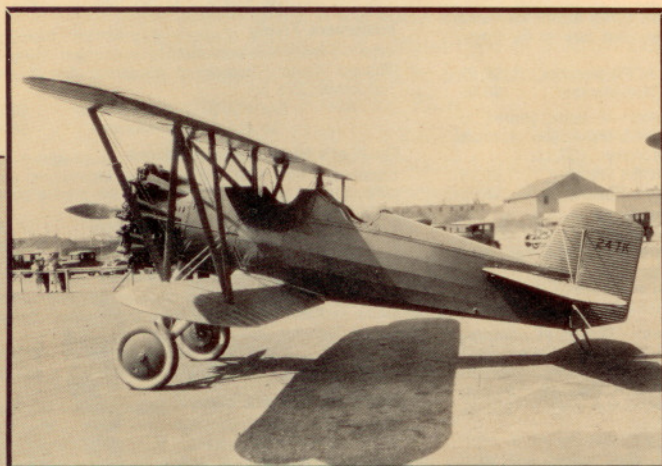
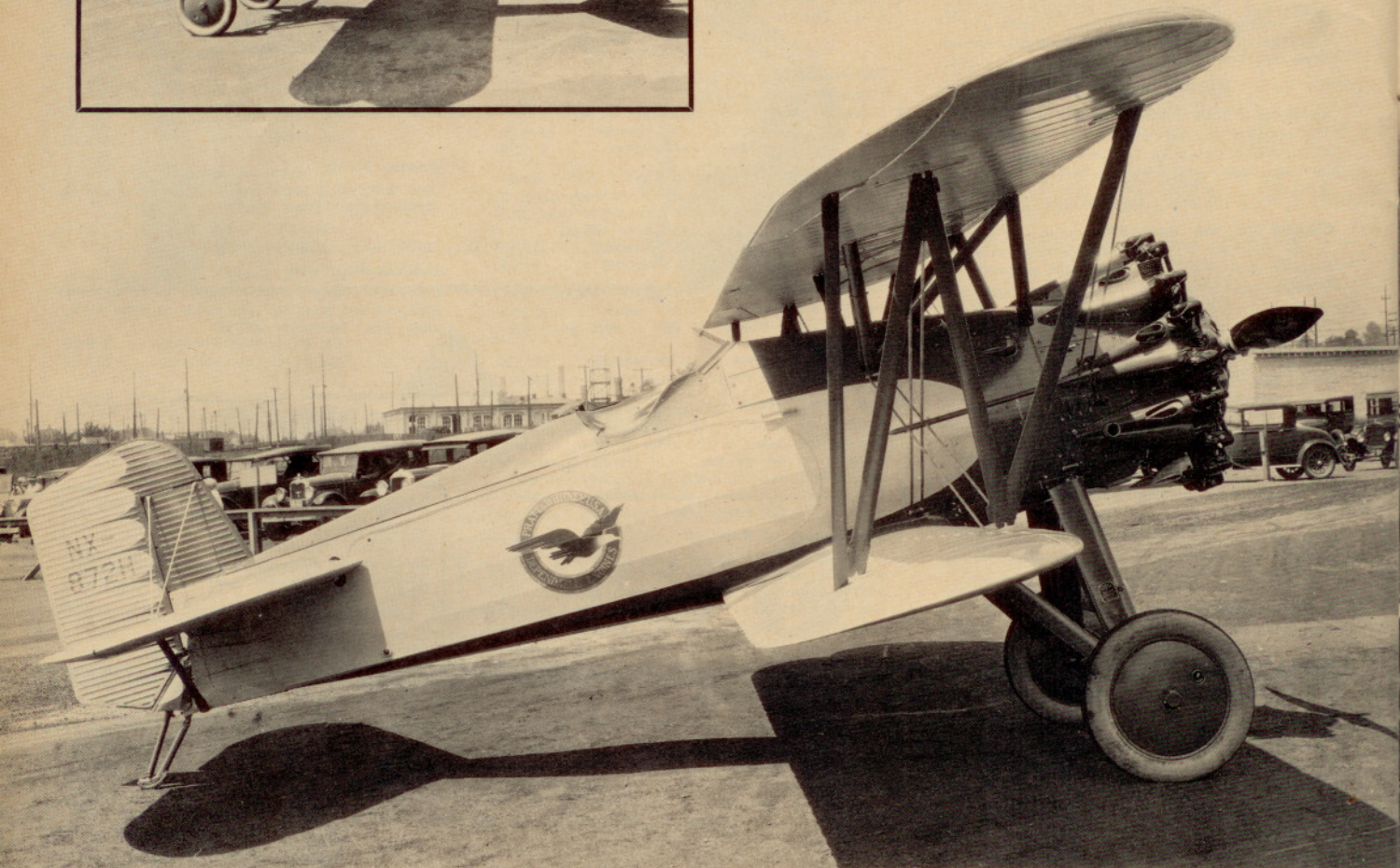


