



Sticks and Tissue No 104 – July 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 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.



Spike Spencer's Mars CL to RC conversion at Cocklebarrow

From Shaun Garrity

I've just been clearing out some files on an old laptop and came across this image of some of my engines. Amazing what gets squirrled away over the years. I'm not a collector but if I live long enough they will all find a home in a model eventually, (they were made to be used, not looked at, after all !)

As you can see I'm a DC fan. Every engine is a different version. .. Nothing really rare but the DC Bee is uncommon. I remember a discussion with an ex DC employee who told me it was only produced for a short time as ED had the copyright on the name. As can be seen it is essentially the same engine as the Wasp but had the old Bantam radial mount with it..

I'm sure somebody on S&T will have chapter and verse on this oddity. I also have what looks like a partially finished glow head Spitfire.

My other favourite is the good old Yorkshire Owatt, fixed comp diesel. I would like to find the tank and original nva for it some time. I have plans to put it in a Simplex and fly it with one of my 2.4g converted RCS reed tx's for a truly nostalgic bit of retro fun. More details on 2.4 g conversions are available at www.singlechannel.co.uk if you've not visited there before.

The other engine I intend to fly asap is my AH Stentor which I bought from John Goodhall years ago, when he managed to get a few of them from AH. Mine also came with the glow head, but sparks all the way for me.

My old and dearly missed friend Phil Smith (Veron), built me a Stentorian years ago. I originally flew it with an OS K6 sparker, then with an AXI brushless, but model was designed for the Stentor, hence the name, so along with all the other stuff, another one is on the list but at least one of the quicker ones to finish and pushed to the front of the queue.



One recently finished project was the restoration of 50 year old Mercury Magna. As I started removing the old tissue it proceeds to fall to bits...I know it's quicker to start from scratch but I like a challenge. Anyhow, after more hrs than I care to admit to re gluing every joint with water thin cyno, I could then start stripping off the old stuff and recover. I used litespan and some red acrylic spray. To give it the authentic doped look I gently brushed over the red with a fine paint brush as it was drying.

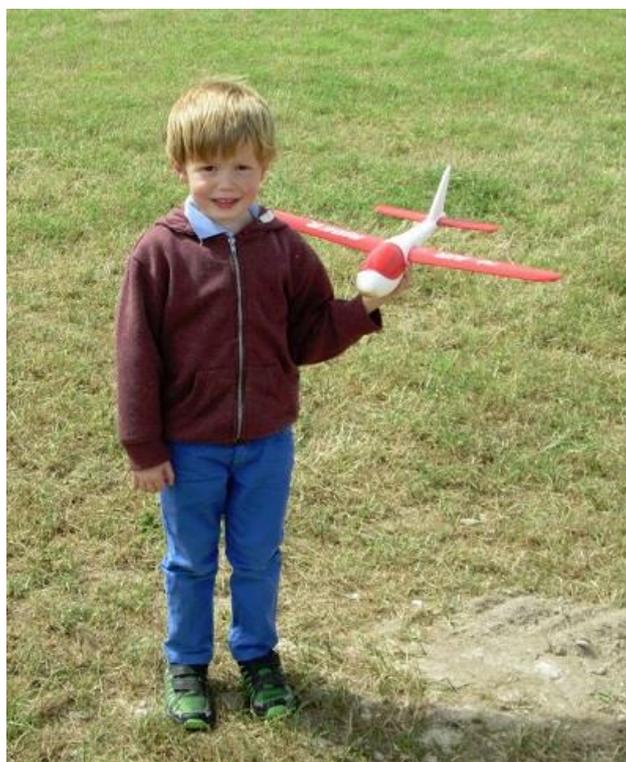
The motor was an un- run Frog 80....not any more ! (I've always wondered if that causes diehard engine collectors to wince? Actually I also have to admit to building vintage models from original kits. Shock horror, does that make me a bad person..ha,ha....).

It flies on Rudder Only, using single channel emulation on the button, i.e. one press for right and press, release, press and hold for left. A small 5g servo drives the rudder, and a single cell 500mAh LiPo with a dc-

dc converter to give 5v for the rx etc. (I covered this in more detail in Aeromodeller last year . It gives a light weight power system solution.)

The TX is an early OS propo set I converted, again with one of Phil Greens , Arduino based encoders and a Spektrum 2.4g module. As mentioned it has single channel emulation , but if you bottle it, you can always use the rudder stick.

Modellers often ask me why use the old systems...In a word FUN. It's truly satisfying to land a rudder only model at your feet, especially if you've been flying in a 15mph wind , gusting to 20-25mph, but I appreciate it's not for everybody.



New recruit at our DMFG flying site Brian Beacham's grandson had great fun throwing his glider which flew well

Ken Croft in sunny SW France.

I claim the prize for the "Guess the Modeler" in the latest issue of Sticks and Tissue. Shame on you all for not knowing Geoff Knight, a modeler from the same area in England as the late John Maddaford.

Geoff moved to live permanently in the USA at least 7 years ago, a couple of years before I decamped to live permanently in SW France. I went twice to the USA SAM champs with Geoff at Las Vegas in 2005 and to Muncie Indiana in 2006. I think it was then that Geoff caught the bug and decided to make the move to the USA. The picture in Sticks and Tissue was taken at the dried lake bed in Henderson, the flying field for the Las Vegas SAM Champs, and to prove it, I have a picture that I took at the same location, in fact the picture you published was probably taken at the same time.

Do what you will with my pictures.

I have lost Geoff's email so if anyone has it I would be grateful.

have fun



From Brian Martin

Photo on Pg 10 of latest S & T is Geoff Knight. He had his own business here in UK manufacturing paper products. Then sold up and emigrated to USA. He was originally going to buy up Harry Claridge kits but deal fell through but he stayed in USA. A very good friend of mine and the late John Maddaford and Charlie Yost.

From John Mellor

As usual I found Sticks and Tissues very interesting - I look out for it every month. I note your comments about electric motors taking over from I.C.'s and can only comment that once I flew my first electric model (18 years ago) I never built another I.C. one. The main reasons are those usually given:

- 1) Building the model becomes much easier as no bearers / bits sticking out at the front and no fuel proofing and mess.
- 2) Reliable throttling.
- 3) Less noise.
- 4) Greater longevity of models.
- 5) No vibration worries.

Watching flyers at my local club - Maidenhead MFC - I see plenty of deadsticks among the remaining I.C. models but very few among the electric flyers. We also get few noise complaints now.

Personally I have been tempted to build a model for a Mills .75 which would be good for the vintage events and for something different (for me) but this will not help sales of new I.C.. I think there will remain a few specialist manufacturers as even more migrate to electric - especially as setting up electric is getting easier and easier.

Everest an easy to build 47" span A/1 glider for sport or Contest from Canada by David Andrew from Aero Modeller September 1958.

This is the seventh and final design of a series of small towline gliders that have been developed over the past four years by David Andrew, a Railroad Telegraph Operator at Campbelltown, New Brunswick, Canada.



Although construction is a little unconventional, and the model bears several unusual features (thick trailing edge airfoil, triangular cross section fuselage, the combined auto-rudder/trim tab.) it is completely functional and devoid of frills or novelties of any kind. Incorporated design features make trimming a mechanical routine, and a beginner should be able, if he follows the building and trimming instructions carefully, to produce a model that will go to the top of a 164 ft. line with a minimum of fuss, and remain aloft for two minutes or more, which is an above average performance for such a small glider. Since the wing is the most important part of the model, we build it first. Cut the ribs from, 1/16in. sheet and begin construction of the centre

section by pinning the lower trailing edge strip (packing the front up 1/16in.) and leading edge in place over the plan and cement the ribs in position. Be sure to "tilt" the two end ribs, using the template shown on the plan, to allow for dihedral. Fit the spar, followed by the upper trailing edge strip, the leading edge and top centre section sheeting. Remove from plan, sheet the bottom centre section with 1/16 in. balsa. Carve and sand off the corners.

Tips are built in the same manner, except that the bottom trailing edge strip is packed up 9/32 in. at W6 to give several degrees "wash-out". Again, as in the centre section, be sure to "tilt" W2 at the dihedral joint with the template. The block tips are added and, after carving to shape, the tip panels are cemented (make a good pre cemented joint here) to the centre Section. The tips will automatically assume their correct dihedral angle, but, if you wish, you may check to see that there is 3 3/8 in. under each tip. Dihedral braces have not been found necessary. Cut two holes in the bottom centre section sheeting for 3/4in. lengths of 3/16 in. dowel which protrude by half of their diameter These dowels will fit into holes in the fuselage sheeting and act as keys.

Cut two fuselage sides from 1/16 in. sheet to the actual size drawing on the plan over this drawing. Add formers F.3 to F.16 inclusive, and cement the second side in place. At this time, do not cement the two sides together at the bottom edge forward of F.3. The assembly is now removed from the plan, formers F.1 and F2 cemented in place, and the sides cemented together from F. 1 to F.3. After lightly sanding the tops of the sides and formers, the top sheeting is cemented in place, together with the tailplane mount. Cement the 1/8in. ply tow hook mount, 3/16 in. wing dowels, 1/8in. paper tube (for tailplane hold down bands), and nose block in place. Carve nose block to shape, and sand entire fuselage lightly. Tailplane and fins are of simple structure, calling for no special instruction.

After covering with lightweight tissue and doping, cement the 20 s.w.g., auto rudder horn in position, and sew the auto rudder to the fin with a "herring bone" hinge. Attach the trim tab to the auto rudder with soft aluminium hinges. Bend the tinplate tow hook retainer and the 16 s.w.g. tow hook to shape, and solder together. Bolt the assembly in place on the ply tow hook mount with 8 B.A. nuts and bolts. Bend the auto-line slide from 20 s.w.g. and tie to one end of a piece of heavy cotton. Thread the cotton auto-line through the bent-pin guides and tie to the auto rudder horn. Cement the auto rudder stops in place on the fin, and tension the auto rudder to "glide" position with a weak rubber band.

Flying

Although a centre of gravity position is shown on the plan, don't pay too much attention to it. The model is

designed with a fixed difference in wing and tailplane incidence. Ballast for a smooth glide, and let the centre of gravity fall where it may!!! Add lead ballast to the nose between formera F.1 and F.2 till the model balances roughly at the indicated centre of gravity position. The model is now ready for hand launched glide tests. Pin the auto rudder in a neutral position and add or remove ballast until a slightly “stally” glide is obtained. Under no circumstances should the incidence of the wing or tailplane be altered. If the glide path is not straight, correct by adjusting the trim tab. After you have achieved a straight glide on the verge of a stall, remove the pin from the auto rudder, allowing it to return to its position against the stop for a right hand circle (if the stop is made according to the plan, a circle of 200 feet in diameter will result). The position of the centre of gravity is now noted and the towhook is adjusted so that it lies about 1/2 to 1/4.in front of a vertical through the centre of gravity.

A full length 164 foot line can be used right off, since the model should now be properly adjusted for a straight tow; however, any slight tendency to turn during the tow can be corrected with the trim tab. Final adjustments for a smooth circling glide can be made by adding or removing ballast from the nose. Need I remind you of the address label and DIT?

