Fox Valley Electric Auto Association
1522 Clinton Place
River Forest, IL 60305-1208

Address Correction Requested

NEXT MEETING: Friday, June 19 at 7:30 PM in Room K-161 at The College of Dupage SW Corner of 22nd Street & Lambert Road in Glen Ellen.

DISCUSSION TOPICS - 1. Conversion procedure presentation by member John Emde. 2. Offer to donate pickup truck 3. "Ask The Fox" general discussion.

MEMBERSHIP INFORMATION

Any person interested in electric cars is welcome to join the FVEAA. The cost for a full year's dues is $20 which will entitle the member to receive our monthly Newsletter that contains useful information about electric car components, construction, policies and events. Dues for new members joining in April will be $ 12.

To obtain information about the FVEAA, you may contact either President Woods or Vice President Shafer:

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June, 1998 PRESSEZ

John Emde is preparing a procuedure on conversions and will illustrate the first steps in a half-hour presentation. It is targeted for a pickup conversion.

Rich Goff, who attended our DuPage College summer event tracked me down and offered donation of his 1986 Ford Range pickup that cannot pass the emisssions test to the FVEAA for a conversion project. This will be discussed and considered.

If you have something about electric cars on your mind there will be an "Ask The Fox" session. The Fox is the collective wisdom of members attending the meeting.

Ken

MAY 15, 1998 MEETING MINUTES

The May 15 meeting at the College of DuPage was called to order by President Woods at 7:45 PM. Fifteen members and one guest attended.

The minutes of the April meeting were approved as published.

Treasurer Corel reported $ 175.47 in the checking account and no change in the savings account. All Participation Shares for the Nissan Project have now been redeemed. The FVEAA again thanked members who donated their shares.

Member Jerry Mitchell reported on the exhibition of his two cars at Glenview's Earth Day. He was helped by Ken Meyers and Paul Polster. Ken Woods attended the Armington Earth Day event in central Illinois. This is the site of several earth-sheltered homes. It rained. The rain also washed out the Bolingbrook event where Ed Meyer was to be.

The FVEAA was also invited to attend tomorrow's event in Plum Creek nature preserve in eastern Will County. The site is remote from any member's house so participation is questionable.

Member Fred Kitch gave an update on the status of his purchase of a Ford Ranger. The dealer's mechanics have been sent to school and problems with the battery heater are being resolved. He has received an instructional video but not the vehicle.

Member George Krajnovich reported at 46.6 mile round trip with his recent Omni conversion. He plans to replace his Wiley controller with a Curtis unit.

Member Ken Meyer solved the noise in George's supply wiring to his charger by installing a 1kw constant-voltage transformer. This improves the power factor but reduces total charger system efficiency.

Additional work on the charger is in progress. Member Ed Meyer who designed and built the charger is revising its operation. Charger input is made up of two parts:

Apparent Power = Real Power + Reactive Power.

A high value of reactive power in George's charger is due to the portion of the applied sine wave voltage used for charging (chopping the input current @ 20 kHz). Presently only 2/3 of the meter amps are useful and 1/3 causes noise and heating of the supply circuit.

There was a discussion of battery charging.

A possible summer event was discussed. Past events at Fermi Lab, the Fox Valley Shopping Center, at Triton and Du Page Colleges, the World of Wheels, Earth Day appearances, and various parades were reviewed. The consensus was to find an existing event well-attended by the public and bring our cars there.

The meeting was adjourned at 10:15 p.m.

Submitted by:
Secretary Dave Aarvold

RECENT ARTICLES ABOUT ELECTRIC VEHICLES

Partnership for a New Generation of Vehicles (PNGV) evaluation. IEEE Spectrum, June 98, Page 93. The PNGV program, a cooperative effort by US Departments of Energy, Transportation, and Commerce, and the Big 3 automakers was evaluated by the National Research Council, the principal operating arm of the National Academy of Science & Engineering. The project objective is to develop an affordable, fuel-efficient car getting 80 mpg (34 km/liter) for production by the Year 2004. The concept car is due two years earlier.

Several hundred automotive technologies were considered and a short list of candidates has emerged. Direct injection diesel engines and hybrid cars are on this list. A 121-page report and 13-page executive summary is available for $ 32 from the National Academy Press, 2101 Constitution Avenue NW, Box 285 Washington, D.C. 20035, or (800) 624-0242.

Mercedes-Electric Fuel testing program for the German Postoffice ends. IEEE Spectrum, June 28, 98, Page 93. The partnership Mercedes supplied the vehicles, an MB410E van, and the Israel company the zinc-air battery. High costs and slow battery delivery were cited as reasons.

