

# The Seminole Flyer

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

**NOVEMBER 2007**

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**Happy Thanksgiving**



"Turbo" Dehavilland Beaver Float Plane

## Letter from the Editor- Stephen Warmath

**Wow.....** It's November already! This year has really sped by. I hope everyone has a great Holiday Season to round out the year. Before the year ends, we have to take care of some Club business. We need to install Club Officers for 2008 in December. As required by our Constitution, the Secretary, me, has to present a slate of Officers at the November meeting. John and Brad will not be running again. As Newsletter Editor, I will report what we have right now.

### President-

**Vice President- Mike Atkinson** (Formal nomination will be at the November meeting)

**Secretary- Steve Warmath-** incumbent

**Treasurer- Sam Varn-** incumbent

We will need to identify a presidential candidate or any other interested person in any position, so be thinking about it.

This month our **Pilot Briefing** will be with Chris Farrell. For this month's musings, **The Stall and Angle of Attack** article sheds some light on the dynamics of airflow and angle of attack of a wing in flight. We probably all have, at some point in time, bought used equipment. Was it a good thing or did you get burned by something you didn't notice when you bought it? Some inspection tips are provided in the **Buying Used Equipment** article. Have you ever tried to bend music wire? It can be a royal pain and difficult to do. The article on **Heat Treating Music Wire** makes things easier by taking out the stiffness for bending and then putting it back in.

If you would like to let people know more about you and would like to be a part of the Newsletter, I'm always looking for people to feature in the **Pilot Briefing**. Come on, don't be shy. Let me know if you are interested and I'll set you up. Other input is always welcome as well.  
Happy Building and Flying- **Steve**

## **Chief Pilot- John Hall**

The weather is truly getting perfect for flying! Now is the time to get out to the field and have some fun before it starts getting cold.

We are fortunate in that we have multiple opportunities to attend RC events within driving distance. I personally have had the pleasure of attending several outstanding events held in Florida and South Georgia this year. I would encourage anybody who has never attended an out-of-town event to consider doing so. Most events are open to pilots of all skill levels and only require proof of AMA membership and a minimal pilot fee. These events can be an opportunity to see lots of great flying as well as a chance to meet new people and make new friends in the hobby.

Our next meeting will be held at Grace Lutheran Church on Thursday, November 1st, at 7:30pm. PLEASE take the time to attend this important meeting! We need nominations for club officers, as both the President and Vice President will not be seeking re-election.

See you at the field.

John

## **Chief Copilot- Brad Sharp**

### **Upcoming Club Events**

**Club Meeting at Grace Lutheran Church – November 1, 2007 at 7:30 pm.**

### **Upcoming AMA Regional Events**

#### **Shadetree 20th 4F Fly In**

FL  
11/01/07-11/03/07 - Glen St Mary, FL (C) Shadetree 20th 4F Fly In. Site: Club Field. John Mason CD, PO Box 1436 Glen St Mary FL 32040 PH:904-868-2813. Take I-10 exit 333 2.8 mi N on CR 125, Field on right. 80"mono 60"biplane rules apply. 3 motels w/in 5 mi. RV ok, elect available for charging. Fri Nit Spaghetti dinner, landing fee 3days \$20, or \$10 per day (includes on meal tkt). Visit [www.shadetree.piczo.com](http://www.shadetree.piczo.com). Sponsor: SHADETREE

#### **14th Florida Int'l Jet Rally**

FL  
11/01/07-11/04/07 - Lake Wales, FL (C) 14th Florida Int'l Jet Rally. Site: Lake Wales Airport. John Burdin CD, PO Box 5335 Lakeland FL 33807 PH:863-660-1155 email: [info@floridajetflyers.com](mailto:info@floridajetflyers.com). The finest in RC Jets. Great flying, great weather and a great time. 4,000 ft silky smooth runway and no runway lights. All we do is fly. "The Pilots Jet Rally". Visit [www.floridajetflyers.com](http://www.floridajetflyers.com). Sponsor: FLA JET FLYERS, INC

#### **Eighth Annual Scale Fly In**

AL  
11/03/07 - Ft Rucker, AL (C) Eighth Annual Scale Fly In. Site: Hunt Stage Field. Brian Arsenault CD, 302 Natchez Rd

Enterprise AI 36330 PH:334-3931642 email: [bmarsenault@roadrunner.com](mailto:bmarsenault@roadrunner.com). Sponsor: All sizes all types military, sport, and civil scale, all must be flyable. \$15 landing fee. Pilots choice plaques for best military and civil. Tailgate swap welcome. Food on site. Field is a military training field/paved runways. Approx 9 miles north of Dothan AI west ¼ mile on AL 18. Competitor radio raffle to a registered pilot. Sponsor: WIREGRASS RADIO CONTROL CLUB

