The Seminole Flyer

Charter member of the Academy of Model Aeronautics since 1969

AMA Charter Club 216

July 2014 Issue

Onerous Regulatory Trend Impacting RC Flight

Steve Hogan led a lively and insightful discussion at last Thursday's Seminole RC Club meeting. Steve is an attorney with the Ausley & McMullen law firm. He is working with companies that want to want to develop commercial applications of RC technology. The most promising areas are agriculture and wildlife management. His message is that both recreational and commercial RC flight are facing federal regulatory challenges.

Concerns are not limited to activities such as FPV and multi-rotors. The backlash from people doing stupid things with models and then bragging on YouTube extends to all of our hobby airplanes and helicopters. It's not just "drones," but all RC aircraft. Millions have viewed videos of RC aircraft flying over large crowds, stalking full scale aircraft and harassing wildlife. Incidents at the Alford Greenway that resulted in closing the area to RC flight is a perfect example.

Gordie Meade estimates that there may be as many as 30 Phantom multi-copters in the Tallahassee area. His estimate is based on information gained while working at the hobby shop. We only see a few of these at the field. So, it's anyone's guess where the other ones are flying and what they are doing. We are pretty sure that they are not knowledgeable of AMA safety guidelines.

Mr. Hogan points out that in 2012 Congress passed the *FAA Modernization and Reform Act* legislation that includes a *Section 336, Special Rule for Model Aircraft*. Congress intended for the special rule to protect recreational model aviation from government regulation. On June 25th, the FAA released their interpretation of the special rule that is onerous for hobbyist like us. The FAA interpretation violates the spirit of the federal law and early agreements in principle between the AMA and the FAA.

Some aspects of the heavy-handed interpretation are subtle, while others are quite explicit. For example, the interpretation effectively eliminates FPV for recreational pilots. On the more subtle side, the FAA interpretation allows that the FAA can redefine what a model aircraft or what commercial operation is at any time. This has the potential to impact our club, model manufacturers and vendors, competition sponsors and contestants.

Mr. Hogan strongly recommends that each member of the Seminole RC Club send comments on the FAA interpretation. There is strength in numbers. The deadline for comments is July 25, 2014. Guidance for submitting comments can be found on the AMA website:

http://www.modelaircraft.org/aboutama/AMAInterpretiveRuleResponse.aspx

We extend many thanks to Steve for his work on behalf of RC aviation.

Club Meeting News

Randy Yarborough, Secretary

Call to order – Mike Levine
The July 17, 2014, meeting was called to order at 7:00 p.m. by President Mike Levine. Mike introduced our guest Mr. Steve Hogan, and attorney with Ausley & McMullen.

Other visitors were Mr. Stefan Schmidt, Mr. Doug Janesek and Mr. Franz Renau. All three were recently displaced from the Alford Greenway and are interested in joining our club.

Club Calendar
The next club event on the calendar is the *Believe in a Cure Fly-In* on October 4th. The forms for AMA sanction of the event were mailed.

Secretary's Report – Randy Yarborough
In Randy's absence, the June meeting minutes were approved as reported in the June *Seminole Flyer*.

Treasurer's Report – Bill Ashbaker
The treasurer's report was approved.
There are no anticipated near-term expenses. Some expenses are expected as we approach the October event.

Safety Officer Report - Jim Ogorek
In Jim's absence, Gordie noted that there are no reported safety violations at the SRCC Field. There is an unsubstantiated report that displaced Alford Greenway flyers may use the sport fields at the front of Apalachee Regional Park.

Training Officer Report - Geoff Lawrence
Training activity has been light. There is no need for an additional training aircraft at this time.

Field Marshal Report—Gordie Meade
The field is mowed and is in premium condition. Gordie will be repairing some of the starting tables over the next couple of months.

Old Business
None.

New Business
Club board members are planning the October *Believe in a Cure* charity event. The event will be sanctioned by the AMA and will be advertised in *Model Aviation* magazine. This will be the biggest club event in recent history. We will be soliciting sponsorships and donations nationally. So, there will be many prizes. We will promote the event throughout the southeast. Event shirts will be golf-style rather than T-shirts and will bear sponsor's logos.

A question was raised whether we should continue to contribute event proceeds exclusively to the American Cancer Society. Board members will consider alternatives and members should email suggestions to the board as soon as possible. A decision on benefactors must be made by the August club meeting due to time constraints for getting sponsorship letters out.

Finally, Steve Hogan made a presentation on the state of federal legislation and rulemaking related to RC aviation. Over twenty club members participated and expressed concerns and suggestions. This club meeting program was outstanding and well worth attending. More programs are planned for upcoming club meetings.

Next meeting
Thursday, August 21, 2014 at Beef O Brady's, 1800 Thomasville Road 7:00 pm.

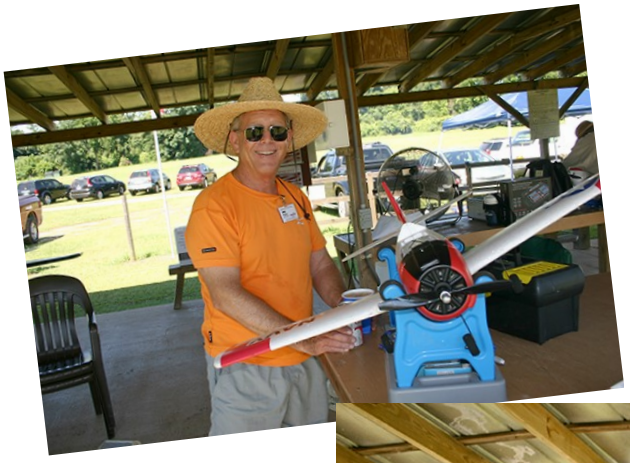
Adjournment
Meeting adjourned by Mike Levine at 8:25 pm.

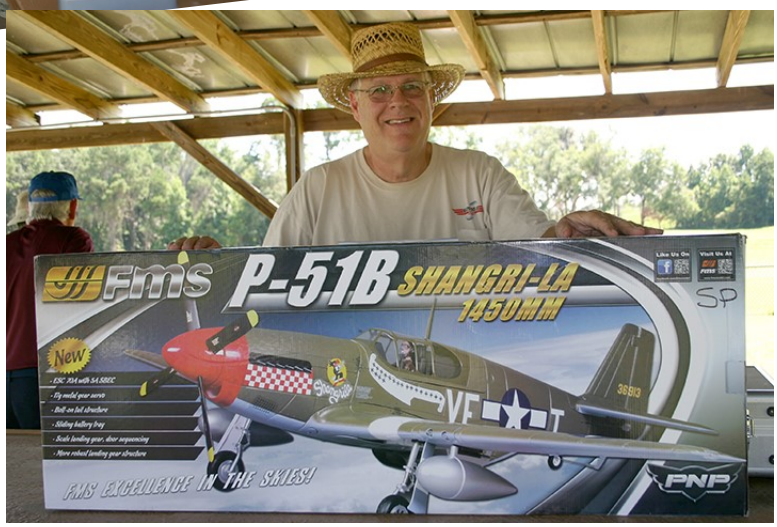
New Members

We all know Sylvia Bouton. She works hard at every event selling tickets and T-shirts and helping with food. Now we can welcome her as an official member and she will be flying. Way to go, Sylvia!

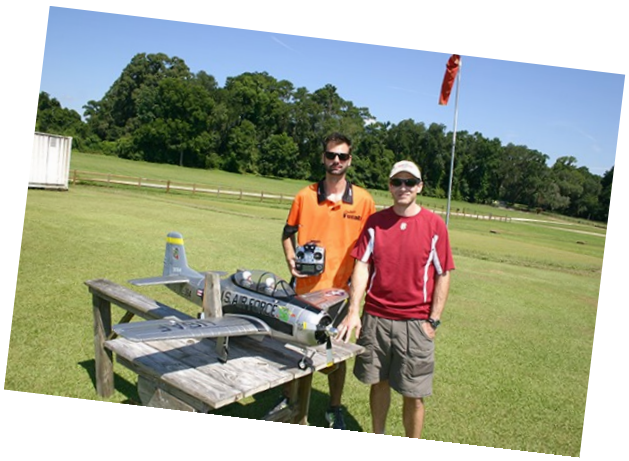
Around the Field . . .

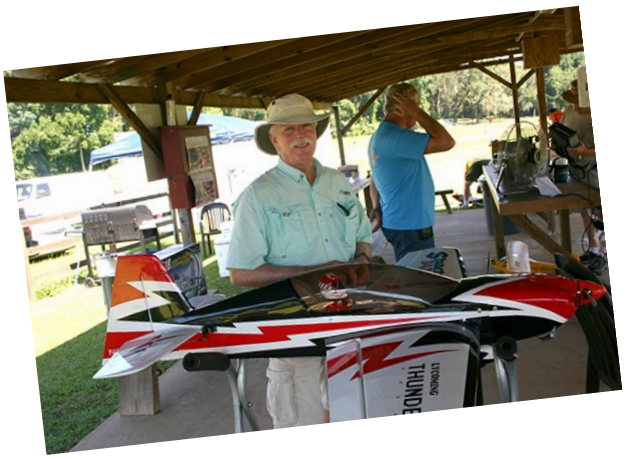
Our 2014 Firecracker Fly-in Event:





Special thanks to Jim Ogorek and Diamond Hobby for donating a nice P-51 B for the event raffle!





Around the Field is a monthly collection of member items and activities. Feel free to email photos and comments for publication to SeminoleRadioControlClub@gmail.com

Electric Flight for Newbies

Bill Ashbaker
bill.ashbaker@comcast.net

Batteries

We have a good number of our club members who are new to electric flight. To lend a friendly hand, this is the first of a series of articles to help our newer club members ease into the sometimes confusing world of batteries, motors and electronics. We will start with the care and feeding of lithium polymer (LiPo) batteries.

LiPo batteries became generally available around 2003 and have dramatically changed our radio control hobby. Some intrepid hobbyists built electric models powered by brushed motors and heavier nickel- cadmium (NiCd) batteries in the in the 1990s, but radio control aircraft were almost exclusively powered with nitro engines until the 21st Century. Models tended to be a little larger and heavier than they are today due to need for substantial structures to withstand engine vibration.

In the last ten years, there has been an exciting explosion of new model styles, sizes and technologies due to the introduction of the LiPo battery. Hundreds of new foamy models, more efficient electric motors, advances electronic controls, multi-rotor helicopters, electronic stabilization systems and autonomous flight have become practical because of high capacity, relatively light weight LiPo batteries.

What's Under the Hood?

LiPo batteries come in a large range of sizes from postage stamp dimensions to bricks large enough to build a house. The smallest are used for micro airplanes and helicopters and hold about 110 mAh of electricity. In the hobby world, the largest hold about 5,000 mAh and some up to 10,000 mAh are emerging.

LiPo batteries are described by their total **voltage, capacity** in mAh and how much **current** in milliamperes they can handle safely.

Voltage is determined by the number of cells in a battery pack. Nominally, there are 3.70 volts per cell. Therefore, a three cell battery (also described as a 3S battery - three cells connected in series) is an 11.1 volt battery.

Capacity describes how much energy is stored in the battery. Theoretically, a 2,800 mAh battery can deliver 2,800 milliAmperes (or 2.8 amps) of current for one hour. That same battery can deliver 5.6 amps for one-half hour. In other words, this battery can deliver a range of current and time combinations as long as the current multiplied by the time equals 2,800 mAh. However, a battery cannot be completely drained or it would be damaged. Only 80% of a battery's capacity is useable without damage.

Current handling ability of a battery is described by its "C" rating. C-rating is simply a way of saying how fast a battery can be safely discharged. The C-rating is inversely proportional to the battery's internal resistance. The maximum current a battery can handle safely is determined by multiplying its capacity in amps by its C-rating. For example, a 2,800 mAh battery rated at 20C can safely handle 56 amps. (2,800 X 20 = 5,600 milliamps or 56 amps). At higher currents, the battery will overheat due to its internal resistance. Currently, LiPos are available from 15C (less expensive, but limited) to over 65C (very expensive). 20C to 30C batteries can handle most model airplane needs at reasonable cost.

So, if you purchase a 14.8 volt, 3,000 mAh, 30C battery (4S3000 30C) you will get a battery pack of four side-by-side 3000 mAh cells that can handle up to 90 amps of current.

Maintenance

A typical individual LiPo cell in a battery is nominally rated at 3.70 volts, but measures around 4.20 volts when fully charged and 3.00 to 3.30 volts when discharged. Never discharge a cell below 2.8 volts or it may be damaged and may not charge again. Once again, the total battery voltage equals the total of the individual cells. The total voltage of a 3-cell (3S) battery ranges from 12.6 volts when charged to 9.0 volts when discharged.

It is a good idea to purchase a LiPo battery tester to check battery voltage while out flying. Of course, these come with a range of features and prices. Diamond Hobby sells a nifty little one for $7.99.

Battery chargers allow you to both charge and discharge batteries. It is best to store batteries about 3.80 to 3.85 volts per cell, but fully charged is better than discharged. Do not leave batteries in a discharged condition. Batteries self-discharge at a slow rate and will, eventually, go below the 3.00 volt level and self-destruct. Your battery charger should allow you to half-charge/discharge a battery to bring it to about 3.82 volts per cell for storage. It is good to adjust a battery's charge to a storage level at the end of the day. Your batteries will have a longer life.

Purchase a good quality LiPo battery charger that includes individual cell monitoring connector. If a battery contains more than one cell, it should have a little wire bundle with a white connector coming out of the end of the battery pack. This is the charge monitoring cable. Each wire in the cable is connected to one of the cells and allows the voltage in each individual cell to be checked.

Individual battery pack cells can get "out of balance." That is, one or more of the cells in the pack may discharge at a higher rate during flight. This leaves one or more of the cells at a higher voltage at the end of the flight. If a charger does not have a cell monitoring connector, the charger can only sense the total voltage in the battery pack and stop charging when the total voltage of the pack reaches the pack specifications. It cannot discern that some cells are charged higher than the others. After a few charge-discharge cycles, one of the higher than average voltage cells could become overcharged and start a fire.

You can use a LiPo battery tester, mentioned above, to see when cells are getting out of balance. When you see a 0.02 to 0.03 volt difference between the highest and lowest cells, it is time to balance charge. LiPo battery chargers have a balance mode that can be used to bring all cell voltages in line.

Be Safe or Be Sorry

A new user of LiPo batteries should exercise a reasonable amount of caution. LiPo batteries are high-technology devices that require knowledge of how they work in order to be safe. LiPos can be dangerous if mishandled. Take a look at this YouTube video to see what happens with abuse or overcharging:

www.youtube.com/watch?v=4OsBc8RqSKU

Scary!!!

Many of us toss the little piece of paper listing safety precautions into the trashcan the first thing after we open a new LiPo battery package We all need to read it at least once. So, let's talk about safety.

Do not expose a LiPo battery to extreme heat. This includes leaving the battery in a closed automobile in the summer or in direct sunlight for extended periods.

Do not attempt to charge a damaged battery.

Do not overcharge a LiPo battery.

Always use a battery charger designed for LiPo Batteries.

Be careful that the charger is set for the correct number of cells in the battery pack. Be careful to set the charge rate so that it is appropriate for the battery pack.

It's easy to determine the correct number of cells . . . just count them, but what about charge rate? Use a 1C charge rate to charge safely and extend your battery life. A 1C charge rate is equal to the battery capacity. Most charges are set using amps as the unit of measurement. So, a 3,300 mAh battery should be charged at 3.3 amps. A 500 mAh battery should be charged at 0.5 amps and so on.

