



The ABC Robin

by Phillip S. Kent

Many older modellers will remember the C. Rupert Moore cover painting of the July 1946 *Aeromodeller* which depicted the ABC Robin in its attractive orange and black colour scheme. Inside was a rubber powered scale-model plan for the Robin by the master scale modeller Eddie Riding. Many Robins were no doubt constructed from this plan (mine was never finished) as it had ideal proportions for flying.

ABC Motors Ltd were manufacturing two cylinder horizontally opposed Mk II Scorpion engines of 35 bhp in the middle 1920s and although they were exporting them in measurable numbers their use in this country was limited. The managing director Mr T. A. Dennis decided that ABC should provide a suitable airframe for the Scorpion and the Robin was the result.

Construction started in 1928 and the aircraft was completed in June 1929. The colour scheme was National Flying Services' black and orange with natural aluminium cowl. The performance was better than expected and its advertised price was £375. Modifications were made later which included a larger fin and rudder and alterations to the windscreen. Although the future of the Robin looked assured only the prototype was ever built and it was actually scrapped in 1932. *Aeroplane Monthly* described the Robin in their September 1977 issue.



With a wingspan of only 51 inches, the Robin is a compact model, as designer Phil Kent shows.

Building

I always like to get the tailsurfaces, fin and rudder built first. The construction of all these parts is basically the same and follows the well-known method used on free flight scale models. Sheet balsa cores are cut to outline shape and the positions of the ribs are pricked through with a pin to indicate the rib positions on both sides. Pin the core down and cement LE, spars and ribs down for each part. When dry, repeat the operation on the other side. The tail surfaces are then sanded to a symmetrical section as shown. Control horns and hinge doublers complete the structures which are now ready for covering. Note that trailing edge pieces are not fitted, the $\frac{1}{16}$ in. sheet core being quite adequate.

Fuselage

The fuselage is built in three parts: a nose section, cockpit section and the tail section. The tail section is a $\frac{1}{8}$ in. sq. balsa frame built directly over the plan. The nose has $\frac{1}{8}$ in. sheet sides with $\frac{1}{8}$ in. ply formers. The engine bearers are spaced to suit the motor being used and a mustard tin tank is used. The original model was fitted with the HP VT-21 and this is the bearer spacings on the plan. The cockpit section uses $\frac{1}{8}$ in. sheet sides with a $\frac{1}{8}$ in. ply former at the front and a $\frac{1}{16}$ and $\frac{3}{32}$ in. laminated former at the rear. The undercarriage assembly

is fabricated at this stage and epoxied in position on the ply plates on the bottom part of the fuselage. The top wire is bound to the ply former and plywood plates are fitted over the exposed wires to complete the assembly.

$\frac{1}{16}$ in. ply doublers are fitted inside and outside the $\frac{1}{8}$ in. sheet cockpit sides above the side windows to give the required strength for the wing mounting bolts.

The tail section is now sheeted with $\frac{1}{16}$ in. soft balsa, the grain running along its length. The three sections can now be butt jointed together and the nose and cockpit sections sheeted with soft $\frac{1}{16}$ in. sheet. $\frac{1}{16}$ in. sheet is rolled to form the top of the nose section and a $\frac{1}{2}$ in. sheet bottom fitted to the underside. The cowl is made up from soft block and sheet. After shaping the complete fuselage should be sanded and sealed before covering.

