excess of the actual, bona fide price at which respondents offered the fur products to the public on a regular basis for a reasonably substantial period of time in the recent regular course of business.

6. Misrepresenting in any manner on labels or other means of identification the savings available to purchasers of respondents' products.

7. Falsely or deceptively representing in any manner, directly or by implication on labels or other means of identification that prices of respondents' fur products are reduced.

B. Falsely or deceptively invoicing fur products by:

1. Failing to furnish invoices to purchasers of fur products showing in words and figures plainly legible all the information required to be disclosed in each of the subsections of section 5(b)(1) of the Fur Products Labeling Act.

2. Setting forth on invoices pertaining to fur products any false or deceptive information with respect to the name or designation of the animal or animals that produced the fur contained in such fur product.

3. Setting forth information required under section 5(b)(1) of the Fur Products Labeling Act and the rules and regulations promulgated thereunder in abbreviated form.

4. Failing to set forth the term "Dyed Broadtail-processed Lamb" in the manner required where an election is made to use that term instead of the words "Dyed Lamb".

5. Failing to set forth the term "Natural" as part of the information required to be disclosed on invoices under the Fur Products Labeling Act and rules and regulations promulgated thereunder to describe fur products which are not pointed, bleached, dyed, tip-dyed or otherwise artificially colored.

C. Falsely or deceptively advertising fur products through the use of any advertisement, representation, public announcement or notice which is intended to aid, promote or assist, directly or indirectly, in the sale, or offering for sale of any fur product, and which:

1. Fails to set forth in words and figures plainly legible all the information required to be disclosed by each of the subsections of section 5(a) of the Fur Products Labeling Act.

2. Falsely or deceptively identifies any such fur product as to the name or designation of the animal or animals that produced the fur contained in the fur product.

3. Fails to set forth the term "Dyed Broadtail-processed Lamb" in the manner required where an election is made to use that term instead of the words "Dyed Lamb".

4. Fails to set forth the term "Natural" as part of the information required to be disclosed in advertisements under the Fur Products Labeling Act and the rules and regulations promulgated thereunder to describe fur products which are not pointed, bleached, dyed, tip-dyed or otherwise artificially colored.

5. Fails to set forth all parts of the information required under section 5(a) of the Fur Products Labeling Act and the rules and regulations promulgated thereunder in type of equal size and conspicuousness and in close proximity with each other.

6. Represents directly or by implication, that any price, when accompanied or not by descriptive terminology is the respondents former price of fur products when such amount is in excess of the actual, bona fide price at which respondents offered the fur products to the public on a regular basis for a reasonably substantial period of time in the recent regular course of business.

7. Misrepresents in any manner the savings available to purchase of respondents' fur products.

8. Falsely or deceptively represents in any manner that prices of respondents' fur products are reduced.

D. Making claims and representations of the types covered by subsections (a), (b), (c), and (d) of Rule 44 of the rules and regulations promulgated under the Fur Products Labeling Act unless there are maintained by respondents full and adequate records disclosing the facts upon which such claims and representations are based.

It is further ordered, That respondent Huneck's, Inc., a corporation, and its officers and respondent Frank A. Huneck, individually and as an officer of said corporation, and respondents' representatives, agents and employees, directly or through any corporate or other device, do forthwith cease and desist from removing or causing or participating in the removal of, prior to the time any fur product subject to the provisions of the Fur Products Labeling Act is sold and delivered to the ultimate consumer, any label required by the said Act to be affixed to such fur product.

It is further ordered, That respondent Huneck's, Inc., a corporation, and its officers and respondent Frank A. Huneck, individually and as an officer of said corporation, and respondents' representatives, agents and employees, directly or through any corporate or other device, in connection with the introduction, sale, advertising or offering for sale, in commerce, or the processing for commerce, of fur products; or in connection with the selling, advertising, offering for sale, or processing of fur products which have been shipped and received in commerce, do forthwith cease and desist from misbranding fur products by substituting for the labels affixed to such fur products pursuant to Section 4 of the Fur Products Labeling Act labels which do not conform to the requirements of the aforesaid Act and the Rules and Regulations promulgated thereunder.

It is further ordered, That the respondents herein shall, within sixty (60) days after service upon them of this order, file with the Commission a report in writing setting forth in detail the manner and form in which they have complied with this order.

Issued: June 17, 1964.

By the Commission.

[SEAL] JOSEPH W. SHEA, *Secretary.*

[F.R. Doc. 64-6643; Filed, July 2, 1964; 8:48 a.m.]

[Docket No. C-764]

PART 13—PROHIBITED TRADE PRACTICES

Leo Lisker and Antwerp Distributors of Belgium

Subpart—Advertising falsely or misleadingly: § 13.15 *Business status, advantages, or connections:* 13.15-30 Connections or arrangements with others; 13.15-55 Direct dealing advantages; 13.15-75 Foreign branches, operations, etc.; 13.15-165 International nature. Subpart—Using misleading name—Vendor: § 13.2375 *Foreign status;* § 13.2418 *International nature.*

(Sec. 6, 38 Stat. 721; 15 U.S.C. 46. Interpret or apply sec. 5, 38 Stat. 719, as amended; 15 U.S.C. 45) [Cease and desist order, Leo Lisker Trading as Antwerp Distributors et al., New York, N.Y., Docket C-764, June 18, 1964]

In the Matter of Leo Lisker, an Individual, Trading as Antwerp Distributors and as Antwerp Distributors of Belgium

Consent order requiring an individual in New York City engaged in the sale and distribution to retailers of set and unset diamonds which he imported or obtained from other New York City importers and wholesalers, to cease representing falsely in advertising and other promotional material and by use of his trade name that his company was organized and did business under the laws of Belgium, that he operated its New York branch and maintained an office in Antwerp from which he sold diamonds direct to retailers without incurring shipping costs or middleman's profit.

The order to cease and desist, including further order requiring report of compliance therewith, is as follows:

It is ordered, That respondent Leo Lisker, an individual, trading as Antwerp Distributors, and as Antwerp Distributors of Belgium, and respondent's representatives, agents and employees, directly or through any corporate or other device, in connection with the offering for sale, sale or distribution of set or unset diamonds in commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from:

1. Using the words "of Belgium" or any other word or words of similar import or meaning as part of respondent's trade or business name.

2. Representing, directly or by implication, that respondent is a Belgium or European business, firm or company; or misrepresenting, in any manner, the nationality or location of respondent's business.

3. Representing, directly or by implication, that respondent has an office in Antwerp, Belgium or at any other location or place outside of the United States of America; provided, however, that it shall be a defense in any enforcement proceeding instituted for violation hereof for respondent to establish affirmatively that respondent owns, operates or controls an office at such location or place wherein a substantial amount of respondent's business is conducted.

4. Representing, directly or by implication, that respondent sells or distributes

from the European diamond market direct to retailers located in the United States or that respondent eliminates any importer, wholesaler, or other middleman from such transactions.

5. Using the words "* * * eliminate shipping expenses, * * *" or any other word or words of similar import or meaning; in advertising or in any other manner; or representing, directly or by implication, that purchasers from respondent save the amount of the shipping expenses incurred in connection with the importation of such diamonds.

6. Using the words "* * * eliminate the middleman and his share of your profits * * *" or any other words or word of similar import or meaning, in advertising or in any other manner; or representing, directly or by implication, that purchasers from respondent save the amount of profits made or earned by any importer, wholesaler or other middleman.

7. Falsely representing, directly or by implication, that any savings are available to purchasers of such diamonds; or misrepresenting, in any manner, directly or by implication, any savings available to purchasers of such diamonds.

It is further ordered, That the respondent herein shall, within sixty (60) days after service upon him of this order, file with the Commission a report in writing setting forth in detail the manner and form in which he has complied with this order.

Issued: June 18, 1964.

By the Commission.

[SEAL] JOSEPH W. SHEA, *Secretary.*

[F.R. Doc. 64-6644; Filed, July 2, 1964; 8:49 a.m.]

[Docket No. C-762]

PART 13—PROHIBITED TRADE PRACTICES

Lucien Piccard Watch Corp., et al.

Subpart—Advertising falsely or misleadingly: § 13.15 *Business status, advantages, or connections:* 13.15–30 Connections or arrangements with others; 13.15–75 Foreign branches, operations, etc.; 13.15–180 Location; 13.15–278 Time in business; § 13.235 *Source or origin:* 13.235–60 Place: 13.235–60(c) Foreign, in general.

(Sec. 6, 38 Stat. 721; 15 U.S.C. 46. Interpret or apply sec. 5, 38 Stat. 719, as amended; 15 U.S.C. 45) [Cease and desist order, Lucien Piccard Watch Corp., et al., New York, N.Y., Docket C-762, June 17, 1964]

In the Matter of Lucien Piccard Watch Corp., a Corporation, and Abraham Blumstein and Stanley Blumstein, Individually and as Officers of said Corporation

Consent order requiring a New York City distributor to retailers of watches which they assembled from Swiss' movements and domestic cases, to cease representing falsely in brochures disseminated to retailers and in advertisements in magazines and newspapers that certain of its watches were "shockproof"; representing falsely on letterheads, watch boxes and inserts therein and advertisements and in brochures, advertising mats and promotional material furnished retailers, that it was a Swiss company, founded in Switzerland, owned a factory in Switzerland and had been in business there since 1837, and that its watches were designed and created in Switzerland.

The order to cease and desist, including further order requiring report of compliance therewith, is as follows:

It is ordered, That respondents Lucien Piccard Watch Corp., a corporation, and its officers, and Abraham Blumstein and Stanley Blumstein, individually and as officers of said corporation, and respondents' agents, representatives and employees, directly or through any corporate or other device, in connection with the offering for sale, sale and distribution of watches, or any other products, in commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from:

1. Representing, directly or by implication, that:

(a) Their watches are "shockproof".

(b) The Lucien Piccard Watch Corp. or its predecessor in interest was founded or established in Switzerland.

(c) The Lucien Piccard Watch Corp. is a Swiss company or is a branch of or is otherwise affiliated with a Swiss company.

(d) The Lucien Piccard Watch Corp. owns or controls a factory in Switzerland.

(e) The Lucien Piccard Watch Corp. or its predecessor in interest has been in business since 1837.

(f) Respondents' watches or parts thereof are designed, created or manufactured in Switzerland, or any other foreign country: *Provided, however,* That it shall be a defense in any enforcement proceeding instituted for violation hereof for respondents to affirmatively establish that such watches or parts were in fact designed, created or manufactured in Switzerland or such other foreign country as may have been represented by respondents.

2. Misrepresenting, in any manner, the shock resistant characteristics of respondents' watches; the date or place of organization or foundation of respondents' business; the length of time respondents have been in business; the factories or other business facilities owned, operated or controlled by respondents; the nationality or affiliations of respondents' business; or the place of design, creation or manufacture of respondents' watches.

3. Furnishing or otherwise placing in the hands of retailers or others the means or instrumentalities by or through which they may mislead or deceive the public in the manner or as to the things hereinabove prohibited.

It is further ordered, That the respondents herein shall, within sixty (60) days after service upon them of this order, file with the Commission a report in writing setting forth in detail the manner and form in which they have complied with this order.

Issued: June 17, 1964.

By the Commission.

[SEAL] JOSEPH W. SHEA, *Secretary.*

[F.R. Doc. 64-6645; Filed, July 2, 1964; 8:49 a.m.]

[Docket No. 8590]

PART 13—PROHIBITED TRADE PRACTICES

Platon Fabrics Corp. et al.

Subpart—Invoicing products falsely: § 13.1108 *Invoicing products falsely:* 13.1108—40 Federal Trade Commission Act. Subpart—Misbranding or mislabeling: § 13.1185 *Composition:* 13.1185–90 Wool Products Labeling Act. Subpart—Neglecting, unfairly or deceptively, to make material disclosure: § 13.1845 *Composition:* 13.1845–80 Wool Products Labeling Act; § 13.1852 *Formal regulatory and statutory requirements:* 13.1852–80 Wool Products Labeling Act.

(Sec. 6, 38 Stat. 721; 15 U.S.C. 46. Interpret or apply sec. 5, 38 Stat. 719, as amended, secs. 2–5, 54 Stat. 1128–1130; 15 U.S.C. 45, 68) [Cease and desist order, Platon Fabrics Corp. et al., New York, N.Y., Docket 8590, June 17, 1964]

In the Matter of Platon Fabrics Corp., a Corporation and Benjamin Platovsky, Nathan Platovsky, and Leo Platovsky, Individually and as Officers of Said Corporation

Order requiring a New York importer of Italian Fabrics for sale to manufacturers to cease labeling and invoicing wool fabrics falsely as to their fiber content, and failing to show on wool products labels the true generic name of the fibers present and the percentage thereof.

The order to cease and desist is as follows:

It is ordered, That respondents Platon Fabrics Corp., a corporation, and its officers, Benjamin Platovsky, Nathan Platovsky, and Leo Platovsky, individually and as officers of said corporation, and respondents' representatives, agents and employees, directly or through any corporate or other device, in connection with the introduction into commerce, or the offering for sale, sale, transportation, delivery for shipment, or distribution, in commerce, of fabrics or other wool products, as "commerce" and "wool product", are defined in the Wool Products Labeling Act of 1939 do forthwith cease and desist from misbranding wool products by:

1. Falsely or deceptively stamping, tagging, labeling or otherwise identifying such products as to the character or amount of constituent fibers included therein.

2. Failing to securely affix to or place on each such product, a stamp, tag, label or other means of identification showing in a clear and conspicuous manner, each element of information required to be disclosed by section 4(a)(2) of the Wool Products Labeling Act of 1939.

It is further ordered, That respondents Platon Fabrics Corp., a corporation, and

its officers, and Benjamin Platovsky, Nathan Platovsky, and Leo Platovsky, individually and as officers of said corporation, and respondents' representatives, agents and employees, directly or through any corporate or other device, in connection with the offering for sale, sale or distribution of fabrics or other products, in commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from misrepresenting the character or amount of constituent fibers contained in such products on invoices applicable thereto, or in any other manner.

By "Decision of the Commission", etc., order requiring report of compliance is as follows:

It is ordered, That Platon Fabrics Corp., a corporation and Benjamin Platovsky, Nathan Platovsky, and Leo Platovsky individually and as officers of said corporation, shall, within sixty (60) days after service upon them of this order, file with the Commission a report in writing, setting forth in detail the manner and form in which they have complied with the order to cease and desist.

Issued: June 17, 1964.

By the Commission.

[SEAL] JOSEPH W. SHEA, *Secretary.*

[F.R. Doc. 64-6646; Filed, July 2, 1964; 8:49 a.m.]

[Docket No. 8070 o.]

PART 13—PROHIBITED TRADE PRACTICES

Universal-Rundle Corp.

Subpart—Discriminating in price under section 2, Clayton Act—Price discrimination under 2(a): § 13.715 *Charges and price differentials.*

(Sec. 6, 38 Stat. 721; 15 U.S.C. 46. Interpret or apply sec. 2, 49 Stat. 1526; 15 U.S.C. 13) [Cease and desist order, Universal-Rundle Corporation, New Castle, Pa., Docket 8070, June 12, 1964]

Order requiring a manufacturer of plumbing fixtures with main office in New Castle, Pa., and sales offices in 24 States and Canada and with net sales in 1957 approximating $24,000,000, to cease discriminating in price in violation of section 2(a) of the Clayton Act by selling its plumbing fixtures at higher prices to some purchasers than it sold goods of like grade and quality to their competitors.

