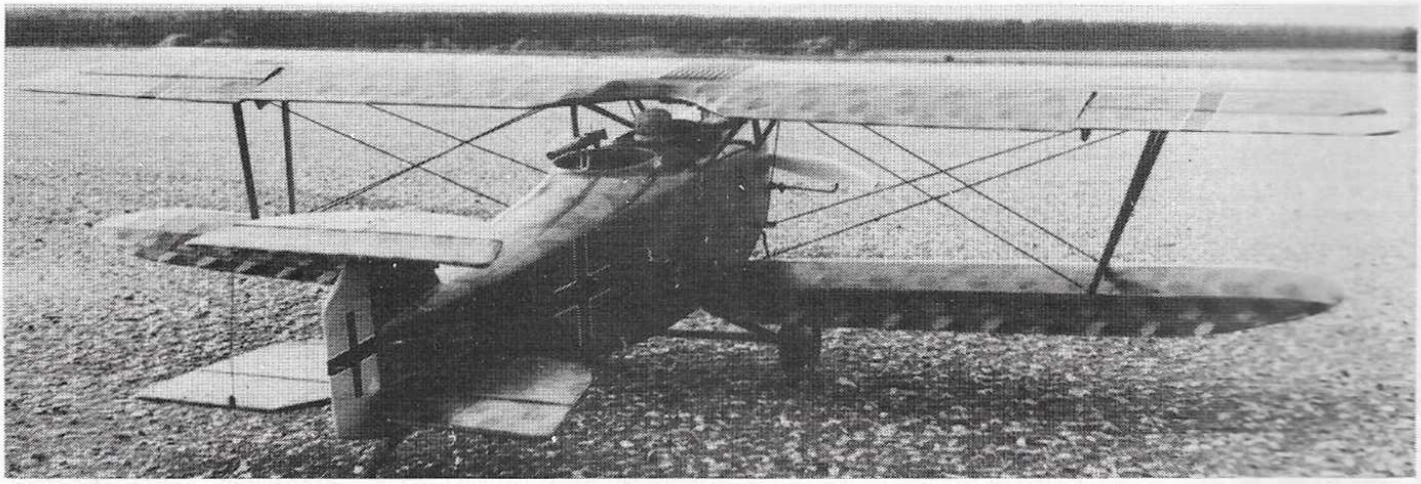
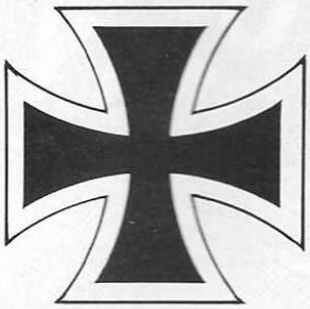


"I went down to engage him and found that he was a Hannover, a machine which has a biplane tail, and although I fired a lot at him at close range, it had no other effect than to make him dive away, which made me think that perhaps they were armoured. These machines are very deceptive, and pilots are apt to mistake them for Albatros scouts until they get to close range, when up pops the Hun gunner from inside his office."

So wrote Major J. B. McCudden, VC, DSO, MC, MM in his autobiography.



Hannover CL111a

Try this handy WWI model for .20 size engines and four function R/C. Designed by Dereck Woodward.

THE HANNOVER CL111A was designed in 1916 as a two seat escort fighter. Spanning a compact 38ft., the aircraft featured a biplane tail, to give the gunner a better field of fire. It proved to be a rugged, agile machine which was very efficient in the hands of a good crew.

Despite the unmistakeable appearance, construction is as easy as any other small biplane. Removal of the top wing and the whole of the top decking gives access to a combined radio and tank bay which gives far more room than the usual method of trying to fit the gear through a tiny lower wing aperture.

Interested? Well, let us start cutting balsa and build something that will confound all those who think all bipes are*Tiger Moths*.

The wings

I usually start here, after you have cut out all those ribs, the rest is easy.

Most of the top ribs can be made from the one full template and trimmed to the correct size as building progresses, I find this the easiest way to get a good fit.

