

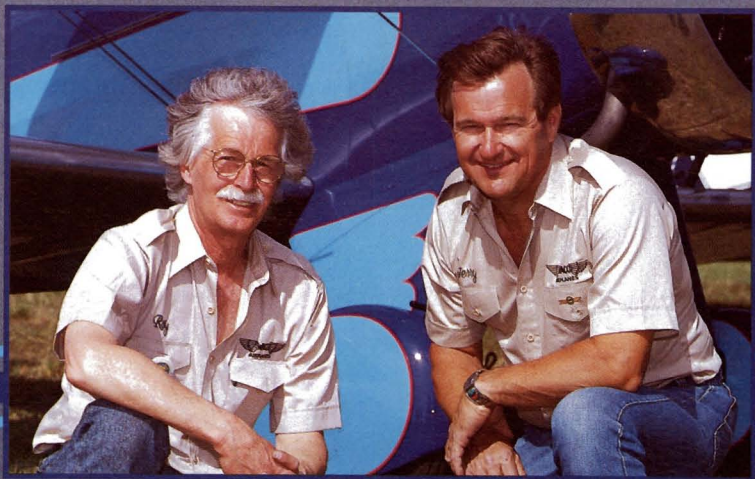
VINTAGE AIRPLANE™



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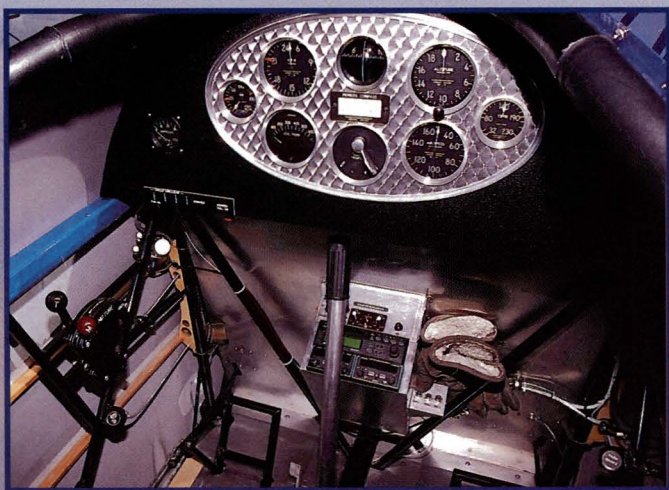
Resurrecting



Mike Steinknecht →

Waco craftsman Roy Redman (left) of Faribault, MN, and Jerry Wenger (right) of Owatonna, MN, the excited owner of Waco NC13027.





Mike Steineke →

The pilot's cockpit is an exercise in 1930s aeronautical elegance - the neatly turned instrument faceplate, and the use of period instruments all add to a great looking cockpit.



Waco

Jim Koepnick →

Jerry Wenger and Roy Redman of Minnesota have combined talents to put together one of the prettiest Waco UBF-2's seen in recent years. It had been a long time since NC13027 had seen any use - since 1946 in fact. But Jerry's desire and capability to own a rare open cockpit biplane, coupled with the extraordinary talents of Roy Redman and his crew at Roy's Aircraft Service in Faribault, MN, resulted in an all out effort to put a real basketcase back together again.

Finished at the Waco factory in Troy, OH on June 29, 1932, Waco UBF-2 NC13027 was delivered to Joe Cannon, Jr. of Charlotte, NC. A few years later, it wound up in the Midwest, and after the war, in 1946, a fellow named Archie Towle had an unfortunate and fatal accident with this particular F-2 in the Wausau, WI area. Years later, the Towle family gave the remains of the airplane to John Hatz of Gleason, WI. John had intended to keep the airplane as a project he could work on after he retired, but as many A/C members will recall, John lost his life in a truck accident in 1989. Forrest Lovely and Roy Redman both knew John, and were aware of the projects and bits and pieces that John had gathered over the years, and so when the Hatz family let it be known they were interested in selling John's projects, the timing would be right for another set of circumstances to come together.

Another friend of Roy's, Gary Underland, a well-known restorer and mechanic for Buzz Kaplan, introduced Jerry to Roy and Forrest. After some preliminary discussions, Roy and Jerry put a program together that allowed Jerry to buy the Waco project and Roy to restore the airplane. The project was begun in early 1992, and there was a lot to be accomplished.

John Hatz had begun the process of repairing the bent fuselage, and that's where Roy got started. Using factory blueprints, as he did during the restoration and reconstruction of many of the parts and pieces needed, Roy built up the fuselage for the Waco and then started on the wings. Tom Flock did the work on re-skinning the ailerons, which were in rough shape. The Waco UBF-2 was the first airplane built by Waco with aluminum ailerons, and the workmanship by Tom, a well-known Waco restorer, is exemplary. The love these Waco aficionados have for the aircraft is evident in the workmanship shown in each of the parts they work on.

