



# The Flypaper

Newsletter of the Radio Control Flying Club of Toronto, est. 1957, inc. 1967

## The Frozen Finger Fun Fly, 2004

January, 2004

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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:

[www.rcfcltoronto.ca](http://www.rcfcltoronto.ca)

**Weather Forecast:** Increasing darkness during the evening hours.



Snow wasn't much of an impediment at this year's F.F.F.F. Fearlessly, about 25 brave and hardy aviator types managed to get out to the field on the morning of Jan. 1, and it looks sort of nippy. Top photo by Paul Battenberg; left photo by David Summers.

### President's Message:

**Richard Staron**

Wow, can you believe it? .....no snow on the ground, exceptionally warm temperatures for the month of December even as I write this message in early January, it's starting out the same way December left off. I keep remembering a simple saying that someone told me...."Everyday we don't have snow is a day closer to Spring". Remember last year when we started winter in late November and it didn't really let up till late spring. So what do all these little gem of wisdom telling us? You better start building because spring is coming fast and furious!!!...so is the mud!

Now with all this building activity going on, there must be some interesting models starting to take shape in your workshops. I know that I have dusted off my workbench and started to cut, glue and sand and you know, it felt good to see some progress. I hope that you guys will start bringing in your models in different states of completion to the club meetings.

One thing about this club is the diversity of the projects that the members bring to the meeting as well as to the field. I believe that everyone can learn someone else's project regardless of the size, complexity or scale of the aircraft.

As you know, the club executive is still looking for a "Wings Officer" and a "Program Director" for this coming year. Anyone interested in stepping up to the challenge?

I know that this might be a bit premature, but the March meeting is going to be our annual swap meet but the success is only as good as members bringing out their "stuff" for sale, swap or barter. Lets make 2004 a restart of an old traditional swap meet where the room was full of goodies, where the wife or better half was delighted when she saw you loading up your car to sell and was horrified when you came back with your old stuff sold and new stuff to replenish the missing old stuff...hee hee!!!

Enough of my bantering.....back to the workshop for some more fun.

See ya on the muddy field. PS.....Warm temperatures + lots of rain = muddy field : **BIG NO NO FOR CARS!!!**

## **Radio Control Flying Club of Toronto**

### **2003 - 2004 Executive positions**

President	Richard Staron	416-288-0569	<i>rstaron@eol.ca</i>
Secretary	Arthur Krikorian		<i>arthur@tangestudios.com</i>
Treasurer	Guy O'Reilly	416-443-1299	<i>joulavert1@aol.com</i>
Field Officer	Bob Miller	905-839-7868	<i>robert.miller2@rogers.com</i>
Membership Officer	Paul Battenberg	416-694-4414	<i>paulbat@sympatico.ca</i>
Wings Officer	<i>Vacant</i>		

### **Non-Executive elected positions**

Editor/Publisher	John Riley	416-469-3990	<i>jcmriley@sympatico.ca</i>
Fun Fly Director	Hans Paule	905-837-2664	<i>hpaule@rogers.com</i>
Refreshments	Steve Horwat	416-439-7084	<i>s.u.horwat@sympatico.ca</i>
Program Director	<i>Vacant</i>		

### **Meetings and other Events**

**Jan 9/ 04**

**Feb 6/ 04**

**Feb 14/04 – get some roses**

**Mar 5/ 04 -- Annual Swap Meet**

**Apr 2 / 04**

**May 7/ 04 - Beauty Show**

## **From the Membership Officer: Paul Battenberg**

Not much to say about membership, except that I took in 14 memberships on January 1st. to make our total so far this year 58 members. It was rather cold on the hands for those trying to fill in the forms so they could legally fly on New Years Day. **If you guys don't read anything else in this issue, please, please, just read this next sentence. If you want the club to look after your MAAC, you have to fill in a MAAC form as well as a club form.** I'm getting tired of forging signatures on the forms that I have had to fill in.

### *Frozen Finger Fun Fly Report*

It was a rather chilly damp morning for the umpteenth annual F.F.F.F. There was no snow and the ground was wet and squishy. When I arrived shortly before 10:00 a.m. a couple of planes were already in the air. I think Ed Astudillo was first in the air, but I could be mistaken. There were a few other brave souls who flew, but lots of the guys were content to just shake hands with their friends, and then put them back in their pockets.

The new refreshment person, Steve Horwat was there with the coffee brewing and with fresh donuts. Ed brought his generator for some electricity. Without it, the coffee would have been rather cold. Don Gillion donated an old propane barbecue, so we had some heat with out having to fire up the big one. I counted 25 cars parked out on the road. The gate has been locked, and the entrance is pretty well torn up.

