

Clear Dope

March 2017



Chichester and District Model Aero Club: Committee 2017

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Hi Our auction this year is to be held on the 9th March, doors open at
7pm auction starts at 8pm.

The first completion of the year is the Climb and Glide to be held at
Thorney on the 11th March @ 11.30 am

Colin Stevens KAVAN PARTENAVIA - SOMEWHAT MODIFIED



It seemed such a good idea back in 2004, a change from trudging up the slope on old legs, an attractive model that would fly in all wind directions, and close to scale, to boot. This was what it was intended to look like -

I was impressed by that, so I was keen to get down to pre-planning the build whilst awaiting the arrival of the kit. Straightaway I focussed on-

- 1/ The need to reinforce all foam surfaces subject to wear and tear, because this model is moulded in cheap packing-foam (EPS), and without extra work it would soon degenerate to a crumbling mess.
- 2/ The advisability of a back-up battery for the Rx, since a failure of the flight battery would wipe-out all of my efforts put into the model.
- 3/ The reinforcement of points in the fus moulding stressed by bad landings.

When the kit arrived I was dismayed to find that it was a "Friday" model. The top contour of one wing had somehow collapsed a little (removed too quickly from the mould?), and the top and bottom fus. halves were misaligned, so much filling and resurfacing had to be done. I also had to correct mismatch between the two fus wing-seatings, but this gave me the opportunity to reinforce them in thin ply, doing the same to the wing mating face.

The original concept of this model was that it would be covered all over its top and fin/rudder surfaces by pre-printed self-adhesive film, which supported the moulded-in bendable control surface hinges. This operation was to be done before any other assembly, but following advice on a forum, I deferred this until much later in the build. This was a Bad Move, since owing to the amount of work already done, I was discouraged from binning the model much earlier.

Why bin it? It's like this: The covering film had a very strong grab, and one touch in the wrong place would ruin the foam surface and write-off the film. Attempting to work on my own, I had two touches. So, late in the game I was forced to reconsider the whole covering and finishing operation. I therefore chose to glass it in 22gsm material, attached with Ronseal Excel polycrylic floor-sealer, and Poly-C when I ran out of Excel. First though, I'd now lost the support for the control surfaces hinges, so I had to graft-in balsa and construct proper hinging in Mylar. The bare foam structure first needed priming in Excel, then filling of the surface defects with lightweight spackle. Another priming in Excel, plus a careful sanding, and then the glass was attached with three brushed-on coats of Excel, a quick-drying and easy process with no bad odours. Talc was then added to the Excel in the ratio 1/1 by volume, for extra coats to complete the filling of the weave and to provide easy sanding (less talc makes it harder to sand, and light sanding pressure is needed on this type of foam. I used 220- and mainly 440-grade aluminium oxide paper for this, as it has a sharp cut and long life).

Now we were looking good, and a final coat of Poly-C was applied to seal the surface against any pin-holing, since I was concerned about the propellant and solvent used in the Halford's Plastic spray-can primer I'd chosen. A sealing mist coat was applied, then a couple of building coats. Once sanded, the result was equal to a car body finish. I was well-pleased, because the flexible foam was also now as rigid as a board, with very little weight-gain.

Sadly, this was the point where things started to go downhill. I used the matching Halford's acrylic colours, only to find that it has a slow-drying and deeply penetrating solvent that doesn't make itself evident until a day later. So now I was seeing surface defects again that had once been perfect. Not only that, but any contact in clean-up with white spirit, IPA, or worst of all, petrol (car spray, remember!), ruined the surface. I would also note at this point that in this process, you cannot achieve as ding-proof a finish as with epoxy/glass, but epoxy would be heavier and demand sanding pressures that would most likely compress the foam.

