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AEROSPACE STANDARD

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SPARK PLUGS, AIRCRAFT ENGINE

THIS REVISION CONTAINS ONLY EDITORIAL CHANGES

1. SCOPE: This specification covers reciprocating engine shielded and unshielded spark plugs.
2. CLASSIFICATION: Spark plugs covered by this specification shall be of the following type and sizes, as specified:

14MM

1/2" Reach British Whitworth Thread Barrel
1/2" Reach 5/8"-24 Thread Barrel
3/8" Reach 5/8"-24 Thread Barrel

18MM

13/16" Reach 5/8"-24 Thread Barrel
13/16" Reach 3/4"-20 Thread Barrel
1/2" Reach 5/8"-24 Thread Barrel
1/2" Reach 3/4"-20 Thread Barrel
1/2" Reach Unshielded

3. APPLICABLE DOCUMENTS:

- 3.1 The following documents shall form a part of this specification to the extent specified herein. The applicable issue of each shall be that in effect on the date of the Aerospace Standard unless otherwise agreed between manufacturer and purchaser. Supplementary specifications, standards, etc., which by reference in any of the following publications are indicated to be part thereof, shall not be considered as effective except as specifically stated in the manufacturer's detail specification or as may be otherwise mutually agreed upon between the manufacturer and the purchaser.

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Drawings

AS 368 Spark Plug Thread Form Data
ARP 590 Spark Plug - Aircraft Reciprocating Engine
AS 678 Gasket - Folded Steel Spark Plug
AN 4027 Gasket - Spark Plug
AND 10219 Spark Plug - 14MM British Type Shielded

Specifications

MIL-F-5572 Gasoline Aviation, Grades 80/87, 91/96, 100/130, 115/145
MIL-C-6529 Compound - Aircraft Engine Corrosion Preventive
MIL-E-25111 Engines - Aircraft - Reciprocating - Qualification Tests for

4. REQUIREMENTS:

- 4.1 Strength: The spark plug shall be capable of withstanding an installation torque of 75 foot-pounds for 18MM spark plugs and 55 foot-pounds for 14MM spark plugs without permanent distortion or development of gas leakage in excess of that allowed in Paragraph 5.2.6. For this test, the threads shall be lubricated with Corrosion Preventive Compound, MIL-C-6529 Type III.
- 4.2 Gap Design and Setting: The gap between the electrodes of the spark plug shall be as specified by the procuring agency. The gap shall not contract or expand sufficiently at maximum engine operating temperature to interfere with engine operation. The design of the gap shall be such that electrodes can be reset when the gap becomes too wide for satisfactory operation. Electrode design shall be such that spark plugs can be satisfactorily cleaned and serviced.
- 4.3 Interchangeability: All removable parts of spark plugs of the same type and model shall be interchangeable with corresponding parts furnished by the same vendor.
- 4.4 Screw Threads: All threaded connections used in the construction of spark plugs except internal threads shall conform to screw thread standards listed in the latest issue of AS 368 and the requirements of the applicable drawing.
- 4.5 Lubrication - Threads: Unless otherwise specified, a thin coating of corrosion preventive compound conforming to Specification MIL-C-6529, Type III, shall be applied to the threads of each spark plug before shipment.
- 4.6 Packaging: Spark Plugs shall be so packed as to insure that no damage will accrue to the spark plug threads or internal parts during shipment.
- 4.7 Gasket: Unless otherwise specified, each spark plug shall be furnished with a solid copper gasket of the appropriate size as listed in AN 4027 drawing. When specified, each 18MM spark plug shall be furnished with a gasket conforming to AS 678.

4.8 Markings: Each spark plug shall be permanently and legibly marked to contain the following information:

Manufacturer's Name
Manufacturer's Type Designation
and Latest Change Letter
Date Code Indicating Date of Manufacture

4.8.1 Markings may appear on either the shielding barrel or shell hexagon of shielded plugs and on the Ø insulator, shell or shell hexagon of unshielded plugs, or packaging identification (of gap setting only).

4.9 Dimensions: Spark plugs shall be in accordance with the dimensions shown on the applicable drawings unless otherwise specified.

4.10 Performance Limits: The design of the spark plug shall be such that operation at temperatures up to those producing preignition and after firing shall be possible without material or structural failure for a period of time equal to that required during the prescribed heat rating test.

5. QUALIFICATION TESTS: These tests shall be conducted by or at the direction of the purchaser unless otherwise agreed upon between the purchaser and the manufacturer.

5.1 Samples: Samples for qualification test shall consist of three complete sets of plugs for the engines in which the manufacturer desires qualification.

5.2 Tests:

5.2.1 Examination of Product: Each spark plug shall be carefully examined externally to determine conformance with this specification with respect to material, workmanship and general requirements.

5.2.2 Resistor Test: Each spark plug shall be checked for stability of internal resistance and/or contact by measurement of the center wire resistance by the use of a low voltage ohmmeter (8 volts or less). Center wire resistance values of any spark plug which has been subjected to engine operation shall be within the limits of plus 100% or minus 50% of the values listed by the spark plug manufacturer. Any spark plug showing a resistance value outside of the above-specified limits must pass a reference test utilizing a 1000-volt megger ohmmeter. The above limits shall apply for the referee test.

5.2.3 Electrical Test of Insulator: Each spark plug insulator shall be tested before assembly for electrical breakdown at a voltage of not less than 15 KV peak. The voltage shall be impressed so that the entire periphery of the ceramic is subjected to the electrical potential.

5.2.4 Electrical Testing of Shielding Barrel Insulators - Two-Piece Insulator Only: Each insulator used in the shielding barrel of a shielded plug shall be tested before assembly in accordance with Insulator Test 5.2.3.