

BIG BIRD THE E.T.

By LARRY JOLLY . . . Are you tired of all those sleek looking, efficient flying, electric planes that you see so often? Are you a novice R/C pilot looking for an easy place to get started in electric powered flight? Are you looking for something quick to build and inexpensive too? Try a *Big Bird the E.T.*, it's so boxy, it's so cute, you'll love it!

• **Why *Big Bird*?** Well, the current rage in electric flight "SEAMS" to be enlarging free flight rubber powered models and powering them with an appropriate electric propulsion system. The reasoning behind this fad is that first and foremost, these free flight designs are extremely stable, and easy to build and fly. Secondly, gear driven electro-systems use large, scale like props and are perfectly suited to these lightweight structures.

After I saw a few of the designs that were being flown and/or published, I decided that I had to join the fun. There was, of course, an ulterior motive. As a child, I could never get those darn stick and tissue jobs completed before I would give up in despair and deliver the final crushing blow. I don't want to tell you how many of those things I wadded up like a soiled Kleenex, but there were quite a few. At last I would have my chance to get even with the designers of those awful kits that were never really intended to be finished and flown. I would have my revenge; I would successfully build a straight, stick fuselage.

But why *Big Bird*? I decided that my enlarged rubber model should be as easy to build as possible. Of course, this meant that "under camber" and multiple sized ribs were out. It followed that if I wasn't going to build a sophisticated wing, why should I ruin the character of the model by putting extra work in the empennage. No way . . . not me, a simple, uncomplicated, flat, horizontal and vertical stabilizer were in order. However, the model did have to have a stick fuselage. What a dilemma! What should I build?

While thumbing through an issue of *Model Builder* one day, I saw a picture of a Peck Polymer's "*Prairie Bird*". Perfectomundo!! That *Prairie Bird* had exactly the right shape, as a matter of fact, it had the right *everything* for my purpose. I dropped the magazine (*Reverently, we hope. wrf*) and ran to the hall closet. Years ago I had purchased a kit of the *Prairie Bird*, but (luckily) I had not taken the time to go through the strenuous effort of opening the box. This mild case



Somebody has obviously told Cherie Jolly that a *Big Bird* in the hand is worth two in the bush, we'll bet it was her daddy, Larry Jolly. Now, how can you resist building a *Big Bird*?

of indolence saved me from even more effort by relieving me from the arduous task of half building the model. It also saved me from the frustration of losing vital pieces while I thought about finishing it.

With the box in hand, I ripped off the end flap and spilled out the pieces. There they were, the *Prairie Bird* plans in all their boxy glory. I have to admit that *Big Bird* is not a total scale-up of the *Prairie Bird*, but if you were to stand back and close one eye and multiply the little one's dimensions by three, what you would get would remind you a lot of the *Big Bird*.

But why *Big Bird*? You know, even after explaining my reasons to this point, most of my friends kept asking me repeatedly, "But why *Big Birds*?" Well, here I'll give everybody the answer. I wanted to design a lightweight, scaled rubber job that would be easily recog-

nizable, have general appeal, that could be powered by any sport six-cell system, and above all else, be easy to build and have excellent flight performance.

I believe that *Big Bird* meets the stated criteria to a tee. We have built and flown three different versions: an 05, can-type electric motor with direct drive and a 7-4 wood prop; a geared 2.5 to 1 electric system using a 10-5 wood prop; and an .049 gas version using a 6-3 nylon prop. All three have exhibited the same great flight performance. Personally, I am partial to the gear driven model. To me there is nothing prettier than watching *Big Bird* circle down to a landing with that prop free wheeling.

By the way, several novices have flown our prototypes, hence the addition of *ET* to the name.

If you want to fly your *Big Bird* this weekend, we had better get going right now!!!



Big Bird the E.T. is a scaled up and modified Peck-Polymers *Prairie Bird* rubber powered model. Really shines as an electric trainer.



The Leisure Gear Motor is a perfect choice for the *Big Bird*. Removable ply motor mount plate makes motor installation a breeze.

Before you start construction, procure the following: (1) a set of *Big Bird* drawings from **Model Builder**; (2) the necessary balsa, spruce, and plywood; (3) a length of 3/32 wire; (4) a set of 1-1/2-inch wheels; (5) one roll of Monokote; (6) Hot Stuff or Zap; (7) sand paper and various modeling tools; (8) a building board 36 inches long that will take pins.

