



Thrustline

The Newsletter by and for the Springfield Model Airplane Club

Website - <http://www.smacoh.org>

Volume 2

February 2004

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Tips for balancing your model airplane

By LARRY DUDKOWSKI

One of the more critical aspects of building a model—even an Almost-Ready-to-Fly (ARF)—is the balance. Much of the way your aircraft will perform depends on its balance. Unlike a helicopter that “beats the air into submission,” an airplane is balanced on the air. While it is one of the last things you do when you’re building a model from “sticks” or snapping together an ARF, it is one of the most important.

What happens if your model is unbalanced? If the model is unbalanced laterally (wingtip to wingtip), it tends to veer to the heavy side in a climb and it loops will appear to corkscrew toward the heavier side. If the model is nose heavy, higher takeoff and landing speeds are required. Tracking is straighter, but there is less sensitivity to elevator and rudder inputs. If a model is too tail heavy, just the opposite happens. While landing and takeoff speeds are lower, the aircraft becomes very sensitive to elevator and rudder inputs. Tail-heavy airplanes become uncontrollable.

The easiest way to check the lateral balance is to rest the model on the tail or tail wheel. Then, loop a piece of string under the propeller shaft. Lift the model, using the string, so the main

gear is off the ground. The wingtips should remain level. If they are not level add some weight to the wing that is lighter (higher). The further toward the wingtip, the less weight you will need.

Somewhere in your instructions, you should find information on balancing or on how to determine the center of gravity (CG) of your model. This is usually toward the end of the instructions. The CG is typically given as a range dimension and is about a half inch wide. For example, the CG could be given as 3 to 3 1/2 inches from the leading edge. The location of the measurement is extremely critical on a tapered wing, such as the one found on an Extra 300 or a Cap 232. It is less important on a constant chord (straight) winged model, such as a trainer. I balance the aircraft in the center of the balance point. If the CG is 3 to 3 1/2 inches, I balance at 3 1/4 inches.

To balance a model, suspend it at the CG points. It should be free to tip forward and backward. Then, add or remove weight to or from the nose or tail until the rear stabilizer is level. Try moving existing weights, such as the receiver and battery, before adding additional weight. If the model is nose heavy, move the battery and receiver toward the back before you add other weight. Remember, the fuel tank must be empty.

I use a Great Planes CG machine to balance my models. Before I had the machine, I supported my model on two full 2-liter bottles. This worked fine on my straight winged trainer. Later I built a balancing stand using two 1/4-inch steel rods glued into wood block bases. I used rubber pencil erasers on the tops of the rods to protect my model. Here are a few more tips>

> When finding the CG, the fuselage should hang below the balance points. For a high-winged model, lift and support the model from under the main wing. For a low-winged model, balance the model upside down with the fuselage hanging below the supporting structure.

> When building a kit, try to balance the model before you cover it. That way the covering will hide any additional weight needed inside the structure. On an ARF, try placing the weights under the cowl or inside the fuselage. Again, I try to hide any additional weights.

> I mark the CG point on my models with a small circle of red and white checkered trim sheet. That way I don't have to re-measure every time I want to check the CG.

Don't forget to recheck the CG after any major repair (read "crash" here. This is especially true if repairs are done in the nose or tail.

From *Plane Talk*
Prop Masters R/C Club
Dave Masters, editor
Warrenville, IL

Spring will come again Buzz



Minutes of SMAC Meeting January 6th, 2004

The meeting was called to order at 7:30 PM by Club President Bob McWilliams. There were approximately 25 members in attendance.

Secretary's Report

The report was read by Club Secretary Joe Ferrara. The report was then accepted as read.

Treasurer's Report

The Treasurer's report was read by Club Treasurer Tom Minnich. The report was then accepted as read. Tom also stated that the club currently has 41 paid members and the raffle fund is empty as of this date. Tom also stated that the club dues should be paid by next month's meeting and added that the field rent has been paid for 2004.

Old Business

Helicopter Fly-in: The issue is still open, but talks with the Urbana club continue.

Winter Activities: The first electric event was held at Clark State College on January 5th. Approximately 20 members attended. The second event is scheduled for January 21st from 6:30 PM to 9:30 PM.

Flying Field Cooperative: The matter is still open as we're awaiting a written proposal.

Mall Show: The annual SMAC model show at the Upper Valley Mall is still on for mid-March and preparations continue. Bob McWilliams is the point of contact. The dates are March 12th, 13th & 14th with setup beginning on the 11th after the stores close.

Shelter house: The matter is still open. A discussion followed on an enclosed vs. an open structure. The enclosed is considerable more expensive; \$6000 vs. \$3500. We need to obtain the final measurements, decide on exactly which unit to purchase and where to place it.

New Business

Freeze fly: The event was held on January 1st at the Club field and due to the unusually warm weather, the event was well attended by 22 members.

Mower Maintenance: Harold Dickerson said he will continue to perform the maintenance on the Club's lawn cutting equipment.

Participation by the Urbana Club in the Mall Show: The matter is still open.

