



Newsletter

No.30: February 2023

In this edition, entertaining and informative articles from members, changes to the SAA and the briefest of updates from the flying field.

Kinross Radio Model Flying Club Annual General Meeting

**To be held at Orwell Bowling
Club, Milnathort**

Wester Loan, Kinross KY13 9YH

Wednesday 1st February 2023

Doors Open at 19:00

AGM Starts 19:15

KRMFC current committee members are:

Tom Wilson – Chairman

Neil Grayson – Secretary

Mike Hill – Treasurer

Bill McDiarmid – Committee Member

Jim Walsh – Committee Member

Neil Gourlay – Co-opted Committee Member

Bob Gadd – Honorary Committee Member

Current Members of KRMFC – this list will be updated to give an accurate membership list after 1st April 2023. A membership application form can be found [here](#).

Contacting the Committee

An email address has been created for members to contact the Committee about Club matters. If you have any questions, suggestions or general comments, then please send them to the following email address:

KRMFCcommittee@gmail.com

Memberships and Registrations.

BMFA, SAA member subscriptions and CAA Registrations are now due for 2023. All information is given below but if you have any questions ask the Membership Secretary Mike Hill. After a committee meeting held 22nd January it was decided that KRMFC membership fees will remain the same at Adults: £65 and Juniors (U18): £33, due on or before 31st March 2023.

CAA Registration

£10 a year.

[Registering a drone or model aircraft | UK Civil Aviation Authority \(caa.co.uk\)](#)

[The Drone and Model Aircraft Code | UK Civil Aviation Authority \(caa.co.uk\)](#)

If you have an SAA Bronze, Silver or Gold award or a BMFA A, B or C award then you don't need to take the test.

The Operator of the model aircraft must label their drones and model aircraft with their Operator ID.

BMFA Membership

£42 Senior, £20 Junior (1st Dec 2022 to 31st Dec 2023)

<https://bmfa.org/Join-Renew/Join-the-BMFA>

Membership can be arranged online or by telephone 0116 2440028, alternatively an application form can be downloaded [HERE](#) and posted.

CAA registration can also be done via the BMFA Website when renewing your BMFA membership.

SAA Membership

£32 Senior, £15 Junior if paid before December 31st 2022.

£35 Senior, £18 Junior if paid after 1st January 2023

[Membership \(saaweb.uk\)](http://saaweb.uk)

Application for Membership (New Member) [Application Form](#)

Application to Renew Membership [Renewal Form](#)

The BMFA in Scotland

This email was sent to all individual BMFA and British Drone Flyers members in Scotland on 27th January 2023. I reproduce it here for all SAA members of the club and for anyone else who didn't receive it for whatever reason.

Email from Andy Symons BMFA Club Support Officer

Members may be aware that the BMFA has been working with the SAA over recent weeks with the ultimate objective of the SAA coming under the BMFA umbrella (whilst retaining its unique identity).

This process will take a little time and we will be working with the SAA during 2023 in the hope that they will be part of a functioning BMFA Scotland Area from 2024 onwards. To enable us to better support BMFA and British Drone Flyers members and Clubs in Scotland we are currently seeking volunteers to help establish a new BMFA Scotland Area Committee. If you would like to register your interest to be involved with this process, please complete the form at <https://e-forms.bmfa.org/bmfa-scotland>.

In order to facilitate the above, we hope to arrange a conference and Achievement Scheme workshops during 2023. If your club would like to host an Achievement Scheme workshop, then please email the BMFA Achievement Scheme Review Committee at asrc@bmfa.uk

As an interim step, SAA members and clubs not affiliated to the BMFA will not be full BMFA members for 2023 but WILL be covered by the BMFA's insurance arrangements. SAA members will not have access to the full range of BMFA benefits at the present time (so will not receive the BMFA NEWS or be able to gain access to the BMFA Rewards Scheme or BMFA Classifieds service). Similarly, we will be unable to process their CAA Operator Registrations and SAA members will not be able to operate under the BMFA's Article 16 Authorisation and Site/Display Permit Systems for 2023.

BMFA affiliated clubs in Scotland must ensure all members are BMFA or SAA members to benefit from the full range of insurance cover (such as Club Equipment Cover and Management Risks Cover).

