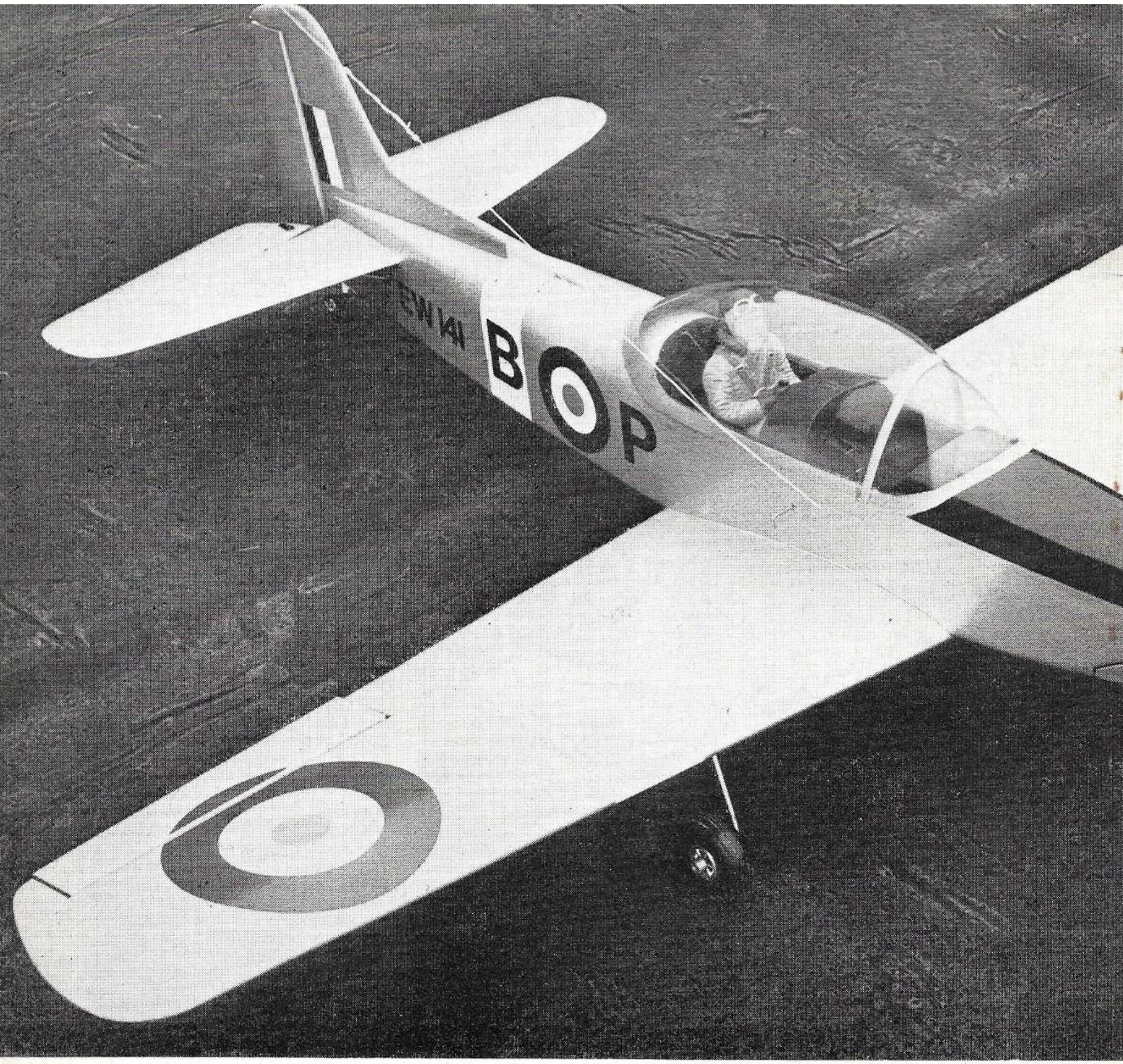

BOP
"CHIPPEROO"



CHIPPERO

a super-realistic sport mod

sparkling performance!

by

★ **54¼" SPAN for .35–.40 MOTORS**

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— with a

IAN PECKHAM

MY RADIO CONTROL flying experience had been limited to the rudder/elevator high wing trainer, and some very hairy moments with a *Cherokee*. I began to look around for my next model, which was going to be quite soon, the way I was flying this last model. Anyway, the choice of kits and plans seemed limited as most of the multi trainer/aerobatics models are high or mid wing types, bearing little resemblance to " real " aircraft—and I do like my models to look realistic.

