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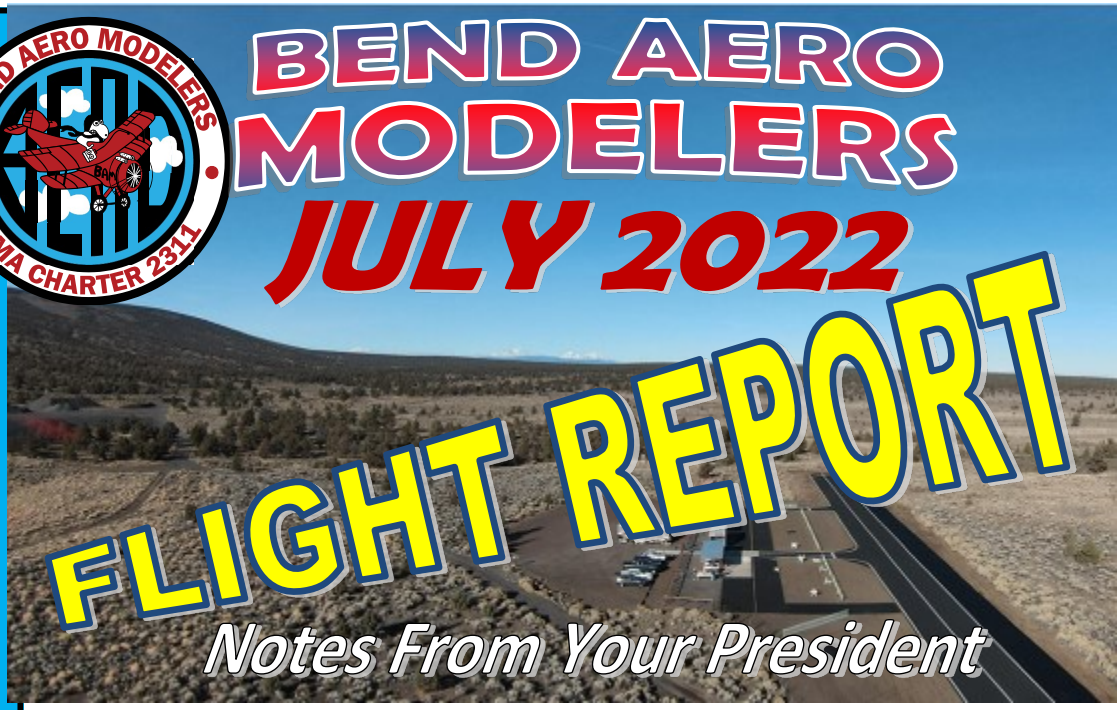
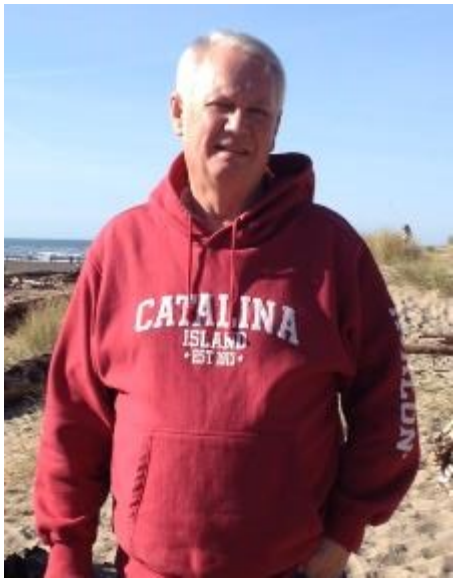




I was looking over the latest members list, thinking about the various levels of expertise that had been shared during the initial contact with the club by new members. It occurred to me that some may or may not know of some of the more potentially dangerous aspects of our hobby. One that came to mind was the proper handling of the electrical power source, the battery, used to get our aircraft into the air. In most cases, the battery can be a very benign tool, safe to use, and very necessary to those of who use battery powered aircraft. There is, however, another side to this story. I looked over several websites that go into extensive explanation of the different battery types, including the LiPo, which most of us use. Without going 'over the top' with information, I gleaned out the following information, which is presented not to frighten, but to make one aware of the potential for serious situations if a battery is not handled properly.

Since 1991, lithium-ion batteries have been the standard for power across industries from cell phones and computers to electric vehicles and solar storage. Following are some questions about Lithium batteries:

Continued on P. 2

Why Do Lithium Batteries Catch Fire?

They are made from a combustible material.

Can pack a lot of power compared to other batteries. But as part of the alkali metal group on the periodic table, lithium is very combustible. It's also the least dense metallic element.

Have highly reactive components

Are structured like all batteries – two electrodes are separated by an electrolyte. In the lithium battery, the electrolyte is a solution of reactive lithium salts and organic solvents. An electrical charge is transferred from a lithium metal cathode through the electrolyte to a carbon anode. And as with most batteries, the process pressurizes the contents.