Build up the top wing panels and centre section apart from the dihedral braces and top spars. Join at the correct dihedral angle then notch the relevant ribs and add the braces and top spars. This avoids bending the braces around that slight sweep angle. Add aileron drive, the ply sheeting, which doubles as a dummy oil tank and the top of the servo bay, and the servo mounting. When complete, build the hatch for the underside of the servo bay. The aileron servo rests in the bay on strips of wing seat tape, the hatch is similarly lined with tape and screwed to the underside of the wing.

Build the ailerons separately, it helps to steam the washout into the trailing edge strips prior to assembly. Leave the root rib and aileron horn until the main structure is complete, then add these off the board. Add the hinges and check the ailerons operation, including servo, for full and free movement.

The lower wings are very basic, but it is easier to rig the dihedral into the wire dowels after the fuselage is complete, so fit the dowels at this stage but do not fix yet.

The riblets on both wings probably add to the efficiency of the wings as well as their appearance, so please don't omit them. The result is well worth the effort.

All that remains is to fit the strut hooks and all the gussets shown on the plan.

Tail group

I can hear them from here, the cries that this guy builds backwards! Perhaps, but it helps to use the tail to align the fuselage. Nothing too difficult here, the structures reflect the original, and with two tailplanes weight watching is doubly important so please keep it light. I even used lightweight tissue on the open areas.

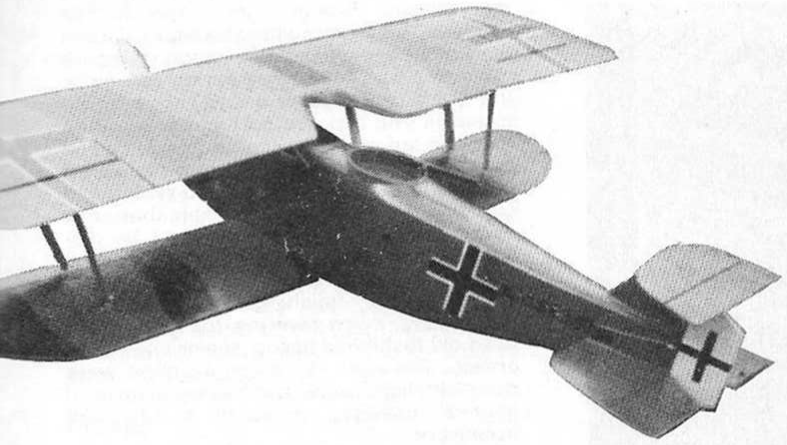
The wire joiners are best bent to actual model length after the tail is assembled.

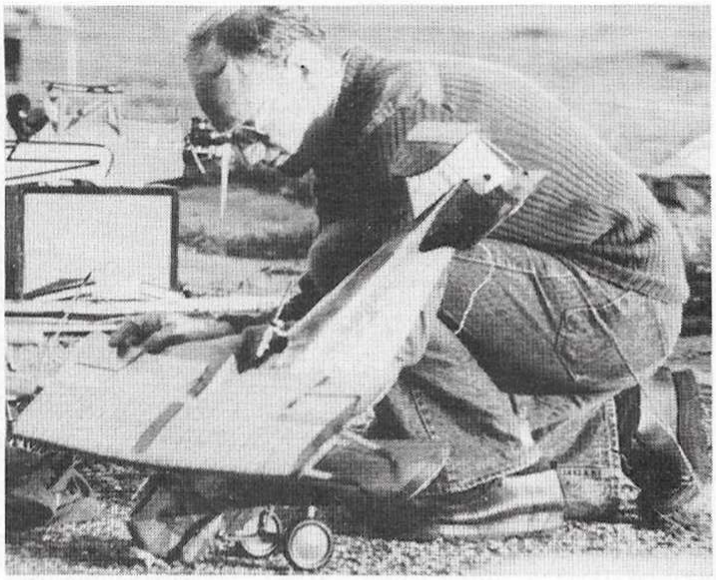
At last, the fuselage!

Start with the sides, which are just a normal sheet covered framework. While they are setting, cut out the formers and the ply motor mount to suit your motor. This is a good time to fit the blind nuts for the engine bolts. Before you ask, yes it does need all that side and down thrust.

