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J-3 ElectriCub

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I am sure that back in 1931 when William T. Piper bought out the bankrupt Taylor Brothers Aircraft Company for $ 761.00, he did not think his airplane would have touched the hearts of so many people in the modeling community for so long. Yet, its boxy shape, giant wings and honest, un-assuming flight characteristics has done just that for the last 70+ years.

The J-3 cub went through many changes to evolve to where it is today. Engine horsepower was increased, electrical systems were added, wings were “clipped” for more aerobatic rolls and costs increased. In 1938, you could own your own cub for $1300.00 dollars. Today, a Giant Scale J-3 *model* could cost twice that to put into the air.

Both the full-size Cub and its many large and small modeling versions share the original airplane’s easy flight capabilities and majestic appearance as they carve a stately path through the sky.

Smaller J-3 Cub models fly just as well as their larger cousins, not always true of some model aircraft. However, small engines can be more difficult to properly tune and keep running. This factor has always limited the popularity of Cubs with wingspans under ~45 inches. But With today’s boon of electric power, everyone should have a small J-3 Cub in their fleet. At 41 inches, the ElectriFly J-3 sport-scale ElectriCub is a good example of modern Cubs that can be flown anywhere by anyone.

Photo 1

Let’s start with the box, which was nicely packed. Upon opening, you are greeted with that famous cub-yellow wing. I continued to go thru the box checking things out. The only item that was damaged was the cowl, more on this later. I had misplaced the manual since I was reading it long before I unpacked the entire kit. Always try to return the instruction manual back into the kit

until it is time to build the airplane. Fortunately, ElectriFly understands that we modelers can't resist reading about our new airplane long before we start building it. So they make all their instruction manuals available on-line at no cost and that is where I got my replacement instructions.

This Cub has a 41-inch wingspan with 269 sq inches of wing area. It is powered by an included T-280 size motor with a 3.5:1 gearbox energized by a 9.6 volt- 650mah NIMH battery pack. The supplied propeller is a 10 in. x 7 in. electric style.

Now let's move on to the building. I was impressed that there were no wrinkles in the plastic covering which, on this airplane, is Super Monokote. The ARF wooden wing's construction is straightforward. I used some of Bob Smiths epoxy and CAA for the construction. First, glue the dihedral brace together and let it dry. It took a small amount of sanding to get a good fit with the dihedral brace and the wing halves. Always test fit wing braces into both wing halves before applying the glue.

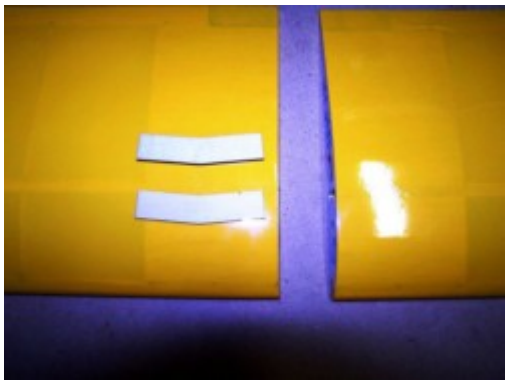

Photo 2 Photo 3

With one-half of the wing on a flat table, a block was used to set the dihedral at 3 ¾ inches from table top to the bottom of the raised wing tip. Once happy with the fit, I mixed up some 15-minute epoxy, put some on the brace, and more into each slot in the wing and on the roots of each wing halve. With this all slid together, some tape was placed on the leading and trailing edge to hold them in place until the epoxy cured (photo 3). I wiped off any excess epoxy and cleaned the residue with some alcohol on a paper towel.

Photo 4

Okay, while all this was drying I did a little repair work on the cowl. It had arrived with a few cracks from shipping damage. ElectriFly would have been happy to provide a replacement cowl at no charge, but I was eager to get the small Cub into the air. So I matched the cracks up and placed clear tape on the inside to cover the cracks and to provide a larger gluing area for the CAA adhesive.

