

# Yesterday's Wings

## The Fokker F-14

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The Fokker F-14 was developed for Western Air Express and the prototype shown here carried Western markings before being sold to Canada. The parasol wing position was used to minimize visibility problems resulting from the location of the pilot's open cockpit.

■ Since airplane design is a progressive thing, with each succeeding model from a given manufacturer supposedly being an improvement over its predecessor, it is puzzling at times to find a manufacturer taking what seems to be a big step backward. A good example of such a seemingly retrograde design is the American Fokker F-14 of 1929.

The European Fokker firms were true pioneers of airliner design. Even before leaving Germany in 1919, Fokker's chief designer, Rheinhold Platz, had developed a new and efficient designed-for-the-purpose transport at a time when the emerging airlines were using war-surplus biplanes hastily converted to cabin types. The Fokker F-II not only took a big step forward in being a monoplane in a biplane era, but it put the pilot in a position of good visibility ahead of the wing. The equivalent single-engine biplanes all had the pilot behind the wings.

The new Fokker set the standard for airliners for many years to come and the F-II and its successors went into production at Fokker's new plant in Holland. When airlines finally got under way in the United States in the middle 1920s, Fokker's American plant imported and assembled Dutch-built F-VII trimotor transports and quickly developed the F-10 (or F-X) trimotor for American conditions. This was followed by the unsuccessful four-engine F-12 model that was marketed as the F-32 because of its 32-passenger capacity.

It was somewhat of a surprise, then, to see the new seven-place F-14 mail and passenger model incorporate an old-fashioned open cockpit located in the obsolete far-aft position. Why, when Fokker transports had started with an open cockpit ahead of the wing nearly a decade earlier and developed it through a semienlosed station to a fully enclosed and spacious two-pilot cabin, the big step backward? Also, why a "parasol" wing, held above the fuselage by a maze of struts, when previous Fokker transports had a nice clean installation with the wing directly on top of the fuselage?

These features had nothing to do with production or design shortcuts or with economy. They were pure and simple responses to a configuration requirement issued by a potential customer.

Western Air Express had started Contract Air Mail Route 4 between Los Angeles and Salt Lake City in April 1926 with open-cockpit Douglas M-2 biplanes. This was a mail route, but an occasional passenger was carried on top of the mailbags. After Boeing had shown the way to increased revenue on mail routes by providing a comfortable cabin for passengers in what was still basically a mailplane, Western took note. When it notified the industry that it wanted a more efficient monoplane to replace the 1924 design Douglas on the Salt Lake City route, it specified a cabin that could hold up to six passengers.

### FOKKER F-14

#### Specifications

Powerplant	Pratt & Whitney Hornet A 525 hp @ 1,900 rpm
Span	50 ft
Length	43 ft 4 in
Wing area	550 sq ft
Empty weight	4,346 lb
Gross weight	7,200 lb

#### Performance

High speed	140 mph
Cruising speed	115 mph
Landing speed	55 mph
Initial climb	1,000 fpm
Service ceiling	18,000 ft
Range (180 gallons)	690 mi @ 27 gph

Some traditions die hard, however, and the rest of the specification, including the aft location of an open cockpit, was a heritage from 1918. The old-line pilots believed that they had to be out in the open so they could "feel the wind"; earlier mailplane cockpits had all been aft, so that's where the new specification put them. The new model was to be first a mail and express plane, and the passenger consideration was secondary. From this point of view, the F-14 was a greatly improved mailplane, not a retrograde transport.

The requirement for an aft-located



*The ninth airplane of the 20-plane Army Y1C-14 contract was converted to the Y1C-15 aerial ambulance at the factory and was delivered in this special white color scheme. The Army then bought the last civil F-14 and had it converted to an ambulance similar to the C-15A.*

cockpit forced the parasol wing on Fokker, as well as on Lockheed, which also built a new monoplane to Western's specification. With the pilot behind the wing, his forward vision would be severely impaired if it were directly in front of him. To avoid this, the wings of both the Fokker and Lockheed's new Air Express model were raised to the parasol position.

