



# GULFSTREAM GAINING GROUND ON NEXTGEN UPGRADES

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**With the 2020 FAA and EASA mandates for ADS-B out equipage rapidly approaching, aircraft manufacturers are busy developing service bulletin and supplemental type certificate (STC) upgrades to help customers meet the deadline. For Gulfstream Aerospace, most of its models now have a factory-provided upgrade path, except for the G115 and G115s, according to Jeff Gayon, director of technical sales and new business development.**

At the same time, many customers are opting for other NextGen upgrades such as future air navigation system (FANS), which includes controller-pilot datalink communications (CPDLC), and TCAS Change 7.1. The latter is required in Europe, and FANS is required over most North Atlantic airspace but includes the benefit of CPDLC, which in the U.S. now provides digital clearances (DCL) at a growing list of airports, including Teterboro. DCL delivers clearances digitally to the cockpit, eliminating the need for pilots to request and read back long clearances, which can be difficult at busy airports such as Teterboro.

For the most part, Gayon said, Gulfstream owners and operators aren't putting off NextGen upgrades, although the uptake has been more rapid with the large-cabin jets. As of February, the ADS-B out penetration rate for the G150 and G200 was just 5 and 2 percent, respectively. ADS-B out installations in large-cabin models averaged 68 percent. FANS installations reached 27 percent

of the large-cabin Gulfstreams, which includes the G650 at 100 percent and the GV fleet at just 2 percent.

ADS-B out for the G150 and G200 was certified about a year ago and “is just starting to pick up,” he said. The solution for those jets includes a Garmin GTX 3000 mode-S extended-squitter remote transponder paired with the GDL 88 ADS-B datalink, and this is far more cost-effective than a solution that would require an FMS upgrade and an upgraded Rockwell Collins transponder.

An advantage for G150 and G200 owners who pursue this route for ADS-B out compliance is that Gulfstream earlier this year received an STC to add ADS-B in capability to these ADS-B out-equipped jets. This STC adds Garmin’s Flightstream 210 data concentrator and Bluetooth transceiver, which sends ADS-B in traffic and weather information to mobile devices running the Garmin Pilot app or ForeFlight Mobile along with position information and AHRS data to drive the apps’ synthetic vision displays.

New G650s and G280s are NextGen-equipped from the factory, including Fans, ADS-B out and Tcas Change 7.1.

The challenge for a manufacturer with a large fleet of legacy airplanes still flying is to develop these NextGen upgrades in a way that preserves existing functionality while meeting mandates and facilitating new capabilities. “We try to be as efficient as we can,” said Gayon.

Third-party avionics shops have developed Fans solutions for GIVs and Vs, but these generally remove one of the three Honeywell FMSs and replace it with a Universal Avionics FMS. While that meets the requirements, Gayon pointed out, “it’s not integrated. There are a lot of things that get left out when you go to one of the standalone solutions. If they did the other solution, the only thing [operators] get is the communications side. Universal does an excellent job of that. But they don’t get integration. It’s only giving you left-right deviation, but no vertical and no performance information.”

This explains the price difference between third-party Fans solutions and Gulfstream’s offerings. “We worked hand-in-hand with Honeywell, Rockwell Collins and L-3 to do an integrated solution,” he said. “We spent three years on R&D and we spent about \$2 million. Here’s the beauty of this: the system acts the same way as in a G450/G550/G650. It’s the same prompt and the same messages in the [upgraded] GIV and GV. In 1986 the GIV was developed as a fully integrated business jet, [and] that’s what [operators] still want in 2016. Ours is fully integrated.”

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