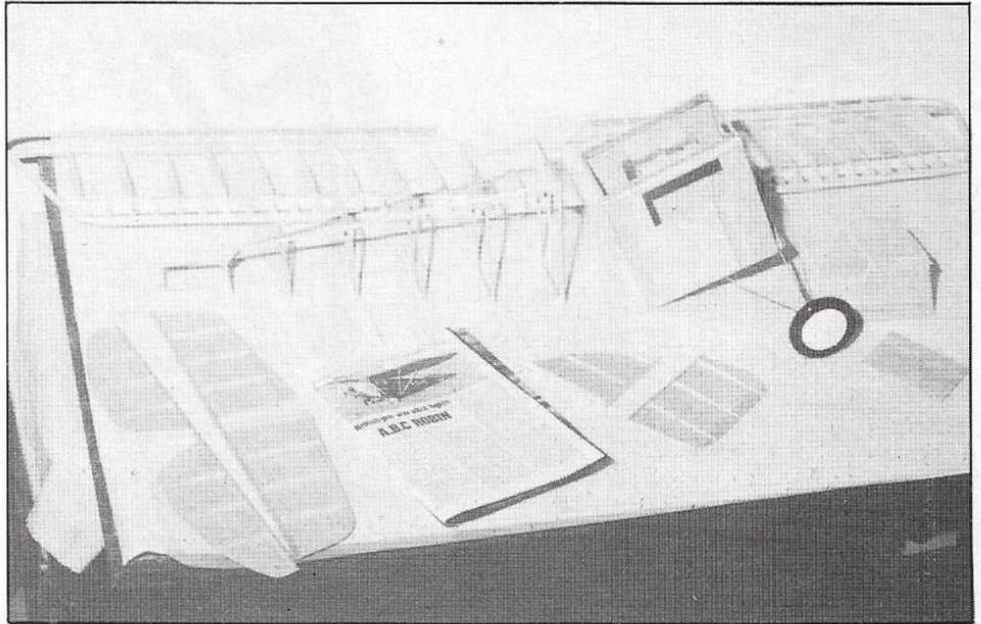
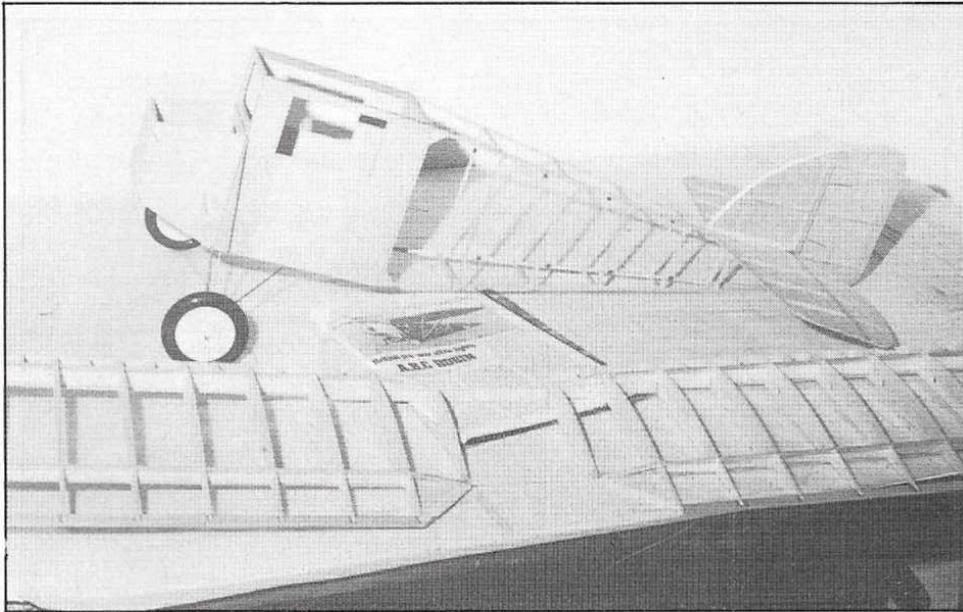


