53 D in-pounds ⁴	40 D in-pounds ⁴
Elevator:		
Stick:	187 pounds	100 pounds
Wheel:	200 pounds	100 pounds
Rudder:	200 pounds	130 pounds

¹ For design weight W greater than 5,000 pounds the above specified maximum values shall be increased linearly with weight to 1.5 times the specified values at a design weight of 25,000 pounds.

² If the design of any individual set of control systems or surfaces is such as to make these specified minimum loads inapplicable, values corresponding to the pertinent hinge moments obtained according to § 3.233 may be used instead, except that in any case values less than 0.6 of the specified minimum loads shall not be employed.

³ The critical portions of the aileron control system shall also be designed for a single tangential force having a limit value equal to 2.5 times the couple force determined from the above criteria.

⁴ D = wheel diameter.

FIG. 3-11—PILOT CONTROL FORCE LIMITS

Condition	Tail wheel type		Nose wheel type	
	Level landing	Tail-down landing	Level landing with inclined reactions	Level landing with nose wheel just clear of ground
Reference section.	§ 3.245 (a)	§ 3.246 (a)	§ 3.245 (b) (1)	§ 3.245 (b) (2)
Vertical component at c. g. Fore and aft component at c. g. Lateral component in either direction at c. g. Shock absorber extension (hydraulic shock absorber)	§ W As W 0	§ W 0 0	§ W As W 0	§ W As W 0
Shock absorber deflection (rubber or spring shock absorber)	Note (2)	Note (2)	Note (2)	Note (2)
Tire deflection	100% Static	100% Static	100% Static	100% Static
Main wheel loads (both wheels)	(a-L) W As W 0	(a-L) W As W 0	(a-L) W As W 0	(a-L) W As W 0
Tail (nose) wheel loads	(1) and (3)	(1) and (3)	(1)	(1) and (3)
Notes:				

NOTE (1). K may be determined as follows: $K=0.25$ for $W=2,000$ pounds or less; $K=0.33$ for $W=5,000$ pounds or greater, with linear variation of K between these weights.

NOTE (2). For the purpose of design, the maximum load factor shall be assumed to occur throughout the shock absorber stroke from 25 percent deflection to 100 percent deflection unless demonstrated otherwise, and the load factor shall be used with whatever shock absorber extension is most critical for each element of the landing gear.

NOTE (3). Unbalanced moments shall be balanced by a rational or conservative method.

NOTE (4). Z is defined in § 1.253.

FIG. 3-12(c)—BASIC LANDING CONDITIONS

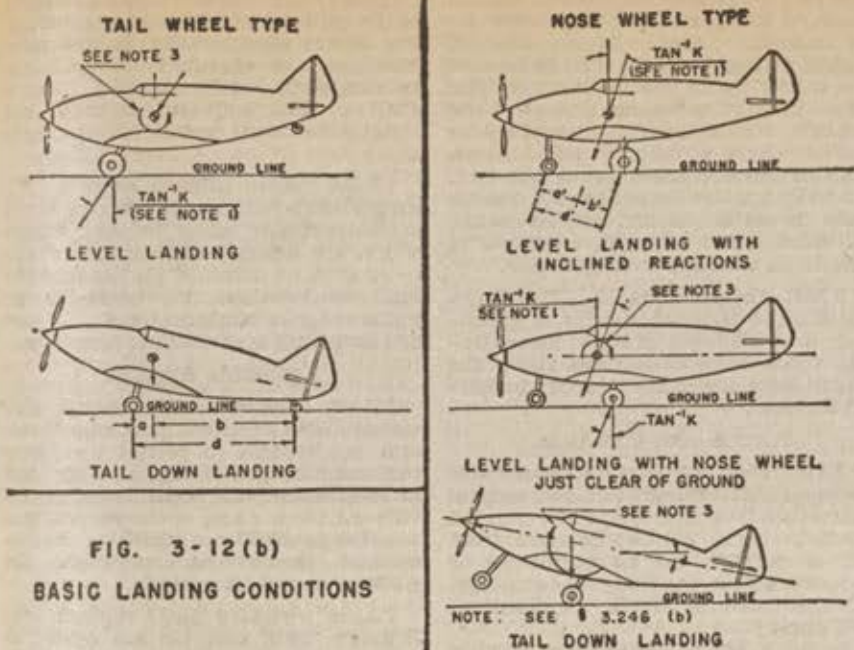


FIG. 3-12(b)
BASIC LANDING CONDITIONS

(c) *Vertical ground reactions.* In this condition, it shall be assumed that the ground reactions are vertical, the wheels having been brought up to speed before the maximum vertical load is attained.

§ 3.247 *One-wheel landing.* One side of the main gear shall contact the ground with the airplane in the level attitude. The ground reactions shall be the same as those obtained on the one side in the level attitude. (See § 3.245.)

GROUND ROLL CONDITIONS

§ 3.248 *Braked roll.* The limit vertical load factor shall be 1.33. The attitude and ground contacts shall be those described for level landings in § 3.245, with the shock absorbers and tires deflected to their static positions. A drag reaction equal to the vertical reaction at the wheel multiplied by a coefficient of the friction of 0.8 shall be applied at the ground contact point of each wheel having brakes, except that the drag reaction need not exceed the maximum value based on limiting brake torque.

§ 3.249 *Side load.* Level attitude with main wheels only contacting the ground, with the shock absorbers and tires deflected to their static positions. The limit vertical load factor shall be 1.33 with the vertical ground reaction divided equally between main wheels. The limit side inertia factor shall be 0.83 with the side ground reaction divided between main wheels as follows:

- 0.5W acting inboard on one side.
- 0.33W acting outboard on the other side.

TAIL WHEELS

§ 3.250 *Supplementary conditions for tail wheels.* The conditions in §§ 3.251 and 3.252 apply to tail wheels and affected supporting structure.

§ 3.251 *Obstruction load.* The limit ground reaction obtained in the tail down landing condition shall be assumed to act up and aft through the axle at 45 de-

grees. The shock absorber and tire may be assumed deflected to their static positions.

§ 3.252 *Side load.* A limit vertical ground reaction equal to the static load on the tail wheel, in combination with a side component of equal magnitude. When a swivel is provided, the tail wheel shall be assumed swiveled 90 degrees to the airplane longitudinal axis, the resultant ground load passing through the axle. When a lock steering device or shimmy damper is provided, the tail wheel shall also be assumed in the trailing position with the side load acting at the ground contact point. The shock absorber and tire shall be assumed deflected to their static positions.

NOSE WHEELS

§ 3.253 *Supplementary conditions for nose wheels.* The conditions set forth in §§ 3.254-3.256 apply to nose wheels and affected supporting structure. The shock absorbers and tires shall be assumed deflected to their static positions.

§ 3.254 *Aft load.* Limit force components at axle:

- Vertical, 2.25 times static load on wheel,
- Drag, 0.8 times vertical load.

§ 3.255 *Forward load.* Limit force components at axle:

- Vertical, 2.25 times static load on wheel,
- Forward, 0.4 times vertical load.

§ 3.256 *Side load.* Limit force components at ground contact:

- Vertical, 2.25 times static load on wheel,
- Side, 0.7 times vertical load.

SKIPLANES

§ 3.257 *Supplementary conditions for skiplanes.* The airplane shall be assumed resting on the ground with one main ski frozen in the snow and the other main ski and the tail ski free to slide. A limit side force equal to P/3 shall be applied at the most convenient

point near the tail assembly, where P is the static ground reaction on the tail ski. For this condition the factor of safety shall be assumed equal to 1.0.

WATER LOADS

§ 3.265 *Water load conditions.* The structure of boat and float type seaplanes shall be designed for water loads developed during take-off and landing with the seaplane in any attitude likely to occur in normal operation at appropriate forward and sinking velocities under the most severe sea conditions likely to be encountered. Unless a more rational analysis of the water loads is performed, the requirements of §§ 4b.251 through 4b.258 of this subchapter shall apply.

**SUBPART D—DESIGN AND CONSTRUCTION
GENERAL**

§ 3.291 *General.* The suitability of all questionable design details or parts having an important bearing on safety in operation shall be established by tests.

§ 3.292 *Materials and workmanship.* The suitability and durability of all materials used in the airplane structure shall be established on the basis of experience or tests. All materials used in the airplane structure shall conform to approved specifications which will insure their having the strength and other properties assumed in the design data. All workmanship shall be of a high standard.

§ 3.293 *Fabrication methods.* The methods of fabrication employed in constructing the airplane structure shall be such as to produce consistently sound structure. When a fabrication process such as gluing, spot welding, or heat-treating requires close control to attain this objective, the process shall be performed in accordance with an approved process specification.

§ 3.294 *Standard fastenings.* All bolts, pins, screws, and rivets used in the structure shall be of an approved type. The use of an approved locking device or method is required for all such bolts, pins, and screws. Self-locking nuts shall not be used on bolts subject to rotation during the operation of the airplane.

§ 3.295 *Protection.* All members of the structure shall be suitably protected against deterioration or loss of strength in service due to weathering, corrosion, abrasion, or other causes. In seaplanes, special precaution shall be taken against corrosion from salt water, particularly where parts made from different metals are in close proximity. Adequate provisions for ventilation and drainage of all parts of the structure shall be made.

§ 3.296 *Inspection provisions.* Adequate means shall be provided to permit the close examination of such parts of the airplane as require periodic inspection, adjustments for proper alignment and functioning, and lubrication of moving parts.

STRUCTURAL PARTS

§ 3.301 *Material strength properties and design values.* Material strength

properties shall be based on a sufficient number of tests of material conforming to specifications to establish design values on a statistical basis. The design values shall be so chosen that the probability of any structure being under-strength because of material variations is extremely remote. Values contained in ANC-5, ANC-18, and ANC-23, Part II shall be used unless shown to be inapplicable in a particular case.

NOTE: ANC-5, "Strength of Metal Aircraft Elements," ANC-18, "Design of Wood Aircraft Structures," and ANC-23, "Sandwich Construction for Aircraft," are published by the Subcommittee on Air Force-Navy-Civil Aircraft Design Criteria, and may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

§ 3.302 *Special factors.* Where there may be uncertainty concerning the actual strength of particular parts of the structure or where the strength is likely to deteriorate in service prior to normal replacement, increased factors of safety shall be provided to insure that the reliability of such parts is not less than the rest of the structure as specified in §§ 3.303-3.306.

§ 3.303 *Variability factor.* For parts whose strength is subject to appreciable variability due to uncertainties in manufacturing processes and inspection methods, the factor of safety shall be increased sufficiently to make the probability of any part being under-strength from this cause extremely remote. Minimum variability factors (only the highest pertinent variability factor need be considered) are set forth in §§ 3.304-3.306.

§ 3.304 *Castings.* (a) Where visual inspection only is to be employed, the variability factor shall be 2.0.

(b) The variability factor may be reduced to 1.25 for ultimate loads and 1.15 for limit loads when at least three sample castings are tested to show compliance with these factors, and all sample and production castings are visually and radiographically inspected in accordance with an approved inspection specification.

(c) Other inspection procedures and variability factors may be used if found satisfactory by the Administrator.

§ 3.305 *Bearing factors.* (a) The factor of safety in bearing at bolted or pinned joints shall be suitably increased to provide for the following conditions:

(1) Relative motion in operation (control surface and system joints are covered in §§ 3.327-3.347).

(2) Joints with clearance (free fit) subject to pounding or vibration.

(b) Bearing factors need not be applied when covered by other special factors.

§ 3.306 *Fitting factor.* Fittings are defined as parts such as end terminals used to join one structural member to another. A multiplying factor of safety of at least 1.15 shall be used in the analysis of all fittings the strength of which is not proved by limit and ultimate load tests in which the actual stress conditions are simulated in the fitting and the surrounding structure. This factor ap-

plies to all portions of the fitting, the means of attachment, and bearing on the members joined. In the case of integral fittings, the part shall be treated as a fitting up to the point where the section properties become typical of the member. The fitting factor need not be applied where a type of joint design based on comprehensive test data is used. The following are examples: continuous joints in metal plating, welded joints, and scarf joints in wood, all made in accordance with approved practices.

§ 3.307 *Fatigue strength.* The structure shall be designed, insofar as practicable, to avoid points of stress concentration where variable stresses above the fatigue limit are likely to occur in normal service.

FLUTTER AND VIBRATION

§ 3.311 *Flutter and vibration prevention measures.* Wings, tail, and control surfaces shall be free from flutter, airfoil divergence, and control reversal from lack of rigidity, for all conditions of operation within the limit $V-n$ envelope, and the following detail requirements shall apply:

(a) Adequate wing torsional rigidity shall be demonstrated by tests or other methods found suitable by the Administrator.

(b) The mass balance of surfaces shall be such as to preclude flutter.

(c) The natural frequencies of all main structural components shall be determined by vibration tests or other methods found satisfactory by the Administrator.

WINGS

§ 3.317 *Proof of strength.* The strength of stressed-skin wings shall be substantiated by load tests or by combined structural analysis and tests.

§ 3.318 *Ribs.* Rib tests shall simulate conditions in the airplane with respect to torsional rigidity of spars, fixity conditions, lateral support, and attachment to spars. The effects of ailerons and high lift devices shall be properly accounted for.

CONTROL SURFACES (FIXED AND MOVABLE)

§ 3.327 *Proof of strength.* Limit load tests of control surfaces are required. Such tests shall include the horn or fitting to which the control system is attached. In structural analyses, rigging loads due to wire bracing shall be taken into account in a rational or conservative manner.

§ 3.328 *Installation.* Movable tail surfaces shall be so installed that there is no interference between the surfaces or their bracing when each is held in its extreme position and all others are operated through their full angular movement. When an adjustable stabilizer is used, stops shall be provided which, in the event of failure of the adjusting mechanism, will limit its travel to a range permitting safe flight and landing.

§ 3.329 *Hinges.* Control surface hinges, excepting ball and roller bearings, shall incorporate a multiplying factor of safety of not less than 6.67 with

respect to the ultimate bearing strength of the softest material used as a bearing. For hinges incorporating ball or roller bearings, the approved rating of the bearing shall not be exceeded. Hinges shall provide sufficient strength and rigidity for loads parallel to the hinge line.

§ 3.330 *Mass balance weights.* The supporting structure and the attachment of concentrated mass balance weights which are incorporated on control surfaces shall be designed for the following limit accelerations: 24g normal to the plane of the control surface, 12g fore and aft, and 12g parallel to the hinge line.

CONTROL SYSTEMS

§ 3.335 *General.* All controls shall operate with sufficient ease, smoothness, and positiveness to permit the proper performance of their function and shall be so arranged and identified as to provide convenience in operation and prevent the possibility of confusion and subsequent inadvertent operation. (See § 3.384 for cockpit controls.)

§ 3.336 *Primary flight controls.* (a) Primary flight controls are defined as those used by the pilot for the immediate control of the pitching, rolling, and yawing of the airplane.

(b) For two-control airplanes the design shall be such as to minimize the likelihood of complete loss of the lateral directional control in the event of failure of any connecting or transmitting element in the control system.

§ 3.337 *Trimming controls.* Proper precautions shall be taken against the possibility of inadvertent, improper, or abrupt tab operations. Means shall be provided to indicate to the pilot the direction of control movement relative to airplane motion and the position of the trim device with respect to the range of adjustment. The means used to indicate the direction of the control movement shall be adjacent to the control, and the means used to indicate the position of the trim device shall be easily visible to the pilot and so located and operated as to preclude the possibility of confusion. Longitudinal trimming devices for single-engine airplanes and longitudinal and directional trimming devices for multiengine airplanes shall be capable of continued normal operation notwithstanding the failure of any one connecting or transmitting element in the primary flight control system. Tab controls shall be irreversible unless the tab is properly balanced and possesses no unsafe flutter characteristics. Irreversible tab systems shall provide adequate rigidity and reliability in the portion of the system from the tab to the attachment of the irreversible unit to the airplane structure.

§ 3.338 *Wing flap controls.* The controls shall be such that when the flap has been placed in any position upon which compliance with the performance requirements is based, the flap will not move from that position except upon further adjustment of the control or the automatic operation of a flap load limiting device. Means shall be provided to indicate the flap position to the pilot.

If any flap position other than fully retracted or extended is used to show compliance with the performance requirements, such means shall indicate each such position. The rate of movement of the flaps in response to the operation of the pilot's control, or of an automatic device shall not be such as to result in unsatisfactory flight or performance characteristics under steady or changing conditions of air speed, engine power, and airplane attitude. (See § 3.109 (b) and (c).)

§ 3.339 *Flap interconnection.* (a) The motion of flaps on opposite sides of the plane of symmetry shall be synchronized by a mechanical interconnection, unless the airplane is demonstrated to have safe flight characteristics while the flaps are retracted on one side and extended on the other.

(b) Where an interconnection is used, in the case of multiengine airplanes, it shall be designed to account for the unsymmetrical loads resulting from flight with the engines on one side of the plane of symmetry inoperative and the remaining engines at take-off power. For single-engine airplanes, it may be assumed that 100 percent of the critical air load acts on one side and 70 percent on the other.

§ 3.340 *Stops.* All control systems shall be provided with stops which positively limit the range of motion of the control surfaces. Stops shall be so located in the system that wear, slackness, or take-up adjustments will not appreciably affect the range of surface travel. Stops shall be capable of withstanding the loads corresponding to the design conditions for the control system.

§ 3.341 *Control system locks.* When a device is provided for locking a control surface while the airplane is on the ground or water:

- (a) The locking device shall be so installed as to provide unmistakable warning to the pilot when it is engaged, and
- (b) Means shall be provided to preclude the possibility of the lock becoming engaged during flight.

§ 3.342 *Proof of strength.* Tests shall be conducted to prove compliance with limit load requirements. The direction of test loads shall be such as to produce the most severe loading of the control system structure. The tests shall include all fittings, pulleys, and brackets used to attach the control system to the primary structure. Analyses of individual load tests shall be conducted to demonstrate compliance with the multiplying factor of safety requirements specified for control system joints subjected to angular motion.

§ 3.343 *Operation test.* An operation test shall be conducted by operating the controls from the pilot compartment with the entire system so loaded as to correspond to the limit air loads on the surface. In this test there shall be no jamming, excessive friction, or excessive deflection.

CONTROL SYSTEM DETAILS

§ 3.344 *General.* All control systems and operating devices shall be so de-

signed and installed as to prevent jamming, chafing, or interference as a result of inadequate clearances or from cargo, passengers, or loose objects. Special precautions shall be provided in the cockpit to prevent the entry of foreign objects into places where they might jam the controls. Provisions shall be made to prevent the slapping of cables or tubes against parts of the airplane. The elements of the flight control system shall incorporate design features or shall be distinctively and permanently marked to minimize the possibility of incorrect assembly which could result in malfunctioning of the control system.

§ 3.345 *Cable systems.* Cables, cable fittings, turnbuckles, splices, and pulleys shall be in accordance with approved specifications. Cables smaller than 1/8-inch diameter shall not be used in primary control systems. The design of cable systems shall be such that there will not be hazardous change in cable tension throughout the range of travel under operating conditions and temperature variations. Pulley types and sizes shall correspond to the cables with which they are used, as specified on the pulley specification. All pulleys shall be provided with satisfactory guards which shall be closely fitted to prevent the cables becoming misaligned or fouling, even when slack. The pulleys shall lie in the plane passing through the cable within such limits that the cable does not rub against the pulley flange. Fairleads shall be so installed that they are not required to cause a change in cable direction of more than 3 degrees. Clevis pins (excluding those not subject to load or motion) retained only by cotter pins shall not be employed in the control system. Turnbuckles shall be attached to parts having angular motion in such a manner as to prevent positively binding throughout the range of travel. Provisions for visual inspection shall be made at all fairleads, pulleys, terminals, and turnbuckles.

§ 3.346 *Joints.* Control system joints subject to angular motion in push-pull systems, excepting ball and roller bearing systems, shall incorporate a multiplying factor of safety of not less than 3.33 with respect to the ultimate bearing strength of the softest material used as a bearing. This factor may be reduced to 2.0 for such joints in cable control systems. For ball or roller bearings the approved rating of the bearing shall not be exceeded.

§ 3.347 *Spring devices.* The reliability of any spring devices used in the control system shall be established by tests simulating service conditions, unless it is demonstrated that failure of the spring will not cause flutter or unsafe flight characteristics.

LANDING GEAR

SHOCK ABSORBERS

§ 3.351 *Tests.* Shock absorbing elements in main, nose, and tail wheel units shall be substantiated by the tests specified in the following section. In addition,

the shock absorbing ability of the landing gear in taxiing must be demonstrated in the operational tests of § 3.146.

§ 3.352 *Shock absorption tests.* (a) It shall be demonstrated by energy absorption tests that the limit load factors selected for design in accordance with § 3.243 will not be exceeded in landings with the limit descent velocity specified in that section.

(b) In addition, a reserve of energy absorption shall be demonstrated by a test in which the descent velocity is at least 1.2 times the limit descent velocity. In this test there shall be no failure of the shock absorbing unit, although yielding of the unit will be permitted. Wing lift equal to the weight of the airplane may be assumed for purposes of this test.

§ 3.353 *Limit drop tests.* (a) If compliance with the specified limit landing conditions of § 3.352 (a) is demonstrated by free drop tests, these shall be conducted on the complete airplane, or on units consisting of wheel, tire, and shock absorber in their proper relation, from free drop heights not less than the following:

$$h \text{ (inches)} = 3.6 (W/S)^{.44}$$

except that the free drop height shall not be less than 9.2 inches and need not be greater than 18.7 inches.

(b) In simulating the permissible wing lift in free drop tests, the landing gear unit shall be dropped with an effective mass equal to:

$$W_e = W \left[\frac{h + (1-L)d}{h+d} \right]$$

where:

W_e = the effective weight to be used in the drop test.

h = specified height of drop in inches.

d = deflection under impact of the tire (at the approved inflation pressure) plus the vertical component of the axle travel relative to the drop mass. The value of d used in the computation of W_e shall not exceed the value actually obtained in the drop tests.

$W = W_M$ for main gear units, and shall be equal to the static weight on the particular unit with the airplane in the level attitude (with the nose wheel clear, in the case of nose wheel type airplanes).

$W = W_T$ for tail gear units, and shall be equal to the static weight on the tail unit with the airplane in the tail down attitude.

$W = W_N$ for nose wheel units, and shall be equal to the static reaction which will exist at the nose wheel when the mass of the airplane is concentrated at the center of gravity and exerts a force of $1.0g$ downward and $0.33g$ forward.

L = ratio of assumed wing lift to airplane weight, not greater than 0.667.

The attitude in which the landing gear unit is drop tested shall be such as to simulate the airplane landing condition which is critical from the standpoint of energy to be absorbed by the particular unit.

§ 3.354 *Limit load factor determination.* In determining the limit airplane inertia load factor n from the free drop

test described above, the following formula shall be used:

$$n = n_j \frac{W_e}{W} + L$$

where:

n_j = the load factor developed in the drop test, i. e., the acceleration (d_v/dt) in g 's recorded in the drop test, plus 1.0.

The value of n so determined shall not be greater than the limit inertia load factor used in the landing conditions, § 3.243.

§ 3.355 *Reserve energy absorption drop tests.* If compliance with the reserve energy absorption condition specified in § 3.352 (b) is demonstrated by free drop tests, the drop height shall be not less than 1.44 times the drop height specified in § 3.353. In simulating wing lift equal to the airplane weight, the units shall be dropped with an effective mass equal to

$$W_e = W \frac{h}{h+d}$$

where the symbols and other details are the same as in § 3.353.

RETRACTING MECHANISM

§ 3.356 *General.* The landing gear retracting mechanism and supporting structure shall be designed for the maximum load factors in the flight conditions when the gear is in the retracted position. It shall also be designed for the combination of friction, inertia, brake torque, and air loads occurring during retraction at any air speed up to $1.6 V_{st}$, flaps retracted and any load factors up to those specified for the flaps extended condition, § 3.190. The landing gear and retracting mechanism, including the wheel well doors, shall withstand flight loads with the landing gear extended at any speed up to at least $1.6 V_{st}$, flaps retracted. Positive means shall be provided for the purpose of maintaining the wheels in the extended position.

§ 3.357 *Emergency operation.* When other than manual power for the operation of the landing gear is employed, an auxiliary means of extending the landing gear shall be provided.

§ 3.358 *Operation test.* Proper functioning of the landing gear retracting mechanism shall be demonstrated by operation tests.

§ 3.359 *Position indicator and warning device.* When retractable landing wheels are used, means shall be provided for indicating to the pilot when the wheels are secured in the extreme positions. In addition, landplanes shall be provided with an aural or equally effective warning device which shall function continuously after the throttle is closed until the gear is down and locked.

§ 3.360 *Control.* See § 3.384.

WHEELS AND TIRES

§ 3.361 *Wheels.* Main wheels and nose wheels shall be of an approved type. The maximum static load rating of each main wheel and nose wheel shall not be less than the corresponding static ground reaction under the design maximum weight of the airplane and the critical center of gravity position. The maxi-

mum limit load rating of each main wheel and nose wheel shall not be less than the maximum radial limit load determined in accordance with the applicable ground load requirements of this part. (See §§ 3.241 through 3.256.)

§ 3.362 *Tires.* A landing gear wheel may be equipped with any make or type of tire, provided that the tire is a proper fit on the rim of the wheel and provided that the approved tire rating is not exceeded under the following conditions:

(a) Load on each main wheel tire equal to the corresponding static ground reaction under the design maximum weight of the airplane and the critical center of gravity position.

(b) Load on nose wheel tires (to be compared with the dynamic rating established for such tires) equal to the reaction obtained at the nose wheel, assuming the mass of the airplane concentrated at the most critical center of gravity and exerting a force of $1.0g$ downward and $0.31g$ forward, the reactions being distributed to the nose and main wheels by the principle of statics with the drag reaction at the ground applied only at those wheels having brakes. When specially constructed tires are used to support an airplane, the wheels shall be plainly and conspicuously marked to that effect. Such markings shall include the make, size, number of plies, and identification marking of the proper tire.

BRAKES

§ 3.363 *Brakes.* Brakes shall be installed which are adequate to prevent the airplane from rolling on a paved runway while applying take-off power to the critical engine, and of sufficient capacity to provide adequate speed control during taxiing without the use of excessive pedal or hand forces.

SKIS

§ 3.364 *Skis.* Skis shall be of an approved type. The maximum limit load rating of each ski shall not be less than the maximum limit load determined in accordance with the applicable ground load requirements of this part. (See §§ 3.241 through 3.257.)

HULLS AND FLOATS

§ 3.371 *Seaplane main floats.* Seaplane main floats shall be of an approved type and shall comply with the provisions of § 3.265. In addition, the following shall apply:

(a) *Buoyancy.* Each seaplane main float shall have a buoyancy of 80 percent in excess of that required to support the maximum weight of the seaplane in fresh water.

(b) *Compartmentation.* Each seaplane main float for use on airplanes of 2,500 pounds or more maximum weight shall contain not less than 5 watertight compartments, and those for use on airplanes of less than 2,500 pounds maximum weight shall contain not less than 4 such compartments. The compartments shall have approximately equal volumes.

§ 3.372 *Buoyancy (boat seaplanes).* The hulls of boat seaplanes and amphibians shall be divided into watertight

compartments in accordance with the following requirements:

(a) In airplanes of 5,000 pounds or more maximum weight, the compartments shall be so arranged that, with any two adjacent compartments flooded, the hull and auxiliary floats (and tires, if used) will retain sufficient buoyancy to support the maximum weight of the airplane in fresh water.

(b) In airplanes of 1,500 to 5,000 pounds maximum weight, the compartments shall be so arranged that, with any one compartment flooded, the hull and auxiliary floats (and tires, if used) will retain sufficient buoyancy to support the maximum weight of the airplane in fresh water.

(c) In airplanes of less than 1,500 pounds maximum weight, watertight subdivision of the hull is not required.

(d) Bulkheads may have watertight doors for the purpose of communication between compartments.

§ 3.373 *Water stability.* Auxiliary floats shall be so arranged that when completely submerged in fresh water, they will provide a righting moment which is at least 1.5 times the upsetting moment caused by the airplane being tilted. A greater degree of stability may be required by the Administrator in the case of large flying boats, depending on the height of the center of gravity above the water level, the area and location of wings and tail surfaces, and other considerations.

FUSELAGE

PILOT COMPARTMENT

§ 3.381 *General.* (a) The arrangement of the pilot compartment and its appurtenances shall provide a satisfactory degree of safety and assurance that the pilot will be able to perform all his duties and operate the controls in the correct manner without unreasonable concentration and fatigue.

(b) The primary flight control units listed on Figure 3-14, excluding cables and control rods, shall be so located with respect to the propellers that no portion of the pilot or controls lies in the region between the plane of rotation of any in-board propeller and the surface generated by a line passing through the center of the propeller hub and making an angle of 5° forward or aft of the plane of rotation of the propeller.

§ 3.382 *Vision.* The pilot compartment shall be arranged to afford the pilot a sufficiently extensive, clear, and undistorted view for the safe operation of the airplane. During flight in a moderate rain condition, the pilot shall have an adequate view of the flight path in normal flight and landing, and have sufficient protection from the elements so that his vision is not unduly impaired. This may be accomplished by providing an openable window or by a means for maintaining a portion of the windshield in a clear condition without continuous attention by the pilot. The pilot compartment shall be free of glare and reflections which would interfere with the pilot's vision. For airplanes intended for night operation, the demonstration of these qualities shall include night flight tests.

§ 3.383 *Pilot windshield and windows.* All glass panes shall be of a nonsplintering safety type.

§ 3.384 *Cockpit controls.* (a) All cockpit controls shall be so located and, except for those the function of which is obvious, identified as to provide convenience in operation including provisions to prevent the possibility of confusion and consequent inadvertent operation. (See Fig. 3-14 for required sense of motion of cockpit controls.) The controls shall be so located and arranged that when seated it will be readily possible for the pilot to obtain full and unrestricted movement of each control without interference from either his clothing or the cockpit structure.

(b) Identical power-plant controls for the several engines in the case of multi-engine airplanes shall be so located as to prevent any misleading impression as to the engines to which they relate.

Controls	Movement and actuation
Primary:	
Aileron.....	Right (clockwise) for right wing down.
Elevator.....	Rearward for nose up.
Rudder.....	Right pedal forward for nose right.
Power plant:	
Throttle.....	Forward to open.

FIGURE 3-14 COCKPIT CONTROLS

§ 3.385 *Instruments and markings.* See § 3.661 relative to instrument arrangement. The operational markings, instructions, and placards required for the instruments and controls are specified in §§ 3.756 to 3.765.

EMERGENCY PROVISIONS

§ 3.386 *Protection.* The fuselage shall be designed to give reasonable assurance that each occupant, if he makes proper use of belts or harness for which provisions are made in the design, will not suffer serious injury during minor crash conditions as a result of contact of any vulnerable part of his body with any penetrating or relatively solid object, although it is accepted that parts of the airplane may be damaged.

(a) The ultimate accelerations to which occupants are assumed to be subjected shall be as follows:

	N, U	A
Upward.....	3.0g	4.5g
Forward.....	9.0g	3.0g
Sideward.....	1.5g	1.5g

(b) For airplanes having retractable landing gear, the fuselage in combination with other portions of the structure shall be designed to afford protection of the occupants in a wheels-up landing with moderate descent velocity.

(c) If the characteristics of an airplane are such as to make a turnover reasonably probable, the fuselage of such an airplane in combination with other portions of the structure shall be designed to afford protection of the occupants in a complete turnover.

Note: In § 3.386 (b) and (c), a vertical ultimate acceleration of 3g and a friction coefficient of 0.5 at the ground may be assumed.

(d) The inertia forces specified for N, U, and A category airplanes in paragraph (a) of this section shall be applied to all items of mass which would be apt to injure the passengers or crew if such items became loose in the event of a minor crash landing, and the supporting structure shall be designed to restrain these items.

§ 3.387 *Exits.* (a) Closed cabins on airplanes carrying more than 5 persons shall be provided with emergency exits consisting of movable windows or panels or of additional external doors which provide a clear and unobstructed opening, the minimum dimensions of which shall be such that a 19-by-26-inch ellipse may be completely inscribed therein. The exits shall be readily accessible, shall not require exceptional agility of a person using them, and shall be distributed so as to facilitate egress without crowding in all probable attitudes resulting from a crash. The method of opening shall be simple and obvious, and the exits shall be so arranged and marked as to be readily located and operated even in darkness. Reasonable provisions shall be made against the jamming of exits as a result of fuselage deformation. The proper functioning of exits shall be demonstrated by tests.

(b) The number of emergency exits required is as follows:

(1) Airplanes with a total seating capacity of more than 5 persons, but not in excess of 15, shall be provided with at least one emergency exit or one suitable door in addition to the main door specified in § 3.389. This emergency exit, or second door, shall be on the opposite side of the cabin from the main door.

(2) Airplanes with a seating capacity of more than 15 persons shall be provided with emergency exits or doors in addition to those required in paragraph (b) (1) of this section. There shall be one such additional exit or door located either in the top or side of the cabin for every additional 7 persons or fraction thereof above 15, except that not more than four exits, including doors, will be required if the arrangement and dimensions are suitable for quick evacuation of all occupants.

(c) If the pilot compartment is separated from the cabin by a door which is likely to block escape in the event of a minor crash, it shall have its own exit, but such exit shall not be considered as an emergency exit for the passengers.

(d) In categories U and A exits shall be provided which will permit all occupants to bail out quickly with parachutes.

§ 3.388 *Fire precautions.*—(a) *Cabin interiors.* Only materials which are flash-resistant shall be used. In compartments where smoking is to be permitted, the wall and ceiling linings, the covering of all upholstery, floors, and furnishings shall be flame-resistant. Such compartments shall be equipped with an adequate number of self-contained ash trays. All other compartments shall be placarded against smoking.

(b) *Combustion heaters.* If combustion heaters are installed, they shall be of an approved type. The installation shall comply with applicable parts of the

powerplant installation requirements covering fire hazards and precautions. All applicable requirements concerning fuel tanks, lines, and exhaust systems shall be considered.

PERSONNEL AND CARGO ACCOMMODATIONS

§ 3.389 *Doors.* Closed cabins on all airplanes carrying passengers shall be provided with at least one adequate and easily accessible external door. No passenger door shall be so located with respect to the propeller discs as to endanger persons using the door.

§ 3.390 *Seats and berths.* All seats and berths shall be of an approved type. They and their supporting structures shall be designed for an occupant weighing at least 170 pounds (190 pounds with parachute for seats intended for the acrobatic and utility categories) and for the maximum load factors corresponding with all specified flight and ground load conditions including the emergency landing conditions prescribed in § 3.386. The provisions of paragraphs (a) through (d) of this section shall also apply:

(a) Pilot seats shall be designed for the reactions resulting from the application of pilot forces to the primary flight controls as prescribed in § 3.231.

(b) All seats in the U and A categories shall be designed to accommodate passengers wearing parachutes, unless placarded in accordance with § 3.74 (b).

(c) Berths shall be so designed that the forward portion is provided with a padded end board, a canvas diaphragm, or other equivalent means, capable of withstanding the static load reaction of the occupant when subjected to the forward accelerations prescribed in § 3.386. Berths shall be provided with an approved safety belt and shall be free from corners or protuberances likely to cause serious injury to a person occupying the berth during emergency conditions. Berth safety belt attachments shall withstand the critical loads resulting from all relevant flight and ground load conditions and from the emergency landing conditions of § 3.386 with the exception of the forward load.

(d) In determining the strength of the attachment of the seat and berth to the structure, the accelerations prescribed in § 3.386 shall be multiplied by a factor of 1.33.

§ 3.392 *Cargo compartments.* Each cargo compartment shall be designed for the placarded maximum weight of contents and critical load distributions at the appropriate maximum load factors corresponding to all specified flight and ground load conditions. Suitable provisions shall be made to prevent the contents of cargo compartments from becoming a hazard by shifting. Such provisions shall be adequate to protect the passengers from injury by the contents of any cargo compartment when the ultimate forward acting accelerating force is 4.5g.

§ 3.393 *Ventilation.* All passenger and crew compartments shall be suitably ventilated. Carbon monoxide concentration shall not exceed 1 part in 20,000 parts of air.

MISCELLANEOUS

§ 3.401 *Leveling marks.* Leveling marks shall be provided for leveling the airplane on the ground.

SUBPART E—POWER-PLANT INSTALLATIONS;
RECIPROCATING ENGINES

GENERAL

§ 3.411 *Components.* (a) The power-plant installation shall be considered to include all components of the airplane which are necessary for its propulsion. It shall also be considered to include all components which affect the control of the major propulsive units or which affect their continued safety of operation.

(b) All components of the power-plant installation shall be constructed, arranged, and installed in a manner which will assure the continued safe operation of the airplane and power plant. Accessibility shall be provided to permit such inspection and maintenance as is necessary to assure continued airworthiness.

ENGINES AND PROPELLERS

§ 3.415 *Engines.* Engines installed in certificated airplanes shall be of a type which has been certificated in accordance with the provisions of Part 13 of this subchapter.

§ 3.416 *Propellers.* (a) Propellers installed in certificated airplanes shall be of a type which has been certificated in accordance with the provisions of Part 14 of this subchapter.

(b) The maximum engine power and propeller shaft rotational speed permissible for use in the particular airplane involved shall not exceed the corresponding limits for which the propeller has been certificated.

§ 3.417 *Propeller vibration.* In the case of propellers with metal blades or other highly stressed metal components, the magnitude of the critical vibration stresses under all normal conditions of operation shall be determined by actual measurements or by comparison with similar installations for which such measurements have been made. The vibration stresses thus determined shall not exceed values which have been demonstrated to be safe for continuous operation. Vibration tests may be waived and the propeller installation accepted on the basis of service experience, engine or ground tests which show adequate margins of safety, or other considerations which satisfactorily substantiate its safety in this respect. In addition to metal propellers, the Administrator may require that similar substantiation of the vibration characteristics be accomplished for other types of propellers, with the exception of conventional fixed-pitch wood propellers.

§ 3.418 *Propeller pitch and speed limitations.* The propeller pitch and speed shall be limited to values which will assure safe operation under all normal conditions of operation and will assure compliance with the performance requirements specified in §§ 3.81-3.86.

§ 3.419 *Speed limitations for fixed-pitch propellers, ground adjustable pitch propellers, and automatically varying*

pitch propellers which cannot be controlled in flight. (a) During take-off and initial climb at best rate-of-climb speed, the propeller, in the case of fixed-pitch or ground adjustable types, shall restrain the engine to a speed not exceeding its maximum permissible take-off speed and, in the case of automatic variable-pitch types, shall limit the maximum governed engine revolutions per minute to a speed not exceeding the maximum permissible take-off speed. In demonstrating compliance with this provision the engine shall be operated at full throttle or the throttle setting corresponding to the maximum permissible take-off manifold pressure.

(b) During a closed throttle glide at the placard, "never-exceed speed" (see § 3.739), the propeller shall not cause the engine to rotate at a speed in excess of 110 percent of its maximum allowable continuous speed.

§ 3.420 *Speed and pitch limitations for controllable pitch propellers without constant speed controls.* The stops or other means incorporated in the propeller mechanism to restrict the pitch range shall limit (a) the lowest possible blade pitch to a value which will assure compliance with the provisions of § 3.419 (a), and (b) the highest possible blade pitch to a value not lower than the flattest blade pitch with which compliance with the provisions of § 3.419 (b) can be demonstrated.

§ 3.421 *Variable pitch propellers with constant speed controls.* (a) Suitable means shall be provided at the governor to limit the speed of the propeller. Such means shall limit the maximum governed engine speed to a value not exceeding its maximum permissible take-off revolutions per minute.

(b) The low pitch blade stop, or other means incorporated in the propeller mechanism to restrict the pitch range, shall limit the speed of the engine to a value not exceeding 103 percent of the maximum permissible take-off revolutions per minute under the following conditions:

(1) Propeller blades set in the lowest possible pitch and the governor inoperative.

(2) Engine operating at take-off manifold pressure with the airplane stationary and with no wind.

§ 3.422 *Propeller clearance.* With the airplane loaded to the maximum weight and most adverse center of gravity position and the propeller in the most adverse pitch position, propeller clearances shall not be less than the following, unless smaller clearances are properly substantiated for the particular design involved:

(a) *Ground clearance.* (1) Seven inches (for airplanes equipped with nose wheel type landing gears) or 9 inches (for airplanes equipped with tail wheel type landing gears) with the landing gear statically deflected and the airplane in the level, normal take-off, or taxiing attitude, whichever is most critical.

(2) In addition to subparagraph (1) of this paragraph, there shall be positive clearance between the propeller and the ground when, with the airplane in the

level take-off attitude, the critical tire is completely deflated and the corresponding landing gear strut is completely bottomed.

