



WEDELL-WILLIAMS AIR SERVICE CORP.

and AIR RACING

by Bob Hirsch

(All drawings by the Author, and all photos from the Author's collection)

Part II-1 The Racers

James R. Wedell was, in 1929, vice president of the Wedell-Williams Corporation. And under his leadership and direction there were eight basic racer designs and one military, a development of one of the racers. The first to be built was based on his building experience and his knack for sizing up shapes and ideas into a product, and the success he had with his earlier planes before the corporation was formed. This was a Hisso-powered clipped-wing *Standard* built with ailerons on both upper and lower wings, which gave it more speed and greater maneuverability. It was used for hauling liquor and firearms over the borders, but it was basically designed to the mailplane requirements laid out by the Army Air Corps.

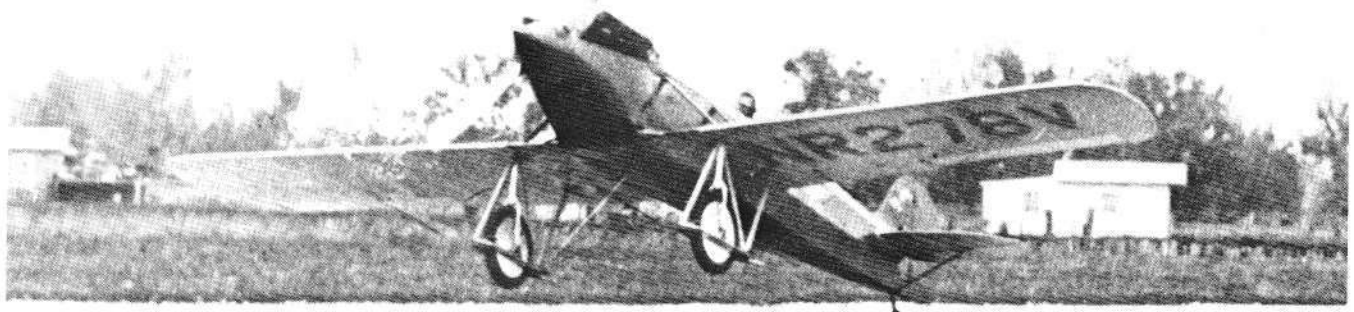
There were other aircraft of the era that showed striking similarities to the W-W racers and probably had some influence on Jimmy's design. One was the *Air-Istocrat* SR-4, a low-wing sport plane by the United States Aircraft Co. of New Brunswick, N.J. Another was the famous Travel Air "R" racers known as the "Mystery S" racers. A third came from across the field at New Orleans in the Delgado Aviation Trade School racers. From 1929 through 1939, American aviation was air-racing conscious, and the W-W corporation for a good part of it was in the forefront.

The First Basic Design—The first design built was two aircraft. The first of the two also was two aircraft and yet one. There are indications it was at first a high wing and then a low

wing which set the pace for the two aircraft built. This example was Jimmy Wedell's aircraft which he flew almost exclusively. It had a Hisso engine from WWI built by the Wright Co. It was water cooled and had at one time a chin radiator that was partially retractable. It also had in place of the chin radiator a pair of radiators on the top of the inboard section of the wing to lower the frontal area. Air would be scooped under the radiator or the laminar flow area and dumped out in the low-pressure upper-surface area into the slipstream.

It was started in late 1928, and finished in early 1929, and was registered NR-9471 and serial No. 101. It was nicknamed "We-Will" and showed up at the January 1930 Miami air races but did not have a race number on the side. It had the race No. 91 for the 1930 National Air Races at Chicago, but did not show up. It was taken out to Los Angeles to enter in the XC race to Chicago but was forced down with engine trouble. This may have been from inadequate cooling by the two wing root radiators. It underwent modifications for the New Orleans races and was reregistered NR-278V. This later became the famous AA.

The two registration numbers are confusing to the researcher because this 9471 number was assigned to their Ryan B-1, of which the corporation owned three during their time. It seems Jimmy changed numbers often during the early years even having the same number on two aircraft at the same time. This way he could be running contraband with one and



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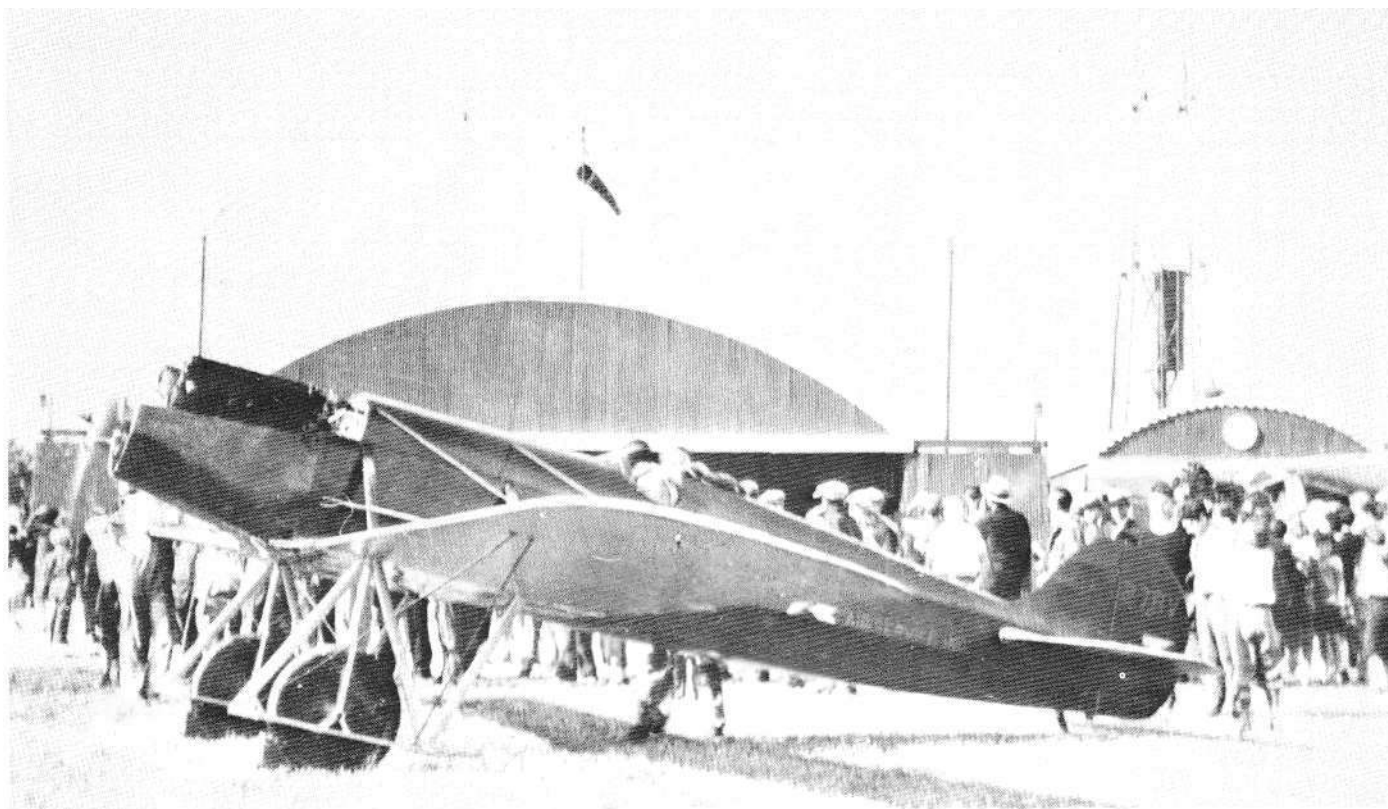
1 We-Will takingoff at Patterson, La., on Pits first flight.

