

## Sticks and Tissue No 93 – August 2014

If you can contribute any articles, wish to make your point of view known etc please send to or phone 01202 625825   [JamesIParry@talktalk.net](mailto:JamesIParry@talktalk.net)              The content does not follow any logical order or set out, it's "as I put it in and receive".

Thanks to Mark Venter back issues are available for download from <http://www.cmac.net.nz>

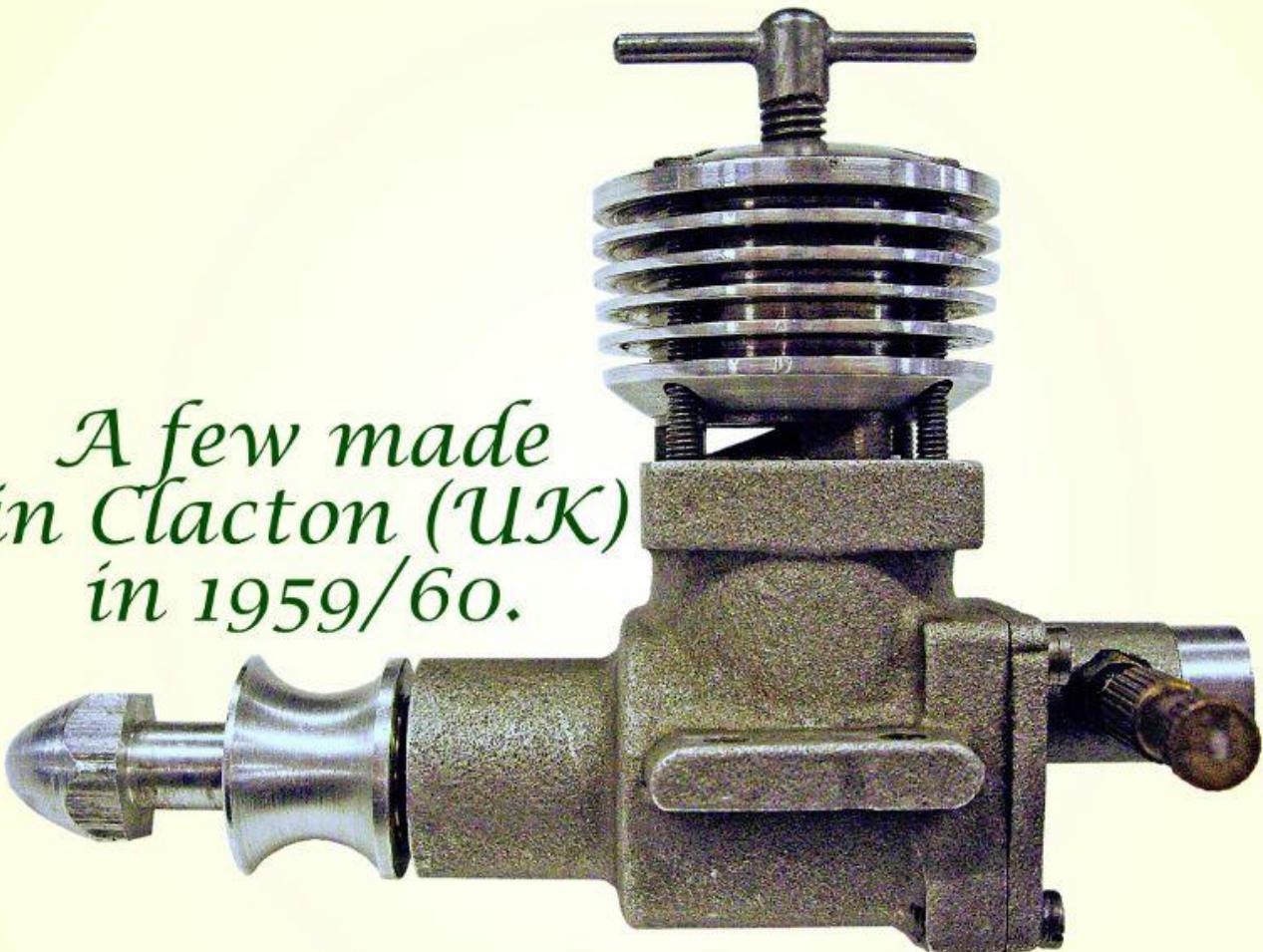
Writings and opinions expressed are the opinion of the writer but not necessarily the compiler/publisher of Sticks and Tissue.



Here is a shot of my Jackdaw built from the Model Aircraft plan that appeared in one of your columns. I have slightly modified it to make the wing in one piece, as I did not trust the method on the plan. I have built it for the new Low Wing Comp to be held at Wallop on 25 Aug during the SAM1066 Champs. Regards Lindsey Smith.

# Hill 3.5 cc

*A few made  
in Clacton (UK)  
in 1959/60.*



*Apparently inspired by  
Basil Miles and John Oliver...*

*Photo found by Bill Wells in an auction catalog!*

BC

## ANCIENT and MODERN. From Jeff Fellows

The UMX ASK-21 is an excellent little slope soarer and its stabilisation system makes it very easy to fly even in strong winds and turbulence.

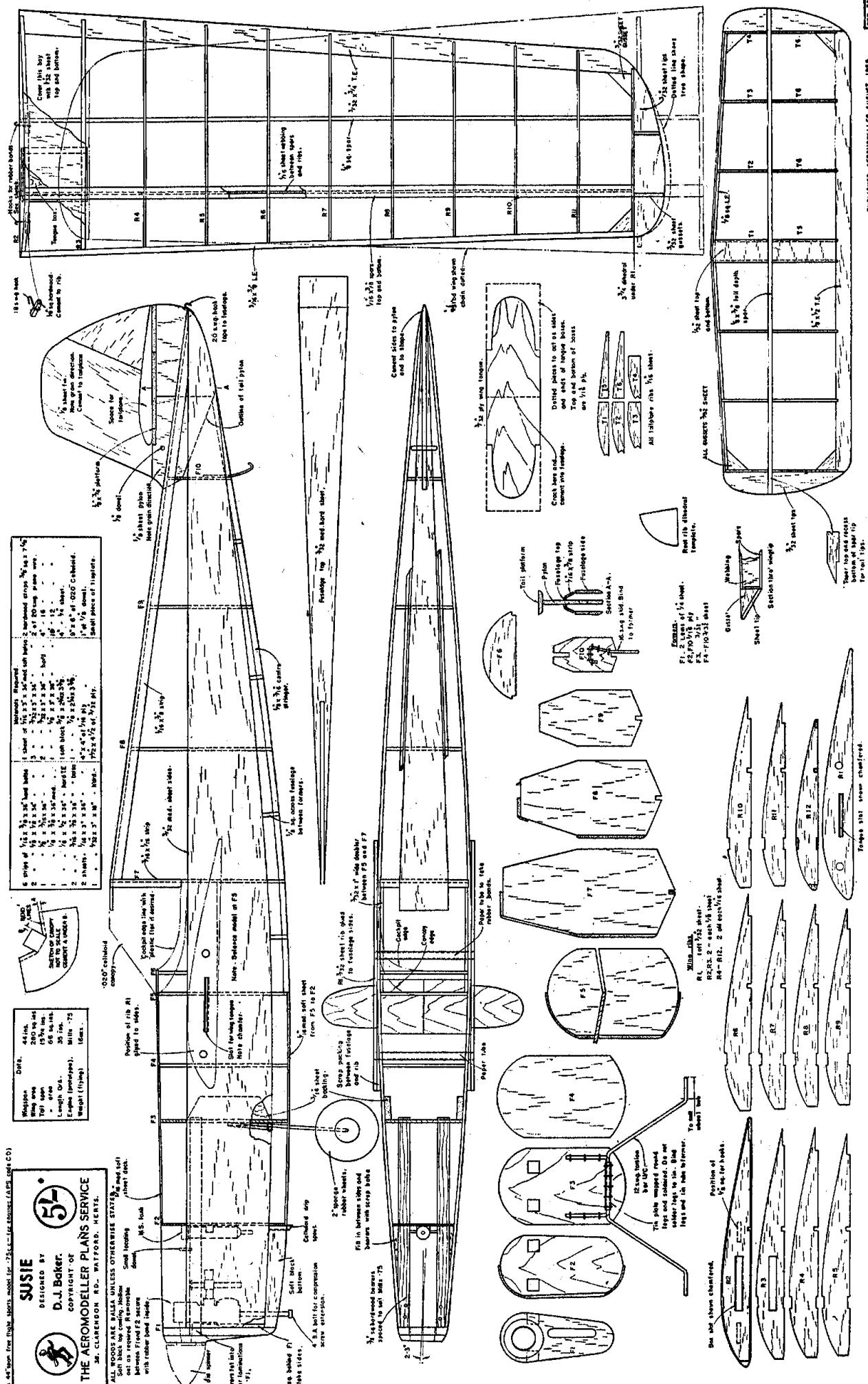
However, since I live some distance from a suitable hill, and aerotowing or bungee launching didn't give enough height for long durations I needed an alternative.

The answer was to piggyback the ASK on top of an electric powered George Fuller ZOOT SUIT. The ZOOT SUIT grew another pylon above the wings and the ASK was attached via its aerotow release pin at the front and a simple wire rail near the landing wheel. After successful carry trials the complete system was tested - I flew the ZOOT SUIT which had been tamed with a 2-cell LiPO (instead of 3) to avoid scaring the ASK (!) Andrew flew the ASK after release. Amazingly, the system worked perfectly every time. Releases

were smooth and there were absolutely no problems with control. There are some lessons to be learned however.

The first is that, while it is easy to see the ZOOT SUIT at a height of several hundred feet, the ASK is then just a dot, and the first 30 seconds or so after release demand " Specsavers Plus" vision from the glider pilot. The second is that even when the beautifully streamlined ASK was flown at its best sinking speed, it came down quicker than the ZOOT SUIT, despite the drag from the additional pylon and mounting system. Either George Fuller knew something about aerodynamics that has since been lost in the mists of time, or this is a final, irrefutable proof that SIZE MATTERS!

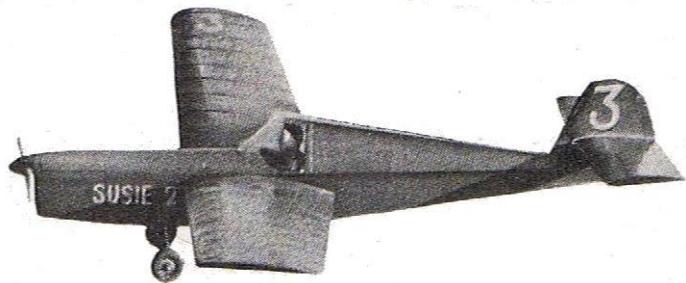




## Susie by D Baker a 44 inch mid-wing sporster for .75 – 1 cc from Aeromodeller September 1959

This design stems from a suggestion that sport models were becoming rather stereotyped and it was about time that something different was created to produce a new look. The outcome is a mid-wing model of racer appearance and one which combines simple construction with sufficient robustness to withstand many a prang. The Solid sheet basic sides blend into an attractive fuselage cross-section and the wing panels are mounted on two small stubs with rubber band retainers to offer knock-off qualities as well as enabling the model to be packed away into a relatively small container for transport to the field.

Construction should begin with the most difficult of the components, the 3/32nd ply wing tongue which is cut out by fretsaw, bent to the dihedral angle as indicated on F5 and bound with gauze at the joint for additional strength. The parts cut away for the tongue box ends and sides are faced with 1/16- in. ply and fitted into the two root ribs. Proceed with the wing by pinning down the lower mainspar, shaped leading and trailing edges, then adding the ribs before fitting the upper mainspar. Areas to be sheeted and the lower rear spar are completed after lifting from the building board.



together at the tail, add the remaining formers and the wing tongue, the tail pylon and platform and complete the top and bottom fairing. The nose cowl is made up from soft block but be sure to make a drain hole. Tailplane and fin are quite conventional and the whole model should be sanded down with sheet areas given a coat of sealer prior to covering. Add the canopy or cockpit screen after doping, apply your own decoration scheme, fit the wheels and you are ready for business.

The original used heavyweight tissue with three coats of dope and came out at only 16-oz. for the 280 sq. in. of wing which gives it a reasonable loading and sparkling performance.

Why not get out of the rut and try this mid-wing Sportster for your next model?

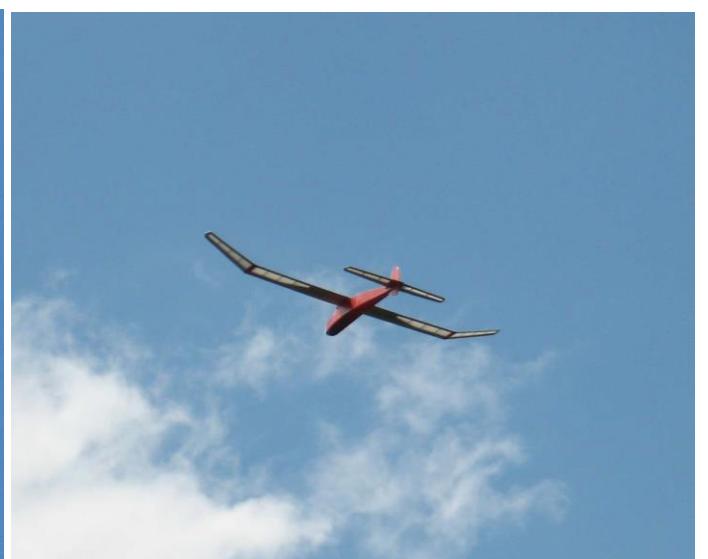
## From George R. Vale

No.91 much enjoyed here, as has become normal. Thank you very much for the best read that comes into my mailbox.

