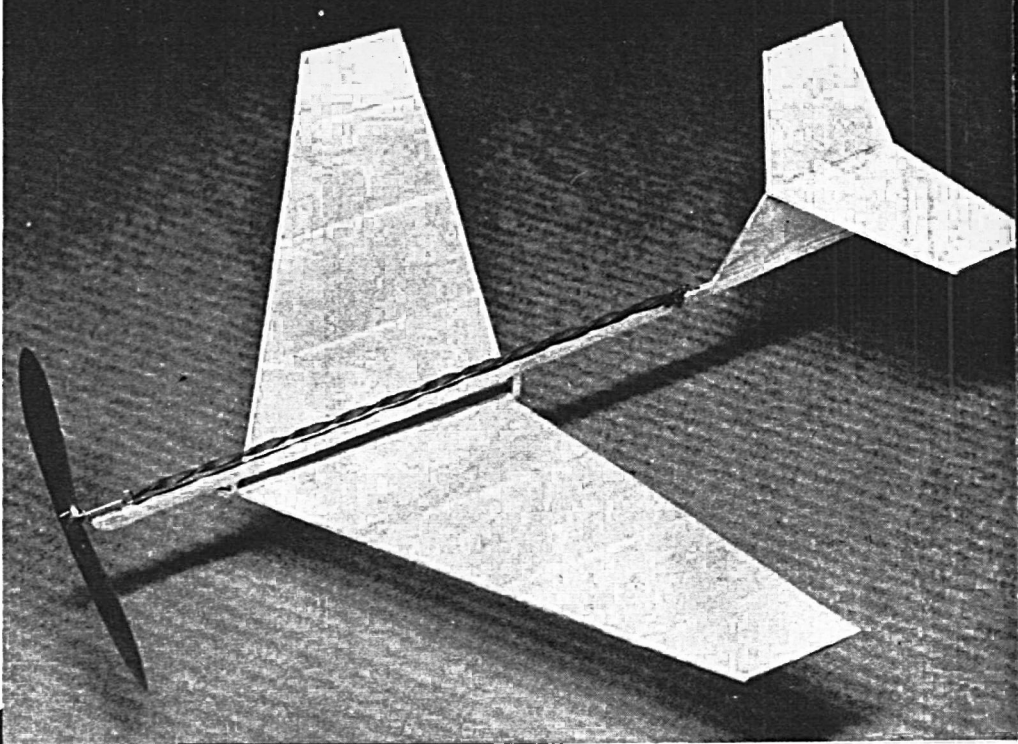


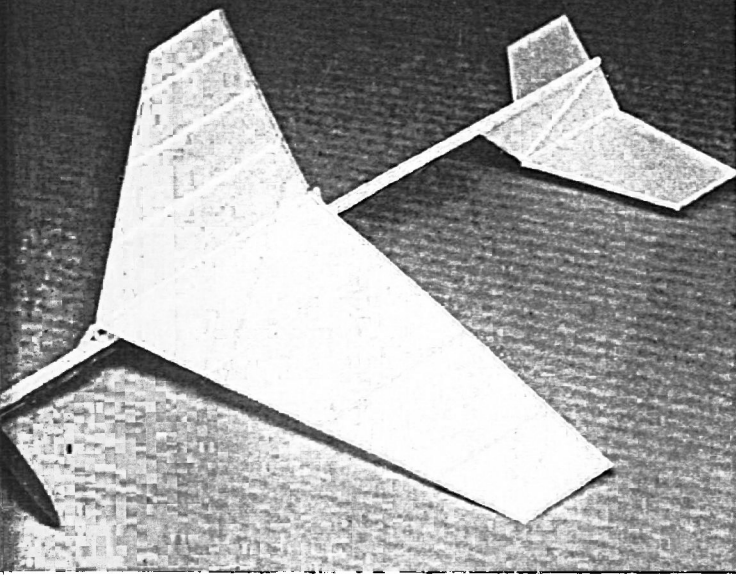
SWIFTY

By JOHN ZAIC

Teach yourself how to fly a model with this simple craft. If you already know, make it for fun and laughs. Uses hobby shop parts and prop.

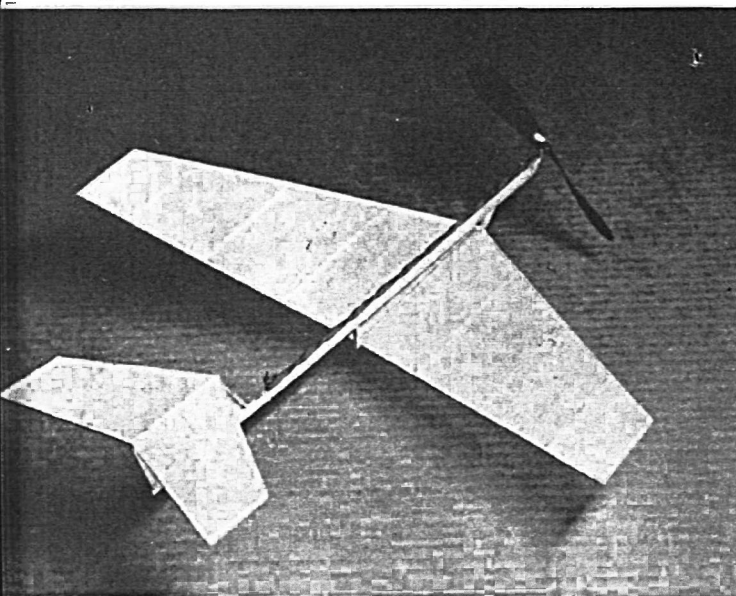


Paper is not sprayed or dope coated on such small models. Builder used nail polish to attach paper edges—because of the small brushes!



