The Flightline

Volume 30,Issue 7 Newsletter of the Propstoppers RC Club AMA 1042 July 2000

Editorial - Change

We spend our lives learning lessons, but we live our lives by habit. Change is when the habits don't work.

So what does this have to do with RC models you ask?

Well …….. I flew my most reliable and maybe my most enjoyable electric powered glider the other day. The one that I hand launch at 15 degrees upwards and it climbs steadily up that flight path, hands-off, like it is on rails.

Well, it didn't. In fact it just nosed over and did the lawn dart thing, right in front of the usual flock of club railbirds.

Why did it do that? What could possibly have happened? I didn't change anything. I had the correct model selected on the computer radio.

Well, I *had* changed something.

Being as the model started life as a high-performance hand launched glider it's construction is a little delicate. The wing hold-down is a single 8x32 nylon screw which screws into a 3/32 plywood plate. On the occasional muffed landing, the wing tip can strike and "load" the hold-down so it has been repaired many times. At the end of the last flying session the nylon screw finally gave up and I borrowed a steel replacement from someone's flight box, but then put the model away.

So what had changed?

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Inside This Issue

Thornbury Township Summer Day Saturday 15th July

The township is planning a larger "Summer Day" this year, which will include our event at Squire Cheyney Park (Dallett Field), and then move on down to Goose Creek Park, at the western end of the township on route 926, for an antique car show and ice cream social.

Our program will start at our field at10:00 AM and continue until 2:30 PM.

Ed Schumacher, and **Sam Nevins** have volunteered as coordinators for this event, and their willingness to do so should be greatly appreciated by all club members. Besides being a fun time, this event is very important to our continued good relations with the Township.

Members are needed to attend, do flying demonstrations, help with the glider toss event, bring needed items, etc. If you have not been contacted already, please call Ed (610)-622-2518 or Sam (610) 789-6031 and offer to help – it's important!

The club will provide hot dogs and beverages, and the township will again provide a cake.

Dallett Field Fix-up Day.
Usual ratio of workers to watchers!

Calendar of Events

Club Meeting – Note; this is not the first Tuesday!
Tuesday 11th July 2000
Place Dallett Field
Time 7:00 p.m.
Regular Meeting – Rain date following day.

Thornbury Township Summer Day:
Saturday 15th July 2000
Dallett Field 10 a.m. – 2:30 p.m.
See this issue for details.

Club Meeting
Tuesday 1st August 2000
Dallett Field 7 p.m.

Club Electric Fun Fly
Sunday 27th August 2000
Dallett Field

Regular Club Flying at Dallett Field
Every Saturday and Sunday weather permitting

Daily	**10 am til Dusk**
Saturday	**10 am til Dusk**
Sunday	**Dawn till Noon Electric and Gliders only!**
Sunday	**12 p.m. till Dusk**

Propstoppers RC Club of Delaware County, Pennsylvania.

Club Officers

http://members.xoom.com/_XOOM/propstoppers

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The President's Message

Mike Black

Dear Fellow Propstoppers

First, A special thanks to Rusty for filling in as two officers (Pres., VP) at the June meeting as well as fulfilling the job of his own office. I sincerely appreciate his help. I was unable to attend because of a combination of work and family related committments. Unfortunately, I will be tied up for the next couple of weeks.

According to the minutes, it looks like the meeting went well and that all of the important business was handled.

I was very happy to see that a new member, Ed Schumacher, volunteered to run the Thornbury Township Summer Day activities at our field on Saturday, July 15.

The afternoon ice cream social will be located at Goose Creek Park in the Township. I do not know the exact location of that facility, but I'm sure some of the club members do.

Ed's one hesitation is that he does not know many of our club members. I assurred him that we would all pitch in and help any way that we can. Please introduce yourself to Ed if you see him out at the field and offer to volunteer. He will be making phone contact with many of you, please do what you can to make this activity as successful as possible.

Our future at the field will be enhanced by the positive affects of activities like this.

I hope to see all of you at the July meeting.

Mike

Meeting Minutes
June 7, 2000 Meeting

Russell Neithammer.

The meeting was called to order at 7:00 at Squire Cheyney/Dallet Field by Secretary **Rusty Neithammer**.

