

FLYING TIMES

The Official Newsletter of the Valley RC Flying Club



PRESIDENTS CORNER

Welcome to 2008!

Most of you know who I am, but for the rest of you a little background information about me might be useful. I've been a member of the VRCFC for at least 20 years. I can't recall exactly when I became a member, but my Solo Certificate says November 8th, 1987, so it was probably in early '87 or maybe '86. I've flown lots of different types of aircraft over the years including airplanes, helicopters, and an autogiro. (Well... I actually only got one and a half flights out of the autogiro, but I believe I'm the only person who has ever successfully flown one at our field. That autogiro was a piece of junk, but I still like the idea and want to try again someday with a better one. I like flying things that are different!) Also, I've held

most of the offices in the club at least once before, so I have a pretty good idea of how things work and what needs to be done.

Something I want everyone to know about is that my current job at Rockingham Memorial Hospital requires me to be on-call a week at a time about once every 2 months. This means that if I'm on-call and the pager goes off I'm required to respond within a few minutes of being paged. If this happens during (or shortly before) a meeting or other club event someone will have to take over my duties while I call in to see what's happening. And, depending on the nature of the call, I might have to leave to take care of a problem. This doesn't happen very often, but it has happened before and I just wanted everyone to be aware of it.

One more thing before I wrap this up. Please be kind to Treasurer Dan Myers and pay your 2008 dues as soon as possible if you haven't already done so. The deadline is the February meeting but it would be greatly appreciated if you could take care of this at the January meeting.

That's all for now.

-- Chester

P.S., The less-restrictive flying field days & times return on February 1st!



Club Officer's for 2008
 President: **Chester Williams**
 Vice President: **Jonathan Hathaway**
 Secretary: **Cheri Duncan**
 Treasurer: **Dan Myers**
 Past President: **Dave Burgess**



OK, many of us have postponed our visits to our flying field during the cold weather. Here's something that isn't RC; but will be of interest to anybody who enjoys anything aeronautic while you wait for spring.

If you've followed Max Haynes' website <http://maxair2air.com> you'll notice that new galleries have been added. I followed a link on Max's site and found Peter Steehouwer's site <http://www.steehouwer.com/>. Both of these guys are premiere aviation photographers!

On Peter's site you'll find tons of photo essays from European air shows and even U.S. aircraft carrier activity in the Persian Gulf. One essay really caught my attention, and the scenery was beautiful enough that my wife even sat through the viewing. (I can sometimes bore her with aircraft pictures.)

Imagine show where base of a Swiss Alps, of the way, two and a



summit (7,366 ft.). There you see aircraft demos above you, below you, and sometimes practically in your lap. It includes pictures from the hike up, formation flying, defensive maneuvers with flares, live-fire demos, and even airlifting the bratwurst and beer to the site. I particularly liked the photo where you look down into the cockpit of an Swiss F-18 and can see the clipboards strapped to the pilot's legs. Great stuff!

going to an air you drive to the mountain in the cable lift up part and then hike for half hours to the

Submitted by: Fred Foster

Club Business

Dues

2008 dues should be submitted prior to the February 5th meeting to avoid the \$5.00 late penalty. Dues are \$45.00 for regular members, \$27.00 for seniors, and \$1.00 for juniors. Checks should be made out to VRCFC and mailed to Dan Myers at 3014 John Wayland Highway, Dayton, VA 22821.

Christmas Dinner

There are still a few people who have not paid for dinner at the Christmas Party. Cost was \$9.00 per person in your party. Checks should be made out to VRCFC and mailed to Dan.

Everyone seemed to enjoy themselves at the party. We received many compliments on the food, which we passed along to the restaurateur, Pete Karageorge. We also made the observation that the cake slices were a bit dried out, for which Mr. Karageorge apologized and promised to speak with his staff about.

