Editor: Andy Blackburn

John Winfield's Comet De Havilland D.H.4 in U.S. Mail Plane Colours.

Contents

Parish Notices

I thought it was probably time for another newsletter, even though we're still in lockdown. Many people have been hard at work so this is something of a bumper issue, and I'm pleased to announce that Peter Smart and John Price share the Lord Beaverbrook Award for Aircraft Production.

Reminder - Christmas Elfs Will Be Late

We're planning to run the Christmas Elf competition at the first Trinity event of 2021, whenever that may be – we're assuming April 24th at the moment. The Lurker will be CD if Tony Calvert is unable to attend.

RC Scale Flying Only Competition

I'm aware that the FF chaps have loads of opportunities to participate in the odd bit of fun (regular peanut duration, Elf duration comp, Battle of Britain comp, etc.) but the RC guys have – hitherto – been neglected. In order to remedy this sorry situation, we're going to try holding a very simple RC Scale Flying Only competition at some point during 2021. The draft outline rules are:

Eligibility

The competition is open to any model that is recognised by at least one of the two judges as a more-or-less scale model of a full-size aircraft. There will be no static judging.

Flight Judging

Each competitor will have at least one flight that is judged by two flight judges of unimpeachable fairness and probity.

Format

Each flight will be marked on the following five manoeuvres, plus realism in flight (15 points available), so 50 points are available from each judge:

- Take-off and climb(10 points)
- Figure 8 (5 points)
- Optional manoeuvre (5 points)
- Optional manoeuvre (5 points)
- Approach and landing (10 points)

The marks from each judge will be totalled to give a maximum theoretical score of 100 points for each flight. The winner will be the flyer with the highest total score.

Optional Manoevres

Optional manoeuvres will be selected from the following list:

- Procedure turn, Touch and Go, Overshoot, Wingover, Chandelle, Derry turn, Stall turn.

Penalties

Gyros may be used but will incur a 15 point penalty to the final score.

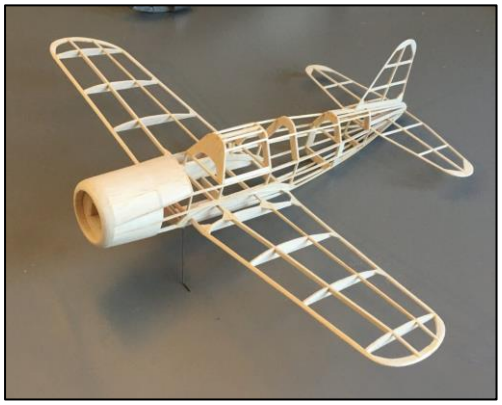
Contributors

Many thanks to Bob Townsley, Brian Vance, Dave Quinton, Dave King, John Price, John Winfield, Jon Markovitz, Mike Stuart and Peter Smart for their valued contributions to this issue of the newsletter.

What People Have Been Up To in Lockdown

Vought Kingfisher Dime Scale – Mike Stuart

I got distracted from my ongoing long-term projects before Christmas by a cook-up on the Hippocket Aeronautics forum for Mike Nassise designs. I thought one of his relatively simple plans would make a fun Christmas project and started having a look through the available designs.



I've always liked the Vought Kingfisher, which has excellent proportions for free flight as well as wearing the colourful pre-war US schemes with yellow wings that I love so much.

I followed the plan quite closely, only sheeting in the cowling and upper fuselage decking, plus adding a couple of extra stringers at the top of some formers, and removing a couple that I didn't think necessary. I noticed a few inaccuracies, such as the angle change in the observer's canopy (it should be a straight line at the top) but left everything unchanged – it is supposed to be a Dime scale model after all.

The model was covered in Dilly Japanese tissue, applied dry using the dope and thinners method. I have used this a few times now and it seems a good replacement for Esaki, its Achilles' heel being the lack of wet strength. On the plus side, it doesn't seem to pull as much as Esaki when it shrinks, so less chance of warping the tail surfaces (I didn't pre-shrink the tissue and everything has

stayed flat). After steam shrinking the tissue over a kettle, the model was finished with a coat of banana oil.

The front canopy was plunge moulded from acetate, and for the rear glazing I used thin plastic window material from a supermarket cake box.

