



May MEETING

7:30PM on **Wednesday, Sep 21, 2005**
BCIT SE1 Cafeteria
3700 Willingdon Ave, Burnaby, BC

1. Coming on foot from Willingdon you would enter at the main entrance, 1 block south of Canada Way and go straight east on Goard Way until you reach Roper Ave (about 3 buildings). The cafeteria is on the south west corner. You can not drive this route, use Beta if you are coming by car.
1. Coming on foot or by car from Canada Way you enter from Beta Ave (aka Carey Ave) going south. The first big parking lot is Student Parking Lot A. You can park here for \$3. Now walk west on Goard Way to Roper Ave (1 block) and you are there.

See the web page www.veva.bc.ca for a map and additional information on parking.

charger. The top speed is 97 km/h with a range of 75-100km

Minutes

MINUTES OF THE JUNE 2005 MEETING OF VEVA

Minutes of VEVA meeting for June 15/2005.

Meeting starts at 7:35pm.

1. Haakon opens the meeting. There is a small turnout and there are no guests. A review of the REV show is discussed.
2. Walter talks about his thoughts on the rev show and the Electrathon. The future of the REV show is discussed of one being a new location.
3. Issues regarding that Detroit electric are discussed for the rest of the meeting.

Meeting adjourned at 9:27pm.

REV Show Wrap

Well we did it again. The 10th Annual REV! Show went off without any major problems. We had a great site this year with the extra space for the test drives away from the public display areas was great. I chaperoned the Detroit this year and didn't get to see as much of the show as I would have liked though it was fun talking to everyone as I drove them about.

We had more bike shops and I think more people than last year. It's really hard to keep track of numbers when it's a free show with a walk through crowd.

Storm Brewing again hosted the wrap party and as is becoming common everyone had a great time chowing down on great brew and burger and salads and conversation. Thank you James.

EV of the Month

July 2005



1970 Citroen ID

The July calendar car is a 1970 Citroen converted by Michael Hoskins from Edmonton, Alberta. He converted it in (roughly) 2003. The drive system is a 30hp Kostov Sepex motor and a Zapi sem-3 sepex controller with regen braking coupled to a four speed manual transmission. It has a top speed of 110 km/h and a range of about 40km. With a Manzanita Micro PFC-50 charger it can also be recharged quickly from most any available plug 110 to 220 volts.

Sep 2005

[The picture is too dark to copy – see the calendar. If I can get a better picture I'll include it in a future issue – editor]

The September calendar car is a 1979 Honda E Motorcycle owned by Jamie Rikley of Canadian Electric Vehicles, Victoria BC. It uses a 6.7 D&D Sepex motor with 16.8 peak hp and a Curtis 1274 Sepex controller and direct drive. There are 6 12 Optima SLA batteries and a Delta-Q



Tons of electric bikes of all type too look at and test drive.



Something for the Kids!



The Dynastar IT got lots of look and I think one was sold at the show. The Purolator Hybrid Delivery Van in the background.



And the big kids too. The electrathon races are always fun to watch. They seem to get more competitive each year.



Segway like self balancing electric skateboard

The 200km EV

[Haakon MacCallum]

It seems that ever since electric vehicles were invented over 100 years ago that the issues have always been range and speed. There are a number of other factors which prevent EVs from appearing in large numbers on the road today, but whether we like it or not, range and speed are still the issues.

I found that there are three popular questions always asked by the general public. 1) How fast is it? 2) How far



Mark Mogolio's beautiful Fi-AMP

For more pictures go to the [veva web site](#) and click on the REV show links.

does it go? 3) How do you charge it?, and 4) How much does it cost? As it turns out, question 3) is by far the most popular ("You plug it in...") followed by any or all of the other three. But range and speed are what people use as the criteria for whether or not the idea of an electric vehicle deserves further consideration in their lives.

Actually, speed is not the issue - range is. In fact, speed is definitely not a problem. Notable vehicles like the Zombie, Meanie, and Goldie have proven over and over again that making a fast EV is merely a little - or a lot - more expensive. It might even be safe to say that, within some limits, speed and acceleration are limited only by the cheque book or credit limit of the builder. But there are still only a precious few vehicles that deal with the range issue.

