Global Express is taking shape

MAJOR SECTIONS of the first Bombardier Global Express long-range business jet will begin arriving at de Havilland in Toronto, Canada, in December. Final assembly will begin in March 1996 and the programme is on schedule for a first flight in September 1996, the Canadian company says.

"The Global Express is no longer a paper aeroplane. It is starting to be metal," says John Holding, executive vice-president of engineering for Bombardier Aerospace Group — North America. The first delivery of a customer aircraft to the completion centre will be in December 1997, he says, one year behind rival Gulfstream V, rolled out on 22 September.

Final-assembly jigs are in place in Toronto and system-test rigs will come on line this month, Holding says. Engineering design will be completed this month, as will critical design-reviews of the first-flight configuration, he adds. ❑

Cessna aims Citation X at Hawker 800 market

CESSNA HAS SET ITS Citation X sales sights firmly on the Raytheon Hawker 800 and other similar types in the mid-sized business-jet-replacement market. Cessna says that the larger aircraft's direct operating costs per kilometre are "...guaranteed not to exceed those of the much smaller Raytheon Hawker 800".

Cessna believes that the early flight-test experience gained in the run-up to Citation X certification proves that it will meet the guarantees. According to marketing and product support executive vice-president Gary Hay, the aircraft "...has continued to exceed even the ambitious goals we set for it when we announced the programme". Hay cites the recent increase in cruise speed from Mach 0.9 to 0.92 as an example.

The Citation X is scheduled for US Federal Aviation Administration certification "in a matter of weeks", says marketing vice-president Phil Michel. ❑

Gulfstream 'close to break-even' with GV orderbook

GULFSTREAM chairman Ted Forstmann says that orders for the Gulfstream V long-range business jet "...will reach break-even by the end of the year". Gulfstream's break-even point is believed to be around 60 aircraft, although the company will admit only to having a GV order backlog "in excess of $2 billion".

Gulfstream rolled out the first GV at its Savannah, Georgia, plant on 22 September, five days ahead of schedule, and plans to fly it in November. BMW Rolls-Royce says that the first GV's two BR710-48 engines are ready for flight.

The company is moving to capitalise on its lead over Bombardier, which plans to fly the rival Global Express in September 1996. A four-aircraft test programme is planned, leading to US certification in October 1996 and European certification in December 1966. Global Express certification is scheduled for March 1998.

The first customer GV will be delivered to the completion centre in the fourth quarter of 1996, according to Gulfstream vice-chairman Bryan Moss.

Sales are expected to pick up momentum with the roll-out of the GV, says Gulfstream Aircraft president Bill Boisture.

Forstmann believes that several potential customers, including some governments, have held off deciding on a long-range business jet until they can view the actual aircraft. The first delivery slot available is in the second quarter of 1998, says Boisture.

The company built 24 GIVs in 1994, and will build 24 GIVs and four GVs this year, says Gulfstream Aerospace president Fred Breidenbach. Annual production is planned to rise to 42 aircraft (a mix of GIVs and GVs) by 1997, he adds. ❑

Variable nozzle tests planned for PW306

CALCOR AERO Systems, the developer of novel variable-exhaust-nozzle (VEN) and thrust-reverser (TR) designs, has signed an agreement with Pratt & Whitney Canada to demonstrate a combined TR/VEN on the PW306 which will power the Israel Aircraft Industries Galaxy.

The California-based company claims that the combination TR/VEN is a first for the industry and is useable on turbofans with up to 133kN (30,000lb) thrust.

Calcor reached a similar agreement with International Aero Engines (IAE) in June which involves testing the VEN on the International Aero Engines V2500 turbofan with "Airbus applications in mind", says company vice-president, Ron Binder.

The agreement with P&WC involves demonstrating a target-type TR with a variable-geometry nozzle. "It's never been done before," says Binder.

The PW306 nozzle will be able to vary the area of the exhaust by 11.4%, enabling increases in take-off thrust and climb performance while decreasing cruise specific fuel consumption (SFC).

The nozzle will be ground-tested in January and could be flown on a testbed in mid-1996 if the initial test results are encouraging. The VEN-equipped V2500, meanwhile, is due to undergo testing in October 1996.

Lair: claims his invention will reduce specific fuel consumption

Jean-Pierre Lair, inventor of the unit, says that cruise SFC for a 22-27kN engine could be reduced by between 1% and 1.8%, while thrust could be increased by between 5% and 10%. "There is usually a one-to-one improvement between thrust increase and [exhaust] throat area increase. The system also allows you to recoup a great deal of thrust loss in hot-and-high conditions."

When in the unactivated position, the combination nozzle-throat area, like conventional units, is optimised for cruise conditions. It will, however, be fully opened for take-off, similar to a military turbofan, and, under the control of a full-authority digital engine-control unit, will gradually close as the aircraft climbs to cruise level. On landing, the single unit splits to form a target-type TR.

Lair adds that the design of the TR makes it "mechanically impossible" for it to be accidentally deployed in flight. The shape of the TR also means that the nozzle is never in the path of core air, which means that the unit can be made of lower-temperature-resistant aluminium. ❑