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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 36

[Docket No. FAA-2003-15279; Notice No. 03-09]

RIN 2120-AH42

Harmonization of Noise Certification Standards for Propeller-Driven Small Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to amend two technical items to harmonize them with international standards and provide uniform noise certification standards for airplanes certificated in the United States and Joint Aviation Authorities (JAA) countries. This will help to simplify airworthiness approvals for import and export purposes. The revisions to these two items would apply only to a small number of older-technology airplanes.

DATES: Send your comments by [~~Insert date 30 days after date of publication in the Federal Register~~] July 7, 2003 JMA 6/3/03

ADDRESSES: Address your comments to the Docket Management System, U.S. Department of Transportation, Room Plaza 401, 400 Seventh Street, SW., Washington, DC 20590-0001. You must identify the docket number FAA-2003-15279 at the beginning of your comments, and you should send two copies of your comments. If you wish to receive confirmation that FAA received your comments, include a self-addressed, stamped postcard. You may also send comments through the Internet to

http://dms.dot.gov. You may review the public docket containing comments on these proposed regulations in person in the Dockets Office between 9:00 a.m. and 5:00 p.m., Monday through Friday, except Federal holidays. The Dockets Office is on the plaza level of the NASSIF Building at the Department of Transportation at the address in this section. Also, you may review public dockets on the Internet at http://dms.dot.gov.

FOR FURTHER INFORMATION CONTACT: Mehmet Marsan, AEE-100, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, telephone (202) 267-7703; facsimile (202) 267-5594.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites interested individuals to take part in this rulemaking by sending written comments, data, or views. We also invite comments about the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain why you want to make any recommended change, and include supporting data. We ask that you send us two copies of your written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel about this proposed rulemaking. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the ADDRESSES section of this preamble between 9:00 a.m. and 5:00 p.m., Monday through Friday, except Federal holidays. You may also review the docket using the Internet at the web address in the ADDRESSES section.

Before acting on this proposal, we will consider all comments we receive by the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change this proposal because of the comments we receive.

If you want the FAA to acknowledge receipt of your comments on this proposal, include with your comments a preaddressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it to you.

Availability of Rulemaking Documents

You can get an electronic copy using the Internet by:

(1) Searching the Department of Transportation's electronic Docket Management System (DMS) web page (http://dms.dot.gov/search);

(2) Visiting the Office of Rulemaking's web page at http://www.faa.gov/avr/armhome.htm; or

(3) Accessing the Federal Register's web page at http://www.access.gpo.gov/su_docs/aces/aces140.html.

You can also get a copy by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue S.W, Washington, DC 20591, or by calling (202) 267-9680. Make sure to identify the docket number, or notice number of this rulemaking.

Background

Under 49 U.S.C. 44715, the Administrator of the FAA is directed to prescribe "standards to measure aircraft noise and sonic boom; ... and regulations to control and abate aircraft noise and sonic boom." Title 14, part 36 of the Code of Federal

certification regulation. The proposed revisions better represent the intent of the original noise certification standards, which was to certify propeller-driven small airplanes at takeoff power. This proposed rule would complete harmonization between current Appendix G to part 36 of 14 CFR and Annex 16.

Section-by-section Analysis

Appendix G To Part 36--Takeoff Noise Requirements for Propeller-Driven Small Airplane and Propeller-Driven, Commuter Category Airplane Certification Tests on or After December 22, 1988

Section G36.111 Flight procedures

Current section G36.111 allows the use of maximum continuous power during the second segment of the flight path. However, the power definition in Annex 16, Chapter 10, section 10.5.2 for the second segment is defined as maximum or takeoff power. The maximum continuous power described in Appendix G is typically lower than the takeoff power and is applicable only to older engines. This proposed rule specifies that takeoff power must be used in the second segment of the flight profile and describes a method to perform the test if the test airplane is equipped with an engine that can operate at takeoff power for only a short time.

The FAA conducted an informal survey to determine whether any recent noise certification tests have been conducted on airplanes equipped with time-limited engines. The FAA found no noise measurements of airplanes with old-technology engines that may be affected by this proposal. If testing were required for an airplane, which was previously noise certificated at maximum continuous power, rather than at takeoff power as proposed in this NPRM, the noise levels could be slightly higher or lower, depending

on the height gained over the microphone by operating at the higher engine power. The amount of height gained is a function of the performance of the particular airplane. The noise increase caused by the engine at takeoff power will be canceled or reduced by the height gained over the microphone since the sound propagation distance from the airplane to the microphone increases as the airplane flies higher. Hence, the sound reaches the microphone at a lower level.