The order to cease and desist is as follows:

It is ordered, That respondent Universal-Rundle Corporation, a corporation, and its officers, directors, agents, representatives and employees, either directly, or through any corporate or other device, in connection with the sale of plumbing fixtures in commerce, as "commerce" is defined by the Clayton Act, do forthwith cease and desist from:

Discriminating in price by selling "Universal-Rundle" brand or Uni-Rundle manufactured plumbing fixtures (exclusive of the "Homart" brand sold to Sears, Roebuck & Co.) of like grade and quality to any purchaser at prices higher than those granted any other purchaser, where such other purchaser competes in fact with the unfavored purchaser in the resale or distribution of such products.

And it is further ordered, That that part of Paragraph Six of the complaint which by alleging competition between respondent and respondent's competitors, may be deemed to allege primary injury as a result of alleged discrimination in price is herein and hereby dismissed:

And it is further ordered, That the charges set forth in the complaint relative to the sale by respondent of its "Homart" brand of products to Sears and Roebuck Company are herein and hereby dismissed.

By "Final Order", report of compliance is required as follows:

It is further ordered, That respondent shall, within sixty (60) days after service upon it of this order, file with the Commission a report, in writing, setting forth in detail the manner and form in which it has complied with the order to cease and desist.

Issued: June 12, 1964.

By the Commission.

[SEAL] JOSEPH W. SHEA, *Secretary.*

[F.R. Doc. 64-6647; Filed, July 2, 1964; 8:49 a.m.]

Title 19—CUSTOMS DUTIES

Chapter I—Bureau of Customs, Department of the Treasury

[T.D. 56201]

PART 31—CUSTOMHOUSE BROKERS

Miscellaneous Amendments

The scope of responsibility of comptrollers of customs has been extended to include the examination and appraisal of the books, financial records and related files of customhouse brokers. This responsibility was previously divided between (1) customs agents in charge who reviewed the books and papers, and (2) comptrollers of customs who verified refunds of excessive duties and taxes owed by brokers to their clients. The customs agents in charge shall continue to have the responsibility for investigating any complaint or charge against customhouse brokers lodged with a collector of customs or other customs officer, or in any case where agency investigation is required.

The Customs Regulations are amended as follows:

§ 31.9 [Amended]

Paragraph (c) of § 31.9 is amended by substituting "customs field auditors" for "duly accredited agents of the United States" in the first sentence and by substituting "comptroller of customs" for "supervising customs agent" in the second sentence.

Paragraph (d) of § 31.9 is amended by substituting "upon an audit by a customs field auditor" for "upon investigation by a duly accredited agent of the United States".

Paragraph (e) of § 31.9 is amended by inserting "customs field auditors or customs agents" in lieu of "duly accredited agents of the United States" in the second sentence and by inserting "customs field auditors or customs agents" in lieu of "agents" in the last sentence.

Paragraphs (f) and (g) of § 31.9 are amended to read as follows:

(f) The comptroller of customs or a customs field auditor designated by him shall make such inspection of the books and papers required by this part to be kept and maintained by a customhouse broker as may be necessary to enable the comptroller of customs, the collector of customs, and other proper officials of the Treasury Department to determine whether or not the broker is complying with the requirements of this section. Furthermore, the comptroller of customs or any customs field auditor designated by him, or the customs agent in charge, may at any time, for the purpose of protecting importers or the revenue of the United States, inspect such books and papers to obtain information regarding specific customs transactions.

(g) The comptroller of customs, customs field auditor, or customs agent making any inspection contemplated by paragraph (f) of this section shall report his findings to the Commissioner and the collector.

Paragraph (h) of § 31.9 is amended by substituting "the comptroller of customs, the customs agent in charge, or their representatives" for "duly accredited agents of the United States".

§ 31.11 [Amended]

Paragraph (b)(2) of § 31.11 is amended by substituting "customs agent in charge of the area" for "supervising customs agent in charge of the district" in the first sentence and by substituting "customs agent in charge" for "supervising customs agent" in the second sentence.

(R.S. 161, as amended 251, secs. 624, 641, 46 Stat. 759, as amended; 5 U.S.C. 22, 19 U.S.C. 66, 1624, 1641)

The foregoing amendments shall become effective on July 1, 1964.

[SEAL] PHILIP NICHOLS, Jr., *Commissioner of Customs.*

Approved: June 25, 1964.

JAMES A. REED, *Assistant Secretary of the Treasury.*

[F.R. Doc. 64-6651; Filed, July 2, 1964; 8:49 a.m.]

Title 14—AERONAUTICS AND SPACE

Chapter I—Federal Aviation Agency

[Reg. Doc. No. 3008; Amdts. 4b–15, 40–48, 41–13, 42–12, 91–4, 514–73]

PART 4b—AIRPLANE AIRWORTHINESS; TRANSPORT CATEGORIES

PART 40—SCHEDULED INTERSTATE AIR CARRIER CERTIFICATION AND OPERATION RULES

PART 41—CERTIFICATION AND OPERATION RULES FOR CERTIFICATED ROUTE AIR CARRIERS ENGAGING IN OVERSEAS AND FOREIGN AIR TRANSPORTATION AND AIR TRANSPORTATION WITHIN HAWAII AND ALASKA

PART 42—AIRCRAFT CERTIFICATION AND OPERATION RULES FOR SUPPLEMENTAL AIR CARRIERS, COMMERCIAL OPERATORS USING LARGE AIRCRAFT, AND CERTIFICATED ROUTE AIR CARRIERS ENGAGING IN CHARTER FLIGHTS OR OTHER SPECIAL SERVICES

PART 91—GENERAL OPERATING AND FLIGHT RULES [NEW]

PART 514—TECHNICAL STANDARD ORDERS FOR AIRCRAFT MATERIALS, PARTS, PROCESSES, AND APPLIANCES

Installation of Cockpit Voice Recorders in Large Airplanes Used by an Air Carrier or a Commercial Operator

The purpose of these amendments is to require the installation of approved cockpit voice recorders in certain large airplanes used by air carriers or commercial operators. The requirements include rules for the operation of the recorders, standards of performance for their approval, and standards governing the method of installation on an airplane.

On December 18, 1963, the Federal Aviation Agency published a notice of proposed rule making circulated as Notice 63–46 (28 F.R. 13786), containing proposals to amend Parts 4b, 40, 41, and 42 of the Civil Air Regulations, Part 91 [New] of the Federal Aviation Regulations, and Part 514 of the Regulations of the Administrator, to accomplish this purpose. As stated in the notice, the Agency believes that cockpit voice recorders would be a valuable tool in the investigation of accidents by providing firsthand information of the flight crews' observation and analysis of conditions aboard the airplane and the procedures employed by them to cope with an emergency. This information would also facilitate the development and establishment of appropriate corrective procedures and standards by the Agency and industry.

A large number of comments were received in response to Notice 63–46. These comments have been carefully studied by the Agency and, where appropriate, changes have been made in this final rule. The following is a discussion of the major issues raised in response to the notice and the action, if any, taken by the Agency in the final rule.

1. *Crash and maintenance recorders.* The Air Transport Association urged government and industry to devote their current efforts and funds to crash and maintenance recorders and to exclude a separate voice recorder effort. This comment was based on the belief that the potential benefits of improved crash or maintenance recorders are far greater than those of the cockpit voice recorders proposed in the notice. The ATA pointed out that voice recordings could be misleading in the investigation of accidents, because the spoken words might describe one situation (e.g., approach lights are not visible) and immediately thereafter the situation might change (approach lights are seen) but with no words being spoken.

The Agency agrees that improved flight (crash) or maintenance recorders would be of great assistance in accident investigation; however, it does not believe that the development and eventual installation of such recorders will obviate the present or future need for cockpit voice recorders. Although the flight or maintenance recorder supplies information about the airplane itself, the cockpit voice recorder is needed to supply firsthand information concerning the flight crew's observation or analysis of the situation and the procedures employed by them. Fragmentary information from voice recorders may, in some instances, be misleading. Nevertheless the Agency believes that the information provided by the voice recorder will in most instances be helpful.

2. *Exemption of certain classes of airplanes.* The ATA also recommended that reciprocating twin-engine airplanes (e.g., DC–3, Convair 240, 340, 440, Martin 202, 404) be excluded from the cockpit voice recorder requirements because these airplanes have a proven safety record as shown by extensive service experience, and their remaining useful life is relatively short. The Agency finds merit in this recommendation, especially since flight recorders are not required on such aircraft and the effectiveness of the voice recorder on such aircraft may be reduced because of the high cockpit sound level. Further, the Agency considers that this reasoning applies also to nonpressurized reciprocating four-engine airplanes. The installation of cockpit voice recorders is therefore being required only for airplanes in the following classes:

(1) All large turbine powered airplanes;

(2) All large pressurized reciprocating four-engine airplanes.

3. *Restricted use of record.* Several comments recommended that the rules prohibit the use of cockpit voice recordings for any purpose other than accident investigation. One comment recommended a rule that recordings shall not be used in any civil penalty or certificate action, and shall not be disclosed publicly when such disclosure would adversely affect the interests of persons involved and is not in the interest of the public. Another comment recommended that only specified unbiased agencies (e.g., the Bureau of Standards, FBI, or Flight Safety Foundation) be authorized to perform readout of tapes.

The Agency agrees that its only purpose in requiring the recorded information is to assist in determining the cause of accidents or occurrences, and that the information should be used only in connection with the investigation of accidents or occurrences pursuant to Part 320 of the Board's Accident Investigation Regulations, (14 CFR Part 320) and not in any civil penalty or certificate action. A provision to this effect has been adopted. The Agency cannot, of course, bind the Courts or the Civil Aeronautics Board with respect to accident information and could not, even if it found it desirable, specify by rule those persons who would be authorized to read out voice recorder tapes.

4. *Bulk erasure.* Recommendations were made that a "bulk erasure" device be required in the recorder. The Agency believes that the provision of a bulk erasure feature should be a matter of individual determination by the air carriers involved and the rules being adopted neither require nor prohibit a bulk erasure feature. If bulk erasure devices are used the rules as adopted herein include a requirement that the installation minimize the probability of inadvertent operation or the actuation of the device during crash impact.

5. *Location of recorder.* The Civil Aeronautics Board recommended that the recorder unit which contains the record be located well back in the pressurized area of the fuselage (to minimize damage in a crash), since the proposed standards for the cockpit voice recorder specify an impact test of only 100g acceleration. Another comment made a similar recommendation.

The Board has supplied information concerning the damage which has occurred to flight recorders during accidents involving severe damage. This information indicates that in 13 out of 15 such accidents, the flight recorder was broken open and in 8 accidents fire also occurred. In all 15 of these accidents, flight recorders were mounted in the radio rack, wheel well, or center section. Thus service experience shows that flight recorders located in the radio rack, wheel well, or center section frequently break open during crashes, and expose the record medium to subsequent fire in about half of these crashes.

The Agency agrees with the recommendation of the Civil Aeronautics Board. Cockpit voice recorders designed to the current 100g impact standard can

reasonably be expected to break open as frequently as the presently used flight recorders. The magnetic tape used in cockpit voice recorders should be kept below 250° F., in order to preserve the record, and is, therefore, much more vulnerable to heat damage than is the metal tape used in flight recorders. Therefore, voice recorder records would probably be lost in a number of accidents if the record containers have the same crash resistance and the same location in the airplane as the currently installed flight recorders.

There is no statistical evidence to make a direct comparison of the damage suffered by flight recorders in forward and aft locations. However, accident investigators have found that the aft portion of an airplane generally suffers less damage than the forward portion during crash impact.

In accordance with the recommendation of the Board § 4b.656(e) as adopted herein requires that the recorder container be located as far aft as practicable so as to minimize the probability of rupture of the container as a result of crash impact and consequent heat damage to the record because of fire. However, it need not be located outside of the pressurized compartment and must not be located where aft mounted engines are likely to crush the container during impact.

6. *Crash resistance criteria.* A recommendation was received that the proposed standard for impact shock and fire protection tests (section 3.13 of "Minimum Performance Standards for Cockpit Voice Records" dated November 1, 1963) be revised in adopting the final rules by increasing the impact acceleration from 100g for 11 milliseconds to 1000g for 0.5 milliseconds, by adding a crushing force test of 4000 pounds for 5 minutes, and by replacing the 1100 degree C. flame test with a two-step oven test at 1100 degrees C. and 200 degrees C. respectively. It was also recommended that the immersion test specified in section 3.12 be revised to include skydrol as well as sea water. The manufacturer making these recommendations further recommended that the deadline dates for completing recorder installations be delayed six months to enable the development of a recorder meeting the higher crash resistance standards.

The impact acceleration specified in the notice is the same as that currently specified in the standards for flight recorders, except that the 11 millisecond duration has been added. This impact test was specified in the Agency's development program for cockpit voice recorders, and recorders meeting this test are now ready for production.

The Agency plans to include an investigation of crash resistance in a program to develop improved aircraft data recorders. However, before new crash resistance standards could be considered for cockpit voice recorders, it would first be necessary to conduct an experimental test program to verify that the new standards are adequate and can reasonably be met. Although this recommendation may have merit, this procedure may delay the installation program more than one year. On the other hand, the installation of presently available recorders in an aft location which provides increased crash resistance could be accomplished in a shorter time. Accordingly, the rules being adopted at this time incorporate the impact, fire, and immersion test standards that were proposed in the notice.

7. *Compliance dates.* Notice 63–46 proposed the following deadline dates for completing cockpit voice recorder installations:

(1) July 1, 1965, for all turbine powered airplanes;

(2) January 1, 1966, for all pressurized reciprocating four-engine airplanes; and

(3) July 1, 1966, for all other airplanes.

In commenting on the notice, manufacturers recommended that these dates be postponed six months to allow time for determining suitable locations for microphones and for designing and testing the complete installation. Airlines recommended that the proposed dates be postponed 18 months (setting the deadline for turbine powered airplanes at January 1, 1967), in order to avoid the severe economic and operational effects which would result from taking airplanes out of service to make the installations. One airline having 105 turbine powered airplanes estimated that it would be necessary to remove 31 of these airplanes from service to meet the proposed July 1, 1965, deadline, assuming that the rules were adopted 15 months before the deadline. It was stated that the loss of revenue from removing these airplanes from service (at other than the scheduled maintenance periods) would be about twice the cost of installing the recorders.

Using the airline's estimate that approximately 70 percent of the installations could be completed in 15 months, it appears that the entire turbine powered fleet could be completed in 22 months. Allowing two months additional engineering time for designing the aft installations, the total time from adoption of rules to completion of installations would be approximately two years. Accordingly, the following dates are prescribed in the amendments to Parts 40, 41, and 42 for completing cockpit voice recorder installations in certain large airplanes used by an air carrier or a commercial operator:

(1) July 1, 1966, for all turbine powered airplanes; and

(2) January 1, 1967, for all pressurized reciprocating four-engine airplanes.

8. *Source of electric power.* Several comments referred to the installation requirements proposed for Part 4b. One comment pointed out that the proposed requirement specifying that the cockpit voice recorder be connected to the bus of maximum reliability might jeopardize the operation of other equipment essential to the safe operation of the airplane. The Agency agrees and the adopted rule therefore specifies that the cockpit voice recorder shall receive its electric power from the bus which provides the maximum reliability for operation without jeopardizing service to essential or emergency loads.

