The Fairchild FC's And 71's

FC-1, a cabin monoplane, was considered very advanced design in 1926 when the open-cockpit biplane was the rage. OX-5 engine gave way to Wright Whirlwind in order to meet mission requirements of the plane

by PETER M. BOWERS / AOPA 54408

The original Fairchild FC-1, as it was flown in the Ford Air Tour of 1926. Note the neat installation of radiator under war-surplus Curtiss OX-5 engine, the full-span ailerons, and the increasing slope of the fuselage letters that indicates the triangular fuselage cross-section.

Ford Motor Company photo

■■ An interesting example of an airplane which was designed and built to do one specific job, yet which grew into a general-purpose workhorse with nearly five times the power, can be found in the Fairchild FC and 71 models of the years 1926 through 1931.

Before he became a manufacturer of the famous airplanes that bore his name, Sherman M. Fairchild was an inventor. Among the many things he developed was an excellent aerial mapping camera. Since airplanes suitable for this type of work (photogrammetry) were virtually a military monopoly in the early 1920s, Fairchild decided to develop a mapping plane of his own so that he could get into the operating as well as the manufacturing side of the aerial camera business.

The plane that he developed, designated FC-1, was a very advanced machine for the time (1926). In an age still dominated by the open-cockpit biplane, the new FC-1 was a cabin monoplane. Even among the few monoplanes of the period it was a relative novelty, for the pilot was inside with the passengers. Designers had begun to agree by this time that the paying passengers should get a little comfort and protection for their money, but the pilots were adamant in their belief that they had to be out in the open to "feel the wind" if they were to fly the airplane properly. As a result of this attitude, most of the contemporary cabin designs had the passengers inside but kept the pilot outside—sort of the aerial equivalent of an old-fashioned coachman.

The FC-1, powered with the 90 h.p. war-surplus Curtiss OX-5 engine, reflected the structural standards of the time. The fuselage was welded steel tubing, the wings were wood frame with a thick high-lift Gottingen 387 airfoil section, the tail surfaces were welded steel, and the whole was fabric covered. There were a couple of unique features, however, other than the cabin arrangement.

First, the wings could be folded backward about hinges at the rear-spar-to-fuselage joint. A simple hand-operated lever released the front-spar pin. Since the two struts bracing each wing panel came to a point at a single-swivel fitting on the lower longeron directly under the spar hinge, there was no need to disconnect them. They continued to brace the wing when folded. Interference between the wing trailing edge and the fuselage was eliminated by a hinged rear portion of the wing center section that swung up and forward over the rear spar to provide the necessary clearance. The full-span ailerons both swung to more than the normal full "up" position to keep their trailing edges from hitting when the wings were folded.

Second, the top of the fuselage narrowed behind the cabin to a single longeron, giving a triangular cross-section back to the tail. This did not evoke any particular comment at the time, but when later developments of the basic model went to rectangular sections, the old triangular versions became known as "razorbacks."

The mission requirements of the FC-1 were a little too much for the capabilities of the OX-5 engine, so it was replaced by a 200 h.p. Wright J-4 air-cooled radial known as the "Whirlwind." The airplane was then redesignated FC-1A. The five-place production versions, designated FC-2, were considerably revised, enlarged somewhat, and powered with the new 220 h.p. Wright J-5 Whirlwind that became available early in 1927. The wing folding was revised to eliminate the movable center-section portion. The ailerons were shortened, and sections from the rear spar aft and between the ailerons and fuselage, resembling modern flaps, hinged upward at the rear spar to provide the necessary wing-fuselage clearance. The FC-2 was awarded Approved Type Certificate (ATC) No. 10 in July 1927.

A few lower-powered FC-2s were built, using the 160 h.p. Curtiss C-6 engine, a water-cooled in-line six built in the early postwar years. These did not qualify for an ATC but were built under the lesser status of Memo 2-40. They later qualified for ATC No. 75 when converted to the 185 h.p. Curtiss Challenger radial.

While the 200 h.p. FC-2 was not the fastest plane in its class, it quickly found a wide market. In addition to short-schedule airline and contract airmail work by established airlines, it was used for fixed-base operations, photo work, and on wheels, skis, and floats in Canadian and Alaskan bush operations. Even the Royal Canadian Air Force bought several. Some of the 56 FC-2s built between June 1927 and January 1928 were rebuilt at the factory in 1929 and 1930. Fitted with new 300 h.p. Wright J-6-9 Whirlwinds, they were redesignated Fairchild Model 51, under a new designating system that included the number of seats in the model designation. The 51, therefore, was the first of the five-seaters in the new system.

Inevitably, demand developed for greater capability. This was met simply

SPECIFICATIONS AND PERFORMANCE

	FC-2, 1927	71, 1929
Span	44 ft.	50 ft. 2 in.
Length	31 ft.	33 ft.
Wing area	290 sq. ft.	332 sq. ft.
Powerplant	Wright J-5, 200 h.p. @ 1,800 r.p.m.	P & W Wasp, 420 h.p. @ 1,900 r.p.m.
Empty weight	2,160 lbs.	2,700 lbs.
Gross weight	3,600 lbs.	5,200 lbs.
High speed	122 m.p.h.	138 m.p.h.
Cruise speed	105 m.p.h.	110 m.p.h.
Landing speed	49 m.p.h.	52 m.p.h.
Climb	420 ft./min.	980 ft./min.
Service ceiling	11,500 ft.	15,500 ft.
Range	700 mi.	650 mi. plus

by adding more power. An improved FC-2W model, using the 400 h.p. Pratt & Whitney Wasp radial engine, soon was produced. Outwardly, this was distinguishable from the earlier FC-2 model by the larger engine and minor detail refinement. The absence of a "razorback" fuselage was not significant, since some late FC-2s had already deleted that feature. The FC-2W received ATC No. 20 in December 1927, and the improved seven-place FC-2W2 version, also with the Wasp, received ATC No. 60 in September 1928.

