

## Sticks and Tissue No 100 – March 2015

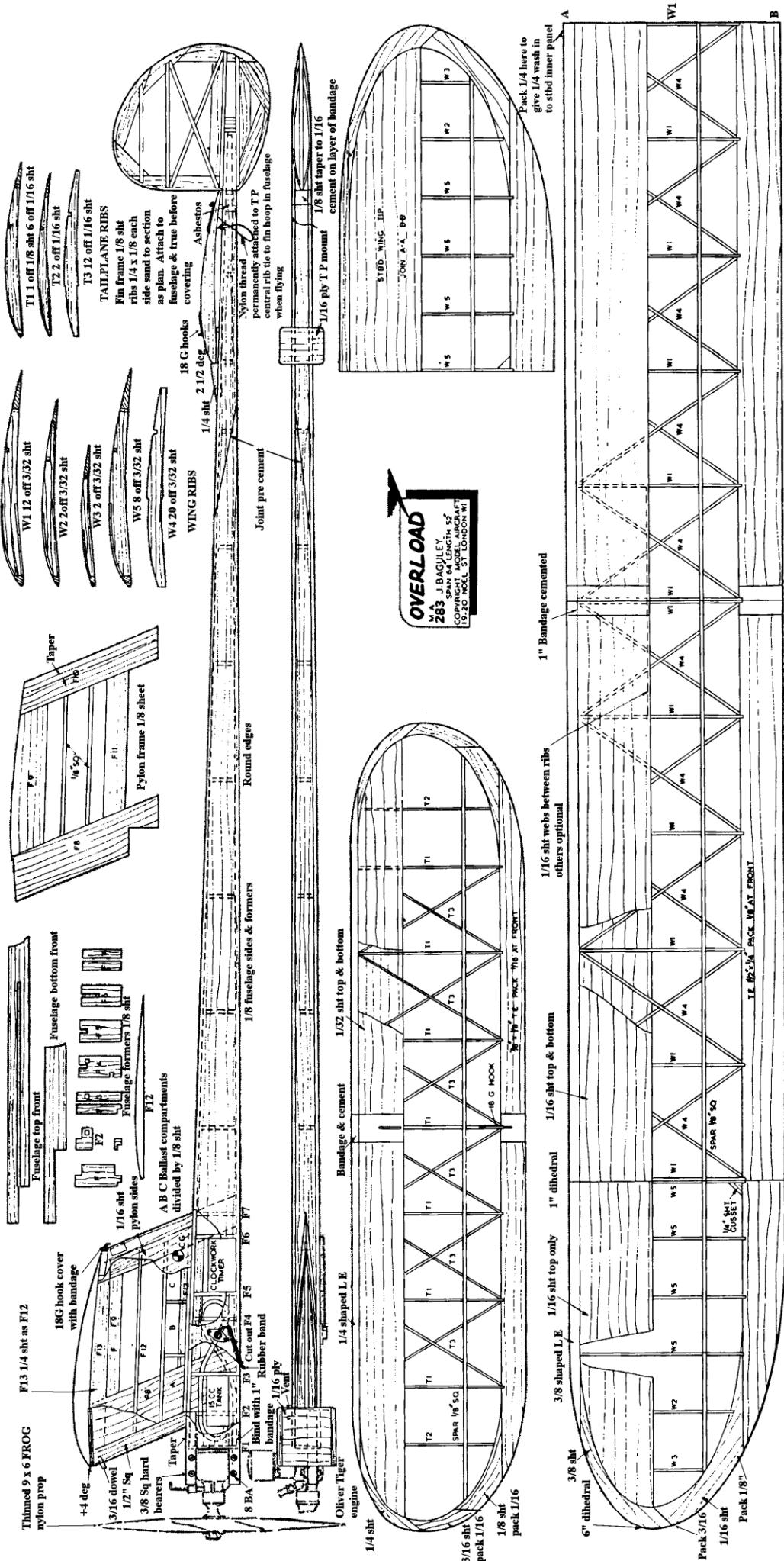
If you can contribute any articles, wish to make your point of view known etc please send to or phone 01202 625825    [JamesIParry@talktalk.net](mailto:JamesIParry@talktalk.net)      The content does not follow any logical order or set out, it's "as I put it in and receive".

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

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



*Den chucking his Rookie*



## **Overload. New F.A.I. power model by J Baguely 64" span 2.5 cc From Model Aircraft June 1958**

Building Instructions (*These instructions were on the plan but virtually illegible JP*)

### Fuselage

Pre cement bearers to port side add top & bottom F1, F2, F4, F5, F6. Half F3, F7 and others. Install fuel system, cement tank. Build pylon frame add formers F12, F13, and L Edge. Sand F10 to taper. Cover with 1/16 sheet and sand. Cement pylon in fuselage by slotting through top. Add stbd fuselage side etc. Build,

sand and add fin. Add wing and tail mounts, hook, bandage etc. Sand, cover and dope then add 3/16 dowel. Fuel proof. Add motor, DT, hoop, timer, linkage etc Wing. Build stbd inner rpanel with 1/4 wash in. Pack to inner dihedral angle. Build port inner rpanel on, add tips in like manner by packing centre section to outer dihedral angle. Sand, add 1" bandage, cover, dope, fuel proof, etc. Note that C S junction should be pre cemented.

### Tailplane

Build sand add 1" bandage, cover, dope and hooks. Fuel proof.

Trimming Get CG correct . Pack wing for stall or underelevation. Adjust tail tilt for correct glide, circle. Compensate this on climb with side thrust, may also be used to adjust climb.

Overload is an appropriate name for this model designed as it is to the new F.A.I. formula, which means it must

weigh 26 1/2 ozs. The construction follows usual practice and the instructions on the plan are more than adequate for the experienced builder to follow (this is not a beginner's model) ; however the following notes on trimming will be of assistance in getting those "in the groove" flights.

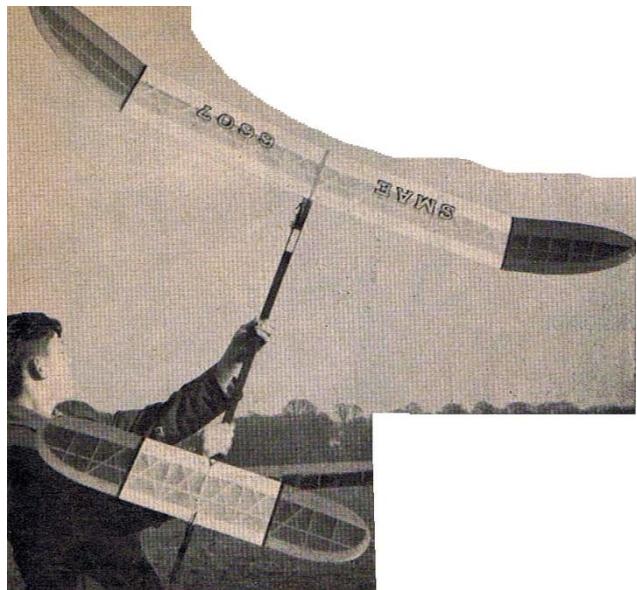
Firstly, weigh the model to ascertain the amount of ballast needed to bring it to the F.A.I. weight of 26 1/2oz. Assemble the model and determine where the ballast should go to bring the c.g. on, or slightly in front of, the position shown on the plan, then install it in the pylon weight boxes, taking care to position it firmly.

Check that the tailplane incidence is correct in relation to the engine thrust line and test glide, adjusting the wing incidence and tail tilt to give a glide with slight right, turn.

With a motor run of 10 sec. and d.t. not much longer give a low powered flight. The model should climb

slightly right, at 60 deg. attitude, and slip into a glide. If the model does not do this, get the glide correct

by adjusting tail tilt and wing incidence before further increasing the power. Once these adjustments are made the power may be gradually increased, but if on higher power the model turns too tightly, cement a small piece of 1/16 in. sq. to the left hand side of the fin and balance the effect on the glide with more tail tilt. If the model shows looping or left turning, or rolling tendencies, cement a small piece of 1/16 in. sq. to the right-hand side of the fin and balance this with decreased tail tilt for the glide. The wing warps should be strictly adhered to as the whole trim is based upon the slight left rolling effect provided by the increased incidence of the right-hand inner panel. The glide should be directly comparable with that of an open open power model and in correct trim the model should be capable of at least 3 1/2 min., that is, using a hot competition 2.5.



## From George Stringwell

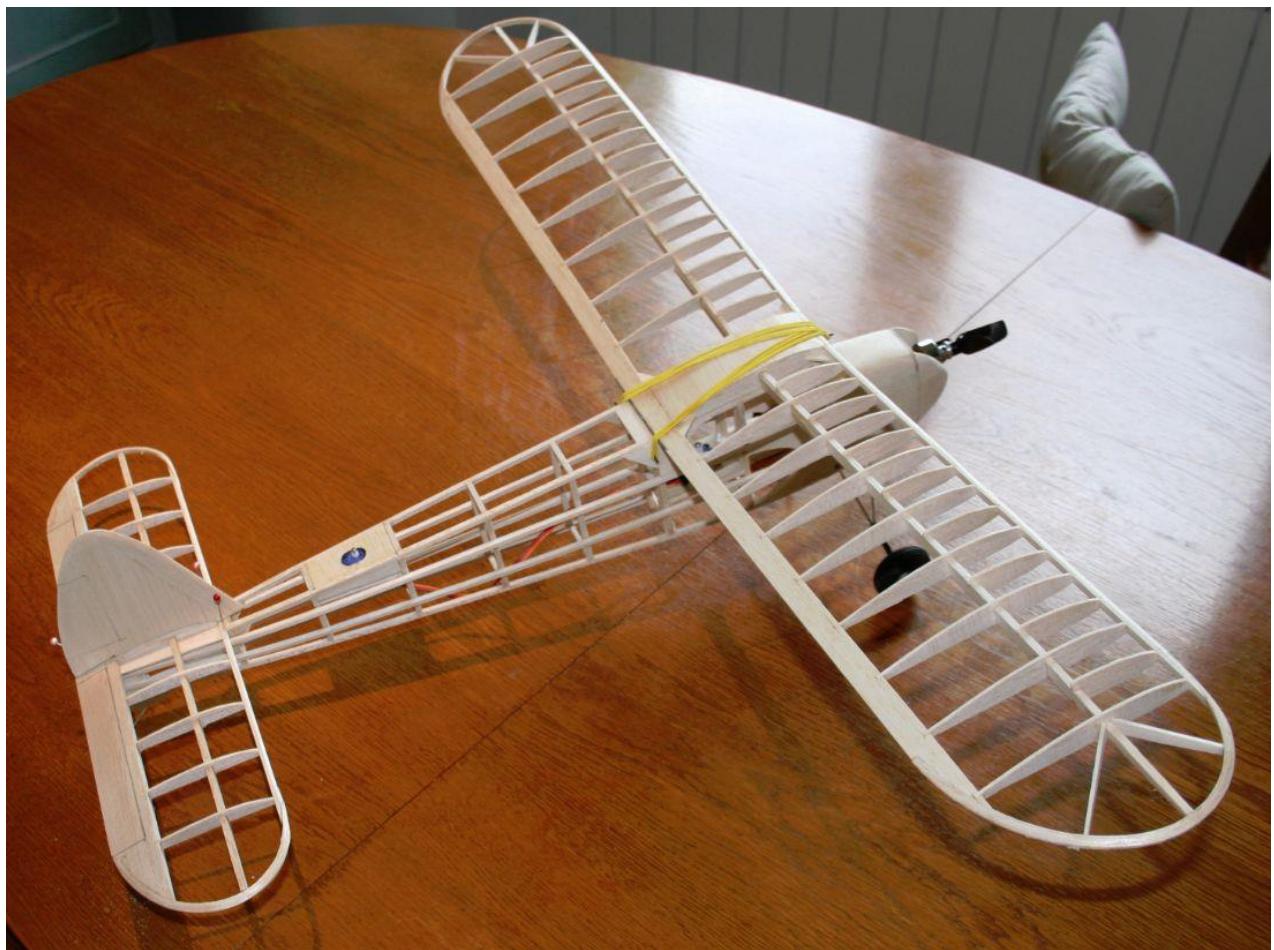
Here are some photos of my latest completed build. It is an electric R/C version of Paul Plecan's pretty little Hummingbird design from 1951.

It is 32" span and the weight, with 2 x 7 gram servos, a 10 amp ESC, Orange 6 Rx, 2S 320 lipo and BRC 1811 motor (GWS 6" x 3" prop) comes out just under 7 ounces, which includes 10 grams of lead up front. The little BRC outrunner gives 40 watts which is stacks of power, equivalent to a very healthy 90 watts per pound. It is as yet unflown, due to grotty weather, but I'm not expecting any problems, nor having to use full throttle too much! The servos were a bit of a squeeze so the rudder servo was mounted in front of the tailplane with closed loop drive whilst the elevator one is upside down in the cabin with a 1.5 mm carbon fibre push rod. There is a long bottom hatch laminated from 1 mm ply and 1/32" balsa to match the curve of the fuselage bottom, this is retained by a lip at the front and two magnets at the rear.

As you can see from the framework view, it is a classic 1950's sport model structure with just a bit of elegance added by the overlaid side stringers. Finish is Esaki Liteflite tissue over 10 micron mylar, nitrate dope. The model was first covered in white tissue then the red, yellow and green panels overlaid. The reason for choosing these colours was that I found a very attractive abstract hummingbird graphic on the internet which was red, yellow and green. This was traced onto the base white tissue before applying it and, after doping, coloured in with fine point artists water colour pens and outlined with a ruling pen. As I am nobody's idea of an artist I am quite pleased with the final result!

Electric power and lightweight radio make these little free-flight models into really practical, everyday, small space flyers.





## From Rob Smith

You may recall I sent you a couple of articles last year about my Number 9 free flight model.Flushed with success with the model I thought that I should build a radio controlled version. I got the plan scaled up 1.5 times and opted for electric power. I put elevator control on the foreplane and ailerons on the lower mainplane. No rudder was considered necessary. First flight and away she went, pitch control very touchy, roll control non existent. Due to the high thrust line easing back on the throttle produced a sharp upward pitch and powering up the opposite making landing very interesting. As I couldn't steer it anyway I just closed the throttle and it emulated its little free flight brother and landed gently without any interference from me.

I thought maybe putting the ailerons on the foreplane might give a better roll response so this was done. More upthrust on the motor as well. This combination made no difference whatsoever except that the landing was much heavier and she became two number 4.5s

As I had to repair her ( obviously female being so temperamental ) I decided to install rudder control which meant cutting a large chunk away behind the cockpit and hinging the rear bit. I also reinstated elevator control on the foreplane and increased the upthrust again. I began to think that if I increased the upthrust any more it would resemble an autogiro. The outcome of these mods proved to be, much to the disappointment of fellow Hungerford club members who had enjoyed watching my previous contortions, a success with some reasonable control being obtained. Pitch control at differing motor settings continues to be interesting but I can now fly her around without resorting to wearing a hard hat and incontinence pants.

Flushed with this further success I thought, with the indoor season upon us that a smaller FF No9 would be good. And so it came to pass that the original plan was reduced to 2/3 size and with a power train of Atomic Workshop's Voodoo 25 and Zombie profiler a diddy No 9 took to the air. I'm happy to report that it flies very well with only minimal trimming needed.

That's it really other than to wonder if I should have named them Number 9, Number 13.5 and Number 6.



*The full set*



*9 Mk 1*



**9 Mk 2**



**9 RC & FF.**

## **James**

Congratulations on your 100 up - looking forward to many more issues.

Regards

Derek & Val Foxwell  
Old School Model Aeroplane Factory

*Thanks Derek*

## **Hello James**

I just got the plans for "the Creep" a 1955 English design which I would like to build. Would you please print a request to your readers to see if there is an accompanying article(magazine or otherwise) about this model. So far I've only seen one example of the plane and it was reduced to 1/2A and was a terrific flyer.

[tmiller80@cox.net](mailto:tmiller80@cox.net)

Thank you, Tom Miller

## **From Den Saxcoburg**

Thanks for the pics....we had a great day.....went to the aircraft museum in Soton after the pub.....talked our way on the flight deck of the Sandringham.....we all remember that aircraft flying over the Island in the late 70's so it was a treat.....as was seeing the SARO 'squirt' and the very first Britten Norman aircraft....all made by Caulkheads !!

Now because of your poor memory!!

