



## The News Letter of the Burlington Radio Control Modelers Club

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

### Editorial

This month finds your editor privileged to prominently display a picture of **Len Ashdown's** magnificent Fairey Swordfish - affectionately known as the "Stringbag" for obvious reasons. Len modelled it after one of only three airworthy Swordfish in the world: HS554 owned and operated by Robert Spence of Muirkirk, Ontario. The model is fully functional with working slats, arrester hook, navigation lights, landing lights, seat belts and folding wings. Len made everything in his home workshop - including the engine.

Suggestions that the model should be in a museum have been roundly rebuffed; Len intends to fly it - he says he didn't spend six years building it just to put it in a museum! But he has to find a suitable field which is long enough to let him lift it off and back down again in a straight line during initial taxi and flight trials. Len intends to approach the first flight very cautiously as befits the magnificent creature (my words, not his.)

Many of the thousands who saw it at Toledo thought it

**Thursday, April 25th.  
Chris McHugh and friends will talk  
about and show scale and aerobatic  
electric models.**

simply had to be the best model in the show - an opinion with which I whole heartedly concur. Models don't get any better than this.

To add to my store of riches this month, I have contributions from two of our members plus a 50 year old photo of one of our current members whom you might recognize.

Finally, summer just has to be near. I've got two new models to play with and I can't wait much longer.

Cheers, Lawrence.



**Len Ashdown's Magnificent Swordfish.**

## Up coming Events

*This from Bill Swindells*

Hello everyone, it has been a while since I have communicated via our excellent newsletter, and I am now in a position whereby I need to do so again.

I want to draw your attention to a number of events this year that we are sponsoring and we NEED your valuable assistance to make these a success.

### May 24, 25 and 26 – Mapleview Mall show

This is being run by Dave Parry, (905) 855-5430 and assisted by Peter Krautter (905) 336-3967. This is another great opportunity to provide exposure to the citizens and public of Burlington. Set up is after 9:00 PM on Thursday May 23<sup>rd</sup>, (\*after our meeting) and take down after 5:00 PM Sunday May 26<sup>th</sup>

### June 14, 15 and 16 – Warplane Heritage Museum

Scale WW I and WW II aircraft requested.

Details are still very sketchy, and more information will be supplied as they becomes available

Contact person is myself, Bill Swindells, (905) 387-7706

### June 15 and 16 – Float Fly – Christie Conservation Area

This event is being run by Laddie Mikulasko, (905) 628-2749. Food and beverages have been supplied in the past for a fair price

### July 1- Canada Day Fly-In – Bronte Park

A relaxed day of fun flying and socializing with our club buddies

Event being run by Art Titmarsh, (905) 319-2354, and the usual Bronte Park Rules apply.

### July 12 to July 27<sup>th</sup> – World Scale Championships – Tillsonburg

I encourage everyone to attend at least one day during the events to participate in the hobby camaraderie and see many of the top fliers from around the world.

### Aug. 17 – Tri-Club Fun Rally – Bayview Park

Being run by Bill Swindells (905) 387-7706, and assistance is needed for meal preparations and flight line control. Should our field not be prepared and ready, Oakville has kindly offered to run this event on Saturday August 24<sup>th</sup>. (We may have to shuffle the Corn Roast)

### Aug. 24 – Annual Corn Roast – Bayview Park

Being run by George Bartkus, Ivan Wismayer, Dale Eldridge and many others

A great event with lots of fun and socializing as well as relaxed flying.



Now for those that remember when I was president, and had time to report on my activities, particularly with the Kamikaze planes that I fly, my Mitsubishi J2M-3 Raiden is finally ready after 19 months of on again, off again building. I have been really getting a push on to get this finished for this year's events and scale fun fly's that several of us in the club typically attend both locally and with other clubs around the area. If I do not damage it going through a doorway, like I did the last one and fracture the tail assembly without my knowledge (which was the main reason for it's demise), I will have it on display at the May, Show and Tell Meeting or our club, and at the Mall Show.

Thank you in advance for your assistance and making our events a complete success.

Bill Swindells



## 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.

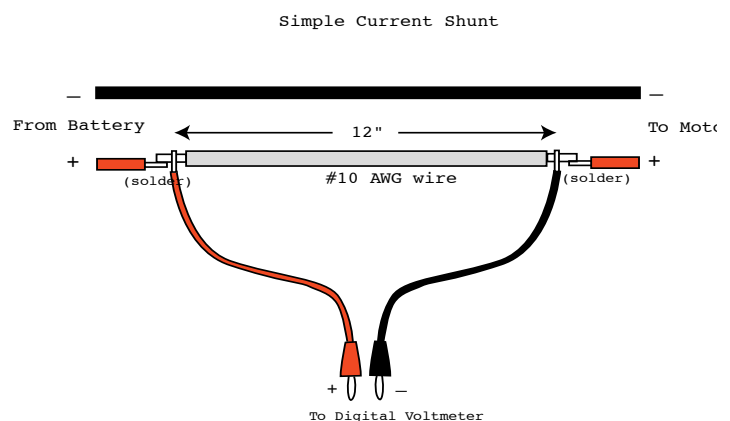
The theory behind the current shunt is strictly ohms law. As you will recall from High School physics when a current passes through a resistor there will be a voltage drop across the resistor proportional to the current. We will use a 12 inch length of #10 AWG wire as our resistor and since it has a 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)

---

## Who's This?

A 1953 photograph of a current BRCM member taken when the Toronto Flying Club was located on the West side of what is now Pearson International Airport. Contemporary airliners were Constellations, DC4s and DC6s with the Vickers Viscount just coming into service. Note the tie, slide rule and pens! Real Nerd stuff.



---

## Did you know that:

1. In Shakespeare's time, mattresses were secured on bed frames by ropes. When you pulled on the ropes the mattress tightened, making the bed firmer to sleep on. Hence the phrase "goodnight, sleep tight"

2. It was the accepted practice in Babylon 4,000 years ago that for a month after the wedding, the bride's father would supply his son-in-law with all the mead he could drink. Mead is a honey beer and because their calendar was lunar based, this period was called the honey month or what was known today as the honeymoon.

3. In English pubs, ale is ordered by pints and quarts. So in old England, when customers got unruly, the bartender would yell at them mind their own pints and quarts and settle down. It's where we get the phrase "mind your P's and Q's"

4. Many years ago in England, pub frequenters had a whistle baked into the rim or handle of their ceramic cups. When they needed a refill, they used the whistle to get some service. "Wet your whistle" is the phrase inspired by this practice.

5. In ancient England a person could not have sex unless you had consent of the King (unless you were in the Royal Family). When anyone wanted to have a baby, they got consent of the King, the King gave them a placard that they hung on their door while they were having sex. The placard had F\*\*\*. (Fornication Under Consent of the King) on it. Now you know where that came from.

6. In Scotland, a new game was invented. It was entitled Gentlemen Only Ladies Forbidden.... and thus the word GOLF entered into the English language.

*Enuff? (Ed)*

---

## At Bayview, 17-April-2002

*Even with all that wind, we still couldn't get the damn things to fly!*

