Newsletter

July 2018

Sad to say, I haven't been to the field once this month. Circumstances have worked against me but I have been able to nip down the road and flown at the Fleetwood site.

One of the models which Andy Monks let me have was his old and battered WOT 4 foamie. It may be old and it may have been well battered but it's still an absolute joy to fly. I noticed through some of the Club's Facebook contributions, that Big Dave has finally succumbed and is now flying one.

Some time ago, I bought a couple of 2200 3s Graphene LiPos' from HobbyKing and I'm getting to think that they really are worth their money. One morning I had three flights each, timed at 8 minutes. The first two flights, I used the standard blue Turnigy 2200 3s LiPo's. The first flight showed that I had 38% of capacity left, the second flight, 37%. Pretty consistent! I then flew with one of my Graphene LiPos' and after eight minutes, it was showing a residual capacity of 46%. I swear that the last flight was not exactly pussy footing around because I was by then, in a hurry to return home. Time will tell if they continue to perform so well. In fairness, those blue Turnigy LiPos' are a few years old now so perhaps, that is not a fair comparison.

During this past year, I've been learning new photographic software and being able to process other photographic club members images. One of those members owns a full frame camera which has made me very dissatisfied with my equipment. Admittedly, some of her lenses have cost well over £1000 so you should expect good results but the stunning detail you can get is so beyond the capabilities of my ageing equipment.

Members of the LMA will have seen in each newsletter work by Neil Hutchinson - he is using a full frame camera costing £5K with a lens which retails at around £8.5K. Now that's a very serious investment and you can never expect to emulate his work with the basic stuff I use. I may not be able to justify spending such a huge amount of cash, but it should be possible for me to at least move up to a basic full frame camera and enjoy vastly better results. What difference you would ever see in the sizes I use in this newsletter I'm not sure. The images I use have to be made low resolution so that the newsletter remains small enough to Email .

I envy you guys who will be going to Elvington - it's a show that I so miss. For me, it was the best of the LMA shows and a lovely part of the country to stay at.

July 2018

Aeromodeller Mercury IV

Aeromodeller's Mercury IV
Type Model RC Sport Trainer.
Wingspan 96in.Highwing.
Engine Glow 10 - 16cc
Control 1 channels.

Article by John Prothero

When I first joined Blackpool from Oldham M.A.C. in late 1969 I arrived with a Mercury IV, this was a great model, very versatile and surprisingly agile. I used to fly it at the Copice flying site at the Oldham club which was basically on the side of a hill, which could make for some very interesting landing approaches especially when the wind was coming directly down or up the hill! So what seemed to me as the flat expanse of Lawsons Road was quite a novelty, I just took off and landed into wind with no hill to get in the way.

When I turned up with this model for the first time, one member said to me “We don’t fly basic models like that in this club, we only fly advanced low wingers”.

But as I had S.M.A.E membership, they agreed to let me fly, this was on Lawson’s Road behind the Zoo. I took off flew around and landed on the wheels in the same field, on the tarmac road. I was then accepted as I had earned my wings.

I built the model from the Aeromodeller Plan, no laser cut parts then - and you had to trace every rib, every frame, then transfer it to the wood and cut it out. The model was covered in Nylon and doped on, (I miss the smell of dope) very much stronger than film or the iron on fabric covering we use today, the model was then given a coat of fuel proofer.

I mounted my engine upright for ease of use, as you can see the original by Mick Smith had an inverted engine. Now here is the big surprise for all of you that are not familiar with this model, ITS FREE FLIGHT, yes that’s right - they just used to let it go and sort itself out! All 8 feet wing span of it. Imagine this at the Free Flight chaos evening at the NATs! If you have never witnessed this goggle it.

They suggested that for radio conversation rudder only would suffice but I thought I’d do a bit more, so mine had Rudder, Elevator and Engine and was powered by a H.P. 61, the Radio was a Sprengbrook this was my very first proportional radio, prior to that I flew it on an Orbit reed set, you pulsed the switches to get a proportional effect, aileron and throttle on the right, elevator and rudder on the left, hence my natural mode is mode 1.

Note the Bonner Duramite servo’s in the picture, two are none centring, one on throttle and one on elevator trim, you had a centring servo and a none centring servo connected by a rod to the output, you then had the elevator push rod in the middle of the rod. So to trim the

elevator you just moved the none centring servo in the direction required, no other trim was available.

