

HOW TO BUILD -The- Biplane Sportster

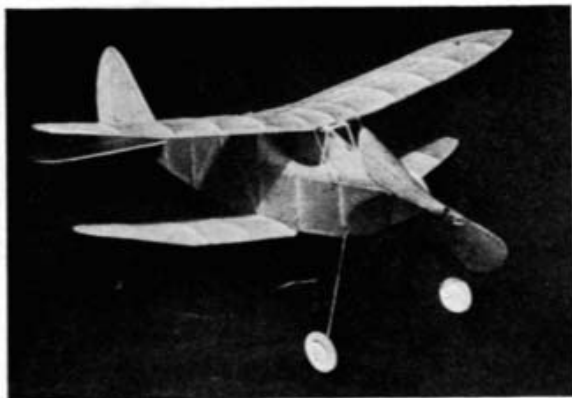
**If You Want to Build a Biplane That Flies
As Well As a Monoplane Try This One.
It Also May Be Flown As a Monoplane**

By Louis Garami

WHEN your model building activity is taking a nose-dive, as a result of too many monoplanes, a pull-out is readily accomplished by switching to a biplane.” (Model Butcher’s Handbook. Advice No. 444.)

So, here it is fellows. Just what the doctor ordered for ailing ambition, rusty razor blades, and dried-up cement. Although it is small in size and easily built, our biplane is a “big” performer and an extra good looker. It has the ‘umpf’ of a full size model, due to the large propeller employed, while the light-weight construction and adjustable wings pave the way for a better glide and crack-up-free performance.

And now, if we still haven’t sold you the idea of building this hand-some fly-by-day or night, let us whisper into your ear: Yep, it “takes off” from the ground too...



Body and Propeller

The longerons and cross-braces are of $\frac{3}{32}$ " square medium hard balsa. Both sides are made together, one on top of the other. First

pin the bottom longerons on the plan and see if they will take the sharp bend of the front without cracking. A few seconds of soaking in hot water will surely soften them up sufficiently to do the trick but they have to be dry before further work can be done.

The top longerons follow next and with the cross-braces glued in place the whole thing is left to dry.



Separate the two sides with a razor blade and cement the top and bottom cross-braces in their position. Naturally the cabin roof is left alone until after the nose is finished. When the soft balsa block, $1\frac{1}{2}$ " x $1\frac{5}{8}$ " x $\frac{5}{8}$ ", carved into shape and hollowed out is glued on, the top cross-brace of the nose can be removed to allow a full opening. Next the two sheet balsa window shapes are cemented in position and the cabin top built. Make sure that the cabin roof is parallel to the middle longeron because the top wing incidence depends on it. By varying the length of the bamboo supports this is easily accomplished. For windows we prefer celluloid to cellophane because it strengthens the body around the cabin.

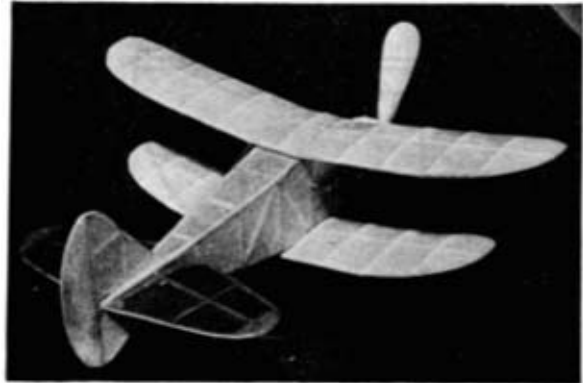
Next the noseplug is made out of two pieces. First the $\frac{1}{4}$ " piece is made to fit into the nose and glued on a block of balsa $1\frac{3}{8}$ " x $1\frac{1}{8}$ "

x 5/8". Then this outside piece is finished off with a knife and sandpapered.

For bearings use large copper washer with small bushings in them. Make sure that the hole in the noseplug is straight in every direction. The one piece landing gear is bent out of .028 wire and glued on the bottom of the body. Use one inch hardwood wheels, not balsa; otherwise the balance the plane will not be right. 'Carve the propeller out of a medium hard block. Give 1-1/6" inside camber then carve the outside so that the thickest part is about 1/8". Finish off with sandpaper, balance and insert the same bearings as in the noseplug. Any reliable free wheeling will improve the glide tremendously. So, make your mind to use one if you did not one before.

Wing and Tail

The nineteen ribs can be cut out either separately or in a block. Pin together nineteen slats of soft 1/32" balsa, size 5/16" x 2-3/4". Shape the resulting block into the correct airfoil with the aid of a sharp knife and then sandpaper the block. Now cut the spar notches with a razor blade and you will have saved at least thirty minutes of labor. The top wing is made in one piece. The leading and trailing edges are pinned down and the ribs cemented on 1-1/2" apart except on the center section. (See plan.) A 1/4" wide bamboo bent above the gas flame is sufficient to make the four tips. Slice them off with a sharp knife. To make the dihedral, cut in (not all the way through) the leading and trailing edges next to the center section rib. Now cut the top spar all the way through and take a 1/32" slice out of it. Reglue these three points with the wing tips raised one inch.



The lower wing is made in two halves. It is exactly the same as the top wing but one section shorter. The two halves are pinned to the body, right where their position is shown on the plan, and a sheet balsa center section is fitted between them. Now the three pieces are reassembled on the work bench to the proper dihedral and cemented. Use a soft 1/16" sheet balsa for the elevator and rudder. The rear part of the rudder is sandpapered thin so that it will stand the necessary adjustments without breaking. Cover the entire framework with colored tissue, using light dope for adhesive. Leave an open section on the bottom of the body right below the rear hook. Spray the tissue lightly with water. When dry apply a coat of light dope or banana oil.

Attach the tail surfaces to their proper positions, making sure that the two halves of the elevator are set at the same angle of incidence. For power use six strands of lubricated brown rubber. The wings are attached to the body with thin rubber bands.

Flying

The first few preliminary glides should be given indoors; the cellar or a fairly long room making an excellent landing field. Make sure that the free-wheeling is "percolating" when the model is gliding. Adjust the wing positions slightly for a long, flat glide. And now, weather permitting, to the wide open spaces we will go. After a few hand glides, fifty turns should be given and the model launched in a slight right bank. Keep the model flying to the right both under power and in the glide by adjusting the rudder. A capacity winding of 180 by hand and 350 by winder should be slowly approached, with you gaining a wealth of experience in the meantime.