Fit the sides to F2 and F4, add the motor mount and F1. Chamfer the rear ends of the sides and draw in to the fin, using the lower tailplane to check alignment. Add the cross-braces, turtledeck formers and sheeting. All block areas and the 1/8 ply ring around the gunner's cockpit can be added, then carve the topside to shape.

At this stage I find it handy to start fitting the servo mounts, tank installation and the silencer/motor throttle odds and ends. On the prototype model a 4oz tank was fitted in the bottom of the tank area with its bottom level with the lower edge of F2. Due to the slope of





Right: pre-flight check out by Lt. Von Woodward, the Muddy Brown Baron, prior to going looking for boring Sopwiths.

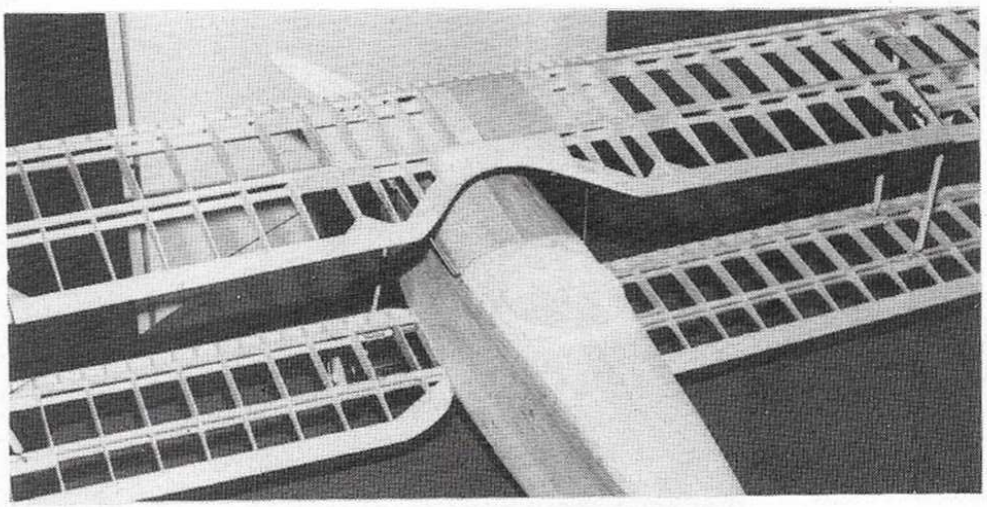
the fuselage bottom the rear of the tank must be packed up until the tank is horizontal. It is a good idea to drill out F2 so the whole tank neck, rather than the pipes, passes through the former and seal with silicone bath sealer. Having fuel and radio in the same bay may seem dodgy, but with care in setting up and a good new tank it has worked fine for me.

The nose of this model is quite slender and a motor with a long crankshaft would be a help in hiding the motor and preserving the shape. Possibly even an extension shaft would help matters here but that definitely would be right in the luxury class.

Now add all the hardwood supports for the cabane and wing dowel tubes, undercarriage supports, F3 and that tubes for the rudder closed loops.

Bend up the centre section wires, bind them into place and check the alignment using the top wing. When satisfied, solder up the wire joints and epoxy the wires to the hardwood beams. There is no need to bind the full length of the beams, four bindings of ½in. are adequate, also use just enough epoxy, too much is only excess weight!

The next step is the radio bay hatch, this is



built *in situ* to ensure a good fit. Start by lightly tacking the base to the body opening. Now glue the hatch formers in place. The planking is done with soft 3/32in. sheet in four pieces, the thicker sheet allows plenty of meat to sand in the curvature needed without the wood sagging. The hatch is held in place by a self-tapper into F3.

Now the rigging. Clear the bench or pinch the kitchen table, you need enough space to set the model up with reasonable access all round. Pack the body up with the lower wings plugged into the loosely fitted brass tubes, pack up to the correct dihedral angle with the bottom of the centre section parallel to the table. Now fit the top wing onto the cabane. This bit is fun, getting the lot to balance, but at least the whole machine is aligned together. When satisfied tack the wing dowels into the lower wings and the tubes to the fuselage beams. Now, as the whole thing is getting more rigid, you may as well add the lower tailplane.