Existing BMFA members and affiliated clubs in Scotland wishing to retain access to our full range of services should therefore continue to join us directly. It is our hope that by January 2024, all members within Scotland will be able to access exactly the same membership benefits.

If you have any questions arising in relation to these plans, please submit them using the form at <https://e-forms.bmfa.org/bmfa-scotland-questions>.

If you have still to renew BMFA membership for 2023 this can be done online through our membership portal at <https://bmfa.justgo.com>, through your club if it is BMFA affiliated or by calling 0116 2440028.

As far as how this change to the SAA will affect KRMFC and other clubs in Scotland we will have to see how the relationship between the two organisations develops. If anyone has any comments about this subject then please bring them up at the AGM on 1st February.

BMFA Events in 2023

Mass Launch Event – Sunday 14th May at 12:00

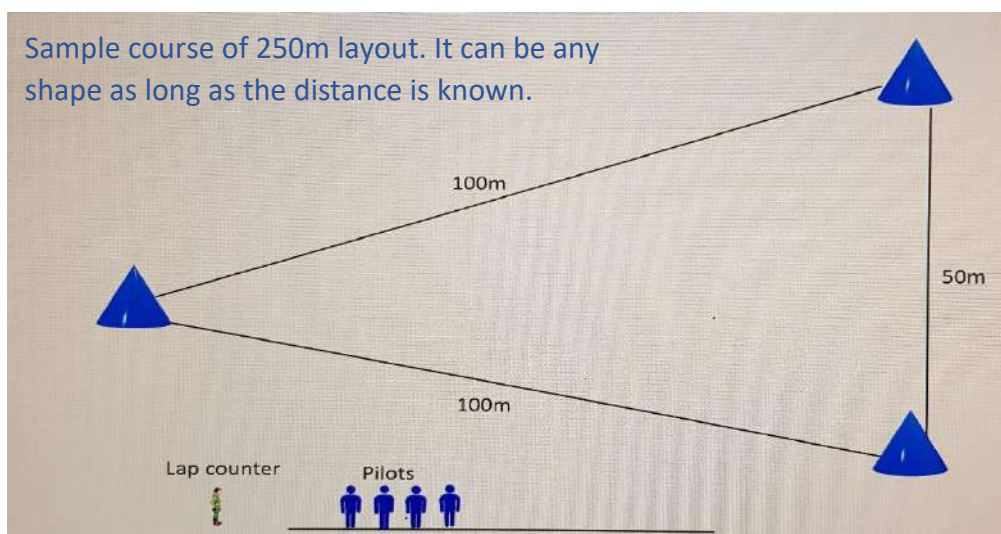
The same as last year with the object of getting as many planes, drones, helicopters etc in the air at noon. The only differences this year is that SAA members can take part due to the changes taking place in the previous article and indoor participation is permitted to mitigate against inclement weather. It has been suggested by the Chairman, Tom Wilson that we combine this event with a KRMFC Open Day.

Around the World in 8 Hours – 1 – 9 July during any 8 hour period

This is an attempt to fly model planes throughout the UK a total distance equal or greater than the distance round the world which is 24901 miles or 40075 Km. The challenge is intended to raise money for charity. Would anyone be interested in organising this event? The Secretary is on holiday whilst this event is occurring but would assist in preparations.

Points to Note:

- Layout a course and count laps to accurately judge distance flown.
- Flying does not need to be constant across the 8 hours.
- One person required to count the laps completed.
- Simple verification & ratification. Dates and times of 8 hour period, course distance and number of laps is all that is required.
- If 200 clubs take part and each use a 250m course each club needs to do 801.5 laps which is 100 laps an hour.



To Gyro or Not to Gyro, That is the Question.

by Ian McLuckie.

I thought I had invented the above title but I have since seen it on YouTube, so no credit claimed. The question is intriguing from a technical point of view, so I thought I would look into it.

Once upon a time, a Saturday actually, I made my way to the field and got the surprise of my life. When I turned into the farm track, I saw what could only be described as a fair ground... the circus had come to town. Tents, flags, banners, and dozens of people. Of course, I had forgotten that it was D-day - drone day. It turned out to be very interesting. The speed and control of the drones was impressive, with very skilful pilots at work on what could only be described as an aerial gymkhana. There were a few collisions and casualties but the drones seemed to be robust, they just dusted themselves down and jumped back up into the sky, amazing.

