SOMETHING OLD

NEW BORROWED BLUE

A FAMILY-BUILT CUB OF A DIFFERENT COLOR

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photography by bonnie bartel


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When I first saw Alan and Dan Eke's Cub decked out in its dress blues I thought, "This is a good looking L-bird; why is it in the homebuilt area?" To quiet my curiosity I scoured the EAA AirVenture Oshkosh 2005 grounds for the owners because my list of questions was growing longer in my mind. When I caught up to the father and son team, my questions had to wait until we finished an airplane rendition of Abbott and Costello's baseball skit, "Who's on First?"

"That sure is a nice looking Cub you have there," I said.

"Why thank you," replied Alan, "But it's not a Cub. Cubs are yellow."

"I'm sorry," I said. "I meant to say it's a beautiful restoration of an L-Bird."

"Nah, it's not a restoration, and it's not an L-Bird either," Alan said, "but it sure does look like a Navy NE-1, doesn't it?"

"Well, then it must be a replica, right?" I asked, hoping I nailed down the answer.

"No, it's not really a replica. I just like the color blue," added son Dan.

As my hand slowly slid down my forehead, pressing my eyes shut, the confusion that whelmed within me was overwhelming. It was time for an easy question.

"What's it fly like, guys?" I asked, forcing a smile. For a second I thought I had them as a note of concern and seriousness flashed across their faces. They looked at one another, shrugged their shoulders, slowly turned toward me, and said, "Well, what else would it fly like? It flies like a Cub!"

Game, set, and match.

While our first conversation may have been a comedy of errors, everything about the Ekes' airplane was well thought out and prepared like an old-fashioned recipe, because building an airplane—especially on a budget—is a lot like baking a cake. Just follow the directions, add some secret ingredients, and enjoy the results. Both father and son turned out to be part fry cook, part master chef as they transformed their hangar at the Anoka County-Blaine Airport, in Blaine, Minnesota, into a large mixing bowl.

To a scoop of frugalness and a cup of sweat equity, the Ekes' added a dash of ingenuity. Following a set of plans they combined a measure of bent tubing, a roll of fabric, and a heaping helping of blue paint. Mixing well and baking slowly for 30 years, they removed their dessert from the hangar and congratulated each other on a job well done. This recipe for success dates back to the late 1940s, when a young Alan Eke learned how to taxi a Cub around the family farm.

"When I was in high school, I bought a 40-hp engine that was attached to a broken and bent J-3 Cub fuselage," said Alan. After straightening the frame and patching the holes, on wheels and skis Alan zoomed around the farm in his wingless Cub. After a few years giving rides in the Cub he sold the engine for $70, which paid for a semester of college in upper Wisconsin.

Concentrating on his studies, Alan put his dream of flying on hold as he built his life as an engineer and industrial arts education teacher. Alan jumped back into aviation in the early 1960s when he bought a Piper Cub with wings. It had to be a Cub because "it's the only kind of airplane to fly." On his list of life's priorities, however, learning to fly it followed the upbringing of his five children. His patience equaled the strength of his passion to become a pilot, and he smiles with tongue in cheek, "it only took me 26 years to get my license!"

Making an annual pilgrimage to EAA Oshkosh every summer since 1970 scratched his aviation itch, and

in 1975 Alan scratched a bit harder: he purchased a set of Wag-Aero Cub plans for $65. Like most builders, he had high hopes of flying the project soon. "Soon" just took a little longer than expected!

"I thought about buying a down and out Cub to restore, but even one of those was out of my price range," said Alan. With a fixed budget and a resolve not to take food off the family table, Alan became a home-building bloodhound, sniffing out perfectly good, inexpensive airplane parts. In pursuing his frugalness he found, still in the box, a brand-new stainless steel exhaust system that set him back $100. Barter is a key ingredient in frugality, and Alan traded a rusted out Model A Ford worth $50 for several buckets of engine parts and a logbook. Alan soon turned the parts back into a 65-hp Continental engine, which had 1,000 hours on it. "I had the engine majored, replacing the rings and valves and painted it up to look brand new."

