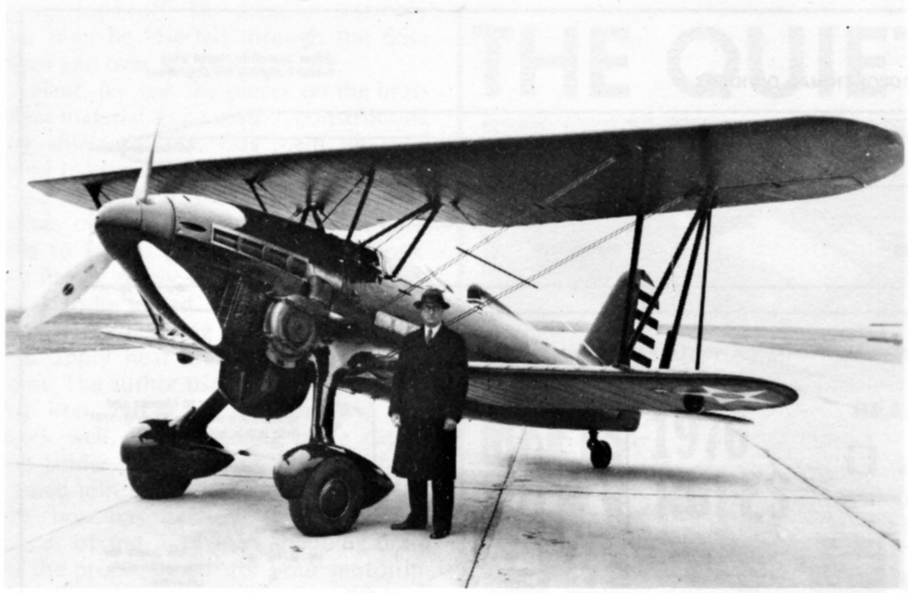
THE LAST OF THE TWO WINGED HAWKS

By PETER WESTBURG

Part I



The XP-23 was the last of the 46 famous P-6E's, though only the wings remained. The rest was all new. Note clockwise rotation of prop. (USAF Museum)

CURTISS XP/YP-23

• In 1932, when monoplane combat aircraft were flying into the present, the Curtiss company made one last attempt to extend the life of the famous Hawk pursuits. For seven years, the good looking, sturdy, easy-to-fly Hawk had been the mainstay of the Army Air Corps pursuit squadrons, but its days were numbered by the oncoming low wing monoplane fighters on the drawing boards of every major nation's designers.

The XP-23 was almost a Hawk but not quite. The fuselage was all-metal monocoupe, the empennage was all-metal and brand new, and the landing gear, which appeared to be like that of the P-6E, was sprung in a much different manner. The powerplant was still a Conqueror, but it was an indirect drive one, and was fitted with a new General Electric F-26 supercharger.

Only the familiar tapered wings were the same. But even they were changed; they were four inches farther apart and they had new constant-chord, all-metal ailerons.

Tested at Wright Field, the XP-23 gave a pretty good account of itself. Its ceiling was 33,000 feet, and in the first minute of climb, it reached 1370 feet. At 15,000 feet it had a maximum speed of 223. Though good, the performance could not match that of a new, lightweight low wing fighter that had already flown at Boeing, in Seattle. •

(To be concluded next month)

The XP-23 in flight. Rare shot shows all wheels extended, with cuffs on main gear streamlines faired with gear legs. (USAF Museum)

Fuselage and tail surfaces were all-metal and completely new design. The tail was later used on the XP-31 Swift.

Close-up of GE F-26 supercharger, which gave XP-23 top speed of 223 mph at 15,000 feet.

Standard PR photo of the 1930's shows that the YP-23 was in the same class as the Hawker Fury, Avia B-534 and Fokker D-XVII. With supercharger removed, it had classic lines, but speed was reduced to 200 mph at 15,000 feet.

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CURTISS XP/YP-23

Part II

Adjustable horizontal stab moved in cutouts covered with sliding plates. Landing gear of YP was beefed up with streamlined cross-strut and wires.

• Little is known of the career of the P-23 while at Wright Field. It was thoroughly checked out in its supercharged configuration, and at one time was equipped with the ancient anti-personnel bomb racks of the Curtiss A-3 Falcon. It was a makeshift installation, with the release cables running spanwise on the bottom surface of the wing, on the outside, in the airstream. It was, perhaps, the world's only supercharged, high altitude attack plane.