I painted the model using Xtracolor enamels, undercoating the red and yellow areas with satin white first to keep the colours bright and save on the number of top coats needed. Markings were either cut from painted decal sheet or home-made laser printed decals. I use Sunnyscopa laser decal film, both in white and clear – highly recommended – the best I have ever used in fact. Amazon sell it for about £10 for 10 A4 sheets.

Weight came out at 22.3 grams with a Czech 6" prop on the front, which I'm quite happy with, as there is a lot of wing area for 16" span.

RC Conversions – John Price

This is my VMC SE5a, originally built some time ago; it has an AIO brick and MicroAces motor and gearbox. No roundels yet as I'm not keen on the VMC paper ones. Weight ready to fly is 46g, wing loading is 2.6oz/sq ft ((~= 0.5 g/ sq in). It's been test flown once and flew beautifully with no trim needed. I'm sure it will be fine in Trinity.

This is a recent effort, it's a converted Aerographics Chipmunk; it's at least 20 years old! I dug it out of the garage and it's fine except for the transfers peeling and cracking. Amazingly, no warps. Anyway, converted it from rubber powered to electric RC. It's had one quick flight and I think it will be OK for Trinity. It weighs 53 g, which is 3 g less than when it was rubber free flight.

Just finished this Vintage Model Company Jodel D-18; it's a very good kit and is un-flown at the moment. I can't find a 1/16 pilot, I may have to make one..... Aaaaagh! The full size has all flying tail surfaces and so has this. I mounted the servos on the fuselage sides which amplify the sound alarmingly! Still, at least people will hear it coming.

Comet Kits – John Winfield

This is a Porterfield 65 Dime Scale from a Comet kit. Wingspan is 16", it has 32 square inches wing area and weighs 13.3g (0.47 oz) empty. Wing loading is 0.41 g/sq in, power is expected to be a 7" loop of 1/8".

Airco D.H.4 built from a Comet kit. Span is 21 inches, wing area is a generous 115 sq inches so at 47.6 grams empty it has the same wing loading (0.41g/sq in) as the Porterfield! Power to begin with is expected to be an 11 inch loop of 1/8"

NoCal Staggerwing – John Winfield

John's own design Beech Staggerwing built to Dave King's Beginner No-Cal rules is now complete, weighs 9g without motor. Glide from hand-launch is said to be "excellent".

Adventures in 3D Printing – Bob Townsley, with Brian Vance & Dave Quinton

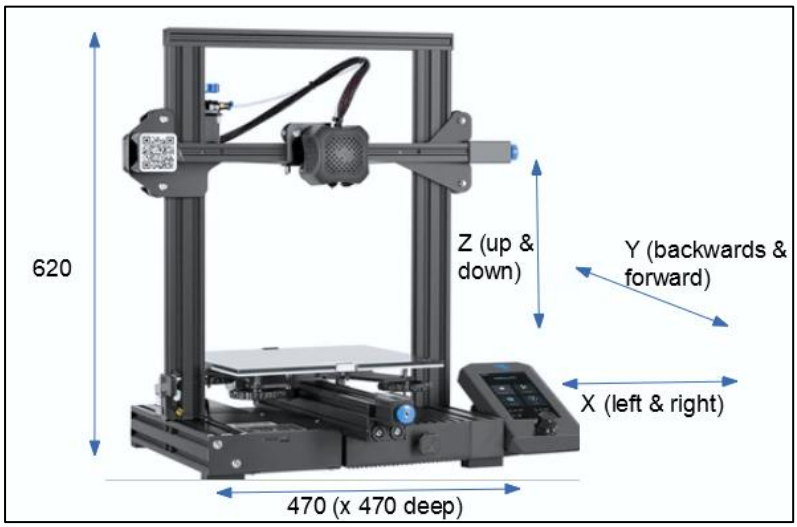
I didn't want the free flight boys to think the RC chaps have had their feet up all through this latest lock down, so this is about what we have been up to.

It started a few years ago when Brian Vance suggested to Dave Quinton and myself that we should buy a 3D printer. None of us had a use for one, but then that has never stopped us in the past from finding solutions to problems we didn't have. Finally Dave and I gave in and last September we purchased one between the three of us. After a number of days working on this one printer in Dave's garage we very quickly started to print some acceptable components.