Bind the lower wing wires into the wing halves and the tubes into the fuselage, now is the last time to think what you would like to fit without the fuselage bottom sheeting. When happy, fit the sheeting. Believe me this is much easier than sticking on the floor at an early stage and spending the next few days fitting everything blind.

The undercarriage can now be formed, bolted into place and soldered up. Note that the easiest way to make up wirework is on the framework, this stops at least some ends of the wire waving around. I tend to put up with wire bending exercises as one of the banes of biplanes.

At this stage you should fit the aileron servo bay hatch and the fuselage top deck hatch. To get the aileron servo to connect with the receiver I made up an extension lead that passes through 1/8in. holes in the hatches. This lead can then be left in place in the hatches, ensure there is enough spare cable to give a little slack during assembly, this slack can then be eased back into the fuselage. The exposed portion between the fuselage top and the wing underside can be painted to blend in. On the prototype model I arranged for access to the radio switch and charging jack through the cockpit, thus once assembled the model need never be dismantled except for maintenance or repair.

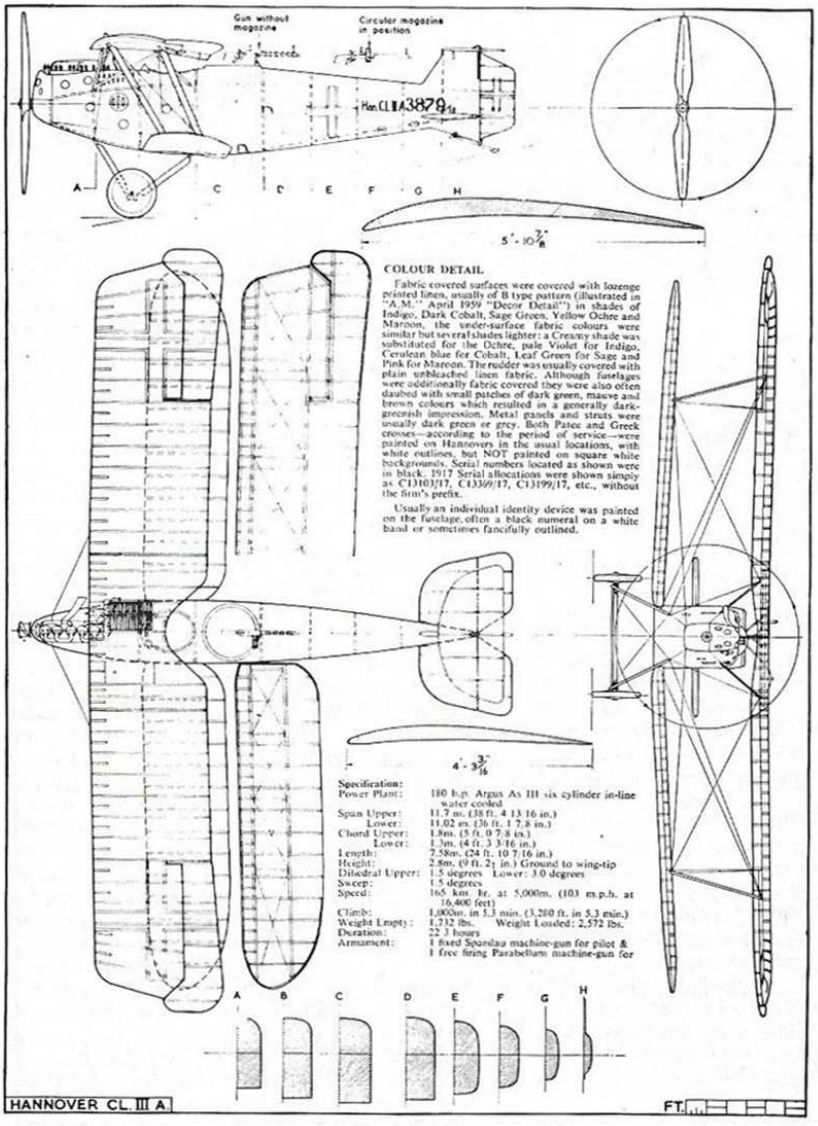
At this point you should have all the major bits ready for finishing. The wings are designed for nylon covering, the sheet areas need old fashioned tissue, sealer and elbow grease. The open tail areas on mine were done with light tissue, this has stood up to all general useage, including a few full noseovers.

