Fox Valley Electric Auto Association
1522 Clinton Place
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John Emde
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Address Correction Requested

NEXT MEETING: Friday, August 15 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. Updating report on the Future Car Challenge. 2. Begin construction of a decision tree for an EV conversion. 3. Open Topics.

MEMBERSHIP INFORMATION

Any person interested in electric cars is welcome to join the FVEAA. The cost for a full year's dues is $20 that 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 August will be $ 6.

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

President - Ken Woods
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AUGUST 1997 PRESSEZ

A speaker from Argonne Laboratory has been invited to give us an update on the Future Car 1997 Challenge that was held in June. Twelve selected universities have been given a full-sized sedan from one of the Big 3 auto manufacturers. The objective of the competition is to produce a car that retains all the safety features of a standard car and has a fuel economy of 80 mpg. Last year ten of the twelve cars were hybrid-electrics. The Future Car Challenge is a part of the Partnership for a New Generation of Vehicles (PNGV) jointly sponsored by the US auto manufacturers and the Department of Energy.

We also plan to start construction of the conversion decision tree (If the lights are on).

KEN

MINUTES OF JULY 18 MEETING

The meeting at the College of DuPage was called to order at 7:35 PM by President Woods. Eleven members and new member Richard Calvanio attended. There were no lights at the College, including Building K, due to an earlier electrical storm. The meeting was held in the hallway under the battery-powered emergency lights.

Treasurer Corel reported $ 2322.42 in the savings account and $ 1368.40 in the checking account. His report, and minutes of the June meeting, was accepted.

Member Ed Meyer reported on replacement of the Nissan rear springs by Joliet Spring Company. Ed located the firm through contacts with a Hot Rod Club. He drove the Nissan to the plant where it was recharged for the return trip during the work. After a professional computerized analysis was made, variable rate rear springs were custom wound and installed. The resulting ride height is within 1/4 inch of original specifications. The rubber cushions under the front struts were also replaced. On the return trip Ed noted the handling was greatly improved.

Member Ed Krajnovich is making good progress with his new conversion. Some electrical parts and instrumentation have been removed from his Mechanix Illustrated Towncar and reused. He is willing to sell the "glider" for a very nominal amount to a club member willing to equip the car with new batteries and minor parts to put it on the road. The glider includes an 8HP GE series motor and an engine-generator hybrid arrangement. The car is built on a VW "Bug" chassis so replacement running parts are readily available. Anyone interested must call George at (630) 850-7246 before the end of August when the car will be junked.

Member Shafer reported a battery problem. A 3-unit filler cap popped off while driving. This occurred after the battery was rewatered and equalized. Overwatering may have contributed. Evidently the event was caused by an internal high-resistance connection. High currents flowing thru the fault probably caused the electrolyte to boil. He replaced the faulty unit in the 72-volt string. The batteries were installed in 1991. He expects to replace the remaining 11 units this fall.

The major business at the shortened meeting was acceptance of Ed Meyer's offer of $ 4500 for the Nissan. Payment will be amortized over the next 12 months with a zero interest rate. This will allow repayment of Participation Shares that financed the Project. Treasurer Corel will develop a repayment and refund schedule. Additional details will appear in the August Newsletter.

Member Mock has developed a controller and plans to design a board for electrical components. It will be available for members doing a conversion project.

President Woods was asked to contact Member Helenowska and determine her plans for her converted FIAT 128 sport coupe that is not running. A new battery is probably required. The car has an aircraft starter-generator, a Stockberger-Meyers transistorized controller, and has two solar panels on the roof. The car was originally converted by at Electric Auto Crafters. She also has a Jet Industries Van, named the Steinmetz Eco-Star in recognition of the High School where she is a science teacher.

The truncated meeting adjourned at 8:59.

Submitted by Secretary
Dave Aarvold.

RECENT ARTICLES ABOUT ELECTRIC VEHICLES

Chrysler, Delphi see future in fuel cells. Chicago Sunday Tribune Section 12, page 7. These two automotive companies see the fuel cell as the most promising technology to reduce future emissions and increase mileage. They are collaborating to build and test a prototype cars with fuel cells. Other companies with active fuel cell programs include Mercedes-Benz, GM, Toyota, Ford, and BMW.

