

Build from
our Full-Size
PLANS



**Build Roger Stanton's
36" span radio version
of a contest-winning
control-line vintage
classic!**



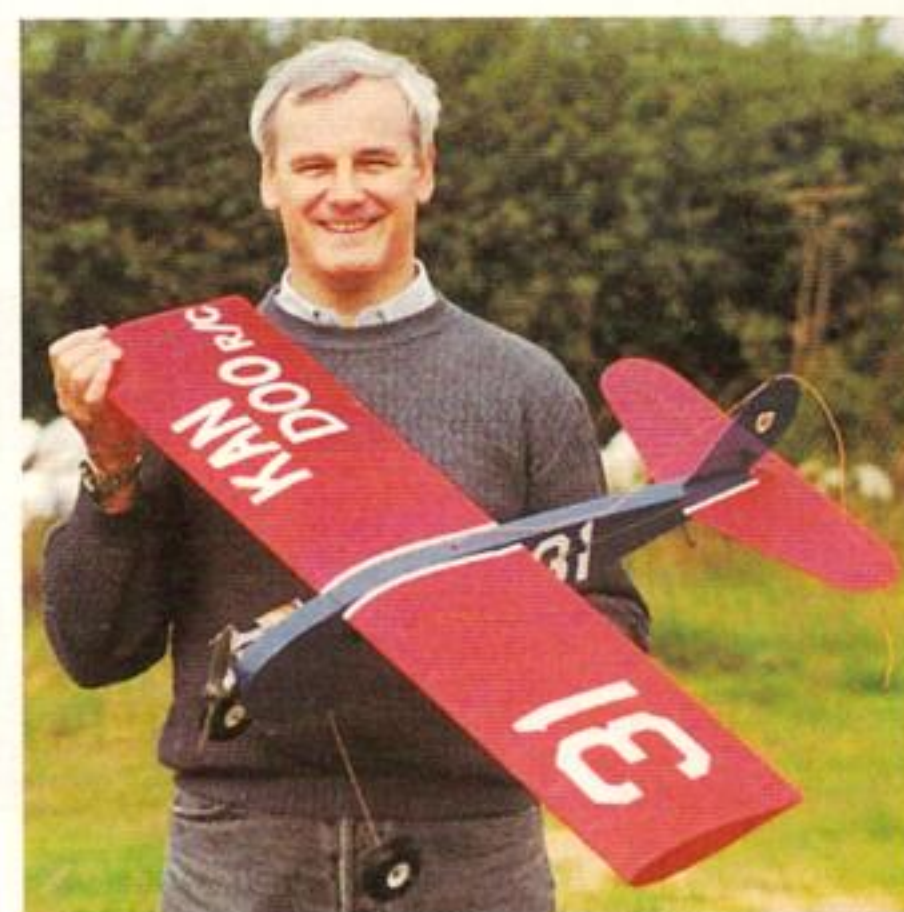
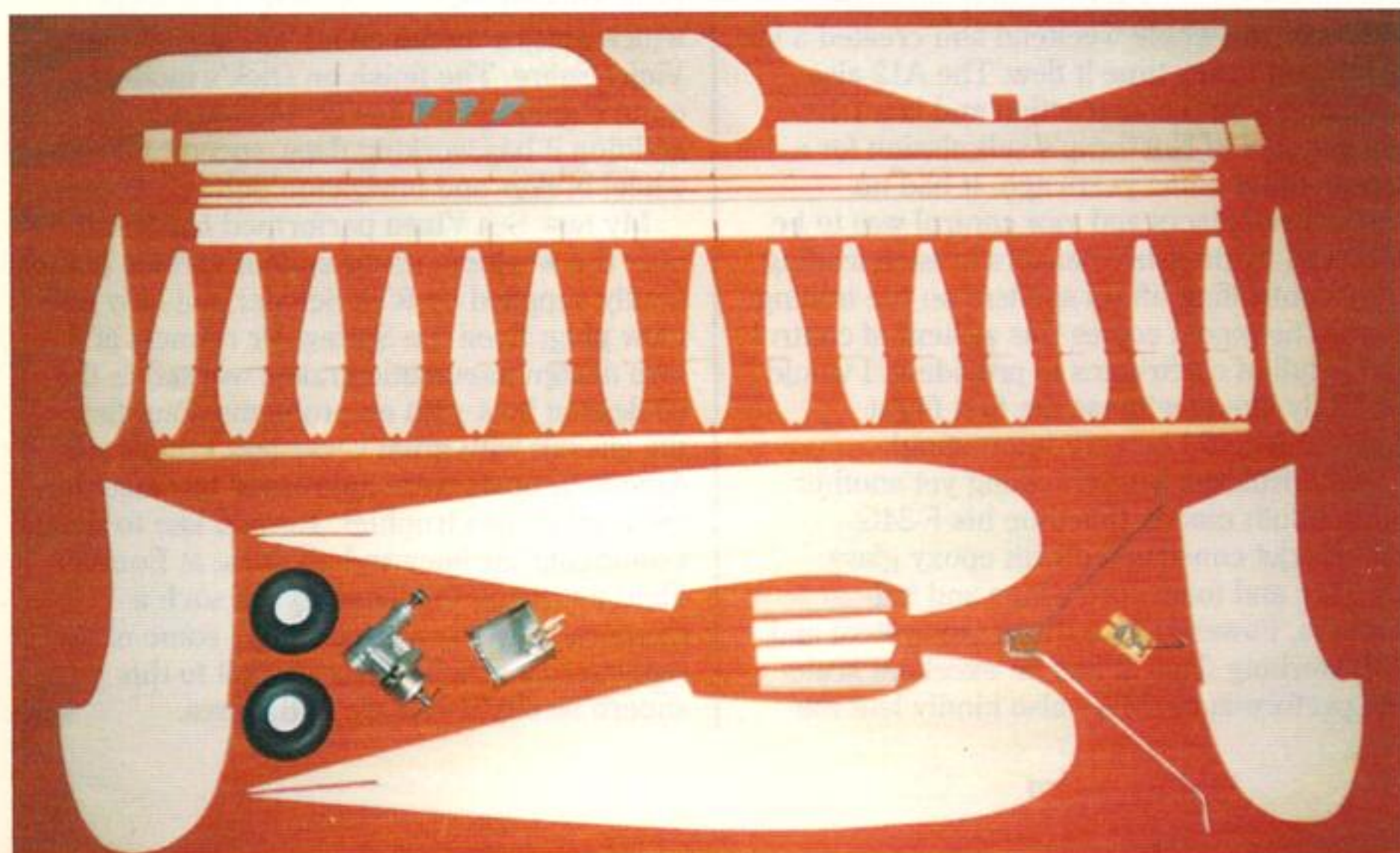
Recognise the shape? If so, you were probably flying Control-line in 1955!