Finishing: I'm tired of the usual red/white/blue schemes, so since it's an Italian aeroplane, I gave it Italian colours and registration. I masked in KleenEdge low-tack tape and cut the lettering and side windows from black Solartrim. The leading-edge anti-icing strips are in semi-matt self-adhesive film. More trim yet is needed for the aircraft name, and maybe a typically Italian company logo - pasta, ice-cream, Chianti or something representative.

A note about the cabin glazing and door: These are aggravatingly wrong in the Kavan version, so I did my best to correct them, with particular attention to the door. The front screens were a problem, as I could not get the Solartrim to follow the double curvature, so they were sprayed on.

Here's how it all finished-up -

Its first flight required no trim changes, and the model seemed stable and easy to fly, looking quite realistic. A poor landing too far upwind rearranged the tail bump-stop, so I elected to re-work it before undertaking more flights. Ground-handling of the trike undercarriage made a pleasant change.

So, a very long and problematic love/hate build, where it has spent most of its time hiding under a spare bed, just out of boot range. For the future, all being well, I intend to change to Lipo flight batteries with a Lipo brushed ESC, and specially re-worked props (black, hopefully) to limit the prop load at higher revs. Brushless outrunner motors would have been a good option, but they cannot be mounted to the moulded cowlings. Inrunners would fit, but their KV ratings are too high in this case size, and they export their heat mainly from their outer casings, far from ideal when mounting directly into foam.

Some Details:

Motors - 480PRO, brushed

ESC - Jeti 35 Amp

Flight Battery - Vapex Red Racing 9.6V 2200mAh NiMH

Props - 6" x 4" Kavan Yellow Bendy

Rx Battery - Made-up from 4 x Vapex 400mAh NiMH cells

Rx - Futaba FP-R149DP PCM 35MHz

Servos - 4 x Ripmax SD200

Wingspan - 60"

Flying weight - 64.5oz

Wing Loading -

19.35oz/sq. ft

Thanks to David Hayward for the Facebook on-field pictures,

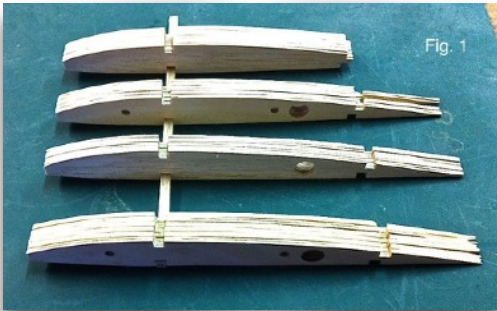
Colin Stevens



MAKING SAW-DUST

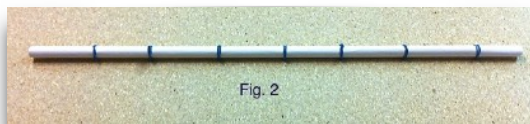
I always start with the wings on a new scale project..

because I really want to start with the fuselage. The fuz is exciting to build and although the first wing is quite interesting, as soon as you've pretty much completed it, you've got to start all over again with the second - unless you're building a biplane of course - then heaven help!

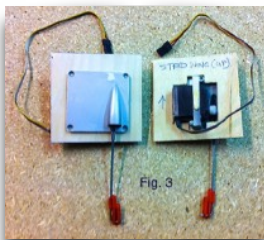


Cutting out ribs is quite tedious and repetitive but you MUST adopt the frame of mind that it's probably the most crucial thing you'll do. Whether the wing shape is tapered or parallel, as in the case of the Auster, you've absolutely got to be able to mount them on a spar and ensure they're the same length, contour and taper if so required. Use ply ribs at the ends and then sand them in a block. (Fig. 1) If one's a rogue, then sling it and make another, you'll get your reward when you come to building, sheeting and covering. If you need holes for a joining tube, mounting dowels, paper tube etc. now's the time to ensure all the cut-outs fall in line.

