

Website of the Month

This month's website of the month is called Crazy Jet-Powered Vehicles. The link below has some pictures that I found amusing. Here is the link:

<http://aardvark.co.nz/pjet/turbinenuts.shtml>

Do you have a favorite website? If so, let me know and I will put it in the newsletter. Favorite online store, how to build, how to fly, etc- send me the link! My email address:

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LiPo Battery Charging & Storage Dangers and Solutions, Part 2

Part 1 of "LiPo Battery Charging & Storage Dangers and Solutions" was covered in last month's newsletter. Here is part 2 of Steve Klute's article:

Another interesting piece of video is of LiPo containment in an ordinary metal "Cash Box":

<http://www.youtube.com/watch?v=6M5ftkN9PtY>

What we seem to be seeing here agrees with a lot of what we saw above. When the space is confined during a LiPo event the pressure rises for a short time but if we have suitable area for venting (the gaps all around the lid in this case) the pressure dissipates rather well while keeping flame and sparks totally contained. One concern we see with any enclosed container is whether or not it can stay closed. If the lock on the box were not engaged for example or if it were not sufficiently strong, the lid could pop open and you would again have an open container with resultant flames and sparks. Of course you can always strap a box shut for security or place a heavy weight on the lid. It pays to be creative.

Another option is "Fire Safe" Boxes such as First Alert / LiPo-Safe.

They come in both metal and plastic styles. We first noticed them in the following foreign video.

<http://www.youtube.com/watch?v=IOQNE75B7XM>

This particular box is an adaptation for LiPo charging of a standard box for household valuables. It is rated as being able to withstand fire for at least 30 minutes at 1550 degrees F. without damage to the documents inside. The walls are actually built around a type of insulation which seems very much like wallboard. We found and bought one at Lowes (a First Alert) for \$19.98. With a few minor modifications it can be made ready for LiPo charging or storage. There are also similar insulated metal boxes.

Then there are the Charging bags:

Insulated bags for use when charging LiPos are quite common and some feel they are a good answer to preventing fire. Check out the following videos and see what you think.

A cheap bag:

<http://www.youtube.com/watch?v=ZEkewCjiDs0>

A better bag:

http://www.youtube.com/watch?v=Pul1TngeKe4&feature=player_detailpage#t=18

This one held up a little better, but still is not too secure!

Review:

So in summary of what we have learned so far from the Utah Flyers videos and others, it seems reasonable to expect a good enclosure with suitable venting to contain any flame and sparks and to dissipate resultant pressure with no external damage. ANY enclosure is far better than none.

What kind of enclosure works for you is a matter of how your shop is set up and your preferences?

We have seen the value of a **cinder block bunker, a new or used ammunition box, plain metal boxes (or metal tool boxes), metal or plastic insulated boxes and LiPo bags**. What you want to use depends on what you might already have or can buy at low cost, or you may have certain definite opinions. **The main point is “use something”!** Don't charge in the open in your garage or shop. If you have a detached shed, you might consider making space there to charge and store. Also, we highly recommend that you not leave your LiPos unattended for any length of time while charging. Tending to your battery charging is a great time to work on a plane or for your favorite refreshment!

What have we done?

We found the First Alert fire-safe box at Lowes as mentioned and originally planned to fix it to both charge and store LiPo's. Then we discovered we already had a metal tool box. So, probably the metal box will become the charging station (mostly due to the ease of running the wires by bending the lid very slightly for both at home and at the field. We have added vents to the First Alert box and plan to use that now just for storage (Although interestingly the 3/16ths inch brass vent tubes are the perfect size for banana plugs and can be used for charging also). A small slot for the balancing lead would be easy to cut and the lead could be sealed in place with epoxy to prevent motion and to reseal the slot. We also have a couple of old ammo boxes which may get vents added to be used for either charging or storage.

Final Note: Most any of the enclosures we have mentioned will increase the safety of charging and storing our LiPo batteries by many times. Even the fish tank in the Utah Flyers video is way better than charging or storing in the open. It is quite certain that if you set up containment as we have seen and discussed, the wire leads you currently have will be too short. You can buy nice flexible silicon wire from many of the hobby supply houses and extension leads for the balance function are also available and quite cheap. Don't let short wires keep you from having a safe setup! Be sure to properly size the charging leads if you will be charging larger batteries at a higher rate. At higher currents 10 or 12 gage wire is recommended. **Don't take any chances...charge safely.**

Steve Klute

See you at the field.

Alan Fry
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