CORROSION RESISTANT SANDWICH GASKET

Description

AEROBOND™ antenna gaskets do not require special greases, corrosion inhibitors, or sealants of any kind and meet airline needs for a quick change, corrosion resistant, environmentally friendly gasket solution. Developed by Boeing, and manufactured by Kirkhill-TA under license, AEROBOND™ provides an electrically-conductive hermetic and fluid seal between the aircraft’s skin and surface mounted antennas, instrumentation and other externally-mounted devices.

The readers of Aerospace Engineering Magazine selected AEROBOND™ as one of the 10 best products of 1999. AEROBOND™ is a trademark of Kirkhill-TA.
Benefits

- Reduces labor time in the removal and replacement of surface mounted devices during heavy maintenance checks
- Eliminates lengthy and costly in-service delays for the replacement of surface mounted devices by eliminating all chemical surface treatments and sealants that require downtime for curing
- Prevents corrosion of the antenna/skin and instrument/skin interface as well as the attaching screws and nutplates by providing a hermetic seal
- Increases antenna performance by providing electrical continuity between the aircraft skin and antenna
- Eliminates static buildup since it does not harden and erode like aerodynamic sealants
- Environmentally safe

Uses

AEROBOND™ gaskets are used to provide an electrically-conductive, aerodynamic and fluid seal between the aircraft skin and surface-mounted antennas and instruments, including:

- Both flush-mount and recessed installations
- Pressurized and non-pressurized areas

Boeing tested AEROBOND™ gaskets for paint adhesion and found them to be suitable for installation prior to painting operations. AEROBOND™ gaskets are also suitable for use in a variety of other applications that require fluid sealing or a corrosion-resistant grounding interface of less than 2.5 milliohms resistance.

Configurations

Kirkhill-TA produces AEROBOND™ gaskets for use with most commercial and military aircraft antennas, and Kirkhill-TA will design and produce gaskets to meet your unique requirements. Please contact your Kirkhill-TA sales representative for more information.

Antenna Performance

Boeing selected a marker beacon antenna as a worst case scenario for extensive AEROBOND™ performance testing because of its high “Q” sensitivity, which makes it sensitive to de-tuning. Boeing’s tests indicate that AEROBOND™ meets the performance specifications of the antenna manufacturer when installed on an active marker beacon antenna. AEROBOND™ also has an extensive and successful flight test and service history on a wide variety of antennas and aircraft types: Fleet operators report that AEROBOND™ increases antenna performance.

Environmental and Other Properties
**SPASH RESISTANCE**  
Per DO-160C Section 11, Category F: MIL-H-5606, JP4, gasoline, MIL-G-5572, Skydrol (500B), Monsanto LD, MIL-E-9500, MIL-P-83800, CEE BEE 963, 5% saline, Jet A, MIL-L-23699, propylene glycol

**SAND AND DUST RESISTANCE**  
Per DO-160C Section 12, Category D

**CORROSION RESISTANCE**  
Per DO-160C Section 14, Category S; Salt fog test per MIL Std. 801D Method 509.2; Salt immersion test per MIL Std. 202

**TEMPERATURE RANGE**  
-54°C to 177°C (-65°F to 350°F)

**VIBRATION**  
Resistant to 14g

**ALTITUDE**  
18,287 m (60,000 ft)

**MATERIAL**  
Uncatalyzed fluorosilicone elastomer sandwiched between expanded aluminum mesh

**DENSITY**  
1.33 g/cm³ (.048 LB/in³)

**FASTENER TORQUE LOADING**  
Per antenna manufacturer’s recommendation for the antenna – usually 1 to 3 N•m (10 to 25 in•lb)

**WIND TUNNEL TEST**  
No migration of the fluorosilicone occurs in flight. Test performed at Mach 0.8 for 16 hours

**ALTITUDE IMMERSION TEST**  
Passes dielectric test when tested in accordance with MIL Std. 1344A, Method 1004.1

**PRESSURE TEST**  
Contains 207 kPa (30 psi) for 1 hour

**THERMAL TEST**  
Withstands 177°C (350°F) for 500 hours

**THERMAL SHOCK**  
Withstands half hour thermal cycles of -54°C to 177°C (-65°F to 350°F) for 80 cycles

**LIGHTENING STRIKE**  
Withstands 200,000 amps

**PAINT ADHESION**  
Aircraft skin can be painted once the antenna has been installed using the AEROBOND™ gasket with no adverse effect

**ELECTRICAL RESISTANCE**  
Less than 2.5 milliohms

**GALVANIC CORROSION**  
No sign of deterioration of mating surfaces when immersed in 5% saline solution at 25°C (77°F) with 28 volts DC at 100 milliamperes applied for 500 hours using a copper anode