I particularly enjoyed Otto Rodenburg's article, and Bob Pickernell's observations and photos of his x2 Dolphin. I wonder if his was r/c or f/f?

Today 29th. June was a beautiful day for gentle soaring. I managed to get some recognisable pictures of 'Polly' with the 90" wing in flight, and here are the better ones. It was very difficult to get them, using camera in left hand & flying model with the right. After a few tries I found I could fly the model by watching her through the viewfinder, but I didn't dare go low enough to get quality shots. Also there were good thermals around, which caused trouble. Each time I got the model lowish for a picture, she'd climb back up again while I was re-setting the camera. If I were not a man of clean living and sober habits (well, sometimes), I think I might have said some rude words.

We managed a fairly convincing spin at last by using high rate on the elevator. However good thermals also mean big dollops of sinking air in between, and the deliberate low flying combined with one such spell brought my flight to an end at 45 minutes, with the model's first unplanned landing. Happily nothing broke.



## From John Laird

Didn't get a chance to speak to you at Middle Wallop as I had limited time for RC - I had to take my 6 year old grandson round to freeflight to fly his A1 glider - lost in a thermal as I didn't fit DT fuse. Fortunately I have a small stock of A1's so he wasn't too disappointed to lose the model

I have attached photos of my Ben Shershaw Cumulus which has now been flown - you might have seen the rocket style takeoff on the 450W electric motor. Climbs great on full power but a bit trickier on low power. Glide is good as you might expect from a 96" span undercambered wing. Still sorting out the CG position for slower speed/close in cruising.

Photos include shots with Mick Butler's Cumulus built as per plan. To suit my preference for plug in wings and to cut out the wing rubberbanding, I lowered the wing to shoulder level for plug in wing halves - giving an increase in span to 100" and increased wing area - not that the Cumulus really needed that. All up weight with the 3S 3000 lipo is 4 lbs 12 ozs and a wing loading of 8.7 ozs/sq ft. Covered in doped polyspan with red esaki trim - glossy side out. More details on my build log here

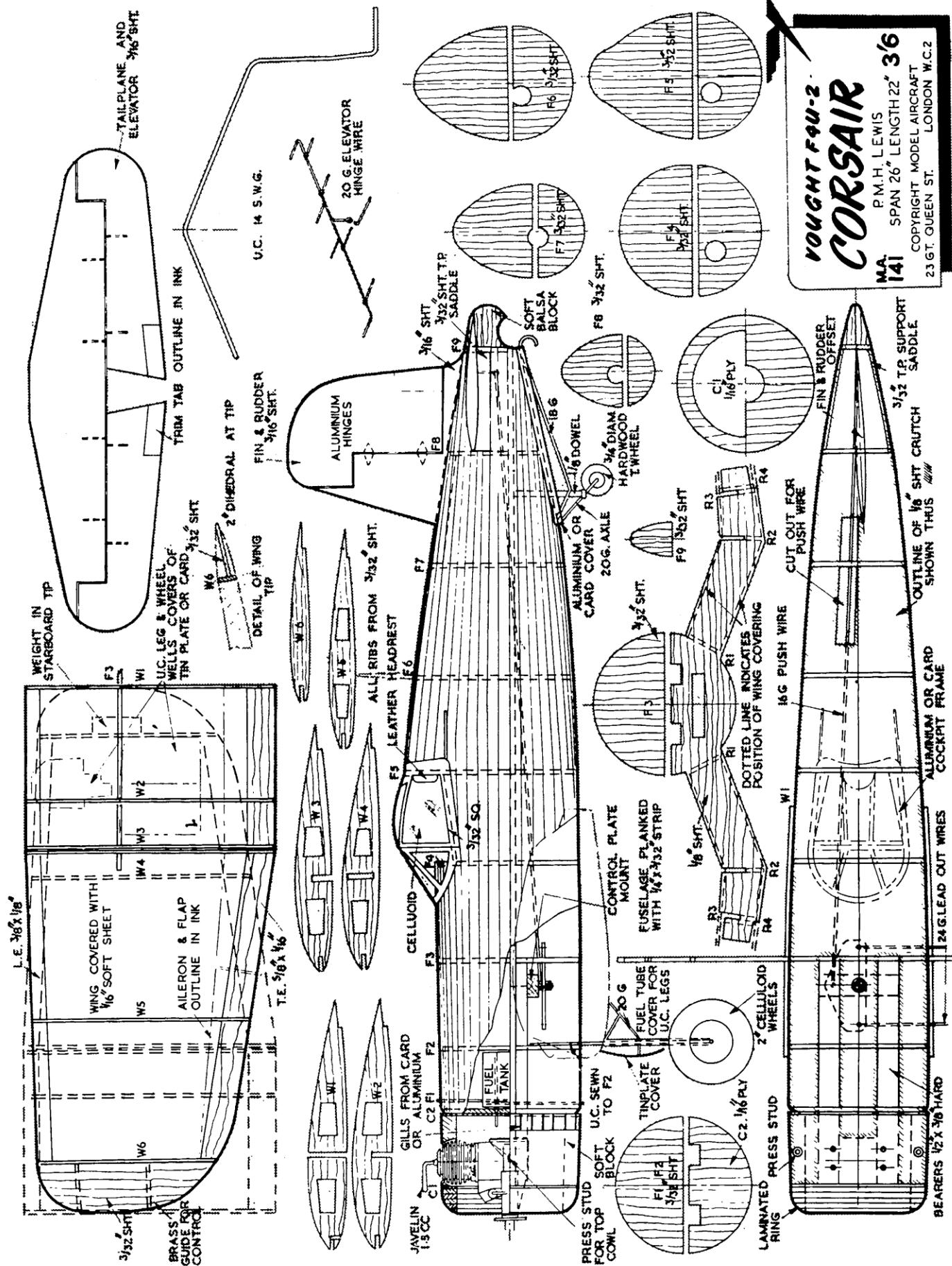
<http://www.rcgroups.com/forums/showthread.php?t=2018738&page=3>

Mick is having trouble loading the maiden flight video to YouTube - will post that to you when he gets the video loaded









## Vought F4U-2 Corsair by P M H Lewis a fine control line scale model of a well-known U.S. fighter from Model Aircraft January 1953

The Vought F4U-4 Corsair, fitted with the 2,000 h.p. Pratt and Whitney Double Wasp R2800 motor, was one of the most successful naval fighters in use with the Allies during the 1939 - 1945 war. With a span of 40 ft. and carrying six .5 cal. Machine guns the top speed was approximately 390 m.p.h. The model described here is of a machine in use in 1951 with a U.S. Marine Corps Fighter Unit (V.M.F.) and is designed around the 1.5 c.c. Allbon Javelin.

### Fuselage

Transfer the outline of the crutch, which extends from the front of the engine bearers to the tail block, on to 1/8in. medium sheet balsa. The hardwood 1/2in. x 3/8 in. bearers are now glued securely into their slots on the crutch and the Cutout made at the rear end for the control push rod. The control plate is next bolted into place on its bearer which is in turn glued and pinned below the engine mounts.

Formers F1-F9 are now cut to shape and cemented in place above and below the crutch. Note that the lower half of F3 is of 1/8-in. sheet and also note the cutout to allow for the movement of the control plate through the former. Fit the 3/32-in. sheet tailplane supports. Cut the fin and tailplane to shape from 3/16-in. sheet and cement in place after sanding to siicamline section. The fin is offset to port as on the actual aircraft and this helps to keep the lines taut on the model when in flight. Assemble the 20-g. wire elevator hinge, soldering to it the control horn and inner pair of prongs. This is then attached to the tailplane with eyed prongs which press into the tailplane sheeting. Cut the 16-g. pushrod to size required and secure in place with a small washer soldered at each end. The 14-g. wire undercarriage is next shaped and sewn and cemented across the rear of former F2. Fit the tank in place between formers F1 and F2, ensuring that the vents are long enough to extend through the sheeting which is to cover the fuselage.

The top half of the fuselage is now covered with 1/4in. X 3/32-in. sheet strips, leaving the cockpit area open as shown. Attach the 24-g. leadout wires to the contro plate and, leaving openings for these wires, sheet the lower half of the fuselage. C1 is cut from 1/16-in. plywood and pinned to the front of the engine bearers.

After fitting the lower half of C2, which is also of 1/16-in. plywood, the lower half of the cowling is filled in between with soft block hollowed out to 1/4-in. walls. The removable top half of the cowling is made in the same way and is secured in place with press fasteners sewn and cemented to the surfaces.

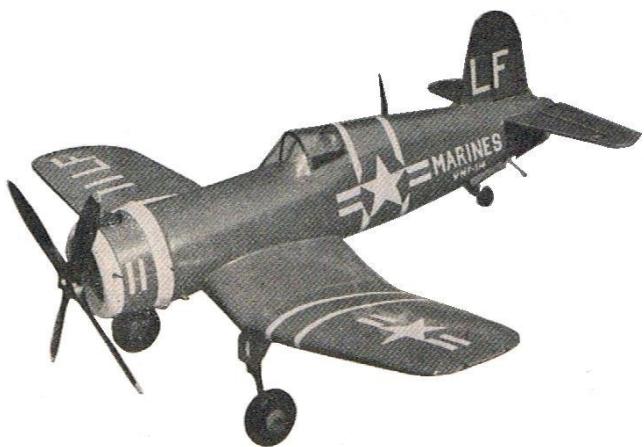
The front ring is made up of 5/8 in. thick laminations of 1/8-in. balsa and carved and sanded to shape.

### Wing

The wing root rib W1 is cemented in place on the fuselage on each side of F3, and W2 and W3 are next slotted into position on the wing root spar. Fit the leading edge of 3/8 in. X 1/8 in. and the trailing edge of 1/2 in. X 1/16-in. balsa. Cover the wing roots with soft 1/16-in. sheet. If desired, cutouts may be made in the lower surface for the wheel retraction wells in which ease it is advisable to wall in with 1/16-in. sheet between upper and lower surfaces. The two outer wing panels are now assembled on the plan. Note the balance weight in the starboard wing tip. The 24-g. leadout wires are guided through the port wing tip by 20-g. brass tubing bound and glued to the sheet outline. Note the slot in W4 to take the tongue from F3. Cover these outer wing panels with 1/16-in. sheet and, after pre cementing W3 and W4, fit to the wing roots.

### Colouring

The original model carries the white star and red and white bar insignia on both sides of the fuselage and on port upper and starboard lower wings. The Marine Fighter Unit to which it belongs bears broad green and narrow white bands around the cowling and fuselage centre and also across the wing surfaces outboard of the wing roots, breaking on the undersurfaces to accommodate the starboard insignia and MARINES in large white lettering below port wing. LF is carried in white on each side of the fin and rudder and 11LF on top starboard wing. MARINES is in white on each fuselage side aft of the insignia. Carrier hook striped black and yellow.



## From Bill Wells

I was flying my Spartan one day and deliberately ran it out of fuel having gained a lot of height. I had positioned the model up wind and was looking forward to a nice gentle four to five minute glide back to the field. The wind was a light easterly from over the length of the loch and it was very hot sunny day a bit unusual for this part of the United Kingdom. So I settled for long figures of eight (lots of straight bits between the turns) along the shore line of the loch to drag out the descent. It wasn't long before I realised the model wasn't getting bigger like it usually does in the glide! All very interesting I thought I didn't question this new found lift but used it to my advantage keeping the turns shallow and the straight bits long and steady backwards and forwards along the edge of the loch. What height I lost in the turns I gained on the straights! Apart from a few trees all the area to the West was usable to land on so a peal off and landing was all I had to do to secure the model. I really enjoyed playing the model backwards and forwards it was challenging to use with the elements to overcome Gravity. So instead of a 4 minute glide it was more like a 20 minute glide and the extra flying came at no extra cost!! Well I felt like I had cheated the system, got something for nothing, a real boost to a penny pinching, tight fisted old ----! Like a drug I wanted more. I speculated that the drift of cooled air over the length of loch undercut the hotter on shore air, lifting it along the length of the shore line. Well whatever the reason I quickly refuelled for another go but by the time the model was in the glide the wind direction had changed. The drift was from a more Northerly direction along the shore line so the lift was no longer there. That did it I wanted a powered glider! I phoned my mate Paul and he suggested a good starter model would be an Easy Pigeon. A few days later after suffering an extremely nasty stabbing pain in my crocodile snap shut wallet I left the model shop clutching an Easy Pigeon in it's large display box .

