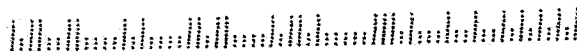


**Fox Valley Electric Auto Association
1522 Clinton Place
River Forest, IL 60305-1208**

John Emde
6542 Fairmount Avenue
Downers Grove IL 60516-2919

Address Correction Requested

60516-2919 48



NEXT MEETING: Friday, August 16 at 7:30PM in Room K-161 at the College of DuPage, SW corner of 22nd Street & Lambert Road in Glen Ellen

DISCUSSION TOPICS - 1. Project Status 2. John Stockberger recognition

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
1264 Harvest Court
Naperville, IL 60564-8956
(708) 420-1118
E-mail Casa Zeus2@aol.com

Vice President & Editor - Bill Shafer
1522 Clinton Place
River Forest, IL 60305-1208
(708) 771-5202
E-mail WHShafer@aol.com

AUGUST 1996 PRESEZ

John Stockberger will be recognized at our August meeting. John founded the FVEAA 22 years ago. He was the first president, and after retiring from AT&T converted a number of cars for others in his workshop. He has been an active supporter of electric cars for a quarter century.

John has sold his home in Batavia and will be moving to a RV development in TN. His new place includes space to park his motor home in a community that includes like-minded RV owners.

The meeting will feature a history of our organization by previous officers. This is an opportunity for the membership to honor John and recall past events and accomplishments of the club.

KEN

MINUTES OF JULY 19 MEETING

The meeting at the College of DuPage was called to order by Vice President Shafer at 7:35 PM. Fourteen members and three guests attended.

Treasurer Corel reported no change in the checking and savings accounts. Not all bills for the Nissan Project have been submitted, but they are expected soon.

Member Meyer reported on FVEAA participation in the Downers Grove Heritage Fest. Only his car made it to the 1-day display location, across from the Library and adjacent to the pony ride concession. Member Clark's car was late in arriving. It was the consensus that if the FVEAA displays cars in next year's event, we should pay the registration fee and place the car in the auto show section where there was a lot of interest and attention.

Project Manager Munroe reported on the Nissan Project status. A reset handle for the 3-pole main breaker and the device is ready for mounting under the hood. The electric trip feature will be wired to a red "panic switch" on the dash to provide emergency tripping. The hood must be raised, the reset handle attached, and the breaker reset in case of a trip.

Wiring is in progress for the 60-volt chargers that were part of the gel cell package. Member Ken Meyers described the difficulty he has experienced with completion of the controller. It has a "back porch" switching pulse that causes unacceptable heating of the components.

The members voted unanimously to purchase a commercially-available Curtis controller and take the pressure off Ken to solve the

problem. Selection and ordering of the controller is the responsibility of the controller task force. (A Curtis Model 1231C-7701) was selected and ordered from KTA Services at the July 20th working session).

Members approved the purchase of John Stockberger's flat aluminum plate for the scrap price of \$ 56. Material has been delivered to John Emde's shop.

Member Shafer led a discussion of the seven "What's Next?" items appearing in the last newsletter. Four additions were made:

- 8) Start Conversion of a 97 Nissan
- 9) Convert an 82 Caddy or 84 Jeep
- 10) Develop a conversion decision tree
- 11) Design & build a controller

The three projects receiving the most support were (Support/Present):

1. Start conversion of a 97 Nissan. (8/14)
2. Conversion decision tree (7/14)
3. (Tie) Electric bike (5/14)
College course (5/14)
AC controller (5/14)

The list will be published in the October Newsletter which will include the 1997 membership renewal applications. This will allow an opinion expression by those not at the meeting.

There have been two inquiries about purchasing the present Nissan

Guests Dan Louis and his son are interested in building a purpose-built electric car over the next three years at which time his son will be eligible for a driver's license.

