



DCRC Club Meeting
Friday 7/17/09 7:30 PM
Montgomery County
Council building
100 Maryland Ave
Rockville, MD
Meeting program:
Ira Glikman
Meeting Raffle:
Nir Schweizer

July 2009

NEWSLETTER

Volume 55, Issue 7

Heritage Montgomery

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Peggy Erickson and Associate



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www.dc-rc.org

Did you know that any airplane brought in to the model shop will receive 3 free raffle tickets. Bring in your models each month for your free tickets, and to share ideas.

PRESIDENTSCORNER	PG 2
CLUB MEETING MINUTES	PG 3
TWO WEEK MODELING ODYSSEY	PG 4
MODEL PROPELLERS PART 3P	PG 5
	PG 6
MONTGOMERY COUNTY HERITAGE DAYS	PG 7

Cover:

Officials from the Heritage days celebration.

Photo by Thomas Pfarr

Presidents Corner

BY ANDY KANE



This month has been really busy for me, June 6 and 7th I competed in the Two Tony's IMAC contest in Lums Pond Delaware, The event was well run and well attended with over 30 contestants.

On Saturday June 13, Doug Harper and I went to Parkton MD about 40 miles north of Baltimore were they held a scale fly in. If you remember this is the field that the DCRC Club Air show team put on a demo for their field opening about 15 years ago. The event had planes of all sizes from tiny electrics to huge 1/2 scale cubs. The club did a wonderful job of promoting the event and the spectator turnout was very nice.

On June 18-21 Doug and I attended the IMAA Rally of the Giants in Hamburg PA. This is an annual event sponsored by the IMAA and all of its members. The event is held at different venues all over the US and Hamburg PA and the Farview Flyers hosted this years event. It is the biggest event for the IMAA and even though the weather was not cooperative the turnout was great. After hours foamy combat in the rain was a new treat for me. My T-28 survived 5 midair's and after lots of hot glue and epoxy it keeps on flying.

I am sorry that I was not able to attend the Heritage days but I had a very important meeting with one of our club members regard team food. We had to go out and catch some fish.

I will see you at the club meeting this Friday. July 17. 730 PM

Andy

Calendar of Events 2009

July

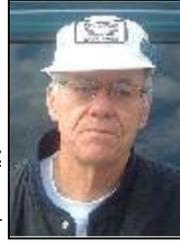
- 9-12 Warbirds Over Delaware 2009
- 11 DCRC Training Session, Walt Good RC Field, Germantown, MD
- 17 DCRC Club Meeting Rockville, MD Program/Ira Glikman
- 19 DCRC Rudder Only Fun Fly Germantown, MD Walt Good RC field
- 24-26 Warbirds Over Pennsylvania Quakertown, PA
- 22 DCRC Board Meeting/Mike Dooley
- 25 DCRC Training Session, Walt Good RC Field, Germantown, MD
- 25 Loudoun County Aeromodelers Assoc 10th Annual Electric Fly In Leesburg, VA
- 25-26 Pegasus RC IMAC Challenge Hagerstown, MD
- 31-2 Liberty Bell Jet Fly IN Donegal Springs, PA

August

- 8 DCRC Training Session, Walt Good RC Field, Germantown, MD Mike Peizer mmpcomm@verizon.net
- 21 DCRC Club Meeting Rockville, MD Program/Paul Sforza
- 22 DCRC Training Session, Walt Good RC Field, Germantown, MD Mike Peizer mmpcomm@verizon.net

June Club Meeting Minutes

BY LES HAMILTON



Vice President Dave McQueeney called the meeting to order at 7:39 pm. He explained that Andy Kane and Doug Harper were attending Rally of the Giants.

There were approximately 20 people present.

New member Bilal Kayani introduced himself and was welcomed.

County Liaison: Jim McDaniel gave an update on the DCRC Air Show Team schedule. They have again been invited to perform at Great Meadow on July 4th, and at the College Park Air Show on Saturday, August 29th.