Swap Meet Concessions

Please pass along to your wives, girlfriends, and mothers that we need help for the concessions at the Feb. 16th Swap Meet. Assistance from members themselves is welcome, as well, of course. Even an hour or two of assistance that day will be much appreciated. We plan to offer much the same fare as has been available the past two years (barbecue, hot dogs, chips, etc.).

We'd also welcome baked goods packaged for individual sale at the Swap Meet. These may be brought to the Weyer's Cave Community Center the morning of Feb 16th or, even better, the night before if we are able to set up then.

For more information and questions or to volunteer for Swap Meet concessions, please contact Cheri at duncancj@jmu.edu or 879-2599.

Cheri Duncan, Club Secretary



I BUILT IT MYSELF

By *Tim Blankenship*

Most of us, at some time in our modeling experience, have use the phrase “I built this airplane myself” with out really understanding what we are saying. It is true that you may have assemble it yourself from a kit or applied the finishing touches, but very few times does our statement really mean, what we scratch builders understand from making that statement, to be totally from scratch. So, to pay honor to our true craftsmen among us, let consider what we are saying.

There are several terms that we need to discuss first of all so that we have a better understanding and appreciation for those of us who do build from scratch. A PNP is a model that is “Plug in Play” and is pretty much a ready to fly model. They only requirement that you have is to install a receiver and do some minor radio trim on the model and you are ready to go fly. Several companies are now making this option available from their ARF kits. It takes about 20 minuts to have one of these choices ready for flight. Also you can buy used aircraft from fellow flyers at the local club, or “Flying Giants”, “RC Modeler”, “RC Universe”, “eBay”, and several other online sites are ready to be flown. All that you have to do is just install your receiver, gas it up and go fly.

A ARF is a model that is “Almost Ready to Fly” and means that several final assembly parts need to be put together in order to fly the aircraft. Everything is built and covered and ready for you to install your radio



equipment and go fly. Most if not all the hardware and equipment is included. It usually takes any where from 1 - 8 hours of assemble time by the owner to have it ready for flight. The first generation of ARF's were not very impressive. I purchased my first one in 1987 and it was a



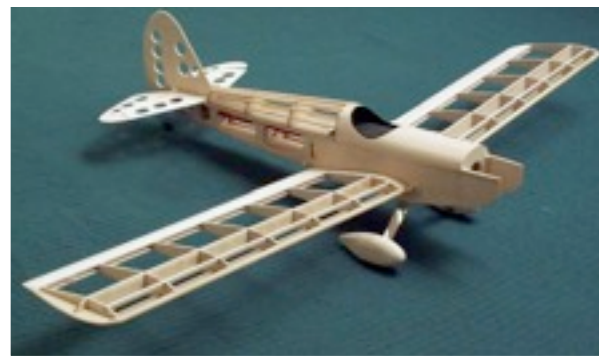
poor design. It was made with 1/8" foam with a 1/32" layer of balsa on the outside with some kind of sticky back covering. It was the same kind of foam that is used in egg cartons and dinner plates. They were inexpensive to buy for a ready made plane at the time. Back in the 70's, all you had to choose from where kits and plans or to scratch build. Not until the late 70's and early 80's did the word ARF ever appear in the lingo.

The first company to import kits was called EZ Craft and they were imported from Taiwan. They used some kind of Contact paper backed covering material that was almost impossible to repair. Later, two US companies started offering this new option. They were US Aircore and the Duraplane series from Hobbico. For just about \$40 bucks or so you could have a so-called “ARF” that you could assemble and go fly in just hours in stead of weeks of constructing from a kit. This was the first generation of ARF's. The new ARF's are using standard construction practices and have upgraded the hardware packages greatly. They are getting close to meeting my standard of quality construction.

However, note that most ARF are assembled at a plant with a hot glue derivative and will not take a lot of impact or stress on the frame. Most are built over seas and shipped to the US. They also do not use contest grade balsa and therefore can sell the planes a lot cheaper. Also, if you crash one of these guys and need a replacement part, you will need to get it from the manufacturer or distributor. There are no drawings or plans with these types of aircraft. Sometimes you will luck up and get a instruction booklet that will have a layout parts drawing that can be scaled up and used as a plan drawing.



