

Sticks and Tissue No 81 – August 2013

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

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.



John Laird with his enlarged Debutantes

From John Laird

I recently completed and have flown my 80" span version of Vic Smeed's Debutante which you might like to include the attached article in the S&T newsletter.

Hope to see you at Cocklebarrow at weekend - weather willing
Debutante 80" span S&T newsletter item.

I have recently completed my 80" span version of Vic Smeed's 40" span free flight Debutante. Photographs show me and the 80" model and also the 60" span Debutante built last year.

The vital stats for the 80" model are -

Weight 5 lbs 2 ozs with one 3s 2300 lipo

Wing Loading is 13 ozs/sq ft

Covered in doped tissue over mylar - heavyweight tissue on wings, lightweight everything else. Dope is 60/40 low shrink dope/thinners. If you look hard enough, you might make out the tissue join on the wings as the tissue sheets were not large enough for one piece covering.

Motor is an Emax brushless BL2826/06 950 kva which I measure as giving a thrust of 3 lbs on the 2300 3s lipo and taking 240 Watts out of the battery. Rated at almost 6 lbs thrust on 4s lipo but I don't want to prop hang. The motor shaft pushed through so that prop on one side of bearing and motor on other. A better engineering arrangement but it doesn't leave a lot of room for the cowl face and bolting the motor to.

Prop is a balanced APC type 13 x 5 electric

Undercarriage is removable for maintenance (straightening the wires after a hard landing). 3" nosewheel and 4" main - all light foam wheels

CG is at 44% on plan but I have got it forward to 36% on one lipo and 32% on 2 lipos (if I need the extra duration - photo shows 2 lipos under the motor and ESC to the side.)

Rudder is push/pull, elevator has a carbon tube control rod and the nosewheel steering servo (plugged into the Rx rudder position) while the actual rudder is plugged into the aileron position. There is a curve on the steering wheel nylon control rod - to induce bending in event of a hard landing and hopefully take some shock forces off servo. All servos are the old standard size.

Note no rubber bands for wing and the small ones holding on the tailplane are hardly noticeable. Wing has 2 ply plates near the leading edge extending below wing and engaging in dowels in the fuselage and 2 rear nylon bolts for clamping down

Details of the mods for the scale up and installation of RC are in the short build log here

<http://www.rcgroups.com/forums/showthread.php?t=1850447>

The maiden flight video is here

<http://www.youtube.com/watch?v=FQeP1Ep6S8Q>

There was a cross wind on the maiden flight and I underestimated the effect on such a large model with a lot of dihedral as can be seen on the maiden take off.

On a later date with lighter winds, the model proved a delight to fly and you can see from the touch and goes just how slow it is. Video showing off the Debutante flight characteristics is here.

<http://www.youtube.com/watch?v=uHu6vw6fGEo>

Towards the end of this flight I flew the model around on full power (all of 240 watts) and looped it.

Cruise power is approx 120 to 150 watts which is very easy on the lipos.

Both videos the work of my friend Mike Butler.

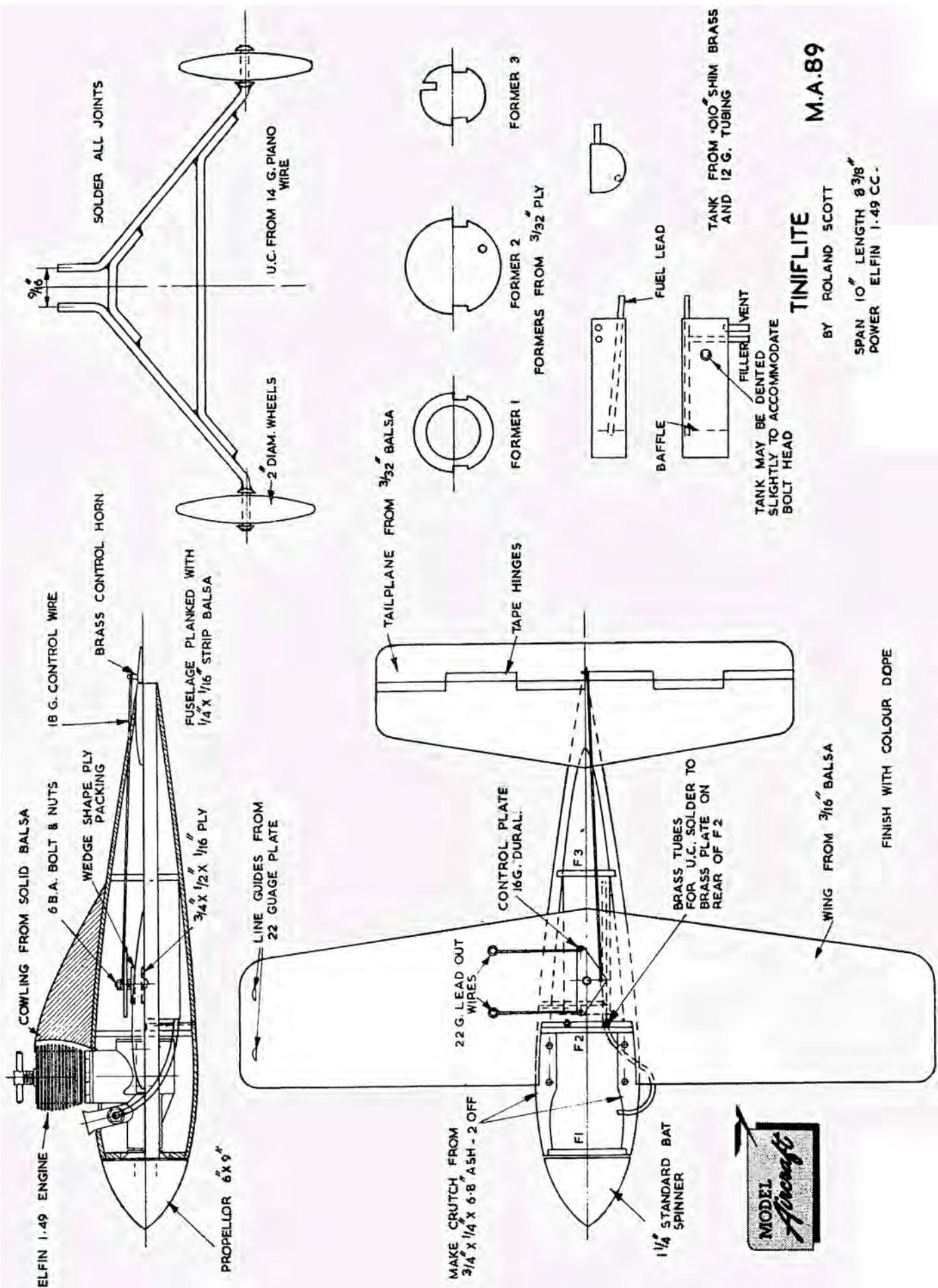


From Bryan Passey

I noticed a nice shot of an electric powered CR125 Flying boat in the recent issue of S&T. Here's a couple of shots of my similar model, that was built from the plan in the Sams catalogue. I think it is the same.

I have been modelling for more years than I can remember, must be 60 at least, and in general I've had mostly success with all the disciplines but two models come to mind that refused to fly or indicate any resemblance to fly. The first one was the Walrus designed by the Aeromodeller staff, a subject that has been mentioned in an earlier edition of S&T, the other is the CR125 electric free flight flying boat. The model does fly as the photograph illustrates, so where have I gone wrong. Perhaps the builder of this example (Mike) could put me right.





Tiniflyte by Roland Scott from Model Aircraft January 1951

Tiniflyte is a development of a model with which last year I unsuccessfully made a claim for the Class I record with 72 m.p.h. The claim was not accepted due to the fact that the engine was found to be slightly oversize when checked. The model described, however, made an officially observed flight at an average speed of exactly 80 m.p.h. and now holds the British Class I speed record. It will be noticed that a high percentage of speed merchants now fly clockwise and I believe this is a necessity to cope with the pylon in a confident manner. Of course, if you are left-handed still stick to anti-clock.

However, a few constructional notes on the Tiniflyte will help, so here goes :—

The crutch is shaped from two pieces of 3/4in. X 1/4in. x 6.8 in. ash. Lay side by side, mark out and saw as per plan. Mark the engine position and after drilling, secure the engine in the usual manner. Glue the tail end with Durofix. Whilst this is setting cut out the wing shape from 3/16in. hard balsa. File and sand to airfoil section leaving the undersurface flat.

The tail is cut from 3/32 in. balsa and after sanding to shape fix the tape hinges in position. After inserting the shim brass control horn the tail may be cemented to the body.

The 3/32 in. ply formers are positioned in the fuselage as per plan. The centre former has a brass plate secured to it on to which the undercart tubes are soldered.

The wing is cut out at the centre and can now be cemented in position.

The control plate is cut from 1/16in. dural or to save time you can trim down a commercial plate if preferred. Screw to the wing in the indicated position using 1/2in. squares of 1/16 in. ply for reinforcement.

Lead out wires are 22-s.w.g. and the control rod is 18-s.w.g. piano wire.

A special "tailor-made" tank is shown on the plan which squeezes in between formers 2 and 3. The plastic feed pipe just has to go on the outside of the bearer otherwise kinking troubles will arise. Check up that everything in the fuselage is O.K. and completely plank with 1/16 in. x 1/4in. strip balsa, cutting holes where necessary for the undercarriage tubes, push rod and lead-out wires. Sand the whole model to a smooth finish and apply two coats of clear dope sanding again after each coat.

Colour finish in your favourite dope and the job is ready for flying.

If your flying ground is unsuitable for take-offs the model may be hand launched without difficulty, provided you "whip" a little as soon as your operator releases the model. Recommended propeller size is 6 in. X 9 in. and if you are in a hurry any good commercial fuel will be found suitable. N.B. This model is not by any means flat out at 80 and experiments on the following lines should yield speeds well above this figure.

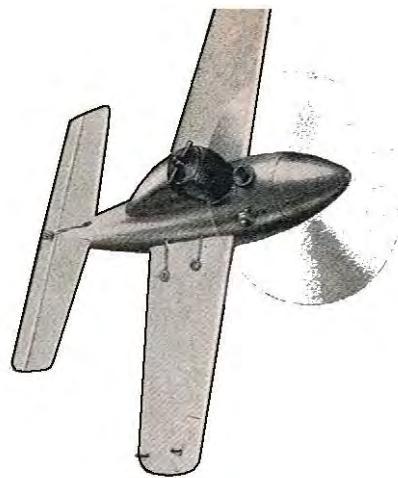
We have been told that the Elfin 1.49 delivers its maximum power at 13,500 r.p.m. and therefore the engine should be running at 12,000 on the ground. A rev. indicator is a good guide in this direction and is accurate enough for early experiments. To obtain this r.p.m. reading a little propeller chipping might be necessary, but if you start with a 6 in. x 9 in. you will not be far off. If your r.p.m. reading is below 11,000 with this propeller check your engine for tight spots and remedy with the judicious use of metal polish, not forgetting to remove all traces before running.

Fuels for diesel engines are not so "tricky" as glow plug fuels, but the following mixture seems to give just those few extra revs which may prove invaluable in a closely fought contest. It is :— Diesel oil 40 per cent., Castrol R 30 per cent., pure ether 30 per cent., to which add 5 per cent. amyl nitrate.

The amyl nitrate is useful in preventing "coughing" and allows the engine to run smoothly with slightly less compression than normal.

Tiniflyte has obviously not reached the lower limit in size proved by the fact that it has actually flown a full circuit with the undercart still hanging on and a further reduction in size should add a few extra m.p.h.

Finally, you will obtain faster speeds during the early part of the day due to cooler operating conditions, so in contests fly first whenever possible.



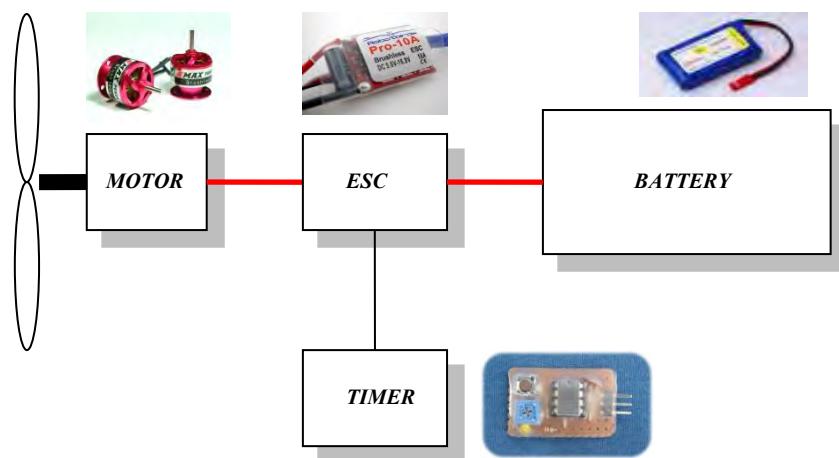
The 'Dark Side' by Den Saxcoburg



Before I start on this little missive, let me make it clear that I have no intention of going over to the 'dark side' and abandoning my stinky engines. For me, CL is the perfect way of playing with those much loved infernal combustion devices at close quarters and I intend to carry on getting oily and smelly for as long as I can. However I can see that an Electric Control Line model is more in keeping with today's plug and play, noise conscious expectations. Recently, I have 'electrified' the small CL model shown above and I thought that some of you may be interested in what was involved:-

The Electric Power Train

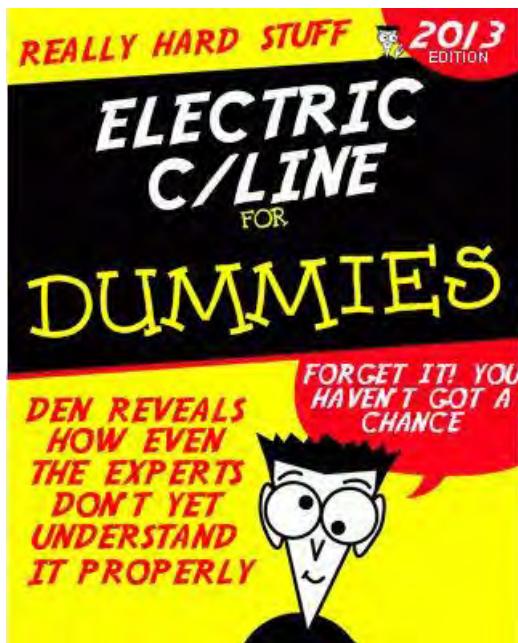
The clever clogs amongst you will already know all this but for the rest of us mere mortals, here is a diagram of the electrical bits required:-



The timer is powered via the ESC (Electronic Speed Controller) and provides motor start/stop plus it allows the motor run time and rpm to be pre-set. High Power flows from the battery via the ESC to the motor as shown by the red line. The timer can work with any size of motor, ESC and battery,

the motor is of the brushless type, the battery a LiPo, and all of this equipment has to be housed in the aircraft

Selecting the electrical bits



I'm sure that many of you find electrical component selection daunting and with good reason. This next section shows what has worked for me; it's a guide only and ignores many of the factors that will affect the final outcome. But as there is no easy system to directly compare IC Engines to Electrical Motors, where do you compare IC Engines to Electrical Motors, where do you start?

Well, consider **energy** (the ability of a system to do work)...energy comes in many flavours heat, kinetic etc. but the two we are interested in are Mechanical and Electrical energy..... a common unit of Mechanical energy is Horse Power, we all know that one don't we?....it just so happens that: **1 HP = 746 Watts**, and Watts are convenient units of Electrical energy, now we can convert energy from Mechanical to Electrical units and vice versa, handy eh! If we know the energy output in HP for any internal combustion engine, we can convert to the equivalent output required

from an electrical motor to provide the same amount of energy.

In my case I wanted to modify a design that was intended for a Cox 049 reed valve engine and after some research I found that the power **output** of a Babe Bee was recorded at 0.057 HP.....expressed as electrical power that is $0.057 \times 746 = 43$ Watts **output**. Electrical motor ratings refer to their **input** which has to be larger than the **output** to allow for efficiency losses. I guessed at a 20% efficiency loss, so theoretically my equivalent electrical Cox 049 replacement motor would need to be rated at about 50Watts.

So how are those 50 watts going to be used, to swing a big or small propeller? Electric motors can be manufactured to give the same power output at different speeds so this is a bit like gearing. A motor of the same physical size may be offered in a number of different electrical specifications which come down to the size of prop that it is designed to drive. For those of you really interested, this aspect is designated by the KV/RPM figure for the electrical motor and if you want to know more, a search on Google will return a mass of technical information. Suffice to say that a low KV/RPM figure indicates big prop, low rpm, high torque and vice versa.

Another consideration is that **Volts x Amps = Watts** where Volts is like pressure (e.g. psi) and Amps like flow (e.g. gallons/min). So this means that 50 Watts can be produced by a combination of 5 Volts x 10 Amps or 50 Volts x 1 Amp, same amount of energy produced but in a different way. If this was water then the first example would require a big diameter pipe at low pressure and the second a small diameter pipe at high pressure, same for electric, but think cable diameter instead.

So why does this matter? Well let's consider two motors of the same physical size and power output but one is electrically designed to swing a small prop at high rpm and the other a large prop at low rpm. Again, it just so happens that like the example above, the first will produce its power output with low Volts and high Amps and the other vice versa. So the choice of propeller size for a given type of motor will affect the choice of battery voltage (number of cells), the current rating of the Electronic Speed Controller (ESC) and the size of the wiring involved. To get back to this example, I would want to use a high rpm (high KV/RPM) output to drive a smallish propeller and could expect that this would mean a low battery voltage at high current.



Being a skinflint, a look under low cost motors on the Robotbirds site, identified the E Max CF range as possible candidates. These motors come with a handy detachable firewall mount so would mimic the Cox Babe Bee for installation and sell for less than £7.50 each. Here are their specifications:-

Type	Batt	Kv	Prop	Cont A	Peak	Weight	Thrust
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Type	Batt	Kv	Prop	Cont A	Peak	Weight	Thrust
Emax 2805	2s	2700	6x4	12A	16A	26g	380g
Emax 2812	2-3s	1534	7X6	15.5A	20A	38g	530g
Emax 2822	2-3s	950	10X5	10A	16A	43g	650g

The 2805 and 2812 looked attractive, designed for smallish props and having ratings well in excess of my desired 50W. I estimated this by multiplying the recommended battery voltage by the continuous current. Li Po batteries have the number of cells (and thus voltage) specified as 2S, 3s etc, One cell is about 3.7V so two cells (2S) will be 7.4V, for the 2805 motor $7.4\text{Volts} \times 12\text{Amps} = 88.8\text{Watts}$, the other two motors will obviously have a higher Wattage rating. Finally the weight and size of the both motors would be about right for the model.

