The Seminole Flyer

www.seminolerc.com

A chartered member of the Academy of Model Aeronautics
AMA Charter #216, 1969-2008

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

AUGUST 2008

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Letter from the Editor- Stephen Warmath

As I update the Club Calendar every month and delete events passed, I can't help but notice how short the list is becoming. The year has really been flying by for me. There is still plenty of heat and daylight left for all those activities we all enjoy. Flying, swimming, sports, fishing……or a combination of two……. brings us to this month's featured video link. What could be more enjoyable than fishing on a warm summer day…..**with an RC helicopter?** Talk about precision bobber placement! http://www.wservernews.com/4HA6HM/080714-Helicopter-Fishing I would have used a little longer line myself. **Contest News** exposes a couple of celebrities among us. Way to go guys!
Rick Sunderland sent in some tips on using some common household items for repairs to that flying beauty. A123 batteries are a newer breed of batteries explained in this month's offering of **A123 Cells.** New to electric flight and need some 411 on motors? **Electric Motors 101** is included as well. Also for the newcomers and the curious, this month in the Beginner's Corner, advice on **Picking the Right Trainer** is offered. **Support your local Hobby Shop.**

Happy Building and Flying- Steve :o)

Chief Pilot- Shannon Black

Another month has passed and we are one month closer to cooler weather and more comfortable flying conditions. But for now, we must continue to deal with the heat and humidity. Remember, if you are flying in the early afternoons, drink plenty of fluids and use a good sun block. Nothing ruins a great weekend of flying like a bad sunburn. We have braved the heat the past few weekends with a few rag-tag cookouts to promote attendance. Even our planes seem to get lazy in this weather. Frank has returned from several recent scouting missions and will be getting several new models into Hobbytown USA in the upcoming weeks. Please remember to support our local hobby shop.

The next pair of events for the Fun Fly series will be held Saturday, August 9th. We had some great events so far and everyone continues to enjoy this series. Please come out and support your fellow flyers. While I'm talking about contests, please congratulate both Gordie Meade and Jeff Owens for their success in recent competitions. Gordie placed 6th in the Nats this year, and is the second alternate for the world team. Jeff had been competing in the Senior Pattern Association contests, and has placed 1st in the past four events. Way to go guys, keep it up.

Until next month, see you at the field.
Shannon

Club Calendar

August

- **7- Club Meeting at the Field 7:00 pm**
- **9- Fun Fly Series- #4**

September

- **4- Club Meeting at the Field 7:00 pm**
- **6- Fun Fly Series- #5**

October

- **2- Club Meeting at Grace Lutheran Church. 7:30 pm.**
- **4- Fun Fly Series- #6**
- **11 Fall Fly-In**

November

- **6- Club Meeting at Grace Lutheran Church. 7:30 pm.**
- **8- Fun Fly Series- #7**

December

- **4- Club Meeting at Grace Lutheran Church. 7:30 pm.**
- **6- Warbird Fly-In**

Chief Copilot- Mike Atkinson

Upcoming AMA Regional Events

Delray Demolition Derby

FL
8/09/08 - Delray, FL (A) Delary Demolition Derby for 750(O). Site: Palm Beach Downs Park. Craig Buttery CD, 17620 47 ct N Loxahatchee FL 33470 PH:561-791-0251 email: cccdad@bellsouth.net. Visit www.rccombat.com and

www.palmbeachrc.com. 8 rounds of Open B combat followed by 4 rounds of 2548 scale combat. Trophies for 1st through 5th place. Sponsor: PALM BEACH RADIO CONTROL ASSOC

Florida State Championships

FL
8/30/08-8/31/08 - Palm Bay, FL (AA) Florida State Championships for Cat III 101, 102-103, 104-105, 101C, 102-103C, 104-105C, 120, 122, 128, 150, 151, 152, 153, 154, 155, 158, 160, 161, 162, 163(JSO), 124, 140, 142(J)(SO). Site: Plam Bay Field. James Juhl Sr CD, 22911 Ironwedge Dr Boca Raton FL 33433 PH:561-395-6267 email: jimjuhl@bellsouth.net. NFFS events: Old Time, .020 Replica, A Gas, B Gas, C Gas Fuselage, A Gas, B Gas, C Gas Pylon, HLG, Rubber Cabin Lg and Sm, Rubber Stick Lg and Sm, Commercial Rubber, Nostalgia ¼ Gas, 1/2A Gas, A Gas, B Gas C Gas, Rubber/Mulvhill, E-36, Bounty Hunter, Open Glider, Dawn Unlim Glider, Super D Gas. Sponsor: FLORIDA MODELERS ASSN

Chief Treasurer- Sam Varn

Editor's Note: The Treasurer's report is published for Members only. The public version of the Newsletter does not include account balances.

PayPal payments came in pretty good during July but we still have about 34 members who have not renewed as I write this. If one of them is you, it's time to pay your dues!

Not much else to report at this point as I've been traveling quite a bit this month, so here's our current numbers:

Petty Cash: **$0.00** Premier Checking: **$0.00** Capital City Checking: **$0.00**
Capital City Savings: **$0.00** SunTrust CD: **$0.00**
Total Funds: **$0.00**

Sam

Chief Scribe- Steve Warmath

The July meeting was called to order at 7:15 pm Thursday July 3rd, 2008.
A request for a motion to accept the Secretary's May meeting minutes was made, seconded and passed.

Visitors/ New Members- Russ Warmath from Clemson, SC visiting brother Steve. (Rotor Head)

Treasurer's Report- Sam read off the current numbers. Dues are past due. No dues, no fly. There are still a lot of outstanding dues to be paid. The CD matures July 10. There is a 10-day window for reinvestment. He said he was looking around for good rates. Sam was considering reducing the amount this year due to cash flow. A check was sent to the American Cancer Society. John Hall asked about maybe investing in a Money Market account to give the club flexibility on no penalty withdrawals. Sam said that generally the return rates are lower. He added that he didn't care where the money was invested and that it was a club decision. A motion was made to accept the Treasurer's Report, seconded and passed.

Old Business-

- The Fall Fly In and Warbird Fly In were added to the Club Calendar. The dates are October 11th and December 6th respectively.
- Chris Ferrell reported that A 10 kW propane or natural gas generator would cost around $2,000.00. A smaller gas powered one (5kW) would be about $500.00. With discussion it was estimated that the generator, some wiring and fans for the pavilion would cost around $1,000.00 with the smaller generator. A motion was made to authorize funding in that amount and seconded. There followed a lengthy discussion on the need for a generator, how it would be secured and accessed, noise issues and component installation. The motion was ultimately passed 12-6. David Miller was named as the committee chairman for the project.

- Shannon announced that hats and t-shirts were available for purchase. Also club stickers and AMA aircraft identification stickers were available.
- Gordie said that the pilot stations and spectator fence had been painted with water sealant.
- It was noted the road grading had still not been done.
- Sam reported that he had a little information on the proposed Memorial Plaque. If it were made of bronze, it would cost about $4.00 a square inch. He wanted to look at less expensive options, and would continue to research options.

New Business-

- Shannon indicated that there was some general consensus that the Fun Fly series event scheduled for Saturday July 5th should be cancelled due to it being a holiday weekend. There were no objections from the members present. The next event will be as normally scheduled, August 9th.
- Gordie Meade gave a briefing on a rather serious accident the previous day that injured Bob Burke. He said that upon Bob, landing his Funtana 90, noted the plane stopped responding to commands was running at about 3,000 rpm and running in circles on the ground. Bob ran out onto the runway attempting to catch is plane and the wing hit his leg causing the plane to spin around causing the prop to hit him on the calf of his leg. The injury sustained required over 130 stitches and a significant loss of blood. Gordie noted that we had been lucky in the past for not having any major safety problems. He reminded everyone that the pilot station fencing is for a pilots protection for stray aircraft and other accidents. Steve noted that had Bob been flying alone, the situation could have been a lot worse and cautioned that flying alone was not recommended. The question was posed regarding EMT's being able to find our field and if it was in the 911 databases. Gordie said that in this instance they made the call, directed them to the Landfill entrance where they were met and guided to the field. Shannon said the landfill park was "mapped" but not the field. He said he would investigate how the club location could be added to the database however they generally require a street address. Also recommended was to provide GPS coordinates to the field for Life Flight. Sam had spoken with Bob and said he was doing well and that Bob wanted to thank the club members who helped him during his ordeal. A question was brought up about our Club sign location and the idea of moving it so the field could be more readily identified. Mike Atkinson noted this issue had come up in the past and that the County did not generally want the public to know we were here and were resistant to moving our sign to the landfill entrance. There were some other issues related to DOT right-of-way. Gordie added that the club had two incidents this year. Bob's accident and an incident where a helicopter caught on fire and there was no operable fire extinguisher. David Mills said he provided a new extinguisher to the Club at his expense because the one we had was expired. It was noted that replacement of the Club's fire extinguishers was an old business item approved for action, but never done.
- Gordie continued with several safety items. There is an issue with the starting tables. The issue was they are being turned around and facing toward the runway. He said the tables should face the pits. This prevents debris from being blown into the pit area and provides a line of sight for the pilot to the runway while starting his aircraft. He reminded everyone that there is no flying behind the safety fence. He stated that very club member was a safety officer and that if a member observed a safety violation; a polite reminder to the offender was encouraged. Finally a reminder that our aircraft are not worth the risk of serious injury.

Announcements-

- Shannon thanked Gordie for the recent, needed mowing of the field.
- Shannon also thanked Mike Atkinson for putting the eats together for the meeting on short notice.

With no additional business, the meeting was adjourned and flying resumed at 7:50 pm.

Nooooo……We’re going on our Honeymoon.
And so it begins.

Contest News

Here's a bit of news from the contest scene. I have been practicing for Senior Pattern Association contests this year. I have been competing in the Sportsman class (they have Novice, Sportsman, Expert, and Sr. Expert (over 60)). So far these are the results:

> First - Apopka FL
> First - Alabaster AL
> First - Atlanta GA
> First - Asheville NC

The next contest is at Mac's field in Americus GA August 16,17.

Jeff

On Jul 25, 2008, at 8:42 AM, Shannon Black wrote:

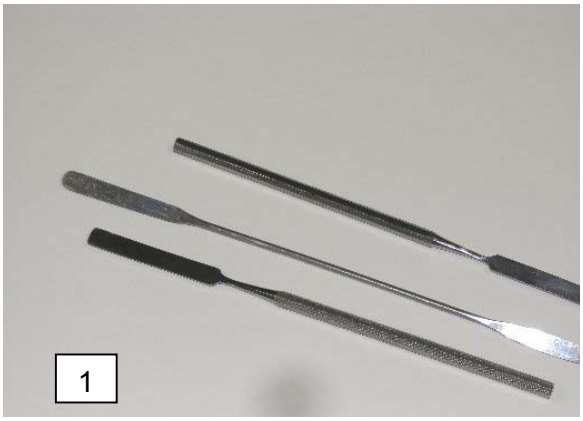
Hey guys, I 'm sorry for the late notification on this, but I was just browsing the net and found that our own Gordie Meade placed 6th in the Nation at the 2008 F3C Heli Nats. Looks like he went up against some pretty prestigious competition and still came out very near the top. Congratulations Gordie, we're proud that you call Seminole RCC home.

Shannon

Repair Tips- Rick Sunderland

I am repairing a broken aircraft and I thought I would share some of the techniques and tools that I use.

Picture (1) shows some of the stainless steel palette knives used by oil painters. They can be purchased at any art supply store. I use them to mix and spread epoxy. They wipe clean and if the epoxy hardens it will chip off with no problem.


1

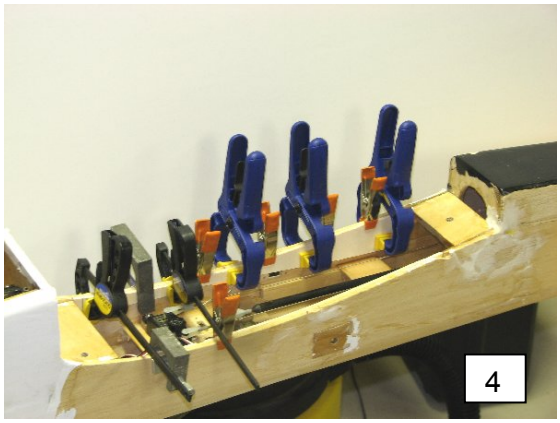
Picture (2) is of a butter tub. I use them for small parts removed from the aircraft, but I use the lids to mix epoxy.
You can use both sides of the lid and you can carry the glue to the repair without having to worry about drips.

2

Picture (3) shows some of the clamps I use to hold things together. These clamps can be purchased at Lowe's or Home Depot.

The last picture (4) is the aircraft being repaired with the clamps being used after I mixed the epoxy and spread it with a palette knife.

3


4

A123 Cells by Carlos Reyes From RCadvisor.com

Electric model airplanes have been around for roughly three decades. A huge problem in the early days was battery energy density. In other words, they simply weighed too much for the amount of juice you could get out of them. This situation has improved dramatically in recent years with the advent of Li-Poly cells, but a battery pack for a larger model can easily cost hundreds of dollars. The advent of electric cars, such as

the Toyota Prius has spurred an enormous amount of research into new battery technologies. In this article, I will describe an alternative to Li-Poly batteries that offers intriguing possibilities.

A123 Systems (www.a123systems.com) produces Lithium-Ion Nanophosphate cells. These cells have a nominal voltage of 3.3 volts and can withstand continuous discharge rates of 30C. They can be safely discharged down to 2.0 volts. The voltage remains fairly constant through the discharge cycle, but they do have a sharp drop-off at the end. Expect 300 cycles before you notice any reduction in capacity while at 1,000 cycles you'll have 75% of the original capacity. They are very safe. Overcharging or over discharging will not cause an explosion and will have little effect on the life of the battery. Balancing the cells when they are charged is still a good idea, but not absolutely required. They can be charged immediately after use in 15 minutes.

The cells are available in two sizes. The original M1 cell has a capacity of 2.3 Ah and weighs 70 grams (2.47 oz). A newer, smaller size can hold 1.1 Ah and weighs 40 grams (1.41 oz).

The primary source for A123 M1 cells has been DeWalt 36-volt portable power-tool battery packs. Each pack contains 10cells. I purchased two of these for $100 each through EBay. The prices appear to have gone up recently to the $120-$130 range. Single cells can also be purchased online for $15 from a growing variety of vendors. You can find two of the smaller cells in a Black & Decker VPX battery pack, which sells for about $15. The smaller cells can also be had for $12.50 each.

There are many Li-Poly chargers that support or can be modified to support the charging of these A123 cells. Because of the sharp voltage drop-off when discharged, you are probably better off using a timer when you fly. Otherwise you need your ESC to shut off the motor when 2.0 volts per cell is reached.

Bottom line? These cells give you 70% the energy density of Li-Polys for about 45% of the price. For many of us, that is a good trade-off. They are extremely safe and can be charged in 15 minutes. If you end up buying half as many battery packs because of the shorter charge time, then they become a much better value.

Electric Motors 101 by Vic Walton
From the San Gabriel Valley Radio Control League, South El Monte, California

If you're like me, you sometimes use technology that you just don't know that much about. Take electric motors—how do they work really? I knew it had to do with magnets and electromagnets, and something about brushes, but I hadn't taken the time to figure out how they all worked together.

And now we have "brushless" motors—how do they work? So I did a little reading and have shamelessly cobbled together this primer from various Internet sources.

In a typical "brushed" DC motor, there are permanent magnets on the outside and a spinning armature on the inside. The permanent magnets are stationary, so they are called the stator. The armature rotates, so it is called the rotor. Clever, eh? Picture a big horseshoe magnet. Now take a big nail and drill through the middle cross-wise, and put a wire through the hole; now the nail can spin head-over-heels. Wrap some wire around it, and then attach it to a battery. You have an electromagnet right?

Now this particular arrangement isn't that useful; the nail just sits there. Of course, if you were to reverse the current, it would flip around, right? And if you were really clever and fast, you could reverse the current again, just as the nail was flipping, and it would flip back. This is what the brushes in a brushed motor do. They make contact with terminals on the rotor (called the commutator) and as it spins, at just the right spot they break contact and reconnect on the other side, causing the electric field to reverse, spinning the motor around another half-turn (or one-third turn, since most electric motors have three coils for efficiency). The horseshoe magnet is your stator, the nail the rotor.

This setup works and is simple and cheap to manufacture, but it has limitations because of the need for the brushes to press against the commutator:

• It creates friction.

• At higher speeds, brushes have increasing difficulty in maintaining contact. They may bounce off the irregularities in the commutator surface, creating sparks. This limits the maximum speed of the machine.

• The current density per unit area of the brushes limits the output of the motor.

• The imperfect electric contact also causes electrical noise. Brushes eventually wear out and require replacement, and the commutator itself is subject to wear and maintenance.

• Having the electromagnet in the center of the motor makes it harder to cool.

So in comes the brushless DC motor. In this design, you put the permanent magnets on the rotor and you move the electromagnetic to the stator. Think about that. The electromagnets are on the stator—they are stationary. That's a problem because now you need something even more clever than a commutator and brushes to flip the polarity of the current at the right moment. This very clever thing is the microcontroller in your ESC.

What it does is sense the position of the rotor (utilizing something called the EMF feedback through the main phase connections, which I have decided I don't need to understand) to switch the field rapidly at just the right moment to pull the permanent magnets on the stator around at the RPM that you have requested. This system has all sorts of advantages:

• There is no sparking and much less electrical noise. A happy situation for our radios, particularly as the motors get bigger.

• There are no brushes to wear out.

• With the electromagnets on the stator, they are easier to cool.

• You can have a lot of electromagnets on the stator for more precise control.

• The timing of the pulses sent to the electromagnets on the stator can very precisely adjust the speed of the motor.

So that's how it works. But one more thing: what's an inrunner and what's an outrunner?

An inrunner is a brushless motor with the permanent magnets rotating inside the electromagnets; in an outrunner this situation is reversed, with the permanent magnets on the casing of the motor and the windings of the electromagnets inside. Outrunner motors generally have some torque, but spin somewhat slower. This makes them better for spinning large propellers, which our airplanes need. Inrunner motors spin a lot faster but with less torque; this means that in order to get the same torque, you have to put the inrunner in a gearbox, adding weight, complexity, and most importantly, cost. However, if you can afford it, this is the most efficient setup for any given size motor.

By the way, airplanes aren't the only things that use brushless motors. Computer hard drives, CD drives, and hybrid cars are some of the other uses. It's only a matter of time before someone takes the brushless motor out of a Pruis and uses it in an airplane.

Beginner's Corner- Picking the Right Trainer

The multitude of radio control airplane kits available can dazzle – and sometimes overwhelm – newcomers. The temptation for many is to purchase a plane with fancy flying capabilities or fantastic looks. And who can blame anyone for being attracted to these planes? The danger, though, is that most of these are just too complicated for beginners. Why spend hundreds of dollars on a plane and not be able to get it off the ground, or worse, crash it?

 The airplane must have good stability. All quality trainers have some dihedral in their wings for this purpose. In addition, the plane needs a high lift wing so that at lower airspeeds it will still fly. Symmetrically shaped wings will stall at lower speeds. I prefer a flat-bottom airfoil wing, which allows the airplane to take off, fly, and land at slower airspeeds, giving the beginner time to react and correct the airplane in flight. The flat-bottom airfoil also allows for pitch stability with less loss of altitude than other airfoil types.

 The airplane should use at least three channels: one for throttle, another for elevator, and the third for directional control. As discussed, you can obtain directional control by using either a rudder or ailerons. Most trainers have both ailerons and rudder, which is great.

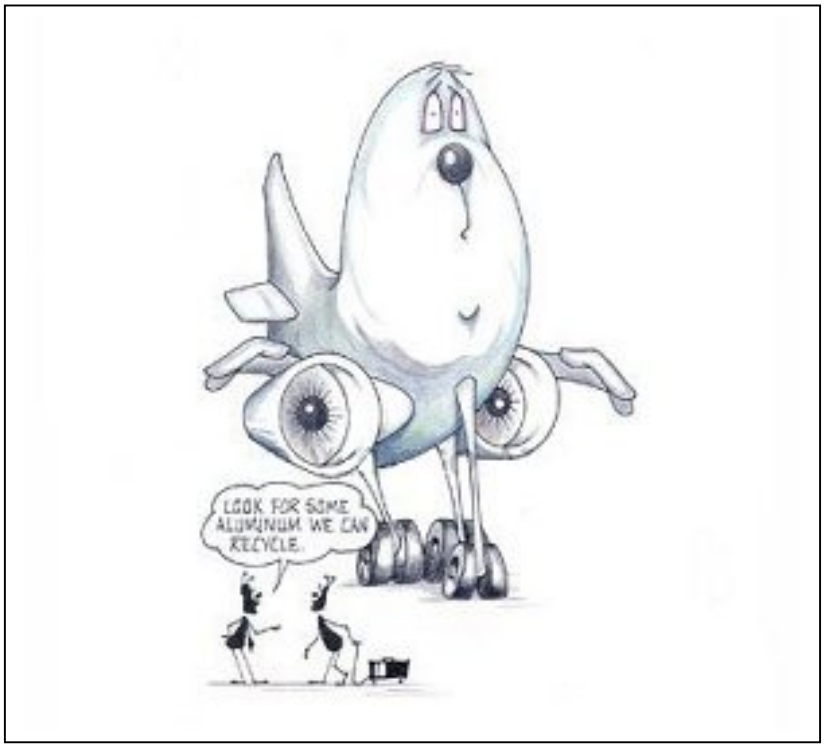
 The airplane should also be moderately sized. I recommend airplanes in the .40 to .60 engine size range. They are small enough to transport but large enough to see while flying. Smaller trainers (.20 engine size) have a higher wing loading (weight to wing area) and fly faster. Because of this I'd stay away from these. I also wouldn't buy a larger trainer with huge wingspans because they are easily upset by side gusts of wind (because of a lack of enough wing loading). Also, their size makes them difficult to transport.

 Your trainer should be readily available at a local hobby shop. This way if you have questions – about assembly or anything else – someone at the hobby shop will be able to answer them. The airplane should also be a proven design, one that's been around for a while and is reliable.

 Your airplane should be able to withstand minor crashes. It should not, however, be so sturdy that its weight would make it more difficult to fly.

 The airplane should have tri-cycle landing gear with a steer able nose wheel. This landing gear makes the model easier to maneuver on the ground. Airplanes with conventional landing gear have poor ground handling characteristics and aren't suitable for beginners.

 Lastly, your airplane kit should contain detailed instructions, including illustrations. It should be easy for the beginner to assemble and not require difficult building concepts. The kit should be as complete as possible, and the required components not included in it should be listed clearly in the label.



Seminole Radio Control Club
Tallahassee, FL

AMA Charter #216, 1969-2008

SRCC Officers
President – **Shannon Black**
Vice President – **Mike Atkinson**
Secretary/ Newsletter Editor – **Stephen Warmath**
Treasurer - **Sam Varn**
Field Marshall – **Joe Satterwhite**
Field Safety Officer- **Gordie Meade**

Field Hours
12 Noon till Dark- These hours apply to **all** aircraft, gas **and** electric.

Training Notes
To schedule a training time contact Mike Atkinson.

Flight Instructors

Mike Atkinson- Primary/ Advanced Fight Instructor (Coordinator)	926-4692
Geoff Lawrence- Primary/ Advanced Fight Instructor	942-9807
John Hall- Primary/ Advanced Helicopter Flight Instructor	893-6457
Jay Leudecke- Primary/ Advanced Helicopter Flight Instructor	508-7135
Jeff Owens- Ground School/ Airworthiness Instructor (Fixed Wing)	894-2504
Frank Bastos- Hobby Town Flight Demonstrator	671-2030

Club Meeting Location and Time

October- March: The regular club meetings are held on the first Thursday of each month at **7:30 PM** at the Grace Lutheran Church on Miccosukee Rd. Head out Miccosukee Rd., cross Capital Circle NE, and the entrance will be the first one on your right. Once you park, follow the sidewalk around the left side of the building and go down the hill. We meet in a room on the first level.
April- September: The regular club meetings are held on the first Thursday of each month at **7:00 PM** at the Flying Field. The Club offers food and drinks for a small charge.

Newsletter Submissions- Submissions are requested to be in M.S. Word format or via e-mail text. Photos should be in .jpg or .tif format. Vector art accepted in Corel, Illustrator and AUTOCAD format. We will, however, accept anything to make it easier for those who wish to contribute. Submissions are due no later than the 23rd of the month. Send your submissions to ssw@nettally.com or by phone, Steve Warmath at 509-0672.