Newsletter

February 2018

March is just around the corner and I can't wait for warmer weather to arrive. I've had to clear my workspace where I do any building (cluttered as usual - yes, I do use the heap system) because the 'Smart' meter installation man is due and he'll need to get clear access in that area. Nevertheless, work has continued on some old models. I have this Super 60 (thanks to Peter Sheard) which was powered by an I.C. Motor. I had decided to change this with a PAW 35 R/C diesel which I bought especially for it. I had test run the thing outside - it was a bitch to start but it ran and throttled in a reasonably acceptable manner. I then installed it in the Super 60 - would it start once installed - no it would not. Why a motor should prove so difficult I have no idea - back in the day when I used to have an Oliver Tiger, starting was so easy - a couple of flicks at the most but this PAW certainly doesn't emulate that Oliver.

I've finally lost patience and removed the diesel. It is replaced with the simple brushless outrunner - turbine smooth, switch on and you are immediately greeted with a very pleasant whistley sound and the prop whizzes up - the throttling is just perfection. I have to admit that I'm a complete electric fan but I do love the quirky diesel for their smell and sound but especially the smell. I will still need to tart up the front end to enclose the motor - it will need a removable hatch fabricating and then some re-covering. To achieve the correct C of G will need a few ounces (pounds ?) of lead and I'll power it with a couple of the 3s 2200 LiPos'. It should look lovely in the air.

I've also been going through all my LiPos' charging them ready for the season. They have all balanced out which was a relief considering what little use they had last year. I've bought a couple of the Turnigy Graphene LiPos' - it will be interesting to see how much better they are (if at all).

The LMA static show at Haydock Park is coming up in March - Sunday 25th Doors open at 10am. It's not far to travel and so worth it to see some beautiful cutting edge scale models. There are also trade stands where you can spend some of your ill gotten gains. Dave will be exhibiting his latest build - the Javelin, which I am very much looking forward to seeing. I am planning on going down, perhaps with a couple of fellow members of our photographic society.

News

February 2018

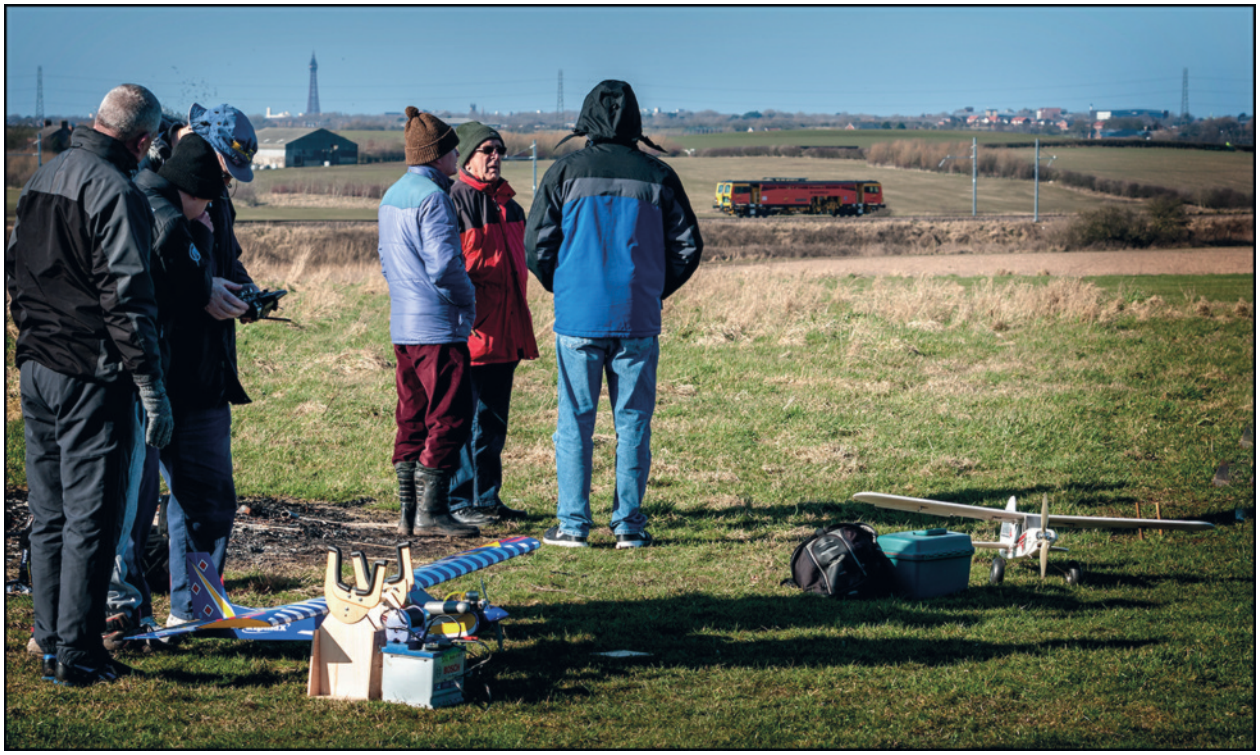
I have been asked to advise all **trainees** to use Facebook through the Club's website and as their primary means of ensuring that instructors are going to be there at the field to train them.