Next consideration was the selection of the battery, so just a bit more on Li Po battery terminology. A battery rated at 450mAh will theoretically supply 0.45A for 1hour before complete discharge, if its rating is 25C then it can supply $25 \times 0.45 = 11.25\text{A}$ without damage for a short period. To get an idea of the size of battery needed for this application we need to see how long various sizes of battery will run the motor continuously at 50W. We can use the formula:- 60min divided by (motor current A / Battery rating Ah) = Battery Duration in mins

At 50W and a voltage of 7.4V the motor current will theoretically be $50/7.4 = 6.8\text{A}$

Physical battery details must also be considered, for example, the dimensions and weight of the battery that the intended model can accommodate. These details are easily found and in this case narrowed selection down to batteries around 450 - 550mAh, with these estimated run times.

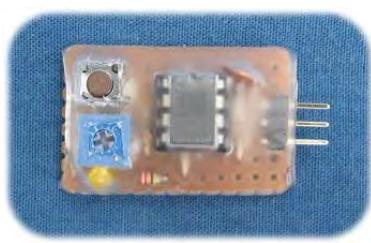
$$450\text{mAh} = 60/(6.8/0.45) = 60/15.11 = 3.97 \text{ minutes}$$

$$550\text{mAh} = 60/(6.8/0.55) = 60/12.36 = 4.85 \text{ minutes}$$

Either is acceptable, and there is only 3grams difference in battery weights, but bear in mind this is a theoretical result and in practice duration will be less. This is because battery losses increase with higher discharge rates, nevertheless this is still a useful guide.



The electronic speed controller (ESC) could now be confidently rated at 10A and was selected from the Robot Birds basic range (shown left). The timer used (shown right) was a prototype designed and built by Alan Bond, a production version will be



available from Dens Model Supplies shortly

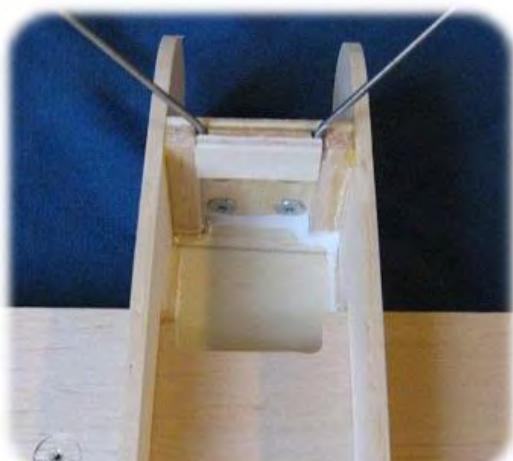
Cost and Weight

	Weight gm	Cost
Motor	26	£6.15
Battery	32	£8.27
ESC	9	£9.20
Timer	<u>5.5</u>	<u>£9.75</u>
	72.5	£33.37

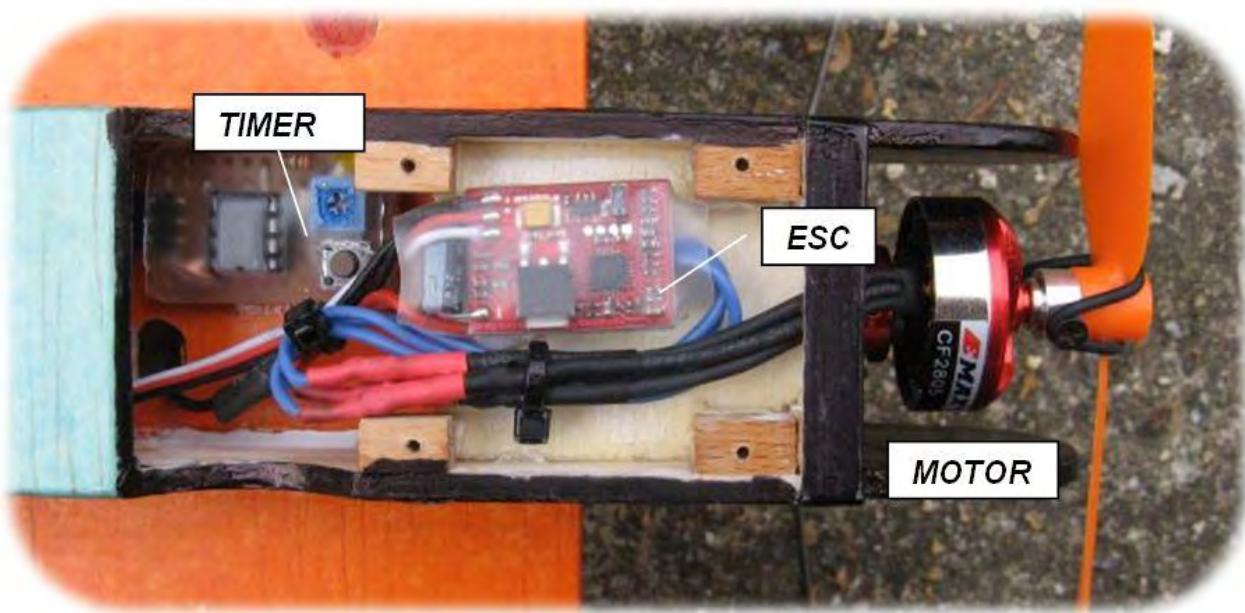
Not too bad on cost and about 20gms heavier than a tanked Cox reedy 049.

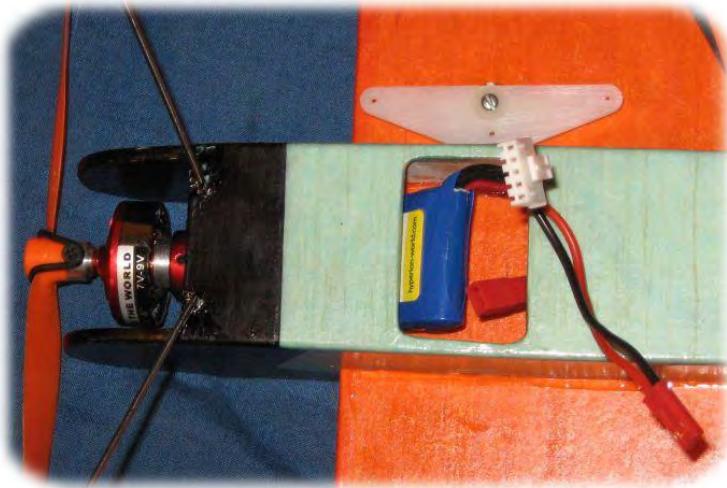
The Installation

Forward of the cockpit a removable 1/16" ply hatch was provided and a 1/8" liteplay tray installed underneath. The top of the undercarriage wire loop was shortened to allow captive nuts to be fitted to the firewall for motor mounting. A notch was cut in the LE of the centre of the wing to allow the battery to be installed from underneath

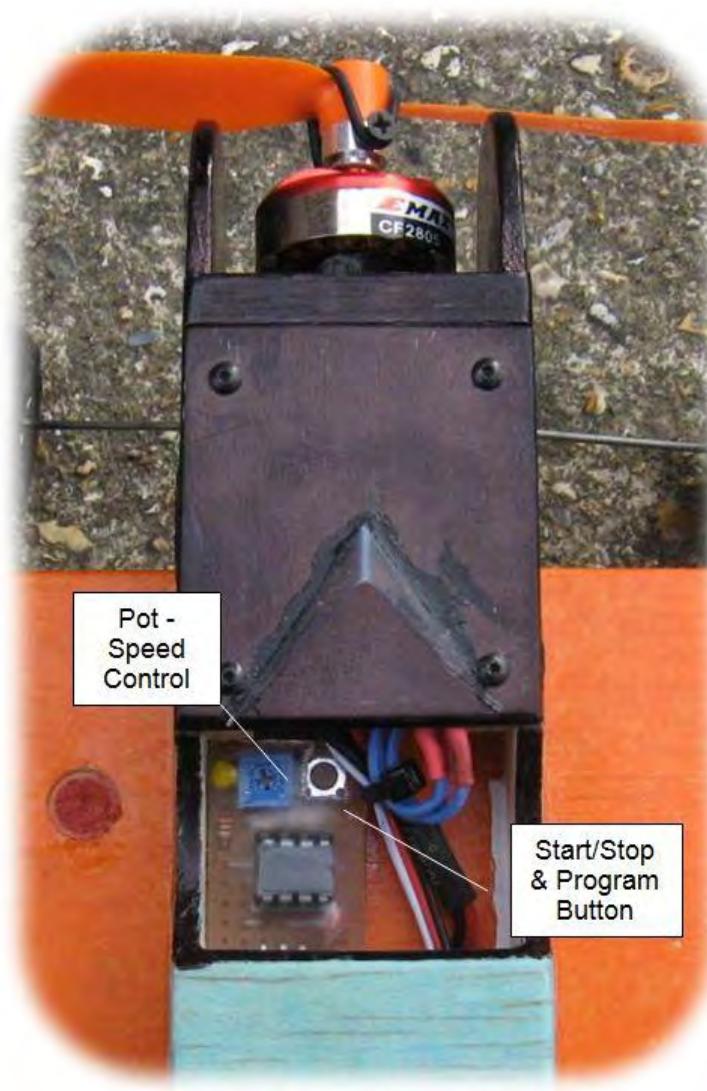


Here is the completed installation – note the hardwood blocks to take the self tap hatch retaining screws.





And here is the battery installation; it slides in at an angle, up against the firewall. The leads are tucked away below the wing to the rear and the whole area packed with foam wedges to hold it all securely in place.



Just a bit more about the timer, you can see the timer controls consisting of a potentiometer and pushbutton in the picture at the left. The pot sets the rpm of the motor and the pushbutton stops/starts the motor and is also used for programming the timer.

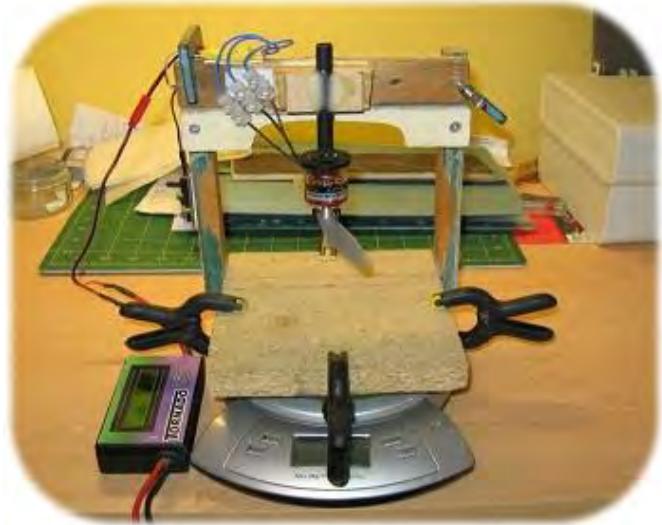
The timer is called the E-Zee Timer and has been developed by Alan Bond. This timer incorporates many useful features gained from Alan's practical experience. In particular the flight duration can be set in increments of 10 secs (novice mode) or 1 min (expert mode). This is to allow beginners or 'born again' modellers to set short flights and is also very handy for trimming.

The timer also has a unique function in that it can be set to CONFIG Mode. ESC's have a number of operating parameters which can be configured to the individual user's preferences - for example to match the ESC throttle range to correspond to full movement of the transmitter throttle joystick (or in our case the timer output) and set the low battery cut-out voltage - to name but two. When new, the ESC has the manufacturer's default settings which will usually work ok but may not be optimum for your system. The user is instructed to

configure the ESC by a sequence of operations using the throttle stick on their transmitter. The E-Zee timer can be set so that the same input can be achieved using the on board potentiometer. So you don't need an RC system to carry out the ESC configuration....clever

Practical Experiment and Results

All this theorising is fine to get an idea of what components to select, but there will always be hidden factors such as losses and efficiencies that will only show up by practical experiment. To do this, I use my 'Thrustometer' test rig (shown right) which by cunning use of kitchen scales and a cheap Wattmeter allows for some interesting bench testing. Here are some results for the 2805 motor and its higher voltage version the 2812:-



Emax CF2805 Motor powered by 2s 450mAh Hyperion CX G3 LiPo rated 25C

Prop	Watts	Thrust (gms)	Prop Type
7 x 4	73	230	APC
6 x 4	64	189	APC
6 x 3	44	188	GWS
5.1 x 4.5	62	158	APC

Emax CF2812 Motor powered by 3s 450mAh Hyperion CX G3 LiPo rated 25C

7 x 4	93	360	APC
6 x 4	72	246	APC
5.1 x 4.5	68	197	APC

Duration for both batteries on the APC 6 x 4 was in the order of 1min 45 seconds which underlines the difference between theory and practice. It's interesting to compare the performance of the 2805 on the APC 6 x 4 and the GWS 6 x 3 about the same thrust but a significant reduction in Watts for the GWS. Again this shows the benefits of practical experiment.

Flight Trials

The model has been flown with the 2805 motor on 2s and the 2812 motor on 3s battery packs, using the GWS 6 x 3 and APC 6 x 4 props respectively. Performance was adequate with the 2805 and lively with the 2812, neither combination was aerobatic. This was put down to the rather high wing loading of about 12 oz/sq ft so as an experiment a 1/2A Nobler (see right) was constructed powered by an 2812, this reduced the wing loading to about 7.5 oz/sq ft. Initial flight trials of the Nobler proved it a delight to fly but with limited aerobatic potential.



Electric Control Line (ECL) Conclusions

- 1) This is still a new field and there is much to learn.
- 2) Theoretical selection of components is fine to get started, but is no substitute for practical experiment.
- 3) Because of low power to weight ratios, small ECL models will have limited aerobatic potential unless built extremely light.
- 4) Small ECL sport and trainer types are a very practical proposition.
- 5) ECL offers Clean, Quiet Plug & Play operation

Useful Links

A You Tube video that shows both the prototype model and the subsequent ECL ½ A Nobler flying:- <http://www.youtube.com/watch?v=n2qM5Y-fmsU>

Dens Model Supplies www.densmodelsupplies.co.uk Robotbirds <http://www.robotbirds.com/>

Thanks to Alan Bond, Bob Roullier & Mick Stretch for their help in preparing this article

(Alan Bond has also written and article which also appears. JP)

Paul Helman, Evanston, Illinois.

Thanks for posting my model. have you seen the following web site?

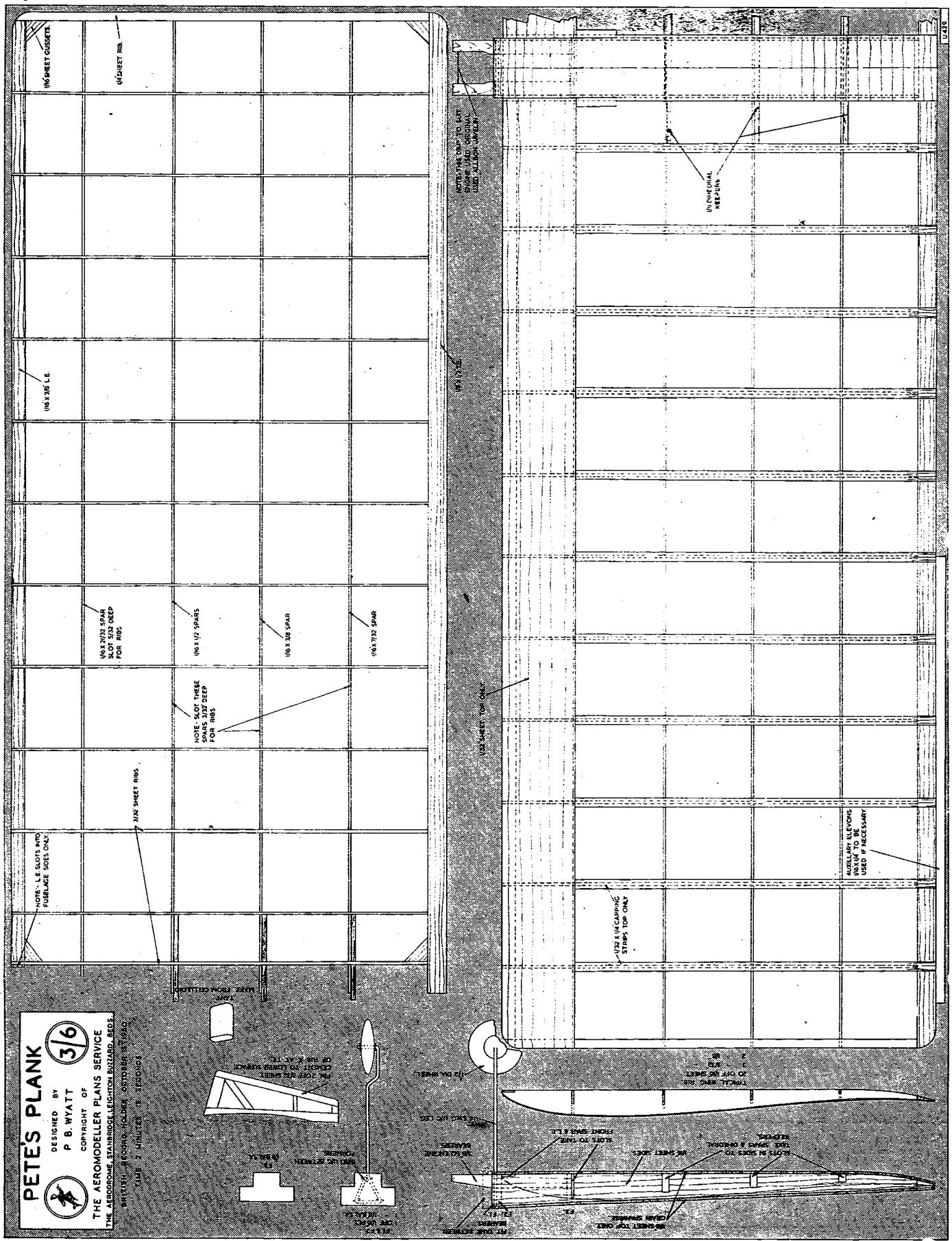
<http://cometmodelnews.com/index.html>

From Leon at Belair

PS. I met a chap at OW Scale day, who kindly gave me permission to cut his EEZ and EEZ2 CL models. His first name is David (initials are DHC). I thought his full details were on the plans, would you happen to know the person and maybe how to contact him? sales@belairdigital.co.uk



Rick Churchill sent this photo of our, DMFG, flying site which we are banished from for the duration of the Great Dorset Steam Fair. The runway is about where the Ferris wheel is! 250,000 will walk over the strip!



Pete's Plank a 54 inch span flying plank by Pete Wyatt from Aero Modeller May 1951. Build this British record holder.

The very first model that Peter Wyatt built and flew successfully was the tailless R.F.L.G. 53. There is little doubt that this has given him a good start in aeromodelling, for as current holder of the British record for powered tailless models, and always a leading competitor at power duration contests, Peter Wyatt has become an established expert.

