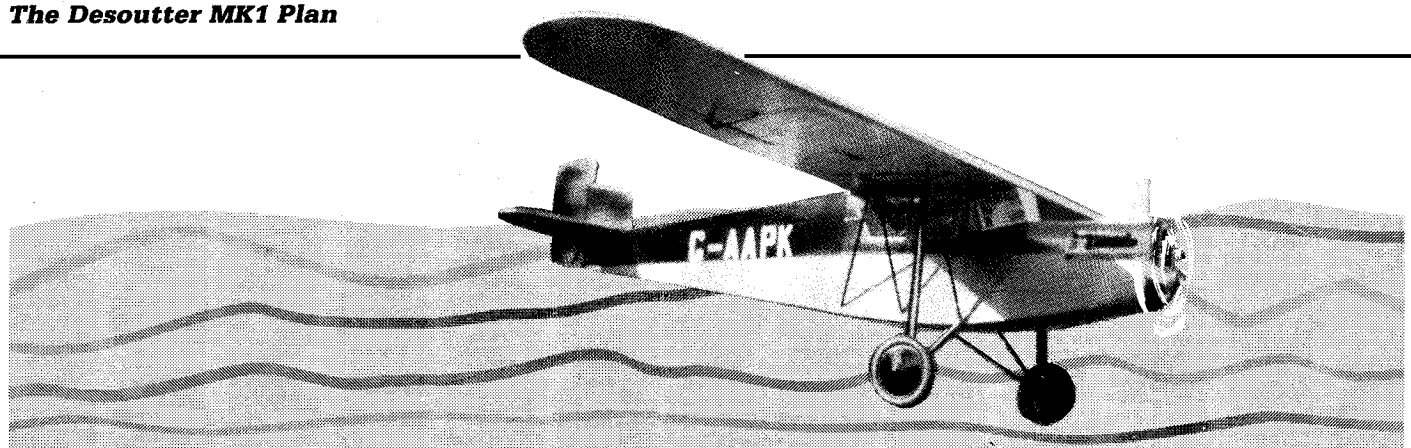

Desoutter Mk.1

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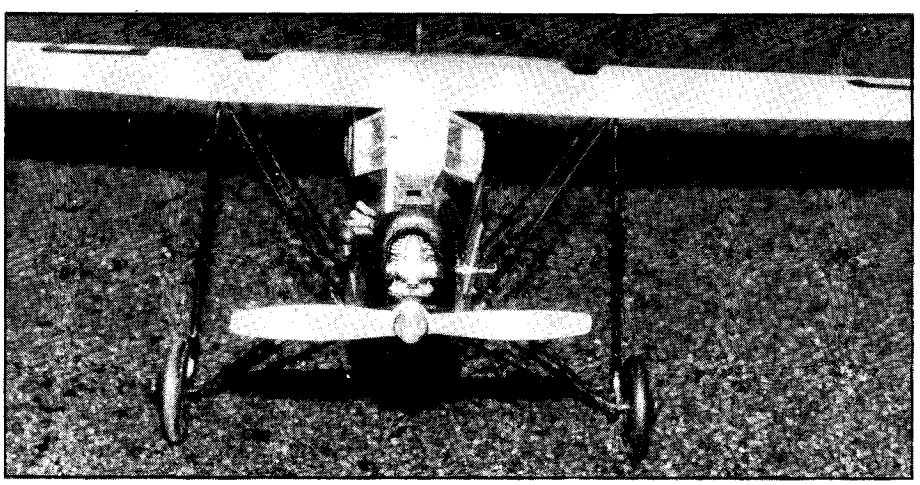
With a wingspan of 54 inches, this little gem designed for .20 four strokes upwards is still a practical size. Designed by PHIL KENT.

