FOX VALLEY ELECTRIC AUTO ASSOCIATION NEWSLETTER FOR SEPTEMBER, 2001

NEXT MEETING: Picnic on September 14th at 7:30PM in Ed Meyer's Hangar at 216 Sunshine Drive in Bolingbrook

DISCUSSION TOPICS: None scheduled but there will be 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 which will entitle members to receive our monthly Newsletter that contains useful information about electric car conversions, construction, news, policies, and events. Membership is not required to attend our meetings. Dues for NEW members joining in October $ 2.

To obtain info about the FVEAA you may contact either Past-President Ken Woods or President Shafer

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PRESEZ

Member Ed Meyer will again host our annual picnic in his hangar on the west side of Clow Airport on September 15th. A map is included in this Newsletter (Except for the e-mail version). Bring your lawn chair, mosquito repellent and $ 3/person food and beverage donation.

Triton Project mechanical work is almost completed. Electrical component installation and wiring will begin September 8th. Triton has been advised that the original completion must be extended from September 9th to October 20th. There are two reasons for this; mechanical work is sequential and time-consuming. Three Saturday sessions were not scheduled. We plan to turn over the Ranger keys to Triton on October 20th, a regular monthly meeting date.

Many FVEAA members and others have dropped by to look at the project. You are invited to inspect the vehicle progress on any Saturday between 10 –2.

I close with a follow-up to the solar energy subject included in the last Newsletter. NREL stated that an area equal to 10% of the State of Nevada, if covered with solar cells, could **power** the entire US. They didn't state if this was **demand (kw) or energy (kWh)**. Nevada has 110,540 square miles. Ten percent of this is an area 105x105 square miles. At 30 degrees latitude the annual solar input is 210 kilocalories per square centimeter (11.5 in the winter and 23.8 in the summer). Is NREL talking about peak power on a cloudless day? Solar energy is primarily a **distributed** source.

BILL

MINUTES OF THE AUGUST 18TH MEETING

The meeting at Triton was called to order by President Shafer at 9 AM. Thirteen members and one gust attended. There were no minutes for the July meeting to consider. Treasurer Corel reported $ 2632.94 in the checking account and no change in the savings account. He report was accepted.

A report on the Triton Project progress. Ray Oviyach noted the machine shop instructors at Triton found out about the Project and offered their help. They will be installing a tow bar attachment and fabricating a hinge attachment to convert the bed to tilt-up operation. This feature is necessary to provide ready access to batteries installed beneath the bed.

The subject of purchase of minor materials, such as fasteners, metal for battery box brackets, was discussed. Project Leader Emde suggested using FVEAA funds to reimburse the persons buying this material and getting Triton agreement to reimburse the FVEAA at the project conclusion. His recommendation was adopted with a $ 400 cap.

Project leader John Emde noted the Project conclusion date must be extended to at least October 20th. The subject was discussed with President Shafer to notify Triton of this requirement. One unresolved item is the he control scheme for adapting the automatic transmission.

The battery charger for the 120-volt, parallel-connected Optima battery systems was discussed. Several innovative ideas were offered. We could always use a commercial KW charger and Rudman regulators. It was observed the regulators operate to switch on a short across the terminals of a fully charged battery. Presumably when the whole string is charged the charger would be faced with a string of by-passed batteries. Unless the charger automatically reduces the current the system could produce unproductive energy losses.

Guest Dr. Peter Lykos, Professor of Chemistry at the Illinois Institute of Technology in Chicago, described a course for graduating engineers that might include an undertaking similar to the Triton Project. The FVEAA offered their help in setting up the course based on our Triton experience.

Member Ed Meyer offered to once again host a picnic for the FVEAA on September 14th at his home. His offer was readily accepted.

The meeting was adjourned at 10AM and the day's work session was convened.

Submitted by Secretary Dick Ness
August 18, 2001

Member's EV Project Status

There have been a number of changes for members working on their EV projects. *Al Wagner* informed me his Berkely conversion is close to being operational. This will probably be the lightest-weight conversion of any in the FVEAA. *Steve Grushas* is nearly finished with his Escort conversion, and *Mark Thole*,out in Savanna IL, is making progress on his VW "Bug". *George Gladic* has acquired *Ed Meyer's* Nissan. Ed is planning to build another EV incorporating the lessons he learned from his EV ownership. *Ken Simmermon* has installed a replacement motor in his Subaru replacing the one damaged by towing while in gear. He is offering to sell the vehicle for $ 2300.

