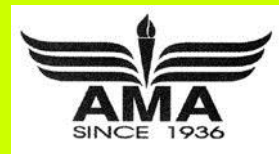




Flight Lines

Lakeland R/C Club Inc

October 2015



Next Meeting

Nov 11, 2015

Visit our Web-site:
www.lakeland-rc.com

All meetings held on the
Second Wednesday of
each month at:

Waukesha State Bank
1227 Corporate Center
Dr.
Oconomowoc, Wisconsin

President

Rikk Wolfs
262 424-0571
Wolfs1951@aol.com

Vice President

Matt Teresinski
262 506-9681
mteresinski@wi.rr.com

Secretary/Treasurer

Dan Kleckner
262 844-9944
dkleckner@wi.rr.com

Newsletter Editor

Rob Dunn
262 965-5857
mtorcyclst@yahoo.com

Upcoming Events

November 8: Bong Eagles
indoore event, EAA
Airventure Museum(RC
and FF)

January 3: Annual

August Meeting Highlights

The September meeting was called to order with 19 members in attendance.

Show & Tell

Again this month, there was now "Show" but a good deal of "Tell": Todd Weiler discussed some upgrades to the DJI Inspire: New features include waypoint navigation and a "Follow me" function, where the Inspire circles the pilot and follows them wherever they go. Todd also mentioned the recently released DJI Phantom III. This new model just went on the market recently, and Hobbytown has already sold 10 of them.

Todd also wanted to mention that he was not the teacher who crashed a drone at the US Open.

Chuck Hocking brought up an experience he recently had with a new charger: He had been flying and charging a 3 cell battery. He switched to a 4 cell pack, plugged it in to the balancing leads, but forgot to unplug the 3 cell battery. After some time, he discovered his error and unplugged the now-puffed 3 cell battery, which was moved a safe distance away. Several minutes later, Dan Kleckner went over to have a look at the 3 cell, and just as he was getting nice and close, the battery discharged its remaining energy in a sudden and dramatic (exothermic) fashion. Luckily Dan was not injured, but this serves as a dramatic reminder to never trust a puffed li-po pack.

Chuck Hocking related a story of a friend of his, an ABC member named Wayne who was a veteran of Iwo Jima who had "survived the war, but lost three fingers to a table saw afterwards" had expressed interest in Fred Sell's Stinson, which was being sold along with his other modeling accoutrement, by his family. When Fred's wife found out Wayne was a marine and an old friend of Fred's, she gave him the Stinson at no charge.

Club President Rikk Wolfs mentioned that, on a recent trip to deliver his daughter to her first

year of college at George Washington University, he managed to get in a little flight time at a local club: The [Loudon County Aeromodellers Association](#), located in Banshee Reeks Park. While the club had a nice runway, it was a 400' by 300' flat space on the top of a hill, with the ground sloping down and away on all sides, and surrounded by dense forest for miles around. Needless to say, a plane lost in the trees there was most likely gone for good.

Rikk also managed to visit a huge hobby shop on the same trip: [Hobby Hangar](#) in Chantilly, VA. Rikk says this place is much bigger than Greenfield, and mostly carries electrics. Judging by their website, they're also selling quite a lot of multicopters.

Treasurer's report

Dan Kleckner reports we received \$300 in Dues, and paid out \$90.39 for the Porta-John rental, leaving our balance at \$3,292. The Raffle balance stands at \$1,600

Committees/Events

The Rubicon cookout was lightly attended, but did include club members from Rubicon(2) and Lakeland(3), so could be deemed a success. The weather was particularly uncooperative, raining until around 10:00 AM.

New Business

There were no new members.

Dan Kleckner mentioned that the Civil Air Patrol indicated they want to set something up with Lakeland and Pebble Creek next spring to introduce their to the hobby.

Rikk Wolfs mentioned he had brought his Cap 232 to the field for a few flights, and had some problems on landing. UI turned

out he had a bad 625 servo. He had a few other problems as well; please see Rikk's "Prez Prattle" later in this issue.

Reminders:

The Bong Eagles have an indoor flying event at the EAA museum in Oshkosh on November 8.