The meeting was adjourned at 10:45

Submitted by:
Secretary Dave Aarvold

FROM OTHER EV NEWSLETTERS

AVEA, the Aussies, on the cover of their July/August issue featured an article about the 373-mile, single-charge range achieved by The Solectria Sunrise during the 1996 Tour de Sol event. NiMH batteries were used in the car. The same batteries will be used by both Honda and Toyota in their planned introduction of electric cars into the U.S. The Toyota RAV-4 weighs 3373 lbs, has 24 12-volt batteries and a 288-volt permanent magnet motor rated at 45kW. The Honda EV weighs 3600 lbs, also has 24 batteries and a 47kW brushless dc motor. Information on Solectria is available on the World Wide Web at <http://www.solectria.com>.

The issue also notes that Mercedes and Nissan have chosen lithium ion batteries for their electric cars. The "Prairie Joy EV" from Nissan will use a battery, called the Li-ion, developed by Sony. Two companies, Praxitele in France and the Swiss City of Monthey are launching small EVs for instant rental available to multiple users. The "Praxie" is 1.8 meters long, has 4-wheel steering, and uses a joystick rather than a steering wheel. It will be unveiled in Osaka at EVS-13 this fall. The Swiss "Saxi" is a design licensed from Horlacher.

I particularly enjoyed reading an article entitled "Electrathon a' la Dumpster" written by Lee Hart. It recounts his experience with a high school group who built an Electrathon racer from scrounged parts.

AVEA Editor, Patrick Berry, wrote an article entitled "Lead A'int Dead Yet" in which he notes that lead is still the most cost-effective battery for electric cars.

The EEVC Newsletter, published by the Eastern Organization, in their July Edition had an article written by Bill Visher entitled "Are Fuel Cells Ready for the Electric Vehicle?" Several companies, including Mercedes, Toyota, Honda, and the Partnership for a New Generation of Vehicles (PNGV) in the U.S. are exploring the concept. Ballard Power in Vancouver uses an ion-exchange membrane cell. Other types are Molten carbonate and Solid Oxide.

New EV ventures include Malcom Bricklin, Ovonic-Italian joint venture, Bombardier, and Unique Mobility who will build advanced single-speed transaxles for the line of UQM (32 and 53 kW) motors and controllers. They report that Lawrence Tech's Ford Taurus won the "Best Development & Application" award in the 1996 Future Car Challenge. The car uses a UQM motor-transaxle-controller system.

Electric Grand Prix, the Rochester NY group, in their June-Sept quarterly noted two EV articles, "California right to pull plug on electric mandate" appearing in USA TODAY on 2 April, 1996 and "GM EV-1 Not Ready for Prime Time" appearing in the April 22 issue of Automotive News present negative stories about electric cars. In a rebutting editorial, Paul Heany (EGP Editor) had nine comments that are reprinted in this FVEAA Newsletter issue.

Flywheel technology was also a subject of this issue. U.S. Flywheel Systems offering has a flywheel rotating at 150,000 RPM driven by a four pound, 18kW motor. The Satcom unit is used in Chrysler's Patriot race car has a 78 pound rotor turning at 58,300 RPM.

FROM OTHER EV NEWSLETTERS - Continued

The issue gives a listing of fuel cells. Alkaline cells use potassium or sodium hydroxide, operate at 100 C and cost about \$ 5000/kW. Phosphoric acid cells, built principally by Ballard, cost \$1-3,000 kW. Molten carbonate cells operate in the 800-1000 degree C temperature range and suitable for stationary applications. Solid electrolyte cells usually employing yttrium or Zirconium oxides are being developed. Proton Exchange Membrane cells are expensive because they use platinum used in the membrane. They operate at 100 C and are priced \$ 1-1,500/kW. *Thous and / kW*

Some data on ultracapacitors was given. GE displayed a 1500 farad unit that was about 3" in diameter and 9" long. It had a porous electrolyte separator with porous carbon electrodes.

GLEAN (Global Electric Auto News) in their July issue reported two EV firms experienced second-quarter losses. Electric Fuel in Israel lost \$ 5.3 million and Unique Mobility lost \$ 824-thousand. Both firms stated that operating results are consistent with their business plans.

