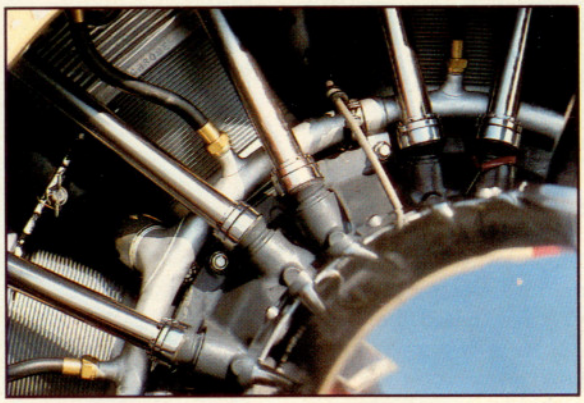
BIG RED

Utility, thy name is Twin Beech. Still.

BY EDWARD G. TRIPP

Most references to the Beech 18—*the* Twin Beech—are in the context of the historic considerations of the classic design. There are many—as many as 2,000—still hard at work. But most of them are sorry remnants of what was the exemplar of business aviation from the late 1930s to well into the 1960s. They literally fly by night, hauling cargo and mail, and some illegal substances, operated by marginal businesses wringing the final hours from them. Others, beyond the limits of marginal utility, sit cannabilized and tattered, scattered in the nether reaches of airports across the country.



The Twin Beech flown for this article, N99800, is special in many respects. Big Red, as it has come to be called by practically everyone who has seen it, is the flagship of the charter fleet of Flite Services, Incorporated, at DeKalb Peachtree Airport in Atlanta. Since it entered service with the company in January 1984, it has averaged close to 100 revenue hours each month.

According to William L. Shivers Sr., AOPA 441000, president of Flite Services, Big Red attracts attention wherever it flies. Many of his regular charter customers prefer it to more modern aircraft because of its uniqueness, comfort and style.

One of the early passenger charters was to Tampa for the Super Bowl. There were hundreds of millions of dollars worth of exotic corporate aircraft parked at the airport that weekend, but Big Red was parked in the place of honor on the Hangar One ramp.

Shivers does not baby the airplane in the kinds of tasks it performs. The day we taxied up to the Flite Services ramp to ogle, fly and photograph it, N99800 had just returned from a cargo flight to Flint, Michigan, carrying a load of ball bearings to an automobile plant. It takes less than one hour to convert from passenger configuration to cargo. Yet another interior configuration allows the aircraft to be used for medical transport.

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Big Red is also special because it is literally the end of the line of a design that first flew on January 15, 1937, and had a continuous production run of 32 years. A total of 7,126 were built in 32 different civil and military versions. An additional 2,263 were returned to the factory by the Air Force and Navy to be completely rebuilt and given new serial numbers. (For more details, see "Yesterdays Wings: The Beech 18" by Peter M. Bowers, February 1983 *Pilot*, p. 83.)

Some of the early Twin Beech sales were to foreign governments; an order from Japan Air Lines kept the line open beyond its scheduled closing. Big Red was the third-to-last 18 built. It and its two mates were honored in a special-delivery ceremony on November 26, 1969, and then were ferried to Japan to begin work as advanced flight training aircraft for JAL crews.

The "super" designation started in 1954 with the introduction of the Model E-18-S. The wingspan increased six feet, and the tips were redesigned to the distinctive, highly cambered configuration. The nose was reshaped and lengthened. The roof line was raised nine inches. Performance gains included an increase in gross weight of 550 pounds, range to 1,260 nm. Single-engine performance increased as well. Yielding to customer demand and the products of modifiers, Beech also offered an airstair door for the first time. Basic price was $100,000.

The G-18-S featured picture windows in the cabin and three-bladed props. Starting in 1962 the factory began offering the Volpar tricycle gear conversion as an option.

The Super H-18 was introduced in 1962, the twenty-fifth consecutive year of Twin Beech production. The gear was fully enclosed for the first time, and air conditioning and an airborne telephone were first time options. Gross weight increased to 9,900 pounds and maximum useful load to 4,200. Maximum range decreased slightly to 1,095 nautical miles with the optional fuel capacity of 318 gallons.