Prez Prattle



Maintenance Tails

This is a long story. I don't care if you read it, but sharing stupidity that can others can learn from is good for the soul. I'll feel better, even if you get bored. This is the story of my Hangar 9 CAP-232G (pictured). This is the second CAP I own, and have had it for several years. I actually do not like CAP's, so you may wonder why I have such an investment in them. Because I am stupid.

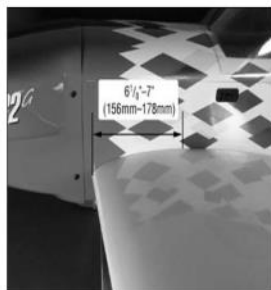
This airplane has an 80 in wingspan, a Taurus 52 cc engine, swinging a 23x8 prop. I don't remember what it weighs, but it is north of 15 pounds. I bought this plane the same way I seem to get into all my trouble ... I really do not get it. At any rate, I got the airframe only, used, from a guy for such a small amount of money that I could not understand why the guy was smiling as he unloaded it from his car. Why did I not catch on that something was wrong here? Because I am stupid.

Center of Gravity

An important part of preparing the aircraft for flight is properly balancing the model. This is especially important when various engines can be mounted.

Caution: Do not inadvertently skip this step!

The recommended Center of Gravity (CG) location for the CAP 232G is $6\frac{1}{8}$ "-7" (156mm-178mm) behind the leading edge of the wing against the fuselage. If necessary, move the battery pack or add weight to either the nose or the tail until the correct balance is achieved. Stick-on weights are available at your local hobby shop and work well for this purpose.



Excerpt from H9 CAP-232G manual

Some years ago, the big day came, I re-maidened her, and found her to be fun to fly, but not ... right. My other CAP-X, which is a 74 inch version, flies really well and never drops a wing, even when I dumb thumb her. This CAP-232G would keep spinning after I neutralized the controls, and other stuff, but the worst was landing. It has this really nice polished aluminum main gear that I promptly bent many times before I gave up and tried very expensive composite struts. I went through three sets, each time having them delaminate after a hard landing. Now, I've been flying since I was twelve. I'm not an IMAC god, or pattern genius, but I can land usually pretty well. I practice it a lot. This thing ... I could not land reliably. I programmed the radio with more expo, less expo, coupled the ailerons for flaps, reflexed the ailerons up, high rates, low rates ... you name it, I did it.

Nothing made any difference and usually it got worse. The problem I experienced was that as I reduced throttle on approach, the nose would pop up. I tried just leaving it there, but would sweat slowing down too much, so I'd put in a little down, and she'd pitch down enough that I'd have to pull back up ... I'd chase the pitch attitude of this plane all the way to the ground when the controlled carrier landing crash would occur. I tried putting down trim in, but that just made the oscillations worse. Most of the time, I spent fixing, or trying schemes to land the plane. I sure was not enjoying it. Here's another guy (who needs to edit his posts) on the FlyingGiants.com forum who describes my problem:

help with Hangar 9 cap 232 g

Hi

Can any one try to explain why when I am just coming in to land and try to put a touch of elevator in the nose will pitch up and i usually have to abort the landing and try again and again to get

her down what am i doing wrong...Kev



Many of you have already figured out what is going on here, but I did not ... I was fixated on my poor piloting and the busted landing gear fixing. Why? Because I am stupid. So, I wound up putting her, and a lot of my bigger planes away for a while because I was helping a lot of other guys, and then I got injured. After I recovered, I decided to pull those big birds out and get each one back to being airworthy. The CAP-X came back easily ... some carb rebuilding, change out the old batts to LiFe's, covering resealing ... not much work. Flew as great as I remembered. Onto the CAP-232G.

Now, it had been a long time since I flew this thing and frankly, I forgot that it was a beast on landing. I put those nice new 7 oz LiFe batts back in that spot the original guy had them in, rebuilt the carb, balanced the prop and spinner, redid a lot of wiring, and the mandatory covering resealing. I even went to Speedy Metals and got some nice T6061 aluminum in 1/4 inch thickness and cut/bent up a new set of mains. Why did I not remember the problems I had and work them?

