

HATZ CLASSIC: A HOMEBUILT WACO

If the real deal is out of range, this may be the next best option.

BY ED WISCHMEYER



Master craftsman Ron Sieck likes Wacos, and if you've ever seen a fully restored antique Waco at a fly-in, you know why. There's just something about them. Imposing and handsome. Stately.

But if you're on a budget, what better option than to build your own mini-Waco—in this case, a Hatz Classic? And what could be better than to win AirVenture Grand Champion Plans-Built with not just the first airplane you've ever built, but with the first major project you've ever undertaken?

If you're not up on your Hatz genealogy, a primer. First came the Hatz CB-1, designed by John Hatz in the late 1960s, who supposedly built it to replace his Waco. Billy Dawson modified the design with a rounded fuselage, push-pull tubes for the ailerons and elevators, and with seats relocated and slightly reclined for more room and comfort. He called it the Hatz Classic. The latest evolution is the Hatz Bantam, with weight reduced so it can be flown by a Sport Pilot, and the fuselage modified to keep the weight and balance where it should be with a lighter, smaller engine and shorter wings.

Long before the Hatz was even on his horizon, Sieck got his private license in 1971 in the ubiquitous Cessna 172, but then he built a house and had a family. In 1999, he was able to restart his flying in a Piper J-5, having a ball with it. But he wanted a biplane, an antique-ish one, and he knew he wouldn't be able to buy what he wanted. But he could build a Hatz Classic.

The Soul of the Airplane

The ailerons give the airplane its soul, and the Classic has four of them, beaded aluminum. They extend farther out toward the tips than the wood ailerons on the CB-1, and at the tips they gently swoop up, unlike the CB-1's flat ailerons. "I had to build seven of them in order to get four good ones," Sieck said. These are not just good, they're perfect, and the beading aligns top and bottom "which took some doing." But at the trailing edge, each of those beads has a tiny slot cut into it, and the beading is crimped together just like on a Waco.



Doesn't this remind you of the TV show line "Out of the blue of the Western sky comes Sky King?"



Master Craftsman Ron Sieck with the obligatory towel to keep the Hatz spotless. The Hatz was his first major project, believe it or not.

The ailerons are pushrod-operated on the Classic, unlike on the CB-1, and the control sticks are located by Teflon bushings. Nevertheless, the breakout forces are light, and the gentle friction of the bushings is virtually undetectable in flight.

Moving forward on the wing, there is the customary pinked tape covering the ribs and where the rib-stitching should be. It's there all right, but instead of using round cord, Sieck used flat cord and the bumps hardly show. Forward of that are the painted scallops on the leading edge, just like on the rubber band-powered AJ Flyers some of us used to fly as kids. These scallops are perfect, with a pinstripe hand applied. Sieck used eighth-inch tape on the edge of the scallops as a guide.

The airfoil on the wing is the venerable Clark Y, a flat-bottom, low-speed airfoil used on, you guessed it, a number of Wacos but also on the *Spirit of St. Louis*. The designer is Virginius E. Clark, a Signal Corps officer who was also one of the early members of NACA, the forerunner of NASA. For whatever reason, that low-speed airfoil is also used on a number of propellers.

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Hatz Classic continued

The upper wing contains the fuel tank with 23-gallon capacity and 22 usable. Each side has a fuel line that splits just above the fuselage, so there are pickups in each corner of the tank. But if you look closely, you'll notice that there is another "fuel line" on each side as well, and at the top you can see that the second "fuel line" is in fact camouflage for the wiring to the wingtip strobes. Holding all those lines in place are stainlesssteel brackets that Sieck made himself around a mandrel he also made, so the brackets fit the cabane struts perfectly. "I didn't want to have any painted hardware," he said.

Out toward the left wingtip are the pitot and static tubes, formed to look just like those on a Waco. But just above the wings, where there would normally be fittings, they're hidden just to make it look a little better. The arrows that attach to the flying wires and landing wires where they cross in the middle of each side's wings have brass bullets, fore and aft, that Sieck turned on a lathe.

On the bottom wings, next to the fuselage, the trailing edge has a small cutout reminiscent of the larger cutouts on real Wacos, which were put there to enhance airflow over the rudder in spins, thus aiding in spin recovery. Adding to the classic look are fat tires, 7.00x6, with wheelpants sold by a builder in Colorado. Sieck prefers grass runways, a rare option in many parts of the country.

Rainman

The fuselage has additional treasures. The aluminum skin on the top of the forward fuselage has cutouts for the cabane struts, and they're perfect, with even spacing all around the strut. This is possible because the cabane struts are bolted to the fuselage, not welded as they are on so many other biplanes.

