



THE CRACKER JACK

By WALT MOONEY . . . Here's another two-for-one Peanut or Rubber Scale airplane that will please the free flight modelers among us. The full-size *Cracker Jack* is a home-built . . . which just happens to scale down perfectly without any modifications.



• Occasionally, comments are made about what it was that inspired the building of a particular model. "It was interesting," "It was different," "It was obscure;" etc. This one was built because the designer/builder of the real aircraft sent in a brochure and suggested that a Peanut scale be built. The brochure supplied by Pete Plumb has a three-view that is Peanut scale size. It has all the detail and color information needed to make a good scale presentation.

This brochure is available from Wood Wing Specialty, Building H-2 Fantasy Haven Airport, P.O. Box 1258, Tehachapi, California 93561. The brochure costs \$5.00, and if you send him five dollars, Pete will send you one.

This model was drawn up by making a normal and a reverse copy of the three-view, and pasting it up into the Peanut scale format for the magazine. Then, it was blown up to twice-size on a XEROX 2080 machine. The model structure was then drawn in on the blown-up as near to the scale structural arrangement as possible. The model in the photographs

is twice Peanut size, and is powered by Bill Brown's fabulous CO₂ twin cylinder engine. As it was built essentially over an original three-view, it has no intentional deviations from exact scale. The color scheme matches that of the prototype. It is all white with red trim and a blue upper stripe and a blue Cracker Jack sailor (and his dog) on the vertical tail. Luckily, the Sailor on the foil package of a Cracker Jack is exactly the right size for a pattern for the double Peanut size model.

As I said before, there are no intentional deviations from exact scale, including the rather thick airfoil section used on the real airplane. There are two thread turbulator strips which were added after initial glide tests showed the model with its smooth leading edge sheeting on the scale airfoil wing was suffering from a low Reynolds number laminar separation. Its glide was less than two to one, before turbulation, and is about five to one afterwards. Hence the alternate airfoils shown on the plan for those who want to avoid added thread turbulators. Note that the real

airplane does not have this problem because it is flying so much faster than the model and is larger too.

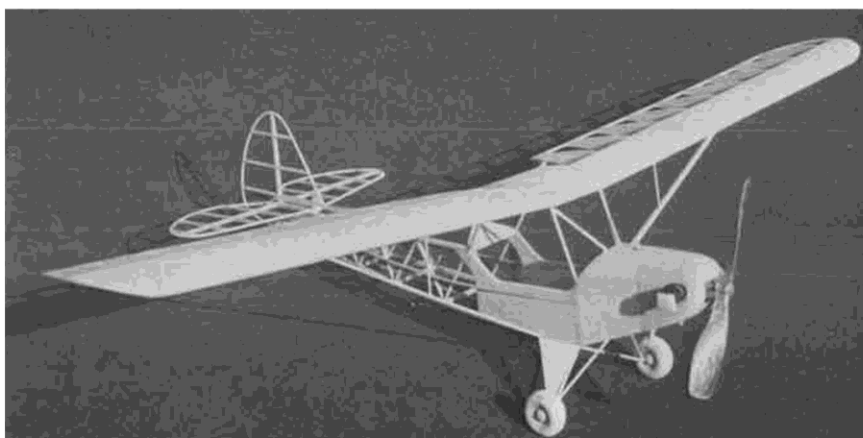
While the original model was built for the Brown twin, the plan will be published as a Peanut in **Model Builder** magazine. For this reason and because there may be some who even want to build the larger version for rubber power, an alternate nose and a rear peg installation is shown on the plan. (Full-size CO₂ or rubber power plans are available from **Model Builder** for \$2.50. wrf)

Construction of the model follows tried and true conventional procedures. Keep it light and it has a better chance of flying well.

Laminated wing tips and tail outlines are used. They look more realistic than sheet outlines, but sheet outlines will work OK if laminations seem difficult.

Obviously, the small model uses smaller dimensioned structural pieces than the large ones, so no sizes are called out on the plan. Just match your sticks to the size shown on the plan you select and the model will turn out OK. The cabane struts on the large model are made from 1/16 diameter birch dowel. On the smaller model, I would suggest using the thin bamboo dowel that is available from Peck-Polymers (see their ad).

The most critical area of a CO₂ powered model is the engine installation, and the most critical part of the engine installation in my experience is the support of the CO₂ filler valve. Make sure that the support blocks on each side of the filler are hard balsa and they reach clear down to the bottom fuselage planking. It takes considerable force to push the filler down over the valve, and this part of the installation must be strong enough to resist that force. Make all bends in the tubing with a fairly large



Just to give you an idea of what the *Cracker Jack* looks like without the tissue covering, we present this nude version of the model.

Continued on page 86

radius, kinks are a real "no-no". To prevent the tubing from fatiguing due to vibration, tie it down from place to place with silicone bathtub sealer. Tie the aft end of the tank to the fuselage bottom with sealer also. Don't forget to balance your propeller to reduce the level of engine vibration.

The cabane struts are pointed and pushed into the balsa structure of the wing and fuselage. Do this carefully so that the wing is properly aligned.

The side and bottom fuselage stringers (for the large model) are 1/16 x 1/8 balsa sticks. They are mounted on edge, are full-depth at the location of the wing strut, and smoothly taper to nothing forward and aft of this point.

Covering follows standard procedures. Cover the entire model with white tissue, and after it has been water shrunk, give it about three coats of thin dope. The color trim is put on using colored tissue doped on over the base white tissue. The Sailor and his dog are an intricate pattern to cut out of tissue. Their dark parts are blue. Use a thin pen for the Cracker Jack box he is holding in his hand.

The following adjustments are made for flying the model. Make sure the model balances level when supported at the extreme wingtips. Mine needed some weight added at the tail end. Remove any gross warps in the wings or tail and make sure each wing has about an eighth of an inch of washout. Test glide the model to determine if some elevator and rudder adjustments are required. Try for a straight, smooth glide. Until the original model had the turbulator strips added, it glided very poorly. Adjust your engine for fairly low RPM and try a flight. The original model tended to spiral in to the left and required some right rudder to overcome this tendency. The right rudder will give you a right turn in the glide. If saving the model from a left spiral dive under power with the rudder results in a right spiral dive in the glide, you will have to resort to some right thrust adjustment.

Side windows (non-scale) or a profile pilot in the cockpit will probably reduce the model's tendency to spiral. Have fun with your Cracker Jack! ●