He announced that the county has increased the rental rate for the meeting room from \$25/hour to \$30/hour.

Jim used a slide show to illustrate a major improvement at the field: the gravel access road is being widened and paved. The job is expected to be completed by June 22.

Since this paving job, originally scheduled for 2010, is occurring now, maybe the restroom in the CIP for 2011 will be on time.

Jim talked about Heritage Day Montgomery, set for June 27 – 28. Walt Good Field is just one of the points of interest on the tour. He expects there to be a good public turnout (25,000 overall and hundreds or thousands at Walt Good) and asked club members to participate, fly, and help with other aspects of the program. Food will consist of hamburgers and hot-dogs.

Dave Drazin showed a sample of the glider kits which will be provided free to children 12 and under.

This year, geocaching has been added to the list of activities for Heritage Day.

Treasurer's Report: Scott Davies reported there were three expenses over \$100 in the past month.

Sound & Safety: Nir Schweizer (Sound and Safety) announced that a first aid kit, the street address of the field, and directions to the Shady Grove Hospital Emergency room are now at the field. Members should familiarize themselves with their location in case of an accident.

Nir will be running sound tests again, and anyone who wants his place tested should contact him.

Ron Bozzonetti suggested there are other medical facilities in the vicinity, perhaps closer than Shady Grove Hospital.

Announcements: Don Gray reminded members of the rudder-only fun fly on July 19th. There is a \$5 landing fee and food will be provided for pilots.

Don also commented on a shortage of flight instructors on some training days. He suggested there may be a need for a training session for people who would like to help. He also talked about newsletter contributions. He said a few issues have been omitted in 2008 and 2009 for lack of content.

There followed a discussion about the practice of mailing copies of the newsletter to members who request them. It was suggested that contributions to the newsletter might be submitted via the website. It was suggested that the Board might consider the issues. Andy Finizio discussed the benefits of membership and pointed out that for some supporters of the Club the newsletter is their main interest.

Raffle: Nir announced the raffle prize: a cordless Dremel stylus tool.

After the break, the winning raffle ticket was drawn; winner was Bilal Kayani, the new member.

Model Shop: Bill Garner discussed his plane, a delta-wing called The Enforcer from a kit by Balsa USA. It weighs 7 1/4 pounds and is powered by a Magnum 91 four-stroke. Bill mentioned that the much of the wing's upper and lower surfaces are straight, making alignment much easier during construction. He found that the plastic pushrods recommended by the manufacturer needed additional support to assure proper operation of the control surfaces. He moved the elevator servo aft and had to make adjustments to balance the plane. One quirk: the plane goes nose up when the throttle setting is reduced. There were comments, including the following: Nir suggested the plane is tail-heavy; Andy Finizio thought there might be an incidence problem.

Program: Dave McQueeney presented a slide show entitled "Floatplanes and Float Conversions" with pictures from the internet as well as his own planes.

Dave mentioned the R/C Universe forum on float planes and Doug Harper's 2005 article in the Club newsletter. He said that Tony Masiello built some very nice scale Edo floats. He told of flying with a bush pilot in a Cessna 206. The very experienced pilot explained why he purposely took off at 45 degrees to the wind!

Dave completed Jim Casey's "Sea Plane Nerd" website. Casey's tips to model sea plane flyers: 1. You need a boat. 2. Really. 3. I'm not kidding.

Dave spoke of his experiences flying at Deep Creek Lake in western Maryland.

There are sea plane ARFs such as the Seawind and Catalina, the "Cutie" w/ Herr Cub floats from SR Batteries,

(Continued on page 5)

MY TWO WEEK MODEL- ING ODYSSEY



By Doug Harper

Dee and I wanted to take a trip this spring to Florida. We at first thought about driving down to Key West for a little fun in the sun. That trip didn't come together so we continued to think about other places we could go.