PETE'S PLANK is the ninth of a series. It established the British record of 2 mins. 15 secs. on the 1st October last, at his home town, Ipswich. Earlier versions have exceeded 4 mins. on 30 seconds motor run, and could easily have been used to try and beat the world's record which allows unlimited motor runs. However, Pete sees little point in such an effort, and is content with this very high performance ninth design.

Incorporating a very novel and necessary d/t, we recommend this design to all tailless enthusiasts as an experiment guaranteed to be successful. Note the absence of sweep-back, and the diminutive elevons. What could be simpler?

Building Instructions

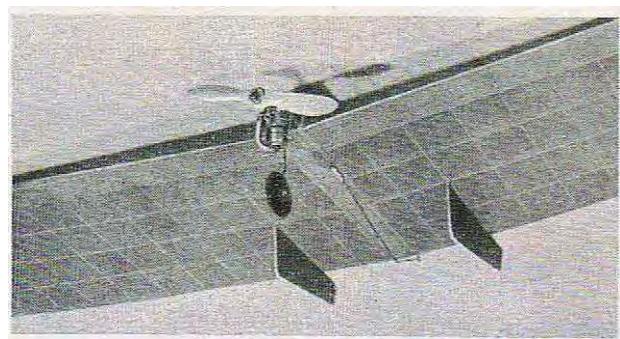
Shape 1/16 in. ply template and cut 20, 1/16 in. ribs, 4, 3/32 in. ribs from medium balsa and 2, 1/4 in. ribs from soft balsa. Pin together and sand to shape. Notch for spars, noting that slots are not as deep as spars. Make spars from 1/16 in. hard balsa and slot for ribs. Assemble ribs on spars at 2 1/4 in. spacing, except for centre ribs which are 1 5/8 in. apart. Place two halves of wing together at correct dihedral angle, and place dihedral braces on spars 2, 3 and 4. Fit 1/2x 1/8 in T.E.

Place 1/16 in. fuselage sides between centre ribs and fit 1/16 x 3/8 in. leading edge. Durofix engine bearers to fuselage sides, blind undercart to F1 and place F1, F2 and F3 in position. Sheet top and bottom of fuselage with 1/16 in. sheet and sheet and cap strip wings with 1/32 in. sheet balsa.

The original plane was covered in heavy Modelspan. After doping, give fuselage, and wing as far as the fins, a coat of banana oil to keep out diesel fuel. Fuselage can be finished off with a Mercury cockpit cover if required.

The engine bearers can be carved to suit the engine. The original had an inverted Javelin 1.49 c.c. diesel with home-made tank formed from a piece of sheet celluloid. The E.D. Bee would also be an ideal power unit. The fins are added after the wings are covered. They do not tend to get damaged, as the plane turns over in a bad landing.

Trimming



The required downthrust is approximately as shown. No sidethrust was found to be necessary. The plank will very likely be found to be nose heavy and trim is produced by using auxiliary elevons as shown. First flights were made with the engine throttled down; but a reversed prop. could have been used. It is better to R.O.G. than hand launch, since on low power there is a tendency for the plank to drop from the hand. A slight left turn on power and glide is safe, there being a tendency to spiral dive to the right.

Note

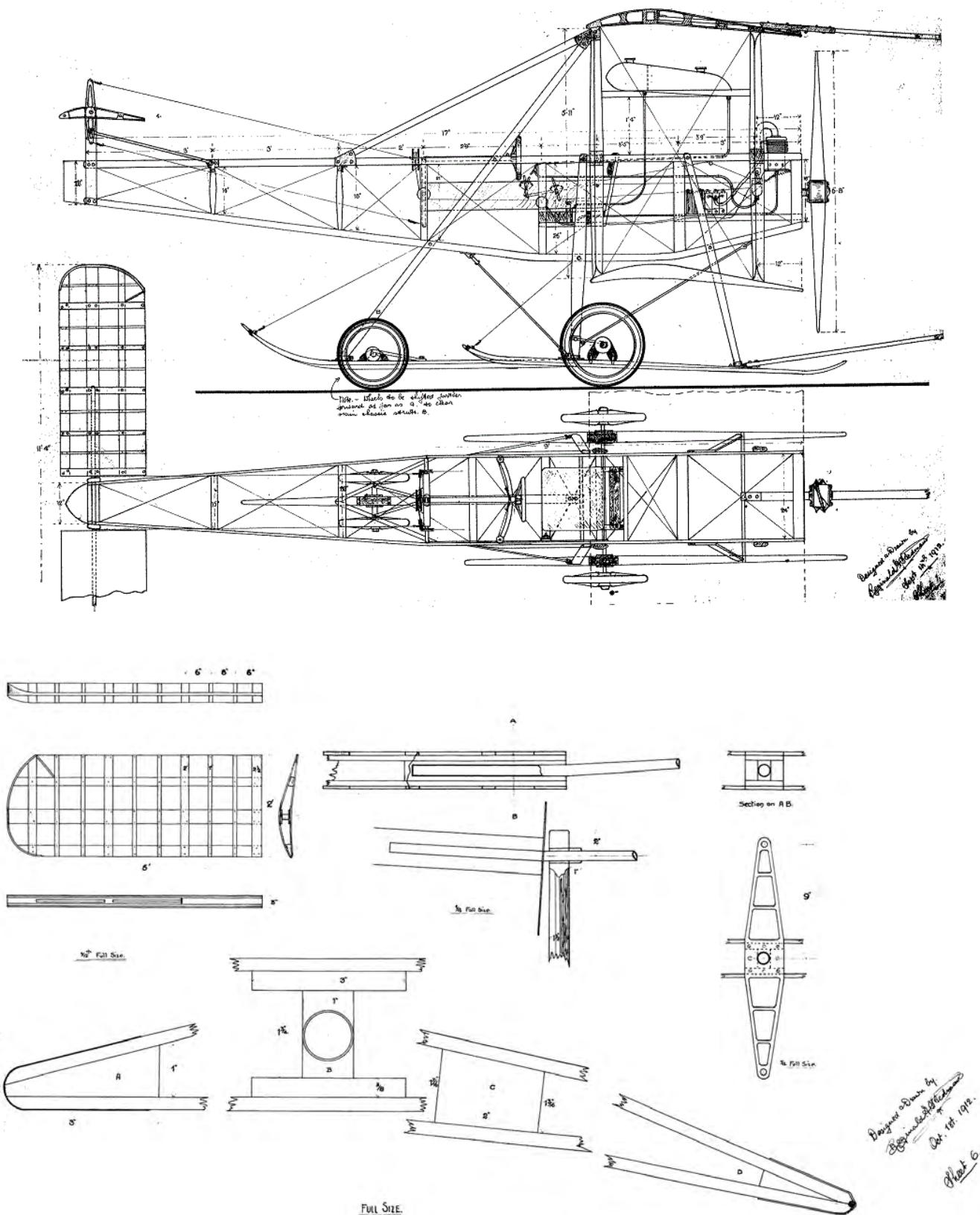
Do not have any hinged trimming tabs which can move unnoticed. All tabs should be well cemented before flying.

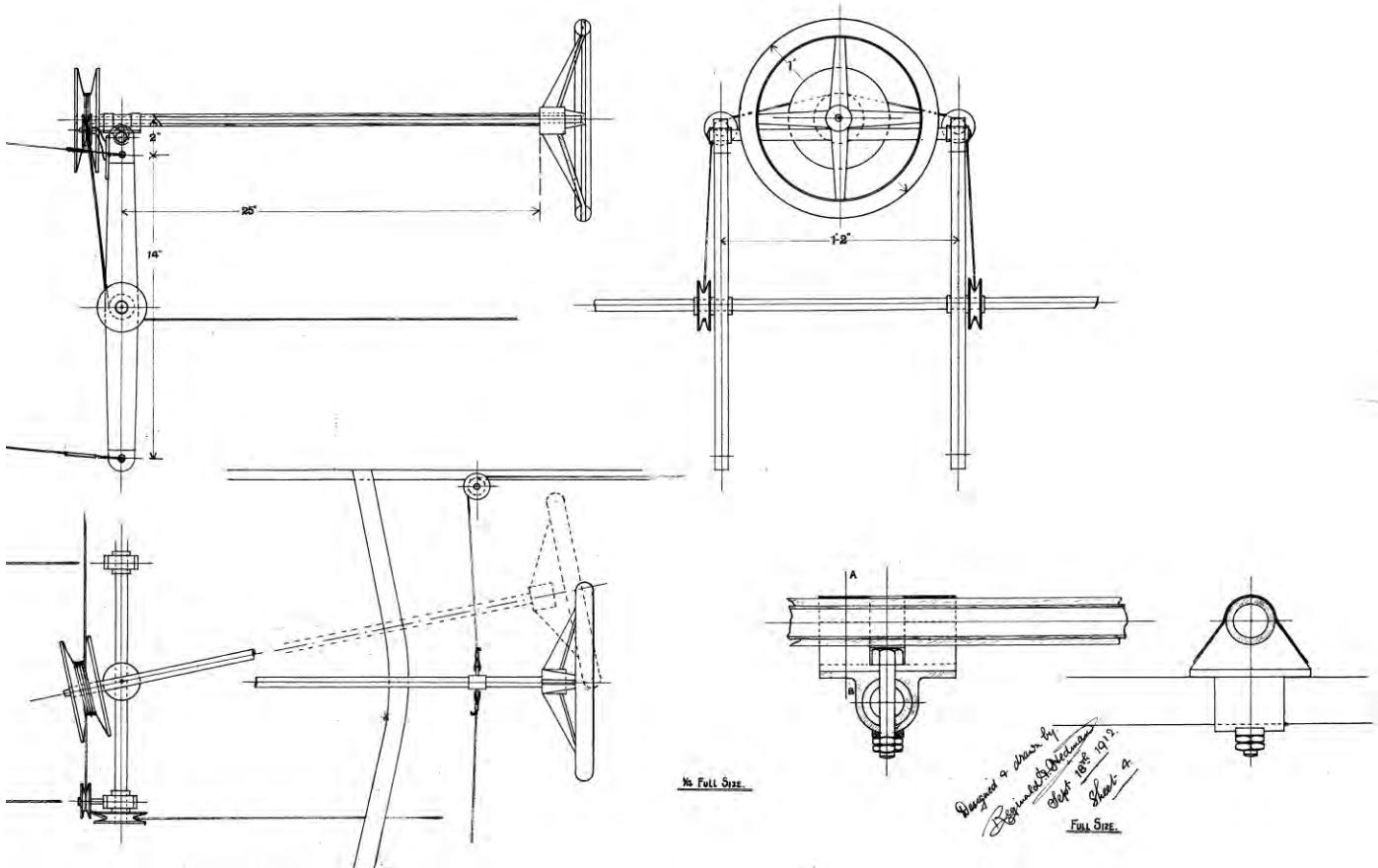
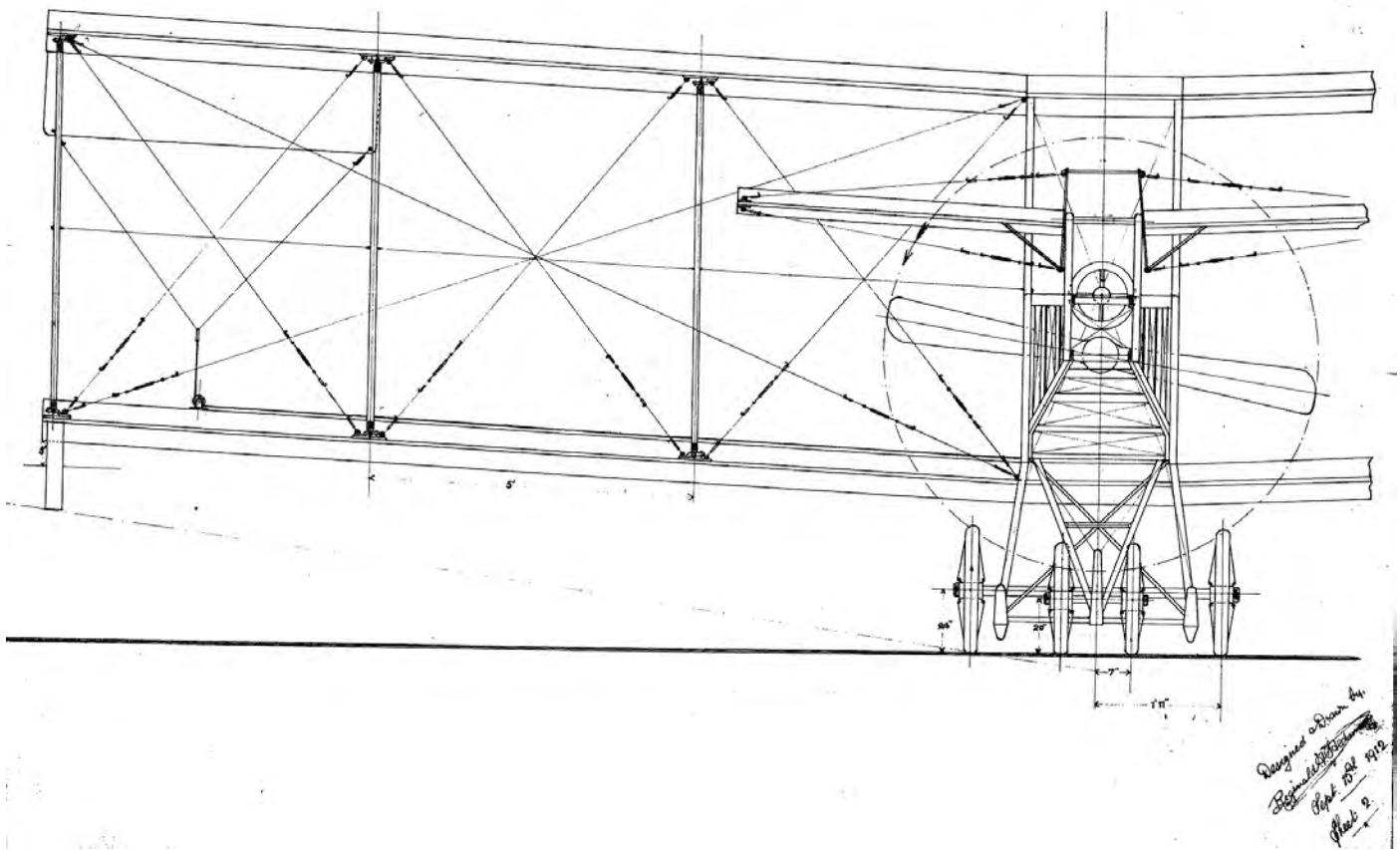