Secretary **Rusty Neithammer** read the roll call - there were 27 members and 3 guests present. The minutes of the May 2000 meeting were not read, but have been published in the June newsletter, by the membership.

Treasurer **Al Gurewicz** gave the treasurer's report with income of $30.00, expenses of $390.40 and a new balance of $3079.84 reported.

Old Business

Fuel Order Pickup:

This Saturday, June 10, at Bud McClellann's garage, 31-33 Logan Ave, Glenolden, 9:00 to noon. Bring empty fuel jugs and/or windshield washer fluid jugs. Milk jugs and gasoline cans will not work for storing fuel.

Wildwood Days:

Fun fly on the beach, 17th and the Boardwalk, 10:00 AM, June 18, 2000, hosted by the New Jersey WASPs RC club. See **Al Tamburro** for more details.

Club picnic:

Mike and **Kathy DiDomenico** have again volunteered to chair this event (this is the 7th year they have taken this on). The date is Saturday, June 24 (raindate: Sunday, June 25). A sign-up sheet was again passed around at the for members to sign up to bring food contributions. Anyone planning to attend should bring their own grillable items, as well as a dish to share. The club will provide beverages.

Toy for Big Boys:

Sunday, June 25, in the afternoon, 54th and Lindberg Blvd, Phila (near U of P campus). At least 4 volunteers to bring planes to show, are needed. Unfortunately, the site does not facilitate flying. The event sponsors will provide us with a tent, table and chairs.

Thornbury Township Summer Day:

Scheduled for Saturday, July 15. They are planning a larger event this year, which will start out at Squire Cheyney Park (Dallet Field) with airplane events as last year, and will continue at another Thornbury Township field (the soccer field at Rt. 926 and Shiloh Road) with an ice cream social and antique car show.

Ed Schumacher and **Sam Nevins** have volunteered as coordinators for this event, and their willingness to do so should be greatly appreciated by all club members. Besides being a fun time, this event is very important to our continued good relations with the Township.

Electric Fun Fly:

Dave Harding will again coordinate this event. Outside AMA member participants will be invited, as was done last year. The date is Sunday, August 27.

Night Fly:

This is planned for Saturday, September 16 (i.e., over the September new moon).

New Business

This weekend, June 10/11, there is an electric fun fly being held near Nazareth, PA, by the Lehigh Valley RC club. See **Dave Harding** for details.

Saturday, June 17, 10:00 AM the Cloud Kings RC Club are hosting a fun fly at the Harris Private Airfield, near the intersection of US Rt. 1 and Rt. 896. Flyers for this event were passed out at the meeting. See **Del Glennon** for details or call 610 255 4998.

The Pennsbury Land Trust,

Pennsbury Township, PA (near Chadds Ford) is holding their annual Balloon Fest (hot air balloons) on Saturday, September 16, 2000, and has asked if we would be willing to bring and fly RC planes (and helis) as part of their event, from about 2 – 4 PM. It appears that enough members are willing to attend, so we will commit to do this. They have been advised that they will need to prepare a suitable runway, and seem to be willing to do that. See **Rusty Neithammer** for more details.

Marty Bakalorz suggested the possibility of installing waterproof material for the roof of the shelter at Squire Cheyney, so that protection from rain is provided. Marty will research suitable materials, and, after reporting this to the club (and approval of the membership for the expense), we will have to approach the township for permission to do this.

There was no 50-50 held.

There was no show and tell, but there was lots of good flying.

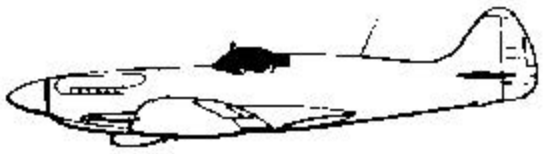
Reminder: Summer meetings at Dallet/Squire Cheyney – 7:00 PM:

July 11
August 1

Raindates for the above meetings will be the following Wednesday.

The meeting was adjourned by Secetary **Rusty Neithammer** at 7:30 PM.

Rusty Neithammer



Editorial – Change continued from page 1

This new screw was just a little longer than the one it replaced and under that screw is the tightly packed pair of servos.

The longer screw had pushed down on the elevator pushrod bending it so that the trim had changed significantly and the linkage was no longer free;

Change and Habit.

