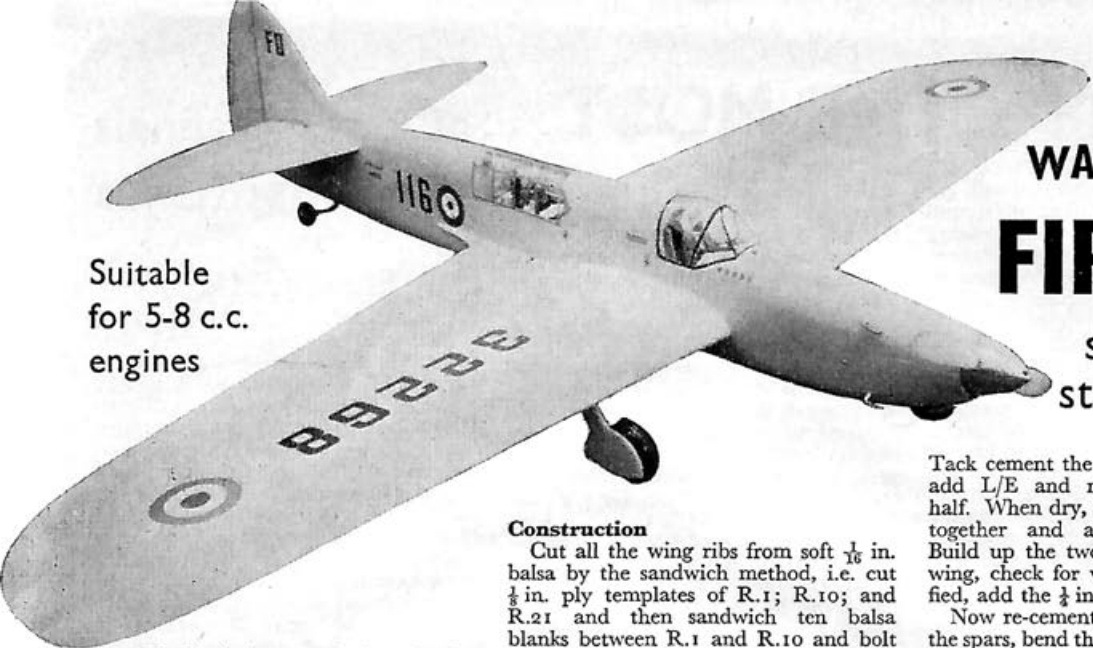


FRANK WARBURTON'S FIREFLY

semi-scale
stunt model

Suitable
for 5-8 c.c.
engines



Construction

Cut all the wing ribs from soft $\frac{1}{16}$ in. balsa by the sandwich method, i.e. cut $\frac{1}{8}$ in. ply templates of R.1; R.10; and R.21 and then sandwich ten balsa blanks between R.1 and R.10 and bolt together. Carve and sand to aerofoil section, mark the position of the main spar slots, then separate the ribs and cut out the $\frac{1}{2} \times \frac{1}{8}$ in. spar slots individually. Repeat for starboard wing ribs, sandwiching blanks between R.10 and R.21 templates, but remember to place only nine blanks between the templates. Cut the ribs R.11 and R.12 from $\frac{1}{8}$ in. balsa and cut lead out holes in all ribs to save weight.

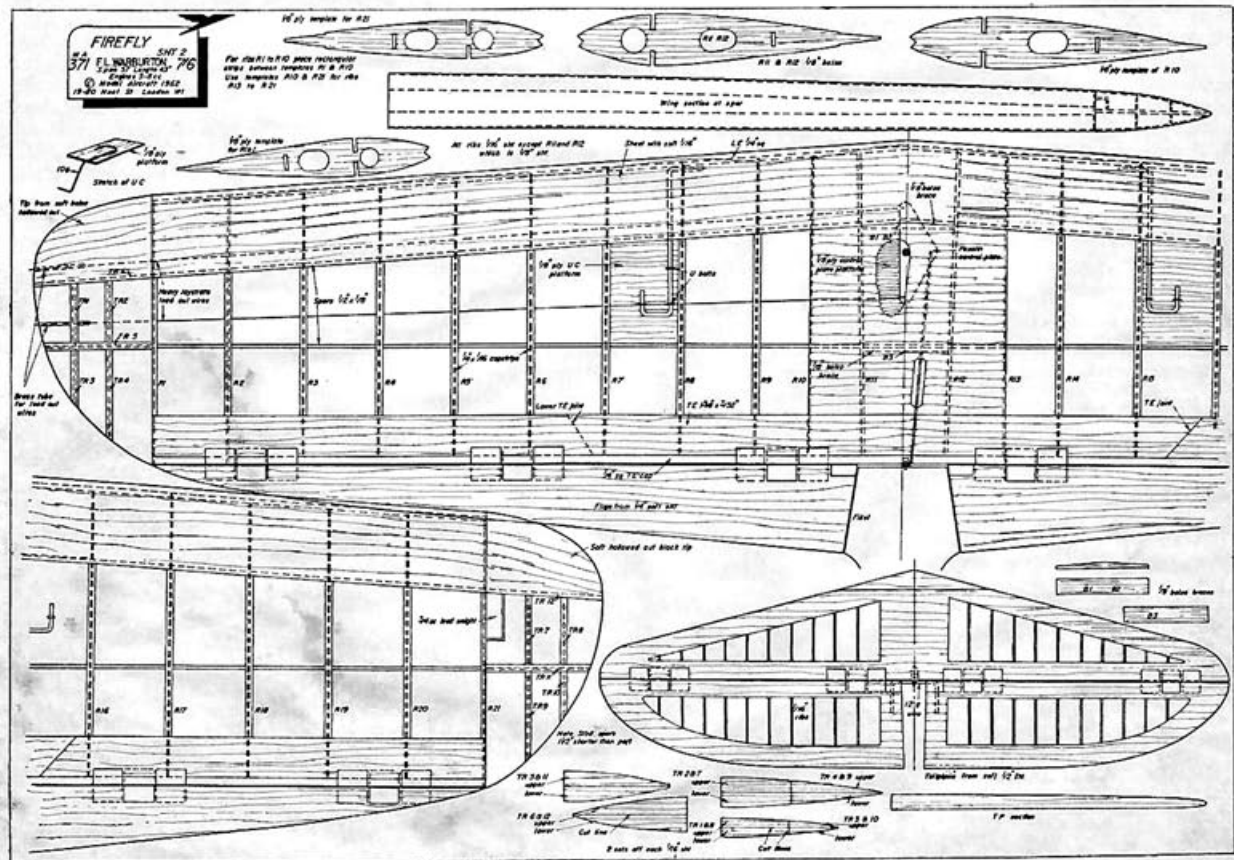
Slide the ribs for one half on to the rear spar, then fit top and bottom spars.

