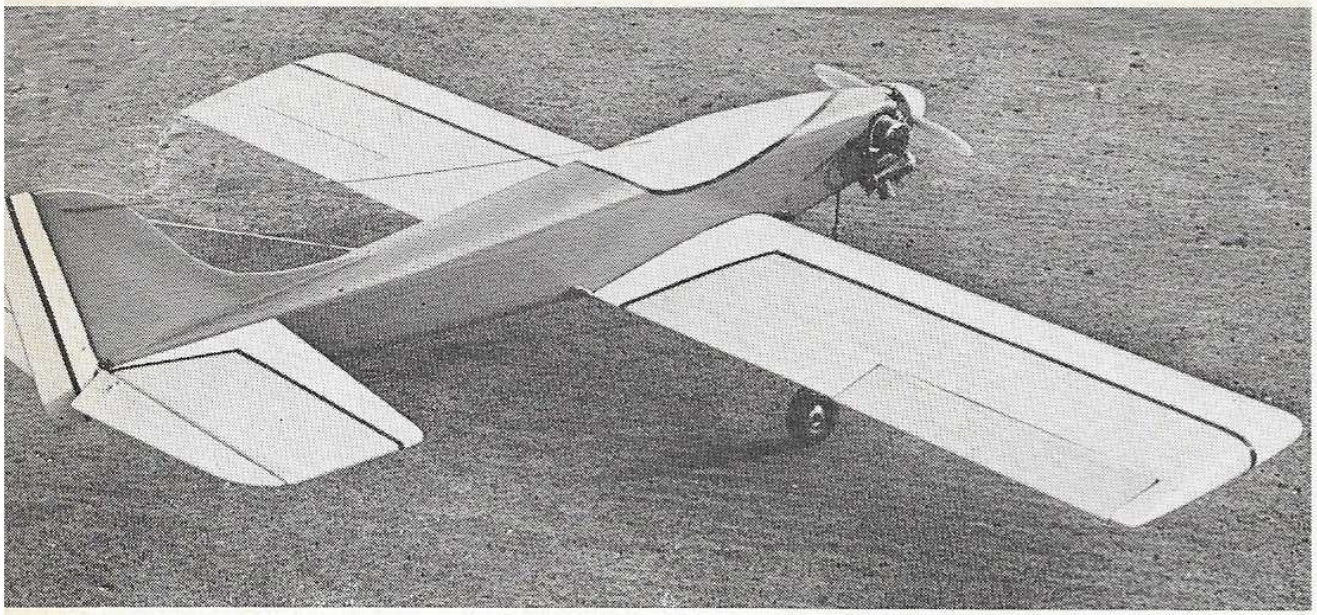

ANTARES

by J. PATTERSON

"compact" size sport and stunt model—54" span for .40 size motors

HAVING graduated from the *Super*-60 type of model to low-wing types via the *Fun Tiger*, I wanted something more streamlined and of a more contemporary shape, to suit my recently purchased O.S.40P. I decided to design a model with as smooth a line as possible, in the current style, and *Antares* is the result.

The model has proved to be responsive to all controls, without being touchy, and with a good 40 up front has turned out to be quite fast, managing to gain a third place in a couple of local open pylon races. With a competent pilot in control it has also shown itself capable of flying through the F.A.I. aerobatic schedule.

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CONSTRUCTION

Fuselage

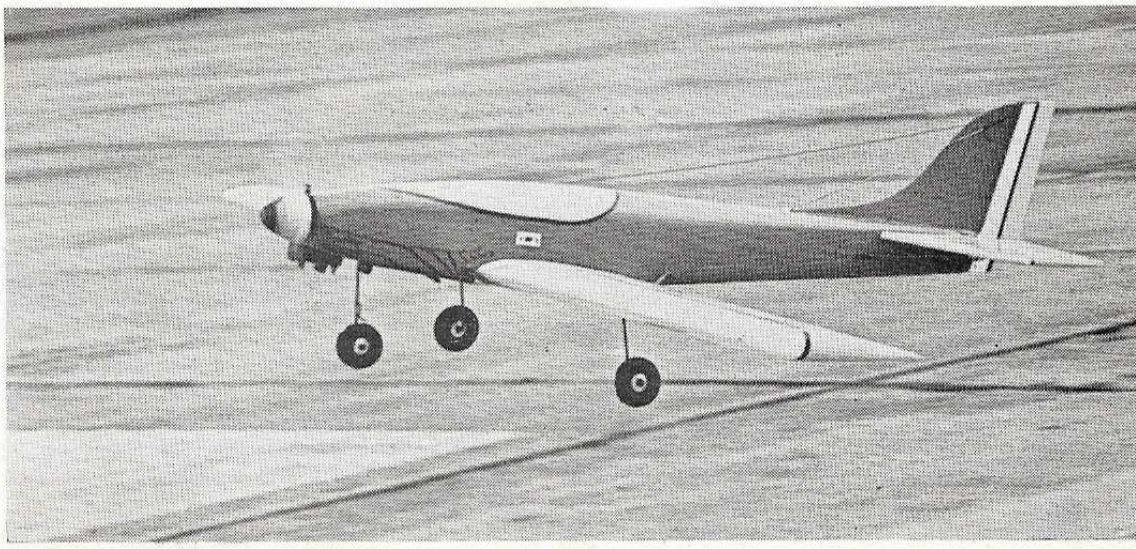
The $\frac{1}{16}$in. ply doublers and $\frac{1}{16}$in. balsa tailplane doublers are first cut out and contact cemented to the 3/32in. medium balsa fuselage sides. The rear fuselage top is cut from $\frac{3}{8}$in. soft balsa, and $\frac{1}{2}$in. triangular fillets cemented to it, remembering to inset these 3/32in. from the edge, to allow for the sheet sides. More $\frac{1}{2}$in. triangular fillets are then cemented to the bottom of the sides, from the rear of the wing cut-out to the rear end. When dry, the sides are then cemented to the fuselage top, remembering to chamfer the tailplane doublers and fillets at the rear to ensure a clean join.

