



The Flypaper

Newsletter of the Radio Control Flying Club of Toronto

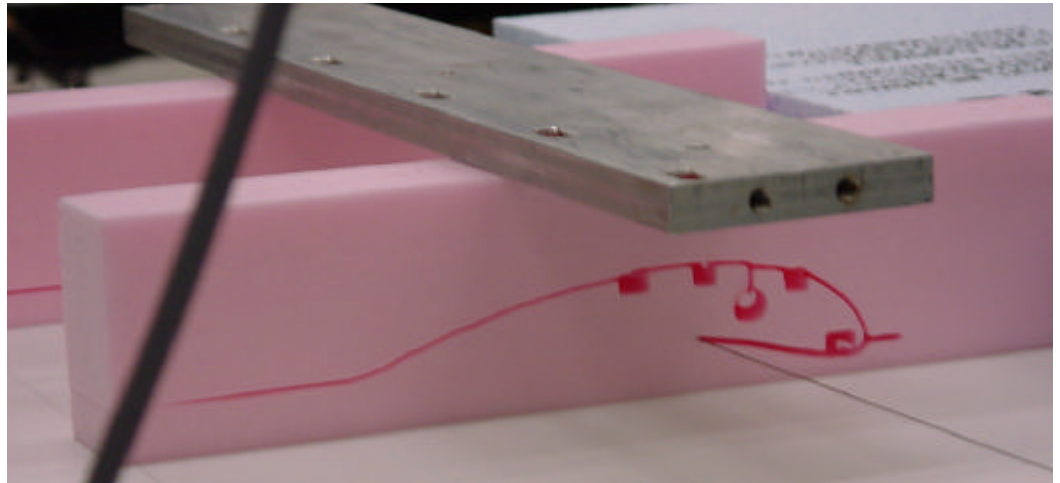
est. 1957 inc. 1967

JANUARY 2003

- 1 The President's message**
- 2 Exec. & non-Exec. positions , messages**
- 3 More messages**
- 4 Meeting Highlights**
- 5 Background on CA glues**
- 6 Hints and Tips**

Meetings are held in the Cafetorium of the Alexander Mackenzie Senior Public School, 33 Heather Road, Agincourt, usually on the first Friday of each month, Oct to May (subject to change – check the Flypaper) Meetings start at 8:00 PM

**For the latest club news, photos and other points of interest please check out our web site at:
<http://www.rcfctoronto.ca>**



A close-up of Richard Staron's amazing CNC foam cutting machine which was demonstrated at the December club meeting. The device, controlled by a laptop computer, automatically cuts shapes according to selected parameters.

The President's Message

Richard Staron

Well as we all read this, the Season's Festivities are completed, New Year's hang over is a blur (or still maybe lingering) and for those brave soles, the Frozen Finger Fun Fly was another success. Now its time to start a new season and start building those new kits or scratch built planes for this year. In some cases major repairs are in order..... :)

You know something, it's really not that far away before we start putting our flight boxes together, charging our batteries and dusting off our planes. Think about it.... 100 days or so before the snow is gone.... still cold though! End of March or early April is not that far off and I know that I will be out testing and flying new planes and getting my fingers back into shape. So 100 days and we are flying again.... for that matter the Beauty Show is in about 130 days.... not much time either.

This brings me to my next topic.....building! The first Friday in May is our traditional Beauty Show where members bring in their planes and get judged by their peers. This means that you had better start building now if you want to finish your creation by May. This may sound like a lot of time, but we all seem to run out of it very quickly as the date approaches and then give up or say I will never win anyway.....mmmm?!!! Regardless of who wins best of show or first in warbird category, etc...., there are NEVER any losers since anyone who takes the time to build and put time and passion into a project is always a

winner! Anyone who brings in a plane for the Beauty Show, will receive a beautiful certificate from the exec to

show that they had taken the time to bring out a plane to the Beauty Show. There will also be the traditional awards as well as in years gone by.

To keep the spirit going, anyone who presents at a club meeting, brings in an aircraft, a tool or fixture they are working on, will receive a beautiful certificate as well from the club. This is a little token of our appreciation from the club exec for taking the time out of your day to bring in your creation and sharing it with the club members. Imagine wallpapering your workshop with these beautiful certificates..... (or maybe even your bedroom..... your significant other will love you for that one!)

