

*SPRING- SUMMER 2006*

# ***EVAmerica***

*COMMITTED TO QUALITY, SERVICE, AND SAFETY*



***NATE HANSEN  
UTAH STATE UNIVERSITY  
CLEAN SWEEP AT 2006 CLEAN SNOWMOBILE CHALLENGE***

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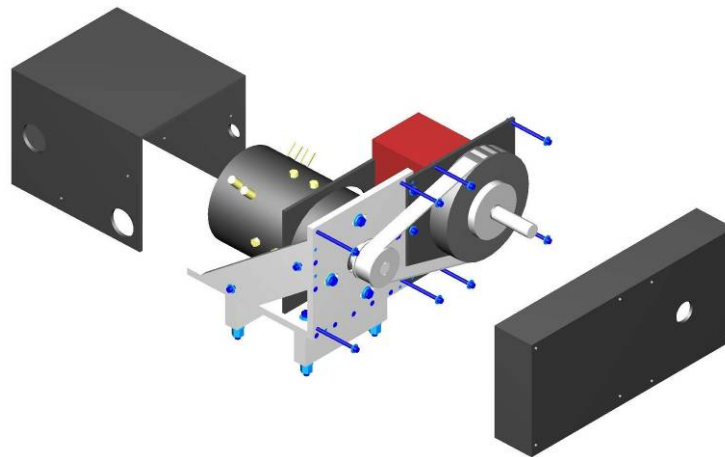
## ***IT IS TRUE ! EV ECONOMICS***

*We have waited 18 years for EVs to be recognized. They are; it is happening. People are seeing the advantages of pure electrics.*

*When we founded Electric Vehicles of America, Inc. in 1988, we knew that EVs were the future because of global warming and increasing demand for oil as supplies became more difficult to obtain (Arctic drilling, deeper ocean drilling, etc.) In 1992 we left our consulting career to do EVs full time. President George Bush had just signed the Energy Policy Act of 1992 that mandated alternative fueled vehicles (AFVs) for all government fleets. The purpose was to get make the U.S. Energy Independent – we were excited to be part of that vision. The demand would create new technology!*

*Bill Clinton ignored that mandate and put us basically in the mess we are in today. We lost time to prepare and the wheels of Congress turn slow if at all. Today, the cost of driving an EV is about 3 cents per mile for electricity and 10-12 cents for battery replacement. That is equivalent to a car that gets 20 mpg in city when gasoline is \$3/ gal. Some predict that gasoline will be \$4.50/ gal in the summer of 2007. You, our customers, had the same vision and believed in EVs. **You are “EV Pioneers”!***

*Oil costs are increasing all over the world. Consequently, EVA is getting many international corporate customers. With RTC Machine, we designed an electric drive system for a Kawasaki Mule for a Caribbean island. It is in preliminary testing – they like the quietness.*



*Kawasaki Mule  
Motor Drive Assembly  
Designed by RTC Machine*

*We also have shipped components for conversion of taxis in the Philippines. We prepared an Engineering Study showing our concept and approach to the conversion.*



*Philippine Taxi  
Future conversion*

*EVA is also shipping components to England for a new on-road EV project. In addition, we have a number of regular corporate customers who use our components in mining, rail vehicles, and industrial applications.*

### **ON-ROAD EVs**

*Our first love was on-road EVs and the individuals who build them. We understand the excitement of building an EV and turning on the key for the first time! This market has doubled in the last year, and will probably grow substantially more by years end! So this is an exciting time as people look for the best alternative fuel!*

### **WARNING**

*But we also want to issue a warning to people. With the increase in oil prices, there is also an increase in companies seeking to make a fast buck. People do not understand EVs and there is a great potential for people to get ripped off by people promising to deliver an EV at an extraordinary low price. Some are selling aircraft generators from the 1970s. We encourage people to get recommendations and to pay by credit card. If a company only takes cash or check, there may be no recourse.*

### **MOVIE**

*Who killed the EV? [www.pbs.org/now/shows/223/electric-car-timeline.html](http://www.pbs.org/now/shows/223/electric-car-timeline.html)*

