

PARNALL PIXIE

By FLORENT BAECKE. . . Build this two-seat low winger as a Peanut, or order the full-size plan from Model Builder's Plan Service (see page 106). Either way, you'll wind up with a rubber-powered flying fool!

• So you thought ultralights were something new? Well, so did I, until I came across a three-view and perspective drawing in the spring 1960 issue of *Air Progress* of the Parnall Pixie. They were done by one of my favorite aviation artists, Douglas Rolfe.

The Parnall Pixie was a two-seat semi-cantilever winged monoplane powered by a Bristol Cherub engine which developed 32 hp at maximum revolutions. There were several versions manufactured with various engines installed. Besides the two-seat version, there was at least one single seat, clipped-wing version, powered with a geared down motorcycle engine. It hit speeds of more than 100 mph.

The Pixie was entered in a contest put on by the Duke of Southerland, Under Secretary for Air in England. The contest was created to help renew interest in aviation. It was held in October 1923 at Lympne. Capt. McMillan's Pixie II, powered by a 30-hp Douglas Engine, won a prize by averaging 76 mph. Pixies were also entered in 1924 and 1925. The Pixie III, entered in 1925, had a modified tail with divided elevators and a full length rudder. It could also be converted into a biplane.

My model is based on the information in the *Air Progress* magazine. It was first painted silver with black trim; however, I did not like the results, so I stripped the model completely, resanded, and covered it with yellow tissue. Blue tissue was used for the letters. The cockpit padding was painted brown. The wing walks, engine, and control surface outlines were black. I like this color scheme much better. The model weighs 1-1/2 ounces without the rubber motor installed. The only deviation I made from the *Air Progress* plans was to add dihedral.

CONSTRUCTION

The bulk of the model was constructed from 1/16 hard square medium and various thicknesses of soft balsa. A Dremel Tool, Badger Spray Gun, and standard hobby tools were all that used to produce this model. The Japanese tissue and some of the other materials were ordered from Old Timer Models, P. O. Box 913, Westminster, California 92683. I made my own wheels; however, Old Timer Models has a good

selection if you do not want to make your own.

FUSELAGE

Tape or pin the full-size plans on a flat wooden surface and cover with wax paper. Build two identical sides, one on top of the other. When the glue has dried, cut them apart, if necessary. Next, install the cross pieces, being careful to keep everything square. Now glue the formers in place and add the stringers. Then install the landing gear and the tubing for the wing pins.

Cover the nose with soft sheet balsa where indicated on the plans. Shape and tack glue the nose plug in place. Sand everything using 220-grit sandpaper until smooth. Spray with 50/50 thinned clear Aero Gloss, let dry, and finish sand with 600-grit sandpaper. While this seems like a lot of trouble, the end result is well worth it. Remember that Japanese tissue is very thin and the least imperfection will show.

WING

Begin by making the leading edge from very soft balsa, cut to the outside dimensions and round the leading edge. Remember to make a left side and a right side. They are not interchangeable. Next, draw in the positions for the ribs on the inside of the leading edge. Using a Dremel or equal tool, hollow out the leading edge between the places where the ribs will be attached. Remove material until the hollowed out portion is translucent when held up to a bright light. It should look something like frosted glass, except where the ribs attach, which will be solid. It is important that this material is removed because it probably weighs almost as much as the rest of the wing components. Pin the leading edge on the plans and cut out the ribs and other parts and pin and glue in place. Install the wire pins and tubing where indicated and finish sanding—using the same method as for the fuselage.

TAIL SURFACES

No special instructions are needed for construction of the tail surfaces. Just follow the directions on the plans. The only exception being that you need to build two frames, approximately 1/2-inch larger on all four sides from 1/4-inch pine, to use when covering. You need one for the rudder and one for the stabilizer. This is explained next.

FINAL ASSEMBLY

For wrinkle-free covering, the tissue must have absolutely no wrinkles or folds in it. If it does, use a warm iron and iron it before using. Use thinned white glue to attach the tissue. The sides and bottom of the fuselage can be covered in three pieces; the top, in whatever number it takes to get a wrinkle-free surface. Cover the wooden nose and cockpit with paper also. It makes for a neat finish.

The wings are covered with one piece on the bottom and three on top. Fogging on a mist of water will help in gluing the tissue in place. For the tail surfaces, glue tissue on the 1/4-inch frames and water shrink. If it is wrinkle-free, and only then, put glue on one side of a tail surface and drop it into place on the tissue attached to the frame. When dry, trim away the tail surface, remove the scrap tissue, and repeat for the other side of the tail surface. This is a four-step operation and is slow, but the tail won't look like it was manufactured in a pretzel factory. Spray on two coats of 50- to 75-percent thinned Pactra Aero Gloss. Use more coats on wooden parts.

FLYING

Use the propeller of your choice. The plans show how to make one from a plastic yogurt container. Use three to four 14-inch loops of 1/8 well-lubricated rubber for power. The amount depends on how heavy the finished model is. Balance the model by adding clay.

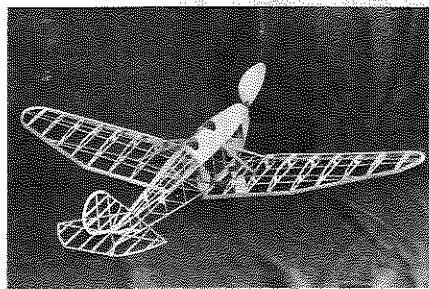
Test-fly over grass starting with 50 turns. Add turns after each satisfactory flight until you reach the maximum number of turns.

The maximum is one turn less than the one which breaks the motor, which, in turn, makes instant scrap out of the fuselage.

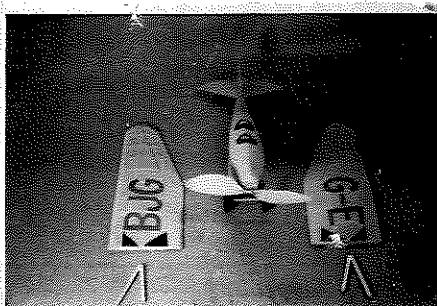
I usually stop cranking at about 400 turns. Adjust the model to turn right under power and during the glide. ♦



Model is based on *Air Progress* article, with additional dihedral designed into it.



Delicate framework of the Pixie shows off its attractive design in this shot.



Parnall Pixie with plug-in wings unplugged.