



AEROSPACE STANDARD

AS 803

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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Issued 12-15-66

Revised

IGNITER, SPARK, AERONAUTICAL ENGINE (LOW TENSION)1. SCOPE

- 1.1 Scope - This specification establishes the qualification and acceptance limits for aeronautical engine low tension spark igniters.

- 1.2 Classification - Spark igniters of the following gap types and outline configurations are covered by this standard:

Outline Configurations

Class A - Flange mounting

Class B - Threaded mounting

Gap Types

Type I - Surface gap - shunted

2. APPLICABLE DOCUMENTS - The following SAE documents of the issue in effect on the date of qualification form a part of this specification:

SAE Aerospace Standards

AS 341 Nomenclature for Aircraft Engine Parts

AS 422 Spark Igniter Outline, Right Angle Flange Mounting

AS 423 Spark Igniter Outline, Flange Mounting

AS 453 Gasket

SAE Aerospace Recommended Practices

ARP 424 Spark Igniter Outline, Threaded Mounting

ARP 475 Gasket - Spark Igniter

ARP 484 Nomenclature for Spark Igniters

ARP 670 Terminal Standards

3. REQUIREMENTS

- 3.1 Materials - Materials which are not described herein shall be of the best aeronautical quality, electrically compatible, and suitable for the purpose intended.
- 3.2 Design - This document specifically covers the performance qualification and acceptance limits for aeronautical engine low tension spark igniters. Design details shall conform where practicable to SAE Aerospace Standards and Aerospace Recommended Practices.
- 3.3 Gasket - When specified by the purchaser, a gasket shall be furnished with each igniter. The purchaser shall also specify the material and construction. Dimensionally, the gasket shall be in accordance with SAE AS 453 or ARP 475 as applicable, unless specified otherwise by the purchaser.

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AS 803

- 2 -

- 3.4 Performance - The spark igniter shall perform satisfactorily when subjected to the tests described in this specification.
- 3.5 Identification - Each spark igniter shall be permanently and legibly marked with the following information:
- (a) The manufacturer's name, model number and applicable change letter shall appear around the circumference of the shielding barrel or shell, or on two faces of the wrenching hex, or on the mounting flange as designated on the applicable drawing.
 - (b) A manufacturing date code or batch designation shall appear near the above identification. The manufacturer may establish his own dating code when mutually agreed upon by the purchaser.
- 3.5.1 Special Identification - Similar Appearing, Non-Interchangeable Spark Igniters - When it is physically possible to install the spark igniter in an engine model other than the engine model in which the spark igniter is or will be qualified for use, the purchaser may require that an apparent physical difference from other similar appearing spark igniter models be provided in that area of the spark igniter which is external to the engine and accessible for visual inspection as installed. Such special identification may consist of, for example, color coding, knurling, ribbing, banding, etc., and shall be mutually agreed upon by the manufacturer and purchaser.
4. QUALIFICATION
- 4.1 Classification of Tests - The inspection and testing of spark igniters shall be classified as follows:
- (a) Qualification Tests - Qualification tests are those accomplished on samples submitted for qualification as a satisfactory product.
 - (b) Inspection Tests - Inspection tests are those tests accomplished on spark igniters manufactured and submitted for acceptance under contract.
- 4.2 Qualification Tests - Qualification of a spark igniter shall consist of laboratory (bench) tests and engine tests.
- 4.2.1 Laboratory Tests - The laboratory tests may be conducted by the manufacturer and witnessed by the purchaser at the latter's option. Or the purchaser may optionally conduct the laboratory tests within his own facilities. Tests may alternatively be conducted by a testing agency mutually agreed upon by the manufacturer and the purchaser. At least ten (10) spark igniters of the qualifying type shall be submitted to the following tests as described under "Test Methods," paragraph 4.4:

- (a) Examination of product
- (b) Gas leakage
- (c) Spark igniter gap breakdown voltage

- 4.2.1.1 Bench Testing - In addition to the above, bench testing or evidence of satisfactory endurance operation may, at the discretion of the purchaser, be required. When required, the type and extent of bench testing shall be specified by the purchaser.

4.2.2 Engine Tests

- 4.2.2.1 Ground Tests - Following the laboratory tests, four or more sample spark igniters shall be used to accumulate a minimum of 1000 hours of engine operation. No individual spark igniter shall be operated fewer hours than are required in the endurance portion of the engine qualification specification. The accumulated engine time shall include at least one endurance test as specified in the engine qualification specification. The 1000 hour requirement shall not be applicable for qualification in engines not subject to the 150 hour qualification test requirement. Instead, successful operation