So you are now probably wondering "What's a 3D printer?" Well, generally when manufacturing items you start with a large piece of metal or maybe wood, possibly even balsa, and you remove some of it to make a useful item. In 3D printing you start off with nothing and only use enough material to make what you want. This is achieved by extruding material, a plastic at 200 deg C, onto a bed, one layer (0.2 mm thick) at a time. The printed item can be hundreds of layers thick. The shape of each layer is controlled by movement in the X and Y plane. The Z plane controlling the layers (height). The planes work together to build up a 3D component.

Some of you will be thinking that we have had a process of plastic extruded parts for years so what's new. For a plastic extruded part you first need an expensive die to be manufactured. In 3D printing all you need is an electronic file of the component. For a plastic extruded part the lead time would be weeks, but for a 3D printed part the lead time could be hours.

The picture below will give you some idea of what a 3D printer looks like (dimensions in mm). Maximum component size on a typical DIY 3D printer is 220(W) x220(D) x 250(H) mm.



A 3D printer really comes into its own if you have the capability to draw in a CAD (Computer Aided Design) software package. The CAD designs can be exported into a format suitable for the 3D printer very easily, which allows for very rapid prototyping. Only Dave had the required CAD experience but it had been something I had been keen to learn for some years now, so after trying three different CAD packages I have finally settled on one called Fusion 360. Many years ago when I worked in manufacturing we worked from 2D paper drawings; I cannot emphasize enough what a leap forward 3D CAD is for me.

With another lock-down looming last autumn I decided I needed a 3D printer of my own and purchased the same model we had purchased together. Brian purchased his own recently. Now you are wondering what has all this has got to do with RC planes; one of the first components we printed back in September was a light cowl that Dave had expertly drawn for a new plane that Brian had been assembling.

Light Cowl for Brian

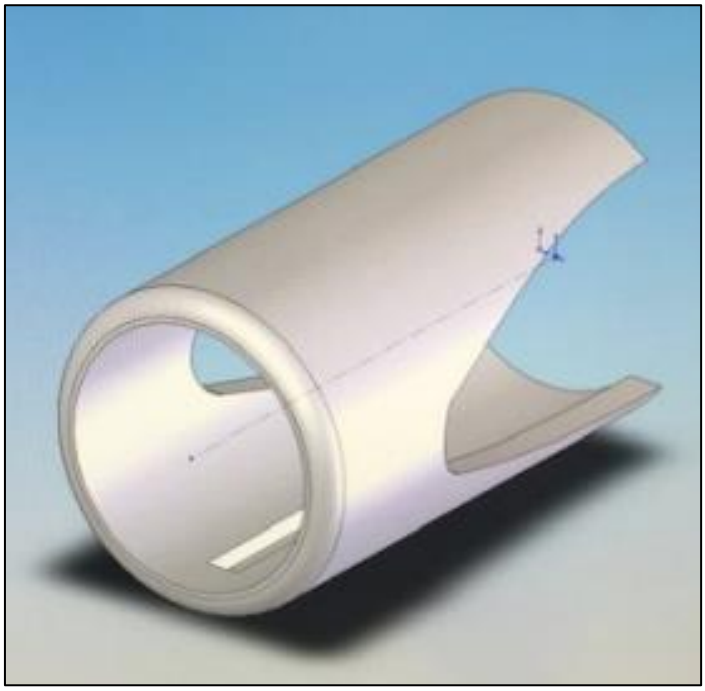
Below are some pictures of the light cowl during printing, and the finished item.

