HALE HALL MODEL CLUB NEWSLETTER

OCTOBER 2021

Club website link - https://hhmac.bmfa.org/

Welcome to the October Newsletter. This month we have slope soarers, a Field update, some WW1 action and an unusual approach to low cost modelling.

Date for your diary

We will be holding the club AGM at the BAE Lightning Club on 2nd December starting at 19:30.

For Sale

Well just like London buses, I have had no adverts for a couple of months and now 3 have come at once!

Find below links to the adverts on the Website here:

Derek Beaton For Sale

Keith Dobson for sale

Andy Holden for sale

Flying Site update

On Friday 1st October Jack, Andrew O'Neill and I met up with our landlord Laura and her father, Andrew Duckett, to discuss our plans for developing the flying site. This included: completing/upgrading the car park, replacement of the existing mower hut with a larger container and replacement of the club hut. Andrew Duckett agreed to the following actions:

1. Complete the car park upgrade including extending the south west corner, levelling the area for new mower hut and covering the car park with road planings.

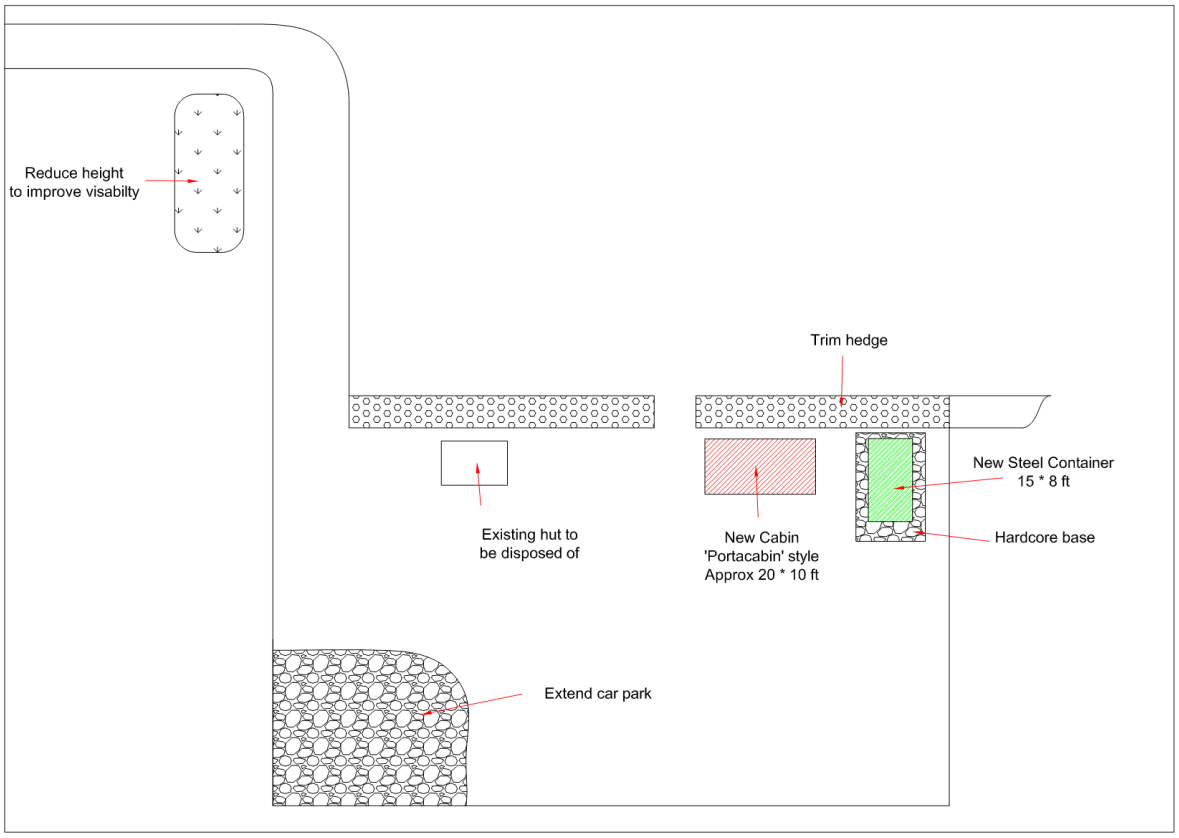
2. Flatten the mound near the entrance to our flying site to improve visibility.

