

THE CARRIER WAVE

PHANTOM FLYERS R/C CLUB



AMA #393 SAINT CHARLES, MO

January 2021

Newsletter of the Phantom Flyers R/C Club

<http://phantomflyersrc.com>

CLUB OFFICERS

Contact Number

President - Bill Ahrens	(314) 913-3819
Vice President - Dan Dierking	(314) 406-4949
Secretary - Ed White	(636) 219-2255
Treasure - Jose' Espinosa	(636) 947-6067
Safety Officer - Dave Evans	(636) 448-4800
Field Manager - Don Grzina	(636) 233-0193
Chief Flight Instructor - TBD	
Activities Chairperson - Chris Sostman	(xxx) xxx-xxxx

Send Membership Renewals to:

Ed White

10 Wolf Ridge Ct

St Charles, MO 63303

Board of Directors:

Work

Home

Ed White	Retired (B-)	(636) 219-2255
Dan Sundman	(314) 749-4029	(314) 749-4029
Mitch Galatioto	Retired (C+)	(636) 734-6322
Dave Evans	Retired	(636) 448-4800

Phantom Flyers RC Club meeting on 28 December 2020

This meeting was conducted via Zoom which worked very well. President Bill Ahrens opened the meeting at 6:30 PM. There were 13 members present.

Tech Session - Bill Ahrens gave a short tech session on the FD-200 Discharger. This is an automatic discharger that will accept up to 200 watts of discharge power making it suitable for even large battery packs. It can be controlled by a smartphone app via Bluetooth. I have one also and find it quite useful.

Secretary's Report - The minutes of the November meeting were approved unanimously.

Treasurer's report - There was no Treasurer's report.

Safety Report - Dave Evans our Safety Officer was present but had no safety issues to raise. Nor did anyone else.

Field Manager's report - Don Grzina our Field Manager reports that the field has still not moved. Still in the same place as last month's report. Don completed winterizing the mowers. The red mower charging system is still non-operative. We now suspect a failed stator coil. Chris Sostman's boss will check into cost of a replacement for us.

Activities - the Activities Chair was not present.

GSLMA Report last 2 meetings are in the newsletter. They installed roll down curtains for ends of pavilion. They also installed a 12V power supply. And have a new map showing flying area limits.

Old Business

FAA released the final UAS ID requirements today. AMA is reviewing to see how it will affect us.

Dan Dierking continues to work on selling the donated airplanes and stuff. As of today, there is \$910 and will certainly go over \$1000. A motion was made, discussed and approved to award a 2-year complementary membership to the donator.

New Business

There were no new nominations received for 2021 club officers. A motion was put forward and passed to close the Nominations. Since there were no offices in contention, a motion was made and passed to railroad the nominees before any came to their senses. The club officers for 2021 are:

President - Bill Ahrens

Vice President - Dan Dierking

Secretary - Ed White

Treasurer - Jose Espinosa (call sign Covid)

Board of Directors - Dave Evans and Dan Sundman

The revised field safety rules were discussed. All comments were positive. A motion was made and passed unanimously to adopt all the changes to the field safety rules. These were put together by Mitch Galatioto (VP swansong?). Thanks Mitch!

A reminder, send in your membership renewals if you haven't already. We're pretty lenient on the late fee so don't include that just yet.

A motion to adjourn was passed at 7:09.

Ed White

Our Seasonal Non-Flying Time

Club members have been busy prepping and/or repairing models for the 2021 Flying Season.

Jose Espinosa is looking for a pilot to use in his models.

With an Xbox Kinect device, a PC and software, he was able to scan himself. With more processing he will have a file that he can use on his 3D printer.



I played with a process called Photogrammetry a couple of years ago. This does the same thing as the Xbox Kinect but is supposed to be at a higher resolution and the software is called Meshroom. My plan was to build a plastic display models, scan them and then I would have a 3D model that I could slice in sections or 3D print sections as needed. It could take hours for the software to process the high-resolution 50+ images from a DLSR camera. I decided, at that time, it might be easier to buy a 3D model or learn 3D CAD. Nice work Jose, I may have to revisit this method again.

