

EASTBOURNE MONOPLANE

By JOHN STENNARD

An unusual project with a span of 41 inches for small two or three-function R/C and .049-.051 motors

AFTER BUILDING a very successful Morane *Parasol* for I/2A (i.e. .049-.051 power) I decided to try another early aircraft. I picked the *Eastbourne* as it had an interesting vintage look combined with simplicity. The fuselage was big enough to allow the use of small, rather than mini, r/c gear and with the shoulder wing and large tailplane it looked as though it would be a stable flier. I make no claims that it is exact scale but it is certainly 'near' scale. Mine flies well with a TD.051 and is even mildly aerobatic. There is plenty of room inside and it should be easy to fit two servos—or three, if using fairly small r/c gear—and a throttle-equipped motor. A word of caution before clearing the workbench, however. Although not difficult to build, it does need a fairly experienced hand on the controls and is *not* intended as a trainer for the newcomer to radio control. The flying characteristics are more akin to a ½A racer than, say, a ½A powered glider.

CONSTRUCTION

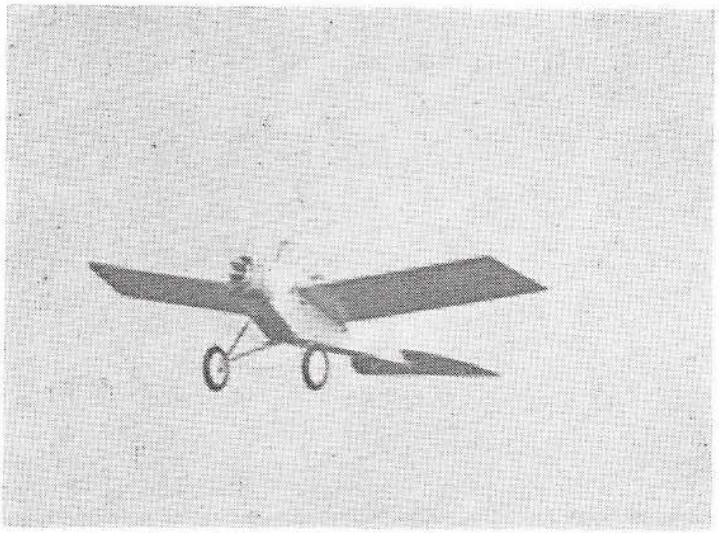
Fuselage

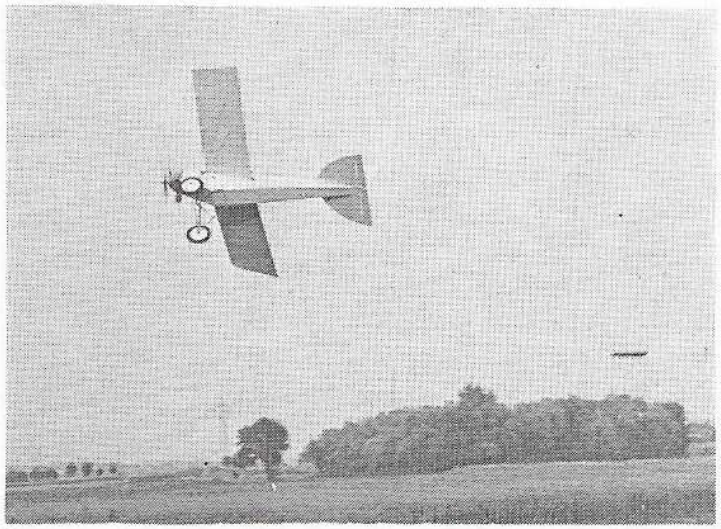
Use fairly firm balsa throughout and you will find the model is very tough and will certainly take some unplanned landings without breaking. (This asset was proved on the test flights—but more about this later!) Start by cutting out two fuselage sides from $\frac{1}{16}$in. balsa and the two $\frac{1}{32}$in. ply doublers. Glue these together and keep flat to avoid warping (one left and one right, remember). When dry, mark the positions of the formers and drill the dowel holes. Mark and cut out the removable wing centre-section. If done carefully, these pieces can be used later but, if damaged, it is an easy job to replace them. Cut out the formers, cutting the hole in F2 to suit your nicad shape and drilling the holes in F6A and the blind holes in F3a for the rigging post. If using an engine with a throttle, the holes for the linkage need to be drilled in F1 and F2 plus a hole for the fuel pipe in F1.

