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InFO

Information for Operators

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An InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Suitability of the SR-20/22 Pitot-Static System for 14 CFR Part 135 IFR Passenger Carrying Operations

Purpose: Provide guidance for operators regarding the suitability of the Cirrus Design SR-20/22 pitot-static system for instrument flight rule (IFR) passenger carrying operations under Title 14 of the Code of Federal Regulations (14 CFR) part 135.

Background:

a. SR-20/22 Pitot-Static System. The Cirrus Design Group SR-/2022 model airplane is equipped with a pitot-static system which includes one heated pitot tube which is installed on the lower surface of the left wing. This tube provides pitot pressure to the airspeed indicator located in the center console, and to the pitot pressure transducer in the primary flight display (PFD). Two unheated static ports located on the sides of the aft fuselage provide static pressure to a common static line, which provides static pressure to the airspeed indicator, vertical speed indicator, altimeter, and the PFD static transducer. The PFD includes an airspeed display using a vertical tape presentation, located on the left hand side of the Attitude-Direction Indicator (ADI) display. Altitude and vertical speed are also displayed on the PFD. Other PFD displays which use data from the pitot-static system include wind vector, true airspeed, and percent of power.

b. The Pertinent Regulation. Part 135, § 135.163(c) requires, “A heated pitot tube for each airspeed indicator...” for passenger carrying IFR operations conducted under part 135. Application of this rule in the certification and surveillance of applicants or operators intending to conduct, or conducting IFR passenger carrying operations in SR-20/22 airplanes varies. Some inspectors have determined that the SR-20/22 meets the requirements of the rule, while others have determined that the SR-20/22 may not be used in such operations.

Discussion. Section 135.163 specifies that each airspeed indicator must be served by a heated pitot tube, but does not specify that each airspeed indicator be served by an INDEPENDENT heated pitot tube. The SR-20/22 configuration is unusual in that two airspeed indicators (one mechanical airspeed indicator and the airspeed display on the PFD) receive their pitot inputs from a single heated pitot tube. Typically, small single engine, single pilot airplanes are only required to have one airspeed indicator for aircraft certification and part 135 operations carrying passengers under IFR. However, because the SR-20/22 primary airspeed display is electronic (the PFD), 14 CFR part 23, § 23.1311 requires an independent secondary mechanical airspeed

indicator. No requirement exists that the secondary mechanical airspeed indicator be served by a separate pitot tube.

a. Failure Modes. The airspeed indicator on the PFD may fail in a variety of manners.

(1) If invalid air data is provided, or air data is lost, the following will occur:

(a) Airspeed, altitude, and vertical speed data are removed and replaced by red “X”s.

(b) Wind Vector data disappears and is replaced by dashes.

(c) Outside Air Temperature and True airspeed data disappear and are replaced by dashes.

(d) The % Power Tape disappears from view.

(2) If the PFD fails as a whole, it will become blank.

(3) In either case, the mechanical airspeed indicator will remain operative, and, the pitot tube will remain capable of being heated.

(4) If the airplane suffers a complete loss of electrical power (involving a failure of the two alternators, and depletion of the battery; highly unlikely) the multifunction display (MFD) and the pitot heat would fail, but the mechanical airspeed indicator would still be functional.

b. Determination of Policy. After a review of the system design, failure modes, and the pertinent regulations, the Air Transportation Division, AFS-200 has determined that the Cirrus Design SR-20/22 pitot-static system meets the requirements of § 135.163(c) in that each airspeed indicator (the mechanical airspeed indicator and the PFD) is served by a heated pitot tube (in this case, a single heated pitot tube). We have coordinated this determination with the Aircraft Maintenance Division, AFS-300.

Recommended action: Part 135 certificate holders operating Cirrus Design SR-20/22 airplanes, and applicants intending to operate Cirrus Design SR-20/22 airplanes in part 135 operations, should be familiar with the contents of this InFO.

Point of Contact: Any questions regarding this INFO should be directed to the 135 Air Carrier Operations Branch, (AFS-250) at (202) 267-8166.