Pratt & Whitney had stopped manufacturing round engines. The Model 18, which started using R-985s in 1939, outlived its powerplants. The Super H-18's R-985 AW-14-Bs, rated at 450 hp, were remanufactured. Fuel injection was an option. Basic price for the H-18 in its last two years of production was $179,500; average equipped price was $214,000. The optional Volpar gear modification cost $22,950 and added 329 pounds to the basic empty weight.

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Shivers did not decide to buy an 18 on a lark. Atlanta represents a good cargo market for charter operators, particularly critical parts for the automobile industry. None

PHOTOGRAPHY BY ART DAVIS

continued

of the aircraft in Shivers's all-Piper charter fleet of Navajos, Aztecs, Senecas and Lances were suited to hauling the type of loads he wanted to bid for. A Beech 18 with a cargo door offered the deck area and cubic space he was looking for. He wanted tricycle gear to minimize operational problems and to increase passenger appeal (passengers are not used to lying on their backs while the airplane is on the ground).

In addition, there was not much of a learning curve since both his service manager, David Beauchamp, and shop foreman, Shay Ingle, had years of experience with 18s and their powerplants. In addition, another acquaintance, John Hollowell, who currently works in Atlanta Center, has a great deal of Twin Beech (and DC-3) flying experience and is a company check airman.

It was a purposeful decision to purchase a Beech 18. Finding one that fit his requirements was not a simple task. But the advertisement and follow-up telephone conversations about N99800 appeared to make it fit the bill. It had a total of 6,500 hours on the airframe.

However, when Beauchamp and Shivers got to Long Beach, California, to close the deal and take Big Red home, things were not entirely as represented. The aircraft was to have been delivered "ready to go—first class" with a fresh annual and one remanufactured engine. It took a lot of hard negotiating and four days of hard work on the airplane to put it into Shivers's ownership and ferryable condition.

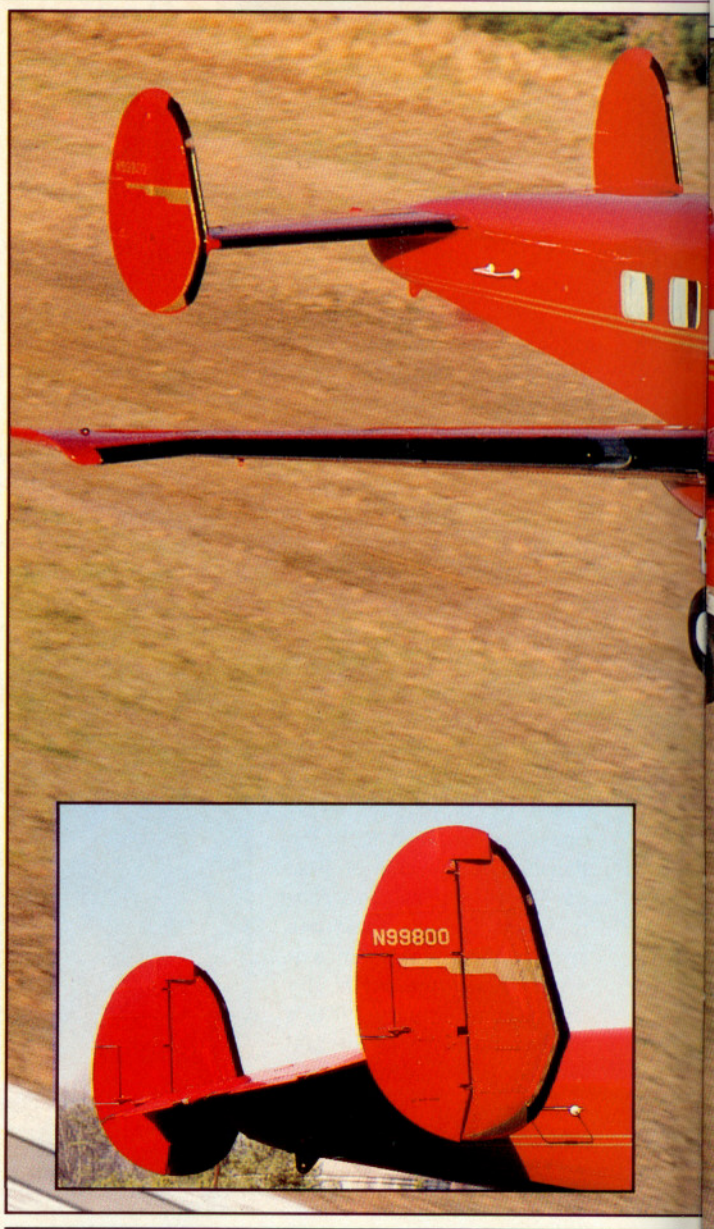
At the time of purchase, Big Red was literally red all over, right down to the wheel wells and the gear legs. It had been run hard and serviced little. And, as Shivers discovered two days after getting the airplane back to his base in Atlanta, some of its flying had raised the suspicions of the Drug Enforcement Agency. Two government agents arrived to remove a tracking device, complete with encoding altimeter, that had been hidden in one wing.

