

The Waco Model "C"



Classy Custom Cabins

BY SPARKY BARNES SARGENT

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A trio of grand old Waco C-8 Cabin models gleamed magnificently under the summer sun at EAA AirVenture 2010, just as the vintage field began thoroughly drying out from record rainfalls. Like the sunshine, these luxury custom Cabin Wacos were a welcome sight. Fewer than 30 of these biplanes were manufactured, and it's estimated that about half exist today, with less than a handful in flyable condition.

Of the threesome, Bob and Barb Perkins' Waco AGC-8 (N20908) was manufactured in 1939 under ATC

664. The "A" denotes its 300-hp Jacobs L-6 engine. Jim Clark's Waco (NC61KS) rolled off the production line in 1939 as an AGC-8, but was soon converted to a model EGC-8. The "E" denotes the 320-hp (supercharged to 350-hp) Wright R760-E2. Bill McCormick's Waco (NC2279) was originally manufactured under ATC 665 as an EGC-8. Waco's "C" Model was spry yet gentle, and pilots still appreciate it for its quick takeoffs and slow landings, in addition to its other fine qualities. Let's take a closer look at the septuagenarian Wright-powered EGC-8.

The Luxury EGC-8 Cabin Model

Waco produced seven EGC-8s. The EGC-8 had seating for five, with an overall wingspan of 34 feet, 9 inches (lower wingspan of 24 feet 4 inches) and a length of 27 feet 4 inches from nose to tail. It towered 8 feet, 7-1/2 inches tall and had a 108-inch-wide gear tread. The EGC-8 weighed 2,447 pounds empty, had a payload of 563 pounds, and had a gross weight of 3,800 pounds.

Its mighty Wright turned a Hamilton Standard controllable propeller, and with 95 gallons of fuel



A company brochure about the Waco Model "C" Cabin models.



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NC2279 is finished in Henry King's signature paint scheme.



NC2279's instrument panel.



A peek inside NC2279's exquisitely detailed cabin.

available, it burned 18 gph while enjoying a cruising speed of 147 mph (up to 159 mph at optimum altitude) and a range of 713 miles (with 15 percent reserve). The standard color for the "C" Model's hand-rubbed, lustrous finish was Gunmetal Gray, but customers could also choose from the optional Waco Vermilion (which added 33 pounds to the empty weight), Insignia Blue (which added 7 pounds), or Silver.

A company brochure touted the Waco Model "C" as representing the finest in air travel, since its "refined streamlining was responsible for faster airspeed, and a lengthened fuselage with an efficient flap design provided better control at slow landing speeds." Designed for pilot and passenger comfort alike, this model featured elegant interiors that could also accommodate a variety of cargo, since the biplane was "...offered with a freighter interior and may also be equipped as an aerial ambulance. When so equipped, the stretcher is concealed when not in use and the usual passenger interior remains unimpaired."

One especially interesting feature were the split flaps: "At any time prior to landing if unexpected obstructions appear, the throttle may be opened fully and the flaps

will close themselves automatically and slowly without further loss of altitude and without effort on the pilot's part. When the emergency has passed the pilot may close the flap control valve until ready to use it again."

With fresh air supplied to the cabin (from intakes in the wings), ashtrays for those who smoked, and a comfortable back seat where passengers could relax into "aerial naps," the Model "C" was designed to please. Special design consideration was also given to mechanics who would maintain these flying machines: "It is a delightful experience for a mechanic to study this WACO and see the care that has been taken to make the entire airplane readily accessible for service attention with a minimum of time and effort."

Speaking of maintenance and more, each of the EGC-8s that flew in to AirVenture (NC2279 and NC61KS) were recently restored to virtually authentic configurations and have their own bit of noteworthy history to share.

The 'King' Waco

NC2279, a 1938 Waco EGC-8, is owned and flown by Bill McCormick of Clarkston, Michigan. It was restored by Rare Aircraft Ltd. of Faribault, Minnesota, and received the Bronze Age (1937-1941) Outstanding Closed Cockpit Biplane—Small Plaque during AirVenture. No doubt its original owner, Henry King, were he alive today, would be quite proud that the biplane is not only an award winner, but that it looks just like it did when he owned it.

