717 represents over the DC-9. The fuselage and wing are carried over from the DC-9-30, but almost everything else has been changed.

Using the DC-9-30's existing fuselage and wing design for the 717 has resulted in major development and certification savings which are reflected in the aircraft's $31.5 million 1999 list price. The fuselage, manufactured by Alenia of Italy, is a three-frame stretch of the DC-9-30's. Added forward of the wing, the frames allow for an extra row of seats while also increasing the centre of gravity (CG) range. The production wing will be manufactured by South Korea's Hyundai Space & Aircraft, and is essentially unchanged from the baseline DC-9-30 design. In addition to obvious production savings, costs are further reduced when fatigue-life certification expenses are considered.

The high-bypass-ratio BMW Rolls-Royce BR715 turbofan engines are the biggest external difference between the 717 and its DC-9-series predecessors. The BR715 shares its core with the BR710, used on the Bombardier Global Express and Gulfstream V business jets. Its 1.47m (58in)-diameter wide-chord fan and

"The BR715s are the biggest external difference between the 717 and the DC-9."

full-authority digital electronic control allow the BR715 to produce 18,500lb thrust (82kN) in standard form, with an optional maximum of 21,000lb. AirTran has bought the pin-selectable 21,000lb option for its initial 50 aircraft.

While inherently fuel efficient, the BR715's fuel flows have been running at about 1.5% less than predicted in flight test. Noise and emissions levels are all well below current and projected regulatory limits.

From the pilot's perspective, the biggest changes from the DC-9 are in the cockpit. Proven MD-11 technologies and designs were adapted to the 717 during its development. The new avionics are supplied by Honeywell. Six 200 x 200mm liquid-crystal displays (LCDs) comprising the forward instrument panel are powered by two redundant integrated avionics computers. Typically, two LCDs serve as primary flight displays (PFDs), two as navigation displays, and two as primary and secondary engine and alert displays (EADs).

The automatic flight control system, incorporating both autopilot and autothrottles, is controlled through a glareshield-mounted control panel. The flight management system (FMS), programmed with aircraft performance information as well as navigation and airport data, is controlled by two pedestal-mounted multifunction control and display units. The result is a clutter-free cockpit that looks and ▶