From other EV Newsletters and articles affecting EV's

Current EVents, the publication of the National Electric Auto Association in California has been vastly improved since the new officers took over. New issues have lots of useful information. One new feature is ***Tech Topics***, a collection of EV questions and comments about EV subjects. In the May-June issue batteries, battery charging, and battery interconnections were covered. (Editor's note - the FVEAA has a similar feature called "Ask the Fox". It ceased when no questions were asked. The vehicle for this activity is now the FVEAA website Message Board for Technical Topics.)

The May-June issue starts off with a description of trailer-mounted engine-generator used as a range extender. What makes this unique is the trailer wheels are also powered through an automatic transmission allowing the trailer to also act as a pusher. The Porsche 914 uses ***two*** 8" DC motors. It was built by a Stanford graduate student, J S Straubel,

Part II of Michael Brown's Conversion Manual, *Convert It,* was included in the issue along with a John Wayland's breezy article about EV difficulties encountered at the last NEDRA race. Several pages featured the world's largest gathering of fuel cell vehicles. (As you know I don't consider these EV's. If you want info on these go to website **www.fuelcellpartnership.org/vehicles,html**)

There was a two-page article on the *Charger* pedal-assist electric bicycle. What makes this unique is a control system that supplies a power-assist **proportional to the pedal effort.** Another two pages covered the Carolina EV Challenge.

The July-August issue cover story was a New York Times article about EV-1 use experience. William Kothorf authored an article describing his experience with leasing an EV Plus from Honda. Will Beckett had articles about Solectria's *Force* and Ford's *TH!NK*. The *Force* has a battery charger that allows a choice of 120 or 240 volts for charger input, a nice feature. The *TH!NK* uses NiCad batteries weighing 550 lb. giving the vehicle a 56 mph top sped and 50-mile range.

Tech Talk had an article about battery maintenance and determining cost-per-mile. Lee Hart noted his last set of Sam's Club flooded batteries lasted six years with 12,900 miles accumulated and a per-mile amortization cost of 3.88 cents per mile.

The third part of Michael Brown's *Convert It* manual on motors and adapters was featured.

DEVC, the Denver group's August Newsletter noted there will be a conference for educators in Philadelphia Oct. 18-19 to discuss, "Energizing the Classroom, How students can use electric vehicles?' Tour De Sol group organized the event.

DEVC notes the conductive-inductive charging connection debate has been settled. The conductive won in California when the Board voted for this option because of its lower cost, greater simplicity, and an open standard.

Other items: An EPRI study found that plug-in vehicles with a 60-mile range would have half the emissions of hybrids. NASA is sponsoring construction of an electric airplane. It will use a French MCR-01 all-carbon kit, a 30kW Solectia motor, and a 20 kW SAFT lithium-ion battery pack that should produce a 100-mile range. (I am giving Ed Meyer a copy of the article about this curiosity).

From other EV Newsletters and articles affecting EV's – Continued

EEVC Newsletter issued by the Eastern Club in their June-July issue reported on the Joint EEVC-Greater Washington joint dinner meeting held at the Boyertown EV museum. They also had an account of the participation by their members in this year's *Tour de Sol* event, including the Cinnaminson High School vehicle and a 3-wheel British kit EV

There was an article about a hybrid bus in China that uses two 30 kW Captone turbines that generate 120 amps and double the mileage of the usual diesel bus of this size. The 336-volt battery pack weighs 960 kg. It has a 240 kW (Peak) 90 kW (Average) 3-phase electric motor.

In the August issue EEVC had an article entitled, "The little cars are coming!" It is about the neighborhood vehicle now manufactured by GEM, Ford's TH!NK Division, Lee Iacocca's new venture, the LIDO, and others. Technical specifications are provided for both the 2 and 4 passenger versions of the TH!NK. The two passenger vehicle weighs 980 lb., has a 600 pound payload capacity, a 25 mph top speed, a 25-mile range, six 12-volt deep-cycle batteries, and a 72-volt dc shunt motor with regenerative braking. The body is EV stable polymer built on an aluminum frame.

The February issue of EV News has a rundown on EV federal expenditures in the last budget. This is the last exchange copy of this publication I received and no FVEAA review will be made of this or future issues.

<u>This article appeared in Pioneer Press' August 15 issues of Pioneer Press's Oak Park Paper</u>

Converts find electric car a real gas, by Staff Writer Jonathan Messinger
(Picture omitted and text edited by Bill Shafer.)

Bill Shafer's car hums, but that's about as loud as it gets. It gets him from his home in River Forest to downtown Chicago and back but that's about as far as it goes. And it gets him on the expressway and out of town but he stays in the traveling lane. Shafer's 1980 Mazda is powered entirely by electricity.