Then Dave McQueeney, preeminent Top Gun competitor, mentioned that he might return to Lakeland for another go. Dave and I have gone to this wonderful event for at least 5 or so years and had a great time. As we talked, Dave thought about the pros and cons of going again. While it takes most of a week and entails some cost, the fun of rubbing elbows with some of the best scale fliers in the world is just too enticing. The models are beyond belief and the venue just about perfect.

For those who haven't looked at Top Gun, go to www.franktiano.com to take a look at this event and others that the infamous Frank Tiano sponsors. I think Top Gun has been going on, in one form or another, for most of twenty years. Frank and the Emerald RC Club do a fantastic job of organizing this event. Scale pilots from around the world are invited and I think this year there were about 120 or so in five classes. The serious builders/fliers are in Masters and Expert. There is also Team Scale for pairs of pilots and builders.

To expand the size of Top Gun and make it more appealing to a larger group of modelers, Franks some years ago added two additional classes: Pro-Am Pro and Pro-Am Am. A pilot can enter an aircraft he didn't build (or design) and must only produce a document showing that such an aircraft was built in full-scale. This documentation can be a photo, three-view, etc.

Last year, Dave came in third in Pro-Am Am flying his tried and true F8F Bearcat with the RCS 250 radial upfront. For those who haven't seen (or heard) this

model, it is very impressive and a definite contender in such a contest. Dave is very competent as a pilot and has honed his competitive skills over the years.

Being a good pilot is a start but to really contend you have to have the right strategy for how you present your model's characteristics. You have to fly nine maneuvers with the tenth being "realism" or how the judges feel your plane compared to the real thing. For example, last year Dave and the Bearcat were dinged a bit for flying "too fast". Dave talked to a fellow who happened to actually fly a real Bearcat who told Dave that the F8F could hit 400 mph and cruised at around 300. Dave had radared his model at 94 mph so, using that information, he gave the judges a little presentation about how his 1/4 scale model's speed compared to the real thing and actually flew a wide open pass to show them what the speed looked like. Dave immediately moved his realism score to 9 or ten on every round. He also describes any little quirks the might show up in various maneuvers so the judges know what to expect.

With that as background, Dave made the decision to go again this year and asked me to also attend as his crew. I talked to Dee and we decided to make a road trip to Florida so off to Lakeland we headed. We all congregated at the Lakeland Linder Airport on Tuesday afternoon, May 5, so Dave could fly some practice rounds. Everything seemed in order so Dave decided to keep the plane on the ground until the next day when competition actually started.

Wednesday dawned clear with practically no wind. For those who go to Florida in the spring, winds can be very strong to the point that you wouldn't want to fly any model. Fortunately this year was not that way. Dave was up first which meant he was able to fly his first three rounds with cool temps and hardly any wind.

I forgot to mention that, since Dave had flown the Bearcat for a couple of years, he was bumped up to Pro-Am Pro this

year. Now he faced some very stiff competition from the likes of the Shulmans, Bobby Violett, and others just to name a few.

Dave got off to a good start flying in the high eighties. He clearly had to break into the nineties to be competitive. On Thursday and Friday, he consistently improved his score and his position. There were about 25 fliers in Pro-Am Pro and about half of those would be down-selected to fly on Sunday for round 4. While Dave didn't have any great aspirations to beat such great fliers, he wanted to make the cut and fly in round 4. He did that handily by being in seventh place after round 3, guaranteeing his spot in the finals.

On Saturday, the Masters and Expert Class as well as Team fliers strut their stuff. All the models are so impressive and many of the pilots are world-class. It is hard to find anyone who stands out over the rest. Just when you think you have seen an unbelievable aircraft and flight, here comes another just as good or better.