### **Annual OTOW RC Fly In**

FL  
11/03/07 - Ocala, FL (C) Annual OTOW RC Fly In. Site: Club Field. Chuck Frederick CD, 9739 SW 99th Ave Ocala FL 34481 PH:352-237-2434 email: [c67c@cfl.rr.com](mailto:c67c@cfl.rr.com). Fly what you bring. Gas, Glow, Electric planes. Large grass flying site. No landing fee. Registration starts 8am. Sponsor: ON TOP OF THE WORLD RC FLYERS

### **Celebration of Flight**

FL  
11/04/07 - Sunrise, FL (C) Celebration of Flight. Site: Markham Park. Victor Weitzman CD, 10041 NW 3rd St Plantation FL 33324 PH:954-474-2170. Visit [www.bcrca.org](http://www.bcrca.org). 6th Annual Celebration of Flight. All types of aircraft welcome. 8:30am to 3pm. 750' paved runway, many pilot and spectator raffles. \$10 landing fee to fly during this event. \$1 park entrance fee. AMA and Park rules in effect. Flying and building exhibits welcome. Sponsor: BROWARD COUNTY RC ASSOC

### **NMPRA National Championship**

FL  
11/09/08-11/11/08 - Sunrise, FL (A) NMPRA National Championship for 422(JSO). Site: Markham Park. James Perdue CD, 395 NW 89 Lane Coral Springs FL 33071 PH:954-683-2660 email: [jamesperdue@earthlink.net](mailto:jamesperdue@earthlink.net). Sponsor: MARKHAM PARK PILOTS

### **SE IMAC Regional Contest**

FL  
11/09/07-11/11/07 - Jacksonville, FL (AA) SE IMAC Regional Contest for 411, 412, 413, 414, 415(JSO). Site: Club Field. Peter Jackson CD, 1908 Stillwind Court Orange Park FL 32003 PH:954-205-5011 email: [ppajack@aol.com](mailto:ppajack@aol.com). Sponsor: GATEWAY RC CLUB

### **IRCC Helicopter Spectacular**

FL  
11/09/07-11/11/07 - Mulberry, FL (C) IRCC Helicopter Spectacular. Site: Newall Terry Field. David DeWitt CD, 1810 Staunton Ave Lakeland FL 33803 PH:863-838-4459 email: [benz425@aol.com](mailto:benz425@aol.com). Entry fee \$20 for all 3 days. RV's and tents welcome no hookups, Scale participants will be using channels 50 and 27, clinics and plenty of experienced scale pilots, top FAI pilots too, large flight line for freestyle and 3-D flying. Field is located 2 miles East of Mulberry on Hwy 60. Visit [www.imperialrc.com](http://www.imperialrc.com). Sponsor: IMPERIAL RC CLUB

### **Fall Fling**

FL  
11/10/07-11/11/07 - Palm Bay, FL (AA) Fall Fling for Cat III 101, 101C, 124, 140, 142, 155, 158(J)(SO) 102-103, 104-105, 102-103C, 104-105C, 120, 128, 150, 151, 152, 153, 154(JSO). Site: Club Field. Joe Clawson CD, 401 Almansa St Palm Bay FL 32907 PH:321-984-8718 email: [claw3132@netzero.net](mailto:claw3132@netzero.net). Sponsor: FLORIDA MODERLERS ASSOC

### **War Bird Fly In**

FL  
12/08/07-12/09/07 - Sarasota, FL (C) War Bird Fly In. Site: Club Field. Dave Hasler CD, 12117 Clubhouse Dr Bradenton FL 34202 PH:941-727-4137 email: [haslers@hotmail.com](mailto:haslers@hotmail.com). Club field located 2 miles East of I75 on Bee Ridge Rd Warbirds of all sizes welcome. Food concessions; overnight RV parking, no hookups; \$10 landing fee for one or both days. Visit [www.sarasotarc.com](http://www.sarasotarc.com). Sponsor: SARASOTA RC SQUADRON

### **Fall Fun Fly**

FL  
11/10/07 - Inglis, FL (C) Fall Fun Fly. Site: Inglis Barge Canal Locks. Andrew Nicholson CD, 130 N Maple St Inglis FL 34449 PH:352-447-2488. 4 miles east of Inglis to Barge Canal Locks turn right. 900 x 250 grass runway float. Concession stand RV parking, Motel 4 miles from site. Sponsor: NATURE COAST RC'ERS