Both the Fokker and Lockheed prototypes were completed and flown in Western markings, but Fokker got Western's business in a "family" deal. By the time the first F-14 was completed, Western had acquired a controlling interest in the Fokker Aircraft Corp. of America and Western's president, Harris Hanshue, had become president of Fokker.

Except for the anachronistic open cockpit and the parasol wing, the new F-14 was an up-to-date design that incorporated many traditional Fokker features. The all-wood cantilever wing was little changed except in dimensions from Fokker's 1918 D-VIII fighter and the first postwar F-II transport, and was still an industry standard. From a production standpoint, the F-14



Just a little rearrangement made the single Fokker F-14A look like an entirely different design. The wing has been lowered to the top of the fuselage and the pilot has been moved into a closed cabin up front. The addition of antidrag rings to radial engines became a common practice from 1930 on.

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wing was a big shortcut in that it was the same unit used on the F-11A amphibian that Fokker was then building.

The fuselage and tail were gas-welded, steel-tube structures, something else that Fokker had pioneered in 1913 and which had become an almost universal standard by the mid-1920s. That Fokker kept up to date in the details is shown by the fact that the F-14 was the first commercial design to use the new S.A.E. X-4130 chrome-molybdenum steel for its framework.

The idea of running the main landing gear shock-absorber strut to the front wing spar was borrowed from the earlier Dutch F-VII and the contemporary American Super Universal model. The passenger cabin was austere even by the standards of the day, but it must be remembered that passengers were secondary. A separate mail/express compartment was located ahead of the cabin. The passengers and cargo loaded through a door at the left rear of the cabin while the pilot, who had a long climb up to the cockpit, was provided with three toeholds in the left side of the fuselage. The powerplant was the new 525-hp Pratt & Whitney Hornet A, a nine-cylinder, air-cooled radial.

The F-14 was awarded Approved Type Certificate (ATC) A-234 on September 21, 1929, a date that was to prove most unfortunate. By the time the F-14 was in full production, the depression had hit and the civil market largely vanished. Western bought four F-14s, which later went to Transcontinental and Western Air (TWA) after that shotgun merger. One of those four was later donated to Admiral Byrd for his 1933 Antarctic expedition. Six were sold to Western Canada Airways, but the remainder of the 14-plane civil F-14 total were hard up for customers

even after the price was reduced from \$26,500 to \$22,500 in a desperate attempt to cut down the inventory. Finally, the last one built (April 1931) was sold to the U.S. Army in March 1932.

The Army turned out to be the best customer for the F-14, receiving 20 in 1931 under the service test designation of Y1C-14 (no connection with Fokker's model number). These were similar to the improved F-14B in that they used the later 575-hp Hornet B engine. One was extensively modified as an ambulance plane under the designation of Y1C-15, and the Army made another ambulance of the last civil F-14 but designated it C-15A because of its Wright Cyclone engine.

Fokker's dissatisfaction with the obsolete configuration of the F-14 is shown by his major improvement effort, the F-14A. This put the wing back down on the fuselage, moved the pilot ahead of the wing and into a bona-fide cabin, and used a 575-hp Hornet B engine. This eight-passenger transport didn't get a full ATC but was awarded Memo Approval 2-395 in December 1931. It didn't stir up any interest in the United States and was eventually sold to Canada.

Fokker tried another improvement on a stock F-14 that had been built in March 1930. Still unsold in December 1932, it was fitted with a 575-hp Hornet B and was modified for eight passengers as the F-14B. It received Memo Approval 2-435 on December 29, 1932, and was finally sold to Costa Rica. The last civil F-14 built was completed with a 575-hp Wright Cyclone engine but was not certificated before being sold to the Army.

The F-14s were the last civil Fokkers built in the United States and still carried the distinctive Fokker trademark in spite of the corporate name change that marked the beginning of the end for Fokker's American operations. □