I guess I would have to pick the F111 bomber built by Mike Selby and flown by Gen Ray Johns as one of the most unique models in the event. This plane featured working swing wings and received a static score in the high nineties. This plane took the better part of a year to build (and Mike lives in Thailand to boot). Unfortunately, it suffered a hard landing on its first round and was taken out of competition. It flew surprisingly well and was truly impressive. There were dozens of others that were top drawer as well.

On Sunday, Dave flew a great fourth round and ended in the top ten of Pro-Am Pro. He deserves kudos for representing DCRC in an international competition. And, there is always next year!

From Lakeland, Dee and I continued our Odyssey by spending an evening at Disney World so we could dine with some good friends whose son had just gotten married there. I didn't realize that many people go there for that reason and it is a popular venue for newly-

(Continued on page 5)

(Continued from page 4)

weds. We then continued on to Gainesville to stay the night with another set of good friends who we have known for close to 40 years. They took us to see a local spring they visit often that drains into the Suwannee River. We were able to see much wildlife but no alligators.

From Gainesville, we travelled on to Greenville, SC, to the famous Joe Nall Flyin. Joe Nall is known far and wide as one of the premier US flyins and may well be the largest flyin we go to. It celebrated its 27th year this year and I would estimate over a thousand pilots and even more aircraft were in attendance. They now have six active flight locations including a heli area and (my favorite) the lake for float flying, all in continuous operation. All this is located on the Triple Tree Aerodrome, a 400 acre tract owned by Mr. Pat Hartness, and without a doubt represents the most hospitality of any event I attend. Hundreds of planes fly day and night, good fellowship flows between modelers, and on Friday evening they roll out the best shrimp barbeque you could ever attend. They even have live Blue Grass music! Take a look at our own Andy Kane serving up the best pork (the other white meat) you have ever tasted.

This year, Andy and Nir attended along with Dee and I. As you may recall, Andy was named Mr. Joe Nall last year which is a supreme honor. This year, Mr. Peter Goldsmith, Marketing Director of Horizon Hobbies was the recipient. Peter moved here from Australia and he is a true gentlemen and a star of the hobby. He has big shoes to fill following Andy.

Andy flew his 50% Cub, his G47, as well as a jet and Nir had his large (40% I think) Yak. We had a great time down by the lake and have developed a whole new set of friends from Florida down there. They had a small boat with a gas engine that was almost in constant use to retrieve planes that somehow ended up in the middle of the lake.

Take a look at the pictures taken by

Dave, Nir and Andy to get a better idea of the quality and diversity of the models at these two fine events. ~

Dee and I agreed that we had the time of our lives and definitely would like to make this road trip again next year!

(Continued from page 3)

and Sig ARF floats.

Dave and his son tried to fly a Four-Start 120 (powered by a YS 120) and were greatly disappointed that it wouldn't take off. Consulting with Jim Casey, he learned the problem was the floats they were using to too long! A rule of thumb is that the float length should be about 75% of the fuselage length.

Dave said there have been jet model seaplanes, e.g., Russian Beriev A40 Amphibian and another jet from Scotland. A video can be seen at R/C Universe.

The meeting was adjourned at 9:10 pm

Model Propellers -Part 3, Normalized Performance Relationships

W.B.Garner

There is no simple relationship between all of the propeller parameters. Some normalized relationships will be described, without proof, as a way of introduction to some of the complexities. There are three such normalized

relationships. They are the thrust coefficient, C_t , the power coefficient, C_p , and the efficiency coefficient, η , all defined in terms of a variable called the advance ratio, J .

Equation 3-1 defines the advance ratio J .

$$J = \frac{V}{nD}$$

Eq. 3-1 where V is the axial or forward velocity of the propeller,

n is the revolution rate

D is the diameter.

A consistent set of units such as ft/sec, rev/sec and ft are required. J is dimensionless. J is an indirect measure of

the angle f at the blade tip.