(After pasting these photos, at about 60KB each, I was about to reduce the actual size and thought what the heck keep them as they are JP)

Nice engines on show at Cocklebarrow Farm 12 th July from Graham Crawshaw



Tony Tomlin's twin utilising FROG cylinders, built by Derek Collin















Bought the control line trainer at Woodspring Wings after having a go courtesy of SBMAC also bought Lekki trainer discarded motor that came with the kit and put my EG Bee in it looks much better









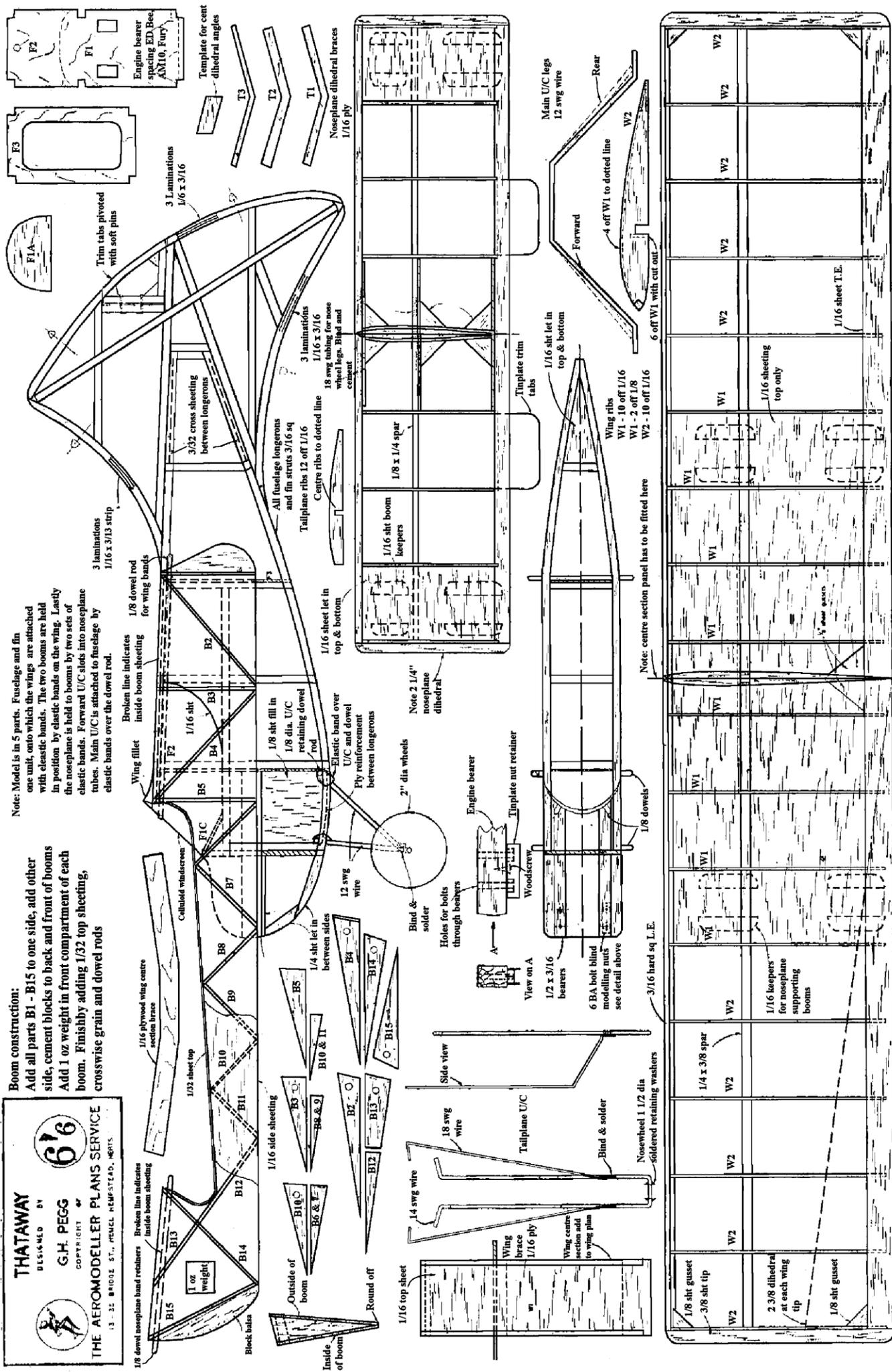




THATAWAY
 DESIGNED BY
G.H. PEGG
 COPYRIGHT ©
THE AEROMODELLER PLANS SERVICE
 13 - 32, BRIDGE ST., PEMEL HAMPSHIRE, HANTS.

Boom construction:
 Add all parts B1 - B15 to one side, add other side, cement blocks to back and front of booms. Add 1 oz weight in front compartment of each boom. Finish by adding 1/32 top sheeting, crosswise grain and dowel rods

Note: Model is in 5 parts. Fuselage and fin one unit, onto which the wings are attached with elastic bands. The two booms are held in position by elastic bands on the wing. Lastly the noseplane is held to booms by two sets of elastic bands. Forward U/C slots into noseplane tubes. Main U/C is attached to fuselage by elastic bands over the dowel rod.



1/8 dowl noseplane band retainers Broken line indicates inside boom sheeting

1/16 plywood wing centre section brace

Broken line indicates inside boom sheeting

3/32 cross sheeting between longerons

3 Laminations 1/6 x 3/16

Engine bearer spacing ED, Bee AM10, Fury

Block halves

1/32 sheet top

1/8 dowl rod for wing bands

18 swg tubing for nose wheel legs. Blind and cement

3 Laminations 1/6 x 3/16

Engine bearer spacing ED, Bee AM10, Fury

1 oz weight

1/16 side sheeting

1/16 sheet let in top & bottom

18 swg tubing for nose wheel legs. Blind and cement

3 Laminations 1/6 x 3/16

Engine bearer spacing ED, Bee AM10, Fury

Outside of boom

1/4 sht let in between sides

1/16 sheet let in top & bottom

18 swg tubing for nose wheel legs. Blind and cement

3 Laminations 1/6 x 3/16

Engine bearer spacing ED, Bee AM10, Fury

Round off

1/4 sht let in between sides

1/16 sheet let in top & bottom

18 swg tubing for nose wheel legs. Blind and cement

3 Laminations 1/6 x 3/16

Engine bearer spacing ED, Bee AM10, Fury

1/16 top sheet

1/4 sht let in between sides

1/16 sheet let in top & bottom

18 swg tubing for nose wheel legs. Blind and cement

3 Laminations 1/6 x 3/16

Engine bearer spacing ED, Bee AM10, Fury

Wing brace section add to wing plan

1/2 x 3/16 bearers

1/16 sheet let in top & bottom

18 swg tubing for nose wheel legs. Blind and cement

3 Laminations 1/6 x 3/16

Engine bearer spacing ED, Bee AM10, Fury

1/16 ply

1/2 x 3/16 bearers

1/16 sheet let in top & bottom

18 swg tubing for nose wheel legs. Blind and cement

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Engine bearer spacing ED, Bee AM10, Fury

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Engine bearer spacing ED, Bee AM10, Fury

Note: centre section panel has to be fitted here

Wing ribs W1 - 10 off 1/16 W1 - 2 off 1/8 W2 - 10 off 1/16

1/16 sht let in top & bottom

1/16 sht let in top & bottom

1/16 sht let in top & bottom

1/8 sht gusset 3/8 sht tip

1/4 x 3/8 spar

1/16 sht let in top & bottom

1/16 sht let in top & bottom

1/16 sht let in top & bottom

2 3/8 dihedral at each wing tip

1/16 keepers for noseplane supporting booms

1/16 sht let in top & bottom

1/16 sht let in top & bottom

1/16 sht let in top & bottom

1/8 sht gusset

1/16 keepers for noseplane supporting booms

1/16 sht let in top & bottom

1/16 sht let in top & bottom

1/16 sht let in top & bottom

1/16 ply

1/2 x 3/16 bearers

1/16 sht let in top & bottom

1/16 sht let in top & bottom

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1/16 ply

1/2 x 3/16 bearers

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1/16 sht let in top & bottom

1/16 ply

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Thataway Geof Pegg's 'special' out of the rut 36" sportster for 1 – 1.5 cc engines from Aero Modeller February 1966. The tail-first model always gets you guessing – try this one for real.



Nearly everyone has seen a conventional aircraft with booms, so why not a canard with booms? This was the basic idea which lead up to the designing of Thataway!

After many months of test flying with a 1.5 E.D. "Hornet" up front, the model proved to be a fast, reliable and stable flier with a glide that would do credit to any conventional freeflight aircraft. Although this design is unorthodox, the model itself can be easily constructed, thus allowing for easy repairs.

The fuselage is very straight-forward to build. The sides are made entirely of 3/16 in. square strip. One side of the fuselage is constructed on the plan, and the other side built on top of it. This way the fuselage sides will be identical. After removal from the

plan, the sides can be sanded down and parted, using a razor blade. The formers F1, F2 and F3 can now be positioned between the sides, making sure that the sides are perpendicular to the formers before cementing. When the sides are dry cement the rear ends sides together. Sand the rear end of the fuselage down to 3/16in. Add all the top and bottom spacers, FIA, the front portion of the wing seating of-3/16 in. sheet, and finally let in 1/16in. and 1/8 in. sheet as indicated on the plan. Locate the Bearers into FI and F2 and cement. Next drill the engine bolt holes oversize to allow adjustment to the thrust line. Screw the tinplate nut holders to the underside of the bearers. Shape the side panels from 1/4 in. sheet and cement into place. When dry cover across bottom bearers with 1/16 in. sheet. When this has been done let in 1/4in. sheet between the side panels and 1/16 in. sheet ply at the bottom of the fuselage for the U/C rest. Cement 1/8in. dowels into 1/8 in. side sheets for U/C retaining bands. also locate 1/8in. dowels for the wing retaining bands. Finally cement windscreen into position.

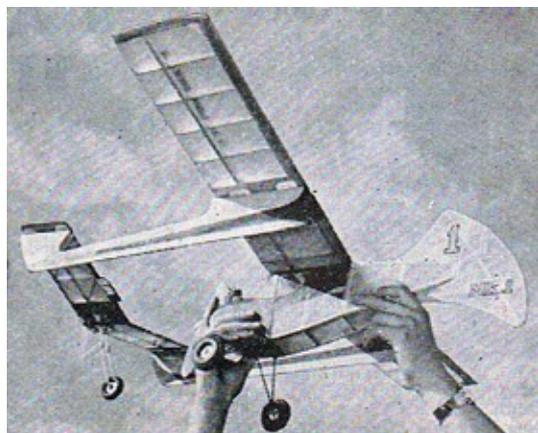
Build the port boom by pinning the inside face to the plan, adding all the formers to it, and then cementing the outside to the formers. Remove boom from the board and sandpaper. Cement block balsa to the front and rear boom, and when dry carve and sand to the required shape. Apart from the leading and mainplane seating, cover the top with 1/32in. sheet. When dry, cement 1/8- in. dowels into the boom for the retaining bands of the wings. let 1/16- in. sheet into the top of the mainplane seating, but leave the top of the leading plane seating open. This is to enable weight to be added to the boom bay. The starboard boom is built in a similar way, the only difference being that the outer face is pinned to the plan.

Commence the wing by pinning down the main spar and the lower part of the trailing edge. Add all the ribs, then cement the leading edge, the upper trailing edge and the gussets into place.

Remove wing from the plan and chamfer the leading edge, main spar and trailing edge to the dihedral angle. Finally cement on the wing tips.

The centre section is built in a similar manner. Pin down the main spar and lower trailing edge, cement the 1/16 in. ply brace to the main spar, position the two 1/8- in. ribs (W1) and cement. When dry add the leading edge, upper trailing edge. Finish by covering the ribs with 1/16in. sheet (top only). After packing each wing tip up to 3/8 in., cement the wings to the C/S. Cover the top of the wings with 1/16 in. sheet from the wing roots to F3B. Afterwards sandpaper the complete wing.

Start building the noseplane by pinning down the notched trailing edge. The two centre ribs of the noseplane are set at the dihedral angle using a template. Next. cement in the rest of the ribs. Remove each half from the plan and cut out slots in the centre ribs to receive the three 1/16- in. ply braces. When the ply braces have been cemented in let in 1/16- in. sheet into the top and bottom end panels, fit and cement the tips and gussets. Finally, bind and cement brass tubing underneath the plane—18 SW.G. tubing to the leading edge



and 14 S.W.G. tubing to the mainspar. The use of these tubes is to retain the Mono-wheel undercarriage. It is imperative that hard wood be used for the complete structure of the leading plane.

The fin is best made by first constructing the laminated perimeter on the plan, and then adding 3/16 in. square strips. Remove from the plan and round the laminated perimeter. Position the fin on the fuselage and cement.

The complete model should now be covered with lightweight tissue and given two or three coats of clear dope. To improve the finish a coat of sanding sealer may be used on wood. Complete the construction by cutting out the 1/16.- in. sheet boom and wing keepers. These must be positioned extremely accurately on the under surfaces of the leading and main plane.

The trimming of the model is the same as any free flight model. The C.G. position is very important, and because of this, the nose plane seating is left open to enable weight to be added or taken out. in the original model a weight of one ounce in each boom was necessary. When the model is trimmed the front booms may be sealed up with 1/16in. sheet. The model should on no account turn to the right under power s it will tend to spin in on the glide. Adjust the thrust line so that it flies left under power and right on the glide.



From Peter Scott

Perhaps one of your readers can solve a long-standing conundrum: why was the Kalper engine so-called ?

There seems to be no connection with the manufacturer (Messrs Seymour Hylda of Southwick, to the West of Brighton town centre), or the distributors (Arthur Mullett and later South Coast Models of central Brighton).

It's not an anagram of anything sensible, there's no such verb as "to kalp", and I have looked on Google and all that comes up is a kind of dessert wine or liqueur. There's no mention in AeroModeller of that era, so - answers via S&T please !

I would add that I have a couple of the Dave Banks Russian-built (VA) repro's and they are far and away the easiest-starting and most flexible small diesels I have ever run -- not bad for under an ounce in weight !

Photos below on next page



From Martin Dilly

I have a list of Keith 'Dusty' Miller's aviation books, which his wife is anxious to dispose of to a good home. Could you find space for the attached please in S&T?

AVIATION BOOKS FOR SALE

The late Keith 'Dusty' Miller's wife Rita has compiled a list of his aviation books which she is keen should be sold to those who appreciate them. A well-known aviation bookshop has offered a derisory sum for the lot. There are some rare gems in the list so if readers are interested in adding to their aviation libraries please contact Martin Dilly on 0208-7775533 or e-mail martindilly20@gmail.com. Cheques eventually payable to Rita Miller please.