Finishing

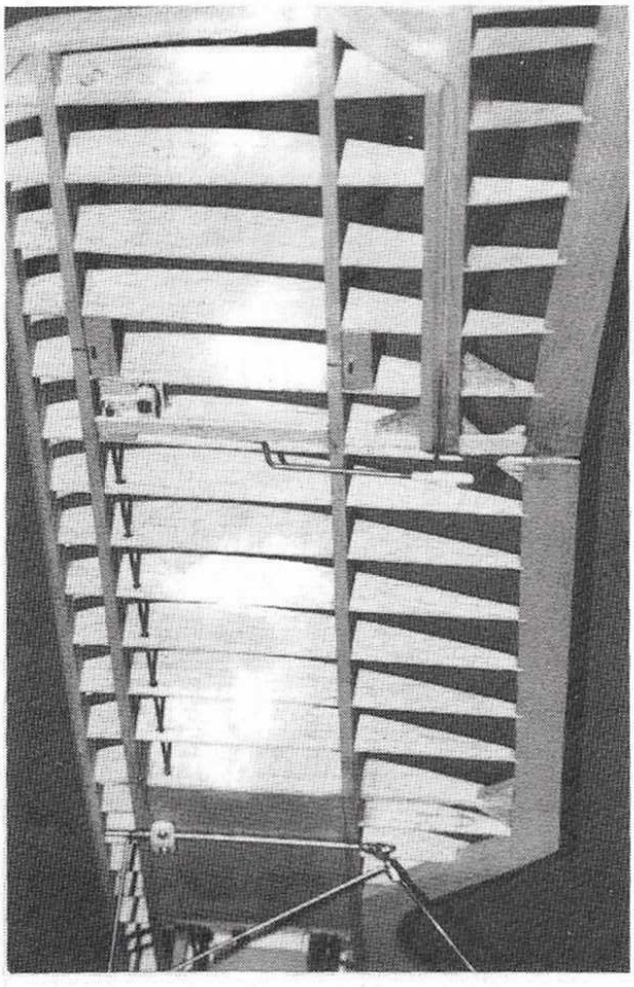
The number of techniques about equals the number of scale modellers! Unlike many odd types, documentation is pretty easily obtainable. Airfix have just re-released a plastic kit to celebrate the launching of MAP scale pack No. 2737 which is full of extra information. Please don't go overboard on extra detail on these small scale models. I try for the minimum that will give the right atmosphere without piling on too much weight. Mine has only the crew, carved from foam with thin leather coats and helmets, a basic dummy motor and guns.

The interplane struts are spruce with brass tube ends built to model, rather than plan, length. The cabane and undercarriage wire are faired with hard balsa bound with strips of tissue. Rub glue or dope well into the tissue. The struts on the real aircraft would have been painted green or grey in service.

