

BUSINESS & GENERAL AVIATION

Global XRS debuts at Farnborough

This week marks the Farnborough debut for Bombardier's ultra-long range Global XRS. With a range of 6,150nm (11,400km) at Mach 0.85, the XRS has a fuel capacity increase of nearly 1,500lb (680kg) over the Global Express. It also comes with an improved cockpit, pressurisation and take-off performance.

The flightdeck incorporates the new Bombardier Enhanced Vision System (BEVS) as standard equipment, and the cabin is pressurised to a maximum altitude of 5,680ft (1,700m) at FL510. Passengers have more outside visibility and luggage space.

Earlier this year the 200th XRS rolled off the company's Toronto assembly line,

another part of a success story, which has seen the worldwide Global fleet accumulate more than 250,000 flight hours.

On 30 June, Bill McClintock of General Electric Corporate Air Transport became the 1,000th pilot to receive a type rating on a Bombardier Global aircraft. Bombardier launched the three-week Global aircraft pilot training programme in 1999 and includes initial training for two pilots with the purchase of a Global aircraft.

Recently, Bombardier's smaller Learjet family reached two major milestones with the Learjet 45 and the Learjet 60 have reaching 300 sales each.



Gulfstream brings fly-by-wire to business jet programme

Gulfstream is looking at adding fly-by-wire technology to its Advanced Flight Controls (AFC) proof-of-concept research programme.

Speaking at a press conference at Farnborough yesterday Gulfstream's Pres Henne, senior vice-president, programmes, engineering and test, unveiled the company's potential plans for its six business jets.

The G150, G200, G350, G450, G500 and G550 all feature conventional mechanical linkages to hydro-mechanical-powered actuators that control movement of the spoilers, ailerons, flaps, rudder and eleva-

tors. Fly-by-wire technology uses electronically controlled actuators to move the same flight control surfaces and is increasingly becoming a must-have feature on executive aircraft.

Last year the Dassault Falcon 7X became the first business jet with fly-by-wire controls.

Fly-by-wire uses computers and electrical linkages to save weight and improve reliability. It also increases flight safety by installing electrical circuits between the pilot and aircraft. Electronic fly-by-wire systems tailor flight control surface movements so that aircraft response to control inputs is rapid and consistent. They can, for

example, anticipate and prevent a stall.

"Now that fly-by-wire is a mature technology and understood by customers, we believe this is the right time to examine its benefits with particular emphasis on safety, reliability, weight, performance and other design enhancements," says Henne.

At the end of last year the company added new AFC hardware and software components to existing aircraft systems in an integration test facility. In May 2006, the airframer installed the components in a static aircraft and succeeded in controlling the plane's outboard, mid-board and inboard spoilers electronically.

Gulfstream currently is modifying a GV test aircraft, replacing the traditional cable-controlled, hydro-mechanical spoiler components with electro-mechanical actuators. Flight-testing will begin in August.

The company is partnering with three suppliers in its AFC research programme. Thales is supplying the flight control computer, which interfaces with the cockpit and aircraft sensors and the fly-by-wire actuators. Smiths is supplying electromechanical actuators (EMA) and other components for the mid- and inboard spoilers. Parker is supplying a Rotary EMA for the outboard spoiler and an electrical backup hydraulic actuator for the elevator.



Mexico takes mix of Grand, Koala types

AgustaWestland has sold three Grand and five A119 Koala helicopters to the Mexican government to meet a requirement for improved civil protection and emergency medical services. Deliveries of the aircraft will start immediately and will be completed by mid-2007.

The aircraft will be delivered by AgustaWestland Philadelphia in the United States, where the A119 Koala production line is located and where completions of aircraft for North and South American markets are carried out for AgustaWestland commercial products, including the Grand and A109 Power.

AgustaWestland has now racked up almost 80 firm orders for the Grand since the aircraft was unveiled at Farnborough in 2004.

Pelton makes flying visit for Citation XLS handover

Cessna's chief executive Jack Pelton flew the fastest corporate jet in the world to the show when he brought the company's top-of-the-range Citation X to the business aviation park.