One Flight Too Many by Jimmy Taylor, signed by author (£45 on Amazon, un-signed)

Flying Start by Hugh Dundas

The Observer's Book of Aircraft

Aircraft Profiles 31-60 (not for re-sale)

The World's Vintage Sailplanes 1908-45 by Martin Simons +wall chart (£160 on Amazon)

The Book of Westland Aircraft by A.H. Lukins & D.A. Russell (£20 on Amazon)

The Illustrated Encyclopedia of Aircraft ed. David Munday

Aircraft of the Fighting Powers 1943 by O.G. Thetford & H.J.Cooper (£10 on Amazon)

Jane's All The World's Aircraft 1976-77, ed. J.W.R.Taylor (\$18 on Amazon)

Fight for the Sky by D.A. Bader (£13 on Amazon)

Wings for the Fleet 1910-1916 by Rear Admiral G. van Deurs

The Observer's Book of Aircraft by William Green (£10 on Amazon)

The International Encyclopedia of Aircraft

The Smithsonian Book of Flight by Walter J. Boyne

Britain's Aviation Heritage – RAF Celebrating 90 Years (still wrapped, as new)

Flight – The History of Aviation by John Batchelor & Chris Chart

SOFT BACKS

Bent & Battered Wings by Jim Sullivan

Purnell's History of the World War Special – The First War Planes

Early Birds (Historic Sheppey series) by Bill Croydon

Target Germany – the US Army Air Force’s story of the VIII Bomber Command’s first year over Europe

Bomber Command

Aircraft Archive – Famous Racing and Aerobatic Planes (\$13 on Amazon)

Proud Heritage – a pictorial history of British Aerospace aircraft.

Famous Flyers – Manfred von Richtofen by David Baker

World Aircraft – Origins – World War 1 by Enzo Angelucci & Paolo Matricardi

“MARS 66” (By Spike Spencer)

An enlarged R/C version of Bob Palmer’s C/L design of 1952



I don’t know, it’s like waiting for a London bus. You wait of 63 years for a design to reappear then three come along at the same time !

In S&T [96 and 98] I gave brief details of the maiden flight of John Mellor’s RC version of the MARS design. Since then, I have completed my own and more recently, David Lovegrove has maiden another. Those who visited the very windy event at Cocklebarrow Farm on 12th July may have seen them all airborne together. All three differ slightly and, now they have all flown, I can give readers an update on previous text and make some comparison of the different powerplants.

Brief details of the three models follow:

Bob Palmer’s Original:

49 inch span control line design powered by a Fox .35. Plan published in Model Airplane News August 1952. Original

plan is available from www.outerzone.co.uk

Then with a plan enlargement of 130%, a bit of CAD, laser-cutting and some good old balsa-bashing.

The Orange & Black one: by John Mellor

Span: 66.5 inches

Max Chord: 14.5 inches

Weight: 4 lb 8oz

Power: Overlander Thumper 710W 900kv. 65Amp ESC

Prop: 11x6

Battery: 3700 4S

Controls: Aileron, Elevator, Rudder, Throttle

Covering: Solartex

Notes:

Fuselage is close to the plan dimensions with no significant changes.

The Black & Gold one: by Mike Spencer

Span: 66.5 inches

Max Chord: 14.5 inches

Weight: 5 lb 7oz

Power: MERCO .61 Output: 0.88hp when new. Equivalent to 600W (Peter Chinn report)

Prop: 11x6

Controls: Aileron, Elevator, Rudders, Throttle, Nosewheel steering

Covering: Solartex. Trim is a mixture of Profilm and Solarfilm

Notes:

Because of the relatively heavy IC motor. Fuselage rear end was lengthened by 50mm to help move cg aft and for aesthetic reasons.

Additionally, the nose was shortened by 20mm from the plan. Despite those changes, 45 Grams of lead is under the tail to achieve a cg at 35% root chord. In this position, handling remains 'sweet' with no pitch stability defects. Even with this relatively rearward cg position, the model still can not be induced to spin. Elevator servo and Rx battery are half way down the tailcone while two sub-micro rudder servos are built in to the tailplane assembly.

Dedicated nosewheel steering servo (HS82MG).

To keep to the original CL theme, control surface hinges are 'over-under' fabric types from matching solartex. Neat, free-moving and cost nowt.

The Silver & Red one: by David Lovegrove

Span: 63"

Motor: Emax BL3526/05 driven by a 4S 3000MAh 30C LiPo. Up to 1KW available.

Prop: Graupner 3-blade 10 x 7

Power: 900 Watts at 60 Amps max. (approx. 90% input efficiency)

Weight: 4 lb 12 oz.

Covering: Oracover (Profilm).

Balance point - 30% MAC.

Notes:

E-Flite retracting tricycle u/c units fitted in place of original fixed trike undercarriage. While this produces a very sleek appearance when housed, their vulnerability makes this a modification that is not strongly recommended. Elevator and rudders are driven by two sub-micro servos (four in all) housed within the tailplane. Connection to the receiver is via a Multiplex 6-pin plug and socket (saves a lot of fiddling about with multiple servo plugs and Y-leads. No chance of plugging things in wrongly either).

Rear fuselage and nose were lengthened slightly from the plan dimensions. The latter was to allow enough noseleg length for reasonable prop clearance; the former was mainly for aesthetic reasons.

In flight the retract apertures, combined with the 3-blade prop, produce an attractive turbine-like whistle (David probably won't bother to add gear doors!)

To improve the model's aerobatic capability, the sizes of ailerons, elevator and rudders were slightly increased. It still won't spin though.

All three models:

Conventional Balsa/Ply/Liteply construction. Laser-cut wing ribs, wingtips and fins.

Performance wise, they all fly comfortably in rough air with a lively aerobatic potential. Climb performance is directly linked to the power produced and, with Mike's IC version a full pound heavier and with the lowest installed power, these three models provide a good illustration of the potential of modern electric propulsion. What I have not yet done is to apply a tacho to compare the Merco and John's versions swinging similar props at full power.

There are some interesting ground-handling characteristics with the relatively rearward main undercarriage position. Even with an aft cg, considerable ground speed has to be achieved before the elevator can generate enough leverage to raise the nosewheel off the ground. As soon as that happens (well above minimum flying speed) the model can leap off the ground at a steep angle. Conversely, on landing, the characteristic trike undercarriage feature makes these models stick to the surface like glue !

Why the different wingspans ? Like many such aerobats, the CL version had asymmetric wings, the inner one a full bay longer to maintain line pull through manoeuvres. While the plan enlargement was the same for all three, Mike and John chose to match the longer, inner wing lengths while David used the dimensions of the shorter outer wing.

If anyone wants more details, just drop us a line via the Editor of S&T and we will try to get an answer back to you.

Cox Special .15. Performance figures and BHP readings taken on straight fuel to conform with FAI rules. Peter Chinn test from Aero Modeler March 1966



In view of the new FAI rule extending the obligatory use of standard methanol/castor fuel to the FAI free-flight power class, we shall, in future, be making a point of using standard fuel when testing engines in this category. Accordingly, our report this month on the Mk. II version of the Cox Special .15, includes performance curves obtained from tests using straight 3 to 1 methanol and castor oil fuel.

Development History

The Cox Special Mk.II is, of course, a development of the Special Mk. I which, in turn, was evolved from the original Cox Tee-Dee 15 engine introduced some five years ago. These engines are unique among contemporary 2.5 cc contest motors in both design and construction. Although the introduction of the Tee-Dee series engines marked a change of Cox policy in so far as they reverted to the use of a shaft rotary valve, many typical Cox features were retained. Thus, unlike any other high performance 2.5 cc glow motor, the Tee-Dee 15 used a machined crankcase (no castings in fact were employed anywhere in the engine), a screw-in one-piece cylinder with twin opposed exhaust ports and internal transfer flutes, and a screw-in head

with integral glow filament. When the Tee-Dee 15 appeared early in 1961, the feature that immediately aroused curiosity was its unconventional crankshaft, bearing and rotary-valve set-up. This was designed during the latter part of 1960 by Bill Atwood. Following experiments with rear rotary-valve conversions of the reed-valve Cox Olympic engine, the Tee-Dee's predecessor. Free-flight enthusiasts who attended the 1960 World Championships may recall seeing one of these rear-rotary Olympics impressively performing in the hands of former American National Champion Woody Blanchard. The Tee-Dee 15 crankshaft was (and still is) by far the largest diameter shaft used in any 2.5 cc engine and thus allowed a very much larger bore gas passage through the shaft, and a correspondingly large valve port. The design of the intake system and front end surrounding the shaft was equally unorthodox. The crankcase, as we have said, is machined—actually it is produced from an aluminium extrusion—and at the front it is formed into an extension sleeve that serves as the crankshaft bearing. A 7/16 in. wide flat is machined across the bearing to a depth sufficient to expose the required intake aperture width. The complete extension is then encased in a black Delrin moulding which includes the threaded boss into which the carburettor venturi is screwed and forms an accumulator chamber between the carburettor and valve port. The moulding is locked in place by an alloy retaining ring screwed onto the front of the bearing.



Largely as a result of this original approach, the Tee-Dee achieved a quite remarkable increase in power compared with the Olympic. Another contributing factor was the revised, high-compression, trumpet-shaped glowhead which replaced the earlier hemispherical type. Tee-Dee 15's were quickly adopted by many leading FAI free-flight contestants and, within a few months of the engine's introduction, it had powered the winners of several important contests, including the 1961 World Championships and the 1961 British Nationals. However, the manufacturer also had some less favourable reports to contend with. Firstly, the Tee-Dee had a quite ravenous appetite for glow filaments, when propped and fuelled for maximum performance. Secondly, and especially if rpm were taken up beyond the 20,000 mark (unnecessary, admittedly) failure of the piston-conrod ball-joint, or fracture of the cylinder between the ports, would sometimes occur.

Within less than a year the Tee-Dee 15 was, therefore, withdrawn and replaced by a revised model known as the Cox Special 15. This had a new head, a new cylinder and a new piston-conrod assembly. The head was changed to a conical combustion chamber shape and provided with a heavier gauge filament. The cylinder wall thickness was increased by over 70 per cent, and the former hardened steel piston and ball-joint hardened steel conrod were replaced by a cast-iron piston with solid 5/32 in. dia. gudgeon-pin and a machined light alloy conrod. At the same time the cylinder bore was increased by .006 in. to take full advantage of the 2.5 cc displacement limit and rotary-valve timing was altered to give earlier opening.

New Cylinder Porting

This Mk. I version of the Cox Special remained in production for three years, finally being superseded by the present Mk. II last summer. This model shows the first major change in Cox cylinder design. In place of the usual symmetrical arrangement of dual opposed exhaust ports and dual opposed transfer flutes, it has a single exhaust port and three transfer flutes. This reflects a current trend in engine design which is towards the further development of transfer systems. The Mk. II transfer system consists of a vertical flute diametrically opposite the exhaust port, flanked by two inclined flutes which converge and almost join the centre one, at the top. These flutes extend around approximately 230 degrees of the bore circumference at the bottom of the cylinder, tapering to 180 degrees at the top, and are timed to open and close 65 deg. each side of BDC. Exhaust port timing is unaltered at 70-70 deg., port depth being unchanged, but, since the single port width covers 59 degrees less than the sum of the Mk. I's two ports, the Mk. II exhaust port area is reduced by just over 30 per cent.



Close inspection reveals one or two other small differences. Our test samples disclosed a very slightly wider valve aperture in the main bearing, as a result of which, rotary valve timing was extended by 5 degrees, i.e. valve timing is now 32.5 deg. A.B.D.C. to 47.5 deg. A.T.D.C. A short oil channel has been added to the main bearing to aid lubrication of the rear section of the shaft and a stamped conrod is used in place of the former turned component.

Performance

As is well-known to most engine enthusiasts, Cox motors are built to extremely close tolerances and do not require a running in period, as such. The makers merely recommend that the engine be run rich for the first 60 seconds, after which it may be given its head. A slight improvement in power can be expected after the engine has accumulated about 30 minutes running time. Our test engine was given a total of about 60 minutes before any tests were undertaken. The engine accumulated a further hour, approximately, during checks on different fuels and comparisons with earlier models on various props.

Starting qualities were good and much the same as those of the previous model. Priming into the exhaust port produced a quick start when the engine was cold. A single flick of the prop with the intake choked was usually the only preliminary necessary for a hot restart. The Mk. II was not the most vibration-free 2.5 glow we have encountered, nor were rpm and torque readings held exactly rock steady on straight fuel. These engines are, however, intended primarily for operation on fuels containing at least 30 per cent nitromethane. and, on such fuels, the improvement in steadiness was most marked. In addition, of course, substantially more power is liberated on a 30 per cent nitro fuel—by our test some 26 per cent more in the case of the Mk. II.

