



Newsletter

No.33: August 2023

In this edition: entertaining and informative articles from members, the latest news about the BMFA in Scotland, a poem, the briefest of updates from the flying field for June and July and pictures of a couple of crashed aeroplanes!

KRMFC current committee members are:

Tom Wilson – Chairman

Neil Grayson – Secretary

Mike Hill – Treasurer

Bill McDiarmid – Committee Member

Jim Walsh – Committee Member

Neil Gourlay – Committee Member

Bob Gadd – Honorary Committee Member

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

Dog Walking Facility

You will have noticed by now that building works are taking place to the south east of the flying field. This is a new dog walking facility called Pawmill Dog Park, a business initiative being launched by the farmer's son and his partner. You can find more details by visiting their Facebook page at [Pawmill DP](#)

Currently the road down to the flying field is closed whilst the road is tarmacked and hopefully it will reopen by Tuesday 8th August. Once the entrance road work has been completed it is

expected that the facility will open. The distance from the middle of the runway to the dog walking compound, according to Google Earth, is approximately 195 metres.

The farmer, Scott, and his son don't expect the facility to have any adverse effect on us, however it may be sensible to avoid flying over the area when it is in use. This would minimise the potential for complaints from dog walkers, especially in the early days while we gauge the impact, if any, of sharing the space. Hopefully we can share the space amicably and we will certainly benefit from the improved road to the field.

The BMFA in Scotland

Please click on the link below to see how the BMFA & SAA commit to work together for the benefit of all model flyers in Scotland. This joint statement, on behalf of the SAA and BMFA, is being released to members of both Associations as an update on the progress to date between the two organisations on the agreement to 'work together' in Scotland to the mutual benefit of all members.

[Latest Update 13th April 2023](#)

BMFA Scotland held their first committee meeting via Zoom on 21st June 2023 which involved the BMFA North East committee handing over to the new Scottish committee. A new website has been created at [BMFA Scotland](#) but at present there is very little content on there.

Paul Furze asked about achievement awards as the SAA do things differently. For example SAA examiners don't have or require an RCC (BMFA Registration Competency Certificate). It was suggested that an SAA member should be invited to join the BMFA Scotland Committee to assist in aligning achievement awards between the two organisations.

Mark Christie suggested that if BMFA events are organised then the SAA calendar should be consulted too to avoid events clashing. He also suggested setting up a liaison between the SAA and BMFA Scotland and to introduce Sir Brian Donohue as the BMFA Scotland chairman.

It was agreed that all committee meetings of BMFA Scotland would be held on Zoom to reduce the amount of travel required bearing in mind that some members of the committee live in the highland and Islands.

Committee of BMFA Scotland

Chairman – Sir Brian Donohue

Vice Chairman - John Sheldon

Secretary – Andrew Twort

Treasurer – Mark Christie

Achievement Scheme Co-ordinator – Andy Pirie

Area Delegate to BMFA Areas Council – Iain Nicol

Communications Officer – Kenneth Kennedy

British Drone Flyers Representative – Graham Lawrie

Competition Secretary - Malcolm Balfour
Outreach Co-ordinator – Paul Furze

Updates on the development of BMFA Scotland and how it fits in with the SAA will be posted either as an email to members or in subsequent newsletters.

S-Bus by Ian McLuckie

Even after 18 months into RC-aero I am still trying to pick up the jargon. At the field I asked... '**what is this S-Bus thing**'? The answer was... 'the bus that runs from Kinross to Edinburgh every hour by Stagecoach Ltd'.

Not quite what I was looking for.

