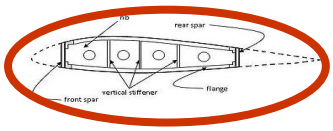
# The Spare Rib News




***The monthly newsletter of the Kapiti Aeromodellers Club***

**October 2021**

www.kapitiaeromodellersclub.org.nz

Kapiti Aeromodellers Club Group

## The Presidential Scribe

I just cannot get to grips with the weather.
On Sunday night we went into the Hutt for dinner, Left Paraparaumu at 6:15 in 15 degs and sunshine. Arrived in Petone to 7 degs and rain. This is not helpful.
We get one good flying day, or part day, then it packs it in again.
Covid has affected us again and for the second month we had to cancel club night. We cannot really meet under level 2 with the requirements to socially distance and wear masks. Sort of defeats the purpose really.
We did manage the Silver Fox BBQ, although the weather was poor and reflected in the attendance.
What will the next weeks bring I wonder?
Hopefully something a bit better.
You all know of the great working relationship we enjoy with those responsible for the park. The GWRC Rangers Brendan and Gary under the leadership of Wayne Boness who is overall responsible for Western Parks.
Sadly, after 10 years, Wayne is moving back to a role with DOC, based in Taranaki. He has been of great help to us over the last few years and I am sad to see him go.
I believe the role has been advertised internally for a 12 month term.
They are looking at long term structure and what that may look like.
One of Wayne's last efforts was working with us to extend the Eastern fence line and move the water trough so that we take the Southern end out to the next farm fence.
I'm not sure when this will be done.
This means our Southern moveable fence will be able to be removed as will the inner gate.
The strip will not be extended other than mown a little further South but gives us a great safety area.
Combine this with the retirement of the driveway paddock in which the hilly areas have now been planted, we have a much more usable and user-friendly area.

Enjoy the month ahead and hopefully we will have club night.

*Steve*

## ***Clipped Wing Cub.***

Over the last few months, we've note the progress Jamie Lafrentz has been making with the clipped wing cub he obtained from Ross.
Its now finished and he posted these pictures on our FB group page.

Looks really smart.

Nice job Jamie. Can't wait to see it in the air.

## ***Do you really want to join this hobby?***

Those of you who follow the FB page Model Aircraft Traders NZ, may have seen the below post recently.
Paul pulled the post and the most telling of responses.
We've had a few new members recently who might find this 'enlightening'.

*Post on the page:*

*Hey Guys, spent my whole life saying I'm gonna get into flying and never got around to it. Well now I'm set on it so if anyone has some tips or direction on a good first plane fire away!! Or if anyone has one for sale come at me. No idea how to set up the receivers etc so was looking at RTF. But open to any suggestions.*
*Joshua Mathews.*

*Response from Marty Hughes.*
*Best advice I can give is walk away. The hobby is more addictive than meth and later on down the track it will probably be as expensive. The hobby will consume you and take up every fine weekend. However, if you don't take this advice, you will join a club, meet some really nice guys with a common interest who are happy to help and you will discover one of the best hobbies you will find.*
*Happy days Joshua.*

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## ***Crozy.***

*Last month we published Crozy's latest lock down project.*
*Well Alistair Haussmann came up with suitable info for him.*

Crozy, maybe this would give you some ideas for your new motor; https://www.youtube.com/watch?v=8fGUnNf3OiQ

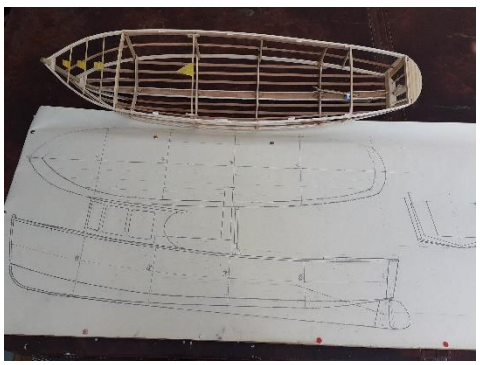
If you want to do a bit of research to fill in the time, try finding the article below. The Comet looks like a nice little slow flyer might even compete with a Tomboy;

> *Comet was constructed using drawings published by the Model Engineer Magazine maybe around 2016, video is around 2018. But I guess you might even have this article which appeared in Model Engineer Magazine, Vol.#194, No 4248, 27th. May to 9th. 2005 , about the construction of the Model and the Power Plant, Including the Boiler.*

Flying with a fire on board is probably no worse than a LIPO battery in a serious crash, but maybe the preso would need to give his blessing.

***However, Crozy ignored this sage advice and went over to the dark side.***

*I have a confession to make. I have gone to the other side during lock down, but I am hoping it is only temporary and this sort of stuff can wait until I become elderly, refer attached. The boat is 850 x 240 and the yellow tagged braces will be removed after the birch ply covering and gunwales are fixed. The engine is one I built many years ago. RC rudder, throttle, whistle and I am working on a servo stop start. Sorry about this but I will try and get back into aircraft at the first opportunity.*



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***Andrew's new toy.***

Having 'buried' the Jungmeister in the surrounding paddocks a wee while ago, Andrew has a new toy to utilise his DLE 35 RA.

The model is from the Pilot-RC stable and is a Laser.
James apparently has his eye on it and flew the maiden.
After a few trim circuits, James had the model doing things I can only dream of.

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***Trained 'model fetchers'***

Brendan brought his grandsons along recently to 'fetch' for him.

Hopefully he'll have them on the sticks soon.

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***Vintage.***

*We have had to postpone the Levin Vintage event to Saturday 9 October due to a combination of forecast wind and also minor damage to the Levin club strip.*

Reminder
- John Selby Memorial Vintage Event - All clubs welcome.

- Now to be flown on Saturday 9 October

- The event will only take place at Level 2 or lower and providing this can be done within the COVID regulations applying at the time.

- Any RC Vintage class may be flown.

- Start time 9.30am

- Levin Club site, Tararua Road

Regards,

Stew Cox

***The following article was pulled from the Hobby King website, distributed by the Taupo club and picked up by Paul.***

It is of interest to us all.

# LiPo Batteries.

When it comes to storing your LiPo batteries, there are two aspects you need to be mindful of the chemical aspect, and the physical aspect. Both are equally important and if either one is neglected or downplayed, your LiPos may get damaged and potentially put you in harm's way.
In this blog, we will go through everything you need to know about storing LiPos that will not only keep you safe; but also prolong your battery's cycle life.

**Chemical Parameters**

Unlike NiMH (Nickel-Metal Hydride) batteries, where you can indefinitely store them fully charged or fully discharged, LiPos require a very peculiar storage parameter. If you store a LiPo fully charged, this will exponentially increase the rate of a natural phenomenon known as "electrolyte decomposition".
Electrolyte decomposition will ultimately cause your LiPos to puff up, as well as rapidly increase the internal resistance (IR) of your battery. An excessively swollen LiPo poses the risk of an inner foil rupture which can lead to a fire or an explosion; while an inflated IR will render your LiPo highly inefficient and cut into your run-times and overall cycle life.
On the other hand, if you store your LiPos undercharged, the internal makeup - anode (negative terminal) and liquid electrolyte - can get irreversibly damaged and your LiPo may never charge again.
For optimum results, you should always store your LiPos at 3.8V per cell. Using a modern LiPo charger such as the **Turnigy Reaktor D6 Pro**, balance charge or discharge your battery to the correct voltage - and make sure that each cell is as balanced as possible. As a rule of thumb, you should never leave your LiPos fully charged for more than 24 hours. If you know you are not going to use your LiPos anytime soon, make it a habit to put them into storage mode.

**Physical Parameters**

You may think, "*What the hell, it's just a silly battery, shove it in a drawer and it's good to go*" -- nothing could be further from the truth. In fact, most LiPo problems stem from improper storage and the physical aspect is regarded by some as even more crucial.
First and foremost, you should always store your LiPos in a **Fire Retardant LiPo Bag**. Even when your LiPos are not in use, a chemical reaction is still taking place. External factors such as the amount of direct sunlight, temperature fluctuations, and the level of humidity can have adverse impacts on your LiPos. Hence, the simple habit of keeping them inside a LiPo Safe Bag will ensure that if anything does happen, you and the others around you are safe.
Next, you need to find a place to actually place your LiPos. Generally speaking, any shaded area which is at room temperature - 40~70°F (4 - 21°C) - is considered best practice. If you store your LiPos in a hot environment, this will ultimately cut into its cycle life. On the other hand, if you store it in an overly cold environment, you will need to slowly bring it back to room temperature for it to function at maximum capacity. And the emphasis here is "slowly" because a sudden increase in temperature will cause condensation in your battery - and lithium does not react well with water.

**Taking Your LiPos Out Of Storage**

If you only stored your LiPos for a short period, then you can safely charge them up and run to the fields with no problems. However, if your LiPos have been in storage for more than six months, you should always check the Voltage (V) and Internal Resistance (IR) before charging. For regular LiPos, the voltage of each cell should not be below 3V while the IR

should not exceed the original value by over 80-90%. If you want to learn more about if your LiPos are safe for use or not, read our blog **3 STEPS TO DETERMINE IF YOUR LIPOS ARE SAFE**.

**In Conclusion...**

If you will not be using your LiPos for more than 24 hours, then put them into storage. Charge or discharge them to 3.8V per cell, securely place them into a LiPo Safe Bag, and find a shaded area that is at room temperature.

Remember, if you treat your LiPos well, they will treat you even better. When properly maintained, **HobbyKing LiPos** can typically last you up to 2-3 years.

The most common questions we get regarding LiPo batteries are: “Is my LiPo battery safe to use?”, “How do I know if my LiPos are damaged beyond repair?”, and “How long will my LiPo batteries last?”

All these questions have the same underlying theme: safety. Today, we will take a deep dive into the chemical properties of LiPos and learn how to spot a perfectly functioning LiPo, from a faulty one.

**What Causes Puffing Or Swelling In LiPos**

You may have heard people tell you to chuck your LiPo in the bin if it starts to puff up. While only partially correct, all LiPos will inevitably show some degree of swelling. So, the real question here is: why do LiPos puff up?

A LiPo battery is made of three main components: the positive electrode (cathode), the negative electrode (anode), and the liquid electrolyte. Electrolyte is a chemical inside your LiPo that enables the flow of ions from the negative end to the positive end during discharge, and vice versa when charging.

Your LiPos puff up due to a naturally occurring phenomenon known as electrolyte decomposition. When electrolyte decomposes, hydrogen, carbon dioxide, and carbon monoxide are formed as by-products. These gases are not only responsible for the physical swelling of your LiPos, but two of the three are also highly flammable.

Electrolyte decomposition will occur regardless of how you handle your LiPos. So, going back to our first question, should you dispose of your LiPos if they start to swell up? The correct answer is - it depends. When properly cared for and used responsibly, electrolyte decomposition will still take place, however, at a much slower rate. If you only had your LiPo for a brief period and it swells up exponentially, then you are either doing something wrong, or the LiPo could be faulty - under this scenario, we will recommend you to safely dispose of it.

On the other hand, if your LiPo has gone through 50+ cycles and starts to show some swelling, we would consider this to be perfectly normal and would not recommend you retire it just yet. In theory, a swollen LiPo can still be fairly safe to use if everything else is intact and working properly. As noted, two of the three gases – hydrogen and carbon monoxide – are highly flammable and can become dangerous if there is a heat spike, or if exposed to air; both can be attributed to external factors which will be discussed below.

**Physical Signs Of Damage**

One of the first and most obvious ways to determine if your LiPos are safe to use is to physically examine them. A physically damaged LiPo, combined with swelling is really just a ticking time bomb. Most, if not all LiPo accidents happen for one reason: a punctured inner foil. When punctured and exposed to air, the mixture of gases and lithium ions will ignite and even explode.

After every use, check your LiPos for any glaring impairments. If you just came out from a hard landing with your RC aircraft or completed a bumpy ride on your basher, pay extra attention to surface dents, deformities, cracked wraps, wrinkled cells, and any damages to the battery connectors.

**Internal Resistance**

One of the best and more accurate ways to determine if your LiPo is functioning properly or not is to check the internal resistance (IR). IR ultimately dictates how efficient your battery is. A low IR implies greater efficiency while a high IR means the opposite. Just like electrolyte decomposition, IR will gradually increase over time, however, proper usage can significantly prolong the process.

A high IR will cause your LiPos to heat up very quickly while delivering a lower voltage; in layman's terms, it would mean that your LiPo is working two times harder while only delivering half of the results. Continued usage of a LiPo with a high IR will ultimately cause it to heat up and expand to a certain point where one of the inner cells may rupture causing it to explode.

When you first purchase your LiPo measure its IR. Generally, an increase of around 80-90% would indicate that your LiPo is nearing its end and you should probably dispose of it. So, for example, if you had an initial IR of 10 mΩ and after 150+ cycles the IR reads at 18 mΩ, this would suggest that your LiPo should be retired sooner rather than later.

**In Conclusion...**

As with most things, nothing is ever 100%. However, next time you reach the crossroad of deciding whether your LiPo is near its end or not, you could use these simple steps:

1. When you first purchase your LiPo, label it with the date of its first use. Using this date, you can gauge if the swelling is proportionate to its usage. Generally, HobbyKing's LiPo batteries can last 2-3 years on average.
2. Check for any obvious damages that may be detrimental to the inner wrapping of the cells. This may include, but not limited to the following: surface dents, deformities, cracked wrapping, wrinkled cells, and damaged battery connectors.
3. Using a smart charger or battery meter, check that the IR is not overly high. Even if only one of your three cells has an off rating, discontinue using it as any rupture to any of the cells can lead to a major disaster.

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***And that's it for another month.***

***As Don would say 'Fly hard, land soft'***

**Steve**