Newsletter

June 2015

The longest day of the year has been and gone. The first of the local (relatively) model air shows - Weston Park has happened and regrettably I have yet again missed it. One of our grandchildren has a birthday on the 20th June and they live down in the London area - family must come first even if it means missing such a good show.

However, every cloud has a silver lining - the train journey down to London gave me a chance to enjoy the latest issue of the RCM&E and in this issue is a rather quirky looking model with a free plan which I fancy. It's called the Wiggo - I enjoy building and it's just that bit 'different'. It's not very big and would not make a trainer but just a nice small fun model.

So, there is my next little project which I hope will be flying very soon. ARTF's are fine and I know they always fly well but there is so much more satisfaction in building them from scratch. It's also what I love about this hobby, even when the weather is rubbish, you can still be enjoying the hobby by building. It may look like a kid's toy to you large model types but for me, it represents many hours of pure fun.

Cosford Full Size Airshow 2015

June 2015

Article by Dave Swarbrick

We had a fairly early start to get to the show. Leaving civilisation behind at 6.00am and heading down the M6. We ran into a few showers, but fairly quickly they disappeared to leave a bright but overcast morning. We got through passport control at Wigan and managed to keep clear of the fire arrows on Thelwall viaduct we headed even further south. All went well on the journey until we started slowing down on the M54 about one mile from the Cosford exit and it was still only 7.45am. The next half hour saw us making slow progress onto the airfield, Dave Johnson had forewarned us that 55,000 tickets had been pre sold for the event but some people were still trying to get in without tickets and trying to pay on the day. All to no avail.

This year we were very close to the gate, so we got the car and trailer parked up and started getting the models together. Quite a few of the other LMA guys were already there and well on with the assembly of the models. We only had a one hour slot for flying, this was before the full size show started, and on no account could we over-run the slot.

We had a range of models to cover the eras from early flight to warbirds and jets. A 10.00 am start was the target as the main show was scheduled to begin at 11.00 am. In the past we were at the far end of the field and had to walk a huge distance with models, but as I said earlier we were at the gate end of the flight line and only had to walk out and we were at the take-off point.

We drew up a plan of action with Dave flying his Bleriot and Cub plus the Dart Pup of Claude Smith, Paul Needham would fly his Wellington and Flag towing model, Dave Pearson the P47 Thunderbolt, Jason Reid the Boomerang equipped with smoke and myself with the Grumman Panther. We ended up only having about 50 mins. for flying and I must say that we represented the LMA in a very good light, The flying was excellent but over far too quickly, it seemed like about 10 mins. had passed not almost an hour.

Cosford Full Size Airshow 2015 continued/...

Article by Dave Swarbrick
Photos by Chris Berry

Cosford Full Size Airshow 2015 continued...

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Cosford Full Size Airshow 2015 continued/...

Photos by Jason Reid

As I said earlier we were at the end of the main flight-line so we set up the models for a static display, this was well received by the crowd and they asked us a lot of questions about the models and all models in general.

The full size show was excellent with far too much going on to give it justice in this summary of the event, but aircraft of note were the two Hurricanes and two Spitfires, a Catalina drifted around the sky looking fantastic. A Belgian Air force F16 put on a very spirited display of fast and high alpha passes. The Red Devils did a fairly low level formation drop (2,500 Ft.) The Eurofighter Typhoon did a good display as did four Extra 330s formatting on a Boeing 727. A Meteor and a Jet Provost whistled around the sky in an effortless display of 50s type jets.

Cosford Full Size Airshow 2015 continued/...

Photos by Jason Reid

The star of the show must be the Vulcan on its final year of air-shows, what a pity we can't find the funds to keep this fantastic classic British aircraft flying. I think every person in the crowd stopped what they were doing to watch and listened to the sight and sound of this never to be repeated feat of British engineering.

Cosford Full Size Airshow 2015 continued/...

Photos by Jason Reid

The Red Arrows put on their 2015 low level show and as usual it was a show stopper, if you get chance to see them this year you will not be disappointed.

