The Dead Stick Flyer

Newsletter of Swan Harbor RC

Volume 30, Number 4, April 2019

www.swanharborrc.com

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Inside this Issue:

Spring 2019 Fly-In:

The Club Spring fly-in will be held on Saturday, June 8, 2019 starting at 10am. The rain date is Saturday June 15, 2019. There will be Pit Beef, Pit Ham and BBQ Chicken and all the side fixings like last year for a nominal cost. Randy Fletcher will be preparing the hot food again this year. Come join us for a day of fun, comradery, flying and good eats! Other area flying clubs are invited to attend as usual.

There is no pilot registration or fee to fly, however, you must have the proper AMA and FAA credentials in order to fly.

President's Club Meeting & Discussion Topics

The meeting was held on Saturday, March 16, 2019 at the Golden Corral Restaurant.

- ***Old Business:***
  - ***None – all caught up***

- ***New Business:***

  - ***Dale & crew - general spring field maintenance & clean up: Dale and his member assisted crew worked to clean up the field, planted new plants, mulched, painted areas that needed a new or fresh coat of paint, and got the bulletin board operational again for the year. Dale also put up a new flight line wind sock and 2 crosswind directional flags on the opposite side of the runway.***

  - ***County maintenance - rolled field with topsoil fill-in & seeding:***

The County rolled the runway & surrounding field areas and filled in low spots with fresh top soil and seeded. The dip in the middle of the runway that runs across the field was filled in. That should really help our planes complete a smooth landing and rollout to a full stop.

  - ***Dale – BGE soil fill-in & grading over electric trenching & seeding: Dale called BGE back to complete the electric trenching job. Additional soil and level grading was needed along with over seeding to complete the job. Dale asks that we do not drive on the areas where the trenching was done. The soil is soft and our vehicles will leave ruts for sure that will have to be repaired by our members.***

  - ***Treasurer Report: Steve Snyder gave the current financial report and announced we are up to 67 members as of meeting time. This is a very good count for this time of the year!***

- ***Club meetings: May thru September at the field with a cookout – 10AM:*** ***Club meetings for the summer months will be held at the Swan Harbor RC flying field along with a cookout for attending members.***

- ***General Information:***

  Protection from the sun - now that spring has arrived and the hot summer sun is just around the corner, it is time to take care of ourselves as well as our RC equipment. The nature of our great RC hobby dictates that we are out in the sun while we fly our aircraft. We need to be mindful and diligent about taking care of ourselves against the harmful effects of the sun. It is very important to apply sunscreen and wear hats "wide brim, if possible" to protect our heads, necks and faces from the problems that it can cause down the road. Just friendly words of advice for our members.

- ***Dale's New RC Project – An RC Skydiver:***

  Dale has an RC skydiver on order and is expecting its delivery very soon. It is coming from France so it has taken a while. The skydiver is sold by Esprit Tech http://www.espritmodel.com and is called the Opale Skydiver. The skydiver is named "Steven" and will be trimmed in blue. Dale has also made a case for Steven for storage and transporting to the field. The skydiver will be launched from Dale's plane which will be flown by an assisting pilot and Dale will control the skydiver jump from another transmitter. You'll just have to wait for the real thing once Dale takes delivery and completes the set up. The test flight and initial jump should be fun. Stay tuned for more details. Dale is also an experienced skydiver himself with many jumps to his credit.

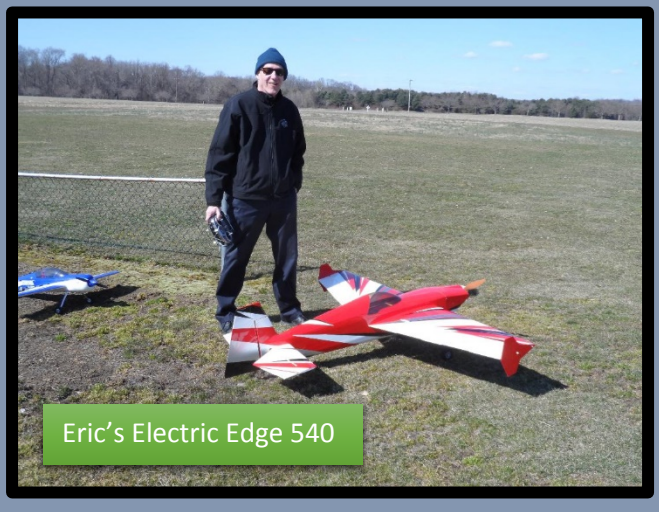
Club Photo Gallery:

Pics courtesy of Bob Walker:

Bob's Valiant, he won it at 2018 Xmas Party

Dan's MIG 15

Dan's P51 Mustang

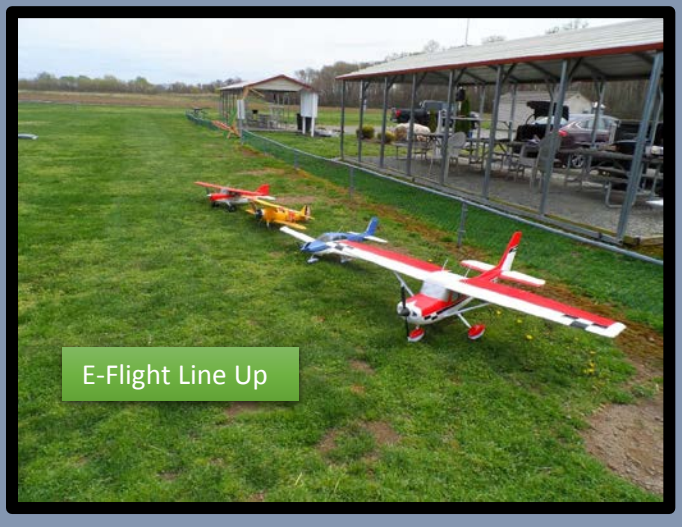


Eric's Electric Edge 540

Zeb's Cessna 152

Marvin's Radian

Herman's Jet Launch



E-Flight Line Up

Rick's Apprentice

Tom's Test Start Up – Bada Bing!

Tech Corner

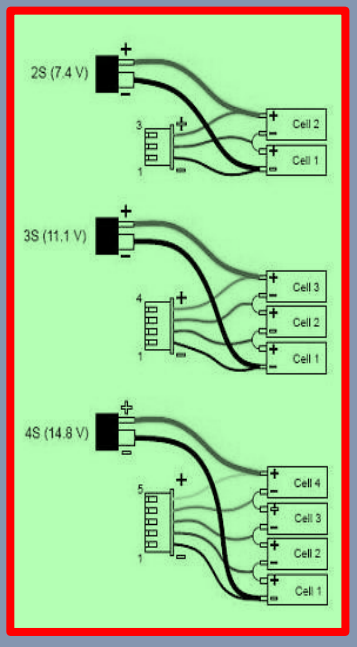
Lithium Battery "Balance Charging" Part 2 – "What does it mean" *by Ron Lazzeri*

Most RC users today know how to properly charge their batteries and do not need any specific advice or information. However, these articles are written for the new RC flyer or veteran flyer that needs more information on how to charge and care for their expensive batteries. See the "Part 1" article from last month's issue below for a general introduction.

- ***Which batteries get direct "Balance Charged"?***
  - ***In general, the batteries that are designed to be direct balance charged are as follows and are constructed with a "Balance Port" lead and a "Power" lead:***
    - ***LiPo (Lithium Polymer batteries)***
    - ***A123/Life batteries***
    - ***Li-Ion (Lithium Ion batteries)***
      - ***Note: Some Lithium Ion batteries do not have a "Balance Port" lead.***

- ***What does it mean to "Balance Charge" a Battery?***
  - ***Battery packs that can be "Balance Charged" are constructed of multiple individual battery cells wired together in "series" to arrive at their total voltage and amperage. In order to maintain and keep the battery pack at its peak performance and healthy state, it is important to charge and maintain the same voltage on each individual cell, within small tolerances. There are ways to check and maintain this using a Battery Checker Meter, but a current "state of the art" battery charger designed to "Balance Charge" batteries is the best way.***

- ***How are battery packs wired?***
  - ***To explain "Balance Charging" further it is good to look at how batteries are internally wired. This diagram shows how a 2S, 3S, and 4S battery is wired between the power lead and balance lead.***
  - ***The power lead has a (+) positive and (-) negative connector. This lead is connected to your RC device and should be matched to meet its rated voltage power requirements.***
  - ***The balance lead is comprised of multiple wires depending on how many cells are in the battery pack. Usually, the (-) negative wire is black and is in the same position on all packs. The other wires in the balance lead are connected to the remaining battery tabs. This lead is designed so the balance charger can read the voltage for each individual cell in the battery pack and adjust their individual voltages as needed, thus balancing the battery pack cells.***

