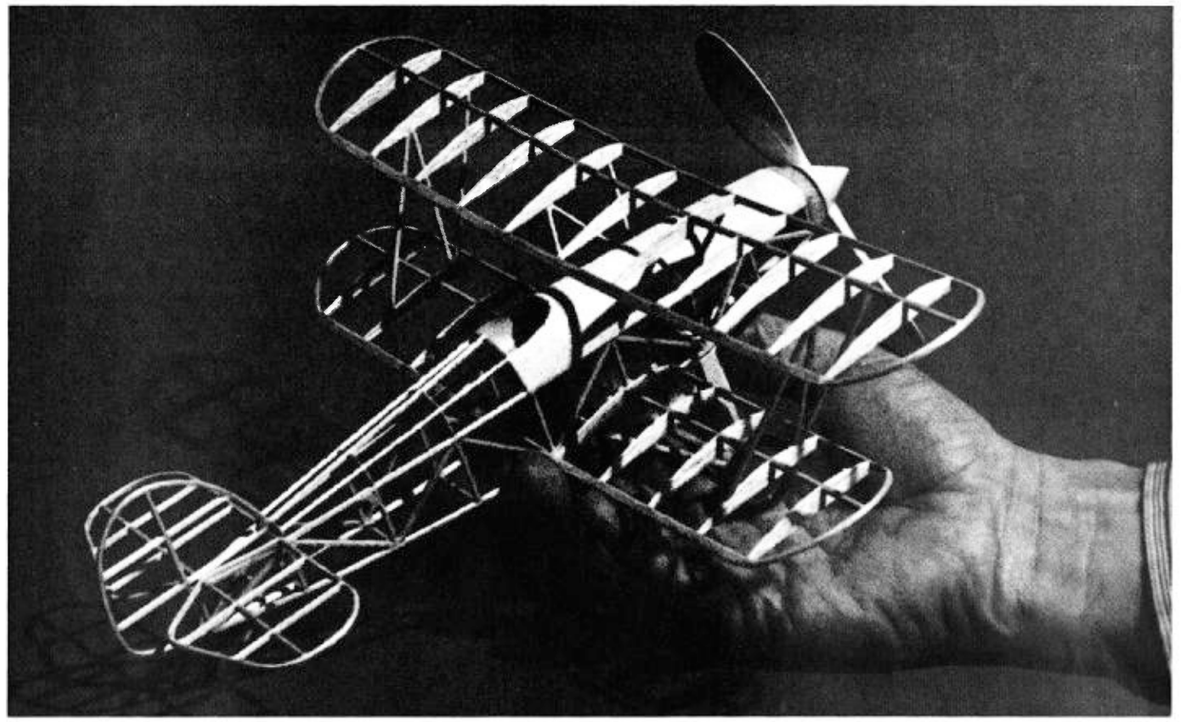
Peanut "Hawker Fury"

This plane is hard to resist when full size plans look you in the face.

by John Blankenship

Photos by the Author



This elegant English biplane served top Royal Air Force fighter squadrons in the early 1930's. The classic lines of the "Fury" foretold the soon-to-follow Hawker "Hurricane" monoplane fighter which was to achieve fame in the Battle of Britain. The development and service history of the "Fury," along with color views, are to be found in Profile Publications #18.

Good performance can be attained with this rubber powered Peanut Scale version of the "Fury." Accurate construction and the use of the lightest available materials will add greatly to your flying pleasure.

The Fuselage

Begin construction of the basic box frame by building up the side frames from light weight 1/16" square balsa. Take care to see that the pieces used for the longerons are reasonably firm, with no flaws to withstand the bending. Protect the plan from glue with plastic kitchen wrap. The two side frames are assembled inverted over the fuselage top view to form the basic box structure. Cut the cross members carefully to exact length and check alignment as the box is assembled. Note the extra cross member on the bottom for mounting the rear landing gear strut and the short longitudinal piece at the rear for mounting the tailskid.

Cut the fuselage formers from light weight 1/32" sheet and glue carefully in place. Cement the three 1/16" square balsa stringers to the rear fuselage deck. The forward fuselage sheeting should now be cut from white bond paper and carefully glued in place. Bend the landing gear struts from .015" dia. music wire and bind with thread to the bottom fuselage cross members. The landing gear spreader bar is 1/16" x 1/8" balsa. Trim the length to fit inside the bottom ends of the music wire struts. Carefully push the lower strut ends into the spreader bar and retain with epoxy glue. Cut short lengths of 1/16" O.D. aluminum tubing for bushings for the 1" dia. vintage wheels and push the straight pin axles into the spreader bar to retain the wheels. Now add the three 1/16" square balsa stringers to the bottom forward fuselage section.

