



One Gorgeous Taylorcraft

From Basket Case
to Award Winner

“America’s most modern low-priced airplane”

by Sparky Barnes Sargent

It was as brilliant as a beacon on the flightline at EAA AirVenture Oshkosh 2009, and this exceptionally restored 1940 Taylorcraft led appreciative admirers back to a time before World War II, when the lightplane business was thriving and Taylorcrafts were one of the top-selling models. Restorers Mark McGowan of Plymouth, Michigan, and Ken Kreutzfeld of Port Clinton, Ohio, happily answered questions about the airplane, which they took 14 years to restore. An original black trim scheme accented its glossy vermilion finish, and the fine details of this prewar airplane—from its Taylorcraft compass right down to its Boots nuts—denoted authenticity.

NC24371 was manufactured by the Taylorcraft Aviation Corporation in Alliance, Ohio. On March 18, 1940, the new flying machine climbed aloft, powered by its humble 50-hp Lycoming O-145-A1. Young William A. Crawford, a company test pilot with about 570 hours of flying time, put the BL-50 through its paces for 45 minutes. Satisfied that all was well with the airplane, he landed and taxied the Taylorcraft trainer to the ramp. Business was brisk that spring, and serial

number 1707 sold just three days later to the Lubbock Aero Club of Texas, where it was based until 1953.

In more recent times, an aviator named John Munch acquired the Taylorcraft in 1969 and re-covered it in 1972. In 1984, his heir at law sold the airplane to the EAA Aviation Foundation, and the following year, the foundation sold it to Jun Morris and Kelly O'Brien. Ken went with Jun to Hales Corners, Wisconsin, and helped him haul the airplane back to Ohio. “We put it together and flew it for a year, and then Jun wanted to rebuild it, so he took it apart—but then he moved to California, so he sold the airplane to Denny Wittenmeyer in 1988. Denny did some tubing repairs and put it in his garage, where it sat for quite a number of years until Mark and I bought it,” recalls Ken, adding with a laugh, “Denny ‘inspired’ us to buy it—he worked me for two or three years to buy it. Mark and I divvied out the project and started working on it.”

Though their restoration work commenced immediately, they had numerous stop-and-go moments throughout the years, when they’d had enough and simply pushed it back in a corner. Later, with renewed interest, they’d drag it back

out and start working on it again. They obtained drawings from the Taylorcraft Foundation Inc. and methodically documented the entire process with photographs. In fact, they worked on the project long enough that technology progressed from film media to digital media.

By October 2007, Mark became the sole owner of NC24371, though Ken continued working with him until the airplane was fully restored. Its first flight was June 22, 2009—and Ken gleefully placed a phone call to Mark, who was in Japan at the time, to tell him the Taylorcraft was flying just fine. Mark had to wait for two weeks until he returned to the States for his first Taylorcraft flight. “Ken did that on purpose,” says Mark, laughing good-naturedly.

Taylorcraft B Series

The Taylorcraft B series had similar airframes, but they were powered by different engines. The 1940 Taylorcraft was available with Lycoming 50 to 65 hp, Continental 50 to 65 hp, and Franklin 50 to 60 hp. The new trainer version offered side-by-side seating and interchangeable wheel or stick controls. The B models were priced from \$1,495 and up, according to

SPARKY BARNES SARGENT



This rear view of the Taylorcraft reveals its clean lines.



The diagonally painted stripes on the prop tips are original to this new-old-stock prop.

SPARKY BARNES SARGENT



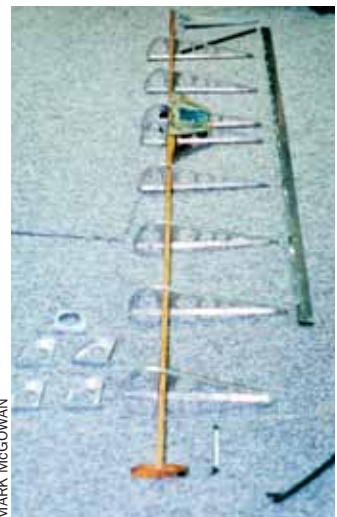
MARK McGOWAN

The "basket case" fuselage, in sad shape before the restoration.