3. Improve the track surface.

He said he planned to complete the work in the next month.

We agreed to dispose of the old mower hut and ensure that any new buildings will be unobtrusive.

The subject of a permanent fence around the flying site has previously been discussed. Laura informed us that it is unlikely to happen in the next three years due to the planned use of the surrounding fields.



Planned updates

Following our successful meeting with Laura the three amigos travelled down to Containers Direct in Knowsley on Thursday 14th October to discuss a new mower hut. We had a tour of the site and were shown a selection of new, refurbished and ply lined containers. 'New' containers have been used to transport goods once and therefore may have small dents. They are not repainted. The refurbished ones can be a few years old and are likely to have more dents. They are repainted in a choice of colour and serviced to ensure the doors open and close correctly. A ply lining can be installed to prevent any condensation problems that can occur in metal containers.

We were impressed with the overall quality of the containers, the paint finish and the ply lining. Unfortunately we were unable to get a quote while we were there but one arrived by e-mail before we got back to Preston!

After some discussion the committee considered that the premium for a 'new' container was too high, especially as they are not repainted. They have decided to go for a 15 x 8 ft refurbished ply lined container painted in RAL 6007 (that is bottle green to you and me). The overall cost will still make a significant dent in our bank balance.

The container has now been ordered with a predicted delivery date of 23rd December.

A ply lined container

How ours should look - A refurbished container

Sloping Around

Many of us derive pleasure from a trip to the slope to enjoy the scenery and the simplicity of slope soaring. This year we seemed to have many days with little wind, blowing in the wrong direction. Most of my soarers require a reasonable blow to fly well so my trips to the slope have been limited. To improve my chances of getting out on the slopes I decided to have a go at designing something that would fly in gentle winds and would be easy to carry up Parlick.

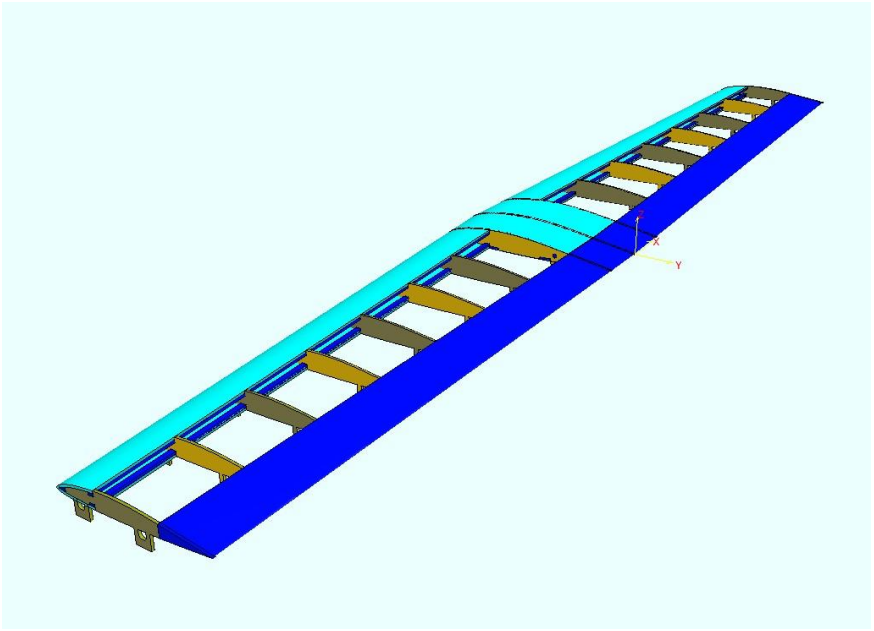
The kits produced by Phoenix model Products (PMP), designed by Stan Yeo, have always appealed to me with their simple but attractive lines. Stan has produced an idiot's guide to designing slope soarers which gives straightforward guidelines for suitable wing loading, wing , tail areas, Cgs etc. I used them on my 3D printed soarer which flies very well, so I knew using them would give me a chance of producing something acceptable. After browsing the many plans available on the PMP website I chose a couple and unashamedly stole the basic layout as a starting point.

My initial design criteria were:

Small, easy to transport.
Simple and quick to build.
Low wing loading – approx. 7 oz / sq ft.
Eppler 374 wing section, an all round section with good lift characteristics.