KAN DOO R/C

Using modern radio control in vintage free flight models is one of the more popular branches of our hobby, but a few brave souls have also done the same thing with control-liners! One of my favourites was the R/C version of the not-quite vintage Keil Kraft Firebird in the February 1988 edition of **Radio Modeller**. This prompted me to look for other suitable conversions. For a variety of reasons I didn't get very far until last year when, by chance, I saw a drawing and article about the Kan Doo in an old copy of *Aeromodeller*. It was 45 years since this model won the control-line Gold Trophy aerobatic competition at the British Nationals in the hands of Peter Cock and I found the simple lines strangely attractive.

As I don't have any miniature radio gear, Kan Doo R/C is slightly larger than the original and the fuselage outline has been stretched a little to make it a more practical proposition for radio flying. The solid profile fuselage has been replaced by a built-up structure which, as well as being lighter, also provides space for the battery and elevator servo. I believe the sheet tail surfaces and built-up wing are reasonably authentic apart from the ailerons and the centre section which houses the receiver and aileron servo. The first Kan Doo was a one-piece model, but for convenience and access to the radio gear, I elected to use a bolt-on wing. Like the original, I used a diesel engine and tin tank. Together with the exposed wire elevator

Here's all you need to get building. Cutting a 'kit of parts' is good aeromodelling practice.

