



October 2012 Edition

Ken Miller Editor #51

BAS MEETING MINUTES HOBBY TOWN USA LONGMONT, CO. 9/12/12

Meeting called to order by PRESIDENT David Goodnow at 6:30 pm with 12 members present. Motion made by David Goodnow to accept the minutes as they appeared in last months newsletter. A second to the motion provided by Dean Ehn. Motion voted and passed.

TREASURE REPORT--Treasure Dean Ehn gave a detailed report of the clubs finances.

1ST VICE PRESIDENT REPORT--1st Vice President Augie Bruno reported we have 2 new members joining the club. They are **Noah Holland** from Boulder and **Brandon Marble** from Longmont. This brings our total membership to 95.

2nd VICE PRESIDENT REPORT--2nd Vice President Joe Sherran stated no safety problems at the field.

OLD BUSINESS-- Dave Goodnow gave a report on the runway maintenance. Rich Anderson gave a status of the Mal Meador youth program. Rich Anderson, Al Coelho and James Mack are giving instructions. Rich stated that James had a student solo this past week.

NEW BUSINESS-- Motion by David Goodnow with a second by Dean Ehn to seal the cracks in the runway this fall for a cost of \$780.00. Motion voted and passed. David also informed the club on the cost of a topcoat seal (2 coats of sealant) to be applied during warm weather with a cost of \$2,900.00. Also he added it would cost \$24,000.00 to apply 2" of new asphalt to the runways. Motion by Rudy Glick with a second by David Goodnow to purchase eight \$20.00 gift certificates from Hobby Town USA to be given away at a drawing one for each for the next eight meetings. Motion voted and passed. Motion by David Goodnow with a second by Joe Sherran to purchase 1 gallon of stain for the flight station benches. Motion voted and passed. Motion by Augie Bruno with a second by Joe Sherran to adjourn the meeting. Motion voted and passed.

SHOW AND TELL-- John Kolberg displayed interesting plans he purchased in the 60's of two full sized airplanes. One being the Smith Termite all wood construction with a Ford Model A engine. Designer Wilber Smith. The other plans were for a Corben Super Ace.

Respectfully Submitted Rudy Glick.

BAS Members 10% Discount.

Skip Miller Models would like to offer 10% off any of our products for any BAS members on all of our products from now to the end of the year. We are a horizon dealer, but don't have all of the items on our website. We can quickly get all of their products including the RTF, and supplies. If anyone wants something that's not on our website we can usually get it. You can contact us at

cody@skipmillermodels.com

Cody Remington Skip Miller Models 303-442-6454

www.skipmillermodels.com

More from Jim Ewing on Why Lithium Polymer Batteries often puff up.

If a Lithium battery is overcharged or charged too quickly, you end up with LOTS of excess free lithium on the anode (metallic lithium plating), and free oxygen on the cathode. A free oxygen atom is small enough to freely traverse the separator without carrying an electric charge, resulting in lithium OXIDE on the anode. Lithium "rust", in reality. Useless to us at this point, just dead weight being carted around inside your battery's wrapper.

But lithium oxide uses fewer oxygen atoms than existed in the ionized state, so you end up with, again, FREE OXYGEN. And people wonder why if you over-charge a LiPo underwater, it still ignites despite the lack of open air...

If it's over-discharged or discharged too quickly, the reverse is true, but you end up with Lithium Oxide on the cathode, but at a lower rate because there's simply less there. Basically, an abused battery quickly develops corrosion on both poles of the battery inside the wrapper. And the more it's abused, the worse it gets as the resistance goes up and it still gets driven hard.

This, by the way, is the most common cause of swelling today for our aircraft when flown with a high-quality pack. The reality is, these kinds of cells, regardless of their 'C' rating, are built for use where they last for several hours... not several minutes. While the chemistry if used as designed is good for thousands of cycles, we're driving them so far out of spec that we're lucky to get hundreds of cycles out of them. In most cases, too, our batteries are under-specced; If slow-charged and slow-discharged, many of these packs would often hold considerably more mAh than we think they do. That's one of the reasons we get the performance we do from them. Higher-C-rated packs also often introduce gelled electrolyte into the separator, and carbon or phosphorous nano-structures on the anode and cathode mixtures rather than the "pound it out thin and hope it's mixed right" approach used with sheets of anodes & cathodes today.

