



# SKYWORDS

EDITOR: Joe Fazzari

Published Date: April 11, 2017

## BACK TO BASICS

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I personally felt that the April General Meeting was the most productive meeting since I have joined the club. It allowed members to voice concerns that they have had on their minds. I compliment the members for taking advantage of this opportunity. Hopefully the club will not squander what was learned that evening.

On a personal note I have learned something that will hopefully make me a better member and much better at adding value to the club, whether as Editor of Skywords or in any other endeavour I take on, on behalf of the club.

For five years the late Bill Swindells, who I admired, and I had a running, healthy, mutually respectful but unresolved discussion regarding the content and format of Warbirds Over the Bay. It was only two years ago that I realized the reason for our differences was that I, as a very poor flyer, considered myself more of a spectator than a flyer. As a result, I looked at the event from the point of view of a spectator while Bill looked at it from the point of view of an RC Model Pilot.

This revelation and the open and frank discussion and comments during the April General Meeting made me realize for the first time that I have to get back to the basics that I now realize the members of the club have indirectly but rightfully been saying all along - focus on fliers having fun and leave the rest to fate.

Let's face it; members having fun flying RC vehicles is the "raison d'être" of the club.

The other thing that has "blown me away" is the level of interest, support, and input for Skywords that I am receiving from members of the club. I am both surprised and delighted that it is coming from members of all age groups, all experience levels, and both newer and veteran club members.

One member who volunteered to help out with the Summer Flying Circus Event seemed to be apologetic that he did not have the skills to do more. Nothing could be further from the truth. We have to recognize that we have members dealing with a whole spectrum of personal matters which will change with the different periods in their life cycle. The most any of us can do is our best under the current situation and that is good enough.

There use to be a commercial for Dofasco that stated: "**Our Product is Steel. Our Strength is People**". The more that I am involved with this club the more I think that our motto should be: "**Our Common Area of Interest is RC Flying. Our Strength is People**". [Actually I have an Editorial on this topic but the "Dragon Lady" is not pleased with it, so I have to re-work it.]



As a regular monthly feature, Skywords would like to focus on one of BRCMs members.

Let us know if you have a member you would like to know more about or better yet write and submit an article on yourself or some other member of the club.



This month's Focus member is a win – win.

Raed (pronounced rä ééd) Adlouni was born in a mid-east country and after working for 15 years in Dubai selected Canada as a home for his family and our club as a home for his hobby. I am sure that once you introduce yourself to him and talk to him for a few minutes, you will agree that these decisions are an obvious win for both Canada and our club.

Raed is married with two boys, aged 4 and 7 who are not yet interested in RC Flying, but then they have not yet met Trevor Brum and his two sons. He lives in Mississauga but chose our club after investigating the fields of various clubs.

His favourite flying machines are EDF Jets and he is pictured here with his EDF powered Habu 32X which has a 1070 mm wing span and is powered by a 12 blade EDF running on 6S producing 2.6 Kg of thrust

while drawing 76A. Driving the motor is an 80A ESC with an internal 5A BEC. The plane is equipped with 17g digital metal gear servos all around.

### SKYWORDS PUBLISHING SCHEDULE

ACTIVITY	DATE	TIME PERIOD
Monthly General Meeting	April 27, 2017	4th Thursday of Month
<b>FOLLOWING MONTH</b>		
Board Meeting Article Submission Deadline	May 2 2017	1st Tuesday of Month
Publish Skywords	May 9, 2017	2nd Tuesday of Month

### CONTACT SKYWORDS

**S**kywords has a new email address that you can are encouraged to use to contact the editors. The address is [brcmskywords@gmail.com](mailto:brcmskywords@gmail.com)



© Can Stock Photo - csp9048336

Tom Gwinnett has performed a great service to the club in raising money by acting as the auctioneer for donated equipment at some of our general meetings.

You may wonder where Tom acquired this valuable skill. Well now we know. See below.

This is something to see. **YOU REALLY DO HAVE TO WATCH THE VIDEO.** Italian Auction - only 44 seconds! You don't have to understand Italian to follow the auctioneer: A Chinese Ming Vase is up for auction. The bidding opens at a half-million Euros. Bidding is brisk and each bidder is clearly identified as each raises the bid by 100,000 Euros. (The exchange rate at auction time was 1

Euro = \$1.12.) Within seconds, the bid stalls at One million Euros, and the gasp from the crowd identifies the excitement that prevails in the room. The successful bidder is the last one who bid one million, and the auctioneer counts down the bid, "Going once, going twice, and sold to the gentleman sitting in front of me for one million Euros. Now, you are going to have to see the video for yourself. The auctioneer is exuberant. The pace is fast. This is how an auction should be run. Please note the excitement on the auctioneer's face after the final bid:

### [Tom's Mentor in Action](#)



**BRCM CLUB PATCHES**  
Are Still Available

**THESE ARE EMBROIDERED CLOTH PATCHES**

**COST = \$10.00**

Contact Joe Fazzari at [brcmskywords@gmail.com](mailto:brcmskywords@gmail.com)

Or

Speak to him at a Monthly General Meeting

# History!

**'This is wizard!' 100-year-old woman who flew spitfires during the Second World War celebrates her centenary by getting behind the controls again.**

**Mary Ellis was in a select gang of female pilots who flew during World War II. She has now celebrated her 100th birthday by flying a plane over West Sussex. Mrs Ellis flew next to one of the Spitfires she was in more than 70 years ago**

By Sarah Oliver For The Mail On Sunday

**PUBLISHED:** 09:03 +11:00, 5 February

2017 | **UPDATED:** 10:00 +11:00, 5 February 2017

Mary Ellis (pictured during her time as an Air Transport Auxiliary pilot in WW2) has celebrated her 100th birthday

Tearing through the skies above the South Coast, two Spitfires evoke powerful memories of Britain's war-time resilience.



**PLEASE READ FULL ARTICLE**

**LEFT:** Mary Ellis actually delivered the Spitfire flying in formation off her left wing.

# Links you have to see!

Members have been sending Skywords links to some very interesting articles and/or videos. Skywords will share some of these in this section starting with this issue.

Please keep it up.

## RC AT NASA



A MUST SEE VIDEO

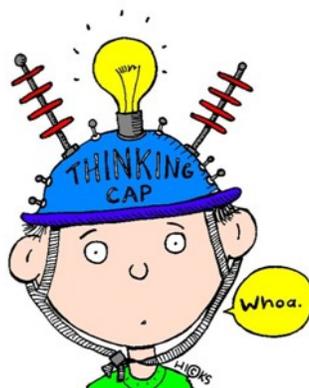
### FROM BUTTERFLIES TO BLACKBIRD

A presentation by the author of  
SLED DRIVER

THE FLYING McCOYS

BY GARY & GLENN McCOY





# Editorial

By Joe Fazzari

NOTE: The views expressed in the editorial are those of the author and may not be the views of the Burlington Radio Control Modelers Board, Club Members, or Skywords Newsletter staff.

