GLENELG

A SIX FOOT SPAN BEGINNERS' MODEL

DESIGNED BY W. WILTON

Fuselage. Build the fuselage in the usual way, building the two sides first and joining them, in the first place, by formers A and B. Into these formers build the motor mounts. These are of spruce, but if metal is preferred, any builder may build in this bulkhead to take the metal mounts. I prefer wooden mounts, as they are not liable to bending and thereby altering the thrust line, as are metal ones if not carefully watched.

Before wood covering is applied to the nose, shellac the framework well around the motor mounts. Cover the top decking with 1/16 in. birch plywood first, then the sides, leaving the bottom until the undercarriage has been fitted.

Form the two undercarriage legs from 13 S.W.G. steel wire and thread through the fuselage at the proper stations. Insert hardwood gussets as shown in the plan, and solder a ½ in. diameter metal washer on to the legs where they enter the fuselage. Also solder the joint of the two legs. Internally, the wire is bound to the bulkheads by drilling small holes in each one and passing chord around the undercarriage wire and through the holes.

The loops for the tailplane anchoring are simple steel wire hook, and these must be firmly fixed and cemented. Their positions and functions are self-explanatory in the drawing.

Covering can be proceeded with only after the electrical installation has been built in as shown in the plan.

Double check all hooks and fittings, and the undercarriage before covering.

Wing. Select straight-grained hard balsa for all the spars in the wing. These spars are of somewhat unorthodox construction, but the method has proved itself in my last four petrol-driven models.

The wing is first assembled with only the leading edge, trailing edge, and the top of the two spars in place. The forming of the wing tips should be done at the same time, and when the wing is dry, it should be turned over and the bottom spars inserted. While this is drying, the wing should be pinned down on to a flat board, and when dry the spars can be completed by gluing 1/16 in. sheet sides to the top and bottom pieces, separately between each rib.

The sheet covering of 1/16 in. balsa is shown in the plan, and when it is completed 1/16 in. by ¼ in. capping strips should be glued to the top and bottom of each rib. The sheet covering, of course, is on both upper and lower surfaces of the wing.

Centre Section. After the completion of each wing panel, they should be pinned on to a flat surface, with the tips blocked up 7½ in. for the dihedral. Cut ¼ in. strips of hard balsa to form the leading and trailing edges of the centre section, and glue them in place. Form an overlay joint of all box spars by gluing medium hard balsa either side of them, as shown in the plan, and when dry, fill in the tops and bottoms with ¼ in. balsa, making a splice joint. Cut a piece of 3/32 in. 3-ply to fit along the leading edge from the ribs, one either side of the centre section, and across it. Gusset the trailing edge with hard ¼ in. balsa, and then cover the centre section with 1/32 in. 3-ply, overlapping the balsa covering of the wing panels, covering the top and bottom of the wing alike. Make doubly sure of alignment of wing panels when building them on to the centre section.

Tailplane. This unit is also of unorthodox construction. The leading edge is built up of two pieces of ¼ in. square medium balsa bent individually and glued together. The trailing edge is of three pieces, treated in the same manner. Pin these on to the plan and after forming the tips, cut lengths of 3/16 in. square balsa to form the cross bracing as in the drawing. The main spar is hard 1/16 in. by ½ in. balsa at the centre, and tapers in a convex form to zero tips. Capping strips of 1/16 in. by ¼ in. hard balsa are bent over the spar and glued to it, and the leading and the trailing edges. Round off the edges as shown in the drawing to form a section roughly similar to M.6.

Bend the tailplane hooks from 16 S.W.G. steel wire and glue firmly into place.

Fin. The main fin outline is easily seen, and the position is obvious. The two auxiliary fins are formed from ¼ in. hard sheet, and a rudder is built on to the port one as shown in the drawing. If this rudder area proves to be insufficient, another one can be built on to the starboard one. The three fins should be sanded to a streamline cross section and the birch plywood platform cemented to the centre one. The tip fins are cemented to the tailplane, where their width matches the width of the tailplane.

Downthrust Control. Four pieces of 18 gauge aluminium the length of the motor lugs, and as wide as the motor bearers, are necessary. Place two beneath each motor lug and by adding small washers under the rear motor lug bolt, downthrust can easily be controlled. This is necessary for fine flying, and a good way of test-flying a new model.

Flying. Fit new batteries of U.2 size if dry cells are to be used. Strap the wing and tailplane firmly into position with rubber and check for alignment. Insert washers to create downthrust as described previously, the batteries can be adjusted so as to bring the C.G. into the position shown on the drawing. When this has been done, strap the batteries firmly to the ramp with rubber. Re-strap the wing, and check for alignment.

Proceed to test glide the model, and adjust by adding negative incidence to the tailplane. Only if this becomes excessive should the incidence of the wing be increased, as the wing is built in at the angle shown on the drawing. When a long flat glide has been obtained, start the motor with the booster batteries and change on to the inside ones.

Run the motor up to an even speed and allow the model to taxi into wind. Then by adjusting the downthrust, taking out a little at the time, experiment until a good climb and glide are obtained. Leave the C.G. at the position indicated, and do not move it backwards by adjusting the battery to obtain good climb. Fly the model *with* the torque of the model in a fairly tight spiral climb. When the motor stops the turn in the glide should be considerably less.