2 Close-up of Jimmy taxiing We-Will Jr. Note gear bracing struts. These struts were on all three early ships and really didn't change much internally though when covered later on, looked quite different.

3 We-Will Jr. ready for the Cirrus Derby of 1930. Color was deep red with wings and horizontal tail, silver. Powder blue oval with black 17 on each side of fuselage. The name on the side was the same powder blue with white wings.

4 Jimmy Wedell beside his "We-Will Jr., R-1037 at Patterson, La., prior to departure for the Cirrus Derby.

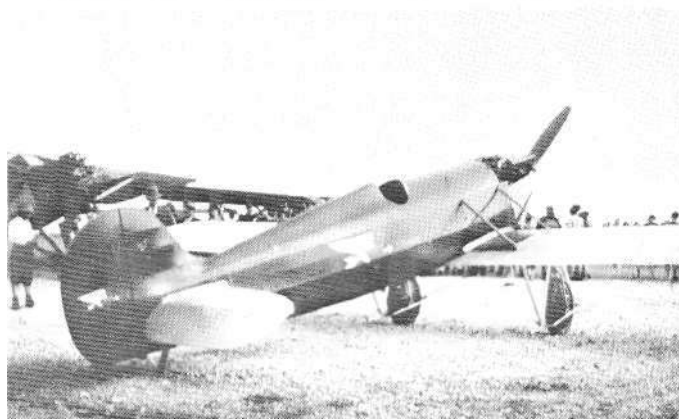
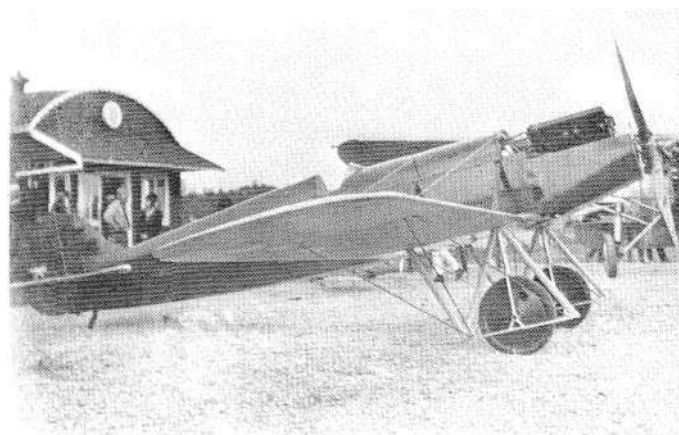
5 Jimmy taxiing We-Will Jr. Note the flying wire and landing gear wire tie braces. These were eliminated on all but the first three-ships.



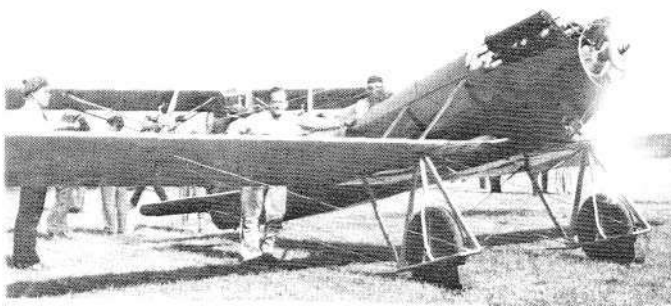
keep the other in full view of the feds for an alibi. . . . "It wasn't me." Also, he discarded top wings of early biplanes using bottom wings with aileron for both top and bottom, and even cutting those at times. Photos have shown up of clipped-wing *Standards* with no sweep back. (Jimmy probably bought and sold dismantled airplanes like today's hot car shops.)

In October 1930, the CAA register lists NR-9471 as assigned to a Wedell-Williams built aircraft, quote: Low wing monoplane with Hisso engine production model 101, which indicates this was the first registered aircraft built by the corporation. However, the June 30th CAA sheets show NR-278V built in 1929 as ship No. 103, and also with a Hisso engine. The various air races saw NR-278V and not R-9471 or earlier 9471. It appears the 9471 number was one of those borrowed from another ship and then canceled out and finally dropped when it was modified and rebuilt about late 1929. This means that the first and second ship was really the same ship or that there was one either started or built in between since serial No. 102 cannot be accounted for.

The "We-Will" was never in a two-place configuration. It was primarily designed and built for hauling mail which was Harry Williams' goal for the corporation. It was painted red with silver wings and horizontal tail surfaces. The fuselage was built up of welded chrome-molly steel tubing with wood frames attached and stringers creating the shape giving long, slender, smooth lines. Jimmy Wedell often did his own welding. The wing was low on the fuselage and was wire-braced somewhat in the same manner as the de Havilland DH 71 *Tiger Moth* of England's 1927 Kings Corps race. This style of bracing was copied by many of the racers up to about 1936, when retract gears and full-cantilever wings were coming in. NR-278V had a thin airfoil with medium aspect ratio. The gear was somewhat similar to the Travel Air Mystery S design,



The Hisso-powered We-Will at Patterson, La., during an air show. Note the airport light/beacon tower and the water reservoir which served the hangars. Also note the wide-chord, thin wing which was said to be a modified M-12 airfoil which was popular at the time. All of Jimmy's designs that followed had wide-chord design and were reasonably good handling which is rare for racers. This ship is the one that used the number 9471 transferred from the "Maiden Orleans" cabin monoplane which was Hisso-powered also. No photos of it can be found, but the Wedell-Williams Special, as it was first registered with 9471, is this ship which is now NR-278V. Original race number was 91 which made up the three racers as a team, numbers 90, 91 and 92.



Ground crew running-up engine at the Miami races.



Jimmy Wedell standing in front of his We-Will prior to the 1930 National Air Races in Chicago. Note the chin radiator that has replaced the wing radiators. Also the wheel pants which was the beginning of the wheel covering that marked the Wedell-Williams racers.

which also provided support posts for the flying and ground wires.