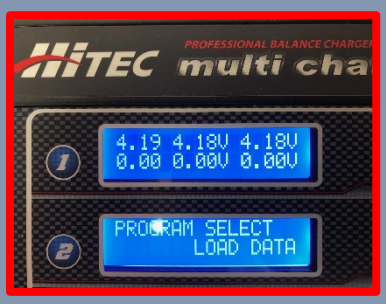


- ***Use the appropriate RC Battery Charger:***
  - ***As mentioned previously, it is very important to use a current "state of the art" battery charger for charging today's high voltage and high amperage batteries. The charger's settings automatically select the correct charging voltage for each battery chemistry. Over charging a battery can result in a damaged battery or worse, an exploding battery and fire. Ouch!***

- ***How to "Balance Charge" a battery pack:***
  - ***Here is a simple explanation of how to "Balance Charge" a LiPo battery pack. The diagram shows how a balance charger is connected to a LiPo battery pack. Please read your charger's user manual for specific instructions on how to use and configure your charger.***
  - ***The power lead is connected to the (+) and (-) ports on the charger and the balance lead is connected to the appropriate balance port on the charger.***
  - ***If your charger only has 1 large balance port you may need to use a JST XH Adapter as shown or equivalent adapter. The battery pack's balance lead is connected to the appropriate adapter port and the adapter's lead is connected to the large balance port on the charger.***

  - ***Next, you must configure your charger for the appropriate battery chemistry. In this example, choose the LiPo battery setting and the "Balance" charge method. Next, the charger will give you the option of changing the charge amperage rate and battery voltage. <u>These steps are vital to accurately charging the battery correctly</u>. You must select the correct amperage rate, like 1C or 0.5mah–0.8mah and select the correct voltage, like 11.1v for a 3S LiPo pack. If not, the charger may or may not catch the mismatch and could possibly over or under charge the battery causing an eventual problem.***

  - ***To look at the individual battery cells while the balance charge is in process, press the "INC" button to change screens to the individual cell voltage screen. This will show you the charger's readout of each cell's voltage. The display will read as follows: Cell 1: 4.19 Cell2: 4.18 Cell 3: 4.19***
    Cell 4: 0.00 Cell 5: 0.00 Cell 6: 0.00



- ***Some Useful "Balance Charging" Tips:***
  - ***If you have the time, it is beneficial to charge the battery at a rate of 1C or lower, like 0.5mah–0.8mah. This lower charging rate is much gentler on the battery pack keeping it cooler and allows the battery chemistry more time to absorb the charge. It will also allow the "Balance Charging" process more time get all cells in balance, if needed. Depending on where the overall battery pack voltage is, like 95% charged, the balance charge process may not have enough time to balance the voltage between all cells.***
  - ***If you determine by looking at the individual cell voltages that some cells are out of balance when the charge is complete, it may require you to discharge the battery pack down to a safe level then balance charge the pack back up to a full charge. This may take several cycles to equalize the battery pack cells. If it does not help, keep an eye on the battery pack as it may be a sign of a future battery pack failure. Your flight may not end well if the pack fails in flight!***

Lithium Battery Charging & Maintenance – Part 1: ***by Ron Lazzeri***

With all of the different Lithium battery chemistry types and charging equipment on the market today, I thought it would be good to write an article describing some general guidelines for the safe handling, charging, and storage maintenance of the various batteries.

This can be a very complicated topic to discuss with a lot technical details to observe and follow, but I will make this article easy to read and easy to follow for 3 of the most used RC batteries today. It will, however, take some thought and preparation on the user's part to be successful.

