Peter Tipping designed this unusual model as a result of an attempt to go smaller, more manoeuvrable and faster!

Every model I build seems to have started off with a spark of an idea, a need to try something different, use difficult materials, different linkages etc...

This lies dormant until that first idea begins to gel, with perhaps some doodles taking shape. Once into drawing a plan that's it, isn't it; you are kind of building it on paper and the project is on. The wood turns up, a rummage through the collection of hardware confirms there is no excuse for delay, especially if there is a spare set of radio gear available.

OK, what was the first spark of an idea, I hear you say. This occurred years ago with fellow Meon Valley Soaring Association member Alan Willcox's 'Much-a-do'. This went like a Rat-up-a-drainpipe at 28" span, 8oz AUW and one sq foot of wing area!

This is all relative of course, small aircraft always look quicker. On that basis, if it's very small, it must be very quick!

Well there had to be a smaller one, so why not a round(?), if imperial, figure of two feet? To keep the simplicity going let's also stay with one sq foot – that gives a six inch chord.

The Selig aerofoils came along and now was the opportunity to try the S3010 for low Renold's numbers/small models.

The radio gear? Well the Sonata had to go and this left a 110mah DEAC, MB Leisurecraft micro receiver kit, which still works, and the rummage located a spare mini servo and a Futaba 133 micro.

This little'un had to roll, so one was for the ailerons!

The design started round the receiver, keeping the fuselage as narrow as possible to make the most of the little wing. The depth revolved around the elevator servo so there isn't much to spare.

After that, it took shape using 1/32" fuselage sides, ply at the front and 1/32" balsa at the rear, the latter being strengthened – relatively that is – with 1/16" square balsa diagonal braces glued to the sides. The top of the nose and hatch was 1/32" ply with block to in-fill. 1/16" balsa was used for the rear decking and 1/32" sheeting for the underside changing to 1/16" at the rear. Not incredibly sleek but down to minimum practical dimensions.

The two main formers are 1/16" ply and 1/16" balsa sandwiches with 1/8" sq longerons at the lower corners.

With 1/16" tail feathers this was light – actually so light you mustn't sneeze during the build as not only does the dust disappear, so do the bits! Pin it down or turn the other way! The servos and clevises are looking enormous, it's another scale of modelling.

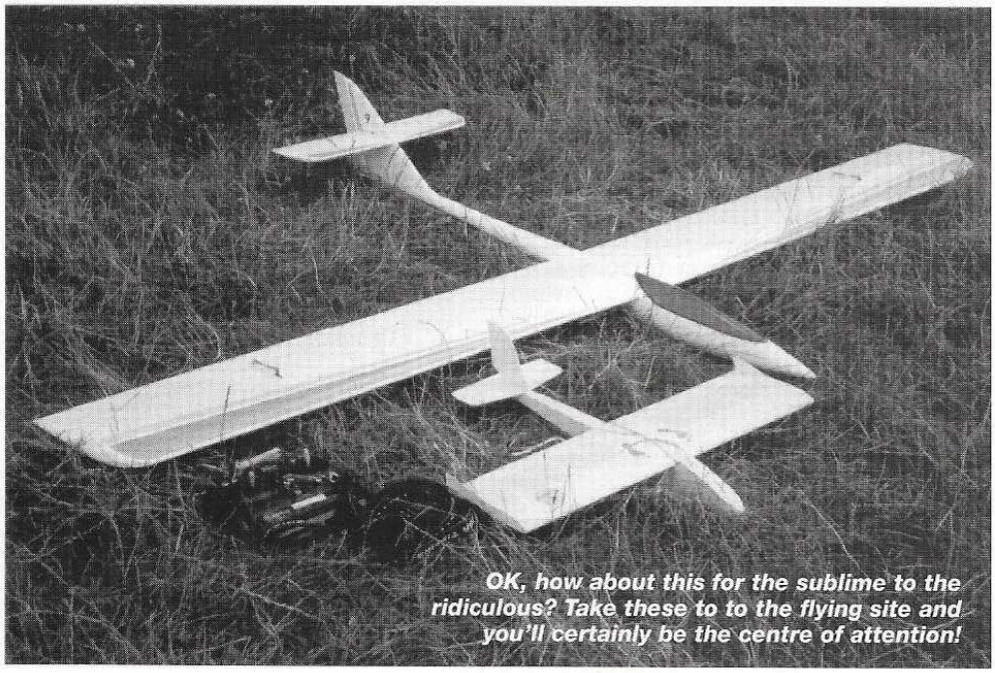
The wing is constructed in one piece using 1/16" ribs and 1/16" × 1/4" spruce spars at the top and bottom. The leading edge and sub trailing edge are 3/16" square balsa with capping strips and all other sheeting made from 1/32" balsa sheet.