Big Red was returned to the United States on February 6, 1976. It then began the slow, seemingly inexorable decline into a typical Twin Beech ramp rat that was the fate of so many. Fortunately, the man from whom Shivers bought it had spent a great deal of money putting it back in service. One thing Shivers had no complaint about was the condition of the fabric-covered control surfaces. They had been recovered—well done, Shivers said—as part of its initial rehabilitation. In time, however, the owner left Big Red in the hands of a friend who offered to maintain it in tip-top shape in exchange for its use. It started downhill again.

The ferry flight to Atlanta was relatively uneventful except that the aircraft had "...more than seven-hour fuel endurance at 60-percent power but only a two-and-a-half-hour oil endurance on the bad engine," according to Shivers. They used 68 quarts of oil on the way home.

It took Shivers and his crew three months of hard work to get Big Red in shape to fly the line. He calculates the total cost to be $100,000, not including all the "sweat equity" invested.

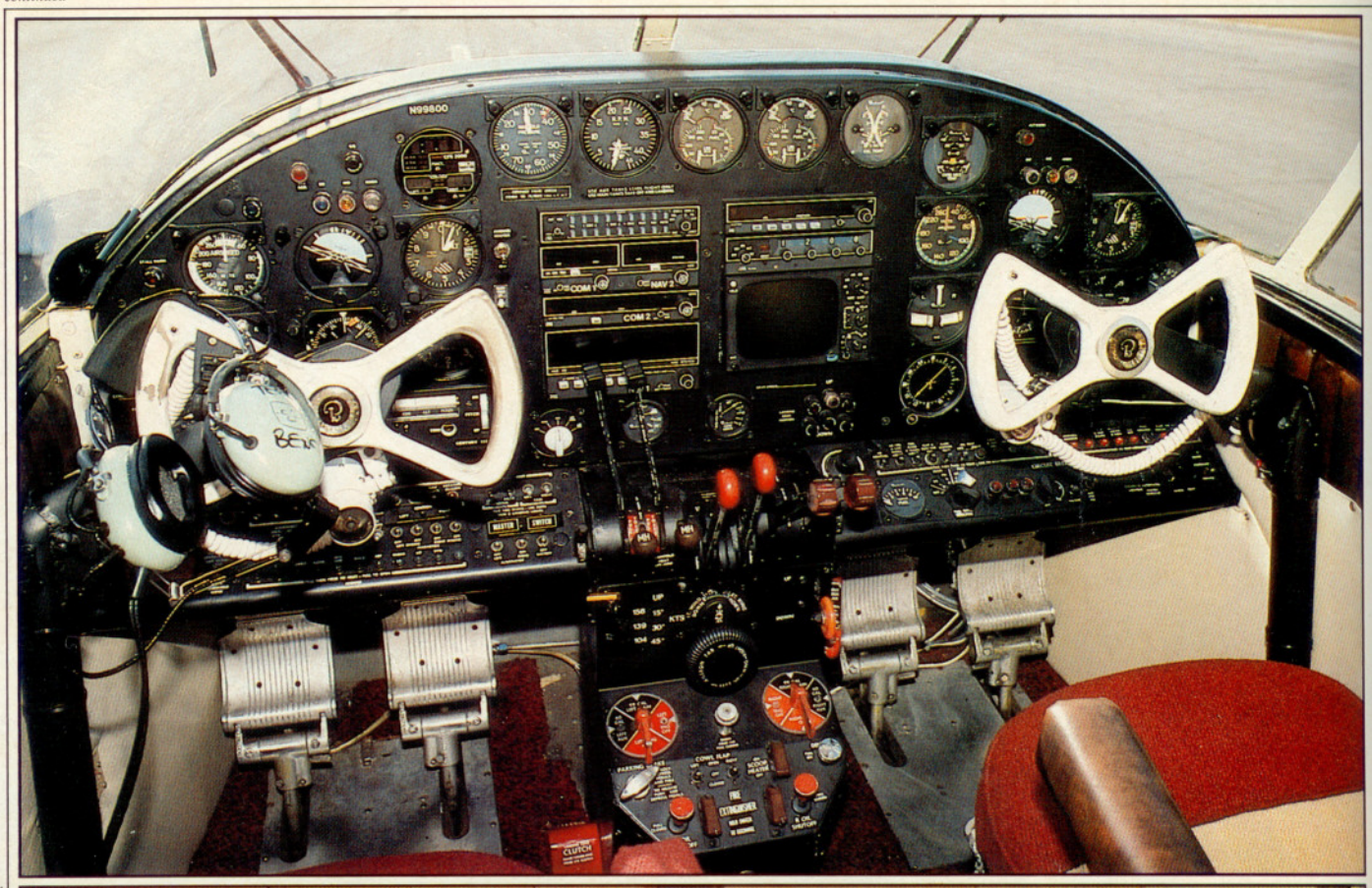
The first big change was to remove and replace the sick engine. After the airframe was gone over thoroughly, the interior was updated from the panel to the aft cabin. A new panel was installed. The gauges were rearranged in a more conventional grouping, including a full set of