Therefore the question remains: can an electric vehicle with "sufficient" range that the general public would consider buying one be designed, and could a member of VEVA build it? If the answer to both of these questions is "Yes," then wouldn't that be a great vehicle to own and drive. Such a vehicle would certainly be a pleasure to drive because the issue of range would be a non-issue, and a great vehicle to promote electric vehicles.

There are a small number of examples of long range electric vehicles. Perhaps the best known is the GM EV1. It had an advertised range of 225km with NiMH batteries. The T-Zero by AC Propulsion is the long range winner at 450km. But the most interesting is a third, less well known EV by the name of Red Beastie with a real world range of 160 to 240km. The reason this EV is interesting is that it is built using readily available parts for a reasonable amount of money. The other two examples too expensive to reproduce exactly, but will contain valuable design information.

Since the Red Beastie is an EV that anyone can build, I'll describe it here. It is a 1995 extended cab 2wd Toyota pickup. It's curb weight after conversion is 5260lb, with a 2480lb battery pack of T-105s. To quote John Wayland, the range is 240km at 70 km/h, 190km at 90/100 km/h and 240km "city driving." The drive train consists of a 9" ADC and a DCP-1200.

I would like to propose for September's meeting that the topic of the meeting be the design of a long range EV. Let's begin with questions such as "How far is far enough?" and "What characteristics does an EV require to be acceptable to the general public?" Once a target has been set, issues such as "What are the most important factors in achieving long range?", "What vehicle types work?", "How much does drive train and electronics affect performance?", "Does the 33% battery weight rule always apply - and can it be extrapolated to longer range?", and "How important is it to give the vehicle a name ending in 'ie'?" can be discussed. Since the goal is to design a vehicle that can be built, the total cost, availability of parts, and attainability of battery types need to be included.

If we can design a vehicle that meets all of the above goals, it stands a good chance of being built. Gas prices are rising, and people's awareness is rising with it. As the cost of a tank of gas goes up, the compromises that someone is willing to make in the vehicle they choose also allow a greater tolerance for "different" vehicles. And importantly for VEVA, such a vehicle on the road will do an excellent job of meeting our mission statement of educating the public and promoting electric vehicles. So if everyone

wishes to put on their thinking caps, please bring your comments and ideas to the next meeting. Please also bring any reference materials or information you feel will help: battery specifications, vehicle information, and parts specifications will be useful. It seems it's time to solve the 100 year old problem.

Local Interest

Huge Interest in Electric Cars over the Summer

I have received lots of email over the summer asking for information on electric cars. Where to buy, how to build etc. I guess the high gas prices are making people look for options. I have been suggesting they drop into the meeting if they are local enough. If not then if they are interested in the process I have referred them to the EV archives and the discussion list. A few were looking to buy off the shelf and I sent them off to look at the Dynasty IT and/or call CanEV and talk to Randy about doing a conversion for them.

Lawrence Harris, Editor

VEVA Summer BBQ

Many thanks to the Snalems for another great BBQ this Summer. With mountains of great food and friendly company, this event was a huge success of the kind that only happens when people are truly dedicated to making sure that everyone enjoys themselves.

Since this was my first time to a Snalem BBQ, I was treated to a first rate tour of their cool place. Including their dome house made from a series of triangles - which is designed to "float" during the ground liquefaction that occurs during an earthquake - to their bouncy backyard which demonstrates 1) Richmond really is built on water and 2) the floating part is a good idea after all.

I was also pleased to see EVs attending the event - including both on road EVs and bicycles. Interestingly, their was a poor correlation between the distance traveled and the choice of ICE versus EV.

Good conversation, sunny weather, and great hosts made for another successful event, and I sure hope the Snalems offer to share their home with us again next year. I know that the whole Snalem family spent many hours cooking for us, and on behalf of everyone at VEVA I would like to thank them once again for their hospitality.

Haakon

The Detroit does the Fair and a new old lady in town

VEVA's 1912 Detroit Electric did attend the Abbotsford Agri Fair this year, David and I did the trucking for it, backing up the Hydro drive way and all.

Here is a picture showing the VEVA trailer getting an other good use: transporting a 1919 Detroit Electric from L.A. to Vancouver. Notice the new (used) spare tire, new lash down points and new rear lights. We returned the trailer in better condition then we got it and thank you VEVA for the use of it.

