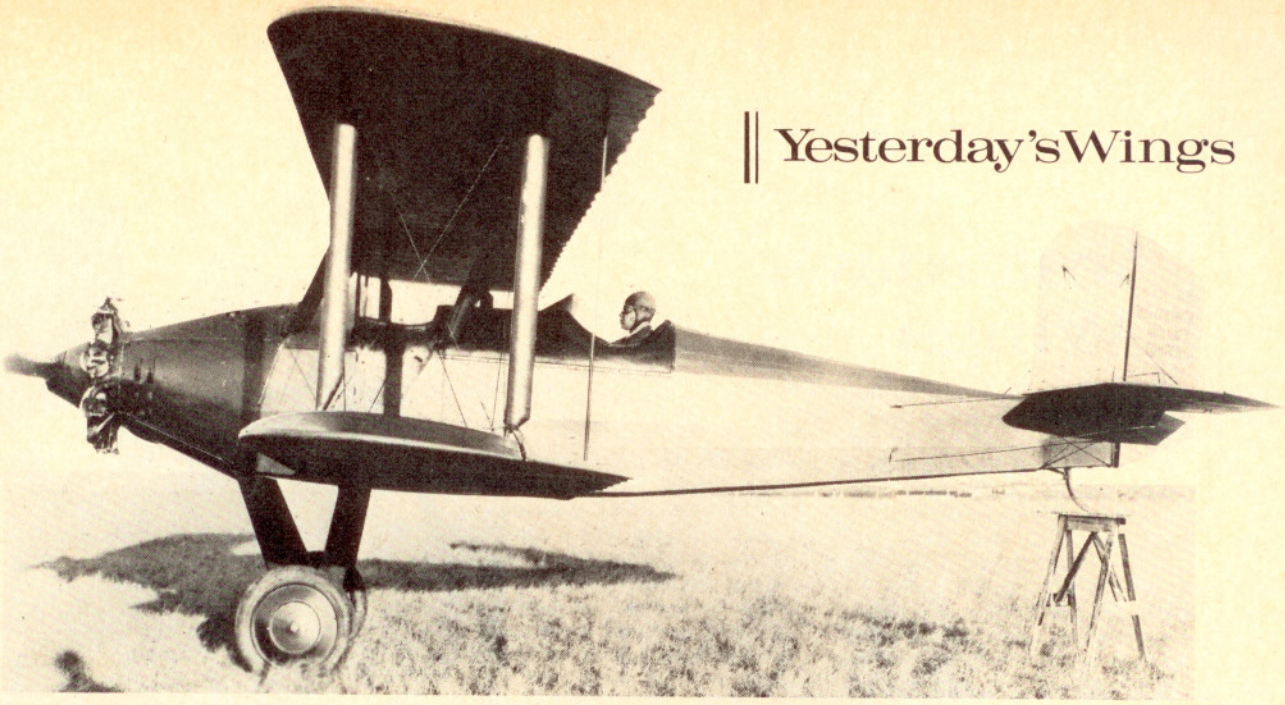


An early Mid-Continent C3 with the 110-hp Super Rhone engine. Top letters on the rudder read "Maiden Tulsa," a gimmick previously used by Ford-Stout on "Maiden Dearborn" transports and by Travel Air on biplanes "Maiden Wichita."

The Spartan C3

by PETER M. BOWERS / AOPA 54408

■■ Mention Spartan airplanes today and most people will think of that all-time classic, the Model 7 Executive. This slick monoplane, introduced in 1935, was preceded by several other Spartan models.

The cornerstone of the firm and its principal product from 1928 through 1931 was the sturdy C3 biplane. The C3 didn't actually originate with Spartan; it was started as the personal project of an individual designer-builder and then became the product of a predecessor company.

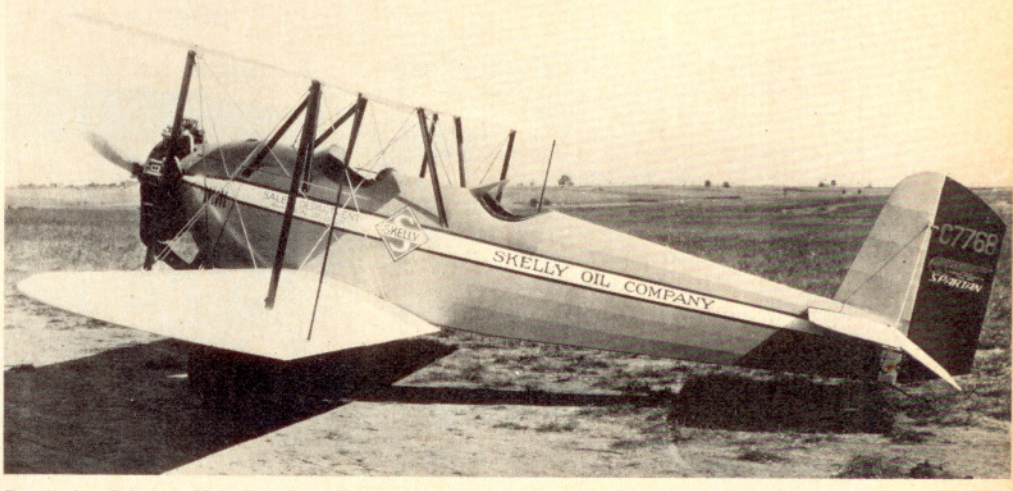
Design work on the C3 was started late in 1925 by Willis C. Brown, who designed and built his own airplane in 1912 at the age of 16 and had been in aviation ever since. The Brown biplane, built in a vacant mattress factory in Tulsa, Okla., paralleled the new design trend of the mid-1920s; it was a three-seater with the pilot alone in a rear cockpit and the passengers side-by-side in the front. Fuselage and tail structures were welded steel-tube frame, and the wings used wooden-box spars and built-up truss ribs.