My old plan shows a single aileron servo in one wing with push-pull wires and bell cranks to the servo horn pushrods. I've opted to use a mini servo in each wing, so I needed to create an extra hole through some ribs for the paper tube. Since the Auster's



ribs are quite thin, this hole is only 1/2 inch diameter so well before I started the build I rolled layers of thin paper around a piece of 1/4 inch dowel and rubber-banded it up (fig. 2) so that a couple of weeks later, a width of this thin paper will easily take the shape required.



I also needed to trim 1/8 of an inch (between the bottom spars) from a couple of ribs which I've doubled up with ply, so that I could glue in a 'servo mount,' mounting board. (Fig. 3 & 4) I really like using the SLEC servo mounts - the servos are locked into them and then they neatly screw down into your mounting board (with appropriate cut-out for the servo). You can then sheet up to them to give a good scale-like and satisfactory finish. These mounts are cheap and suitable for both 'standard' and 'mini' servos

Once I'd got all the parts prep'd the building of the first wing seemed to move on very quickly. With cling film over the plan and the main and secondary spruce spars locked in place it's quite a joy to glue up and position each rib on the spars with aliphatic resin. This is a brilliant white glue for general building purposes. It's got loads of 'grab,' makes a very strong wood bond and cures in about an hour. Always double check that your ribs lined up, exactly on the plan and use some form of square edge to make sure they're vertical. Having already built my ailerons, I used these with 1/16 inch balsa spacers to ensure I positioned that penultimate rib correctly.

If you make a good job of your ribs in this initial set-up then the rest of the wing build is pretty straight forward. Adding top spars, leading/trailing edge, webbing and sheeting shouldn't cause any problems, although the whole process is a little harder when, as in my case, the plan only showed the port wing, so quite a bit of 'chocking-up' was needed before I could build the starboard wing upside down on the plan. (Fig. 4)



Carving wing-tips from the solid block can be quite a pain. If you fret-saw the wing section on them first, then you can't fret saw the wing-tip shape, or vice versa. UNLESS - you simply pin the cut shape back into the wood you've just relieved it from. (Fig. 5) Then you can rotate the block through 90° and cut the other contour from a square section block again. This saves so much work. The Auster has wing-tip Navigation and Landing lights so the front of the tip has to be cut off - but not yet. I half cut through the tip, and slightly underneath, from the rib side and then ensured that I didn't glue that front section to the wing. Once the whole tip has been nicely shaped to the wing my razor saw will easily follow the pre-cut groove to relieve the front section, and this will be the perfect plug shape on which to mould the wing-tip light cover.....but that's later on.



Fig. 5

Hinging the control surfaces correctly is very important on all models and possibly more so on scale ones. My personal preference is to use the 'Robart' type pinned hinge. (Fig. 6) These come in a variety of sizes but the ones I'm using take a 3 mm pilot hole with a 4.5 mm dia. entrance which penetrates for 5 mm. I set them up in the following way:

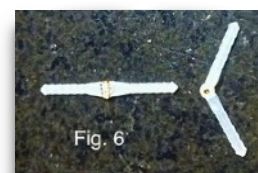


Fig. 6

Firstly the centre of the wing's trailing edge is measured and marked where the balsa hinging blocks have been positioned inside the wing. Next the 3 mm pilot holes are drilled through the trailing edge, before the ailerons are positioned and wedged in place with a thin spacer at each side. Please note that I've deliberately not chamfered the leading edge of the aileron at this point so that its easy to position it perfectly in the wing. Now the 3 mm 'pilot' drill bit is removed from the drill and slid into the newly drilled hole from the inside of the wing. (fig 7) As the wing and aileron are gripped tightly together a sharp tap on the end of the drill bit will now impress a perfect mark on the aileron exactly where the partner hole needs to be drilled.



Fig. 7

Next month....I start building the fuselage.....and wish I was still building the wings.....

Extra Shavings - Now That's a Good Idea

Last month, in my introduction to the 'Making Sawdust' articles I asked for your experience and ideas on how I might have done things differently or better. Here are a couple of great tips I've been sent already.

