

The Transmitter

Suburban RC Barnstormers - P.O. Box 524, Bloomingdale, IL 60108

AMA CHAPTER 640

IMAA CHAPTER 194

On the WEB at - <http://www.suburbanrcbarnstormers.com>

November 2013

From the President:

I think we all agree that the weather outside is getting cold. For us RC pilots and modelers, that has a special meaning . . . It is building and repair season! What is building season you ask? That is when you think less about flying and finally focus your effort on that kit with the formidable number of balsa wood parts or that set of plans that has been rolled up and stored away that requires you cut out the pieces to make your own kit. That is also when you resolve to get it finished before the warm weather flying season starts again.

I am sure some of you will say, "I bought this nice ARF model and that's the kit I am building this winter." No, by definition that is not a "kit". Granted, you are "assembling" an airplane, but it is not a kit in the strict sense of the word. Don't get me wrong, I have nothing against ARFs. In fact I am assembling an ARF myself. There are many reasons why an ARF may be desirable. Perhaps there was no kit available of the particular airplane you wanted, but there was an ARF version, so you went with it. In that case, assemble away and get it in the air.

Perhaps you think you are not capable of building a kit. Two things to consider: 1) you won't know unless you try and 2) with experience comes competence. In other words, the more you build – the better builder you become!

For a real sense of accomplishment there is nothing like taking a box of balsa sticks, ribs and bulkheads and crafting it into a finished model. Some kit versus ARF considerations. It is a much smaller box than an ARF, which gives you more room in your building area to move around. It will take you more time to put together, but your airplane will not look like everyone else's airplane. You can put your own style to it and be proud of the individuality. If your kit is not a scale aircraft you can do what is called kit bashing. This is where you make modifications to the design to put your unique twist on it. You can change the wing tips, the tail surfaces, cockpit or whatever can be imagined. You can take a non-scale kit and make it look like a scale aircraft. You are only limited by your imagination.

I do have a kit to work on this winter and am looking forward to the project. I also have an ARF that needs finishing. I will complete the ARF first, then it is kit time for the rest of the building season.

If the lack of time or lack of confidence has your kit building aspirations sidetracked, you can go to one of the many swap meets (like I do) and find an airplane of your liking that someone is selling at a reasonable price. The typical minor repairs and finishing touches required will allow you to call it your own. It works for me.

Suburban RC Barnstormers Membership Meeting Notes

October 14, 2013

ATTENDANCE

There were 34 members present. We had a new member, **Ron Wolflick** that told us about learning to fly electrics with John Howe. Also, **David Klassman** was visiting. He had been furloughed and had time to join us!

OFFICER'S REPORTS

President: Mike Maciejewski presided over the meeting.

Mike noted that construction on the new field had begun! There were two bulldozers and a backhoe on site. However, the Forest Preserve cannot yet provide a date when the new site will be ready.

Vice President: Steve Thill had two items for the door prizes, a 10 pack of CA glue and a 3S 500ma LiPo. **Ron Hilger** also added some showerheads to the pool. The rollover prize is the Little Extra 330LT.

Treasurer: Bob Elsner said we are covered for our web hosting.

Secretary: Scott Taylor had nothing new to report.

COMMITTEE REPORTS

Fun Fly - Steve Merrill said the outdoor fun fly season is over. If anyone has suggestions for next season, please let him know.

Flight Instruction - John Howe said he has been training new member Ron Wolflick.

Safety - Tom Lyons reminded everyone that flying in the dome is in very close quarters. Please carefully watch out for other aircraft!

Night Hawk Dome Flying – Stan Warden said the dome would be open for flying on November 1st this year. Most aspects of the season will be the same, but we will not have member flying on Thursday nights. The season passes will be a little less to compensate for the one day less flying. AMA membership is not required and flying on November 1st and 2nd will be free. He was asked about helicopter restrictions and said that blades cannot be bigger than 27 inches and cannot be made of metal, fiberglass, or carbon fiber.

Marty Schrader added that your electric planes might have been sitting idle all summer. Please make sure to check your batteries, control surfaces, and structural integrity of your models before the first flight!