By chance, I bumped into Mike Hill and Pat Baxter; Pat is an RC-aero examiner. I was going to try for my bronze ticket in a year or two once I can stop my models ploughing up the adjoining fields. Perhaps I should have a contract with the farmer...part time ploughman and ground inspector. Have you seen the TV programmes about truck recovery? Well, I think I am now in the RC aero recovery business. Sounds like TV documentary material (you heard it here first).

As luck would have it, Pat gave me a very informative brochure entitled '*Introductory Notes for Primary Training*', which he had compiled for Club beginners. A highly recommended, if not essential, read.

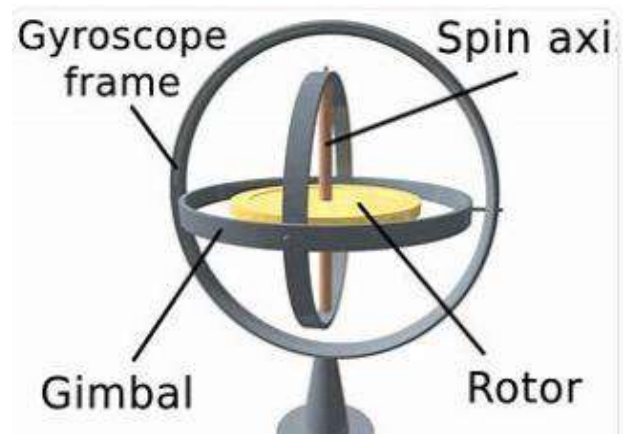
I had a quick look inside for the bronze exam. Once I understood that the big circles were circuits and not loops, it seemed less frightening. I asked if gyros or gyroscopes (from the Latin *gyrus* meaning 'going round') were permitted during his exam. Of course, the answer was no, and that is quite correct. You must master the raw skills and demonstrate them. It's the same in General Aviation (GA). **Every** qualified pilot in the world starts off on a small GA aeroplane and must master the basic skills, there is no other way. That means competently flying a small aeroplane without the super high tech glass VDUs and multiple hidden gyros. It's the same for us.

All my model aeroplanes have gyros built into their radios and I use them a lot. Being a newcomer, I took this to be the norm, but that may not be correct. I am guessing that most Club members fly 'bare bones' rather than computer assisted, but I do not really know.

Anyway, I thought it was time I found out what a 'gyro' was, and what it does inside the box. It is engineering; there should be no mystery.

Of course, the RC aero gyro is not the toy type with the spinning wheel and a piece of string you had when you were young, but you know that. No, they say they are 'solid state'. How can they be solid state? Something inside the microchip must move and the movement must be detected and measured. But it cannot spin, so is it a 'gyro'? To boot, we are down at the nanometre level. Wheels and bearings that size are a very big ask.

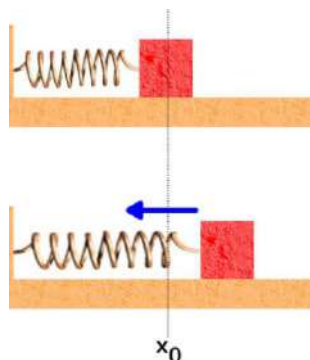
In its simplest basic form, to measure movement there has to be a solid mass attached to a spring inside a fixed frame which is securely held. When the frame is moved, the spring tethered mass, which has inertia, eventually moves in accordance with the external motion, and that is measurable.



That is not 'solid state' and it is not 'going round', so what is going on?

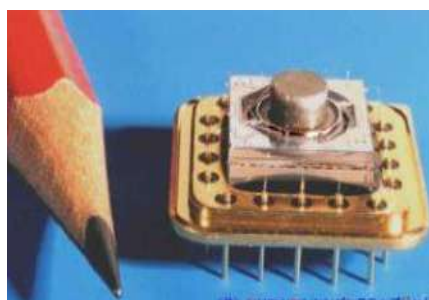
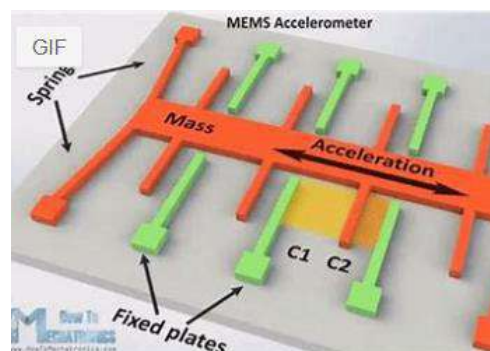
The RC aero radio manufacturers guard their electronic circuits in their tiny plastic boxes jealously and there will be hundreds of associated patents. They will not tell you what is inside. But we can surely fathom out some principles.