### **EVA CONVERSION SHOP**

*Mike Moore in South Carolina is doing conversions for people who do not have the time to do it themselves. In the last few months he has done four conversions and has at least two more waiting to be done. You can see Mike's work below and on our home page [www.EV-America.com](http://www.EV-America.com).*

*His email address is [DMMoore3306@aol.com](mailto:DMMoore3306@aol.com) and his website is [www.ampmobile.com](http://www.ampmobile.com). Mike is an EVA supplied conversion shop. EVA is looking for more shops across the country and we are putting together an Agreement that will encourage safety, reliability, and workmanship.*



***AmpMobile Truck Conversion  
Mike was able to do this truck conversion in 36 hours!***



## **EVA CUSTOMERS ARE GREAT!**

*With 18 years under our belt, we have developed many great customers. We have also seen many grow up through the years. Our cover story on the snowmobile at Utah State University is one of those stories. EVA became a supplier to Nate Hansen and his father, George, in June 2000 when Nate was still in high school. Nate converted his first snowmobile during the summer and tested it by hosing down pavement to minimize friction and wear on the belt. He has come a long way and is a definite leader in Electric Snowmobiles! I hope you enjoy the article at their website.*



**Nate Hansen / Utah State University Snowmobile**  
**[www.engineering.usu.edu/mae/projects/es/](http://www.engineering.usu.edu/mae/projects/es/)**

*A number of customers have taken the time to submit articles and/or pictures. These include:*

### **Schools**

*Paul Kydd – The Olympian Wins American Tour de Sol (uses Lithium Batteries)  
Skowhegan High School – Solar Powered NEV*

### **Trucks**

*Tom Carpenter completes Isuzu  
Keith Mercill restores 1989 Ford Ranger  
Rob Mathis install new 15 inch lifts  
Ken Watkins – in conversion process*

### **Vans**

*Anthony Rish*

### **Cars**

*Wayne Koester in progress  
Brett Tollaksen upgrades 1972 Datsun with ALLTRax Controller*

*I hope you enjoy this newsletter!*

*Bob Batson  
President  
Electric Vehicles of America, Inc.*

## USU makes clean sweep at 2006 Clean Snowmobile Challenge

- Zero Emissions Overall Winner
- Zero Emissions Best Range
- Zero Emissions Best Design
- Rookies of the year



### 2006 OBJECTIVES

- Provide a competitive sled that demonstrates the viability of electric power.
- Gain recognition for alternative fuel technology and for USU.
- Further establish the development of alternative energy snowmobiles.
- Learn what is needed for even better snowmobile performance.
- Establish and demonstrate performance criteria well beyond our current abilities, and worthy of consideration as the basis for a market entry utility or mild recreational machine.

For additional information, go to  
[www.engineering.usu.edu/mae/projects/es/](http://www.engineering.usu.edu/mae/projects/es/)

# *The Olympian Wins the Tour (Finally)*

*By Paul Kydd*

*The Olympian, a 1986 Ford Escort converted to electric power with components and help from EVA, was declared the winner of the Battery Electric Vehicle Division of the 2006 Tour de Sol at Saratoga Springs, NY, on May 14, 2006. This was the 18<sup>th</sup> Tour, a competitive event showcasing alternative transportation technologies, which is sponsored by the North East Sustainable Energy Association (NESEA) of Greenfield, MA.*

*The car was originally converted in 1996 and has been entered in almost every Tour since then, placing as high as second, but never first. The win this year was due to the use of a revolutionary compound battery combining the power and low cost of lead-acid technology with the range of modern lithium-ion batteries. The car and part of the Burlington County Electechs team are shown in the photo.*



***Left to right are: Paul Kydd, Partnerships 1,  
Dan Carson a student at Burlington County Community College,  
Jack Braun, Professor of Physics at BCC and  
Tom Molnar, Auto Technology Coordinator at Burlington County Institute of Technology.  
Missing is Ollie Perry, the long time champion of the Olympian.***