It appears that I am on the MAAC Web Site as a contact for Radio Control Beginners. I think it is because I was made a member of the MAAC Beginners Committee as a result of my work on the School Youth RC Program that I initiated a few years ago.

As a result of this, I recently received that following email request:

-----  
Name: [REDACTED]  
MAAC Number:  
Email: [REDACTED]@a  
Subject: Drones place in MAAC

-- Start of Message --

Hi Joseph,

Im wondering if you have any insights about mulirotors flyers as part of MAAC. I been a member of MAAC for 2 years now but I don't see allot of information about how multirotors except a passive mention here or there.

For example are there clubs that take in mulirotor pilots? Or how does it work.

Thanks  
[REDACTED]

-- End of Message --  
-----

I have been involved in both formal and informal discussions related to this subject. I wanted to be of some assistance and to me it doesn't make any sense to forward the message to someone else as each time an additional action is taken there is the possibility of

the message being lost and not answered or not answered in a timely manner. Besides that, I didn't know who to forward it to that was in a position to give a better response than me without taking it to committee.

In addition, if I am on the MAAC Web Site as some type of contact I should either be able to complete the task or remove myself as a contact. I also think that all RC flyers try to be of assistance when and where they can rather than pass interested individuals down the chain.

So I replied as follows: (PLEASE NOTE THAT I HAVE REMOVED TEXT THAT IS NOT PERTINENT TO THE POINT I WANT TO MAKE.)

-----  
**From:** Joe Fazzari  
[mailto:[jfazzari1951@gmail.com](mailto:jfazzari1951@gmail.com)]  
**Sent:** Thursday, March 16, 2017 1:56 PM  
**To:** [REDACTED]  
**Subject:** Re: Website Contact Form - [REDACTED]  
Drones place in MAAC

[REDACTED]:

You have asked a very logical, reasonable, innocent question that should have a simple answer but in my opinion is the tip of the ice berg in that 90% of it is hidden under water.

I firmly believe that the club should have what I call Standard Operating Procedures on key items such as the one you just raised. That way I could tell you what the club policy is and/or refer you to this document.

I don't know if you have been at our main flying

field at Bayview Park on King Rd or not. We are 3 sites. One for control line, one for helicopters and vehicles that focus on hovering maneuvers which can include multi-copters, and one that was initially intended for fixed wing but allows helicopters and multi-copters provided they do not hover but join a semi-circular pattern that fixed wing aircraft must follow and the direction of which depends on the direction of the wind.

NOW to answer your question, we do allow and support the flying of drones. We have many members who have them. They can fly as stipulated above. We have talked about setting up some type of training but basically have decided that multi-copters are so easy to fly relative to fixed wing or helicopters we can't see what would be included in a training program.

Apparently the difficult part is the initial set up. So what we decided was that if a multi-copter flyer wants to join, we will simply team them up with a current multi-copter flyer who is a member and knowledgeable of the craft to help them set up their vehicle and educate them with regard to the club and field rules which must comply with MAAC, the Ministry of Transportation, and the City of Burlington By-Laws.

SO THE ANSWER TO YOUR QUESTION IS: We have, support, and welcome multi-copters and their pilots. We do not have a specific program for them but can customize one for them.

Regards,  
Joe Fazzari

Now, I must say that I was pretty pleased with myself. I had done my good deed for the day and satisfied what I thought the world demanded of an RC pilot – even a poor flyer like me - but that wasn't the point.

In an attempt to assist a potential member I had passed on information, to the best of my recollection that was the result of formal discussions on the topic with knowledgeable club members.

The point is, that if we took the time to discuss the subject and came up with a reasonable course of action, why is it not formally documented and commu-

nicated as the club position on the topic? What would happen if this question was asked of a member who was not party to the formal discussion as I was? Next year if those responsible for responding to such a question were not privy to the formal discussion, is it going to have to be redeveloped? Are we going to have to re-invent the wheel every two years or so?

It may not be the ultimate solution and call me crazy, but it sure sounds like a good starting point to me. So why is it not the OFFICIAL CLUB POLICY and if it is not satisfactory why is it not the starting point of the conversation to develop the Official Club Policy so we can put the matter to bed until something changes requiring us to re-visit the matter?

### UPDATE

I wrote the preceding editorial in late March and I must say I felt pretty good about it. I even offered to develop a process for the club to review.

I then went to Toledo where I discussed the item with one of our club members who said something that started me thinking. I REALLY HATE WHEN SOMEONE CONFUSES ME WITH LOGIC but I had to take a second look at my position with regard to RC Quads.

One of my most exciting jobs was working for GE when Jack Welsh was the CEO. His business plan was simple - for GE to be in any line of business, they had to be either number 1 or number 2 in the world in that particular line. If not, they would sell the business. During his tenure the market value of GE rose 4000%.

No one or no thing can be all things to all people. We have to focus on specific areas and be the best in those area. BRCM was set up for fixed wing aircraft. The club branched out to Helicopters and 3D flying. It is difficult enough to satisfy the demands and needs of these three distinct groups. Quad Copters represent a whole separate group of issues that are far different than our current focus and would best be served by an organization and management structure aligned and dedicated to their requirements at a field dedicated to their flying style.

I now feel that we should not allow quad copters to fly at our fields. PERIOD. We may have to grandfather those members currently flying these units but we should not accept any more members who intend to fly them nor should we allow any current members to branch into this area at either field.



# Letter to the Editor

## WE WANT LETTERS

E-mail: [brcmskywords@gmail.com](mailto:brcmskywords@gmail.com)

Subject Line: Letters to the Editor

### LETTERS TO THE EDITOR GUIDELINES

Please keep letters to 250 words. Include your full name.

We reserve the right to edit, condense or reject letters.



“A true test of manhood” said the eunuch.



# SHOW N Tell

John Cook tells us that the F 5 is a V MAR A R F. It is around 15 years old and was hanging in some guys shop because he liked the jet. It was bolted together and there it hung.

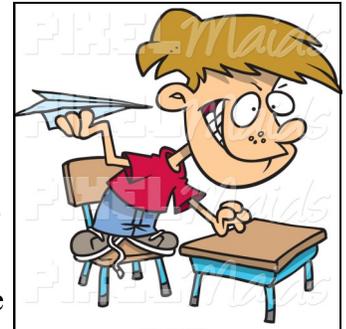
When it came up for sale John bought it and typical to him he immediately made many modifications to it. He re glued everything, re designed how the elevators worked, doubled the rudder, made flaperons out of ailerons and changed the fuel tank location.