9. *Channel priority.* Other comments pointed out the difficulties that might arise on some airplanes if more than one cockpit-mounted area microphone is connected to a single channel, or if loudspeaker systems are connected to the flight recorder. The Agency believes these comments are valid. Accordingly, the channel assignments in § 4b.656(b) have been revised to eliminate these difficulties. In particular, the cockpit-mounted area microphone most suitably located for recording voice communications originating at the first and second pilot's stations has been assigned a separate channel.

10. *Intelligibility.* A recommendation was made that a definite minimum requirement of at least 95 percent intelligibility be prescribed for recordings made under any normal flight operating condition. Studies made by the Agency have shown that this goal is not attainable in the present state of the art and achieved depends upon the cockpit noise environment of the particular airplane type. For these reasons, the rule being adopted requires that the cockpit-mounted area microphones shall be located so that the intelligibility of the recorded communications will be as high as practicable.

11. *Ejection mechanism and locator aids.* One comment recommended that the recorder: (a) Be ejectable from the airplane upon impact (to remove it from any crash fire); (b) be designed to float on water; (c) be fitted with an impact-triggered homing radio transmitter; (d) have additional channels; and (e) be painted a distinctive color as a locator aid. The Agency believes that the impact and fire test standards set forth in TSO–C84, coupled with the requirement for aft location of the recorder, will serve to preserve the voice record in the event of a ground crash fire without additional ejection features. The suggested ejecting, floating, and signal-transmitting features would apparently be helpful in preserving the voice record in the case of crashes at sea. The Agency is studying the need to require these features (which were not proposed in Notice 63–46) for both voice and flight recorders; if justifiable, further rule making along these lines will be undertaken. As to the matter of additional channels to record additional parameters, the Agency believes such a requirement would be premature in view of the program now under way for the development of improved aircraft data recorders.

The Agency agrees that the recorder container should have a bright distinc-

tive color to assist in locating it after an accident. Such a minor additional requirement should not delay the installation program and it has been included in the installation requirements. Accordingly, the amendments to Part 4b require the recorder container to be painted bright orange.

12. *Time correlation with flight recorder.* One comment noted that it would be desirable to provide time correlation between the cockpit voice recording and the flight recorder record. Such a requirement is unnecessary because a crash impact, if it occurs, should provide an adequate means of correlation between the records.

13. *Sensitivity.* A recorder manufacturer recommended that consideration be given to the need for minimum sensitivity standards for the voice recorder amplifiers. Although no sensitivity requirement is contained in TSO–C84, the Agency believes that adequate sensitivity is prescribed, in effect, by the Part 4b installation requirement (adopted with this rule making action) dealing with the play-back intelligibility of the voice record. Accordingly, sensitivity standards are not being adopted at this time. For similar reasons, the Agency is not adopting a separate recommendation that distortion limits be specified at the extremes of the frequency range.

14. *Operation with inoperative voice recorder.* The ATA also commented on the proposed amendments to §§ 91.36(c)(1) and 91.36(c)(2) concerning continuation of flight with the cockpit voice recorder inoperative. The comments apparently assumed that these provisions of Part 91 [New] would apply to all air carrier and commercial operations. This assumption is not correct. Part 91 [New] applies, in this respect, only to general operations with air carrier airplanes, such as training and ferry flights. Air carrier and commercial operations, on the other hand, are governed under Parts 40, 41, and 42, wherein the matter of proceeding with inoperative equipment is treated in the "go-no-go" section of the air carrier's or commercial operator's manual. It is anticipated that the "go-no-go" sections of the air carrier's and commercial operator's manuals, dealing with cockpit voice recorders, will be similar to those dealing with flight recorders. Since the provisions being adopted for cockpit voice recorders in Part 91 [New] are identical with corresponding requirements therein for flight recorders, they have been incorporated in § 91.35.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, effective Sept. 2, 1964, unless otherwise specified in this amendment, Parts 4b, 40, 41, and 42 of the Civil Air Regulations, Part 91 [New] of the Federal Aviation Regulations, and Part 514 of the Regulations of the Administrator are amended as follows:

1. By amending Part 4b by adding a new § 4b.656 to read as follows:

§ 4b.656 Installation of cockpit voice recorders.

(a) If a cockpit voice recorder is required by the operating rules of this chapter, it shall be of an approved type and shall be installed so that it will record all—

(1) Voice communications transmitted from or received in the airplane by radio;

(2) Voice communications of flight crewmembers on the flight deck;

(3) Voice communications of flight crewmembers on the flight deck using the airplane's interphone system;

(4) Voice communications of flight crewmembers using the airplane's loud speaker system (if such system is provided in the airplane); and

(5) Voice or audio signals identifying navigation or approach aids introduced into a headset or speaker in the airplane.

(b) The cockpit voice recorder shall be installed so that the portion of the communication or audio signals specified in paragraph (a) of this section obtained from each of the following sources is recorded on a separate channel:

(1) *First channel.* Microphones, headsets, or speakers used at the first pilot station;

(2) *Second channel.* Microphones, headsets, or speakers used at the second pilot station;

(3) *Third channel.* The cockpit-mounted area microphone most suitably located for recording voice communications originating at the first and second pilot stations; and

(4) *Fourth channel.* Any other sources including:

(i) A second cockpit-mounted area microphone, if one is required for any required flight crewmember station other than the first or second pilot station;

(ii) Microphones, headsets, or speakers used at the station for a third flight crewmember when he is required, and the signals at that station are not picked up by another channel; and

(iii) Microphones located on the flight deck and used with the airplane's loud speaker system if its signals are not picked up by other channels.

(c) In addition to the requirements of paragraphs (a) and (b) of this section, the cockpit voice recorder must be installed so that—

(1) It receives its electric power from the bus that provides the maximum reliability for operation of the cockpit voice recorder without jeopardizing service to essential or emergency loads;

(2) There is an automatic means to ensure that any erasure feature ceases to function at the instant of crash impact; and

(3) There is an aural or visual means for preflight checking of the recorder for proper operation.

(d) The recording requirements of paragraph (a)(2) of this section shall be met by installing one or more cockpit-mounted area microphones arranged to pick up continuously all voice communications by flight crewmembers when at their assigned stations on the flight deck. The microphones shall be located, and the preamplifiers and filters of the recorder shall be adjusted or supplemented if necessary, so that the intelligibility of the recorded communications will be as high as practicable, when recorded under flight cockpit noise conditions and played back. Repeated aural or visual playback of the record may be employed in evaluating the intelligibility.

(e) The record container shall be located and mounted in the airplane to minimize the probability of rupture of the container as a result of crash impact and consequent heat damage to the record because of fire. In complying with this requirement, the record container shall be located as far aft as practicable, except that it need not be located outside the pressurized compartment and shall not be located where aft mounted engines are likely to crush the container during impact.

(f) If the cockpit voice recorder is provided with a bulk erasure device, the installation shall be designed to minimize the probability of inadvertent operation and the actuation of the device during crash impact.

(g) The color of the recorder container shall be a bright orange.

2. By amending Part 40 by adding a new § 40.212 to read as follows:

§ 40.212 Cockpit voice recorders.

(a) On or before the following dates an approved cockpit voice recorder shall be installed in each of the following airplanes having a maximum certificated takeoff weight of more than 12,500 pounds:

(1) July 1, 1966, for all turbine powered airplanes; and

(2) January 1, 1967, for all pressurized reciprocating four-engine airplanes.

(b) Each air carrier shall establish a schedule for the progressive completion of the cockpit voice recorder installation in each airplane specified in paragraph (a) of this section before the dates prescribed in that paragraph. The schedule shall include a list of any airplane specified in paragraph (a) of this section that the air carrier intends to discontinue using before the dates prescribed in that paragraph. The air carrier shall submit the schedule to the Administrator before October 1, 1964.

(c) The cockpit voice recorder shall be installed in accordance with the requirements of Part 4b of this chapter.

(d) The cockpit voice recorder shall be operated continuously from the start of the use of the checklist, prior to starting engines for the purpose of flight, to the completion of the final checklist at the termination of the flight. In complying with this requirement, an approved cockpit voice recorder having an erasure feature may be utilized, so that at any instant during the operation of the recorder, information recorded more than 30 minutes earlier may be erased or otherwise obliterated.

(e) In the event of an accident or occurrence requiring immediate notification to the Board, under Part 320 of its regulations, the recorded information shall be retained by the air carrier for a period of at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with investigations pursuant to Part 320 of the Board's regulations. The Administrator does not use the record in any civil penalty or certificate action.

3. By amending Part 41 by adding a new § 41.212 to read as follows:

§ 41.212 Cockpit voice recorders.

(a) On or before the following dates an approved cockpit voice recorder shall be installed in each of the following airplanes having a maximum certificated takeoff weight of more than 12,500 pounds:

(1) July 1, 1966, for all turbine powered airplanes; and

(2) January 1, 1967, for all pressurized reciprocating four-engine airplanes.

(b) Each air carrier shall establish a schedule for the progressive completion of the cockpit voice recorder installation in each airplane specified in paragraph (a) of this section before the dates prescribed in that paragraph. The schedule shall include a list of any airplane specified in paragraph (a) of this section that the air carrier intends to discontinue using before the dates prescribed in that paragraph. The air carrier shall submit the schedule to the Administrator before October 1, 1964.

(c) The cockpit voice recorder shall be installed in accordance with the requirements of Part 4b of this chapter.

(d) The cockpit voice recorder shall be operated continuously from the start of the use of the checklist, prior to starting engines for the purpose of flight, to the completion of the final checklist at the termination of the flight. In complying with this requirement, an approved cockpit voice recorder having an erasure feature may be utilized, so that at any instant during the operation of the recorder, information recorded more than 30 minutes earlier may be erased or otherwise obliterated.

(e) In the event of an accident or occurrence requiring immediate notification to the Board under Part 320 of its regulations, the recorded information shall be retained by the air carrier for a period of at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with investigations pursuant to Part 320 of the Board's regulations. The Administrator does not use the record in any civil penalty or certificate action.

4. By amending Part 42 by adding a new § 42.212 to read as follows:

§ 42.212 Cockpit voice recorders.

(a) On or before the following dates an approved cockpit voice recorder shall be installed in each of the following airplanes having a maximum certificated takeoff weight of more than 12,500 pounds:

(1) July 1, 1966, for all turbine powered airplanes; and

(2) January 1, 1967, for all pressurized reciprocating four-engine airplanes.

(b) Each operator shall establish a schedule for the progressive completion of the cockpit voice recorder installation in each airplane specified in paragraph (a) of this section before the dates prescribed in that paragraph. The schedule shall include a list of any airplane specified in paragraph (a) of this section that the operator intends to discontinue using before the dates prescribed in that paragraph. The operator shall submit the schedule to the Administrator before October 1, 1964.

(c) The cockpit voice recorder shall be installed in accordance with the requirements of Part 4b of this chapter.

(d) The cockpit voice recorder shall be operated continuously from the start of the use of the checklist, prior to starting engines for the purpose of flight, to the completion of the final checklist at the termination of the flight. In complying with this requirement, an approved cockpit voice recorder having an erasure feature may be utilized, so that at any instant during the operation of the recorder, information recorded more than 30 minutes earlier may be erased or otherwise obliterated.

(e) In the event of an accident or occurrence requiring immediate notification to the Board under Part 320 of this title, the recorded information shall be retained by the operator for a period of at least 60 days or, if requested by the Administrator or the Board, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or ocurrences in connection with investigations pursuant to Part 320 of this title. The Administrator does not use the record in any civil penalty or certificate action.

5. By amending § 91.35 to read as follows:

§ 91.35 Flight recorders and cockpit voice recorders.

No holder of an air carrier or commercial operator certificate may conduct any operation under this part with an airplane listed in his operations specifications or current list of airplanes used in air transportation unless that airplane complies with any applicable flight recorder and cockpit voice recorder requirements of the part under which its certificate is issued; except that it may—

(a) Ferry an airplane with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(b) Continue a flight as originally planned, if the flight recorder or cockpit voice recorder becomes inoperative after the airplane has taken off;

(c) Conduct an airworthiness flight test, during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the airplane; or

(d) Ferry a newly acquired airplane from the place where possession of it was taken to a place where the flight recorder or cockpit voice recorder is to be installed.

6. By amending Part 514 by adding the following § 514.90:

§ 514.90 Cockpit voice recorder—TSO C–84.

(a) *Applicability.* (1) Minimum performance standards here hereby established for cockpit voice recorders for use on United States civil aircraft. New models of cockpit voice recorders manufactured for use on civil aircraft on or after September 2, 1964, shall meet the standards specified in Federal Aviation Agency Standard, "Minimum Performance Standards for Cockpit Voice Recorders," dated November 1, 1963,[1] and Federal Aviation Agency document entitled, "Environmental Test Procedures for Airborne Electronic Equipment," August 31, 1962,[1] except as provided in subparagraph (2) of this paragraph.

(2) Federal Aviation Agency document, "Environmental Test Procedures for Airborne Electronic Equipment," outlines various test procedures which define the environmental extremes over which the equipment shall be designed to operate. Some test procedures have categories established and some do not. Where categories are established, only equipment which qualifies under one or more of the following categories, as specified in the FAA document, is eligible for approval under this order:

(i) Temperature-Altitude Test—Categories A, B, C, or D;

[1] Copies may be obtained upon request addressed to the Federal Aviation Agency, Attention HQ–620, Washington, D.C., 20553.

(ii) Vibration Test—Categories A, B, C, D, E, or F;

(iii) Audio-Frequency Magnetic Field Susceptibility Test—Categories A or B;

(iv) Radio-Frequency Susceptibility Test—Category A; and

(v) Emission of Spurious Radio-Frequency Energy Test—Category A.

(b) *Marking.* (1) In addition to the markings specified in § 514.3(d), the equipment shall be marked to indicate the environmental extremes over which it has been designed to operate. There are six environmental test procedures outlined in the FAA document, "Environmental Test Procedures for Airborne Electronic Equipment," which have categories established. These shall be identified on the nameplate by the words "environmental categories" or, as abbreviated, "Env. Cat." followed by six letters which identify the categories under which the equipment is qualified. Reading from left to right, the category designations shall appear on the nameplate in the following order so that they may be readily identified:

(i) Temperature-Altitude Category;

(ii) Vibration Test Category;

(iii) Audio-Frequency Magnetic Field Susceptibility Test Category;

(iv) Radio Frequency Susceptibility Test Category;

(v) Emission of Spurious Radio-Frequency Energy Test Category; and

(vi) Explosion Test.

(2) Equipment which meets the explosion test requirement shall be identified by the letter "E". Equipment which does not meet the explosion test requirement shall be identified by the letter "X". A typical nameplate identification would be as follows: Env. Cat. DBAAAX.

(3) In some cases such as under the Temperature-Altitude Test Category, a manufacturer may wish to substantiate his equipment under two categories. In this case, the nameplate shall be marked with both categories in the space designated for that category by placing one letter above the other in the following manner: Env. Cat. $\frac{A}{D}$BAAAX.

(c) *Data requirements.* In accordance with the provisions of § 514.2, the manufacturer shall furnish to the Chief, Engineering and Manufacturing Branch, Flight Standards Division, Federal Aviation Agency, in the region in which the manufacturer is located the following technical data:

(1) Six copies of the manufacturer's operating instructions and equipment limitations;

(2) Six copies of the installation procedures with applicable schematic drawings, wiring diagrams, and specifications, indicating any limitations, restrictions, or other conditions pertinent to installation; and

(3) One copy of the manufacturer's test report.

(Secs. 313(a), 601, 603, 604 of the Federal Aviation Act of 1958; 49 U.S.C. 1354, 1421, 1423, 1424)

Issued in Washington, D.C., on June 26, 1964.

