

Clear Dope

November 2021



Chichester and District Model Aero Club: Committee 2021

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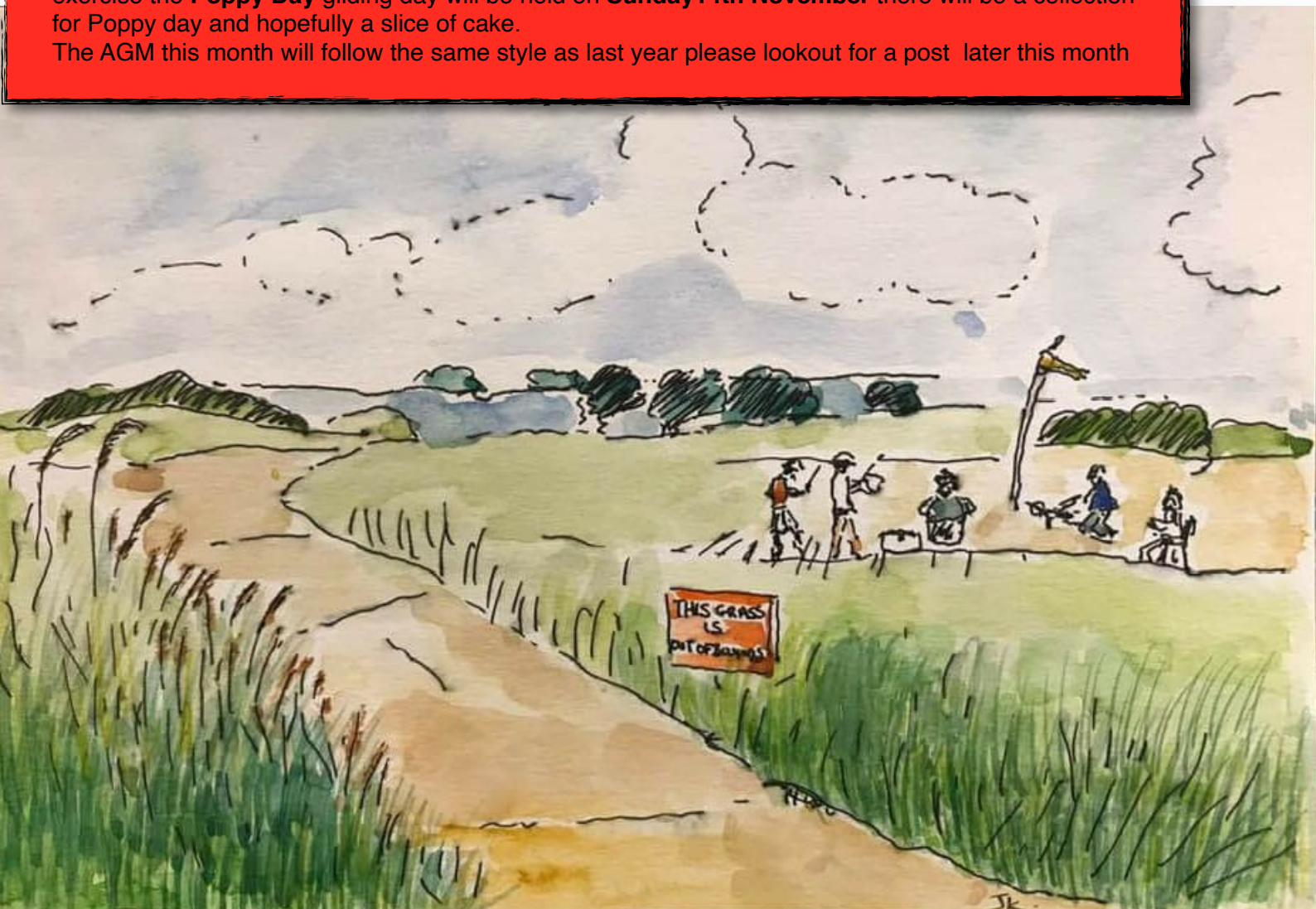
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Dates for the month, **No flying on Sunday the 7th November** as the army are having a military exercise the **Poppy Day** gliding day will be held on **Sunday 14th November** there will be a collection for Poppy day and hopefully a slice of cake.

The AGM this month will follow the same style as last year please lookout for a post later this month







Nick Gates Writes:

A welcome return to a great glider day at Thorney with most of the old favourites out and about!