That chuckie is called the 'Rookie' and it is by Stevens Aeromodels....it is a beautifully presented and engineered laser cut kit and comes with a catapult....it costs £11.70 plus p & p....there are other chuckie designs available on my site here :-

[http://www.densmodelsupplies.co.uk/index.php?c=free\\_flight](http://www.densmodelsupplies.co.uk/index.php?c=free_flight)

That 36" glider is called 'Windrush.....it is by Andy Crisp and was a free plan in Aeromodeller back in 97.....attached are some pics.....the mini dT timer is from Mike Woodhouse.....plan can be found here:-  
[http://www.outerzone.co.uk/plan\\_details.asp?ID=4347](http://www.outerzone.co.uk/plan_details.asp?ID=4347)

Thanks for your hospitality and see you in April at Cashmoor



*Forgot.... You might also be interested in these photo's of my Windrush....shows DT and Auto Rudder actuation detail*



*'Rookie'*



*Mick with his 36" Opel*





*Gill and his scrubbing board and looking for some clean flights*

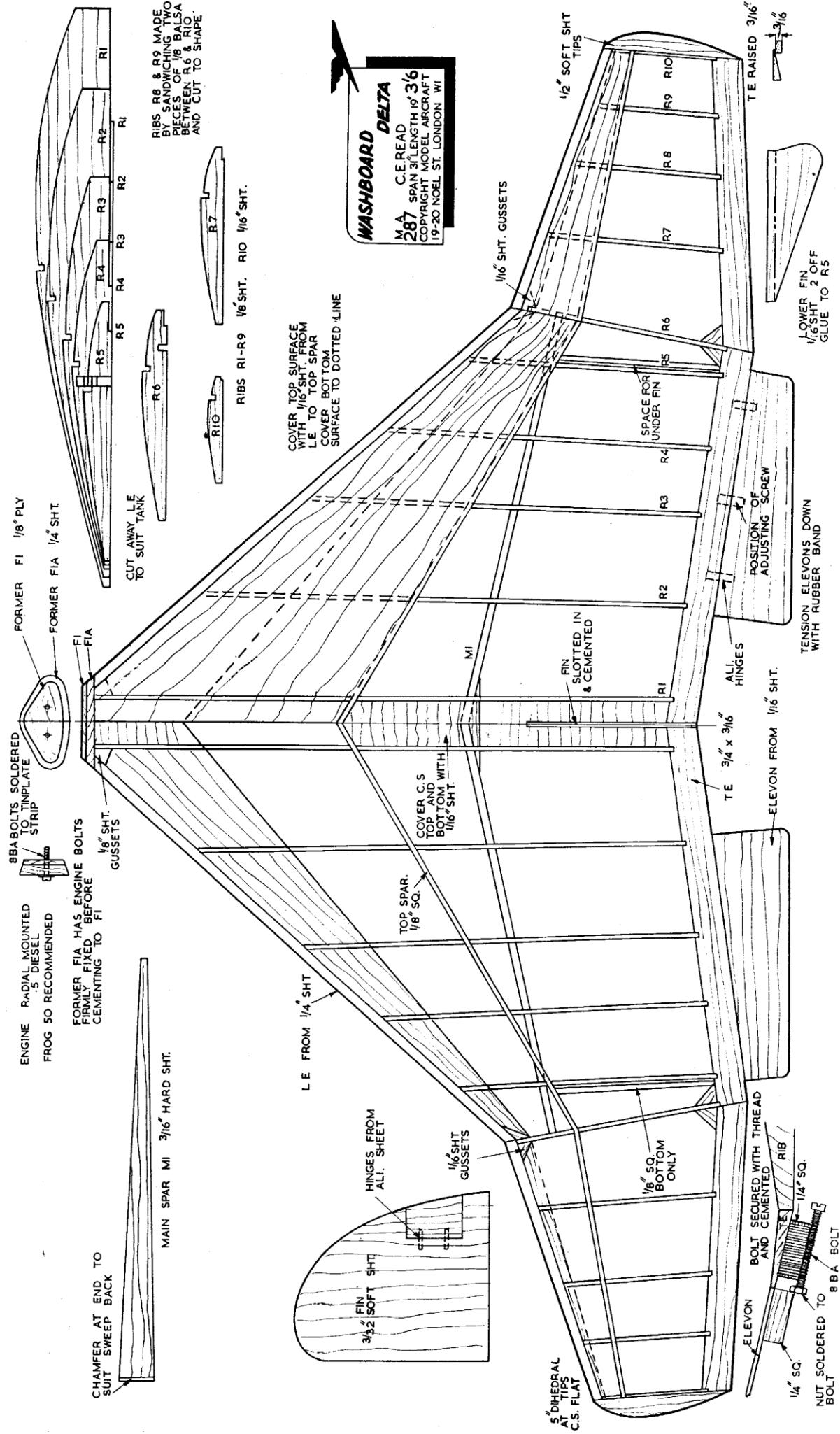




## From Peter Scott

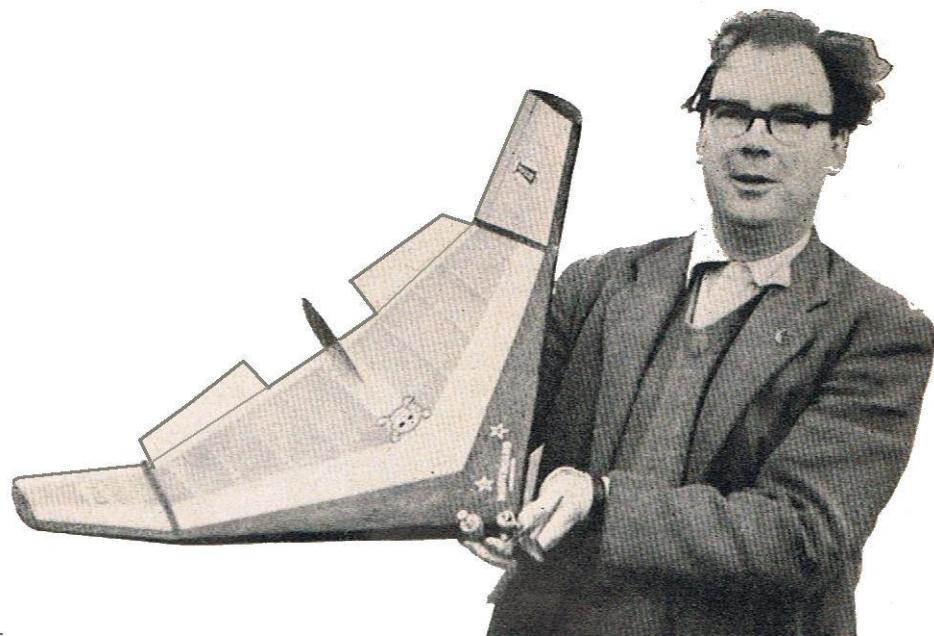
Well done reaching your century (well, S&T that is), here's a "Little Something".





**Washboard a 31" span free flight delta sporster design for 0.5 cc motors by Colin Read from Model Aircraft July 1958**

This model was designed early in 1955 after a series of delta wing models had been built to develop a design capable of stable flights even in rough weather conditions. To make Washboard stable, sharply upswept wing tips are used, together with a staggered dihedral break to provide the necessary wash out; the airfoil section is a normal flat bottom one, but using an inverted



trailing edge to give a reflex section.

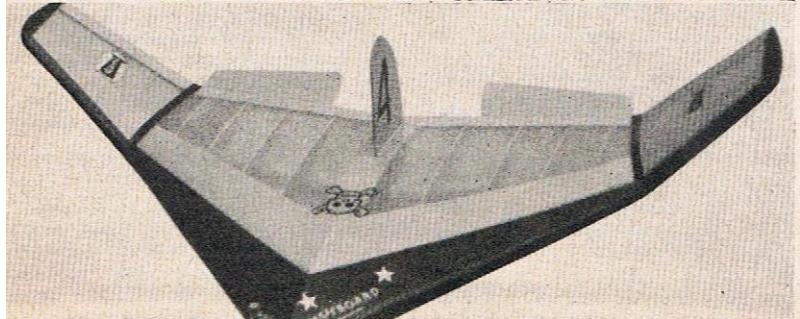
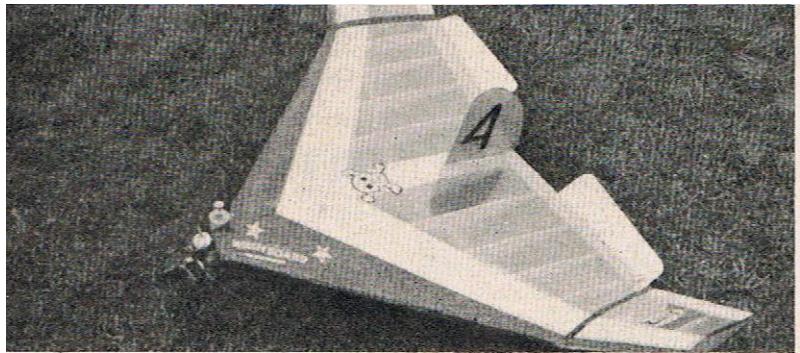
Construction is commenced by laying flat on the building board the 1/4 in. sheet leading edge, 3/16 in. mainspar and trailing edge (note the reverse section) then cementing the ribs in place firmly (double cementing is advised throughout). When dry, remove from the building board and add the upper 1/8 in. sq. spar, then separate the wing tips where shown and cut to fit the main wing, raising the tips 5 in. When both tips are firmly in place cement the dihedral bracing gussets in position as detailed on the drawing.

Fonners 1 and 1A are now added, the whole of the leading edge and front formers then being sanded to shape (before covering with 1/16- in. sheet), to provide smooth contours as shown. Lastly, the centre section is covered, top and bottom, and the 1/2 in. sq. wing tips added, after which the whole framework is sanded to a smooth finish.

The elevons, upper and lower fins, cut from 1/16- in. and 3/32 in. medium sheet respectively, are covered with tissue (doped on) and cemented in place after the model is covered and doped.

The elevons are fixed in place with pieces of aluminium, and spring loaded with a small rubber band onto the stops which are cemented underneath the wing and elevons. The engine used on the original was a Frog 50, radial mounted, but any power unit of 0.5 c.c. will provide sufficient power, but an increase in downthrust will be necessary if a more powerful engine is used.

It may be of interest that the original Washboard, recovered and redecorated, gained second place in the Unorthodox Section Concours d'elegance at the 1957 All-Britain Rally; the qualifying flight was 53 seconds.



James, for this 100<sup>th</sup> S&T, I thought we could try something a little more informative than just « pretty » engine photographs.

I'm particularly fond of the Mk I ED Bee. All mine are great, great runners! There were at least half a dozen different variants, so here's a very brief review of all those that I'm aware of...

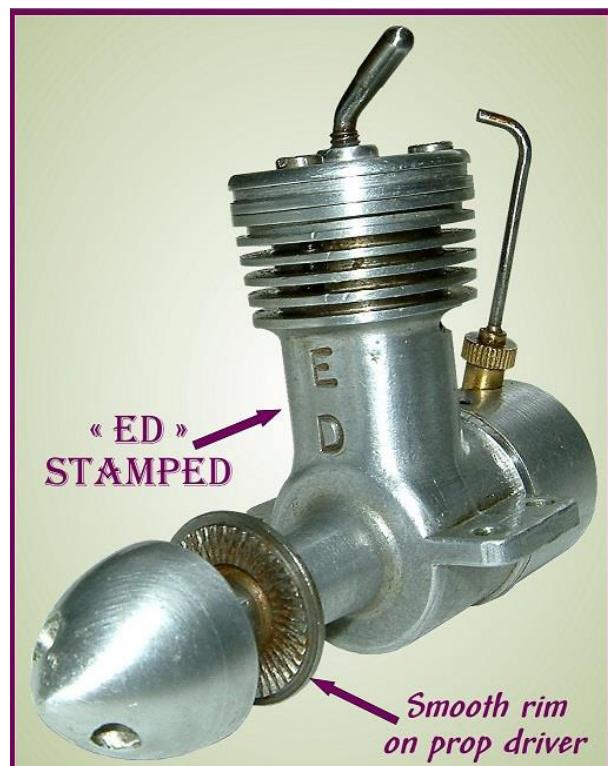
Brian

### **The advertised prototype**

Many readers will be familiar with this photo, used in the early ED advertising, in Aeromodeller for example, during the last few months of 1948.

I think ED perhaps made one to two prototypes (the photograph is a real photo, not a drawing), but the engine certainly never went into production, and I've never seen an original, although there have been a couple of « not very convincing » attempts at reproduction.

Its unique features are the hex. prop nut, the crankcase machined from the solid, the « two-screw » head, the round compression adjuster and the ultra-wide mounting



### **First production Bee**

(September 1948)

The photo at left shows the first production version of the Bee.

The crankcase is now die-cast, but with no ident. logo in the casting.

« ED » was simply stamped on the front of the crankcase, with the serial number also stamped, on the bottom of the case, as shown in the lower photo. I don't know whether the broad, smooth rim on the prop driver is significant or not, but it doesn't exist on my other Mk I Bees...

I think this version was only made for the first few days of production. Two or three weeks would be a reasonable assumption, based on known serial numbers.

So, while not being ultra-rare, there aren't that many of this version around today...

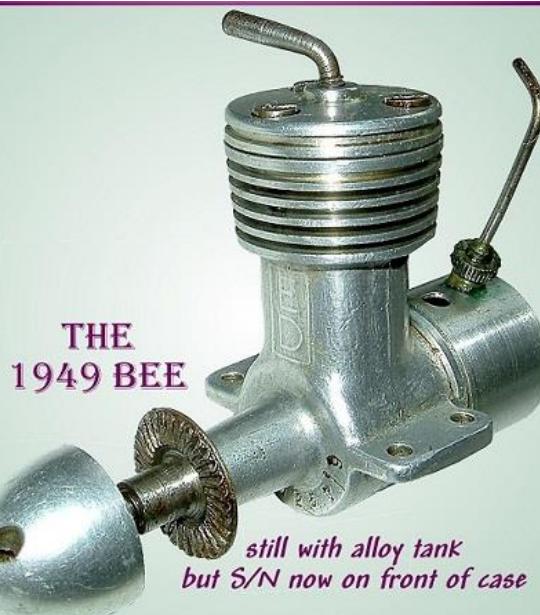
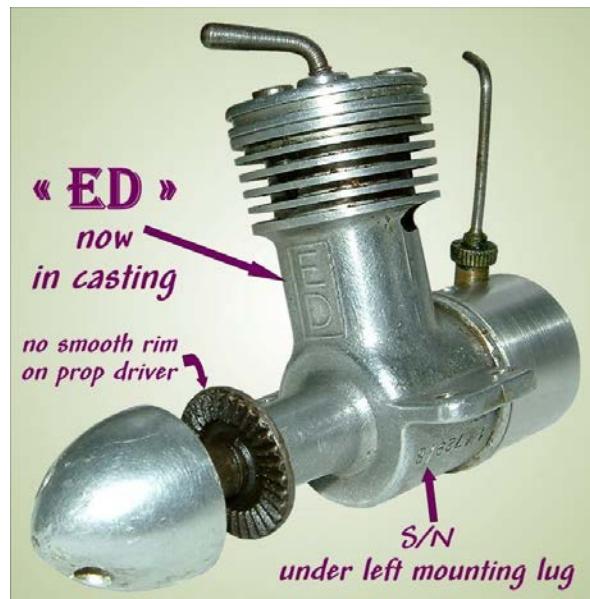


## Second production version

(late 1948)

The second production version of the Bee is shown here (this one is November '48).

The well-known ED logo is now in the casting, and for this short period the serial number is under the LH mounting lug.



## The 1949 Bee

The 1949 Bee is shown here. It's very similar to the late '48 version, except that the serial number is now on the front of the crankcase.

I think this 1949 Bee is the engine used by Vic Smeed in his original Tomboy.

Not much to add really, except that this is the last version to have the very nice alloy tank.

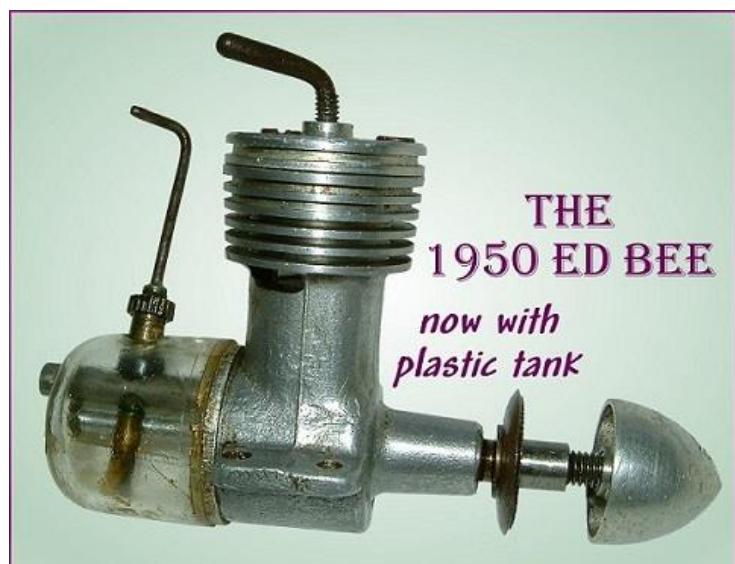
I may be biased (ever so slightly!), but they were, and still are, superb engines...

## The 1950 version

The main new feature of the 1950 Bee is really a retrograde step... the plastic fuel tank.

They can get cracked or broken of course, or distort with age, and 65 years on, all mine leak, mainly because there just isn't enough tank overlap on the backplate rim, particularly where the rim is notched to accept a wrench...

However, with a separate tank for running, or using one of the earlier alloy tanks, it's still a super engine...





### The early '52 « transition » Bee

In 1952, the final version of the Mk I Bee was introduced (see below) BUT, while the machining changes (new compression screw and head) were introduced immediately, there were still some of the early type crankcase castings to be used up, and this resulted in this « hybrid » version, which was sold for a short period in 1952.

Nice engine again (like all the others!), and interesting because of its early/late combination and its « unintentional » existence...

### The final version (1952-55)

Finally, when ED finished using up their early version crankcase castings, this final version of the Mk I Bee was released in its « as intended » format.

The obvious change, in addition to the « T » comp. screw and head, is the new crankcase casting, with « ED » on the LH side, and « 1.00 » on the right.

