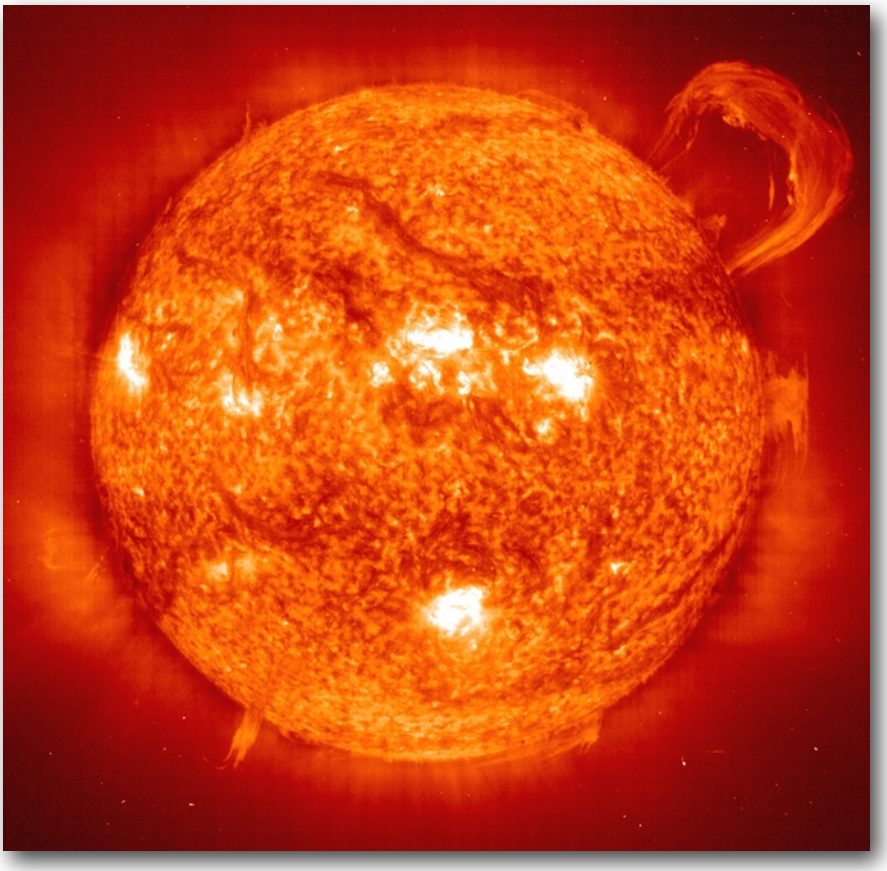
FLYING TIMES

The Official Newsletter of the Valley RC Flying Club

PRESIDENT'S REPORT

As most of you probably know I've been out of action for a while. On Saturday, June 28th, I suffered a "left quadriceps tendon rupture". This means I could not lift/extend my lower leg because it was almost completely detached from the muscle that makes this motion possible. I had surgery that evening and was allowed to go home Sunday evening. Since then, except for a couple of trips to the doctor's office, I've been at home. My leg is in a brace to keep it straight while I heal and I use a walker to move around the house. This is why I missed the July meeting and why I haven't been to the flying field. Next week (the week of the August meeting) I'm scheduled to start rehab. I want to get mobile again ASAP so I can resume a normal life!



Yeah...It's HOT out at the field!!

Since I've been out of touch I really can't comment on events and activities that have occurred in the last month. However, there are many new members in the club so I thought I would take this opportunity to explain the organizational structure of the VRCFC. (This was suggested to me as a topic for discussion several weeks ago by Rob Levine.)

The VRCFC is incorporated in the state of Virginia as a non-profit, non-charitable entity. This was done for the legal protection of the members. If something bad happens and we are sued, the person suing us can come after the resources of the corporation and those of the person(s) responsible for the actions that caused us to be sued. They can't come after the other club members. (NOTE: I am not a lawyer, but I believe that this statement is the correct explanation of how this works.)

For us to be incorporated we are required to have a Board of Directors. The job of the BOD is to "run" the club to provide a legal separation between the members and the corporation. Since the BOD runs the club, the members are legally restricted to doing just two things: (1) voting members into and out of the club, and (2) electing the Board of Directors. The BOD, on the other hand, is empowered to do everything except elect the Board of Directors. This is why any actions taken by the members during a regular monthly meeting (except for voting on memberships) or during the annual membership meeting (except for voting on memberships and electing the Board of Directors) must be treated as "recommendations" to the BOD. (FYI,

The only required meeting of the members is the annual membership meeting.)

There are three further points I'd like to make regarding the Board of Directors:

1. We (the BOD) want members to be involved in the business of the club and we want to be responsive to their wishes. This is why we have the brief BOD meetings after each membership meeting. During these meetings we adopt the recommendations made by the members 99.9% of the time. However, if something is recommended that we believe is detrimental to the club we have the duty and obligation to reject it. During this mini meeting the BOD can also take action on any issue that was rejected (or not even discussed) during the membership meeting.
2. If something pops up that must be taken care of between the regular monthly meetings the BOD can take action as needed to address it.
3. Traditionally, the officers of the club have also been the members of the BOD. This is not a requirement. The officers and the BOD can be two completely different groups of people.

There's a lot more I could say about this subject, but I really don't want to write a book. If you have questions please let me know and I'll do the best I can to answer them. In the meantime have a good August.

