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400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

**AEROSPACE  
STANDARD**

**AS 8036**

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Revised

**CARGO COMPARTMENT FIRE DETECTION INSTRUMENTS**

1. **PURPOSE:** This standard establishes minimum requirements for cargo compartment fire detection instruments primarily for use in reciprocating and turbine engine powered aircraft.
2. **SCOPE:**
  - 2.1 This standard covers the following types of fire detection instruments intended for use in protecting aircraft cargo compartments, galleys, electronic equipment bays and other similar installations.
  - 2.2 **Types:**

**Type I:** Carbon monoxide, an instrument which will actuate an alarm signal when the concentration of carbon monoxide in air exceeds a specified value.

**Type II:** Smoke detector, electronic, an instrument operating on the principle of smoke particles modifying the relationship between a light beam and electronic light sensor which will actuate an alarm signal when the concentration of smoke in air exceeds a specified value.

**Type III:** Smoke detector, visual, an instrument which, by visual means, will show in a positive manner the presence of smoke when the concentration of smoke in air exceeds a specified value.

**Type IV:** Smoke detector, electronic, an instrument operating on the principle of smoke particles modifying the current in an ionization chamber which will actuate an alarm signal when the concentrations of smoke in air exceeds a specified value.

**Type V:** Same as Type IV except maximum operating altitude is 18,000 ft. (5,486 M) when installed in a non-pressurized area.
  - 2.3 **Applicable Documents:** The following documents shall form a part of this specification to the extent specified herein:

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- 2.3.1 Federal Aviation Regulation 25.1359(d) and Appendix F thereto.
- 2.3.2 "Rules For SAE Use of SI (Metric) Units - SAE Document J916B", Dated July 1975 - Copies may be obtained from Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA., 15096.
- 2.3.3 Radio Technical Commission of Aeronautics (RTCA) Document DO-160B "Environmental Conditions and Test Procedures for Airborne Equipment", Dated July 20, 1984 (copies may be obtained from the RTCA Secretariat, 1425 K Street, N.W. Washington, D.C. 20005).

**3. GENERAL STANDARDS:**

- 3.1 Materials: Materials shall be of a quality which experience and/or tests have demonstrated to be suitable and dependable for use in aircraft instruments.
- 3.2 Workmanship: Workmanship shall be consistent with high-grade aircraft instrument manufacturing practice.
- 3.3 Accessibility of Controls: Controls which are not normally adjustable in flight shall not be readily accessible to flight personnel when the instrument is installed in accordance with the manufacturer's instructions.
- 3.4 Interchangeability: Instruments which are identified with the same manufacturer's part or model number range and/or setting shall be completely interchangeable.
- 3.5 Integrity Test Means: The instrument shall be of such design to provide a means for testing the integrity of the instrument when the aircraft is operating.
- 3.6 Identification: The following information shall be legibly and permanently marked on the instrument or attached thereto:
  - (a) Name of Instrument
  - (b) Manufacturer's Part Number
  - (c) Manufacturer's Serial Number or Date of Manufacture
  - (d) Manufacturer's Name and/or Trademark
  - (e) Type Number
  - (f) Alarm Range and/or Setting
  - (g) Rating (Electrical, Vacuum, etc.)
  - (h) Qualification Specification Number (SAE or TSO)
- 3.7 Environmental Conditions: The following conditions have been established as minimum design requirements:

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- 3.7.1 Temperature: When installed in accordance with the manufacturer's recommendations, the instrument shall function over the range of ambient temperatures shown in Column A below and shall not be adversely affected by exposure to the temperatures shown in Column B below:

<u>Instrument Location</u>	<u>A (deg. C)</u>	<u>A (deg. F)</u>	<u>B (deg. C)</u>	<u>B (deg. F)</u>
Pressurized Areas	-30 to 60	-22 to 140	-65 to 70	-85 to 158
Non Pressurized areas	-55 to 70	-67 to 158	-65 to 70	-85 to 158

- 3.7.2 Humidity: The instrument shall function and shall not be adversely affected when exposed to any relative humidity in the range from 0 to 95%.

- 3.7.3 Altitude: When installed in accordance with the instrument manufacturer's instructions, the instruments shall function from sea level up to the altitudes listed below. Altitude pressures are per U.S. Standard Atmosphere, 1962.

<u>Type I, II, III, IV Instrument Location</u>	<u>Altitude</u>	
	<u>Ft.</u>	<u>M</u>
Pressurized and Non-Pressurized Areas	50,000	15,240

Instruments to be used in pressurized locations shall not be adversely affected following exposure to an ambient pressure of 50 in. (127 cm) of mercury absolute nor false warn when subjected to a pressure drop to 3.42 in. (8.69 cm) of mercury absolute.

<u>Type V Instrument Location</u>	<u>Altitude</u>	
	<u>Ft.</u>	<u>M</u>
Non-Pressurized Areas	18,000	5,490

Instruments to be used in pressurized locations shall not be adversely affected following exposure to an ambient pressure of 50 in. (127 cm) of mercury absolute nor false warn when subjected to a pressure drop to 14.94 in. (37.95 cm) of mercury absolute.

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