"We stopped at St John's from Wichita and then crossed the Atlantic in under four hours," he says.

The aircraft has maximum speed of Mach 0.91 (521kt, 965km/h) and has held the mantle of the fastest civil aircraft since Concorde was retired in 2003.

Meanwhile Cessna is celebrating its 500th Citation XL/XLS which will be handed over to its customer, Swedish charter operator European Flight Services (EFS),

In 2003, EFS was the first commercial company in Europe to put an XL into service.

"The XL we have is a workhorse for our short-range charter operations,"



Jack Pelton remains tight-lipped about Cessna's plans for new jet.

says EFS managing director Stephen Diapere. "It flies an average of 550 hours per year. Our customers like the stand-up cabin, and our company likes the economy, purchase price,

operating cost, ease of

maintenance and field service support. Our experience with the XL leads us to believe this new XLS will be a complement to our fleet."

The XL/XLS worldwide fleet is heading for one million operating hours in

October. The XLS travels as fast as 500mph (800km/h), has a range of more than 1,800nm (3,333km), climbs direct to 45,000ft (1,371m) in 29min, and can land on runways as short as 3,560ft (1,085m).

Although Pelton remains tight-lipped about recent hints that the company may be producing a new jet, Cessna is going to display a full scale proof-of-concept light sport aircraft (LSA) at next week's Experimental Aircraft Association's (EAA) annual convention in Oshkosh, Wisconsin.

After evaluating customer responses it will announce whether it will go ahead with the project next year.

The newly-emerging LSA category is the highest growth sector of general aviation. LSAs are defined as having a maximum gross weight of 1,320lb (598kg), maximum level-flight speed of 120kt (222km/h), and no more than two seats.

"As the world's largest producer of single engine piston airplanes, we believe we could bring unique capabilities to this exciting market," says Pelton.

Propulsion issues can be sensitive.
WE KNOW HOW
TO KEEP THINGS QUIET.

Often a jet engine's most critical numbers are not gauged in pounds of thrust. They're measured in decibels. At Spirit AeroSystems, our sound-reduction technology is so uniquely effective, much of it is patented. Let us help your engines accomplish what our people, our systems and our facilities do so extraordinarily well: quietly go about their business. Visit us at spiritaero.com.

FOCUS ON VLJs

Are we witnessing the next giant leap forward for aviation – or are we just hoping to?
Liz Moscrop reports

ALL HAIL THE AIR TAXI?

Silicon Valley chutzpah is flying into aviation as former IT entrepreneurs Vern Raburn (Eclipse) and Ed Iacobucci (DayJet) are on short finals to land new companies in an unproven market.

Several manufacturers are behind them on base leg, with Cessna, Embraer and Adam Aviation in advanced stages of developing their new machines.

Not everybody is as bullish about the prospects for a very light jet (VLJ) air-taxi market and the airframers and upstart start-ups are spawning acres of newsprint.

In May, Raburn fuelled further debate when he told EBACE attendees in Geneva that Eclipse is looking to develop very light jet self-recovery systems.

Two weeks later Diamond Aircraft's CEO Christian Dries said at Berlin's ILA airshow that he, too, is working on such a system using unmanned air vehicle technology and applying it to a Diamond light aircraft.

The headline-grabbing statements threw up even more possibilities and on 23 May, *Flight International* wrote that certification issues – not the ability to create a simple 'get-me-home' system – are going to be the major hurdles to overcome.

The technology exists, but the challenge lies in creating a system that would eliminate the need for a second pilot, while ensuring the safety of

everyone involved in getting a pilotless aircraft back on to the ground.

David Wu, flightdeck systems marketing manager for Rockwell Collins Business and Regional Systems, agrees: "The avionics system that underlies integrated flightdecks certainly has the capability to grow to 'get me home' capability. The challenge will be in the regulatory requirements."

