

SPACEWALKER

■ Laddie Mikulasko

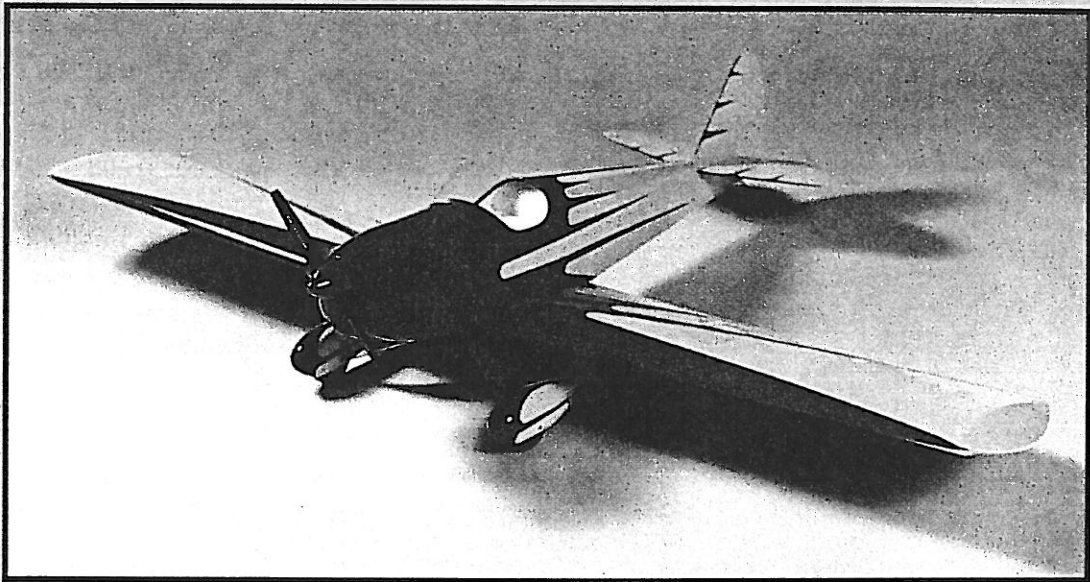
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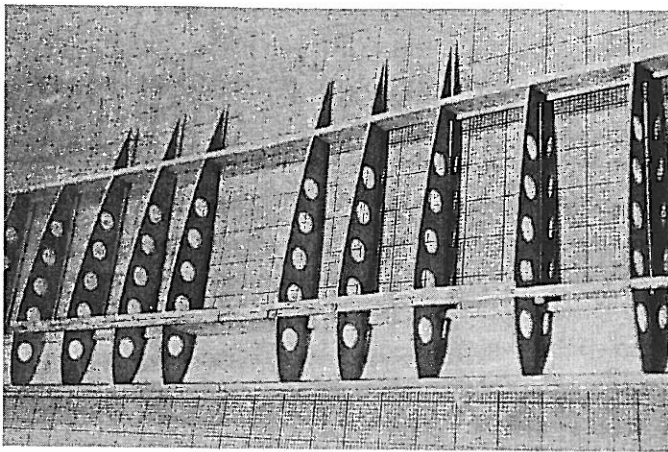
Since the early 1950s the Experimental Aircraft Association (EAA) has been a hotbed of home-built activity in the US. Many new designs have seen the light of day; each was the inspiration for someone else to come up with something better faster, slower, safer, or just different. The movement began with more-or-less conventional designs, but by the 1980s had progressed to slick, fast, composite designs.

In the midst of this composite revolution, Mr. Jesse Anglin designed and built an extremely good-looking aircraft. Using wood and steel tubing as the primary building materials, Mr. Anglin created the Spacewalker, which has become a popular choice in the home-building movement. In a few short years many have been built, and many more are in various stages of completion.