After 10 minutes

After an hour

After 1 hour 10 minutes

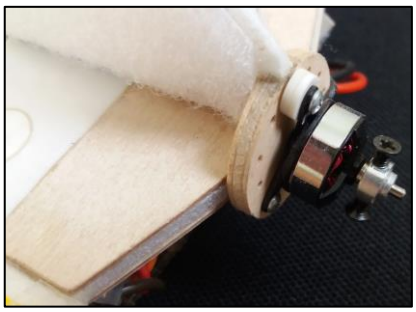
The finished item



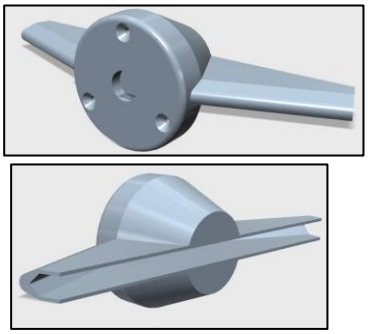
The 3D CAD drawing where it all started

Indoor Motor Mount

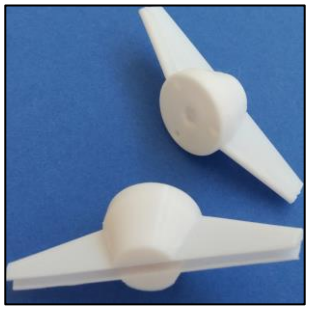
A plane I developed and have flown indoors for a number of years has an engine mount made from five pieces of thin plywood and this looked like it would be ideal as a one piece 3D printed component.



My original engine mount



This is what I came up with as a design



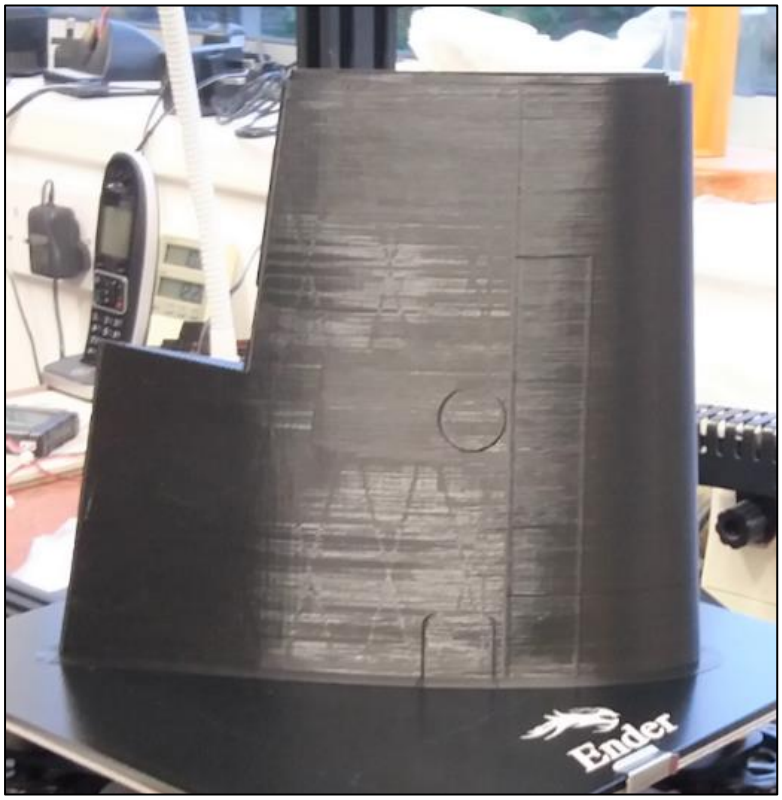
The printed engine mount

Super Tucano

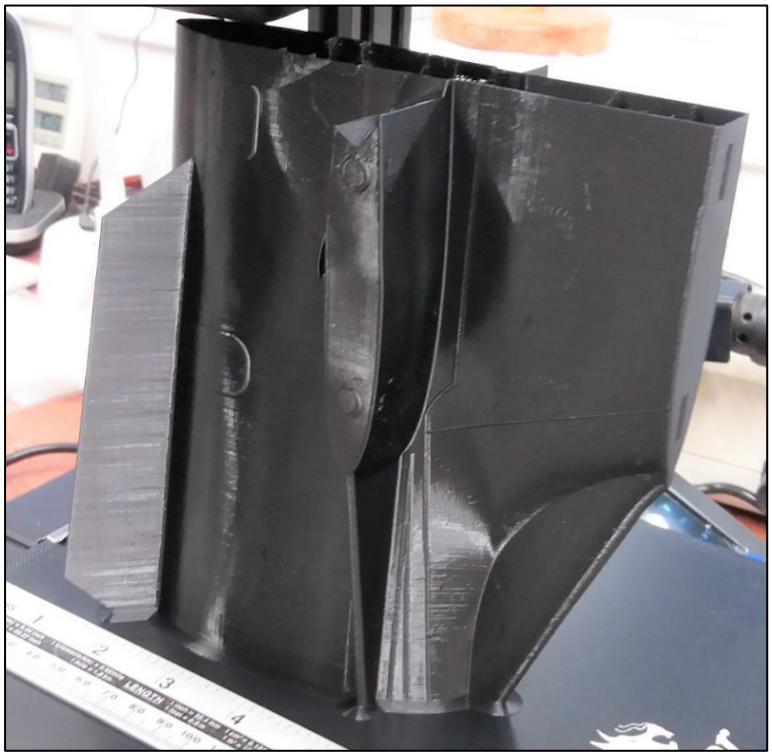
After a few months of printing various items, learning a huge amount on the way, Dave came up with the most ambitious plan to date - and maybe forever - to print a 1,300 mm wing span Super Tucano RC plane from a set of files and manual, purchased on the Internet.

