

OMAS Newsletter

February 2011 OMAS Newsletter

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Dear OMAS Club Members,

How time flies...the holidays are over and it is time to shake the dust off of this keyboard and get some information out about our club. You may be finishing some winter build projects and maybe you just took some time off and relaxed. In either case, spring is just around the corner and that means some good flying weather on the horizon. Our club and board meeting are quite productive and we are getting a lot of stuff accomplished. We still have some stuff to finish up but we are working on it.

As you know, no newsletter in December or January. The holidays kept me busy but looking forward expect to see them monthly.

Regards,

Jay

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1. Feature Article: Importance of Balancing Lithium Polymer Batteries

From the Falling Water Radio Control Flying Club, Soddy-Daisy, Tennessee

Importance of Balancing Lithium Polymer Batteries

by Dave Buxton

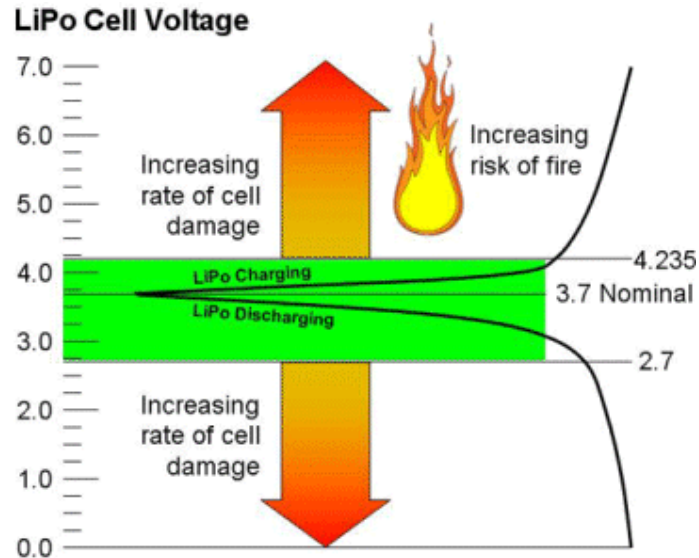
The primary reason for this article is to explain the importance of using a balancer for Lithium-polymer (Li-Poly) battery charging every single time you charge your Li-Poly batteries. Balancing will greatly reduce the risk of your batteries going bad prematurely.

Let's start with an illustration for those who may be electronically challenged:

- Imagine two 5-gallon buckets. One has been used for mixing paint and has several layers of it

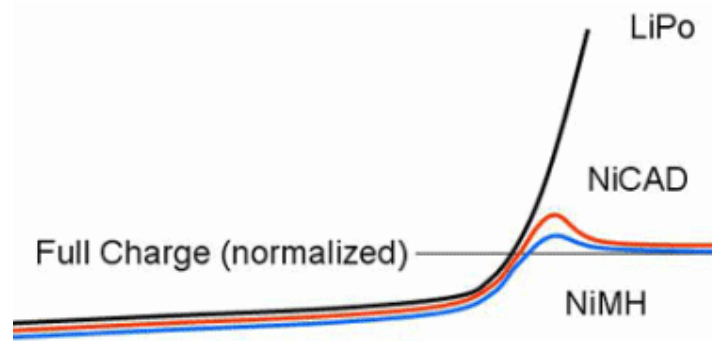
coating the inside.

- The bucket with reduced capacity (painter's bucket) will fill faster and will empty faster if the flow rate for each is the same.
- Normal aging and cell damage are like adding layers of paint. The cell with less capacity will charge or discharge faster than the other cells in the pack.
- Brand new battery packs can have cells that are poorly matched.
- Cell balancing is like drilling a hole in the bottom of the painter's bucket so it will fill no faster than the clean new bucket. We can put our finger over the hole as necessary to keep the two buckets in balance as we fill them.
- Using a Li-Poly balancer does not scrape the paint out of the painter's bucket.



Li-Poly chemistry accumulates a charge over a fairly narrow voltage range with rapidly diminishing capacity exhibited above and below this range. This explains why the voltage rises or falls more rapidly above or below this chemistry range. Operating outside this range of voltages will at best accelerate the aging process and can result in serious cell damage and even smoke and flame. A battery that could have lasted three years might fade away in less than a week if one cell has a significantly reduced cell capacity relative to its mates.

Nicad and NiMH cells self limit at full-charge voltage. At that point they start getting hot, which is why it is very important that Nicad and NiMH chargers detect full charge and switch to a trickle charge rate. Li-Poly cell voltage is not self limiting, which is why you should never use a Nicad style trickle charger. Diagram 2 normalizes the three charging curves so that their respective full-charge voltages appear to be the same.



You may be a newcomer to RC flying of indoor or park flyer airplanes on a very limited budget. This article need not scare you out of the hobby or into purchasing an expensive charging system. The smaller, simpler Li-Poly chargers do not charge batteries all the way to the top, allowing some margin for a cell being out of balance. At least do the following if you don't use a balancer:

- Make sure the charger is charging to an adequately conservative voltage that is less than 4.2 times the cell count.
- Check the cell count each time you use the charger. Wrong cell count is one of the leading reasons for smoke and fire, which has led to car fires and houses burning down.
- Once in awhile, at full charge, use a volt meter to confirm that none of the cells are being charged to more than 4.2 volts. If a trend is developing in that direction then its time purchase a balancer.

If the above is stretching it a bit, then you should at least add an external balancer (e.g. Blinky Balancer).

Consider the following limitations of an external balancer:

- May not be aggressive enough, especially for larger batteries or any battery with cells more seriously out of balance (Blinky balancing cost me an expensive battery).
- An integrated balancer can easily produce an alarm if you dial in the wrong cell count. An external balancer won't do that.
- A charger with an integrated balancer will slow down or even stop the charging process whenever the balancer is not keeping up.

If your flying practice sounds anything like the following, then you should (must) use a charger with an integrated balancing system:

- High battery stress style of flying (e.g. lots of full throttle, hot weather, flying until the battery fades, outdoor helicopters).
- Cell counts greater than three.
- Cell capacity greater than 2100 mAh for which you should at least use a Blinky external balancer.

Some chargers have an external balancer that communicates with the charger. This can be as effective as having the balancer built into the charger. →

Tips & Tricks:

Repairing Foam Wing: Did you crash your foam plane and now are missing a chunk out of your wing? You can use the spray in foam insulation you get from Home Depot in a can. Simply fill the void with the spray in foam but let it dry a good 6-8 hours. Then use a knife to shape to fit the wing. Next use some sand paper to further shape it. Then some CA will harden it and finish it off with a little touch up paint with an airbrush to match the original colors.

Up Coming Events:

- Club Banquet at the Golden Chain restaurant February 19th, Saturday night. Open bar at 6 pm and dinner starts about 6:30-7pm.
 - **Golden Crown of China**
10655 SW Beaverton-Hillsdale Hwy
Beaverton, OR 97005
(503) 626-7959
- Spring clean up coming in the near future
- BBQ and electric fly in. We will charge a \$10 landing fee and the BBQ will be free; hamburgers, sausage dogs and fixins'
- Combat fly in with braggin' rights
- Warbirds Over Banks Fun fly-bring out your warbirds.

Club Information:

- The club needs you! We are in need to board members. If you would like to help out run the club you are welcome and wanted!
- New year: Is your AMA current? Membership dues paid?
- Icy Carb Day: we had a fantastic turn out for Icy Carb day. The food was great, the weather clear and sunny, and a great time by all.

Final Thoughts:

I hope you enjoyed this edition of the news letter? I included a couple of good articles with good information in this issue. We have the annual banquet coming up February 19th. Some members donated prized for the raffle and the club will purchase some items from the hobby shops too. We are working out details on some fun fly events in the next couple of months so plan to attend.

Happy flyin',

Jay

Check out our local hobby shops and vendors to support our hobby.

www.keleo-creations.com

www.hillsborohobbyshop.com

Hillsboro Hobby shop is offering a 5% discount this month. Just show your OMAS club card and use the password "valentines day" to get the discount.

www.molrca.com

www.tammieshobbies.com

list of Oregon RC clubs:

<http://www.dustersrcclub.com/page9.html>

3. Quote of the Week

Ted: "We're gonna have to come in pretty low on this approach.

Elaine: "Is that difficult?

Ted: "Well sure it's difficult. It's part of every textbook approach. It's just something you have to do ... when you land.

— from the 1982 movie 'Airplane II, The Sequel.'

4. Stuff for Sale:

1. **Waco airplane ready to fly:** Super Tigre .90 engine, pitts muffler, 2.4 GHz receiver, digital servos. Only one flight on plane. A \$1000 plane for only \$500. Contact Tom Coffey 503-642-7831

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