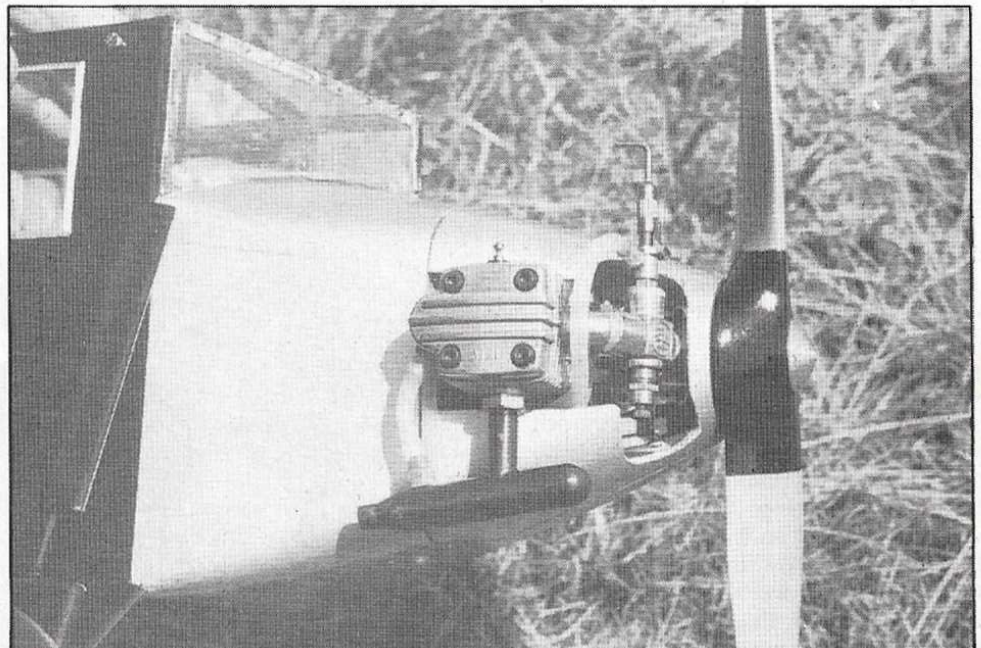
Photo above shows how the fuselage is built from three sub-assemblies and also the tail surface construction. on the left is the assembled fuselage before the rear section is sheeted.



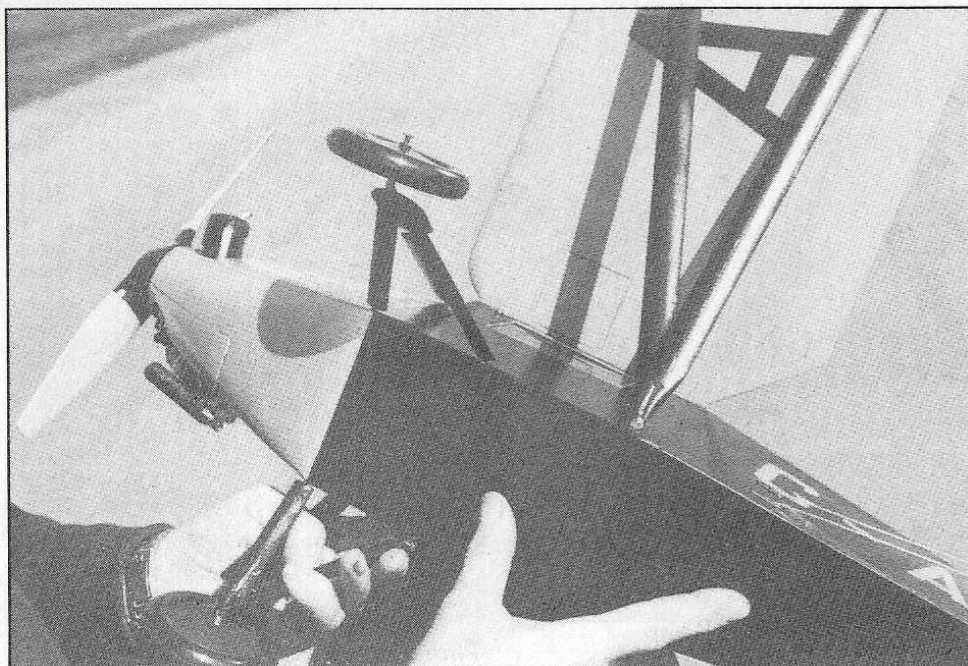
Before covering can take place the formica horns must be fitted to the elevator, rudder and ailerons. The strut fixing brackets must also be fitted to the fuselage and wings. I used Solar-tex to cover the flying surfaces and tissue for the fuselage. The whole model should have a careful sanding making sure that there are no lumps or bumps. The original aircraft had a plywood covering to the fuselage and according to the photographs this was rather bumpy. I didn't spend too much time rubbing down the fuselage but after covering with tissue added the bands which covered the panel joints.