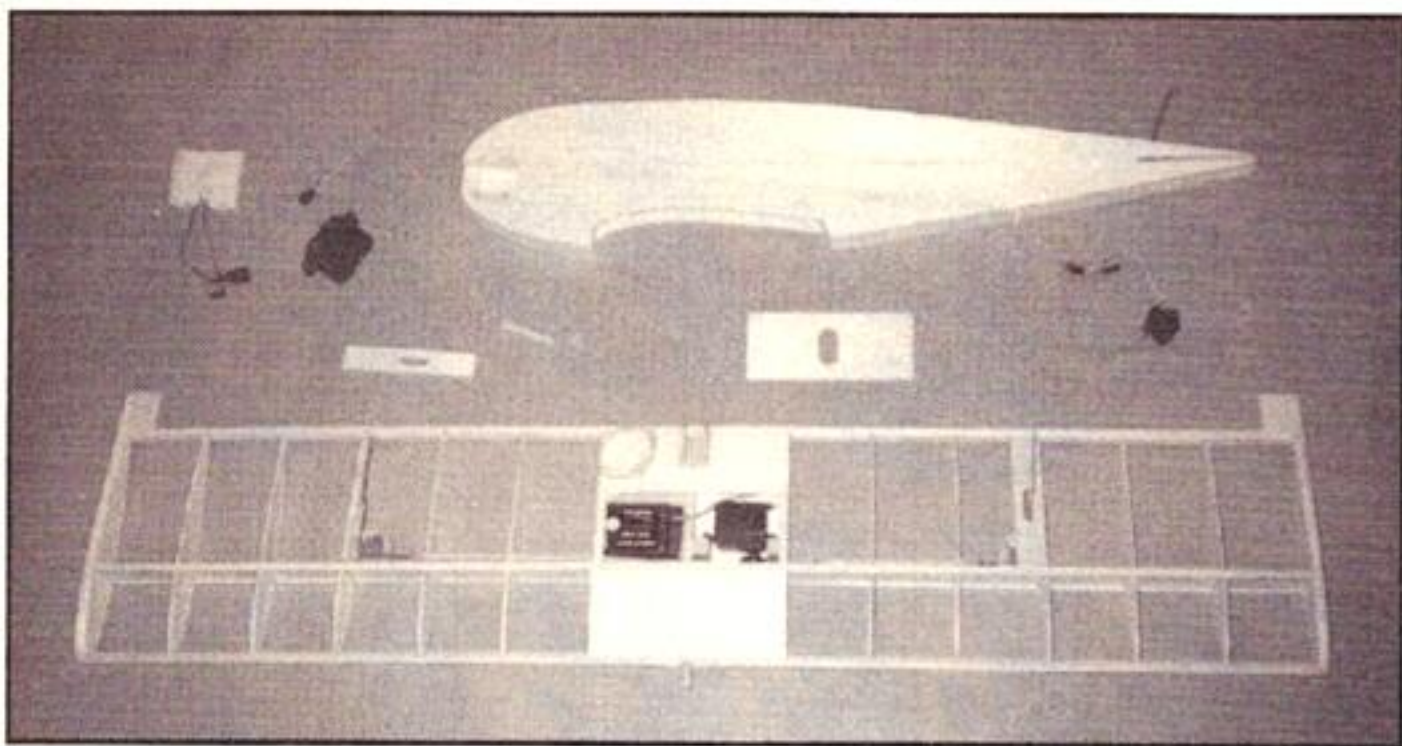


Roger with the prototype; Kan Doo R/C is very aerobatic.

