



**Philip Kent's 1/6 scale stunner is subject of this month's 'Superplan'!**

**A**eronca light aircraft have always been popular subjects with scale modellers. Originally, free flight models were built and flown with great success and the fascination with the marque has continued with many radio controlled versions. My first Aeronca was a 100 version built from the excellent Dennis Bryant plan. The idea for the C1 came from a desire to build a Light Scale model for my OS 20 four-stroke. A 1/6th scale version of the C2, C3, or 100 would, I thought, have been too big but I remembered seeing a photograph of a clipped-wing aerobatic C2 called the C1 Scout.

This machine looked ideal; it had a bright colour scheme and came out just about 58ins wingspan at 1/6th scale. Only one Aeronca C1 ever flew, an accident with the prototype spoiling its chances of success. As usual, there was a small problem - no three-view drawings! I decided that, as I wanted the model for competition use, I would have to draw my own and hope to have them published\*. The only difference between the C1 and late C2s was a different shaped fin and rudder, shorter wing-span and spats. Using all the available information that I

# AERONCA C1 SCOUT

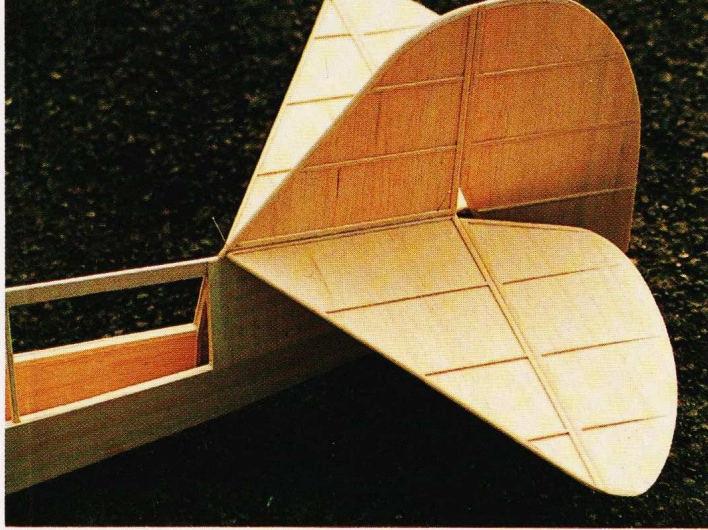
could find I soon had the three-view drawn out and was able to make a start on the model drawings.

The model is accurate in outline, to my drawings, and with care could be built to a high standard - a lack of photographs could be a limiting factor, though... I also think that it could be modified to a C2 version without too much difficulty if the *Wingspan* drawings were used. There are no really difficult areas for the builder but there is some accurate wire bending and silver soldering required for the wing mount. Another slightly unusual feature is the use of a servo mounted in the fuselage for actuating the ailerons. With the small servos that are available these days it would be possible to use a servo in each wing with more normal bell-cranks and pushrods.