Henry King was a movie director, and perhaps best known by aviation enthusiasts for *Twelve O'Clock High* and *A Yank in the RAF*. Born in January 1886, he first started directing movies three years before earning his pilot's license in 1918. He built an impressive career as he continued directing for nearly half a century and was one of the top directors in Hollywood during the

1920s and '30s. His achievements included directing more than 100 movies, receiving the first Golden Globe Award in 1944, and being one of the founders of the Academy of Motion Picture Arts and Sciences.

"It's one thing to have an antique airplane that is beautiful to look at, but an antique airplane that flies as friendly as this airplane—it's a real joy!"

—Jim Clark

Throughout his career, he remained an avid aviator, and a sportsman pilot—his personalized private aircraft insignia appears in *The Amateur Air Pilots Register* as early as 1934. In September 1938, King took delivery of NC2279 (s/n 5064). It was the fourth of five Wacos he owned. Each one was finished in his signature color scheme—vermilion with black and gold trim. Notably, his passion for flying led him to become one of the founding fathers of the Civil Air Patrol (CAP) during World War II. King served as the deputy commander of the CAP Coastal Patrol Base in Brownsville, Texas.

King owned NC2279 until 1940, when he traded it in. Waco then sold the biplane to Eastern Coal Corporation of Bluefield, West Virginia. The government bought it in 1942, and three years later, it landed in the hands of a citizen in San Diego, California—at that time, its registration number had been changed to NC50610. This Waco flew from owner to owner through the years, but then languished from the early 1960s for several decades. Eventually it wound up in Vancouver, British Columbia, as a project. In 2004, Bill McCormick of Clarkston, Michigan, purchased it. The airframe had a total time of 3,115:45 hours, and McCormick decided to have it disassembled and trucked to Rare Aircraft for reassembly. That's when it became apparent that the old biplane needed a substantial amount of work, and an 18-month restoration ensued. Jeremy Redman of Rare Aircraft explains:

"The airplane came to us covered and painted, and we started getting ready to put stuff together, when we saw corrosion on the fuselage. We started punch testing a couple of tubes and found a rotten cluster. And then we were inspecting the wings and found a couple of cracked spars. Also, there was rot back in the stabilizer, and we thought, 'Man, we have to do something here!' Bill agreed, and it essentially turned into darn near a full restoration. We built four new wings; interestingly, one upper wing assembly on this custom Cabin Waco consumes more labor than the entire wing set on a UPF-7. We also rebuilt the tail feathers. There were some compression failures where the steel fittings bolted on to the stabilizer and the airframe, and this model has a cantilever stabilizer, so it's very important that the integrity of the wood is good."

Additionally, Rare Aircraft repaired the fuselage and engine mount, rebuilt the ailerons, replaced fairings and leading edges, and fabricated new wing flaps. While they were at it, they also fabricated a new aluminum bulkhead



and brakes were installed. “We did a conversion on this one, and did articulating toe brake pedals and removed the original pedals,” describes Jeremy, “and it really transforms the handling of the airplane. If you just put a toe brake pedal on top of the rudder pedal, when you have full left rudder in, it’s like you can’t push the brake pedal. It gets really precarious, and in these big heavy taildraggers like this, you need some brake when you’re on the last part of the roll out, because your control surfaces aren’t going to overtake the mass of the airplane if it starts to divert.

“The owner, Bill, has a dog that jumps up on the hat shelf and goes with him when he flies this,” Jeremy says with a smile, adding, “he’s a business executive, so you might say that the biplane is doing the same thing in 2010 that it did in 1938—transporting executives. Bill has always had airplanes, and he’s active with his local EAA chapter.”

The ‘CAA’ Waco

Jim Clark of Chapman, Kansas, flew NC61KS (s/n 5072), his 1939 Waco EGC-8, to AirVenture this summer. He arrived in good company, with his grandson Brody Clark, who is already a veteran AirVenture attendee at age 12, and young friend Patrick McElligott, who is a mentor in their local EAA Chapter 1364’s Wing Nuts youth program. They taxied in to the Vintage area, drawing admirers even before they tied down and set up their camping tent. This black and



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The instrument panel in NC61KS.