Nevertheless, the output of the Mk. II on straight fuel was very good, reaching approximately 0.38 bhp at just on 19,000 rpm. Incidentally, it occurred to us that a slight improvement might be achieved—for the purposes of ultimate contest performance—by reverting to the old Tee-Dee trumpet type head. Unfortunately, our own small stock of these was exhausted in earlier Tee-Dee tests and, in response to our enquiry, the Cox Company informed us that they themselves no longer possessed any stocks of them. It is conceivable, however, that since the choice of plug filament and compression ratio are, to some extent, dependent on fuel used, the development of a special head for FAI use might be worthwhile. Compared with the best of our Tee-Dees on straight fuel, maximum torque of the Mk. II was quite a bit lower, but ultimate power output was equally as good by virtue of the Mk. II's better breathing at high rpm and its higher peaking speed. To achieve this output in flight, the Mk. II must not, of course, be overproped. A fast 8 x 4 (around 16,200 rpm static) is certainly the biggest practical prop size and prop dimensions are likely to be quite critical: one might, for example, suggest starting with 8 x 4, 8 X 3, 8 x 34 and 8 X 3 props, and, by flight tests, finding the best climb by cropping blades 1/8 in. at a time. Although Cox make simple exhaust mufflers for their small engines used in ready-made models, manufacture of units suitable for this larger engine has not yet been undertaken. However, to conform to SMAE requirements, a suitable expansion chamber type silencer is available from Henry J. Nicholls & Son Ltd., at about 25s.

SPECIFICATION

Type: Single-cylinder air-cooled two-port two-stroke cycle with single exhaust port and triple transfer flutes. Shaft rotary- valve induction. Glowplug ignition. Plain bearing

Bore: 0.591 in. Stroke: 0.556 in.

Swept Volume: 0.1525 Cu. in. 2.499 c.c.

Stroke/Bore Ratio: 0.941:1

Weight: 4.45 oz.

General Structural Data

Crankcase and main bearing machined from extruded aluminium bar, anodised gold. Hardened and ground steel crankshaft with full disc web and crescent counterbalance, 0.437 in. dia, divided main journal, 0.300 in. bore gas passage and 0.156 in. dia. crankpin. Shaft end knurled for pressed-on gold-anodised prop driver and tapped for prop retaining screw.

Un-hardened steel cylinder with integral fins and blued finish. Cast-iron, flat crown piston with solid 0.156 in. dia. gudgeon-pin located in piston by pressed-on distance pieces between connecting-rod and piston skirt. Stamped aluminium alloy connecting-rod with unbushed eyes. Screw-in aluminium alloy glow-head seating on soft copper gasket. Moulded Delrin main bearing housing and carburettor boss with moulded-in nipple for optional high-pressure crankcase pressurized fuel system.

Screw-in machined aluminium carburettor venturi having three surface jets fed via separate needle-valve body with steel thread insert for blued steel needle-valve. Needle-valve body reversible for left or right hand installation. Beam mounting lugs.

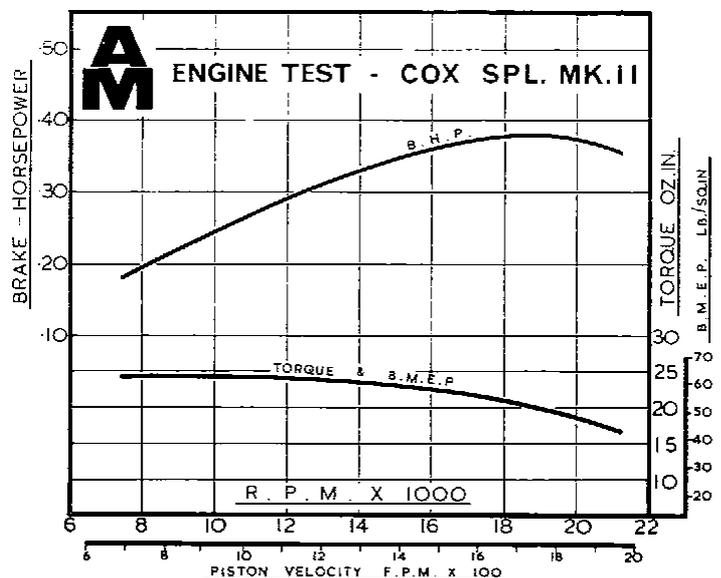
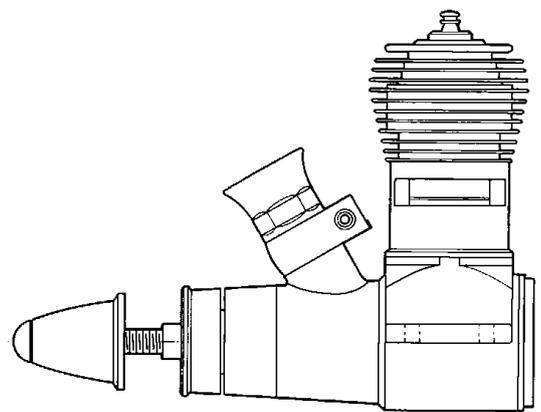
TEST CONDITIONS

Running time prior to test: 2 hours

Fuel used: 75 per cent I.C.I. Methanol, 25 per cent Duckhams Racing Castor Oil.

Air Temperature: 68 deg. F. Barometer: 30.30 in. Hg.

Silencer Type: Nil. (Maker does not offer silencer for this model).





James, I was recently fortunate enough to acquire the brand new PAW 49 RC TBR, shown in the photo. I've done a little video showing the complete process of getting started with a new engine, from opening the box right through to achieving excellent running characteristics.

If anyone is looking for a suitable power plant for a fairly big Old Timer, look no further...

After running in, I got first flick starting every time, on the bench.

The PAW 49 RC TBR is a superb engine, and you can see it here:

<https://www.youtube.com/watch?v=fDelpXgHymA>

From George Stringwell

I've just finished and flown my electric R/C version of John Barker's famous Lulu lightweight glider design.

Like the Bandit this is another design that I have a personal connection with as John Barker, who as a young man created the Lulu in the years immediately after WWII was, in the 1980s and 1990s a club mate of mine in the BATS (Bramhall Area Thermal and Slope Soaring Society) club. The Lulu is one of those beautifully simple concepts which just works perfectly; I built one twenty years ago for a SAM one model contest, free-flight of course; the only differences on this one from John's 1940's original were an auto rudder and a clockwork D/T timer. It just towed and flew perfectly, and the way it took advantage of the slightest whiff of lift meant that, without that D/T timer, I wouldn't have kept it very long! As a free-flight model it can weigh as little as 3 ounces, and John reckoned you could build one in about four hours! Well, my free-flight one didn't take much more than that, and came in at 3.1/4 ounces, but this latest incarnation took a LOT longer for one reason or another and not surprisingly weighs rather more - 9.3/4 ounces. As I was originally hoping for nearer 7.1/2 ounces I was a bit alarmed by this until I realised that the wing loading is still under 6 ounces per square foot.

The changes made to accommodate Lulu's new role are:

1. A revised anti-warp tail plane structure which is set up as an all-moving tail to provide elevator control. This is achieved by a small centre section permanently mounted on the fuselage and a custom fibreglass crank. The tailplane is raised 3/8" above the original position to allow space for the crank to operate.
2. The nose is widened to accommodate a BRC 1811 brushless motor which is covered by a magnetically retained cowling made from 3/16" balsa cheeks and wrapped 1/64" ply.
3. There are two magnetically attached hatches made from 1/32" ply/1/32" balsa laminate, one covering the top of the nose for flight battery access and one on the bottom behind the wing for access to the two 7 gram servos which are mounted inverted.
4. The centre section wing spar is laminated from two 1/8" square balsa strips either side of a 1/8" x 1/4" spruce strip
5. The wing is retained by a rubber band-free system comprising a front dowel, self tapping screw which slide-locks into a ply plate in the fuselage and a pair of magnets to prevent the wing moving back.
6. Two 1/16" square turbulator spars have been added to the wing leading edge, equidistant between the LE and spar.

Other than the rear of the fin being separated to serve as the rudder, everything else is pretty much as per plan.

Equipment is a BRC1811 50 watt motor, BRC 10 amp ESC, Orange 6 channel 2.4 gig Rx, two Emax 7 gram micro servos and a 2S 850Mah lipo. Rudder drive is 12 lb fishing trace closed loop and the AMT drive is a 1.5 mm carbon fibre push rod with aluminium tube supports. Prop is currently a fixed GWS 5" x 3", I have a Graupner 6" x 3" folder which folds very neatly on the revised shape nose but haven't managed to achieve a satisfactory balance with this yet to eliminate vibration.

Covering is Esaki Liteflite tissue over 10 micron mylar, finish nitrate shrinking dope. Flying is totally drama free with a surprising rate of climb for such a small motor, and once I remembered to enable the brake function on the ESC to stop the prop windmilling, the glide is really good, obviously not as slow as a 3 ounce free-flight one but fully capable of taking advantage of any available lift. All in all a real fun model to fly with the added bonus of being a classic of it's type and period.

Some photos attached, I'm hoping for some flying photos in the next day or so which I will send on.





Perfect flying evening here so I took advantage of having a guest modeller staying to do some flying and got a few flying photos of the Lulu, here are a couple'





I meant to include this photo of my own free-flight Lulu built about 25 years ago now for comparison.



Show scene and Old Warden. From Dave Bishop

The second of the three annual Modelair events took place at Old Warden on July 25 - 26 and what an odd weekend mix of weather it turned out to be. From the Thursday evening it started to rain at around 9pm and from then on it hammered down until 3am on the Saturday. So Saturday morning we were greeted with "not too bad a start to the weekends flying and quite a lot of modellers turned up complete with their aeroplanes. Now as I have said in past editions of Sticks & Tissue, Modelair events are not a show and are really nothing like they were way back when Ron Moulton was the main organiser. The mantle is now resting on the shoulders of Ken and his wife Sheila Sheppard and they work nonstop throughout the whole weekend to make their event a bit different from the rest of the "shows". In the main, you will only hear the one voice (Ken's) giving short guiding announcements on the public address system, as the whole weekend is a "bring and fly" affair. There are a lot of traders behind the length of the flight line, which is something started way back by Derek Foxwell when he ran the flying weekends there. Those of you who go that far back, will remember that the traders were pushed way up the field that started in a curve beyond the control tower. Derek changed all of that to where they ought to be, where they are stationed now. He also arranged a narrowish long roped off area behind the crowd line where all models were laid out for the many photographers to enjoy taking as many pictures without damaging the models. The Saturday this July, had a very strong wind across the runway for the radio controlled models but with the kind James Gordon and Roger Godley in charge of the flight line, many flights were enjoyed by many scale flyers. Nowadays the friendly attitude is much better after past an overzealous flight controller put many people off from going there. Thank goodness those embarrassing days are gone. I had a good old nose at the well known people manning the trade line, and enjoyed the catch-up chat with many of them. For your guidance, there are some incredible bargains to be had from many outlets and some of the prices are very reasonable indeed. It was a joy for me to buy a second hand Irvine 46 R/C engine in mint condition for "silly" money. I was amazed at a complete R/C scale Russian flying kit complete with transmitter and the whole gubbings, all that for under £50 from another trader. Quality balsa wood was being sold again at "silly" money and it was good to see that the Flight Hook representative was there once again. During the afternoon there was a special children's competition run with around twenty youngsters having a go at building a special (very strong) model glider specially designed by the whiz kid from Belair, Leon Cole. The winning times of the kiddies gliding competition, were around some 20 seconds which considering the awful wind, gave credit to the genial designer. Everyone thinks so much of Leon, including the regular Old Warden R/C flyer Richard Ginger, who pleased everyone with his magnificent flying Tempest between the wars 5 cylinder American flyer. As usual there was quite a lot of activity on the old compass swing circle with a number of different engineered tethered IC cars enjoying the thrill of speed and that lovely smell always associated with car racing. I also took a wander around the museum to catch up with Roger and James who were inspecting the resident Moth minor for a future build. As usual I bought some more books in the store and the superb restaurant was packed with many visitors chatting away and enjoying the excellent food available there. The place has a special reputation for a superb "full English" all day long with everything again at very reasonable prices and always with a smile from the helpful staff. As usual the wind slowed down to a few knots around 4 pm ish on the Saturday and a lot of R/C activity took place in the rest of the two hours left of the day before the airfield was made "live" again for the early aeroplanes that came back home to their resting hanger space. During the museum visit I met yet another kind and helpful young engineer name Rory who told me that the two tractors there are very valuable after being restored by the engineers at Old Warden. He showed me a picture of his beautiful wife who dresses up in a full uniform as a WAAF and drives around the place in an open sports car on the full size Old Warden weekend shows. Something else I didn't know was that the Old Warden village was owned by the original Shuttelworth family which includes the houses there. As part of his job, Rory has to come to the place if any of the many alarms go off during the "closed" times and find out what is possibly wrong. There are thick roller blind metal doors that come down if any fires are detected which isolate each hanger. The object is to get the aeroplanes out onto the apron for safety should any fire occur, as they are unbelievably valuable. One cannot but help to notice that there has been a long part of the hangers frontage that has been concreted and covered in new tarmac. The reason for that is that so much dust had blown into each hanger with the doors open, that all of the aeroplanes had to be hand cleaned by the volunteers to keep them up to the high standard expected there. I was shown some of the art work on the

Collection, "done" by that supreme modeller Rob Millingship who was a past winner at the 50th anniversary of the Schneider trophy at Spithead at Southampton's Supermarine works, which I presented way back in 1981. That was the show that Dudley Patterson of Flair stopped the show with his superb Shorts Crusader floatplane. After the nice weather appearing the Saturday evening at Old Warden turned out to be short lived and the rain restarted again and didn't stop at all. In fact it rained all day on the Sunday. I never saw any free flight aeroplanes take to the air over the whole weekend but the strong wind didn't deter the control line flying and many flights were being enjoyed and judged, by a whole lot of enthusiasts. The next and final Modelair event this year will be the Festival of Flight on September 26 - 27. So bring along a model and fly. As I have said the place is not a show but there is a children's play area and the place is "safe" for youngsters if you do happen to bring the family. I have attached a few pictures as follows;



Roger Godley shows of his scratch built "The Challenger" with a pair of wheels on top and bottom of the fuselage.