Being interested in 1920/1930 civil aircraft I was quite taken by a photograph of the Desoutter Mk. 1 Monoplane G-AAPK. Not that the aircraft was beautiful but it had a rugged charm and its registration bore my initials. What better excuse to build a scale model? I had previously built the ABC Robin for club 20 scale and felt that the Desoutter would be a good companion. Documentation for this model is much easier to obtain than for the Robin. I looked back through my old Aeromodeller magazines as I could remember seeing a 1/72 scale drawing of the Desoutter. Sure enough there it was, September 1944 issue. G-AAPK was owned by National Flying Services and was painted in their attractive house colours; black and orange fuselage, silver wings and tail, white lettering on the fuselage and black on the wings. There were several other schemes including G-AANB which was yellow with silver wings and tail with black lettering. This aircraft also had low pressure airwheels rather than the vintage Palmer Cord type. The Desoutter Monoplane was built under licence in England to a design by the Dutch Koolhoven company. It was a wooden aircraft, the fuselage slab sided with spruce longerons covered in 1½mm plywood. An unusual feature was the external stringers which ran down the outside of the fuselage. The wings were fully cantilever using spruce and plywood box spans and spruce ribs, the whole structure being covered in plywood. The tailplane was also ply covered but the rudder and elevator were fabric covered steel tubular frames. The undercarriage was of a very wide track, a very useful feature for a model. Perhaps the Desoutter's biggest claim to fame was that it was the first three seat cabin monoplane to be built in England.

I had decided that the Desoutter would take the place of the ABC Robin for club 20 scale competition work and decided on a scale of 1/8 which gave a wingspan of 56 ins.



With its deep, narrow nose (above) the Desoutter is a natural for four stroke power, though a small two-stroke with dustbin silencer would fit neatly.

Below, designer Phil shows that the Desoutter is a sensible size, not so small that if it gets more than fifty yards away it disappears.

I had also wanted to keep the structure light as the power was to be the HP VT-21 again. As things have turned out the all up weight is less than 3½lbs and the little four stroke has all the urge neded.

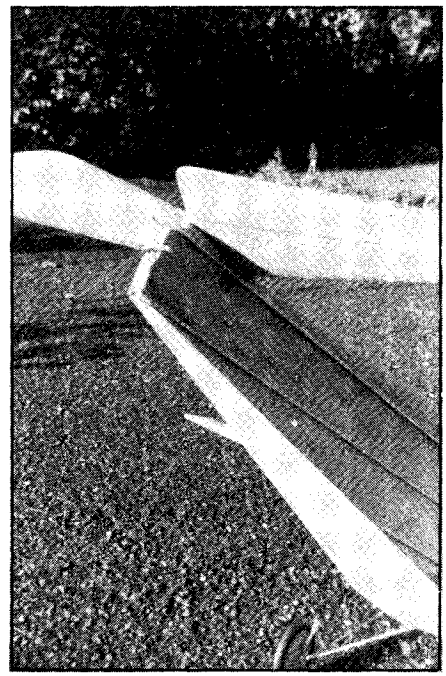
The construction should not present any difficulties to modellers who have managed a couple of built up models. Do not worry too much about getting a super finish on the model, the full size aircraft tended to cockle with its ply covering also the model will be viewed at 10ft for static judging if used for competition work.