## North West Fla Fun Fly

FL  
11/10/07 - Pensacola, FL (C) North West Fla Fun Fly. Site: Spencer field. Rae Fritz CD, 5980 Pawnee Dr Pensacola FL 32526 PH:850-944-5121 email: [raewfritz@bellsouth.net](mailto:raewfritz@bellsouth.net). Sponsor: NORTHWEST FLORIDA MODEL INC

## 6th Annual Salute to Veterans

FL  
11/10/07-11/11/07 - Ocala, FL (C) 6th Annual Salute to Veterans. Site: Club Field. Ted Barker CD, 3710 SE 137th Lane Summerfield FL 34491 PH:352-216-3879 email: [bearnfuzz@aol.com](mailto:bearnfuzz@aol.com). Warbirds only, any size any war. Warbirds on Sat. Fly what you bring on Sun. Sponsor: OCALA FLYING MODEL CLUB

## Swap/Combat

FL  
11/10/07 - St Petersburg FL (C) Swap/Combat. Site: Club Field. Arthur Lavallee CD, 66146 Tudor Rd Pinellas Park FL 33782 PH:727-544-1939 email: [asylval@tampabay.rr.com](mailto:asylval@tampabay.rr.com). Sponsor: SPARKS

## Pensacola Jets

11/15/07-11/18/07 - Pensacola, FL (C) Pensacola Jets. Site: Holley Field. Keith Sievers CD, 12926 Littleton Bend Jacksonville FL 32224 PH:904-318-7171 email: [pilot114@aol.com](mailto:pilot114@aol.com). Sponsor: HOLLEY FLYERS

## Corvin Miller Memorial Scale Meet

FL  
11/17/07-11/18/07 - Sarasota, FL (AA) Corvin Miller Memorial Scale Meet for 511, 512, 520, 522 (JSO). Site: Club Field. Jonathan Hay CD, 2252 Shadow Lakes Dr Sarasota FL 34240 PH:941-377-8676 email: [rcflyer@verizon.net](mailto:rcflyer@verizon.net). Visit [www.sarasotarc.com](http://www.sarasotarc.com). Sponsor: SARASOTA R/C SQUADRON

## 6th Big Blrd Fly In

FL  
11/17/07 - Brooksville, FL (C) 6th Big Bird Fly In. Site: Potters Field. Warren Sether CD, 8259 Maltby Rd Spring Hill FL 34606 PH:352-686-5205. Follow US 41 South of Brooksville to Ayres Rd, turn left and follow signs. For additional Info: Larry Hawkins PH:352-596-6883 or Peter Christ PH:352-232-0969 email: [pchrist13@yahoo.com](mailto:pchrist13@yahoo.com). Sponsor: HCRCC

## Tangerine Soaring Championship

FL  
11/24/07-11/25/07 - Oviedo, FL (AA) Tangerine Soaring Championship for 442, 444, 460 (JSO). Site: Red Ember Rd. Tom Galloway CD, 2173 Mohawk Trl Maitland FL 32751 PH:407-628-5040 email: [soarhead2@earthlink.net](mailto:soarhead2@earthlink.net). Thermal duration event. Two days for unlimited with the addition of 2 meter on Saturday and RES on Sunday. Events will be flown seeded Man-on-Man format. Please pre-register for frequency allocation. Sponsor: ORLANDO BUZZARDS

## Warbirds Over Port St Lucie

FL  
11/30/07-12/02/07 - Port St Lucie, FL (C) Warbirds Over Port St Lucie. Site: Midway Field. Ivan Gutierrez CD, 9639 Fairwood Court Port St Lucie FL 34986 PH:772-201-5509 email: [docbridges2@aol.com](mailto:docbridges2@aol.com). Exit 126 I-95 go East 1.4 mile to Torino make right turn South on Torino .6 mile to Blanton make right turn field is on North side. Sponsor: SUN DANCERS RC CLUB

## 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 this information.*

Don't have much...actually nothing but numbers this month. I've had zero activity except for the bank changes for checks for the new account. Here's our numbers:

Cash - **\$0.00**                      Checking (CCBG) - **\$0.00**                      Checking (Premier) - **\$0.00**  
CD - **\$0.00**                      Savings - **\$0.00**  
Total Funds - **\$0.00**

That's all folks!  
Sam

## Chief Scribe- Steve Warmath

The October meeting was called to order at 7:35 PM.