The alternative was a pukka scale job, of which few are of simple construction and which require a great deal of elbow grease, and usually a spray-gun to achieve the colour schemes. Drawing on my long experience of designing free-flight models, together with much poring over existing plans, and squinting at models currently being flown, plus much scribbling on the backs of the proverbial envelopes, produced some rough ideas. Translated eventually to the drawing board, these became *Chipperoo* as you now see it.

As the name suggests, the model is rather after the style of the *Chipmunk;* it features simple construction which lacks nothing in toughness, and needs only a quick iron over the film covering to finish! The original was constructed over a couple of weeks of evenings, and the first flight took place on a grey January day. It was not flown by me, I hasten to add, but by an experienced pilot, Geoff Allen, of the Stoke Row model group, who made very flattering noises. *Chipperoo* has since been flown by many other members of the group, who all seem quite impressed—I wouldn't know, I'm not allowed to hold the " tranny "!

CONSTRUCTION

Chipperoo's construction is quite uncomplicated (that's just another way of saying " straightforward ") and most people of some experience will be quite happy simply to work from the plan. For those with less building behind them, however, these notes should be of assistance.

Fuselage

A firm medium grade of balsa should be used, for lightness and strength. The $\frac{3}{16}$in. sides and $\frac{1}{16}$in. ply doublers are joined with contact adhesive after steaming them to conform to the curvature at the nose. Make a sub-assembly of the $\frac{1}{4}$in. ply engine plates and formers F2 plus F3 with epoxy adhesive. Attach the sides to this with epoxy also—and small woodscrews. Pull the tail end together and join with scrap $\frac{1}{8}$in. sheet.

Make up and fit former F4, add the $\frac{1}{8}$in. ply reinforcing plate to the engine mount with epoxy and drill the engine bolt holes. Add triangular fillets to the tank bay and underside rear fuselage, trimming them to fit over the ply doublers. Build up the decking from $\frac{1}{2} \times \frac{1}{2}$in. strip, and $\frac{1}{2}$in. soft sheet, profiling the layers, with some hollowing later.

Next fit the tank and the throttle cable outer tube, followed by medium-hard $\frac{1}{2}$in. sheet at the undersurface of the nose, as shown. The rear underside of the fuselage is covered with hard grade $\frac{1}{8}$in. sheet, cross-grain, (*i.e.* the grain across the fuselage, not along the length of it), with a $\frac{1}{8}$in. ply tailpiece added to support the tailwheel bracket.

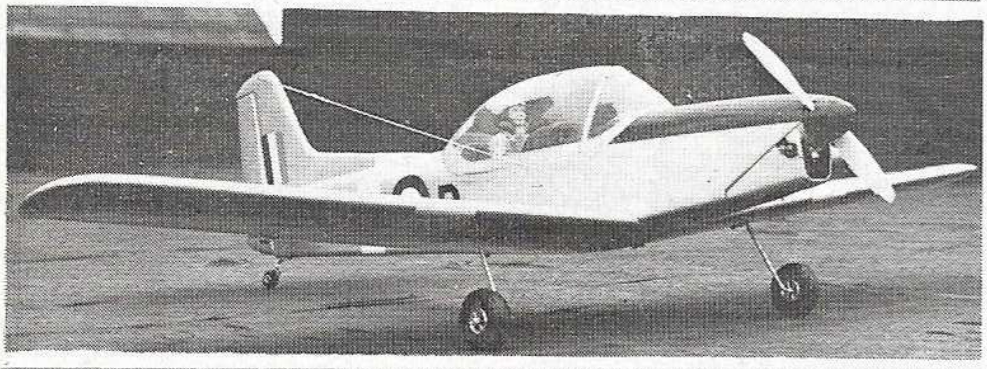
Cut out and assemble $\frac{1}{4}$in. ply formers F1 and F2 (2 off) with epoxy and assemble to the fuselage structure, again with epoxy. Carve and sand the whole fuselage to shape, trim the cockpit area, adding the 3/32in. sheet facings to the decking, and the $\frac{1}{2} \times \frac{3}{16}$in. cockpit edging. Make up the console assembly, fit it in position and then fit the cockpit floor.

