The Leading

The Newsletter of The Greensboro Radio Aero Modelers #481





Upcoming Events

September 5

4th Annual Fall R/C Celebration





Aerobatic Plane Set-Up Article

By Steve Vergamini

Over the past year, I've seen a real uptick in the number of aerobatic planes at the field---Extra's, Edges, Slicks, Lasers and the like. I love it!!! Unlike Steve Ort, I'm not a warbird guy---I love the agility of aerobatic planes, their light wing loadings and the beautiful way they fly. So much fun!!

To get the most out of your aerobatic plane, set-up is critical. If you set-up is bad, the plane will never reach it's potential. Conversely, if your set-up is good, the plane will be a joy to fly---and your pilot workload will be greatly reduced---you won't need to "fight" the plane. I've seen both good and bad set-ups at the field---some of them have been mine!! Here's my checklist of items I work on for every plane.

Center of Gravity: CG is the single most important factor in your plane's performance. Your plane's manufacturer will specify an initial CG—for aerobatic planes, that's usually right on the wing tube. Bear in mind that this is an INITIAL, starting point. The definitive CG for any plane is determined in flight. I'm a fan of "the inverted 45-degree test". This is a simple test and you should try it next time you are at the field.

From a straight and level flight, pull up into a 45-degree upline (right in front of you, about ¾ throttle). Wait a couple of seconds, then roll the plane inverted and then let go of the sticks. Don't worry—the plane is climbing and it won't crash. With hands off, watch the plane's path---if the plane is nose heavy, it'll nose over pretty quickly (and take back the sticks!). If the plane is tail heavy, it'll continue climbing and the path will become more steep. If the CG is correct, the plane will continue on it's original 45 degree upline and only gradually begin to nose over.

Control Rods, Servo Arms, Rates & Expo's: Each of your control surfaces is connected to a servo via a control rod. For starters, it's important that the length of both aileron (or elevator) control rods is absolutely identical---the reason is that you don't want each aileron servo to drive a different deflection---you want them to be exactly the same. Next, look at your servo arms----at dead neutral you want both arms to be 90 degrees to the servo itself—not cocked forward or rearward.

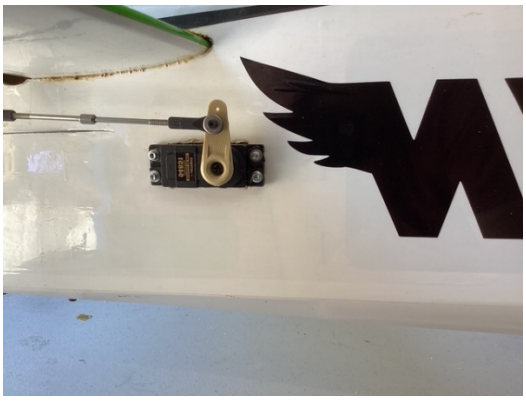


Fig #1: Note the position of the servo arm. It's at 90 degrees to the servo body. Now the servo can move the same amount in

Do NOT use the Trim or Sub trim functions of your transmitter to adjust aileron or elevator centering—again, you want the control surfaces the exact same amount. Use the clevis' and adjust the control surfaces centers mechanically. You should use the Trim or Sub Trim functions of your transmitter ONLY for the final—and very fine adjustments. While we're on the topic---use good quality clevis---do NOT use the inexpensive white nylon clevis that has a nylon pin and "snap" closure. Those are designed for low speed trainer-type aircraft---not aerobatic planes. Instead, use a swivel ball link---eliminate any control surface "slop"

For setting aileron and elevator throws, the first thing you will need is a throw meter---that way you can make sure the control surfaces are deflecting the same amount up/down. The attached pic shows the throw meters I use—I've had them for 20 years and I've set up 50 planes using them.



Fig #2: Throw meter---attaches to the control surface and shows the degree of deflection. A must for aerobatic planes

These are old-school—the newer throw meters are digital. Whether analog or digital, they serve the same purpose---making sure your control surfaces are moving the same amount. If you don't own a set, buy 'em---you can get them on Amazon or Horizon Hobby. Adjust the ATV on your transmitter so that each aileron or elevator is moving the exact same amount as it's "other half".

I see a lot of guys using 45 degree control surface throws---and something like 50%+ expo---as their standard set-up. For most flying---and certainly precision aerobatics---45 degree throws and 50% expo is WAAAY too much. You simply CAN NOT execute precise maneuvers with throws this large. For my planes I use 12 degrees for both ailerons and elevators---low rates. For mid rates, I use 15%. For high rates, 18-20%. My expos are usually 25-30%.