After a little head scratching I decided on a wing span of approximately 850 mm, this gave a fuselage length of about 560 mm. The wing can then be built out of one length of balsa and the fuselage sides can be cut in one piece on my CNC router. I was slightly concerned that this would be too small and would fly out of sight quickly, but decided to have a go anyway.

The first task was the wing. I used Dev Wing to design the structure, produced by the same company that market Profili, which you may have heard of. In no time at all you can produce a built up wing design including leading and trailing edges, spars, sheeting and servo mounts. Building tabs can be added to the ribs which build in dihedral and washout. My version can also output gcode files which are used to drive my CNC router. I like to have separate servos for each aileron, they were placed inboard operating the surface via torque rods to keep the wing looking clean.



The wing design

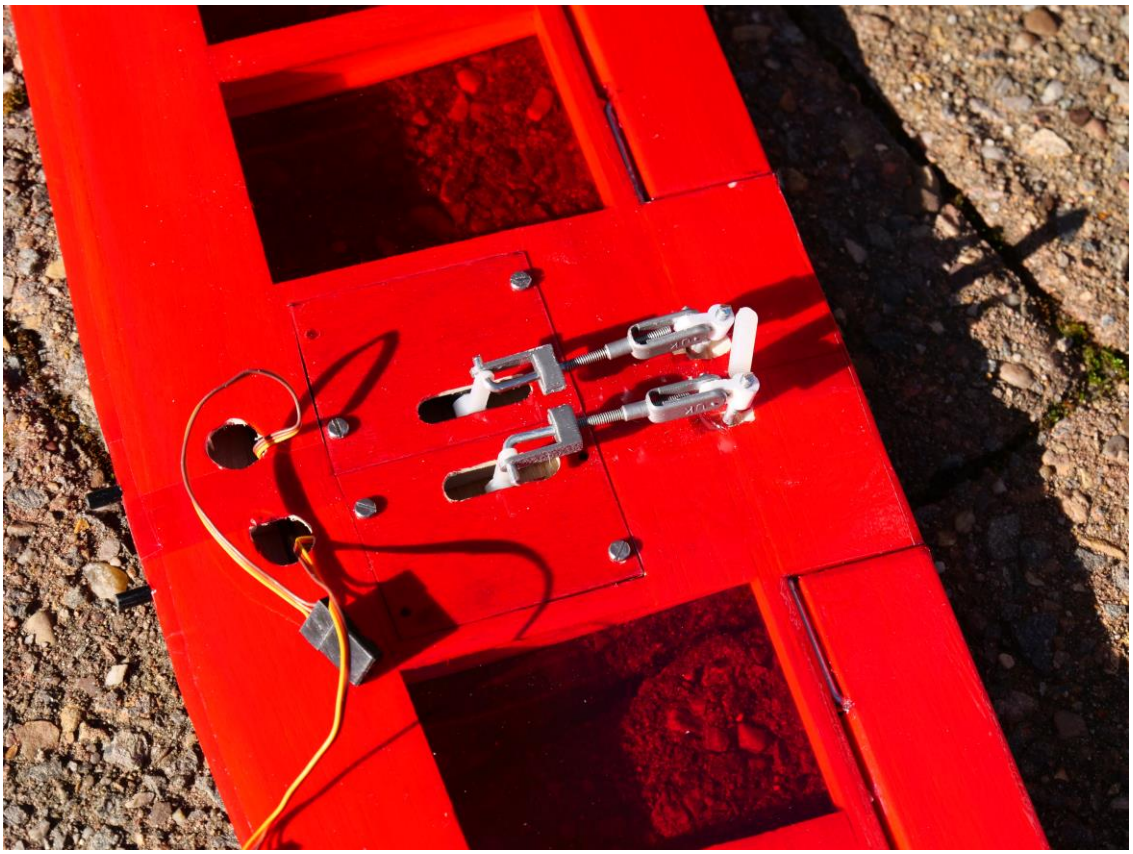
For the fuselage I used Fusion 360 as I wanted to 3D print some of the components to make the build easier. This allowed me to print a mount for the V tail which provides an easy solution to accurately aligning the tailplanes. Because I could, I also 3D printed a nose section. The CNC router and 3D printer were put to work creating a kit of parts. As planned the build was quick and relatively straight forward. On reflection using capping strips on the wing ribs added to the build time and the torque rod installation took a while.