When completed late in 1926, the Brown Model C was a standout among its contemporaries because it did not use the ubiquitous war-surplus Curtiss OX-5 engine. From the start, it had been designed to use a lighter air-cooled radial engine even though no American designs in the 90–125-hp range were then in production. The engine it did use was an oddity in itself—the Super Rhone. This war-surplus American-made version of the 80-hp French Le Rhone rotary was converted to a 110-hp fixed radial by Tips & Smith, Inc., of Houston, Tex. A similar engine was marketed as the Quick Radial by Quick Air Motors of Wichita, Kan. Both were tried in a number of contemporary designs but never became significant items on the aviation scene.

After Brown's biplane proved its commercial potential, the Mid-Continent Aircraft Co. was founded to build it, and a factory was set up in Tulsa. Production got under way early in 1927.

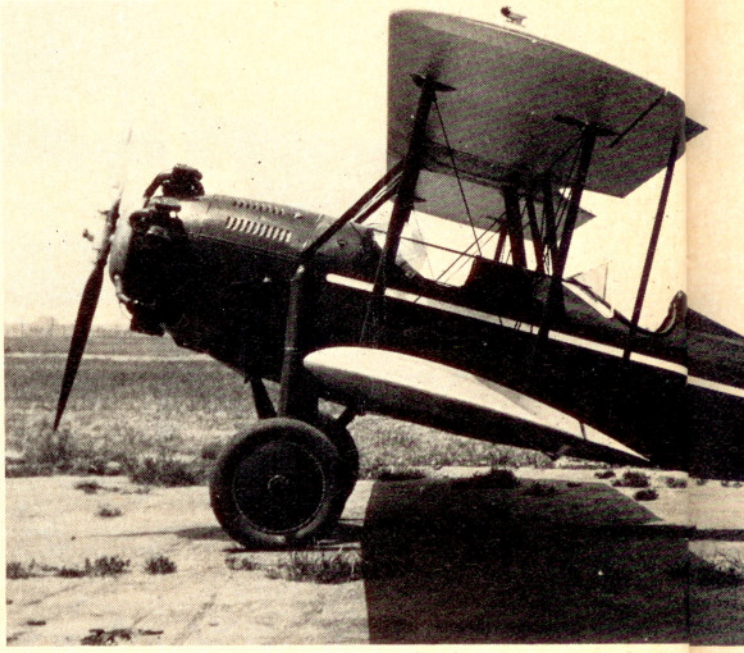
Even though the C3, now designated a three-seater, was put into production without one of the new Approved Type Certificates, such certification was anticipated. At this point, the Super Rhone was not considered a suitable powerplant, and since there were still no American radials of the right size available, the C3s were powered with the imported Ryan-Siemens. This was the German Siemens-Halske SH-12, a 125-hp nine-cylinder radial imported and distributed by T. Claude Ryan.

Late in 1927, Mid-Continent attracted the attention of oil magnate W. G. Skelly and some of his associates, including J. Paul Getty, who wanted to get in on the new aviation boom. They



Production Spartan C3-1 with the 125-hp Ryan-Siemens. Note the new Spartan trademark on the rudder. The Skelly Oil Company chose Spartans when it bought airplanes for good reason; W. G. Skelly and his associate, J. Paul Getty, had deep financial interests in the Spartan Aircraft Co.

Yesterday's Wings

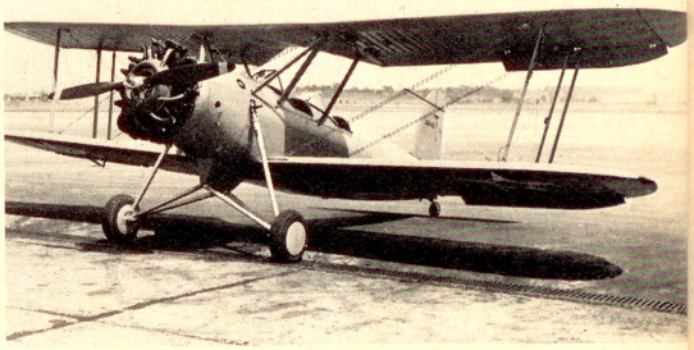


The most popular model in the Spartan biplane line was the C3-165 with the 165-hp Wright J-6-5 Whirlwind engine. Note the completely redesigned landing gear.