MARK McGOWAN

The aileron, with the fabric removed.



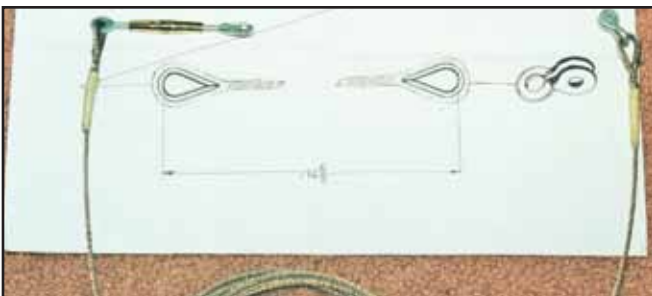
MARK McGOWAN

New ribs being installed on the aileron.



MARK McGOWAN

The five-tuck spliced cable was fabricated by Andrew King.



MARK McGOWAN

Close-up view of the newly fabricated left rudder cable and the drawing.



The restored wing and aileron.

An original McCauley logo.





Exploded view of the brake parts.

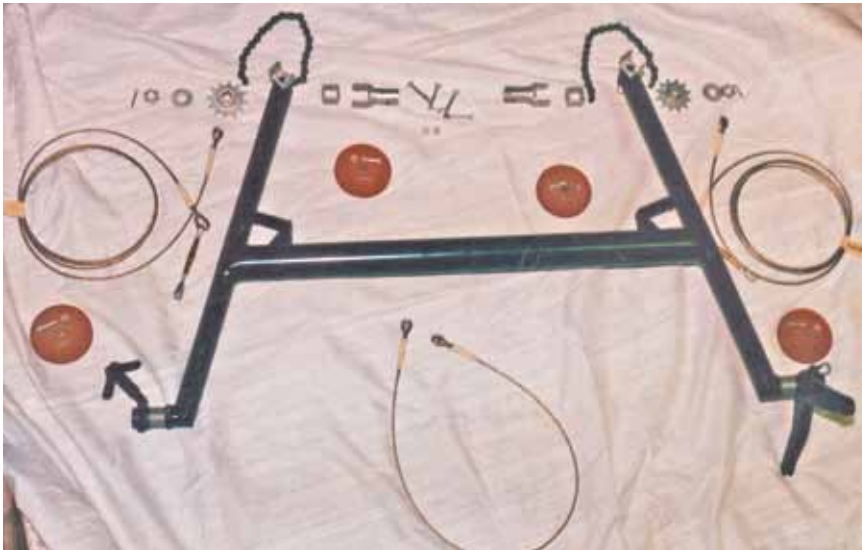


The assembled brake parts.

MARK MCGOWAN PHOTOS



The powder-coated fuselage, with new wood stringers.



Newly fabricated control cables and restored control columns, ready to be installed in the cabin.

a March 1940 ad. The approved type certificates (ATC) for the B series were issued in 1938, and each model had its own ATC. For example, the BL (Lycoming) was built under ATC No. 700 (9-22-1938), the BF (Franklin) was built under ATC No. 699 (9-19-1938), and the BC (Continental) was built in accordance with ATC No. 696 (8-24-1938). NC24371 began life as a model BL-50, and apparently sometime during the late 1940s or early 1950s, a 65-hp Continental engine was installed, since records show it listed as a BC-65 model around that time. Today, it is still powered by a Continental A-65-8. (There are 172 BC-65 models listed on the FAA Registry to date, and no BL-50 models.)