Wings

The wing panels are built flat over the plan and joined by the centre section. The ribs are $\frac{3}{32}$ in. med balsa with $\frac{1}{8}$ in. sheet spars, a $\frac{3}{16}$ x $\frac{1}{2}$ in. LE and $\frac{1}{2}$ x $\frac{1}{16}$ spruce TE. The wing tips are from $\frac{1}{4}$ in. square with $\frac{1}{16}$ in. infill. The centre section is also built over the plan, note that the laminated centre rib is not fitted until later. Slots are cut in the ribs for the ply braces in each wing and the whole wing assembled over the plan. The tips are packed up to the correct dihedral whilst the structure dries. The ailerons are cut out after assembly and filling pieces fitted to complete. The aileron servo was fitted into the port wing and a suitable method for fixing should be arranged. Note the $\frac{1}{16}$ in. sheet on the bottom of the wing where it joins the centre section. The ply wing fixing lugs are well epoxied into the bottom of the centre section. Make sure that these fit between the cockpit sides. The centre rib which locates the wing is now fitted.



The HP VT-21 provides more than enough power for the prototype.



Tripod wheel struts are formed from wire and streamlined with balsa, as are the wing struts.

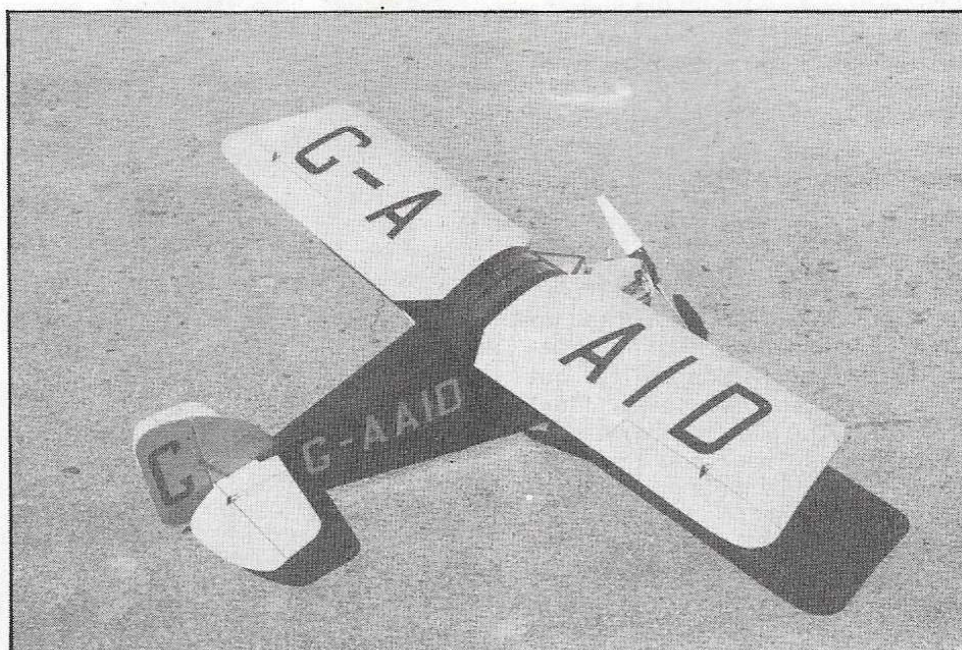
These were made from cartridge paper and the fastenings were represented with blobs of PVA glue. A method of producing the cockled finish is to use random doped cartridge paper panels well attached round the edges but not so well towards the centre. The aluminium cowl portion was given a smooth finish and sprayed using a Silver Wheels aerosol.