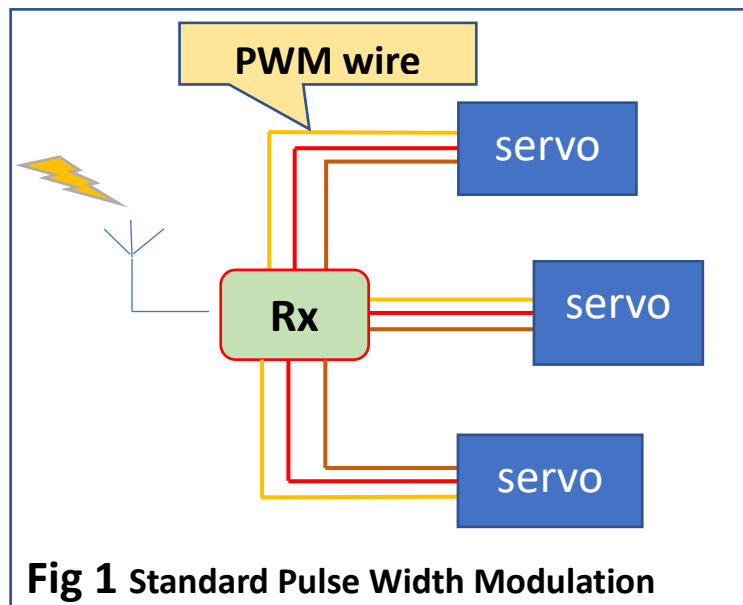
Apparently, the **S** stands for **System**, and **Bus** is stolen from omnibus, so it is a **system bus**, or system busbar.

But what system? In the RC -aero electronic world, this busbar is apparently the link between two microprocessors, or a microprocessor and compatible servos etc. Most of us fly with only one microprocessor (built into the receiver) but the addition of a flight controller, or other device, can mean the introduction of a **system busbar** or **S-Bus**. As it turns out, the S-Bus uses a single yellow wire, sometimes white. That is all... that is the busbar. Its electrical 'return' is the brown negative wire.

Apparently, S-bus was developed by Sun Microsystems in the 1990s but is no longer used in main computer systems but Futaba, Spectrum etc. use it in rc-aero.

Having found this out, I then find that there are many rc-aero 'manufacturer specific' bus systems on the market and it looks like they are mainly aimed at drones. For fixed wing, there is also PPM, CRST, IBus, XBus, MSP etc. These are for another day!!

When the aeroplane demand for channels goes up and the spaghetti wiring gets out of hand, we seem to turn to bus systems.



Skipping the standard '*pulse width modulation system*' (PWM) which we balsa wood flyers use as in Fig 1; we need to understand bus systems.

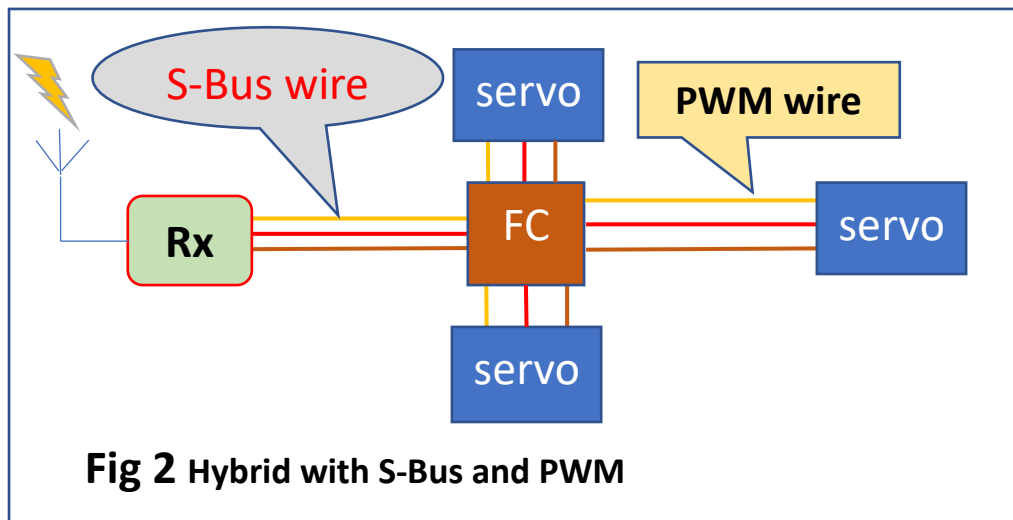
From what I see, it pans out like figs 2 and 3.

But the manufacturers never tell you how they really work, so I dug in a bit deeper.