The earlier B models still had exposed cylinders, but later models were streamlined with a fully enclosed cowl. The wings had spruce spars and metal ribs, with metal leading edges. The Warren-truss-type welded-steel-tube fuselage was faired with wooden stringers, and the tail was built of welded steel tubing. A distinguishing feature was a pair of Flettner trim tabs, which were mounted on the fuselage beneath the horizontal stabilizers. The Taylorcraft's lovely





SPARKY BARNES SARGENT PHOTOS



Above: Kreutzfeld overhauled this Continental A-65-8 engine. Left: Mark McGowan and Ken Kreutzfeld took 14 years to restore this 1940 Taylorcraft from a basket case to an award winner.



The instrument panel is dominated by the large tachometer/engine instrument combination in the center.



Close-up view of one of the two Flettner trim tabs that are mounted on the fuselage beneath the horizontal stabilizer.

wings spanned 36 feet, and the airplane measured 22 feet in length. Weighing 640 pounds empty, it had a useful load of 510 pounds. A 12-gallon fuel tank was inside the cabin between the instrument panel and firewall, and an optional auxiliary 6-gallon tank could be installed aft of the seats. It lifted off the runway in less than 400 feet and climbed out at 620 fpm. It could cruise at 95 mph (max speed of 105 mph) for 250 miles, and when it was time to land, it touched down softly on its rubber shock cord gear at 35 mph. Those shock cords were installed at the top of the landing gear struts and were neatly faired to the fuselage—just one more example of Taylorcraft streamlining. Mechanical brakes, Shinn wheels, and a full-swiveling tail wheel were standard; a steerable tail wheel was optional.

A company ad in *Aero Digest* promoted the Taylorcraft B series as “America’s most modern low-priced airplane,” boasting that “it has what it takes to win your choice. A thrilling sight and a marvelous flight await you in the new 1940 Taylorcraft, now ready for your inspection. You’ll instantly enthuse over the sleek new cowling so beautiful and modern in design – the relaxful [sic] comfort of chair height seating – the two doors – the generous room – the new adjustable ventilators –



TYSON REININGER

and the increase of 50 lbs. in useful load capacity . . . You'll be amazed by the cabin quietness resulting from scientific sound-proofing and the newly engineered single under-cabin exhaust which reduces motor noise to a smooth rhythmic purr... Yes – and the quick, eager response to the controls – the fine balance and handling ease – the buoyant lift and snappy pick-up will truly delight you with Taylorcraft performance . . . Add to all this the fact that Taylorcraft's safety record is first in its class."

Booming Prewar Business

Taylorcraft Aviation Corporation took orders for 1,017 airplanes in 1940—compared to 487 the previous year, according to the *Aircraft Year Book* (1941). Since Taylorcraft was dealing with an increasing backlog of incoming orders in 1940, the company “. . . erected additions to the plant and a new office building of the most modern type. The building program included an 80 x 100 ft. hangar and experimental department, two hard-surfaced runways 1,000 ft. each and two seeded runways of approximately 2,000 ft. each. Total floor area, including the hangar, was increased from 22,000

sq. ft. to about 72,000 sq. ft. Considerable additional machinery and equipment were added and the enlarged plant laid out for more efficient flow of production. The productive capacity of the company

**“Everything
was a challenge
on a prewar
Taylorcraft!”**

—Mark McGowan

was tripled, permitting the building of one plane an hour, or about 2,000 a year in one shift, or about 3,500 a year in two shifts. Total cost of the expansion program was about \$225,000.” (*Aircraft Year Book*, 1941)