Scientists, automakers in drive for 80-mpg car. Chicago Sunday Tribune, Section 12, page 7. The Department of Energy and US manufacturers are collaborating in the Partnership for the Next Generation of Vehicles (PNGV). This is the so-called "Green Car" project, an outgrowth of Amory Lovins by his Rocky Mountain Institute. The project goal is to create a vehicle that would triple the present industry 26-28 mpg requirement. Research by Sandia Laboratory to develop a new catalytic converter that would allow use of lean-burn engines and improve mileage.

City begins using electric shuttles downtown. American City & County, May, 1997, page 58. The City of Santa Monica CA transit service has started operating an experimental electrical bus shuttle service. Each vehicle has 108 six-volt NiCad batteries that can run for 10 hours with speeds up to 40 mph. The program is funded by an Air Quality Management District grant of $ 188,000 provided by Southern California Edison, and four of the city's top hotels. Buses costing $ 226,000 each were purchased by local transportation funds.

West Coast contractors gear-up for electric cars. CEE News, July 97 Cover story. Electric cars will require charging stations for high-power recharging. Each GM EV1 requires a $2500 charging station at home. House rewiring is extra. Opportunity charging in public locations will also require special facilities. The Los Angeles Department of Water & Power has awarded a contract for 132 sites each equipped with both inductive and conductive type connectors. Each electric car plugged in can get up to 500 kWh/month for $1. The chargers for Santa Monica's shuttle bus line (See preceding story) require 480-volt, three phase supplies. Several CA banks are providing charging facilities at their lots that customers can use for a quick top-off on a no-fee basis while they bank.

Diversified Technologies in Bedford MA has been chosen by MA, NY, and NJ to develop charging stations according to a recent press release. They have already installed seven stations in MA, including a 12kw photovoltaic grid-tied array at an Metropolitan Boston Ttasportation Agemcy commuter station. Their design has two charging plug-in facilities located in a single cabinet. Info on their product can be obtained over the www at info@divtecs.com

Lee Iacocca returns to the auto limelight. Daily Herald 6/23/97, Section 7, page 5. He was also the subject of a news item concerning life after retirement on NBC television news. He has signed letters of intent to market electric bicycles with Taiwan's bicycle manufacturer, Giant Co, and UQM Electric Co. In 1996 he also formed a company called EV Global Motors. Initial products are expected in 1998. If these are successful, he could move on to electric cars.

RECENT ARTICLES ABOUT ELECTRIC VEHICLES - Concluded

70 mpg Hybrids - Toyota takes the lead in the race to develop a superefficient car. Popular Science, July 1997, page 66. The lack of engine noise at a stop sign in the new Toyota hybrid is like the initial experience with an electric car - there is an overwhelming urge to turn the key and get it running again. The control shuts off the engine when the car is stopped since there is no logical reason to waste fuel. When the accelerator pedal is depressed, the car moves out under the battery power and the engine restarts. The engine and electric drive systems are meshed by a power splitting device.

The power splitter is a planetary gear arrangement. The engine drives the inner ring, the alternator is on the sun gear, the motor and drive the wheels are driven by the outer ring gear. The 1500 cc engine is a Toyota-developed Atkinson-cycle type that has efficient operation within a narrow range of engine speed. The engine uses a short compression stoke and an exaggerated power stroke.

At starting and low speeds, the AC motor-NiMH battery is engaged. As the car approaches normal speeds, the engine is started to power the car and recharge batteries. High power demands during acceleration combine the engine and motor torques. It has regenerative braking. The car will go on sale in Japan next year for a price about $ 2000 over a standard Toyota.

The article also reports on Ford's P2000 Project car that was developed as a part of Ford's participation in the PNGV program. The car will be developed in three stages. Initially the 1300 lb. chassis will have a direct-injected diesel that is more commonplace in Europe. The engine is expected to achieve a 25% gain in efficiency. New electronic controls of injection timing reduce the noise and emission problems with conventional diesels.

The second stage will be to equip the car with a low capacity battery and a starter-alternator that will provide regenerative braking. The third stage will add a larger battery pack, drive motor, and electronically-controlled transmission and clutch. A prototype of stage one is expected this year.

