

AVIONICS



Bigger screens make for a cleaner cockpit in the 900EX, says Dassault

The launch of the Gulfstream V and Bombardier Global Express in the early 1990s, each with a range of 12,025km, changed the picture. "We knew the cost of developing the Falcon 9000 would be at least \$1 billion," says Messiah, "and we also had a problem with the market analysis. We did not believe the Gulfstream prediction of a need for 1,000 aircraft in this category over the next ten years. For us, it was closer to 200-250, and more probably nearer the lower figure." This agreed with a study by BMW Rolls-Royce (the manufacturer of the engines powering the GV and Global Express), which estimated a market for 300 aircraft. "The engine makers are usually very accurate...and it meant that there was certainly not room for three, and probably not even two, aircraft in this market," he says.

CUSTOMER PREFERENCES

Dassault was also told by its customers that they preferred the option of a relatively small range increase and lower purchase costs instead of a much longer range, and the purchase cost associated with developing an all-new aircraft. "So

we began looking at the 900B again to see what could be achieved," says Messiah. "In the end, it was the customers who decided the issue for us," he adds.

The marketing argument was to "...attack the GV and Global Express from the bottom", he adds. "We now realised we could sell the aircraft on the basis of a 16,650km 'one-stop' concept. In other words, the 900EX could effectively fly anywhere in the world with only one landing "...an idea which proved popular with customers, most of whom like to stretch their legs halfway through a very long flight", says Messiah. Dassault's claimed Mach 0.85 cruising speed for the 900EX added weight "...on some missions you can get there as quick as a GV, even with the stopover", says Messiah.

"Our marketing strategy had two objectives. First, to show that the 900EX could do 80-90% of GV and Global Express missions while costing around \$8 million less," he says. Maintenance and operating costs would also be lower because the 900EX is smaller and cheaper to operate. "It also fills a wider range of missions because of the shorter take-off ►

THE REPLACEMENT of the Falcon 900B's Honeywell EDZ-820 electronic flight-display system with the new Primus 2000 system from the same manufacturer leaves the Falcon 900EX with the most advanced avionics of any Falcon business jet, and the equivalent of the best available on any rival aircraft.

The Primus 2000 system is based around a five-tube electronic flight-instrument display, the screens of which are increased in size to 200 x 180mm from the 130 x 150mm versions aboard the 900B.

Two screens are dedicated to primary flight displays, two more to multi-function roles and the fifth to engine functions. This engine-instrument display incorporates most of the features found in airliner-type engine indicating and crew-alerting systems.

The Primus 2000 system incorporates a hub-and-spoke architecture driven from a pair of integrated computers at the system's core, linked to the rest of the system through Honeywell digital communications and ARINC 429 buses. The autothrottle is driven by a third avionics computer.

Each integrated avionics computer provides an adaptive "SmartPerf" management function, which effectively "learns" the aircraft's thrust, drag and fuel-consumption characteristics, organising flight-management functions accordingly. The system also provides multiple waypoint capability, waypoint-specific speed selection coupled to the autothrottles and programming for virtually all approach, departure and arrival procedures, including the global-positioning system (GPS). Dual 12-channel GPS receivers are an option.

The radio-communications and navigation system is still provided by Rockwell-Collins, but has been upgraded from the Proline 2 to the Proline 4 standard—the same system as used on the Falcon 2000.

Other standard equipment includes Honeywell air-data computers, a dual-channel fail-operational autopilot, dual full-colour flight-management-system-control display units, Honeywell Laseref III inertial-reference systems and Primus 880 weather radar.

Standby magnetic compass, attitude horizon, altimeter and Mach/airspeed indicator are supplied by Sextant Avionique. Dassault also offers the Flight Dynamics HGS 2000 head-up display as an option, providing a Category IIIA landing-approach capability.

