

How Mandated Upgrades Could Force Older Aircraft to Retire



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When an expert on older business jets warns that large numbers of aircraft are on a direct flight path to the scrapyard, it pays to take notice. Rohit Jaggi spoke with Sean Lynch, Engine Assurance Program...



Sean Lynch, program coordinator at US company Engine Assurance Program, reckons that out of a fleet of nearly 1,000 older business aircraft operating in North America, one-fifth will have to stop flying after the end of 2019.

Why? Because it's the deadline by which all aircraft operating in controlled airspace must be equipped with ADS-B Out avionics equipment.

This has, of course, been on the horizon for some time. But as recently as November last year less than one-third of aircraft had compliant equipment, according to figures from the US Federal Aviation Administration.

And as the deadline nears, the scale of the problem is becoming ever clearer. For one thing, even if all owners or operators of affected aircraft wanted to install compliant equipment there may not be the capacity at electronics shops to do the work.

The Impact of ADS-B

The rule, mandating avionics aimed at providing improved precision and reliability over radar, was formulated in 2010, so newer aircraft have tended to come with the relevant equipment already installed. But there are plenty of aircraft within North America's total of about 13,500 business jets that, while still perfectly serviceable, do not.

The largest fleets of specific aircraft affected, Lynch says, are the 341 Cessna Citation 500, I and ISP variants still operating in the US, the 298 Bombardier Learjet 35 and 35A aircraft, and the 76 Dassault Falcon 20-5 jets (along with smaller numbers of Falcon 10s). Also on his list are Westwinds, Beechjet 400s and Astras.

Installing the right equipment can easily cost \$150,000. For any aircraft with an airframe value under \$400,000, Lynch says, "if you combine ADS-B plus a collection of large airframe inspections, paint and interior, a substantial percentage will not make it through January 2020.

"I think it to be a safe assumption 20% will cease to operate after January 1, 2020. Some will migrate south, and some will go to the boneyard." The retirement will be "the largest the industry has ever seen," he adds.

Airworthiness Directive 2012-17-05

There's more, though. Another factor is standing by to create a perfect storm of factors that will cast some older business jets on to the scrap heap. There's a big job that needs to be done on some engines in this fleet that is so costly it risks pushing a number of those aircraft beyond economic repair.

The engines in question are Honeywell TFE731-4 and TFE731-5 turboprops that were fitted to Falcon 20-5 and 900B and 900C aircraft, Hawker 800As and 800XPs, and Citation VIIs.

The mandatory work is to comply with Airworthiness Directive 2012-17-05, to be completed by October 2, 2020 and involves the replacement of the first stage low-pressure turbine rotor assembly. The directive was issued in response to a reported failure, "to prevent uncontained disk separation, engine failure, and damage to the airplane."

The requirement has been around since 2012, so many aircraft have already complied. But the work costs about \$300,000 per engine, and some operators will have been waiting for a big scheduled inspection to avoid tearing down the engines twice.



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According to Lynch, some 1,400 engines have not yet complied with the directive, and if they are not enrolled on hourly engine maintenance programs the cost of the work to the owner could easily be so vast compared with the aircraft's value that there is little option left but to set a course for the breaker's yard.

Engine Maintenance Program Protection

That's why Lynch has been gathering all this information, of course. His company offers maintenance programs for powerplants such as the Honeywell engines that spread the cost of work and absorb some of nastiest financial shocks.

He figures that 20-30% of those 1,400 engines are not enrolled on a program. “By itself this will mean 200 airplanes get culled,” he predicts. “For any jets that are worth less than \$600,000 it will make less financial sense to bring it up to the current ADS-B requirement and have the engine work done,” he adds.

Add in some normal items like a 48-month inspection and items such as an interior refurbishment at \$100,000 and new paint at \$90,000 and “there comes a point when you stop putting money into keeping the aircraft flying.”

The directive could even catch a handful of Falcon 900Bs if they were to need ADS-B avionics, a gear overhaul, paint, new interior as well as the necessary work on their three engines, Lynch warns.

“We've already seen some high-pedigree 900Bs hit the boneyard in the last three years because they were not enrolled on an engine maintenance program and a lot of expensive items came along at the same time.”

Depreciating Aircraft Values

All of this comes at a delicate time for the business jet sector. For a decade the percentage of used aircraft up for sale has been falling, with less than 9% of the fleet for sale in January this year – a 20-year low.

A more typical historical average is 12% but in 2009, after the global financial crisis hit, the figure was nearer 20%. Moving forwards, industry experts expect a rise. “It's always a risk to call the high or low of any market,” says analyst Brian Foley of Brian Foley Associates, “but I feel we're at a bottom and used business jet inventory will begin edging upwards.”

And that will hit prices, which have already been declining for several years. Put that together with the ADS-B requirement and the engine directive, and it looks possible that some owners who have eschewed an engine maintenance program in the past could soon find basic economics turns their aerial carriages into airport ornaments, or worse...

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