## Yesterday's Wings

# Boeing's Sporty Fighter



The special two-seat Boeing 100A built for Howard Hughes. Since this was before the adoption of cowlings for radial engines, Boeing fitted sheet metal fairings behind the engine cylinders in an attempt to reduce the drag. Navy tests on an F4B-1 soon proved that these not only interfered with cooling, they reduced the speed by 5 mph. Needless to say, all the fairings were soon removed.



The Boeing Model 100, a duplicate of the contemporary Army P-12 and Navy F4B-1, was built as a type-certificated airplane. Note the unique corrugated tail surfaces. Since it was to use experimental engines, this one went to Pratt & Whitney on an experimental rather than a standard, or NC, license. It has since been restored in conformance with the ATC and is flying on a standard license.

■■ In the years following both World Wars, the U.S. government put thousands of war-surplus military airplanes on the open market. Former military pilots and many civilians bought these at very low prices for their personal or business use. A relative few in each time period bought high-performance fighter types, but their actual numbers were so small that the type played no significant part in the overall aviation scene.

After World War I, surplus fighters made relative sense as sportplanes. They were in the 110- to 220-hp range, were relatively simple from the standpoint of systems and equipment, and pilots were more often their own mechanics in those days and could keep their planes going with a few simple tools and moderate mechanical skills.

The WW-II types were a different story—they were much more complex, and many of the eager pilots who bought them were grossly ignorant of the realities of their economics. They knew how much gas the engine burned an hour, what tiedown and insurance cost, and how much a month they could afford to spend on flying. They did not realize that something over 10 hours of maintenance time was spent on those planes for every flight hour—maintenance by expert mechanics paid by Uncle Sam.

When the major maintenance couldn't be put off any longer, or paid for, a lot of those surplus WW-II fighters dropped from sight. The survivors were mostly used for racing and were backed by organizations with both the money and mechanical skills needed to keep such

expensive projects in tip-top shape. Others are operated as pure hobby projects, and some operate within "flying museums." In any case, it's money, and lots of it, that keeps the engines running.

Fighter-type airplanes have never amounted to much in civil aviation. In the between-wars years, the government did not sell surplus fighters to the public; they were scrapped or went to service mechanic schools. A few well-worn manufacturers' demonstrators did get into the hands of air show pilots but, with one notable exception, the manufacturers did not try to sell fighters on the U.S. civil market.

The exception was the Boeing Model 100. This was the civil equivalent of the U.S. Navy F4B-1 and the U.S. Army P-12, both developed from prototypes built in 1928 and differing only in the equipment requirements of their respective services. Altogether, 586 examples of this design were built between 1928 and 1933.

It was a thoroughly conventional design, and had evolved through several preceding Boeing fighters since 1923. Power was supplied by the 420- to 450-hp Pratt & Whitney Wasp radial engine. The fuselage structure was somewhat unique, being built up in the early variants mainly of square aluminum tubing bolted together. The upper wing was a one-piece wood unit, using two box spars and ribs that were routed from thin plywood and reinforced with cap strips and wood diagonals. A special Boeing feature was the use of hydro-pressed corrugated metal skins for all tail surfaces and the ailerons.

The prototypes were designated Boeing Models 83 and 89; the F4B-1 (for Fighter, 4th model from Boeing in the Navy designating system) was Model 99; and the Army P-12 (Pursuit, 12th model in the P-series that started in 1924) was Model 101.

In between was Model 100, the civil version. It was identical in every respect to the military models except for deletion of armament and other military equipment. Structural provisions for gun mounts were there, however, and Boeing actually used one as a military demonstrator with guns installed.