## From the Treasurer:

**Guy O'Reilly**

Bonne Année and happy landings to all in 2004. I hope Santa filled your order(s) and I look forward to seeing you with your new toys at the field, when the weather is a little warmer.

I am back from Aruba. Ah the sand, ah the beaches, ah the bikinis and the casinos... As promised I tried, while driving around the island, to spot possible landing strips to relocate the club (see picture). The east coast of the island is swept by constant coastal winds and anywhere you can reach by car along there would be ideal for slope soaring. But one better not miss the landing as you would end up in the rough.



Unfortunately, time (or was it another dip in the ocean!?) did not allow for a visit to the Aruba Radio Control Club or to the island's only hobby store listed in the Yellow Pages. I will need a second trip to report on the club activities and facilities. In the mean time have a look at their web site at:

<http://www.arubarclub.com/>.

OOPS! That's me at the Tierra Del Sol Resort and Country Club – 18-hole championship golf course that was designed by Robert Trent Jones II, my other passion. (If you are interested in a round, check –it out at: [www.tierradelsol.com](http://www.tierradelsol.com))



The following information has been taken and edited from the Aruba Radio Control Club website:

Aruba Radio Control Club (ARCC) possesses bylaws that date back to the year 1975. The Club was founded by a group of affiliates who were flying in an area called West Punt, to the north of the island, known today as the Golf Course of Tierra del Sol. ARCC lost the area in West Punt because of the development of the golf course and residential area. Around 1997-1998, a commission was formed to obtain a piece of land and to construct a runway with all the necessary requirements. This same commission reorganized the Club, making it more attractive for the future members. Several meetings were held with different Government departments to secure the field in San Nicolaas.

On October 29, 2001 the ARCC "Cascabel Airfield" was officially inaugurated on the Golfweg in San Nicolaas. This was done with an international Fun Fly competition and airshows. This competition provided great interests to the public which resulted in an increase in club members.



The runway of A.R.C.C. " Cascabel Airfield " is located on the Golfweg in San Nicolaas, Aruba. The name Cascabel Airfield was chosen because in this location you can find many Cascabel serpents (YIKES! Snakes... the Cascabel of Aruba is venomous and has a rattle.) But this was surely during the time in which the area was covered only

with stones and weeds. The Cascabel serpent is only found on the Island of Aruba.

The asphalt runway is painted with specially designed marks and posts for Pattern competitions that indicate "the maneuvering area" for competitions. The field is opened every day for all the members who want to fly to practice or just for fun. On Sundays the majority of pilots are present from early hours of the morning until the late hours of the evening.



Show-off!  
There has to be one or two in every club!  
Upside down and low over the runway.



One of the disadvantages of flying in Aruba (other than the distractions caused by the odd thong bikini!) is when you miss the runway you end up in cactus.



And you guys thought that recovering a plane from a cornfield was bad! Rest assured that if... or should I say, when I go back to Aruba I will make a point of visiting their facilities. I will be enquiring on membership and guest status for this club or MAAC acceptability, just to be sure if I can bring a plane for the next vacation. Perhaps a small size combat plane could be fitted in a suitcase. (Two - 20 inches wing panels, detachable tail, ailerons and elevator... hum could it work?)

AYO ARUBA, I shall return!



Prick me – I am back in the real world. So let's talk club finance; I have not converted the accounting to the new software yet. I will do that over the next few months. I will be pleased to discuss club finance with you at the January 9, 2004 meeting. Also, I understand that Hans Paule was unable to attend the December 12, 2003 meeting and that his report on the verification (a.k.a. audit) of the books will be tabled at the January 9, 2004 meeting.

## Editor's note: *John Riley*

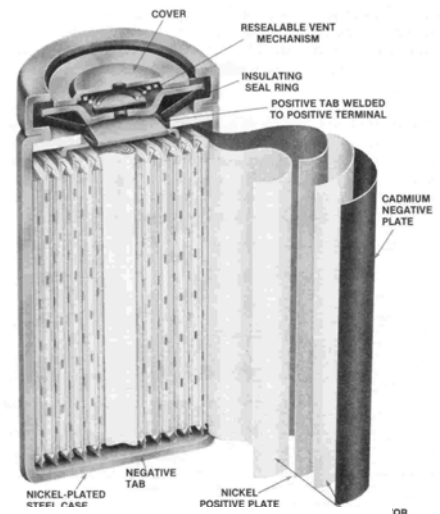
Members who get the *Flypaper* electronically will have noticed that we've changed things a little – instead of receiving a pdf file each month, Paul will email members a link to the new issue on the club website, from where it can be downloaded at members' convenience. There are a couple of reasons for this – Paul was spending a lot of computer connect time receiving the newsletter from me, uploading it to the website, and sending it out to members using two different mailing lists. Secondly, there were bounces from recipients who either have full mailboxes or an account unfriendly to attachments. Hopefully this won't diminish readership – we want you to be able to read the newsletter,

without it being a hassle. Please let Paul or myself know about any comments you might have about this arrangement, and if it works, or doesn't work very well, for you or others you know.