He designed and built a new belly pan and added some red trim and a 75 O S engine. It weighs 10 lbs. and has 721 square inches of wing area.



Laddie Mikulasko is seen here standing between the Northstar/ Polaris models that he designed and are celebrating their 30 year anniversary this year.

If you remember Laddie and these models were featured in our March Issue of Skywords.



**ABOVE:** Artists conception of Laddie in his youth



Nicholas presented his 50 cm wingspan, scratch-built micro-shocky weighing in at a whopping 98g AUV. Its powered by 3 x 120mAh 1s batteries, a 6A Plush ESC and a 13g 1600 kV motor with and EP 5030 prop.

Three 2g servos control ELE, RUD and AILERONS. Its made of 2mm depron with a BBQ skewer for wing strength.

Some bits of 1/32 ply give extra support where needed and as a joiner for the elevator.

This is a 1/2 scale version of the original design by my colleague "Straight-up" (Lawrie Henrickson ) which I used to learn to fly after "almost" getting my wings at Oakville Model Flying Club. I practised all winter with the shocky and learned how to handle a plane in the wind with Lawrie by my side. I got my wings first day back in the spring.

This micro-shocky is quite an agile little plane with its CG over the CL. It took a couple of evenings to build.



# FEEDBACK

Since the February Edition of Skywords was published we did receive some feedback in response to our request. To our surprise we also got quite a few new ideas. I will summarize both at this time:

## FEEDBACK ON SKYWORDS FORMAT AND CONTENT

### Regarding Format:

One member made some excellent observations with regard to the format. One of the issues dealt with my use of boxes or frames around text boxes and pictures. He said that he found this distracting and made it hard to read for him. I tend to use boxes because I like things clearly delineated, but per the members comment leaving “white space” may be a better format.

In this issue I have tried to use a bit of both. Let me know what you think and which you prefer.

This member also said that he finds changes in font distracting. In the last issue I attempted to use a different size font and bolding for titles and to put quotes from members in italics.

### Regarding Length:

One member commented that when he opened and saw how long it was his initial comment was “Oh no, here we go again”. But he enjoyed the content so much that he did not complain about the length.

The general consensus seems to be that the length doesn't matter as long as it remains interesting. One member suggested that it is totally up to the editor. If he is on holidays and doesn't feel like putting a lot of time into it, then make it short. If there is lots of interesting content make it longer.

It seems reasonable to target 20 pages total which includes 2 pages for the GM minutes for the near future and then to re-evaluate at some point. Let's see how that works. A lot will depend on how much and what type of material is supplied by you the members. We have a few members who have been very generous. We always need more.

## NEW IDEAS FOR SKYWORDS AND BRCM

### Regarding FlyMate of the Month:

A member asked why I did not use pictures of girls to highlight this feature. I told him that I initially had intended to use images of WWII nose art but The Dragon Lady said “NO!!!” I argued that the use of the nose art was actually historical but to no avail.

Below is a sampling of the nose art I was looking at.



### Regarding Monthly Centre Fold or Calendar:

Another member suggested that we have a centre fold with a picture of a club member or better yet we put out an annual calendar similar to the Firemen and sell it to raise money for the club. Another member who overheard this said that we can give such a calendar away as a prize along with some Dramamine. A third member said that we would probably make more money if we asked people to pay NOT to receive such a calendar. The concept sounds good to me. What do you think?

Included is an example of what the centre folds would look like. Please send all pictures to [bremskywords@gmail.com](mailto:bremskywords@gmail.com). If we get enough pictures we can make a coffee table book.

### Idea for a New Column:

It was suggested that we add a new column titled “CHICKEE GOSIP”.

### Regular Bayview Fun Fly and BBQ:

One of the better ideas was to have a regular (weekly, bi-weekly, monthly) Fun Fly and hot dog BBQ at the Bayview Field during the evening hours in the middle of the week – probably Thursday – throughout the summer months. Ideally this would be free of charge. We have all the equipment including fridge and freezer.



What can possibly go wrong?

## FEEDBACK PART DEUX - WHAT IS THE ANSWER?

The Feedback Article on the previous page was completed when I received the following valid feedback from a very active and we'll respected member othe club. This was later passed on to me verbally by another member.

*I think you should consider keeping Skywords in line with previous years. Limit it to only things RC related. Show and tell, club events, maybe one additional article like the one about Laddie. Keep it to a few pages. Anything not related no matter how fun or funny or of general interest shouldn't be included. Try to imagine reading Skywords from the perspective of a non member only interested in the hobby. They would likely read only the hobby related stuff and ignore the extra content.*

I think it safe to say that this is contrary to previous input, and the fact that we have different views proves that we have a healthy club environment. It, however, raises a number of points with which you may not agree but must be tabled.

### What is the Role of a newsletter?

My response to the above input was as follows:

*I came to the realization at the March General Meeting, (see front page article – Back to Basics ) that the club had to get back to basics which the membership has been telling us all along. Having said that, Skywards is for the sole entertainment and benefit of the members so that is who we should focus on. If non members want to read Skywords great but that is not our concern unless we are going to use it as a recruiting tool. Secondly we have a vehicle that can be used for education and addressing social related issues. Is it morally acceptable not to take steps in this regard? As an example: would you say that including the article titled The Five Monkey Experiment in the February 2017 issue was ill advised?*

In addition, I see it beneficial to the club to include topics or articles that are somewhat controversial to get members talking about specific items. Hopefully their conversations will reveal a tid-bit that might be of value to the club.

### Mary Poppins was only practically perfect.

The feedback along with what I observed at the last GM as well as many previous GM's and board meetings is that we are looking for the perfect solution to every problem and will not plot a course of action until we come up with it. The problem is that it does not exist. The best one can do is to give everyone an opportunity to comment and provide input. Then based on the input and information you have at that moment in history make the best decision possible. If you get new information the next day you may have made a different decision but you can't hold off making a decision because something new may become available on some future “next day”.

Perfection only exists in our mother's perception of each of us.

**Editors Note:** I plan to circulate a survey within the next 4 to 6 weeks using the free version of Survey Monkey to determine the members interest in various parts of Skywords. The free version limits me to 10 questions so I will have to make sure that they are well planned to provide useful data.

Also, I have been using blue text and blue boxes to denote site comments and provide background to Skywords publishing standards. I will shortly solidify these and at that time the use of such boxes will not be necessary.

# Toledo RC Show 2017



My trip to the Toledo RC show for 2017 was an immediate success with the first booth I visited on the Swap Meet Floor, where I met Moe Mabrouk and his lovely family.

Moe is concerned that our hobby is dying because it is over weighted in senior citizens and is not being picked up by the youth who seem to be more interested in computer games.