Printing the Super Tucano was a bit like the naive people you see on “Grand Designs” who have no idea what they are letting themselves in for at the start but somehow get through it. That was us.

In total it was quoted to take 170 hours to print all the parts. Some of the parts I printed took 8 hours each. As I write this Dave is printing the last two parts, each taking around 15 hours to print.



One of three sections that make up a single wing



One of six sections that make up the fuselage (190 mm high)

A couple of pictures showing the Super Tucano being assembled

There were many black holes along the way where you start thinking "we will never get this print quality good enough" because as we overcame one problem, we fell into another. But we overcame all the obstacles that the Super Tucano could throw at us and ended up with some amazing printed parts. It did take one or two, OK a lot, of emails and phone calls though. When we are allowed out to play again we will find out how the Super Tucano flies.

Where do we go now? We are looking for a smaller outdoor RC plane that we can each make that is not going to take 170 hours each to print. That is proving difficult to find. In the meantime the printers are not cooling down as we manage to find many non-flying-related items to make.

If you are interested in knowing more then please do not hesitate to contact one of us as we have accumulated a wealth of experience in a very short space of time and are keen to help anyone who is thinking of going down the 3D printing route. The advantage, and it's a big one, is that there were three of us keen to learn so we were able to have some very good interaction between us.

Vought Kingfisher Dime Scale – Dave King

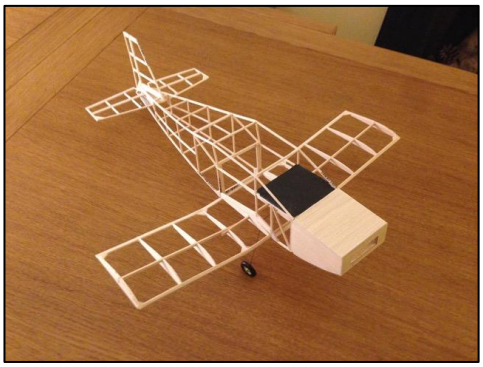
Mike Stuart sent me a plan of Mike Naissie's Vought Kingfisher and I couldn't resist it. It's Dime scale and was in active service in August 1940, so is legal for the Battle of Britain competition. Weight is 27g, Fleet Air Arm colours are airbrushed Humbrol enamels.

Comet Spitfire and Hurricane - Peter Smart

This pandemic has had an amazing effect on my building output. In fact I am running out of space to put my feet in the workshop, let alone the next model.

Both the Spit and Hurri are built from the adjusted Comet plans via the Flying Aces Newsletter; Stew Meyers has worked his influence on designs that, believe it or not, date back to 1938/9! The main alteration is a single straight through 16" wing instead of sticking the wing halves onto the fuselage tissue! The motor peg is brought forward and I added a stringer or two to the fuselage side. Generally the outlines of both plans are pretty good, but they'll fly fast - short noses and Plasticine Merlins push the weight up to 19 gm for the Hurri and 20 for the Spit, sans rubber. As regards the Battle of Britain competition entry, I have to find out which one flies best and then think about a possible Hun *[Or Italian; look at the Wiki page - Ed]* example.

Eaves Skeeter Peanut – Peter Smart



On the Peanut front I designed a beast called the Eaves Skeeter as I found a three view in the French CERVIA mag. It's an odd thing that looks as though a Bostonian fuselage has come to rest on a peanut wing. I think it might be a bit fast!