One FC-2W2, named "Stars and Stripes" and operating on an experimental license, was taken on the Byrd Antarctic Expedition of 1929. It was left behind by the original expedition but was brought back to the States by the second. It was then refurbished and sent on a barnstorming tour of the country. The author remembers taking a 50-cent ride in it at Palo Alto, Calif., in the mid-1930s. It was later acquired by Fairchild Aerial Surveys and was being used as a camera plane when the author saw it again in 1941.

One J-5 powered FC-2 with rectangular fuselage was acquired by the U.S. Navy in 1928 and operated as a light cargo and utility type under the Navy designation of XJQ-1. This was soon fitted with a Wasp engine and became XJQ-2, later XRQ-2 to reflect its principal use as a transport. (The letter "J" identified utility-type aircraft in the Navy designation system of the time, and "R" identified transports. The "Q" in this case identified Fairchild as the manufacturer.)

A larger model, known as the 71 under the new system, appeared late in 1928. This was a seven-seater, but it was still powered with the Wasp and retained the folding-wing feature. Like the FC, the 71 was a workhorse that could also operate on skis or floats. ATC No. 89 was issued in November 1928, allowing a year of relatively high-volume sales to a wide range of customers before the depression killed the market in 1930.

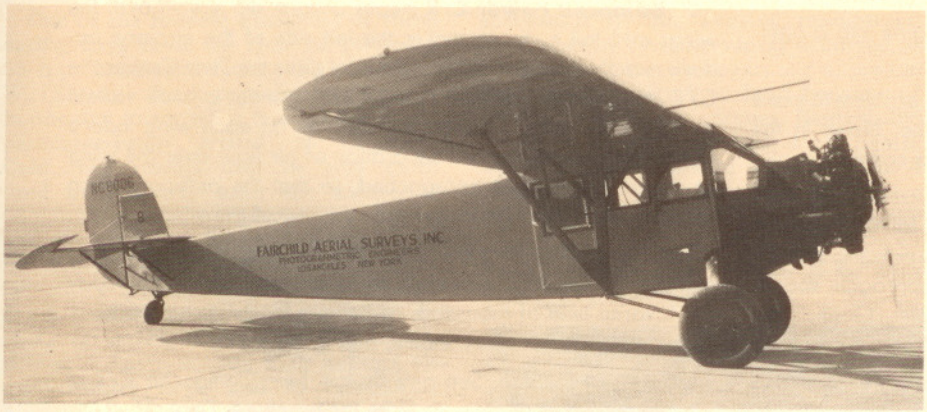
The 71 was the first of the big Fairchilds to have emphasis placed on its model number in publicity and sales. As a result, the earlier seven-place Wasp-powered FC-2Ws and W-2s soon began to lose their identity and be referred to as 71s. Even model-airplane manufacturers made this mistake. One of the leading producers of the time put out a flying scale model of the "Stars and Stripes" that was actually a Fairchild 71, not an FC-2W2.

The U.S. Army obtained one 71 in 1929 and designated it XC-8 in the Army's C-for-cargo/transport series. However, it proved more desirable as a photo plane and was soon redesignated XF-1 (F-for-foto). Eight service test models were bought in 1930 as YF-1, and six others were delivered as standard equipment in 1931 with the designation of F-1A. The Army couldn't seem to make up its mind about how to use its 71s, however, for in 1931 the F-1 was redesignated C-8 and the F-1A became C-8A. They operated under these designations, but carried the placard "For Photographic Use Only," right up to World War II. The Navy acquired one 71 in 1929 as XJ2Q-1, later redesignating it XR2Q-1.

The military career of the 71s had a unique sequel. In late 1941 and early 1942, after the last Army C-8s had been retired, the Army purchased quite a few light transport and utility types from private owners to meet immediate needs. Among these were three 1929 71s that were given the designation of C-96. The oddity here is that they were a couple of years older than the C-8s, yet had a much later designation, which was assigned in the sequence of acquisition. The C-96s were the oldest airplanes in the Army Air Force at the time.

The final American development of the 71 was the heavier 71A, given ATC No. 289 in January 1930. As the design got heavier, it tended to become tail heavy. Rather than extend the nose for balance, the problem was resolved by sweeping the wing back 5°. Other developments of the 71 were undertaken by the Canadian subsidiary of Fairchild, which by 1930 had become an extremely complex organization with many factories, subsidiaries, and product lines. A larger single-engine transport based on the 71 was built at Farmingdale as the *Pilgrim* by Fairchild's American Aviation Division. Further production under the Fairchild name was limited to the smaller Model 22 and 24 monoplanes built by Fairchild's Kreider-Reisner Division in Hagerstown, Md. □

Fairchild FC-2 of 1927, with 220 h.p. Wright J-5 Whirlwind engine and folded wings. Note that the section of wing inboard of ailerons, looking like a modern flap, hinges forward over the rear spar to allow the inner portion of wing to clear the fuselage when wings are folded. *Fairchild-Hiller photo*



Fairchild FC-2W2, the "Stars and Stripes" of the 1929 Byrd Antarctic Expedition, photographed in 1941 while it served as an aerial survey plane. Note greatly decreased windshield area, compared with FC-1 and FC-2 models. In later years, there was a tendency to confuse the big Wasp-powered FC-2W with the Model 71. *Photo by Peter M. Bowers*

A 1929 model Fairchild 71 used as a seaplane by Pacific Alaska Airways, a subsidiary of Pan American. Principal recognition feature of the 71, distinguishing it from the earlier but similar FC-2W, was the extra window with rounded rear edge seen behind the wing. *Photo by Gordon S. Williams*