The wings presented another challenge to the capable hands of Roy Redman. Armed with a full set of Waco blueprint copies collected from various other hobbyists and the Smithsonian Air and Space



Jim Koepnick →

Museum's collection, he dove into the process of rebuilding a very rough set of wing panels, most of which were only good for patterns. The wing center section was also rebuilt, along with a pair of 20 gallon fuel tanks. Jerry Brown, yet another well known and talented Waco restorer was able to come up with a couple of neatly machined acrylic fuel gauge blanks that Roy could use to rebuild the fuel gauges. Here's an interesting sidelight to the fuel gauge restoration. For years I wondered what type of paint had been used to highlight the fuel gauge markings that were completely immersed in gasoline. On the Waco, you can see the red indicator, made out of cork, is painted bright red, and on many other gauges, black markings are made on a soft aluminum faceplate riveted to a rotating drum. When I asked Roy what type of paint he has been using all these years to color the indicator, he answer seemed both obvious and surprising all at the same time - butyrate dope! Plain old straight-from-the-can butyrate dope, which, as Roy points out, has been fuel proof for years and years, with hardly any deterioration noticed over time. The cork at the other end of the wire, floating on the top of the fuel, is coated with plain old shellac.

The center section also has the densest wood you can find on the aircraft - the stiffeners on the bottom of the fuel tank section are made of oak, and are varnished to a high gloss. Also mounted in-

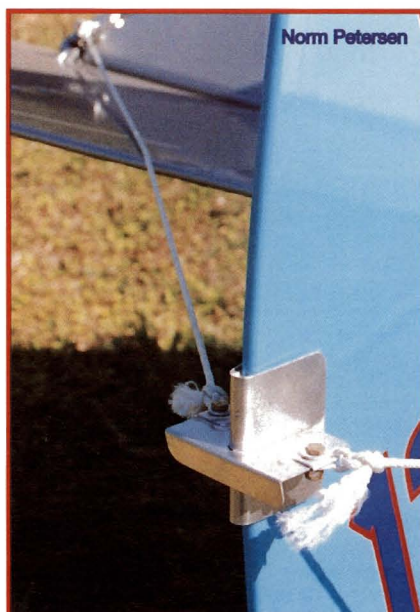
conspicuously on the top of the wing center section is a GPS antenna, since Jerry planned on flying the airplane cross-country on a regular basis.

The cockpits were another area that allowed Roy to show his restoration prowess. Sometimes, restoring an airplane means knowing when to send something out to an expert, and Roy certainly understands that point. The instrumentation, a full set of period instruments, was sent out to Philip Kraus Vintage Aero in Westport, NY one of the foremost author-

ities on antique instrument repair. Roy points out that it pays to be patient, since the demand for Phillip's services is great, and he therefore always has some backlog. The restoration takes time as well, with time often needed between steps during the rebuilding process. It pays to pre-plan the instrument panel at the beginning of the project, rather than waiting until the end of the airplane's restoration.

The panel itself was constructed using factory blueprints. As you can see in the accompanying photos, Waco went to the trouble of mounting all of the instruments from the back of the panel, so that none of the screw heads would be showing, and Roy followed the factory plans to the letter. A neat panel overlay made out of aluminum is also added to the panel, and it is set into an 6463 extrusion that Roy had to have specially made per the factory blueprints. To get the aluminum extrusion, Roy had to have a set of dies machined, and then take to dies to an aluminum foundry, where an entire production run of the special shape had to be run. Roy had to buy the entire run, so if you need a section of this extrusion, give him a call at 507/334-5756 - he says he would be happy to sell you what you need, 'cause he has plenty!

Around each of the instruments is an aluminum bezel, to professionally finish off the panel, just as it was done at the factory in 1932. Black crinkle finish enamel is used for both the front and aft cockpit panels. The forward panel has two well



executed glove boxes, complete with original style latches. The latches come from an obvious but often ignored source - they're made from cabinet latches. They're the type of spring-loaded latch used on the inside of a double-doored cabinet, used to hold the one door closed while the other door is opened with a knob or handle. With a little modification to put the correct shape handle on the end of the latch, they were ready to go, and look and function just like the original latch. It turns out that the latch used by Roy, and supplied to him by a cabinet maker friend who also does some wood-working for some of Roy's restorations, has been in production since the 1930's, and may very well be the same basic style used by Waco during the original production of the airplanes.

All of the sheet metal edges on the glove box doors were finished as per the original, including the beading of the perimeter of the doors. Intended to add some stiffness to the doors and the sheet metal panels on the exterior of the airplane, they also added a touch of class and gave the panels a finished, professional look. Waco was world renowned for their attention to detail and workmanship, and Roy and his crew have tried to keep that in mind as they work on all of the planes they've restored.

