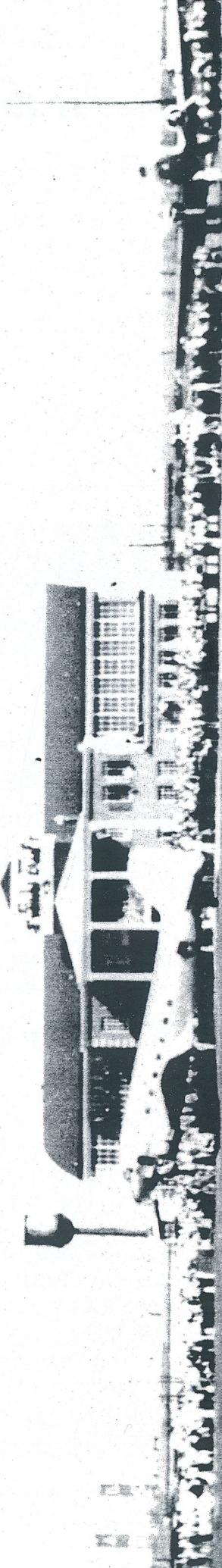




INTERNATIONAL WACO ASSOCIATION

Premiere Issue - Vol. 1, No. 1
Spring 1990



About this magazine

by Alan Abel, Co-Editor

This premiere issue is being sent to all Waco owners and several Waco enthusiasts. The purpose of sending you this complimentary issue is to afford you the opportunity to view the quality of this new Waco magazine.

Future issues of this magazine will be sent to subscribers only. In order to subscribe to regularly receive this quarterly publication, all you have to do is join the newly formed International Waco Association. A "tearout" membership application may

be found elsewhere in this magazine. Upon receipt of your membership application, you will receive a membership certificate, membership card, and your regular subscription to this magazine will start! You will receive quarterly issues for the next year (not including this one).

The purpose of the International Waco Association is to publish a *top quality magazine* for the membership. This is *your* magazine. Members of the International Waco Association are encouraged to sub-

mit information, articles, announcements, tidbits, letters, photos, etc., for possible inclusion in a future issue.

Future issues will feature stories from leading Waco historians, Waco owners and Waco enthusiasts. Each issue will be packed with numerous photographs and helpful and historical information! The magazine promises to be exciting and you won't want to miss a single issue.

Subscribe today by joining the International Waco Association.



TP Swallow, C8780, s/n 180, manufactured June 14, 1929 with a very young Drina in the cockpit.
At the right is a Waco 10, NC2897, s/n 778. Both airplanes were owned by Orin Welch.

DRINA WELCH ABEL

Drina's Column

by Drina Welch Abel, Co-Editor

Some people make history, some live history and some preserve history. In this premiere issue, we honor a man who made history, lived history, and has now preserved history. *A Journey Through Time in a Waco*, by James Beisner, on pages 12 and 13 tells of Ray Vaughan reaching back in history more than seventy years ago.

My son, Alan, and I are preserving history by publishing aviation books and aviation magazines. I didn't make history, but I lived a little of this

wonderful Waco history. You see, my association with Waco airplanes started over 60 years ago.

The Waco 10 in the above picture belonged to my brother, Orin Welch (designer and manufacturer the Welch Airplanes). The photo was taken on the Welch Airfield, in Anderson, Indiana in 1929. This Waco 10 was destroyed in our hangar fire in November 1929.

Growing up on the airport and in the Welch airplane factory, my first memories were actually those of Waco

airplanes. In the late '20s and early '30s, there were always Wacos landing at the Welch Airfield. Orin was continuously somehow involved with Wacos. He often went to the Waco factory to pick up a Waco and deliver it to such sport flyers as Cliff Durant and taught several of them to fly. In the early '30s he delivered a cabin Waco (UIC) to Mexico and taught the buyer to fly. My childhood association with the Wacos has made me a Waco lover for many years. I want to help keep its history alive.

Letters to the Editors

Drina:

I think it is a splendid idea. The Waco group(s) *need* a Waco magazine. The pictures need to be seen. The stories need to be told and read and preserved!

The tradition of the Waco in print and story and pictures need to be re-presented to the antique/classic movement of sport aviation fans!

Count on me for any help I can be although I do not own a Waco.

Good luck on the venture! Thanks for doing the things that need to be done.

Sincerely,
Charlie Harris, Chairman
National Bi-Plane
Association

Dear Drina:

Enjoyed visiting with you last summer at the Waco gathering at Mt. Vernon.

I will not make it this year — American Society of Aviation Artists forum in Colorado Springs is at the same time.

This Waco Association you have started sounds good to me. Will have more stuff to send to you later.

Will have some scale drawings available later this year.

Sincerely,
Walt Jefferies
Hollywood, CA

About the Front Cover:

Waco UBF-2, NC13419, s/n 3762.

This photo certainly makes the heart of any Waco enthusiast pound. The classic F-2 lines are much in evidence here. Note the retractable landing lights in the upper wing panels, a special order to be sure. The smoke-laying pilot is doing his stuff at Newark Airport around 1936. This particular UBF-2 was rolled-out of the Troy plant on September 2, 1933. Destination: Waco Sales of New York (located at Mineola, Long Island). Only one of six Waco models receiving a nickname, the UBF-2 was called the "Tourist". It was powered by a 210 hp Continental.

Credit: Aviation Heritage Research Center

Dear Drina:

I purchased NC940H, BSO, s/n 145, a couple of years ago, only to get a butchered up fuselage and some tail feathers. The original fuselage turned up later at Bob White's in Zellwood, FL, who called me to let me know. My friend and I plan to rebuild a fuselage. I have acquired a zero time prop (Hamilton Standard Adjustable) and a zero time Wright J6-7 which will make the aircraft a CSO.

Phil Gresham and I rebuilt a 1950 Cessna 140A. We put it back 100% original and were awarded Reserve Grand Champion, Oshkosh '88. We missed Oshkosh '89 but hope to make Sun 'n Fun and Oshkosh '90.

Looking forward to getting started on the Waco this summer.

Let's keep 'em flying,
Jack H. Shahan
Stone Mountain, GA

Remarks from membership applications:

International Waco Association:
We've needed something like this for a long time!

Drina,
This is really a terrific idea! ...

Greetings:

I wish you well in your plans for the future! Sounds great!

International Waco Association

P.O. Box 2065 - WACO
Terre Haute, IN 47802
(812) 232-1042

Co-Editors: Alan Abel and Drina Welch Abel

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Premiere Issue

International Waco News



AVIATION HERITAGE

Waco YQC-6, VH-UVW, s/n 4403, was manufactured April 15, 1936 and was sold to Adastral Airways, Ltd., Sydney, Australia. In 1946 it was modified with a 200 hp de Havilland Gipsy six cylinder engine by Geelong Airways in Victoria, Australia. Not a pretty sight here, but this photograph will show the Waco historian or researcher what happened to this airplane.



AVIATION HERITAGE

This Waco YKS is resting on cold Norwegian waters circa 1943. Outfitted as a Red Cross ambulance carrier, it lies berthed next to a twin-engine Heinkel on floats (in background). The YKS, carrying s/n 4603, rolled-out of the factory on March 26, 1937 and was shipped to Wideroe's Flyveselskap of Oslo, Norway, whereupon it was assigned Norwegian registry LN-EAO. The photo comes from a German photographer who marked the back of the print with the statement "Unknown Type".



Four ATO Waco Taperwings sold to Mexico, August 6, 1929. Left to Right: 8508, s/n A-56; 8507, s/n A-58; 9581, s/n A-39; and 5673, s/n A-6.

AVIATION HERITAGE



Reincarnating the Waco YMF-5

by Bud Kauffman



CLASSIC AIRCRAFT CORPORATION

Classic Waco YMF-5.

When aerobatic pilot Harold Johnson, on a cold November morning in 1985, lifted N1935B off the runway at Lansing, Michigan's Capital City Airport, it marked the first test flight for a production Waco YMF-5 in almost fifty years.

That flight represented the culmination of combined efforts of a number of aviation veterans. There was Dick Kettles, twenty-five year president of General Aviation, Inc., a Lansing-based FBO. Kettles, an antique automobile buff, boat builder and vintage aircraft restorer, presently has a Stinson SR-10 in the final stages of restoration. His friends and co-workers recall he had talked for years about reincarnating a 1930s-type open cockpit biplane before they realized he meant business.

Then there were former Piper/ Lock Haven pros Bob Edelstein, an engineering management specialist, structural engineer Don Zurfluh and prototype expert K. Heller, along with Carl Dye, test pilot and quality control chief for Taylorcraft, who brought their respective skills to the newly formed Classic Aircraft Corporation. Kettles convinced his son, Don, one of the

top corporate aircraft salesmen in the business, to abandon high performance aircraft types so he could handle the marketing of the Classic Waco.

And finally, there was the late Clayton Brukner, self-taught designer of the fabulous Wacos and co-founder of Advance Aircraft Corporation, later to become Waco Aircraft. Brukner combined his inherent skill with on-the-job experience to design a whole line of Waco Aircraft, including the YMF-5, which many experts believe to be overall the best of the Wacos, a design so good only modifications to reflect the state-of-the-art were necessary to adapt the YMF-5 to the 1985 market.

Welcome cooperation on the part of both the Smithsonian Institution, which made available Waco drawings and engineering data, and the Federal Aviation Agency, which provided further engineering documentation, made it possible for the Classic Waco to be built under the original YMF-5 type certificate, shortening the gestation period.

A work force of some thirty specialists completed the team which presently turns out a new Waco every

thirty days, a pace which is geared to match the demands of today's market.

