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Airspeed Tubes Electrically Heated

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1. PURPOSE:

The purpose of this Aeronautical Standard is to specify minimum requirements for pitot-static type of electrically heated Airspeed Tubes primarily for use in reciprocating engine powered civil transport aircraft, the operation of which may subject the instruments to the environmental conditions specified in paragraph 3.3.

2. SCOPE:

This aeronautical standard covers two basic types of instruments as follows:

Type I - Pitot Pressure, straight and L-shaped, 12 and 14 volt nominal, 2 wire circuit.

Type II - Pitot and Static Pressured, straight and L-shaped, 12 and 24 volt nominal, 2 wire circuit.

3. GENERAL REQUIREMENTS:

3.1 Materials and Workmanship:

3.1.1 Materials: Materials shall be of a quality which experience and/or tests have demonstrated to be suitable and dependable for the purpose intended.

3.1.2 Workmanship: Workmanship shall be consistent with high-grade aircraft instrument manufacturing practice.

3.2 Identification:

The following information shall be legibly and permanently marked on the units or attached thereto:

- a. Name of instrument (Airspeed Tubes)
- b. Aeronautical Standard AS393A
- c. Manufacturer's part number
- d. Manufacturer's name and/or trademark
- e. Manufacturer's serial number or date of manufacture
- f. Rating (Nominal Voltage)

3.3 Environmental Conditions:

The following conditions have been established as design requirements only. Tests shall be conducted as specified in Sections 6 and 7.

3.3.1 Temperature: When the instrument is mounted in accordance with manufacturer's instructions, it shall function over the range of ambient temperatures of -65 to 70C and shall not be adversely affected by exposure to temperatures of -65C to 70C.

- 3.3.2 Altitude: The instruments should function and should not be affected adversely when subjected to a pressure temperature range equivalent to -1,000 to 40,000 feet standard altitude, per NACA Report Number 1235, except as limited by the application of paragraph 3.3.1 of this AS.
- 3.3.3 Vibration: When installed in accordance with the instrument manufacturer's instructions, the units shall function and shall not be adversely affected when subjected to vibrations of the following characteristics:

Instrument Location in Airframe	Cycle Per/Sec	Double Amplitude (In.)	Maximum Acceleration
Wings, Empennage and Fuselage	5-50	0.250	32.5g

- 3.3.4 Radio Interference: The instrument shall not be the source of objectionable interference under operating conditions at any frequencies used on aircraft, either by radiation or feedback, in radio sets installed in the same aircraft as the instrument.

4. DETAIL REQUIREMENTS:

4.1 Drainage:

The tube shall be designed to provide maximum drainage of water, resulting from rain or melting ice, consistent with maintaining the calibration specified in paragraphs 7.3, 7.4, and 7.5.

4.2 Marking:

Pitot pressure and static pressure lines shall be identified by the letters "P" and "S" respectively; stamped, etched, engraved or otherwise permanently marked on the lines or fittings. The top of the tube shall be identified.

5. TEST CONDITIONS:

5.1 Atmospheric Conditions:

Whenever the pressure, temperature and relative humidity are not specified, it is understood that the test is to be made under the following conditions:

Atmospheric Pressure: approximately 29.92 In. Hg.

Room Temperature: approximately 25C

Relative Humidity: not exceeding 85%

When tests are made under atmospheric conditions differing substantially from the above values, proper allowances shall be made for the discrepancies.