As a result he has designed plane kits that are affordable by the youth and can be used to learn the principles of flight.

This dovetails perfectly with my efforts to introduce a program at the secondary school level.



ABOVE: Mike Block's F4 Phantom placed 3rd in the JET category. Helmut Schmitter placed 3rd with is RV-4 in the Non-Military Sport Scale category. (MORE PICTURES NEXT ISSUE)



# Wing Mate of the Month

## Wing Mate of the Month



**BELOW:** Canadair CL-84 Dynavert Serial number CX8402 on display at the [Canada Aviation Museum](#) in Ottawa, Ontario

Role	experimental VSTOL
National origin	Canada
Manufacturer	Canadair
First flight	7 May 1965
Introduction	in test evaluation
Retired	1974
Status	retired
Produced	1964–1972
Number built	4



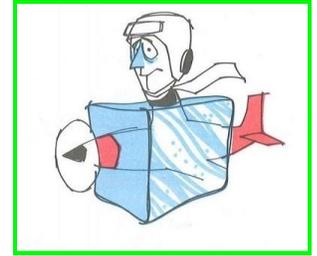
Here at Skywords, we were so blown away by Nicholas Jacob's Canadair CL 84 presented at last month's SHOWnTELL that we decided to feature it as our WingMate of the Month.

The **Canadair CL-84 "Dynavert"**, designated by the Canadian Forces as the **CX-131**, was a V/STOL turbine tilt wing monoplane designed and manufactured by Canadair between 1964 and 1972. Only four of these experimental aircraft were built with three entering flight testing. Two of the CL-84s crashed due to mechanical failures, but no loss of life occurred as a result of these accidents. Despite the fact that the CL-84 was very successful in the experimental and operational trials carried out between 1972 and 1974, no production contracts resulted.

# RC Winter Down



# South



## WINTER RC-ING IN MEXICO

By Joe Fazzari

to the beautiful pools and sandy ocean beach, it had a beautiful lagoon system consisting of clear water and beautiful species of fish.



Last month Ted Pritlove submitted an interesting article on flying at his winter retreat in Naples, Florida.

This year we brought one of our children with us and picking the destination was easy. In fact, my wife picked it; so who was I to argue.

This month, I would like to talk about my RC experience during my week of escape from the grip of old man winter.

Now, I love being around water and although I enjoy it for a period of time I find it hard to sit still for a long period of time on the beach or by a pool. Once the destination decision was made, I immediately headed down to Skycraft Hobbies, where Andrew recommended an RC Sail Boat for me to bring along. The criteria that the boat had to meet were:

- It would fit in my suit case
- It was reasonably priced
- It was a racing class model boat

Even though I knew nothing about sailing, other than what I learned watching the movie *Mutiny on the Bounty* with Marlon Brando – twice- I truly enjoyed the experience and will bring my boat on all future visits. The boat sails according to all the laws of physics of a real boat. I'm going to have to get Doug Edwards to give me some lessons on sailing before I head down there again.

My wife and I first visited Mexico in November 2015. She usually plans vacations but was busy so I was left to do it. I spent days scouring the books of resorts supplied by the travel agent. I finally picked one because it had 12 or 14 restaurants in addition to lots of vegetation and water; having grown up in this environment in Northern Ontario, it was perfect for me. When we got there the native animals were an unexpected bonus.

The following is a link to the boat I used properly rigged and sailed by an experienced captain.

What intrigued me about this resort is that in addition

[https://ca.video.search.yahoo.com/search/video;\\_ylt=AwrBTzH3ZslYmHIAPxTrFAx.;\\_ylu=X3oDMTByMjB0aG5zBGNvbG8DYmYxBHBvcwMxBHZ0aWQDBHNIYwNzYw--?](https://ca.video.search.yahoo.com/search/video;_ylt=AwrBTzH3ZslYmHIAPxTrFAx.;_ylu=X3oDMTByMjB0aG5zBGNvbG8DYmYxBHBvcwMxBHZ0aWQDBHNIYwNzYw--?)

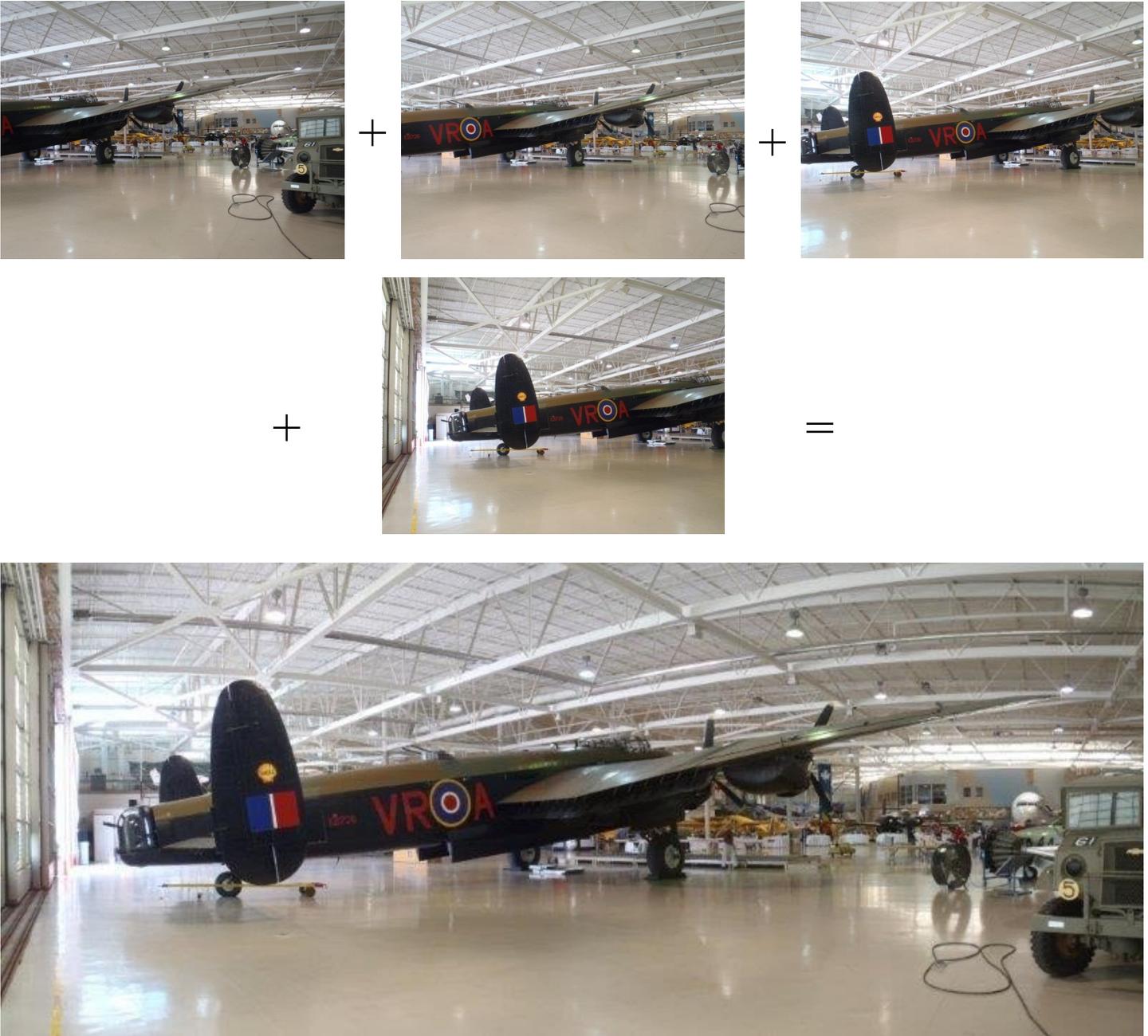
John Zellmann has brought two pieces of free photo software downloads to our attention.