I've had RC friends that think these throws/expos are absurdly small. Andrew Jesky—the current WORLD Pattern champion---and Jason Schulman, legendary Pattern and IMAC pilot--- both use EXACTLY these throws. There aren't 2 better RC pilots on the face of the planet---and this is what they use. By the way, both of them can lay down a 3D sequence that will rock your world---but they use a completely different flight mode switch on their transmitters to enable big 3D throws & expo's. And they use that flight mode for about 3-4 minutes, max. For 98% of their flying, they use the 12 degree/25% expo setting.

Practice, Practice, Practice: Once you've got your plane set up correctly, you need to practice. Go to the Pattern website (nsrca.us) or the IMAC website (flyimac.org) and download the flight sequences. Start off with Basic (e.g., beginner) and have someone at the field call the maneuvers for you. Initially, you won't be very good---you'll probably have to "bail out" on any one sequence and have to re-start. That's OK---you'll get better the more you practice.

If I'm at the field, I'll be glad to call for you and coach you through the maneuvers. Tim White flies very pretty sequences---and he's a terrific coach. He'll be glad to call/coach for you too. The payoff to all this is that your plane will fly beautifully and your overall skill level will quicky improve---you'll be a more accomplished and comfortable pilot---and have a lot more fun. See you at the field!!!!



The Foul Line Flyers

by Mike Martin

Hitting The Gym

There is a group of intrepid flyers who brave the harsh elements of conditioned air, good lighting, and a hardwood runway anyone would envy. We are the Foul Line Flyers!

The Lewis Rec Center in Greensboro has allowed us to fly on Wednesday nights since 2005-2006 or so. The last several years the City of Greensboro's Parks Recreation Department has invested more interest in our activity. We have official paperwork on file and even get mentioned on their Facebook and website social media platforms occasionally. We as modelers already know what model aviation contributes to our lives. But I had to explain it to the Parks and Rec Department in the form of a yearly document. It really dawned on me how incredibly powerful our passion for model airplanes can be when I had to answer some questions that we don't usually get at the field.

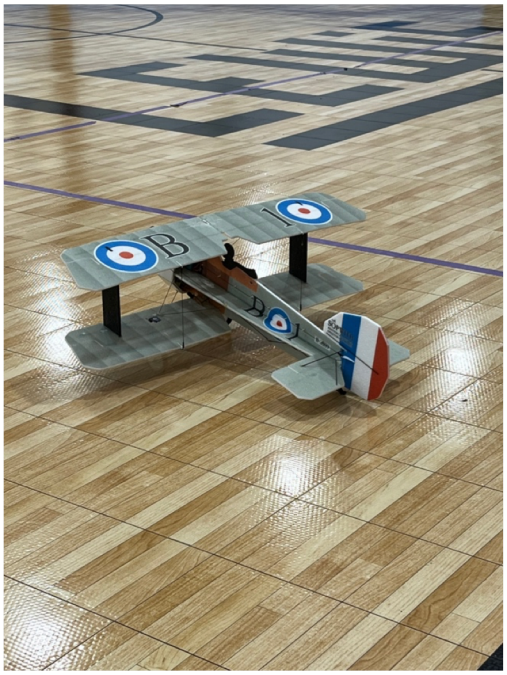
Purpose

The main purpose of this group is to have fun while promoting model aviation in a positive light. We are a group of aviation enthusiasts, young and old. We fly model aircraft inside the gym.

Audience

The intended audience is all ages, all capabilities. Model aviation is a fun activity that conceals math, physics, history, and hand-eye coordination. Young people that get involved in this frequently find a lifetime passion for things that fly. Older participants find a way to stay active while keeping their mind and spirits high! We emphasize safety and common sense and provide an environment where participants can learn about this great hobby and be around others in a family-oriented, kid-friendly space.

This activity is open to the public. I have an email list of 50-60 people that are supporters and occasional participants. I send texts weekly to a core group of about 15-18 folks as a reminder. Right now, the Lewis Center gym is perfect for the size of our group, which varies from 2-10 a week. A mass advertisement of our activity might create a crowded airspace in this facility. We invite anyone to come, but we would be in trouble if more than 40 or so showed up to fly at the same time.



Getting Started

This is an instructor-based activity. Like full-scale airplanes, you need a flight instructor to get started. But, with these aircraft it is not as formal as it sounds. There are several of us, including myself, who teach people to fly at local RC clubs/fields. We will provide help to anyone who needs it to be safe and successful. Sharing our passion for model aviation is a contagious part of this activity! It usually takes just a few visits to the gym to get the hang of it, especially if it's a kid that plays video games!