There are also ARC versions of a ARF. ARC are “Almost Ready to Cover” aircraft. This option lends more toward those of us who like to go over the frame construction a little bit more detailed and to finish the model in our own trim scheme. It usually takes about 8-30 hours to have this kind of plane ready to fly. I prefer this option for several reasons. #1 -The frame is already cut out and put together and I can add gussets and reinforcement where I know that it will need it. #2 - I can make modification to the frame without having to start over from the beginning. #3 - I can finish the model with any type of medium (silkspar, ultracote, ovracover, etc) I want too. This version lends itself well to “kit bashing” also. For example, make your ARC a low wing in lieu of a high wing model or open cockpit in stead of a close canopy.



A KIT is a box full of pre-cut parts that are ready for assembly. You will usually get a content sheet, plans, balsa, lite ply, an assortment of hardware, and sometimes a instruction booklet for the sequences to follow to put the kit together. A kit can require anywhere from 30 -120 hours of work to have it ready for flight. With the advent of CA glues, many hours of drying time have been reduced significantly. You can have two versions of kits: short kit or a complete kit. Short kit will usually be just the “skeleton” frame version of the plane. There will be no sheeting material; no hardware and no finish materials. All those options are left up to the owner to decide and to purchase separately. A complete kit will have everything inside the box to complete the building of the plane only. All radio gear, engine, covering, wheels, tank, and various hardware items that will not be in the kit unless specified. I have also found through the year that buying a kit gives you the option to use the balsa sticks with different density in area that you need them. Separate your balsa sticks by weight and grade and categories them.



A Plan builder is someone who takes a purchased set of blueprints and begins to build that particular size and

version of the aircraft based on that drawing. The plans usually come with a material list that was prepared by the designer and possible a building review article from one of the major modeling magazines. This is the closest version to a true scratch builder that you could get. This is where most people start before becoming a true scratch builder. A builder from a set of plans takes those pre-drawn plans

along with the material list and purchases all the balsa, lite ply, and other required material and proceed with cutting out the parts from the plans. Once the parts are cut out and sanded and label you proceed with assembling the parts just like you would in a “kit” version.

What I usually do is buy two sets of plans and use one as a reference and the other as a

pattern to cut out all the parts with. Make sure to cut out all parts before you begin assembly. I have on occasion, made modifications to the drawings to change the version of the plans say from a P-51A to a P-51D. There are many good sources of designs. RC modeler has a great resource book as well as the AMA. You can go to their websites and purchased the plans for about \$8 - \$20 depending of what the designer fees are. You can save a little money by buying one set and having Kinko’s or CopyCat making you

a second set for your pattern cut outs. Most places will copy these plans as long as there is no copyright protection or a “Do Not Reproduce” stamp. In that case, you will have to order the appropriate number of set from the supplier.

None of the options listed above require much thought as to what you are going to assemble or how big you are going to build it. All of the design, drawings, required material items needed to finish the project have either

been supplied or recommended in a completion sheet. They will even tell you where to buy the fiberglass canopy or cowl from and what landing gear supplier they used. It is pretty much a follow the instruction kind of thing.

So, contrary to what you may have heard or believe, the versions listed above aren’t scratch building anything! We



are merely assembling parts from something that has already been designed and built before. What we mean to say is that we have taking someone else design, their fabrication of parts, and their partial installation instructions and we have finished assembling it our self. That would be a true statement.

To be able to honestly say that you have Scratch Built it yourself, the following items would have to be implemented.