As the war gained momentum in Europe, the government's new Civilian Pilot Training Program was established, and lightplanes were in great demand—which in turn

required some creative problem-solving at times on the part of aircraft companies. Aviation historian Chet Peek, in his book *The Taylorcraft Story*, stated, “Taylorcraft now ranked second in lightplane production, behind Piper. . . . One of the problems facing Taylorcraft's sales department was the delivery of planes to dealers in the more remote areas such as Texas, California and the Pacific Northwest. On July 3, [1940] Carl Elkins, Sales Manager, organized a history-making mass flight that would deliver 20 planes to the Los Angeles, California, dealer, West Coast Aircraft. Actually, this was a sensible and economical way to deliver the planes. Most of the young pilots would fly 'free' for the privilege of building up flying time. Navigation was simplified by dividing the group into flights of three or four planes each, so that an experienced pilot could keep the fledglings from getting lost. . . . Most of the planes in the flight were to be put to immediate use in the CPT Program which was greatly expanded in the fall of 1940. . . . Not to be outdone by the Californians, on September 17, a Texas dealer, Kadett Aviation Co. organized a flight of ten planes to College Station,



Note the cast “TAYLOR” and “CRAFT” on the tail wheel arms.



SPARKY BARNES SARGENT PHOTOS

The prewar wheel pants feature a center-seam trim crafted out of aluminum.

Texas. These planes were for use in the CPT Program at Texas Agricultural and Mechanical College.”

Another interesting facet of the company’s history is C.G. Taylor himself, who started the company in 1936. Peek characterized him in this fashion: “[he] continued to be liked, almost worshipped, by most of the young employees. He would occasionally take one of them for a ride after work to demonstrate the performance of the Taylorcraft and explain his ideas on airplane design. Taylor was especially proud of the inherent longitudinal stability of the Model B. . . . C.G. Taylor can truly be called the father of the light airplane industry. At one time, before WWII, his two famous designs, the Taylorcraft and the Taylor Cub, comprised well over half of the world’s light aircraft fleet.”

Restoration

Although Mark and Ken lived in different states, they worked on the restoration as a team. Their first order of business was protecting the fuselage from further deterioration. They had it sandblasted, inspected, and powder-coated, all on the same day. “The Detroit area is industrial, so the technology existed locally, and there was a bake oven large enough to accommodate the fuselage,” explains Ken.

Mark and Ken discovered that “everything was a challenge on a prewar Taylorcraft! The cowling was a

wonderful project—it took at least a year.” Ken made new boot cowls and put the windshield on, then installed the A-65-8 engine (which he overhauled). With that accomplished, he began the tedious process of hand-forming the lower cowl, devoting special attention to making the louvers on the bottom portion of the cowl. An aftermarket nose bowl might have been timesaving, had it fit well—instead, it required extensive reshaping and reforming.

Ken, an airframe and powerplant mechanic with inspection authorization, repaired the wings, which had been in storage long enough for mice to claim them. “We took the wings out of the hangar and took the fabric off,” recalls Ken, “and the mice had eaten the left spars out of the wing bay, way up by the tip. So we had a lot of issues with the wings—such as corrosion, half the ribs had been mangled from previous ‘repairs,’ and a lot of parts were missing.”

Ken installed the fabric on the wings, while George Willford covered the fuselage. Ken used the Poly-Fiber process with an Aerothane top coat to give the airplane its glossy appearance.

Prop

A wooden Sensenich propeller was standard equipment for the 1940 Taylorcraft, and this is one area in which Mark and Ken departed from originality. That’s be-

cause they found quite a prize on eBay and just couldn’t resist using a new old stock 1945 McCauley propeller. “It had never been out of the box, literally,” says Mark and with a smile. “And we kept the original box, which was shipped by rail from the factory to Connecticut. The prop had never seen the light of day; it had just been stored in a garage. We didn’t recognize the McCauley decals, which were on it, so I took a photo and sent it to McCauley down in Dayton. They verified that logo, and they verified that the diagonally painted tips were the way they painted them in 1945—usually, the stripes are at a 90-degree angle to the prop tip.”

