THE CURTISS FLEDGLING

Built from 1928 to 1930, this huge biplane was a well-liked trainer

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■■ The Curtiss *Fledgling* was a primary trainer built by the Curtiss Aeroplane and Motor Company between 1928 and 1930, a time when the biplane was still the mainstay of the flying schools. The Curtiss stood out from its contemporaries for several reasons, not the least of which was its enormous size. In this respect, it was a real monster. As a flying machine, however, it was docile and well liked.

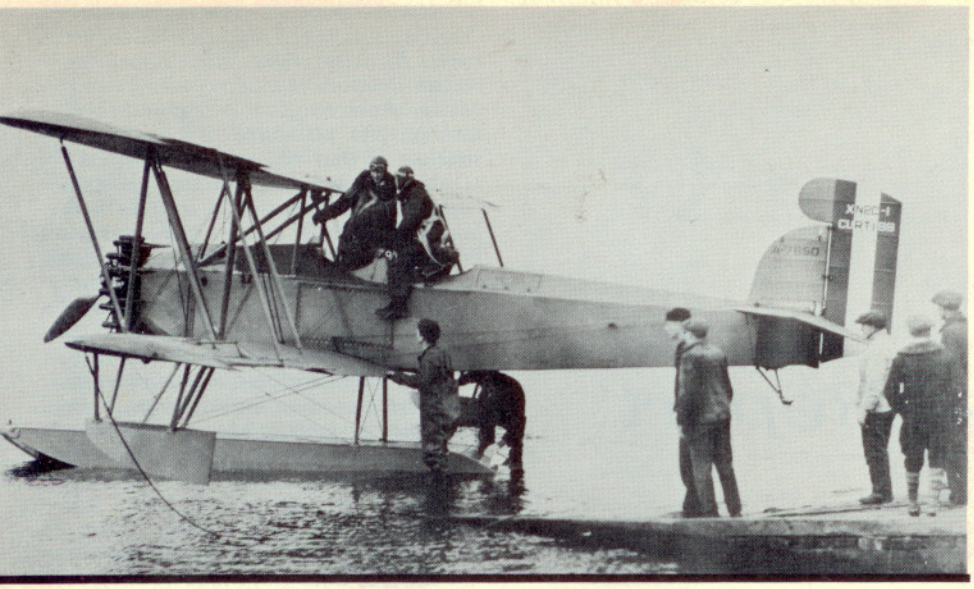
While it is remembered principally as a civilian airplane, the *Fledgling* was originally developed for the U.S. Navy as the Curtiss entry in a 1928 competition for a new Navy trainer model. The specifications for this competition were not "tight" with respect to size and horsepower, and some 14 manufacturers delivered airplanes for evaluation. Most of these were slight adaptations of civil models already in production, but some, including the Curtiss, were entirely new designs built to the concepts of military trainers that had prevailed since World War I. This approach paid off for Curtiss; after evaluation of the three XN2C-1's as the prototypes were known, Curtiss was declared the winner and awarded a contract for 31 production N2C-1's. Curtiss did not assign model numbers to its aircraft at this time, but used names. The N2C's and their export equivalents became the *Guardsman* while the civil versions became the *Fledgling*.

With a wingspan of over 38 feet, the N2C was the biggest primary trainer the services had bought since World War I. It naturally invited comparison with its distinguished ancestor, the Curtiss JN-4, or *Jenny*. While the JN had a greater span (43 feet, 7 inches), it had narrower wings and less wing area, 352 square feet compared to the N2C's 365. In an age of aerodynamic enlightenment, however, the N2C was somewhat of an anachronism in having a total of 26 wing and landing gear struts compared to the JN's 17. Since some of these substituted for the JN's miles of wiring, it must be admitted that the N2C was an improvement in spite of its greater resemblance to a flying picket fence.

The structure was standard for the period, with welded steel tube fuselage and tail structure, wood spars and ribs, and fabric covering over all. Rubber biscuit shock absorbers on the tripod landing gear and high-pressure 28 x 4 inch wheels absorbed the bumps of student landings. Originally, the N2C's and *Fledglings* were fitted with tail skids and the wheels did not have brakes, but tail wheels and brakes were added in later years. The Navy prototypes were tested as single-float seaplanes as well as landplanes, but the civil versions were produced only as landplanes.

