

THE FLYER



Middlesex County
R-C Fliers, Inc.

May 2006

President's Message

Well, you know it's *really* spring when you have to mow the runway for the first time! Thanks to Bill Copp for giving the field an early haircut, before our regular service started. It looks great. Also, heartfelt thanks go out to the **great crew** of folks who showed up and pitched in on Field Maintenance Day—see the related article on page 3.

That same article includes a picture of the new **field marker poles**. The purpose of these poles is to provide a visual reminder of just where the "flight line" really is. All flight should be happening forward of the imaginary line between *and through* these poles. From what I've seen lately, it's time for some refresher training on the acceptable

flight box. I'm working on an updated reference map, but meanwhile—if you're not sure where you should be flying, please find out!

Congratulations to Dan Richard on receiving his Solo Certificate!

Things to be aware of:
Ongoing **soccer** activity, mostly on Saturdays through June. Also, **Horse Show activity** on Sunday **May 7th** and again on **June 6th**. Be courteous and safe—rules for flying when there is other activity in the park are clearly posted at the field and online.

Our Fly-In on May 21st:
This is an opportunity to get the spring season kicked off in earnest by getting as many members at the field

at one time as we can. It's a chance to fly, yak about models and flying, and meet some members you might not run into ordinarily. Although it's not confirmed to happen yet, Bill Copp has offered to *really* "fly in" to this event—in his full-scale helicopter. Hopefully we can make that a reality. If we can, we'll raffle off a quick heli ride. Check the website as we get closer to the date for more details.

Please make sure you read Jim Benn's interesting article about Wing Cube Loading. It's a different way of thinking about wing loading and model performance.

See you at the meeting on May 10th, and please, at all times: Be **safe**, and have **fun!**

Jeff

Coming Events



With the winter months behind us and only a few weeks until Memorial Day it's time to start thinking about some serious flying.

Sun. May 21, 2006

The Board announced plans for a Spring Fly-In that is scheduled for Sun. May 21st. Additional plans should be announced at this month's meeting,

but keep the date on your calendar. If you have a new project that you would like to share, please bring it for us all to see.

Sun. June 11, 2006

The June club event is a Cookout and Fun Fly that is scheduled for Sunday, June 11th. We'll include more details next month, but keep this date open too.

Non-MCRCF Events

Sun. June 4, 2006

Plymouth, CT
NSRCA Pattern Event with Instruction & Coaching in the morning

Sat/Sun Jun 10-11, 2006

Troy, VT
Green Mountain IMAC Challenge, all classes

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Special points of interest:

- Pg 4: Jim Benn's article about wing loading factors offers a new perspective.
- Pg 3: Photo gallery from the Spring Cleanup
- Pg 2: New Spread Spectrum radios will use "SS" as the Channel



Sig Kadet LT-40, Final touch to get ready for another flight lesson.

*For club-logo T-Shirts, see
Jeff Ward*

For special-order club logo Hats, Shirts, Jackets etc. contact:

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Daniel Richard receiving his Solo Flight Certificate from President Jeff Ward.

April Meeting Notes — Jim Orsborn

The April 12th meeting was attended by 20 pilots, including one visitor. The general discussions included plans for the Spring Cleanup Day, the May 21st Fly-In and the June cook-out

Jeff announced that the Port-A-Potty will probably return to the field in June, and in response to a question about club-logo clothing, he told everyone that they can be special-ordered from Ultimate Design Ap-

parel in Stoneham — See the link below/left.

The Board of Directors has discussed eliminating the reduced rate for Seniors, in favor of a flat rate for all members including officers. The change may need to be included in the next By-Law update.

The Board and the Flight Safety committee want to remind all pilots to be courteous and not fly so as to endanger each other or

anyone else. They suggested that all 3D and other aerobatic maneuvers not be done directly over the runway, especially when others are present.

John Parisi announced that there are plans to have a Cub Scout group attend our May 21st Fly-In. They will not be there all day, but are coming with the hope that they will get a chance to fly a trainer with one of our instructors.

Spread Spectrum Radios

The new Spektrum Park Flyer radio was the subject of the feature presentation during the April meeting. Jeff Ward lead the discussion with a short slide show on the technology.

The AMA has approved the use of these new radios with small, light weight, Park Flyer planes that are

kept within a very limited airspace.

Our flight safety committee would like to let members know that these radios can be used at the MCRCF field, but their use is strictly limited to Park Flyer aircraft — Pilots ARE NOT allowed to use these radios with larger

aircraft at the field.