The Boeing 100 received Approved Type Certificate A-133 on April 1, 1929, the first and only American fighter ever to receive one. This meant that the airplane could fly on a standard license and be used for any private and commercial purposes without the restrictions of experimental or restricted licenses. A real oddity of that particular ATC is that, although it applied to the

## BOEING 100

### Specifications

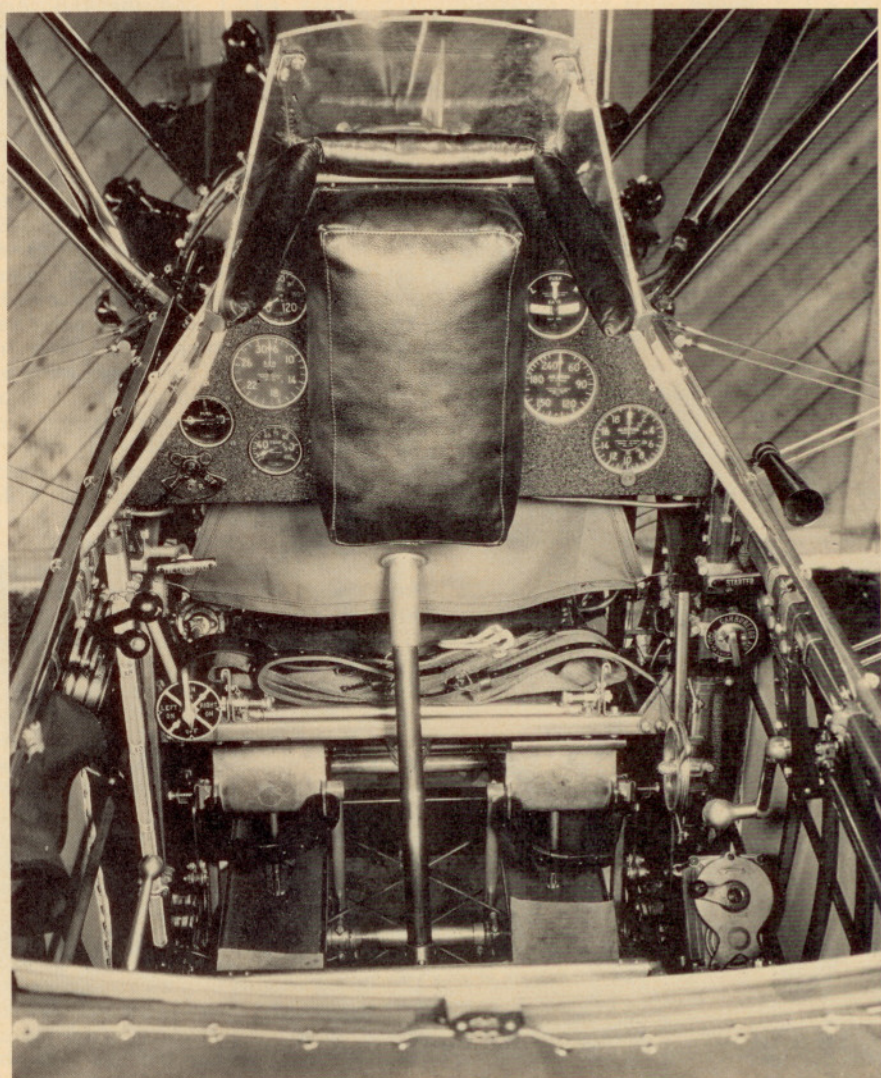
Powerplant	Pratt & Whitney R-1340 Wasp 420 hp @ 2,100 rpm
Span	30 ft (Upper) 26 ft 4 in (Lower)
Length	20 ft 5 in
Height	9 ft 7 in
Wing area	227.5 sq ft
Empty weight	1,890 lb
Gross weight	2,771 lb

### Performance

High speed	177.5 mph
Cruise speed	150 mph @ 60% power
Landing speed	56 mph
Initial climb	2,850 fpm
Service ceiling	28,275 ft



Postwar modification of the Boeing 100A added a constant-speed propeller and a single-strut landing gear. The high tail had been added in the 1930s, before Hughes sold the plane to Art Goebel.



Rear cockpit of the Boeing 100A. With no gun butts at the sides of the panel, the few instruments could be moved aside to make room for the big crash pad. That's the seat belt for the front cockpit visible just above the rudder pedals.

Boeing Model 100, it was a military model, not an actual 100, that was put through the required testing. The first Model 100 did not fly until June 11, 1929.

In spite of the boom times in aviation, the availability of a hot airplane like the Model 100 with a standard license and a \$20,000 price tag did not bring the customers running. Only five of the tube-fuselage 100s were built and sold. One was bought by the Bureau of Air Commerce (1929 equivalent of the FAA) as a high-speed executive transport. It proved to be a little too much for a pilot who spent most of his time behind a desk and crashed within a year.

Another was sold to Pratt & Whitney, the engine manufacturer, for use as a flying test bed. In 1933, P&W sold it to air show pilot Milo Burcham, who later used it to win the National Aerobatic Championship before selling it in the late 1930s. It showed up in some aviation movies into the early 1940s,

but was reduced to virtual scrap when a storm damaged the hangar it was in.