The landing gear fairings are 1/32" balsa. Make a light groove on the inside face of each fairing piece and glue to the music wire struts with small spots of epoxy. The rear strut fairings are 1/32" x 1/8" balsa strips. Cut the noseblock from 1/4" balsa sheet to fit the fuselage section at former A as shown on the plan. Cut a 3/32" balsa keying piece for the noseblock to fit inside the fuselage front end, and cement to the back side of the noseblock. Drill a 1/16" dia. hole for the propeller shaft, preferably using a drill press or drill stand with an electric hand drill. Draw the spinner circle on the front of the noseblock, then carve and sand to shape. Complete the noseblock with a 1/16" O.D. aluminum tube bushing for the propeller shaft.

Sometimes it's nice for a change of pace to build a delicate structure. Glue up a Peanut Scale and you'll be ready for another event. It's a real appealing little bipe, performs consistently.

Wings and Tail Surfaces

Laminated construction is used for the wing tips. Form blocks following the inside tip contour should be cut from 3/32" balsa sheet. Cut 1/32" x 3/32" balsa strips and soak in water until they become flexible. Fasten the form blocks down with pins over a piece of plastic kitchen wrap. Wipe excess water from the strips, bend the first carefully around the form block, and pin temporarily in place. Apply a small amount of Titebond or Elmer's glue to the second strip and wrap it carefully around the first strip on the form block. Use glue sparingly and carefully so that the laminated part will not be glued to the form block. Use plenty of pins to hold the laminations in place while the glue dries. Short pieces of 1/16" x 1/8" balsa can be used between the pins and laminated part to avoid leaving pin marks on finished part.

Wing ribs are of 1/32" balsa, except for the dihedral break ribs for the top wing and root ribs for the lower wing which are 1/16". Leading and trailing edges are 1/16" x 1/8" strip. Assemble the leading and trailing edges, ribs, and laminated tips for the top wing outer panels and lower wing panels. The tips should be slanted upward to form a smooth contour on the upper surface of the wing. Do not glue in the lower wing root ribs and top wing dihedral ribs at this time.

After the wing panel assemblies have dried, trim the leading and trailing edge pieces to length, then block up the tips as shown on the plan to form the dihedral. Glue in the top wing center-section and bottom wing root ribs at right angles to the building board. The 1/16" square balsa spars can now be glued in to complete wing construction. With a sharp blade and fine sandpaper, shape the leading and trailing edges and round off the wing tips.

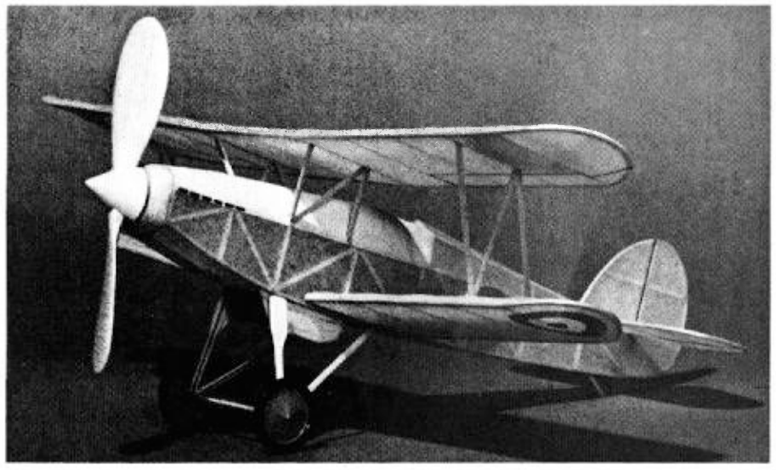
Tail surface construction is similar to wing construction. Take care in selection of wood and use of glue to keep weight down. Outlines are laminated in the same way as the wing tips.

