

## Sticks and Tissue No 139 – June 2018

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

Thanks to Mark Venter back issues are available for download from <http://sticksandtissue.yolasite.com/>

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



*Den launching his new kit at DMFG on Sunday 10 June 2018 more later in newsletter*

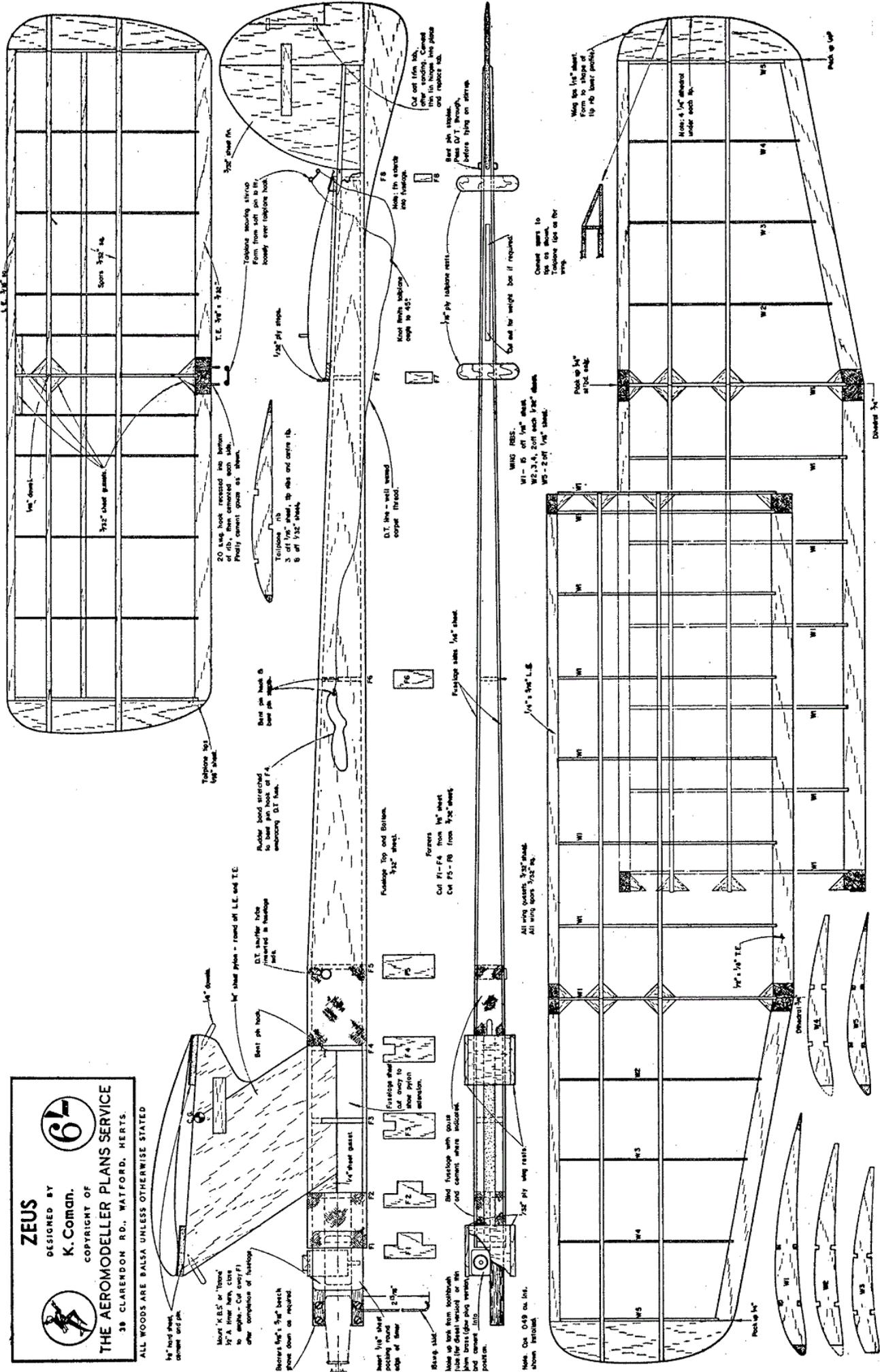
**ZEUS**

DESIGNED BY  
**K. Coman.**  
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**THE AEROMODELLER PLANS SERVICE**  
39 CLARENDON RD. WATFORD, HERTS.

ALL WOODS ARE Balsa UNLESS OTHERWISE STATED



1/4" down

3/32" sheet brass

Spore 3/32" dia

3/32" sheet brass

Tailplane mounting strap  
Form from soft pin in file  
loosely over tailplane hook

1/32" ply sheet

Tailplane rib  
3 off 1/8" sheet, tip rib and centre rib  
6 off 1/32" sheet

Base pin hook &  
base pin strap

Rubber band stretched  
to base pin hook of F4,  
embracing D.T. flange

1/4" sheet brass - round off L.E. and T.E.

Bent pin body

D.T. axle/rib tube  
retained in fuselage  
link

Balsa 1/4" x 1/8" bench  
pins down as required

Mount up pins from bottom  
hook, base pin, D.T. axle,  
base pin strap (also show  
rubber band and cement link)  
position.

Fuselage top and bottom  
3/32" sheet

Formers  
Cut F1-F4 from 1/4" sheet  
Cut F5-F6 from 3/32" sheet

Fuselage sheet  
cut away to  
show pinion  
attachment

Balsa fuselage with glue  
and cement where indicated

1/4" x 1/8" L.E.

1/4" x 1/8" T.E.

Make the screws  
and washers

Knock rivets into  
cup to 45°

1/8" ply tailplane rests

Cut out for weight box if required

Convert screws to  
pins as shown,  
before fitting on wire

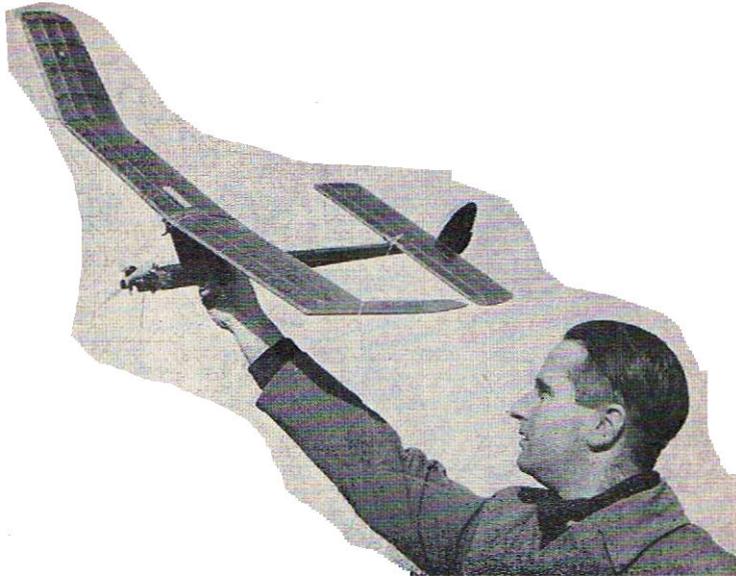
Push in 1/4" sheet  
into slot

WING RIBS  
W1 - 6 off 1/8" sheet  
W2,3,4, cut each 3/8" sheet  
W5 - 2 off 1/8" sheet

All wing centers 3/32" sheet  
All wing spars 1/32" dia

Note: Cut 0-10 on list  
shown vertically

**Zeus - 1/2 A (.8 cc.) power contests are gaining popularity —why not join the class with this event-winning 40" design by K. COMAN? Aero Modeller August 1963**



Zeus was designed to utilize a rather aged Frog '80' that was not earning its keep. Any .8 c.c. engine will do, providing the bearer holes are not drilled until the model is finished. Adjust engine position to give correct balance forward for light glow plug engines, and fit the timer behind the engine.

The design was based on a well tried and tested Open Power contest configuration, well known construction methods are used because a good strength/weight ratio is essential for 1/2A. The aim has been for largest span compatible with a 8 c.c. engine and a maximum weight of 7 ozs. This was achieved in the prototype and the resulting performance was very impressive

with an extremely fast climb, turning 2 1/2 times and rolling smoothly off the top. The average duration has been 160 secs, in wind or calm, and maximums abundant.

It has won several club competitions and won the 1/2A Power Contest at the R.A.F. Model Aircraft Association Annual Meeting. It is very robust, having flown over 200 times without needing repair. Wing section is based on a modified N.A.C.A. 6409 which, in conjunction with a large tailplane, gives excellent results in power contest models. Tapered wing tips employing wash-out are responsible for the very good 'off-climb' recovery. Should the engine cut when the model is vertical, stable flat glide is restored after only two stalls.

Beginners need have no fear of Zeus. The climb, though fast is safe, and if the model is built accurately, little or no trimming is required.

Start construction by making up bearers on to F.1. and F.2., allow them to set thoroughly. Cut the top and bottom of fuselage from 3/32 in. sheet and all the fuselage formers. Pin bottom of fuselage to board, cement bearer assembly into position and then cement formers into place. When dry, cement top of fuselage into position having cut out 1/4 in. slot for pylon and 3/32 in. slot for fin. Now cut out pylon and join. Cement pylon into position and add gusset at front end. Ensure that top of pylon is at the correct angle by making a card template. Remove fuselage from board and sand sides to give good flat surface for sides.

Cut sides from 1/16 in. sheet and cement into place. Sand fuselage, slightly rounding corners. Make up fin from 3/32 in. sheet and sand to streamline section. Cut out rudder and mount on thin tin hinges. Cement fin into position ensuring that it accurately lines up with the pylon. Bind fuselage with gauze and cement. Add 1/16 in. ply tailplane platforms and 1/32 in. ply tailplane stops. These effectively steady the tailplane platforms when D/T'd but will knock off in the event of a heavy landing so preventing damage to tailplane leading edge.

Cement 1/8 in. Sheet wing platforms into position and add 1/32 in. ply runners. Fit the 1/8 in. wing dowels into position. Cut hole for D/T snuffer tube just forward of F.5 and cement into place. Cement a bent pin hook into F.4. and a bent pin staple into F.6.

Build the wings over the plan in a normal manner packing up front of T.E. 1/16 in. Pack up outboard end of starboard L.E.- 1/4 in. when building. Remove wings from plan and invert to fit lower spars. Pack up outboard end of tip trailing edge 1/4 in. when building. Fit wing tips before joining tip sections to centre sections. Mould wing tips to rib lower profile by means of a series of light cuts across grain on lower surface of tip. Fill cuts by rubbing in cement and bend until desired contour is obtained while cement is still tacky. Allow to dry and cement into position. Join two halves of centre section having the port one pinned flat and the trailing edge of the starboard raised 1 1/2 in. Add gussets and allow to set. Cement tip sections to centre sections raising the tip leading edge 4 in., finally bind joints with gauze.

Build the tailplane flat over plan, as for wings. Fit gussets before inserting 1/16 in. dowel, make up tailplane

hook from 20 S.W.G. Recess bottom of centre rib to take the hook then cement it into place. Cover with gauze, then add gussets.

Cover the entire model with lightweight tissue. Give wings and tailplane 2 coats of dope and a light coat of "Aerolac". (Fuel proof tailplane and under-side of centre section if a Glow engine is used). Give fuselage 3 coats of dope after covering and lightly sand down. Finish off with one coat of coloured dope as desired.

Make up tailplane retaining stirrup by bending a soft pin so that it slides easily over the tailplane hook.

Well wax some strong thread and make up the D/T line. Tie and cement the ends of a loop of thread to the eyes of the stirrup such that the tailplane will form an angle of 45 deg. when the stirrup is on the tailplane hook and the thread tight around the bottom of the fuselage. Tie and cement a piece of thread to centre of this loop and pass other end through fuselage stirrup. Make up a bent pin 'S shaped hook and tie thread to hook so that line is just slack when tailplane is itt D/T' d position.

A rubber band fitted to the open end of the line hook is stretched to fit over hook in fuselage embracing the D/T fuse. At least you can ensure that the fuse is burning properly when it is near the front. Cut away F.I. to take timer which should be a snug fit between bearers. Make up a small tank from toothbrush tube for diesels and cement to front of fuselage on starboard side. Bend on 18 S.W.G. skid to fit round bearer bolts and now fit the engine.

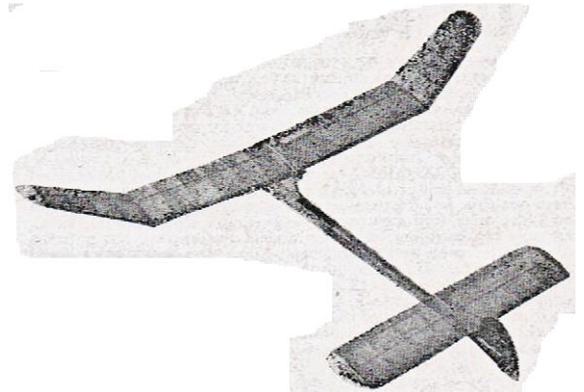
Check that the model balances correctly, add weight if necessary. Glide test on a calm day. When a long flat glide is obtained you are ready for a powered flight.