(b) *Water clearance.* A minimum clearance of 18 inches shall be provided unless compliance with § 3.147 can be demonstrated with lesser clearance.

(c) *Structural clearance.* (1) One inch radial clearance between the blade tips and the airplane structure, or whatever additional radial clearance is necessary to preclude harmful vibration of the propeller or airplane.

(2) One-half inch longitudinal clearance between the propeller blades or cuffs and stationary portions of the airplane. Adequate positive clearance shall be provided between other rotating portions of the propeller or spinner and stationary portions of the airplane.

FUEL SYSTEM

§ 3.429 *General.* The fuel system shall be constructed and arranged in a manner to assure the provision of fuel to each engine at a flow rate and pressure adequate for proper engine functioning under all normal conditions of operation, including all maneuvers and acrobatics for which the airplane is intended.

ARRANGEMENT

§ 3.430 *Fuel system arrangement.* Fuel systems shall be so arranged as to permit any one fuel pump to draw fuel from only one tank at a time. Gravity feed systems shall not supply fuel to any one engine from more than one tank at a time unless the tank air spaces are interconnected in such a manner as to assure that all interconnected tanks will feed equally. (See also § 3.439.)

§ 3.431 *Multiengine fuel system arrangement.* The fuel systems of multi-engine airplanes shall be arranged to permit operation in at least one configuration in such a manner that the failure of any one component will not result in the loss of power of more than one engine and will not require immediate action by the pilot to prevent the loss of power of more than one engine. Unless other provisions are made to comply with this requirement, the fuel system shall be arranged to permit supplying fuel to each engine through a system entirely independent of any portion of the system supplying fuel to the other engines.

NOTE: It is not necessarily intended that fuel tanks proper be separate for each engine if a common tank is provided with separate outlets and the remainder of the fuel system is independent.

§ 3.432 *Pressure cross feed arrangements.* Pressure cross feed lines shall not pass through portions of the airplane devoted to carrying personnel or cargo, unless means are provided to permit the flight personnel to shut off the supply of fuel to these lines, or unless any joints, fittings, or other possible sources of leakage installed in such lines are enclosed in a fuel- and fume-proof enclosure which is ventilated and drained to the exterior of the airplane. Bare tubing need not be enclosed but shall be protected where necessary against possible inadvertent damage.

OPERATION

§ 3.433 *Fuel flow rate.* The ability of the fuel system to provide the required fuel flow rate and pressure shall be demonstrated when the airplane is in the attitude which represents the most adverse condition from the standpoint of fuel feed and quantity of unusable fuel in the tank. During this test fuel shall be delivered to the engine at the applicable flow rate (see §§ 3.434-3.436) and at a pressure not less than the minimum required for proper carburetor operation. A suitable mock-up of the system, in which the most adverse conditions are simulated, may be used for this purpose. The quantity of fuel in the tank being tested shall not exceed the amount established as the unusable fuel supply for that tank as determined by demonstration of compliance with the provisions of § 3.437 (see also §§ 3.440 and 3.672), plus whatever minimum quantity of fuel it may be necessary to add for the purpose of conducting the flow test. If a fuel flowmeter is provided, the meter shall be blocked during the flow test and the fuel shall flow through the meter bypass.

§ 3.434 *Fuel flow rate for gravity systems.* The fuel flow rate for gravity systems (main and reserve supply) shall be 150 percent of the actual take-off fuel consumption of the engine.

§ 3.435 *Fuel flow rate for pump systems.* The fuel flow rate for pump systems (main and reserve supply) shall be 0.9 pound per hour for each take-off horsepower or 125 percent of the actual take-off fuel consumption of the engine, whichever is greater. This flow rate shall be applicable to both the primary engine-driven pump and the emergency pumps and shall be available when the pump is running at the speed at which it would normally be operating during take-off. In the case of hand-operated pumps, this speed shall be considered to be not more than 60 complete cycles (120 single strokes) per minute.

§ 3.436 *Fuel flow rate for auxiliary fuel systems and fuel transfer systems.* The provisions of § 3.434 or § 3.435, whichever is applicable, shall also apply to auxiliary and transfer systems with the exception that the required fuel flow rate shall be established upon the basis of maximum continuous power and speed instead of take-off power and speed. A lesser flow rate shall be acceptable, however, in the case of a small auxiliary tank feeding into a large main tank, provided a suitable placard is installed to require that the auxiliary tank must only be opened to the main tank when a predetermined satisfactory amount of fuel still remains in the main tank.

§ 3.437 *Determination of unusable fuel supply and fuel system operation on low fuel.* (a) The unusable fuel supply for each tank shall be established as not less than the quantity at which the first evidence of malfunctioning occurs under the conditions specified in this section. (See also § 3.440.) In the case of airplanes equipped with more than one fuel tank, any tank which is not required to feed the engine in all of the conditions specified in this section need be investi-

gated only for those flight conditions in which it shall be used and the unusable fuel supply for the particular tank in question shall then be based on the most critical of those conditions which are found to be applicable. In all such cases, information regarding the conditions under which the full amount of usable fuel in the tank can safely be used shall be made available to the operating personnel by means of a suitable placard or instructions in the Airplane Flight Manual.

(b) Upon presentation of the airplane for test, the applicant shall stipulate the quantity of fuel with which he chooses to demonstrate compliance with this provision and shall also indicate which of the following conditions is most critical from the standpoint of establishing the unusable fuel supply. He shall also indicate the order in which the other conditions are critical from this standpoint:

(1) Level flight at maximum continuous power or the power required for level flight at V_c , whichever is less.

(2) Climb at maximum continuous power at the calculated best angle of climb at minimum weight.

(3) Rapid application of power and subsequent transition to best rate of climb following a power-off glide at $1.3 V_{so}$.

(4) Sideslips and skids in level flight, climb, and glide under the conditions specified in subparagraphs (1), (2), and (3) of this paragraph, of the greatest severity likely to be encountered in normal service or in turbulent air.

(c) In the case of utility category airplanes, there shall be no evidence of malfunctioning during the execution of all approved maneuvers included in the Airplane Flight Manual. During this test the quantity of fuel in each tank shall not exceed the quantity established as the unusable fuel supply, in accordance with paragraph (b) of this section, plus 0.03 gallon for each maximum continuous horsepower for which the airplane is certificated.

(d) In the case of acrobatic category airplanes, there shall be no evidence of malfunctioning during the execution of all approved maneuvers included in the Airplane Flight Manual. During this test the quantity of fuel in each tank shall not exceed that specified in paragraph (c) of this section.

(e) If an engine can be supplied with fuel from more than one tank, it shall be possible to regain the full power and fuel pressure of that engine in not more than 10 seconds (for single-engine airplanes) or 20 seconds (for multiengine airplanes) after switching to any full tank after engine malfunctioning becomes apparent due to the depletion of the fuel supply in any tank from which the engine can be fed. Compliance with this provision shall be demonstrated in level flight.

(f) There shall be no evidence of malfunctioning during take-off and climb for 1 minute at the calculated attitude of best angle of climb at take-off power and minimum weight. At the beginning of this test the quantity of fuel in each tank shall not exceed that specified in paragraph (c) of this section.

§ 3.438 *Fuel system hot weather operation.* Airplanes with suction lift fuel systems or other fuel system features conducive to vapor formation shall be demonstrated to be free from vapor lock when using fuel at a temperature of 110° F. under critical operating conditions.

§ 3.439 *Flow between interconnected tanks.* In the case of gravity feed systems with tanks whose outlets are interconnected, it shall not be possible for fuel to flow between tanks in quantities sufficient to cause an overflow of fuel from the tank vent when the airplane is operated as specified in § 3.437 (a) and the tanks are full.

FUEL TANKS

§ 3.440 *General.* Fuel tanks shall be capable of withstanding without failure any vibration, inertia, and fluid and structural loads to which they may be subjected in operation. Flexible fuel tank liners shall be of an acceptable type. Integral type fuel tanks shall be provided with adequate facilities for the inspection and repair of the tank interior. The total usable capacity of the fuel tanks shall be sufficient for not less than one-half hour operation at rated maximum continuous power (see § 3.74 (d)). The unusable capacity shall be considered to be the minimum quantity of fuel which will permit compliance with the provisions of § 3.437. The fuel quantity indicator shall be adjusted to account for the unusable fuel supply as specified in § 3.672. If the unusable fuel supply in any tank exceeds 5 percent of the tank capacity or 1 gallon, whichever is greater, a placard and a suitable notation in the Airplane Flight Manual shall be provided to indicate to the flight personnel that the fuel remaining in the tank when the quantity indicator reads zero cannot be used safely in flight. The weight of the unusable fuel supply shall be included in the empty weight of the airplane.

§ 3.441 *Fuel tank tests.* (a) Fuel tanks shall be capable of withstanding the following pressure tests without failure or leakage. These pressures may be applied in a manner simulating the actual pressure distribution in service:

(1) Conventional metal tanks and nonmetallic tanks whose walls are not supported by the airplane structure: A pressure of 3.5 p. s. i. or the pressure developed during the maximum ultimate acceleration of the airplane with a full tank, whichever is greater.

(2) Integral tanks: The pressure developed during the maximum limit acceleration of the airplane with a full tank, simultaneously with the application of the critical limit structural loads.

(3) Nonmetallic tanks the walls of which are supported by the airplane structure: Tanks constructed of an acceptable basic tank material and type of construction and with actual or simulated support conditions shall be subjected to a pressure of 2 p. s. i. for the first tank of a specific design. The supporting structure shall be designed for the critical loads occurring in the flight or landing strength conditions combined with the fuel pressure loads resulting from the corresponding accelerations.

(b) (1) Tanks with large unsupported or unstiffened flat areas shall be capable of withstanding the following tests without leakage or failure. The complete tank assembly, together with its supports, shall be subjected to a vibration test when mounted in a manner simulating the actual installation. The tank assembly shall be vibrated for 25 hours at a total amplitude of not less than $\frac{1}{2}$ of an inch while filled $\frac{2}{3}$ full of water. The frequency of vibration shall be 90 percent of the maximum continuous rated speed of the engine unless some other frequency within the normal operating range of speeds of the engine is more critical, in which case the latter speed shall be employed and the time of test shall be adjusted to accomplish the same number of vibration cycles.

(2) In conjunction with the vibration test, the tank assembly shall be rocked through an angle of 15° on either side of the horizontal (30° total) about an axis parallel to the axis of the fuselage. The assembly shall be rocked at the rate of 16 to 20 complete cycles per minute.

(c) Integral tanks which incorporate methods of construction and sealing not previously substantiated by satisfactory test data or service experience shall be capable of withstanding the vibration test specified in paragraph (b) of this section.

(d) (1) Tanks with nonmetallic liners shall be subjected to the sloshing portion of the test outlined under paragraph (b) of this section with fuel at room temperature.

(2) In addition, a specimen liner of the same basic construction as that to be used in the airplane shall, when installed in a suitable test tank, satisfactorily withstand the slosh test with fuel at a temperature of 110° F.

§ 3.442 *Fuel tank installation.* (a) The method of supporting tanks shall not be such as to concentrate the loads resulting from the weight of the fuel in the tanks. Pads shall be provided to prevent chafing between the tank and its supports. Materials employed for padding shall be nonabsorbent or shall be treated to prevent the absorption of fuels. If flexible tank liners are employed, they shall be of an approved type, and they shall be so supported that the liner is not required to withstand fluid loads. Interior surfaces of compartments for such liners shall be smooth and free of projections which are apt to cause wear of the liner, unless provisions are made for the protection of the liner at such points or unless the construction of the liner itself provides such protection. A positive pressure shall be maintained within the vapor space of all bladder cells under all conditions of operation including the critical condition of low air speed and rate of descent likely to be encountered in normal operation.

(b) Tank compartments shall be ventilated and drained to prevent the accumulation of inflammable fluids or vapors. Compartments adjacent to tanks which are an integral part of the airplane structure shall also be ventilated and drained.

(c) Fuel tanks shall not be located on the engine side of the fire wall. Not

less than one-half inch of clear air space shall be provided between the fuel tank and the fire wall. No portion of engine nacelle skin which lies immediately behind a major air egress opening from the engine compartment shall act as the wall of an integral tank. Fuel tanks shall not be located in personnel compartments, except in the case of single-engine airplanes. In such cases fuel tanks the capacity of which does not exceed 25 gallons may be located in personnel compartments, if adequate ventilation and drainage are provided. In all other cases, fuel tanks shall be isolated from personnel compartments by means of fume and fuel proof enclosures.

§ 3.443 *Fuel tank expansion space.* Fuel tanks shall be provided with an expansion space of not less than 2 percent of the tank capacity, unless the tank vent discharges clear of the aircraft in which case no expansion space will be required. It shall not be possible inadvertently to fill the fuel tank expansion space when the airplane is in the normal ground attitude.

§ 3.444 *Fuel tank sump.* (a) Each tank shall be provided with a drainable sump having a capacity of not less than 0.25 percent of the tank capacity or $\frac{1}{16}$ gallon, whichever is the greater. It shall be acceptable to dispense with the sump if the fuel system is provided with a sediment bowl permitting ground inspection. The sediment bowl shall also be accessible for drainage. The capacity of the sediment chamber shall not be less than 1 ounce per each 20 gallons of the fuel tank capacity.

(b) If a fuel tank sump is provided, the capacity specified in paragraph (a) of this section shall be effective with the airplane in the normal ground attitude and in all normal flight attitudes.

(c) If a separate sediment bowl is provided in lieu of a tank sump, the fuel tank outlet shall be so located that, when the airplane is in the normal ground attitude, water will drain from all portions of the tank to the sediment bowl.

§ 3.445 *Fuel tank filler connection.* (a) Fuel tank filler connections shall be marked as specified in § 3.767.

(b) Provision shall be made to prevent the entrance of spilled fuel into the fuel tank compartment or any portions of the airplane other than the tank itself. The filler cap shall provide a fuel-tight seal for the main filler opening. However, small openings in the fuel tank cap for venting purposes or to permit passage of a fuel gauge through the cap shall be permissible.

§ 3.446 *Fuel tank vents and carburetor vapor vents.* (a) Fuel tanks shall be vented from the top portion of the expansion space. Vent outlets shall be so located and constructed as to minimize the possibility of their being obstructed by ice or other foreign matter. The vent shall be so constructed as to preclude the possibility of siphoning fuel during normal operation. The vent shall be of sufficient size to permit the rapid relief of excessive differences of pressure between the interior and exterior of the tank. Air spaces of tanks the outlets of

which are interconnected shall also be interconnected. There shall be no undrainable points in the vent line where moisture is apt to accumulate with the airplane in either the ground or level flight attitude. Vents shall not terminate at points where the discharge of fuel from the vent outlet will constitute a fire hazard or from which fumes may enter personnel compartments.

(b) Carburetors which are provided with vapor elimination connections shall be provided with a vent line which will lead vapors back to one of the airplane fuel tanks. If more than one fuel tank is provided and it is necessary to use these tanks in a definite sequence for any reason, the vapor vent return line shall lead back to the fuel tank which must be used first unless the relative capacities of the tanks are such that return to another tank is preferable.

§ 3.447-A *Fuel tank vents.* Provision shall be made to prevent excessive loss of fuel during acrobatic maneuvers including short periods of inverted flight. It shall not be possible for fuel to siphon from the vent when normal flight has been resumed after having executed any acrobatic maneuver for which the airplane is intended.

§ 3.448 *Fuel tank outlet.* The fuel tank outlet shall be provided with a screen of from 8 to 16 meshes per inch. If a finger strainer is used, the length of the strainer shall not be less than 4 times the outlet diameter. The diameter of the strainer shall not be less than the diameter of the fuel tank outlet. Finger strainers shall be accessible for inspection and cleaning.

FUEL PUMPS

§ 3.449 *Fuel pump and pump installation.* (a) If fuel pumps are provided to maintain a supply of fuel to the engine, at least one pump for each engine shall be directly driven by the engine. Fuel pumps shall be adequate to meet the flow requirements of the applicable portions of §§ 3.433-3.436.

(b) Emergency fuel pumps shall be provided to permit supplying all engines with fuel in case of the failure of any one engine-driven pump, except that if an engine fuel injection pump which has been certificated as an integral part of the engine is used, an emergency pump is not required. Emergency pumps shall be available for immediate use in case of the failure of any other pump. If both the normal pump and emergency pump operate continuously, means shall be provided to indicate to the crew when either pump is malfunctioning.

LINES, FITTINGS, AND ACCESSORIES

§ 3.550 *Fuel system lines, fittings, and accessories.* Fuel lines shall be installed and supported in a manner which will prevent excessive vibration and will be adequate to withstand loads due to fuel pressure and accelerated flight conditions. Lines which are connected to components of the airplane between which relative motion might exist shall incorporate provisions for flexibility. Flexible hose shall be of an acceptable type.

§ 3.551 *Fuel valves.* (a) Means shall be provided to permit the flight personnel to shut off rapidly the flow of fuel to any engine individually in flight. Valves provided for this purpose shall be located on the side of the fire wall most remote from the engine.

(b) Shut-off valves shall be so constructed as to make it possible for the flight personnel to reopen the valves rapidly after they have once been closed.

(c) Valves shall be provided with either positive stops or "feel" in the on and off positions and shall be supported in such a manner that loads resulting from their operation or from accelerated flight conditions are not transmitted to the lines connected to the valve. Valves shall be so installed that the effect of gravity and vibration will tend to turn their handles to the open rather than the closed position.

(d) Fuel valve handles and their connections to the valve mechanism shall incorporate design features to minimize the possibility of incorrect installation.

§ 3.552 *Fuel strainer.* A fuel strainer shall be provided between the fuel tank outlet and the carburetor inlet. If an engine-driven fuel pump is provided, the strainer shall be located between the tank outlet and the engine-driven pump inlet. The strainer shall be accessible for drainage and cleaning, and the strainer screen shall be removable.

DRAINS AND INSTRUMENTS

§ 3.553 *Fuel system drains.* Drains shall be provided to permit safe drainage of the entire fuel system and shall incorporate means for locking in the closed position. The provisions for drainage shall be effective in the normal ground attitude.

§ 3.554 *Fuel system instruments.* (See §§ 3.655 and §§ 3.670 through 3.673.)

OIL SYSTEM

§ 3.561 *Oil system.* Each engine shall be provided with an independent oil system capable of supplying the engine with an ample quantity of oil at a temperature not exceeding the maximum which has been established as safe for continuous operation. The usable oil tank capacity shall not be less than the product of the endurance of the airplane under critical operating conditions and the maximum oil consumption of the engine under the same conditions, plus a suitable margin to assure adequate system circulation and cooling.

§ 3.562 *Oil cooling.* See § 3.581 and pertinent sections.

OIL TANKS

§ 3.563 *Oil tanks.* Oil tanks shall be capable of withstanding without failure all vibration, inertia, and fluid loads to which they might be subjected in operation. Flexible oil tank liners shall be of an acceptable type.

§ 3.564 *Oil tank tests.* Oil tank tests shall be the same as fuel tank tests (see § 3.441), except as follows:

(a) The 3.5 p. s. i. pressure specified in § 3.441 (a) shall be 5 pounds p. s. i.

(b) In the case of tanks with non-metallic liners, the test fluid shall be oil

rather than fuel as specified in § 3.441 (d) and the slosh test on a specimen liner shall be conducted with oil at a temperature of 250° F.

§ 3.565 *Oil tank installation.* Oil tank installations shall comply with the requirements of § 3.442 (a) and (b).

§ 3.566 *Oil tank expansion space.* Oil tanks shall be provided with an expansion space of not less than 10 percent of the tank capacity or ½ gallon, whichever is greater. It shall not be possible inadvertently to fill the oil tank expansion space when the airplane is in the normal ground attitude.

§ 3.567 *Oil tank filler connection.* Oil tank filler connections shall be marked as specified in § 3.767.

§ 3.568 *Oil tank vent.* (a) Oil tanks shall be vented to the engine crankcase from the top of the expansion space in such a manner that the vent connection is not covered by oil under any normal flight conditions. Oil tank vents shall be so arranged that condensed water vapor which might freeze and obstruct the line cannot accumulate at any point.

(b) *Category A.* Provision shall be made to prevent hazardous loss of oil during acrobatic maneuvers including short periods of inverted flight.

§ 3.569 *Oil tank outlet.* The oil tank outlet shall not be enclosed or covered by any screen or other guard which might impede the flow of oil. The diameter of the oil tank outlet shall not be less than the diameter of the engine oil pump inlet. (See also § 3.577.)

LINES, FITTINGS, AND ACCESSORIES

§ 3.570 *Oil system lines, fittings, and accessories.* Oil lines shall comply with the provisions of § 3.550, except that the inside diameter of the engine oil inlet and outlet lines shall not be less than the diameter of the corresponding engine oil pump inlet and outlet.

§ 3.571 *Oil valves.* See § 3.637.

§ 3.572 *Oil radiators.* Oil radiators and their support shall be capable of withstanding without failure any vibration, inertia, and oil pressure loads to which they might normally be subjected.

§ 3.573 *Oil filters.* If the engine is equipped with an oil filter, the filter shall be constructed and installed in such a manner that complete blocking of the flow through the filter element will not jeopardize the continued operation of the engine oil supply system.

§ 3.574 *Oil system drains.* Drains shall be provided to permit safe drainage of the entire oil system and shall incorporate means for positive locking in the closed position.

§ 3.575 *Engine breather lines.* (a) Engine breather lines shall be so arranged that condensed water vapor which might freeze and obstruct the line cannot accumulate at any point. Breathers shall discharge in a location which will not constitute a fire hazard in case foaming occurs and so that oil emitted from the line will not impinge upon the pilot's windshield. The

breather shall not discharge into the engine air induction system.

(b) *Category A.* In the case of acrobatic type airplanes, provision shall be made to prevent excessive loss of oil from the breather during acrobatic maneuvers including short periods of inverted flight.

§ 3.576 *Oil system instruments.* See §§ 3.655, 3.670, 3.671, and 3.674.

§ 3.577 *Propeller feathering system.* If the propeller feathering system is dependent upon the use of the engine oil supply, provision shall be made to trap a quantity of oil in the tank in case the supply becomes depleted due to failure of any portion of the lubricating system other than the tank itself. The quantity of oil so trapped shall be sufficient to accomplish the feathering operation and shall be available only to the feathering pump. The ability of the system to accomplish feathering when the supply of oil has fallen to the above level shall be demonstrated.

COOLING

§ 3.581 *General.* The power-plant cooling provisions shall be capable of maintaining the temperatures of all power-plant components, engine parts, and engine fluids (oil and coolant), at or below the maximum established safe values under critical conditions of ground and flight operation.

TESTS

§ 3.582 *Cooling tests.* Compliance with the provisions of § 3.581 shall be demonstrated under critical ground, water, and flight operating conditions. If the tests are conducted under conditions which deviate from the highest anticipated summer air temperature (see § 3.583), the recorded power-plant temperatures shall be corrected in accordance with the provisions of §§ 3.584 and 3.585. The corrected temperatures determined in this manner shall not exceed the maximum established safe values. The fuel used during the cooling tests shall be of the minimum octane number approved for the engines involved, and the mixture settings shall be those appropriate to the operating conditions. The test procedures shall be as outlined in §§ 3.586 and 3.587.

§ 3.583 *Maximum anticipated summer air temperatures.* The maximum anticipated summer air temperature shall be considered to be 100° F. at sea level and to decrease from this value at the rate of 3.6° F. per thousand feet of altitude above sea level.

§ 3.584 *Correction factor for cylinder head, oil inlet, carburetor air, and engine coolant inlet temperatures.* These temperatures shall be corrected by adding the difference between the maximum anticipated summer air temperature and the temperature of the ambient air at the time of the first occurrence of maximum head, air, oil, or coolant temperature recorded during the cooling test.

§ 3.585 *Correction factor for cylinder barrel temperatures.* Cylinder barrel temperatures shall be corrected by adding 0.7 of the difference between the maximum anticipated summer air temperature and the temperature of the am-

bient air at the time of the first occurrence of the maximum cylinder barrel temperature recorded during the cooling test.

§ 3.586 *Cooling test procedure for single-engine airplanes.* This test shall be conducted by stabilizing engine temperatures in flight and then starting at the lowest practicable altitude and climbing for 1 minute at take-off power. At the end of 1 minute, the climb shall be continued at maximum continuous power until at least 5 minutes after the occurrence of the highest temperature recorded. The climb shall not be conducted at a speed greater than the best rate-of-climb speed with maximum continuous power unless:

(a) The slope of the flight path at the speed chosen for the cooling test is equal to or greater than the minimum required angle of climb (see § 3.85 (a)), and

(b) A cylinder head temperature indicator is provided as specified in § 3.675.

§ 3.587 *Cooling test procedure for multiengine airplanes—(a) Airplanes which meet the minimum one-engine-inoperative climb performance specified in § 3.85 (b).* The engine cooling test for these airplanes shall be conducted with the airplane in the configuration specified in § 3.85 (b), except that the operating engine(s) shall be operated at maximum continuous power or at full throttle when above the critical altitude. After stabilizing temperatures in flight, the climb shall be started at the lower of the two following altitudes and shall be continued until at least 5 minutes after the highest temperature has been recorded:

(1) 1,000 feet below the engine critical altitude or at the lowest practicable altitude (when applicable).

(2) 1,000 feet below the altitude at which the single-engine-inoperative rate of climb is $0.02 V_{st}$.

The climb shall be conducted at a speed not in excess of the highest speed at which compliance with the climb requirement of § 3.85 (b) can be shown. However, if the speed used exceeds the speed for best rate of climb with one engine inoperative, a cylinder head temperature indicator shall be provided as specified in § 3.675.

(b) *Airplanes which cannot meet the minimum one-engine-inoperative climb performance specified in § 3.85 (b).* The engine cooling test for these airplanes shall be the same as in paragraph (a) of this section, except that after stabilizing temperatures in flight, the climb (or descent, in the case of airplanes with zero or negative one-engine-inoperative rate of climb) shall be commenced at as near sea level as practicable and shall be conducted at the best rate-of-climb speed (or the speed of minimum rate of descent, in the case of airplanes with zero or negative one-engine-inoperative rate of climb).

LIQUID COOLING SYSTEMS

§ 3.588 *Independent systems.* Each liquid cooled engine shall be provided with an independent cooling system. The cooling system shall be so arranged that no air or vapor can be trapped in

any portion of the system, except the expansion tank, either during filling or during operation.

§ 3.589 *Coolant tank.* A coolant tank shall be provided. The tank capacity shall not be less than 1 gallon plus 10 percent of the cooling system capacity. Coolant tanks shall be capable of withstanding without failure all vibration, inertia, and fluid loads to which they may be subjected in operation. Coolant tanks shall be provided with an expansion space of not less than 10 percent of the total cooling system capacity. It shall not be possible inadvertently to fill the expansion space with the airplane in the normal ground attitude.

§ 3.590 *Coolant tank tests.* Coolant tank tests shall be the same as fuel tank tests (see § 3.441), except as follows:

(a) The 3.5 pounds per square inch pressure test of § 3.441 (a) shall be replaced by the sum of the pressure developed during the maximum ultimate acceleration with a full tank or a pressure of 3.5 pounds per square inch, whichever is greater, plus the maximum working pressure of the system.

(b) In the case of tanks with non-metallic liners, the test fluid shall be coolant rather than fuel as specified in § 3.441 (d), and the slosh test on a specimen liner shall be conducted with coolant at operating temperature.

§ 3.591 *Coolant tank installation.* Coolant tanks shall be supported in a manner so as to distribute the tank loads over a large portion of the tank surface. Pads shall be provided to prevent chafing between the tank and the support. Material used for padding shall be nonabsorbent or shall be treated to prevent the absorption of inflammable fluids.

§ 3.592 *Coolant tank filler connection.* Coolant tank filler connections shall be marked as specified in § 3.767. Provisions shall be made to prevent the entrance of spilled coolant into the coolant tank compartment or any portions of the airplane other than the tank itself. Recessed coolant filler connections shall be drained and the drain shall discharge clear of all portions of the airplane.

§ 3.593 *Coolant lines, fittings, and accessories.* Coolant lines shall comply with the provisions of § 3.550, except that the inside diameter of the engine coolant inlet and outlet lines shall not be less than the diameter of the corresponding engine inlet and outlet connections.

§ 3.594 *Coolant radiators.* Coolant radiators shall be capable of withstanding without failure any vibration, inertia, and coolant pressure loads to which they may normally be subjected. Radiators shall be supported in a manner which will permit expansion due to operating temperatures and prevent the transmittal of harmful vibration to the radiator. If the coolant employed is inflammable, the air intake duct to the coolant radiator shall be so located that flames issuing from the nacelle in case of fire cannot impinge upon the radiator.

§ 3.595 *Cooling system drains.* One or more drains shall be provided to permit drainage of the entire cooling system, including the coolant tank, radiator, and the engine, when the airplane is in the normal ground attitude. Drains shall discharge clear of all portions of the airplane and shall be provided with means for positively locking the drain in the closed position. Cooling system drains shall be accessible.

§ 3.596 *Cooling system instruments.* See §§ 3.655, 3.670, and 3.671.

INDUCTION SYSTEM

§ 3.605 *General.* (a) The engine air induction system shall permit supplying an adequate quantity of air to the engine under all conditions of operation.

(b) Each engine shall be provided with at least two separate air intake sources, except that in the case of an engine equipped with a fuel injector only one air intake source need be provided, if the air intake, opening, or passage is unobstructed by a screen, filter, or other part on which ice might form and so restrict the air flow as to affect adversely engine operation. It shall be permissible for primary air intakes to open within the cowling only if that portion of the cowling is isolated from the engine accessory section by means of a fire-resistant diaphragm or if provision is made to prevent the emergence of backfire flames. Alternate air intakes shall be located in a sheltered position and shall not open within the cowling unless they are so located that the emergence of backfire flames will not result in a hazard. Supplying air to the engine through the alternate air intake system of the carburetor air preheater shall not result in the loss of excessive power in addition to the power lost due to the rise in the temperature of the air.

§ 3.606 *Induction system de-icing and anti-icing provisions.* The engine air induction system shall incorporate means for the prevention and elimination of ice accumulations in accordance with the provisions in this section. It shall be demonstrated that compliance with the provisions outlined in the following paragraphs can be accomplished when the airplane is operating in air at a temperature of 30° F. when the air is free of visible moisture.

(a) Airplanes equipped with sea level engines employing conventional venturi carburetors shall be provided with a preheater capable of providing a heat rise of 90° F. when the engine is operating at 75 percent of its maximum continuous power.

(b) Airplanes equipped with altitude engines employing conventional venturi carburetors shall be provided with a preheater capable of providing a heat rise of 120° F. when the engine is operating at 75 percent of its maximum continuous power.

(c) Airplanes equipped with altitude engines employing carburetors which embody features tending to reduce the possibility of ice formation shall be provided with a preheater capable of providing a heat rise of 100° F. when the engine is operating at 60 percent of its maximum continuous power. However,

the preheater need not provide a heat rise in excess of 40° F. if a fluid de-icing system complying with the provisions of § 3.607-3.609 is also installed.

(d) Airplanes equipped with sea level engines employing carburetors which embody features tending to reduce the possibility of ice formation shall be provided with a sheltered alternate source of air. The preheat supplied to this alternate air intake shall be not less than that provided by the engine cooling air downstream of the cylinders.

§ 3.607 *Carburetor de-icing fluid flow rate.* The system shall be capable of providing each engine with a rate of fluid flow, expressed in pounds per hour, of not less than 2.5 multiplied by the square root of the maximum continuous power of the engine. This flow shall be available to all engines simultaneously. The fluid shall be introduced into the air induction system at a point close to, and upstream from, the carburetor. The fluid shall be introduced in a manner to assure its equal distribution over the entire cross section of the induction system air passages.

§ 3.608 *Carburetor fluid de-icing system capacity.* The fluid de-icing system capacity shall not be less than that required to provide fluid at the rate specified in § 3.607 for a time equal to 3 percent of the maximum endurance of the airplane. However, the capacity need not in any case exceed that required for 2 hours of operation nor shall it be less than that required for 20 minutes of operation at the above flow rate. If the available preheat exceeds 50° F. but is less than 100° F., it shall be permissible to decrease the capacity of the system in proportion to the heat rise available in excess of 50° F.

§ 3.609 *Carburetor fluid de-icing system detail design.* Carburetor fluid de-icing systems shall comply with provisions for the design of fuel systems, except as specified in §§ 3.607 and 3.608, unless such provisions are manifestly inapplicable.

§ 3.610 *Carburetor air preheater design.* Means shall be provided to assure adequate ventilation of the carburetor air preheater when the engine is being operated in cold air. The preheater shall be constructed in such a manner as to permit inspection of exhaust manifold parts which it surrounds and also to permit inspection of critical portions of the preheater itself.

§ 3.611 *Induction system ducts.* Induction system ducts shall be provided with drains which will prevent the accumulation of fuel or moisture in all normal ground and flight attitudes. No open drains shall be located on the pressure side of turbo-supercharger installations. Drains shall not discharge in a location which will constitute a fire hazard. Ducts which are connected to components of the airplane between which relative motion may exist shall incorporate provisions for flexibility.

§ 3.612 *Induction system screens.* If induction system screens are employed, they shall be located upstream from the

carburetor. It shall not be possible for fuel to impinge upon the screen. Screens shall not be located in portions of the induction system which constitute the only passage through which air can reach the engine, unless the available preheat is 100° F. or over and the screen is so located that it can be de-iced by the application of heated air. De-icing of screens by means of alcohol in lieu of heated air shall not be acceptable.

EXHAUST SYSTEM

§ 3.615 *General.* (a) The exhaust system shall be constructed and arranged in such a manner as to assure the safe disposal of exhaust gases without the existence of a hazard of fire or carbon monoxide contamination of air in personnel compartments.

(b) Unless suitable precautions are taken, exhaust system parts shall not be located in close proximity to portions of any systems carrying inflammable fluids or vapors nor shall they be located under portions of such systems which may be subject to leakage. All exhaust system components shall be separated from adjacent inflammable portions of the airplane which are outside the engine compartment by means of fireproof shields. Exhaust gases shall not be discharged at a location which will cause a glare seriously affecting pilot visibility at night, nor shall they discharge within dangerous proximity of any fuel or oil system drains. All exhaust system components shall be ventilated to prevent the existence of points of excessively high temperature.

§ 3.616 *Exhaust manifold.* Exhaust manifolds shall be made of fireproof, corrosion-resistant materials, and shall incorporate provisions to prevent failure due to their expansion when heated to operating temperatures. Exhaust manifolds shall be supported in a manner adequate to withstand all vibration and inertia loads to which they might be subjected in operation. Portions of the manifold which are connected to components between which relative motion might exist shall incorporate provisions for flexibility.

§ 3.617 *Exhaust heat exchangers.* (a) Exhaust heat exchangers shall be constructed and installed in such a manner as to assure their ability to withstand without failure all vibration, inertia, and other loads to which they might normally be subjected. Heat exchangers shall be constructed of materials which are suitable for continued operation at high temperatures and which are adequately resistant to corrosion due to products contained in exhaust gases.

(b) Provisions shall be made for the inspection of all critical portions of exhaust heat exchangers, particularly if a welded construction is employed. Heat exchangers shall be ventilated under all conditions in which they are subject to contact with exhaust gases.

§ 3.618 *Exhaust heat exchangers used in ventilating air heating systems.* Heat exchangers of this type shall be so constructed as to preclude the possibility of exhaust gases entering the ventilating air.

FIRE WALL AND COWLING

§ 3.623 *Fire walls.* All engines, auxiliary power units, fuel burning heaters, and other combustion equipment which are intended for operation in flight shall be isolated from the remainder of the airplane by means of fire walls, or shrouds, or other equivalent means.

§ 3.624 *Fire wall construction.* (a) Fire walls and shrouds shall be constructed in such a manner that no hazardous quantity of liquids, gases, or flame could pass from the engine compartment to other portions of the airplane. All openings in the fire wall or shroud shall be sealed tight with fireproof grommets, bushings, or fire-wall fittings, except that, such seals of fire-resistant materials shall be acceptable for use on single-engine airplanes and multiengine airplanes not required to comply with § 3.85 (b) or § 3.85a (b), if such airplanes are equipped with engine(s) having a volumetric displacement of 1,000 cubic inches or less; and if the openings in the fire walls or shrouds are such that, without seals, the passage of a hazardous quantity of flame could not result.

(b) Fire walls and shrouds shall be constructed of fireproof material and shall be protected against corrosion. The following materials have been found to comply with this requirement:

- (1) Heat- and corrosion-resistant steel 0.015 inch thick.
- (2) Low carbon steel, suitably protected against corrosion, 0.018 inch thick.

§ 3.625 *Cowling.* (a) Cowling shall be constructed and supported in such a manner as to be capable of resisting all vibration, inertia, and air loads to which it may normally be subjected. Provision shall be made to permit rapid and complete drainage of all portions of the cowling in all normal ground and flight attitudes. Drains shall not discharge in locations constituting a fire hazard.

(b) Cowling shall be constructed of fire-resistant material. All portions of the airplane lying behind openings in the engine compartment cowling shall also be constructed of fire-resistant materials for a distance of at least 24 inches aft of such openings. Portions of cowling which are subjected to high temperatures due to proximity to exhaust system ports or exhaust gas impingement shall be constructed of fireproof material.

POWER-PLANT CONTROLS AND ACCESSORIES

CONTROLS

§ 3.627 *Power-plant controls.* Power-plant controls shall comply with the provisions of §§ 3.384 and 3.762. Controls shall maintain any necessary position without constant attention by the flight personnel and shall not tend to creep due to control loads or vibration. Flexible controls shall be of an acceptable type. Controls shall have adequate strength and rigidity to withstand operating loads without failure or excessive reflection.

§ 3.628 *Throttle controls.* A throttle control shall be provided to give independent control for each engine. Throt-

the controls shall afford a positive and immediately responsive means of controlling the engine(s). Throttle controls shall be grouped and arranged in such a manner as to permit separate control of each engine and also simultaneous control of all engines.

§ 3.629 *Ignition switches.* Ignition switches shall provide control for each ignition circuit on each engine. It shall be possible to shut off quickly all ignition on multiengine airplanes, either by grouping of the individual switches or by providing a master ignition control. If a master control is provided, suitable means shall be incorporated to prevent its inadvertent operation.

§ 3.630 *Mixture controls.* If mixture controls are provided, a separate control shall be provided for each engine. The controls shall be grouped and arranged in such a manner as to permit both separate and simultaneous control of all engines.

§ 3.631 *Propeller speed and pitch controls.* (See also § 3.421 (a).) If propeller speed or pitch controls are provided, the controls shall be grouped and arranged in such a manner as to permit control of all propellers, both separately and together. The controls shall permit ready synchronization of all propellers on multiengine airplanes.

§ 3.632 *Propeller feathering controls.* If propeller feathering controls are provided, a separate control shall be provided for each propeller. Propeller feathering controls shall be provided with means to prevent inadvertent operation.

§ 3.633 *Fuel system controls.* Fuel system controls shall comply with requirements of § 3.551 (c).

§ 3.634 *Carburetor air preheat controls.* Separate controls shall be provided to regulate the temperature of the carburetor air for each engine.

ACCESSORIES

§ 3.635 *Power-plant accessories.* Engine-driven accessories shall be of a type satisfactory for installation on the engine involved and shall utilize the provisions made on the engine for the mounting of such units. Items of electrical equipment subject to arcing or sparking shall be installed so as to minimize the possibility of their contact with any inflammable fluids or vapors which might be present in a free state.

§ 3.636 *Engine battery ignition systems.* (a) Battery ignition systems shall be supplemented with a generator which is automatically made available as an alternate source of electrical energy to permit continued engine operation in the event of the depletion of any battery.

(b) The capacity of batteries and generators shall be sufficient to meet the simultaneous demands of the engine ignition system and the greatest demands of any of the airplane's electrical system components which may draw electrical energy from the same source. Consideration shall be given to the condition of an inoperative generator, and to the con-

dition of a completely depleted battery when the generator is running at its normal operating speed. If only one battery is provided, consideration shall also be given to the condition in which the battery is completely depleted and the generator is operating at idling speed.

(c) Means shall be provided to warn the appropriate flight personnel if malfunctioning of any part of the electrical system is causing the continuous discharging of a battery used for engine ignition. (See § 3.629 for ignition switches.)

POWER-PLANT FIRE PROTECTION

§ 3.637 *Power-plant fire protection.* Suitable means shall be provided to shut off the flow in all lines carrying flammable fluids into the engine compartment on multiengine airplanes required to comply with the provisions of § 3.85 (b).

SUBPART F—EQUIPMENT

§ 3.651 *General.* The equipment specified in § 3.655 shall be the minimum installed when the airplane is submitted to determine its compliance with the airworthiness requirements. Such additional equipment as is necessary for a specific type of operation is specified in other pertinent parts of this subchapter, but, where necessary, its installation and that of the items mentioned in § 3.655 is covered by this part.

