



# SOARER

## Major

### TECHNICAL DATA

WING SPAN 60" WING AREA 275 SQ.  
 TAIL SPAN 24" TAIL AREA 98 SQ.  
 FUSELAGE LENGTH 35" FIN AREA 28 SQ.

### BUILDING INSTRUCTIONS

The Soarer Major is a very straightforward model to build, and providing you follow these instructions, no difficulty should arise. The only tools that you will require are as follows—

- (a) A ball knife or razor blade.
- (b) A small pair of pliers.
- (c) A packet of pins.
- (d) Some sandpaper (fine).

Cover the plan with greaseproof paper to prevent the parts from sticking to it.

**FUSELAGE.** Build two basic frames flat on the plan, one on top of the other. When the cement has set, remove them from the plan, sandpaper very lightly and separate.

Cut the eight cross-braces 'X' (four at the top, four at the bottom), and pin the two frames upside down to the fuselage top view. Pin it down by the parallel portion between the wing down positions only. Cement pieces 'X' in place, taking care that the frames are upright and parallel. Leave to set thoroughly and then cement the tailposts together, and cement the front cross-braces in position, holding the longons in place with elastic bands. Leave to dry and then add the rest of the cross-braces. Fill in with sheet where indicated and add the gussets for the wing fixing dowels and the celluloid.

Roughly curve the noseblock to shape and cement it to the front of the fuselage, carving and sanding it finally to shape when the cement has set. Cement the wing fixing dowels, wing runners and skid in position after the fuselage has been covered and before it is doped.

**WINGS.** Cement the tip pieces together and leave them to set. Notch the trailing edge to receive the wing ribs and pin it in place on the plan. Cement a set of wing ribs in position taking care that they are all upright, with the exception of R1, which is tilted inward. Use the template provided on the plan to get the right amount of tilt, otherwise the dihedral may not be correct when the two wing panels are assembled. Use pins to hold the ribs in place. Cement the 1/8" sq. leading edge in place and then the tip, followed by the top spar. When the cement has set, remove the wing panel from the plan and cement the lower spar in place. Build the second wing panel in the same manner as the first.

Cut away ribs R1 and R2 in front of the spars to take the dihedral braces. Cement the two ribs R1 together and cement the braces in position. Pin one wing panel to a flat surface and support the other so that the tip is raised 9". Add the gussets, and when thoroughly set, sand the leading and trailing edges to the indicated section and cover the centre section top and bottom with 1/32" sheet.

**TAILPLANE AND FIN.** Pin the 1/2" x 1/8" trailing edge and the 3/16" sq. spar in place on the tailplane plan, cement and pin the tips and scrap gussets in position followed by the ribs S1-S6. Add the leading edge and when set, remove from the plan, sand to the indicated section and cover the top of the centre section with 1/32" sheet. The fin is built flat on the plan. The leading edge is rounded off and the trailing edge sandpapered to a knife edge. The fin is firmly cemented in place on to the tailplane, before covering.

**COVERING.** The fuselage, tailplane and fin are quite easy to cover, and should present no special problems. Always cover so that the grain of the tissue runs along the greatest length, and apply the tissue paste only round the edges of the area to be covered.

Cover the underside of the wings first. As this surface is under-cambered, it is necessary to apply paste along the edge of the ribs and the spar. Attach the tissue to the root rib and stretch it gently to the tip. Now work along from the root to the tip using the tissue outwards all the time to take up the slackness and to remove any wrinkles. Do not bother too much about getting the tissue tight, concentrate on getting it on smoothly and evenly. The upper surface of the wings is straightforward and paste need only be applied to the leading and trailing edges, the root rib and the tip.

Water shrink all covering, either by spraying with water from a mouth or insect spray, or by holding the plane in the steam from a kettle until the tissue has slackened off. When the tissue has dried out, give the model two coats of clear dope, followed by whatever coloured dope you decide upon. Do not overcoat the model with coloured dope as this adds greatly to the overall weight of the plane; confine it to the fuselage and a stripe or two on the wings.

**NOSE WEIGHT.** Drill a hole in the noseblock, and fill it with lead shot or solder until the model balances at the point shown on the plan.

**FLYING.** Before taking the model out on the flying field, check that all the flying surfaces are warp free, and that wings and tailplane are in correct alignment. The first test flight should be made in calm, dry weather and preferably over long grass to avoid damage. Face into wind and gently launch the model from shoulder height on a slightly downward path. A long steady glide of twenty feet or more should result. On no account launch the model upward as this will make it stall.

For best results, a gentle turn in either direction is necessary. More than likely, the model will have a 'natural turn', but if not, the rudder should be offset to one side (approximately 1/16" at the trailing edge). Once a steady curving glide has been achieved, you are all set to tow the launch.

A tendency to stall is remedied by placing packing under the tailplane leading edge. For a more diving tendency, the tailplane incidence may be decreased (packing under the tailplane T.E.). The adjustments should be made a little at a time—1/64" or 1/32".

**TOWLINE LAUNCHING.** Buy a reel of strong thread and tie the end to a paper clip. Just ahead of the paper clip attach a small piece of rag in order that the tow hook may readily blow off when the towing tension is released. Unwind 75 to 100 feet of thread, place the tow hook (paper clip) on the FRONT hook and get a friend to release the model. Your helper should keep pace with you as you run into the wind and let go as he feels the wings begin to lift. In very calm weather, use the REAR tow hook.