From what I gather the 'solid-state' devices used in our model aeroplanes, drones and helicopters are not 'gyros' but 'accelerometers'. They appear to utilise a mass (microscopic piece of material) down at the nanometre level, which



moves. That mass can be an electrode in the shape of fingers held in gas, or a substance, so that when the frame around it moves there is a change in capacitance between the fingers and the frame. The spring is part of the mass (see diagrams). The gas gives a damping effect. The capacitance change, which is proportional to the movement, is amplified and conditioned providing an input to a microprocessor which drives the servos. That is the simplest possible explanation I can find. It need not be a capacitive action, it can be the 'Hall Effect', piezo effect, or many others.

That simple set up only gives you two-dimensional measurement. The capacitance either increases or decreases. They seem to build the same arrangement into the unit for the other dimension on the same plane ('X' & 'Y'), and of course you guessed, they do the same at 90 degrees to the plane to get 'Z', and you have six-dimensional sensing. They call this a 'gyro' but it is not, it is a very complex set of accelerometers. The industry calls them Micro Electro-Mechanical Systems or MEMS. They do not only measure microscopic movement but take into account unwanted shock loads, consider gravity influence, temperature influence etc. and none of them are bigger than a self-respecting shirt button.



Well, that is my best guess as to what is probably inside the multitude of RC aero gyros / stabilizers on the market at pretty low prices developed firstly for helicopters and now in all drones....and, as it turns out, in your smart phone as well. There are of course others ways of achieving the same goal but detecting the movement of a 'proof mass' seems to be most common.

This is one manufacturer's definition:-

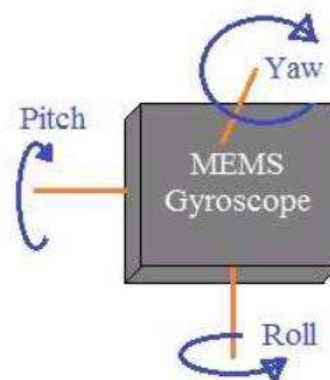
*"Electronic Gyroscope: Called Coriolis**

vibratory gyroscope. It uses proof mass fed oscillating current to induce vibrations. The vibrating mass tends to oscillate in initial plane of reference. When rotated, oscillations in orthogonal plane are being detected by the circuitry"

**An effect whereby a mass moving in a rotating system experiences a force (the Coriolis force) acting perpendicular to the direction of motion and to the axis of rotation.*

Great stuff if you can understand it, but to use them or not in our aeroplanes is the question. This has been a fierce debate around the RC aero world for some time.

I would suggest that for beginners with very expensive aeroplanes, the gyro might save a few crashes, and save you being put off the hobby for life. Then, over time, beginners can gradually switch the gyro off. With light weight foam aeroplanes on a windy day, not uncommon at Kinross, engaging a gyro might allow you to fly, and the aeroplane will be controllable. Otherwise, it can be unmanageable. I say that from experience when my Bixler 3 surrendered to the wind, and came back to the field in a shopping bag. I never found the kind person who did the recovery, but I thank them for the 23 pieces of white foam - now rebuilt and flying again.



I am sure there are many learned Club members who have studied the subject and are very knowledgeable. It would be good to hear from them, perhaps in the next newsletter?

I have not mentioned RC aero 'flight controllers', that is a new subject for me. Could we soon see automatic take-off and landing, and fully automatic circuit flying whilst sitting in your car with your laptop or smart phone, and coffee? It is probably here already. You will still need to do your bronze though!

The First 12 Months *by Tim Knowles*

Neil Warnock used to write a column in the Independent entitled “What have I learnt this week?” It was about his trials and tribulations as a Championship League Manager of Sheffield United around 2005, the year he won promotion to the Premiere League. The only similarity between me and Neil Warnock, is that we have both had spells in Oldham.

The first 12 months, so what have I learnt...