§ 3.652 *Functional and installational requirements.* Each item of equipment which is essential to the safe operation of the airplane shall be found by the Administrator to perform adequately the functions for which it is to be used, shall function properly when installed, and shall be adequately labeled as to its identification, function, operational limitations, or any combination of these, whichever is applicable.

BASIC EQUIPMENT

§ 3.655 *Required basic equipment.* The following table shows the basic equipment items required for type and airworthiness certification of an airplane:

(a) *Flight and navigational instruments.* (1) Air-speed indicator (see § 3.663).

(2) Altimeter.

(3) Magnetic direction indicator (see § 3.666).

(b) *Power-plant instruments—*(1) *For each engine or tank.* (i) Fuel quantity indicator (see § 3.672).

(ii) Oil pressure indicator.

(iii) Oil temperature indicator.

(iv) Tachometer.

(2) *For each engine or tank (if required in reference section).* (i) Carburetor air temperature indicator (see § 3.676).

(ii) Coolant temperature indicator (if liquid-cooled engines used).

(iii) Cylinder head temperature indicator (see § 3.675).

(iv) Fuel pressure indicator (if pumped engines used).

(v) Manifold pressure indicator (if altitude engines used).

(vi) Oil quantity indicator (see § 3.674).

(c) *Electrical equipment (if required by reference section).* (1) Master switch arrangement (see § 3.688).

(2) Adequate source(s) of electrical energy (see §§ 3.682 and 3.685).

(3) Electrical protective devices (see § 3.690).

(d) *Miscellaneous equipment.* (1) Approved safety belts for all occupants (see § 3.715).

(2) Airplane Flight Manual if required by § 3.777.

INSTRUMENTS; INSTALLATION

GENERAL

§ 3.661 *Arrangement and visibility of instrument installations.* (a) Flight, navigation, and power-plant instruments for use by each pilot shall be easily visible to him.

(b) On multiengine airplanes, identical power-plant instruments for the several engines shall be so located as to prevent any confusion as to the engines to which they relate.

§ 3.662 *Instrument panel vibration characteristics.* Vibration characteristics of the instrument panel shall not be such as to impair the accuracy of the instruments or to cause damage to them.

FLIGHT AND NAVIGATIONAL INSTRUMENTS

§ 3.663 *Air-speed indicating system.* This system shall be so installed that the air-speed indicator shall indicate true air speed at sea level under standard conditions to within an allowable installational error of not more than plus or minus 3 percent of the calibrated air speed or 5 miles per hour, whichever is greater, throughout the operating range of the airplane with flaps up from V_1 to $1.3 V_1$, and with flaps down at $1.3 V_1$. The calibration shall be made in flight.

§ 3.664 *Air-speed indicator marking.* The air-speed indicator shall be marked as specified in § 3.757.

§ 3.665 *Static air vent system.* All instruments provided with static air case connections shall be so vented that the influence of airplane speed, the opening and closing of windows, air-flow variation, moisture, or other foreign matter will not seriously affect their accuracy.

§ 3.666 *Magnetic direction indicator.* The magnetic direction indicator shall be so installed that its accuracy shall not be excessively affected by the airplane's vibration or magnetic fields. After the direction indicator has been compensated, the installation shall be such that the deviation in level flight does not exceed 10 degrees on any heading. A suitable calibration placard shall be provided as specified in § 3.758.

§ 3.667 *Automatic pilot system.* If an automatic pilot system is installed:

(a) The system shall be designed so that the automatic pilot can either:

(1) Be quickly and positively disengaged by the human pilot(s) to prevent it from interfering with his control of the airplane, or

(2) Be sufficiently overpowered by one human pilot to enable him to control the airplane.

(b) A satisfactory means shall be provided to indicate readily to the pilot the

alignment of the actuating device in relation to the control system which it operates, except when automatic synchronization is provided.

(c) The manually operated control(s) for the system's operation shall be readily accessible to the pilot.

(d) The automatic pilot system shall be designed so that, within the range of adjustment available to the human pilot, it cannot produce hazardous loads on the airplane or create hazardous deviations in the flight path under any conditions of flight appropriate to its use either during normal operation or in the event of malfunctioning, assuming that corrective action is initiated within a reasonable period of time.

§ 3.668 *Gyroscopic indicators.* All gyroscopic instruments installed in airplanes intended for operation under instrument flight rules shall derive their energy from a power source of sufficient capacity to maintain their required accuracy at all airplane speeds above the best rate-of-climb speed. They shall be installed to preclude malfunctioning due to rain, oil, and other detrimental elements. Means shall be provided for indicating the adequacy of the power being supplied to each of the instruments. In addition, the following provisions shall be applicable to multiengine airplanes:

(a) There shall be provided at least two independent sources of power, a manual or an automatic means for selecting the power source, and a means for indicating the adequacy of the power being supplied by each source.

(b) The installation and power supply systems shall be such that failure of one instrument or of the energy supply from one source will not interfere with the proper supply of energy to the remaining instruments or from the other source.

§ 3.669 *Flight director instrument.* If a flight director instrument is installed, its installation shall not affect the performance and accuracy of the required instruments. A means for disconnecting the flight director instrument from the required instruments or their installations shall be provided.

POWER-PLANT INSTRUMENTS

§ 3.670 *Operational markings.* Instruments shall be marked as specified in § 3.759.

§ 3.671 *Instrument lines.* Power-plant instrument lines shall comply with the provisions of § 3.550. In addition, instrument lines carrying inflammable fluids or gases under pressure shall be provided with restricted orifices or other safety devices at the source of the pressure to prevent escape of excessive fluid or gas in case of line failure.

§ 3.672 *Fuel quantity indicator.* Means shall be provided to indicate to the flight personnel the quantity of fuel in each tank during flight. Tanks, the outlets and air spaces of which are interconnected, may be considered as one tank and need not be provided with separate indicators. Exposed sight gauges shall be so installed and guarded as to

preclude the possibility of breakage or damage. Sight gauges which form a trap in which water can collect and freeze shall be provided with means to permit drainage on the ground. Fuel quantity gauges shall be calibrated to read zero during level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply as defined by § 3.437. Fuel gauges need not be provided for small auxiliary tanks which are used only to transfer fuel to other tanks, provided that the relative size of the tanks, the rate of fuel transfer, and the instructions pertaining to the use of the tanks are adequate to guard against overflow and to assume that the crew will receive prompt warning in case transfer is not being achieved as intended.

§ 3.673 *Fuel flowmeter system.* When a fuel flowmeter system is installed in the fuel line(s), the metering component shall be of such design as to include a suitable means for bypassing the fuel supply in the event that malfunctioning of the metering component offers a severe restriction to fuel flow.

§ 3.674 *Oil quantity indicator.* Ground means, such as a stick gauge, shall be provided to indicate the quantity of oil in each tank. If an oil transfer system or a reserve oil supply system is installed, means shall be provided to indicate to the flight personnel during flight the quantity of oil in each tank.

§ 3.675 *Cylinder head temperature indicating system for air-cooled engines.* A cylinder head temperature indicator shall be provided for each engine on airplanes equipped with cowl flaps. In the case of airplanes which do not have cowl flaps, an indicator shall be provided if compliance with the provisions of § 3.581 is demonstrated at a speed in excess of the speed of best rate of climb.

§ 3.676 *Carburetor air temperature indicating system.* A carburetor air temperature indicating system shall be provided for each altitude engine equipped with a preheater which is capable of providing a heat rise in excess of 60° F.

ELECTRICAL SYSTEMS AND EQUIPMENT

§ 3.681 *Installation.* (a) Electrical systems in airplanes shall be free from hazards in themselves, in their method of operation, and in their effects on other parts of the airplane. Electrical equipment shall be of a type and design adequate for the use intended. Electrical systems shall be installed in such a manner that they are suitably protected from fuel, oil, water, other detrimental substances, and mechanical damage.

(b) Items of electrical equipment required for a specific type of operation are listed in other pertinent parts of this subchapter.

BATTERIES

§ 3.682 *Batteries.* When an item of electrical equipment which is essential to the safe operation of the airplane is installed, the battery required shall have sufficient capacity to supply the elec-

trical power necessary for dependable operation of the connected electrical equipment.

§ 3.683 *Protection against acid.* If batteries are of such a type that corrosive substance may escape during servicing or flight, means such as a completely enclosed compartment shall be provided to prevent such substances from coming in contact with other parts of the airplane which are essential to safe operation. Batteries shall be accessible for servicing and inspection on the ground.

§ 3.684 *Battery vents.* The battery container or compartment shall be vented in such manner that gases released by the battery are carried outside the airplane.

GENERATORS

§ 3.685 *Generator.* Generators shall be capable of delivering their continuous rated power.

§ 3.686 *Generator controls.* Generator voltage control equipment shall be capable of dependably regulating the generator output within rated limits.

§ 3.687 *Reverse current cut-out.* A generator reverse current cut-out shall disconnect the generator from the battery and other generators when the generator is developing a voltage of such value that current sufficient to cause malfunctioning can flow into the generator.

MASTER SWITCH

§ 3.688 *Arrangement.* If electrical equipment is installed, a master switch arrangement shall be provided which will disconnect all sources of electrical power from the main distribution system at a point adjacent to the power sources.

§ 3.689 *Master switch installation.* The master switch or its controls shall be so installed that it is easily discernible and accessible to a member of the crew in flight.

PROTECTIVE DEVICES

§ 3.690 *Fuses or circuit breakers.* If electrical equipment is installed, protective devices (fuses or circuit breakers) shall be installed in the circuits to all electrical equipment, except that such items need not be installed in the main circuits of starter motors or in other circuits where no hazard is presented by their omission.

§ 3.691 *Protective devices installation.* Protective devices in circuits essential to safety in flight shall be so located and identified that fuses may be replaced or circuit breakers reset readily in flight.

§ 3.692 *Spare fuses.* If fuses are used, one spare of each rating or 50 percent spare fuses of each rating, whichever is greater, shall be provided.

ELECTRIC CABLES

§ 3.693 *Electric cables.* If electrical equipment is installed, the connecting cables used shall be in accordance with recognized standards for electric cable of a slow burning type and of suitable capacity.

SWITCHES

§ 3.694 *Switches.* Switches shall be capable of carrying their rated current and shall be of such construction that there is sufficient distance or insulating material between current carrying parts and the housing so that vibration in flight will not cause shorting.

§ 3.695 *Switch installation.* Switches shall be so installed as to be readily accessible to the appropriate crew member and shall be suitably labeled as to operation and the circuit controlled.

INSTRUMENT LIGHTS

§ 3.696 *Instrument lights.* If instrument lights are required, they shall be of such construction that there is sufficient distance or insulating material between current carrying parts and the housing so that vibration in flight will not cause shorting. They shall provide sufficient illumination to make all instruments and controls easily readable and discernible, respectively.

§ 3.697 *Instrument light installation.* Instrument lights shall be installed in such a manner that their direct rays are shielded from the pilot's eyes. Direct rays shall not be reflected from the windshield or other surfaces into the pilot's eyes.

LANDING LIGHTS

§ 3.698 *Landing lights.* If landing lights are installed, they shall be of an acceptable type.

§ 3.699 *Landing light installation.* Landing lights shall be so installed that there is no dangerous glare visible to the pilot and also so that the pilot is not seriously affected by halation. They shall be installed at such a location that they provide adequate illumination for night landing.

POSITION LIGHTS

§ 3.700 *Position light system installation—(a) General.* The provisions of §§ 3.700 through 3.703 shall be applicable to the position light system as a whole, and shall be complied with if a single circuit type system is installed.¹ The single circuit system shall include the items specified in paragraphs (b) through (f) of this section.

(b) *Forward position lights.* Forward position lights shall consist of a red and a green light spaced laterally as far apart as practicable and installed forward on the airplane in such a location that, with the airplane in normal flying position, the red light is displayed on the left side and the green light is displayed on the right side. The individual lights shall be of an approved type.

(c) *Rear position light.* The rear position light shall be a white light mounted as far aft as practicable. The light shall be of an approved type.

(d) *Circuit.* The two forward position lights and the rear position light shall constitute a single circuit.

¹ Requirements for dual circuit position light systems are contained in Part 4b of this subchapter.

(e) *Flasher.* If employed, an approved position light flasher for a single circuit system shall be installed. The flasher shall be such that the system is energized automatically at a rate of not less than 60 nor more than 120 flashes per minute with an on-off ratio between 2.5:1 and 1:1. Unless the flasher is of a fail-safe type, means shall be provided in the system to indicate to the pilot when there is a failure of the flasher and a further means shall be provided for turning the lights on steady in the event of such failure.

(f) *Light covers and color filters.* Light covers or color filters used shall be of noncombustible material and shall be constructed so that they will not change color or shape or suffer any appreciable loss of light transmission during normal use.

§ 3.701 *Position light system dihedral angles.* The forward and rear position lights as installed on the airplane shall show unbroken light within dihedral angles specified in paragraphs (a) through (c) of this section.

(a) Dihedral angle *L* (left) shall be considered formed by two intersecting vertical planes, one parallel to the longitudinal axis of the airplane and the other at 110° to the left of the first, when looking forward along the longitudinal axis.

(b) Dihedral angle *R* (right) shall be considered formed by two intersecting vertical planes, one parallel to the longitudinal axis of the airplane and the other at 110° to the right of the first, when looking forward along the longitudinal axis.

(c) Dihedral angle *A* (aft) shall be considered formed by two intersecting vertical planes making angles of 70° to the right and 70° to the left, respectively, looking aft along the longitudinal axis, to a vertical plane passing through the longitudinal axis.

§ 3.702 *Position light distribution and intensities—(a) General.* The intensities prescribed in this section are those to be provided by new equipment with all light covers and color filters in place. Intensities shall be determined with the light source operating at a steady value equal to the average luminous output of the light source at the normal operating voltage of the airplane. The light distribution and intensities of position lights shall comply with the provisions of paragraph (b) of this section.

(b) *Forward and rear position lights.* The light distribution and intensities of forward and rear position lights shall be expressed in terms of minimum intensities in the horizontal plane, minimum intensities in any vertical plane, and maximum intensities in overlapping beams within dihedral angles *L*, *R*, and *A*, and shall comply with the provisions of subparagraphs (1) through (3) of this paragraph.

(1) *Intensities in horizontal plane.* The intensities in the horizontal plane shall not be less than the values given in Figure 3-15. (The horizontal plane is the plane containing the longitudinal axis of the airplane and is perpendicular to the plane of symmetry of the airplane.)

(2) *Intensities above and below horizontal.* The intensities in any vertical plane shall not be less than the appropriate value given in Figure 3-16, where *I* is the minimum intensity prescribed in Figure 3-15 for the corresponding angles in the horizontal plane. (Vertical planes are planes perpendicular to the horizontal plane.)

(3) *Overlaps between adjacent signals.* The intensities in overlaps between adjacent signals shall not exceed the values given in Figure 3-17, except that higher intensities in the overlaps shall be acceptable with the use of main beam intensities substantially greater than the minima specified in Figures 3-15 and 3-16 if the overlap intensities in relation to the main beam intensities are such as not to affect adversely signal clarity.

Dihedral angle (light involved)	Angle from right or left of longitudinal axis, measured from dead ahead	Intensity (candles)
<i>L</i> and <i>R</i> (forward red and green).....	6° to 10°.....	40
	10° to 20°.....	30
	20° to 110°.....	5
<i>A</i> (rear white).....	110° to 180°.....	30

FIGURE 3-15—Minimum intensities in the horizontal plane of forward and rear position lights.

Angle above or below horizontal	Intensity
0°.....	1.00 <i>I</i> .
0° to 5°.....	0.90 <i>I</i> .
5° to 10°.....	0.80 <i>I</i> .
10° to 15°.....	0.70 <i>I</i> .
15° to 20°.....	0.50 <i>I</i> .
20° to 30°.....	0.30 <i>I</i> .
30° to 40°.....	0.10 <i>I</i> .
40° to 90°.....	At least 2 candles.

FIGURE 3-16—Minimum intensities in any vertical plane of forward and rear position lights.

Overlaps	Maximum intensity	
	Area A (candles)	Area B (candles)
Green in dihedral angle <i>L</i>	10	1
Red in dihedral angle <i>R</i>	10	1
Green in dihedral angle <i>A</i>	5	1
Red in dihedral angle <i>A</i>	5	1
Rear white in dihedral angle <i>L</i>	5	1
Rear white in dihedral angle <i>R</i>	5	1

NOTE: Area A includes all directions in the adjacent dihedral angle which pass through the light source and which intersect the common boundary plane at more than 10 degrees but less than 20 degrees. Area B includes all directions in the adjacent dihedral angle which pass through the light source and which intersect the common boundary plane at more than 20 degrees.

FIGURE 3-17—Maximum intensities in overlapping beams of forward and rear position lights.

§ 3.703 *Color specifications.* The colors of the position lights shall have the International Commission on Illumination chromaticity coordinates as set forth in paragraphs (a) through (c) of this section.

(a) *Aviation red.*

y is not greater than 0.335,
x is not greater than 0.002;

(b) *Aviation green.*

x is not greater than 0.440—0.320_y,
x is not greater than *y*—0.170,
y is not less than 0.390—0.170_x;

(c) *Aviation white.*

z is not less than 0.350,
 z is not greater than 0.540,
 $y - y_0$ is not numerically greater than
 0.01, y_0 being the y coordinate of the Planck
 radiator for which $x_0 = x$.

RIDING LIGHT

§ 3.704 *Riding light.* (a) When a riding (anchor) light is required for a seaplane, flying boat, or amphibian, it shall be capable of showing a white light for at least 2 miles at night under clear atmospheric conditions.

(b) The riding light shall be installed to show the maximum unbroken light practicable when the airplane is moored or drifting on the water. Externally hung lights shall be acceptable.

SAFETY EQUIPMENT; INSTALLATION

§ 3.711 *Marking.* Required safety equipment which the crew is expected to operate at a time of emergency, such as flares and automatic life raft releases, shall be readily accessible and plainly marked as to its method of operation. When such equipment is carried in lockers, compartments, or other storage places, such storage places shall be marked for the benefit of passengers and crew.

§ 3.712 *De-icers.* When pneumatic de-icers are installed, the installation shall be in accordance with approved data. Positive means shall be provided for the deflation of the pneumatic boots.

§ 3.713 *Flare requirements.* When parachute flares are required, they shall be of an approved type.

§ 3.714 *Flare installation.* Parachute flares shall be releasable from the pilot compartment and so installed that danger of accidental discharge is reduced to a minimum. The installation shall be demonstrated in flight to eject flares satisfactorily, except in those cases where inspection indicates a ground test will be adequate. If the flares are ejected so that recoil loads are involved, structural provisions for such loads shall be made.

§ 3.715 *Safety belts.* Safety belts shall be of an approved type. In no case shall the rated strength of the safety belt be less than that corresponding with the ultimate load factors specified in § 3.386 (a), taking due account of the dimensional characteristics of the safety belt installation for the specific seat or berth arrangement. Safety belts shall be attached so that no part of the anchorage will fail at a load lower than that corresponding with the ultimate load factors equal to those specified in § 3.386 (a) multiplied by a factor of 1.33. In the case of safety belts for berths, the forward load factor need not be applied.

EMERGENCY FLOTATION AND SIGNALING EQUIPMENT

§ 3.716 *Rafts and life preservers.* Rafts and life preservers shall be of an approved type.

§ 3.717 *Installation.* When such emergency equipment is required, it shall be so installed as to be readily available to the crew and passengers. Rafts released automatically or by the pilot shall be attached to the airplane by means of

a line to keep them adjacent to the airplane. The strength of the line shall be such that it will break before submerging the empty raft.

§ 3.718 *Signaling device.* Signaling devices, when required by other parts of the regulations of this subchapter, shall be accessible, function satisfactorily, and be free from any hazard in their operation.

RADIO EQUIPMENT; INSTALLATION

§ 3.721 *General.* Radio equipment and installations in the airplane shall be free from hazards in themselves, in their method of operation, and in their effects on other components of the airplane.

MISCELLANEOUS EQUIPMENT; INSTALLATION

§ 3.725 *Accessories for multiengine airplanes.* Engine driven accessories essential to the safe operation of the airplane shall be so distributed among two or more engines that the failure of any one engine will not impair the safe operation of the airplane by the malfunctioning of these accessories.

HYDRAULIC SYSTEMS

§ 3.726 *General.* Hydraulic systems and elements shall be so designed as to withstand, without exceeding the yield point, any structural loads which might be imposed in addition to the hydraulic loads.

§ 3.727 *Tests.* Hydraulic systems shall be substantiated by proof pressure tests. When proof tested, no part of the hydraulic system shall fail, malfunction, or experience a permanent set. The proof load of any system shall be 1.5 times the maximum operating pressure of that system.

§ 3.728 *Accumulators.* Hydraulic accumulators or pressurized reservoirs shall not be installed on the engine side of the fire wall, except when they form an integral part of the engine or propeller.

SUBPART G—OPERATING LIMITATIONS AND INFORMATION

§ 3.735 *General.* Means shall be provided to inform adequately the pilot and other appropriate crew members of all operating limitations upon which the type design is based. Any other information concerning the airplane found by the Administrator to be necessary for safety during its operation shall also be made available to the crew. (See §§ 3.755 and 3.777.)

LIMITATIONS

§ 3.737 *Limitations.* The operating limitations specified in §§ 3.738–3.750 and any similar limitations shall be established for any airplane and made available to the operator as further described in §§ 3.755–3.780, unless its design is such that they are unnecessary for safe operation.

AIR SPEED

§ 3.738 *Air speed.* Air-speed limitations shall be established as set forth in §§ 3.739–3.743.

§ 3.739 *Never-exceed speed (V_{ne}).* This speed shall not exceed the lesser of the following:

(a) 0.9 V_d chosen in accordance with § 3.184.

(b) 0.9 times the maximum speed demonstrated in accordance with § 3.159, but shall not be less than 0.9 times the minimum value of V_d permitted by § 3.184.

§ 3.740 *Maximum structural cruising speed (V_{no}).* This operating limitation shall be:

(a) Not greater than V_c chosen in accordance with § 3.184.

(b) Not greater than 0.89 times V_{ne} established under § 3.739.

(c) Not less than the minimum V_c permitted in § 3.184.

§ 3.741 *Maneuvering speed (V_p).* (See § 3.184.)

§ 3.742 *Flaps-extended speed (V_{fe}).* (a) This speed shall not exceed the lesser of the following:

(1) The design flap speed, V_f , chosen in accordance with § 3.190.

(2) The design flap speed chosen in accordance with § 3.223, but shall not be less than the minimum value of design flap speed permitted in §§ 3.190 and 3.223.

(b) Additional combinations of flap setting, air speed, and engine power may be established, provided the structure has been proven for the corresponding design conditions.

§ 3.743 *Minimum control speed (V_{mc}).* (See § 3.111.)

POWER PLANT

§ 3.744 *Power plant.* The power-plant limitations in §§ 3.745 through 3.747 shall be established and shall not exceed the corresponding limits established as a part of the type certification of the engine and propeller installed in the airplane.

§ 3.745 *Take-off operation.* (a) Maximum rotational speed (revolutions per minute).

(b) Maximum permissible manifold pressure (if applicable).

(c) The time limit upon the use of the corresponding power.

(d) Where the time limit of paragraph (c) of this section exceeds 2 minutes, the maximum allowable temperatures for cylinder head, oil, and coolant outlet if applicable.

§ 3.746 *Maximum continuous operation.* (a) Maximum rotational speed (revolutions per minute).

(b) Maximum permissible manifold pressure (if applicable).

(c) Maximum allowable temperatures for cylinder head, oil, and coolant outlet if applicable.

§ 3.747 *Fuel octane rating.* The minimum octane rating of fuel required for satisfactory operation of the power plant at the limits of §§ 3.745 and 3.746.

AIRPLANE WEIGHT

§ 3.748 *Airplane weight.* The airplane weight and center of gravity limitations are those required to be determined by § 3.71.

MINIMUM FLIGHT CREW

§ 3.749 *Minimum flight crew.* The minimum flight crew shall be established

as that number of persons required for the safe operation of the airplane during any contact flight as determined by the availability and satisfactory operation of all necessary controls by each operator concerned.

TYPES OF OPERATION

§ 3.750 *Types of operation.* The type of operation to which the airplane is limited shall be established by the category in which it has been found eligible for certification and by the equipment installed. (See the appropriate operating parts of the Civil Air Regulations.)

MARKINGS AND PLACARDS

§ 3.755 *Markings and placards.* (a) The markings and placards specified are required for all airplanes. Placards shall be displayed in a conspicuous place and both shall be such that they cannot be easily erased, disfigured, or obscured. Additional informational placards and instrument markings having a direct and important bearing on safe operation may be required by the Administrator when unusual design, operating, or handling characteristics so warrant.

(b) When an airplane is certificated in more than one category, the applicant shall select one category on which all placards and markings on the airplane shall be based. The placard and marking information for the other categories in which the airplane is certificated shall be entered in the Airplane Flight Manual. A reference to this information shall be included on a placard which shall also indicate the category on which the airplane placards and markings are based.

INSTRUMENT MARKINGS

§ 3.756 *Instrument markings.* The instruments listed in §§ 3.757-3.761 shall have the following limitations marked thereon. When these markings are placed on the cover glass of the instrument, adequate provision shall be made to maintain the correct alignment of the glass cover with the face of the dial. All arcs and lines shall be of sufficient width and so located as to be clearly and easily visible to the pilot.

§ 3.757 *Air-speed indicator.* (a) True indicated air speed shall be used:

(1) The never-exceed speed, V_{ne} —a radial red line (see § 3.739).

(2) The caution range—a yellow arc extending from the red line in (1) above to the upper limit of the green arc specified in (3) below.

(3) The normal operating range—a green arc with the lower limit at V_{so} as determined in § 3.82 with maximum weight, landing gear and wing flaps retracted, and the upper limit at the maximum structural cruising speed established in § 3.740.

(4) The flap operating range—a white arc with the lower limit at V_{se} as determined in § 3.82 at the maximum weight, and the upper limit at the flaps-extended speed in § 3.742.

(b) When the never-exceed and maximum structural cruising speeds vary with altitude, means shall be provided which will indicate the appropriate limitations

to the pilot throughout the operating altitude range.

§ 3.758 *Magnetic direction indicator.* A placard shall be installed on or in close proximity to the magnetic direction indicator which contains the calibration of the instrument in a level flight attitude with engine(s) operating and radio receiver(s) on or off (which shall be stated). The calibration readings shall be those to known magnetic headings in not greater than 30-degree increments.

§ 3.759 *Power-plant instruments.* All required power-plant instruments shall be marked with a red radial line at the maximum and minimum (if applicable) indications for safe operation. The normal operating ranges shall be marked with a green arc which shall not extend beyond the maximum and minimum limits for continuous operation. Take-off and precautionary ranges shall be marked with a yellow arc. Ranges of engine speed which are restricted as a result of excessive engine or propeller vibration shall be marked with a red arc.

§ 3.760 *Oil quantity indicators.* Indicators shall be suitably marked in sufficient increments so that they will readily and accurately indicate the quantity of oil.

§ 3.761 *Fuel quantity indicator.* When the unusable fuel supply for any tank exceeds 1 gallon or 5 percent of the tank capacity, whichever is greater, a red band shall be placed on the indicator extending from the calibrated zero reading (see § 3.437) to the lowest reading obtainable in the level flight attitude, and a suitable notation in the Airplane Flight Manual shall be provided to indicate to the flight personnel that the fuel remaining in the tank when the quantity indicator reaches zero cannot be used safely in flight. (See § 3.672.)

CONTROL MARKINGS

§ 3.762 *General.* All cockpit controls, with the exception of the primary flight controls, shall be plainly marked as to their function and method of operation.

§ 3.763 *Aerodynamic controls.* The secondary controls shall be suitably marked to comply with §§ 3.337 and 3.338.

§ 3.764 *Power-plant fuel controls.* (a) Controls for fuel tank selector valves shall be marked to indicate the position corresponding to each tank and to all existing cross feed positions.

(b) When more than one fuel tank is provided, and if safe operation depends upon the use of tanks in a specific sequence, the fuel tank selector controls shall be marked adjacent to or on the control to indicate to the flight personnel the order in which the tanks must be used.

(c) On multiengine airplanes, controls for engine valves shall be marked to indicate the position corresponding to each engine.

(d) The usable capacity of each tank shall be indicated adjacent to or on the fuel tank selector control.

§ 3.765 *Accessory and auxiliary controls.* (a) When a retractable landing gear is used, the indicator required in § 3.359 shall be marked in such a manner that the pilot can ascertain at all times when the wheels are secured in the extreme positions.

(b) Emergency controls shall be colored red and clearly marked as to their method of operation.

MISCELLANEOUS

§ 3.766 *Baggage compartments, ballast location, and special seat loading limitations.* (a) Each baggage or cargo compartment and ballast location shall bear a placard which states the maximum allowable weight of contents and, if applicable, any special limitation of contents due to loading requirements, etc.

(b) When the maximum permissible weight to be carried in a seat is less than 170 pounds (see § 3.74), a placard shall be permanently attached to the seat structure which states the maximum allowable weight of occupants to be carried.

§ 3.767 *Fuel, oil, and coolant filler openings.* The following information shall be marked on or adjacent to the filler cover in each case:

(a) The word "fuel," the minimum permissible fuel octane number for the engines installed, and the usable fuel tank capacity. (See § 3.437.)

(b) The word "oil" and the oil tank capacity.

(c) The name of the proper coolant fluid and the capacity of the coolant system.

§ 3.768 *Emergency exit placards.* Emergency exit placards and operating controls shall be colored red. A placard shall be located adjacent to the control(s) which clearly indicates it to be an emergency exit and describes the method of operation. (See § 3.387.)

§ 3.769 *Approved flight maneuvers—*(a) *Category N.* A placard shall be provided in front of and in clear view of the pilot stating: "No acrobatic maneuvers including spins approved."

(b) *Category U.* A placard shall be provided in clear view of the pilot stating: "Acrobatic maneuvers are limited to the following: ----- (list approved maneuvers)."

(c) *Category A.* A placard shall be provided in clear view of the pilot which lists all approved acrobatic maneuvers and the recommended entry air speed for each. If inverted flight maneuvers are not approved, the placard shall bear a notation to this effect.

§ 3.770 *Operating limitations placard.* A placard shall be provided in clear view of the pilot stating: "This airplane must be operated as a ----- or ----- category airplane in compliance with the operating limitations stated in the form of placards, markings, and manuals."

§ 3.771 *Airspeed placards.* The following airspeed limitations shall be shown on placards in view of the pilot:

(a) Maximum speed with landing gear extended, if the airplane is equipped with retractable landing gear.

(b) Minimum control speed with one engine inoperative, for multiengine airplanes.

(c) Rough air or maneuvering speed determined in accordance with § 3.741.

AIRPLANE FLIGHT MANUAL

§ 3.777 *Airplane Flight Manual.* (a) An Airplane Flight Manual shall be furnished with each airplane, having a maximum certificated weight of more than 6,000 pounds. The portions of this document listed below shall be verified and approved by the Administrator, and shall be segregated, identified, and clearly distinguished from portions not so approved. Additional items of information having a direct and important bearing on safe operation may be required by the Administrator when unusual design, operating, or handling characteristics so warrant.

(b) For airplanes having a maximum certificated weight of 6,000 pounds or less an Airplane Flight Manual is not required; instead, the information prescribed in this part for inclusion in the Airplane Flight Manual shall be made available to the operator by the manufacturer in the form of clearly stated placards, markings, or manuals.

§ 3.778 *Operating limitations—(a) Air-speed limitations.* Sufficient information shall be included to permit proper marking of the air-speed limitations on the indicator as required in § 3.757. It shall also include the design, maneuvering speed, and the maximum safe air speed at which the landing gear can be safely lowered. In addition to the above information, the significance of the air speed limitations and of the color coding used shall be explained.

(b) *Power-plant limitations.* Sufficient information shall be included to outline and explain all power-plant limitations (see § 3.744) and to permit marking the instruments as required in § 3.759.

(c) *Weight.* The following information shall be included:

(1) Maximum weight for which the airplane has been certificated,

(2) Airplane empty weight and center of gravity location,

(3) Useful load,

(4) The composition of the useful load, including the total weight of fuel and oil with tanks full.

(d) *Load distribution.* (1) All authorized center of gravity limits shall be stated. If the available space for loading the airplane is adequately placarded or so arranged that any reasonable distribution of the useful load listed in weight above will not result in a center of gravity location outside of the stated limits, this section need not include any other information than the statement of center of gravity limits.

(2) In all other cases this section shall also include adequate information to indicate satisfactory loading combinations which will assure maintaining the center of gravity position within approved limits.

(e) *Maneuvers.* All authorized maneuvers and the appropriate air-speed limitations as well as all unauthorized maneuvers shall be included in accordance with the following:

(1) *Normal category.* All acrobatic maneuvers, including spins, are unauthorized. If the airplane has been demonstrated to be characteristically incapable of spinning in accordance with § 3.124 (d), a statement to this effect shall be entered here.

(2) *Utility category.* All authorized maneuvers demonstrated in the type flight tests shall be listed, together with recommended entry speeds. All other maneuvers are not approved. If the airplane has been demonstrated to be characteristically incapable of spinning in accordance with § 3.124 (d), a statement to this effect shall be entered here.

(3) *Acrobatic category.* All approved flight maneuvers demonstrated in the type flight tests shall be included, together with recommended entry speeds.

(f) *Flight load factor.* The positive limit load factors made good by the airplane's structure shall be described here in terms of accelerations.

(g) *Flight crew.* When a flight crew of more than one is required to operate the airplane safely, the number and functions of the minimum flight crew shall be included.

§ 3.779 *Operating procedures.* This section shall contain information concerning normal and emergency procedures and other pertinent information peculiar to the airplane's operating characteristics which are necessary to safe operation.

§ 3.780 *Performance information.*

(a) For airplanes with a maximum certificated take-off weight of more than 6,000 lbs., information relative to the items of performance set forth in subparagraphs (1) through (5) of this paragraph shall be included:

(1) The stalling speed, V_{st} , at maximum weight,

(2) The stalling speed, V_{st} , at maximum weight and with landing gear and wing flaps retracted,

(3) The take-off distance determined in accordance with § 3.84, including the air speed at the 50-foot height, and the airplane configuration, if pertinent,

(4) The landing distance determined in accordance with § 3.86, including the airplane configuration, if pertinent,

(5) The steady rate of climb determined in accordance with § 3.85 (a), (c), and, as appropriate, (b), including the air speed, power, and airplane configuration, if pertinent.

(b) The effect of variation in paragraph (a) (2) of this section with angle of bank up to 60 degrees shall be included.

(c) The calculated approximate effect of variations in paragraph (a) (3), (4) and (5) of this section with altitude and temperature shall be included.

SUBPART H—IDENTIFICATION DATA

§ 3.791 *Identification plate.* A fire-proof identification plate shall be securely attached to the structure in an accessible location where it will not likely

be defaced during normal service. The identification plate shall not be placed in a location where it might be expected to be destroyed or lost in the event of an accident. The identification plate shall contain the identification data required by § 1.50 of this subchapter.

§ 3.792 *Airworthiness certificate number.* The identifying symbols and registration numbers shall be permanently affixed to the airplane structure in compliance with § 1.100 of this subchapter.

[F. R. Doc. 56-4021; Filed, May 21, 1956; 8:53 a. m.]

TITLE 29—LABOR

Chapter V—Wage and Hour Division, Department of Labor

PART 783—SEAMAN EXEMPTION

WHO IS "EMPLOYED AS A SEAMAN," FOR PURPOSES OF EXEMPTION

On April 26, 1956, the Administrator of the Wage and Hour Division of the United States Department of Labor issued an amendment to Part 783 of Title 29, Code of Federal Regulations, entitled Seaman Exemption, which was published in the May 2, 1956 issue of the FEDERAL REGISTER (21 F. R. 2862).

The first sentence of § 783.2 (d) of Part 783 reads in part " * * * putting out running and mooring lines * * * ". The word "lines" should read "lights". Section 783.2 (d) of Part 783, Title 29, Code of Federal Regulations, is therefore corrected by striking the word "lines" in this phrase and substituting therefor the word "lights".

Dated at Washington, D. C., this 16th day of May 1956.

NEWELL BROWN,
Administrator,
Wage and Hour Division.

[F. R. Doc. 56-4017; Filed, May 21, 1956; 8:52 a. m.]

TITLE 47—TELECOMMUNICATION

Chapter I—Federal Communications Commission

[FCC 56-467]

[Amdts. 2-21 and 12-19]

PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

PART 12—AMATEUR RADIO SERVICE

MODIFYING AREAS OF PERMISSIBLE SHARING BETWEEN AMATEUR SERVICE AND LORAN STATIONS

In the matter of amendment of Parts 2 and 12 of the Commission's rules to modify the areas of permissible sharing between the Amateur Service and Loran stations in the band 1800-20000 kc.

1. At a session of the Federal Communications Commission, held at its offices in Washington, D. C., on the 16th day of May 1956;

2. The Commission having under consideration its proposal in the above entitled matter; and

3. It appearing that footnote NG23 to the table of frequency allocations contained in § 2.104 (a) (5) of the Commission's rules and that § 12.111 (a) of the Commission's rules stipulate that the Amateur Service may use certain portions of the band 1800-2000 kc in certain areas in accordance with the following conditions (among others):

(1) The use of these frequencies by the amateur service shall not be a bar to the expansion of the radionavigation (Loran) service;

(2) The amateur service shall not cause harmful interference to the radionavigation (Loran) service; and

(3) The provisions of this footnote and section shall be considered as temporary in the sense that they shall remain subject to cancellation or revision, in whole or in part, by order of the Commission without hearing whenever the Commission shall deem such cancellation or revision to be necessary or desirable in the light of the priority within this band of the Loran system of radionavigation; and

4. It further appearing that as a means of preventing harmful interference from being caused to the maritime mobile use of 2009 kc on the west coast of Florida, and to permit the orderly expansion of Loran service in the West Indies/Caribbean area, the carrier frequency of the Gulf of Mexico Loran Chain was changed from 1950 kc to 1850 kc on May 1, 1956; and

5. It further appearing that the West Indies Loran Chain scheduled for operation later this year will also operate on 1850 kc; and

6. It further appearing that the east coast Loran chain will then be operating on 1950 kc, and the west coast, West Indies, and Gulf of Mexico Loran Chains will then be operating on 1850; and

7. It further appearing that the existing frequency sharing arrangement between the amateur service and Loran as set forth in footnote NG23 and § 12.111 (a) no longer provides the protection from interference required by a navigational aid; and

8. It further appearing that the continued use of frequencies by the amateur service in accordance with the aforementioned existing sharing arrangement may constitute a hazard to the safety of life and property through interference to the Loran system of radionavigation; and

9. It further appearing therefore, that pursuant to the provisions of section 4 (a) of the Administrative Procedure Act, the issuance of a Notice of Proposed Rule Making in this matter, prior to an order effecting the necessary rule changes would be contrary to the public interest; and

10. It further appearing that the public interest, convenience, and necessity will be served by the amendments herein ordered, the authority for which is contained in section 303 (c), (f), (h) and (x)

of the Communications Act of 1934, as amended;

11. It is ordered, That effective July 9, 1956, Parts 2 and 12 of the Commission's rules are amended as set forth below: *Provided, however,* That inasmuch as the safety of life and property at sea is involved in this matter and the Gulf Loran Chain is already in operation on 1850 kc, all amateurs are requested to comply with this order on a voluntary basis immediately upon receipt of the information contained herein.

NOTE: Rules changes herein will be included in Amendments 2-21 and 12-19.

Area	Bands (kc)	DC plate input power in watts	
		Day	Night
Minnesota, Iowa, Wisconsin, Michigan, Pennsylvania, Maryland, Delaware, and States to the north of these, including the District of Columbia.	1800-1825 1875-1900	500	200
North Dakota, South Dakota, Nebraska, Colorado, New Mexico, and States to the west of these States (except State of Washington).	1900-1925 1975-2000	500	200
State of Washington	1900-1925 1975-2000	200	50
Oklahoma, Kansas, Missouri, Arkansas, Illinois, Indiana, Kentucky, Tennessee, Ohio, West Virginia, Virginia, North Carolina, South Carolina, Texas (West of 99° W. or North of 32° N.).	1800-1825 1875-1900	200	50
Hawaiian Islands	1900-1925 1975-2000	500	200
Texas (East of 99° W. and South of 32° N.), Louisiana, Mississippi, Alabama, Georgia, Florida, Puerto Rico, Virgin Islands, Alaska, Guam, and other Territories and possessions of the U. S. not listed above.	None	No operation	No operation

The table associated with § 12.111 (a) (4) of the Commission's rules is amended to read as follows:

Area	Authorized bands (kc)	DC plate input power in watts	
		Day	Night
Minnesota, Iowa, Wisconsin, Michigan, Pennsylvania, Maryland, Delaware, and States to the north of these, including the District of Columbia.	1800-1825 1875-1900	500	200
North Dakota, South Dakota, Nebraska, Colorado, New Mexico, and States to the west of these States (except State of Washington).	1900-1925 1975-2000	500	200
State of Washington	1900-1925 1975-2000	200	50
Oklahoma, Kansas, Missouri, Arkansas, Illinois, Indiana, Kentucky, Tennessee, Ohio, West Virginia, Virginia, North Carolina, South Carolina, Texas (West of 99° W. or North of 32° N.).	1800-1825 1875-1900	200	50
Hawaiian Islands	1900-1925 1975-2000	500	200
Texas (East of 99° W. and South of 32° N.), Louisiana, Mississippi, Alabama, Georgia, Florida, Puerto Rico, Virgin Islands, Alaska, Guam, and other Territories and possessions of the U. S. not listed above.	None	No operation	No operation

[F. R. Doc. 56-4004; Filed, May 21, 1956; 8:50 a. m.]