Fusion 360 fuselage design

The kit of parts

Ready to cover

The finished article



Dual wing servos

Tail end

With a 950 mah battery installed the Cg came out spot on the design position, no extra weight was required which helps to keep the wing loading down. The model came out at approximately 220 grams which translates to a wing loading of 7.7 ounces/Sq ft so close to my target (sorry for the mixed units, oz/sq ft makes more sense to me !). I have named the model 'Drifter' as it was designed to drift around in a gentle breeze!

First flight was delayed due to the weather being unsuitable for a trip to the slope so I took it to Hale Hall for a few test glides to check the trim and Cg. Other than a few trim tweaks it went well and seemed to fly ok. A week or so later a gentle northerly was forecast so we planned a visit to Jeffrey Hill. On arrival the wind was square on the slope at about 7-8 mph, exactly what the Drifter was designed for! I had planned a quick test glide but the designated launch man, Mr O'Neill, had other ideas and threw it straight off the slope! Luckily I didn't freeze and after a few passes to fine tune the trim she was grooving around nicely. The controls were a little soft but well harmonised and rolls were axial. Loops were less successful, generally screwing out at the top. Later inspection showed a warp in one wing, which is now rectified, so hopefully it will be better next time out.

So I think the project was a success, although as ever there are a few changes I will make. Mk2 has already been designed; deleting the rib capping strips and changing the wing joining method. I have also added a ballast box which will allow wing loadings up to 10 oz/sq ft. A slightly higher wing loading may improve the control response, time will tell.

As I was basking in the glory of a successful first flight Steve Wheatland turned up with an unusual new model, a 'Pug Twisty' from Angelwing designs. Interestingly Steve had also been looking for a light wind soarer, although he has gone down a very different route to my more conventional model.

Steve gives us the lowdown:

Made by Angelwing Designs, is a light weight glider based on a DLG version called the PUG.
The Wing Span is 800mm and flying weight 124g ($4^{3}/_{8}$ oz).

There is no elevator or rudder control, all control is done by twisting the wings around the main spar, pitcheron. Rudder control can be added if required but I think it's not necessary.

I came across it by chance on line (where else) whilst browsing DLG gliders and thought this one would be fun on light wind days on Jeffrey Hill.

I placed my order and about a week later it arrived, very well packaged and complete (nothing missing).I read through the instructions a few times and set to.

The wing is carbon main spar and leading edge and minimal ribs, very light. This went together so quickly I thought that I had missed something.

The fuselage is a simple lightweight box affair no surprises there either.

The tail is simple plain sheeting with holes pre cut for weight saving all attached to a carbon boom.

After a light sanding the model was covered with 'Feather Cover' which looks like doped tissue and weighs in at 20gsm which is considerably lighter than the Oracover I normally use.

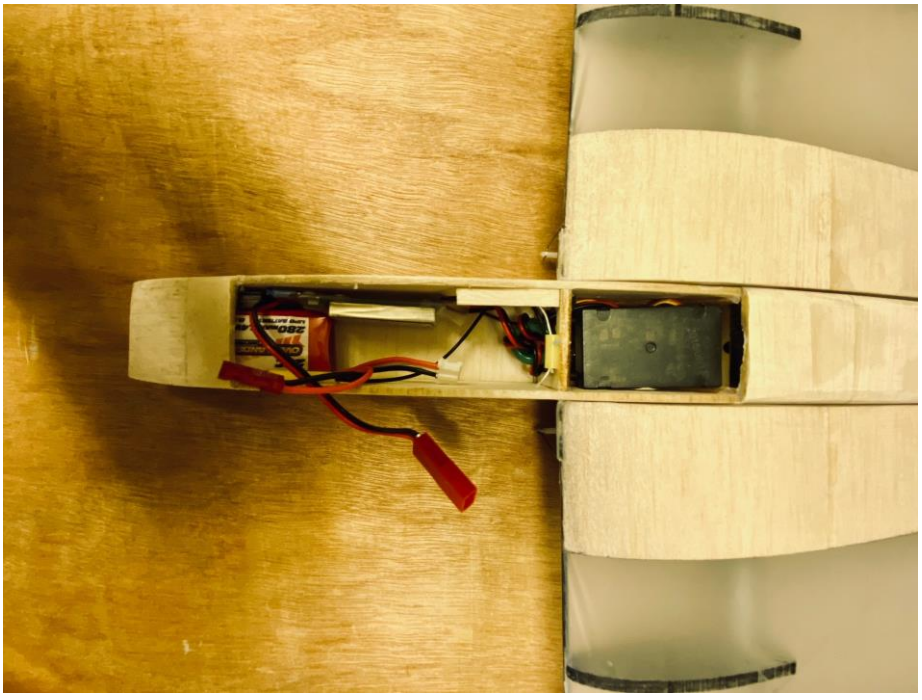
Set up is 'everything maxed out' and 30% expo.