Are volatile when damaged

Have stray ions moving between the electrodes that can create microfibers called dendrites. If a dendrite punctures the thin separators keeping the battery elements separate, an internal short-circuit can spark the lithium. And if a dendrite punctures the external part of the battery, the lithium reacts with water in the air, generating heat and the possibility of fire. The battery can also overheat, creating a thermal runaway and causing an explosion.

Unfortunately, if something goes wrong with lithium batteries, fire is a likely result.

What to do if Lithium Batteries Catch Fire

Battery University offers these guidelines for dealing with a lithium battery fire:

Small lithium-ion batteries can be doused with water because they contain little lithium metal. Lithium-metal battery fires can be put out with a Class D fire extinguisher.

Larger battery fires are best handled with a foam extinguisher, CO2, ABC dry chemical, powder graphite, copper powder or sodium carbonate.

If the fire can't be extinguished, you'll need to let it burn in a controlled way, dousing the surrounding area with water to prevent the fire from spreading.

If you have a battery pack, each cell may burn on a different timetable when hot, so place the pack outside until completely burned out.

As a follow-up to this information, we have many technically astute members in our club who can provide good direction on how to correctly charge, handle, store, and dispose of the batteries that are such an essential part of our hobby. Please do come to our monthly meetings as they are a good source of pertinent information that is shared amongst the members during the course of the meeting. Our members thoroughly enjoy sharing there knowledge, and look to make our hobby enjoyable for all

CAVU to you all,

Jack

Field First Aid and More

By Andy Niedzwiecke, BAM Safety Officer

Before I get started on my intended subject I thought I'd address the most current safety discussion concerning first aid and CPR at the field. It seems that the "cooperative agreement" between the AMA and the Red Cross involves substantial monetary requirements for us to participate. Dennis McMahon suggested that we do what his fly fishing club did to help members get training if they so desire. I am passing along that information in this newsletter to help those of you that want first aid and CPR training can get it.

Here's the link to the Fire Dept's hands-only CPR

https://www.bendoregon.gov/government/departments/fire-rescue/community-resources-programs/community-training

Additionally, the Red Cross offers both online and in-person First Aid and CPR classes:

https://www.redcross.org/take-a-class/first-aid/first-aid-training

Balance Your Plane! (CG)

It seems that this is something that people do or don't do or don't know the correct way to do it……..balance your airplane before flying it. I have talked to many experienced people about this subject and read several articles and determined that sometimes it comes to personal preference as to technique for balancing. I'm not talking about giant scale airplanes but our normal everyday planes that we routinely take to the field. It is not a subject to be ignored because a plane that is not balanced will not fly right or possibly only fly once. I recently came across two good explanations for balancing (setting CG) that I wanted to share.

CG or Center of Gravity is one of the most vital elements of ensuring safe flight. Every airplane has a recommended CG from the manufacturer. Usually, the CG has a +/- factor of 10 or less millimeters both fore or aft of the CG mark. This is because some people prefer to fly their airplanes a little on the nose heavy or tail heavy side depending on a number of factors.

All aircraft have a specific CG position, it's the mean point where all gravitational forces act upon the plane and hence the point where the model balances fore-aft correctly. You can think of a plane's CG like the center point of a see-saw, for example.

Methods To Balance Your Airplane's CG

High wing trainers are the easiest planes to balance and if this is your first plane then this is likely the case.

Obviously the first thing you need to do is identify the correct Center of Gravity position according to the manual. As a very general rule of thumb the CG will be about one-quarter or one-third of the wing chord (width) back from the leading edge of the wing. The main spar, if there is one, often lies in this general area.

Again, this position is only a generalization and in reality a CG point can be found anywhere from, say, 25% to 50% of the wing chord back from the leading edge. A CG point outside of that range is rare, but not impossible.

The Easy Finger Method

Most folks tend to use their finger tips to balance their airplanes. To do this, place the tips of your index or middle fingers under each wing, **exactly** on the line of the CG (i.e. the specified distance back from the leading edge of the wing of the plane) and a couple of inches out from the fuselage sides. Gently lift the plane up so it is clear of any surface and let it hang freely on your fingers.

Be sure your plane is flight ready when you balance it (i.e. battery pack in place, also known as All Up Weight or AUW).

A correctly balanced airplane, sitting on your fingertips, will either be level or have the nose pointing slightly downwards. If the tail points downwards then the model is tail heavy and you will want to correct that as most airplanes are less controllable tail heavy. Especially when starting out and being the first flight, you want to steer away from your model aircraft being tail heavy.