I had made a change, but my habit of just charging and chucking my reliable model let me down. I should have checked, of course, but the reliability, which had allowed me to develop the habit, had fooled me.

What I learned is that our most common and reliable actions are those most vulnerable to the effects of change. I began to thing of other instances where this has caused me grief, yep, found plenty.

Since I returned to the hobby, computer radios have become the norm. I have three of them (Hitec). They have a comprehensive suit of adjustments, mixing and servo reversing that can be set and stored for each model. There are only two model memories on the older radios that I own, but this is enough of a threat to deal with.

When you go to the field it is very important to check that the radio is switched to the model you are about to fly. This is so obvious, and the consequences of not doing it, so significant, that I have developed some associated habits.

First, I have a label on the back of the transmitter, where I mark the model assigned to the memory. Second, I have a bright red cloths pin, which lives on the right stick. I can't fly with it there so it reminds me to check if the memory and the model match. Having completed that check, I place the pin on the antenna. I have to force myself to put it back at the end of each flight, but this will become a habit in time.

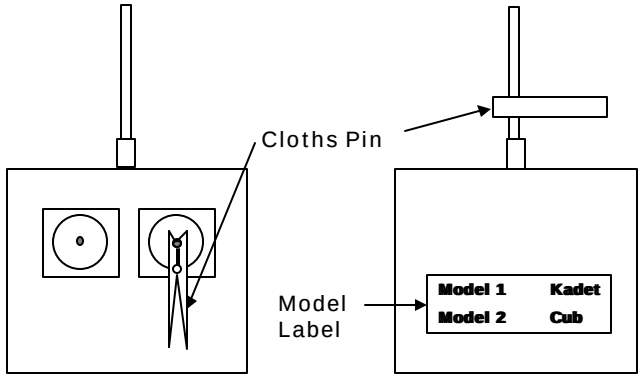
Is that enough? Well, no. What if I want to try something else with that radio, such as checking the setup of servo mixing on that new delta I have in the shop. On the Hitec, to change the mixing you have to save the setup. So in the process of experimenting I have erased the setup associated with the model marked on the back of the transmitter.

Setting up one of the transmitters as a buddy box caused a similar threat. Same problem, it is necessary to change the setup and save it over the memory assigned to an existing model.

I am embarrassed to admit how many times I have failed this test. Oh yes, I do check that the correct model is in memory, it says so on the back of the transmitter. And I did wiggle the sticks before take-off. Shame that the aileron servo was reversed in the new memory!

Time to develop a new habit and reinforce another;

- Always check that the preflight control *direction* is correct.
- Always mark the assignment label when any change is made to the setup.



Computer Radio Model Memory Reminder

But what is the general lesson here? Well, I think it is that change must get our attention.

If anything changes, we should be on the lookout for the thread of possible consequences; every time. Why did it change, what caused it to change?

If *we* made the change, then what are the possible consequences of that change? Think real hard about the things you touched and the things they are related to.

Change - Think about it!

Fly safe, have fun.

Dave Harding

Breaking (Rolling?) News

Chris Catania Rolls Dallett Field

As we go to press Chris has informed us that he plans to roll Dallet Field with a ten ton vibrating roller. The surface should be as smooth as a pool table for the annual club picnic. I plan to check it out with the Hanger 9 Cub, probably with a series of ground loops. Ed.

