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14 CFR Parts 21, 23, 36, 91, and 135
Airworthiness Standards and Operating Rules; Commuter Category Airplanes; Final Rule; Request for Comments

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 21, 23, 36, 91, and 135

[Docket No. 23516; Amdt. Nos. 21-59, 23-34, 36-13, 91-197, and 135-21]

Airworthiness Standards and Operating Rules; Commuter Category Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: These amendments to Parts 21, 23, 36, 91, and 135 of the Federal Aviation Regulations (FAR) adopt certification procedures, airworthiness and noise standards, and operating rules for an additional category of propeller-driven, multiengine airplane, designated as the Commuter Category. The amendment to Part 21 allows certification of commuter category airplanes by the same procedures applicable to other aircraft. The amendment to Part 23 adds airworthiness standards for airplanes with a maximum seating capacity, excluding pilot seats, of 19 or less, a maximum certificated takeoff weight of 19,000 pounds or less, and requires type certification compliance with the International Civil Aviation Organization (ICAO) Annex 8, Part III, requirements which apply to airplanes weighing in excess of 5,700 kilograms (12,566 pounds). The amendment to Part 36 adopts noise standards applicable to small, propeller-driven airplanes to be certificated in the commuter category. Parts 91 and 135 are amended to prescribe rules governing the operation of commuter category airplanes as required by the general operating and flight rules.

Since 1966, the FAA has been applying various additional airworthiness requirements to the certification of small airplanes, intended for use in air taxi operations, to achieve an acceptable level of safety when the affected airplanes are so utilized. These additional requirements were set forth in special conditions, Special Federal Aviation Regulation (SFAR) No. 23, Part 135 Appendix A, and SFAR 41. The SFARs were temporary rules intended only to provide relief to the industry and public from the lack of suitable certification procedures and standards while the FAA developed permanent rules. SFAR 23 ceased to be applicable after July 19, 1970, and SFAR 41 expired on September 13, 1983. This final rule, which adds the new commuter category, will set forth airworthiness requirements in Part 23 for airplanes intended for use in commercial operations. As a result of this action, airplanes certificated in the commuter category will achieve a level of safety requisite for commercial operations.

This document also requests comments on new seat and weight demarcations between small and large airplanes.

DATES: The effective date of these amendments is February 17, 1987. The closing date for comments is March 16, 1987.

ADDRESS: Comments on the proposed new demarcation lines are to be marked "Docket No. 23516" and mailed in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (Docket No. 23516), 800 Independence Avenue SW., Washington, DC. 20591; or deliver comments in duplicate to: Room 916, 800 Independence Avenue SW., Washington, DC. Comments may be inspected at Room 916 on weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m.

FOR FURTHER INFORMATION CONTACT: J. Robert Ball, Regulations and Policy Office (ACE-101), Aircraft Certification Division, Central Region, Federal Aviation Administration, 601 East 12th Street, Kansas City, Missouri 64106; Telephone (816) 374-5688.

SUPPLEMENTARY INFORMATION:

Regulatory History

These amendments are based upon a Notice of Proposed Rulemaking, Notice No. 83-17, published in the Federal Register on November 15, 1983 (48 FR 52010). All comments received in response to Notice No. 83-17 were considered in adopting these amendments.

Background

Since 1953, the airworthiness standards have distinguished small from large airplanes by a 12,500 pound maximum certificated takeoff weight (MCTW) limitation regardless of the type of operation. When this weight limitation was established, little concern was expressed that this demarcation would eventually become questionable with regard to airworthiness standards for an airplane of the commuter category. At that time, there were few airplane designs near this 12,500 pound limitation; i.e., they were either considerably above or below that weight.

In 1966, the FAA established an air taxi airworthiness program with the objective to provide a transition for air taxi airplanes from the small airplane requirements of Part 23 to the transport category airplane requirements of Part 25. That program resulted in the issuance of Special Federal Aviation Regulation No. 23 (34 FR 169; January 7, 1969). An additional step in the upgrading of airworthiness standards for reciprocating-engine and turbopropeller-powered small airplanes used in Part 135 operations was the adoption of an Appendix A to Part 135 (35 FR 10098; June 19, 1970) which set forth additional airworthiness standards for airplanes with ten or more passenger seats.

On July 7, 1970, the FAA issued Notice No. 70-25 (35 FR 10911) proposing to upgrade the level of airworthiness of small airplanes intended for operations under Part 135. In response to the comments received to Notice No. 70-25, and after further consideration, the FAA determined to limit the future applicability of Part 23 to small normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of nine or less. At that time this action was considered more appropriate than adding additional airworthiness requirements to Part 23. This action was based upon a trend toward an increase in the number and types of airplanes designed to carry relatively large numbers of passengers. At that time, the FAA considered that continued applicability of Part 23 to small airplanes designed to carry ten or more passengers was no longer in the interest of safety and future generations of these small airplanes should adhere to the level of safety afforded by the requirements of Part 25, irrespective of whether operations were conducted under Part 135 or Part 91. Thus, Amendment 23-10 limiting the number of seats, excluding pilot seats, to nine or less became effective March 13, 1971, and is applicable to normal, utility, and acrobatic category airplanes for which an application for a type certificate is received by the FAA after the March 13, 1971, date.

On August 29, 1977, the FAA issued Notice No. 77-17, (42 FR 43490) Part 135 Regulatory Review Program, proposing, in part, to prohibit the operation, after certain dates, of reciprocating engine or turbopropeller-powered small airplanes not certificated in the transport category and having a passenger seating configuration of ten or more seats. Before the closing date for comments on November 28, 1977, the FAA withdrew this part of the proposal in Notice No. 77-17. The more significant reasons given for the withdrawal are: (1) Comments on this proposal showed its

effect would virtually destroy the commuter airline industry and deprive the general public of needed transportation; (2) the proposal had already disastrously effected the industry; (3) airplane sales had been cancelled and operators had serious difficulty with financing: and (4) the cost of complying with the proposal would exceed 300 million dollars for an industry whose total profits did not exceed 50 million dollars a year.

Consequently, the FAA determined that the proposal should not be retained as part of the proposed new Part 135. The FAA did note that the withdrawal of the proposal did not preclude the FAA from issuing similar proposals in the future due to a change in circumstances nor commit the FAA to any course of action. The FAA encouraged further commits on this issue.

The FAA/Industry Commuter Aircraft Weight Committee submitted a petition to amend the regulations to allow certain small airplanes to be type certificate at maximum certificated takeoff weights greater than the 12,500 pound limitation without complying with the transport category airworthiness requirements of Part 25. Responding to this petition and other needs for improved standards resulting from the Airline Deregulation Act, the FAA initiated a three-phase program for certification and operation of commuter airplanes. The first phase was the issuance of a revised Part 135—Air Taxi Operators and Commercial Operators (43 FR 46742; October 10, 1978), which aligned the rules for those operations more closely with those of Part 121—Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft. The second phase, initiated by Notice No. 78-14 (43 FR 46734; October 10, 1978), proposed temporary rules stating the additional airworthiness requirements necessary to provide for increased takeoff gross weight and passenger seating capacity of certain existing small, propeller-driven, multiengine airplanes. The outcome of this Notice was the adoption of SFAR No. 41 (44 FR 53723; September 17, 1979), which became effective October 17, 1979. The third phase established the Light Transport Airworthiness Review Notice No. 78-17 (43 FR 60846; December 28, 1978) to develop a separate set of airworthiness standards for multiengine airplanes with a maximum gross weight up to 35,000 pounds and a seating capacity up to 30 passengers. Subsequent considerations and recommendations from industry during the Review escalated the maximum weight and passenger capacity limits to 50,000 pounds and 60 passengers for the light transport category airplane. Nevertheless, the FAA terminated the Light Transport Airworthiness Review program because, based on available information, the expected economic benefits resulting from a new light transport airplane airworthiness regulations would not be realized.

After the expiration of SFAR No. 41, as amended, on October 17, 1981, and termination of the Light Transport Airplane Airworthiness Review, the FAA reinstated SFAR No. 41, with amendments, as SFAR No. 41C, effective September 13, 1982 (47 FR 35150; August 12, 1982), for 1 year and subsequently started development of the commuter category requirements. Accordingly, Notice No. 83-17 (48 FR 52010; November 15, 1983) contained the proposed commuter category requirements.

This rulemaking package was initiated prior to the issuance on October 9, 1986, of NTSB Safety Recommendations A-86-98 through A-86-118, which deal with commuter airplane operating requirements. The FAA has not yet completed its review of those recommendations or developed its position on them. This rulemaking has no relationship with those recommendations and they have not been addressed in this document. If, after further review, the FAA finds it necessary to undertake additional rulemaking, we will do so.

Discussion of Comments

General

Interested persons were invited to participate in the development of this final rule by submitting such written data, views, or arguments as they may desire to the regulatory docket on or before February 14, 1984. In response to Notice No. 83-17, the FAA received 29 sets of comments.

In general, the comments received address five major issues: (1) Past FAA actions relative to airworthiness standards for airplanes of a size similar to those proposed in Notice No. 83-17; (2) the level of safety provided by the commuter category airplane airworthiness standards; (3) required compliance with the minimum standards of the International Civil Aviation Organization (ICAO); (4) different levels of safety for similar 19-passenger airplanes with maximum certificated takeoff weights below 12,500 pounds and above 12,500 pounds; and (5) comments which address specific proposals, or the lack of proposals, given by section number of Part 23.

Two commenters cite past FAA actions as being inconsistent with the proposal of airworthiness standards in Part 23 for type certification of an airplane in the proposed commuter category. One of these commenters oppose the proposal and cites the adoption of Amendment 23-10, effective March 13, 1971, which restricted future Part 23 airplanes to nine seats or less, excluding pilot seats. This commenter notes that, at that time, the FAA considered future airplanes capable of carrying more than nine passengers should be type certificated to Part 25. The other commenter quotes various statements from the notices of the Light Transport Airworthiness Review program and the purpose stated for the proposed Part 24—Airworthiness Standards: Light Transport Airplanes, and questions the FAA action in issuing Notice No. 83-17.

In response to the comment addressing the adoption of Amendment 23-10, the various rulemaking activities subsequent to the adoption of that amendment evidence significant changes in circumstances. Lack of adequate standards resulted in an unworkable situation by requiring all future airplanes capable of carrying more than nine passengers to be type certificated to Part 25. The problems created by that requirement are evidenced by the Light Transport Airworthiness Review Program in which Part 24 was proposed and by the adoption of SFAR No. 41 and its subsequent amendments as interim measures. Amendment 23-10 does, however, continue to be applicable to type certification of normal, utility, and acrobatic category airplanes.

The Light Transport Airworthiness Review Program recognized that application of Part 25 airworthiness standards to a light transport airplane was inappropriate. As noted in Notice No. 78-17 (43 FR 60846, December 28, 1978), which initiated the Review, the FAA proposal for a Part 24 tried to establish a balance between the transport category requirements in Part 25 and the small airplane requirements in Part 23 which would maintain the level of safety believed appropriate for light transport airplanes carrying passengers for hire. The airworthiness standards of Part 24 were initially proposed for an airplane with a maximum seating capacity of about 30 passengers and a maximum weight of 35,000 pounds without regard to the type of powerplants. Upon termination of the Review, the parameters defining the

light transport airplane extended to airplanes capable of carrying a maximum of 60 passengers and having a maximum weight of 50,000 pounds.

Based on the cited rulemaking efforts, the FAA does not consider the adoption of the new commuter category and the airworthiness standards for this category of airplane in Part 23 to be inconsistent with past actions by the FAA.

Information available to the FAA resulted in a determination, and industry has concurred, that a need exists for permanent airworthiness standards for an airplane of the size stated in Notice No. 83-17 and that an additional category of airplane should be established within Part 23. The FAA's alternatives were to relax the requirements of Part 25 to accommodate the new category or to propose additional airworthiness standards in Part 23 for the new category. The most appropriate course for the FAA was to propose the integration of additional standards into Part 23. The FAA considers the current airworthiness standards applicable to new type certification applications for normal, utility, and acrobatic category airplanes of Part 23, and the additional airworthiness standards of SFAR No. 41, as supplemented by those airworthiness standards necessary to comply with the minimum requirements developed by the International Civil Aviation Organization (ICAO) in Annex 8, Part III. The ICAO standards apply to airplanes weighing 5,700 kg. (12,566 lbs.) or more and to the carriage of passengers in international air navigation. The airworthiness standards of Appendix A of Part 135 not previously adopted in Part 23, which apply to airplanes with ten or more passenger seats, were also proposed for type certification of commuter category airplanes. The satisfactory service experience of propeller-driven, multiengine normal category airplanes recertificated to the additional requirements of SFAR No. 41 was drawn upon to support this course of action.

Several comments were received addressing the level of safety of the proposed commuter category airplane. As stated in the Notice, the level of safety established by the proposed airworthiness standards for the new commuter category are considered, to the maximum feasible extent, equivalent to those provided by the airworthiness standards for larger airplanes used in air transportation. In this determination, the FAA considered the following: (1) The airworthiness standards of Part 23, including all current amendments, would apply as a type certification basis for the commuter category; (2) the commuter category is limited to propeller-driven, multiengine airplanes and a maximum seating, excluding pilot seats, of 19 passengers; (3) the airworthiness standards for all commuter category airplanes up to and including the maximum certificated takeoff weight of 19,000 pounds must comply with those standards established by ICAO for airplanes weighing 5,700 kg or more, (4) the compartment interior requirements are equivalent to those set forth in Part 25 at the time Notice No. 83-17 was issued, irrespective of maximum weight of the commuter category airplanes; and (5) engine fire detector and fire extinguishing systems are required for type certification of any commuter category airplane. The FAA will continue to review the airworthiness standards for commuter category airplanes and propose improvements and updates, when necessary, to maintain the level of safety intended for airplanes to be used by commuter airlines and when shown to be in the public interest.

The FAA received numerous comments supporting the proposal. However, eight of the commenters use the phrase "special commuter category." The Federal Aviation Regulations and predecessor regulations have for many years addressed airworthiness standards for four categories of airplanes; i.e., normal, utility, acrobatic, and transport. This discussion does not include the restricted and limited categories which have specific applicability. The FAA assumes that the commenters are misinterpreting the word "special" if they are using it as a carryover from the temporary Special Federal Aviation Regulation No. 41 which contained the additional airworthiness standards for recertification of certain small airplanes with increases in maximum weight or passenger seats or both. The commuter category is not "special." It is a new category of airplane being established by this rulemaking.

Two commenters oppose mandatory compliance with the ICAO Annex 8, Part III requirements on the basis that, to date, the performance requirements have been applied to SFAR No. 41 certificated airplanes only when it was necessary to meet the international requirements of ICAO Annex 8. They assert that compliance with the ICAO requirements should be optional. One commenter contends that the ICAO rules generally represent the essential elements of Part 25 performance requirements and the inclusion of overly stringent and economically burdensome requirements are not essential to ensure the safety of modern airplanes to which the new commuter category airworthiness standards will apply. Furthermore, one commenter requests that the proposal be revised to restore the current SFAR No. 41 performance requirements; i.e., to permit Part 135 Appendix A performance for commuter category airplanes. In support of the commenter's position, the commenter submits plots showing the number of airports in the United States that could not be served due to the performance limitations of two currently certificated SFAR No. 41 airplanes.

On the other hand, several commenters, including an airline association, a foreign airplane manufacturer, and foreign civil airworthiness authorities support the proposal that the commuter category airplane comply with the ICAO Annex 8, Part III, requirements. One commenter contends that the performance of commuter airplanes has, in past years, been marginal in cases of engine failure and that the proposal to add ICAO Annex 8, Part III to commuter standards, bringing the commuter airplanes into conformity with international standards, will provide an additional protection and, therefore, endorses the proposal.

Two commenters contend that the provisions of section 1(a) of SFAR No. 41 should be incorporated into the proposed commuter category requirements in Part 23. This would allow type certification of airplanes in the commuter category with ten or more passenger seats (up to 19 seats) and a maximum weight of 12,500 pounds or less by compliance with regulations incorporated in the type certificate and only the additional requirements in Appendix A, of Part 135. This would also result in a dichotomy of the airworthiness standards for commuter category airplanes weighing up to 12,500 pounds and those weighing above 12,500 pounds.

The main argument presented by these commenters is that omission of section 1(a) of SFAR No. 41 from the proposed commuter category rule is inconsistent with the International Civil Aviation Organization (ICAO) standards of Annex 8. The ICAO standards differentiate the airworthiness requirements for airplanes weighing up to 12,500 pounds and those weighing more. Airplanes weighing more than 12,500 pounds must comply with Annex 8, Part III, while those weighing less than 12,500 pounds may comply with lesser requirements.

The FAA does not agree that the current requirements in SFAR No. 41 provide adequate or appropriate requirements for type certification of newly designed airplanes in the new commuter category. The Federal Aviation Act of 1958, as amended, addresses the level of safety in air transportation provided by air carriers in at least two specific sections. First, section 601(b) states, in part, ". . . the Secretary of Transportation shall give full consideration to the duty resting upon air carriers to perform their services with the highest possible degree of safety in the public interest and to any differences between air transportation and other air commerce." Second, section 419(c) states, in part, ". . . the Administrator, by regulation, shall establish safety standards (A) for aircraft being used by commuter air carriers . . . Such safety standards . . . shall impose requirements upon such commuter air carriers to assure that the level of safety provided to persons traveling on such commuter air carriers is, to the maximum feasible extent, equivalent to the level of safety provided to persons traveling on air carriers which provide service pursuant to certificates issued under section 401 of this title."

The ICAO airworthiness standards proposed for the commuter category airplane are the minimum standards to ensure safety of airplanes over-flying another contracting state. Contracting states, such as the United States, may establish standards which provide a higher level of safety than the ICAO minimum standards. The passenger capacity and proposed commercial service use are more meaningful parameters to delineate airworthiness safety standards than is airplane weight. Associating airworthiness standards with the number of passengers carried is also consistent with the nine passenger seat limitation requirement currently applicable to normal, utility, and acrobatic category airplanes. The proposed airworthiness standards are the minimum required in the interest of safety and form an integral part of the level of safety achieved by air carriers. Therefore, no changes in the proposal are made.

Several commenters contend that the production limitation date of October 17, 1991, for SFAR No. 41 airplanes should be eliminated and production of currently certificated SFAR No. 41 airplanes should be permitted for an indefinite period of time.

In response to these comments, we note that SFAR No. 41 was promulgated to meet an immediate need for the emerging commuter airline industry. That SFAR was predicated on the application of additional airworthiness standards for existing type certificated normal category airplanes that had demonstrated a good safety record. At the time SFAR No. 41 and its subsequent amendments were adopted, they provided airworthiness standards which met the mandate of the Congress regarding the safety standards for airplanes used by commuter air carriers. The temporary airworthiness standards of SFAR No. 41 served the purpose for which they were intended and established the necessary level of safety mandated by Congress. In any case, newly manufactured airplanes which are certificated under SFAR No. 41 will not be required to comply with these requirements.

One commenter states that Part 23, as amended by this final rule should provide for airplanes with ten or more passenger seats and a maximum certificated takeoff weight of 12,500 pounds or less, citing paragraph 1(a) of SFAR No. 41 as the reason for such a provision. Additionally, several commenters contend that certification of airplanes in the commuter category should be permitted by complying only with the additional requirements applicable to the commuter category and those requirements stated in the previous type certification basis of their airplane.

The FAA does not agree that the commuter category should differentiate between airplanes that weigh less than 12,500 pounds and those that weigh more than 12,500 pounds. Furthermore, the FAA has concluded that a certification basis for the new commuter category should include all current amendments of Part 23 plus all of the airworthiness standards of SFAR No. 41 in order to achieve the appropriate level of safety. The proposed requirements for fuel tanks, fire extinguishing systems, fire extinguishing agents, compartment interiors, fuel system components crashworthiness, and landing gears are essential to the level of safety expected of airplanes to be type certificated in the new commuter category, irrespective of the weight of the airplane. Certification of airplanes to only the SFAR No. 41, paragraph 1(a) requirements would permit certification of airplanes with a seating configuration, excluding pilot seats, of 19 or less without complying with the above requirements.

The traveling public is entitled to the protection afforded by these safety requirements regardless of whether the commuter category airplanes has a maximum certificated takeoff weight above or below 12,500 pounds. In addition, the FAA has had several airworthiness review programs of the airworthiness standards for Part 23 airplanes. The purpose of these airworthiness reviews has been to improve and update the airworthiness and crashworthiness standards applicable to the type certification of new small airplane designs and many of the airworthiness standards required by paragraph 1(a) of SFAR No. 41 have subsequently been adopted into Part 23 for new designs of airplanes in the normal, utility, and acrobatic categories. These requirements alone are not considered adequate for commuter category airplanes and must be supplemented as set forth in Notice No. 83-17 for commuter category type certification.

The FAA received comments in support of the proposal which contend that the proposal is equivalent to the airworthiness standards of the proposed Part 24 for the light transport airplane. The FAA does not agree that the airworthiness standards for the commuter category airplane are equivalent to those of the recently proposed Part 24. Some of the reasons for this disagreement are the unrestricted use of powerplants, the size, and maximum weight of the proposed Part 24 airplane and airworthiness standards directly related to airplanes of this size.

Six additional commenters in support of the proposal, operations of SFAR-41 airplanes, stated that redesign of the 19-seat commuter airplane to meet the requirements of Part 25 would be cost prohibitive. The information supplied by these commenters is consistent with that provided by commenter to a proposal in Notice No. 77-17 which would have required all airplanes operated under Part 135 after June 30, 1984 to meet Part 25 requirements. That proposal in Notice No. 77-17, comments received on it, and FAA reason for withdrawal of the proposal, is discussed earlier in the Regulatory History portion of this final rule. Based on the comments which resulted in the withdrawal of Notice No. 77-17 and these six comments, the FAA does not plan to propose that existing 19-seat commuter airplanes be redesigned to meet the requirements of Part 25.

One commenter suggests changes to Part 1 to redefine "small aircraft." No justification or reason to support a redefinition of "small aircraft" is offered. The suggested redefinition, therefore, is unnecessary.

Discussion of Comments to Specific Sections of Parts 21, 23, 36, 91, and 135

The following comments and discussions are keyed to like-numbered proposals contained in the Notice, or to specific sections where the comments address sections not previously addressed in Notice No. 83-17. In Notice No. 83-17, proposals numbered 1 through 59 address Part 23; proposals 60 through 72 address Part 21, proposals 73 through 78 address Part 36, proposal 79 addresses Part 91, and proposals 80, 81, and 82 address Part 135.

Proposal 1—No comments were received in response to the proposed title change to Part 23. The title of Part 23 is adopted as proposed.

Proposal 2—No specific comments were received in response to the proposed amendment of § 23.1, however, general comments related to § 23.1 have been discussed under the previous general comments of this preamble. Section 23.1 is adopted as proposed.

Proposal 3—One commenter contends § 23.3(d) should be revised to provide for airplanes limited to 12,500 pounds maximum takeoff weight and a seating configuration, excluding pilot seats, of ten or more. The FAA does not agree. The airworthiness standards, adopted herein establish requirements for the commuter category, regardless of weight, from less than 12,500 pounds up to and including 19,000 pounds, or passenger seating configuration, excluding pilot seats, not to exceed 19.

