an inlet particle separator to prevent shed ice and other foreign objects entering and damaging the engine. The PT6s drive four-blade Hartzell propellers, currently metal, but planned to be Kelvar composite with high-thrust aerofoil sections. The rapid deceleration possible with the engines in flight idle and these propellers in fine pitch avoids the need for speedbrakes, says Beech.

In keeping with its futuristic exterior, the Starship has the latest in electronic cockpit technology, courtesy Rockwell-Collins. The panel, with no fewer than 14 cathode ray tube (CRT) displays, provides much more than a first-generation electronic flight instrumentation system (EFIs), says Beech, yet does not depart from established display formats. The layout is deliberately similar to that of the King Air, with conventional data displayed electronically. Yet the system offers a level of redundancy equal to that found in the larger business jets.

Starship is the first application for Collins' ProLine Concept 4 family of integrated digital avionics, which moves against the current trend towards distributed, database-linked systems by opting for central computing and signal processing to save space, weight, and wiring. The resulting system is 86 per cent smaller and 100 lb lighter than competing equipment performing the same functions, argues Collins.

Although the first Starship 1 prototype flew on February 15, kicking off a certification programme scheduled to be completed late this year, the aircraft has been flying since August 1983—in the form of an 85 per cent scale proof-of-concept (POC) aeroplane built by Burt Rutan's Scaled Composites company. The POC Starship has completed more than 500 hr of flying, enabling Beech to evaluate performance and handling characteristics and to make detailed aerodynamic changes.

Modifications made to the POC aircraft include changes to the twist, incidence, and dihedral of the original foreplane. Features introduced on the prototype Starship as a result of POC flying include reshaping the wing inboard trailing edge, adding a fence between the elevon and flap (introduced on the LongEZ in 1979), extending the ventral rudder, and adding underwing fences, or vortillons, to the leading edges to reduce spanwise flow at high angles of attack.

The POC Starship continues to contribute to the test programme, but certification will be the task of six full-scale prototypes, three flying and one each for static, fatigue, and environmental ground testing. Of the three flying prototypes, NC-1 is assigned to aerodynamic and propulsion testing, NC-2 to avionics and systems testing, and NC-3 to flight management system, powerplant, and sound-level testing.

When Beech unveiled the Starship 1 in September 1983, the first prototype was to have flown in October 1984 and certification was scheduled for late 1985. That date has been delayed a year, and there is no doubt a story yet to be told about events within Beech both before and after the departure of president Linden Blue, widely regarded as the father of the Starship. However close the Starship came to being quietly forgotten, Beech is now committed to a programme which represents a private-venture investment of $250 million.

More significantly, Beech is committed to a massive programme of investment in composite aircraft manufacturing, possibly totalling $1,000 million. Already two more all-composite aircraft are planned, both designed by Rutan: a light cabin-class twin and a pressurised single.

Sceptics have questioned Beech's need for the Starship 1 and particularly its proximity in size and performance to the existing turboprop King Air 300 and the newly acquired turbofan Beechjet, formerly the Mitsubishi Diamond II.

Beech itself has targeted some 3,000 King Air operators worldwide as potential Starship 1 customers. At almost $3.5 million a copy, Starship 1 is more expensive than both the King Air 300 and the Piper Cheyenne 400LS (some $2.7 million apiece), yet it does offer a unique combination of performance, comfort, and style that even jets like the Cessna Citation S/II will find hard to match.

Starship will present a unique shape in the skies, and will offer a 25 per cent fuel burn reduction over its nearest competitors, says Beech.