MicroSoft ICE (Image Composite Editor)

Excellent software

Stitches pictures together

Good for panoramic pictures or joining successive pictures of parts of large plane



Video Edition virtual dub with add on filter DeShaker which is excellent for taking shakiness out of a video.



# Cook's Corner

In the air museum at Ottawa there sits a beautiful CL-84, #402, the one shown in all the propaganda and clips in all its glory.

The CL-84's experimental "tilt-wing" design was an attempt to produce an aircraft that would combine vertical take-off-and-landing with a low-speed, fixed-wing capability. Canadair broke new ground with this design. Four CL-84s were constructed. Even though two crashed through mechanical failure, with no loss of life, the design was considered a success. No production contracts were procured and work on the design was halted.

The Dynavert featured a wing that could be tilted through 90 degrees, complete with two engines swinging large propellers. Vertical take-off was accomplished with the wing tilted. The transition to normal winged flight was accomplished by slowly returning the wing to a horizontal position. This procedure was reversed for vertical landing.

The CL-84 was designed and built in the late 60's early 70's by Canadair Ltd. In Montreal for

- Armed Tactical Support
- Helicopter Escort / Support
- Search and rescue
- Surveillance / Reconnaissance
- And more.

## Current Location:

*Vertical Flight Exhibition, Canada Aviation and Space Museum*

## Provenance:

Donation from Canadair Ltd.

This CL-84, the third prototype, was manufactured by Canadair Limited in Montreal in 1969. Though it was ground tested in 1969, it did not fly until September 1972, when test flights involving Canada, the United States and the United Kingdom began.

Starting in Canada, testing moved in December 1972 to the U.S. Navy Test Center at Patuxent River, Maryland, where the aircraft remained for most of the next eighteen months. Test exercises included the first convertiplane transition from conventional to hovering flight under blind flying conditions, which took place on April 5, 1973. Trials were also carried out from helicopter carriers USS *Guam* and USS *Guadalcanal*. In all, 196 test flights were completed, totalling over 169 flying hours. Without a market for the aircraft, the program was abandoned in 1974.

Canadair stored the CL-84 over the next decade, donating it to the Museum in 1984. Airtech Canada Aviation Limited of Peterborough restored the aircraft between July 1993 and October 1994.

## Technical Information:

Wing span	0.6 m (34 ft 8 in)
Length	16.3 m (53 ft 7 1/2 in)
Height	5.2 m (17 ft 1 1/2 in)
Weight, Empty	3,980 kg (8,775 lb)
Weight, Gross	6,577 kg (14,500 lb)
Cruising Speed	497 km/h (309 mph)
Max Speed	517 km/h (321 mph)

## Building a 1/12 semi-scale CL-84

I'm a scratch builder from when I was 14 designing and flying C/L, and to me, there is only one way to have one of these birds - build it myself.

Enter OpenAero VTOL - a present to us VTOL enthusiasts from Happy Sunday (David Thompson), and the equally talented Ran D St. Clair. If you don't know already, Happy wrote the code, and Ran tested and documented it and continues to provide great support and enthusiasm to us all. OpenAero VTOL is a free user-configurable software for any type of VTOL aircraft that runs on Hobby King KK2 Flight Controller board - available for \$20.

I have scavenged lots of documents including an operational manual, but have no blue prints or other technical documentation. I have a "3D view" drawing which looks like a plan from a plastic model. There are some errors based on the photos I have of the real thing - anyway its plenty good enough for my 1/12 semi-scale prototype.

Having visited the Ottawa Air Museum a couple of summers back, I have a lot of pics. I contacted the curator and they have manuals which I'm free to copy or take pictures of - the catch - get back to Ottawa on a Monday or Thursday ! Well, before I attempt any kind of large scale ... I'll build a 1/12 scale first

My plan

- Use OpenAeroVTOL (KK2) for the flight controller
- Basic foam sheet construction
- Use constant velocity (variable pitch) main rotors and rear rotor
- Tilting wing with coordinated tilting stabilizer (using documented curves)
- Working rudder and elevators
- Working flaperons; coordinated deflection with wing tilt (using documented curves)
- Main motor assisted yaw; coordinated with wing tilt deflection (guided by documented curves)
- Retractable gear
- Lights

Although the real CL-84 has leading edge slats (also coordinated with wing tilt) I won't be putting them on this model. I'm also using hinged flaperons, not slotted flaps like the real model.

I'm using a Taranis Tx with Frsky 8XR RX, mode D4 - CH9-16 with telemetry on PWM, and s.bus to KK2 CH1-8. I'll use CH9-16 for Wing Tilt, and other things, while using s.bus for the KK2 inputs of ELE, THR, AIL, RUD & AUX. A total of 13 channels on the Tx will be used.

The real CL-84 also has a 10 degree REAR tilt, which I will eventually like to try out. However, I think flaperon tilting may yield ample slow rearward flight.

The stabilizer tilt angle is basically a bell-curve based on the Wing Tilt angle where the angle ranges from 1 to 40 degrees where its maxed out at about 50 degree wing tilt angle and zero at both 0 and 90 degree wing tilt angle.

I have two ( home-made, variable pitch, from 600 Heli tail rotors, direct driven) main motors and a variable pitch tail motor (direct driven 450 heli tail rotor). (I cannot do the contra-rotating CV tail prop :< )

These motors all run on governor mode. Using a THR cut feature on the TX I can get away with a flat line pitch curve to get the desired 6000 R.P.M. and have it spin up once THR hold is released (after arming the KK2 of course ! ).