Sterling Fokker DVIII Peanut – Peter Smart

Another Peanut awaiting testing is a Fokker DVIII from a modified Sterling kit plan; it has no dihedral - if a Lacy can do it, why not the Fokker? It worked on a couple of Morane Ls in the past so we'll give it a go. I have introduced copious amounts of washout which should help.

BAC Super Drone – Peter Smart

As far as CO2 goes, here is a BAC Super Drone with a Gasparin TWIN 10; it has 20" wings and all single surface that I hope will behave a bit like my other gliders.

Open Indoor Scale Electric Short Stirling – Peter Smart

The Stirling is a bit of a magnum opus! She started off as a replacement for the Lancaster which finally died at Nijmegen. She has the same wing span (40”) but is actually half as long again.

The thought of free flight indoors began to worry me a little so I took the plunge and introduced radio as a trimming device, just to keep the walls at bay!

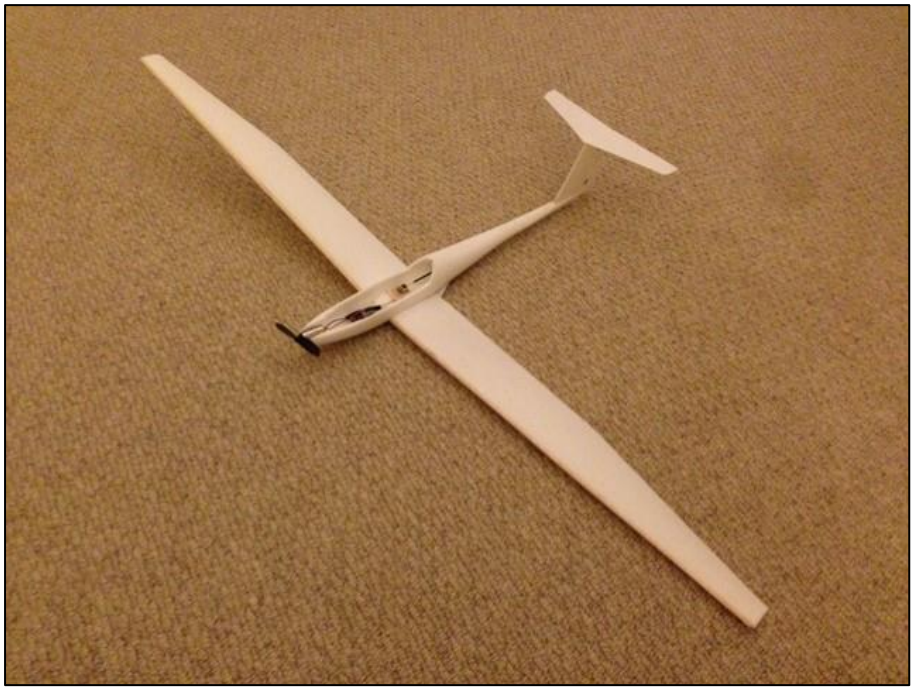
The plan is to conduct initial tests outdoors and over a lot of grass, this would happen without the stalky undercart waiting to trip her up. We are getting very near this initial outing so we’ll see what happens.

It may be due to advancing years but I’m starting to think that the pressure of operating a 4-motor giant indoor free flight scale is something I might pass on in the future, but she would be lovely to cruise around Old Warden on a calm evening, should the opportunity ever arise again.

And that bloody undercarriage has begun to haunt my dreams!