Never wavering from his efforts to economize, Alan always remembered it was a hobby, and that the more time it takes to build, the cheaper it gets, "as long as you're willing to wait for the ultimate bargain," he added with a smile. During the process of hunting, gathering, and collecting

The team added lots of glass to go with the Navy color and look. Note the rings on top of the wings (right), which will be used to hoist the airplane off its wheels for float installation.

Without meaning to, Alan Eke, left, infected his son Dan with the aviation bug.

With a maximum gross weight of 1,320 pounds, the Cub is perfect for sport pilots, and now that the Cub is flying, earning his sport pilot certificate is next on Dan's agenda.

airplane parts, without realizing what he was doing Alan infected one of his sons with the incurable disease he suffered from—the "flying bug."

Most children learn their habits—good and bad—from their parents, and Dan Eke is a shining example of a second-generation airplane nut! "I've always loved airplanes since my dad owned a Cub back in the 1960s," said Dan. "But the greatest joy and satisfaction for me is the building part of it, especially with my dad."

Just like his father, Dan, too, became a manufacturing engineer and soon turned his skills toward airplane building. In the early 1990s, father and son entered into a formal partnership to build an airplane they both could fly for the pure enjoyment of it, and they agreed that keeping it inexpensive was a major ingredient of their fun.

Like his father, Dan had learned that the three ingredients in learning how to fly were time, money, and more money. Running out of all three, especially the last one, Dan sold his Cherokee 140 just after he soloed it and plowed his remaining money into the Cub. Dan focused his full attention on building the Cub, and he and his father dove into the project shoulder to shoulder.

Starting with the fuselage, they used the bottom third from a wrecked J-3 Cub, bought a bunch of tubing, and "just went at it," Dan said. Using the Wag Aero plans as a guide, they manufactured their brackets and fittings, and they made improvements along the way. They also added a member to their team, Dave Anderson.

"I taught Dave how to weld 50 years ago," Alan said. "He was one of my students during my first year of teaching, so I thought it was his turn to teach me something."

Because Minnesota has a "few lakes," they beefed up the fuselage structure to handle a larger powerplant in anticipation of future float flying. On top of the fuselage are hoist rings that will make it easier to lift the Cub and change its feet.

An additional requirement from Alan and Dan was to solo from the front seat, and they did not want any overhead visibility restrictions. They factored these modifications into the project as bent metal tubing began to resemble an airplane.

Alan and Dan agree on one thing: Their creation flies like a Cub.

As things slowly took shape, a usually patient Alan wanted the project to move along faster. "I was pretty much retired from teaching, so I was finally able to get my private pilot's license—and I wanted my own plane to fly!" Alan's wish for more progress was answered by two airport bums, "fellow retired teachers who were working on other airplane projects before they jumped into mine," said Alan. Jim Berg, a retired French teacher, and Gene Schweitz, a retired physics teacher, reported to work every Thursday. From time to time Dan Berndt, a retired FAA inspector, joined them to help with engine work and inspections. With the team in place, the wings were next.

Drawing on his engineering background and experience as a college industrial arts teacher, Alan used a computer CAD system to draw wing ribs, which consisted of the main rib, nose rib, trailing edge rib, and tip rib. Renting time on a hydroforming machine at a shop owned by a friend of the family, Dan and Alan pressed laser cut pieces of aluminum over their forms, creating a beautiful finished product. Since they were all set up, they didn't stop after finishing their ribs. Some friends were also building Cubs, so the Ekes pounded out enough ribs to complete three airplanes—all in two hours! When shopping the catalogues for a rib, owners of a Piper-built Cub can expect to pay $60 and $80 apiece. Innovative homebuilders, the Ekes built theirs for $9.50 a copy.

So the airplane would fit in their hangar, the Ekes cut the wingspan to 33 feet, which gives them a whopping 1-foot clearance from the hangar walls. Creating a mini clipped wing Cub brought an unintended benefit because it called for the wing struts to be shortened by 1 foot. This allowed the builders to cut 12 inches off the ends of the used struts the Ekes had stumbled across and bought for a song. Finding—and being able to use—the used struts saved the project an additional $1,400 over the price of buying a new set.