I think me and Ian McLuckie could have filled the newsletter umpteen times over with a section called “What have I learned this week”

Easier to answer is where I wanted to be at the end of my first year - which was competition flying in the F5J. Looking back this was never really on, the skill to get to this point was beyond my learning curve. I don't enjoy the learning curve, I get frustrated with all the mistakes you have to get through to get up the curve!

So if someone was to ask me what were the biggest failings.... It was the wrong transmitter - I can remember dithering over the Spektrum 8 or 10. I bought the Spektrum 8! A big difference, as the 8 didn't have any sliders. To get to where I am now with crow braking on the throttle control with elevator mix it should have been the 10.

Talking of which, should I have put the crow braking on the throttle control from the start? Maybe, if I had a teacher, then I would have said yes.

A leading light suggested this to me earlier in the year BUT - the learning curve intervened. I didn't realise you needed to serve an apprenticeship in Spektrum to get anywhere....

I don't think it's me but everything now that has electricity or batteries to power it has become more complicated, I thought progress was to make the complicated things easier e.g. drive a diesel train(engine) versus drive a steam engine. Cars, have they actually become easier to drive? (yes, with synchromesh). The answer should be yes there is go and stop. The technologists have now put a myriad of questions and answers in between those two therefore my answer is probably not and that's how I feel about Spektrum. In the right hands after undertaking a Master's degree in Spektrum Technology I would be able to crow brake on the throttle stick and mix in elevator. At 12 months I have a work around but haven't arrived at the correct answer.

Yes, waste of time learning one way to eventually try to do it as the Pro's fly. With no teacher, I had to struggle like the lone penguin chick trying to find the sea after parents have left me on the ice flow.

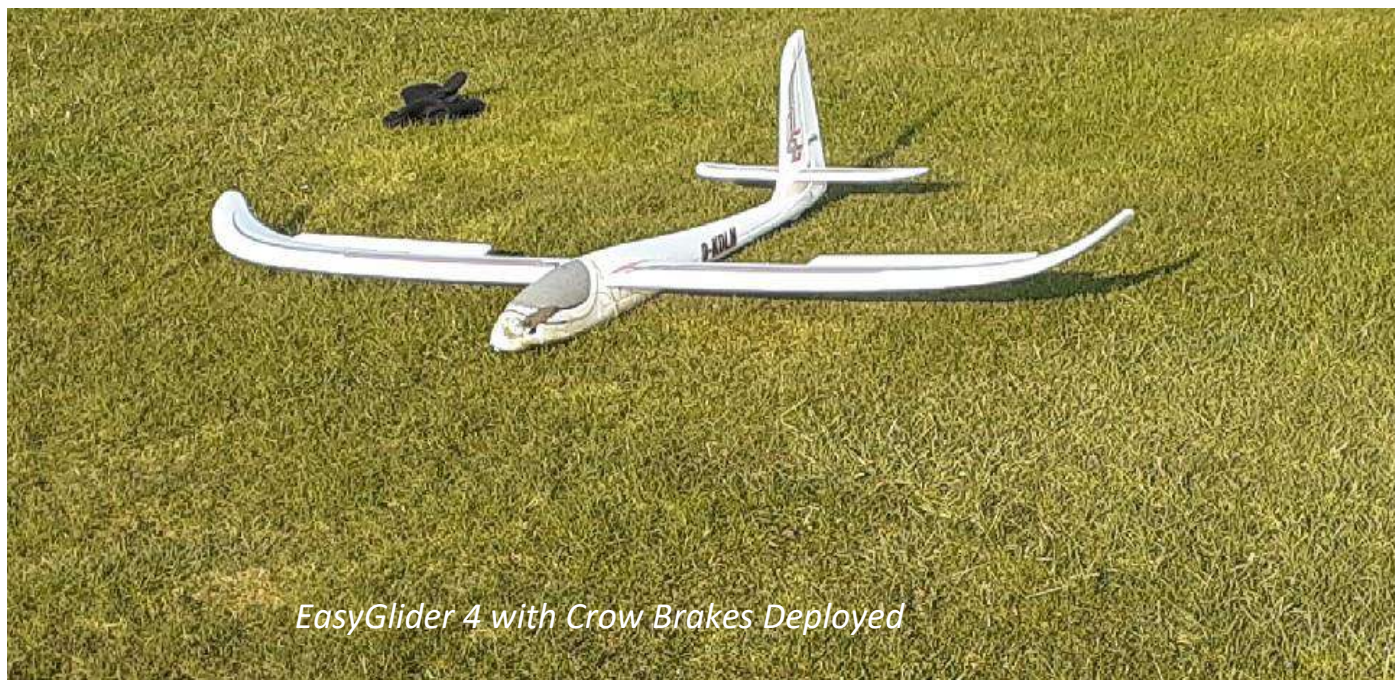
The models bought were to try and take me up the ladder of flying thermal and bronze in powered all electric.

