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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

MAM 2625A

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Superseding MAM 2625

PRESSURE TESTING, HYDRAULIC 17,500 kPa

1. SCOPE: This specification provides requirements and procedures for hydraulic-pressure leak testing of parts. AMS 2625, specified in inch/pound units, is the equivalent of this MAM.

2. APPLICABLE DOCUMENTS: None.

3. TECHNICAL REQUIREMENTS:

3.1 Equipment:

3.1.1 Fixtures: Test fixtures shall not seal off areas of possible leakage or create excessive stresses on parts.

3.1.2 Gaskets: Suitable gasket material shall be used with plugs or blanking plates to prevent damage to finished surfaces.

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

3.1.4 Gauges: Pressure gauges shall have sufficient dial divisions to permit monitoring of pressure specified.

3.1.5 Safety Tank or Screen: A suitable tank or screen shall be provided to protect the operator in case of failure of a part.

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

3.2 Test Media: Either water, hydraulic fluids, or suitable petroleum-base test fluids shall be used.

3.3 Preparation:

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

3.3.2 Processes: The part or subassembly shall be tested following all machining, forming, straightening, welding, brazing, anodizing, 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 Preliminary Tests: Tests may be performed at any stage of manufacture in order to establish inprocess integrity.

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

3.4 Procedure: Parts shall be fitted up for test, surfaces opposite those under pressure shall be dried, and part or passage shall be filled with water or other suitable liquid. After all air has been expelled from internal passages under test, pressure of 17,500 kPa ± 1000 shall be applied to the fluid and maintained for sufficient time to establish the rate of leakage.

3.4.1 Duration: Parts shall be held under the specified pressure for not less than 3 minutes to permit complete visual inspection while at the specified pressure.

3.4.2 Entrapped Air: Care shall be exercised that no air or other gas is trapped in the part being tested or any of the feeder lines associated with the testing fixture. Bleeders shall be provided to release entrapped air or gas so the entire part volume is filled with liquid.

3.4.3 Cleaning: Parts which have been tested with water or hydraulic fluid 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 120°C ± 15 for at least one hour.

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

3.5 Acceptance Standards:

3.5.1 Leakage: If leakage occurs at the 17,500 kPa pressure, a retest shall be made using 7,000 kPa. The effect of leakage at 17,500 kPa which does not reappear at 7,000 kPa shall be considered by cognizant personnel and the parts accepted, repaired, or rejected.

3.5.2 Distortion: Parts that show no indication of having been weakened or abnormally distorted and which do not leak under pressure beyond the leakage limits specified are acceptable.