Buyers enjoy a wide selection of electronic and other options, which cost figures totaling in the area of \$200,000. Cosmetically, the Classic Waco is virtually identical to its 1935 predecessor, but over one hundred modifications are incorporated in the Classic version, some mandated but all aimed at the enhancement of safety and convenience for pilot and passengers. The majority of buyers specify a complete IFR package. Most opt for the standard paint design, in their choice of Imron colors. Custom paint designs are available as an extra-cost item.

To date, thirty Classic Waco YMF-5s have been delivered to owners from coast to coast and offshore.

The ongoing production of the good-looking, easy to fly Classic Waco guarantees the YMF-5 will be a part of the aviation scene for at least another fifty years.

For further information contact: Don Kettles, Dick Kettles, Bud Kauffman at Lansing, MI (517) 321-7500.

WESTERN



The newly formed Western Waco Association was co-founded by Jon Aldrich and Barry Branin in 1989. The purpose in forming the association is not to compete with nor replace the National Waco Club, or the Waco Historical Society in Troy, Ohio. The Western Waco Association was formed because they are w-a-y out West, a long hard Waco flight from the Waco birthplace in Ohio.

They want the chance to gather with other Waco owners in the

(Excerpts taken from
Western Waco Association Newsletter)

immediate vicinity, to share common fascination with this great airplane, to help with technical information, parts restoration ideas, accurate history and, probably most important, to get

together every so often to have a good time. Any of you who have flown a radial engine biplane across the continent know what an expense and effort it is.

Ray Brantly at the National Waco Club sent his best regards to them and wanted to remind everyone that the purpose of the National Waco Club and its original intent was to see that all Wacos are preserved and restored accurately, and remain available and affordable to those who desire to own them.



A line of Wacos present at the 1st Annual Western Waco Reunion at Columbia, CA, October 14, 1989.

Western Waco Association first annual Fly-In was held on October 14, 1989.

The Western Waco Association Fly-In turned out to be probably the largest gathering of Waco aircraft in the Western United States for many years. Twelve beautiful Wacos were parked in a row on a grass strip, at Columbia, California. It began on lucky Friday the 13th (October). A fly-by late in the day spotted Lou Friedman and his great YMF/Classic on the grass runway, closely followed by association co-founder Barry Branin with his blue and white F-2. Few minutes later Denny Drop arrived with his F-7 (NC30141). These three came up from southern California. As the sun set, four Wacos were parked awaiting the next day.

The morning of the big day

dawned crisp and clear. Soon the unmistakable sound of a five cylinder Kinner was heard and Bill Phelps arrived in his very rare KNF. Not long after UPF-7s started to arrive. Henry Smith, Roy Mabee, Ralph Baxter, Arden Vlasek, Bob Opdahl, and Gary Entrekin each flew a beauty in, and Richard Lieberman made the day complete by flying in the twelfth Waco. What a sight! There were something like a combined total 564 years of flying sitting wingtip to wingtip on this grass airfield. Just a bunch of pretty old biplanes and the lucky guys who owned and flew 'em.

As the pilots were getting reacquainted, more started to arrive via surface transportation and in a

short time there was an estimated 75 Waco friends, family and wives in the park next to the airstrip. A young fellow and his girlfriend, who had camped out under the wing of their Cessna, were converted to Waco buffs by the time they flew off. Conversations were overheard about secret caches of rare parts and elusive rebuild projects. Besides the 12 aircraft owners who brought their ships, there were at least seven or eight more, who for one reason or another, came without their Wacos. George Gruenwald had just acquired an F-7, NC 20971, but came in his A-36. Harold Parker recently bought an F-7, NC 32144, and arrived in a Cessna.

As the day progressed, the

smell of barbecued hamburgers lured the members and friends to the clubhouse provided by the Tuolumne County Flying Club, where lunch was served. Barry Branin then presented plaques to all 12 aircraft owners. (They were all winners). Jack Wilhelm, president of the Waco Historical Society, who came from Troy, Ohio, was presented a special plaque. Jack spoke briefly about the WHS efforts to build a Waco museum in Troy, the birthplace of the plane we all love so much. Before the day was over he had received several hundred dollars in contributions to the project.

A drawing was held for a solid sterling silver belt buckle with the Waco company logo. The winning ticket was drawn by one of Ralph Baxter's grandsons, who flew up from Torrence in Ralph's nifty green and white F-7, NC30140. The winner was another F-7 owner, "Smiling" Henry Smith, NC30107.

After the barbecue, several members and friends went on a ride at Railtown 1897 in nearby Jamestown. The old steam train, one of the few left operating, runs excursion tours through the gold country on the weekends. Conversations with

the locomotive engineer who stopped by the reunion, resulted in a late afternoon "fly-by" of seven vintage Wacos, as the "Cannonball Evening Express" sped down a straight stretch of track just outside Chinese Camp. Picture this, a 1922 Baldwin steam locomotive belching smoke, with fire flashing from under its boiler, roaring down the track, as seven vintage biplanes fly slowly by, wagging their wings in a hello, and every passenger hanging out the windows waving, and taking pictures. We all should have been there.

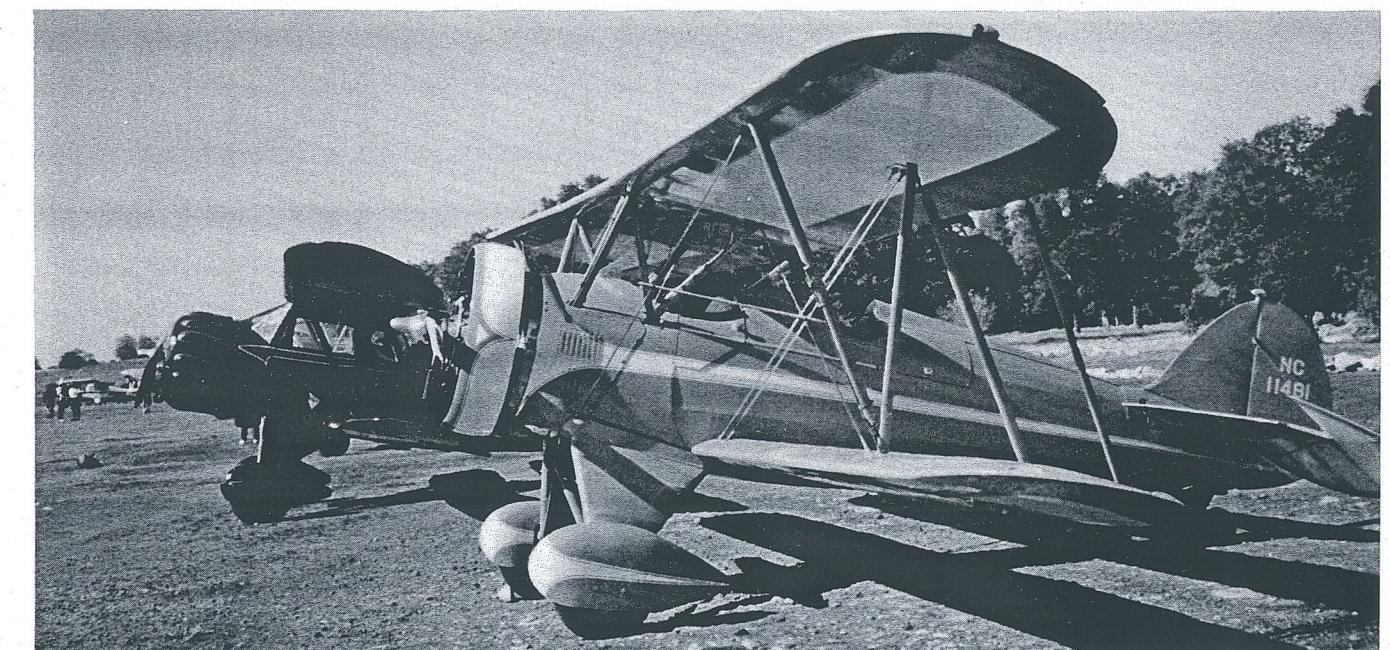
After the great steam train fly-by, the "magnificent seven" flew loose formation back to the Columbia grass strip and landed as the sun sank in the West. What a sight to look through the bi-wings of a Waco and see the sky seemingly filled with other Wacos. It just didn't get much better than the day of the First Western Waco Reunion.

Sunday morning the remaining members met again for breakfast, and back to the field for a parting, until the Second Reunion. Old friends lingered, reluctant to end this very pleasurable affair. At last, the final Waco taxied out. However, fate inter-

vened and Denny Drop found his F-7 had broken a brake line. Flying an F-7 without a brake is not a very smart idea, so he left NC30141 in the care of one of the FBOs on the field.

The 1989 WWA Reunion has been immortalized by a VCR tape, courtesy of F-7 pilot Roy Mabee, and one of the steam engine crew on the Sierra Railroad. This has been edited into one tape 36 minutes long. You can purchase a copy for \$15.00 ppd. and T-Shirts, all cotton, dark blue with pocket, USA made. Light blue Western Waco Association logo and 'wings' with white 1989 Reunion. Sizes of medium (38-40), large (42-44) and extra large (46-48) are \$10.00 each, plus \$2.00 shipping. A few light blue polo shirts produced with the WWA logo and wings are available. They are quite attractive with the dark blue Waco logo, \$18.00 each, plus \$2.00 shipping. The solid sterling silver belt buckle with the Waco factory logo and wings, as raffled off at the 1989 reunion, is available as a special order. Its price is \$100.00 ppd. Inquire to the Western Waco Association, Box 706, Groveland, CA 95321.

The WWA has grown to more than 40 members. Congratulations to the Western Waco bunch!