A gentle NE wind swung right around to the SW in the early afternoon, and steadily picked up to 18 knots later in the afternoon. The stronger wind was a little too much for the thermalers, which gently reversed back to their starting point! Happy to say all gliders returned home intact, and the bungee had a good stretch.

Robin Colbourne, bungee flying for the first time in 20 years, took first place with an epic 10 minute flight at the end of the day. Davids immaculate Elan 100 was close behind in second, and Derek took third by flying right down the other end of the island.

Also runs below:

Robin Colbourne	23:41
David Hayward	21:58
Derek Honeysett	19:30
Adrian Childs	19:14
Bill Pethers.	15:51
Nick Gates.	15:03
Ken Knox.	7:56
Peter Turley.	7:37
Dec Cousins.	6:53
Toni Reynaud.	2:17

Electric (20 sec climb)

Adrian Childs.	22:13
Nick Gates	18:21
Toni Reynaud.	5:56
Bill Pethers	3:01

Picador

Next glider event November 14th (Remembrance Sunday).

Most enjoyable day, with some initial plans for more glider events early next year, and then later in the year as in the 'good 'ol days'.



LiPo battery puffing - some uninformed thoughts!

My initial idea was to entitle this short article “LiPo puffing for dummies”, but it occurred to me that I might be the only “dummy” out there in this respect given the vast amount of knowledge that exists among our readership!

However, my inspiration came from a recent thread on the BMFA's Facebook page which discussed the issue under the guise of “should, or can, you still use a puffed LiPo?”.



Put simply, the wide range of opinions ranged from “yes” to “no”, with numerous caveats. Indeed, this seems to mirror the opinions of experienced CADMAC members whose responses have ranged from “don’t use them ever again” to “I just fly ‘em till they die”.

So, personally, I’ve never had a straight answer to the question, and I suspect that there isn’t one! However, I did find some of the points made in the FB thread enlightening, and so I thought I’d share them here.

My understanding is that battery puffing invariably results from gas generation associated with heat generated as a result of the battery’s internal resistance (IR) coming into play when it is put under load. The IR increases with age and use and, to put it crudely, if you thrash the battery

beyond its design limits the internal resistance increases exponentially.

The first, and most obvious lesson therefore is to ensure that the battery selected is up to the job. This topic warrants an entire article in its own right, but one point to bear in mind is that manufacturers have been known to markedly overestimate their products’ “C” rating so, if in doubt, go higher than the theory for your motor/ESC combo suggests.

As an aside the BMFA thread included some amusing anecdotes about battery expansion including the pictures above and opposite, and a tale from someone whose battery had inflated so much that couldn’t prize it out of their funjet until it had cooled down; the truth be known, I’ve been there too!

The most interesting discussion centred around how people check and maintain the health of their batteries. Advances in RC technology have meant that pilots can now monitor the voltage of their cells via telemetry, however, some feel that this is an unrealistic method due to erroneous reporting and spikes.



However, the general agreed consensus was that individual cells should not be allowed to fall below 3.7 volts in flight, and that meaningful checks should be carried out immediately after use, as voltages tend to creep back up with time.

Many contributors felt that monitoring “volumetric use” was the most important factor with the goal of never using more than 80% capacity (i.e. leaving more than 20% remaining); again, with readings taken just after use.

Charging techniques were discussed with general agreement that “balance charging” should be used whenever possible, and not to exceed a charge rate of 1C, regardless of what the manufacturers claim to be safe. (i.e. a 2000mah battery should not be charged at more than 2 amps etc).

One point of universal agreement was that the best way to monitor a battery’s health is to check its internal resistance regularly. Confession time: I didn’t know how to do this, and had to google the answer.

It transpires that the little black “capacity checkers” that most of us own can’t do the job, but the newer (blue) “Smart Battery Meter” can! A quick visit to AliExpress and minus £5 later, and I now have one in my toolbox.

Pressing the “mode” and “cell” buttons sequentially brings up the letters “Ir” on the LCD screen, and the unit will then cycle through the internal resistance of each battery cell in turn. Units are milli-ohms (mOhms).



As the internal resistance increases with age and use, so the efficiency of the battery falls.

Now the \$64000 question; what numbers are we looking to see? Here opinion was divided. Apparently, by their very nature small capacity cells can have larger IRs than larger ones, but typically new battery cell values give readings in the region of 1 to 3 mOhms. One contributor said that he makes a point of testing and writing down the values on the battery casing when new so that he can monitor subsequent degradation. This can give an early warning of a cell going bad.

