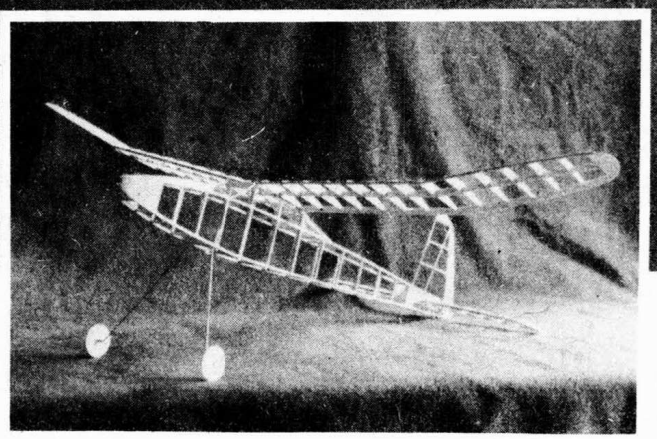
THE HURRY-UP 150

by Frank Zaic



Here's a beautiful rubber-powered flyer that anyone can build—designed by an old master of the art. All of the plans are full-size!

● The Hurry-Up 150 is a contest design, cabin-type rubber model. Neat and pleasing to the eye, performance is increased, weight reduced, and building time shortened, by simplified, efficient construction. Incorporated in this model is a fuse-type pop-up-wing dethermalizer, as well as an aerodynamical feature which makes flying and adjusting easy for the beginner.

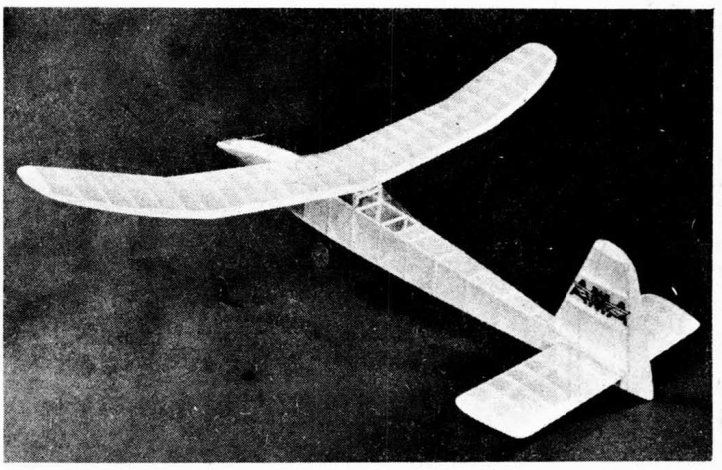
The basic framework of the fuselage is shown on the plans in black. Lack of space prevented our giving you a complete top view, but you can obtain the sizes of the cross braces from the dot and dash outline shown on the side view. Join the two sides of the fuselage by starting at the center, and working outward toward the nose and tail. At the tail, taper the longerons as shown, to meet the 1/16" sheet rudder fin. Both sides must be even when making the stabilizer rest, in order that the wing and tail will align correctly.

Although the cabin construction is easy, you'd better study it awhile. Note the use of double uprights to obtain strength. Also notice that some of the cross braces will not be in line with the uprights as is customary. See how dihedral angle clearance is obtained in the front by using tapered pieces and, in the rear, by employing a lowered cross brace.

The front portion of the fuselage is reinforced with 1/8" sheet balsa to counteract handling and abuse. Wind thread all around and cover it with cement to prevent the longerons from splitting open under impact.

The landing gear installation is simplified by "boxing" or sandwiching the wire in place and using a lot of cement. You also can tie the wire to the longerons with thread. The rubber anchorage at the rear of the fuselage is self-explanatory. If you cannot find a fiber washer, use plywood, stiff paper or a sheet of hard balsa, but, whatever you use, the dowel should fit snugly. Lots of cement around this area adds greatly to the strength.

Leave the bottom of the fuselage open under the anchorage, to facilitate a quick rubber change. The "ridge" and "instrument board" (former A), are shown full-size on the plans. Cut them from



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balsa as indicated and cement in place.

Build the rudder methodically or you may have trouble. It is one of those "building-in-the-air" deals, necessitated by the symmetrical section. Make the ribs according to the template. After making No. 1, trim the template to No. 2, and so on. In assembling the rudder, cement the rear ⅛" x ⅛" square balsa strip to the end of the fuselage. Be sure it is vertical and that the cement has set before you go on.

Cement rib No. 1 to the top of the fuselage. This will position the other two spars. Cement rib No. 4 to the rear strip, and hold it in position with pins until the cement dries. Next, fit and cement the leading edge to ribs No. 1 and No. 4. Check the line-up between the front and rear. Slide ribs No. 2 and No. 3 on the center spare and fit the assembly between the front and rear spars. Slide the ribs up or down until contact is obtained and the ribs are level.

After the rudder has steadied, reinforce the two front spars with cross pieces as shown. Add more cross pieces until you are satisfied that the construction is strong enough. Fill in with 1/32" or 1/16" scrap sheet around rib No. 1, flush with the fuselage longerons. The fuselage covering will terminate around the rudder at this point.