Note: Going forward "V" stands for Voltage

- ***Battery chemistry types:***
  - ***LiPo (Lithium Polymer)***
  - ***A123 & LIFE***
  - ***LiIo (Lithium Ion)***

- ***Standard battery voltage parameters per cell:***

	LiPo	***A123/LiFe***	***LiIo***
Nominal Rated Voltage	***3.7v***	***3.3v***	***3.6v***
Maximum Charging Voltage	***4.2v***	***3.6v***	***4.1v***
Storage Voltage	***3.8v***	***3.3v***	***3.7v***
Minimum Discharging Voltages	***3 - 3.3v***	***2.6 – 2.9v***	***2.9 – 3.2v***

- ***Battery Pack Amperages (MAH) and Voltages (DC):***

  - ***<u>Battery Cells</u>: all of the battery types listed above can be purchased in various amperage and voltage configurations. The batteries can be found in single or multiple cell configurations from 1 to 6 cells commonly known and packaged as:***
    - ***1S: single cell, 2S: two cells, 3S: three cell***
    - ***4S: four cells, 5S: five cells, 6S: six cells***

  - ***<u>Battery Voltages</u>: each of the configurations above determine the nominal voltage of a battery pack. With each cell addition to the pack, the voltage increases by the nominal voltage of the individual cell.***

    - ***Example:***
      - ***1S LiPo = 3.7v (1 x 3.7v)***
      - ***2S LiPo = 7.4v (2 x 3.7v)***
      - ***3S LiPo = 11.1v (3 x 3.7v)***
      - ***4S LiPo = 14.8v (4 x 3.7v)***
      - ***5S LiPo = 18.5v (5 x 3.7v)***
      - ***6S LiPo = 22.2v (6 x 3.7v)***

  - ***<u>Battery Pack Amperages</u>: battery packs will be configured with a certain amperage capacity rating like 1400mah, 2200mah, or 3800mah, etc. The packs will also be given a certain charge and discharge rating known as the "C" rating. The "C" stands for the capacity rating or the overall ability of a battery to accept or discharge a certain amount of amperage per the batteries voltage rating.***

    - ***Battery charging MAH/AMP rating:***
      - ***A battery will be given a charging rating which is the charging amperage rate you should configure in your charger to safely charge the battery. Could be 0.5mah, 1.0amp, or higher.***
      - ***A battery's charging rating is calculated as follows:***
        - ***Battery capacity / 1000 = 1C Rating***
          - ***Example 2200mah / 1000 = 2.2C (1C rating)***
          - ***To calculate a higher C rating like a 2C rating you would multiply the 1C rating x 2 = 4.4C. Higher C calculations would be calculated the same way for 3C, 4C, 5C, etc.***
        - ***The battery manufacturer should provide on the battery the safe charging C rating but if they don't, 1C is a good rule to follow.***

- ***Battery Discharging MAH/AMP Rating:***
  - ***The manufacturer should provide on the battery pack the discharge rating or capacity of the battery like 35-90C. This will enable you to properly match the battery discharge power capabilities to the power requirements of your plane, quad copter or car.***
  - ***The first number, 35C, is the normal sustained power discharge capabilities for the battery during its overall use.***
  - ***The second number, 90C, is the burst power discharge capabilities of the battery but only for a short duration. If you need to climb and consume a lot of power in a short period of time, this rating will indicate how this battery should perform under these circumstances.***

- ***Charging/Discharging Batteries:***

  - ***The process of Charging Lithium batteries is not that complicated. Here are some important tips for the proper charging of the battery types.***

    - ***The most important tip is make sure your charger has the capability of charging the battery type or chemistry you need to charge. This is very important because selecting the correct battery type means you are selecting the correct charging and cut-off voltage for the battery and will ensure the charger does not over-charge the battery, causing damage and/or an explosive fire.***

      - ***For example, your charger should have the capability of charging LiPo, A123/LiFe, and LiIo batteries and have the following charging functions like charge, balance charge, fast charge, storage charge and discharge. Additionally, the charger will have the ability to charge NiCD/NiMH batteries as well.***

    - ***Before charging your batteries, you must be sure to select the appropriate battery type before connecting your battery to your charger. Next, while in the charger's battery configuration mode, you will need to verify or change the amperage rate, voltage, capacity, and whether you want to charge, balance charge, fast charge, storage charge, or discharge the battery. This will tell the charger exactly what you want to do. If you accurately select the correct battery type and have a current charger with the current battery chemistry configurations built in, it will handle all the voltage parameters for you.***