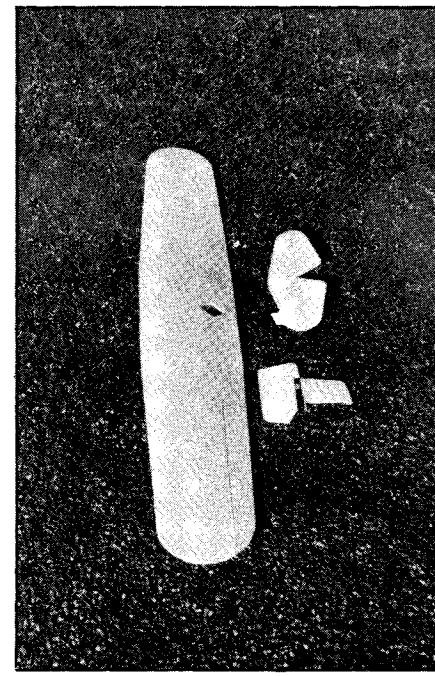
Wings

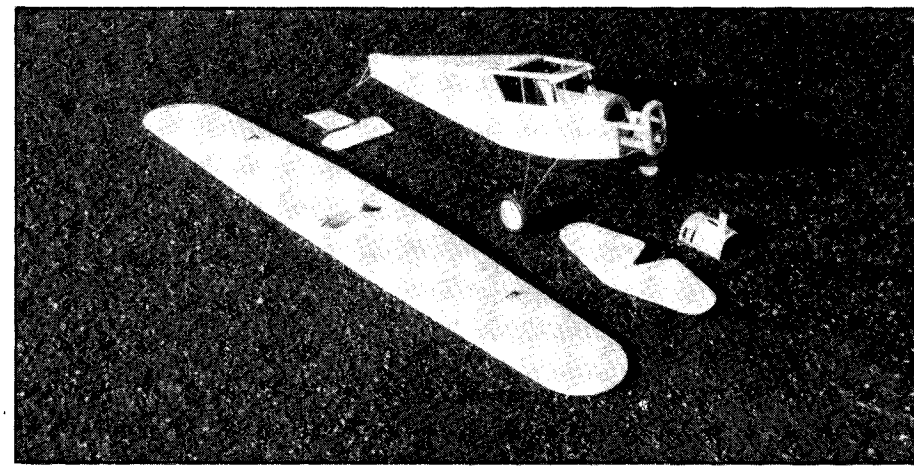
First cut out all the wing ribs from medium 1/16 and 1/8 sheet balsa. The wings are made in three pieces, a centre section and two outer panels. Each is made separately and joined later. For the centre section, pin down a 3 in. wide 1/16 in. sheet leaving equal spaces on each spar. For the outer panels the 1/16 in. sheet pieces are tapered and pinned down. The six remaining pieces of bottom sheeting are pinned in place and the original pieces removed for fitting later. The spars are now glued to these pieces of sheet after checking the spacing with the ribs. The false leading edge is pinned and glued in place followed by the ribs. The 1/4in. sheet spars for the ailerons should now be fitted and the 1/8in. sheet tips. Fill between the front 3/32 x 1/4in. spars with vertical grained 1/16in. sheet. Fit all blocks and gussets for hinges, booms, etc. at this time. The wing panels are joined inverted on the building board, this gives the required dihedral to the wing. The top 1/16in. sheet skin should be butt jointed to make up the required width. After sanding, glue the sheet covering to the top surface of the wing. After triming, the leading and trailing edges can be fitted. The tips were fitted as separate pieces. A length of 1/8in. I.D. aluminium tube should be let into the ribs at the wing joint and the metal brackets fitted for the struts and undercarriage fairing.

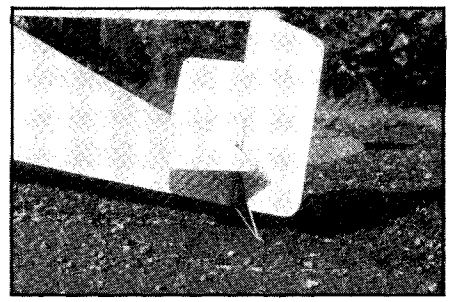
The ailerons can be cut out now and the leading edge chamfered as shown on the plan. The bellcranks and pushrods should now be fitted and then the 3in. wide pieces of 1/16in. sheet which were removed earlier complete the undersurface of the wing. Be careful when sanding down the wing as the sheet is only 1/16in. thick.

Tail surfaces — The tailplane is from soft 1/4in. sheet balsa whilst the elevator uses a 1/16in. sheet core with scrap 1/8 x 3/32in. spars and 1/16in. ribs. The fin is again from soft 1/4in. sheet while the rudder follows the elevator construction.