For those of us who, like myself, were at school in the early-mid fifties, a « new ED Bee » meant one of these... I drooled for ages...



### « The box »

Just to be complete, many people like these early ED boxes, and all ED Bee Mk I engines were sold in boxes like this one.

Note that the « MARK I » shown on the box, doesn't have the same meaning as the « Mark I » generally used by ED lovers, and that I've been using throughout this little review, but that's another story



## From Stephen Winkworth

If you think the Railcar is ugly, have you seen one of these (photo attached)? Its the 1930 Lanier Vacuplane. I have just test flown mine this morning. The rate of climb, with an old Irvine 40 at full chat, is alarming, and it's very hard to fly as the wing is so short that you can't tell how much bank you've applied. Apart from that, the 'vacu' effect does seem to work, and the glide was surprisingly gentle.

But I think I'll have to try your Railcar. I've certainly never seen one. The sorbo rubber nose must have been interesting to observe in the event of a crash.



Glad you liked the ugly Vacuplane. The designer, Lanier, was a bit of a nut. Several of his inventions can be found on the internet. It all started with his observations of the gliding performance of a cork shoe 'insert' – a 'shoe lift'. He gained this insight while working as an assistant in a shoe shop. The cork inserts, roughly the shape of a heel, would glide surprisingly well, curved side at the rear, straight at the front, when suitably weighted. He decided that the bound vortex at the 'wingtip' was curling in on itself instead of being wasted as drag. An aircraft was eventually built in this shape and apparently it flew, though how well one doesn't know.

He then decided that the aerofoil needed a bit of reexamining. After the upper airstream starts to separate at the point of maximum thickness, the rear two-thirds don't seem to be contributing much lift, he decided. So cut the upper surface away at 90deg, and you get a vortex forming behind it with consequent pressure drop. To keep the effect happening all the way to the trailing edge, you have to place vertical or more than vertical baffles in line, like the slats of a blind laid horizontally, parallel to the leading edge. It can't stall because the rear two thirds are already 'stalled' with air spinning around all over the place and there is no laminar flow to break down or any nonsense like that.

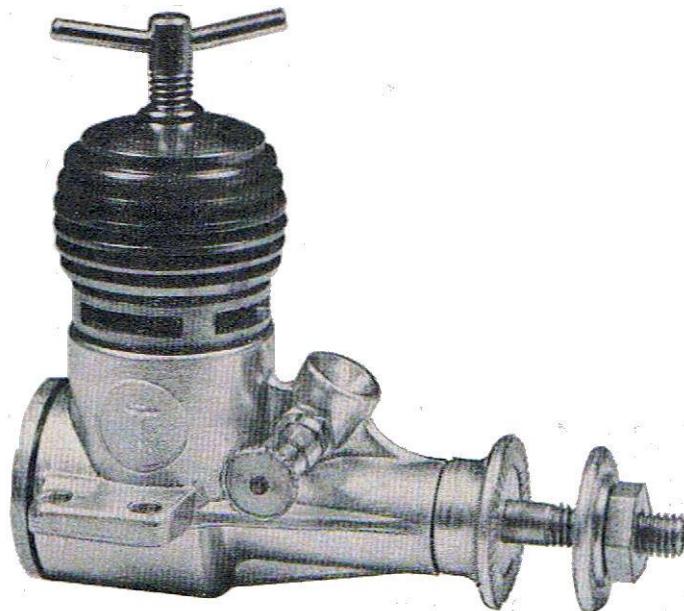
There are several versions of the Vacuplane. Mine is based on one built by a German modeller and illustrated in one of the model mags. But I have added features from the patent drawings and slightly enlarged the whole thing. The patent drawings show all sorts of weird ‘vacuum cell’ aircraft, most of which were never built. But there is a photo of a sleek-looking low-winger, with a single ‘vacuum’ fence, and a complicated arrangement of slot and flap, which rather prefigures the high-lift devices of some modern airliners.

I am hoping to tame the flight a little by adding more exponential, and a touch of coupled rudder, and flying it more slowly if possible. There is always the possibility of adding one of those clever Chinese ‘autopilots’ to keep it straight and level, but that would be cheating. Here are some more pictures of it after its maiden flight (and before!).





## The Taipan 1.5cc January 1959 Model Aircraft test



For many years, the quantity production of model i.c. engines in Australia has been in the hands of one manufacturer: Gordon Burford of Grange, South Australia. Both glowplug and diesel engines of numerous different types, under the trade names of "Gee-Bee," "Sabre," "Glo-Chief" and "Taipan," have been produced. The latest model in the diesel range is the 1.5 C.C. Taipan and this unit is the subject of our test report this month.

The Taipan 1.5 is a shaft induction, short-stroke, radially-ported engine of conventional design and construction. Despite a low selling price (£A3 19s 6d. or about £3 Sterling) it is well made and nicely finished. It compares more than favourably on a value-for-money basis, with European engines of similar size and type.

The Taipan 1.5 bears little resemblance to the earlier

Burford Sabre 150 which we featured some years ago in this series and, although the latter earned a quite favourable report, we feel that the Taipan is a definite all-round improvement on the earlier model. This is particularly noticeable in its handling characteristics and power output.

The design of the Taipan is, as we have said, orthodox. A very cleanly cast beammount crankcase unit, with integral bearing adequately webbed for strength, is employed. The cylinder liner has four external type transfer flutes and screws into the casting, being topped by the usual one-piece finned barrel and head. The transfer passages, of which there are four, spaced at 90 deg. intervals, terminate in circular 1/8 in. dia. ports drilled at 45 deg. to the cylinder axis, to improve gas flow, and breaking into the bore between the exhaust ports. Exhaust area is normal (present design trends are away from oversize exhaust ports in favour of larger transfer ports) and the exhaust period is approximately 130 deg.

Induction timing is conservative; the rotary valve opening 75 deg. after BDC and closing 20 deg. After TDC for a total intake period of only 125 deg. It is supplemented by a period of sub-piston air-induction of approximately 20 deg. each side of TDC.

### Specification

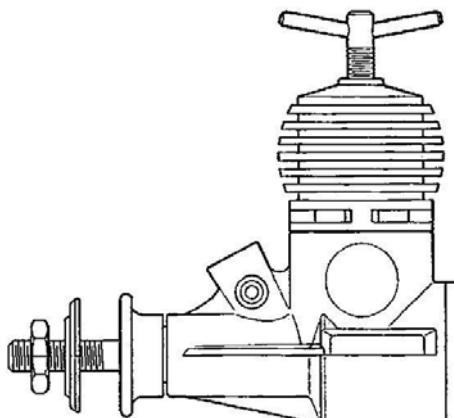
Type: Single-cylinder, air-cooled, reverse-flow scavenged two-stroke cycle, compression ignition. Shaft type rotary valve induction with sub-piston supplementary air induction. Conical piston crown.

Bore: 0.511 in. Stroke: 0.452 in.

Swept Volume: 0.0927 cu. in. = 1.519 c.c.

Stroke/Bore Ratio : 0.885 : 1

Weight: 3.2 oz.



### General Structural Data

Diecast L.33 aluminium alloy crankcase and main bearing with integral air intake. Machined alloy screw-in rear cover. Disc-web, non-counterbalanced crankshaft of 3 per cent. nickel steel, hardened. Cylinder liner of hardened mild steel, flanged at exhaust port level and screwing into main casting. Meehanite piston with pressed-in gudgeon-pin and machined duralumin connecting-rod. Meehanite contra-piston. Cylinder barrel machined from aluminium alloy bar, anodised red and screwed over cylinder liner. Brass spraybar assembly. Beam mounting lugs.

### Test Engine Data

Running time prior to tests: 2 hr.

Fuel used: Mercury Super-6.

### Performance

Following the American trend in model engine "merchandising," the Taipan is sold in a neat "bubble

pak" consisting of a transparent moulding clipped in a card folder with instructions printed on the back.

The engine is intended for beginners as well as experienced modellers and, to simulate a "beginner approach," we followed the makers starting instructions closely.

Recommended procedure is to choke the intake, while turning the prop, until fuel reaches the jet and to then give three more turns, followed by an exhaust prime. Using this basic procedure, we had the engine running within 30secs.. Once the engine has been run and any internal stiffness due to residual oil, removed, the Taipan starts very easily and, when warm, a couple of choked flicks is the only preliminary required.

When starting the engine from cold, it is helpful to open up the needle-valve a turn or so beyond the normal setting, but when using largish props (e.g., 9/4-9/6), the engine will re-start hot on the running settings of both needle-valve and compression. With the smaller props (8/4, 7/6, etc.) used to achieve r.p.m. nearer to the peak output, however, it is desirable to slacken off the compression lever a quarter turn to obtain a re-start. These characteristics are, of course, normal.

On our test engine, the contra-piston tended to stick in the bore under certain conditions. That is to say, when the engine was thoroughly warmed up, it would not return to a lower setting when the compression lever was released. This is not uncommon in current diesels, but with the Taipan, it occurred over a narrow range of compression settings only-i.e., when loaded with a certain size of prop. It was found that, by changing the fuel blend to one requiring a higher or lower compression-ratio for a given speed, this critical period could be moved up or down the r.p.m. scale. It would appear likely that this was a peculiarity of the test sample only and is not characteristic of the Taipan generally.

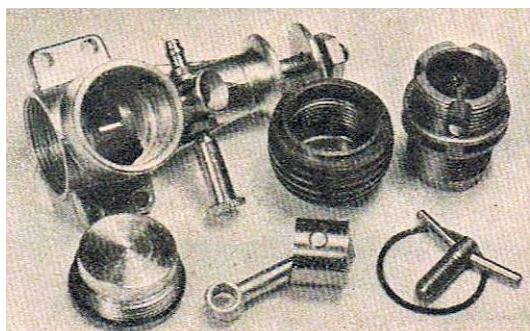
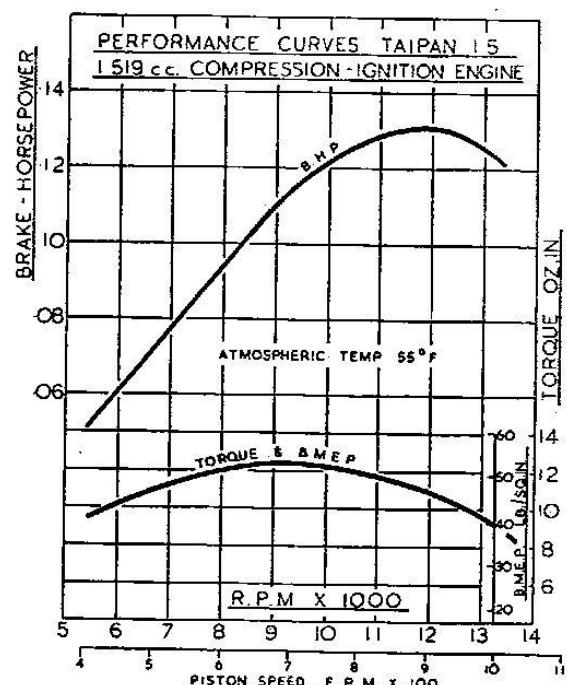
Torque tests of the Taipan revealed slightly unusually shaped torque and b.m.e.p. curves. maximum torque was delivered at around 9,000-9,500 r.p.m. and declined quite appreciably at speeds below this figure. Since maximum torque exceeded 12 ozs. in., however, the power output was particularly good on useful size props (e.g., 8/4) and over, 0.12 b.h.p. was realised at 10,000 r.p.m., with a maximum of 0.131 b.h.p. delivered at the peak speed of 12,000 r.p.m.

In general, running qualities were good. There was an appreciable power loss with warming up on the heavier loads, but this diminished as prop size was reduced and was negligible when running on the recommended Australian-made "Strato" 8/4 airscrew. This latter, incidentally, seems to suit the engine very well. Its blades are thinned and tapered at the tips and with it, revs should approach to within a few hundred r.p.m. of the peak in the air.

To summarise, this new Australian diesel is a pleasing motor, well made, nicely finished and easy handling. It is not the most powerful of 1.5 C.C. engines, but its performance is well up to present-day standards and is better than some other contemporary 1.5's. It, like the other current Burford engines, undoubtedly represents very good value.

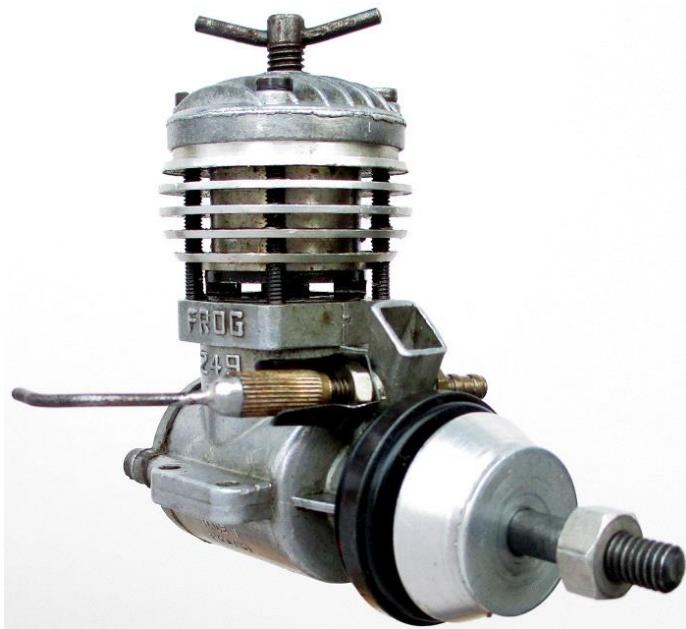
Power / Weight Ratio (as tested): 0.67 b.h.p./lb.

Specific Output (as tested): 86 b.h.p. 'litre.



## From Bill Wells

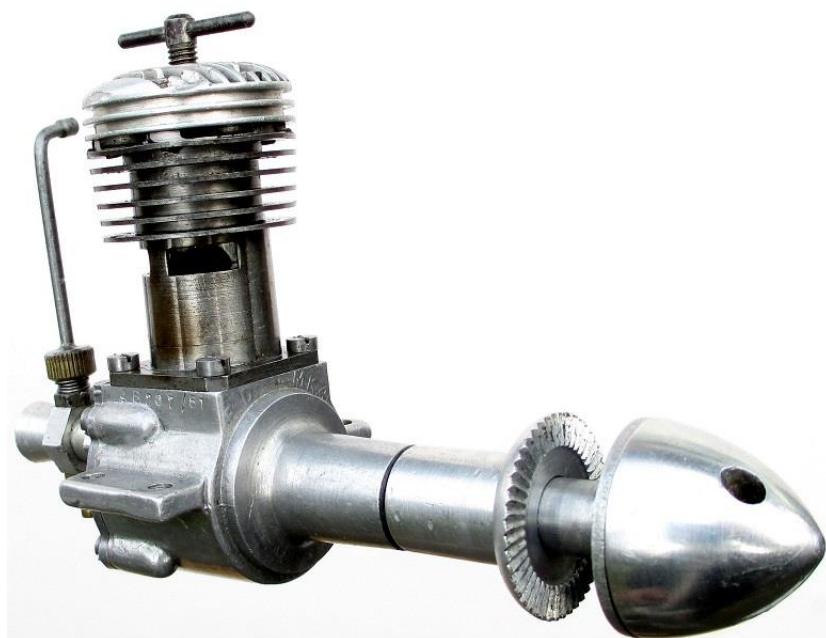
I have been taking more engine pictures so here are just three from the latest batch, you might consider one of them good enough for the 100th edition of S&T!