They also published some humor from EVermont Coalition's newsletter"

"What are the three ways to get and EV? - Buy it, Lease it, or Charge it."

" How did the soldier driving an EV get out of the service? With an honorable discharge"

"Why did the EPA cut its engine cleanup program? - They were exhausted"

They also had articles about the Tour de Sol. Particularly interesting was the observation that there were a large number of hybrid vehicles fueled by reformulated gasoline, compressed natural gas, propane, ethanol, and soybean oil. Battery types included lead- acid, advanced lead-acid, NiCads, Sodium-sulfur, and NiMH. The second article by Mike Fornatero chronicled the difficulties he and GLEAA Chief, Larry Dussalt, experienced in attending the event using a 29" Travel Master Motor Home as operations base. In the article he asks, " How could GM come up with an electric car (The EV-1) that looks like a 1955 Citroen DS Coupe?"

At the CEI Electric Formula race on June 29 in Cleveland, two past winners were knocked out of the race in the first lap when the Ohio State car went airborne trying to brake and slammed into the Notre Dame vehicle.

West Coast reported, Bob Wing, reported on the improved performance of his 1959 MGA with an Italian-made controller, the ZAPI-H2. For information on this device, contact Gary Flo, InnEVations, at 110 West Elm Street in Fort Bragg , CA, 95814; Phone (707) 964-1331; E-Mail <innevate@mcm.org><http://www.mcn.org/a/innevations>.

NESEA provided a brochure on their September 16-18 program in Madison Square Garden in NY. It features a trade show and a full schedule of sessions that includes one on Fundamentals of EVs chaired by Robert Larson who is Director of Alternative Fuels at Argonne. One of the papers will discuss the relative merits of ground-up vs conversions.

FROM OTHER EV NEWSLETTERS - Continued

SEVA, the Sacramento CA Organization, in their August Newsletter reported the club's successful picnic. An accompanying photo showed a 9-car lineup of EVs getting a recharge at the utility solar charging station before returning home. They also report that May petroleum imports were 10-million barrels per day, 56.5% of consumption, were recorded. In their "Letters" section, a San Diego driver of a converted Honda reported 0.250kWh/mile energy consumption. Part V of Eckhart Schroeder' series on Basic EV Technology was printed and will appear in a future FVEAA Newsletter when we have the space.

RECENT ARTICLES ABOUT EV'S

Pollution-Free NECAR II - Not quite ready to replace the Internal-Combustion Engine. Car & Driver, September, 1996, Page 32. This prototype EV built by Damiler-Benz is truly a pollution-free vehicle. If you condensed its exhaust, you could drink it. Fuel cells are used to generate electricity from an onboard storage of hydrogen in roof-mounted, carbon-reinforced plastic tanks. Oxygen comes from the atmosphere. Ballard Power Systems supplied the 300 tiny fuel cells nestled in a pack behind the front seats and under a rear bench seat. The unit produces 180-280 volts to drive a 33kW ac motor. The next step is to adapt the cells to be fueled with methanol and reduce the system size to one that could be installed in an A-class baby Benz.

Power Play, Chicago Tribune July 28, 1996, Transportation Section - Page 1. This is an article about Malcom Bricklin's EV Warrior electric bicycle in Chicago. Chicago Bear quarterback, Erik Kramer, uses an EV Warrior for riding the bike path along North Avenue Beach. He is an investor in the company that makes and distributes the vehicle. Sanyo supplies the battery, Giant Bicycle the frame, and Designworks the styling. The bike looks like a jazzed-up mountain bike. With electric power only it travels at 20 MPH, but can go faster with the rider adding his pedaling effort. Sales price ranges from \$ 1399- 1899 at new-car dealerships.