Move rudder over 1/8 in. to right. Fit a 6 by 4 nylon prop. back to front and with engine running at 3/4 power set timer to 5 secs, and launch at an angle of 80 deg. The model should climb vertically and turn right. Any tendency to climb straight or turn left should be corrected by more right rudder. Increase to full power for 5 secs. If the right turn is too flat, decrease rudder offset. The ultimate on a 10 sec. run is a vertical turning climb to the right completing 2 1/2 turns and rolling off into wind.

The glide turn should be to the right, describing about 80 ft. diameter circles. If the gliding turn is too tight, add packing to left side of tailplane platforms. If models has been built accurately, 1/32 in. packing on left side of tailplane platforms should be sufficient. On no account trim glide turn on the rudder, this is for power trim only.

Now bring the glide as near the stall as possible without actually stalling by adding small amounts of ballast to the box in tail end.

Use the D/T fuse every time. On one occasion on a calm day the fuse went out. The model disappeared directly above into a clear blue sky. It was seen 4 hours later, 15 miles away! Fortunately, it had a name and telephone number on it—be warned!



## From Chris Boll

I was pleased to see the write up by Bill Wells about the BollAero 1.8cc diesel in the May Sticks and Tissue, and that after several attempts at getting a good enough piston fit a running engine was achieved. It does get a bit easier with practice, and hearing your creation run for the first time is a great thrill. Several examples can be seen running on You tube.

With some more running in it should be possible to get better rpm figures, my own 1.8cc would do at least 7000rpm on a 9x4 prop and flew a Veron Deacon with two channel R/C quite well.

I also designed a 4.4cc diesel which flew a Junior 60, and now have a 7.5cc ball raced diesel in a Flying Quaker with about 7 ft wingspan.

The larger engines are easier to make as running tolerances are not quite so critical, the really clever people are those that make tiny engines, or exact replicas of old factory produced engines.

Unfortunately the plans for my other engines never made it on to the Model Engine News website due to it ceasing to update after the untimely death of Ron Chernich, but I can supply copies to anyone who wants them.



*BollAero 750 in Flying Quaker*



*4.4cc diesel and .49 cu inch glow*

## ***World Wide Postal Contest End Next Month from Gary Hinze***

Don't forget to submit entries for any qualifying flights you made during the year, or make flights for any event you wish to enter.

<http://www.endlesslift.com/26th-annual-world-wide-postal-competition-2017-2018-including-sky-bunny/>

There are very few entries at this time. Plenty of opportunities.

Some of these events are good for beginners.

Get your Cloud Tramp out and trim it for the Grant Memorial flight. George Bredehoft has recently improved his kit and there is a new kit being made in England.

<http://www.endlesslift.com/cloud-tramp-kits/>

## **From Jörgen Daun**

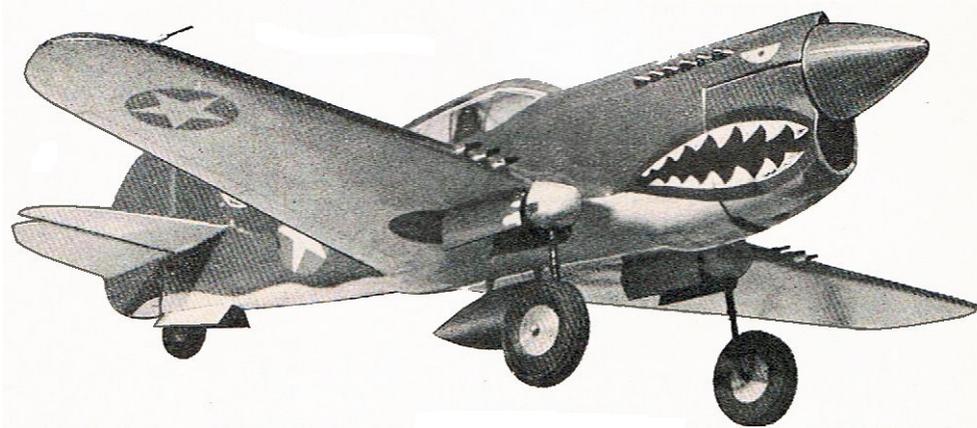
Hi James sending some Pictures of my to latest first the Courtesan a test kit that I built for Old school model factory a nice kit to build and today it did its maiden flight steady right out of my hand ni wises like all Vic Smeeds models. The second is the Fledeling shortkit from Douglas Wass also very nice kit and did its maiden same day and same as the other no problem at all





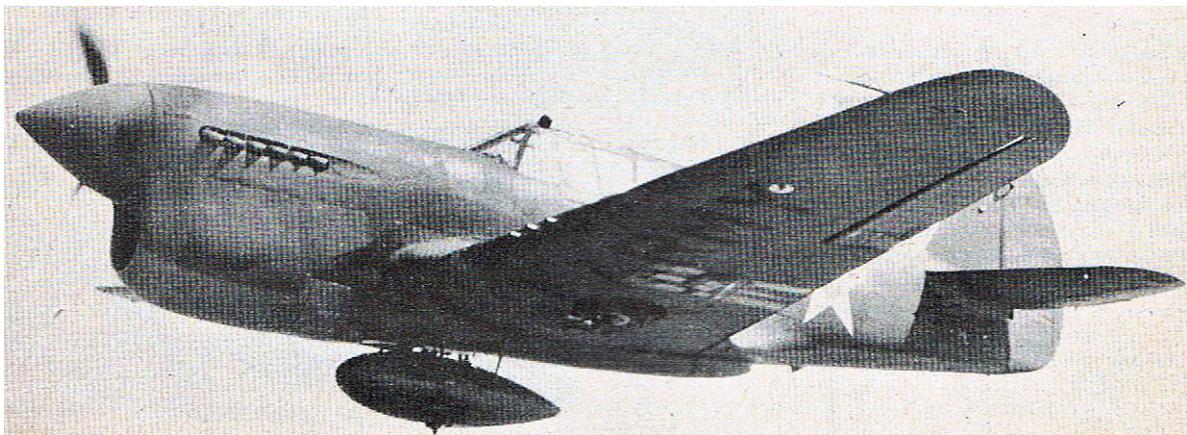
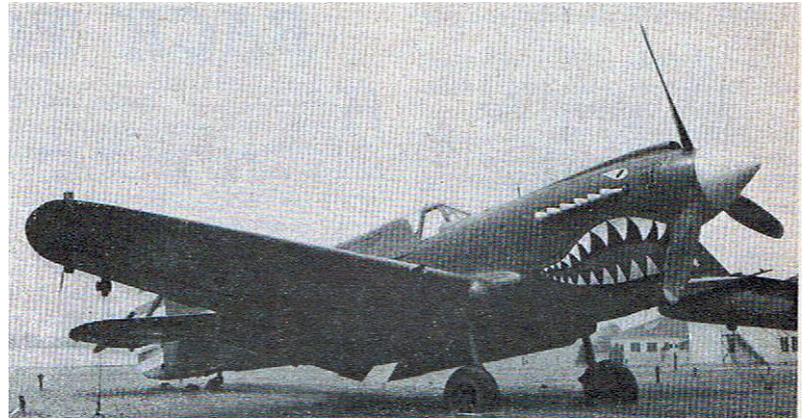


**The P-40 Warhawk a realistic C/L scale job for 1 – 1.5 cc engines designed by R Tacconi from Model Aircraft May 1957**



This is another Model Aircraft plan that really requires no explanation on the building aspect. It is perfectly straightforward and in fact the colouring of the completed model is the stage to take extra care if you want to achieve results comparable to the model Warhawk shown in our heading illustration. We believe that one or two large pictures convey far

more than just words, and the two full size machines shown here should be studied when deciding on how much extra detail to add to your model. One photo; that on the right, shows a slight variation of the sharks' teeth design that seemed a "natural" for Warhawks; just discernible beneath the wing of this machine is the insignia of the Chinese Nationalist Air Force. Photo below is of a U.S. Army Air Force Warhawk of the 1942 period.



## DMFG Sunday 10 June 2018

Apart from me not taking many photos those I did take were from flight line 2 not the main line where much was happening so here are some photos of those banished to another field. Idea with line 2 was that smaller RC models could fly there in the end only Den, Caulkheads, Stewart Hindle and John Hook used the field for CL, FF and one RC.





*Den looking pleased with another successful flight of the hi start glider*



*The Easy model, it flew very well and is well worth getting hold of one, it fits in the boot and is a great flyer will even thermal easily*



*John Hook's model*



*Mick brought along some new engines he had bought*



*More below about the glider and Easy model Den flew*

## From Den Saxcoburg (Dens Models)

A couple of the Heisbok designs I was flying at Tarrant Hinton on the 10<sup>th</sup> June caused a fair bit of interest.....I was making the most of the day and wasn't able to spend much time to talk about each design.....so here is a bit more information:-



This is the **Easy**.... an all balsa 33" span Jedlesky wing 2 channel RC model....flying weight about 260 gms.....using a 2S 800mAh LiPo flight times are well in excess of 20 minutes....uses a drone motor from the Component Shop and 6 x 3 GWS prop.

As the name implies construction is very simple....all parts are laser cut to a high standard and the model could easily be built In a week

Here is the **HS 304S Twin Shark** a 20" span semi



scale Hi – Start glider....based on the Czech twin seat full size original by HpH Sailplanes.....well worth a look at their site here:- <http://www.hph.cz/>



## From Chris Pinn in Germany

Just a thought.....

I could do an article on Ken Willard's Schoolmaster. It was designed for RC with a Cox 049 (see attachment) and Aeromodeller published the plan in January 1965.

On the down side - very few sticks and absolutely no tissue at all!

I always considered Ken to be the American counterpart to Vic Smeed. Would you be interested ?

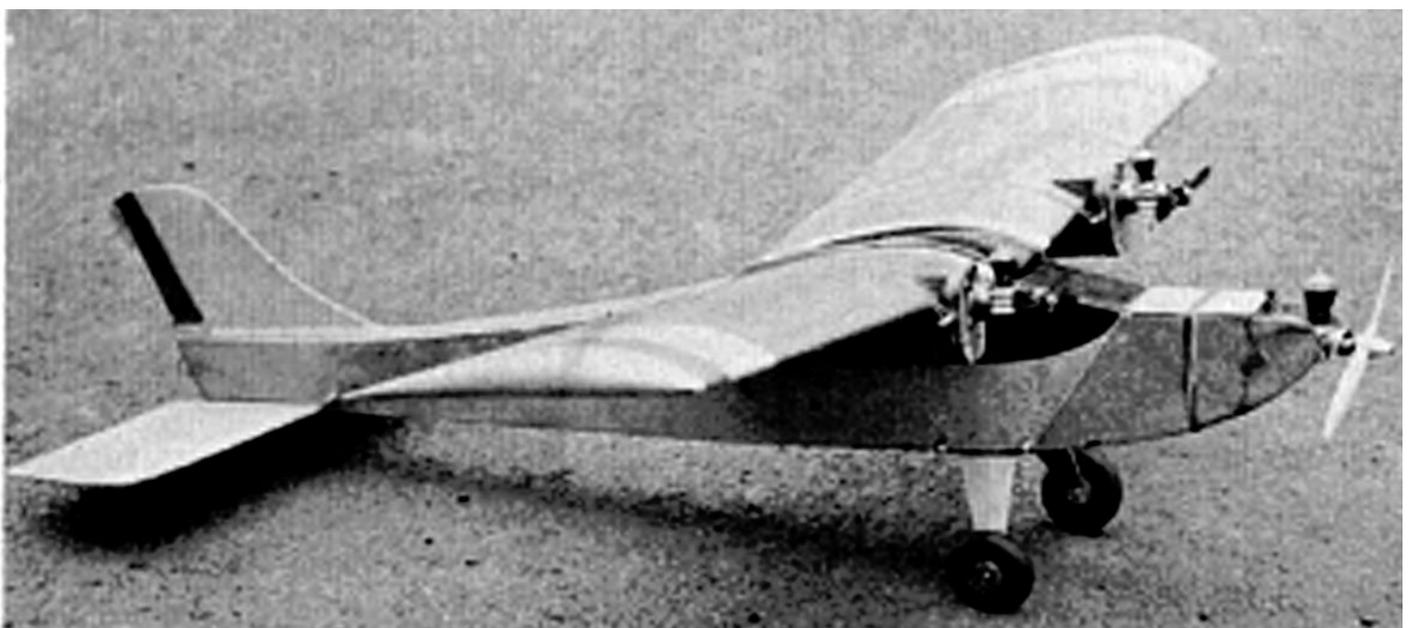
### Ken Willard's Schoolmaster by Chris Pinn





