



The News Letter of the Burlington Radio Control Modelers Club

Box 85174 Brant Plaza, Burlington, Ontario, L7R 4K4

FLASH Date-Line Friday 7th Feb. 2005 Burlington

This from Tom Gwinnett

Lawrence Cragg, President of BRCM attended a surprise lunch gathering at the Queens Head, Brant street.

Lawrence thought he was to attend a meeting with officials of the City of Burlington and was astonished when he entered the room to find 12 club members assembled to wish him Happy Birthday.

There was some confusion over Lawrence's age, he is 76, although all assembled agreed he looks more like the "86" that was on his birthday card. Obviously the confusion was wide spread as the "telegram" sent by the Prime Minister, and read by Art Titmarsh, congratulated him on being 90. Do prime Ministers still send "Telegrams" Art?

Lawrence's flying abilities were called into doubt a number of times.

A variety of Senior's Residences solicited Lawrence's business and again these solicitations were read by Art



Titmarsh, who, in his speech of thanks, Lawrence roundly cursed as being the instigator of the whole affair.

To the relief of the bar staff participants left to return to their various couches, or in the case of Mike Block and Karl Gross, work (Oh Horror!) shortly after 1:30 PM.

Those attending were: Dick Fahey, Charlie Chomos, Steve Plonka, Mike Block, Art Breastbog, Karl Gross, Bill Swindells, Ivan Wismayer, Tom Gwinnett, Tom Healey, Bud Childerhose, Norm Harris, The Man himself, and Bernie (sailor) Sudol.

Now, what can I possibly say to that? Ed.

Thursday, February 24th. Award Presentations & Electric Flight

Editorial

Bill Montgomery tells me that a number of you have been asking about his shunt that will allow you to measure electrical current up to about 50 Amps with a simple volt meter so I have reprinted the article that he originally wrote for the April 2002 edition.

For those of you who valiantly try to start your freezing cold glow engine in winter weather, I have also reprinted Bill's article about his "block heater" that he wrote for the January 2003 edition.

Ivan Wismayer has contributed a fine article complete with pictures for this edition. You all have stories to tell. Don't worry about grammar, spelling and all that, I can fix that and I won't tell! If you like, I'll even come to you with my trusty tape recorder and my reporter's hat and do my best to emulate a pukka reporter.

I would also like to write some more profiles of members. So, if you know of likely candidates or victims, please let me know. Let me have material for your newsletter to Binker@sympatico.ca

Cheers. Lawrence.

Awards.

The Herb Stoneham trophy (for seniors) and the Cliff Moore trophy will be presented to the winners at the February meeting.

Hey Dale:

Do you really think that stubby little Gee Bee will fly? At the very least, it has to be a hand-ful.

Good luck!



Events Calendar 2005

These are an outline of events planned to the end of 2005. Dates are subject to change. 'TBD' = To Be Determined. Names shown in *Italics* are the coordinators of the event. Note: not all of the 'victims' have agreed to serve in the assigned roles!