N. E. HALABY,
Administrator.

[F.R. Doc. 64-6613; Filed, July 2, 1964; 8:46 a.m.]

[Reg. Docket No. 4021; Amdts. 40-47, 41-12, 42-11]

PART 40—SCHEDULED INTERSTATE AIR CARRIER CERTIFICATION AND OPERATION RULES

PART 41—CERTIFICATION AND OPERATION RULES FOR CERTIFICATED ROUTE AIR CARRIERS ENGAGING IN OVERSEAS AND FOREIGN AIR TRANSPORTATION AND AIR TRANSPORTATION WITHIN HAWAII AND ALASKA

PART 42—AIRCRAFT CERTIFICATION AND OPERATION RULES FOR SUPPLEMENTAL AIR CARRIERS, COMMERCIAL OPERATORS USING LARGE AIRCRAFT, AND CERTIFICATED ROUTE AIR CARRIERS ENGAGING IN CHARTER FLIGHTS OR OTHER SPECIAL SERVICES

Miscellaneous Amendments

The Federal Aviation Agency published as a notice of proposed rule making (29 F.R. 2880) and circulated as Civil Air Regulations Notice 64-10 dated February 29, 1964, a proposal to amend Parts 40, 41, and 42 of the Civil Air Regulations to provide for the operation of the nontransport category C-46 airplane in cargo operations.

As indicated in the notice, the Agency believes that the C-46 airplane can continue to be operated with reasonable safety without full compliance with the certification and operating requirements applicable to transport category airplanes. However, there is a need for improvement in the safety requirements over and above the applicable requirements in old Part 42.

The purpose of this amendment is to set forth the minimum safety requirements necessary for the continued use of the C-46 nontransport category airplane in cargo operations.

Although the provisions of the proposal specifically referred to C-46 nontransport category cargo-only operations which are conducted under Part 42 of the Civil Air Regulations, it was proposed to make similar amendments to Parts 40 and 41 to provide for the use of such airplanes in cargo operations conducted under those parts. As adopted herein, the final amendment also permits the nontransport category C-46 to be used in parts 40 and 41 cargo operations under the same conditions as such airplanes are used for the carriage of cargo-only under Part 42. Since the type of engines required for the C-46 airplanes, the performance data related to such airplanes, and the minimum acceptable means of compliance with the special airworthiness requirements are identical for the operation of the C-46 under Parts 40, 41, and 42, these requirements are set forth in a new Appendix C to Part 42 and incorporated by reference in Parts 40 and 41.

Because the amendments to Parts 40, 41, and 42 are identical, the discussion of the comments relating to the proposal have been combined in a single preamble for all the parts, using references to the applicable sections of Part 42. Consequently, any comment or discussion in this preamble referring to a particular section of Part 42, is equally applicable to the corresponding sections of Parts 40 and 41.

Comments received in response to Notice 64-10 were primarily concerned with the Agency's proposal to require the installation of R2800-51-M1 or R2800-75-M1 engines or other engines acceptable to the Administrator on nontransport category C-46 airplanes used in cargo-only operations. The Agency proposed that if engines other than those specified were used, the approved takeoff gross weight would be reduced from 48,000 pounds to 45,000 pounds.

While one organization indicated general agreement with this proposal, they requested that conversion to the 51-M1 and 75-M1 engines be made at each scheduled engine change that occurs after the effective date of the rule, with all "B" engines being changed or converted prior to March 1, 1965. They further suggested that during this period operation of the airplanes be permitted to continue at a maximum gross takeoff weight of 48,000 pounds.

With respect to the compliance dates for these amendments, the Agency agrees that the C-46 operators should be given a period of time in excess of that specified in the proposal in which to show compliance with all of the special airworthiness requirements and to accomplish the engine conversion required by this amendment. The Agency believes that full compliance with such requirements can reasonably be accomplished by January 1, 1965, without imposing an undue burden on any operator, and the amendments adopted herein specify such date for compliance. Compliance with the airplane performance operating limitations set forth in §§ 42.90 through 42.94 (or the comparable sections of Parts 40 and 41), is not required under these amendments until August 12, 1964, if the requirements of § 42.14-1(b) of Part 42 in effect on November 10, 1963, are complied with. These amendments also permit continued use of the airplanes at a maximum gross takeoff weight of 48,000 pounds through December 31, 1964 with unmodified R2800 "B" series engines. After that date, C-46 nontransport category airplanes equipped with such unmodified engines may continue to be used in cargo operations but at a reduced maximum gross takeoff weight not exceeding 45,000 pounds. However, such airplanes must be in full compliance with all the other provisions of this regulation.

In addition, certain of the Alaskan operators objected to the proposal insofar as it required the installation of M1 engines. They contend that in their area of operation, they have experienced no problem of engine cooling in operating the R2800-51 or R2800-75 unmodified engines. In fact, they state that it is almost impossible to get the cylinder head temperatures with unmodified engines above 140°-150° during winter operation; and, quite often, cylinder head temperatures of 120° are difficult to maintain. The Alaskan operators also contend that, in their geographical area of operations, they have never encountered high cylinder head temperatures or difficulty in maintaining desired temperatures during

single-engine operations. On the other hand, they contend that if they are required to install the M1 engines, considerably lower cylinder head temperatures can be expected, to a point where safety would be adversely affected. They also point out that operators using the M1 engines in the colder climates are continually trying to devise methods for raising engine cylinder head temperatures to the normal operating range.

As expressed in Notice 64–10, engine cooling during one-engine-out operation is one area in the operation of C–46 nontransport category cargo-only airplanes which the Agency believes needs improvement. The R2800–51–M1 or R2800–75–M1 engines are known to operate cooler than unmodified "B" series engines when either type are installed in nontransport category C–46 airplanes. In most areas, this feature of the M1 type engines will provide increased safety during one-engine-out operations at high gross weight and utilizing high engine horsepower on the remaining engine. However, since it is quite possible that operations in some areas of Alaska with modified R2800 M1 engines may produce problems that cannot be corrected by other means, the Agency agrees that some relief should be provided those C–46 Alaskan operators who operate only in those areas, provided, the Alaskan operators can show that adequate safety will be provided with unmodified R2800 "B" series engines. Therefore, the regulation, as adopted herein, permits an Alaskan operator of C–46 cargo airplanes to continue to operate such airplanes at a maximum takeoff weight in excess of 45,000 pounds with unmodified R2800 "B" series engines, if such operator shows to the satisfaction of the FAA that the installation of the M1 engines is not necessary to provide adequate cooling in one-engine-out operations. The use of such unmodified engines is made subject to such conditions and limitations as may be found necessary and incorporated in the appropriate operations specifications of the operator concerned.

Another operator located in the southwestern part of the United States also objected to the proposal to either convert to the M1 engine or to accept a load penalty of 3,000 pounds. It was not clear to him as to whether the oil temperature or the cylinder head temperature was considered critical under METO engine operations and maximum gross weight. Thus it was difficult for him to rationalize how the arbitrary reduction in gross weight of 3,000 pounds was selected. The proposal referred to engine cooling as an area requiring improvement. The cooling of both the oil and the cylinder heads are relevant to this problem and must be considered in its solution. The selection of a 45,000-pound maximum takeoff weight for operation with unmodified engines provides a needed improvement in the airplane's single-engine performance. Moreover, the performance charts and related information are readily available at this gross weight and pilots and operators are generally familiar with the airplane's operation and performance at such weight.

Comments were also received concerning the proposed content of the new Appendix C of Part 42, which sets forth the acceptable means of compliance with the special airworthiness requirements of §§ 42.110 through 42.154.

In response to a comment received, the language of the section of the Appendix relating to § 42.115, has been changed to make it clear that a C–46 main cabin is considered a Class A compartment if it meets all the requirements specified in that section of the Appendix.

Another comment requested clarification of the "barrier cable assembly" also referred to in the Appendix provision relating to § 42.115. It was not intended that the barrier assembly meet the G load requirements of transport category airplanes. The barrier was proposed primarily to fix the forward cabin boundary beyond which cargo cannot be carried, and thus prevent the storing of cargo too close to components of the airplane which are essential to its safe operation, and to protect the forward cabin from damage that may be caused by small pieces of cargo not retained by the cargo tiedown equipment. The Appendix has been revised to clairfy the requirements for a cargo barrier in accordance with the foregoing.

In addition, a comment requested that, if the forward and aft lower baggage compartments are used, the external skin be considered minimum acceptable compliance with the fire-resistant liner requirement for Class B compartments. The Agency has considered this comment and finds that the external skin would not be acceptable as fire-resistant lining in Class B compartments.

The proposal contained a requirement, relating to §§ 42.127 and 42.128, that the combustion heater compartments of nontransport category C–46 airplanes be modified to comply with Airworthiness Directive (AD) 49–18–1. Paragraph (5) of that AD requires the installation of a manual fuel shutoff valve. One comment received by the Agency requested that an electric fuel shutoff valve also be considered as acceptable. The Agency agrees with this comment and the Appendix has been changed to provide for the acceptability of a fail safe electric fuel shutoff valve in lieu of a manually operated fuel shutoff valve.

Compliance with AD 49–18–1 also requires the installation of a fixed fire extinguisher in the C–46 airplane combustion heater compartment. One comment requested that a portable fire extinguisher be considered as acceptable compliance with that portion of the AD. The Agency does not agree that a portable fire extinguisher can provide the necessary protection because of the restricted access, in flight, to C–46 heater compartments. Since any fire in this area is serious, immediate extinguishment must be available.

With respect to the requirement for a shutoff valve in the alcohol supply line between the supply tank and those alcohol pumps located under the main cabin floor, one comment requested that the valve not be required if the alcohol pumps are located above the main cabin floor. Since this result was intended in the proposal, the language has been revised to make it clear that the valve is required only if the alcohol pumps are located under the main cabin floor.

Certain of the comments received in response to Notice 64–10 indicated some concern as to the type of C–46 engine fire-extinguishing system proposed by the Agency. As stated by the Agency in Notice 64–10, "The fire-extinguishing systems, the quantity of extinguishing agent, and the rate of discharge shall be such as to provide a minimum of one adequate discharge for each designated fire zone." The notice further explained that "insofar as the engine compartment is concerned, the system shall be capable of protecting the entire compartment against the various types of fires likely to occur in the compartment." For the purpose of further clarification, the provision in the Appendix relating to § 42.136 has been revised to state that to meet the requirement of one adequate discharge for each fire zone, requires the installation of a separate fire extinguisher for each engine compartment. The notice also mentioned types of engine fire-extinguishing systems that would meet the foregoing adequacy requirements. One such type was described as a system which "provides the same or equivalent protection to that demonstrated by the CAA in tests conducted in 1941 and 1942 using a CW–20 type engine nacelle (without diaphragm)."

Comments received from the National Air Carrier Association (NACA) citing CAA Technical Development Report No. 37, titled "Determination of Means to Safeguard Aircraft From Powerplant Fires in Flight"—Part II, dated October 1943, furnished a comparison between data contained in CAA Report No. 37 and the flow rates and distribution of fire-extinguishing agent provided by one type of C–46 engine fire-extinguishing system now in use. The comparison, according to NACA, shows that the system they describe does provide fire protection equivalent to that demonstrated by the CAA in the CW–20 tests. Furthermore, the system they describe was approved by FAA February 9, 1953, for American Airmotive, Miami, Florida, as presented in American Airmotive Report No. 128–52–1, titled "Engine Section CO_2 Fire Extinguishing System Installation (C–46 airplanes)," dated November 25, 1952.

The Agency has evaluated the material submitted by NACA and has concluded that C–46 engine fire-extinguishing systems which conform to all other applicable airworthiness requirements in design and installation, and which provide the flow rates and distribution of extinguishing agent at least equivalent to that approved for American Airmotive in their report No. 128–52–1, would meet the requirements of § 42.136.

From the comments received concerning the provision in the Appendix relating to § 42.154, it appears that there is a general lack of familiarity with the "Logair cargo configuration" referred to therein. Therefore, reference to such Logair configuration is deleted from the final rule.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant matter presented. The provisions of these amendments, with the exception of the minimum oil requirement, become

effective at least 30 days from the date of publication. The Agency finds that compliance with the oil requirement is necessary and good cause exists for making it effective without further delay.

In consideration of the foregoing, Chapter I of Title 14 of the Code of Federal Regulations is amended as follows, effective July 12, 1964:

1. Part 40 is amended by adding a new paragraph (c) to § 40.61 to read as follows:

§ 40.61 Airplane certification requirements.

* * * * *

(c) *C–46 type airplanes.* Notwithstanding the provisions of paragraph (b) of this section, a nontransport category C–46 type airplane may be used in cargo operations under the following conditions:

(1) It is certificated at a maximum gross takeoff weight not in excess of 48,000 pounds;

(2) It meets the requirements of §§ 40.90 through 40.94 using the performance data specified in Appendix C of Part 42, revised effective November 11, 1963, except that it may be operated without meeting such requirements until August 12, 1964, if it meets the requirements of § 42.14–1(b) of this chapter, in effect on November 10, 1963;

(3) Prior to each flight, each engine is serviced to a minimum of 25 gallons of oil; and

(4) After December 31, 1964—

(i) It is powered by a type and model engine as specified in Appendix C of Part 42 of this chapter, revised effective November 11, 1963, when certificated at a maximum gross takeoff weight in excess of 45,000 pounds; and

(ii) It complies with the special airworthiness requirements as set forth in §§ 40.110 through 40.154 or in Appendix C of Part 42 of this chapter, revised effective November 11, 1963.

2. Part 41 is amended by adding a new paragraph (c) to § 41.61 to read as follows:

§ 41.61 Airplane certification requirements.

* * * * *

(c) *C–46 type airplanes.* Notwithstanding the provisions of paragraph (b) of this section, a nontransport category C–46 type airplane may be used in cargo operations under the following conditions:

(1) It is certificated at a maximum gross takeoff weight not in excess of 48,000 pounds;

(2) It meets the requirements of §§ 41.90 through 41.94 using the performance data specified in Appendix C of Part 42 of this chapter, revised effective November 11, 1963, except that it may be operated without meeting such requirements until August 12, 1964, if it meets the requirements of § 42.14–1(b) of this chapter, in effect on November 10, 1963;

(3) Prior to each flight, each engine is serviced to a minimum of 25 gallons of oil; and

(4) After December 31, 1964—

(i) It is powered by a type and model engine as specified in Appendix C of Part 42 of this chapter, revised effective November 11, 1963, when certificated at a maximum gross takeoff weight in excess of 45,000 pounds; and

(ii) It complies with the special airworthiness requirements as set forth in §§ 41.110 through 41.154 or in Appendix C of Part 42 of this chapter, revised effective November 11, 1963.

3. Part 42 is amended by amending paragraph (b) and by adding a new paragraph (d) to § 42.61 to read as follows:

§ 42.61 Aircraft certification requirements.

* * * * *

(b) *Airplanes certificated after June 30, 1942.* Airplanes certificated as a basic type after June 30, 1942, shall be certificated as transport category airplanes and shall meet the requirements of § 42.70.