OTHER BUSINESS

For those of you who are interested in indoor flying, the White Pines Dome in Bensenville is up and available on Friday and Saturday nights from 11:00 PM to 01:00 AM for \$15.00 at the door. A discount pass is available for \$10.00, which gets you in for \$10.00 per visit. A season pass for \$150.00 gets you in at no additional charge all season long (November through April, except for the E-Niter special event).



Swap Shop – **John Howe** reported that the ad has been placed for the swap in the AMA magazine.

Winter Club Build – **John Howe** suggested that a model that club members could build during the winter might be a fun project. Everyone would build the same model which could have a special judging category at the April competition. He is suggesting a Glow Dog kit, but is considering others.

Hell's Barnstormer Tee Shirts – **Glenn LaRocco** said he was putting together an order for Hell's Barnstormers tee shorts. If you would like one, you simply need to be a giant scale flyer. Giant scale is defined as a 60" multi-wing plane, an 80" single wing, or a true ¼ scale aircraft.

EDUCATION / ENTERTAINMENT FOR THE EVENING

Member Swap – The entertainment for the evening was a membership swap. Members brought in items to trade or sell.

RAFFLES

Raffle winners included:

Nancy Gazdziak won the glue, **Ed Wonnacott** took home the battery, **Dan Naumowicz** and **Glenn LaRocco** won showerheads. **Dave West** was the turkey winner.

There was no winner in the rollover.

From the Tips and Methods Department:

****** A Method for Locating the CG on Model Aircraft ******

Submitted by Steve Merrill and Reprinted from an article by Tom Hastie in the Ottawa Remote Control Club Newsletter

There are many methods of measuring the CG of large scale aircraft. At some point, the wing sheeting just won't support the weight of the aircraft, making the good old "thumb" method a little tricky. Some people have rigs that hang the aircraft from the ceiling, but I never really liked suspending my precious airplane from the ceiling.

(Editor's note) Although this article refers to a large scale (20 pound) Katana, the method is quite adequate for almost any size built-up balsa aircraft as long as your scale of choice has a 1/10 oz. resolution or better.

What follows is the method I've been using since getting into the 50cc class of aircraft. I've seen something similar described online, and indeed this is similar to the method used on full scale aircraft. Put simply, you measure the weight of the aircraft at each wheel, and you use some simple math to figure out where the CG is. What I haven't seen suggested before, however, is using the main gear as the datum. If you keep reading you'll see that by doing this you can greatly simplify the math required, and also greatly simplify the process of shifting weight around to get the CG exactly where you want it to be.

The main benefits of using this method are:

- My precious aircraft never leaves the ground. There's never any risk that it will topple off a balancing pivot.
- During this process, you also learn the exact weight of your aircraft. It's a good figure to have in mind when judging flight performance later.
- It makes it very easy to shift weight around the aircraft to get the CG locked in right where you want it.

So let's begin. Here's what you'll need to measure the Center of Gravity this way:

1. A scale of some sort. I use a Starfrit Digital Food Scale that I purchased at Home Depot for \$20. It measures up to 11lbs, and will give me 0.01oz resolution. The 11lb limit is plenty for measuring the CG of my 20lb aircraft.
2. Tape Measure
3. Square
4. Some way of leveling the aircraft as you weight each point (I use CD-Jewel cases)