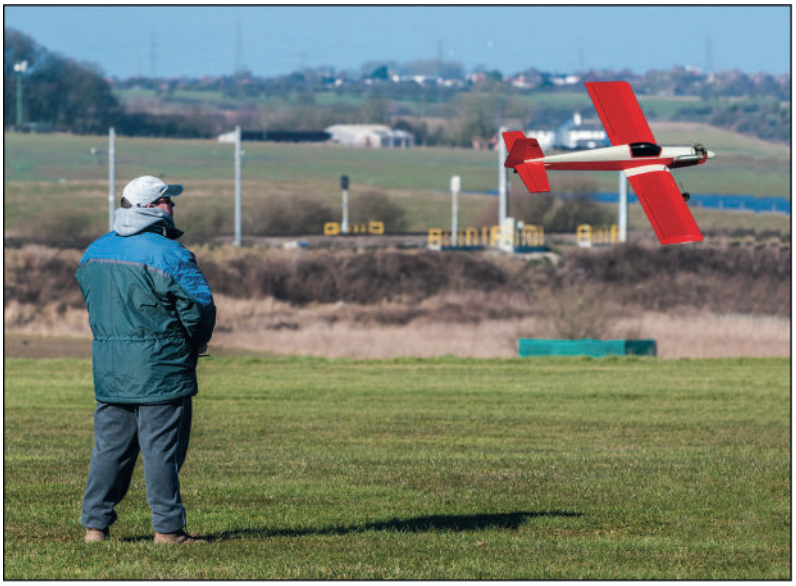
Les Childs has been awarded Honorary Social Membership to the Club since he has now withdrawing from flying.

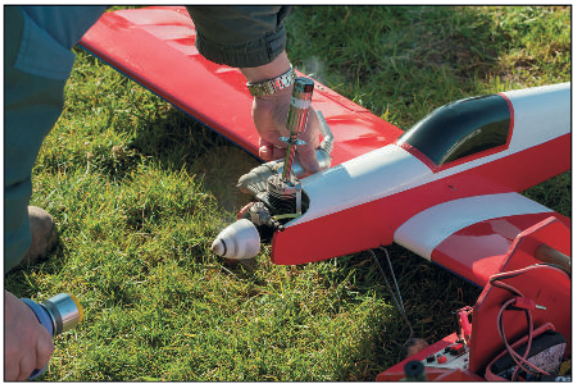
Dave Swarbricks wife is very talented artist and she has offered to take on painting commissions to paint pictures of your models she works in all mediums except water colour. I've seen some of her works - as I said, she is very talented. Speak to Dave if you would like to discuss.

