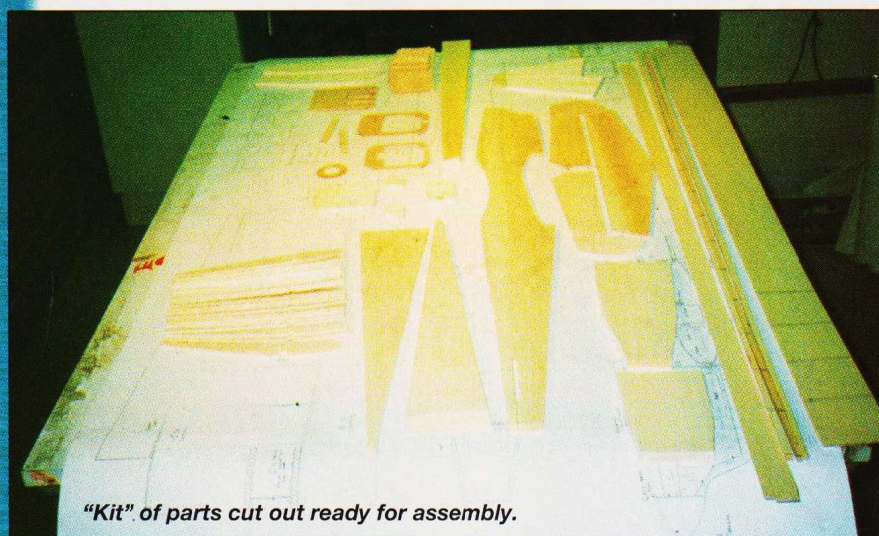


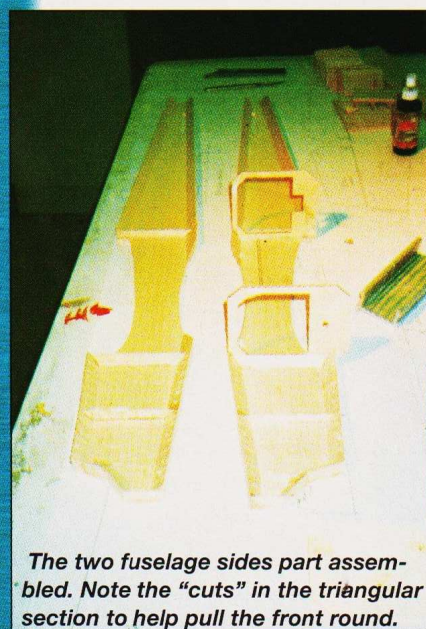
# Chippy

## Free Plan

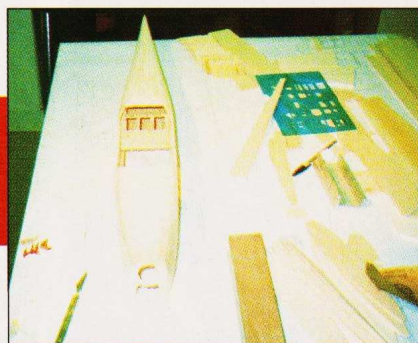
A super "scale-ish" aerobatic model for the sports flyer.



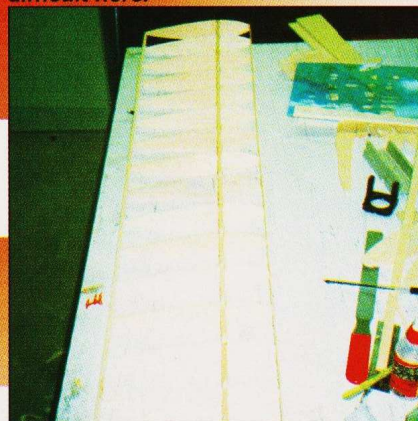
"Kit" of parts cut out ready for assembly.



The two fuselage sides part assembled. Note the "cuts" in the triangular section to help pull the front round.