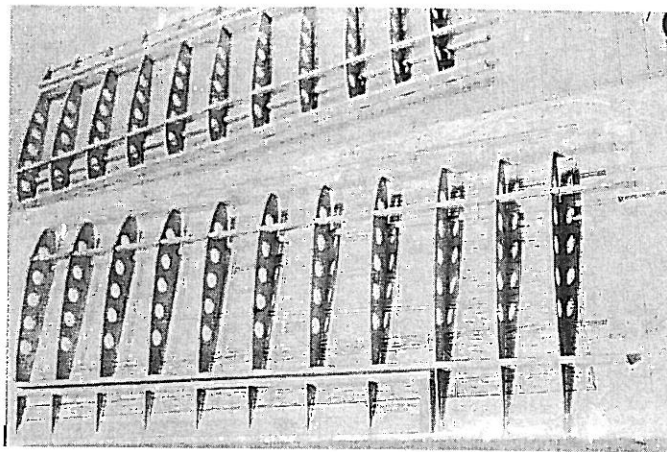
As soon as I saw a picture of the Spacewalker, I started to search for a good set of three-view drawings, so I could create and build my own Electric Scale model. Shortly after obtaining the three-views, plans were drawn, and within two weeks the model was built and test flown.

The model did not disappoint me: it flies as good as it looks. In the air it is stable, has good aerobatic capabilities and is highly visible with its colorful covering. I am very satisfied with this model and I am sure that you will be as well. It's sized just right for the geared Astro 15 motor.

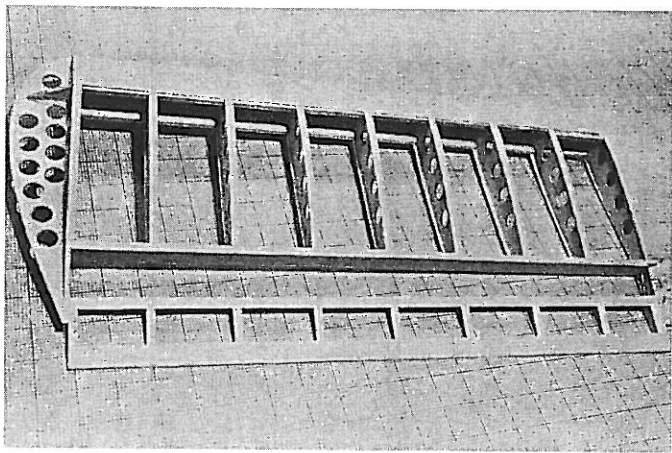




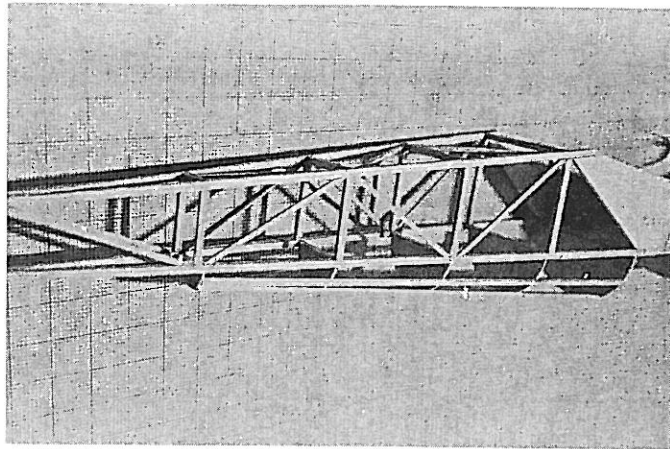
Wing halves are joined with dihedral braces and sub-spars. Lightening holes in wing ribs are optional.



Basic wing framework is built in separate panels. Sig Easy Hinges were used for the movable surfaces.



Completed wing has had sheeting, tips, and capstrips added, and is ready for drilling of bolt holes and covering.



Built-up balsa fuselage under construction. CyA glue was used on all joints.

CONSTRUCTION

Before you start building, study the plan; I tried to make the construction as simple as possible. Select the lightest balsa you can find. Cut out as many parts as possible to make a "kit." Cut out the tail surfaces and sand them to final shape. Cover the plan with clear plastic wrap. I used cyanoacrylate glue (CyA) for all joints.

Fuselage: Pin the balsa sides to the building board directly on top of the plan. Glue the longerons and uprights to it.