I plan to add optional steerable retracting landing gear and lights. Also the CL-84 has a centre LE flap which sticks tight to the fuselage until 24 degrees of Wing tilt where it hangs in that position. That may just be a spring-loaded setup with a stop, or a KK2 curve and servo. The CL-84 also has LE flaps which deploy between 10 and 70 degrees wing tilt. A bit much on this 1/12 scale model. That will have to wait for a bigger

bird.

I'm at the point now where I have power tested the main motor units and tail rotor assembly and have a very base body constructed. Ready for the wing tilt frame to be installed. The wing is ready for the motor mounts and tilt bearings to be installed and then top-covered after the tilt assembly frame (sides, bottom inside fuselage) is assembled. I have a 10kg digital servo I will use for controlling the wing tilt.

I'm designing as I go. Dry fitting, refining and onto the next puzzle. I have the wing tilt/servo design in my head and am thinking about the tail tilt..

Like I said, no plans. Just a really nice drawing, likely from a plastic model. There are 3 views with section shapes. I've build planes from scratch from far less detail. There is some discrepancies, especially around the tilting stabilizer, as the drawing clearly does not show the same bottom mounting that my photos show. I'll have to "wing-it".

The rear propeller is a tail boom directly driven 450 Heli tail rotor. I mounted it on a paint stir-stick. I'm using a motor with 4mm shaft coupled to the torque rod via a universal drive from an electric boat.

The variable pitch drives are made from a hobby king 35 sized motor, a 4 to 5 mm coupler and a hacked up 650 metal heli rotor. I have detailed step-by-step pictures of how to make this, which I will post a little later on in the build.

Pitch is controlled by a digital servo. Throttle is controlled by a 40 A DLUX ESC from HK, running in governor mode. This thing is so smooth as you can see /hear in the video.

### **Open Aero VTOL Block Diagram and System Control**

OAV has 5 inputs for AIL, ELE, THR, RUD, AUX. AUX controls the setting for P1 ->P2. (Hover to Fast Forward Flight – and its proportionally mixed between the modes).

YAW, ROLL and PITCH will be controlled by feeding appropriate mixes RUD, AIL and ELE sticks based on the Tilt angle of the wing.

The wing tilt angle will be controlled as discussed previously, and output roughly (depending on servo end positions) between -100 to 100 will equate to 0 through 90 degrees of wing tilt.

Flaperons will be flaps (0 - 45 degrees down) or Ailerons (0 - 9 degrees) depending on flight mode P2 (Fast Forward Flight) or P1 (Hover) modes. Flaps also deflect based on a bell curve according to wing tilt angle.

Stabilizer tilts based on a curve according to wing tilt angle.

Elevators and rudder function normally and are operational in all modes. However they are ineffective as the wing angle increases towards hover mode.

Hover mode pitch is controlled by the rear constant velocity motor, which is operational when the wing is at 15 degrees or higher tilt angle. Pitch controls the power and is set by OAV automatically for auto-leveling and by the ELE stick.

The main constant velocity motors are run in governor mode by the same channel to obtain approximately 6000 R.P.M. (per my earlier video). Since this is a flat line, I can set a TX channel to the desired output to set it. This would be coupled with a disabling throttle hold switch. When the FC is armed and throttle hold is released, the motors will run up to the set speed.

Power is controlled by increasing the pitch on the propellers. In hover mode all three motors are running with

pitch adjusted proportionally to maintain level attitude by OAV configuration.

Roll is controlled by ailerons in forward flight, and by differential pitch on the main motors as the wing tilts up.

Yaw is controlled by rudder in forward flight, along with differential pitch on the main rotors. Yaw is controlled by ailerons gradually as the wing tilts up.

A centre leading edge flap will be held tight to the top of the fuselage from zero to about 24 degrees tilt of the wing, where it will hang fixed in its position while the wing tilts all the way up.

Currently, I have the motors built and tested, wing tilt designed, built and tested, transmitter base programming done for wing tilt, flight mode, flap curve and stabilizer curve.

Visit my RC Groups build log for more information.

See you on the flight line.

Cheers  
Nicholas

References:

CL-84 SCRATCH BUILD; OPENAERO VTOL; CONSTANT VELOCITY PROPS  
(RC GROUPS)

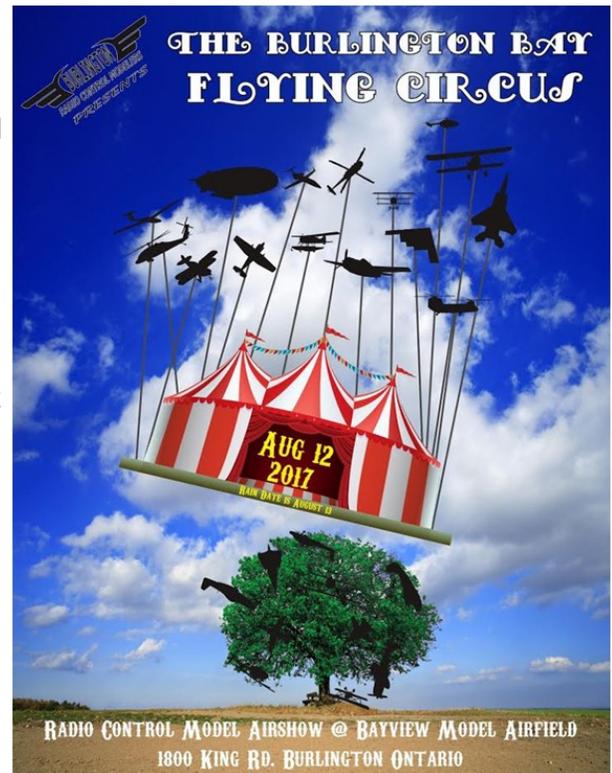
<https://www.rcgroups.com/forums/showthread.php?2829016-CL-84-scratch-build-OpenAero-VTOL-Constant-Velocity-Props>

OPENAEROVTOL WITH TRANSITIONAL MIXERS (PERFECT FOR VTOLS)  
(RC GROUPS)

[https://www.rcgroups.com/forums/showthread.php?1972686-OpenAeroVTOL-with-transitional-mixers-\(perfect-for-VTOLS\)](https://www.rcgroups.com/forums/showthread.php?1972686-OpenAeroVTOL-with-transitional-mixers-(perfect-for-VTOLS))

Tiltwing Versatility (video 14 min, 50 sec)  
(Demonstration of capability including Aircraft Carrier Landing)

<https://youtu.be/iCd2FqTJKs0>



There were some comments made at the meeting about “3s” power. Electric power systems have so many variables to consider than glow, and are inherently more complex to understand. What power? What Voltage? What KV on the motor? These are all the questions that one needs to consider. The number cells are in the battery alone means nothing. Motors do not have cells and are not voltage limited. Current (Amps) incurs losses as  $(I^2 * R)$  whereas Voltage does not - its “built in” power. The higher the voltage, the lower the current (Amp) needed to achieve a certain power.