The model was relatively easy to assemble and I heeded the warning about the right side wing bolt being positioned to foul the servo push rod so I carefully connected push rod from below the servo arm. Made sure the attachment bolts were not too long and used metal nuts instead of ply wood ones supplied. I must admit I did find the Ni-MH battery rather heavy and it did cause problems. The first flight went reasonably well except the nose pitched up and a yaw had to be corrected with rudder when power was applied. I made some more adjustments but basically put up with some pitch up with power and a bit of rudder to correct at the same time. I soon found out that if I slowed the model down too much it had a violent wing drop. The problem was the field was surrounded by hills and trees the surplus height having cleared the boundary trees was difficult to get rid of. A dive meant a very high speed landing, while the alternative of slowing it down invited the dreaded violent wing drop. Anyway I had had ten flights and I thought I was getting the hang of it while approaching from the loch end I slowed it down too much and the inevitable happened a wing drop and loss of height I put on full power and initially regained some height but in the heat of the moment lost directional control. I was trying to get it through the gap to one side of the main clump of trees but didn't quite make it. Well I don't suppose I was the first or the last to make what later became known as a standard tree landing!! It was a the skinny tree at the end of the row I had almost made the gap!! A lot of the model ended up at the base of the tree but eventually I got the remains down. The one piece wing was now of the two piece variety, the propeller was history but basically there was little other damage. The wing is constructed mainly of balsa wood so the repair was easy. I found a blue solar film which exactly matched that of the original wing covering. I had words with my mate Paul and he recommended using a 3 to 1 gearbox on the 600 canned motor with something like an 11 inch prop. 'That's all very well', I said, 'but how do I mount the motor?' 'Give it as much down thrust and right thrust as possible then use wooden wedges to glue it in place!', was the reply. Finding a glue that will attach itself to that waxy plastic fuselage is not easy. I had a hot glue gun and unbelievably that glue held better than anything else I could find. So the wedges were secured to the fuselage by hot glue which obviously would not be of any use on the side of a hot 600 canned motor. For the motor side of the wedges I used epoxy glue. This modification added a little weight but the performance doubled. It climbed brilliantly with very little change of trim. I used the model in this configuration for 14 months.

For those of a 'certain age' you may remember those yellow triangular labels displayed in the office windows of coal merchants. It showed flaming coals and read, 'have a fire in your living room tonight.' I often thought of that advert after what happened next! I was flying the Easy Pigeon well to the west of the field in formation with a seagull or two, as you do!!! Getting low I put power on to climb and

nothing happened! I quickly broke off from the engagement and headed back to the field. With the model overhead I tried the throttle again absolutely nothing happened. The landing was OK so as I walked back with the model I tried the throttle and yes the power was there!! Back at the shack it was raining heavily. I put an AVO on the battery and voltage was good, so a radio, ESC fault? Due to the rain I figured a quick living room motor run might tell me what was wrong!! With the canopy off and the battery just pushed into place the motor burst into life as I pushed the throttle to max then it suddenly stopped with full throttle still applied!!!! At that point 'puzzled' I closed the throttle and then decided to give it another go. There was suddenly an almighty pop as the ESC burst into flames. I pushed the model down on the floor flicked the receiver switch off, that made no difference, so I quickly pulled a battery connection off. The fire stopped but the smoke was nasty so I grabbed the model and dived outside into the rain! A close examination of the motor revealed that a brush carrier had broken and had fallen onto the same commutator segment as the other brush. The 30 Amp ESC took a flaming dislike to sudden surge of unlimited Amps!!!!

A new Speed 600 motor did not last very long at all. The third motor was made of better stuff but over time it slowly lost power as had the first one. I was using a lipo battery on this third motor which being much lighter meant the model was easier to handle at low speeds, far less prone to violent wing drops. The latest idea is an in- runner but this installation has yet to be sorted. It seems that many Easy Pigeon fuselages are recycled by utilising homemade wings, some with ailerons, IC engines or out runner motors. Paul told me he crashed his Easy Pigeon pushing the nose section in. On arrival home he threw the wreckage in shed to sort out when he could spare the time. On returning to the model sometime later he found the stoved-in section was no longer stoved-in! With the sun full on the shed the dent had pinged out rather like a ping pong ball dent does when warmed. A self mending model, what more could one want?

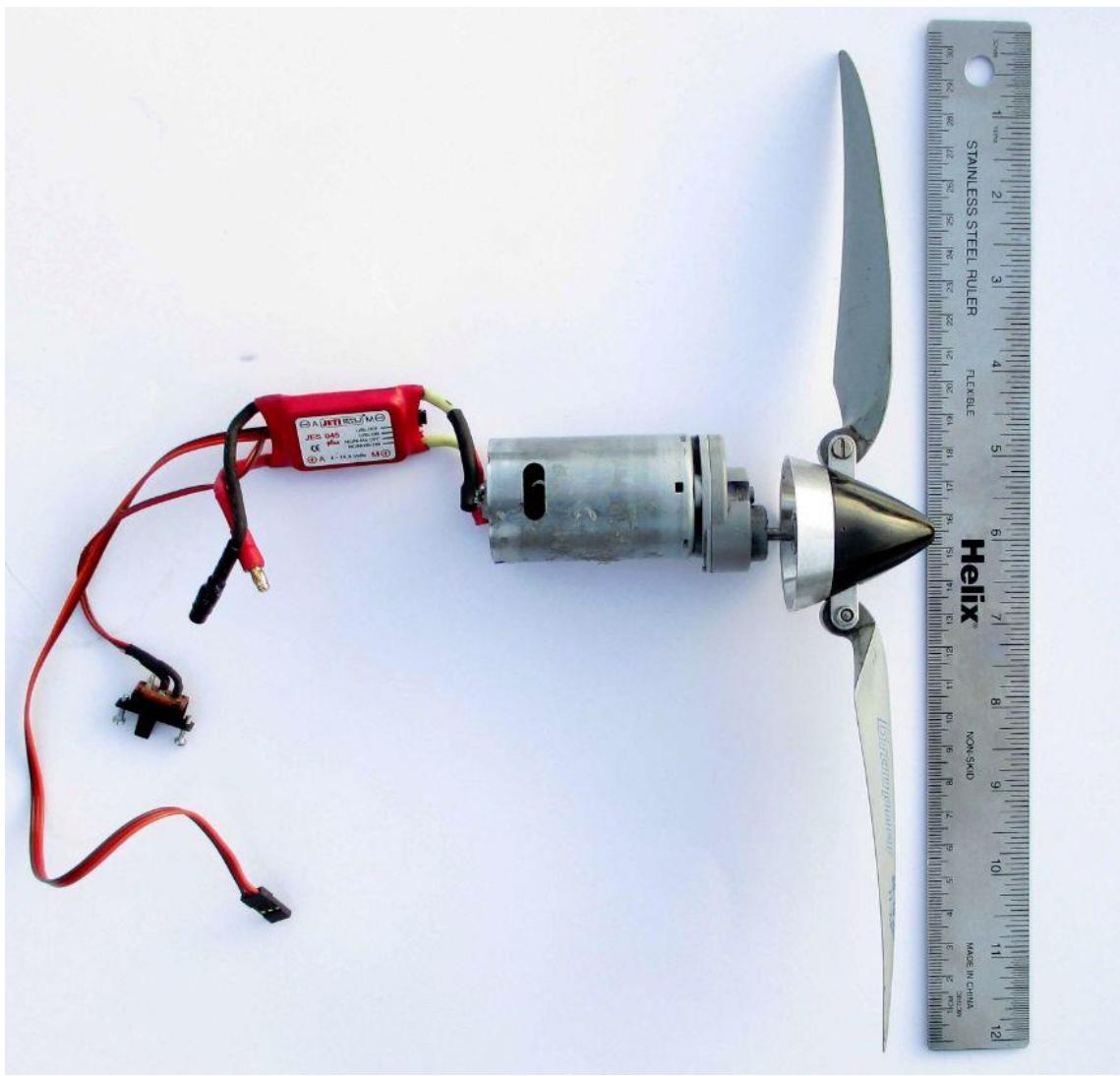
### Specifications

Wing Span 5ft 9½ inches centre section chord 7½ inches Length 40½ inches  
Weight 2lb 10½ ozs Battery 3s lipo 2200 mAh Original motor Speed 600 with 3 to 1 gearbox  
The prop 11x 7½ Graupner folder with carrier diameter just over 11½ inches

This month my mate Pete gave me his old Frog 049 that had not been run for years and was in a very poor state. The pictures tell the story. I keep on moaning don't use the crankshaft on these engines to turn the engine over because if the piston is glue up you will pull the ball ended con rod out of the piston well this was an example. The piston was solid in the bore it was an oven job 150° C for 10 minutes and leather gardening gloves to work on it while it was hot. The back plate was also locked solid requiring a further heating. Cellulose thinners and an old toothbrush was used to get a lot of the castor oil off followed by cream cleaner on the crankcase. The cream cleaner is just a mild abrasive but great care should be taken to wash it away before assembling the engine again.





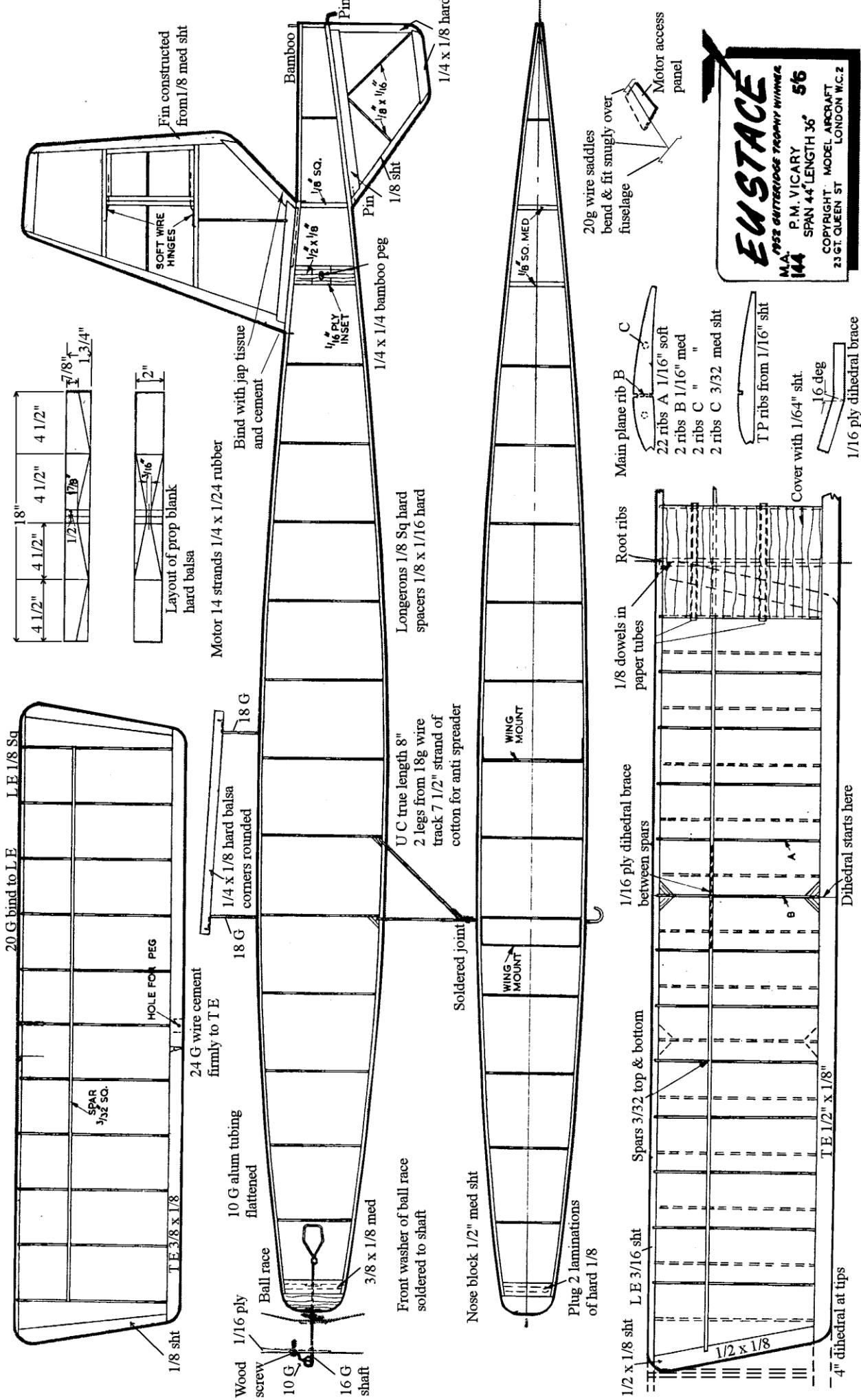


Frog 049 pictures before and after cleaning. The engine still needs a further clean but at least it is much better condition than when it was given to me!









## Eustace by P M Vicary The 1952 Gutteridge Trophy winner from Model Aircraft Mrch 1953

Since the writer flies his models where it is seldom blowing less than gale force, he set out to design a model that would be easy to build and above all simple and foolproof to fly under all conditions. This is an ideal model for those having a limited amount of spare time and wanting a model that can be quickly constructed, yet performs well.