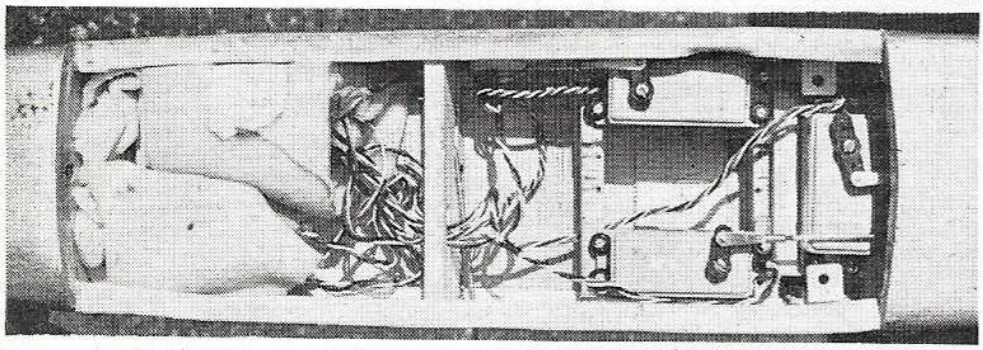
Cut the cowl on the line shown fit the engine temporarily and make the required cut-outs in the cowl for cylinder head, exhaust stack and needle valve. Fit two 14g. pegs and brass tube locators (shown dotted on the plan side-view). Make two dural plates and screw and epoxy these to the cowl, at the front of F1, as shown in the section view (F1/F2). The lower part of the cowl is retained by woodscrews through the holes in the upper part of the plates. Use countersunk screws, and countersink, the holes to give a flush face. Line the inside of the cowl with epoxy or fibreglass resin, forming fillets at the joins.

Tail unit

Cut the tailplane, elevator, fin and rudder from soft $\frac{3}{4}$in. sheet balsa and sand to shape. Fit the tailplane to the fuselage, checking for squareness, and add $\frac{1}{8}$in. sheet packing behind it to fill the remaining slot. Next fit the rudder post (of $\frac{3}{8}$in. hard balsa), slot the top decking of the fin and assemble the fin/dorsal unit to the fuselage.

The elevators are joined with 14g. wire epoxied in place. The rudder is from $\frac{3}{8}$in. soft balsa sheet,





Various angles show the attractive lines of *Chipperoo*. Detail close-ups will help builders get an idea of things before starting work. Elevator servo is shown mounted athwartships, but may, of course, be in line with others.

sanded to the section shown in the top view on the plan. Assemble a nylon tailwheel bracket and wheel onto a 14g. wire arm and epoxy the top of the wire arm to the bottom of the rudder, as shown.