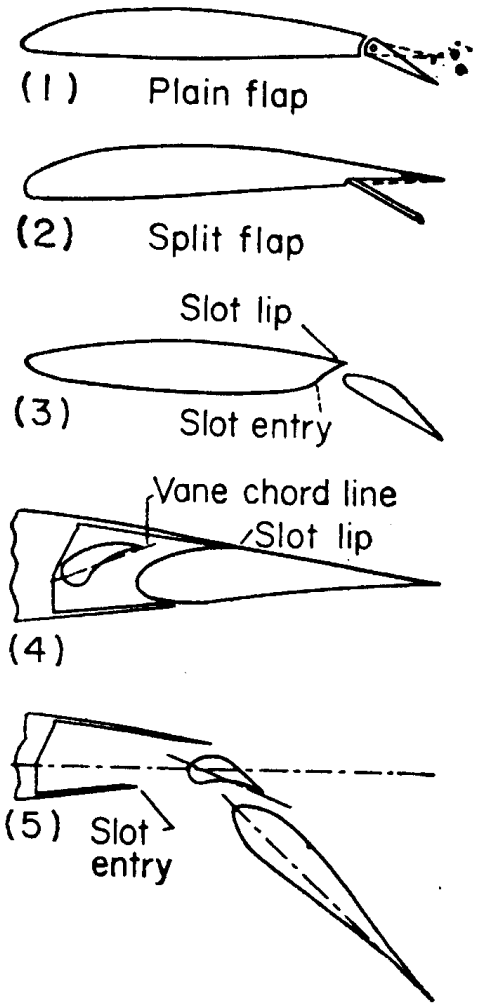
Tech Note – Lift, part 3

Dave Harding

Now let's see, in parts one and two we discussed why wings lift and the importance of the airfoil and we were discussing the attributes of the airfoil as it relates to it's lift properties. Oh, yes, I set you some homework to ponder the data from Abbot and VonDonenhoff.

Well, before we get to the homework there is one other piece of the pie we should examine.
As we strive for more and more lift in a wing (all other things being ignored for now) we find that the essential factor is the amount of camber in the airfoil.

In RC models, and most full size machines as well, we want the high lift properties only in certain flight regiems such as landing and take-off and in high maneuvers. Flaps are an ideal way to achieve high lift and they do so by increasing the effective camber of the airfoil.

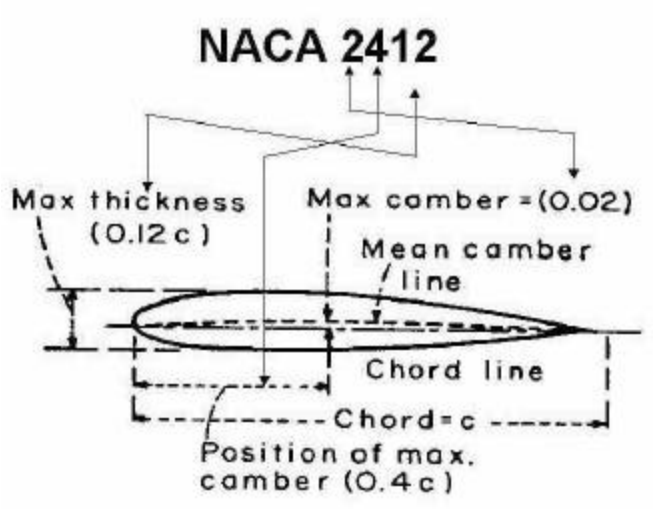


The most "aggressive" flaps, those seen on commercial airliners, both increase the lift co-efficient and the wing area. They achieve such high lift co-efficients with the aid of slots which allow the entry of additional, highly energized air into the flap flow at just the point that separation would otherwise occur…..but I digress.

Now if we go back to the homework, and I have now added the interpretation you probably saw anyway, the data plots the maximum lift from a wide family of NACA airfoils with varying thickness and camber, with and without flaps. It also included the effect of surface roughness which is shown to significantly reduce the maximum lift but that is another story for a future discussion.

In the thirties, NACA developed a vast data base on airfoils and their performance. In the process they developed a numbering system to describe each airfoil.

It goes like this;



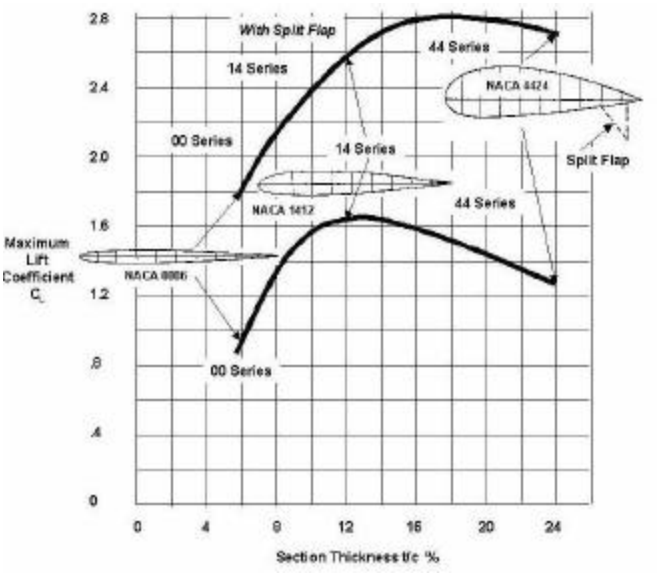
The first digit is the camber in percent. The second number is the location of the maximum camber in fraction of the chord.

