



A clear view at

Farnborough, U.K.—The continued evolution of aviation safety tools on display at the recent Farnborough Air Show made clear where cockpit and system advances are going, but only when viewed close-up. Otherwise the bright glare from the glamour issues obscured the scene; this Farnborough most likely will be remembered for Airbus explaining its redefined A350, now called the A350XWB, and its A380 production holdups, while Boeing expressed confidence over its progress in building the first 787 Dreamliner and development of the new 747-8 iteration of the airplane that introduced the word “jumbo” into aircraft descriptions. And, of course, both manufacturers announced hundreds of new aircraft orders, reflecting the continued air traffic growth.

But it is in corporate aviation where many valuable safety innovations get their first civil use. At Farnborough, Gulfstream Aerospace said it would be the first to introduce synthetic vision (SV) into civil cockpits, offering a new Honeywell system beginning in mid-2007 as an optional upgrade to current operators of several Gulfstream models equipped with PlaneView digital cockpits, and for installation on the same models under construction.

Developed with help from the U.S. National Aeronautics and Space Administration, the SV three-dimensional depiction of the

surrounding terrain, obstacles and runways, including an extended centerline, will take the place of the brown and blue background on the primary flight display (PFD). Press Henne, Gulfstream senior vice-president, programs, engineering and test, said the SV-PFD “improves safety and situational awareness to show you where you are in terms of terrain and runways.” Standard head-up display (HUD) symbology will be used in the SV system, which is a software upgrade plus graphics processor, utilizing the terrain awareness and warning system terrain database.

Bob Smith, Honeywell’s vice-president, advanced technology engineering and technology, told ASW that there had been concern that pilots would start to fly “heads-down,” substituting the SV display for the real world. Addressing that issue “is a large part of what we’re going to do in certification; a lot of it is the role of training,” he said. The SV-PFD is selectable, he said, so pilots are able to return to the standard PFD look. Honeywell is looking at putting SV on the HUD, as well, and tying in displays from other warning systems, such as its Runway Awareness and Advisory System. “This is all about data fusion.”

Smith said, “Business aviation will lead” in using this new technology, with even the 787 lacking the advanced avionics found on the business jets of today, Smith said.



Photos: J.A. Donoghue

FARNBOROUGH

BY J.A. DONOGHUE

The first to certificate enhanced vision system (EVS) technology on a civil aircraft, in 2001, Gulfstream also announced at Farnborough a second generation Kollsman EVSII that will be certificated in the second quarter, 2007, to become standard equipment on G450 and G550 aircraft. Henne said the new system has a more powerful computer, is 22 lb lighter and offers improved visibility over the original model, which the U.S. Federal Aviation Administration has blessed by allowing EVS-equipped aircraft to approach to 100 ft with only EVS contact with the airport surface.

Separately, Honeywell also exhibited its RDR-4000, available either as a stand-alone box for “federated” cockpit designs with non-integrated systems or combined with Enhanced Ground Proximity Warning System, traffic-alert and collision avoidance system, Mode-S transponder and automatic dependent surveillance-broadcast (ADS-B) in a single box for integrated cockpits such as the A380, where it is called the Aircraft Environment Surveillance System. Boeing’s 787 uses the same box but with a different name. The RDR 4000 uses quick automatic scan patterns to paint a complete picture of the air ahead from the ground to 60,000 ft, providing a visual output in both overhead — looking down — and horizontal, side-view displays.

ADS-B technology was the topic of a discussion at the show featuring Marion Blakey, FAA administrator, and Karen Lee, director of operations for ADS-B pioneer UPS. Speaking in a forum sponsored by ACSS, which markets an ADS-B based airport-area aircraft alerting system called SafeRoute slated for mid-2007 certification, Blakey said ADS-B “essentially is the backbone of tomorrow’s next generation air traffic system ... a seismic shift from the old way of controlling aircraft.”

Lee noted that UPS uses a controlled descent approach with ADS-B spacing into its Louisville, Kentucky, U.S., hub so successfully that, if used across the UPS fleet, it would save one million gallons of fuel annually, plus reduce emissions below 3,000 ft by 34 percent. The UPS ADS-B test will spread to Philadelphia next, followed by Cologne, Lee said.

Blakey previously has said that while FAA continues to install ADS-B ground stations, a backup system must be selected by year end. Noting that Blakey had declared that it would take 10 years to decommission 125 radar stations thanks to the new system, Lee said radar would continue to be available as a backup for a decade or more. “There’s no sense of urgency to it. Let’s wait a little while and find a backup when the radars are being decommissioned.” ●

Gulfstream said the G550 (far left) and G450 next year will receive the new Honeywell synthetic vision system, selectable as the primary flight display background (second from far left). Aircraft at Farnborough included the Canadair CRJ900 (near left), Boeing’s 777-300ER and the Airbus A380 (above).