Section G36.201 Corrections to Test Results

This section prescribes that corrections made to test results must account for the effects of differences between the conditions referenced in the prescribed procedures in Appendix G and the actual test conditions.

Under current section G36.201(c)(1), helical tip Mach number and power corrections must be made if (1) the propeller is a variable pitch type, or (2) the propeller is a fixed pitch type and the actual power is not within 5 percent of the reference power. The 1999 rule change includes an additional helical tip Mach number correction exception for all types of propellers by stating that a correction is not necessary if the helical tip Mach number meets criteria listed in current section G36.201(c)(2). This proposal (1) removes the exception provided for fixed pitch propellers if the test power is within 5 percent of the reference power and (2) requires helical tip Mach number and power corrections for all types of propellers, depending on which criteria of current section G36.201(c)(2) are being used.

Fixed pitch propellers rotate at less than their maximum speed during takeoff because the pitch angle cannot be adjusted to match the loading on the propeller blade. As the propeller slows down, the dominant noise generation shifts from the propeller to

the engine exhaust. The lack of a correction exception for slower rotating propellers is provided not just as a simplification to the procedure, but to avoid correcting the engine noise using the propeller speed. Current section G36.201(c)(2) provides either no correction exception or a small correction for slow rotating propellers, if the test power is not within 5 percent of the reference power. These requirements coincide with the exception in section G36.201(c)(1)(ii) proposed to be removed in this NPRM. Accordingly, the proposed change is not expected to affect test results.

Economic Evaluation

Proposed changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency must propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (19 U.S.C. §§ 2531-2533) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, make them the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of $100 million or more annually (adjusted for inflation).

However, for regulations with an expected minimal impact, the above-specified analyses are not required. The Department of Transportation Order DOT 2100.5

prescribes policies and procedures for simplification, analysis, and review of regulations. If it is determined that the expected impact is so minimal that the proposal does not warrant a full evaluation, a statement to that effect and the basis for it are included in proposed regulation.

This proposed rule would revise two technical items, which are the only remaining unharmonized items between part 36 Appendix G and the ICAO Annex 16, Volume I, Chapter 10, regarding the noise certification of small propeller-driven airplanes. The FAA has determined that the expected cost impact would be minimal because these two items affect only airplanes with older technology engines, that are not required to undergo new noise certification or are already noise certificated. On rare occasions, these airplanes may be required to perform a new noise test if they go through a modification that may increase their noise level. As a result, the FAA does not foresee any circumstances in which these older airplanes would need to re-certify for noise.

The two unharmonized technical items were filed with the ICAO. The ICAO includes these items in the national variances list for Annex 16, Volume I. These differences could result in foreign regulators conducting additional reviews, which the FAA and U.S. manufacturers must support, of any U.S.-made, propeller-driven small airplane noise certifications when the airplanes are exported. In practice, only a small number of the exported airplanes might encompass the two unharmonized items in their noise certifications.

The FAA has determined that this proposed rule would increase the harmonization of the U.S. Federal regulations with the ICAO Standards and Recommended Practices and would impose, at most, negligible costs.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 directs the FAA to fit regulatory requirements to the scale of the business, organizations, and governmental jurisdictions subject to the regulation. We are required to determine whether a proposed or final action will have a "significant economic impact on a substantial number of small entities" as they are defined in the Act. If we find that the action will have a significant impact, we must do a "regulatory flexibility analysis".

Because of the minimal cost impact of this proposed rule, the FAA has determined that it would, at most, impose negligible costs on small aircraft manufacturers. Therefore, the FAA certifies that this proposal would not have a significant economic impact on a substantial number of small entities.

Trade Impact Assessment

The Trade Agreement Act of 1979 prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. This proposed rule is a direct action to respond to these statutory requirements.

In addition, the FAA has determined that this proposed rule would generate cost savings for foreign regulators in the form of reductions in their administrative expenses. Their administrative expenses may be reduced because a review of the U.S. propeller-driven small airplane noise certifications for exported airplanes will no longer be necessary.