BUILDING THE FUSELAGE

This could be entitled, "Back to Square One." There is nothing hard about building a stick fuselage. This one is even easier than most because the sticks are 3/16 square. To begin construction, cover the plans with wax paper and select four 3/16 square balsa sticks of matched type (that is, equal hardness and bending qualities). Use those for the fuselage longerons.

Place two of the four pieces over the side view of the fuselage. Pin the longerons in place. Now cut the upright sticks and glue them in place. Cut and fit the 3/16 sheet balsa for the window outline, the nose reinforcement, and gussets; then glue them in place. Now, add the 3/32 x 3/16 truss members.

When you have completed the first fuselage side, lift it from the plans and construct another one just like it. I know common free flight practice is to build one fuselage side over the other one, and then split them apart. However, I find it easier to build using my

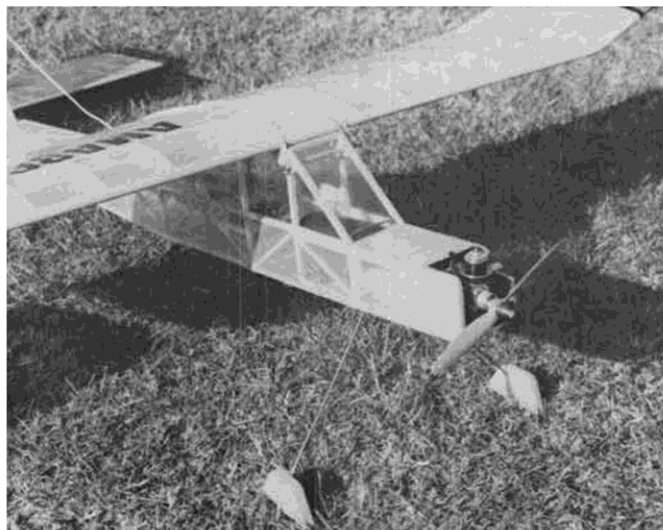
sequence.

When both fuselage sides are completed, pin them together and sand the edges with a sanding block. This ensures that both sides are the same.

Study the top view of the fuselage. Notice that the fuselage cross members are the same width from the nose to the rear wing dowel. What I did to make these was to put a stop on my saw and cut 20 or 30 identical cross sticks.

The next step is to pin the fuselage sides upright over the top view. This will help keep the fuselage square. Starting at the nose, glue in all of the cross members from the nose to behind the wing. When these are dry, unpin the front of the fuselage and rock the fuselage aft so that the rear of the fuselage now touches the plans. Bring the fuselage ends together and glue in place. Add the remaining cross members. When this is dry, remove the fuselage from the board and add the remaining 3/16-inch sheet.

Bend the landing gear as shown on the plans from 3/32 wire. Study the landing gear mount. It is made by cutting two identical plywood squares. Border one of the squares with 3/32 x 1/4 spruce as shown and glue the two squares together, trapping the landing gear between them. When the unit is complete, trim as shown so that you have access to the motor wires and such. Now glue the completed unit into the fuselage.



For you glow motor fans out there, we have a picture of the .049 version of the *Big Bird*. However, please don't call it "*Big Bird the E.T.*", rather, call it "*Big Bird the G.T.*"

The next thing we have to tackle is the motor mount. The first step is to add the 1/8 x 1/2 plywood pieces to the nose of the fuselage. Note that they mount on the sides, top to bottom. Now, add the horizontal 1/8 x 1/4 balsa pieces on the top and bottom of the front cross members to bring the nose flush again. Cut the 1/16 plywood motor mount to the shape shown on the plan. Use No. 2 wood screws to hold the mount in place. Add the remaining 1/8 x 1/4 balsa border around the mount. The fuselage construction is now complete.

BUILDING THE WING

Start the wing by cutting the ribs. You can either make a plywood template and cut each rib individually, or stack sand a set, it's up to you. If you build the tapered tip version, modify the tip ribs as shown on the drawing. Also note you must trim the three center ribs to accept the 1/16 center panel sheeting. This is easily accomplished by taking 1/8 inch off the bottom of the three ribs.

Start the wing construction by building the tip panels. Simply pin the bottom spar in position along with the leading edge and the trailing edge. Add the ribs and the top spar. Decide what sort of wing tips you want to use and glue them in place. Lift the completed tip panels from the board and prepare the dihedral joint for joining to the main panel. Pin the tip panels in position on the plan, elevated to the proper dihedral angle, and construct the main panel directly to them. Don't forget the center sheet and the shear webs. Construct the dihedral braces as shown from hard balsa. The wing is now complete, except for sanding.