- #1 – (ARTIST) You are starting from nothing, no plans, no material list, no copy to reverse engineer.
- #2 – (ENGINEER) You have to do all the calculation on loads, size, ratio, horsepower, and type of construction.
- #3 – (RESEARCHER) You have to do all the research on the Full scale version that you are making a copy of or do a futuristic plan all on your own.
- #4 – (DRAFTSMAN) You will have to draft the original plans and document your assemble for future use. You will want to make them reproducible for fabrication purposes
- #5 – (ESTIMATOR) You have to prepare a materials list of what will need to be build the aircraft and determine cost of the project.
- #6 – (DESIGNER) You have to decided what degree of realism you want the model to have. You may have to do several mock ups to get a final concept profile that you are happy with.
- #7 – (CRAFTSMAN) You will need access to a well stocked shop that will have several wood working tools to fabricate the needed parts. Many versions may be constructed before you are satisfied with the end result of the flying characteristics.

Here is how all that comes together: “ARTIST” portion, is sometimes the most enjoyable part of being a scratch builder. You get to make all the decision on what it is going to look like and what details you want to incorporate. I usually do several sketches on art boards and hang them in my shop to review for a few days. Once you have decided on the design you want to make, then you switch hats and become the “ENGINEER”. The Engineer makes all the Calculations work. It is an extremely important aspect of the building process. You cannot take the full size version and scale down the size of the material and make it work. It is not a 1:1 parallel

ratio. True, the outline will stay the same, but bulkheads will move and the number of ribs and joiners will change. The size ratio will change of structural members. If your wing loading is too high you will have a poor flying aircraft. If your airframe is design with too thin of materials than is needed, then your plane will literally

become confetti in the air from the stress! A good book on airplane design is published is called “Aeroplane Design Calculations”. It was written by an engineering student in the 1940’s but the basic design principles still apply today. You need to be very familiar with the various stresses that work on the airframe of a model.

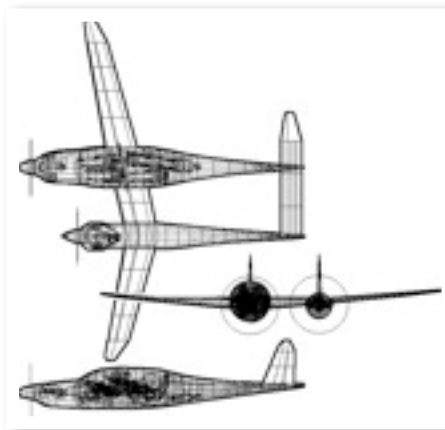
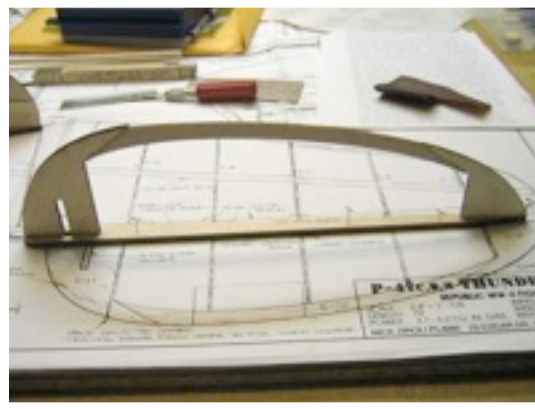
Once you know that your calculations are good, and then you become a “RESEARCH” fanatic. You find everything you

can about your subject. Get all the books and photographs that you can get your hands on. Even post an inquiry to fellow flyers for any pictures or articles they might have on the subject. After many hours, you will have learned a lot about your subject and have a small library of reference material to pull from. Now the

“DRAFTSMAN” takes over. You have to draw on paper what is going to be built. This has changed a lot from when I started drawing plans in the 80’s. Now, most plans can be generated on a CAD (Computer Aided Design) program. In the old days, I would place craft paper on my drawing board and use my T-square and triangles and put together a drawing. Another option I used was to take a picture, make a clear copy of it using my sliding glass door as a light table and then, placing that drawing on an over head projector and blow it up to the size I wanted. I would then trace the outline on craft paper on the wall. A

good 3 view drawing from a military book was always one of my favorite ways of getting the outline of the plane correct.