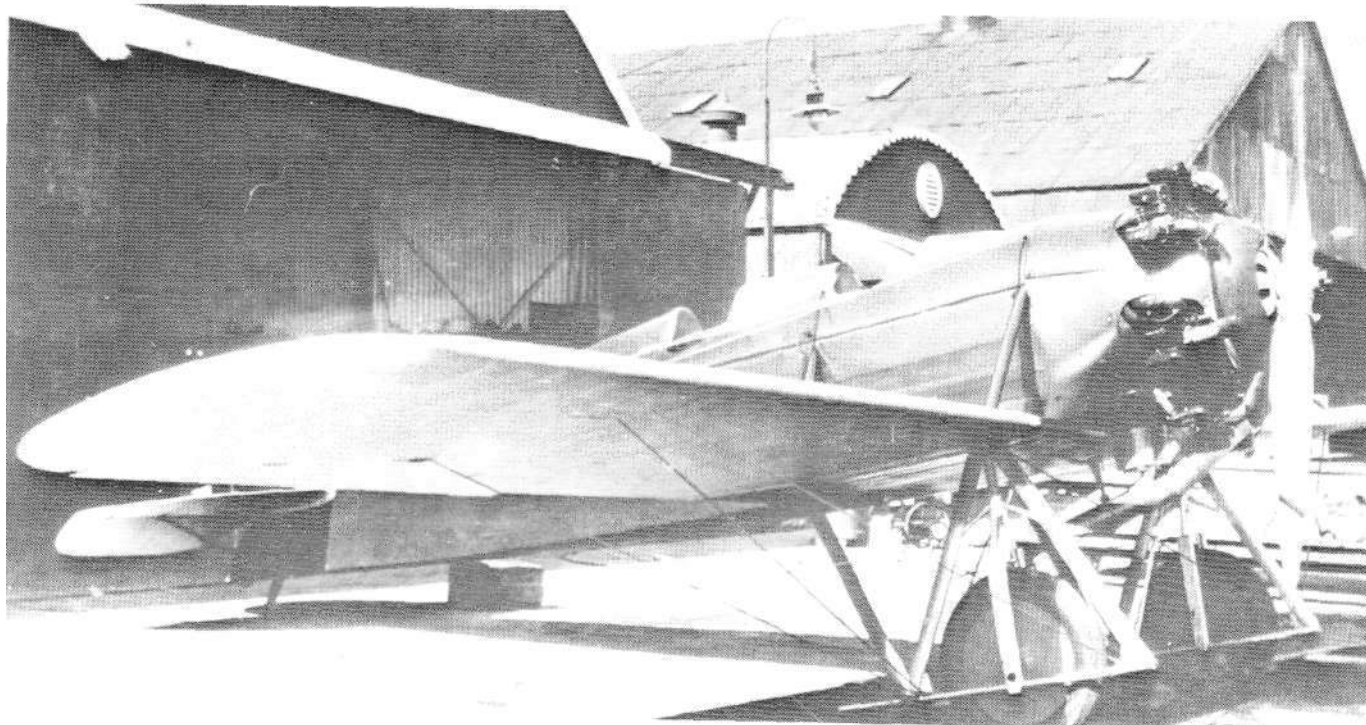
The second constructed aircraft of the first basic design was NR-356V and was nicknamed 'We-Wine.' It has been called "We Wini" so often that it is confusing to call it anything else. The name "Wine" would have come out of the "Winchester," a name known for fine guns. "We Wine" was

Harry Williams' favorite and the only one of the racers that he flew. It was built in early 1930 and had two main differences from "We-Will." First, it was a two-place, open-cockpit tandem fuselage of a slightly broader fuselage back to the rear cockpit. The front cockpit replaced the luggage area. Second, it had a seven-cylinder Wright Whirlwind J-6, R-760 engine. It was otherwise the same general construction as the first ship. Later, it went through minor changes for racing such as covering the front cockpit and installing a fuel tank for cross-country racing. It also had an engine "Speed Ring" type cowling installed and full-length wheel covers called "Spats" in those days. These are similar to the Northrop aircraft, the Delgado Trade, and Alexander Krapish low-wing sport plane. This was then a common style of gear streamlining and Jimmy Wedell tried them all before developing the familiar W-W pants.

The color was a deep red with silver wings and black registration letters on the wing and yellow on the rudder. When it was modified for racing it was painted all red with white outlined border of about nine inches in width on wings. The horizontal tail surfaces were all white. The registration numbers were then white as was the race No. 92 on each side. But the rudder registration number was still yellow. This ship was registered as production model No. 104 and built in early 1930, having its home field at the New Orleans airfield.

Basic Design Number Two-The second basic design was a single-place, open-cockpit racer which was in essence a scaled-down version of the first design. Only one was built, in the early spring of 1930, and about parallel with NR-536V. It was designed and built for the Cirrus Derby of 1930, and to the Cirrus specs, thus becoming the first W-W ship built especially for a specific competition. It had a high-drive American Cirrus supercharged engine. The Cirrus engines used in the

"We-Winc" emerging from the hangar being prepared for its first flight. The date must be about April or May 1930. Color was deep red with silver horizontal surfaces.



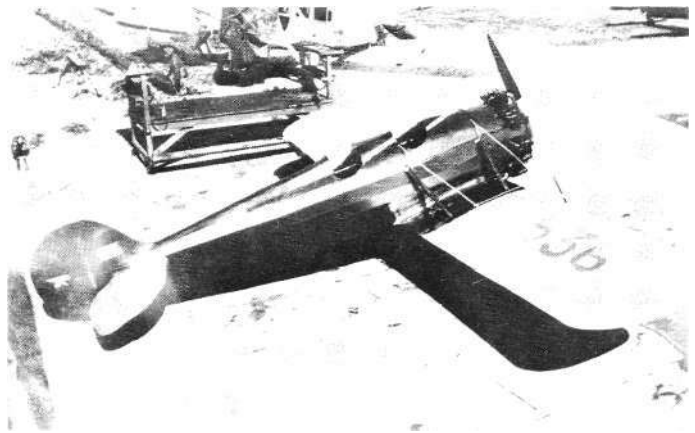


View of wing construction of the Model 22. This is a new wing and new airfoil, not just a clipped version of the We-Will Jr.

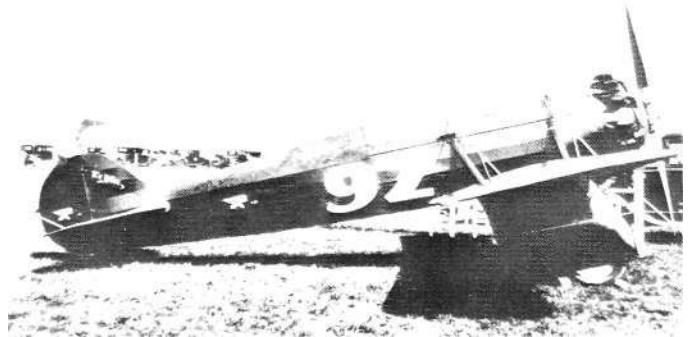
Derby were both high drive and low drive, also with and without superchargers. It was the choice of the designer.

CAA coded this aircraft as serial No. 105, an IPOLM and built in 1930. It was registered R-10337 and used the race No. 17, which was on a sort of light powder-blue, somewhat square oval on each side of the cockpit area of the fuselage. Fuselage was deep red and wings were silver with black registration numbers. Horizontal tail surfaces were silver, but registration number of the rudder and the W-W lettering was light blue not as light as the oval which indicates they were put on at a different time and not the same batch of paint. The logo was a yellow triangle with black double "W" and white wing profile and arrow.

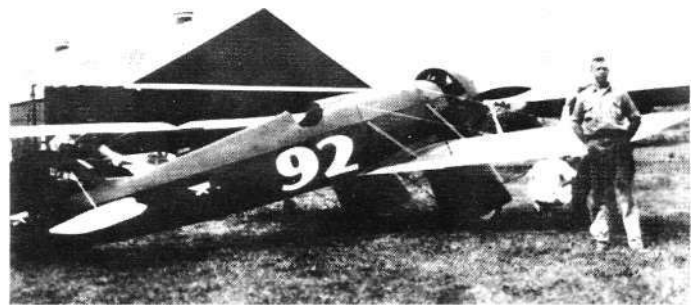
Spruce and ash were the main woods used in its construc-



NR-536 as a two-seat sport plane with seven-cylinder Wright J-6 *Whirlwind*. This was designed to be a fast, two-seat sport plane. The Gee Bee Co. produced a similar design about a year later which was the Model Y. Two Gee Bee Model Y aircraft were built.