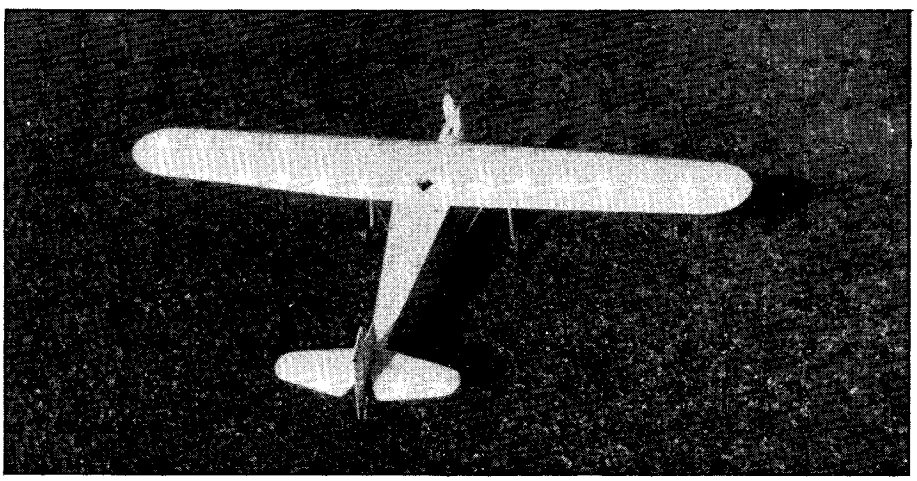






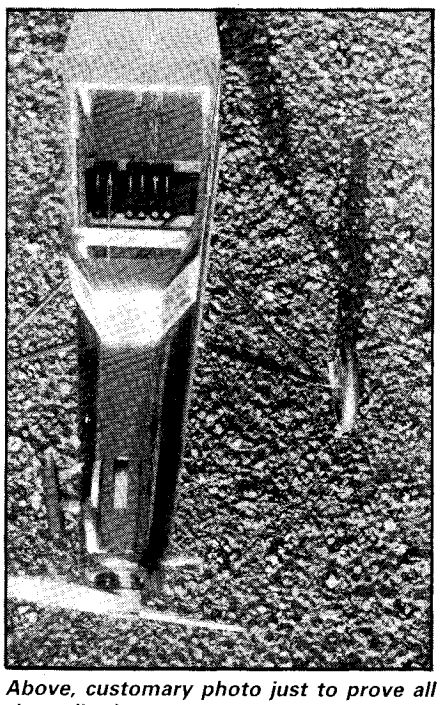


Several views of the covered but unpainted model. Note the external stringers, evident in photo top left. Top right, the flying surfaces. Above, the bits laid out. The undercarriage can be seen to be a cantilever from the fuselage, the struts from wheel to wing being decorative. Left, tail surfaces and tail skid, the latter a steerable device. Below left, all together.

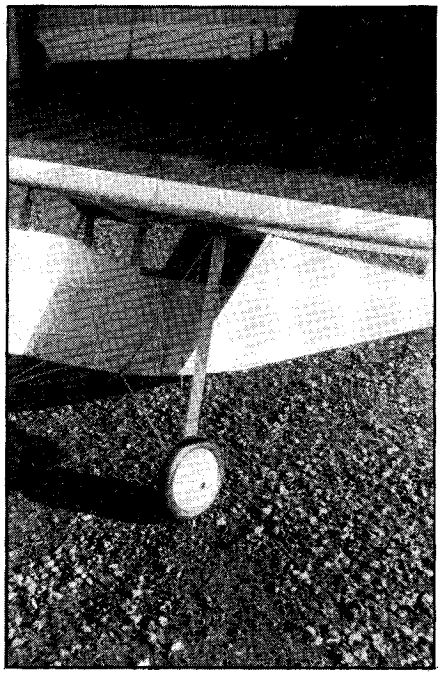


Fuselage

Due to the angular shape of the fuselage it was decided to build a front and rear portion with the joint at the rear of the wing at maximum width. The rear portion is a simple box from 1/8in. square balsa built in rubber model fashion. The front part used 1/8in. sheet sides with the grain running along the length of the fuselage. The engine beavers and formers were sub-assembled before fitting to the sides. This assembly along with the remaining formers and ply undercarriage plates were fitted to the sides forming the forward section. The two parts were then butt jointed together and the rear part sheeted with soft 1/16in. sheet with the grain running lengthways. The undercarriage was fabricated from 12 and 16 gauge wire, short pieces of 1/8in. I.D. brass tubes being soldered in place to hold the



Above, customary photo just to prove all the radio does go in.