Most owners add all the mOhm values together to give the battery an overall “score”, with totals of 25-30 being quoted as the figures to consider taking the battery out of service.



With all this in mind I decided to check, not only my prized 6S batteries for which I am still paying the mortgage, but also the ever-increasingly puffed 3S cells that I know are on the way out.

Typically my “good” 6S batteries show IR values of 2 or 3 per cell, and my newer 3S units show similar values. On the other hand a puffed old battery which cannot sustain full power for long on a model typically shows over 5 per cell; a clear difference, and one which definitely suggests that IR monitoring helps to identify the onset of poor performance. Quite how to quantify a battery’s deterioration is another matter!

As I wrote at the beginning this is a subject about which I know very little, and still want to investigate further. However, perhaps one of you electrical wizards would care to comment or put me straight!

In the meantime I’ll finish with one contribution to the BMFA discussion to which many of you will relate:

“I don’t recall my glow fuel ever swelling”!

Need I say more? Any further contributions to the debate are most welcome!

Tim K.

David Hayward and his Hanno Prettner Curare build

This has to be a classic example of 'Triumph of hope over experience' as my aerobatic repertoire typically comprises of loops, rolls and occasionally pulling off a half decent stall turn, and yet I decided to build Hanno Prettner's 1977 world aerobatic winning Curare. What can I say? I just had to have the experience of building and flying a classic aerobatic pattern ship; perhaps I might even perfect my rather lame stall turns.

So in February 2020 I purchased a Hangar One kit 64" wingspan Curare, all the way from New Zealand. You have the option of a half or full kit and I went for the half kit which is naturally cheaper and then sourced the extra wood needed from SLEC.

Kit looks good on opening, good quality wood etc, although a few minor bugs have arisen as the build has progressed. A plan is provided, however, specific instructions for the build are not supplied; what you get is an article from a magazine that actually relates to what I presume is the original plan, slightly different from the plan supplied, but at least it provides some degree of guidance.



Engine

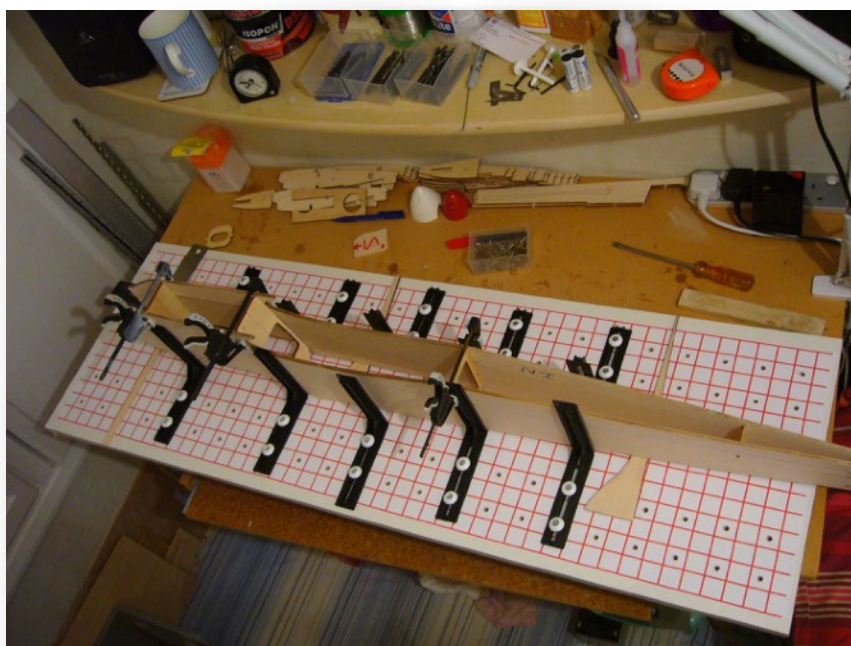
Engine wise, I originally decided on an OS 65 AX, but later changed my mind and have used an OS 55 AX with a tuned pipe. I have seen a couple on google/youtube that have used a 65, but it's a really tight squeeze to get in the fuselage which is only 50mm wide at that point, plus I was concerned the extra weight at the front might mean I would end up putting weight at the rear to get the balance right.