Waco QCF-2 (1931) NC11481 and WACO UIC (1937) NC13563 at First Annual Western Waco Reunion, Columbia, California, October 1989.

The Adventurous Ones



Charles Lindbergh, 1927, with the Spirit of St. Louis. AVIATION HERITAGE



Jack Race, 1989, with the Spirit of Orbis. JACK RACE

In 1927, Charles Lindbergh undertook an historic tour of all 48 states to promote aviation. In 1989, Captain Jack Race, a pilot for 45 years and chief pilot for Project Orbis, followed Lindbergh's original route in a 1940 Waco UPF-7.

Jack Race and his red Waco UPF-7 began the low and slow flight odyssey on July 20, 1989 in which he landed in all 48 contiguous states. His route was essentially that of the one flown by Charles Lindbergh in

the Spirit of St. Louis following the transatlantic flight to Paris.

Lindbergh toured to promote aviation. Jack has a cause, too. Although retired from flying Pan Am 747s, Jack still serves as the volunteer chief pilot of Project Orbis, a DC-8-based eye hospital that serves the Third World. Jack hoped his self-financed journey would draw attention and contributions to Orbis and its works.

The flight was completed as

scheduled. He remarked, "It was a marvellous experience. I flew alone. No navigational aids, just a wet compass and sectional charts. The 18,000 miles in my Waco, named the Spirit of Orbis, performed superbly. A great commentary on the technology of 50 years ago!

"The flight was to have been my last fling at youth—but now, I'm not so sure!"

See Jack's Itinerary on Page 15



Waco UPF-7, NC30130, near Santa Paula, CA, Sept. 8, 1989. JACK RACE

The History of the Waco UPF-7



The XPT-14, s/n 39-702, was only slightly altered from standard UPF-7 for Army trainer competition. Narrow tread landing gear was principal recognition feature along with out-of-proportion national insignia. AVIATION HERITAGE

The Waco UPF-7 is an unusual airplane. This is not due to any outstanding technical features but to its timing. A relatively obsolete design, it was built in quantity at a time when the open cockpit biplane trainer for civilian use was virtually extinct. Even then, it slipped into service unnoticed since it had no significant new features to arouse the interest of the contemporary aviation press.

Production of commercial biplane trainers virtually ended in the depression years of the early 1930s, and new low-powered monoplanes rapidly took their place in the schools and in private aviation. Only the Army and Navy were principal customers for biplane trainers in succeeding years. While Waco did not have a share of this market, it was one of the few firms that continued to supply open cockpit biplanes to private owners of the mid-1930s, a group comprising what could almost be considered a custom trade. Yet the UPF-7, introduced in the late twilight of the biplane era, was built in greater quantity than any single Waco model that preceded it. Approximately 600 came out of the Troy, Ohio factory between 1937 and 1942.

The reason for the volume production was inherent in the times.

The imminence of World War II had shaken the government into expansion of the armed forces, including their air arms. While more cadets were trained by the services, and more biplane trainers were produced, Waco still did not obtain any significant military trainer business.

The UPF-7 was a continuation of the Waco "F" series which had been introduced with the Model INF of 1930, a three-seater powered with a 100 hp Kinner K-5 engine.

Other Fs in the series used a variety of engines up to 220 hp. The UPF-7 standardized on the 220 hp Continental W-670-6A, civil equivalent of Continental's R-670 military engine.

Its designation reflected the principal design characteristics of the airplane—the letter "U" identified the engine as the W-670, the "P" identified the wing and fuselage design, the "F" identified the model type or series. Details like landing gear and tail shape varied greatly through the series.

While the UPF-7 was built in the largest numbers, there were limited other versions also built, mostly for special customers. These were known as LPF, VPF, YPF, and ZPF models. The only difference being the installation of different engines.

Essentially a state-of-the-art

refinement of the 1930 model, the UPF-7 retained its major features, particularly the heavily-staggered wings with strut-connected ailerons in upper and lower panels. The earlier Fs were all built as three-seaters, with two passengers seated side-by-side in the front cockpit. The UPF-7 was intended to be a dual-control trainer, but when the stick was removed, the front seat was wide enough to accommodate two passengers.

The XPT-14 was somewhat modified from UPF-7 standards to meet military requirements. It had a direct-cranking starter and civil instruments, but was most notable for its considerably narrower landing gear and a full-NACA engine cowling. The YPT-14s, with military instruments and hand-inertia starters, were virtually stock UPF-7 airframes with the wide landing gear and cowled engines.

The XPT-14, s/n 39-702, was lost in a freak accident on October 11, 1939.

Waco sent a replacement to Wright Field to carry on where the XPT-14 left off. This was a standard UPF-7 carrying civil registration NC20907, c/n 4659. The plane was

Continued on page 10

overall silver in color and had an uncowed engine. No military markings were ever applied.

At least 34 UPF-7s were obtained by the CAA direct from the factory, finished in the standard FAA orange and black coloring. These had varied registration numbers, NC152 through NC185. Standard factory colors for UPF-7s were the same orange yellow wings and tail with trainer blue fuselage used by the Army trainers of the time.

Significant private ownership of UPF-7s did not occur until late in WW II, when some of the training schools were phased out. The government bought a number of the unemployed UPF-7s for the surviving schools, but others found new civil owners, particularly crop dusters who were hungry for replacement airplanes in a nation geared to military production. After the war, the UPF-7s didn't have any particular appeal to non-commercial owners; they were just cheap old airplanes, good for time-building by pilots who flew them for little more than the cost of gas and tie-downs. More then ended up in the dusting business, which at the time operated almost exclusively with obsolete biplanes. A few, thanks to

their low cost and good cooling of the radial engine, found homes in glider clubs where they made fine towplanes. Although used for aerobatic training, the UPF-7 couldn't match the Stearman/Boeing "Kaydet" at air show work and so did not find a new career in that field.

The birth of the antique airplane boom in the early 1950s gave the venerable UPF-7 a new lease on life. Many worn-out hulks that had been out of license for years, plus a good number of junked "basket cases" were rescued from their positions in the weeds behind the hangar, lovingly restored, and put back in the air by new owners. Others became available to the antiquers when new designed-for-the-purpose monoplane dusters forced more and more of the old biplane conversions out of the agricultural fleet. These were relatively easy to convert back to "two-holers" for the helmet-and-goggles set.

In addition to the current nostalgic hobby activities, some UPF-7s are back in commercial operation at schools that teach aerobatics while others, thanks to two-seat front cockpits, hop paying passengers at air shows. Some are used for

barnstorming in search of passengers.

As is customary with hobby airplanes, many of the UPF-7s have undergone considerable modification at the hands of the antiquers. However, they stay within the limitations of their standard licenses. While Waco was famous for the high quality finish on some of its custom models of the 1930s, no UPF-7 ever left the factory with the quality of finish applied by some of the antiquers—24 coat hand-rubbed dope jobs, chromed metal parts, arty paint jobs and metallic tape striping and lettering. The most common modification is the addition of a full cowling around the engine, as used by the PT-14s and the use of wheel pants.

An oddity of the antique boom was the popularity of the colorful pre-WW II Army paint job and markings for those airplane models that could have used them. Thanks to a few PT-14s, the UPF-7 qualifies for these legitimately.

Of course, many of these have minor goofs in the placement of proportions of the markings, but the spirit is there. The most common error is to make the vertical blue rudder stripe too narrow (it should be

one-third the maximum chord of the rudder). No one has carried marking accuracy so far, however, as to reproduce a major error committed in the Waco paint shop. The wing stars on all the PT-14s were way out of proportion, an error Waco repeated on its prototype Army cargo gliders, the XCG-3 and XCG-4.

From the original 600, the total of UPF-7s has decreased steadily. FAA records accounted for 501 in 1947, 372 in 1949, and 315 by 1952, which was the low point in the old biplane's career. It was just an obsolete clunk then, and the rate of attrition for dusters was high. In the next 12 years, however, the total dropped more slowly to 211, reflecting the increasing value of this antique airplane.

In 1989 there were 171 UPF-7s registered.

Editor's Note: The above is a condensed version of an article which was written by Peter M. Bowers and published in Volume 8 of the Historical Aviation Album by Paul Matt.

Spread the word....

Join the
International Waco Association
P.O. Box 2065—Waco
Terre Haute, IN 47802
(812) 232-1042

Let us know and we'll send membership information to your friends and/or prospects.



Despite the mixed markings, this UPF-7 is not a U.S. Army trainer. After Pearl Harbor, all civil aircraft on the west coast had to carry the star-in-circle insignia on upper left and lower right wings and a large (usually yellow) US on each side of the fuselage. This was classified as CPTP War Markings and enabled certain civil type planes to continue flying in a "War Zone".
WM. T. LARKINS



AVIATION HERITAGE



AVIATION HERITAGE

Waco Fly-In

Don't forget about
the Waco Reunion at
Mt. Vernon, Ohio
June 29 - July 1, 1990



Photo taken at the 1989 Waco Reunion, Mt. Vernon, Ohio

Other Fly-Ins

June 8 - 10 Aeronca Convention,
Middletown, Ohio
812-232-1491

June 26 - 27 Waco Historical Society
will sponsor their 10th Waco Fly-In at
the Leavelle Farm on Horseshoe Bend
Road, West of Troy, Ohio. Banquet,
June 27 - Speaker Jack Race.