FRED KITCH'S RESTORATION OF A BRADLEY ELECTRIC

Member Fred Kitsch acquired a disassembled Bradley and has been working on returning the car to operating condition. He would like to see a working Bradley GT Electric. He also wants to purchase a copy of a "shop manual" that contains electrical diagrams. If any person receiving this newsletter can help please call Fred days at (708) 547-0900, ext 137. You can also write him at 171 East Burlington Avenue, Riverside, IL 60547-2147.

FROM OTHER EV NEWSLETTERS

AVEA, the Aussies, on the front page of their May-June newsletter featured fleet applications for converted Ford Courier and other pickup trucks. They note that in many countries fleets are seen as a niche application where EVs can successfully operate. An Australian government report says that "Governments and local authorities should use their power as fleet operators and service contractors to take the lead in putting alternative fueled vehicles on the road."

They also published a communication from Jim Lissman about his $ 18,000 conversion of a Ford Courier. He reports an energy economy of 200-220Wh/km and a battery amortization cost of six cents/km (The same as FVEAA experience of 10cents/mile). Aflex 70 mm interconnecting cables have a one-hour rating of 335 amps, and a one-minute rating of 794 amps, about 50% higher than the common 2/0 cables used in the US. His off-board charger weighs 40 kg (99 lbs.).

The issue also gleans many EV stories from CALSTART's Internet listing: http://www.calstart.org/news@(calstart.org) . The Internet provides an excellent way for Aussies to keep current on EV stories and developments around the world.

This issue of the monthly FVEAA newsletter has the one-page a report on the 1997 NESEA Tour-de sol by Michael H. Bianchi published by AVEA.

EEVC, the Eastern Group, in their June/July issue featured a fuel cell discussion by DIAS Corp. executive at the EEVC annual dinner meeting. This company has developed a new proton exchange membrane (DIAS 585) that is less costly than DuPont's Nafion . A 70-watt test module ran nine hours on a cylinder of hydrogen about the size of a small can of shaving cream.

Electric Grand Prix Corp., Paul Heaney's group in Rochester NY in their Jul.-sept newsletter contains a report on GM's EV1 appearing in the March 3 AUTOWEEK, and a critical analysis of the story by Editor Paul Heaney. He concluded by stating the article author drew "inflammatory conclusions without including objective evidence."

The newsletter also contains articles from CALSTART and reports interesting facts from the Clean Cities Conference held in Long Beach CA in June. The transportation sector accounts for 50% of energy consumption. Sixty five percent of petroleum fuel will be imported by the year 2000. In 1996 petroleum contributed $ 60 **billion** in balance of payments deficits and an estimated $ 50 billion in air quality related illness costs.

EV Circuit published by EVCO in Ottawa Can in the May/June newsletter contained articles relating to their local interests. These include meeting minutes, a report on an electric car contest, a story on an electric boat built by one of their members, Electrathon developments, car shows, and articles from the Internet.

FROM OTHER EV NEWSLETTERS - Concluded

EV News, published GLEAN, in the July issue contains another NESEA report by Mike Bianchi. There is an article concerning leasing the GM EV1. Responding to a decline in interest, GM reduced the monthly lease charge to $399 by increasing the estimated residual value of the vehicle and reducing the lender interest rate from 9.5 to 8%. "Sticker" price remains $ 33,995.

A report from Chattanooga covers the city's use of one 31-foot and nine 22-foot buses, running 16 hours a day. The fleet is backed up by a "Living laboratory" garage in downtown where batteries are exchanged three times a day. The city is home to Advanced Vehicle Systems (AVS) a bus manufacturing facility that so far has sold 60 buses nationwide.

The issue has a detailed article about the joint venture of Ballard Power Systems and Daimler-Benz to apply fuel cells, particularly buses, to vehicles.

They remind readers that on September 25-27 ElecTrack 10, a Formula Lightning electric car race at the Indy 500 track, and ElecTrack 97 - a Hybrid EV and Racing Symposium will be held in Indianapolis. A three-day registration costs $145. For info contact Steve Bryant (317) 278-1661.