### Fuselage

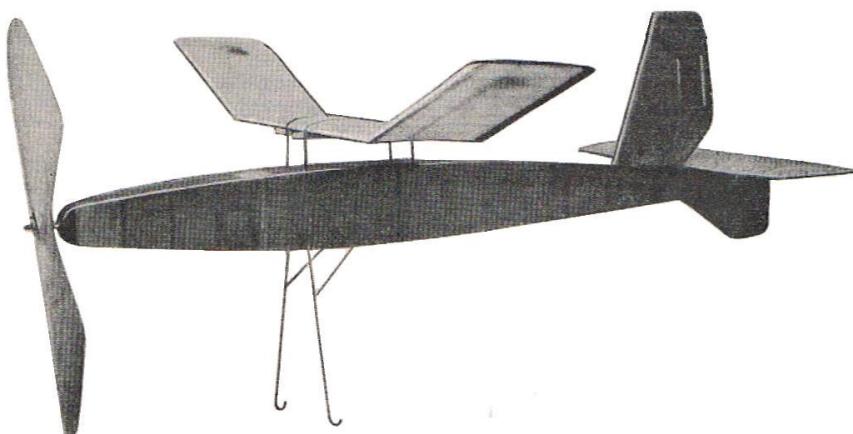
Build the two sides together over the plan in the usual way. When thoroughly dry, remove sides and separate. Cement lightly at rear then fit spacers top and bottom at widest point. Allow to set, then cut and fit other spacers working from widest point, front and rear alternately. Use rubber bands around fuselage to hold spacers in position while drying. When complete bind and cement undercarriage tubes in position with jap tissue. Then make wing mounts and do likewise. Finally add gussets, etc.

### Wing

Begin by making the paper tubes. Wrap brown gummed paper around 1/8in. diameter hardwood dowel; Cut out the wing ribs. Commence construction on the flat section of the wing. Pin down the 1/2 in. X 1/8 in. trailing edge, packing up the front of it 1/32 in. Position the four ribs C and cement to the trailing edge. Next put the end ribs in position, cement the 3/16 in. square leading edge into position. Slide the paper tubes through the holes in the ribs C and cement firmly. Add the remaining ribs and 3/32 in. square spars. Cover the two centre panels with one piece of 1/64 in. sheet balsa. Cut the two 1/16in. plywood dihedral braces. Slide each brace through the end ribs B and cement firmly to top and bottom spars. Next build the two outer wing sections leaving out the two spars. Pin down the flat section of the wing on a board long enough to take the whole wing. Cement the Outer section bottom spars to the underside of the protruding dihedral braces. Cement outer sections in position on top of the bottom spars, at the same time supporting the wing tips so that there is 4 in. dihedral. When dry remove whole wing from board and cement the outer section top spars and gussets, etc. in position. Break a double edged razor blade until you have a long point. Slide it between the two 3/32-in. sheet centre ribs, C and cut through the bottom spar, paper tubes, top spar, 1/64-in. sheeting, leading edge and trailing edge. Slide the two 1/8 in. diameter dowels (do not cement) in position. Now when the two wing halves are brought together, you should have a perfect join.

### Tailplane

This is of conventional construction being built flat over the plan. Take care to bend the wire fittings accurately and bind and cement firmly in position.



made from very hard balsa, as it takes quite a bump when the model DT's.

The undercarriage is bent entirely from 18-s.w.g. wire. A single length of strong cotton tied to each U/C leg stops the weight of the model collapsing them. Cover the wing and tail with Jap tissue and the fuselage and fin with lightweight Modelspan. Give the fuselage two coats and the wing and tail unit one coat of dope.

The weight of the model less rubber should not exceed 41/4 OZ. (it will probably turn out below 4 oz.) Use 14 strands of 1/4-in. X 1/24-in, rubber of sufficient length to bring total weight up to 81/4 oz. Trimming is by orthodox method. Always use the D/T.

### Fin

This is built flat on the plan. Make sure the front and rear wire saddles fit snugly over the fuselage. Laminate two pieces of 1/32 in. medium sheet and cut to shape for rear motor dowel access panel. Push panel into fuselage. Place fin in position, and cement firmly to the panel. This method of fin fixing ensures the exact position for the fin every time. The underfin is self explanatory. It is important that the trailing edge be

**SHILTON  
VINTAGE (FLY IN)**

**BLACKWELL FARM**

Saturday 13<sup>th</sup> and Sunday 14<sup>th</sup> September 2014

Due to the success of our first meeting in May, there will be the second Shilton Vintage meet on 13<sup>th</sup> – 14<sup>th</sup> September.

Flying all day Saturday and Sunday.

Caravans and camping available, water on site and port-a-loo.

BMFA members only. Proof of Insurance required.

The Bar-be-cue will be running on Saturday evening from 7 p.m. Bring your sausages and burgers and enjoy an evening with like-minded people.

**ARRIVALS FOR CARAVAN AND CAMPING AFTER 2 P.M. FRIDAY.**

You will need to pre-book your pitch as we are limited to 10 caravans only. The site will be well sign posted with SAM35. Post code OX18 4AP

Caravans/Camping £10.00 for weekend

Flying £5 per pilot.

Local facilities are available in Carterton 3 miles away.

CONTACT: Nick Blackwell Tel: 01285 657610 (evening only)  
Email: [nick@nickblackwell.co.uk](mailto:nick@nickblackwell.co.uk)

OR                   Derek Foxwell Tel: 0208 647 1033  
Email: [derekfoxwell@btinterenet.com](mailto:derekfoxwell@btinterenet.com)

*Directions:*

*By road from the north:*

*Follow the A40 to Burford, at roundabout take the A361 toward Swindon, at junction for Cotswold Wildlife Park turn left onto Hen and Chick Lane. Follow lane until it bears left, here turn hard right and take the track until it ends, this is the airfield.*

*By road from the south*

*From Swindon take the A361 to Lechlade and Burford. 3 miles before reaching Burford at junction for Cotswold Wildlife Park turn right onto Hen and Chick Lane, then as above.*

*(When you visit Blackwell Farm – you must try their honey – it's bloody marvellous )*

## Middle Wallop Sunday 24 August 2014

Its happened a couple of times now, the weather was perfect for flying on the Sunday and this was reflected in numbers attending I believe John Thompson mentioned 306. I believe that is down on a few years ago but a healthy number and some fantastic models. Over to the photos. P E Norman Memorial at the end





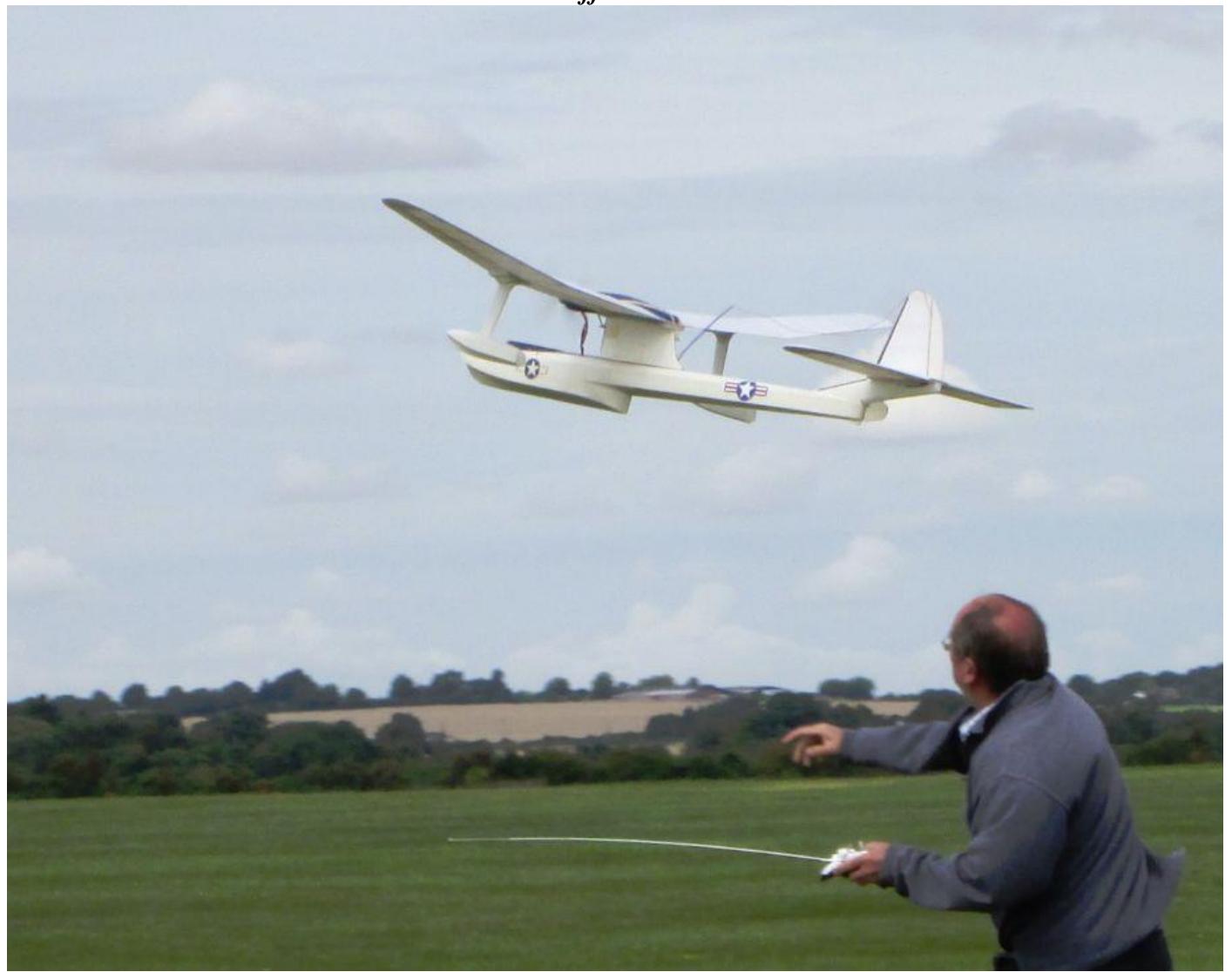


*Natzneez enlarged powered by Laser 61*





*David Bintcliffe and his Sea Cat*

















*Brian Beacham's Enya 35 powered sailplane model flown on the day by Chris Hague*



*John Baimbridge with Brian's model he looks as if he knows what he's doing*



*Geoff Goldsmith's new engine in his Mercury, no more hand launches*



*Ted Horne and Peter Michel on way to fly their gliders*











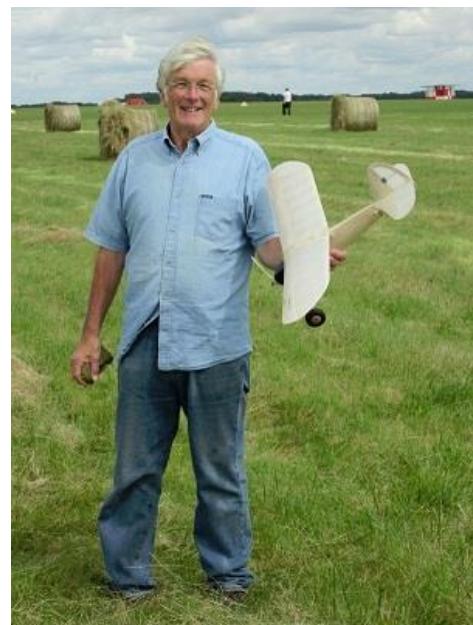
### P E Norman Memorial Competition 24 August 2014

Regretably my idea of some form of competition in respect of P E Norman who died 50 years ago fell a bit flat. There were a few models but on the day only two flew those being Peter carter and Peter Scott. Peter Carter's model had a long engine tun but actually his Natzneez got into a couple of thermals and went OOS however being a small model it wasn't quite as far away as it looked and peter returned with very quickly. Peter Scott one the comp and will receive a trophy in due course.

Mike Cummings had with him a couple of P E Norman gliders Old Nog being one and think the other was Cumulus?



*Peter Scott left and Peter Carter just before proceedings began*





## **From Bryan Passey**

In an article published in Stick & Tissue some time ago I mentioned the difficulty I had in getting the Walrus,built from the Aeromodeller plan of many years ago,to fly or to show any resemblance of flight. Eventually the model was put aside as I decided it would never fly in it's present form.

Then last September my friend John Ralph,an old Glevum club member paid me a visit up here in Scotland on his way to visit a relative at Machrihanish on the Mull of Kintyre.While he was here I showed him the Walrus and explained the impossibility of flight with it, John's reaction was the idea of putting radio in it.Now I'm not much into radio so I gave John the model as a present and told him to go away and make the thing fly even if he had to drop it from a great height !

Some months later John reported that even with the conversion to electric power and radio,the model still indicated a reluctance to fly,but by perseverance he has achieved flight.

Following is how he achieved it.

Hi Bryan, just a quick update on the Walrus after last weeks second and stable flight following the first attempt earlier in the year. After listening to the various experiences of the two Walrus fliers I talked to , and others including Alaster Sutherland , I did the usual stability calculations and found the CG shown on the Aeromodeller plan was about 1" too far back!!! So that's the first thing I corrected. That put the CG AT 13% of the mean av. chord which puts it on the front wing spar at the mid-semi chord . Incidentally the tail plane area is 13% so the old rule of thumb is not a bad guess!!

Secondly , and not so easy to decide on , was the motor thrust line.

The large 68" span Walrus by D.J.Gray which was a Nexus plan and which is I think the one Donnie Mc Intyre flies, is set up with several degrees of " Down " thrust . This results in a prop' slipstream which increases the positive lift force on the tail as the power is increased. This aggravates the already unusually large down couple caused by the engine location with respect to the CG position and results in increasing the nose down pitching even more as power is increased. I decided to trust my own judgement and set the motor thrust line " UP " to produce a down wash slipstream increasing the negative lift ( UP elevator !!) as the power is increased. I did not deliberately incorporate any side thrust but a degree or two may have crept in.