July 7 - 8 Tail Dragger Club Fly-In,
Emmetsburg Airport, at Emmetsburg,
Iowa
712-852-2084

July 21 - 22 Indiana Chapter AAA Fly-In,
Shelbyville Indiana Airport 317-
729-5169

Premiere Issue

11

A Journey Through Time in a Waco

by James Beisner

Ray Vaughan has spent much of his time the past few years in a cluttered old building a few miles east of Toledo, Ohio with the construction of a biplane. The few windows let in little sunshine and the few bare light bulbs provide little illumination. While the building interior may have been dim, shadowy, and set apart from the busy outside world, the workshop holds more than just the bare wooden skeletons of wings and fuselage above the dusty cement floor. It holds a dream for the future from Ray's memory of by gone days . . . days that started the year that the Wright Brothers first flew . . . and Ray was born.

Only a decade later, Vaughan saw an ordinary mortal in the extraordinary machine breaking free of the earth, and wasn't likely to forget it. He never did! The sight ruined him for school work. After that day, a pencil was for doodling wings, struts and propellers. The sound of an airplane sputtering and snarling overhead was a message to him. At the age of sixteen he could resist no more. He spotted two biplanes looping and diving in a show just west of his Akron home.



Ray Vaughan; barnstormer. R.B. VAUGHAN



The WACO 4 is seen here at its home base—Woodruff Field. In the front seat are Sam Junkin at left, an unknown boy in the middle, and Ray Vaughan at right.

C.J. BRUKNER

As the pilots (George "Buck" Weaver and Charlie Meyers) landed, Ray was right on the field, wide-eyed and worshipful in the presence of the aviators. Thanks to the misfortune of a leaky water pump on the Weaver's engine, and the good fortune of young Ray Vaughan's ability to provide the repair tools, a life-long bond of friendship was established. Ray joined the group as a "barker" and mechanic for the new entrepreneurialism of barnstorming. At first I sold tickets, fueled the planes and did other odd jobs like that. It was quite an experience. I was giving rides out of a field once and blew a tire, so I borrowed some rope from a farmer and we tied it around the rim until there was enough to make it about the size of the other one. I took off, flew back to our home field and landed with that rope as a tire."

By 1920, there were more pilots than flying jobs. The pilots that tried to make it in civilian flying careers soon discovered it was a sparse economic undertaking. It was about this time that "Charlie Meyers was landing on the field with a passenger and overshot the runway," Ray recalled with a smile. "He was flying a

Canadian Curtiss Jenny and he put it right up onto the interurban tracks. We borrowed a Fordson tractor from a farmer and hauled her back to the field."

It was about this time that Clayton Brukner and Sam Junkin stopped by and looked at the wrecked plane. It was this coincidental meeting that not only changed the rest of their lives, but the future of aviation for all of us. For it was this chance meeting that bonded the group into the "Weaver Aircraft Company". With an intense effort, some Jenny parts, and very little money, a great step forward was made in the aviation field. From an old building in Lorain, Ohio came what was later called the "WACO 4"! This aircraft had unprecedented performance. Perhaps even

beyond the builders' expectations.

After much testing, demonstrating and flying enjoyment, the plane was sold. "Harold Irish, a farmer in the area, had learned to fly at our field and traded his Jenny for the Waco 4," Ray recalls.

The craft was reported to be in the Bridgeview, Pennsylvania area in 1923. Ray went on to help build the Akron and Macon airships for the Goodyear-Zeppelin Corporation. After the end of these airships, Ray returned to flight instruction. He was instrumental in getting Bricker Field built at Bowling Green State University. It was at this location that he conducted one of the country's most successful flight training programs for WWII Navy cadets. His only accident, as he recalled, "I was taxiing up

to the control tower at night during a bad rainstorm and ran into a parked dump truck".

The Waco crew, with Clayton Brukner at the helm, moved to Troy, Ohio after a short stay in Medina, Ohio. The success of Waco and the great airplanes it produced is common knowledge in our aviation community. The story, however, does not stop at this point.

It is understood that Ray was recently asked by his Toledo area friends, "Ray, you know how the Waco 4 was built, why don't you build another one?" This challenge, like so many before, he could not resist!

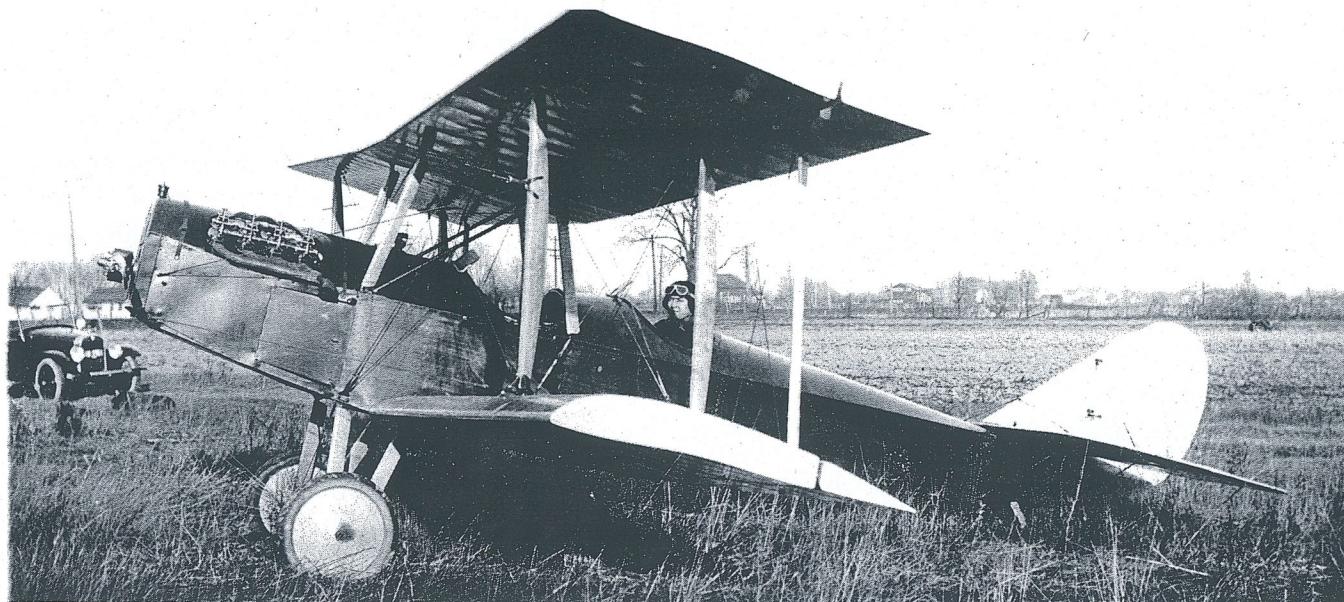
The challenge has been met as a very determined Ray Vaughan makes the dream come true by bending oak longerons, mounting the OX5 engine and the shroud of cotton fabric. The journey through time has brought us up to the present, where the craft is nearing completion and the majestic rumble of the OX5 will lift the Waco 4 from the bonds of earth after nearly sixty years of absence from the sky. The Waco 4 will be seen overhead once again. The Journey continues!!

Continued on Page 14



Ray Vaughan, 1987, builder of the Waco 4 replica.

FOSTER LANE



Waco 4 with Bill Long in rear cockpit, 1921.

MRS. HERBERT P. JUNKIN

Waco Model 4

General Specifications

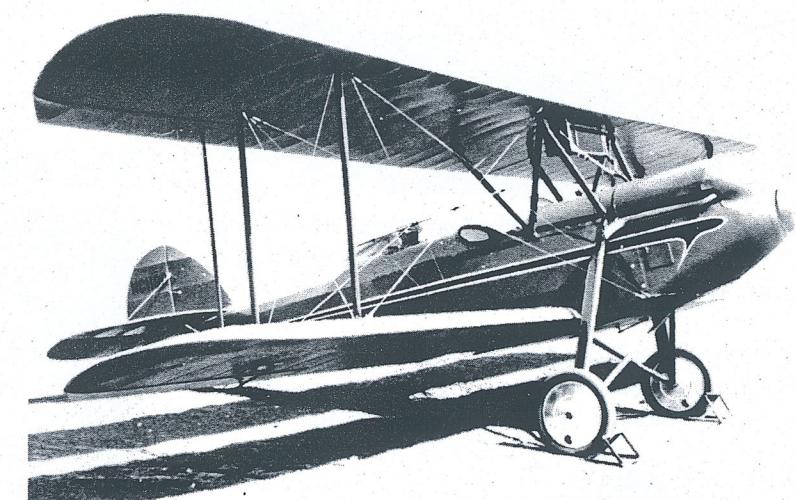
Span (both wings)	28 ft	Area rudder	11 sq ft
Overall length	23 ft	Area elevator	19 sq ft
Chord (both wings)	5 ft	Area stabilizer	25 sq ft
Gap	5 ft	Area fin	2 sq ft
Stagger	10 in	Weight empty	1,160 lbs
Area	265 sq ft	Useful load	900 lbs
Area ailerons (4)	36 sq ft		

Performance

Maximum speed	84 mph
Minimum speed	33 mph
Climb with full load	480 ft/min
Climb with pilot and two passengers	560 ft/min
Climb with pilot and one passenger	720 ft/min
Climb with pilot alone	850 ft/min
Ceiling with pilot alone	19,000 ft

Did You Know????

All of the early Wacos had silver wings and empennage but the fuselage colors could be ordered in either blue, green or red. Dutch blue was the earliest color used. The fish hook fuselage stripe shown on this OX-5 powered Model 10 is unusual and undoubtedly the personal preference of a later owner. The factory did not introduce fuselage striping until the advent of its Taperwing Model 10 in early 1929. Fish hook striping was normally reserved for cabin models which were first introduced by Waco during 1931. The Model 10 was the first Waco to employ an adjustable horizontal stabilizer which was operated by a Brukner designed push-pull rod connection. In order to understand its operation it has to be studied in detail. Approved Type Certificate was issued by the Aeronautics Branch of the Department of Commerce during October, 1927. Initial gross weight was 2,025 lbs. but gradually grew to 2,600 lbs. by 1928.