My model is finished in green/purple/brown with pale blue undersides, a valid

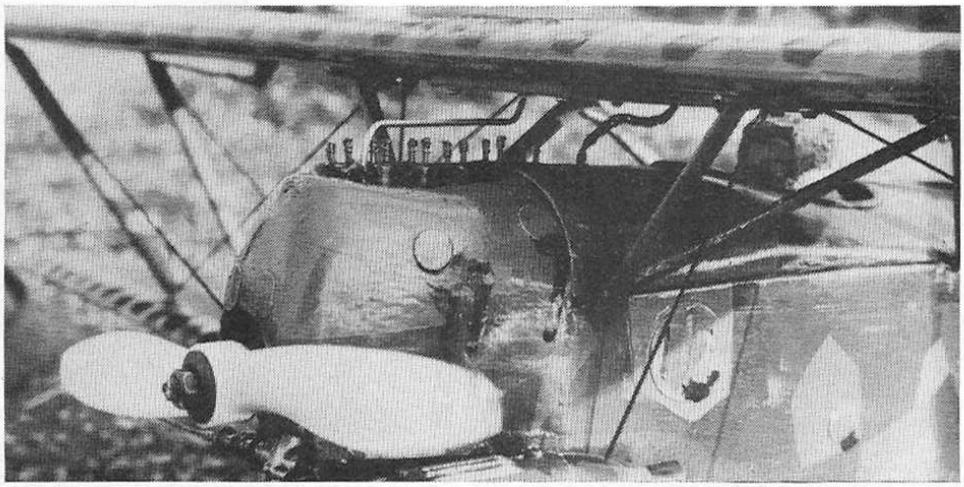


Showing rear crew cockpit and hatch in place. Aileron servo fits under sheeting at upper centre of wing. Below: aileron drive and general wing structure with top cabane. Left: a reduced shot of Aermodeller scale drawing A2737 with colour details. Costs 95p, plus 30p post from these offices.



colour scheme for a two seater or that time. Due to lack of time (moving house) I chickened out on five colour lozenge top and bottom, but done well I think it would look very spectacular.

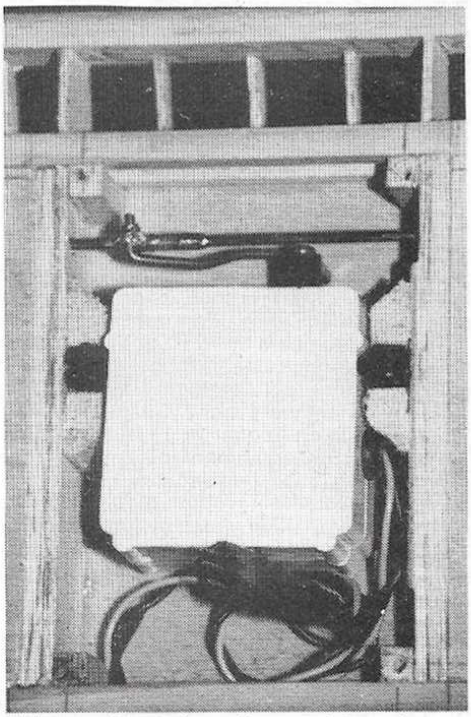
For rigging I use shirring elastic. This is attached to the wing strut hooks and small wire hooks epoxied into the fuselage. I recommend flying with all rigging in place as it holds the struts in place. The odd wire adrift isn't disaster as I once found out when both interplane struts on the same side came adrift. She was fully controllable with the lower wing resting on the upper, at least for a very easy circuit to land! I now fly with all strut ends wired on.



Flying

This is what it is all about, really. On the ground she handles well for a tail skid type, the rudder is pretty powerful. With a fair breeze she will try to weathercock, but so did the real ones.

Dummy motor, plasticard inspection panels (and non scale aileron servo hatch and lead). Right: aileron servo installation covered by ply hatch screwed into place to retain servo.



Start the take-off from a standing start with full up elevator. Ease on the power and as speed builds ease off the up. Provided she starts the run dead into wind mine needs no rudder at all, if you start waving that rudder around in the full power slipstream the take-off usually ends up rather drunken! All this business of holding in bits of rudder never works for me, I just leave it alone unless forced.

As speed builds up ease her off gently. Don't let the nose rise, as it always tends to do on high power settings but aim for a steady climb out. Flying off tarmac, I like doing the take offs on three quarter power for realism, she looks great just easing upwards, she does not look good hanging on her prop, threatening to stall in!

Landings are just as realistic, even though I indulge in rumbling in. Just set up for a nice well ordered circuit and as you line up on finals ease back on power for a nice descent rate. Remember, control airspeed with elevator and descent with throttle. If dead-stick, don't try to stretch it too far. She will pick up a lot of sink and pancake heavily, I know, I've done it.

Manoeuvres

This model will do things the real one could never do. However, to show her off properly concentrate on learning to fly her slowly and steadily between manoeuvres, high power is only needed for a few occasions. She will stick her nose up quite high on full power, so if you need it, be ready to hold the nose down with trim or down elevator.