The article below is from the Ampeer newsletter which I found rather interesting. It is posted in our newsletter with permission of the Ampeer editor. It was a response to this email:

I now have a Giles MK II ESR meter and it works great. I have also read a lot in the links you sent me. They sure helped. I was wondering if there is a level of ESR that suggests retiring the subject pack. I checked a 3S 2250mAh pack and got C=18, Max current 40 amps, and ESR in the mid-twenties. I put this pack in a Maule M7 model and my watt meter showed 10.95 volts, 436 watts, and 40 amps at WOT. This pack was used to set up the radio but was close to fully charged. I think it was five or six years old. I shut down immediately after getting the data because in the past I smoked a motor with excessive ground running. The motor can was never more than warm but it must have been much hotter inside.

Thanks and take care, Don P

Can A Battery's IR Be Used to Know When a LiPo Pack Should Be Retired?

What we commonly call the battery's IR, a value that is assigned to a battery's internal resistance measured by various devices, is a variable number, not an absolute number. It varies by the device being used to provide the value, the temperature of the battery and the state of charge of the battery (SOC). A few years ago, when I was testing a lot of different devices that supplied IR values, including the Giles ESR meter, Revo Honesty meter and the Vollrath BattIR meter, I also found differences in the provided IR values depending on how stable the voltage was in the pack when the measurements were taken. Once a battery has been charged, it takes hours to reach a voltage stabilized state, as measured by a voltmeter. The stabilized voltage can be quite different from the voltage at the termination of the charge, once the electrons have settled down from being "so excited". Once a battery has been discharged, even slightly by one of the measuring devices, it takes hours to reach a voltage stabilized state, as measured by a voltmeter. Throw in the battery's normal self-discharge, over time, and there are now even many more variables to contend with.

You didn't note whether you took the IR value before your motor test or after. Either way, you'd get slightly different values. Here is what Wayne Giles recently said about the Lipotool part of the meter that you are using on Sept. 08, 2020 on RC Groups. <https://www.rcgroups.com/forums/showpost.php?p=45395971&postcount=85> During the conversation, Keith Shaw's name comes up many, many times. The Ampeer Table of Contents (TOC) page contains links to Keith Shaw's published writings, as well as much of what Keith has done since his writings first were published. <http://theampeer.org/sitetoc.html> "The Lipotool will only work with lipos, not LifePO cells. Strictly it is based, largely empirically, on the measurements as taken by the ESR meter as we compared many real full discharge results with the Cell IR figure taken at 25°C to work out the heating calculation. This means that the predicted max safe continuous current would not over stress the cell, the criteria being excess temperature rise or sag and recovery of the cell voltage. John Julian and Mark Forsyth compared the results using some other chargers and the only ones that gave acceptable results were the FMA chargers and ichargers. One gave slightly higher results and one lower; sorry but I can't recall which was which now.

Many chargers give wildly differing results so we cannot vouch for their use in the Lipotool calculation. Note that 25 degrees Celsius is noted in Wayne's statement. That is 77 degrees Fahrenheit. Somewhere in the instructions for at least one of the tools I was testing for comparison, I remember 22 degrees C, about 72 degrees F, being noted as the "best" temperature, and that was what I used for my comparative testing of the devices.