Movie pilot Paul Mantz bought it as junk in 1948 and fixed it up enough to serve as nonflying background in subsequent movies. Still a basket case, it was sold in the famous Hollywood auction of 1968, and in 1977 was finally restored to flying status in the markings of a P-12 of the U.S. Army 95th Pursuit Squadron.

Boeing used another as a demonstrator for several years, some of which were spent in China. It then went to the Boeing School of Aeronautics, where its presence in 1935 made a great impact on this author. He figured that Boeing was some school if it had fighter planes for its students. However, he ended up taking the engineering courses, not the flight course. Paul Mantz bought that 100 from the school and used it extensively for air show and movie work. It is still owned by the successor firm, Tallmantz Aviation in Santa Ana, Calif., and is still airworthy. It is painted to represent a Navy F4B-1 of the famous "Red Rippers" Squadron.

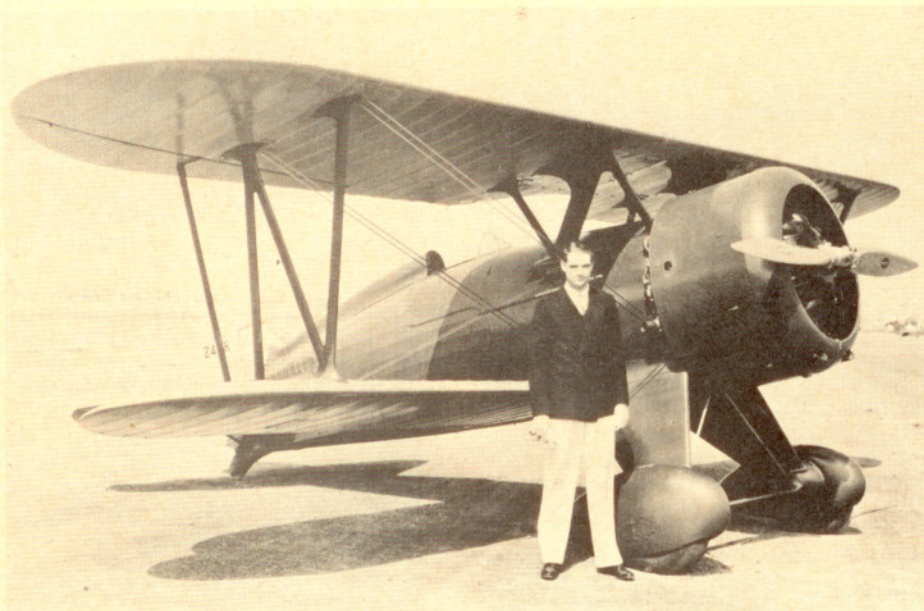
The last of the plain Model 100s was

sold to the Mitsui Co. in Japan and nothing is known of its subsequent history except that a Japanese fighter looking very much like it soon appeared.

Only one Boeing 100 found a true sportsman-pilot owner. This was the Model 100A, which went to Howard Hughes in July, 1929. Hughes wanted something a little different, and he got it; his plane was a two-seater. This called for some changes in the area ahead of the regular cockpit, which was normally occupied by a 95-gallon fuel tank. To make room for a second seat, the capacity of this tank was greatly reduced and two 20-gallon tanks were installed in the upper wing.

In spite of its later designation, the 100A was actually the first of the Model 100 airframes. Since the design work had been done for Hughes, Boeing decided that others might want the same feature, so the other four 100s were built with small main tanks and the two wing tanks.

Hughes used his 100 as delivered for a while, and flew it to some of the sites where his epic movie "Hell's Angels" was being filmed. He then had Lock-



Howard Hughes and an early modified form of his 100A. The fuselage has been rounded out to fair to the large NACA cowling around the engine and even the tailwheel that replaced the original skid has been enclosed to improve the streamlining. Hughes used his Boeing for racing and exhibition flying for a while.

---

YESTERDAY'S WINGS *continued*

---

heed make a series of improvements such as cleaning up the landing gear, putting a big NACA cowling around the engine, and increasing the area of the vertical tail. He sold it to Dole Race winner and air show pilot Art Goebel, who later passed it on to another owner who installed a single-strut Boeing-Stearman Kaydet landing gear after World War II and carried on the air show work. A final owner made still further modifications, including reducing the tail size and metal-skinning the fuselage. Someone managed to pull the wings off it in 1957 to end the career of the only Boeing 100A.

There were three other Boeing 100s, but they were not type-certificated. Two were export equivalents of the Army P-12E for Siam and one was a civil equivalent of the P-12F sold to Pratt & Whitney as another engine test bed. □