BUILDING THE TAIL SURFACES

The tail surfaces are super easy. Just make the outlines from 3/16 x 1/4 balsa and fill in the ribs. When the surfaces are complete, lift them off the board and round the edges. Don't try to sand an airfoil shape into the surfaces, it's not necessary.

FINISHING THE BIG BIRD

Finish sand the fuselage and tail surfaces to a smooth finish. Shape the leading edge of the wing as shown on the plan and finish sand the wing. Now cover the model; I use Monokote. Leave

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the bottom of the fuselage uncovered so that you can install the rudder and elevator pushrods. This has to be done after the tail surfaces are glued in place. You can use plastic for the windows, but I found that a far better method is to use clear Monokote. Suit yourself, but the Monokote is clear, fast, light, and it stays put.

When the tail surfaces are covered, hinge them. I use Rocket City hinge strip, again, suit yourself. When the tail surfaces are hinged, screw the control horns in position. Now remove the Monokote from the bottom of the tail surfaces and the top of the fuselage where they will glue in place. Make certain that the tail surfaces are square to the wing and then bond the empennage in place permanently.

INSTALLING THE EQUIPMENT

Mount the electric motor and prop in position in the nose of the aircraft. Also install the wheels . . . I used Ace 1-3/8-inch wheels. Install the servos in the positions shown on the plan, as well as the pushrods. Attach the pushrods to the fuselage framework along their length, it cuts down on pushrod bow. Install the rest of the equipment so that the *Big Bird* balances where shown on the plan. Shift things as necessary. When you have the proper balance, mount your remaining equipment permanently. Now cover the bottom of the fuselage.

Stand back and take a look. Is everything stuck on good and tight? Are there any loose ends? Check the structure for any warps. Operate the servos. Do the elevator and rudder move in the right direction? Do they have 3/8 inch control deflection each way? Does the motor turn the right direction when switched on? If all is A-OK, then put the radio on charge and trickle the motor battery. And you get some sleep. You look a little tired! (*No Larry, YOU look a little tired! wrf*)

FLYING BIG BIRD

Is this easy! If you're not up to it, get your grandmother to come test fly this thing for you. If you want, you can rise off ground (ROG), or hand launch your *Big Bird*. It's not very particular. Just head *Big Bird* into the prevailing wind and switch her on. You'll soon find out, "Why Big Bird?!"

She's as gentle and relaxing as they come. I once put the prototype into a circle, put the transmitter on the ground, and watched as *Big Bird* entered a thermal and climbed merrily away.

For those of you who prefer an .049 glow motor, I have that version on the drawings. Make sure that you fool-proof the model so that the nose doesn't rot off, and please try not to make too much noise! However, you'll soon find you have a very gentle sport model that's a real kick to thermal.

As for me, what's next with *Big Bird*? Well . . . I found this great 25 horsepower ultralight motor and some 1-1/2

by 1-1/2 spruce. Now, I wonder how I'm gonna hold the wing on? ●

BIG BIRD PARTS LIST

Balsa and Spruce

- 11 3/16 x 3/16 x 36 Balsa
- 6 3/32 x 3/16 x 36 Balsa
- 4 3/16 x 1/4 x 36 Balsa
- 1 1/8 x 1/8 x 30 Spruce
- 1 1/8 x 1/8 x 24 Spruce
- 2 1/8 x 1/4 x 30 Spruce
- 2 1/8 x 1/4 x 24 Spruce
- 1 1/4 x 3/8 x 30 Balsa
- 1 1/4 x 3/8 x 24 Balsa
- 1 1/4 x 1 x 30 Balsa tie stock
- 1 1/4 x 1 x 24 Balsa tie stock

Cut Parts

- 1 Main stack of ribs: 18 from 1/16 balsa, two from 1/8 balsa
- 4 1/8 x 5/8 x 5-1/2 Dihedral braces
- 12 1/16 Shear webs
- 1 3/16 x 7 Dowel
- 1 1/16 x 1-3/4 x 2 Ply motor mount
- 2 1/8 x 1/2 x 2-1/4 Plywood motor mount supports
- 2 1/8 x 2-1/8 x 2-3/4 Plywood landing gear mount
- 1 1/16 x 3/4 x 3 Plywood trailing edge reinforcement
- 1 3/32 x 1/4 x 9 Spruce landing gear mount spacer

Miscellaneous

- 2 1 x 1 x 9 Wing tips
- 1 1/16 x 3 x 12 Center sheet
- 1 3/16 x 3 x 12 Gussett stock
- 1 Landing gear of 3/32 wire.