The Detroit actually came from Florida by Auto Transporter to L.A. We drove to L.A. with trailer and all on the 5th of August but just before we got to load it a movie company made me an offer I could not refuse so we left with out the trailer and Detroit for Vancouver again. The picture shows us in L.A. starting the return trip on the 27th August. From left to right: David Burnett, my step son, Axel, Mike Abel



who loaded it and John Riccione who gratuitously let me use his warehouse to store the Detroit for over 2 month. So all together we drove over 8300 km on 2 trips. As I always say, you must have sufficient mental deficiencies to be involved with electric cars. A good example of such a person is John Riccione who's warehouse (one of them) in L.A. is full with dozens of cars of all makes (1906 to 2000) and he even has a 1923 Detroit in a some what disassembled state. Not to mention a hundred or so scooters, gasoline Maytag washing machine motors etc. etc. But besides having a few loose screws, actually more then a few (pun intended) he was the most helpful and friendly person you can imagine and I can't thank him enough. We also met Galen Handy the son of the last employee of Anderson Electric. He has all the surviving drawings, handwritten sales records and is keeping a list of all known Detroit's in the world, about ~90. The trips were uneventful, my ML320 run and pulled flawlessly at outside temperatures of up to 41C in Oregon. The only thing on the return trip was the attention the Detroit got. Some people followed us from the freeway to the numerous refueling stops and needed information. One Dad showed his 6 year old son the bracket were you would put the crank to start the engine. David explained that this was an electric and had no engine. Dad left with a red face after his son said: "Dad, I thought you know everything about cars!" Now starts the job of restoration and I hope to have it ready or at least running for our REV 2006. The basic car is solid, but the upholstery is shot, a lot of wood work will have to be done, not to mention new batteries, chargers, lights, wiring and some body work. At least it will fit in my garage, after I cleaned that one up (a bigger job then the Detroit I have to say). Unlike VEVA's 1912 Detroit this one is only 72" high. Anderson Electric for what ever reason did some of those lowered ones in the 1920's.

See you at the meeting, Axel

Woodburn National Electric Drag Races

Having not been down to Woodburn for the last two or three years I decided it was time to take a road trip. Besides I have my new Smart Car and I wanted to see what sort of fuel economy I would get on the highway. I filled up at the local Bio-Diesel pump in Burnaby (B5 blend) I headed out at about 6:30am on Sunday morning. The boarder was a breeze and I was on my way. One fuel break just north of Portland and I was there having done the 525km in about 5 1/2 hours. I could probably have made the distance on one tank but I would have been running on fumes and I didn't want to be looking for a diesel pump while also trying to find the restaurant for the traditional after race get together.

I arrived at the gate just after 12pm and had some trouble getting through because the ticket taker wanted to talk about my car. They are not available in the US yet and everyone was interested.

Finally having my wrist wrapped in the spectator band I was off to park and see what was happening. I immediately ran into Alan Cumberlandidge who had come down the day before who updated me on what I had already missed that morning.

John Wayland of the White Zombie was just back from having made a 102 mph run. He finally made it with a newly rebuilt car. He has replaced his single big motor with a siamese twin 8 (two ADC 8 inch motors on one shaft). Tied to a Zilla controller, new stronger diff, aluminum racing drive shaft and new Hawker SLA battery's he is finally making the 1/4 mile runs he has been hoping for the last few years. Also he is not breaking anything (or not much....). Most years he has come and raced and something on the car has exploded leaving him stranded and saying 'next time'. While this year next time finally arrived.



Under the hood of the White Zombie showing the Siamese 8 motors and Zilla controller

On his last run of the day there were two very bright flashes under the car during the burn off but John told his driver to go anyway and still pulled off a 104mph run. Later inspection showed one of the brush springs had vaporized. The latest info from the EVDL is they are still trying to figure out what happened. The car itself was wired for data collection and they have accelerometers and all the data from the Zilla controller logs to view after each race allowing for some interesting analysis.