Glue in the doubler. Notice that the doubler has a vertical cut at former C, so the sides can be easily tapered. Build the other half of the fuselage the same way.

Stand the sides upright and then pin them to the building board directly on top of the plan.

Before you glue in the formers, cut a length of $\frac{1}{8}$ music wire and bend it to match the main landing gear pattern. Attach the gear to former B with strong thread. Put few drops of CyA on the thread.

Glue in the lower halves of formers A, C, and G. In the corners between A and B glue in $\frac{1}{4}$ -inch triangular stock for support.

At the rear, pull the fuselage sides together and glue in cross braces. Glue $\frac{1}{8}$ balsa sheeting over the opening between

formers A and B.

Flip the fuselage right side up, and add the top formers, longerons, cockpit floor, and top $\frac{1}{16}$ sheeting all the way to former H.

Before you glue the stabilizer to the fuselage, insert the U-shaped elevator

torque rod into the slot in the fuselage. Then insert and glue in the stabilizer, making certain that it is square with the fuselage. The fin and preshaped balsa blocks are added next.

Inside the fuselage, glue in hardwood blocks for the wing bolts, add the tail wheel assembly, and sand the fuselage to your satisfaction.

The cowl and wheel pants can be made in two ways: You can make a mold in two halves out of balsa blocks, then vacuum-form the parts from .030 acetate or vinyl plastic; or you can make the cowl out of very light balsa blocks and sheets, then sand it to shape.

To make this easier for you, the Easy Built Company, Box 1059, Beamsville, Ontario, Canada LOR 1B0 can provide these vacuum-formed parts to you at a low cost.

I used a Sonic-Tronics motor mount. To get the motor far enough forward, I glued a balsa block to the firewall, and then $\frac{1}{8}$ plywood to support the motor mount.

Wing: Build the wing in halves.

Pin the bottom main spar to the building board. Pin all W2, W3, and W4 ribs to the spar.