## Battery Basics

RC'ers typically have an elevated awareness about rechargeable batteries, probably since rather grim lessons can result when they're ignored, and possibly because the batteries used to be a little fussier than they are today. In recent years there seems to have been an explosion of portable devices that use them, and as a result there are newer cell chemistries available. They all rely on the reversible electrochemical oxidation or reduction of a metal while being operated in discharge or charge mode. Found also in all power cells are negative and positive *electrodes*, which are separated from each other by the aptly named *separator*, preventing shorts. The separator is porous, and soaked with, the (usually) liquid *electrolyte*, which is conductive. Here's an overview of the main types:

**Nickel-Cadmium (Ni-Cad):** The granddaddy of them all, Ni-Cads have been in service for over 50 years; the familiar Sanyo "Cadnica" appeared in 1963, and was the first sealed Ni-Cad power cell. In the charged condition the positive electrode is nickelic hydroxide, and the negative electrode is metallic cadmium. The electrolyte is a solution of potassium hydroxide. During discharge, as the cadmium is oxidized, electrons flow from it, through the electrical circuit, to the positive electrode, where the nickelic hydroxide ( $\text{NiOOH}$ ) is reduced to nickelous hydroxide ( $\text{Ni(OH)}_2$ ). Ni-Cads are regarded as the most durable rechargeable cell, able to withstand more physical and electrical abuse than other types. They self-discharge at a rate of 1-2% per day, and manufacturers (Sanyo, Eveready) claim that there is negligible memory effect in their modern Ni-Cads. The so-called "memory effect" in Ni-Cads appears to be a contentious issue, but there seems to be agreement that it was more of a problem with earlier generation batteries.



Construction of a Ni-Cad cell

**Nickel metal hydride (NiMH):** This is an extension of the Ni-Cad concept; the main difference is that the cadmium in the negative electrode is replaced by a hydrogen adsorbing metal alloy (the metal hydride). This allows for a 40% increase in capacity (energy density) of the cell. NiMH cells are less tolerant to over-charging than Ni-Cads, and have a higher self-discharge rate (3-4% per day).

**Lithium-ion (Li-ion) and lithium-polymer (Li-Po):** Lithium cells are pretty new, and they're attracting attention, particularly for electrically powered airplanes, due to their high energy density (twice that of Ni-Cads) and light weight. Because of the high electrochemical potential of lithium, the cells have the highest voltage available, typically 3.6 volts for Li-Po cells. The problem with lithium is that it is a seriously reactive metal, and it can exhibit bizarre and unsettling behavior, such as bursting into flames on exposure to water or air. Early rechargeable batteries using lithium chemistry employed metallic lithium, and these were found to be too dangerous. The answer, the Li-ion cell, was to do away with lithium metal, and use lithium ions instead, which are adsorbed onto a matrix that is typically graphite. The electrolyte in Li-ion cells, unlike other cells, contains no water but rather is an organic solvent with dissolved lithium salts. Li-Po cells were a further advancement – the functions of the separator and electrolyte are combined in a thin polymer layer that contains a small amount of gel like material. The electrodes and polymer material can be manufactured as a thin, sealed unit, so no heavy external case for the cell to guard against leaks is required. Li-ion and Li-Po cells have problems with extremes in over-charging and over-discharging however, which can cause high heat buildup and the resultant plating out of metallic lithium (with attendant risks), or the development of shorts. To prevent

this, Li-ion and Li-Po packs have built-in protection circuitry that will shut them down or limit their operation if temperature or current levels are exceeded. This has provoked some discussion in the RC community when these batteries are considered for radio use – the argument being that it might be preferable to land a crippled plane with dying batteries than to have it crash (perhaps at full throttle) because the batteries abruptly shut down. Also, specialized chargers are required for lithium cells. These considerations aside, Li-ion and Li-Po cells look like they'll be with us for a while, and are now widely used in high end portable electronic devices like notebook computers, PDAs, and digital cameras.

**Fuel Cells?** Something to watch for is the development of miniature fuel cells, again driven by the needs of fancy electronic digital toys. Fuel cells generate electricity directly through the oxidation of hydrogen (or a hydrocarbon) by oxygen from the air, mediated by a catalyst. Optimistic pundits suggest that soon we'll have fuel cell powered cell phones that don't need changing for a month (oh great, like we *really* need that!). Evidently, a fuel cell powered notebook computer will be on the market in a couple of years. Since these devices have changed battery technology for RC use already, perhaps fuel cell batteries are the next big thing for us.