[FCC 56-460]

[Amdt. No. 11-17]

PART 11—INDUSTRIAL RADIO SERVICES

INDUSTRIAL RADIOLOCATION SERVICE

In the matter of amendment of the Commission's rules governing the Industrial Radiolocation Service to add the frequency band 10500-10550 Mc for CW Radiolocation.

At a session of the Federal Communications Commission held at its offices in Washington, D. C., on the 16th day of May 1956;

The Commission having under consideration its rules governing the Industrial Radiolocation Service, Subpart M

(Sec. 303, 48 Stat. 1082 as amended, 47 U. S. C. 303)

Released: May 17, 1956.

FEDERAL COMMUNICATIONS

COMMISSION,

[SEAL] MARY JANE MORRIS,

Secretary.

The table associated with footnote NG23 to the Table of Frequency Allocations, § 2.104 (a) (5), of Part 2 of the Commission's rules is amended to read as follows:

(4) Amateur operation shall be limited to:

of Part 11, with respect to use of the frequency band 10500-10550 Mc; and

It appearing that in accordance with the provisions of § 2.104 of Part 2 of the Commission's rules, that frequency band is available for CW Radiolocation; and

It further appearing that to facilitate the licensing of CW Radiolocation devices in the Industrial Radiolocation Service, Subpart M of Part 11 should be amended to reflect the availability of this frequency band; and

It further appearing that general notice of proposed rule making is not required in this matter under section 4 of the Administrative Procedure Act because this amendment is solely for the

purpose of listing frequencies which have already been made available by previous action of the Commission and, that for the same reason the amendment may become effective immediately:

It is ordered, Pursuant to the authority contained in section 4 (i) and 303 (c), (f), (g) and (r) of the Communications Act of 1934, as amended, that effective immediately, § 11.607 is amended by the addition of a new paragraph (f) as follows:

§ 11.607 Frequencies available. * * *

(f) Land Radiopositioning Stations and Mobile Radiopositioning Stations in this service, including speed measuring devices, may be authorized to use frequencies in the band 10500-10550 Mc, for CW emission only, on a shared basis with stations in other services.

Note: Rules changes herein will be included in Amendment 11-17.

(Sec. 4, 48 Stat. 1066, as amended; 47 U. S. C. 154. Interprets or applies sec. 303, 48 Stat. 1082, as amended; 47 U. S. C. 303)

Released: May 17, 1956.

FEDERAL COMMUNICATIONS
COMMISSION,

[SEAL] MARY JANE MORRIS,
Secretary.

[F. R. Doc. 56-4006; Filed, May 21, 1956;
8:50 a. m.]

[Docket No. 11467; FCC 56-458]

[Amdt. 18-10]

PART 18—INDUSTRIAL, SCIENTIFIC, AND
MEDICAL SERVICE

RADIO FREQUENCY STABILIZED ARC WELDERS
In the matter of amendment of Part 18 of the Commission's rules and regulations with respect to those portions governing radio frequency stabilized arc welders.

At a session of the Federal Communications Commission held at its offices in Washington, D. C., on the 16th day of May 1956.

The Commission having under consideration its Notice of Proposed Rule Making in the above entitled matter adopted on July 27, 1955; and

It appearing that footnote 1 to § 18.1 of the Commission's rules provides temporary rules applicable to radio frequency stabilized arc welding equipment and suspends until April 30, 1956, the more stringent requirements of the miscellaneous equipment provisions of Part 18 which would otherwise be applicable; and

It further appearing that additional information is needed by the Commission to formulate permanent rules applicable to non-type-approved radio frequency stabilized arc welding equipment and that a Further Notice of Proposed Rule Making is being issued setting forth specific items upon which further information is needed; and

It further appearing that pending the promulgation of final rules, the temporary regulations heretofore in effect should be continued; and

It further appearing that it will be in the public interest to provide specifically

at this time for the type approval and use of radio frequency stabilized arc welding equipment which complies with the requirements for type approval of miscellaneous equipment; and

It further appearing that compliance with the provisions of section 4 (a) of the Administrative Procedure Act would be impracticable in view of the date now specified for compliance of this equipment with the requirements for miscellaneous equipment in the rules and that, since this amendment relieves a restriction, it may be made effective immediately.

It is ordered, That, pursuant to the authority of sections 4 (i), 301 and 303 (r) of the Communications Act of 1934, as amended, that footnote 1 to § 18.1 is amended as set forth below effective April 30, 1956.

(Sec. 4, 48 Stat. 1066 as amended; 47 U. S. C. 154; interprets or applies secs. 301, 303, 48 Stat. 1081, 1082, as amended; 47 U. S. C. 301, 303)

Released: May 17, 1956.

FEDERAL COMMUNICATIONS
COMMISSION,

[SEAL] MARY JANE MORRIS,
Secretary.

Amend Footnote 1 to § 18.1 to read as follows:

1 The effective date of Part 18 with respect to electric arc welding devices using radio frequency energy is suspended until action is completed in the Docket No. 11467 proceeding with respect to these devices: *Provided*, That, in the event of interference from electric arc welding devices using radio frequency energy to any authorized radio service, steps to remedy such interference shall promptly be taken (except that, in case of interference to receivers arising from direct intermediate frequency pickup by such receivers of the fundamental frequency emissions of certified electric arc welding equipment using radio frequency energy, this provision with respect to interference shall not apply): *And further provided, however*, That equipment manufactured after September 1, 1952 shall be subject to the same technical limitations and standards as set forth for industrial heating equipment in §§ 18.21 to 18.24, inclusive, except that such equipment need not be operated within a shielded room or space but in lieu thereof shall be operated with sufficient shielding to limit the radiation to the value prescribed in § 18.22: *And further provided*, That radio frequency stabilized electric arc welding equipment designed for operation on ISM frequencies may be type approved and operated in accordance with the provisions of § 18.31 (c) of the rules relating to miscellaneous equipment: *And further provided*, That broad band type of emissions from arc welding equipment shall be measured by an instrument having performance characteristics similar to the "Proposed American Standards Specification for a Radio Noise Meter—0.15 to 25 Megacycles/second" dated March 1950, published by the American Standards Association Committee on Radio Electrical Coordination C63. Quasi-peak values of field intensity shall be measured and used in determining compliance with §§ 18.21 (b) and 18.22 (a). Instruments not having characteristics similar to the above mentioned standards may be used provided suitable correlation factors are used to adjust the field intensity readings to values which would be obtained with an instrument having the desired characteristics.

The certification required by § 18.22 may be based upon field intensity measurements

made by the manufacturer of the equipment at locations other than the one where the equipment is in use provided such certification includes a statement by the operator of the equipment that the equipment covered thereby has been installed and is being operated in conformity to the instructions issued by the manufacturer.

[F. R. Doc. 56-4006; Filed, May 21, 1956;
8:50 a. m.]

TITLE 33—NAVIGATION AND
NAVIGABLE WATERS

Chapter II—Corps of Engineers,
Department of the Army

PART 202—ANCHORAGE REGULATIONS

PART 203—BRIDGE REGULATIONS

PONCE HARBOR, PUERTO RICO

DORSEYS CREEK, MARYLAND

1. Pursuant to the provisions of section 7 of the River and Harbor Act of March 4, 1915 (38 Stat. 1053; 33 U. S. C. 471) § 202.255 is hereby prescribed establishing and governing the use of an anchorage area in Ponce Harbor, Puerto Rico, as follows:

§ 202.255 Ponce Harbor, P. R.—(a) *Small-craft anchorage*. On the northwest of Cayitos Reef, bounded as follows: Beginning at latitude 17°58'27", longitude 66°37'29.5", bearing approximately 325° true, 2,200 feet from the most southwest corner of Ponce Municipal Pier; thence 273° 30' true, 1,800 feet; thence 15° true, 900 feet; thence 93° 30' true, 1,800 feet; thence 195° true, 900 feet to the point of beginning.

(b) *The regulations*. (1) The Commonwealth Captain of the Port may authorize use of this anchorage whenever he finds such use required in safeguarding the maritime or commercial interests.

(2) No vessel shall anchor within the area until assigned a berth by the Commonwealth Captain of the Port. Application for permission to occupy the anchorage must be submitted in advance by the master or authorized representative of the vessel.

(3) Vessels occupying the anchorage will at all times keep within the limits of the area, and shall move or shift their position promptly upon notification by the Commonwealth Captain of the Port.

(4) The anchorage is reserved for all types of small craft, including schooners, fishing vessels, yachts and pleasure craft.

(5) Piles for marking anchors in place will be allowed; stakes or mooring piles are prohibited.

[Regs. May 8, 1956, 800.212 (Ponce Harbor, P. R.)—ENGWO] (Sec. 7, 38 Stat. 1053; 33 U. S. C. 471)

2. Pursuant to the provisions of section 5 of the River and Harbor Act of August 18, 1894 (28 Stat. 362; 33 U. S. C. 499) § 203.245 governing the operation of drawbridges across navigable waters discharging into the Atlantic Ocean south of and including Chesapeake Bay and into the Gulf of Mexico, except the Mississippi River and its tributaries and outlets, where constant attendance of draw tenders is not required is amended

deleting the provision pertaining to the Baltimore and Annapolis Railroad Company bridge across Dorseys Creek, Maryland, from subparagraph (f) (3), and prescribing subparagraph (f) (3-a) to govern the operation of this bridge, as follows:

§ 203.245 *Navigable waters discharging into the Atlantic Ocean south of and including Chesapeake Bay and into the Gulf of Mexico, except the Mississippi River and its tributaries and outlets;*

*bridges where constant attendance of draw tenders is not required. * * **

(f) *Waterways discharging into Chesapeake Bay. * * **

(3) Dorseys Creek, Md.; United States Naval Academy highway and railroad bridges, and Maryland State Roads Commission bridge at Annapolis. At least 5 hours' advance notice required.

(3-a) Dorseys Creek, Md.; Baltimore and Annapolis Railroad Company bridge at Annapolis. The draw need not be

opened for the passage of vessels, and paragraphs (b) to (e), inclusive, of this section shall not apply to this bridge.

[Regs., May 8, 1956, 823.01 (Dorseys Creek, Md.)—ENGWO] (Sec. 5, 28 Stat. 362; 33 U. S. C. 499)

[SEAL] JOHN A. KLEIN,
Major General, U. S. Army,
The Adjutant General.

[F. R. Doc. 56-3985; Filed, May 21, 1956; 8:46 a. m.]

PROPOSED RULE MAKING

DEPARTMENT OF THE TREASURY

Internal Revenue Service

[26 CFR (1954) Part 290]

EXPORTATION OF TOBACCO MATERIALS, TOBACCO PRODUCTS, AND CIGARETTE PAPERS AND TUBES, WITHOUT PAYMENT OF TAX, OR WITH DRAWBACK OF TAX

NOTICE OF PROPOSED RULEMAKING

Notice is hereby given, pursuant to the Administrative Procedure Act, that the regulations set forth in tentative form below are proposed to be prescribed by the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury or his delegate. Prior to final adoption of such regulations, consideration will be given to any data, views, or arguments pertaining thereto which are submitted in writing, in duplicate, to the Director, Alcohol and Tobacco Tax Division, Internal Revenue Service, Washington 25, D. C., within the period of 30 days from the date of publication of this notice in the FEDERAL REGISTER. The proposed regulations are to be issued under the authority contained in section 7805 of the Internal Revenue Code of 1954 (68A Stat. 917; 26 U. S. C. 7805).

[SEAL] RUSSELL C. HARRINGTON,
Commissioner of Internal Revenue.

Preamble. 1. These regulations, 26 CFR Part 290, "Exportation of Tobacco Materials, Tobacco Products, and Cigarette Papers and Tubes, Without Payment of Tax, or With Drawback of Tax," supersede 26 CFR (1939) Part 141, "Shipment or Delivery of Manufactured Tobacco, Snuff, Cigars, Cigarettes, and Cigarette Papers or Tubes, for Use as Sea Stores Without Payment of Internal Revenue Tax," Part 142, "Tax-Free Withdrawals of Cigars From Customs Bonded Warehouses, Class 6," and, with respect to tobacco products and cigarette papers and tubes, supersede Part 451, "Exportation Without Payment of Tax of Tobacco Manufactures, Oleomargarine, Adulterated Butter, Mixed Flour, and Playing Cards; Shipments to Possessions of the United States, and Drawback on Tobacco Manufactures and Stills Exported, or Shipped to Puerto Rico or Philippine Islands," and are promulgated in order to implement the Internal Revenue Code of 1954.

2. These regulations shall not affect any act done, or any liability or right ac-

curring or accrued, or any suit or proceeding had or commenced, before the effective date of the regulations.

Subpart A—Scope of Regulations

Sec. 290.1 Exportation of tobacco materials, tobacco products, and cigarette papers and tubes, without payment of tax, or with drawback of tax.

290.2 Forms prescribed.

Subpart B—Definitions

290.10 Meaning of terms.
290.11 Articles.
290.12 Assistant regional commissioner.
290.13 Black Fat.
290.14 Cigar.
290.15 Cigarette.
290.16 Cigarette paper.
290.17 Cigarette papers.
290.18 Cigarette tube.
290.19 Clippings.
290.20 Collector of customs.
290.21 Commissioner.
290.22 Customs warehouse.
290.23 Cuttings.
290.24 Dealer in tobacco materials.
290.25 Director, Alcohol and Tobacco Tax Division.
290.26 Establishment.
290.27 Exportation or export.
290.28 Factory.
290.29 Inclusive language.
290.30 I. R. C.
290.31 Leaf tobacco.
290.32 Manufactured tobacco.
290.33 Manufacturer of cigarette papers and tubes.
290.34 Manufacturer of cigars and cigarettes.
290.35 Manufacturer of tobacco.
290.36 Perique.
290.37 Person.
290.38 Proprietor.
290.39 Region.
290.40 Regional commissioner.
290.41 Removal or remove.
290.42 Revenue officer.
290.43 Scraps.
290.44 Siftings.
290.45 State.
290.46 Stems.
290.47 Tobacco in process.
290.48 Tobacco materials.
290.49 Tobacco products.
290.50 United States.
290.51 U. S. C.
290.52 Warehouse.
290.53 Waste.

Subpart C—General

290.60 Exportation.
290.61 Articles for use on vessels and aircraft.
290.62 Restrictions on disposal of articles on vessels and aircraft.

Sec. 290.63 Responsibility for delivery or exportation of articles and tobacco materials.
290.64 Tax liability.
290.65 Assessment of tax.
290.66 Authority of revenue officers to enter premises.
290.67 Interference with administration.
290.68 American articles returned.
290.69 Unlawful diversion of articles or tobacco materials.
290.70 Disposal of forfeited, condemned, and abandoned articles and tobacco materials.
290.71 Variations from requirements.

Subpart D—Establishment, Operation, and Discontinuance of Warehouses

ESTABLISHMENT OF WAREHOUSES

290.80 Authority to establish.
290.81 Application.
290.82 Bond.
290.83 Corporate documents.
290.84 Articles of partnership or association.
290.85 Trade name certificate.
290.86 Power of attorney.
290.87 Warehouse premises.
290.88 Additional information.
290.89 Investigation of applicant.
290.90 Issuance of authority to operate.
290.91 Withdrawal of authority to continue operation of warehouse.

OPERATION OF WAREHOUSES

290.92 Sign.
290.93 Inventories.
290.94 Records.
290.95 Reports.
290.96 Claim for abatement of assessment.
290.97 Claim for refund of tax.

CHANGES SUBSEQUENT TO ORIGINAL ESTABLISHMENT OF WAREHOUSES

290.98 Change in individual name.
290.99 Change in trade name.
290.100 Change in corporate name.
290.101 Fiduciary successor.
290.102 Transfer of ownership.
290.103 Change in officers or directors of a corporation.
290.104 Change in stockholders of a corporation.
290.105 Change in location within same region.
290.106 Change in location to another region.
290.107 Change in warehouse premises.

BONDS AND EXTENSIONS OF COVERAGE OF BONDS

290.108 Corporate surety.
290.109 Deposit of bonds, notes, or obligations in lieu of corporate surety.
290.110 Amount of bond.
290.111 Strengthening bond.
290.112 Superseding bond.
290.113 Extension of coverage of bond.

- Sec.
290.114 Approval of bond and extension of coverage of bond.
290.115 Termination of liability of surety under bond.
290.116 Release of bonds, notes, and obligations.

DISCONTINUANCE OF WAREHOUSES

- 290.117 Discontinuance of operations.
Subpart E—Shipments of Tobacco Materials by Dealers in Tobacco Materials
290.130 Shipments for export.
Subpart F—Removal of Articles and Tobacco Materials by Manufacturers, and Removal of Articles by Warehouse Proprietors

- 290.140 Packages.
290.141 Lottery features.
290.142 Indecent or immoral material.
290.143 Label or notice.
290.144 Shipping containers.
290.145 Consignments of articles or tobacco materials.
290.146 Notice of removal.
290.147 Execution and disposition of notice of removal.
290.148 Diversion of shipment to another consignee.
290.149 Return of shipment to factory or warehouse.
290.150 Destruction of articles under official supervision.
290.151 Delay in lading at port of exportation.
290.152 Foreign trade zones.

Subpart G—Drawback of Tax

- 290.160 Application of drawback of tax.
290.161 Claim.
290.162 Drawback bond.
290.163 Inspection by revenue officer.
290.164 Delivery of products for shipment to destination.
290.165 Customs procedure.
290.166 Landing certificate.
290.167 Collateral evidence as to landing.
290.168 Proof of loss.
290.169 Extension of time.

Subpart H—Withdrawal of Cigars From Customs Warehouses

- 290.180 Shipment restricted.
290.181 Bond.
290.182 Amount of bond.
290.183 Strengthening bond.
290.184 Superseding bond.
290.185 Termination of liability of surety under bond.
290.186 Packages.
290.187 Lottery features.
290.188 Indecent or immoral material.
290.189 Label or notice.
290.190 Shipping containers.
290.191 Notice of removal.
290.192 Execution and disposition of notice of removal.
290.193 Return of shipment to warehouse.

AUTHORITY: §§ 290.1 to 290.193 issued under 68A Stat. 917; 26 U. S. C. 7805. Statutory provisions interpreted or applied are cited to text in parentheses.

SUBPART A—SCOPE OF REGULATIONS

§ 290.1 *Exportation of tobacco materials, tobacco products, and cigarette papers and tubes, without payment of tax, or with drawback of tax.* This part contains the regulations governing the exportation (including shipment for sea stores) of articles and tobacco materials, without payment of tax, the establishment of warehouses for the receipt, storage, and subsequent exportation of articles, without payment of tax, and the allowance of drawback of tax paid on tobacco products exported.

§ 290.2 *Forms prescribed.* The Director, Alcohol and Tobacco Tax Division, is authorized to prescribe all forms required by this part, including bonds, notices, and reports. Information called for thereon shall be furnished in accordance with the instructions on the forms or issued in respect thereto.

SUBPART B—DEFINITIONS

§ 290.10 *Meaning of terms.* The terms used in this part shall have the meanings ascribed in this subpart, unless the context otherwise indicates.

§ 290.11 *Articles.* "Articles" shall mean manufactured tobacco, cigars, cigarettes, and cigarette papers and tubes.

§ 290.12 *Assistant regional commissioner.* "Assistant regional commissioner" shall mean the Assistant Regional Commissioner, Alcohol and Tobacco Tax, who is responsible to and functions under the direction and supervision of the Regional Commissioner.

§ 290.13 *Black Fat.* "Black Fat" shall mean tobacco which is normally treated with oil under pressure and results in black tobacco, and shall include all tobacco similarly treated and referred to by such other terms as Black Horse, etc.

§ 290.14 *Cigar.* "Cigar" shall mean any roll of tobacco wrapped in tobacco.

§ 290.15 *Cigarette.* "Cigarette" shall mean any roll of tobacco, wrapped in paper or any substance other than tobacco.

§ 290.16 *Cigarette paper.* "Cigarette paper" shall mean paper, or any other material except tobacco, prepared for use as a cigarette wrapper.

§ 290.17 *Cigarette papers.* "Cigarette papers" shall mean taxable packages, books, or sets, of cigarette paper.

§ 290.18 *Cigarette tube.* "Cigarette tube" shall mean cigarette paper made into a hollow cylinder for use in making cigarettes.

§ 290.19 *Clippings.* "Clippings" shall mean the tobacco which is clipped or cut off the ends of cigars in the manufacture thereof.

§ 290.20 *Collector of customs.* "Collector of customs" shall mean the person having charge of a customs collection district and shall also include assistant collector of customs, deputy collector of customs, and any person authorized by law or by regulations approved by the Secretary of the Treasury to perform the duties of a collector of customs.

§ 290.21 *Commissioner.* "Commissioner" shall mean the Commissioner of Internal Revenue.

§ 290.22 *Customs warehouse.* "Customs warehouse" shall mean a customs bonded manufacturing warehouse, class 6, where cigars are manufactured of imported tobacco.

§ 290.23 *Cuttings.* "Cuttings" shall mean the tobacco remaining after the binders and wrappers for cigars are cut out of the leaf.

§ 290.24 *Dealer in tobacco materials.* "Dealer in tobacco materials" shall mean every person who handles tobacco materials for sale, shipment, or delivery solely to another qualified dealer in such materials, to a qualified manufacturer of tobacco products, or to a foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States. Dealer in tobacco materials shall include every person who produces Perique or Black Fat for sale, shipment, or delivery, in accordance with 26 CFR Part 280. Dealer in tobacco materials shall not include (a) an operator of a warehouse who stores tobacco materials solely for a dealer in tobacco materials, for a manufacturer of tobacco products, for a farmer or grower of tobacco, or for a bona fide association of farmers or growers of tobacco; or (b) a farmer or grower of tobacco who sells leaf tobacco of his own growth or raising, or a bona fide association of farmers or growers of tobacco which sells only leaf tobacco grown by farmer or grower members, if the tobacco so sold is in the condition as cured on the farm.

§ 290.25 *Director, Alcohol and Tobacco Tax Division.* "Director, Alcohol and Tobacco Tax Division" shall mean the Director, Alcohol and Tobacco Tax Division, Internal Revenue Service, Treasury Department, Washington, D. C.

§ 290.26 *Establishment.* "Establishment" shall mean the premises of a dealer in tobacco materials in which he carries on such business.

§ 290.27 *Exportation or export.* "Exportation" or "export" shall, for the purposes of this part, mean the shipment for and clearance of articles and tobacco materials to a foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States, and shall include the shipment for and clearance of articles for consumption (as ships' supplies or stores) beyond the jurisdiction of the internal revenue laws of the United States.

§ 290.28 *Factory.* "Factory" shall mean the premises of a manufacturer of tobacco, cigars and cigarettes, or cigarette papers and tubes in which he carries on such business.

§ 290.29 *Inclusive language.* Words in the plural form shall include the singular, and vice versa, and words in the masculine gender shall include the feminine, partnerships, associations, companies, corporations, estates, and trusts.

§ 290.30 *I. R. C.* "I. R. C." shall mean the Internal Revenue Code of 1954.

§ 290.31 *Leaf tobacco.* "Leaf tobacco" shall mean:

(a) *Unstemmed.* Tobacco from which the stem or mid-rib has not been removed, and

(b) *Stemmed.* Tobacco from which the stem or mid-rib has been removed, also known as "strips."

§ 290.32 *Manufactured tobacco.* "Manufactured tobacco" shall mean all tobacco, other than cigars and cigarettes, prepared, processed, manipulated, or packaged for consumption by smoking or

for use in the mouth or nose. Any other tobacco not exempt from tax under Chapter 52, I. R. C., which is sold or delivered to any person contrary to such chapter and regulations thereunder, shall be regarded as manufactured tobacco.

§ 290.33 *Manufacturer of cigarette papers and tubes.* "Manufacturer of cigarette papers and tubes" shall mean every person who makes up cigarette paper into packages, books, or sets, on which tax is imposed, or into tubes, except for his own personal use or consumption or solely for use by him in the manufacture of cigarettes.

§ 290.34 *Manufacturer of cigars and cigarettes.* "Manufacturer of cigars and cigarettes" shall mean every person who produces cigars or cigarettes, except for his own personal consumption.

§ 290.35 *Manufacturer of tobacco.* "Manufacturer of tobacco" shall mean every person who manufactures tobacco by any method of preparing, processing, or manipulating, except for his own personal consumption or use; or who packages any tobacco for consumption by smoking or for use in the mouth or nose; or who sells or delivers any tobacco, not exempt from tax under Chapter 52, I. R. C., to any person, contrary to the provisions of such chapter and regulations thereunder. The term "manufacturer of tobacco" shall not include (a) a farmer or grower of tobacco who sells leaf tobacco of his own growth or raising, or a bona fide association of farmers or growers of tobacco which sells only leaf tobacco grown by farmer or grower members, if the tobacco so sold is in the condition as cured on the farm; or (b) a dealer in tobacco materials who handles tobacco solely for sale, shipment, or delivery, in bulk, to another dealer in such materials or to a manufacturer of tobacco products, or to a foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States.

§ 290.36 *Perique.* "Perique" shall mean tobacco, such as that produced in Louisiana, cured in its own juices and given other treatment peculiar to this type of tobacco.

§ 290.37 *Person.* "Person" shall mean and include an individual, partnership, association, company, corporation, estate, or trust.

§ 290.38 *Proprietor.* "Proprietor" shall mean the operator of a warehouse established under this part.

§ 290.39 *Region.* "Region" shall mean the area, designated by the Secretary or his delegate, comprising the geographical jurisdiction of a regional commissioner of internal revenue.

§ 290.40 *Regional commissioner.* "Regional commissioner" shall mean the Regional Commissioner of Internal Revenue of an internal revenue region.

§ 290.41 *Removal or remove.* "Removal" or "remove" shall mean removal of articles under and from internal revenue bond.

§ 290.42 *Revenue officer.* "Revenue officer" shall mean any officer or employee of the United States acting in con-

nection with any internal revenue law of the United States.

§ 290.43 *Scraps.* "Scraps" shall mean portions of leaf tobacco.

§ 290.44 *Siftings.* "Siftings" shall mean the particles of tobacco salvaged in the process of sifting or screening the residue of tobacco.

§ 290.45 *State.* "State" shall, for the purposes of this part, be construed to include the Territories of Alaska and Hawaii, and the District of Columbia.

§ 290.46 *Stems.* "Stems" shall mean the stems or mid-ribs of tobacco.

§ 290.47 *Tobacco in process.* "Tobacco in process" shall mean tobacco which has been, or is being, manipulated or processed, but is to undergo further manipulation, processing, or handling, prior to removal for consumption by smoking or for use in the mouth or nose.

§ 290.48 *Tobacco materials.* "Tobacco materials" shall mean tobacco in process, Perique, Black Fat, leaf tobacco, and tobacco scraps, cuttings, clippings, siftings, dust, stems, and waste.

§ 290.49 *Tobacco products.* "Tobacco products" shall mean manufactured tobacco, cigars, and cigarettes.

§ 290.50 *United States.* "United States" shall, for the purposes of this part, include only the States, the Territories of Alaska and Hawaii, and the District of Columbia.

§ 290.51 *U. S. C.* "U. S. C." shall mean the United States Code.

§ 290.52 *Warehouse.* "Warehouse" shall mean a bonded internal revenue warehouse established under the provisions of this part for the storage of articles for subsequent exportation, without payment of tax.

§ 290.53 *Waste.* "Waste" shall mean tobacco, including dust, and foreign substances resulting from the handling, manipulation, or processing of tobacco, and which are worthless for use in the manufacture of tobacco products and have no market value for that purpose.

SUBPART C—GENERAL

§ 290.60 *Exportation.* Articles may be removed from factories, warehouses, and customs warehouses, and tobacco materials may be shipped from factories and establishments, without payment of tax, under this part, for exportation.

§ 290.61 *Articles for use on vessels and aircraft.* Articles may be removed by a manufacturer or warehouse proprietor under his factory or warehouse bond, without payment of tax, for delivery to vessels or aircraft for consumption or use thereon as supplies beyond the jurisdiction of the internal revenue laws of the United States. Where articles are removed for this purpose it will be necessary for the manufacturer or warehouse proprietor to submit to the assistant regional commissioner, for the region in which such a removal originates, satisfactory proof that such articles will be so consumed or used. Such proof may include a showing that the vessel is actually engaged in foreign,

intercoastal, or noncontiguous territory trade (i. e., that it is operating on a regular schedule in such trade, actually transporting passengers and/or cargo between a port in the United States and a foreign port, a port on the opposite coast of the United States, or a port in a noncontiguous territory or possession, or between ports in one such territory or possession and another such territory or possession); that it is departing for a foreign port, a port on the opposite coast, or a port in a noncontiguous territory or possession; or that it is a vessel of war or other governmental activity or a vessel employed in the fisheries or whaling business. In the case of aircraft, such proof may include a showing that the aircraft is clearing through customs en route to a place or places beyond the jurisdiction of the internal revenue laws of the United States, or that it is operating on a regular schedule between places in the United States which requires operation outside the jurisdiction of the internal revenue laws of the United States. Such removals may not be made to a vessel or aircraft stationed in the United States for an indefinite period, or where its schedule does not include operations outside such jurisdiction.

(68A Stat. 708; 26 U. S. C. 5704)

§ 290.62 *Restrictions on disposal of articles on vessels and aircraft.* Articles delivered to a vessel or aircraft, without payment of tax, pursuant to § 290.61, for consumption thereon, shall not be sold, offered for sale, or otherwise disposed of while the vessel or aircraft is within the jurisdiction of the internal revenue laws of the United States, i. e., inside the 3-mile limits or international boundary, as the case may be, of the United States.

(68A Stat. 708; 26 U. S. C. 5704; 19 U. S. C. 1317)

§ 290.63 *Responsibility for delivery or exportation of articles and tobacco materials.* Responsibility for compliance with the provisions of this part with respect to the removal under bond of articles and tobacco materials, without payment of tax, for export, and for the proper delivery or exportation of such articles and materials, and with respect to the exportation of tobacco products with benefit of drawback of tax, shall rest upon the manufacturer of articles, dealer in tobacco materials, and the proprietor of a warehouse from whose premises such articles and materials are removed for export, and upon the exporter who exports tobacco products with benefit of drawback of tax.

§ 290.64 *Tax liability.* A dealer in tobacco materials, manufacturer of tobacco products or cigarette papers and tubes, and a proprietor of a warehouse, who ships tobacco materials from his establishment or factory, or removes tobacco products or cigarette papers or tubes from his factory or warehouse for export, under his bond, without payment of tax, and fails to comply with the provisions of this part, shall be liable for tax on the tobacco materials, equal to the tax imposed by law on manufactured tobacco, and for tax on tobacco products and cigarette papers and tubes at the

rate imposed by law on such articles. A dealer, manufacturer, or warehouse proprietor, who removes tobacco materials, tobacco products, or cigarette papers and tubes for export, under his bond, without payment of tax, in accordance with the provisions of this part, shall be liable for such tax unless satisfactory evidence of exportation or proper delivery, as required by this part, is timely furnished to the assistant regional commissioner for the region in which is located the establishment, factory, or warehouse, from which the articles or tobacco materials were so removed. Such evidence shall be furnished within 90 days of the date of removal of the tobacco materials, tobacco products, or cigarette papers and tubes: *Provided*, That this period may be extended for good cause shown.

§ 290.65 *Assessment of tax.* The tax determined by the assistant regional commissioner to be due, pursuant to § 290.64, shall be assessed, subject to the limitations prescribed in section 6501, I. R. C., against the dealer in tobacco materials, manufacturer, or warehouse proprietor liable for the tax. The tax so assessed shall be in addition to any penalties prescribed by law for failure to pay such tax: *Provided*, That, except in cases where delay may jeopardize collection of the tax, or where the amount is nominal or the result of an evident mathematical error, no such assessment shall be made until and after notice has been afforded the dealer, manufacturer, or warehouse proprietor to show cause against such assessment. The dealer, manufacturer, or warehouse proprietor will be allowed 30 days from the date of such notice to show cause, in writing, against such assessment.

(68A Stat. 707, 836; 26 U. S. C. 5703, 6862)

§ 290.66 *Authority of revenue officers to enter premises.* Any revenue officer may enter in the daytime any premises where articles removed under this part are kept, so far as it may be necessary for the purpose of examining such articles. When such premises are open at night, any revenue officer may enter them, while so open, in the performance of his official duties. The owner of such premises, or person having the superintendence of the same, who refuses to admit any revenue officer or permit him to examine the articles removed under this part shall be liable to the penalties prescribed by law for the offense.

(68A Stat. 872, 903; 26 U. S. C. 7342, 7606)

§ 290.67 *Interference with administration.* Whoever, corruptly or by force or threats of force, endeavors to hinder or obstruct the administration of this part, or endeavors to intimidate or impede any revenue officer acting in his official capacity, or forcibly rescues or attempts to rescue or causes to be rescued any property, after it has been duly seized for forfeiture to the United States in connection with a violation or intended violation of this part, shall be liable to the penalties prescribed by law.

(68A Stat. 855; 26 U. S. C. 7212)

§ 290.68 *American articles returned.* When articles produced in factories operated under the internal revenue laws

of the United States, which have been exported, and upon which no internal revenue tax has been paid, or upon which such tax has been paid and refunded by allowance of drawback, are returned to the United States, they are liable to customs duty equal to the tax imposed by the internal revenue laws upon such articles. All packages of returned American cigars and cigarettes produced in factories operated under the internal revenue laws shall be marked or stamped, in accordance with customs regulations, "U. S. Customs—American Goods Returned," to denote payment of duty thereon.

All returned American manufactured tobacco produced in factories operated under the internal revenue laws shall have the proper internal revenue stamps, in payment of the duty, affixed and canceled before release from customs custody. Customs regulations provide that no customs inspection stamp shall be affixed to returned American manufactured tobacco, but the packages of such tobacco shall be marked or stamped, preferably over the internal revenue stamp, with the inscription "American goods returned." All returned American cigarette papers and tubes produced in factories operated under the internal revenue laws shall be marked or stamped, in accordance with customs regulations, "U. S. Customs—American Goods Returned," to denote payment of duty thereon. Cigars produced in customs warehouses and exported under this part, when returned to the United States, are subject to internal revenue tax in effect on such articles at the time of return. Therefore, internal revenue stamps in payment of the tax shall be affixed to such cigars in addition to any customs stamps required to denote the payment of duty with respect to such cigars. Returned American articles after release by customs may not be received in any internal revenue cigar, cigarette, tobacco, or cigarette paper and tube factory, except as provided in Parts 270, 275, and 285 of this chapter.

(19 U. S. C., Sec. 1201, Par. 1615)

§ 290.69 *Unlawful diversion of articles or tobacco materials.* Any person who diverts, for taxable purposes, articles or tobacco materials, removed under this part, without payment of tax, shall be liable for the tax thereon and may also be subject to other penalties prescribed by law for such offense. Such articles and tobacco materials, as well as any other property possessed with intent to defraud the United States or intended for use in violating the provisions of this part, are subject to forfeiture to the United States.

(68A Stat. 716, 717, 718; 26 U. S. C. 5751, 5761, 5762, 5763)

§ 290.70 *Disposal of forfeited, condemned, and abandoned articles and tobacco materials.* When in the opinion of any officer having custody of forfeited, condemned, or abandoned articles or tobacco materials, upon which the Federal tax has not been paid, the sale thereof will not bring a price equal to such tax due and payable thereon, and the expenses incident to the sale thereof, he shall not sell, nor cause to be sold, such

articles or materials for consumption in the United States. Where the articles or materials are not sold, the officer may deliver them to a Federal or State hospital or institution (if they are fit for human consumption) or cause their destruction. Where such articles or materials are sold, they shall not be released by the officer having custody thereof until they are properly packaged and internal revenue stamps (the cost of which stamps shall be considered as a portion of the sales price) are affixed to each package to denote the payment of tax. In the case of such articles or materials held by or for the Federal Government, the sale thereof shall be subject to the applicable provisions of the regulations of the General Services Administration, Title 1, Personal Property Management.

(68A Stat. 716, 831; 26 U. S. C. 5753, 6807)

§ 290.71 *Variations from requirements—(a) Construction and separation of premises.* The Director, Alcohol and Tobacco Tax Division, may approve a manner of construction and separation of warehouse premises in lieu of that specified in this part, where it is shown that it is impracticable to conform to the requirements, and the proposed construction and separation will afford as much or more security and protection to the revenue as is intended by the requirements in this part, and where such variation is not contrary to any provision of law. Where it is proposed to employ a manner of construction and separation of premises other than that provided for by this part, prior approval shall be obtained in accordance with the provisions of paragraph (c) of this section.

(b) *Methods of operation.* The Director, Alcohol and Tobacco Tax Division, may in case of emergency approve methods of operation other than those provided for by this part, where it is shown that variations from the requirements are necessary, will not hinder the effective administration of this part, will not jeopardize the revenue, and where such variations are not contrary to any provision of law. Where it is proposed to employ methods of operation other than those provided for by this part, prior approval shall be obtained in accordance with the provisions of paragraph (c) of this section.

(c) *Application.* Any person, subject to the provisions of this part, who proposes to employ methods of operation, or of construction and separation of warehouse premises, other than as provided in this part, shall submit an application so to do, in triplicate, to the assistant regional commissioner. Such application shall describe the proposed variations and state the necessity therefor. With respect to variations in construction and separation of warehouse premises, where they cannot be adequately described in the application, drawings, or photographs thereof shall also be submitted. The assistant regional commissioner shall make such inquiry as is necessary to ascertain the necessity for the variations and whether approval thereof will hinder the effective administration of this part

or result in jeopardy to the revenue. On completion of the inquiry, the assistant regional commissioner will forward two copies of the application to the Director, Alcohol and Tobacco Tax Division, together with a report of his findings and his recommendation.

SUBPART D—ESTABLISHMENT, OPERATION, AND DISCONTINUANCE OF WAREHOUSES

ESTABLISHMENT OF WAREHOUSES

§ 290.80 *Authority to establish.* Subject to approval by the assistant regional commissioner, a warehouse may be established, in accordance with this subpart, for the receipt and storage of articles and the subsequent removal thereof under this part.

§ 290.81 *Application.* Every person desiring to establish a warehouse, under this subpart, shall make application so to do, in writing, to the assistant regional commissioner for the region in which the warehouse is to be located. He shall, before commencing business, qualify in accordance with the provisions of this subpart. All documents required under this subpart to be furnished with such application shall be made a part thereof.

§ 290.82 *Bond.* Every person, before commencing business as a proprietor of a warehouse, shall file with the assistant regional commissioner, a bond, Form 2103, in accordance with the applicable provisions of this subpart, conditioned upon compliance with the provisions of Chapter 52, I. R. C., and regulations thereunder, including, but not limited to, the timely payment of taxes imposed by such chapter and penalties and interest in connection therewith for which he may become liable to the United States.

§ 290.83 *Corporate documents.* Every corporation, before commencing business as a proprietor of a warehouse, shall furnish with the application required by § 290.81, a true copy of the corporate charter or a certificate of corporate existence or incorporation, executed by the appropriate officer of the State in which incorporated. The corporation shall also furnish, in duplicate, evidence which will establish the authority of the officer or other person who executes the application to execute the same; the authority of persons to sign other documents, required by this part, for the corporation; and the identity of the officers and directors, and each person who holds more than ten percent of the stock of such corporation. Where a corporation has previously filed such documents or evidence with the same assistant regional commissioner, a written statement by the corporation, in duplicate, to that effect will be sufficient for the purpose of this section.

§ 290.84 *Articles of partnership or association.* Every partnership or association, before commencing business as the proprietor of a warehouse, shall furnish with its application, required by § 290.81, a true copy of the articles of partnership or association, if any, or certificate of partnership or association where required to be filed by any State, county, or municipality. Where a partnership or association has previously filed such documents with the same as-

stant regional commissioner, a written statement by the partnership or association, in duplicate, to that effect will be sufficient for the purpose of this section.