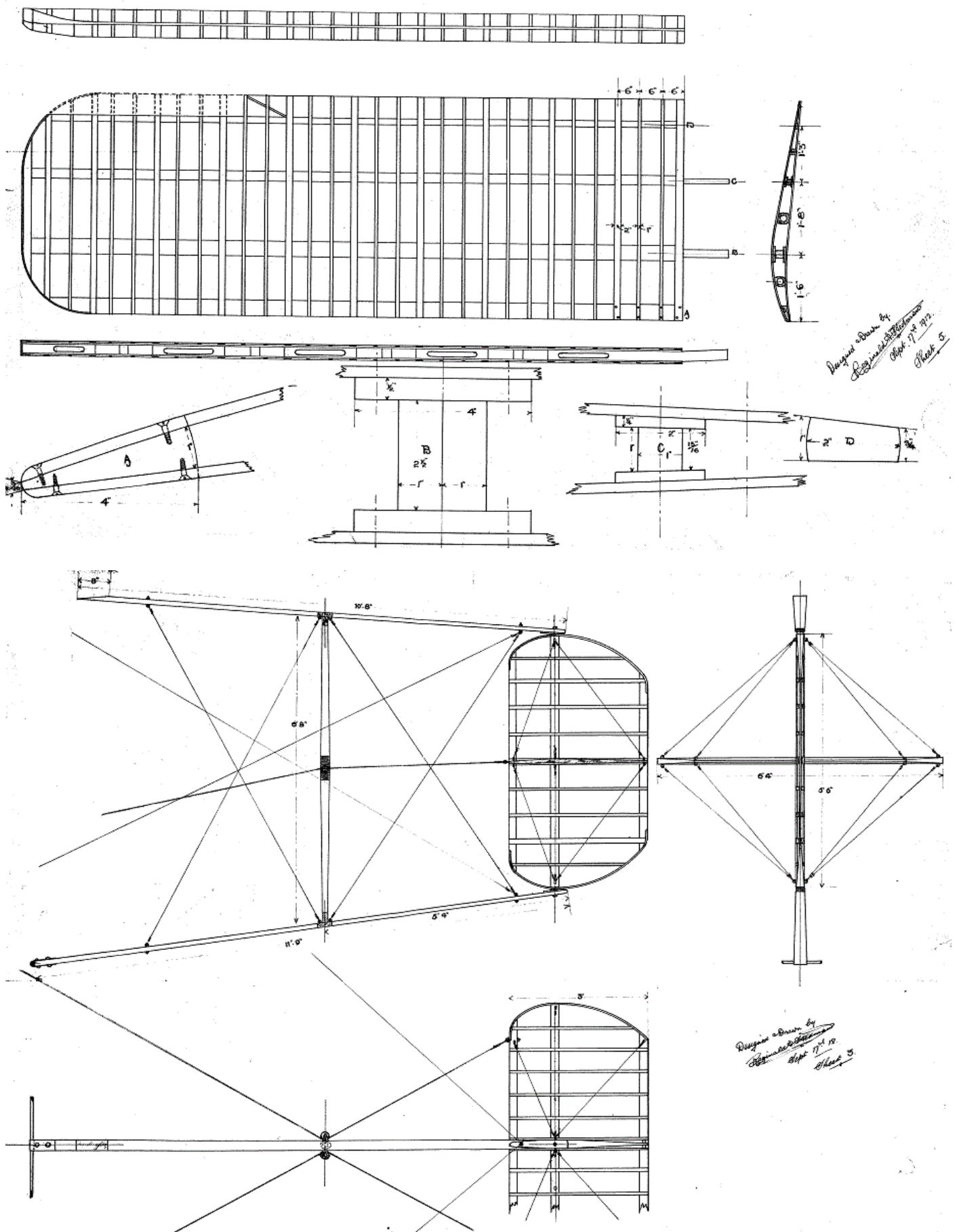
From Ian Russell

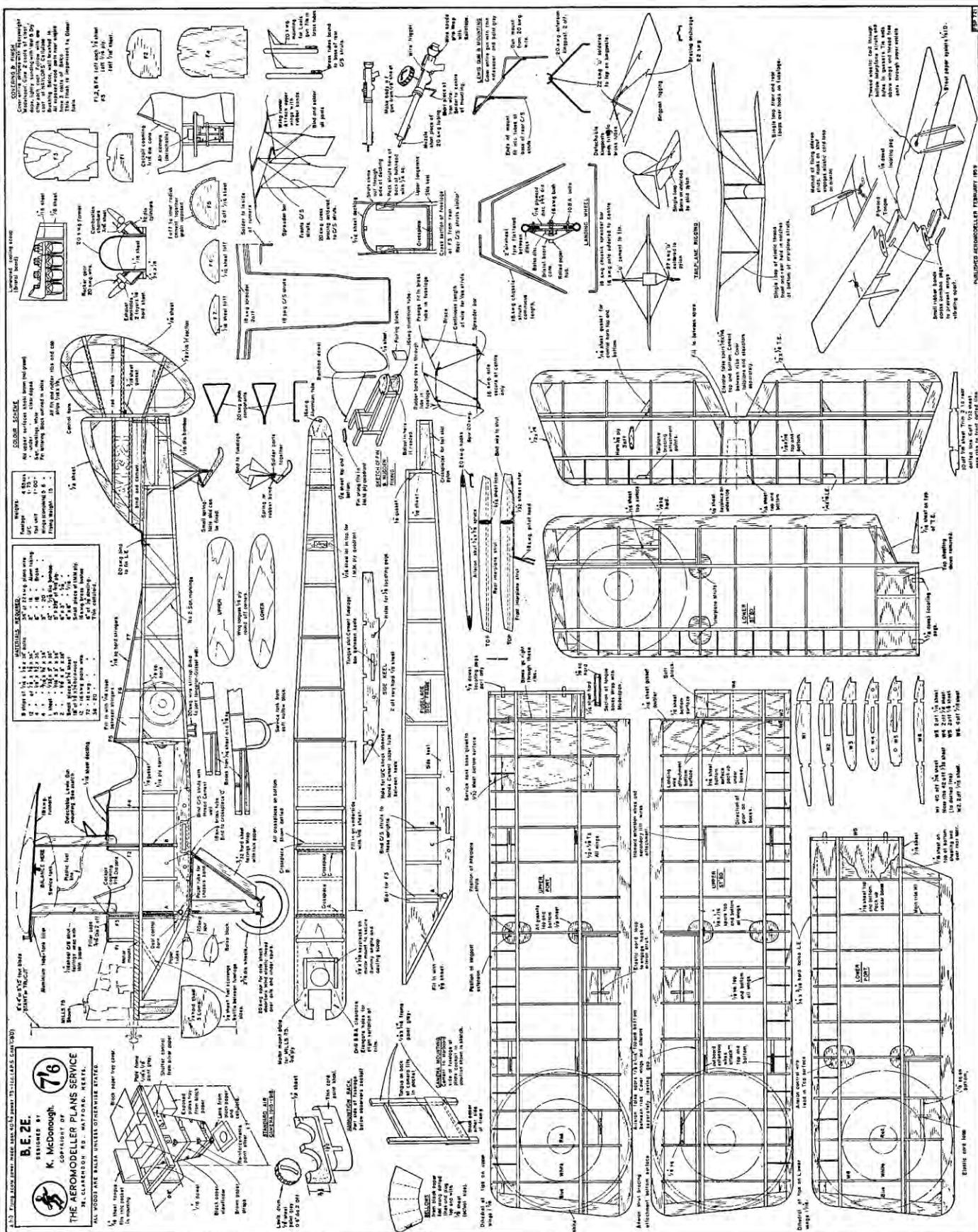
James - further to previous correspondence re Stedman/Wakefield, herewith info. received from David, author of the Stedman book.

David forwarded a bundle of Stedman plans to Greenhalgh for the BMFA archive, and for a time they disappeared. Some have now been found by Tim Westcot, see below and attachments. Feel free to use if appropriate.









B.E.2E by Kenneth McDonough from Aero Modeller February 1959. Stability was a main feature of the full-size so it is with this 40 3/4" super-detailed flying famous biplane.

Of all the BE's, the B.E.2E was the most prolific yet, strangely enough, it is one of the least well known. Virtually defenceless in combat, it was the cause of many casualties but numbers were still in service until the close of hostilities. Drawings on pages 72/73 give extensive information on the full-size aircraft and

provide supplementary detail for the 1/12th flying scale model presented here, and should be sufficient to fully satisfy the most rabid of W.W.I. scale fans. With its generous wing area, simple box-like fuselage and

square cut tips, it becomes an ideal flying scale subject—remember, a B.E.2C won the Nationals scale event last year! Building Kenneth McDonoughs design should be within the capabilities of any modeller with experience of at least one power model, and the extensively detailed A.P.S. drawing covers all possible queries. The following notes summarise the sequence of assembly.

Construct fuselage side frames over the plan, using medium hard balsa for the longerons, incorporating side

keels of hard balsa. Join the side frames with two main bulkheads F.3, F.4 then add the 3/16 in. ply engine mounting. Fit all cross members and fill n triangular nose bays with 1/8 in. sheet. Bind and cement centre

section struts and solder spreaders and runners in place, it is essential that these struts are cross-braced with

20 s.w.g. wire since the completed cabane takes all load of the upper mainplanes when at rest. Make the turtle deck of 1/16 in. sheet, add formers, stringers and remaining components, u/c tubes, 1/16 in. sheet stern pieces and fin tube, skid pylon, etc. The tailplane fin and rudder are made

over the plan.

Add cap strips, 20 s.w.g. wire prong and 1/16 in. dia. bamboo fin dowel. Ensure that key piece is true so that the tailplane is square with fuselage.

Tyres are made from 2 in. diameter air wheels and sandwiched between 1/16 in. ply discs. Secure with 10

B.A. bolts to prevent the discs buckling. Solder the u/c chassis frame and streamline it with hard balsa.

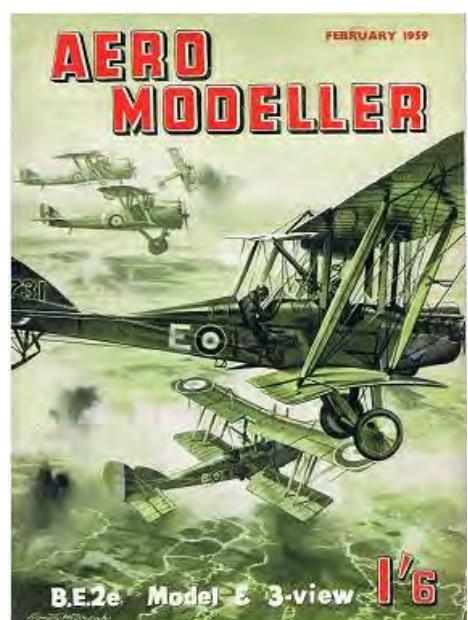


When making the wings, ribs should slide easily on to spars, check spars for warps. False ribs are added after the panels have been removed from the plan. Note that dihedral is obtained by angling the boxes, therefore, the mainplanes should be supported at correct dihedral angle with tongues and boxes in place before cement has dried. When correct dihedral angle is achieved, secure permanently by filleting boxes to adjacent ribs with cement.

Cover the entire airframe with heavyweight tissue, lightly waterspray and follow with two coats of thinned

clear dope before camouflaging. One coat of Brushing Belco gives a scale khaki, diesel fuel proof finish. Glide tests should be conducted in flat calm over long grass or heather. Check the glide as flat and straight. This aeroplane needs no right sidethrust as there is negligible torque or gyroscopic reaction. Directional trim is obtained on the rudder only, or by offsetting the engine if this is preferred. No downthrust is needed under calm weather conditions and the flight pattern is amazingly realistic.

Now get going and order your plan—there's plenty of time to build one before the '59 Nationals!



(Another WWI type which would make an excellent model as FF or RC for next year. I'll try and include more over next few month. JP).

Belair 72" Tomboy

I am decided to produce a parts set for a 72" Tomboy. I will have this ready for the September OW Vintage day. It will be the same planform as the 36, but modified structure to reflect the larger size. Parts and plan will be available as a set.

2nd email

The Tomboy 72 is now a production kit and has proven to be very popular at the Nationals.

Here are the details and you have the photos already - <http://www.belairkits.com/detail.asp?id=916>

Would you also kindly advise your readership, we will have a full range of vintage parts sets at the Old Warden Vintage Day in September.





This photo was sent Dave Bishop of the 120" promotional Belair Tomboy the lady giving an idea of scale.

The
TAPLIN
TWIN
Mk. I

7 CC

1958-61

BC

"To see this engine running superbly, click here:
<http://www.youtube.com/watch?v=8BdU5seRWUA>

I've been building this Junior 60 "on & off", for nearly 20 years, and it's finally finished at last. I've tried to keep it light, as the ultimate objective is to fly it R/E only, with an ED Comp Special. It's intended to be a "nice weather" flier (I have the Electra for windier days).

The plane is entirely tissue covered and decorated. I'm no good at painting, so the only paint is on the landing gear legs.

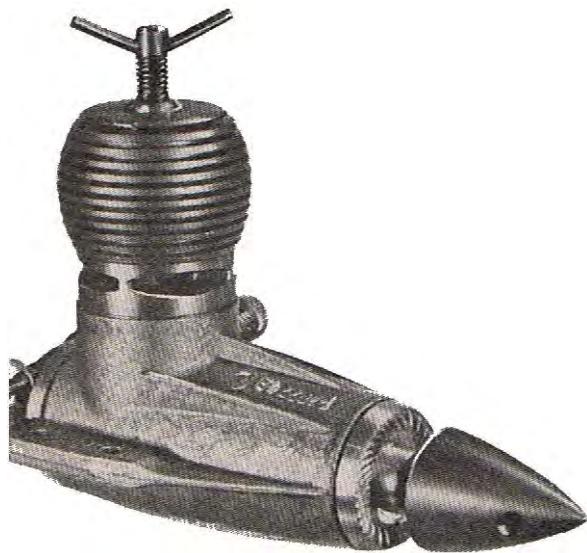
As shown, ready to fly, it weighs 2 lb 10 oz, so it'll probably fly with a Comp Special OK, but I've installed a Racer for the early flights, just to be sure we have plenty of power.

Checking the CG, it's 3 or 4 mm forward of the correct position (no problem). I've actually built a nose-heavy Junior 60!

Looking forward to the first flight. It's my birthday next week, so a successful first flight would be a nice present! Brian Cox



2.47 cc Taifun "Blizzard" Aero Modeller January 1959



The "Blizzard" is the third 2.5 c.c. diesel to go into production in the German Taifun series, following the plain bearing "Rasant" and the ball-race "Tornado". On the score of performance the "Blizzard" is a very good engine, easy to handle and achieving a high peak B.H.P. figure of .242 as measured on test at 13,000 r.p.m. But the Blizzard is not free from criticism. It is very prone to vibrate, particularly on wooden propellers, and this is apparent over the whole of the high speed range. Possibly this is due in considerable part to the very heavy piston employed (which is not counterbalanced in any way). Excessive vibration means loss of power and were the running smoother at speeds above 13,000 r.p.m., certainly an even higher peak power output could be realised without any further modification of the design.

On the credit side, the "Blizzard" is a very easy engine to handle, starting readily and with the controls completely non-critical. The reed valve makes the "Blizzard" extremely flexible and it can be throttled right down to a very consistent tick-over on almost any propeller size merely by backing off the compression.

Reed valve induction, of course, also makes the engine "symmetrical" in that it will start and run in either direction—which is always likely to happen when hand starting with small propellers unless flicked over smartly. Running proved very consistent at all speeds, with no tendency to miss at the higher speeds and equally smooth and sustained on 11 and 12-inch diameter propellers.

The cylinder gets very hot and having to grasp this small bar with sharp ends proved quite painful over the duration of the test runs. It speaks well for the excellent fit of the contra-piston, however, that at no time, despite the high cylinder temperature and the vibration, did it ever "stick" or tend to work off setting, although perhaps a little on the tight side for easy movement. Nor did any part of the engine itself work loose during all the running, although the rig itself had to be re-tightened!

The "Blizzard" was a little on the stiff side when received and even after a reasonable running in period, there was a slight high spot apparent about half way up the stroke. This, however, seemed to disappear once the engine was running and the cylinder and jacket expanded. It certainly had no adverse effect on performance. The crankshaft, of course, needed no running in, being supported by twin ballraces.

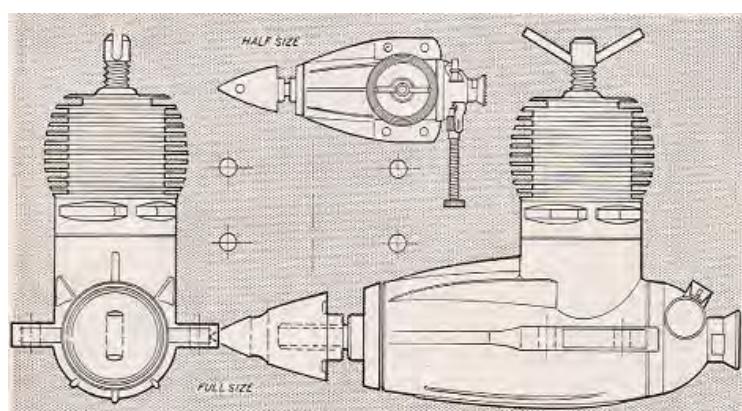


Only casting employed is the massive streamlined crankcase unit in light alloy, stove enamelled in grey, mottle finish, which houses the two ball races. Total weight (with both races) is two ounces, for a start! Quite an appreciable amount of machining is done on the crankcase including cutting a channel to clear the con. rod big end. The two identical ball races are press fitted into machined housings, the plain bearing length between them extending a matter of one half the spacing between the races only, then opening out into a larger chamber. This appeared to provide an adequate oil seal. In any case, without a crankshaft port to contend with, oil leakage should not be a severe problem. The crankshaft is of relatively small diameter (considering the proportions of the crankcase), being 7 m.m. (.2755 in.) along its length, tapering just outside the front bearing to a 5 m.m. DIN standard threaded length (a 1 BA. nut will fit this thread, as an "emergency" measure). The shaft is finished by grinding between centres and

the grinding operation appears to have been carried out with thoroughness on other surfaces as well which would not normally be considered as good production "economics" (e.g., even on the taper and the edges of the disc). This thoroughness of workmanship and finish, in fact, was apparent on several other components—production cost apparently being disregarded in favour of doing a complete job (or equally it could be argued, some of the components, such as the reed valve assembly, designed without due regard to

the most economic method of production). The cylinder is a very substantial affair, fabricated from steel and heat treated. In form it follows the original Elfin practice of cutting four semi-circular transfer passages up inside the bore and to get around the trouble of the stones digging in when honing to finish, the bore is honed from the top. Bore finish was very good indeed.

The transfer port openings overlap the exhaust to a considerable degree—almost coming level with the top of the exhaust ports. The latter are cut in a very thick flange section, taking



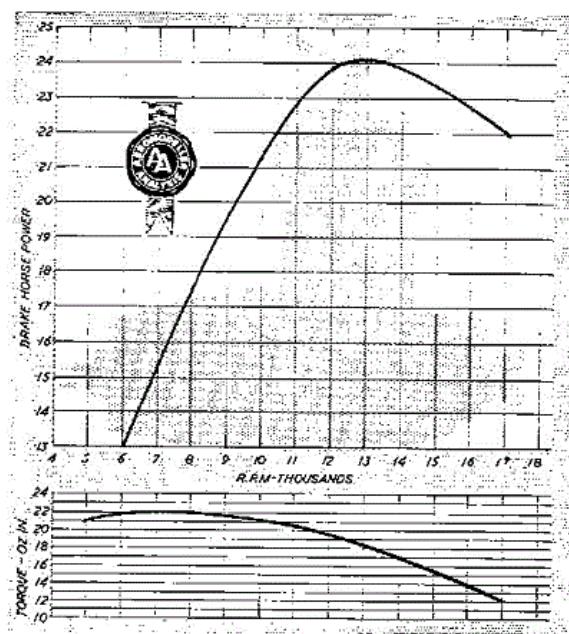
chamfered cuts from the outside, but actually yielding a relatively small exhaust port opening. There was no question of exhaust port area not being adequate, however, even at the highest running speeds (e.g., over 17,000 r.p.m.). The cylinder accounted for a further 1 1/4 ounces. The piston complete with con, rod (which could not conveniently be removed without fear of damage) another half an ounce. The piston is of cast iron, machined to very thick walls and ground externally to finish. Gudgeon pin diameter is 4 mm. (.1575 in.), this component being force fitted in the piston. The contra piston is of hardened steel.

The connecting rod is machined all over from dural or similar high-duty light alloy and in addition the big end is end milled to reduce its overall size. Big end diameter is 5 m.m. (.1965 in.). Both bearing fits were particularly good.

The reed valve induction system is mounted in the crankcase backplate, which is a turning screwing into the crankcase and sealing with a fibre gasket. A double reed in beryllium copper (or similar) is employed, held in place by a light alloy pressing, this pressing also incorporating the reed "stop". The choke tube is turned integral with the backplate and an additional hemispherical turning carrying the spraybar fits over it.

The spraybar hole opens into an annular space machined around the choke tube, connecting with the central hole via four small holes. A gauze filter is fitted in a separate turning which screws onto the end of the choke tube, this fitting also serving as a means of locking the spraybar unit to the backplate. The propeller driver which fits over the tapered section of the crankshaft is a simple light alloy turning, knurled and bossed. The boss diameter is an unfortunate size for British practice—just 1/32 in. over 3/8 in. so that a 3/8in. drill does not open out the propeller hub hole quite enough. A turned spinner nut is provided in place of a plain nut, again bossed with the same 13/32 in. diameter.

Summarising, a well made engine with a unique design approach and a performance good enough to rate it well up in the 2.5 c.c. class. The quality of the workmanship throughout was most commendable and the extreme flexibility given by the reed valve is a most attractive feature. The vibration experienced on test may not prove troublesome on a model, but is again a feature which we do not like to see on an otherwise excellent runner.



PROPELLER—R.P.M. FIGURES		Fuel used: Mercury No. 8	
Propeller dia. x pitch	r.p.m.	Propeller dia. x pitch	r.p.m.
10 x 6 (Frog nylon)	8,400	9 x 3 (Tiger)	11,800
9 x 6 (Frog nylon)	10,800	8 x 4 (Tiger)	14,000
8 x 8 (Frog nylon)	7,400	8 x 3½ (Tiger)	14,600
11 x 4 (Trucut)	7,500	6 x 9 (Tiger)	14,150
10 x 4 (Trucut)	7,800	7 x 4 (Trucut)	15,200
9 x 6 (Trucut)	8,400	7 x 3 (Trucut)	17,000
8 x 8 (Trucut)	8,000	10 x 4 (Stant)	8,000
8 x 6 (Trucut)	10,100	9 x 5 (Stant)	10,200
8 x 4 (Trucut)	13,200	9 x 4 (Stant)	10,500
8 x 3 (Trucut)	13,700	8 x 6 (Stant)	11,200
7 x 9 (Trucut)	10,100	8 x 5 (Stant)	11,900
7 x 6 (Trucut)	11,500	8 x 4 (Stant)	13,500
		7 x 6 (Stant)	13,600

Apologies

Due to late issuing of S&T the advert for the Peterborough meeting to be held today Sunday 1st September was not included

From Dave Ashenden

As I mentioned recently, I have now finished my SOUTHERNER MAJOR - attached are some photos (for S & T maybe.....). Details are Wingspan = 81 inches. Powered by an OS 52FS engine. Built from a 'parts set obtained from BELAIR - assembled to a plan from BEN BUCKLE Plans, finished/covered in Solartex Vintage Satin material..