THE NISSAN PROJECT IS COMPLETE

Acceptance of Member Ed Meyer's $ 4500 bid for the Nissan completes conversion work. Ed contributed several innovations used in the conversion and is familiar with the car. One project objective was to provide a club member with an electric car. That is now accomplished. He stated the car would be available for FVEAA future functions. He also requested the assistance of work team members to help with future improvements he has in mind.

Redemption of Participation Shares remains before the Project is closed. The "friendly" sale includes a personal unsecured note carrying no interest and amortized over the next 12 months. The survey that President Woods was to conduct, as noted in the July minutes, is now moot. Participation Shares will be redeemed as the note is amortized. Treasurer Corel was authorized to proceed with a reimbursement schedule.

On July 26, Member Ben Schmidt of Munster, Indiana advised the FVEAA he wished to donate his Participation Share to the Club. His generous offer is appreciated. Ben asked if the FVEAA is a tax-exempt organization. Only a religious or charitable group qualifies for a tax exemption for contributors. The FVEAA is an educational organization and does not meet the requirement.

A telephone discussion with FVEAA Officers decided to recommend at the August meeting that members approve granting Ben, and anyone else who makes a similar offer, a paid-up 1998 membership in recognition of his contribution. An IRS tax deduction would produce a $ 28 savings @ a 28% tax rate. It seems fair that we abate Ben's $ 20 membership fee for next year Thanks Ben. If you are in the Chicago area get in touch with Ed Meyer to take a test drive.

1997 NESEA American Tour de Sol

A Reporter's Final Thoughts

by Michael H. Bianchi

Fri, 30 May 1997

The NESEA Tour de Sol is a wonderful place to see electric vehicle technology in the real world, "on the hoof". As the tour travels from town-to-town, over real roads, dealing with real traffic, and real road hazards (including a bear and a moose this year), the vehicles get put to the test.

I am sad to say that the most significant event of the NESEA Tour this year, in my mind, is the same as last year. Both years only Tom Hopper in his `Hopper EV' drove from home to the event, through the event, and then home again. It's little diesel engine generator trailer gave it the ability to travel the entire rally on its own. (In fact, Tom was able to travel one leg of the rally with a dead battery pack because of the engine/generator trailer. More on that in a future Report.) None of the other Hybrid Category vehicles came under their own power, and I find that sad. The entire point of having a hybrid EV is to have practical range, good fuel economy, and low emissions.

The `Solectria Force NiMH' did drive home from Portland Maine to Boston, but it was trailered to Waterbury CT to ensure against any accidents before the race. It gets half-credit.

But maybe I protest too much.

We had more vehicles with advanced energy storage systems (which still means batteries; those promised flywheels have yet to show up) than ever before. #76 `Solectria Force NiMH', #99 `Toyota RAV4-EV', #72 `Sungo', #88 `Evolution', #35 'Hyades', and even the #15 `Yankee Peddler' bicycle, had Nickel Metal Hydride batteries in them. The Ovonic Battery people were as proud as they could be. (They were also massively disappointed when the battery pack in #88 failed. More on that in a future Report.) Add to those #55 `Ecostar' with its Sodium Sulfur battery and #79 `59 Berkeley' with its Nickel Cadmium battery and it was quite a field of high energy density batteries.

Solectria and Ovonic once again established a new NESEA Range record with their 249 miles per charge run in #76 through the White Mountains of Vermont and New Hampshire.

This year, as last year, I sense that the major thing standing between us and long range pure electric vehicles is the need to scale up the mass production of high energy batteries so the prices can come down. The good news is that it is happening. The bad news is that there are many of us who are getting itchy waiting.

The fit and finish of many of the vehicles was absolutely top notch this year. Toyota's `RAV4-EV' is as refined as anything you will find in a showroom, and Ford's `Ecostar' is still in fine shape after 4 years on the road. Several of the student built vehicles are bright and shiny and tight. #88 `Sol Survivor IV' is particularly pretty. I also like the way the teams that built #88 `Evolution' and #8 `Electric Lion' made their somewhat complicated vehicles look neat and well organized. #12 `Charger Bicycle' is also a fine example of clean implementation. I'd say that the general quality of the vehicles has risen again, significantly.

The `Charger Bicycle' gets my nod for most innovative control system. The electric assistance on the bicycle is not controlled by a twist throttle, as on a couple of the other bikes, or by a constant-setting control seen on the #47 `Electra' bike. It adds energy in proportion to your own pedaling. You set the level of added energy you want, 1, 2, 3, or 4 times more, and then pedal.

