

# FOX VALLEY ELECTRIC AUTO ASSOCIATION NEWSLETTER

**NEXT MEETING: Friday, October 20 at 7:00 PM, Room 108 in Triton's Industrial Careers Building (East Campus)**

**DISCUSSION TOPICS: 1. Comment about e-mailing the Newsletter. 2. What should an electric car have?**

## 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 will be \$ 2.

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## October 2000 PRESSEZ

We will continue our experiment of sending an advance e-mail copy of the newsletter to those who have furnished an e-mail address. If you didn't get an advance copy of the September newsletter, please send (via e-mail of course) your current e-mail address and your record will be corrected. This is the first item on the meeting agenda.

The second part of the meeting will be an experiment using a focus group format. Members will use the technique to offer and defend items they believe should be considered in an electric car. It can range from the trivial such as cup holders to the serious such as the type of electrical system they prefer. I trust it will not turn out to be a camel that has been described as a horse designed by a committee. Out of it I expect it will represent a consensus about the features of future electric cars – both conversions and commercial products.

**BILL**

## MINUETS OF THE SEPTEMBER MEETING

Members began arriving at 7 PM to inspect Doug Mather's Fiero conversion he trailered to be meeting from Woodstock. Doug certainly gets the "STUFFING AWARD" for putting 20 Trojan T-125 batteries into the limited space in the vehicle. He recently increased his system voltage from 108 to 120 volts by adding two batteries. He is pleased with the improved performance.

The meeting was called to order by President Shafer at 7:35 PM. Fourteen members and four guests attended.

The minutes were approved with one correction; gusts should be replaced with guests. Treasurer Corel reported no change in the savings account and \$ 2283.35 in the checking account. His report was accepted.

Doug discussed his Fiero conversion. He drives it 32 miles per day, 10-15 miles more when a he has lunch outside of his plant. He gets an opportunity charge at work. He reported an improvement in energy consumption after upgrading the voltage and after the State of Illinois resurfaced Route 47, where he experienced a problem with his front suspension, as reported on the fveaa website.

Distribution of the monthly newsletter via e-mail was discussed. The annual savings per member for each e-mailed copy would be \$3.96. The Editor prepares the newsletter using Microsoft *WORD* and attaches it to an e-mail document. Members not having *WORD* on their computer may be unable to open the attachment. It might be possible to use the *ACROBAT* program used for our website. Downloading this program requires about 20 minutes at 33 kbs. It was decided to continue the trial parallel mailing for the next few months and work out the bugs. There will be no change in the yearly membership fee when they are due in November. Members were invited to submit their e-mailed comments. Past newsletters are available on our website.

Guest Raul Gonzales, an IIT student, described the SAE Student Chapter's construction of an ethanol-fueled vehicle. He thought the Student Chapter would benefit by inspecting a conversion at IIT.

Member Rob Bohnivert has an 86 Escort available for a conversion. He also needs to replace the Lester battery charger that melted into a pile of slag.

Member George Gladic is continuing his search for a pickup for conversion. Member Paul Polster has sold his Subaru conversion he purchased from Member Bill Hendricks.

Submitted by Secretary Dick Ness

## Advance E-Mail Newsletter copies

Last month's first trial e-mailing of the FVEAA newsletter turned up some problems. The Editor prepares the newsletters in three parts; the cover, the minutes, and articles. These are created using Microsoft *WORD* and attached to the newsletter e-mail.

The e-mail must be downloaded to get the documents. The attachments open as a *WORD* document. If you do not have *WORD* on your computer the attachment maybe indecipherable or require conversion.

A second problem relates to sent copies returned by my mailer daemon as undeliverable. I used the Paid Member list for your e-mail address. If you did not receive an early e-mail copy of this newsletter, please send me an e-mail that contains your correct address. We will try again next month.

The e-mailed positive comments received from those members acknowledging last month's effort indicates we are on the right track.

BILL SHAFER

Dick Ness has acquired about 250 feet of # 3/0 16-strand electrical cable. This **is not the flexible stranded battery cable** but would be suitable for longer runs between batteries located in the rear and those placed under the hood. He is willing to sell it for a remarkable \$1/ft. If you are interested call him at 773-889-7757 (Weekday evenings)

## From other EV newsletters and recent articles affecting EVs

I am preparing the October Newsletter early again this month because I plan to be on vacation in Palo Alto the first and second weeks in October. There are few articles about Electric Vehicles in the newspapers and magazines this month. Detroit's press releases are silent. Either they have nothing new to say or they are in a resting state during election campaigns. Two features of our newsletters are combined.