There is strong business rationale behind the manufacturers' statements. In most of the world, jets used for air-taxi operations require two pilots. If regulatory agencies were to accept that fitting an aircraft auto recovery system would dispense with the need for a second pilot, operating costs would fall dramatically.

But the biggest obstacle will be passenger confidence. Aviation professionals might embrace new industrial concepts, but a typical passenger would be leery of an aircraft flown by one pilot, let alone none.

Says Rupert Dent, chief executive of UK air charter operator Air Med: "It's exceptionally difficult to convince the flying public that a self-landing system is safe. Today people still ask us to fly two crew even on aircraft where they can fly with one. We will likely only feel the benefit of self-landing technology when it has become ubiquitous."

The spark behind the VLJ



Top: Embraer has an order for 50 Phenom 100s for a European fleet. Above: Dayjet has 239 Eclipses on order.

concept was Raburn's notion of designing a jet that could compete directly with the car, therefore opening up a brave new world of business opportunities.

Thanks to his vision, air-taxi operators are springing up around the world and potentially creating a whole new market sector. The ability to travel to previously inaccessible areas is proving enticing.

Pricing is an attractive part of the proposition. An Eclipse 500 costs \$1.45 million. Cessna wants \$2.5 million for its Citation Mustang and Embraer and Adam are asking \$2.85 million and \$2.28 million respectively for the Phenom 100 and the Adam 700.

Analysts can't quite agree on the number of new machines set to shape the



"The biggest obstacle will be passenger confidence. Aviation professionals might embrace new industrial concepts, but a typical passenger would be leery of an aircraft flown by one pilot, let alone none."

new market. The Teal Group predicts we'll see 2,310 VLJs in the next decade, Pratt & Whitney Canada have plumped for 5,000-plus, while Rolls-Royce offers 8,000 over the next 20 years.

Teal is sceptical about the viability of a VLJ air-taxi market, believing them to be too small for business flyers and too pricey for piston pilots wanting to upgrade. It also says that excessive deadhead legs on a VLJ point-to-point service will render an air-taxi service very expensive.

But the IT boys have a history of successfully flying against prevailing winds and a new per-seat-on-demand air-taxi model is evolving, spearheaded by DayJet in the US. With 239 Eclipses on order, the company is recruiting pilots and ground crew to staff its first five 'DayPort' locations, opening for business this November in Florida where little or no scheduled services are available.

Silicon thinking is evident as the company plans to develop a community-based corporate culture at DayPorts to enable them to grow rapidly, supported by their staff. It expects to cover seven states across southeast USA within two years. If a new air-taxi market's about to land in the US, here in Europe it's just starting on take-off roll. Embraer recently secured a

European fleet launch order for 50 of its Phenom 100s from Swiss start-up JetBird, an on-demand charter operator scheduled to begin operations in April 2009. Founder Domhnal Slattery says: "We plan to start from our base in Zurich and within five years operate a fleet of 100 aircraft from up to five hubs."

Embraer is equally upbeat, predicting 24% of new business jet deliveries in Europe to be VLJs.

Eclipse says it will increase investment in Europe, with European certification and first deliveries set for mid-2007. Cessna has sold seven Mustangs to UK air-taxi operator London Executive Aviation and Adam Aircraft's A700 is scheduled for European certification and first deliveries in late 2007.

Spectrum Aviation Europe looks likely to announce its first European fleet customers at NBAA this autumn, with chief executive Stefano Sturlese saying: "We anticipate around 70% of our customers will be classic charter companies, 20% per-seat-on-demand air-taxi/fleet operators and 10% owner pilots."

However, established air charter operators are cautious. Says Dent: "The Eclipse and Mustang were designed with the US market in mind and are very effective there. In Europe there are fewer owner pilots and the need for two crew to pilot complex aircraft means that they will be costly to operate.

"That means they are more likely to appeal to a target audience of first class users. The manufacturers are going to have to pre-educate brokers as well as end-users."

With so much at stake, that education process should be an interesting spectacle.



Attractive pricing options: Cessna wants \$2.85 million for its Mustang.