Frog 2.49



Anderson 049 Royal Baby Spitfire

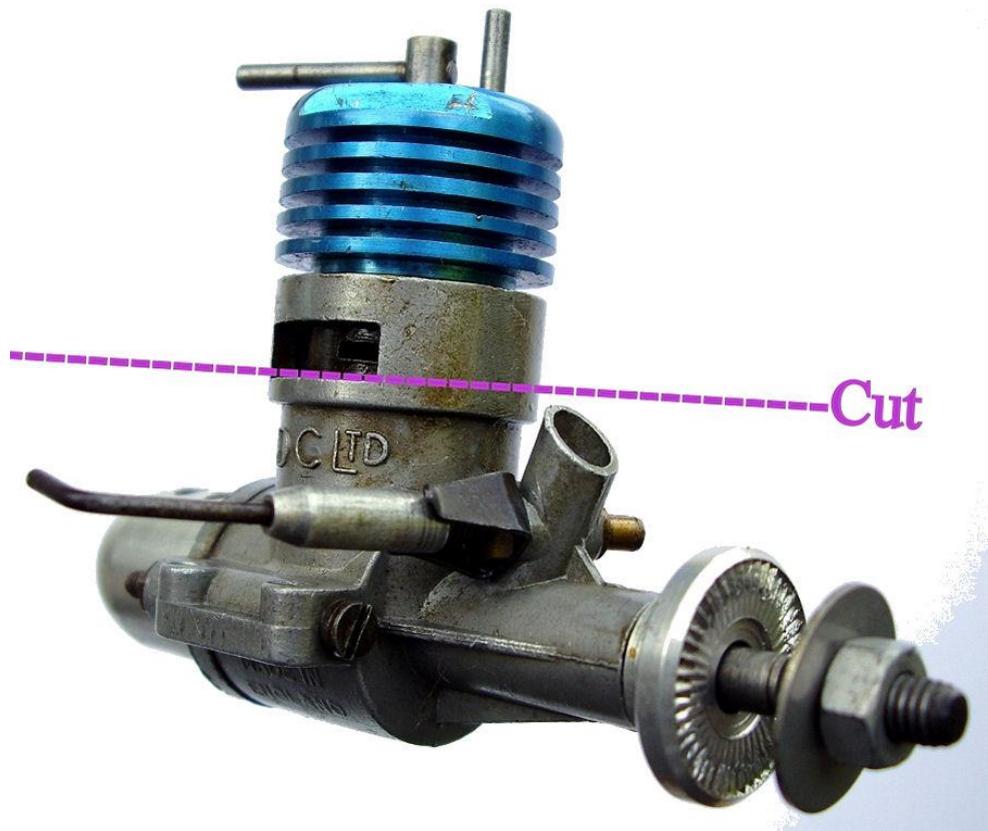
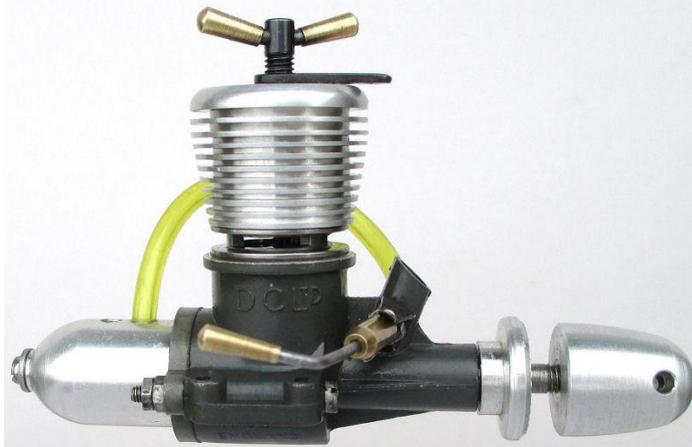


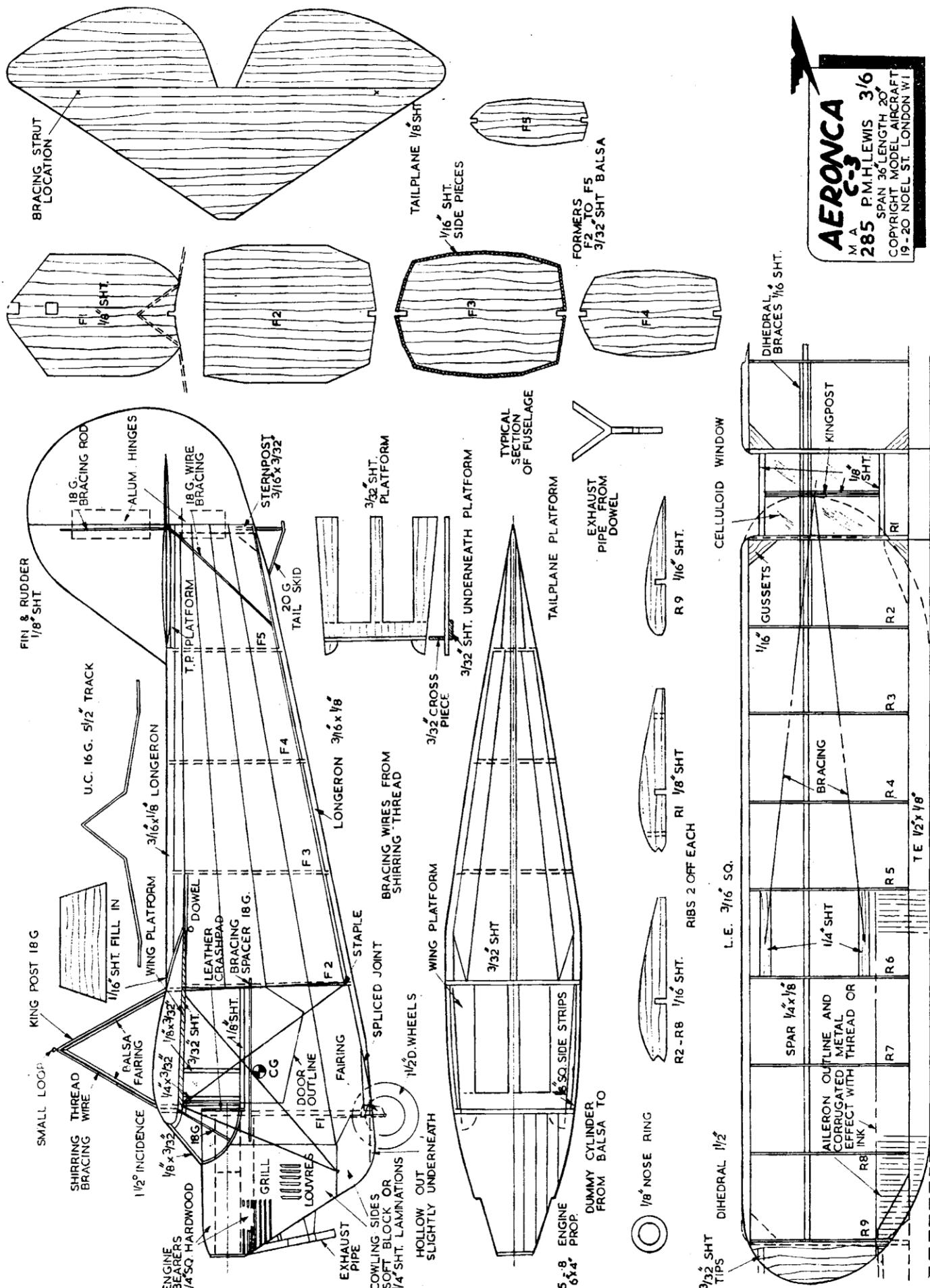
ED Hunter

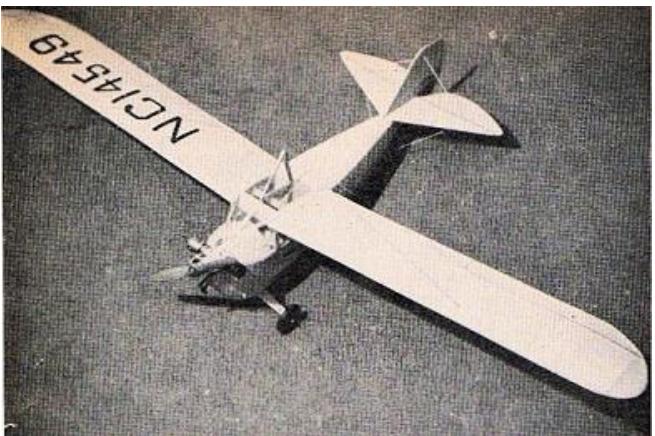
Auction Lot 240 at the sale of Peter Fisher's engines and models was described as 'P. K. Special 1.2cc diesel from DC parts for Peter Fisher'. The top half of the engine and the spinner is a Performance Kits design. Apart from the dark grey lustre finish the crankcase is a DC Spitfire/Sabre case turned down at the lower edge of the exhaust port. The cylinder was then screwed into the crankcase and the finned head screwed onto the cylinder very much in keeping with the Allbon Spitfire/Javelin. The needle valve and compression screw are adorned with brass ferrules and there is a compression locking lever.

I assume that Mr. Fisher had thought of getting DC to batch manufacture the engine then market it under the P.K. banner. Who knows? Did the extra cost of manufacture make the whole enterprise uneconomical? Is this engine the prototype and then whole venture abandoned?

When purchased the engine looked complete but the cylinder was just a blank billet of steel. Mike Crisp skilfully converted the billet into a working cylinder, made a connecting rod, piston and contra piston. As the size lent itself more towards that of a Sabre Mike made it into a 1.5cc engine. So it is now P.K. Special 1.5cc loosely on the lines of Allbon Javelin but based on a turned down DC Sabre crankcase!







Cheap and safe flying for all has long been the aim of the enthusiast, and one of the most successful approaches towards this ideal was the little "Razor-back" Aeronca of the 1930's. Yearly improvements to the original design culminated in the Master C-3 of 1935 which forms this flying-scale model. The refinements of formers and stringers added to comprise the cabin on this final version of the two seater resulted in the elimination of the sharp edge of the fuselage decking from which the machine earned its nickname.

Side mounting of a 0.5 to 0.8 c.c. engine, together with a dummy cylinder, makes an excellent substitute for the

full-size power plant, and the aircraft's unusual lines and light-plane proportions contribute towards an eye-catching model with a fine, stable performance.

#### Fuselage

Two 3/16 x 1/8in. hard strips of balsa are pinned down on to the plan to form the upper and lower longerons, the latter one having the 20 G. wire tailskid bound and glued to it before being placed in position on the board. Formers F2 to F5 are cut from 3/32 in. sheet and their left halves are cemented in place, together with the rudder post at the rear end. Sheet, 1/16 in. thick, forms the sides of the fuselage and these are cemented in separate pieces across the edges of the formers to give the poly-sided effect to the structure. The lower sides are continued just forward of F1's position, for trimming to length when this former is added later. The top and bottom of the fuselage are left open and the left half is now removed from the plan, ready to receive the right-hand sections of F2 to F5. When these are firm, the remaining sides are added. Former F1 is made from 1/8 in. sheet and acts as the mount for the 16 G. wire undercarriage which is sewn and glued to it. F1 then takes its place on the lower longeron and the sides are bent in and cemented to it. The fuselage top and bottom follow and the platform for the tailplane on each side of the upper longeron completes the rear end. Hardwood engine bearers are glued firmly into F1 and may need to have their spacing adjusted according to the engine used. Rigid support on the centre line is provided by 1/4in. sheet filling to the outline of the cowling and the latter is built up on each side with either block or sheet laminations. Space for the cylinder and tank is left on the right side and the whole nose is carved to shape. The centre-section platform, upon which the wing rests, is cut from 3/32 in. sheet, and the edges of the cabin sheet sides are strengthened by strips of 1/8 x 1/8in. The platform front supports are of 1/4 x 3/32 in. and the rest of the window framing is made from 1/8 X 3/32 in.

#### Wings

These are quite simply built up direct on the plan by pinning down 3/16 x 3/16 in. leading and 1/2 X 1/8in. trailing edges together with the 1/4 x 1/8 in. main spar. Ribs R2 to R9 are cut from 1/16in. sheet while 1/8 in. sheet is used for R1; 3/32 in. sheet forms the wingtips. When all is set, crack on each side of the centre-section and raise the tips to 1 1/2 in. for dihedral, which is retained by 1/16 in. sheet filling-in between R1 and R2; 1/4in. sheet between R5 and R6 provides support for the bracing.

The tail unit is cut to shape from 1/8 in. sheet and sanded to Section. Cement the tailplane firmly onto its platform and then add the fin, to which the rudder is attached with an aluminium hinge.

#### Covering

The whole model is now given a covering of tissue and the wings are water sprayed to tauten. Two Coats of clear dope are followed by another two of colour. The original NC14549 was yellow overall with a pair of tapering black lines on each side of the fuselage and with black lettering on upper starboard and lower port wings and on each side of the rudder.

#### Detail

The undercarriage leg fairings are cemented and bound to the wire, and the 1 1/2 in. wheels are retained by washers soldered on. The dummy engine cylinder and the exhaust are made up from scrap balsa and hardwood dowelling. The latter wood is used also for anchoring the wings retaining rubber bands; 18G wire, faired with balsa, forms the bracing kingpost above the wings and the wires are simulated by rubber shirring thread, connected to the fuselage with thin wire staples. Celluloid covers the cabin and the centre-section of the wings.

## Flying

Add weight as necessary to the nose or tail until the glide is satisfactory, then trim under power with sidethrust and the rudder so that the model performs as required.

## From Mick Butler

Cloud Cruiser. 72" wingspan, covered in Solartex the weight is just over 4.5 lb

An inverted OS 40 four stroke engine for power which sounds good on idle flypast.

Designed by Harry Moyer in 1937. It's a great model to build, and looks even better in the air.

John Laird is building a 90" version and he has a build log on RCgroups vintage forum.

Link to a short video filmed at Beaulieu.

<https://youtu.be/6I7J4eMeaAg?list=UUPVAiQdjDXKICohYKn2AiNg>







## From David Turner

I just came across this tale from Cocklebarrow, 2011 ... can't remember whether I passed this along to you, already. The photo shows Dave and his Glenelg.

Dave Bell gets his come-uppance: -

I've been chortling for days over this incident ...

Last weekend, Dave and I went down to Cocklebarrow Farm for a vintage flying meet. He was in his caravan and I was sharing a tent with the two spaniels.

On Sunday morning, I popped into his caravan to find him boiling the kettle. I had the frying pan in my hand and I said to him, "David, let me have a drop of hot water so that I can clean this frying pan."

Well, it must have been the wrong thing to say, because he immediately adopted a bombastic attitude. He began to bluster, "Gimme that frying pan. You make far too much fuss, you old woman. It doesn't need washing, it's only got a bit o' grease on it ... anyway, I want to cook my breakfast in it."

With that, he grabbed the frying pan and barged me out of his way. Fair enough.

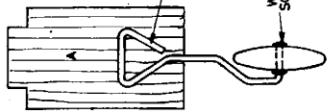
I watched him cook up his bacon and eggs and then tuck into them. What I hadn't told him was the reason that I wanted to wash the frying pan.

You see, I had just fed both the spaniels from it.



# X-120

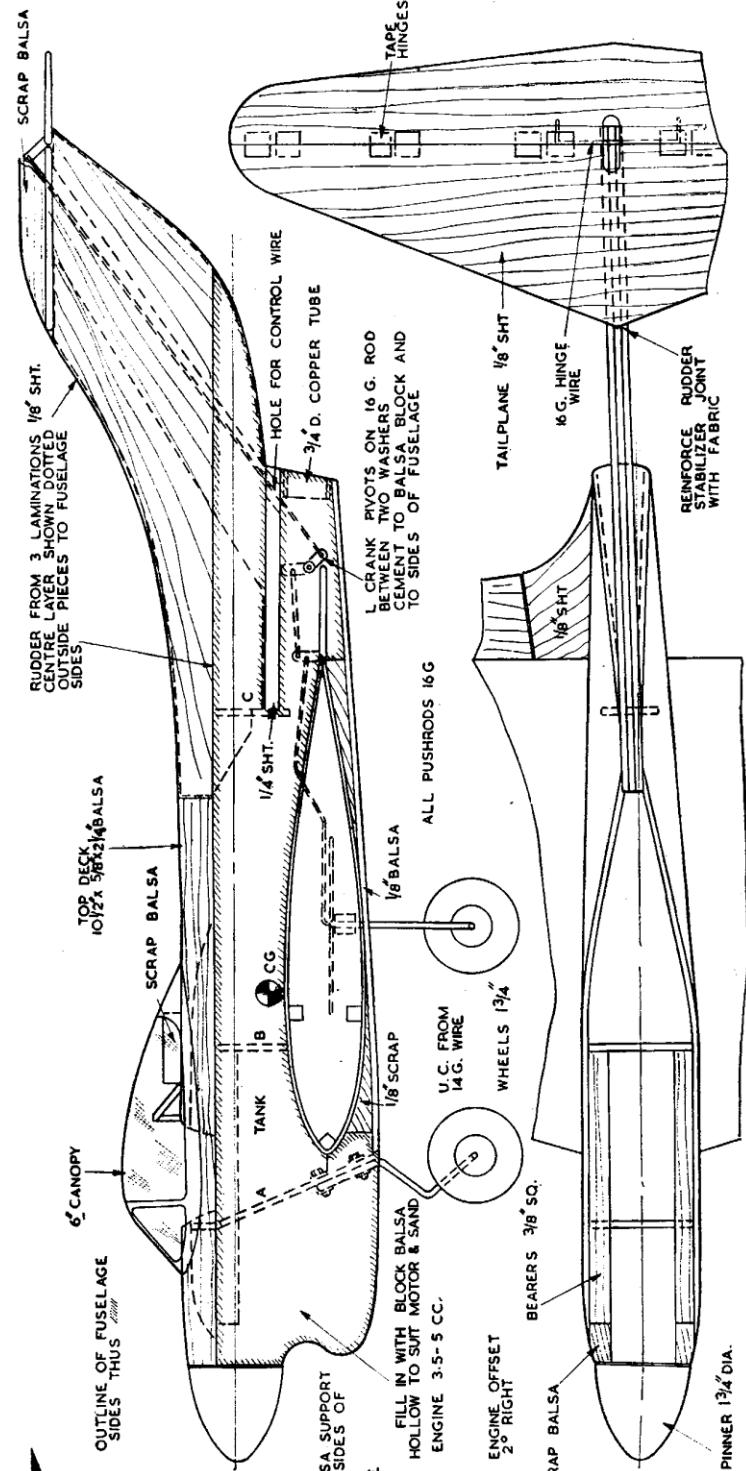
M.A.  
284 R. HART  
SPAN 34' LENGTH 26'  
COPYRIGHT MODEL AIRCRAFT  
19-20 NOEL ST. LONDON W1