Following this experiment, the supercharger was removed. The airplane was usually referred to as the YP-23 at this time, but the designator was actually changed before the supercharger was removed. However, it is convenient to refer to the un-supercharged version as the YP-23 and the supercharged as the XP-23. In its cleaned up configuration, the YP-23 was one of the most beautiful fighters to ever grace the skies. My pilot friend who flies DC-10's for United, put it better than anyone; "If that airplane could cook, I would marry it," he said.

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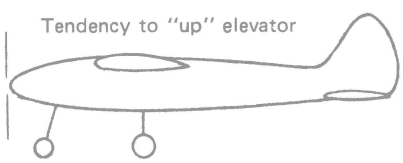
While at Wright Field, the XP-23 was fitted with A-3 bomb racks, making it the world's only supercharged high altitude attack plane!

Goodbye, beautiful biplane! The Boeing P-26 Peashooter had flown more than a month before the XP-23 was delivered to Wright Field.



These observations make one guess that it may have something to do with a turbulence originating from the wing root and which increases when applying rudder. If the plane doesn't have the same tencency depending upon which wing is down, it might be due to an effect from the spiraling propeller slip stream.

How can this interconnection be avoided? The two obvious measures are:

A. Move the stabilizer away from the wing turbulence . . . upwards or downwards at least 2 to 3 inches, depending upon the fuselage length.

B. The other way is to place the stabilizer with equal turbulence on both the upper and the lower surface. This would mean in line with the wing. This would probably also mean a more horizontal roll axis in a snap or very fast roll. The worst stabilizer position ought to be a 1/2 to 2 inches above or below the wing. If you are unlucky you might need the crazy positioning of one stab side placed higher than the other!

C. Move the center of gravity. If a model flies straight and level, the wing lifts the model's weight, one G. If we roll to knife edge, this ability to life one G ought to be at least partly translated to horizontal and some tendency to move towards the "fin" (up) ought to be there.

If the CG is moved far forward, you have normally to fly with more "up". When the one G disappears in knife-edge, the plane ought to move a little more towards the "fin" (up). A move of the CG backwards would then create a tendency to move towards the "wheel" (down).

This way you can change the tendency only slightly.

D. Create another turbulence on the fuselage side at a wanted height to give the desired stabilizer influence as "A" above. A sidemounted engine or muffler might work as such a turbulator. Even in this case the influence is surprisingly marginal, but it is always safer to have both fuselage sides alike with smooth wing fillets.

E. A longer tail may help to get a more even turbulence on both sides of the stabilizer, as the turbulence spreads at a longer distance from the wing. But if the stab not until now will enter the turbulence, it will be worse with a longer tail.

F. Make yourself a "black" electronic box similar to Ken Gustafsson's, here in Sweden. It gives the proper amount of elevator compensation when rudder is applied on his "Mach 1".

Most of this discussion is based upon the assumption that a turbulence is created affecting the stabilizer. But I have never seen it and do not know. Someone interested ought to investigate it with the help of a wind tunnel.

In the mean time I keep to a high speed midwing design like the DFH 18.

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Westburg . . . . *Continued from page 21*

The YP-23 was flown at least once with the Prestone radiator removed to obtain comparative drag data. The main fuel tank was filled with water which was pumped through the engine and overboard. The airplane had a time-in-air of approximately fifteen minutes on the 20 gallons of fuel in the reserve tank. Unfortunately, the results of the test are not available. Eventually, the P-23 was returned to Curtiss where the empennage was used on the XP-31 Swift.

It was the Boeing P-26 that shot down the P-23. It was a thousand pounds lighter and 35 mph faster, and it did it without supercharging on a 600 hp P&W Wasp. ●

Peanut . . . . . *Continued from page 47*

shown is as follows.

Black: Cylinders, tires, cross, struts.

Aluminum: Cowl, wheelrims, spokes, cylinder heads, crankcase, thrust button, and pilot's goggles.

Brown: Fuselage covering, wing covering.

White: Horizontal and vertical tail, tail skid covering.

Tan: Propeller (simulated wood grain), pilot's helmet.

Have fun with your Hergt Monoplane. One loop of one-eighth flat rubber will power it. ●