

## History of Beech Aircraft

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### Statistics:

Wholly Owned Subsidiary of Raytheon Corporation

Incorporated: 1932

Employees: 10,900

Sales: \$1.10 billion

SICs: 3721 Aircraft; 3728 Aircraft Parts & Equipment Nec; 3761 Guided Missiles & Space Vehicles

### Company History:

Best known for its line of Beechcraft propeller and jet airplanes, Beech Aircraft Corporation is one of several American manufacturers of small aircraft. Beech competes with Cessna, Piper, and Lear for shares of such markets as private pilots, small air taxi services, corporate customers, and military forces. In addition, Beech manufactures a variety of aircraft parts and special systems for larger companies, principally McDonnell-Douglas.

The company's founder, Walter Herschel Beech, began his interest in aviation as a boy, when he constructed a glider out of wood and his mother's newest bed sheets. Later employed as an automobile salesman, Beech took his first powered flight in a Curtiss biplane in 1914 at the age of 23. He took to the skies himself and learned dogfighting maneuvers when he joined the Army Signal Corps aviation section in 1917.

After his discharge in 1920, Beech employed his army flying skills as a barnstormer until he joined the Swallow Airplane Company in Wichita as a test pilot and salesman in 1921. Although he did well and was promoted to general manager of the operation after just two years, Beech left the company when Swallow refused to pursue construction of a metal, rather than wooden, airplane.

Beech and another local aviator named Lloyd Stearman decided to start their own business and formed the Travel Air Company. In 1925 the pair

convinced aircraft builder Clyde Cessna, who had given up on the trade, to join the partnership. Travel Air began as a very successful venture. The company's planes garnered numerous awards for their design and won many flight competitions--often when piloted by Walter Beech. Early designs were powered by Curtiss-Wright engines, marking the beginning of an important business relationship. However, a conflict arose between Beech and Cessna, the company's president. Although Travel Air was recording decent sales from its line of biplanes, Cessna was determined that the company should immediately begin work on a new single-wing design. Unable to win agreement from Beech, Cessna set up his own shop and built the craft himself.

Cessna later demonstrated his monoplane for Beech, who conceded that Cessna had produced an excellent craft and agreed to have Travel Air begin manufacturing the planes. Cessna's early designs led to the Travel Air Woolaroc and Mystery S, which won the company further acclaim in competitions and races. Cessna continued to have differences with Beech and Stearman, however, and in 1927 elected to leave the partnership. He later established his own business, though he continued to deal with Beech regularly.

By 1929, Travel Air had turned out a thousand airplanes. The venture proved so successful that the partners were invited to make Travel Air part of the powerful Curtiss-Wright Corp., which represented the surviving business interests of aviation pioneer Glenn Curtiss and the Wright Brothers. Travel Air merged with Curtiss-Wright in 1930, and as part of the deal, Beech was asked to serve as president of the company. The year also marked Beech's marriage to Olive Ann Mellor, who had been working as the office manager for Travel Air. Mrs. Beech continued to work with her husband, now in the capacity of business advisor, at which she proved highly adept, having thoroughly learned about the aircraft industry.

Curtiss-Wright fell on extremely difficult times later that year, principally as a result of the Great Depression. Meanwhile Beech, as president of the company, had been relegated to piloting a desk in panic-stricken New York City, and he longed for an opportunity to get back to building airplanes. In 1932, when the Depression was at its worse, Beech resigned from Curtiss-Wright and returned to Wichita. He established the Beech Aircraft Company in April of that year, convincing a number of former Travel Air employees to join him.

Working out of leased space in the shuttered Cessna factory, Beech and his team of workers set out to build a five-seat luxury sedan biplane with an enclosed cabin, a recessed upper wing, and a top speed of 200 miles per hour. Finally, on November 4, 1932, Beech rolled out his first airplane, the Model 17. Beech spent the following year promoting

his new design at air shows and in competitions. After receiving orders for several dozen of the craft, Beech negotiated a lease of his original Travel Air factory from Curtiss-Wright and moved his operation to the larger building.