Through a Partnership with Triton College in River Grove the Fox Valley Electric Auto Association is teaching an experimental course on how to convert gas-powered cars to battery-powered vehicles. Shafer noted that interest in electric cars is directly proportional to the price of gasoline and an exponential function of gasoline availability at the pump.

The FVEAA forged a partnership with Triton about a year ago after the College invited the FVEAA to hold their monthly meetings on campus. Recently retired Triton President, Dr. George Jorndt, suggested the course earlier this year. Triton recruited seven participants from the community. They and participating FVEAA members are making their cars less combustible.

Ray Oviyach, a now-retired automotive instructor at Triton and a FVEAA Member took on the job as Triton Project manager. He said, "The FVEAA decided to offer instruction on electric car construction hoping it would serve as a catalyst in gaining community interest in alternative fuels."

Oviyach noted, "My wish for the future is to get everyone together – the entrepreneurs, the inventors, the environmentalists – so we have the numbers needed to convince the federal government that electric vehicle development should be supported".

Triton Conversion – Continued

Participants are converting a 1996 Ford Ranger pickup truck. The first step is removal of the engine and associated equipment. These are replaced with electrical components. A DC motor replaces the engine. Deep-discharge sealed batteries are distributed underneath the truck bed and under the hood. The motor is connected to the existing transmission. Oviyach said it is the first FVEAA conversion of a vehicle using an automatic transmission. He continued, "Approximately one-third of the class time is spent on theory and two-thirds in the shop doing the conversion work".

Shafer's Mazda uses 12 batteries to make up a 96-volt system. The heavier Ford will have 20 batteries and a 120-volt system. The charger, located on the car, is a vital element for both vehicles. Shafer's garage has a charger cable hanging from a rafter in his garage. It takes him about 10 seconds to plug it in each time he finishes using the car. The garage wall exhibits a collection of twelve electric vehicle two-year license plates going back to the first vehicle he converted in 1975, following the first oil crisis. His new plate uses a renewal sticker.

Shafer noted, "There are always two questions asked about his car; How fast will it go? And How far will it take me?" He has driven the car 61 miles per hour in fourth gear but hasn't tried fifth gear. Car acceleration is on a par with most gasoline-powered cars. It has a single-charge range of 31 miles of driving in urban traffic. He stated, "You should consider your car a transportation tool and use the electric for short-range trips that accelerate wear on a conventional car engine."

He continued, "My first car conversion ran for 15 years until is suffered terminal rust. Rust is the one thing that will send any car to the crusher", he stated. He removed the motor and controller, selling them to another FVEAA member. They were reused to convert a Ford Escort.

The Project will be completed on October 20th, after twenty working sessions. Triton will use the vehicle on campus. The Project Budget is $ 10,800, using a vehicle already owned by Triton.

Oviyach stated, "The FVEAA is pleased to share its knowledge about electric cars with the participants". Right now there are no major auto manufacturers intending to build an electric car. Instead they have opted to develop hybrids. These cars will deliver 40-60 miles per gallon but still use gasoline. They do not offer the consumer a choice of fuels, as does a plug-in electric car. Shafer noted, " My Mazda is 75% powered by nuclear energy and 23 % by coal according to ComEd's Environmental Disclosure Statement for last year". But then so are all other electrical devices using their service.

The Forbes Magazine September 3 issue had an interesting article on Page 48 about the latest Lee Iacacco venture. His previous try with electric bikes bombed. Only about 12,000 were sold despite rosy predictions of 25,000/year. His new venture, ***LIDO***, is a partnership with golf-car maker Western Golf. They will be offering a modified golf cart as the newest neighborhood EV.

This new venture has something going for it that the bike venture lacked. The California ZEV Mandate will issue four electric car credits for every oversexed golf cart he sells. GM is interested in buying these credits for $ 5,000 each. He could realize $ 30,000 from the sale of one vehicle: $ 10k for the vehicle and $20k for the credits. The vehicle costs about $ 5k to make. If he sells **half** of his production run of 5000 vehicles, the electric credits could be worth $ 50-million.

Editor's note – I think there should be only one credit and it should go to the vehicle ***purchaser*** not the manufacturer. Purchasers are also eligible to receive a 10% Federal Tax credit. Only in California……

From other EV Newsletters and articles affecting EV's - Concluded

Pioneer Press had an interesting article in the July 5th issue about the long life of a 1966 Volvo that has almost 2-million miles on the odometer. It holds the Guinness Book record for the most miles accumulated by a non-commercial car. The original engine was rebuilt at 675,000 miles and there have been numerous other repairs made. When owner Irv Gordon bought the car he was impressed by the ad that said the average Volvo lasted for 11 years. (EV converters should be looking for a Volvo)

Map omitted on e-mail edition