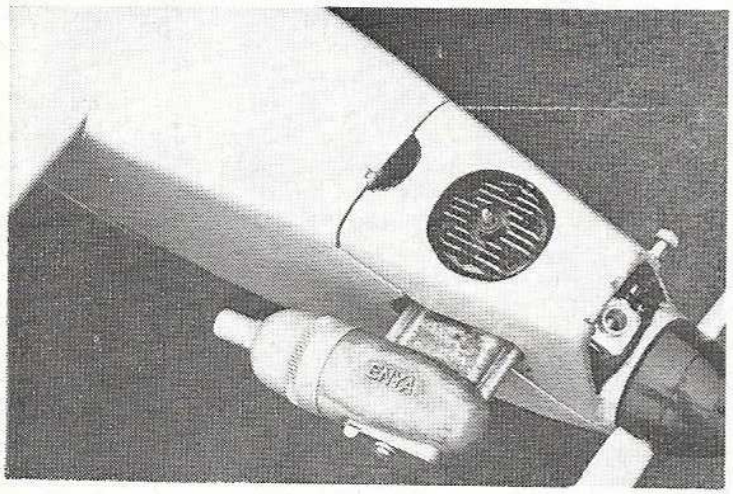
Wings

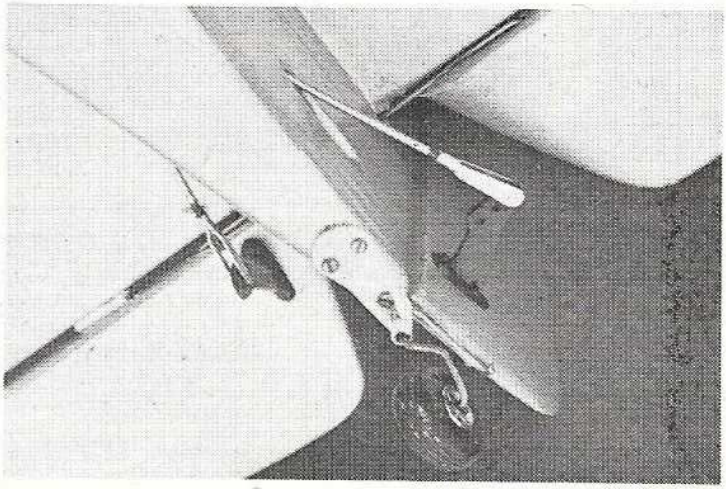
The wing ribs are made by the "sandwich" method (*detailed in the new RM Planbook, for newcomers—Eds.*), after making root and tip templates from $\frac{1}{16}$in. ply. The lower mainspar is first pinned over the plan and the ribs added, with a strip of $\frac{3}{16}$in. sq. strip pinned in position—as shown on wing plan and rib profiles—so as to give the correct washout, which is $\frac{3}{16}$in. at the tip trailing edge.

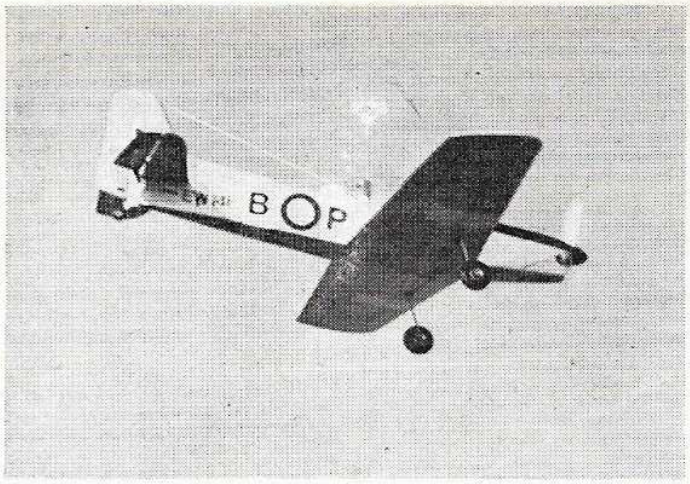
Add the false leading edge, top spar, rear spar and trailing edge sheeting. Now remove the structure from the board to add the lower main-spar and undercarriage supports. Make up the aileron torque rods from 14g. wire. (I made each of mine in two halves and, after bending, threaded them through and joined them with 14g brass tube.) Add packing between the spars to form a web, epoxy the 14g. tube bearings to these webs and then add the lower trailing edge plus $\frac{1}{2} \times \frac{1}{8}$in. reinforcing.

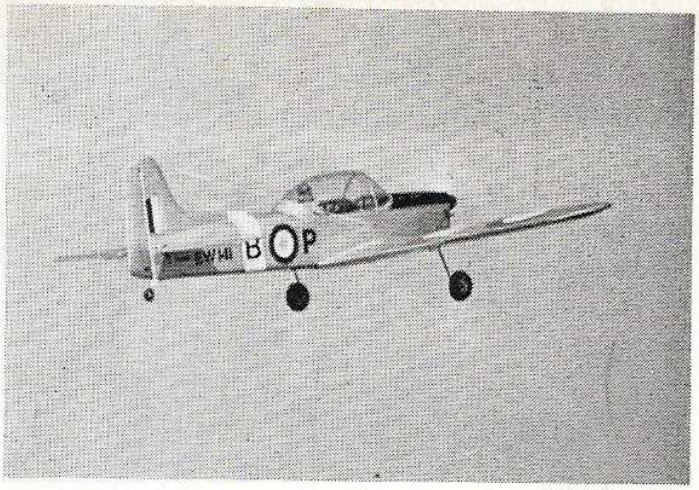
Sand the false leading edge to the rib contour, then fit the top and bottom leading edge sheeting, followed by the capstrips and then, at the aileron position, fit the $\frac{1}{4}$in. webbing and $\frac{1}{16}$in. facing to the rear spar. Fit the soft block tips, and the lower centre section sheeting and sand the structure smooth overall. Repeat, of course, for the second half, having traced, or transparentised the plan.