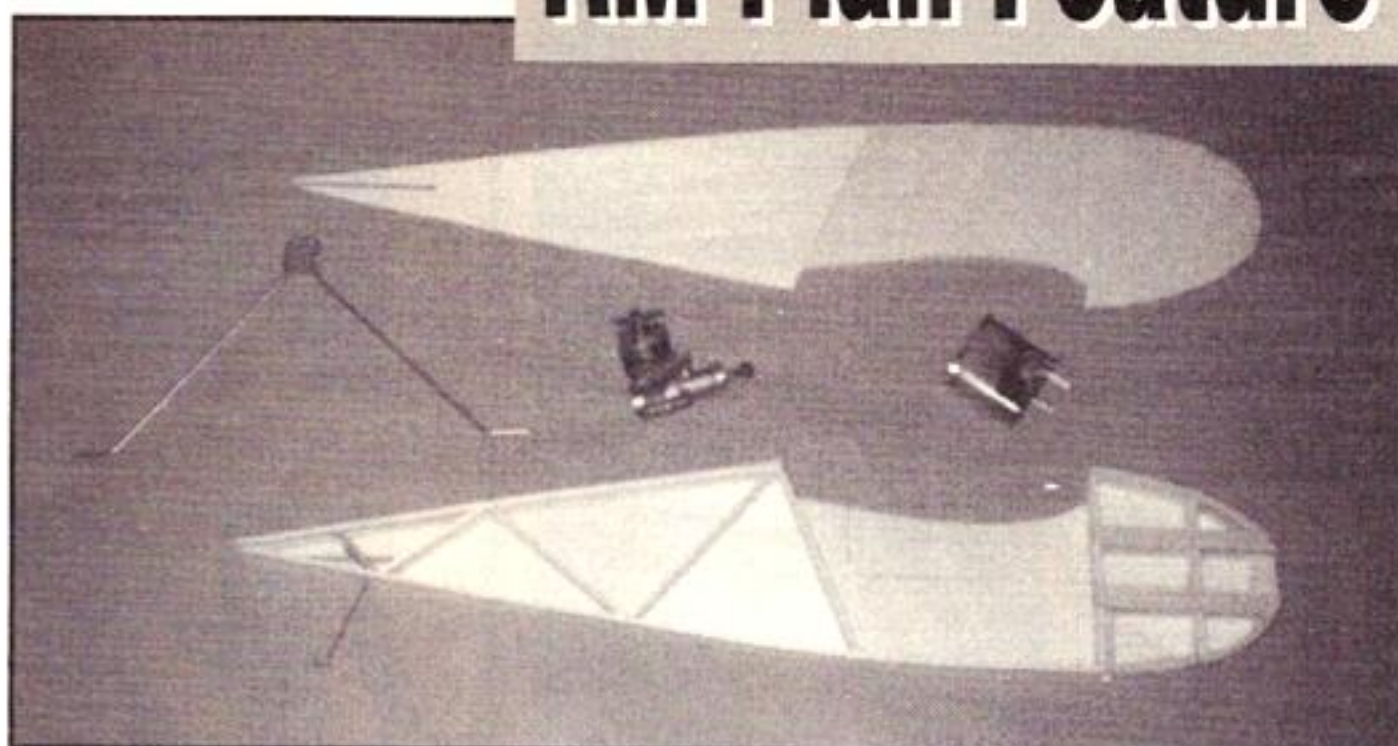
pushrod and Lightspeed covering, they help to give the right vintage flavour. For those who don't like diesels, an old style .15 glow motor such as an OS15 or Enya 15 would be a good choice.

