SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 2607E

Issued JAN 1942
Revised JUL 1991
Cancelled FEB 2004

Superseding AMS 2607D

Pressure Testing
100 psi

CANCELLATION NOTICE

This specification has been declared “CANCELLED” by the Aerospace Materials Division, SAE, as of February, 2004, and has been superseded by AMS 2610 using a test pressure of 100 to 110 psi. The requirements of the latest issue of AMS 2610 using a test pressure of 100 to 110 psi shall be fulfilled whenever reference is made to the cancelled AMS 2607. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications noting that it is superseded by AMS 2610 using a test pressure of 100 to 110 psi.

Cancelled specifications are available from SAE.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

1. SCOPE:

This specification provides requirements and procedures for air-pressure leak testing of parts.

1.1 MAM 2607 is the metric version of this AMS.

2. APPLICABLE DOCUMENTS:

Not applicable.

3. TECHNICAL REQUIREMENTS:

3.1 Equipment:

3.1.1 Fixtures: Test fixtures shall not seal off areas of possible leakage or create stresses on parts other than those induced by the pressure itself or by fittings acceptable to purchaser.

3.1.2 Gaskets: Suitable gasket material shall be used with plugs or blanking plates to prevent damage to finished surfaces. Flanges or fittings designed for use with specific O-rings or gaskets shall use those for test. Formed-in-place gaskets that could mask dimensional or surface flaws shall not be used except for raw castings.

3.1.3 Valves: Bleeder valves shall be provided to release entrapped air.

3.1.4 Gauges: Pressure gauges shall have dial divisions not more than 5 psi apart; gauges shall have been calibrated, within one year of use, using either primary standards or standards traceable to the National Institute of Standards.

3.1.5 Test Media Source: The source of test media shall provide the required pressure and shall be equipped with a pressure regulator to control the pressure.

3.1.6 Safety Tank or Screen: A suitable tank or screen shall be provided to protect the operator in case of failure of a part. (See 8.2).

3.1.7 Drying Oven: A circulating-air oven is required for drying parts subject to corrosion.

3.2 Test Media:

Shall be compressed air, nitrogen, or inert gas for applying internal pressure to the part. In addition, a tank of tap water or other transparent liquid shall be provided for parts tested by immersion; liquid soap or commercial leak detector solution shall be used on parts not immersed during test.

3.3 Preparation:

3.3.1 Cleaning: The part shall be thoroughly cleaned before testing so that any leaks will be visible. Loose particles, machine shop chips, oils, inspection fluids, and other foreign materials shall be removed before pressure testing.

3.3.2 Processes: The part shall be tested following all machining, forming, straightening, welding, brazing, etc, and prior to application of protective finishes such as paint, plating, coating, or surface finishes that may mask or blank off areas of possible leakage.

3.3.3 Impregnation: Impregnation of castings shall not be permitted except as authorized by purchaser and then only to correct general seepage leaks. Impregnation shall not be used to correct poor foundry techniques, visible holes, or excessive porosity. Impregnation, when permitted or authorized by purchaser, shall be conducted after all heat treatment, brazing, and welding have been completed.

3.3.4 Preliminary Tests: Tests may be performed at any stage of manufacture in order to establish in-process integrity. However, leak rate requirements apply to finished parts prior to finish coating (See 3.3.2).

3.3.5 Material Removal: Grit blasting, pickling, or any other operation which may remove metal from surfaces shall be done before final pressure tests.

3.4 Procedure:

All parts to be tested shall be fitted up for test and, while subjected internally to a pressure of 100 - 110 psi, shall be submerged in tap water or other transparent liquid, or shall have the surfaces to be tested completely coated with liquid soap or leak detecting fluid.

3.4.1 Duration: Parts shall be held under pressure for not less than 3 minutes to allow leakage indications to develop prior to visual inspection.

3.4.2 Cleaning: Parts shall be cleaned and dried, immediately after test, to prevent corrosion due to entrapment of moisture. Visible moisture shall be removed by air blast. Parts containing areas of entrapment and all magnesium parts shall be dried in a circulating-air oven at a temperature not exceeding 250°F for sufficient time not ensure complete removal of moisture.

3.4.3 Orientation: The part shall be exposed to permit overall visual inspection during static pressure application.

3.5 Acceptance Standards:

3.5.1 Parts which do not show visible signs of leakage under pressure, which meet a drawing specification, or which meet other purchaser designated leakage limit are acceptable.

3.5.2 The effect of any leakage of parts other than in 3.5.1 shall be reviewed by cognizant personnel and parts repaired and retested, or rejected.

3.5.3 Slight leakage from a casting or forging appearing in a line, as if indicating a crack or a cold shut, is not acceptable.

3.5.4 Magnesium alloy castings which leak in a 2-inch diameter area more than 25 drops of test fluid per minute or more than 220 mL of air per minute are not acceptable but those castings that leak less may be impregnated when so specified and the method to be used is approved by purchaser.

3.5.4.1 Those sections of magnesium alloy castings, impregnated or not, which leak in a 2-inch diameter area less than 5 drops of test fluid per minute or less than 50 mL of air per minute are acceptable unless the leakage is into the induction system of parts or through an external surface, in which case leakage is not desirable but is acceptable to the extent of 0.1 mL of air per minute in a 2-inch diameter area.

3.6 Marking:

When specified, each part that has passed the pressure test shall be marked with permanent ink, adjacent to other part markings, with the letter “L” unless other marking instructions are provided by purchaser.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Reports:

The pressure test vendor shall furnish with each shipment a report stating that the parts have been tested in accordance with requirements of this specification and that they conform to the technical requirements. This report shall include the purchase order number, AMS 2607E, test pressure, part number, and quantity.

5. PREPARATION FOR DELIVERY:

5.1 Preservation:

Parts which are subject to corrosion shall be suitably preserved prior to shipment.

6. ACKNOWLEDGMENT:

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS:

Parts that do not meet the requirements of this specification, or modifications authorized by purchaser, will be subject to rejection.