

BACKGROUND

"The SA227-CC airplane. The SA227-CC METRO IIIC is a SA227-AC airplane incorporating the changes necessary to comply with amendment 23-7 through 23-33. The SA227-AC METRO III is certified to FAR 23 through amendment 6, special conditions, SFAR 23, SFAR 41, and ICAO Annex 8, as explained by Type Certificate Data Sheet A8SW. Because amendment 23-34 was intended to incorporate the provisions of SFAR 41 and ICAO Annex 8, as defined by SFAR 41, the SA227-AC may logically be considered to be in compliance with amendment 23-34, by definition. The few physical changes necessary to convert a SA227-AC to a SA227-CC are relatively minor and, in no case influence the performance or flying qualities of the airplane. Instead, they involve design details affected by amendments 23-7 through 23-33.

"Reasons for exemption. Industry perceived amendment 23-34 as incorporation of SFAR 41, including the referenced portions of Appendix A of FAR 135, and the provisions for compliance with ICAO Annex 8 standards. This understanding was based on the fact that industry had been urging FAA to incorporate SFAR 41, and on FAA's published description of the effort. Consider, for example, the following excerpts from the FEDERAL REGISTER.

"o 15 November 1983, page 52011:

"The scope of this NPRM is limited to the proposals which are considered appropriate as airworthiness and noise standards and operating rules for commuter category, propeller-driven, multiengine airplanes. Existing airworthiness standards of Part 23, SFAR 41, as supplemented by those airworthiness standards necessary to comply with the requirements developed by the International Civil Aviation Organization (ICAO), and appropriate sections of appendix A of Part 135, are the foundation for the proposals. The FAA proposes to integrate into Part 23 of the FAR those additional airworthiness standards of SFAR 41 and the appropriate sections of appendix A of Part 135 not previously adopted in Part 23 of the FAR. It is not intended to propose substantive changes to the existing Part 23 airworthiness standards or to the airworthiness standards being integrated into Part 23 . . .

"o 15 January 1987, page 1824:

"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.

"Based on this understanding, it is reasonable to expect the airplane (SIC) performance of an airplane, certified to ICAO Annex 8 standards in accordance with SFAR 41, to be directly transferable to an equivalent commuter category model. Except for the few rules cited in this petition, that is the case. Therefore, Fairchild seeks an exemption to permit the use of the FAA-approved SA227-AC ICAO Annex 8 performance data for the SA227-CC, without change or additional performance work.

"It is our intention to offer the SA227-CC as a low-cost, highly reliable, proven-design commuter category airplane. The design is being completely updated to bring it into full compliance with all of the changes introduced by amendments 23-7 through 23-33. We contend that FAA previously established, in SFAR 41, the rules that were required to provide an appropriate level of safety for this class of airplane, and believe that the public should not be burdened with the additional costs of showing compliance with a few additional rules, included in amendment 23-34 in an effort to improve upon FAA's previous good work.

"Because the rules in question would not materially enhance safety, the exemption will benefit the public by eliminating the unnecessary cost of additional testing, flight manual development work, and possible physical changes to the airplane. This will enable Fairchild to minimize its product cost so as to better serve the public and be able to compete with government-subsidized foreign manufacturers.

"Extent of the Relief Sought. The exact relief desired for each regulatory item is as follows:

- "1. FAR 23.53(c)(6). Fairchild asks that compliance with this requirement be waved on the basis that an appropriate level of safety has been demonstrated. This has been accomplished by extensive FAA flight test programs, and by millions of hours of safe operation. FAR 23.53(c)(6) was taken from 25.107(e)(3) and introduced in an effort to clarify the definition of V_R ; no equivalent rule existed in the regulations being incorporated. Historically, this concept was first introduced as 4T.114(e)(3) in SR-422B, in July 1959. It was based on experience in the certification of early, large jet transport airplanes. No such rule was necessary for the earlier propeller-driven airplanes approved per CAR 4b, which were more akin to the commuter category than any jet-propelled airplane. Therefore, FAR 23.53(c)(6) is not necessary to assure safety in propeller-driven, commuter category airplanes such as the SA227-CC.
- "2. FAR 23.53(c)(7). Fairchild asks that further compliance with this rule be waved on the basis that an appropriate level of safety has been demonstrated. Out-of-trim takeoff has been demonstrated to show compliance with FAR 23.143. General takeoff safety has been demonstrated by extensive flight testing and a long history of safe operation.
- "3. FAR 23.67(e)(1)(i). An exemption from compliance with this rule is requested on the basis of prior demonstration of compliance with