104 45°
DOWN
PARKING BRAKE
FLOOD HEATER
FIRE EXTINGUISHER

BIG RED

It may only be 15 years old, but Big Red exudes the aura of the air-pocket and Chiclets era.



DON WHEELER

copilot instruments, right down to a horizontal situation indicator. King Silver Crown radios were installed, including a KNS 80 RNAV system, together with a Bendix RDR 160 radar and a Century III autopilot. Shivers believes the two greatest improvements in modern avionics are RNAV and digital fuel computers. "They pay you back right away," he says.

Plumbing for pneumatic deicing boots had been installed at the factory. Flite Services added the boots to the airframe, and Bendix fuel injection was retrofitted to the engines.

Shivers bought upholstery to redo the seven cabin and two crew seats from Airtex, that was able to turn the job around in a matter of days for about half the price quoted by a local upholsterer. He did the head and side panel linings himself.

By the time they had finished, Big Red was sparkling and modernized. The equipped empty weight was now 6,824 pounds. With full fuel (318 gallons), payload is 1,168 pounds. At the preferred power setting of 60 percent (1,900 rpm/27 in MP), endurance with reserves is seven hours. Despite the reputation that radial engines have for consuming and leaking oil, Shivers says it takes an average of eight hours of flying to consume a quart, and the outside of the engines stay dry. He calculates his average fuel burn to be 42 to 45 gph, about four gallons more than the Navajo Chieftain burns. The only outstanding question had to do with the other engine, which tested out okay.

Shortly after the airplane entered service, any doubts were removed when a cylinder failed during a trip to Crestview, Florida. That engine was replaced.

Shivers now runs Aeroshell 15/50 multiviscosity oil in the engines, which he claims is unusual for radials. He is pleased with the results and states that he doesn't need to use the oil dilution system for cold-weather starts.

That all makes sense. It is very businesslike. Shivers is a businessman, and Big Red is a business tool. But the other dimensions of the quest are made clear as he talks about it or when your attention is drawn to the airplane or, better yet, when you settle into a seat—any seat.

Suddenly, it is all-out fun. And glamour. It may only be 15 years old, but Big Red exudes the aura of the airpocket and Chiclets era. The flight deck is high, wide and handsome. The big side windows, with opening windows large enough to act as crew doors, are down at elbow level. The Beech-backward engine controls are there, but a *real* Twin Beech pilot will look for the tailwheel lock in vain.

While Big Red's cabin is not opulent, the decor is honest, with a total absence of simulated woodgrain Cycolac. The passenger chairs are comfortable, and the arcing overhead is high above, looking for the world like that of a parlor car back in the days of steam engines. You can easily get up and walk about while the aircraft is in flight.

When seated, eye level is about at the top of the nacelles. Looking toward the cockpit, the crew sits on a platform above the level of the cabin floor.