As the country slowly climbed out of the Depression, demand for aircraft began to recover. To cover as much of the market as possible, Beech created several variations of the Model 17, featuring different Wright engines and load capacities, and ranging in top speed from 150 to 240 miles per hour. The Staggerwing, as the Model 17 had become known, was produced in ever greater quantities during the latter half of the 1930s. Cash flow provided from this successful model enabled Beech to begin work on his second design, a radically different twin-engine monoplane called the Model 18.

The seven-seat Model 18, or Twin Beech, had even more impressive duration and payload characteristics than the Model 17. After winning several more aircraft competitions, the 243 mile-per-hour Twin began to invite interest from the U.S. Army and Navy. As hostilities in Europe set the stage for a large-scale war, the Roosevelt Administration began preparations for wartime supplies and production. The armed services ordered several Model 17s and 18s for use as transports and for bomber and gunnery training duty in 1939.

In 1940, when Britain and France declared war on Germany, the army and navy flooded Beech with new aircraft orders. Employment at the Beech factory skyrocketed from 235 employees to more than 2,000. After the United States became directly involved in the war in 1941, Beech was called into action as one of America's major aircraft manufacturers. In addition to the Models 17 and 18, Beech turned out a wood-frame training plane--so constructed to conserve aluminum for combat aircraft--called the AT-10.

Beech's largest military aircraft never went into production. The XA-38 "Grizzly," a twin-engine ground attack aircraft, was cancelled as the war drew to a close. By the end of the war in 1945, however, Beech had turned out 7,400 military aircraft and its employment stood at 14,000. The company was awarded five Army/Navy "E" citations for excellence in efficiency under the War Production Board. As many as 90 percent of all American war pilots were trained in Beech-built aircraft.

The end of the war also spelled the end of huge military orders. Beech began concentrating on reentering the commercial and civilian markets, planning for this conversion well before the war's end. Within months of its conclusion Beech was on the market with improved versions of the Model 17 and 18. In 1947 the company rolled out its first new

basic design in ten years, the Model 35 Bonanza. This plane was an all-metal four-seater with a distinctive V-tail which replaced the conventional T-tail of other designs. Beech received hundreds of orders for this new design before it was rolled out, confirming the existence of a pent-up demand for private aircraft. The Bonanza was Beech's smallest design, perfect for the profitable winged "family sedan" market that was emerging for competitors such as Cessna and Piper.

Despite churning out more than 1,000 Bonanzas in 1947, the small aircraft market proved unable to keep Beech's wartime work force fully occupied. The company's roles were trimmed until they reached 2,200 in 1949. In addition, the flood of civilian aircraft into the market quickly overran demand. Beech now faced very soft market conditions and had few alternatives but to quickly retool for other more profitable products. During the immediate postwar years, Beech manufactured corn harvesters and a variety of aluminum parts for other manufacturers in order to maintain its factory space and a core of skilled employees.

In the meantime Walter Beech turned his attention back to new aircraft designs to take the place of the venerable but aging Models 17 and 18. Beech attempted to follow other airplane builders, including Boeing, Convair, and Douglas, into the commercial market, where they had succeeded in winning major sales of ever larger aircraft. Beech, on the other hand, focused on a market niche by building smaller commuter-type aircraft to be used for the hundreds of shorter airline routes being charted. Beech's entry was the Model 34 Twin Quad, a 20-passenger, V-tail plane. In 1949, after two years of failed sales efforts, the program was canceled.

On December 2, 1948, Beech rolled out a new single-engine trainer called the Model 45 Mentor, and eight months later began work on the Model 50 Twin Bonanza. While the Mentor became the new standard trainer for the U.S. Air Force, Navy, and numerous foreign military organizations, the Model 50 was snapped up by industrial customers for use as an executive craft. With the eruption of hostilities in Korea, the army once again became a big customer, using the rugged Model 50 as a utility plane, and ordering \$50 million worth of new aircraft. As the hostilities turned into war, Beech Aircraft was once again brought into the military fold, producing training craft and a variety of parts for other manufacturer's planes. Under military specifications, Beech dabbled with jet-powered models, but never received a production order.

