



Grumman's Turbo AG CAT

By HOBY CLAY . . . Grumman was very kind to modelers when it added a long, turbo power nose to the Ag Cat. Three-bladed prop clears the ground for takeoffs.

• Grumman's latest version of this airplane, using the P&W turbine engine, required a nose extension of 4-1/2 feet. This made it much more suitable for a rubber-powered model, which Warren Shipp was quick to point out. His drawings and the photos in the January, 1982, issue of "Model Aviation" inspired this Peanut. If you haven't seen his presentation, and you like the looks of the airplane, get a copy. It really is an excellent biplane design at any scale.

I chose to model the all-yellow prototype N6868Q, and built-in the increased wing gap modification. Sheet balsa is used for the cowl and top deck, with stringers and tissue for the remainder of the fuselage to simulate the corrugated metal sheet. Construction works out pretty conventionally, except for a few fussy details, most of which are shown on the plans.

Use light sheet balsa for the cowl. The sheeting on the bottom back to Station 2 and the top to Station 3 is lapped over the respective longerons. When cement has partially set, trim against a small straightedge to expose about half the width of the longerons to hold the side sheets. Make a second top Former 3 and mount it in back of the first one after the top cowl sheeting has been trimmed off flush. This provides a mounting base for the aft sheeting. Cut paper patterns for the remaining cowl sheet pieces. Fit and trim the sheets carefully. The top of the fuselage between 3 and 6 uses three pieces mated at the top stringers, which

can be 1/20 square. When the sheeting is all in place, sand to blend the joints to hide, since most of them don't fall at cowl separation lines. Build the nose thrust block as shown, using two-ply 1/64 sheet with the grain crossed for the disc, and shape the disc to match the front of the fuselage.

Slide the wire landing gear into place and epoxy to the inside of the fuselage and to a 1/20 x 3/32 cross-member laid under it and wedged against the fuselage sides. I couldn't figure a way to show that detail completely on the drawing. The important thing is to tie it down securely so it won't lay back under landing stress. Put in the curved pieces which form the top of the lower wing slots after the side formers and stringers are on and cock them outward to match the finished side surfaces.

The four wing panels are identical. Cut a paper pattern of the sheet wing tips and make them with the grain spanwise. Lay short strips of 1/64 x 1/32 on top of the spars outboard of the tip ribs and butt the tip sheets against the ribs. They should conform to the top rib curve when laid down across the spars. When the lower wing is complete and sanded, slide it into place, trimming the top slot pieces to a good fit.

Use the best quality and lightest weight tissue you can find. If the yellow shade is deep enough, most of the grain in the sheeting will be obscured. The fuselage sides have a slight compound curve. Cover this area first, using the

damp-tissue method. Covering the rest of the parts is duck soup. Tighten with a light mist of rubbing alcohol and brush on one thin coat of 50-50 nitrate dope with a plasticizer. Pin down all panels and allow to cure well after doping. The chemical hopper is light brown. You probably don't have any tissue this color. Stretch a piece of white on a small frame and color with a dye spray to get the shade that looks right. I used Dr. Martin's 13A Saddle Brown Radiant water color cut with alcohol, and my airbrush. Rectangles and trapezoids of black tissue will simulate all the openings and the wingwalk. Cut several feet of 1/32 inch wide black strips and mark the control surfaces outlines and all the fuselage seams. A small brush dipped in acetone will stick the black down. Tedious, but it really dresses up the solid color.

I used 24-point rub-on letters and numbers applied to a strip of sticky-back clear mylar for the tail numbers. If you can find 1/4-inch blue decals, they will be more authentic. To set the markings and give the plane a little gloss, try a light spray of Krylon Crystal Clear acrylic coating, available at artist supply stores. Doesn't add much weight and seals and finishes beautifully. It acts like dope, so pin the panels back down and let cure overnight if you use it.

Build the two sets of struts, making the center-section ones exact and leaving a

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little extra on the interplanes for trim. Notch out the fuselage sheeting to allow them to mate to the longerons with the tip of a sharp No. 11 blade. When these cement joints are about set, glue on the top wing, adjusting everything into alignment. Slide in the lower wing and recheck alignment.

The canopy will only look right if vacu-formed. Mask off and color with yellow enamel to match your tissue. Side windows are outlined with narrow strips of plastic tape painted yellow and black. The cabin fresh-air scoop is made separately. Don't forget to put in a 5/16 scale pilot and build up the overturn structure from slivers of bamboo painted gray before mounting the canopy.

The exhaust stacks must be lightweight and they are huge. Try this. Carve and sand a crescent-shaped piece of foam long enough for both stacks and slightly under-diameter. Spiral-wrap with five or six layers of 1/8 inch wide tissue strips held down with white glue. When set, sand the "papier mache," coat with more white glue and cut off to the proper lengths. Drop a little acetone on the foam core to dissolve, swab out the goo, and presto . . . light, realistic stacks

Paint flat black inside and out.

The three-bladed prop lets the diameter be small enough for take-offs. Plywood makes tougher blades than balsa for about the same weight. Form a little twist in them by soaking and strapping to a two-inch can or bottle at 15-degree forward skew. Use small amounts of epoxy to hold the parts together and blend the hubs to the blades by sanding with an emery board to achieve static balance. Pitches in the range of 1.7 to 2 times prop diameter seem to work best for my light, under-powered models. Bend the .020 wire shaft over and epoxy to one of the toothpick hubs before cementing on the spinner. Install a 12-inch loop of 3/32-inch rubber and check the balance.

The rigging, for a biplane, is relatively simple. I use two-pound nylon monofilament on a small needle, pushed through at the proper points. Fasten with a small dab of thinned Ambroid on a pointed stick after all slack is pulled. Not necessary structurally, but it looks good.

The scale trim tabs are right for flight adjustments. Bring your small brush and a little acetone to your test-flying session. Soften the cement on the proper side of them to set needed adjustments. Mine flew naturally in wide right circles, which is best for biplanes.

If you really want to build this Peanut and just can't figure a way to make the canopy, I'm willing to sacrifice one of my apparently irreplaceable Mattel plastic sheets. Send me a buck to 5604 Cedarwood Street, Farmington, NM 87401, and I'll make you one. ●