Join the wing panels, propping them up for the appropriate dihedral (2in. at each tip rib) and fitting the ply braces, B1 and B2, which also form the front and rear of the servo-well. Next add the false ribs and the top sheeting, and cut









away the root ribs. W1, as shown, to make room for the aileron servo. The undercarriage is from 6g. wire, held in position by circular nylon keepers recessed into the $\frac{1}{16}$in. sheeting. Add the $\frac{1}{16}$in. ply reinforcing plates at the wing-bolt positions, and the $\frac{1}{4}$in. dowel locating peg at the leading edge. Make up the ailerons as shown and drill for torque rod (do not hinge or epoxy onto torque rod until the airframe is covered).

Finishing

Fuelproof the engine bay and finish the entire model in your own preferred manner. Mine was film covered all over in silver, with matt black cockpit interior and R.A.F trainer yellow bands and roundels on wings and fuselage. For a touch of extra realism, I have added dummy instruments to the dashboards and an 1/8th scale pilot in the rear "seat." The cockpit canopy, incidentally, is the Micro-Mold one, produced for the Avoncraft Canadian *Chipmunk* kit, and available separately through Micro Accessories stockists. Mine is attached to the fuselage by strips of iron-on film.

Installation

The battery pack fits to rear of F4 and the receiver alongside it. My servos are on a tray to the rear, and arranged as shown in the photo, but this will vary, to achieve the correct balance position. The aileron servo should be as close as possible to the wing trailing edge, in order to avoid fouling the fuselage servos.

The original is powered by an Enya 35BB and weighs just on 5lb. Initial flights needed only minor adjustments of trim to give "hands off" flying. Control throws are $\frac{3}{4}$in. each way on rudder, $\frac{1}{2}$in. each way on elevator and $\frac{1}{2}$in. each way on ailerons.

Flying

Once you have mastered the high wing intermediate trainer, you should find *Chipperoo* fairly easy to fly. The smoother your flying field is, the better, however, as hand-launching with this one is just not on.

With the motor at full throttle, release direct into the wind. Let it build up plenty of speed, keeping directly into wind—if the wheels are tracking correctly, very little rudder should be needed. Ease it off the ground gently, without being tempted to yank it off too early. Once airborne, gain some height and airspeed before initiating a turn. The model has the same feel and characteristics as a full-size aircraft, so don't flail the sticks about, just relax; *Chipperoo* is able to fly through all the manoeuvres at a leisurely pace, giving you plenty of time.

Handling is very smooth and the original has been flown in a wide range of wind conditions with only minor changes of trim. In fact, the demo flights for R.M., when the flying shots were taken, were made with the wind gusting to 20mph.

For inverted flying, a touch of down trim was required on the original, but otherwise it's all plain sailing—in fact, *Chipperoo* will fly quite happily hands-off once trimmed out.

Try, if possible, to land with power on, as this tends to make life easier if you happen to look like undershooting the strip. Make the approach long and reasonably flat, giving yourself plenty of time. Keep the wings level and the last 100ft. or so will take care of itself. On a dead-stick approach the foregoing also applies, but don't stretch it out too much, or you may stall and possibly drop a wing. The model is not particularly lightly loaded, and the stall is sharp. So keep the airspeed up, leaving the flare-out until the last possible moment.

I hope that by now you have cleared the building board, and are writing out a cheque for the plan. . . . I'm sure you won't regret building *Chipperoo*, as mine evokes the most enthusiastic comments and frank admiration wherever I take it!

A decently finished cockpit interior really does enhance any model's appearance—more so with semi-scale types.