The frequency the we flew on was 27 megacycles and my channel was 27.145 which was coded “yellow” so we all decided in the Oldham club to have some jumpers knitted in our colour, so mine was yellow, I am actually wearing the yellow jumper (I still have the jumper) under my jacket, if you look behind me you can see the frost on the grass and ice on the road, but being from Oldham I was used to these conditions.

In many respects the wheel has now turned full circle, I now fly the modern equivalent in the shape of the Hanger 9 Valiant, it has many of the same attributes of the Mercury. But the

Mercury had much more character and would be best described as a gentleman’s flying machine.

Below are some photographs of my model from 1969 at Lawsons Road.

A VIEW FROM THE HEDGE. (By Will Sparrow)

Whenever possible, at this time of year, I try to fit in a summer break. It's not that I yearn to be irradiated by the great golden orb (I can get plenty of that here) it's just that I need a rest from the everyday run of life: I need to recharge my batteries. With this in mind, one fine day towards the end of June I set off. I was, if I do say so myself, in peak physical condition – the result of stuffing myself with grubs and berries for the previous two weeks – so the prospect of a long journey gave rise to no concern. Having taken my leave of my hedge-mates I took off towards the south east. At the risk of sounding Tolkien-esque, I had many adventures along the way and had to make numerous overnight stops before I reached my final destination. At long last I arrived at my holiday hedge of choice. In this far-distant place I am always made most welcome, the local sparrows are very friendly, there are no cars, few people and no model aeroplanes! Now I know that we all love model aeroplanes, but part of my annual rejuvenation is getting away from the things I like doing best at home so that I can appreciate them all the more keenly when I return…

You will be pleased to know that the bird is back, bright-eyed and raring to go! So what have you all been doing whilst I was away having fun? Luckily, I'm not the only one in this hedge who likes model aeroplanes (although most, no, let's be honest, *all* are not as keen as me) so I've been able to glean plenty of information from this feathered community. Much flying has taken place during my absence and you all seem to have had a wonderful time of things, the fun only tainted by the odd incident. The first incident related to me involved a foam glider that was being set up on the bench near the club hut. The owner was trying to adjust the control surfaces via the transmitter whilst trying to sort out what all the knobs, levers and switches on his transmitter actually did. It transpired that the throttle was configured the wrong way round, resulting in the motor suddenly going to full power. With no restraint, other than the friction between the foam and the bench, the model shot off the bench and attacked the wire fence in front of the hut. Luckily, there was only slight damage to the model and none to the owner. Electric models are silent… and also potentially deadly. The next incident was witnessed by the Wise Old Owl – The old guy who perches at the end of our hedge and is widely regarded as the fount of all knowledge. I'll try to convey what he said as best I can – owls are not the easiest of birds to understand. A bit like you lot trying to understand an excited Scotsman!

A View from the Hedge Continued/...

July 2018

We, in the hedge, always like to view scale models. If they have been lovingly hand-crafted by dedicated hands, then so much the better. At the end of June that big, electric twin came out to play. The owl told me that it had been out the previous day and had enjoyed a good few flights. On this day, however, it was just lined up for landing, on its second flight of the day. The back wheels touched down and then the nose leg hit a bump and the model reared up in the air at about 30^{o}. The owl said that in this situation the modeller has two options:

1. Do nothing and watch the model crash or
2. Apply full power to try to regain airspeed and fly out of trouble.

The owner opted for option two but the model was in a deep stall situation and the addition of power only made a bad situation worse. The model performed a couple of wild gyrations before hitting the ground, inverted, at the eastern edge of the strip before finally coming to rest in the long grass. The damage seemed extensive. The large model pilot was still firmly strapped in his seat but the owl said that he looked as if he had wet himself! I've since heard that the model is repairable and that the repair will be at the top of the modeller's winter project list. Sometimes the stoical nature of you modellers really does surprise me.

Summer is the time for all your best model flying events and shows. By the time you read this the annual Cosford Show – or, as it is sometimes known, the "Watch Dave Johnson Flying Show" - will have come and gone. There are also notable competitions, some on the world stage. I've heard that one such competition, for scale models, is taking place in a far distant land and that one of your members has the honour of competing. I was told, although I am unsure of the voracity of the information, that members of the Russian team had said that their scientists had developed a special gel. This gel, when applied to the end of the transmitter sticks, allegedly not only improved the grip and stick feel but had the secondary effect of calming the nerves. The kindly Russians were keen for other country's competitors to try out this new, wonder product but I believe that all declined, not wishing to avail themselves of an unfair advantage.

WS

Batteries

July 2018

Article by Brian Holdsworth

There have been suggestions of charging LiPo's in series or parallel, but this is generally problematic. As covered earlier, balancing during charging is considered essential.