* * * * *

(d) *C–46 type airplanes.* Notwithstanding the provisions of paragraph (b) of this section, a nontransport category C–46 type airplane may be operated in cargo-only operations under the following conditions:

(1) It is certificated at a maximum gross takeoff weight not in excess of 48,000 pounds;

(2) It meets the requirements of §§ 42.90 through 42.94, using the performance data therefor specified in Appendix C, except that it may be operated without meeting such requirements until August 12, 1964, if it meets the requirements of § 42.14–1(b), in effect on November 10, 1963;

(3) Prior to each flight, each engine is serviced to a minimum of 25 gallons of oil; and

(4) After December 31, 1964—

(i) It is powered by a type and model engine as specified in Appendix C of this Part, when certificated at a maximum gross takeoff weight in excess of 45,000 pounds; and

(ii) It complies with the special airworthiness requirements as set forth in §§ 42.110 through 42.154 or in Appendix C of this part.

4. Part 42 is amended by adding a new Appendix C to read as hereinafter set forth.

These amendments are made under the authority of sections 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958, (49 U.S.C. 1354, 1421, 1423, 1424).

Issued in Washington, D.C., on June 26, 1964.

N. E. Halaby,
Administrator.

Appendix C

C–46 nontransport category airplanes

Cargo Operations

1. *Required engines.* (a) Except as provided in paragraph (b) of this section, the engines specified in subparagraphs (1) or (2) of this section must be installed in C–46 nontransport category airplanes operated at gross weights exceeding 45,000 pounds:

(1) Pratt and Whitney R2800–51–M1 or R2800–75–M1 engines (engines converted from basic model R2800–51 or R2800–75 engines in accordance with FAA approved data) that—

(i) Conform to Engine Specification 5E–8;

(ii) Conform to the applicable portions of the operator's manual;

(iii) Comply with all the applicable airworthiness directives; and

(iv) Are equipped with high capacity oil pump drive gears in accordance with FAA approved data.

(2) Other engines found acceptable by the FAA Regional Flight Standards Division having type certification responsibility for the C–46 airplane.

(b) Upon application by an operator conducting cargo operations with nontransport category C–46 airplanes between points within the State of Alaska, the appropriate FAA Air Carrier District Office, Alaskan Region, may authorize the operation of such airplanes, between points within the State of Alaska; without compliance with paragraph (a) of this section if the operator shows that, in its area of operation, installation of the modified engines is not necessary to provide adequate cooling for single-engine operations. Such authorization and any conditions or limitations therefor is made a part of the Operations Specifications of the operator.

2. *Minimum acceptable means of complying with the special airworthiness requirements.* Unless otherwise authorized under § 42.110, the data set forth in §§ 3 through 34 of this Appendix, as correlated to the C–46 nontransport category airplane, is the minimum means of compliance with the special airworthiness requirements of §§ 42.111 through 42.154.

This data is also the minimum means of compliance for C–46 transport category airplanes with the special airworthiness requirements of Parts 40 and 41.

3. *Susceptibility of material to fire.* No change from the requirements of § 42.111.

4. *Cabin interiors.* C–46 crew compartments must meet all the requirements of § 42.112, and, as required in § 42.115, the door between the crew compartment and main cabin (cargo) compartment must be flame resistant.

5. *Internal doors.* Internal doors, including the crew to main cabin door, must meet all the requirements of § 42.113.

6. *Ventilation.* Standard C–46 crew compartments meet the ventilation requirements of § 42.114 if a means of ventilation for controlling the flow of air is available between the crew compartment and main cabin. The ventilation requirement may be met by use of a door between the crew compartment and main cabin. The door need not have louvers installed; however, if louvers are installed, they must be controllable.

7. *Fire precautions.* Compliance is required with all the provisions of § 42.115.

(a) In establishing compliance with this section, the C–46 main cabin shall be considered as a Class A compartment if—

(1) The operator utilizes a standard system of cargo loading and tiedown that allows easy access in flight to all cargo in such compartment, and, such system is included in the appropriate portion of the operator's manual; and

(2) A cargo barrier is installed in the forward end of the main cabin cargo compartment. The barrier must—

(i) Establish the most forward location beyond which cargo cannot be carried;

(ii) Protect the components and systems of the airplane that are essential to its safe operation from cargo damage; and

(iii) Permit easy access, in flight, to cargo in the main cabin cargo compartment.

The barrier may be a cargo net or a network of steel cables or other means acceptable to the Administrator which would provide equivalent protection to that of a cargo net. The barrier need not meet crash load requirements of CAR 4b.260; however, it must be attached to the cargo retention fittings and provide the degree of cargo retention that is required by the operators' standard system of cargo loading and tiedown.

(b) C–46 forward and aft baggage compartments must meet, as a minimum, Class

B requirements of this section or be placarded in a manner to preclude their use as cargo or baggage compartments.

8. *Proof of compliance.* The demonstration of compliance required by § 42.116 is not required for C–46 airplanes in which—

(1) The main cabin conforms to Class A cargo compartment requirements of § 42.115; and

(2) Forward and aft baggage compartments conform to Class B requirements of § 42.115, or are placarded to preclude their use as cargo or baggage compartments.

9. *Propeller deicing fluid.* No change from the requirements of § 42.117. Isopropyl alcohol is a combustible fluid within the meaning of this section.

10. *Pressure cross-feed arrangements, location of fuel tanks, and fuel system lines and fittings.* C-46 fuel systems which conform to all applicable Curtiss design specifications and which comply with the FAA type certification requirements are in compliance with the provisions of §§ 42.118, 42.119, and 42.120.

11. *Fuel lines and fittings in designated fire zones.* No change from the requirements of § 42.121.

12. *Fuel valves.* Compliance is required with all the provisions of § 42.122. Compliance can be established by showing that the fuel system conforms to all the applicable Curtiss design specifications, the FAA type certification requirements, and, in addition, has explosion-proof fuel booster pump electrical selector switches installed in lieu of the open contact type used originally.

13. *Oil lines and fittings in designated fire zones.* No change from the requirements of § 42.123.

14. *Oil valves.* C–46 oil shutoff valves must conform to the requirements of § 42.124. In addition, C–46 airplanes using Hamilton Standard propellers must provide, by use of stand pipes in the engine oil tanks or other approved means, a positive source of oil for feathering each propeller.

15. *Oil system drains.* The standard C–46 "Y" drains installed in the main oil inlet line for each engine meet the requirements of § 42.125.

16. *Engine breather line.* The standard C–46 engine breather line installation meets the requirements of § 42.126 if the lower breather lines actually extend to the trailing edge of the oil cooler air exit duct.

17. *Firewalls and firewall construction.* Compliance is required with all of the provisions of §§ 42.127 and 42.128. The following requirements must be met in showing compliance with these sections:

(a) *Engine compartment.* The engine firewalls of the C–46 airplane must—

(1) Conform to type design, and all applicable airworthiness directives;

(2) Be constructed of stainless steel or approved equivalent; and

(3) Have fireproof shields over the fairleads used for the engine control cables that pass through each firewall.

(b) *Combustion heater compartment.* C–46 airplanes must have a combustion heater fire extinguishing system which complies with AD–49–18–1 or an FAA approved equivalent.

18. *Cowling.* Standard C–46 engine cowling (cowling of aluminum construction employing stainless steel exhaust shrouds) which conforms to the type design and cowling configurations which conform to the C–46 transport category requirements meet the requirements of § 42.129.

19. *Engine accessory section diaphragm.* C–46 engine nacelles which conform to the C–46 transport category requirements meet the requirements of § 42.130. As provided for in that section, a means of equivalent protection which does not require provision of a diaphragm to isolate the engine power section and exhaust system from the engine accessory compartment is the designation of the entire engine compartment forward of and including the firewall as a designated fire zone, and the installation of adequate fire detection and fire extinguishing systems which meet the requirements of § 42.136 and § 42.141, respectively, in such zone.

20. *Powerplant fire protection.* C–46 engine compartments and combustion heater compartments are considered as designated fire zones within the meaning of § 42.131.

21. *Flammable fluids—*

(a) *Engine compartment.* C–46 engine compartments which conform to the type design and which comply with all applicable airworthiness directives meet the requirements of § 42.132.

(b) *Combustion heater compartment.* C–46 combustion heater compartments which conform to type design and which meet all the requirements of AD–49–18–1 or an FAA approved equivalent meet the requirements of § 42.132.

22. *Shutoff means—*

(a) *Engine compartment.* C–46 engine compartments which comply with AD–62–10–2 or FAA approved equivalent meet the requirements of § 42.133 applicable to engine compartments, if, in addition, a means satisfactory to the Administrator is provided to shut off the flow of hydraulic fluid to the cowl flap cylinder in each engine nacelle. The shutoff means must be located aft of the engine firewall. The operator's manual must include, in the emergency portion, adequate instructions for proper operation of the additional shutoff means to assure correct sequential positioning of engine cowl flaps under emergency conditions. In accordance with § 42.176, this positioning must also be incorporated in the emergency section of the pilot's checklist.

(b) *Combustion heater compartment.* C–46 heater compartments which comply with paragraph (5) of AD–49–18–1 or FAA approved equivalent meet the requirements of § 42.133 applicable to heater compartments if, in addition, a shutoff valve located above the main cabin floor level is installed in the alcohol supply line or lines between the alcohol supply tank and those alcohol pumps located under the main cabin floor. If all of the alcohol pumps are located above the main cabin floor, the alcohol shutoff valve need not be installed. In complying with paragraph (5) of AD–49–18–1, a fail-safe electric fuel shutoff valve may be used in lieu of the manually operated valve.

23. *Lines and fittings.*—(a) *Engine compartment.* C–46 engine compartments which comply with all applicable airworthiness directives, including AD–62–10–2, by using FAA approved fire-resistant lines, hoses, and end fittings, and engine compartments which meet the C–46 transport category requirements, meet the requirements of § 42.134.

(b) *Combustion heater compartments.* All lines, hoses, and end fittings, and couplings which carry fuel to the heaters and heater controls, must be of FAA approved fire-resistant construction.

24. *Vent and drain lines.*—(a) *Engine compartment.* C–46 engine compartments meet the requirements of § 42.135 if—

(1) The compartments conform to type design and comply with all applicable airworthiness directives or FAA approved equivalent; and

(2) Drain lines from supercharger case, engine-driven fuel pump, and engine-driven hydraulic pump reach into the scupper drain located in the lower cowling segment.

(b) *Combustion heater compartment.* C–46 heater compartments meet the requirements of § 42.135 if they conform to AD–49–18–1 or FAA approved equivalent.

25. *Fire-extinguishing system.* (a) To meet the requirements of § 42.136, C–46 airplanes must have installed fire estinguishing systems to serve all designated fire zones. The fire-extinguishing systems, the quantity of extinguishing agent, and the rate of discharge shall be such as to provide a minimum of one adequate discharge for each designated fire zone. Compliance with this provision requires the installation of a separate fire extinguisher for each engine compartment. Insofar as the engine compartment is concerned, the system shall be capable of protecting the entire compartment against the various types of fires likely to occur in the compartment.

(b) Fire-extinguishing systems which conform to the C–46 transport category requirements meet the requirements set forth in paragraph (a). Furthermore, fire-extinguishing systems for combustion heater compartments which conform to the requirements of AD–49–18–1 or an FAA approved equivalent also meet the requirements in paragraph (a).

In addition, a fire-extinguishing system for C–46 airplanes meets the adequacy requirement of paragraph (a) if it provides the same or equivalent protection to that demonstrated by the CAA in tests conducted in 1941 and 1942, using a CW–20 type engine nacelle (without diaphragm). These tests were conducted at the Bureau of Standards facilities in Washington, D.C., and copies of the test reports are available through the FAA Regional Engineering Offices. In this connection, the flow rates and distribution of extinguishing agent substantiated in American Airmotive Report No. 128–52–1, FAA approved February 9, 1953, provides protection equivalent to that demonstrated by the CAA in the CW–20 tests. In evaluating any C–46 fire-extinguishing system with respect to the aforementioned CW–20 tests, the Agency would require data in a narrative form, utilizing drawings or photographs to show at least the following:

Installation of containers; installation and routing of plumbing; type, number, and location of outlets or nozzles; type, total volume, and distribution of extinguishing agent; length of time required for discharging; means for thermal relief, including type and location of discharge indicators; means of discharging, e.g., mechanical cutterheads, electric cartridge, or other method; and whether a one- or two-shot system is used; and if the latter is used, means of crossfeeding or otherwise selecting distribution of extinguishing agent; and types of materials used in makeup of plumbing.

High rate discharge (HRD) systems using agents such as bromotrifluoromethane, dibromodifluoromethane and chlorobromomethane (CB), may also meet the requirements of paragraph (a).

26. *Fire-extinguishing agents, Extinguishing agent container pressure relief, Extinguishing agent container compartment temperatures, and Fire-extinguishing system materials.* No change from the requirements of §§ 42.137, 42.138, 42.139, 42.140.

27. *Fire-detector system.* Compliance with the requirements of § 42.141 requires that C–46 fire detector systems conform to:

(a) AD–62–10–2 or FAA approved equivalent for engine compartments; and,

(b) AD–49–18–1 or FAA approved equivalent for combustion heater compartments.

28. *Fire detectors.* No change from the requirements of § 42.142.

29. *Protection of other airplane components against fire.* To meet the requirements of § 42.143, C–46 airplanes must—

(a) Conform to the type design and all applicable airworthiness directives; and

(b) Be modified or have operational procedures established to provide additional fire protection for the wheel well door aft of each engine compartment. Modifications may consist of improvements in sealing of the main landing gear wheel well doors. An operational procedure which is acceptable to the Agency is one requiring the landing gear control to be placed in the up position in case of in-flight engine fire. In accordance with § 42.176, such procedure must be set forth in the emergency portion of the operator's emergency checklist pertaining to in-flight engine fire.

30. *Control of engine rotation.* C–46 propeller feathering systems which conform to the type design and all applicable airworthiness directives meet the requirements of § 42.150.

31. *Fuel system independence.* C–46 fuel systems which conform to the type design and all applicable airworthiness directives meet the requirements of § 42.151.

32. *Induction system ice prevention.* The C–46 carburetor anti-icing system which conforms to the type design and all applicable airworthiness directives meets the requirements of § 42.152.

33. *Carriage of cargo in passenger compartments.* Section 42.153 is not applicable to nontransport category C–46 cargo airplanes.

34. *Carriage of cargo in cargo compartments.* A standard cargo loading and tiedown arrangement set forth in the operator's manual and found acceptable to the Administrator shall be used in complying with § 42.154.

35. *Performance data.* Performance data on Curtiss model C–46 airplane certificated for maximum weight of 45,000 and 48,000 pounds for cargo-only operations.

1. The following performance limitation data, applicable to the Curtiss model C–46 airplane for cargo-only operation, shall be used in determining compliance with §§ 42.91 through 42.94. These data are presented in the tables and figures of this Appendix.

TABLE 1—TAKEOFF LIMITATIONS

(a) Curtiss C–46 certificated for maximum weight of 45,000 pounds.

(1) "Effective length" of runway required when effective length is determined in accordance with section 42.5 (distance to accelerate to 93 knots TIAS and stop, with zero wind and zero gradient). (Factor=1.00)

Standard altitude in feet	Airplane weight in pounds		
	39,000	42,000	[1] 45,000
	Distance in feet		
S.L.	4,110	4,290	4,570
1,000	4,250	4,440	4,720
2,000	4,400	4,600	4,880
3,000	4,650	4,880	5,190
4,000	4,910	5,170	5,500
5,000	5,160	5,450	5,810
6,000	5,420	5,730	6,120
7,000	5,680	6,000	6,440
8,000	5,940	6,280	(1)

[1] Ref. Fig. 1(a)(1) for weight and distance for altitudes above 7,000′.

