YESTERDAY'S WINGS

The Bird Biplane

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Slow-flight characteristics and great lift of OX-5-powered plane contributed to its great popularity 40 years ago

■■ Most airplanes are identified initially by their manufacturers' names and then by a model number or given name. A few became so well known by their given names that the builder's name was seldom used in reference to them. Such an airplane was the *Bird*, produced originally by the Brunner & Winkle Aircraft Corporation of Glendale, Long Island. The name of this one came on so strong that the manufacturer's name was changed to match that of its product.

Brunner & Winkle was founded in 1928, with W. E. Winkle as president, J. J. Finkle (couldn't pass him up) as vice president, and A. Brunner as secretary and principal backer. The chief engineer/designer was a refugee Russian, Michael Gregor.

When it first appeared in 1928, there was little about the *Bird A* to distinguish it from its contemporaries. It was a conventional, three-seat, open-cockpit biplane powered by the well-known 90 h.p. Curtiss OX-5 engine, a water-cooled relic of World War I. Two passengers rode side by side in the front cockpit while the pilot sat alone in the rear.

The Brunner & Winkle Bird Model A, with 90 h.p. Curtiss OX-5 engine. Note the radiator buried in the bottom of the nose in the manner of the contemporary Curtiss Hawk fighter. Photographed in 1941 still with its spring-leaf tailskid. *Photo by Charles Schuler*

The modified Bird A entered in the Guggenheim Safe Airplane Competition. A full-span Ford-Leigh Safety Wing has been added to the upper wing, and thin wheels with partial fairings have been substituted for the fat airwheels that were standard equipment. *Guggenheim photo*

The *Bird* was thoroughly conservative in structure as well as configuration. The fuselage and tail used welded steel tubing with fabric cover. The wings were wood frame, with the upper unit in one piece. Three-piece wings simplified assembly, maintenance, and storage, but the single unit offered a slight weight saving. The really distinctive feature of the *Bird* wing was the thick, modified U.S.A. 40B airfoil, a glider-type section that imparted wonderful slow-flight characteristics and great lift capability to the *Bird*.

A single point of distinction from OX-5-powered contemporaries could be detected in the *Bird A*. The radiator was buried under the propeller on a steep incline, in the manner of contemporary high-powered military designs, instead of being up under the center section or under the belly as was common commercial practice at the time.

The first nine *Bird As* did not qualify for a full ATC, or Approved Type Certificate. They were licensed under the lesser requirements of a Memorandum Approval, Memo 2-33. The following articles were licensed under ATC-101 issued in January 1929. Approximately 85 *Bird As* were built.

A *Bird A* was entered in the Guggenheim Safe Aircraft Competition of 1929. This contest, sponsored by the Guggenheim Fund, encouraged the development of features that would contribute toward safer flight characteristics for airplanes. While some planes were designed and built specifically for the contest, many were only slight adaptations of established designs like the *Bird*.

Among other things, contest points were given for both maximum speed and slow speed, but the emphasis was on the slow-speed end. In the days be-

SPECIFICATIONS AND PERFORMANCE

	Bird A	Bird C-K
Span	34 ft.	34 ft.
Length	22 ft. 3 in.	23 ft.
Wing area	266 sq. ft.	266 sq. ft.
Powerplant	Curtiss OX-5, 90 h.p.	Kinner B-5, 125 h.p.
Empty weight	1,315 lb.	1,350 lb.
Gross weight	2,150 lb.	2,335 lb.
High speed	105 m.p.h.	118 m.p.h.
Cruising speed	88 m.p.h.	100 m.p.h.
Landing speed	37 m.p.h.	38 m.p.h.
Climb	520 ft./min.	—
Service ceiling	12,500 ft.	16,000 ft.
Range	450 mi.	530 mi.
Price	$3,150	$4,395

fore flaps, light-wing-loading designs like the *Bird* had advantages in the slow-speed range. However, trying to increase the speed and shorten the take-off distance over obstacles by using higher-powered engines lost nearly as many points as it gained, because the added weight had a detrimental effect on the low-speed characteristics.

With only 90 h.p., the *Bird* had the lowest power in the contest, and certainly the oldest engine. The main gimmick added to the stock model was the Ford-Leigh Safety Wing, which ran nearly the full span of the upper wing and served actually as a fixed slot intended to delay the stall and improve the slow-flight performance of the airplane, which was already very good. This was not well tested before the contest and introduced some problems. First, it moved the center-of-lift of the wing forward so far that, in spite of physically moving the wing aft two inches, it was necessary to carry 102 pounds of ballast in the nose. Further, the Safety Wing cut the top speed by 7 m.p.h. So equipped and ballasted, the *Bird* could not meet the 110 m.p.h. top-speed requirement of the contest and was disqualified.

It was soon apparent that the faithful OX-5 engine was on the way out, so the *Bird* was fitted with a series of the new air-cooled radial engines in the 100–185 h.p. range. The *A* model was kept in production, however, but after the Curtiss factory stock of new OX-5s was exhausted, the customer had to furnish his own when he ordered a *Bird A*. Without engine or propeller, the *A* model sold for $2,300. This dropped to $2,195 in 1931.