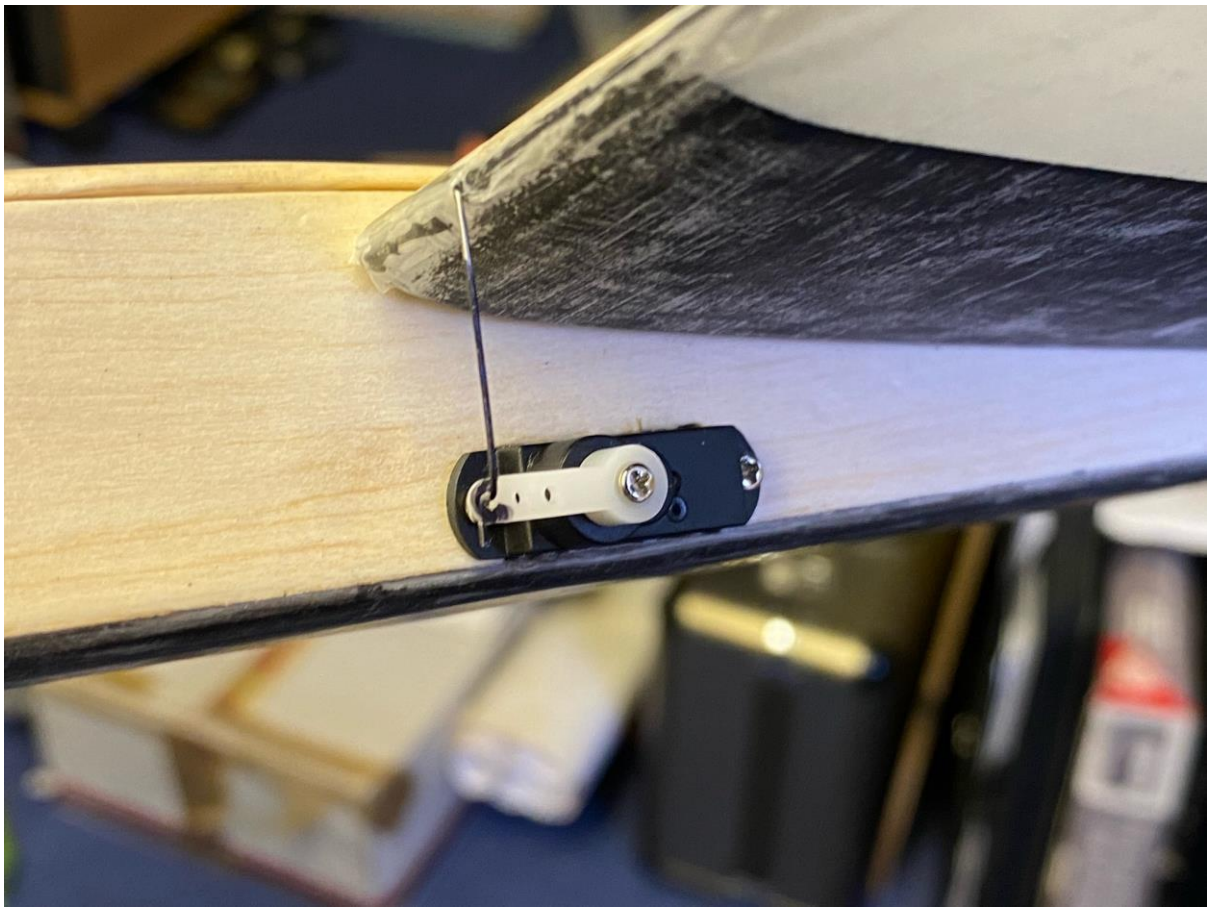
To get the suggested C of G I needed about 10g of nose weight and their C of G appears spot on.