I wanted by the end of the year to be in a position to compete in 5FJ electric thermal soaring i.e. 10 minute slots, 30 second motor run and land on a sixpence. 20 years ago I was competing in Thermal competitions but not getting to any of the fly offs....

My plan of campaign: a Multiplex EasyGlider 4 that I put flaps on, a Multiplex Heron and a very second hand Nan Xperience Pro. Roughly 1.5M, 2.5M and 3.5M wing spans. In the mix a Multiplex FunCub electric tail dragger.

I'd decided on Spektrum and needed 7+ channels. so went for the 8 channel transmitter but realised later that I needed a rotary knob for the motor because the throttle stick is used for the flap/spoiler elevator mix.

For a couple of months I flew the Spektrum flight simulator, flying models that approximated to the ones I owned and chose an airfield that resembled Kinross, this certainly gave me a leg up the ladder of control.



So where am I....

All the models are still flying. The EasyGlider 4 and Heron, both foamies have had similar repairs to the fuselage in front of the wings. The EasyGlider 4 has been a great learning glider. Viceless and after strengthening of the nose easy to fly. This has been the glider I used to try new settings on and if they worked transfer them to the Heron and then Xperience Pro.

Settings, mixes, exponential and motor cut out. I don't know whether its Spektrum or my nil knowledge of mixing and motors but I found Spektrum a challenge....

Motor Cut Off Switch

The biggest challenge, which has now happened on all the models is when I have thought I'd put in/on an electric motor cut off switch but for some reason it didn't work. The motor came on full power when I believed it couldn't be possible - apparently it is possible! Some fiddling with the settings eventually sorting the problem but, for it to happen on all models at the initial stage of setting up is strange!

Mixing

Drooping both flaps and both ailerons and mixing in elevator hasn't been that easy. Equally flaps down and ailerons up with elevator compensation isn't easy either! My lack of experience and poor fine control meant the results were not always obvious. Add the above to poor understanding of the transmitter and trying to change the elevator mix made me go grey...

Eventually the mixes got sorted but it usually meant flying then going home and carefully watching the throws as the transmitter mixes were changed. I did get to the point of being able to do it at the field but that was 11 months after started flying.

Throttle Stick to Spoiler/Flap

Over the past month I've put the flaps, aileron, elevator mix on the throttle stick and the motor on the left slider. (After buying a Spektrum 10 channel transmitter). The mixing hasn't been easy to do on the transmitter side and relearning that the motor control had moved is still being learnt. I had transferred this from the EasyGlider to the Heron when the biggest crash occurred. I had noticed over two flights the elevator was problematic. After some fiddling, I put it down to a loose lead at the receiver - when I pushed it firmly in place the elevator servo worked. On the third flight the servo failed completely which left the fuselage in nearly 2 pieces where the wings join the fuselage. Lollypop sticks and superglue had the fuselage repaired that evening. After checking the servo and the receiver I finally decided it had been the servo at fault which was replaced together with the wiring.

Which reminds me. Earlier in the year I was getting really cheesed off with the Heron diving for mother earth when launched under power. My remedy was to alter the thrust angle by stirrers and superglue. Now it climbs to the heavens.... The Heron has been an enigma some days. I've set it up and flown well, other days it's been like flying a new machine and learning from scratch. With constant experimenting with settings of the aileron and flaps and my limited experience at flying, admittedly there have been too many unknown - having said that I've enjoyed the good days.





With the Xperience Pro I didn't fly it for the first three months and concentrated on gaining skills with the other gliders. One big problem was the fragility of the fuselage. I did expect something sturdier with carbon fibre and moulded fibre glass. Every time I flew, I broke the fuselage and every time it was repaired the break went further down the fuselage. The latest repair is at the fin and rudder. The latter repairs and moving the rudder and elevator servos to act directly on the rudder and elevator has been costly in weight so there is now weight added to the nose.

It's been constant learning.