**DEVC, the Denver Organization responded to my request that we initiate a newsletter exchange after Member Dave Stensland moved to Boulder.** In their September issue they note that Ford and BP Amoco are considering environmental cooperation on new fuel technologies, traffic management, and public policy issues. (See the following digest of past cooperation in the automobile industry as reported in the book *Taken For a Ride*.)

They also report that Johnson Controls has a new 36-volt battery, the *Inspira*, to be used in hybrids. It has ratings of 2.4, 4.5, and 6.5 ampere-hours and a peak power of 50 kW.

Nissan's quickly sells 100 of its *TINO* hybrids in Japan over the Internet. This car will not be available in the United States.

The issue also has a photo of a handmade replica of a 1908 Oldsmobile electric car. It has 500 pounds of batteries, a 48 volt system, a 40 mile range, and top speed of 35 mph. Now there is an **original** idea.

Another strategic alliance has been formed to work on fuel cell vehicles. Members include automakers and the Federal government.

**VEVA, the Vancouver Group** in their September newsletter featured the cross-Canada trip of the solar-electric vehicle *Radiance*. Student members of Queen's University built it. The car traveled 7,044 km, double the previous distance record set in Australia. The vehicle had an average speed during driving of 80 km/hr. It was capable of a 125 km/hr top speed. The car needed only \$ 1.50 of electricity to travel between Halifax and Toronto while their support minivan burned \$ 40.50 for gasoline.

John Wayland reported that Dennis Berube retained his first-place title in his Dragster, **Current Eliminator**, at the Woodburn (OR) racing event. His time – 8.861 seconds and 141.121 mph in the quarter mile. There were two “fortified” *Sparrows* at the event. The fastest three-wheeler 14.392 seconds and 83.48 mph..

Randy Holmquist has developed a DC drive conversion kit for a Geo Metro, Chevy Sprint, Pontiac Firefly, or Suzuki Swift. The Deluxe Kit sells for \$ 7850 + shipping charges. It even includes the bolt-in battery boxes. For more information see his website [www.canev.com](http://www.canev.com)

**EEVC, the Eastern Group** in their September newsletter reported on Dureau Day celebration. The hit of the show was a restored 1921 Milburn. One member drove 31 miles to the event in his converted Dodge Colt, and got an opportunity charge for the trip home.

Member Scotty Moyer had an article about reclaiming “lost” batteries that were heavily sulfated. He reported that the lead sulfide crystals have a resonance frequency of 3-6 megahertz. He constructed a charger to “bang” the battery. The crystals shed off the plates and reentered the electrolyte after a one-week treatment.

Mallory Electric is offering a series of electrochemical capacitors with ratings of 160-2000 farads, voltage ratings to 96 volts, and temperature ratings from 33 – 278 degrees F. More info on the product is on the web at [www.ncacc-mallory.org](http://www.ncacc-mallory.org)

## From other EV newsletters and recent articles affecting EVs - Concluded

The issue had an extensive summary update of California's Zero Emission Vehicle (ZEV) Mandate that require 10% of vehicles sold after 2002 be emission-free. The requirement was affirmed at a September 12 meeting of the California Air

Resources Board (CARB). The mandate can be met in several ways; their production can include 10 % electric vehicles that have a 100-mile range, or 60% of sales being Ultra Low Emission Vehicles (ULEV). The Mandate will require 22,000 ZEV's in 2003, and a minimum of 31,000 by 2006. The State now has about 2300 electric vehicles now on the road.

The mandate recognizes the need for opportunity charging stations. There are about 400 of these locations now in the State. The lack of standardization ( Inductive on the EV-1 or conductive Ford Ranger) is a problem.

Automakers responded by blasting the Mandate. They claim the law would provide little emission reductions at a very high cost, estimating it will be \$ 1.5-million per ton of smog-producing chemicals.

**Deja new, the 40-year old Mini gets a facelift. Autoweek 9/13/00, Page 12.** Forty years ago designer Alex Issigonis designed the Morris Mini. It was a revolutionary small car that could carry 4 passengers and luggage. It featured the first use of a small, transverse-engine mount and front wheel drive. The quick, go-cart handling helped it to become one of the world's best sellers with 5.3-million built. Mini sales in the U. S. ended in 1968 because the vehicle couldn't meet safety and emission regulations.