Living With The Car, The Economist, June 22, 1996. This comprehensive article was brought to my attention by Dr. Peter Lykos at the Illinois Institute of Technology. It traces automobile developments from the first effort in 1877, the first production by the Duryea brothers in 1896, Ford's production in 1903 later followed by the moving assembly line in 1993. Worldwide production this year will be 50 million cars and sales will be around \$ 1 Trillion.

The article discusses the special place the automobile has in most households. The most obvious is its influence on where people choose to live. In 1925 French architect, LeCorbusier concluded that future developments would separate the car from pedestrian traffic, a plant that today has involved into regional shopping malls, strip malls, and suburban subdivisions.

FOX VALLEY ELECTRIC AUTO ASSOCIATION (NISSAN CONVERSION PROJECT)

Report Date

08-05-96

Balance Sheet

Expenses

Income

1	Car procurement	\$ 550.00		1	Sale of unused engine components	\$ 120.00
2	Tow bar attachment	\$ 75.00		2	Sale of Certificates	\$ 4,700.00
3	Repair body rust	\$ 40.00 Estimate		3	Authorized transfer from treasury	\$ 2,000.00
4	Paint	\$ 138.00 Estimate		4		\$
5	Motor	\$ 1,654.00		5		\$
6	Controller (1231C-7701)	\$ 1,045.00		6		\$
7	Battery (trial)	\$ 100.00		7		\$
8	Battery (Permanent)	\$ 639.20 Estimate		8		\$
9	Main Charger (Ken Myers)	\$ 150.00 Estimate		9		\$
10	Suspension Upgrade	\$ 150.00 Estimate		10		\$
11	Motor adapter plate	\$ 114.66		11		\$
12	Machined plate	\$ 200.00		12		\$
13	Broach to cut keyway	\$ 51.55		13		\$
14	Machine steel Hub	\$ 320.00		14		\$
15	Lifting eyebolt	\$ 4.10		15		\$
16	Misc. Nuts & bolts	\$ 17.22		16		\$
17	Misc. Fasteners	\$ 34.24		17		\$
17	Power cable 2/0	\$ 48.00		17		\$
18	Clutch Disc	\$ 32.59		18		\$
19	Tow bar nuts and bolts	\$ 6.41		19		\$
20	Steering wheel & Ign. Sw.	\$ 50.00		20		\$
21	Motor shock mount	\$ 24.70		21		\$
22	Machine Mtr. Mount	\$ 40.00		22		\$
23	Motor Mount Mat'l.	\$ 14.00		23		\$
22	Master relay	\$ - Owned		22		\$
23	Circuit breaker	\$ - Owned		23		\$
24	Pot-box (Dana Mock)	\$ - Owned		24		\$
25	Auxiliary battery	\$ 65.00 Estimate		25		\$
26	Vacuum assist (brakes)	\$ 20.00		26		\$
27	DC-DC Converter	\$ 450.00 Estimate		27		\$
28	Electrical Meters	\$ - Owned		28		\$
29	Heater	\$ 125.00 Estimate		29		\$
30	Splash pan	\$ 25.00 Estimate		30		\$
31	Seat Reupholstery	\$ 97.39		31		\$
32	Door pins & bushings	\$ 28.05		32		\$
33	Tire replacement	\$ 240.00 Estimate		33		\$
34	Trans. Oil & Hdt. Bulbs	\$ 27.86 Estimate		34		\$
35	Rear Spring Repl.	\$ 70.00 Estimate		35		\$
36	Licensing	\$ 28.00 Estimate		36	Over-recovery	\$ -145.03
	Total expenditure	\$ 6,674.97			Total income	\$ 6,674.97
	Original Estimate	\$ 7,000.00				

**Member Larry Claypool, Owner of the 'VAIR Shop in Frankfort, Provided this Listing of
EV Available Components**

ELECTRIC VEHICLE RESOURCE
1705 So. Capital of Texas Hwy, Suite 300, *AUSTIN, TX 78746*
Phone (512) 327-6810 FAX (512) 327-2587

The parts listed below are OEM items from the Jet Electrica (a conversion of the Ford Escort) which are well-proven and very reliable. In many cases, our prices are only a fraction of the current retail prices because of our purchase of Jet's inventory.