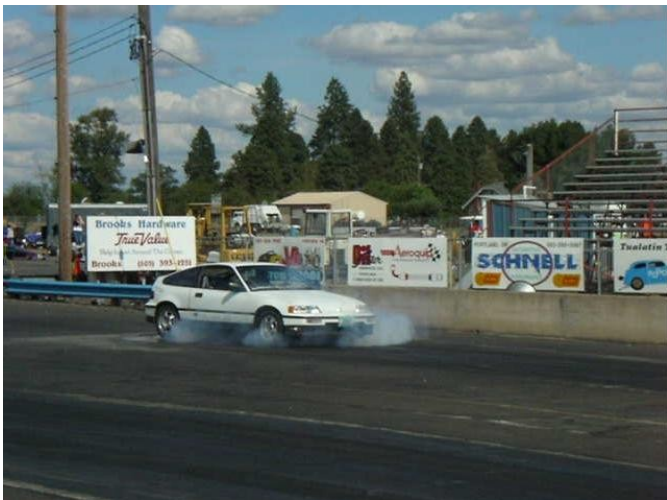
Dave Cloud was racing his new car with 8 E-Tek motors and a contactor controller. He is trying to show that you don't need all this high voltage super fancy (expensive) stuff to make good numbers on the race track. He managed to make (I think) a 98mph run on 96 volts before the day was out. He had 120 volt pack on board and so still has some head room to go faster but he is taking it one step at a time (and not breaking anything).

The Gone Postal van was there and unfortunately I missed it's last run. These cars are so quiet if you aren't looking you don't realize they are racing. Rodrick Wilde was finding it still a bit squirly at speed and on the last run the brushes caught fire so that was it for the day.



Dave Cloud's 8 E-Tek motor drag car

Another notable vehicle was Victor Tikhonov's Ultra Capacitor powered car. I think he took most of us by surprise when he brought it up to the burnout box and let it rip. This car has no batteries currently installed, just a 2700F 336volt capacitor bank. With that he drove to the track, smoked the tires and drove back to the pit area. He told me he figured he used about 1/3 of the energy stored in the system. The car is going to have a set of 90AH lithium cells installed as it's prime energy store.



Victors Ultra Capacitor powered car

All in all a great day with lots of interesting techie stuff to look at. There were fewer EV's racing this year but those that were did very well and this year there were no major breakages. The cars and bikes are getting much more reliable.

Oh and I did manage a overall fuel rating of 4.1 L/100km which I think is pretty good given I was doing 110km/hr + all the way down and back. Now its running on B100 bio-diesel it's theoretically carbon neutral. Not quite my goal of an EV but getting better.

Lawrence Harris

From the Internet

16,000 miles -- no gasoline

On Sunday, September 11 at 11:30 a.m., the first episode of COOLFUEL

ROADTRIP will air on KBHK-TV. Beginning and ending in San Francisco, a crazy bunch of adventurers and the American innovators involved in a 16,000 mile road-trip across the U.S. are set to change U.S. fuel woes into a happier reality. Starting off from the Golden Gate Bridge, this new Fall reality show is a raucous ride on American back-roads, by-ways and highways exploring the variety of non-fossil fuel dependent vehicles and fuels available.

In the first episode, host Shaun Murphy heads across the San Francisco Bay north to The Geysers near Santa Rosa for his first geothermal energy power charge. The largest geothermal development in the world, The Geysers can produce enough electricity to meet the power demands of San Francisco. While the jellybean-like electric Corbin Sparrow recharges, Shaun gets a geothermal energy education and prepares for his next COOLFUEL challenge. Murphy also gets an unexpected reminder of the great energy that resides within him when eco-friendly actor, Ed Begley, Jr., gives Murphy an opportunity to power an entire home with energy produced via pedaling; quite the electrifying work out.

A little further north the T-Zero, manufactured by AC Propulsion with offices in Sunnyvale, takes center stage when Shaun challenges the Ferrari 360 Modino to a road test. With three T-Zeros on the road, two sold to fuel-efficient Silicon Valley entrepreneurs, the T-Zero is the world's fastest electric car.

We're not going to tell you who wins, but the T-Zero crosses the line way ahead of the Ferrari when it comes to fuel consumption and emissions - zero on both counts.

The show, 18 half-hour episodes, continues across America, with the COOLFUEL Crew working hard to return at last to the Golden Gate. The FCC-friendly and environment-savvy show is a breath of fresh air (literally).

Using a variety of fuel sources including; hot rocks, cow manure, garbage, hempoline, food, sugar and vegetable oil, the COOLFUEL Crew drives, flies, floats and peddles its way around the United States. They're not worried by the recent \$2 a barrel price increase or the unsightly \$2.32 per gallon average pump price. They drive Hummers and Harleys, fly planes and jet-turbine trucks.