One commenter recommends that § 23.3 be amended to require all airplanes used by scheduled air carriers to be certificated as commuter category since, under the present and proposed rules, airplanes of nine or fewer passenger seats will continue to be eligible for certification under existing Part 23 rules and not the enhanced commuter category rules. The FAA recognizes the merit of the comment and will consider additional rulemaking to enhance the level of safety of airplanes used by scheduled air carriers with a passenger configuration of nine or less when shown to be in the public interest or necessary for safety. The FAA considers this comment to be outside the scope of this rulemaking activity and one that cannot be adopted concurrently with these amendments without additional public participation in such a proposal.

Another commenter recommends that § 23.3(d) be changed to add single-engine, turbopropeller-powered airplanes to the commuter category. The FAA does not agree with the inclusion of single-engine, turbopropeller-powered airplanes within the commuter category. While the commenter contends that turbopropeller engines have a record of increased reliability over reciprocating engines, the prospect of a single-engine failure does not provide the level of safety expected from the airworthiness standards for commuter category airplanes which must have the ability for continued safe flight and landing after probable failures, including the failure of an engine.

One commenter questions the rationale and justification which restrict the commuter category to propeller-driven airplanes. The commenter contends that this restriction does not appear to enhance the airworthiness of the commuter category and could unduly restrict innovative designs. The scope of the proposal was limited to integrating into Part 23 the airworthiness standards as set forth in Notice No. 83-17, including those necessary to comply with the ICAO requirements. Since the airworthiness standards proposed in Notice No. 83-17 would apply to propeller-driven airplanes only, these standards are not considered adequate for other propulsion system designs. The comment is not germane to the scope of this final rule.

A minor clarifying change was made to proposed § 23.3(e) by inserting the word "type" before the word "certificated." This makes clear that certification in that paragraph was with reference to type certification and not to airworthiness certification.

It has been past FAA policy to issue an airworthiness certificate for an airplane in more than one category. However, for an airplane type certificated in both the normal and commuter categories, the FAA will not issue an airworthiness certificate for more than one category. This procedure is being established because of significant differences among the airworthiness, maintenance, and operating requirements applicable to normal and commuter category airplanes. Accordingly, for those airplanes that may be type certificated in both the normal category and the commuter category, an applicant may apply for a standard airworthiness certificate as either a normal or commuter category airplane, but not for multiple airworthiness certification in both categories. If the applicant selects airworthiness certification as a normal category airplane, the airplane must be operated as a small airplane with a seating configuration, excluding pilot seats, of nine or less in accordance with the normal category type certificate limitations for the airplane. Alternatively, if the applicant selects airworthiness certification as a commuter category airplane, the airplane must be operated in accordance with the commuter category type certificate limitations for the airplane.

Proposal 4—One commenter states that paragraph 4(a) of SFAR No. 41, as amended, requires the establishment of a maximum zero fuel weight and contends that § 23.25 should include such a requirement. The FAA agrees. Therefore, establishment of a maximum zero fuel weight by the applicant, as required in paragraph 4(a) of SFAR No. 41, is considered necessary and § 23.25 is revised accordingly to assure the airplane design considers the necessary operational limitations with variations between payload and fuel loads.

Proposal 5—One commenter states, for ICAO Annex 8 compliance, that an approach configuration must be selected. The FAA agrees that the applicant should determine the approach configuration since compliance with the airworthiness standards for commuter category airplanes requires performance in the approach configuration. Accordingly, § 23.45(f)(1) is changed by adding the word "approach" following the words "en route" in the requirements for airplane configuration selection by the applicant.

Another commenter recommends a statement of principle as a new paragraph (a) to be added to § 23.45 to read as follows, and subsequent paragraphs renumbered accordingly:

"(a) The intended level of safety will be achieved only if the performance information, established and furnished in accordance with FAR 23, Subparts B and G, is used in conjunction with the performance operating rules of FAR 135.399 through FAR 135.403."

The commenter proposes revisions to § 135.399 and additional sections to Part 135. The FAA does not agree that a "statement of principle" should be included in § 23.45. The Federal Aviation Act of 1958, as amended, sets forth the requisite policy and principle with respect to airworthiness standards and operating rules for U.S. civil aircraft.

The previous commenter also recommends that § 23.45(f)(3) include reference to the "takeoff flight path" unless it is covered by ". . . the critical-engine-inoperative takeoff performance," and the landing distance. The FAA agrees with the recommendation and, for clarity, this general performance requirement has been revised to include "takeoff flight path" and "landing distance" in § 23.45(f)(3). Since § 23.1583, Operating limitations, requires this information to

be included in the Airplane Flight Manual (AFM) for safe operation and since § 23.75 includes requirements for determining landing distances, § 23.45(f)(3) should include requirements that make it clear that the applicant must establish these procedures.

In addition, the commenter recommends that § 23.45(f)(4) be revised to include the establishment of procedures for conducting a missed approach and the requirement for these procedures be stated in the Airplane Flight Manual in accordance with the requirements of §§ 23.1585 and 23.1587. The FAA agrees with the recommendation. Since new §§ 23.67(e)(3) and 23.77(c) contain requirements for the establishment of condition for the execution of a missed approach and balked landing and § 23.45(f)(4) as proposed in Notice No. 83-17 requires the establishment of procedures for the execution of balked landings, the procedures for executing a missed approach should also be included in this amendment of § 23.45(f)(4). These procedures are required to be in the Airplane Flight Manual by § 23.1585(a). The FAA considers this addition as an elaborative, nonsubstantive change to § 23.45(f)(4).

One commenter contends that §§ 23.45 through 23.77 should reflect the standards contained in §§ 25.101 through 25.125 for the following reasons: (1) The proposed wording of § 23.55, Accelerate-stop distance, does not incorporate V_{EF} or the time delays for engine failure recognition and reaction by the pilot as required by Part 25, and (2) proposed § 23.57, Takeoff path, would require a 2.0 percent steady state climb gradient. This is an improvement over existing regulations, but the commenter is of the opinion that 2.4 percent should be required, contending this gradient is very important to the level of safety attained. The commenter contends that the level of safety is not the result of tailoring each takeoff for the most critical condition, but of establishing a floor such as the 2.4 percent gradient. A floor gradient covers those anomalies not accounted for by the takeoff equation; e.g., actual runway gradient rather than average, runway outside air temperature, windshear, drag from brakes and other contaminants, engine power degradation, instrument errors, and weight and balance errors. In addition, this commenter states that if the takeoff is predicated upon clearing obstacles by some fixed value; e.g., 35 feet, the end result will be disastrous because these anomalies may contribute to a failure to clear the obstacle.

The FAA does not agree with the comment that §§ 23.45 through 23.77 should be replaced with the requirements of §§ 25.101 through 25.125. The requirements of §§ 23.45 through 23.77 which require a 2-percent second-segment climb gradient are the standards for airplanes recertificated to SFAR No. 41 as supplemented by those requirments necessary to comply with the flight performance standards of ICAO Annex 8, Part III. Those recertificated airplanes have a good safety record and retaining those requirements as well as adopting the enhanced flight performance requirements of ICAO Annex 8, Part III, provide the safety level expected of the new airplane designs permitted by this new category. Furthermore, this final rule includes many of the Part 25 requirements suggested by this commenter.

Another commenter states that the proposed flight requirements for this category of airplane attain the appropriate level of safety of commuter category airplanes. The commenter states that the additional requirements of SFAR No. 41C, which brought airplanes over 12,500 pounds into compliance with ICAO Annex 8, Part III, now appear to be applicable to any 10- to 19-seat airplane, even if under 12,500 pounds. The commenter supports this action.

In response to this comment, to clarify what appears to be a misconception on the part of the commenter, the additional requirements of SFAR No. 41C did not require airplanes of over 12,500 pounds to comply with the requirements of ICAO Annex 8, Part III. The ICAO Annex 8 requirements are applicable only if an applicant desires to comply with them for certification to SFAR 41C; i.e., compliance is not mandatory as implied by the commenter. The commenter correctly understands that the ICAO Annex 8 requirements are applicable to any commuter category airplane, even if under 12,500 pounds. Accordingly, ICAO Annex 8 requirements, as adopted by this amendment, are applicable to any commuter category airplane, even if the seating configuration, excluding pilot seats, is less than ten or the airplane has a maximum weight of less than 12,500 pounds and is to be type certificated in the commuter category.

Proposal 6.—The comments received in response to the proposed amendment of § 23.51, were discussed under Proposal 5. Accordingly, § 23.51 is adopted as proposed.

Proposal 7.—One commenter agrees with the FAA decision to apply essentially Part 25 standards to takeoff performance criteria for commuter category airplanes. This commenter suggests that a significant simplification of § 23.53, Takeoff speeds, could be achieved if it were based more closely on the existing requirements of § 25.107 and the Joint Airworthiness Requirements (JAR) 25.107. A proposed simplification was offered. (NOTE: The Civil Airworthiness Authorities of certain European countries have agreed common to comprehensive and detailed airworthiness requirements referred to as the Joint Airworthiness Requirements (JAR) with a view to minimizing type certification problems on joint ventures, and also to facilitate the export and import of aviation products.) The FAA agrees and § 25.53(c) has been simplified by deletion of subparagraphs (c)(4)(ii) and (iii) which are included in subparagraph (c)(1) of this section.

Another commenter notes the absence of a requirement for the determination of the minimum unstick speed. V_{MU}, and the resultant absence of V_{MU} consideration in the determination of the rotation speed, V_R. A determination of V_{MU} was not a requirement for a type certification under SFAR No. 41 and the FAA considers the requirement that V_R not be less than 1.10 V_{S_1} or 1.10 V_{MC} as an adequate safeguard. In addition, another commenter supports this FAA position and notes that the V_R requirement is more stringent than that required for transport category airplanes. In addition, the determination of V_{MU} typically requires addition of equipment to the airplane to conduct the tests and the FAA considers the additional tests as unnecessary for commuter category type certification.

Proposal 8.—One commenter states that although the proposed requirements of § 23.55, Accelerate-stop distance, have been accurately adopted from Part 135, Appendix A, § 5(c), this section has always conflicted with the definition of V_1 as a decision speed. The commenter suggests that § 23.55(a)(2) be changed to read ". . . at which V_1 reached assuming that, in the case of engine failure, the pilot decides to stop at the speed V_1." Another commenter contends that the proposal needs to be modified since it is not entirely consistent with the relationship between V_1 and V_{EF}, as stated in § 23.53(c)(1)(iv). This commenter suggests that the language used in § 23.55(a) emulate the existing requirements of § 25.109(a) and JAR 25.109(a). The FAA agrees with the first commenter regarding the conflict with the definition of V_1 as a decision speed and also with V_1 and V_{EF} as proposed in § 23.53(c)(1)(iv). These apparent

conflicts can be resolved by more clearly setting forth the series of events necessary to determine the accelerate-stop distance requirement. Section 23.55(a) is revised accordingly and the revision is a nonsubstantive change to the requirement as proposed.

One commenter suggests § 23.55(b)(3) be changed to read ". . . no more than average skill is required . . ." instead of ". . . exceptional skill is not required . . ." The commenter does not provide a reason for the suggestion. Section 25.109(b)(3) has the same wording as the proposal in § 23.55(b)(3) and the FAA is not aware of any interpretive problems with the Part 25 requirement. Accordingly, § 23.55(b)(3) is adopted as proposed in Notice No. 83-17.

Proposal 9.—Two commenters note that § 23.57 is patterned after the requirements of § 25.111, and that § 23.57(c)(2) includes the "second segment" climb requirement. They contend that this approach to stating the requirements may ultimately cause disputes; therefore, it is more appropriate to include the requirement in § 23.67, Climb: one engine inoperative. The FAA agrees and the words "at a steady gradient of not less than two percent, and" are deleted as proposed in § 23.57(c)(2) and the "first segment" and "second segment" climb requirements are added to § 23.67 as recommended by these commenters.

One commenter contends the takeoff path should terminate at 1000 feet above the takeoff surface as stated in Part 135, Appendix A, instead of 1500 feet as proposed in § 23.57(a) and the final rule should delete all en route climb gradient requirements other than a 1.2 percent standard. The FAA does not agree. First, airplanes recertificated to SFAR Nos. 41B and 41C which comply, at the election of the applicant, with the ICAO requirements, the ICAO 1500-foot takeoff path requirement applies instead of a 1000-foot takeoff flight path required in Part 135, Appendix A. Furthermore, commuter category airplanes are to comply with the ICAO requirements. Secondly, en route climb gradient requirements other than 1.2 percent were required by an SFAR 41 amendment which set forth the requirements for ICAO compliance. These requirements are necessary in the commuter category standards to comply with the ICAO airworthiness standards.

Another commenter contends the 2-percent climb gradient to 400 feet, as stated in Part 135, Appendix A, paragraph 6(b)(2), has been interpreted to be the same gradient required at airfield altitude. This commenter cites § 25.121(b) which was not referenced in SFAR No. 41B to satisfy compliance with ICAO requirements. The commenter states the same criteria currently contained in Part 135, Appendix A, should be retained for § 23.57(c)(2) and further contends that no reason is evident for changing that regulation. The FAA does not agree. The proposed climb gradient adopted in § 23.67 more clearly identifies the requirement for climb with one engine inoperative. The climb gradient is necessary to comply with the ICAO requirements and the level of safety expected on new airplane designs of the commuter category.

Another commenter contends that applications for type certification in the commuter category, for airplanes with more than two engines, are likely to be rare and some simplification of § 23.57 and other requirements might be achieved by the deletion of requirements relating to three- and four-engine airplanes. The FAA concludes, however, that in cases where an applicant is designing a three- or four-engine airplane, the applicant should know the applicable requirements for its design. Therefore, the requirements for three- and four-engine airplanes should remain in the final rule. Accordingly, the proposal regarding three- and four-engine airplanes is adopted as proposed.

One commenter understands that FAA policy, with respect to transport category airplanes, is to deny performance credit for manual propeller feathering before the airplane reaches a height of 400 feet above the takeoff surface and suggests that § 23.57(c)(4) be changed to include the commenter's understanding of this policy as a clarification of the use of propeller feathering in determining commuter category airplane performance. The commenter's understanding is correct. Furthermore, the FAA used Part 135, Appendix A, paragraph 6(b), Takeoff climb: one-engine-inoperative, as one of the reference sources for the § 23.57(c)(4) proposal. Paragraph 6(b) states, in part, ". . . the remaining engines at the maximum takeoff power or thrust, and the propeller of the inoperative engine windmilling with the propeller controls in the normal position, except that if an approved automatic feathering system is installed, the propellers may be in the feathered position: . . ." To clarify the condition for which use of propeller feathering can be regarded as a configuration change, the word "automatic" will precede the word "propeller" in the final revision of § 23.57(c)(4). This action is not based upon the policy applied to transport category airplanes, but rather upon the requirement stated in the additional airworthiness standards of Part 135, Appendix A, which was to be integrated into Part 23 for commuter category airplanes as indicated in Notice No. 83-17.

Proposal 10.—One commenter states that this new § 23.59 should be applicable for ICAO Annex 8 compliance and should apply only when the applicant elects such compliance. The FAA disagrees. The issue of ICAO Annex 8 compliance has been discussed previously as it concerns the level of safety expected of new airplane designs for the commuter category.

Another commenter supports the proposal but, nonetheless, suggests a change based upon material contained in Advisory Circular, Joint (ACJ) No. 25.113(a)(2) for takeoff with all engines operating. (Note: AJC advisory material is developed in conjunction with the JAR airworthiness standards.) The commenter contends the requirements of takeoff and accelerate-stop performance data are incomplete unless they include sufficient information to allow the rational downward adjustment of V_1 when taking off from a wet runway. The FAA does not agree. The requirements, as stated, are essentially equal to those applied to transport category airplanes as cited in § 25.113(a). The FAA is not aware of any significant problems in applying the requirements of that section nor of any unsafe conditions arising from application of its requirements either to transport category airplanes or to the SFAR No. 41 airplanes which comply with the ICAO requirements.

One commenter, while stating that § 23.59(b) is a desirable addition, contends a new speed, V_{LOF}, is introduced. In addition, the commenter suggests that V_R should be substituted for V_{LOF} since this would result in a more conservative, shorter takeoff run. The FAA does not agree that a new speed, V_{LOF}, has been introduced. Section 23.51(b) currently states "For multiengine airplanes, the lift-off speed, V_{LOF}, may not be less than V_{MC} determined in accordance with § 23.149." In addition, the FAA does not agree that V_R should be substituted for V_{LOF} because V_R is the rotation speed for takeoff and V_{LOF} is the speed at which the airplane leaves the takeoff surface after attaining the rotation speed, V_R.

Another commenter contends that few airport authorities declare clearways and that few operators have the resources to carry out independent surveys. Operators should be permitted to use defined clearways when available and permitted by the operating rules. Takeoff distance limitations would result in a unwarranted penalty

at airports where clearways have been defined by the responsible authorities. Accordingly, the FAA is adopting the requirements as proposed.

Proposal 11.—One commenter states that the new § 23.61, only applies to ICAO Annex 8 compliance and should apply only when the applicant elects such compliance. The FAA disagrees. The issue of complying with the requirements of ICAO Annex 8 has been previously discussed.

Another commenter recommends deleting the requirements applicable to three- and four-engine airplanes. The FAA disagrees. See the discussion in Proposal 9.

Proposal 12.—One commenter contends that the proposed change to § 23.65 concerns all-engine climb and, except for balked landing climb, Part 135, Appendix A, is not concerned with all engine climb. Accordingly, the commentor recommends the deletion of proposed paragraph (d) to § 23.65. This commenter contends that the source referenced for the proposal is in error. Another commenter contends that the proposed additional paragraph (d) is superfluous because: (1) A requirement to furnish performance data in the Airplane Flight Manual is contained in § 23.1587, Performance information; (2) proposed new paragraph (a) to § 23.45, General, requires all performance requirements to be met at ambient atmospheric conditions; and (3) the existing § 23.21(a) requires all flight requirements to be met "at each appropriate combination of weight and center of gravity . . . for which certification is requested." The FAA has reexamined the proposal, considered the comments made, and does not agree with the commenters' contentions. The requirement states that the performance data must be determined. The information required by § 23.1587 cannot be furnished until it is determined as required by § 23.65(d).

Proposal 13.—One commenter states that proposed § 23.67(e) requires unwarranted reliance on the takeoff path requirements of proposed § 23.57 for one-engine-inoperative climb requirements. This commenter contends that the proposed regulation can be interpreted as meaning either that the takeoff with the landing gear extended requirement of Part 135, Appendix A, paragraph 6(b)(1) has either disappeared or may be demonstrated in ground effect and that neither case is considered satisfactory. This commenter recommends § 23.67(e) should be rewritten in a manner that follows the pattern of Part 135, Appendix A, paragraph 6(b) in order to be more easily understood.

Additionally, another commenter states that the proposed § 23.67(e)(2) seems to be redundant with proposed § 23.57(c)(3)(i) for two-engine airplanes and less restrictive than proposed § 23.57(c)(3)(iii) for three- and four-engine airplanes; therefore, proposed § 23.67(e)(2) might be deleted.

One further commenter states that no reason has been offered for failing to include the takeoff climb, landing gear extended, requirement of Part 135, Appendix A, in this rule and contends that § 25.121(a) and JAR 25.121(a) have always had such a requirement. This commenter asserts that § 23.57(c)(1) is not an adequate substitute because the takeoff climb with the landing gear extended should form a part of the takeoff weight, altitude, temperature (WAT) limitation and the "second segment" climb should also be included in § 23.67 instead of § 23.57. This commenter also states that, as discussed in the comment to § 23.57, the "second segment" takeoff climb with the landing gear retracted should also be located in § 23.67 since this, too, forms a part of the takeoff WAT limitation. In addition, this commenter states that by referencing § 25.1533(a)(1), it is clear by analogy with § 25.121(c), that proposed § 23.67(e)(2) forms the third component of the takeoff WAT limitation. This commenter submitted a rewrite of § 23.67(e) for consideration.

The FAA thoroughly considered the comments received along with the requirements of proposed § 23.67(e). The FAA agrees that the requirements should be rewritten to be more easily understood. The removal of the requirements for one-engine-inoperative climb in the takeoff from proposed § 23.57 and the insertion of that requirement in § 23.67 will meet this objective.

One commenter contends that a need exists for a further requirement similar to § 25.1533(a)(1) and JAR 25.1533(a)(1), which calls for a performance operating limitation to be established; i.e., the maximum takeoff weight as a function of altitude and temperature, at which compliance can be shown with the minimal climb gradient of proposed § 23.67(e). The FAA considers that the further requirement is encompassed adequately within the proposed requirements of § 23.1583(c)(3)(iii). This commenter contends that accepting a lower standard for the "second segment" climb is difficult to defend and also asks why there is no increase in values for three- and four-engine airplanes. The FAA considers the "second segment," 2-percent climb gradient for two-engine airplanes as the minimum standard based upon the satisfactory service experience with two-engine airplanes recertificated to SFAR No. 41. The FAA, however, reviewed this comment and agrees that a minimum standard should be established for three- and four-engine airplanes. Accordingly, in order to clarify this section and make it consistant with other proposed sections in this rulemaking action, § 23.67(e)(1)(ii) must include appropriate climb gradients for three- and four-engine airplanes. Also, corrections have been made to §§ 23.67(e)(1)(i) and 23.67(e)(2) by including appropriate three- and four-engine provisions.

One commenter contends that a need exists for a knowledge of the airplane's net climb/descent gradient with one engine inoperative in order to establish compliance with the performance operating rules relating to en route flight proposed by the commenter. The commenter asserts that this need is not met by existing § 23.67 and a proposed wording for a new section is offered. The FAA does not agree. The proposed requirements meet the en route performance operating rules of Part 135. Accordingly, the proposed section from this commenter has not been adopted.

Comments which are subsequently discussed on Proposal 15 notes that the proposed requirements for approach landing climb were misplaced under § 23.77. As discussed under that proposal, the approach landing climb requirements proposed for § 23.77 have been relocated to § 23.67(e)(3).

Proposal 14.—One commenter contends that the requirements of § 23.75, even as amended by proposed new paragraph (g), are inadequate in that they fail to address landing with one engine inoperative. A in the case of evaluation of takeoff performance, a clearer presentation of the relevant requirements can be achieved if the speeds and distances are considered in separate sections. As suggested text for a new requirement of reference approach speeds is offered. This commenter proposes that the landing field length requirement proposed by that, inasmuch as it includes consideration of the all-engines-operating and the one-engine-inoperative cases, is more complex than that proposed in Notice No. 83-17. The commenter notes that higher ambient temperatures dictate greater landing distances and the effect is amplified if credit for reverse thrust is allowed in accordance with existing § 23.75(f). The FAA does not agree that the proposed requirements are inadequate or that there is a need to separate the landing speeds and determination of landing

distances into separate sections. The requirements, as proposed, are essentially the same as those applied to transport category airplanes for Part 25 type certification. The comment addressing ambient temperature as one parameter against which landing distances should be determined is well taken. However, § 23.1583, Operating limitations, as proposed, requires as a limitation, the maximum landing weight for each altitude, ambient temperature, and required landing runway length within the range selected by the applicant. Section 23.75 is designed for test purposes and the affect of ambient temperature on the landing distance is calculated in accordance with § 23.1583. Therefore, no change is being made to the proposed requirement.