I added a extra bit of rudder area in the form of a piece of polycarbonate hinged to swing down to form a water rudder if I ever get the model on the lake!!.. It was in the " up " position for last weeks flight. The AUW. is 2lb 3oz. with a 3cell/800maHR. Li Po . The wing area is about 3sq.ft which gives the model a wing loading of about 12oz/sq-ft. This is quite moderate for an RC model but would make it a bit of a brick for free flight! Anyway-on with the " Saga ".

The conditions at the Redruth model clubs field when the model was flown last Tuesday were overcast with a moderate wind of 10-15 mph,the latter helping the old bus off the rather rough field. Full power( that's a 3 blade 8x6 turning at about 9,000 RPM.) got the model aloft in a couple of yards but I had to apply a lot of up

to prevent nose over , mainly caused by wheel drag in the rough grass. Once up , the trim had to be adjusted quite a lot. First to correct a lot of right turn and also a lot of down trim to level out the cruise power. With trim adjusted the model still needed increasing down on the stick as I throttled back for low speed checks. I think it may have stalled had I not done that. The turns were positive but not very smooth with a tendency to rock . It may have been me and I did have the Tx on high rate and the modified rudder is quite large.( See Photo's.) As power was increased from cruise the speed and climb was vigorous and the response to control inputs was positive. The landing , after about five minutes flying, was fairly slow but I did have to hold down on all the way in as I reduced power. I did not cut the power off during the flight as I think it needs a bit more nose weight which I have added for the next time I try it. I have also adjusted the tail plane linkage so that the Tx trim can be set at neutral and I also tweaked the left upper wing trim tab up a bit more to try and counter the right turn which is being caused I am pretty sure by the wing warps. The latter are reluctant to stay out even after several goes at removing them by all the usual methods!!.

So ,in summary " The Beast has flown " and not too badly at that. I need to fly it a few more times before I will assert that the thrust line set up on my( your ) Walrus is the right one . The CG error on the Aeromoddeller plan though is definitely a major one and needs to be known about if anyone is tempted to build it.

I have attached a few photo's which I took soon after last weeks flight. In particular you can see the line from the motor to the tail plane shown by the strip of spruce I held to show it.





## From Graham Crawshaw

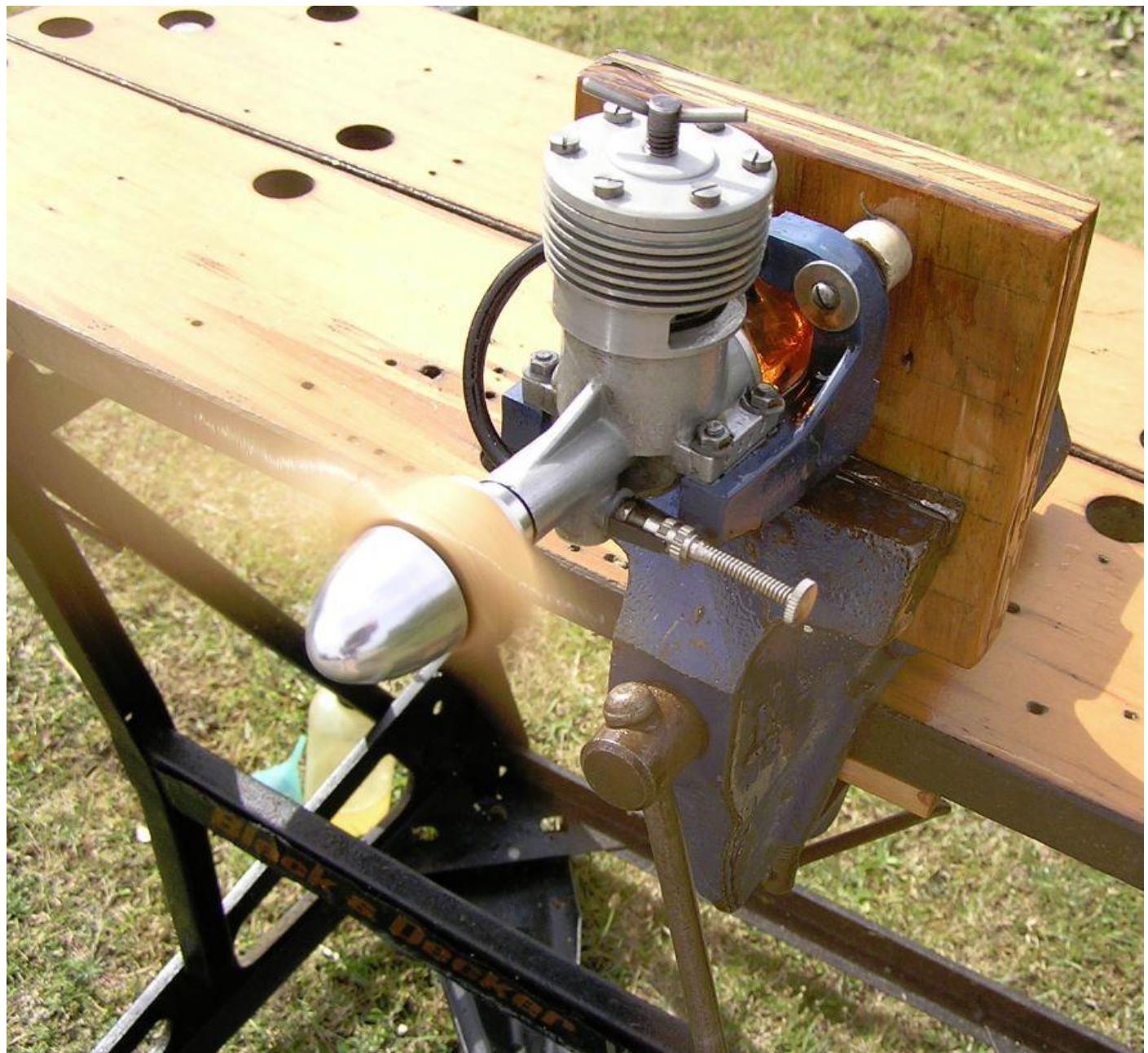
Update for you James on the Mataor. Have had one flight with my Laser 75 and was a little underpowered therefore I have now installed an ASP 120 four stroke which although overpowered helps with the c of g and can always throttle back to scale speed. At present trying to make some Mercury water slide decals for the model.



## From Peter Scott

One of the attached pics comes with a health warning (literally).

It goes to show that even after over 50 years running engines it's too easy to get careless, I was testing the DC350 on Saturday to put back into my Bucks Duck after some years of not being run. Fortunately the hand is now healing. We should all learn a lesson from my mistake !





*A DC350 flesh wound, who hasn't done it?*



*Peter's Bucks Duck*

Hi James: I have added the Wigdor Wasp to my build programme but am lacking info on incidence and C.G. position. There was a nice one flying at MW, I noted the builder's name as Trevor Jones, just wondered if you have his contact details ? Regards, Peter Scott    [pns@scottcott.fsbusiness.co.uk](mailto:pns@scottcott.fsbusiness.co.uk)  
*If anyone has contact details please email Peter*



# *Early Micron spark ignition engines*

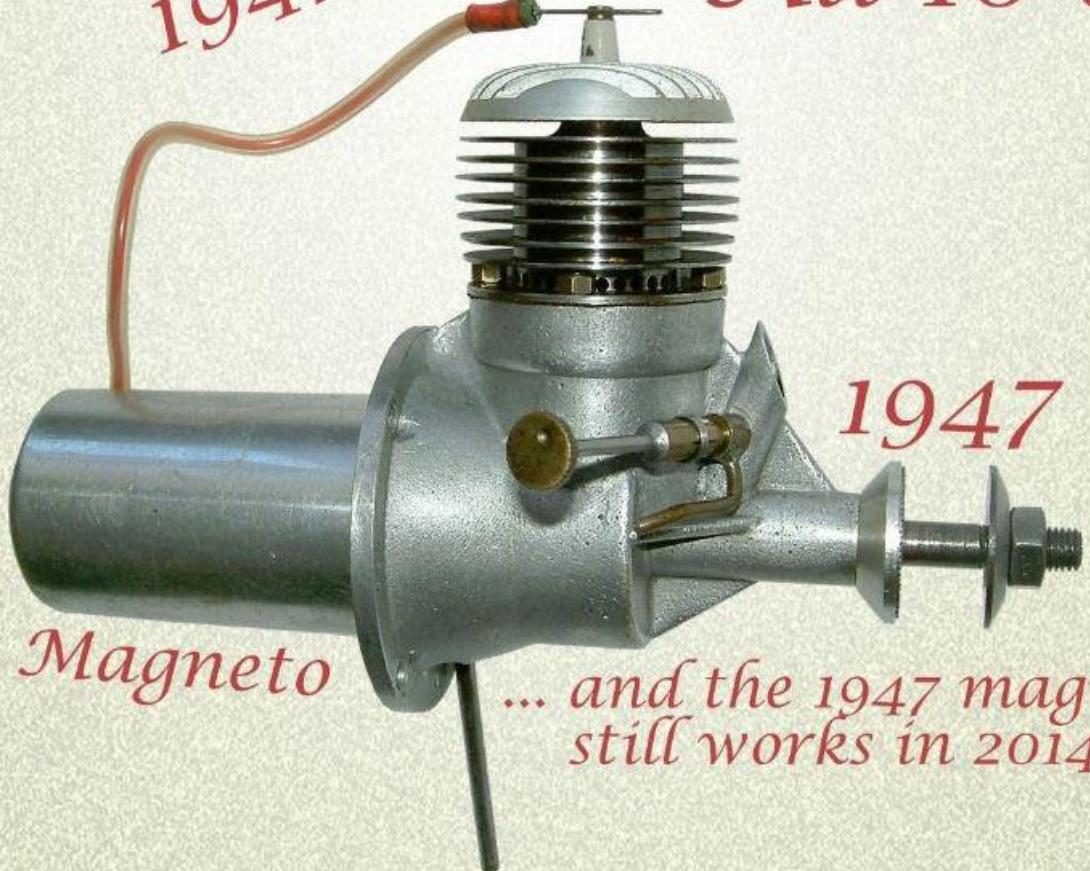


*1947*



*1948*

*All 10 cc*



*1947*

*Magneto*

*... and the 1947 magneto  
still works in 2014...*

## From Dave Platt

Reporting from the CL Scale front -- my Grumman OV-1 Mohawk managed to win CL Scale at the 2014 U.S.Nats. This was a long-felt want fulfilled, since I had won the U.S.Nats in FF Scale and RC Scale, but never in CL, the last category. The model got high score in both static and flying.

Details: Scale 1/8 FS Span 72, weight 12 lbs. Two 28-10 electric motors. 2.4 radio in the handle previously shown. Control on motors, flaps, rlg. The model is trimmed with inset rudder, making line tension very moderate and flying easy.



## Annoying or what JP

Our flying site is a no go area for about 6 weeks each year whilst the Dorset Steam Fair is happening so we have to turn to plan B. Good fortune is that the B site is 44 acres bad news the crop hasn't been cut yet so we have only 3 acres. Of course ever since we have prepared the B site the weather hasn't been that good so apart from the odd occasion not much flying has been done. The good news is the crop of Maize is going for the chop in next 2 weeks then we have access to the full 44 acres which the owner is ploughing over, raking and seeding with grass. It will remain grass for at least the next 5 years and we will have free access for that period also thrown in is any cutting we want, when the owners son is around, he has his own tractor etc! So 44 acres, grass cut all for nothing! Can't say better than that. Well you can thinking about it its only a 15 minute drive away.



*Not much flying so no good photos but here is Ian Pratt's experimental 600 model the field behind the fence and at moment maize will be out B site for next 5 years*

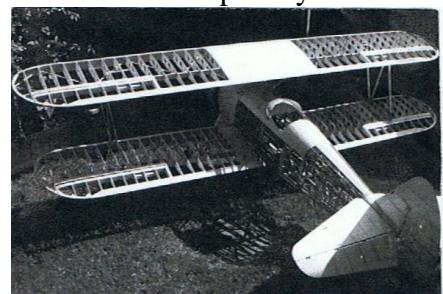
## David Kinsella's Column

### The ED Story - XII

At its zenith sixty years ago when the straight-edged Vulcan and others of the V-Force graced RAF advertisements in Aeromodeller and Model Aircraft ED entered its final phase when Alan Greenfield took the little firm from Hamptton Court to Sittingbourne in Kent. Alan had worked with Ken Day and so knew the trade and was himself an active modeller. It was the 1980s though, and with great advances elsewhere Alan ran ED more as a quiet partner to his other activities, prices ranging from £70 to £110 for these now Vintage motors. My last sighting of ED products, was in the 1990s, crisp and smart, but who would buy them in volume? Open to correction these days ED exists in retirement, borne back into the past by the passage of time.