Newsletter: Clem Schmid stated that he would take over as newsletter editor. Thanks Clem.

Guests: We were pleased to welcome Tom Leonard who accompanied Buzz Massey to tonight's meeting.

At the conclusion of the meeting, the 50/50 raffle was held and Frank Dalie was the winner of the \$10.50 prize.

There being no further business, a motion to close the meeting was made. The meeting was closed at 8:05 PM.

Respectfully submitted,
By Club Secretary
Joe Ferrara

Dead-stick landings: by Gary Thompson

Superior Pilot: *Def.* A pilot who uses superior judgment to keep himself out of situations that might cause him to have to use his superior flying skills.

Knowing how to make a dead-stick landing can help make you a superior pilot. Some of us think that if you prepare well enough, a dead-stick landing will never happen. But even the best preparation in the world can still allow for this event to happen. All it takes is for your engine to stop just once during flight.

To make the best of this sudden event, you should be well-prepared.

1. Practice for a sudden loss of power. When looking for something to do during your next flight, why not try a few dead-stick landings. Just cut the power back to idle and try to make the runway. Even better, have a helper call dead-stick and then cut to idle. This will introduce a sense of urgency to the drill. Your helper may get some kicks out of

trying to see if he can force you not to make the runway without adding power.

2. At the first sign of a loss of power, head toward yourself. This gives you the maximum amount of altitude and the minimum distance to make the runway or landing area.

3. Keep your altitude when your airplane is distant. Don't fly low and far away. If you are distant, you will need altitude to trade for speed in order to make the runway.

4. Use a timer. If you prudently set a timer to time out when you have used no more than 75% of your tank, you will be able to more easily determine when your fuel supply will run out. Electric fliers have a leg up here because they automatically receive a warning when the batteries begin to lose power.

5. Watch your speed and altitude. Without power (dead-stick), the only way to gain flying speed is to dive. If the airplane stalls, it may lose all of its altitude at once.

6. Pay attention to ground speed. You can cover more ground going downwind than up. When dead-stick and turning into the wind, you will lose a lot of ground speed, so make your final turn short, or if you can't make the turn, land downwind.

7. Set up your tank clunk. Make sure the fuel pickup clunk is not touching the back of your fuel tank. Set it up so that the fuel pickup is free to move from the bottom to the top.

Now go fly right and practice a few dead-stick landings.

From *Transmitter*
Palomar RC Flyers
San Marcos, CA

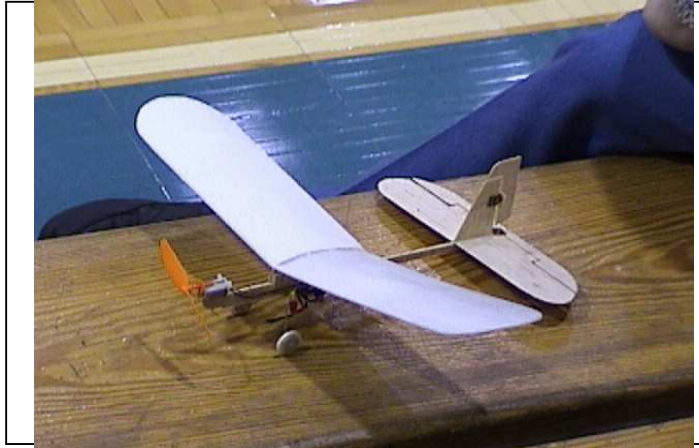
February Electric Fly Dates and Time Clark State Gym

9 February 6:30 PM to 9:00 PM

23 February 6:30 PM to 9:00 PM



Airplane of the Month



Winging it

Here are some rules for flyboys and flygirls:

When in doubt, hold on to your altitude. No one has ever collided with the sky.

The propeller is just a big fan in front of the airplane used to keep the pilot cool, When it stops, you can actually watch the pilot start sweating.

The only time you have too much fuel is when you're fire.

Stay out of the clouds. The silver lining everyone is talking about might just be another airplane traveling in the other direction.

You start out with a bag full of luck and an empty bag of experience. The trick is to fill the bag of experience before emptying the bag of luck.

Calendar of Events

3 February 2004

SMAC Board Meeting 6:30 PM

SMAC Club Meeting 7:30 PM

Location: Asbury United Methodist Church

104 E. Clark St (Rte # 41)

North Hampton, Ohio

9 February 2004

Electric Fly at Clark State Gym

6:30 PM to 9:00 PM

23 February 2004

Electric Fly at Clark State Gym

6:30 PM to 9:00 PM

2 March 2004

SMAC Board Meeting 6:30 PM

SMAC Club Meeting 7:30 PM

Location: Asbury United Methodist Church

104 E. Clark St. (Rte # 41)

North Hampton, Ohio

There are three simple rules for making smooth landings. Unfortunately, no one knows what they are.

from Ruf Stuf
Green bay Model Airplane Club
Jim Sanders, editor
Green Bay WI



Here is where the Electric Guys hang out