The fuselage construction starts by gluing F2, 4 and 5 in place. The position of F4 is not critical and it can be moved to suit your servos etc. It is very important that this first assembly is square, as problems will occur later if it is twisted, so check carefully for squareness while gluing. To do this, fit F8 temporarily in place, then lay a stiff rod across the wing cutout and do the same with another across the tailplane cutout. Obviously these need to line up when viewed from the front or rear. Assuming that all is correct, glue formers F6,7 and 8 in place, checking again for squareness. F1 and 2a may also be glued in place. Chamfer the top and bottom edges of the formers as required. The removable centre-section can now be constructed. First cover the rear of F2 and front of F9 with thin polythene to avoid any chance of its becoming an immoveable centre-section! Clip or pin F3 to F2 and 3c to F5. The pieces cut out earlier sbould now have the wing spar positions marked and cut out, and the positions of 3a and 3b marked on them. When this is done they should be glued to the formers F3 and 3c. Leave this whole unit in position to dry.

The tailplane, fin, elevator and rudder are all made from stiff 3/32 balsa joined as required and sanded to shape. The control surfaces should be joined by hinges, mylar strips or any other method that you choose.

The wing spars and plywood braces are next cut, and sandwiched together. Check when gluing that this is accurate, by placing the centre-section on a flat surface and





measuring the height of the spar tips above the surface; naturally they must be the same. When this has glued, shape the spar tips and glue the spar unit in place in the removeable centre-section. A further alignment check sbould now be made. The centre-section, complete with spar, may be fitted in place on the fuselage, and the tailplane pinned in position, to check everything is in order.

The fuselage may now be completed. Firstly fit the tank bay floor to suit your tank. If you intend flying without a throttle you may well find that a 1oz. or even ½oz. tank is big enough. Using a TD .051 and throttle, I always fit as large a tank as I can. As polythene tanks are not easily modified, I often use a metal tank, as in this case.

The $\frac{1}{16}$in. ply under sheeting should now be glued in place, and then the $\frac{1}{16}$in. balsa cross-grain sheeting from F9 to F7. Before fitting the underside balsa sheeting, the control linkages must be routed through. Slots or holes must be cut in the formers to suit your servo heights and positions. I used lightweight nylon 'snakes' and, because of the low servo height, was able to route these under the wing-retaining dowel behind F5. If your servos are taller you may need to pass your linkage through F5 above the dowel. This would in turn need slots to be cut in former 3c. When the linkage positions have been finalised, they may be left in position and the underside sheeted up to F6a.

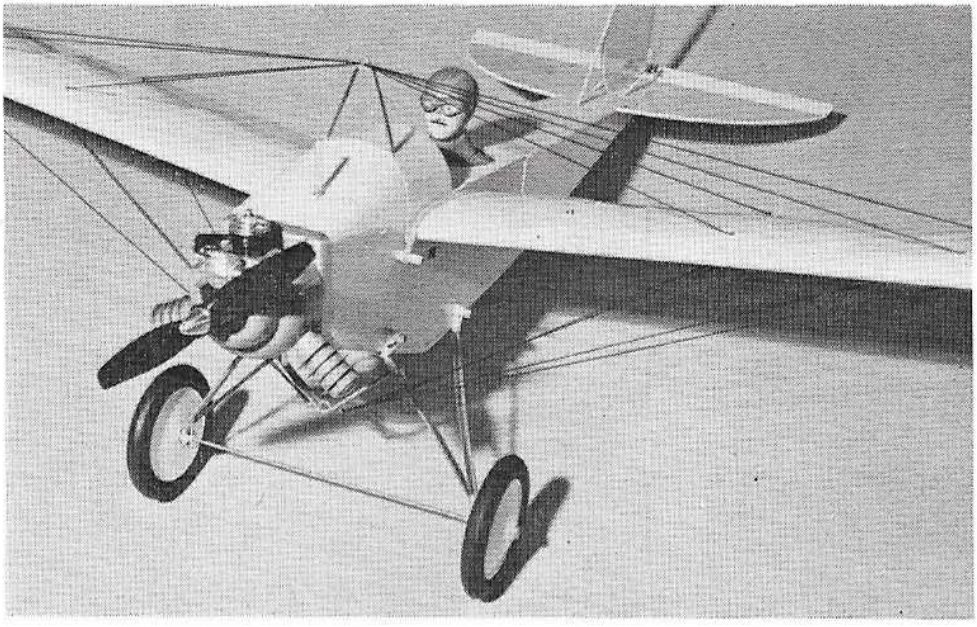
Before gluing F6a in place, the tailskid must be fixed in position. When F6a has been glued in place, the remainder of the underside may be sheeted. Before the area between F1 and F2 can be covered, the tank must be fixed in place and the fuel tubing to the motor taken through the hole in F1. Filling and vent tubes can be routed through F1, the fuselage sides, or cowling as required. If using a throttle the wire linkage or 'snake' is also best fitted at this stage. I covered between F1 and F2 with three pieces of balsa but, alternatively, this could be planked. I did not fit the dowels at this stage as I prefer to leave this until after the model is covered. I used a Micro-Mold ½A motor mount but any commercial mount may be used. The dummy engine has been kept simple and might still need to be modified to suit your own motor. This will depend on your mount, motor, silencer and maybe even type of throttle.

