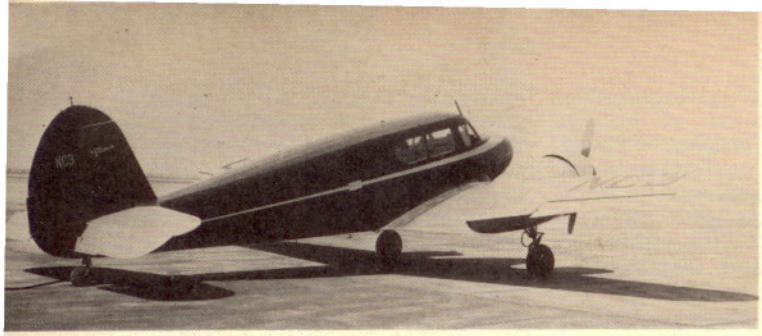
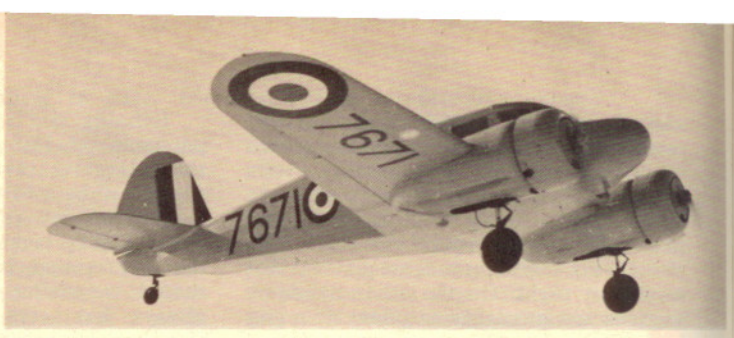
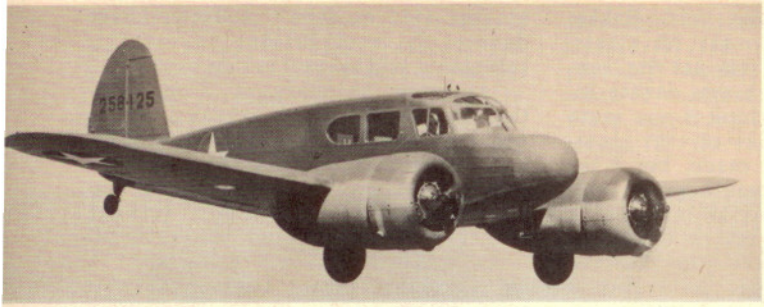


One of the Cessna T-50's operated by the Civil Aeronautics Authority, photographed in April 1941. Note registration, NC-3. CAA (now FAA) keeps low numbers for itself, reissues them to new planes in the fleet as older ones are replaced. *Photo by Peter M. Bowers*



First of the Cessna military twins, a Crane I for the Royal Canadian Air Force. Note cold-weather air baffles installed in the throats of the engine cowlings. *Photo by Chester Phillips*



Army transport version of the Cessna T-50 was the UC-78. These were delivered in olive drab and gray camouflage until 1944. Final deliveries were again silver, after the Army decided that camouflage was no longer necessary. Note how far the retracted wheels project from the nacelles. *Photo by Cessna Aircraft Co.*

Yesterday's Wings:

The Cessna T-50

Wood and fabric-covered plane went to war in the 1940's after winning acceptance as civil 'economy' twin. Although it had many official names, it is perhaps best known by an unofficial name: the Bamboo Bomber

by PETER M. BOWERS / AOPA 54408

■■ While twin-engine airplanes are nothing new on the aviation scene, having been around since the beginning of World War I, it took them a long time to become part of the general aviation picture.

The commercial operation of twins was pioneered by the airlines, the earliest of which used converted World War I bombers. Since engines weren't very reliable in those days, and the clumsy biplanes couldn't stay up on only one, the airlines were quick to adopt the trimotor monoplane configuration developed in 1925 by the Dutchman Tony Fokker. Fokker trimotors held a near monopoly on European airlines into the early 1930's and, in combination with the very similar Ford Tri-Motors, dominated the American trunk airlines as well, from 1926 to 1932. These were displaced by the new generation of sleek, low-wing twins like the Boeing 247 (13,650 pounds, 10 passengers) and the Douglas DC-2 (18,200 pounds, 14 passengers).

