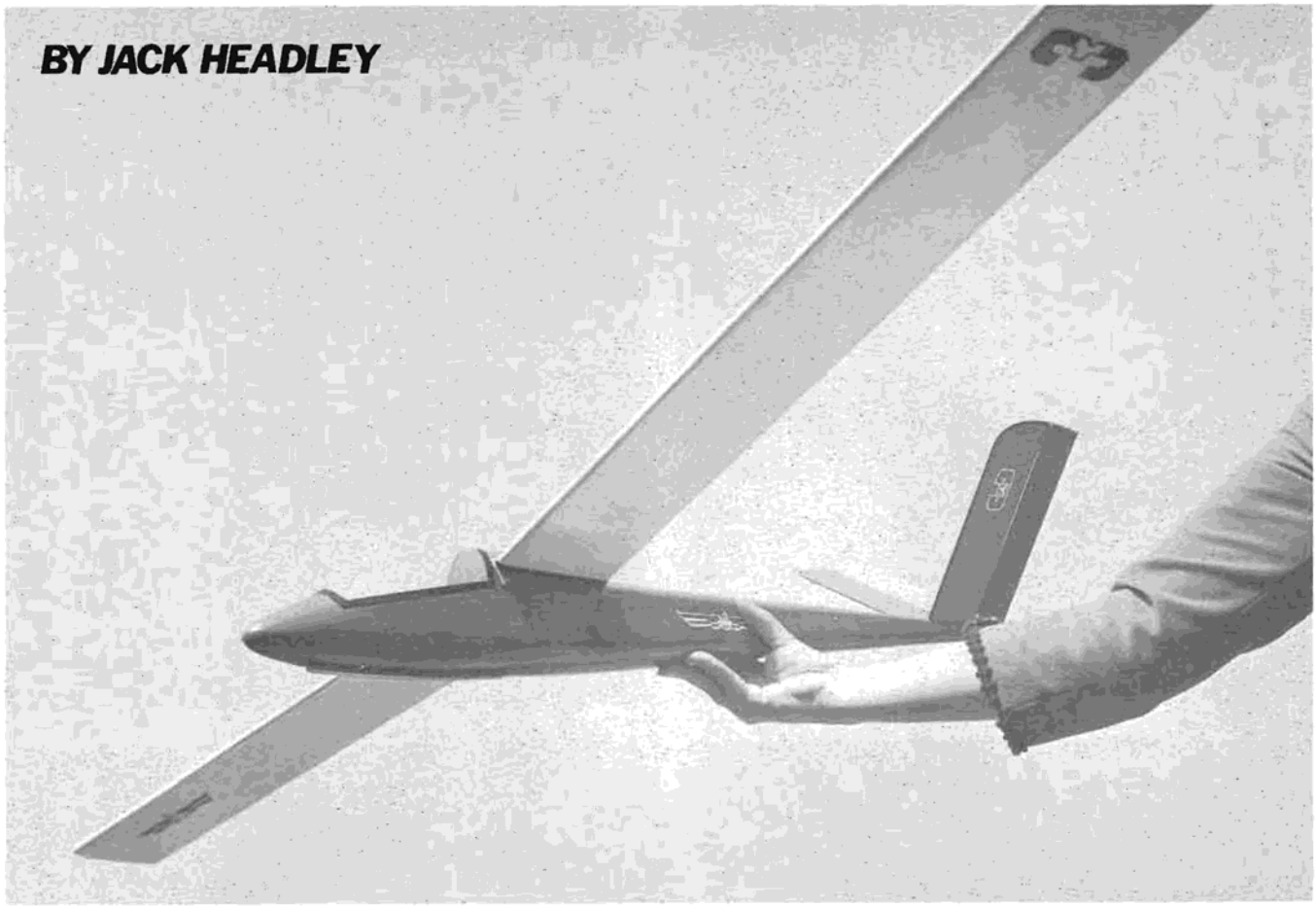
BY JACK HEADLEY



GYPSY

Single And Sexy.... A Scale Sailplane For Pulse Enthusiasts.