Inverted view. Cover model in temperature approximately same as that where it will be flown—paper pulls when warmed, loosens when cooled.

Wind up the prop, lay model on floor, and it takes off without a landing gear. Breath on surfaces and twist slightly to adjust turn and bank.



► Simplicity is the keynote of the design of this little rubber-powered flying model airplane called Swiftly. Models can never be made simple enough for beginners, so all frills in construction were eliminated. A landing gear was originally put on the model but later removed. It was surprising how much the performance of the model was improved.

The Kaysun plastic propeller used was more than strong enough to take the shocks. You can buy this "5" plastic rubber model prop from your local model shop. It is possible for the model to take off from the ground, too. Just wind up the propeller, lay the model down and see how the propeller first beats against the floor and then suddenly pulls the model into the air.

The wing is cemented to the fuselage and, taking a tip from the glider experts, use modeling clay to balance the plane for flight. Very little is needed to bring the model into flying trim. If tail-heavy—that is, the model stalls when hand-glided—add modeling clay to the nose until a steady glide results.

The wing and tail are made of 1/16 sq. balsa. The ribs are cut out first. Then the wing spars are cut to a length about an inch greater than required. Using your fingernails, split the spars in half but do not break them completely apart (look at the top view of wing and you can see why). Put the front wing spar on the drawing and bend it to the desired angle. Place straight pins along the balsa strip to hold it in position. Don't put pins through the wood. However, before doing this, rub dry soap over the drawing to prevent the work from being cemented to the drawing. Cement the large center rib and then the two tip ribs to the front strip. Wait a while for the cement to harden and then add the rear wing spar and the rest of the ribs. Use plenty of pins to hold the parts in place. The rudder and the stabilizer are made in the same manner.

After the parts have been made, they are removed from the drawing. If they tend to stick to the drawing, slip a razor blade between them and the drawing. The wing is then given a dihedral angle. This is done by cutting slightly the bottom middle of each wing spar and breaking the spars upward slowly to form the dihedral. Apply cement to both joints, wait a moment, lay one wing-half flat on the table and put a book on it to hold it (Continued on page 43)

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down. The wing tip of the other wing-half is raised 3 in. off the table, with another book holding it in that position. After the cement has hardened, remove the wing from the table and check it to see that the spars line up. The wing should not twist toward the tip; if it does, the model won't fly. If necessary, pinch the middle joints for more or less dihedral and recement.

The wing and the tail are covered with light tissue and they are not to be doped or painted, to avoid warping the wing out of shape. Nail polish is handy for cementing the paper to the wood (just at the edges of the paper), as the containers have small brushes. Paper has a tendency to shrink when warmed and to loosen up when cooled. Therefore, the model should be covered in a place that is of about the same temperature or warmer than the place where the model will be flown. This precaution is taken to minimize the warping of surfaces. Breathing on a warped wing surface often straightens it out.

The balsa motor stick is tapered (do this with a sanding block) and lightly sanded all over. The thrust bearing and rear rubber hook are wrapped in place with thread and then cemented. The metal fittings will be a problem. They may be made to straight pins, if nothing better is available. The thrust bearing is a little strip of metal bent like an L, with a hole drilled or punched through with a phonograph needle. Some builders take a fine nail, hammer it a bit flat and punch a hole through with another nail. Your hobby shop may carry a small size thrust bearing. If you can't find such parts, tell the editor of MODEL AIRPLANE NEWS about it and he will help you. The plastic, rubber-powered propeller, I believe, may be carried by all hobby shops and be sure to mention the words "rubber-powered"; otherwise, you will get a gas engine type that is no good for this purpose.

Make the wing mounts out of some scrap balsa and cement them in place underneath the fuselage. After the cement has hardened, cement the wing between them and then add the tail assembly to the motor stick.

Put on the propeller and rubber motor. Gently glide the model and observe its flight. If it dives, add a bit of modeling clay underneath the rubber until a smooth glide is obtained. If the model noses up and down violently, add clay to the nose until the glide is smooth. Now you may wind it up and let it fly. The model can be flown outdoors in calm weather.

If the model glides well, but noses up and stalls when the rubber is wound up, bend the prop hanger very slightly until

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the prop pulls a little bit downhill. This is called "downthrust."

Experiment by bending or twisting one wing tip so that its front edge is raised slightly. This will cause the model to circle. Breathing on the paper will hold the wing in a twisted position. A slight twist is quite effective; don't overdo it.

Bill of Materials

Two pieces—1/16 x 1/16 x 36 hard balsa (or 1/16 x 1/8 soft); one piece—3/32 or 1/4 x 1/4 balsa, 12 in. long; 18 in. of 1/8 rubber; one small thrust bearing; one 5-in. Kaysun rubber-powered plastic prop.