The last pair of numbers is the section thickness expressed as a percentage of the chord.

Now you know that you can complete your interpretation of the homework chart.

I have faired lines through the data to aid in the interpretation. There are two sets of data;

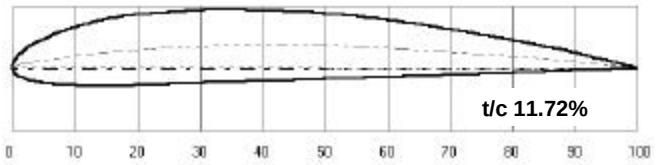
- Maximum lift coefficient vs. airfoil thickness for families of airfoils with different camber.
- Maximum lift coefficient vs. airfoil thickness for the same families but with the addition of split flaps.



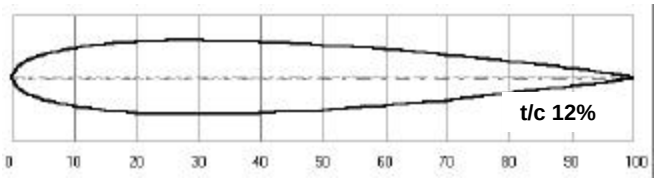
The data shows that without flaps, the maximum lift is obtained with airfoils with modest camber and section thickness of about 13%.

With the flap, the maximum achievable lift is nearly double and is achieved by very thick airfoils with considerable camber.

This data supports what we generally know; typical sport and pattern models work well with airfoils in the 12 % to 15 % thickness range, with either symmetrical or modestly cambered airfoils.



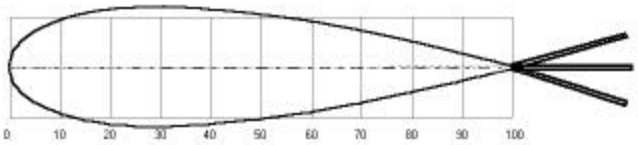
Clark Y



NACA 0012

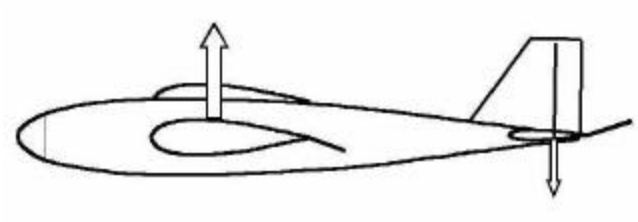
Although the symmetrical airfoils probably give away about one quarter to one third to the cambered airfoil in the positive lift direction.

It also explains why the fun fly type model uses a very thick airfoil with coupled “maneuver flaps”.



NACA 0024 With Maneuver Flap

This is where the flap actuation is coupled with elevator such that with increasing up elevator the flap is deflected downwards to increase the airfoil lift capability. In this application, the airfoil is usually symmetrical as we want to maneuver in positive and negative maneuvers equally. Use of a maneuver flap allows the airfoil to behave as though it is cambered and it works in both directions.



Thin, un-cambered or symmetrical airfoils have poor lift qualities. These airfoils are typically used on high speed pylon type models where the speed generates high dynamic pressures and so high lift coefficients are not required for satisfactory maneuver performance.

Now, although this is a discussion of lift, I just can’t help bursting one great big bubble, but first I will have to talk a little bit about stability. Pitch stability actually.

Later we will discuss the pitching moment generated by an airfoil, but for now trust me that the average model, particularly the average trainer, gets its pitch stability from the placement of the Center of Gravity and the size and placement of the horizontal tail.

CG at the quarter chord, long fuselage and big tail makes for a stable model.

So here’s the biggie; for a trainer or sport model, you can’t tell the difference in stability between “flat bottomed” (cambered) or symmetrical wing airfoils!