In other words you have a more efficient power system with higher Voltage and lower Amps than with higher Amps and lower Voltage. So yes, I power the little motor with 3s - 3 x 120 mAh in series. This means there is less current draw on the ESC, which means it will not heat up as much. On larger aircraft, it also means I can use a much cheaper ESC as the lower Amp rated ones which can handle the higher voltage are cheaper. It also means that the whole power system runs cooler, more efficiently and therefore more reliably than one with the same power capability using lower Voltage (less cells) and more current (Amps).

Nicholas Jacobs

# Hot Off the Presses

Many of you are probably not aware that a distinguished member of our flying club is, in addition to his many other accomplishments, now a distinguished author. He writes under the nom de plum Up N. Away and his new release which shares his insights into the game of golf will be available shortly at all questionable book stores at the very reasonable price of \$129.95. This is a great price based on the wealth of information that appears to be tailored for our members. It is very unusual for someone who plays at his level to share the secrets to his success, his accomplishments and his game. Below is a listing of the table of contents from the book titled Balls, Planes and Heavier Than Air Flight.

**CHAPTER 1 HOW TO PROPERLY LINE UP YOUR FOURTH PUTT**

**CHAPTER 2 HOW TO HIT A NIKE FROM THE ROUGH WHEN YOU HIT A TITLEIST FROM THE TEE**

**CHAPTER 3 HOW TO AVOID THE WATER WHEN YOU LIE 8 IN A BUNKER**

**CHAPTER 4 HOW TO GET MORE DISTANCE OFF THE SHANK**

**CHAPTER 5 WHEN TO GIVE THE RANGER THE FINGER**

**CHAPTER 6 USING YOUR SHADOW ON THE GREENS TO MAXIMIZE EARNINGS**

**CHAPTER 7 WHEN TO IMPLEMENT HANDICAP MANAGEMENT**

**CHAPTER 8 PROPER EXCUSES FOR DRINKING BEER BEFORE 9AM**

**CHAPTER 9 HOW TO RATIONALIZE A 6 HOUR ROUND**

**CHAPTER 10 HOW TO FIND THAT BALL THAT EVERYONE ELSE SAW GO IN THE WATER**

**CHAPTER 11 WHY YOUR SPOUSE DOESN'T CARE THAT YOU BIRDIED THE 5TH**

**CHAPTER 12 HOW TO LET A FOURSOME PLAY THROUGH YOUR TWOSOME**

**CHAPTER 13 HOW TO RELAX WHEN YOU ARE HITTING THREE OFF THE TEE**

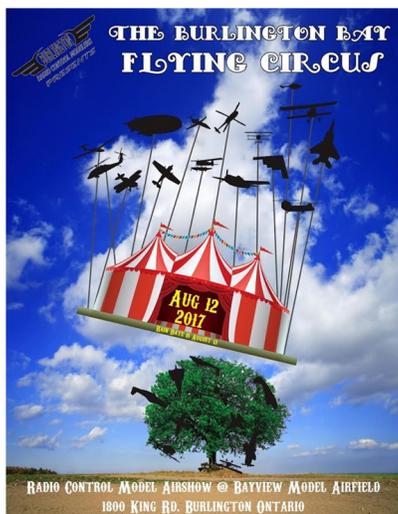
**CHAPTER 14 WHEN TO SUGGEST MAJOR SWING CORRECTIONS TO YOUR OPPONENT**

**CHAPTER 15 GOD AND THE MEANING OF THE BIRDIE-TO-BOGEY THREE PUTT**

**CHAPTER 16 WHEN TO REGRIP YOUR BALL RETRIEVER**

**CHAPTER 17 CAN YOU PURCHASE A BETTER GOLF GAME**

**CHAPTER 18 WHY MALE GOLFERS WILL PAY \$7 A BEER FROM THE CART GIRL AND GIVE HER A \$3 TIP, BUT WILL BALK AT \$5 AT THE 19TH HOLE AND STIFF THE BARTENDER**



# The Burlington Bay Flying Circus

Input from the BRCM members have now allowed us to firm up the major details of this summers planned major club event. The following is a summary of the event details in no particular order.

- We will re-focus the funds that have been used in the past to advertize the summer event to pilot to advertize to spectators. Pilot advertizing was in the MAAC Magazine which targeted a national audience which is not our target market for pilots. In making this decision we realize that our true market for pilots, in addition to our own club, consists of the clubs in our immediate area. We are confident the void left by the loss of the pilot network of our dear friend, the late Bill Swindells, will be filled by new pilot networks that we have established.
- All volunteer positions for the event have now been filled and we have no need of any additional volunteers. We would like to thank all those who have made themselves available to serve both the club and the community at this event.
- We intend to develop a spectator feedback mechanism and vehicle to provide information for the promotion of the event within the community in future years as well as comments that will assist with the improvement of the event in a manner similar to that employed by the Toronto Honda Indy.
- Due to the associated costs, the requirement for high spectator participation required to justify those costs, and the apparent lack of interest on the part of the general membership we will not proceed with the full implementation of the carnival portion of the event as outlined in previous issues of Skywords and in more detail at the March General Meeting . We will, however, implement the Penny Auction to test its effectiveness at raising money. We will also set up one carnival type booth for the purposes of test marketing.
- At this time we see the days schedule as follows:

8:30A.M.	Pilot's Meeting
9:00 A.M.	Open flying for all Pilots
10:30- 11:00 A.M.	Hot Dog Challenge Event # 1
11:00 A.M.—Noon	Open Flying for all Pilot
Noon—1:00 P.M.	NOON TIME SHOW
1: P.M.—3:00 P.M.	Open Flying for all Pilot
3:00 P.M.—3:30 P.M.	Hot Dog Challenge Event # 2
3:30 P.M.—4: P.M.	Prizes/Closing
4:00 P.M. onwards	Open Flying for all Pilot



# SALE

## AUCTION

DATE : Saturday April 22, 2017  
 TIME: 10:30  
 WHERE: 39 Maple Ave. Greensville (Dundas)  
 CONTACT: Jim McCartney 905-689-8778

[Click for more details and pictures](#)

### SIGNIFICANCE:

Among the many things up for auction are 4 RC Planes consisting of 1) Four Star 60, 2) Twin Star N6 18 AP, 3) Telstar 40, and 4) Helicopter Rotor 30 Class

Align T-Rex 600EFL Pro (super combo) the heli is completely stock. Never been crashed and very few hours actually flying. Mostly hovering and sport flying. No 3d style flying at all. Looking for \$550 or best offer. Also includes Align 600 carrying bag. And can include Align Pitch Gauge, K&S blade Balancer, ball link reamer, and ball link pliers.