Safety is an issue that always seems to come up whether it's on the field or at home. Although we are not flying very much right now, we should all be aware of safety even at meetings especially when a presenter brings in a demonstration that uses hydro, compressed gases, motors, etc. Some of the aircraft are very large and a lot of time and money has been put into them so please be careful. Please be aware of any safety issues, trip hazards etc especially when if young children are brought to the club meetings.

Take care and see you all on the field.

Radio Control Flying Club of Toronto

2002-2003 Executive positions

President	Richard Staron	416-288-0569	rstaron@eol.ca
Secretary	Steve Horwat	416-439-7084	s.u.horwat@sympatico.ca
Treasurer	Guy O'Reilly	416-443-1299	joulavert1@aol.com
Field Officer	David Parton	905-430-0913	dparton@interhop.net
Membership Officer	Paul Battenberg	416-694-4414	paulbat@sympatico.ca
Wings Officer	Roger Villacorte	416-391-2602	rckev@hotmail.com

Non Executive positions

Editor/Publisher	John Riley	416-469-3990	jcmriley@sympatico.ca
Fun Fly Director	Hans Paule	905-837-2664	hpaule@rogers.com
Refreshments	Romeo Ramos	416-441-0134	romepamela@AOL.com
Program Director	Mario Moran-Venegas	416-259-5408	moran5@primus.ca

From the Membership Officer:

Paul Battenberg

We have 64 members paid up for 2003, which includes 4 new members; Shaun Chisholm, who had previously flown with another club, flew on New Year's Day, and Thierry Jaume, who belonged to our club several years ago. Also, another two new members, Shawn McBrearty and Wei Zhao. Please make them welcome next time you see them (maybe not until spring).

If you are planning to pay your membership dues next meeting, you can make things go faster if you download the forms from our web site, www.rcfctoronto.ca. They can be found on the Forms page. Don't forget to fill in a MAAC form (if applicable), and a declaration form if you don't have your wings. Most of all, don't forget to sign the MAAC form at the bottom. Oh, one other thing, only make out one cheque to RCFCT, even if paying MAAC.

That's all for now. Keep your nose up and your wings level.

Meetings and other Events

January 10 / 2003
First club meeting of the new year

February 14 / 2003
Club Meeting.

March 7 / 2003
Club meeting.

April 4 / 2003
Club meeting

May 2 / 2003
Club meeting, Beauty Show

From the Treasurer:

Guy O'Reilly

Happy New Year to all! I hope everyone received lots of hobby-related goodies from Santa and that the New Year brings each and every one of you safe landings. Speaking of new toys, I have not purchased the accounting software yet, however I plan to do so as soon as my home chores are completed- the latest of which was to dispose of useless and obsolete stuff (as if there is such a thing!) and clean-up my workbench.

Cleaning up the workbench was necessary before I could start a new project or do some minor repairs and maintenance on other airplanes, motors and equipment. Not only was I out of workbench space, but my existing storage space was inadequate, too. So off I went to Toys-R-Us, where I purchased two plastic boxes used to store rolls of Christmas wrapping paper (42x15x5 inches) - good for laying materials flat.

During my early spring cleaning, I did the unthinkable, the virtually sacrilegious: I got rid of valuable and rare pieces of Monokote and disposed of exotic woods (balsa, spruce and three-ply plywood. All wood I have accumulated over the years from kits, cut-outs from die cutting... pieces of Monokote that could have been used to repair a puncture from hangar rash (less than 5x5 cm). Really, this clean-up was very necessary; I even located a scraper that had been missing for two years!

See you at the meeting!

Editor's Note:

John Riley

Hope everyone enjoyed the holidays, and found something nifty under the tree. For those of you who get the printed version of the *Flypaper*, you'll see that I got a colour printer, which provides much nicer copies. For the last edition, I used a self-serve photocopier at a Business Depot, and the quality of the copies was pretty lousy. So, provided the costs (mostly the printer cartridge) are reasonable, and the printer can handle the load, we'll try it this way for a while.

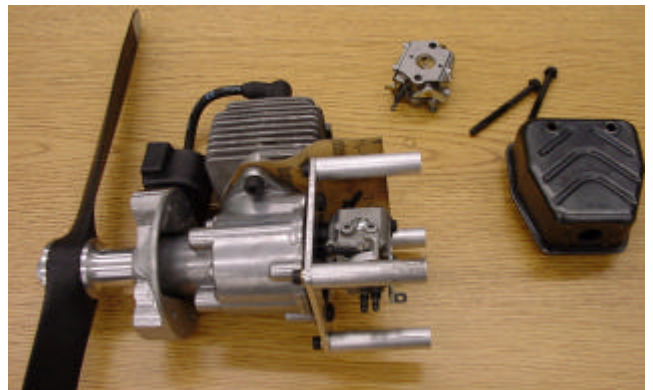
This month, I've prepared a little article about CA glues, and how they work, which is something I've always wondered about. One thing is, a topic like this tends to get a little technical, particularly in the chemistry department – so while I've tried to keep the fancy jargon down to a dull roar, some of it is unavoidable. Future planned topics for articles include fiberglass, heat-shrink films, aluminum alloys, and some stuff about radios and engines. As always, any comments/suggestions/requests are welcome.