Curtiss manufactured engines as well as airplanes and, of course, preferred to use its own engines in its planes whenever possible. However, at the time the N2C-1 was being designed, Curtiss didn't have a compatible engine in production. The 220 h.p. Wright J-5 Whirlwind, a nine-cylinder air-cooled radial, had been in production since 1926 and was the standard primary trainer engine for both the Army and the Navy, so Curtiss chose this for its new trainer. This was a time when the Wright Aeronautical Corporation was a rival company, a year before the merger of the Curtiss and Wright interests that produced the giant (and still existing) Curtiss-Wright Corporation.

The prototype N2C's were built in the Curtiss experimental plant at Garden City, N.Y., but the production versions were built in the main Curtiss plant in Buffalo. With a production line tooled for the military model, it was logical for Curtiss to think of a civil version to follow it. A ready market existed in the Curtiss Flying Service, which was expanded to a nationwide chain of flying schools after the Curtiss-Wright merger. To supply these schools, Curtiss decided to produce 100 *Fledglings*. While 100 examples of a single model are hardly a good two-weeks' work today at Cessna or Piper, such a total spread over the production life of a 1929 model was really a large-scale operation. The school ships were delivered in the standard Curtiss Flying Service colors of yellow wings and tail and orange fuselage. (See August 1967 PILOT cover for a color shot of a current restoration in flight.)



Prototype of the Fledgling, the XN2C-1, submitted to the Navy for test.
Manufacturer's photo

Standard model of the Curtiss Fledgling with 170 h.p. twin-row Curtiss Challenger engine.
Photo courtesy of Truman C. Weaver

Fledgling Junior, the short-wing version of the Fledgling airplane.
Photo by A. U. Schmidt

By the time the *Fledgling* appeared in the spring of 1929, Curtiss had a new radial engine of its own available, the 170 h.p. Challenger. This was unique in being a twin-row six-cylinder model that turned the new forged Curtiss-Reed metal propeller at 1,800 r.p.m. The two Challenger-powered versions of the *Fledgling* were certificated in July and August 1929. The civil model was more than a foot longer than the military because the lighter engine had to be moved forward to maintain balance.

The *Fledgling* was practically the same weight as its naval counterpart and suffered in comparison because of the lower power. An attempt was made to circumvent this problem with a modified airplane known as the *Fledgling Junior*, which had a 7½-foot-shorter wingspan and six less struts. Every performance parameter but the top and cruising speeds suffered from this clipping operation so Curtiss went to higher horsepower. While the J-5 engine was out of production by this time, Curtiss did certificate a *Fledgling* conversion with the J-5. Other efforts involved the new Wright J-6 series, the *J-1 Fledgling* being certificated in November 1929 with the 165 h.p. J-6-5 (five cylinders) and the *J-2 Fledgling* with the 225 h.p. J-6-7 (seven cylinders) at the same time. As a result of the lighter weight of the J-6-5, the nose was extended five inches to maintain balance. These engine changes came after the fact for the 100 school ships and relatively few were converted. Most of the export models and the 20 N2C-2's of a follow-on Navy order used the J-6-7 as original equipment.

The working career of the *Fledging* was relatively short. The Curtiss-Wright Flying Service became a victim of the depression and closed down. By the time old schools began to revive and new ones appear, the day of the big biplane trainer was over. The new low-powered monoplane had appeared and the biplanes still in use were much smaller and more economical. As a result, the *Fledgling* soon vanished from the general aviation scene. The N2C's flew out their years in the Navy, however, and those surviving to 1939 suffered the rather ignominious fate of being fitted with tricycle landing gear and converted to radio-controlled antiaircraft targets. □

SPECIFICATIONS AND PERFORMANCE

	Fledgling	Fledgling Junior
Span	39 ft. 1 in.	31 ft. 6 in.
Length	27 ft. 10 in.	27 ft. 10 in.
Wing Area	365 sq. ft.	289 sq. ft.
Height	10 ft. 4 in.	10 ft. 4 in.
Power Plant	Curtiss Challenger 170 h.p. @ 1800 r.p.m.	
Empty Weight	1,996 lbs.	1,921 lbs.
Gross Weight	2,690 lbs.	2,592 lbs.
High Speed	107 m.p.h.	107 m.p.h.
Cruise Speed	87 m.p.h.	91 m.p.h.
Landing Speed	45 m.p.h.	50 m.p.h.
Rate of Climb	670 ft./min.	575 ft./min.
Service Ceiling	14,100 ft.	10,600 ft.
Range	386 mi.	358 mi.