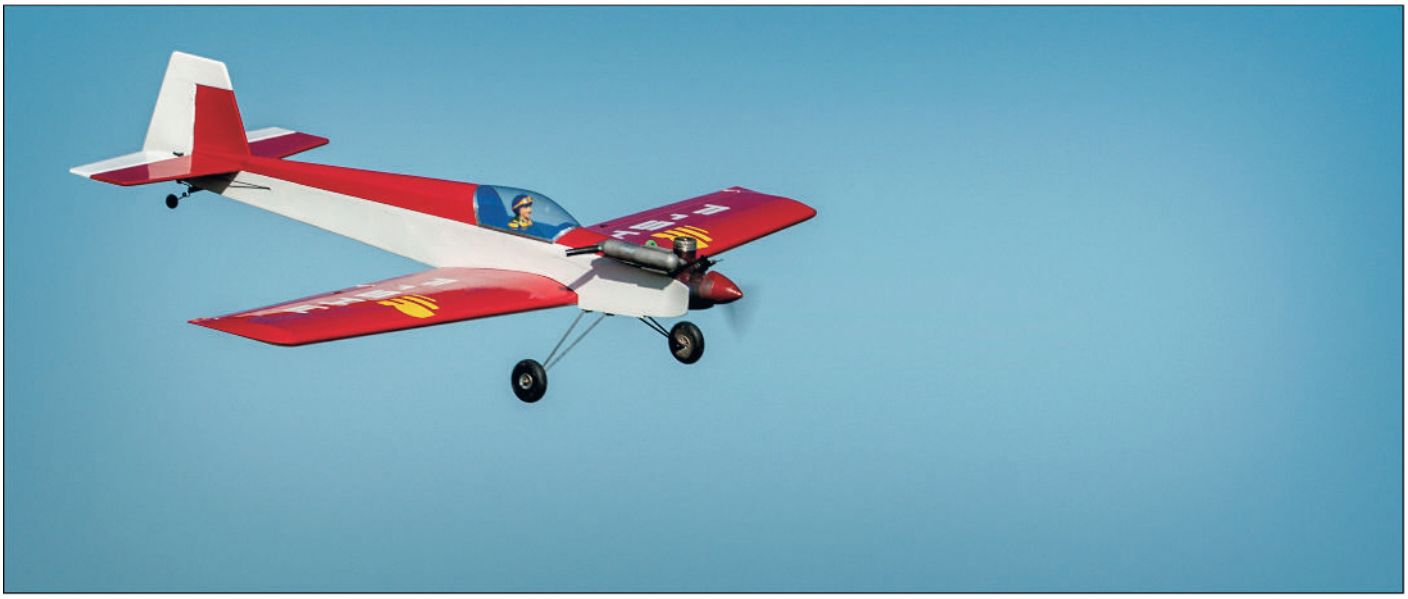
Scene at the Field

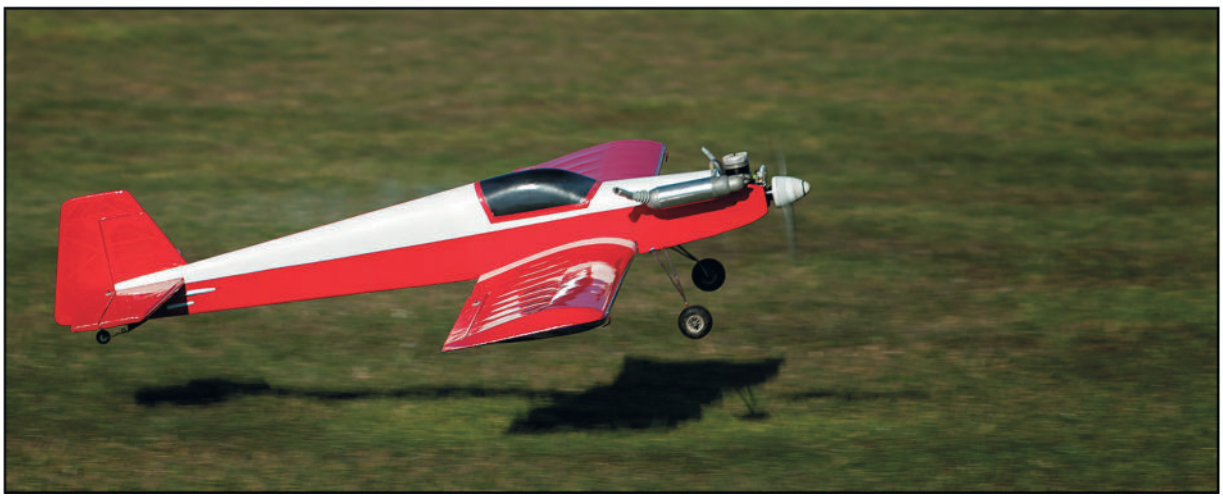
It may have been cold this last Sunday but a few of us were there. I took my trusty FunCub which was less than ideal because it was blustery cold wind. I took some pictures:-