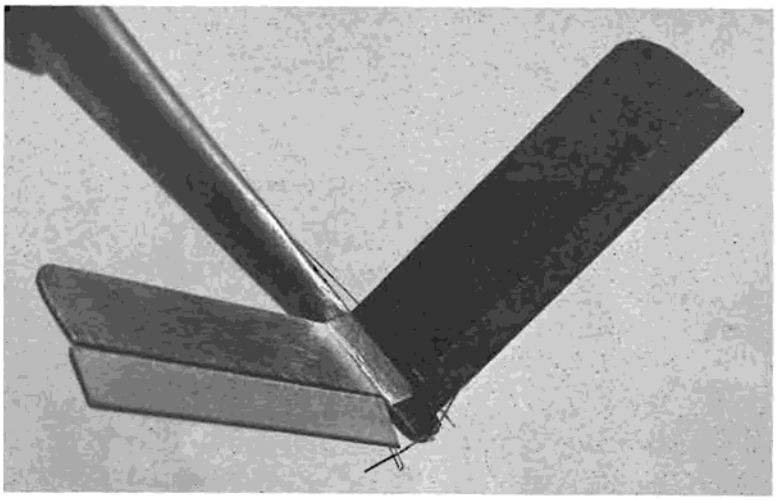
The builder of scale gliders is, unfortunately, poorly served by the publishing industry. Books containing detailed 3-view drawings of powered aircraft are quite common, but very little literature exists describing full scale gliders, and looking for a suitable subject for a scale model usually involves a haphazard search through old gliding magazines. About the only exception to this are the troop carrying gliders of World War II, which are quite well documented, but these were not too numerous, and it doesn't take too long to make models of most of these types. So it was a great pleasure to see a whole book devoted to sailplanes recently (British Gliders and Sailplanes, 1922-1970) and I immediately decided that a copy of this would make an ideal Christmas present for my spouse! For some inexplicable reason she was less than enthusiastic when receiving this, but by late February she had forgiven me, and I'm now permitted to glance at the volume now and again when the "new sailplane" urge becomes strong.

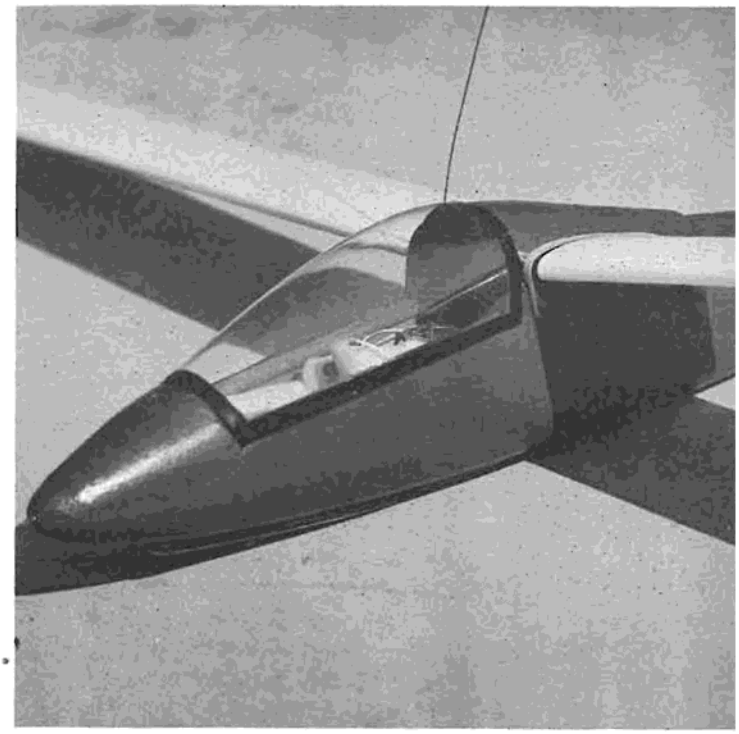
In one of my recent searches for a single channel subject, I discovered the "Gypsy" shown here. This is an interesting type as it's a full scale design built using modeling principles. The wings are built with a rigid foam core, which is then covered with a thin sheet of aluminum, bonded in place. Sounds familiar? The model, however, is built using the old-fashioned, all-balsa process. Details of the construction follow.

WINGS

The first thing to do here is to get hold of four sheets of good quality 1/16" x 4" balsa, not too heavy, but free from warps and twists. Select the two stiffest for the bottom surfaces, and cut these to the outline shown. Now cut a strip 1/8" wide from these, and also chamfer the back edge to almost a point. Make all the wing ribs and, after stacking them in a block, sand lightly so that they are all similarly shaped. The dihedral brace is also made now, and should be cut from hard ¼" balsa. That's just about all the balsa chopping, so dust off the plan, put a layer of wax paper over the wing drawing, and pin down the two bottom sheets of wood. Glue into place the 1/8" x 1/4" strips, and all of the wing ribs except those next to the dihedral brace. Cement the dihedral brace into one wing, after which the remaining ribs can be installed. The wing tip blocks are now cut, shaped, and cemented into place. The upper wing sheet is next glued to the wing that has the dihedral brace. Sand the 1/8" x 1/4" to the correct contour before adding the sheeting. When this assembly has dried it can be joined to the other wing. The remaining wing

Photo at right shows close-up view of Gypsy canopy and cabin area. Plenty of room for single channel rigs. V-tail linkage arrangement shown below - - - easy and effective.





ribs are now put in place. The root rib will probably require a little sanding before it can be fitted. Add the last wing sheet, and then sand all over. The 1/8" x 5/16" leading edge strip should be cemented on now, then sanded to shape. This completes the wing assembly for the moment.

