

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. 27316 Notice No. 93-5]

RIN 2120-AE86

Accelerated Stalls in Commuter Category Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The proposed rule would eliminate the certification requirement to demonstrate an accelerated entry stall for commuter category airplanes. Commuter category airplanes typically have high power-to-weight ratios that require the airplane to achieve extremely high angles of attack (excessive nose-high attitudes) during accelerated stall demonstrations. A reduced safety margin exists for airplanes that attain these extreme nose-high angles during accelerated entry stalls. The proposed change would remove an unwarranted hazard during flight demonstrations required for airplane type certification, and would not compromise passenger safety.

DATES: Comments on this notice must be submitted on or before September 7, 1993.

ADDRESSES: Comments on this notice should be mailed, in triplicate, to: Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-10), Docket No. 27316, 800 Independence Avenue, SW., Washington, DC 20591. Comments delivered must be marked Docket No. 27316. Comments may be examined in room 915G weekdays between 8:30 a.m. and 5 p.m., except on Federal holidays.

In addition, the FAA is maintaining an information docket of comments in the Office of the Assistant Chief Counsel, ACE-7, Federal Aviation Administration, Central Region, 601 East 12th Street, Kansas City, Missouri 64106. Comments in the information docket may be inspected in the Office of the Assistant Chief Counsel weekdays, except Federal holidays, between the hours of 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: J. Lowell Foster, (ACE-112), Small Airplane Directorate, Federal Aviation Administration, room 1544, 601 East 12th Street, Kansas City, Missouri 64106, telephone (816) 426-5688.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Comments relating to the environmental, energy, federalism, or economic impact that might result from adopting the proposals in this notice are also invited. Substantive comments should be accompanied by cost estimates, if appropriate. Comments should identify the regulatory docket or notice number and should be submitted in triplicate to the Rules Docket address specified above. All comments received on or before the closing date for comments specified will be considered by the Administrator before taking action on this proposed rulemaking. The proposals contained in this notice may be changed in light of comments received. All comments received will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include a preaddressed, stamped postcard on which the following statement is made: "Comments to Docket No. 27316." The postcard will be date stamped and mailed to the commenter.

Availability of NPRMs

Any person may obtain a copy of this NPRM by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Inquiry Center, APA-200, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267-3484. Communications must identify the notice number of this NPRM.

Persons interested in being placed on the mailing list for future NPRM's should request from the above office a copy of Advisory Circular (AC) No. 11-2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedure.

Background*Statement of the Problem*

The FAA is proposing to amend § 23.203 of the Federal Aviation Regulations (FAR) (14 CFR part 23) to eliminate the current requirement that an accelerated entry stall be demonstrated in flight tests of commuter

category airplanes. An accelerated stall is demonstrated in flight tests by establishing and maintaining a medium banked coordinated turn with an airspeed reduction of three to five knots per second with constantly increasing normal acceleration until the point at which the critical angle of attack is exceeded and the airplane stalls.

Engine technology improvements allow manufacturers to design commuter airplanes with high thrust-to-weight ratios. Such ratios are necessary to meet increased performance requirements. These high thrust-to-weight ratios produce a potentially unsafe condition because a stall at the prescribed speeds and power settings may produce a situation in which the airplane is operated in an extremely nose-high attitude and significantly below minimum controllable airspeed (V_{MC}).

History

In 1987, the FAA adopted various airworthiness requirements for the certification of commuter category airplanes. This category includes airplanes with a maximum seating capacity, excluding pilot seats, of 19 or fewer, and a maximum certificated takeoff weight of 19,000 pounds or less. Until the adoption of the commuter category, part 23 airplanes were limited to a 12,500 pound maximum certificated takeoff weight. The airworthiness standards for normal, utility, acrobatic, and commuter category airplanes are contained in part 23, and standards for transport category airplanes are contained in part 25. Below 1980, few airplanes were designed near the 12,500 pound limitation; airplanes were either considerably above or below that weight.

Beginning in the 1970's, airplanes were designed with improved performance and load carrying characteristics to accommodate the 10 to 20 passengers typically transported in commuter and charter operations. These intermediate sized airplanes slightly exceeded the 12,500 pound maximum gross takeoff weight threshold for small airplanes and did not conform precisely to the certification requirements of either part 23 or 25. Although the typical flight profile of these modern, high performance airplanes were more closely aligned with the transport category airplanes, their physical size and production costs were analogous to part 23 airplanes certificated in the normal category. Effective September 13, 1982, the FAA adopted Special Federal Aviation Regulation (SFAR) 41C, (47 FR 35150, August 12, 1982), an interim special regulation that provided

additional airworthiness standards applicable to existing propeller driven multiengine small airplanes. This SFAR reinstates and extends SFAR 41 (44 FR 53723, September 17, 1979) and allows part 23 commuter airplane type and airworthiness recertification at weights in excess of 12,500 pounds or with an increase in number of passenger seats, or both. Production of airplanes recertificated under the SFAR was limited to ten years from the date of adoption of SFAR 41C.

