FLIGHT INTERNATIONAL/MARK WAGNER

Despite delays, 2003 has been a strong sales year for Embraer's 170, with service entry due in November

is also considering producing some -145 components locally, as current suppliers may charge more to ship parts to a low-volume Chinese line. Any Chinese-made parts might also be exported back to the Brazilian line.

Express Jet deferred deliveries of 27 ERJ-145XRs in February, the first such deferral by a major US regional. Trans States Airlines and Republic Airways Holdings are discussing ERJ deals with Embraer. Trans State is being offered up to 40 aircraft, while Republic says it need 12.

Production

ERJ-135/140/145s are produced at São José dos Campos. A total of 121 ERJs was delivered in 2002, and output is running at around eight a month.

A new production plant at Gavião Peixoto, 370km north west of São José, is used for low-volume assembly of military and Legacy versions of the aircraft.

Embraer Harbin Aircraft will have the capacity to assemble two aircraft a month.

Ordered: 958
Delivered: 721

170/190 Family (including 175 and 195)

Embraer's latest and largest jet family was launched in 1999 with an order from Swiss International Air Lines (then Crossair) for up to 160 aircraft. The prototype 70-seat Embraer 170 first flew in February 2002.

The family lost its ERJ- prefix in 2002, and now consists of four different sized models covering the 70- to 108-seat market. The 70-seat 170 features a four-abreast cabin and is powered by two underwing GE CF34s. The 78-seat 175 is a 1.77m stretch of the 170, while the 190/195 are further 98- and 108-seat stretches with a larger wing and more powerful CF34s.

It has been a year of highs and lows for the type. Embraer won huge orders from US Airways and JetBlue, but launch customer Swiss halved its order, and certification was delayed due to software problems and flight-test incidents. First deliveries of the 170 to accidental launch customers Alitalia and US Airways are now expected in November, almost a year behind the original schedule for Swiss deliveries.

Software delays in Honeywell's Primus Epic integrated avionics suite were revealed in June as the cause, and Embraer now hopes that the 170 will be certificated with Category 2 autopilot, autothrottle, windshear guidance and additional flap settings by November, rather than a previous plan to have basic certification in place by August. In August, the fourth flight-test 170 was damaged during a gear up landing at Gaviao Peixoto test centre, but Embraer planned to repair the aircraft and return it to flight. Last year the third prototype suffered a collapsed gear during water ingestion tests. In May, Embraer flew the first production standard 170, the seventh 170.

Meanwhile, the 175 had its first flight on 14 June this year, and is scheduled for certification as planned in the third quarter next year. Embraer has rejigged its flight-test programme as a result of the year's sales activity, and the first planned 195 will now be completed as a 190, by swapping out fuselage plugs, and will fly in February 2004. The first 190 fuselage and wing were ready for joining in early October. The first 195 is scheduled to fly in September next year. Certification of the 190 is now planned for the third quarter of 2005, followed a year later by the 195.

Embraer and GE are trying to improve the aircraft's margin over Chapter 4 noise limits after tests using a 170 revealed it was closer to the limit than expected, mainly due to MTOW increases early in the development programme. A chevroned engine exhaust for the CF34 had previously been abandoned as unnecessary. For the larger 175, with a shallower climb-out profile, the problem may be alleviated by tweaking the flap settings. Embraer says that internal noise has also been an issue.

US Airways in May ordered 85 170s, about half of which are expected to be converted to 175s, and is now thought to be looking at the 190/195 for the bottom end of its mainline fleet.

JetBlue in June ordered 100 190LRs, the higher-gross-weight version with a range of 4,260km, and added 100 options. Swiss reduced firm orders for the 170 and 195 from 60 to 30, and cut options from 100 to 20. The airline intends to take 15 170s, with first deliveries delayed by a year to August 2004, and a similar number of the larger 195 from 2006.

Embraer has fitted speedbrakes to the 170s wing/fuselage fairing to allow Swiss to operate the 170 into London City Airport, with its steep 5.5° glideslope. Adding about 100kg to the aircraft's weight, they ensure the 170 can maintain a 119kt approach speed.

Embraer's studies of a smaller 54- to 58-seat shrink of the 170 have faded into the future, but the manufacturer revealed that it is now considering a business jet version of the 170. Two options are being considered – a standard 170 with a corporate interior or a dedicated business jet variant, like the Legacy. Key considerations are a large cabin and long range with a 9h endurance. The aircraft would be pitched against super large business jets such as the Dassault Falcon 900EX and the Bombardier Global 5000.

Production

The 170/190 family is assembled at Embraer's São José dos Campos factory outside São Paulo. Six aircraft are involved in the flight-test effort.

Kawasaki Heavy Industries (KHI) is building major wing components for the 170/175 and is building the entire wing for the 190/195 at a dedicated plant next to Embraer's new production facility at Gaviao Peixoto.

Ordered: 260 (135 170s/110 190s/15 195s)
Delivered: 0

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Explorer 500/750

The 10-seat Explorer 500 turboprop was originally designed by Aeronautical Engineers Australia, and a proof-of-concept version, the Model 350R flew in 1998. A re-engined 450kW PT6-135B-powered aircraft began flight tests in 2000.

Explorer has yet to post orders for the type, and certification is planned for 2005. Plans to develop a float-equipped 500R have been dealt a blow by the cancellation of the intended powerplant this year, the 450kW Orenda OE-600 piston. A larger 16-seat Explorer 750 has also been proposed.

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Fairchild Dornier was declared insolvent in July 2002 and an administrator was appointed to find buyers or investors for the companys' operations.

The company was eventually split into four components. Avcraft Aviation and Philadelphia-based investment group Dimeling, Schreiber & Park bought the 328 and 328JET programme in March this year for an estimated €100 million and formed Avcraft Aerospace. The purchase included the rights to the abandoned 428JET programme.

Swiss Airbus contractor RUAG acquired the