

A 42
mode

Phil

IMAGINE getting chicken pox at the age of 26, well I did and believe me it was no fun. Well, there I was, covered in spots and forbidden to make contact with man or beast (or woman - ? Ed.) for 3 weeks. Having read every copy of R.C.M.&E. that I possessed from cover to cover I began to feel like building a new model.

I had plenty of wood, a Veco 19, some $2\frac{1}{4}$ diameter wheels from my old Shoestring Formula 1 Racer, a 4 oz. Kavan fuel tank, paint, tissue, dope, an engine mount, what more could I want? Well! it would have to be a small model with only '19' on hand, although it was a good one at that. My Skyleader SLX with Kraft KPS-12 servos was certainly compact and light enough for a small model, but I only had a 500 mAH power pack. Could I trust my wife to venture down to the local model shop and buy me a 225 mAH pack.

Well I had to, and luckily she came back with the right battery. So there I was feeling better already and with everything I needed to build a new model.

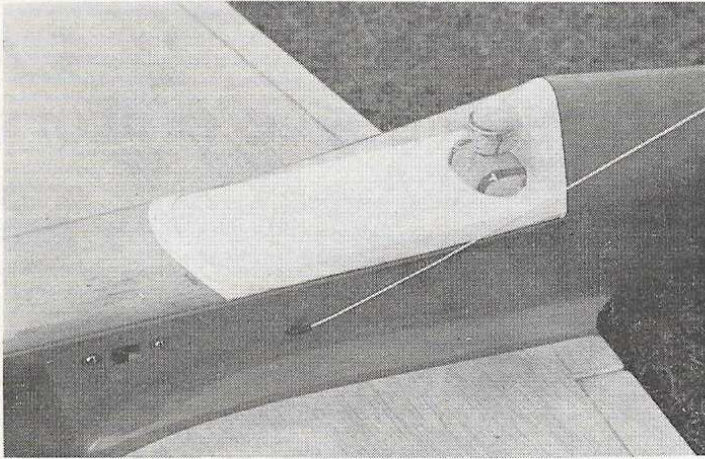
The design of *Philibuster* owes nothing to any one particular model but as can be seen it bears more than a slight resemblance to my F.A.I. pylon racer *Manneater*. The model is built in 'one piece', or should I say finally assembled and finished *in situ* with the wing permanently fixed to the fuselage. Access to engine and radio compartments is by removeable fuselage top deck which is detachable from the canopy forwards. There is plenty of room in the radio compartment for any of the modern miniature gear so long as you use a 225 mAH power pack. The use of a 500 size pack would tend to make the model nose heavy as well as restricting space. The 'one piece' model configuration has proved no dis-

advantage. In fact, on a model of this size it is a distinct 'advantage'. After a flying session one has only to give the model a quick wipe over and it's ready to stow in the car boot.

The aerofoil section is fully symmetrical from root to tip and to my own profile. I'll have to buy a new set of French curves (sounds like Greeno's about to hang up his 1974 calendar - Ed.) It has proved ideal on this model giving a really first-class aerobatic performance without any nasty tip-stalling tendencies at slow speed. In fact its aerobatic performance quite surprised me. All the usual aerobatic manoeuvres such as axial rolls, bunts, cuban eights, stall turns, etc. were performed with ease but when I tried the more difficult manoeuvres like sustained knife edge flying, full power avalanches and inverted spins, the design really proved itself. I had to be careful though not to get too



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Cockpit canopy is simple shape, made from wrap-around acetate sheet. No moulded canopy required. One-piece model makes for clean wing/fuselage joint.



Radio and tank bay hatch is retained at rear by hardwood dowel which plugs into cockpit former. Front of hatch retained by a single bolt.

carried away because a small model eating up great expanses of sky soon becomes very difficult to see. Elevator and aileron response are excellent although the ailerons on the prototype were just a little too sensitive, as experienced by everyone who flew the model (including me too - Ed.). For this reason and the request by our concerned editor, I have reduced the area of the ailerons on the plan.

The engine used, a German built 'Veco 19' mit 'Perry' carb has proved to be a superb small engine with plenty of power and a really excellent idle when turning a 8 in. x 6 in. Tornado nylon propeller. The 'Perry' carb is a little tricky to set up but once adjusted properly, gave no trouble at all. I use about 8 per cent nitro mix fuel for general R/C flying and whereas this might seem a little extravagant on a '61' multi model, it is more essential on a small engine like the 'Veco 19'. The nitro seems to give a more consistent engine run, especially in cold weather. Well that's enough about *Philibuster* design and performance, how about its construction?