Low-wing twins with retractable landing gear were clearly the coming thing in the early 1930's, but their size and cost kept them the property of the airlines and the military for a few more years. Gradually, the twins began to get scaled down as new markets opened up during the recovery from the depression. Lockheed introduced its Model 10 *Electra* in 1934. While this was still an airliner (10,100 pounds, 10 passengers), it was eagerly accepted for business use. A very similar but somewhat lighter model introduced in 1937 was the Beech 18 (7,659 pounds, 6-8 passengers), which was aimed directly at the business market and became the most successful twin ever built (other than the Douglas DC-3). It's still in production!

Several firms attempted to follow the Beech 18 with smaller "economy twins" aimed at the next lower level of ownership, but only the Cessna Aircraft Company of Wichita, Kan., was successful. Their model T-50 was introduced in 1940 and won immediate acceptance.

Without consulting the engineers involved, it is hard to say whether the T-50 was a further scaling-down of the standarized twin configuration or the enlargement of the traditional single-engine general aviation model directly into a twin. Both hypotheses hold up, for at 5,000 pounds, the five-place T-50 was halfway between the Beech 18 and Cessna's own contemporary *Airmaster* model, a 165 h.p. four-seater weighing 2,450 pounds.

Structurally, the T-50 owed much more to the established Cessna single-engine line than it did to the larger all-metal twins. The T-50 used a welded steel-tube fuselage with fabric covering. The vertical fin and horizontal stabilizer were fabric-covered wood, and the movable tail surfaces were steel tubing, also fabric covered.

The one-piece cantilever wing, however, was unique and exclusively Cessna. It used two wooden box spars with built-up wood-truss ribs. Where other wooden cantilever wings had plywood covering to provide the necessary torsional stiffness, the Cessna wing was fabric covered.

The torsion problem was resolved by a system of flat steel straps and turnbuckles both above and below the box spars that combined with the deep spars and suitable compression ribs to form a rigid box. The leading edge of the wing was covered with plywood, but this was only to improve the aerodynamics, not to stiffen the structure.

The powerplants chosen were the relatively new Jacobs L-4MB, seven-cylinder, air-cooled radials delivering 245 h.p. while driving two-blade Hamilton-Standard constant-speed propellers. Seating arrangement was pilot and co-pilot forward, at dual controls, with three passengers abreast on a single rear seat.

The commercial success of the new Cessna was cut short by World War II

One of the nearly 2,000 Cessna T-50's operating as civil aircraft after World War II. This Canadian-registered seaplane version was photographed at Vancouver, Canada, in 1955. *Photo by Peter M. Bowers*

The U.S. Army's second Cessna twin, the AT-17. All of the trainer versions were delivered in silver paint. The distinctive Army tail stripes shown were deleted from all uncamouflaged Army airplanes at the end of May 1942, along with the red disc in the center of the star insignia.
Photo by Peter M. Bowers

and the imminence of U.S. entry into it. Only 42 T-50's were sold as civil models, including several to the new Civil Aeronautics Authority. The Royal Canadian Air Force bought 640 of the 5,000-pound T-50's as twin-engine trainers and light transports and named them *Crane I* under the British system of identifying military aircraft by name rather than by model or type number.

With an increasing need of its own for twin-engine trainers, the U.S. Army Air Corps ordered 33 T-50's, with 295 h.p. Lycoming R-680-9 military engines, in July 1940. An autopilot and other extras brought the gross weight up to 5,100 pounds. This model was designated AT-8, for Advanced Trainer Model 8, in the Army designating system. Another Army order was placed in July 1941 for 450 additional T-50's with the Jacobs engine, now designated R-755-9. Because of the different engines and a weight increase to 5,300 pounds, these were designated AT-17. Follow-up orders were placed for 223 AT-17A's, 466 AT-17B's, and 60 AT-17C's. These were not progressively improved models; the structure was the same but some equipment was different—for instance, a shortage of constant-speed propellers made it necessary to use fixed-pitch wooden ones on the AT-17A's and B's.

No AT-17's were ordered with designations higher than AT-17C, but higher designations were used. For military purposes, the AT-17's were allowed to operate at a gross weight of 5,700 pounds. However, when spar problems began to develop in some, the Army restricted them to a gross of 5,300 pounds. To distinguish these from the unlimited standard versions, additional designations were used. AT-17's with the limitation became AT-17E, A's became F, B's became G, and C's became H. The AT-17D's were AT-17C's used as five-place transports instead of trainers.

