

Manufacturers Tout Safety in Cockpit

Corporate Jets More Likely to Adopt New Technologies, but Suppliers Step Up Efforts to Persuade Commercial Airlines.

By ANDY PASZTOR And PETER SANDERS

PARIS (WSJ) -Commercial jet manufacturers and airlines all emphasize a commitment to safety. But the most advanced safety devices often show up first in high-end business aircraft.

That disparity is on display at this week's Paris Air Show, the world-wide aerospace industry's largest gathering, as cockpit-equipment suppliers including Rockwell Collins Inc., Honeywell International Inc. and Thales SA not only tout the latest cockpit-safety technology available for corporate jets, but also step up efforts to persuade commercial carriers to install some of those new systems.

Honeywell, Rockwell and other cockpit suppliers are pushing 'synthetic vision' displays, like this one shown last year in Farnborough, England.

The biggest danger facing pilots-whether they are responsible for hundreds of passengers or a handful of corporate executives-is losing situational awareness in the air as well as on the ground. To combat such threats, avionics companies are pushing use of new sensors, graphical displays, computer-generated images and enhanced airport traffic maps to constantly inform pilots about their surroundings.

For instance, pilots of business jets and some airliners now have the ability, via advanced cockpit displays, to see accurate replicas of specific mountains, man-made obstacles and other terrain features, even if they are flying at night or if the potential hazards are obscured by clouds.

If an aircraft's cabin fails to pressurize properly and the cockpit crew doesn't react, a new failsafe system can grab control of the plane and automatically have it descend.

On the ground, cockpit-safety experts are devising mapping systems that enable pilots-without relying on air-traffic controllers-to know the precise position of their planes on the tarmac and to receive alerts about collision threats posed by other aircraft. Other systems are intended to warn cockpit crews if they are lining up to takeoff from the wrong runway, and to issue alerts if planes are approaching a strip too fast or will land too far down to stop safely.

Business jets, and their owners, are natural first-adopters of these technologies because investing several hundred thousand dollars extra on a single cockpit enhancement seems like a small dent when a company or well-heeled owner already is spending \$50 million or so for a plush, long-range jet. Business jet owners also tend to trade up for new models relatively frequently.

"Innovation has come from business aviation in part because on average, owners replace their jets every four to five years, while commercial jets turn over every 12 to 15 years," said Steve Ridolfi, president of Bombardier Inc.'s business aircraft unit.

Also, business jet pilots fly more often into airports in out-of-the-way places, surrounded by challenging terrain, or featuring tough instrument-approach conditions. Some of the airports in remote locations may also have limited ground navigation devices.

U.S. airlines, just now recovering from a bruising decade of losses and mergers which helped cull their airplane fleets, generally have been leery of major capital expenditures even though much of this technology is readily available. Many carriers remain financially weak and are facing the uncertainty of volatile oil prices, so they tend to put off upgrades to their existing fleets.

Beyond that, many airline pilots fly regular routes without particular hazards or incidents. U.S. carriers in recent years notched the best safety record in history, further dulling the incentive to spend on pricey safety options.

Still, a group of large U.S. and foreign carriers already has installed software upgrades to help pilots avoid tarmac confusion or unstable approaches that can result in planes rolling off the ends of runways.

With a crop of new commercial models on the horizon and a resurgence of air traffic world-wide, suppliers such as Honeywell and Rockwell Collins are redoubling efforts to transition more safety devices and systems to airliners. "We may develop technology on a business jet and try to move it quickly to airliner models," says Carl Esposito, a top marketing executive at Honeywell's aerospace unit in Phoenix. The parent company, based in Morris Township, N.J., is focused on developing core software that can be shifted, with relatively few alterations, between different aircraft models.

Rockwell Collins, based in Cedar Rapids, Iowa, has already made inroads with Canadian plane-maker Bombardier by bundling the latest cockpit design into a package that will be featured on Bombardier's next-generation business jets, as well as its new CSeries family of commercial airplanes.

Beginning with Bombardier's Learjet 85, a small business aircraft designed to seat 10 passengers, Rockwell's "Global Vision" flight deck also will be standard on the same manufacturer's largest, long-range Global Express models.

Featuring four high-resolution, 15-inch cockpit displays, pilots using the Rockwell system also will have a so-called Heads Up Display, essentially a fifth computer screen at eye level displaying information about speed, altitude and location. The system will include "synthetic vision" integrated into these windshield displays, so pilots at one glance will also get overlays of computer-generated images of the surrounding terrain.

Bombardier's Mr. Ridolfi says the same system will be adapted to the new C-Series airliner, expected to enter service in 2013.

Eager to increase capacity at congested airports, airlines such as USAirways Group Inc. are experimenting with systems that, in effect, would permit pilots to continue to visually keep track of planes in front of them even when clouds temporarily obscure sight of the aircraft ahead. This allows planes to follow each other more closely than if they were relying entirely on instruments. At the same time, carriers including Alaska Air Group Inc. and Southwest Airlines Co. are pushing to phase in the use of more sophisticated satellite navigation aids to assist planes as they approach the airport, an effort that will depend on many of the built-in features now standard on business jets.