

“Red Ripper”

By Jerry T. Peeples

IN A RECENT contest held by the Cleveland Gas Model Guild, the “Red Ripper” turned in an official out-of-sight flight of 11 min., 15 sec., with a 17 sec. motor run after hooking onto a thermal and reaching 2,000 ft. The model is very rugged and is designed to take it. It has a slow, flat glide, a long moment arm, and very stable surfaces.

Most any 1/5 h.p. engine may be used by merely altering the hole spacing or the thickness of the mounts. The original craft was powered with a Brown model “D.”

The ribs for the wing, stabilizer, and rudder are 1/2 size and may be scaled up to full-size by using a graph of 1/4" squares. Other units are 1/3 full scale. Medium hard balsa is used throughout except where specified.

FUSELAGE AND WING MOUNT

CAREFUL selection of about seven pieces of hard 1/4" square strips of balsa is the first step in constructing the fuselage. These strips are used for the two body sizes—the main longerons and cross-braces.

After laying out the first side, with a piece of wax paper over the plans to provide a working surface, glue the motor mounts in place at the front of the fuselage. Small tacks or pins are used to hold the sides firmly in place. After one side has dried thoroughly and the 1/4" cross-braces have been cemented in place, the other side is made.

When the two sides of the fuselage have been completed, join them at the tail post with an ample amount of cement. When this joint has set, glue the cross-braces in place. These braces, incidentally, are 2" long back to the ninth bulkhead, and the remainder are fashioned as noted on the plans.

After the cement on the fuselage frame has set thoroughly, glue the

Swift, easy to build, efficient—that's the “Red Ripper!” With more than 250 flights logged, this six-footer is outstanding for contest work. So if you balsa butchers have been seeking a tourney taker for Summer meets—here's just the craft to fill the bill!

firewall in place on the front of the body. Drill a hole in the top of the front bulkhead for the high tension wire, and fashion two more in the bottom for the ground and breaker points wires. For the assembly of the motor, the holes may be drilled for the required spacing.

The mounts are made from 3/8" by 3/4" by 7" basswood. The landing gear is of 1/8" piano wire and is attached to the lower section of the firewall with the aid of .025 thick tin brackets bolted through the fire-wall.

In constructing the pylon-type

wing mount, first take three pieces of 1/8" flat hard balsa, 2 1/2" by 13 3/4", and construct a streamlined shape template of cardboard. By scaling up the drawing to actual size with the use of 1/4" graph paper, the necessary shape can be obtained. On the template, space the notches as on the plans for the 1/4" cross-braces.

When the notches have been spaced properly, take the cross-braces, which are all 3" in length—spacing the three sections as shown in the perspective drawing—and cement them in the notches. When thoroughly dry, cut a 1/8" dowel into 2" pieces and cement in their proper locations so that rubber may be wrapped around them on either end to hold the wing on top of the mount.

The next step is to form the wing supports, which hold the wing on the pylon mount. These supports are made to the size stated from 1/8" plywood, then cemented to the top of the mount as indicated. This type support assures a non-fluttering wing.