One commenter contends that consideration of wind in § 23.75(g)(1) is superfluous and should be deleted because of wind consideration in § 23.75(g)(3). Wind condition analysis is set forth in § 23.75(g)(3), as proposed. The requirement that wind conditions must be considered is set forth in § 23.75(g)(1). These paragraphs perform different functions, therefore, the word "wind" in § 23.75(g)(1) is not considered superfluous. Section 23.75(g)(1) is adopted as proposed.

Proposal 15.—One commenter states that in order to maintain the Part 25 and JAR 25 format, the balked landing climb requirements, for all categories of airplane should be transferred to § 23.65, Climb: All engines operating. The FAA does not agree. This commenter contends that the balked landing climb gradient minimum for commuter category airplanes should not be greater than the 3.2 percent climb gradient required for transport category airplanes. No supporting information was given concerning the inappropriateness of the balked landing climb gradient and that portion of the proposal is, therefore, adopted as proposed.

The comment is made that the minimum speed of 1.10 V_{S1} is considered grossly inadequate since it implies an unacceptable erosion of stall speed margin and/or a need for a significant acceleration if the flaps are retracted from the landing position early in the maneuver. The contention, however, is that a climb initiated at precisely the landing approach speed has the characteristic of being slightly conservative, since climb performance is likely to improve slightly should the speed fall below V_{REF} (reference speed) in an operational maneuver. This commenter offers a rewrite of the proposal. The FAA does not agree that the 1.10 V_{S1} speed is inadequate as the minimum for this balked landing climb speed. Similar requirements have been applied to airplanes certificated under SFAR No. 41, and these airplanes have safely operated under the current rules.

One commenter contends that the proposal has two problems: (1) The proposal addresses the approach climb and is misplaced under § 23.77 Balked landing, which has a very exact meaning; and (2) the requirement should apply only to ICAO Annex 8 compliance and should be deleted or made optional. The commenter states that the approach climb requirement applies with the landing gear retracted and flaps in the approach position and the proposal should be clear that the landing gear is in the retracted position. Another commenter notes this and also suggests that § 23.67 Climb: one engine inoperative, includes the requirement for approach landing climb instead of the section concerned with the balked landing requirements. The FAA agrees that the approach-landing climb more appropriately should be cited as one-engine-inoperative climb requirement and is being placed in § 23.67(e)(3) for those requirements. As indicated previously, the FAA does not agree that the approach landing climb requirement should be deleted or optional. Accordingly, the requirement for approach landing climb is placed in amended § 23.67 instead of § 23.77 in substantially the same form as proposed in Notice No. 83-17.

Another commenter states that proposed § 23.77(c)(2), although adopted substantially unchanged from § 23.121(d) and JAR 25, is an unsatisfactory requirement primarily due to the operationally unrealistic speed at which the climb gradient minimum may be met. The commenter proposes an existing ICAO Airworthiness Technical Manual standard which possibly avoids this and other purported shortcomings of § 25.121(d) and JAR 25.121(d). The contention is that the proposal has the merit of ensuring compatibility, down to decision heights of 200 feet, with the ICAO PANS/OPS 1:40 go-around obstacle profile and offers greater flexibility in terms of configuration changes. Therefore, the proposal is not necessarily any more stringent than § 25.121(d) or JAR 25.121(d). While the proposal of the commenter appears to have merit, it introduces several requirements which need further consideration. The requirements of § 23.77(c)(2) as proposed in Notice No. 83-17 have been applied in numerous type certification programs and no adverse experience with such application has been offered. Accordingly, the proposed requirements of § 23.77(c)(2) are adopted in § 23.67, Climb: one engine inoperative, as recommended by the commenters.

Two comments were received on the issue of minimum control speed on the ground, V_{MCG}. One commenter questions the lack of a requirement to determine V_{MCG}. Another commenter states that to provide an adequate constraint on the lowest value of V_{EF} with which V_1 may be associated, the inclusion in § 23.149 of a definition of the minimum control speed on the ground is necessary. A text based upon § 25.149(e) was proposed by this commenter. The FAA recognizes the merit in the suggestion; however, based upon experience with recertification of airplanes to the requirements of SFAR No. 41, a requirement for determining the minimum control speed on the ground, V_{MCG}, is not necessary at this time.

One commenter contends an adequate definition of the reference landing approach speed with one engine inoperative depends on the definition of the minimum control speed during landing approach with one engine inoperative, V_{MCL-1}. The contention is the minimum control speed with one engine inoperative is needed to maintain adequate lateral and directional control in the event of a one-engine-inoperative approach being discontinued. A text based upon JAR 25.149(g) is offered by this commenter. The FAA does not agree because the requirements of § 23.67 which relate to approach landing climb must be met for type certification. The FAA is not aware of any adverse experience because of the lack of such a determination, nor was any data submitted to support the contention. Furthermore, such a requirement has not been required for recertification of airplanes to SFAR No. 41.

One commenter states that the required rates of roll of § 23.157, at takeoff and during the approach, which result from the application of the formula contained in paragraphs (a) and (c) are not disputed. With the increase from 12,500 pounds to 19,000 pounds for the maximum takeoff weight of commuter category, however, these formulas yield rates of roll some what lower than designers would wish to achieve or pilots perceive as adequate and are lower than what is considered acceptable in ACJ 25.147(c)(2) and ACJ 25.147(e) for transport category airplanes. This commuter contends that this problem can readily be resolved by a proposed language change to § 23.157 (a) and (c). The FAA does not agree that § 23.157 should be revised. The

requirements of § 23.157 are the minimum rates of roll and designers may increase the rates of roll for their airplanes if they choose. Therefore, § 23.157 is an adequate minimum standard for commuter category airplanes and no change is being made to the existing requirement.

Proposal 16—One commenter contends that the proposal appears to provide a lower standard for commuter category airplanes than is applied to normal category airplanes and that the current requirements of § 23.161(c)(2) appear adequate. Another commenter states that since most commuter category airplane operations would be conducted under instrument flight rules (IFR), reducing control forces to zero (trimmed flight) under most flight conditions is important. This commenter contends that requiring the airplane to be in trim, laterally and directionally, at only one speed is inadequate. A proposed text for § 23.161(b)(2) is offered by this commenter. The commenter also suggested that the requirements of § 23.161(d) be added to the rule. In addition, this commenter states that with the current advances in the design of commuter category airplanes, an out-of-trim requirement, similar to § 25.255 should be included in Subpart B—Flight. Another commenter notes that the proposal is unclear in that it appears to allow a 10-pound, out-of-trim force under the 3-degree approach requirement for commuter category airplanes. The FAA has reexamined the proposal and considered each of the comments received addressing the proposed changes to § 23.161. The FAA agrees with the comment that the current requirement of § 23.161(c)(2) is an adequate minimum standard and consequently withdraws the proposed changes for § 23.161(c)(2). The FAA does not agree that, as a minimum airworthiness standard, commuter category airplanes should be required to be in trim laterally and directionally at speeds other than that stated in § 23.161(b), as proposed. The FAA is not aware of any adverse experience concerning the lack of requirements at other speeds for the commuter category size airplanes. With the exception of lateral trim, the FAA considers the current requirement of 23.161(d) substantially equivalent to § 25.161(d) and no adverse experience has been shown because of the lack of a lateral trim requirement in § 23.161(d). The FAA does not agree that a requirement is needed similar to § 25.255, Out-of-trim characteristics, for commuter category airplanes. The background indicates the requirement was promulgated because of more rapid fuel burnoff with rapid center of gravity shifts in transport airplanes, and due to new designs for handling aerodynamic balance by fuel transfer for normal operations. The FAA is not aware of any adverse service experience because of the lack of such a requirement for airplanes limited to size approaching that of the new propeller-driven commuter category. The FAA concludes, therefore, a requirement similar to the out-of-trim requirement in § 25.255 is unnecessary.

Proposal 17.—No comments were received pertaining to the proposed amendment of § 23.173, Static longitudinal stability. Accordingly, the requirement is adopted as proposed.

Proposal 18.—One commenter contends that proposed § 23.175(b)(1)(i) is incorrect and current § 23.175 language more accurately describes the section intent and should read as follows: "The speed need not be less than $1.4V_{s_1}$ for commuter category airplanes, or $1.3V_{s_1}$ for other categories." Another commenter states that since § 23.1583(a)(3)(iii) requires speed limits for commuter category airplanes to be in terms of V_{MO}/M_{MO} the existing § 23.175(b)(1)(i) does not need to be changed since the speeds are covered adequately by existing § 23.175(b)(1)(iii). This commuter states that since § 23.21(a) requires all "flight" requirements to be met "at each appropriate combination of weight and center of gravity within the range of loading conditions of weight and center of gravity within the range of loading conditions for which certification is requested," the proposal to evaluate the cruise static longitudinal stability of commuter category airplanes at the maximum takeoff weight is redundant and unnecessary. In addition, this commenter states that the requirement for static longitudinal stability in the cruise configuration of Part 135, Appendix A, paragraph 9(b) has in the past been viewed as a replacement for the high-speed and low-speed cruise static longitudinal demonstrations of § 23.175(b). Since only minor changes to § 23.175(b) have been proposed, an explanation and clarification is needed. The FAA has reexamined the proposal, the requirements of Part 135, Appendix A, § 9(b) (which is the cited source for the proposal), and the comments received. The proposal needs to be revised to more clearly express the requirements set forth in the cited source. Accordingly, § 23.175(b) is revised and adopted to achieve this clarification of the high speed cruise requirement for commuter category airplanes.

Proposal 19.—No comments were received to the proposal. Accordingly, § 23.333 is amended as proposed.

Proposal 20.—No comments were received to the proposal. Accordingly, § 23.335 is amended as proposed.

Proposal 21.—No comments were received to the proposal. Accordingly, § 23.337 is amended as proposed.

Proposal 22.—No comments were received to the proposal. Accordingly, § 23.349 is amended as proposed.

Comment to § 23.397. For commuter category airplanes, one commenter contends that the Footnote 1 to the table of forces in § 23.397 should be changed to read as follows: ". . . the specified maximum values must be increased linearly with weight to 1.35 times the specified values at a design weight of 19,000 pounds." This commenter suggests a review of CAR 3.212 for the intent of the footnote. Upon review of CAR 3.212 and earlier requirements, the FAA finds that it was included prior to establishment of a 12,500 pound weight limit for small airplanes and called for the provided maximum control forces at 5,000 pounds to be increased linearly with weight by a factor of 1.0 at 5,000 pounds to a factor of 1.5 at 25,000 pounds. This footnote continued to read the same in CAR 3 after the adoption of the 12,500 weight limitation by Amendment 3-10, effective May 16, 1953. When CAR 3 recodified into Part 23, this note was revised to call for the maximum forces to be linearly increased with weight to 1.16 times the specified values at a design weight of 12,500 pounds which is the factor that would have been obtained from the linear increase called for in the CAR 3 footnote. The review of CAR 3.212 has shown that the recommended changes would only identify and continue provisions which have been required for airplanes of this size under previous airworthiness standards. Since this recommended change is consistent with previously applied airworthiness standards and will be clarifying by providing the value of the linearly increased factor at the new maximum design weight of 19,000 pounds, the FAA agrees with the contention of this commenter. Footnote 1 to § 23.397 is amended to the extent that the linear increase must be to 1.35 times the specified values at the maximum permissible weight of 19,000 pounds for the commuter category airplanes.

Proposal 23.—No comments were received to the proposal. Accordingly, § 23.443 is amended as proposed.

Comment to § 23.561.—For commuter category airplanes, one commenter notes that no proposal has been made to

strengthen the maximum load factors of § 23.561 associated with emergency landing conditions. This commenter contends that the ultimate inertia forces contained in § 23.561 are far below the level the human body is capable of withstanding. The commenter cites the National Tansportation Safety Board (NTSB) 1981 report entitled "Cabin Safety in Transport Category Aircraft" as the source of this information. In response to this comment, the purpose of the proposal was not to reevaluate the maximum load factors associated with emergency landing conditions for all airplanes to be type certificated pursuant to Part 23 at this time. The FAA is considering a revision to the requirements of § 23.561 within the framework of the Part 23 Airworthiness Review. The comment is beyond the scope of Notice No. 83–17 and cannot be acted on as a part of this rulemaking.

Proposal 24.—One commenter's opinion is that the structural cornerstone of the safety objectives for transport category airplanes is the requirement that structure should be designed to be damage tolerant unless it can be demonstrated, for particular structural features, that this is impractical. In the latter case, according to the commenter, a safe life evaluation must be made using appropriate scatter factors, and, in practice, this has meant that each primary structure, apart from the landing gear, is required to be damage tolerant. Consequently, catastrophic failures due to fatigue, corrosion, or accidental damage would be avoided. The commenter contends that the NPRM, as presented, allows but does not encourage the adoption of the damage tolerance approach to long-term structural integrity. The comment is made that while the safe-life approach is still valid for the majority of airplanes presented for certification under Part 23 which, because of their low utilization, will never approach their theoretical life limits or which can draw upon a long history of satisfactory service experience on similar designs, the safe-life concept is inappropriate for new commuter category airplanes which will be subjected to a more intensive utilization which equals or exceeds the usage attained by larger transport airplanes. The commenter states that the additional protection against catastrophic structural failure due to corrosion, stress corrosion, accidential damage, or discrete source damage which can accrue from a damage tolerant design policy will bring those safety benefits necessary to meet the FAA safety objectives for this type of airplane. The FAA recognizes the merit of a damage tolerant design; however, the service experience with airplanes recertificated to SFAR No. 41 with their corresponding high utilization does not support the need for a mandatory damage tolerant design philosophy for commuter category airplanes.

Proposal 25.—No comments were received to the proposal. Accordingly, § 23.677 is amended as proposed.

Proposal 26.—No comments were received to the proposal. Accordingly, § 23.721 is adopted as proposed.

Proposal 27.—No comments were received to the proposal. Accordingly, § 23.783 is amended as proposed.

Comment to § 23.785. Section 23.785, Seats, berths, safety belts, and harnesses. One commenter contends that the problem of inadequate seat strength is well known, and this is an opportunity to bring the requirements closer to reality. The FAA is aware of the possibility that seat-strength requirements in certain areas should be enhanced and it is engaged in research aimed at proposing realistic and attainable dynamic criteria for all seats in small airplanes. To propose requirements before this research is completed, or has at least progressed to the point that realistic criteria are available for application in type certification programs would be premature.

When Notice No. 83–17 was issued proposing the addition of a commuter category airplane to Part 23, the applicable amendment of Part 23 at that time required the installation of a seat belt and shoulder harness for the front two seats and seat belts for all additional seats. Subsequent to the issuance of Notice No. 83–17, the FAA, in response to a petition for rulemaking, proposed the mandatory installation of shoulder harnesses at all seats in normal, utility, and acrobatic category airplanes with a passenger seating configuration, excludig pilot seats, of nine or less. Amendment 23–32 (50 FR 46872, November 13, 1985) adopted the proposals substantially as set forth in Notice No. 85–11 and because final action had not occurred on the commuter category airplane proposals, the above identified occupant restraint requirements applicable at the time the commuter category airplanes was proposed were removed from § 23.785(g) and replaced by those requirements in Amendment No. 23–32. Since these later adopted requirements do not address the commuter category airplane, the deleted occupant restraint requirements are being reinstated for commuter category airplanes in § 23.785(g)(2) and the requirements adopted by Amendment No. 23–32 applicable to normal, utility, and acrobatic category airplanes are designated in § 23.785(g)(1).

The FAA is considering additional cabin safety and occupant protection requirements for the communter category airplane and will initiate appropriate rulemaking action to address this issue after a thorough study of the need and substance of such additional requirements indentified from the study.

Proposal 28.—One commenter states that the proposed § 23.787(g)(2) should read, ". . . in paragraphs (a), (b), and (f) of this section." The FAA agrees with the comment and the addition of paragaraph (f) clarifies that the requirement applies to baggage compartments as well as cargo compartments in commuter category airplanes since Part 23 does not distinguish between cargo and baggage compartments.

Another commenter contends that the cargo compartment regulations are insufficient in that most designs have only a porous bulkhead aft and closed inaccessible areas forward. The commenter states that no design for fire retardation or fire extinguishing in these compartments exists and the requirement should incorporate the standards of §§ 25.855 and 25.857. In support of this comment, the commenter states that in the last 3 years alone, one commuter air carrier had four incidents of smoke/fire in unprotected cargo compartments in SFAR No. 41 airplanes. These incidents were caused by various devices shipped by passengers. The contention is that there was no way the crew could have reached a compartment to extinguish a fire if it had occurred. The FAA does not agree that the standards of §§ 25.855 and 25.857 should be adopted for commuter category airplanes. Amendment 23–14, effective December 20, 1973, requires that cargo compartments in all Part 23 airplanes be constructed of materials which are at least flame resistant. Not all cargo compartments in Part 25 airplanes are required to have fire estinguishing provisions, specifically Class D cargo compartments. The FAA considers the requirements as proposed in Notice No. 83–17 for cargo compartments in commuter category airplanes sufficient. Therefore, the additional requirements applicable to commuter category airplanes are adopted as proposed.

Proposal 29.—One commenter states that § 23.807(d)(1)(i), as proposed, should read, "For a total seating capacity of 12 to 15, an . . . ." This commenter contends that SFAR No. 41,

as originally written, overlooked the possibility of airplanes with 11 or fewer seats. The FAA does not agree since normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of nine or less with exceptions for airplanes with centerline- or fuselage-mounted engines, must have an emergency exit on the opposite side from the main door as specified in § 23.783. The FAA considers that the minimum acceptable number of emergency exists for commuter category airplanes are those proposed for a total seating configuration of 15 or less to assure adequate egress in an emergencey situation by a substantiating emergency evacuation test.

Another commenter contends that the proposed regulations are insufficient and should conform to § 25.807, to § 25.809(a) and most importantly to § 25.809(b). While these exits must be openable from the inside and the outside, the contention is that common sense and experience dictate that rescue personnel should be able to locate and open these exits from the outside. In addition, this commenter states that the exits should be marked as in § 25.811 and, specifically, must be marked on the outside in accordance with § 25.811 (f) and (g). The FAA recognizes some merit in the contentions of this commenter; however, the FAA considers the proposed requirements to be sufficient and points out that § 23.783(c), as adopted, requires each external door to be openable from the outside. The issues raised by this commenter need further study before the FAA issues further regulations. These issues are being considered in the Part 23 Airworthiness Review Program. In addition, the FAA has issued Advisory Circular (AC) 23.807-3, dated January 20, 1984, Subject: "Emergency Exits Openable From Outside for Small Airplanes," on the subject of making exits openable from the outside, and the Advisory Circular responds to NTSB Safety Recommendation A-82-94. The FAA is not aware of service problems with airplanes recertificated to SFAR No. 41 that would support adoption of the Part 25 requirements.

Proposal 30.—One commenter suggests that, for consistency with Part 25, the proposed § 23.809 be presented under § 23.803. Also, to ensure reliable results from the evacuation demonstration, the criteria of § 25.803(c), which is not presented in the proposal, should be incorporated or published as advisory material. The FAA finds merit in the section consistency suggestion and the section is renumbered accordingly. In response to this commenter's suggestion with regard to § 25.803(c), reference should be made to the guidance material of Advisory Circular No. 20-118, "Emergency Evacuation Demonstration From Small Airplanes," dated July 12, 1983. The Advisory Circular sets forth acceptable means, but not the only means, of showing compliance with required emergency evacuation demonstrations from small airplanes. The FAA considers it a satisfactory method of compliance with the regulation as adopted in this final rule.

Proposal 31.—One commenter contends that the proposed requirement is not consistent with "real world" problems. The assertion is that present designs do not allow for the safe and reasonable carriage of handicapped persons on board and the 9- to 15-inch minimuns for aisle widths, as called for by this NPRM, are not wide enough to accommodate the standard lift chair used to bring nonambulatory persons aboard. At present, handicapped persons usually have to be placed by the cabin door and, in case of an emergency, could block rapid evacuation. This commenter states that a standard width of 21 inches should be the minimum allowed for any airplane which seats more than 10 passengers and notes that narrow aisles also restrict the entrance and exit of passengers, especially if they are older. The FAA appreciates the concern expressed by this commenter for handicapped persons; however, the service experience with current airplanes meeting the minimum standards of aisle width do not support the need for a change as proposed by this commenter. Another commenter states that the Notice proposes to narrow the minimum aisle width by one-fourth of that required for 10- to 19-seat airplanes in Part 25. This commenter contends that minimum aisle width is an important safety feature if evacuation becomes necessary and that Part 25 standards should be retained. The FAA does not agree that for the new commuter category of airplane the minimum aisle width needs to be the same as set forth for the transport category airplane. The minimum aisle width proposed in the Notice No. 83-17 was the same as that used for the recertification of SFAR No. 41 airplanes. The FAA is not aware of any service-related problems with airplanes so recertificated which indicate the minimum width of the aisle is not adequate. Therefore, the minimum width for the main aisle is adopted as proposed.

Proposal 32—One commenter notes that the word "probably" in the second sentence of § 23.831(b) as proposed should read "probable." The FAA agrees and the spelling is corrected.

Another commenter states that the expression "harmful or hazardous concentration of gases and vapors" needs to be defined and criteria specified. The FAA does not agree that further definition is needed in the regulations. The maximum concentration of carbon monoxide permissible has been stated in § 23.831(a). The requirement is stated in objective terms to convey the purpose of the rule. In addition, the requirement has been applied in the SFAR No. 41 recertification of airplanes and also in the certification of transport category airplanes without any known adverse experience. The amendment is adopted as proposed.

Proposal 33—No comments were received to the proposal to add a new § 23.851. Accordingly, the requirement is adopted as proposed.

Proposal 34—One commenter contends that the proposal does not succeed in accurately incorporating the interior materials burn test requirements of § 25.853. The most serious is the omission of the 12-second vertical burn test of § 25.853(b) required by its reference to Part 25, Appendix F, paragraph (d). The FAA agrees with the commenter. The requirements, as stated, would require a vertical test with the flame applied for 60 seconds, whereas § 25.853(b) requires an application period of 12 seconds. The time period for application of the flame to materials of § 23.853(d)(3)(ii), therefore, is reduced from 60 seconds to 12 seconds. This commenter notes that in § 23.853(d)(1) the word "towel" should be plural and the word "probably" in the second sentence should read "probable." The FAA agrees and these changes are made in the final rule. This commenter suggests that the phrase "or other equivalent methods" be changed to read "or other approved equivalent methods" in order to conform to the reading of Part 25. The FAA agrees and has incorporated the phrase "or other approved equivalent methods" in § 23.853(d)(3)(ii), as suggested.

One commenter states that the address in § 23.853(d)(3)(iii) for the American National Standards Institute should be 413 Broadway, New York, New York 20018. In addition, the commenter contends that the motion picture film safety requirement is not needed for commuter category airplanes and should be deleted. Inquiry was made to the American National

Standard Institute, and the address stated in Notice No. 83-17 is correct as of this date. The motion picture film safety requirement may not be needed for a particular commuter category airplane design. The requirement is retained, therefore, to assure that the minimum standards are met when motion picture film is used on commuter category airplanes.