*The Ford Escort is somewhat unsuitable as a conversion because of its low gross vehicle weight. The car has been driven in regular commuting service with twenty-four group 24 lead acid batteries from our sponsor GNB Industrial Division of Exide. It had acceptable performance and range, even in winter, but was seriously overweight. Substituting the lithium batteries from Partnerships 1 for fourteen of the GNBs took 600 lb out of the car. We thought we were home free, but the manufacturer's plate showed a gross vehicle weight of 3140 and the Tour measured our weight at 3100 empty. We didn't have a 40 lb driver, but got a dispensation to run based on the fact that the Olympian's rear suspension and brakes had been beefed up, and that it had been competing for ten years without any failures.*

*We passed the rest of the technical inspection, acceleration, braking and hill climb with successful, but unspectacular results. The next day was a road rally over a 32 mile course to the former GE rocket engine test facility at Malta, NY. This was a severe test because of some wicked hills near the finish. We had demonstrated the required fifty mile range to enter the Tour, but that was on the flat in New Jersey. The real world of upstate New York was a challenge, but we made it. Others didn't and some didn't try. The eight mile run back up Route 9 to Saratoga was uneventful. The compound battery performed very well, much to many people's surprise. We were dubbed "the Myth Busters" for showing that different battery types can be run together and charged together.*

*Friday was the big event, the range, efficiency, emissions trial in which the objective was to complete as many laps of a medium and a short course as possible. We started flawlessly with a fourteen mile loop, but our drivers got distracted and went off the course into the boonies the second time around. The boonies were also hills and after 30 miles, a bunch of fuses blew in the lithium battery and things came to a halt. After a long search for the car, and a frantic replacement of the fuses, we were off again at the very end of the allotted five hours and managed to tack on an additional ten miles.*

*Saturday was the finale with an Autocross competition in which Tom Molnar let it all hang out with a maximum effort. In the end it was just enough. Despite our messing up the most important day of the event, we prevailed, partly by our own efforts and partly by the withdrawal of a really beautiful conversion from EV Vermont who were hammering all of us up to the autocross. After ten years of being a bridesmaid, we'll take it!*

**2006 Solar Powered Neighborhood Electric Vehicle  
By Art Haines**



**Somerset Grange  
And  
Skowhegan (ME) High School**

**Objective**

- Design, build and drive a solar powered low speed buggy.
- An educational and fun product to learn and inspire.

**Design concept**

The car was built using surplus and new parts, aluminum extrusions, styrofoam, wood and ABS plastic. It is very lightweight, can be 100 percent charged by the sun and suitable for the Maine climate.

**Specifications**

- Seats two people.
- Twenty-five Miles per hour top speed.
- Range of 10 miles
- Water proof
- Two speed transmission
- Lights, horn, brakes
- Weight: 300 pounds

**Electrical Specifications**

- Solar panel on hood (current): 55 watts Wattpro
- Solar panels on roof (future) 150 watts
- Solar charge controller: Morningstar, model PS-15M 15 amps, 12 or 24 volt.
- Two 12 VDC deep cycle marine batteries 115 AH wired in series for 24 volts.
- Motor: Advanced DC 14-07-4001 two to five horsepower, 24 VDC
- Curtis Model 1214-8704, 24-36 Volt motor control 350 Amp output
- Speed potentiometer on dash, foot pedal start switch, and 200-amp ammeter.



*Tom Carpenter' First EV Drive  
Tom is a Service Manager at a GM Dealership*



*The Isuzu has limited space forward of the  
Rear axle for the battery boxes.*



***1989 Ford Ranger - Before Conversion  
By Keith Mercill  
(Hendersonville, TN)***



***What a Beauty After the Body Work!  
It sits a little high- no batteries yet.***



*New Lifts with 15 inch Stroke  
Raises the bed much higher.  
What a Sharp Looking EV !  
Rob Mathis  
(Sandersville, GA)*