I then took some medium CAA on my finger (wear a thin rubber glove for this and protect your eyes while providing good ventilation), rubbed it over the tape and surrounding area inside the

cowling and then sprayed it with CAA accelerator to stiffen it up. Photo 4 shows that this minor repair is invisible from the exterior. Never apply the adhesive to the outside surface when performing such a repair.

The landing gear was very easy to make and install. Make sure you have a good sharp #11 hobby knife blade to make the cut outs in the covering material for the wing dowels and the battery door cooling holes. The holes themselves are already cut but the covering must be removed over each hole.

The elevator is already hinged to the horizontal stabilizer, as is the rudder to the vertical fin. The hinging material appears to be clear Super Monokote. Both surfaces have more than enough movement.

Next, Mark the center of the Leading Edge of the horizontal stabilizer and align it with centerline of fuselage. Match up the rear notch on the stabilizer to the centerline of the fuselage and hold it in place with a T pin. Following the instructions will walk you thru the proper way to do the alignment. Make sure the stabilizer is parallel to the wing.

Once you are happy with the alignment, use a felt tip marker to draw on the bottom of the stabilizer and along the fuselage to show where to cut away the covering.

BE CAREFUL NOT TO CUT THE BALSA WHILE REMOVING THE MONOKOTE.

The best way to remove the covering without damaging the wood is to use the Great Plane's "Hot Knife" to melt the covering without scoring the soft balsa wood. The Hot Knife is really a soldering iron with a hobby razor knife blade in place of the standard soldering tip. The heat "cuts" the covering but doesn't damage the wood. In this application only, a dull knife blade works best.

Once this is done, put the wing in place and do a dry fit to make sure the wing and stabilizer are in the same horizontal plane. You can sand the fuselage where the stabilizer sits or make a small shim if needed to reach the proper alignment. No adjustment was required on this Cub.

I mixed up some 30-minute epoxy and realigned the stabilizer and wing making sure they were perfect, and then glue everything in place. Next, mount the vertical stabilizer and rudder making sure the vertical fin is 90 degrees to the horizontal stabilizer and pointed straight down the centerline of the fuselage. I used some thin CAA to tack it in place. After rechecking the alignments, I used medium CAA to complete the job.

Photo 5 Photo 6

I noticed that the pushrod exits were at the same location on both sides of the fuselage. Since I wanted a more sensitive control response than is normal with this type of aircraft, the bends to get to the inside holes of each control horn were more than the supplied pushrod wires were designed for. The supplied control horns seemed larger and stronger than needed anyway. So a quick trip to the local hobby shop netted me some smaller wire which allowed for tighter bends and less tail weight.

The new wire had a Z bend made on one end and the control horn was placed on the wire and slid into the pushrod tubes. The horn was secured to the surface with the supplied hardware. The servo tray was put in place and you can use this to help with the CG by moving it fore and aft. Once glued in place some minor bending of the wire was needed to line up with the Hitec HS55 servo.

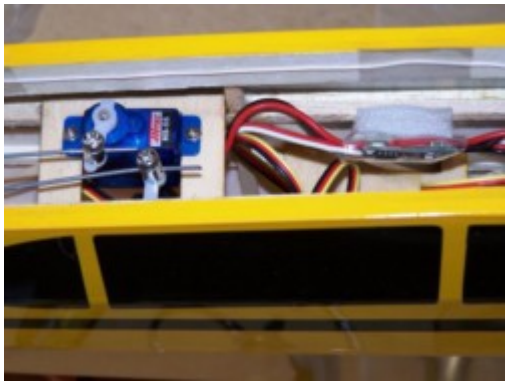

Photo 7 Photo 8

Next, the supplied 280 motor is secured to the installed mount with nylon tie wraps and the supplied fuel tubing. The cowl was secured to the airplane with some clear magic tape (photo 9). Since small electric aircraft have no vibration and no fuel residue, the clear tape works just as well as screw mounts and is lighter and works faster when cowl removal becomes necessary.