February 24	Meeting, Trophy presentations. Electric flight
March 2	Hamilton Tigers rubber race.
March 13	Whitby swap meet. (See Jan. Ed. p6)
March 24	Meeting, Jets Wings sign up. (<i>Howard McNamara</i>)
April 1	ETOC - Electric Tournament of Champions
April 28	Meeting, Technical sessions
May 26	Meeting, Address by George Stewart, a former Mosquito pilot.
June 11 - 12	Laddie's Float fly (<i>Laddie Mikulasko</i>)
June 17 -18	Annual Chomos float fly (<i>Charlie Chomos</i>)
June 24	Otterville 14th annual fun fly
July 1	Canada fun fly at Bronte (<i>Ivan Wismayer</i>)
July 2 - 3	Quinte Isle RC Scale Airshow. Picton (by the Prince Edward RC flying club)
July 3 - 4	Chatham CAN-AM IMAC contest (<i>Don McLellan</i>)
July 16	Scale rally at Bayview <i>Peter Hagens & Bill Swindells</i>
July 17 - 18	Club 400 IMAA Rally
July 24 - 25	Flying Tigers annual IMAC Contest (<i>Bryan Facey / Ron Matiuz</i>)
August 7 - 8	Stoney Creek IMAC (<i>Ken Wiersma</i>)
August 13	Tri-Club rally hosted by Oakville
August 27	Corn roast at Bayview (<i>George Bartkus, Dale Eldridge & Bryan Dixon</i>)
September 4 -5	6th Annual scale aerobatic challenge, London (<i>Randy Brown / Bob Hudson</i>)
Sept. 10 - 11	Flying Dutchman scale rally, Kitchener.
September 22	Meeting, Round The Pole electric & rubber. (<i>Norm Harris</i>)
October 27	Meeting, TBD
November 24	Meeting, Rubber race, BRCM V. Hamilton (<i>Harold Jones</i>)
December 15	Meeting, Social, swap & video.

Surreal Gourmet, Finale.

Patrick Toal has made DVD copies of the Surreal Gourmet episode shot at Bayview and featuring our very own master chef Arturo Titmarshino. Patrick asks for a nominal \$2 to cover his costs.

I have a tape from the Surreal Gourmet but I'm afraid it's no good. It appears to be a tape from one camera which was left running all the time as it was carried from one place to another. Consequently, watching it a nearly impossible. To make matters worse, the tape is only 38 minutes long and there isn't enough flying material to make it worthwhile editing. Unfortunately, I think that is the end of that.

In the future, it is much easier to rely on Charlie Chomos for good flying video.

The January Meeting

A new board of directors was elected and, at the executive meeting held on February 1st, directors agreed to handle tasks as follows:

Officers: (directly elected to the offices listed)

President	Lawrence Cragg
Vice President	Ivan Wismayer
Treasurer	Tom Gwinnett
Secretary	Tony Moore
Past President	Harold Jones

Directors: (elected for subsequent assignment)

Howard McNamara	Wings program
Dale Eldridge	Bayview field co-manager
Peter Hagens	Bayview field co-manager
Ivan Wismayer	Bronte field manager
Rick Scott	Web Master
Skywords Editor	Lawrence Cragg
Chris Wesley	Meetings Programmer
Karl Gross.	Unassigned
Kevin McLeod	Unassigned
Tim McTigue	Unassigned.

Other Assignments:

Tri-Club	Chris Wesley
Corn Roast	Dale Eldridge, Ivan Wismayer and George Bartkus
Auditors	Ted Toth & Al Race

Meanwhile ...

A Group of true enthusiasts play in the snow.



Does Your Electric Flyer Really Suck?

This from Bill Montgomery

A Low Cost High Current Meter

This article describes an easy to construct external high current shunt that can be used to measure motor currents in excess of 50 Amps using a common digital multi-meter.

We all know that what keeps your electric powered plane in the air is power, but how do you determine just what power is being used by the motor? Input power to an electric motor is simply the voltage that appears on the motor terminals (in Volts), times the current passing through the motor (in Amps). Small speed 400 motors might be powered by a 9.6 volt (8 cell) ni-cad pack and typically could draw around 10 amps. So, if we multiply 9.6 Volts X 10 Amps we end up with 96 watts going 'into' the motor. Now, most cheap 'can' motors are not all that efficient so perhaps only 60% of that input power actually ends up spinning the prop. The remaining 40% is lost as heat or magnetic field losses. As a rule of thumb, electric planes require about 50 watts of power for every pound that the plane weighs to stay in the air. For a bit of extra 'acrobatic power' most designers shoot for closer to 75 watts per pound of airframe.