FAR 135, appendix A, paragraph 6(b)(1), which FAA previously established as providing the appropriate level of safety for ICAO Annex 8 compliance. Fairchild considers imposition of this rule particularly vexing and unfair, for several reasons:

- "a. FAA's 15 November 1983 proposal for SFAR 41/ICAO Annex 8 incorporation contained no discrete gear-down, takeoff climb requirement and, therefore, represented a lower level of safety than that of the rules being incorporated. Industry, including Fairchild, called this to FAA's attention, and FAA responded by incorporating a portion of FAR 25 instead of the applicable FAR 135 appendix A rule. Thus, industry was rewarded for a conscientious effort to help with a more burdensome and possibly costly rule that may still result in a lower level of safety than would otherwise obtain.
- "b. If FAR 23.67(e)(1)(i) is interpreted like the parent FAR 25.121(a), we would be required to determine the subject climb gradient with landing gear doors blocked open. Thus, the performance benefits of closing gear doors would be lost. Lacking any practical benefit, this safety feature would be deleted from commuter category designs, which is not in the best interest of the public.
- "c. The previously accepted appendix A rule allowed demonstration of compliance at a well-defined airspeed. The incorporated rule, on the other hand, requires investigation of a range of speeds and is, therefore, more burdensome to administer.
- "d. SA227-CC compliance with FAR 23.67(e)(1)(i) will probably result in a change to the takeoff weight limit, which will necessitate an expensive change to the airplane flight manual performance and degrade the usefulness of the airplane, without any cost-effective benefit."

Comments to published petition summary:

A Notice of this petition was published in the FEDERAL REGISTER (January 22, 1988; 53 FR 1880) as a means of advising the public of the requested petition for exemption and to permit interested persons an opportunity to comment on the Petitioner's request. The petition was published verbatim in the FEDERAL REGISTER (February 1, 1988; 53 FR 2804). The comment period closed March 22, 1988.

Comments were received from the Airline Pilots Association and British Aerospace Limited. No other comments were received.

One commenter is opposed to the granting of the exemption. That commenter is of the opinion that the commuter category portion of Part 23 is intended to provide design, testing, and performance criteria for the increased safety of newly designed or built aircraft. The commenter states that the performance requirements listed in the Fairchild petition are critical to the safe operation of a commuter category aircraft. That commenter feels that the SA227-CC METRO III should meet all the requirements of the commuter category

and should not be exempted from the new regulations simply because Fairchild's application is under the amended type certificate process.

Another commenter maintained that granting the relief sought by Fairchild would degrade safety and would have a detrimental effect on the public image of commuter category airplanes.

The FAA agrees that the intent of the commuter category was to provide the flying public with airplanes meeting the level of safety defined by the latest amendments to Part 23. The FAA has issued policy to enable existing airplanes certificated to SFAR 41 to be upgraded to the commuter category. Since the commuter category regulation adopted by amendment 23-34 used the regulations of Part 23 through amendment 23-33 as its foundation, the FAA has found, in accordance with § 21.101, that all amendments, up to and including amendment 23-33, are directly related to the commuter category regulations. Therefore, the basis for certification of a commuter category variant of an existing type design will be the same, notwithstanding whether it is obtained through the new TC, amended TC or STC procedures. This finding assures that all commuter category airplanes meet the requirements for new airplanes.

One commenter is concerned that Fairchild has placed the FAA in an awkward position by stating that additional costs and delays will impact adversely on the traveling public. That commenter emphasizes the need for technical merits as the basis for FAA's decision.

The FAA recognizes the costs to Fairchild and the delays in certification resulting from disposition of this petition for exemption. However, the FAA also recognizes its responsibility to assure the level of safety envisioned by the commuter category; and the direct impact any reduction in that level of safety has on the flying public.