The system measures your torque using a unique strain-gauge arrangement, and then adds its contribution. Clever and simple to learn. But not for the lazy. If you don't pedal, it doesn't either.

The Hybrid Category, in spite of my complaints above, did demonstrate that they could go the distance. #18 `Kineticar' drove 379 official miles (440 actual miles) on Day 3, and #92 `Hopper EV' was right behind them with 342 miles. These are vehicles that can take you anywhere. However, the need to find Compressed Natural Gas (CNG) for one vehicle caused some interesting problems. Unable to find CNG at all the stops, #62 `GarnetOne' switched driving strategy. They plugged in at night and ran pure electric the next day, and then used their CNG to extend their range. It proved sufficient until they got into an area that had CNG available.

It is my sense that we had fewer problems with vehicles than in previous years. I know the charging went a lot smoother. All problems with chargers kicking out circuit breakers were solved before people went to bed. While there were a couple of cases where a car didn't get quite enough energy over night, those were usually corrected in time for the next charge. There are still some very inefficient chargers out there.

We had two cases of electric vehicles being supported by electric vehicles. The #47 `Electra' bike was supported by Bill Glickman in his Jet Industries electric van for a couple of days, and also by an Chevy S-10 pickup truck conversion for a day. And Toyota brought along a second `RAV4-EV' for demonstration drives and also just to take people from site to site as we moved down the road. Toyota also had a gasoline RAV4 running with us so we could make apples-to-apples comparisons between the fuel-burning and electric version of their vehicle.

Some of you who have read these Reports over the years must think I have a very soft spot for the kids from Riverside School. I'll admit that I do. But I am not alone. #93 `Helios the Heron IV' is special to us because the 4th, 5th, 6th, 7th, and 8th graders who did the conversion of their 1971 VW microbus (and they DID do it; not their teachers, not their parents) bring along an infectious enthusiasm. This year, among "firsts" for the Helios team, they started the race with everyone else, they completed the 1st, 4th and 5th legs unassisted, and they were able to fix their one break-down on the road (that took a teacher's help) and complete that leg. If you wanted to see the future, you just had to watch these kids talking to other students their age at the display stops. The light in their eyes and those they were talking to told it all.

So I say again, for my money, the NESEA American Tour de Sol is a great place to see the vehicles and meet the people defining the future of transportation. Make plans to visit us next year.

<bianchi@BELLCORE.COM>

For more information on the American Tour de Sol, visit the web page at http://www.nesea.org

Official American Tour de Sol information is available from the sponsor, the Northeast Sustainable Energy Association (NESEA) at 413-774-6051.

All media enquiries should be addressed to ...

Jack Groh
Groh Associates
Sustainable Public Relations
email: GrohPR@aol.com
(401)732-1551 tel
(401)732-0547 fax

President Ken Woods received a request for help from James Day in his restoration of a Henny Kilowatt. The car is a Renault Dauphine 1960 chassis with a GE motor and 72 volt battery system. This appears to be a car similar to the one acquired by the Sacramento Electric Vehicle Group. It was manufactured by Eureka Williams Corp. in Bloomington Illinois. An inquiry to the firm produced no reply.

If anyone has information that can help James Day, call or write him at (330) 821-8462; 2261 Federal Avenue, Alliance Ohio 44601-4545.

EDITORIAL PAGE

There are times when additional space becomes available during preparation of the FVEAA monthly Newsletter, We can mail five double-sided pages and stay below one ounce for a 32-cent postage. Last month, for the first time, I filled an incomplete page with an editorial. This extra space belongs to the Organization.

If any member, or exchange Newsletter recipient, has something to say about electric cars, I will be glad to include it in a future newsletter. Your comment should be double-spaced if handwritten or typed and snail-mailed, or it can be e-mailed to my address shown in each newsletter where all the features of word processing are available. All editorial prerogatives apply. No suggestions such as, "Why don't you belt a generator to the wheels to extend the range?" will be published - the Editor doesn't believe in perpetual motion.

Bill Shafer
FVEAA Vice-President & Newsletter Editor.