It may seem that, for example, a couple of 3S batteries could be connected in series and charged as though they were a 6S battery, linking their balance connectors into the charger's 6C connector - taking care not to interchange them, which would short the batteries. The inevitably different battery discharge states produce mismatched cells which would require considerable balancing during charging, beyond the capabilities of some chargers. Chargers are available with balance boards for this purpose allowing, for example, up to six 1S, up to three 2S, two 3S or a 2S and a 4S to be charged simultaneously through their balance connectors (up to ~ 3A), ignoring their power leads. Their charging times will be significantly extended from those usually expected, and their manuals include warnings against using unsupported cell combinations since this could cause problems - releasing the magic smoke!

Parallel charging would require discharged batteries to be connected in parallel. Since they will have different voltages as above, high currents will flow through the power leads, when linked, as the higher voltage battery charges the other. Similarly, the cells would be mismatched so that, when the balance connectors were linked, damagingly high currents would flow through their thin wires as the cells charge each other. Some chargers have multiple sets of connectors to charge two or more batteries simultaneously via duplicated circuitry. However, some have shown erratic performance where interaction between the circuits is inadequately handled, particularly where an external 12/24 volt supply is used with insufficient current capability or inadequate wiring thickness.

For high LiPo cell counts, it is convenient to link two or more batteries in series, adding their cell counts in any combination to give the required voltage. While it is preferable that the batteries have the same capacity, C rating and age so that their cells discharge equally, it is not essential provided they are used within the capabilities of the weakest cell - this would be equivalent to the continued use of a battery with one or more weak cells. Adapters are available for some connector types.

Batteries may be connected in parallel to produce a higher capacity and current capability - they must have the same cell count and chemistry! Since the initial voltage of a charged battery reduces slightly as it ages, it is preferable for them to be of similar age, minimising

Batteries Continued

Article by Brian Holdsworth

the resultant current when plugged together as the higher voltage battery charges the lower to equalise the voltages. Identical capacity etc. would be preferable but not essential, since the extracted current from each battery varies with its terminal voltage producing self-balancing. Adapters are available for some connector types - after the first battery is connected, the other plug becomes live and may need care to avoid shorting.

Standardisation seems to have been achieved for balance connectors by using the XT type with appropriate pin counts for the number of cells. Several connector types are used for the power leads, often pre-fitted for convenience. Adapters are available between most types. Some shrouds are available to cover and support the wires instead of the usual heat-shrink sleeving. Where used, they should be secured to the connector to avoid unplugging forces being taken by the wiring joints, defeating the intention.

Where adapters are used, the additional resistance needs to minimised by keeping the leads short and of adequate thickness to avoid upsetting ESC operation, which can be very sensitive to the consequential voltage drops. This sensitivity suggests that any ESC lead extension should be avoided but, if needed, extend the motor leads using wire of equivalent thickness to those from the ESC, not the thin motor leads. Using a separate battery for each motor in a multi-engine model is preferred - sharing a battery is liable to produce erratic operation including motors failing to start or even running in reverse..

Bullet connectors are available in various sizes. 3.5mm is generally used between ESC's and motors, often pre-fitted or included. 4mm, 5mm or 6mm are sometimes fitted by users for high current battery connections. The socket is a tube, blocked in the middle preventing solder running into the contact area. The plug has a central rod with a rounded tip making insertion easy with electrical continuity by a surrounding thin leaf spring, which is vulnerable to damage and oxidation increasing its resistance. Heat-shrink sleeving is required to cover the exposed connector and support the wire; this should completely cover the socket though, in practice, the sleeving is likely to shrink back leaving the end exposed and vulnerable to shorting. When not in use, the plug should always be covered to avoid shorting - silicone fuel tubing works well. If serial connection is required for high cell counts, batteries may be "daisy-chained" together, avoiding the need for adapters. Care is needed to avoid "daisy-chaining" into a loop, shorting the battery, where the resultant very high currents could cause molten metal from the connector to be sprayed over the user's hands which would not be good!

Batteries Continued

July 2018

Article by Brian Holdsworth

Blue EC3 contains two 3.5mm bullet connectors and are fitted to EFlite ESC's and LiPo's (up to ~3200) and some other LiPo brands for compatibility. They are compact with orientation via the plastic body shape which is ribbed for a good grip.