Waco 10, NC1180, OX-5.

USAF MUSEUM

Continued from Page 8.

Jack Race's Itinerary - 1989



The replica 1921 Waco 4 as it looks today. Ray Vaughan builder.

LINDA WHITLOCK & TIPP CITY ADVOCATE

City	Date 1989	Tri Cities:	August 11	Tucson	September 11
New York City	July 20	Moline		Lordsburg, NM	September 12
Hartford	July 20	Davenport		El Paso	September 12, 13
Providence	July 21	Rock Island		Santa Fe	September 14
Boston	July 21	Milwaukee	August 12, 13	Abilene	September 15
Portland, ME	July 21	Madison	August 14	Fort Worth	September 16
Concord, NH	July 22, 23	Twin Cities:	August 15, 16	Dallas	September 16, 17
Springfield, VT	July 24	St. Paul		Oklahoma City	September 18
Albany	July 24	Minneapolis		Tulsa	September 19, 20
Schenectady	July 25	Little Falls	August 17	Muskogee, OK	September 21
Syracuse	July 25	Fargo	August 17	Little Rock	September 21
Buffalo	July 26, 27	Sioux Falls	August 18	Memphis	September 22
Erie	July 28	Sioux City	August 18	Nashville	September 23, 24
Cleveland	July 28	Des Moines	August 19	Chattanooga	September 25
Pittsburgh	July 29, 30	Omaha	August 19, 20	Birmingham	September 25
Wheeling	July 31	Denver	August 22, 23, 24	Jackson	September 26
Dayton	July 31	Cheyenne	August 25	New Orleans	September 27, 28
Cincinnati	July 31	Salt Lake City	August 26, 27	Jacksonville	September 29
Louisville	August 1, 2	Boise	August 28	Atlanta	September 30, October 1
Indianapolis	August 3	Butte	August 29, 30	Spartanburg	October 2
Detroit	August 4	Spokane	August 31	Winston & Salem	October 3
Grand Rapids	August 5	Seattle	September 1	Richmond	October 4, 5
Chicago	August 5, 6	Portland	September 2, 3	Washington	October 6
Springfield	August 7	San Francisco & Oakland	September 4, 5	Baltimore	October 7, 8
St. Louis	August 7	Sacramento	September 6	Atlantic City	October 9
Kansas City	August 8, 9	Reno	September 7	Wilmington	October 10
Wichita	August 10	Los Angeles	September 8	Philadelphia	October 11, 12, 13
St. Joseph	August 11	San Diego	September 9, 10	New York City	October 14

What Our Members Are Flying!



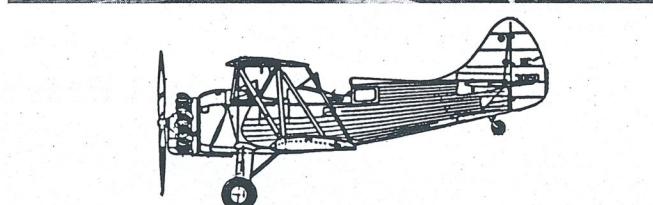
(Above) Jack Winthrop from Allen, TX flies this beautiful UPF-7, NC32068, s/n 5692, from his grass strip called Kittyhawk Airport.



(Top Right) The Waco RNF, NC101Y, s/n 3272, with a 125 Warner engine, has been flying for many years. It belongs to James W. Borden of Burnsville, MN.



(Right) John Anderson owns one-half interest in the pretty 1935 UKC-S, NC14617, with a 1936 landing gear. John is from Sharpsburg, GA.



Ron Mohr has his UPF-7 under the blue skies of Ivyland, PA. His Waco, NC32091, s/n 5723, was manufactured in 1941.

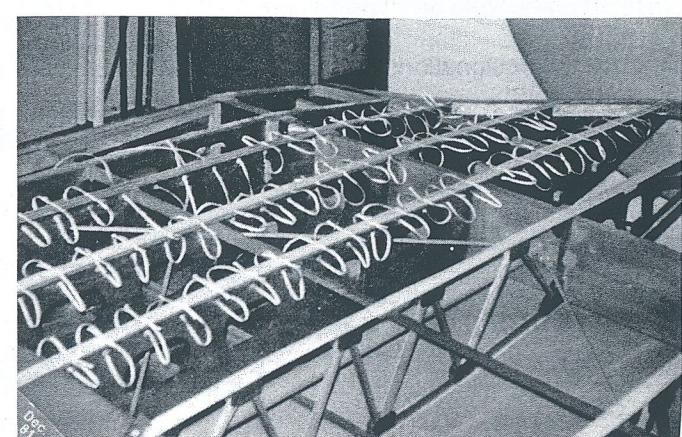


Jerry Brown of Franklin, Indiana is the proud owner of this YKS-7, NC17453, s/n 4554. It was manufactured on January 25, 1937. The first owner was Waco Sales and Service, Mineola, Long Island, New York, at Roosevelt Field. Jerry has owned the Waco since 1985. The interior was completely re-done in wool and leather. The Jacobs R-755B2, 275 hp, was completely overhauled with a new engine cowl, sheet metal, wiring, landing gear, brakes, etc. It has 2,600 hours TT. There have been 19 owners since the airplane was manufactured and is one of approximately 54 produced. Twenty-five are currently registered with FAA.

What Our Members Are Not Flying—Yet!



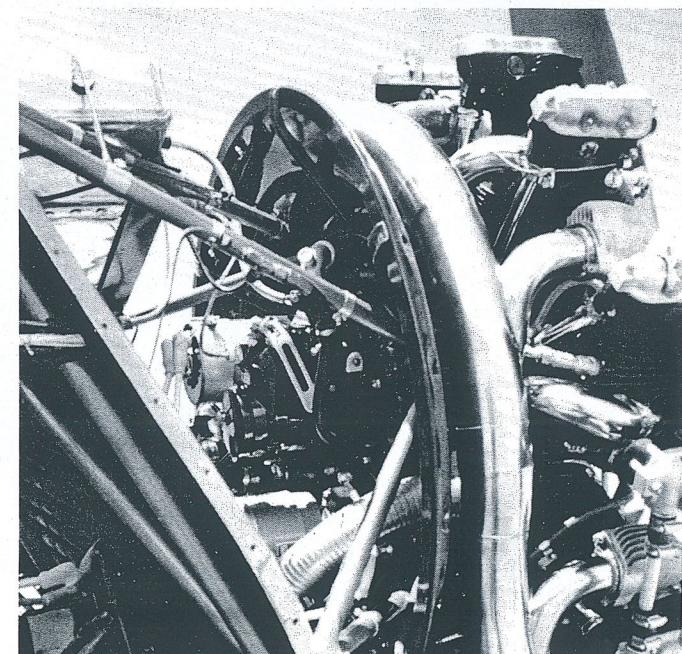
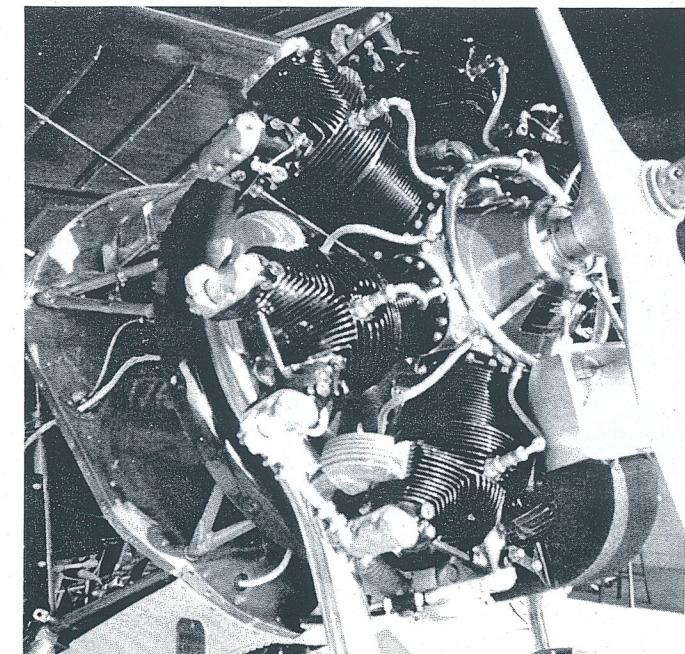
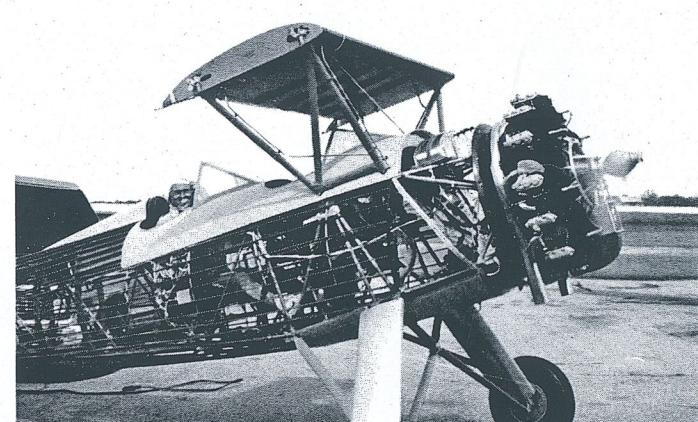
The photos above show the soon-to-be completed UPF-7, NC32006, s/n 5637. It is co-owned by William Boughton and George Flemming. They are 90% done and "50% yet to do! (Left) George hooking up instruments. (Right) Under walk way on wings, thread fastened on with scotch tape. After covering, thread pulled through cover with crochet needle and tied off.