### Spiffing Stuff For Chaps

Yet another Walker wonder is almost ready, this time an 8ft Stearman hauled by an OS of 55cc. The cowl is 13 in across and the u/c legs of steel measure almost 1in. With a couple of exceptions Alan Walker built my impressive rack of VTRs (Class C Sir Stirling Moss seen in the model mags and The Times) and before that a mighty impressive Spitfire



of 7ft or more, staggering detail throughout. I would have loved his mighty Vulcan the sensational delta from Roy Chadwick that stiffened the V Force of the 1950s but I just didn't have room for it. However I did find space for a barrel-shaped Gee Bee racer in yellow and, black. We pass this way but once....

### Guy's Reminders

With a passion for Standard and other fireworks! it's good to know that lads out there collect them! Tony on 07956 506300 would love to hear from you. Ignore the blue touchpaper and preserve the great heritage of our fireworks.

### Happy Reminders

I'm proud to say that I have every edition of Sticks & Tissue in printed form and ready to hand. When time permits (!) I read them, one topic leading to another and so it goes. Much enjoyed are the many pictures of engines, several I have, even more I'd like to have. That Foster 99 enjoyed on the cover of No 87 really is a big motor despite its tiny crankcase. And in the same edition the Mk I 246 Racer of stalwart Bill Wells, long ago my very first big engine bought from Bert's in Leigh on Sea (soon it was performing in the local park). A few pages on there's the Javelin my very first engine from Mac's model shop in Southend (a Bee bought because I found the Javelin hard to start in the early days). The gudgeon pin arrangement was a surprise and unknown to me all those years ago... .when a good house was a mere £2500!

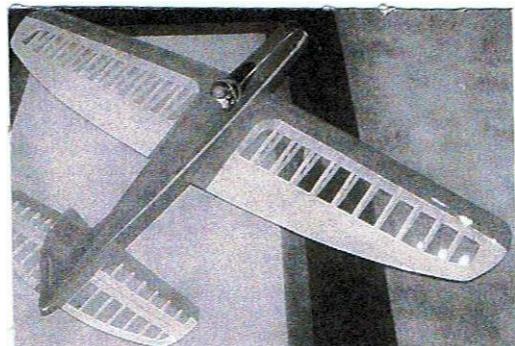


### Getting In

Turned away from the famous gates in Maranello, Italy, I sped hot foot to the old Alfa factory site in Milan. A telephone call and I was off again to the lush green of Monza Royal Park and the annual sports car show. There an introduction in French was written for me by a lady related to the Ferrari factory. Back to the works at Maranella and this time the guard with a Ferrari badge on his cap let me into a plain waiting room by the famous arch. Just a spot of waiting and then a gentleman in a blue silk suit took me through another door and thus the factory. Made it!

### An Oliver Man

That Oliver Tiger test (April) reminded me of Belfairs MAC and its leading light Gordon Yeldham, back then operating his Class A Voodoo and a McCoy 60 Speed model in rich black. Mostly black as well I seem to remember at least one Voodoo in lime green, a Monitor like it too. Young twerps at the time, we had no idea where Olivers came from or the cost involved. Even more impressive was that Gordon went racing across the Channel and could be spotted in Model Aircraft and Aeromodeller (heady stuff for us Bee-operators). Mick King was active with his Contest Kits (Inchworm glider and Voodoo and a few more) and wowing us RTP Jetex types was a fellow who turned up with an Eta 29! A VTR enthusiast throughout his life, everyone knew Gordon Yeldham. Building his beautiful models at the time was Gordon Rae (his book still available) and here's his 1953 Cougar crafted in Colorado by Rian Hogsett. Full marks here.



### Rugby Rotter

The 2500 volume library of George McDonald Fraser was sold in mid Year he the scribe who gave us the Flashman yarns of Empire days. Inspiring jacket art made me write to George in the Isle of Man, first about edged weapons. and his replies were pasted inside my Flashman copies. The roaster from Rugby and his doings read so well that thousands thought he was a real person from the age of Victoria! George struck out with Flashman when he failed to land an editor's job. As one door closes.....

## Be Very Careful

Power left unsupervised can cause trouble. A chum in Gauge One lost much of his workshop when an insulation failed and a fire broke out. Later a receiver battery in a Scale model caught fire and wiped out half the aeroplane. In both cases complete disaster was prevented (in the nick of time) but these disturbing events should serve as a warning. Switches off, chaps?

## Dig That Rambler

Thomas Jeffrey left the UK for a model making job in Chicago. He'd invented the universal wired on/clincher bike tyre we all use and with Phil Gormully built the Rambler 48, a quality cycle with shaft drive! Later they sold out to the American Bicycle Co. If you're into bikes like the Bates, Hetchins or Paris, the uber rare Rambler 48 will deliver serious status.

## Route 66 In EC2

Get it right and pro bono publico rock blasts from a corner of Trafalgar Square, ballin' Memphis licks reaching Horatio 160ft above and on up the Mall and into 'Green Park. Kit set up by Waterstones crowds fill the wide pavement as the stuff of Chuck, Mick and Little Richard rend the air of high summer. Seriously chapes. it is the real stuff.



## Fine Little Phantom

This written prior to the event, Brian Lever is to be congratulated on his efforts to further boost the profile of that super little champion the Mk I Phantom Mite, drawn up by Bill Dean and kitted by Keil Kraft. Possibly more to come, the Prize Fund stands at £250 (Lever £100, Julia Isidro £50, Kinsella £100). Old Warden the place, September the month, the Spitfire looks of the dinky Phantom Mite first appeared when Reg's fighter was still flying. Like many more, my first C/L model was a Bee-powered Phantom Mite.

## Vic Remembered

Good to see that snap of Vic Dubery in SAM 35 Speaks. Long ago Vic taught me tricks with numbers. For example 9 times another will always produce 9. For instance 9 x 3 gives 27. 2 and 7 produces 9.

## Testing

In the 1960s Bob Wallace and Chris Amon left New Zealand for Italy, both working for Lamborghini. Bob recounts test drives in the V12 Miura - 106 miles from Milan to Modena in 33 minutes, 142 miles from Rome to Naples well under the hour, often at a steady 160mph. Amon moved into Formula One and Wallace later restored cars in Phoenix, Arizona, writing of the great days in Road & Track. Storming out of Modena for the Ferrari works was memorable.

## Famous Mr Punch

Friends far and wide, I've just discovered that souls in Liverpool ran the local Punch & Judy shows. Dating from the 1500s in Italy key puppets are Mr Punch and wife Judy a constable, crocodile and a baby. Pleased as Punch is Mr Punch as he knocks people about. His gleeful cackle is produced by a swizzle in the mouth of the operative. Great fun at the seaside.



## Epsom & Ewell MRC

Again the premier club known to us all put on an excellent show at Nescot, a campus perfect for the job. Very busy on the Sunday, a star layout from Wales featured the LNWR in Edwardian times, its 12-wheeler saloons magnificent and rich in detail. Traders in support included Masters of Epsom (01737 356373) in the business for 36 years. Well done, chaps.

### Admiral Graf Spee

With the conviction of a W E Johns, a young Tom Foley described an attack on his freighter by Graf Spee. After two 11in shells drenched Doric Star, the German approached at high speed, in a great curve and impressive in grey with camouflage patches in whites yellow and green. The crew taken off, the merchantman carrying wool and meat was sunk with two torpedos. A view of Graf Spee and on board when another freighter was sunk, Tom Foley was later transferred to Altmark, Graf Spee's support ship. Written in 1940, young Tom's words ring down the years as if it were yesterday. Powerful stuff.

### H&H Have It

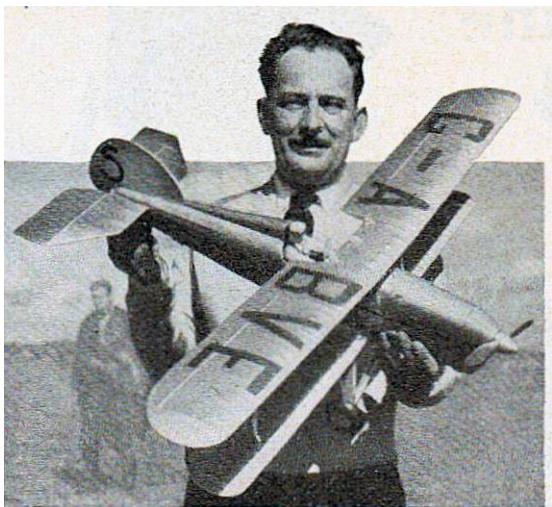
Those oily chaps at H&H offer spiffing machinery and goodies for the den.

Recently leathers worn by Hailwood as he stormed the TT course in 1978 and a snip at £18000. Long ago in a bar at Monza I turned round and there was the MV ace himself sipping an orange juice. At the time Agostini was putting in a few practice laps. Contact H&H on 01925 210035.





**Arrow Active Mk II by Flt. Lt. E H Norman a 36 inch wingspan 1 ½" to 1' Super Scale free flight model of a pre-war aerobatic racer for 1 cc from Aero Modeller April 1958**



This delightful silver biplane which collected prizes for Flt.-Lt. Norman at the R.A.F. Championships and All Britain Rallies last season is one of the prettiest models we have ever seen. The full-size Arrow Active Mk. II was developed from an earlier version which has a solid centre pylon carrying the upper wing. Designed by A. C. Thornton who also designed the famous Blackburn Bluebird, it was flown in the Kings Cup for 1932 (unplaced) and in 1933 (5th) by Flying Oficer H. H. Leach. The diminutive span (by British standards) of 24 ft. and generous power developed by a D.H. III gave it a top speed of 145 m.p.h. and it is very pleasing to note that in spite of its age, it is currently being renovated at Croydon.

Hopes are high that it still be seen at the 1958 Aerobatic

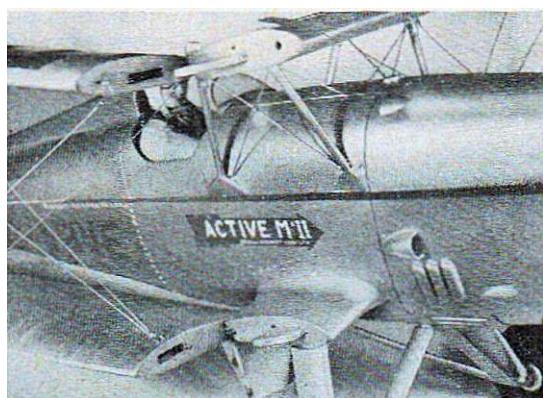
Contests and Air Races.

The model has a fairly high wing loading and does therefore need a minimum of 1 c.c. power. Displaying inherent stability with offsets and surface angles as detailed on the plan, it is the perfect scale subject for the perfectionist. As will be seen in the photos here, the original model duplicates the full-size ability to fold its wings for storage and construction is virtually rib for rib, and lace for lace on the fabric-covered area of the fuselage. Only deviation from scale is in the tail area which has been increased; again for the perfectionist we have provided precise scale tailplane details, so that those with the ability to trim out the difficulties incurred by the smaller tailplane can be satisfied with a perfect scale model. Fuselage construction is based on a horizontal crutch and the multiple scale-like stringers provide a high degree of strength.

First build the basic 3/16 sq. crutch over the plan view. Ply wing supports F6a, F7c are fitted to F6 and F7 and the main u/c leg bound to the front of F6a. Now erect bottom portions of all formera over the basic

crutch, fit the keel and stringers to retain formers in correct vertical position and maintain fuselage contours. Make the centre section wire frame and bind to the crutch after removing the latter from the building board, then fit the upper halves of all formers and complete with stringers and sheeting. Fit the front bulkhead and engine mounts, then complete the cowl, adding fore and aft u/c struts with formers on all legs. Now build up centre section for the upper wing and bind in place. All that remains are the lower stub wings, fairing blocks and incidental sheeting. Wing and tail assembly are more straightforward embodying scale structure with inter-spar 1/8-in. square bracing and nose ribs.

The original model has a nose cowl made from glass fibre and despite the prangs during the initial trimming stages, finding out details for the plan opposite, it survived everything with hardly a scratch. Colour scheme is all silver with dark blue trimming and registration and the arrow trade mark printed above should be duplicated on either side of the fuselage.



## From Dave Bishop

Show Season.

For some reason or the other, this season has been a very busy one for me and my team of DB Sound and we have travelled many miles attending and presenting shows all over the country. It seems a whole long time ago that we were at the beginning of the year at Long Marston, which was followed later on by the giant event at Weston Park and so on to many others. One show in particular to us was a new one as we "worked" for Bill Giles of Bill Giles Aviation at the Weald of Kent Steam Rally. Many of you will remember Bill doing incredible aerobatics with his Pitts bi-plane at Plumpton and Kenley and other airfields and I found out that his father had given him a working steam traction engine as a present. He drove himself and his wife to be to the church where they got married which was something very different. At his show there were no less than 32 of these superb British engineering fetes on show, plus many beautiful classic cars that you could have eaten your dinner off the spotless engines. Wonderful fun held in superb weather. Again another memory of Bill is when he piloted John Sargent around in his aeroplane when the BBC made that super story of the Lancaster bomber recently.

I have been "trawling" through my hundreds of pictures all stored on my hard drives and here are just a few more to stir the cobwebs amongst some of you. Perhaps you might be kind enough to let the editor or myself know more details of them please and if Mr Parry allows, there will be more in next month's issue of Sticks & Tissue.

Dave Bishop of DB Sound. email davebishop\_dbsound @yahoo.co.uk or 01959 577550.