(2) Actual length of runway required when "effective length," considering obstacles, is not determined (distance to accelerate to 93 knots TIAS and stop, divided by the factor 0.85).

Standard altitude in feet	Airplane weight in pounds		
	39,000	42,000	[1] 45,000
	Distance in feet		
S.L.	4,830	5,050	5,370
1,000	5,000	5,230	5,550
2,000	5,170	5,410	5,740
3,000	5,470	5,740	6,100
4,000	5,770	6,080	6,470
5,000	6,070	6,410	6,830
6,000	6,380	6,740	7,200
7,000	6,680	7,070	7,570
8,000	6,990	7,410	(1)

[1] Ref. Fig. 1(a)(2) for weight and distance for altitudes above 7,000′.

(b) Curtiss C–46 Certificated for maximum weight 48,000 pounds.

(1) "Effective length" of runway required when effective length is determined in accordance with section 42.5 (distance to accelerate to 93 knots TIAS and stop, with zero wind and zero gradient). (Factor=1.00)

Standard altitude in feet	Airplane weight in pounds			
	39,000	42,000	45,000	[1] 48,000
	Distance in feet			
S.L.	4,110	4,290	4,570	4,950
1,000	4,250	4,440	4,720	5,130
2,000	4,400	4,600	4,880	5,300
3,000	4,650	4,880	5,190	5,670
4,000	4,910	5,170	5,500	6,050
5,000	5,160	5,450	5,810	6,420
6,000	5,420	5,730	6,120	6,800
7,000	5,680	6,000	6,440	(1)
8,000	5,940	6,280	6,750	(1)

[1] Ref. Fig. 1(b)(1) for weight and distance for altitudes above 6,000′.

(2) Actual length of runway required when "effective length," considering obstacles, is not determined (distance to accelerate to 93 knots TIAS and stop, divided by the factor 0.85).

Standard altitude in feet	Airplane weight in pounds			
	39,000	42,000	45,000	[1] 48,000
	Distance in feet			
S.L.	4,830	5,050	5,370	5,830
1,000	5,000	5,230	5,550	6,030
2,000	5,170	5,410	5,740	6,230
3,000	5,470	5,740	6,100	6,670
4,000	5,770	6,080	6,470	7,120
5,000	6,070	6,410	6,830	7,560
6,000	6,380	6,740	7,200	8,010
7,000	6,680	7,070	7,570	(1)
8,000	6,990	7,410	7,940	(1)

[1] Ref. Fig. 1(b)(2) for weight and distance for altitudes above 6,000′.

TABLE 2—EN ROUTE LIMITATIONS

(a) Curtiss model C–46 certificated for maximum weight of 45,000 pounds (based on a climb speed of 113 knots (TIAS)).

Weight (pounds)	Terrain clearance (feet) [1]	Blower setting
45,000	6,450	Low.
44,000	7,000	Do.
43,000	7,550	Do.
42,200	8,000	High.
41,000	9,600	Do.
40,000	11,000	Do.
39,000	12,300	Do.

[1] Highest altitude of terrain over which airplanes may be operated in compliance with § 42.92.

Ref. Fig. 2(a).

(b) Curtiss model C–46 certificated for maximum weight of 48,000 pounds or with engine installation approved for 2,550 revolutions per minute (1,700 brake horsepower). Maximum continuous power in low blower (based on a climb speed of 113 knots (TIAS)).

Weight (pounds)	Terrain clearance (feet) [1]	Blower setting
48,000	5,850	Low.
47,000	6,300	Do.
46,000	6,700	Do.
45,000	7,200	Do.
44,500	7,450	Do.
44,250	8,000	High.
44,000	8,550	Do.
43,000	10,800	Do.
42,000	12,500	Do.
41,000	13,000	Do.

[1] Highest altitude of terrain over which airplanes may be operated in compliance with § 42.92.

Ref. Fig. 2(b).

TABLE 3—LANDING LIMITATIONS

(a) Intended Destination.

"Effective length" of runway required for intended destination when effective length is determined in accordance with section 42.5 with zero wind and zero gradient.

(1) Curtiss model C–46 certificated for maximum weight of 45,000 pounds. (0.60 factor.)

Standard altitude in feet	Airplane weight in pounds and approach speeds [1] in knots							
	40,000	V_{50}	42,000	V_{50}	44,000	V_{50}	45,000	V_{50}
	Distance in feet							
S.L.	4,320	86	4,500	88	4,700	90	4,800	91
1,000	4,440	86	4,620	88	4,830	90	4,930	91
2,000	4,550	86	4,750	88	4,960	90	5,050	91
3,000	4,670	86	4,880	88	5,090	90	5,190	91
4,000	4,800	86	5,000	88	5,220	90	5,320	91
5,000	4,920	86	5,140	88	5,360	90	5,460	91
6,000	5,040	86	5,270	88	5,500	90	5,600	91
7,000	5,170	86	5,410	88	5,650	90	5,750	91
8,000	5,310	86	5,550	88	5,800	90	5,900	91

[1] Steady approach speed through 50-foot height TIAS denoted by symbol V_{50}.

Ref. Fig. 3(a)(1).

(2) Curtiss model C–46 certificated for maximum weight of 48,000 pounds.[1] (0.60 factor.)

Standard altitude in feet	Airplane weight in pounds and approach speeds [1] in knots							
	42,000	V_{50}	44,000	V_{50}	46,000	V_{50}	48,000	V_{50}
	Distance in feet							
S.L.	3,370	80	3,490	82	3,620	84	3,740	86
1,000	3,460	80	3,580	82	3,710	84	3,830	86
2,000	3,540	80	3,670	82	3,800	84	3,920	86
3,000	3,630	80	3,760	82	3,890	84	4,020	86
4,000	3,720	80	3,850	82	3,980	84	4,110	86
5,000	3,800	80	3,940	82	4,080	84	4,220	86
6,000	3,890	80	4,040	82	4,180	84	4,320	86
7,000	3,980	80	4,140	82	4,280	84	4,440	86
8,000	4,080	80	4,240	82	4,390	84	4,550	86

[1] Steady approach speed through 50 height knots TIAS denoted by symbol V_{50}.

Ref. Fig. 3(a)(2).

[1] For use with Curtiss model C–46 airplanes when approved for this weight.

(b) Alternate Airports.

"Effective length" of runway required when effective length is determined in accordance with section 42.5 with zero wind and zero gradient.

(1) Curtiss model C–46 certificated for maximum weight of 45,000 pounds. (0.70 factor.)

Standard altitude in feet	Airplane weight in pounds and approach speeds [1] in knots							
	40,000	V_{50}	42,000	V_{50}	44,000	V_{50}	45,000	V_{50}
	Distance in feet							
S.L.	3,700	86	3,860	88	4,030	90	4,110	91
1,000	3,800	86	3,960	88	4,140	90	4,220	91
2,000	3,900	86	4,070	88	4,250	90	4,340	91
3,000	4,000	86	4,180	88	4,360	90	4,450	91
4,000	4,110	86	4,290	88	4,470	90	4,560	91
5,000	4,210	86	4,400	88	4,590	90	4,680	91
6,000	4,330	86	4,510	88	4,710	90	4,800	91
7,000	4,430	86	4,630	88	4,840	90	4,930	91
8,000	4,550	86	4,750	88	4,970	90	5,060	91

[1] Steady approach speed through 50 foot-height-knots TIAS denoted by symbol V_{50}.

Ref. Fig. 3(b)(1).

(2) Curtiss model C–46 certificated for maximum weight of 48,000 pounds.[1] (0.70 factor.)

Standard altitude in feet	Airplane weight in pounds and approach speeds [1] in knots							
	42,000	V_{50}	44,000	V_{50}	46,000	V_{50}	48,000	V_{50}
	Distance in feet							
S.L.	2,890	80	3,000	82	3,110	84	3,220	86
1,000	2,960	80	3,070	82	3,180	84	3,280	86
2,000	3,040	80	3,150	82	3,260	84	3,360	86
3,000	3,110	80	3,220	82	3,340	84	3,440	86
4,000	3,180	80	3,300	82	3,410	84	3,520	86
5,000	3,260	80	3,380	82	3,500	84	3,610	86
6,000	3,330	80	3,460	82	3,580	84	3,700	86
7,000	3,420	80	3,540	82	3,670	84	3,800	86
8,000	3,500	80	3,630	82	3,760	84	3,900	86

[1] Steady approach speed through 50 foot-height-knots TIAS denoted by symbol V_{50}.

Ref. Fig. 3(b)(2).

(c) Actual length of runway required when effective length, considering obstacles, is not determined in accordance with section 42.5.

(1) Curtiss model C–46 certificated for maximum weight of 45,000 pounds. (0.55 factor.)

Standard altitude in feet	Airplane weight in pounds and approach speeds [1] in knots							
	40,000	V_{50}	42,000	V_{50}	44,000	V_{50}	45,000	V_{50}
	Distance in feet							
S.L.	4,710	86	4,910	88	5,130	90	5,230	91
1,000	4,840	86	5,050	88	5,270	90	5,370	91
2,000	4,960	86	5,180	88	5,410	90	5,510	91
3,000	5,090	86	5,320	88	5,550	90	5,660	91
4,000	5,230	86	5,460	88	5,700	90	5,810	91
5,000	5,360	86	5,600	88	5,850	90	5,960	91
6,000	5,500	86	5,740	88	6,000	90	6,110	91
7,000	5,640	86	5,900	88	6,170	90	6,280	91
8,000	5,790	86	6,050	88	6,340	90	6,450	91

[1] Steady approach speed through 50 foot-height-knots TIAS denoted by symbol V_{50}.

Ref. Fig. 3(c)(1).

[1] For use with Curtiss model C–46 airplanes when approved for this weight.

(2) Curtiss C–46 certificated for maximum weight of 48,000 pounds.[1] (0.55 factor.)

Standard altitude in feet	Airplane weight in pounds and approach speeds [1] in knots							
	42,000	V_{50}	44,000	V_{50}	46,000	V_{50}	48,000	V_{50}
	Distance in feet							
S.L.	3,680	80	3,820	82	3,960	84	4,090	86
1,000	3,770	80	3,910	82	4,050	84	4,180	86
2,000	3,860	80	4,000	82	4,140	84	4,280	86
3,000	3,960	80	4,090	82	4,240	84	4,380	86
4,000	4,050	80	4,190	82	4,340	84	4,490	86
5,000	4,150	80	4,290	82	4,450	84	4,600	86
6,000	4,240	80	4,400	82	4,560	84	4,710	86
7,000	4,350	80	4,510	82	4,670	84	4,840	86
8,000	4,450	80	4,620	82	4,790	84	4,960	86

[1] Steady approach speed through 50 foot-height-knots TIAS denoted by symbol V_{50}.

Ref. Fig. 3(c)(2).

CURTISS C–46 MODELS

Certificated for maximum weight of 45,000 pounds.
Takeoff limitation. Zero wind and zero gradient.
Based on effective takeoff length. (1.00 factor.)
CAR 42.91.

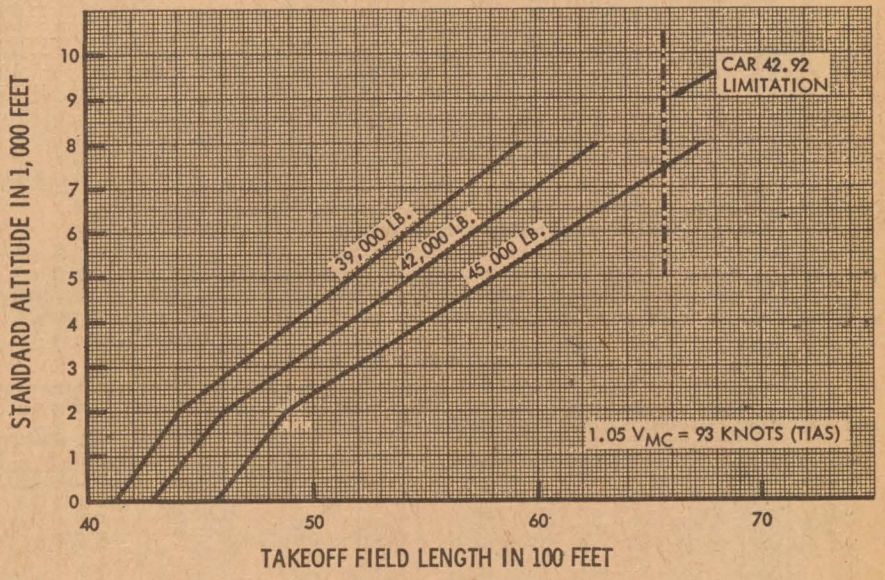

FIGURE 1(a)(1).

Reference Table 1(a)(1).

CURTISS C–46 MODELS

Certificated for maximum weight of 45,000 pounds.
Takeoff limitation. Zero wind and zero gradient.
Based on actual takeoff length when effective length is not determined. (0.85 factor.)

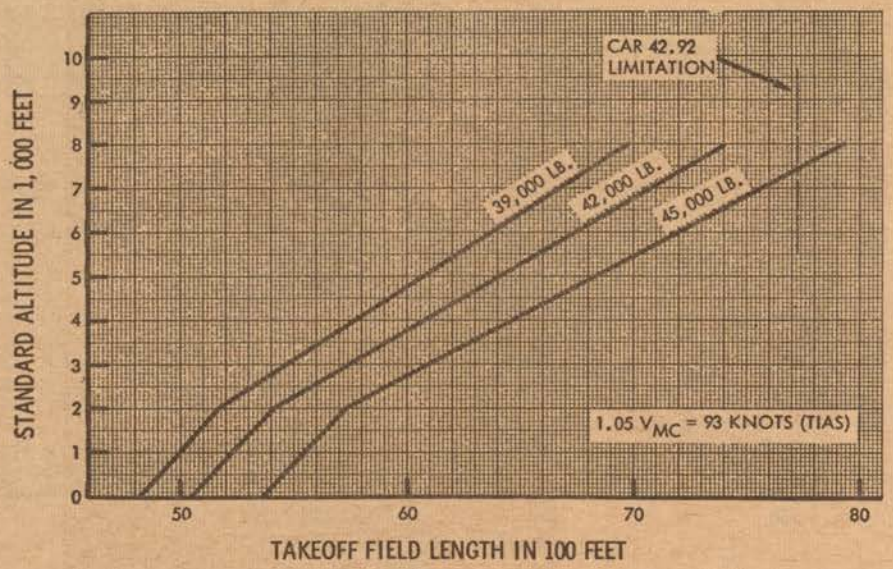

FIGURE 1(a)(2).

Reference Table 1(a)(2).

CURTISS C–46 MODELS

Certificated for maximum weight of 48,000 pounds.
Takeoff limitation. Zero wind and zero gradient.
Based on effective takeoff length. (1.00 factor.)
CAR 42.91.