Building it in one piece with no dihedral meant no central ribs or joint to add weight and weakness. This left room for the centrally mounted, upside down aileron servo to drive the standard torque rod set up, except only 16swg wire is needed for the little 1" ailerons.

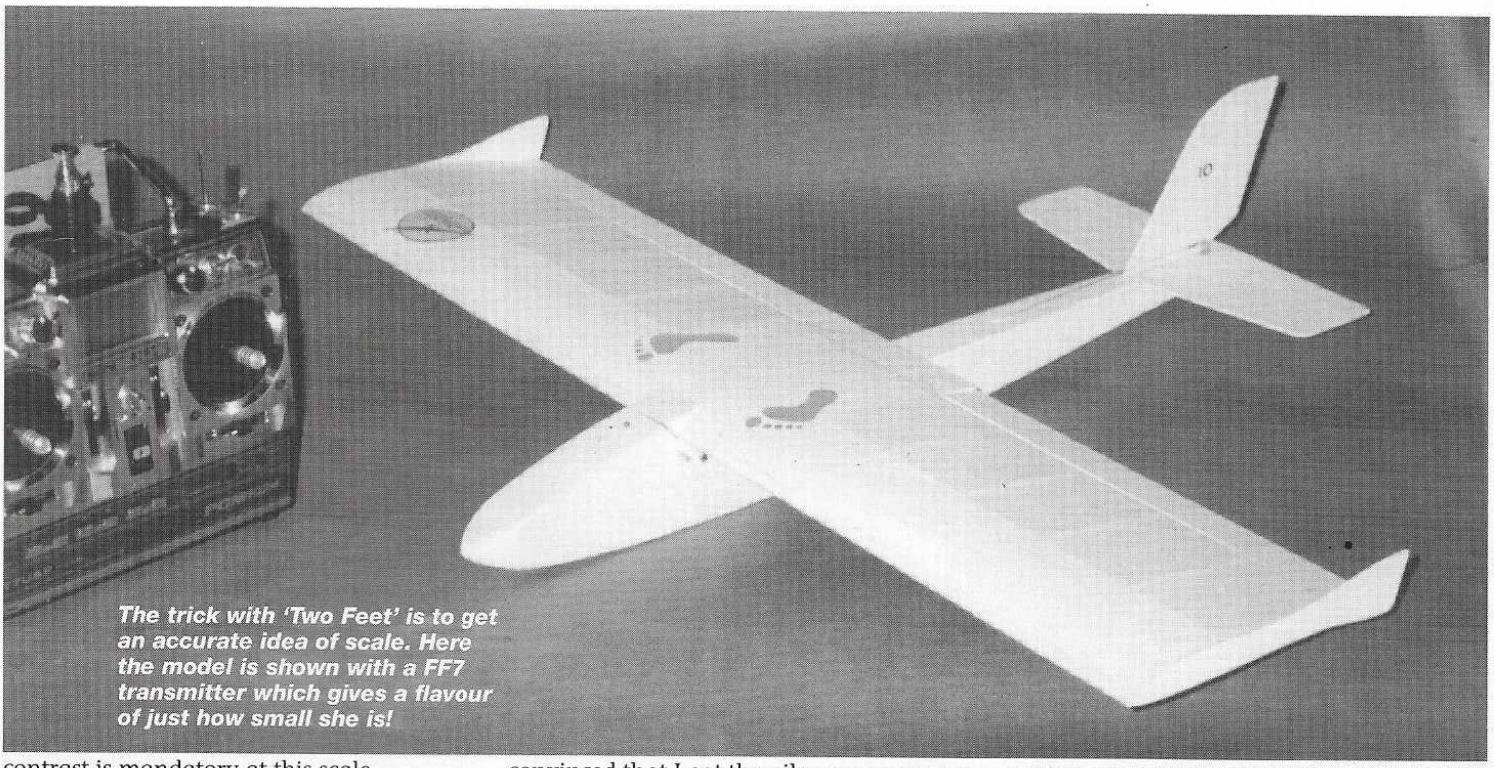
The wing is rubber retained to cope with the expected arrivals, also it's lighter than screws and shear plates, etc. The ailerons and elevator were bottom hinged with 3/8" Magic tape.