Spacewalker

Type: RC Electric Scale

Wingspan: 54 $\frac{1}{2}$ inches

Motor size/type: Geared Astro 15

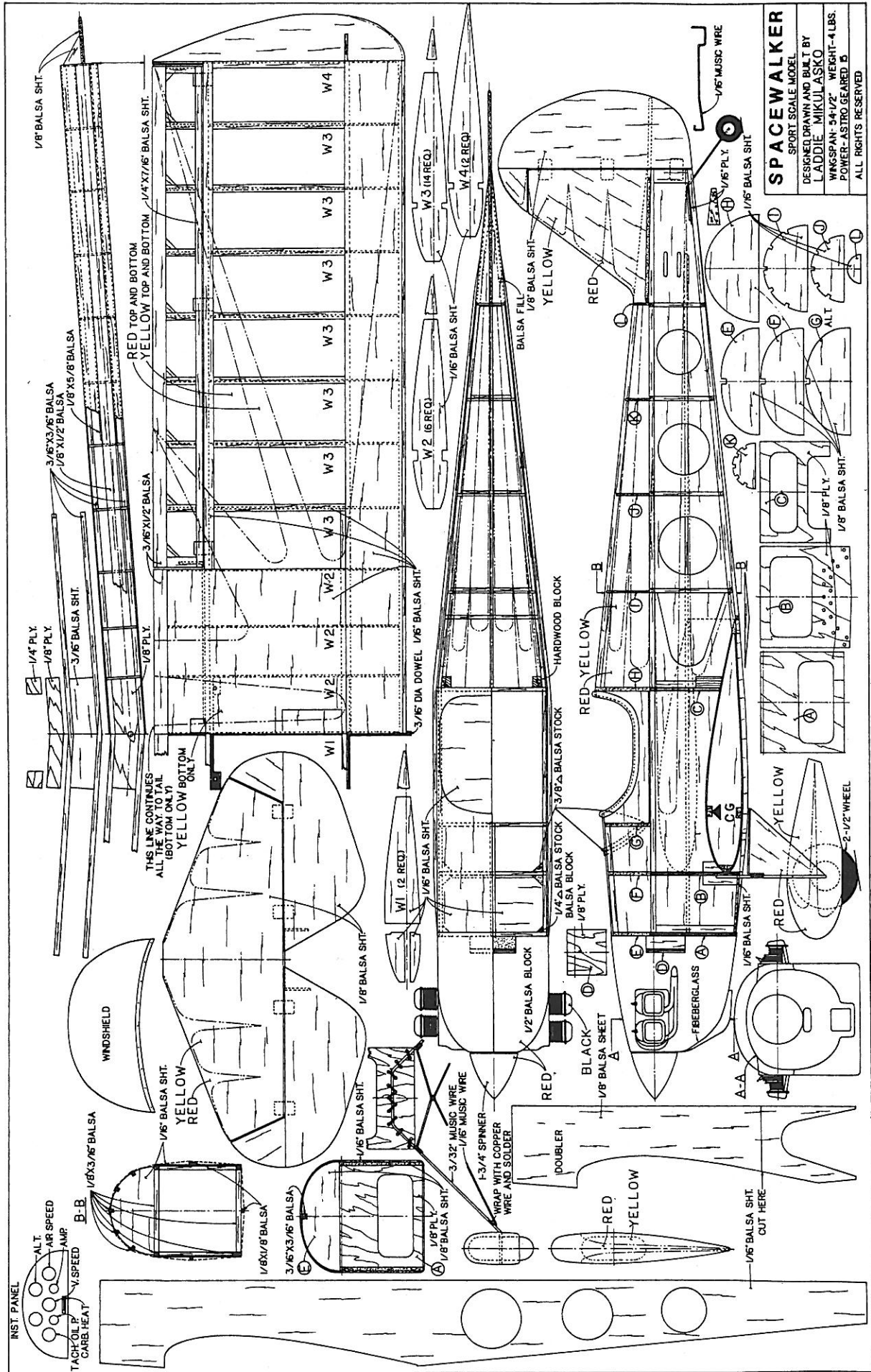
Number of channels: Four

Flying weight: 64 ounces

Construction: Built-up

Covering/finish: MonoKote

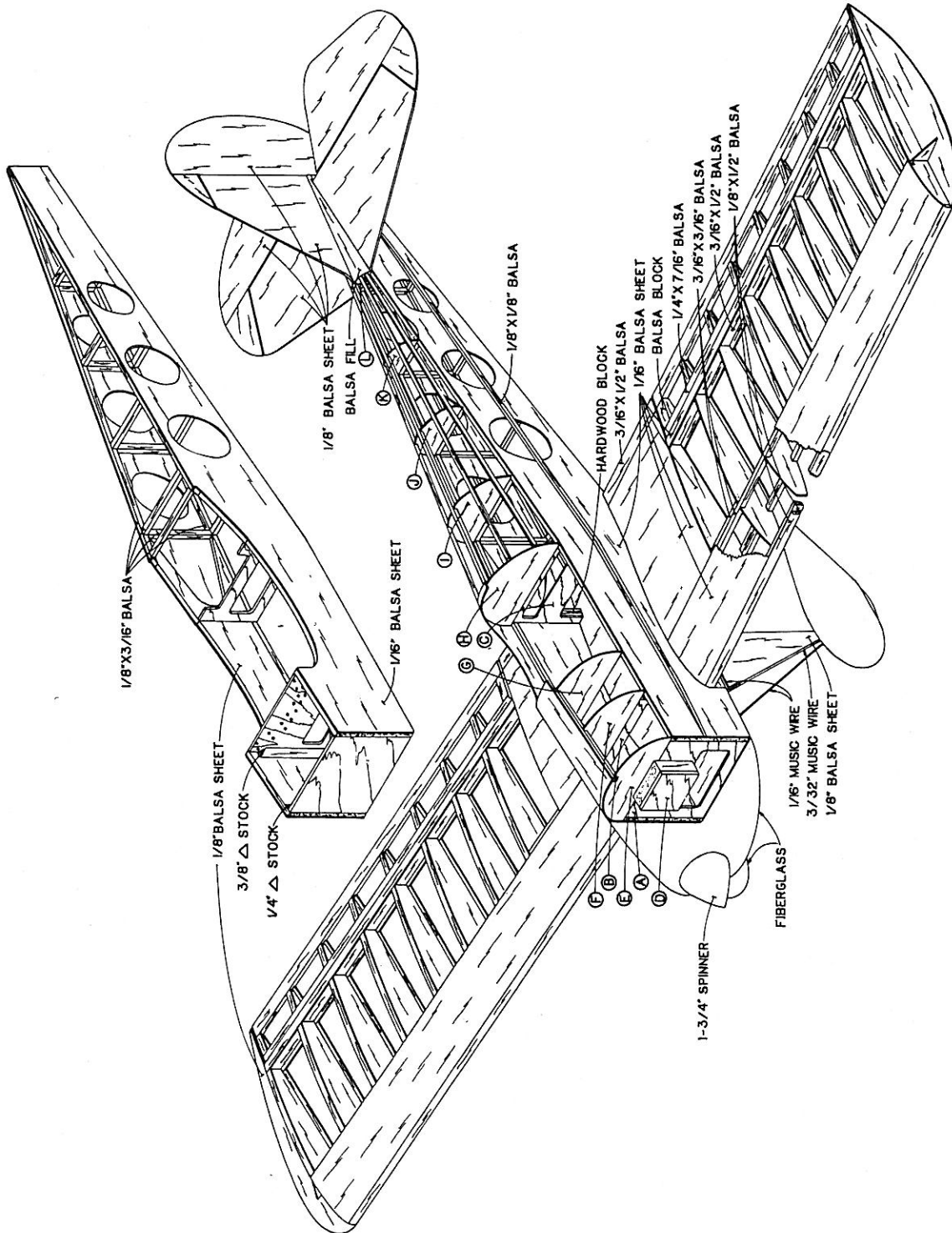
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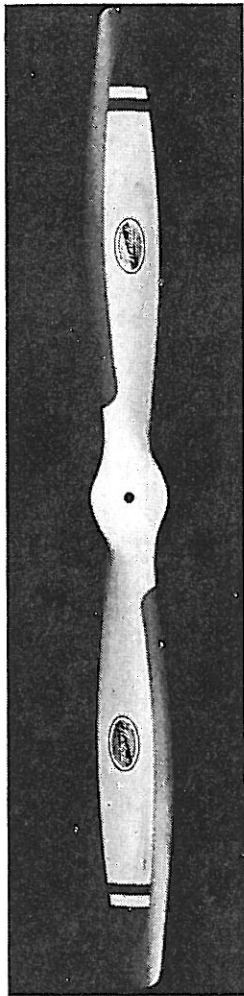
SPACE WALKER
 SPORT SCALE MODEL
 DESIGNED DRAWN AND BUILT BY
 LADDIE MIKULASKO
 WINGSPAN—54 1/2" WEIGHT—4 LBS.
 POWER—ASTRO GEARED D
 ALL RIGHTS RESERVED

SPACEWALKER

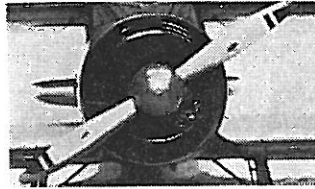
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Spacewalker/Mikulasko

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Place a 1/16 x 1/2 balsa strip under the ribs at the rear to give the rear spar support. Insert the top spar into the ribs, and pin the 3/16 x 1/2 rear spar to the ribs as well.

Glue all ribs to the spars, then glue on the 1/8 balsa leading edge strip, the top 1/16 leading edge sheeting, and individual sections of W1 rib.

Flip this half of the wing over and pin the spar to the building board. Again place a support under the rear spar and pin the wing to the building board.

Glue on the bottom 1/16 leading edge sheeting. Add cap strips to all W3 ribs.

Build the other half of the wing the same way.

Prop up the wingtips to the correct height to get the proper dihedral angle. Between the top and bottom main spars, glue in the 1/8 plywood dihedral brace. To the back of this brace, glue in a second 3/16 dihedral brace.