What's everybody building this winter? Send me a description and any photos you might have, and I'll put it in upcoming *Flypaper* issues (just like they do in *Model Airplane News*). Since my fancy new printer also has a scanner, ordinary prints are fine, and will be returned – just mail them or pass them to me at club meetings.

From the last meeting...

Lots of interesting stuff happened during the December club meeting. Bob Miller reported on the search for a new flying field, which looks promising, as three area farmers have been contacted to date, and they responded positively to the idea of an RC flying field. Apparently what we pay now was seen as a reasonable figure for the future field. Also discussed was the idea of finding a new location from which to hold our meetings. The general feeling was that the present location is O.K., but not particularly inexpensive. Tony Camilleri showed the results of his vacuum forming rig, a Spitfire Mk 24 canopy, and gave some tips for successful results. Don McDougall

Below, Paul's modified 31 cc Ryobi gas engine: an inexpensive way to get into serious power.



Richard's foam cutting machine; note the computer on the far left, and Don's Phantom in the background.

displayed his Phantom ducted fan jet, which looks like it would go like a bat out of hell. Bob Miller and Brian Gillian updated us on the progress of their very nice Bucker Jungmeister, which is mostly made from foam and is almost ready to fly. Paul Battenberg showed how he converted a Ryobi gas engine from a weedwacker into a suitable, and economical, model engine. Very impressive was Richard Staron's CNC foam cutting machine. Complex shapes can be cut automatically after the relevant information is inputted into the laptop computer that controls it. Richard invites those who would like something cut to get in touch with him.

Upcoming...

Fellow club member Jack Humphreys, co-owner of A&J's Hobbies, will give a presentation about MAAC during the January meeting. Currently FAI committee chairman, Jack has held a number of MAAC positions over the years, so this promises to be an informative and interesting talk. Richard Staron will bring in his portable vacuum-bagging device, for use with foam wings. Also, in a month or two, there will be a sale/swap meet at an upcoming meeting – so save all that useless crap so you can sell it to someone, and buy some more from someone else. Please contact Mario Moran-Venegas, Program Director, if you'd like to present something or have suggestions about what you'd like to see presented.

Background on CA glue (sources: mostly various manufacturer's web pages)

CA (cyanoacrylate) adhesives are fantastic for building and repairing models, but they're really pretty strange. I left the cap off some thin CA once for a couple of weeks with no ill effect, yet the stuff can glue my fingers together instantly – how does the glue “know” how to do that? Most of the time it hardens really quickly, but once in a while it stays liquid for a fair while. What's with this stuff and how does it work?

CA is fairly unique in that it is a one component adhesive, that is, it contains only CA molecules (except for a small amount of stabilizer). Other glues rely on the evaporation of a solvent (e.g. white glue) or are based on a chemical reaction between two substances (e.g. epoxy cement). A key aspect in CA chemistry is understanding the nature of *polymers* and *monomers*. The term monomer refers to the situation where the individual molecules of the compound are freely swimming around, unattached; in a polymer, the molecules are joined together in chains, which may be rigid or flexible. Plastics are polymers; for example, polyethylene is a bunch of ethylene molecules (in the monomer state, normally a gas) that have been joined together. In fact cured CA is chemically similar to Plexiglas. So, what causes polymerization of CA from the monomer (liquid) to the polymer (solid) state? The fast answer is: water.

The diagram on the right tells the story. The CA molecules stay liquid because of the acidic stabilizer. Most surfaces contain traces of water, some of which is ionized, as well as organic compounds left by fingers, etc. These consume the stabilizer, and when it's gone, the polymerization reaction starts. Bazillions of molecules join together to form a solid three dimensional lattice that holds the surfaces together. Since it relies on residual water, CA cures faster in humid weather than in dry conditions.