Dummy strut from wheel to wing, a prominent feature on the full size.

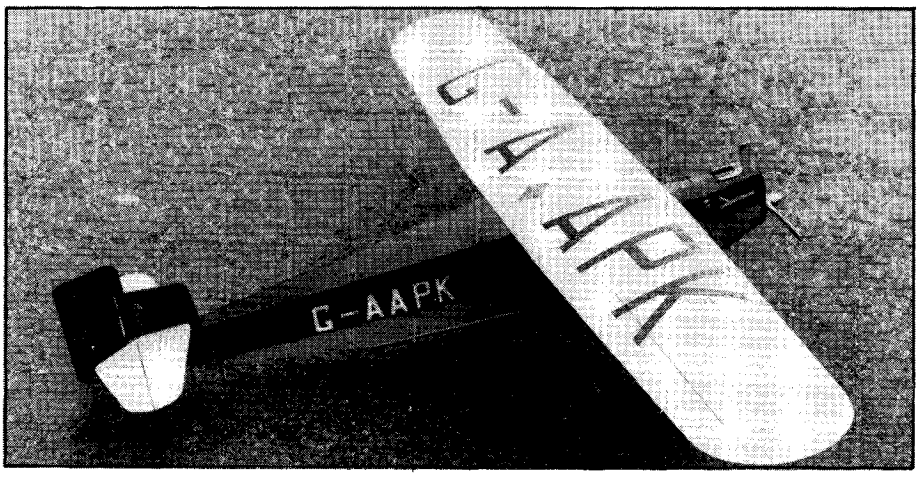
1/8in. dia. rubber shock absorbers. The unit was then fitted along with the beech block and plywood cross pieces. 1/8in. med. sheet was used for the floor of the cockpit with the grain across the width. Two pieces of 1/16in. sheet were rolled to form the nose section in front of the windscreen. Soft 1/16in. sheet was used to cover the sides of the front section with the grain vertical. 1/16in. sheet was also used to cover the underside of the front section with the grain crossways. 1/8in. dia. aluminium tubes were fitted for the rubber bands which hold the rear struts and tags were soldered to the front undercarriage legs for the front strut attachment. A scrap of 1/4in. sheet balsa was used as a mount for the tailplane.

The fuselage was then rubbed down and covered with light weight tissue prior to fitting the external 1/16in. square stringers. The wings were covered again with light weight tissue and after sealing, tissue rib tapes were fitted. This was well worth while as the wing had a rather uninteresting look before this was done.

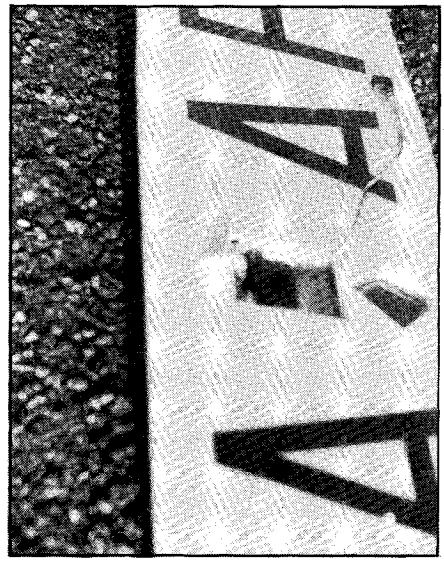
The all sheet parts of the tail centre were tissue covered whilst the elevators and rudder were covered in Solartex. Again tissue rib tapes were doped in place.

The top cowl was made by wrapping 1/64in. ply around two 1/16in. ply formers, a second lamination being fitted where shown on the plan. A balsa exhaust and top completed the job. The bottom part of the cowl was from litho plate, a good idea is to make a paper template first. Other details such as the door on the starboard side were fitted before painting.