With flying and stick control it's practice, practice, practice. Three thermal turns is a good place to start. Latterly this has been accomplished at a very low altitude. Flying in ridiculous conditions when the yearn to fly has totally swamped the need for caution has produced some gratifying flights when good management and a bit of luck combined to produce a successful flight.

The FunCub has been a lot of fun and again involved repairs. I think I was just about getting towards taking my bronze award when family things interfered. Its original landing legs were too flimsy and on the newer version they have been beefed up. The whole nose and lower part of the fuselage has been strengthened. Hopefully the latest repair will prevent the last mishap happening again when a new motor (previous bent shaft and I can't get it out to replace) ejected itself from the plane with both landing separately. The previous three flights on that day were without incident.



Plans for the Next 12 Months

Pass Fixed Wing Power Bronze or C. Improve thermal flying. I've bought a 2.8M pod and boom which is under construction and another steep learning curve....

BoomerSPAD *by Bill McDiarmid*

Ever since I saw the US website 'SPADtotheBone.com' in about 2005 with its 'Simple Plastic Airplane Designs' I've liked this idea. I like a low-cost airframe (as anyone who's seen me at the field will agree!) and in 2016 I also felt I needed to get my first float-plane ready for Loch Leven. My original Boomerang trainer buried its engine 6 inches into the mud, but I had some tailfeathers, fuel tank, and bendy wire undercarriage left over so that was a start. I'd also been given a wing from a TravelAir low-winger, and with some 3 inch square plastic guttering down-pipe from Wickes I set about scaling a 'BoomerSPAD' from the photos on the trainer box. The rear fuselage is always too heavy with gutter-pipe but that's easily fixed by moving the wing back to get the right CG. I found a JEN47 two-stroke for £25 on eBay and a pair of those plastic floats from an ARC Ready for £20. It is quite tight inside the plastic pipe for three servos side-by-side, and you have to feed the fuel tank in from the front before fitting the firewall. It was ready to fly on wheels the night before Loch Leven, so I maiden it then, and missed my Loch Leven deadline by a few hours, but there was another float-plane event at Mill Dam a couple of weeks later, and I got my first flights off water there. It works quite well as a trainer/hack, but it's heavier than a standard Boomerang so those heavy plastic floats mean you have to keep the speed up, or it just falls out of the sky. Which it did once, into the water. Survived, more or less.



On Floats at Mill Dam

Since then, I've used it on wheels, and retired it to my garage loft after about 3 seasons. During lockdown I bought a lovely old Laser 90 4-stroke to go into my first warbird - another cheap airframe, an ARTF P51B Shangri-La for fifty quid - never been finished. (I had built a Revell 1-48 kit of that plane in my childhood so this seemed perfect) but I decided I want to get to know the engine before installing it, cowled and inverted in a maybe-crash-it-on-the-maiden Mustang. So, the SPAD is back on the bench, this time over-engined a wee bit! And with a slightly larger wing from an Arising Star (flat-bottomed wing, a bit bigger,

more lift I hope) That wing has been moved forward to restore the CG, which is easy to do with the plastic pipe and rubber-banded wings. Wish me luck! See you at the field.



Upcoming Events in Scotland



Balbedie Aeromodelling Club Bring and Buy Sale 2023

Sat 25th February
Portmoak Village Hall
Scotlandwell
KY13 9HY

Hall opens at 10.00 hrs
(For setting up)
Sale closes at 14.30 hrs

Entrance fee
Sellers £5
Buyers £3

Tea and Coffee
Snacks and Burgers
Raffle Tickets

Toilet Facilities

Glenrothes Aeromodelling Club

Summer Fly-in Sat 10th Sun 11th June



Come and enjoy a weekend flying with us

Car Boot model sale on the
Sunday £5.0 per car
Raffle

Camping / Caravans etc.

Toilets Available

BBQ -- with Hot Food,
Drink and Snacks available



The Site will be open from :-
Thursday 8th 12am to Tuesday 13th 12am.
Water will be available at farm if required Bring some if possible
Toilet waste disposal available

Contact Details -- for further information Tele 07896334651

Activity at the Field - January (another brief report..)

Sunday 15th January

Just Neil Gourley, Tom Roberts and Tom Wilson at the field today. In the words of Tom Wilson *"4 degrees , field sodden , freezing cold wind , only four of us daft enough to go and have the first flights of the year, must be bl**dy mad!"*

No idea what he is on about – looks like a lovely day!