You may have to adjust your battery's position fore or aft to get the CG to the recommended point. A slightly nose-heavy aircraft - especially a warbird - is okay. As an example, if the recommended CG is 75mm from the leading edge of the wing, you might be allowed 70mm if you want the model to be slightly nose heavy. Either moving your battery forward (if your model has the space for it) or adding nose weight will achieve the nose heavy CG.

Many folks will choose to measure their CG on a low wing warbird upside down. Truth is, you can measure for CG with a low wing model/warbird either way. Some find it easier to measure a low wing warbird upside down but either way is correct as long as you measure your CG properly.

If your battery or receiver adjustment isn't allowing enough to adjust the CG (due to lack of room), you will need to add weight to either the nose area or tail area depending on where your CG is currently at. We offer weight in 1/4 ounce lead segments, which is typical in the hobby. Always remember, adding weight should be the last step after trying other methods such as moving internal parts fore or aft first.

CG Balancer

For an even more precise method to locate the CG, you can purchase a CG Balancer. Also referred to as a CG Machine, you can locate these by searching the Web. Make sure it supports your model's weight and size as there are many different size CG Machines. Refer to the instruction manual once you purchase for proper use.

Got A Low Wing Warbird With Retracts? What's The Best Method?

There is a huge debate among RC pilots concerning what the proper way to balance an aircraft with retracts is. Some suggest gear down because that is the most critical point of a flight (the takeoff and landing) when the plane is slower generally than in normal flight. However, low wing warbirds are best balanced with their gear up (since this is the normal position during flight).

Technically, a tail dragger's main landing gear on most warbirds are not too steeply raked forward, so the difference in the position of weight distribution in their "gear up" and "gear down" states is almost negligible, but it is still common practice to measure it with gear up.

So that's really it for balancing. It's a fairly easy process but critically important one that cannot be overlooked! A well-balanced airplane will be much more stable and easier to fly than an airplane out of balance. Trust us, you don't want to find out what an improperly balanced airplane flies like.

Balancing Your Low Wing Warbird With Retractable Gear

There's two schools of thought for correctly balancing your warbird's Center of Gravity when it comes to low wing models with retractable landing gear.

Do I balance with the gear up or gear down? Do I balance upside down or right side up?

Let's tackle gear up or down first.

If you spend some time researching the topic online you will find fair points for either side of the argument. The positive of balancing with gear up is that you're choosing to balance your model in its normal flying configuration.

The positive of balancing with the gear down is that you're balancing your warbird in it's most vital state (gear down for taking off and landing).

There's no perfect one size fits all answer here. Like many aspects of this hobby it comes down to preference. However, there are considerations to contemplate that may help you decide what is best for you and your model.

If you choose to balance your model with the gear up you need to be aware that when your gear is down this could shift the model's CG either forward or aft depending on the gear's location and you will need to counter that shift with either trim or a mix (Flight Mode) in your radio, or manually with the control sticks which isn't a favorable situation.

If you choose to balance your model with the gear down, while this will be a favorable location for takeoffs and landings, once you retract your gear the CG could shift forward or aft again depending on the location of your gear, and this occurs in the air with little margin for error. Like stated above you will need to counter that shift accordingly.

Whichever method you choose, it's vital to test your model on the ground to see how it reacts once the gear is either deployed or retracted based on how you chose to acquire your CG. From there if your radio supports it, consider a mix that will compensate for the CG shift.

Example: Let's say you choose to balance your warbird with gear down. When you retract the gear the model becomes tail-heavy. So in this case you would want to add some down elevator in your mix that will drop the nose slightly to compensate for the tail-heavy condition.

Now with low wing warbirds is it better to balance upside down or right side up? Again, there's numerous opinions on this and the truth is that it's a matter of preference. Regardless of what anyone says, there is no right or wrong method. It's all a matter of preference.

However, the majority will tell you to balance your low wing model upside down. The primary reason for this is because most simply find it

easier to balance a low wing model upside down. As someone named "Engine Doctor" in a RC forum once put it;

"Remember that with low wing aircraft the actual CG is somewhere in the middle of the fuselage above the wing. Balancing anything right side up above your balance device (or fingers) will be like balancing a pea on a knife edge. Inverted, the actual CG hangs below the wing and is easier to control/balance."

So while you can still correctly achieve the proper CG right side up, it comes down to the idea that it is an easier process to achieve upside down but technically-speaking, yes you can achieve an accurate CG either way.

Hopefully you find this article helpful and it helps you achieve many rewarding and successful flights.

Andy back here with you. I have built planes for a long time. I joined the AMA in 1980. I now do foamies but the techniques are all the same. My personal preferences are on a high wing plane, balance with plane in upright (normal) position. A low wing plane I balance with the plane upside down. With low wing planes with retracts, I balance with plane upside down with retracts retracted……..caveat…….if the retracts fold along the CG or close to. If the retracts fold behind the CG then I balance with the retracts extended.