Another commenter agrees with the revisions to § 23.853 where major portions of Part 25 were incorporated. This commenter, and two additional commenters, recommend that § 23.853 incorporate the requirements proposed in Notice No. 83-14 (48 FR 46250; October 11, 1983) on the subject of flammability requirements for aircraft seat cushions for commuter category airplanes and make changes to Part 135 similar to the changes made to Part 121 in Notice No. 83-14. The contention is that this improvement is even more critical for the commuter category since, most likely, a flight attendant will not be available to take initial emergency action to extinguish a fire. Furthermore, post crash fires pose a serious problem for commuter airplanes and no logical reason appears as to why new designs should not incorporate this life-saving technological improvement.

The FAA appreciates the concerns expressed by the commenters on the issue of requiring seat cushions in commuter category airplanes to meet the test criteria proposed in Notice No. 83-14. The FAA recognizes the merit of the comments. Further study is required, however, with respect to commuter category airplanes and operations conducted in accordance with Part 135. These issues will be considered in the Part 23 Airworthiness Review.

Proposal 35—One commenter contends that § 23.901(b)(3) appears to be redundant as the installation will have to meet the conditions identified in the installation manual required by § 33.5. The FAA notes that § 33.5 does not specifically address vibration characteristics which are a significant consideration in the installation of turbopropeller engines in commuter category airplanes and the requirement has been applicable to airplanes certificated to the additional airworthiness standards of Part 135, Appendix A, since 1970. Therefore, the requirement is adopted as proposed.

Proposal 36—One commenter contends that § 23.903(e)(2) should be revised to read: "Means must be provided for stopping combustion and rotation of any engine in flight except that engine rotation need not be stopped if continued rotation could not jeopardize the safety of the airplane." This commenter states that this conforms to the Part 25 requirement and provides a needed clarification, and the last part of proposed subparagraph (e)(2) should be deleted because it already appears in subparagraph (d)(2)(iii) of this section. The FAA does not agree that § 23.903(e)(2) should be revised as suggested. First, the proposed requirement of Notice No. 83-17 with respect to stopping combustion and rotation has been required for turbine engines in all Part 23 airplanes since the adoption of Amendment 23-14, effective December 20, 1973, and no reason is offered by the commenter to support the suggested change. Secondly, the last part of proposed § 23.903(e)(2) concerns the requirements for restarting the engine while § 23.903(d)(2)(ii) concerns requirements for stopping the engine. Another commenter contends that the proposal is insufficient and should reflect the provisions of § 25.903, especially paragraph (d)(1). This commenter states that most commuter/turboprop operators have reported one or more rotor failures per year with the resultant disintegrating residue piercing the fuselage at the pilot's or passenger's compartments. Another commenter states essentially the same concern. The FAA concurs, in part, with these comments. Part 23, however, was revised by Amendment 23-29, effective March 26, 1984 (49 FR 6847; February 23, 1984) and adequately addresses the issue of rotor failure in § 23.903(b)(1). One commenter states that the proposed revision to § 23.903(e)(2) is not in accordance with the referenced sources because neither Part 135, Appendix A, paragraph 38(a)(2) nor § 25.903(c) require a means for stopping the rotation of a turbine engine. This commenter contends that such a feature is required only where continued rotation could jeopardize the safety of the airplane and states that the requirement to stop rotation is both restrictive and unnecessary. The commenter suggests that § 25.903(c) replace proposed § 23.903(e)(2). The FAA agrees with the commenter that the requirement for stopping combustion and rotation of the turbine engine is not in the reference sources of Part 135, Appendix A or in § 25.903(c). The requirement is required by the current version of § 23.903(e)(2). The commenter offers no data or information to support a change from the present requirement. Accordingly, the requirements are adopted as proposed.

Another commenter notes that systems within a fire zone that are required to be functional after the outbreak of a fire need to be merely "fire-resistant" and perceives an inconsistency between the "fireproof" and "fire-resistant" definitions of Part 1. This commenter contends that for fire-extinguishing systems to be effective and for continued safe flight, the engine must be stopped and the propeller feathered. That commenter suggests that the requirement should be updated to "fireproof." The FAA does not agree. Part 1 defines "fire resistant," in part, as "... the capacity to perform their intended functions under the heat and other conditions likely to occur when there is a fire at the place concerned." Accordingly, the proposal is adopted as stated in Notice No. 83-17.

Proposal 37.—No adverse comments were received to the proposal. Accordingly, the requirements are adopted as proposed.

Proposal 38.—One commenter contends that the proposed requirement is insufficient and should incorporate all of § 25.963. Additionally, the commenter states that most designs cannot comply with paragraphs (c) and (f) of § 23.963. The FAA does not agree that the requirements are insufficient or that most designs cannot comply with the standards. A review of the provisions of Part 23, together with § 23.963(f), and § 25.963 shows that the wording of § 23.963(a) and (c) are substantially identical to the wording of § 25.963(a) and (c), respectively. Paragraph (c) of § 23.963 and § 25.963 sets forth requirements for flexible fuel tank liners; i.e. § 23.963(c) requires each flexible fuel tank liner be of an acceptable kind while § 25.963(c) requires flexible fuel tank liners be approved or shown to be suitable for the particular application. The FAA considers these requirements substantially equal. Proposed paragraph (f) of § 23.963 is essentially the same as § 25.963(d), except for the differences in downward ultimate inertia forces between those listed in §§ 23.561 and 25.561 respectively. The substantive differences between §§ 23.963 and 25.963 occur in § 25.963(f) which contains specific requirements for pressurized fuel tanks to prevent the buildup of an excessive pressure between the inside and outside of the tank. The FAA is not aware of any adverse service experience because § 23.963 did not address pressurized fuel tanks in Part 23 airplanes. Moreover, the commenter did not present any information or data to support the contention that present requirements are insufficient. Accordingly, the requirements are adopted as proposed.

Proposal 39.—The FAA received no adverse comments to the requirements as proposed. Accordingly, the revision

to § 23.997 is adopted as stated in the Notice No. 83–17.

Comments to Section 23.1143. Section 23.1143, Engine controls. One commenter contends that § 23.1143 should be revised to require a flight-idle gate as required by Part 135, Appendix A, paragraph 51. The FAA does not agree that § 23.1143 needs to be revised as recommended by the commenter and the requirement of § 23.1143(f) was revised by Amendment 23–17, effecive February 1, 1977, and provides an equivalency to that of Part 135, Appendix A, paragraph 51, with respect to a flight-idle gate, as stated by this commenter.

Proposal 40.—The FAA received no adverse comments to this proposal. Accordingly, the requirement is adopted as proposed.

Proposal 41.—The FAA received no adverse comments to this proposal. Accordingly, the requirement is adopted as proposed.

Proposed 42.—The FAA received no adverse comments to this proposal. Accordingly, the requirement is adopted as proposed.

Proposal 43.—One commenter contends that the proposed requirements for fire-extinguishing systems are inadequate and should meet the standards contained in § 25.1195. This commenter states that passengers to and from the smaller communities deserve the same level of safety in this area as those flying transport category airplanes. Another commenter supports a requirement equal to the standards of § 25.1195 and contends that the General Accounting Office (GAO) study of safety standards on small passenger airplanes. This commenter states that the GAO report cites numerous fatal accidents caused by fire which started in the engine and spread to the wing. The January 4, 1984, GAO report is identified as "U.S. Government Accounting Office, *Report to Congress: Safety Standards on Small Passenger Aircraft With Nine or Fewer Seats Are Significantly Less Stringent Than On Larger Aircraft.*" A third commenter states that proposed § 23.1195 could cause interpretation difficulties and recommends that for commuter category airplanes, fire zones should be defined and treated in a manner similar to that of Part 25.

The FAA has carefully compared the requirements of §§ 25.1195 and 23.1195. Except for the "each designated fire zone" provision in § 25.1195, the requirements of paragraphs (a) of §§ 23.1195 and 25.1195 were found to be identical. With the exception of designated fire zones, the substantive requirements of paragraphs (b) of §§ 23.1195 and 25.1195 are contained in the first sentence of each subsection and are identical in wording. Section 25.1195(b) states "how compliance must be shown" in the second sentence of the paragraph, and a similar phrase is not contained within the proposed § 23.1195(b). The third sentence of § 25.1195(b) is permissive with respect to the use of individual "one-shot" systems for auxiliary power units, fuel burning heaters, and other combustion equipment. The fourth sentence of § 25.1195(b) requires for each other designated fire zone, two discharges must be provided, each of which produces adequate agent concentration; whereas § 23.1195(b) permits an individual "one-shot" system if all other requirements are met by the fire extinguishing system submitted for approval. The wording and, thus, the requirements of paragraphs (c) of §§ 23.1195 and 25.1195 are the same, except § 23.1195 addresses "each compartment"; whereas, § 25.1195 addresses "each zone." The FAA, therefore, does not consider the requirements as proposed in § 23.1195 to be inadequate. Contrary to this commenter's contention, the FAA has determined that the requirements for fire extinguishing systems in commuter category airplanes, with the exceptions noted above, are substantially equal to those required in transport category airplanes. The FAA does not find that the "fire zones" concept for commuter category airplanes is needed.

Proposal 44.—No adverse comments were received to the proposal. Accordingly, the requirements are adopted as proposed.

Proposal 45.—No adverse comments were received to the proposal. Accordingly, the requirements are adopted as proposed.

Proposal 46.—One commenter notes that § 23.1201(b) requires that components in an engine compartment must be "fireproof" and that provision is consistent with the philosophy of having a serviceable fire-extinguishing system for the full period during which a fire is expected to burn. The FAA agrees and the commenter correctly states the reason each system component of a fire-extinguishing system must be fireproof. Accordingly the requirements are adopted as proposed.

Proposal 47.—One commenter notes that § 23.1203(e) only requires a "fire resistant" standard for wiring and other components of the fire detector system and considers it to be inconsistent with other fire protection requirements. This commenter contends that the last event in the successful accomplishment of fire extinguishment of an engine fire is the resetting of the engine fire detector. This is of particular significance on engine installations where the nacelle is not visible from the flight deck. This commenter suggests that the requirement be upgraded to "fireproof" for wiring and other components of the fire detector system. The FAA does not agree with the need to upgrade the "fire-resistant" standard. Part 1 defines "fire resistant" in part, as follows, "With respect to fluid-carrying lines, fluid system parts, wiring, air ducts, fittings, and powerplant controls, "fire resistant" means the capacity to perform the intended functions under the heat and other conditions likely to occur when there is a fire at the place concerned." The FAA has determined the requirement, as stated, is appropriate for fire detector systems and a revision of the section is not needed. Accordingly, the requirements are adopted as proposed.

Comment to Subpart F of Part 23. One commenter states that, in general, the FAA proposals for the systems and general designs of SFAR No. 41C brought the general requirements up to an acceptable level. The FAA agrees with this general comment.

Proposal 48.—One commenter questions the need for a manifold pressure indicator for engines other than altitude engines; however, since the manifold pressure indicator may give the crew warning of developing engine trouble, the commenter does not oppose the proposal if no objection is received on economic grounds. The FAA received no other comments on this proposal. The requirement has been applied to recertification of SFAR No. 41 airplanes without adverse service experience. Accordingly, the requirement is adopted as proposed.

Proposal 49.—One commenter contends that experience has shown that proposed § 23.1309(d) was subject to gross misinterpretation as Part 135, Appendix A, § 59, and its intent should be clarified; i.e., flight safety and not some nonessential function that may have been peripherally involved in certification. This commenter states that the second sentence of § 23.1309(d) should be revised to read: "Where an installation, the functioning of which is essential to safe flight, requires a power supply, the installation must be considered an essential load on the power supply." The FAA does not agree because where an installation requires a power supply and its function is necessary to show compliance with the applicable requirements, the installation must be considered an essential load on the power supply and, accordingly, the

applicable requirements are minimum requirements to type certification.

Another commenter states that although portions of § 25.1309 were incorporated into the proposed § 23.1309, the commenter sees no justification for not incorporating the whole of § 25.1309 into Part 23. The commenter offers no data or reasons in support of the contention that the proposal is not adequate or appropriate except that it does not incorporate the requirements of § 25.1309. In the absence of information of the contrary, the FAA finds the proposed standards appropriate to the commuter category airplane at this time.

One commenter suggests that the expression "safeguard against hazards" should be defined and clarified. Experience with recertification of airplanes to this requirement has not been adverse or controversial. However, § 23.1309 is being reevaluated in the Part 23 Airworthiness Review Program and these concerns will be addressed relative to all small airplanes. Accordingly, § 23.1309(d) is adopted as proposed.

Proposal 50.—No adverse comments were received to the proposal. Accordingly, the requirements are adopted as proposed.

Proposal 51—No adverse comments were received to the proposal. Accordingly, the requirements are adopted substantially as proposed.

Proposal 52—One commenter notes that proposed § 23.1351(b)(2), (3), and (4) exclude commuter category airplanes from the present provisions of § 23.1351 concerning excitation of alternators. This commenter contends that these changes are not a part of the requirements of SFAR No. 41 or of Part 135, Appendix A and, therefore, should be removed. The FAA does not agree. Part 135, Appendix A, paragraph 61(b), requires in part, that the generating system must be designed so that the system voltage at the terminals of all essential load can be maintained within the limits for which the equipment is designed during any probable operating condition. The failure of the battery, as permitted by § 23.1351(b)(3), may result in the loss of the alternator and the failure of the battery is considered a probable operating condition. The requirements, therefore, are adopted as proposed.

Another commenter states that § 23.1351(b)(5)(ii) supersedes § 23.1307(b)(1) and provides a higher level of system reliability. This commenter contends that a single master switch, as required by § 23.1307(b)(1), will increase the probability of a total generator electrical failure. This commenter recommends revision of § 23.1307(b)(1) to read: "(1) Except for commuter category airplanes, a master switch arrangement . . ."

The FAA does not agree that revision of § 23.1307(b)(1), as suggested by this commenter, is needed. The master switch arrangement requirement, not necessarily a single master switch as contended, assures expeditious disconnection of all electric power sources by a single action of the pilot for all load circuits in an emergency situation. The requirements are adopted as proposed.

Proposal 53—No adverse comments were received to the proposal. Accordingly, the requirements are adopted as proposed.

Proposal 54—One commenter states that to keep the Airplane Flight Manual requirements consistent with transport airplane standards, the relief provided by § 23.1581(b)(2) should not be allowed for commuter category airplanes and further contends that distinguishing approved information from unapproved information is important. This commenter recommends the addition of "Except for commuter category airplanes," before the words, "The requirements of paragraph (b)(1) . . ." in § 23.1581(b)(2). The FAA does not agree with the recommended revision of § 23.1581(b)(2) because the requirements, as stated, are considered clear and understandable regarding approved information and unapproved information in the Airplane Flight Manual.

No adverse comments were received to the proposed new paragraph (e) to § 23.1581. Accordingly, the requirement is adopted as proposed.

Proposal 55—One commenter states that zero fuel weight should be a limitation in accordance with SFAR No. 41, paragraph 4(a). The FAA agrees and the requirements of § 23.35, Weight limits, have been revised accordingly.

Another commenter contends that the operating limitations are insufficient, stating that even if spins are not approved, the commuter category airplane should be tested for spin recovery, which is not required by this regulation. This commenter further contends that a standard method of spin recovery based on these tests should be in the Airplane Flight Manual. The FAA does not agree that commuter category airplanes should be tested for spin recovery because there is no requirement to test any multiengine airplane, normal category or transport category, for spins and spin recovery. This commenter offers no information or data to support a spin and spin recovery requirement.

One commenter states that the requirements of § 23.1583(c)(3)(ii) concern ICAO Annex 8 compliance and should be deleted or made optional. The FAA does not agree. The issue of compliance with the requirements of ICAO Annex 8 has been discussed in detail previously in this preamble. Accordingly, the requirement of § 23.1583(c)(3)(ii) is adopted as proposed. This commenter contends that the reference to § 23.57 in proposed § 23.1583(c)(3)(iii) should be deleted. The FAA does not agree. This comment is directly related to establishing the operating limitations for the safe operation of commuter category airplanes and complying with the minimum requirements of ICAO Annex 8. Accordingly, the requirement is adopted as proposed.

Another commenter states that the detailed provisions of proposed § 23.1583(c)(3) depend upon the final form taken by the earlier requirements dealing with establishing takeoff, climb, and landing performance data. This commenter contends that since many of the performance requirements for transport category airplanes have been proposed for commuter category airplanes, any proposal for requirements relating to performance operating limitations should at least follow a review of the existing provisions of § 25.1533 and JAR 25.1533. The proposal to require performance operating limitations relating to continued and abandoned takeoff distances, takeoff and initial en route climb minima, landing distance, and go-around climb gradient minima is supported by this commenter. This commenter offers a text which does not differ fundamentally from proposed § 23.1583(c)(3). Some detailed differences do exist, however, which stem from changes proposed to the requirements relating to establishing performance and an effort to more closely align to the existing provisions of § 25.1533, JAR 25.1533, §§ 121.189 and 121.195. A new section, § 23.1533, Additional operating limitations, is suggested by this commenter. The commenter's proposal for § 23.1533 covers all flight phases in the proposed § 23.1583(c)(3) of the Notice plus the takeoff run. The commenter states that the takeoff run constraint is necessary if credit is to be allowed for clearways in showing compliance with the takeoff performance operating limitations. This commenter notes that both the FAA and the commenter's proposals for commuter category airplane performance operating limitations go somewhat beyond the corresponding provisions for transport category airplanes of § 25.1533 and JAR

25.1533, since the proposal in the Notice includes consideration of landing distance. The FAA has carefully considered the comments and suggestions of this commenter. The FAA does not agree that the inclusion § 23.1583(c)(4)(i) of the weight at which landing distance is determined in showing compliance with § 23.75 goes beyond the provisions in § 25.1533. Section 25.1533(a)(2) includes an equivalent requirement for transport category airplanes.

Notice No. 83-17 sets forth requirements which include the intent of the commenter's suggested change. Structuring the airworthiness standards of Part 23 in exactly the same manner as Part 25 or JAR 25 is not needed. Therefore, the requirements are adopted as proposed in the Notice, except that in § 23.1583(c)(4)(i) "landing field length" is changed to "landing distance" to conform with § 23.75 as intended in the reference to § 23.75 in § 23.1583(c)(4)(i).

Proposal 56—One commenter contends that the procedures for a number of maneuvers, unique to the type certification of commuter category airplanes, should be covered in a new subparagraph § 23.1585(c)(5). These procedures are for continued takeoff following engine failure, an abandoned takeoff, an approach and landing with one engine inoperative, and a one-engine-inoperative go-around. This commenter offers a test for each of these procedures. The FAA does not agree that a requirement shoud be added to § 23.1585, Operating procedures, to specify each type of procedure. The present requirements plus those contained in new paragraph (h) are adequately stated in objective form and encompass the normal and emergency procedures necessary for safe operation of the commuter category airplane. Accordingly, the requirement is adopted as proposed.

Proposal 57—One commenter contends that the FAA proposal appears to be incomplete in that by cross-referencing § 23.1585, the requirement does not exist for the Airplane Flight Manual (AFM) to contain all of the performance data established in accordance with Subpart B—Flight. This commenter offers a revised text as an alternative to § 23.1587(d)(1) as proposed.

The current requirements of Subpart G—Operating Limitations and Information, however, state the overall requirements in an objective manner to assure safe operation of the commuter category airplane. The current requirements, plus those adopted by this amendment, are considered to be appropriate and assure safe operation of commuter category airplanes at this time. In this regard, the reference to § 23.1585 in § 23.1587(d)(1) should read § 23.1583 because it relates to the takeoff weight limits in § 23.1583 rather than the operating procedure of § 23.1585. Accordingly, § 23.1587(d)(1) is adopted as proposed with the exception of the substitution of § 23.1583 for § 23.1585.

One commenter contends that the text of § 23.1587 (d)(2), (d)(4), and (d)(6), as proposed, relates to operating procedures rather than to performance information and is covered by the commenter's proposed revised text of § 23.1585(c)(5). The FAA does not agree that these requirements relate to operating procedures as such, but rather state the parameters of the conditions under which the performance information was obtained. An examination of the performance information requirements for transport category airplanes revealed similar requirements in § 25.1587, Performance information. Accordingly, § 23.1587 is adopted as proposed except as noted in the previous paragraph with regard to § 23.1587(d)(1).

One commenter contends that the extrapolated performance data required by § 23.1587(d)(3) should be available for all airplanes for which the maximum takeoff weight exceeds the maximum landing weight and the requirements of § 23.1587(d)(5) should not be limited to just the commuter category airplane. The FAA recognizes the merit of these comments; however, these comments are outside the scope of this rulemaking action.

Proposal 58—One commenter notes that paragraph (b) of Appendix F of Part 23, does not address tests for small parts or wire and cable insulation and should be amended by prefacing paragraph (b) with the words: "Except as provided for materials used in electrical wire and cable insulation and in small parts, ..." In addition, this commenter states that paragraph (b) should be revised to refer to tests under paragraphs (d) and (e) of this Appendix plus instructions for mounting the specimen referred to in paragraph (e). The FAA has determined that the prefacing words suggested are not appropriate to paragraph (b) because if the Administrator finds that these items would contribute significantly to the propagation of a fire, these items must then be tested as stated in § 23.853(d)(3)(v) or by other approved equivalent methods. The FAA agrees with the commenter that paragraph (b) of Appendix F should be revised to refer to the tests under paragraphs (d) and (e), not just paragraph (d) of the Appendix. The FAA also agrees with the commenter that instructions for mounting the specimen referred to in paragraph (e) should be included, and paragraph (b) is revised to include the instructions for mounting the specimen for the horizontal test of paragraph (e). These instructions are substantially the same as those of Appendix F, paragraph (b) of Part 25 which contain an acceptable test specimen configuration for performing the horizontal test.

Another commenter notes that the minimum temperature at the flame center should be 1550°F as stated in paragraph (d). The FAA agrees, and the temperature is changed accordingly.

Proposal 59—No adverse comments were received to this proposal. Accordingly, the requirements are adopted as proposed.

Additional Comments

One commenter recommends inclusion of a number of additional requirements from the airworthiness standards of Part 25 for type certification of the commuter category airplane, which this commenter considered necessary, as a minimum, in any regulation dealing with scheduled air transportation.

The FAA is of the opinion that the public should be made aware of these comments and the disposition of them by the FAA. The following areas of Part 25 were addressed by this commenter. The commenter states the requirements of § 25.631, Bird strike damage, and § 25.775, Windshields and windows, should be included to assure that the empennage and cockpit windows of commuter category airplanes are capable of absorbing a specified bird strike without incurring flight critical damage to the empennage or the cockpit and/or flight crew. This commenter contends that this cagetory of airplane, because of the planned operating altitudes and stage lengths, will normally be exposed to the possibility of bird strike at a greater rate than most Part 25 airplanes, and because commuter category airplane speed below 10,000 feet will not be much different than the transport category of airplane. Therefore, this commenter states that the commuter category airplane should have the same protection from a bird strike as the transport category airplane. The FAA recognizes the possible merit in the recommendation made by this commenter; however, this addition is considered to be outside the scope of the original proposal. The FAA has included the recommendations in the Part 23 Airworthiness Review program.

This commenter contends that § 23.671, Control Systems, General, is too broad and lacks specificity in that it does not address failures of the control system. This commenter states that a definite need exists to address both single and multiple failures of a control system in the manner addressed by § 25.671 and feels confident that most manufacturers are already complying with this requirement; therefore, the requirement should not be a major economic burden. The FAA does not agree that § 23.671 should be revised to read as § 25.671. Part 23 contains other requirements for control systems that provide substantially the same level of safety as does § 25.671. Specifically, the requirements of § 23.677, Trim system, address the failure of a single element in the primary flight control system and require that subsequent to that failure, adequate control should be available for safe flight and landing.