The fuselage was painted before the windows were fitted. Frames were made for the side windows from litho plate formed to an angle. The pointed section of the windscreen was from thick acetate sheet the frames being made from cartridge paper with the rivets from PVA glue.

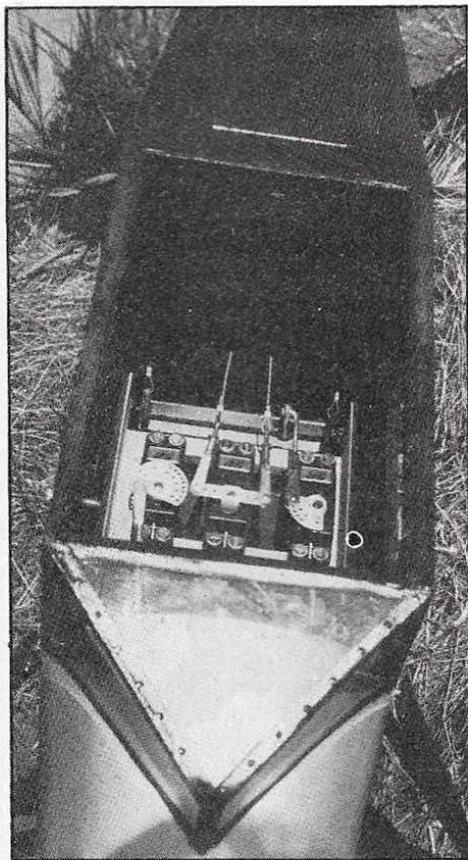
There should be no problems covering the wings and tail unit. I used Solartex and suggest either a natural white or antique. A coat of dope was applied before spraying on the colour. I called in at my local car body repair garage and obtained the same Ford Signal orange which looks OK. The fuselage was sprayed with an aerosol before the undercarriage fairings were fitted. The wing struts are made up from 16 swg wire, if adjustment is needed use the brass tubes as shown. I had certain misgivings about the struts but they have never come off. Use a good quality snap lock on the bottom and make sure that there is a little bit of spring at the top. Cover the struts with $\frac{3}{32}$ in. sheet, sand, fill and paint black. The lettering on the model is not guaranteed correct as I have not seen a photograph showing the wings. Modifications were made to the original during its existence. My model is as built in its original configuration. The only three-view that I have seen is from an old Flight magazine. I think this model is nearer the true outline! Sweep back was shown on this GA drawing but I can't see any from the photos that I have

studied. The model was rather nose heavy when completed and the radio gear was fitted as far back in the cockpit as possible. The closed loop system used for both elevator and rudder is quite simple but push rods could be used as well as soft $\frac{1}{4}$ in. sheet tail surfaces. The balance point shown is that of the original model. Move the radio gear about to achieve this position.

I finished the model during a spell of windy weather and so had to wait for the first flight. On the first calm evening I made off to the local flying field. No one else was there so fuel up and start the motor. The model



Documentation for the single Robin built is rather scarce and contradictory, but the plan shows lettering and colour details.



The Robin is a small aircraft but the radio area is still large.

lifted off the grass after a short run and climbed at a steady angle. At a safe height the engine was throttled



back and the trims adjusted. The rudder was very effective and I feel sure that a rudder only version would be quite successful. The lack of noise from the HP 21 four stroke was very apparent and flying fields would not be in danger if this noise level was general throughout the hobby.