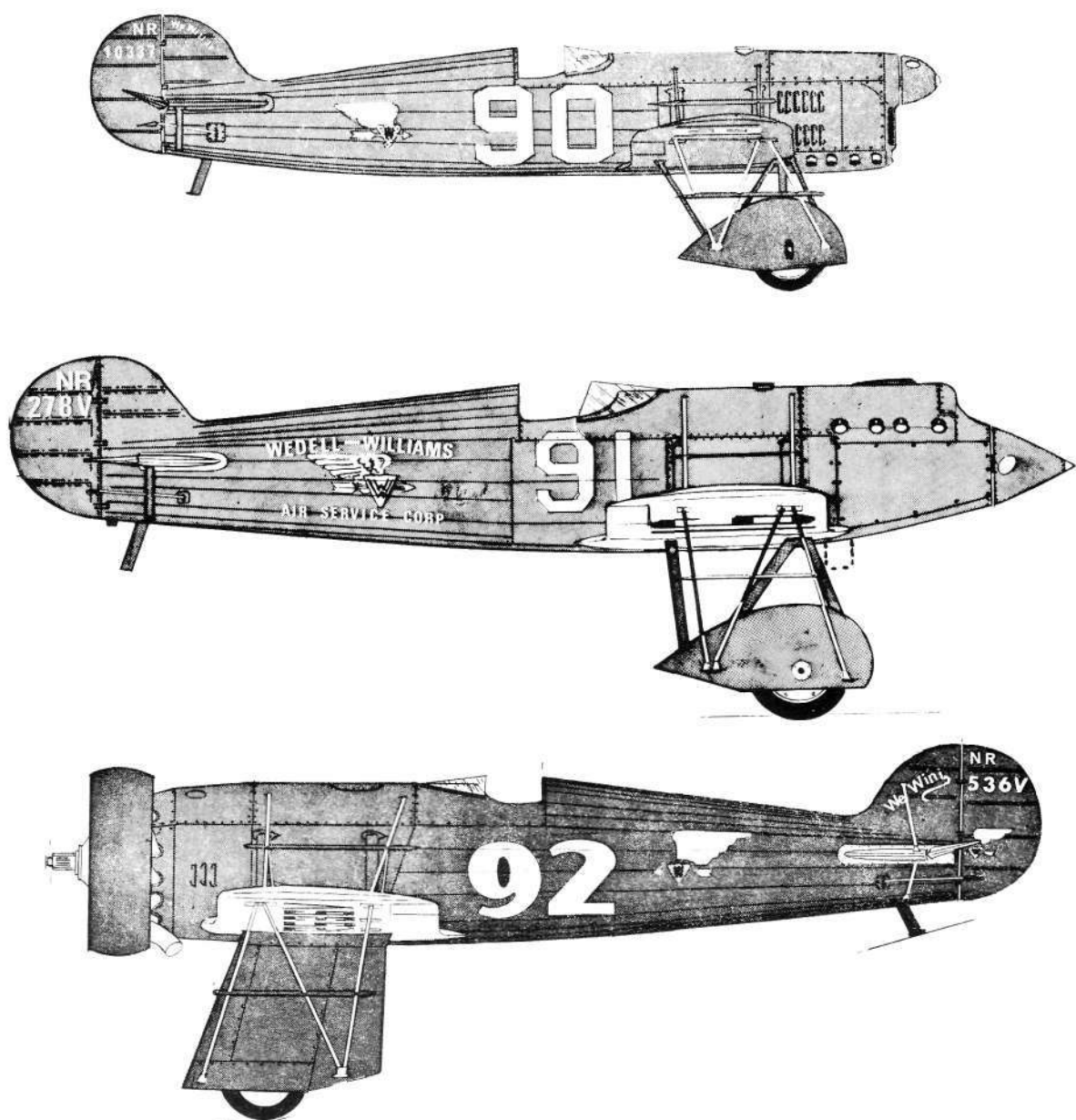


We-Winc with new spats and race number 92 which it kept for its racing lifetime.



We-Winc with full race configuration before departing for Chicago and the National Air Races. Palmer Peterson standing at the wingtip.

tion, and the same chrome-molly steel as the first designs was used on the airframe structure. This was typical of all of the W-W designs. Later, in 1930 and after the Cirrus Derby, "We-Will Jr." was cleaned up for the coming Chicago National Air Races (NAR). It then had a pair of wheel covers called "pants" which left the struts in the open. At Los Angeles, during the Cirrus Derby, Jimmy had a pair of "Spats" made, but they were destroyed. This will be covered later. For the NAR the ship was painted all deep-red with white numbering and a new race No. 90 on the side of the fuselage. It was in this configuration at the Chicago NAR in 1930 and flown by Jimmy Wedell. For the pylon racing of the NAR, "We Will Jr." was a little too large for the Cirrus engine although its lines were exceptionally clean.

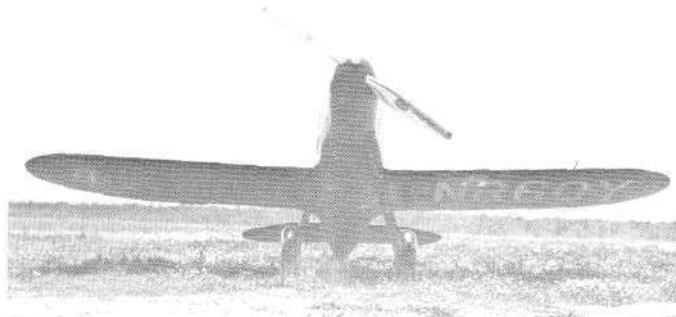
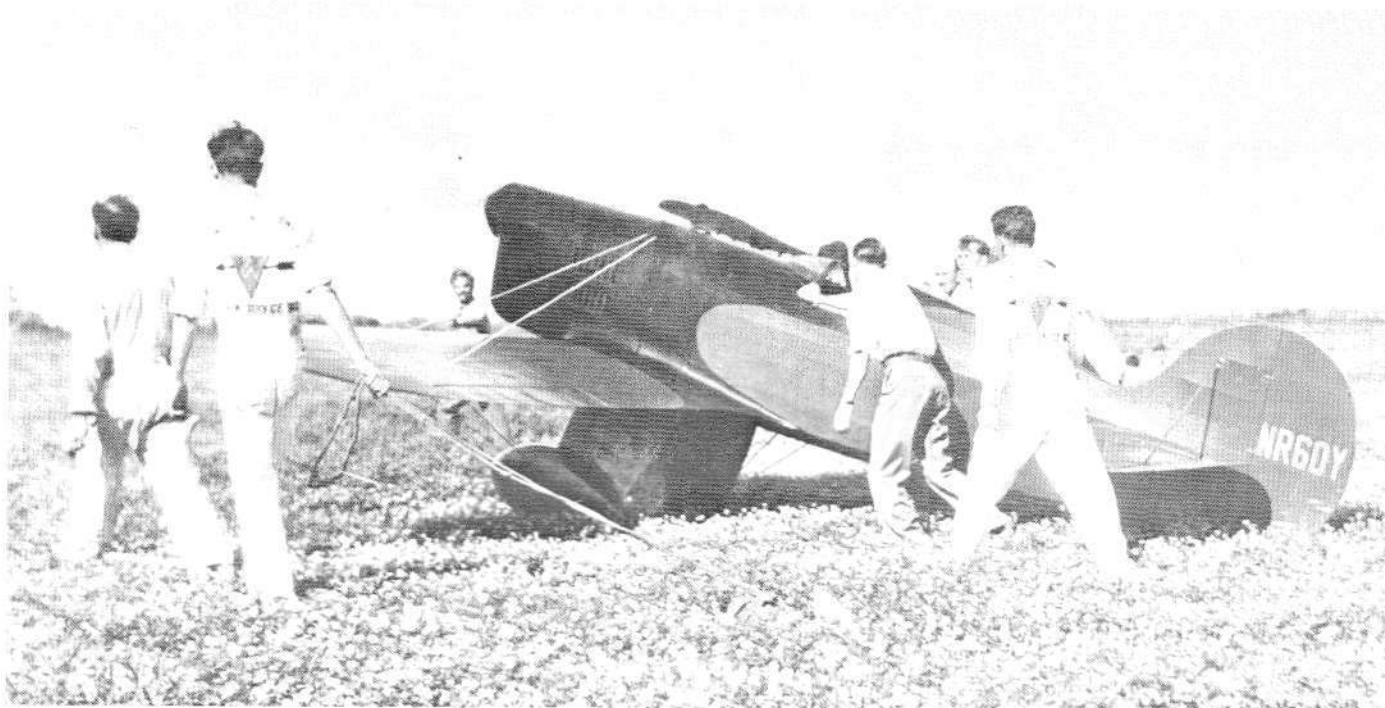