When new, a 1943 J-3 Cub had wood spars, but with the fuselage modification and other changes, the Ekes used metal spars. The wing spars attach at the outer edge of the fuselage, giving the plane more of a Super Cub profile, and each wing holds an 18-gallon fuel tank, which replace the fuselage tank. All told, these design changes added nearly 50 pounds to the plane's total weight. "The fuel system by far was the most complicated item on the project," said Alan. "I designed them from scratch and they are tapered to the lowest point in the center. Both had to be absolutely perfect to avoid air bubbles in the plumbing. Something you don't want to encounter when you're flying."

As the project neared the covering stage, a "small family issue" soon arose. For the most part, father and son had worked well together—until they butted heads over the airplane's color. Father's favorite airplane has always been Piper J-3 Cub. Son Dan, knowing full well that Cubs were usu-

ally yellow, held up his veto card and lobbied for his favorite color—blue. Combing the colors and going green didn't generate any lift, so they negotiated a pseudo-blue paint scheme for a NE-1, the U.S. Navy designation for the army L-4 Cub.

Both Alan and Dan thought tooling around in a look-alike warbird would be pretty cool. Trouble was, the NE-1/L-4 has a lot of glass where the civilian J-3 version they built has a lot of fabric covering. To make the warbird look work they needed to build a glass greenhouse—and Dan wasn't budging on the color. So they tore into the fuselage and reconfigured it with glass. Alan tolerated the color and said with a smile, "What a father won't sacrifice for his child!"

With the Cub rigged and ready for cover, the Ekes chose Ceconite and dope. Because it was his color, Dan was chosen as the painter, and the results are stunning. Roughly $400 of stencils and decals finished off the project, making the Cub look combat ready. When it rolled out of the hangar in 2003, the Cub's final price tag was well under $10,000.

Construction cost wasn't the Ekes' only goal. With a maximum gross weight of 1,320 pounds, the Cub is perfect for sport pilots, and now that the Cub is flying, earning his sport pilot certificate is next on Dan's agenda. Before that could be accomplished though, Dave Anderson test flew the Cub for the first 25 hours. The Cub was absolutely flawless and flew hands off with no adjustments.

"All I can figure out," said Alan jokingly, "is that all the twists and bends on the left side are counter balanced with the ones we put in on the right side!" With the minimum required hours flown off, it was now Alan's turn to jump back into the saddle. To knock the years of rust off, Alan received some much-needed tailwheel instruction from 24-year-old flight instructor Sara Borg. I'll do the quick math for you. Sara was only 10 years old when the Ekes first laid hands on their project. Remember—a watched pot never boils! And what is Alan's thought about flying his own airplane?

"I haven't flown with the door shut yet," said Alan.

So how does their Cub fly, you ask? Well, you see, it's not a Cub...Cubs are yellow. And…oh, the heck with it—it flies like a Cub!

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Q: How often should the oil be changed in aircraft turbine engines?

Paul Royko
Shell Aviation Guru

As with a majority of these questions, the answer is clearly spelled out by the engine manufacturer in the aircraft or engine maintenance manual. For many gas turbine engines, there is no set oil change interval related to hours of operation or calendar months. This is because the oil in the system changes over via top-up through normal consumption within a reasonable number of hours. However, for some engines, particularly smaller gas turbine engines, the manufacturer does recommend regular oil changes. Therefore, operators should always adhere to the manufacturer's recommendations for the specific model of engine they use.

In addition, consider the conditions in which the engine is utilized. In environments that are considered harsh, such as offshore helicopter operations where there is generally salt and high humidity in the atmosphere, or in sandy and dusty areas or regions subject to extreme temperatures, regular oil changes can be very beneficial because they help remove contaminants from the engine.

Finally, when it is time to change your oil, be sure to use the right grade turbine oil approved for your engine. AeroShell® Turbine Oil 500 is approved against MIL-PRF-23699 Grade STD, and AeroShell® Turbine Oil 560 is approved against MIL-PRF-23699 Grade HTS. Many helicopter operators use AeroShell® Turbine Oil 555 in transmission and gearbox systems. This product was developed for, and is approved against, U.S. Military Specification DOD-L-85734. If you're confused about which turbine oil is right for you, visit www.Aeroshell.com.

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