Raisbeck King Air Newsletter

RADAR

Vol. 7, No. 3, April 2011

THE RIGHT AIRCRAFT AT THE RIGHT TIME

A Brief History of the King Air Model 90

Beechcraft took a huge step in 1964 when the company introduced a new twin turboprop, the King Air. It's doubtful that Project Engineer John T. Calhoun had any idea how popular and successful his new cabin class design would prove to be, as the Beech King Air has outsold all other general aviation turboprops produced over the last 50 years, combined.

At left, an E90 (foreground) flies in close formation with an A90 over Lake Tahoe in Northern California. Both are equipped with Raisbeck's 4-Blade Power Props, Dual Aft Body Strakes, Gross Weight Increase and Wing Lockers.

The King Air Model 90 was conceived as a turboprop upgrade to the piston-engine Queen Air in 1961. The first straight 90 aircraft was powered by Pratt & Whitney PT6A-6 engines, and assigned serial number LJ-1. That was 1964, and it marked the beginning of a long evolutionary production run that continues today.

Two years later, Beech introduced the A90 model, improved with a higher altitude 4.6 PSID cabin, reversible propellers and PT6A-20 engines. In 1968, the B90 entered production featuring a 4 ft. longer wingspan and a higher 9,650 lb. takeoff weight.

Next came the C90 in 1971, starting with serial number LJ-502. The big change was the elimination of the single engine-driven supercharger pressurization system, and introduction of the dual engine bleed air environmental system.

James Raisbeck formed his engineering company in 1973.

In 1975, serial number LJ-668 was offered with the improved PT6A-21 engines. Beech also introduced the Model E90, and then the F90 in the 1970s.

By 1981, Raisbeck Engineering was investigating, designing and certifying performance improvements for the King Air product line, beginning with the Super King Air 200. It made its first delivery in August, 1982.

Beech introduced the C90-1 in 1982. It used the same -21 engines as the earlier C90 models, but bumped up the engine ITT from 635° to 680°, increasing cruise speeds by more than 15 knots to 237 KTAS. A stronger 200-series type cabin door and double-pane side windows were added to accommodate an increased cabin pressure differential of 5.0 PSID

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Starting with LJ-1063 in 1984, the C90A introduced hydraulically operated landing gear, a new pitot engine cowling, and a higher-yet 695° engine ITT. These improvements added another 11 knots to the cruise speed, now at 248 KTAS.

In 1986, Raisbeck Engineering certified its EPIC Performance Improvement Package for all C90 models from 1973 through Beech's then-new production C90As. This EPIC System consisted of Hartzell/Raisbeck 4-blade Turbofan Propellers of 93″ diameter, Dual Aft Body Strakes, increased gross weight to 10,100 lbs. and measurably better FAA-approved takeoff and landing distances.

Beech followed in 1987, increasing the C90A's takeoff weight to 10,100 lbs. beginning with LJ-1138.

In 1992, Beech redesignated the C90A as a C90B, offering the 90″ McCauley 4-blade propellers, better soundproofing and an improved avionics package. Takeoff distances were slightly longer. In later years, the McCauley propellers were replaced with 90″ Hartzell propellers of similar aerodynamic design.

In subsequent years, Raisbeck's engineers have increased the takeoff weight to 10,350 lbs., and then to its present-day MTOW of 10,500 lbs. All FAA-approved takeoff, climb and landing performance improvements have been retained across the board. Applicable serial numbers are LJ-527 and subsequent, through today's C90GTx.

By the time Beechcraft introduced the C90GT at Oshkosh AirVenture in 2005, the King Air C90A/B aircraft represented a 20-year-

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long production run with very few changes. The new C90GT was equipped with the 750 SHP PT6A-135A engines. Flat-rated to 550 SHP takeoff power, the new engines increased cruising speeds at altitude by 24 knots to 272 KTAS. Approach-flaps takeoffs were introduced to the C90GTs for the first time, to compensate for the effects of reduced 1900 RPM of the -135A engines on takeoff. With deliveries beginning in early 2006, 97 C90GTs were delivered over a two year period before the Model C90GTi was introduced with the new Rockwell Collins Pro Line 21 avionics package. 125 C90GTis were added to the fleet, before being superseded by the new C90GTx in 2010.

Hawker Beechcraft's latest and current C90 offering, the GTx, features increased takeoff weights of 10,485 lbs. and winglets, beginning with LJ-1978.

To date, nearly 2,900 civilian and military variations of the venerable Model 90 King Air have been built and delivered, making it the most popular cabin class model in the world. Model 90s have also been purchased and flown by 19 different nations for military applications. They have been used for pilot training and surveillance, as well as hauling cargo and personnel. They have also been a favorite of corporate flight departments, charter operators, flying doctors, law enforcement and individual owners, logging billions of miles. Their overall safety record is second to none in their field.

It is likely that this aircraft and its many iterations have far exceeded what John T. Calhoun and Beechcraft thought might be possible in 1964, 47 years ago. ✈

MODEL 90 PROJECT ENGINEER
John T. Calhoun

When John Calhoun retired from Beech in 1971, he came to Seattle and took the position of chief design engineer at Robertson Aircraft Corporation, a company involved in modifying Cessna and Piper singles and twins to increase their overall performance and productivity. One of the projects he worked on was the NASA/Robertson Advanced Technology Light Twin (ATLIT) flight research airplane, incorporating commercial airplane aerodynamic technology to general aviation aircraft. He was hired by and worked with Robertson's CEO and chief engineer at the time, James Raisbeck. ✈

MARCH RAISBECK DEALER SEMINAR:
Full house portends improved sales for dealer attendees in 2011

Raisbeck Engineering offers three to four Dealer Seminars every year. Attendees frequently report improved sales as a result of better understanding how Raisbeck Performance Systems deliver their time-proven benefits, as well as taking advantage of the extensive sales and marketing support that Raisbeck offers.

The March 11-13 Dealer Seminar drew a full house, including a number of executives. Friday night featured a get-acquainted cocktail hour and dinner hosted by Raisbeck. Saturday's agenda included presentations by the Raisbeck Team on individual performance systems and *EPIC* packages, as well as marketing and sales support services available to dealers. That evening, attendees were fêted with dinner at one of Seattle's foremost waterfront restaurants. A private tour of the Boeing Museum of Flight wrapped up the event on Sunday. ✈

Above, Dealers tour Raisbeck's shipping department.

At left, a full house of dealers follow technical and marketing support presentations in the main session on Saturday.

RAISBECK ENGINEERING