Engineer "Rory" shows off his own American Allis Chalmers Tractor that he restored from a rusty wreck that was "buried" locally in a hedge.



The fleet of R/C aeroplanes belonging to the organiser Ken Sheppard.



Richard Gingers 5 cylinder powered big American between the wars Tempest. The covering was a delight of rolled photographic litho plate aluminium.



Gavin Barden and James Gordon. James (with others helping as well) ran the R/C flight line again in such a friendly and helpful way.



A Vintage R/C aeroplane. Junior 60



Roger Godley and his magnificent Tiger Moth awaiting its "maiden flight". During the Saturday, he flew it and on a final "touch and go" he lost all control of the model. He has now re-converted it back to 35 mega hertz where he said he has never ever had even a glitch in all the years he has flown R/C aeroplanes. The American word for the 2.4 gigahertz failure of radio control is called a "Brown Out".



This kitted Space vehicle really works from one of the friendly traders.



There were some excellent Control line scale models at Old Warden in July. And more control line scale ready for judging.



A control line Flying B17G Fortress that must have pleased the judges for realism & accuracy



A profile control line Avro Lancaster bomber with a super finish.



And a Japanese "Betty" control line model.



A superb control line Fairy Gannett long range submarine patrol aeroplane.



The new Weatherman speed racing control line models. Very fast indeed and took me back to my teenage years at Littlehampton in the West Sussex aeroplane club, during the war.



A 16 year old control line girl pilot Ana "I"s (that is correct apparently) with a Weatherman and a very good pilot she was too.



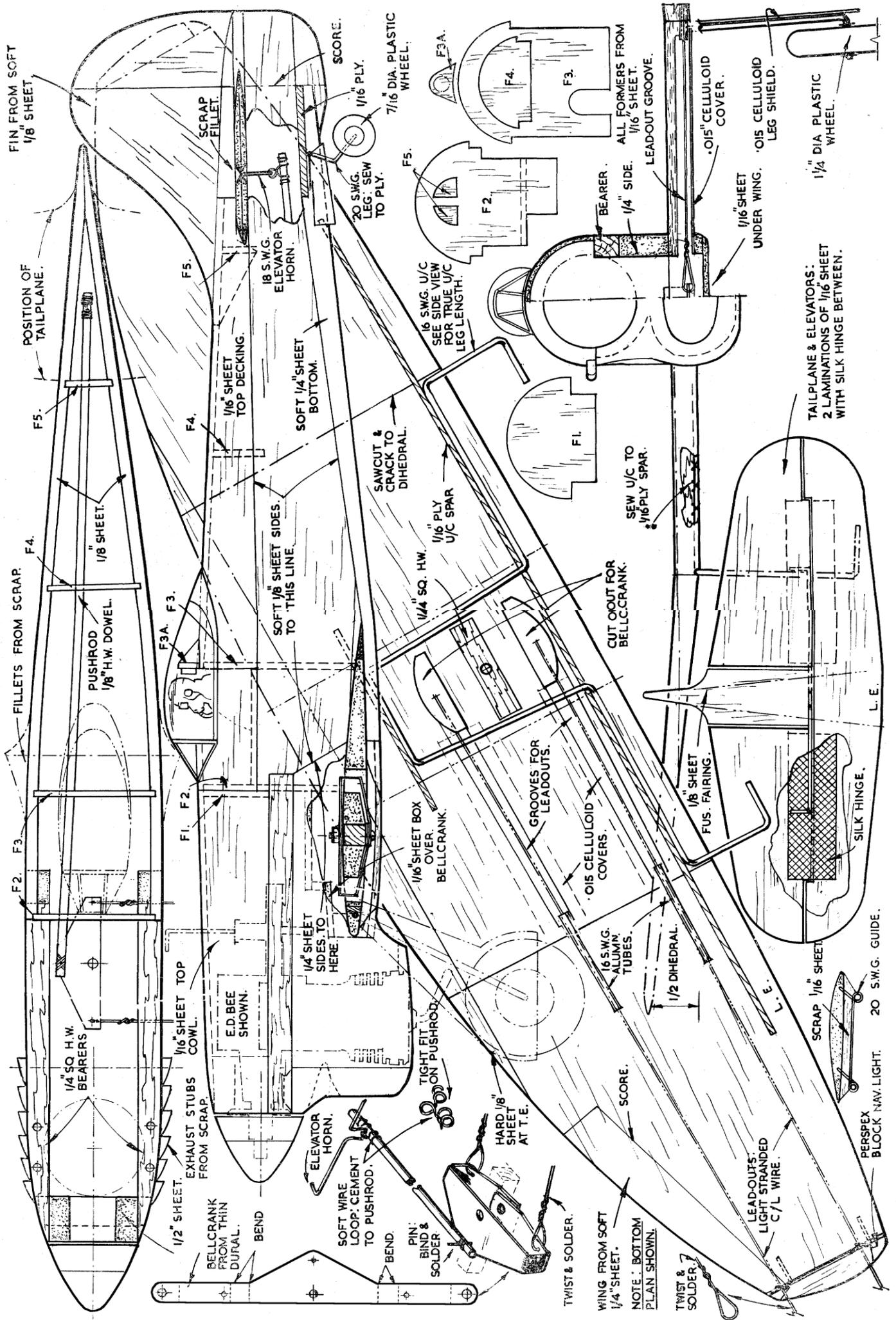
A young 16 years old Mal Johnson who had a Weatherman souped up PAW 1.49cc) up front, going like a dingbat at a timed 120mph for 9 laps. Mal is presently studying Maths, Physics and Chemistry at the same college at Brighton, where I also studied with Neil Tidy of Laser engines, in the late 1940's and early 1950's.



Number 12 is the only information I could get on this control line aeroplane. anyone out there in S&T land help to name it, or its owner?



A friendly modeller bought this Mercury Matador from the present editor of the super new look Aeromodeller magazine Andrew Boddington. Andrew was clearing out the loft of David Boddington's house which housed many aeroplanes and "Boddo" had built it way back. The covering was a bit brittle apparently



FIN FROM SOFT
1/8" SHEET

POSITION OF
TAILPLANE.

FILLETTS FROM SCRAP.

PUSHRD
1/8" H.W. DOWEL.

1/2" SHEET.
EXHAUST STUBS
FROM SCRAP.

1/16" SHEET TOP
COWL.

E.D.BEE
SHOWN.

1/4" SHEET
SIDES TO
HERE

ELEVATOR
HORN.

SOFT WIRE
LOOP: CEMENT
TO PUSHRD.

PIN:
BIND &
SOLDER

TIGHT FIT
ON PUSHRD.

HARD 1/8"
SHEET
AT T.E.

TWIST & SOLDER.

WING FROM SOFT
1/4" SHEET.

NOTE: BOTTOM
PLAN SHOWN.

TWIST & SOLDER.

LEAD-OUTS:
LIGHT STRANDED
C/L WIRE.

PERSPEX
BLOCK NAV. LIGHT.

20 S.W.G. GUIDE.

1/2" SHEET.
ELEVATOR
HORN.

1/16" SHEET
TOP DECKING.

SOFT 1/4" SHEET
BOTTOM.

18 S.W.G.
ELEVATOR
HORN.

20 S.W.G.
LEG: SEW
TO PLY.

7/16" DIA. PLASTIC
WHEEL.

SCORE.

1/16" PLY.

1/16" SHEET
U/C

16 S.W.G. U/C
SEE SIDE VIEW
FOR TRUE U/C
LEG LENGTH.

SAWCUT &
CRACK TO
DIHEDRAL.

1/16" PLY
U/C SPAR

1/4" SQ. HW.

1/16" SHEET BOX
OVER
BELLCRANK.

GROOVES FOR
LEAD-OUTS.

.015 CELLULOID
COVERS.

16 S.W.G.
ALUMIN.
TUBES.

1/2" DIHEDRAL.

SCORE.

WING FROM SOFT
1/4" SHEET.

NOTE: BOTTOM
PLAN SHOWN.

TWIST & SOLDER.

LEAD-OUTS:
LIGHT STRANDED
C/L WIRE.

PERSPEX
BLOCK NAV. LIGHT.

20 S.W.G. GUIDE.

1/2" SHEET
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1/16" SHEET
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HORN.

20 S.W.G.
LEG: SEW
TO PLY.

7/16" DIA. PLASTIC
WHEEL.

SCORE.

1/16" PLY.

1/16" SHEET
U/C

16 S.W.G. U/C
SEE SIDE VIEW
FOR TRUE U/C
LEG LENGTH.

SAWCUT &
CRACK TO
DIHEDRAL.

1/16" PLY
U/C SPAR

1/4" SQ. HW.

1/16" SHEET BOX
OVER
BELLCRANK.

GROOVES FOR
LEAD-OUTS.

.015 CELLULOID
COVERS.

16 S.W.G.
ALUMIN.
TUBES.

1/2" DIHEDRAL.

SCORE.

WING FROM SOFT
1/4" SHEET.

NOTE: BOTTOM
PLAN SHOWN.

TWIST & SOLDER.

LEAD-OUTS:
LIGHT STRANDED
C/L WIRE.

PERSPEX
BLOCK NAV. LIGHT.

20 S.W.G. GUIDE.

1/2" SHEET
ELEVATOR
HORN.

1/16" SHEET
TOP DECKING.

SOFT 1/4" SHEET
BOTTOM.

18 S.W.G.
ELEVATOR
HORN.

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LEG: SEW
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ALUMIN.
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1/2" DIHEDRAL.

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1/4" SHEET.

NOTE: BOTTOM
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TWIST &

Try '1/2A' team racing with an accurate scale Hawker Tempest by C M Milford from Aero Modeller April 1955



This is a model of one of the world's last and fastest piston-engined fighters. The prototype is one of the very few which are really suitable for scaling-down as team racers.

The plan shows the "1/2A" version, powered by the E.D. Bee or Allbon Spitfire. Class "A" Team Race motors will exactly fit into a larger version, scaled up in the ratio 4 : 3, which gives a wing area of 81 sq. in., and a scale of 1/2 in. to 1 ft.

Construction

Begin with the wing, cut from soft 1/4 in. sheet balsa. The undercarriage is bent from 16g, piano wire,

stitched to its two spars of 1/16- in. ply and let into saw cuts in the wing; these spars also act as dihedral braces. The bellcrank is "double-sided", of thin dural sheet bent round so as to fit onto its pivot bolt above and below the wing. This prevents it from twisting under the pull of the lines.

The lead-outs (of light Lavstrate) run in slots cut in the centre section under-surface. At the dihedral-break, the lines come out through short aluminium tubes and a wire guide at the wing tip. When this is complete, the front fuselage sides complete with engine bearers are slid into place and cemented. Fix F2, F3 and the rear sides. When they are dry, chamfer inside edges of sides at tail, and cement them together.

Make up the tailplane/elevator unit and assemble the pushrod. Add the fin/rudder and F4, F5. Stitch the tailwheel leg to a small piece of ply and cement in place; add the 1/4 in. sheet underside. Complete nose intake with block sanded to shape.

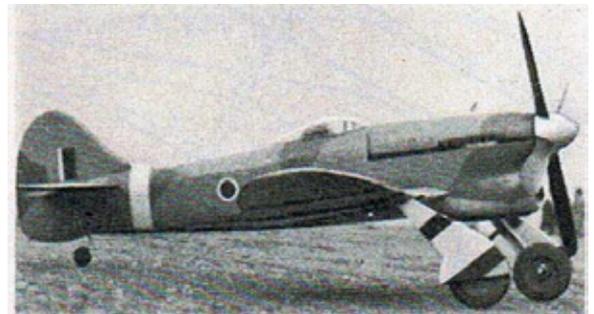
The top decks are steam-bent from sheet. Add wheels, pilot, fillets and dummy exhausts; canopy after doping. If the celluloid u/c cover plates are attached with Sellotape, they can be removed for flight. The model is actually better without them in flight, as the wheels are then not so noticeable, which improves the realistic appearance.