This commenter contends that the requirements of paragraph (b) stated in § 25.1303, Flight and navigation instruments, if made applicable to the commuter category airplane, would give the FAA the authority to require basic flight instruments for both the pilot and copilot and paragraph (c) would require warning devices for the more sophisticated commuter airplanes where compressibility is a factor. The reason given by this commenter for this contention depends on the commenter's interpretation of present Part 23 requirements and may not require flight instruments for both pilot and copilot. The FAA does not agree that the requirements of § 25.1303(b) should be made applicable to the commuter category airplane. The present airworthiness standards provide sufficient flexibility to require flight and navigation instruments at required pilot positions in accordance with § 23.1321 to safely operate the commuter category airplane without adopting the requirements as stated in § 25.1303(b). With regard to the comment addressing warning devices as required by § 25.1303(c), § 23.1303(e) has substantially the same requirement for a speed warning device as § 25.1303(c).

Another commenter stated that present Part 23 requirements permit single source information; e.g., static pressure, to be fed to both the pilot's and copilot's instruments. This commenter contends that reports, especially in pressurized airplanes, have indicated that a leak in one instrument or line has caused all static-sensing instruments on both the pilot's and copilot's panels to become totally useless and damaged. The FAA recognizes the merit of this comment; however, the commenter does not provide any data to support the contention. Additionally, the FAA is not aware of any service difficulty problems with the recertification of airplanes to SFAR No. 41 with single source information. Consequently, the FAA is of the opinion that such a requirement should be reexamined during the Part 23 Airworthiness Review Program.

The comment was received that present Parts 23, 25, 121, and 135 do not address "Floor Proximity Emergency Escape Path Marking." However, Amendments 25–38 and 121–183 (49 FR 43182, October 26, 1984) requiring floor proximity escape path markings for Parts 25 and 121, Rules Docket 23792, address this subject. The commenter recommends that the FAA give serious consideration to incorporating the requirements adopted in Amendments 25–38 and 121–183 into Parts 23 and 135.

Further, recommendations were made that the FAA should consider the requirements of emergency provisions in Part 25 for the commuter category airplane and extend the requirements of § 135.177, Emergency equipment requirements for aircraft having a passenger seating configuration of more than 19 passengers, to include the commuter category airplane. If the requirements of § 135.177 were extended to the commuter category airplane, then the requirements of § 121.310 would be included automatically in accordance with § 135.177(a)(4). The FAA has considered carefully the comments made, reviewed the requirements of §§ 135.177 and 121.310, and has concluded that these requirements are overly stringent, considering the distance between the seats and the nearest emergency exit, for the size of the airplane to be type certificated in the commuter category.

This commenter contends that Part 135, Subpart I—Airplane Performance Operating Limitations, authorizes takeoffs at weights that would not allow an airplane to clear all obstacles if an engine should fail after V_1 and recommends that §§121.177 and 121.189—Takeoff limitations, should be required for commuter category airplanes operated in accordance with Part 135. The FAA does not agree with this commenter's contention that should an engine fail after V_1, the commuter category airplane would not be able to clear all obstacles. The Airplane Flight Manual contains operating limitations related to one-engine-inoperative takeoff and climb requirements and obstacle clearance requirements when operated pursuant to Part 135, and § 135.399 prohibits operations beyond these operating limitations. The FAA also considers the takeoff limitations for Part 135 operations with commuter category airplanes substantially equivalent to those requirements stated in §§ 121.177 and 121.189.

This commenter states that the FAA should not authorize Designated Engineering Representative (DER) or Delegation Option Authorization (DOA) approval of ice protection systems. The contention is that the FAA should be personally involved in both the system approval and flight test program, and this commenter states that their experience has shown that some of those airplanes certificated through the designee program had serious problems with their ice protection systems. The FAA does not agree that designees should be prohibited from the approval of ice protection systems. The involvement of the FAA in approval of ice protection systems by designees is determined on a case-by-case basis. The FAA sees no reason to change this procedure.

This commenter summarizes by stating a belief that the traveling public would be served better if Part 23 remained as presently written and all airplanes configured for 10 or more passengers were classified in the large transport category and certificated to Part 25 as required by Amendment 23–10 (36 FR 2863, February 11, 1971). The commenter contends that if a particular applicant needed relief from a specific portion of Part 25, the applicant could apply for and gain relief for justified requests. The FAA thoroughly examined the options available to establish airworthiness standards for an airplane of the size proposed for the commuter category and Notice No. 83–17 was the appropriate course to follow. Subsequent events to Amendment 23–10 in addition to the withdrawal of proposed Part 24—Light Transport Airworthiness Review Program, support the need for airworthiness standards for the commuter category airplane by size, weight, and expected operational use. The comments support the decision to amend Part 23, as stated in Notice No. 83–17.

As discussed in the preamble to this amendment, the scope and objective of this rulemaking action are to integrate into Part 23, the airworthiness standards considered necessary for the commuter category airplane. The intent is not to propose substantive changes to Part 23 or to the airworthiness standards being integrated into Part 23, except as discussed in the Notice. The FAA is concerned about bird strike damage to

windshields, as suggested by this commenter, and is of the opinion that further study is necessary before rulemaking action is taken on this additional suggestion for commuter category airplanes.

Section 21.17, Designation of applicable regulations. One commenter notes § 21.17(b) specifies the life of a type certificate application as 5 years for the transport category and 3 years for other categories. Current evidence indicates, according to this commenter, that 3 years is not sufficient for the approval of present Part 23 airplanes; accordingly, 3 years is contended to be inadequate for the commuter category. This commenter recommends that § 21.17(b) be changed to allow 5 years for all type certificate applications. The commenter submits no data or evidence that the current 3-year time limit for a type certificate application is inadequate. Therefore, the section is not amended under this rulemaking action.

Proposals 60 through 72—These proposals were to amend Part 21 to permit the type certification of commuter category airplanes in the same manner as other airplanes. No adverse comments were received to these proposals. Accordingly, the proposals are adopted as stated in the Notice. However, a discussion on the issuance of airworthiness certificates for normal and commuter category airplanes under the provisions of § 21.183 has been included in the discussion of proposal number 3.

Proposals 73 through 78—Two commenters address the issue of the proposed extension of Part 36, Appendix F, standards to the new commuter category airplane. One commenter suggests an applicant be permitted to show compliance with Part 36 by complying with either Appendix F, which contains the standards for propeller-driven small airplanes, or with Appendix C, which contains the standards for transport category large airplanes. The FAA does not concur with this suggestion for two reasons. First, data collected both by the United States and by the International Civil Aviation Organization (ICAO) shows that turbine-powered, propeller-driven airplanes below the 19,000 pound limit would have little difficulty meeting the Appendix F limit. Second, the Appendix C standard was developed primarily for larger airplanes including the large commercial turbojet-powered airplanes. Accordingly, Appendix C involves more precision testing and data correction. Since the Appendix C tests are considerably more expensive to the applicant, the FAA considers the suggestion to be impractical and not in the public interest.

Several comments on the noise issue were received as these issues relate to consistency of the proposed commuter category standards with both existing and future ICAO noise standards for propeller-driven airplanes. As the commenters point out, the United States and ICAO have different rulemaking cycles and, as a consequence, an inconsistency between the two standards will result when the proposals of Notice No. 83-17 are adopted. The United States and members of ICAO currently are developing an improved noise standard for small propeller-driven airplanes. When this cooperative effort is completed, the FAA will consider amending Part 36 to require compliance with these improved standards for appropriate categories of airplanes, including the commuter category.

Accordingly, the proposals to amend Part 36 are adopted as stated in the Notice.

Proposal 79—Notice No. 83-17 proposed to amend § 91.213, Second-in-command requirements, to allow operation of a commuter category airplane without a pilot who is designated as a second in command (SIC) if that airplane is type certificated for operations with one pilot.

Section 91.213 was first adopted on July 17, 1972 (37 FR 14758; July 25, 1972), in response to the safety concerns of the flying public. The majority of the public comments favored the SIC requirements of that section. The only exception to the two-pilot requirement of § 91.213 is a provision for existing SFAR 41 airplanes. The exception was adopted (47 FR 30946; July 15, 1982) to relieve Part 91 operators of SFAR 41 airplanes of a perceived economic burden. Notice No. 83-17 proposed to allow operation of certain commuter category airplanes without an SIC in essentially the same manner as an SFAR 41 airplane.

The FAA received 28 comments in response to the NPRM. Only one commenter specifically addresses the SIC requirements. That commenter opposes the adoption of the § 91.213 proposal. Another commenter later submitted a comment opposing those comments.

The Federal Aviation Act of 1958 charges the FAA with the duty of promoting safety of flight of civil aircraft and empowers the FAA to prescribe minimum standards as may be required in the interest of safety. In prescribing these standards, the FAA must make classifications of such standards, as appropriate, to maintain an equivalent level of safety for operations with varying levels of complexity and varying degrees of risk to the public. It necessarily follows that the more complex the operation and the greater the public exposure to risk, the higher the standards that are required.

In this connection, the FAA has had some safety concerns regarding the single-pilot operation of airplanes certificated for operation with up to 19 passengers as proposed in the NPRM. By its very nature, operation of an aircraft with a single pilot cannot provide a level of safety equivalent to operation by a crew of two or more.

There must be some point at which it is reasonable to require two pilots for all operations under Part 91. The current 12,500-pound weight demarcation between small and large airplanes was established more than 40 years ago and was based upon prevailing and anticipated future aircraft design considerations. Whether the demarcation of 12,500 pounds is arbitrary is not an issue in this rulemaking action. However, some line of demarcation must be drawn that will act as a buffer between the competing forces of safety and economics.

The FAA has determined, however, that this rulemaking action should not be delayed, nor is it within the scope of this action to address all flightcrew requirements for future operations under Part 91. To do so would place an undue economic hardship on aircraft manufacturers who have ongoing airplane certification programs. Nevertheless, the FAA must establish, in the interest of safety, a line of demarcation in this final rule for those commuter category airplanes that need two pilots for all operations regardless of weight or type of operations. Other issues involving flightcrew requirements for Part 91 operations will be handled by a separate rulemaking action.

Based upon a careful review of additional safety data and comments received during the regulatory process, the FAA will amend § 91.213(a)(1) to require two pilots for all operations of commuter category airplanes except commuter category airplanes that (a) have a passenger seating configuration, excluding pilot seats, of nine seats or less and (b) are type certificated for operations with one pilot. This line of demarcation will be consistent with that of Part 23 for certification of small airplanes and Part 135, which governs the operations of air taxi and commercial operators.

Based upon the comments to the NPRM and the safety concerns discussed herein, the FAA is requesting

further comments on the 9 seats or less demarcation for single-pilot operations under § 91.213(a)(3). The FAA will review all additional comments submitted. If those comments and further study by the FAA indicate a need to make further regulatory changes, the FAA will initiate the appropriate action prior to the effective date of these amendments. Comments submitted to Docket No. 23516 within 45 days after the publication of this rule in the Federal Register will be considered.

Proposal 80—One commenter does not agree with the FAA's decision to classify commuter category airplanes as small airplanes. This commenter contends that numerous safety related items, such as pilot type rating, second-in-command requirements, and flight instruments for the second in command would be required if the airplanes were considered large instead of small. This commenter states that §§ 61.58, 91.4, and all of Subpart D of Part 91 would automatically be applicable when the airplane is being operated in accordance with operating rules other than Part 135. In addition, this commenter states that these same airplanes should have to comply with § 135.175 which relates to airborne weather radar in lieu of § 135.173, Airborne thunderstorm detection equipment.

In response to the commenter's position on classifying the commuter category airplane as a small airplane, the FAA has reexamined proposed § 135.4 and has determined that designation of all sizes of commuter category airplanes as small is not appropriate for Part 135. Accordingly, proposed § 135.4 to identify a commuter category airplane as a small airplane for the purposes of Part 135 is not adopted. Commuter category airplanes have been included in §§135.169 and other sections of Part 135 as discussed in proposals 81 and 82 below.

The FAA agrees with the commenter that the airborne weather radar requirements of § 135.175 should apply to commuter category airplanes. While this requirement was not specifically proposed in Notice No. 83-17, the FAA will consider whether such an equipment requirement can appropriately be imposed based on the provisions of § 135.149(e).

Proposal 81—No adverse comments were received directly addressing this proposal. However, due to the nonadoption of § 135.4 as discussed above, § 135.169 has been revised by changing the wording of § 135.169(a) to permit the operation of a large commuter category airplane under Part 135 and exempt that category airplane from the cited requirements of Part 121. In some cases, these cited requirements of Part 121 would require the airplane design to include provisions that would be beyond the scope of Notice 83-17. As previously discussed, the FAA is considering additional cabin safety and occupant protection requirements for commuter category airplanes. The additional requirements of Part 121 will be considered as a part of that rulemaking project. To permit the operation of small commuter category airplanes under Part 135, § 135.169(b) is adopted as proposed. Because no commuter category airplane could have been operating under Part 135 prior to August 19, 1977, the proposed § 135.169(c)(2)(iii) is not adopted.

Proposal 82—Following the above identified changes to § 135.169, it was also necessary to review the proposal for § 135.399. As proposed, this section contained performance operating limitations for small nontransport category airplanes and commuter category airplanes, with the possibility of confusion occurring. To clearly identify the performance operating limitations for each of these two categories of airplanes, the proposal for § 135.399 has been revised by providing a new § 135.398 commuter category airplane performance operating limitations, which includes only those requirements proposed for commuter category airplanes. Performance operating limitations for small nontransport category airplanes remains unchanged in § 135.399. In addition, § 135.363 has been revised by adding a new paragraph (j) to require operators of commuter category airplanes to comply with § 135.398.

One commenter agrees with a requirement for consideration of the required takeoff flight path data. However, the proposal is keyed to ICAO Annex 8 and the commenter contends that the word "net" should be deleted from the proposed § 135.399(b). The FAA does not agree since the net takeoff flight path data is required to provide the necessary level of safety for operation of the commuter category airplane under the provisions of Parts 91 and 135. New § 135.398(b) is adopted as proposed for § 135.399(b).

Another commenter states that if the intended level of safety is to be achieved, a clear statement is needed regarding the performance operating rules which are applicable to commuter category airplanes. This commenter contends that this need is not met by § 135.399, either in its existing form or proposed form. The commenter states that since the scheduled performance data for commuter category airplanes is very similar to that of transport category airplanes, any proposed performance operating rules for commuter category airplanes modeled on existing provisions for transport category airplanes in Part 121 would seem reasonable. A proposed text is offered detailing performance operating rules for inclusion in Part 135. The FAA does not agree. The existing requirements, and the amendments adopted by this action, provide for an appropriate level of safety for operations under the provisions of Part 135 for commuter category airplanes and more detailed requirements are considered unnecessary at this time.

Economic Impact

A regulatory evaluation has been conducted and a copy is available in the docket. A copy may be obtained by contacting the person identified under **FOR FURTHER INFORMATION CONTACT.**

This final rule provides for the certification and operation of a new category airplane, the commuter category. To accomplish this end, there are approximately 82 specific changes to the FAR. With four exceptions, all changes are similar in substance to requirements previously applied to propeller-driven airplanes of a size approximating that of the commuter category. The four exceptions require: (1) Compliance with ICAO Annex 8, Part III, (2) consideration of obstacle clearance for takeoffs in Part 135 operations, (3) commuter category airplanes with more than 9 passenger seats to be operated in Part 91 operations with a second pilot, and (4) commuter category airplanes to be defined as large and small for Part 135 operations.

There are no additional costs associated with these amendments, since they do not amend the requirements applicable to any existing airplane category, but rather, provide an option for manufacturers to certificate propeller-driven airplanes of this size to requirements other than those applicable to transport category airplanes.

The provisions proposed in the previously withdrawn draft of Part 24 for light transport category airplanes, and the detailed airworthiness standards of Part 25, have not been applied to certification of new airplane designs of the commuter category size because the costs of compliance exceeded the benefits from future sales, purchase, and operation.

The benefits of having a commuter category certification standard in Part 23 are not readily quantifiable. However,

based upon a study conducted when the FAA was considering a new Part 24, the cost of certificating a hypothetical 30-seat airplane under Part 25 would have cost $8,000,000 more than certificating under SFAR No. 41, Appendix A of Part 135. The unit cost of production of the airplane certificated to the airworthiness standards of Part 25 would have been approximately $200,000 higher. Clearly certification under Part 25 would be considerably more expensive than under the requirements of Part 23 as amended by this final rule. A copy of the study is filed in Docket No. 18600 for examination by interested persons.

Regulatory Flexibility Determination

The FAA also determined that the rule changes will not have a significant economic impact on a substantial number of small entities. The FAA's criteria for a small airplane manufacturer is one employing less than 75 employees, and a substantial number is a number which is not less than 11 and which is more than one-third of the small entities subject to the proposed rules, and a significant impact is one having an annual cost of more than $14,258 per manufacturer.

A review of domestic general aviation manufacturing companies indicates that only six companies meet the size threshold of 75 employees or less. The amendments will therefore not affect a substantial number of small entities.

Trade Impact

The amendments to the FAR will improve trade opportunities for both U.S. firms doing business overseas and foreign firms doing business in the United States. In addition, the amendments have the beneficial impact of allowing a wider range of airplanes to be certified under Part 23.

Conclusion

For the reasons discussed earlier in the preamble, the FAA has determined that this document (1) involves regulations which are not considered to be major under the procedures and criteria prescribed by Executive Order 12291, and (2) is not significant under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). I certify that under the criteria of the Regulatory Flexibility Act, these final rules will not have a significant economic impact on a substantial number of small entities. In addition, these final rules will have little or no impact on trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States.

List of Subjects

14 CFR Part 21

Aircraft, Aviation safety, Air transportation, Safety.

14 CFR Part 23

Aircraft, Aviation safety, Safety, Air transportation, Tires.

14 CFR Part 36

Aircraft noise, Type certification.

14 CFR Part 91

Air carriers, Aviation Safety, Safety, Aircraft, Aircraft pilots, Air traffic control, Liquor, Narcotics, Pilots, Airspace, Air transportation, Cargo, Smoking, Airports, Airworthiness directives and standards.

14 CFR Part 135

Air carriers, Aviation safety, Safety, Air transportation, Air taxi, Narcotics, Airworthiness, Cargo, Pilots, Airmen, Aircraft, Alcohol, Airports, Hours of work, Hazardous materials, Weapons, Baggage, Transportation, Mail, Helicopters, Smoking, Beverages, Air traffic control, Handicapped, Drugs, Airspace, Chemicals, Airplanes.

Adoption of the Amendments

Accordingly, Parts 21, 23, 36, 91, and 135 of the Federal Aviation Regulations (14 CFR Parts 21, 23, 36, 91, and 135) are amended, as follows:

1. By amending Part 23 by revising the title to read as follows:

PART 23—AIRWORTHINESS STANDARDS: NORMAL, UTILITY, *ACROBATIC, AND COMMUTER* CATEGORY AIRPLANES

2. The authority citation for Part 23 continues to read as follows:

Authority: 49 U.S.C. 1344, 1354(a), 1355, 1421, 1423, 1425, 1428, 1429, 1430, and 1502; and 49 U.S.C. 106(g) (Revised, Public L. 97-449, January 12, 1983).

3. By amending § 23.1 by revising paragraph (a) to read as follows:

§ 23.1 Applicability.

(a) This part prescribes airworthiness standards for the issue of type certificates, and changes to those certificates, for airplanes in the normal, utility, acrobatic, and commuter categories.

* * * * *

4. By amending § 23.3 by revising paragraphs (a) introductory text, (b) introductory text, and (c); by revising and redesignating paragraph (d) as (e), and by adding a new paragraph (d) to read as follows:

§ 23.3 Airplane categories.

(a) The normal category is limited to airplanes that have a seating configuration, excluding pilot seats, of nine or less, a maximum certificate takeoff weight of 12,500 pounds or less, and intended for nonacrobatic operation. Nonacrobatic operation *includes:*

* * * * *

(b) The utility category is limited to airplanes that have a seating configuration, excluding pilot seats, of nine or less, a maximum certificated takeoff weight of 12,500 pounds or less, and intended for limited acrobatic operation. Airplanes certificated in the utility category may be used in any of the operations covered under paragraph (a) of this section and in limited acrobatic operations. Limited acrobatic operation includes:

* * * * *

(c) The acrobatic category is limited to airplanes that have a seating configuration, excluding pilot seats, of nine or less, a maximum certificated takeoff weight of 12,500 pounds or less, and intended for use without restrictions, other than those shown to be necessary as a result of required flight tests.

(d) The commuter category is limited to propeller-driven, multiengine airplanes that have a seating configuration excluding pilot seats, of 19 or less, and a maximum certificated takeoff weight of 19,000 pounds or less, intended for nonacrobatic operation as described in paragraph (a) of this section.

(e) Airplanes may be type certificated in more than one category of this part if the requirements of each requested category are met.

5. By amending § 23.25(a)(2) by inserting the words "and commuter" after the word "normal"; and by revising paragraph (a) introductory text to read as follows:

§ 23.25 Weight limits.

(a) *Maximum weight.* The maximum weight is the highest weight at which compliance with each applicable requirement of this Part (other than those complied with at the design landing weight) is shown. In addition, for commuter category airplanes, the applicant must establish a maximum zero fuel weight. The maximum weight must be established so that it is—

* * * * *

6. By amending § 23.45 by revising paragraph (a) and by adding a new paragraph (f) to read as follows:

§ 23.45 General.

(a) Unless otherwise prescribed, the performance requirements of this subpart must be met for still air; and

(1) Standard atmospheric conditions for normal, utility, and acrobatic category airplanes; or

(2) Ambient atmospheric conditions for commuter category airplanes.

* * * * *

(f) For commuter category airplanes, the following also apply:

(1) Unless otherwise prescribed, the applicant must select the takeoff, en route, approach, and landing configurations for the airplane;

(2) The airplane configuration may vary with weight, altitude, and temperature, to the extent they are compatible with the operating procedures required by paragraph (f)(3) of this section;

(3) Unless otherwise prescribed, in determining the critical-engine-inoperative takeoff performance, takeoff flight path, the accelerate-stop distance, takeoff distance, and landing distance, changes in the airplane's configuration, speed, power, and thrust must be made in accordance with procedures established by the applicant for operation in service;

(4) Procedures for the execution of missed approaches and balked landings associated with the conditions prescribed in §§ 23.67(e)(3) and 23.77(c) must be established; and

(5) The procedures established under paragraphs (f)(3) and (f)(4) of this section must—

(i) Be able to be consistently executed by a crew of average skill;

(ii) Use methods or devices that are safe and reliable; and

(iii) Include allowance for any reasonably expected time delays in the execution of the procedures.

7. By amending § 23.51 by removing paragraphs (b) and (c); by redesignating paragraphs (d) and (e) as (b) and (c) respectively; and by adding a new paragraph (d) to read as follows:

§ 23.51 Takeoff.

