



PROP WASH

August 2017 / Issue 8

Last Meeting

Aug 24, 2017

Membership: 31
In Attendance: 14
Guests: 0

Topics

Treasurer
Bugs & Fungus
Mower Repairs
Mowing Schedule
Access Road
No Trespassing
Frequency Board
Raffle
Swap Meet
Website

Tech Tip

LiPo Battery
Performance
Page 3

Upcoming Events

Page 4

Next Meeting

Thursday
Sept 21, 2017
7:00 PM

@Marc's

After two previous postponements, heavily overcast skies and nearby rain had us on guard during our meeting. But a brief sprinkle was all we got, allowing for another pleasant cookout and a little flying. I heard a few more comments about Mark's Pietenpol, as he brought it back out. Nice looking little plane!

The club **Treasurer** position is available, as Jim Shickley decided to step down. If anyone is interested in helping in such capacity, please let us know. In the mean time, Marc will re-assume the duties.

At the end of July, a few of us witnessed several **bugs** that we thought may be young ticks. In response, Carl kindly provided some insecticide, and Bill sprayed the field with it twice, about a week apart. The spray was also mixed with a fungicide to help with the grass **rust fungus** that appeared. So if you notice an orange or yellow powder on your shoes, don't be alarmed. The fungus is not considered hazardous, but it can be spread via your shoes/clothes. So, you probably want to take some measure to minimize tracking it around... if it's still present.

In the past month, a couple **repairs** were needed on the **John Deere**. First, Jim Shickley had replaced a broken steering rod. Then more recently, Ray Ozmun replaced the front wheel bearings that had practically disintegrated! Bob Lieblein had also reported that he had to add oil to it. So, we should keep an eye on this, in case it's burning a little. We currently have a can of 10W-30 in the shed, but plan to replace it with some straight 30W, which is probably more appropriate.

The **mowing schedule** was reduced to just Wednesdays, and several members signed up to cover some dates. Thank you! You should have already received the updated schedule via email. A big thank you also goes out to Scott Weinau, who made a sizable donation, since he wasn't able to help with field maintenance.

If you mow, note that there are three gas cans in the shed. Since our tractors have relatively small tanks, you may need to refill once to complete the job. If you ever notice that we are low on spare fuel, but can not refill them, please let a club officer know, so we can address it.

Carl also spread more recycled asphalt on the **access road**, making our offroad trek smoother than ever, while substantially reducing the amount of dust that gets kicked up when it's dry, and mud when it's damp. Carl also mowed up close to the pond, so get your float planes out there, guys!

We are considering posting a "**No trespassing** without owner's permission" sign, since there has been some evidence of questionable "guests" in the area. Fishermen not releasing their catch, tampering with the rowboat, and tire tracks/grooves at the end of the flying field are some of the things we've observed.

Ken Hummel and Jim Kingsley installed a new post next to the shed, and mounted the **72 MHz frequency board** to it. The lock combination is "1010". Jim is also assisting with getting t-shirt orders placed and picked up.

The Flight Rules sign, fire extinguisher, and boat key are all in the shed. And the porta-potty should be pumped out by the time you read this.

Jim Hawkins spoke more on his experience with conducting R/C **raffles**, and showed a current ticket example. We then settled on more details for ours, changing one of the proposed planes, and adding a 3rd (sport) model to sweeten the pot. In order of value, the planes are the new *E-Flite Carbon-Z Cessna 150*, *Hobbyzone Mini Apprentice S RTF*, and *Flyzone Extra 300SX*. This selection should appeal to a broad range of pilots. And to draw non-pilots, we will offer an alternative store credit or cash value option, in lieu of the advertised model. Roughly 250 tickets will be sold at \$10 each.

We are still planning to collaborate with the *Westlake RC Club* on a **swap meet** this fall/winter. A meeting between the coordinators is in the works.

Please be patient while our **website** administration is handed off. There may not be any updates for an extended period of time.

With the waning daylight of fall creeping up on us, we will return to our off-season time & place for the **next club meeting... Thursday, September 21; 7:00 PM at Marc's.**

Until then... Clear skies & calm currents!

Jeff Williams
Secretary, LZRC



Special thanks to...
Krueger Insurance Agency

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Tech Tip

LiPo Battery Performance Overview



(continued...)

Capacity, Internal Resistance, C rating. For a given cell count, these are the primary characteristics governing the performance of a LiPo battery. For the beginner and non-high performance models, this may have little impact, other than slightly increasing flight time. But if you want to achieve the greatest sustained thrust, speed, and duration, you can't use just any battery.

You already know about **capacity**, typically stated in milliamp hours (mAh). In practice, this is the primary factor determining flight duration. But it also plays a major role in the battery's power output (More on that later).

There is also a correlation between capacity and size/weight. Though some LiPo chemistries are lighter than others, more capacity generally coincides with more mass. And since weight is a major factor in our aircrafts' performance, this trade-off must always be considered. Since actual capacity is not difficult to verify, the claimed value is generally close to what you can expect.

Though no less important, **internal resistance (IR)** is far less familiar to pilots, in part because it is rarely provided by the manufacturer. Just as in any electrical circuit, this resistance is a measure of how freely current (Amps) flows through/from the battery, and lower IR is better.