Loops are easy, either round ones or the more typical dive for speed, up, nearly stopping at the top before swooping over and down, just like a 1917 biplane would do. Stall turns are easy either way with that powerful rudder, or why not try a real Immellman turn. This was never a roll off the top, these aircraft could hardly roll from level flight let alone hanging upside down at the top of a loop. Not a good position in a dogfight anyway, so dive for speed, up into a steep climb and turn with rudder and aileron together, the idea was to get quick without losing sight of the enemy.

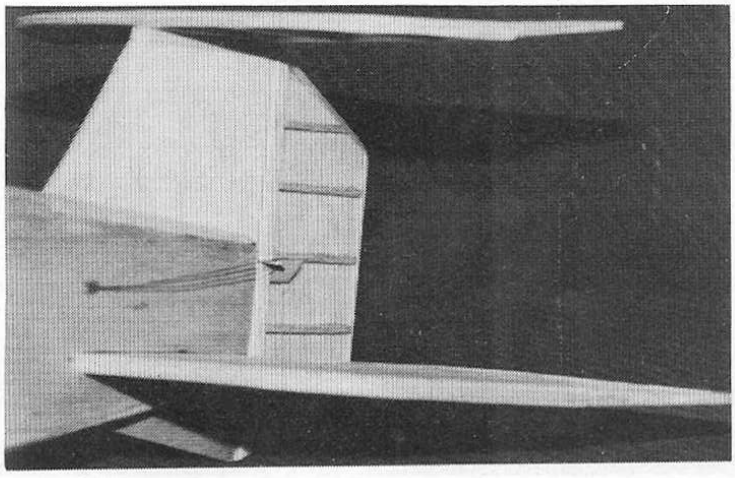
She has to be really pushed into a spin, well stalled and then full rudder and aileron. Even with a slightly more rearward CG she has never spun on me despite some (high level) deliberate mishandling. Spin recovery is quick but the nose will tend to be low. As with all models the trick is to learn the act at a safe height then bring it down to be impressive!

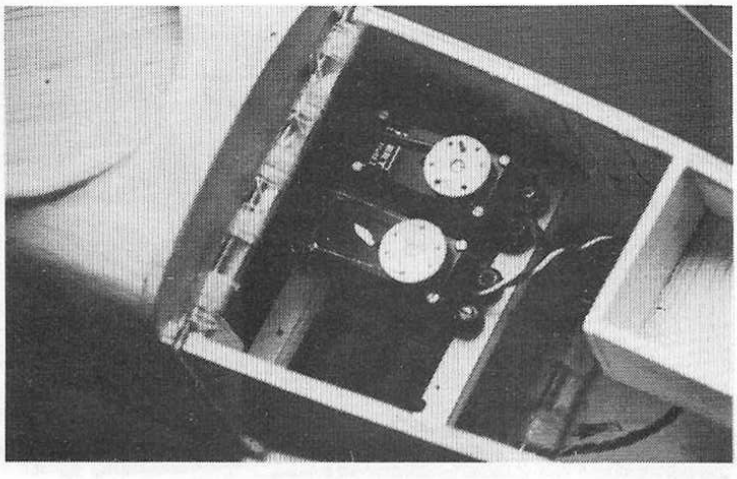
This is one of the few tail draggers I've had that will do rollers really straight, it's one more option for a scale flight schedule. Mostly she looks best just stooging along doing artillery shoot figure eights. At very steep angles of bank she may show a little adverse aileron drag but this is easily avoided by co-ordinated aileron and rudder turns if you need to go round quickly. Incidentally, does it get double scale bonus points for being biplane at both ends. (At least, it ought to).

At last, the end

Well, I hope I've whetted your appetite for this unusual, car boot sized show stopper. So go to it and produce a really different machine for your local skies.

Good luck and happy landings, I'm going flying while she is still a rare sight. I heard there's a boring old Sopwith out looking for a dogfight!





Tail group and rudder closed loop detail. Right: radio bay (servos at rear) shows rear of cabanes bound and glued to hardwood beams. (Box at right is not on final plan and model). Top fuselage hatch covers this opening.