Fuselage virtually complete, nothing to difficult here.



The wing is made in one piece so the spars are continuous

like a real aeroplane. I have always liked Chipmunks, especially the Krier and the Super Chipmunks and after putting the suggestion across we decided that was the way to go.

The next day at work I spent my lunch time making a sketch of the proposed design and duly faxed it of to Peter (the "Ed") for approval. The go ahead was given and the next two weeks were spent drawing the plans and constructing the two prototypes.

### Construction

Start by cutting a kit of parts out; selecting your wood carefully, hard for the Tailplane soft for the rest.

### Fuselage

Make two fuselage sides (left and right remember) by installing the triangle stock and formers 2 and 3. Cut slots in the triangle stock and the fuselage sides with a razor saw where required to assist a natural curve to the fuselage. When happy stick the two sides together checking for accuracy as you go. Tack glue F1 to one side of the fuselage, then measure and mark the centre of all three formers. Push a pin into the marks and use these pins as a guide whilst bringing the front and back of the fuselage together (looking from the rear you can see that the fuz is straight if all three pins line up).

Install the ply ring at front then reinforce the slots in the triangle and sides with glue, install the servo tray and your ready for the top and bottom. Glue the top and bottom onto the triangle stock (no point gluing to fuz sides as these bits will be planed off). Next comes the messy bit, start planing along the fuselage sides at 45 deg. Until you see about 3/8" of the triangle exposed. Now start planing either side to form the rounded effect and round of the front.

Chippy started life as a combination of ideas in a telephone conversation between myself and the Editor. We decided that the model would have to fly like the average club Wot Not, be just as rugged and easy to build but look

## Tailplane and fin

Round of edges, leave square or chamfer to your choice. I prefer to round of edges on small models, making sure to leave a small flat edge on the trailing edge to prevent flutter. Glue the tailplane and fin into fuselage before covering. I chose to cover first then gently cut the covering away before gluing. This proved to be a mistake as prototype 2 flown by Wayne Pratty spat off one half of the tailplane in a high speed dive. No further damage was sustained and the model was landed safely, but under further investigation it was found that the tailplane broke cleanly along the cut I made to remove the covering for gluing.

## Wing

The wing is built up over the plan in the conventional manner. As the basic wing without tips is 48" span it can be built in one piece. This has two advantages, 1. strength, as the loads are spread smoothly and evenly and 2. lightweight, as there are no ply joiners or reinforcing bandages. A foam wing can be used but I find that built up wings are just as fast and much more satisfying.

## Finishing

I chose Pro film for the covering and the hinges, it is extremely tough, easy to apply and once stuck on does not let fuel creep under its skin. You have only got to look at one of Malcolm Corbins' planes to know it's the stuff to use.