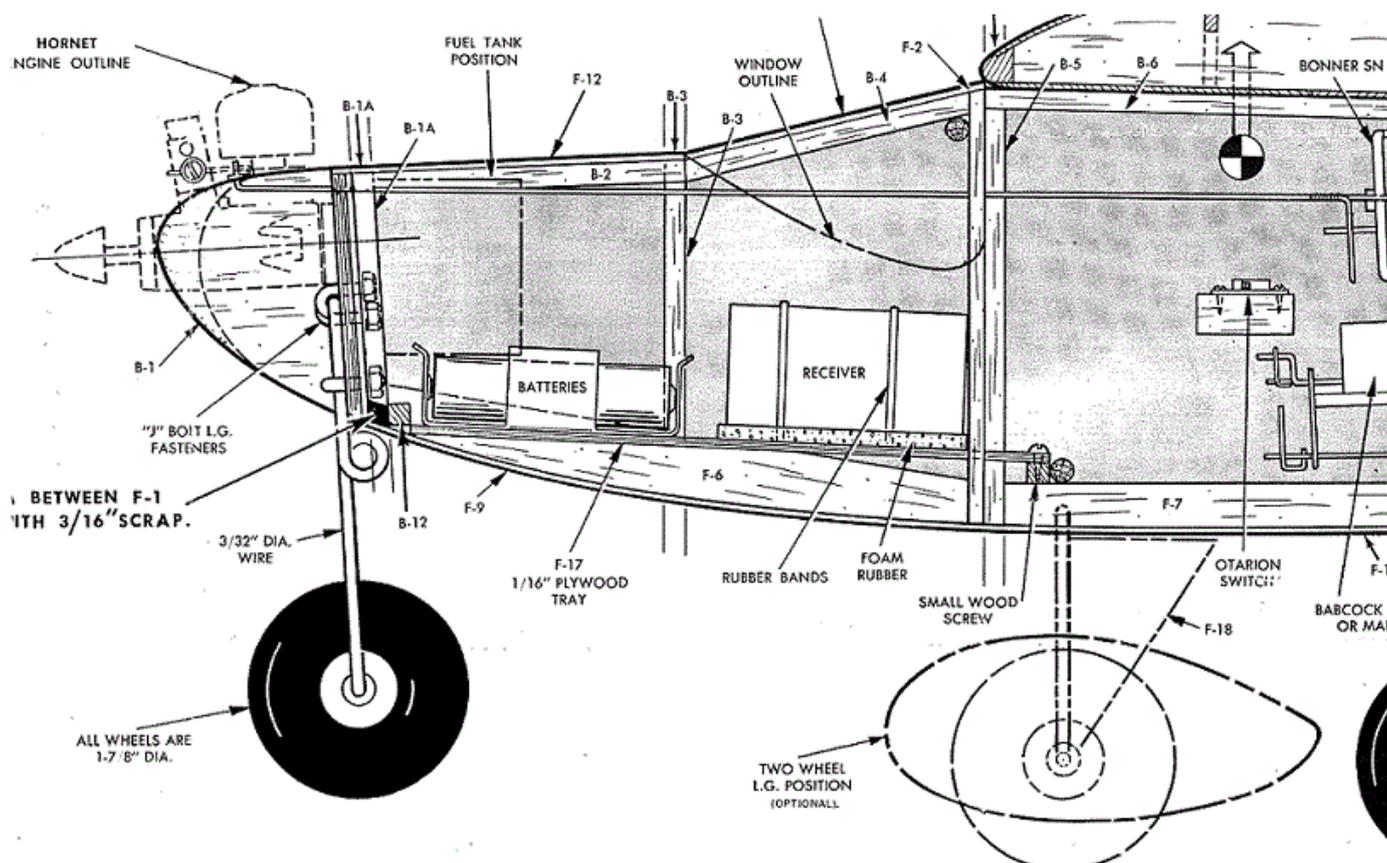
Aeromodeller published the Schoolmaster plan in the January 1965 issue. Prior to that it had been available in the USA as a Top Flite kit selling for under \$6. The Schoolmaster stood out due to its unusual sparless all-sheet wing. Ken must have been happy with the wing as he used it again on the Double Feature and the Shearwater. So you could build one wing and ring the changes with three different fuselages if you wanted to !

The Shearwater was a flying boat and the Double Feature anything between a slope soarer, single engined, twin pusher, twin tractor or conventional twin. Phew!! And as further proof of the versatility of this design, Radio Control Modeler May 1969 showed a trimotor Schoolmaster. Easy to do with electric motors, but a lot scarier with unthrottled glow motors and low tech RC.

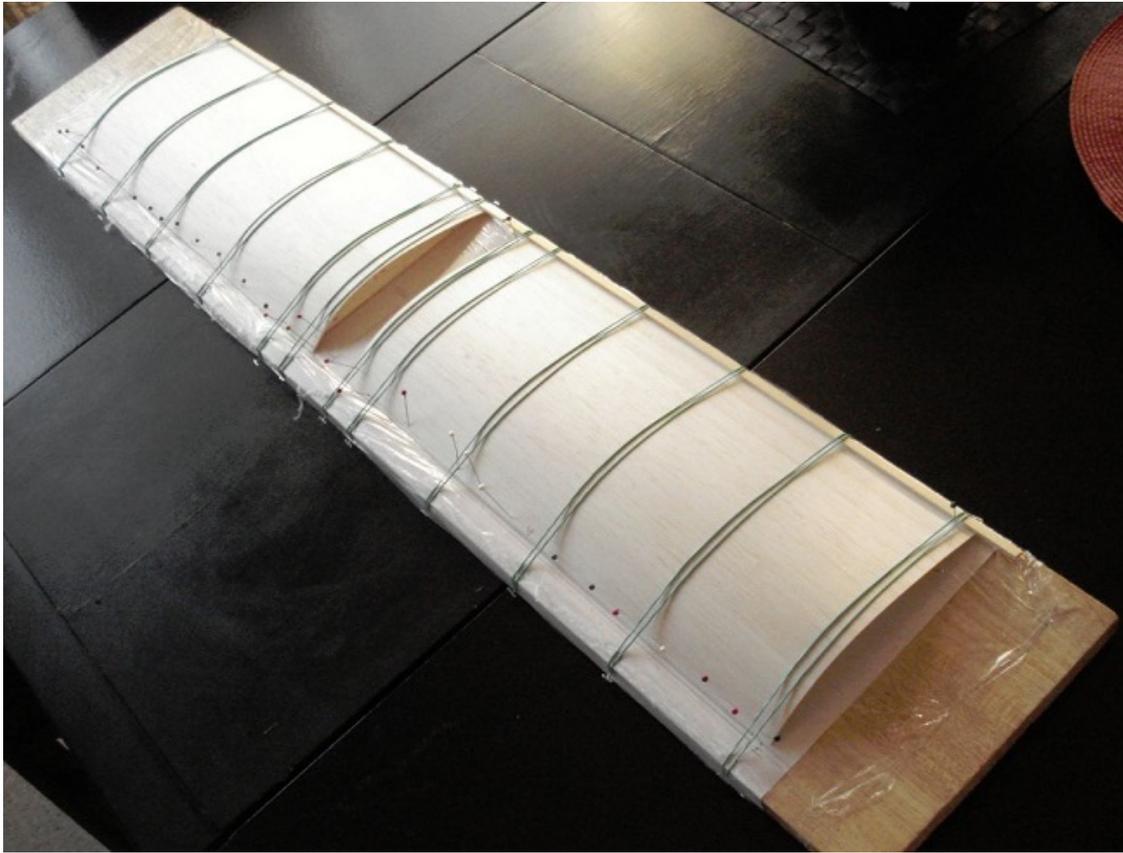


My flying buddy Harald asked me what I was building next. I showed him the Schoolmaster plan, he said he liked it a lot and would build one as well. He had been planning to build something German from the same era, such as the Hegi Frechdax, but was swayed by the Schoolmaster. I wanted to build something new for Old Warden that wasn't a Tomboy, Magna or similar, so we joined forces.

There are at least 3 Schoolmaster plans in existence. Outerzone has a nice redraw by Jim Johnson in 2005, the Aeromodeller one of course and the one I bought on Ebay which I'm sure was an original kit plan out of the box. I liked my version of the plan as it showed an optional taildragger undercarriage as on Ken's similarly styled Schoolboy. The other plans don't show this option.



We scratch built them of course, which in my opinion is much better than searching for an ancient kit as it allows the selection of top quality balsa. We splashed out on superb 250mm wide balsa from Heerdegen Balsaholz for the wing skins, which made life easier. Nothing harder than medium for the whole model, in fact the wing sheeting we chose was soft. Harald used Uhu Hart, a traditional balsa glue, whereas I used Titebond II for the first time. I really liked using the Titebond, but every time we weighed sub assemblies, Harald's parts were always lighter than mine. For example : My wing 116g, his wing 105g. Hmmmmm.



The 'big' decision was whether we trusted the sparless wing concept or not. As we were working off one plan on my building board, I committed to build the first wing without a spar to see if it was stiff enough before the second one was started. I was amazed how stiff the wing was, so the second one was built the same way. The finished wing shows that the stiffness comes from the curved sheet over the aerofoil resisting being bent in a second direction. In the April 1970 issue, Radio Modeller published a plan called 'Das Ghosten Flugboot' which the designer says was 'somewhat inspired by Ken Willard's Shearwater'. I guess the designer also went through the same mental mental anguish regarding the sparless wing and in the end added a mainspar. Ken eventually enlarged the sparless wing to 53ins on the OS Max 15 powered BT-70, so there is definitely stretch left in the concept.

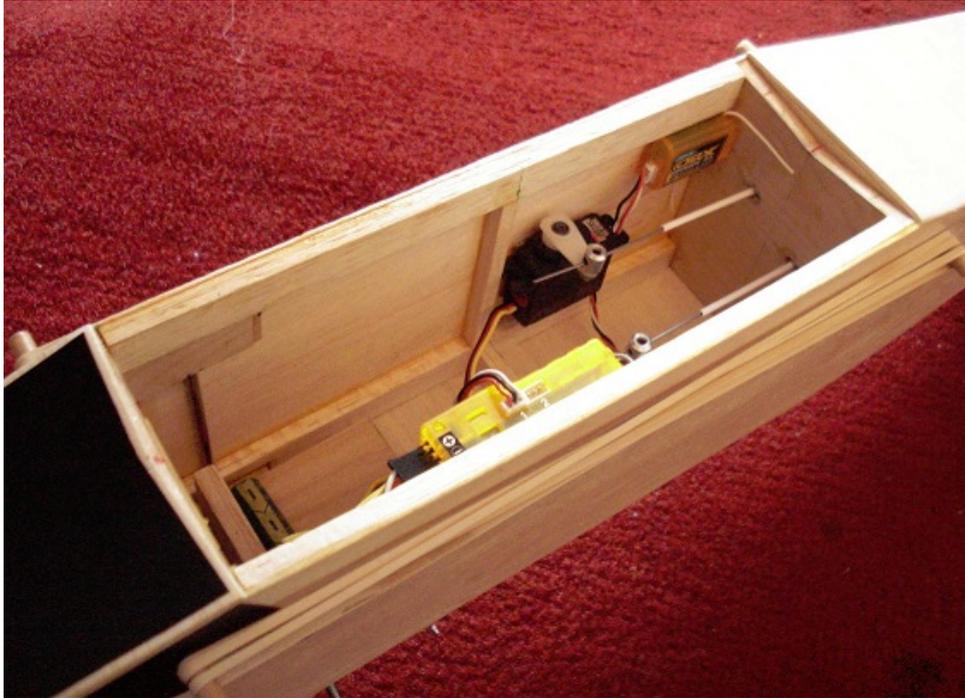
The rib template was the easiest ever – no notches and every one the same size ! Without a mainspar the ribs tend to fall over when being glued in place, so must be supported during drying. The trailing edge finished up with a very small but annoying waviness. I don't think anyone else would see it, but I know it's there. If I built the wing again, I would be tempted to add a carbon rod, say 2mm in diameter about 5mm in from the trailing edge.

I made the undercarriage my favourite way. Two separate legs running one behind the other across the bottom of the fuselage then up the sides all the way to the underside of the wing and held in by saddle clamps. If you bend a leg, you can remove it and easily rework it back into shape.

The one part of the design which seemed completely out of whack with the rest was the wing tips. Great big lumps of balsa. We used soft wood and by the judicious use of the band saw were able to rough cut the parts in all three views. Saved a ton of balsa dust. During the build we also used a Proxon circular saw to cut the various balsa strips from sheet, which is more economical.

I regretted that I had not put a hatch on my Q-Tee, where battery installation is a real fiddle. I have to push the battery into the nose from under the wing, which means taking the wing off. So I built in a magnetic hatch in front of the windshield. The magnet is located over the head of a 3mm bolt. If the force to open the hatch is too high, just screw the bolt down a little. Harald's idea ! The hatch makes life much easier particularly as the Lipo is located just behind the motor, held in by Velcro.

And please make sure you do not have naked motor mounting screws pointing towards the Lipo which could puncture it in a crash !



The size of the radio compartment is of course more than adequate for today's equipment. To be as safe as possible flying at Old Warden, where there is always a significant number of other RC models in the air, I treated myself to a new Spektrum DSMX transmitter to replace my ageing DSM2. An R620X receiver with satellite provided 3 aerials, one pointing in each of the three orientations. The two servos were Hitec HS-81MG and I used a new 30A ESC I had in my parts box. Way over the top I know. If I had bought new I would have gone for 18A. Eagle eyed readers will notice the 'Brown Out' capacitor which I have as additional security on all models. The motor I chose was an Emax CF28-12. I have a couple of other models with this motor and I am very happy with it. It works well with a Gemfan 7x5 prop, both with 2S and 3S Lipos. I would like to replace the prop though as it looks just 'too modern'. The prop is attached with a rubber ring prop saver which I stretch in place with a crochet hook bought for very little money from my local

Pound Shop (actually in my case a Euro Shop). In fact there were two in the pack, so Harald got the other one.