Covering and Assembly

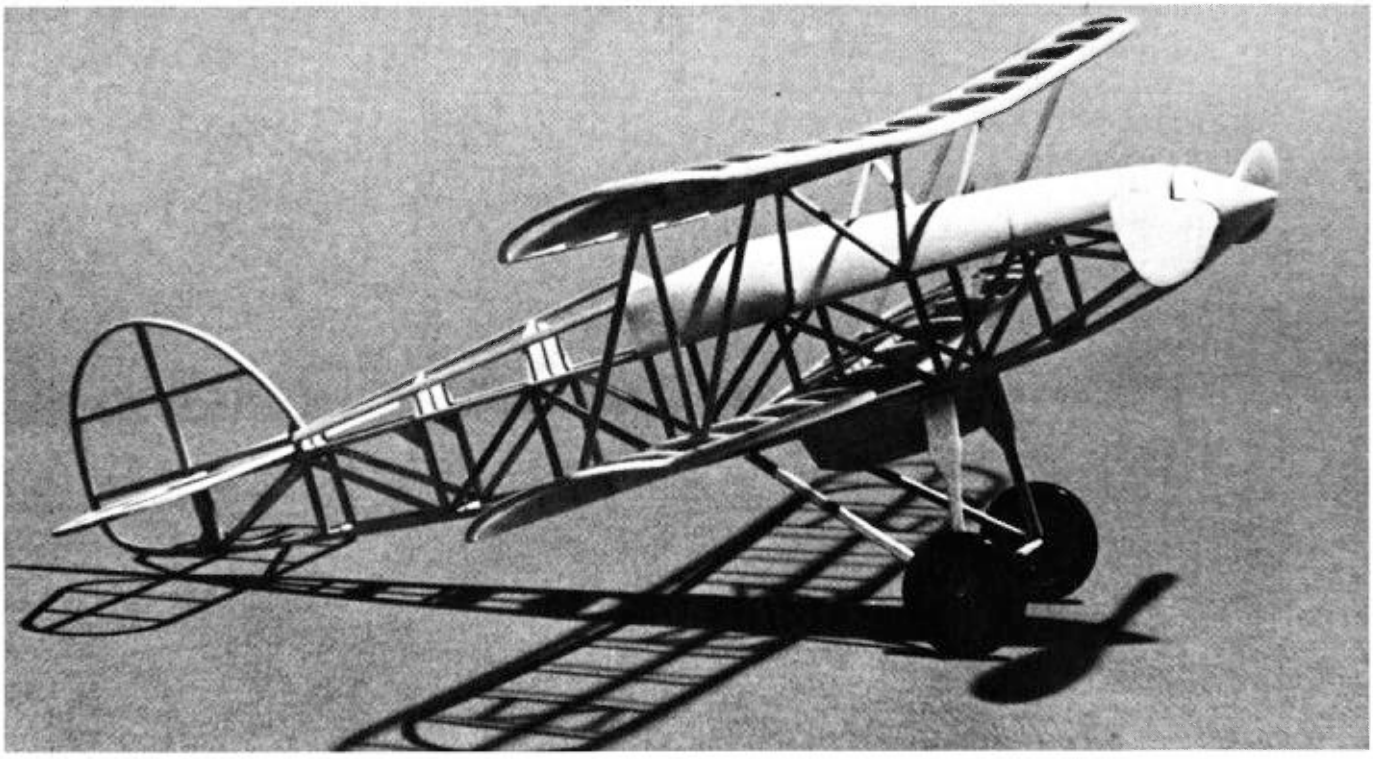
Most "Furies" in service were silver doped, with aluminum panels left in natural finish. To keep weight down, the model can be covered with white Japanese tissue finished with two coats of thinned clear dope only.

Sand fuselage, wings, and tail surfaces lightly to prepare for covering. Apply two coats of thinned clear dope to the outlines of parts to be covered. Cut a piece of Japanese tissue slightly larger than the area to be covered. Hold the tissue in place and brush dope thinner around the edges of the area being covered. The thinner will soften the previously applied dope, causing the tissue to adhere. Trim excess tissue carefully with a sharp single edge razor blade.

Spray the covered parts with a light mist of water to shrink the tissue. This must be done carefully to avoid warping.