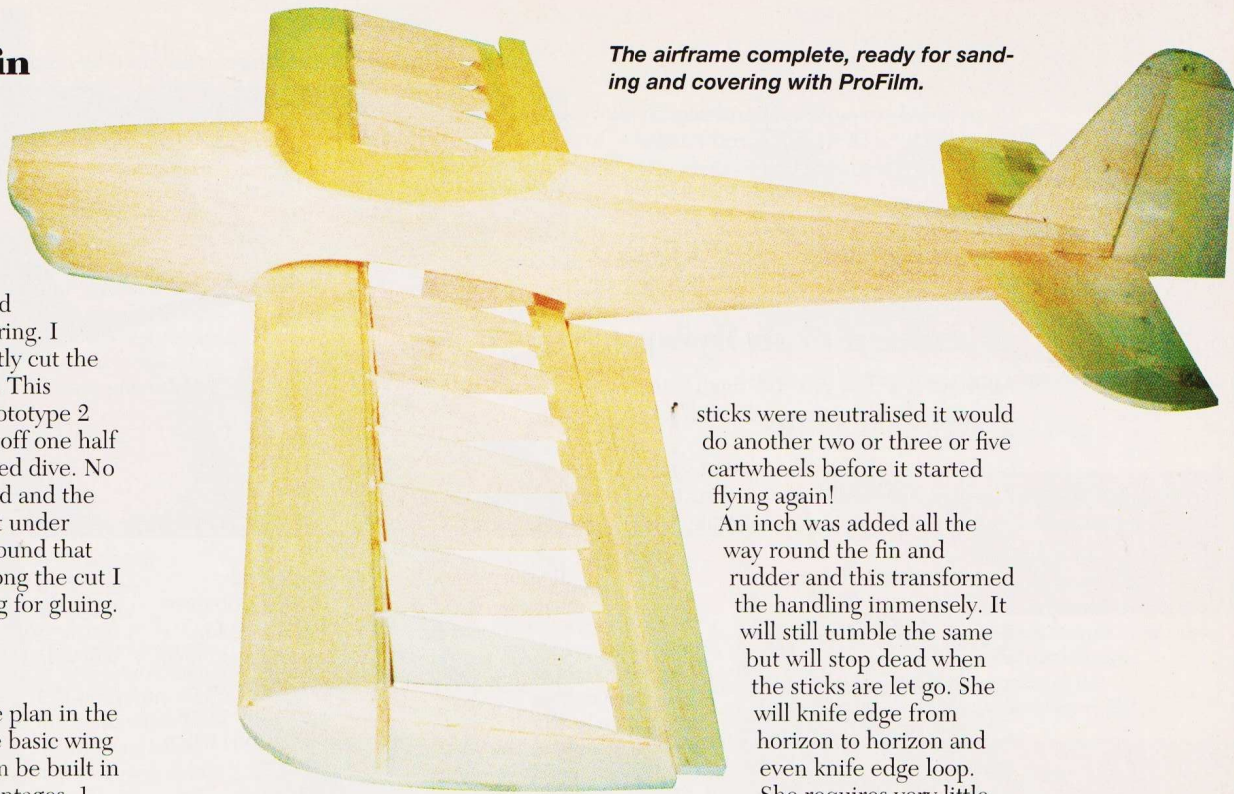
## Radio Installation

Install the servos in the tray and either use pushrods or snakes. A closed loop is best on the rudder and my Chippy will back me up on that, as it will easily knife edge loop when the rudder servo is pulling the pushrod but will just maintain high in the opposite direction. If possible install a servo in each wing for the ailerons then you can program coupled flaps and Elevator for really tight loops.

## Flying

I purposely designed the model with minimal fin area to give good rudder response and to help with manoeuvres like the laumchevack. After a few flights, I realised I had over done it a bit as it would do wonderful tumbles in the sky which turn into full blown cartwheels. This was great but when the