Jerry Brown is about 90% finished with another Waco project. This soon-to-be completed UPF-7 was manufactured September 15, 1941. It was first sold to the Harte Flying Service, Wichita, Kansas and was last flown in Dallas, Texas in 1953.

The project is two-and-a-half-years in progress with a completion date sometime in late 1990. The airplane, NC32080, s/n 5712, rebuild includes all new sheet metal parts, all new wood and zero time on the 220 Continental engine.

Additional credits on this project go to: Curly Havelaar, engine; John Shue, wings and center section; and Tom Flock, ailerons, exhaust system and dish pan.



Letter Identifications of Waco Models

(for example: GXE, INF, UIC, etc.)

Below are the designations of the first letter which signifies the engine make and horsepower:

Engine Designation:

1927 through 1929

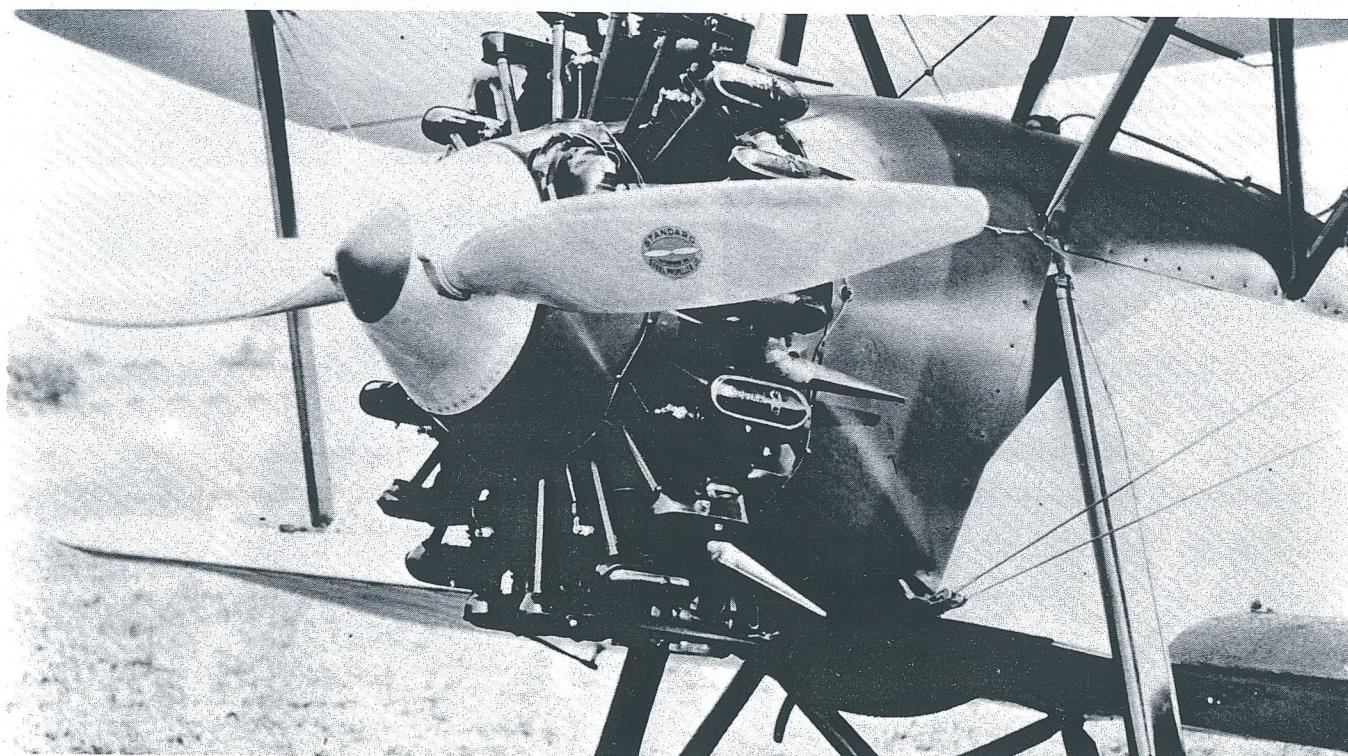
A	Wright J5	220 hp
B	Wright J6-5	165 hp
C	Wright J6-7	225 hp
D	Hispano-Suiza 150	180 hp
G	OX-5	90 hp
	OXX-6	100 hp
	Tank	115 hp
J	Wright R-975	330 hp
125	Siemens-Halske 100	122 hp

1930 through 1942

A	Jacobs L-6MB	330 hp	P	Jacobs LA-1	170 hp
B	Wright R-540	175 hp	Q	Continental A-70	165 hp
C	Wright R-760	250 hp	R	Warner "Scarab"	125 hp
D	Wright R-760-E1	285 hp	S	Pratt & Whitney 420	450 hp
E	Wright R-760-E2	350 hp	U	Continental R-670	210 hp
H	Lycoming R-680-E3	300 hp		W-670K	225 hp
I	Kinner B-5	125 hp		W-670-6	220 hp
J	Wright R-975-E1	365 hp	V	Continental W-670M	240 hp
K	Kinner K-5	100 hp	W	Wright R-975-E3	450 hp
M	Menasco C-4	125 hp	Y	Jacobs L-4MB	225 hp
O	Kinner C-5	210 hp	Z	Jacobs L-5MB	285 hp

The second letter signifies the wing and fuselage design (a chart for the explanation of the second letter will be in a later issue).

The third letter signifies model types or series (a chart for the explanation of the third letter will be in a later issue).



The first Wright engine installation in a Waco airplane.

JIM KESSLER

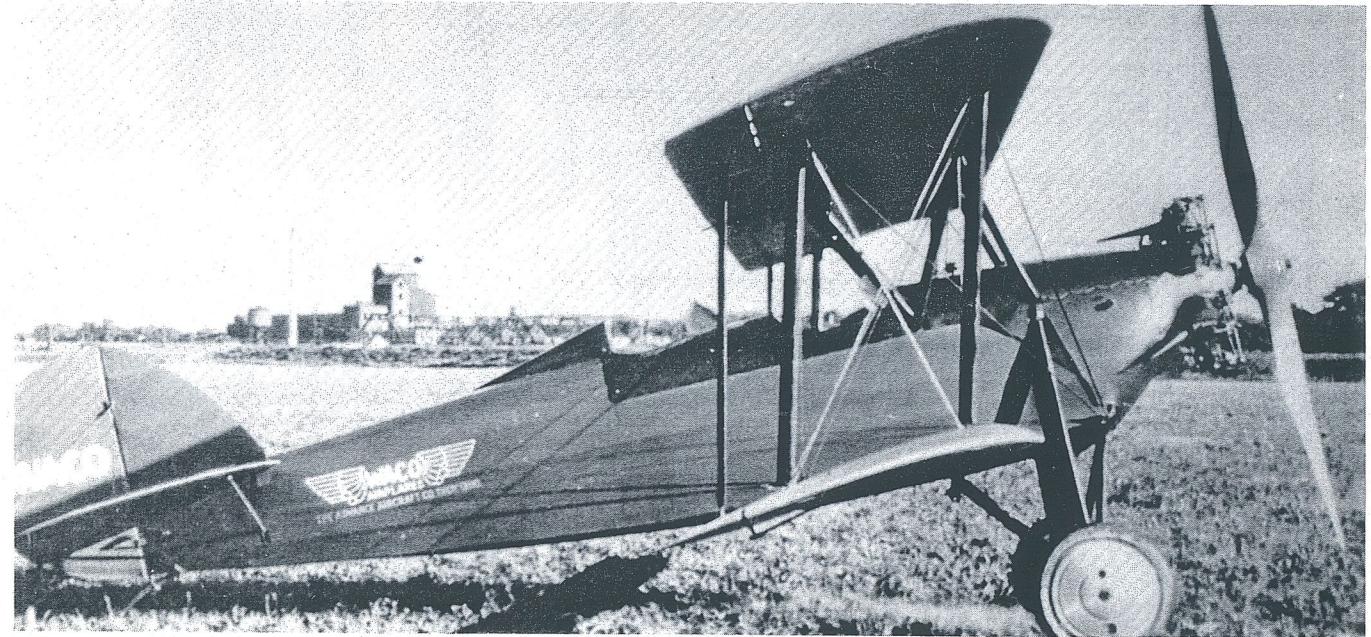


Caminez engine on a Waco.

An Unusual Waco

This model of a Waco has not been found in any listing. The engine is a Caminez four cylinder radial engine on a Model 10 Waco. Four were built equipped with the Caminez engine. These were built under a subsidy of Fairchild Aviation Corporation in Farmingdale, Long Island, New York. We believe the engine produced 125 hp and had an extremely long propeller. Because of the length of the propeller, the airplane often took off and landed in a three point position. Several props were cracked, not from take off and landings but from the vibration of the Caminez engine. One of these "Wacos" went to Ford Motor Car Company for testing.

We would like to hear from anyone who could give us more information on this Waco or any other Wacos on which we may not have the history.



"Waco 10" with a Caminez engine.