On November 29, 1950, Walter Beech died suddenly of a heart attack. He was succeeded by his wife, Olive Ann, who became one of the first

female chief executives in American business. In August of 1956 Olive Ann Beech revived the Travel Air name as the moniker for her company's Model 95, a twin-engine plane designed to fill the gap between the Model 35 and Model 50 Bonanzas. The Bonanza Twins subsequently evolved into a third design, introduced in 1959, called the Model 65 Queen Air. During the 1950s Beech also became involved with NASA space exploration projects. The company was asked to pursue development of cryogenic systems that would permit liquified hydrogen and oxygen to be used as rocket fuels. Beech set up a facility in Boulder, Colorado, to research and build these systems, and began supplying cryogenic apparatus with the Gemini project.

Beech had also established a second factory at Liberal, Kansas, where a new airplane, the Model 23 Musketeer was produced in 1963. By this time, Beech had expanded its product line by introducing its Model 33 Debonair and twin-engine Model 55 Baron series. In 1964 Beech rolled out its most enduring design since the Model 17, a corporate turboprop called the Model 90 King Air. This was followed in 1968 by the 17-seat Beechcraft C99, which represented Beech's reentry into the commuter airline market. That year Olive Ann Beech turned the presidency of Beech Aircraft over to Frank E. Hedrick, while she remained as chairman and CEO.

As the space program accelerated toward the July 1969 manned moon landing, Beech cryogenic devices were employed aboard Apollo space craft for propulsion systems, air and electrical supply, and even manufacturing water. Beech's work for NASA drew it closer to a major aerospace contractor, the newly merged McDonnell-Douglas company, which built the Apollo command module. It also led Beech into a series of Defense Department projects to build missiles, target drones, and other implements.

In the late 1960s the avionics engineer Bill Lear and Beech's crosstown rival, Cessna, launched new product extensions that threatened to seriously undermine Beech's position in the market—private jets. Unable to fund development of a jet and with almost no time to get one in the air, Frank Hedrick sealed a deal with Britain's Hawker-Siddeley Group that would allow Beech to manufacture and market that company's HS-125, originally designed by DeHavilland. Hedrick won an agreement to sell the proven model under license for five years as the BH-125.

In 1975, after five years of poor sales and despite Beech's excellent marketing network, Beech and Hawker-Siddeley agreed not to renew their arrangement. While Lear, Cessna, and Dassault prevailed in the private jet business, the BH-125 enabled Beech to enter and exit the market with no development or wind-up costs. Those that remained in the

market had yet to earn a decent return on their jet products.

Beech suffered the first of numerous product liability setbacks in 1971 when an FAA study identified problems with control locks on the Model 55. Problems identified were quickly rectified, but the process inspired a battery of personal injury lawyers to launch wrongful death suits against all small aircraft manufacturers, including Beech.

The litigation costs affected Beech less than a downturn in the market. In 1973, unable to secure credit for additional development and production, Hedrick sought out a merger of Beech with Grumman Corp., a deep-pocketed defense contractor. Grumman hoped to use Beech to lessen its overall dependence on the government for its business. Grumman, however, had serious financial difficulties of its own, stemming from problems with its F-14 Tomcat. When demand for its aircraft began to recover, Beech called off merger talks. Within a year Beech was back in trouble. At that time an OPEC oil embargo plunged the United States into a serious energy crisis that resulted in, among other things, the cancellation of aircraft purchasing.

The company sputtered along for three more years before Hedrick again actively sought a merger for Beech. He approached General Dynamics Corp., another defense contractor, several times larger than Grumman, with the same proposal. General Dynamics saw the benefits of diversification into civilian businesses, but as talks progressed, that company's share price began to slip while Beech's rose. For the second time, Hedrick abandoned a merger.

After allowing its agreement with Hawker-Siddeley to lapse, Beech invested heavily in its 8- to 15-seat King Air turboprop. In light of the energy crisis, this was a strategic move. Turboprop planes were slower than jets, but were much more economical to operate. Thus, customers chose craft like the King Air over jets from Lear, Cessna, and Falcon. When demand for turboprops began to wane, however, Beech once again found itself unable to finance the development of new products, and was locked out of an increasingly tight credit market. Hedrick began looking once again for a corporate suitor with a deep commitment to aviation.