But however they travel, it never involves a gas station stop.

For more information or for show time listings please visit

www.coolfuelroadtrip.com

Also, we have a fantastic media kit with lots more info at:

<http://www.vendely.com/CoolfuelRoadtrip/cfrtdefault.htm>

Gemma Cacho

Technical Corner

What is horsepower? Excerpted from an email from Philip Marino on the EVDL.

One Horsepower is actually 550 ft-lb / second (not 550 ft-lb, or 550 ft/lb).

Torque is measure in ft-lbs. (not ft/lbs).

Don't confuse torque (ft-lb) with HP (ft-lb/sec).

If you know the torque and RPM, you can calculate the horsepower this way :

Power (in hp) =

$$\text{speed (in RPM)} \times \text{torque (in ft-lbs)} / 5252$$

You can see where this comes from at
<http://auto.howstuffworks.com/question622.htm>

Local Events

River Days 2005

Sunday, Sept 25th from 11am-4pm in Langley.

Jan Engstrom has again volunteered to setup a booth and represent VEVA at River Days again this year. He is looking for other members to join him so if you are interested please call him at 604542-6580.

"In 2004, over 1,500 people came out to celebrate BC Rivers Day. There were over 35 interactive displays and activity booths including gold panning, nature walks, boat racing, bird house building, live owls, streamside tree-planting and much more. The event featured performances by Science World, De La Terra, the Public Dreams Society, and the Streamcare Puppet Theatre. Be a part of the excitement!"

'What-Gas-Crisis?' Electric Bike Show

To be held on October 15th 10am-5pm, Saturday, at Kingsgate Mall, Broadway at Kingsway, Vancouver. Free ebike and scooter test rides. Prizes for first 10 people arriving on any *non-gasoline-burning* vehicle, courtesy of Swiss Bakery and The Balloon Lady.

Free to exhibitors and the public.

Kingsgate Mall, 370 East Broadway, Vancouver
Produced by The Solar Power Roadshow
Info: Rob (604) 739-7717

For Sale

- 1990 Geo \$12,000ca
144 volt system, ADC 8" motor, 1231C Curtis controller, Zivan NG3 charger, Todd 30 amp DC-DC, E-meter, 5 speed, Optima group 31 batteries Zivan "smoother" battery maintenance system, 140km/hr top speed and 35-55km range.
Contact: Randy@canev.com 250-954-2230
- For Sale: NiCads for EV's
Saft NiCd 130Ah 5 cell blocks (6V nominal) - SRX1300P



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We have thousands of pounds of both (don't have exact count.)

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- 24 volt heavy duty contactors for sale , also 15 amp 24 volt relays. contact Dave Koehn 604 467 6028, or e-mail david_koehn@sfu.ca
- New Crystalyte bike hub motor kit for sale. \$450ca
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500 watt 2 speed motor with gear set but no spokes
36/48 volt controller , Twist grip throttle
Brake levers , Contact: Randy@canev.com, 250-954-2230
- Toyota Celica '89 - Good for conversion. Some parts may be missing- fuel injection, power steering. - \$350
Offered only to VEVA members. Chris 604-707-0089

Member Area

Goto www.veva.bc.ca, username *veva*, password is *revshow*.

VANCOUVER ELECTRIC VEHICLE ASSOCIATION

VEVA is registered under the Societies Act of British Columbia as a Non Profit Organization (S-23274). The AIMS of VEVA are:

- To educate and support members with the design, construction, or purchase decision of EVs.
- To educate the public on the economical and ecological benefits of EVs by participation in rallies, parades, exhibitions, and trade shows.
- To lobby government to implement legislation conducive to the use of electric vehicles.
- To collect nominal membership fees for the purpose of publishing a newsletter and to solicit donations to further these AIMS.

VEVA meets on the third Wednesday of each month at 7:30 PM (July and August excluded) in the BCIT SE1 Cafeteria, 3700 Willingdon Ave, Burnaby. VEVA is open to membership by any individual or organization.

For a one-year membership, please send a cheque for \$25 (\$10 for students attending school) to:

Vancouver Electric Vehicle Association
PO Box 3456
349 West Georgia
Vancouver, B.C.
Canada V6B 3Y4

For more information about VEVA or about electric vehicles in general,

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