Basic Design Number Three—In 1932, "We-Will Jr." underwent a complete rebuild with shortened fuselage, new shorter wings, which were now plywood covered with torque tube-activated ailerons. The wood covering had a fabric covering, many coats of dope and fine sanded to a smooth finish. There was a new cockpit covering similar to all the W-W designs, a new cowling and spinner covering the Hermes engine built by Cirrus and having a greater cubic-inch displacement. Hamilton Standard propeller was new with easier adjusted pitch. The new shape with the combined changes made an airframe that only slightly resembled early design number two.

This new design was now named the model 22 after a famous common caliber of gun ammunition. It was the first to have the later famous Wedell-Williams wheel pants and strut covering. They were later used on the 44 and Turners;

also the 92, except for the attachment angle. Although this ship now was completely different from its original shape, it nevertheless was a modification of the second basic design. It carried the Cirrus engine through 1932, and was raced in smaller southern states' races and shows. There were several smaller events and gatherings especially in the southern and midwest states.

The registration of this new-shaped modification was NR-60Y, with serial number unknown. But this actually became the third basic design. It also was a departure from the red, red and white, and red and silver of the W-W aircraft. It was painted a two-tone blue, dark and medium-light. It had white pin stripes separating the two shades of blue. The registration and race No. 54 was also white as was the W-W logo, except for the triangle which was yellow with red double W that had white between. Number 54 was not seen on the air-

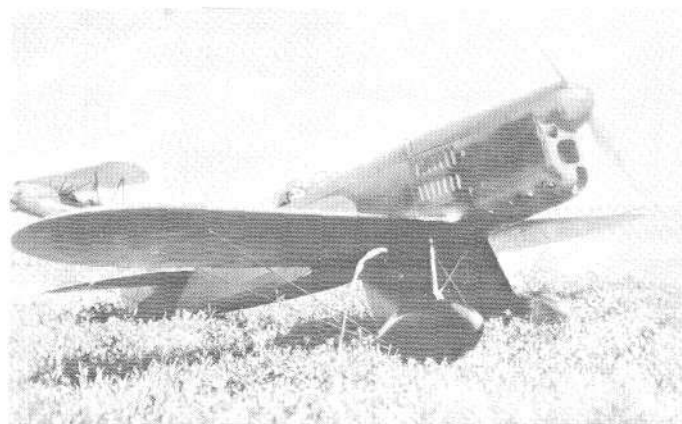
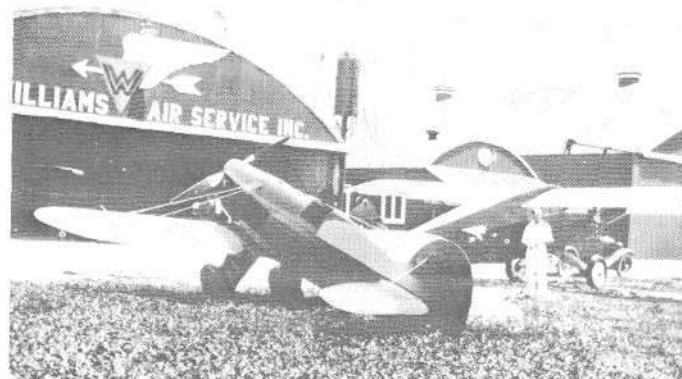


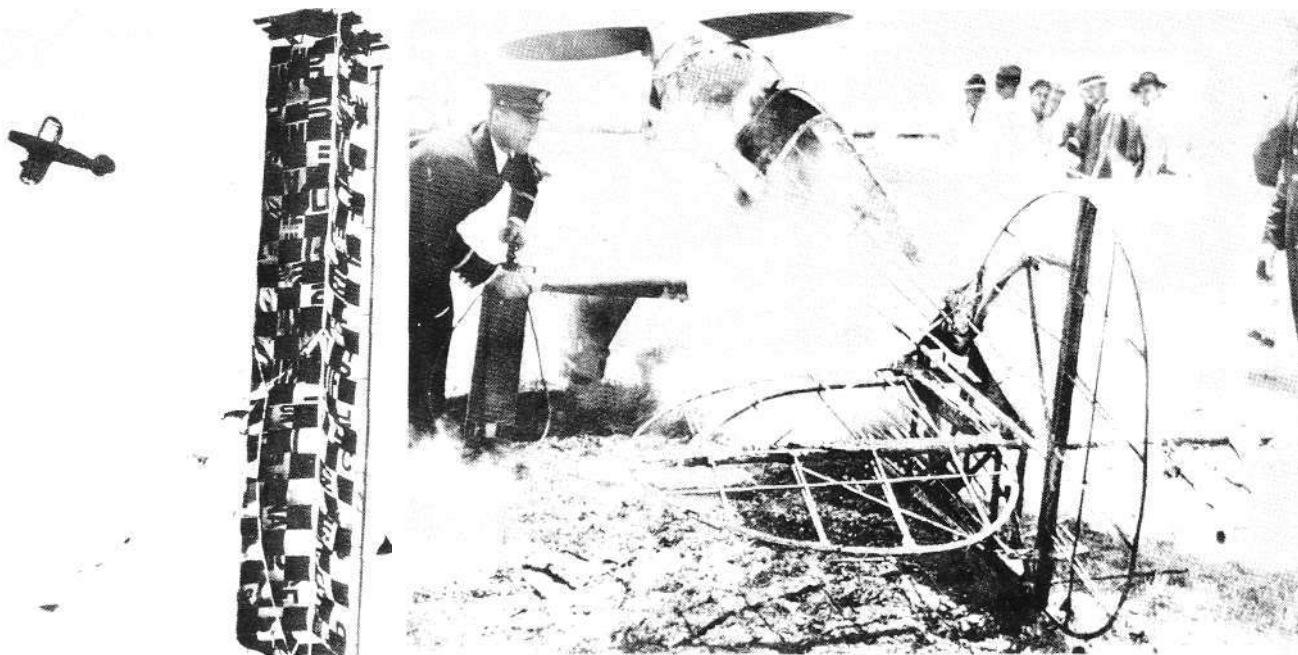
Views of the Wedell-Williams Model 22 newly completed at Patterson with new registration No. NR-60Y. It was completely rebuilt and modified from the old airframe of We-Will Jr. It did sport a Cirrus high-drive engine, but of the larger cubic-inch displacement. The color on this ship departed from the red of many of the Wedell-Williams aircraft. It was a dark-and-light blue for the Los Angeles races with its Menasco engine. In these four photos it is black and red with a Hamilton Standard propeller.

craft when it had the Cirrus engine.