GM's EV-1 set to run cross country. IEEE Spectrum, June 98, Page 93. Kris Trendler, a Los Angeles film editor is planning the trip. A principal challenge is battery recharging every 75 miles. If the 120-volt onboard charger were used the trip could require three months to complete. Trendler will carry a 240-volt, 6.6 kW charger in the car so only 45 minutes will be required. The biggest problem - locating 240-volt , 30-amp outlets across the country. (Editor's note - this is an electric dryer circuit. Bob Aronson twenty five years ago faced the same problem in the MIT-Cal Tech cross-country race. He got cooperating utilities to provide charging spots along the route). More info on web site http://www.ev1.pair.com.

The Panoz Q9 race car expected to run in the 1998 LeMans race didn't make it to the starting line. Popular Science, July 98, Page 35. The propulsion system consisted of a 450 horsepower engine and a parallel hybrid arrangement having a permanent magnet Zytek DC motor providing an additional 200 hp (peak). A small capacity NiMH battery and regenerative braking made up the electrical system. An onboard computer responding to driver demands decides the ratio of gasoline and electric power. It failed to run fast enough to qualify.

The case for diesels goes up in smoke. Car Talk Column, Chicago Sun-Times. "My husband wants to buy a diesel engine Ford pickup. He claims it is less polluting than gas but I think diesels stink." What's your opinion? -Alice.

Reply: Diesel fuel is just a step more refined than primordial ooze. However, diesels produce less carbon monoxide than gasoline engines but they also emit twice the hydrocarbons, four times the nitrous oxides, and five times the soot. The diesel engine lasts a long time but they are noisy, slow, and hard to start in cold weather. We think your husband just wants a big honking truck.

FROM OTHER EV NEWSLETTERS

AVEA, the Australian Organization in their March/April Newsletter featured three "EV Races", an imaginative series of articles that surveys where electric cars are today. The first is the *Advanced Battery Handicap* covered by an article by Don McGrath. He notes that lead-acid batteries have about reached their limit in terms of performance but their $ 150/kWh price is the low and will insure their use in limited range EVs. NiCads have better range and cycle life but their $ 350/kWh is a barrier. Sodium-Nickel-Chloride batteries (Zebra by Daimler) operate at 270-350 degrees C that introduces cost and application barriers.

Zinc-air batteries are offered by Electric Fuel and Kummrow AG. This is not a rechargable battery. It requires the physical replacement of spent materials. This battery has a high energy density and very low power density.

The NiMH has high energy and power density as well as a 2000 cycle life. The present cost of $ 1500/kWh is now ten times that of lead acid batteries. Lithium-ion (LiON) batteries by VARTA have an exceptional range of energy and power densities. They require additional development. This design requires processing expensive materials.

The Lithium-Polymer battery is the last entry in this race. Hydro-Quebec in Canada and 3M in the US have been working on this concept for 20 years. Building this battery is a challenge because of the reactivity of metallic lithium during fabrication. Safety concerns in operation will be a limiting application factor.

The second "Race" is called *The Hybrid Vehicle Stakes.* So far there is only one commercial entry, the Toyota Prius. Other manufacturers are working on prototypes and concepts.

The third "Race" is labeled *The Fuel Cell Cup.* Thus far Daimler, the Toyota RAV-4 have been exhibited. It is likely that methanol will be the fuel of choice for these vehicles.

The issue also contains an extensive article describing GM's development of the EV1, an account of the formation and activities of the California Electric Transportation Coalition, and Bob Wayland's first-hand description of his *Zombie* drag race car meltdown caused by his accidental shorting of the 336-volt Genesis battery pack during final preparations two weeks before the Phoenix "Desert Drags" EVent.

VEVA, the Vancouver group in their May newsletter featured a report by Dave Koehn who described his work to restore a Jet Industries *Electricia 007* car to operating condition. He was the fourth owner of the vehicle. He drives the car 29 km to work every day and holds depth of discharge to about 50% by opportunity charging at work. The second report was by Warren Bourgeois on his Esun, an electrified 1981 Datsun. He drives the car 40 km to work and back. His motivation to go electric was environmentalism, not technology. He says he is a good test case for the viability of electrics for the average ecologically oriented consumer. His e-mail address is warren@kwantlen.bc.can.

FROM OTHER EV NEWSLETTERS - Continued

SEVA, the Sacramento Association in their May newsletter described club activities, including the clean air commute on May 5. SEVA is also a member of the Electric Auto Association and relies on that group for most of their EV information in that publication.

EV Circuit, the Ottawa group in their Mar-April newsletter had an article about the "Electrifly" a 1991 Pontiac Firefly convertible that was electrically powered by its owner, Monte Ginsburg. This was his first conversion. Solicitations from the local Pontiac dealer, the Public Utilities Commission of Peterborough, and General Electric produced material and other assistance with the project. The car was entered in the Tour de Sol and finished the 350-mile, 5-state run in spite of an inadequate on-board charger that could not give the vehicle a full recharge within the allotted time. The car has an effective 60-mile range and 60 mph top speed. Since the race, the car has been upgraded and now has twenty 6-volt batteries and a more powerful off-board charger for the 1998 Tour de Sol event.