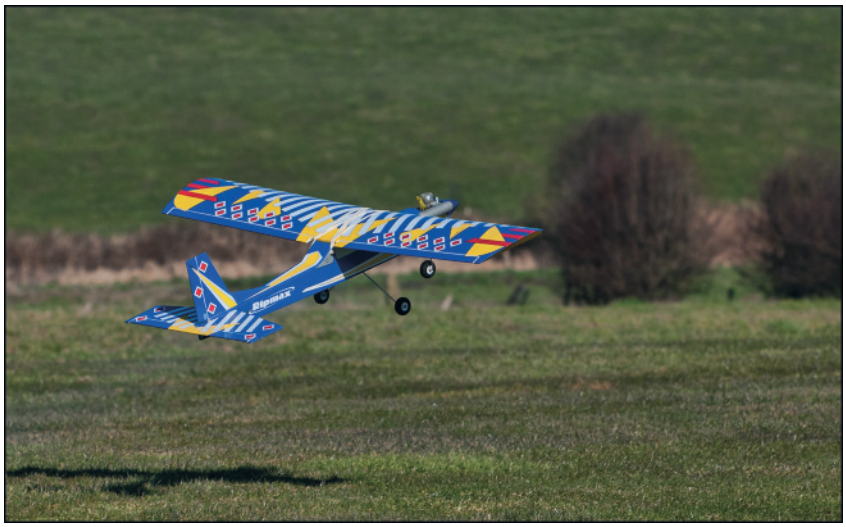






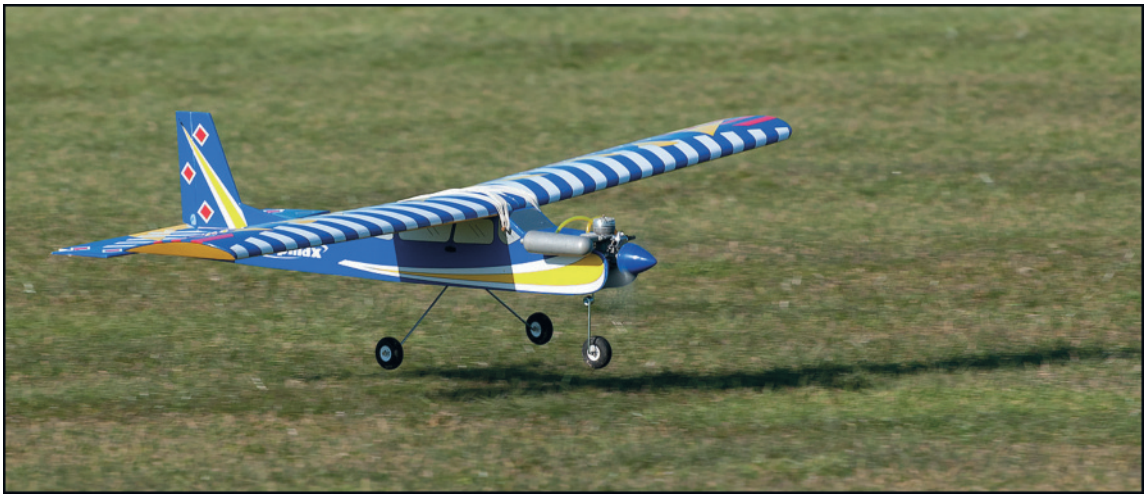


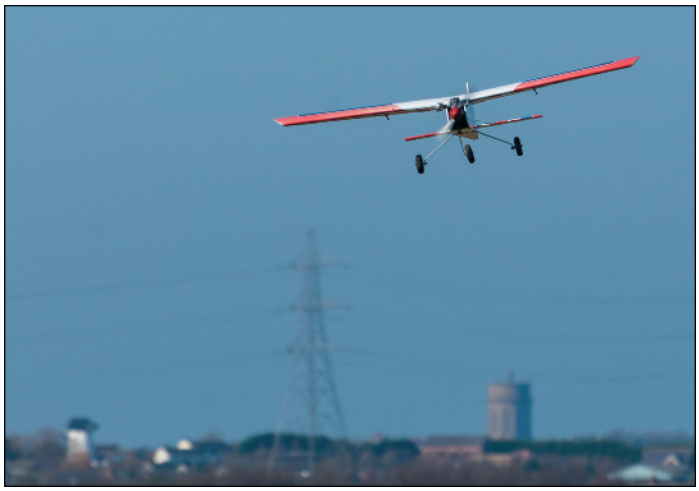


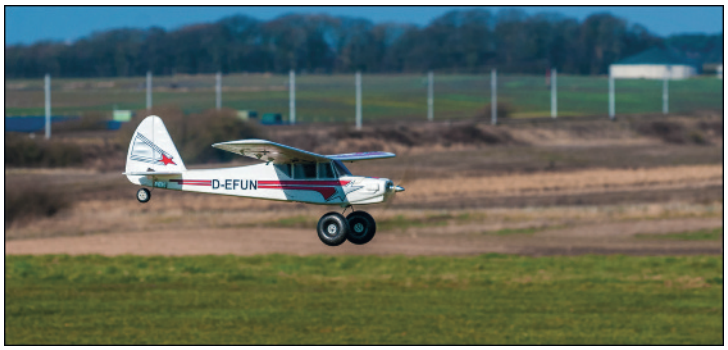


The take off

A perfect landing







The flying site is lovely condition - I thought it would have been boggy after all the rain but it wasn't. None of the models had problems taking off or landing other than that blustery cold wind.!

A VIEW FROM THE HEDGE. (By Will Sparrow)

February 2018

Winter still holds us all in its icy and soggy grip. The Wise Old Owl tells me that the folk who predict the weather for you, after consulting their almanacs and fondling their seaweed, have declared that February is our third driest month of the year (after April and May) and also the coldest. This year they seem to be half-right! Statistics are all well and good, but for those of us spending our days clinging to a sodden twig they give little succour.

Predicting the weather has never been easy, but you humans seem to have come up with all sorts of strange divination processes, to take the guesswork out of it. Those distant Americans have their Groundhog Day, where, on the second day of February, poor rodents are force-roused from their cosy burrows to see if they can see their own shadows: if they can, it's an omen of six weeks of bad weather to come and the groundhogs will return to their holes. If the day is cloudy and shadowless, they take it as a sign of spring and thus stay above ground (those Americans will believe anything! – Jim Sparrow). In the more civilized parts of the world, we have Candlemas on the same day as the Americans perform their mumbo-jumbo. I remember my great grand-pappy sparrow telling me that this was once a pagan festival that was adopted and grafted on to Christian church beliefs. Folk would bring their candles to be blessed, since candles were symbolic of light conquering the dark. These days, I suppose that one could take along a 40 Watt bulb or an LED… perhaps that would be going a bit too far? Anyway, folk myths took root about the date…

"If Candlemas
Be fair and bright,
Come, winter,
Have another flight;
If Candlemas brings
Clouds and rain,
Go winter,
Come not again".

Just in case you can't remember, February the second was a lovely, sunny day!

You lot are welcome to your own beliefs, but when I see woodland flowers starting to bloom and the collared doves starting to bill and coo, I know that, despite the current rain, snow, wind and ice, spring cannot be far away. In the hedge, too, things are starting to stir…

A View from the Hedge Continued/...

