

**Pitot or Pitot-Static Pressure Tubes, Electrically Heated
(Turbine Powered Sub-Sonic Aircraft)**

FOREWORD

This document has been declared "NONCURRENT". It is recommended, therefore, that this document not be specified for new designs. "NONCURRENT" refers to those documents which have previously been widely referenced and may continue to be required on some existing designs. "NONCURRENT" documents are available from SAE upon request.

1. PURPOSE:

This aerospace standard establishes the essential minimum safe performance standards for pitot and pitot-static types of electrically heated pressure tubes primarily for use with turbine powered, sub-sonic, transport aircraft which may subject the instruments to the environmental conditions specified in paragraph 3.3.

2. SCOPE:

This aerospace standard covers the following basic instrument types:

Type I - Pitot Pressure, straight and L-shaped. "28 and 115 volt, 60 to 400 cycles AC or DC", 1 or 2 wire circuit.

Type II - Pitot and Static Pressures, straight and L-shaped. "28 and 115 volt, 60 to 400 cycle AC or DC", 1 or 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.

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

3.2 Identification:

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

- a. Name of instrument (Airspeed Tube).
- b. Aerospace Standard AS-390.
- c. Manufacturer's part number.
- d. Manufacturer's serial number or date of manufacture.
- e. Manufacturer's name and/or trademark.
- f. Rating (nominal voltage).

3.3 Environmental Conditions:

The following conditions have been established as minimum design requirements. Tests shall be conducted as specified in Sections 5, 6 and 7.

3.3.1 Temperature: When the instrument is mounted in accordance with the manufacturer's instructions, it shall function over an ambient temperature range of -65C to 70C.

3.3.2 Altitude: The instrument shall function and shall not be affected adversely when subjected to a pressure-temperature range equivalent to -1,000 to 50,000 feet standard altitude, per NACA Report Number 1235, except as limited by the application of paragraph 3.3.1 of this aerospace standard.

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- 3.3.3 Vibration: When installed in accordance with the instrument manufacturer's instructions, the instrument shall function and shall not be affected adversely when subjected to vibrations of the following characteristics:

<u>Instrument Location in Airframe</u>	<u>Cycles Per Sec.</u>	<u>Double Amplitude (inches)</u>	<u>Maximum Acceleration "g"</u>
Wings and Empennage	5-1000	0.036	10
Fuselage Forward of Spar Area	5-500	0.036	2
Center of Spar Area	5-1000	0.036	4
Aft of Spar Area	5-500	0.036	7
	500-1000	-	5

- 3.3.4 Radio Interference: The instrument shall not be the source of objectionable interference, either by radiation or feedback in electronic equipment installed in the same aircraft.

- 3.3.5 Magnetic Effect: The magnetic effect of the instrument shall not affect adversely the performance of other instruments installed in the same aircraft.

4. DETAIL REQUIREMENTS:

4.1 Drainage:

The tube shall be designed to provide a maximum drainage of water resulting from rain or melting ice which enters the pitot and static orifices; however, the drain hole(s) shall in no way effect the calibration specified in paragraph 7.3. The mounting design shall preclude the possibility of heating element deterioration due to water seepage.

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.