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

Memorandum

Subject: **ACTION:** Final Policy for Pitot Heat Indication Systems for 14 CFR, Part 23, § 23.1326(b)(1); PS-ACE100-2002-007

Date: August 5, 2004

From: Manager, Small Airplane Directorate

Reply to Attn. of: Leslie Taylor (816) 329-4134

To: SEE DISTRIBUTION

POLICY

This policy and the associated Advisory Circular AC 23-17A describe the criteria wherein a design may be considered eligible for an Equivalent Level of Safety (ELOS) to part 23, § 23.1326(b)(1). In addition to being an eligible configuration, a design that is proposed for an ELOS must also contain the necessary compensating safety features if it is to be issued an ELOS. Any ELOS applicable to part 23 airplanes must be issued in accordance with the Small Airplane Directorate procedures.

Existing guidance for an ELOS for 14 CFR, part 23, § 23.1326(b)(1), Pitot Heat Indication Systems, contained in AC 23-17A, Systems and Equipment Guide for Certification of Small Airplanes, has been misinterpreted. That guidance states: "An aircraft design that does not include a caution annunciation when the pitot heat is Off may be eligible for an ELOS finding that preserves a "dark cockpit" provided a placard or flight manual prescribes when to operate the pitot heat." The phrase "may be eligible" means that design may be considered for an ELOS, however, not all design configurations are eligible as noted below:

1. Commuter category airplanes are not eligible.

2. Airplanes approved for Flight Into Known Icing per 14 CFR, part 23, § 23.1419 are not eligible.

3. Airplanes with service ceilings or maximum operating altitudes above 18,000 feet are not eligible because 18,000 feet represents the bottom of controlled airspace. If a plane can fly at or above 18,000 feet it must be certified for Instrument Flight Rules (IFR) operation.

4. The eligibility of other IFR approved airplanes, including those with the service ceilings below 18,000 feet, is determined jointly by the ACOs and the Small Airplane Standards Office.

Aircraft that are not eligible for an ELOS in AC 23-17A may be eligible for a different ELOS if their design has compensating features other than placards or Aircraft Flight Manual (AFM) limitations. For instance, a design with retractable landing gear could hardwire pitot heat to power through a weight-on-wheels switch. There would be no need for an ON/OFF switch, so there would be no need for a caution annunciation of switch position.

An ELOS is inappropriate if the airplane is certified only for Visual Flight Rules (VFR) since neither pitot heat nor pitot heat indication is required for VFR-Only airplanes. Pitot heat installed in a VFR-Only airplane is nonrequired equipment so neither § 23.1323 or § 23.1326 is applicable.

APPLICABILITY

This Policy Statement applies to any Type Certificate (TC), Amended Type Certificate (ATC), or Supplemental Type Certificate (STC) project for a small airplane approved for IFR with a certification basis that includes 14 CFR part 23, § 23.1326, amendment 23-49.

BACKGROUND

Section 23.1326 was added to 14 CFR part 23 by amendment 23-49. This rule states that when pitot heat is required, there must be a caution annunciation whenever pitot heat is OFF and when it is ON but failed.

The following excerpts from the preamble for § 23.1326 provide the rationale as to why this regulation was included in amendment 23-49 of 14 CFR part 23.

"This proposed requirement responds to National Transportation Safety Board (NTSB) recommendation A-92-85, which recommends requiring a modification to certain part 23 airplanes to provide for a pitot heat operating light similar to the light required by Sec. 25.1326 for transport category airplanes. NTSB issued the safety recommendation, among others, as a result of a special investigation and analysis of a series of fatal accidents that occurred from May 31, 1989, through March 17, 1991."

"When pitot tube heat indicating system requirements were added to part 25, the FAA noted the occurrence of at least one accident and several incidents in which an airspeed indicating error occurred that might have been avoided if a pitot tube heat indicating system had been installed. Part 23 airplanes operate at lower airspeeds and over shorter distances that do part 25 airplanes; therefore, their exposure to moisture and temperature conditions where icing may occur is higher than it is for transport category airplanes. Because of this environmental exposure, the potential for an inoperative heated pitot tube becoming a hazard to part 23 airplanes is greater."

The Small Airplane Directorate was recently asked for clarification regarding an ELOS per existing guidance in AC 23-17A, Systems and Equipment Guide for Certification of Small Airplanes. AC 23-17A, § 23.1326, amendment 23-49, includes guidance that: "An aircraft design that does not include a caution annunciation when the pitot heat is Off may be eligible for an ELOS finding that preserves a "dark cockpit" provided a placard or flight manual prescribes when to operate the pitot heat." In other words, the ELOS would allow for a placard or AFM instructions to provide direction regarding when to operate pitot heat and would not require caution annunciation when pitot heat is Off. In developing the guidance in AC 23-17A, the Small Airplane Directorate did not intend that the above guidance would be applicable to all small airplanes with a certification basis that included Amendment 23-49. The ELOS offered in AC 23-17A is appropriate for the class of airplanes whose mission is primarily in the training environment or similar operation where exposure to conditions conducive to icing of the pitot tube is minimal. For airplanes in that class, an ELOS to § 23.1326 makes sense so that pitot heat can be selected OFF with no annunciation (maintaining the "dark cockpit"). Also, in this class of aircraft, the safety provided by the annunciated system is outweighed by the potential maintenance issues related to requiring or encouraging that pitot heat be ON during the extensive ground training operation, which may shorten the life of the system.

EFFECT OF THIS POLICY

The general policy stated in this document does not constitute a new regulation and the FAA would not apply or rely upon it as a regulation. The FAA Aircraft Certification Offices (ACO) that certificate normal, utility, commuter, and acrobatic category aircraft should attempt to follow this policy when applicable to the specific project. Whenever an applicant's proposed method of compliance is outside this established policy, it must be coordinated with the policy issuing office as a standard practice.

Applicants should expect that the certificating officials will consider this information when making findings of compliance relevant to new certificate actions. Also, as with all advisory material, this policy statement identifies one means, but not the only means, of compliance.

CONCLUSION

The ELOS in AC 23-17A may be acceptable except in Points 1, 2, and 3 above. Another ELOS for compensating design features may be acceptable, and strict compliance to 14 CFR, part 23, § 23.1326 is acceptable.

S/

Dorenda D. Baker
Manager, Small Airplane Directorate
Aircraft Certification Service

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