Effective February 17, 1987, the FAA added airworthiness standards commuter category airplanes to part 23 (52 FR 1806, January 15, 1987). The rule was issued, in part, in response to an FAA/Industry Commuter Airplane Weight Committee petition to amend the regulations to allow certain small airplanes to be type certificated at maximum certificated takeoff weights greater than 12,500 pounds without complying with the transport category airworthiness requirements of part 25. The rule was based on the results of a three-phase program for the certification and operation of commuter category airplanes. This three-phase program included: (1) Revising the operating rules of air taxi and commercial operators to align them with the operating rules of domestic, flag, and supplemental air carrier and commercial operators of large aircraft; (2) issuing temporary regulations on additional airworthiness requirements for commuter category airplanes; and (3) establishing the Light Transport Airworthiness Review Program.

Although the rule revised many sections of part 23 to accommodate commuter category airplanes, the rule did not amend the accelerated stall demonstration the requirement contained in § 23.203. On January 25, 1990, Fairchild Aircraft Corporation filed a petition for rulemaking requesting that the requirement for commuter category airplanes to demonstrate an accelerated stall be eliminated. Fairchild states that its own flight testing showed that the required maneuvers of § 23.203(a)(2) should not apply to large, twin-engine commuter category airplanes designed for airline service. Fairchild states that most large, twin-engine airplanes have high power-to-weight ratios and can attain extremely high angles of attack and relatively low airspeeds without stalling, making an inadvertent accelerated stall during flight operations extremely unlikely. Further, Fairchild notes that transport category airplanes, to which commuter category airplanes are comparable, are not required to demonstrate accelerated stalls.

A summary of the Fairchild petition was published for public comment on April 3, 1990 (55 FR 12383). No comments were received on the petition.

Following receipt of the Fairchild petition of rulemaking, the FAA requested that the Aviation Rulemaking Advisory Committee (ARAC) review the petition and recommend a disposition to the FAA. The ARAC was chartered in February 1991, under the Federal Advisory Committee Act, to provide recommendations to the FAA Administrator on FAA rulemaking activity relating to aviation safety issues.

On January 23, 1992, the Accelerated Stalls Working Group of the ARAC's General Aviation and Business Airplane Subcommittee reviewed the Fairchild petition. The working group, and subsequently the ARAC subcommittee, recommended that the FAA revise the certification standards for commuter category airplanes as proposed in the Fairchild petition.

When the FAA initially amended part 23 to adopt certification standards for commuter category airplanes, the FAA noted that it would continue to review airworthiness standards for commuter category airplanes and would propose improvements and updates, when necessary, to maintain the level of safety intended for airplanes to be used in commuter service if such changes were shown to be in the public interest.

The FAA has reviewed the information contained in the Fairchild petition and the ARAC recommendation, and agrees that the accelerated stall demonstration requirement of § 23.203(a)(2) is an unwarranted hazard for commuter category airplanes. Commuter category airplanes are flown by pilots who have a higher required level of training and proficiency than their counterparts who fly normal category airplanes. In addition, commuter category airplanes are flown in a more controlled environment.

In the unlikely event that a manufacturer decides to certify an airplane in the commuter category and another category of Part 23 (normal, utility or acrobatic), the FAA has determined that the demonstration of an accelerated stall is still warranted. The lower required level of training and experience of pilots of non-commuter category airplanes makes the operation of such airplanes less predictable. Accordingly, the FAA has determined that the benefits of demonstrating an accelerated stall in these airplanes outweigh the risks associated with the demonstration.

Intent of the Proposed Rule

The ARAC and the industry have expressed a need for a revised airworthiness certification standard for accelerated stall demonstration for commuter category airplanes. This need would be addressed satisfactorily by eliminating the accelerated stall demonstration for commuter category airplanes. The airplane attitude that may result from tests required by § 23.203(a)(2) could produce an unsafe situation if an engine failed during demonstration of the accelerated stall. The FAA also considered that an inadvertent accelerated stall would be very unlikely during normal flight operations because these airplanes are operated by trained, type-rated pilots of commuter category airplanes.

Specifically, § 23.203 would include new language to provide that the accelerated entry stall demonstration requirement for normal, utility, and acrobatic category airplanes would not apply to commuter category airplanes certificated under part 23.