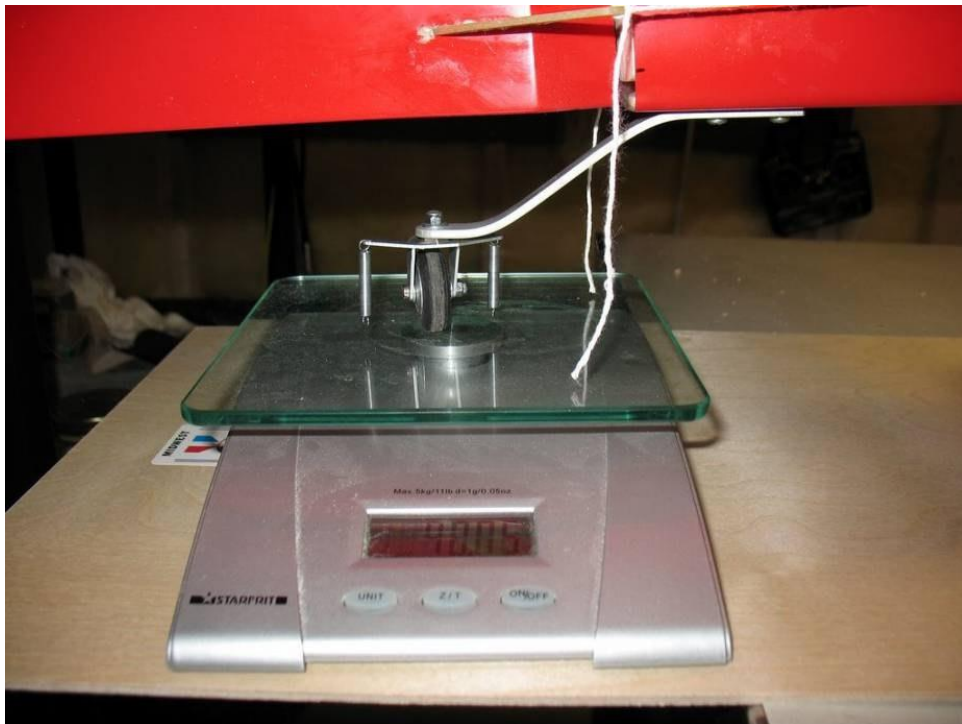


Here we go. I'm going to demonstrate with my 50cc Katana:

1. Place the aircraft on a level surface. I use the top of my build table.
2. Pile up CD cases until the pile is the same height as your scale. Make two piles of CDs.
3. Put one pile under the tail wheel, put the other pile under a main gear, and after zero-ing your scale, put the scale under the other main wheel.
4. Record the weight measured by the scale. On my Katana, the weight at this wheel was 125.7oz.
5. Swap the scale and CD cases, and record the weight measured by the scale under the other main gear. On my Katana, the weight at this wheel was 125.6oz.



6. Swap the scale to the tail wheel (Move the CD cases from the tail wheel to one of the main wheels). Record the weight of the aircraft measured by the scale under the tail wheel. On my Katana, the tail wheel weighed 48.1oz.



7. Using the tape measure, measure the distance between the point where the main gear touches the ground, and where the tail wheel touches the ground. On my Katana, the distance between the main gear and the tailwheel is 59.25 inches.

That's all you have to do with the plane. Here's where the math comes in. Don't be worried, it's not that bad.

The weight of the aircraft can be found by adding together the three measurements you made above.

$$W_{\text{leftgear}} + W_{\text{rightgear}} + W_{\text{tailwheel}} = W_{\text{total}}$$

For my Katana, I get: $125.7 + 125.6 + 48.1 = 299.4\text{oz.}$ (or 18.7lbs)