### Treasurer's report

Sam said our CD at 5.25% was a good deal. Our checking account has been moved to Premier Bank. As a result, the account accrued \$.81 in the first 3 days. We still have \$----- in Capital City Bank. Sam presented the monthly report. A motion to accept the report was made, seconded and passed.

### Old Business

- **Airfest- EAA** was moving rapidly toward completing DOD scheduling forms. One issue is insurance for the event. DOD can't commit to a schedule until they have City approval. The City won't approve until insurance is in place and the EAA can't get insurance until January. They have found contacts and have to go through the respective Public Relations personnel, then contact squadrons direct.
- Geoff Lawrence said the Porta-Pottie co. called him to ask for the new gate code. He suggested that a new contacts list be drawn up and provided to them.
- John Hall reported the new mower engine had come in. Joe Satterwhite had it at his house. The engine will be installed this winter after the mowing season. Gordie said the mower has been working ok and that it doesn't start burning oil until it gets hot, then starts to smoke a lot. It has been consuming a quart of oil to mow the field and parking lot.
- The old pilot station fencing had been taken down and no one seemed to know by who or why. The holes had not yet been filled.
- John said the lock to the gate is still being left with the code showing after entry and could be compromised. He reminded everyone to scramble the code after opening the lock so other people would not see the code and enter the field when not in use. John asked the members to consider other types of locks that might solve this problem. Keyed entry would be a logistical problem.
- Frank Bastos reported the Boy Scout event at Lake Talquin was the next weekend. He had gone to the site and felt there was room to fly small electrics. There was a dock and it could be just a float-fly demo. One concern was flying in proximity to a large number of people. He was also looking for volunteers. Mike Atkinson suggested a mass e-mail to members requesting volunteers. Frank said he planned to be there. It is about a thirty minute drive to the site. There will be lots of kids and parents at the event.

### New Business

- John reminded everyone that elections were coming up in December and that nominations are due by the November meeting. Steve Warmath ran down the officer list and as it stands to date, Steve and Sam will run again as incumbents and the President and Vice President positions will need to be filled as John and Brad opted out for re-election. Appointed positions, Field Marshall and Safety Officer are made in January. *(Ed. note: Following the conclusion of the meeting, Mike Atkinson expressed his willingness to run as Vice-President.)*
- Bob Burke noted the charger box had been fixed. John said it was a temporary fix.
- On November the 10<sup>th</sup>, Killlearn Lakes Community is having an all day event and it was suggested that Club participation might be desirable. More info to follow.
- John said there had been a minor accident at the field and it was discovered the First Aid kit was in very bad shape and needs to be replaced. A motion was made and passed to spend ~ \$40.00 on a new one. It was also noted the Fire Extinguisher was empty. Joe Satterwhite volunteered to donate a new extinguisher to the Club. Sam Varn said he has his Fire extinguishers serviced at his work place and if someone could drop off the F.E., he could have it inspected and serviced as required.
- Brad Sharp noted that the grass on the far side of the field was getting very high and made it difficult to find his recent stray aircraft. John said it was normally cut once a year and bailed by the county. He said he would call Norm or Pat at the County to see if this could be done soon.
- Mike Atkinson noted that we usually have a Fall Fly-In, but nothing had been scheduled to date. Brad said that most weekends were taken by football and other events. It was deemed too late to

have a regional event, but it could be a local one. We need to start thinking about next year events such as Flying for a Cure, March Float-Fly and a post-Airfest event In May.

## Announcements

- Theo Titus announced there were three IMAA events coming up. **1).** Wewahitchka, **2).** District V Fly-In on the 26<sup>th</sup> and 27<sup>th</sup> in Marianna. **3).** Shade Tree first week in November.
- Rick Sunderland announced there was a place near Monticello where he and another pilot were flying gliders and invited other members to join them. It was not a good area for motorized flying. *(Ed. Note: See copy of invitation below.)*

With no additional business, the meeting was adjourned at 8:20 pm.

## Glider Flying

The members of the club that fly gliders are now flying at a field next to the JCKC dog track in Monticello. We fly at different times because there are only two of us. If you are interested in glider flying either using a Hi-Start or electric wench, call **Rick Sunderland** at 570-1247 (C) or 878-1181 (H). The field we are flying from is very large so we can lay out the line into the wind.

Come out and fly gliders with us.

## Pilot Briefing- Chris Farrell

**Where are you from?** I was born in Columbus Ohio in 1972. I moved to Florida in 1979 and finally moved to Tallahassee in 1998 from Ft. Myers.