Authentic Features

One of the aspects that made the prewar Taylorcraft such a challenging project was the rarity and scarcity of available parts. “Prewars look identical to a postwar Taylorcraft, but there’s nothing interchangeable. For example, the 6-gallon aux tank was offered up through only 1940; the 1941 and later models have wing tanks. There’s a good reason why they changed to wing tanks,” explains Mark. “There’s a lever down between the pilot and passenger, near the floorboard, and it’s connected to a mechanical fuel pump. It takes 100 pumps on the wobble pump to transfer 1 gallon to the main tank—now you know why there are wing tanks! That



The black handle is for the wobble pump, and the brass handle is for the fire extinguisher.



A neatly fabricated kick plate surrounds the heel brakes.

wobble pump is a real rarity—it came with the plane, so we put it back in—but you would never want to use it—it’s too much work!”

Another unique feature is the flipper trim system (Flettner tabs). “The trim lever is on the pilot’s side, and is placarded for nose-up and nose-down. That plaque is supposed to be mounted upside down, because in theory, you have to look down between your legs to read it,” says Mark and laughs. “But in the Taylorcraft, there’s no space for the pilot to lean over like that!”

A close look at the tail wheel reveals yet another unusual detail. The tail wheel has “TAYLOR” cast on the left arm and “CRAFT” cast on the right arm. It was a Heath tail wheel, but it was made exclusively for Taylorcraft, according to Mark. Since that tail wheel isn’t steerable, they plan to use a Scott tail wheel for normal operations.

They found a decent set of pre-war wheelpants advertised for sale in the Taylorcraft newsletter, and fortunately, the pants required only a little work to get them into good shape—including polishing the aluminum trim where the two halves meet. Shinn wheels came with the airplane, and they ordered new diamond-tread Aero Classic tires. They completely disassembled the brake system, cleaned it, and made any necessary repairs before reassembly and return to service—just as they did with the entire airframe.

When it came to hardware, Mark and Ken used original-style fasteners. There are no sharp-edged, plastic tie wraps anywhere on the airplane—instead, they used rib-lacing cord to do the job. They also used brass safety wire and silver cadmium-plated hardware. Along the way, the two discovered that white brass polishes to a sparkling shine—just one look at the pitot tube confirms this.

Upon close inspection, a discerning eye may detect some rather unusual self-locking nuts. “Those are Boots aircraft nuts,” explains Mark. “They are very early prewar nuts, and are on the doors and hinges—they are original to the airplane. They have an ‘accordion’ on the ends that compresses, so when you install and tighten the Boots nut, the ‘accordion’ keeps the tension on the threads. They work well, and when they get loose, you just take them off and put them in a vise and squeeze them, or take a hammer and tap them to compress them again.”

Additionally, the control cables were painstakingly hand-braided (five-tuck spliced). “Andrew King did that,” says Mark. “He’s well-named; he’s the king of spliced cables! The landing gear cables are soldered and wire wrapped, and he did those for us, as well.”

Another helping hand was responsible for the interior and upholstery. “That was done by Tom Baker of Effingham, Illinois. He used the

original-type Bedford cord cloth for the seat, and wool for the headliner. He had all the patterns for them; he learned to fly when these airplanes were new,” says Ken, “and we had weekly phone calls with him to ask him questions.”

Award Winner

Mark and Ken are happy and relieved to have the 14-year project finally finished and flying. They were faced with a momentary dilemma, however, when they contemplated flying it to Oshkosh. They had a scheduling conflict, since they had already made plans to attend the annual Howard Aircraft Foundation gathering just prior to Air-Venture. But it wasn’t long before they had a solution—they asked a friend, John Maxfield, if he would be willing to fly the Taylorcraft to Oshkosh for them. John, after taking one look at the airplane, lost no time agreeing, and Mark and Ken met him on the grounds the first of the week—just in time to field questions from the aircraft judges. The judges liked what they heard and liked what they saw. NC24371 received the Bronze Age (1937-1941) Champion – Bronze Lindy award. That’s likely the first of many awards to be bestowed upon this beautifully restored pre-war flying machine, which Mark plans to keep and fly for quite some time. And yes, he’ll still let Ken fly it from time to time, as well! 