



# Federal Aviation Administration

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## Memorandum

Date: December 4, 2014

To: Manager, Small Airplane Directorate, ACE-100

From: Manager, Project Support Branch, ACE-112

Prepared by: Doug Rudolph, Project Support Branch, ACE-112

Subject: INFORMATION: Equivalent Level of Safety (ELOS) Finding for Avia Ltd.,  
Model Accord-201

ELOS Memo#: ACE-15-01

Regulatory Ref: 14 CFR 23.1325(e), Amendment 23-50, Effective 03/12/96

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This memorandum informs the certificate management aircraft certification office of an evaluation made by the Accountable Directorate on the establishment of an equivalent level of safety (ELOS) finding for the use of altimetry correction card located next to the altimeter(s) on the Avia Ltd (Avia), Model Accord 201. The ELOS finding pertains to the location of the altimeter correction card location which will be placed next to the main altimeter in lieu of direct compliance to § 23.1325(e).

### **Background:**

#### Airplane Certification Basis:

The Avia Accord-201 airplane is being validated through the Bilateral Aviation Safety Agreement (BASA) between the United States and the Russian Federation titled, *Implementation Procedures For Airworthiness Covering Design Approval, Production Activities, Export Airworthiness Approval, Post Design Approval Activities, and Technical Assistance Between Authorities*, dated December 9, 1998. The Interstate Aviation Committee (IAC) Airplane Register (AR) is the certifying authority.

The Federal Aviation Administration (FAA) type certification basis for this airplane is 14 CFR part 23, effective February 1, 1965, Amendments 23-1 through Amendment 23-61 and 14 CFR part 36, effective December 1, 1969, Amendments 36-1 through Amendment 36-28.

#### Airplane Description:

The Avia Accord-201 is an all-metal high-wing airplane with a twin-finned tail and fixed tricycle landing gear. It holds six people, including the aircrew, and has a maximum take-off weight of 2,200 kg (4850.2 lbs.). The airplane has two IO-360 ES7 air cooled piston engines by Teledyne

Continental Motors, Inc. (USA) with Hartzell three-blade propellers item number PHC-H3YF-2EUF/FC7453(A). The airplane will be certified as day Visual Flight Rules (VFR).

Section 23.1325(e), Amendment 23-50, requires each static pressure system be calibrated in flight to determine the system error. The Avia Accord-201 does not comply with this subparagraph for both the Main Air Data System and the Standby Air Data System, but was granted an equivalency by the Russian Airworthiness Authority, IAC AR, for the use of a compensation card on the Russian Type Certificate (TC). Avia has requested an ELOS finding based on this method for the United States (U.S.) TC.

The Main Air Data System:

The main altimeter error in the speed range between  $1.3V_{S0} = 89$  Knots Indicated Airspeed (KIAS) and  $1.8 V_{S1} = 143$  KIAS at sea level exceeds the acceptable error by a maximum value of 14 feet. Thus, the acceptable main altimeter error  $\pm 30$  feet per 100 knot speed is not in compliance with § 23.1325(e). However, § 23.1325(e) requirements for meeting limiting the error increase per 100 knots speed above 135 KIAS is met.

The Standby Air Data System:

The standby altimeter error fails to comply with the requirement of § 23.1325(e) on the acceptable standby altimeter error of  $\pm 30$  feet per 100 knot speed.

**Applicable Regulation:**

Section 23.1325(e), Amendment 23-50, effective 03/12/96

**Regulation Requiring an ELOS Finding:**

Section 23.1325(e), Amendment 23-50, addressing a static pressure system, states the following:

“Each static pressure system must be calibrated in flight to determine the system error. The system error, in indicated pressure altitude, at sea-level, with a standard atmosphere, excluding instrument calibration error, may not exceed  $\pm 30$  feet per 100 knot speed for the appropriate configuration in the speed range between  $1.3 V_{S0}$  with flaps extended, and  $1.8 V_{S1}$  with flaps retracted. However, the error need not be less than 30 feet.”

**Description of compensating design features or alternative Methods of Compliance (MoC) which allow the granting of the ELOS (including changes, limitations, or equipment needed for equivalency):**

Avia test data factors derived from static pressure systems should provide an ELOS for § 23.1325(e) requirements. The Airplane Flight Manual (AFM) will reflect the requirement to use altimeter correction cards located next to the altimeters during VFR flights at flight levels between 900 meters (2,952 feet) and 3,000 meters (9,843 feet).

Avia proposes adding the requirement for U.S. registered airplanes in the AFM to use altimeter correction cards, locating an English altimeter correction card next to the altimeter in the Avia Accord-201, and limiting U.S. registered airplanes to day VFR operations only when fitted with this altimeter correction card arrangement.

Avia must coordinate all alterations, modifications, or design changes to the altimeter or static system of U.S. registered airplanes, including the installation of different altimeters on the Accord-201, with the FAA Airplane Certification Service. These changes must demonstrate full compliance with § 23.1325.

Avia coordinated the proposed compensation card, location of the card, and proposed AFM pages during FAA Issue Paper S-2 development. The FAA and the IAC AR agree with these items as proposed.

In summary, the compensating features are as follows:

1. Adding the requirement to use altimeter correction cards at flight levels to Section 4 of the AFM.
2. Adding a correction calculation sample for the onboard altimeter correction card and an altimeter correction card sample to Section 5 of the AFM.
3. Adding a requirement that onboard altimeter correction cards must be displayed in the form of placards to the AFM, Section 2, paragraph 2-41.
4. Adding the English altimeter correction card(s) next to the altimeter(s).
5. Limiting the U.S. registered airplanes to daily VFR operations only.

**Explanation of how design features or alternative Methods of Compliance (MoC) provide an equivalent level of safety intended by the regulation:**

The FAA reviewed the data submitted by Avia on the use of compensation altimeter card(s) in the Accord-201 airplane and believes the use of these cards along with the included AFM pages and limiting the airplane to day VFR only meets the intent of § 23.1325(e), Amendment 23-50.

The basis for this ELOS Memorandum comes from FAA Issue Paper S-2, Stage 4, § 23.1325, Static pressure system-Equivalent Level of Safety, dated September 15, 2014. This issue paper documents the agreement among the FAA, the Russian IAC AR, and Avia Ltd.

**FAA Approval and Documentation of the ELOS Finding:**

The FAA has approved the aforementioned ELOS finding in project Issue Paper S-2. This memorandum provides standardized documentation of the ELOS finding that is nonproprietary and can be made available to the public. The Accountable Directorate has assigned a unique ELOS Memorandum number (see front page) to facilitate archiving and retrieving of this ELOS. This ELOS Memorandum number must be listed in the Type Certificate Data Sheet (TCDS) under the Certification Basis section (TCs & Amended Type Certificates [ATCs]), or in the Limitations and Conditions section of the Supplemental Type Certificate (STC). An example of an appropriate statement is provided below.

The ELOS Findings have been made for the following regulations of 14 CFR part 23:

§ 23.1325(e), Amendment 23-50, Static pressure system.

(Documented in ELOS Memo ACE-15-01.)

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12/4/2014

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Manager, Small Airplane Directorate,  
Airplane Certification Service

Date

ELOS Originated by: Project Support Branch	Manager, Project Support Branch: Jacqueline Jambor	Routing Symbol: ACE-112
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