**What do you do for a living?** I work for Home Depot as the garden manager.

### **How did you get started in radio control?**

I got started in rc stuff when I was about 11 years old when my grandfather, who flew rc gliders built one for me. When I think back that thing seemed huge probably five or six foot wingspan but now that is smaller than most everything I have. It was launched by surgical tubing that was stretched. I was so excited to fly that thing that I couldn't wait for him to help me and I thought how hard could it be. I went out stretched the tubing, hooked it up, and let it go. I watched as its nose-dove down into the ground and the surgical tubing just kept pulling it across the ground tearing it into a million pieces. I never gave up and he built me another one and this time he showed me how to fly it and I am still flying today even though I don't do sailplanes anymore, flashbacks I guess.

**What do you like best about the hobby?** One of the best things I like about the hobby is the friendship that you can build with fellow RC'rs. Sometimes I will go out to the field just to watch and talk to some of the people. You can learn a lot of thing just by talking and listening.

**What models do you have or would like to have? What are your favorites and why?** I have five models right now. A hangar 9 extra 260 which is my favorite because it has a DA-50 in it and only weighs 13.5 pounds and can do anything I ask it to. I also have an 81-inch



cub on floats (which I would love to fly more than I do), Extreme aircraft yak 54, Funtana x100 with a Saito 180 for power, and a .25 size edge 540.

**Other than just enjoying the hobby, are there any skills or maneuvers you are working on or want to master?** I would love to master the rolling circle. I have always been rudder challenged and if I could master that I think any rudder maneuver would be easier.

**Is there anyone in particular who has influenced your participation in the hobby?** The biggest influence in my RC hobby is my friends. I like the friendly competition we have some times whether it's out the field or driving our RC cars.

## The Stall And Angle of Attack

### Stall, Spin, Crash!

All too often that's how our lovingly crafted aircraft die. Our aircraft all have to be operated with certain limits - the flying "envelope" of any particular aircraft design. A machine can only structurally stand so hard a landing, only so many Gs loading, and go no more than a certain speed before coming apart. And aerodynamically, the plane can only go so slow and stay airborne; ...and this is the limit that seems to cause us the most difficulty.

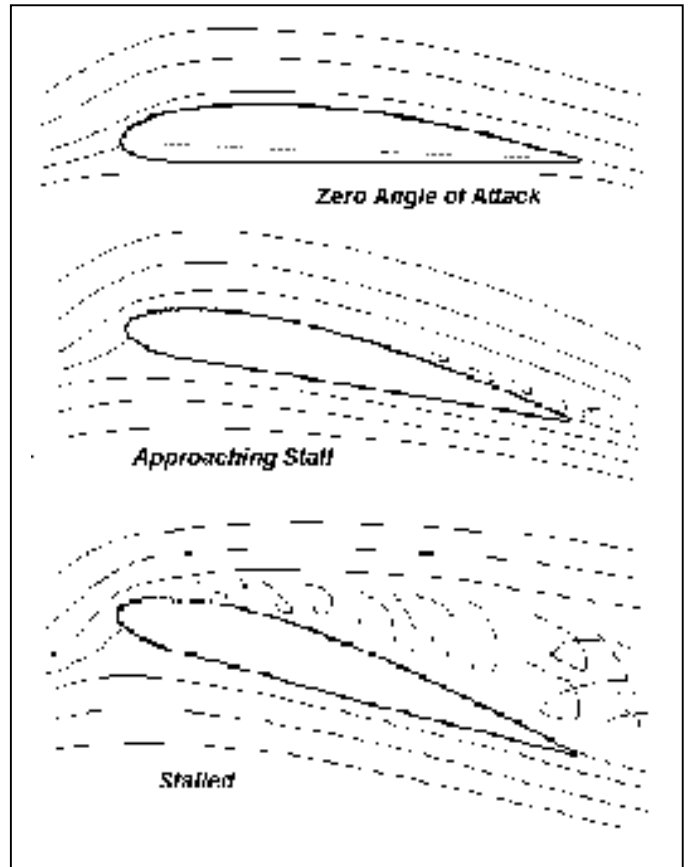
Actually, strictly speaking, a stall is NOT directly tied to airspeed. Loosely defined, a stall occurs when the angle of attack of the planes wing exceeds the point where the airflow can follow the wings contour; the organized airflow breaks down, sharply reducing lift (see diagram). Essentially, airflow just can't "hack the turn" at the leading edge of the wing. As long as we don't yank back on the stick, forcing a stalling angle of attack, we can still "fly" VERY slowly without stalling - over the top of a loop, for instance. And we all know that a plane can also be stalled at very high speeds - any snap maneuver involves a stall.