Construction

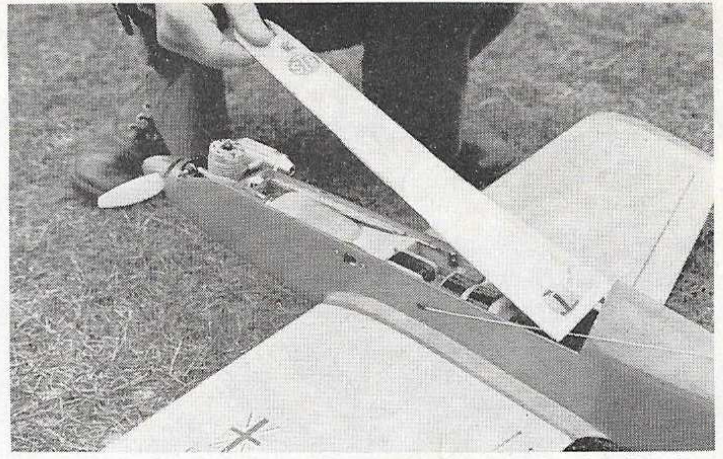
With all of my models, I tend to build as light as possible for optimum balance and flying performance. All balsa used is of the soft to medium-soft grade, and the prototype weighed just 2½ lb all-up

and ready to fly. Try and aim for this weight by keeping the paint job and finish to a minimum and in any case do not exceed an all-up weight of much over 3 lb, otherwise you have a very hairy little model on your hands.

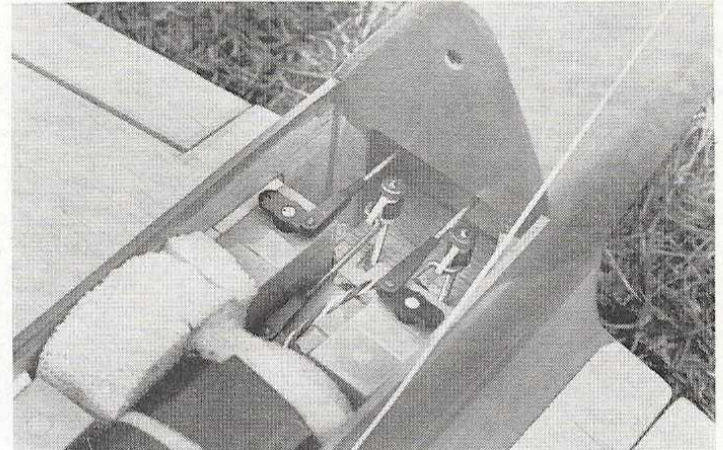
Fuselage

The fuselage is very simple in construction and should be both light and strong. The basic fuselage sides are cut from medium soft ¼ in. sheet and the 1/32 in. ply doublers glued in position using a contact adhesive. The three plywood formers F2, F3 and F4 are cut from ¼ in. ply. The firewall F2 is then drilled to accept the engine mount. I used a small *Fox aluminium mount* which proved ideal for the job. The mount is fixed in position with 4 B.A. bolts and blind nuts. The fuselage sides are assembled with the formers F1 - F7 over the plan and no difficulty in alignment should be experienced. The rear upper fuselage sides and top deck together with front nose block and underside fuselage sheet can be added at this stage, but before gluing the final piece of underside fuselage sheeting in position near the tail, epoxy the steerable tail-wheel in position to the tailpost. The fuselage can now be shaped and sanded to a smooth profile.

The removable top deck at the front of the fuselage is cut from ⅜ in. soft sheet and the canopy former F4A glued



What big teeth you have, Grandma! One-piece wing/fuselage arrangement dictates other access to radio and tank compartments. This long hatch makes access very easy and convenient.



All control linkages are easily accessible through hatch. Note the links to the strip aileron horns which can be adjusted for throw. Servos installed with double-sided mounting tape.

to it. The front top deck is then placed on the fuselage and canopy former F4A located to F4 with a ¼ in. dia. dowel. The top deck is secured at the nose with an 8 B.A. bolt and bracket attached to F2. The canopy is cut from thin acetate sheet and has no compound curves.

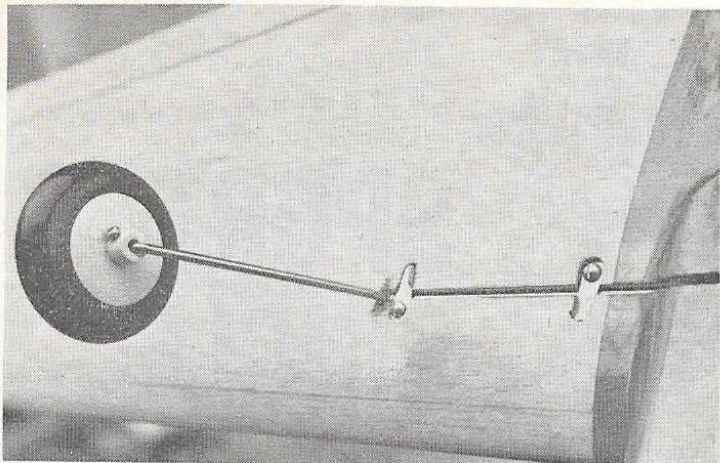
Wing and Tailplane

The wing on my original model used a foam core covered in ⅛ in. soft balsa sheet. This proved not only quick to construct but also extremely light and rigid. For those of you who do not like foam wings I have shown a built-up construction on the plan. The ailerons are actuated via 12 s.w.g. piano wire torque rods built into the trailing edge of the wing. This gives an extremely positive and slop-free linkage to the aileron servo. The wing should be finally assembled with ½ in. dihedral under each tip.

