



# AEROSPACE STANDARD

**AS392™****REV. D**

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Superseded by AS8009

Altimeter, Pressure Actuated Sensitive Type

## RATIONALE

AS392 has been superseded by AS8009, which is intended for use for new equipment design.

This document is being stabilized by the committee due to its historical usage as the technical performance requirements for TSO-C10. The TSO has been revised to use AS8009, and as such, AS392 will not be updated; however, it retains relevance for equipment authorized and maintained under the previous revision.

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1. PURPOSE: To specify minimum requirements for Pressure Actuated Sensitive Altimeters for use in aircraft, the operation of which may subject the instrument to the environmental conditions specified in paragraph 3.3.
2. SCOPE: This Aeronautical Standard covers two (2) basic types of instruments as follows:  
  
TYPE I - Range 35,000 feet. Barometric Pressure. Scale range at least 28.1 - 30.99 inches of mercury (946-1049 millibars). May include markers working in conjunction with the Barometric Pressure Scale to indicate pressure altitude.  
  
TYPE II- Range 50,000 feet. Barometric Pressure. Scale range at least 28.1 - 30.99 inches of mercury (946-1049 millibars). May include markers working in conjunction with the Barometric Pressure Scale to indicate pressure altitude.
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 use in aircraft instruments.
    - 3.1.2 Workmanship: Workmanship shall be consistent with high-grade aircraft instrument manufacturing practice.
  - 3.2 Identifications: The following information shall be legibly and permanently marked on the instrument or attached thereto:
    - a. Name of instrument (Altimeter)
    - b. Aeronautical Standard AS-392C
    - c. Manufacturer's part number
    - d. Manufacturer's Serial number or date of manufacture
    - e. Manufacturer's name and/or trademark
    - f. Range
  - 3.3 Environmental Conditions: The following conditions have been established as design requirements only. Tests shall be conducted as specified in Sections 5, 6 and 7.
    - 3.3.1 Temperature: When installed in accordance with the instrument manufacturer's instructions, the instrument shall function over the range of ambient temperature of -30C to 50C and shall not be adversely affected by exposure to temperature of -65C to 70C.
    - 3.3.2 Humidity: The instruments shall function and shall not be adversely affected when exposed to any relative humidity in the range from 0 to 95% at a temperature of approximately 32C.

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

| <u>Instrument Location<br/>in Airframe</u> | <u>Cycles<br/>Per Sec.</u> | <u>Maximum Double<br/>Amplitude (In.)</u> | <u>Maximum<br/>Acceleration</u> |
|--------------------------------------------|----------------------------|-------------------------------------------|---------------------------------|
| Instrument Panel<br>or Vibration           | 5-50                       | 0.020                                     | 1.5g                            |
| Isolated Mount                             | 50-500                     | ---                                       | 0.5g                            |

- 3.3.4 Altitude: The instrument shall function and shall not be adversely affected when subjected to a pressure and 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. The indicator shall withstand an external case pressure of 50 inches Hg absolute, when installed properly and vented to an atmospheric pressure of approximately 29.92 inches Hg absolute.
- 3.3.5 Magnetic Effect: The magnetic effect of the indicator shall not adversely affect the operation of other instruments installed in the same aircraft.

#### 4. DETAIL REQUIREMENTS:

- 4.1 Indicating Method: The following method of indication shall be employed. For indicating an ascent in altitude, the sensitive pointer shall move in a clockwise direction completing one revolution (360°) for each 1,000 feet of altitude change. A means shall be provided for showing the multiples of 1,000 feet.
- 4.2 Dial Markings:
- 4.2.1 Increments: Markings shall be provided at intervals not exceeding 20 feet of altitude with major increment markings at 100 foot intervals.
- 4.2.2 Zero Setting System: A zero setting system shall be provided which will permit the Altimeter to be set to show field elevation at any existing ground level barometric pressure. The zero setting system shall show the barometric pressure in inches of mercury and/or millibars at sea level throughout the range of at least 28.1 to 30.99 inches (946 to 1049 millibars). A safety feature shall be provided which will prevent incorrect reading of the pressure Scale if the zero setting mechanism exceeds its barometric pressure limits.
- 4.2.3 Finish: Unless otherwise specified by the user, matte white material shall be applied to major graduations, numerals and pointers. Non-functional surfaces shall be a durable dull black.
- 4.2.4 Name: The words "Altitude" or "Alt" shall be marked on the dial and may be in the same finish as the numerals.