When your motor is calling for amps, especially under heavy load, a battery with high IR may not be able to provide enough amperage for the task at hand. This results in voltage sag, which is a temporary drop in voltage under load. Virtually all our packs will exhibit sag, but some are much worse than others. And they all get worse over time, as IR increases. This is why your older (or abused) packs don't have the "punch" they used to have. This also causes our batteries to generate more heat, and in extreme cases, temperature can rise quite rapidly. When this happens, internal gassing (aka puffing) and accelerated degradation of internal components is likely to occur. A quick temperature check is the easiest way to determine how hard your pack is working.

If this condition sounds very similar to what you associate with C rating, it's because IR essentially governs the output capability (aka C Rating). With time, use, and abuse, the IR will gradually increase, degrading performance. Though you cannot use a standard meter to measure IR, there are devices and smart chargers that can do so. And tracking it over time provides a good indicator of battery health.

Last, but not least, is the controversial **C Rating**. In theory, this is what you would focus on when shopping for a high performance pack. But due to a lack of industry standards, oversight, and honesty, this value is notoriously exaggerated by manufacturers.

To determine output capability (in Amps), the C Rating is multiplied by Capacity (in Amps). Remember when I said capacity also effects output? So, a larger pack can provide higher output, if you're OK with suffering the weight penalty. Cell count is not a factor. So, using a common 3S 2200 mAh 30C battery as an example, the calculation would be $2.2A \times 30 = 66A$ continuous output.

Slightly higher output is often quoted for "bursts" of several seconds, as long as the pack is allowed time to rest/cool between such demands. But since this characteristic can't be measured directly, we are at the mercy of manufacturers' accuracy in labeling, and independent testing and comparisons. I've seen credible tests that show little correlation between brands, making brand comparisons practically irrelevant. And though there are labels claiming in excess of 100C, many believe it is unrealistic to expect greater than 50C (continuous) with the current technology.

So, if such performance is important to you, your best bet is to do some research. Ask the demanding pilots at your club what they've had good experience with. See what the professionals are using. Find a trustworthy internet source who has used or tested different batteries. If you're more than casually interested in it, you might consider investing in instruments to measure IR and amperage. After all, it's difficult to be sure of what your systems require if you can't measure them!

Though any type of aircraft can be designed with lofty power requirements, EDFs and sport/racing drones are notoriously power hungry.

Battery technology is advancing quickly, and will continue to alleviate some of the performance issues we wrestle with today. LiPo-Graphene chemistries are the latest rage, promising even greater power density and output. But they are still relatively new.

For high performance, high powered aircraft, only a high output (C) battery can unlock its full potential. And if not adequate, the pack will suffer under the stress, limiting performance and failing prematurely.

Upcoming Events

9/1/2017 - 9/3/2017

Horizon RC Fest

Dayton, OH

Site: Museum of the United States Air Force
10AM to dark

Hosted by Horizon Hobby, featuring an RC airshow, drone racing, RC product demos, giveaways, refreshment vendors & hobby retailers.

Get hands-on with all kinds of RC vehicles & aircraft.

Open flying for AMA members.

Visit: HorizonHobby.com

9/2/2017 - 9/4/2017

Cleveland National Airshow

Site: Burke Lakefront Airport

Visit: ClevelandAirShow.com.

9/3/2017

Ravenna Thunderbirds Fall Float Fly

Ravenna, OH

Site: Lake Hodgson, 5331 Lakewood Rd.
Kurt Massar CD

Food & beverage available

9/7/2017 - 9/10/2017

4th Annual FPV Fest

Willard, OH

Site: Willard Municipal Airport

Visit: ReadyMadeRC.com

Come hang out with fellow FPV'ers!

Pilot reg: \$35 (non-profit, includes t-shirt & donation)

Spectators FREE and welcome

9/24/2017

Cleveland Free Flight Society

Elyria, OH

Site: Lorain County Community College
Richard Weber CD

10/5/2017 - 10/8/2017

Eagle Squadron Spookfest

Galion, OH

Site: Club Field

Norman Elliott CD

Visit: EagleSquadronrc.com

Gates open 11am Thursday

\$3 Parking donation, \$10 pilots fee

Public welcome. Primitive camping. Food & drinks.

Open flying, plane raffles, door prizes, night flying, foamy combat, RC paintball shoot

Swap Meets

10/1/2017

Corsair Model Aircraft Club

Swap Shop

Tallmadge, OH

Summit County Fairgrounds, 193 E Howe Rd.

Madeline Bruemmer CD; mbruemmer001@neo.rr.com

9am - 1:30pm

Tables \$12, Admission \$3

Refreshments available

10/14/2017

Cleveland Radio Controlaires

6th Annual Swap Meet

Mentor-On-The-Lake, OH

7779 Lakeshore Blvd.

Timothy Kearns CD; tkearns4@aol.com

Visit: geaugarc.com

9am-Noon

\$5 admission

Refreshments & hot food. Free parking. 50/50 raffle.

80 tables: \$17 per table (\$12 before Oct. 1)

Table setup 8-9am, Tear down at Noon

10/21/2017

Columbus Aero RC Annual Swap Meet

Grove City, OH

Grove City Church of the Nazarene, 4770 Hoover Rd.

Earl Davis CD; edavis20@columbus.rr.com

Visit: columbusaerorc.org

Tables \$10. Gen. Admission \$5