In 1933, the same NR-60Y had an engine switch to the famous Menasco *Buccaneer* six-cylinder air-cooled in-line racing engine. This was the most popular engine manufactured for small racers during the '30s. NR-60Y was made ready for the 1933 NAR of July 1 through 4, and brought to Los Angeles' Mines Field the last week in June. It was about this time Jimmy started naming his models after well-known gun calibers and getting away from pet names such as "We-Will," "We-Winc," etc., as he was an avid gun collector.

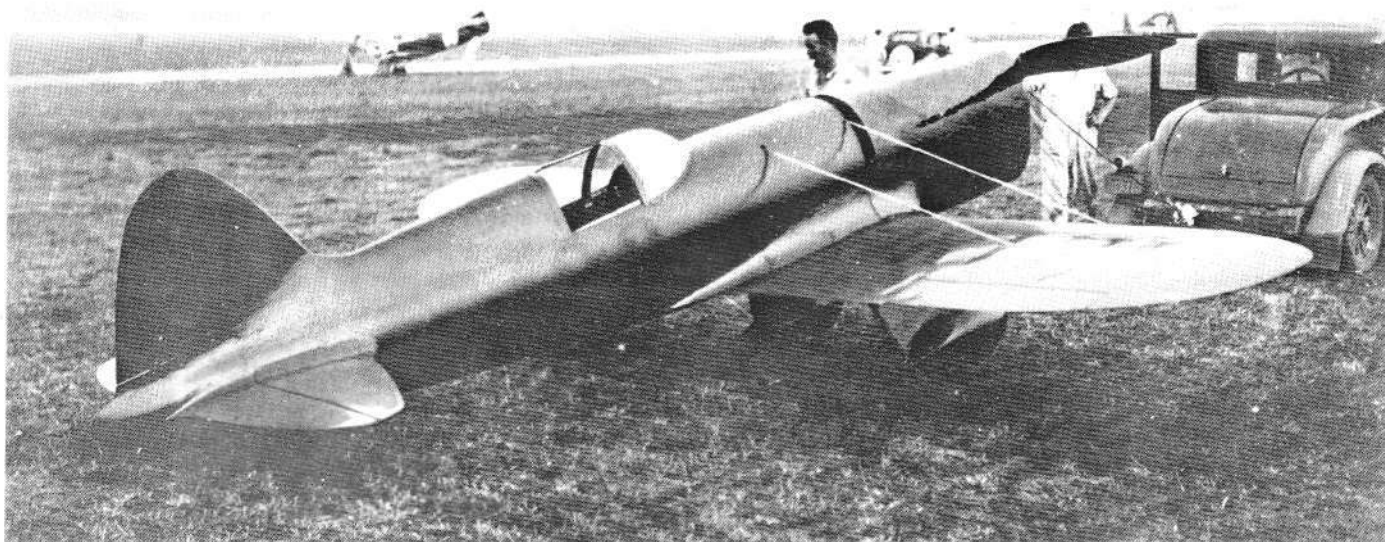
Basic Design Number Four—The fourth basic design was also called Model 22 and registered NR-64Y, but serial number is unknown. It was evidently not completed in time to make the Los Angeles NAR in July 1933, but was at the Chicago races after the Nationals. It had the same Menasco *Buccaneer* six-cylinder air-cooled as did NR-60Y, which indicates the W-W group was trying out speed design analysis through doing and not by wind tunnel. This second Model 22 had the Delgado Trade School influence. The trade school





NR-60Y rounding the pylon at Los Angeles, Mines Field, during the 1933 National Air Races. When the racer landed and was taxiing in from the runway, the engine backfired and set the new blue-painted fabric on fire.

A good view of the empennage construction. The airport fire crew was right there with fire-extinguishing equipment or the whole ship would have been destroyed. Note the racing propeller.



Here is NR-62Y with race number 22 after the time trials at Chicago in 1933. Its time was not fast enough for Jimmy to want to race it. The paint job was bright red with black numbers and letters. Note the Delgado Trade School design influence.



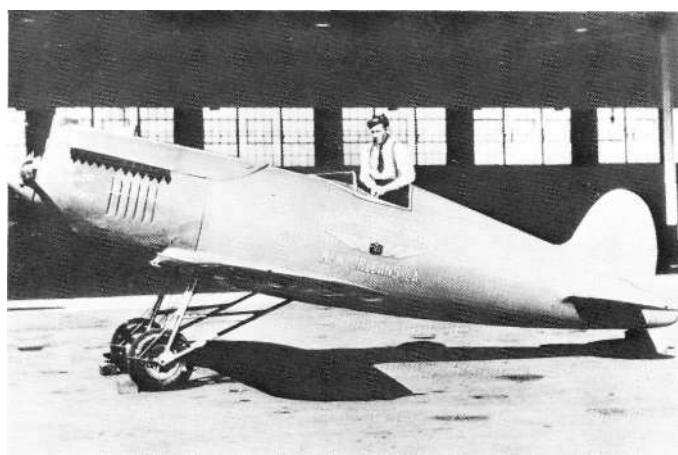
Design number four; this is the second Model 22 at Chicago for the 1933 International Air Races which followed the National Air Races held in Los Angeles. Wing and horizontal tail appear lighter in color.

had a hangar across the field from the W-W hangar at New Orleans and they built two racers: the "Flash," a Menasco-powered racer with spats; and a Curtiss *Conquer*-powered "Maid" along the same general lines as the "Flash" only larger and oval-shaped fuselage somewhat like Lockheed aircraft.

Construction of the fourth design was also along the Lockheed system. It, therefore, was slightly more oval than the NR-60Y and had a slightly larger wheel spread, although the gear angled outward about the same. The wheel pants covered smaller wheels that were of lower pressure in order to soften the landing contact shock. The W-W racers did not have shock struts and the wheels absorbed most, or almost all, of the landing shock, which is why they (and most other racers of that era) bounced so many times on landing before finally settling down.



Delgado Trade School racers NR55Y "Delgado Maid" and NX68Y "Delgado Flash." These aircraft were being built by the school instructors and students at a somewhat slower pace than the Wedell-Williams company would have done. At New Orleans airport, the Delgado Trade School was just across the field from the Wedell-Williams operation. Note the Delgado influence on the shape of empennages of Wedell-Williams Models 22 and 45.



Both Model 22s had almost the same wing span, but planform was slightly different. The third design, NR-60Y, had fabric-covered ailerons and wood laminated over ribs, and the same construction method as on NR-64Y, but it had wood-covered aileron surfaces of the tail. This fourth design was a significant departure from the generally known lines of the rest of the W-W racers. It also influenced the seventh basic design, Model 45, and the military version known as the P-34.

For such a departure in configuration and construction it is surprising that it was not flown more or raced enough to become known. The reason could be because of the cantankerous Menasco engine that was taken out of the NR-60Y after the Los Angeles NAR. But this is another story to be covered later.