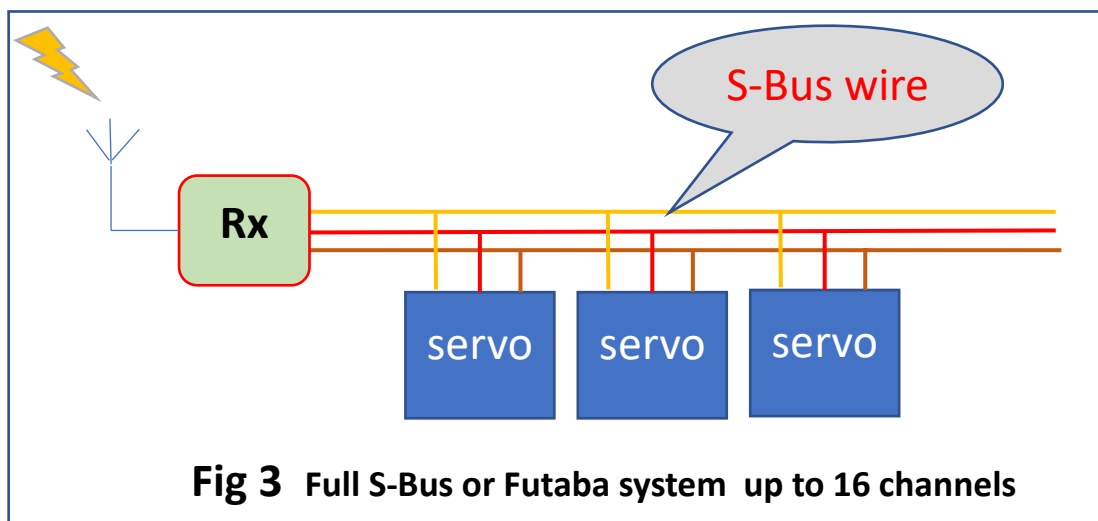
The whole thing boils down to the signal in the yellow (white) wire being an 'on' (1) or 'off' (0). A pulse, they call it a bit. There is no other magic. But there is magic in how these are organized and how fast, and when, they are sent down the wire. The other clever bit is the device sitting listening for its own set of pulses

or 'post code' coming down the wire. When it recognizes it, it snaps it up and implements the instruction bits that follow.

From basics it looks like switching 'on' and 'off' a light switch. Switch 'on' gives 240 volts and off, is zero. For us, it is, say 0 volts to +5- or +3.3-volts DC. Each on /off is a bit. 'Futaba sends 0 to - (minus) 5 volts. Others do the same thing but it is a 'plus bit' not a 'negative bit'... which does little for standardization.

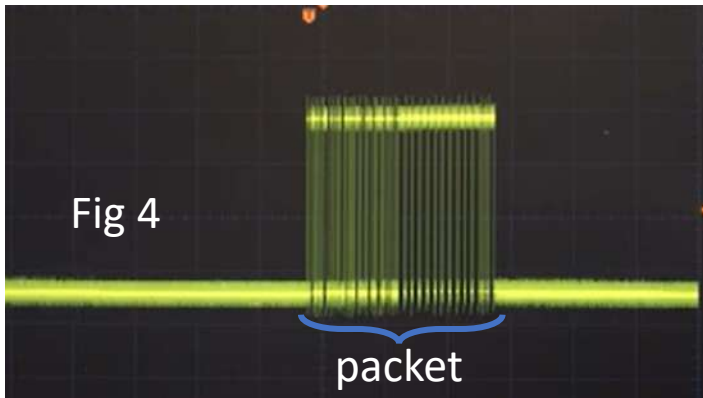


So, they switch the yellow wire on and off in a predetermined sequence 25 times within a 10 millionth of a second (0,1,1,0,0,1,1....) then stop. That is the instructions set for a given channel, say the rudder; they call it a packet. The next set of 25 'pulses', or packet, might be for the ailerons, then stop. The packet looks something like fig 4. Fig 5 is a close-up showing the 'on' or 'off' with the on or off sometimes repeated looking like a bar.



The S-bus servos or flight controller sits patiently listening for its start pulse then for its personalized address code. If it's in the packet, it accepts the instruction bits, decodes them and actions them. If it is not, it sits and waits on the next bus coming along. It is timed to a millionth of a second and it is precisely regular, not like the buses from Kinross to Edinburgh.

But of course, it is not as simple as that. Most manufacturers muddle all these pulses up for greatest efficiency and minimum latency. I, for one, need minimum latency when heading for the south fence with a north crosswind or the steel wind sock pole, which I hit a few weeks back. The pole is ok, but...