Now you have a drawing that needs to be transferred to a reproducible medium. My favorite was Mylar or Sepia paper and using Pen and Ink application. That way, you could make many, many copies of it in the future without having to worry about the original getting damaged or fade away. Now you would become an “ESTIMATOR”.





You sit down with the drawing and make a very detail list of every piece of balsa, and ply that you are going to need to cut out this design. You also contact someone like Balsa USA or LoneStar Balsa company to see what kind of delay times they are experiencing for Contest grade Balsa and for incurred shipping charges.

Next is the "DESIGNER" which, depending on the degree of scale you want to build the plane to, will have a great outcome on the importance of this position.

You also have to consider things like ratio of wheels. Engine sizes available, and mechanical retracts that are available, unless you plan on building these from "scratch" also. You may have to do many modifications to your drawings and start all over if you find that resources are not available or are out of production for a particular part.

Finally, the craftsman takes those drawings and material list and puts it all together to make the final product. You have to make sure that all joints and parts are precise and true. If not, you start over until you do get the right length or the right shape that is needed. You will learn how to use things like a rasp, steam table, incidence meter, compound levels, sheet metal bender, miter saw, fiberglass molds, metal casting, wood lathe, soldering iron, pneumatic tubing, circuit boards, fiberglass, piano wire bending, brazing, and a host of other

tools and machines that will aid you in your making original parts. Remember...as the craftsman, you are the first to make this airplane, so there is no other source to pull from to get the part made.

There is one final level of building that is reserved for the Master scratch builder. That is called a Scale scratch builder. These guys are a true model builder in all forms of the word. They build exact museum quality replicas of a

full size aircraft. They spend months dedicated to making all the details resemble the full version to the Nth degree. Even down to the rivet heads on the panel lines and working instrument panel. It is truly amazing to see this kind of accomplishment. If you ever get a chance to go to the Scale Masters Meet, you should go. It is held once a year in late summer. This usually takes place at the AMA National flying site in Munice, IN. All

parts on these replicas have been hand made including the wheels, engines, muffler systems, cockpits, working controls levers and covering. When you get to this level of craftsmanship you truly can say....I Built it myself!!!

Thanks for listening,

Tim B.



MESSAGE FROM THE FIELD MARSHAL



Hello all, just a few tidbits for this month's newsletter. The turn out at the Christmas party was great, thanks to all who attended. Looks like mother nature is providing us with some much needed rain, the creek crossing out at the field has come up several inches in the last two weeks. We need all the rain we can get. We are way behind in our normal rainfall amounts. The wind has been pretty strong as of late, I've gotten one quick flight in during the month of December. The field is looking very good for this time of year...the grass still has some green left in it. I do plan to aerate the runway again this winter, last year's application made the earth lay down nice and smooth and the grass came in very healthy this last spring. Well worth the time and effort. The wind had taken down a section of the fence on the north end of the field recently, that is now repaired. The club needs to look into upgrading the fencing, or at least replace the construction safety material very soon. It has become brittle and tears very easily. Its not very expensive to replace. I also wanted to thank Dan Meyers for bush-

hogging around the property (twice) this season. Very much appreciated by all the members. Thats all I have this month. Have a happy and safe New Year!