The panel is beautiful crotch mahogany (mahogany that comes from where a large limb separates from the main trunk of a tree) and gleams with a luster more like antique furniture than antique airplane. If you don't look closely, you'll miss that the fuselage stringers are also



Mahogany everywhere, except for the GPS case. Still, it's gorgeous as well as being thematically consistent with the rest of the airplane.



A low pass for the camera, sunlight reflecting off every strut and surface. No thundering roar, just grace and beauty.



Note the landing gear springs under the fuselage, the flying wires, the pin striping on the wheelpants, and of course grass instead of pavement.

mahogany instead of the customary spruce. The floorboards aren't mahogany, but they are stained to look like it. Behind the seat is an extra storage compartment Sieck added. Brakes in the back are heel brakes, and the back seater reaches the rudder pedals by threading his feet through and around various steel tubes. It's not difficult, just different.

The windshields have three transparent panes, and Sieck chose Lexan instead of plexiglass for greater impact resistance.



Cream colored fabric on a biplane with any color trim is so much more attractive than white paint with blue trim on aluminum.

It's not obvious at first, but the windshield frames are single-piece aluminum, one piece holding all three frames, with a compound curve especially noticeable on the bottoms of the side pieces. Like everything else on the plane, the fit of the windshield frames to the fuselage is perfect. The finish is Air-Tech, a polyurethane process, chosen by Sieck because a friend used it on crop dusters and the company would custom-blend colors for him at no cost. Plus, primer and UV protection are one coat, not separate ones as with other fabric systems. The colors are



The pitot and static tube lines are held to the strut with custom-made, stainlesssteel clips. Note how those lines are reflected in the bottom wing.

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For fastest service, visit us at www.kitplanes.com/subscribe or call us toll free at 800-622-1065 Chestnut Metallic, custom-blended to match a 1977 Ford F-150 pickup truck, and Tucson Cream. Sieck says the dark colors would've made any irregularities in the pinked tapes show up, so he used preshrunk tapes. He added that Air-Tech gave great customer support during his many phone calls.

Sieck did his own welding, mostly gas, but some parts were TIG welded at the college where he does maintenance work. He also built his own engine mount to support the 150-horsepower Lycoming O-320-E3D from a winddamaged Cherokee 140. Sieck completed the entire airplane in 5½ years.

On the headrest behind the rear cockpit is the word Rainman, which refers to tech counselor Ray Hill, who watched over the construction of the Hatz. Although Hill never saw this Hatz fly before he passed, he did see it assembled.

All Aboard!

There's a technical term for an airplane that's easy to board first time,



Blue sky, puffy summer clouds, corn fields, and an immaculate Hatz biplane. Can summer possibly get any better?



A classic cowling look with flawless sheet metal—notice how smooth the reflections are.

without coaching-and that term is airliner. The Hatz procedure, coached by Sieck, is to first climb onto the wingroot and then face aft, toward the tail, grabbing onto the coaming of the rear cockpit, carefully avoiding the gorgeous canopy frames. Step onto the front seat, turn around, grab the cabane struts, and lower yourself in. Reaching your legs around the stick, legroom is much more generous than in the front of, say, a Marguardt Charger. The rudder pedals are close, however, and putting your feet on them bends your knees and ankles in a way that my aging body found uncomfortable.

The seat is high enough that the view is great, and of course headroom is generous. The front cockpit has airspeed and altitude, plus throttle and mixture on the left side.

After making sure that I was properly strapped in, Sieck climbed into the back seat and started the engine.

What's in the Box

Plans are \$250. Kit price of \$26,000 includes the fuselage kit: welded fuselage frame, struts, tail feathers, landing gear legs, rudder pedals, control sticks. The wing kit includes all the wood pieces, much cut to shape, spar attachment fittings, compression tubes, fuel tank, wing bows, spar attachment fittings, compression tubes, draganti-drag wires, aileron assembly kit and linkage. The accessory package has firewall, windshields, wood side formers and stringers, composite turtledeck with baggage compartment, and aluminum headcoam. Additional parts are available.

—*E.W*.



Taxiing out at the Amana, lowa, airport. The Hatz is very much in line with the craftsmanship tradition of the Amana colonies.

He S-turned us past the crop dusters to the runway, did a quick runup that buffeted my baseball cap, and started the takeoff. The tail came up at 40 mph indicated, with liftoff at 65. Surprisingly, there was an abundance of warm air up front—Sieck has a heater installed, a great idea for extending the flying season beyond summer.