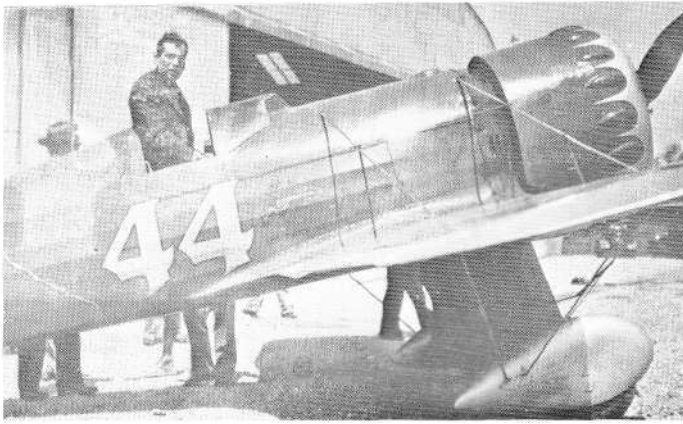
The Fifth Basic Design—The fifth basic design was actually built before the third and fourth designs. It was built in the summer of 1931 for the upcoming NAR to be held in September at Cleveland, Ohio. It was a complete rebuild of the NR-278V Hisso-powered No. 91 racer of 1930. It now had a P&W Wasp Jr., that produced 550 horsepower in its racing configuration. It was the first Model 44 and the first built for the up to 1,000-cubic-inch entries and unlimited racers field.

There was very little resemblance between "We-Will" and

the Model 44. A new wing was designed for this ship with a narrower chord and shorter span. The gear was now attached at the wing root area and projected outward at an angle of about 10 degrees. This was good for crosswind landings or with a wing low. The gear would not tend to buckle inward. The gear strut was attached to the wheel axle on the inside of the wheel so that the wheels and covering were parallel to the vertical plane, or Z axis.

The overall length was shortened since the P&W (R-985) was installed. An NACA-type cowling was used with small streamline bumps near the front piece which covers the valve rockerbox covers, thus allowing a smaller frontal area. This Model 44 was, in a way, considered crudely finished by other contestants at the races, yet it was well put together and a sort of pretty airplane and of good balanced design. It was fast, as noted during time trials, but it was having aileron flutter problems which Roscoe Turner and Don Young duly took note of as they watched it perform. "Aileron buzz" as it was called then was not yet well understood by airplane designers and builders. This was especially true with race plane builders who did not have the costly wind-tunnel and stress-test facilities that the schools and commercial industry had. Yet, they were the ones pushing speed records upward.

The wings were wood veneer covered, then covered with linen laid over the wood with a fresh dope glue coating.

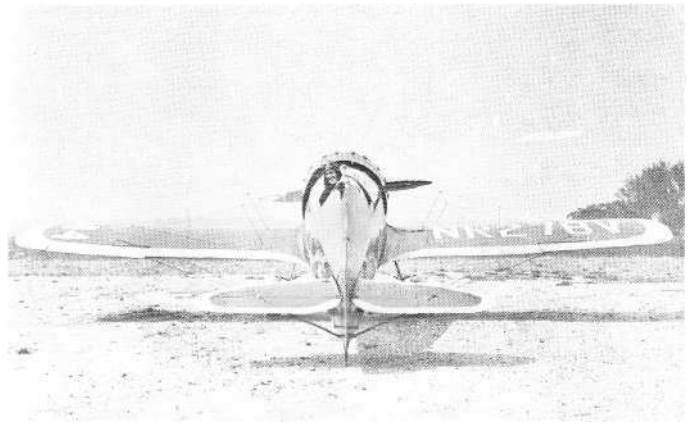


Jimmy Wedell standing up in the cockpit of his new Model 44 at Patterson. Note the pistol on the side of the fuselage ahead of number 44. The writing near the pistol said "Hotter than a pistol and twice as fast."

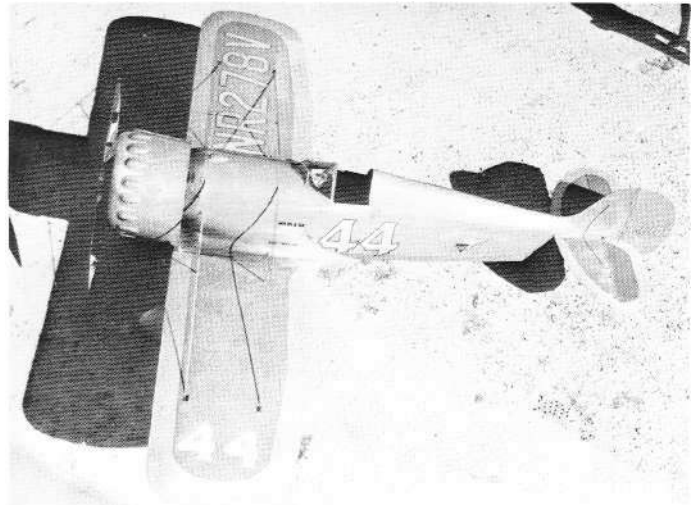


The Wedell-Williams crew getting their picture taken after the ship was test-flown. Cowling still has primer coating on trim but the wing and wheel pants are gold.

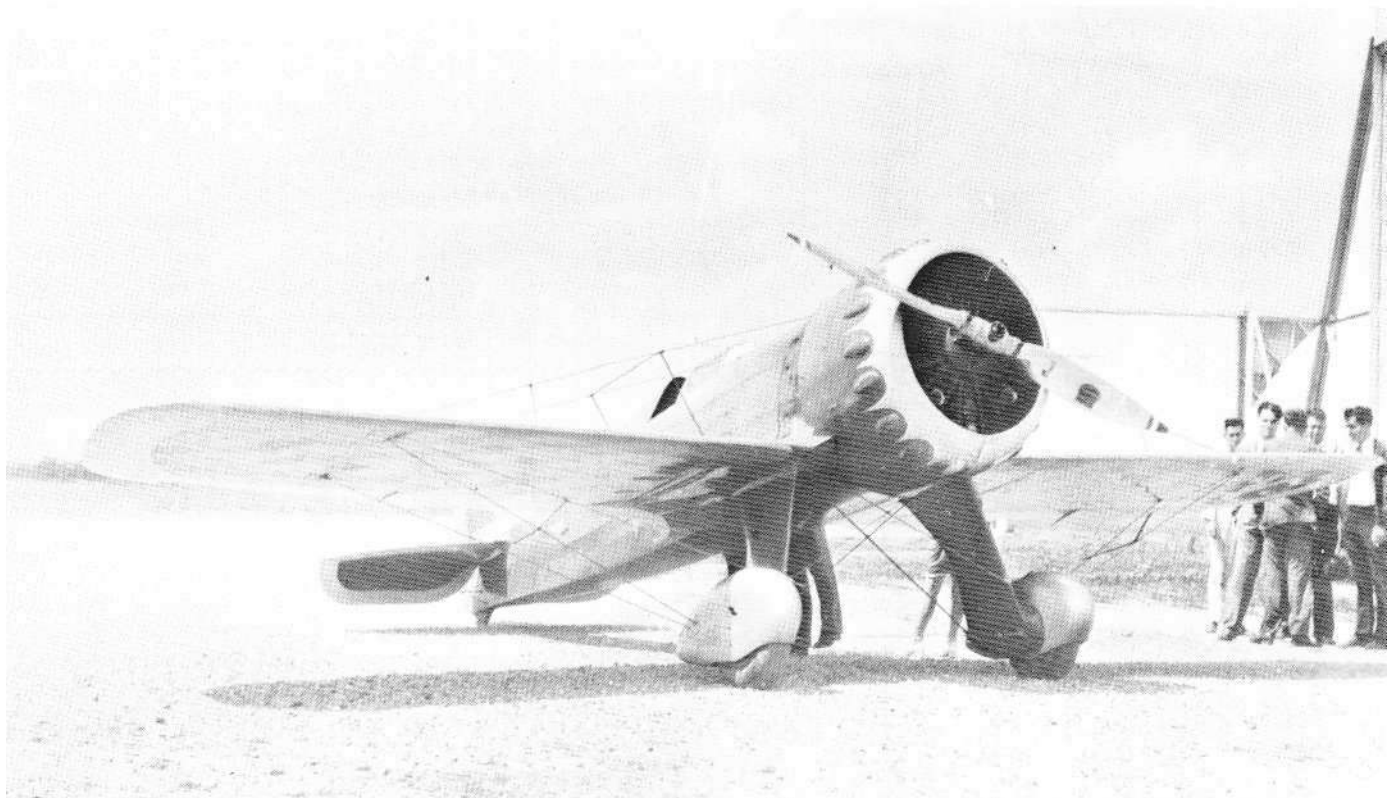
The new Model 44 shortly after it was rolled out. The color was bright red and gold trim with black pinstripes.