A wonderful "ace of the show flight line" now in living America, is Ali Machinchy of Al's Hobbies at one LMA show at Gaydon



A way back Epsom picture of a pretty little slab sider Bi-plane



*Dave Bishop of DB Sound with one pair of the Breightling team at RAF Kenley. I had just finished commenting on their superb performance to some 15,000 people at Kenley airfield.*



*This micro light asked for permission to land at RAF Woodvale to the Flight Line Director in the yellow coat, Andrew Johnson.*



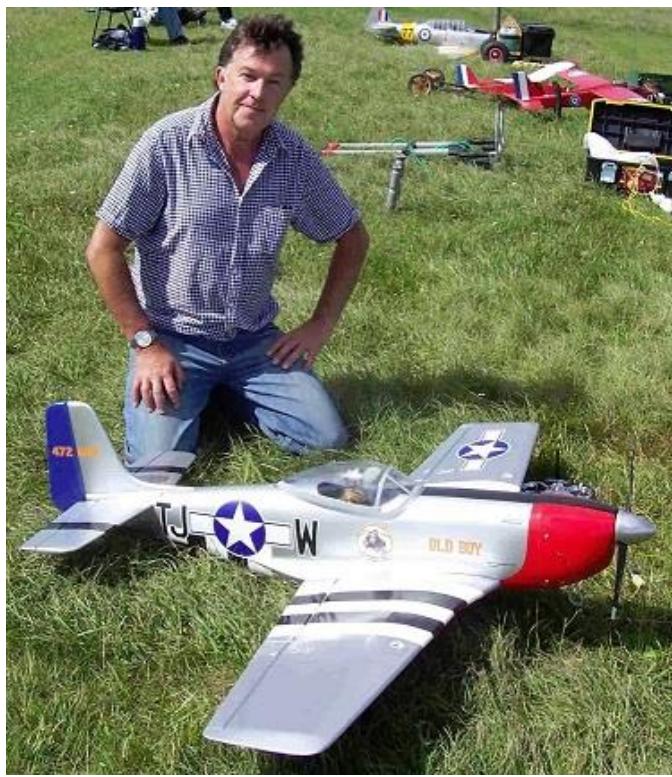
*Not quite S&T but one big Silver Bipe at Woodvale.*



*The Breitling team of Steve Holland, Sharon and Richard Rawle, with their superbly detailed Stearman Wing Walkers aeroplanes. Richard designed the models and Sharon operates the two girl wing walkers doing their acrobatics on a separate radio channel.*



*An electric R/C model at Epsom Racecourse.*



*Epsom Racecourse and a very nice Mustang.*



*Semi Scale fun fighter at Epsom Racecourse.*



*A big scale Harvard at Epsom which took me back to when I worked on their radios in the RAF. The radio is situated just behind the rear cockpit.*



*A very nice eclectic Fox powered glider at Epsom.*



*One of the nicest and dedicated chaps around is Tony Tomlin at Epsom.*



*Colourful Shooting Star pattern ship at Epsom.*



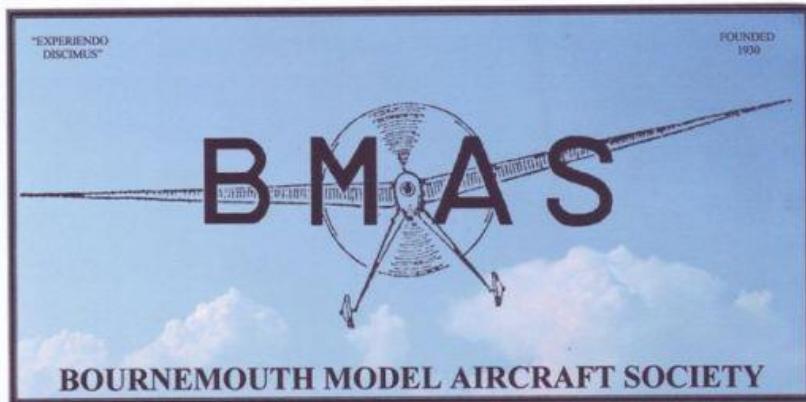
*Electric Thermal Hunter at Epsom.*



*Pretty Biplane at the K2 at Crawley in Swedish colouring.*



*Three wise men at Epsom. I can assure you that most of them scrub up well. Tomlin, Parry & Winkworth*



## **INDOOR MODEL FLYING**

**FREE FLIGHT ONLY**

**TUESDAY 23RD SEPTEMBER 2014**

**TUESDAY 28TH OCTOBER 2014**

**TUESDAY 25TH NOVEMBER 2014**

**7pm to 10pm**

**ALLENDALE CENTRE  
HANHAM RD. WIMBORNE BH21 1AS  
FREE CAR PARKING IN PUBLIC CAR PARK IN ALLENDALE RD**

**COMPETITIONS incl GYMINNIE CRICKET LEAGUE**

**ALL FLYERS MUST HAVE BMFA INSURANCE**

**FLITEHOOK NORMALLY IN ATTENDANCE**

**Adult Flyers £5 Spectators £1.50**

**CONTACTS: JOHN TAYLOR**

## **Flitehook Indoor meetings at Totton - Southampton**

**Sunday 12<sup>th</sup> October 2014**

**Flitehook Indoor Free Flight Meeting**, Totton Community Centre, Hazelfarm Road, Totton, Southampton, SO40 8WU. 10.00a.m. to 4.00p.m.  
Contact Flitehook Tel. No. 02380 861541

**Sunday 9<sup>th</sup> November 2014**

**Flitehook Indoor Free Flight Meeting**, Totton Community Centre, Hazelfarm Road, Totton, Southampton, SO40 8WU. 10.00a.m. to 4.00p.m.  
Contact Flitehook Tel. No. 02380 861541

**Sunday 11<sup>th</sup> January 2015**

**Flitehook Indoor Free Flight Meeting**, Totton Community Centre, Hazelfarm Road, Totton, Southampton, SO40 8WU. 10.00a.m. to 4.00p.m.  
Contact Flitehook Tel. No. 02380 861541

**Sunday 8<sup>th</sup> February 2015**

**Flitehook Indoor Free Flight Meeting**, Totton Community Centre, Hazelfarm Road, Totton, Southampton, SO40 8WU. 10.00a.m. to 4.00p.m.  
Contact Flitehook Tel. No. 02380 861541

**Sunday 8<sup>th</sup> March 2015**

**Flitehook Indoor Free Flight Meeting**, Totton Community Centre, Hazelfarm Road, Totton, Southampton, SO40 8WU. 10.00a.m. to 4.00p.m.  
Contact Flitehook Tel. No. 02380 861541

## **Not S&T**

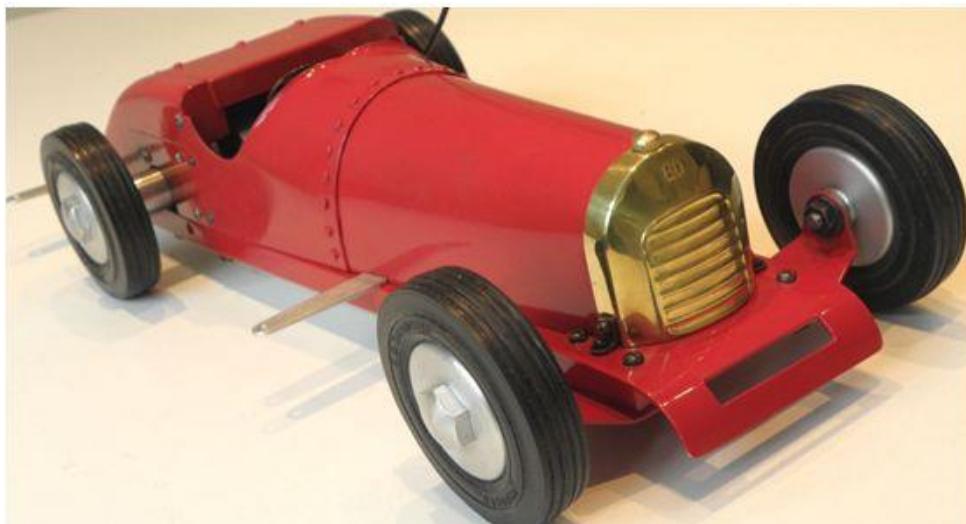
**From Steve Betney**

James, I attach another tethered car construction article which you may be interested in including in a future S&T issue, as it contains a bit of history about the car designed by Basil Miles, ED's early engine designer. Please feel free to use or discard at your pleasure. A version of this appeared in the Spring Retro Racing Club Newsletter which is hard copy only & low circulation, so very few S&T readers will have seen it so far.

I also attach a few pics of my latest airscrew driven car, Ollie's Rocket Racer in French Powder Blue cellulose finish, which blasted round Peter Hill's track at Great Carlton at around 64mph last Sunday on its first outing. I started the design concept by scaling up the .049 Roger's Rocket Racer for my nice original Oliver Tiger Mk III Series I diesel, but creeping elegance set in & I streamlined it & added a few other design changes, which to my eye at least are pleasing improvements. It has a carbon fibre front axle & a 1/8" piano wire rear one, & a super set of 4 Turnigy 2 1/4" model jet wheels which each contain 2 off good quality 4mm i.d. ball bearings. Next time out, I'm hoping for a new RRC track record with a better prop choice & engine setting, but we'll see, as Dick Robert's skeleton trike car with CS Tiger power is going just as well at the moment. Dick & I have designed these cars with (single) control line operation from grass or tarmac in mind by the way, in the hope of getting more modellers interested in making this type of aircar. It's a long way up to Great Carlton in Lincolnshire to Peter Hill's one & only track in the UK for many of us,

so control line grass &/or tarmac operation will vastly increase the number of possible venues. We'll hopefully be trying to run them on grass at Old Warden on September 27/28th & earlier on tarmac at the Nats on 23/24th August to prove the concept.

## BASIL MILES 1948 MG TROPHY WINNER REPLICA BY STEVE BETNEY



Having been addicted to using ED model engines for the last 55 years & collecting them for some 35 years or so I gradually became more interested in the work of their early designer, Basil Miles. Hardly any two of the engines made by his hands, the 0.9, 3.5, 5, 8, 10 & 15cc as well as larger types, were exactly the same, even if differing only in points of detail. I was delighted to acquire an original ED Aerocar tethered car designed by him on eBay about 8 years or so ago now. The vendor turned out to be young Bill Langley, who had acquired it for the princely sum of £1 from no less a person than the famous Gerry Buck, who had owned it from new. Over the years it had been well used & re-engined a number of times, witnessed by the many drilled holes & bits added to the bearers, & at that time had a tired Mills 1.3cc fitted. Cosmetically it was in fairly lamentable condition, with a very thick coat of purplish, creosote-like paint. A full strip down revealed that the only new parts needed were some good straight  $\frac{1}{2}$ " square beech chassis members to replace the original gnarled & twisted items, a new pair of beech engine bearers, a new brass strip for the bonnet joint & some replacement 4BA 5/16" square nuts where they were missing or corroded. The original green & red cellulose finish was visible during the strip down, so matching cellulose paint was procured for the renovation, & a decent & more appropriate ED 2cc Pennyslot diesel engine with a white plastic ED propeller was fitted.



This is a picture of my restored Aerocar, alongside my Spur Gear car under construction. A certain R T Pole (Peter Hill) has been requesting preparation of some construction drawings from this original Aerocar so that Retro Racing Club (RRC) members who wish can build accurate replicas, so hopefully these can be completed for publication in a future Newsletter.



After joining the Retro Racing Club some years ago, with a long interest in tethered cars & having built a couple of Oliver cars from Ivan Prior castings & parts back in the 1990s, I acquired sets of Model Cars &

Model Car News magazines from my old friend Mike Beach (which turned out to be Ken Procter's own original copies). On the back page of the July 1948 MCN is a nice advertisement for the new ED 2.49cc front rotary diesel (the early plain crankshaft bearing version with the non-scalloped cylinder head top fin), with a much retouched photo of Basil Miles' spur geared car which won the 1948 MG Trophy with this engine at 41.7mph (see image opposite). Much further delving into the April/May 1948 issues of Model Cars magazine turned up a couple of further images & some outline information on this car & the earlier "Flatiron" prototype from which it was developed, & also his later 1949 streamlined MG Trophy car



(said to look somewhat like a 1947/8 Gerald Spink 500cc Squanderbug full size car) in the July 1949 issue.

There is a text-only announcement of an upcoming kit of parts to build this spur geared car on a late 1948 ED price list, but none of my ED collector friends have ever seen an example or plans of it, or know of the existence of these anywhere, so perhaps this listing was jumping the gun & it never really made it into production (for reasons I shall give my suspicions about later....). An ED advertisement in the June 1949 MCN magazine mentions the Series 2 version of the 2.49cc Mk3 diesel, by now with the scalloped top cylinder fin & with a needle roller bearing crankshaft, & possibly this was the version which won the Hastings Trophy & set a new Class C record of 50.5mph. This advertisement also lists "ED Spur Wheels" of 40DP and 1.5:1 ratio at 25/- per set. Since a single ED wheel was 6/6d, presumably this "Spur Wheel" must have been a back axle fitted with 2 driven wheels & a set of spur gears? Needless to say, the images of the car in MCN & MC magazines, plus its resemblance to a 1930s Alfa Romeo Monza Spider or an Aston Martin Ulster (with the back ends squared off) whet my appetite to make one of these cars, so with a plan or kit being unobtainium (a rare element) I set about designing a replica as exact in every detail as possible. This only proved feasible because the original Aerocar was to hand for reference, as there are some common parts from which other bits of the spur geared car may be scaled. The obvious common components are the 3" diameter ED Speedicord Cressite tyres with hubs & bearings, the nicely stamped brass radiator & also the bent alloy front axle. Some repro Speedicord tyres are still available from Bill Bannister of the RRC I believe, but I was incredibly fortunate to get hold of a set of 4 new & unused original tyres & wheels for my car from an old RRC member by virtue of a chance conversation at a Sandown Park Model Engineer Exhibition a couple of years ago.