## Construction

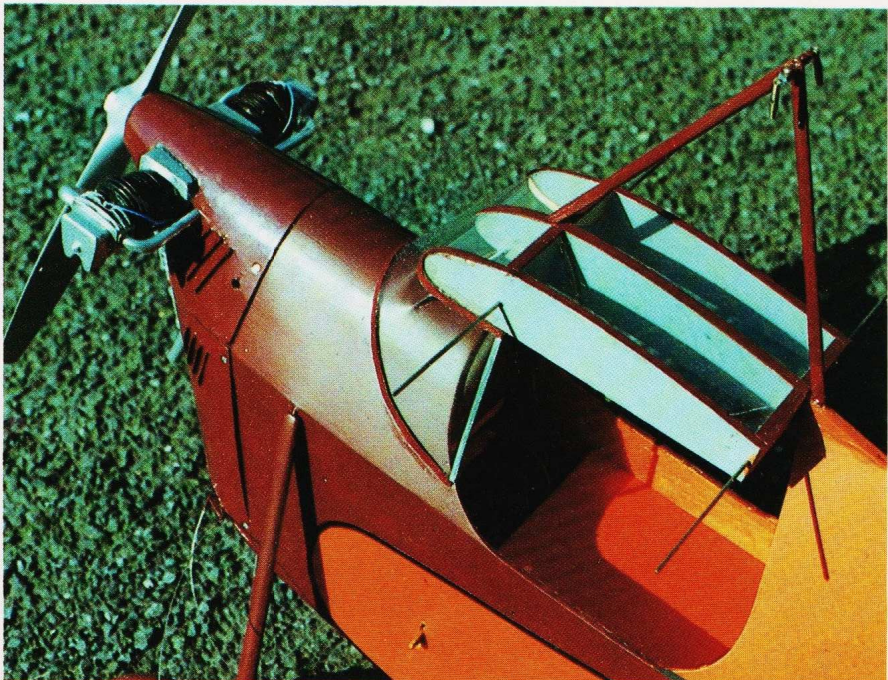
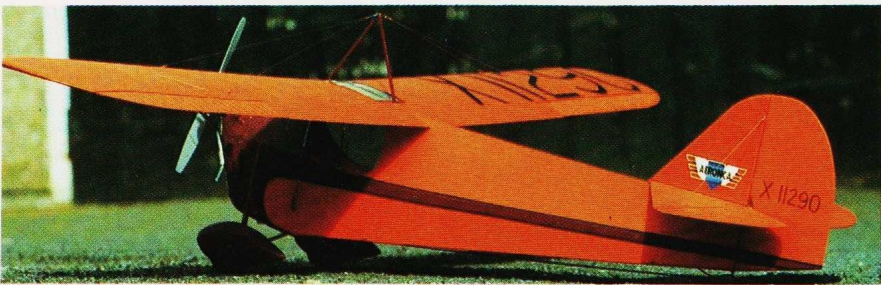
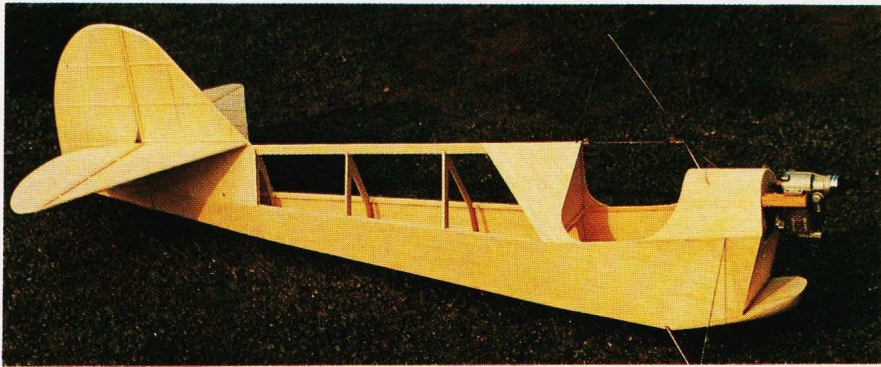
I like to build the tailplane first as I can soon see a piece of the finished structure! In the case of the prototype all the tail surfaces were built using the core method. As there is no balance problem it would be possible to use light, firm 3/16in sheet if you prefer a more simple method.

The 1/16in sheet balsa cores are first cut to outline shape. The rib and spar positions should be marked on both sides before cementing these parts in place. On completion, sand the surfaces to the correct section, a rounded leading edge on the tailplane and fin and the triangular shape for the elevator and rudder. Don't forget to add the 1/16in ply inserts for the bracing wires or the infills for hinges and horn. I made the elevator joiner and horn from 16



# SUPERPLAN

## 2



Heading pic opposite shows the prototype prior to fitting the dummy engine - it makes all the difference, as you can see from the photographs on this page. Basic fuselage construction method is unusual yet dead simple; floor is pinned over plan then sides and formers added. Tail surfaces feature the core method of construction (see pic at top left). All very simple and uncomplicated.

swg wire and 18 swg steel silver soldered together but a commercial one could be used.

## Fuselage

The fuselage construction is a little different to normal methods. The 1/8in sheet balsa bottom is cut to shape and placed over the plan view. The formers are then added making sure that they are at the correct angle, use the template shown on the side view to assist here. When dry, the 1/16in sheet balsa sides are glued in place using p.v.a. Scrap strip and pins will hold them in place (see photograph). A sub-assembly is built using formers F1, 2 and 3 and the engine bearers. This unit can be added to the partly assembled fuselage before removal from the building board. Use epoxy to fit it in place and masking tape and pins to hold until dry. The top spine completes the basic structure.

Fabricate the wing mount from 16swg wire, silver soldering the joints. The brass brackets for the wing wires should be silver soldered but the wing wires should be soft soldered. The mount should be sewn to the plywood former F4T before the balsa laminate is glued onto it. Fit the former and mount in place, the front wire being fastened to the engine bearers with small brass or plastic brackets. Build up the centre section on the wire framework. The plywood rib shape can be taken from the fuselage side view, the centre rib is made up of three ply laminations, one 1/16 and two 1/32in

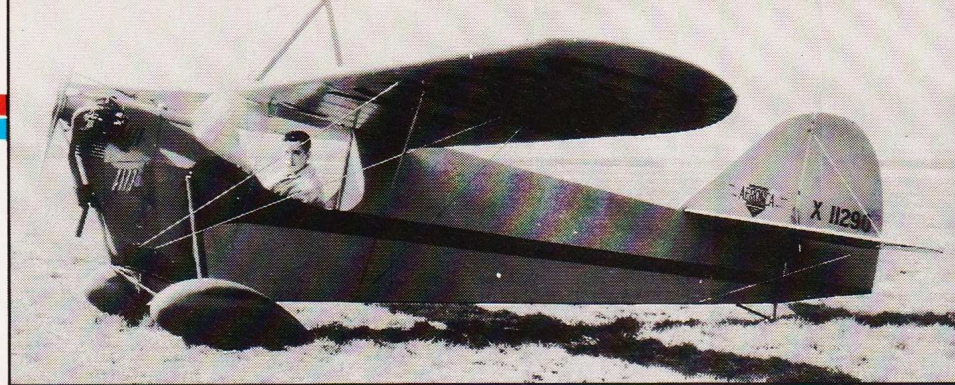
The undercarriage should be built up as shown and fitted in place; note how the plywood box encloses the 10swg main legs. Sew the upper end of the tripod, and glue to former F2 and fit the front part to the underpan block using a 'J' bolt. Fill in the tank compartment with 1/8in sheet before sheeting the nose section with the 1/16in sheet balsa. The tailplane mount and aft of the cockpit area is also covered with 1/16in sheet after the 3/16in square pieces have been fitted along the top of the sheet sides.

