COMMENTS ON DOCKET NO. FAA 2004-17041 by S. Phoenix

I offer the following comments on all aspects of the proposed ruling:

Synopsis of the Proposal

Considering the large local political issues related to aircraft noise that are faced by numerous airports thoughout the country, it is apparent that the task group started with a faulty basis. Airports are experiencing political difficulties with airplanes at current noise levels and to base a rule on the premise of only preventing increased noise levels is clearly not adequate. In fact, the selection of current technology as a basis is interesting as "old technology" was noticeably less noisy. Cases in point:

1. Training Aircraft - The old standard training aircraft, Piper J-3 Cub, used a low horspower engine matched with a reasonably sized exhaust muffler and turned a relatively large propeller at about 2100 rpm max. The current new production standard trainer, the Cessna 172S, has nearly three times the horsepower matched to a small muffler (not much bigger than the J-3's) with a similar size propeller turning at a speed of 2700 rpm max. The "old technology" J-3 is noticeably quieter when making circuits at an airport while doing the same job as its modern counterpart.
2. 4 Place Aircraft - The 1950 Beech Bonanza performed a similar function to the current production Beech Bonanza but with approximately 200 hp at 2050 rpm as opposed to the modern 300 hp at 2700 rpm using the same size propeller and exhaust mufflers. It would be apparent to even the novice observer that the older technology would produce less noise.

The above points beg the obvious question: Why set noise limits at levels which represent the high peak in the industries' history. Even retrogression back to previous noise levels would be better, and one might hope that "modern technology" could offer even more noise reduction.

That the proposed rule would apply noise limits as a function of weight is clearly misdirected. A 1600 lb, 300 hp aerobatic aircraft is no less bothersome to ground observers than a 3600 lb, 300 hp 6-place traveling airplane; probably moreso since aerobatic planes tend to practice in one area. If a sliding scale is to be used at all it should be a function of horsepower, not weight. Twin engine aircraft should not be exemp either; there is no technical reason they cannot be made as quiet at the same power levels.

That the proposed rule would apply only to new Type and Supplemental Type Certificate applicants is clearly not adequate for two reasons:

1. Experimental Amateur-built aircraft have now reached a completion rate which is greater than the manufacturers of Type certificated aircraft. As a result, the percentage of overall fleet size for amateur-built aircraft is now significant. Most of these planes do not have, nor are they designed to have, any exhaust muffling system or other noise controls. No other component of our national transportation system allows this sort of "freedom to annoy". A person cannot build a hot rod car with straight exhaust pipes and drive it on public streets without being cited: And yet the FAA would allow a person to build a 350 hp hot rod airplane with straight pipes which could be used at will 1000 ft over residential areas. And the FAA would be expected to come to the owners defense when the residents complained. Not a satisfactory situation.
2. The general aviation fleet turns over much more slowly than other transportation sectors, such as automobiles, for various reasons. As a result, the average age of aircraft is now approaching 35 years. It is unrealistic to expect to continue operating a large fleet of old aircraft which are annoying by modern standards. These aircraft must be either updated or replaced at a more rapid rate.

The existing rules for noise measurement were not considered in the proposed ammendment, but they should have been. With automobiles, it has been satisfactory to have the local constable listen to a kids' car and tell him it's too loud. In the aircraft industry we have created a complex set of rules which requires special equipment and technicians to demonstrate something that the general public doesn't believe; ie, that airplanes are quiet enough. A certified mechanic with a soundmeter and a set of guidelines could accomplish more with a simple test than all of the FAA complexity that is currently being used. It is time to revisit the basics of what we are trying to accomplish.

PROPOSED AMMENDMENTS

In consideration of the foregoing, I would propose to ammend part 36 of 14 CFR as follows:

1. Para **36.1 Applicability and definitions.** - Change subparagraph (2) to read:
   (2) Type certificates and changes to type certificates, standard airworthiness certificates, restricted category airworthiness certificates and experimental category airworthiness certificates, for propeller driven, small airplanes and for propeller driven commuter category airplanes.

2. Para **36.2 Special retroactive requirements.** - add subparagraph (c) which would read:
   (c) All aircraft registered in the US before (effective date of this ammendment) must show compliance with the applicable provisions of this part no later than (10 years from the effective date of this ammendment).
3. Para **36.9 Acoustical change: Propeller-driven small airplanes and propeller-driven commuter category airplanes.** - Rewrite as follows:
   All aircraft for which an acoustical change is sought, must meet the applicable limits of this part.
4. **Subpart F - PROPELLER DRIVEN SMALL AIRPLANES AND PROPELLER-DRIVEN, COMMUTER CATEGORY AIRPLANES.**
   Para **36.501 Noise Limits.** - Rewrite to read:
   Compliance with this subpart must be shown for the issuance of a new, ammended or Supplemental Type certificate to the noise levels as measured and prescribed in Appendix G.
5. **Subpart O - Operating Limitations and Information.** - DELETE THIS ENTIRE SECTION.
6. **Appendix G to Part 36.** - Would become:
   NOISE REQUIREMENTS FOR PROPELLER-DRIVEN SMALL AIRPLANE AND PROPELLER DRIVEN, COMMUTER CATEGORY AIRPLANE CERTIFICATION TESTS ON OR AFTER (EFFECTIVE DATE OF THIS AMMENDMENT).

   PART A - GENERAL
   Section **G36.1 - Scope.** This appendix prescribes limiting noise levels and procedures for measuring noise for propeller driven small airplanes and propeller driven, commuter category airplanes specified in 36.1 and 36.501.

   PART B - NOISE MEASUREMENTS
   Sec **G36.101 General Test Conditions.**
   (a) The test area must be a flat paved surface with no obstructions which would influence the sound field.
   (b) The test must be carried out under the following conditions:
   (1) No precipitation
   (2) No wind
   (3) Minimal background noise
   (c) Sound pressure level data for noise evaluation purposes may be obtained with a commonly available handheld soundmeter or equivalent, set to the dbA scale, pointed at the aircraft at a level of 4 to 6 feet above ground.
   Sec **G36.103 through G36.109 -** DELETE
   Sec **G36.111 Test Procedure**
   (a) With the aircraft positioned in the paved surface, position the sound meter 100 meters from the center of the propeller in the plane of the propeller. Run the engine(s) at full takeoff power and rpm and record the measured sound level.
   (b) Reposition the sound meter to a position 100 meters from the center of the propeller and at a 45 degree angle aft of the propeller plane. Run the engine(s) at takeoff power and rpm and record the measured sound level.
   PART C - DELETE
   PART D - NOISE LIMITS
   Sec **G36.301 Aircraft Noise Limits**
   (a) Compliance with this section must be shown with noise data measured in Part B of this appendix.
   (b) The noise level must not exceed 65 dbA for aircraft with a takeoff power rating up to and including 100 hp. For total rated takeoff power above 100 hp, the limit increases at a rate of 5 dbA per 100 hp until the limit of 85 dbA is reached.

CONCLUSION

The ammendment as proposed by the FAA should be withdrawn and replaced with a more encompassing and challenging proposal. Aircraft noise control appears to be the last major technical challenge remaining in aircraft design and the FAA should be the driving force behind it. This would demonstrate to the general public that the regulators and the industry have accepted the challenge not only for public benefit but for the industry as well. The industry should welcome this opportunity to invent a dramatic improvement, on a level playing field, which will markedly increase the acceptance of their product.

My proposed alternative ammendments are obviously very simplified, but sometimes simplification is the right thing to do when taking a new direction.