The radiator on Miles' spur geared car strangely has no "ED" embossed on it like the Aerocar part, nor is it adorned with a turned brass radiator cap, & it has also been cut down by  $\frac{1}{4}$ " at the base to reduce its height. This radiator turned out to be the hardest component of all to reproduce. A few years' search to locate an original Aerocar part & my attempts to tin-bash one from brass sheet over a hardwood dolly both failed, so finally I had to invest in having a lost wax master mould professionally made from my original Aerocar part, & some repros cast in brass. They are externally exact & rather beautiful replicas of the Aerocar part (the image shows the original radiator on the left & a lost wax cast version on the right), though the lost wax process can not deal with compound curves in .020" thick material over such a surface area, so the edges & back had to be thickened up & strengthened somewhat. This is fortunately no bad thing at all, as both the Aerocar & spur geared car could do with some extra weight at the front end to improve balance.

Having got the wheels, front axle & radiator components defined, an original ED Mk 3 engine & matching ED clutch are essential components around which the drive train can be designed & built. I think that to attempt to use any different



engine & clutch combination would be a very difficult undertaking indeed, except perhaps an ED Competition Special 2cc engine with its ED clutch which has the same overall length, but this would necessitate the rear, sideport venturi sticking out of the side of the car, so neither such a neat installation nor as authentic.

It took a long time to work out the specific spur gear components to use, but the clue from Model Cars that they were 1.6 to 1 ratio & from consideration of the geometry & spacing from the engine centre line to the back axle requires a particular set of Muffett gears which must be almost if not exactly the same as those originally used. I ordered 1 each of part SO40 040S & SO40 064S – they cost about £26 incl. VAT & p&p 4 years ago, so will be a bit more now. To use the 1.5 to 1 ratio advertised later, SO40 064S would be replaced with a SO40 060S gear & the axle to engine shaft c/l spacing reduced by 0.050". With the June 1949 MCN ED advertisement mentioning this ratio, perhaps the Hastings Trophy 50.5mph Class C record breaking car had been modified from 1.6 to 1.5 to 1, and/or might also have been the Miles streamlined car entered not very successfully in the 1949 MG Trophy? If it was, this would doubtless have contributed to ED's lack of momentum to get the 1948 MG Trophy car into production.

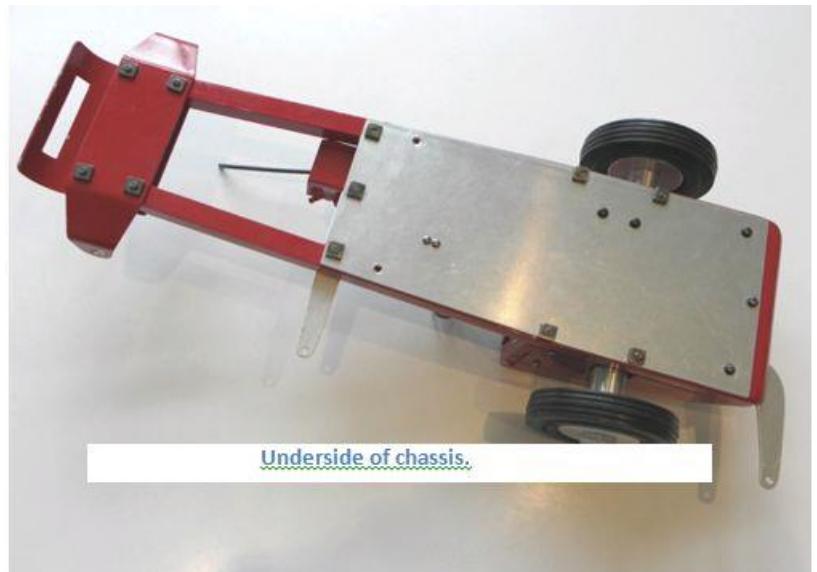
The image above shows the engine/clutch/ gear/axle assembly installed in my replica car. There is also a period rotary fuel cut-out fitted using a thin brass strap around it to the upper rear 6BA cylinder flange retaining screw, with a 6" long, rubber tubing covered wire as the knock-off arm.

The smaller 40 tooth gear is attached to the face of the ED clutch bell with 3 countersunk 6BA steel screws, spotting through the tapped holes on the bell drive face. Now I can't be sure whether or not Basil Miles did this on the original car, but after some experimentation I made a 1/4" diameter stub shaft to protrude through the end of the clutch bell & gear to engage in a 1/4" id flanged ball bearing precisely mounted in the 1/8" right hand inside dural side frame member to rigidify the engine assembly. Without this, alignment of the engine & engagement of the spur gears is extremely difficult to arrange for smooth operation & is quickly lost when run. Could this perhaps be why the spur gear car never really made it into production & the market? Without this extra, very precisely placed ball bearing support Miles would have needed to make constant adjustment to his car to keep it in running fettle, & it would have been a major source of dissatisfaction to kitchen table builders from a kit, so perhaps this is why ED quietly dropped it from their listings & continued with the much simpler Aerocar alone for another few years? As I suspect that Basil's original spur geared car was cannibalised to make up his quite different looking 1949 streamlined MG Trophy entry, just as his 1948 winning car was built from some cannibalised parts from his early 1948 "Flatiron" car, we shall probably never know for certain. A further possible reason for ED never producing the kit was the fairly complex shape of the body's cockpit section with its two bumps in the scuttle top, & the scuttle also needed to be riveted or otherwise fastened to the bonnet section.

With the above insights into the design it was possible to scale external design details from the published images, though a few iterations using trial & error were involved, especially during the actual construction of my repro version. The 1/2" square

hardwood chassis members turn out not to be straight like the Aerocar parts but have a two section taper from the rear to the front, with internal rebates for the inside 1/8" dural side members. This is not readily apparent from any of the contemporary images available.

Round head (& some c/s) 4BA non-plated steel screws are used for much of the assembly with 5/16" square nuts, which are impossible to source these days, so need to be made up in the lathe from 5/16" square mild steel bar. I lightly chemically blackened (more "browned")



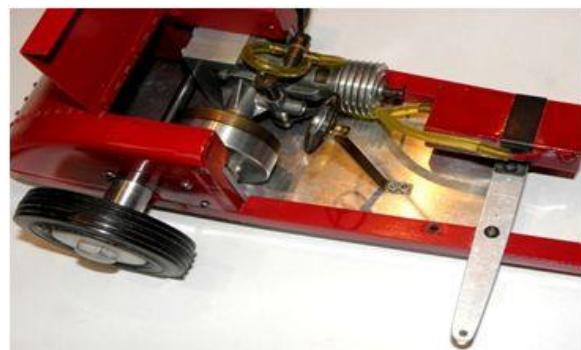
all fasteners with Metalblak for aged appearance (I don't use modern plated fasteners, they would not look right.....), & also treated the small brass radiator brackets & bonnet former in this way.

To make up the bonnet/cockpit assembly, a 1/16" x 1/4" central brass former was shaped & the two aluminium body sections made from 20swg sheet, which needs to be bent to the correct cross sectional shape to fit inside the radiator rim at the front & over the centre former at the joint position. I made these parts to fit by first preparing cardboard templates carefully cut to fit, then forming the ali sheet by hand over an old rolling pin. The two bumps on the scuttle top were fun, but eventually produced using a hand-held piece of 1/2" diameter steel bar & brute force against a rounded hardwood bench edge. These two front sections may have been riveted together on the original car, but I used some 8BA round head, slot-less screws from EKP instead, secured to the brass former with thin lock-nuts. It looks as if there were 17 of these originally, so that's how many were used, equally spaced.

I have prepared a reasonably detailed description of the full construction & assembly of the model, & anyone who might be interested in having this can contact me at [stevebetney@aol.com](mailto:stevebetney@aol.com) for a copy by email. I can also supply a free copy of my scruffy, faint working drawing if desired if an A5 SAE is sent.

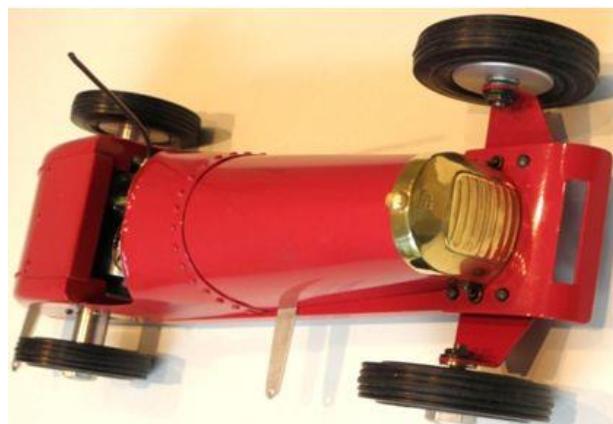


The whole car was finished with sanding sealer, cellulose primer, red cellulose paint (like the original) & gloss fuel proofer. A suitable, period, soldered tin fuel tank was used, secured to the mid chassis cross member with a thin brass strap and 6BA screws.

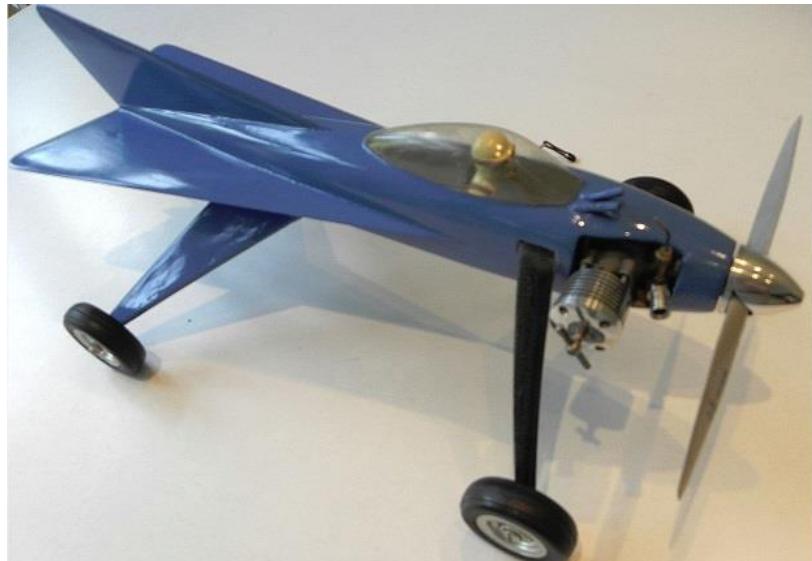


Miles' car was fitted with an under-scale steering wheel of around 1.25" diameter which was the subject of some criticism at the time, & it does look a bit inadequate it's true. I fixed the wheel to the chassis base plate using a piece of 1/4" x 1/16" brass strip & 6BA screws, though the original method of mounting is not clear from any of the available magazine images, & it could possibly have been fixed to the underside of the scuttle.

I hope that other modellers will find the subject car historically interesting & attractive. I'm very pleased with the authentic appearance of my model, & feel that investment of the hundreds of hours of research & design work which have been involved have been worthwhile to make this unique replica.



For S&T readers interested in model tethered cars, whether gear or propeller driven (aircar type), a regular visit to Hugh Blowers' excellent website [www.onthewire.co.uk](http://www.onthewire.co.uk) will reward them with a wealth of information on the history & current activities in the fields of tethered cars & hydroplanes. The monthly update in "From the Pylon" is published around the 1<sup>st</sup> day of each month, & look out for the link to the RRC activity reports from Peter Hill's Great Carlton track. RRC details/membership can be got from Peter at [arty.pole@gmail.com](mailto:arty.pole@gmail.com) or by phone on 01507 450325.

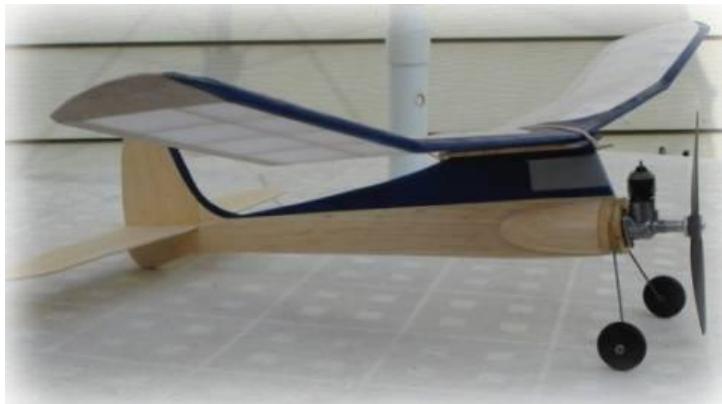






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