There are a couple of interesting points about the color scheme of the Waco biplanes, something that showed how Clayton Bruckner and his craftsman paid attention to each and every aspect of Waco production. The colors on most factory finished Wacos had color on the fuselage only - recall the pictures of Wacos you've seen over the years. Most had silver wings and horizontal tail surfaces, with color confined to the fuselage and vertical fin and rudder. The effect, as pointed out by both Roy and Jerry, is to draw the eye of the beholder to the fuselage. Roy mentioned that he was told by one of the "old-timers" from the Waco factory that "... they were emulating the automobile in-

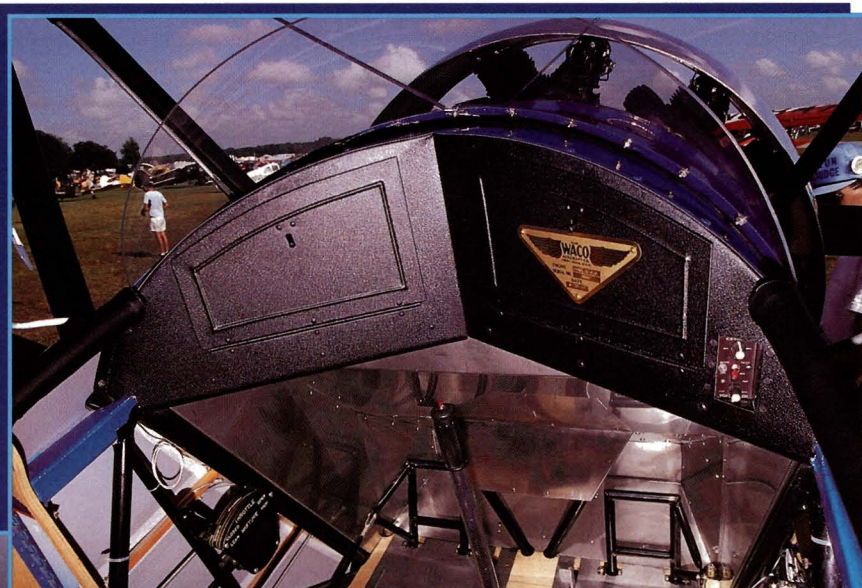
dustry in a lot of ways. They tried to make these things look like cars. They painted the fuselage, put the color on the fuselage, fin and rudder." The rest of the airplane was painted black lacquer (struts, landing gear, etc.) or silver. They also painted the screw heads ("You never saw old cars with shiny screw heads.").

This particular UBF-2 was delivered with a black and white scheme. Jerry thought about that for some time before he decided he just couldn't put black and white on his airplane. He wanted to maintain the actual art layout, but it would just have to be in other colors. He went poring through the color books and decided on the two-tone blue scheme you see on these pages.

The engine did not come with the project, but one was obtained that is the correct make and model - a Continental R670 of 210 hp. Jack Lanning, of Arlington, WA and a well-known Travel Air restorer, did the overhaul, and shipped the engine to Roy's Aircraft. A needed Hamilton Standard Ground Adjustable prop was already on the shelf at Roy's - he had bought it a number of years before, and loaned it to Jerry for use on the Waco for the certification and the airplane's first flights. Since that time, a Curtiss Reed prop, also

correct for this airplane, has been installed.

Jerry Wenger's involvement in the Waco project started much earlier in his life, it just took a number of years before the desire could be satisfied. The son of a successful manufacturer of music room equipment and interiors, Jerry chose a different path. He learned to fly for free by standing out in a pea field (or whatever else needed spraying) with a red flag and guiding a cropduster making spray passes. In return, he received flight instruction. His uncles and grandfather were both pilots, but Jerry's father, who always wanted to learn, never got around to getting in the cockpit as a student, but he did encourage his son. Jerry headed off to college after getting his pilots license, but he discovered that engineering academics were not his strong suit at that point in his life. In a J-4 Cub he had rebuilt, he headed out to South Dakota, looking for more work. After spending time with Dan Wakefield in North Dakota, flight instructing and other flying duties, he went to Winter, South Dakota and sprayed crops with Bob Wiley. It was the late 1950s and the military began to show an interest in young men about that time. Fortunately, a young lady also began to show an even greater



(Above) The forward cockpit for the passengers has a pair of gloveboxes that are just right for keeping gloves, maps and your helmet and goggles. They're also handy for keeping your hands warm, since the heat from the engine oil keeps the air heated in that area! An intercom, visible on the lower right, makes cockpit communication possible.

(Left) The wooden stiffeners for the bottom of the fuel tank bay in the wing center section, along with the pair of visual fuel gauges on each of the fuel tanks.