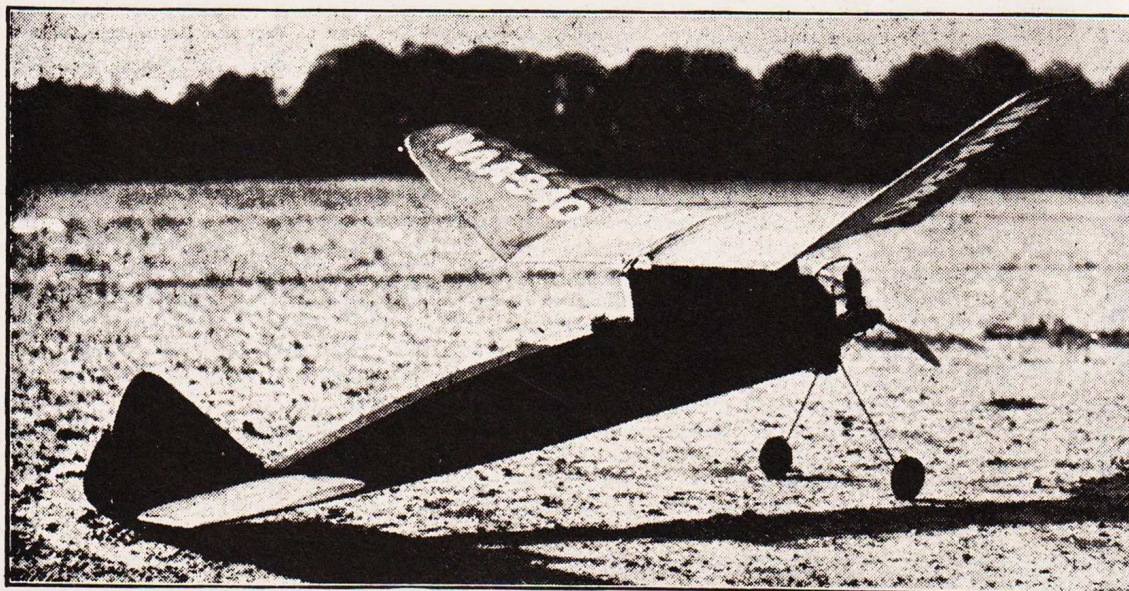
After the mount is completed, cement to the top of the fuselage at the exact location shown, thus establishing a perfect center of gravity and proper balance.

The engine may be bolted in next, and before the covering of the fuselage is finished the wiring must be completed.

The battery box makes for an exceedingly simple process of changing penlites. The box consists of a regular Austin Penlite container bolted to a plywood flooring in the front of the fuselage. The wires are run to the outside through 1/16" hole drilled

in the motor mounts, then soldered to the positive and negative terminals of the battery container.

The position of the motor affords complete access to all important sections, with the plant getting every advantage of keeping cool on warm summer days by not being cowed.



Our model's simple but smooth lines are brought out vividly here. You won't have to worry about carving bulkheads, either. For as you can see, the "Red Ripper's" fuselage is box-like. And note that generous wing under-camber? That's what helps our craft to gather altitude so rapidly.

BILL OF MATERIALS

(All wood is hard balsa except where specified otherwise)

Fuselage:

Main stringers, $\frac{1}{4}$ " sq. strips
 Cross-braces, $\frac{1}{4}$ " sq. strips
 Firewall, $\frac{1}{8}$ " birch 3-ply sheet
 Wing-mount bulkheads, $\frac{1}{8}$ " sheet
 Wing-mount cross-braces, $\frac{1}{4}$ " sq. medium hard strips
 Motor mounts, $\frac{3}{8}$ " by $\frac{3}{4}$ " basswood strips.

Machine Screws

Landing gear, $\frac{1}{8}$ " music wire

Elevator:

Ribs, $\frac{3}{32}$ " sheet
 Spars, $\frac{1}{8}$ " by $\frac{3}{16}$ " strips
 Tips, $\frac{1}{8}$ " by $\frac{1}{4}$ " strips
 Leading edge, $\frac{3}{16}$ " sq. strip
 Trailing edge, $\frac{3}{16}$ " by $\frac{1}{2}$ " strip

Rudder:

Leading edge, $\frac{3}{16}$ " sq. strip
 Trailing edge, $\frac{1}{8}$ " by $\frac{3}{16}$ " strip

Ribs, $\frac{3}{32}$ " sheet
 Spars, $\frac{1}{4}$ " sq. strips
 Tips, $\frac{1}{8}$ " by $\frac{1}{4}$ " strips

Wing:

Spars, $\frac{1}{4}$ " by 1" strips
 Ribs, $\frac{3}{32}$ " medium hard sheets
 Tips, $\frac{1}{4}$ " sheets
 Leading edge, $\frac{1}{4}$ " sq. strip
 Trailing edge, $\frac{1}{4}$ " by $\frac{7}{8}$ " strip
 Dihedral supports, $\frac{1}{8}$ " 3-ply sheets
 Center-section planking, $\frac{1}{16}$ " sheet

Miscellaneous:

Wing supports, $\frac{1}{8}$ " 3-ply sheets
 Wing-mount dowels, $\frac{1}{8}$ " diameter
 Stabilizer hooks and tail skid, $\frac{1}{16}$ " piano wire
 Red bamboo tissue
 Nitrate dope, cement, wheels, bushings, bolts, solder, wire, aluminum, pins, etc.