Now glue in the top rear sub-spar. Notice the angle at which it is cut, so the sub-spar from the other half of the wing will overlap it.

Glue in the aileron torque rods and add the top center wing sheeting and balsa blocks that support the wing bolts.

Flip the wing over and glue on the center-section sheeting. Attach the wingtips and build the ailerons. Place the wing into the fuselage saddle and check for alignment, then drill holes for the wing bolts.

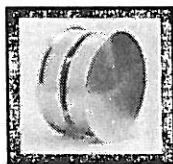
The model is now ready to be covered with your favorite material; I used MonoKote. If you are going to use the same color scheme that I did, follow these steps:

Cover the whole model with yellow. To do the trims, copy the design onto a sheet of white paper. From a roll of MonoKote, cut two identical sheets slightly larger than the trim design. Peel the clear backing from both of these sheets. Place one sheet on top of the other with the adhesive sides out, so they don't stick together while you are cutting them.



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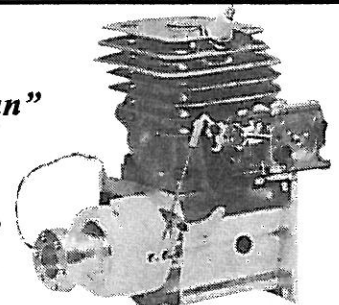


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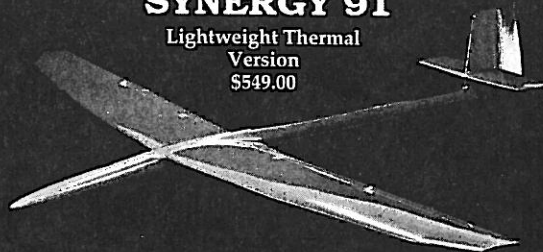




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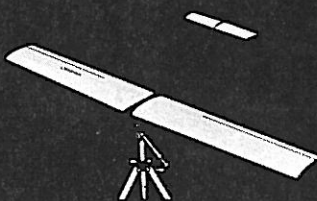
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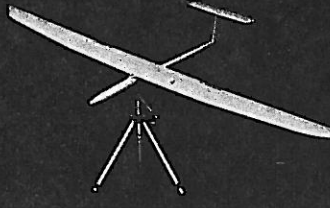
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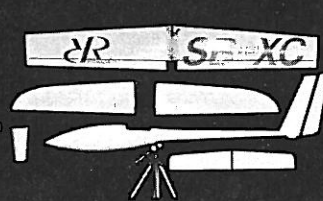
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Place the paper pattern with the design on top, and secure with masking tape to the cutting board. With a sharp knife, cut through the paper and into the plastic. First cut the radii freehand, then use a straightedge to cut the straight lines. When complete, you will have mirror images of the original trim design.

To prevent bubbles from forming under the trim sheets, you can puncture pinholes in the covering before you iron on the trims. To make certain the holes are under the trims only, place the trim in the proper location and mark the outline of the sunbursts with a soft felt tip pen. Remove the paper pattern and make as many holes as necessary.

Place the trims back in the proper location, and with the iron set to a slightly lower temperature, stick them to the covering. Once the covering has been completed, glue on the windshield.

Install the control horns and hinges (I used Sig's Easy Hinges). Install the radio and connect the servos to the movable surfaces. The rudder and elevator pushrods are 1/4 x 1/4 hard balsa.

Install the motor and batteries. The batteries are held to the sides of fuselage with Velcro. Check the balance point, and if not correct, reposition the batteries. Please don't add weight to balance an Electric aircraft!

Flying: Once all of the controls have been checked, taxi out and position the Spacewalker into the wind. The takeoff is straight forward. Do not attempt to yank it into the air; let the model pick up speed and it will take off by itself. The model can perform most aerobatic maneuvers.

If you would prefer to use a .15 to .19 glow engine, go right ahead. The model should fly even better, by virtue of the fact that the gas model would be much lighter. Good luck! →

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