Setting up the throws took a bit of thinking about but ailerons work conventionally i.e. Left = Left trailing edge up and Right = Right training edge up BUT elevator is reversed i.e. Up = TE down

I haven't flown it much since it was built due to lack of wind (in the right direction) but recently I took it to Jeffrey Hill in a 10 – 15 mph wind, I thought it would be too windy but lobed it off anyway.

She went up like a home sick angel, roll rates were spot on but elevator control was a little lacking but enough for normal manoeuvres and with extra speed does a nice loop. I'm really impressed with this little model and have ordered two more from the range. Watch this space.





All moving wing actuation

Chip shop fighter

Continuing the theme of lightweight aircraft Cliff Afflick has sent me some details of his novel approach to designing models.

Cliff tells the story:

I am 80 years old and find my mobility and flying skills have deteriorated over the years and my reactions are slower. I still fly but more park flyers, particularly electric gliders and soarers.

I also fly indoors but have generally found only small halls available and commercial single cell lipo models are small and fly faster than scale speed. Since retirement I have gradually developed a formula for single cell aircraft that bridge the gap between indoor and outdoor flying (calmer days) providing slow flying at a reasonable size and scale realism.

The ideal specification seems to be towards one square foot in area with a weight of approximately 70 grams (2.5 ounces) using redundant single cell components Rx/ servo combos including motors, gearboxes and props. I.e the e-flight micro warbirds. Two models kits I have found ideal are the Piper Cub and Tiger Moth produced by Hacker. These are 28.5 and 23 inch span respectively. These kits are still available , excellent quality and good prices. Even tissue covered (50/50 dope) these kits fly beautifully , realistically slowly and are to scale.

More recently I set myself the challenge of building lighter using fish and chip shop trays (styrofoam) which have a good smooth finish. The first for indoor flying only was a powered 'glider' to fly in a

small church hall and only requires a single cell ticking over to fly. Now bringing progress up to date I have now built and flown an own design 'Spitfire' , again using only fish and chip shop Styrofoam trays to the same formula , flying weight 72 grams including a singe cell lipo. The wings are formed in 10 single chord sections epoxied together after scoring the underside and bending to create and under cambered section. When hardened the epoxy becomes the ribs holding the aerofoil section. Many of the compound shapes can be found in the Styrofoam trays. The model uses rudder, elevator and motor control and flys well on half throttle. I have found that aileron isn't effective on these slower flying models.

Spitfire Specification.

Weight 72 grams including lipo.

Span 25.5 inches

Wing chord 6.75 inches

Lipo 300 mah 1s 35C 3.7 volt.

Rx/servos/ older E-flight micro equipment.

Indoor and outdoor flying on calm days , flight time approximately 10 mins.

Building tips.

Shape foam with wet and dry paper (used dry)

Glues – 5 min epoxy UHU Por, Sticky white glue.

Hinges – fine fabric

Filler – Wilko lightweight internal filler


N331T

Thanks Cliff, a really interesting approach to modelling, Greta Thunburg would be impressed with your recycling efforts! I have seen some of your models and they are built to a very high standard and fly very well indoors.

WW1 Wonders

A rare sunny day recently saw a mini squadron of WW1 aircraft take to the skies at Hale Hall. Bob Welton had his fine Bristol Fighter and SE5A, Keith Dobson brought long his SE5A. This was the first time I had seen Keith's SE5A, it is beautifully built with some fine scale detail especially the Williams gun.

A few model details from Keith -

The design was by Dennis Bryant and the plan was issued by Traplet (now Sarik) about 30 years ago.

53" inch span 1/6th scale. Weight 3200gm dry.

Laser cut wood pack - scale spaced wing ribs and leading edge sub ribs made this a no brainer!

Solartex covering.