One commenter, in reference to Fairchild's statements in the petition, contends that the position taken by Fairchild is too narrow an interpretation of the FAA's intention in the notice which proposed the commuter category. That commenter then provides the commenter's own interpretation of the FAA's intention in the notice which, for the most part, are contrary to the position taken by Fairchild.

The FAA has reviewed the notice and the interpretation made by Fairchild and the commenter. The FAA has considered the statements made by both Fairchild and the commenter in disposition of this petition. The FAA finds that the clarity of the notice is sufficient and that discussions relative to individual interpretation are beyond the scope of this petition.

One commenter, in addressing § 23.67(e)(1)(i), disagrees with Fairchild by stating that a positive rate of climb is necessary over the full speed range encountered between initial takeoff and landing gear retraction. That commenter is of the opinion that the FAA is entitled to increase the severity of a rule when such an increase is justified.

The FAA finds that § 23.67(e), as adopted in amendment 23-34, is appropriate for the commuter category and was correctly promulgated.

One commenter, in addressing § 23.53(c)(6), is unaware of any previous regulation requiring demonstration of premature rotation. That commenter argues that earlier service experience is, in itself, no justification for relief from new rules specifically introduced to enhance the level of safety.

The FAA intended to increase the level of safety for commuter category airplanes beyond those of previously approved airplanes meeting SFAR 41, ICAO Annex 8 and appendix A of Part 135 requirements. As such, earlier service history, by itself, does not justify exemption from § 23.53(c)(6). The FAA does not agree that compliance with the previous rules cited constitutes compliance with amendment 34.

One commenter, in addressing § 23.53(c)(6), disagrees with the Petitioner's claim that the rule was not necessary for the commuter category since it was not necessary for earlier propeller-driven airplanes approved using CAR-4b. That commenter states that earlier propeller-driven airplanes were never shown to comply with a rule similar to § 23.53(c)(6). Since propeller-driven airplanes of the CAR 4b era had horsepower of about one-half the horsepower of modern commuter category airplanes, that commenter concludes that the loss of lift due to the loss of slipstream in the one-engine-inoperative case were less critical. That commenter accepts that in the case of loss of an appreciable amount of slipstream lift, it must be demonstrated that premature rotation will not bring the airplane close to the power-off stalling speed.

The FAA has considered the commenters statements and finds that all airplanes seeking commuter category approval must comply with § 23.53(c)(6).

One commenter, in addressing § 23.53(c)(7) does not agree with Fairchild's statement that compliance with § 23.143 constitutes compliance with § 23.53(c)(7).

The FAA also disagrees that compliance with § 23.143 constitutes compliance with § 23.53(c)(7). Section 23.143 assures that the airplane is safely controllable and maneuverable in all phases of flight, that smooth transitions can be safely made from one flight condition to another, and that needed pilot strength cannot exceed specified values. Nothing in § 23.143 addresses the out-of-trim conditions addressed in § 23.53(c)(7).

The Federal Aviation Administration's (FAA) analysis is as follows:

To obtain the exemption, the Petitioner must show, as required by § 11.25(b)(5) of the Federal Aviation Regulations, that: (1) granting the request is in the public interest, and (2) the grant of the exemption would not adversely affect safety, or that a level of safety will be provided which is equal to that provided by the rule from which the exemption is sought.

The commuter category was added to Part 23 of the Federal Aviation Regulations by amendment 34, which became effective February 17, 1987 (52 FR 1807). Amendment 34 resulted from Notice of Proposed Rulemaking, Notice 83-17, published in the FEDERAL REGISTER November 15, 1983 (48 FR 52011).

This petition for exemption uses as its foundation two basic arguments. The Petitioner believes that amendment 34 is unnecessary because the requirements existing before amendment 34 provided an appropriate level of safety for the commuter class of airplane; and that the FAA's intent when promulgating the commuter category was not accurately perceived by industry. Petitioner presents arguments and data to support these contentions.

The Petitioner cites the preamble of Notice 83-17 and its economic impact statement as a basis for Fairchild's expectations that an airplane that complies with the requirements of pre-commuter rule Part 23; Part 135, appendix A; SFAR 41 and ICAO Annex 8 would also meet the commuter category rules. With these expectations, an airplane certificated to SFAR 41 for ICAO Annex 8 operation should be certifiable in the new commuter category without any further showing of compliance.