Finish by adding the tip and 1/16" sheet outline. When covering the rudder, be sure to include the sheet portion. Cut out the tab after covering and scrape off the paper where the copper wire hinges are cemented.

The wing construction is normal. A metal or stiff paper template for the main rib will insure uniformity. Tip ribs are made in the same manner as on the rudder. By glancing at the sketch you will note how the center section is reinforced. By having ⅛" x ⅛" square strips at the high spots, the paper covering will not be torn as easily.

The tip sections are easy enough, if you follow the sketches closely. After the cement has set well, remove from the plans and trim the trailing edge to its proper outline. Note how the balsa sheet tip is made. Trim and sandpaper it smooth, before joining the sections together. While dihedralling, make sure that all panels are true. Be extra careful in making joints and be sure to have corner blocks as shown.

The stabilizer needs no explanation. Note the use of ⅛" x ⅛" square strips on the center, for protection from the hold-down rubber band.

In covering the model, have the paper grain run spanwise, to avoid sag. Cover the tip of the wing in two sections: first, the portion that is not tapered, and then the tapered part. The original model had a yellow wing and tail, and a red fuselage and rudder. Use light silkspan covering for the lifting surfaces and regular gas-type tissue for the fuselage.

When covering the fuselage, start at rib No. 1 at the rudder and fuselage junction. You will have to cut the covering material to fit around this rib, before cementing it to the sheet fill-in added previously.

Use a half cement and half dope mix to obtain good "fix" and time enough to shift the paper to the correct spot. After the paper has been cemented smoothly around rib No. 1, dope the covering over the rest of the fuselage top. The rest of the fuselage, wing and tail assembly is covered in a conventional manner.

Water-spray to tighten the paper. While surfaces are drying, be sure to check them for warps. If there are some, untwist them and hold the surface over a hot air supply until the paper has dried. You will have to do this every time you apply a coat of dope. Two coats are sufficient for this ship. A few drops of castor oil in the dope will act as a good plasticizer.

The cabin celluloid is cemented in position after the fuselage is covered and doped. You can make paper patterns for the front and rear by folding paper over the spots and having someone draw pencil lines where the paper overlaps the longerons and uprights. You will find that there are no forced

points and the celluloid or paper will produce natural curves.

After you have the paper pattern, cut out a celluloid copy. Then, cement the celluloid in position, from the center outward, but do not cement over the dihedral or the wing rest portion until the very last. You will find that the bulge over that section will give an automatic angle when you bend the celluloid down, after the rest of the window is cemented. Cement the side windows last.

Now add the rubber motor hooks. Make them from strong pins or wire. In the front, force the pins or wire through the uprights and celluloid as shown, and cut off the excess. The rear hooks should be bound with a few turns of thread and cemented well.

The folding propeller is a very important item and it will pay to spend some time on it. On the original model, we used one-half of a 14" machine-cut prop which had low pitch and wide blades. You may have trouble locating a prop like that. If so, carve from the block dimensions given. Note the ¼" x ⅜" end dimension to fit the hub.

A lug type of hinge is used, as shown. To obtain the double twist fold, the end of the hub was cut at angles as shown. This simplifies folding construction. The bearing shown has a special recess into which the spring can move when pressed back. This prevents it from becoming fatigued. If you have trouble locating such a bearing, an ordinary spring can be used, in the conventional manner.

Of special interest is the counterweight, which does not require your melting solder into a lump. Just wind the required amount of solder on the wire and shift it up or down. When in its proper position, wrap a rubber band above and below to hold it in place. The nose block should fit the fuselage.

FLYING: Our model balances at the point shown on the plans. Since the prop assembly on the original was fairly light, you may have to move the rear rubber anchorage point back a bit if your prop is heavier. Under ordinary conditions, however, you make all flight adjustments in the stab and rudder.

The design of the model is such that the power turn will always be larger than the glide. If it happens to be tighter, it is because the thrust line may not be true center. So add a bit of left thrust until the model flies safely under power in a circle larger in diameter than the glide circle.

BILL OF MATERIALS

(Balsa unless otherwise specified)

1—1/20" x 2" x 36" (medium) .....Wing, stabilizer, rudder ribs
1—1/16" x 2" x 18" (medium) .....Sheet fill-in, ridge, rudder fin, etc.
1—⅛" x 2" x 12" (medium) .....Nose planking, rubber post fill-in, wing, stabilizer, rubber tips
2—⅛" x ½" x 36" (medium) .....Trailing edges of wing, stabilizer
2—⅛" x ¼" x 36" (medium-hard) .....Wing, stab, spars
10—⅛" x ⅛" x 36" (medium-hard).....Wing, stabilizer leading edges, fuselage longerons, cross pieces, etc.
1—⅞" x 1⅛" x 1⅛" (soft) .....Nose block
1—1½" x 2" x 6½" (medium) .....Prop block

Folding prop hinges; rubber tensioner; ball bearing washer; short length of rubber tubing; screw; .045" wire for fittings; large-faced bushing; 25 feet ¼" flat brown rubber; lubricant; celluloid; cement; dope; tissue for covering.

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