Construction

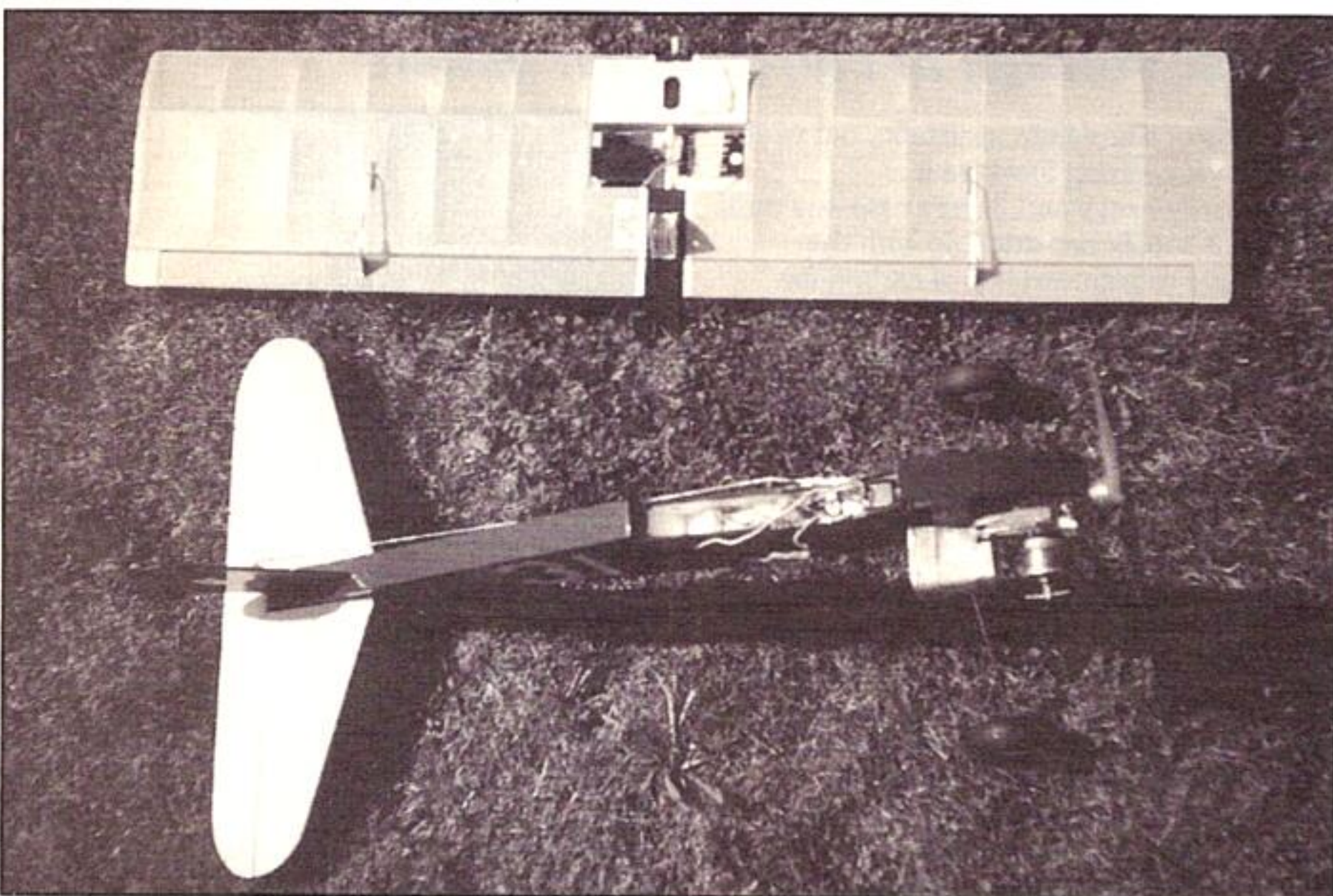
After cutting out all the parts, I suggest that you build the fuselage first. Using a contact adhesive such as Evostik, glue the 1/16" sheet doublers to the 1/16" fuselage sides. Note the grain direction of the doublers which is across that of the sides. The 1" x 1/8" fuselage top, bottom and rear fuselage spacers are now added to the right fuselage side, together with the 1/2" square beech engine bearers, 3/8" packing and 7/8" x 1/8" forward fuselage spacers. The tailskid is sewn



Basic components finished but uncovered. Note receiver and aileron servo in wing.



How the fuselage goes together. 1/8" x 1" balsa strip and internal frame spaces sides.



And it all comes apart for transport. A good one to smuggle away on holiday later in the year!

to the rearmost spacer which is 1/8" ply. Complete the forward end of the fuselage by gluing the 1/4" sheet fuselage top, bottom and undercarriage gussets in place. When dry, the second fuselage side is added. Cut away the right fuselage side sufficiently to allow the engine to seat on the bearers and drill for the engine bolts or screws (I find self-tapping screws are quite adequate in beech bearers for a PAW 19).

Wing construction starts by slotting the ribs onto the 1/16" spar web and into the slots in the trailing edge. The assembly is pinned down onto the building board with 1/4" packing as shown on the plan until the glue is completely set. The leading edge and upper spruce spar are now fitted. When dry, remove the wing from the board and add the lower spruce spar. Drill the leading edge and cut away the centre rib to fit the wing locating dowel. The 1/8" ply wing bolt tongues are glued either side of the centre rib with scrap balsa packing to adjust the width across the tongues to match the gap between the fuselage sides. The 1/8" tips, fixed pieces of trailing edge stock and the 1/16" centre section sheeting can now be added (except, of course, where the radio hatch will be fitted).