The original Switlik parachute seats were modified so they now have a roomy pocket for stowing items.

for the panel and a stainless fire-wall. They restored the cowling and dishpan, rebuilt the landing gear, re-bushed the tail wheel support assembly, and fabricated new fuel and oil tanks. To facilitate flying and communicating in today’s airspace, a VHF transceiver, transponder, encoder, intercom, and Whelen strobe system were installed.

While the airframe work was transpiring, the engine was being overhauled as well. “Mike Connor overhauled the Wright R760-E2 engine,” says Jeremy, declaring, “He’s the Wright guru. I dare say, I don’t know if there’s anybody out there who could do a Wright as well as he could.”

In the interest of safe ground maneuvering, Cleveland wheels



orange Cabin Waco is unmistakable, with its large Civil Aeronautics Authority (CAA) logo carefully painted on the broad fuselage. Jim also flew the biplane to the AAA/APM Fly-in in Blakesburg, Iowa, where it received the Sweepstakes Classic (1936 to 1941) award.

“Three or four years ago, I started looking for a Cabin Waco,” says Jim with a smile, “because I wanted a big flying SUV that could carry all my stuff! So I started going all over the country looking and could not find one that I wanted to buy or restore. This airplane was located only 15 miles from my home, and its longtime owner, EAA member Chuck Hall, was a friend of mine. I bought it in September 2007, and even though it hadn’t flown for about 18 years, it had been stored properly.”

Jim became intrigued by the history of his “new” Waco, and his research revealed that NC61KS was one of eight model AGC-8s that were originally ordered by the CAA. His Waco’s first bill of sale was from Waco Aircraft to the CAA and was dated August 17, 1939. Registered as NC-61, it was delivered to the Air Safety Board and was based in Garden City, Long Island, New York. Just a few years later, the CAA ordered an engine change.

“The CAA had all those Wacos converted to the supercharged 350-hp Wright R760-E2 and changed the model number from AGC-8 to EGC-8. The aircraft records show that a CAA Repair and Alteration Form dated June 18, 1941, was



Jim Clark brought some good company with him to AirVenture—his grandson, Brody, and Brody’s young friend, Patrick.



Jeremy Redman of Rare Aircraft Ltd. demonstrates NC2279’s split flap.

completed by the Spartan School of Aeronautics, and it listed the ‘removal of Jacobs L6MB and installation of Wright R760E-2 as per form 337.’ Then in December 1945, NC-61 was declared surplus and had registration number NC69607 when it was released [from government service in the mid 1940s]. After Chuck bought the airplane in 1970, he got the registration number back as close as he could to NC-61, by adding ‘KS’ for Kansas.”

Before Raven Aero Service could begin restoring NC61KS, it sent a couple of its technicians to go over it and get it ready for a short

ferry flight from Manhattan to its shop in Junction City. “The engine had been pickled properly, so we could bring that back to life,” recounts Jim, “but the brake lines were corroded into solid rods—so we ran new brake lines and had the master cylinders rebuilt. I learned through the National Waco Club online forum that the Cleveland wheels and brakes for the late-model Cessna 310 also fit a 1939 Cabin Waco EGC-8. So I ordered a set, and we jacked the airplane up and bolted the brakes on—without having to make a single modification. I’m a member

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NC61KS in the Vintage area at EAA AirVenture 2010.

of both the National Waco Club and the American Waco Club, and both are great groups. National has a very active [online] forum, with a tremendous wealth of knowledge.”

The ferry flight took only 40 minutes—and Jim made sure that Chuck was in the right seat. The restoration started in November 2007, and was completed in July 2010. The biplane, covered and finished with Superflite, was brilliant in its CAA black and orange livery—a far cry from its previous pale green and red scheme—and the pleasing scent of new leather permeated the spacious cabin. Once again, Chuck was in the right seat when Jim made the first flight after restoration.