Hi Bruce. In the past I too have been aggravated by un-shrunk covering touching and adhering to underlying sheet, or even covering on the reverse side of a panel. Have you ever tried a cling-film layer under the covering? Doesn't matter if the covering attaches to that.

(Colin Stevens)

Hi Bruce, Have you tried the solid under floor insulation boards used with laminated flooring as a surface to build on. They allow all modelling pins easy penetration and can be stuck down onto any flat surface with a Pritt stick or white glue. They are sold in 4'x2' packs - about 5 in each pack and are cheap.

(Morris Campbell)

Our Chairman Tony Chant and also a BMFA examiner has sent me the latest BMFA guidance on the expected question and answers for those of use are planning to take their A certificate

Appendix 5 Mandatory Question List

Q(1) Who Regulates all civil flying activities over the United Kingdom, including model aircraft ? **A** The Civil Aviation Authority

Q(2) How are the rules and regulations for flying established in law by Parliament (statute) ? **A** As a series of Articles contained within in the Air Navigation Order (ANO).

Q(3) What does Article 240 (previously 137) of the ANO state ? **A** 'A person must not recklessly or negligently act in a manner likely to endanger an aircraft, or any person in an aircraft.'

Q(4) What does Article 241 (previously 138) of the ANO state ? **A** 'A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.'

Q(5) Who is legally responsible to ensure that a model is flown safely ? **A** The pilot in command

Q(6) Which Civil Aviation Publication (CAP) relates specifically to the use of model aircraft, and for which specific purposes only? **A** CAP 658, for sport and recreation purposes only

Q(7) According to CAP 658, which model aircraft are required to have an operating failsafe and what is the minimum setting ? **A** 1) Any aircraft >7kg 2) Any Gas Turbine powered aircraft 3) Any powered model aircraft fitted with a receiver capable of operating in failsafe mode As a minimum, reduce the engine(s) speed to idle on loss or corruption of signal.

Q(8) What does Article 94 (previously 166) of the ANO say about the responsibilities of the person in charge of a small unmanned aircraft ? **A** The person in charge of a small unmanned aircraft may only fly the aircraft if reasonably satisfied that the flight can safely be made.

Q(9) What does Article 94 (previously 166) of the ANO say about visual contact with small unmanned aircraft ? **A** The person in charge must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.

Q(10) What does Article 94 (previously 166) of the ANO say about small unmanned aircraft above 7kg ? **A** The person in charge of a small unmanned aircraft which has a mass of more than 7 kg must only fly the aircraft: · Clear of controlled airspace unless with Air Traffic Control (ATC) permission. · Clear of any Aerodrome Traffic Zone (ATZ) unless with ATC permission. · At less than 400 ft above the point of launch except with permission as above.

Q(11) What does Article 94 (previously 166) of the ANO say about 'commercial operation' (previously referred to as aerial work) for small unmanned aircraft ? **A** The person in charge of a small unmanned aircraft must not fly the aircraft for the purposes of aerial work except in accordance with a permission granted by the CAA. The RCAS - Fixed Wing Certificates 2017 Issue 27

Q(12) How is a flight for the purpose of 'commercial operation' (previously referred to as aerial work) defined ? **A** Any flight for which 'valuable consideration' is given or promised in respect of the flight or the purpose of the flight. Essentially any gain you may make from the work undertaken.

Q(13) How is 'a small unmanned surveillance aircraft' defined ? **A** An aircraft which is equipped to undertake any form of surveillance or data acquisition. (this includes all camera equipped aircraft) NOTE: The provision of data solely for the use of monitoring the model is not considered to be applicable to the meaning of 'surveillance or data acquisition'.