When the engines start, it is a different world; an older one now lost to most of us: the rumbling, muffled roar of a good round engine. Noise level in the cabin is considerably lower than in the cockpit, where wind noise and propeller slap compete with the engines for the most pronounced sound.

The illusion of performance and handling is stately, but Big Red can lift off at gross weight and cross the imaginary 50-foot barrier in less than 2,500 feet (the book says 2,072 feet with maximum effort), climb at an initial rate of 1,400 fpm, cruise at 10,000 feet at 60-percent power at 184 knots for 1,390 nautical miles with reserves and land in less than 2,500 feet (again, the book says 1,850 feet over a 50-foot barrier with maximum effort). Stall is a docile 76 knots in landing configuration.

In every respect, Big Red performs competitively with modern medium twins. Of course, it is not pressurized. That does not bother Shivers, who prefers to cruise below 10,000 feet to enjoy the scenery conditions in VMC.

Shivers is in a very enviable position with his flagship. Not the least of the reasons is the pleasure received from a treasure that makes money as well.

Sweat equity is returning high dividends. □

1969 Beechcraft Super H-18

Base price $179,500

Specifications

Powerplants	Two Pratt & Whitney R-985-AN-14B
Propellers	Two Hartzell, three-blade, constant speed, full-feathering
Length	39 ft 2.5 in
Height	9 ft 4 in
Wingspan	49 ft 8 in
Wing area	360.7 sq ft
Wing loading	27.5 lb/sq ft
Power loading	11 lb/hp
Seats	8 to 13
Cabin length	10 ft 5 in
Cabin width	52 in
Cabin height	66 in
Empty weight	5,845 lb
Empty weight, as tested	6,824 lb
Gross weight	9,900 lb
Useful load	4,055 lb
Useful load, as tested	3,076 lb
Payload w/full fuel	3,857 lb
Payload w/full fuel, as tested	1,168 lb
Max landing weight	9,500 lb
Fuel capacity, std	1,188 lb/198 gal
Fuel capacity, w/opt tanks	1,908 lb/318 gal
Oil capacity, ea engine	28 qt
Baggage capacity	300 lb, 24 cu ft

Performance

Takeoff distance over 50-ft obst	2,072 ft
Rate of climb, sea level	1,400 fpm
Single-engine ROC, sea level	260 fpm
Max level speed, sea level	196 kt
Max level speed, 10,000 ft	205 kt
Cruise speed/Range w/45-min rsv (318 gal)	
@ 66.7% power, best economy (2,000 rpm; 27 in MP)	
10,000 ft	191 kt/1,260 nm (23.7 gph)
@ 57.7% power, best economy (1,900 rpm; 25.5 in MP)	
10,000 ft	181 kt/1,390 nm (20.3 gph)
@ 53.3% power, best economy (1,900 rpm; 24.3 in MP)	
10,000 ft	176 kt/1,445 nm (18.9 gph)
Service ceiling	20,300 ft
Single-engine service ceiling	7,900 ft
Landing distance over 50-ft obst	1,850 ft

Limiting and Recommended Airspeeds

Vmc (Min control w/critical engine inoperative)	82 KIAS
Vx (Best angle of climb)	85 KIAS
Vy (Best rate of climb)	112 KIAS
Va (Design maneuvering)	133 KIAS
Vfe (Max flap extended)	
15 degrees	156 KIAS
30 degrees	139 KIAS
45 degrees	104 KIAS
Vle (Max gear extended)	139 KIAS
Vno (Max structural cruising)	176 KIAS
Vne (Never exceed)	222 KIAS
V_{s1} (Stall clean)	81 KIAS
Vso (Stall in landing configuration)	76 KIAS