Colour scheme is standard R.A.F. camouflage of dark grey and dark green, with light grey underside. Black and white invasion stripes were used in 1944. but later Tempests used on the Continent in 1945 had plain undersides.

Fix up a suitable tank (the Cambridge Races specify 7.5 c.c.) install the engine and the model is ready. Any of the 0.5 c.c. engines can be used

especially if the model is built from light wood throughout: but for the 30 ft. lines used in racing, a 1 c.c. motor is really

essential. Also the baby motors are much happier side-mounted, whereas the Bee or Spitfire start quite easily inverted, since it is not necessary to prime through the ports in an engine of this size. A little fin "tailoring" is necessary to get the bigger cylinders in the cowl: but not to any detrimental effect on cooling.



From Jörgen

Hi James hope you are okey, sending some pic,s f first one is my little Scram with an Red Fin 0,5 tbr Millich and the other is an Qacker flach with the Little 0,33 LOLA this was one of few sunni and no wind so far this summer and both flew very fine sec pic is my new Vic Smeed Majorette with an Red Fin 0,61 and last is an Mercury Magna with with an 0,5 Red Fin tbr kompich both are short kits from Belair and finiched with glue and all other finiching material from De Luxe Materials and mylar and Esaki tissue from Freeflight supplies.I must say I am starting to get the hang of to cover with mylar and tissue and also waterbased dope as I used to be a nitro and butyrate dope fan.





Hi James sending you more pic,s This time first flight of my Chatterbox flew very well kit from Old School second is my Popsie sadly I couln't launch it myself too fat fuselage for my small oily hands need launch help next out. Short kit from Belair.





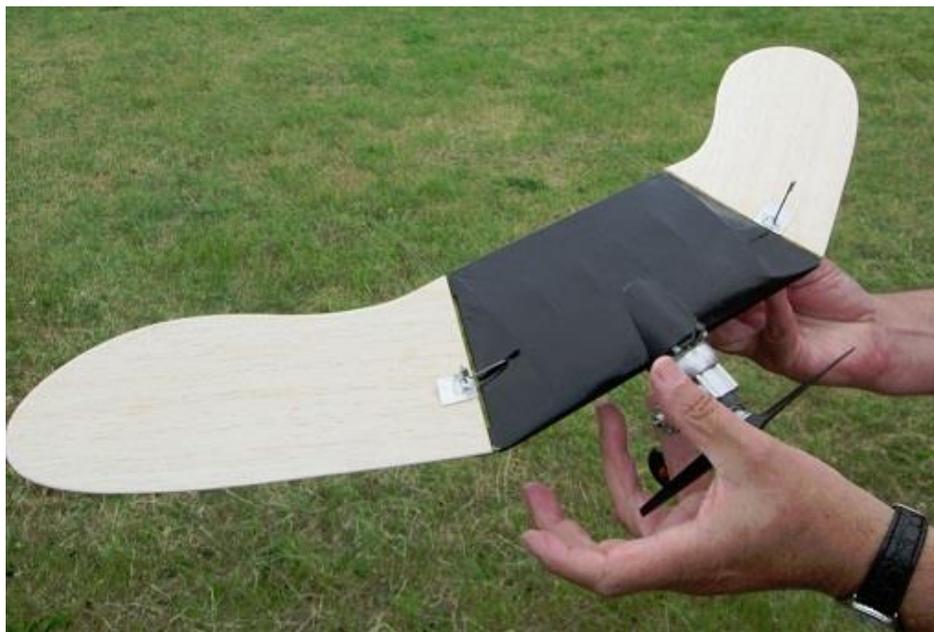
Cocklebarrow Sunday 12 July 2015

I was able to get to the event this year as was on hols in the Cotswolds. A windy day so not much flying. I did fly my Mini Super though as it handles the wind very well. The Mars 66 team had a fly so of course there's a few photos of them. Here's the photos.





Simon Rogers & his control line Flapalong designed as a way round Jim Walker's patent on C/L models







My Mini Super with a proper motor and elastic bands!





Tony Tomlin's Vic Smeed design Ohm 8 , up for sale and sold



Old School Model Aeroplane Factory mobile sales facility



The Elf Biplane flew many times in the wind and handled it well





The boys are off luckily I excluded their heads





A 441/2" SPAN PROP., LIGHT SCALE MODEL FOR ABE GROUP C-5 (75-133) MOTORS

FIESELER FLI56-STORCH

DESIGNED BY
P.L. Whittaker

THE AEROMODELLER PLANS SERVICE

38, CLARENCE DR., N.P. HATFORD, HERTS.

ALL WOODS ARE Balsa UNLESS OTHERWISE STATED

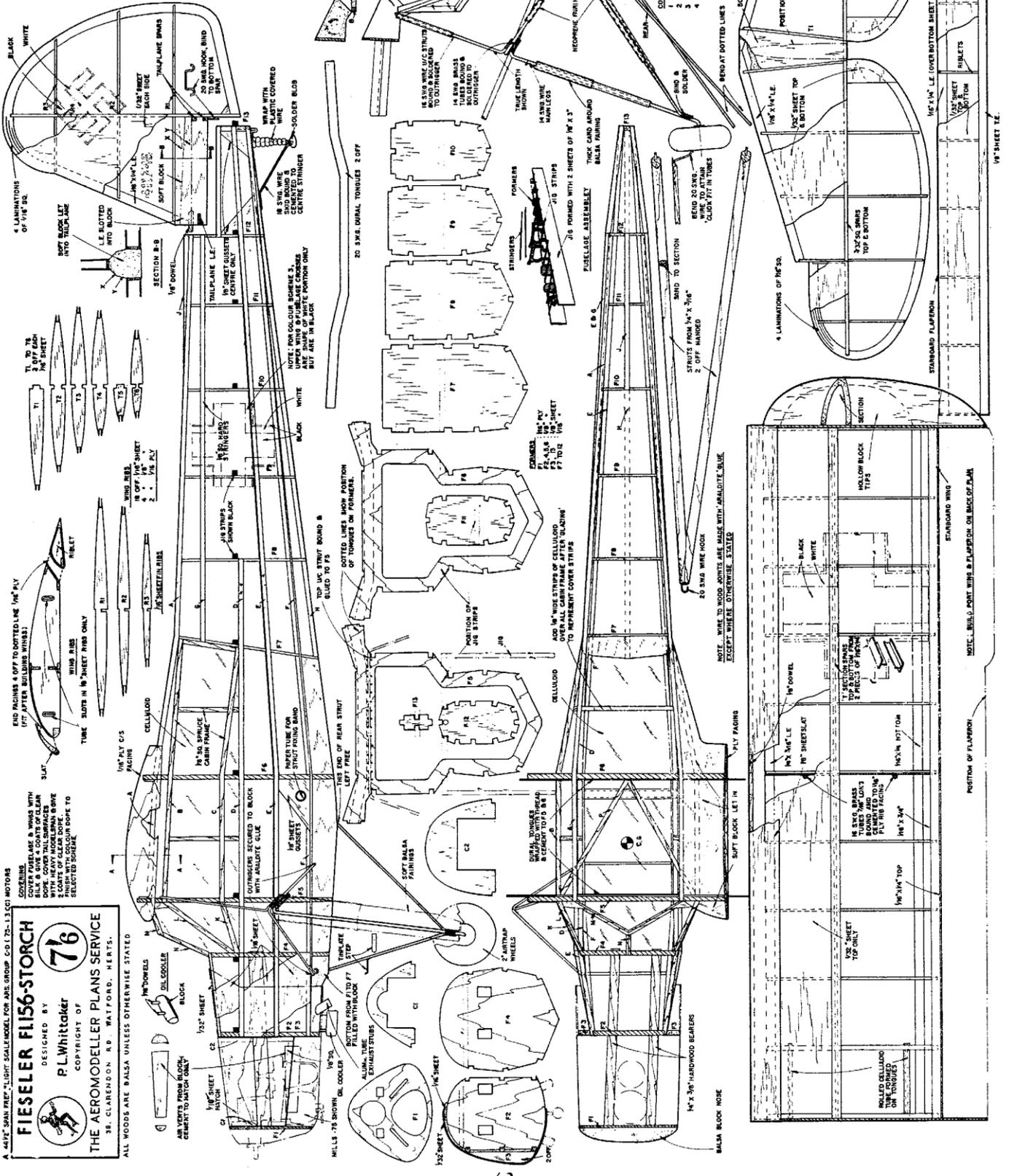
COVERING
COVER PAPER & WINGS WITH
POLYESTER OR PLASTIC
DOPE. COVER ALL SURFACES
WITH HEAVY MODELSPAN 8 GRIE
SANDWICH WITH COLOUR DOPE TO
SELECTED SCHEMES

76

Copyright © P.L. Whittaker

MATERIALS REQUIRED.

4 SHEETS OF 1/2" X 3/4" Balsa	10" OF 1/4" Balsa
1 SHEET 1/2" X 1/2" Balsa	10" OF 1/4" Balsa
6 STRIPS 1/4" X 1/8" Balsa	10" X 1/4" 20 SWS DURAL
12 " 1/4" X 1/8" " "	1 PIECE 20" PHONO WIRE
2 " 1/4" X 1/8" " "	1 " 1/4" DIA. DOWEL
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Fiesler Storch for super realism in flight build this 1/12 scale model of the famous German observation aircraft for .75 – 1.3 cc. 46.5 in span by P L Whittaker from Aero Modeller August 1957

This aircraft is stark, ugly, purely functional and it possesses that peculiar charm and personality of a retired heavyweight boxer, complete with cauliflower ears and broken nose. It is a design with a fascinating history that lends itself ideally to aeromodelling, and Pete Whittaker has embodied some of his ideas incorporated in the very popular Spitfire 14 (A.P.S. Plan FSP/607). The Storch is easy to trim and fly, with characteristics close to the full size. Gliding speed is slow and weathercocking ability unusually good.

Fuselage construction involves a jig as shown on plan. Pin all formers to temporary carriers and mount on jig, spaced in line, and at correct height. Add hard balsa stringers, spruce cabin frame after cementing wing tongues to formers 4 and 5. Formers 7, 8 and 9 may be hollowed and harder balsa can be generously used forward of the centre of gravity. When the skeleton has become self-supporting, remove from jig. The undercarriage outriggers should now be bent into shape, bonded into position with Araldite or similar



strong adhesives after “blocking in” forward fuselage belly. The top u/c strut can now be formed and “Araldited” to F4. Bind and solder the intersection of the top strut with outrigger and main leg tube on each side. Note: Add oil cooler and exhausts after covering fuselage.

Paint cabin interior matt grey, glaze windows with stiff celluloid. Form window frame from 1/8-in. strip celluloid and cement into position to cover spruce frame. This secondary frame will be painted later and conceal any cement bonds.

Main oleo struts are formed in 12g wire and pivoted in the brass tube soldered on to rear tower outrigger strut as shown on plan. Thus the legs will move back and outward under landing shocks, supported by rubber bands round u/c strays.

Fin and elevator profiles are formed on a cardboard former cut to accurate shape. Assemble mainplanes (minus slats and flaperons) on the plan. Next cut 4 full ribs (including flaperon) in 1/16-in. ply, and cement to each end. At this stage, add wing tip blocks and root fairings. Now build flaperons by cementing “riblets” direct to 1/16 x 1/4 L.E. and 1/32 in. sheet lower surface, sand T.E. and cement upper sheet 1/32 in position. Slats are formed wet on a broom handle and attached to 1/8-in. dowel L.E. The assembly is tissue covered. Cover the entire model excluding slats and tail (tissued) with silk or nylon, well tautened with glider dope—then attach slats and flaperons. Note the reflex T.E. position of flaperon.

Cut wing struts to length for dihedral of your choice (1 1/4 in. at tips is sufficient with care in trimming). The struts are plugged into a paper tube across the cabin floor and drawn together by a rubber band, each plug being formed as a hook.

Authentic mottled finish can only be obtained by spray painting, but this can be executed easily with a “Celspray”.

Flying .

Ensure that the C.G. is on mainspar and set the tail assembly to give long flat glide. The tail assembly should

now be cemented into position and a flight attempted on reduced power using an 8 x 4 plastic prop. Set engine offset to give very slight turn to starboard at this power.

A flight at full power should result in a short straight take off, followed by a climbing turn to port. Rate of climb can be controlled by reducing, or increasing downthrust. By this method, a 50-inch take-off run (in still air) is followed by a typical Storch like steep climb. Development flying on the prototype was completed using only two bolts to retain the motor. At this stage the remaining holes were drilled in the bearers and bolts screwed home.



The absorbing sight of this Fieseler clawing for altitude (using only a newspaper spread as a runway) will be ample reward for your labours.