Q(14) What are the separation requirements of Article 95 (previously 167) - for small unmanned surveillance aircraft - when operating over or within a congested area or organised open-air assembly of more than 1,000 persons ? **A** The aircraft must not fly over or within 150 metres of a congested area or organised open-air assembly of more than 1,000 persons

Q(15) What are the separation requirements of Article 95 (previously 167) - for small unmanned surveillance aircraft - in respect of any vessel, vehicle or structure which is not under the control of the person in charge of the aircraft ? **A** The aircraft must not fly within 50 metres of any vessel, vehicle or structure not under the control of the person in charge of the aircraft.

Q(16) Except during take-off and landing, what are the separation requirements of Article 95 (previously 167) - for small unmanned surveillance aircraft – excluding the person in charge of the aircraft or anyone under their control ? **A** The aircraft must not fly within 50 metres of any person

Q(17) What must be obtained before any flight within controlled airspace or an ATZ of an aircraft over 7kg? **A** Obtain permission from the appropriate air traffic control unit.

Q(18) CAA General Exemption E 4049 - permits FPV flight without a buddy box, but with a competent observer. (a) How must the competent observer monitor the flight and (b) What is the maximum mass of aircraft that may be flown under this exemption? **A** • (a) The competent observer must maintain direct unaided visual contact with the model at all times • (b) The aircraft must be below 3.5kg including batteries and fuel

Q(19) Who has legal responsibility for the safety of an FPV flight a) conducted with a buddy box lead and b) conducted without a buddy box lead ? **A** • (a) The person in charge who must maintain direct unaided visual contact with the model at all times • (b) The person piloting the aircraft (SUA)

Q(20) According to CAP 658 what are the 8 'Only fly if' checks for an FPV flight of an aircraft over 3.5kg ? **A** • The activity is solely for 'sport and recreation' purposes; • Two pilots take part; • A Buddy Box system is employed; • The person in charge operates the master transmitter; • The person in charge does not wear the headset or view a screen; • The aircraft remains within the natural unaided visual range of the person in charge; • Reliable operation of the Buddy Box is established and A clear handover protocol is established.

Competition Calendar 2017



Date and time	Competition	Venue
Saturday 11th March 11.30	Climb and Glide	Thorney
Saturday 15th April 11.30	Bomb Drop	Thorney
Saturday 29th April 11.30	Reserve Competition day	Thorney/Porthole
Saturday May 20th 11.30	Electric Glider max three cell Li-Po 2200 battery	Porthole
Saturday May 28th 11.30	Slope Day and electric glider	Trundle Hill
Saturday June 10th 11.30	Pattern	Thorney
Saturday June 17th 11.30	Reserve Competition day	Thorney/Porthole
Sunday July 16th 11.30	Electric Glider max three cell li-Po 2200 battery Plus BBQ	Porthole
Saturday July 29th 11.30	Slope Day and electric glider	Trundle Hill
Saturday 12th August 11.30	Open Glider and Electric	Thorney
Saturday 26th August 11.30	Open Glider and Electric	Thorney
Saturday 9th September 11.30	Open Glider and Electric	Thorney
Saturday 16th September 11.30	Slope Day and electric glider	Thorney/Porthole
Saturday 30th September 11.30	Reserve Competition day	Thorney/Porthole
Saturday 14th October 11.30	Electric Glider max three cell Li-Po 2200 battery	Thorney
Sunday 12th November 12.30	Open Glider and Electric Fun Day proceeds to go to British Legion Poppy Day Appeal	Thorney

A group of club members want to have a Single Model Fun Fly-in for next year. The model is going to be the Zoot Suit electric powered glider. The electric motor and the Esc are shown noted on the plan, also the 1300 Lipo which is to be the standard for this model. These can be obtained from HobbyKing. The competition will be held at the Porthole site. A set of dates will be arranged which will include weekday evenings and weekends over the year and published in Clear Dope and on the website.

Rules for the start of the year will be a 20 Sec climb, timed to landing, in 2/3rounds. Total maximum time for the day wins. The detail of the comp may change as the year goes on. Each day is kept separate, so it does not matter how many members are there on the day or if a day is missed. I will have a limited number of Plans and Kits and Strip bundles for anyone who would like to join. Ray Beadle
If you wish to join please let me know soon, as I will need to arrange for the kit packs from the Laser cutters.