HATZ CLASSIC

Price	\$26,000
Estimated completed price	\$45,000 - \$60,000
Estimated build time	N/A
Number flying (at press time)	8
Powerplant	150-160 hp Lycoming
Propeller	fixed-pitch

AIRFRAME

wingspan	
Wing loading @ gross	8.88 lb/sq ft
Fuel capacity	
Maximum gross weight	
Typical empty weight	
Typical useful load	650 lb
Full-fuel payload	486 lb
Seating capacity	2
Cabin width	28 in

PERFORMANCE

Cruise speed	115 mph (100 kt) TAS
7000 ft @ 75% o	f max-continuous, 8.5 gph
Maximum rate of climb	1000 fpm
Stall speed (landing configuration)	43 mph (37 kt) IAS
Takeoff distance	400 ft
Landing distance	

Specifications are manufacturer's estimates and are based on the configuration of the demonstrator aircraft. As they say, your mileage may vary.



The wingroot cutouts are reminiscent of the Waco's, which were put there to increase airflow over the rudder to improve spin recovery.



Here's why Sieck built seven ailerons to get four that were perfect—look at the upsweep at the outboard end.



The "arrows" tied to the flying wires and landing wires have spinners that Sieck turned on a lathe.

On climbout, I took the controls, calling to the back for trim as required. For maintaining attitude in the light chop, the Hatz was well-behaved, necessitating little effort despite my lack of practice. On the first bank, however, the ailerons gave a classic feel, rather than a sport feel, with moderate stick pressure needed for a majestic roll rate. The force required is undoubtedly because the ailerons are hinged at the front, with no aerodynamic balance. It comes as no surprise that aileron forces were lighter at lower airspeeds, but it was also interesting that the ailerons were light for small deflections—light enough that the force gradient was unexpected.

The elevators have a nice feel to them, but are lighter than the ailerons. Like the ailerons, the elevators do not have aerodynamic balance, and neither has mass balance. Pitch pointing tasks—pulling the nose up to an attitude and stopping it there—were effortless, and there was no tendency for the Hatz to overshoot the desired attitude.

Yaw stability was good, with only minor slewing in the light chop. When the nose was deflected with rudder only and then released, the Hatz hesitated a moment and then straightened itself out with no oscillations or overshoot, just like the best high-wing planes. Coordination was easy, but some of that may be because there was no skid ball up front to announce any pilot shortcomings.

Stalls were unexciting with the Clark Y airfoil showing its gentle nature. In a power-off stall, a light burble was felt in the stick, and the slight falling off on one wing was easily attributable to the light chop and lack of skid ball. With full power, the pitch attitude was way nose-up with a light buffet, and this time the Hatz stalled straight ahead.

We did one speed run, upwind and down, with the GPS showing 95 and 114 knots, for an average of 105. This was at 3000 feet on a coolish summer evening, so "book" cruise speeds at altitude should be 8% better than that. But who builds a plane like this to fly high and straight and level? Sieck's longest trip in the Hatz was to Oshkosh, 2½ hours away. He wanted to attend the biplane fly-in in Bartlesville, Oklahoma, but couldn't, and unfortunately that event is no longer held.

The company web site says that you can do basic aerobatics in the Hatz, but that is not what the Hatz is all about. Purpose-built aerobatic biplanes usually have at least the upper wing swept to improve snap roll characteristics, and will have mass balances on the ailerons to allow higher airspeeds without the threat of aerodynamic flutter while doing aerobatics. Still, being able to do the occasional loop or roll is much in keeping with the allure of a biplane, even if you never actually do any.

Why We Fly

Belle Plaine, Iowa, was picture postcard perfect as Sieck turned base. White houses, fresh cut green grass, and the evening sun low in the west created that kind of idyllic picture that we pilots sometimes get to enjoy. And enjoying the view from a spectacularly beautiful piece of flying craftsmanship, of mahogany and custom stainless-steel fittings and one-piece windshield frames, in the cool evening air made it all the more special. I can only imagine how content Sieck must feel at such times.

On final, Sieck asked me to move my head to the side so he could see better, and then, unable to contain itself any more, the Hatz got frisky with tailwheel



Details, perfect details—the fuel line, the stainless-steel clip, the pin striping, the reflections—all immaculate.

shimmy. "That happens one flight out of five, usually with a passenger on board," Sieck said.

Stopped in the parking place after the flight, Sieck pulled back the mixture and the Lycoming exhaust sound faded. With the lower compression ratio of the 150hp O-320, the propeller lazily coasted to a stop through several revolutions—just like a radial engine on a big Waco. Coincidence? I wouldn't bet on it. +

For more information, call 830/905-7832, or visit www.hatzclassic.com or www.weebeastie.com/hatzcb1. Find direct links at www.kitplanes.com.



The afternoon sun puts reflections and shadows all over the Hatz. It's tempting to just stand back and admire it, but flying it is good, too.