Building

I actually started the build about the beginning of February 2020 and normally would start with wings or fuselage and finish as far as practical before moving on, but this build has not gone that way for various reasons. So at one point I had partially built wings, fuselage and tailplane.

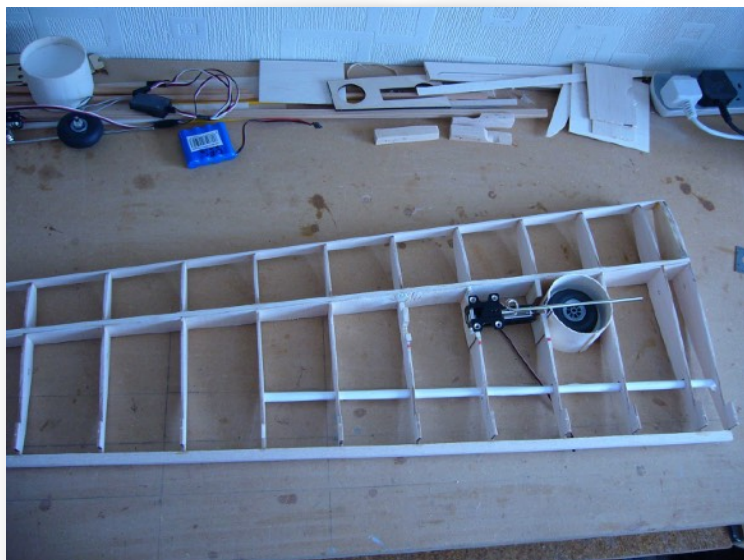
Fuselage

I did start with the fuselage and as you will see from the images I have finally invested in a jig to assist building. I usually manage to improvise in order to build the fuselage straight, however, at no point on the Curare are the fuselage sides parallel. So the usual method of gluing 2 or 3 formers to one fuselage side while held at 90 degrees and then gluing on the other side, just is not an option here.



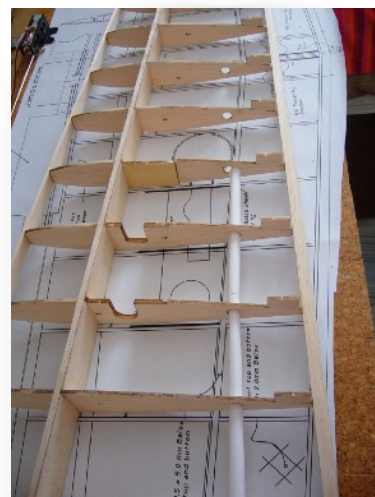
Wings

Wings have been simple to build, although the spar cutouts in the ribs were 0.5mm oversize which meant the spars were a very sloppy fit, rather disappointing, but I have added 0.5mm to the spars at the rib positions and 'sanded in' to remove any steps.



Retracts

This is the first model I have built with a retractable undercarriage and so this has been a new experience. I bought a set of E-Flite electric retracts which I fitted into the wings, although I used beech bearers rather than the ply plates supplied. Unfortunately, huge schoolboy error, I fitted the bearers between the wrong ribs, so one bay out from where they should be. This did highlight to me, apart from what a muppet I am, how well the beech bearers were glued into the ribs. Now removed and fitted in the correct position.



Tailplane

This is built up, with symmetrical section, fully sheeted and of course featuring the very distinctive anhedral of this model.

A few issues along the way, some kit related – fuselage sides that did not match, and some self inflicted - remove first paint finish and start all over again, but finally it is finished after 20 months. A couple of pictures which actually present it in a slightly better light than it is in the flesh due to my patience wearing thin on the second time around paint job, however, looking forward to flying this soon. Images hopefully compliment the text and provide some visualisation of what I have been talking about.





Flying alone on Thorney is not recommended however pilots are requested to concentrate on flying within the grass area to the west of the runway.

Please Try to leave Porthole as tidy as possible, making sure no fuel is left on site & lock the gate.

30 metres from “uninvolved” persons”

15 metres when taking off & landing, subject to mitigations

From 1 Jan 21 BMFA Article 16 is law: know the separation minima!

When Driving Around Thorney be aware of young children on bikes

The Commander at Baker Barracks Thorney and the MOD have 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

The club Facebook page is now in its fifth year. It has over one hundred members. It contains many contemporary site reports, and has a wealth of photos in its archives.

Administered by Nick Gates. David Hayward & Ken Knox

Here is the link:-

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