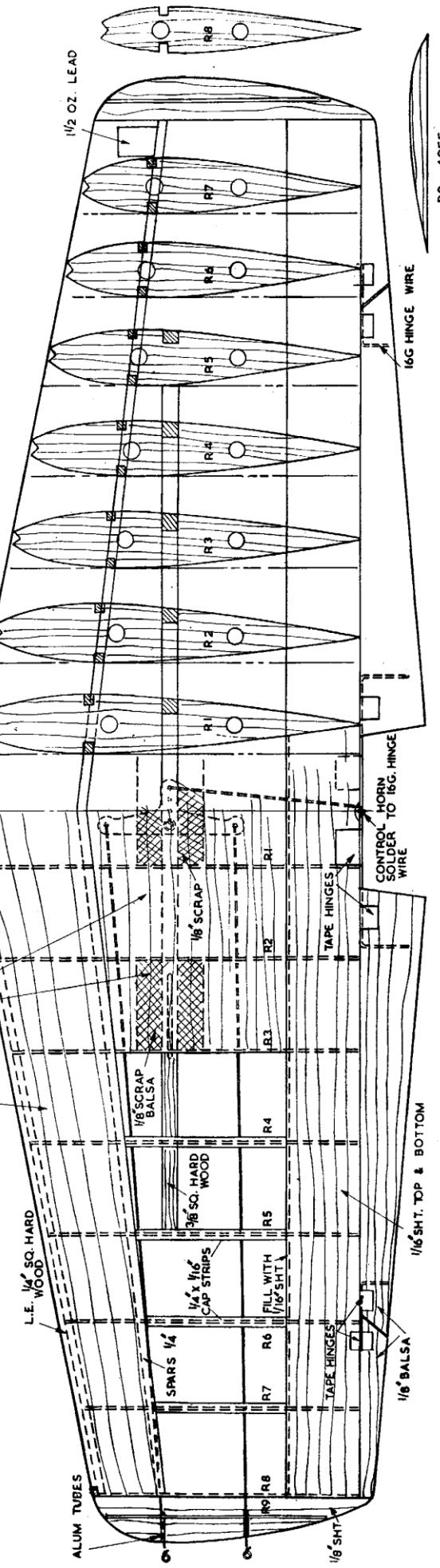
NOSE WHEEL



NOSE WHEEL

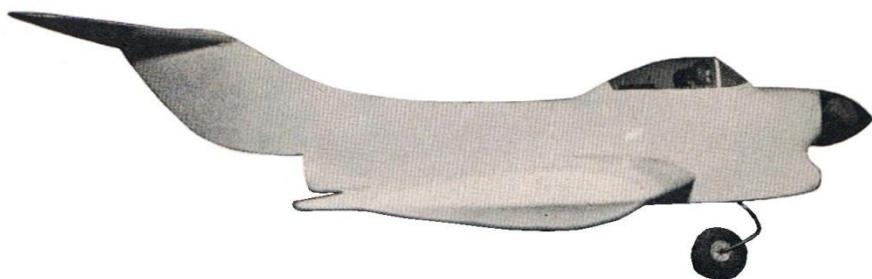


ALL RIBS 1/8 SHKT. 2 OFF EACH GUIDE HOLES IN PORT WING ONLY



## The X-120 an unusual stunt job for 3.5 – 5 cc engines by Ralph Hart from Model Aircraft June 1958

Stunt models generally tend to follow a well defined pattern, but X-120 is a model with a difference. Let it be quite clear this difference is not in the performance, for this model will fly the stunt schedule as smoothly and as well as any more orthodox design, but on the score of looks X-120 is really eye-catchingly different. The originals (there are four) have been variously powered with glo-plug 19s and 29s and a 9 x 6 prop has been found to give the best results.



### Construction

The wing should be built first as it must be finished and covered before being installed in the fuselage. The actual construction is quite straightforward and is clearly shown on the plan, but it should be remembered that pushrod No. 1 must be soldered in place before the wing

is covered.

Now for the fuselage, and here, contrary to usual practice, it is best to start at the rear and work forward. The first step is to cement the "rudder" parts, and former C together as shown on plans—allow to dry thoroughly. The motor mounts may be glued to the fuselage sides at this time.

In step No. 2 the fuselage sides are cemented to former C and to the rudder portion. A small clamp may be placed at the top of C and another just above the tail pipe portion, so that the inverted V formed by C is formed from the tail pipe forward only. When dry, the temporary tail pipe former and the 1/4in. horizontal member may be added.

Step No. 3 , which is the installation of formers A and B, is by far the most difficult. Before beginning this step a small clamp should again be placed at the top of former C to ease the strain there, and some arrangement should be devised for clamping the fuselage sides to A and B. I have found that two pieces of 1/4in. ply wood about 5in. square, connected by 3in. bolts 'through each corner, are best for this purpose. Former B is put in place first and the fuselage sides are clamped in until they close on former A. To accomplish this the sides must be bent gradually, using a slight amount of steam if necessary. Care must be taken to get the fuselage square with the rudder. A slight warp in the fuselage to act as offset is incorporated, but be careful not to use more than shown on the plan.

The engine should be temporarily installed next (not offset) and the mounting nuts firmly attached to the top of the motor mounts. The tank may be installed now. I use a stunt tank arranged so that both filler and vent tubes are brought through the lower firewall to avoid external openings.

The control system is unorthodox and a great deal of patience is sometimes required when installing it. Pushrod No. 3 should be linked to the elevator control-horn and the stabiliser glued in place. The L bellcrank is then installed temporarily and the rest of the control system soldered up as accurately as possible. The control system may then be adjusted by shifting the L bellcrank. When you are satisfied with the behaviour of the control system the L bellcrank rod may be securely attached to the fuselage sides by means of balsa blocks and glue. A small amount of oil on the L bellcrank assembly is sometimes helpful.

To get a good finish on this aircraft much sanding is required and it should not be neglected. After the aircraft is sanded down to the desired contours all wood surfaces should be given two coats of thin clear dope and sanded lightly with fine sand paper after drying. A light mixture of clear dope and talcum powder should then be brushed over all wood surfaces to act as a filler, and sanded lightly. This process may be repeated if required. A heavy paste of dope and talcum powder is used to build up the rudder tailpipe section, and to fill in all other irregularities in the aircraft. This paste is very suitable as it is light and very easily sanded.

The cockpit detail should be completed next and the cockpit area doped the desired colour. The canopy is then glued on and masked as indicated. It may then be built into the body with dope-talc paste and sanded. The entire plane is then given five to seven coats of clear dope sanding lightly between coats. The nose of the plane may now be trimmed if necessary so that it is flush with the spinner plate, and the exhaust opening

may also be cut (some sort of metal exhaust pipe must be used). The plane may now be doped the desired colour (spray if possible). Fuel proof the engine area carefully, giving two or three coats and the remainder of plane is then given one coat of fuel proof dope. Before flying make sure all the wheels are in line.

## From Dave Ashenden

Attached are some photos of the KK Mini-Super (MS) I have just completed. I bought this, part built, at last years table top sale held by the Salisbury Club at Alderbury last October. I paid £25 and this included the plan and the kit-box with all the remaining parts of the kit still inside, a bargain!

You also have a MS of course and as we've often discussed in the past the fact that it is a great little model and flies really well. Recent dialogue in the SAM 35 Speaks magazine identifies the fact that the MS was designed by David Boddington (DB), and his son Andrew subsequently advises that KK paid DB something in the order of £3 for the design – tight bastards what!

The primary reason for building the MS is pure nostalgia. Back in 1970 I was in the RAF and posted to a place called Sharjah in the United Arab Emirates (UAE), about 10 miles away from Dubai. Overseas Allowances had provided extra monies so I decided I could afford to start in R/C. This enabled me to purchase a tax-free Skyleader 4 proportional R/C set and a KK MS Kit. Just after arriving I found some other R/C enthusiasts and we started a modelling club, my main partner in crime was Gordon Counsell (later a columnist in the Radio Modeller magazine and subsequently Chairman of SAM 35). Gordon was marvellous – organising the supply of glow fuel from Shell and other bits and bobs from Bahrain.

So my first model was a MS and it did me proud, I learnt to fly R/C and had a total 81 flights at Sharjah. We flew from the main runway tele-linked to Air Traffic Control, operating in temperatures of 35 - 40 degrees Centigrade with very high humidity – tough conditions, but then someone's got to do it! I thoroughly enjoyed the whole experience. I returned to UK in 1971 where I continued to fly the MS. However, in the late 70's matrimonial problems' including divorce resulted in dire financial problems forcing me to sell some of my modelling gear – this included the MS, a pity. I have always regretted it and hankered after another one. So when the opportunity arose at the SMFC Sale I couldn't resist!

It's 45 years since my original MS build, so what's changed? The original used an OS 19 R/C engine, a lovely piece of machinery, it never let me down and idled in-flight reliably and for ever if required. Today I'm using a FUJI 20 R/C. On the original I employed the nose-wheeled version which was ideal as were flying off the main runway and taxi-ways. Today, in deference to the need to quickly gain directional control when taking off from our grass flying fields, I've reverted to the tail dragger configuration (preferred by DB). Covering wise I've used Solarfilm, with colours as per the original. NB: the fact that Solarfilm is still available after 45 years is thanks to the hard work and diligence of the late Derek Hardman. Anyway its been a pleasure to be involved in building a balsa and ply model structure again as opposed to foamies and the like.

Further to my article on same - MS had its first flight yesterday and went well. However FUJI 21 is to be replaced by SC30FS engine as FUJI had poor in-flight idle characteristics i.e. it didn't!



## From Dave Bishop

The 100th anniversary Sticks & Tissue.

"There he is, that bearded wonder" was how I was first introduced to James Parry our Sticks & Tissue compiler many years ago. One of the model aeroplane magazine management was looking for a new editor to replace one of their top staff who had gone up to the big airfield in the sky. James told me about his "day job" and I wondered then how on earth he could find the time to do such a daily travelling/working need and also compile such a good read for us all to receive, for free, from the Internet each month. If you happen to meet him in person at one of the Old Warden's Modelair events, or the Jane Stephenson's show at her Wings & Wheels weekend at North Weald, or any other aeroplane meet, you will soon find out that James Parry is known by almost everyone in the flying game. He must burn so much midnight oil to give so many recipients such a welcome monthly Sticks & Tissue read. If it was needed, I would subscribe to a written letter to put forward his name for a "gong" for his diligent service in bringing to us aeromodellers together as a family at the beginning of each month. Congratulations and thanks very much, Sir, on giving us a special birthday celebration, with no less than one hundred S&T's .

The K2 Crawley BMFA South East Area Indoor meeting on March 8.

This "must go to" annual event at the K2 Arena had been moved to March 8 by the Crawley club organisers of the this indoor meeting from the "usual" first weekend of February. Also there was an added item this year, that allowed for some radio controlled models at 5pm. I had to "cover" another event and left early at 4.30pm. I have been told that I missed the new entrants who each appeared with a number of models and their transmitters, when most people were packing up and getting ready to go home. From umpteen years of experience I really think that if the rules were relaxed by the organisers, the much needed rent of the K2 would be considerably enhanced by people wishing to see radio controlled flying model flying there. But as the "smiling, welcoming moneybags" at the door, Graham Shepherd has pointed out in past years, "they" don't want it! Whatever your opinion, the K2 is a cracking place to have a catch-up chat with so many old and bold friends, even if it's only once a year. The date for the next year's event hasn't been decided as yet but certainly from the point of weather (it was snowing badly at the 2014 event) March is a much better time to visit the K2 for the indoor BMFA South East Area sponsored flying Sunday. The very nice trophies were awarded by the invited guest appearance of Mrs Miller the wife of the late popular Keith Miller. More pictures in next month's S&T.

Dave Bishop.



***The three scale judges (left - right) Peter Royall, James Gordon and Don Coe. Don has originated his own excellent scoring system which is innovative and very fair.***



*A Lacey 10 by Vibes Masters.*



*The superb SE5a by Vibes Masters with unbelievable detail*



*A Cessna 180 rubber powered model again from Vibes Masters.*



*A Stampe SV4 by Mike Hadland.*



*A Nesmith Cougar rubber powered job by Vibes Masters*



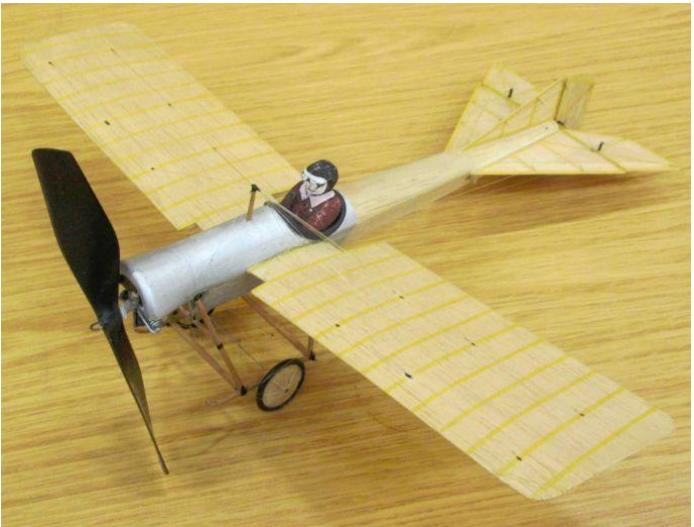
*A Waco YKS-7 by Peter Boys. We wondered if he was any relation to the famous Howard?*



*A Blackburn Bluebird rubber powered model by Nick Peppiatte.*



*A superb rubber powered 14bis canard by Bryan Stitchberry*



*A Blackburn 1912 monoplane rubber powered aeroplane*



*A Tailwind by Mike Richardson, rubber powered.*



*A Andreasson BA4 which comes from a Peck Polymer rubber powered kit.*

BMFA INDOOR OPEN SCALE - Crawley 2015													
Name	Aircraft	Wings	Engines	Completeness	Fidelity	Sub	Position static	Flight 1	Flight 2	Flight 3	Tot	Place	Comments
		5	5	10	10			10	10	10	30		
Steve Martin	Bristol Scout C	10	5	5	4	34							
Bryan Stitchberry	WACO SRF	10	5	6	6	27							
Vibes Masters	LACEY-MIO	5	5	5	3	18							
Vibes	CESSNA 180	5	5	6	3	19							
Vibes Masters	SESA	10	5	10	9	34							
Mike Hadland	STAMPEDE	10	5	9	10	34							

*The innovative judging sheet designed by Don Coe*



Always a pleasure to see these traders at the shows are John and Pauline Hook.



Even the chairman Stuart Willis of the SE area BMFA "had a go" at the K2.



Here is Cedric de la Nougerede 's own designed Focke Wulf - FW56 Stosser.



A superb CO2 powered Bristol Scout entered in the "open Scale" by Steve Martin.



It's "that lot" again from the Surrey Club inviting anyone to join their club (L-R) Tim Maslin, Terrance Wilson, Ray Woolston, Geoff Goldsmith and Nigel Allen



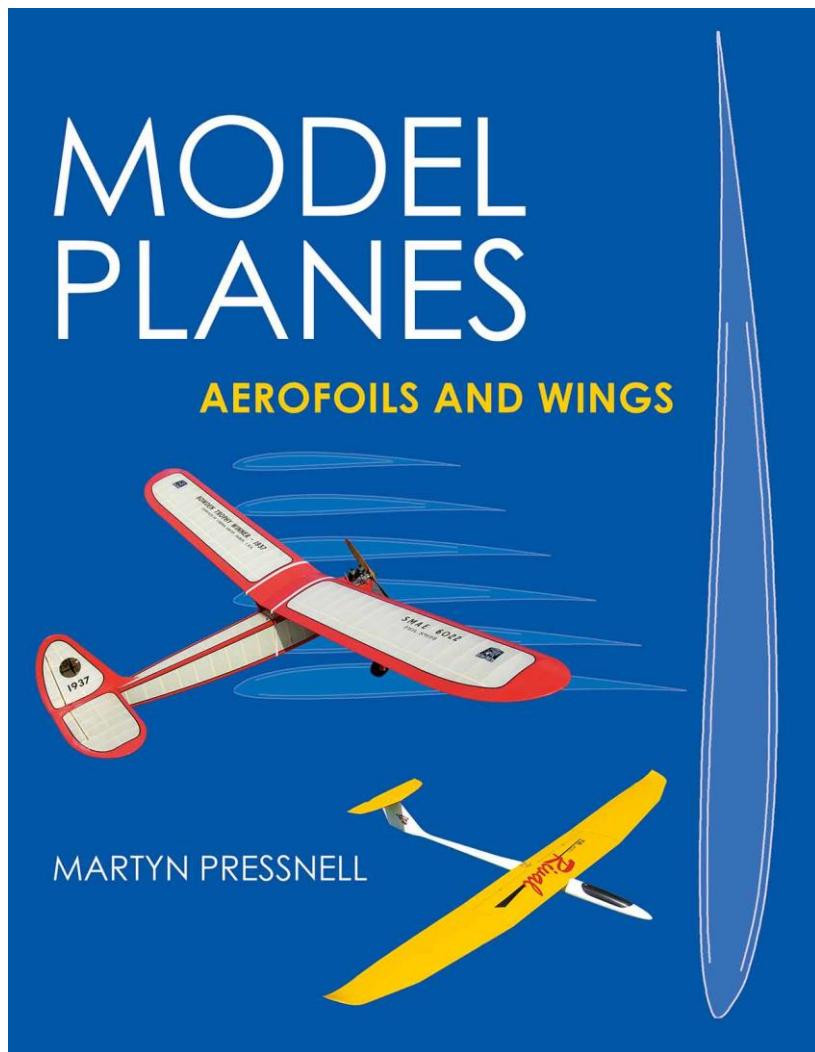
Always seen at the K2 annually at the "yearly gig" are (L-R) Brian Downham, and the famous Mrs and Mrs Masters.