The thrust is given by Equation 3-2

$$T = C_t \times r \times n^2 \times D^4 \text{ lbf}$$

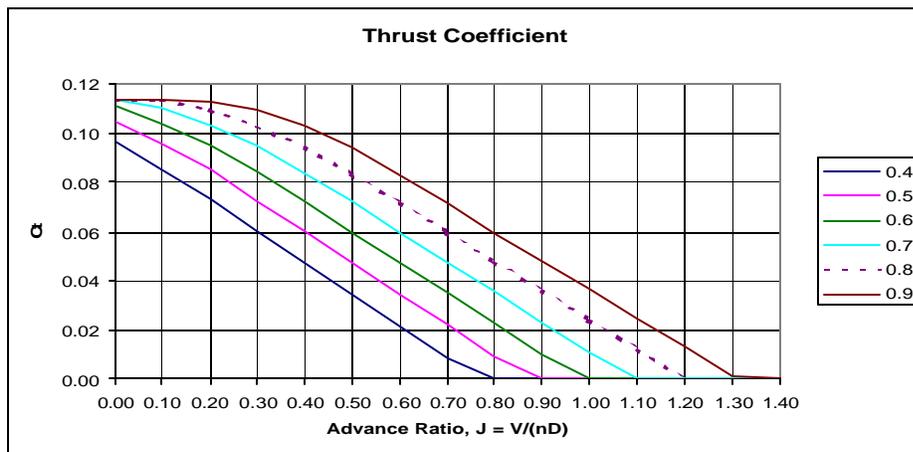
r is air density equal to 0.002378 slugs/ft³.

n is the revolution rate in rps

D is the diameter in feet

C_t is the thrust coefficient. It is a function of pitch, diameter, rpm, forward velocity, and blade shape.

Figure 3-1 plots the thrust coefficient as a function of J and p/D , the ratio of pitch to diameter, for a typical model propeller profile



All of the curves have the same shape and C_t range of about 0.0 to about .095. Maximum thrust is achieved at the lowest advance ratio, decreasing essentially linearly to 0 as J increases. The values are not reliable in the region at the top where the curves decrease to the left. In this region a portion of the blades become stalled. The greater the pitch ratio the larger the range of J affected by stalling. All of these curves go to zero as J increases, meaning that the thrust also goes to zero. The underlying reason is that the angle of attack, α , becomes zero so the blade does not provide lift or thrust.

Using this chart and the equations for J and C_t the thrust can be estimated for a given set of conditions. For example:

- $V = 88 \text{ ft/sec}$ (60 mph)
- $n = 200 \text{ rev/sec}$ (12,000 rpm)
- $D = 1 \text{ ft}$ (12 in)
- $p/D = .7$

Then $J = V/(nD) = 88/(200 \times 1) = 0.44$

From the chart, $C_t = .056$

Then $T = C_t \times r \times n^2 \times D^4$
 $= .056 \times .002378 \times 200^2 \times 1^4 = 5.3 \text{ lbf}$

Engine (Shaft) Power

The engine power required to produce the thrust is Given by Equation 3-3.

Equation 3-3 $P_s =$

$C_p \times r \times n^3 \times D^5 / 550$ hp

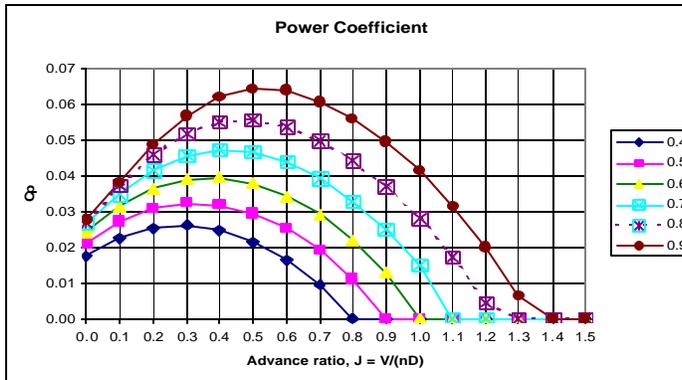
The power coefficient, C_p , is a function of J and the pitch to diameter ratio p/D . **Figure 3-2** is a graph of the power coefficient as a function of J and p/D

for. In this case the power increases as the fifth power of diameter and the cubic power of the revolution rate.