Unfunded Mandates Assessment

The Unfunded Mandates Reform Act of 1995 (the Act) is intended, among other things, to curb the practice of imposing unfunded Federal mandates on State, local, and tribal governments. Title II of the Act requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (adjusted annually for inflation) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a "significant regulatory action".

This NPRM does not contain such a mandate. The requirements of Title II of the Act, therefore, do not apply.

Executive Order 13132, Federalism

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. We determined that this action would not have a substantial, direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government, and therefore would not have federalism implications.

Plain English

Executive Order 12866 (58 FR 51735, Oct. 4, 1993) requires each agency to write regulations that are simple and easy to understand. We invite your comments on how to make these proposed regulations easier to understand, including answers to questions such as the following:

- Are the requirements in the proposed regulations clearly stated?

- Do the proposed regulations contain unnecessary technical language or jargon that interferes with their clarity?
- Would the regulations be easier to understand if they were divided into more (but shorter) sections?
- Is the description in the preamble helpful in understanding the proposed regulations?

Please send your comments to the address specified in the ADDRESSES section.

Environmental Analysis

FAA Order 1050.1D defines FAA actions that may be categorically excluded from preparation of a National Environmental Policy Act environmental impact statement. In accordance with FAA Order 1050.1D, appendix 4, paragraph 4(j), this proposed rulemaking action qualifies for a categorical exclusion.

Energy Impact

The energy impact of the notice has been assessed in accordance with the Energy Policy and Conservation Act (EPCA), Public Law 94-163, as amended (42 U.S.C. 6362) and FAA Order 1053.1. We have determined that the notice is not a major regulatory action under the provisions of the EPCA.

List of Subjects in 14 CFR Part 36

Aircraft, Noise control.

The Proposed Amendments

In consideration of the foregoing the Federal Aviation Administration proposes to amend Chapter I of Title 14 Code of Federal Regulations as follows:

PART 36--NOISE STANDARDS: AIRCRAFT TYPE AND AIRWORTHINESS CERTIFICATION

1. The authority citation for part 36 continues to read as follows:

Authority: 42 U.S.C. 4321 et seq. 49 U.S.C. 106(g), 40113, 44701-44702, 44704, 44715, sec. 305, Pub. L. 96-193, 94 Stat. 50, 57; E.O. 11514, 35 FR 4247, 3 CFR, 1966-1970 Comp., p. 902.

2. Revise section G36.111(c)(2)(iv) of Appendix G to read as follows:

APPENDIX G TO PART 36--TAKEOFF NOISE REQUIREMENTS FOR PROPELLER-DRIVEN SMALL AIRPLANE AND PROPELLER-DRIVEN, COMUTER CATEGORY AIRPLANE CERTIFICATION TESTS ON OR AFTER DECEMBER 22, 1988

Sec. G36.111 Flight Procedures.

* * * * *

(c) * * *

(2) * * *

(iv) For airplanes equipped with fixed pitch propellers, takeoff power must be maintained throughout the second segment. For airplanes equipped with variable pitch or constant speed propellers, takeoff power and rpm must be maintained throughout the second segment. If airworthiness limitations do not allow the application of takeoff power and rpm up to the reference point, then takeoff power and rpm must be maintained for as long as is permitted by such limitations; thereafter, maximum continuous power and rpm must be maintained. Maximum time allowed at takeoff power under the

airworthiness standards must be used in the second segment. The reference height must be calculated assuming climb gradients appropriate to each power setting used.

3. In G36.201 of Appendix G, revise paragraph (c) as follows:

Sec. G36.201 Corrections to test results.

(c) No corrections for helical tip Mach number variation need to be made if the propeller helical tip Mach number is:

(1) At or below 0.70 and the test helical tip Mach Number is within 0.014 of the reference helical tip Mach number.

(2) Above 0.70 and at or below 0.80 and the test helical tip Mach number is within 0.007 of the reference helical tip Mach number.

(3) Above 0.80 and the test helical tip Mach number is within 0.005 of the reference helical tip Mach number. For mechanical tachometers, if the helical tip Mach number is above 0.8 and the test helical tip Mach number is within 0.008 of the reference helical tip Mach number.

Certified to be a True Copy

Issued in Washington, D.C., on June 2, 2003

ORIGINAL SIGNED

Carl E. Burleson

Director, Office of Environment and Energy