All the pilots put on a brilliant show in less than ideal conditions; the cloud base was only 2 to 3,000 ft. max. and it was fairly grey for most of the day. Most of the pictures came out OK but grey aircraft in a grey sky, I do not find easy to photograph.

I would like to thank Chris Berry for the model flying shots and Jason Reid for the full size show shots.

A VIEW FROM THE HEDGE. (By Will Sparrow)

June 2015

We feathered avians have been flapping our wings, in order to access the skies, for countless millennia, but you modellers seem to be coming up with new methods of getting airborne on an almost daily basis. The latest method must surely be the drone. I've seen the odd "drone" before; (indeed, one such "pilotless vehicle" won one of your scale events a year or two back) and the occasional "quadcopter" variety has been spotted fairly recently. Only the other day I heard of yet another use for these wondrous machines. Suspend belief and let me take you on a trip to far-off Cathay; here, or so I am told (by the Wise Old Owl), every year, more than nine million students take university entrance exams, but only six and a half million are accepted. Competition is fierce, and, when competition is this fierce, the temptation to win through at all costs becomes a factor (humans are s...o flawed – WOO). With this in mind, some devious students have been cheating! – I know, difficult to believe, but true. The little blighters have been using a special type of pen that is capable of taking photographs of questions and transmitting them to an outside accomplice who, in turn, provides help and answers via a secret earphone. The local People's Committee are ahead of the little rascals, though. Step forward the drones! These are employed to hover on high, outside the examination hall, and can track the radio emissions, locating the student and his accomplice. Justice is swift and severe in far-off Cathay… Aren't you glad that model flying is not that competitive and that your committee does not employ surveillance drones?

The weather at the tail-end of May and the first part of June has been truly horrendous, with gales fit to blow one from one's twig! Lucky was the modeller who found a nice day to coincide with his available time. One such modeller managed to test-fly his rather tasty electric Sukhoi as the weather window reluctantly opened just a crack. All went well and the model was soon in trim but the rudder response seemed a bit lacking. When the model was landed the rudder's lack of response was explained – the bolt was missing from the rudder's ball joint. No damage was done and a lesson was learned.

A Sunday towards the start of June saw a reasonable flying day but very few modellers present (I guess that there might have been some event on elsewhere). With little to watch in the sky, my interest was drawn to a car with a large trailer which, sort of, draped itself over the edge of the car park: I flew over to have a closer look. What a wonderful piece of kit met my astonished eye! The trailer was stuffed with large models, all on custom-made, sliding racks, with everything bolted down to prevent any damage in transit. A large green and white jet made its way to the strip and seemed to be undergoing some sort of pre-season shakedown. I had the feeling that the pilot was itching to give it the beans and head for the stratosphere but good sense prevailed and it was re-housed in its trailer and thus lived to fly another day.

Have you ever had the feeling that someone, or something, is out to get you? That feeling, difficult to describe, and even more difficult to quantify, but tangible. The other day, there I was, sitting on my twig, watching a small electric model about to take off, when the feathers on the back of my neck started to stand up: I sensed that this little, innocent-looking model had evil intent and, what's more,

A VIEW FROM THE HEDGE continued…

this intent was focused on me! The model took off, did a bit of ducking and diving and then attacked me in the hedge! The winged, would-be assassin broke the front of its fuselage as it impaled itself in the hawthorn but the motor kept running, chewing up twigs as it tried to get at me. I fled. The attempted sparrowcide failed. If I see this little model again I'll keep a keen eye on it… from a twig located deeper in the hedge.

On the new model front, another example of that large blue and yellow scale aerobatic model has emerged. This model differs from the previously-seen version in that it is powered by electricity rather than petrol. I was really impressed by this one. As it broke ground for the first time it looked "just right". After a couple of circuits it was in trim and was flaunting itself for the camera, blending grace with sharp responses and agility. How things have moved on from the sort of models you folk used to fly just a few short years ago.

I was having a mid-morning doze as the June sunlight, filtered by fresh, green leaves lulled me into a soporific state, when I was roused, somewhat unceremoniously, by my mate, Jim Sparrow, digging me in the ribs and yelling for me to watch as a large Yak was about to take to the skies. Now, I've seen a horse fly, a house fly and even a dragon fly but a large Tibetan ox… this was something I had to see. This model, as far as I could gather, had originally been powered by a variety of petrol engines but had now been re-fettled for electric power. Power was the operative word – this model was running on over 5 kilowatts (whatever they are). In the air it looked beautiful and sounded magnificent. Big electric models are not like silent, small electric models; they have a sound much closer to some full-size aircraft and the lovely w-h-o-o-s-h from those big props is something we sparrows appreciate.

The longest day is here at last and the wind is blowing and the rain is falling! What wouldn't I give to feel a gentle breeze on my face, a warm sun on my back and a bunch of happy modellers to observe? Fat chance!

WS

Chargers

June 2015

Article by Brian Holdsworth

Where transmitters are supplied with rechargeable NiMh batteries, a charger for the transmitter and receiver batteries is usually included in the form of a small box with a built-in three pin mains plug and fly leads. Spektrum/JR uses the opposite polarity from the other brands for the transmitter; using the wrong charger will cause overheating and damage the battery by reverse charging which would destroy the transmitter circuitry if switched on; Futaba include a diode to protect against reverse charging which also makes using peak detect charging erratic. The associated instructions are generally adequate with charging overnight before each flying session being convenient and minimizing most of the problems associated with this battery type. The battery will be slightly warm after charging - any more indicates a problem. Recent Futaba chargers are the subject of a recall notice which also affects most of their chargers supplied over the last ten years or so although the importer (Ripmax) has tried to deny this - presumably those more than a year old will be ignored as "out of warranty". The affected chargers are those implementing peak-detect charging for the receiver battery and a fixed current for the transmitter with various voltages and currents as required for the particular transmitter. Trading Standards have identified two problems with the mains plug portion. Too much of the pins is exposed giving an increased risk of electrocution if the fingers slip behind the plug during insertion/removal. The pins are too thick so that they may strain the wall socket so that other plugs could be too loose in the socket leading to overheating with potential for fire. Ripmax suggest that the charger is returned via the supplying model shop for future replacement (no timescale given) but, in practice, the risks seem marginal provided that sensible care is taken on insertion/removal and the charger is not constantly plugged in and removed. The various battery voltages means that those with several transmitters need to take care that the correct charger is used - they look identical, differing only by the numbers on the label.

Many transmitters are supplied with dry cells to reduce costs but these are generally inadequate with their short duration requiring frequent replacement which becomes costly. In most cases, rechargeable NiMh cells may be substituted and charged via the implemented socket (not the new Spektrum DX6 and DX7 which require their optional expensive Lithium battery with the charger plugged in via the battery cover); the lack of vibration means that the spring contacts are generally adequate. In some cases, the battery box may be removed and a standard 4 cell receiver battery

Chargers continued....

Article by Brian Holdsworth

flights in a session are preferred. Modern cars generally have small batteries capable of little more than starting the engine from cold so that, if used for charging, there is a significant potential to flatten the car battery, damaging it and leaving the user stranded!

120W+ and multi-channel chargers generally do not have mains input due to the difficulties of dissipating the heat and require an external 12 volt or, in some cases, 24 volt supply. Using 24 volts instead of 12 volts has the advantage of halving the input current and so reducing the charger heat. A very large lead-acid battery would be required to supply the input current so that a mains-powered supply is often used which must have sufficient current capability. It may seem that 120W would require 10 amps at 12 volts but there are losses and the input current has a complex waveform so that about 15 amps capability would be required to give sufficient margin to avoid erratic charger operation. Connecting multiple chargers to a single power supply can produce erratic operation due to their interaction via the voltage drop through the wiring - minimizing common wiring should reduce this problem.

"Storage" mode is available on some chargers where the battery is charged or discharged to about 3.85 volts per cell (for a LiPo) which is claimed to be beneficial if unused for some time, though with no apparent evidence. Practical experience, storing a few batteries, may not be representative but they all puffed after a few cycles leading to disposal!

Charging soon after use seems beneficial but "topping-up" charging of an already charged battery can cause cell degradation - simplistically, the chemistry becomes confused resulting in the formation of unwanted by-products.

Balancing should always be used when charging a LiPo. A charger without an integral balancer is ancient and should be replaced! Some chargers default to no balancing on power up, even if the balance plug is connected, and require it to be enabled before starting the charge. A simple check as to whether balancing is enabled is to leave the balance plug disconnected and start charging which should cancel immediately with an error message. Some chargers do not implement balancing in "Fast" mode, suggesting that this mode should not be used.

Chargers continued....

Article by Brian Holdsworth

substituted which is preferable. Frequently opening the battery cover to remove the cells for replacement or external charging can be problematic since the cover and contacts are vulnerable to wear/breakage.

Some transmitters are fitted with Lithium batteries and include a charger or describe the charging requirements in the manual.

Fitting Lithium batteries to a transmitter is not appropriate, unless the manual describes their use, since their higher voltage will cause overheating and potential failure. Without balancing access, charging is difficult requiring frequent removal. The low current drain of most 2.4 GHz transmitters usually allows at least four hours usage with NiMh cells.

Many charger brands are available, sometimes using the same circuit boards with different cases or labels! They support various battery types (NiMh, LiPo etc.) with specifications which may confuse some users. RTF models often include basic LiPo chargers but these can be somewhat dubious so that a separate charger is preferred for practical usage.

For NiMh batteries, the charger handles the cell count automatically up to the specified maximum which is generally at least 10 cells. Peak detect charging is used and the current should be set at about C5 (500 mA for 1000mAHr cells). Less than C4 or more than C8 should be avoided since excessive battery heating may be caused - in particular, low currents may be insufficient to produce the peak so that charging does not terminate. The battery will be warm after charging but should not be hot. If unused, several days (preferably about a week) should be allowed before re-charging otherwise the peak may not be produced so that the charge does not terminate - considerable heat would then be generated causing cell damage or even smoke or fire if the insulation melts resulting in cell shorting. A known NiMh characteristic is occasional "false peaking" where the charge terminates very early - monitoring charge times and returned capacity should identify this problem.

Lithium charging specifications require more interpretation. Entering the battery type (LiPo, LiFe etc.) defines the cell voltage so that voltage setting changes in steps - for a LiPo this would be 8.4, 12.6, 16.8 etc. Some chargers require the actual voltage to be

Chargers continued....

Article by Brian Holdsworth

entered. The current should be set at 1C (3.2A for 3200mAHr). The charging process is Constant Current/Constant Voltage which means that the charger will increase the voltage applied to the battery until either the entered current or voltage is reached. In practice, this means that the charge will start with the entered current at a lower voltage than that entered. As the battery charges, the voltage rises and, when a little below the entered value, the current will begin to reduce while the voltage continues rising slowly to its entered value. When the current drops to a tenth of its entered value, the battery is considered charged and the charge ended. One of the signs of battery aging is that the current will begin to reduce earlier with an increase in charging time. If the battery is warm after charging this suggests a dying battery requiring disposal!

Sometimes a "Fast" mode is available where charging is ended when the current drops to a fifth of its entered value which results in a shorter charge time but with the available capacity slightly reduced.

The charger may specify, for example, 5 amps and 1 to 6 cells giving the impression that it can charge 6 cells at 5 amps. Unfortunately, this is not the case and the parameter "Charge Power" is crucial. If the product of current and voltage (the power charging the battery) would exceed that value, the current will be reduced accordingly. Taking common LiPo sizes, a 50W charger at 1C can handle 3S2200, 4S2200, 3S3200 and 4S3200, although a 4S3200 (14.8*3.2 =53.76W) would exceed the limit and reduce the current early, increasing the charge time by a few minutes; a 60W charger would have a small margin. A 45W charger can handle 3S2200, 4S2200 and 3S3200 but 4S3200 reduces earlier, extending charge times. Larger battery sizes require a higher power charger so that a 120W charger would be appropriate for 6S4500.

Considerable heat is generated in the charger, especially if near the power limit, and any fans are often noisy. In hot weather, a delay between batteries to allow cooling may be desirable.

Many chargers have mains and 12 volt input. When mains powered, the 12 volt leads become live so these should never be fitted since shorting will cause damage or even fire.

Field charging has many potential problems so that sufficient batteries for the intended

Chargers continued....

Article by Brian Holdsworth

After several cycles without balancing, the cells can become unbalanced so that they do not charge to their endpoint (4.2V) at the same time; practical experience suggests that this is a common characteristic. For example, if one cell of a 2 cell LiPo only reached 4.0V when the other cell reached 4.2V, charging would not terminate since the battery voltage is only 8.2V and so would continue until the voltage reached 8.4V when the low cell would be ~4.1V and the high cell ~4.3V which is not good!

Using the balance plug, circuitry bypasses some of the charging current, typically up to 300mA, from the higher voltage cell(s) to give, relatively, more current to the other cells so that all reach their endpoint together.

If the cells are very unbalanced, this may not be sufficient to stop the high cell(s) being excessively charged before the lower cell(s) reach their endpoint. Sometimes, with aging or poor quality control, one or more cells never reach the endpoint so that the charger times out, typically after 2 hours, when a charge should take about 1 hour. In such cases, the charge current will generally be very close to the cutoff value, so that this should not be a significant problem for entered currents up to about 10 times the maximum balancing current. Higher current ratios would be a greater concern.

When charging is started, any cell outside voltage limits should generate an error preventing charging. If a cell is over voltage, it suggests that other cell(s) are low, perhaps because the battery has been charged without balancing. If a cell is under voltage it may seem possible to "recover" it by trickle charging or by using the NiMh program but this should not be attempted since the other cells would be overcharged and be vulnerable to thermal runaway and LiPo flare. Any cell in such a condition is damaged and the battery should be discarded.

The manuals are not always clear as to whether a cell overvoltage during charging would generate an error, terminating charging. Experimentation to confirm is not advisable for obvious reasons!

The Cleveleys Classic Car Show

There were just four of us who supported the Club's static show this year, Paul Cusworth, Andy Harrison, Geof Brown and myself. Once more, we were given a prime area and thanks to both JP and Lee Connor for sorting it all out for us. On display , we had Paul's petrol powered MX2, Geoff's really nice Tiger Moth and a selection of models from Andy - he brought along his Hurricane, a Fournier RF4 and a Decathlon. I brought the Army Zulu, the Airspeed Courier and the Spacewalker. So it was a very reasonable selection of different types of model. Andy had the foresight to bring some rocks which allowed the models to be safely tied down in the rather blustery wind. Loads of people visited and it was a good day. Here are a couple of snaps.

There were 1000's of people!

Training Evenings at the Field

June 2015

These evenings are held till 9pm throughout the summer months - bring you models down and brush up on your flying skills. An instructor is always on hand to teach and advise.

Shows for 2015

LMA

Strathaven Model Show	26th - 28th June
Cosford Model Show	18th - 19th July
Elvington Model Show	8th - 9th August
Much Marcle Model Air Show	5th & 6th September

Other Shows

BMFA North West Fly in	Sometime in September

(As soon as we know, you'll know!)

IF ANY OF YOU HAVE INFO OF ANY OTHER MODEL SHOWS WHICH I HAVEN'T LISTED ABOVE, PLEASE LET ME KNOW AND I'll PUT THEM IN.

In Conclusion

Thanks once more to you guys who have supported this newsletter. You all put a lot of time into it. For this issue it has been Dave Swarbrick (and Jason for the excellent pictures), John Higgins, Brian Holdsworth and not to forget our flappy tame Sparrow. The LMA at Cosford is only a couple of weeks away. I've been photographing model aircraft for years now and it remains for me, a very big challenge.

I leave you with a picture of Lee Connor's very sleek Velox which he tells me is a jet trainer. I shot this at the field - it was the first time I had seen the model actually fly - fast very smooth, I think sleek is a very apt description of that model.

Roll on July and please please, let's have some settled weather! I wish you all happy and safe flying.