The elevator is controlled by a closed loop of very fine Kevlar covered steel trace with matching crimps from my local angling shop. The loop runs out through the rear decking, along one side of the fin, to a PCB horn set at an angle in the elevator, such that the lower end is central for an internal run back through the fuselage.

Covering had to be Litespan, I hadn't tried it before but weight saving was the object of the exercise. With careful application, using Balsarite on the sheeted areas and shrinking with a 'wound up' iron, it went on very nicely. Although Litespan is probably only similar to doped tissue for strength, it seems to have a little more give. Incidentally, it seemed to be a good idea to contrast the top and bottom surfaces, top white and bottom red. As it turned out the



OK, how about this for the sublime to the ridiculous? Take these to to the flying site and you'll certainly be the centre of attention!



The trick with 'Two Feet' is to get an accurate idea of scale. Here the model is shown with a FF7 transmitter which gives a flavour of just how small she is!

contrast is mandatory at this scale.

The finishing touch is to toughen-up the wing tips, baffle those with a technical mind, protect the ends of the ailerons, perhaps give some vortex control (needed on this 1:4 aspect ratio tiddler) also to give it a different look are the 1/64" ply wing tips/winglets.

So the completed and covered airframe weighed 3oz, radio 4oz, giving an AUW of 7oz. With the wing area at one square foot, you don't even need a calculator to get the wing loading. I like simple things!

The name? Well it is only a fun thing so it didn't warrant anything serious. Someone was bound to ask about the span, so that got that out the way!

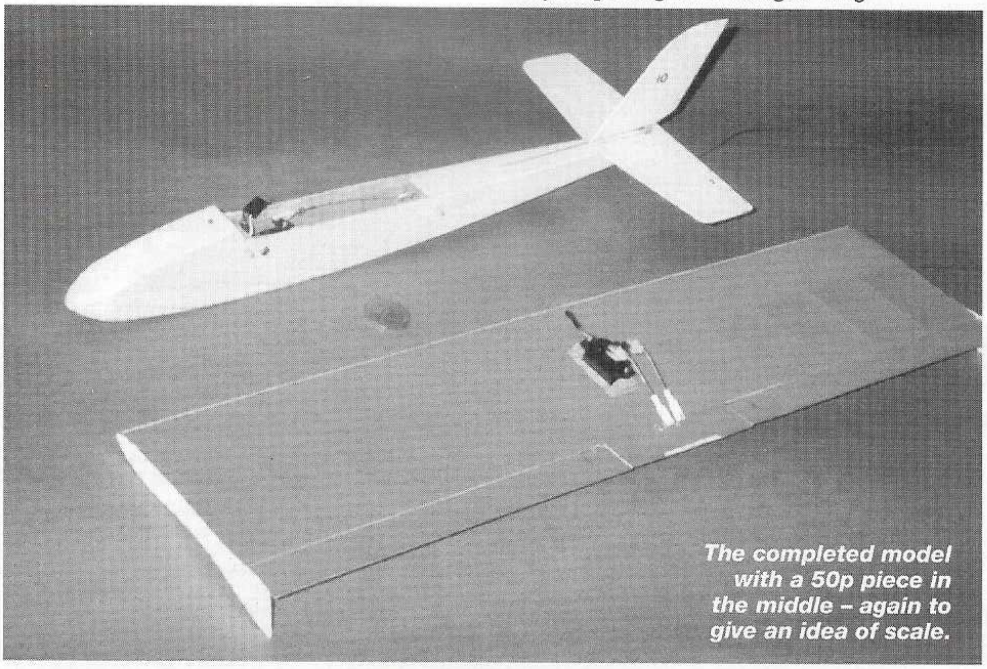
Flying.