So say you just came home from your LHS with you Jet-O 'Little Gem' electric aircraft, you solder up the motor and speed controller, throw in the radio gear, drop in the battery and hurl the beast into the air. Rather than heading for the clouds as anticipated the Jet-O slowly loses altitude and eventually 'lands'. What went wrong? At this point it is pretty evident that you didn't have enough power but how can you fix that? Well, if you recall our 'power' formula, power is Voltage times Amperage. So, one possibility might be that you just don't have enough voltage to give you the required power. If you are running on a 7 cell battery pack (8.4 volts) you could always swap in an 8 cell pack (9.6 volts). This will give us about 14% more input power to the motor which just might keep us in the air. If we still don't have sufficient power we can look at ways to increase the current that the motor will draw. One way to increase the current would be to use a motor rated for a lower voltage. Lower voltage motors tend to have fewer turns of wire on their armatures and will draw more current, resulting in more input power. It is quite common to find direct drive 'speed 400' planes running with 9.6 volt batteries but using 6 volt can motors. Another method for increasing the Amperage that the motor draws is to increase the prop load (either pitch or diameter).

Now while all of the preceding methods will allow you to increase the power your motor produces you can go too far and force the motor to dissipate more power than it can handle. This can result in either greatly shortened motor life or complete motor failure.

The solution is to be able to measure just how much power is actually going into the motor. Voltage is easy – just connect your handy DMM (digital multi meter) across the motor terminals and record the reading. Current on the other hand is typically higher than most DMMs can handle (most top out at 10 Amps). By using the external high current shunt you will be able to use the same

DMM to measure motor current well up into the 10's of Amps.

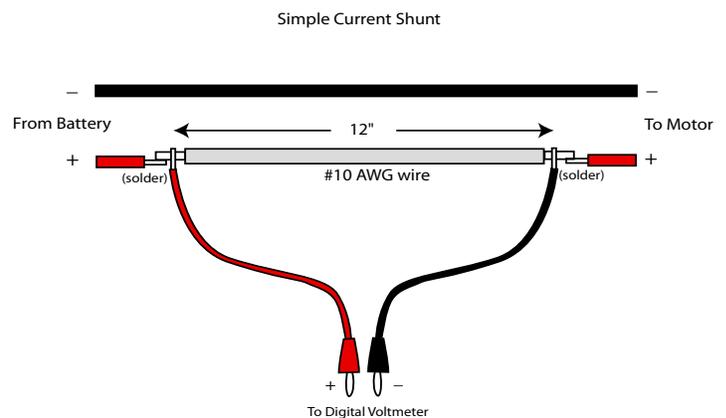
The theory behind the current shunt is strictly ohms law. As you will recall from High School physics when a current passes through a resistor there will be a voltage drop across the resistor proportional to the current. We will use a 12 inch length of #10 AWG wire as our resistor and since it has a resistance of exactly 1 ohm per 1000' we will end up with a fairly accurate .001 ohm resistor. When we pass 1 Amp through the wire a voltage of .001 (or 1 millivolt) will appear between ends of the wire. Since it is a linear device the voltage in millivolts will directly represent the current passing through the wire in Amps. Most common DMMs will read down to millivolts with reasonable accuracy.

Parts List

- (1X) 12.5 inch length of #10 AWG wire
- (2X) banana plugs (red & black)
- (2X) 8 inch (or more) length of heavy gauge wire as used to wire to your battery pack and motor. (red and black)
- (2X) 6 inch (or more) light gauge wire to go to voltmeter (red and black)

Construction

- Start by cutting a 12.5" length of #10 AWG wire.
- Remove about 1/2" of insulation from each end.
- Solder the red small gauge wire (to go to the + DMM terminal) to one end of the #10 wire about 1/4" from the end of the wire. Repeat with the small gauge black wire on the opposite end of the wire. Try to position these wires exactly 12" apart on the #10 wire.
- Since the #10 wire resistor is to go in series with the motor, make up a set of heavy gauge wires (similar to the wire you use already on the motor) with connectors that will mate with you existing motor connectors. The #10 wire may be wound in a number of loops to make it more compact and then should be soldered in series with the positive wire of the heavy wires. (see diagram).