As I thought the 'stressed skin design' of this model deserved highlighting, I decided to clear dope it all over. Just some black foil for the cockpit, the name, as well as a couple of 70's Smilies and my long defunct AMA number to show its American heritage. Even so I was asked at Old Warden if it was a Veron Robot, but to be fair to the gentleman there are certain similarities which I had not noticed myself.

I was sceptical whether the relatively large Schoolmaster would actually fly on a Cox 049 as indicated on the plan. The upper limit given was an 09, so I set up my brushless motor with a Wattmeter to have equivalent power to the OS PET 099 of the period. On the first flight with a 3S Lipo it flew as sweet as a bird without any trim adjustments, but I had to reign the power way back. Harald flew his a couple of days later with a 2S and hasn't changed one setting on his model since that day. Would it fly on a Cox 049 ? You bet it would.

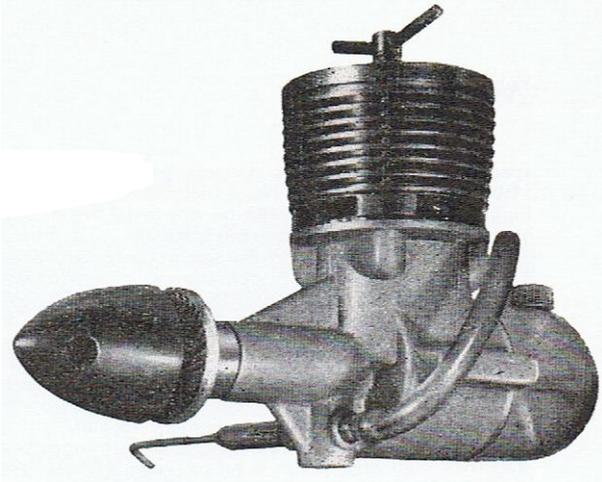
The Schoolmaster was replaced by the Top Flite Schoolmaster II kit in 1980. The fuselage still showed a Cox 049 and looked the same, but the all sheet wing was gone and the sheeted built up tail surfaces (which look wonderful with the light shining through) were replaced by solid sheet. It was probably a very nice model, but for me it had lost something.

### Model weight breakdown :

Wing	116g
Fuselage incl. Tail Surfaces + Servos	195g
Undercarriage	42g
Motor + Prop	55g
Receiver + ESC	40g
Dope + Stickers	11g
Miscellaneous – Rubber Bands etc	20g
Lipo	84g

Flying weight 563g (Harald's was a good 40g under this)





## The Davies – Charlton Manxman from Aero Modeller February 1957

Immediate impression on opening the box was— what a nicely-made, attractive engine. After a total of some three hours running time we can only endorse that its performance is well up to the standard promised by its initial appearance.

Essentially the new “Manxman” is similar to the original D-C “350”, with the same bore and stroke and similar overall appearance. The most striking external difference is that the cylinder finning is now incorporated on a separate jacket and anodised bright red. On the old model the crankcase casting was extended to the top of the

cylinder with cast-in fins and a separate head. On the “Manxman” the crankcase casting terminates in a flange at exhaust port level with a cylinder jacket locking the steel cylinder proper in place by means of four screws through the head (integral with the jacket), terminating in four lugs cast into the new crankcase unit. Another difference in the crankcase casting is a slight increase in metal thickness at the front end, which was the weakest point on the old model,

With the bore and stroke substantially unaltered (the bore is actually slightly down on the old model), similar exhaust and transfer timing appears to have been retained. In common with the old D-C “350” the piston just uncovers the bottom of the exhaust for sub-piston induction at top dead centre, although fractionally less than before. The induction entry porting is slightly larger, i.e., the hole in the crankshaft is about 1/64 in. up and the timing slightly modified to give approximately 15 degrees more overlap. Despite the very substantial steel cylinder assembly it is possible to produce distortion and subsequent binding by tightening down the hold-down screws too much. The cylinder itself is not located circumferentially and so, if dismantled, may result in a slight loss in performance when reassembled, if not exactly the same way round as originally. It is therefore an engine which should not be taken to pieces unnecessarily. Also we found that for minimum friction it paid to have the head hold-down screws a little on the slack side, rather than too tight. Even in this state they have no tendency to work loose at the speeds at which the engine will most usually be run.

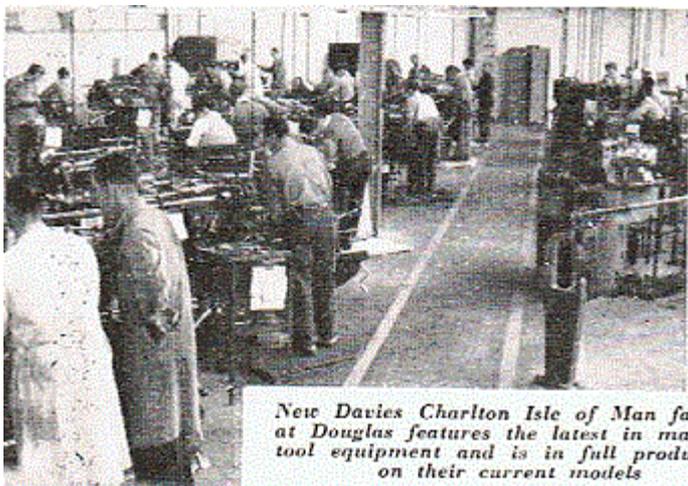
Essentially the “Manxman” is an engine for moderate speed running. It reaches its peak power just before 11,000 r.p.m. on Mercury No. 8 fuel and whilst possibly higher speed running might be improved by a little experimentation with fuel mixtures it is definitely “sweetest” running within the speed range of 10,000-11,000 r.p.m. Below 10,000 r.p.m. it becomes rather less happy about holding consistent r.p.m. and at the very high speeds it becomes more and more critical on compression and needle valve setting for best performance. Vibration also tends to build up as the speed passes 12,000 r.p.m. Starting characteristics similarly deteriorate beyond about 13,000 r.p.m. That is to say, whilst the engine is still easy enough to start (using a rich mixture or generous prime and compression slackened well off), it has a pretty vicious “snap” on a 7-inch diameter propeller.

One rather interesting characteristic was that it was not possible to stop the engine by slackening the compression off to its limit. All this did was to cause the engine to slow down, but even backing the compression off as far as it would go, the “Manxman” still kept on running. This characteristic was maintained right through the speed range. The fuel supply has to be shut off or the needle valve turned down to stop it. Strangely enough the actual compression setting required for optimum performance with any propeller load was fairly critical. The higher the speed the more critical the setting became. Similarly with the needle valve, it also being necessary to progressively richen the mixture (i.e., open up the needle valve more and more) as the speed went up. The engine runs quite well with almost any propeller load, except the smaller sizes, over a range of settings, but there is a definite combination of adjustments which gives the very best with any particular propeller. Two propeller sizes, incidentally, which we found the “Manxman” did not like on our tests were the 8 x 8 and 8 x 9 Team Racer props. This may have been a characteristic of the individual propellers used.

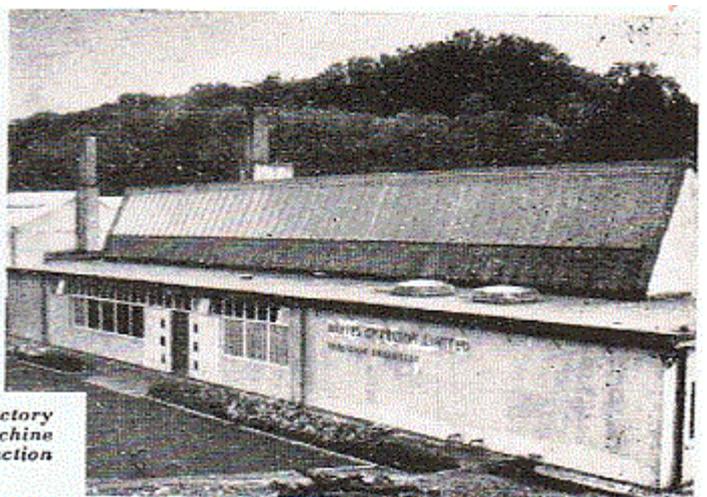
General handling characteristics of the “Manxman” are excellent. It is a noisy, powerful engine, but starts readily with either finger choking or a prime through the exhaust and the compression turned back slightly. Provided the mixture is not excessively weak the engine will start and run continuously within a couple of flicks, with ample time to make final adjustments to the settings. The compression control is stiff without being difficult and can be grasped without fear of burning the fingers. The needle valve assembly is quite a sensibly-sized unit with a long thimble, split to provide locking action. With the choke tube pointing vertically downwards the needle valve position is immediately in front of the right engine bearer, in a practical installation, which means cutting the bearer off quite short. It does have the advantage, however, of bringing the needle valve well back from the propeller disc.

The brake horse power curve is quite flat so that there is not a great deal of difference in power output over a range of from 9,000 to 12,000 rpm. There is no specific advantage in running the engine fast, in fact rather the reverse is true. Hence our personal preference would be for propeller sizes giving a static r.p.m. of around 10,000. For sports flying and/or radio control work, a static r.p.m. of 9,000 would probably be better, equivalent to something like a 11 x 4 or 10x5 propeller.

The 8 x 9 (narrow blade.) propeller would appear to be the logical choice for a team racer installation, except for the running feature mentioned before.



*New Davies Charlton Isle of Man factory at Douglas features the latest in machine tool equipment and is in full production on their current models*

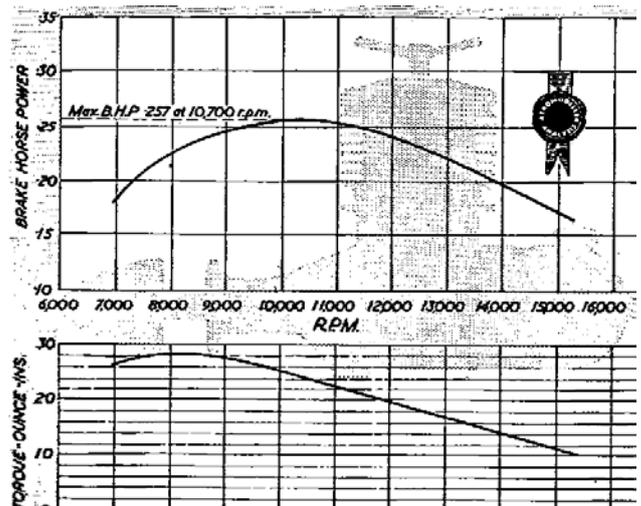


Running the “Manxman” on smaller propellers, i.e, at higher speeds, merely makes it harder on the finger for starting, increases the vibration and does not give any more power. In fact, beyond 12,000 r.p.m. power output begins to fall off quite rapidly. Carried to extremes I’ve found that on a 6 x 4 propeller the

“Manxman” gave a lower r.p.m. figure than a good 2.5 c.c. engine, became extremely critical on adjustment and tended to vibrate badly. But since this was some fifty per cent, past its peak power point, such characteristics were hardly surprising. We mention this to emphasise that the “Manxman” will give its best performance at somewhat lower speeds than most people are used to these days, within which range, of course, it is appreciably more powerful than the best of the two-and-a-half’s. Operated within this range it becomes a most docile engine for its size.

The new “Manxman” is deserving of a lot of praise as a well-designed, extremely well-made and finished engine with a good performance. It has no particular vices that I’ve could discover and, frankly, about the only thing I’ve could criticise would be the overall weight. Six and a half ounces is rather on the high side,

but for it you get a robust engine. We particularly welcome the integral clear plastic tank as a standard fitment and the pleasing overall appearance, both of which must undoubtedly add to its “eye appeal”. Having tried it out pretty thoroughly we can only confirm that its performance and general handling characteristics come up to the expectations present on first taking it out of the box. But we do think it worth



a new instruction leaflet rather than one appropriate to the older D-C "350".