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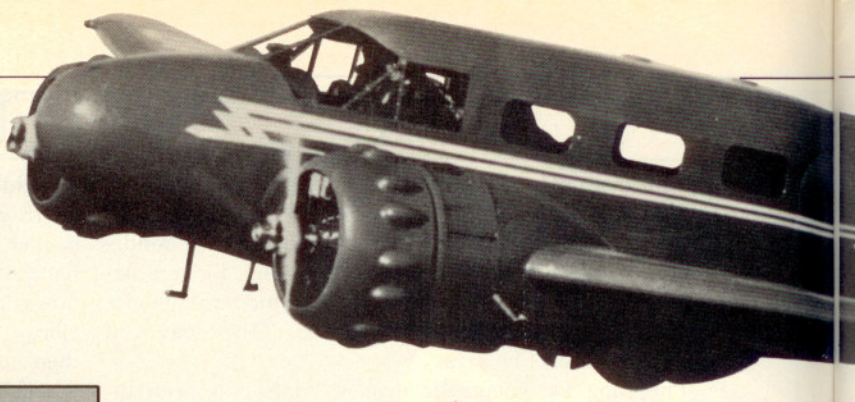
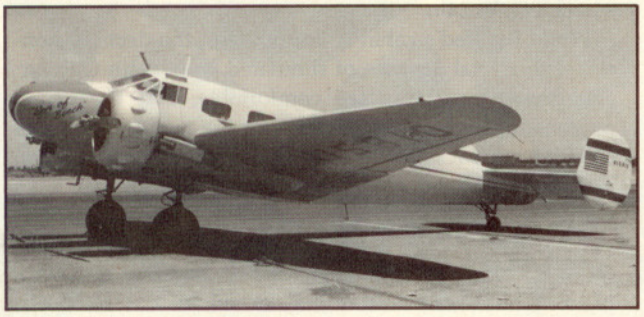
BEECH 18 SPOTTER'S GUIDE





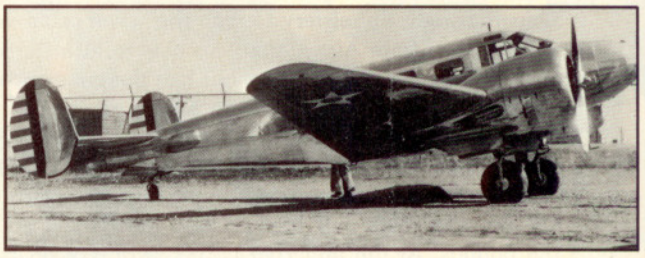
The first production model in the 18 series, the 18A, was introduced in 1937. It is powered by two 320-hp Wright R-760-E2 (J-6-7) Whirlwind radial engines that are housed under NACA cowlings. The cowlings are close-fitting and have bumps to accommodate the cylinders. The landing gear are retractable but are not fully enclosed; a portion of each main wheel and the tailwheel protrude.

The use of two 285-hp Jacobs L-5 engines and seating for nine differentiates Model 18B (also introduced in 1937) from 18A.

Gross weight increased from 6,700 pounds to 7,200 pounds with the 11-place Model 18D (1938). This model is powered by two 330-hp Jacobs L-6 engines. The purchase of this model —modified for aerial photography—by the Philippine Army Air Corps in mid-1938 marked Beech Aircraft's entry into military twin-engine production. Lt. Col. Dwight Eisenhower, then Chief of Staff of the American military mission to the Philippine Commonwealth, inspected the Philippines' new purchase while it was still at the Beech factory. He later prompted the United States to order Twin Beech models for military use. A-18-A and A-18-D are 1940 variations that can be fitted with floats.

S-18-A is a 1941 modification of 18A that is fitted with Edo 55-7170 floats.

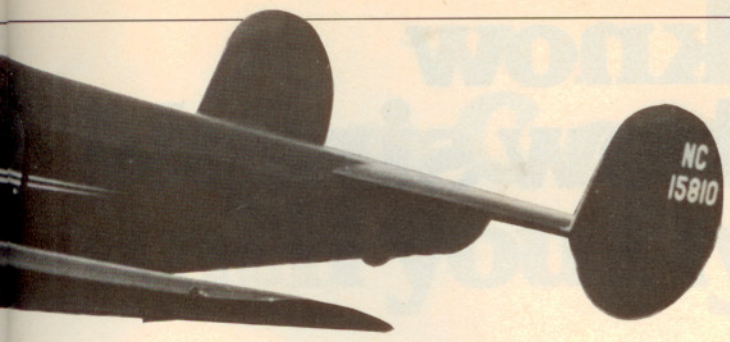
The Twin Beech was first offered with 450-hp Pratt & Whitney R-985 Wasp Jr. engines in 1939, and the model designation became 18S. The Army purchased this model and designated it C-45-C.