Why did I build it? - well it's a model I've much admired since I was a lad, gorgeous shape etc, I first saw one being flown (FF) at the Northern Heights Gala back in the 50's and of course I could use those wings on a 'SLICKER equivalent - If I can get hold of a plan and engine
First flight - imminent!





Peter Lambert

Attached are some pics of my latest model of a German primary glider of the 1930's, the SG 38 (literally a sticks and tissue job) as you can see from the pics. My version has a small bell motor fitted in pusher mode behind the pilot, which provides more than adequate power for a brisk climb. In spite of the draggy fuselage and the 'plank' rectangular wing, it has a very flat glide and and thermals easily.

Although the full size glider had ailerons, my model does without these by having slightly increased dihedral incorporating washout at the tips. It controls well on rudder and elevator only plus of course motor control.

The bell motor is a 1450 Kv type turning a 7 x 5 prop. The prop diameter had to be limited to fit in the available space, hence the high rev motor. Battery is a 1200 A/h.

Many Luftwaffe pilots had their first flight experience strapped to a SG 38 and being catapulted from a hill using a large bungee system stretched by means of a team of energetic runners.

There is something of a revival of interest in these gliders and a number of very brave individuals are now flying these, having been towed to a great height by a powered aircraft. In fact a search on You tube (type in SG 38) will produce some good action videos.

One of the hazards when flying model gliders here in Tasmania are the wedge tailed eagles which rightfully regard thermals as their property. On these occasions swift avoiding action and a rapid descent is called for. One of the pics shows such an encounter. Fortunately my SG 38 survived.







Bill Wells

I have been asking myself why I like ‘Sticks and Tissue’, is it the older types of model, is it the tales of how a particular model came about or the snippets of nostalgia of things that have past me by? Perhaps all of the above but what I like to see are other peoples models and perhaps a little bit of history behind each model. Well that is what I like and I hope my meagre contributions may be of some interest to you.

It was one of those lovely sunny days in the summer of 2001 when the club secretary arrived at the field with one of his latest creations plus a very antique looking model. It was getting late in the day and most of the flyers had gone home but I stayed because I wanted to see this older model fly. It had a lovely pair of tinted see through wings with a slight taper towards the tips (if I have remembered correctly) and sported an OS 26 four stroke. To hell with the ARTF Trainers made by some poor little woman in some far off Eastern Country this was a real model and I wanted to see it fly. The engine was duly started and it lifted off so effortlessly compared with the rush and fury of the nose wheel types seen earlier. After a while the owner became a bit bored with the proceedings and reclined against a goal post while throwing the odd loop and steep turn. This is real model flying I thought! The thought didn’t last long! The model entered a steep spiral and very quickly crashed very close to us! The engine bounced over the turf and those lovely wings snapped in two. I was upset that I goaded our man into flying the model. Looking at the remains, the reason for the crash was obvious the closed loop rudder had a small tang of wire which was quite happy moving one way but going back the little barb caught on an elastic band holding the tail plane on. So with almost full rudder the model was doomed. Little did I know that this incident was the beginning of a very long association with a model called a Halifax Spartan.

In those days we had club nights at the field so I duly arrived after work the following Thursday. I was presented with the mortal remains of the Spartan’s fuselage less servos, radio, tank but with a very nicely finished intact spare wing. ‘Well if you don’t want it I am gonna burn it’, the man said! Not one for looking a gift aeroplane in the spinner I gratefully accepted the poor thing. Back at the shack I looked at the remains cleaned them and kept looking at them until I figured out what to do. It needed an old

type of engine, about 19 size should do, so I ferreted around and found a McCoy 19 Blue Head R/C. It had an exhaust chopper and no silencer but I would worry about that later on. Now I had a problem because the engine was very light compared with a OS 26 FS and I have a particular loathing of lead. So I extended the nose by gluing new engine bearers to the inside of the old ones and fitted a 6 oz tank where the engine should have been. OK so I lost that short nose look but it is not a scale model and it solved the lead problem. The rudder was given more clearance over the rubber bands and a push me pull you single push rod was fitted. The model flew well from the very first flight (21st November 2001) but it didn't like grass tufts or light winds, when getting off the ground could be a nightmare as the model is extremely prone to ground loops. If the wind was light just a little power to get it moving was the answer to the ground loop but if the grass was a bit long the extra power to overcome the drag is likely to promote a ground loop. The model has the advantage that if too much power is required to overcome the drag of the grass and ground loops result then it hand launches very easily. I flew this model for four years without really doing a lot to it. I personally loved the bark from the open exhaust when opening the throttle (lifting the exhaust Chopper) from the silence of idle power. I made a flat silencer for it after complaints from club members. In the end I had a sort of routine starting low level round the field then high up for loops and right rolls (yes it rolls right with just the rudder and elevator) stalls including a very violent full power stall with a flick against the engine torque. Then I would go to reduced rates and just climb until the engine stopped and then do a lazy 4 or 5 minute glide back to the field. Well one evening this routine all went terribly wrong. It was a hazy evening, the sun was low, illuminating the haze from below. There was a stiffish westerly wind at height but was calm near the surface. I was at the end of the routine climbing to get the long glide back when some little beastie flying things just got too much and I took my eye off the model for a second or two while swatting these horrible creatures. I looked back up and the model was very high and going down wind rapidly. Not a problem just turn it back I thought! The model then did some crazy manoeuvre from which I couldn't work out which way it was pointing but all the time it was going down wind fast and getting smaller and harder to see. I tried again and again but the model was getting away from me all the time. The model was now well over the Loch which is to the east of the strip. I ran down to the Loch edge to try and see better, closed the throttle applied full right rudder and up elevator and held it there, it was no use as the model was in the haze I couldn't see it. I spent sometime staring into the last known position and at the loch surface in the distance but no splash was visible the model had gone. My worst mistake was leaving the model on high rates which explains why I could not work out what happened on my first application of rudder. The sad fact remained that the model was lost.

PS. RIP gone forever but not forgotten!!!!!! The photos are not of great quality as my camera at the time wasn't the best. The pictures of the Plan, which had been rolled up in the box for a number of years, were hastily taken at a bring and buy sale. I didn't buy the kit!!! As already mentioned I have made a Sunduster, in ironing out problems it has flown on a Enya 19, Enya15, OS 10 FP and now has an OS 15LA. There are a lot of little mods required to convert it to an R/C model which if you think readers might be interested I will describe in due course. My Sunduster weighs 3.25 pounds without fuel or elastic bands, it first flew on 26-11-2011. BW



Sft. SPAN CABIN POWER MODEL.

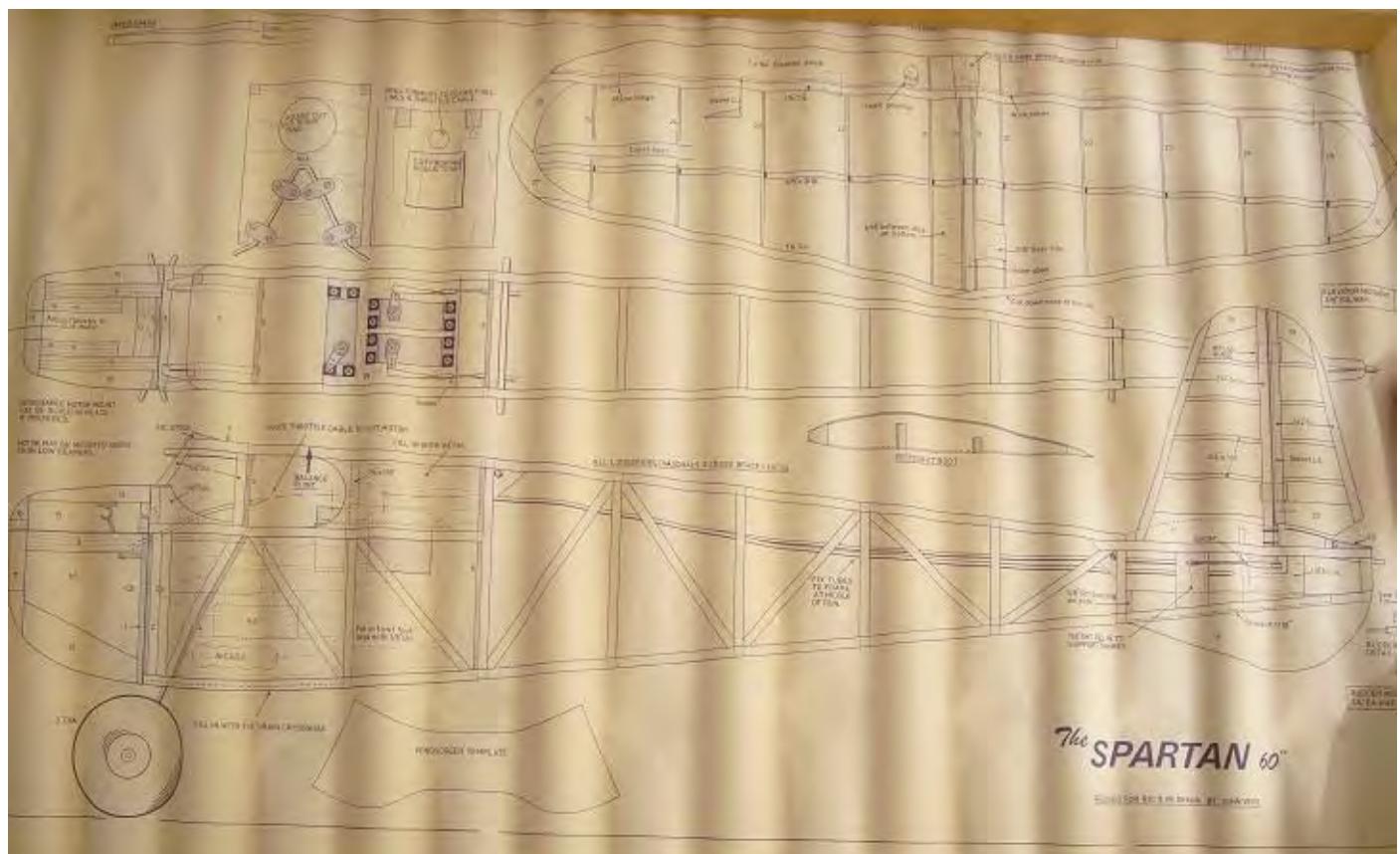
A new HALFAX production, the "Spartan" is a contest proved model having a number of successes to its credit—amongst them the 1946 S.M.A.E. Hamley Trophy, a first place at the 1945 Northern Area Rally, and winner of the Bradford Model Aircraft Club Petrol Model Trophy.

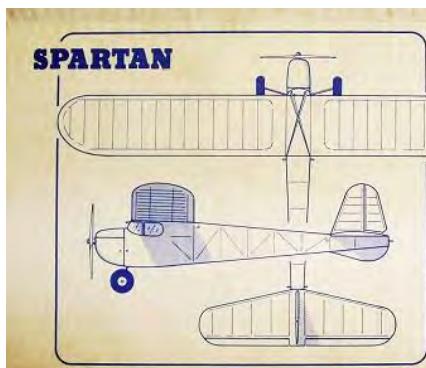
The kit is quite complete with first class materials, including strip and sheet balsa with printed out wing ribs, covering material, cement, dope, wire and other accessories. Full scale detailed drawings and comprehensive building, covering and flying instructions are, of course, supplied.

PLAN AND BUILDING INSTRUCTIONS ONLY.
10/- POST FREE.

HALFAX
PRODUCTS

Kit Complete. **45/-**





Winner - 1945 Northern Area Rally.
- 1946 Hamley Trophy.
Originally kitted by HALIFAX MODELS LTD.

- * Revised for 2 or 3 function radio.
- * Handcrafted ply & balsa parts.
- * Ample selected stripwood.
- * Pre-formed undercarriage.
- * All radio linkages, snakes etc. included.
- * NEW Full size plan with radio installation detail.

Span. 60 ins. L.O.A. 36 ins. Area. 435 sq.ins.
Weight. 2 lb 14 oz. Wing loading. 15.3 oz/sq.ft.

Modern motors 15 to 25 cc. Vintage motors 2 to 3.5 cc.
Ideal for small 4 strokes.

Further items will be needed to complete the model as illustrated.



Allan J Knox, Blenheim NZ

I haven't been doing much new vintage but my old (but new to me) T31 glider almost qualifies. It was built for static display by a work mate but he wanted to get rid of it so I gave it a new home and converted it to flight. It was to an old RC Modeller plan I think from many years ago and has a span of 104 inches from memory. It glides a bit like a telephone box but I have had over 15 minutes out of it off an aerotow in good lift. Usually it races the tow plane down. It has rudder, elevator, ailerons, spoilers and tow release and weighs about 5.5 pounds.

It actually flies very nicely and tows easily as long as you hold 1/2 down elevator all the way up. You can actually see the down in the photo. I hated it at first but now it is setup correctly it is very nice to fly.



Cocklebarrow Farm Vintage R/C 11.08.2013 Tony Tomlin

After the disappointment of the cancellation at short notice of the first meeting in June, which would have been the first of three planned at Cocklebarrow Farm for 2013, the second meeting went ahead as planned on 11.08.13. The cancellation was due, at the very last minute, to the normal field being unavailable. Our thanks go to the farmer who found us another field, but this unfortunately turned out to be unsuitable for safety reasons, due to a large country fair taking place, in very close proximity.

Weatherwise we were lucky as it was dry and sunny for most of the weekend with only a couple of short periods when a gusty wind made flying difficult.

Although the main flying day is Sunday, a good numbers of fliers arrived on the Saturday for the two days. There were only a few short periods when models were not seen flying. The following day from 8.30 onwards close on sixty fliers signed on, bringing around 120 models with them.

Models as always ranged from the very small to the very large. The Chatterbox, by Richard Edwell and the Sharkface by Chris Bishop were probably the smallest with a number of Majestic Majors, Falcons, Scrams and Shrimpos often seen flying. Electric models seem to be more common at each event and Boycott Beal had brought along a 'squadron' of models. This consisted of a Thrush Mite, a Spearhead, a Gas Buggy and a Shrimpo, either large models in their on right or scaled up. Amongst some interesting models seen were the Mystery Man, designed by Albert Weathers and built by Paul Howkins, the very stable Pou Du Ciel by Dave Lovegrove and the

1923 Pander built by Chris Turner and powered with his own home produced horizontally opposed twin. A couple of early R/C aerobatic models were flown by John Mellor, these were an Astro Hog and A Half Tone. Tony Tomlin flew a tatty [my own words!] Vick Smeed Ballerina powered with a 'Boddo' 1.5 inline twin which sounds like a swarm of angry bees but could easily be identified. Tomboys as ever were there in a good number most flying in the popular Tomboy competition. It was also nice to see Derek and Val Foxwell there after a two year break following Dereks major heart problems.

Tomboy 3

Numbers were down to half the entries we had at the same event a year ago with eight lining up for the flyoff having made their two qualifying flights. The contestants were mainly seasoned Tomboy fliers but we were pleased to be joined by John Salmon in his first event. Ian Andrews was the starter and as the start board was lowered all got away. Stephen Powell was out of luck with an engine cut as he launched and recorded 22 secs. John Salmon followed landing at 2 minutes having enjoyed his foray into Tomboys. Ted Tomlin who had qualified well also fell out of the sky finding no lift, landing 10 seconds later. All the rest had climbed to a good height with 13 year old James Collis the highest. Bob Young was doing well until he hit the well known Cocklebarrow 'hole in the air,' landing at 6mins 25secs followed Tony Tomlin followed a few seconds later with Chris Bishop claiming third place spot on 9 minutes four seconds before Brian Brundell in second place leaving a very pleased James Collis the winner.

Results

1/ James Collis 9min 40secs, 2/ Brian Brundell 9min 04secs, 3/ Chris Bishop 9min.00secs, 4/ Tony Tomlin 8mins 41secs, 5/Bob Young 6min 25secs,
6/ Ted Tomlin 2min 10secs, 7/John Salmon, 2min 00secs, 8/ Stephen Powell,
22 secs.

Tomboy Senior

Eight fliers made the mass launch flyoff for the Mills 1.3 powered, Tomboy senior class. Apart from Roger Briggs, from Sidcup in Kent, who was flying in his first TBS competition the others were regular Tomboyists. Again Ian Andrews was the starter [thank you Ian] and, with the conditions now more blustery, the models got away together and climbed, as a number of the many onlookers exclaimed, 'in formation'. There was no coming together of wings and within a short space of time the models were high all looking for lift, before their fuel run out in around two minutes. First down was Ted Tomlin, not having a good day, at 3min 28secs followed by Derek Collin, 24 seconds later. Peter Rose who has been the most successfull TBS flier this year was uncharacteristically down around 30 seconds later with a fuel blockage. He was followed by Tony Tomlin at 5min 07secs and then Chris Bishop a few seconds under 6 minutes. At this point Barrie Collis and Bob Young were steadily descending, with Barrie claiming third spot a few seconds over 6 minutes and Bob a minute later. We all looked for 'new man' Roger Briggs who was literally

cloud busting and seemed to be parked in the sky. It was suggested that Roger should get down or miss the prize giving! He eventually swept in to land squarely on the strip at 14mins 29secs. to applause from the fliers and members of the public.

Results

1/ Roger Briggs 14mins 20secs, 2/ Bob Young 6mins 59secs, 3/ Barrie Collis 6mins 02 secs, 4/ Chris Bishop 5mins 53secs, 5/ Tony Tomlin 5min 07secs, 6/ Peter Rose 4min 44secs, 7/ Derek Collin 3min 52secs, 8/ Ted Tomlin 3min 28secs.

Shortly after the fly off the prize giving took place where the raffle was drawn.

A mills .75 replica [donated by Peter Rose] was won by Dick Blenkinsop and a water colour of fliers at Cocklebarrow Farm painted and donated by Tom Payne was won by a delighted Garth Pierce. £117 was raised for the Air Ambulance Service.