Members who have one of these radios will be issued a frequency pin with the “SS” designation. While multiple SS pins may be active at the same time, we are still limited to three (3) planes in the air at the same time.

Flight Instruction

The Flight Instruction committee would like to offer a gentle reminder that pilots in training are not permitted to fly alone at the MCRFC Club field.

The MCRCF Flight Instruction program is a progressive program that builds upon skills developed at each level. Until

the new pilot has completed the entire program, he really is not ready to handle emergencies like an out of trim plane, an in-flight engine failure, or unusual wind conditions. So please don't jeopardize your relationship with your primary flight instructor by failing to heed this warning.

Once a new pilot has solo'd, they will receive a nice certificate and a new Frequency Pin. With this milestone accomplishment, pilots are approved to fly any “Trainer Style” aircraft of their choice, by themselves. Until then, wait for your instructor.

Spring Cleanup at the Field



As mentioned in the last newsletter, Saturday, April 22nd was Spring cleanup day at the field.

Preparations for another season of flying actually began on Friday. A special "Thank You" goes out to Eric Sarao of ROADS Inc. for arranging to have an operator and a very large roller make several earth shaking passes down the runway and through the pit area.



Careful, Roller in the Pits!

So on Saturday, we had a good turnout of members and friends to share the work load. Separate teams worked on setting new field marker poles, replacing and painting several

sections of bench, painting the gazebo, de-thatching and aerating the runway, and picking up trash from the field and surrounding park area.

The club provided coffee and donuts for early morning workers who brought rakes, shovels, post hole diggers and other supplies.

New club member Bill Copp was very generous and brought a small tractor to help work on the runway. With a de-thatcher and bagger attachment, Bill cleaned the runway of dead grass clippings. He also made a second pass over the runway to aerate the soil for better drainage.

Charlie Bacon brought the lumber to the field so that we could replace several broken or damaged areas of the bench that surrounds the pit area.



Ray Capobianco planted another crop of flowers this year in the hope that they will grow and provide some nice color to the field.

Removing the old, before installing new planks



We didn't have a sign-in sheet, so it would not be fair to name everyone that helped; but each of you know who you are. So a very special **Thank You** goes out to each and every volunteer that showed up. No matter what you did, or how long you stayed, teamwork counts and thanks to all of the volunteers we were able to have a successful day.

So let's go fly!

Tough duty, but someone has to do the hard work



New Field Markers

Wing Cube Loading — by Jim Benn

I was out at the field a few days ago, and was chatting with Jeff about his and my "Little Extra" models. It seems that a few of our club members have purchased this great little model. Mine works wonderfully with the recommended .074 engine, but I understand others have used larger engines.

I thought some of you may be interested in this discussion. As you may know, smaller models require a lighter wing loading than larger models to have similar flying characteristics. A useful tool for predicting the relative performance of different sized models is called the Wing Cube Loading (WCL) (Ref. Model Aviation, July 2002).

The formula is $WCL = Wt / (A^{1.5})$

Wt = model weight in ounces

A = model wing area in square feet (raised to the 1.5 power)

This results in ounces per cubic feet and is a good predictor of how the model will fly. The formula works the same for both large and small models. For different types of models, regardless of wing area, the WCL predicts the flying characteristics of the model as follows:

WCL — Flight Characteristics

- 4 Thermal glider
- 6 RC Trainer
- 9 Sport Aerobatic
- 10 Pattern Model
- 12 Racer

Scale models may have a WCL that ranges anywhere from 6-15.



Bill Copp's bi-plane just after a sortie. The three cylinder, radial engine really sounds great.

My "Little Extra" weighs 26 ounces ready to fly, and has a wing area of 344 sq inches (2.39 sq ft). So my $WCL = 26 / (2.39^{1.5}) = 26 / 3.69 = 7.04$. Therefore it should and does handle somewhere between an RC trainer and a Sport Aerobatic plane.

Another version of the same model that weighed 36 ounces, would have a WCL of 9.75 and fly more like a pattern model; that is to say, hot and hard to handle.

Conversely, if the model had 244 sq inches wing area at a weight of 26 oz, the model would have a WCL close to 12, and be extremely hard to handle.

I recently flew my new Great Planes U-Can-Do 60 ARF. I was amazed at how easy it was to handle, and how it came in for a landing as though it were on railroad tracks. The wing loading for this Beast is 17 ounces per sq ft, yet it flies a whole lot easier than the Little Extra with a wing loading of 11 ounces per sq ft. The reason is that the WCL for the model calculates out to only 6.4, which is lower than the Little Extra at 7.04. This means that the U-Can-Do should fly more like an RC trainer than the Little Extra, confirming my experience with these two models.

