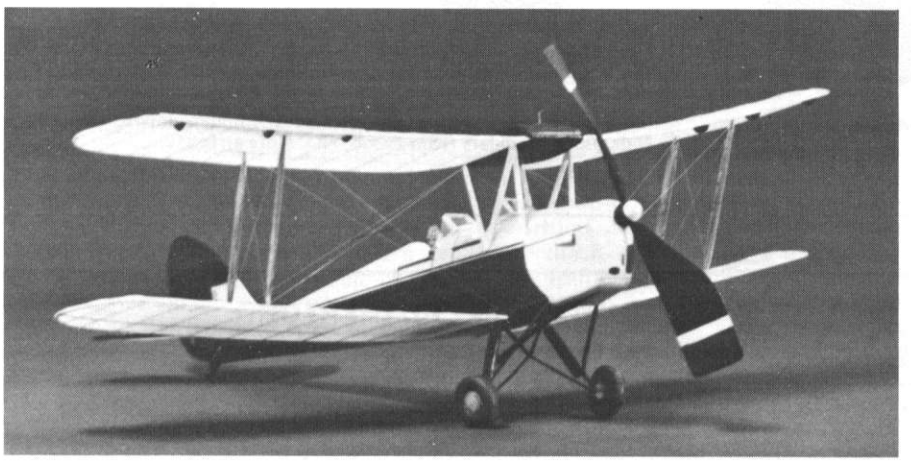
PEANUT SCALE

de Havilland 82A TIGER MOTH

By HOBY CLAY . . . Here's a classic WW-I fighter to add to your Peanut collection that can be built under 6-1/2 grams.



• The D.H. 82 was the next generation development of the D.H. 60 Gipsy Moth, and first flew in 1931, using the inverted in-line air-cooled Gipsy II engine. The airplane was the primary trainer for the British and Canadian Royal Air Forces, as well as a number of other European and Middle East countries, throughout World War II. Thousands were built using the Gipsy Moth 130 hp and 145 hp and Menasco Pirate 125 hp engines, and many are still flying.

An excellent article by Don Berliner, with Bjorn Karlstrom's drawing, was published in the April, 1972, *American Aircraft Modeler*. A drawing in the December, 1975, *Model Airplane News* of the 82C series gives some excellent details of how the frame was put together. I modeled the 82A as shown on Karlstrom's drawing and colored it white and black to match the one which came to our 1981 fly-in to compete in the antique group. If neither magazine is in your files, and you should need a drawing for documentation or to check details, Repla-Tech International has the Karlstrom version. Ask for BK48.

All the scale structure is drawn, so you can choose how much of it to incorporate in your version. I put it all in and grossed out at 0.22 ounces (6.3) grams without the motor. The only intentional scale deviation is the McCombs flat-bottom airfoil instead of the reflexed, undercambered one used by de Havilland. Scale tail surface areas are adequate for a free flight model.

Select all your balsa carefully for needed weight and strength, but especially use the lighest sheet wood available for the rear turtledeck. Check these formers all over, after mounting, with a small straightedge. Sand off bumps and high spots and build up any lows to prevent deformation of the sheeting. I used styrofoam for the nose blocks and ended up adding about a third of a gram of lead in the nose, so balsa blocks are more suitable and much tougher.

Turned foam wheels are recommended, with four or five coats of thinned white glue to seal and harden the surfaces and protect them from attack by the paint. Leading gear brace struts should be left free at one end to allow the gear to flex. After tissue and trim is on, the parts can be sealed and a little gloss put on with a light spray of Scotchguard or Krylon Crystal Clear acrylic coating. The automatic slots on the upper wing can be detailed with tissue strips instead of the 1/64-inch sheet shown, which tends to slightly alter the airfoil.

When mounting the lower wing panels to the fuselage, lay it on your building board with the nose hanging over and the landing gear pushed back against the edge. Hold in position with a rubber band in minimum tension over the deck, on pins stuck into the board on each side. Block up at the tailpost three-quarters of an inch to establish the incidence angle. Cement the bottoms of the root ribs to the longerons where they make contact, and block up tips for the dihedral. The upper wing centersection struts are built accurately over the side view. Cowl sheeting is notched to allow them to set down on the top longerons. A jig is not needed. Just eyeball to make sure they're vertical. When nearly set, the upper wing can be cemented in place and carefully aligned. The interplane struts and the rigging are functional and shouldn't be omitted. Use two-pound test nylon monofilament instead of thread, if you can. It can be tensioned with a light application of heat.

A plastic prop can be used, but you're stuck with the blade area and molded-in pitch. The prop shown is, I believe, more efficient for light models, and pitch changes can be steamed-in. Build-in some blade twist to approximate helical pitch by soaking the blades and strapping to a two-inch can at about 15 degrees forward skew and curing a half-hour or more in a 200 degree oven. Drill the shaft hole in the middle of a round, birch toothpick and pin the parts down, blocking up the blade leading edges 13/32 of an inch at two inches from the shaft, to obtain initial pitch. Lightly epoxy them together. When cured, sand the hubs to blend with the blades and to balance. Start with a 10 to 12-inch loop of 3/32-inch Pirelli or equivalent. This should be about right for power if weight is in the six to eight-gram range.

I didn't build adjustable surfaces on this one. The tail moment is pretty long and the tail feathers must be kept light. In order to get it to fly well, I had to loosen them and block-up the stabilizer leading edge 1/64 inch and cock-in just a little right rudder. My biplanes tend to wind-in easily when allowed to fly left with torque, so I make 'em fly right.

I found this Moth version to be an attractive, stable model with the scale dihedral and sweep-back in the wings. It's a good flyer in stable air, capable of an easy minute duration at the weight mine finished-out. •

Who cares if it can't outfly a Fike in Peanut competition . . . it sure is a lot prettier, and flies well enough to satisfy most anyone!