The FAA has reviewed the preamble of Notice 83-17 as it relates to the Petitioner's expectations. The FAA finds that Notice 83-17 made clear the FAA intent to establish a program for certification and operation of commuter airplanes in response to the Airline Deregulation Act. Following the cancellation of the Light Transport Airworthiness Review program and the expiration of SFAR No. 41C, the FAA initiated action to add a commuter category airplane to Part 23. Although the FAA cited SFAR 41 as a reference source for the majority of the new commuter category requirements, the FAA clearly stated that the notice proposed new rules. Comments to the notice were addressed in the preamble to the final rule and amendment 34 to Part 23 was issued accordingly. The FAA further finds that compliance with the requirements of amendment 34 of Part 23 is necessary to establish the level of safety envisioned for commuter category airplanes.

Relative to the takeoff requirements of § 23.67, the FAA initially proposed the contents of this requirement in Proposal 13 of the Notice of Proposed Rulemaking, Notice 83-17, that resulted in amendment 34 to Part 23.

Proposal 13 proposed that takeoff climb must be determined in accordance with § 23.57 for takeoff path, and proposed to require that the slope of the airborne part of the takeoff path be positive at each point. No comments were received relative to this proposed requirement in § 23.57 and it was adopted. However, a comment was received to the effect that the proposed requirement in § 23.67 was not complete, and preferred the more complete statement in § 6 of Part 135, appendix A, which was cited as a reference source for proposal 13 of the notice.

During the development of Notice 83-17, the FAA reviewed all of the relevant data and concluded that by incorporating the takeoff path requirements of § 23.57 into § 23.67 as takeoff climb requirements, the FAA would achieve the consistency desired, but the rule would be unclear. Therefore, stating the takeoff climb requirements in § 23.67 as it is stated in Part 135, appendix A, was considered. The FAA determined that use of Part 135, appendix A language would clarify the requirement provided the intent of the proposed requirement in Notice 83-17 was retained. That intent is that the slope of the airborne part of the takeoff path must be positive at each point. Therefore, for commuter category airplanes, § 23.67(e), climb with one engine inoperative, was adopted without incorporating § 23.57 by reference, was worded similarly

to Part 135, appendix A, § 6(b), and adopted a requirement which was consistent with the proposed requirement. The FAA continues to find § 23.67(e) appropriate for commuter category airplanes.

The FAA does not agree with the Petitioner's contention that § 23.53(c)(6) is unnecessary to assure safety in propeller-driven commuter category airplanes, nor does the FAA agree that compliance with § 23.143 constitutes compliance with § 23.53(c)(7).

Section 23.53(c)(6) was issued to provide the level of safety necessary for commuter category airplanes and was issued after public comment. Those comments were considered prior to the FAA action. That FAA action resulted in issuance of a final § 23.53(c)(6), which is almost identical to the one proposed.

Section 23.143 and § 23.53(c)(7) address separate requirements. The FAA finds that compliance with both sections are necessary and that compliance with one does not preclude compliance with the other. Amendment 34 to Part 23 is intended to increase the level of safety beyond that of SFAR 41. Therefore, previous service histories are not germane to the issue.

The FAA concludes that amendment 34 was properly promulgated and explained, and that the regulations contained therein are appropriate and provide a level of safety necessary for commuter category airplanes.

The public cannot be served by certificating a commuter category airplane not complying with the performance requirements of amendment 34. The Petitioner's argument related to costs of additional testing and development are insufficient justification for exemption from those performance requirements, and that Petitioner does not present sufficient justification for equivalent safety.

In consideration of the foregoing, I find that a grant of exemption, as requested, would not be in the public interest nor maintain the level of safety required by the rule from which the exemption is sought. Therefore, pursuant to the authority of Sections 313(a) and 601(c) of the Federal Aviation Act of 1958, as amended, delegated to me by the Administrator (14 CFR 11.53), the petition of Fairchild Aircraft Corporation for an exemption from §§ 23.53(c)(6), 23.53(c)(7), and 23.67(e)(1)(i) of the Federal Aviation Regulations described herein is hereby denied.

Issued in Washington, DC on August 5, 1988.



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