This is a Winter Build ready for flying next year.



The power train can be obtained from HobbyKing however Toni Reynaud thinks a mass purchase of this to try to cut the price and postage down, please contact Toni to discuss

Zoot Suit Flying Days. All Flying at Porthole

Friday 3rd March, Sunday 26th March, Friday 7th April, Sunday 30th April,
Friday 26th May, Sunday 18th June, Friday 30th July, Friday 4th August,
Friday 22nd September, Sunday 1st October, Friday 20th October &
Sunday 5th November

To start 20second Climb to landing
Sunday Starts from 12 o'clock

Friday Starts all Afternoon.

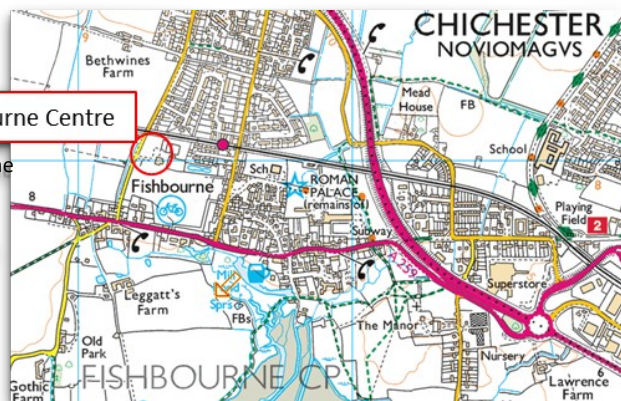


Chichester and District Model Aero Club
Model Auction Sale
To be held at the
Fishbourne Centre
9th March 2017
Open 7.00 pm, sale starts 8.00pm



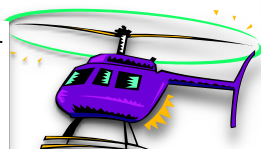
The Fishbourne Centre

Blackboy Lane
Fishbourne
Chichester
West Sussex
PO18 8BE



Plenty to buy, and bring your own to sell.

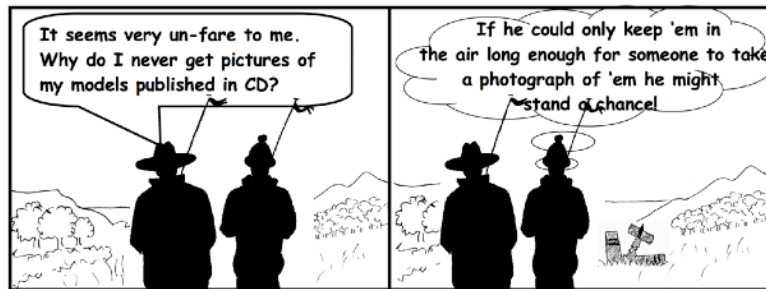
1 or 2 items £1.50, 3-10 items £1 per item, 11 and above by negotiation.



Club meetings Calendar 2017

	Time	Event	Venue

TeX & ReX *by Ecurb*



© Bruce Smith - aerobruce@aol.com

Clear Dope - March 2006

For those of you who have not yet discovered it, Nick Gates has set up a group page on Facebook its well worth a look

Here is the link:-

<https://www.facebook.com/groups/Chichesteraeromodellers/>

Now with 90+ members



Flying alone on Thorney is restricted to lightweight electric or gliders, and pilots are requested to concentrate on flying within the grass area to the west of the runway.

The Commander at Baker Barracks Thorney has decreed that there shall be NO drone flying whatsoever

When flying at Thorney please keep an eye out for traffic(all kinds walkers, horses, bikes, runners, and low flying aircraft) coming from behind the flyers and inform them accordingly

When Driving Around Thorney be aware of young children on bikes

Please Try to leave Porthole as tidy as possible, making sure no fuel is left on site