sor has five stages — four axial (two variable-geometry) and one centrifugal — and a 15:1 pressure ratio. The straight-through combustor has 24 air-blast fuel nozzles and dual igniters. The engine has a PWlOO-style two-stage high-pressure turbine and a PW3000-style three-stage low-pressure turbine. Accessories are grouped under the engine.
The PW305A's full-authority digital en-gine control (FADEC) comprises two separate and identical channels, with dual-redundant computers and sensors. Learjet says that the FADEC provides "reliable and consistent" control. An en-gine diagnostic system identifies faults and records data for trend monitoring. The Learjet 60 has standard target-type thrust reversers.

Learjet uses the same fuel burns for both the TFE731-powered Learjet 31A and the larger Learjet 60 when it comes to flight planning — 680kg of fuel for the first hour and 540kg for the second hour. Comparisons made over 1,500km produc-tion ferry flights show that the Learjet 31A burns 990kg and the Learjet 60 1,000kg, the company says.
In going from the Learjet 55 to the 60, systems were updated with the twin aims of improving reliability and maintainabil-ity, to reduce cost of ownership, Reynolds says. Improvements include introduction of a digital steer-by-wire system for nose-wheel steering. Also new is the electrically heated windshield — a thin gold layer heats the inside of the windshield, and also acts as both a solar reflector and a cockpit heater..
Another change is the introduction of single-point refuelling. The fuel system

for each engine is independent — each wing tank supplying fuel to its respective engine. Fuselage fuel can be transferred to both wing tanks and there is a cross-flow capability, allowing wing fuel to be trans-ferred to the other engine.
The biggest systems change is the introduction of Rockwell-Collins Pro Line 4 integrated digital avionics. This system is based on dual IAPS-851 integrated-avionics processors providing centralised display, autopilot and flight-management processing. The IDS-850 display system comprises four 152 x 178mm cathode-ray tubes providing primary-flight and multi-function displays for each pilot.
The Collins equipment includes a dual-redundant, fail-passive FCS-850 digital automatic flight-control system and a single FMS-850 flight-management system with dual control/display units. Also in-cluded are dual RSS-850 radio-sensor, AHS-85 attitude-and-heading-reference and ADS-850 digital air-data systems. Collins also supplies the WXR-840 weather radar. Optional equipment in-cludes dual Universal UNS-1B flight-management systems.

CUSTOMER REACTION

Learjet says that customer reaction to the Learjet 60 has been "excellent". While the company underlines the aircraft's "impres-sive" short-field performance and "excel-lent" climb performance, Reynolds highlights fuel efficiency. "The 55 was the most fuel-efficient mid-size jet and the 60 is 10-12% more fuel-efficient," he says. On a recent 925km demonstration flight, the Learjet 60 "...got there sooner and burned less fuel" than the prospective

customer's current aircraft, a Cessna Cita-tion I. "That's impressive," Reynolds says. This fuel efficiency is the result of "...an efficient engine, low-drag airframe and the ability to get to high altitude quickly, where the engine is at its most efficient," he says.
Earlier this year, the aircraft was flown to its Paris air-show debut from Los Angeles via Gander. The 5,580km flight was between FL390 and 450, at Mach 0.72-0.74, the average fuel flow was 498kg/h. The second leg 4,160km was at FL410, at Mach 0.74-0.79, with a fuel flow of 560kg/h. The specific fuel con-sumption (SFC) for the entire trip was 1.57km/kg.
Reynolds also highlights the high utilisation of the first Learjet 60s to enter service. The first customer aircraft went to US office-furniture manufacturer Herman Miller, a company which had progressed from a Learjet 25, through a 35, to a 55, flying l,200h a year. Miller's Learjet 60 entered service in April and logged 105h in the first month. Learjet's own demon-strator is being flown at about the same rate, he says.
The largest Learjet ever is also likely to be the last business jet which the com-pany will design and build on its own. With the 60 safely under its belt, Learjet is now working on the all-new 45, which will replace the 30-series from 1996. Having added 200 engineers for the 60 programme, the company has drawn on
the resources of parent company Bombar-
dier to assist in the much larger task of
developing the 45. Sister company de
Havilland is supplying the wing, with
Shorts providing the fuselage. B

Learjet reports customer response as "excellent", and cites high utilisation: the first to enter service logged 105h in the first month

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