### SPECIFICATION

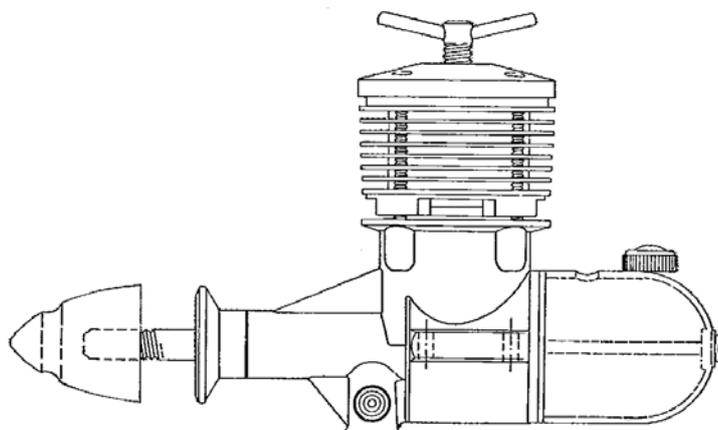
Bore: .680in. Stroke: .5625 in. Displacement: 3.444 c.c. (.21 cu. in.) Bore/Stroke ratio: 1:17  
 Bare weight: 6 1/2 ounces (including tank)  
 Max. BHP.: .257 at 10,700 r.p.m.  
 Max. torque: 28-2 ounce-inches at 8,250 r.p.m.  
 Power rating: .075 B.H.P. per c.c.  
 Power/Weight ratio: .0395 BHP. Per ounce

#### Material specification:

Crankcase: Light alloy die casting  
 Cylinder: Hardened steel  
 Cylinder jacket: Almn.. (anodised red)  
 Piston: Meehanite  
 Contra-piston: Meehanite  
 Connecting rod: Aluminium alloy  
 Crankshaft: Nickel chrome alloy steel  
 Crankshaft bearing: Plain  
 Spinner nut: Dural (anodised red)  
 Manufacturers:  
 Davies Charlton Limited,  
 Hills Meadows,  
 Douglas, Isle of Man  
 Retail Price:  
 66s. plus 14s. 11d. PT.  
 Total £4 0s. 11d.

All Stant wooden propellers. Mercury No. 8 fuel.  
 Performance essentially similar on Allbon Diesel fuel and Mercury RD.

PROPELLER—R.P.M. FIGURES	
<i>Propeller dia. x pitch</i>	<i>r.p.m.</i>
11 x 5	8,000
10 x 6	8,200
9 x 8	8,600
10 x 4	10,400
9 x 5	10,500
9 x 4	11,000
8 x 6	11,200
8 x 8	10,000
8 x 5	12,250
8 x 4	13,000
7 x 6	13,300
7 x 5	14,000
8 x 9 (TR)	9,600
8 x 8 (TR)	10,900
7 x 9 (TR)	11,000



### From Hans Vanrij

Hi James, lovely to receive the "Sticks and Tissue" again.

The next happy surprise was the old "Radio Pancho". Wim Beekmeijer and I were members of the "RLC" model flying club and we lived only two streets away from each other in the West of Rotterdam. In that time it was still possible to fly on a new industrial estate, nicknamed "Sahara", because it was sand from the river and harbours. Now it is of course a dense built area.

We both flew our Radio Pancho's there. It was a adaption of Wim his FF "Pancho". These RC gliders were one channel, with an Elmic escapement. The receiver was home built with a XFG1 tube, I think to remember.

Even in 1953 the plane was already a bit old fashioned. So I designed and flew two FF "Super Pancho's" Later on I moved to the east of the Netherlands and concentrated on Coupe d'Hiver and Wakefield, but that is an another story.

When in my house in the Netherland I will go through my old photo's, see if I can find pic's for "S&T"

Regards from Norfolk, Hans

## From Otto Rodenburg, Wijhe, Netherlands.

Dear James,

To my astonishment your latest issue of S&T (#138) featured a plan from 1955, more precisely the Pancho by W.H. Beekmeijer.

Wim Beekmeijer is an old flying comrade of mine, who introduced me into the world of indoor flying, back in the eighties. I then showed my gratitude to him by beating him in every contest we entered.

Nevertheless we were good friends although we lost contact after I left the indoor scene.

Many years later the bond was restored by some lucky chance. Wim was a member of the 'Movers' then, a society of veteran modelers where he duly introduced me once more.

This society used to go out for a flying week once a year and it was on one of those occasions I met Wim's Pancho and it is with great pleasure that I can show you some pictures of this pretty plane.

But let's start with a view of the entire Movers crew at the conclusion of the flying week 2008



Wim is pictured on the left, holding his Pancho, his wife Jet (to be pronounced as 'Yet') holds Wim's other oldtimer (RO-1819), the Super Stootkop , a van Hattum design.

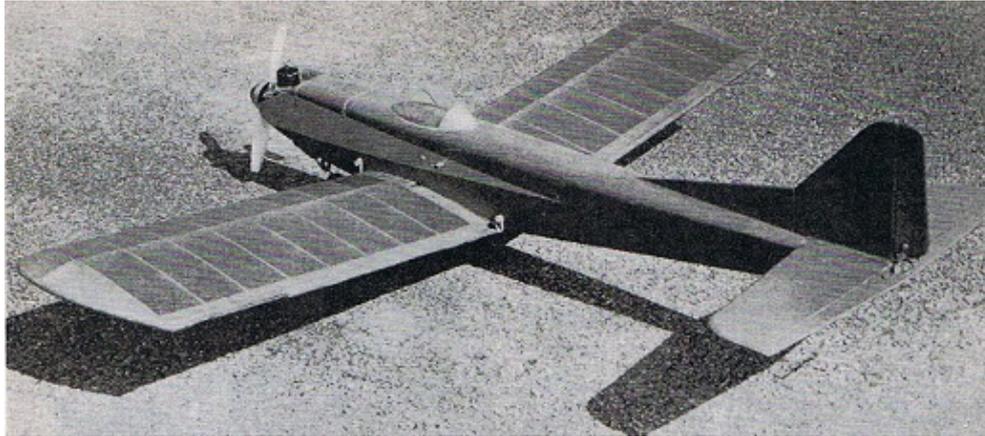
Unfortunately Wim has become a victim of Alzheimer's disease and has no recollection of his modeller's past anymore.

He might have forgotten his past, I feel he deserves to be remembered for what he was: a versatile modeller and a good friend.

Otto Rodenburg, Wijhe, Netherlands.



**Wagtial by John Ralph Simple model pylon racing will be "in" this season – here's a really hot job to see you in the lead at those club races! 39in span for 2.5cc engines. From Radio Modeller March 1967**



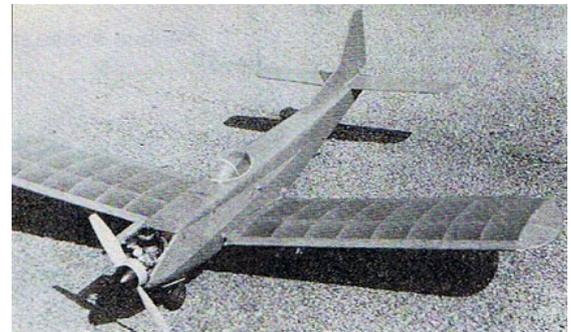
Like all "new" model aircraft designs, Wagtail owes its general layout to some previously designed model. In this instance, it was Geoff Franklin's Pylon Duster—a model designed for aileron and elevator, with reed control. Wagtail however, differs in a number of important ways from that model, in order to allow it to be controlled at high speed

from the single channel elevator and rudder G.G. system. If you just took the original version and tried flying it on G.G., you would not have much success. The wing layout is for ailerons, and has not enough dihedral to permit turns to be made properly with rudder

Also, the wing section is not suited to the limited elevator control obtainable with G.G. systems, so both of these points have received attention. A further point is that, when the relatively light weight single motor G.G. system is installed, the wing area can be reduced while still retaining a low wing loading. The wing section can also be considerably thinned down, giving much reduced drag.

The resulting design, when all these various features had been incorporated, resulted in a model which proved to be highly manoeuvrable and very fast on an O.S. Max III .15. Wagtail can hold its own against any similar reed multi or feedback proportional equipped model, and its response to control is so fast that I, personally, feel very much happier flying it than I do flying many slower, reed controlled, machines.

As regards value for money in flying enjoyment, of course, you just cannot beat galloping ghost controlled models. With the appearance of some very neat American servos on the British market and the advent of some British manufacturers marketing G.G. equipment, we are already seeing a lot more models using this system. It certainly means that anyone can have the pleasure of proportional control, on virtually a single-channel budget.



#### Construction

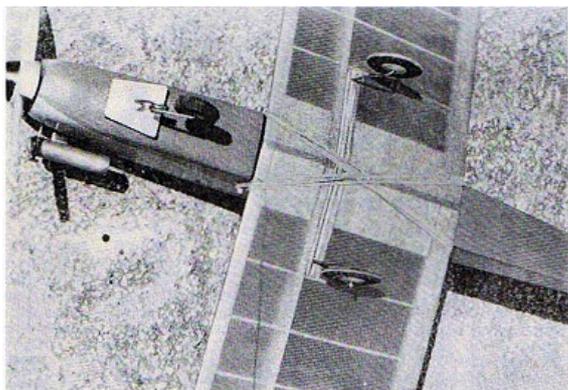
As can be seen from the plan, the constructional methods used in Wagtail are simple and the model can be built quite quickly. I completed the one I am flying at present in three nights. (With the help, I might add, of my wife, who cut out the ribs and made coffee at 12.30 a.m. each night before I finished). The wing leading and trailing edges are just single strips of pre-shaped stock.

The l.e. needs slight re-shaping and the te. has to be set up at an angle to the building board, in order to give the correct rib profile. The wing halves are joined together with the full depth dihedral braces, and then the u/c box and centre ribs are fitted. One of the illustrations shows an underside view of the model, which should make clear the simple plug-in main undercarriage leg system used. The idea was pinched from Eric Falkner's Swallow, but actually has its origins way back in the '40's on rubber powered models. There is nothing special about the fuselage construction—just don't use 1/2in. sheet that is too hard, or the weight will start to build up. Make sure that the tailplane and fin are really well glued on, and in line.

#### The G.G. yoke

If you are not fortunate enough to be using one of the special new galloping ghost actuators, like the Rand, you have the alternatives of the cross-mounted Mighty Midget system described by D. G. Thomas, and used in his Gigi (November 1966 RADIO MODELLER), or the conventional tail-end yoke, as used on the original Wagtail and detailed on the full size plan. If using the yoke, make sure that it is set up very

carefully, to give the indicated movement. Make certain that the rudder and elevator hinges are free from paint and can move with the minimum of force. With a high-speed model, you need all the torque a Mighty Midget can give, to overcome air-drag, without adding to the job with sticky hinges. The photograph of the tail end of my model should help to give a clear idea of the assembly.



Finally, don't forget to build in the correct side-thrust for the engine, as this is important on a low wing model.

#### Radio

Just a couple of words about the radio. The Rx I used was a home built Gallatrol. I had to use separate batteries for the servo amplifier, but probably my set was a little more sensitive to motor noise than most. The mark-space on the Tx should be adjusted so that, at the fast rate, full rudder does not produce a lot of unwanted up elevator

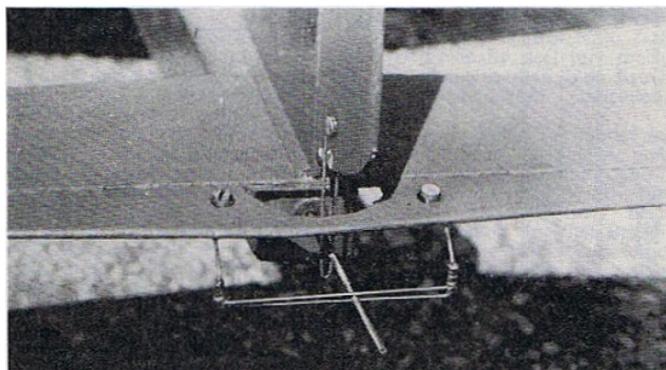
#### Flying

A few tips on first flights may be useful. One, don't put too much fuel in the tank. Two, put the prop on backwards. This is definitely advisable for initial testing as Wagtail is highly powered—it could fly quite respectably on a 1 1/2c.c. engine. A 2.5c.c. power plant makes it a real hot rod. It is a good approach, therefore, to have the engine going smoothly at high revs, so that it will not die out at a critical moment, but to reduce the thrust by having the prop reversed. As soon as you have the model trimmed out, you can change the prop round and really start to live it up. If you do find you have an unwanted turn, and the thrust and rudder settings are correct, a small trim tab may be fitted on the wing tip to counteract the turn.

I hope you derive as much pleasure from your Wagtail as I have from the ones I have built.

Small model pylon racing is great fun, and we shall no doubt see more of this, as club events, during the coming season. It is difficult to describe the exhilarating feeling one gets flying this sort of model on proportional. Low, fast runs (but—safety-first, please! —Eds.) and long, gradual climbs finishing by heading vertically up and up . . . and up! There is no stopping a model with this sort of power-to-weight ratio, so you are really in for some thrilling flying.