BMW bought the Rover Group in 1994 and is now launching a new Mini. It will have a dealer network separate from BMW. Minis coming to the United States will carry a Mini Cooper badge. Doors on the new Mini will open a full 90 degrees facilitating entry and exit. The car will have 16 or 17-inch wheels, antilock brakes, traction control, optional xenon headlamps, rear and side impact door beams, and a full array of airbags. The engine is a Brazilian-made 1.3 liter, 16-valve four cylinder type. Expected price is \$ 18,000. The car, along with the Beetle revival, could resurrect the small car in the U.S.

## **A SUMMARY FROM THE BOOK *TAKEN FOR A RIDE***

Last month the book was mentioned. It is primarily about the legislative struggles associated with the Clean Air Act that was initially enacted in 1970 and amended in 1977, after much opposition by automakers. There are two chapters relating to electric cars. I believe a summary of these chapters about the electric vehicle mandates in California will be interesting to FVEAA members.

The Los Angeles area has problems with pollution. The native Indians called it the "Valley of the Smokes". Starting in 1930 a transit company backed by GM, Firestone, Phillips Oil, and Mack Trucks started buying streetcar lines in over 100 cities and converting the public transportation system to buses. In 1949 a federal grand jury convicted the participants of conspiring to replace electric transit systems and monopolizing the sale of buses. By then the damage was done and Los Angeles was regularly covered with an intolerable smog.

In 1975 the 30 most polluted cities were required to submit to the EPA their plans for reducing the problem. One solution was "transportation control", meaning restricting auto traffic and other measures. This was an unacceptable technique. Los Angeles, by now dependent on the private car, started to enact its own emission standards, tougher than the national levels. This ultimately led to establishment of the California Air Resources Board (CARB) and a series of emission mandates. Any non-attainment area is subject to Federal severe penalties.

## **A SUMMARY FROM THE BOOK *TAKEN FOR A RIDE* Continued**

The Mandate has been modified many times. As it now stands California now requires the following:

1. 20% of new cars sold in 1994-96 must be Transitional Low Emission Vehicles with hydrocarbon emissions less than 0.125 grams/mile.
2. 25-75% of new cars sold between 1997-2003 must be Low Emission Vehicles (LEV) with no more than 0.075 g/mi hydrocarbon and 0.2 g/m of Nitrous Oxides (NO<sub>x</sub>).
3. 2- 5% of new car sales must be Ultra-Low Emission Vehicles (ULEV) that hydrocarbon emission by 84% and NO<sub>x</sub> by 50%. Natural gas fuel would comply with this requirement.
4. 2% of new vehicles be sold in 2003 must be ZEV. The percentage rises in succeeding years.

In 1978 Los Angeles Councilman Marvin Braude initiated a novel idea in the council to speed electric vehicle availability. He proposed a competition to find a manufacturer willing to mass-produce an electric vehicle that would help clean up the smog. Air quality studies have shown that to meet national standards **all** new vehicles sold in the LA area by 2010 would have to be Zero Emission Vehicles (ZEV). The competition attracted 18 proposals, but not one from the Big 3 automakers. LA chose a Swedish firm to deliver 10,000 electric vehicles by 1995.

GM's electric vehicle current program was initiated when they exhibited the *IMPACT*, a purpose-built electric passenger car developed by *AeroEnvironment* for GM. At that time the GM Chairman announced plans to proceed with production, even though he noted the car would cost twice as much to operate as a conventional car. GM assembled its own engineering team to make the changes necessary to make the vehicle ready for production. There are those who stated that GM the introduction was all for show meant to calm the environmental regulators.

GM trumped the rest of the Big 3 on Earth Day when they stated that GM would be the only auto company to produce and sell the EV-1 derived from the *IMPACT*. The implication was that California ZEV mandate would be met, but that GM wanted some special conditions. They wanted a periodic review and revision of the Mandate ZEV goal if technological progress lagged. CARB agreed.