- ***Charge Function**: this mode is a straight charging of the battery at the maximum charge voltage to arrive at the correct nominal battery voltage. This function does not determine if each cell is being charged correctly and could end up with one or more cells being over/under charged. The charger is only connected to the battery power lead.*

- ***Balance Charge**: this mode is a charge function that monitors each cell by using the balance lead on the battery. The power lead and the balance lead of the battery is connected to the charger. The charger will monitor and work to keep all cells at the same voltage by discharging any cell that is out of line with the others until they are all at the same voltage levels before the full charge process ends. This is by far the best way to charge Lithium batteries for safety, long term health of the battery and maximum performance with all cells at their peak voltage.*

- ***Fast Charge**: this mode is similar to the charge function except that it is done at a much higher amperage rate. This function is usually used when you are pressed for time and need the battery up to full amperage/voltage ASAP. This should be the exception charge rule and not your everyday rule. It will eventually wear your battery down if not handled correctly.*

- ***Storage Charge**: this mode is an automatic function to be used whenever you will not be using your batteries for 2 months or more. This function will get the battery to 70% charge level so the battery can be safely and optimally stored for a period of time. Generally, Lithium Polymer batteries do not hold up well long term by being stored at full charge. Both power and balance leads are connected to the charger.*

- ***Discharge**: this mode will discharge the battery down to each cells lowest permissible voltage level so you can then charge it back up and check on the health of the battery. It will tell you how much MAH capacity it took to discharge and charge it back up providing you an indication of the remaining battery capacity. Both power and balance leads are connected to the charger.*

- ***Physical Storage of LiPo Batteries:***

It is a good practice to store LiPo batteries in a fire proof container like a metal ammo case, an approved LiPo charging bag or box. LiPo batteries are the most vulnerable of all the Lithium batteries you will use so it is wise to safeguard your home, your car/trailer, or anywhere you store these batteries.

RC Vendor listing: ***by Ron Lazzeri***

If you have a "Vendor" that you use and would like to add it to our RC Vendor Listing and share it with other members, please send me an email with the details and I will add it to the list. Sharing this information will help new & old members alike. Thank You… ronlazzeri@verizon.net

Hobby King	***www.hobbyking.com***
Redwing RC	***www.redwingrc.com***
Hansen Hobbies	***www.hansenhobbies.com***
Pulse Batteries	***www.pulsebattery.com***
Electrodynamics RC	***www.electrodynam.com***
Valley View RC	***www.valleyviewrc.com***
RC Extreme Power	***www.rcextremepower.net***
Aircraft International	***www.aircraftinternational.com***
Tower Hobbies	***www.towerhobbies.com***
Sullivan Products	***www.sullivanproducts.com***
Motion RC	***www.motionrc.com***
Revolectrix	***www.revolectrix.com***
Fromeco Scale Avionics	***www. fromeco-scale-avionics-llc.myshopify.com***
Horizon Hobby	***www.horizonhobby.com***
Tail Dragger RC	***www.taildraggerrc.com***
Sonic-Tronics Inc.	***www.sonictronics.com***

B&B Specialties	***www.bennettbuilt.com***
Esprit Tech	***http://www.espritmodel.com***
Falcon Propellers	***www.falconpropellers.com***
Chief Aircraft	***www.cheifaircraft.com***
Wrong Way RC	***www.wrongwayrc.com***
NoBS Batteries	***www.hangtimes.com***
RC Extreme Hobbies	***www.xtremerchobby.com***

Note: The Musser's hobby shop has been downsized and is now a combination of outdoor hunting, fishing, and RC products store. The website will eventually be renamed to the new store's name.

35 Friendly Drive • Quarryville, PA 17566
Phone: (717) 284-0164
Email: info@xtremerchobby.com
Hours: Sunday 10AM-6PM
Monday-Saturday: 10AM-8PM (except holidays)

Radio Control Hobbies www.rc-hobbies.com/baltimorenorth

1512 York Road, Lutherville, MD 21093
Tel: 410-376-7076
Email: BaltimoreNorth@rc-hobbies.com
Hours: Mon-Friday 11:00am - 7:00pm
Saturday 10:00am - 6:00pm
Sunday 11:00pm - 4:00pm

May Club Meeting & Cookout

The next club meeting will be held on Saturday, May 11, 2019 from 10:00am-12:00pm at the Swan Harbor RC flying field located in Aberdeen, MD. There will be a cookout along with the club meeting and flying, weather permitting. Members are urged to attend and participate in the meeting discussions and planning for the club.