How about CA accelerator (kicker)? Basically it's a volatile solvent, typically heptane (found in gasoline), and trace amounts of an amine compound. Amines are a class of organic nitrogen containing compounds which includes proteins, and it's believed they act in a similar way as ionized water in initiating the CA polymerization reaction. As a result, the accelerator speeds up the hardening of CA. This stuff should be dirt cheap, but I don't believe it's priced that way. Of course CA glue itself isn't cheap, but one suspects it's a little more difficult to make and package.

Manufacture of CA glue starts with its chemical precursor, ethyl cyanoacetate, which is placed in a reaction vessel, with a catalyst and acidic stabilizers. For several hours the mix is heated to about 200 °C, in a process known as cracking. After that, the mixture, which now contains the CA monomer, is distilled – sort of like single malt Scotch, except at a different temperature - so that out of the condenser comes purified CA (bet the CA factory really smells). The different formulations, like thin, medium, and thick CA are made by adding controlled amounts of partly polymerized material, to increase the viscosity.

1) Trace amounts of a weakly acidic stabilizer (red balls) keep the CA molecules (white balls) in a liquid monomer form. The surface contains ionized water (blue balls).	
2) Stabilizer is removed by the ionized water.	
3) Polymerization is initiated by remaining ionized water, and the chains begin to grow.	
4) When the reaction is complete, a hardened plastic polymer remains.	

CA fumes can be really irritating, and seem to occur when gluing a large area. The fumes are individual CA monomer molecules, and since they're so chemically reactive, it's not surprising that they bother the eyes. What the CA is really doing is locally boiling – CA hardening generates heat (a so-called exothermic reaction), and the uncured nearby stuff boils off (the boiling point is low, about 50-60 °C, depending on purity). CA products that are “odourless” (and, I think, safe for foam) work because they contain a different, and heavier CA molecule than found in regular CA. As a result, it's less volatile, has a higher boiling point, so it doesn't fume as much.

Applications for CA adhesives of course are widespread, well beyond the noble cause we pursue. An example is in medicine, where CA adhesives are used surgically for closing incisions. A couple of unusual ones: The late legendary blues guitarist, Stevie Ray Vaughan, would apply CA to his worn and sensitive fingertips to beef them up to withstand his aggressive style of playing. And morticians use CA to close the eyes and lips of the deceased. Yikes! I think I'll stick to model planes....

Hints and Tips

How to use a photocopy to transfer patterns on to wood:

1. Make photocopy of piece using the dark setting.
2. Place photocopy face down over balsa or wood and pay attention to grain direction
3. Using a hot iron on HIGH setting, press on the paper.
4. Gently peel the paper from the balsa.
5. This should result in a mirror transfer of the image to the wood.

I tried this method to transfer a line image to a Monokote finish. First, the Monokote was applied as per manufacturer's instructions. The resulting image was painted with fuel-proof paint. It worked, but be careful not to melt the Monokote. *Submitted by Guy O'Reilly*

Model Doctor #54

How 'bout a quick and dirty wind velocity meter? Take your propeller balancer and attach a Top Flite 11 x 8 prop. Hold the balancer in the wind to achieve the maximum propeller RPM. Measure the RPM with your tachometer. Divide that RPM reading by 100 and the resulting number will be within 2 MPH of the actual wind velocity.

Model Doctor #56

The construction phase of a built up balsa model has been known to take several weeks, and sometimes more time! During this period it happens occasionally that a finished sanded piece, all ready for covering or painting gets bumped and dented. There is a way to get these dents out of balsa without additional filler material.

First, wet the dented area with plain ol' water. Make sure the dented section is well saturated and the water has soaked into the wood. Then take a Monokote iron, set to its hottest position and gently iron over the dented area. The steam being generated in the wood forces open the compressed section (i.e. the dent). I have seen this method take out some pretty big dents. In fact, it is not uncommon that a little additional sanding is required because the "dent" ends up higher than the surrounding area.

Model Doctor #77

Bob Barnett came across a nifty way to reinforce ABS plastic parts (cowlings, wheel pants, etc) that are supplied with most kits now days. The Ol' Model Doctor has previously talked about using fiberglass and resin, and SIG Celastic as ABS reinforcements. Bob's method uses fiberglass cloth and the blue ABS cement found at most any hardware store. The blue cement is the same stuff that you use to glue your lawn sprinkler pipe together. Simply lay the cloth inside the ABS part then paint on the blue goo. Let the glue set up and you're ready to go.

Created by Will Sievert - Fertilized by Tom Minger, Bayside RC Club, Fremont California