If the same battery is tested at well above 22 degrees C, the value provided for the IR device will be lower than at 22 degrees C. If the same battery is tested at well below 22 degrees C, say 15 degrees C, or about 59 degrees Fahrenheit, the value provided by the IR device will be much higher than at 22 degrees C. To answer your question, "I was wondering if there is a level of ESR that suggests retiring the subject pack?" The simple answer is no. How I Determine When to Retire a Pack I have two 3S 2200mAh LiPo packs, of the same brand, that I've been using for the past three years in the same trainer-type plane. I don't believe that I ever checked their IR. They are used in a low amp draw situation. A pack is flown for two 8 minute training flights, using the timer on my transmitter, and usually not recharged at the flying field. The second pack is used in the same way. That provides 32 minutes of flight training on that trainer. I described how it is used to illustrate that the mission is always identical with the only variable, of consequence, being the wind on the day of the training flights, but because they are training flights, the wind cannot be very high for the student to fly the plane. After they are used, I put them in the LiPo Sack and measure the individual cell voltages after arriving home. After training, I usually hang around the flying field for a bit and my drive home takes 35 to 40 minutes or so. This gives the packs a good time to reach a stabilized voltage. For the past 3 years both packs have always been at approximately 3.75V to 3.8V per cell, which is what I use for a storage charge. If I were to see about 3.6V per cell, and knew that all of the flight conditions had been pretty similar to all of the previous flight conditions, I might want to start "keeping an eye" on that pack. Yes, this is an extreme example, but if the same type of mission is flown, for the same measured time, under pretty much the same wind conditions and ambient temperature, you can see when a pack starts fading.

There really is no simple answer as to when to retire a pack. All I can advise is when you notice a drop in performance, from what you normally experience, and it cannot be accounted for by environmental conditions, you might want to retire the pack to a different application or just permanently retire it. To reiterate, does just seeing a higher IR value on a device, for the same pack over time, indicate that the pack should be retired, not really, but it could be an indicator, sort of, if all readings are done under as identical conditions as possible.

Addendum

The point about the environmental conditions was really driven home this past fall. I was training the same students, using the same trainer plane and battery packs well into the late fall of 2020. The students had progressed to being able to fly in windier conditions. The temperature was in the low to mid-fifties, not in the 70s. The first time I got home from a training session, where these environmental conditions were flown under, and with the two 3S 2200mAh packs well rested, the resting voltage was, on average, about 3.5V to 3.6V per cell. The rest of the fall season the timer was reduced to 6.5 minutes instead of 8 minutes. I won't know until late spring, when the training season begins again, but I suspect these packs will be fine, and will continue to provide two 8 minute flights each again in the late spring, summer and early fall. Time will tell.

Phantom Flyers RC CLUB

(Be sure to explore our website: phantomflyersrc.com)

2021 MEMBERSHIP APPLICATION

- Regular \$150/year x ____ yr(s) = _____
 Family (IRS Dependents) \$155/year x ____ yr(s) = _____
 Non-Participant (Non flying) \$15/year x ____ yr(s) = _____
 Anonymous Donations Welcome

Note: All new applications received after 1 July of this year will receive next year's dues free

**** Late Renewal Fee **** \$15 _____

(Late fee required if member has not paid by 31 Dec)

Make checks payable to:
Phantom Flyers RC Club, Inc.

Total Amount Due = _____

	<u>Eligible Member</u>	<u>Additional Family Member</u>
Member Name (/Nickname)	_____	_____
AMA Number	_____	_____
Primary Phone (home/cell)	_____	_____
Secondary Phone (work/cell)	_____	_____
Street	_____	_____
City, State, Zip	_____	_____
Spouse's Name	_____	_____
Primary E-Mail Address	_____	_____
Can Mow Flying Field? (Yes/No)	_____	_____

My signature below signifies that:

I have read, understood and will abide by the Phantom Flyers RC Safety and Field Use Rules.

I understand that my participation in this activity is purely voluntary and I agree to hold Phantom Flyers RC Club, Inc. harmless for any and all liability for any injuries including death, which I might sustain while participating in this activity.

Signature: _____ Date: _____

Submit form and membership dues to:
 Ed White
 10 Wolf Ridge Ct.
 St Charles, MO 63303
 Please send S.A.S.E. if you want your membership card mailed

For Club Administrative Use Only	Dues Received _____ Date	Current AMA Received/Shown _____ Date
---	------------------------------------	---



<http://phantomflyersrc.com/>

<https://www.facebook.com/Phantom-Flyers-RC-Club-139791882811519/>

Check there for the back issues of the Carrier Wave Newsletter, mowing schedule, event calendar and club roster/contact information (handy for mowing).

Articles, pictures and tech notes for publishing in the Carrier Wave are always appreciated. Let us know what you are building, repairing or flying!

Send them to:

kevcox@charter.net