*The airframe complete, ready for sanding and covering with ProFilm.*

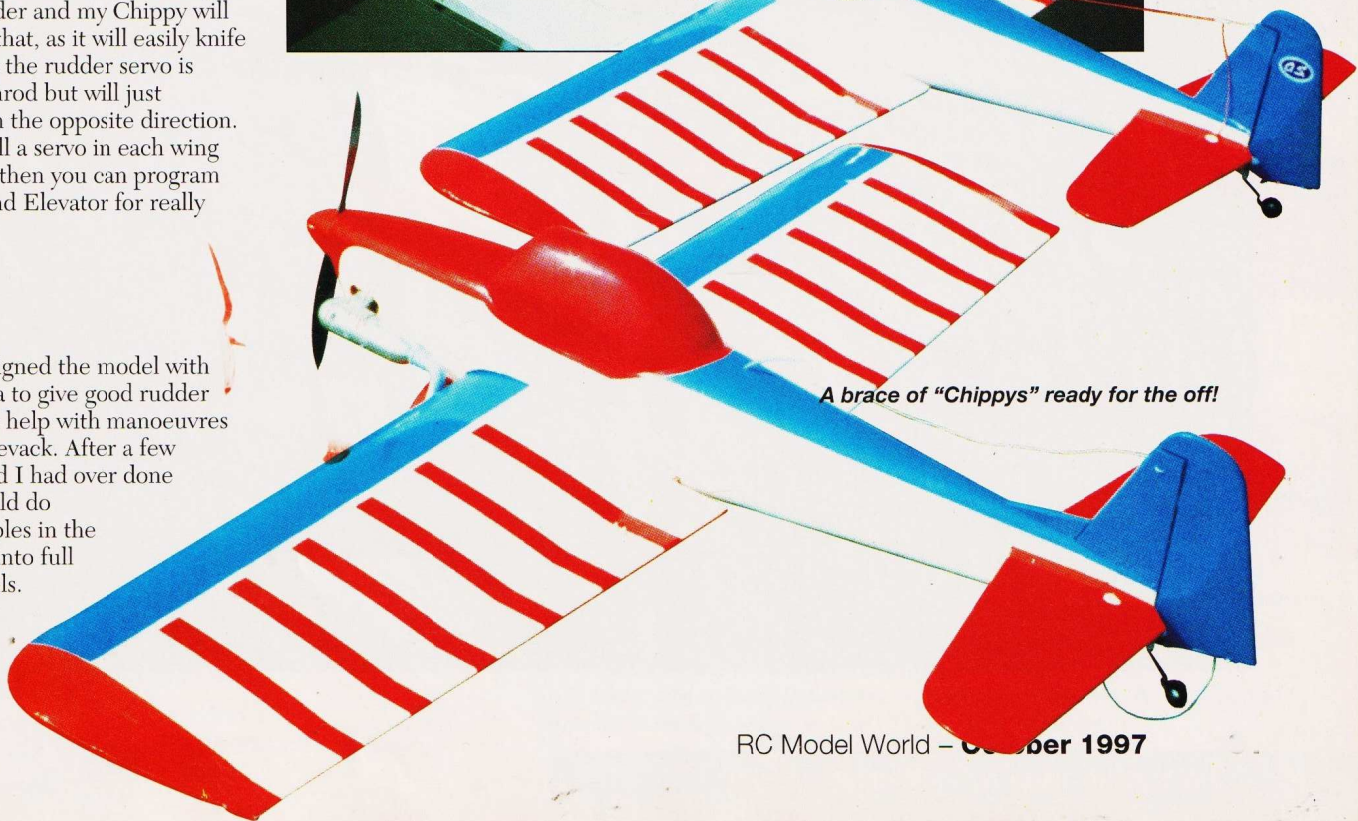
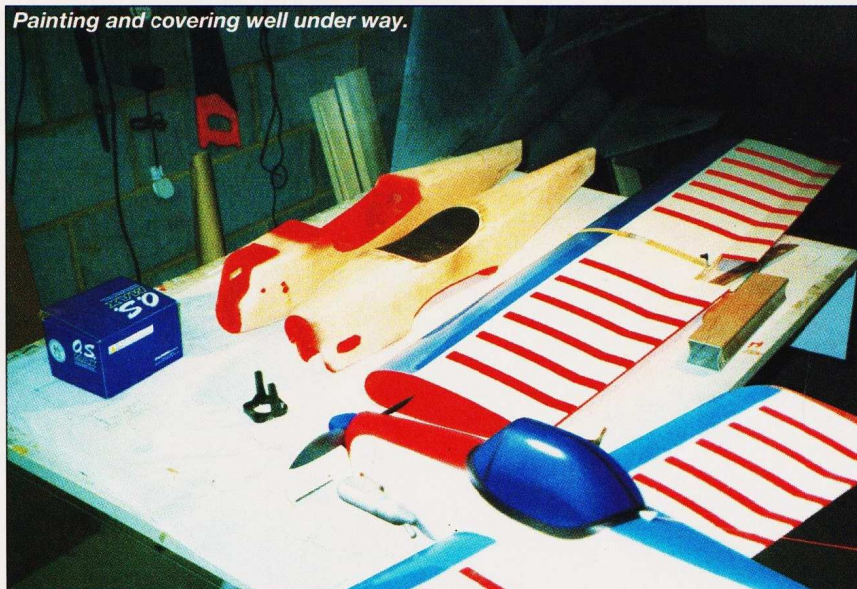


sticks were neutralised it would do another two or three or five cartwheels before it started flying again!