The California Mandate success looked attractive to other urban areas with non-attainment problems. States in the Boston-Washington megalopolis corridor were considering adopting the California standards. as they were permitted to do under the 1977 Amendments to the Clean Air Act. Six New England states, New York, New Jersey, and eventually Massachusetts adopted the California option. The auto industry response was to attack the routine waiver California had been granted under the 1977 Act to establish its own emission requirements.

A 1992 GM Boardroom coup changed the picture. CEO Bob Stemple, a supporter of the EV program, was ousted because GM lost 10% of its market share and \$ 10-billion dollars in 1990. A casualty was the 400-person, \$ 300-million EV-1 program based on the *IMPACT*.

In February of 1994 the EPA approved the petition of the eastern states to adopt the California Mandate. About the same time GM and Ford CEOs at the Chicago Auto Show stated they would be unable to meet the California Mandate by 1998. About the same time it began to dawn on GM that EVs could become a potentially big business and they had a competitive edge. Other auto companies bitterly opposed the Mandate, threatening to increase the price for conventional cars in other parts of the country. Chrysler said in a TV ad, "Thank you for your contribution to your neighbor's electric car". Automakers came up with an alternative proposal, the 49-state plan, if only California were permitted to have their Mandate. By November of 1995 a new chairman of CARB was ready to negotiate the ZEV question. The auto companies wanted a six year suspension of the Mandate and in return promised to build 2000 electric vehicles by 2000.

## **A SUMMARY FROM THE BOOK *TAKEN FOR A RIDE* Continued**

They got it. However GM, to prove it did not need a mandate to produce electric vehicles, announced it would begin leasing models of the EV-1. This set the stage for further actions. The action then moved to another area – batteries.

The limited energy storage ability of batteries had been acknowledged obstacle for electric cars. Private companies and the Federal Government had been spending about \$ 20-million annually to fund individual battery research programs. In 1990 a suggestion was made that federal and private programs should be combined to make the spending more effective. The US Advanced Battery Consortium (USABC) was created in 1991. The program was managed by the Big 3 but the feds furnished most of the funds. The research was thus controlled and the Japanese were excluded because they were foreign manufacturers. No funds were allocated for lead-acid battery development although it had the ability to be used for a "niche" car and was clearly the lowest cost product.

The Big 3 were now provided an organization where the Big 3 could collaborate unencumbered by the threat of antitrust action. Electrosorce, an independent battery company, had perfected its HORIZON battery and was a military supplier. Argonne Lab tested their design and found it a 30% more capacity than a conventional design. Electrosorce signed a contract with GM – Delco to supply their product. Delco however allowed it to lapse after Electrosorce had made all the investments needed for production. This move practically bankrupted the company.

Ovionics, the NiMH battery developer, also had trouble with the USABC and GM. USABC had initially refused permission to provide a hand-built NiMH battery for GM to test in the EV-1. In a secret test the car ran 201 miles. GM went ahead and made their own deal with Ovionics. This angered the other members of USABC. GM denied Ovionics an ok for Solectria to use a NiMH battery in the forthcoming electric car race in Phoenix. The New York Times found out about this and blew

the cover off the story. Solectria went on to establish new records. GM was not amused. Ovionics prepared to run an ad in Fortune magazine to tell their story about battery progress. The ad never appeared.

CARB commissioned an independent technical review of battery progress from outside experts because they did not believe USABC was a neutral party. The panel found that batteries were available to meet the 1998 ZEV mandate. Independent manufacturers such as Solectria and BAT were turning out vehicles that could travel over 100 miles. Vehicle sale prices were about \$ 26,000. BAT said the price would drop by \$ 4000 if Ford would sell them gliders.

When GM started leasing the EV-1 they were surprised by the positive comments. This led automakers and oil companies to redouble their anti-EV efforts. There are those who believe the Big 3 never had an EV marketing plan. They never envisioned a real market and rejected the second-car possibilities. It appears that carmakers would do only the very minimum required to meet mandates, and did everything they could to postpone or eliminate deadline requirements.

Evolving technology, rising fuel prices, declining fuel availability, and need for environmental improvement in urban areas continues to sustain the effort to bring affordable electric vehicles to the market. The California Mandate forced many positive developments despite fierce opposition.

*Taken for a Ride* a fascinating account that will appeal to electric auto club members. It should be read along with Mike Shnayerson's book, *The Car That Could: The Inside Story of GM's Revolutionary Electric Vehicle*.

Bill Shafer  
September 26, 2000