



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

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# Memorandum

Subject: **ACTION:** Proposed Policy for Pitot Heat Indication Systems for  
14 CFR, Part 23, § 23.1326(b)(1)

Date:

From: Manager, Small Airplane Directorate

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

To: SEE DISTRIBUTION

## SUMMARY

Guidance for an Equivalent Level of Safety (ELOS) for 14 CFR, part 23, § 23.1326(b)(1), Pitot Heat Indication Systems, in AC 23-17A, Systems and Equipment Guide for Certification of Small Airplanes, has been misinterpreted since the Advisory Circular(AC) was issued. In saying "may be eligible" in AC 23-17A, we intended to leave the applicability of this ELOS to the Aircraft Certification Offices (ACOs) discretion. To clarify and standardize:

1. No ELOS is needed for Visual Flight Rules (VFR)-only airplanes since neither pitot heat nor pitot heat indication is required for those airplanes.
2. Commuter category airplanes are not eligible.
3. Airplanes approved for Flight Into Known Icing per 14 CFR, part 23, § 23.1419 are not eligible.
4. 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 IFR operation.
5. The applicability for the ELOS in AC 23-17A to other IFR approved airplanes is determined jointly by the ACOs and the Small Airplane Standards Office.

While the ELOS in AC 23-17A is not acceptable for Points 2, 3 and 4 above, another ELOS may be acceptable if their design has other compensating features than placards or

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AFM. 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.

## **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 Instrument Flight Rules (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 than 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

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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. These include aircraft not certified for IFR or flight in icing conditions, or IFR certified but limited in altitude capability. 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.

## **CONCLUSION**

The ELOS in AC 23-17A may be acceptable except in Points 2, 3 and 4 above. Another ELOS for compensating design features may be acceptable, and strict compliance to 14 CFR, part 23, § 23.1326 is acceptable.

The ACOs' have responsibility for determining whether an ELOS for placards or AFM information is acceptable or there are other compensating features that allow another ELOS to be accepted.

Michael Gallagher

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