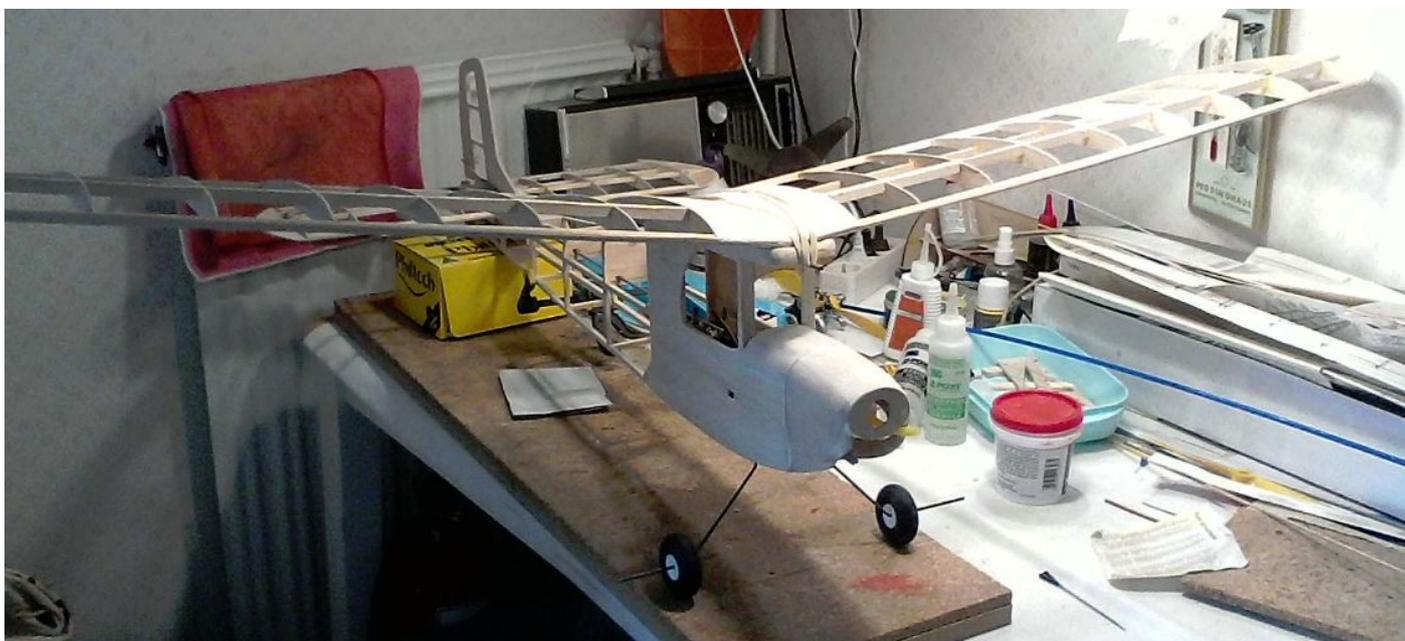
Well, where's the buildingboard . . . ?



## From Jürgen

Hi James been out on field with my SWAMI kit from BMJR a great flyer one of my few Electric that Sunday temp 29 celcius and no wind ! And my latest Project is an Veron Deacon from an original kit that was past on to me after a dead friend sadly I gone to put an 1,5 Philtech diesel in it that I put an Enya 0,9 rc carb in works fine. Hopefully there will be more good flying Days.





## **North Cotswolds MAC 2018 Fun Fly**

The North Cotswold MAC's Fly For Fun 2018 will be held on August 11th and 12th at Far Heath Farm, Moreton-in-Marsh, Glos.

We'll be running all our regular features and the models chosen for our Designer's Events this time will be:

On the Saturday - the Keil Kraft Super 60

On the Sunday- designs by the late Dereck Woodward (we're revisiting this one as the first time we ran it, the event was hit by bad weather).

In both events, models of any size, variation and power will be welcome.

Gray

## From Bill Wells

### Redfin Twinfin 099

Following on from Redfin 06 twin Alex Phin has produced another little gem a slightly larger 099 (1.6cc) twin. Just like the 06 it is recommended for initial starting to back off the rear cylinder compression by a turn and start the engine on the front cylinder. Also recommended is to run the engine with the carburettor facing downwards presumably to reduce the chances of flooding the engine. Starting the engine can be with a small drop of fuel to each cylinder or simply choke priming. Either way starting is easy and the front cylinder will turn the engine happily until you can increase the compression on the rear cylinder. With both cylinders firing it is a simple matter of making small changes of compression to get the best rpm. I found the front cylinder needed the compression backing off very slightly from this starting procedure and perhaps a small tweak on the needle valve to get the best rpm. Once the compressions are established restarts are easy with just a couple of choked primes. I found just slacking the compression slightly on both cylinders is an advantage with restarts because if the engine is a little bit rich on the prime it will kick backwards when starting and continue running backwards. Backing off the compression slightly increases the chances of the engine running in direction you flicked it!! A feature of reed valve engines is that they run equally well in either direction.

The engine comes with mufflers but it is recommended that initially you remove them to make it easier to become familiar with starting and running the engine. The cylinder heads (fins) are screwed to the outside of the cylinders trapping the top half of each muffler so it is a simple task to remove or replace the collector parts of the mufflers. On an 8x4 prop the engine doesn't make that much noise without the mufflers. Having said that the mufflers are effective in reducing the noise although with a loss of power!!

A very neat predrilled aluminium angle bracket with engine mounting screws is supplied to make bench running simple. Two wood screws (not supplied) attach the bracket to your test bench. With the carburettor underneath I found adjustment of the needle valve almost impossible. My little pinkies are too big to safely make adjustments of the needle valve on the underside of the engine against the work bench top and the stand. This could be overcome with a wire extension, it would not necessarily be a problem when mounted in a model.

When using the mufflers it would be a good idea to have the exhaust holes pointing downwards. The mufflers are like collector rings and tend to fill up with exhaust oil, gravity will keep this residue over the hole ensuring it will be ejected by the exhaust gasses.

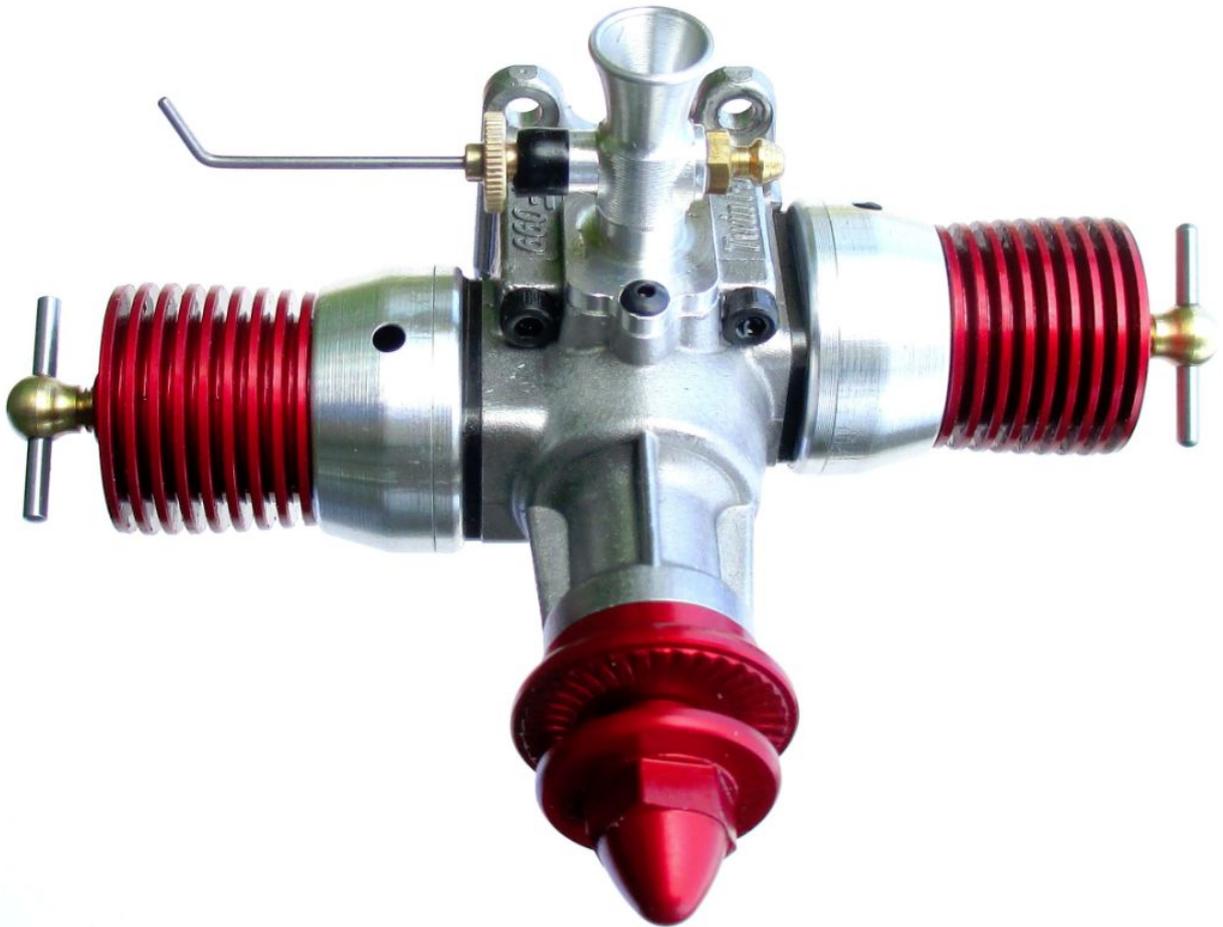
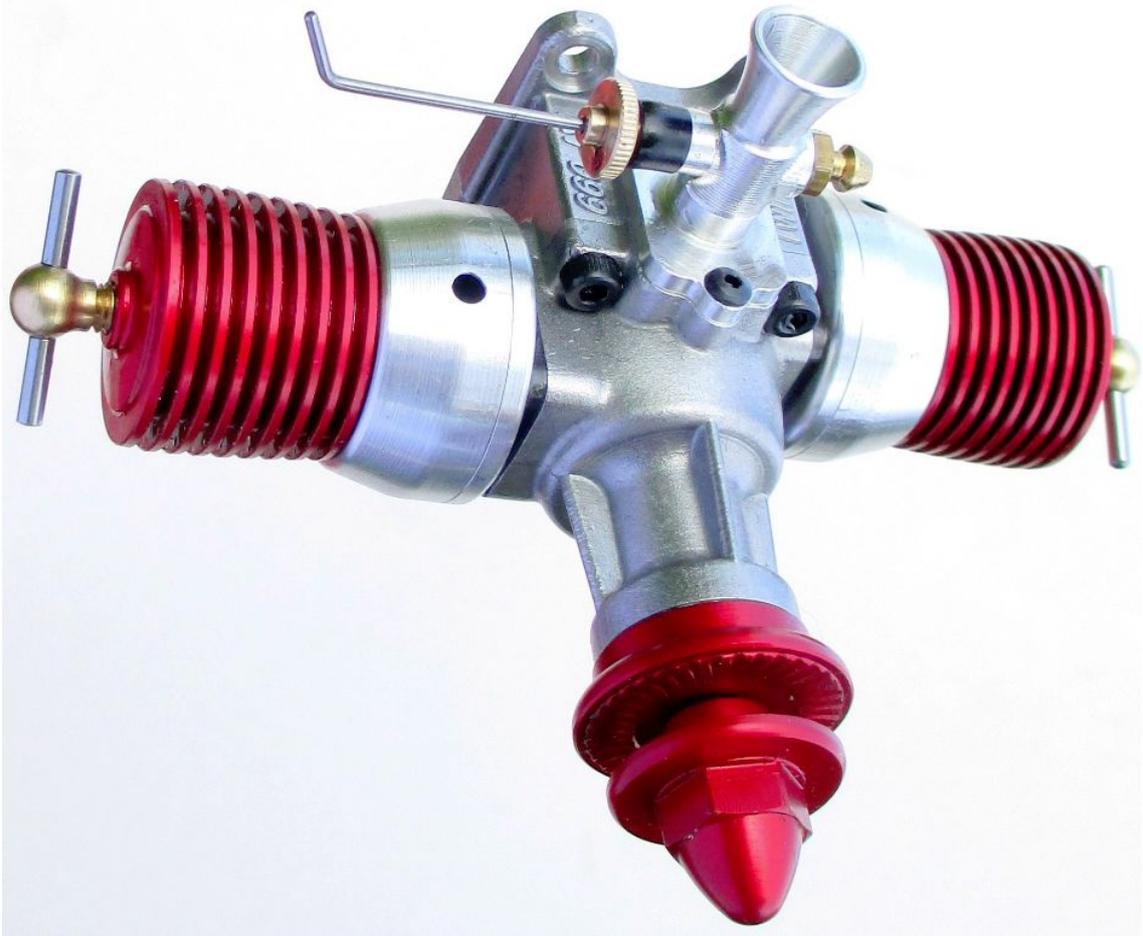
At 4.72 ounces the 099 is a little heavier than some single 1.5cc silenced diesels. Using straight fuel I got the following RPM. It was difficult to get exact setting with and without mufflers so perhaps the manufacturer's figures are a better guide.

