

AVIATION WEEK

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Inerting System Issues Mean Opportunity For Suppliers

Suppliers pounce on Boeing 737 inerting-system failures



Several U.S. 737 operators have turned to repairs for faulty inerting system modules. Credit: Sean Broderick/AW&ST

The push to meet a sweeping FAA fuel tank system safety mandate, combined with reliability issues with first-generation systems introduced to meet the new requirements, is creating headaches for airlines and opportunity for suppliers.

The headaches are hitting Boeing 737 operators, which make up the bulk of the early adopters among those required to comply with the FAA's Fuel Tank Flammability Reduction (FTFR) rule. The rule, passed in 2008, called for new-produc-

tion versions of the affected models—737s, 747s, 757s, 767s, 777s, Airbus A300s/A310s, A320-family models, A330s and A340s—to have fuel tank inerting or flammability reduction systems installed starting in late December 2010. It also required airlines to retrofit half of their affected fleets with an approved system by 2015 and complete the rest by 2018. The phased compliance led operators to prioritize their largest subfleets to ensure they met the first deadline, putting 737s at the top of the list.

As industry strategized to meet the initial deadline, the biggest concern was whether the aircraft OEMs and suppliers would have systems certified and available. Boeing badly missed deadlines for providing service instructions on 747s and 757s, leading the FAA to propose fines (AW&ST Sept. 17, 2012, p. 25.) Airlines for America, citing delayed service instructions for five models as unfair handicaps, lobbied hard to move the interim deadline while arguing that aircraft-specific directives rendered the entire retrofit program unnecessary. The FAA held its ground; Airbus, Boeing and suppliers rallied; and affected operators hit their marks. The agency says only one extension was granted, to AeroMexico, for a few A320s.

Soon, however, some operators discovered they had a different, and potentially costly, worry. A key part of a widely used inerting system developed for 737s was failing after about half of its 20,000-25,000-hr. service life expectancy. The systems, developed by Honeywell and supplied to Boeing for new-build aircraft and operators for retrofits, were coming back with air separation module (ASM) faults. The ASMs are supplied by Parker-Hannifin, which also makes entire Nitrogen Generation Systems (NGS) for several models, including the A320 family.

Boeing, which warranties the systems on new aircraft, is “working with our customers to identify and replace affected units,” a spokesman says. “A new module is in the certification process and should be available in the first quarter of 2017.”

Replacing an out-of-warranty ASM can cost \$75,000, and they are failing often. One airline with 50 737s had to replace 20 ASMs in 2015, says Larry Britt, business development manager at AeroParts. Britt knows because his company leveraged its ozone converter repair experience to develop a fix for ASMs. AeroParts replaces the troublesome ASM part—the fiber membrane that serves as the heart of the filtering system—and returns the ASM to airworthy condition. The re-

pair has made fans of several major U.S. 737 operators, which send their out-of-warranty ASMs to AeroParts instead of buying new systems.

The first AeroParts-repaired ASM went into service in 2015, meaning it is still too early to have real-world validation that it will fare better than the Parker-made membrane. But AeroParts is confident enough to be developing offerings for several other models, including the 767, 777, A320 and A330.

Meanwhile, other suppliers are offering retrofit alternatives. Cobham, which has more than 30 years of experience supplying ASMs to the military and for Boeing’s 787, introduced an option for 737s in late 2015. The launch customer is an unnamed U.S. “mainline carrier,” a Cobham spokesman says.

AerSale has also entered the market with a different approach—an ignition mitigation system. Its AerSafe system installs a nonflammable material into a fuel tank that isolates available oxygen “into small cells,” the company explains. “In the event an ignition source is introduced inside a fuel tank with AerSafe installed, ignition is limited to a single cell of available oxygen, and a fire is immediately extinguished once the oxygen has been consumed.”

Seeing the complexity and expense of an inerting system retrofit, AerSale opted to explore an ignition-source reduction system. “Although compliance with the [FTR rule] was the primary goal, providing an economical solution with almost no maintenance or expensive spare parts to stock was a strong secondary goal, both of which have been satisfied by the installation of AerSafe,” the company says.

AerSafe’s launch customer is XTRA Airways, which has the system on a 737-800. The company’s supplemental type certificate (STC) covers the 737-600, -700 and -800, and an STC for the 737 Classic is in the works. AerSale says it also is looking at other models.