How We Support The Dept Mission

Giving people access to flight is unique and powerful. The young participants easily benefit from our activity. Not only are they entertained, an invaluable asset, they learn to communicate with people. They have to get away from their screens and come to the gym to fly. They get to work with their hands and their heads. The older pilots get to continue a hobby that many have been pursuing since childhood. Some are just getting to realize a lifelong desire to



start flying models. They get to reduce stress and, for a little while each week, forget about the rigors of life outside of the gym. Regardless of age, participants come together to have fun, share skills, time and stories. They are entertained, educated and rejuvenated in ways that only flight can provide. We are expanding minds, young and old, enhancing lives with a hobby that may lead to other interests or a renewed focus on subjects that will benefit participants in the future. And what better way to connect the young and old than with model aviation.

Why Model Airplanes

Personally, model aviation has been a part of my life for more than 50 years. It started with building plastic models and culminated into RC models built from kits. Converting a box of wood into a flyable, fully-controllable aircraft has enhanced and even directed my life onto the paths of design, engineering and education.

I grew up in a single-parent home. Mom was an elementary school teacher. If I hadn't been allowed and encouraged to participate in this hobby, life might have been very different. I was shy, overweight, and reclusive as a child. But, to fly, I had to go to the club field and ask for help. I had to overcome my shyness. I was fortunate to find many instructors willing to help me at the Greensboro Radio Aero Modelers (GRAMS Club). The youth of today are too focused on cell phones, video games and other semi-social activities, staying in their room with online "friends". They have poor, face-to-face social skills around their own peers, let alone adults! What better way to drag youth away from their personal gizmos than airplanes, helicopters and quads/drones!

Come Fly With Us

Flying indoors is a whole different process than being outside. Some aircraft that seem slow outside become missiles in a phone booth in the gym!

If you'd like to come try indoor flying or just want to see what it is all about, we fly on Wednesday nights from 6:00pm until 9:00pm. The Lewis Rec Center is located at 3110 Forest Lawn Dr in Greensboro. Call or text me, 336-616-4766, and I will be glad to answer any questions you may have about what we do and what aircraft are best for that environment.

Summer Fun

By Hanson Gaugler

From where I sit at my desk right now, it has been a great summer of flying. I have had some of my own ups and downs, but my enthusiasm has not wavered. More importantly, I think this summer has seen more participation from GRAMS members than ever! I recall going to the field last year and sometimes being the only person from the time I got there until I left. Not this year! No matter when I get there, pilots are already flying. In spite of the 90° plus temperatures, high humidity and blazing sun and drought, the crowds seem to be there. There were a couple of times I would pull in the driveway and see 10 or 12 cars all lined up and airplanes in the air. I thought I missed an event no one told me about!

We have also seen an influx of new members just starting out. Our pilot instructors have been busy this summer helping beginners get into the air. I have watched Tim White and Mike Martin working on their buddy boxes helping our newcomers get safely in the air. I marvel at their patience and dedication getting new pilots to gain the confidence and skill to fly. Just a couple of days ago, I saw Harry, one of Tim's students, flying on his own and skillfully practicing his touch and goes over and over again. He got it right. I have to admit, that is not how I started but I wish I had. I might not have picked up some of the bad habits I am fighting to overcome.

GRAMS has hosted a strong lineup of events this summer, starting in April with the 5th Annual Spring Fun Fly, followed by the club's most successful Warbirds and Classics event in May. June brought even more activity, including two Electric Evenings and Cub Day at CCRC. In August, we held the 1st Annual National Model Aviation Day. We also fit in two events with the Triad Aviation Academy in late July and mid-August, giving us another opportunity to introduce young aviators to radio control flying. And there is still more to come.

With a summer of fun like this, it also requires a lot of effort to keep things going. We had the spring cleanup where a lot of work went into getting the field ready to go. Thanks to a lot of members for getting things up and running. But it also requires effort all summer long to keep the field in shape. The grass does not get cut and the weeds don't stop growing without someone putting in effort to make that happen. There are other tasks behind the scenes that get done and thanks to all the members for helping it all happen.

I would say the GRAMS field is a great place to be this summer. Even when you are not flying there are great people around with a lot of animated conversations and hanger talk. There is always someone willing to give up some of their time and expertise to help if you need it. So come to the field and enjoy a summer afternoon.