An effort made by the Milwaukee Parts Corporation to extend the life of the OX-5 resulted in the "Tank" engine, which was an air-cooled conversion of the OX-5 that delivered 115 h.p. A few of these were used in *Birds*, but not as factory installations. Since the Tank engine did not have an ATC, model A-T *Birds* using it were licensed under Memo 2-527 instead of a full ATC.

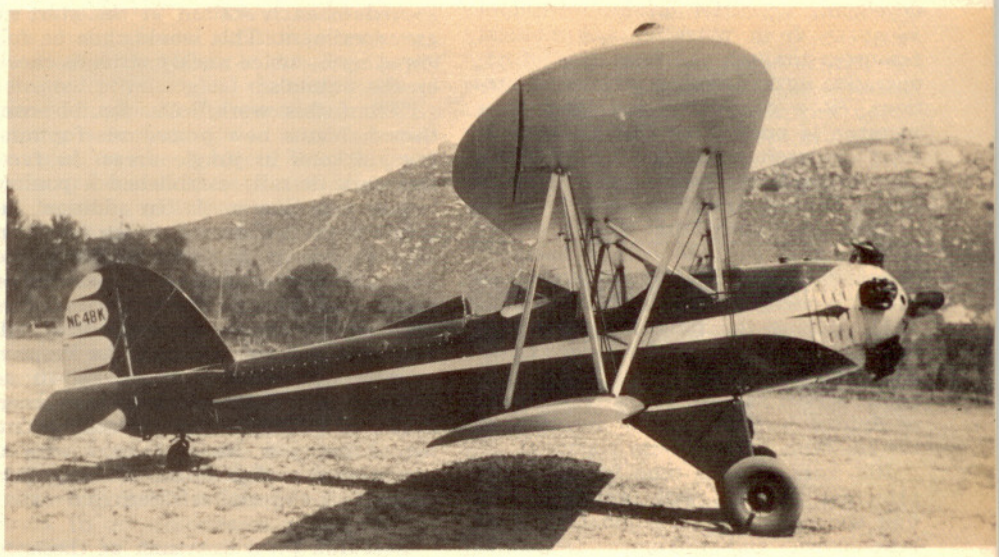
The first of the new engines for the *Bird* was the 100 h.p. Kinner K-5. This resulted in a new ATC, No. 239, issued in September 1929. The new version was identified as the *Bird B-K*, and some 75 were built. This was closely followed by the *B-W*, with 110 h.p. Warner Scarab, which got ATC-382 in November. Only seven *B-W*s were turned out, several of which were re-engined As. The contemporary Wright J-6-5 was tried in the *Bird C* (ATC-387), but this installation was rare. The most popular proved to be the 125 h.p. Kinner B-5 in the *Bird C-K* (ATC-388). The *C-K* could operate as a four-seater when a folding seat was added to the front cockpit.

Other radial engines tried were the 150 h.p. Kinner R-5, the 170 h.p. Jacobs LA-1, and the 185 h.p. Curtiss Challenger.

The depression hit Brunner & Winkle with the same results felt by most of the other small manufacturers, and a corporate reorganization resulted. The name was changed to the Bird Aircraft Corporation, capitalizing on the airplane's good name, and work continued in the same plant. Of the original founders, only Winkle remained after stepping down to vice president.

An attempt was made to transform the classic open-cockpit biplane into a five-place cabin model by raising the top of the fuselage to the upper wing and deleting the cockpits in place of a cabin with the pilot moved forward. While this version was advertised by means of a retouched photo of the open model in the magazines of the time, there is no evidence today that a cabin version of the *Bird* was ever completed.

In spite of reorganization and a promised new model, Bird could not stay in business. The assets of the firm passed to the Perth Amboy Title Company. This is the name used in current FAA paperwork related to the *Bird* airplanes.



Bird C-K with 125 h.p. Kinner. When Birds were converted from tailskids to steerable tailwheels, the wheels were installed ahead of the original skid location. Filling in the landing gear struts as shown here was not standard practice.
Photo by Boardman C. Reed

A Bird saved for better things. A C-K duster conversion, with single cockpit, 220 h.p. Continental W-670 engine, shortened lower wing with end plates, and modified landing gear, escaped the fate of most dusters and was used in the late 1950s for banner and glider towing. After towing the author's Schweizer 1-26A glider (background), the Bird's pilot assured him that he had to keep looking back to see that the glider was still on tow, since it had no noticeable effect on the towplane.
Photo by Peter M. Bowers

The airplanes themselves carried on as orphans, and many became dusters, a job for which their low-speed characteristics and high lift suited them. One hundred thirty-seven showed up on FAA records for 1947, but this dropped to 67 by 1949, indicating a high degree of duster replacement by the cheap war-surplus Stearman.

Figures for 1968 show only 39 remaining, but the count is apt to remain steady since most of these are now in the hands of dedicated antiquers, who know how to keep old classic airplanes like the *Birds* in tiptop condition, or can rebuild a total washout to its original form by jacking up the nameplate and building a whole new airplane under it. □