*A Father/Son combination with the son Tom being an innovative and very clever designer of aeroplanes.  
One young person to watch out for in future.*

### **From Martyn Pressnell**

May I advise you that my new book 'Model Planes: Aerofoils and Wings' will be published by Robert Hale Ltd in April 2015. Details can be seen by entering Google: Robert Hale Model Planes. I would be most grateful if you are able to inform fellow aeromodellers in Sticks and Tissue by inserting the cover photo and the passage below please.



My new book entitled ‘Model Planes: Aerofoils and Wings’ will be published by Robert Hale Ltd in April 2015. This is intended to be informative to all aeromodellers and useful to many looking for the latest and best in aerofoil selection. There are 48 pages of aerofoil sections drawn out in a range of sizes and suited to most types of models, radio controlled, free-flight and some for control line. Each section is shown in full outline and with a surface skimming of 0.8 mm or 1.5 mm to enable sheeting or cap stripping to be incorporated easily.

Succeeding chapters introduce descriptions of: lift generation, understanding aerofoil characteristics, boundary layer development, Reynolds number, sources of drag, wing plan-form effects, induced drag and gliding performance with R/C thermal soaring and free-flight applications. Simple formulation is presented with worked examples to explain the significance and inter-dependence of the many variables encountered. The book stops short of a theoretical treatment of aerofoil design. Common terms in the aeromodeller’s vocabulary are explained in the text, with a glossary for quick reference.

For those wishing to draw their own sections a chapter is devoted to explaining a method using Microsoft Excel, commonly available on a home PC, or similar spreadsheet system. An appendix gives an introduction to those who may be more cautious about Excel. The method can be used to produce a family of sections to suit a tapering wing (or any desired plan-form) with blending of the sections if required. Structural details can be added to the basic aerofoil to achieve actual rib shapes ready for building.

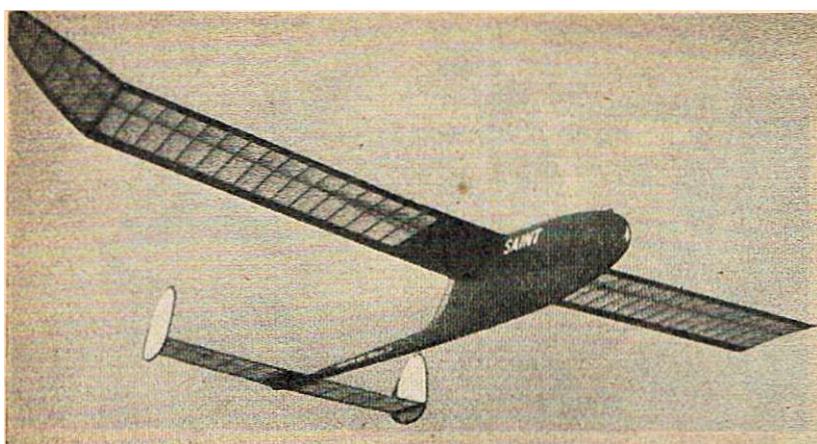
‘Model Planes’ can be pre-ordered through the publishers at: [sales@halebooks.com](mailto:sales@halebooks.com) (within Sports and Leisure section). Amazon is offering a 10% discount and free postage in the UK. Websites are advertising the book throughout the world, so there should be no difficulty in obtaining your copy. The book will be available through book shops, in university and other libraries. In due course it should be available through the model trade and from your mail order stockists.

I do hope that you all find my book interesting and possibly of lasting value in your reference collections.

Martyn Pressnell  
Lymington, Hampshire



The model was designed to satisfy the 1948 F.A.I. Regulations and gives a very pleasing performance. The original was lost from an eighty-foot line during a demonstration to the Forestry Commissioners. Although it was chased for eight miles, it eventually disappeared into some cloud after thirty minutes. The moral is—



always set your dethermaliser. A second version was lost on its first outing, in the process, setting up a new club record of nineteen minutes. fifty-two seconds. This time, a defective fuse must have gone out—another (expensive) lesson learned. In still air the "Saint" will turn in consistent flights of from two and a half to three minutes from a three-hundred-foot line.

**Wings.** The 1/16 inch ribs are first glued to leading and trailing edges only, the mainspar being threaded through the slots

afterwards. Next the 1/4 by 1/16 inch subsidiary spars can be threaded into place and the tongue glued in last of all, after the main framework of both wings has been completed. If the tongues are set in both wings at the same time it will be easy to ensure the same dihedral on both wings. The 1/8 slot in the tongue allows it to be tilted relative to the spar without weakening this member.

With the dihedral on the main panels incorporated in this way, it enables the box to be built in one piece which greatly adds to the strength.

Owing to the comparatively large size of the leading and trailing edges, care will have to be taken to ensure the correct section when sanding them to shape.

**Fuselage.** The boom is first built and forms the backbone on which the pod is assembled. The two longitudinal members of the boom are from hard balsa as are the forward spacers, but softer wood is used for these towards the tail end for the sake of lightness. When the framework has been completed, the two 18 s.w.g. hooks may be bound in place and finally the 3/32 soft sheet glued to both sides. The sheeting should be done on both sides straight after one another and then weighed down along its whole length for a period of at least twelve hours. In this way a perfectly straight boom can be made.

This being finished, the seven formers and top keel may be glued in position and the wing box cemented between F5 and F6. When this junction has been suitably reinforced with gussets the rest of the centre section may be added, finishing with the sheet covering of same.

After all internal details have been finished, the pod may be planked with strips of 3/32 balsa. These are bent sharply at the rear end and faired smoothly into the boom.

**Tail Unit.** The tailplane is of conventional structure and presents no difficulties, but here again nothing should be spared to ensure lightness. The fins are wound from 1/32 sheet, reinforced on the bottom to prevent wear. The interior bracing is from very soft stock.

**Covering and finish.** The wings are covered in good quality English tissue (not rag) and given one coat of dope and two of banana-oil.

Japanese tissue was used on the tail-unit and one coat of banana-oil is sufficient treatment. The boom is given two coats of banana-oil and no colouring. When a satisfactory contour has been achieved on the pod it is given three coats of grain filler with careful sanding between each. Finally three coats of coloured dope may be applied—sprayed if possible—ending in a suitable curve at the junction of pod and boom. The sheeted portions of the wing are also given three coats of coloured dope.

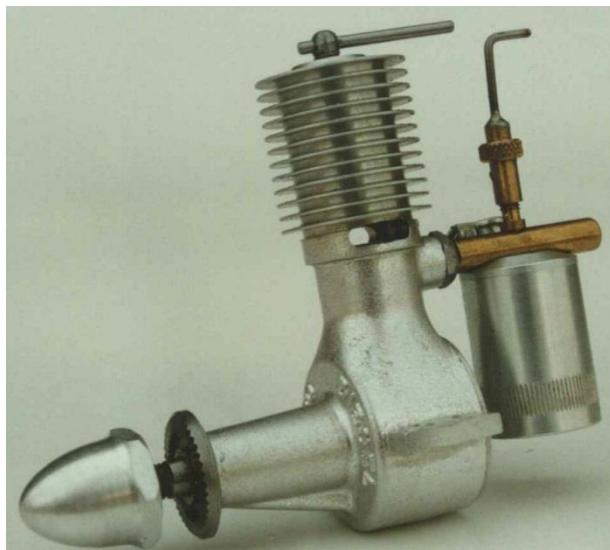


Flying. In flying trim the model should balance at 40% of the chord from the leading edge. Little of importance can be learned about the trim from a hand launch and tow-line flights should be commenced as soon as possible. Starting with the model slightly nose heavy, ballast should be taken out until there is a perceptible stall present, whereupon a little ballast may be replaced. In this way the most efficient trim can easily be found. If the model is accurately built, to alterations in settings should be necessary.

## From Karl Gies

Looking through my stash I found this treasure which has never been run. According to the invoice the seller received my check for \$155.00 on 9/20/03. I purchased it from Classic Old Time Engines located at 15731 Five Point Road in Perrysburg, Ohio.

I started an online discussion on this engine in 2004. It was manufactured in Detroit and was only on the market for about a year - 1947 or so. From the discussion it was agreed that it was a fine engine but glow engines were coming on strong and diesels had never caught on in the U.S. as in European countries. I was asked to do an article for some newsletter but could not find out much information on the engine . Joe Macay told me to call a man who had a famous model airplane shop in Detroit (Joe was from Detroit & I think the shop owners first name was Karl) and gave me the phone number. The guy who owned it was pretty old and still in business about ninety or so and had the model shop since the forties. He had sold a few of these engines but could not remember much about it. He thought the guy made them in his garage/shop. Someone sent me a copy of an ad for the engine from a model airplane magazine in 1947 but the only name



it had was "Micro 2cc Diesel Engine" and the address where to send an order. I checked with the Michigan Secretary of State giving them the address & name. They did research their records and a lady called me back but could not find any information on Micro Diesel or that address. I called a Detroit library and a librarian kindly looked in the several Polk Directories from that era for both the name & address but again nothing. My research did most everything except hire a private detective in Detroit so it will most likely remain another unsolved mystery. I also have a CS Micro 2cc diesel, Chinese

manufacture. cheers, Harold Ramirez, Private Investigator p.s. There was an article on this engine in the 1947 or 1948 Air Trails Magazine. Does anyone have this magazine as I would like to get a copy of the

### MICRO DIESEL

The first advertisement for a Micro diesel appeared simultaneously in the December 1947 issues of Air Trails & Model Airplane News. Micro was the first American made diesel to feature a variable contra piston. Very little is known about the engine as to who the designer was, how many were produced or who actually manufactured it. The original asking price was \$18.50 and the 609 Woodward Avenue address that was in the ads was an office building. The last ad for a Micro appeared in the November 1948 issue of Air Trails. During this brief time it is doubtful if more than 500 were produced. Today, the original Micro is a very rare engine and is seldom if ever seen at a collection or offered for sale in the Meca Swap sheet.

The Micro you have is an exact duplicate of the original except for using the conventional style wrist pin in place of the ball and socket & the crankcase has been pressure die cast. Each engine has had one tank of fuel run through it. The controls have been left as it was run. Increase the compression about 1/2 turn, put a few drops of fuel in the exhaust and the engine will start right up. It is recommended that a one hour break in be given before installing the engine in a plane.

As far as power is concerned, I obtained the following RPM figures on an engine that had been run for only 20 minutes. Fuel used was Red Max diesel fuel and the temperature that day was 70° F.

10 - 4 Rev up - 7,200	10 - 5 Graupner nylon - 7,000
10 - 6 Rev up - 6,200	12 - 4 Flo Torque - 5,000
11 - 5 Rev up - 5,800	

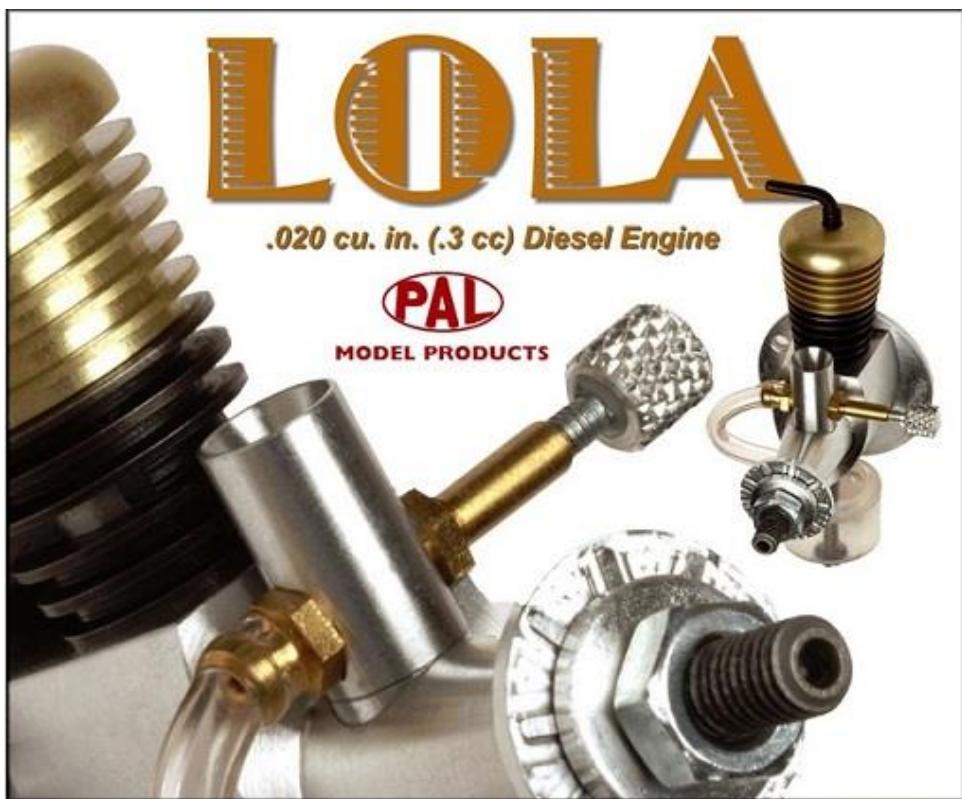
As you can see, the Micro develops quite a bit of power & would be an ideal choice for many of the old time free flight designs. Use only a good commercial diesel fuel containing castor oil or mix your own using equal parts of kerosene, ether & castor oil. Do not use a fuel containing synthetic oil.

MANUFACTURED IN SWEDEN BY AI

article? I cannot read these instructions even with a magnifying glass. I had a copy once but cannot find it. I think Jack Hiner sent me the copy. Below is a picture of the Arne Hende Micro 2cc diesel that I purchased

### Lola engine

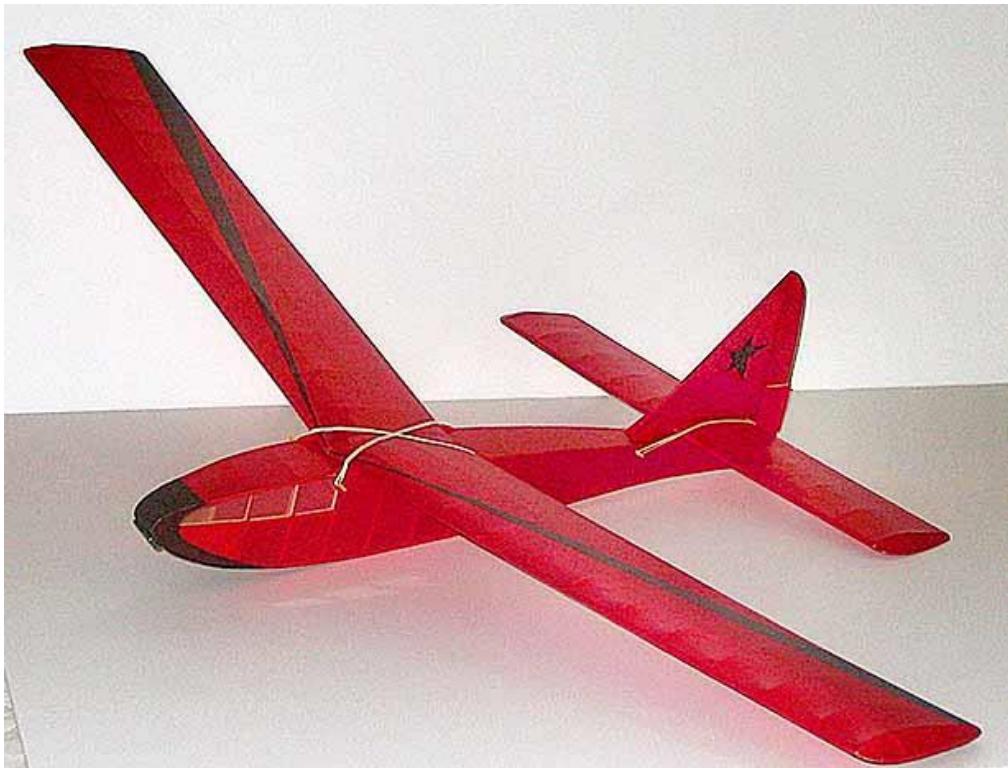
This is a fantastic engine with the plus of being a radial mount. In power it compares favorably with an Olson Rice .60 - well it is pretty powerful though. The Lolas did not run very well on the blue metal stand as it caused them to heat up to much. Bobby's sharp eye picked this out from a picture I sent him. They need to be mounted on wood. I have two of these superb little engines. They will not be in stock forever and operators are standing by so e-mail Bobby @ bobbylang@earthlink.net or call him @ (914) 949-6083 and buy at least two of therm in case one gets lost. This is an absolute jewel of an engine and very highly recommended by Captain Crawford p.s. In light of all the recent discussions on after run oil ranging from rare turtle organs to gun oil this tip from the estimable Al Heinrich: I don't use an after run oil. I like the parts being coated with caster. If the are stuck, I just heat them up with a heat gun and they will loosen up.