One hundred and ninety of the various AT-17's were diverted to the RCAF under lend-lease as *Crane II*'s.

Since the T-50 was essentially a transport, the Army soon put it to use as such. The AT-17D served the purpose under a trainer designation, but the Army placed further orders for bona fide transports designated as such. Under the designation of C-78, 1,354 Jacobs-powered five-seaters otherwise similar to the AT-17B were ordered early in 1942. With commercial aviation greatly restricted after Pearl Harbor, and the Army in urgent need of small transports, the Army was able to buy 15 civil T-50's from private owners. These were designated C-78A and pressed into immediate service well before the production C-78's on order could be delivered. The C-78's and 78A's became UC's at the end of 1942, when Army C-types with fewer than eight seats were classified as utility transports—hence the U-prefix to the basic designation.

By the time the C-78 appeared, the U.S. Army and Navy had decided to adopt the British system of naming airplanes in addition to the established U.S. custom of numbering them by type and model. The name *Bobcat* was applied to both the C-78 and the earlier AT's, but the Canadians retained their original name of *Crane*. The thinking behind the name game was simplified public relations and a security screen. Names should be easier for the public to remember than numbers, and a single name could be applied to all versions of a single model without giving away the production status that would be indicated by a late series letter, such as B-17G, on a first-line combat type.

However, the name game caught on only slightly with the public, and not at all with the people directly concerned with the planes, to whom the distinctions between an AT-17A and an AT-17G were quite important.

With the trainer pipeline pretty well filled before AT-17 production was complete, AT-17's near the end of the line were reclassified as transports. AT-17B's became UC-78B's, while AT-17D's became C-78C's. The UC-78's got into the same wing-spar situation as the AT-17's, and some were similarly restricted to the 5,300-pound gross weight. The limited UC-78A's became UC-78D's, the B's became E's, and the C's became F's.

Even the U.S. Navy got into the act at this time, and acquired 67 Jacobs-powered T-50's under the naval designation of JRC-1—JR for utility transport and C to designate Cessna, the manufacturer.

As with many other aircraft, the T-50 soon earned nicknames among the military pilots. Thanks to its easy handling characteristics, it became known as the *Double-breasted Cub*. (The Army's Piper L-4 *Cub* itself, while officially called *Grasshopper* in the name game, was tagged *Maytag Messerschmitt* by the pilots.) The twin-engine configuration also earned the T-50 another nickname, the *Bamboo Bomber*.

The military T-50's plugged along steadily during the war, doing their unglamorous jobs with little fanfare or publicity. They proved to be relatively trouble-free except for the spar problems that brought on the gross-weight reduction. One unusual situation popped up when some UC-78's were operated for a time in the hot, dry climate of the Southwest. The spars dried out and shrank slightly, so the crews tightened up a bit on the bolts attaching the spars to the fuselage. Then the planes got transferred to the damp Northwest, but no one thought to ease up on the wing bolts. As a result, several UC-78's had to be scrapped because of compression failures in the spars at the attach points.

Soon after V-J Day, the majority of the military T-50's in the U.S. and Canada became surplus. Since the design had been type-certificated in the first place, and no structural modifications had been made in the military versions, there was no problem in getting the various military models accepted for civil certification. Sales were brisk for business use, flying schools, charter and freight work, and even short-haul airlines. Ski conversions were common in the north, and even seaplane versions were seen occasionally. Civil registration of T-50's in the U.S., prewar originals and surplus military alike, reached a peak of 1,888 in 1951. This has declined to approximately 50 today.

Naturally, when faced with the competition of its own products on the surplus market, Cessna did not resume production of the T-50 after the war, as some other manufacturers did with their prewar models. The next Cessna twin, the Model 310, did not appear until 1954. □

1940 CESSNA T-50
SPECIFICATIONS AND PERFORMANCE

Wing Span	41 ft. 11 in.
Length	32 ft. 9 in.
Height	9 ft. 11 in.
Wing Area	295 sq. ft.
Powerplant	Jacobs L-4MB, 245 h.p.
Empty Weight	3,500 lbs.
Gross Weight	5,000 lbs.
High Speed	195 m.p.h.
Cruise Speed	175 m.p.h.
Landing Speed	55 m.p.h. w/flaps
Rate of Climb	1,525 ft./min.
Service Ceiling	22,000 ft.
Range	750 mi.