What sort of wind do you fly a 7oz/sq.ft × 2ft span tiddler in, is unknown. So up to the slope, a nice gentle westerly, not a lot of lift but not bad at all.

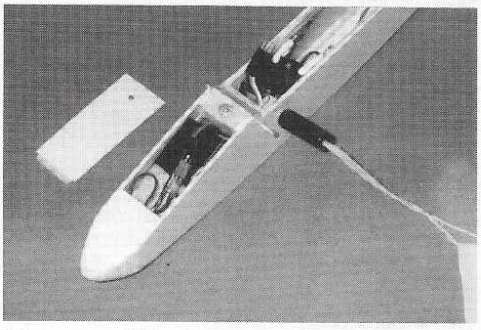
The dreaded MVSA wind up that precedes all maiden flights is going well as expected and this is the moment. I am now convinced that I got the ailerons wrong, no they are right. The C of G is at 33%, it all works, no more excuses, chuck it. As it turned out with this one, the wind-up was preferable to the flying! It's all over the place, fantastic or awful – I'm still not sure, but its like starting flying again. After your average 6-10 ft. slope machine, this is different, you have to be quick. The second flight was a bit easier once the rates were switched in but at this size it's still sensitive.

This sensitivity makes rolling and looping a simple matter with the usual bit of extra speed for insurance. In fact the rolls can be so quick that at first it was impossible to know which way up it would be when the ailerons were neutralised.

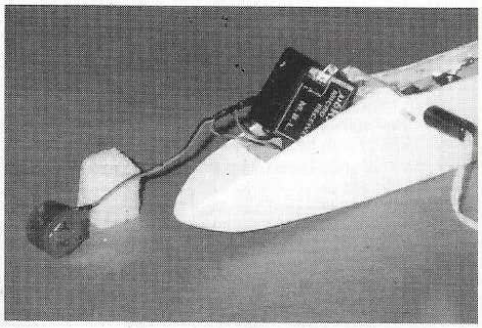
Having broken the tailplane and snapped off the fin a couple of times, directly as a result of this new high speed disorientation and resulting desperate downwind landings, I started to really get to grips with the little monster. In fact after many very hairy flights, I started to notice that while this is in no way hands-off-stuff; once flying straight and level, it could actually exhibit stability – very surprising on a straight wing'



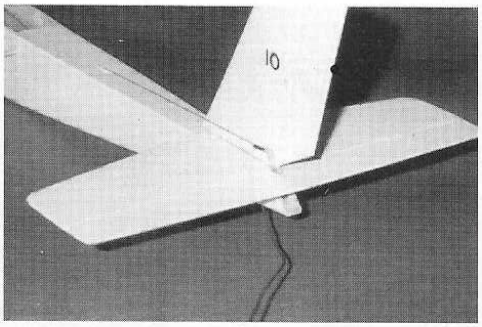
The completed model with a 50p piece in the middle – again to give an idea of scale.