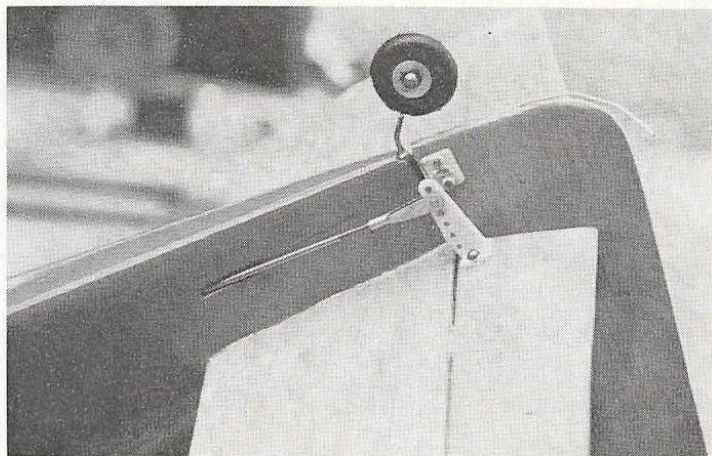
Fin and Tailplane

The fin and tailplane are both from medium soft ⅛ in. sheet balsa and require little more than sanding to a nice symmetrical section before gluing to the fuselage.

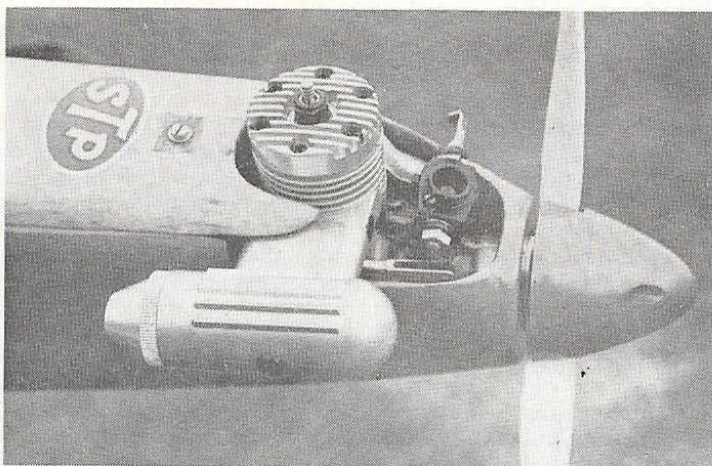
Right: the radio installation in prototype use Skyleader SLX unit, but most of the latest four-function proportional systems should fit, it just requires a little careful planning to make best use of available installation space.



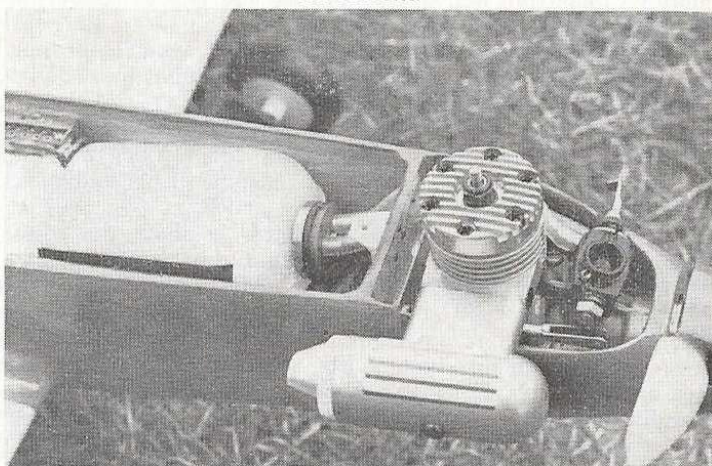
Simple wire main undercarriage showing installation. RipMax units used on prototype.



Tail cone showing linkage to elevator and the steerable tail-wheel. Elevator has a quite long horn to restrict control movement.



Installation of Veco 19 'Europe Series' motor, complete with muffer. Simple layout makes for easy accessibility of needle valve, control linkage and fuel line. Note retainer bolt behind engine cylinder head.



With hatch removed, we can see neat installation of Kavan 4 oz. fuel tank. Complete installation easily accessible.

Final Assembly and Finishing

The finished wing and fuselage are then glued to each other with a strong wood glue such as Evostic Resin 'W'. Be careful here as you must achieve the correct 'decalage' (longitudinal dihedral) between wing and tailplane. This should be zero zero or 0 degree incidence. The wing fillets are cut from 1/2 in. soft sheet and should be glued and faired into

position to make a good clean wing-to-fuselage joint.

Final finishing is a matter of personal choice but as mentioned previously, it should be kept to a minimum. The original model had a natural tissue finish on the flying surfaces while the fuselage was given one coat of 'International' two part polyurethane colour.

Control surface movements should

also be kept within reason to avoid an over-sensitive model. 1/4 in. up and down movement on both elevators and aileron should prove more than adequate for all the schedule of manoeuvres. Rudder movement is not critical but be careful that it does not foul the elevator on full travel.

Well that about sums things up then, I hope you enjoy *Philibuster*. It certainly is a 'fun model' to fly.