The aileron bellcranks are installed next, together with the aileron pushrods which pass through pieces of scrap 1/16" sheet on the undersurface of the wing. The aileron servo is screwed to small hardwood blocks and the pushrods to the bellcranks can be 16 swg wire or old snake off-cuts. Make sure that you put the servo in the left wing (i.e. on the right side of the centre section when the wing is upside down on the building board). This will help to counter-balance the weight of the

engine. I got this wrong and had to put weight in the left wingtip!

Drill a hole in the fuselage spacer to take the wing dowel and temporarily fit the wing in place on the fuselage. Drill through both fuselage sides and the wing bolt tongues and glue 1/16" ply washers each side of the fuselage. Using scrap 1/8" sheet, construct the fuselage fairing on top of the wing. The wing radio hatch is made from stiff 1/16" sheet and has a slot cut in it for the battery and elevator servo leads. The receiver aerial passes through a hole in the upper surface of the wing. Scraps of 1/8" ply are used to take the hatch screws and the hatch itself is hinged along its forward edge by the covering material. The ailerons are cut from 5/16" x 1.1/4" trailing edge stock. The horns are made from 1/16" ply or paxolin. The ailerons are top hinged using the covering material which is aerodynamically very efficient (no gap) and helps to conceal the fact that ailerons are actually fitted.

The tail surfaces are cut from stiff 1/8" sheet with the edges rounded off before being glued into their respective fuselage slots. After covering, the elevator is hinged in place. The old fashioned sewn thread hinging method looks best. Like the aileron horns, the elevator horn is 1/16" ply or paxolin.

For lightness and a tissue-like finish, I used red Lightspan to cover the entire model. No doubt Fibafilm would work just as well but, whatever you use, the lack of compound curves makes covering very straightforward. After covering, glue the undercarriage assembly into the slot in the fuselage with plenty of epoxy. Blue Humbrol enamel was used to paint the fuselage and fin and the

decoration was cut from white Fablon. No fuelproofing was needed as I was using a diesel, but I applied a lick of polyurethane varnish along all the covering seams and around the edges of the decoration. This is a real chore, but it helps to stop the model getting tatty too quickly.

As already described, the aileron servo is screwed to small hardwood blocks in the wing. The receiver is wedged in place with small scraps of foam rubber with the aerial passing through a hole in the upper surface of the wing centre section. I left the positioning of the battery and elevator servo until the model was almost completed so that I could adjust their position to achieve the correct centre of gravity. The elevator servo can be screwed to small hardwood bearers or stuck in place with silicone sealer. The servo arm protrudes through a slot in the fuselage side. I'm sure there would be room for a throttle servo if required, particularly if miniature radio gear is being used. The wire elevator pushrod is supported at the middle by a scrap of 1/16" ply which slots into the fuselage side.

Let's go flying!

Ready to fly, the model weighed just over two pounds. The elevator movement was 1/2" up and down with 1/4" each way on the ailerons. After my son, Philip, had taken the static photographs, the first flight was made from a hand launch. Kan Doo R/C climbed briskly away into a moderate breeze and just a touch of right aileron and down elevator trim was found necessary. The model flew very smoothly and wasn't the twitchy little monster I half expected it to be, but being fairly small, I made sure it didn't stray too far away. Consecutive loops, rolls and Cuban eights were very straightforward, but extended inverted flight was not possible because the tinplate tank didn't have a clunk feed. There was enough time for Philip to take some airborne shots before the engine cut. I found that the glide performance was very steady and the deadstick landing caused no problems, with the model touching down gently in the centre of the strip.

The model has since had quite a lot of air time but, although I'm sure take-offs would be possible, for safety reasons on our small strip I have been reluctant to try them in the absence of rudder and throttle control. Once in the air, the performance is everything I hoped. One of my favourite tricks is to fly in continuous, slightly banked circles with the occasional loop thrown in. It gives just the right impression of a control liner, except that the pilot is invisible! I hope Peter Cock would approve of Kan Doo R/C. It wouldn't win an aerobatic competition at the Nats like his original, but it's a simple, good fun model which you can throw in the back of the car and take flying when you are bored with more exotic machinery.