A small instrument panel was made up and fitted after the interior had been painted. The top half of the fuselage was masked off and the bottom half sprayed Ford signal orange. After masking off the cabin area and bottom of fuselage the top was sprayed black. The fin and rudder were also sprayed black, and finally the wings and tail silver using a 'silver wheels' aerosol. The white letters on the fuselage were cut from solarfilm. The black lettering on the wings was hand painted. I made up a stencil from cartridge paper and drew round this using a soft (2B) pencil. The straight lines are then drawn in using either a very fine brush (00) or a drawing pen. The outline is then completed with a brush and the letters filled in using a soft No 6 brush. After fuel proofing the final details were added. The window frames were made from litho plate which had been formed into angle. These were epoxied in place ready to take the acetate sheet windows.



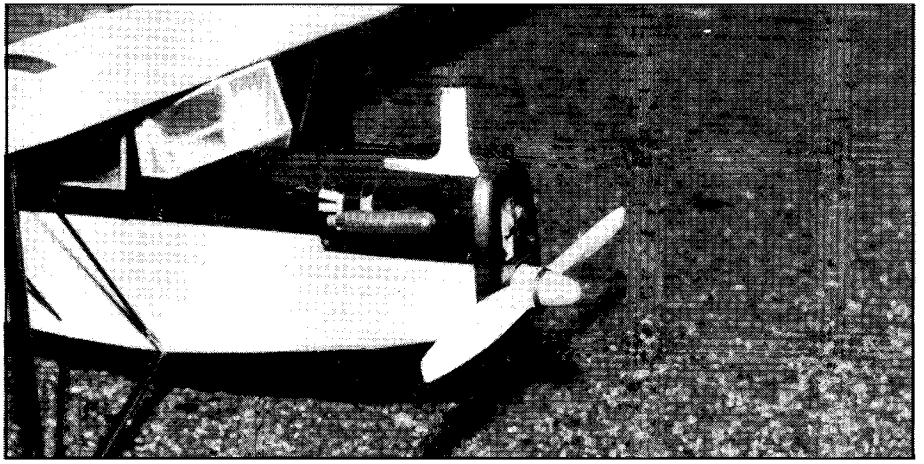
Removable nose sections allow full access to the engine.



Aileron servo in place.

The windshield was fitted prior to the litho plate frame.

The undercarriage legs were faired with balsa and the struts made up from wire before they also were faired with balsa. The strut from the undercarriage to the wing looked like presenting problems. I was worried about the landing shocks being transmitted into the wing. The idea I finally came up with was to use some round 1/8 dia. rubber sealing strip (used for greenhouse glazing). The rubber was cut to length and had a piece of aluminium tube glued to one end. The other end was glued into the brass tube on the undercarriage leg using cyanoacrylate. The strut was made from balsa with a dowel at the wing end and a hole for the tube at the other. A litho plate sleeve was fitted at the bottom end to take any shocks. The strut is a push fit into the wing and the undercarriage movement is taken up in the strut, the rubber providing a universal shock absorbing joint.



Diminutive silencer on the HP VT-21 does not look out-of-place.

With the radio gear fitted, the model was balanced where shown on the plan. There is no difficulty here as the HP VT-21 is quite heavy and the nose moment long.

Flying

I had to wait a couple of weeks before flying the Desoutter as I must have calm weather for test flights, a throw back to my free flight days, I suppose. I decided to use my school playing field as we had a good cricket square for R.O.G. The model was fuelled up and the engine started.

I had fitted a new 9 x 5in. Grauper prop and was pleased to find that the idle speed ws now low enough. I had previously been using 9 x 4in. props. The throttle was opened and the model trundled off. I had to put in some left trim and all available down trim. The model was very easy to fly. I throttled back to check the stall characteristics. For a small model the Desoutter seemed to be flying very slowly before the gentle wing drop. Now it was time to check what it would do. A loop was tried... OK, but a dive was need to build up enough sped. Reversals and stall turns were fine, in fact I would think that the model was more aerobatic than the full size. Several low passes were tried before the landing. Again no problem the wide trench undercarriage making things easy. After a few adjustments (a small amount of down and side thrust) I had several more flights no problems were encountered. I was pleased with the performance, the HP VT-21 having more than enough power. This is a model that can be fitted into the car fully rigged and using the HP power plant can be flown on noise sensitive flying sites without any worries.