Use

Plug the two banana plugs into your DMM and connect the shunt into your motor circuit. Run up the motor and observe the voltage on the DMM. The current going to the motor will read out in millivolts (e.g. 10 mv=10 Amps, 20 mv=20 Amps)

Winter Block Heater

This from Bill Montgomery.

Winter flying can be gobs of fun but trying to start a glow engine that has been sitting at -10C is sometimes troublesome. I came across a cool little device on the internet which can be bolted to the engine mounting flange and within minutes will bring the entire engine to summer like warmth. The device is based on a tab mounted power transistor which is [arranged] to pass about 2 amps of current. At twelve volts the heat output will be in the order of 25 watts, plenty to warm the coldest engine. The parts for the block heater should run \$10 and can be sourced from your local surplus electronics dealer or ordered on-line from DigiKey (www.digikey.ca).

The power transistor used is a TIP41C which is a very common TO220 (tab mount) unit with a maximum current of rating of 6 Amps. Any similar NPN TO220 transistor could be used but you might have to adjust the base resistor to set the current to 2 Amps. Please note that when you test the unit the transistor MUST be bolted to some form of heat sink such as your engine or a piece of aluminum plate. The transistor will be generating about 25 watts of heat and if the heat has no where to go the transistor will burn out within seconds.

Parts:

- (1X) TIP41C NPN TO200 power transistor
- (1X) 560 ohm 1/2 watt resistor
- (1X) Barrel type power plug (or any other 'polarized' power plug)
- (1X) Jack for plug
- (1X) 5 Amp fuse with inline fuse holder (automotive blade type is fine)

Heat shrink tubing
 22 AWG or heavier flex wire (red and black)
 Banana plus or spade connectors for 12 volt gel cell

Assembly: (block heater)

Solder the 560 ohm resistor between the B (base) and C (collector) pins on the transistor.

Trim the three transistor pins to remove excess length.

Solder a red (+) wire to transistor pin C and a black wire (-) to pin E



Use heat shrink to protect the connections but do not cover the 'tab' portion of the transistor.

Attach the red and black wires to the power socket.

Bolt the tab of the TIP41C to the engine mount flange or back plate of the engine.

Mount the power connector on a bracket or through the cowl to prevent it from flopping around.



Assembly: (power connection)

Solder red and black wires to the mating power plug so that the red connects through the plug to the red wire going to the C pin on the TIP41C and the same for the black to the E pin



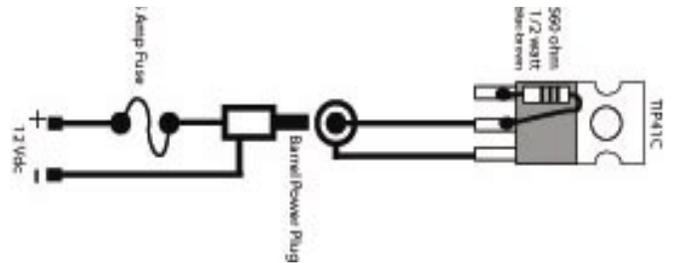
Solder an inline fuse holder in the red (positive) wire,

Attach banana plugs or spade connectors for connection to the gel cell.

Operation:

A small 3.5 or 7 AH 12 volt gel cell has more than enough capacity run the block heater for a typical day of flights. Five or ten minutes before you wish to fly simply plug the power cable assembly into the onboard block heater jack and in no time you will find the head will be warm to the touch.

Fig 1 - Schematic diagram.



Ivan's Stearman

This from Ivan Wismayer



I began the project in 1998 and by 1999 had completed the construction part up to covering. I find it difficult to stay focused on one model and that's why it took so long to finish. Besides, I have built and repaired several in between. This is a 1967 Sterling kit (out-of-business). It is 1/6 scale with the accurate number of wing-spacers and fuselage longerons. When completed, it is in my opinion, the best scale representation of a 1/6 scale Stearman, much better than the Midwest kit (still available, I think).