DMFG Scale 2 August 2015

This was club or stand-off scale. In fact you'd need to have stood 500m away for some of the models otherwise they looked vintagy still they had wings so that clinched it. Of course the weather was having nothing to do with it plenty of sun, a few clouds no sign of rain and gale force winds well 14 – 25 mph. Turn out was about 21 with a few long travelled visitors but flying a precious scale model was not to be put to chance. Dodgy models well that was good no problems, whilst on that subject Tony Tomlin thrilled us all with the one flight he had with his Ace of Diamonds. He was to say the least tense when it was in flight, on landing he was mightily relieved and reckoned his heart was beating at an alarming rate. Rick flew his Spitfire, Dave Ashenden his Aeronca, Peter Rose his Senior 90 and so on. Probably shows our age but it was a really good day out, plenty of secondhand stuff to buy, of course a BBQ ish sort of fry up known as the big breakfast compromising of blocked artery on a plate in other words, menu below

1 – 2 sausages
1-2 rashers of good thick bacon
1-2 fried eggs
Baked beans as many as you want
Chips as many as you want
Fried bread
Roll and butter
Cup of tea or coffee

Preceding the above by 1 hour a large roll, butter, 2 rashers, choice of sauces and cuppa.

The local A&E was warned.

Here's the photos



The encampment



Rick Churchill's Spitfire



Dave Ashenden's Aeronca and John Taylor's models



Tony Tomlin's collection



Raised eyebrows here but these two Flybeams will allow me and Blind Pew to fly at night!



Tony launching his scale Chatterbox, Chris isn't actually hanging from the U/C by his head



Chris trying to grab his MIG 15 as it flies off?



It got away from him





The doughnut festival begins otherwise known as Ace of Diamonds



The kitchen



Nice to have a few tables of aeromodelling stuff to sell and books





The ladies look on

We now have to vacate the site for 6 weeks so its plan B, the site has been ignored for rest of the year therefore cutting has to commence. Only 45 acres, but nearer for me and a fantastic farm shop nearby where the Latte etc is superb!



Three cuts each progressively lower to form a small strip then tried out using a Fun Cub by John Bainbridge. More work needed next week and longer runway.

Last Minute photos taken on the evening of 7 August 2015 for what was our last meeting at the site



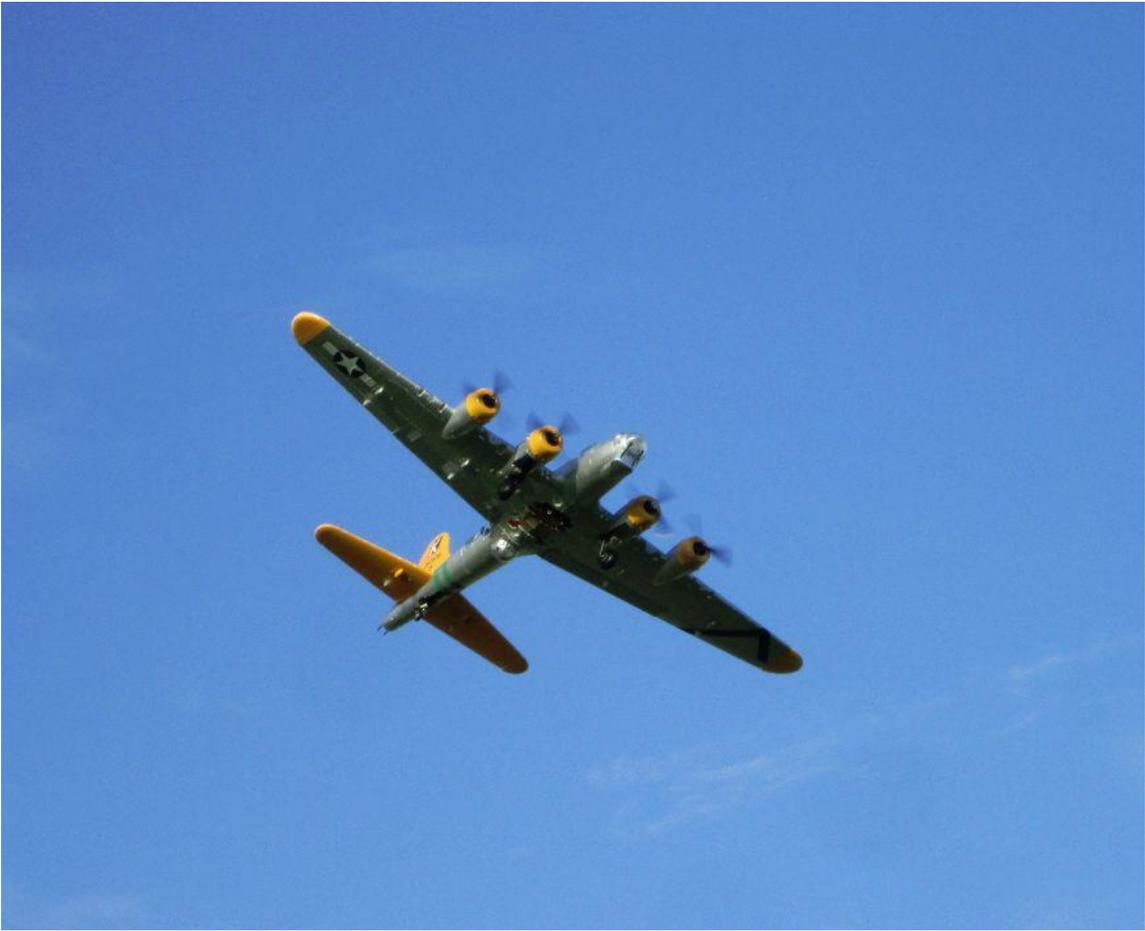
*John Hoyle with his Phil Smith built, Taplin Twin powered 1937 Bowden Trophy Winner
This model features in Martyn Pressnell's excellent book*



John's 36" glider



Roger Dacombe's B17. There have been photos in S&T before but I just have to include those taken last night.







John Hoyle's Ebenezer



Middle Wallop electric day 8 August 2015

I know its not S&T and all that but I decided to see what the electric event was like so what with one thing and another went to see and fly on the Saturday of this two day meet, the photos tell it all. Again I can't be bothered to reduce the photo sizes



Rick Churchill's twin







David Lovegrove's Aeronca





My OD 600 2m class electric glider

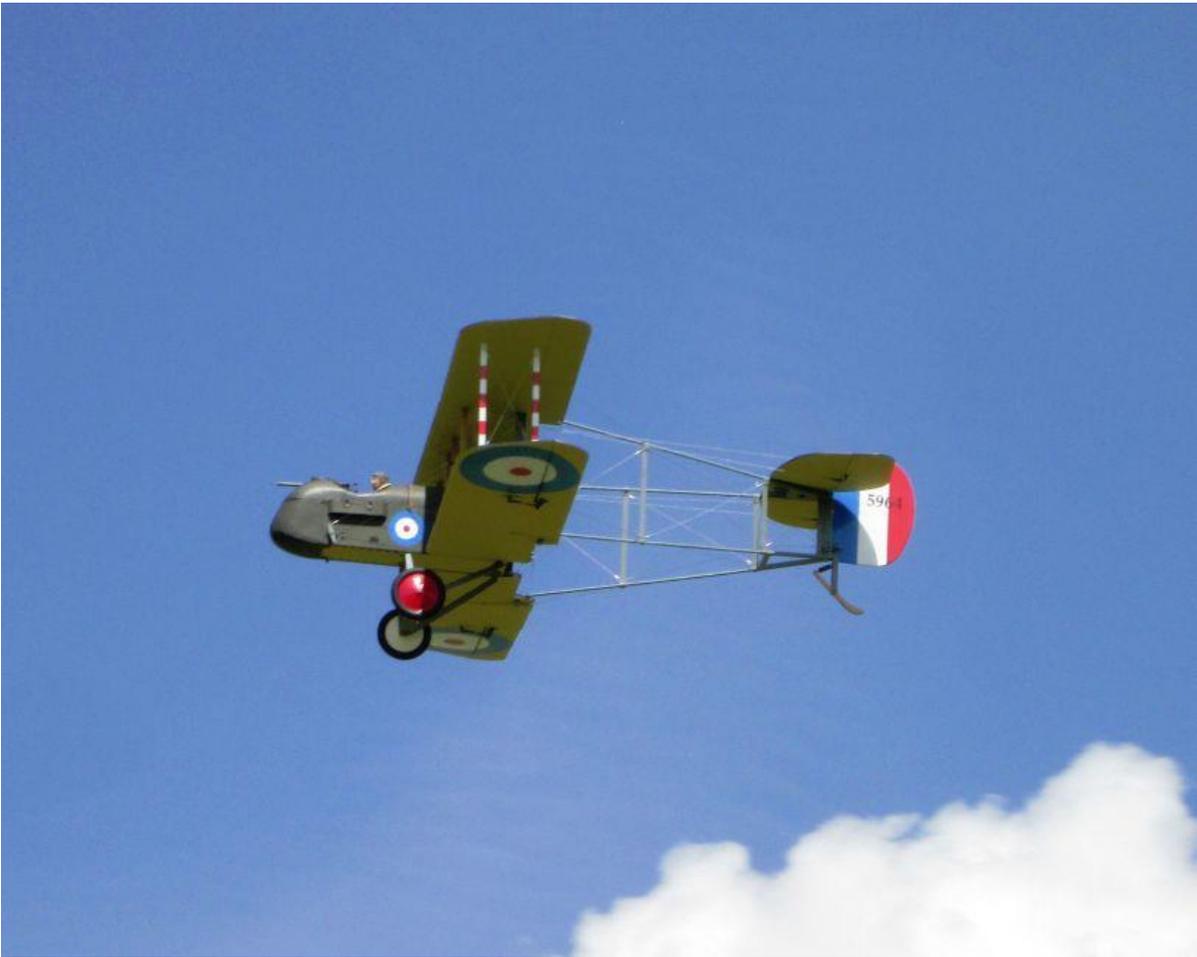




Mini Robot





















Unfortunately the U/C was stuck down









NOT S&T follows on after adverts it is well worth looking at if you like 1930's cars

(I had the chance to see the book and read the first few chapters and have to say for a subject that is fundamental to our hobby but such reading matter usually induces in me sleep this particular book kept my full attention and I found to be highly informative and what is more easy to understand. I thoroughly recommend it, excellent JP)

From Martyn Pressnell

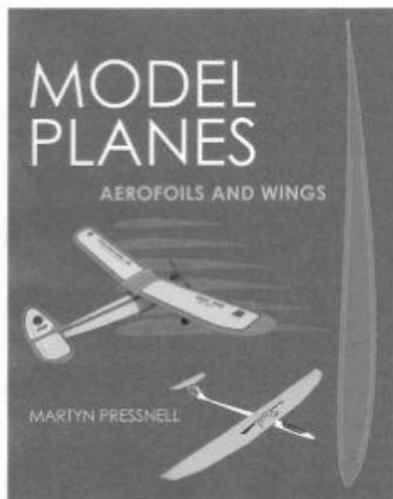
I have recently received this discounted offer from Robert Hale Ltd. that your members may like to use to purchase my new book 'Model Planes: Aerofoils and Wings'. This offers 25% off (normally £20.00) the price of the book. There is no additional postage cost except for overseas orders. It becomes generally available on 30 June. I also attach a colour copy of the cover.

The offer is available by going to www.halebooks.com and using the discount code 'wmodelplanes15'. Further information can be found at www.msp-plans.blogspot.com

Many thanks and kind regards, Martyn

MODEL PLANES

by Martyn Pressnell



ISBN: 978-0-7198-1540-9
Publication Date: 30 June 2015
RRP: £20.00 **£15**

Model flying is a challenging and exciting hobby as well as a recognized international sport. The broad principles of flight as applied in full-size aviation are just as important to flying models, but these principles are not always recognized or understood fully by aero-modellers.

Written specifically with aero-modellers in mind, *Model Planes: Aerofoils and Wings* is a practical guide to the aerodynamic principles of the 'aerofoil' and the way that wings produce lift, which is vital to establishing flight. Included are over forty ready-to-use aerofoil sections in a range of typical sizes, together with a detailed method of plotting these sections on a home computer, using Excel or a similar software.

Written by a distinguished aerospace engineer with a passion for modelling, this comprehensive volume is perfect for the enthusiastic aero-modeller, whether starting out or looking to hone their craft.

Martyn Pressnell has been an aircraft enthusiast since childhood, becoming an experienced model designer by the age of eighteen. On graduation, he joined Handley Page to train as a professional airframe structures engineer. He went on to work at what is now the University of Hertfordshire, becoming Group Head, Aerospace Engineering, in 1992. For a time he was a CAA-designated Chief Stress Engineer in the airship business. Now retired, Martyn is as busy as ever pursuing model aircraft technology and acting as a consultant in airframe structures to the Engineering Sciences Data Unit, providing information to the aerospace industry worldwide.