To make sure these bits are authentic there are check-sums and mathematical tricks in case it is corrupted. If a servo doesn't like it, that's ok, there will be another along in a moment.

The manufacturers send 1s and 0s (digits) in different patterns. They call these patterns 'protocols'. They are all essentially the same. Here is a list of some common receiver protocols which I found:-

- SBUS (Futaba, Frsky)
- IBUS (Flysky)
- XBUS (JR)
- MSP (Multiwii)
- CRSF (ExpressLRS, TBS Crossfire etc)
- SPEKTRUM1024 (Spektrum DSM2)
- SPEKTRUM2048 (Spektrum DSMX)



And, of course, the radio receiver can send the same kind of stuff back to the transmitter, all at the same time. It is both simple and very complex and the above does not even scratch the surface. Luckily, we don't need to understand it, but it is worth appreciating the engineering.

However, I think I started at the wrong end. I should have investigated the common or garden PWM (pulse width modulation) as in Fig 1, the one most of us use. Maybe next time we'll look into PWM in depth because none of these buses mentioned above actually affect me. Why? Simple... I have a bus pass... courtesy of Fife Council.

3D Printed Marmalade *by Stuart Houston*

Here is a picture of my recently built (Or printed) 3D printed Model C made by Eclipson aircraft.

<https://www.eclipson-airplanes.com/>



I wanted to see how cheaply a nice trainer style aircraft could be produced and how easy it was to print and build so, I downloaded the file from their site (they have many beautiful aircraft but the balloon, bush tyres and wingtips appealed to me).

Their service works by you buying a set of pre made printer files which you then just load up on your 3D printer and set it off to create an aircraft. If you crash it, which I did ha-ha, more on that shortly, then you just print another one at no additional cost.

The printing itself was fairly straightforward. I chose orange and white because I like bright colours and it's easier to see in the air. All the files were pre sliced and ready to go for your printer (meaning you don't need to fiddle around with finicky settings)

Also, what was very important for this particular aircraft and many others of theirs is that you can use standard filament. You don't need special expensive lightweight, difficult to use filament.

Once printed I glued it together using normal super glue. A single 6mm dowel rod in the wing for a main spar and bicycle spokes for pushrods and undercarriage. Even the tyres were printed (using rubber filament) but of course normal tyres of any type will work.

Other equipment:

- 4 cheap 9g servos.
- Standard DSMX Lemon 6 channel receiver.
- Off the shelf 30A ESC.
- 2212 brushless motor.
- 1200mAh - 1800mAh capacity battery.

All together the cost to print was £12. Of course, that does not include printer wear and tear but you get the idea. All up the cost ready to fly (without receiver) was under £60 which I think is quite remarkable

I flew it last weekend for the first time and aside from being a little tail heavy it flew fine. This weekend I was back with a bit of extra weight in the nose and it was flying a treat. Unfortunately....I used a rubber band that was a wee bit too large for the hold downs and one slipped off in flight causing it to disassemble itself back into kit form ouch! Lesson learned! But I'm out of pocket £12 for the plane and £3 for another propellor. Not too bad at all.



All in all, I can say that if anyone is a 3D printing fan then this is a viable way to get into the model flying hobby.

I'll be reprinting the model C (affectionately named Marmalade by my wife) again this week and with a bit of luck V2 should be flying this weekend.

A message from Stuart...

"It is a hobby of mine to collect and restore old engines. If anyone is looking to buy or sell engines or to have engines overhauled (bearings changed etc) then I am happy to discuss the work required. I am also prepared to make them offers for buying or selling old unwanted engines."