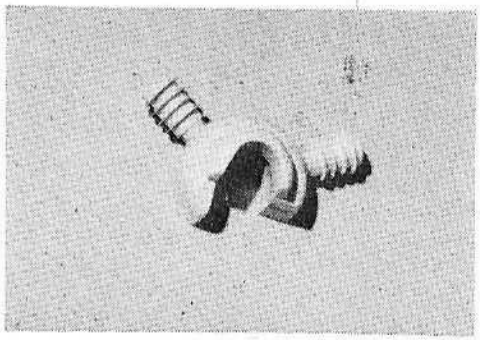
I had contemplated fixing the u/c to the fuselage with clamps, but eventually decided on the safer rubber-band-and-dowel method. The u/c is bent from one piece of wire, the two ends being joined with a piece of brass tube, and soldered. The small right-angle pieces and the rigging post are bent and soldered in place as shown. Washers are soldered to the axle either side of the wheels; leave a gap between the inner washers and the u/c to allow this to spread in the event of a heavy landing. The axle is bound in place with small rubber bands, the ends of which are secured on the small right-angle pieces. When this has been done all the stiff paper fairings can be fitted; I used contact adhesive for this. Finally fit your switch and servo mounts and the fuselage is complete.

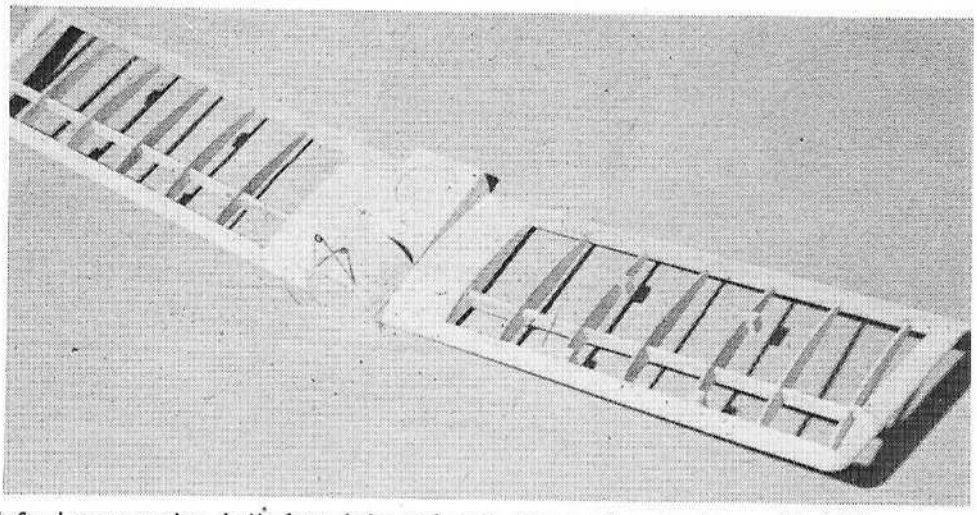
Wing

The first stage in the wing construction is to cut out the two WI ribs and glue them in place either side of the removeable centre-section. The lower edges of the ribs are level with the bottom of this section. Pin the wing spar securely onto the plan and bevel the ends of the leading and trailing edges where they join onto this section, cut to length and mark and cut the rib slots. The leading and trailing edges are now glued to the centre section and WI; pin down securely and add the wing tip. The W2 and