Aaron Swindle
Field Marshal

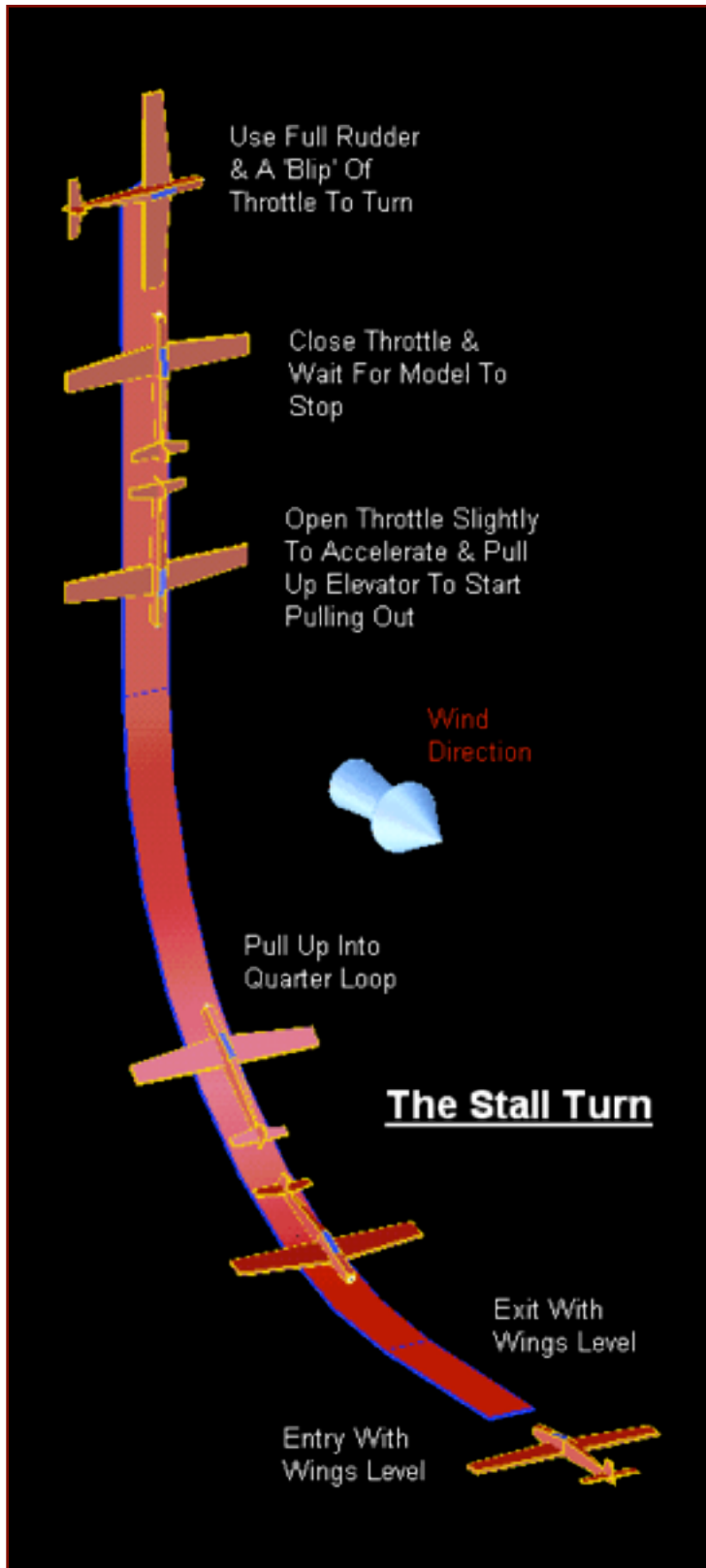




The Stall Turn

This maneuver is useful for reversing the model aircraft's direction and leaving it's speed and altitude pretty much unchanged on completion. It looks pretty as well if properly executed.

Pull in up elevator as if starting a loop with half throttle. When the model is vertical, release the elevator and completely cut the throttle, keeping the model heading straight up. It will soon run out of speed. When it stops, immediately input full left or right rudder and add a short burst of throttle. The model should then pivot about it's centre of gravity. When pointing vertically downwards, add some throttle and pull in up elevator to pull out in a quarter loop - following the route the model took on the way up. The important thing with a stall turn is to make sure the the model is stopped at it's highest point and that it pivots about it's centre and not the wing tip. The model should follow a 'return' path which is identical to the upward route.



<http://www.bruce.ogilvy.clara.net>



ANOTHER LOOK AT RANGE CHECKING

Submitted by Daryl Tonini

Came across an article by Tony Stillman’s column “Radio Ramblings” on range checking in the December 2007 R/C Report, pp 94-95. His procedure is somewhat more involved than the ones I have seen being used at the field. It also appears that it may be more likely to catch latent transmitter/receiver problems than the one I and others seem to be using for our range check procedure. In view of the close quarters we fly in, I81 and Route 11, anything that would make our operations safer seem to be worthy of note.