A number of cheap LiPos also use a bad separator formulation. Ultimately, it often boils down to using a dry separator with way too high of an internal resistance to hold up to manufacturer "C"-rating claims.

The internal resistance grows over time because a higher and higher percentage of the LiPo is simple Lithium Oxide, and the balloon grows bigger as more oxygen atoms are freed.

I'd also lump "poor anode or cathode chemistry" into this category, too. Ever get a bad battery out of a batch of good ones? Often it's because the mixture of chemicals was inconsistent, and you end up with too much or too little lithium on one side of the battery (well, in certain plates). A little heat makes everything work better for a Lipo. If you could fly your battery right at 140 Fahrenheit all the time, it would make fantastic power and be operating right in its happy zone. But it generates heat when charging, and when discharging. Hitting 150 results in significant metallic lithium generation, which as we can see from above is a major cause of puffing and cell destruction.

Similarly, the maximum 4.235v/cell limit is only at that mythical 140F. It goes down steadily from there, to about 4.2v/cell at room temperatures, and around 4.0v/cell below 50F, beyond which the over-abundance of electrons will again break chemical bonds and free lithium to bond with oxygen and create lithium oxide... which is just a disaster waiting to bond with humidity in the air if the LiPo ruptures, to create Lithium Hydroxide. Chemically, there are no LiPos that will not puff under certain circumstances.

But tightly-controlled humidity, a superb gel separator, nano-structured anode and cathode, and careful charging and discharging within manufacturer limits should also prevent puffing. Similarly, putting a pack that has been abused into a lower-discharge aircraft, even when puffed, often serves the purpose of stopping the puffing in its tracks because no more metallic lithium is being created in the cell by abuse.

Make sure those linkages are set up properly with Digital servos

Digital servos are always working to hold their position at full strength. So, if the servo has a point it has to fight in the linkage, it will burn itself out 'hunting' to try to hold its position. Slop at the neutral position is a very common problem where a standard servo wouldn't notice it. A digital servo will work very hard to try to hold the rod in position and will drain your batteries more quickly, eventually burning up the motor. To prevent these issues, make sure your linkages are tight and have absolutely no binding, stiffness, or friction

ASK A TECH

Q: How do you read the size given on a 3-bladed prop? If a 3-bladed prop is listed at 9x6, does it equal the performance of a 2-bladed 9x6?

A: All props are read in the same manner, regardless if it's a 2-, 3-, or 4-bladed prop. The first number represents the diameter and the second is the blade pitch. The pitch is the theoretical forward distance the prop will travel in one revolution. A 3-bladed prop will impose a greater load on the engine due to the additional drag of the extra blade. Thus, you should use a smaller diameter/pitch when using a 3-bladed prop.

Members October 2012 Birthdays

Ken Jochim

Bill Bancroft

Steve Van Aken

Chuck Drake

Robert Mendelson

James Dimmick

Jerald Warren

Mike Gulizia

Arnold Peckar

Our club has set aside Thursday evenings as flight training instruction at the field. Al Coelho, James Mack and Rich Anderson have agreed to be instructors for the Mal Meador Youth Training Program and will be at the field on Thursday evenings (weather providing) to provide instruction. The main focus will be for youth instruction, but anyone looking for help in learning to fly is welcome to come on out. Futuba and JR/Spektrum Buddy boxes are available to help get new students in the air. The information on the youth training program can be found on our web page. If you have questions or would like some help learning to fly contact.

Rich Anderson
anderson.rich@comcast.net

**BAS Meeting, Hobby Town
Longmont Colorado 6:30pm
October 10th, 2012**

A chance to win a \$20.00 Gift card to Hobby Town will given away in a drawing for all attending the meeting October 10th.

**See Web Page for Event Listings, Media Gallery,
Local Weather Stations, Classifieds, Member List,
Club Officers, Newsletters, Youth Training Program**

www.boulderaero.org