

Firebirds Model Club

Newsletter January 2015

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Committee News

Here's the latest from the committee room.

Poplars Flying Times

Summer (BST):

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
13:00-18:00 QF	13:00-18:00 All		13:00-18:00 All	13:00-21:00 QF	10:00-14:00 All	10:00-13:00 All
18:00-21:00 All						

Winter (GMT):

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12:00-18:00 QF	12:00-18:00 All		12:00-18:00 All	12:00-21:00 QF	10:00-14:00 All	10:00-13:00 All
18:00-21:00 All						

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Firebird Model Club Annual General Meeting 15 Jan 2015

You are reminded that only those items submitted to the secretary in writing by 8 January 2015 will be discussed. Only those members who have already paid to re-join the club for 2015 may vote.

Agenda

1. Apologies for absence
2. Minutes of previous AGM

[Note: These have been sent out to the membership with this newsletter]

3. Committee reports:-

Chairman
Vice Chairman
Treasurer
Secretary
Membership Secretary
Newsletter Editor
Social Rep
Flying Site Rep
Safety Officer

4. Election of new committee

Geoff Scott wishes to stand down from the committee, but is happy to continue running the club's membership database and to edit/produce the Newsletter, albeit in a smaller size. Except for the database, Roger Stanton will take on all the membership duties unless a volunteer comes forward to take on this task.

5. Proposals from the membership

5.1. The following is intended to clarify the categories of club membership in the Constitution and is proposed by Roger Stanton and has been approved by the committee.

There are three categories of membership, which are:-

Full Membership for which the Senior or Junior club and BMFA

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subscriptions are paid.

Life Membership for which only the BMFA subscription is paid. Election to Life Membership must be approved by an AGM vote.

Honorary Membership for which no subscription is paid. It may be awarded by the committee, for example to a prominent member whose personal circumstances prevented them from flying or participating in club activities.

5.2 No other proposals were forwarded to the Secretary.

Old News

If you need to look something up in an old newsletter, I have been putting them on the firebirds website <http://www.firebirds.org.uk>. Just click on the “News” item on the left menu and all the newsletters I’ve done are on there.

Down at the Field

These photos were taken just before Christmas. Darrell made an appearance after a long absence and put on some impressive 3D flying with his sniper.



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Jim had this neat little flying wing with pusher prop arrangement.

Lee flew a couple of models. I'm pretty sure I asked him about this little jetty one but can't remember anything about it now. Looks good though.



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Paul had his re-covered mini-hipe and that crazy flying wing with its fuselage made from a bit of guttering down-pipe.



Matt fueling up. he is now so close to his solo, with many take-offs and landings to his name. The hardest part about training him is holding that little switch in the freezing cold breeze.

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Justin was under a lot more pressure than normal because the critical eye of his son Tom was upon him.

Tom doesn't look pleased in this picture and the nervous smirk indicates that dad knows it.

Justin checks that all is well with Tom before taxiing out. Tom says "watch out for that other plane on the runway, you numpty!"



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Fly Past

The subject of this month's Fly Past is "How To Prolong The Life of Your LiPo Batteries". Note that this has been reprinted www.4-Max.co.uk – and thank you Lee for sending me the article.

Note the disclaimer too:

This is a guide only. 4-Max does not accept any liability whatsoever with regards to any injury or damage caused by advice contained within or not contained within this guide.

I'm very enthusiastic about electric flight and I don't want people put off by their expensive LiPo cells only lasting a short number of cycles. I would like people to enjoy electric flight and continue to enjoy electric flight and here are my recommendations on how to get the most from your Lithium Polymer batteries.

Lithium Polymer cells often referred to as LiPo's or Li-Poly's, are a great advancement to increasing the performance and duration of electric flight. If used incorrectly LiPo cells will only give a short number of cycles and in the worst cases can result in a fire.

Good quality cells like ours, although cost more initially will easily outperform (hold a higher voltage under load) and outlast the cheaper cells and therefore cost you less in the long term. Good quality cells are also safer in operation than the cheaper Far East cells. As with most things in life, you get what you pay for.

Recommendations to get the most out of your LiPo cells.

- Purchase good quality battery packs. Cheap Far East cells are a bad investment with regards to life, performance and safety.
- Purchase a good quality charger designed specifically for charging Lithium Polymer cells. Make sure the charger has a display that will show what energy is put back into your packs in terms of "mAh" and one that shows the voltage of the cells being charged. This is essential to monitoring and therefore adapting your use and charging of your batteries.
- Purchase a digital voltmeter. These can be bought from eBay for as little as £5.00 and is an essential tool for checking your battery packs.
- Purchase a Watt meter. Again this is an essential tool to measure currents, voltages, Watts and some even have a tachometer built in as well.
- Where ever possible always use a cell balancer when charging. A Cell balancer will keep the cells within a pack at the same voltage. This greatly helps the pack maintain its peak performance and prolong it's life. A cell balancer will also give

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you the 1st indication that a single cell within a pack is failing. If one of the LED's on the balancer remains constantly on during the charge cycle this is an indication that one of the cells is failing. A failing cell can cause the other cells in the pack to become over charged, which can result in a fire.

- Aim to draw less than 60% of the maximum continuous rated current of your LiPo's. If you draw less than 60%, your cells will last even longer.
- Avoid putting back more than 80% of the cells capacity. If you consistently put less than 80% back you will increase the life of your cells. Start with short flights and time them. Make a note of how many "mAh" you put back and divide the number of "mAh" by the minutes to get an approximate "mAh" per minute figure. Use this mAh/minute figure to calculate the number of minutes you can fly without going over the 80% figure.
- Do not fly until the ESC cuts power to your motor as this will seriously shorten the life of your LiPo's.
- Charge at 80% of the capacity of the LiPo. e.g. a 1000mAh pack should be charged at 800mA (0.8A. (1000mAh x 0.8 = 800mA)
- Do not fully charge your packs. Charge them to 4.15V per cell instead of 4.20V per cell. The new Thunder Power chargers have this as an option (95% of capacity).
- Do not charge your packs below 10°C/50°F and definitely not below 0°C/32°F.
- Do not charge hot cells. Warm cells are OK, cool cells are best. Let hot cells cool before charging.
- Lithium Polymer cells do not have a "memory" unlike Ni-Cad's and therefore they SHOULD NOT be cycled.
- Cycling will bring the voltage down to 3.00V per cell which will shorten the life of your battery.
- DO NOT "top up" your cells before flight. Measure the voltage. If it is above 4.1V per cell then just fly as you would normally and then charge. LiPo's loose less than 1% of their capacity per month in storage. Apart from being unnecessary there is a chance of overcharging your cells which will damage them and possibly cause a fire.
- If you plan to store your LiPo cells for an extended period (over 1 month), discharge them as you would normally. Then charge them to only 3.80V per cell.
- If you discharge your LiPo's down to 3.30V per cell or less (no Load) you will

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damage them and shorten their life. Ideally your batteries should read 3.70V per cell or greater after flying and allowing a 2 minute recovery period.

- If you deeply discharge LiPo's below 2.50V per cell you will severely damage them and therefore severely shorten their life and may even destroy them

First Use

Some manufactures recommend that you 'Break In' your LiPo cells by using them 'gently' for short periods and allowing them to cool for 15 minutes between uses.

For example, if you expect to get 15 minutes flight as your standard flight time, (not exceeding your 80% of total capacity of course) then have 3 short flights of 5 minutes with 15 minutes between flights. Have gentle flights and avoid full throttle. It is recommended to do this for 5 or 6 charge cycles.

Example 1

3S2P 2,100mAh. Max continuous rating = 12C and a peak of 18C.

Charge as a 3S pack (11.10V nominal) and at 1,680mA (1.68A) or less. (2,100mAh x 0.8 = 1,680mA). Stop charging when the voltage reaches 12.45V (3 x 4.15V)

Maximum discharge current is 12C. C is the cells capacity therefore 12C = 12 x 2,100 = 25,200mA which is also equal to 25.20 Amps

In this example you should try to achieve the following:-

Keep your current draw below 15.12 Amps.

$12 \times 2,100\text{mA} = 25,200\text{mA}$ $25,200\text{mA} \times 0.60 = 15,120\text{mA} = 15.12\text{A}$

Adjust your flight time to put no more then 1,680mAh back into your pack (2,100mAh x 0.8 = 1,680mAh).

Example 2

3S1P 3,700mAh. Max continuous rating = 20C and a peak of 30C.

Charge as a 3S pack (11.10V nominal) and at 2,960mA (2.96A) or less (3,700mAh x 0.8 = 2,960mA). Stop charging when the voltage reaches 12.45V (3 x 4.15V)

Maximum discharge current is 20C. C is the cells capacity therefore 20C = 20 x 3,700 = 74,000mA which is also equal to 74.00 Amps

In this example you should try to achieve the following:-

Keep your current draw below 44.40 Amps.

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$20 \times 3,700\text{mA} = 74,000\text{mA}$ $74,000\text{mA} \times 0.60 = 44,400\text{mA} = 44.40\text{A}$

Adjust your flight time to put no more than 2,960mAh back into your pack (3,700mAh x 0.8 = 2,960mAh).

In conclusion

If you draw the absolute maximum current from your cells and fly until your ESC cuts power to your motor and you charge your cells to 4.20V per cell at 1C then you may get as few as 30-50 cycles from your cells.

If on the other hand you do not stress your cells i.e. break them in gently, take 60% or less of the maximum continuous rated current and always put less than 80% of the pack's capacity back, charge at 0.8C and only charge your cells to

4.15V per cell you should get up to and maybe more than 300 cycles from your expensive, high power, low weight LiPo cells.

External Events

This section details events in Hampshire (or further afield if they are significant events) that might be of interest to club members.

I will get this section populated in February with the new calendar for 2015.

Club Information

This section gives a summary of club services and contact details. Apart from the "Future Club Night Programme" most of the info here is fairly static.

Future Club Night Programme

15th January 2015

AGM (see first article in this newsletter for details).

19th February 2015

Video presentation of flying activities at Poplars Farm during 2014 by Alan Shergold.

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Cheap Glow Fuel

Fuel is available through the club and supplies are held by the club. All grades of fuel are available to order. Terry holds many other useful items: glo-plugs, propellers, glue, fuel tubing, wing bolts etc.

Contact: Terry Jacobson on 023 8040 2080 or see him at the field.

Club Clothing

A number of items of club branded clothing are available from a local supplier. The current prices are:

Sweatshirts	£14.25
Polo shirts	£12.50
T shirt	£ 8.50
Caps	£ 7.95

All shirts are Fruit of the Loom and available in all sizes up to XXL & most colours. There is also a huge range of quality outdoor wear that can be embroidered with the club logo.

Contact Justin on 07572 613190, email windgyber@hotmail.com or see him at the field.

Our meeting venue is the Hamble Club at this address:

Beaulieu Road
Hamble
Southampton
Hampshire
SO31 4JL

The entrance to the club is on Hamble Lane, only a short distance from a pub called The Harrier. The club looks like this:

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Firebirds Club Committee

The following are the contact details for the Committee. Each has given permission for their phone number and email addresses to be included in this Newsletter.

Chairman	Pat Parsons	023 8056 2611	patrickparsons.parsons3@googlemail.com
Vice Chair	Russell Lewis	023 8056 1397	russell@pilot1.co.uk
Treasurer	Paul Adams	023 8069 2729	paul.adams10@tiscali.co.uk
Secretary	Roger Stanton	01489 784152	roger-stanton@sky.com
PRO	Peter Clark	01489 692881	psclark911@hotmail.com
Flying Site Rep.	Dave Hoppe	07704 826343	davehoppehome@gmail.com
Safety Officer	Geoff Griffiths	023 9265 5931	gcgriffiths@hotmail.com
Membership Sec.	Geoff Scott	023 8039 0013	geoffrey.scott100@ntlworld.com



Remember...
Safe flying is no accident.