*Easy Access to Rear Batteries*



*In Process  
Ken Watkins Vehicle  
(St. Marys, FL)*

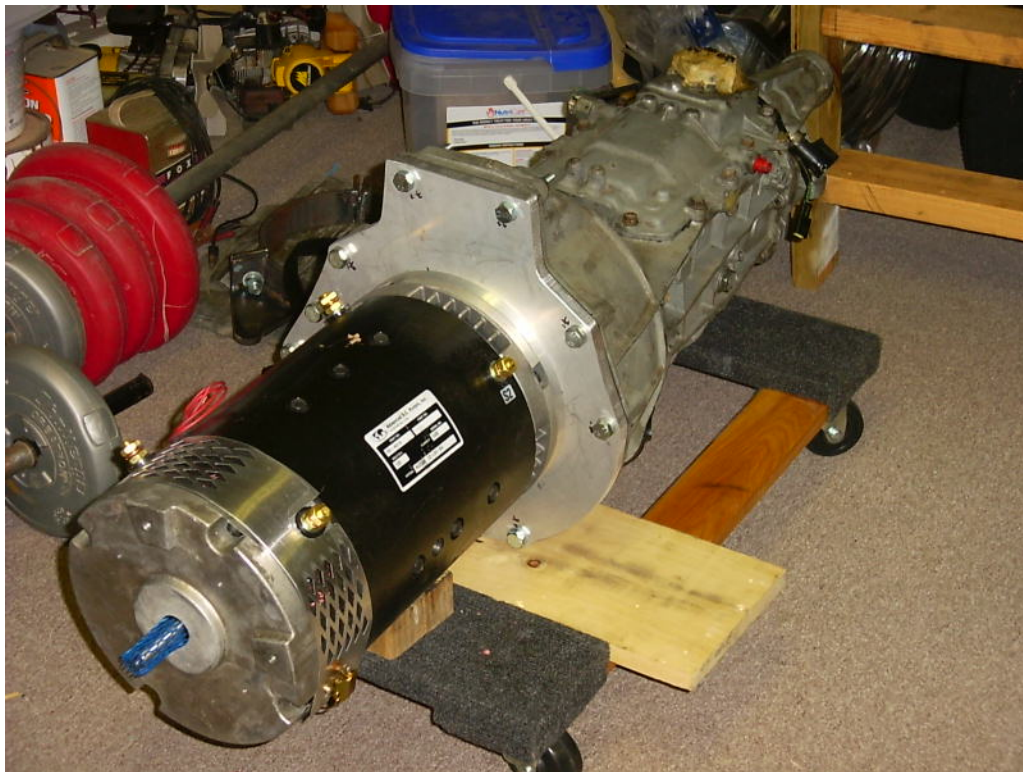
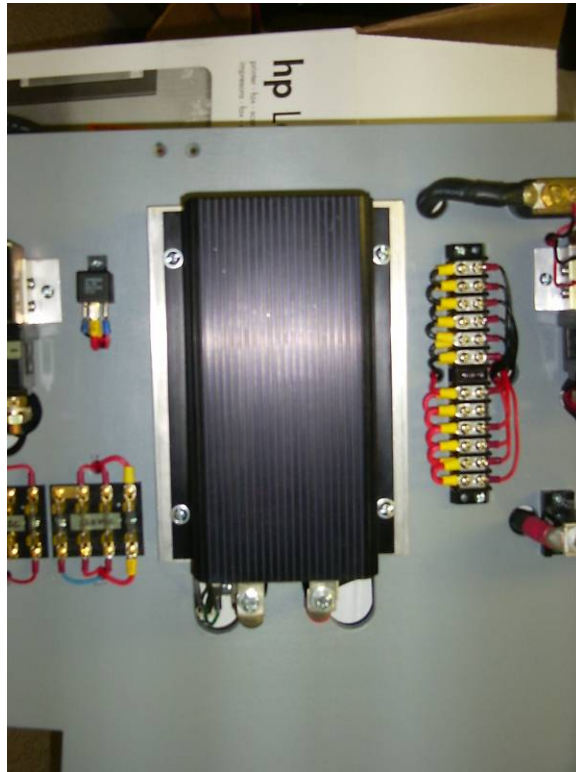


*Ken Watkins Pulling the engine*



*Anthony Rish  
(Wallingford, CT)*

*Wayne Koester's Conversion  
In Progress*





*Wayne Koester – Motor & Transmission  
(Aberdeen, SD)*



*1972 Datsun with ALLTrax AXE-7245  
Improved performance*

*Bob,  
Thank you, so much. With your assistance this job went smoothly  
and even easier than we we expected, which rarely ever happens.  
It's great to be driving her again!*

*Brett Tollaksen  
(Wisconsin Dells, WI)*