§ 290.85 *Trade name certificate.* Every person, before commencing business under a trade name as the proprietor of a warehouse, shall furnish with his application, required by § 290.81, true copies, in duplicate, of the certificate or other document, if any, issued by a State, county, or municipal authority in connection with the transaction of business under such trade name. If no such certificate or other document is so issued, a written statement by such person, in duplicate, to that effect will be sufficient for the purpose of this section.

§ 290.86 *Power of attorney.* If the application or other qualifying documents are signed by an attorney in fact for an individual, partnership, association, company, or corporation, or by one of the partners for a partnership, or by an officer of an association or company, or, in the case of a corporation, by an officer or other person not authorized to sign by the corporate documents described in § 290.83, power of attorney conferring authority upon the person signing the documents shall be manifested on Form 1534 and furnished to the assistant regional commissioner.

§ 290.87 *Warehouse premises—(a) Description and diagram.* The premises to be used by a proprietor as his warehouse shall be described, in the application required by § 290.81, by number, street, and city, town, or village, and State. Such premises may consist of more than one building, which need not be contiguous, but shall be located in the same city, town, or village; shall be suitable for the purpose intended; provide proper protection and safety for the articles to be stored therein; and afford adequate protection of the revenue with respect to such articles. Where such premises consist of less than an entire building, a diagram, in duplicate, shall also be furnished showing the particular floor or floors, or room or rooms, comprising the warehouse.

(b) *Separation.* Where the warehouse premises consist of less than an entire building, the premises shall be completely separated from adjoining portions of the building, which separation shall be constructed of materials generally used in the construction of buildings and may include any necessary doors or other openings. The premises shall be accessible directly from the street, yard, or common passageway or means of entrance.

(c) *Warehouses established prior to effective date.* Warehouses established prior to the effective date of this part shall not be subject to the provisions of paragraph (b) of this section if, in the opinion of the assistant regional commissioner, the existing premises afford adequate protection to the revenue.

(d) *Restrictions.* Warehouse premises shall be used exclusively for the storage of articles for subsequent removal under this part.

(e) *Emergency premises.* In cases of emergency, the assistant regional com-

missioner may authorize, for a limited period, the temporary storage of articles outside the particular premises of the warehouse provided the extension of coverage of the warehouse proprietor's bond is furnished in the manner required under § 290.113, also the temporary separation of warehouse premises by means other than those specified in paragraph (b) of this section, where such action will not hinder the effective administration of this part, is not contrary to law, and will not jeopardize the revenue.

§ 290.88 *Additional information.* In connection with the establishment of a warehouse under this subpart, the assistant regional commissioner may require such additional information as he may deem necessary to justify the establishment of such warehouse.

§ 290.89 *Investigation of applicant.* The assistant regional commissioner shall promptly cause such inquiry or investigation to be made, as he deems necessary, to verify the information furnished in connection with the application to establish a warehouse and to determine whether the premises of the proposed warehouse are adequate for the purpose intended and for the protection of the revenue.

§ 290.90 *Issuance of authority to operate.* If the application, bond, and supporting documents, required under this subpart, are approved by the assistant regional commissioner, the applicant will be notified, in writing, of such approval and of the number assigned to him to identify his warehouse for the purposes of this part.

§ 290.91 *Withdrawal of authority to continue operation of warehouse.* Where the assistant regional commissioner has reason to believe that the proprietor has not in good faith complied with the provisions of this part, or has failed to maintain his warehouse in such manner as to protect the revenue, he may terminate the right of the proprietor to operate, after notice and opportunity for hearing, for reasonable cause.

OPERATION OF WAREHOUSES

§ 290.92 *Sign.* The proprietor of a warehouse, established under this subpart, shall place and keep, on the outside of the building in which his warehouse is located, or at the entrance of his warehouse, where it can be plainly seen, a sign in plain and legible letters containing the words "Internal Revenue Tobacco Export Warehouse No. ----" with the number to be that assigned by the assistant regional commissioner under § 290.90.

§ 290.93 *Inventories—(a) General.* Every proprietor of a warehouse shall make a true and accurate inventory of the articles held by him at the times specified in this section. Such inventory shall be rendered to the appropriate assistant regional commissioner and shall be subject to verification by a revenue officer.

(b) *Opening.* An opening inventory shall be made by the proprietor at the time of commencing business. The date of commencing business under this sub-

part shall be the effective date of the bond as indicated thereon by the assistant regional commissioner. A similar inventory shall be made by the proprietor when he files and commences business under a superseding bond. The date of such inventory shall be the effective date of such superseding bond as indicated thereon by the assistant regional commissioner.

(c) *Special.* A special inventory shall be made by the proprietor whenever required by any revenue officer.

(d) *Closing.* A closing inventory shall be made by the proprietor when he transfers ownership, changes his location to another region, or discontinues his warehouse. Where the proprietor transfers ownership or changes the location of the warehouse to another region the closing inventory shall be made as of the day preceding the date of the opening inventory of the successor or the date of the opening inventory at the new location.

§ 290.94 *Records.* Every proprietor shall keep at his warehouse complete and adequate records consistent with accepted commercial practice of the date, kind, and quantity of articles received, removed, transferred, destroyed, lost, or returned to manufacturers. In support of such records the proprietor shall retain a copy of each notice of removal received from a manufacturer or another warehouse proprietor from whom articles are received, and a copy of each notice, as required by this part, covering articles removed from his warehouse. Such records and copies of the notices of removal shall be retained for two years after the year in which the shipments were received or removed and shall be made available for inspection by any revenue officer upon his request.

§ 290.95 *Reports—(a) General.* Reports shall be made, as required by this section, for each warehouse established under this subpart. Such reports shall be made by the proprietor of the warehouse on Form 2140 to the assistant regional commissioner and shall cover all articles on hand, received, removed or transferred, and lost or destroyed while in the warehouse, during the month or period of the month covered by the report. With respect to articles lost or destroyed the facts of such loss or destruction shall be established to the satisfaction of the assistant regional commissioner before credit therefor in the records of such warehouse proprietor may be authorized. A copy of each such report shall be retained by the proprietor for two years following the close of the year covered in such reports, and made available for inspection by any revenue officer upon his request.

(b) *Opening.* An opening report, covering the period from the date of the opening inventory, as required by § 290.93, to the end of the month, shall be made on or before the 20th day following the end of the month in which such inventory was made.

(c) *Monthly.* A report for each full month shall be made on or before the 20th day following the end of the month covered in the report.

(d) *Special.* A special report shall be made with each special inventory required by an internal revenue officer. Such special report shall cover the period from the first of the month to the close of business of the day preceding the date of the special inventory. Another report, covering the period from the date of such inventory to the end of the month, shall be made on or before the 20th day following the end of the month in which the inventory was made.

(e) *Closing.* A closing report, covering the period from the first of the month to the date of the closing inventory, as required by § 290.93, shall be made with such inventory.

§ 290.96 *Claim for abatement of assessment.* Claim for abatement of the unpaid portion of the assessment of any tax on articles removed from a warehouse, or any liability in respect of such tax, alleged to be excessive in amount, assessed after the expiration of the period of limitation applicable thereto, or erroneously or illegally assessed, shall be filed on Form 843, in duplicate, with the assistant regional commissioner. Such claim shall set forth the reasons relied upon for the allowance of the claim and shall be accompanied by evidence necessary to support the claim.

(68A Stat. 792; 26 U. S. C. 6404)

§ 290.97 *Claim for refund of tax.* The tax paid on articles delivered to, stored in, or removed from a warehouse established under this subpart, may be refunded where the tax has been paid in error. The claim for refund, Form 843, shall be filed in duplicate within three years from the date of payment of the tax, with the assistant regional commissioner for the region in which the tax was paid, and the claim shall be supported by evidence necessary to establish to the satisfaction of the assistant regional commissioner that the claim is valid.

(68A Stat. 791; 26 U. S. C. 6402)

CHANGES SUBSEQUENT TO ORIGINAL ESTABLISHMENT OF WAREHOUSES

§ 290.98 *Change in individual name.* Where there is merely a change in the name of an individual operating as a proprietor of a warehouse, he shall, within 30 days of such change, notify the assistant regional commissioner, in writing, and furnish an extension of coverage of his bond, in accordance with the provisions of § 290.113.

§ 290.99 *Change in trade name.* Where there is merely a change in the trade name of a proprietor operating a warehouse, he shall, within 30 days of the adoption of the new trade name, notify the assistant regional commissioner, in writing, and furnish an extension of coverage of bond, in accordance with the provisions of § 290.113. The proprietor shall also furnish true copies, in duplicate, of any new trade name certificate or document issued to him, or statement in lieu thereof, required by § 290.85.

§ 290.100 *Change in corporate name.* Where there is merely a change in the name of a corporate proprietor operating

a warehouse, the proprietor shall, within 30 days of such change, notify the assistant regional commissioner, in writing, and furnish an extension of coverage of bond, in accordance with the provisions of § 290.113. The proprietor shall also furnish such documents as may be reasonably necessary to establish that the corporate name has been changed.

§ 290.101 *Fiduciary successor.* If an administrator, executor, receiver, trustee, assignee, or other fiduciary, is to take over and continue the operation of a warehouse, such fiduciary shall, before commencing operations, so notify the assistant regional commissioner, in writing, file a bond in accordance with the provisions of § 290.82, furnish certified copies, in duplicate, of the order of the court, or other pertinent documents, showing his appointment and qualifications as such fiduciary, and make an opening inventory, in accordance with the provisions of § 290.93; *Provided,* That where a diagram of the warehouse premises has been previously furnished in accordance with the provisions of § 290.87, the fiduciary may adopt such diagram. However, where a fiduciary intends merely to liquidate the business, qualification as a proprietor of a warehouse will not be required if he promptly files with the assistant regional commissioner a statement to that effect, together with an extension of coverage of the predecessor's bond, in accordance with the provisions of § 290.113, which shall be executed on behalf of the principal on the bond by the fiduciary.

§ 290.102 *Transfer of ownership.* If a transfer is to be made in the proprietorship of a warehouse (including a change in the identity of the members of a partnership or association), such proprietor shall give notice, in writing, to the assistant regional commissioner, naming the proposed successor and the desired effective date of such transfer. The proposed successor shall, before commencing operations, qualify as the proprietor of a warehouse, in accordance with the applicable provisions of this subpart; *Provided,* That where a diagram has been furnished by the proprietor in accordance with the provisions of § 290.87, the proposed successor may adopt such diagram. The proprietor shall give such notice of transfer, and the proposed successor shall make application and file bond, as required, in ample time for examination and approval thereof before the desired date of such change. The predecessor shall make a closing inventory and closing report, in accordance with the provisions of §§ 290.93 and 290.95, respectively, and the successor shall make an opening inventory, in accordance with the provisions of § 290.93.

§ 290.103 *Change in officers or directors of a corporation.* Where there is any change in the officers or directors of a corporation operating as the proprietor of a warehouse, the proprietor shall furnish to the assistant regional commissioner notice, in writing, of the election of the new officers or directors within 30 days after such election.

§ 290.104 *Change in stockholders of a corporation.* Where the issuance, sale, or transfer of the capital stock of a corporation, operating as a proprietor of a warehouse, results in a change in the identity of the principal stockholders exercising actual or legal control of the operations of the corporation, the corporate proprietor shall, within 30 days after the change occurs, notify the assistant regional commissioner of the change. The continued operation of the warehouse by the new principal stockholders exercising actual or legal control shall be subject to the approval of the assistant regional commissioner.

§ 290.105 *Change in location within same region—(a) Transfer to a new location.* Whenever a proprietor of a warehouse contemplates changing the location of his warehouse within the same region, he shall, before commencing operations at the new location, notify the assistant regional commissioner, in writing, of the change and shall furnish an extension of coverage of the bond filed under this subpart, in accordance with the provisions of § 290.113.

(b) *Mere change in address.* Whenever any change occurs in the address, but not the location, of the warehouse, as a result of action of local authorities, the proprietor shall, within 30 days of such change, notify the assistant regional commissioner, in writing, and shall furnish an extension of coverage of the bond filed under this subpart, in accordance with the provisions of § 290.113.

§ 290.106 *Change in location to another region.* Whenever a proprietor of a warehouse contemplates changing the location of his warehouse to another region, he shall, before commencing operations at the new location, qualify as such a proprietor in the new region, in accordance with the applicable provisions of this subpart. The proprietor shall notify the assistant regional commissioner of the region from which he is removing of his qualification in the new region, giving the address of the new location of his warehouse, and make a closing inventory and closing report, in accordance with the provisions of §§ 290.93 and 290.95, respectively.

§ 290.107 *Change in warehouse premises.* Where the premises of a warehouse are to be changed to an extent which will make inaccurate the description of such premises as set forth in the last application of the proprietor, or the diagram, if any, furnished with such application, the proprietor shall notify the assistant regional commissioner, in writing, describing the proposed change in such premises, and furnish a diagram thereof, if required under the provisions of § 290.87. The proprietor shall also furnish an extension of coverage of bond, in accordance with the provisions of § 290.113.

BONDS AND EXTENSIONS OF COVERAGE OF BONDS

§ 290.108 *Corporate surety.* Surety bonds, required under the provisions of this subpart, may be given only with cor-

porate sureties holding certificates of authority from the Secretary of the Treasury as acceptable sureties on Federal bonds. Limitations concerning corporate sureties are prescribed by the Secretary in Treasury Department Form 356, revised. The surety shall have no interest whatever in the business covered by the bond.

(61 Stat. 646; 6 U. S. C. 6)

§ 290.109 *Deposit of bonds, notes, or obligations in lieu of corporate surety.* Bonds or notes of the United States, or other obligations which are unconditionally guaranteed as to both interest and principal by the United States, may be pledged and deposited by the proprietor of a warehouse as security in connection with bond to cover his operations, in lieu of the corporate surety, in accordance with the provisions of Treasury Department Circular No. 154, revised (31 CFR Part 225). Such bonds or notes which are nontransferable, or the pledging of which will not be recognized by the Treasury Department, are not acceptable as security in lieu of corporate surety.

(61 Stat. 646; 6 U. S. C. 15)

§ 290.110 *Amount of bond.* The amount of the bond required to be filed by the proprietor of a warehouse, as required by § 290.82, shall be not less than the estimated amount of tax which may at any time constitute a charge against the bond: *Provided*, That the amount of any such bond (or the total amount where original and strengthening bonds are filed) shall not exceed \$200,000 nor be less than \$1,000. The charge against such bond shall be subject to increase upon receipt of articles into the warehouse and to decrease as required evidence of exportation or other delivery is received by the assistant regional commissioner with respect to articles transferred or removed. When the limit of liability under a bond given in less than the maximum amount has been reached, no additional shipments shall be received into the warehouse until a strengthening or superseding bond is filed, as required by §§ 290.111 or 290.112.

§ 290.111 *Strengthening bond.* Where the assistant regional commissioner determines that the amount of the bond under which a proprietor of a warehouse is currently carrying on business no longer adequately protects the revenue, and such bond is in an amount of less than \$200,000, the assistant regional commissioner may require the proprietor to file a strengthening bond in an appropriate amount with the same surety as that on the bond already in effect, in lieu of a superseding bond to cover the full liability on the basis of § 290.110. The assistant regional commissioner shall refuse to approve any strengthening bond where any notation is made thereon which is intended or which may be construed as a release of any former bond, or as limiting the amount of either bond to less than its full amount. Such strengthening bonds shall have placed thereon, by the obligors at the time of execution, the notation "Strengthening Bond."

§ 290.112 *Superseding bond.* The proprietor of a warehouse shall file a new bond to supersede his current bond, immediately when (a) the corporate surety on the current bond becomes insolvent, (b) the assistant regional commissioner approves a request from the surety on the current bond to terminate his liability under the bond, (c) payment of any liability under a bond is made by the surety thereon, or (d) the assistant regional commissioner considers such a superseding bond necessary for the protection of the revenue.

§ 290.113 *Extension of coverage of bond.* An extension of the coverage of any bond filed under this subpart shall be manifested on Form 2105 by the proprietor of the warehouse and by the surety on the bond with the same formality and proof of authority as required for the execution of the bond.

§ 290.114 *Approval of bond and extension of coverage of bond.* No person shall commence operations under any bond, nor extend his operations, until he receives from the assistant regional commissioner notice of his approval of the bond or of an appropriate extension of coverage of the bond required under this subpart.

§ 290.115 *Termination of liability of surety under bond.* The liability of a surety on any bond required by this subpart shall be terminated only as to operations on and after the date of approval of a superseding bond, or the date of approval of the discontinuance of operations by the proprietor of a warehouse, or otherwise in accordance with the termination provisions of the bond. The surety shall remain bound in respect of any liability for unpaid taxes, penalties, and interest, not in excess of the amount of the bond, incurred by the proprietor while the bond is in force.

§ 290.116 *Release of bonds, notes, and obligations.* Bonds, notes, and other obligations of the United States, pledged and deposited as security in connection with bonds required by this subpart, shall be released only in accordance with the provisions of Treasury Department Circular No. 154, revised (31 CFR Part 225). When the assistant regional commissioner who has accepted such security is satisfied that it is no longer necessary to hold such security, he shall fix the date or dates on which a part or all of such security may be released. At any time prior to the release of such security, the assistant regional commissioner may, for proper cause, extend the date of release of such security for such additional length of time as in his judgment may be appropriate.

(61 Stat. 646; 6 U. S. C. 15)

DISCONTINUANCE OF WAREHOUSES

§ 290.117 *Discontinuance of operations.* A proprietor who desires to discontinue operations and close out his warehouse shall dispose of all articles on hand, in accordance with this part, and make a closing inventory and closing report, in accordance with the provisions of §§ 290.93 and 290.95, respectively, to the assistant regional commissioner as no-

tice of such discontinuance and to permit the assistant regional commissioner to terminate the liability of the surety on the bond of the proprietor.

SUBPART E—SHIPMENTS OF TOBACCO MATERIALS BY DEALERS IN TOBACCO MATERIALS

§ 290.130 *Shipments for export—(a) Other than by parcel post.* Where a dealer in tobacco materials removes a shipment of tobacco materials, under his bond and this subpart, and forwards it directly to the port for lading and exportation, the dealer, or his forwarding or export agent at the port, shall prepare an extra copy of the shipper's export declaration, Commerce Form 7525-V, marked "For internal revenue purposes," which shall show the quantity of each kind of tobacco materials included in the shipment. This copy of the shipper's export declaration, after it has been completed by the customs authorities at the port to indicate exportation of the tobacco materials described thereon, shall be retained by the dealer as a part of the records of his establishment for two years after the close of the year in which the tobacco materials are removed. This copy of the shipper's export declaration shall be made available for inspection by any revenue officer upon his request.

(b) *By parcel post.* Tobacco materials removed by a dealer in tobacco materials, under his bond and this subpart, for export by parcel post to a person in a foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States, shall be addressed and consigned to such person when the tobacco materials are deposited in the mails. Waiver of his right to withdraw the shipment from the mails shall be endorsed on each package or parcel in the shipment and signed by the dealer in tobacco materials making the shipment. In any case where a shipper's export declaration, Commerce Form 7525-V, is not required to be executed by the dealer in connection with a shipment of tobacco materials for export by parcel post, he shall obtain from the postmaster or his agent a receipt on Post Office Department Form 3817. Such receipt shall be retained by the dealer at his establishment, as a part of the records thereof, for two years after the close of the year in which the shipment is deposited in the mails and shall be made available for inspection by any revenue officer upon his request.

SUBPART F—REMOVAL OF ARTICLES AND TOBACCO MATERIALS BY MANUFACTURERS, AND REMOVAL OF ARTICLES BY WAREHOUSE PROPRIETORS

§ 290.140 *Packages.* Articles and tobacco materials may be put up for removal under this subpart in any packages desired.

(68A Stat. 713; 26 U. S. C. 5723)

§ 290.141 *Lottery features.* No certificate, coupon, or other device purporting to be or to represent a ticket, chance, share, or an interest in, or dependent on, the event of a lottery shall be contained in, attached to, or stamped, marked, written, or printed on any package of articles or tobacco materials removed under this subpart.

(68A Stat. 713; 26 U. S. C. 5723)

§ 290.142 *Indecent or immoral material.* No indecent or immoral picture, print, or representation shall be contained in, attached to, or stamped, marked, written, or printed on any package of tobacco materials or articles removed under this subpart.

(68A Stat. 713; 26 U. S. C. 5723)

§ 290.143 *Label or notice.* Every package of articles, before removal from the factory, under this subpart, without payment of tax, shall have legibly imprinted thereon, or on a label securely affixed thereto, the words "For export purposes. U. S. Tax-exempt."

§ 290.144 *Shipping containers.* Each shipping case, crate, or other container, in which tobacco materials or articles are to be shipped or removed, under this subpart, without payment of tax, shall bear a number, such number to be assigned by the manufacturer. Removals of articles from a warehouse established under this part shall be made, in so far as practicable, in the same containers in which received from factories. However, where it is necessary to break a manufacturer's original shipping container to remove a portion of the contents for export, a new container shall be provided for the portion to be removed, which container shall be marked with the same number as the manufacturer's original container number followed by the letter "A" for the removal of the first portion thereof, "B" for the second portion, and so on as may be necessary.

§ 290.145 *Consignments of articles or tobacco materials—(a) General.* Articles and tobacco materials transferred or removed from a factory, or articles removed from a warehouse, under this subpart, without payment of tax, shall be consigned as hereafter required by this section.

(b) *To a warehouse.* Where articles are transferred under bond from a factory to a warehouse, the manufacturer shall consign the articles to the proprietor thereof.

(c) *To another warehouse or for return to the manufacturer.* Where articles are shipped under bond from a warehouse for transfer to another such warehouse, or for return to the manufacturer, the proprietor of the warehouse from which the articles are removed shall consign the articles to the proprietor of the warehouse or to the manufacturer to whom the articles are to be delivered.

(d) *To officers of the armed forces for subsequent exportation.* Where articles are removed from a factory or warehouse for delivery to officers of the armed forces in this country for shipment to, and use by, the armed forces outside the continental United States and the Territories of Alaska and Hawaii, the manufacturer or warehouse proprietor shall consign such articles to the receiving officer at the armed forces base or installation, in this country, to which the articles are to be delivered.

(e) *To vessels and aircraft for shipment to noncontiguous foreign countries and possessions of the United States.* Where articles or tobacco materials are removed from a factory, or articles are removed from a warehouse, for export to

a noncontiguous foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States, the manufacturer or warehouse proprietor shall consign such articles or tobacco materials directly to the vessel or aircraft, or to his agent at the port for delivery to the vessel or aircraft.

(f) *To contiguous foreign countries.* Where articles or tobacco materials are removed from a factory, or articles are removed from a warehouse, for export to a person in a contiguous foreign country, the manufacturer or warehouse proprietor shall consign such shipment to the collector or deputy collector of customs at the border or other port of exit.

(g) *To Government vessels and aircraft for use as supplies.* When articles are removed from a factory or warehouse for delivery to a vessel or aircraft, engaged in an activity for the Government of the United States or a foreign government, for consumption or use as supplies beyond the jurisdiction of the internal revenue laws (3-mile limit of the continental United States and the Territories of Alaska and Hawaii), the manufacturer or warehouse proprietor shall consign such articles to the proper officer on board the vessel or aircraft to which the articles are to be delivered.

(h) *To commercial vessels and aircraft for use as supplies.* Where articles are removed from a factory or warehouse for delivery to a commercial vessel or aircraft for consumption or use as supplies beyond the jurisdiction of the internal revenue laws (3-mile limit of the continental United States and the Territories of Alaska and Hawaii), the manufacturer or warehouse proprietor shall consign such articles to the collector of customs at the port at which the articles will be laden on the vessel or aircraft.

(i) *For exportation by parcel post.* Articles or tobacco materials removed from a factory, or articles removed from a warehouse, for export by parcel post to a person in a foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States, shall be addressed and consigned to such person when the articles or tobacco materials are deposited in the mails. Waiver of his right to withdraw such articles or materials from the mails shall be endorsed on each package or parcel in the shipment and be signed by the manufacturer or warehouse proprietor.

§ 290.146 *Notice of removal.* For each shipment of articles or tobacco materials transferred or removed under bond from his factory, under this subpart, the manufacturer shall prepare a notice of removal on Form 2149, and for each shipment of articles removed from his warehouse, the proprietor shall prepare a notice of removal on Form 2150. Each such notice shall be given a serial number by the manufacturer, or warehouse proprietor, in a series beginning with number 1, with respect to the first shipment removed from the factory or warehouse, under this subpart, and commencing again with number 1 on January 1 of each year thereafter.

§ 290.147 *Execution and disposition of notice of removal—(a) General.* After

actual removal from his factory or warehouse of the shipment described on the Form 2149, or Form 2150, required by § 290.146, the manufacturer or warehouse proprietor shall, except where the shipment is to be exported by parcel post, promptly forward one copy of the notice to the assistant regional commissioner for the region in which is located the factory or warehouse from which the shipment is removed. The manufacturer or warehouse proprietor shall enter on such copy of the notice the date of removal of the shipment described thereon. The manufacturer or warehouse proprietor shall retain one copy of such notice at his factory or warehouse, as a part of his records, for two years after the close of the year in which the related shipment was removed and such copy shall be made available for inspection by any revenue officer upon his request. The manufacturer or warehouse proprietor shall dispose of the other copies of each notice of removal as hereafter required by this section.

(b) *Shipment of articles from factory to warehouse.* Where articles are transferred under bond from a factory to a warehouse, the manufacturer shall forward to the proprietor three copies of the notice of removal, Form 2149, covering the shipment. Immediately upon receipt of the shipment at his warehouse, the proprietor shall check the containers comprising the same, ascertain that none show evidence of having been broken or tampered with, satisfy himself as to the contents, properly execute the certificate of receipt on each of the copies of the Form 2149, and forward one such copy to the manufacturer for disposition as provided by paragraph (j) of this section. The warehouse proprietor shall file one other such copy of the Form 2149 with his report, as required by § 290.95, and shall retain the other copy at his warehouse, as a part of his records, as required by § 290.94.

(c) *Shipment of articles to another warehouse or for return to the manufacturer.* Where articles are shipped under bond from a warehouse for transfer to another such warehouse or for return to the manufacturer, the proprietor of the warehouse from which the articles are shipped shall forward three copies of the notice of removal, Form 2150, to the proprietor of the receiving warehouse, or forward two copies of the notice to the manufacturer concerned. Immediately upon receipt of the shipment at his warehouse or factory, the proprietor or manufacturer shall check the containers to determine whether all of the articles described on the related notice have been received and shall then properly execute the certificate of receipt on each of the copies of the Form 2150, and forward one such copy to the proprietor making the shipment for disposition as provided by paragraph (j) of this section. The manufacturer receiving the articles into his factory shall retain the other receipted copy of the Form 2150, at his factory, as a part of his records, for two years after the close of the year in which the shipment was received. Such copy shall be made available for inspection by any revenue officer upon his request. The proprietor of

the receiving warehouse shall file one copy of the completed Form 2150 with his report, as required by § 290.95, and shall retain the other completed copy at his warehouse, as part of his records, as required by § 290.94.

(d) *Shipment of articles to officers of the armed forces for subsequent exportation.* Where articles are removed from a factory or warehouse for delivery to officers of the armed forces in this country for shipment to, and use by, the armed forces outside the continental United States and the Territories of Alaska and Hawaii, the manufacturer or warehouse proprietor making the shipment shall be responsible for delivery of the shipment to the base or installation and for the proper execution of the certificate of receipt on a copy of the notice of removal, Form 2149, or Form 2150, by the officer at such base or installation responsible for receiving the shipment. After completing the certificate of receipt on such copy thereof the receiving officer shall return the form to the manufacturer or warehouse proprietor making the shipment for disposition as provided by paragraph (j) of this section.

(e) *Shipments to noncontiguous foreign countries and possessions of the United States—(1) Regular.* Where a shipment of articles or tobacco materials is removed from a factory, or a shipment of articles is removed from a warehouse, under this subpart, for direct delivery to a vessel or aircraft for transportation to a noncontiguous foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States, the manufacturer or warehouse proprietor making the shipment shall be responsible for delivery of the shipment to such vessel or aircraft. The manufacturer or warehouse proprietor shall file two copies of the appropriate notice of removal, Form 2149, or Form 2150, with the office of the collector of customs at the port where the shipment is laden for transportation to its destination. Such copies of the notice of removal should be filed with the related shipper's export declaration, Commerce Form 7525-V. In the event the copies of the notice of removal are not filed with the shipper's export declaration, when the copies of the notice of removal are filed with the collector of customs they shall show all particulars necessary to enable the collector to identify the shipment with the related shipper's export declaration and any other documents filed with his office in connection with the shipment. After the vessel or aircraft on which the shipment has been laden clears or departs from his port, the collector of customs shall execute the certificate of exportation on the notice of removal, retain one copy thereof for his records and deliver or transmit the other copy to the manufacturer or warehouse proprietor making the shipment for disposition by him as provided by paragraph (j) of this section.

(2) *Special.* Where a shipment of articles removed from a factory or warehouse, under this subpart, is destined for a noncontiguous foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States, but the shipment is to be delivered to a Federal department

or agency, or to an authorized dispatch agent, transportation officer, or port director of such a department or agency for forwarding on to the place of destination of the shipment, the manufacturer or warehouse proprietor making the shipment shall furnish a copy of the related notice of removal, Form 2149, or Form 2150, to the Federal department or agency, or an officer thereof at the port, receiving the shipment for ultimate transmittal to the place of destination, in order that such department, agency, or officer, can properly modify and execute the certificate of receipt on such notice to evidence receipt of the shipment for transmittal to a place beyond the jurisdiction of the internal revenue laws of the United States. After completing such certificate, the Federal department, agency, or officer, shall return the copy of the notice of removal, so executed, to the manufacturer or warehouse proprietor concerned for disposition by him as provided by paragraph (j) of this section.

(f) *Shipment of articles and tobacco materials to a contiguous foreign country.* Where a shipment of articles or tobacco materials is removed from a factory, or a shipment of articles is removed from a warehouse, and consigned to a person in a contiguous foreign country, the manufacturer or warehouse proprietor making the shipment shall furnish to the collector or deputy collector of customs at the border or other port of exit of the shipment from the United States, through which the shipment will be routed, two copies of the notice of removal, Form 2149, or Form 2150, together with the related shipper's export declaration, Commerce Form 7525-V. In the event the copies of the notice of removal are not filed with the shipper's export declaration or, in the case of a shipment for the armed forces of the United States in the contiguous foreign country, where no shipper's export declaration is required, the copies of the notice of removal when filed with the collector of customs shall show all particulars necessary to enable the collector to identify the shipment with the related shipper's export declaration, if any, and any other documents filed with his office in connection with the shipment. After the shipment has been cleared by customs from the United States the customs authorities at the port of exit will complete the certificate of exportation on each copy of the Form 2149, or Form 2150, retain one copy thereof and transmit the other copy to the manufacturer or warehouse proprietor making the shipment for disposition by him as provided by paragraph (j) of this section.

(g) *Shipment of articles to Government vessels and aircraft for use as supplies.* Where articles are removed from a factory or warehouse for direct delivery to a vessel or aircraft, engaged in an activity for the Government of the United States or a foreign government, for consumption or use as supplies beyond the jurisdiction of the internal revenue laws of the United States, the manufacturer or warehouse proprietor making the shipment shall be responsible for delivery of the shipment aboard the vessel or aircraft and for the proper

execution of the certificate of receipt on one copy of the notice of removal, Form 2149, or Form 2150, by the officer of the vessel or aircraft responsible for receiving the shipment. After completing such certificate of receipt the receiving officer of the vessel or aircraft shall return the form to the manufacturer or warehouse proprietor making the shipment for disposition by him as provided by paragraph (j) of this section.

(h) *Shipment of articles to commercial vessels and aircraft for use as supplies.* Where a shipment of articles is removed from a factory or warehouse, under this subpart, for delivery to a vessel or aircraft entitled to receive such articles for consumption or use thereon as supplies beyond the jurisdiction of the internal revenue laws of the United States, such shipment shall be inspected and laden on the vessel or aircraft under the supervision of the customs authorities at the port of actual lading. The manufacturer or warehouse proprietor making the shipment shall file two copies of the notice of removal, Form 2149, or Form 2150, with the office of the collector of customs at the port where the shipment is to be laden in sufficient time to permit the collector of customs to execute his order for inspection and lading thereon and to deliver such copies to the inspector of customs who will inspect the shipment and supervise its lading. The inspector of customs shall note on the copies of the notice of removal any discrepancy between the shipment inspected and laden under his supervision and that described on the notice of removal. After complying with the order for inspection and lading, the inspector shall complete and sign the certificate of inspection and lading on both copies of the notice of removal. Where the vessel or aircraft does not clear from the port at which the shipment is laden in foreign inter-coastal, or noncontiguous trade, or to a port or destination beyond the jurisdiction of the internal revenue laws of the United States, the customs inspector supervising the lading of the shipment shall require the person on board the vessel or aircraft responsible for receiving the shipment to execute the certificate of receipt on the two copies of the notice of removal and to indicate thereon the trade or activity in which the vessel or aircraft is or will be engaged. The inspector of customs will return both copies of the notice to his collector who will retain one copy for his records and deliver or transmit the other copy to the manufacturer or warehouse proprietor making the shipment, for disposition by him as provided by paragraph (j) of this section. Where the vessel or aircraft clears or departs from the port at which the shipment is laden in foreign, inter-coastal, or noncontiguous trade, or for some other destination beyond the jurisdiction of the internal revenue laws of the United States, the collector of customs shall also execute the certificate of clearance or departure on the copy of the related notice of removal before delivering or transmitting such copy to the manufacturer or warehouse proprietor concerned.

(i) *Shipment of articles and tobacco materials from factory or warehouse for export by parcel post.* Where a shipment of articles or tobacco materials is removed from a factory, or a shipment of articles is removed from a warehouse, for export by parcel post, the manufacturer or warehouse proprietor shall present one copy of the notice of removal, Form 2149, or Form 2150, together with the packages containing the shipment, to the postal authorities with the request that the postmaster or his agent execute the certificate of mailing on the form. The manufacturer or warehouse proprietor shall then dispose of the receipted copy as provided by paragraph (j) of this section.

(j) *Disposition of executed copies by manufacturers and proprietors.* The manufacturer or proprietor receiving a completed copy of a notice of removal, Form 2149, or Form 2150, shall immediately file such copy with the appropriate assistant regional commissioner.

§ 290.148 *Diversion of shipment to another consignee.* If, after removal of a shipment from a factory or warehouse, the manufacturer or warehouse proprietor desires to divert the shipment to another consignee he shall so notify the appropriate assistant regional commissioner. The manufacturer or warehouse proprietor shall describe the shipment, set forth the serial number and date of the notice of removal under which the shipment was removed from his factory or warehouse, furnish the name and address of the new consignee, and request the assistant regional commissioner to correct his copy of the notice of removal accordingly.

§ 290.149 *Return of shipment to factory or warehouse.* A manufacturer or warehouse proprietor may return to his factory or warehouse articles or tobacco materials previously removed therefrom, under this subpart, without internal revenue supervision when so authorized by the assistant regional commissioner. The manufacturer or warehouse proprietor shall, prior to returning the articles or materials to the bonded premises of his factory or warehouse, make application to the appropriate assistant regional commissioner for permission so to do, which application shall be accompanied by three copies of the Form 2149, or Form 2150, under which the articles or materials were originally removed. If less than the entire shipment of articles or materials, as described on the form, is intended to be returned to the factory or warehouse, the application shall set forth accurately the articles or materials to be returned and shall show what disposition was made of the balance of the original shipment and any other facts pertinent to such shipment. If the assistant regional commissioner approves the application, he shall so indicate by appropriate endorsement to that effect on each of the three copies of the related Form 2149, or Form 2150, set forth the articles or materials for which return is approved, if less than all of the articles or materials described on the form, and return all three copies thereof to the manufacturer or warehouse proprietor.

Upon receipt of the three copies of the form bearing the endorsement of the assistant regional commissioner, the manufacturer or warehouse proprietor shall proceed at once to take the articles or materials back into the bonded premises of his factory or warehouse, properly modify and execute the certificate of receipt on each copy of the related Form 2149, or Form 2150, and transmit one such copy at once to the assistant regional commissioner. With respect to the other two copies of the related form, the manufacturer or warehouse proprietor shall retain one copy for the records of his factory or warehouse and shall submit the other copy with his report for the month in which the articles or materials are returned.

§ 290.150 *Destruction of articles under official supervision.* Where the proprietor of a warehouse desires to destroy any of the articles stored in his warehouse, he shall notify the assistant regional commissioner of the kind and quantity of articles to be destroyed and the date on which he desires the destruction to take place in order that the assistant regional commissioner may detail a revenue officer to inspect the articles and supervise their destruction. The warehouse proprietor shall prepare a notice of removal, Form 2150, describing the articles to be destroyed. After witnessing the destruction of the articles the revenue officer will certify to their destruction on two copies of the notice of removal and return them to the proprietor. The proprietor shall file one such copy with his monthly report, as required by § 290.95, and shall retain the other copy at his warehouse, as a part of his records, for two years after the close of the year in which the articles are so destroyed. Such copy shall be made available for inspection by any revenue officer upon his request.

§ 290.151 *Delay in lading at port of exportation.* If, on arrival at the port of a shipment of articles or tobacco materials, the vessel or aircraft for which they are intended is not prepared to receive the shipment, such articles or materials may be properly stored at the port for not more than 30 days. In the event of any further delay, the facts shall be reported to the appropriate assistant regional commissioner and unless he approves an extension of time in which to effect lading and clearance of the shipment it must be returned to the factory or warehouse.

§ 290.152 *Foreign trade zones.* A manufacturer or warehouse proprietor may remove tobacco products and cigarette papers and tubes, under his bond, without payment of tax, for shipment to a foreign trade zone in accordance with the applicable provisions of Part 253 of this title.

SUBPART G—DRAWBACK OF TAX

§ 290.160 *Application of drawback of tax.* Refund of tax by allowance of drawback shall apply only to tobacco products, on which tax has been paid, when such products are shipped to a foreign country, Puerto Rico, the Virgin Islands, or a possession of the United

States. Such drawback shall be allowed only to the person who paid the tax on such products and who complies with the provisions of this subpart.

(68A Stat. 709, 908; 26 U. S. C. 5706, 7653)

§ 290.161 *Claim.* Claim for allowance of drawback of tax, under this subpart, shall be filed on Form 2147 with the assistant regional commissioner for the region in which the tobacco products covered by the claim are held by the claimant. Such claim shall be so filed in sufficient time to permit the assistant regional commissioner to detail a revenue officer to inspect the products and supervise destruction of the stamps to denote payment of tax, since the claim will not be allowed until such stamps have been so destroyed. Upon receipt of a claim supported by satisfactory bond, as required by this subpart, the assistant regional commissioner shall execute his order thereon and assign a revenue officer to proceed to the place where the products involved are held and there perform the functions required in § 290.163.

§ 290.162 *Drawback bond.* Each claim for allowance of drawback of tax, under this subpart, shall be accompanied by a bond, Form 2148, satisfactory to the assistant regional commissioner with whom the claim is filed. Such bond shall be in an amount not less than the amount of tax for which drawback is claimed, conditioned that the claimant shall furnish, within a reasonable time, evidence satisfactory to the assistant regional commissioner that the tobacco products have been landed at some port beyond the jurisdiction of the internal revenue laws of the United States, or that after clearance from the United States the products were lost (otherwise than by theft) or destroyed by fire, casualty, or act of God, and have not been relanded within the limits of the United States. The provisions of §§ 290.108 and 290.109 are applicable with respect to any drawback bond required under this section.

(68A Stat. 709; 26 U. S. C. 5706)

§ 290.163 *Inspection by revenue officer.* The revenue officer assigned in connection with a claim for drawback of tax, under this subpart, shall, at the place where the tobacco products covered by the claim are held by the claimant, examine such products and satisfy himself as to the accuracy of the schedule of such products appearing in the claim, Form 2147, and determine that the packages of such products bear proper stamps to denote payment of tax. The officer shall then supervise destruction of the stamps on the packages. No particular mode of destruction of such stamps is prescribed but the use of any indelible preparation which will render them illegible is approved. When the stamps have been properly destroyed, the revenue officer shall supervise the packing of the tobacco products in shipping containers, the numbering of each such container, and the affixture thereto of the following: "Drawback of tax claimed on products contained herein. Sale, consumption, or use in United States prohibited. Products subject to customs duty equal to tax if brought back into the United States.

After the claimant has completed the schedule, recapitulation, and affidavit on each copy of the claim, Form 2147, the revenue officer will execute his report on each copy of the claim, return two copies to the claimant, deliver one copy to the assistant regional commissioner, and release the shipment to the claimant for transmittal to the port of exportation.