TAIL

This is initially made flat and construction begins by cutting the outline shape from a light sheet of 1/8" balsa. Sand all of the edges round and then cut out the control surfaces. After also sanding these new edges round, the controls can be re-attached, sewn hinges being quite adequate. Now the tail is cut into the two halves, then these edges are beveled to the correct angle and the halves are cemented back together again. Propping up the tips 6" will provide the correct dihedral.

When this joint is completely dry the tail can be installed on the body, first making sure that there is a corresponding Vee-shaped notch in the fuselage. A small block of balsa, also Vee-shaped, is cemented onto the tail after its installation, and that finishes off this part of the construction.

FUSELAGE

After cutting out the two sides from similar pieces of hard 1/16" sheet, cement all of the edge strips into place with the exception of the ½" triangular stock between F2 and F3. While this is all drying, cut out the three fuselage frames from 3/16" sheet. A tapered strip now has to be cut from the ½" triangular stock over the last few inches of the rear fuselage to get the correct width, and this should be done before the sides are joined together. With this task completed, join the sides using F1, F2, and F3; then cement the sides together at the rear. Next, we add the bottom sheeting, which runs from F3 aft, and then the block under the nose section. Once these are in place, the remaining strips of ½" triangular stock can be shaped and fitted between F2 and F3. The nose block is now roughly shaped and cemented into place, and the tail can also be attached. Now's the time to try to get the radio on board, and cut out all of those little holes and slots that never get drawn on the plan, but are necessary in order to make things work. When you're quite happy with the actuation of the controls remove as much of the radio as possible and install the final pieces of block, then sand to the final contours.

RADIO

No particular system is shown on the plan, but any modern single channel servo set, or pulse system will fit in. On the prototype we used the Testors pulse system, and mounted the receiver and battery in the nose. The actuator fitted in between F2 and F3, as shown in the pictures. A pushrod was run from this actuator to the right hand elevator, and the two elevators were then connected by the "V" wire, as shown on the plan. A similar system should be used if a servo control is fitted. More details of this set-up can be seen in the June 1972 R/C Modeler.

If, however, a torque rod type control is to be used, move the rear brass tube bearing into the fuselage below the tailplane, so that the torque rod is run in a straight line, then solder the "V" wire to the end of this rod. The "V" wire will have to be modified slightly, by closing up the angle a little, for this installation.

One of the new Ace Commander "plug-in" systems is highly recommended for use in your Gypsy.

CANOPY

The plans show the suggested shape for the canopy frames, but we've found that various forms of canopies have different cross sections so don't be afraid to slightly modify the frames shown for your own particular type of canopy. Anyway, you'll need a forward frame, a back frame, and a couple of 3/16" sheet rails to join them. Make up this assembly on the model and sand the frames, etc., to the local fuselage contours. Paint this woodwork first before finally cementing the canopy into place.

The canopy is held in place by a couple of dowel stubs at the back and a pin latch at the front. The dowel stubs are 1/8" diameter, cemented into F2, and a couple of holes should be drilled into C2 to suit. The latch at the front end is made by drilling a hole through both the nose block and C1

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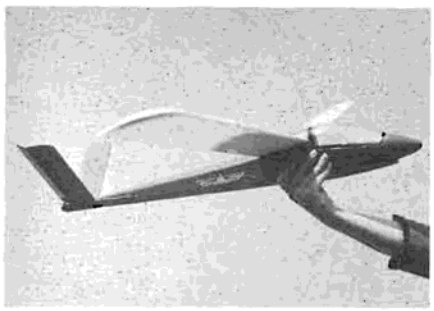

with the canopy installed. Now, epoxy a scrap of brass tubing into the nose block, and another into the hole in C1. After the epoxy is dry, test fit the canopy. It should fit easily onto the dowels at the back. Now push a pin into the brass tubing and this should lock it into place.

Now all we need is the fairing over the wings, the last piece of our jigsaw