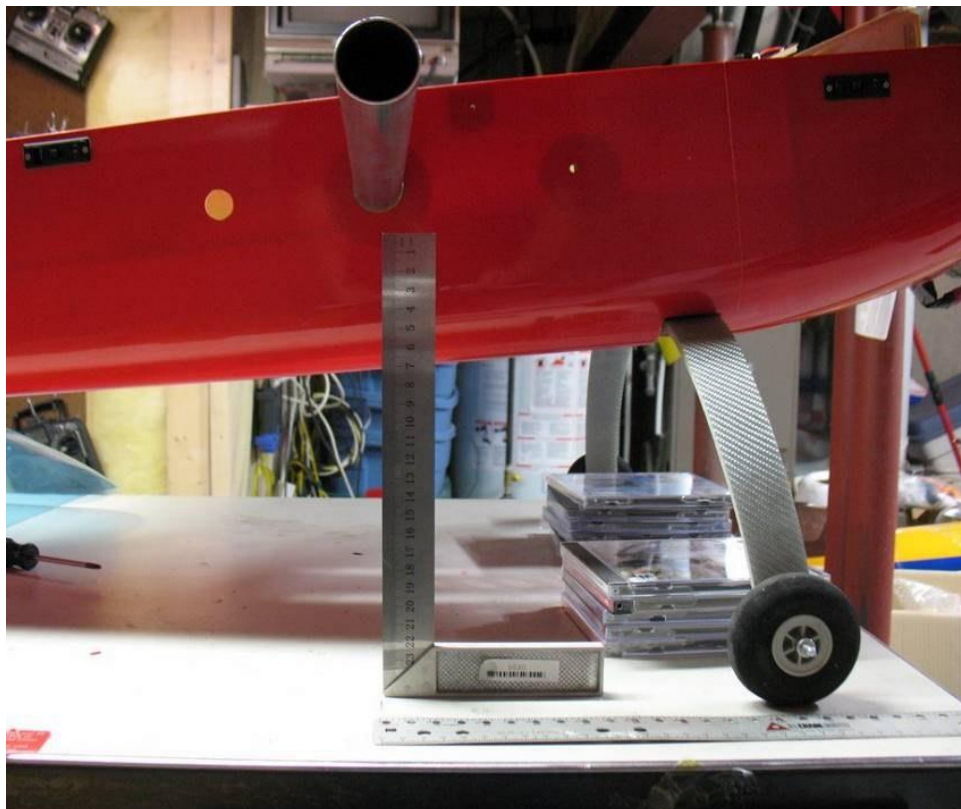
The location of the Center of Gravity, measured aft from the main gear can be found by the doing the following:

$$X_{\text{CG}} = (W_{\text{tailwheel}} * \text{Distance between the main gear and tailwheel}) / W_{\text{total}}$$

For the Katana I get: $X_{\text{CG}} = (48.1 * 59.25) / 299.4$, $X_{\text{CG}} = 2,849.925 / 299.4$, $X_{\text{CG}} = 9.5$ inches

This means, that the CG of the aircraft is 9.5 inches aft of the point where the main gear touches the ground. I measure this distance along the ground, place my square there, and make a mark on the airframe. This is where the CG is.

You might notice in the picture that the fuselage of the aircraft isn't level. So long as the aircraft attitude is the same as each measurement is taken, and the CG distance is measured horizontally along the table top, the method will produce results that are accurate enough for our purposes. I use the CD cases to ensure that the aircraft remains in the same attitude as each measurement is taken. I use the square to bring my CG measurement from the table surface up to the fuselage (as shown in the figure).



Now, here's the magic of this method. Usually you know where you want the CG to be. You can reverse the equation above, so that if you know where the CG should be, you can figure out what the weight of the tail wheel should be:

$$W_{\text{tailwheel}} = (W_{\text{total}} * X_{\text{CG}}) / \text{Distance between the tailwheel and the main gear.}$$

For the Katana, the CG should be on the main spar. I used the square to help me figure out how far the CG location is from the main landing gear (my datum point).

I found that this point is 8.75 inches aft of where the wheels touch the ground. So as is, my aircraft is slightly tail heavy at the moment.

$$\text{Plugging things into the equation above, we get: } W_{\text{tailwheel}} = (299.4 * 8.75) / 59.25 \quad W_{\text{tailwheel}} = 44.2$$

This tells me that to get the CG at 8.75 inches aft of the main gear, I want the tail wheel to weigh 44.2oz. Now, I take some easily moveable weight within the plane. Usually this is the receiver battery, or some other easily relocated mass. With the scale under the tailwheel, just move this weight forward and aft in the aircraft until the scale under the tail reads 44.2oz. Once I'm there, I secure my weight with some Velcro, and that's it. The CG is set exactly without adding extra weight, and without suspending my precious aircraft precariously from the ceiling.

It might be a good idea to check all three wheels one more time and crank through the calculations to make sure everything is correct. But other than that, the CG is now exactly where you want it. My aircraft never left the ground, and never had to balance on any sort of pivot.

I hope this method helps you guys. If there are any questions regarding it, feel free to contact me. I'm easy to find on www.calmdays.com
See you out at the flying field.

(Editor) Thank you, Tom.

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This newsletter is published monthly by the Suburban RC Barnstormers, Inc. We reserve the right to edit all information forwarded to us. Permission is hereby given to reprint any article that we publish as long as proper credit is given.

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