The Cocklebarrow events that have been run by Paul and Val Howkins for +23 years with help from Mervyn Tilbury and friends do take a terrific amount of work to organise. Apart from liasing with the farmer there are the safety tapes and stakes to be fitted, The toilet tent to construct, the grass to cut for the strip, the car parking to marshall, the signing on and transmitter control to run and many other tasks. Any help in these tasks is always welcome. **It should be remembered that the toilet facilities are for everyone in the field to use. The Farmer has made it very clear to the organizers that using the woods and adjacent fields is, for obvious hygiene reasons, not acceptable. Failure to follow this rule will lead to loss of this venue.**



Boycott Beal's line up [Heron, Major Tom, Thrush Mite, Spearhead Junior, Shrimpo.



Paul Howkins with Mystery Man



Happy Tomboyists T3 Flyoff.



**Derek and Val Foxwell
Howkins**
[Old School Model Aeroplane factory]



Mr and Mrs Cocklebarrow [Paul and Val



Model line up shot.

John Laird wrote this regarding Cocklebarrow

There was a good turnout of modellers and models. There was quite a variety of models and I took a few photos which I have posted in rc groups vintage forum. link is here
<http://www.rcgroups.com/forums/showthread.php?t=1975291>

From David Turner regarding Cocklebarrow

A few video oddments taken at the Cocklebarrow vintage meet, in August of 2013. Video is a bit longer than I would have liked ... but I wanted to include as many faces as possible ... everyone likes to see their mug on Youtube. Cocklebarrow is amongst the best of the year's events which I attend ... that's despite the 400-odd miles of driving ... and despite the many failings of the flying site. It's organised with such a light touch. Recommended.

http://www.youtube.com/watch?v=Z0ipSD0B4_A&feature=c4overview&list=UU4HLk42VM0CCjglQ2KPCYdA

More Cocklebarrow

I haven't been able to get to Cocklebarrow for a couple of years however that weekend I was going up to Stratford on Avon for a week and it coincided with the meeting and driving from home took me within a few miles of the site so late Saturday afternoon I called off to see what was what. Now this is a Sunday event of vast proportions so I shouldn't have been surprised to see the parking area just about full not only with cars but tents, campers and caravans. It seems the Saturday is now supports quite a few modellers all eager to have a fly. So out came the camera.



Mervyn Tilbury's fleet



Nick Skyrme's Frog Cirrus



Tony Tomlin's fleet with Stephen Powell in background



Stephen Powell's D B Models kit Cirrus Moth



Stephen's KK Falcon



John Laird's Majestic Major



North Cotswold MAC meeting Sunday 11.8.2013

The day after I visited Cocklebarrow it was by coincidence, or was it, that on the list of gardens to visit one Chastleton House was all but next door the above meeting, so how could I not pop in.

The event was over two days and as with Cocklebarrow I turned up on the wrong day as numbers attending were low due to Cocklebarrow and Middle Wallop on the same day plus another meet the name of which escapes me. What a great pity several excellent meetings and all on the same day. The day before was a hive of activity. It's bound to happen as dates are worked out probably in the winter and there being no real way to discuss so conflicts arise. The bigger events of course will succeed although diminished as with that weekend.

Still it was great to see an excellent site with those members there enjoying themselves and of course with RC and some CL and FF taking place all great stuff. The organisers as organisers do that is put in a lot of effort. The only person I knew was Simon Rogers who is always to be seen at Middle Wallop so I guess he was in a dilemma.

Fingers crossed the organisers of these great events communicate before dates are confirmed. I'll let the photos say more than I can.



Flight line on the RC side



An electric ballerina





Simon Rogers and Gray getting to grips with starting 2 Cox 049 engines on their CL model



2.4 Control line CARRIER-DECK - by Chris Hague

As a teenager prone to dizziness when spinning around I seem to remember that five laps was one lap too many when trying to fly control line models, but then we had usually spent all day trying to start the diesel engine - that was the one that had an advert saying “easy starting, ideal for beginners!” However, it didn’t put me off building model planes, although I did not try control line flying again until past retirement age, when – surprise, surprise - I got dizzy again, but by persevering I overcame that and now I can even do a few loops and bunts.

I had read about and seen pictures of the carrier deck events and thought that it would be a new challenge to attempt and it certainly proved to be so! Over the course of the past year I bought a three line handle from Ebay and was kindly given a double bellcrank by Paul Harris of Topco Kits. I planned to convert an existing model but the bellcrank was buried in the port wing and so converting to the double one was not going to be easy.



36” span profile model before conversion to basic carrier deck specification



36” span profile model before conversion to basic carrier deck specification.

Having read the basic carrier Deck rules (from the excellent website: http://carrier-deck.com/?page_id=122) and looked at a few photos and a YouTube video, I decided to convert a couple of existing 36" span models. The model was a sort of Mustang with coupled flaps and elevator. The flaps are not permitted so were disconnected and fixed in position using the existing control horn and an adjustable link. The plan was to experiment with the best compromise position of fixed down flap to help with the seven slow laps without slowing down the fast laps.

The model already had an OS40LA fitted with stunt venturi, so the excellent air bleed OS throttle carburettor was fitted. As I fly r/c with 2.4GHz radio I thought the easiest solution was to simply fit a servo for the throttle control towards the rear of the starboard wing root. I then placed the small receiver and four cell battery on the other side of the profile fuselage. Job done! (This saved me having to cut into the wing to fit the double bellcrank.) Now to test fly this set-up. With the transmitter on my usual neck strap I could control the throttle with my left hand in the same way as when flying my r/c planes. Easy! And to my surprise it made it easier to fly the plane (remember I'm still a control line beginner!) and I think it would have been easier to learn to fly with this set up. I just practised flying with fast and slow throttle commands and slow landings at the downwind side of the circle. It did highlight that the model may not be of the ideal design for a carrier-deck event, but it worked alright.

Now to the arrester hook. If the model was ever to connect with the arrester wires I could see that this was going to be a big strain on the balsa profile fuselage. So I shaped out some 1.5mm ply and glued it on the starboard side of the fuselage from the wing root rearwards. This proved to be a sound fixing for the fixed end of the flap, the arrester hook wire and the piano wire torsion bar that I had devised to hold the arrester hook in the desired deployed position. I experimented with wire size and clamping positions to get just the right tension on the torsion wire. By moving the inner clamp it is possible to gain further fine adjustment. To hold the arrester wire up until required after the slow run I used a servo on the port side with a short length of piano wire going through the fuselage and projecting just far enough to retain the wire. This servo was operated by a switch on my transmitter and it proved simple to deploy when required. Again I tested at my local flying field and it all worked fine. I even practised landing on a given spot each time, but without much success to start with. No-one said it would be easy! The UK Basic Carrier-Deck rules also stated that "You must provide a visible stranded steel safety cable of minimum bulk diameter 0.457mm (ie: heavy Laystrate) between the bellcrank and the engine." Now I could not avoid cutting into the wing to attached this safety cable to the bellcrank. This task involved spacing the pivot bolt downwards to the under surface of the wing and twisting, clamping and soldering the heavy laystrate onto an electrical connector and then forming a loop at the motor end.



Top view showing arrester release servo, flap fixing, throttle servo and receiver



Arrester wire, adjustable torsion bar and throttle servo.

Having finally converted both profile 36" span trainer type models and test flown them several times at the club field I decided to enter the event run by Mike Welch of the Marlborough MFC and Andy Housden. I read and re-read the detailed information about how to prepare and fly basic-carrier deck models on their website and felt reasonably well prepared for the event. To confirm a few points about location and time I phoned them both - to be rewarded with lots of further helpful advice. This was to be continued at the venue where they both could not have been more helpful to a carrier-deck virgin.

At the venue on a beautiful sunny day the deck was set-up and it all looked just like the photos, which was a good start. I took advantage of the time allocated for a practice flight and landed safely in the sea as I didn't want to risk any damage before having a real go. Three attempts are allowed and for two of them Mike came into the middle with me and talked me through the routine which was a great help. I raised a smile or two by using a brightly coloured hot water bottle as my marker to remind where to stand for the landing – it was a scorching hot day with temperatures over 30 degrees - but it worked for me on my third flight.

I would have landed on the deck with my second flight but I made the beginners error of stepping back to increase line tension and pulled the model off the inside of the deck – and into the sea. So near, yet so far away! Zero landing points. The third flight resulted in just missing the arrester wires on my first attempt at landing but I had enough presence of mind to open the throttle and steady the plane and land on the very next circuit. I put this down to using the same method of throttle control as with my r/c planes and it was therefore a natural rapid response on my part to power the plane out of trouble. Thanks to Andy shouting out “get in position”, as I could readily see the hot water bottle out of the corner of my eye I stood over it in time to land correctly on my next circuit, arrested correctly on the deck, on the very last arrester wire. I was happy with that and greatly encouraged by the generous loud applause. As a bonus the model had survived to fly again.



Right hand handle, left hand throttle.



Valuable assistance from Mike Welch.



Take off.....

After much debate and advice from the other contestants I remain convinced that my methods of throttle control and arrester wire release are successful and worth leaving on the model. After all, the model did land correctly arrested on the deck! I did pick up one or two pointers for further improvement to the model and will make a few changes before trying again. I then plan to build a model specifically for this event. After all it is a challenge and well worth the effort to have another go at some stage.

I would like to thank all who helped make this such an enjoyable first experience for me of a control line carrier-deck event. There is a comprehensive set of rules and guide lines, clearly displayed on their website

and this enabled me to attend my first event with a plane that did not look too much out of place. The rules were sensibly interpreted and common sense was applied throughout the day, which all contributed to a most enjoyable first time carrier-deck landing.



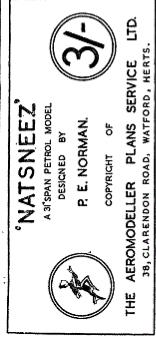
..... and an arrested landing!

I fly at Tarrant Hinton in Dorset and we propose to run a few control line days throughout the year and would like to include Carrier-Deck as yet another option. We run many other events in the Dorset, Wiltshire and Hampshire area and full details of dates, plans, rules and results are available on my website: www.wessexaml.co.uk

P E Norman

I mentioned the possibility of some form of memorials meets etc in 2014 to commemorate P E Norman's death in July 1964. There is a momentum gathering with more details to be worked out possibly at Middle wallop in September so chose your model and get building. At the moment if the complexity of some of the designs is enough to put you off then try a Natsneez. A copy of the plan and some photos are below with thanks to Roger Newman for supplying. More details next month.





NATSNEEZ

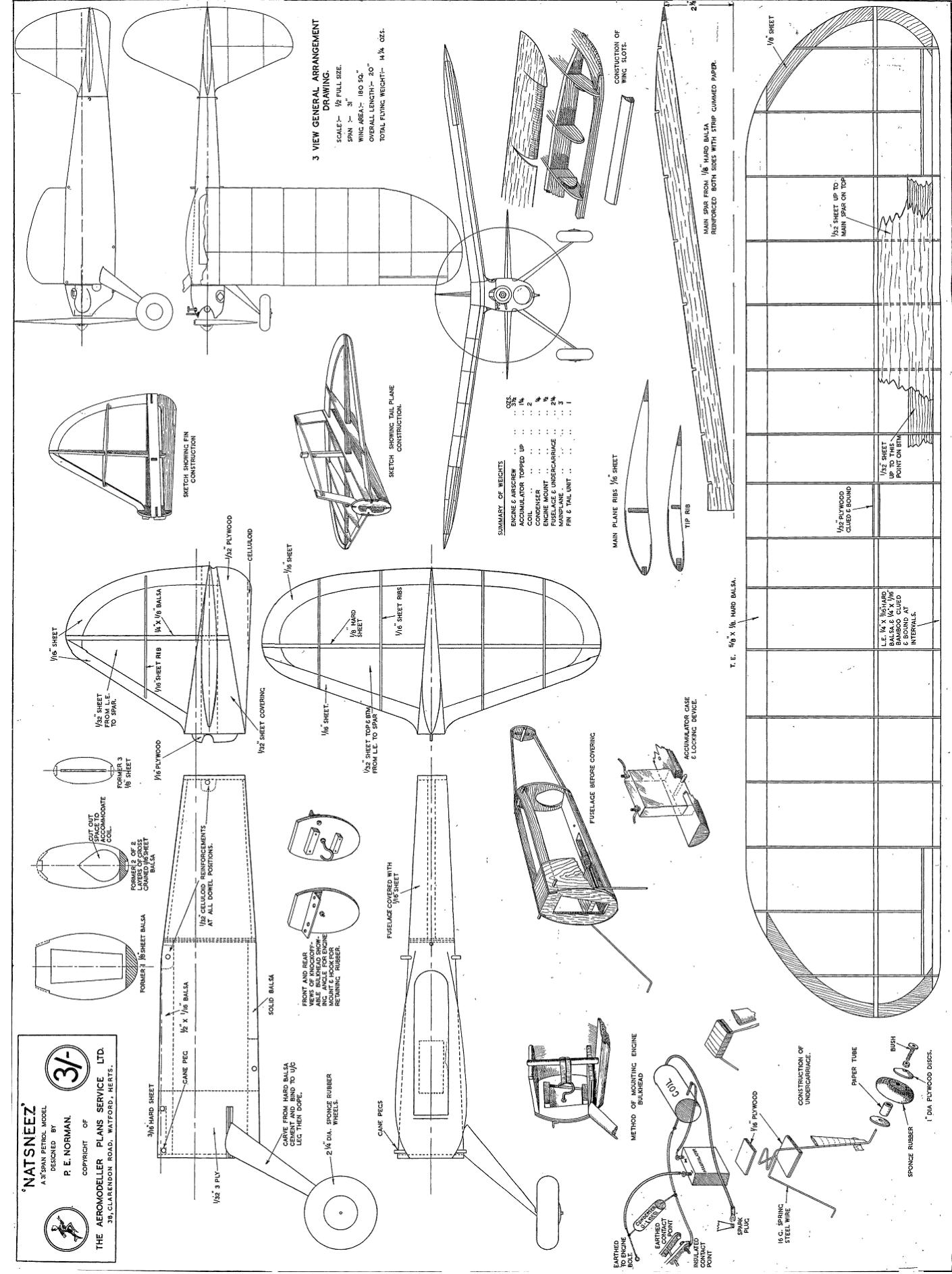
A 31 SPAN PETROL MODEL
DESIGNED BY

P. E. NORMAN

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THE AEROMODELLER PLANS SERVICE LTD.
38, CLARENDON ROAD, WATFORD, HERTS.

31-





From Alan Bond

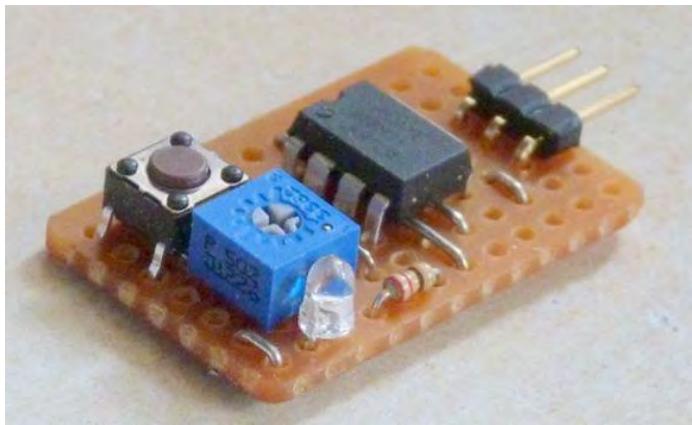
As I'm sure you are aware I've been collaborating with Den Saxcoburg on the Electric Control Line scene and he tells me that his article (which of course I've been involved with) has been accepted for the next issue of S&T. Obviously there is a brief mention of my timer in there, but I'd like the opportunity to submit a further article just about the timer itself which would ideally be published in the same issue to present readers with the full picture.

My main reason for doing so is to get feedback comments from your readers for several purposes.

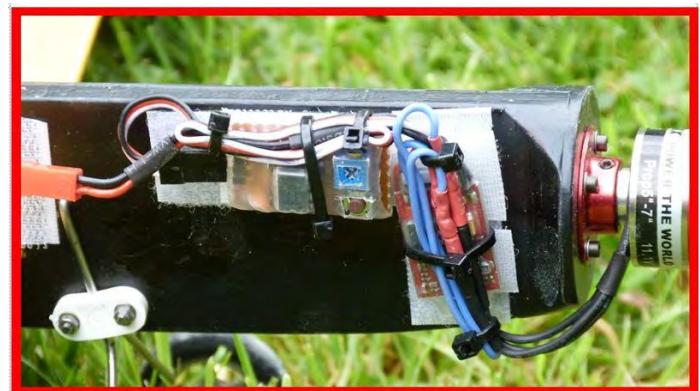
- (1) to optimise the features/settings of the prototype before Den offers it as a commercial item.
- (2) some interest has also been shown in its use for electric Free Flight and here I believe the parameters are rather different from those needed for control line. My pal Tony Crollie flew his electric FF Ebenezer at the last session at Tarrant Hinton with an ECL timer modified for FF use, so whilst we have a starting point, guidance on EFF requirements from the whole aeromodelling community would be helpful.
- (3) I can see it's possible to put both ECL and EFF timer software in the same physical unit so it becomes a universal timer. But does anyone really want that????

- (4) possible future development - a (motor) stall detector in the timer to prevent the motor/ESC burning out in a crash situation - tested at TH last time, but more work still to be done (ECL & EFF)
- (5) possible future development - a power compensation system to maintain a steady voltage on the motor as the battery voltage is dwindling (ECL & EFF) - concept
- (6) possible future development - a start/stop input, remotely operated by the pilot down insulated steel wires from a push switch/trigger on the C/L handle (ECL) - concept
- (7) possible future development - proportional control of motor power by pilot down insulated steel wires from push switch/trigger on the C/L handle - small electronic gizmo in the handle (ECL) - concept

THE E-ZEE CONTROL LINE TIMER by Alan Bond



Elsewhere in this issue is an article “**The Dark Side**” by Den Saxcoburg chronicling his exploratory foray into ECL (Electric Control Line) during which I’ve collaborated by developing an electronic timer for that purpose. For those interested, this article gives some additional detail about the prototype timer - but its main purpose is to elicit feedback from the S&T readership to help optimise the product which Den plans to offer commercially and to steer future timer developments and/or enhancements which I will later outline.



It is recommended that you first read Den's article which gives you the entire ECL picture including an overview of the timer, thereby allowing me to dive in at the deep end.

So, for those of you seduced by the dark side of the force, here we go! The timer has five possible modes of operation which are entered by a single press of the push-button. The duration of the press determines the mode selected and visual feedback from the LED informs the user when to release the button as each mode becomes available. A high intensity LED is used so that it may be easily viewed in strong sunlight.

With respect to the description below, the IDLE (or standby) condition is automatically entered at power up or after successful conclusion of one of the other five modes. The motor POWER may be set at any time using the potentiometer. These two subjects are covered in the [x] headings.