(Opposite page) With a steerable, non-swivel tail-wheel, the rudder is free to get banged around in the wind, but Roy built this nifty rudder lock. As you can see, it straddles the trailing edge of the rudder, and is attached to the tail brace wires by a couple of lengths of cord secured with a half hitch or two.



Mike Steineke →

← Mike Steineke



Jim Koepnick →

amount of interest in Jerry, and he wound up getting married.

Soon, he was blessed with a little Wenger to support as well, so he took a job building log cabins up in the northern tier of states. One cold January morning in 1960, the man Jerry was working for announced that he would see Jerry and the rest of the fellow in the spring - no more work until April or May. With a wife and child to support, Jerry gave his dad a call.

His dad gave Jerry a job in his manufacturing business. Jerry was pleasantly surprised to find he enjoyed the business, and found that he even had a talent for many of the aspects of inventing and putting into production the items he and his dad's company built. He finished a business degree in college, and later headed up the product design department for the company. Inventing was fun, as was the process of figuring out how to produce the part. "To this day, I'd rather design products than play golf!" he recently quipped.

Other businesses grew out of his work

with Wenger Manufacturing, including running the Owatonna, MN airport, an outgrowth of the company flight department. Other aviation service related businesses came along and have since been sold as Jerry consolidates his resources.

During all this time, aviation was never far from his thoughts. The company flight department consisted of a series of aircraft, including a Beech King Air, and later Jerry bought a Cessna P210 to carry him to his various business appointments. For fun and a sense of sport, he now also flies a Nimbus 3DM motorglider, which he bases in Colorado. He really enjoys the gentle sport of soaring, and as time went on, he also found himself drawn to the F-2 flown by Woody Woods' son Chris. He was intrigued by the idea of an antique open cockpit biplane, so he did some research and decided that the F-2 was indeed the airplane to own - as far as he was concerned, it was the pinnacle of Waco's open cockpit series of biplanes. The more people he talked to, the more he was convinced, and his path eventually

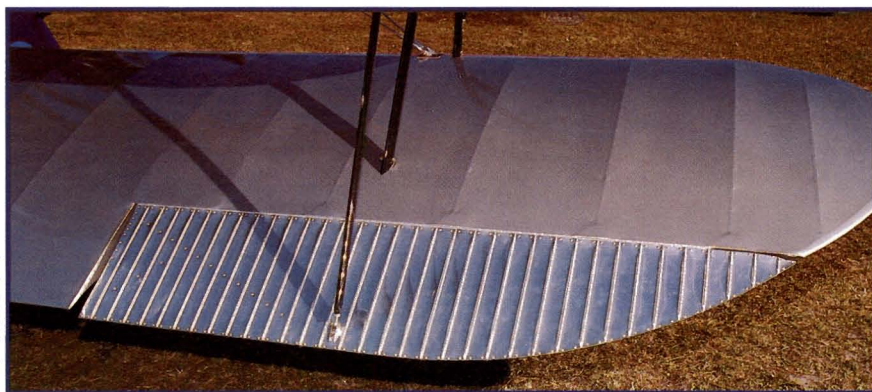
led him to Gary Underland, who introduced him to Roy and Forrest.

After the airplane was finished, Roy and Jerry flew the airplane on a ferry permit to Arkansas where they did a little work on it at Jim Younkin's shop, as well as have the conformity inspection by the FAA's Little Rock GADO office. Then it was on to Sun 'n Fun, where it won the Silver Age (1928-1932) trophy. Roy then turned over the reins to Jerry, and both were happy to see that Jerry hadn't lost any of his touch with a tailwheel-equipped airplane - "... it was like magic, the guy took off, landed it, we went around again, he landed and I thought 'For God's sakes, he doesn't need me!'" recalled Roy about the first time he sat in the front cockpit with Jerry as pilot-in-command.

It's now been to Oklahoma for the NBA fly-in, where it was given the Open Biplane Grand Champion award, and it also was flown by Jerry and his wife down to the National Waco Association's shindig at Creve Coeur, MO. He's enjoying the cross-country capability of the UBF-2, flying at a 1,000 feet agl, enjoying the view at 100 mph. How much does he like it?

He's seriously thinking of selling the P210 - after all, he says, who needs all that hassle of IFR time when you can get where you want to go in the F-2. For him, the challenge of flying IFR has since been replaced with the joy of VFR flight with an antique biplane, going where he wants to go at a leisurely pace. He must enjoy it - he figures to have nearly 100 hours on the plane by the end of the summer flying season.

"Maybe I should take it down south and fly it this winter," he mused during our conversation. That's the spirit, Jerry!



Mike Steineke →

The corrugated ailerons on the UBF-2 wings are beautifully crafted out of aluminum. The UBF-2 was the first Waco airplane to feature ailerons made completely out of metal.