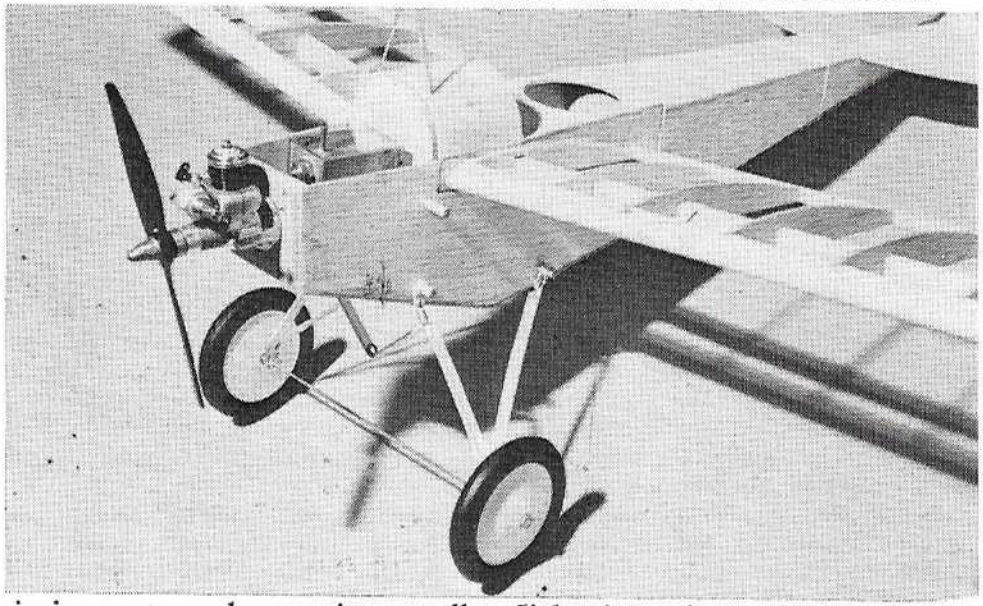
The *Eastbourne* shows off its "olde worlde" lines in flight above and, below, close-up showing the shirring elastic rigging and dummy cylinders in place. For those with miniature equipment, this model will make an interesting and novel diversion!







Left: dummy engine, built from balsa and card. *Above:* wing structure, with joining centre-section built integral. Shown fitted to fuselage, below—where tank may also be seen.



W3 ribs are now glued in position, followed by the corner gussets and rigging blocks. Repeat this procedure with the other wing half and add the $\frac{1}{16}$in. balsa sheet between ribs W1 and W2.

When the wing halves are finished, the centre-section may be completed. First epoxy the rigging post to F3 and cut the $\frac{1}{16}$in. balsa sheet to fill in from 3a to 3c. Before gluing in place, cut out the cockpit area and glue the cockpit floor in place.

Finishing

The whole model could be tissue covered and painted but I always use heat shrink covering on my $\frac{1}{2}$A models. On this one I used Micro-Mold Micro-cover which seems very lightweight and was available in a cream colour. This went on easily and looks suitably 'vintage'. The dummy engine was painted silver and the paper fairings 'wood' brown. All painted areas must be thoroughly fuel-proofed as the high nitro content fuel makes short work of unprotected paint!