* * * * *

(d) For commuter category airplanes, takeoff performance and data as required by §§ 23.53 through 23.59 must be determined and included in the Airplane Flight Manual—

(1) For each weight, altitude, and ambient temperature within the operational limits selected by the applicant;

(2) For the selected configuration for takeoff;

(3) For the most unfavorable center of gravity position;

(4) With the operating engine within approved operating limitations;

(5) On a smooth, dry, hard surface runway; and

(6) Corrected for the following operational correction factors:

(i) Not more than 50 percent of nominal wind components along the takeoff path opposite to the direction of takeoff and not less than 150 percent of nominal wind components along the takeoff path in the direction of takeoff; and

(ii) Effective runway gradients.

8. By adding a new § 23.53 to read as follows:

§ 23.53 Takeoff speeds.

(a) For multiengine airplanes, the lift-off speed, V_{LOF}, may not be less than V_{MC} determined in accordance with § 23.149.

(b) Each normal, utility, and acrobatic category airplane, upon reaching a height of 50 feet above the takeoff surface level, must have reached a speed of not less than the following:

(1) For multiengine airplanes, the higher of—

(i) 1.1 V_{MC}; or

(ii) 1.3 V_{S1}, or any lesser speed, not less than V_X plus 4 knots, that is shown to be safe under all conditions, including turbulence and complete engine failure.

(2) For single engine airplanes—

(i) 1.3 V_{S1}; or

(ii) Any lesser speed, not less than V_X plus 4 knots, that is shown to be safer under all conditions, including turbulence and complete engine failure.

(c) For commuter category airplanes, the following apply:

(1) The takeoff decision speed, V_1, is the calibrated airspeed on the ground at which, as a result of engine failure or other reasons, the pilot is assumed to have made a decision to continue or discontinue the takeoff. The takeoff decision speed, V_1, must be selected by the applicant but may not be less than the greater of the following:

(i) 1.10 V_{S1};

(ii) 1.10 V_{MC} established in accordance with § 23.149;

(iii) A speed at which the airplane can be rotated for takeoff and shown to be adequate to safely continue the takeoff, using normal piloting skill, when the critical engine is suddenly made inoperative; or

(iv) V_{EF} plus the speed gained with the critcial engine inoperative during the time interval between the instant that the critical engine is failed and the instant at which the pilot recognizes and reacts to the engine failure as indicated by the pilot's application of the first retarding means during the accelerate-stop determination of § 23.55.

(2) The takeoff safety speed, V_2, in terms of calibrated airspeed, must be selected by the applicant so as to allow the gradient of climb required in § 23.67 but must not be less than V_1 or less than 1.2V_{S1}.

(3) The critical engine failure speed, V_{EF}, is the calibrated airspeed at which the critical engine is assumed to fail. V_{EF} must be selected by the applicant but not less than V_{MC} determined in accordance with § 23.149.

(4) The rotation speed, V_R in terms of calibrated airspeed, must be selected by the applicant and may not be less than the greater of the following:

(i) V_1; or

(ii) The speed determined in accordance with § 23.57(c) that allows attaining the initial climb out speed, V_2, before reaching a height of 35 feet above the takeoff surface.

(5) For any given set of conditions, such as weight, altitude, configuration, and temperature, a single value of V_R must be used to show compliance with both the one-engine-inoperative takeoff and all-engines-operating takeoff requirements:

(i) One-engine-inoperative takeoff determined in accordance with § 23.57; and

(ii) All-engines-operating takeoff determined in accordance with § 23.59.

(6) The one-engine-inoperative takeoff distance, using a normal rotation rate at a speed of 5 knots less than V_R established in accordance with paragraphs (c)(4) and (5) of this section, must be shown not to exceed the corresponding one-engine-inoperative takeoff distance determined in accordance with §§ 23.57 and 23.59 using the established V_V. The take off distance determined in accordance with § 23.59 and the takeoff must be safely continued from the point at which the airplane is 35 feet above the takeoff surface at a speed not less than 5 knots less than the established V_2 speed.

(7) The applicant must show, with all engines operating, that marked increases in the scheduled takeoff distances determined in accordance with § 23.59 do not result from over-rotation of the airplane and out-of-trim conditions.

9. By adding a new § 23.55 to read as follows:

§ 23.55 Accelerate-stop distance.

For each commuter category airplane, the accelerate-stop distance must be determined as follows:

(a) The accelerate-stop distance is the sum of the distances necessary to—

(1) Accelerate the airplane from a standing start to V_1; and

(2) Come to a full stop from the point at which V_1 is reached assuming that in the case of engine failure, the pilot has decided to stop as indicated by application of the first retarding means at the speed V_1.

(b) Means other than wheel brakes may be used to determine the accelerate-stop distance if that means is available with the critical engine inoperative and if that means—

(1) Is safe and reliable;

(2) Is used so that consistent results can be expected under normal operating conditions; and

(3) Is such that exceptional skill is not required to control the airplane.

10. By adding a new § 23.57 to read as follows:

§ 23.57 Takeoff path.

For each commuter category airplane, the takeoff path is as follows:

(a) The takeoff path extends from a standing start to a point in the takeoff at which the airplane is 1,500 feet above the takeoff surface or at which the transition from the takeoff to the en route configuration is completed, whichever point is higher; and

(1) The takeoff path must be based on the procedures prescribed in § 23.45;

(2) The airplane must be accelerated on the ground to V_{EF} at which point the critical engine must be made inoperative and remain inoperative for the rest of the takeoff; and

(3) After reaching V_{EF}, the airplane must be accelerated to V_2.

(b) During the acceleration to speed V_2, the nose gear may be raised off the ground at a speed not less than V_R. However, landing gear retraction may not be initiated until the airplane is airborne.

(c) During the takeoff path determination, in accordance with paragraphs (a) and (b) of this section—

(1) The slope of the airborne part of the takeoff path must be positive at each point;

(2) The airplane must reach V_2 before it is 35 feet above the takeoff surface, and must continue at a speed as close as practical to, but not less than V_2, until it is 400 feet above the takeoff surface;

(3) At each point along the takeoff path, starting at the point at which the airplane reaches 400 feet above the takeoff surface, the available gradient of climb may not be less than—

(i) 1.2 percent for two-engine airplanes;

(ii) 1.5 percent for three-engine airplanes;

(iii) 1.7 percent for four-engine airplanes; and

(4) Except for gear retraction and automatic propeller feathering, the airplane configuration may not be changed, and no change in power or thrust that requires action by the pilot may be made, until the airplane is 400 feet above the takeoff surface.

(d) The takeoff path must be determined by a continuous demonstrated takeoff or by synthesis from segments. If the takeoff path is determined by the segmental method—

(1) The segments must be clearly defined and must be related to the distinct changes in the configuration, power or thrust, and speed;

(2) The weight of the airplane, the configuration, and the power or thrust must be constant throughout each segment and must correspond to the most critical condition prevailing in the segment;

(3) The flight path must be based on the airplane's performance without ground effect;

(4) The takeoff path data must be checked by continuous demonstrated takeoffs up to the point at which the airplane is out of ground effect and its speed is stabilized to ensure that the path is conservative relative to the continuous path; and

(5) The airplane is considered to be out of the ground effect when it reaches a height equal to its wing span.

11. By adding a new § 23.59 to read as follows:

§ 23.59 Takeoff distance and takeoff run.

For each commuter category airplane—

(a) Takeoff distance is the greater of—

(1) The horizontal distance along the takeoff path from the start of the takeoff to the point at which the airplane is 35 feet above the takeoff surface as determined under § 23.57; or

(2) With all engines operating, 115 percent of the horizontal distance along the takeoff path, with all engines operating, from the start of the takeoff to the point at which the airplane is 35 feet above the takeoff surface, as determined by a procedure consistent with § 23.57.

(b) If the takeoff distance includes a clearway, the takeoff run is the greater of—

(1) The horizontal distance along the takeoff path from the start of the takeoff to a point equidistant between the point at which V_{LOF} is reached and the point at which the airplane is 35 feet above the takeoff surface as determined under § 23.57; or

(2) With all engines operating, 115 percent of the horizontal distance along the takeoff path, with all engines operating, from the start of the takeoff to a point equidistant between the point at which V_{LOF} is reached and the point at which the airplane is 35 feet above the takeoff surface determined by a procedure consistent with § 23.57.

12. By adding a new § 23.61 to read as follows:

§ 23.61 Takeoff flight path.

For each commuter category airplane, the takeoff flight path must be determined as follows:

(a) The takeoff flight path begins 35 feet above the takeoff surface at the end of the takeoff distance determined in accordance with § 23.59.

(b) The net takeoff flight path data must be determined so that they represent the actual takeoff flight paths, as determined in accordance with § 23.57 and with paragraph (a) of this section, reduced at each point by a gradient of climb equal to—

(1) 0.8 percent for two-engine airplanes;

(2) 0.9 percent for three-engine airplanes; and

(3) 1.0 percent for four-engine airplanes.

(c) The prescribed reduction in climb gradient may be applied as an equivalent reduction in acceleration along that part of the takeoff flight path at which the airplane is accelerated in level flight.

13. By amending § 23.65 by adding a new paragraph (d) to read as follows:

§ 23.65 Climb: All engines operating.

* * * * *

(d) In addition for commuter category airplanes, performance data must be determined for variations in weight, altitude, and temperatures at the most critical center of gravity for which approval is requested.

14. By amending § 23.67 by inserting the words "normal, utility, and acrobatic category" before the word "reciprocating" in both paragraphs (a) and (b) and before the word "turbine" in paragraph (c); and by adding a new paragraph (e) to read as follows:

§ 23.67 Climb: One engine inoperative.

* * * * *

(e) For commuter category airplanes, the following apply:

(1) *Takeoff climb:* The maximum weight at which the airplane meets the minimum climb performance specified in paragraphs (i) and (ii) must be determined for each altitude and ambient temperature within the operating limitations established for the airplane, out of ground effect in free air, with the airplane in the takeoff configuration, with the most critical center of gravity, the critical engine

inoperative, the remaining engines at the maximum takeoff power or thrust, and the propeller of the inoperative engine windmilling with the propeller controls in the normal position, except that, if an approved automatic propeller feathering system is installed, the propeller may be in the feathered position:

(i) *Takeoff, landing gear extended.* The minimum steady gradient of climb between the lift-off speed, V_{LOF}, and until the landing gear is retracted must be measurably positive for two-engine airplanes, not less than 0.3 percent for three-engine airplanes, or 0.5 percent for four-engine airplanes at all points along the flight path; and

(ii) *Takeoff, landing gear retracted.* The minimum steady gradient of climb must not be less than 2 percent for two-engine airplanes, 2.3 percent for three-engine airplanes, and 2.6 percent for four-engine airplanes at the speed V_2, until the airplane is 400 feet above the takeoff surface. For airplanes with fixed landing gear, this requirement must be met with the landing gear extended.

(2) *En route climb:* The maximum weight must be determined for each altitude and ambient temperature within the operational limits established for the airplane, at which the steady gradient of climb is not less than 1.2 percent for two-engine airplanes, 1.5 percent for three-engine airplanes, and 1.7 percent for four-engine airplanes at an altitude of 1,500 feet above the takeoff surface, with the airplane in the en route configuration, the critical engine inoperative, the remaining engine at the maximum continuous power or thrust, and the most unfavorable center of gravity.

(3) *Approach:* In the approach configuration corresponding to the normal all-engines-operating procedure in which V_{S_R} for this configuration does not exceed 110 percent of the V_{S_1} for the related landing configuration, the steady gradient of climb may not be less than 2.1 percent for two-engine airplanes, 2.4 percent for three-engine airplanes, and 2.7 percent for four-engine airplanes, with—

(i) The critical engine inoperative and the remaining engines at the available takeoff power or thrust;

(ii) The maximum landing weight, and

(iii) A climb speed established in connection with the normal landing procedures but not exceeding 1.5 V_{S_1}.

15. By amending § 23.75 by adding a new paragraph (g) to read as follows:

§ 23.75 Landing.

* * * * *

(g) In addition, for commuter category airplanes, the following apply:

(1) The landing distance must be determined for standard temperatures at each weight, altitude, and wind condition within the operational limits established by the applicant;

(2) A steady gliding approach, or a steady approach at a gradient of descent not greater than 5.2 percent (3°), at a calibrated airspeed not less than $1.3V_{S_1}$ must be maintained down to the 50-foot height; and

(3) The landing distance data must include correction factors for not more than 50 percent of the nominal wind components along the landing path opposite to the direction of landing and not less than 150 percent of the nominal wind components along the landing path in the direction of landing.

16. By amending § 23.77 by inserting the words "normal, utility, and acrobatic category" before the word "airplane"; and by adding an "s" to the word "airplane" in paragraph (a); by inserting the words "normal, utility, and acrobatic category" before the word "turbine"; by adding an "s" to the word "airplane" in the first part of the sentence in paragraph (b); and by adding a new paragraph (c) to read as follows:

§ 23.77 Balked landing.

* * * * *

(c) For each commuter category airplane, with all engines operating, the maximum weight must be determined with the airplane in the landing configuration for each altitude and ambient temperature within the operational limits established for the airplane, with the most unfavorable center of gravity and out-of-ground effect in free air, at which the steady gradient of climb will not be less than 3.3 percent with—

(1) The engines at the power or thrust that is available 8 seconds after initiation of movement of the power or thrust controls from the minimum flight-idle position to the takeoff position.

(2) A climb speed not greater than the approach speed established under § 23.75 and not less than the greater of $1.05\ V_{MC}$ or $1.10V_{S_1}$.

17. By amending § 23.161 by revising paragraphs (b), (c) introductory test, and (c)(3) to read as follows:

§ 23.161 Trim.

* * * * *

(b) *Lateral and directional trim.* The airplane must maintain lateral and directional trim in level flight with the landing gear and wing flaps retracted as follows:

(1) For normal, utility, and acrobatic category airplanes, at a speed of $0.9V_H$ or V_C, whichever is lower; and

(2) For commuter category airplanes, at a speed of V_H or V_{MO}/M_{MO}, whichever is lower.

(c) *Longitudinal trim.* The airplane must maintain longitudinal trim under each of the following conditions, except that it need not maintain trim at a speed greater than V_{MO}/M_{MO}:

* * * * *

(3) Level flight at any speed with the landing gear and wing flaps retracted as follows:

(i) For normal, utility, and acrobatic category airplanes, at any speed from $0.9V_H$ to either V_X or $1.4V_{S_1}$; and

(ii) For commuter category airplanes, at a speed of V_H or V_{MO}/M_{MO}, whichever is lower, to either V_X or $1.4V_{S_1}$.

* * * * *

18. By amending § 23.173 by revising paragraph (b) to read as follows:

§ 23.173 Static longitudinal stability.

* * * * *

(b) The airspeed must return to within the tolerances specified for applicable categories of airplanes when the control force is slowly released at any speed within the speed range specified in paragraph (a) of this section. The applicable tolerances are—

(1) The airspeed must return to within plus or minus 10 percent of the original trim airspeed; and

(2) For commuter category airplanes, the airspeed must return to within plus or minus 7.5 percent of the original trim airspeed for the cruising condition specified in § 23.175(b).

* * * * *

19. By amending § 23.175 by revising paragraph (b)(2) introductory text to read as follows:

§ 23.175 Demonstration of static longitudinal stability.

* * * * *

(b) *Cruise—Landing gear retracted (or fixed gear).*

* * * * *

(2) *High speed cruise.* The stick force curve must have a stable slope at all speeds within a range that is the greater of 15 percent of the trim speed plus the resulting free return speed range or 40 knots plus the resulting free return speed range for normal, utility, and acrobatic category airplanes, above and below the trim speed. For commuter category airplanes, the stick force curve must have a stable slope for a speed range of 50 knots from the trim speed, except that the speeds need not exceed V_{FC}/M_{FC} or be less than $1.4\ V_{S_1}$, and this speed range is considered to begin at the outer extremes of the friction band with a stick force not to exceed 50 pounds. In

addition, for commuter category airplanes, V_{FC}/M_{FC} may not be less than a speed midway between V_{MO}/M_{MO} and V_{DF}/M_{DF}, except that, for altitudes where Mach number is the limiting factor, M_{FC} need not exceed the Mach number at which effective speed warning occurs. These requirements for all categories of airplane must be met with—

* * * * *

20. By amending § 23.333 by inserting the words "and commuter" after the word "normal" in paragraph (b)(3); by adding a new paragraph (c)(1)(iii); and by revising the diagram in paragraph (d) to add additional commuter category gust parameters as follows:

§ 23.333 Flight envelope.

* * * * *

(c) *Gust envelope.*

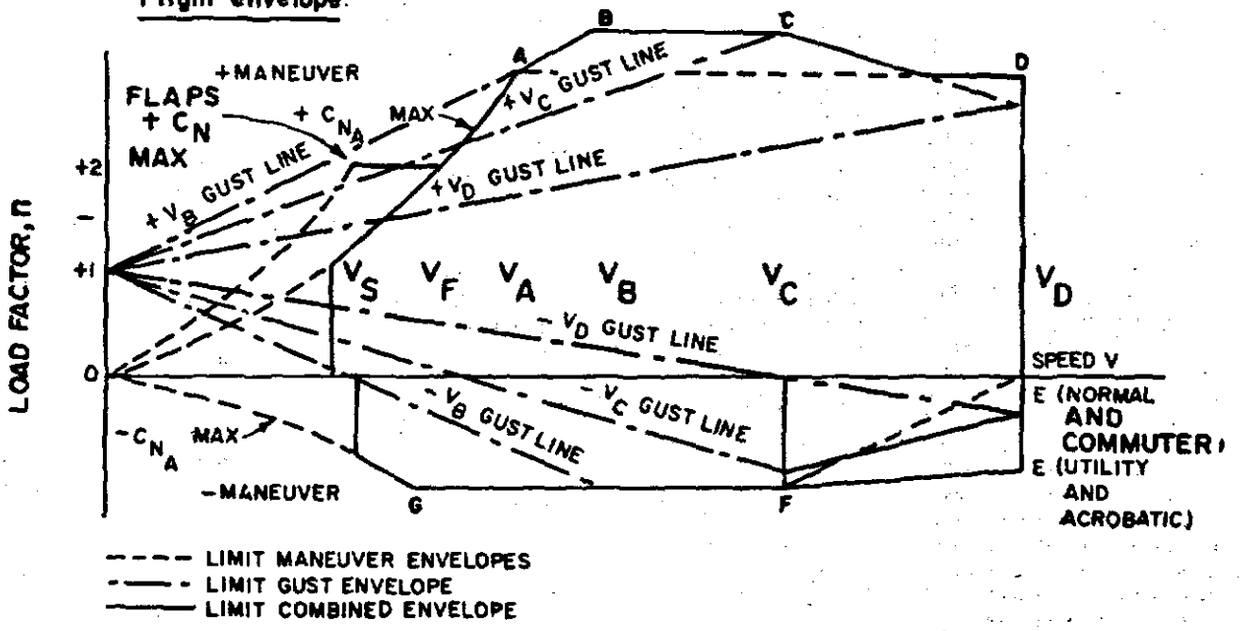
(1) * * *

(iii) In addition, for commuter category airplanes, positive (up) and negative (down) rough air gusts of 66 f.p.s. at V_B must be considered at altitudes between sea level and 20,000 feet. The gust velocity may be reduced linearly from 66 f.p.s. at 20,000 feet to 38 f.p.s. at 50,000 feet.

* * * * *

(d) *Flight envelope.*

Flight envelope.



NOTE: POINT G NEED NOT BE INVESTIGATED WHEN THE SUPPLEMENTARY CONDITION SPECIFIED IN § 23.369 IS INVESTIGATED

21. By amending § 23.335 by revising paragraphs (a)(1)(i) and (b)(2)(i); and by adding a new paragraph (d) to read as follows:

§ 23.335 Design airspeeds.

* * * * *

(a) * * *

(1) * * *

(i) 33 W/S (for normal, utility, and commuter category airplanes); and

* * * * *

(b) * * *

(2) * * *

(i) 1.40 V_s *min* (for normal and commuter category airplanes);

* * * * *

(d) *Design speed for maximum gust intensity, V_B.* For V_B, the following apply:

(1) V_B may not be less than the speed determined by the intersection of the line representing the maximum positive lift $C_{n\ max}$ and the line representing the rough air gust velocity on the gust V_{-n} diagram, or $\sqrt{(n_g)}\ V_{S1}$, whichever is less, where:

(i) n_g the positive airplane gust load factor due to gust, at speed V_C (in accordance with § 23.341), and at the particular weight under consideration; and

(ii) V_{S1} is the stalling speed with the flaps retracted at the particular weight under consideration.

(2) V_B need not be greater than V_C.

§ 23.337 [Amended]

22. By amending § 23.337, by inserting the words "and commuter" before the word "category" in paragraph (a)(1); and by removing the word "and" and by inserting ", and commuter" before the word "categories" in paragraph (b)(1).

23. By amending § 23.349 by revising paragraph (a)(2) to read as follows:

§ 23.349 Rolling conditions.

* * * * *

(a) * * *

(2) For normal, utility, and commuter categories, in Condition A, assume that 100 percent of the semispan wing airload acts on one side of the airplane, and 70 percent of this load acts on the other side. For airplanes of more than 1,000 pounds design weight, the latter percentage may be increased linearly with weight up through 75 percent at 12,500 pounds to the maximum gross weight of the airplane.

* * * * *

§ 23.397 [Amended]

24. By amending the table in § 23.397 (b) by revising Footnote 1 by removing the period at the end of the sentence and inserting the phrase "and for commuter category airplanes, the specified values must be increased linearly with weight to 1.35 times the specified values at a design weight of 19,000 pounds."

25. By amending § 23.443 by redesignating paragraphs (b) and (c) as paragraphs (c) and (d) respectively; and by adding a new paragraph (b) to read as follows:

§ 23.443 Gust loads.

* * * * *

(b) In addition, for commuter category airplanes, the airplane is assumed to encounter derived gusts normal to the plane of symmetry while in unaccelerated flight at V_B, V_C V_D, and V_F. The derived gusts and airplane speeds corresponding to these conditions, as determined by §§ 23.341 and 23.345, must be investigated. the shape of the gust must be as specified in § 23.333(c)(2)(i).

* * * * *

26. By amending § 23.572 by revising the title of the section from "Wing and associated structure" to "Flight structure"; by inserting the words "For normal, utility, and acrobatic category airplanes," before the first word in paragraph (a); by changing the word "The" to "the" in paragraph (a); and by adding a new paragraph (b) to read as follows:

§ 23.572 Flight structure.

* * * * *

(b) For commuter category airplanes, unless it is shown that the structure, operating stress levels, materials, and expected use are comparable from a fatigue standpoint to similar design which has had a substantial satisfactory service experience, the strength, detail design, and the fabrication of those parts of the wing, wing carrythrough, vertical fin, horizontal stabilizer, and attaching structure whose failure would be catastrophic must be evaluated under either—

(1) A fatigue strength investigation, in which the structure is shown by analysis, tests, or both, to be able to withstand the repeated loads of variable magnitude expected in service. Analysis alone is acceptable only when it is conservative and applied to simple structures; or

(2) A fail-safe strength investigation in which analysis, tests, or both, show that catastrophic failure of the structure is not probable after fatigue failure, or obvious partial failure, of a principal structural element and that the remaining structure is able to withstand a static ultimate load factor of 75 percent of the critical limit load at V_C. These loads must be multiplied by a factor of 1.15 unless the dynamic effects of failure under static load are otherwise considered.