Well, that's the full story on balancing (setting CG) on our models. I wish to thank Motion RC for permission to copy a whole lot of their content on this subject.

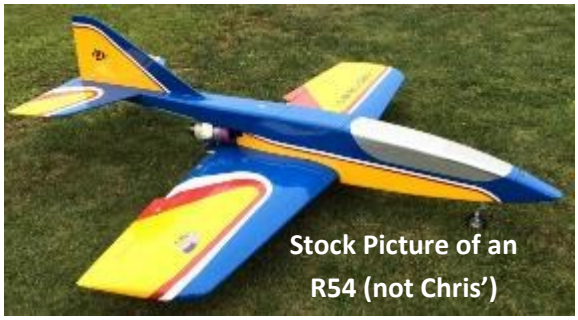
The whole point here is if you expect your plane to fly more than once be sure to do this most important step.

Best Regards and see you at the field,

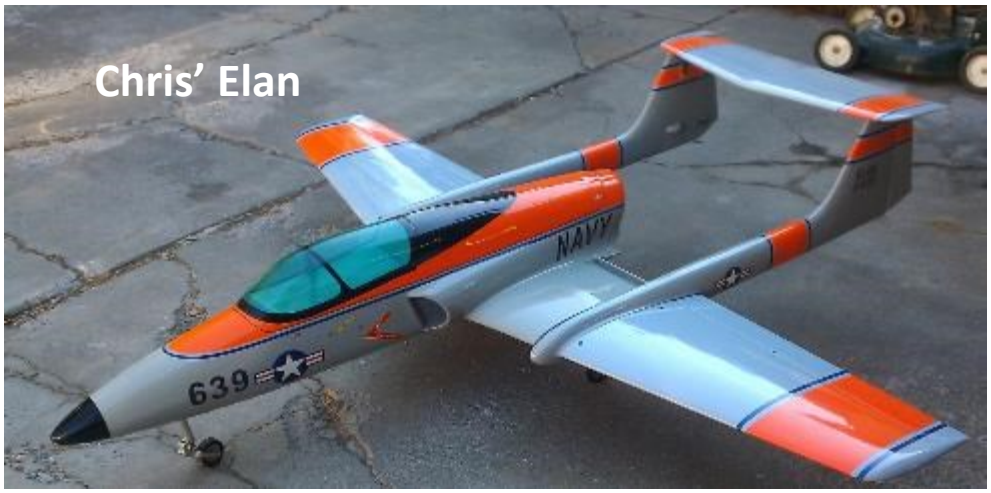
Andy

A Few Words About Chris Rankin's Jet

Last month I made mention of Chris's Jet and asked him for a little more information. First he had an R54 which is hanging on his ceiling he says has superior handling. Plus, its sentimental value is huge, in that he built it from a huge box of lumber. Nevertheless, the Elan was simply a jet he could fly with a lot less stress, if there's such a thing. Being an ARF there's a lot less invested with time. The Elan was built by a previous owner and flown a hand full of times in Washington state before Chris stole it for $3600 ready to fly.


Stock Picture of an R54 (not Chris')

It's a fairly draggy airplane that's really pretty easy to handle but still has some really good performance. It is powered with Evojet G booster 90 at 19 lbs of thrust. Flight system is Futaba; carries 125 oz. of fuel. The airplane is very popular with those familiar with the design. Designed in great Britain by Alan Cardash and was imported through his sister in Dallas before health issues forced him to get out altogether. The design was in limbo for years before modeler Larry Roper attained the rights and started building them again under Boomerang Jets USA. https://www.boomerangrcjets.com/ They have a few popular models and one brand new design called the Ranger



Chris acquired the Elan in 2012 and has flown it enough that he sent the engine to Germany for service in 2015. Been a good airplane up until

he messed up a landing at BAM with too high of an approach speed, realizing it, he pushed the throttle up to go around while it was on the runway and it never got up on the power. It staggered into the air, cleared a big rock before he eased off and put it into the dirt at idle power. Something more readily to happen on hot days. Soft dirt and minor rock damaged all three gear and got a hairline crack in a boom which is repairable. He picked up two new booms just in case and it's still in his shop downstairs waiting for him to do something. He says once he gets a chance to begin the repairs, there will probably be some other things when he starts digging around the airframe. He hopes to be able to get at it next month. We all have our time constraints, but it may be lost on most of us that as a commercial airline pilot, Chris states the pilot shortage is real, so he's really slammed. He says he sure misses flying this airplane. In the meantime, here's a link Waldemar posted to the BAM website on a beautiful Elan flight:

https://www.youtube.com/watch?v=E7CECiMkvBA

Take a look at these other beautiful aircraft from

https://www.boomerangrcjets.com/