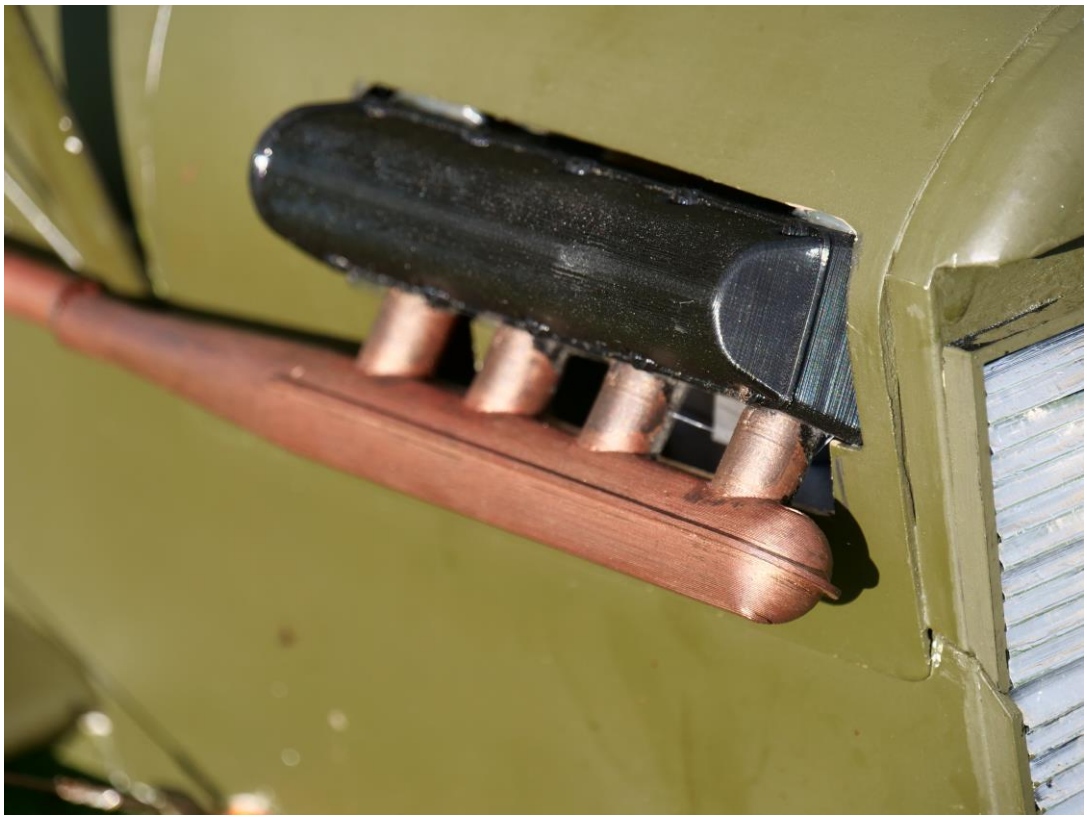
Williams guns with upper gun mount 3D printed.

NGH9 petrol engine and BCM muffler from Just Engines.

5 servos

It was a long intermittent build due to the amount of work - particularly all the metal fittings associated with the rigging. It just fits in the car - I couldn't face having to assemble it every time at the field.

Before painting it I fitted an electric power train to make sure I was happy with the flying characteristics. This was not practical long term due to the short duration caused by the high drag.



Nice Williams gun !

A collection of old timers!

Luckily I had my camera with me (as always!) and after taking some static and in flights shots I challenged Bob and Keith to perform some formation flying. After the underwhelming results when Andrew O'Neill and I had a go with our Chipmunks they didn't have much to live up to! After a few circuits they managed to get both aircraft in the same photo. Keith was unhappy with the handling of his aircraft so he decided to land. Post flight Keith found that the rudder servo arm had become detached, no wonder it was hard to fly. I think he did a good job to get back safely to the patch!

Parting shot

So that is the end of another newsletter, I hope you found it interesting. Thanks to all contributors.

For future newsletters I would like to include as many of your projects and especially first flights as possible. So please document the occasion with a few photos or contact me and I will try to come down with my camera. I do have some ideas for future articles, but the success of the newsletter will only continue if you, the members, provide me with some copy. Anything aircraft related will be more than welcome, days out, trips, build logs, full size or something for the Curiosity Corner.

Don't be shy; if you don't fancy writing a full article, just send me a few notes and I will do the rest.

If you have any suggestions on subjects to be included in the Newsletter, drop me a line.

In these days of data protection we need to ask members if they have any objection to be included, either by name or photograph, in the Newsletter. If you do not wish to be in the Newsletter please let me know.

Cheers,

Andy Holden.

You can contact me at andy.holden56@btinternet.com