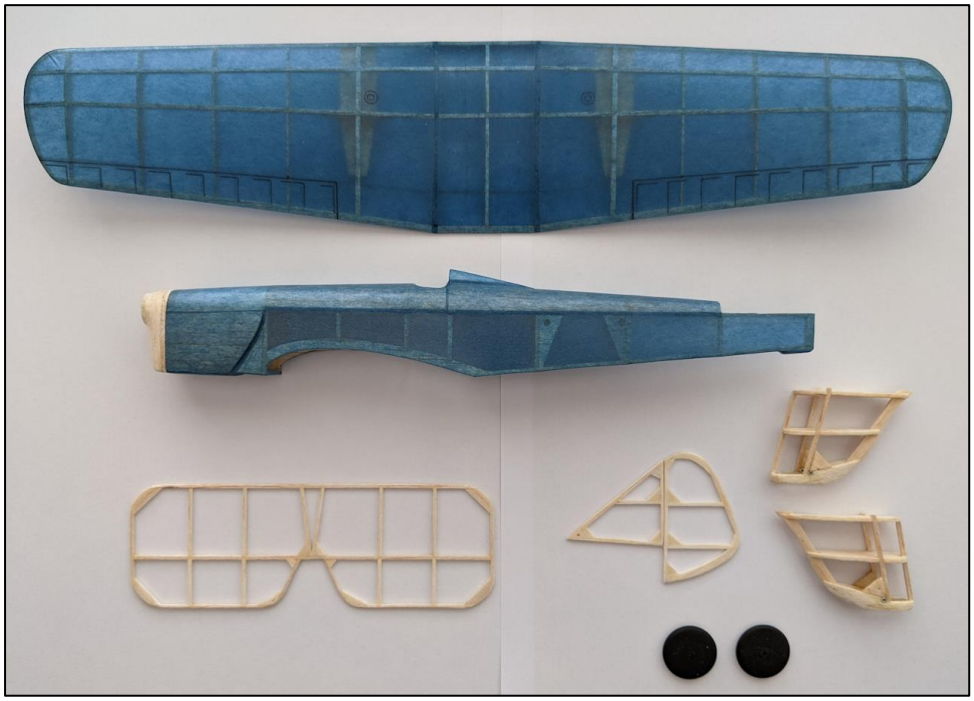
Power is from 4 MicroAces geared units and at the moment she tips the scales at 170 grams.

R/C Darmstat D39 – Peter Smart



Another motor glider experiment is this all foam Darmstat D39 for rudder and motor (no elevator), spans 22" and weighs 10 grams without the battery. It seems to glide rather well (onto the bed).

Walt Mooney Peanut Sparrowhawk – Andy Blackburn



Covering of the Sparrowhawk is in progress; there are a few wrinkles, I'm afraid - I'm sure I used to be slightly better at covering….

I really don't know why my stuff is always late; I started this Miles Sparrowhawk ages ago (late 2019) when I decided that what I really needed was another "casual peanut" – in other words, one that was just for fun rather than destined

for competition. In true engineering style, I made a shortlist of half a dozen attractive candidates (available Peanut plans that were certain to fly well) and then conducted a cost/benefit analysis which I'm sure involved a spreadsheet at some point.

This isn't my first Walt Mooney Sparrowhawk, though - I built one in (I think) the summer of 1974 or 1975 - I was lucky enough to go to a school where the metalwork teacher had a subscription to Model Builder magazine and access to a copier. No idea what the model weighed but I covered it in red Modelspan tissue (it's all I had, and Jap tissue was quite difficult to get at the time). I attempted to fly it in the field behind the house, but trimming didn't go too well because it was really difficult to get any thrust adjustments to work and for some reason I hadn't made the front former substantial enough. Oh, well...

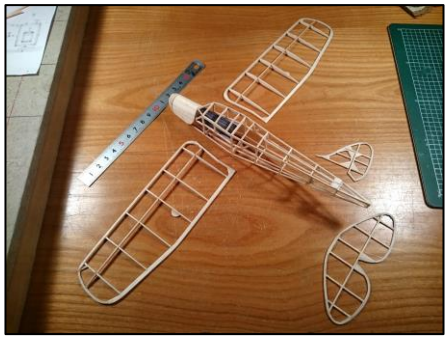
With a bit of luck, the finished article should look something like this.

The only slight fly in the ointment is that every Sparrowhawk I've seen has had a tendency to bank 90 degrees left and fly sideways – might be the spats interfering with the spiral airflow off the propeller.