Formers F1, F2 and F3 are now fitted, using 5-minute epoxy, having already drilled F1 to take the motor mount and nosewheel leg. After clamping the fuselage together, double check that everything is square and that the fuselage is straight, in plan view. More $\frac{1}{2}$in. fillet is then cemented to the sides between formers F1, F2 and F3. The $\frac{1}{2}$in. and $\frac{3}{8}$in. fuselage tops are next fitted—between F2 and F3, and F1 and

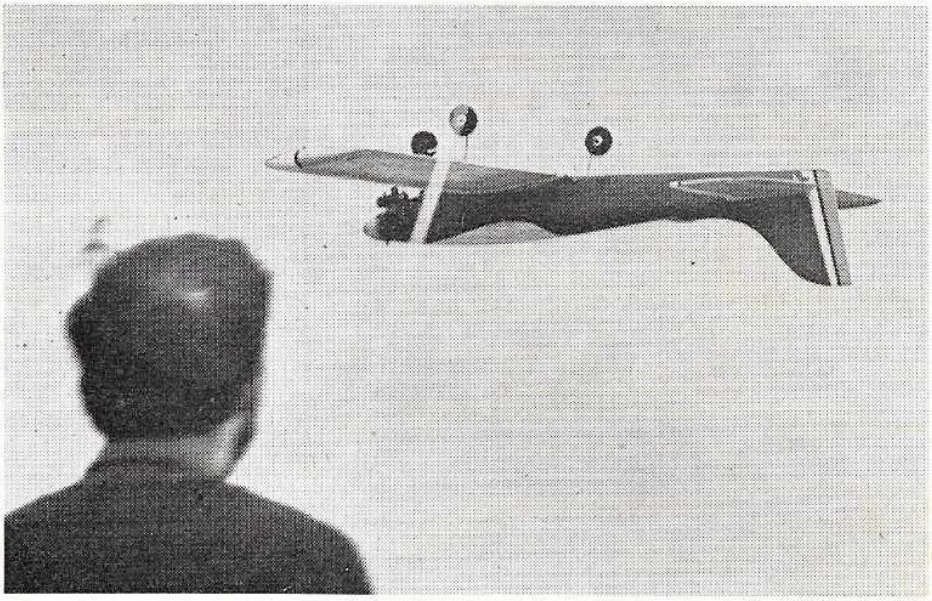
F2 respectively. The bottom $\frac{1}{4}$in. sheet balsa between F1 and F2 is fitted as a removable hatch for access to the tank and noseleg.

The 3/32in. balsa bottom sheeting is now added, grain crosswise. The engine and mount are next fitted in place temporarily and the cowl built up from $\frac{1}{2}$in. soft balsa. Fit the propeller and spinner, and mark the front of the cowl with a ball-point pen, after which the propeller, spinner and engine are removed and the cowl carved roughly to shape.

The fin and tailplane are next constructed, and temporarily assembled, checking their alignment to the fuselage. They are then removed and the fuselage corners radiused, using a razor-plane or balsa knife, and finally sanding overall to a smooth



Designer shows compact size of *Antares*. Left: low speed shots—see text.



finish. The tailplane and fin are then cemented in position.

Wing

The rib templates are cut from ply or aluminium and the required number of ribs cut from medium 3/32in. balsa, remembering to cut out holes in the ribs for the aileron push-rods. The $\frac{1}{4}$in. square spars are spliced and joined—there is no dihedral to worry about. The front spar is pinned to the building board and the rear spar blocked up as necessary, remembering to stagger the splices.

The ribs are now cemented to the spars, using PVA white glue, checking that all ribs are vertical. The top spars and $\frac{3}{8}$in. sq. leading edge are then fitted, checking every stage for warps. The $\frac{1}{4}$in. sheet balsa aileron spars and ailerons are next fitted, as well as the aileron linkages, push-rods, undercarriage mounts etc. The wing is then completely sheeted with $\frac{1}{16}$in. medium sheet balsa, and soft block tips fitted, remembering to hollow out the tips for lightness. The wing is then sanded smooth and the ailerons cut out and hinged, using mylar strip, pinned with cocktail sticks.

The whole model is now sanded with fine sandpaper before covering. The original was covered with an iron-on film, but this is, of course, up to the individual, though it should be bourne in mind that it is always best to keep things as light as possible.

Rigging and Flying

The original model flew with the c.g. as shown on the plan. This is probably the best place to aim for, but has since proved not to be very critical, within reason. All flying surfaces are set at zero incidence, and there is no downthrust or sidethrust on the engine.

We have found that the all-round flying characteristics of *Antares* are very pleasant. It has very good stall characteristics, in that when stalling speed is reached, the nose drops rather than a wing tip. This shows when you try to spin the machine, unless you really bang over " lots of rudder " it will not spin, but just drops its nose and pulls out on its own. It really needs plenty of rudder movement for good spins.

Landing approaches can really be stretched, with the model behaving very well, coming in slow and flat, holding the nose up and slowly letting the model sink onto its main wheels for a really smooth landing. *Antares's* good manners showed up when we were taking photographs as it was flown by at a fast walking pace, very close to the photographer, without having any anxious moments. If you have ever tried to photograph a model in these sort of positions, you will know what I mean—it is usually quite hair-raising!

If you build *Antares* I hope you have as much pleasure with it as I have had with mine. The only other general advice I would give is to choose your wood carefully and keep it as light as possible.