Prestolite MTC 4001 Motor (20 hp, 96v, 4400 rpm, retail \$3200, can be used at other voltages)	\$975.00
Lester Charger (96v + 12v, retail \$795)	475.00
Gasoline Heater (beautiful, German made, was optional on the VW "Thing")	500.00
Contactator	72.50
Ammeter	39.50
Shunt for Ammeter	24.50
Super Heavy Duty Battery Cables with insulated, spring-loaded terminals, in 9", 11", and 12" lengths	13.50
Trouble Shooting and Maintenance Manual for the Jet Electrica (Helpful for Everyone!)	48.00
Speed Control (accelerator pedal mechanism)	67.00
Percent of Charge Meter	39.50
Blower Motor (for batteries and motor)	42.00
Heater Glow Plug	28.50

We recommend Alco GC2200 batteries. They are no more expensive than similar batteries and were developed specifically for EV use.

Our phone (512-327-6810) has a recorder for your convenience if we are out. Our FAX (512-327-2587) is available 24 hours a day.

We have an arrangement with an experienced EV mechanic who may be able to help you if you have problems.

We stand behind our parts but cannot be responsible for their operation in custom applications. Electronic parts are not returnable. Other parts subject to condition and a 30% discount.

there are approximately 14 manufacturers of electric vehicles or conversions in this country. World-wide one must consider the fact that Peugeot and Citroen electric vehicles are commercially available in France. Mercedes and Swatch are getting ready to market an inexpensive electric vehicle. These are but a few of many EV programs about to enter the market place. Unless domestic manufacturers want to give away market share, as they did in the '50s and '60s when small, fun to drive, fuel efficient foreign cars invaded our market, then they had better enter the EV market and fast. (Note: Ford is supplying gliders to EV converters this year and will sell their own manufactured EVs next year.)

{5} I challenged objectivity of Mr. Kolstad's statement, "... considerable air pollution will still be produced to create the electricity used in these vehicles." It has been estimated that conversion to electric power reduces the pollution added to the environment by a vehicle by 90%. If you add the pollution from generation facilities to the "Zero Emissions" from an EV then you must add the pollution from the production and transportation of crude oil, refining it to produce gasoline, and then distributing the gasoline. Does Exxon Valdez ring a bell? Also do not forget the non-polluting sources of electric power not available to the internal powered sector; wind, hydro, and solar generation.

{6} Relative to Mr. Kolstad's question, "Sure, the cars will be clean. But will they be useful?" Considering {3} above, if EVs replaced only 10% of the vehicles which travel less than 30 miles per day the resulting market would be sizeable. (A fact that I am sure that manufacturers around the world

recognize.) Considering the cost for electricity, reduced maintenance costs for EVs, rapidly increasing costs for petro-chemical products, and a projection that by the year 2010 the U.S. will import 75% of the petroleum consumed, then now is the time to act. With price reductions available with economy of scale through high volume production, EVs offer a very competitive edge, both economically and environmentally.

{7} I expanded on Mr. Kolstad's statement that using heating or air conditioning would "severely drain power" by writing that it has been estimated that using air conditioning or heat will reduce the range of an EV by 10%.

{8} The paragraph, "Impact is the working name of the GM electric Car. But what impact will it have on the nation's motorists? A minimal or negative impact may not help advance the technology. And, speaking of impact, what do we know about the crashworthiness of cars carrying huge lead batteries filled with acid?" resulted in my response, this is the epitome of inflammatory statements. Lead-acid batteries in EVs are similar to those found in millions of automobiles, trucks, boats, and material handling equipment throughout the country. Sad to say, some of these vehicles are involved in accidents but news reports seldom mention injuries attributable to the batteries. Conversely battery acid is very easily diluted with water or neutralized with a dry chemical fire extinguisher. (If I had to be exposed to one or the other, I

would prefer to be exposed to battery acid than ten gallons of burning gasoline.)

