



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Memorandum

Subject: **COMMENT**: Small Airplane Directorate Comments to  
Docket No. FAA-2004-17041; Noise Stringency Increase  
for Single-Engine Driven Airplanes.

Date: JUN 10 2004

From: Manager, Standards Office, ACE-110

Reply to Karl Schletzbaum  
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To: Docket FAA-2004-17041- 33

Our goal is to offer a complete discussion concerning the affects of the proposed noise regulation on small airplanes.

## Summary

We request that this proposal be withdrawn and reconsidered for the following reasons:

- 1) The lower noise limits and the effect of these limits on modified airplanes is inadequately assessed and may be unevenly applied among the various JAA and ICAO nations. This will place an uneven regulatory burden on the United States (U.S.) industry with no public gain;
- 2) The studies and data cited in its development are not applicable to the current industry and general aviation environment. In addition, they are not included in the docket for public review;
- 3) The proposed noise levels do not reflect current technology, and are lower than the noise levels attained by a substantial number of very recently certificated airplanes;
- 4) The assumption that single engine training airplanes are a significant source of airplane noise is not valid;
- 5) The Regulatory Evaluation and Regulatory Flexibility Determination should be reconsidered considering the current state of the industry, current information on the state of the industry, and international arrangements.

## Discussion

### Discussion of Item 1:

*"the lower noise limits and the effect of these limits on modified airplanes is inadequately assessed and may be unevenly applied among the various JAA and ICAO nations. This will place an uneven regulatory burden on the U.S. industry with no public gain"*

In the *Summary* of the notice the issuing office states the proposed change would provide nearly uniform noise certification standards and simplify airworthiness approvals for import and export purposes.

In the absence of any substantive bilateral agreements that contain true reciprocity with respect to environmental regulatory acceptances, this statement promises much more than can be reasonably achieved under the existing regulatory structure. ICAO annex 16 Supplements contain numerous deviations specified by EASA, JAA and other nations that is evidence there will be little accomplished with respect to true harmonization unless such deviations are eliminated. In addition, the burden of regulatory compliance weighs more heavily on the aviation user in the United States. A significant part of the industry in the United States is involved in aircraft modification. By part 21 requirements, new noise regulations are applied to acoustic changes, while the application of noise regulations to existing airplanes in other nations is not an issue and is not applied the same as in the United States. As mandated by part 21 and part 36 regulations, this creates an additional burden on the U.S. industry and is counterproductive since it discourages modifications that might otherwise enhance safety and mitigate overall noise levels.

In the *Regulatory Evaluation Summary*, the last paragraph discounts any significant effect on the small airplane modification industry, specifically the issuance of design approvals by Supplemental Type Certification and by field modification. Unfortunately, with respect to design changes and modifications, the European and United States' requirements appear to differ. It is believed that some JAA states may not consider some design changes as acoustic changes, as opposed to modification to U.S. registry airplanes. In fact, any change that affects performance of a small airplane, with limited exclusions, must be evaluated to determine if it is an acoustic change; if it is an acoustic change, the most common outcome is that the airplane must comply to current noise levels; its approval is not "grandfathered." The requirement to consider airplane modifications for acoustic change, and to re-certify if a change is made, is a requirement derived from 14 CFR part 21, which is a procedural rule. The requirement to consider acoustic changes on existing airplanes is not consistent between nations. The proposal would weight most heavily on older technology airplanes, which would benefit from engine and propeller upgrades. The lowering of the limits reduces the margins of noise levels that allows for meaningful modification of older airplanes while still meeting the noise limits.

### Discussion of Item 2:

*"The studies and data cited in its development are not applicable to the current industry and general aviation environment. In addition, they are not included in the docket for public review"*

In *Background: Synopsis of the Proposal*, the issuing office describes the origins of the proposal and we question the premise of some of the statements and conclusions in the *Synopsis*.

Further, a study of the situation is mentioned, but it is not cited or attributed to any authoritative entity. The study mentioned should at least be cited so it can be located and reviewed by the public or added to the docket for public review.

In the second paragraph, the *Synopsis* states that the intent was to base any remedy to noise problems on "current technology" and the "best current technology in production." This premise establishes a position that is prejudiced against the existing industry (or industry as it existed in 1995). There were virtually no small airplane designs in production in the United States in 1995 certificated to the most current airworthiness requirements.