For the third time REV Consultants, an Ottawa-based EV firm, exhibited electric cars at the annual **Autorama.** This is a hot-rod show in Ottawa similar to Chicago's World Of Wheels event. Rick Lane's conversion of a Cavalier that was in progress allowed people to see the electric motor and other details. There were realistic questions about comparative cost and advantages of EVs, a contrast to the usual comments about a long extension cord.

They report that electric bicycles are available from ZAP in Sebastopol CA for $ 649 and conversion kits for $ 375. They now have stores in San Francisco, New York, and Hawaii. Information about ZAP products is on the Web at www.zapbikes.com

Global EV News in their May issue had a story about Americanizing the Toyota Prius. Car sales in Japan are exceeding expectations. The car is designed for Japanese congested traffic conditions that include urban driving with many stop-start cycles. The small engine is not capable of running the vehicle with a payload at highway speeds. The Atkinson-cycle engine is designed for many stops and starts but cannot pass California emission standards that do not recognize the engine is shut off when the car is at idle. The American version will be built on a larger platform to hold physically larger Americans.

Mike Bianchi has a report on the Tour de Sol that has been dubbed the Tour de Sog since it rained every day during the run. Solar cars had to be recharged from outlets. Data collected from participating cars show that a gallon of crude oil extracted, shipped to a refinery and processed into gasoline burned in a very efficient internal combustion engine will get 35miles per gallon. A similar gallon of crude sent to a fossil-fired electric plant with energy delivered to a house and used to recharge an EV battery will get 65 miles per gallon.
There were 35 participants; five in the Production Class, twelve in the Commuter Class, ten in the DOE Hybrid Group, four in the DOE Solar Class, and five classed as one-person.

FROM OTHER EV NEWSLETTERS - Concluded

The issue also has an article about EV America's tests comparing the Ford Ranger EV and Chevy S-10 Electric. In a city-country driving cycle both pickups went about 60 miles. At a constant 60 mph, the Ranger did 57.9 miles and the S-10 38.8. Both vehicles use a 312-volt system. Ford does it with thirty-nine 8-volt Delco batteries while the S-10 uses twenty-six Delco 12-volt batteries. Complete results are posted on the Web at http//:ev.inel.gov.sop

The PNGV Program has picked hybrid electric vehicles as the major development area. Several technologies have been including flywheels, ultracapacitors, gas turbines, Sterling engines, and battery-only electric vehicles. Other survivors include improved quieter diesels and fuel cells. The Study - Review of the Research and Development Plan for the Office of Advanced Automotive Technologies, Committee on Advanced Automotive Technologies Plan is available for sale from the National Academy Press, 2101 Constitution Avenue NO, Box 285, Washington DC 20055. Web information at www.nap.edu

The DOE thinks that in the next century cars will likely be powered by electric motors. The DOE comprehensive energy strategy is available from the US Department of Energy - Office of Policy and International Affairs, PO 62, 1000 Independence Av. SW, Washington DC 20585. (202) 586-4447.

The June Executive Report of GLEAA had a 3-page Mike Bianchi article on the Tour de Sol. He also noted that Publisher Larry Dussalt demonstrated and electric (motor)cycle at the event. The bike is built by EMB in Sebastopol. It has a 52-inch wheelbase, weighs 340 pounds, a top speed of 45 mph, and is powered by a 2-phase variable reluctance brushless motor. Two paralled strings of sealed lead-acid batteries are used. Info about the Lectra VR24 is on theWeb at www.motorbike.org

Another electric (motor)cycle, the eCycle was described in VEVA's May newsletter. It has as much rear-wheel torque at a 500 cc engine cycle. A 2.6 Kwhr, 134-volt sealed lead-acid battery and 14 Kw DC permnanent magnet motor gives a 0-60 time of 6+ seconds and a range of about 50 miles. This vehicle costs $ 4300. For info call (610) 779-7812 or mail to PO Box 12613, Reading PA 19612, or http://www.e-cycle.com

Back to the June GLEAA issue, a "Smart Wheel" bicycle hub motor is described. This 6 1/2-inch diameter, 24-volt 8-pole brushless DC motor is rated at 400 watts continuous (750 watts peak), weighs 6 pounds and can be attached to any bicycle. The motor has a sticker price of $ 500 and may be sold in bike shops as an add-on product. The company is located in Worcester, MA.

Another pancake-style, permanent magnet motor rated at 50 kw developed by PREMAG.has a 12 inch diameter and weighs 30 pounds. It is designed for hybrid vehicles. Info on this motor can be obtained from Dr. Dantak K. Rao, President of Precision Magnetic Bearing Systems, 36 Green Mountain Drive, Cohoes NY 12047 (518) 783-4514 (518) 783-4343 or e-mail at raod@global2000.net