Be absolutely sure that the right amount of down-thrust is used, as specified on the plans, as this is one of the main factors that gives the "Red Ripper" its steep climb without stalling or looping.

WING CONSTRUCTION

THE WING is of a simple and effective design, with a very high lift airfoil section. It is built in three panels—the center and two outer. The center section remains flat, while the two outer panels form the dihedral angle. The ribs are made from $\frac{3}{32}$ " sheet balsa.

Before starting construction of the center section, however, be sure that the working surface of your plan is covered with wax paper, thus preventing cement from ripping off notations and figures which may later prove necessary. That done, support the main spar in position with pins and glue the ribs in place, using an ample amount of cement. And when this frame is dry, cement the leading and trailing edges in their respective locations, trimming to complete an airfoil section.

The outer panels are constructed in the same manner. And after the glue on all sections has set thoroughly, the panels are joined together. Place prop blocks under each wing tip, incidentally, to make sure that when the cement dries there will be the correct amount of dihedral.

The main spar and trailing edges are gusseted with $\frac{1}{8}$ " plywood at the points where the outer panels butt against the center section. The leading and trailing edges are now sanded to shape. And the center section is planked with $\frac{1}{16}$ " flat balsa to support the rubber and to keep the paper covering from sagging.

TAIL SURFACES

IN MAKING the stabilizer, cut the ribs to size from $\frac{3}{32}$ " flat balsa. There are nine main ribs and two tip

ribs. Pin the two main spars in position, then cement the ribs on the $\frac{1}{8}$ " by $\frac{1}{4}$ " hard balsa spars. Cut the stabilizer tips and glue them in place.

Now cement the leading and trailing edges in place. Cement two pieces of $\frac{1}{4}$ " square balsa, as shown in drawing to center of stabilizer to support hooks which, by the aid of rubber bands, will make the empennage removable.

The rudder ribs are made from $\frac{3}{32}$ " flat balsa, with the two center spars being cemented to either side in the notches. The leading edge of $\frac{3}{16}$ " square balsa and the $\frac{1}{4}$ " by $\frac{1}{8}$ " trail-

ing edge are now glued into place. And a fillet is cemented to the bottom of the rudder to rest to the contour



Right: There she goes! Engine roaring, tail down, nose up. Below: And here's our designer, Jerry Peeples. See that big field behind Jerry? Well, that's the kind of space you need for the "Ripper," because she covers plenty of territory.



Gas Up This "Red Ripper"

of the stabilizer rib.

COVERING AND FLYING

MY ORIGINAL model was covered with red bamboo tissue, then doped with two coats of clear nitrate dope. Thickened nitrate dope was used for an adhesive. The firewall was colored black, and the wheels black with red centers. The author believes that red is the best color for long-distant visibility, and would therefore advise its use on the "Red Ripper."

After covering, the paper is sprayed lightly with water and allowed to shrink. Then, two even coats of dope are applied. The framework of the pylon wing mount is also covered with red tissue, sprayed, and doped.

The motor may now be bolted into place. And after connecting the high tension wire and the ground and breaker points, the batteries are attached and a check-up of the ignition system should be made by testing the spark. This may be done by holding the spark plug with your left hand and rotating the propeller with your right, at the same time touching the crankcase with a left finger. If a jolt is felt, the wiring system is working.

A fourteen-inch prop was found to give best results.

Balance and adjust the model so that it will be slightly nose heavy. An angle of incidence may be used by cementing a block under the wing leading edge if the craft appears to be slightly nose heavy, after giving it a test glide. Be sure to use the right amount of down-thrust in the engine.

Wrap rubber around the hooks on the tail empennage and attach that section to the rear of the fuselage, mount the wing with 3/16" flat rubber, and then test-glide the model into the wind. It is not advisable to fly the "Red Ripper" in a small field because of its flat, long glide approaches.

The original craft spiraled to the left under power, and when the motor cut it continued long, lazy spirals to the right. The job stayed in sight much longer than smaller craft, which usually glided faster and at a steeper angle.

Queries for further info concerning the "Red Ripper" may be addressed to the designer in care of FLYING ACES. Also, any comments on the ship's performance will also be welcomed.