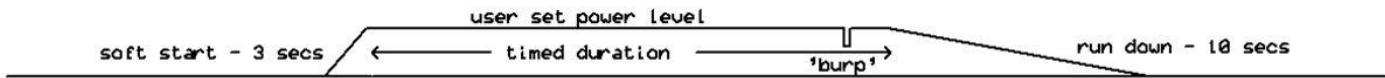
[x] IDLE

Awaiting a button push, either to commence a timed flight or to enter one of the adjustment/configuration modes given below. Whilst in this mode, the user set flight duration is

indicated by a brief series of flashes or flickers of the LED, each flash corresponding to one minute or each flicker to 10 seconds.

[1] FLIGHT

The motor is 'soft started' up to the user selected power level over a 3 second period. It then maintains that power for the user selected duration. During the flight, the LED flashes at one second intervals to count down the timed period. Three seconds prior to the timed period elapsing the motor gives a brief dip in power to signal that the timed period is about to complete. The motor power then decays to zero over a 10 second period. The motor run may be aborted at any time by a brief press of the push-button.



[2] DURATION

The duration is set by repeated brief presses of the button – so 3 pushes would set 3 minutes and so on. The maximum available period is 10 minutes and any presses in excess of 10 are ignored. When the timer ascertains that no further presses are being made, the unit then reverts to idle mode. The selected duration is stored in memory and is retained indefinitely (including power cycles) until it is next altered by the user - so in this example a further 3 minute flight would only require a single button press from the idle mode to start it.

The above is the case for Expert Mode operation, but the user may also choose to select Novice Mode operation, where each press now sets a unit of 10 seconds, so the same three pushes would now give a 30 second flight. Novice mode is distinguished from Expert Mode by all subsequent LED status being given by a rapid flicker rather than steady illumination.

[x] POWER

Adjustable from 0 to 100% and may set by the potentiometer at any time. If carried out whilst ground handling in Flight Mode, the motor will be running and its speed will respond directly to the potentiometer, allowing the user to judge the thrust being delivered. Once the power has been set, the timed period may be aborted by a brief press of the button and the unit reverts to idle mode. A non-linear adjustment curve is employed to give finer control of the motor power at the levels likely to be used for flying – thus, the first 50% of the power is reached in the first quarter turn of the potentiometer whilst the final 50% of the power is adjusted over the remaining three quarters of a turn.

[3] NOVICE

This mode offers shorter time periods for novices, where dizziness may set in long before one minute of flight has elapsed, but it is equally useful for experienced fliers requiring to make a succession of short trimming flights without unduly discharging the battery. After selection of this mode, subsequent LED status will 'flicker' and the unit reverts to IDLE mode. The number of duration presses previously recorded (or subsequently set) are now interpreted as 10 second intervals.

[4] EXPERT

After selection of this mode, subsequent LED status will be steady and the unit reverts to IDLE mode. The number of duration presses previously recorded (or subsequently set) are now interpreted as 1 minute intervals.

[5] CONFIG

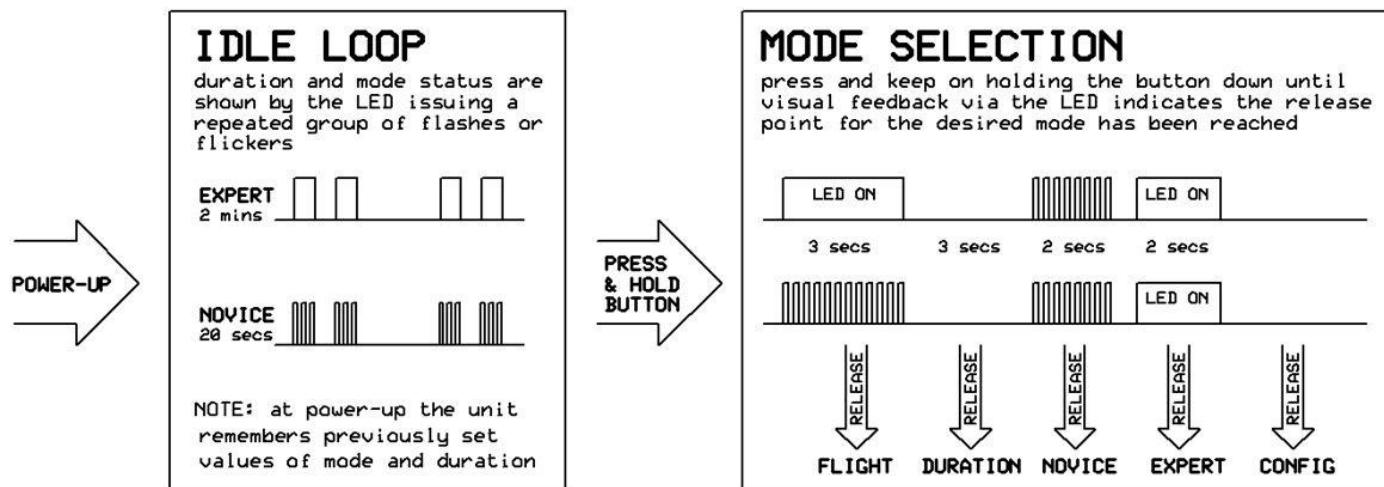
ESCs generally have a number of parameters which need to be configured for optimum performance and/or user preferences - such as battery type (Li-Po/NiMh), Li-Po cut off voltage,

signal span, brake on/off, motor timing etc. The ESC manufacturer expects users to either have a programming card or access to a RC transmitter and receiver in order to set up these parameters.

CONFIG is a non-timed mode where immediately after power up the output signal directly follows the potentiometer to allow the user to implement the ESC set-up instructions as though the potentiometer were the throttle joystick of the transmitter.

Typically, an ESC is put into its configuration routine if it sees a full throttle signal at power up. Now an ordinary timer would of course be putting out a closed throttle signal at power up and awaiting a button press to commence a flight – hence the E-ZEE timer offers this special CONFIG mode for ESC configuration in the event that the user does not have a programming card or RC transmitter/receiver.

When first selected, the LED indicates this mode is active by a very slow on/off blink of about 2 seconds period and the button and the potentiometer are now rendered inactive until a subsequent power-up. So, switch off, and prepare to follow the ESC manufacturer's configuration instructions, using the potentiometer in place of the transmitter joystick. Switch on, configure the ESC as instructed and when complete a brief press of the push-button will cause the unit to revert to idle mode.



I've posted a couple of videos on YouTube to illustrate its basic operation and its use in the CONFIG mode to set up just one of the ESC parameters. The example shown is of course specific to the make/model of ESC being programmed, but nevertheless very representative of the general method used by the ESC manufacturers. It's worth reading the accompanying text description before starting the video so you can better follow what you are about to see, as the video captions are necessarily brief.

<http://www.youtube.com/watch?v=hGBjAJvaCnI> (basic operation)

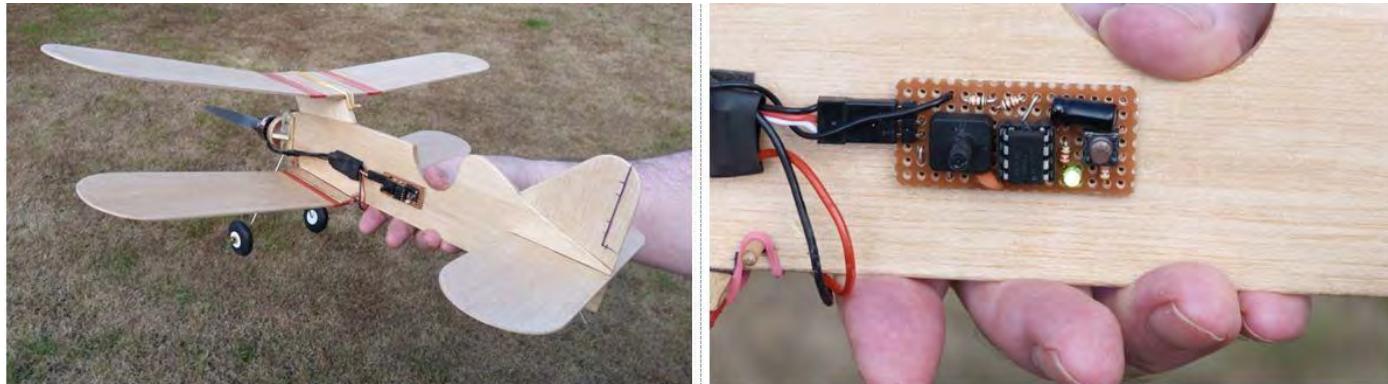
<http://www.youtube.com/watch?v=y7VMelJCDAY> (ESC configuration)

The prototype described above has been fitted and flown on three different aircraft by 4 different pilots at several meetings now and has met all our requirements, but that is a very small user base! Also, until recently I hadn't flown control line for over 45 years, so any comments from more seasoned C/L fliers as to whether the timer fits the bill would be most welcome.

A FREE FLIGHT TIMER VARIANT

Some interest has also been shown in using the timer for Electric Free Flight (EFF) and here I believe the parameters may be somewhat different from those needed for control line. Tony

Crollie flew his EFF Ebenezer at the last session at Tarrant Hinton with an ECL timer modified for FF use. I altered the duration setting to increment in 3 second or 15 second units, omitted the power termination warning 'burp' (which might upset the attitude of the aircraft) and shortened the motor run-down period to 3 seconds. Whilst this represents a starting point, guidance on EFF requirements from the various FF disciplines within the aeromodelling community would be helpful – I anticipate an output for servo operated DT perhaps?



The photos here shows Tony's EFF Ebenezer with modified timer which also includes additional components for motor stall protection (see below). We also chose to use a slightly larger pre-set potentiometer that can be fitted with a spindle to permit finger adjustment of the power rather than requiring the use of a jewellers screwdriver which the ECL version does.

FURTHER TIMER ENHANCEMENTS

Motor Stall Protection (ECL & EFF)

An IC engine will simply stop when the prop is stalled in a crash. Electric motors will however draw enormous amounts of power to try and keep rotating when the prop is stalled until the motor, the ESC, the battery (or any combination of the three) eventually melt in their attempt to do so.

The prototype EFF timer mentioned above is also being used to evaluate a motor stall protection system. An additional wire from one phase of the brushless motor connects to the timer and the latter processes the signal obtained to give a measure of actual (not commanded) motor speed. The user set speed reached at the end of the soft start is recorded and then subsequently measured 50 times every second for the remainder of the motor run. If the measured speed is determined to have dropped by a given amount from the initially recorded speed the motor is judged to be stalled and the ESC drive is shut down to protect the power-train components.

The timer stays latched into the shut down condition giving a special LED indication until the power is disconnected. This allowed forensic examination to determine that the protection system had in fact operated in a number of crashes that occurred whilst Tony's newly built EFF Ebenezer was being trimmed. Further bench work and flight testing still remains to be carried out. The additional components required to implement this feature make the timer slightly larger and heavier.

Battery Voltage Compensation (ECL & EFF)

ESCs work by pulse width modulating the (battery) voltage applied to the motor (PWM) – so, keeping the maths simple, lets say a 2S battery gives 8v and the ESC is set to 75% of its maximum throttle then the average voltage impressed on the motor will be $\frac{3}{4}$ of 8v = 6v. This is fine at the start of the flight, but as the motor run progresses the battery voltage declines and the ESC will continue to impress the same $\frac{3}{4}$ of this lower amount onto the motor - so when the battery voltage has dropped to 6v the motor will now only receive 4.5v.

With additional components and an extra wire connected to the battery, the timer could record the

battery voltage at the start of the flight and thereafter continually measure the battery voltage, adjusting the ESC drive signal accordingly to maintain the original voltage set on the motor even though the battery voltage is drooping. In the above example the timer would have gradually increased the ESC's throttle demand from 75% up to 100% by the time the battery input dropped 6v – having all the time maintained a steady 6v on the motor.

Clearly this scheme can only work if the lowest battery voltage occurring during a flight is greater than or equal to the user set motor voltage. And speaking of low voltage battery conditions, it was not judged appropriate to include a cut-out to inhibit timer operation as this feature is built into most if not all ESCs.

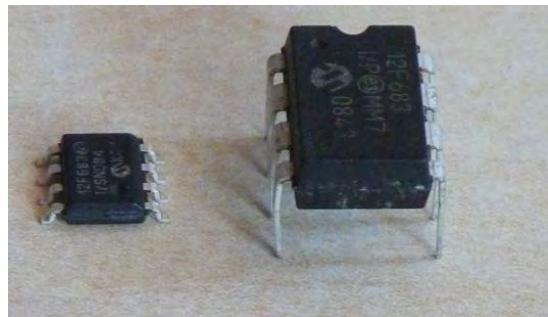
I should further add that controlling the average voltage applied to a motor only determines its speed to a first approximation, because the load on the motor also has an effect, but in popular usage it is held to directly relate to speed – indeed the 'S' in ESC purports to stand for 'speed'.

Note that this is an open loop feed-forward predictive system and would not be so accurate as a closed loop feedback control system but it would still yield a very worthwhile improvement in long term speed governing.

For short term increases in motor load (aerobatic conditions) this scheme will only compensate for the drop in battery voltage caused by the additional motor current drawn and NOT for the motor's inherent speed regulation relating to the additional current flow in the resistance of its windings – which a closed loop feedback system would.

Practical Limitations

The 8 pin microcontroller chip used in the basic timer has only one pin to spare which could be assigned to the motor stall protection OR the battery voltage compensation function – so these two enhancements are mutually exclusive. The next size of chip available that is capable of accommodating both of these features comes in a 14 pin package which is obviously nearly twice the size and weight. So sticking with the 8 pin chip, which feature would be the most popular? (I have my own view on this, but you could surprise me)



The size and weight of the timer could be considerably reduced by the use of surface mount components, allowing us to have our 14 pin cake and eat it – see the differences in the two 8 pin chips shown here!

But for me, surface mount is only a practical proposition if the whole assembly process (including the design of the necessary PCB) were subcontracted out, involving significant costs to be amortised across volume sales if the selling price is to remain attractive. This is a financial risk I'm not about to take – however any readers with the skills/facilities to fully implement a surface mount design are welcome to contact me.

Timer Evaluation

I am prepared to make a limited number of free ECL or EFF timers available for evaluation in their current prototype status. This offer is open to local RC flyers (south-west Hants / south-east Dorset region) who in exchange would be prepared to give this novice some flying time and instruction on their slow, stable, RC trainer (preferably electric) using your buddy box.

Contact

Mail me with your comments and suggestions at - afbond@gmail.com – but be sure to put a relevant subject title on your mail or you risk being dispatched unread to the spam bin!

Old Warden "Model Air" July 21 - 2013. Part 2 from Dave Bishop of Dave Bishop Sound

Continuing with some more coverage of my 3 day stay on July 19 - 20 - 21 at Old Warden and with having a weekend off from commentating I was able to wander around this Palace of aeromodelling. What I haven't had the chance to do in some 50 years of being at OW has been to speak individually to the many people that come there to enjoy the "crack" with visitors from all over the world. It is a multi-national event and the mixture leaves one's mind boggling at how many different types of discipline they all bring along to fly in different areas of the L shaped flying field.

In the "good old days" I remember that the visitors car parks were always on overspill and I first met the father of public address in this country Hayden Warren and it is his system of how the length of loudspeakers are now laid out and he certainly had a bit part in my starting my DB Sound business. Ron Moulton was in his element there and it was he that started the idea of competitions in various classes (and there were plenty of classes then) with some nice trophies being presented on the Sunday afternoons after some secret judging by "unknown" judges.

I was strolling along the flight line when two huge chaps from Sweden recognised me and came over and shook my hand with vice like grips. They said "We see you up there!" meaning my Transit van and they explained that they were over here for the R/C Model Flyer "Model Air" weekend organised by Ken and Sheila Sheppard and Mike and Joan Reynolds and "wouldn't mist it for the world!" The next event to be held there will be on September 7 - 8. One time popular editor of RCME magazine Tony Dowdeswell was talking to "everyone" as usual (he is so well known) and has a job to move just a few yards anywhere without someone wanting some words with him about something or other. He was asked by Mike Reynolds if he was going to fly a model and he expressed a few very strong words about a person on the R/C flight line that he would never go near. Remember that Tony was a dedicated reporter and mad keen on Pylon racing in past years and under his editorship, the magazine improved its circulation many times over.

So here is a few more pictures attached (if editor Parry agrees to print them) with a further set and a bit more chat in next month's S&T.



Seen arriving at free - flight area are these two chaps with their many models and soon to be ready to go!



The Carrier Deck Landing Control Line section was being flown by the entrance to OW and this gentleman from abroad insisted on yours truly being in the picture with him and his Grumman Tigercat.



Radio control official Richard with his OD Bullet.



Richard Crapp's superb contest winner mid thirties Tri-Motor airliner that took some 3 years to build being taxied out along with "Old Time" flyer Mick.



And yet another show stopping fly- by of Richard Crapp and his Tri - Motored airliner.



One of my all time favourite aeroplanes this superb Junkers 87b Stuka dive bomber.



The chairman of the Croydon DMFC Peter Royal with his super Mustang that flew "on rails".



This Hawker Hurricane along with brilliant flyer and nicest chap is James Gordon. The model was built by James father some 35 years ago and the engine is geared. Sounds and looks great in the air.



Well can I repeat the picture of one of the most favourite models that I have ever built is the 60" wingspan BIG - BOY designed by Mike Reynolds which I dearly love to fly. It is the best "beginners" model and as stable as old boots when flying. With a new OS No8 glow plug fitted it will fly steadily and smoothly for some 20 minutes plus and I'm proud to say (after some 70 plus years of aeromodelling) I have now passed my BMFA "A" Test and can now go to the flying field and fly it any time. Can't wait for it to be a full kit by Belair so that everyone can have the same sort of fun as I am enjoying. Also it fits very nicely into the car.

From Karl Gies

My venerable Earl Stahl "Gypsy" Wakefield built back in the mid 90's from a superb Lee Campbell kit. My site at Lewistown International Airport and a real good flying model. And our sponsor is, "Ralph's Pretty Good Grocery" in Lewistown MT whose motto is "If We Don't Have It There Is A Good Chance You Can Do Without It." Picture taken last summer. I will have some updated pictures soon as summer has finally arrived in Central Montana. cheers, cccnh



My flying site, 2000 acres with one tree, ten minutes from my house and I am parked and setting up.



The Earl Stahl Gypsy is up where it belongs.

From Ted Tomlin

Latest product from the far flung land of South Devon it's a a 1951 Magpie built to an original plan by John Rogerson powered by a OS 20 It was flown today for the first time no troubles apart from a prop that carved a couple of lumps out of out excellent strip on take off, it few well very smooth and a dream to land.





Pushycat in a box from Stephen Winkworth

I believe models should be easily portable. Several of mine fit into a coffin-shaped box I built out of balsa back in the 1960's.