The cowling formers and gussets are from 1/8in ply. The cowling is in two parts, a top from block balsa and the bottom portion from litho plate. There is little to spare and care should be taken when carving the top cowl. I used a 1/2in extension on the OS20 four-stroke so that the engine was out of sight. Fox make a suitable one, I think. The bearers have to be trimmed so that the engine can slide in from the front; note that the engine mounts above the bearers. The spats were built up from sheet balsa, the thickness depending on the type of wheels used.

## Wings

As the model is quite small I decided not to use capping strips. This does mean that the ribs have to be cut out accurately and a template from plywood should be made. Use light, stiff sheet for the ribs and medium hard balsa for the spars and trailing edge.

The 1in x 1/16in trailing edge, the 3/8in x 3/16in rear spar, 3/16in square front spar and aileron sub-spar can all be pinned in place over the plan. The ribs can be fitted followed by the 3/16in square top spar. Fill between the 3/16in square spars with scrap 3/16in sheet balsa as far as the plywood rib



which carries the brackets for the bracing wires. A false 1/8in sheet leading edge is used and, after fitting this and the sheet tips, the top sheeting can be added. Note the shape of the spars at the tip and the position of the sheet core on the tip rib. On removal from the board the bottom sheeting is added and the 1/4in sheet leading edge. The ailerons are symmetrical in shape and can be built over the plan.

The corrugations are from strip balsa sanded to shape. All the horns for the wing were made from fibreglass printed circuit board. The torque tubes were from aluminium tubes with hardwood joiners and mounts for the horns.

## Finishing

On the original model the wings and tail surfaces were covered in Solartex. The fuselage was covered in Sig Koverall and the ailerons in tissue. The whole model was doped before colouring. I used car paint for the vermilion and Humbrol for the maroon trim. The black pin stripes were car trims. The wing and tail were braced with plastic coated fishing trace. For the wings, snap links were used for the lift wires under the wing and a turnbuckle for the landing wires, above the wing. The dummy engine and exhausts were made up from aluminium, balsa, plywood and plastic tube. The wing registration was painted on in black Humbrol but Solartrim could be used. The Aeronca logo was hand painted but used Letraset lettering. A brass tube exhaust extension was fitted to the original model exiting below the cowling.

There is plenty of room for the radio gear and it should be moved around to achieve the correct c.g. location. As stated previously, a servo in each wing could be used instead of the fuselage-mounted one for the ailerons.

## Flying

One reason for not getting the model finished months ago was that I was worried about the engine having enough power. How wrong this proved to be! My first flight was flown from our club grass flying field; the


engine was fitted with a Graupner 10in x 4in prop for the flight. Everything seemed to be working so I opened the throttle and away she went. The air-speed built up rapidly and the model lifted off in about 15 yards. No trim alternation was needed on the prototype and the model proved very easy to fly.

There was plenty of power and on this first flight loops, rolls, stall turns and reversals were tried. With the large rudder the stall turn was particularly easy and the rolling manoeuvres were much better than I had anticipated. I was highly delighted and, after doing a few low passes, made a perfect landing. As the airspeed fell away the wings drooped down - the turnbuckles had come loose and the model must have flown most of the flight with only the flying wires under the wings in place! You must always remember to wire up turnbuckles on any model as this *can* happen, perhaps with more disastrous consequences.

The Aeronca C1 is a super little model. It is of a convenient size to fit into a car boot fully rigged and it is such fun to fly. The OS 20 four-stroke seems to run for ever on the 4oz tank, too. I have no doubt that somebody will decide that it needs to be bigger and scale it up to at least 1/3 scale. However, this is a Light Scale model; build it for competitions or just for fun, I'm sure you'll enjoy it.

\* Scale three-view drawings and an article on the full-size C1 appear in the Dec. 1988 issue of *Aeromodeller*, on sale now.

## Principal data

CG - 2 1/2" back from leading edge.  
Control throws - rudder: 1in each way  
elevator: 1 1/2in each way  
ailerons: 1/2in up, 3/8in down. (as used on original model). 

*Full-size C1 was an attractive mite as can be seen from this John Underwood pic at top. Simple fin logo is easy to do (full details on the plan) and engine cylinders are just tricky enough to be a challenge without being difficult.*