In 1980 Hedrick settled on the Raytheon Company, a Massachusetts-based manufacturer of avionics and missile systems, and one of the earliest developers of radar systems. As a primary Pentagon contractor, Raytheon had access to billions of dollars in cash flow. For Raytheon, the \$800 million acquisition of Beech represented a chance to diversify its customer base. Hedrick joined the board of Raytheon in January of 1981, and was succeeded as president of Beech Aircraft by Edward C. Burns. Olive Ann Beech continued to serve as the company's

chairman.

A year after Raytheon took over Beech, the general aviation market crashed, due mainly to a recession and the emergence of a strong market for used aircraft. Nevertheless, Raytheon allowed Beech to sink tremendous amounts of development money into a highly experimental aircraft called the Starship. The plane, constructed mainly out of special plastic composites, featured two rear-mounted pusher propellers and other design features that made the Starship appear to be oriented backwards. And, while it flew in a wind tunnel, there was no guarantee the craft would actually work.

In 1983 Hedrick, Burns, and Mrs. Beech retired. Linden Blue served as president for a year and was succeeded by James A. Walsh. During this time, Beech delivered the first of its newly pressurized Model 1900 airliners. Laid out for 19 passengers--because federal law requires that 20 have a flight attendant--the 1900 became a popular short-run airplane for numerous small airlines. The 1900 airliner separated Beech from its traditional rivals as the company found itself competing in a new market, populated by small airliner manufacturers such as Fairchild, Short, and Canadair.

Beech made its second entry into the jet market by purchasing the marketing rights, and later production rights, of the Diamond jet from Mitsubishi Heavy Industries. But from 1986 to 1989, Beech managed to sell only 62 of its "Beechjets." The company began to regain its footing in the jet market in 1988, when it began production of its Beechjet 400A, an improved version of the Mitsubishi Diamond.

In 1987, Beech Aircraft agreed to retrofit more than 5,000 Bonanzas that were inadvertently certified by the Federal Aviation Administration (FAA). The two-year retrofit, covering every V-tail Bonanza built since 1950, was initiated by Beech and the company absorbed the costs. Meanwhile the Starship continued to drain Beech of its profits, although the company won a huge contract from the Pentagon. In partnership with McDonnell-Douglas and Quintron, Beech surprised its competitors, Cessna and Lear, by winning a billion-dollar bid to supply 180 T1-A Jayhawk tanker trainers to the air force. The Jayhawk, a military version of the 400A Beechjet, helped to bolster its civilian counterpart's place in the market.

In 1990, Beech recorded its best year, turning out 433 aircraft and collecting \$1.1 billion in sales. As a result, Max Bleck, who had succeeded Walsh as president of Beech in 1987, was promoted to president of Raytheon. He was replaced at Beech by Jack Braly. Also in 1990 the Starship won certification. While a fine aircraft, the Starship was expensive and, in an era of corporate cost-cutting, it

could prove difficult to sell. In 1992, Beech's 60th anniversary year, the company turned out its 50,000th aircraft. That same year, however, a sales slump, attributed to a ten percent federal luxury tax, caused the company to cut back production and lay off 180 administrative staff.

By virtue of its 1900 and Jayhawk projects, Beech remains the largest of the small aircraft manufacturers, though Cessna builds more private aircraft. It offers a complete line of advanced aircraft, from the single-engine Bonanza, to the twin-engine Baron and Super King Air series, to the futuristic Starship. The bulk of Beech's recent success, however, lies with its Beechjet and 1900 airliner. Barring any severe depression in small aircraft markets, Beech is likely to retain its leading position in this sector of the aviation industry.

Principal Subsidiaries: Beech Holdings, Inc.; Beechcraft East; Hangar One Company; Hedrick Beechcraft Company; United Beechcraft Company; Beech Aerospace Services, Inc.; Beech Acceptance Corporation; Travel Air Insurance Company; BeechPower, Inc.