Try it. But remember to mount them so they both have the same angle of attack. This means that if the flat bottomed airfoil sits on the fuselage top, the symmetrical wing will have to be shimmed up at the nose to about four degrees incidence.

For the exact number with the Clark Y airfoil look at the negative angle required for zero lift in the chart in the last Tech Note.

Ok, schools out, no homework this month.

Dave Harding

Too Many Models

In the last issue we asked you to tell us about what you are flying, fixing, building and dreaming about. Here is the first batch of responses, naturally, from our most reliable contributors;

Rusty Neithammer

Flying:

- Extra 300S, Great Planes .40 sized kit, Saito 91
- Kaos, Tower Hobbies 40 sized kit, OS 46FX
- Weasel, Marty Bakalorz Combat design, OS 40LA
- Lazy Bee Special 50 inch wing, Clancy Aviation, Astroflight 05 cobalt geared electric
- Bokkie (#2, I RIP'd #1 in '95), 1971 RCM plan by Harry Allen, OS 25FX
- Airmadillo Basic Trainer 40, The Airplane Factory, OS 46 FX

Retired:

- Karosel, 1970 MAN Plan (built by me in 1970), OS 20FP (I plan to redo this one, add ailerons, lighting, etc. This was the first RC plane that I built, originally flown with Galloping Ghost radio and Enya 19TV .
- Royal Coachman, my first RC plane, bought in 1968 (or so) already built with Controlaire Galloping Ghost radio, Enya 09TV (I plan to put this back in the air sometime, with the Galloping Ghost radio).

Fixing: None

Building:

- Sirex Wasp, profile fun-fly from Don Incoll's (Australia) plans, redrawn by me using Autocad, OS 46FX, built in lighting system, pull-pull on rudder and elevator. It's almost ready to cover, but I ran into a small snag - the muffler interferes with the landing gear. I'm now making an extension for the muffler to get it out of the way. Once that's done, I need to mount the wing, rig the rudder, elevator and throttle linkages, do the final details, and cover.

Kits I have:

- Electro Screamer, would use red (blue, pink) flame blaster ducted fan unit.

Designing:

- The Wasp, sort of as I go, and I will need to as-built the plan when it's done.

Thinking about:

- Dare Hobby Distributors Neuport 17, Saito 90TS
- Zagi 400
- Some type of indoor/street flyer
- Some type of utility plane with cargo lifting/dropping capability
- Aerotow plane for pulling gliders

Mike Black

Flying –

- Stuntrunt 25 - Enya 40 power -built from control line planes by Al Tamburro
- Double Jabberwocky - electric glider - built by doubling old free flight Jabberwocky plans by Al Tamburro
- Great Planes Supersporster 40 - power OS 45 FSR - This plane has a Gus Pagel wing donated to me by Earl Broomall, a scratch and dent ARF fuselage and an auction purchased power plant

Fixing –

- Morris the Knife – 40
- Kaos – 60

Building –

- Great Planes F4U4 Corsair Semiscale Kit - OS 46 FX power. I completed building the kit compponents and am ready for assembly
- Javelin - Lanier Arf - OS 46 power (I am working on this project for my son)

Kits Waiting for some time –

- Tiger Moth - 40,
- Supersportster 25,
- CAP 232 ARF -60 size

Thinking about –

The Dymond Models - Tiger Moth 60 ARF??????

Sam Nevins

Sam is such a prolific builder we only have space in this issue to cover what he is flying and what he will fly next weekend at the club picnic. Perhaps he will provide us with his building projects and dreams next issue although he has told us that he is intrigued with the Editor's foam twin electric "Bristol Freighter" Home Depot, look out, Sam is on his way.

Flying or going to fly;

- Dynaflight Butterfly 99 inch span .15 power.
- Balsa USA Stingray 40, 54 inch span, OS 46FX
- Goldberg Eagle Twin Electric, two Astro 25's, 21 cells, 7 lb. Sam's original design; flys great!
- Kadet LT-25 with wingspan increased to 88 inches, OS 46 FX. Model recently crashed!
- Sig Kadet LT-25 electric, Astro 25
- Two Goldberg Eagles
- Zagi flying wing electric with Speed 400

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PROPSTOPPERS