You know the answer.

Out to the field I go, and again, I quickly became reacquainted with the bestial nature of this airplane. I am a better pilot than I was when I

flew it before, but it was unlandable. Again, I'd pitch up and down on landing, working my right thumb until it was sore. I tried all sorts of throttle settings. No help. The guys at the field were their usual help-selves. After the initial catcalling, the return of the "change the expo", "reflex your ailerons", "come in faster", help started being offered. The problem with coming in hot was that she'd just bounce back into the air in the deathly nose up and slow, four feet off the ground stance. Thank the RC gods that the engine would just sing back to full throttle as I went around for another pass of landing shame. The final blow came from the real president of the club ... Kleckner. He says, "That plane just flies bad. Some planes you just can't fix. You need to be a great pilot to fly that thing, and you don't fly enough to be great ... good, yes, but not great. You need to retire to get good enough to fly that plane."

Oh man. I mean, OH MAN. That really stung. And for sure on the piloting part, he is right. But ... the plane is ... bad? Naw. I can't accept it. Can't do it. Most of you know I can really persevere when conditions call for it, and in this case, I felt like I could not let this go.

Why? Because I am stupid. Head down now, and going to bull through this. A lot of research led to several interesting finds. This post, in response to the one above in FlyingGiants, nearly killed me:

Re: help with Hangar 9 cap 232 g

Kev,

I had one, converted to run with a DA-50, moved the fuel tank back toward the CG. Had the exact problem you talked about. Didn't even need to change the elevator, would balloon if you chopped the throttle. Checked the CG against the manual, was right on. Went back and calculated the CG using a standard calc to MAC (mean aerodynamic chord) and found that the most rearward range of that calculation, was the front edge of the H9 recommended range. I can only assume that since they meant for the plane to have a big glow with a big tank of glow fuel tucked right behind it, that they moved the cg back to compensate. If you did like I, put a gasser in it, moved the tank down and back, you are now very tail heavy.

You can use this calculator to adjust to the correct range, if I remember right, it was about 5-1/8" to 6-1/8". Balanced at 5-1/2" was fairly good. (But you are testing my memory)

http://www.ourdmac.com/files/CG_MAC_CALC.3.xls (All props to the original poster)

Damn. I PUT A GAS ENGINE IN MINE TOO! Are you KIDDING ME? This thing is TAIL HEAVY? No, no way. I put her in the balancer and with the new LiFe's (7 oz) in the back of the cockpit, she came out dead on the most forward location called out in the manual. It should be NOSE heavy!

Time to science my way out of this. I looked at the calculator referenced above, and after looking around found several others, that take into account wing sweep, wing tapers, biplane wings - we've all seen these before. This one looks good - it comes to you in Excel, but also the formulas are there so you can do it by hand.

As you know, with a wing, we need to find the Mean Aerodynamic Chord (MAC), and then use that to specify the point where the CG is. If the wing is straight, you just put the CG somewhere between 25 and 30 percent of the total width of the wing (the chord) from the leading edge and it will fly. You need to tune from there, but it will fly. If the CG is around 35 to 40% aft of the leading edge, you probably have an airplane that will be lucky to land. With a tapered wing, like the CAP, we need to find the chord where the areas on each side of that chord are equal ... the chord in between those two equal areas in the MAC.

If you draw it ... it is not so simple to figure out. There are graphical ways to do this, but I chose this calculated option. As initially setup, with the wing numbers and CG location (root 20", tip 10", CG 6.25" from the front of the MAC), I got the following results:

This form will calculate the percent of the Mean Aerodynamic Chord (%M.A.C.) of a model airplane wing for a given position of the Center of Gravity (C.G.)

