CONDOR 69

A single channel R/C thermal soarer

BY T. J. KING

CONDOR was designed and built in March 69 with the aim of producing a model which while being light in weight would penetrate a stiff breeze. This, I have, I think achieved in the Condor 69. It has been flown consistently last summer with many flights of up to 10 minutes to its credit. Once you have launched Condor, it may only be a flight of 4 minutes, but if lift is found, then watch it soar for 10 minutes or more, depending on your ability to keep it in lift.

Construction of fuselage

Commence the fuselage by building the 3/16 in. x 3/16 in. Spruce sides. When dry, cement to 3/32 in. sheet sides. Then add ply formers starting with F4. F5 and F6. After fitting formers plank top and bottom with 3/32 in. sheet, but before doing this place the torque rod in position also the Spruce tow hook support between formers F4 and F5. Now cement all remaining balsa blocks and pine nose block and shape them as required. Note: Wing fairing block is shaped on fuselage then detached and fitted to wing. The rest of fuselage fittings are mentioned on plan. The detachable canopy is constructed with ply formers F2A, F2B and 3A, with 3/16 in. x 3/16 in. keepers at each end.

Construction of wing

Start by pinning down S2, do not forget to place packing under this main spar. Next pin down the trailing edge, and place the ply ribs W1 in position. Slide in rear Aluminium tube, then add ply ribs W1A and slide in front tube, do not cement tubes at this stage. Now add remaining W2 ribs, leading edge and rear spruce spar. When dry, cut through trailing edge, rear spar main spare S2 and leading edge where indicated. Divide centre section into three parts – two outer panels and a centre. Slide outer panels from tubes, remove aluminium tubes from centre, cut and Araldite back in shown positions in centre and outer panels. Leave centre sections at this stage.

Outer panels

Cement main spar S1 to S2 pin down S1, not forgetting to place pacing, at the same time place support under inner panel. Next, pin down trailing edge and pack up to give $\frac{1}{8}$ in. washout at tip. Now add remaining ribs, leading edge, and rear spruce spar in that order. Then share top of leading edge to blend in with the ribs. Add top 1/16 in. sheeting and 1/32 in. capping strips.

When dry, remove wing from board, pin down inner panel at the same time place support under outer panel. Shape top of leader edge as outer panel, add 1/16 in. sheeting and 1/32 in. capping strips. When dry turn wing over shape underside of leading edge and add remaining 1/16 in. sheeting and capping strips. The small centre section is treated in the same manner as the rest of the wing, plus the addition of balsa fairing block. The last pieces to add are the wing tip blocks. These are then sanded to shape along with the leading edge.

Construction of tailplane and fin

Tailplane and fin are straightforward. Fin is cemented to tailplane after covering. The whole unit is then located on the fuselage with dowels. The 3/16 in. rudder is shaped and hinged to fin.

Finishing

After sanding airframe to shape, give fuselage two coats of sanding sealer, lightly sanding between coats, cover with lightweight tissue and give two coats of clear dope, and a final coat of clear or coloured Polyurethane. Give the wing one coat of sanding sealer, lightly sand, cover

with heavy weight tissue, and give three coats of clear dope. Treat tailplane and fin as wing.

Radio

On the original model a Conquest actuator is used with a Cotswold regen receiver powered by a 3.6 Deac.