SPARTAN C3

Specifications and Performance

	C3-1—1928	C3-225—1930
Span	32 ft	32 ft
Length	23 ft 6 in	23 ft 3 in
Wing area	291 sq ft	291 sq ft
Powerplant	Ryan-Siemens 125 hp @ 1,750 rpm	Wright J-6-7 225 hp @ 2,000 rpm
Empty weight	1,355 lb	1,741 lb
Gross weight	2,155 lb	2,700 lb
High speed	115 mph	130 mph
Cruising speed	98 mph	110 mph
Initial climb	720 ft/min	1,160 ft/min
Ceiling	11,000 ft	15,000 ft
Range	450 mi (44 gal)	460 mi (60 gal)
Price F.A.F.	$5,200	$7,750



The final production Spartan (the last new biplane ordered by the U.S. Navy) was the NP-1—a 1940 primary trainer powered with a 225-hp Lycoming R-680.

This three quarter front view of the 225-hp C3-225 model shows the straight-across top wing and dihedralled lower wing that were C3 trademarks.

financed a reorganization of the company to be known as the Spartan Aircraft Co. in January 1928, with Brown as president. And a few months later a new plant was built adjacent to the Tulsa airport. The first airplanes turned out under the Spartan name were designated C3-1 and were powered with the Ryan-Siemens. This model qualified for ATC No. 71 in September 1928. A duplicate C3-2 powered with the Czechoslovakian Walter NZ-120, a nine-cylinder radial of 120–135 hp, received ATC-73 in October.

Deliveries of the Ryan-Siemens were undependable, through no fault of Ryan's, so other engines were tried, including the radical Fairchild-Caminez. A few production models were turned out using the new American Curtiss Challenger and Axelson radials but these were not ATC'd. Rather, they received the lesser Category-2 ratings of 2-77 and 2-78 as Models C3-3 and C3-4 respectively on June 14, 1929.

Earlier, though, the Walter seemed to be the best engine for the airplane, and Willis Brown went to Europe to make a deal to get the engines for the C3 and to make Spartan the American distributor.

While he was gone, engineers at home did extensive redesign work on the airplane. Upon his return, Brown was so upset by this that he resigned from the firm and went to Warner Aircraft Corp. of Detroit as vice president in charge of

sales for their newly introduced 110-hp Scarab engine, a model not used by Spartan.

Spartan carried on with the C3-2 version until the engine problem was neatly solved in 1929 with the appearance of the Wright J-6 family of engines. The five-cylinder J-6-5 model produced 165 hp and was just right for the C3. With this engine, the plane was designated C3-5 and received certificate 2-79 on the same day that the C3-3 and -4 were certificated. This became the standard C3 engine, and the airplane was redesignated C3-165 to reflect the horsepower available when it qualified for full ATC No. 195 in August just before the depression hit.

Approximately 40 C3-165s were built. The initial price of $6,750 was later reduced to $5,975 to stimulate depression sales. The best single customer for the C3-165 was Spartan itself, which had set up one of the first real air colleges, a school that not only offered flying lessons but engineering, mechanical, and other career courses. Equipped as dual-control two-seaters, C3-165s served the school as primary trainers up to WW-II.

The C3-165 was followed by the C3-225, a more powerful model powered with the seven-cylinder Wright J-6-7 that was identical to the J-6-5 except for a number of interchangeable cylinders. The C3-225 received ATC No. 286 in January 1930, but the timing and the price tag of $7,750 held sales down to approximately 14.

The final C-3 was the C3-165C, powered with the 165-hp American Comet 7E. This seven-cylinder radial was another powerplant that most airplane manufacturers had tried but did not use in quantity. Although it received ATC No. 290, also in January, and had the relatively low price of $5,675, the C3-165C (redesignated C3-166 because the final "C" in the designation that was supposed to distinguish it from the Wright engine of the same power got overlooked anyway) did not sell. The single model was soon refitted with a J-6-5 and became a C3-165. This changeling can be spotted by its registration number, NC-707N.

Spartan introduced other models after ending its C3 production but did not sell many of them until the spectacular Model 7 came along. It surprised the industry in 1940, however, when it sold 201 new biplane trainers based on the C3 to the U.S. Navy as the NP-1. This was strictly a military airplane; it never received an ATC and did not come on the postwar surplus market for use as a duster or a private-owner type as did the other war-surplus trainers. Its only claim to distinction is its being the last newly designed biplane bought by the U.S. military.

Spartan's fame today rests on the Model 7, the school, and the innovative all-metal streamlined house trailers that Spartan turned out through the use of aircraft construction procedures. □