## A Cheap and easy 12 volt power supply

There are lots of nifty RC chargers that can not only charge, but also discharge, cycle, and provide information about the battery status and capacity. One thing is, just about all of these “battery maintenance systems” operate on 12 volts DC – great for fast field charging, but awkward for home use. Reasons for this probably include the fact that it's cheaper, plus, the manufacturer escapes the need for UL or CSA certification, which is required for electrical devices that plug in the wall. A nice 12 volt DC power supply suitable for chargers can be made by simple modification of a computer power supply. Instructions for this can be found at [www.rcbatteryclinic.com](http://www.rcbatteryclinic.com), which is also a great source for battery information and charger reviews. It worked really well for me, and here's a step-by-step recounting of my experience:



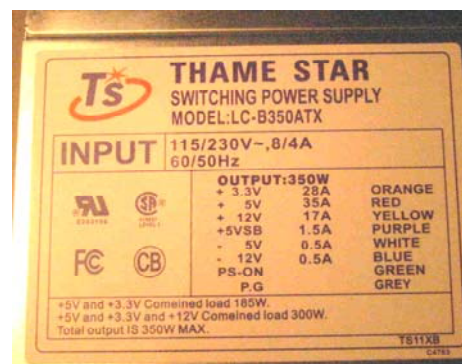
*A typical PC power supply: since bazillions have been made, price and availability are good*

1) Obtain a PC power supply. Most any kind will do, so with a little luck a surplus or free one can be removed from an old computer. Being both lazy and impatient, I went to a neighbourhood computer store and bought a new one for about \$35. Generally, they are small aluminum boxes with a fan and AC plug on one side, and a pile of coloured wires with connectors on the other.

2) Identify the wires and decide which ones are important. These are: +12 volts, the ground, “power good” (or “P.G.”), and, perhaps, “power on”. Most boxes have a label identifying the colour code for the wires; otherwise a little sleuth work with a voltmeter might be required.

3) Install terminals or binding posts (available at Radioshack) to the box, and fix about 3-4 of the +12v wires to the positive terminal, and ground wires to the negative.

4) Other connections: there's a diagnostic “power good” wire that should be connected to a +5 volt wire. If there is a “PS on” wire, connect it to ground.

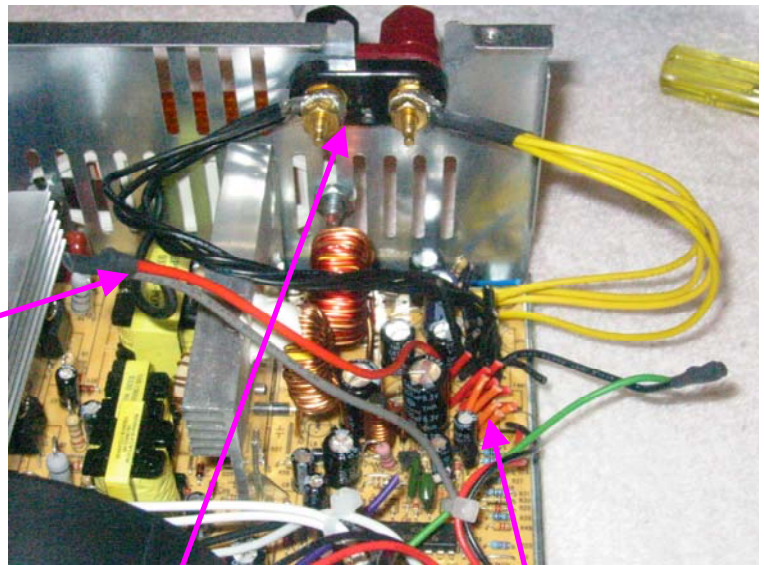


*The label on my unit clearly identifies the wires, and indicates that the +12volt wires (yellow) can supply a generous 17 amps.*

5) Attach a load from a +5 volt wire to ground. I used a Canadian Tire automotive amber running light (~ \$2). Others have suggested a 10 ohm 10 watt (or a 1 ohm 25 watt) power resistor – these should be mounted to the case for heat dissipation. This is required to get the power supply to work, and provide a full 12 volts. On my unit, the load might not be quite enough, as I get 11.8 volts, which nonetheless is sufficient for my charger.

6) The other wires can be clipped off near the circuit board so they won't be in the way.

Connection for: power good (gray), +5v(red) and load (black wire to front mounted lamp)



Terminal connection for +12 volts (yellow) and ground (black)

Trimmed excess wires



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The entire Flypaper production staff would like to wish everyone soft landings and a happy New Year...oh yeah, don't forget about filling out those MAAC forms...