JIM KESSLER



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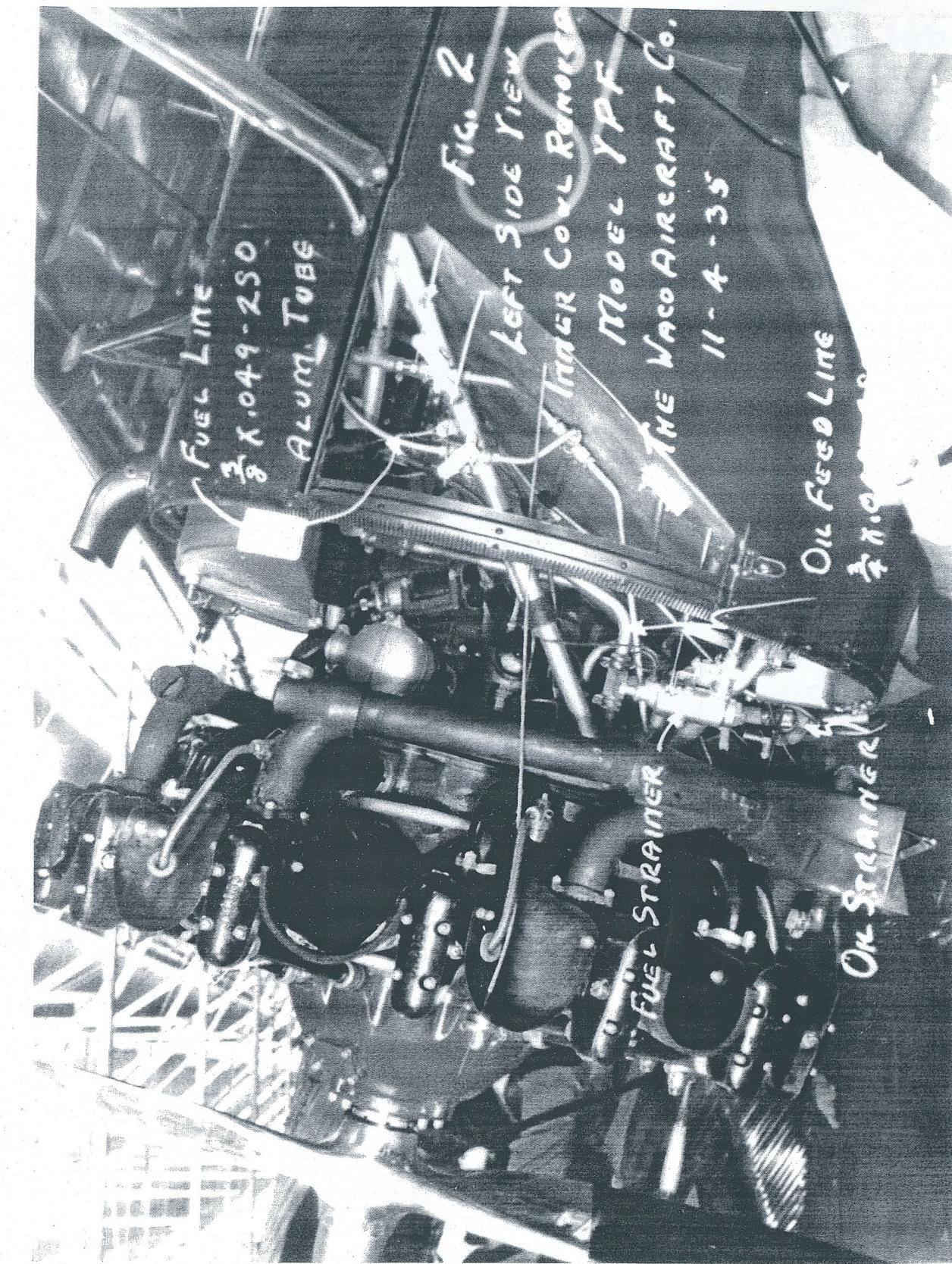
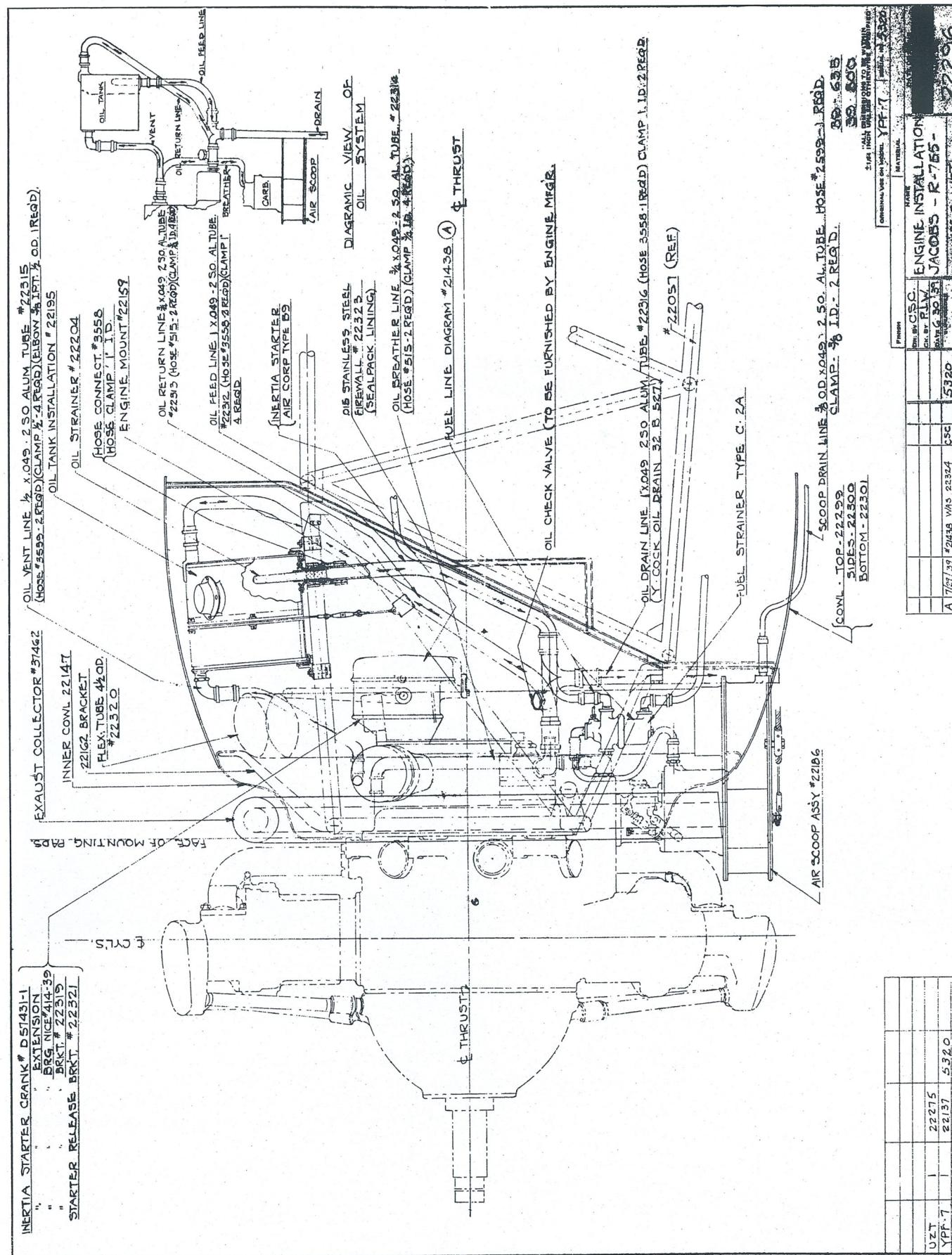
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Installation of the engine in Waco YPF.

(Facing page) Waco factory drawing of the Jacobs R-755 engine installation.
COURTESY OF JOHN ENEY

Model Airplane News — of the Waco Airplanes

The Real Thing:

Waco YMF-3, NC14031, s/n 3944, was manufactured June 21, 1934 and was first sold to Waco Sales of New York, Mineola, LI, New York. The photo was taken in Ithaca, New York. The year is unknown. However, the clothing the people are wearing appears to be in the middle 1930s! The color was Insignia Blue, with fine line and leading edge in cream.



The Model Airplane:

This photo is actually in color and shows off the beautiful Insignia Blue with a cream color in contrast. The photo does not tell who built this model or when.

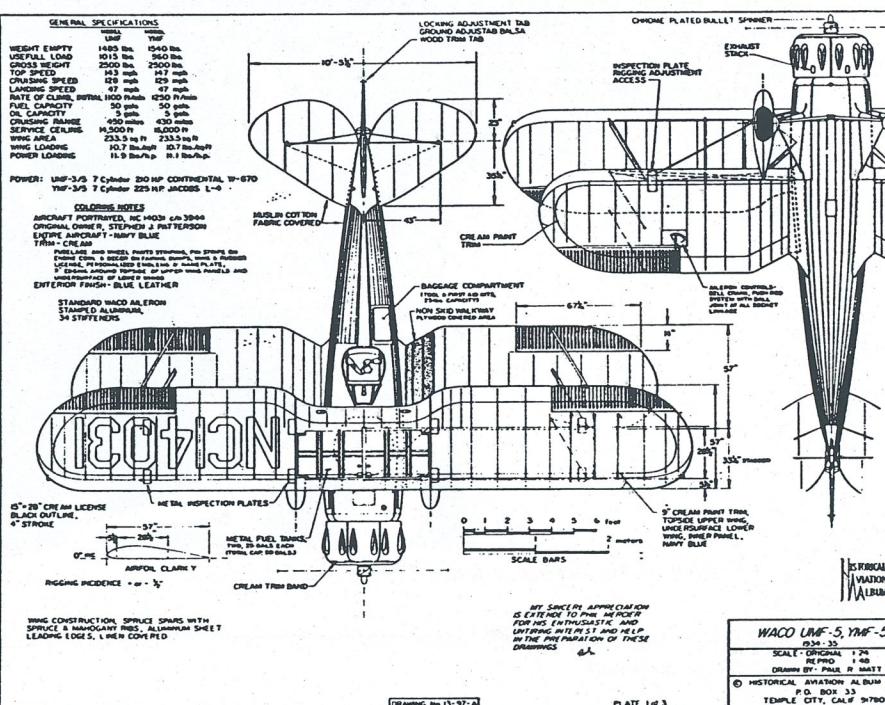
The Drawing:

Waco UMF-5, YMF-5

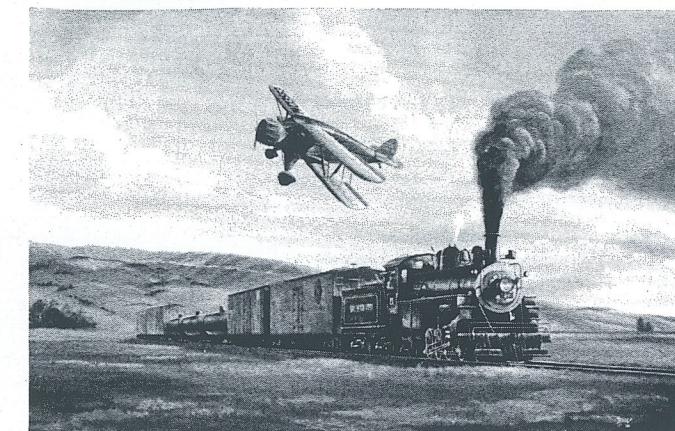
The 3-view scale drawing was drawn by the late Paul Matt. Another view is on the back cover.

