

# R/C

# TLUSH MITE



By RANDY WRISLEY . . . Here's a 125% scaled version of a SAM approved Old Timer for electric powered R/C. It was designed for the Astro 020 and 035 motors, but with a little "beef up" is ideal for 05 power.

• Francis Tlush designed the *Mite* back in 1938. Used as a test bed for a small motor he had built, the model proved to be a better flier than Mr. Tlush expected. Shortly after it was completed, the *Mite*, and the engine, disappeared during a 54-minute flight!

My father Ernie turned me on to the *Mite*. He has built two of them for 1/2A Texaco. While not a skyrocket climber, the model glides very well, and thermals on the slightest bit of lift. You can get the original size plan from **Model Builder**, No. 479-O.T. (\$3.00). The version presented here is enlarged 25%. With 450 square inches of wing area, it is ideal for the Astro 02 belt drive electric system with a fifth cell added to the power pack. The 035 system will work too, and I suppose the 05 would fit, but it is much heavier than I intended.

I built my model from Sig four to six-



The author gives the *Mite* a gentle shove to get it airborne. Model will ROG as well.

pound, "very light" wood. I stripped all the stock from three sheets of Sig 5/32 x 3 balsa. My finished, but uncovered airframe, with the wheels, weighed in at seven ounces. Completed and covered, the *Mite* tips the scales at 23 ounces with the radio and motor batteries aboard.

The secret to good performance with the *Mite* and the 02 system is light weight. You could build yours from 3/16 stock, but remember, the heavier you build it, the lower the flight time; 'nuff said, lets build it!

## FUSELAGE

Build both sides over the plan, one on top of the other. The bottom longeron should be laminated at the front to achieve the required curve.

Once the sides are dry, separate them with a razor blade. Pin the sides upside down over the top view, and cement the cross pieces in place. Take care to get the structure square and straight.

Note that the diagonals used in the top and bottom are 1/16 x 5/32 balsa and are installed opposite to one another. Balsa and cemented in place on top of the fuselage.

I cut my firewall from 1/8 Lite-ply, and cemented it in place after cutting the holes for the 02 belt drive unit (see photo).

Bend the landing gear from 1/16 music wire. The front and rear legs are installed with a 1/8 x 1/4 spruce block, grooved and glued to the back of the firewall, and to a small piece of 1/8 Lite-ply added to the fuselage. Bind the legs together with copper wire and solder them together. The spreader bar is bent to shape and likewise soldered to the

front legs.

The wheels are made from a couple of 1/8 ply disks, drilled in the center for a 3/4-inch piece of 3/8 dowel.

The radio floor is cut from 1/32 ply. The one shown on the plan fits a Cannon receiver and three micro servos. You can make yours longer and/or deeper if you require it. Hold the floor in place with additional cross pieces cemented underneath the floor. Short lengths of 5/32 square balsa are cemented to the uprights to help transmit the load to the fuselage structure.

To complete the fuselage, install the 1/64 ply radio box sides to the inside of the fuselage. I ran my pushrods, or rather, 1/32 cable, through the fuselage before covering the fuselage.

## TAIL SURFACES

These are flat strip structures. Mine were 5/32 stock, selected for lightness. Follow the sizes indicated, and sand the completed surfaces before covering.

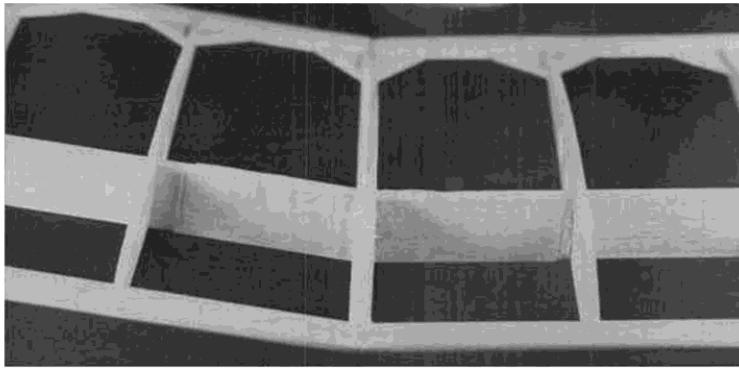
## WING

Begin construction by making a template for the rib, and cutting out 26 ribs. I used 3/32 balsa, cutting out three lightening holes in each.

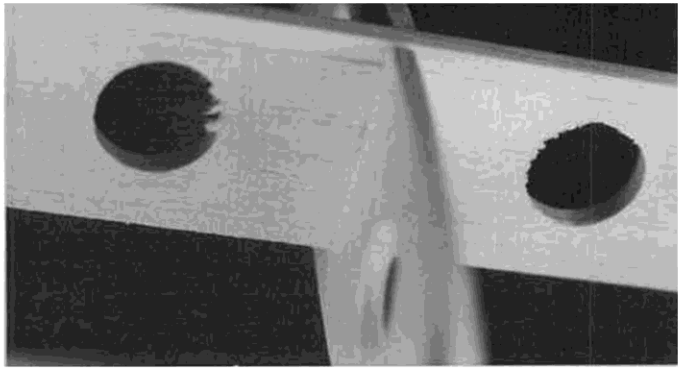
The spar is made from 1/8 x 3/4 hard balsa, with a 1/8 x 3/32 spruce cap top and bottom. Again, I punched two lightening holes in the balsa between the rib bays.

Pin the spar in place on the plan. Cement the ribs in except those at the center. Glue the 3/8 balsa leading edge on. The trailing edge is added last, followed by the 1/8 soft balsa gussets.