General Discussion of the Proposal *Section 23.203*

Section 23.203(a)(2) requires that airplanes certificated under part 23 demonstrate an accelerated stall. Under the proposal, commuter category airplanes would be exempted from that requirement. The proposal would amend the introductory text of § 23.203 by requiring an accelerated stall demonstration for all airplane categories listed in the part 23, except as provided in proposed § 23.203(d). A new § 23.203(d) would exempt commuter category airplanes, and defined in § 23.3, from the accelerated stall provisions of § 23.203(a)(2).

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1990 (44 U.S.C. 3501 *et seq.*), there are no requirements for information collection associated with this proposed rule.

Regulatory Evaluation Summary

Executive Order 12291, dated February 17, 1981, directs Federal agencies to promulgate new regulations or modify existing regulations only if the potential benefits to society outweigh the potential costs. The order also requires a Regulatory Impact Analysis of all "major" rules, except those responding to emergency situations or other narrowly defined exigencies. A "major" rule is one that is likely to result in: an annual effect on the economy of \$100 million or more; a major increase in costs or prices for

consumers, individual industries, or geographic regions; or a significant adverse effect on competition, employment, investment, productivity, innovation, or the ability of the United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

The FAA has determined that this proposal is not "major" as defined in the executive order; therefore, a full regulatory analysis, that includes the identification and evaluation of cost reduction alternatives to this proposal, has not been prepared. Instead, the agency has prepared a more concise regulatory evaluation that analyzes only this proposal without identifying alternatives, as summarized below. That section also contains an initial regulatory flexibility determination required by the 1980 Regulatory Flexibility Act (5 U.S.C. Section 601 *et seq.*) and a Trade Impact Assessment. If more detailed economic information is desired than is contained in this summary, the reader is referred to the full regulatory evaluation in the docket.

Benefits and Costs

The proposed rule change would provide benefits in the form of reduced risk and reduced costs during type certification flight demonstrations. It would not impose any new compliance costs or compromise passenger safety.

Accelerated entry stalls during which commuter category airplanes must attain extreme nose-high angles, are an unwarranted hazard and may result in loss of the airplane and flight crew. High thrust-to-weight ratios make such demonstrations risky because a stall at the prescribed speeds and power settings may produce a situation where the airplane is operated below the minimum controllable airspeed in an extreme nose-high attitude. The fact that no lives or airplanes have been lost during such tests to date belies the potential risk of the current requirement. This condition is so extreme that a type-rated pilot would recognize it long before the airplane stalled.

In addition to the potential safety benefit, the proposed amendment could save manufacturers a minimum of \$1,100 per new type certification. This estimate assumes that two hours of flight testing would no longer be required, at a savings of \$400 per hour in airplane operational expenses and \$75 per hour for each of the two pilots. Accordingly, the FAA finds this proposed rule change to be cost-beneficial.

Regulatory Flexibility Determination

The Regulatory Flexibility Act (RFA) of 1980 was enacted by Congress to ensure that small entities are not unnecessarily or disproportionately burdened by Government regulations. The RFA requires a Regulatory Flexibility Analysis if a rule is expected to have a "significant economic impact on a substantial number of small entities."

Based on the standards and thresholds specified in FAA Order 2100.14A, Regulatory Flexibility Criteria and Guidance, the FAA has determined that the proposed rule would not have a significant impact on a substantial number of small aircraft manufacturers.

Trade Impact Assessment

The cost savings associated with the proposed rule would not be significant enough to result in a relative trade advantage to either U.S. or foreign entities. Therefore, the FAA has determined that it would have no impact on the sale of foreign products domestically or the sale of U.S. products in foreign markets.

Federalism Implications

The regulation proposed herein would not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Conclusion

The FAA proposes to revise the airworthiness standards to eliminate the current requirement that an accelerated stall be demonstrated in flight tests of commuter category airplanes. High thrust-to-weight ratios are typical of commuter category airplanes; such ratios are necessary for commuter category airplanes to meet increased performance requirements. This proposal would retain the current level of airplane occupant protection while reducing the chance of a situation in which the airplane is operated on an extremely nose-high attitude and significantly below minimum controllable airspeed (V_{MC}), producing a potentially unsafe condition.

For the reasons discussed above, and based on the findings in the Regulatory Flexibility Determination and the

International Trade Impact Analysis, the FAA has determined that this proposed regulation is not major under Executive Order 12291. In addition, the FAA certifies that this proposal, if adopted, will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. This proposal is considered significant under DOT Order 2100.5, Policies and Procedures for Simplification, Analysis, and Review of Regulations. A draft regulatory evaluation of the proposal, including an initial Regulatory Flexibility Determination and International Trade Impact Analysis, has been placed in the docket. A copy may be obtained by contacting the person identified under "FOR FURTHER INFORMATION CONTACT."