Tack cement the ribs lightly into place, add L/E and repeat for other wing half. When dry, butt join the two wings together and add braces as shown. Build up the two piece T/E and fit to wing, check for warps, and when satisfied, add the $\frac{1}{2}$ in. square T/E cap.

Now re-cement all the ribs securely to the spars, bend the U/C legs to shape and secure to the ply formers, then fit in place between R.7 and R.8, and R.15 and R.16. The U/C doors are made from 1 mm. ply wired to the U/C leg and covered with a sandwich of $\frac{3}{32}$ in. balsa.

Fit the bellcrank assembly complete with pushrod and lead-out wires. Cement soft $\frac{1}{16}$ in. L/E and centre section sheet into place. Now cut the wing tip sheets from $\frac{1}{8}$ in. balsa, glue to the main wing and fit tip ribs TR.1 to TR.6 upper and lower sides of the port wing, and

THE Firefly is a perfectly orthodox stunt model as far as layout and construction are concerned, yet it has many realistic features, plus ample scope for constructional detail, to help in gaining high appearance points in competitions. Even more important it is very steady and positive on the lines and makes an ideal all weather stunter. The original is a little on the heavy side at 50 oz., but with 610 sq. in. of wing area, it handles very "lightly" with a Merco 35.



TR.7 to TR.12 upper and lower sides of the starboard wing. The wing tip L/E's are of soft balsa block, hollowed out to save weight. Fit the lead out wire tubes into the port wing tips and pack approximately $\frac{3}{4}$ oz. lead into the starboard wing tip. Cap the ribs with $\frac{3}{8} \times \frac{1}{8}$ in. soft balsa strips. Make and hinge the $\frac{1}{4}$ in. sheet flaps and connect both push rods.

Fuselage

Cut out the medium $\frac{1}{8}$ in. sheet fuselage sides and cement 1 mm. ply doublers to the inside faces. Cut away the section under the wing and save for later.

Drill the engine bearers with 2 deg. offset, cement to F.2, F.3 and F.4 and fit the tank into place on the bearers. Pre-cement the sides to this assembly, hold with elastic bands till dry, then cement F.5, F.6 and F.7 into place. At this stage the fuselage is firmly cemented to the wing, checking for zero incidence and then the tail-end is brought together by F.12. Hold this with pins and rubber bands until dry, then slide F.8, F.9, F.10 and F.11 down the pushrod and connect the tailplane to the pushrod.

The tailplane is cut from soft $\frac{1}{2}$ in. sheet with $\frac{1}{8}$ in. ribs added. Slide the tailplane back and forth along the top of the fuselage sides until neutral flap and elevator is achieved then cement firmly into place.

Replace the cutaway section under the wing and add the remaining formers F.13, F.14, F.15, F.16 and F.17. Plank the top of the fuselage with soft $\frac{1}{8}$ in. balsa. After the tail wheel has been sewn with fuse wire to its ply former and cemented against F.11, plank the fuselage bottom with $\frac{1}{8}$ in. balsa.