Hope some of you find this useful,

Jim Benn

[Ed. Note. Try the little graphic below. Draw a line from model weight to wing area and see where it crosses the WCL line — for most accurate results use the formula.]

The WCL graphic has been omitted from the on-line version for download performance reasons.

Webmaster

Flying in the Wind

Ray Capobianco, our club instructor, has told all of us on numerous occasions that the wind should not be a problem. He says that if you learn to fly in the wind you can fly anytime. Well I recently came across an article in the AMA Insider Newsletter that I thought hit the point home. [The following article is from AMA Insider, March 2006]

From the Middle Point RC Flyers, Murfreesboro TN

Windy Weather Flying by Clay Ramskill

All too often, on an otherwise nice but windy day, folks just don't fly. Obviously, for a beginner, that's common sense—but for someone who has some experience, the wind can be a challenge that adds some spice to flying.

While it's easy to see that experience level has a lot to do with how much wind is too much, it may not be quite as apparent that the type of model you're flying also can have a great effect on your ability to handle winds.

Let's go through some airplane design features to see which ones give us the best flying characteristics to handle winds and the resulting turbulence.

Size: In general, the larger the airplane, the better it will handle winds of all kinds; large models don't "flop around" as much!

Dihedral: The more dihedral in a model's wings, the more they are going to

be affected by crosswind gusts; it is hard to keep the wings level, therefore lineup to the runway is difficult in a crosswind situation.

Wing Loading: The higher the wing loading, the less an airplane will be affected when hit with a gust.

Aspect Ratio: Lower aspect ratio (stubby) wings will be less bothered by gusts; there is less leverage for side forces to upset the airplane, and lower aspect ratio wings have a greater tolerance to changes in angle of attack caused by gusts.

Power: Having the power to overcome the force of wind is necessary. The same thing goes when you get into a sticky situation.

Lateral Control: Ailerons are beneficial in a crosswind landing and takeoff phases. The ability to dip a wing into a crosswind without changing heading is essential, as is the ability to rudder the airplane parallel to the runway heading while keeping wings level with aileron while landing.

Landing Gear: Models with tricycle landing gear are easier to land and take off in a crosswind than tail draggers; in addition, the wider the spread on the main gear, the better.

Maneuverability: This one is a bit harder to quantify. You want a model with stability, yet you do need good maneuverability to cope with gusts. Therefore, you want a model that is stable, yet responsive.

Wing Mounting: Generally, a low-wing airplane will handle crosswinds better. This is because the center of gravity of the airplane is nearer, in a vertical sense, to the aerodynamic center of the wing. Therefore, a side gust does not roll the model as easily. Moreover, by mounting the main landing gear on that low-wing model, they can be spread wider.

It's unfortunate that almost every item above is in direct opposition to the characteristics found in many popular trainers. The main exception is the requirement for tricycle landing gear. But even with trainers, there are differences.



Ken at the field with his new plane, waiting for the wind to calm down.

“Learn to fly in the wind, and you can fly anytime you want.”

Compare a Seniorita with the Kadet Mk2. While the Seniorita may be a bit slower and a bit easier to fly, the Kadet, with its ailerons, higher wing loading, lower aspect ratio, and lower dihedral, is a far better airplane when flying in windy conditions. Going a step further with the same kit manufacturer, the Cougar (.40)/Cobra (.60 size) kits embody all the right characteristics for windy flying.

In closing, I offer Confucius' only known saying about RC flying: "To learn to fly in wind, one must fly in wind!"



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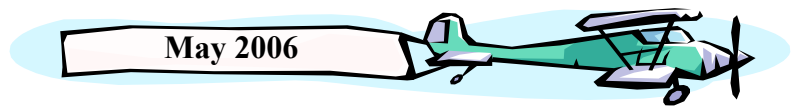
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The **FLYER** is the official publication of the Middlesex County R-C Fliers, Inc., a non-profit organization chartered for the promotion of radio controlled model aircraft building and flying. The club operates a flying field located on Treble Cove Road, Billerica, MA. The club offers free flight instruction to any member provided they have a current membership with the Academy of Model Aeronautics. Contact any club member for details. Meetings are held on the second Wednesday of every month between September and June in the Billerica Recreation Dept building at 248 Boston Road in Billerica, starting at 7:30 PM.

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