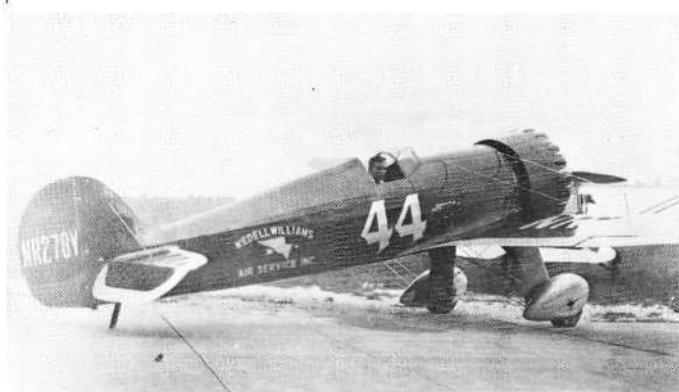
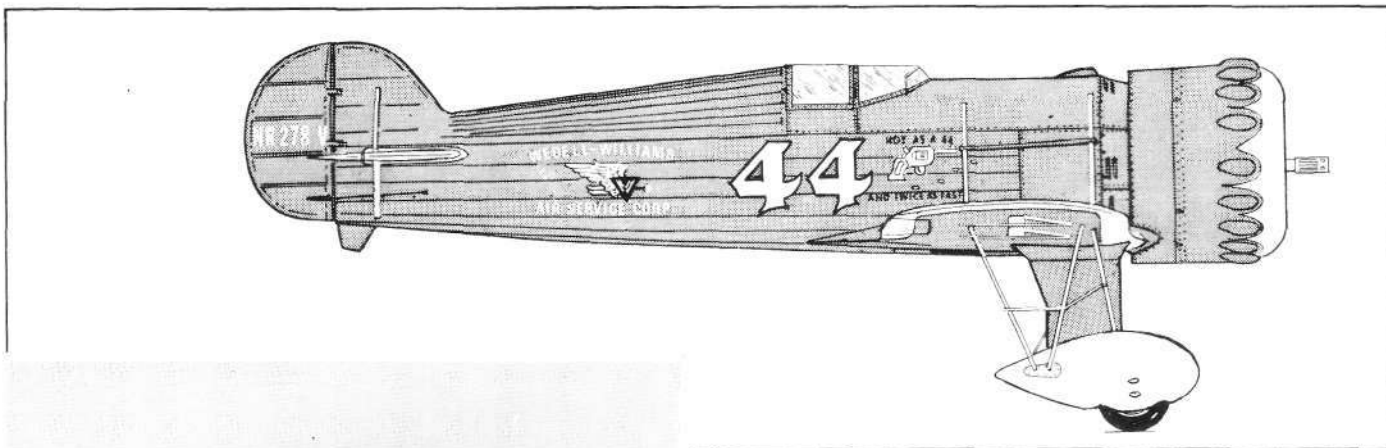


Rear view of NR278V, Model 44. Note the stabilizing wires from the wing upper surface to the ground wires. Trim is as light as the racing numbers meaning it was still undercoated for first flight.



View looking down on aircraft giving good details of wing and empennage arrangement. Note the valve-cover bumps in the cowling that covers the Pratt & Whitney Wasp Jr. engine. Here you can see the trim is not the light powder blue undercoat but the finished gold trim.





Three-quarter rear view showing the large rudder numbers NR278V in contrast to the smaller lettering on the profile view. Top view also has larger numbers but are trimmed in black pinstripe. This probably hasn't received the pinstripe as yet. This view also indicates the gold trim.

When this hardened, the surface would then be buffed to a smooth finish and then doped. When fully dry the surface was painted with the color lacquer and rubbed with an automobile rubbing compound. Then a clear lacquer coating was applied and rubbing process repeated. When completed, a polishing would leave a very smooth surface. This became the standard wing covering method throughout all the following racers even though one design was a full-cantilever wing design. The ground wires, those above the wing, had stabilizing wires about one-third outward from the fuselage and slanted inward toward the wing root at about 15 degrees.

The forward ground wire had a second stabilizing wire about three-quarters outward to point of tie-in. From the cockpit to the rudder there was little change in appearance to the earlier "We-Will." However, the horizontal surfaces were smaller and were beefed-up for higher speed pressures.

The cockpit was now fully enclosed and raised about five inches above the forward fuselage line. The wind screen was a three-piece V-shaped glass for the forward portion and plexiglass covering back to the canopy brace. The color was a bright red with gold trim and white number AA on the fuselage and wing, which it carried through its lifespan. There was painted on each side a pistol and some bullets having come out of the pistol. Writing underneath said, HOTTER THAN A PISTOL, AND TWICE AS FAST. The gold became frayed in time following the NAR and the Three Flags Record run from Canada to Mexico. The Model 44 was then cleaned up at the Grand Central Air Terminal in Glendale, Calif. The gold was buffed down and a powder-blue prime coat was sprayed on. It flew back to Patterson this way, so various recollections of its color pattern can easily become confusing.

While in Glendale, Calif., in early 1932 Wedell contracted with Roscoe Turner to build a 300-mph racer. The Model 44

was again torn apart and the redesign and rebuild into the sixth basic design began. The wing and under-carriage were eventually sold to an R.L. "Reggie" Robins who also used the old Hisso engine and built his own racer with lines similar to the earlier racers. It was registered NR 11987. These wings (or wing) bought by Robins in 1934 were built in early 1931 by F.C. "Dob" Felterman, John Adams and J. Wood Chadwick. Robins later replaced the Hisso with a 320-hp Wright *Whirlwind*. This racer was last seen in a hangar at Little Rock, Ark., during a 1940 air show. With the Wright engine it would look much like the fifth basic design and first Model 44.

MODEL 44 (1931 VERSION) AVAILABLE DATA

Weight Empty	1,500 lbs.
Gross Weight	3,000 lbs.
Fuel Capacity	150 gals. (4 hrs.)
Oil Capacity	10 gals.
Wing Span	26 ft.
Wing Chord	54 in.
Wing Ave. (with ailerons)	108.67 sq.ft.
Aileron Area	2.67 sq.ft.
Wing Loading at 3,000 lbs.	27.61 lbs./sq.ft.
Tail-Down Wing Angle	15.5deg.
Design Load Safety Factor	1.5
Engine Special P&W E-1 R-985 Wasp Jr.	525 hp
Propeller Hamilton Std. two blade/needle blade ground-adjustable pitch	

Moving?

If you contemplate moving please send us your change of address as soon as possible. We cannot get your JOURNAL to you if we do not know where you live. To ensure uninterrupted service please let us know at least six weeks in advance. And to be sure that it is your address we change, include your current mailing label.

CHANGE OF ADDRESS

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