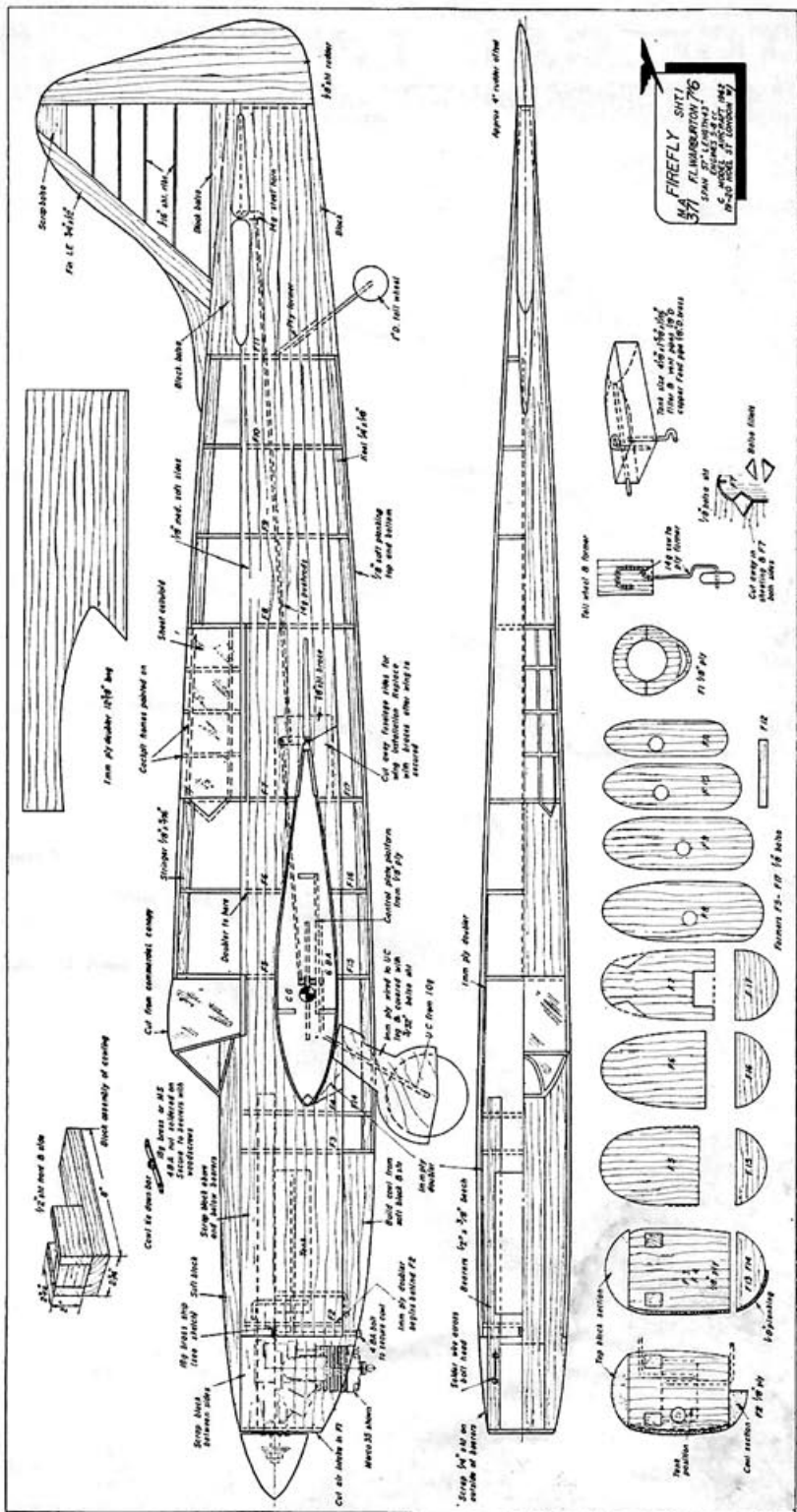
Cement the hollowed out block for the nose in place and cut out for the forward cockpit. The engine cowl is made from $\frac{1}{2}$ in. and 1 in. sheet carved to shape.

Build up the fin over the plan, then sand to section and cement in position with the rudder offset as shown on the plan.

Add cockpit details and both pilots and cement on the cockpit covers. I find that the Mercury Crusader canopy, suitably cut down, makes a perfect scale Firefly front cockpit canopy. Use sheet celluloid for rear. Fit the wheels now—I used Veco $2\frac{1}{2}$ in.

Give the whole model two coats of sanding sealer and sand smooth, cover fuselage with lightweight tissue and apply more sanding sealer until a smooth gloss finish results.

Heavyweight tissue is used for the wing, tail and fin. Give three coats of clear dope and three of finishing colours, wet sanding between each. Metal polish the final coat. Add the necessary transfers and finish with fuel proofer (two coats). The original model is fitted with a Merco 35 and flies to perfection, but it has also flown equally well with a Glow-Chief 45, so any good



glow motor between 35 and 45 will do. For correct flying trim, the c.g. must be as shown on the plan. Detail and superb finishes are the vogue in stunt at the moment, so do not be afraid to spend a little extra time during painting.

FULL SIZE WORKING DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT, 19-20, NOEL STREET, LONDON, W.1, PRICE 7s. 6d., (TWO SHEETS), POST FREE