§ 290.164 *Delivery of products for shipment to destination—(a) Other than by parcel post.* The claimant, upon release of the tobacco products by the revenue officer for shipment with benefit of drawback of tax, under this subpart, will be responsible for delivery of such products at the port of exportation for customs inspection and supervision of lading and clearance of the products. The claimant, or his agent at said port, shall file with the collector of customs at the port of exportation in sufficient time, prior to lading, to permit his inspection and supervision of lading of the tobacco products, the two copies of the Form 2147 returned to the claimant by the revenue officer in accordance with § 290.163.

(b) *By parcel post.* Where the tobacco products are to be shipped by parcel post to a destination in a foreign country, Puerto Rico, the Virgin Islands, or a possession of the United States, the claimant shall endorse and sign on each container or parcel in the shipment a waiver of his right to withdraw such container or parcel from the mails, after which the claimant shall present the shipment to the post office. The claimant shall request the postmaster or his agent to execute the certificate of mailing on each of the two copies of the claim, Form 2147, returned to the claimant by the revenue officer in accordance with § 290.163. When so executed by the postal authorities the two copies of the Form 2147 shall be transmitted at once to the assistant regional commissioner with whom the form was previously filed.

§ 290.165 *Customs procedure.* The inspector of customs shall satisfy himself that the tobacco products described on the Form 2147 and those inspected by him are the same, and shall note on the form any discrepancy. After having inspected the products and supervised the lading thereof on the export carrier, the inspector shall complete and sign the certificate of inspection and lading on each copy of the Form 2147, and then deliver or transmit such copies of the form to the office of his collector of customs for further processing. After clearance from the port of the export carrier on which the products are laden, the collector of customs shall execute the certificate of exportation on both copies of Form 2147. The collector shall retain one copy of the form for his record and transmit the other copy to the assistant regional commissioner of the region from which the products were shipped.

(68A Stat. 709; 26 U. S. C. 5706)

§ 290.166 *Landing certificate.* Each claimant for drawback under this subpart agrees in the bond filed by him that he will furnish, within a reasonable time,

evidence satisfactory to the assistant regional commissioner that the tobacco products covered by his claim have been landed at some port beyond the jurisdiction of the internal revenue laws of the United States, or that after shipment from the United States the products were lost, and have not been relanded within the limits of the United States. The landing certificate shall accurately describe the products involved, so as to readily identify the drawback claim to which it relates. The landing certificate shall be signed by a revenue officer at the place of destination, unless it is shown that no such officer can furnish such landing certificate, in which case the certificate of landing shall be signed by the consignee, or by the vessel's agent, at the place of landing, and shall be sworn to before a notary public or other officer authorized to administer oaths and having an official seal. The landing certificate shall be filed with the assistant regional commissioner, with whom the drawback claim was filed, within six months from the date of clearance of the tobacco products from the United States. A landing certificate prepared in a foreign language shall be accompanied by an accurate translation thereof in English.

(68A Stat. 709; 26 U. S. C. 5706)

§ 290.167 *Collateral evidence as to landing.* In case of inability to furnish the prescribed evidence of landing, application for relief shall be made by the claimant to the assistant regional commissioner with whom the drawback claim and bond were filed. Such application shall set forth the facts connected with the alleged exportation, and indicate the date of shipment, the kind, quantity, and value of tobacco products shipped, the name of the consignee, and the name of the vessel by, and the port or place of destination to which the shipment was made, and the date and amount of the bond covering such shipment. The application shall also state in what particular the provisions of this subpart, respecting the proofs of landing, have not been complied with, and the cause of failure to furnish such proofs; that such failure was not occasioned by any lack of diligence on the part of the claimant, or that of his agents; and that he is unable to furnish any other or better evidence than that furnished with his application. Each such application shall be supported by the best collateral evidence the claimant may be able to submit. The evidence may consist of the original or verified copies of letters from the consignee advising the claimant of the arrival or sale of the tobacco products, with such other statements respecting the failure to furnish the prescribed evidence of landing as may be obtained from the consignee or other persons having knowledge thereof. Such letters and other documents in a foreign language shall be accompanied by accurate translations thereof in English, and, when the letters fail to identify sufficiently the tobacco products, the original sales account must be produced.

(68A Stat. 709; 26 U. S. C. 5706)

§ 290.168 *Proof of loss.* When the claimant is unable to procure a certificate of landing, in accordance with the provisions of § 290.166, in consequence of loss of the tobacco products, his application for relief shall set forth the extent of the loss and, if possible, the location and manner of shipwreck or other casualty and the time of its occurrence. When obtainable, affidavits of the vessel's owners should be furnished detailing the manner and extent of the loss and the time and location of the disaster. If the tobacco products were insured, the claimant shall furnish certificates by officers of the insurance companies that the insurance has been paid, and that, to the best of their knowledge and belief, the products were actually destroyed. The aforesaid proof shall be furnished to the assistant regional commissioner within six months from the date of clearance of the tobacco products from the United States.

(68A Stat. 709; 26 U. S. C. 5706)

§ 290.169 *Extension of time.* In case the claimant, from causes beyond his control, is unable to furnish the landing certificate or proof of loss, within the time prescribed therefor, he may make an application to the assistant regional commissioner for an extension of time in which to do so. Such application must state specifically the cause of failure to furnish the evidence. Two extensions of three months each may be granted by the assistant regional commissioner, provided the surety on the drawback bond of the claimant assents in writing thereto.

(68A Stat. 709; 26 U. S. C. 5706)

SUBPART H—WITHDRAWAL OF CIGARS FROM CUSTOMS WAREHOUSES

§ 290.180 *Shipment restricted.* Only cigars produced in customs warehouses of imported tobacco on which the duties have been paid may be withdrawn under this subpart, without payment of tax, for export to a foreign country or a possession of the United States. Such duties paid may not be recovered on cigars withdrawn under this subpart. Cigars produced in customs warehouses of imported tobacco on which the customs duties have not been paid must be withdrawn in accordance with customs regulations and procedure.

§ 290.181 *Bond.* Where the customs warehouse proprietor desires to withdraw cigars from his warehouse, without payment of tax, under this subpart, he shall, prior to making the first withdrawal, file with the assistant regional commissioner a bond, Form 2104, conditioned upon compliance with the provisions of Chapter 52, I. R. C., and of this part, including, but not limited to, the timely payment of taxes imposed by such chapter and penalties and interest in connection therewith for which he may become liable to the United States. The provisions of §§ 290.108 and 290.109 are applicable to the bond required under this section.

§ 290.182 *Amount of bond.* The amount of the bond required to be filed by the customs warehouse proprietor, as

required by § 290.181, shall be not less than the estimated amount of tax which may at any time constitute a charge against the bond: *Provided*, That the amount of any such bond (or the total amount where original and strengthening bonds are filed) shall not exceed \$25,000 nor be less than \$1,000. The charge against such bond shall be subject to increase as withdrawals are made and decrease as required evidence of exportation is received by the assistant regional commissioner with respect to cigars withdrawn. When the limit of liability under a bond given in less than the maximum amount has been reached, further withdrawals shall not be made thereunder until a strengthening or superseding bond is filed, as required by §§ 290.183 or 290.184.

§ 290.183 *Strengthening bond.* Where the assistant regional commissioner determines that the amount of the bond, under which the customs warehouse proprietor is withdrawing cigars for shipment under this subpart, no longer adequately protects the revenue, and such bond is in an amount of less than \$25,000, the assistant regional commissioner may require the proprietor to file a strengthening bond in an appropriate amount with the same surety as that on the bond already in effect, in lieu of a superseding bond to cover the full liability on the basis of § 290.182. The assistant regional commissioner shall refuse to approve any strengthening bond where any notation is made thereon which is intended or which may be construed as a release of any former bond, or as limiting the amount of either bond to less than its full amount. Such strengthening bond shall have placed thereon, by the obligors at the time of execution, the notation "Strengthening Bond."

§ 290.184 *Superseding bond.* The customs warehouse proprietor shall file a new bond to supersede his current bond, immediately when (a) the corporate surety on the current bond becomes insolvent, (b) the assistant regional commissioner approves a request from the surety on the current bond to terminate his liability under the bond, (c) payment of any liability under a bond is made by the surety thereon, or (d) the assistant regional commissioner considers such a superseding bond necessary for the protection of the revenue.

§ 290.185 *Termination of liability of surety under bond.* The liability of a surety on any bond required by this subpart shall be terminated only as to operations on and after the date of approval of a superseding bond, or the date of approval of the customs warehouse proprietor's request for termination, or otherwise, in accordance with the termination provisions of the bond. The surety shall remain bound in respect of any liability for unpaid taxes, penalties, and interest, not in excess of the amount of the bond, incurred by the proprietor while the bond is in force.

§ 290.186 *Packages.* Cigars may be put up for withdrawal under this subpart in any packages desired.

(68A Stat. 713; 26 U. S. C. 5723)

§ 290.187 *Lottery features.* No certificate, coupon, or other device purporting to be or to represent a ticket, chance, share, or an interest in, or dependent on, the event of a lottery shall be contained in, attached to, or stamped, marked, written, or printed on any package of cigars withdrawn under this subpart.

(68A Stat. 713; 26 U. S. C. 5723)

§ 290.188 *Indecent or immoral material.* No indecent or immoral picture, print, or representation shall be contained in, attached to, or stamped, marked, written, or printed on any package of cigars withdrawn under this subpart.

(68A Stat. 713; 26 U. S. C. 5723)

§ 290.189 *Label or notice.* Every package of cigars before removal from the customs warehouse, under this subpart, without payment of tax, shall have legibly imprinted thereon, or on a label securely affixed thereto, the words "For export purposes. U. S. Tax-exempt."

§ 290.190 *Shipping containers.* Each shipping case, crate, or other container in which cigars are to be withdrawn, under this subpart, shall bear a number, such number to be assigned by the customs warehouse proprietor.

§ 290.191 *Notice of removal.* For each shipment to be withdrawn under this subpart, the customs warehouse proprietor shall prepare a notice of removal on Form 2149. Each such notice shall be given a serial number by the proprietor in a series beginning with number 1, with respect to the first shipment withdrawn, under this subpart, and commencing again with number 1 on January 1 of each year thereafter.

§ 290.192 *Execution and disposition of notice of removal—(a) General.* After actual withdrawal from his warehouse of the shipment described on the Form 2149, required by § 290.191, the customs warehouse proprietor shall, except where the shipment is to be exported by parcel post, promptly forward one copy of the notice to the assistant regional commissioner for the region in which is located the customs warehouse from which the shipment is withdrawn. The customs warehouse proprietor shall enter on such copy of the form the date of withdrawal of the shipment described thereon. The proprietor shall retain one copy of such notice at his warehouse, as a part of his records, for two years after the close of the year in which the shipment was withdrawn and such copy shall be made available for inspection by any revenue officer upon his request. The proprietor shall dispose of the other copies of the Form 2149 as hereafter required by this section.

(b) *Cigars withdrawn for export to noncontiguous foreign countries and possessions of the United States—(1) Regular.* Where cigars are withdrawn from a warehouse, under this subpart, for direct delivery to a vessel or aircraft for transportation to a noncontiguous foreign country or to a possession of the United States, the customs warehouse proprietor making the withdrawal shall be responsible for delivery of the shipment to such

vessel or aircraft. The customs warehouse proprietor shall file two copies of the notice of removal, Form 2149, with the office of the collector of customs at the port where the shipment is laden for transportation to its destination. Such copies of the notice of removal shall be filed with the related shipper's export declaration, Commerce Form 7525-V. In the event the copies of the notice of removal are not filed with the shipper's export declaration, when the copies of the notice of removal are filed with the collector of customs they shall show all particulars necessary to enable the collector to identify the shipment with the related shipper's export declaration and any other documents filed with his office in connection with the shipment. After the vessel or aircraft on which the shipment has been laden clears or departs from his port, the collector of customs shall execute the certificate of exportation on the notice of removal, retain one copy thereof for his records and deliver or transmit the other copy to the customs warehouse proprietor making the shipment for disposition as provided by paragraph (e) of this section.

(2) *Special.* Where a shipment of cigars withdrawn from a warehouse, under this subpart, is destined for a non-contiguous foreign country or a possession of the United States, but the shipment is to be delivered to a Federal department or agency, or port director of such a department or agency for forwarding on to the place of destination of the shipment, the customs warehouse proprietor making the shipment shall furnish a copy of the notice of removal, Form 2149, to the Federal department or agency, or an officer thereof at the port, receiving the shipment for ultimate transmittal to the place of destination, in order that such department, agency, or officer can properly modify and execute the certificate of receipt on such notice to evidence receipt of the shipment for transmittal to a place beyond the jurisdiction of the internal revenue laws of the United States. After completing such certificate, the Federal department, agency, or officer, shall return the copy of the notice of removal, so executed, to the customs warehouse proprietor concerned for disposition by him as provided by paragraph (e) of this section.

(c) *Cigars withdrawn for export to a contiguous foreign country.* Where cigars are withdrawn from a customs warehouse and consigned to a person in a contiguous foreign country, the customs warehouse proprietor shall furnish to the collector or deputy collector of customs at the border or other port of exit of the shipment from the United States, through which the shipment will be routed, two copies of the notice of removal, Form 2149, together with the related shipper's export declaration, Commerce Form 7525-V. In the event the copies of the notice of removal are not filed with the shipper's export declaration or, in the case of a shipment for the armed forces of the United States in the contiguous foreign country, where no shipper's export declaration is required, the copies of the notice of removal when filed with the collector of customs shall show all particulars necessary to enable

the collector to identify the shipment with the related shipper's export declaration, if any, and any other documents filed with his office in connection with the shipment. After the shipment has been cleared by customs from the United States the customs authorities at the port of exit will complete the certificate of exportation on each copy of the Form 2149, retain one copy thereof and transmit the other copy to the customs warehouse proprietor making the shipment for disposition by him as provided by paragraph (e) of this section.

(d) *Cigars withdrawn for export by parcel post.* Where cigars are withdrawn from a customs warehouse for export by parcel post, the customs warehouse proprietor shall present one copy of the notice of removal, Form 2149, to the postal authorities, together with the packages containing the cigars, with the request that the postmaster or his agent execute the certificate of mailing on the notice. The customs warehouse proprietor shall dispose of the receipted copy as provided by paragraph (e) of this section.

(e) *Disposition of executed copies by customs warehouse proprietors.* The customs warehouse proprietor receiving a completed copy of the notice of removal, Form 2149, shall immediately file such copy with the appropriate assistant regional commissioner.

§ 290.193 *Return of shipment to warehouse.* A customs warehouse proprietor may return to his warehouse cigars previously withdrawn therefrom, under this subpart, provided he promptly files with the appropriate assistant regional commissioner a copy of the Form 2149 under which the cigars were originally withdrawn, with the certificate of receipt properly modified and executed by the customs officer in charge of the warehouse to show return of the shipment. If less than the entire shipment is returned to the warehouse, the form shall state what disposition was made of the balance of the original shipment and any other facts pertinent to such shipment. The customs warehouse proprietor shall retain a copy of such form for the records of his warehouse for two years after the close of the year in which the shipment was returned. Such copy shall be made available for inspection by any revenue officer upon his request.

[F. R. Doc. 56-4003; Filed, May 21, 1956; 8:50 a. m.]

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

[7 CFR Part 961]

[Docket No. AO-160-A18]

HANDLING OF MILK IN PHILADELPHIA, PA., MARKETING AREA

NOTICE OF HEARING ON PROPOSED AMENDMENTS TO TENTATIVELY APPROVED MARKETING AGREEMENT AND TO ORDER AS AMENDED

Pursuant to the provisions of the Agricultural Marketing Agreement Act of 1937, as amended (7 U. S. C. 601 et seq.), and the applicable rules of practice

and procedure governing the formulation of marketing agreements and marketing orders (7 CFR Part 900), notice is hereby given of the opening of a public hearing to be held in Courtroom No. 7, Room 3018, United States Courthouse, Ninth and Market Streets, Philadelphia, Pennsylvania, beginning at 10:00 a. m., e. d. s. t., June 11, 1956 for the purpose of receiving evidence with respect to proposed amendments hereinafter set forth, or appropriate modifications thereof, to the tentative marketing agreement heretofore approved by the Secretary of Agriculture, and to the order, as amended, regulating the handling of milk in the Philadelphia, Pennsylvania, marketing area. These proposed amendments have not received the approval of the Secretary of Agriculture.

Proposals Nos. 1 and 6 relative to the enlargement of the marketing areas, raise the issue as to whether the present provisions of the order would tend to effectuate the declared policy of the act if applied to the marketing area as proposed to be extended, or if not, what modifications of such provisions are appropriate to effectuate the declared policy of the act.

By the Milk Distributors Association of the Philadelphia Area, Inc.:

1. Extend the Philadelphia marketing area to include that portion of Bucks County, Pennsylvania, south and southeast of and including the following townships: Plumstead, Bedminster, East Rockhill and West Rockhill, and the portion of Montgomery County, Pennsylvania, south and southeast of and including the townships of Salford, Upper Salford, Lower Frederick and Limerick and the following boroughs and townships in Chester County, Pennsylvania: The Boroughs of Spring City, Phoenixville, West Chester and Malvern and the Townships of Tredyffrin, Easttown, Willistown, East Goshen, West Goshen, Westtown and Thornbury; and the remaining part of Philadelphia County, Pennsylvania, not already included in the marketing area.

2. Amend the Class I pricing provisions to provide a Class I price for milk disposed of in the proposed area of extension 15 cents per hundredweight less than the Class I price applicable to milk sold in the present marketing area.

3. Delete from the list of named plants set forth in § 961.5 (a) the plants at Pottstown, Pennsylvania, Byers, Pennsylvania, and Port Allegany, Pennsylvania, and add to the list of such named plants, the plant at Nassau, Delaware, and make such other changes as may be necessary to bring the list of plants up to date.

4. Provide for increased making allowances during each March, April, May and June for Class II milk in § 961.40 (b) and reconsider § 961.31 (b) and § 961.40 (b) to provide for a permanent classification and pricing of low value products during March, April, May and June.

5. Reconsider the butterfat differentials to be used in calculating values of milk of differing butterfat content, as received from individual producers, and as disposed of in various uses by handlers.

By Inter-State Milk Producers' Cooperative:

6. Extend the Philadelphia marketing area to include all or part of the following townships and boroughs, all in Pennsylvania; balance of Philadelphia City and County, Bensalem, Bristol, Falls, Lower Southampton, Middletown, Lower Makefield, Upper Southampton, Northampton, Newtown, Upper Makefield, Wrightstown, Warwick, Warminster, and Warrington and the boroughs and cities therein, all in Bucks County; balance of Upper Moreland, Horsham, Montgomery, Hatfield, Upper Salford, Lower Salford, Towamencin, Upper Gwynedd, Lower Gwynedd, Upper Dublin, Whittemarsh, Whitpain, Worcester, Skippack, Lower Frederick, Limerick, Upper Providence, Lower Providence, East Norriton, West Norriton, Upper Merion, Plymouth, and the boroughs and cities therein all in Montgomery County; Tredyffrin, Easttown, Willistown, East Goshen, West Goshen, Westtown, Thornbury, and all the boroughs and cities therein and Spring City, Phoenixville and West Chester, all in Chester County.

7. Consider defining "producer" (for pooling purposes) with respect to deliveries through the bulk tank system.

8. Bring up-to-date the list of named plants in § 961.6 (a).

9. Reconsider the Class I pricing formula, first, with respect to an adjustment in the table entitled "Class I Price Schedule—Class I Price Per Hundredweight" 1961.40 (a) (6), and second, with respect to the deletion of the supply-demand adjustment, § 961.40 (a) (7) and (8).

10. Reconsider the handler (§ 961.41) and producer (§ 961.82) butterfat differentials.

11. Provide a butterfat differential premium to be charged handlers for Class I sales with a butterfat content in excess of 4.0 percent, except for such sales qualifying for the premiums in § 961.85 and for such sales which are clearly designated with a nationally registered breed trademark.

12. Delete § 961.84, additional deductions. (Nearby location differentials.)

By Oakland Farms:

13. Provide for the classification of cream as a Class I product with a separate pricing for cream. Amend also, all relevant provisions of the order with respect to the definition of a producer milk plant to include the shipment of cream into the marketing area.

14. Provide for the classification as Class I, all milk or butterfat entering the marketing area except that milk moved directly from producers' farms.

15. Amend § 961.42 to provide for the payment of Class I differential in series beginning with the plant nearest the marketing area and eliminate differentials on Class II milk.

By Chester County Dairymen's Cooperative Association, United Farmers Cooperative and Southern York County Dairymen's Association:

16. Review the provisions of §§ 961.41 (a) and (b), 961.83, and 961.85 relating to handler and producer butterfat differentials.

17. Review the Class I pricing formula as set forth in § 961.40 (a), particularly with respect to including an index reflecting farm labor costs.

By Southern York County Dairymen's Association:

18. Revise the Class II pricing formula to bring about an increase in Class II price to compensate for increased milk production costs.

By Borden's Farm Products of New Jersey, Inc.

19. Provide an out-of-area price for milk purchased from producers and sold outside the defined marketing area.

20. Frame the producer milk plant definition in a manner which will permit the continued receipts of unregulated milk from other dealers.

By Mifflin Creamery Company, Inc., Lancaster Milk Company, Lancaster Milk Company, Inc., W. M. Evans Dairy Company, Inc., Christiana Milk Products Company, Inc., Tri-County Dairy Company, Inc., The H. E. Koontz Creamery, Inc., and Grover Farms, Inc.:

21. Amend the order to provide for the payment to producers through the medium of a marketwide pool.

22. Amend § 961.6 (c) by deleting the present language and substituting therefor the following:

(c) Any other plant from which milk is supplied to a pasteurizing or bottling plant described in paragraph (b) of this section: *Provided*, That any such other plant shall not be included in this definition during any month in which there is shipped from the plant only Class II milk as defined in § 961.31 or during any of the months of October, November, December, and January in which less than 100,000 pounds of milk are shipped into the marketing area and allocated to Class I to such pasteurizing or bottling plant or to a plant or plants supplying such pasteurizing or bottling plant.

Proposed by the Dairy Division:

23. Consider standardization of the language of the definition and administrative provisions of the order.

24. Make such other changes as may be required to make the marketing agreement and order in their entirety conform with any amendment thereto that may result from this hearing.

Copies of this notice of hearing and of the order as now in effect may be procured from the market administrator, 1612 Market Street, Philadelphia 3, Pennsylvania, or from the Hearing Clerk, Administration Building, United States Department of Agriculture, Room 112, Washington 25, D. C., or may be there inspected.

Issued at Washington, D. C., this 17th day of May 1956.

[SEAL] ROY W. LENNARTSON,
Deputy Administrator.

[F. R. Doc. 56-3983; Filed, May 21, 1956; 8:46 a. m.]

CIVIL AERONAUTICS BOARD

[14 CFR Part 1]

[Draft Release No. 56-13]

AIRCRAFT IDENTIFICATION MARKINGS

EXTENSION OF JULY 27, 1956, DATE

Pursuant to authority delegated by the Civil Aeronautics Board to the Bureau of Safety Regulation, notice is hereby

given that the Bureau will propose to the Board a Special Civil Air Regulation extending the July 27, 1956, deadline date for identification of fixed-wing aircraft in accordance with Special Civil Air Regulation No. SR-412.

Interested persons may participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should be submitted in duplicate to the Civil Aeronautics Board, attention Bureau of Safety Regulation, Washington 25, D. C. In order to insure their consideration by the Board before taking further action on the proposed rule, communications must be received by July 2, 1956. Copies of such communications will be available after July 5, 1956, for examination by interested persons at the Docket Section of the Board, Room 5412, Department of Commerce Building, Washington, D. C.

Some time ago, the Department of Defense advised the Board that the size and location of identification markings on civil aircraft made it necessary for military aircraft to reduce their speed to approximately that of civil aircraft when making interceptions in restricted areas; and that, as a consequence, interceptors such as the P-86D were required to make identifications at less than a safe maneuverable speed. For this reason, the Department concluded that civil aircraft should be identified from the side, rather than from above or below, since the latter procedures were considered too hazardous. Accordingly, the Department of Defense recommended that larger identification markings be required on the side surfaces of civil aircraft.

In view of the foregoing information and recommendations, a notice of proposed rule making was published in the FEDERAL REGISTER (20 F. R. 1225) and circulated as Civil Air Regulations Draft Release No. 55-7, dated February 18, 1955, which proposed, among other things, the deletion of the requirement in Part 1 of the Civil Air Regulations for wing and tail surface markings on fixed-wing aircraft. In lieu thereof, it proposed to require that larger identification markings be displayed horizontally either on the fuselage side or vertical tail surfaces of all fixed-wing aircraft after January 1, 1960.

Analysis of the comment received in response to Draft Release No. 55-7 revealed that the great majority of those who commented challenged the justification made for the proposed amendment. However, prior to and following the publication of the proposal, the Board received requests from many aircraft operators for waivers of certain of the identification marking requirements prescribed in Part 1. In view of these requests, and the Board's desire to obtain additional information which would be of value in making a final decision with respect to identification marking requirements, the Board was of the opinion that persons who desired to do so should be permitted to display, for a temporary period, larger identification markings on either the fuselage side or vertical tail surfaces of fixed-wing aircraft in lieu of upper and lower wing surface markings and small tail surface markings.

Accordingly, the Board promulgated Special Civil Air Regulation No. SR-412 which permits, until July 27, 1956, identification marks to be affixed to the fuselage side or vertical tail surfaces in lieu of the markings required by Part 1.

Since SR-412 became effective, many persons have availed themselves of its provisions; however, the Bureau has been advised that, if SR-412 is amended to allow an extension beyond the present date of July 27, 1956, for affixing the markings, one scheduled air carrier and possibly more will take advantage of this regulation. The Bureau is of the opinion that such an extension should be granted in order that additional information may be obtained on which to base a final decision.

Persons who choose to display identification markings in accordance with the amended regulation proposed herein will be required to affix the markings to their aircraft before July 27, 1956. Since this regulation will remain in effect for a period of 4 years from its effective date, unless sooner superseded or rescinded, those who affix identification markings in accordance with this proposed regulation can be assured of being able to continue to display such markings for a period of at least 2 years.

It would be of value to the Board if those persons who display identification markings on their aircraft in accordance with this regulation submit to the Board photographs or sketches of their aircraft displaying such markings, and also their comments as to the effect such markings have on ground-to-air and air-to-air identification of their aircraft. All such information should be addressed to the Civil Aeronautics Board, attention of Bureau of Safety Regulation, Washington 25, D. C.

Accordingly, it is proposed to issue a Special Civil Air Regulation effective July 28, 1956, to read as follows:

Contrary provisions of §§ 1.102 (a) and 1.103 (a) of Part 1 of the Civil Air Regulations notwithstanding, identification markings may be removed from the upper and lower wing surfaces provided that vertical tail or fuselage markings are affixed in accordance with the following:

1. The markings shall be placed horizontally and the letters and numbers shall be of equal height not less than 12 inches high.

2. If on the sides of the fuselage, the markings shall be displayed on both sides of the fuselage in an area between the wing trailing edge and the horizontal stabilizer leading edge.

3. If on the vertical tail, the markings shall be displayed on both sides of a single vertical tail surface or on the outer sides of multitail surfaces.

4. Identification markings may be affixed in accordance with the foregoing provisions until July 27, 1958.

5. Identification markings affixed in accordance with the foregoing provisions may be displayed until the termination date of this special regulation.

It is proposed that this regulation supersede Special Civil Air Regulation No. SR-412, and be effective for a period of 4 years.

This regulation is proposed under the authority of Title VI of the Civil Aeronautics Act of 1938, as amended. The proposal may be changed in the light of comments received in response to this notice of proposed rule making.

(Sec. 205 (a) 52 Stat. 984; 49 U. S. C. 425 (a). Interpret or apply secs. 601-610, 52 Stat. 1007-1012, as amended; 49 U. S. C. 551-560)

Dated at Washington, D. C., May 16, 1956.

By the Bureau of Safety Regulation.

[SEAL] JOHN M. CHAMBERLAIN,
Director.

[F. R. Doc. 56-4023; Filed, May 21, 1956; 8:54 a. m.]

[14 CFR Parts 3, 4b, 6, 7, 40, 41, 42, 43, 45]

[Special Civil Air Regulation No. SR-392A]

[Draft Release No. 56-12]

POSITION AND ANTI-COLLISION LIGHT REQUIREMENTS AND FACILITATION OF EXPERIMENTS WITH EXTERIOR LIGHTING SYSTEMS

NOTICE OF PROPOSED RULE MAKING

Pursuant to authority delegated by the Civil Aeronautics Board to the Bureau of Safety Regulation, notice is hereby given that the Bureau will propose to the Board the adoption of amendments to Parts 3, 4b, 6, Proposed Part 7, and Special Civil Air Regulation No. SR-392A as hereinafter set forth.

Interested persons may participate in the making of the proposed rules by submitting such written data, views, or arguments as they may desire. Communications should be submitted in duplicate to the Civil Aeronautics Board, attention Bureau of Safety Regulation, Washington 25, D. C. In order to insure their consideration by the Board before taking further action on the proposed rules, communications must be received by July 25, 1956. Copies of such communications will be available after July 30, 1956, for examination by interested persons in the Docket Section of the Board, Room 5412, Department of Commerce Building, Washington, D. C.

The continuing increase in air traffic density and the advent of airplanes capable of appreciably higher speeds than heretofore attained demand further improvements in the exterior lighting of aircraft. The presently effective regulations in Parts 3, 4b, and 6 of the Civil Air Regulations require the installation of position lights and prescribe certain specifications for such lights. There are also contained in the regulations in these same parts certain specifications for anti-collision lights, and there is a regulatory requirement in Parts 40, 41, 42, and 43 that they be installed on all airplanes of more than 12,500 pounds by May 31, 1956. In addition, Special Civil Air Regulation No. SR-392A permits under certain conditions experimentation with exterior lights which do not conform to the specifications in the regulations.

Recent experience with exterior lighting systems indicates the need for a thor-

ough re-evaluation of the pertinent regulations. The main issues are concerned with: (1) The specifications for anti-collision lights, (2) the specifications for position lights, and (3) the facilitation of experiments with exterior lighting systems. These three issues are being made the subject of specific proposals which follow.

In summary, it is being proposed herein to establish new specifications for anti-collision lights and to revise the specifications for position lights by eliminating the use of flashers and, in dual circuit systems, the fuselage and red tail lights. These new specifications for anti-collision and position lights are proposed to be applicable to all future new type aircraft regardless of category. Although the new specifications could be used on present aircraft, such use would be on a voluntary basis, and it is proposed that presently approved systems be allowed to be used indefinitely. In addition, it is being proposed to permit further experimentation with exterior lighting on both air carrier and non-air-carrier aircraft, rather than on only air carrier aircraft.

A. Specifications for anti-collision lights. At the present time the specifications for anti-collision lights are contained in § 4b.637 of Part 4b of the Civil Air Regulations applicable to transport category airplanes. The Administrator of Civil Aeronautics has made these specifications applicable in the approval of anti-collision lights not only on large airplanes but also on small airplanes and on rotorcraft. Practical considerations in the future might indicate the advisability of some difference in details between the specifications for large aircraft and the smaller ones. For this reason, it is proposed not only to re-evaluate the specifications contained in Part 4b but also to include specifications in the airworthiness parts of the regulations for smaller airplanes and for rotorcraft. Following is a discussion of the pertinent technical issues involved and the specific proposals for new anti-collision light specifications for inclusion in Parts 3, 4b, 6, and 7 of the Civil Air Regulations.

Note: Action by the Board is now pending with respect to Part 7 dealing with transport category rotorcraft.

The presently effective specifications for anti-collision lights contained in § 4b.637 were established a few years ago and reflect the state-of-the-art as of that time. They were based upon conclusions reached from experimentation and studies conducted by both industry and Government. The use on a relatively large number of aircrafts of lights conforming to these specifications has revealed certain shortcomings in the specifications. Furthermore, during the past year or so experimentation has led to the development of condenser-discharge type lights which appear to have certain advantageous features. The inherent characteristics of such lights, however, do not permit compliance with certain of the specifications presently contained in § 4b.637. Thus, the purpose of the re-evaluation of these specifications is to take into account more recent experience with anti-collision lights and to broaden the

specifications to reflect some of the characteristics of the condenser-discharge lights. The Bureau considers that both the incandescent and the condenser-discharge lights have sufficient advantages to permit their use, providing of course, that the design features essential in an effective anti-collision light system are incorporated.

As a result of various reports of experiments and studies conducted, as well as specific recommendations submitted, the following technical issues need particular consideration in evaluating proper specifications for anti-collision lights.

1. *Flash frequencies.* From tests on representative type flashing lights it was found some time ago that the optimum flash frequencies from the standpoint of attention attraction were of the order of 60-80 flashes per minute. However, further tests indicated that flash frequencies beyond these limits were also satisfactory. The presently effective regulations for anti-collision lights require that the frequencies be between the limits of 40 and 100 flashes per minute. More recently new experimental type lights operated at frequencies higher than the 100 flashes per minute indicate that even at 180 flashes per minute the individual flashes are clearly distinguishable. As a matter of fact, experience with the presently approved type lights which have been in service for some time indicates that the upper flash frequency limit can be raised without undue loss of conspicuity. On a number of airplanes these lights have been installed in pairs, one light on top and one on the bottom of the fuselage. The frequency of the individual light is about 90 flashes per minute; however, in the overlap areas in and adjacent to the horizontal plane, the effective frequency becomes 180 flashes per minute. No adverse experience has been indicated as a result of these higher frequencies and, therefore, a recently adopted amendment to the regulations permits flash frequencies in overlap areas to exceed the prescribed limit of 100 flashes per minute. For these reasons, it is proposed to extend the upper limit of flash frequencies from 100 to 180 flashes per minute. With respect to the lower limit, the Bureau can find no substantiation at this time for either lowering or raising it.

2. *Field of coverage.* The various positions in which two aircraft can find themselves with respect to each other calls ideally for an exterior lighting system visible throughout the complete sphere of the aircraft. However, practical difficulties with most of the anti-collision light systems make this extremely difficult of accomplishment without the installation of a large number of individual light units. Requiring such a step would not be justified in view of the fact that the position lights on an aircraft are such as to cover approximately the complete sphere. Thus the additional conspicuity from an anti-collision light can best be utilized by covering more effectively the area in the horizontal plane, including reasonable angles above and below the horizontal. It has been recommended to the Bureau that the field of coverage by an anti-collision light system include all angles

from 30° above to 30° below the horizontal. It was further recommended that an arc or arcs of invisibility totalling no more than 6° be permitted to the rear of the aircraft. This obviously is in consideration of the vertical tail (or tails) which would obscure a light installed on top of the fuselage. The combined effect of these two recommendations would be to permit a region of invisibility expressed in terms of solid angles of about 0.03 steradians within a region of about 0.15 steradians in the rearward direction. The prescribed field of coverage to extend around the aircraft from 30° above to 30° below the horizontal would in practice require the installation of either one light on top of the fin or, more probably, two lights on the fuselage, one on top and the other on the bottom.

3. *Light intensities.* The presently effective regulation does not specify the minimum required intensities for anti-collision lights. With the advent of a variety of anti-collision light types utilizing a relatively wide range of flash frequencies and on-off ratios, it appears necessary to establish a minimum standard of light intensity. When light is flashed at intervals and the duration of each flash is short, the reaction of the light on the human eye is such that the "effective" intensity is smaller than the actual intensity of the same light when it is on steady. This notwithstanding the fact that when measured photometrically the intensity of the steady light might be exactly the same as the peak intensity of the flashing light. Experimental determination of the constant for the well known Blondel-Rey expression indicates, for flash durations such as can be expected in anti-collision lights, the following relation between the effective intensity and the actual (steady light) beam intensity as a function of flash duration:

$$I_e = \frac{\int_{t_1}^{t_2} I(t) dt}{0.2 + (t_2 - t_1)}$$

where $I(t)$ is the instantaneous intensity as a function of time, and $(t_2 - t_1)$ is the time interval of flash.

It is proposed to prescribe minimum effective light intensities varying from 100 candles at the horizontal plane of the aircraft to 10 candles at 30° above and 30° below the horizontal. It is believed that these minimum effective intensities are well within the effective intensities being attained on anti-collision lights now used. It is possible that further information obtained in response to this notice of proposed rule making will indicate a need for somewhat higher values.

4. *Color.* The presently specified color in the regulations for anti-collision lights is aviation red. This color was chosen after extensive experimentation. Until recently there was generally uniform agreement throughout the industry and interested Government agencies that the red color would be the most effective in an anti-collision light. With the advent of the condenser-discharge type lights it has been suggested in some quarters that a white light with a color temperature in the vicinity of 6,000-8,000 degrees Kelvin would be more effective

than a red light. The proponents of this color light offer principally two advantages. The first is that a condenser-discharge white light is reacted to by the human eye over a wider periphery than a red light. The second is that, for the same light source intensity, a white filter transmits about four times as much of the light as does a red filter, thus increasing substantially the light intensity. The latter conclusion, however, must be qualified. Although the red light at close distances would have only one-quarter the intensity of the white light, the range of visibility would be reduced only to one-half instead of to one-quarter (in accordance with the inverse-square law). At longer distances atmospheric absorption alters the relative range appreciably so that, for example, a light which could be seen at 20 miles with a white filter could be seen at about 16-18 miles with a red filter. This difference would have a further tendency to be reduced with progressively worse weather conditions. These conclusions are based on experiments with a tungsten type light. No technical data have been presented so far to indicate whether or not different conclusions would be reached for the condenser-discharge type light. The proponents of the red light point to a number of advantages for the red light as compared to a white light; for example, easier recognition against an urban background, less distraction to the pilot from light scatter in hazy or cloudy atmospheric conditions, less adverse effect on pilot dark adaptation, together with the fact that red is generally thought of as a sign of danger and therefore draws quicker attention. Without attempting to prejudge the final resolution of this issue, the Bureau thus far considers that the red light should continue to be required.

5. *Location of lights.* In order that anti-collision lights give the necessary field of coverage it will probably be necessary to install two lights on an aircraft, one on top and one on the bottom of the fuselage, although in some instances it might be possible to have only one light mounted on top of the fin. In either case, the proper positioning of the lights is of considerable importance from the standpoint of possible glare to the pilot in IFR conditions. Recently, special tests in overcast conditions have indicated that with certain installations the anti-collision lights had extremely undesirable effects on the pilots. In some cases these effects resulted in vertigo, in others, in very severe annoyance. It is of interest to note that the tests were conducted with red as well as with white lights. It appears that these undesirable effects are more likely to occur on small aircraft where the anti-collision lights are located fairly near the pilot's cockpit. The wording in the presently effective regulations for anti-collision lights is directed against installations which would be conducive to the types of conditions evidenced in the tests. Apparently, however, lack of sufficient experience with anti-collision lights has led to some installations which do not meet the intent of the regulations. Since the present

wording in § 4b.637 is considered clear as to its intent, it is not proposed to make any significant changes therein. It is believed that, on the basis of past experience, anti-collision lights in the future will not be installed so as to have an extreme effect upon pilots. It is further considered that, with installations where undesirable effects on the pilot are apparent but not sufficiently pronounced to cause concern, judicious operational practices will be exercised in the use of anti-collision lights under IFR conditions.

6. *Direction indication.* In addition to the prime function of exterior lighting, which is to make the aircraft conspicuous, there is another function; namely, to indicate direction of flight. For this purpose, consistent with tradition established by other modes of navigation, the disposition on an aircraft of red, green, and white lights has world-wide acceptance. The regulations require basically that a red position light be placed on the left side, a green one on the right, and a white one in the rear. Recently new concepts have been introduced experimentally for direction indication. However, the Bureau does not feel justified at this time in suggesting a change in this respect and, therefore, the present system of direction indication is proposed for retention.

Experience with anti-collision lights has shown that the relatively high intensity of these lights may have a deleterious effect on the visibility of the position lights, particularly if the latter are flashing. Apparently the flashing of wing and tail position lights, the fuselage lights, and the anti-collision lights is conducive to confusion as regards the direction of flight. Tests have shown that with the presently used system, the clearest indication is obtained when, in addition to the flashing anti-collision light, the lighting system is limited to the two wing lights and a white tail light, and when these three position lights are on steady. It is proposed, therefore, to prescribe steady position lights when such are used in conjunction with an anti-collision light. (The matter of altering the specifications for position lights is discussed later in this notice of proposed rule making.)

