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AEROSPACE RECOMMENDED PRACTICE

ARP 841

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Revised

LEADS, FLEXIBLE, SHIELDED, HIGH ENERGY IGNITION

1. SCOPE AND CLASSIFICATION

1.1 Scope - This specification establishes the requirements for shielded, high energy ignition leads for gas turbine engines.

1.2 Classification - The leads shall be of the following classification for use in the stipulated temperature and voltage ranges:

Temperature Ranges

GRADE A 250 F to -35 F
GRADE B 450 F to -65 F
GRADE C 600 F to -65 F
GRADE D 1000 F to -65 F
GRADE E 1500 F to -65 F

Voltage Ranges

CLASS I 5 kv Max (Low Voltage)
CLASS II 10 kv Max (Grade D & E only)
CLASS III 15 kv Max
CLASS IV 20 kv Max
CLASS V 40 kv Max

2. ASSOCIATED SPECIFICATIONS

ARP 670 Terminals, Aircraft Ignition
MS 33586 Metals - Definition of Dissimilar

3. REQUIREMENTS

3.1 Materials - Materials shall be of the best quality and of the lightest practicable weight suitable for the purpose intended. Connector materials shall be electrically compatible with connector material of the mating unit.

3.1.1 Metals - All metals used in the shielded high energy ignition leads shall be of corrosion resistant type or shall be suitably protected to resist corrosion during normal service life. These metals and joints shall be adequate for the temperatures encountered from the particular classification. Terminal connector material shall be electrically compatible with connector material at the mating unit.

3.1.1.1 Dissimilar Metals - Unless suitably protected from electrolytic corrosion, dissimilar metals shall not be used in intimate contact with each other. Dissimilar metals are defined in Drawing MS 33586.

3.1.2 Plastics - All plastic materials used in the shielded high energy ignition leads shall be oil, hydraulic fluid, fuel, age, and weather resistant and must be adequate for the temperatures encountered for the particular classification unless suitably protected. Detail specifications for applicable fluids shall be as provided by the engine manufacturers.

3.1.3 Cable - The cable shall be of suitable grade adequate for the temperatures encountered for the particular classification and shall conform to the requirement of the detailed specification.

3.1.4 Miscellaneous Insulation - All insulating materials shall be adequate for the particular lead classification.

3.2 Design - The shielded high energy leads shall provide satisfactory radio interference suppression according to applicable specification requirement and mechanical protection to the enclosed cable.

3.2.1 Construction - The shielded high energy leads shall be constructed of flexible braided conduit or other suitable construction according to the detail specification. Ferrules, coupling nuts, and elbows shall be provided according to the detail requirements.

3.2.2 Terminal Connectors - The leads shall be provided with terminal connectors conforming to ARP 670 unless otherwise specified to maintain electrical continuity, provide a pressure seal at the terminal well, permit ease of installation and removal, and shall conform to the particular grade classification. The mating material should be designed and selected as to prevent seizure or welding in the normal application.

3.3 Marking - Each lead shall be durably and legibly marked at a location and with information as specified on the detailed drawing.

3.4 Workmanship - All details of workmanship shall be in accordance with high grade practice suitable for aircraft ignition components.

3.5 Performance - Leads shall satisfy the requirements specified in paragraph 4.

4. INSPECTION AND QUALIFICATION TESTS

4.1 Test Classifications - The inspection and testing of shielded high energy ignition leads shall be classified as follow: