

The Clark Flyer
The official publication of the
Clark County Radio Control
Society.

Volume 10, Issue 12,
December, 2010

Editor:

Richard Dower
richard.dower@comcast.net



2011 Club Officers

President

Matt Williams
mdwilliams863@comcast.net

Vice President

Randy Boardman
emptynesters@q.com

Secretary

Carter Strader
carterstrader@comcast.net

Treasury

Steve Piper
rcstev1@yahoo.com

Safety Director

Tom O'Neal
thomas@helodriver.net

Raffle Director

John Shirron
jreshirron@wa-net.com

Training Director

Dave Agar
kamanhusky@aol.com

Web Master

Dave Anderson
ccrcswebmaster@comcast.net

The Clark Flyer December 2010



Happy Holidays to all of the club members from the officers and directors of CCRS for 2011. As we make our way into the New Year, I want to personally thank those who have volunteered their time to the benefit of our club and its members, with special thanks to the officers, directors, and volunteer's whose efforts improve the club for all concerned.

The past year has seen membership swell to over 120 members, several successful events that have brought cheer to our service men and women overseas, fostered partnering with local hobby shops, generated revenue for the club, increased local awareness of the club's presence and

benefit to our community, and of most importance – they were FUN.

For those members that did not attend the annual Christmas party I am pleased to say that it was an overwhelming success. My understanding is attendance exceeded 70 members and guests, forcing the party to spill into the adjacent room so that all could be seated for dinner. There was no shortage of food and festivities, as the staff at Hula Boys restaurant kept a steady flow of Hawaiian style food flowing. After dinner the drawing and door prizes made their way into the crowd with the efficiency and levity that I so often observe in our members. Thank you John Shirron for the successful effort you put into selecting the vast array of prizes for men and women alike. Special thanks to Jim Taylor for organizing the event and to the volunteers that helped make it successful.

In my brief tenure as a member of CCRS, I have come to appreciate the unique value of our club and its members. I look forward to another successful year in 2011, and welcome any comments, suggestions, or ideas that may be put to use for the betterment of our club.

Matt Williams, president

www.clarkflyers.com

Christmas Party December 8, 2010



Nelson Scott chose the Twinstar ARF as one of four big airplane door prizes.



Daneal Boardman, won a door prize at the CCRCS Christmas party.



John Shirron, Door Prize Director, calls out the number for another one of the many door prizes given out at the



Ralph Suter won a Cherokee and Herb Redlinger chose the Super Stick.

The Christmas party was held at the Hula Boys Restaurant in downtown Vancouver. As the name implies, the menu had the flavor of Hawaii.

The party committee chaired by Jim Taylor did a good job in planning a great evening and attendance was almost twice that of the years before.

Thanks Jim, John and all who helped.



Dave Anderson's number was called first and he chose the Bearcat.

Thank You!

By Sandy Strader, nurse



Thank you to all of the club members that purchased items, donated money, or participated in the fun fly for “Team Gabriel” (Dr. Gabriel and his staff) to take with us to Haiti. Our trip was an eye opening experience; we all knew we were visiting a third world country but did not expect it to look like a scene out of “Slum Dog Millionaire!”

The Haitian people we met were very grateful for all the supplies we were able to bring as they are so much in need of the very basic supplies we so often take for granted in our every day lives. Many of them are living in cobbled together tent cities which have no running water or toilet facilities, and most are boiling water over open flames for cooking as well as cleaning. Not only were we able to give gifts of toys and food, but also packages of toiletries and toothbrushes that were donated by community members. Our work there was performed in less than ideal conditions as you can imagine, but none the less we were able to provide much needed quality medical care performing numerous operations with some very good results. Because of our trip a few people in Haiti will live much better lives than they otherwise would have. This was the third trip to Haiti for “Team Gabriel” since the disaster first occurred in January and I expect there will be more.

We did manage to get in a few moments of leisure time and taught the ambulatory children that show up

on the hospital grounds how to play catch with the baseballs and gloves that were received at the fun fly. This was truly a treat! The picture below is of Sony, who has lived at the hospital since January as he has undergone many surgeries and has many more to go. His parents live too far away to bring him back and forth and seldom visit him. He is a sweet little boy that follows hospital personnel around in his wheelchair. We, of course, gave him toys, goodies and food on a daily basis!

Again, please know how much we appreciated your support of our trip.



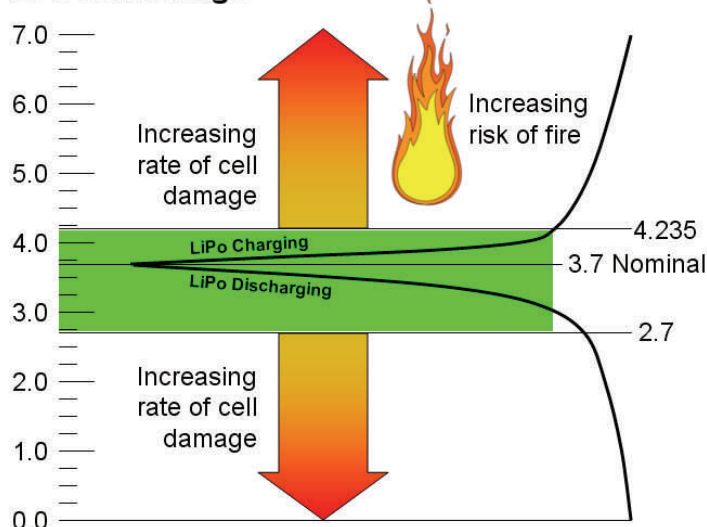
Importance of Balancing Lithium Polymer Batteries

By Dave Buxton

Sr. NPI Test Engineer/Architect at Tektronix and CCRCS Club Member

The primary reason for this article is to explain the importance of using a balancer for LiPo battery charging every single time. Balancing will greatly reduce the risk of your batteries going bad prematurely. Safety issues will be more the focus of a future article or two.

LiPo Cell Voltage



The above diagram shows what happens if we charge or discharge a Lithium cell at a constant rate (a very bad idea) instead of slowing and stopping the way it should be done.

Cell Capacity Illustration

It is important that we understand the role that individual cell capacity plays in the balancing process. Lets 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.

- Two buckets just purchased from Walmart may not be the same size.
- 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.
- 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.
- The drip hole in the bottom of the painter's bucket may not be big enough if too much paint has built up.
- Using a balancer does not scrape the paint out of the painter's bucket or add layers of paint to the clean bucket.

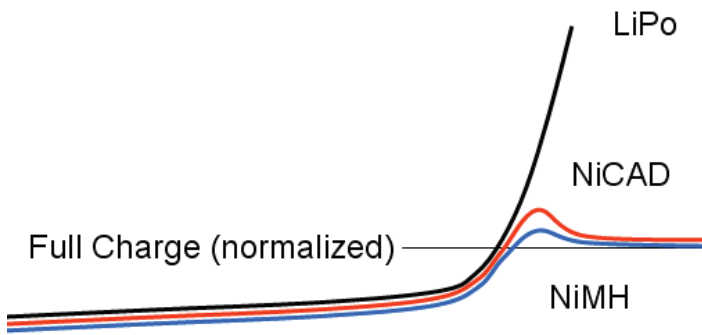
Lithium Polymer (LiPo) chemistry accumulates a charge over a fairly narrow voltage range with rapidly diminishing capacity exhibited above and below this range. E.g. the water level will rise much faster in the neck of the jug at right. This explains why the voltage rises or falls more rapidly above and 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



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.

Can I use a NiCAD Trickle Charger for my LiPo?

NiCAD and NiMH cells self limit at full charge voltage at which 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. LiPo cell voltage is not self limiting which is why you



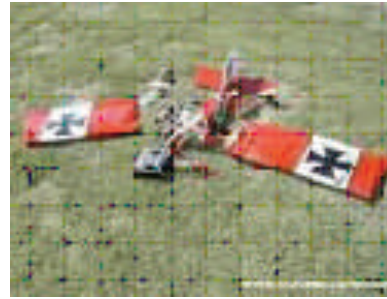
should never use a NiCAD style trickle charger. The following diagram normalizes the three charging curves so that their respective full charge voltages appear to be the same.

For all three chemistries, continuing the full charge rate introduces a very high risk of fire. Slowing to a trickle charge rate works for NiCAD and NiMH batteries, but not for LiPo cells.

One of the leading reasons why LiPo batteries have precipitated car and house fires is that the charger thought a three Cell LiPo had four cells and the charge process did not slow down and stop at the 3 cell voltage. When cell voltage gets moderately too high or low it accelerates the aging process, i.e. cell capacity is reduced and internal cell resistance increases. Let the cell voltage get below 2 volts and you have essentially destroyed it. Same if cell voltage gets too high. High enough and the cell becomes a fire hazard.

Can I use my LiPo after a crash?

The first thing to worry about after a crash is that there could be an internal short circuit that has not quite made contact. The larger LiPo packs especially



can put out 100s of Amps with violent results. Think fire hazard for the next 24 hours or so (you don't want an arc welder to spontaneously start up in the back of your car)

A crash that impacts the shape of the LiPo pack will reduce the cell capacity of one or more cells. The resulting imbalance can be serious. I experimented with a three cell pack that had one cell significantly out of balance. When the pack was charged, the cell voltage of the problem cell soon climbed to 7 volts and I disconnected the charger. Next I connected a car headlight to load the battery. I was surprised at how quickly the good cells had driven the bad cell all the way from +7 down to -7 volts. I quickly disconnected the load. I was able to get the battery to puff up and produce some stinky smoke, but almost no flame. These batteries are much more robust than they were a couple of years ago. You can still purchase LiPo packs that use a high risk internal connection scheme and are much more inclined to burst into flame without much provocation. Better to pay a bit more for a properly designed LiPo pack.

Flying a damaged battery in an airplane stands the chance of catching the battery and the airplane on fire. As you start down the runway for takeoff you will notice that the battery is performing very poorly because the bad cell is furnishing very little power. When ever you notice that one of your batteries is not performing as expected, become suspicious that one or more cells are damaged. Chances are your charging system can no longer keep the pack in balance or that the pack is safe to fly in your airplane. Time to properly retire the battery (don't just toss it in the trash if any of the cells carry a charge).

After a crash, even if there is no apparent damage, conduct all the necessary tests to ensure that it is safe to use again. Get a second opinion from someone with LiPo battery experience. As a minimum, be especially paranoid about the battery until it has been through a couple of charge and discharge cycles (e.g. use a LiPo Sack, metal or ceramic container).



through a couple of charge and discharge cycles (e.g. use a LiPo Sack, metal or ceramic container).

You may be a newcomer to radio control flying of indoor or park flier 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 LiPo 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 for a small light weight system:

- Make sure the charger is charging to an adequately conservative voltage that is less than 4.2 times the cell count.
- Check and double check the cell count each time you use the charger.
- Once in awhile 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. Such a trend can develop rather quickly.

If the above is stretching it a bit, then you should at least add an external balancer (e.g. Blinky balancer). Understand that a Blinky balancer may be adequate today and not so in a few weeks. Once in awhile be sure and check cell voltages as full charge is reached to make sure that balancer is adequately doing its job for that battery. Small voltage testers are available that connect to the balance leads to conveniently read out all the cell voltages. In flight balance lead loggers are also available.

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 may or may not give you the warning you need.

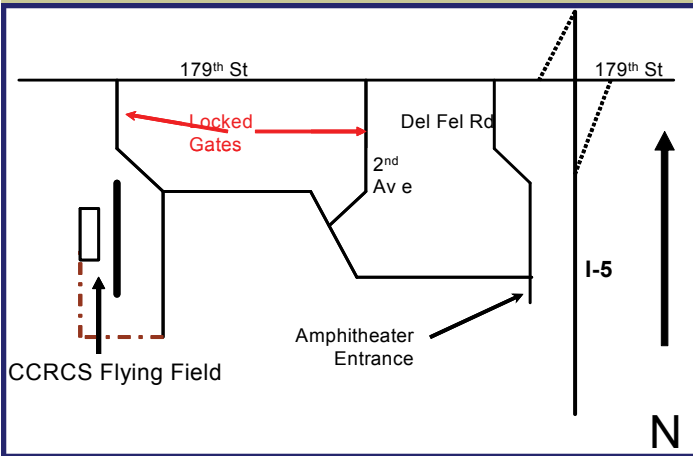
- A charger with an integrated balancer will slow down or pause when ever the balancer is not keeping up.

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 over a cable link. This can be as effective as having the balancer built into the charger.





Directions:

Exit 9 from I-5 (Battle Ground Fairground exit) Head west to 2nd Ave. There are two ways to get to the field. Spectators and club members can use the Amphitheater entrance (open from 8 AM. until 9 PM. most days).

If locked club members can use the club entrance off of 2nd Ave. You must be a member and know the combination of the lock!



January Door Prize

Hangar 9 Twist ARF

Wingspan:	54.75 in.
Overall length:	56.6 in
Flying weight:	6.5-7.5 lbs.
Engine size:	.60-.75 2 stroke
Motor size:	Power 60 outrunner
Radio:	4 channels

Clark County Radio Control Society members shop
at the following locations

HobbyTown USA

8720 N.E. Centerpointe Dr.
Suite 219
Vancouver, WA 98665
(360) 823-0904
Fax: (360) 823-0906

HOBBIES UNLIMITED

Discount Pricing on R/C Cars, Planes, & Boats
HO-N Trains, Plastic Models, Rockets, and Paints
Open 7 Days A Week
4503 N Interstate Ave
(Take Exit 303 off I-5)
(503) 287-4090



12024 SW Canyon Road
Beaverton OR 97005

Phone 503-644-4535
FAX 503-626-7490

Email Tammies@tammieshobbies.com



1128 Main Street,
Oregon City, OR 97045
Phone 503-656-2172

www.coyotehobby.com

Email: info@coyotehobby.com

Monday- Friday 10:00 AM - 6:00 PM / Saturday
10:00 AM - 5:00 PM / Sunday 12:00 Noon - 5:00 PM



Island Hobbies

13502 SE Mill Plain Blvd, Suite #C6
Vancouver, WA 98684
(360) 891-5572
www.islandhobbies.us

CCRCS MEMBERSHIP APPLICATION

2010

Applicants must be a member of the ACADEMY OF MODEL AERONAUTICS (AMA) before they will be accepted for membership in the Clark County Radio Control Society. (CCRCS)

The initial initiation fee and dues must be paid at the time of submission of application.

Dues are \$56 per year, or \$4.67 per month. (If you were to join in June your dues would be \$32.69) plus \$20 initiation fee. Any renewal sent in before March 1 will be discounted \$5. (\$56 less \$5 early renewal= \$51.)

Any member of the same household or any person holding a Junior AMA Membership receives a 50% discount on dues!

YOU MUST submit a photocopy (or show proof) of your AMA card with this APPLICATION.

Applicant Information

Name _____

Address _____

City _____ State _____ Zip _____

AMA # _____ Phone# _____

Email Address _____

Radio Frequency (s) _____

Applicant Agreement

I, the undersigned, have read and understand the AMA National Model Aircraft Safety Code, and will abide by the CCRCS By Laws. Before flying my aircraft I will thoroughly understand the boundaries and rules of the CCRCS flying field

Applicant Signature _____ Date _____

Send this application and a check made out to CCRCS (along with a self addressed, stamped envelope if possible) to

CCRCS

c/o Steve Piper

2438 Lewis River Rd

Woodland, WA 98674

e-mail: rcstevel@yahoo.com

Website: www.clarkflyers.com

Webmaster: Dave Anderson - ccrcswebmaster@comcast.net

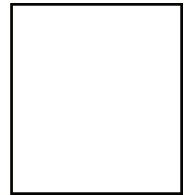
President: Matt Williams — mdwilliams863@comcast.net

UPCOMING EVENTS

- January 1, 2011 Hangover, Wingover, Noseover Fun Fly at the field.
- January 12, 2011 Monthly club meeting at Pythian Retirement Center, Wednesday, 7:30 p.m
- January 13, 2011 Indoor Flying at Sky Knights in Gresham. See website for information.
- January 27, 2011 Indoor Flying at Sky Knights in Gresham. See website for information.



The Clark Flyer
13000 NW 47th Ave
Vancouver, WA 98685



First Class Mail
Address Correction Requested



TO:

