

# The Seminole Flyer

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Aeronautics  
AMA Charter #216, 1969-2011



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## From the Editor...

Opening Day 2013! It's today, March 16, 2013. I thought I'd try getting up early so that I could get this newsletter together before something happens to derail the effort. Last time we visited I mentioned that I had begun playing with a quad copter. Well I have learned a bunch and used a few props. I'll share some experiences with you in this newsletter. Also, I want to chronicle the experience that Brian, Christina, Rick, and I had at the annual Children's Day at the Florida Museum. What an experience it was – great kids! Above you see one of the reasons this was a fun day – this young lady worked the sticks masterfully until she kept the simulator plane flying for at least a few seconds. There were so many others that took the opportunity very seriously – they wanted to learn and were extremely appreciative of the opportunity to do so. Check out the other pictures that Brian and Christina took (mostly Christina ☺ -- thank you so much). Remember to check out the new Diamond Hobby FMS fleet today at the field and afterwards at Tallahassee's new **LOCALLY OWNED AND OPERATED** Diamond Hobby distribution center. Congratulations to Frank and team!

Fred

## **Quad Copter Tuning – and other lessons learned**

Shortly after it became available, I purchased one of the larger, LED-adorned, quad copters from Hobby Town. As with any new model, I knew it would be best to start out slow. So, my first mission was to wire up the receiver according to specs, load up a battery (since the quad already comes fully assembled) and power it up! Well not entirely true, but close.

I did carefully read the one page instruction on how to wire up the receiver. No real surprises or difficulties there. Every lead was well labeled and I completed the task right the first time. I flipped on the transmitter and thought, hmmm, is this an acro or heli with respect to the transmitter configuration? Jumping to the middle of my story, I can say that I ended up with it set to acro and it works great. I think (vague memory now) I had it set to heli along the way and it worked fine too – but I think acro is the correct setting (verify this from a better source please). I centered all the trims, etc and heeded the warnings from the store to not change any throws or expo.

Time for the first power up – no flight. The Velcro battery strap is very secure and the battery sits conveniently on the top of the quad. With throttle on low, I connected the power and wham, the LEDs came to life. That's bright! The anticipated beeps occurred and there it sat – thankfully. Oh, forgot to mention – for safety I had removed the props – a very good idea!

As a safety mechanism, this quad controller has a motor “arm” and “disarm” step. To “arm” bring the throttle to low and move the throttle stick to the far right (full right rudder essentially). A small yellow led (hard to spot) will illuminate on the controller board. To “disarm” and stop the props from spinning (read later why they are spinning), bring the throttle to low and move the throttle stick to the far left (full left rudder).

With the controller armed, slight up throttle, all four motors took to spinning – good sign. I also lifted the craft manually and tilted it and could hear the motors spin up and down as the on board gyro attempted to level the craft – great! By the way, after a bit of reading much later, I learned that the board in this craft is built upon the technology of the Wii – in fact some quads actually contain Wii boards. Interesting.

First “flight” – Having confidence that I had mastered flying the mini-quad weeks earlier, I decided – “how difficult can this one be?” So, battery disconnected props back on – 1<sup>st</sup> lesson – remember where each of the blades came from. There are two “pusher” (reverse pitch) props and two regular props. This is because the quad's motors are programmed in the controller board to alternate rotation – meaning that one motor turns clockwise and the next one around, counter-clockwise. This cancels out the prop momentum that would otherwise de-stabilize the “spin” of the craft when flying.

2<sup>nd</sup> lesson – make sure the prop nuts are very secure. I actually did not learn this lesson until a few days later when the craft was temporarily hung up in a small bush. The prop had snagged, but the motor kept running as the nut was loose and whiiiiing, the nut was soon flying through the air and into the deep grass. I later read a blog that described watching a quad lose a prop in flight – interesting read.

Back to “flight” – using the proper power up sequence, transmitter and quad were ready for a test. I used the same basic process to take off as I used with the smaller quad and all went very well. It only took a few minutes to learn to keep this larger one relatively stable a few feet off the ground. It's important to get a little altitude as the prop wash and ground effect are quite nasty with quads. I stayed very conservative for the first 5 batteries or so. Just take off and hover – try to remain as stable as possible and only “move” with the smallest intentions. Again, my experience with the smaller quad paid off very well (I recommend you consider buying a smaller one first – it's very forgiving to hitting things). The smaller one is basically the equivalent of a “flight simulator” purchase in my opinion.

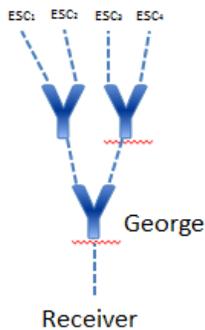
3<sup>rd</sup> lesson – stability. I learned this one the harder way. In hindsight, I should have known this already and I'm embarrassed to admit I did not. I have flown electric brushless motors exclusively since returning to the hobby after a 30 year hiatus. I thought I knew all there was to know about the setup process. Nope! So, what happened you say? I decided it was time to try some more aggressive movement – nothing fancy, just a jaunt across the front yard. After about 4 feet of forward movement, the quad went into “chaos.” Imagine trying to balance on one of those exercise “balance boards.” At first you violently flop back and forth trying to keep the board level – well that's what the quad looked like until it powered the motors down and fell to the ground (no wings on this puppy). I was sure I had a faulty controller board.

After a lot of internet reading and a few discussions with Tristan and Frank (the discussions were the key), I learned my “rookie” mistake. I had not calibrated the ESCs. The reason I was able to have avoided this all these years is that with a single prop on an airplane, the importance of the ESC knowing where true “top” and “bottom” is for the motor is not critical – but it's still smart to calibrate a new setup! A quad MUST know where top and bottom is on each motor to enable it to do the fine tuning balance act it has to do.

The quad calibration is a bit more tricky. My first attempt was to use an internet suggestion to only connect one ESC/motor at a time and perform the calibration step on each. This only improved the situation slightly and I was back to thinking I had a faulty board. I had also read that there was a way to calibrate using 3 ‘Y’ cables so that all four could be calibrated at the same time. I avoided this as it was late, the store was closed, and I did not have 3 ‘Y’ cables. **DON'T SKIP THIS TECHNIQUE.** I've not mentioned thus far, but getting to the controller board is a bit of a fiddle. You have to remove 16 hex nuts to remove the upper plate. You MUST take very careful notes about where each cable is plugged into the controller board and receiver – don't skip the CAREFUL part of this

warning. I did do so carefully and had no problems. There are internet sites that would help you, but there are also internet sites that have it WRONG. Frank can help too.

To calibrate, remove the upper plate (16 nuts). Disconnect the 4 ESC leads from the controller board (note their proper location). Plug a 'Y' cable (let's call that one George) into the receiver. Plug each of the other two 'Y' cables into the branches of George. Now you have 4 connectors ready to receive each of the ESC leads. It will look like this...



## REMOVE THE PROPS.

### Steps...

1. REMOVE THE PROPS – Did I already say that?
2. Turn on the transmitter and push the throttle to full power
3. Connect the battery to the quad receiver
4. Wait for the confirmation tones (please read your ESC's specification as leaving FULL too long can enter a different configuration on some ESCs)
5. Lower the throttle to the bottom position
6. Wait for the confirmation tones
7. Power up, arm the quad, and verify motors all spin
8. IMPORTANT. I have learned that when properly done, the props will continue to spin at a very low rotation rate when you are at the lowest throttle position. If not, recalibrate until they do!
9. Disarm the quad
10. Disconnect the battery from the quad receiver
11. Reattach all leads to the controller board and reassemble the top plate.

Final lesson – battery charge. I don't know if this is a freak situation or not. I have one battery that charges slightly over 4.2 per cell (about 4.22-4.25). This quad combination freaked out the first time I used that battery. The "freak" was that the LEDs flashed and when power was applied, the throttles acted "wrong." In one case they spun up and then just shut down. In another, they spun up and 3 shut down and 1 went "high" causing the quad to flip on the ground (and break the prop). Once the battery level was down just a little (by running the quad on very low throttle for about 15 seconds) everything was fine. I find that as a "safety" step, after plugging in any battery, I carefully hold the quad down and apply throttle to ensure it will throttle up without this behavior. No problem since I've been doing that – PLEASE BE CAREFUL – HOLDING DOWN A QUAD REQUIRES VERY SPECIFIC HAND/ARM PLACEMENT, unless of course you are trying to trim your fingernails.

If you do all this, the quad behaves really well. I've since added a small remote camera to the base and I'm still experimenting (you could read "experimenting" as "replacing props" if you like ☺). But I'm now flying it almost as comfortably as I can fly the mini-quad. By the way props are hard to come by, so if you find a good supply, buy a "few!" If you fly at the field, loss of props is less likely – the quad is pretty rugged. Driveways and small trees do a number on the props though ☺.

## **Chief Copilot- Jeff Owens**

### **Get well SOON, Jeff!**

Club Calendar- The schedule reflects current Club events planned for the year to date. Check monthly for additions and deletions at the meetings and in the newsletter. For regional, sanctioned AMA events, see your AMA magazine or visit the AMA website section "Calendars".

## **Chief Treasurer- Bill Ashbaker**

18 of our members have not renewed their AMA memberships. After January 1<sup>st</sup>, club members should not fly until their AMA memberships are renewed.

One-half of our members have not renewed their club memberships as of February 28<sup>th</sup>. All members who have not paid their club dues by our March 9<sup>th</sup> Opening Day event will be dropped from club membership as prescribed in our club bylaws. Anyone with a special circumstance should speak with a club officer prior to March 9<sup>th</sup>.

# Chief Scribe- Chris Bailey

## Meeting Minutes Seminole Radio Control Club

I could not locate a copy of the minutes – my apologies.

### Children's Day at the Florida Museum

The photo collage below was put together by Brian and Christina. It documents in some very special ways, my memories from that day. Thank you. You will see from the pictures that there were some very interested children there (of all ages!). I had some very special moments from getting to talk with a number of really smart children (all of them), to presenting what flying is about in the auditorium, crashing my mini-quad into the ceiling – oooops (was just on purpose to show them we are human -- right), and listening to some fascinating questions – I don't recall a single "how far can it go?". Watching the young girl pictured in the cover shot of the newsletter was an unbelievable treat.

Another priceless moment was when a young man, who had been asking lots of questions, was asked to "come on son" from his Mom. Near the end of his visit, he was spending an incredible amount of time looking at one of the AMA Model magazines that Rick had brought out to give away. I could tell he was disappointed to have to set it back down and I asked "would you like to take that with you?" He just clutched it in a big bear hug and walked away with the biggest smile on his face – thanks Rick!!!!

But by far, my most memorable moments were those I spent with a young man (wish I knew his name) who wanted to "see" the plane. He was blind and his parents explained that he wanted to touch the plane and "see" it for himself. Rick was kind enough to allow us to use his built-up biplane for the effort. This young man (probably about 8-10 years old) carefully ran his fingers across the wings and asked about every little feature. His ability to see was amazing and he is so bright. He wanted to know where the engine was, the prop, and most importantly where the pilot was. He got to see them all! Makes a 60-year old tear up just a little, even as I write this.



Anyway, please consider finding ways to bring our hobby and fun to these kids more frequently. It is an honor to give them some knowledge to soak up. Enjoy the pictures...





# Seminole Radio Control Club Tallahassee, FL

AMA Charter #216, 1969-2010

## SRCC Officers

<b>President</b>	Jim Ogorek
<b>Vice President</b>	Jeff Owens
<b>Secretary</b>	Chris Bailey
<b>Newsletter Editor</b>	Fred Schmidt
<b>Treasurer</b>	Bill Ashbaker
<b>Field Safety Officer</b>	Dave Sellers

## Field Hours

<b>Electrics/ Sailplanes</b>	9:00 am till 9:00 pm.
<b>Gassers and Nitro</b>	12 Noon till Dusk.
<b>Electric Service</b>	8:30 am- 9:15 p,m

## Training Notes

To schedule a training time contact Mike Atkinson.

## Flight Instructors

### ***Primary/Advanced Flight Instructors***

Mike Atkinson	926-4692
Geoff Lawrence	942-9807
Jim Ogorek	766-2477
Chris Bailey	322-4047

### ***Primary/Advanced Helicopter Flight Instructor***

John Hall	893-6457
Chris Bailey	322-4047

### ***Ground School/Airworthiness Inst. (Fixed Wing)***

Jeff Owens	894-2504
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### ***Hobby Town Flight Demonstrator***

Frank Bastos	671-2030
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## Club Meeting Location and Time

**November- March:** The regular club meetings are held on the first Thursday of each month at **7:00 PM** at **HobbyTown** on Thomasville Road. The Club offers food and drinks for a small charge at 6:30.

**April- October:** 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 at 6:30.

**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. We will, however, accept anything to make it easier for those who wish to contribute. Submissions are due no later than the 28th of the month. Send your submissions to Fred Schmidt. [schmidtfjs@gmail.com](mailto:schmidtfjs@gmail.com)

SRCC thanks Graybar Electric in Tallahassee for its assistance in helping to upgrade our flying facility.