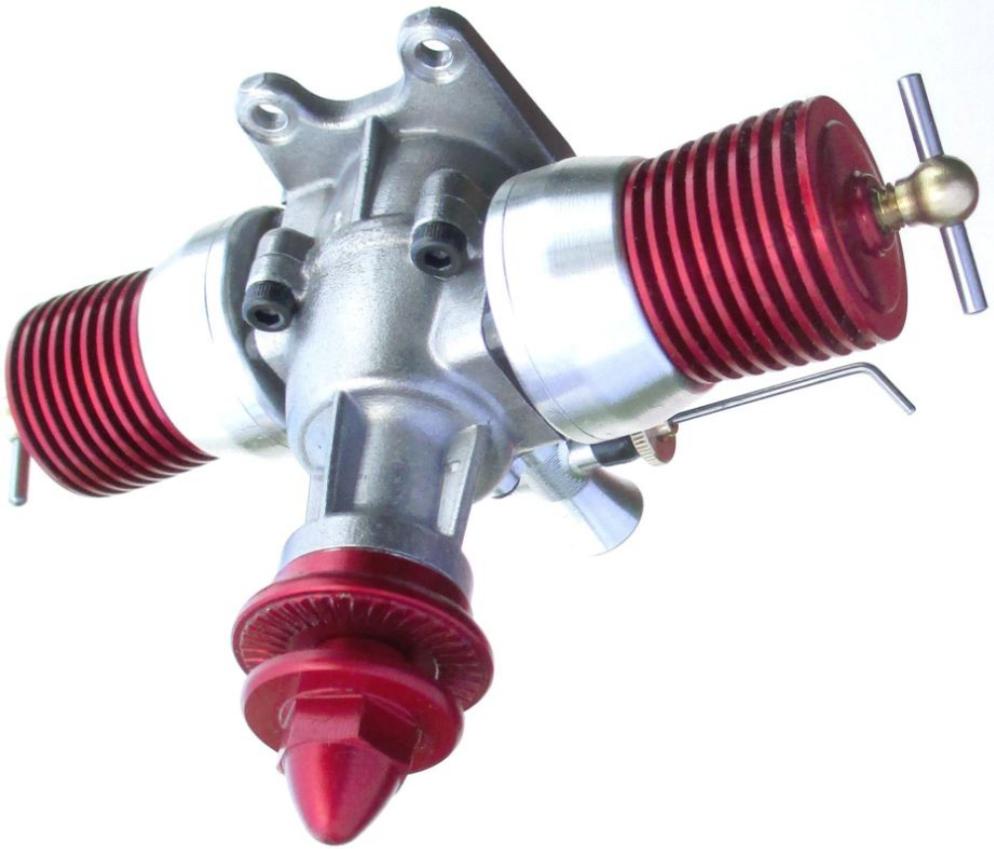
8x4 Topflite turned at 9,300 rpm reduced to 8,600 rpm with mufflers

8x6 Master turned at 8,400 rpm reduced to 7,800 rpm with mufflers

The downside is the cost and understandably it would be difficult to justify the outlay if on a limited budget when there are so many 1.5cc diesel and glow plug engines available new or second hand at a fraction of the cost but are capable of a similar power output for the same weight. This is a really well made and finished engine it delivers the goods and just looks and sounds right. However should you run the engine with a Castor based fuel care must be used to ensure mineral oil is introduced or a proprietary 'after run oil' is used to prevent the reed valve sticking.

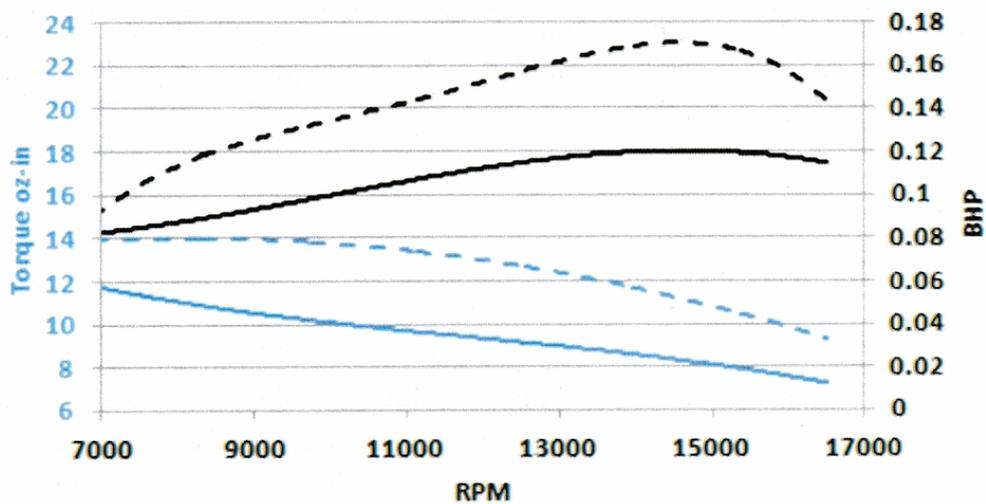


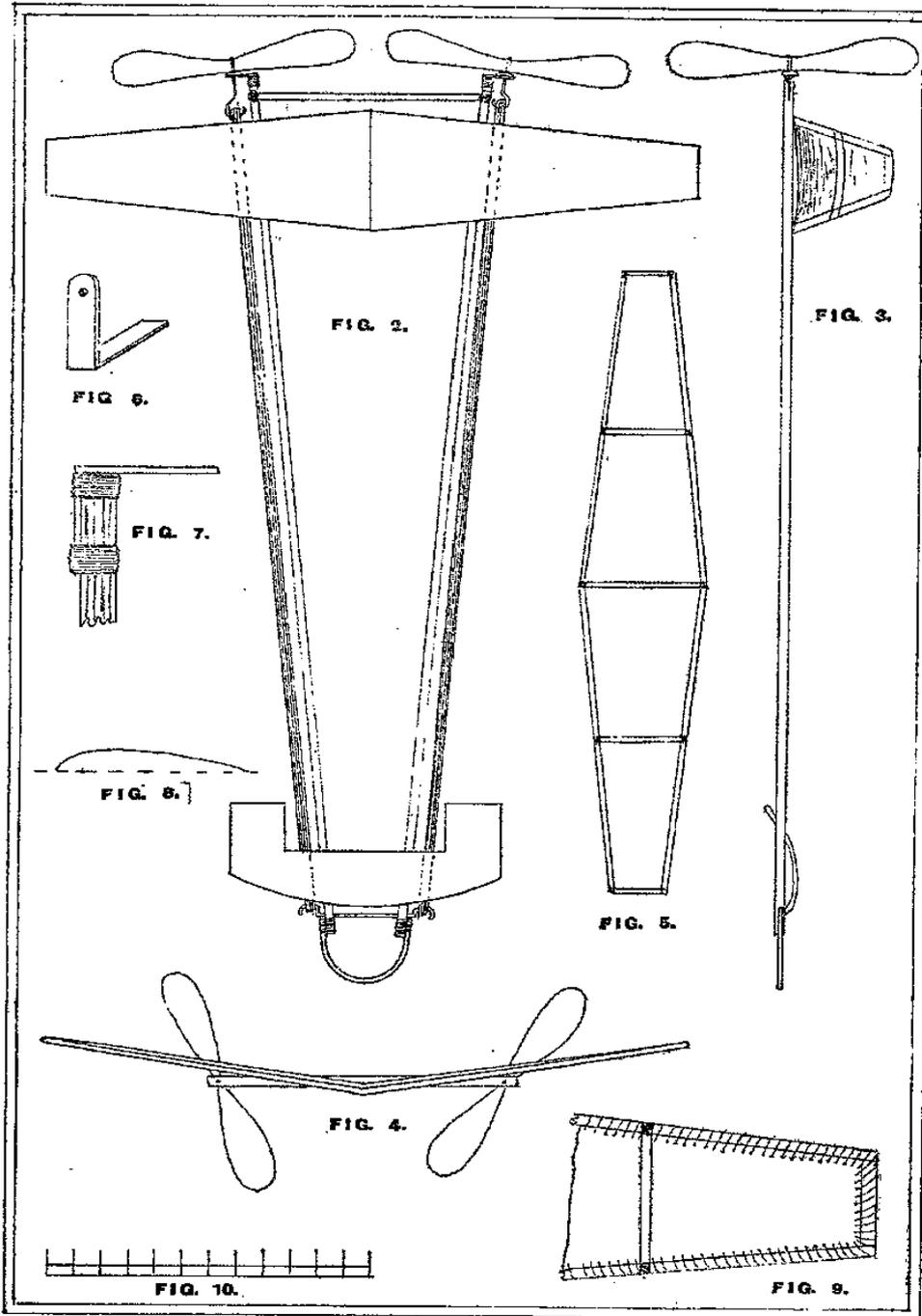




Propeller	RPM muffler	RPM open exhaust
APC 7x3Trim	15500	16500
APC 7x3	14100	15700
APC 7x4Trim	13200	14600
APC 7x4	11800	13400
APC 7x5	10600	12200
APC 7x6	10000	11400
APC 8x4	9700	10700
Graupner 8x5	8700	9700
APC 9x4	8200	8900
Graupner 9x5	6900	7700

### Redfin 099 Twinfin





- 2. Plan of machine with position of planes and propellers.
- 3. Side elevation, showing the cambered front plane.
- 4. Section showing the dihedral angle of the main plane.
- 5. The under-surface of main plane, showing ribs.
- 6. The brass-bearing for propeller shaft.
- 7. Method of fixing the bearing to the frame.
- 8. Diagram showing aero-curve in the main plane.
- 9. Enlarged detail, showing method of lacing the fabric to the frame.
- 10. Scale of inches.

SEEN BUT NOT HEARD 141

### Ridley Pusher from Gerard York

Good Morning James! I found this in a book of reproduction Hobbies articles published by Ammonite Press Castle Place, 166 High Street LEWES E Sussex BN7 1XU. The editor is Hugh Price.

*Looks like an interesting book to get hold of I don't know if it is still available but if it is go get a copy. If you do find a source let me know and I'll put details in S&T JP*

## From David Bintcliffe

I meant to attach these photos taken at Old Warden....small EDF Meteor....some Nazi Experimental Jet....and a tiny kitten that we were looking after for my daughter ....the tennis shoe that it is sitting on is quite small too!



## From Jörgen.

Hi James sending some Pictures from our clubs annual small plane and oldtimer meeting including my own Humdinger nice day no wind and lots of sun.





## From Roger Cooper

A friend recently gave me a very small beginner's control line model – something he picked up at a car boot sale.

It is a Testor moulded plastic (very detailed moulding too) model of about 16" span powered by what looks to be a version of a Cox 049 glo motor.

The motor was gummed up when I got it but I have managed to free off and remove the barrel and get the crankshaft free too. HOWEVER..... The wind-up spring starter will “wind up by turning the prop backwards but the crankshaft will rotate in the right direction (anti-clockwise) only as far the point at which the spring is unwound again and then it jams as if up against a hard rubber stop. Not a mechanical “hard” lock, there is a bit of resilience in it, but it refuses to turn any further and I have no wish to force it. The gap between the prop driver and the spring chamber is very small so I cannot see into it, nor can I easily remove the prop driver without some knowledge of how it is fixed to the crankshaft.

Does anyone out there have any suggestions as to what the problem with the engine is and how to overcome it?

Although the motor is designed just to fit the plastic fuselage and has no conventional mounting lugs, I would like to see if it runs and if it does maybe build it into something else (Somehow!!).

Hopefully the answer(s) will be more constructive than just “throw it away”!



## **Showscene, from Dave Bishop of DB Sound.**

The recent weather has been absolutely marvellous and it certainly has brought out the local model flying clubs barbecue's onto the flying fields including the Caterham, Croydon and Sevenoaks clubs with some of the very tastiest sausages and burgers complete with fried onions and HP sauce. Well done all of the chefs at all of them and thank you for a delicious bite. And the weather continues to be great at the shows including the massive 32<sup>nd</sup> Weston Park three day event at Telford on June 15 – 16 -17 run by Steve Bishop and Peter Whitehead and their team of grafters. I remember commentating there over 50 years ago when there was a full size airshow with a number of Tiger Moth aeroplanes taking part. There is a new commentator there now by the name of Nik Johnson and the whole place is filled with hundreds of caravans and tents with model flyers coming from all over the world. As well, after the days flying is complete there is some night time flying with loads of models and full size aeroplanes emitting many coloured fireworks just after dusk. It was quite surprising how cold it got all of a sudden during that hour or so until the finish, which is a collective lot of lit up models all attempting to fly thorough a huge wired and fired up, loop. Don't forget that all of this is accompanied by massive explosion of a very expensive fireworks finale played to very loud music mixed by Matt Bishop. Tristan Stirling (did a good job) and was in charge of the flight line and the standard of show flying from the hundreds of pilots with their many aeroplanes was absolutely staggering. The British National Champion Paul Bardoe was there selling his kits of the superb Crescent Bullet designed many years ago by the maestro Brian Austin, along with Azza Stephens team with his young and very talented flying team. I was made welcome at the BMFA marquee with Wayne and his fellows and enjoyed a cracking cup of tea kindly made by one of the excellent scale commentators at the August British National Championships. (I am donating a complete set of my DB Sound outside public address equipment to the new Flying site so that (if needed) announcements can be made to visitors where ever they are.) Many of the best modellers in the whole world were there, with many different languages being spoken. There was a "Bring and Buy" area that had a number of different items available and a super miniature railway that was giving 20 minute rides to everyone amongst the woods. After the "big bangs finale" everyone then proceeds to the bar where there is entertainment that goes on until 12.30am. I met so many friends from so many years, and I'm told that the traders did very well because the (researched) prices from the many stalls are very competitive and certainly way down lower than one could possibly buy even on Amazon.