Red Deans is compact using substantial flat pins arranged in the shape of a "T" for orientation with one half in the form of two plugs with a spring leaf on one side and the other as two sockets where the body contains square holes with a pin along one side. They are relatively easy to unplug, but can jam on insertion if the relatively square plug end catches on the socket end - rounding any sharp edges can be helpful. Many LiPo ranges have these fitted with some using the compatible black T plugs.

Yellow XT60 is compact with orientation via its plastic body shape with an embossed surface for grip. The larger XT90 can handle higher currents (over ~3200). One half contains two sockets and the other two cylindrical plugs which are slit to provide effective springing. They are arguably the best electrically and mechanically, and many LiPo ranges have these fitted. Unplugging is difficult, but they are unlikely to come loose under vibration - compromise!

Red HXT connectors containing two 4mm bullet connectors, adequate for all but the highest currents, were fitted to many larger LiPo batteries from Hobby King, although most now fit XT90. Each half contains a plug and a socket with suitably-sized ribbed plastic shrouds sliding over each other. It is possible to plug two batteries together, shorting them, which should be avoided!

Green Multiplex 6 pin connectors, with 3 pins linked together for each lead, are fitted to Multiplex (!) ESC's and LiPo's together with some PowerBox items. They are robust and effective but bulky and can be difficult to insert and unplug.

As a LiPo is plugged into an ESC, a spark will be seen at the connector. This increases with voltage and can become a problem for high cell counts (>6), being alarming and likely to damage the connector by spark erosion. It is caused by the initially high current drawn by the filtering capacitors needed by the ESC to smooth its internal power supply for correct operation; this supply is separate from the BEC often included in ESC's rated up to 6 cells, to power the receiver and servos. Some ESC's intended for high cell counts (10, 12) incorporate protection circuitry to limit the effect, which will be identified in their documentation.

Batteries Continued

Article by Brian Holdsworth

An effective reduction technique, often used for high cell counts, uses a separate lead, including a ~33 ohm resistor, connected before the main positive lead which shorts out the resistor. This reduces the current surge size and so reduces the spark. The required value is dependent upon cell count and ESC implementation and is critical since the ESC requires a rapid voltage step on powerup to trigger its initialisation. This voltage step would be excessively slowed if too high a resistance were used, while too small a value would not have sufficient effect - experimentation! Significant heat is generated, needing a resistor of at least 1/2 watt rating. A little time for cooling should be allowed before re-connection. Connectors incorporating such resistors are available, but some were prone to burning out and have been withdrawn.

The Magic of You Tube

I just had the highly unnerving experience of facing a completely blank screen on my I-Phone 4. I've known that it's been playing up for some months now but, one morning, the screen suddenly 'went'. I phoned a charming gentlemen at Apple and he asked me to plug it in through I-Tunes but that got us nowhere. He then said it needed repair (wasn't that obvious?) And arranged for me to go down to the Apple shop at the Trafford Centre.

I decided that I would buy a reconditioned I-Phone - about half the cost of a new one. I had a look in Cash Converters but those were all tied to dedicated networks.

Eventually, I did the really sensible thing, I opened up You Tube and popped the question:- How do I restore a blank screen on my I-Phone?

Of the many videos I found, I chose one which gave me 3 options to restore the screen - the first option didn't work but the second one did and all of a sudden, the wonderful little screen came back to life. Harmony once more. Sanity restored and such a feeling of relief.

Nevertheless, I'll never trust the thing again or indeed those persuasive advisors at Apple, I'll be looking on YOU Tube first! The phone will be replaced very soon.

Club Instructors

July 2018

Jason Reid, John Higgins, Chris Vernon, Mark Conlin, Brian Holdsworth, Jim Sheldon, Paul Cusworth, Andy Harrison, Justin Goldstone & John Prothero.

Evening Flying at the Field

Evening flying at the field commenced from Tuesday 1st May through till 30th September to Tuesday, Wednesday and Thursday evenings till 9pm. Wednesday evenings remain as Training

Upcoming Events/Shows

August 11th - 12th Elvington Large Model Airshow

Sunday 2nd September Competition for the Aero Show and Scale Model Trophies

September 1st Much Marcle Large Model Airshow

In Conclusion

We've got a new model shop here in Fleetwood called JayBee Models. It's situated at the bottom of the main shopping street next to the W H Smith Post Office. Their stock is not exactly great yet but it's early days and they are building it up as they research local modeller's requirements.

Any of you going to the Elvington show, I would be so grateful if you could send me some pictures. I'll process them, so don't try to tart them up. Thanks to all you guys who have contributed to this newsletter. Due to my circumstances, I am relying more and more on you, the members for imput.

I wish you all happy and safe flying.