Tony points out that the procedure will work with any brand of radio equipment we are likely to see at the field these days.

First step is to assemble the model for flight. Fully extend the transmitter antenna and then collapse it until only the closest section (that with the largest diameter) is exposed.

Using this one section only, turn on the transmitter, then turn on the receiver. Now, back away from the model starting from a wing tip, keeping the bottom of the transmitter against your stomach. As you walk away, work the elevator or rudder control smoothly in both directions. As

you are backing away, if you find a dead spot, mark on the ground. You will eventually lose control of the model altogether. Stop there and reverse the process moving toward the model until you get control again. Walk all the way back to the model, counting your steps as you go. If you get 50-70 steps of range (130-180 feet) you are in

good shape. If the range is less than 50 steps, *don't fly*. You need to listen to system when it complains, then find the problem before it kills your airplane.

Tony says that the ultimate range check is to do the above while the engine is running at a high idle and the model is being held in place by a helper or a restraining device. He prefers a restraining device because a human body close to the

receiver can affect the range check. He also notes that you should not range check while other transmitters are on, even if they are not on your frequency.

You need to read the entire article to see how Tony suggests handling those dead spots you may encounter as you are backing away from your model.



For those of you who find covering to be one of the most challenging tasks for building & repairing R/C airplanes...

Check out the URL link for detailed information and to see the cool videos.

excerpted from RC Universe...

"What's the secret to a good covering job?" That's a question that has been posted many times here at RCU."

Submitted by John Rheault.



http://www.rcuniverse.com/magazine/article_display.cfm?article_id=726



VRCFC Christmas Party - Pano's Restaurant

FREEBIE R/C SOFTWARE

Submitted by Daryl Tonini

The “Fun Aerobatics” editor for R/C Report, Ed Moorman, has made an offer to give anyone who contacts him at moorman@rcreport.ws a copy of a toolbox of useful R/C calculations in a software package he has developed. The programs are in a self-extracting zip file. It contains the Java script version and the Excel version.

Among the calculations he has written are:

- 1) Maximum RPM limits for Master Airscrew and APC props. You enter the prop diameter and you get back the maximum RPM limit for that prop;
- 2) Canard CG—enter the wing and canard dimensions and then the wing and the canard spacing and you get a safe CG location;
- 3) Conventional CG—you input your wing dimensions and percent CG you want and it tells where the CG is on the root chord. It handles swept back and swept forward configurations;
- 4) Engine displacement calculations in SAE and metric units;
- 6) Prop loading—Ed found 5 different formulas, each of which have its proponents. He wrote a program where you can enter the prop diameter and pitch for one or two props and it calculates in all five of the methods and displays the results side-by-side, take your pick;
- 7) Reynolds number;
- 8) Thrust—he found this formula on the web. It uses RPM, prop diameter, and pitch. However, there is a note on this one that questions whether or not is a valid method;
- 9) Wing loading, cubic loading, and aircraft performance factor calculations;
- 10) CG shift—calculates how far your CG will move if, for example, you shift your battery 3” to the rear.

Anyway, looks like someone might find this useful.

SWAP MEET

(Saturday, February 16)

The Weyer's Cave Community Center will have an event on Friday, February 15, so we will not be able to set up tables until Saturday morning. Will open the doors at 7am to set up. Open the doors to the public at 9am. Tables will be \$10.00 each and there will be a \$3.00 admission at the door. The auction will be available again this year and hope to start that around 2pm. Need to send out mailings for vendors. Flyers have been made and will get some larger ones made to go in store fronts. Also agreed to let other local clubs set up a booth but can not sell any items (raffle). Info has been submitted to AMA but due to the publishing lag time it will not be in the magazine until the January issue.

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