Enter Root Chord (A):	20
Enter Tip Chord (B):	10
Enter Leading Edge Sweep (S):	3
Enter Distance Between Root Chord and Tip Chord (Y):	36
Enter Distance from Leading Edge to C.G. @ Root Chord (CGr):	6.25

Sweep Distance @ MAC (C) =	1.33
Mean Aerodynamic Chord (MAC) =	15.56
MAC Distance from Root (d) =	16.00
% Mean Aerodynamic Chord (% M.A.C.) =	32%

FORMULAS:

$$C = (S(A+2B))/(3(A+B))$$

$$MAC = A-2(A-B)(0.5A+B)/(3(A+B))$$

$$d = 2Y(0.5A+B)/(3(A+B))$$

$$\%MAC = ((CGr-C)/MAC)100$$

Holy CAP! The CG is at 32%, based on this, with the MAC being about 15 1/2" wide, located about 16 inches out from the root. 32% Kleckner was right. That plane will fly bad with a guy like me. It is controllable, but barely, and it is going to have pitch instability, so that fine movements of the elevator and going to make big changes. It is getting near unstable. Stupid ... stupid ... stupid. OK, so I want the CG to be around 27%. So back to the calculator, and changing 6.25 (which was the measured CG) to 5 1/2, I got the following results:

M.A.C. CALCULATOR

This form will calculate the percent of the Mean Aerodynamic Chord (%M.A.C.) of a model airplane wing for a given position of the Center of Gravity (C.G.)

Enter Root Chord (A):	20
Enter Tip Chord (B):	10
Enter Leading Edge Sweep (S):	3
Enter Distance Between Root Chord and Tip Chord (Y):	36
Enter Distance from Leading Edge to C.G. @ Root Chord (CGr):	5.5

Sweep Distance @ MAC (C) =	1.33
Mean Aerodynamic Chord (MAC) =	15.56
MAC Distance from Root (d) =	16.00
% Mean Aerodynamic Chord (% M.A.C.) =	27%

FORMULAS:

$$C = (S(A+2B))/(3(A+B))$$

$$MAC = A-2(A-B)(0.5A+B)/(3(A+B))$$

$$d = 2Y(0.5A+B)/(3(A+B))$$

$$\%MAC = ((CGr-C)/MAC)100$$

This shows that 5 1/2 inches back at the root is the CG point that gives me a 27% CG, which is going to be far more stable. Now ... how to move the CG? I have the rudder servo fully forward, but two elevator servos in the tail, and I'm not moving them. When I moved the batteries BACK to the forward position (like I originally had them) it still did not move the CG enough. In the end I had to add EIGHT OUNCES of lead to the firewall, which required melting old wheel weights and pouring in a form to get a shape I could bolt on securely. By the way, the weight looks very well done, if I may say so, and to heck with you "I don't add weight" weenies. This all means that 7 ounces of batteries moved about 18 inches forward, with the 18 inches roughly centered on the CG, and another 8 oz added about a foot forward of the CG.

That, my friends, is a LOT of weight change. So much so, that I just could not believe it. More research revealed this review on RC Groups of the plane:

Completion

To complete the plane, we installed the fuel tank partially in front and over the wing tube. A 3-line fueling system was used with the 3rd line exiting the fuselage just below the hatch and behind the cowl. A JR Extra Rx Pack 2400mAh 4.8v Flat (P/N JRPB4460) was used for the flight pack. As mentioned earlier, additional lead was added in the forward portion of the fuselage to obtain a satisfactory CG. The first couple of flights were made by two individuals who both agreed the plane was pitch-sensitive. In fact, our first video demonstrates how gentle we had to be on the elevator in order to fly this plane smoothly. Twice the plane snapped out of a loop or dive when I pulled a bit too hard. We added more lead (a total of 17 oz.), and that pitch-sensitive problem disappeared! We finally agreed the plane flew best with the CG located at the forward-most suggested location. As the video demonstrates, during the Harrier maneuvers, a lot of up elevator does not necessarily lead to a stall or snap!

These guys had to add 17 oz to get their plane right, but they also put the rudder servo in the tail, which neatly accounts for the missing weight I did not need. I found the same notes in several other posts.

Stupid. I am stupid.