Friday 20th January

Snow & Ice



Thursday 26th January

Just Neil Grayson, Tim Knowles, Douglas Fulton and Ian McLuckie at the field today.

A north westerly wind was stronger than forecast which quickly turned into a northerly making take offs and landing a bit tricky especially for foamies.

Ian's glider came down in the East field some distance away after spiralling into the ground. It had been pushed by a northerly wind until Ian had lost orientation. His 3S LiPo battery however now gave it loads of power. On reaching the plane and locating it in the muddy field the wings had snapped in half but there was very little damage to the fuselage as it had landed nose first in 6 inches of water. Hopefully the electronics will dry out. Tim Knowles provided the rescue vehicle by bravely bringing his car across the muddy road to help the search.

Tim Knowles was flying his Multiplex FunCub after strengthening the undercarriage as detailed in his article above. Unfortunately he had too many take offs and landings and mis-timed how long he had been airborne. The battery inevitably ran out over the southern field. The only damage was the wheels had broken off again but easily repairable.

Neil had two flights with his Apprentice but had trouble getting it back on the runway due to the wind direction. 2 Flights were had with his Boomerang 2 which handled the wind much better but the first landing was a bit hairy as it had been set too high and it needed the entire runway (and the rough) to stop!

Douglas Fulton had a stress free day practicing manoeuvres with his drone.

Newsletter Feedback and Contributions

Please let Neil know of anything you would like to see included in the Newsletter. Also, any feedback is much appreciated. If anything interesting happens whilst you are visiting the flying field then send me an email (with pictures) for the Activities at the Field section. Articles are always needed and are a very popular read. Members are interested in how you got into the hobby, what planes you have owned, technical expertise etc...

Normally, I aim to publish the Newsletter around the 1st of each month. The Email address for articles is: neilgrayson@sky.com

Web Links and Shops

(Any suggestions of other shops you have used let me know)

Model Shop Leeds - www.modelshopleeds.co.uk/

Wheelspin Models - wheelspinmodels.co.uk. Free postage for orders over £100

Sussex Model Centre - www.sussex-model-centre.co.uk

The Balsa Cabin - www.balsacabin.co.uk

The Vintage Model Company - www.vintagemodelcompany.com

Kings Lynn Model Shop - www.kingslynnmodelshop.co.uk

Scoonies - www.scoonie-hobbies.co.uk. Don't bother with the website. Visit the shop in Kirkcaldy.
87 St Clair St, Kirkcaldy KY1 2NW. Tel No: 01592 651792

Dens Model Supplies - www.densmodelsupplies.co.uk. Excellent for spares for vintage Cox engines.

Hobby King - hobbyking.com/

WestonUK – www.westonuk.co.uk Good value fuel in large quantities. Over 20 Litres (4 Gallons) gives you free postage.

ACCU – www.accu.co.uk. Excellent for bolts, screws and washers. Will take requests for bespoke items.

RCM&E - [RCM&E Home Page](#). The website of the best aeromodelling magazine. If you have a question the forum is bound to have an answer.

RC Thoughts - <https://www.rc-thoughts.com/> Finnish website of Tero Salminen. Phoenix Simulator Downloads and updates.

RC World - www.rcworld.co.uk. Located in South Wales between Cardiff and Newport. Stock values on each product are displayed which reflect what are physically in stock, not held at a suppliers warehouse. Derek Grater has used and recommends.

Carbon Copy - [Carbon Copy \(carboncopyuk.com\)](http://Carbon Copy (carboncopyuk.com)). Located in Stevenage. A wide selection of Carbon and Fibreglass parts. Ideal for undercarriages, cowlings and canopies.

Just Engines - <https://www.justengines.co.uk/>. Located in Shaftesbury, Dorset. A wide range of engines and spares. If you can't find what you want on the website send them an email or call.

SLEC Manufacturing (Sun Lane Engineer Company) - [SLEC UK Ltd](#). A good range of accessories but also a large range of balsa and hardwoods. Also available is a laser cutting and CNC milling service.

Component Shop - [Home page \(componentshop.co.uk\)](http://Home page (componentshop.co.uk)). Based in North Wales. A great range of batteries, leads and electronics.

See you all at the AGM on Wednesday.

The Committee