An inch was added all the way round the fin and rudder and this transformed the handling immensely. It will still tumble the same but will stop dead when the sticks are let go. She will knife edge from horizon to horizon and even knife edge loop.

She requires very little correction in the way of

*Painting and covering well under way.*



*A brace of "Chippys" ready for the off!*

elevator and aileron in knife edge if rudder deflections are sensible and loops bunts etc. are clean and tidy. With the servo in each wing the roll rate at full throw is in the region of three a second!

## Aircraft set-up

### Standard club flying

Aileron - 3/8" low rate 1/2" high rate.  
Elevator - 3/8" low rate 1/2" high rate.  
Rudder - 1"  
C of G on or slightly forward of spar  
2 deg. right thrust no down thrust  
Propeller - depending on engine 11x6 or 7  
Lateral balance in centre

### For 3D flying

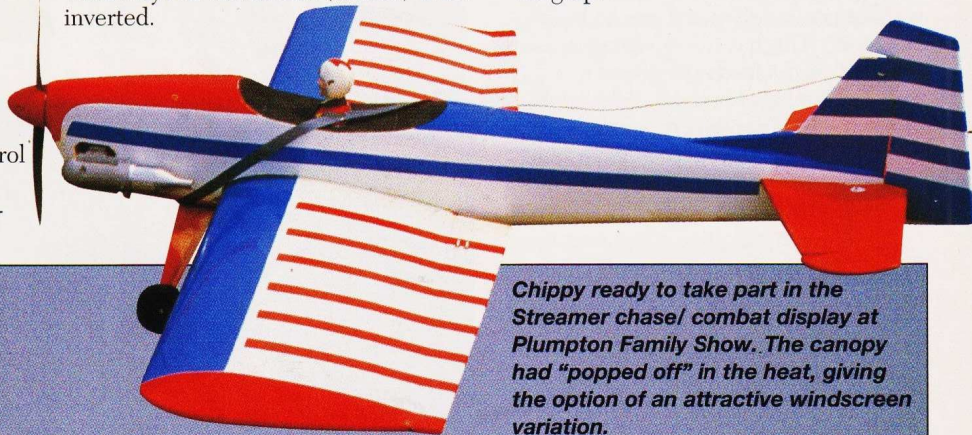
Aileron - 45 deg. each way with 60% expo.  
Elevator - 60 deg. each way with 20% expo  
Rudder - 60 deg. each way with 20% expo  
C of G 1/2" to 1" behind of spar  
3-4 deg. right thrust no down thrust  
Propeller - APC 12 1/4" x 3 3/4" (control line stunt prop)  
Lateral balance in centre the add 1/4 - 1/2 oz to left wing tip

Following initial test flights the rudder/fin was modified, see text for details.



If your wondering why the lateral balance is deliberately offset it's done so for two reasons. 1. to compensate for aileron trim when flying very slowly near the stall and rolling inverted and back again. Without the tip weight the plane will always be out of trim (aileron) when inverted.

2. the tip weight helps compensate the right thrust when prop hanging making torque rolls much easier. My club mates will vouch for this method often seeing my planes flying round with an Allen key or a screwdriver sticking out of the wing tip!



Chippy ready to take part in the Streamer chase/ combat display at Plumpton Family Show. The canopy had "popped off" in the heat, giving the option of an attractive windscreen variation.



In the air with computer tape attached, Chippy proved more that a match for the other participants in the combat slot.