



## \*\*\* THE BOB UPTON "BABY ACE" \*\*\*

PHOTOS BY FUDO TAKAGI

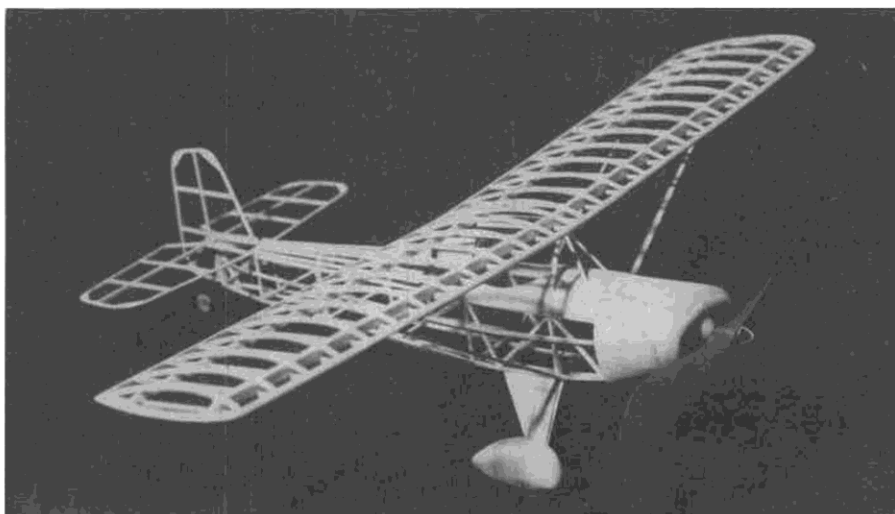
By WALT MOONEY . . . Rising to the kindly (!) urging of MB's editor, our Peanuttier Professor has put the icing on this month's big cake by adding a third dimension to the planes on the cover!

• This model started out as a request from the illustrious, intelligent industrious, and smart, too, editor of **Model Builder** magazine (*Aw shucks, Walt. wcn*) for a quick effort to make one of his dreams come

true. Well anyway, something like that. He asked for it on a relatively tight deadline. Generally, this kind of a request can make work out of the fun of model building, but in this case it turned out to get away from

me. For instance, my first inclination was to make a fairly simple model with two-inch rib spacing, only uprights in the fuselage, and sheet tail surfaces. What actually happened you can see in the photos. All of the fuselage structure, including diagonals, somehow got put in, and then sliced ribs at scale spacing, etc. The result weighs 0.433 ounce without the rubber motor.

On a Friday night, a week after the drawing was started, my wife Carole, agreed to hold while I wound it for its first test flight. On fifty turns, it did a smooth straight shallow descent and perfect landing on the sidewalk. On the next winding, of one hundred and fifty turns, hand launched, it did a nice smooth left circle about twenty feet in diameter. The third test flight was R.O.G. on 600 turns. It climbed up in a smooth left circle and did four circles and a nice landing. We couldn't resist flying it about ten times, until it finally flew into the eucalyptus trees

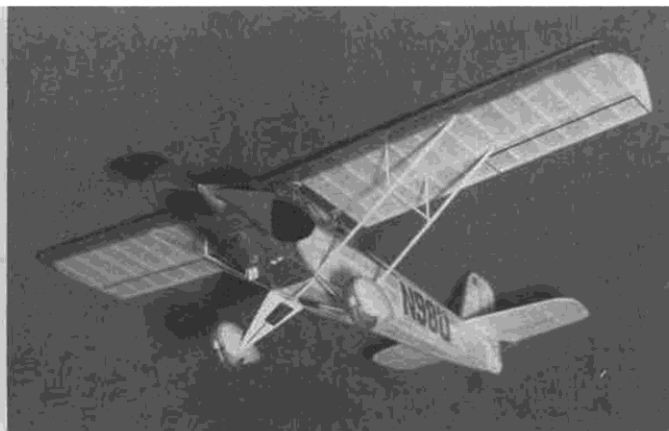


Walt originally intended to go easy on ribs and other structure, but got carried away and put in a piece of wood for every line on the completely scale drawings as shown in the R/C section!

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As with the full-scale and R/C versions of the Baby Ace, the Peanut required almost no flight trim adjustments.



From any angle, Upton's Baby Ace definitely has its own personality. A lightweight peanut would be highly competitive.

in front of the house. We retrieved it and quit flying.

You may assume that this was a perfect flight test session, and it was, for my own model. It is not so good for a model article, however, because I haven't the slightest idea of what to say about flight trimming. Built as drawn, the model flew perfectly, without a single adjustment. I don't remember when I've been more pleased with a Peanut Scale model.