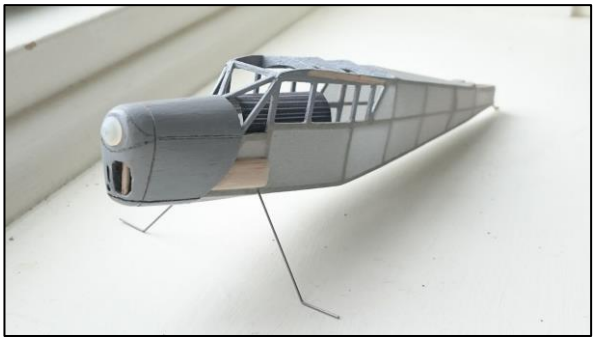
And after I started the build, I discovered that Walt's original climbed in wide *right-hand* circles, with a tighter right-hand glide; that doesn't sound too bad but under the initial power burst it apparently "banks to the left and flies almost straight" which doesn't sound promising for Trinity. Also "allowing the model to turn left under power usually results in a spiral dive". Oh dearie me.

In order to try and control this I've taken a leaf out of Butch Hadland's book and have used a fairly brutal amount of washin on the port wing with a little less washout on the starboard wing, which is planned to be balanced off with a bit of left rudder deflection. I don't know if this'll be enough, but we shall see. If I can't make it fit indoors, it'll have to be an outdoors-only Peanut.

Peanut De Havilland Puss Moth – Jon Markovitz



The main Puss Moth parts.



Covering has started! The tissue is carefully-hoarded silver Esaki from SAMs, applied inside-out.

Letters to The editor

A letter has flooded in ~~from a Mrs Trellis of North Wales~~:

To the Editor, Trinity Newsletter

Dear Sir/Madam

A matter of some importance has of late come to my attention, which I wish to share with the community of fellow Trinity aero-modellers.

Reflecting on why the making of my own-design DH80 Puss Moth for Peanut Scale stalled some time ago, there were several reasons for this (including external factors which are happily no longer present) however the major circumstance now appears to me to be quite simple:

I had set out to design and make a model specifically for competition and, as the making progressed, it was precisely this that began to place upon me a burden of excessive worry as to the nth degree of scale accuracy of every single component and every last detail! On top of the usual anxieties surrounding the resolution of aerodynamic factors (distribution of weight, structural integrity, wing and tailplane incidences, differential wash-in/wash-out, etc), as well as that particular intensity of mindfulness and fine motor skills necessary to the making of very small and particularly delicate free flight models, this tendency towards perfectionism proved most unhelpful at the time.

I have little doubt that, had last year's Indoor Free Flight Nationals not been cancelled, I'd have pushed through these worries in my inimitable bloody-minded way in order to meet that competition deadline (including some contingency for initial trimming at Trinity of course), and quietly consigned any deficiencies in my design and making to the worry-bin of history. After all, the model would have presented to most eyes as 'just right' or 'more than good enough' and it would

have flown – after the usual tweaks of course – to a respectable enough duration!

So, with this realisation under my belt, I'm in a jollier frame of mind and look forward to completing the wee bird (or moth!) with a much lighter heart in the very near future.

I also hope that, in unburdening my soul in this way, fellow members can take cheer not just from my travails but from the virtuous lesson of releasing oneself from excessive and crippling perfectionism!

Yours faithfully

J Markovitz

Trinity Dates 2021

Trinity have agreed the following dates for 2021, all subject to Coronavirus restrictions; in the light of the Covid roadmap revealed on Monday 22nd of February, I've assumed that April 24th will be the first date of 2021:

Date	Event	Contest Director
April 24th	Delayed Christmas KK Elf	T Calvert/ The Lurker
May 15th	Informal Peanut duration	Andy Blackburn
June 19th	Battle of Britain Competition	Andy Blackburn
July 17th	Informal Peanut duration	Dave King
August 21st	Peanut duration / RC Flying-Only TBC	Andy Blackburn
September 18th	Beginners No-Cal	Dave King
October 16th	Informal Peanut duration	Andy Blackburn
November 20th	Best Scale Model Non-Competition, with prize	John Winfield
December 18th	Informal Peanut duration	Dave King

For Sale & Free Items

John Winfield has the following for sale; contact him if you're interested in either of these:

Easy Built F4U Corsair, 28 inch span, BNIB. **£15**

Tony Roy Zero for Micro RC, almost BNIB. See the Servoshop website for full info. Motor/Gearbox included. **£15**.

I bought a pack of small bottles and similar items for dispensing PVA glue/paints/etc. from Amazon but there are far too many for me to reasonably use. If you want one, let me know and I'll bring it along to the next Trinity event.