I heard, only the other day, that one of your giant virtual shops – such things are beyond me – was going to start delivering parcels by drone. You know the sort of thing; you're in the garden, you hear a buzz and something drops a parcel on your head. When this idea was first mooted, the health and safety lobby had a field day. "What if one were to mal-function and crash into a children's play area?" (I remember when sales of hand grenades to children were banned… "A child could easily prick itself on the nasty, sharp pin" - WOO). Well, the company in question has addressed the problem; if one of its delivery drones were to experience difficulties it would select a safe area in which to crash – a wood or a pond, for instance. Technology has a habit of trickling down, today's optional extra could be tomorrow's no-option fitment. How long will it be, I wonder, before every flying field in the land has to have a skip in a quiet corner? Just think of the benefits, no more searching in maize fields, no more hiking over sodden fields…
Spring may be just around the corner but winter has not yet relinquished its grip. Despite the track to the hallowed turf being somewhat muddy and the field itself resembling a paddy field, determined fliers have braved the conditions to have their aviation fix. On a couple of Sundays the flying conditions have been so favourable that it would have been a shame not to take advantage of them. Recently, I've seen heavy-metal jets ploughing deep furrows in the mud and overcoming the slimy suction by brute force. I've seen lightweight electric models perch on the grass, their miniscule wheels hardly making an impression on the sward, then taking off with commensurate ease. All types made it into the sky to provide their owners pleasure and satisfaction. Where there's a will there's a way…

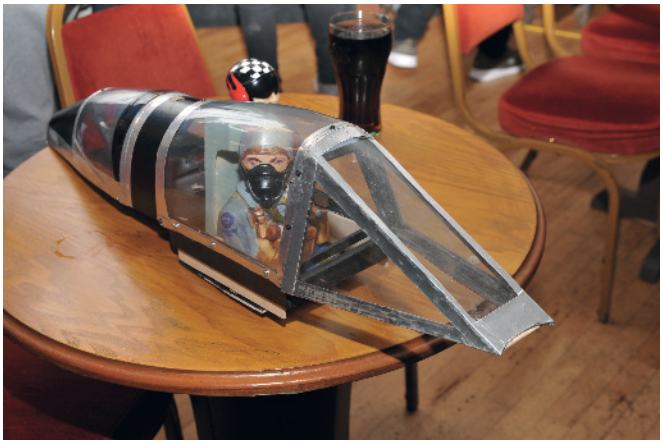
The Wise Old Owl tells me that spring is the time of year that sees the most number of model aeroplane crashes. Modellers, who have probably not flown for months, might well be a bit "stick-rusty", batteries might have almost died during their long hibernation and all those switches that adorn modern transmitters might have their uses ill-remembered. If you, yourself, have been hibernating, please don't be the one who gets his retract switch mixed up with his pre-programmed snap-roll button!

Anticipation is building in this hedge; I, for one, can't wait for the joys that 2018 will bring.

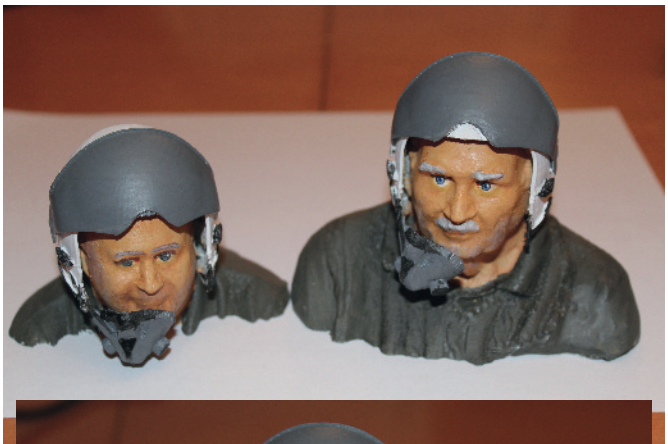
WS

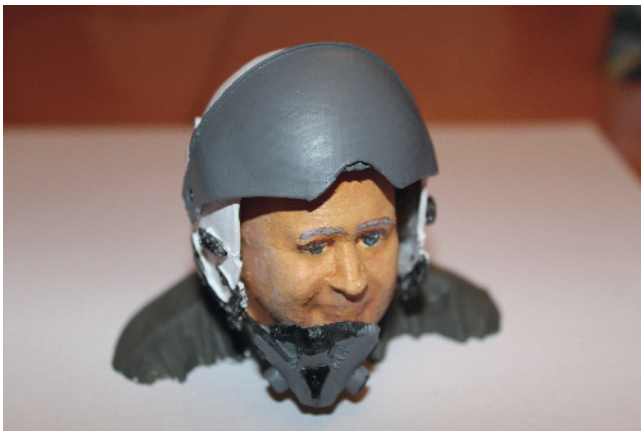
Scale Me Down Pilots

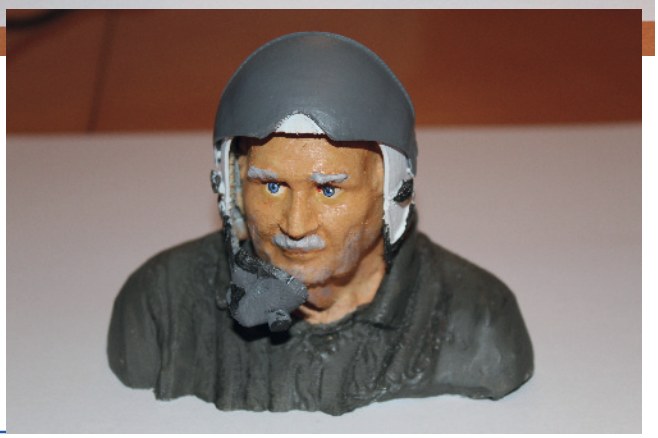
Back in January Matthew and Gwen Atherton came along to the Marton Institute to demonstrate their 3D scanning of members. Many of you took an active part were scanned for the model pilots to be 3D printed. Here are some of the pictures:-



The Results:-







Thanks to Jason for sending me these - they do look good.

I didn't take part in the scanning bit because I know that with my standard of flying that pilot would have looked in abject fear!

Dave Swarbrick sent me this:-

I used to think I was just a regular guy, but . . . I was born white, which now, whether I like it or not, makes me a racist.

I am a fiscal and moral conservative, which by today's standards, makes me a fascist.

I am heterosexual, which according to gays, makes me a homophobic.

I am non-union, which makes me a traitor to the working class.

I am a Christian, which now labels me as an infidel.

I am older than 70, which makes me a useless old man.

I think and I reason, therefore I doubt all that the main stream media tells me, which must make me a reactionary.

I am proud of my heritage and our inclusive culture, which makes me a xenophobe.

I value my safety and that of my family and claim the right to defend them, which makes me a right-wing extremist.

I believe in hard work, fair play, and fair compensation according to each individual's merits, which today makes me an anti-socialist.

I believe in the defence and protection of the homeland for and by all citizens, which now makes me a militant.

Please help me come to terms with the new me . . Because I'm just not sure who I am any more!

As if all this cr@p wasn't enough to deal with. I'm now afraid to go into either toilet!

Batteries

February 2018

Article by Brian Holdsworth

For radio-controlled models, there are several areas where batteries are used to supply electrical power. The questions arise of what to use, how to care for them, monitor their performance and, particularly, when to replace them since the consequences of a battery failure can be significant - destruction of the model and any consequential effects on property, personnel etc.

A battery consists of several cells connected in series, usually enclosed in a case or shrink sleeve for robustness, with terminals or connectors to interface with the powered equipment. Custom and practice also uses the term for single-cell batteries, particularly where a suitable connector is attached. The number of cells to give the required voltage depends upon the cell voltage which is determined by the chemistry used.

Single use items are discarded (re-cycled?) after use, with low initial cost though they can become expensive where many are used during the lifetime of the equipment. These are often in the form of pen cells (AAA and AA being commonly used sizes) and may be referred to as dry or alkaline batteries. They are widely used for small electrical equipment and have an outer metal can insulated by a plastic sleeve, making them physically robust, justifying their popularity. Spring connectors in the equipment make contact with the exposed ends of the pen cell and are vulnerable to intermittent contact, especially with vibration. Correct orientation when fitting is vital since reverse polarity may destroy the equipment!

Rechargeable items have a higher initial cost but allow multiple charge-discharge cycles, requiring additional equipment in the form of an appropriate charger with its power source. Some are available in pen cell format so that they can replace dry cells - due to confusion in the original size specifications, they are slightly longer than the corresponding dry cell, which can strain the spring connectors though, in practice, they seem to behave adequately.

A battery needs to be able to deliver the voltage and current required by the application, with its capacity determining the time over which it can operate. Cost, size, weight and ease of use are also important. These tend to be mutually exclusive so that improvements in one area are at the detriment of others - compromise required! Over the years, many chemistries have been introduced, with various compromises; some have lost favour due to problems or have been superseded. Each has characteristics such as cell voltage, capacity, current capability and handling limitations.

All chemistries suffer a voltage drop when current is drawn. The internal wiring and electrodes have electrical resistance, which causes a voltage drop proportional to the current. It is generally low and is determined by the implementation, remaining constant for the life of the battery unless corrosion occurs. Heat is generated by the product of the current squared and this resistance, resulting in warming. The resistance of external wiring, connectors etc. will also cause a voltage drop, generally more significant than the internal drop, so that the voltage at the powered equipment will be lower than that at the battery terminals.

Batteries Continued

Article by Brian Holdsworth

Simplistically, the chemical reactions do not keep up as a current is drawn, resulting in the voltage dropping. Since voltage is the product of current and resistance, the effect is called Equivalent Serial Resistance (ESR) and is a critical parameter for many applications. It is described as "Equivalent" since no heat is generated as is the case for electrical resistance; this is fortunate since, otherwise, the resultant heat could melt the battery! It is not constant, and varies with charge state and battery age as well as current and discharge history. When a load drawing a steady current is applied, the voltage drops immediately with a further drop over a short period before stabilising; the amount of voltage drop generally increases as the battery becomes discharged. Similarly, when the load is removed, the voltage partially recovers immediately, with some further recovery over a period of up to a few minutes. These effects increase non-linearly for higher currents. Currents exceeding the capability of the battery have adverse effects upon its chemistry, generating heat, reducing performance and shortening life. For rechargeable batteries, the ESR increases and available capacity reduces with increasing numbers of charge-discharge cycles.

As a battery discharges, its unloaded voltage drops, suggesting that this could be used to provide an indication of the remaining capacity, though variations in current loading can make this misleading.

Engine usage usually requires support equipment such a starter and a pump for filling the fuel tank from a bulk container. Often, a 12-volt sealed lead-acid battery of ~7AH is used for power, being readily available, robust and adequate for the purpose. If an appropriate charger is used, and they are never fully discharged or left partly discharged for long periods (greater than a few weeks) , they should serve for many years with impending demise apparent in visible corrosion on the terminals or reducing performance - insufficient starter torque or inadequate charge retention. Even complete failure would only mean no flying - frustrating, but safe! They are heavy, precluding usage in model aircraft, but are often used in model boats, which usually need a considerable amount of ballast. Glow engines require a power source to heat the glow plug for starting and Power Panels, driven by the 12-volt battery, are often used, containing a fuel pump and an adjustable supply to provide ~1.5 volts for the plug, connecting via a spring clip. However, the long lead required for this connection is difficult to keep out of the way of the propeller, and Glo-Starts became popular, consisting of a sprung tubular glow clip with an integral NiMh, avoiding the need for a lead with obvious safety benefits.

The rechargeable chemistries used in radio-controlled models are generally Nickel Metal Hydride (NiMH) and Lithium (LiPo, LiFe and LiIon).

Originally, NiCad's (Nickel Cadmium) were used to power transmitters, together with the receiver and associated servos. Cadmium is considered hazardous and these became illegal to manufacture many years ago - any still in use should be replaced as being long past their time! NiMH's replaced them, but their performance was inferior so that NiCad's continued to be sold, even with new equipment, until stocks ran out. Early electric flight used NiCad's with brushed motors, but were expensive and

Batteries Continued

Article by Brian Holdsworth

very marginal in performance; using NiMH's was not an improvement!

NiMH's have a relatively flat discharge curve making it difficult to differentiate between nearly full and nearly empty batteries using a voltage meter, even those applying a test load. Most meter instructions include warnings against such usage. When used in a transmitter, its constant power drain means that the voltage on the display can provide a sufficiently adequate indication of remaining operational duration, though the above effects may be apparent where the displayed voltage reduces over the first few minutes before stabilising. The current drawn by the servos in flight varies considerably, making estimation of remaining capacity by voltage measurement of a receiver battery largely meaningless.

When LiPo's, capable of delivering high currents, became available together with brushless motors and their complex Electronic Speed Controllers at reasonable prices, electric flight was transformed - generally quieter and, at least for smaller models, arguably more convenient than using glow engines etc. LiPo's are sensitive to over-charging and other misuse, but are generally adequate with suitable care and are extensively used for electric flight. LiIon is more robust and is sometimes used to power transmitters. LiFe has some advantages for powering the receiver and servos, especially for larger models.

Lithium batteries have a discharge curve with a more significant slope so that a voltage meter reading is more relevant, though their voltage recovery after use suggests that measurements should be made immediately after landing for maximum effectiveness. Some chargers have an option to measure the resistance of each cell, which can give an indication of the sum of electrical resistance and ESR by applying a small load for a short period. However, such measurements are unlikely to be representative of actual usage, but the inevitable increase in cell resistances as the battery ages may provide an indication of health and hence continued usefulness. There are other indications...!

The Chuck Glider Contest

February 2018

by John Prothero

It's the chuck glider competition on 8th at the March Marton Institute.

The photo is of is Lee Conner the current holder of the Glen Cross indoor chuck glider cup launching his model.

Come and join in the fun, Lee will be representing Fleetwood club, so lets try and get this cup back to Blackpool!

The format remains the same design, construct and trim an indoor glider, best time wins - its that simple.

Bring along a sharp knife, glue, sandpaper, a straight edge and your modelling talents, we supply the rest!

See you all on the 8th of March

Club Instructors

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

Social Evenings

These will again be held at the Marton Institute, Oxford Square, Blackpool FY4 4DR. Come at around 7:30 for 8pm.

8th March	**Chuck Glider Evening**
Wednesday 4th April	**Safety Talk and Open Forum.**

Upcoming Events/Shows

Sunday 25th March Large Model and Trade Show at Haydock Park

Sunday 10th June Cleveleys Classic Car Show - B&FRCMS will have stand once more in a prime position - the BMFA are letting us borrow their Flight Simulator which may attract new members to our sport.

June 15th - 17th Weston Park Model Airshow

Sunday 24 June is the Club's 60th Anniversary - more details will follow concerning the celebration of the date. If the weather is crap - that date may be moved to 1st July.

July 7th - 8th Cosford Large Model Airshow

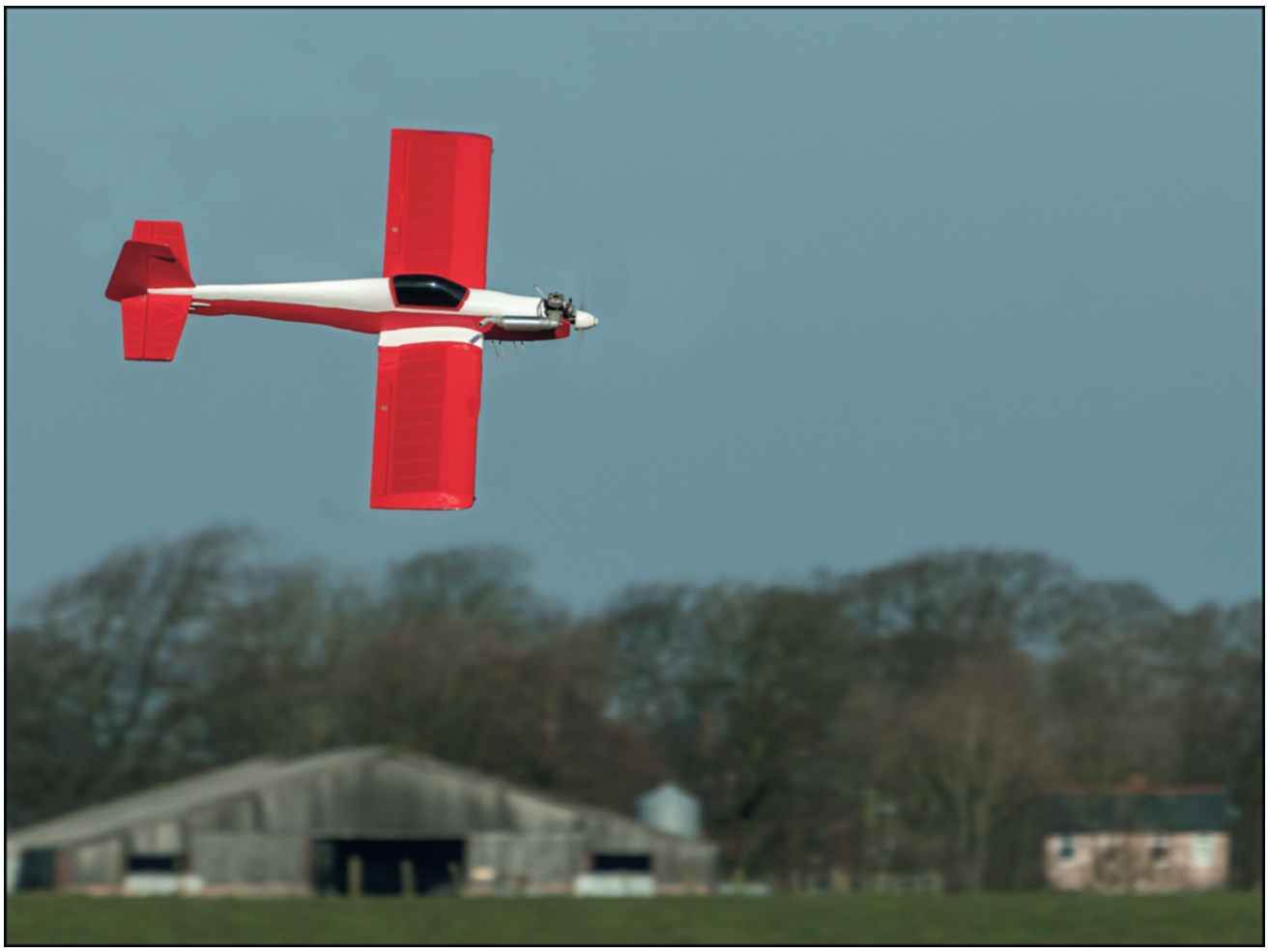
Sunday 2nd September Competition for the Aero Show and Scale Model Trophies

In Conclusion

I have to say that I really enjoyed getting to the field today and it was good to catch up with old friends. My own flights may have been ragged but that last one achieved the shortest landing I think that I have ever done with the FunCub. Next time the wind is so fierce, I'll bring a more suitable model - one of the vintage models would surely have penetrated better than a foam Funcub.

Thanks very much to Jason for taking pictures whilst I flew. Thanks also for all you members who have contributed to this newsletter.

I'll leave you with my favourite picture which I took today. Happy and Safe Flying Guys.



I asked Jason to do a low slow fly past - he did exactly that - brilliant!

And before you say it, NO, it has not been Photoshopped (as if) Mr Cusworth - Sir