Just a few modifications were made during the restoration—the first being the new wheels and brakes. Another change involved relocating the oil cooler to solve an overheating problem. “The original oil cooler was behind the dish pan and almost against the firewall,” explains Jim, “so airflow was nonexistent. I became acquainted with Addison Pemberton—a great guy and aircraft restorer—and I no-

“...interestingly,
one upper wing
assembly on this
custom Cabin
Waco consumes
more labor than
the entire wing
set on a
UPF-7.”

—Jeremy Redman

ticed when I was at his hangar in Spokane that he hung the coolers underneath all his aircraft. So he sent me some pictures and helped us out. We reformed the cooler and belly-hung it—and it has just worked excellently!”

Additionally, and similarly to NC2279, Jim’s Waco received new navigation and communication equipment. “We went with Becker in-panel radios, transponder, and comm,” shares Jim, “and I do have weather on a Garmin 496, but it’s covered by the original ‘coffee grinder crank’ radio face.”

It takes a discerning eye to observe several unique features of NC61KS. Perhaps the most obvious is the second rear door. Less obvious is the fact that the doors have a jettison lever—and yes, that feature is still functional. An “Emergency - Do Not Touch” sign warns the rear-seat passengers not to turn the handle. A cursory glance at the pilot and passenger seat backs reveals deep, wide pockets for stowing items—a clever use of space made available when the original Switlik parachute seats were modified. Also, the small baggage compartment aft of the



JIM KOEPNICK

rear seat was neatly converted to Waco's freighter configuration for extra cargo space. One more item is the original wood rack for holding emergency flares, which is mounted inside the fuselage, in the cargo area. Jim doesn't have the actual flares, but he dummied the location on the side of the fuselage by using inspection rings and fabric patches.

One significant challenge that Jim encountered was locating the proper CAA emblem for the fuselage. "In 1939, the CAA used a five-point compass rose with their name in it, and wings and a shield that had the Wright Flyer on it. But in 1940 they were under the Department of Commerce, so they changed the emblem to an office building and a shock of wheat. We researched extensively, but didn't find a complete photo of the 1939 emblem. We had a picture of the CAA airplanes in a hangar, so we went by that as much as possible. Also, the CAA did not use the color trim around the windows, so the fuselage stripe was positioned higher than on the other Cabin Wacos."

Flying the EGC-8

Jim has about 700 hours' tail-wheel time, and flies a Piper Pacer and Cub regularly. He was pleasantly surprised by the EGC-8's gentle flying characteristics—with one exception. "On takeoff, I let it come off the ground about 60 mph, then climb out at 80 mph for the first 100 feet. Then I go to 90 mph and get a nice climb rate out of it. Cruise climb is about 100 mph, and I get about 500 fpm climb at that. I don't push it; I watch the cylinder head temps closely. She cruises about 130 mph. Then on downwind and base, I fly about 100 mph, and I don't cross the fence under 80 mph—below that is a danger zone, because when you start flaring with those big flaps down, you lose 20 mph and she's on the runway; there is no float. I think you'd better have the runway made when you deploy the flaps," he says and laughs heartily, then adds, "but when you're on final, and you're sure you're high and fast, you're just right—drop those flaps and wow, you hit the numbers! But this is not a challenging airplane in my opinion. In fact, I wouldn't put an

EGC-8 driver in my Pacer and expect him to do okay. This is just a big, friendly, predictable, nice-handling biplane, so I'm thrilled with my choice. She is just a sweetheart to fly. It's one thing to have an antique airplane that is beautiful to look at, but an antique airplane that flies as friendly as this airplane—it's a real joy!"

Smiling as he reflects about these classy custom Cabins, he shares, "the C-8s have gotten more attention from the restoration crowd lately. They fly great, land easy, and with the gear 'down and welded,' they're not nearly as complex as the antique retractables—and they're strong enough to handle bumpy grass strips with nary a shrug."

So with a tip o' the hat to history, it's rather pleasant to imagine the nostalgic reactions that Henry King and the CAA pilots who flew NC-61 might have, if they ambled through the vintage field. They'd likely declare in quite the surprised tone, "Hey, I recognize that Waco! I can't believe it's still flying!" To which the owners might nod affirmatively and respond, "Want to take her up around the patch?"