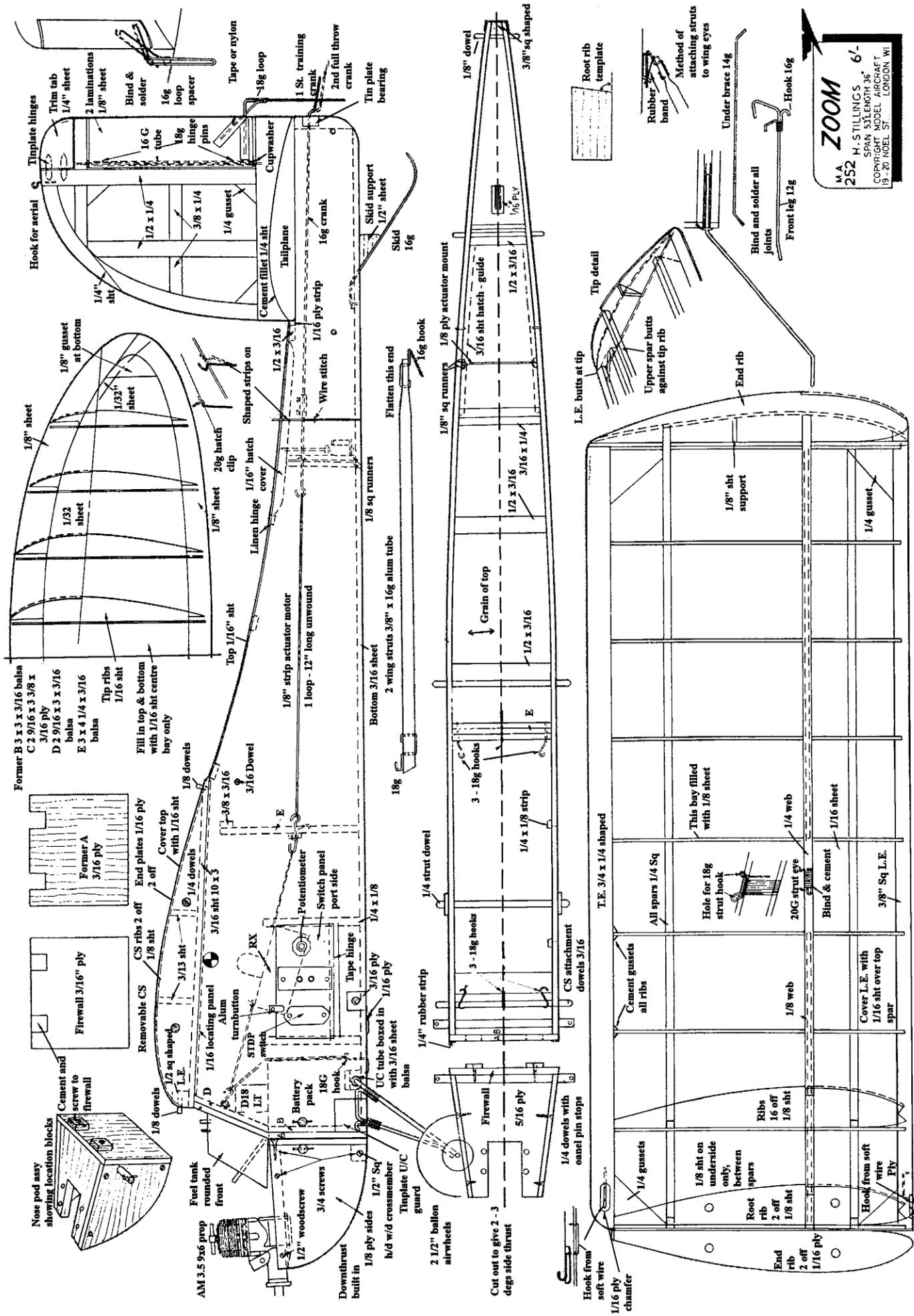
<http://palmodelproducts.com/>

My JASCO Trooper, covered with Japanese tissue over mylar. All up weight including ballast is 1.8 ounces. I built one back in about 1950 and it was a good flyer. When I saw Dick Peterson's at the SAM Champs some time ago pushed me to build another one. Stan Buddenbohm had a JASCO Trooper contest a few years ago and that got me to thinking about building another one.

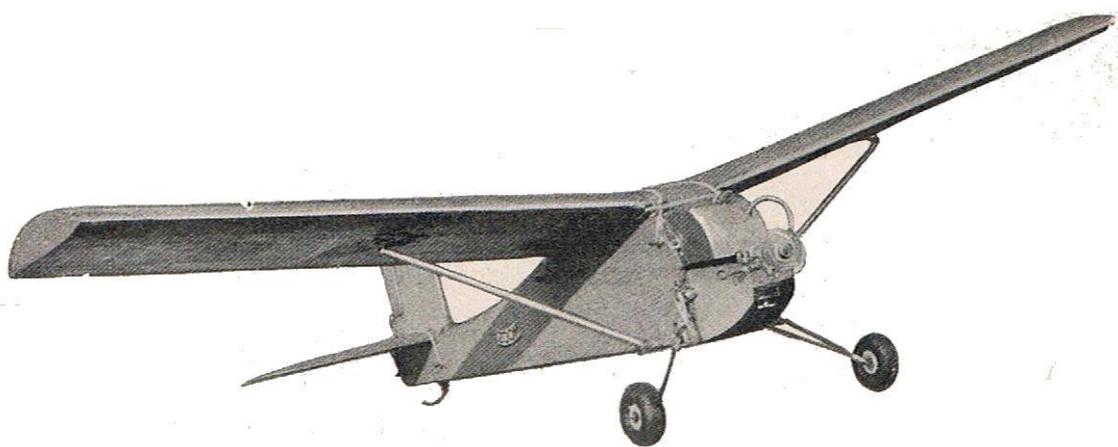
I am also going to build a 36" ws Wren. cheers, cccnh p.s. those are windows on the side so I can look out when up in the endless sky. cheers, cccnh



*Following on from last months Railcar as you recall I thought to be awful, there is another I thought I'd include this Harry Stillings design. Beauty is in the eyes of the beholder , I know. Please do read the first few paragraphs about stunts and launching. All in all don't even consider building this machine and flying as per instructions if you do build bear in mind funeral services are expensive.t JP*



**Zoom an all weather radio control stunt model suitable for 2.5cc – 5 cc engines by Harry Stillings from Model Aircraft February 1957**



Zoom is the culmination of steady progress from one design to the next in the search for a compact, fast-flying, all-weather R/C model. It embodies several unique features, all of which have been thoroughly

proved by practical experience. It is rugged and easily-built, although it is NOT intended as a beginner's radio model—the speed of flight and rapid response do not give a novice enough time to think, but any radio flyer who has had some experience will find this model a fascinating machine to fly. Even so, it is strongly recommended that one starts with the reduced-throw crank until the model is thoroughly trimmed and practice in controlling it has been obtained.

Zoom flies at nearly twice the speed of the average R/C model, and in diving turns the speed builds up to 40 m.p.h. and more. Almost any stunt can be accomplished, with practice, and I have even flown inverted for several seconds (unfortunately, I can't remember exactly how I did it!).

It will penetrate quite strong winds, yet gain altitude at the same time, and will zoom up to regain quickly all height lost in a stunt, so that it can be quite safely thrown about without having huge reserves of altitude.

The glide, although fast, is quite flat, and with response not greatly less than under power, spot-landings are commonplace.

A most exhilarating trick is to "dive bomb" the transmitter to within 10 ft. of the ground, by holding on for half a turn from low height (by which time the model is diving towards you at speed) when, by giving opposite rudder, it will zoom up into an equally fast climbing turn. Let go as soon as the model reaches a 45 deg. bank, when it will quickly level off, and the manoeuvre can be repeated from the opposite side. This must not be attempted until you have complete confidence in the model and your own control, and NEVER, repeat NEVER, immediately above any spectators. If, through any radio failure, the rudder should stick on, serious injury could be caused. At all times you should remember that under power Zoom is very fast, and nearly 4 ½ lb travelling at speed, can, wrongly applied, become very much a "mis guided" missile.

The combination needed to achieve these results is that of an over-powered model with a high wing-loading (all-up weight is 4 lb. 6 os.), and a large rudder having a fairly wide movement. The tendency to power-stall is overcome with built-in downthrust (see plan)—also, according to motor and prop used, 2-4 deg. right thrust will be needed. Because of the above factors, Zoom needs a special launching technique. You must walk back about 20 yd. from the transmitter, run as fast as you can, and "shoot" the model forward at speed, making sure that when it leaves your hand it is straight and level. Then get to the button as quickly as possible. In dead calm or light-breeze conditions it may be necessary to launch from an elevated position so that the model has a margin of height ja which to "drop" before reaching full flying speed, when, of course, wing-lift takes it safely upward. It is quite useless to trot a few steps and shove the model into the air as you would a sports model—it will just fly straight into the ground. Nor must packing be added to get it airborne, because once its normal fast flying speed is attained, such packing would create a bad stall.

The launching technique may take a little time to perfect, but once you've got the knack it will present no difficulties. If you have level tarmac available, Zoom will take off in 30-40 ft., but you must be "at-the-ready" on the button to correct any tendency to turn off straight before it unsticks.

Much thought has been given to achieving a high degree of "knock-off-ability," and in the event of a heavy impact all parts are free to move or knock off without damage. This has proved itself several times in the months that Zoom has been flying, when I have tried to stunt just that little bit too near the deck Care must

be taken throughout to ensure accurate construction, as even small errors can cause trouble with a fast-flying model of this nature.

### Fuselage

Start by cutting out the two sides from medium-hard 3/16 in. balsa. If possible use 4 in. wide stock, butt-jointing sufficient extra sheet at the cabin end before cutting Out. Next cut out the fuselage bottom from 3in. wide sheet (also 3/16in.) and cement the two sides to this, from front to rear of cabin only. Ensure accuracy by also cementing in place the 3/16 in. balsa bulkheads B and D, and the 3/16in. balsa former E. Place to one side to harden thoroughly. Whilst waiting, the wing and centre-section ribs can be cut out, using a 1/16 in. ply template cut exactly as root rib. Do not cut out ply end-plates yet—these are added after the centre Section and wings are completed. The two tip-ribs must be cut separately. Assuming that the fuselage is now quite hard, cement the remainder of the sides to the bottom, add the cross-pieces at top, and the tail-post from 1/2in. sq., shaped as shown. Pin and rubber-band in place, and again set aside to harden. When the fuselage is quite hard, cut out the switch-panel hatch (port side only), adding the 1/4 x 1/8 in. combined strengtheners door-stops in side as shown. Add the 3/16 x 3/8in. cross-pieces at rear top of former E, and at the hook position. Add rear RX hooks, and actuator motor hook, taking through the lower cross-piece and bending the points over into same. Cement well, then add the 3/16in. ply bulkheads A and C.

Cut out a tinplate strip 5 3/8 x 1 inch plus saw-tooth cut at ends to embed into fuselage side, and fix in position below and at lower sides of fuselage—this acts as undercarriage guard. Add all dowels, fixing front RX and battery-pack hooks on to front C/S dowel before cementing in place. Note that the engine-pod retaining dowel (which also takes the undercarriage bands) is drilled at the tip and a panel-pin inserted to prevent the bands from slipping off when oily.

Add lower battery-pack hook, strut dowel and ply plates. Insert under carriage tube and box in with 3/16 in. sheet using plenty of cement; note that the top strip must be cross-grained for strength. Note also that ordinary copper or aluminium tube is useless for an undercarriage bearing, whereas tinplate rolled up and soldered is tremendously strong. Add 1/16 in. ply striking-plate for undercarriage cross-brace under the fuselage. Mount the actuator on 1/16 ply, and cement the 1/8 in. sq. runners in place (note that actuator is not at right-angles to the bottom, but at a slight angle. The actuator is thus easily removable on the field, but is kept in position in flight by runners cemented to the underside of the hatch. Add 3/16in. X 1/8 in. ply end-strip forward of tailplane.

Make up tail-skid from 16 g. wire and fit as shown, not forgetting the 1/16 in. ply plate reinforcement of the fuselage floor.

Drill tail-post considerably oversize, and add tinplate crank bearing drilled slightly oversize. Bind and solder all undercarriage parts except cross-brace, insert in tube, tisen add cross-brace making sure that the legs are lined up true. Now add 1/16 in. balsa top sheeting, and cut out 1/16 in. hatch cover which extends over the fuselage sides. Hinge with tape or nylon. Add 3/16 in. runner / guides to bottom of hatch cover.

Make actuator catch in the form of a saddle which goes round and under the fuselage. This “snaps” shut and ensures that the actuator mount cannot move in flight. Note that the upper half of the legs is free to spring open and close. Add strip of 1/4 in. flat rubber on either side of bulkhead A with Bostik or similar adhesive—these act as vibration insulators. The nose-pod is made entirely of ply, pre-cemented and screwed with countersunk wood-screws (drawings are self-explanatory). Note that the dowel is drilled at the tips and panel-pins inserted. Also note the built-in down-thrust and angle of the engine cut-out to allow for right-thrust.

### Wings

Make up the centre-section as per plan. Note that the dowels must not protrude more than 3/8 in., otherwise the “knock-off” qualities are impaired. A 1/16 in. balsa sheet panel is cemented to the underside to make an easy fit in the cabin top. The wings are quite straightforward, the only point to note being that the root-rib must be set at tise angle shown. Make sure that the strut hook and eye are in the exact position shown on the plan, and that the aluminium tube struts are made to exact length, including hooks—these points decide the accuracy of the dihedral each side. A small ply plate for the front wing hook is recessed into the lower face of the L/E. Use medium-soft iron wire for hooks (packing case wire is ideal) as piano-wire causes damage when being bent in position. Be especially careful that all dowel holes (centre-section and both wings) line up exactly, as accuracy here decides correct incidence.

The construction of the fin, rudder and tailplane is orthodox, but ensure that the rudder is absolutely free—it

must instantly drop by its own weight when the fin is held on its side. Cement the fin centrally on the tailplane and run a generous cement fillet down either side.

Cover the entire machine with heavy weight Modelspan and apply at least three coats of dope, adding colour afterwards as desired. Fuel-proof entire model. Flying surfaces must be completely warp-free.

#### Assembly

Hold the centre-section firmly in place with strong bands from dowel-to-dowel diagonally. Two strong bands front and rear across the fuselage hold the wings in position, and three strong bands stretched tight under the fuselage hold the struts. These are held in place on the wings with one small band passed over and over. Undercarriage is held in place with bands stretched from hooks over engine-pod dowels in fuselage. Engine-pod should have two bands each side, in case one breaks. Note that only castor-base fuel should be used, as this does not affect bands, whereas mineral oil quickly rots them.

Cement 1/8 in. sheet to the underside of the tail as a key once the correct position is determined by test flights. The trim-tab is then used to correct minor deviations at later stages. Note that wing dowel-holes must be slightly enlarged to an easy "knock-off" fit on centre-section dowels.

#### Flying

Test-glide model, fully equipped, over suitable "featherbed," such as long grass, fern, heather, etc., using running launch but keeping slightly nose-down. If there is any trace of a stall, pack leading edge of tailplane with 1/16 in. balsa until the stall disappears. Now try power-on flight, using reduced throw crank (this is important). Watch neutral flight on power and glide. Correct glide first by moving tailplane assembly; when correct, adjust power-on neutral with side-thrust only. With full-throw crank, the model will start a spiral dive after a 1/4-turn, so for direction control use short signals, blipping through unwanted positions.

One spiral is sufficient for loops, giving opposite rudder and releasing as soon as the model is slightly nose-up, otherwise it will develop into a wing-over; or this can be done, until model is upside down, then releasing when it will loop straight from resulting dive. To roll off top, give another signal when model is nearly at top of loop. Slow roll is done from a cross-wind wing-over, giving opposite rudder when wing-tip is pointing straight down, then releasing as soon as model starts to roll.

## Event dates

### Wimborne MAC (Between Blandford Forum and Salisbury)

12 April Sunday Control line day, grass circles, BBQ, portaloo, weather will be perfect

11 October Control line day, grass circles, BBQ, portaloo, weather will be perfect as in April

More info from [christopher.hague@ntlworld.com](mailto:christopher.hague@ntlworld.com) <http://wimbornemac.org/>

### DMFG Near Blandford Forum

19 April Sunday 36" glider and Ebenezers Subject to weather.

See <http://www.wessexam1.co.uk/homes36ffgliders.html>



10 May Sunday R/C vintage + 36" glider CL & nat Tomboy

23 May Saturday 36" glider and Ebeneezers

30 May Saturday Scale + Vintage

20 June Saturday 36" glider and Ebeneezers

More information on above events [jamesiparry@talktalk.net](mailto:jamesiparry@talktalk.net)

## **Machrihanish**

Hello everyone, Just to let you know that the spring fun fly at Machrihanish will be held on the first weekend of May, the 1st-2nd-3rd.

I would ask all who intend to support this event to get their details in to myself or Andy Rudden by the last week of April. To maintain our presence at this wonderful site,you support is essential,so please spread the word ,and don't forget we fly anything,rubber power to pulse jets!

Bryan Passey [b.passey@sky.com](mailto:b.passey@sky.com)

# **SHILTON VINTAGE (FLY IN)**

**BLACKWELL FARM**

**Saturday 23rd and Sunday 24th May 2015**

Details and directions for the Shilton Vintage meet on 23<sup>rd</sup> and 24<sup>th</sup> May 2015.

Flying all day Saturday and Sunday.

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

BMFA members only. Proof of Insurance required.

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

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

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

Caravans/Camping £10.00 for weekend

Flying £5 per pilot.

Local facilities are available in Carterton 3 miles away.