But folks will advertise the stalling SPEED of an aircraft; when they do so, certain conditions must be specified or implied: **1)** straight and level flight or bank angle **2)** the weight of the plane ("at max gross") **3)** Atmospheric conditions ("sea level, standard day") **4)** power on or off **5)** high lift devices (flaps up or down). -All these conditions affect the actual airspeed at which the plane will reach the stalling angle of attack.

Now, getting to the plane itself, what determines the stalling angle of attack? Mostly, the type of airfoil used on the wing, and the shape (plan form) of the wing.

To recap these points: Once your plane is built, the wing shape and airfoil determine the stalling angle of attack; this is pretty much FIXED. The conditions you are flying with, and how you fly the plane, determine the SPEED at which a stall will occur.

Let's take an example; the Nifty Fifty, a .40-.50 size trainer. With 500 square inches of wing, an N-60 airfoil, and an aspect ratio of 6, at 5 pounds this plane will stall at about 20 mph. Adding a 3 pound brick to the plane, the stall speed goes up to 26 mph. That may not seem too bad, but if we were landing in a 14 mph wind, the ground speed (the speed we SEE) is DOUBLED with the brick!! But in BOTH cases, the stall angle of attack is the same, at 10 degrees. Back at 5 pounds again, we enter a steady 60 degree bank turn; the stall speed in this case will be 30 mph, but STILL 10 degrees angle of attack. And if we were to pull 5



“Gs” coming out of a loop, the stall speed would be 46 mph!! Note that all these figures would be a bit higher at high altitude, or on a very hot day. Also, be aware that a plane stalls at a bit higher speed with power off than power on.

It follows, then, that to avoid stalling your plane, don't pay so much attention to the SPEED of the plane - its hard to judge anyway - keep your eye on the ATTITUDE of the plane with respect to its flight path. That attitude (how high the nose is) will tell you whether or not you're close to the stall, pretty much regardless of any other conditions, other than flaps or other moveable high lift devices.

Let's look at one other item - stick travel. For most fairly stable aircraft, the amount you move the stick (and thus the elevator) determines the angle of attack the plane flies at. If you can get a violent stall with less than full back stick, you may want to consider using less elevator travel. Most trainer plans give you an elevator throw figure that doesn't ALLOW a stall in any normal flight situation - this is also worthy of consideration, depending on your skill level and what you want your plane to do.

Above all, spend some time flying your plane close to, and into the stall. Most planes, other than pattern and racing craft, recover from a stall very nicely with some power and easing the back stick. Get used to the signs of impending stall; get used to recovery. Get used to the ATTITUDE at which this all occurs. Exploring the low-speed area of your planes performance characteristics will make you a far better, safer pilot!

## **Buying Used Equipment** by Bryan Jones

Have you ever been presented with a deal too good to be true? Sometimes they are good deals, other times... well. One thing we have in our benefit living in the Houston area is a very large group of RC airplane flyers. There are several outlets for buying and trading model airplanes and their related accessories. Regardless of where you go to find the used equipment you desire, there are a few tips I have learned you may want to consider.

**Airframes** These are the easiest items to inspect. The first and easiest items to check are the covering or paint. Having a well-applied and thoroughly sealed covering or coating is important in keeping oil and other materials from the underlying wood or fiberglass. Water or oil soaked structures will eventually weaken and fail. Look in the engine compartment for the sealing I have mentioned. Exposed wood is easy to spot. Another area critical to an airplane's structural integrity is the wing saddle and attachment structure. Look here for cracks or evidence of previous repairs. Generally, any joint having been repaired will be weaker than originally constructed. If the joint shows sign of repair, this indicates design or crash damage. Assume it is crash damage and inspect the tail feathers and other exposed inner surfaces in the fuselage.

Wings are a little more of a mystery than the fuselage. Without breaking the wing, place it over your knee and apply bending pressure. Listen for cracking noises (Stop then!). Look for splinters falling out any openings. Check control surface tightness and proper operation. Look for wing tip damage. Wing tip damage comes in two forms: first, the underside scrapes caused from ground loops and hard landings. Second the crunching effect on the end of the wing tip caused by cartwheels. Cartwheels will trash a model quicker than almost anything.