After some consideration, I finally succumbed to putting a Technopower II Big Bore 1/6 scale seven cylinder 2 cu.in. radial engine. This

cost \$1495.00 American at an exchange of about 1.42 back then. It comes with a Daniels on-board Glow driver (7 cyls. remember). Since the kit was originally built for a normal single cyl 4 stroke, I really had to think the modification out, build an engine mount and fabricate an exhaust manifold. The good thing about radials and biplanes is that the engine is 2 lbs and the nose of a Stearman is short. The extra weight really



helps. I didn't need to add any weight for balancing. I also added Roberts's oleo-undercarriage.

Last year, I did the stitching using Stits from F & M Enterprises

<http://www.stits.com/> and the past month or so painted the

aircraft with Perfect bright yellow enamel and Tremclad green automotive paint. The underneath side of the wings and stabiliser are green and yellow checkerboard. This is a real job as you have to wait for the paint to cure (about a week) before you paint the other squares. The automotive masking tape (\$16.95 a roll from Karl's) will peel off the paint if not allowed to cure.

I still have to finish-off the coping and seat cushions in the cockpit, attach the flying wires and paint the outer wing struts. Art has been on my case for 6 years to get this finished. The aircraft weighs eleven pounds. There is lots of wing though, 1260 sq.in.

Last year I ran the engine and broke it in using 56 oz of 10% nitro with 20% oil/25% castor mix. It is recommended that I run 10 -15% nitro 10% oil with 25% castor oil mix with it. The radial fired right away and settled into a nice idle. It's the only way to go! In breaking the engine in I got 7,700 rpm static on a 15-6 prop. with the lighter oil mix and more nitro and a more efficient prop I will have to go a prop size bigger. I plan to run a 15-8 to 16-6 Master Airscrew K-Series and keep the full throttle revs at about 7,600 static. It will unload another 300-400 rpms in the air. Technopower recommends to keep the revs below 8,000. The power of this engine is about what you get from a .80 -91 size four stroke. Just about right for a kite this size and weight. I should say that without the glow driver I can run the engine reliably at 1,500 revs, with the glow driver 1,100.

I estimate the cost to finish the model is approaching \$4,000. Five eights of that is engine. I should finally say, I'm building a 1/4.3 scale

Flair Stearman (89 in. wingspan) and yes it will have a radial too - a four cu.in. one!

Cheers, Ivan



Many thanks Ivan for a fine contribution to Skywords. By the way, whatever happened to that Spitfire that you wrote about in the January 2003 edition?

Ed.

Wings Program

Student Registration 2005

This year's student registration will take place during two separate sessions:

A) Returning Students FEBRUARY 24 MEETING

B) New Students MARCH 24 AND APRIL 28 MEETINGS

Returning students should continue their instruction as soon as the weather permits. Instructors will be assigned soon after registration. This year's instructor may or may not be the same instructor that you had last year.

NEW STUDENTS:

GROUND SCHOOL will take place as soon as possible following the March and April registrations. New students will be assigned an instructor after the ground school has been completed.

NOTE: STUDENTS MUST SHOW PROOF OF BOTH BRCM AND MAAC MEMBERSHIPS TO REGISTER.

WOW!
**The Whitby Aeromodellers
Radio Control Show and Sale**



MARCH 13, 2005
Heydenshore Pavilion
Water Street, Whitby

Be sure to take advantage of the dozens of great bargain tables of RC planes, equipment and accessories offered just in time for the flying season.

Show hours are 9 AM to 2 PM.

Come early so you won't miss out on the hourly door prizes. Take the Brock Street South exit off 401 (Brock Street not Brock Road) and follow it down to Heydenshore Pavilion located on the (right) south side of Water Street.

For Vendor tables contact : Marlene at (905) 623 0532

www.whitbyaeromodellers.com