Flying

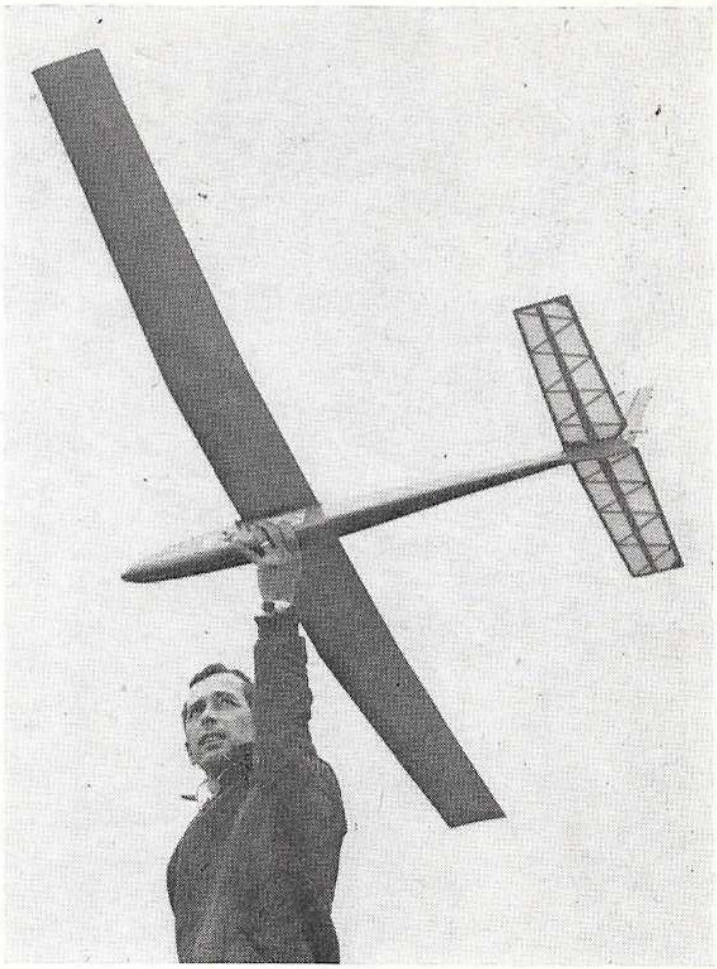
I found that my model needed no extra weight in the nose as the DEAC power pack and radio were sufficient. However, a weight box is provided for should it be needed. Trim by packing under leading or trailing edge of tailplane.

As I am a lone flyer on many of my outings to the local flying field I have mostly used the Hi-Start method of launching to good effect. If there is a slight breeze it really gets the model up high with a smooth ascent which can be controlled all the way to the top. One word of warning with this method – the radio must be 100% as once you let go you are committed, and if a bank develops on tow which cannot be corrected, it means a big repair session!

My Hi-start consists of 50 yards of $\frac{1}{4}$ in. flat rubber, the end of 150 yards of 13 lb. B.S. monofilament line. Anchor one end of rubber to stake firmly driven into ground. If the rubber can be raised from the ground at this point it will not foul the ground so much when stretched. If I take my Mini-van to the flying field I usually anchor it to the top of a rear door. At the other end of your rubber attach the nylon line with tow hook ring and drogue. Now hook up model and walk back about 60 yards until you feel a good pull (only experience of launching several times will give you this knowledge). Check once again that your radio is O.K. then let go. She will rise fairly steeply to start with, but do not be alarmed, this is normal. One or two corrections on the way up and on reaching the top she will slip off at the correct angle and speed. The rate and angle of ascent will differ according to wind velocity. On a calm day you will have to stretch the rubber to its full extent, but on breezy days it will kite up fast on only half the pull. On this sort of day with cumulus about and plenty of lift I have had some wonderful flying, and believe me, once the thermal soaring bug has bitten, you will get a lot of flying, and a lot of enjoyment from it.

Construction of foam wing

Cut foam core using templates as shown on plan. Add leading and trailing edge, then cover with 1/32 in. sheet using P.V.A. (Evostik resin W or Copydex glue) now add wing centre section fairing and 3/16 in. sheet wing tips.



Finishing

Give one coat of sanding sealer, lightly sand, cover with light weight tissue, apply two coats of clear dope and a coat of clear polyurethane.

Launching

Hi-Start rubber can be doubled to give a faster ascent as these wings are far stronger, and will take a lot of punishment.

The designer and his prototype, which employed a foam wing, he much prefers. Condor is impressively steady on the line during bungee launch – gets upstairs well! Note bungee line tied to Minivan rear door in picture left, as referred to in text.