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AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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AMS 7283A

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GASKETS, TYPE XX ENGINE ACCESSORY DRIVE Corrosion Resistant Steel Screen Reinforced Controlled Performance

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** Primarily for use between propeller controls and aircraft power plant control mounting pads.
3. **MATERIAL AND FABRICATION:** Gasket shall consist of screen made of corrosion resistant steel wire of 18Cr - 8Ni type firmly bonded between two thicknesses of rubberlike gasket material.

4. **TECHNICAL REQUIREMENTS:**

4.1 **General:**

- 4.1.1 **Corrosion:** Gaskets shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.
- 4.1.2 **Removability:** Gaskets shall be removable from an assembly without delamination due to excessive sticking.
- 4.2 **Properties:** Unless otherwise specified, gaskets shall conform to the following requirements; tests shall be performed on the gaskets in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable.

4.2.1 **As Received:**

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|---------|--|---|------------|
| 4.2.1.1 | Compressibility, %, max | 25 | See Note 1 |
| 4.2.1.2 | Compression Set, %, max | 15 | See Note 1 |
| 4.2.1.3 | Adhesion between components, lb per in., min | 8 | See Note 2 |
| 4.2.1.4 | Leakage | No perceptible accumulation of oil at the periphery and not more than 1 drop per min. leakage from any internal opening | See Note 3 |

4.2.2 **Lubricating Oil Resistance:** (Immediate Deteriorated Properties)

ASTM D471
Medium: ASTM Oil No. 1
Temperature: 100 C $\pm$ 1
(212 F $\pm$ 1.8)
Time: 70 hr

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| Ø 4.2.2.1 | Thickness Change, % | 0 to +10 |
| 4.2.2.2 | Compressibility, %, max | 25 |
| 4.2.2.3 | Compression Set, %, max | 20 |
| 4.2.2.4 | Decomposition | None |

4.2.2.5	Surface Tackiness	None	
4.2.2.6	Adhesion between components, lb per in., min	6	
4.2.2.7	Leakage	No perceptible accumulation of oil at the periphery and not more than 1 drop per min. leakage from any internal opening	
4.2.3	<u>Non-Aromatic Fuel Resistance:</u> (Immediate Deteriorated Properties)		ASTM D471 Medium: ASTM Ref. Fuel A Temperature: 20 - 30 C (68 - 86 F) Time: 5 hr
Ø 4.2.3.1	Thickness Change, %	0 to +15	
4.2.3.2	Compressibility, %, max	30	
4.2.3.3	Compression Set, %, max	20	
4.2.3.4	Leakage	No perceptible accumulation of oil at the periphery and not more than 1 drop per min. leakage from any internal opening	
4.2.4	<u>Water Resistance:</u> Ø (Immediate Deteriorated Properties)		ASTM D471 Medium: Distilled Water Temperature: 20 - 30 C (68 - 86 F) Time: 24 hr
Ø 4.2.4.1	Thickness Change, %	0 to +15	
4.2.5	<u>Dry Heat Resistance:</u> (Properties 10 - 15 min. after removal)		ASTM D573 Temperature: 100 C $\pm$ 1 (212 F $\pm$ 1.8) Time: 70 hr
4.2.5.1	Compressibility, %, max	20	
4.2.5.2	Compression Set, %, max	10	
4.2.5.3	Leakage	No perceptible accumulation of oil at the periphery and not more than 1 drop per min. leakage from any internal opening	

Note 1. Compressibility and Compression Set: Cut specimens 1/2 in. in diameter, or other shape of equivalent area provided width is not less than 1/4 in. at any point, from flat gasket areas containing no beads, ridges, or holes. Measure thickness of specimens accurately. Subject each specimen to load of 500 kg for 2 min. in a standard compression testing machine using a 1.00 in. diameter flat steel disc or plate for compressing specimen, and measure thickness while still under load. Remove load, allow specimen to stand for 10 min., and again measure thickness. Compressibility shall be calculated as the difference, in percentage, between the original thickness and the thickness measured under load. Compression set shall be calculated as the difference, in percentage, between the original thickness and the thickness 10 min. after removal of the 500 kg load.

Note 2. Adhesion: Test in accordance with ASTM D413, using specimens 1/2 in. wide cut from gaskets and containing no holes.

Note 3. Leakage: Use full size gaskets as specimens. Before installing in test fixture, flex gasket by wrapping around a 1.00 in. diameter rod, first with longitudinal axis of gasket parallel to axis of rod and then with transverse axis of gasket parallel to axis of rod. Repeat flexing, using opposite face of gasket in contact with rod. Clamp gasket in a fixture consisting of two flat, rigid plates, conforming to the shape of the gasket and provided with the necessary fittings and a source of aircraft engine lubricating oil at room temperature, so that a load of $15,000 \text{ lb} \pm 2000$ is uniformly distributed over the entire gasket area. Subject gaskets to the following conditions for 15 minutes:

- (a) 800 psi oil pressure from the two oil delivery holes to adjacent openings or free edges.
- (b) 300 psi oil pressure from screened opening and pressure outlet hole to adjacent openings or free edges.

4.3 Vibration Test: The gasket to be tested shall be mounted on a shake table having stud location and pilot bore conforming to AND20010. Fixture mounting studs shall be of low alloy steel heat treated to hardness of Rockwell C 26 - 32 or equivalent. A fixture having a base of the size and shape of the gasket with provision for mounting over the gasket and which will provide a total moment of $117 \text{ in.} \cdot \text{lb} \pm 1$ shall be mounted over the gasket and the attaching nuts on the mounting studs torqued to 125 - 140 pound-inches. (Fig. 1 shows a suitable fixture design.) Vibration at a frequency of 50 - 55 cps with base displacement of $0.125 \text{ in.} \pm 0.010$ shall be impressed, the plane of vibration being across the base of the fixture and at right angles to the length of the gasket. There shall be no failure of any of the mounting studs in less than 25 hr when test is conducted at room temperature; if failure occurs in less than 25 hr and studs have been used for previous tests, the test shall be repeated using new studs and new gasket from the same lot.

5. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from imperfections detrimental to performance of parts.

6. REPORTS: Unless otherwise specified, the vendor shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, specification number, part number, and quantity.

7. PACKAGING: Shall be accomplished in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted, and will be protected against damage from exposure to weather or any normal hazard.

8. APPROVAL:

8.1 To assure adequate performance characteristics, parts shall be approved by purchaser before parts for production use are supplied, unless such approval be waived. Results of tests on production parts shall be essentially equivalent to those on the approved sample.

8.2 Vendor shall use the same materials and manufacturing processes for production parts as for approved sample parts. If necessary to make any change in materials or processing which could unfavorably affect any characteristics of the parts, vendor shall obtain written permission from purchaser prior to incorporating such change.

9. REJECTIONS: Parts not conforming to this specification or to authorized modifications will be subject to rejection.