JR11X DSMX - 11channel transmitter. Also comes with a JR hard carry case. Looking for \$250 or best offer.

JR R921x 9-channel receiver with satellite. Looking for \$60 or best offer

Spektrum AR7010 with satellite. Looking for \$25 or best offer

Thunderpower TP610C (AC/DC charger, discharger, and cell balancer) up to 6s Lipos. I'm looking for \$40 or best offer.

If you are interested in any of the above items or require additional information contact

[Kyle Leixner](#)



## I NEED SOME HELP

As many of you know I started an RC Youth Program at a local school to assess the viability of introducing a credited program at the secondary school level which would be engaging to male students who were losing interest in academics and also integrate the curriculum with a practical and applied use of said curriculum.

I need someone willing to build two or three slow flyers from Dollarama foam board that utilize a ??? motor which is what we have in stock, capable of fling in the school gymnasium.

If you have the talent and the time please contact me at [bremskywords@gmail.com](mailto:bremskywords@gmail.com)



Our Fearless Bayview Field Manager, Doug Edwards, is looking to complement the Field Care Maintenance Engineering Crew (AKA Bayview Field Lawn Cutting Teams)

If you want a well maintained flying field please pitch in.

The group currently maintaining the field are not Young Chickens and to ask them to spend as much time on the field on hot summer days is not morally acceptable.



k17869699 www.fotosearch.com

If you don't volunteer and get official credit you will probably contribute to the lawn cutting with your Prop. Anyway. So make it official by submitting your name to Doug at: [I WOULD LIKE TO VOLUNTEER](#)

### OPPORTUNITY FOR PROFESSIONAL DEVELOPMENT AND FURTHER EDUCATION

Related to this concept of volunteering to assist with club tasks, a group of member's wives have provided a list of educational courses that they feel may be of value to club members in addition to their husbands. Following is a list of a few of these courses with more to follow:

REGISTRATION MUST BE COMPLETED BY JUNE 2017

NOTE: DUE TO THE COMPLEXITY AND DIFFICULTY LEVEL OF THEIR CONTENTS, CLASS SIZES WILL BE LIMITED TO 8 PARTICIPANTS MAXIMUM

**Diplomas will be issued to the survivors, upon completion of any of the above courses.**

#### Class 1

The Stove/Oven --- What It Is and How It Is Used.

Live Demonstration.

Tuesdays at 6:00 PM, location to be determined.

#### Class 2

The Toilet Paper Roll --- Does It Change Itself?

Round Table Discussion.

Meets 2 weeks, Saturday 12:00 for 2 hours.



**FIRE SAFETY**



classroomclipart.com  
<https://classroomclipart.com>

# **SAFETY CORNER**

So here I am writing this short introduction on myself and the position I will fill at our club. I joined BRCM in June of 2012 after retiring from the TTC after 31 years at the wheel. I have always had a great interest in aviation and photography so this hobby we all enjoy was a natural choice for me, RC flying. Since joining our club I have learned so much from our members and had many good laughs doing it along the way! So I thought I'll give it a go and try to give something back to our club. I just wanted to say that safety is not a one man job nor is it about being compliant. It's really about thinking differently when at our fields flying, being aware of our actions. We are all in this together and can change the culture of the club from naming members and pointing fingers, to collecting information on safety issues at our fields and through positive feedback figure out how to lessen a recurrence. We must remember that we are responsible for flying and maintaining our aircraft and equipment in a manner that ensures our safety and the safety of those around us. In this way we will all contribute to the safety of our hobby and our club.

Cheers John Ham  
 BRCM Safety Officer.  
[brcmsafety@gmail.com](mailto:brcmsafety@gmail.com)

[THE MOST DANGEROUS ACRE OF REAL ESTATE IN THE WORLD](#)

**SAFETY FIRST**

**followed by**

**COURTESY, RESPECT AND PROPER ETTIQUEST OF**

**FELLOW MEMBERS FLYING**



# General Meeting Minutes

## **March General Meeting**

**March 23, 2017**

**# of members present: 57**

### **Motion to open:**

Motion by: Tony Madge.  
Motion seconded: Ian Brown

### **New Members:**

Frank Mitchell and Gus Sylvester

### **Review and Acceptance of Minutes from February 2017:**

Motion by: John Cook  
Seconded by: Gord Magill

### **President's Comments, Club Housekeeping:**

Lawrence informed the club we have 150 paid members, 56 not renewed, similar to same time last year. 10 new members.

### **2017 Budget:**

Treasurer Update: Private

### **MAAC Representative:**

Dave Mathews made sense of the new bylaws involving drones and flying regulations. Must be under 35 kilos in order to conform to the regulations. Dave stated we are classification B and C airspace usage. We must fly under 300 feet because they want a 500 foot buffer zone for planes flying at 800 feet.

There are two classifications for "airport" in the new regulations: airport and aerodrome. The aerodrome has landing and take off capabilities but not the robust activities that take place in an airport. An airport has a 9km restrictive air "zone".

### **BRCM business:**

Motion was made to require all BRCM members be annual members of MAAC ie: a yearly membership. Passed.

Claims that the club will owe 40 or 50 thousand dollars after they bring forth a lawsuit against the club. The club has lived under the shadow of this legal threat for multiple board terms and nothing has materialized.

Motion made to take no action with the threat of lawsuit. Passed unanimously.

Motion to put all non-necessary activities on the back burner for now so we can accurately assess what needs to be done and what we would like to have done with the money available. Passed.

Bylaw #2 and the code of conduct was voted to be digested by the membership and be ratified at our next meeting. Passed unanimously.

A plan to have a committee outside of the board of directors to create a strategic plan and to deal with issues fairly by members of the club. Trevor offers to lead the committee.

### **Show And Tell:**

Nicholas brought in a small airplane for show. Paul Gentile brought in a plane for sale and John Cook brought in his F1 jet with flaperons common to the planes he makes and modifies. Laddy brought in two planes: one red and one white.

### **Bronte Update:**

Bronte field is still overly wet in areas but is looking good. Attention needs to be made to the outhouse as it is overflowing.

### **Bayview Update:**

The ground is still soft and no driving up to the chickee should be attempted.

### **Events and issues:**

#### **Burlington Bay Flying Circus – Aug 12<sup>th</sup>**

Trevor and Joe updated the club on the August fun fly extravaganza. Trevor is organizing all the flying aspects of the event and Joe is taking care of the rest.

### **Next meeting: April 27, 2017**

Motion to close: Doug Edwards

Seconded: Carl Finch