The Model 18 design changed substantially in 1940 with the Model B-18-S. The change is apparent in the enlarged vertical tail surfaces and smooth cowlings. Gross weight increased to 7,500 pounds. The Army bought this model, modified with additional ports for cameras, and designated it F-2.

A 24-volt electrical system was first offered in 1944 with the C-18-S. Most of the Beech wartime models were built under this configuration, and all were powered by the P&W engines. The following C-18 series were sold to the military in 1944: The Army C-45 (C-45-A, UC-45-B and -45-F)/Navy JRB (JRB-1, -2, -3 and -4) is a light transport airplane. The Army AT-7 (AT-7A, -7B and -7C)/Navy SNB (SNB-2 and -2C) is a five-seat military trainer. Another model, the Army AT-11/Navy SNB-1, was introduced in 1946 as a bomber-crew trainer with a transparent nose for student bombardiers.

The first postwar model, D-18-S, was introduced in 1946. Changes included extending the wing center section between the nacelles and fuselage and extending the upper section of the nacelle farther back into the wing. Gross weight increased to 8,750 pounds.

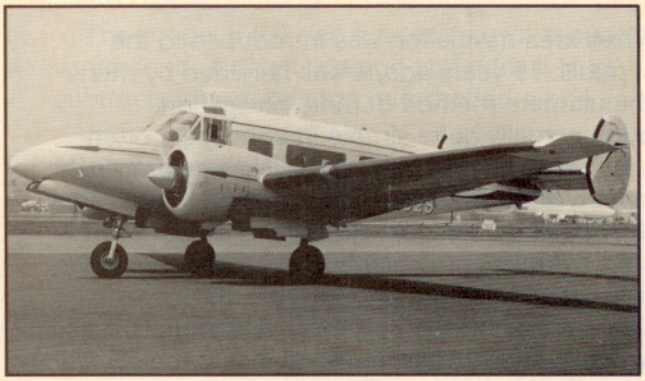


The prototype Model 18 made its first flight in 1937. The 18 series was produced in 32 variations of the original design.

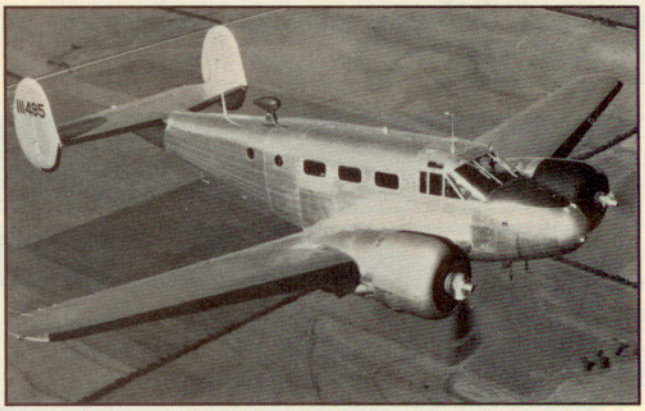
The D-18-CT was introduced in 1947 and has the basic design of the D-18-S but is powered by two 525-hp Continental R-9A radial engines. Model D-18-C is the 10-seat Executive version. Gross weight of both models is 9,000 pounds.

The first Super 18, E-18-S, was introduced in 1954. The wingspan increased six feet, the cabin roof was raised nine inches, a more streamlined nose increased the length by 18 inches, and the wing tips were redesigned. In addition, an airstair door first was offered with this model, and gross weight increased to 9,300 pounds. It used the P&W engines.

The E-18-S was modified in 1959 with two Aerojet-General 15NS-250 Junior JATO lightweight rocket engines. Gross weight increased to 9,700 pounds and the designation became E-18-S-9700. The G-18-S also was introduced this year and is similar in design but offers picture windows and three-bladed propellers. Gross weight increased to 9,900 pounds with this model.



Beechcraft first used tricycle landing gear on the Super H-18, which was introduced in 1962. The gear can be fitted to any of the previous model 18s. Air conditioning and airborne telephones also were offered with this model.



Between 1952 and 1961, more than 2,200 military Twin Beech models were given new center sections, extended nacelles and other new equipment in a government modification program. These were given the designation C-45-G.

The Dumod Corporation made its own modifications. The Model 18 is shown stretched to 18 feet five inches, producing a 15-seat airliner.

—Erin L. Harman