Credit: The two photos and drawings are all from the Paul Matt collection which is now a part of the Aviation Heritage Research Center.

Various Waco 3-view drawings are available for purchase. See next page for ordering information.



"Santa Maria Schedule - 1933"



Original painting by Michael K. Boss of Hill City, Kansas.

This painting was inspired by an event in 1933 when owner and operator of Santa Maria Valley Railroad and Santa Maria Airlines, Capt. G. Allan Hancock, overflew locomotive number 21 as it transported goods from the valley. Hancock, both a licensed aircraft pilot and locomotive engineer, was at the controls of his newly purchased Waco Standard Cabin Model UIC, NC13563. He was returning from his Los Angeles office and encountered the 1926 Baldwin 2-8-2 Mikado, which Hancock also purchased new for the Santa Maria Valley Railroad.

Capt. Hancock was a man of many accomplishments, including the successful backing of the flight of the "Southern Cross" to Australia in 1928, and the operation of the Hancock School of Aeronautics which taught thousands of pilots in WWII.

Both Waco NC13563 and Baldwin number 21 exist today. The Waco flies from an airport in Northern California and the Baldwin is in a museum in Washington.

The prints are a limited edition of 950, signed and numbered by the artist. They are printed on archival quality Saxon rag bond paper using a laser scanner and a six color printing process for absolute accuracy and color quality.

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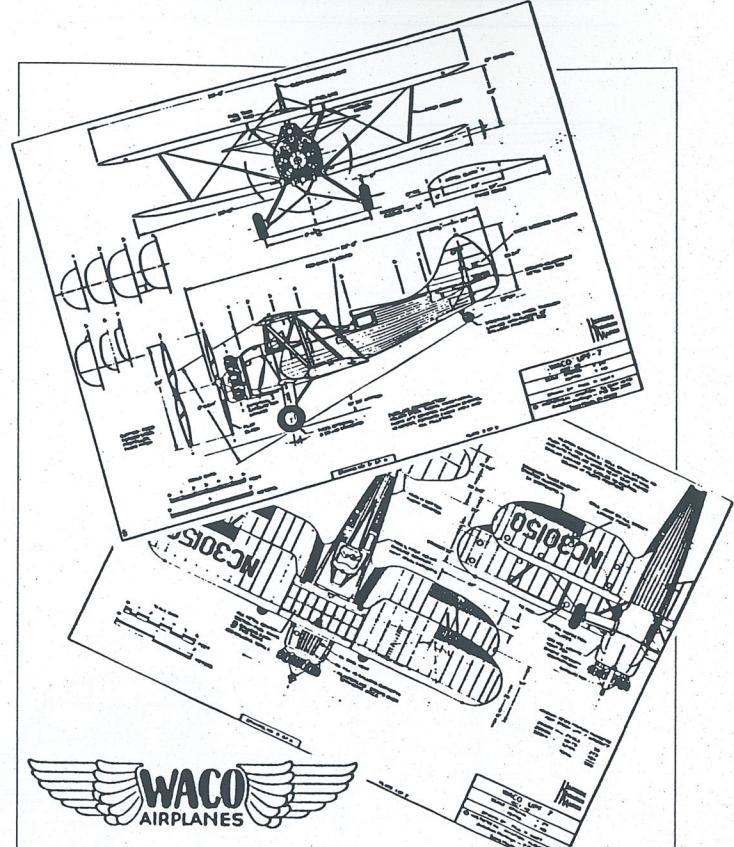
WANTED: The Airpower Museum is in dire need of a landing gear and a tail wheel strut for the 1934 Waco YKC-S. Send any information to: Airpower Museum, Inc., Rt 2 Box 172, Ottumwa, IA 52501 or call (515) 938-2773.

Services and advantages IWA offers to members:
Have a question about your favorite Waco? Some of our members have graciously volunteered help with your questions for the following models: AGC-8, ATO, CTO, F-5, INF, KNF, RNF, UBF, UBF-2, UKC-S, UPF-7, YKC-S, YPF-7, ZPF-7, Model Nine, Model Ten, and Cabin Wacos. Call the International Waco Association office at (812) 232-1042, and we will give you the respective person's name, address and/or telephone number!

Thanks to those who have offered their expertise to share with others.

Free Classified Ads

Classified ads are provided free of charge to the members of the International Waco Association. If you have a plane or parts for sale or have items you need, send a description of 50 words or less. Your free classified ad will appear in the next issue.



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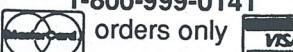
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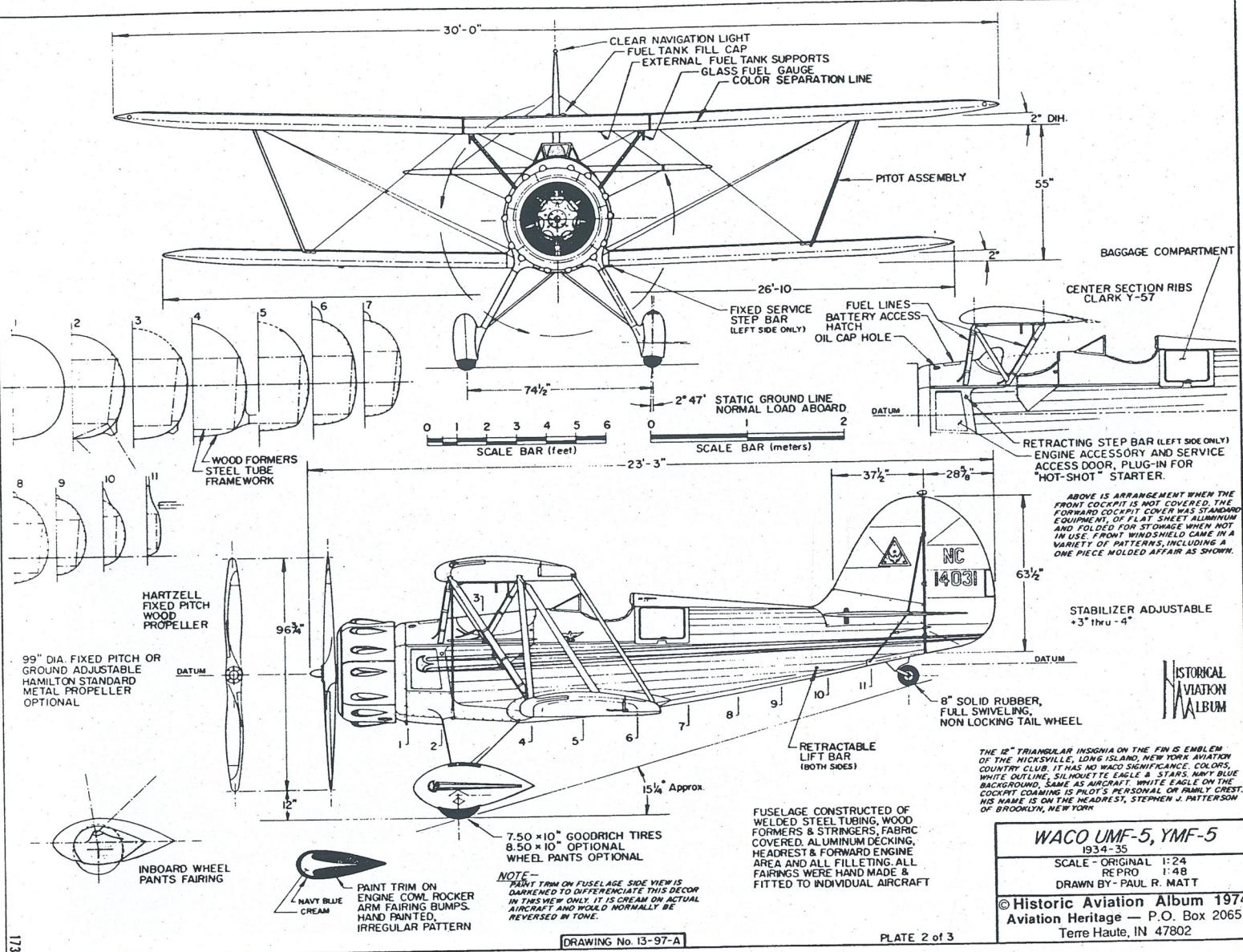
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1934-35

SCALE - ORIGINAL 1:24
REPRO 1:48

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