27. By amending § 23.677 by adding a new paragraph (d) to read as follows:

§ 23.677 Trim systems.

* * * * *

(d) In addition, for commuter category airplanes, a demonstration must show that the airplane is safely controllable and that a pilot can perform all the maneuvers and operations necessary to effect a safe landing following any probable electric trim tab runaway which might be reasonably expected in service allowing for appropriate time delay after pilot recognition of the runaway. This demonstration must be conducted at the critical airplane weights and center of gravity positions.

28. By adding a new § 23.721 to read as follows:

§ 23.721 General.

For commuter category airplanes that have a passenger seating configuration, excluding pilot seats, of 10 or more, the following general requirements for the landing gear apply:

(a) The main landing-gear system must be designed so that if it fails due to overloads during takeoff and landing (assuming the overloads to act in the upward and aft directions), the failure mode is not likely to cause the spillage of enough fuel from any part of the fuel system to consitute a fire hazard.

(b) Each airplane must be designed so that, with the airplane under control, it can be landed on a paved runway with any one or more landing-gear legs not extended without sustaining a structural component failure that is likely to cause the spillage of enough fuel to consitute a fire hazard.

(c) Compliance with the provisions of this section may be shown by analysis or tests, or both.

29. By amending § 23.783 by adding a new paragraph (c) to read as follows:

§ 23.783 Doors.

* * * * *

(c) In addition, for commuter category airplanes, the following requirements apply:

(1) A means must be provided to lock and safeguard each external door against opening in flight (either inadvertently by persons, cargo, or as a result of mechanical failure or failure of a single structural element). Each external door must be openable from both the inside and the outside, even though persons may be crowded against the door on the inside of the airplane. Inward-opening doors may be used if a means is provided to prevent occupants from crowding against the door to an extent that would interfere with the opening of the door. The means of opening must be simple and obvious and must be arranged and marked inside and outside so that it can be readily located and operated, even in darkness. Auxiliary locking devices may be used;

(2) Each external door must be reasonably free from jamming as a result of fuselage deformation in a minor crash;

(3) A means must be provided for direct visual inspection of the locking mechanism by crewmembers to determine whether external doors, for which the initial opening movement is outward, including passenger, crew, service, and cargo doors, are fully locked. In addition, a means must be provided to visually signal to appropriate crewmembers when normally used external doors are closed and fully locked; and

(4) Cargo and service doors not suitable for use as exits in an emergency need only meet paragraph (c)(3) of this section and be safeguarded against opening in flight by persons, cargo, or as a result of mechanical failure of a single structural element.

29–1. By amending § 23.785 by revising paragraph (g) to read as follows:

§ 23.785 Seats, berths, safety belts, and shoulder harnesses.

* * * * *

(g) Each occupant must be protected from serious head injury when subjected to the inertia forces prescribed in § 23.561(b)(2) by—

(1) For normal, utility, and acrobatic category airplanes, a safety belt and shoulder harness that is designed to prevent the head from contacting any injurious object for each forward- and aft-facing seat. For other seat orientations, the seat and restraint means must be designed to provide a level of occupant protection equivalent to that provided for forward- and aft-facing seats with safety belts and shoulder harnesses installed; or

(2) For commuter category airplanes, a safety belt and shoulder harness that is designed to prevent the head from contacting any injurious object for each front seat; and a safety belt, or a safety belt and shoulder harness, for each seat other than a front seat.

* * * * *

30. By amending § 23.787 by adding a new paragraph (g) to read as follows:

§ 23.787 Cargo compartments.

* * * * *

(g) In addition, for commuter category airplanes, the following apply:

(1) A means must be provided to protect occupants from injury by the contents of any cargo or baggage compartment located aft of occupants when the ultimate forward inertia force is 9 g.

(2) Baggage compartments must be designed to meet the requirements for cargo compartments in paragraphs (a), (b), and (f) of this section.

31. By adding a new § 23.803 to read as follows:

§ 23.803 Emergency evacuation.

For commuter category airplanes, an evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is desired. The demonstration must be conducted under simulated night conditions using only the emergency exits on the most critical side of the airplane. The participants must be representative of average airline passengers with no prior practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.

32. By amending § 23.807 by adding a new paragraph (d) to read as follows:

§ 23.807 Emergency exits.

* * * * *

(d) *Doors and exits.* In addition, for commuter category airplanes the following requirements apply:

(1) The passenger entrance door must qualify as a floor level emergency exit. If an integral stair is installed at such a passenger entry door, the stair must be designed so that when subjected to the inertia forces specified in § 23.561, and following the collapse of one or more legs of the landing gear, it will not interfere to an extent that will reduce the effectiveness of emergency egress through the passenger entry door. Each additional required emergency exit, except floor level exits, must be located over the wing or must be provided with acceptable means to assist the occupants in descending to the ground. In addition to the passenger entrance door—

(i) For a total passenger seating capacity of 15 or less, an emergency exit as defined in paragraph (b) of this section is required on each side of the cabin; and

(ii) For a total passenger seating capacity of 16 through 19, three emergency exits, as defined in paragraph (b) of this section, are required with one on the same side as the door and two on the side opposite the door.

(2) A means must be provided to lock each emergency exit and to safeguard against its opening in flight, either inadvertently by persons or as a result of mechanical failure. In addition, a means for direct visual inspection of the locking mechanism must be provided to determine that each emergency exit for which the initial opening movement is outward is fully locked.

(3) Each emergency exit must be marked with the word "Exit" by a sign which has white letters 1 inch high on a red background 2 inches high, be self-illuminated or independently, internally-electrically illuminated, and have a minimum brightness of at least 160 microlamberts. The colors may be reversed if the passenger compartment illumination is essentially the same.

(4) Access to window-type emergency exits may not be obstructed by seats or seat backs.

33. By adding a new § 23.815 to read as follows:

§ 23.815 Width of aisle.

For commuter category airplanes, the width of the main passenger aisle at any point between seats must equal or exceed the values in the following table:

Number of passenger seats	Minimum main passenger aisle width	
	Less than 25 inches from floor	25 inches and more from floor
10 through 19	9 inches	15 inches

34. By amending § 23.831 by redesignating the present paragraph as paragraph (a); and adding a new paragraph (b) to read as follows:

§ 23.831 Ventilation.

* * * * *

(b) In addition, for pressurized communter category airplanes, the ventilating air in the flightcrew and passenger compartments must be free of harmful or hazardous concentrations of gases and vapors in normal operations and in the event of reasonably probable failures or malfunctioning of the ventilating, heating, pressurization, or other systems and equipment. If accumulation of hazardous quantities of smoke in the cockpit area is reasonably probable, smoke evacuation must be readily accomplished starting with full pressurization and without depressurizing beyond safe limits.

35. By adding a new § 23.851 to read as follows:

§ 23.851 Fire Extinguishers.

For the commuter category airplanes, the following apply:

(a) At least one hand fire extinguisher must be located conveniently in the pilot compartment; and

(b) At least one hand fire extinguisher must be located conveniently in the passenger compartment.

36. By amending § 23.853 by redesignating paragraphs (d) and (e) as paragraphs (e) and (f), respectively; and by adding a new paragraph (d) to read as follows:

§ 23.853 Compartment interiors.

* * * * *

(d) In addition, for commuter category airplanes the following requirements apply:

(1) Each disposal receptacle for towels, paper, or waste must be fully enclosed and constructed of at least fire resistant materials and must contain fires likely to occur in it under normal use. The ability of the disposal receptacle to contain those fires under all probable conditions of wear, misalignment, and ventilation expected in service must be demonstrated by test. A placard containing the legible words "No Cigarette Disposal" must be located on or near each disposal receptacle door.

(2) Lavatories must have "No Smoking" or "No Smoking in Lavatory" placards located conspicuously on each side of the entry door and self-contained, removable ashtrays located conspicuously on or near the entry side of each lavatory door, except that one ashtray may serve more than one lavatory door if it can be seen from the cabin side of each lavatory door served. The placards must have red letters at least ½ inch high on a white background at least 1 inch high (a "No Smoking" symbol may be included on the placard).

(3) Materials (including finishes or decorative surfaces applied to the materials) used in each compartment occupied by the crew or passengers must meet the following test criteria as applicable:

(i) Interior ceiling panels, interior wall panels, partitions, galley structure, large cabinet walls, structural flooring, and materials used in the construction of stowage compartments (other than underseat stowage compartments and compartments for stowing small items such as magazines and maps) must be self-extinguishing when tested vertically in accordance with the applicable portions of Appendix F of this Part or by other equivalent methods. The average burn length may not exceed 6 inches and the average flame time after removal of the flame source may not exceed 15 seconds. Drippings from the test specimen may not continue to flame for more than an average of 3 seconds after falling.

(ii) Floor covering, textiles (including draperies and upholstery), seat cushions, padding, decorative and nondecorative coated fabrics, leather, trays and galley furnishings, electrical conduit, thermal and acoustical insulation and insulation covering, air

ducting, joint and edge covering, cargo compartment liners, insulation blankets, cargo covers and transparencies, molded and thermoformed parts, air ducting joints, and trim strips (decorative and chafing), that are constructed of materials not covered in paragraph (d)(3)(iv) of this section must be self extinguishing when tested vertically in accordance with the applicable portions of Appendix F of this Part or other approved equivalent methods. The average burn length may not exceed 8 inches and the average flame time after removal of the flame source may not exceed 15 seconds. Drippings from the test specimen may not continue to flame for more than an average of 5 seconds after falling.

(iii) Motion picture film must be safety film meeting the Standard Specifications for Safety Photographic Film PH1.25 (available from the American National Standards Institute, 1430 Broadway, New York, N.Y. 10018) or an FAA approved equivalent. If the film travels through ducts, the ducts must meet the requirements of paragraph (d)(3)(ii) of this section.

(iv) Acrylic windows and signs, parts constructed in whole or in part of elastomeric materials, edge-lighted instrument assemblies consisting of two or more instruments in a common housing, seatbelts, shoulder harnesses, and cargo and baggage tiedown equipment, including containers, bins, pallets, etc., used in passenger or crew compartments, may not have an average burn rate greater than 2.5 inches per minute when tested horizontally in accordance with the applicable portions of Appendix F of this Part or by other approved equivalent methods.

(v) Except for electrical wire cable insulation, and for small parts (such as knobs, handles, rollers, fasteners, clips, grommets, rub strips, pulleys, and small electrical parts) that the Administrator finds would not contribute significantly to the propagation of a fire, materials in items not specified in (d)(3) (i), (ii), (iii), or (iv) of this section may not have a burn rate greater than 4.0 inches per minute when tested horizontally in accordance with the applicable portions of Appendix F of this Part or by other approved equivalent methods.

* * * * *

37. By amending § 23.901 by adding a new paragraph (b)(3) to read as follows:

§ 23.901 Installation.

* * * * *

(b) * * *

(3) In addition, for turbopropeller-powered commuter category airplanes, the engine installation must not result in vibration characteristics exceeding those established during the type certification of the engine.

* * * * *

38. By amending § 23.903 by redesignating the text of paragraph (d) as paragraph (d)(1); by adding a new paragraph (d)(2); and by revising paragraph (e)(2) to read as follows:

§ 23.903 Engines.

* * * *

(d) *Starting and stopping (piston engine).*

(1) * * *

(2) In addition, for commuter category airplanes, the following apply:

(i) Each component of the stopping system on the engine side of the firewall that might be exposed to fire must be at least fire resistant.

(ii) If hydraulic propeller feathering systems are used for this purpose, the feathering lines must be at least fire resistant under the operating conditions that may be expected to exist during feathering.

(e) *Starting and stopping (turbine engine).*

* * * * *

(2) A means must be provided for stopping combustion and rotation of any engine. All those components provided for compliance with this requirement, which are within any engine compartment on the engine side of the firewall, must be fire resistant. In addition, for commuter category airplanes, each component of the restarting system on the engine side of the firewall and those components that might be exposed to fire must be at least fire resistant. If hydraulic propeller feathering systems are used for this purpose, the feathering lines must be at least fire resistant under the operating conditions that may be expected to exist during feathering.

* * * * *

39. By amending § 23.933 by adding a new paragraph (d) to read as follows:

§ 23.933 Reversing Systems.

* * * * *

(d) For turbopropeller-powered, commuter category airplanes, the requirements of paragraphs (b) and (c) of this section apply. Compliance with this section must be shown by failure analysis, testing, or both, for propeller systems that allow the propeller blades to move from the flight low-pitch position to a position that is substantially less than that at the normal flight, low-pitch stop position. The analysis may include, or be supported by, the analysis made to show compliance for the type certification of the propeller and associated installation components. Credit will be given for pertinent analysis and testing completed by the engine and propeller manufacturers.

40. By amending § 23.963 by adding a new paragraph (f) to read as follows:

§ 23.963 Fuel Tanks: general.

* * * * *

(f) For commuter category airplanes, fuel tanks within the fuselage contour must be able to resist rupture and to retain fuel under the inertia forces prescribed for the emergency landing conditions in § 23.561. In addition, these tanks must be in a protected position so that exposure of the tanks to scraping action with the ground is unlikely.

41. By amending § 23.997 by adding a new paragraph (e) to read as follows:

§ 23.997 Fuel strainer or filter.

* * * * *

(e) In addition, for commuter category airplanes, unless means are provided in the fuel system to prevent the accumulation of ice on the filter, a means must be provided to automatically maintain the fuel flow if ice clogging of the filter occurs.

42. By amending § 23.1163 by adding a new paragraph (d) to read as follows:

§ 23.1163 Powerplant accessories.

* * * * *

(d) In addition, for commuter category airplanes, if the continued rotation of any accessory remotely driven by the engine is hazardous when malfunctioning occurs, a means to prevent rotation without interfering with the continued operation of the engine must be provided.

43. By amending § 23.1165 by adding a new paragraph (f) to read as follows:

§ 23.1165 Engine ignition systems.

* * * * *

(f) In addition, for commuter category airplanes, each turbopropeller ignition system must be an essential electrical load.

44. By amending § 23.1193 by adding a new paragraph (g) to read as follows:

§ 23.1193 Cowling and nacelle.

* * * * *

(g) In addition, for commuter category airplanes, the airplane must be designed so that no fire originating in any engine compartment can enter, either through openings or by burn-through, any other region where it would create additional hazards.

45. By adding a new § 23.1195 to read as follows:

§ 23.1195 Fire extinguishing systems.

For commuter category airplanes, fire extinguishing systems must be installed and compliance shown with the following:

(a) Except for combustor, turbine, and tailpipe sections of turbine-engine installations that contain lines or components carrying flammable fluids or gases for which a fire originating in these sections is shown to be controllable, a fire extinguisher system must serve each engine compartment;

(b) The fire extinguishing system, the quantity of the extinguishing agent, the rate of discharge, and the discharge distribution must be adequate to extinguish fires. An individual "one shot" system may be used.

(c) The fire extinguishing system for a nacelle must be able to simultaneously protect each compartment of the nacelle for which protection is provided.

46. By adding a new § 23.1197 to read as follows:

§ 23.1197 Fire extinguishing agents.

For commuter category airplanes, the following applies:

(a) Fire extinguishing agents must—

(1) Be capable of extinguishing flames emanating from any burning of fluids or other combustible materials in the area protected by the fire extinguishing system; and

(2) Have thermal stability over the temperature range likely to be experienced in the compartment in which they are stored.

(b) If any toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or fluid vapors (from leakage during normal operation of the airplane or as a result of discharging the fire extinguisher on the ground or in flight) from entering any personnel compartment, even though a defect may exist in the extinguishing system. This must be shown by test except for built-in carbon dioxide fuselage compartment fire extinguishing systems for which—

(1) Five pounds or less of carbon dioxide will be discharged, under established fire control procedures, into any fuselage compartment; or

(2) Protective breathing equipment is available for each flight crewmember on flight deck duty.

47. By adding a new § 23.1199 to read as follows:

§ 23.1199 Extinguishing agent containers.

For commuter category airplanes, the following applies:

(a) Each extinguishing agent container must have a pressure relief to prevent bursting of the container by excessive internal pressures.

(b) The discharge end of each discharge line from a pressure relief connection must be located so that discharge of the fire extinguishing agent would not damage the airplane. The line must also be located or protected to prevent clogging caused by ice or other foreign matter.

(c) A means for each fire extinguishing agent container to indicate that the container has discharged or that the charging pressure is below the established minimum necessary for proper functioning.

(d) The temperature of each container must be maintained, under intended operating conditions, to prevent the pressure in the container from—

(1) Falling below that necessary to provide an adequate rate of discharge; or

(2) Rising high enough to cause premature discharge.

(e) If a pyrotechnic capsule is used to discharge the extinguishing agent, each container must be installed so that temperature conditions will not cause hazardous deterioration of the pyrotechnic capsule.

48. By adding a new § 23.1201 to read as follows:

§ 23.1201 Fire extinguishing system materials.

For commuter category airplanes, the following apply:

(a) Material in any fire extinguishing system may react chemically with any extinguishing agent so as to create a hazard.

(b) Each system component in an engine compartment must be fireproof.

49. By amending § 23.1203 by removing the word "and" in the introductory sentence and inserting a ","; and by inserting the phrase ", and all commuter category airplanes" between the words "turbo-superchargers" and "the" at the end of the introductory paragraph.

§ 23.1203 [Amended]

50. By revising § 23.1305 (f), (h), and (k), to read as follows:

§ 23.1305 Powerplant instruments.

* * * * *

(f) A cylinder head temperature indicator for—

(1) Each air-cooled engine with cowl flaps and for each airplane for which compliance with § 23.1041 is shown at a speed higher than V_x; and

(2) Each reciprocating engine-powered commuter category airplane.

* * * * *

(h) A manifold pressure indicator for—

(1) Each altitude engine; and

(2) Each reciprocating engine-powered commuter category airplane.

* * * * *

(k) A fuel flowmeter for—

(1) Each turbine engine or fuel tank if pilot action is required to maintain fuel flow within limits; and

(2) Each turbine-powered commuter category airplane.

* * * * *

51. By amending § 23.1309 by adding a new paragraph (d) to read as follows:

§ 23.1309 Equipment, systems and installations.

* * * * *

(d) In addition, for commuter category airplanes, systems and installations must be designed to safeguard against hazards to the airplane in the event of their malfunction or failure. When an installation requires a power supply and the function of that installation is necessary to show compliance with the applicable requirements, the installation must be considered an essential load on the power supply. The power sources and the distribution system must be capable of supplying the following power loads in probable operation combinations and for probable durations;

(1) All essential loads after failure of any prime mover, power converter, or energy storage device;

(2) All essential loads after failure of any one engine on two-engine airplanes; and

(3) In determining the probable operating combinations and durations of essential loads for the power failure conditions described in paragraphs (d) (1) and (2) of this section, the assumption may be that the power loads are reduced in accordance with a monitoring procedure which is consistent with safety for the types of operations for which approval is requested.

52. By amending § 23.1323 by adding new paragraphs (c) and (d) to read as follows:

§ 23.1323 Airspeed indicating system.

* * * * *

(c) In addition, for commuter airplanes, the airspeed indicating system must be calibrated to determine the system error in flight and during the accelerate-takeoff ground run. The ground run calibration must be obtained between 0.8 of the minimum value of V_1, and 1.2 times the maximum value of V_1 considering the approved ranges of altitude and weight. The ground run calibration must be determined assuming an engine failure at the minimum value of V_1.

(d) For commuter category airplanes, the information showing the relationship between IAS and CAS determined in accordance with paragraph (c) of this section must be shown in the Airplane Flight Manual.

53. By amending § 23.1325 by adding a new paragraph (f) to read as follows:

§ 23.1325 Static pressure system.

* * * * *

(f) For commuter category airplanes, the altimeter system calibration, required by paragraph (e) of this section, must be shown in the Airplane Flight Manual.

54. By amending § 23.1351, by revising paragraph (a)(2); by revising paragraphs (b)(2), (b)(3), and (b)(4) and by adding a new (b)(5); and by revising paragraph (d) to read as follows:

§ 23.1351 General.

* * * * *

(a) * * *

(2) Compliance with subparagraph (a)(1) of this section must be shown as follows—

(i) For normal, utility, and acrobatic category airplanes, by an electrical load analysis or by electrical measurements that account for the electrical loads applied to the electrical system in probable combinations and for probable durations; and

(ii) For commuter category airplanes, by an electrical load analysis that accounts for the electrical loads applied to the electrical system in probable combinations and for probable durations.

(b) * * *

(2) Electric power sources must function properly when connected in combination or independently, except alternators installed in normal, utility, and acrobatic category airplanes, may depend on a battery for initial excitation or for stabilization.

(3) No failure or malfunction of any electric power source may impair the ability of any remaining source to supply load circuits essential for safe operation, except the operation of an alternator that depends on a battery for initial excitation or for stabilization may be stopped by failure of that battery in normal, utility, and acrobatic category airplanes.

(4) Each electric power source control must allow the independent operation of each source, except in normal, utility and acrobatic category airplanes, controls associated with alternators which depend on a battery for initial excitation or for stabilization need not break the connection between the alternator and its battery.

(5) In addition, for commuter category airplanes, the following apply:

(i) Each system must be designed so that essential load circuits can be supplied in the event of reasonably probable faults or open circuits including faults in heavy current carrying cables;

(ii) A means must be accessible in flight to the flight crewmembers for the individual and collective disconnection of the electrical power sources from the system;

(iii) The system must be designed so that voltage and frequency, if applicable, at the terminals of all essential load equipment can be maintained within the limits for which the equipment is designed during any probable operating conditions;

(iv) If two independent sources of electrical power for particular equipment or systems are required, their electrical energy supply must be ensured by means such as duplicate electrical equipment, throwover switching, or multichannel or loop circuits separately routed; and

(v) For the purpose of complying with this paragraph, the distribution system includes the distribution busses, their associated feeders, and each control and protective device.

* * * * *

(d) *Instruments.* A means must exist to indicate to appropriate flight crewmembers the electric power system quantities essential for safe operation.

(1) For normal, utility, and acrobatic category airplanes with direct current systems, an ammeter that can be switched into each generator feeder may be used and, if only one generator exists, the ammeter may be in the battery feeder.

(2) For commuter category airplanes, the essential electric power system quantities include the voltage and current supplied by each generator.

* * * * *

55. By amending § 23.1523 by revising paragraph (a) to read as follows:

§ 23.1523 Minimum flight crew.

* * * * *

(a) The workload on individual crewmembers and, in addition for commuter category airplanes, each crewmember workload determination must consider the following:

(1) Flight path control,

(2) Collision avoidance,

(3) Navigation,

(4) Communications,

(5) Operation and monitoring of all essential airplane systems,

(6) Command decisions, and

(7) The accessibility and ease of operation of necessary controls by the appropriate crewmember during all normal and emergency operations when at the crewmember flight station.

* * * * *

56. By amending § 23.1581 by adding a new paragraph (e) to read as follows:

§ 23.1581 General.

* * * * *

(e) Provision must be made for stowing the Airplane Flight Manual in a suitable fixed container which is readily accessible to the pilot.

57. By amending § 23.1583 by adding new paragraphs (a)(3), (c)(3), (c)(4), and (e)(4) to read as follows:

§ 23.1583 Operating limitations.