What would the model do? The full size aircraft was obviously non-aerobatic, but with the help of a dive to build up speed a very nice loop was completed. Spins, rolls, reversals, Immelmann turns etc. were all tried with equal success. The model does not ap-

pear to bear any vices and at the local club competition day it won both the limbo and spot landing competitions.

If you are interested in scale models but think that they are too involved and difficult, have a go with a Robin, it's a super fun machine and as easy to fly as ABC.

This model would be most suitable for the new Club 20 scale competitions, the only problem is documentation in the form of a 3 view. As stated the flight 3 view is to the correct dimensions but the shapes are at variance with the photos. □

In the last issue of Scale International I chose a couple of designs from the scale section of the new Traplet plans catalogue with the aim of giving readers a better idea of what is involved when building a scale model from a plan. The drawings were for the Spacewalker and de Havilland Technical School TK 2, both designed by Dennis Tapsfield. This time I hope to give the real beginners to building from plans some suggestions for suitable designs that are in the plans range and look at a plan that I would only recommend to the more experienced builder.

When Radio Control Model World was launched in the early 1980s associate editor, Gordon Batt, asked me at an Elvington F4C Team Trials if I would be interested in doing a scale plan design for the new magazine. Without thinking too much I replied in the affirmative. What will it be then? Oh an

ABC Robin I replied. I could tell from Gordon's face that he didn't have an idea of what the ABC Robin was. The ABC Robin was a one-off small light aircraft designed by ABC Motors in 1928. My interest in the aircraft had been kindled by the front cover of the July 1946 Aeromodeller magazine that had a lovely painting by C. Rupert Moore of the Robin in its attractive black and orange colour scheme. Inside the magazine was a rubber-pow-

ered design, by the great scale model designer of the day, Eddie Riding. I did in fact purchase the plan but unfortunately the model was never completed. I had always wanted to build a model of the Robin and a radio-controlled version now seemed to be a good idea. Over the years I had collected some drawings and information about the aircraft. I had a three-view drawing, an article from the September 1977 issue of

Aeroplane Monthly, and a drawing of a smaller free flight rubber model that looked more accurate than the Eddie Riding version. Armed with this information, I started work on my design. Four stroke model aero engines had recently come onto the market and there was a small HP VT-21 that I thought would be the ideal power plant for my model. These engines did not have too much power but they were very, very quiet. The power obviously determined the size of the model and it eventually had a wingspan of 51 inches. The model is very easy to build and it did fly very well indeed, so let's see what is involved.

Easy as ABC

The fuselage is a simple box structure without any compound curves. For this reason it was built in three sections. The nose section carries the engine and tank and is of sheet and balsa block construction. The cabin section is a simple parallel-sided sheet structure with provision on the bottom to carry the simple undercarriage. The rear portion is built from strip balsa and eventually covered with 1/16 sheet. The three parts are butt jointed together giving an accurate, easy to build fuselage. The one-piece wings are of parallel chord and I noticed after looking at the plan again that they have notched spars. This does mean that the wing is easy to build accurately provided the notches are cut in the correct place. The tail unit uses the well-tried and tested core method of construction. A sheet balsa core is cut to the outlines with spars and ribs added to each side. So far the work entailed is no more complicated than that for a sport model. For a scale model we do have to add that little bit more, like a dummy engine and closed loop controls for the rudder and elevator and wing struts. Rather than have rubber banded on wings



A front three quarter view of the original ABC Robin



I did design the model to have them bolted in place, again another complication but again very easy to accomplish.

So there we have, it a very simple to build model that looks good in its striking colour scheme. The model flew very well, too, and on its first outing won the club limbo and spot landing competition.

Arthur Searl did build a more accurate 1:3 scale model of the ABC Robin that proved to be very difficult to guide in the correct direction when under radio control.

There were various reasons put forward at the time for this phenomenon and many solutions offered, but the model was never a flying success.

This excellent example of the ABC Robin was photographed at Old Warden; the builder/designer was ex-Gold Trophy (stunt control line) winner Brian Hewitt