A Poem About Model Flying *by Bing*

*I love to fly my model plane
Across the sky so blue and clear
I feel a thrill in every vein
As I control it with my gear*

*I watch it soar and loop and dive
And do the stunts that I desire
It makes me feel so much alive
To see it glide and climb higher*

*I built it with my own two hands
And painted it with care and skill
It's not a toy, it's something grand
A masterpiece of wood and steel*

*I fly it with my friends sometimes
We share the joy of this hobby
We challenge each other with our flights
And cheer each other with our glee*

*I don't know why I love it so
This passion that I can't explain
But when I fly my model plane
I feel like I can touch the sky*

Upcoming Events in Scotland

2023 Waterplane Event Dates

Mill Dam

3rd September

Loch Leven

19th & 20th August

Kilbirnie

23rd & 24th September

Loch Insh

9th & 10th September

Loch Earn

24th & 25th June

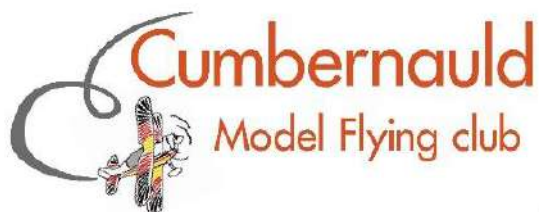
26th & 27th August

21st & 22nd October

Monikie

November – Dates to be confirmed

December – Dates to be confirmed



3 IN 1 EVENT! **13th August**

Lew Weaver Trophy event

We are hosting this event for the Alloa model flying club who will be officiating & judging.

Simple format - bring & fly a scale model & you will be judged only on how scale like your flight is.

No static judging - bring a rough foamie or museum quality model - you will be judged only on flying!

CMFC warbird event

Again a simple format - bring & fly a warbird & you will be judged only on how scale like and/or exciting your flight is. Unique opportunity to enter 2 events at same time on same day! Winner will be declared from a vote from everyone entering.

BRING & BUY

This will be held in our car park & you are welcome to set up a table behind your car or van free of charge



TOILET ON SITE

West Calder Aeromodellers Club - Training & Testing weekend

It is proposed to hold a Training & Testing weekend at West Calder Aeromodellers Club on the 5th & 6th August. If you are interested in attending the weekend, can you please use the link below and fill in the form. This will enable us to get examiners in place should that be required.

If you have any queries, please contact a member of the council.

<https://forms.office.com/r/57QBi9mKtF>

Steve McDonald

SAA Chairman

Waterplanes at Kirkgate Park, Kinross 19th and 20th August

This annual event will be held as usual on the 3rd weekend of August, flying from 10am - 4pm both days. Bill McDiarmid has also requested an evening session 6pm - 7:30pm on the Saturday, in case the wind is too strong during the day but calms down in the evening (it often does!). The requested evening session has never been used, yet. Volunteers are requested for setting-up on the Friday afternoon, 18th August 4pm - 6pm.

Activity at the Field - June

Thursday 1st June

Just Charles Malcolm at the field today. There was a slight crosswind so he kept running out of runway on take offs. The Autogyro in the foreground is scratch built but based on a model built by Rich Harris a good friend of Charles. Rotor span is 2.5M and the head is powered by two 35Kg/cm Hitec servos



A Rotation of Autogyros

Monday 12th June

Neil Grayson had a disaster with his Boomerang V2 today. Once again it was inverted flying that caused the plane to perform an unplanned rapid disassemble, just like his Maricardo. A word of advice, if you fly inverted make sure it is flying at a 2 mistakes high altitude! The plane came down in the South field (close to the new dog walking facility before it was there!).



Relatively New OS 46AX II

It was thought there was a structural failure as he had rotated the plane the correct way up before applying up elevator to gain height when it suddenly plummeted to the ground. As can be seen from the photograph however, the elevator and rudder are the only parts of the plane to survive intact. It must have been pilot error or loss of signal. (Pilot error more likely).



The damage included:

- OS 46AX II carb and housing broken.
- Wings broken in half and shattered internally.
- Front end totally demolished.
- Fuel tank split.
- 2 servos broken.

Everything has gone down to the tip apart from the tailplane. A new Boomerang has been bought, £151 instead of £116 (April 2021). A second hand OS 46AX has been purchased (thanks Stuart) and the plane is now ready to fly.

Activity at the Field - July

Tuesday 18th July

A very busy day but overcast. Pat Baxter maidenized his Valiant model with a nice Laser 4-stroke engine. It was his first flight after a 4 year break with health problems. He looks very pleased!. Well done Pat.



Pat Baxter and His Valiant

Newsletter Feedback and Contributions

Please let me 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...

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 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.

Here's a link to the glider field weather station data at Portmoak gliding club which is just a few miles east of our field. It gives a lot of information including wind, temperature and air pressure. [Portmoak Weather Station](#)

The Committee