It was then onto the Wings & Wheels event at North Weald aerodrome on June 23 – 24 run nowadays by Tom Stephenson who has inherited the event from his mother the well-known Jane Stephenson and again the weather was superb. Tom is the MD of the company named SARIK who are specialists in vacuum forming, (they even make parts for Ashton Marin cars) and they do plans , 3d printing- supply balsa and plywood and they are very busy. This time young Greg Hayfield was in charge of the Wings & Wheels flight line and he did a superb job. Greg explained to me that many pilots had booked in way back to get a pass for the show and sadly a number of them never turned up despite having a time slot already allocated in the flying running order. It was great to see the large TJD Warbirds team with Greg Vesey in charge. How great these guys look all dressed alike in their red outfits looking very smart with the best possible "formation grouped together" team flying at such a high standard that only comes from them. Their Warbirds are all very large and beautifully built World War Two fighters and their 10 minute slot goes so quickly in their high quality and polished performances. There was some astounding jet flying from a visitor from abroad named Markus Rummer who flew a viffed jet turbined model CARF kit called Mephisto with a jet Cat 300 engine up front complete with thick smoke and what a show he put on to a packed audience. It was all filmed by the excellent Peter Coxon of Tbobborap1 available for all to see on UTube. Due to commitments I was only able to go to the show on the Sunday and the whole W&W team made both me and my wife Jan so welcome it was a joy to attend. It was good to see Al's Hobbies with Shapour and Jane (their son is named Ali and now lives with his wife and family in America). There was a very good long trade line including the BMFA stand along with the ever helpful and friendly Keith and Christine Lomax. Also another dear friend was Hermann-Joseph Wirtz from Germany who was with his wife Angela who are now continuing their on holiday in Wales. Those of you S&T readers who follow the Showscene troops will remember Hermann's Fokker E3 where he and his son fly with the

Dawn Patrol team of which they are both members. Another show stopper was the Red Arrows duo of the famous Steve and Mathew Bishop which is a wonderful 8 minutes of totally riveting flying. Garage owner Mark Hinton the famous jet display pilot was thrilling to watch his displays as always. Both of the shows were superb and extremely well run in what I have related above was held in perfect weather. I'll come back in future S&T's to tell you readers the stories that I recorded.

All the best and if you wish to email me on anything then please do as it would be nice to hear from you - [davedbsound@gmail.com](mailto:davedbsound@gmail.com)

The next Modelair Old Warden event is on July 21 – 22 –Scale and September 22 – 23 which is the Festival of Flight run by Ken and Sheila Sheppard. And there is the wonderful biggest show in the UK which is the BMFA National Flying championships in August and more about that later.



***Another super barbeque with some of the Sevenoaks MFC members enjoying yet another perfect day.***



***Some youngsters at the Sevenoaks flying field on one of their barbeque days with their father getting the feel of our wonderful hobby.***



***This Russian jet was at Weston Park and we are talking very serious money for such a fully detailed model flying around £8,000.***



***Father and son combination at Weston Park are Andrew and Adam Johnson for the Liverpool club (I am an honorary member). They flew a ten years old 17 feet wingspan Lancaster accompanied by the same scale newly built Wellington (I also air-tested air radios in Wellingtons in the RAF).***



***Another stunning beauty is this cracking performer from France which (again) costs an awful lot of money but what a looker!***



***A line of BAC Hawks in the Red Arrows colours. The shows co-organiser Steve Bishop and his son Mathew fly a ten minute duo slot together timed to split second music. They are “simply the best and British of course” and are world champions.***



***Looking great as always is the popular Neil Tidy with a way back model from Cab Richardson from the company Paper Aviation and his 1930's style racer the Regal Eagle.***



***Helpful officials at the Wings & Wheels show are from the Croydon and Caterham clubs.***



***Steve Carr another garage owner with his huge kitted model of the Fokker DR1 with his own built 600 cc engine and many of the hundreds of parts. Flew like a dream as always and is a total show stopper. The inside loops were phenomenally tight.***



***Some of the 14 World War 2 Warbirds excitingly flown by 7 TJD pilots under leader Greg Veasey.***



***This lovely pair of Al's Hobbies traders, Ali (Shapour) and his wife Jane, is so popular with everyone.***



***The always welcome Panic team of demonstrators all herald from the Avicraft store at Chatterton Road, Bromley. Thousands have been sold and the genius shop owner Robert Newman, has designed a new radio model that "anyone" can fly safely after just ten minutes tuition.***



***The team of Nik Johnson as commentator and his engineer is the amiable Andy. They kindly asked me to say hullo to everyone which was nice.***



***One of the nicest and ever smiling of traders in the whole Showscene is David Handley of Inwood.***



*We (my wife Jan and I) were guests of Tom and Jane Stephenson who ran the Wings & Wheels show once again at North Weald airfield where for the first time in over 30 years there was evening flying allowed.*

## **COCKLEBARROW** **VINTAGE RALLIES**

**8<sup>TH</sup> July 2018**

**19<sup>TH</sup> August 2018**

**30<sup>TH</sup> September 2018**

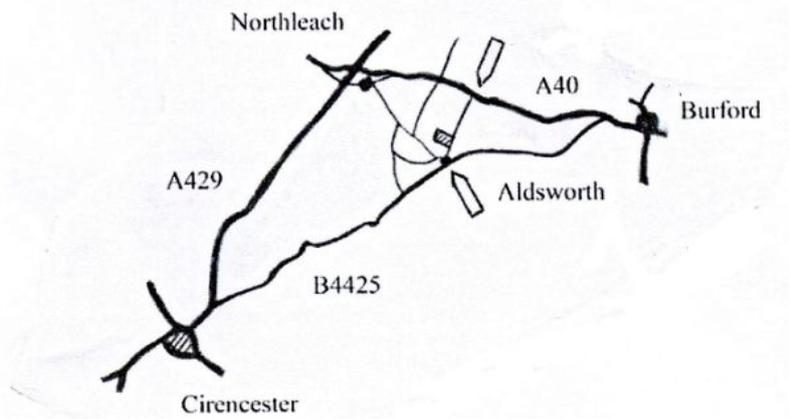
All types of R/C up to December 1969 including electric and glider  
BMFA insurance essential, [A certs. not required]

*Camping on field, [no facilities]*

**Contact - Tony Tomlin**

02086413505 / email [pjt2.alt2@btinternet.com](mailto:pjt2.alt2@btinternet.com) / 07767394578

**Signposted from Aldsworth, Glos. on B4425 between Cirencester/Burford  
and off A40 between Northleach and Burford [follow SAM 35 signs]**



# FLITEHOOK

Indoor Free Flight Meeting  
West Totton Centre, Hazel Farm Road, Totton, Southampton, SO40 8WU

Contact: Tel. 02380 861541  
E-mail [flitehook@talktalk.net](mailto:flitehook@talktalk.net)

Café on Site

**Flyers £8**  
**Juniors & Spectators Free Flyers must be BMFA Members**

**Sundays 10.00a.m. to 4.00p.m.**

## 2018

9<sup>th</sup> September 2018  
14<sup>th</sup> October 2018  
11<sup>th</sup> November 2018  
9<sup>th</sup> December 2018  
30<sup>th</sup> December 2018

## 2019

13<sup>th</sup> January 2019  
10<sup>th</sup> February 2019  
10<sup>th</sup> March 2019  
14<sup>th</sup> April 2019



## Small Electric Scale

Belair Kits are very pleased to have commissioned renowned scale designer, Peter Rake to produce a range of small electric scale models.

Wingspans are typically around 36 inch (1m) and all suit the economical 400 brushless motors and

mini servos. All airframes are of traditional all wood construction and no mouldings are required. Each aircraft has been thoroughly flight tested and are all proven fliers.

Call Belair on 01362 668658 or visit their online shop at [www.belairkits.com](http://www.belairkits.com)

Here are just three of the growing collection see all the others on our website



## DH82 Tiger Moth - small electric scale range

Ref: res-dh82

We are very pleased to add the DH82 Tiger Moth to our small electric scale range - a truly iconic aircraft.

Our Tiger Moth is designed to 1.23": 1ft with a wingspan of 36 inches. It suits 150 watt brushless setups with 2 cell lipoly batteries and three channel control - ESC, Rudder and elevator.

Designed exclusively for Belair Kits by Peter Rake, this model is a proven flier and quick to build. Its size means it can be left in one piece and fits in even small cars.

The parts set includes many sheets of graded balsa and plywood sheets, accurately laser cut, plus a three sheet plan and build manual.

### Model Specifications

36 inch wingspan for 150 watt brushless motors, 2 cell lipoly batteries and small electric radio - ESC, Rudder and Elevator.

Price: £70.00 Inc VAT    77.00 USD | 82.87 EUR



### Albatros DV - 39" electric scale parts set

Ref: res-ald5

Our Albatros is modelled at 1.31"/1' with a wingspan of 39.3 inches. Designed by Peter Rake exclusively for Belair, the model is fully CAD designed and features laser cut parts. Construction is straightforward and features modern methods.

Includes balsa, plywood and basswood parts for fuselage sides, formers, bulkheads, wing ribs, trailing edges with rib slots cut, outlines for all flying surfaces, interplane struts, tail skid, fuselage crutch, tail skid, plus

smaller handy parts. Fuselage is built on central crutch system.

### Specifications of the Albatros DV

39.3 inch span, scale 1.31"/1' for small electric power setups of around 150W. 4 channel radio required - ESC, rudder, aileron, elevator and rudder. Full size 3 sheet plan with constructional guide included

Price: £70.00 Inc VAT  
77.00 USD | 82.87 EUR

### Pietenpol Air Camper - Electric scale 45"

Ref: res-piet

Parts set and plan for the original 20's American homebuilt - Pietenpol Air Camper.

Our model is traditional all wood construction and features a multi sheet plan and accurate laser cut parts. Formers, fuselage sides, wing ribs, trailing edges, landing gear mounts, cowl parts



plus many smaller parts are included. Builder will need to supply their own stripwood and covering.

## Specifications

**45 inch span for 400 size brushless setups. 4 channel control - ESC, rudder, elevator and ailerons.  
Scale 1.5":1ft**

RRP: £60.00 Inc VAT

Price: £70.00 Inc VAT

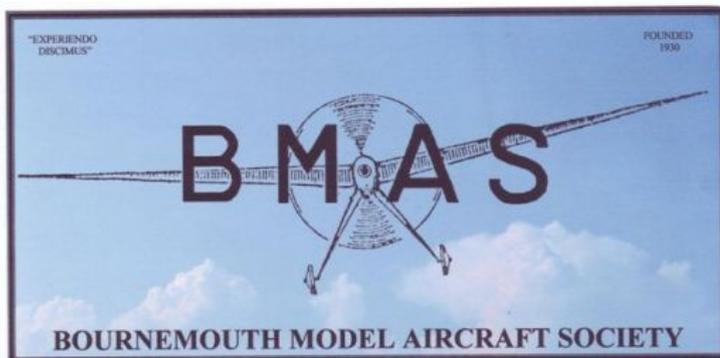
77.00 **USD** | 82.87 **EUR**

Regards,  
Leon Cole  
Belair Kits

Tel: +44 (0)1362 668658

[www.belairkits.com](http://www.belairkits.com)

Follow us on Facebook <https://www.facebook.com/pages/Belair-Kits/1448177428736984>



**INDOOR MODEL FLYING 7pm to 10pm**

**FREE FLIGHT ONLY**

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

COMPETITIONS incl GYMINNIE CRICKET & SERENE LEAGUES

ALL FLYERS MUST HAVE BMFA INSURANCE FLITEHOOK NORMALLY IN ATTENDANCE

Adult Flyers £5 Spectators £1.50

CONTACTS: JOHN TAYLOR 01202 232206

All dates are Tuesdays

28 November

# Dens Model Supplies



**Traditional CL Kits including the ACE + Plug & Play Electric CL Starter Kit...just add glue and a battery !!**



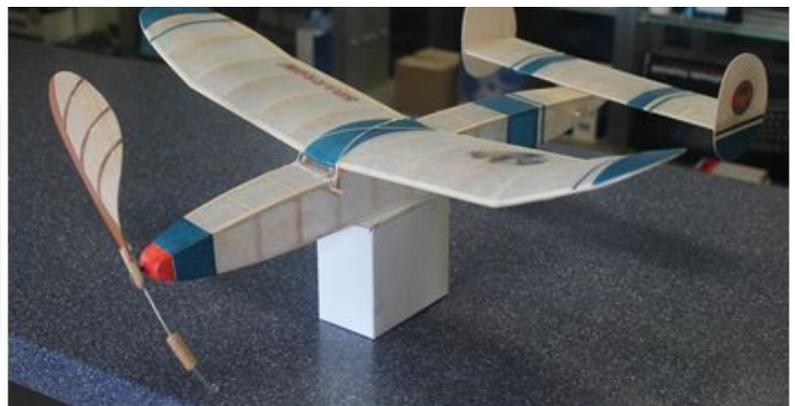
**Tinplate CL tanks....Bellcranks,  
Lines, Handles, Cloth Hinge Tape,  
Leadouts etc**



**Cox Engines & Spares**



**Electronic Timers for CL & FF**



**Laser Cut - High Quality FF & RC Kits**



**On Line shop at**  
**[www.densmodelsupplies.co.uk](http://www.densmodelsupplies.co.uk)**  
**Or phone Den on 01983 294182**  
**for traditional service**