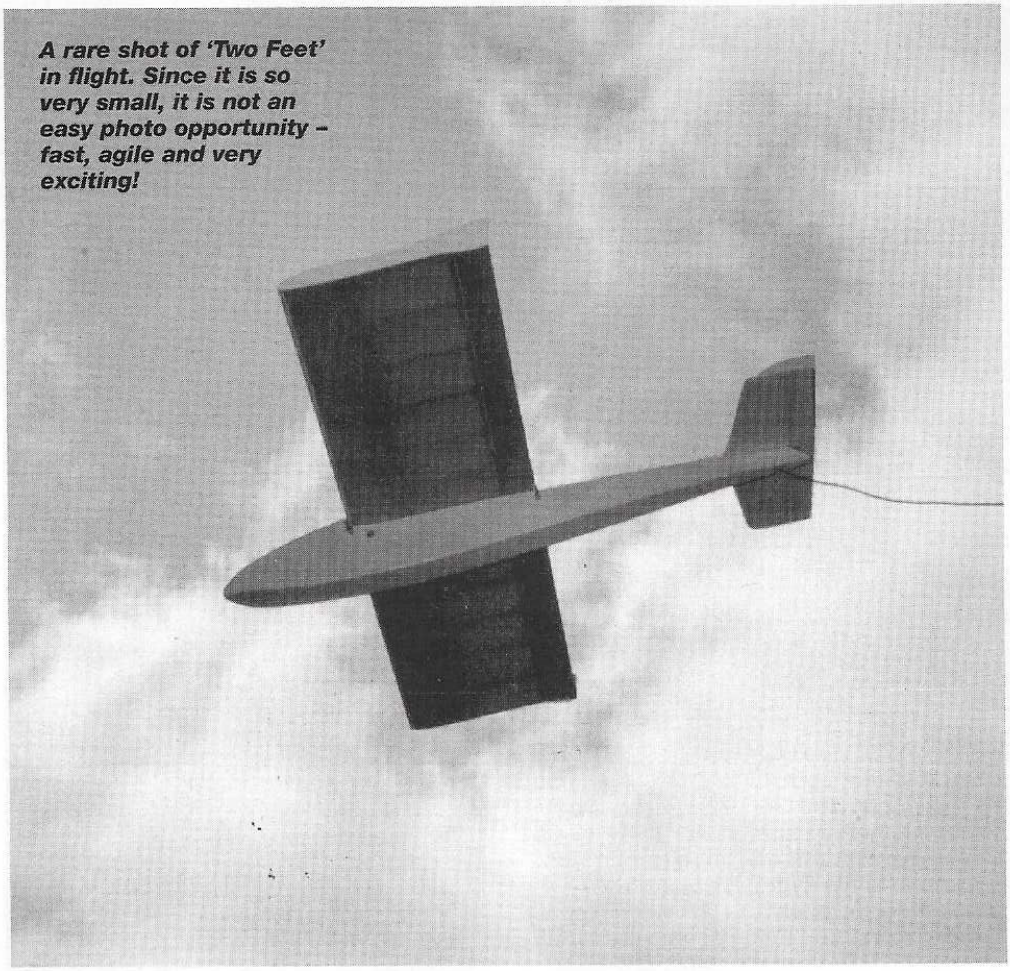
Close up of the fuselage, hatch removed, receiver and battery connections can be seen together with elevator servo with closed loop connection. 2.5mm plug is fitted in the charge/switch socket.



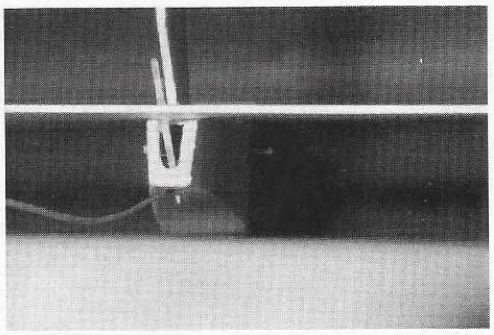
This shot shows the 110mAh DEAC and micro receiver eased up out of its normal position.



Close up of the tail and elevator closed loop. Note the aerial through the bottom of the fuselage to keep it clear of the lower part of the horn.



A rare shot of 'Two Feet' in flight. Since it is so very small, it is not an easy photo opportunity – fast, agile and very exciting!



This chot of the rear of the model shows the angled closed loop elevator horn, which explains the rear exit for the aerial!

Once I had vowed never to do downwind greasers anymore it started to be enjoyable, (when a model is so small blades of grass are a serious hazard at high speed)! They say you never enjoy flying so much as when you are learning, the worry about will you ever get it down again in one piece, which way is it facing, etc.

It's definitely mind-boggling flying verging on the impossible and needing some luck in turbulence. With rates on, the aileron throws are ¼" down and 5/16"up. Elevator ¼" down and up. For the "Buzz" with rates off, these figures are 5/16", 7/16" and 3/8" up and down respectively.

So if you want the jitters back, Two Feet could be the solution. The plan was done on the "CAD" as an experiment, so it's dead accurate.

Finally, I feel I should add for the benefit of novices and keen youngsters thinking this would be a nice, easy little model to start with – *don't!* Make sure you have a 'Mini-Racer', 'Phase Six' or a 'Blob' under your belt first. On reflection preferably all three! On top of all that, don't forget to land into wind!

Best of Luck!