**Engines** Purchasing a used engine is not quite as easy as purchasing an empty airframe. The first item of concern is external damage. Look for dirt, particularly that packed in between the forward cooling fins or around the carburetor. This is a pretty good indicator of a crash. Don't forget looking for the broken cooling fins and bent needle valves. Once you have checked the engine externally, look at the cylinder head. Assure all head bolts are present. Check the crankshaft. Look for buggered threads.

One thing I strongly recommend is checking the shaft for runout with a dial indicator or similar instrument. I wouldn't accept any more than 0.002" TIR (total indicated runout) on .60 and smaller engines; 0.003" TIR on all others. Bear in mind, this measurement should be weighed in relation to the rest of the engine and these runout measurements are pretty high.



Look into the exhaust port on the cylinder. If the muffler is attached, remove it. Slowly turn over the engine while feeling the condition of the bearings and the piston/cylinder liner fit. Look down the port at the piston and the liner. Look for gouging and excessive scraping or scratches. Feel the engine as it is turned over. Notice any grinding or gritty feel in the bearings. Try and find out if the engine has ball bearings or sleeve bearings on the shaft. A ball bearing engine (with good bearings) is more valuable.

Hang onto that dial indicator we used earlier and set it up to check shaft looseness. When you get the indicator set up, pull the shaft in the opposite direction than it is being pulled when you set up the indicator. On engines 60 or smaller, 0.001" to 0.002" is reasonable. Larger engines can withstand 0.003" to 0.005" looseness.

Finally, check the thrust on the shaft. While holding the engine in one hand, push and pull the shaft while turning it. Note any noises or unusual feels such as metal on metal rubbing or gritty feel. This is not particularly a problem in the inactive or reverse thrust direction, but may be a real problem indicator in the active or normal thrust direction.

I have purposely skipped the four-cycle engines for a couple of reasons. First, this subject deserved more space than available and second, I would have to research the issue more before writing.

Radio Gear This is a more challenging area than the previous two. Bear in mind the consequences of a complete radio failure... not pretty. Keep this in mind when you are about to make that killer deal. I have a few easy items to look for when buying used radio gear. These items typically do not indicate the actual condition of the internals but are a very representative indicator.

First, the general external appearance of the transmitter, receiver, and servos are important. Look for dirt, glue, or fuel residue. None are good. Even more important, check the switch harness from one end to another if you must use a used item. I don't recommend it. I only use switches I have purchased new. One failed switch or switch lead and the game is over.

The external condition of the transmitter is a good indicator of how the entire system was treated by its previous owner. Check the bottom and back of the transmitter case for excessive scratches. This indicates the amount of use the system has had. Fewer scratches less use, good, good. Check the feel of the gimbals. Smooth and tight. Check the trim switches and auxiliary switches. Extend the antenna, checking for bends or damage. Turn on the transmitter and check the output/power needle response. Obviously the batteries may be dead or undercharged.

Look at the receiver antenna. Is it in good shape? A kinked or stressed antenna indicates rough use and possible damage. Look for cracks in the case. Check for narrow band certification. Check for bent pins in the open sockets.

The servos are the least important items, but don't forget, it only takes one well-placed servo failure to wreck your plane. First, check the outward appearance. The leads are important as well. Look to see if the wires are damaged where they are attached to the plug. Look for plug damage. CAREFULLY check the gear train by rotating the servo head. If you strip the servo, you may have to buy a wrecked servo. Don't do this step if you don't feel sure of what you are doing. If you do, feel and listen for broken gear teeth.

Flight battery pack -- be very careful. I wouldn't recommend using a flight pack if you don't have a cycler/charger to verify the capacity and health of the battery. Don't forget to look at the lead. It's just as important as the battery switch.

Finally, connect the components of the system and operate with the transmitter. Check each channel individually, check dual rates, check programmability (if applicable), check servo response (noise, chatter, dragging, speed, etc.). If possible, perform a range check -- collapsed antenna at 200 feet minimum fully operational.

These are just a few items to keep in mind when purchasing used equipment. Even if everything checked out as described here, there is a possibility that the equipment was near breaking down or someone was trying to sell away a hidden problem.

# Heat Treating Music Wire by Roy Vaillancourt

The music wire used by sailplane modelers to make landing gear and cabin struts is medium carbon steel heat-treated to spring temper or about 45 on the Rockwell C scale of hardness (RC45). On this scale, RC20 is soft, RC45 is tough, and RC60 is hard.<sup>1</sup> Tough wire can be bent and cut using the proper tools and techniques, but sometimes it's just too difficult to work with.

