



# THE CORROSION FIGHTER

AV-DEC'S PRODUCTS EXTEND AIRCRAFT LIFE BY PREVENTING CORROSION FROM OCCURRING.  
**BY JAMES CARELESS**  
**PHOTOS BY MASON WALLIS**

Aircraft are an expensive investment, whether you are buying a used Cessna 172 Skyhawk or a brand-new Bombardier Global 6000. So it only makes sense to extend this investment's lifespan—and avoid expensive mid-life repairs—by preventing corrosion in vulnerable areas. These include the antenna/airframe interfaces, aircraft structural areas, and wire harnesses and interconnects.

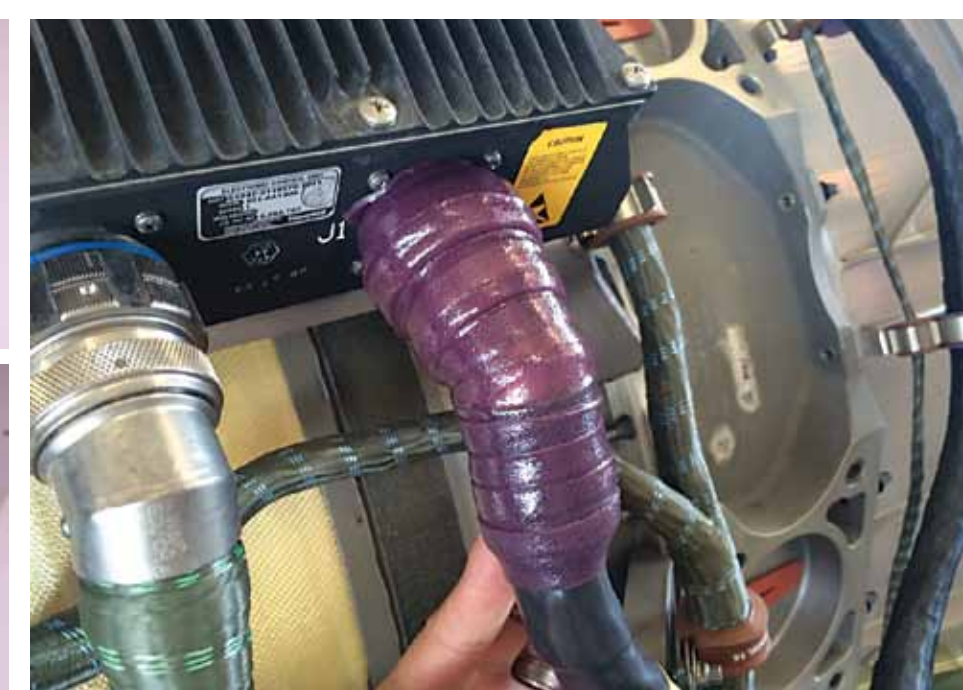
For the past 20 years, Av-DEC (Aviation Devices and Electronic Components) of Fort Worth, Texas, has been providing such anti-corrosion solutions to the commercial and military aviation sectors. Av-DEC does this through its range of non-hazardous polyurethane-based gaskets, tapes, and injectable sealants. They all prevent corrosion by blocking the chemical process that allows corrosion to occur. Building upon its record of success, Av-DEC is now bringing these same anti-corrosion products to business aircraft.

The logic behind Av-DEC's anti-corrosion solutions is solidly built upon science. "There are three things you need for galvanic corrosion to occur on an aircraft: A cathode, an anode, and an electrolyte," said Jon Jacobson from Av-DEC. "In this case, it is moisture that acts as the electrolyte making corrosion occur. If you can keep water from forming a chemical connection between the different metals used in the aircraft, galvanic corrosion can't happen." If corrosion does occur in an aircraft, the result is

weakened, structurally unsound metal. "When aluminum corrodes, it turns into dust," said Will Bogert from Av-DEC. "When this occurs at the antenna/airframe interface, your system can become inoperable or you can end up with a hole that compromises the airframe's strength, and possibly its ability to maintain pressurization as well, both which could lead to costly downtime with troubleshooting/repairs." Many of Av-DEC's employees are formally trained in corrosion prevention control programs (CPCPs), and are available to offer hands-on knowledge to customers. Av-DEC's polyurethane-based gaskets, wraps, and injectable gel can protect business aircraft from life-

threatening, aircraft-compromising, and investment-killing corrosion.

"There's two points that make our products superior to the competition," said Bogert. "First, our anti-corrosion products don't try to serve as adhesives as well as being moisture seals. They are electrolyte barriers first and foremost, doing one thing well instead of two things inadequately. Second, our materials are non-hazardous to the aircraft, unlike silicon-based sealants that can contaminate aircraft aluminum and electrical switches." Here is a closer look at Av-DEC's anti-corrosion products for business aircraft. All of them can be installed during aircraft manufacturing, or afterward



as retrofits. The flexible nature of these systems makes them easy to remove and reinstall during subsequent servicing. Gaskets: Av-DEC's HI-TAK Polyurethane Conductive Antenna Gasket has an aluminum carrier die cut to fit the antenna that also acts as an environmental sealant. Currently, Av-DEC produces over 1,000 different antenna gasket footprints. The company's HI-TAK Conductive Specialty Gasket provides an environmental seal and conductive bonding on applications such as fuel access panels and conductive bulkhead pass through connectors. These gaskets are engineered to provide a low electrical resistance path. The pre-cured nature of the gaskets eliminates sealant cure time. Tapes: Av-DEC's HI-TAK TufSeal, HI-TAK Tape, and StretchSeal tapes are pre-cured polyurethane

tape sealants designed to provide a moisture barrier between irregular surfaces such as floor beams, panels, and stringers. "These tapes are fast and easy to apply and remove, saving time during installation and servicing later on," said Jacobson. "This saves time and money spent on expensive corrosion repairs, and gets aircraft back into the air sooner." The HI-TAK tapes are available in multiple widths, gaskets, and can be tailored to the customer's application. Av-DEC's StretchSeal tape has a foam carrier designed for sealing and moisture-proofing around mated electrical connectors, coaxial connectors, and circumferential and irregular surfaces. Injectable Sealants: Av-DEC's Self-Leveling Green,

TufStuff, Thixoflex Orange, Thixoflex Gray, and Thixo Black injectable sealants provide easy access for repair long after the original application of the product. Self-Leveling Green and TufStuff are two-component polyurethane materials designed for use as environmental sealants. Green is best for flexible applications, such as sealing antenna bases, seat tracks and connectors, while TufStuff is designed for rigidity (e.g. in cargo bay tie-down areas). Thixoflex Orange and Gray are two-component urethane materials designed to be used as thixotropic sealants. They excel in vertical and overhead applications, grabbing hold without sagging or dripping. Av-DEC also manufactures a Thixoflex Black sealant which is UV-resistant and can be used for fillet seals, leading edges, lights, windscreens,

panels and many other applications. The Thixo Black has a cure time that is significantly shorter than many of the other commercially available sealants. "All of these injectables provide a high level of tack to most substrates that provide a moisture barrier, corrosion protection, and improved reliability, repair and scrap," said Bogert. "They are easy to apply and remove due to their low viscosity and cohesive properties, ensuring proper sealing with 100 percent surface contact." Collectively, Av-DEC's anti-corrosion gaskets, tapes, and injectable sealants bring commercial- and military-quality protection to today's business aircraft. "When you spend as much as you do on these corporate airframes, it only makes sense to protect them with Av-DEC products, as our commercial and military customers do," said Jacobson.

“When you spend as much as you do on these corporate airframes, it only makes sense to protect them with Av-DEC products.”

— Jon Jacobson