I hope to see you soon.

Chester

WHY WORRY ABOUT AIRPLANE WEIGHT AND BALANCE?

Most of us are flying some kind of ARF's these days and it is very easy to forget to do one thing that can help make your visit to field trouble free. Balance your plane!!! Now I know that sounds awful simple thing to bring up but it can have a huge impact on your flight performance. The main reason to pay close attention to the airplane weight and balance because if you don't it will most likely crash! A slightly tail heavy airplane will be very unstable and extremely sensitive to the slightest elevator input. If the airplane is more than slightly tail heavy it will be completely unflyable!

I have made many repairs over the years after realizing that when I launched it I didn't re-balance the plane. Talk about having some wild flights. That should get the old adrenaline juices flowing the veins again! The post exam revealed that due to the extra weight from reinforcing the rear of the airplane it became tail heavy. When the plane took off it went straight up! When I tried to correct it, it went straight down! After about three such cycles it smashed into the ground. Lesson learned! A tail heavy airplane is destined to crash!

An airplane is more stable when it is slightly nose heavy. An excessively nose heavy airplane will be very sluggish to elevator commands and will land very fast! It is not good to be more than slightly nose heavy, but its much better to be nose heavy the tail heavy! So if there is any doubt always err in the direction of a nose heavy airplane.

Airplane Weight and Balance from Nose to Tail

The instruction manual for every airplane (whether it be in the form of a kit, RTF, or ARF) will tell you exactly where the center of gravity (CG) for the airplane should be. It is generally pretty close to the main wing spar.

Mark the wing at the location indicated in the instruction manual. With the airplane facing towards you place an index finger on each wing exactly where you made the marks. Gently raise the airplane. If the airplane is perfectly balanced it will sit level on your fingertips with the nose just slightly downward. If the plane is tail heavy the nose will rise. If the airplane is nose heavy the nose will fall.

When balancing RC airplanes you always want to minimize the amount of weight you add. Many times airplanes can be balanced without adding any weight by moving the battery pack. If the airplane is nose heavy see if you have room to move the battery pack towards the rear of the airplane. For tail heavy airplanes move the battery pack forward. This is a trial and error procedure that requires you to remove and replace the wing each time you check the balance. When the airplane is finally balanced with nose slightly down be sure that you secure the battery pack as well as the receiver so that nothing moves during flight. This can be done by stuffing foam around the components. In addition to using foam it may be necessary to glue a couple pieces of scrap balsa wood on either side of the battery.

Depending on how heavy the engine is it may be necessary to add weight to the airplane to balance it properly. Any weight added needs to be as far away from the center of gravity as possible to minimize the amount of weight needed. If the airplane is tail heavy it is best to glue some weight on the firewall. If the plane is nose heavy add the weight as close to the end of the fuselage as possible.

Balancing tools such as this one to the left from Great Planes make balancing RC airplanes much easier. Instead of picking the airplane up with your index fingers after each adjustment you simply sit the plane on the tool. Sit the weight on top of the plane where you plan to glue it. Add or subtract weight until the airplane is balanced with nose slightly down. After you determine how much weight is needed, glue it down securely.

If you don't have a balancing tool don't worry! You can still balance your airplane, it will just be a bit more tedious. Add weight to either the rear or front depending on where it's needed. Use just enough glue to hold the weight from moving, then check the balance by lifting the plane with your fingertips. Repeat the process until the airplane is balanced. Then glue the weights securely to the airplane.

Any thing can be used for a weight. You can use nuts, bolts, fishing weights, or anything that can be fastened securely to the airplane. You can also buy weights designed specifically for balancing RC airplanes. When adding weight to the rear I like to tear a hole in the covering and glue the weight to the inside of the airplane so it can't be seen. But there are stick on weights that can be added to the outside of your airplane.

You always want to fly your airplane the first time with the CG in the location dictated by the instruction manual. Once you are comfortable flying your airplane you can move the CG back slightly to make the airplane more aerobatic. If you decide to move CG back it is very important that you do it in very small increments of 1/8" at the most!

It is worth noting that balancing RC airplanes with low wings requires that the airplane be upside down. You can see this in the above picture of Great Plane's CG machine. This makes the process more accurate as low wing airplanes are most stable when upside down.

Airplane Weight and Balance Side to Side

Balancing RC Airplanes from wing tip to wing tip is not nearly as important and balancing them from nose to tail. How the airplane performs in some aerobatic maneuvers can be affected by the "side to side" balance. For this reason it is always a good idea to check the "side to side" balance on an airplane.

This is quite easy to do. Simply put the airplane's spinner on the work bench and hold the airplane up by the tail. Balance the tail on the back of your hand and observe which the airplane wants to roll. Do this several times. If it is out of balance it will roll to the same side each time. It will be obvious if you need to add weight. I personally have never had an airplane where weight was required to balance it side to side, but it's always good to check!

If you do need to add weight you want to add it as close to the wing tip as possible to minimize the weight. You could add weight to the outside of the wing but it would look much better if you tore a small hole in the covering and glued the weight where it won't be seen.

Well, That should help you keep from having a plane that crashed due to a out-of-balance airframe. We will deal with another subject next month on how to set the incidence on those scratch built planes or a partial repair job.

Thanks for listening,

Tim Blankenship