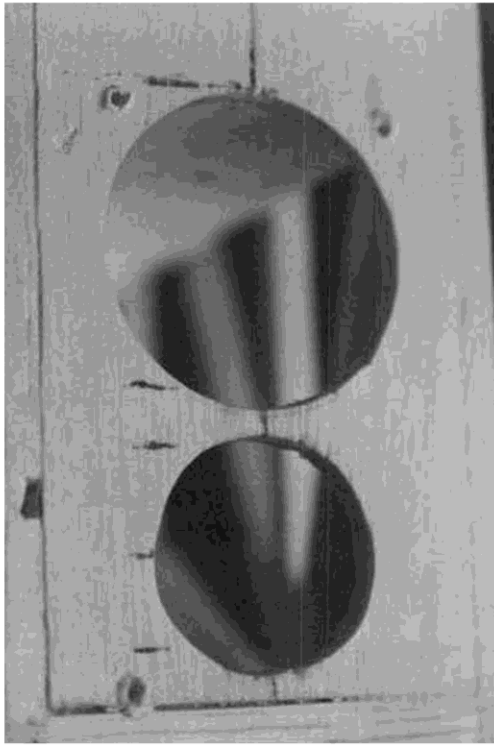
Once the wing panels are completed, raise one tip up 5-3/4 inches. Cut the 1/32 ply dihedral brace, and install it to



Dihedral bracing is made from 1/32 plywood.



The wing spar is capped with spruce top and bottom.



Firewall holes for belt drive Astro 020 & 035.

the front of the main spar. Sand the leading edge and trailing edge to shape, and add the soft balsa block wing tips.

I cheated in the center section and added a couple of 1/4 x 1/8 spruce subspars to the top of the ribs as shown to keep the wing hold down bands from damaging the covering.

#### COVERING

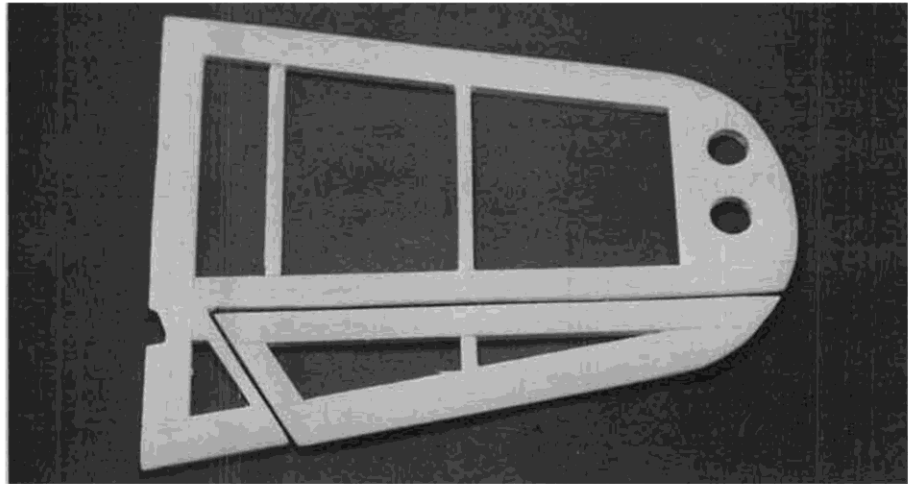
I used Japanese tissue to cover my *Mite*. Sig Lite Coat dope prevented any warping, so far. Don't use really heavy material, or you run the risk of being tail heavy.

#### ASSEMBLY

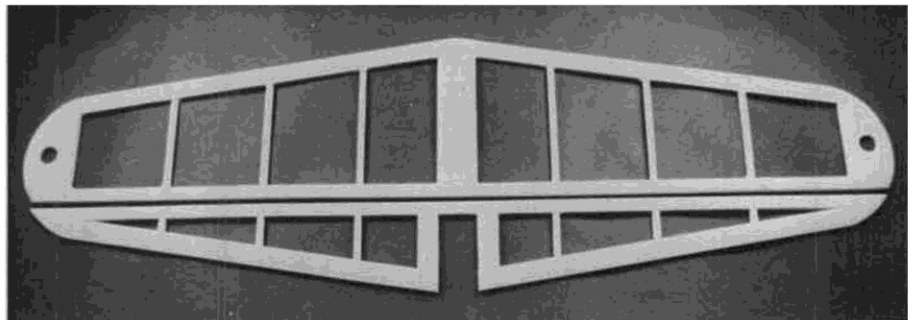
I split my motor battery up into two units, one of two cells, and the other of three cells. Place two cells on top of the motor, and three cells behind it. My 100 mah radio battery sits on top of the three motor cells.

Slip the receiver in next, wedging it in place with foam rubber. The Micro servos fit three abreast as far forward as possible. If you haven't already done so, cement the stab in place, followed by the rudder and sub-rudder.

*Continued on page 68*



Author found rudder response lethargic with small rudder (above). Use rudder on plans!



Vertical and horizontal stabilizers share identical outlines. Very simple structure.



The author's *Tlush Mite* won first place in Electric Old Timer at the 1984 IMS.

I used thread hinges for the control surfaces. My control horns were made from 1/32 ply, but the choice of materials is yours.

Once you get the wing dowels on, you can carve the cowl from a soft balsa block.

Now that your *Mite* is finished, it has to balance on the main spar. See, I told you to keep the tail light! (Mine did balance on the spar, WITHOUT ballast!)

#### **FLYING**

Do all your testing in calm weather. In fact, do all your *flying* in calm weather! The *Mite* is a real floater, and doesn't penetrate really well. Like her ancient sister, this model will grab a light thermal and give you long rewarding flights. Due to its light weight and slow speed, she makes a great school yard model too.

Proof of her abilities is a first place win in the only contest I have entered to date: the IMS static display, in Old Timer Electric!

Have fun, fly electric! ●