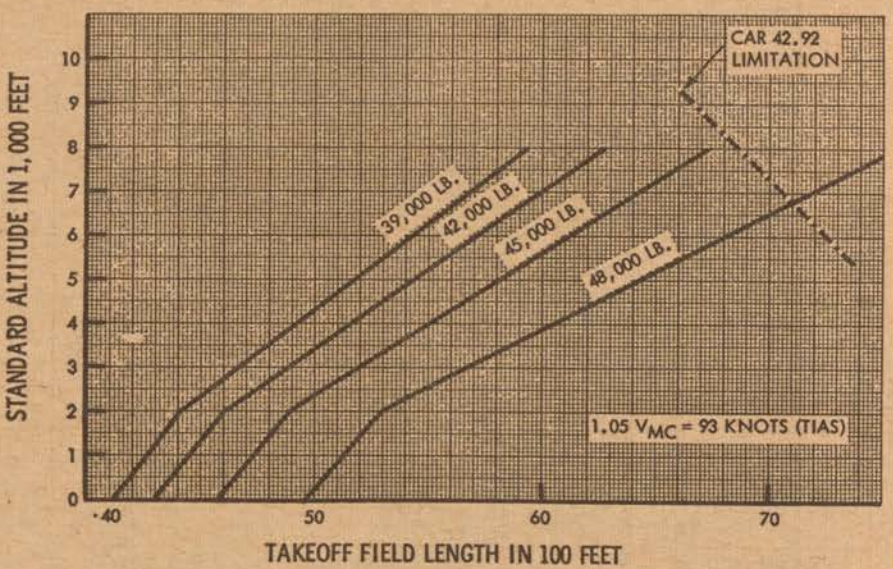

FIGURE 1(b)(1).

Reference Table 1(b)(1).

CURTISS C–46 MODELS

Certificated for maximum weight of 48,000 pounds.
Takeoff limitation. Zero wind and zero gradient.
Based on actual takeoff length when effective length is not determined. (0.85 factor.)

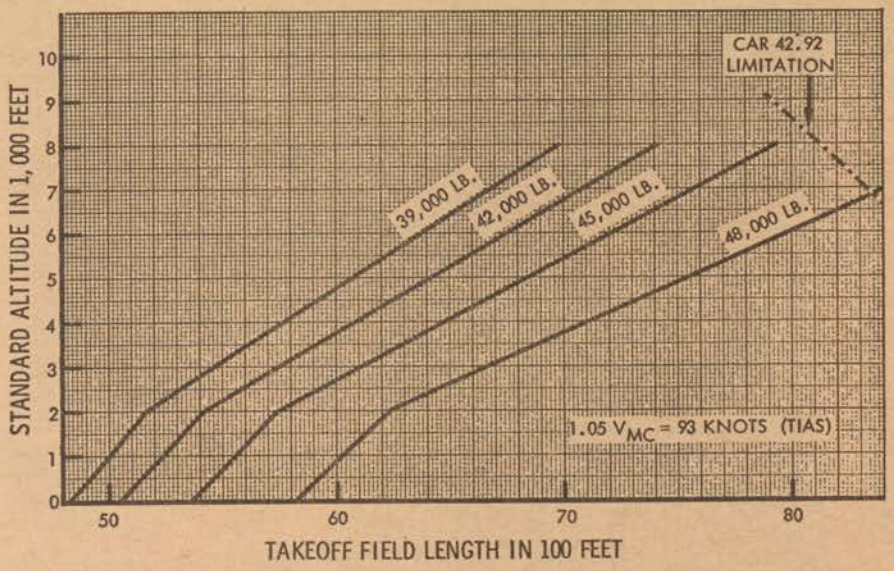

FIGURE 1(b)(2).

Reference Table 1(b)(2).

RUNWAY GRADIENT CORRECTION FOR ACCELERATE-STOP DISTANCE

For C–46 airplanes under CAR 42.91.

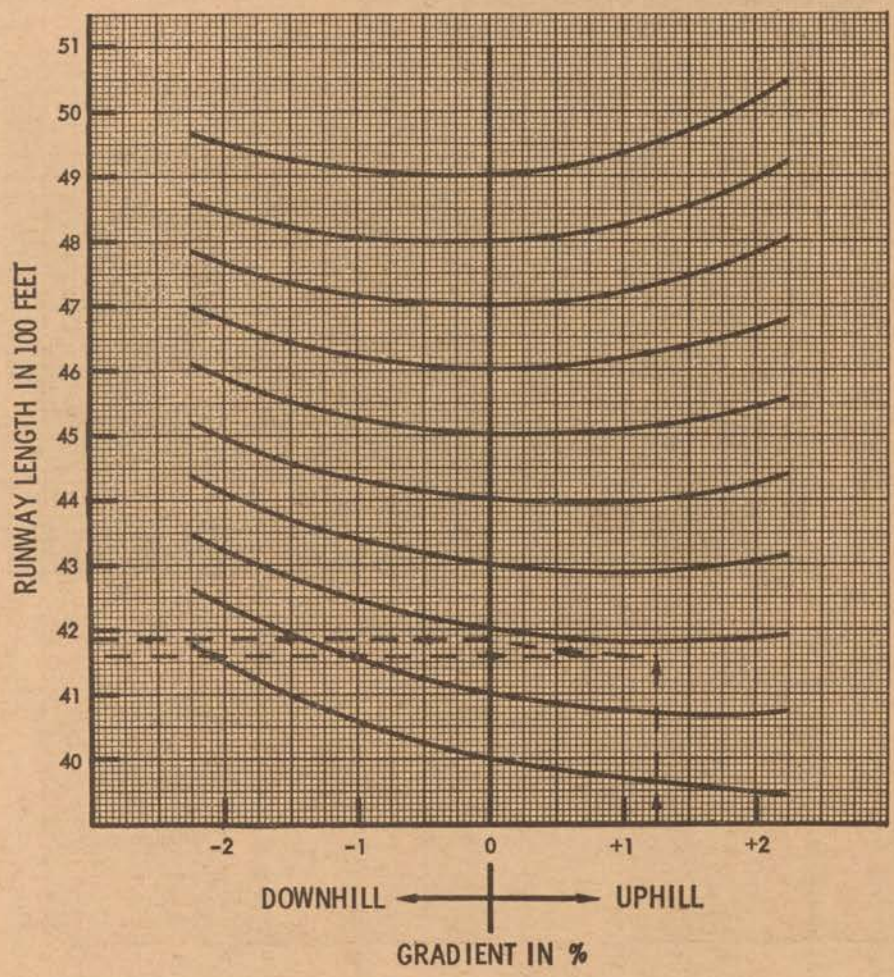

FIGURE 1(c).

January 27, 1964.

En route limitations—One engine inoperative.
CAR 42.92.

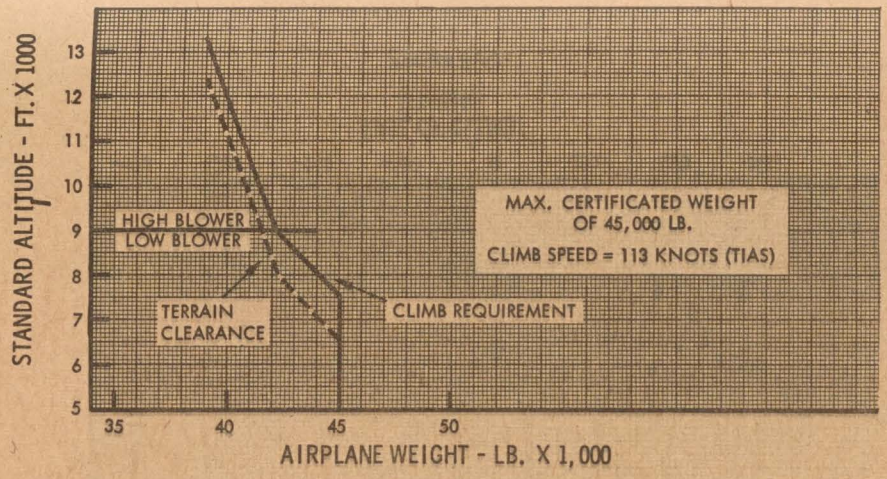

FIGURE 2(a).

Reference Table 2(a).

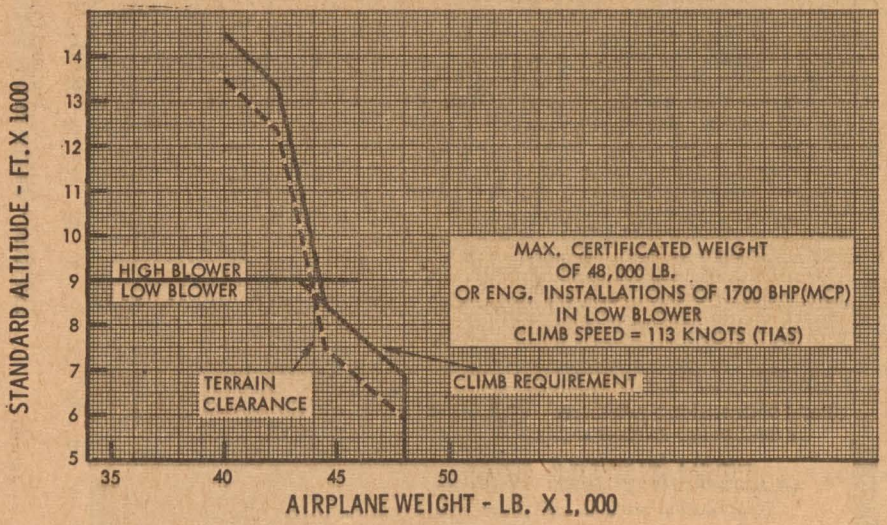

FIGURE 2(b).

Reference Table 2(b).

Drift-Down Chart CAR 42.92.
Single engine en route operation.
METO power on operating engine. T.I.A.S.= 130 mph or 112.7 knots.

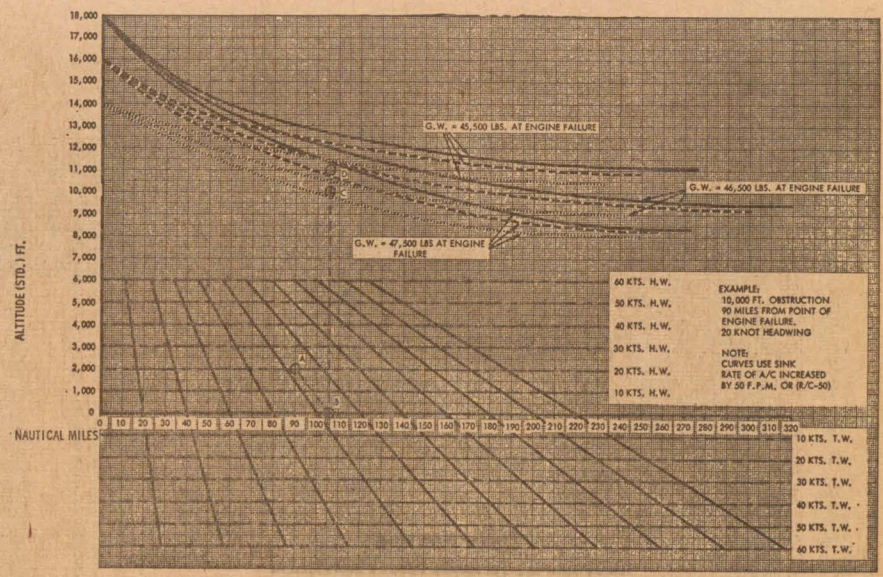

FIGURE 2(c).

C–46 MAXIMUM CERTIFICATED WEIGHT 48,000 POUNDS

En route climb summary.

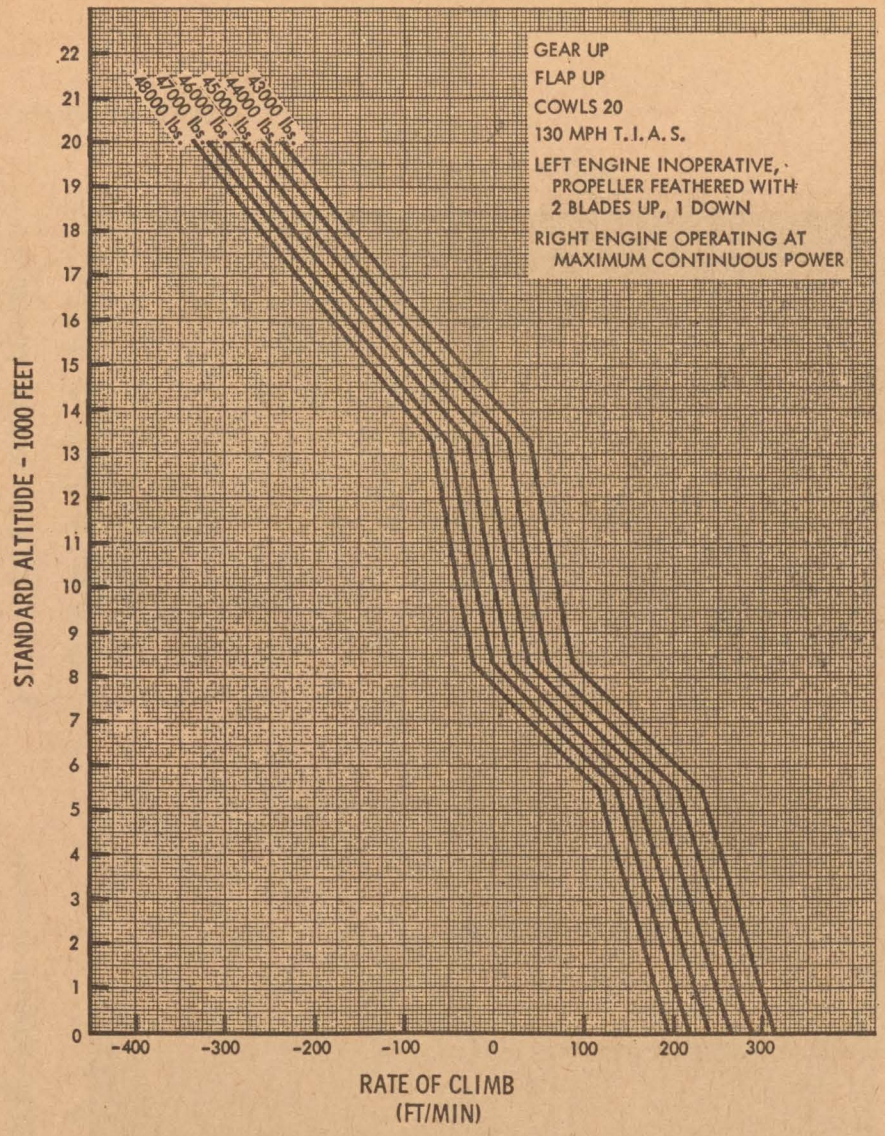

FIGURE 2(d).

CURTISS C–46 MODELS

Certificated for maximum weight of 45,000 pounds.
Landing limitations. Zero wind and zero gradient.
Based on effective landing length at intended destination. (0.60 factor.)
CAR 42.93.

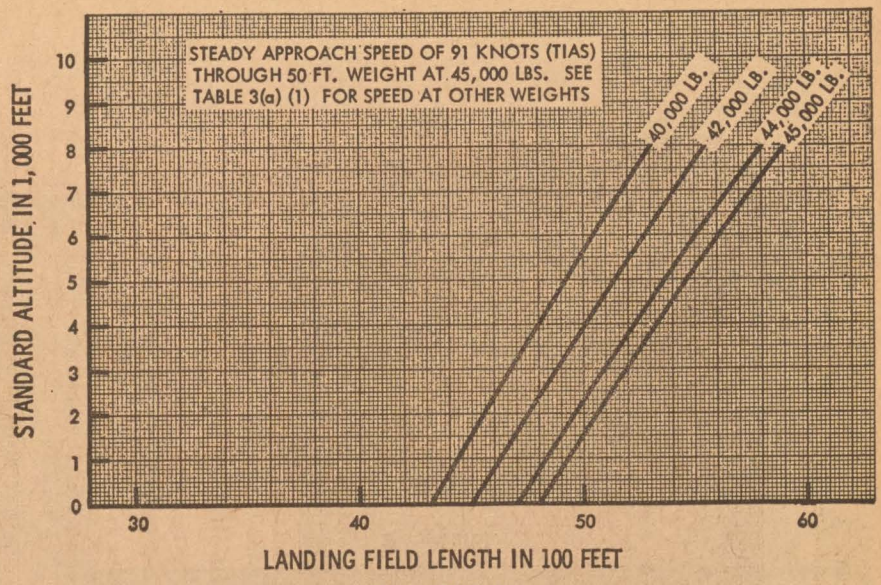

FIGURE 3(a) (1)

CURTISS C–46 MODELS

Certificated for maximum weight of 48,000 pounds.
Landing limitations. Zero wind and zero gradient.
Based on effective landing length at intended destination. (0.60 factor.)
CAR 42.93.