Don't leave your battery unattended while charging. Don't charge your battery on or near combustible materials. It is a good idea to put a smoke detector over your charging station. It is a good idea to charge your battery in a flame-proof container with a cover. A ceramic pot or a commercially available charging bag is good.

When the Inevitable Happens

After a crash, do not try to remove a smoking battery from your model. It's better to lose your favorite model than your favorite hand! There are fire extinguishers and sand buckets in the pavilion at the field. If a battery smokes or burns, use either sand or an extinguisher to control the fire. Be very vigilant and prevent grass or brush fires during dry weather.

RIP

Eventually, LiPo batteries wear out, either from abuse or long service. A battery that does not give full power when you advance your airplane's throttle or a battery that is getting "puffy" (called venting) needs to be retired.

For safety reasons, LiPo batteries must be fully discharged at a very slow rate before disposal. Do not throw even a partially charged battery into the trash. You will have some very unhappy trash collectors when the battery bursts into flame inside of the truck during the trash compression cycle.

A safe way to discharge a battery is to submerge it in a plastic bucket of salt water. The bucket should have a lid, but it should not be air-tight. To prepare the salt solution, mix 1/2 cup of salt per gallon of water. Drop the battery into the salt water and allow the battery to remain in the bucket of salt water for two weeks.

To dispose, remove the LiPo battery from the salt water, wrap it in newspaper or paper towels and place it in the normal trash. Unlike nickel-cadmium (NiCd) batteries, LiPo batteries are environmentally friendly. They are landfill safe.

Hope this column clarifies more than confuses. We will discuss motors next month.

- Fly Safe -

Classified Ads

Anyone in the club who wants to sell or buy RC equipment, send an email to seminoleradiocontrolclub@gmail.com with a very short description. We prefer a one or two line description: what it is, condition, price, who to contact and email or phone.

For Sale

Airplanes

Precision Aerobatics Addiction X, 50 inch wingspan, very good condition, $350, Robin Driscoll,

850-597-2424 , robin.marcy@gmail.com

Powerplants

SAITO FA-82a 4-Stroke Nitro Engine with extras, new in box, $490, Bill Ashbaker, bill.ashbaker@comcast.net

Electrical Accessories

Thunder Power LiPo Charger Model TP-1010C, like new, $40, Bill Ashbaker, bill.ashbaker@comcast.net

Field Equipment

Hobbico Ultra-Tote Plywood Kit, new in box, $12, Bill Ashbaker, bill.ahbaker@comcast.net

Seminole Radio Control Club
Tallahassee, Florida

SRCC Officers

President	Mike Levine southwoodmike@yahoo.com
Vice President	Jeff Owens jfolso@comcast.net
Secretary	Randy Yarborough rdyarborough@gmail.com
Treasurer	Bill Ashbaker bill.ashbaker@comcast.net
Field Safety Officer	Jim Ogorek jim.ogorek@yahoo.com
Field Marshal	Gordie Meade lmeade@fsu.edu
Training Coordinator	Geoff Lawrence k4nkc@comcast.net

Flight Training

Primary flight training is available by appointment on Saturdays from 10:00 am until 2:00 pm when the weather is nice and not too breezy. Contact the Training Coordinator or one of the instructors to make an appointment:

Geoff Lawrence 850-591-6879

Mike Levine 860-922-4050

Jeff Owens 850-644-4765

Bill Ashbaker 850-656-5932

Randy Yarborough 850-523-0020

Jim Ogorek 850-766-2477

Matthew Hendrix 954-448-2738

Field Hours

Electrics/Sailplanes	9:00 AM till 9:00 PM
Gassers/Nitros	12 Noon till Dusk
Electric Service	8:30 AM till 9:15 PM

The Seminole Flyer is a publication of the Seminole Radio Control Club of Tallahassee, Florida.

We welcome and encourage items for publishing in *The Seminole Flyer*. Please submit your suggestions to SeminoleRadioControlClub@gmail.com in Word format. Thank You.

www.seminolerc.com