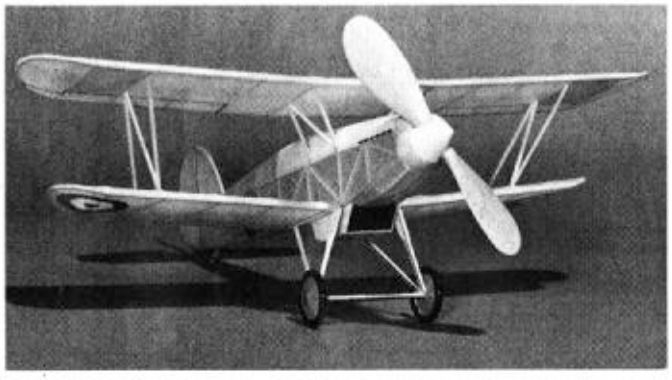


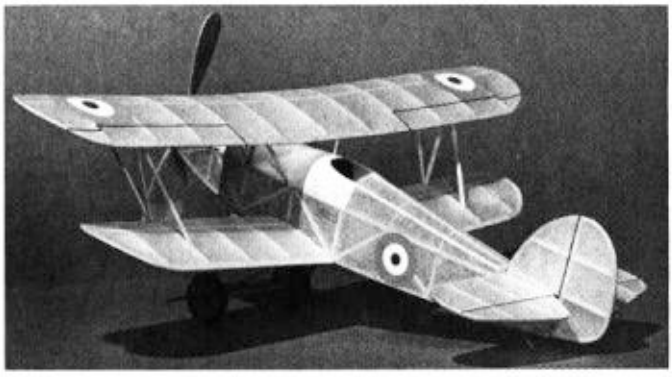
School gymnasiums will give you ideas. These light ships are safe to fly, create no fuel blops. **Top:** Bird bones dream of flight. Pride of workmanship becomes a fetish. Use contest grade wood.



Techniques learned here are applicable to more complex and larger ships. Build it neatly with attention to balance point, alignment and airfoils.

Photos below: A classic among biplanes, forerunner of WW-II Hurricane fighter. ¾ rear photo hints at its WW-I design thought and heritage.





Tail surfaces should not be sprayed, as warping would almost certainly result. Apply two coats of thinned clear dope, preferably a low shrinkage dope such as Sig Litecoat. The shrinkage of regular dope may be reduced by adding a couple of drops of Castor Oil or commercial plasticizer per ounce and mixing well.

Commercial decals can be used for the wing and fuselage roundels, if available, or the circles may be cut from colored Japanese tissue or sheet decal. Tissue trim pieces can be applied by holding in position and brushing dope thinner through the paper. This will soften the dope on the covering tissue, causing the trim piece to adhere.

Cut two R-1 pieces as shown on the plan for the radiator assembly. Use 1/32" sheet for the radiator front and bottom pieces. This wood should be the softest available, as no strength is required. The radiator front should be painted matte black or a piece of black tissue applied to simulate the radiator core surface. Trim the radiator assembly as needed to fit the fuselage bottom and glue in place.

Cut the tailskid from a flat wooden toothpick or from thin spruce or pine sheet material. Sharpen the upper end of the tailskid and push gently into the 1/16" square balsa piece on the rear fuselage bottom, retaining with a small amount of glue.

Build the center-section strut assemblies from 1/16" square balsa on the plan. The outer strut assemblies are built up from 1/32" balsa strips. Glue the center-section strut assemblies to the fuselage and check alignment while the glue dries. Cut away small pieces of tissue from the wing ribs where the struts are to join. Glue the top wing in place, checking alignment from top and front. Mark the bottom wing positions on the fuselage sides. Scrape away small bits of tissue from the fuselage structure so that a good wood to wood joint will result. Now glue the bottom wing panels in place. Check the fit of the outer wing struts, trim if needed, and cement in place.

Propeller and Motor

The propeller can be carved as shown or a commercial plastic propeller can be used. For smooth running, balance the propeller carefully. A short piece of 1/16" O.D. aluminum tubing is used for a bushing, and the shaft is bent from 1/32" dia. music wire. A split ring type lockwasher epoxied to the front of the propeller hub serves as a free-wheeling latch. The spinner shown was made by vacuforming plastic over a carved balsa form. A 1/32" plywood backplate is cemented to the back of the propeller and the plastic spinner epoxy glued to the propeller and backplate. If a Mattel Vacuform machine is not available, the spinner can be carved from balsa and glued to the propeller.

The motor is an 8" loop of 3/32" flat rubber. Tie the ends carefully with a square knot, then lubricate with castor oil or a commercial rubber lubricant.

Flying

Add clay inside the fuselage nose to make the model balance at the point shown on the plan. Test glide the model over soft grass. Bend the trailing edges of the stabilizer gently up or down as needed to adjust the glide. Add shims behind the top left side of the noseblock for down and right thrust to control powered flight.