Additionally, applying assumptions and data that were valid in 1995 to the general aviation industry a decade later is inappropriate and unrealistic with respect to the current situation in the general aviation industry. The assumptions made ten to fifteen years ago to develop this proposal cannot be considered applicable ten years later without reconsideration of the proposals impact on the current industry.

In the fifth paragraph of the *Synopsis*, it is proposed to lower the noise levels to those of current production airplanes. The *Synopsis* states that this will not cause a substantial burden because this is the state of the art of small airplane aviation technology. While the Small Airplane Directorate observes that there have been new technology airplanes certificated to very recent airworthiness requirements, with noise levels below the proposed limits, it would like to point out the current production levels as recently reported by the online aviation news service Avweb:

Single-engine airplane deliveries for 2003:

Cessna	588 (non-turbine)
Cirrus	469
New Piper	185
Raytheon (Beech)	55
American Champion	63
Lancair	51
Aviat	47
Mooney	36
Maule	32
Tiger	18

Only 34% of the 2003 single engine airplanes delivered were of the two most recent airworthiness certification requirements (Cirrus and Lancair); the rest are designs that have design heritages that date back to the 1950's.

Application of additional noise stringency to those airplanes with older technology designs, which are the bulk of those in production in 2003, will impact the cost of these airplanes and the airworthiness of these airplanes. The FAA applies noise regulations to every design or physical change to an airplane. As older design airplanes are updated to

new models, they will be subject to lower noise limits, which will impact the ability of modifiers and manufacture to offer noise compliant upgrades or modifications to these airplanes.

#### Discussion of Item 3:

*"The proposed noise levels do not reflect current technology, and are lower than the noise levels attained by a substantial number of very recently certificated airplanes"*

A review of recent type certifications of single engine airplanes under the current rules (14 CFR part 36 Appendix G) shows the following:

Airplane Model	Weight	Noise Level	Noise Limit	Proposed Noise Limit	Meets New Noise Limit:
Aquila AT01	1653	65.2	79.2	74.24	yes
Liberty Aerospace XL-2	1653	74.6	79.2	74.24	no
Aviat A-1B	2000	75.2	81.8	77.2	yes
Pacific Aerospace 750XL	7500	86.9	88	85	no
Found Brothers FBA-2C1	3200	85.2	88	85	no
OMF OMF-100-160	1960	70.7	81.55	76.9	yes
RANS S-7C	1200	70.2	76	70	no
Grob G120A	3175	84.8	88	85	yes
Sky Arrow 650 TCS	1433	65.6	77.1	72.03	yes

Of the airplanes certificated under the most recent noise limits, the Liberty XL-2, the Pacific Aerospace 750XL, Found Brothers FBA-2C1 and RANS S-7C would fail to meet the new limits, and the Grob G120A would almost fail. These airplanes can be considered to be a good spectrum of airplanes built to levels of appropriate technological sophistication for their intended mission. The proposed rule would have a significant affect on the type certification of new airplanes. As shown above, the new level is too stringent for many recently type certificated airplanes.

#### Discussion of Item 4:

*"The assumption that single engine training airplanes are a significant source of airplane noise is not valid"*

In the third paragraph, the *Synopsis* states that the study group concluded that small airplane noise is regional in nature and characterized primarily by training flights using single engine airplanes. It can be acknowledged that training is certainly one use of single engine airplanes. However, airplanes that are economical for training also happen to be the most economical for private ownership. It must be remembered that only in the United States is private airplane ownership as affordable and widespread as compared to the rest of the world. The broad conclusion of the study group is flawed for the following reasons:

- General aviation, with a large number of single engine airplanes, is the primary transportation system for the state of Alaska. In addition to training, single engine

airplanes provide a substantial amount of the travel and commerce needs for this state.

- A review of the registry shows that there are over 700 Cessna 208 model airplanes registered. Such a heavy single-engine turbo propeller airplane is obviously not in training service; the vast majority of these airplanes are in private cargo or commercial service. Such utilization of single engine commercial airplanes is unique to the United States when compared to JAA countries; the negative impact of the proposed noise rule will fall exclusively on aviation and derivative services in the United States.

If you have any questions or need additional information, please contact Mr. Karl Schletzbaum, Project Support Office, at 816-329-4146.



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