List of Subjects in 14 CFR Part 23

Air transportation, Airplane, Aviation safety, Safety.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend part 23 of the Federal Aviation Regulations (14 CFR part 23) as follows:

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

1. The authority citation for part 23 continues to read as follows:

Authority: 49 U.S.C. 1344, 1354(a), 1355, 1421, 1423, 1425, 1428, 1430; 49 U.S.C. 106(g).

2. Section 23.203 is amended by revising the introductory paragraph and by adding a new paragraph (d) to read as follows:

§ 23.203 Turning flight and accelerated stalls.

Except as provided in paragraph (d) of this section, turning flight and accelerated stalls must be demonstrated in flight tests as follows:

* * * * *

(d) The accelerated stall flight test requirement of paragraph (a)(2) of this section does not apply to commuter category airplanes as defined in § 23.3(d) of this part.

Issued in Washington, DC on June 1, 1993.
Thomas E. McSweeney,
Acting Director, Aircraft Certification Service.
 [FR Doc. 93-13311 Filed 6-4-93; 8:45 am]
BILLING CODE 4910-13-M

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****Advisory Circular; Change #1 to AC 23-8A, Flight Test Guide for Certification of Part 23 Airplanes**

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of availability of proposed change to an advisory circular and request for comments.

SUMMARY: This notice announces the availability and request for comments on proposed change 1 to AC 23-8A, which provides information and guidance concerning accelerated stalls during flight tests.

DATES: Comments must be received on or before August 6, 1993.

ADDRESSES: Send all comments on the proposed AC to: Federal Aviation Administration, Small Airplane Directorate, Aircraft Certification Service, Standards Office (ACE-110), 601 East 12th Street, Kansas City, Missouri 64106.

FOR FURTHER INFORMATION CONTACT: Julea Bell, Standards Staff (ACE-110), Small Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration; telephone number (816) 426-6941.

SUPPLEMENTARY INFORMATION: Any person may obtain a copy of this proposed AC by contacting the person named above under "FOR FURTHER INFORMATION CONTACT."

Comments Invited

Interested parties are invited to submit comments on the proposed AC. Commenters must identify AC 23-8A, Change 1, and submit comments to the address specified above. All communications received on or before the closing date for comments will be considered by the FAA before issuing the final AC. The proposed change to AC 23-8A and comments received may be inspected at the Standards Office (ACE-110), Suite 900, 1201 Walnut, Kansas City, Missouri, between the hours of 7:30 a.m. and 4 p.m. weekdays, except Federal holidays.

Background

Federal Aviation Administration (FAA) AC 23-8A, issued February 9, 1989, added commuter airplanes to the original AC 23-8. Although many sections of part 23 were revised to accommodate commuter category airplanes, accelerated stall demonstration requirements in § 23.203 were not revised. These changes have been incorporated in this AC as proposed change number 1.

On January 25, 1990, a U.S. aircraft manufacturer filed a petition for rulemaking to eliminate the certification requirement for commuter category airplanes to demonstrate an accelerated stall. Their flight tests showed that the required maneuvers of § 23.203(a)(2) are not applicable to large, twin-engine, commuter category airplanes designed for airline service. The manufacturer stated that most large, twin-engine airplanes have high power to weight

ratios and can attain extremely high angles of attack at relatively low airspeeds without stalling, making an inadvertent accelerated stall during flight operations extremely unlikely. Also noted was that transport category airplanes, part 25, are not required to demonstrate accelerated stalls.

Following the petition, the FAA requested the Aviation Rulemaking Advisory Committee (ARAC) to review the petition and make a recommendation for its disposition. The ARAC was chartered in February 1991 to provide recommendations to the FAA Administrator on aviation safety rulemaking. The Accelerated Stalls Working Group of the ARAC's General Aviation and Business Airplane (GABA) Subcommittee reviewed the petition. This working group and the parent subcommittee recommended that the FAA revise the certification standards and accompanying guidance material for commuter category airplanes as proposed in the petition. The FAA agrees with the subcommittee's recommendation and has determined that the most efficient way to implement the change to the AC is to cancel the existing pages 77 and 78 and replace with new pages 77 thru 78-1 (and 2), to incorporate this limited change.

Issued in Kansas City, Missouri, February 1, 1993.

Barry D. Clements,
Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. 93-13312 Filed 6-4-93; 8:45 am]

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