Again, the graphs are

Figure 3-2. Power Coefficient versus Advance Ratio, p/D a Parameter

not reliable for small values of J as the calculations do not adequately



model stalled operation.

Continuing the example used for the thrust for $J = .44$, $p/D = .7$, and from

Figure 2-5

$C_p = .034$

P_s

$= .034 \times .002378 \times 200^3 \times 1^5 / 550 = 1.17 \text{ hp}$

Power Efficiency

Of interest is the power efficiency defined as the ratio of thrust power to engine power. The higher this ratio the more efficient the propeller. Equation 3-4 defines the power efficiency coefficient. Note that thrust power is defined as the product of the thrust, T , and the forward Velocity, V . This is the conventional definition in which useful work is done only when there is actual motion.

$$Eff = \frac{C_t \times J}{C_p}$$

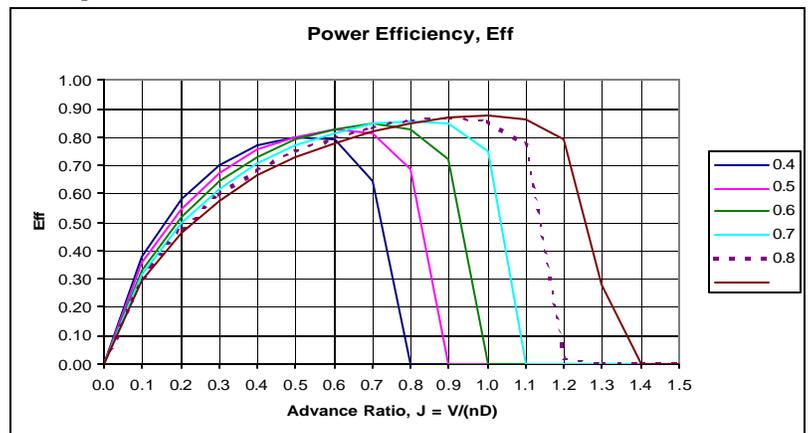
Equation 3-4

Figure 3-3 plots the power efficiency coefficient as a function of advance ratio, J , and pitch ratio, p/D for a typical sport propeller.

Figure 3-3. Efficiency Coefficient

The efficiency is zero at $J=0$ when the propeller is not advancing. The peak efficiency is a function of the pitch to diameter ratio, being the least for the lowest ratio and

the greatest for the highest ratio. In our example for $J = 0.44$ and $p/D = .7$ the efficiency is about 0.73 or 73%.



Over most of the in-flight operating values for J the efficiency is about 50% or greater.

These graphs were generated using the simple blade element theory. The theory does not take into a number of factors such as tip vortices and inter-blade interaction. As a result it overestimates efficiency, underestimates engine power and underestimates thrust by an estimated 5 to 10%. The graphs do provide a means for comparison between propellers but the process is tedious if done by hand.

Montgomery County Heritage Days



Had to throw this one in. Deep Sea fishing in the Florida Keys

L to r.

Andy Kane, with a 25 pound Wahoo

Captain Andy Herold with a 25 pound Dolphin, (Mahi MAhi)

Alan Hoffman, with a 35 pound Dolphin Bull, (Male)

Mike Dooley, with a 30 pound Dolphin Bull.

Sorry we missed

County Appreciation Day!



DCRC

DCRC

21



DCRC

22

District of Columbia
Radio Control Club

First Class Mail

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One of the oldest and largest RC
clubs in the US.
And now an AMA Gold Leader Club

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July 2009

New Fly Eagle 1/7th scale F-15. powered with 2 Jet Central Super Eagle Photo from Kentucky Jets