{9} In conclusion Mr. Kolstad states that stationary sources - refineries, manufacturing plants, and utilities are the major source for pollution in this country and we should be concentrating on them. I pointed out that it is widely accepted that 50% of all air-borne pollution comes from the transportation sector.

It is truly remarkable that the Vice President of a not-for-profit region of the American Automobile Association would publish such a biased condemnation of the growing EV industry. A brilliant engineer that I worked for upon graduation from Clarkson told me once, "No matter how much effort you put into the development of a product, you never learn as much as you do when it first goes into production." If we delay marketing EVs for only 13 years off-shore suppliers will be providing 75% of the U.S. needs for petroleum. If the petroleum embargo of the mid 1970's was a problem when the U.S. imported only 40% of consumed petroleum then think about the impact of an embargo when 75% is imported!

The United States needs the electric vehicles and all alternative fueled vehicles on the market now to gain experience, reduce dependency on imported petroleum, keep jobs in this country, and to reduce air pollution problems.

Mr. Kolstad, Vice President Public & Government Regulations, may be reached at the Washington office of AAA, 1440 New York Ave., N.W., Suite 200, Washington, DC 20005-2111, Tel. 202-942-2066.

EDITORIAL: OB- JECTIVE REPORTING BY AAA

The article, "Eye On Wash-
ington: Not Ready for Prime
Time" by James Kolstad pub-
lished in the April/May 1996
issue of DESTINATIONS, was
brought to my attention by one
of the readers of the this news-
letter. I wrote to Mr. Kolstad to
obtain permission to reprint the
article in order to share its
contents and my editorial com-
ments with readers. I also
offered the opportunity for him to
rebut any or all portions of my
editorial.

DESTINATIONS is a
publication of the AAA Western
and Central New York, Inc., a
not-for-profit corporation affili-
ated with the American Automo-
bile Association and the New
York State Automobile Associa-
tion. The article will not be
reproduced because Mr. Kolstad
replied as follows:

"Your letter of April 15
misrepresents many of the
statements made in our article.
AAA certainly supports develop-
ment of a more energy-efficient
car, but we simply do believe the
technology is ready to meet
consumer demands. Not many
people can afford to have a
separate car devoted only to
short distance trips.

"Certainly we are not alone
in our assessment. Enclosed
are similar stories from repu-
table publications, that followed
ours." (Mr. Kolstad attached
two articles; "California right to
pull plug on electric mandate"
author unknown, USA TODAY,
2 APR 96 and "GM EV1: Not

ready for prime time" by Mark
Rechtin, AUTOMOTIVE NEWS, 22
APR 96.)

"With those comments in
mind, I am sure you will understand
our reluctance to allow you to
reprint the article."

I provided Mr. Kolstad with a
retyped copy of the article marked
with nine comments. These com-
ments relate to the article as
follows:

{1} I tried to clarify his state-
ment that EV1 will go on sale in
Western states by stating that
Saturn dealers in only two cities in
California and two in Arizona will
offer the EV1. The decision to sell
or lease or both is still pending
according to the GM hotline.

{2} I disagreed with his
statement that nobody creates
media hype better than car manu-
facturers to sell cars. I believe that
the cigarette manufacturers would
be classed as the leaders in "creat-
ing media hype."

{3} His statement, "... \$35,000
car doesn't have enough juice to
take you to the beach." is an
inflammatory rather than an objec-
tive statement. The research
statistics show that 90% of all trips
taken each by internal combustion
vehicles are less than 30 miles.
Short trips with cold engines are
the worst polluting and stimulate
most engine wear in internal
combustion engines. Electric
powered vehicles are ideally suited
for short trips.

{4} His statement, "GM is the
first to market an electric vehicle."
is incorrect, unless the author is
limiting his vision to only Ford,
Chrysler, and GM for at present