One way to soften steel music wire is to heat it, which makes it easy to bend and form. But after heating and forming, the subsequent cooling -- often at an uncontrolled rate -- can make the finished wire too hard or too soft since its hardness is determined by the rate at which it cools. For some parts, the final hardness isn't critical. But a landing gear formed from wire softened too much won't spring back to its original position; and a gear made from wire cooled to a harder than normal state will snap on its first use. To restore the wire to its original specific spring temper, it must be heat-treated a second time and cooled at a controlled rate.

## Three Steps

To form wire easily, first anneal it; next, form or bend it to the desired shape; and then heat-treat the part back to spring condition -- that is, temper it.

First the wire should be annealed<sup>2</sup> at the location to be bent. To anneal it, heat the wire with a torch until it becomes a bright cherry red -- about 1400 degrees Fahrenheit. Let it cool completely to the touch. Don't quench<sup>3</sup> it or blow on it. Just let it cool naturally away from any drafts. The wire should now be in the RC25 soft range, and it will bend easily. After forming, once again heat the wire with a torch until it becomes bright cherry red, but this time quench it -- that is, cool it rapidly by immersing it in room temperature water. Plunge the steel into the water with a twisting, swirling motion to keep water vapor from insulating the wire against the cooling action of the water.

At this point the wire should be very hard, probably above RC60. To test the hardness, try to make a mark on the worked area with a file. The file should slide off without cutting into the steel at all. If it cuts the wire, try the heat and quench cycle again. If the file still cuts the wire, it isn't high carbon steel. Get another piece of wire and start over -- you won't be able to add the necessary carbon to low-carbon steel. When the file test signals success, the wire is ready for the final step, but not for use, because it's very hard and quite brittle, and will probably snap off.

The final step is to temper the wire back to the desired hardness. Tempering is a form of annealing but is controlled so that the steel achieves a specific hardness. Start by sanding the wire with steel wool or emery cloth. Then heat it gradually with the torch. Watch for the following colors as a guide: straw color (350 degrees), followed by dark blue (600 degrees), and then medium blue (750 degrees). At this point, remove the wire from the heat and allow it to cool slowly. Don't quench it or blow on it; just let it cool naturally in still air. Once the steel returns to room temperature, it should be at the target RC45 hardness, which has a good spring temper. Try the file test again. You should be able to make a mark now, but only with some effort. If it passes this test, the wire is properly tempered.

Besides parts for model planes, tempered music wire can also be used to make special purpose tools. Instead of tempering to 750 degrees (medium blue), stop at the straw color stage. The wire will be at about RC60, which is still very hard, but not brittle. Wire at this temper can be used to drill wood and plastics, and most aluminum and copper.

## Notes

1. **Rockwell hardness testing**, named after Stanley Rockwell who made his first testing machine in 1921, is a general method for measuring the bulk hardness of metallic and polymer materials. Although hardness testing does not measure performance properties, hardness correlates with strength, wear resistance, and other properties.

Rockwell hardness testing is an indentation testing method. An indenter is impressed into the test sample at a prescribed load to measure the material's resistance to deformation. A Rockwell hardness

number is calculated from the depth of permanent deformation of the sample after application and removal of the test load. Various indenter shapes and sizes combined with a range of test loads form a matrix of Rockwell hardness scales that are applicable to a wide variety of materials. The Rockwell B and C scales are used for metallic substances.

2. **Anneal:** To heat and then cool (as steel or glass) usually for softening and making less brittle.
3. **Quench:** To cool (heated metal) suddenly by immersion (in oil or water).

## Trading Post- For Sale

- **2006 60-inch Hobbytown trainer** with .46 OS engine for sale [no radio]. It has about 5 flights and no damage. I am asking **\$150** for it. **Jim McManus** [bebepajim@comcast.net](mailto:bebepajim@comcast.net)



# Seminole Radio Control Club Tallahassee, FL

AMA Charter #216, 1969-2007

## SRCC Officers

President – John Hall  
Vice President – Brad Sharp  
Secretary/ Newsletter Editor – Stephen Warmath  
Treasurer - Sam Varn  
Field Marshall – Chris Bailey  
Field Safety Officer- Shannon Black

## 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 Flight Instructor (Coordinator)	926-4692
Geoff Lawrence- Primary/ Advanced Flight Instructor	942-9807
Mike Kinsey- Primary/ Advanced Flight Instructor	566-0144
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** – 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.

**Newsletter Submissions-** Submissions are requested to be in M.S. Word format. 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 23<sup>rd</sup> of the month. Send your submissions to [ssw@nettally.com](mailto:ssw@nettally.com) or by phone, Steve Warmath at 509-0672.

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