7. *Applicability.* The presently effective regulations in Part 4b prescribe the specifications for anti-collision lights when such are installed. Since the promulgation of those specifications, the operating parts of the regulations have been amended to require the installation of anti-collision lights on all airplanes of more than 12,500 pounds. Consequently, in amending the specifications in Part 4b to be made applicable to future new type airplanes, it is proposed that anti-collision lights be made required equipment. It is also proposed that the introduction of specifications into Parts 3 and 6 of the regulations for airplanes of 12,500 pounds or less and for rotorcraft be made also on the basis of required equipment. Thus, all new type airplanes and rotorcraft irrespective of size introduced into service in the future would have anti-collision lights installed. This proposal does not include any dif-

ferentiation in the specifications of anti-collision lights for small versus large aircraft. In principle, equal conspicuity should be required. It is considered that the proposed specifications are sufficiently broad and reasonable as to apply equally to all aircraft without undue burden to the designer and operator. However, the Bureau is prepared to consider any specific suggestions regarding possible differentiation.

In view of the foregoing, notice is hereby given that it is proposed to recommend to the Board that Parts 3, 4b, and 6 of the Civil Air Regulations be amended:

1. By adding new §§ 3.705 and 6.637, and by inserting in lieu of the presently effective provision of § 4b.637 a new provision, all to read as follows: (Part 7 for transport category rotorcraft now pending consideration before the Board would also be amended similarly.)

§§ 3.705, 4b.637, 6.637 *Anti-collision light system.* An approved anti-collision light system consisting of one or more lights shall be so located that the light would not be detrimental to the crew's vision and would not detract from the conspicuity of the position lights. The system shall comply with the provisions of paragraphs (a) through (d) of this section.

(a) *Field of coverage.* The system shall consist of such lights as will afford coverage of all vital areas around the airplane with due consideration to the physical configuration and the flight characteristics of the airplane. In any case, the field of coverage shall extend in all directions within 30° above and 30° below the horizontal plane of the airplane, except that a solid angle or angles of obstructed visibility totalling not more than 0.03 steradians shall be permissible within a solid angle equal to 0.15 steradians centered about the longitudinal axis in the rearward direction.

(b) *Flashing characteristics.* The arrangement of the system, i. e., number of light sources, beam width, speed of rotation, etc., shall be such as to give an effective flash frequency of not less than 40 and not more than 180 cycles per minute. The effective flash frequency shall be the frequency at which the airplane's complete anti-collision light system is observed from a distance, and shall apply to all sectors of light including the overlaps which might exist when the system consists of more than one light source.

(c) *Color.* The color of anti-collision lights shall be aviation red in accordance with the specifications of § 4b.635 (a).

(d) *Light intensity.* The minimum light intensities, measured with the red filter and expressed in terms of "effective" intensities, shall be in accordance with Figure 4b-27. The following relation shall be assumed:

$$I_e = \frac{\int_{t_1}^{t_2} I(t) dt}{0.2 + (t_2 - t_1)}$$

where:

I_e = effective intensity (BCP).
 $I(t)$ = instantaneous intensity as a function of time.
 $t_2 - t_1$ = flash time interval.

NOTE: Normally, the maximum value of effective intensity is obtained when t_1 and t_2 are so chosen that the effective intensity is equal to the instantaneous intensity at t_1 and t_2 .

Angle above or below horizontal plane	Effective intensity (candles)
0° to 5°	100
5° to 10°	60
10° to 20°	20
20° to 30°	10

FIGURE 4b-27—MINIMUM EFFECTIVE INTENSITIES FOR ANTI-COLLISION LIGHTS

B. *Specifications for position lights.* The present regulations require flashing position lights on air carrier airplanes and the specifications for such lights are contained in Part 4b. For small airplanes and for rotorcraft there are contained in Parts 3 and 6 specifications for the flashing features if the position lights are designed to be flashed.

Several years ago, it was established that the flashing of position lights contributed noticeably to the conspicuity of aircraft. However, the continued search for even more effective exterior lighting led to the development of the anti-collision light. The latter type light is also flashing in effect and has the added advantage of more concentrated intensities of light which offer conspicuity at greater distances. As explained in connection with the proposed changes to the anti-collision light specifications, it remains of importance for the position lights to retain their direction and attitude indicating features. This appears to be most effectively accomplished by maintaining the position lights steady rather than flashing when used simultaneously with an anti-collision light system. Inasmuch as it is being proposed to require for all future new type aircraft the installation of anti-collision lights, it is also being proposed to require that steady position lights be used.

The position light specifications in the presently effective Part 4b call not only for the basic red and green forward position lights and the white rear position light, but also for two white fuselage lights and an additional red rear position light. The need for the three latter lights to supplement the flashing of the basic position lights no longer exists if the position lights are required to be on steady. Therefore, it is proposed that the position light specifications in Part 4b be limited to the three basic lights; namely, red and green forward position lights, and white rear position light.

In view of the foregoing, notice is hereby given that it is proposed to recommend to the Board that Parts 3, 4b, and 6 of the Civil Air Regulations be amended as follows: (Part 7 for transport category rotorcraft now pending consideration before the Board would also be amended similarly.)

1. By making editorial changes in § 3.700 (a) to eliminate reference to single and dual circuit systems and by deleting § 3.700 (e) which now deals with flasher characteristics.

2. By deleting § 4b.632 (d), 4b.632 (e), and 4b.634 (c) which now deal with

fuselage lights and flasher characteristics, and by also making changes in § 4b.632 (c) and in Figures 4b-18 and 4b-20 to eliminate all references to the rear red position light.

3. By making editorial changes in § 6.632 (a) to eliminate reference to single and dual circuit systems, and by deleting § 6.632 (e) which now deals with flasher characteristics.

4. By deleting from the operating parts of the Civil Air Regulations the requirement for flashing position lights on airplanes equipped with anti-collision lights.

C. *The facilitation of experiments with exterior lighting systems.* Special Civil Air Regulation No. SR-392A adopted June 29, 1955, permits air carriers subject to the approval of the Administrator to install and use experimentally, on a limited number of their airplanes, exterior light systems which do not conform to the specifications contained in Part 4b of the Civil Air Regulations. The purpose of SR-392A was to permit experimentation on large airplanes while retaining their standard airworthiness certification. Prior to that time such experimentation was conducted either on Government-owned aircraft or on private aircraft limited in operations to the conditions of an experimental certificate.

SR-392A does not extend the permission for experimentation with exterior lights to non-air-carrier aircraft because at the time of its adoption only air carrier operators indicated interest in this activity. Recently, however, new experimental developments in anti-collision light systems have aroused the interest of private and corporate operators to the extent that some of the operators apparently wish to install the new systems on their aircraft for purposes of experimentation. The Bureau sees no valid reason why operators other than air carriers should not be permitted to participate, if they wish, in experiments intended to improve the effectiveness of aircraft exterior lighting, provided that the number of such aircraft is reasonably limited.

Under the provisions of SR-392A only a relatively small number of airplanes was involved in the experimentation which was conducted by the air carriers under coordinated programs. The results of these experiments have become generally known to interested persons. The Bureau believes that the knowledge gained from such experiments warrants permitting deviations from the exterior lighting specifications contained in the Civil Air Regulations.

If future experimentation is to be conducted more widely and by private individuals, the Bureau believes that conditions should be imposed which would assure that the experimental exterior lights are in fact installed for purposes of bona fide experimentation and that the results of such experimentation become available to the Government and to all other interested persons.

In view of the foregoing, notice is hereby given that it is proposed to recommend to the Board the adoption of a new Special Civil Air Regulation to supersede SR-392A to read substantively as follows:

Contrary provisions of the Civil Air Regulations notwithstanding, experimental exterior lighting equipment which does not comply with the relevant specifications contained in the Civil Air Regulations may, subject to the approval of the Administrator, be installed and used on aircraft for the purpose of experimentation intended to improve exterior lighting: *Provided, That*

1. The Administrator may grant approval for a period not to exceed six months, except that approval for additional periods may be granted if the Administrator finds that the experiments can be reasonably expected to contribute to improvements in exterior lighting;

2. Not more than 15 aircraft possessing a U. S. certificate of airworthiness may have installed at any one time experimental exterior lighting equipment of one basic type;

3. The Administrator shall prescribe such conditions and limitations as may be necessary to insure safety and to avoid confusion in air navigation;

4. The person engaged in the operation of the aircraft shall disclose publicly the deviations of the exterior lighting from the relevant specifications contained in the Civil Air Regulations at times and in a manner prescribed by the Administrator;

5. Upon application for approval to conduct experimentation with exterior lighting, the applicant shall advise the Administrator of the specific purpose of the experiments to be conducted; and at the conclusion of the approved period of experimentation, he shall advise the Administrator of the detailed results thereof.

This proposed regulation would supersede Special Civil Air Regulation No. SR-392A.

These amendments are proposed under the authority of Title VI of the Civil Aeronautics Act of 1938, as amended. The proposals may be changed in the light of comments received in response to this notice of proposed rule making.

(Sec. 205 (a), 52 Stat. 984, 49 U. S. C. 425 (a). Interpret or apply secs. 601-610, 52 Stat. 1007-1012, as amended, 49 U. S. C. 551-560)

Dated at Washington, D. C., May 14, 1956.

By the Bureau of Safety Regulation.

[SEAL] JOHN M. CHAMBERLAIN,
Director.

[F. R. Doc. 56-4022; Filed, May 21, 1956; 8:53 a. m.]

FEDERAL COMMUNICATIONS COMMISSION

[47 CFR Part 18]

[Docket No. 11467; FCC 56-459]

RADIO FREQUENCY STABILIZED ARC WELDERS

FURTHER NOTICE OF PROPOSED RULE MAKING

1. Notice is hereby given of further proposed rule making in the above entitled matter.

2. The Commission has reviewed the comments submitted in reply to the original notice of proposed rule making in this proceeding. Evidence is provided that there is a need for more stringent radiation limits than is provided by the temporary regulations now in effect. On the other hand, the comments indicate that it may be quite difficult to reduce the radiation from these devices while at the

same time retaining the characteristics necessary for efficient welding.

3. On the basis of these comments, the Commission has concluded that the regulations governing miscellaneous equipment (§§ 18.31 and 18.32) are not directly applicable to radio frequency stabilized arc welders. It has further concluded that the present temporary regulations (Footnote 1 to § 18.1) do not adequately control the interference caused by these welders. It, therefore, proposes to promulgate rules covering the operation of radio frequency stabilized arc welders (or the radio frequency stabilizer when this device is a separate component) based on the following principles:

(a) Radiation shall be limited to 15 uv/m at 1,000 feet on all frequencies not allocated for ISM use, except that a welder equipped with an arc stabilizing capacitor in series with the welding lead or with such other arc stabilizing device which will require rf energy flow for brief infrequent intervals may radiate a maximum of 10 uv/m at one mile.

(b) Radio frequency energy fed back into the power line shall be limited to 1000 uv below 490 kc and to 200 uv above 490 kc when measured across a line stabilization network.

(c) That welders which are not type approved and are operated within 1,000 feet of a radio equipped airport be registered with the Commission prior to being operated by filing the following information:

(i) Location of the welder.

(ii) Manufacturer, model number and serial number of the welder.

(iii) Name of radio-equipped airport(s) within 1,000 feet of the welder.

(iv) Reason why the welding equipment must be operated within 1,000 feet of the airport.

(v) A statement that the welder operator has furnished the person in charge of communications at the airport with a telephone number to be called in the event of interference.

(vi) A statement that in the event harmful interference is caused, operation of the offending welding equipment will be discontinued immediately until the interference condition is corrected.

(vii) A statement of the estimated length of time the welding equipment will be used at the location described in (i) above.

(viii) A statement that if operation of the welder at the described location is discontinued, the Commission will be promptly notified.

(ix) A statement that the user of the welder will make inquiries at radio-equipped airports within 1,000 feet of the welder immediately after the welder is installed to determine whether the welder causes interference and that the user will continue to make such inquiries periodically at least once each three months.

(x) A statement that the welder is type approved or certified.

(d) Requirement that the welder be type approved or certified.

(e) Provision for type approval if the welder operates on ISM frequencies.

(f) Certification may be based on measurements at the point of operation or on measurements of a prototype.

(g) A provision that welders certified prior to the date the rules become effective may operate without further certification until a date two years after that date provided no harmful interference is caused, and provided further that where such welders are located within 1,000 feet of radio-equipped airports they shall be registered with the Commission.

(h) A provision that the technical limits and standards of the rules, including certification (or type approval) will not be applicable until September 1, 1957, for welders manufactured or installed prior to September 1, 1952, provided harmful interference is not caused to authorized radio services, and provided further that where such welders are

located within 1,000 feet of a radio-equipped airport they shall be registered with the Commission.

4. Pending the promulgation of permanent regulations, the Commission has further extended the applicability of Footnote 1 of § 18.1 from April 30, 1956, until action is completed in this docket.

5. Any interested party may file comments in this matter before June 18, 1956. Replies to comments may be filed within ten days from the last day for filing original comments. The Commission will consider all such comments and briefs that are presented before taking final action.

6. This proposal to amend the Commission's rules is issued under the au-

thority of sections 4 (1), 301, and 303 (r) of the Communications Act of 1934, as amended.

7. In accordance with the provisions of § 1.764 of the Commission's rules an original and 14 copies of all statements, briefs, or comments, filed shall be furnished the Federal Communications Commission.

Adopted: May 16, 1956.

Released: May 17, 1956.

FEDERAL COMMUNICATIONS

COMMISSION,

[SEAL] MARY JANE MORRIS,

Secretary.

[F. R. Doc. 56-4007; Filed, May 21, 1956; 8:51 a. m.]

NOTICES

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[W-035865]

WYOMING

STOCK DRIVEWAY WITHDRAWAL NO. 44
WYOMING NO. 8, ENLARGED

By virtue of the authority contained in section 10 of the act of December 29, 1916 (39 Stat. 865), as amended by the act of January 29, 1929 (45 Stat. 1144; 43 U. S. C. 300), and in section 7 of the act of June 28, 1934, (48 Stat. 1272), as amended by the act of June 26, 1936 (49 Stat. 1976; 43 U. S. C. 315f), and pursuant to the authority delegated by the Director, Bureau of Land Management, Order No. 541 of April 21, 1954 (19 F. R. 2473), it is ordered as follows:

The following described lands in the State of Wyoming are hereby classified as necessary and suitable for stock driveway purposes, and, excepting any mineral deposits therein, are withdrawn from all disposal under the public land laws and reserved, subject to valid existing rights, for the use of the general public, the reservation to be known as Stock Driveway Withdrawal No. 44, Wyoming No. 8, Enlarged:

SIXTH PRINCIPAL MERIDIAN, WYOMING

T. 49 N., R. 102 W.,
Sec. 27: SE $\frac{1}{4}$, SE $\frac{1}{4}$;
Sec. 35: Lots 3, 4, 5.

The area described aggregates 127.09 acres.

Any mineral deposits in the lands shall be subject to location and entry only in the manner prescribed by the Secretary of the Interior in accordance with the provisions of the aforesaid act of January 29, 1929, and existing regulations.

Notice for Filing Objections to the Foregoing Order, Published Simultaneously Herewith, Enlarging Stock Driveway Withdrawal No. 44, Wyoming No. 8

For a period of 30 days from the date of publication of the above entitled order,

persons having cause to object to the terms thereof may file their objections in duplicate in the office of the State Supervisor, Room 305, Federal Office Building, Cheyenne, Wyoming. In the case any objection is filed and the nature is such as to warrant it, a public hearing will be held at a convenient time and place, which will be announced, where opponents to the order may state their views and proponents of the order can explain its purpose, intent, and extent. Should any objection be filed, whether or not a hearing is held, notice of the determination as to whether the order should be rescinded, modified or let stand will be given to all interested parties of record and the general public.

LOWELL M. PUCKETT,
State Supervisor.

[F. R. Doc. 56-3991; Filed, May 21, 1956; 8:48 a. m.]

National Park Service

[Rocky Mountain National Park Order 2]

SUPERVISORY PARK RANGERS

DELEGATION OF AUTHORITY TO EXECUTE AND APPROVE CERTAIN PERMITS

APRIL 18, 1956.

SECTION 1. *Saddle Livery Permits.* The Supervisory Park Rangers of Rocky Mountain National Park and Shadow Mountain National Recreation Area may issue revocable permits having a term of one year or less, authorizing saddle livery operations based on privately owned lands to use the trails within Rocky Mountain National Park and Shadow Mountain National Recreation Area.

SEC. 2. *Appeals.* Any party aggrieved by any action or decision of the Supervisory Park Rangers, shall have a right to appeal to the Superintendent of the area. Any such appeal shall be in writing and shall be submitted to the Superintendent within 30 days after receipt by the aggrieved party of notice of action

taken or decision made by the Supervisory Park Ranger.

(National Park Service Order No. 14 (21 F. R. 1467); 39 Stat. 535; 16 U. S. C., 1952 ed., sec. 2, Region Two Order No. 3 (21 F. R. 1494))

[SEAL] JAMES V. LLOYD,
Superintendent, Rocky Mountain National Park and Shadow Mountain National Recreation Area.

[F. R. Doc. 56-3992; Filed, May 21, 1956; 8:48 a. m.]

DEPARTMENT OF AGRICULTURE

Agricultural Marketing Service

GETTYSBURG LIVESTOCK SALES CO.

POSTING OF STOCKYARD

The Secretary of Agriculture has information that the Gettysburg Livestock Sales Co., Gettysburg, South Dakota, is a stockyard as defined in section 302 of the Packers and Stockyards Act, 1921, as amended (7 U. S. C. 202), and should be made subject to the provisions of that act.

Therefore, notice is hereby given that the Secretary of Agriculture proposes to issue a rule designating the stockyard named above as a posted stockyard subject to the provisions of the Packers and Stockyards Act, 1921, as amended (7 U. S. C. 181 et seq.), as is provided in section 302 of that act. Any interested person who desires to do so may submit, within 15 days of the publication of this notice, any data, views or arguments, in writing, on the proposed rule to the Director, Livestock Division, Agricultural Marketing Service, United States Department of Agriculture, Washington 25, D. C.

Done at Washington, D. C., this 17th day of May 1956.

[SEAL] H. E. REED,
Director, Livestock Division.

[F. R. Doc. 56-4019; Filed, May 21, 1956; 8:53 a. m.]

Office of the Secretary

DIRECTOR OF AGRICULTURAL CREDIT SERVICES

DESIGNATION TO DIRECT CERTAIN FUNCTIONS

Effective immediately and pending the appointment of a Rural Electrification Administration Administrator, the rural electrification program and the rural telephone program, as assigned to the Rural Electrification Administration by order of the Secretary, effective January 2, 1954, entitled "Designations of Authority and Assignment of Functions" (19 F. R. 74, et seq.), subject to the reservations in section 1501 of said order, shall be under the immediate direction and supervision of the Director of Agricultural Credit Services.

The Director of Agricultural Credit Services under the authority of this order and signing in his own title shall have all the functions of a head of agency with respect to these programs, as prescribed in section 116 of said order of January 2, 1954, including the authority to execute loan documents applicable to these programs.

Done at Washington, D. C., this 17th day of May 1956.

[SEAL] EZRA TAFT BENSON,
Secretary of Agriculture.

[F. R. Doc. 56-4020; Filed, May 21, 1956; 8:53 a. m.]

DEPARTMENT OF COMMERCE

Federal Maritime Board

[Docket No. M-64 (Sub. 1)]

PACIFIC FAR EAST LINE, INC.

NOTICE OF APPLICATION TO EXTEND BAREBOAT CHARTER OF VESSELS AND TENTATIVE FINDINGS

Pursuant to section 5 (e) of the Merchant Ships Sales Act, 1946, as amended (Pub. Law 591, 81st Cong.) (50 U. S. C. App. 1738), seven (7) Victory type vessels owned by the United States were chartered to Pacific Far East Line, Inc. (Applicant), for the carriage of iron ore from Stockton, California, to ore ports in Japan; the charter contemplated two (2) voyages per vessel, a total of fourteen (14) voyages; four (4) of the vessels were recalled after completion of one (1) voyage; the applicant is obligated to redeliver said vessels on or before June 20, 1956.

Applicant seeks to use the three (3) vessels currently under charter to complete a sufficient number of voyages so that the total voyages accomplished under the charter will be the total of fourteen (14) contemplated by the Report of the Board dated March 20, 1956.

The Board has tentatively affirmed its findings of March 20, 1956, and has tentatively determined that its recommendation 6 in its Report of March 20, 1956, should be relaxed to permit applicant to continue using the three (3) vessels for additional voyages sufficient to accomplish a total of fourteen (14) under the charter.

Any interested party may be heard concerning these tentative findings in

Room 4519, New General Accounting Office Building, Fifth and G Streets NW., Washington, D. C., at 2:00 p. m., e. d. t., May 24, 1956. Said findings will become final if no protestant appears.

Dated: May 18, 1956.

By order of the Board.

[SEAL] GEO. A. VIEHMANN,
Assistant Secretary.

[F. R. Doc. 56-4045; Filed, May 21, 1956; 8:55 a. m.]

Office of the Secretary

GEORGE E. LAWRENCE

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

Report of Appointment

1. Name of appointee: George E. Lawrence.
2. Employing agency: Department of Commerce, Business and Defense Services Administration.
3. Date of appointment: April 30, 1956.
4. Title of position: Consultant.
5. Name of private employer: Bausch & Lomb Optical Co., 635 St. Paul Street, Rochester 2, New York.

CARLTON HAYWARD,
Director of Personnel.

Statement of Financial Interests

6. Names of any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests; any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.

Bausch & Lomb Optical Co.
Bank Deposits.

Dated: May 7, 1956.

GEO. E. LAWRENCE.

[F. R. Doc. 56-3987; Filed, May 21, 1956; 8:47 a. m.]

EUGENE EASTERLY

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

Report of Appointment

1. Name of appointee: Eugene Easterly.
2. Employing agency: Department of Commerce, Business and Defense Services Administration.

3. Date of appointment: May 10, 1956.
4. Title of position: Consultant.
5. Name of private employer: Union Carbide & Carbon Corporation, a Division of Linde Air Products Company.

CARLTON HAYWARD,
Director of Personnel.

Statement of Financial Interests

6. Names of any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests; any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.

Union Carbide & Carbon Corporation.
American Airlines, Inc.
Avco Manufacturing Corporation.
Bank Deposits.
Real Estate.

Dated: May 10, 1956.

EUGENE EASTERLY.

[F. R. Doc. 56-3988; Filed, May 21, 1956; 8:47 a. m.]

NORVAL W. POSTWEILER

REPORT OF APPOINTMENT AND STATEMENT OF FINANCIAL INTERESTS

Report of appointment and statement of financial interests required by section 710 (b) (6) of the Defense Production Act of 1950, as amended.

Report of Appointment

1. Name of appointee: Norval W. Postweiler.
2. Employing agency: Department of Commerce, Business and Defense Services Administration.
3. Date of appointment: April 20, 1956.
4. Title of position: Consultant.
5. Name of private employer: Riegel Paper Corporation, 260 Madison Avenue, New York 16, New York.

CARLTON HAYWARD,
Director of Personnel.

Statement of Financial Interests

6. Names of any corporations of which the appointee is an officer or director or within 60 days preceding appointment has been an officer or director, or in which the appointee owns or within 60 days preceding appointment has owned any stocks, bonds, or other financial interests; any partnerships in which the appointee is, or within 60 days preceding appointment was, a partner; and any other businesses in which the appointee owns, or within 60 days preceding appointment has owned, any similar interest.

General Motors Corp.
Riegel Paper Corp.
Riegel Textile Corp.
Bethlehem Steel.
Armco Steel.

Canadian Javelin, Ltd.
Bank Deposits.

Dated: April 20, 1956.

[SEAL] NORVAL W. POSTWEILER.

[F. R. Doc. 56-3989; Filed, May 21, 1956;
8:47 a. m.]

DEPARTMENT OF LABOR

Wage and Hour Division

LEARNER EMPLOYMENT CERTIFICATES

ISSUANCE TO VARIOUS INDUSTRIES

Notice is hereby given that pursuant to section 14 of the Fair Labor Standards Act of 1938 (52 Stat. 1060, as amended; 29 U. S. C. 201 et seq.), and Part 522 of the regulations issued thereunder (29 CFR Part 522), special certificates authorizing the employment of learners at hourly wage rates lower than the minimum wage rates applicable under section 6 of the act have been issued to the firms listed below. The employment of learners under these certificates is limited to the terms and conditions therein contained and is subject to the provisions of Part 522. The effective and expiration dates, occupations, wage rates, number or proportion of learners and learning periods for certificates issued under general learner regulations (§§ 522.1 to 522.12) are as indicated below; conditions provided in certificates issued under special industry regulations are as established in these regulations.

Apparel Industry Learner Regulations (29 CFR 522.20 to 522.24, as amended March 1, 1956, 21 F. R. 1349).

The following learner certificates were issued authorizing the employment of not more than 10 percent of the total number of factory production workers as learners for normal labor turnover purposes:

H. Bomse & Brothers, Inc., 1666 Callowhill Street, Philadelphia, Pa.; effective 5-4-56 to 5-3-57 (ladies' dresses).

Classic Dress Co., Mary and Hamilton Streets, Dickson City, Pa.; effective 5-8-56 to 5-7-57 (children's dresses).

Dalmatia Blouse Co., Dalmatia, Pa.; effective 5-4-56 to 5-3-57 (women's blouses).

Dolly Sportwear, Inc., 21 St. Casimir Avenue, Yonkers, N. Y.; effective 5-4-56 to 5-3-57 (dresses).

Gaco Manufacturing Co., Inc., 119 Ivie Street, Cornelia, Ga.; effective 4-30-56 to 4-29-57 (sport shirts).

Hollywood Corset Co., 24 West Fifth South Street, Salt Lake City, Utah; effective 5-6-56 to 5-5-57 (brassieres).

Hollywood-Maxwell Co., 407 Main Street, Arkadelphia, Ark.; effective 5-4-56 to 5-3-57 (brassieres).

Horton Garment Co., Horton, Kans.; effective 5-2-56 to 5-1-57 (dresses).

Kutztown Sportswear Co., 361 East Main Street, Kutztown, Pa.; effective 5-4-56 to 5-3-57 (ladies' blouses).

Mid-American Manufacturing Co., Inc., 304 South First Street, Ponca City, Okla.; effective 5-14-56 to 5-13-57 (jeans).

Miller Manufacturing Co., Inc., 10th and Virginia Streets, Joplin, Jasper Co., Mo.; effective 5-13-56 to 5-12-57 (shirts, pants).

Mode Manufacturing Corp., Wind Gap, Pa.; effective 4-30-56 to 4-29-57 (ladies' blouses).

Rebel Garment Co., Magee, Miss.; effective 5-2-56 to 5-1-57 (dungarees, pants).

Star Union Co. of Tennessee, Inc., Manchester, Tenn.; effective 5-16-56 to 5-15-57 (pajamas).

Tiny Town Toga, Inc., 2 River Street, Troy, N. Y.; effective 5-2-56 to 5-1-57 (children's dresses).

Tiny Town Troy, Inc., 2 River Street, Troy, N. Y.; effective 5-2-56 to 5-1-57 (children's dresses).

Valley View Manufacturing Co., Valley View, Pa.; effective 5-7-56 to 5-6-57 (dresses, housecoats).

The following learner certificates were issued for normal labor turnover purposes. The number of learners authorized is indicated:

Atlas Sportswear Corp., 2150 Washington Street, Boston, Mass.; effective 5-8-56 to 5-7-57; 3 learners (women's rain wear).

Arday Infants Wear, Inc., 58 Smith Street, Newburgh, N. Y.; effective 5-4-56 to 5-3-57; 5 learners (infants' wear).

Baronol Garment Co., Washington and Sycamore Streets, Berwick, Pa.; effective 4-30-56 to 4-29-57; 5 learners (children's apparel).

Chance Pajama Manufacturing Co., 1346 Franklin Street, Johnstown, Pa.; effective 5-7-56 to 5-6-57; 5 learners (ladies' pajamas).

Elena-Fay Dresses, Inc., 45 Social Street, Woonsocket, R. I.; effective 5-4-56 to 5-3-57; 10 learners (women's dresses).

Emmy-Lou Dress Co., 1339 North Main Street, Scranton, Pa.; effective 5-4-56 to 5-3-57; 4 learners (dresses).

Empire Manufacturing Co., 750 Acoma Street, Denver, Colo.; effective 5-7-56 to 5-6-57; 5 learners (children's pajamas).

Grace Sportwear Co., 614 Exeter Avenue, West Pittston, Pa.; effective 5-7-56 to 5-6-57; 3 learners (blouses).

Haven Manufacturing Corp., Walnut Street, Pottsville, Pa.; effective 5-8-56 to 5-7-57; 10 learners (dresses).

Mar Tee Original, Inc., 1233 Washington Avenue, St. Louis, Mo.; effective 5-2-56 to 5-1-57; 10 learners (dresses).

United Garment Manufacturing Co., 316 West Lake Street, Chisholm, Minn.; effective 5-18-56 to 5-17-57; 10 learners (outerwear).

The following learner certificates were issued for plant expansion purposes. The number of learners authorized is indicated:

Alabama Textile Products Corp., Crestview, Fla.; effective 5-7-56 to 11-6-56; 20 learners (pajamas).

Chippewa Falls Woolen Mill Co., 714 East Spring Street, Chippewa Falls, Wis.; effective 5-2-56 to 11-1-56; 30 learners (sportswear).

Eureka Pants Manufacturing Co., Shelbyville, Tenn.; effective 5-1-56 to 10-31-56; 30 learners (work pants, and shirts).

Huntland Development Corp., Huntland, Tenn.; effective 5-2-56 to 11-1-56; 20 learners (sport coats, jackets).

Meyers & Son Manufacturing Co., First and Jefferson Streets, Madison, Ind.; effective 5-8-56 to 5-7-57; 30 learners (coveralls).

Ruleville Manufacturing Co., Ruleville, Miss.; effective 5-7-56 to 11-6-56; 30 learners (jackets).

Glove Industry Learner Regulations (29 CFR 522.60 to 522.65, as amended March 1, 1956, 21 F. R. 581).

Northland Glove & Mitten Manufacturing Co., 50 Pearl Street, Essex Junction, Vt.; effective 5-7-56 to 5-6-57; 1 learner for normal labor turnover purposes (work gloves, ski gloves, mittens).

Richmond Glove Corp., 601 North D Street, Richmond, Ind.; effective 5-7-56 to 5-6-57; 10 learners for normal labor turnover purposes (work gloves).

Hosiery Industry Learner Regulations (29 CFR 522.40 to 522.43, as amended March 1, 1956, 21 F. R. 629).

The following learner certificates were issued for normal labor turnover purposes:

Carolina Lee Knitting Co., Madison, N. C.; effective 5-7-56 to 5-6-57; 4 learners.

M K M Knitting Mills, Inc., North Commercial Street, Manchester, N. H.; effective 4-30-56 to 4-29-57; 5 percent of factory production workers engaged in the manufacture of hosiery.

Renfro Hosiery Mills Co., 304 Willow Street, Mount Airy, N. C.; effective 5-12-56 to 5-11-57; 5 percent of factory production workers.

Sussex Hosiery Co., Intersection of Highway 73 and Central Drive, Concord, N. C.; effective 5-7-56 to 5-6-57; 5 learners.

Independent Telephone Industry Learner Regulations (29 CFR 522.70 to 522.74, as amended March 1, 1956, 21 F. R. 581).

Twin Valley-Ulen Telephone Co., Twin Valley, Mo.; effective 5-7-56 to 5-6-57.

Knitted Wear Industry Learner Regulations (29 CFR 522.30 to 522.35, as amended March 1, 1956, 21 F. R. 581).

The following learner certificates were issued for normal labor turnover purposes, except as otherwise indicated:

Alabama Textile Products Corp., Crestview, Fla.; effective 5-7-56 to 11-6-56; 20 learners for plant expansion purposes engaged in the production of men's shorts (men's undershorts).

DeKalb Garment Co., Inc., Fyffe, DeKalb County, Ala.; effective 5-1-56 to 10-31-56; 10 learners for plant expansion purposes (men's shorts).

DeKalb Garment Co., Inc., Fyffe, DeKalb County, Ala.; effective 5-1-56 to 4-30-57; 5 learners (men's undershorts).

L & L Manufacturing Co., Inc., North Wilkesboro, N. C.; effective 5-1-56 to 10-31-56; 20 learners for plant expansion purposes (knit underwear).

L & L Manufacturing Co., Inc., North Wilkesboro, N. C.; effective 5-1-56 to 4-30-57; 5 percent of factory production workers (knit underwear).

M K M Knitting Mills, Inc., North Commercial Street, Manchester, N. H.; effective 4-30-56 to 4-29-57; 5 percent of factory production workers engaged in the manufacture of sweaters (sweaters).

Henry L. Miller & Son, Inc., Port Carbon, Pa.; effective 5-2-56 to 5-1-57; 5 percent of factory production workers (knit underwear).

Superior Underwear Mill, Bechtelsville, Pa.; effective 5-4-56 to 5-3-57; 5 percent of factory production workers (athletic shirts).

Regulations applicable to the Employment of Learners (29 CFR 522.1 to 522.12, as amended February 28, 1955, 20 F. R. 645).

Brinkley Pearl Works, Brinkley, Ark.; effective 5-7-56 to 11-6-56; not less than 85 cents per hour for the first 320 hours and 90 cents per hour for the remaining 160 hours of the 480-hour learning period, for the occupation of blank button cutter; authorizing the employment of 5 learners for normal labor turnover purposes (pearl button blanks).

The following special learner certificates were issued in Puerto Rico to the companies hereinafter named. The effective and expiration dates, learner rates, occupations, learning periods and the number or proportion of learners authorized to be employed, are as indicated:

Esquire Manufacturing Corp., Humacao, P. R.; effective 4-16-56 to 4-15-57; not less than 30 cents per hour for the first 160 hours, 36 cents per hour for the next 160 hours, and 42 cents per hour for the remaining 160 hours of the 480-hour learning period, for the occupations of sewing machine operators, final pressers, and cutters; not less than 36 cents per hour for a maximum of 160 hours, for the occupations of marking, snapping, collar turning, and examining; authorizing the employment of 13 learners for normal labor turnover purposes (men's pajamas). (Effective 4-30-56, the above rates are amended to not less than 45 cents per hour for the first 240 hours and 50 cents per hour for the remaining 240 hours of the 480-hour learning period, for the occupations of sewing machine operators, final pressers, and cutters, and not less than 45 cents per hour for a maximum of 160 hours, for the occupations of marking, snapping, collar turning, and examining.)

Gordonshire Knitting Mills, Inc., Cayey, P. R.; effective 4-18-56 to 10-24-56; not less than 46 cents per hour for the first 480 hours and 50 cents per hour for the remaining 480 hours of the 960-hour learning period, for the occupations of looping and mending; not less than 46 cents per hour for a maximum of 240 hours, for the occupations of knitting and examining; authorizing the employment of 10 learners for plant expansion purposes (seamless hosiery) (replacement certificate).

Rico Glove Corp., Washington Avenue, Cayey, P. R.; effective 4-25-56 to 10-24-56; not less than 35 cents per hour for the first 160 hours, 43 cents per hour for the next 160 hours, and 52 cents per hour for the remaining 160 hours of the 480-hour learning period, for the occupation of sewing machine operators; authorizing the employment of 40 learners for plant expansion purposes (fabric and leather gloves).

Rio Manufacturing Corp., State Road 838, Rio Piedras, P. R.; effective 4-24-56 to 10-23-56; not less than 58 cents per hour for a maximum of 240 hours, for the occupation of punch press operators; not less than 58 cents per hour for the first 240 hours and 66 cents per hour for the remaining 240 hours of the 480-hour learning period, for the occupations of grinders, crimpers, spotters, and silver welders; authorizing the employment of 7 learners for normal labor turnover purposes (fishing tackle hardware).

Senorita Hosiery Mills, Inc., Gurabo, P. R.; effective 4-18-56 to 9-19-56; not less than 53 cents per hour for the first 480 hours and 56 cents per hour for the remaining 480 hours of the 960-hour learning period, for the occupations of knitting, seaming, and mending; not less than 53 cents per hour for a maximum of 240 hours, for the occupation of examining; authorizing the employment of 6 learners for normal labor turnover purposes (full-fashioned hosiery) (replacement certificate).

Each certificate has been issued upon the employer's representation that employment of learners at subminimum rates is necessary in order to prevent curtailment of opportunities for employment, and that experienced workers for the learner occupations are not available. The certificates may be cancelled in the manner provided in the regulations and as indicated in the certificates. Any person aggrieved by the issuance of any of these certificates may seek a review or reconsideration thereof within fifteen days after publication of this notice in the FEDERAL REGISTER pursuant to the provisions of Part 522.

Signed at Washington, D. C., this 14th day of May 1956.

MILTON BROOKE,
Authorized Representative
of the Administrator.

[F. R. Doc. 56-3967; Filed, May 18, 1956;
8:50 a. m.]

ATOMIC ENERGY COMMISSION

[Docket No. 18]

GENERAL ELECTRIC CO.

NOTICE OF ISSUANCE OF CONSTRUCTION PERMIT

Please take notice that the Atomic Energy Commission has issued the construction permit set forth below to the General Electric Company. In accordance with the procedures set forth in the Commission's rules of practice (10 CFR Part 2), the Commission will direct the holding of a formal hearing upon timely receipt of a request therefor from the applicant or an intervenor.

Construction permit (No. CFP-3). The General Electric Company, Schenectady, New York (hereinafter "GE") on January 10, 1956, filed its application for license under section 104 of the Atomic Energy Act of 1954 (hereinafter the "act") to construct and operate a nuclear reactor (hereinafter "the reactor"). A revised application was filed on March 6, 1956. The original application together with said revision is hereinafter referred to as "the application."

The Atomic Energy Commission (hereinafter the "Commission") has found that:

A. The reactor will be a utilization facility as defined in the Commission's regulations contained in 10 CFR, Chapter 1, Part 50, "Licensing of Production and Utilization Facilities."

B. GE proposes to utilize the reactor in the conduct of research and development activities leading to the demonstration of the practical value of the boiling water type of reactor for industrial or commercial purposes.

C. GE is financially qualified to construct and operate the reactor in accordance with the regulations contained in 10 CFR, Chapter 1; to assume financial responsibility for the payment of Commission charges for special nuclear material and to undertake and carry out the proposed use of such material for a reasonable period of time.

D. GE is technically qualified to design and construct the reactor.

E. GE has submitted sufficient information to provide reasonable assurance that a utilization facility of the general type proposed by GE can be constructed and operated at the proposed location without undue risk to the health and safety of the public and that additional information required to complete its application will be supplied.

Pursuant to the Atomic Energy Act of 1954 and 10 CFR, Chapter 1, Part 50, "Licensing of Production and Utilization Facilities," the Commission hereby issues a construction permit to GE to construct the reactor as a utilization facility. This

permit shall be deemed to contain and be subject to the conditions specified in §§ 50.54 and 50.55 of said regulations; is subject to all applicable provisions of the Atomic Energy Act of 1954 and rules, regulations and orders of the Atomic Energy Commission now or hereafter in effect; and is subject to any additional conditions specified or incorporated below:

(1) The earliest date for the completion of the reactor is June 1, 1957. The latest date for completion of the reactor is February 28, 1958. The term "completion date" as used herein means the date on which construction of the reactor is completed except for the introduction of the fuel material.

(2) The site proposed for the location of the reactor is the location in Alameda County, California, specified in report GEAP-069—"Technical Information with Environmental Factors Regarding Developmental Boiling Water Reactor."

(3) The general type of facility authorized for construction is a boiling water type reactor designed to furnish energy equivalent to 3,000 kilowatts of electricity, using uranium enriched in the isotope uranium-235 as fuel.

(4) This permit is subject to submittal by GE to the Commission (by proposed amendment of the application) of the complete, final Hazards Summary Report (portions of which may be submitted and evaluated from time to time) and a finding by the Commission that the final design provides reasonable assurance that the health and safety of the public will not be endangered by operation of the reactor in accordance with the specified procedures.

(5) From time to time GE may submit to the Commission, in writing, reports upon the progress being made in experimental and developmental work. Following the submission of each such report the Commission will review the data included therein to determine whether the results of such work can be incorporated as technical specifications by appropriate amendment to this permit.

(6) Upon completion (as defined in paragraph "1" above) of the construction of the facility in accordance with the terms and conditions of this permit, upon the filing of any additional information needed to bring the original application up to date, and upon finding that the facility authorized has been constructed in conformity with the application as amended and in conformity with the provisions of the act and of the rules and regulations of the Commission, and in the absence of any good cause being shown to the Commission why the granting of a license would not be in accordance with the provisions of the act, the Commission will issue a Class 104 license to GE pursuant to section 104b. of the act, which license shall expire seven (7) years after the date of this construction permit.