Careful attention needs to be paid to wood selection to keep the model as light as possible. Tail structure and fuselage frame uprights were sliced from fairly light (4 to 6-pound) 1/20th sheet balsa. Main longerons, tail spars, leading edges, were sliced from firm (8 to 10-pound) 1/20th sheet. All sheet parts were cut from very light wood. Incidentally, there is one change shown on the plans with respect to the way the model for the article was built. This is the suggestion that the two root ribs and the two tip ribs be made solid, rather than sliced. During the application of the trim colors, I broke the top cap of one tip rib. The tissue at the tip tends to pull more strongly in the down direction than it does over the other ribs, and will tend to collapse the tip ribs if they are sliced and made from fairly lightweight stock. Solid sheet ribs will save you from later tedious repairs.

Use the lightest piano wire commonly available at your local model shop for the landing gear wire and for the propeller shaft. I used model railroad basswood strips for all the struts on the model. "Glenn Craft", of P.O. Box 9424, San Jose, California 95157, makes HO scale structural timbers. I used their No. 108 size 3 x 8's for the main struts, No. 107 size 3 x 6's for the cabanes, and No. 101 size 2 x 4's for the jury struts, and for the shock strut assembly between the landing gear. It is beautiful stock and very easy to work with, requiring only a little effort with sandpaper to give the struts their proper cross-sectional shape.

Use a standard 4-3/4 inch diameter Peck—Polymers plastic propeller. He has them in brown plastic, which looks much better than red or green on a scale model (of course you can always paint one correctly). Use one of Peck's small nylon thrust bearings.

A loop of 3/32 flat rubber was used to power the original model during the test flying. This motor was made up of a strip 23 inches long, giving an 11 inch loop after tying the knot. This motor, as installed between the propeller hook and the rear motor peg, resulted in

the model balancing at the point shown by the "CG" arrow on the drawing. The power obtained from the motor seemed about right for the model, but obviously another model may vary in weight and require a slightly different size motor. The model should always be balanced as shown on the plan, or just slightly further forward for good stability. Use plastecine putty or modeling clay for ballast weight as required.

I am not particularly fond of the present AMA Peanut rules which tend to give more points for flight points than for scale. (I wouldn't like rules that weight the points in the other direction, either.) I'd like the rules set up so the top flying model gets the same number of flight points as the best scale model gets in scale points. Be that as it may, if you intend to fly your model in competition under the present rules, it should fly for as much duration as possible. This means it is important to keep the model as lightweight as possible.

Some obvious things can be done to make your model lighter than mine without losing scale points (Remember, I was building my model to meet a mean ole editor's publishing deadline and didn't have time for some of these refinements . . . sorry boss).

1. A general reduction in stick sizes could be done. This makes building and handling a little more critical.

2. All the diagonal braces could be eliminated from the fuselage.

3. The balsa blocks used for carburetor and headrest could be hollowed out.

4. The seven top stringers could be reduced to five or even three, and respaced without much change in the scale appearance.

5. Ribs and formers could be made out of 1/64 sheet where they were 1/32 sheet on the model in the photos. Same for cowl sheets.

6. Balsa dowel exhaust stacks could replace my 3/32 diameter aluminum tube stacks.

7. Finally, if all, or some, of the above are accomplished, the model will turn out to be nose heavy with the plastic propeller, and you can carve a balsa propeller, and find your model requiring a smaller size of rubber strip for power.

The model in the photos was covered with white superfine tissue (condenser paper would be lighter), shrunk with a light mist of water, and when dry, given two light coats of thin dope over all the tissue. The wood parts were given four coats. For the color trim I used a Staedtler Lumocolor 357 permanent felt pen.

These are designed to be used on acetate sheet and work perfectly over nitrate doped surfaces (they appear to work fine on all plastics). There is simply no way I know of to get a lighter weight color coat on a model. The real airplane is white with international orange color trim and a black pin stripe. The ink will run into undoped balsa or tissue surfaces, so be forewarned.

There are a lot of little details that can be gleaned from the cover photo of the real airplane that you can add to your model. Things like the gas cap and wire gauge, venturi, aileron cables and horns, tailwheel steering horns, etc., can be added if you like them.

This has turned out not to be a specific, "cement part A to part B", construction article, but the model is of fairly conventional construction, so it probably is not needed. However, I will make one comment on building the wings.

Two-spar, sliced-rib construction is used. Lay down and glue the leading edge, trailing edge, and the bottom rib parts, directly over the plan. When dry, they are removed and the dihedral break at the centerline is cut. Cut the wing spars from sheet balsa. Note that the rear spar, which is not shown on the plan, is to be made with 1/16th more dihedral at each tip than the front spar, which is indicated in the wing in the front view by dotted lines. The difference in dihedral will result in some washout in the completed wing, which is desirable for good stall characteristics. Now lay one-half the wing down on the plan. Pin down the leading edge. Block up the trailing edge at the tip with a sixteenth shim. Cement the spars in place and add the top rib caps. If you use solid root and tip ribs as suggested, the spars will have to be threaded through the solid ribs. When dry, do a similar job on the other wing by sliding the spars through the ribs until the leading and trailing edge halves touch. Cement the dihedral joints and the leading and trailing edges, add the upper rib caps, and let the completed wing dry. If you have done it correctly, you now have a wing with equal washout in each panel and continuous tip-to-tip spars.

Go have fun with your Baby Ace . . . and that's an order! ●