

Auster Agricola



A 19 in. span rubber-powered scale job of Auster's crop duster by Ron Warring.

The fuselage is constructed entirely of sheet. Choose light, soft in. sheet for the sides and top and bottom sheeting, and harder (preferably quarter grain) stock for the formers. The tail surfaces should be cut from very light quarter grain stock.

Outline of the fuselage side can be traced direct off the plan. More conveniently, remove the center pages from the magazine, lay the fuselage drawing over a sheet of balsa and pinprick, or transfer the drawing onto the balsa with carbon paper. Use the first side marked out to cut a second, identical side. The formers should be similarly marked out, F1 being of 1/8 in. sheet and all the others of 1/16 in. sheet.

Mark the position of the formers on the inside of each side. Before assembling on the formers, cement on the 1/16 in. sheet doublers at the rear peg position and circles of celluloid to cover the rear windows. Assemble the sides on formers 3 and 4 first. Then join at the rear end and cement in formers 5 and 6. Finally fit formers 1 and 2, noting that the sides have to be pulled in at the bottom. Use pins to hold in place until the cement has set.

The top panels are cut from 1/16 in. sheet and fitted. Clean up the nose, as necessary, and cement on the sheet bottom. The rear leg should be bent and secured before adding the rear bottom sheeting. The upper cowling is finished by covering with 1/32 in. sheet.

After cutting the tailplane and fin, check that these fit accurately together. Cement the tailplane into the fin

slot and then cement the fin into a slot in the fuselage top. Note that the rear leg protrudes slightly to stick into the fin. Check that the fin and tailplane are assembled true and square.

The wing panels can be built directly over the plan. Two alternative forms of rib spacing are shown. Use the full line positions only if you want to build a light wing, otherwise use the dotted rib positions in the center section and add additional ribs in the outer panels at the dotted positions. Ribs can be traced from the full size patterns.

The port wing panel can be built over the right wing plan by laying out the leading and trailing edges and spar over the dotted lines. The outer panels are cemented to the center section with 1 1/4 in. dihedral at each tip. A 1/16 in. sheet dihedral brace is fitted against the spar at the dihedral joint. No gussets should be necessary.

Two false spars are let into the leading edge of the center section to carry the undercarriage legs. The legs should be bent and bound to these spars before cementing in place. Use the scale length of leg shown on the drawing if a 5 in. diameter plastic propeller is to be fitted. For better performance, fit a 7 in. diameter plastic propeller and lengthen the wire legs as necessary to give ground clearance.

The wings are covered and doped before fitting to the fuselage. Check that the fuselage cut-out shape matches the contour of the finished wing. If not, trim to a good fit. Then cement the wings permanently in place, sighting against the tail surfaces for accurate alignment. The fuselage need not be tissue covered. After sanding down perfectly smooth, it can be coloured with dope to the line shown on the plan. Registration lettering and control hinge lines, etc., should be ruled on with black dope. The jet exhaust pipes are carved from 3/16 in. square, wrapped with gumstrip and cut off at an angle to cement to the sides of the bottom cowling.

The nose block is carved from 1/4 in. sheet and fitted with a shaped 1/8 in. sheet plug. This gives generous clearance for the rubber motor—a common failing of many small models where the propeller is mounted on a small nose-button. The nose block should be

Auster Agricola

bushed with an 18 s.w.g. brass bush or tubing to fit an 18 s.w.g. propeller shaft. If the plug is made a tight push fit in former 1 the propeller will not fall out and ruin the glide when the motor is unwound.

A commercial plastic propeller is used in preference to a carved balsa type. The spinner hub standard on plastic propellers should be filed down to the shape shown on the plan to conform to scale appearance.

Depending on how light you have made your model, power required will be either one loop (two strands) of 3/16 x 24th or 1/4 x 24th. The latter is advisable, in any case, for rising off ground flights.

The assembled model, with motor inserted, should balance at about the mid point of the wing. If you have used a light propeller (e.g. carved balsa instead of plastic) some ballast weight may be required in the nose to trim. Otherwise the model should trim satisfactorily without ballasting merely by adjusting the elevators up or down slightly by warping. If any degree of "up" elevator is required to trim, then down thrust must be added to the nose- block to counteract the stalling tendency under power.

Being a small model, flight duration is, of course, limited, but times of up to 30 seconds should be obtained consistently with careful trimming on a loop of 3/16 in. rubber. For rise off ground flights, the take-off must be made from a smooth surface and at least half maximum turns used on the motor. If there is any tendency for the model to drop a wing or prove critical on turn adjustment, applying washout to the wing tips is a cure. Otherwise, despite the fact that the "Agricola" is a low wing layout, stability should be quite good. The only departures from true scale outline are a slight increase in dihedral angle and fin area and a fairly generous increase in tail area. Scale propeller diameter for a nonflying model, incidentally, is 3 1/2 in.