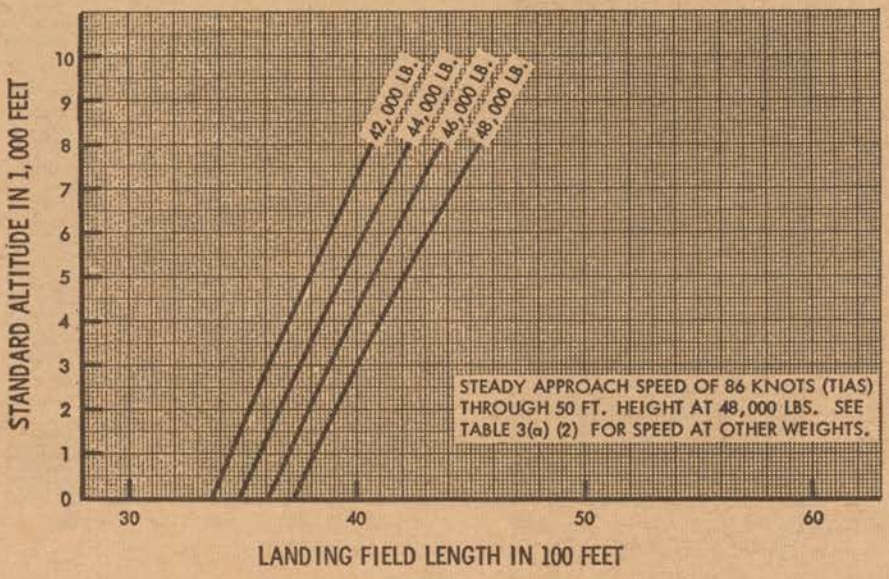

FIGURE 3(a) (2).

CURTISS C–46 MODELS

Certificated for maximum weight of 45,000 pounds.
Landing limitations. Zero wind and zero gradient.
Based on effective landing length at alternate airports. (0.70 factor.)
CAR 42.94.

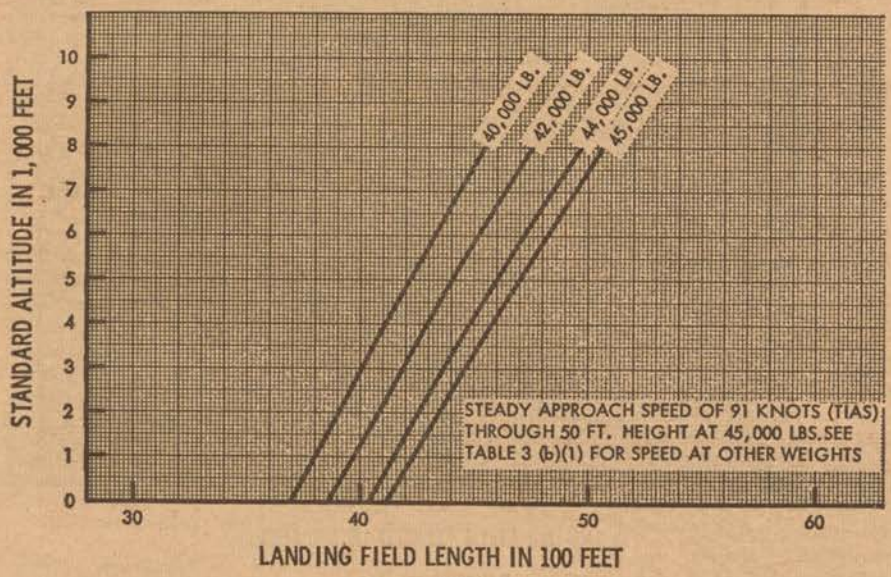

FIGURE 3(b) (1).

CURTISS C–46 MODELS

Certificated for maximum weight of 48,000 pounds.
Landing limitations. Zero wind and zero gradient.
Based on effective landing length at alternate airports. (0.70 factor.)
CAR 42.94.

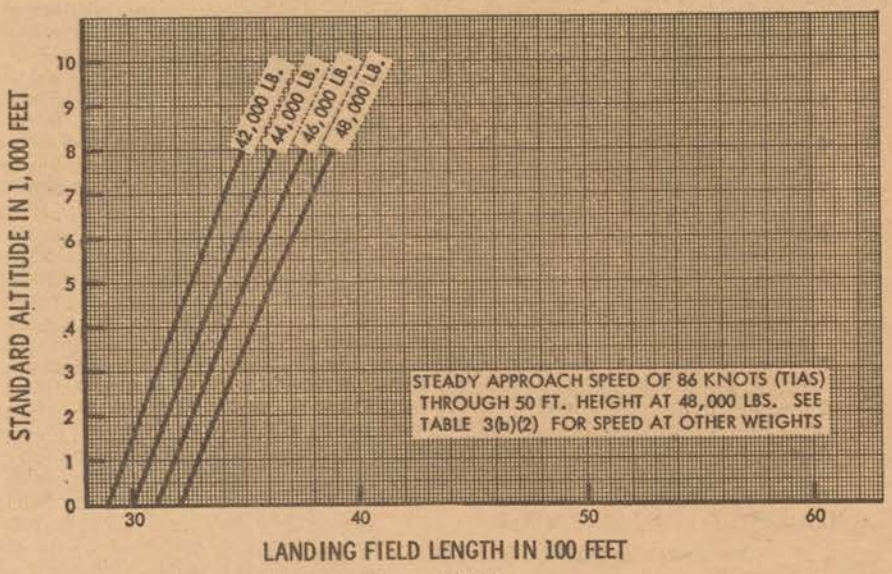

FIGURE 3(b)(2).

CURTISS C–46 MODELS

Certificated for maximum weight of 45,000 pounds.
Landing limitations. Zero wind and zero gradient.
Based on actual landing length when effective length is not determined. (0.55 factor.)

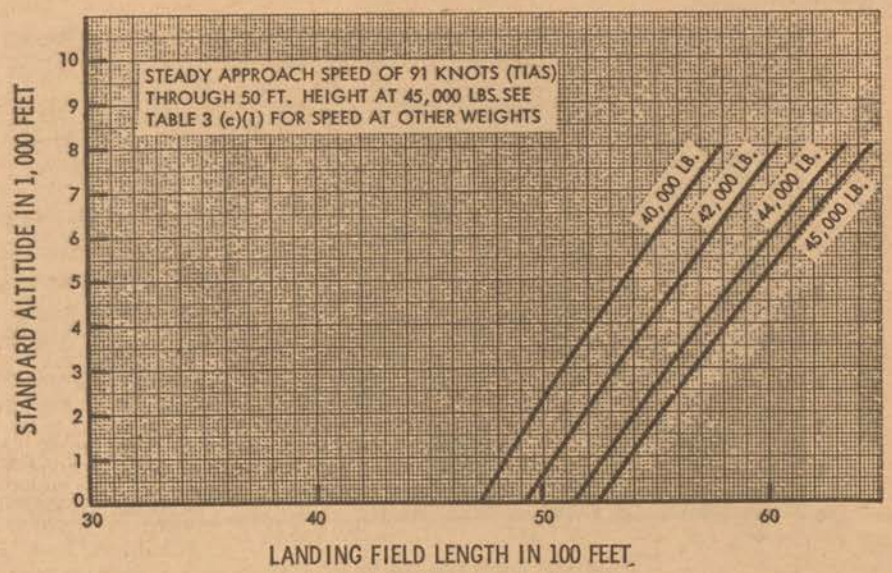

FIGURE 3(c)(1).

CURTISS C-46 MODELS

Certificated for maximum weight of 48,000 pounds.
Landing limitations. Zero wind and zero gradient.
Based on actual landing length when effective length is not determined. (0.55 factor.)

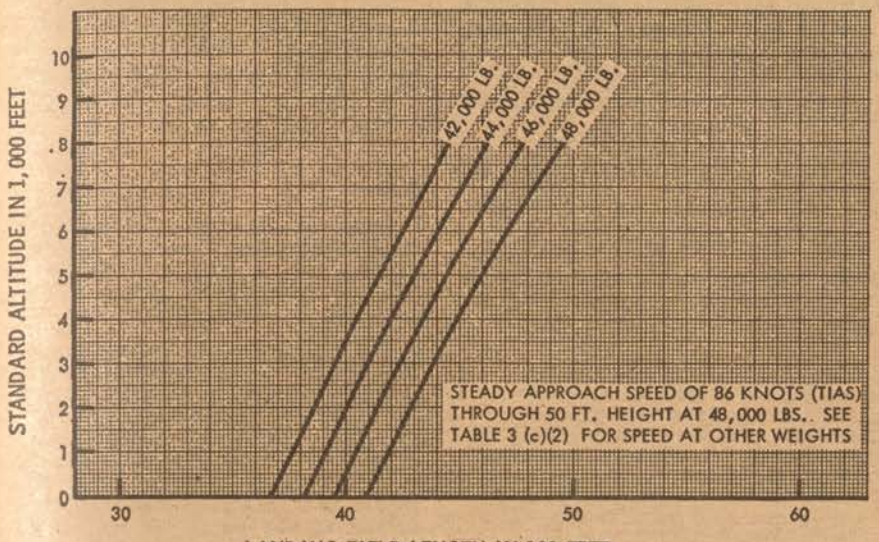

FIGURE 3(c)(2).

[F.R. Doc. 64-6567; Filed, July 2, 1964; 8:45 a.m.]

[Airspace Docket No. 64-CE-19]

PART 71—DESIGNATION OF FEDERAL AIRWAYS, CONTROLLED AIRSPACE, AND REPORTING POINTS [NEW]

Alteration of a Control Zone

The purpose of this amendment to Part 71 [New] of the Federal Aviation Regulations is to alter the present description of the Jackson, Mich., control zone. The Jackson radio beacon is scheduled for decommissioning on June 30, 1964. The prescribed instrument approach procedure based on the 313° bearing from the radio beacon is scheduled for cancellation concurrently with the decomissioning. Therefore, the pertinent control zone extension is no longer required.

Since this amendment imposes no additional burden on any person, notice and public procedure hereon are unnecessary and the amendment may be made effective June 30, 1964.

In consideration of the foregoing, Part 71 [New] of the Federal Aviation Regulations is amended as hereinafter set forth.

In § 71.171 (29 F.R. 1101), the Jackson, Mich., control zone is amended by deleting "within 2 miles each side of the 313° bearing from the Jackson RBN, extending from the 5-mile radius zone to 8 miles northwest of the RBN," from the text.

(Sec. 307(a) of the Federal Aviation Act of 1958; 49 U.S.C. 1348)

Issued in Washington, D.C., on June 26, 1964.

DANIEL E. BARROW,
Chief, Airspace Regulations and Procedures Division.

[F.R. Doc. 64-6614; Filed, July 2, 1964; 8:46 a.m.]

[Airspace Docket No. 64-SW-36]

PART 73—SPECIAL USE AIRSPACE [NEW]

Alteration of Restricted Area

The purpose of this amendment to § 73.24 of the Federal Aviation Regulations is to change the controlling agency of the Fort Chaffee, Ark., Restricted Area R-2401 and R-2402 from the "Federal Aviation Agency, Fort Worth ARTC Center" to the "Federal Aviation Agency, Memphis ARTC Center."

The Fort Chaffee restricted areas lie within the control area recently transferred from the Fort Worth ARTC Center to the Memphis ARTC Center in an adjustment by the Federal Aviation Agency designed for more efficient use of the nation's airspace. Therefore, action is taken herein to amend the controlling agency of these restricted areas.

Since this amendment imposes no additional burden on the public, notice and public procedure hereon are unnecessary.

In consideration of the foregoing, § 73.24 (29 F.R. 1237) is amended as follows:

In R-2401 Fort Chaffee, Ark., and R-2402 Fort Chaffee, Ark., "Controlling Agency. Federal Aviation Agency, Fort Worth ARTC Center." is deleted and "Controlling Agency. Federal Aviation Agency, Memphis ARTC Center." is substituted therefor.

This amendment shall become effective 0001 e.s.t., July 1, 1964.

(Sec. 307(a), 72 Stat. 749; 49 U.S.C. 1348)

Issued in Washington, D.C., on June 26, 1964.

LEE E. WARREN,
Director, Air Traffic Service.

[F.R. Doc. 64-6616; Filed, July 2, 1964; 8:46 a.m.]

[Airspace Docket No. 64-CE-10]

PART 73—SPECIAL USE AIRSPACE [NEW]

Alteration of Restricted Area

The purpose of this amendment to Part 73 [New] of the Federal Aviation Regulations is to alter the Sheboygan, Wis., restricted area R-6903. The Department of the Air Force has requested that the designation of R-6903 be amended to reduce the Time of Designation between October 1 and April 30, annually, from 0800 to 1600 c.s.t., daily to 0800 to 1600 c.s.t., Saturday and Sunday.

Since this amendment imposes no additional burden on any person, notice and public procedure hereon are unnecessary and the amendment may be made effective immediately.

In consideration of the foregoing, Part 73 [New] of the Federal Aviation Regulations is amended, effective immediately, as hereinafter set forth.

In § 73.69 (29 F.R. 1283) the R-6903 Sheboygan, Wis., restricted area is amended by deleting "*Time of designation.* 0600 to 2200 c.s.t., May 1 through September 30, and from 0800 to 1600 c.s.t., October 1 through April 30." and substituting "*Time of designation.* 0600 to 2200 c.s.t., May 1 through September 30, and from 0800 to 1600 c.s.t., Saturday and Sunday, October 1 through April 30." therefor.

(Sec. 307(2) of the Federal Aviation Act of 1958; 49 U.S.C. 1348)

Issued in Washington, D.C., on June 26, 1964.

LEE E. WARREN,
Director, Air Traffic Service.

[F.R. Doc. 64-6615; Filed, July 2, 1964; 8:46 a.m.]

Chapter III—Federal Aviation Agency

SUBCHAPTER C—AIRCRAFT REGULATIONS

[Reg. Docket No. 6072; Amdt. 756]

PART 507—AIRWORTHINESS DIRECTIVES

Boeing Models 707-300B and -300C Series Aircraft

Several instances of cracks have occurred in the flanges of the fillet flap drive screw support assembly on Boeing Models 707-300B and -300C Series aircraft. To correct this condition, an airworthiness directive is being issued to require inspection of the upper and lower inboard and outboard flanges of the fillet flap drive screw support assembly and repair if any parts are found cracked.

As a situation exists which demands immediate adoption of this regulation, it is found that notice and public procedure hereon are impracticable and good cause exists for making this amendment effective in less than 30 days after the date of publication in the FEDERAL REGISTER.

In consideration of the foregoing, and pursuant to the authority delegated to me by the Administrator (25 F.R. 6489), § 507.10(a) of Part 507 (14 CFR Part 507), is hereby amended by adding the following new airworthiness directive: