



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-3 The Racers

The Seventh Basic Design—The seventh and last design that became a completed flyable airplane was the model 45 also bearing race number 45. It was called a model 100 by the W-W corporation, but has been known down through the years as model 45 which is in keeping with Jimmy Wedell's naming his models after well-known guns. It never really had a chance to become fully developed but did set some speed records, and showed considerable potential.

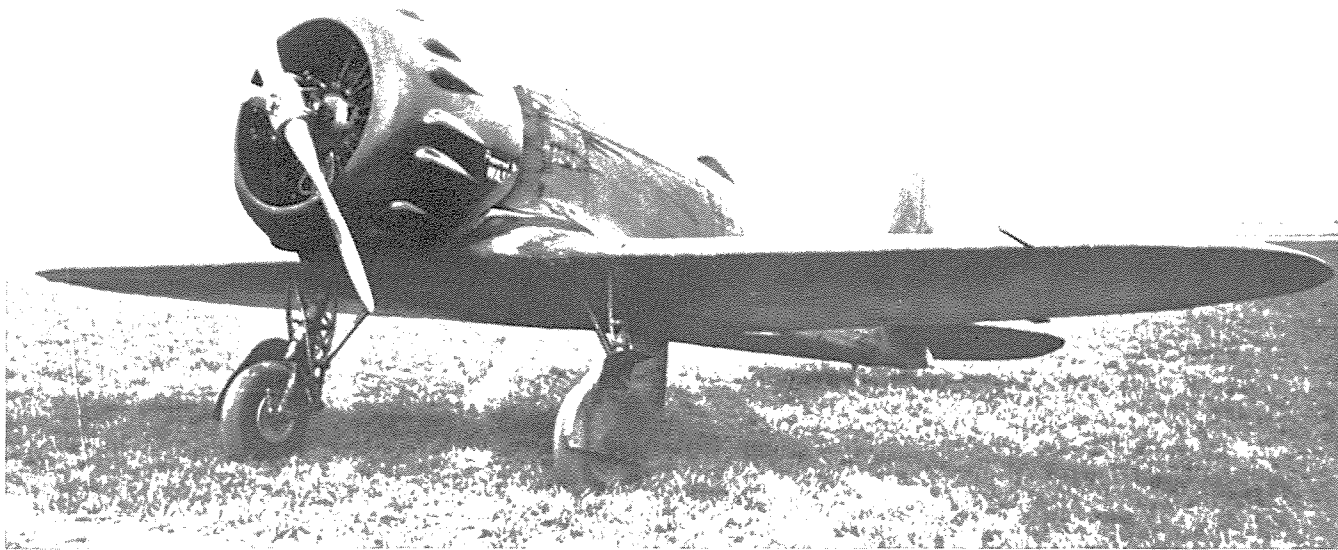
The model 45 was built in 1933 and was first flown on June 28, 1933. It was registered NR-62Y and basically designed for the new P&W Twin Row Jr., R-1535T. It was originally flown with an R-985 *Wasp* Jr., which would have made it not only underpowered, but somewhat tail-heavy. The twin-row engine was still undergoing testing at P&W and therefore was not yet available. The R-1535 and larger version R-1830 series was not seen on racers until 1937. The model 45 did most of its flying with the special R-1344 *Wasp* Sr., of about 800 hp. To move on up to a *Hornet* such as was used by Turner, offered too much frontal area and it was calculated that drag would cancel out the gain in speed and only increase fuel consumption.

The "45" had a somewhat thicker, full cantilever wing with a double taper and housed an inward retractable landing gear with a sheet aluminum covering that gave a clean, aerodynamic surface on the middle underside. Fulton Feltermann,

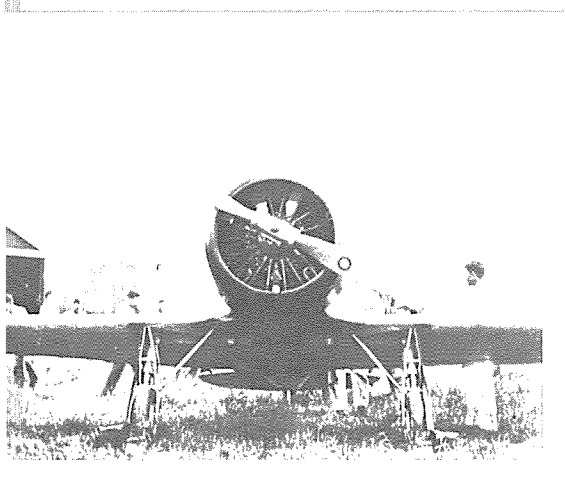
who was the father of two of the museum's board members, Ernest and Fulton Jr., built the wing spars and panels. He and J. Wood Chadwick made the wing ribs as they did on all the racers. Spars were made from six pieces of wood—bonded together—which made them stronger than any single piece of equal size. Of course, the 44 models had spars made up of welded, double tube inside a rectangular box. But they were wire-braced and not full cantilever. An all-wood full cantilever wing designed for 1.5 times ultimate loads expected for bump stresses of 305 mph to 400 mph "V" dive speeds, must have taken some careful calculations. The 45 was slightly heavier than the maximum gross weight of the 44's 3,500 pounds. The 44's pylon racing weight was 2,700 pounds, which put the 45 at about 3,000 pounds for pylon work. If the R-1535 had been used, the aircraft weight would have gone up and thus the ultimate loads.

The model 45, like the second model 22, had the empennage treatment similar to the Delgado "Maid" and "Flash." This should not be surprising since the Delgado Trade School was just across the airport from the Wedell-Williams hangar and the school very often did work for Jimmy and had produced some parts for the model 45. The performance specifications for the "45" leaned more for distance racing than strictly pylon racing, but it could do both.

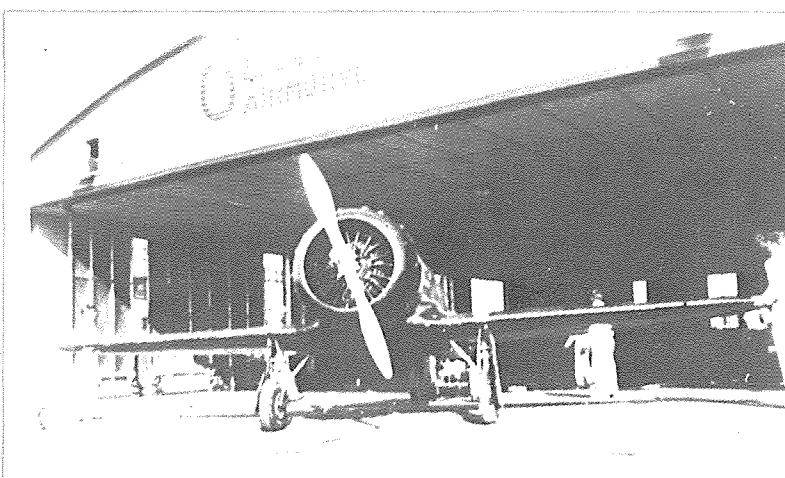
Wingspan on the "45" was 26 feet, 8½ inches and wing



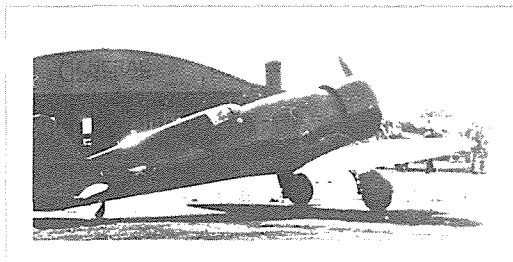
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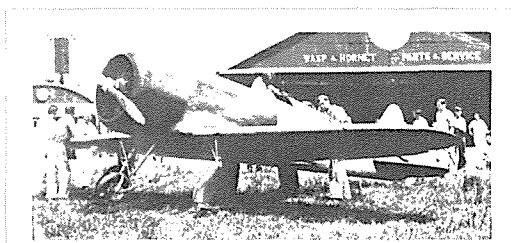
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- 1 Here is a good three-quarter front view of the left side showing the larger P&W R-1344-C engine, new cowling and controllable-pitch propeller.
- 2 A good front view of "45" showing the retractable undercarriage, the small engine and the fixed-pitch propeller. Also the thick all-wood full cantilever wing is very noticeable. This is a Patterson.
- 3 Here the "45" is sitting in front of the New Orleans hangar in 1934 being readied for the trip to the West Coast for the start of the Bendix race. The engine was made interchangeable with the "44" so that either ship could use it for any given race.
- 4 A three-quarter rear view of the Model 45 in its original configuration in 1933. It was test flown like this with the R-985 Wasp Jr. and fixed-pitch propeller. An R-1344 was not yet available.
- 5 Jimmy Wedell is getting the "45" ready for test flight at Patterson in 1933. With the smaller engine this model was underpowered and a little tail-heavy, which is why it was not entered in the 1933 National Air Races.

area was 123.75 square feet. Length was just under 24 feet from tip of empennage to the front of the propeller hub. From the cockpit rear to the rudder bar was 9 feet, 3 ½ inches. Ailerons were 5 ½ feet in length and the horizontal stabilizer spread 8 feet, 2 inches, with a width of 1 foot, 11 inches. Gear spread was 9 feet, 2 inches. In the level position the propeller center line stood 5 feet, 11 inches from the ground in a no-load condition. The propeller was 8 feet, 2 inches. The cockpit was the familiar W-W style with the cover rising 5 inches above the forward fuselage section giving the pilot only a limited forward view in level flight and almost no view in the landing mode. It was of two halves which slid down on each side into the fuselage. The pilot would have to ingress and egress through the large cavity created by the two halves in the full down position.

The fuselage was built up of welded chrome-molly steel tubing with bulkheads fastened to it and with longerons and stringers forming the compound shape. Construction was built stronger, but was similar to the model 44 with aluminum sheet covering back to the fuselage cockpit and also the empennage area. From the cockpit to the empennage it was covered with fabric. The tailskid was retractable with the landing gear and was pivoted to move against a shock absorber when extended.

A far cry from technology of today's hydraulic and electrical-mechanical operating mechanisms, the race pilot of those days had his hands full on the racehorse takeoffs when he had to hand crank up the gear. Guy Kaufman told the story of being in the cockpit of the "45" when it was up on jacks and hoist for a gear retraction check. Jimmy told him to roll the gear up and he did as directed. But when Jimmy told him to let go, he just let go completely. The weight of the gear and gravity had instant action, and the handle for the gear kicked like a model "T" hand crank on a backfire, slapping Guy on the back of the hand. He felt that for many years. In flight, the wind slipstream would slow this action down somewhat.

The W-W corporation found from experience of flying the "45" that a full cantilever low wing design with retractable undercarriage turned out to be about six mph slower than the thin wing external wire-braced design of the "44," for the same given powerplant. The mishaps of the R-1 and R-2 of the Gee Bees prompted Pratt & Whitney to recall the R-1344 *Wasp* Sr., and it was assigned to the Wedell-Williams corporation. Jimmy Wedell devised a method of connections for all electrical and piping and instrumentation so that the "44" and "45" could use the same engine since only the one was available. This made the engine interchangeable in the field at races. At the dedication of the Shushan Airport in New Orleans, on February 9-13, 1934, the "45" with the new *Wasp* Sr., was flown by Jimmy Wedell over a 100-kilometer course (62.137 miles) at an average of 266.034 mph, which was a new world record. More of the flights of "45" will be covered in Part III. The thin wire-braced wing theory was held good up to 1935, since the Schneider Trophy seaplanes topped 440 mph in 1934, with large in-line powerplants and contra-rotating propellers to reduce torque.

The Military Interests—On November 10, 1933, Major C.W. Howard, United States Air Corps, who was then the chief of the engineering section at Wright Field, Dayton,

Ohio, wrote to the W-W corporation at Patterson, La., requesting data on Turner's aircraft. The letter to Major Howard, dated December 19, 1933, signed by H. Williams, informed them that the Turner and the "44" were built by the W-W corporation at the same time, but that Turner had altered his airplane and the corporation could not answer their questionnaire. However, they enclosed data compiled by Mr. H.W. Barlow, who originally engineered the project for a R-985 of 530 hp. They pointed out that with the R-1344, the "44" set a speed record of 305 mph. There were two sheets of data with the letter.

A missing correspondence from Wright Field must have pointed out there was no military interest, because a letter to an A.J. Lyon, Captain, United States Air Corps, referred to his January 5, 1934, letter; the W-W corporation said it was interested in selling the "44" with the R-1344 for test purposes and would bring the safety factor to 2 to 1 without impairing the performance.

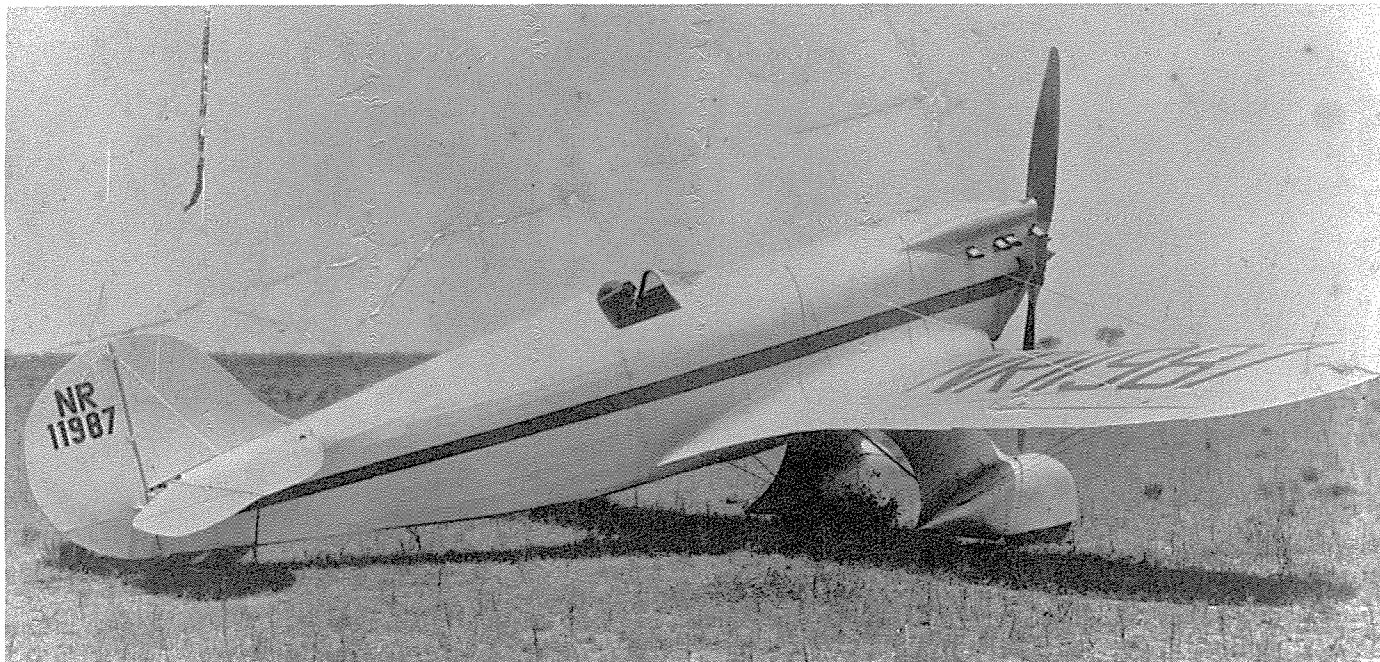
On February 8, 1934, Captain Lyon, then acting chief of engineering, wrote the W-W corporation stating it was not possible to find a place for the "44" with the rather limited development program in effect. The Air Corps was restricted to the purchase of strictly military airplanes, which would require complete redesign in order to fill the requirements of a pursuit plane. It would take a great deal of time and money and performance would not be the same. He thanked the W-W corporation for their courtesy and stated they would again be contacted with regard to possible changes. It seems that the Wright Field engineering section was just interested in data for their files.

The XP-34—From an abstract of the fiscal year 1936, procurement activities indicated that from the Air Force Record Center Annex, Kansas City, Mo., and the General Accounting Office Army Audit Branch, St. Louis, Mo., the Army Air Corps procured from the Wedell-Williams Air Service Corp. design rights for a pursuit airplane. Under contract W535, AC-8815, the design rights only were purchased to a Wedell-Williams airplane stressed to accommodate the 900-hp Pratt & Whitney XR-1830-C engine.

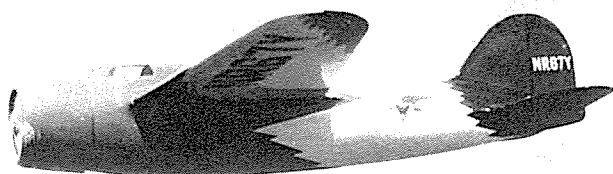
The airframe became known as the XP-34 under specification X-603A, a low-wing monoplane, semi-monocoque fuselage, single place retractable gear, full cantilever wing and empennage, etc., referring to an earlier contract, W535, AC-8392. It was not procured as a manufactured item, but rather in design only.

The XP-34 was to be a direct descendant of the "45" except it was to be larger. The larger fuselage had a taller cockpit similar to the P-36 later built by Curtiss. The larger engine (R-1830-C) was to use a Hamilton Standard three-blade controllable pitch propeller with a diameter of 9.2 feet. The gear spread was about three inches wider than the "45." The construction was to differ from that of the "45" in that the XP-34 was to have a semi-monocoque fuselage construction and have provisions for two machine guns and ammunition.

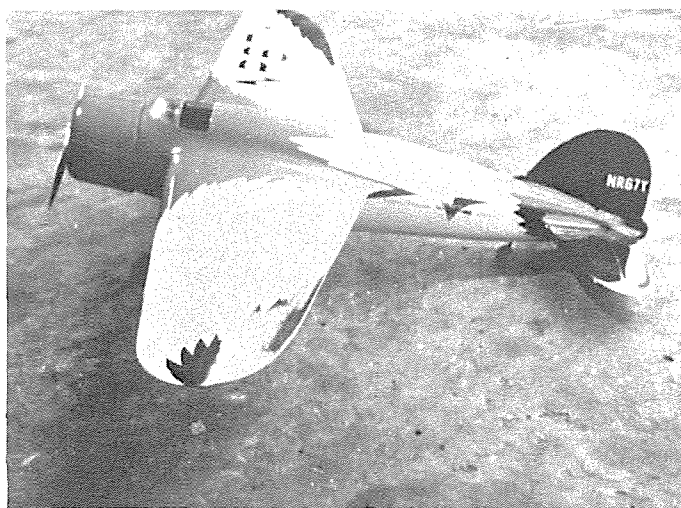
Wingspan was to be 27 feet, 9 inches, and a length was to be 23 feet, 6 inches. The wing was to be the same airfoil as the "45," but was to be strengthened to higher, ultimate loads. Since this applied to the total contract and the aircraft



An excellent three-quarter rear view of the Reggie Robbins Racer. The wing trailing edge lines have been altered a little in change of the aileron contour. The 1931 Model 44 was a straight taper. This one is rounded at the outer two panels.



This view of the model shows it in flight. Probably it was suspended by wires. The photo appears to be touched up since the trees in the background appear blurred, indicating movement.



This view shows the Vega platform as modified and sitting on the ground. The color scheme seems to be red, white and blue.

was never built or even mocked-up, its final shape can only be conjectured (see drawing). But calculations and only some drawings were accomplished when Jimmy was killed and so the project went no further. Those at Wright-Patterson, who were in the early engineering section about that time, have commented on the drawing stating it is a likeness of the XR-34 drawings received. However, it is known it cannot be totally accurate.

The Eighth Basic Design—The eighth basic design was never completed due to the accidental death of Jimmy Wedell. It was being prepared for the 1934 London-to-Melbourne race. It was not a complete new design but rather a modification design of one of the W-W corporation Lockheed *Vegas*. But the innovations and mods were so extensive that the final configuration was certainly another basic design of Wedell's.

The *Vega* was to be converted to a mid-wing with a retracting undercarriage folded up into the wing at the wing root. The long activating rod was to slide across the wing inward through the fuselage under the cockpit sitting on top of the fuselage pulling the gear up and into a cavity in the lower wing root area (see drawing). The tailskid was to retract rearward into the fuselage. Some fuel was to be carried in the wings and large fuel tanks were to be installed in the fuselage. Range was to be over 2,000 miles at about 240 mph, at 12,000 feet. Engine selection was to be either the P&W 800-hp *Wasp* Sr., the same as in the "45" and modified "44" or a supercharged *Hornet* similar to that in Roscoe Turner's model 44. If the *Hornet* was to be used, oxygen provisions for the pilot would be used and altitude cruising would be at 18,000 feet.

The project got far enough to have the registration number NR-67Y assigned to it. French Fortune did make some drawings and there have been indications that the fuselage of a *Vega* being modified was at the Delgado engineering school across the field from the W-W hangar.

A model of the modified *Vega* was built by Lionel "Rep" Mensman and the photos of it were taken by Guy Kaufman who took many of the photos of the racers. He was part of the race team in 1932 and 1933.



General Information of the Racers—Lionel Mensman of Patterson built a beautiful miniature replica model of the “44” in 1933, and it was displayed on the counter of Daigles Confectionery Store. It was eventually donated to the Smithsonian by the W-W corporation. Forty-eight years later (1982), the Smithsonian felt its home should be the Patterson Museum and donated it to the museum. A.J. Willard Vaughn drove 1,500 miles to deliver it to the museum.

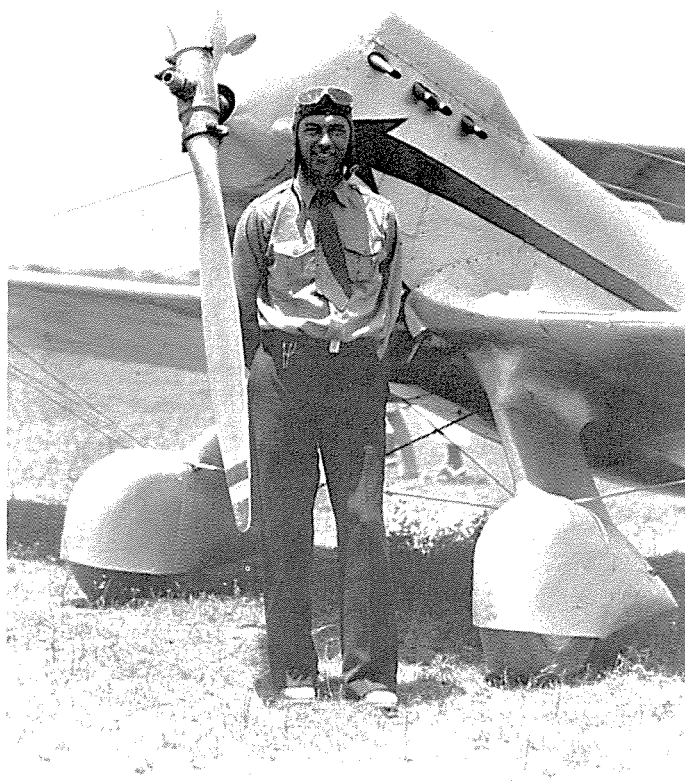
There was another racer built, not by the W-W corporation, but from some of NR-278V parts. It was called the Reggie Robbins racer. It used the Hisso engine of the 1929–1930 airframe and the wings and undercarriage parts of the 1932 first model “44” (see photos and drawing). It had registration number NR-11987, and had general Wedell-Williams racer lines. Very little is known about its performance and racing history. No race number was seen (or photographed) on the aircraft thus indicating it may have only been used as a private plane. However, it was on restricted certification so only limited usage could be made.

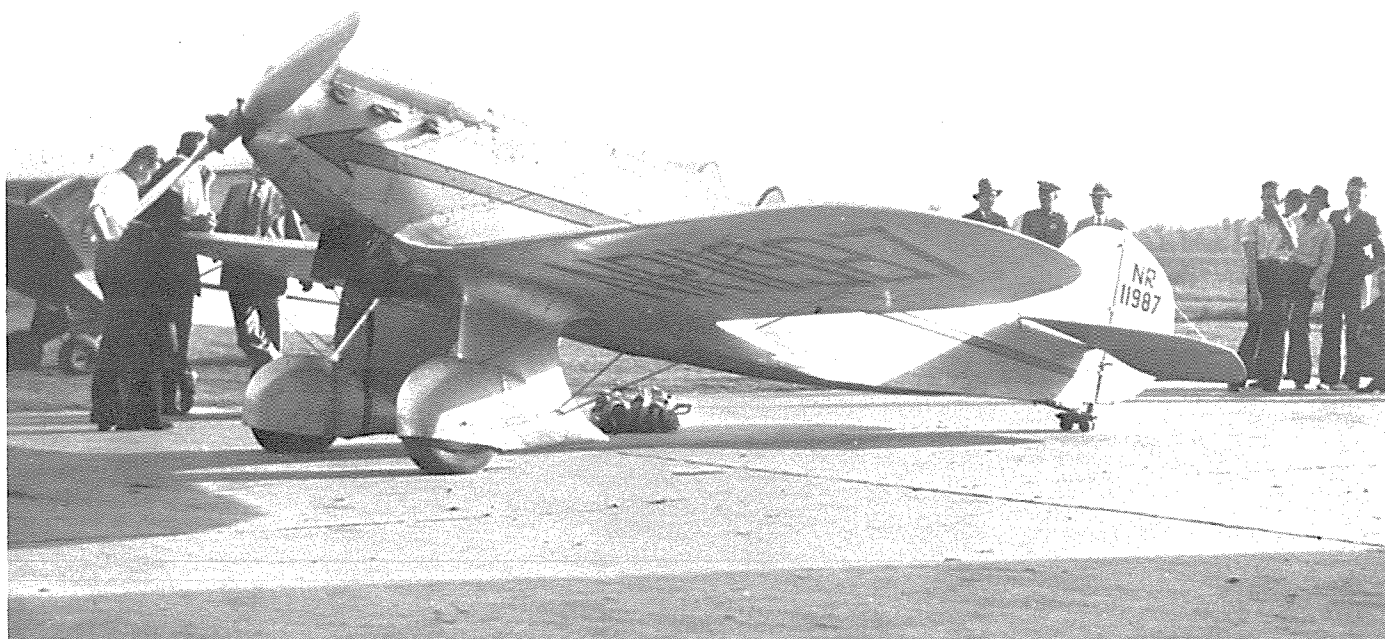
Presently, the Roscoe Turner W-W racer has undergone a meticulous restoration process by Don Helmick of TRW. The budget allowed was almost equal to the original price of the plane in 1932. But then the wages of an A&E was about 32¢ an hour. There also has been a beautiful full-scale replica built of the “44” which from time to time is in the Patterson Museum.

Roscoe Turner speaks of his W-W racer as quoted: “When it was finished, Jim flew the first test hop and then it was my turn. I had been flying the Lockheed *Air Express*, which I considered somewhat hot, so I really didn’t anticipate any problems. I had a pretty good crosswind from my left and the field was short—maybe 2,400 or 2,500 feet at best—so I did push the throttle a little fast and before I knew it, I had more torque than I had speed and rudder control. This ship was a little piece of dynamite. It was the hottest thing I had ever got

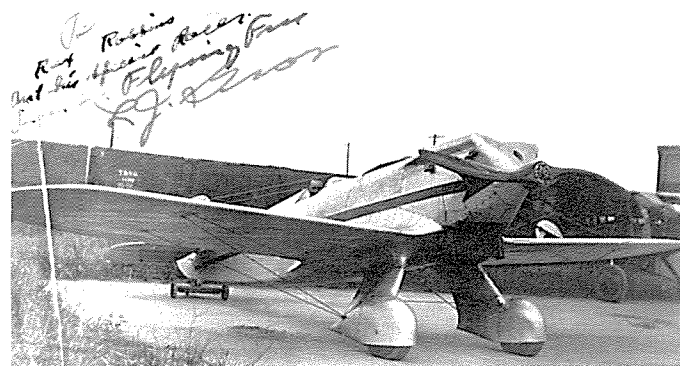
This shot was taken with a filter. Since the sky is light and the airplane is dark, filter was either blue or green. The stripe showing up light indicates it is red but the pinstripe would be black. The registration numbers are visibly dark so they would be black. A yellow fuselage would show up dark like this. The typical W-W elevator and stabilizer are well shown in this view.

Reggie Robbins in front of NR-11987. Note the low-pressure tires on the otherwise “44” undercarriage. This view also gives good detail of propeller and engine cowling including the oval exhaust stacks.





Another three-quarter front view, this from the left side. The horizontal surfaces are well shown in this view. The registration number under the wing is the same color as the arrow stripe so it would be red.



A three-quarter front view of the right side with some writing by an L.J. Gros who called himself the Flying Fire Chief. Note here the ship has a wooden propeller. This must have been in its early life.

a hold of. I had the damn thing turned 90 degrees before I could get it off [really about 60 degrees]. I brought it back in, as slow on the approach as I felt I could, but I still used up all of the available runway. On my second takeoff, I was ready for her. After that, we went through a lot of hell together and won a lot of races. I loved that ship."

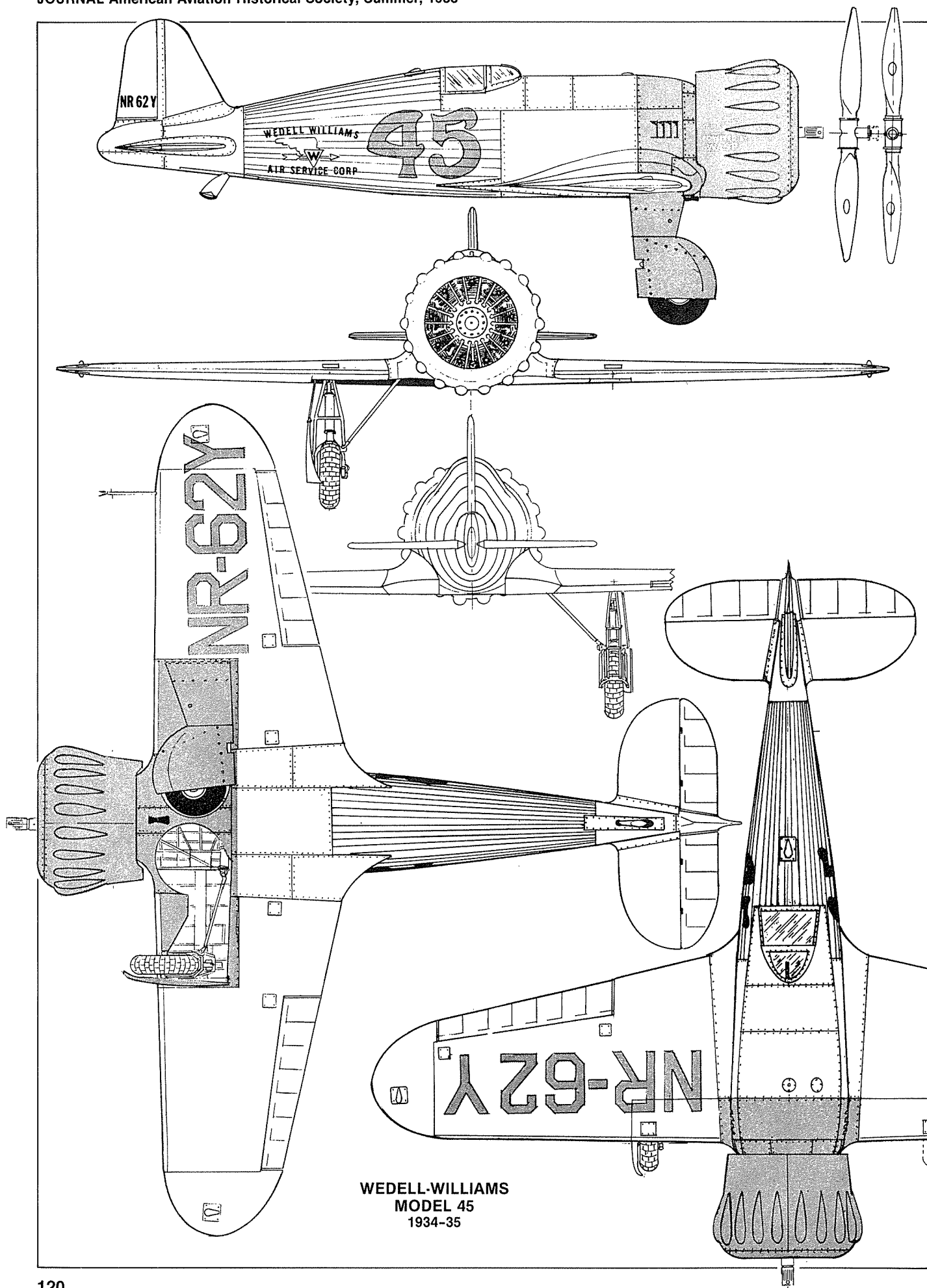
There is also an immaculate model of No. 92 on display at the museum, built by Joe Joy, and a Hisso engine like the one in the 1929-1930 No. 91 (NR-278V). Also a 1928 Cirrus engine loaned by Leon Price. Major Truman Weaver known as "Pappy" made a statement on departing his years as curator there with his wife Rita: "There is so much history here. Every time I drive through the Patterson area I can visualize the Wedell-Williams station wagon loaded with airport workers all clad in white coveralls. I see the sawmill, the monorail loaded with lumber, the company store. At the airport I walk through the hangar, over the old hangar floors and ramp

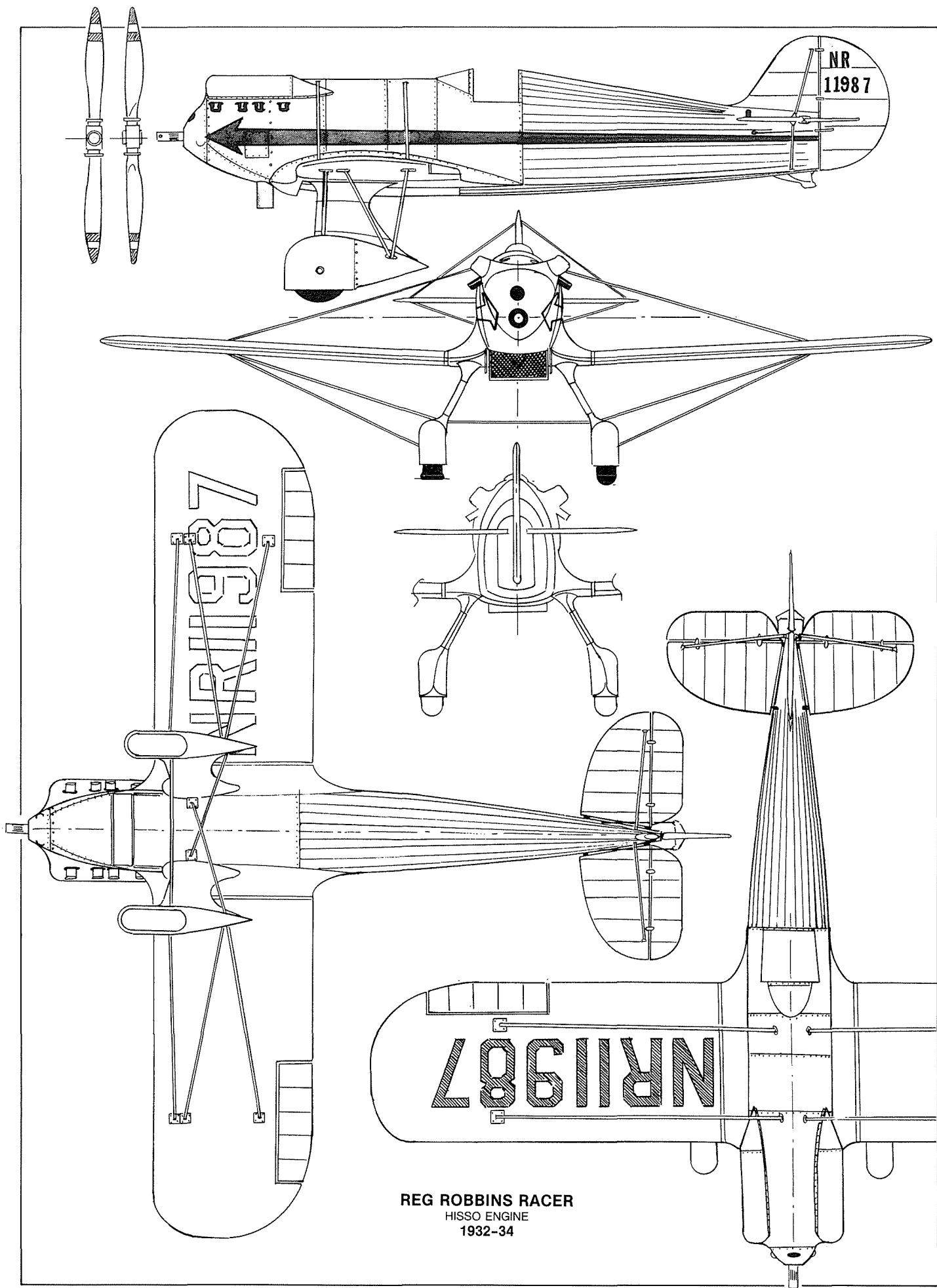
area, looking for some marks that may have been left by some of the workers on the racers. I listen for sounds of the past and sometimes if I squint my eyes and listen I can see and hear those sights and sounds."

Without Pappy's help, much of this could not be told.

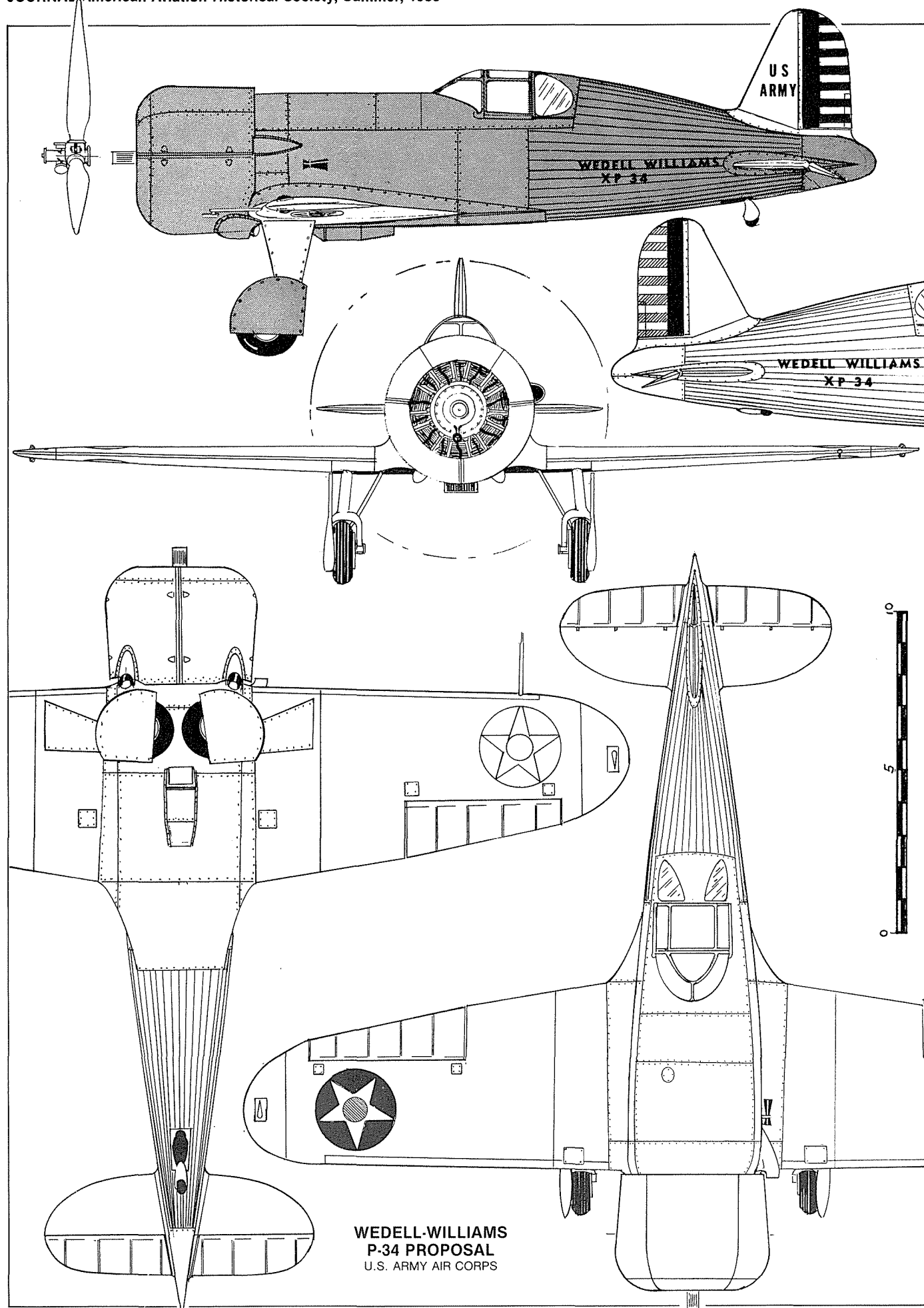
BIBLIOGRAPHY — PARTS II-1, -2 and -3

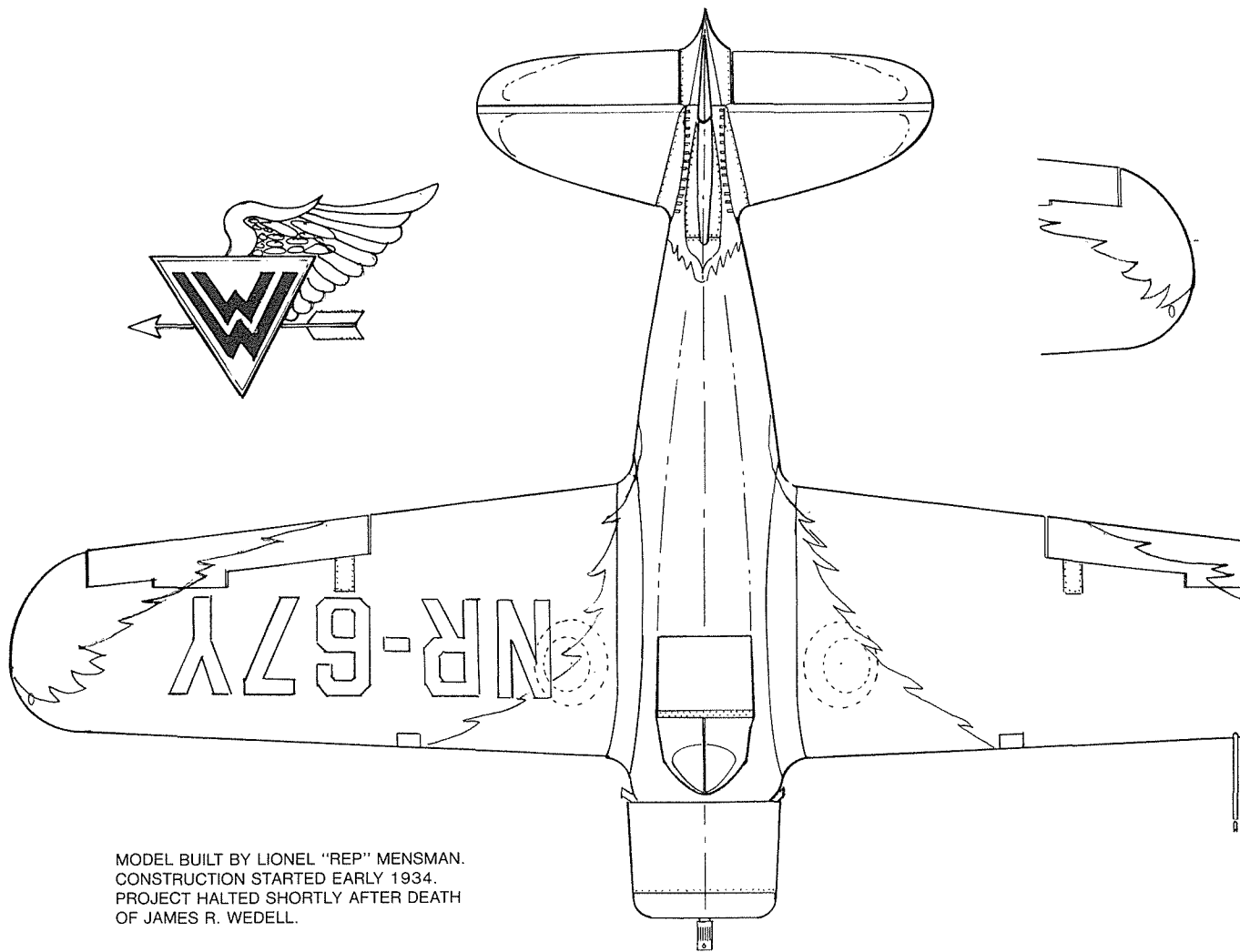
1. Aircraft listing of the Wedell-Williams Air Service Corp., 605 Whitney Bank Bldg., New Orleans.
2. Copy of Patterson Airport employees' list and wages of the W-W Corp.
3. Aircraft Registration Sheet No. 7642.
4. Nenefee Airways Inc., aircraft sales statement.
5. Reynolds' recap sheet of 28 personnel wages by month for July through November 20, 1930.
6. Schedule of miscellaneous physical property of W-W Corp., as of June 30, 1936. Sheet 502.
7. Copies of correspondence: W-W Corp. to Maj. C.W. Howard and to Capt. A.J. Lyon, Engineering Section, Wright Field, Ohio, concerning Specs on the "44" and drawings on the P-34 ("45").
8. Copies of correspondence: U.S. Army Air Corps to W-W Corp., concerning "44" and "45."
9. Letters to C.G. Mandrake from HQ Wright-Patterson AFB, Ohio, regarding records of above transactions. Signed by E.C. Smith, Information Office.
10. Excerpts from: *Aviation*, *Aero Digest*, *Western Flying*, *Jane's*, and *Aircraft Year Book*, and various newspaper clippings from 1925-1939.
11. Articles from: *AAHS Journals*, *Air Classics*, *Wings*, Vol. 5, No. 3, *Air Progress*, *EAA Sport Flying*, *Antique Aircraft Association*.
12. *Home Pylon News* of the Wedell-Williams Museum, 1980 through 1987.
13. American Air Racing Society newsletters, 1975 through 1987.
14. New England Air Museum newsletters.
15. National Air Museum Society, Brampton, Ontario.
16. Photo collection of purchased photocopies. Known photographers are: Warren D. Shipp, Dick Wittington, Emil Strasser, John Sunyak, Burton Kemp, A.W. Yuskin Jr., William Yeager.
17. Conversation with, correspondence with or both, of the following: Maj. Truman Weaver, Jimmy and Mary Haizlip, Keith Rider, Roscoe Turner, Tony La Vier, Cliff Henderson, Howell Miller, Benny Howard, Gordon Israel, Bill Ong, F.C. Felteman, Jimmy Doolittle, Rudy Profant, Charles G. Mandrake, Burton Kemp, A.W. Yuskin Jr., William Yeager, John Sunyak, Joe Albanase.
18. Books:
American Racing Planes and Historic Air Races—Reed Kinnert.
National Air Races 1932—Charles G. Mandrake.
The Great Air Races—Don Vorderman.
The Skyracers—Joseph F. Hood.
A Season of Eagles—Noel Allard.
Speed—Bill Ong.
Ride the High Wind—Don Dwiggens.
The Great Air Race—Arthur Swinson.



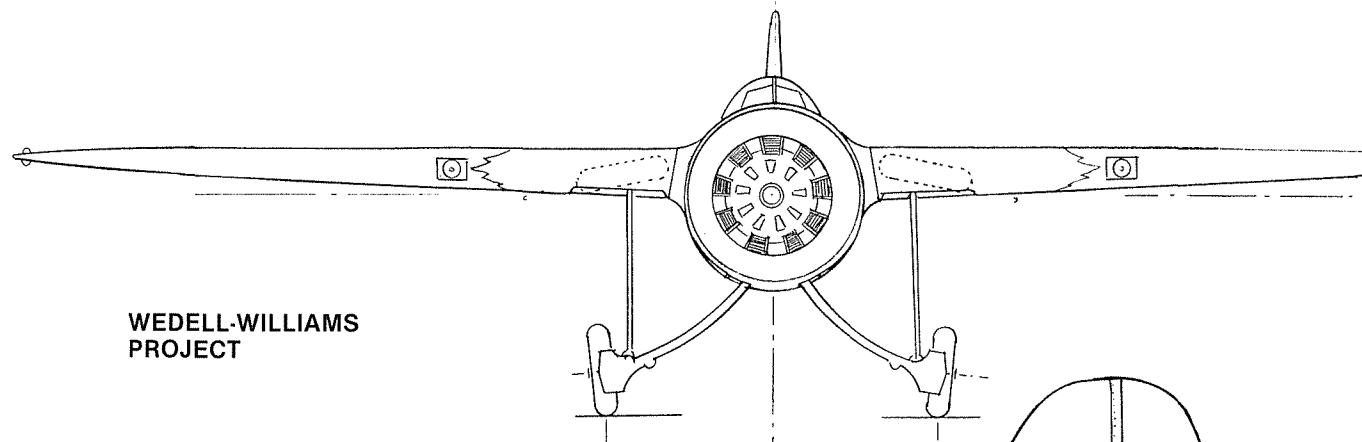


REG ROBBINS RACER
HISOO ENGINE
1932-34





MODEL BUILT BY LIONEL "REP" MENSMAN.
CONSTRUCTION STARTED EARLY 1934.
PROJECT HALTED SHORTLY AFTER DEATH
OF JAMES R. WEDELL.



**WEDELL-WILLIAMS
PROJECT**