Today, 11 October, I took her out to the field around 5 PM. The wind was averaging 11 MPH and gusting to 18 MPH on the gauge in the shed, almost a direct cross wind out of the south. Caution from long experience with this beast said to go home, but, armed with science, I had to try it. And you know what? The thing flies beautifully. I shot a tankful of landings and yes, I overshot a couple of landings because I'm programmed to fly it hot on approach, but once I got over that ... no more oscillation. The elevator actually works in mid rates while landing. No more three point, no airspeed left carrier landings ... just settle in on the mains and let her roll out.

Conclusions

Don't trust the manual CG location. Calculate it yourself. If there is a difference like this one, don't fly it until you figure it out. Note that if I put the CG back at the aft position of the manual, which is 7 inches, that is 36% of MAC! It would be very hard, if not impossible, to handle by a sportsman pilot.

Don't get "target fixation", where you have a flying problem repeat itself, and you concentrate on the repair work instead of the root cause that is making the airplane get broken. Focus on simple stuff ... like CG.

Radio programming is great, but it can distract you because it is "easy" to try to bandaide over flying problems with it. There are some things, like flaps, that having the elevator mix with flaps is practically essential. But don't let people talk you into mixes to fix landing problems.

This is the most important one. I never really had an airplane that was tail heavy before ... I know that now. If you experience a problem where it seems like you are having to put in a little up elevator, then a little bit more down to correct, then more up to correct again, and you keep chasing the pitch attitude at lower speeds ... that is what tail heavy feels like when it is not "death causing tail heavy". You need to add nose weight or you are gonna hate that plane.

Homework question: Who was Richard Best, World War Two veteran, US Navy, and what was his most notable contribution to the war effort (I'll need you to give me details of the decision he had to make to achieve this feat)? The first person to correctly email me the answer will get a propeller of their choice from my stock of props – in other words, you need to include with your answer a propeller diameter and pitch you need, and whether you want APC, wood, electric, or gas/glow. My props start at around 20/10 and end at 6x3. Fly on Lakeland!



A Few Photos from the September meeting





Reprinted from the September Newsletter:

Gentlemen,

I have secured the Cushing Gym in Delafield for Indoor Flying on Wednesday Evenings. It is a 25 night schedule with flying starting at 8PM. First evening is September 16th and ends on May 18th.

The cost per pilot is \$5.00 for the entire season, which comes out to 20 cents a night. I guess that eliminates that excuse for not coming out. You can pay me at the gym

or send the money to Jim Zahorik, 1948 West Shore Drive, Delafield, WI 53018.

INDOOR FLYING SCHEDULE AT CUSHING GYM DELAFIELD

October	7, 21, 28
November	4, 18, 25
December	2, 16
January	6, 20, 27
February	3, 17, 24
March	2, 16, 23
April	6, 20, 27
May	4, 18

Keep the Shiny Side Up,

Zahorik

FOR SALE

FOR SALE Complete "PATTERN PACKAGE - Ready to Fly"

VENUS II with OS 90 two-stroke

FUTABA 9CAP PCM Transmitter and Case

FUTABA FP-R 1480 P 8 Channel Dual Conversion Receiver

HOBBICO Quick Field Charger

HOBBICO Digital Volt Meter

GloBee Tachometer

PATRIOT R/C Glo Driver with Charger

TOWER HOBBY Glo Driver with Charger

1 and 1/2 gallons BYRON 15% Nitro 16% Straight Synthetic

Flight Kit with HOBBICO Fuel Pump

TOWER HOBBY Deluxe Starter with

HYPERION 4S/14.8 Volt 3300 mAh Power Pack

Asking \$600.00 or BEST OFFER

Call Jim Zahorik at

262-490-1412 or email jzahorik1@wi.rr.com

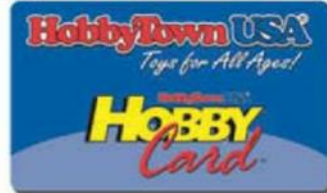


HobbyTown USA®

Lakeland RC Member Discount

10% OFF
With HobbyCard

(Applies to non-sale items only)



DELAFIELD

Hwy 83 & I-94

262-646-5755

Can't find what your looking for?

We can order almost any item in a few
days and save you the shipping!

GERMANTOWN

County Line & Appleton Ave.

262-251-7670