Club Meeting Schedule

- ***January thru April and October thru November:***
  - ***Monthly club meetings will now be held at the Golden Corral in Aberdeen, MD on Route 40 on the 2nd Saturday of each month 10:00am-12:00pm. We will be meeting in one of the small dining rooms and enjoy their full breakfast buffet.***
- ***May thru September:***
  - ***Monthly club meetings and a cookout will be held at the Swan Harbor RC flying field on the 2nd Saturday of each month starting at 10am. The Fall Club Picnic will be held on the same day as the September club meeting.***
- ***December:***
  - ***The December club meeting will be held at the annual Christmas Party. Details of this event will be made available in advance of the party.***

Membership Dues Policy "Revised March 2019":

At the March 16th club meeting, the Board and attending members discussed our current club's Membership Dues Policy and came to an agreement on a new set of guidelines to make it clear and fair for all members, new and existing. The following Membership Dues Policy was agreed upon and adopted.

To pay your club dues for the season, either as a renewing member or a new member, please forward them to Steve Snyder, Treasurer. As you all know we depend on our dues to fund projects and general maintenance for our club.

Existing Annual Membership Renewals:

- ***Annual renewal membership fee: $75.00***
  - ***Renewal period: 1/1/YR thru 3/31/YR (Payment is due by 3/31/19)***
  - ***Grace period is for 2019 only: 4/1/19 thru 4/15/19***
- ***If a member's renewal dues are not paid in full by 4/15/19, then that member is considered to be in default. If that member wants to join the club after 4/15/19, then that member is required to pay at the full new member rate. The member in default will not be permitted to fly at the field after 4/15/19 until their membership dues are paid in full. There will not be a Grace Period in 2020 and thereafter.***
- ***Note: All members are urged to pay their renewal fee as early as possible during the renewal period since club expenses are budgeted and paid based on membership fee receipts.***

New Membership Dues:

- ***Full year membership fee: $125.00***
  - ***Joining period: 1/1/YR thru 12/31/YR***
    - ***Fee Includes:***
      - ***$75.00 annual membership fee***
      - ***$50.00 1st year initiation fee***

- ***Note: New members joining the club on 9/1/YR or after of that same year are considered paid in full for the current year and the immediately following year. The reason for this exception is that the current flying season is about 75% over and we want to give new members an incentive to join our club.***

AMA & FAA Membership Requirements:

In an effort to ensure our club's compliance with AMA and FAA rules and regulations we are requiring that all members, whether a new member or an existing member renewal, the following documents are required to be submitted to Steve Snyder when dues are paid:

- ***Swan Harbor RC Membership Form***
  - ***The form can be found on the Swan Harbor RC website***
- ***Proof of AMA & FAA membership***
  - ***Provide a copy of each membership's email or registration card***
  - ***The copy must include the registration number***

Note: If any member sees an unknown person flying at the field, you should ask the flyer if they have a current membership card. If they say they do not, then ask them if they would like information on how to join. Explain that membership is a requirement for flying at the field.

General Information

Protection from the Sun: The nature of our great RC Hobby dictates that we are out in the sun while we fly our aircraft. We need to be mindful and diligent about taking care of ourselves against the harmful rays of the sun. It is very important to apply sunscreen and wear hats to protect our heads, necks and faces from sunburn and the problems that can cause down the road. Just friendly words of advice for our members.

What are Members Working On: Building a new aircraft, assembling an ARF, working on an old reliable? We'd love to hear what you are working on. Send us some information and a couple pics of your project and we'll post it in the monthly newsletter. Send your emails to: ronlazzeri@verizon.net.

Newsletter: To receive the Swan Harbor RC Newsletter by email, please send a request to: sslotnick@mac.com.

Photos: Anyone who would like to have new photos appear in the slideshow or the photo gallery is encouraged to send their photos to Stephen Slotnick at sslotnick@mac.com and he will add them as soon as he can.

Interest in Joining the Club: Please see the instructions on the Swan Harbor RC website www.SwanHarborRC.com under the heading "How to Join." Additional membership information or questions can be obtained from Steve Snyder at (443) 243-4324 or email: snyder800@gmail.com.