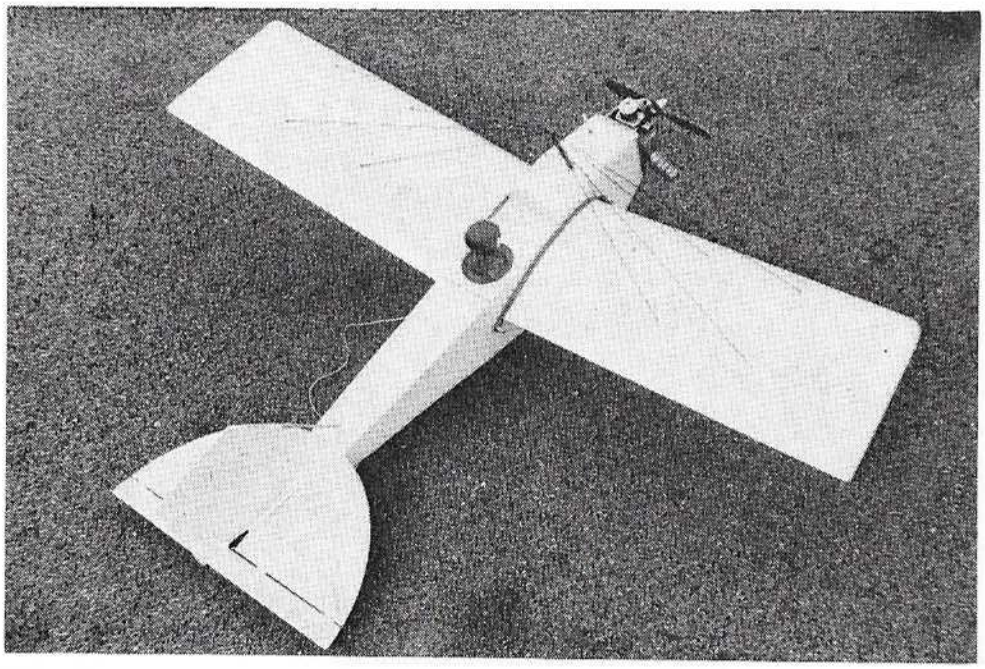
When the model has been covered, fit the dowels and glue the tailplane in place, adding the fin and fin dowel. My rigging was from shrirring elastic fixed to the pin heads with a spot of instant adhesive. The rigging is hooked to the rigging-post washers using small piano wire hooks.

Rigging and flying

The completed model weighed in at 22oz. which does not make it a 'floater' but does enable one to fly in quite strong winds. Numerous flights have shown the model to be very stable and not difficult to fly. I normally hand-launch but the *Eastbourne* will r.o.g. given a reasonable headwind.

For first flights, keep the control movements small until you are used to the flying characteristics. Once in the air, the model is quite a fast flier and care must be taken to keep the speed up when the motor cuts. There is quite a bit of drag from the 'wires'; u/c, etc. and, if you allow the model to slow right down, not unnaturally, it will stall and drop a wing. This is still no problem given enough height—but undesirable close to the ground!

With the current trend towards miniaturization I think $\frac{1}{2}$A and smaller models will become increasingly popular and practical. Don't be mislead into thinking that smaller means easier to fly, although it certainly does mean cheaper to build and repair. Ken Willard's Peanut scale size 13in. wing span SE5A caused quite a stir in the USA. Ken used a Cox .010 (with throttle!),

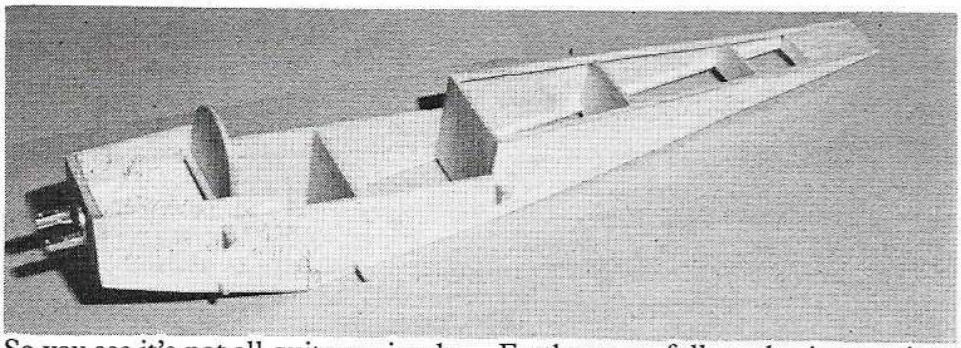


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Cannon Three channel gear and a 100ma deac. His all up weight was only 7oz. yet he says 'it's a helluva lot easier to build than it is to trim out and fly' He only used a rudder. movement of $\frac{3}{32}$in. each way but even this amount gave a rapid response under power. If reduced further the rudder would then have been ineffective when the motor cut.



So you see it's not all quite as simple as it seems!

Anyway, good luck with your Eastbourne; follow the instructions and you will have a model that is nice to look at and fly.

Mainspar is built integral with removable wing/fuselage centre-section.