My latest is Vic Smeed's Bowden winner of 1953. Mine has a Pfeffer 0.6, and I have made the wing in two halves, joined with carbon rods. Single channel with one servo and 2.4 GHz receiver.

Maiden flight was yesterday. Stalled a lot in glide tests, so I added some packing (1/16) to the l.e. of the stab. Then set the Pfeffer very slow and rich I was anticipating a powered glide, but no, she climbed nicely, and by the time the tank was empty was several hundred feet up. Moderate left turn, which I trimmed out, then on the glide fairly acute stalling. Came in rather hard, but on grass so no damage done. The second flight I added a small weight in the nose, bringing the CG a few mm forward of the plan position. This time I allowed the Pfeffer to reach a reasonable speed, but only half filled the tank, which was just as well. When it cut she was almost at the limit of visibility, and making very slow headway against an increasing high-level wind. Was very anxious not to catch a thermal during the glide: she does have a very slow rate of descent. Still a bit stally, so more nose-weight is indicated, but she came down nice and slow and landed fairly well.

The main thing though is that she does not suffer from the 'Dutch roll' Tony Tomlin experienced with his 1 1/2 times version. I reduced the dihedral to about half that indicated on the plan, and increased the fin and rudder area, and that seems to have given her nice handling with rudder-only radio.

Note I do not believe in the 'Doll in the cockpit' theory. I am waiting for the time they learn to grow pilots small enough to fit, and I have provided mine with a moulded ply seat and proper aircraft harness.





David Kinsella's Column

ED Story

A while ago now this column covered mighty modellers Henry J Nicholls and Phil Smith. Next month we take a peep at Electronic Developments (Surrey) Ltd which got going a few months after World War II. An involving story of several sites, interesting characters such as. 'Twisty' Honnest—Redlitch, world record engines, Channel trips and magnesium fires. The Bee, of course, for most of us had one and thousands were made (200,000 or more some say).

Jets & Icebergs

Big Bang got it going, that day in 1986 when the old City vanished as dealer screens lit up. The big boys now firmly in place with their £10 million houses (more below than above) and trimmings numerous, must have jets zip above London or wait with pilot ready for the next trip. A Bombadier at £25 million or a Gulfstream at £38 million sounds about right, but some demand a wide-body Airbus A340 for mansion-style living aloft. Then there's the yachts, often seen just east of Tower Bridge...Dark, long, sleek and powerful and more used to their private islands and off-shore tax havens.

Malcolm's Models

Early with Bristol Aeroplane during the war, Malcolm Sayer was taught higher maths by a German while at Baghdad University. Joining Jaguar in 1950, then on the rise with Bill Lyons at the helm, Malcolm's C, D and E-Types turn heads today - sixty years after his cars won five times at Le Mans. Sinatra demanded an E-Type at once and Cunningham raced and sold them quicker than hot cakes. Here Graham Hill, lights blazing, corrects on his way to yet another win with an icon of the world's motor industry.



Ken's Back

City boys in need of balsa are close to new Modelzone in New Oxford Street, Ken back with a bang. While there on opening week I picked up an 8in cast model of a DH Dragon Rapide in BEA livery from Oxford Diecast and a beauty. Lots of diecast too at the huge model soldier show in Islington. Biggest this side of the pond, future dates are 7 December, 29 March, 7 June and 6 December. King & Country are the big boys here, everything from the Trojan Horse to Horst Wessel. And our tough winter claimed many, one being Peter G Cooksley who wrote widely on aeroplanes, Croydon and combat. Modelzone touches all of these subjects, expansion plans ahead.



Phantom - Might?

I've mentioned to Brian Lever that I would put up £100 and a couple of books as prizes if a Phantom Mite celebration could be organised for 2014, rather late for this year. Many will remember them flying at the MEE, in yellow jerseys David Harle and model standing with Alan Jupp and Ted Home (S&T No 55), Ted supervising every race of the nine days for the MT Fuels Trophy. Let's do it again for Eddie and Bill's little Mite.

The Archers

With swashes well buckled, action hero Errol Flynn is at ease on his yacht Sirocco. Ace archer Howard Hill (no CGI then) drapes an arm. Bogart and Fairbanks sailed, the latter with mighty ketch Invader all of 160ft (but then he was co-owner of Universal Studios). An early Tarzan preferred hot hydroplanes but the Barrymores selected steam yachts of huge size and dignity. As Robin Hood, Zorro, Don Juan, the Black Pirate and a Musketeer, Fairbanks (really Douglas Ullman 1883-1939 from Denver) did not suit the talkies and so there was more time for stunning Invader. Is



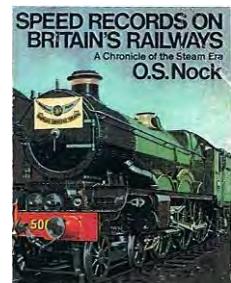
she still here?

Looks Great

New on the scene is Sunduster. Of 1946 vintage and drawn up by Peter Fisher (Old Etonian, engine collector, author, kits, models, classic cars etc), now a quality kit from Raynes Park's stalwarts Mike Cummings, Alan Holmes and John Perry. Sunduster kits await on 0208 542 3100. Page 26 of May's S&T shows Sunduster in all her glory. RPMAC's Jerry Parker flew one off the board and gave it the thumbs up. Well done, boys.

Little Gem

Forty years old, Nock's book on steam at speed (just 35p from Pan Books) has the famous GWR Flyer on the cover, for a time the world's fastest train as it stormed up from Swindon to London. Castle hauled, this one is almost certainly 5006 Tregenna Castle, one of a select band driven by Quality Street and other top link chums. Others were 5016 Montgomery Castle and 5039 Rhuddlan Castle, the famous name-board extant at GWS Didcot. As a treat its drivers were taken up in a Great Western Wessex from Woodley Aerodrome to see the green engine with white-topped carriages on their way through Sonning Cutting to Paddington. Maurice Barley was often on hand with his tripod and plate camera.



Racing On

The world's biggest interdealer broker Icap sponsors serious yachts, ICAP Leopard memorable. Possibly Michael Spencer has a new boat on the way. Pics here when it happens.

That Agent Again

Telegraph readers saw Lt Col Dudley Clark as man and woman in May. So much secret service work remains hidden, is lost, people die and just a snap or two remains. S&T w first this time (see No 77 for April).

It's All There

Miss FAI in May's S&T was a reminder of great articles written on VTR construction, to my mind at their best going into the 1960s. Ken Long's Dalesman for a start and not unlike Ken Taylor's Crescendo. Earlier but of the right stuff came Double Dice thanks to Messrs Drewel, McNess and Chas Taylor of West Essex. Americans Herb Stockton and Don Jehlik wrote of their Elite—powered winner in great detail. Thankfully this heady essence awaits within our preserved Model Aircrafts and Aeromodellers, not forgetting Air Trails and Model Airplane News. Gordon Rae's 2006 opus should be nearby together with David Finch's masterclass on building to win (SAM Yearbook 15) Engines of course, and here Ted Martin and George Aldrich had much to say.

Doug's Invader

A row of portholes, boats aboard, mainsheet gearing and that tiny figure at the wheel confirm the size and power of racing ketch Invader, the pride and joy of Douglas Fairbanks. Bermudan rigs may be more efficient pointing up, but what can match a big gaffer in a blow? Very little, I'd say. I've sailed in 6 and 12-Metres but to date a big gaff-rigged boat has eluded me.



Mr Wide

Flying in with his gig as Largo buttoned up, Adolfo Celi quickly boned up on Bond, until then an unknown to him. It was 1964 and the big one – Thunderball (1965) — was destined to be the biggest Bond ever, figures adjusted for that terror inflation. First time around in the USA it was seen by 75 million people. In London they stood in line around Leicester Square following a double launch at two cinemas. The



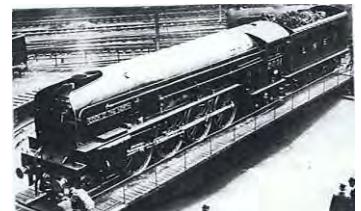
winning team of Young, Adam and Barry brought Miami to Manchester and Brum long before Laker took us there for real. Largo with his bomb-carrying Disco Volante, eyepatch and Mafia death sign was believable as the nuclear Nero. Then there was the Vulcan bomber and Largo's collection of sharks, not to mention the underwater fight. Third in the genre, I still think it's the best.

Kits or Us

Bought at Old Warden and signed on the day by Ron Moulton, salted away is a mighty 8ft Falcon kit by Colin and Clare Buckle (01793 764017). Those steeped in our hobby will remember Eddie K towing his behind him at those huge events of the 1950s. Anyway, Ben Buckle Kits offer a huge range to suit all from a Southerner Mite at 32in to other giants such as the 8ft Double Diamond and a fine Super Buccaneer at 90in. Winter building is coming.

Big Stuff

Thanks to Hornby, highly detailed these days, Cock O' The North is almost here. A powerful 2-8-2 built by Gresley for hilly duties in Scotland it was, as pictured, a stunner influenced by Chapelon and tested at Vitry. In LNER apple green, long and beautiful, you don't need a layout to own one.



Similar Surprise

Like Andy Brough, writing earlier in the year, I too was amazed at the ways of Uncle Sam. Asked to stop by for a couple of days, I arrived at the house near Fort Worth. Various roadsters in the compound but serious iron such as a Gullwing lightweight was in the central motor house. Roused by the house address system, I had breakfast by the pool, assured that I was the only guest. But those two in the hail? Servants, I was told. Inter alia the floor of one room was covered with oil paintings while the gun room could have armed the Confederates. It was 1980 and everywhere were Wonderfull things and gadgets and sound systems and tv sets and a cinema for serious screening. In the afternoon we drove to Dallas to shop and see the UP Big Boy.

Treasures Await

Gauntlett Gallery has good stuff for chaps: several model cars and speedboats a wind tunnel DH Comet a good 6ft, a fine Waterloo-style cannon in brass, a 4-blade prop from the Great War, a Maserati pushbike, various posters, a pink ride-in Rolls Royce of 8ft and a beautiful model of gaff-rigged Britannia. Then there's cups and boxes and cases perfect for the luggage rack behind the Hispano-Suiza. Just five minutes from the old Imperial Airways building. A bag of 'pink ladies' is recommended. Best make it two! Ooops, almost forgot the tasty motorbike with open pipes.

Gibbs Guides

I know I mentioned before but these guides are great easy to understand and informative especially to someone like me who has an understanding of nil when it comes to anything electrical. Have a look at the following link. Suggest you join the mailing list.

<http://www.gibbsguides.com/>

Wimborne MAC Control Line meeting

Sunday 13 October

With a minimum of 6 grass circles on this splendid 3 acre site there is room for lines of up to 90'. Those who've been before will know of the facilities such as club hut to sit in, awning and seating area with picnic tables (as the weather will be hot and sunny), power for charging batteries and of course a BBQ. There is also a portaloo. Plenty of parking. Mainly sport flying although mini speed will be run along with Spitfire Scramble which shouldn't be missed unless you have a heart problem and therefore can't laugh a lot or get over excited!

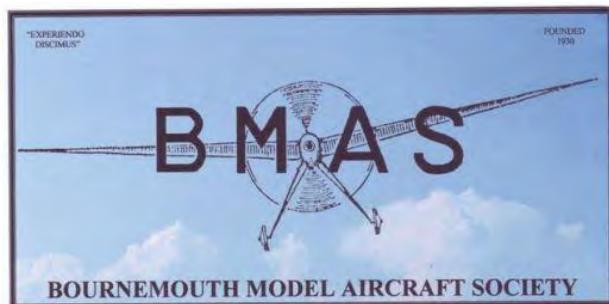
These events are always great fun and offer all the opportunity to fly CL in the South so come along and make the most of it. More details will appear on the Wimborne MAC web site in due course

<http://www.wimbornemac.co.uk/>

details of mini speed and spitfire scramble on <http://www.wessexaml.co.uk/>

Heading will get bigger each month so you don't miss this event. It really is an excellent day for control line flying and meeting up with others. So come on no excuses just join in with one of the biggest CL meets in the South.

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Now not quite S&T

The Annual Little Gransden Air & Car Show. From Dave Bishop of DB Sound

Background.

Mark Jefferies is a world class aerobatics show performer who lives with his wife and two children at a small airfield which is in Fullers Hill Farm in the Village of Little Gransden, near to Cambridge. The place is also the home of Yak UK Ltd. Once a year Mr Jefferies stages a charity air and car show at his airfield that is packed to the gunnels with top class visiting aeroplane demonstrations from very small in size to the very large. Vehicles were there as well in abundance complete with their owners suitably dressed to suit the occasion. This year the show was run on Sunday August 25 and with the support of Flypast Magazine and Abarth, the crowds of attendees just rolled in by the thousands to be entertained from start to finish on a perfect flying day. The show is open from 10am till 6pm with the flying demonstrations part starting at 1pm. And a note to finish the introduction, last year (2012) a £24,652.90 cheque was handed to BBC Children in Need appeal and around £5,000 was also raised for local children's charities. That amount of monies shows just how much the attendees appreciated the hard work of Mr Jefferies and his team.

Mark Jefferies.

Mark Jefferies has been flying aerobatics at shows for the past 29 years and he has represented Great Britain in competitions over many years winning several medals at International events. He first won at unlimited level in 1994 in an aeroplane that he built himself and he followed that by winning the National aerobatics title 2005- 2006 and 2007. Mr Jefferies gave a super display at the latest show in a Extra 330SC powered by a 320 HP - 6 cylinder Lycoming engine. The aeroplane is designed to withstand +/- 25g. Like most aerobatic sequences nowadays, most use economically friendly smoke oil, "baby oil" during his display.

The Build Up to The day.

The aeroplanes that were "visiting" this grassed airfield and demonstrated for the packed crowds were listed as the Battle of Britain Memorial Flight, the XH558 Vulcan, P51 Mustang, Pitts Special S1, Miles Messenger, Tucano, Messerschmitt 108, and a whole host of others.

Not included in the well written and illustrated programme, was a 10 minute duo demonstration that finished with a standing ovation from the delighted crowd for two Extra aeroplanes that were demonstrated to an audience that had never witnessed such an event before. One of the aeroplanes was an Extra 300SP flown by Chris Burkett and the other was the same Extra aeroplane but a 41% scale model of the full size powered by a MVVS 175cc engine and piloted by aerobatics British champion Mike Williams from Caterham in Surrey. The model weighed in at 17.5 Kilograms and the radio is a 14 channel set of Futaba gear of which Mike uses 8 of them, rudder, elevator, ailerons, throttle, choke and smoke. There are no flaps. Ground and air radio liaison was operated by electronics engineer Gary Beavan who is also the newsletter editor of the Sevenoaks DMAC. Mr Burkett from Cambridge has flown full size aerobatics for some 8 years and last year he originally approached Grahame Ashby about teaming up and "doing" such a duo with someone! In turn, and after a search on the internet, Mike Williams was asked if he would participate. Mike immediately agreed to do a review. There was also a promotional video made of the two aeroplanes at practice that will be made available soon.

Previously - way back.

This event certainly wasn't a first time that a model radio controlled aeroplane had been paired up with a full size of the same make. Years ago I remember at one particular show, the late David Boddington and friends along with the famous Barnstormers Flying Circus team, had done the same thing in front of an appreciative audience of many thousands of attendees at Sywell aerodrome. Barry Tempest was the popular full size pilot and CAA official and it was he along with Jack Morton (another Barnstormer pilot and aeromodeller,) flew a full size and a radio controlled DH Tiger Moth together from take off to landing and my commentary was quite emotional with this piece of history that was made that day. Years later Mr Tempest had a daughter Helen who rode on the top of her father's aeroplane and that was another show stopper at the time.

And Later on August weekend - 2013.

With the permission of the Little Gransden's airfield owner Mark Jefferies, the duo started practising in July midweek and it was found out that the model Extra of Mike's accelerated on take off much faster than Chris Burkett's full size. It meant that the full size Extra took off at the beginning of the runway and Mike waited

until the full size, was almost alongside before he opened the models throttle to take off together. In some aerial manoeuvres Mikes aeroplane was much faster and that's where the pairs practicing proved eventually to make a great 10 minute show stopping public display.

Saturday August 24 - Little Gransden.

Mike Williams and Chris Burkett arrived as arranged at Little Gransden on the August Bank holiday weekend on Saturday August 24 prepared to practice their programme of manoeuvres but the weather that day proved to be impossible to do any flying at all. The rain simply hammered down all day and so the pair got together and discussed in a hanger what pattern they would be performing on the following day in front of the expected crowds, should the weather be suitable.

The Big Day's Flying Schedule.

Sunday August 25 turned out to be just perfect weather wise and at Little Gransden, the crowds started coming into the airfield very early on in their many thousands. Final briefing words were discussed by 39 years old Mike William's and 44 years old Chris Burkett in the morning and the pair awaited their allocated flying slot at around 4pm on a flying programme that had already been running some 3 hours.

And this was (and is) their flying schedule. After take-off they join up and go the length of the crowd line and do a stall turn left, then they pull out and go into a four point roll together downwind and at the left hand side of the runway they do a left hand climb and "tumble". Back into wind they do a slow 10 second roll followed by a half Cuban eight followed by a half roll and with smoke on they complete a loop centre line. At the end they pull up and complete 4 quarter rolls, push over the top and pull out along the crowd line where in the middle they both complete a torque roll. This is followed by a tail slide and they then split in opposite directions. The highlight of the session is when Mike's model is then prop hanging in the centre of the flight line and Chris in his full size aeroplane, knife edges the whole length of the flight line behind Mike aeroplane, again both with smoke on. They then climb up together and complete a circuit followed by a knife edge pass with canopies facing the crowd. Again they spit and do a crossover and then both do some aerobatics followed by landing separately in a show which altogether lasts ten minutes.

The CAA had been consulted about the whole programme and they said they said that it was fine by them. Throughout the whole sequence Chris Burkett controlled the schedule via his radio link with the relaying being completed by Gary Beavan standing bedside Mike Williams on the side of the runway.

Post Show. The commentator came to the pair of Chris and Mike afterwards and said that "he had never seen anything like it in his life" (makes one think that he couldn't have ever been to a model show!) but "it was the best thing he had ever seen". As to nerves, well Mike said nerves didn't come into it really but the adrenalin certainly did.

My only wish was that I would have dearly loved to be the commentator at the Little Gransden's Air & Car Show on August 25 this year but you cannot be everywhere can you. Congratulations all round to everyone concerned.



Chris Burkett and Mike Williams with their Extras 300's alongside.



Approach together along the crowd line. Mike's is the Red Extra.



Formation together centre crowd line.



Mike's Extra centre crowd prop- hanging whilst Chris in his full size knife edges the length of the runway.



Mike and Gary Beavan who did all of the radio linking and liaison throughout the flights.