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Mike Cummings Cardinal kit

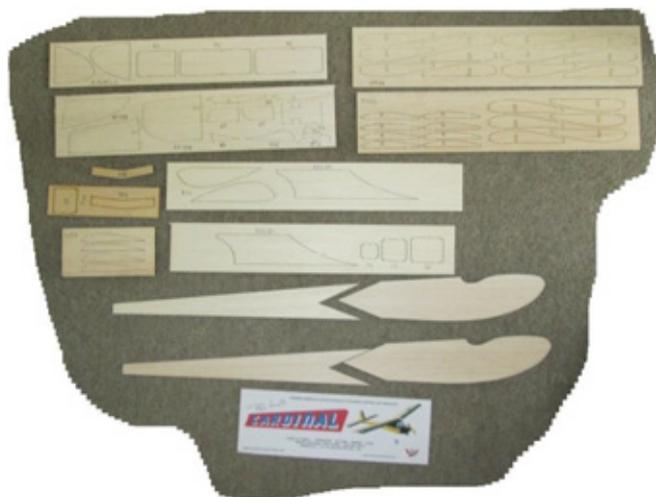
There are two versions electric or IC and two further choices of a short or full kit.

Mike still has Mills, Frog (3 types), KK and Mercury transfers available should anyone want.

His phone number is 02085423100 or website www.vintagemodelworks.co.uk



Electric Cardinal



Short kit



Full kit although it does require additional items like radio, covering material glue so best to speak to or email Mike to see exactly what is in the kit. I believe a plan is also included

RC Vintage and CL events 2015

23 August	Cocklebarrow Farm*	P Howkins *T Tomlin
30 August	Middle Wallop, Hants*	RC T Tomlin, CL J Parry
12 & 13 September	Shilton, Oxfordshire	N Blackwell
4 October	Cocklebarrow Farm*	P Howkins *T Tomlin
<i>*Tomboy will be held at these events</i>	<i>Please check before travelling as circumstances can caused events to be changed at short notice</i>	<i>MIDDLE WALLOP Dogs are <u>NOT</u> allowed on the airfield at any time</i>
Contacts	Tony Tomlin 02086413505 pjt.alt2@btinternet.com	James Parry 01202625825 jamesiparry@talktalk.net
	Paul Howkins 02476405126 howkins776@btinternet.com	Nick Blackwell nick@nickblackwell.co.uk

SHILTON VINTAGE (FLY IN)

BLACKWELL FARM Saturday 12 and Sunday 13 September 2015

Details and directions for the Shilton Vintage meet

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

OR Derek Foxwell Tel: 0208 647 1033
Email: derekfoxwell@btinterenet.com

OR Boycott Beale Tel 01993 846690

Email: 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.

THE NORTH COTSWOLD MODEL AERO CLUB

BMFA MID-WEST 166

FLY FOR FUN



EVENT 2015
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CONTACT: info@ncmac.co.uk

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TWO
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MODELS DESIGNED BY THE LATE
DAVID BODDINGTON

SUNDAY 16TH:
A ONE-DESIGN EVENT FOR ALBERT HATFULL'S
KEIL KRAFT

JUNIOR 60

ON BOTH DAYS, MODELS OF ANY SIZE, IN ANY VERSION AND WITH ANY FORM OF POWER ARE WELCOME

INFORMAL JUDGING AND PRIZES

COCKLEBARROW FARM



12th JULY 2015

23rd AUGUST 2015

4th OCTOBER 2015



All types of R/C up to December 1965 including electric and glider.

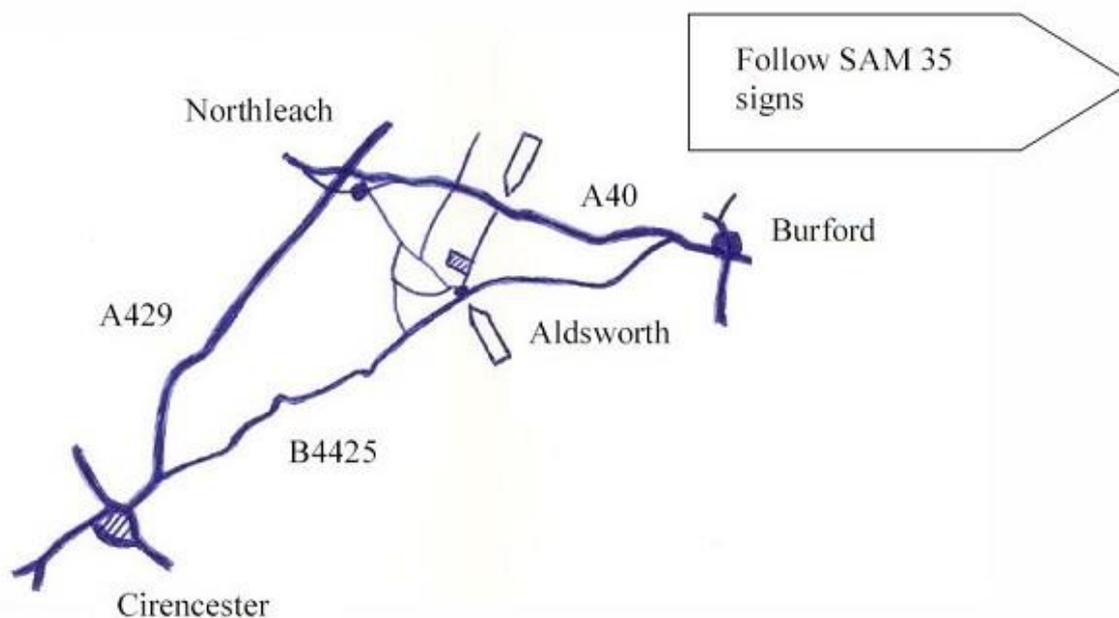
Signposted from Aldsworth on B4425 between Cirencester/Burford and off A40 between Northleach and Burford. (Follow SAM 35 signs).

Camping on field.

Contact – R/C and camping – Paul Howkins

024 76 405126

Email: howkins776@btinternet.com



Event dates

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

More info from christopher.hague@ntlworld.com

<http://wimbornemac.org/>

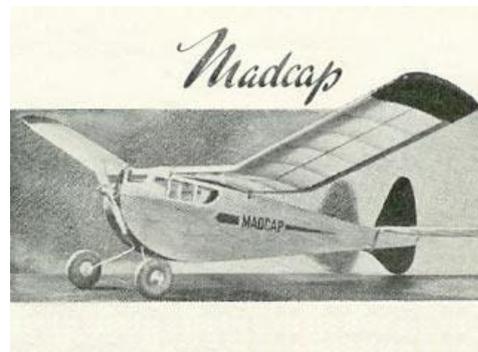
Belair



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,

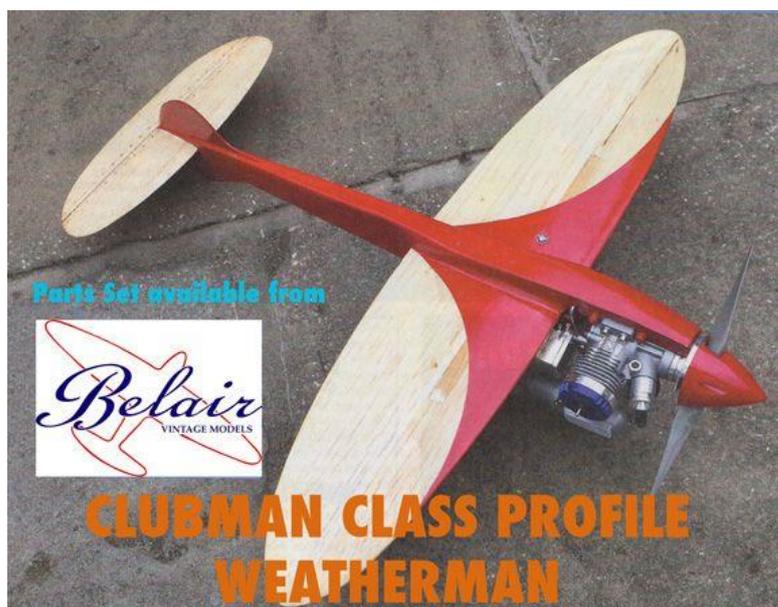
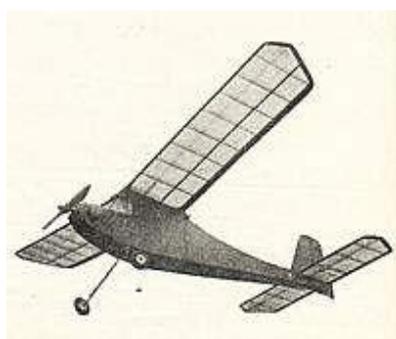
please call 01362 668658 for your copy. www.belairkits.com

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.

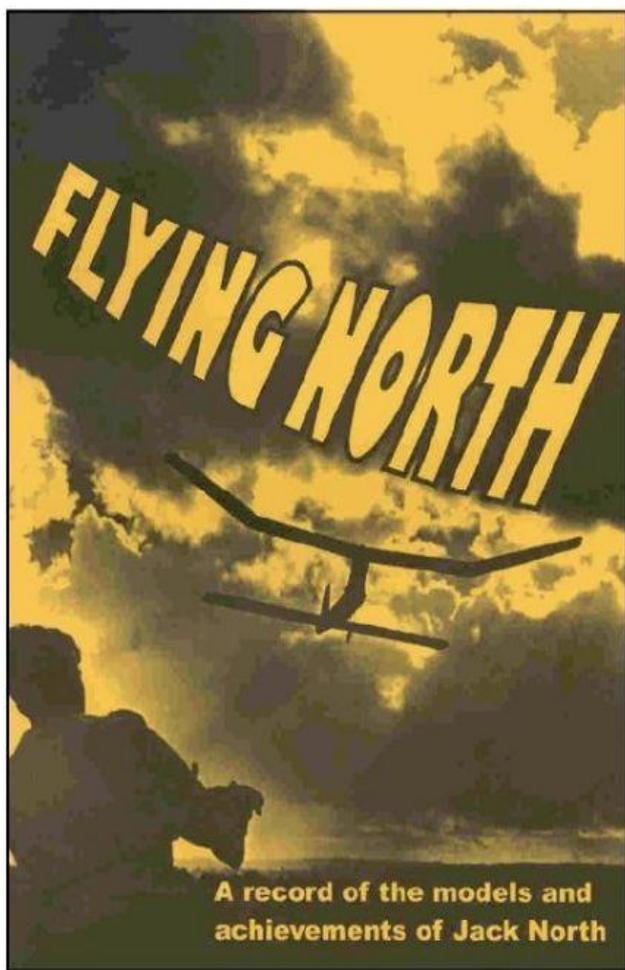
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FLYING NORTH was compiled and edited by two of Jack's Croydon clubmates, David Beales and Martin Dilly, who had access to Jack's extensive notebooks, photographs, drawings and his original models.

FLYING NORTH is a fascinating 163 page book and includes 130 photographs, reminiscences by colleagues, re-prints of all Jack's published plans and articles, including his later extensive work on thermal detection, and an outline of the professional career that also made him such a respected name in high-speed aerodynamics.

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"A fitting memorial to an unforgettable personality. I am sure the book will become an instant classic, treasured by aeromodellers all over the world"

"A very balanced record of Jack's modelling and professional activities"

Price £18 in the UK, £20 airmail to Europe and £22 elsewhere.

Contact Martin Dilly on +44 (0)208-7775533 or email martindilly20@gmail.com

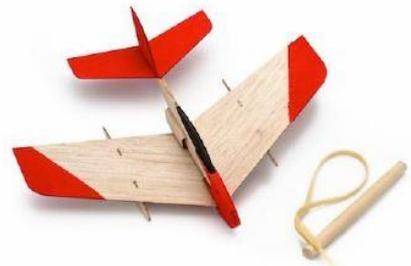
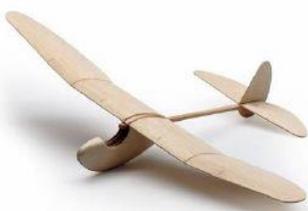
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Not S&T but interesting all the same, well done Ted

From Ted Tomlin

STANDARD A9 1936

The Car arrived on the back of a trailer November 2013 complete with boxes of bits, bit of a daunting task laid ahead we thought

Cleaning off 20 years of dirt and dust was the first step, after that a roof and floor needed to be made and fitted. We then bought a battery and set about testing the engine, it started ok but we found it would need some attention. We decided we would have to hand paint so set about the never ending job although we still need to do more coats at some stage. Luckily the seats had been covered but the rest of the interior was down to us roof lining, door panels, flooring, dash panel, glove boxes, also windows and windscreen and brackets fitted. Next came the wiring, no loom to hand so Ted completed the task a job well done. Good old Trago we've never bought so many nuts, bolts, screws and wood. The Trunk we bought on Ebay blended in quite well with the car.

We have enjoyed doing the car up together but I guess it's an on going never ending project but hey ho.