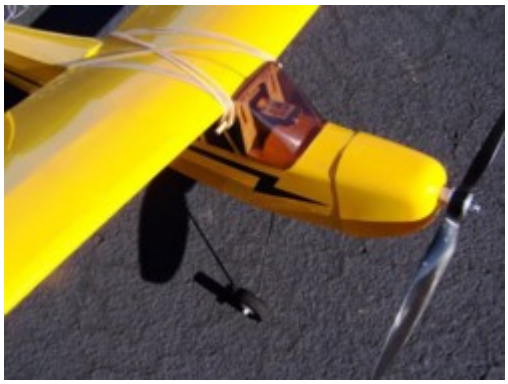

Photo 9

I used two Hitec HS55 servos, the supplied speed controller with Battery Eliminator Circuitry (BEC), and an 8-cell, 9.6V 600mAh Nickel Metal Hydride (Ni-MH) battery pack. I used the Castle Creations BERG 4 receiver for guidance, which I mounted up on the dash area so it could be seen.

Photo 10

The NIMH battery pack is placed in the bottom of the airplane thru a hatch and secured in place with hook and loop fastener strips. The hatch cover also uses hook and loop fasteners to keep it in place.

I did **NOT** use the optional wing struts at this time and found no problems while flying. The wing struts look great and add scale appeal. But they also add some extra weight and drag. The ElectriFly Cub would have easily handled the extra weight, but I was looking for as much performance as possible. The extra weight adds looks but detracts from flight times. The choice is yours. The struts are very easy to install if you want them.

The recommended control surface throws should be followed if this is your first sport aircraft. Set the Center of Gravity (CG) as directed prior to flying no matter how many aircraft you have already flown. I had to add about 1 oz of lead to the motor mount to bring the CG in range. Some of this nose weight was caused by the ultra-light weight Berg receiver and I should have moved the servo tray further forward. My Cub's all up flying weight is 17.4 oz.

This equates to a 9.3 ounce per square foot wing loading. Like most sport "Park Flyers" this wing loading is in the "glider" range. But it is also very light for a scale airplane and gives the Cub gentle flight performance and good climbs followed by very slow landings. There is no problem flying this airplane in just about any open area.

At the local club field a radio range check was done. After a run up of the motor, it was time for the first take-off. I decided to do a rise off ground (ROG) take-off. The first two take-offs were a bit of a challenge until I got the control throws right (I had made them too sensitive and wound up

close to the factory recommended control surface movements in the end.) The airspeed was good. With the light breeze, the airplane reacted very well. The landings where slow and the plane tracked well on approach. I flew it several more times and was very pleased with this Cub. I would recommend it for those lazy afternoon flights in a local small field when a trip to the regular flying field is too much.

The ElectriFly Cub is also a great airplane to keep “in the trunk” for those times when you pass an open field and have a few minutes to spare from a busy workday. It is that relaxing and fun an airplane to fly. The ElectriFly J-3 Cub is also a super deal. It has a “street price” around $80.00 yet includes everything except the radio system and battery charger.

For more information on this small wonder, please go to: website

Specifications

Manufacturer: ElectriFly
Length: 29.5 in.
Cost: $80.00
Radio: Berg 4 Receiver
Servos: 2 x HiTec HS 55
Motor: 3.5:1 Geared T-280

Wingspan: 41 in.
Wing Area: 269 sq. in.
Wing Loading: 9.31 oz./sq. ft.
Weight: 17.4 oz.
Airfoil: Flat Bottomed

Special Airframe Features: Includes Geared Motor, Speed Controller, Battery and Propeller.

Notable Positives
Very easy to build
Extremely fast assembly
Scale Cub looks
Light flying weight
East to fly just about anywhere
Includes everything needed for $80.00

Notable Negatives
Needed nose weight