Pursuant to § 50.60 of the regulations in 10 CFR Part 50, the Commission has allocated to GE, for use in the operation of the reactor, 29.0 kilograms of uranium-235 contained in uranium at the isotopic

ratio specified in GE's application. Estimated schedules of special nuclear material transfers to GE and returns to the Commission are contained in Appendix "A" which is set forth below. Deliveries by the Commission to GE in accordance with schedule 1 in Appendix "A" will be conditioned upon GE's return to the Commission of special nuclear material substantially in accordance with schedule 2 of Appendix "A".

Date of issuance: May 14, 1956.

Dated at Washington, D. C., this 14th day of May 1956.

For the Atomic Energy Commission.

H. L. PRICE,
Director.

Division of Civilian Application.

APPENDIX "A" TO GENERAL ELECTRIC COMPANY
CONSTRUCTION PERMIT

SCHEDULE 1

Estimated schedule of transfers of special nuclear material from the Commission to GE:

Date of transfer	Kilograms of contained U-235
1956	50
1957	None
1958	30
1959	30
1960	30
1961	30
1962	30
Total for license period	200

SCHEDULE 2

Estimated schedule of transfers of special nuclear material from GE to the Commission:

Date of transfer	Kilograms of contained U-235		
	In fabrication scrap	In spent fuel	Total
1956	19.5	None	19.5
1957	None	None	None
1958	11.7	None	11.7
1959	11.7	19.0	30.7
1960	11.7	15.0	26.7
1961	11.7	10.0	21.7
1962	11.7	15.0	26.7
Return of inventory			43.0
Total for license period			171.0

[F. R. Doc. 56-3986; Filed, May 21, 1956; 8:47 a. m.]

CIVIL AERONAUTICS BOARD

[Docket No. 7280]

TRANS WORLD AIRLINES, INC.; INDIA-BANGKOK-MANILA EXTENSION

NOTICE OF ORAL ARGUMENT

Notice is hereby given, pursuant to the provisions of the Civil Aeronautics Act of 1938, as amended, that oral argument in the above-entitled proceeding is assigned to be held on June 20, 1956, at 10:00 a. m., e. d. s. t., in Room 5042, Commerce Building, Constitution Avenue, between Fourteenth and Fifteenth Streets NW., Washington, D. C., before the Board.

Dated at Washington, D. C., May 15, 1956.

[SEAL] FRANCIS W. BROWN,
Chief Examiner.

[F. R. Doc. 56-4024; Filed, May 21, 1956; 8:54 a. m.]

[Docket No. 7002 et al.]

NEW YORK-NASSAU CASE

NOTICE OF ORAL ARGUMENT

Notice is hereby given, pursuant to the provisions of the Civil Aeronautics Act of 1938, as amended, that oral argument in the above-entitled proceeding is assigned to be held on July 5, 1956, at 10:00 a. m., e. d. s. t., in Room 5042, Commerce Building, Constitution Avenue, between Fourteenth and Fifteenth Streets NW., Washington, D. C., before the Board.

Dated at Washington, D. C., May 16, 1956.

[SEAL] FRANCIS W. BROWN,
Chief Examiner.

[F. R. Doc. 56-4025; Filed, May 21, 1956; 8:54 a. m.]

FEDERAL COMMUNICATIONS
COMMISSION

[Docket Nos. 11124, 11125; FCC 56M-487]

HAROLD M. GADE AND MONMOUTH COUNTY
BROADCASTERS

ORDER SCHEDULING HEARING

In re applications of Harold M. Gade, Eatontown, New Jersey, Docket No. 11124, File No. BP-9096; Monmouth County Broadcasters, Long Branch, New Jersey, Docket No. 11125, File No. BP-9231; for construction permits.

The Hearing Examiner having under consideration: (1) a "Petition to Advance Hearing Date" filed May 7, 1956, on behalf of applicant Gade; (2) the procedural facts shown by the record herein; and (3) the statements made by Bureau counsel at an oral argument on the above pleading which was scheduled on this date and which was attended by no other counsel; and

It appearing that a third application formerly involved in this proceeding was dismissed by order dated May 8, 1956, that Monmouth County Broadcasters failed to appear at the prehearing conference on April 3, 1956, and no applicant or party except Bureau appeared at the scheduled oral argument on this date and no party opposes the pending petition; and

It further appearing that it would conduce to the orderly dispatch of the Commission's business to advance the hearing date substantially as requested by petitioner, and as herein ordered, and that good cause is shown for accordingly modifying the previous pretrial order hereinafter referred to; now therefore:

It is ordered, This 15th day of May 1956, that the hearing upon the applications here involved shall be commenced at the offices of the Commission in Washington, D. C., at 10:00 a. m., on Thursday, June 7, 1956; and

It is further ordered, That paragraphs 4 and 5 of the Order After Third Prehearing Conference, dated April 10, 1956, (fixing the dates for prehearing and further hearing on June 8 and June 27) be and they are hereby set aside.

FEDERAL COMMUNICATIONS
COMMISSION,

[SEAL] MARY JANE MORRIS,
Secretary.

[F. R. Doc. 56-3974; Filed, May 21, 1956; 8:45 a. m.]

[Docket Nos. 11623, 11624; FCC 56M-481]

BLACK HILLS BROADCAST CO. OF RAPID CITY
AND HEART OF THE BLACK HILLS STATIONS

ORDER CONTINUING HEARING

In re applications of Black Hills Broadcast Company of Rapid City, Lead, South Dakota, Docket No. 11623, File No. BPCT-2033; John Daniels, Eli Daniels and Harry Daniels d/b as THE HEART OF THE BLACK HILLS STATIONS, Deadwood, South Dakota, Docket No. 11624, File No. BPCT-2040; for television construction permits (Channel 5).

The Hearing Examiner having under consideration a motion, filed by Black Hills Broadcast Company of Rapid City on May 8, 1956, requesting that the dates set in the present schedule for the exchange of written case, the further conference, and the commencement of the hearing, be continued for at least thirty days, to afford movant an opportunity to canvas the feasibility of dismissing its application and thus remove the conflict and necessity of hearing;

It appearing that time for filing opposition to the motion has expired, that no opposition has been filed, and that good cause for the requested continuance has been shown;

It is ordered, This 15th day of May 1956, that the motion for continuance is granted, and that the dates in the schedule are continued as follows:

a. Exchange of written case under Rule 1.841—from May 25, 1956 to June 25, 1956, 5:00 p. m.

b. Further conference under Rule 1.841—from June 5, 1956 to July 5, 1956, at 10:00 a. m., in the offices of the Commission, Washington, D. C.

c. Commencement of evidentiary hearing—from June 20, 1956 to July 23, 1956, at 10:00 a. m., in the offices of the Commission, Washington, D. C.

FEDERAL COMMUNICATIONS
COMMISSION,

[SEAL] MARY JANE MORRIS,
Secretary.

[F. R. Doc. 56-3975; Filed, May 21, 1956; 8:45 a. m.]

[Docket Nos. 11673, 11674; FCC 56M-470]

MISSISSIPPI BROADCASTING CO. (WCCC-TV) AND LAUREL TELEVISION CO., INC.

ORDER CONTINUING HEARING CONFERENCE

In re applications of Mississippi Broadcasting Company (WCCC-TV),

Pachuta, Mississippi, Docket No. 11673, File No. BMPCT-3213; for modification of construction permit; and Laurel Television Company, Inc., Laurel, Mississippi, Docket No. 11674, File No. BPCT-2031; for construction permit for a new television broadcast station (Channel 7).

On the oral request of counsel for applicants, and without objection by counsel for the Broadcast Bureau, *It is ordered*, This 14th day of May 1956, that the further prehearing conference now scheduled for May 16, 1956, is continued to Thursday, May 24, 1956, at 10:00 a. m., in the offices of the Commission, Washington, D. C.

FEDERAL COMMUNICATIONS COMMISSION,

[SEAL] MARY JANE MORRIS, Secretary.

[F. R. Doc. 56-3976; Filed, May 21, 1956; 8:45 a. m.]

[Docket No. 11682; FCC 56M-491]

GENERAL-TIMES TELEVISION CORP. AND COLUMBIA BROADCASTING SYSTEM, INC.

ORDER CONTINUING HEARING

In re application of General-Times Television Corporation (Assignor) and Columbia Broadcasting System, Inc. (Assignee), Docket No. 11682, File No. BAPCT-159; for consent to the assignment of the construction permit for WGTH-TV Hartford, Connecticut.

It is ordered, This 15th day of May 1956, upon joint request of all participating parties, that the prehearing conference scheduled for May 16, 1956 in the above-entitled proceeding, is continued to May 29, 1956; and

It is further ordered, On the Hearing Examiners' own motion, with the consent of all participating parties, that formal hearing in the matter, which was originally scheduled to commence May 28, 1956, is continued to a date to be specified by subsequent order.

FEDERAL COMMUNICATIONS COMMISSION,

[SEAL] MARY JANE MORRIS, Secretary.

[F. R. Doc. 56-3978; Filed, May 21, 1956; 8:45 a. m.]

[Docket No. 11699; FCC 56M-489]

SOUTHERN OREGON BROADCASTING CO. (KUIN)

ORDER SCHEDULING HEARING

In re application of Southern Oregon Broadcasting Company (KUIN), Grants Pass, Oregon, Docket No. 11699, File No. BP-10099; for construction permit.

It is ordered, This 15th day of May 1956, that Annie Neal Hunting will preside at the hearing in the above-entitled proceeding which is hereby scheduled to commence on July 3, 1956, in Washington, D. C.

Released: May 16, 1956.

FEDERAL COMMUNICATIONS COMMISSION,

[SEAL] MARY JANE MORRIS, Secretary.

[F. R. Doc. 56-3979; Filed, May 21, 1956; 8:45 a. m.]

[Docket Nos. 11702, 11703; FCC 56M-482]

POLLY B. HUGHES AND HOLIDAY ISLES BROADCASTING CO.

ORDER SCHEDULING HEARING

In re applications of Polly B. Hughes, Tampa, Florida, Docket No. 11702, File No. BP-9897; Edmund A. Spence tr/as Holiday Isles Broadcasting Company, St. Petersburg Beach, Florida, Docket No. 11703, File No. BP-10148; for construction permits.

It is ordered, This 15th day of May 1956, that H. Gifford Irion will preside at the hearing in the above-entitled proceeding which is hereby scheduled to commence on July 18, 1956, in Washington, D. C.

Released: May 16, 1956.

FEDERAL COMMUNICATIONS COMMISSION,

[SEAL] MARY JANE MORRIS, Secretary.

[F. R. Doc. 56-4008; Filed, May 21, 1956; 8:51 a. m.]

[Docket No. 11704; FCC 56M-486]

MT. STERLING BROADCASTING CO.

ORDER SCHEDULING HEARING

In re application of Mt. Sterling Broadcasting Company, Mt. Sterling, Kentucky, Docket No. 11704, File No. BP-10301; for construction permit.

It is ordered, This 15th day of May 1956, that Thomas H. Donahue will preside at the hearing in the above-entitled proceeding which is hereby scheduled to commence on July 25, 1956, in Washington, D. C.

Released: May 16, 1956.

FEDERAL COMMUNICATIONS COMMISSION,

[SEAL] MARY JANE MORRIS, Secretary.

[F. R. Doc. 56-3980; Filed, May 21, 1956; 8:45 a. m.]

[Docket No. 11705; FCC 56M-485]

HENRY COUNTY BROADCASTING CO.

ORDER SCHEDULING HEARING

In re application of John Garrett tr/as Henry County Broadcasting Company, Mt. Pleasant, Iowa, Docket No. 11705, File No. BP-9983; for construction permit.

It is ordered, This 15th day of May 1956, that J. D. Bond will preside at the hearing in the above-entitled proceeding which is hereby scheduled to commence on July 11, 1956, in Washington, D. C.

Released: May 16, 1956.

FEDERAL COMMUNICATIONS COMMISSION,

[SEAL] MARY JANE MORRIS, Secretary.

[F. R. Doc. 56-3981; Filed, May 21, 1956; 8:46 a. m.]

[Docket No. 11706; FCC 56M-484]

DAY-NITE RADIO MESSAGE SERVICE CORP.

ORDER SCHEDULING HEARING

In re application of Day-Nite Radio Message Service Corporation, Philadelphia, Pennsylvania, Docket No. 11706, File No. 731-C2-R-56; for renewal of the license for station KGA 593, a two-way communications facility in the Domestic Public Land Mobile Radio Service.

It is ordered, This 15th day of May 1956, that Basil P. Cooper will preside at the hearing in the above-entitled proceeding which is hereby scheduled to commence on July 18, 1956, in Washington, D. C.

Released: May 16, 1956.

FEDERAL COMMUNICATIONS COMMISSION,

[SEAL] MARY JANE MORRIS, Secretary.

[F. R. Doc. 56-3982; Filed, May 21, 1956; 8:46 a. m.]

FEDERAL POWER COMMISSION

[Docket No. G-10101, etc.]

MILLS BENNETT ESTATE ET AL.

NOTICE OF APPLICATIONS

MAY 16, 1956.

In the matters of Mills Bennett Estate, Docket No. G-10101; Edwin W. Pauley, Operator, Docket No. G-10109; Renwar Oil Corporation et al., Docket No. G-10112; Roy H. Bettis and G. Frederick Shepherd d. b. a. Bettis and Shepherd, Docket No. G-10120; George R. Brown, Docket No. G-10124; Hidalgo Gas Production Corporation, Docket No. G-10132; Heep Oil Corporation, Docket No. G-10140; George W. Graham et al., Docket No. G-10178; Arkansas Fuel Oil Corporation, Docket Nos. G-10186 thru G-10190, inc.; Forest Oil Corporation, Docket Nos. G-10225 and G-10226; L. A. Douglas, Operator, Docket No. G-10229; Sinclair Oil and Gas Corporation, Docket No. G-10269; Panhandle Oil Corporation, Docket No. G-10312.

Take notice that each of the above Applicants has filed an application for a certificate of public convenience and necessity pursuant to section 7 of the Natural Gas Act, authorizing Applicants to sell natural gas, subject to the jurisdiction of the Commission, all as more fully described in their respective applications which are on file with the Commission and open for public inspection.

All of the Applicants listed above produce and propose to sell natural gas to Texas Eastern Transmission Corporation for transportation in interstate commerce for resale, as indicated below.

Docket No. G- and Location of Field

- 10101; Bennett Ranch Field, Brooks County, Tex.
- 10109; Tabasco Field and adjacent areas, Hidalgo County, Tex.
- 10112; West Rockport Field, Aransas County, Tex.
- 10120; Mercedes Field, Hidalgo County, Tex.
- 10124; Lockridge and South Lockridge Fields, Brazoria County, Tex.
- 10132; Mercedes Field, Hidalgo County, Tex.; Agua Dulce Field, Nueces County, Tex.

10140; May Field, Kleberg County, Tex.
 10178; East Bishop Field, Nueces County, Tex.
 10186; San Antonio Bay Field, Calhoun County, Tex.
 10187; Guedin Field, San Patricio County, Tex.
 10188; May Field, Kleberg County, Tex.
 10189; Midway Field, San Patricio County, Tex.
 10190; Puerto Bay Field, Aransas and San Patricio Counties, Tex.
 10225; Sal Del Rey Field, Hidalgo County, Tex.
 10226; Encino Pasture Field, San Patricio County, Tex.
 10229; Violet Field, Nueces County, Tex.
 10269; East White Point Field, Nueces and San Patricio Counties, Tex.
 10312; Bird Island Field, Kleberg County, Tex.

Protests or petitions to intervene may be filed with the Commission in accordance with § 1.8 or 1.10 of its rules of practice and procedure (18 CFR 1.8 or 1.10), on or before June 4, 1956.

[SEAL] LEON M. FUQUAY,
 Secretary.

[F. R. Doc. 56-3993; Filed, May 21, 1956;
 8:48 a. m.]

[Docket No. G-10201]

OHIO FUEL GAS Co.

NOTICE OF APPLICATION AND DATE OF
 HEARING

MAY 15, 1956.

Take notice that The Ohio Fuel Gas Company, Applicant, an Ohio corporation and a subsidiary of The Columbia Gas System, Inc., having its principal place of business at 99 North Front Street, Columbus 15, Ohio, filed on April 4, 1956, an application for a certificate of public convenience and necessity, authorizing it to construct and operate certain proposed facilities as hereinafter described, subject to the jurisdiction of the Commission, all as more fully represented in the application which is on file with the Commission and open for public inspection.

The proposed facilities consist of: Approximately 11.6 miles of 20-inch O. D. transmission pipeline extending Line B-115 from Johnstown, Licking County, Ohio, to Treat Station, Licking County, Ohio; together with valves, piping and incidental facilities necessary for practical operation.

The purpose of the application is to enable the Applicant to increase the volumes of gas necessary to satisfy its storage requirements during the summer months and thereby enable it to meet its future winter requirements. The application states that to perform the required market service and maintain scheduled deliveries for input to storage, Applicant must increase the capacity of its high pressure transmission system transporting gas for delivery to northern markets and storage areas. The estimated daily capacity of the existing facilities is approximately 316 MMcf. The total capacity required is 356 MMcf per day, which includes 101 MMcf required for market service and 255 MMcf for input into storage for an average day in the month of July 1956.

The total cost of these facilities is estimated at \$611,000 of which \$568,000 is for construction of 11.6 miles of 20-inch loop line, and \$43,000 is for construction of the valve setting and tie-in connections at Treat Station. This will be financed by the Columbia Gas System, Inc.

This matter is one that should be disposed of as promptly as possible under the applicable rules and regulations and to that end:

Take further notice that, pursuant to the authority contained in and subject to the jurisdiction conferred upon the Federal Power Commission by sections 7 and 15 of the Natural Gas Act, and the Commission's rules of practice and procedure, a hearing will be held on Monday, June 18, 1956, at 9:30 a. m., e. d. s. t., in a hearing room of the Federal Power Commission, 441 G Street NW., Washington, D. C., concerning the matters involved in and the issues presented by such application: *Provided, however*, That the Commission may, after a non-contested hearing, dispose of the proceedings pursuant to the provisions of § 1.30 (c) (1) or (2) of the Commission's rules of practice and procedure.

Protests or petitions to intervene may be filed with the Federal Power Commission, Washington 25, D. C., in accordance with the rules of practice and procedure (18 CFR 1.8 or 1.10) on or before June 6, 1956. Failure of any party to appear at and participate in the hearing shall be construed as waiver of and concurrence in omission herein of the intermediate decision procedure in cases where a request therefor is made. Under the procedure herein provided for unless otherwise advised, it will be unnecessary for Applicant to appear or be represented at the hearing.

[SEAL] LEON M. FUQUAY,
 Secretary.

[F. R. Doc. 56-3994; Filed, May 21, 1956;
 8:48 a. m.]

SECURITIES AND EXCHANGE COMMISSION

[File No. 1-3682]

BAILEY SELBURN OIL & GAS LTD., CLASS A
 STOCK

NOTICE OF APPLICATION TO WITHDRAW FROM
 LISTING AND REGISTRATION, AND OF OPPOR-
 TUNITY FOR HEARING

MAY 15, 1956.

The above named issuer, pursuant to section 12 (d) of the Securities Exchange Act of 1934 and Rule X-12D2-1 (b) promulgated thereunder, has made application to withdraw the specified security from listing and registration on the San Francisco Stock Exchange.

The reasons alleged in the application for withdrawing this security from listing and registration include the following:

Since listing of this stock on the San Francisco Stock Exchange in 1953, reported trading on said Exchange has averaged only about 1,000 shares per annum. The stock is listed and actively traded on the American Stock Exchange.

Savings of time in preparing reports and of listing fees on additional shares

will result from the proposed delisting. The San Francisco Stock Exchange states that it has no objection to the delisting and has suspended the stock from dealings on its floor at the close of business April 9, 1956.

Upon receipt of a request, on or before June 4, 1956, from any interested person for a hearing in regard to terms to be imposed upon the delisting of this security, the Commission will determine whether to set the matter down for hearing. Such request should state briefly the nature of the interest of the person requesting the hearing and the position he proposes to take at the hearing with respect to imposition of terms. In addition, any interested person may submit his views or any additional facts bearing on this application by means of a letter addressed to the Secretary of the Securities and Exchange Commission, Washington 25, D. C. If no one requests a hearing on this matter, this application will be determined by order of the Commission on the basis of the facts stated in the application and other information contained in the official file of the Commission pertaining to the matter.

By the Commission.

[SEAL] ORVAL L. DUBOIS,
 Secretary.

[F. R. Doc. 56-3997; Filed, May 21, 1956;
 8:49 a. m.]

[File No. 54-219, 59-13]

STANDARD SHARES, INC.

ORDER APPROVING ACCOUNTING ENTRIES AND
 RELEASING JURISDICTION WITH RESPECT
 THERETO

MAY 16, 1956.

The Commission, by order dated February 16, 1956, having approved a plan of Standard Shares, Inc. ("Standard Shares"), a registered holding company, formerly named Standard Power and Light Corporation, filed under section 11 (e) of the Public Utility Holding Company Act of 1935 ("act") which plan proposed, among other things, a program for the transformation of Standard Shares into a closed-end nondiversified investment company; and having reserved jurisdiction over the accounting entries to be made by Standard Shares in connection with consummation of said plan; and

Standard Shares on May 4, 1956, having filed an application herein proposing, inter alia, (a) the restatement of the ledger values of its portfolio securities as of January 1, 1956, on the basis of the market values of such securities as of December 31, 1955, thereby reducing the aggregate ledger carrying values of such securities from \$113,671,004 to \$25,030,561, and (b) to write off the amounts in its Organization and Capital Stock Discount and Expense accounts of \$204,089 and \$59,595, respectively; and

The Commission having considered said application and having found that the accounting entries proposed therein should be approved and that the jurisdiction heretofore reserved by the Commission with respect thereto should be released:

It is ordered, That the accounting entries proposed to be made by Standard Shares be, and the same hereby are, approved, and that the jurisdiction heretofore reserved by the Commission with respect thereto be, and the same hereby is, released.

By the Commission.

[SEAL] ORVAL L. DUBOIS,
Secretary.

[F. R. Doc. 56-3998; Filed, May 21, 1956;
8:49 a. m.]

DEPARTMENT OF JUSTICE

Office of Alien Property

[Vesting Order SA-38]

SULCOP S. A. R.

In re: Debt owing to Sulcop S. A. R. F-57-872.

Under the authority of Title II of the International Claims Settlement Act of 1949, as amended (69 Stat. 562), Executive Order 10644, November 7, 1955 (20 F. R. 8363), Department of Justice Order No. 106-55, November 23, 1955 (20 F. R. 8993), and pursuant to law, after investigation, it is hereby found and determined:

1. That the property described as follows: That certain debt or other obligation of Irving Trust Company, 1 Wall Street, New York 15, New York, arising out of a Demand Deposit Account in the name of Sulcop S. A. R., Bucharest, Roumania, maintained by the aforesaid bank, together with any and all rights to demand, enforce, and collect the same,

is property within the United States which was blocked in accordance with Executive Order 8389, as amended, and remained blocked on August 9, 1955, and which is, and as of September 15, 1947, was, owned directly or indirectly by Sulcop S. A. R., Bucharest, Roumania, a national of Rumania as defined in said Executive Order 8389, as amended.

2. That the property described herein is not owned directly by a natural person.

There is hereby vested in the Attorney General of the United States the property described above, to be administered, sold, or otherwise liquidated, in accordance with the provisions of Title II of the International Claims Settlement Act of 1949, as amended.

It is hereby required that the property described above be paid, conveyed, transferred, assigned and delivered to or for the account of the Attorney General of the United States in accordance with directions and instructions issued by or for the Assistant Attorney General, Director, Office of Alien Property, Department of Justice.

The foregoing requirement and any supplement thereto shall be deemed instructions or directions issued under Title II of the International Claims Settlement Act of 1949, as amended. Attention is directed to Section 205 of said Title II (69 Stat. 562) which provides that:

Any payment, conveyance, transfer, assignment, or delivery of property made to the President or his designee pursuant to this

title, or any rule, regulation, instruction, or direction issued under this title, shall to the extent thereof be a full acquittance and discharge for all purposes of the obligation of the person making the same; and no person shall be held liable in any court for or in respect of any such payment, conveyance, transfer, assignment, or delivery made in good faith in pursuance of and in reliance on the provisions of this title, or of any rule, regulation, instruction, or direction issued thereunder.

Executed at Washington, D. C., on May 16, 1956.

For the Attorney General.

[SEAL] DALLAS S. TOWNSEND,
Assistant Attorney General, Director,
Office of Alien Property.

[F. R. Doc. 56-4009; Filed, May 21, 1956;
8:51 a. m.]

[Vesting Order SA-39]

MAGYAR REZHENGERMUEK RESZVCNYTARSASAG AZELOH CHAUDOIR GUSZTAV ES TARSA

In re: Debt owing to Magyar Rezhengermuek Reszvcnytarsasag Azeloh Chaudoir Gusztav Es Tarsa, a/k/a Ungarische Kupferwalzwerke, A. G. F-34-1297.

Under the authority of Title II of the International Claims Settlement Act of 1949, as amended (69 Stat. 562), Executive Order 10644, November 7, 1955 (20 F. R. 8363), Department of Justice Order No. 106-55, November 23, 1955 (20 F. R. 8993), and pursuant to law, after investigation, it is hereby found and determined:

1. That the property described as follows: That certain debt or other obligation of Anaconda Export Company, formerly Copper Export Association, Inc., New York, New York, arising out of an account payable entitled, "Accounts Payable Blocked Account", maintained by the aforesaid Company, together with any and all rights to demand, enforce and collect the same,

is property within the United States which was blocked in accordance with Executive Order 8389, as amended, and remained blocked on August 9, 1955, and which is, and as of September 15, 1947, was, owned directly or indirectly by Magyar Rezhengermuek Reszvcnytarsasag Azeloh Chaudoir Gusztav Es Tarsa, a/k/a Ungarische Kupferwalzwerke, A. G., Budapest, Hungary, a national of Hungary as defined in said Executive Order 8389, as amended.

2. That the property described herein is not owned directly by a natural person.

There is hereby vested in the Attorney General of the United States the property described above, to be administered, sold, or otherwise liquidated, in accordance with the provisions of Title II of the International Claims Settlement Act of 1949, as amended.

It is hereby required that the property described above be paid, conveyed, transferred, assigned and delivered to or for the account of the Attorney General of

the United States in accordance with directions and instructions issued by or for the Assistant Attorney General, Director, Office of Alien Property, Department of Justice.

The foregoing requirement and any supplement thereto shall be deemed instructions or directions issued under Title II of the International Claims Settlement Act of 1949, as amended. Attention is directed to Section 205 of said Title II (69 Stat. 562) which provides that:

Any payment, conveyance, transfer, assignment, or delivery of property made to the President or his designee pursuant to this title, or any rule, regulation, instruction, or direction issued under this title, shall to the extent thereof be a full acquittance and discharge for all purposes of the obligation of the person making the same; and no person shall be held liable in any court for or in respect of any such payment, conveyance, transfer, assignment, or delivery made in good faith in pursuance of and in reliance on the provisions of this title, or of any rule, regulation, instruction, or direction issued thereunder.

Executed at Washington, D. C., on May 16, 1956.

For the Attorney General.

[SEAL] DALLAS S. TOWNSEND,
Assistant Attorney General,
Director, Office of Alien
Property.

[F. R. Doc. 56-4010; Filed, May 21, 1956;
8:51 a. m.]

[Vesting Order SA-40]

BANQUE CREDIT BULGARE S. A.

In Re: Debt owing to Banque Credit Bulgare S. A. F-11-39.

Under the authority of Title II of the International Claims Settlement Act of 1949, as amended (69 Stat. 562), Executive Order 10644, November 7, 1955 (20 F. R. 8363), Department of Justice Order No. 106-55, November 23, 1955 (20 F. R. 8993), and pursuant to law, after investigation, it is hereby found and determined:

1. That the property described as follows: That certain debt or other obligation of The First National City Bank of New York, 55 Wall Street, New York 15, New York, arising out of an account entitled, "Union Bank of Switzerland, Iden. G. R. 17 Banque Nationale de Bulgarie," maintained at the aforesaid bank, together with any and all rights to demand, enforce and collect the same,

is property within the United States which was blocked in accordance with Executive Order 8389, as amended, and remained blocked on August 9, 1955, and which is, and as of September 15, 1947, was, owned directly or indirectly by Banque Credit Bulgare S. A., Sofia, Bulgaria, a national of Bulgaria as defined in said Executive Order 8389, as amended.

2. That the property described herein is not owned directly by a natural person.

There is hereby vested in the Attorney General of the United States the prop-

erty described above, to be administered, sold, or otherwise liquidated, in accordance with the provisions of Title II of the International Claims Settlement Act of 1949, as amended.

It is hereby required that the property described above be paid, conveyed, transferred, assigned and delivered to or for the account of the Attorney General of the United States in accordance with directions and instructions issued by or for the Assistant Attorney General, Director, Office of Alien Property, Department of Justice.

The foregoing requirement and any supplement thereto shall be deemed instructions or directions issued under Title II of the International Claims Settlement Act of 1949, as amended. Attention is directed to section 205 of said Title II (69 Stat. 562) which provides that:

Any payment, conveyance, transfer, assignment, or delivery of property made to the President or his designee pursuant to this title, or any rule, regulation, instruction, or direction issued under this title, shall to the extent thereof be a full acquittance and discharge for all purposes of the obligation of the person making the same; and no person shall be held liable in any court for or in respect of any such payment, conveyance, transfer, assignment, or delivery made in good faith in pursuance of and in reliance on the provisions of this title, or of any rule, regulation, instruction, or direction issued thereunder.

Executed at Washington, D. C., on May 16, 1956.

For the Attorney General.

[SEAL] DALLAS S. TOWNSEND,
Assistant Attorney General,
Director, Office of Alien Property.

[F. R. Doc. 56-4011; Filed, May 21, 1956; 8:51 a. m.]

MARCEL CHOPIN

NOTICE OF INTENTION TO RETURN VESTED PROPERTY

Pursuant to section 32 (f) of the Trading With the Enemy Act, as amended, notice is hereby given of intention to return, on or after 30 days from the date of publication hereof, the following property located in Washington, D. C., including all royalties accrued thereunder and all damages and profits recoverable for past infringement thereof, after adequate provision for taxes and conservatory expenses:

Claimant, Claim No., and Property

Marcel Chopin, Seine, France; property described in Vesting Order No. 668 (8 F. R. 5047, April 17, 1943) relating to United States Letters Patent No. 2,281,182. Claim No. 36868.

Executed at Washington, D. C., on May 11, 1956.

For the Attorney General.

[SEAL] PAUL V. MYRON,
Deputy Director,
Office of Alien Property.

[F. R. Doc. 56-4012; Filed, May 21, 1956; 8:52 a. m.]

NOBUKO MIGUCHI

NOTICE OF INTENTION TO RETURN VESTED PROPERTY

Pursuant to section 32 (f) of the Trading With the Enemy Act, as amended, notice is hereby given of intention to return, on or after 30 days from the date of publication hereof, the following property, subject to any increase or decrease resulting from the administration thereof prior to return, and after adequate provision for taxes and conservatory expenses:

Claimant, Claim No., Property, and Location

Nobuko Miguchi (nee Nobuko Hamaoka), Yamaguchi-Ken, Japan, \$17,882.31 in the Treasury of the United States. Claim No. 64042, Vesting Order No. 18858.

Executed at Washington, D. C., on May 11, 1956.

For the Attorney General.

[SEAL] PAUL V. MYRON,
Deputy Director,
Office of Alien Property.

[F. R. Doc. 56-4013; Filed, May 21, 1956; 8:52 a. m.]

ELIGIO MIRONE

NOTICE OF INTENTION TO RETURN VESTED PROPERTY

Pursuant to section 32 (f) of the Trading With the Enemy Act, as amended, notice is hereby given of intention to return, on or after 30 days from the date of publication hereof, the following property located in Washington, D. C., including all royalties accrued thereunder and all damages and profits recoverable for past infringement thereof, after adequate provision for taxes and conservatory expenses:

Claimant, Claim No., and Property

Eligio Mirone, Turin, Italy, property described in Vesting Order No. 201 (8 F. R. 625, January 16, 1943), relating to United States Letters Patent No. 2,188,246. Claim No. 37581.

Executed at Washington, D. C., on May 11, 1956.

For the Attorney General.

[SEAL] PAUL V. MYRON,
Deputy Director,
Office of Alien Property.

[F. R. Doc. 56-4014; Filed, May 21, 1956; 8:52 a. m.]

ELECTRICAL FONO FILMS Co. A/S

NOTICE OF INTENTION TO RETURN VESTED PROPERTY

Pursuant to section 32 (f) of the Trading With the Enemy Act, as amended, notice is hereby given of intention to return, on or after 30 days from the date of publication hereof, the following property located in Washington, D. C., including all royalties accrued thereunder and all damages and profits recoverable for past infringement thereof,

after adequate provision for taxes and conservatory expenses:

Claimant, Claim No., and Property

Electrical Fono Films Co. A/S, 576 Vesterport, Copenhagen, Denmark, property described in Vesting Order No. 290 (7 F. R. 9833, November 26, 1942) relating to United States Patent Application Serial No. 294,402 (now United States Letters Patent No. 2,345,087), Claim No. 9503, Vesting Order No. 290.

Executed at Washington, D. C., on May 11, 1956.

For the Attorney General.

[SEAL] PAUL V. MYRON,
Deputy Director,
Office of Alien Property.

[F. R. Doc. 56-4015; Filed, May 21, 1956; 8:52 a. m.]

STATE OF NETHERLANDS FOR BENEFIT OF LEA POLAK ET AL.

NOTICE OF INTENTION TO RETURN VESTED PROPERTY

Pursuant to section 32 (f) of the Trading With the Enemy Act, as amended, notice is hereby given of intention to return, on or after 30 days from the date of publication hereof, the following property, subject to any increase or decrease resulting from the administration thereof prior to return, and after adequate provision for taxes and conservatory expenses:

Claimant, Claim No., Property, and Location

The State of the Netherlands for the benefit of: (all right, title and interest of the Attorney General acquired pursuant to Vesting Order No. 18521 (16 F. R. 10097, October 3, 1951) in and to):

Lea Polak and Mietje Hildesheim, L. S. Claim No. 158; Kansas City Southern Railway Company 3/50 Bond No. 15261, in the principal amount of \$1,000; and Union Pacific Railroad Company 4/47 Bond No. 86429, in the principal amount of \$1,000.

Harold Rose and Emma van Biema Nijkerk, L. S. Claim No. 160; Norfolk & Western Railway Company 4/96 Bonds Nos. 22984 and 26125, in the principal amount of \$1,000; Norfolk & Western Railway Company 4/96 Bonds Nos. 3396, 3951, 6549, 6673, 7543 and 8135, in the principal amount of \$500; Union Pacific Railroad Company 4/47 Bond No. 20719, in the principal amount of \$1,000; and Union Pacific Railroad Company 4/47 Bond No. 8809, in the principal amount of \$500.

P. E. Warendorf, L. S. Claim No. 176; Union Pacific Railroad Company 4/47 Bond No. 74914, in the principal amount of \$1,000.

Irene Gerda Abelman, L. S. Claim No. 181; Cities Service Company 5/69 Debenture No. 32434, in the principal amount of \$1,000.

Mrs. Rosetta Blom, L. S. Claim No. 192; Cities Service Company 5/58 Debenture No. 46300, in the principal amount of \$1,000.

Netherlands Embassy, Office of the Financial Counselor, 25 Broadway, New York 4, New York.

Executed at Washington, D. C., on May 11, 1956.

For the Attorney General.

[SEAL] PAUL V. MYRON,
Deputy Director,
Office of Alien Property.

[F. R. Doc. 56-4016; Filed, May 21, 1956; 8:52 a. m.]

INTERSTATE COMMERCE COMMISSION

FOURTH SECTION APPLICATIONS FOR RELIEF

MAY 17, 1956.

Protests to the granting of an application must be prepared in accordance with Rule 40 of the general rules of practice (49 CFR 1.40) and filed within 15 days from the date of publication of this notice in the FEDERAL REGISTER.

LONG-AND-SHORT HAUL

FSA No. 32101: *Trailer-on-flat-car service—Erie Railroad Company.* Filed by The Erie Railroad Company, for itself and interested rail carriers. Rates on electrical appliances, floor covering, crude rubber, and refined sugar, truckloads, loaded in or on motor-truck trailers and transported on railroad flat cars from New York, N. Y., to Cleveland, Ohio, and in the reverse direction in movement of floor covering.

Grounds for relief: Circuitous route, meeting competition of direct route performing similar trailer-on-flat-car service in competition with carriers by motor truck.

Tariff: Erie Railroad Company's tariff I. C. C. A-21047.

FSA No. 32102: *Aluminum billets—New Kensington, Pa., to the South.* Filed by C. W. Boin, agent, for interested rail carriers. Rates on aluminum billets, blooms, etc., carloads, from New Kensington, Pa., to specified points in southern territory.

Grounds for relief: Circuitous routes.

Tariff: Supplement 14 to Agent Boin's I. C. C. A-1079.

FSA No. 32103: *Latex—New York to Southern points.* Filed by C. W. Boin, Agent, for interested rail carriers. Rates on latex (liquid crude rubber), natural or synthetic, tank-car loads from Brooklyn and New York, N. Y., to Dalton, Ga., and Hazelwood, N. C.

Grounds for relief: Short-line distance formula, and circuitry.

Tariff: Supplement 14 to Agent Boin's I. C. C. A-1079.

FSA No. 32104: *Sewing machine cases, etc.—New York and New Jersey to Anderson, S. C.* Filed by C. W. Boin, Agent, for interested rail carriers. Rates on

sewing machine cases, electrical appliances and nine other described commodities, mixed carloads from New York and Brooklyn, N. Y., and Elizabethport and Manville (Finderne), N. J., to Anderson, S. C.

Grounds for relief: Motor truck competition and circuitry, analogous commodities.

Tariff: Supplement 14 to Agent Boin's I. C. C. A-1079.

By the Commission.

[SEAL] HAROLD D. MCCOY,
Secretary.

[F. R. Doc. 56-3995; Filed, May 21, 1956;
8:49 a. m.]

[No. 31955]

ILLINOIS CENTRAL RAILROAD CO.

SUBURBAN FARE INCREASE; INVESTIGATION INSTITUTED AND HEARING ASSIGNED

At a session of the Interstate Commerce Commission, Division 2, held at its office in Washington, D. C., on the 8th day of May A. D. 1956.

It appearing that, by petition filed March 26, 1956, with the Interstate Commerce Commission, the Illinois Central Railroad Company seeks authority to increase generally its intrastate and interstate passenger fares between points in the Chicago, Ill. suburban area by 36 percent;

And it further appearing that the petitioner avers that it has filed with the Illinois Commerce Commission tariff schedules containing the proposed increases in intrastate passenger fares in the said area and that the schedules have been suspended and not permitted to become effective; that the intrastate fares presently applicable in connection with the petitioner's suburban operations approved in Docket No. 30560, Illinois Central Multiple Fares in Chicago Area, 289 I. C. C. 133, 141, and Illinois Commerce Commission Docket No. 40483, which tariffs became effective on June 27, 1953, are unduly low resulting in unjust discrimination against, and a burden upon, interstate commerce in violation of section 13 of the Interstate Commerce

Act unless increased to the extent proposed;

For good cause appearing:

It is ordered, That in response to said petition, an investigation be, and it is hereby, instituted, and that a hearing be held for the purpose of giving the respondent hereinafter designated and any other persons interested an opportunity to present evidence to determine whether the present intrastate passenger fares and charges in connection with petitioner's suburban operations cause, or will cause, any undue or unreasonable advantage, preference, or prejudice as between persons or localities in intrastate commerce, on the one hand and interstate commerce, on the other hand, or any undue, unreasonable, or unjust discrimination against interstate commerce, and to determine what fares and charges, if any, or what maximum or minimum, or maximum and minimum fares or charges, should be prescribed to remove the unlawful advantage, preference, prejudice, or discrimination, if any, as may be found to exist;

It is further ordered, That the Illinois Central Railroad Company be, and it is hereby, made the respondent to this proceeding; that a copy of this order be served upon such respondent; and that the State of Illinois be notified of this proceeding by sending copies of this order and of the said petition by registered mail to the Governor of said State and to the Illinois Commerce Commission at Chicago, Ill.;

It is further ordered, That notice of this proceeding be given to the general public by depositing a copy of this order in the office of the Secretary of the Commission at Washington, D. C., and by filing a copy with the Director, Division of the Federal Register Washington, D. C.;

And it is further ordered, That this proceeding be assigned for hearing at such time and place as the Commission may hereafter designate.

By the Commission, Division 2.

[SEAL] HAROLD D. MCCOY,
Secretary.

[F. R. Doc. 56-3996; Filed, May 21, 1956;
8:49 a. m.]

[The text on this page is extremely faint and illegible. It appears to be a multi-column document, possibly a historical record or a list of names and dates. The content is too light to transcribe accurately.]