(a) * * *

(3) In addition, for commuter category airplanes—

(i) The maximum operating limit speed, V_{MO}/M_{MO} and a statement that this speed may not be deliberately exceeded in any regime of flight (climb, cruise, or descent) unless a higher speed is authorized for flight test or pilot training;

(ii) If an airspeed limitation is based upon compressibility effects, a statement to this effect and information as to any symptoms, the probable behavior of the airplane, and the recommended recovery procedures; and

(*iii*) The airspeed limits must be shown in terms of V_{MO}/M_{MO} instead of V_{NO} and V_{NE}.

* * * * *

(c) * * *

(3) In addition, for commuter category airplanes, the maximum takeoff weight for each altitude, ambient temperature, and required takeoff runway length within the range selected by the applicant may not exceed the weight at which—

(i) The all-engine-operating distance determined under § 23.59 or the accelerate-stop distance determined under § 23.55, whichever is greater, is equal to the available runway length;

(ii) The airplane complies with the one-engine-inoperative takeoff distance requirements of § 23.59; and

(iii) The airplane complies with the one-engine-inoperative takeoff and en route climb requirements of §§ 23.57 and 23.67.

(4) In addition, for commuter category airplanes, the maximum landing weight for each altitude, ambient temperature, and required landing runway length, within the range selected by the applicant. The maximum landing weights may not exceed:

(i) The weight at which the landing distance is determined under § 23.75; or

(ii) The weight at which compliance with § 23.77 is shown.

* * * * *

(e) * * *

(4) *Commuter category airplanes.* For commuter category airplanes, acrobatic maneuvers, including spins, are unauthorized.

* * * * *

58. By amending § 23.1585 by adding a new paragraph (h) to read as follows:

§ 23.1585 Operating procedures.

* * * * *

(h) In addition, for commuter category airplanes, the procedures for restarting turbine engines in flight, including the effects of altitude, must be set forth in the Airplane Flight Manual.

59. By amending § 23.1587 by adding a new paragraph (d) to read as follows:

§ 23.1587 Performance information.

* * * * *

(d) *Commuter category airplanes.* In addition, for commuter category airplanes, the Airplane Flight Manual must contain at least the following performance information:

(1) Sufficient information so that the takeoff weight limits specified in § 23.1583 can be determined for all temperatures and altitudes within the operational limitations selected by the applicant;

(2) The conditions under which the performance information was obtained including the airspeed at the 50-foot height used to determine the landing distance as required by § 23.75;

(3) The performance information (determined by extrapolation and computed for the range of weights between the maximum landing and maximum takeoff weights) for—

(i) Climb in the landing configuration as determined by § 23.77; and

(ii) Landing distance as determined by § 23.75;

(4) Procedures information established in accordance with the limitations and other information for safe operation of the airplane in the form of recommended procedures;

(5) An explanation of significant or unusual flight and ground handling characteristics of the airplane; and

(6) Airspeed, as calibrated airspeed, corresponding to those established while showing compliance to § 23.53. Takeoff speeds.

60. By amending Appendix F by revising the introductory text; redesignating paragraph (e) as paragraph (f); by adding the words "and (e)" after the words "in paragraph (d)" in paragraph (b); by revising paragraph (d); and by adding a new paragraph (e) to read as follows:

Appendix F to Part 23—Test Procedure

An Acceptable Test Procedure for Self-Extinguishing Materials for Showing Compliance with § 23.853.

* * * * *

(d) *Vertical test.* A minimum of three specimens must be tested and the results averaged. For fabrics, the direction of weave corresponding to the most critical flammability conditions must be parallel to the longest dimension. Each specimen must be supported vertically. The specimen must be exposed to a Bunsen or Tirrill burner with a nominal ⅜-inch I.D. tube adjusted to give a flame of 1½ inches in height. The minimum flame temperature measured by a calibrated thermocouple pryometer in the center of the flame must be 1550 degrees F. The lower edge of the specimen must be three-fourths inch above the top edge of the burner. The flame must be applied to the center line of the lower edge of the specimen. For materials covered by §§ 23.853(d)(3)(i) and 23.853(f), the flame must be applied for 60 seconds and then removed. For materials covered by § 23.853(d)(3)(ii), the flame must be applied for 12 seconds and then removed. Flame time, burn length, and flaming time of drippings, if any, must be recorded. The burn length determined in accordance with paragraph (f) of this Appendix must be measured to the nearest one-tenth inch.

(e) *Horizontal test.* A minimum of three specimens must be tested and the results averaged. Each specimen must be supported horizontally. The exposed surface when installed in the airplane must be face down for the test. The specimen must be exposed to a Bunsen burner or Tirrill burner with a nominal ⅜-inch I.D. tube adjusted to give a flame of 1½ inches in height. The minimum flame temperature measured by a calibrated thermocouple pyrometer in the center of the flame must be 1550° F. The specimen must be positioned so that the edge being tested is three-fourths of an inch above the top of, and on the center line of, the burner. The flame must be applied for 15 seconds and then removed. A minimum of 10 inches of the specimen must be used for timing purposes, approximately 1½ inches must burn before the burning front reaches the timing zone, and the average burn rate must be recorded.

* * * * *

61. By amending Appendix G, Section G 23.3 by adding a new paragraph (h) to read as follows:

Appendix G to Part 23—Instructions for Continued Airworthiness

G 23.3 *Content.*

* * * * *

(h) In addition, for commuter category airplanes, the following information must be furnished:

(1) Electrical loads applicable to the various systems;

(2) Methods of balancing control surfaces;

(3) Identification of primary and secondary structures; and

(4) Special repair methods applicable to the airplane.

PART 21—CERTIFICATION PROCEDURES FOR PRODUCTS AND PARTS

62. The authority citation for Part 21 is revised to read as follows and the authority citations following the sections in Part 21 are removed:

Authority: 49 U.S.C. 1344, 1348(c), 1352, 1354(a), 1355, 1421 through 1431, 1502, 1651(b)(2), 42 U.S.C. 1857f-10, 4321 et. seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

§ 21.19 [Amended]

63. By amending § 21.19 by inserting "commuter," before the word "or" in paragraph (b), introductory text.

§ 21.21 [Amended]

64. By amending § 21.21 by inserting "commuter," after "acrobatic," in the section heading and in the introductory paragraph.

§ 21.27 [Amended]

65. By amending § 21.27 by inserting "commuter," after the word "acrobatic" in paragraph (a); by inserting in the table in paragraph (f) "Commuter category airplanes" in the table under the heading "Type of aircraft" and below "Small turbine engine-powered airplanes"; by inserting "After (January 15, 1987)" in the table under the heading "Date accepted for operational use by the Armed Forces of the United States" and below the date "Oct. 1, 1959"; and by inserting "FAR Part 23 as of (January 15, 1987)" in the table under the heading "Regulations that Apply."

§ 21.37 [Amended]

66. By amending § 21.37 by inserting "commuter," after "acrobatic,".

§ 21.39 [Amended]

67. By amending § 21.39(a) by inserting 'commuter," after "acrobatic,".

§ 21.73 [Amended]

68. By amending § 21.73(c) by inserting "commuter," and after "acrobatic,".

§ 21.93 [Amended]

69. By amending § 21.93(b)(3) by inserting the words "commuter category and" after the word "driven" in the first sentence of the paragraph.

§ 21.175 [Amended]

70. By amending § 21.175(a) by inserting "commuter," after "acrobatic,".

§ 21.183 [Amended]

71. By amending § 21.183 by inserting "commuter," after "acrobatic," in the heading; and by inserting "commuter," after "acrobatic," in the first sentence of paragraph (e)(2).

§ 21.195 [Amended]

72. By amending § 21.195(b) by inserting "commuter," after "acrobatic,".

§ 21.213 [Amended]

73. By amending § 21.213(c) by inserting "commuter," after "acrobatic," in the last sentence of the paragraph.

74. By amending § 21.231 by redesignating paragraphs (a)(2), through (a)(5) as paragraphs (a)(3) through (a)(6) respectively, and by adding a new paragraph (a)(2) to read as follows:

§ 21.231 Applicability.

* * * * *

(a) * * *

(2) Commuter category airplanes;

* * * * *

§ 21.327 [Amended]

75. By amending § 21.327 by inserting "and commuter category airplanes," after the words "transport aircraft" in the second sentence of paragraph (f)(2).

PART 36—NOISE STANDARDS: AIRCRAFT TYPE AND AIRWORTHINESS CERTIFICATION

76. The authority citation for Part 36 is revised to read as follows and the authority citations following the sections in Part 36 are removed:

Authority: 49 U.S.C. 1344, 1348, 1354(a), 1355, 1421, 1423, 1424, 1425, 1428, 1429, 1430, 1431(b), 1651(b)(2), 2121 through 2125; 42 U.S.C. 4321 et. seq.; Sec. 124 of Pub. L. 98-473, E.O. 11514, 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

§ 36.1 [Amended]

77. By amending § 36.1 by inserting the phrase "and for propeller-driven, commuter category airplanes" after the words "small airplanes," in paragraph (a)(2); and by inserting the words "for propeller-driven, commuter category airplanes and" after the words "§ 21.185" in paragraph (e).

§ 36.9 [Amended]

78. By amending § 36.9 by inserting the words "and propeller-driven, commuter category airplanes" after the words "small airplanes" in the section heading; and by inserting the phrase "and for propeller-driven, commuter category airplanes" after the word "categories" in the introductory paragraph.

Subpart F—[Amended]

79. By amending the heading of Part 36, Subpart F by inserting the words "and Propeller-Driven, Commuter Category Airplanes" after the words "Small Airplanes".

§ 36.501 [Amended]

80. By amending § 36.501(a)(2) by inserting the phrase "and propeller-driven, commuter category airplanes" after the words "small airplanes."

§ 36.1581 [Amended]

81. By amending § 36.1581(d) by inserting the phrase "and for propeller-driven, commuter category airplanes" after the words "small airplanes."

Appendix F—[Amended]

82. By amending Appendix F of Part 36 by inserting the phrase "and for Propeller-Driven, Commuter Category Airplanes" after the words "Small Airplanes" in the Appendix heading; by removing the phrase "up to and including 12,500 pounds" in § F36.301, paragraph (b); and by removing the phrase "at weights from and including 3,300 pounds to and including 12,500 pounds" from § F36.301, paragraph (c).

PART 91—GENERAL OPERATING AND FLIGHT RULES

82A. The authority citation for Part 91 is revised to read as follows:

Authority: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat. 1180); 42 U.S.C. 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

82B. By amending § 91.213 by adding a new paragraph (a)(3) to read as follows:

§ 91.213 Second-in-command requirements.

(a) * * *

(3) A commuter category airplane, except that a person may operate a commuter category airplane notwithstanding paragraph (a)(1) of this section, that has a passenger seating configuration, excluding pilot seats, of nine or less without a pilot who is designated as second in command if that airplane is type certificated for operations with one pilot.

* * * * *

PART 135—AIR TAXI OPERATORS AND COMMERCIAL OPERATORS

83. The authority citation for Part 135 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1355(a), 1421 through 1431, and 1502; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

84. By amending § 135.169 by revising paragraphs (a) and (b) introductory text; by deleting "or" at the end of paragraph (b)(5); by deleting the "." and inserting "; or" at the end of paragraph (b)(6); and by adding new paragraph (b)(7) to read as follows:

§ 135.169 Additional airworthiness requirements.

(a) Except for commuter category airplanes, no person may operate a large airplane unless it meets the additional airworthiness requirements of §§ 121.213 through 121.283, 121.307, and 121.312 of this chapter.

(b) No person may operate a reciprocating-engine or turbopropeller-powered small airplane that has a passenger seating configuration, excluding pilot seats, or 10 seats or more unless it is type certificated—

* * * * *

(7) In the commuter category.

* * * * *

85. By revising § 135.363 to add a new paragraph (j) to read as follows:

§ 135.363 General.

* * * * *

(j) Each certificate holder operating a commuter category airplane shall comply with § 135.398.

86. By adding a new § 135.398 to read as follows:

§ 135.398 Commuter category airplanes performance operating limitations.

(a) No person may operate a commuter category airplane unless that person complies with the takeoff weight limitations in the approved Airplane Flight Manual.

(b) No person may take off an airplane type certificated in the commuter category at a weight greater than that listed in the Airplane Flight Manual that allows a net takeoff flight path that clears all obstacles either by a height of at least 35 feet vertically, or at least 200 feet horizontally within the airport boundaries and by at least 300 feet horizontally after passing the boundaries.

(c) No person may operate a commuter category airplane unless that

person complies with the landing limitations prescribed in §§ 135.385 and 135.387 of this Part. For purposes of this paragraph, §§ 135.385 and 135.387 are applicable to all commuter category airplanes notwithstanding their stated applicability to turbine-engine-powered large transport category airplanes.

(d) In determining maximum weights, minimum distances and flight paths under paragraphs (a) through (c) of this section, correction must be made for the runway to be used, the elevation of the airport, the effective runway gradient, and ambient temperature, and wind component at the time of takeoff.

(e) For the purposes of this section, the assumption is that the airplane is not banked before reaching a height of 50 feet as shown by the net takeoff flight path data in the Airplane Flight Manual and thereafter the maximum bank is not more than 15 degrees.

Issued in Washington, DC on January 6, 1987.

Donald D. Engen,

Administrator.

[FR Doc. 87-754 Filed 1-12-87; 9:45 am]

BILLING CODE 4910-13-M

Corrections

Federal Register
Vol. 52, No. 45
Monday, March 9, 1987

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 21, 23, 36, 91, and 135

[Docket No. 23516; Amdt. Nos. 21-59, 23-34, 36-13, 91-197 and 135-21]

Airworthiness Standards and Operating Rules; Commuter Category Airlines

Correction

In rule document 87-754 beginning on page 1806 in the issue of Thursday, January 15, 1987, make the following corrections:

1. On page 1807, in the first column, in the first complete paragraph, in the 10th line, "commits" should read "comments".

2. In the same column, in the second complete paragraph, in the fifth line, "certificated" was misspelled.

3. On page 1811, in the third column, in the 20th line, "§25.53(c)" should read "§23.53(c)".

4. In the same column, in the second complete paragraph, in the ninth line, insert "is" before "reached".

5. On page 1813, in the third column, in the third complete paragraph, the first word in the second sentence should read "As" and the first word in the third sentence should read "A".

6. On page 1814, in the second column, in the second complete paragraph, "§23.121(d)" should read "§25.121(d)".

7. On page 1815, in the second column, in the second complete paragraph, in the 21st through 23rd lines, remove "of weight and center of gravity within the range of loading conditions".

8. On the same page, in the third column, in the fifth complete paragraph, in the 24th line, insert "was" after "CAR 3".

9. In the same paragraph, in the last line, "airplane" was misspelled.

10. On page 1816, in the first column, in the 11th line, "of" should read "for".

11. On the same page, in the second column, in the last paragraph, in the 15th line, "excluding" was misspelled.

12. On the same page, in the third column, in the first complete paragraph, in the eighth line, "identified" was misspelled.

13. In the same column, in the third complete paragraph, in the 30th line, "extinguishing" was misspelled.

14. On page 1817, in the first column, in the first complete paragraph, in the 31st line, "marking" was misspelled.

15. On page 1819, in the first column, in the fifth complete paragraph, in the 15th line, after "airplanes" and before the period, insert "lists the need for more stringent fire-protection systems for small airplanes".

16. On page 1821, in the first column, in the second complete paragraph, in the 12th line, "test" should read "text".

17. On the same page, in the second column, in the second complete paragraph, "requirement" was misspelled.

§ 23.67 [Corrected]

18. In §23.67(e)(3), on page 1828, in the first column, in the fourth line, "V_S[4]" should read "V_S[1]".

19. On the same page, in the second column, in amendatory instruction 17, in the second line, "test" should read "text".

§ 23.443 [Corrected]

20. On page 1830, in the first column, in §23.443(b), in the ninth line, "the" should read "The".

§ 23.1201 [Corrected]

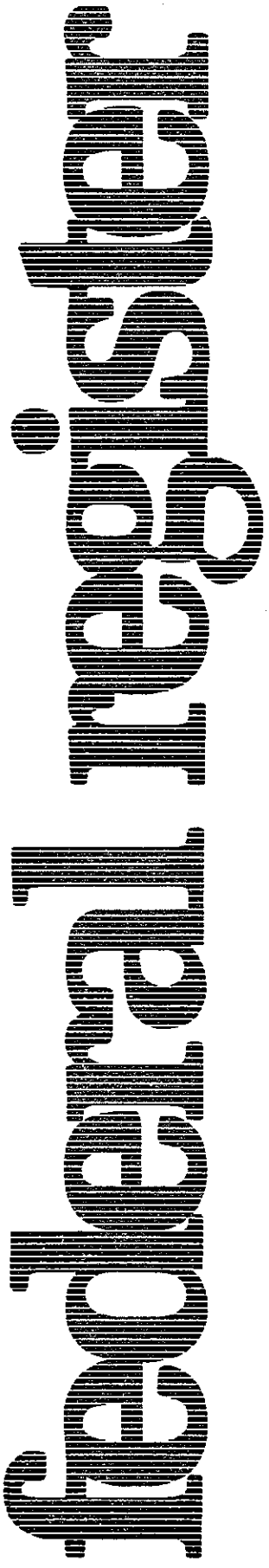
21. On page 1833, in the second column, in §23.1201(a), in the first line, "Material" should read "No material".

22. On page 1835, in the third column, in amendatory instruction 65, "[January 15, 1987]" should read "February 17, 1987" both times it apears.

23. On page 1836, in the first column, in amendatory instruction 68, remove "and" before "after".

BILLING CODE 1505-01-D

135-21



Monday
September 14, 1987

Part II

Department of Transportation

Federal Aviation Administration

14 CFR Parts 21, 23, 36, 91, and 135
Airworthiness Standards and Operating Rules; Commuter Category Airplanes; Correction of Final Rule

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 21, 23, 36, 91, and 135

[Docket No. 23516; Amdt. Nos. 21-59, 23-24, 36-13, 91-197, and 135-21]

Airworthiness Standards and Operating Rules; Commuter Category Airplanes

AGENCY: Federal Aviation Administration (FAA) DOT.

ACTION: Correction of final rule.

SUMMARY: This document contains corrections to final regulations that were published in the **Federal Register** on January 15, 1987 (52 FR 1806) as Airworthiness Standards and Operating Rules; Commuter Category Airplane. These rules relate to the adoption of certification procedures, airworthiness and noise standards, and operating rules for an additional category of propeller-driven, multiengine airplane, designated as the Commuter Category.

EFFECTIVE DATE: September 14, 1987.

FOR FURTHER INFORMATION CONTACT: Mary Medley, Standards Office, ACE-110, Aircraft Certification Division, Central Region, Federal Aviation Administration, 601 East 12th Street, Kansas City, Missouri 64106; Telephone (816) 374-5688.

SUPPLEMENTARY INFORMATION: When Amendment Nos. 21-59, 23-34, 36-13, 91-197, and 135-21 were published in the **Federal Register**, several errors and text omissions occurred. For completeness of text and accuracy of information, it is necessary to correct these errors.

Need for Immediate Adoption

Since these amendments only correct errors and impose no additional burden on any person, I find that notice and public procedure are unnecessary and contrary to the public interest and that good cause exists for making it effective in less than 30 days.

Correction of Publication

Accordingly, in addition to the corrections published in the **Federal Register** on March 9, 1987 (52 FR 7262), the publication of Amendment Nos. 21-59, 23-34, 36-13, 91-197, and 135-21 in the **Federal Register** issue of January 15, 1987 (52 FR 1806), is corrected as follows:

§ 23.3 [Corrected]

1. On page 1825, third column, § 23.3(a), in line four, the word "certificate" is corrected to read "certificated"; and in third column § 23.3(e), line two, the word "part" is corrected to read "Part".

§ 23.53 [Corrected]

2. On page 1826, second column, § 23.53(b)(2)(ii), in the second line, the word "safer" is corrected to read "safe"; third column, § 23.53(c)(2), in the sixth line, the reference to "$1.2VV_{s_1}$" is corrected to read "$1.2V_{s_1}$"; and on page 1826, third column, § 23.53(c)(6), in the tenth line, the reference to "V_V" is corrected to read "V_R".

§ 23.65 [Corrected]

3. On page 1827, third column, § 23.65(d), in the fourth line, the word "temperatures" is corrected to read "temperature".

§ 23.67 [Corrected]

4. On page 1827, third column, § 23.67(e)(1), in the fourth line, the words "paragraphs (i) and (ii)" is corrected to read "(i) and (ii) of this paragraph".

5. On page 1828, first column, § 23.67(e)(3), in the fourth line, the reference to "V_{S4}" is corrected to read "V_{S1}".

6. On page 1828, second column, paragraph no. 16, in the fourth line, remove the phrase "and by adding an "s" to the word "airplane" in paragraph (a)"; and in line seven, same paragraph, remove the phrase "by adding an "s" to the word "airplane" in the first part of the sentence in paragraph (b)".

§ 23.335 [Corrected]

7. On page 1829, second column, § 23.335(d)(1), in the sixth line, "$\sqrt{(n_g)}$ V_{S1} is corrected to read "$\sqrt{(n_g)}V_{S1}$".

§ 23.443 [Corrected]

8. On page 1830, first column, § 23.443(b), the fifth line, insert a comma between "V_C" and "V_D"; and in line nine, insert a period after the word "investigated".

9. On page 1830, first column, insert before amendatory statement number 26 an amendatory statement that reads:

§ 23.561 [Corrected]

25-1. Section 23.561(b)(2) is amended by changing the title of the first column of the table, that now reads "Normal and utility categories" to read "Normal, utility, and commuter categories".

§ 23.787 [Corrected]

10. On page 1831, first column, § 23.787(g)(2), in the fourth line, "(b)" is corrected to read "(b), (d), (e),".

§ 23.901 [Corrected]

11. On page 1832, second column, § 23.901(b)(3), in the first line, "In addition, for" is corrected to read "For" and in the third line, "the engine installation must not" is corrected to read "not".

§ 23.1199 [Corrected]

12. On page 1833, second column, § 23.1199(c), in the first line, "A means" is corrected to read "A means must be provided".

§ 23.1305 [Corrected]

13. On page 1833, third column, § 23.1305(k)(2), in the first line, insert "turbine engine of" after "Each" and before "turbine-powered".

§ 23.1323 [Corrected]

14. On page 1834, first column, § 23.1323(c), in the first line, "commuter" is corrected to read "commuter category".

§ 23.1351 [Corrected]

15. On page 1834, first column, § 23.1351, in the first line, remove the five asterisks; and in § 23.1351(a)(2), in the first line, the word "subparagraph" is corrected to read "paragraph".

16. On page 1834, second column, § 23.1351(b)(5)(v), in the second line, "this paragraph" is corrected to read "paragraph (b)(5) of this section".

Appendix F—[Corrected]

17. On page 1835, second column, Appendix F to Part 23, paragraph (d), in the 13th line, "1550 degrees F" is corrected to read "1550°F" to be consistent with paragraph (e), line twelve.

Appendix G—[Corrected]

18. On page 1835, third column, in Appendix G to Part 23, after the title and before "G23.3 Content" insert five asterisks to indicate retention of existing regulatory material.

§ 135.169 [Corrected]

19. On page 1836, column three, § 135.169(b), in the fifth line, "or" is corrected to read "of".

Issued in Washington, DC on September 4, 1987.

T. Allan McArtor,

Administrator.

[FR Doc. 87-20886 Filed 9-11-87; 8:45 am]

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