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

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

**OR** Boycott Beale Tel 01993 846690  
Email: [squealers@btinternet.com](mailto:squealers@btinternet.com)

*Directions:*

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

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

## Cocklebarrow

The dates for Cocklebarrow are as follows: 12th July, 23rd August and 4th October.



**This year's event will be held on the weekend of 15th and 16th August. Format for the event will be very similar to previous years with :**

- Off the peg flying both days
- Camping facilities (please contact us to book in advance)
- Saturday night BBQ
- Onsite toilets and drinking water facilities
- 200 ft grass strip for R/C flight
- Control Line Circle (depending on availability of land as we are on a working farm)
- Small field Free flight
- Bring and Buy Sale - bring along your bits that are "Surplus to Requirement" and turn them into cash

**This years mass build event will be celebrating the designs of David Boddington. If you have any of his designs in your hangar then bring them along - if not then why not build one and maiden it at the gathering. For more information and to book your entry in early please email -**

[gray@ncmac.co.uk](mailto:gray@ncmac.co.uk)

It goes without saying but please :-

**WILL ALL PILOTS PLEASE ENSURE THAT THEY HAVE PROOF OF VALID INSURANCE WHEN BOOKING IN**

# **R/C VINTAGE & C/L EVENTS 2015**

<b>DATE</b>	<b>MEETINGS</b>	<b>CONTACTS</b>
<b>03.05.2015</b>	<b>Middle Wallop, Hants *</b>	<b>R/C T. Tomlin C/L J. Parry</b>
<b>10.05.2015</b>	<b>Nr Blandford Forum, Dorset *</b>	<b>J. Parry</b>
<b>23 + 24.05.2015</b>	<b>Shilton, Oxfordshire</b>	<b>N. Blackwell</b>
<b>14.06.2015</b>	<b>Middle Wallop, Hants *</b>	<b>R/C T. Tomlin C/L J. Parry</b>
<b>12.07.2015</b>	<b>Cocklebarrow Farm *</b>	<b>P. Howkins * T. Tomlin</b>
<b>23.08.2015</b>	<b>Cocklebarrow Farm *</b>	<b>P. Howkins * T. Tomlin</b>
<b>30.08.2015</b>	<b>Middle Wallop, Hants *</b>	<b>R/C T. Tomlin C/L J. Parry</b>
<b>12 + 13.09.2015</b>	<b>Shilton, Oxfordshire</b>	<b>N. Blackwell</b>
<b>4.10.2015</b>	<b>Cocklebarrow Farm *</b>	<b>P. Howkins * T. Tomlin</b>
<b><u>NOTES</u></b>		
<b>* Tomboy comps will be held at these events</b>	<b>Please check before travelling as circumstances can cause events to be changed at short notice</b>	<b>MIDDLE WALLOP <u>Dogs are NOT allowed on the airfield at any time</u></b>
<b><u>CONTACTS</u></b>		
	<b>Tony Tomlin 02086413505 <a href="mailto:pit2.alt2@btinternet.com">pit2.alt2@btinternet.com</a></b>	<b>James Parry 01202625825 <a href="mailto:jamesiparry@talktalk.net">jamesiparry@talktalk.net</a></b>
	<b>Paul Howkins 02476405126 <a href="mailto:howkins776@btinternet.com">howkins776@btinternet.com</a></b>	<b>Nick Blackwell <a href="mailto:nick@nickblackwell.co.uk">nick@nickblackwell.co.uk</a></b>

## David Kinsella's Column

### Bartron BOGOF

The Allard Stand at the NEC featured Dick Barton. Not content with just one, two appeared to amaze the crowds (some 65,000 attending). Three movies were made by Hammer, Don Stannard as Barton lost in a car accident before the cameras rolled again. Allard's provided a red K1 sports model but Stannard died in a pedestrian saloon best not mentioned



### The Chosen One

Brian Lever tells me that the KK Skystreak 26 is the model to be judged at Old Warden in September. Good show! Drawn up in 1949 for motors up to 1cc, a number were seen sporting Festival of Britain logos. Veron, Frog and Mercury pitched in with their kits for stunt action but the 11 shilling KK Skystreak with swept back wings captured the hearts of spiffing chaps. A special prize awaits a Skystreaker who sports 1949 vintage tags. Think Arthur English and the age of the spiv.

### Loo Rating

In a letter to the marquess I observed that the standing of a watering hole rests on the quality of its loo. Hidden away it's an area where a degree of skimping is hard to resist, builders and the like offering ghastly chambers best ignored. Thankfully the great hotels of London treat such economy with scorn and within their walls offer vast areas of marble, glass and chrome, hot towels and a gloved hand to brush away an offending speck or hair. Good chaps who read S&T deserve nothing less.

### Flying Millyard

Worthy of Waldo Pepper, the ripsnorter pictured here boasts a 5-litre twin pot motor and delivers 100mph at a mere 1500rpm. Pratt & Whitney Wasp cylinders come from the age of Earhart and other bits from Honda, Morris and MG complete this stunning bike worthy of Barton, Bond or Big Daddy. Every secret agent should have one.



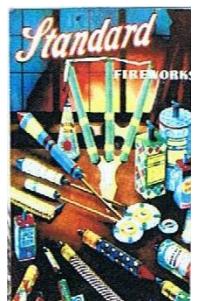
### Albert's Own

I'm the proud owner of Albert Hatfull's Senator kit, much red and green on the first edition that appeared in 1950 as a leader in the Keil Kraft range. I built a Senator ages ago and was impressed by its performance and the wings and tail that lasted and lasted and ended up as the flying surfaces of a sports job powered by an ED Baby. Much Mercury 8 was expended over the green fields of Essex, my ex RAF small pack holding that and sandwiches and Tizer for the afternoon's flying. My green Phillips 4-speed had got me there and in early evening I'd cycle home again without a care in the world. Oh yes, I remember it well....I have one or two of Albert's books and maintain contact with the family. Six pages of Senator stuff appear in Aeromodeller for Jan/Feb 2013. One of the great rubber models guaranteed to please.

### Always Remember

Rest assured that Guy is going strong despite the years and safety mad flutters (the poor old conker a case in point). Lewes, Sussex, put on a mighty 30 bonfire bash plus street processions in fancy dress. London's

Brockwell Park hosted the Lords of Lighting display act and there was much seafront action in Plymouth. Perfect for a misty November evening when it's easy to imagine a cloaked Fawkes and his chums in the cellars below Westminster, Kimbolton Fireworks and others ensure that a spiffing tradition from the age of the rapier carries on. And so it should!



### Gripping Joints

Seen somewhere a reference to adhesives of old and just how grim they were! To avoid blushes there was a terror that began with S which never ever set. However, the arrival of Britfix and good stuff from the aircraft industry saw the horrors abate and secure joints made. Right now Yank made Kwik Weld (also

known. as JB Weld) is delivering mighty unbustable joints within a couple of hours. Tough stuff from Texas that delivers powerful results.

### Cold Air Effect

The LMS and LNER took streamlining all the way, At the GWR a token to the times was the torpedo nose on King Henry VII, seen here near Bath on a test run in cold conditions as the vastness of airship Hindenburg heads for the Atlantic and America. A gamekeeper watches as the 4-cylinder rushes by with a steam injector on and a sprint rake of six carriages. Large reporting numbers were a feature of the 1930s as were porters on platforms and polished locomotives and stock. Oils on canvas by Eric Bottomley GRA.



### Very Special

Snapped at Prescott lifting a wheel (a sole door open from the effort!) a very special Allard Special storms the famous Bugatti hill climb. As well as the lightened axle beams as seen here the whole car was built as a serious racer way back in 1938 to tackle rough ground trials, sprints, hill climbs and even Brooklands. Admired by a young Mike Hawthorn and Bill Boddy of Motor Sport, the 4.4 litre VB was owned by Lady Mary Grosvenor and is covered in detail in my Allard book published by Haynes.



### Carrier Champ

Attempting to match Eric Winkle Brown's deck landing record staggering at 2407— another air force chose a pilot to do nothing else. At just 1600 carrier deck landings the poor fellow had a nervous breakdown! After a Seafire landing on a carrier Captain Brown sped off to do three loops around the Forth Bridge. The locale of Queensferry upset at the prank, the police were notified and the RAF blamed for the stunt, the Seafire so like the RAF's Spitfire. Broad smiles from the 5ft 7m Fleet Air Arm ace.

### Hot Bikes

Brough and Matchless and other great names of open road adventure were seen in Milan and at our NEC. Of almost two litres the Italian owned Matchless twin was a sensation as was the mighty Brough. Can we hope that one day the Vincent will appear again to remind us of the great days of that king of bikes, the related Egli and the deeds of George Brown?



### Risky Mix

Imperial and metric close together can easily lead to confusion in the work place, dangerously so where aeroplanes are concerned. Changed to metric, fag packet calculations resulted in all tanks dry at 41,000ft. Coal at the helm of the 767 in July 1983, Captain Bob Pearson put the liner into a best glide attitude as his officers hurried to find an airstrip. In the nick of time the 143 ton Boeing was landed within feet of the Winnipeg Sports Car Clubs fun day at a disused airfield. Utter amazement all round, passengers included, a high speed arrival without flaps and too high at the start was a stiff test for glider ace Pearson.

### Watchwork

Highly recommended for repairs on the bench while you wait (no sending away rubbish) Alsal Watches opposite the Law Courts in the Strand (0207 353 4195) are kings of clockwork and electric watches. In the same area Austin Kaye (0207 240 1888) and H&J (0207 379 7080) can assist.

### Killed By Concrete

Long after the flying boat era had passed some held on to the belief that even larger machines would be required, in the lead being the one thousand seater drawn up by Saunders-Roe. Intended for cruise line P&O,

the giant boasted four passenger decks, a huge V-tail and 24 engines. Twice the size of the largest Jumbo, it never left the drawing board. Even the earlier and beautiful 10-engined Princess of 1953 was hardly used. The spread of surfaced runways had done for the type.

### Bartlett's Blaster

Famous in the late 1940s and so an inspiration to others, this fine old print shows Leslie Onslow Bartlett at speed in his Ford Mercury V8 special. Until the arrival of the TR2 and MGA, for many a sports car was realised by dumping a saloon body and replacing it with a few alloy sheets bent to shape and secured with pop rivets. At once improved performance all round! 4 Speed equipment was smuggled in from the USA and for a few years the two seater home built special was a feature of ration book Britain and the doings of Dick Barton.



### Born Again

Today's tiny power units are an easy fit in the Keil Kraft and Veron Scale series, sold in the good old days for 3/6 or so. I built the Fokker DVIII in orange and light blue and Skyleada's Javelin in dull camouflage (with Jetex power the Gloster fighter flew very well indeed). Perfect for indoor and the great outdoors when the conditions are right.

### Ubique

Zooming along in a holiday quickstep, my partner in an electric blue Cassini stunner (think Kennedy, Hollywood stars, Onassis) I spied a good fellow from Raynes Park MAC. Thankfully I had some quarter-grain with me and waved it next time round.

### **Belair**



Belair Vintage Kits have added quite a few Vintage Parts Set, including 4 popular Vic Smeed designs - Ballerina, Madcap cabin, Majorette and Coquette. Also for the Veron plans sold by Colin Smith, we now offer the Super Robot and Aeronca Sedan.

Finally for the Aeromodeller plan the Dizzy Diesel. All designs are faithful to the original plans.



We also publish a free catalogue which

is free to your readers, please call 01362 668658 for your copy.  
[www.belairkits.com](http://www.belairkits.com)

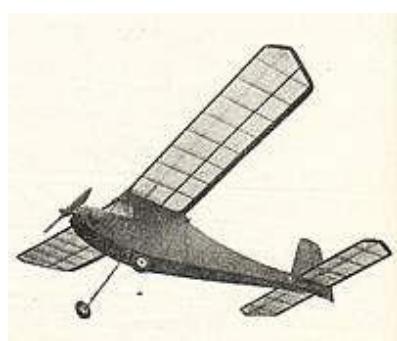
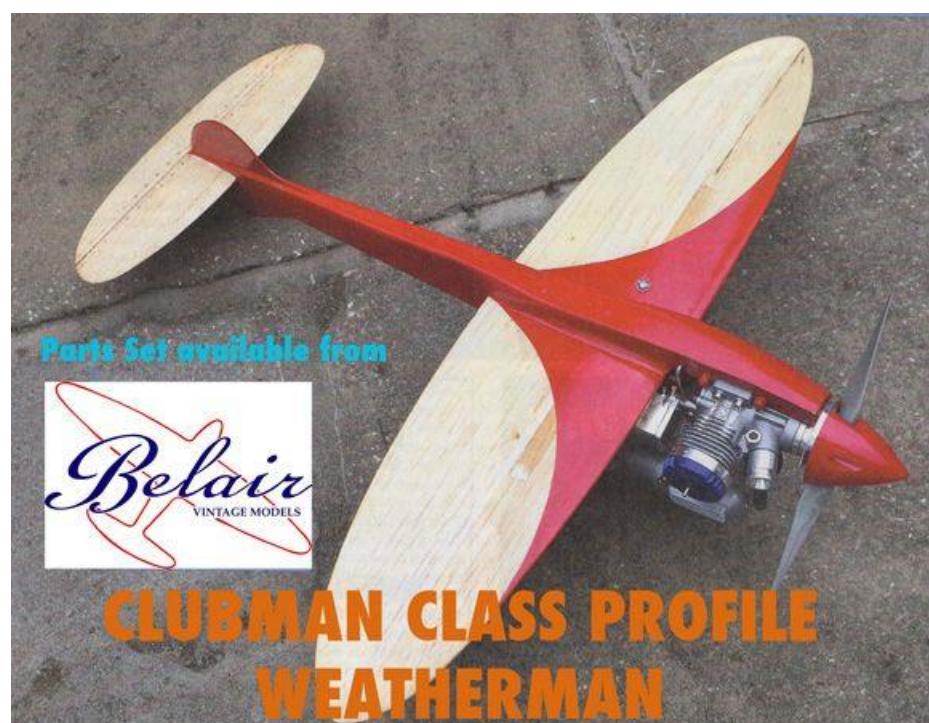


Clubman Class Profile Weatherman, available as a Parts Set from Belair Kits. SAM35 authorised parts set from original designer's CAD data. Plan available from SAM35 or use plan included free in April issue of Aeromodeller.

Leon Cole

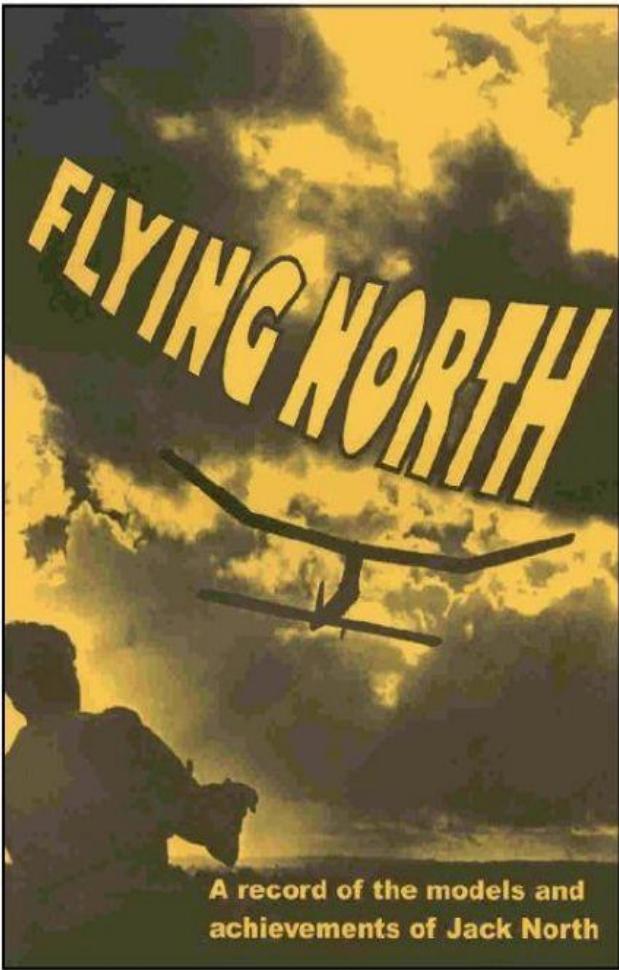
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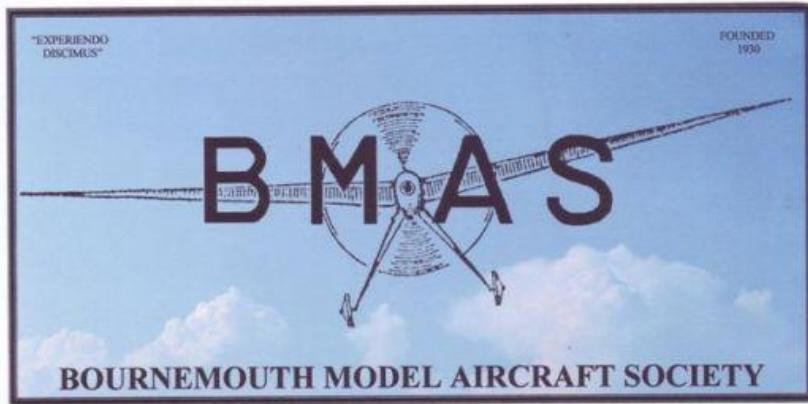
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