

# Dassault extends Falcon 900 range

DASSAULT AVIATION has launched an extended-range version of its Falcon 900B triple-turboprop business jet.

The Falcon 900EX will be powered by AlliedSignal TFE731-60 engines and is expected to have a range of 8,300km (4,500nm). The aircraft will incorporate structural changes to accommodate the extra fuel carried, and will include an avionics upgrade.

According to Jean-Francois George, Dassault vice-president for civil aircraft, the development follows the manufacturer's decision in 1992 to suspend plans to build an 11,000km-range aircraft.

The aircraft is the launch vehicle for the TFE731-60. The engine has a new core and offers 1kN (250lb) more take-off thrust and lower fuel consumption at sea level than does the TFE731-5B on the Falcon 900B.

The avionics upgrade will feature Honeywell's Primus 2000 integrated avionics and include a five-tube electronic flight-instrument system. Dual flight-management systems will be standard, while a Flight Dynamics head-up display, similar to that available on

the Dassault Falcon 2000, will be offered as an option.

Two new fuel tanks — one a forward extension of the existing centre-fuselage tank, the other an extra one in the rear fuselage — give 730kg more fuel capacity. Range will be increased by 920km over that of the 900B, exceeding the 7,400km offered by Bombardier's new Challenger 604 and the 7,700km range of the Gulfstream IV-SP — although Gulfstream is studying an 8,500km GIV-B with a longer wing.

There are six risk-sharing partners involved in the project: AlliedSignal and Honeywell; SABCA of Belgium (for the centre-engine intake cowling); Hellenic Aircraft Industries of Greece (for the rear-fuselage tank); Latécoere of France (for the engine pylons); and Italy's Alenia for the engine nacelles. Together, they make up 20% of the total investment.

The first flight of the 900EX is due in May 1995, with certification expected in March 1996. New Jersey-based FalconJet will deliver the first aircraft, priced at nearly \$26 million, one month later, to launch customer Sony. □



## Dash 10 cuts a dash in New Orleans

INDIANAPOLIS-BASED Eagle Creek Aviation Services displayed the prototype Turbine Commander Dash 10, a Rockwell Commander 690 re-engined with AlliedSignal Engines TPE331-10 turboprops to increase performance and reduce maintenance. Washington-based Twin Commander Aircraft, which markets the newly certificated upgrade, says that designated service centres have several candidates signed for the conversion.



New thrust reverser/variable nozzle design increases efficiency, claims Lair

## Business-jet variable nozzle under scrutiny

A VARIABLE-AREA exhaust nozzle and enhanced-efficiency thrust reverser are being studied by several business-jet manufacturers, including Swearingen, which is looking at it for its SJ30.

The nozzle and reverser, designed by Jean-Pierre Lair of Texas-based Aeronautical Concept of Exhaust (ACE), are being developed for production by the Calcor Space Facility of Whittier, California.

Business-development manager Ron Binder says: "Within the next 45 days, you will hear about a launch customer for certainly one and, maybe, two products." He adds that interest is high following a tour of "...every business airframer and engine maker in the USA. The response is absolutely fantastic."

The variable nozzle works by adjusting the throat area of the engine exhaust. This helps decrease the jet-flow pressure in the nozzle during the take-off roll and at cruise, increasing engine efficiency.

Lair says that the area can be adjusted by "8% to 12%, depending on the engine", and claims that take-off thrust could be increased by around 5%.

Multiple nozzle positions are available with full-authority digital engine control (FADEC), while nozzles on non-FADEC engines will be adjustable to two or three selectable positions, ranging from fully open for take-off to fully closed for cruise.

ACE is studying a variable nozzle for a large commercial aircraft with more than 120 seats and 130kN (30,000lb)-class engines.

The thrust reverser, a modification of the standard target-type design, has a "planar throat, not a typical fish-mouth". By using a conformal system of actuators, the stowed reverser follows the exact contours of the original nacelle.

Base drag is not increased and no cylindrical extension of the exhaust throat is needed. "Flow lines through the exhaust are totally unmodified by this design, increasing efficiency," adds Lair.

The design also captures the entire core and bypass exhaust, without allowing any spillage to the side of the reverser buckets. "We therefore achieve the same deceleration at 60% to 80% [fan speed] as other systems do at 100%," says Lair. □

### NEWS IN BRIEF

#### ■ EUROPEAN CFE738

The CFE738 turboprop, developed jointly by AlliedSignal Engines and General Electric, has been certificated by the European Joint Aviation Authorities. The CFE738, powering the Dassault Falcon 2000, was certificated by the US Federal Aviation Administration in December 1993.