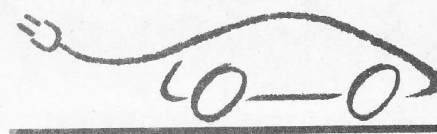


CURRENT EVENTS



November 1994

Promoting the use of electric vehicles since 1967

Vol. 26 No.11



Silicon Valley Rally

Mike Slominski of Mike's Auto Care in San Mateo, CA has made an electric Rabbit a habit. He's made winning a habit too. He did it again this year by racking up 22 rally laps for 102.9 miles/charge in the Sept. 17th EAA Silicon Valley Rally, taking first in the 4-wheel class. He also pulled a respectable 12.63 seconds in the 100 yd sprint. The snazzy two-tone bunny carried a passenger, as did all participating cars. Members of the public were invited to ride along to experience various different EVs and dispell the stale old myths about performance.

Here's how Mike accomplished the winning 102.9 miles on a charge. The car itself is a 1979 WV Rabbit with a curb weight of 2730 lbs. The 96 V battery pack consists of 16 Trojan T-125 six-volt batteries feeding

juice to a PMC 12/120 V controller. Goodyear Invicta tires on all four wheels were inflated to 50 psi. The car was decambered, well-aligned and had a full bellypan plus a front grille blockoff (to prevent air turbulence in the front compartment). Super lubricants were used in the transaxle and wheel bearings. The car also has a cruise control to maintain even amp draw and prevent unwanted amperage peaks associated with normal "manual" speed adjustments. Regen braking via a separate GM alternator running off a belt to the drivetrain helped extend battery reserve.

Batteries were heated to 110 degrees F for 8 hours while charging prior to the event. The finish voltage was 121 on the 96 volt nominal pack. Unloaded battery voltage at the end of the event was approximately 5 volts per cell.

(continued on page 9)

Sport Vehicle Rollovers

By Clare Bell

As sport utility vehicles become increasingly popular, EAA members are choosing them as donor cars for electric conversion. We are seeing electric Blazers, Broncos, Troopers, 4Runners and others. Present and prospective owners and converters should be aware that these vehicles have high rollover rates. Their geometry; tall and narrow, with a high center of gravity, makes them 2 to 3 times less stable than passenger cars, according to internal agency studies by the National Highway Traffic Safety Administration. Insurance industry studies show that some multipurpose sport trucks, such as the Ford Bronco II have a fatal rollover rate 10 times higher than that of the largest cars.

An attempt to implement a vehicle stability standard failed when NHTSA decided that the number of lives that could be saved was not worth the cost to automakers of re-designing vehicles. In reaching that

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Editor's Note

BY CLARE BELL



Since we're coming up on the year's end and the annual members' meeting, I thought I'd take some space to recap things a bit. EAA National has come quite a distance in the last year, and lest we forget, here's what we've done. For fairness' sake because of the closeness to the election, I'm not naming names, but you all know who you are.

Big News for EAA Budget

In the financial area, the big news is that EAA is out of the hole. We have paid off chapter rebates owing from previous years and are current on this years' rebates. Getting this done is a huge load off the Board. By getting the organization onto a budget, putting together an effective finance committee, tracking monies spent, and working within limitations, EAA accomplished this vital step.

Code of Ethics

Equally important was the new Code of Ethics, recently developed with the intent of steering EAA away from past pitfalls and dealing most effectively with difficult-looking new ones. The Code of Ethics will enable EAA to achieve and maintain the professional standards that are bringing the organization recognition and clout.

Revised By-Laws

The revised and amended By-Laws which will be going up for member approval reflect this new emphasis. They also will allow the organization to move more efficiently and effectively to serve members, raise funds, run EVents and promote smog-free transport to an increasing segment of the public.

WESCON '94

EAA gained long-desired recognition from the electronics industry for our origination and sponsorship of the West Coast Electronics Convention Trade Show EV Showcase and Technical Sessions. Begun at the 1993 WESCON San Francisco, the EV Showcase, Ride-Drive Press Event and Tech Session continues as a valued part of WESCON. The 1994 EVent included an outstanding Technical Session. WESCON '94 reported that the EV Technical Sessions were the most highly attended ones, despite last-minute cancellations by speakers and some frantic rescheduling.

'94 EV Buyer's Guide

*EAA publications have expanded to include **The 1994 EV Buyer's Guide** produced in partnership with Spirit Publications of Hawaii. EAA's contribution to listings, content and advertising will revitalize the Guide and make it a more valuable resource not only to EAA members, but to the EV industry as a whole.*

Continued on page 13

FRONT COVER PHOTO: (MICHAEL SLOMINSKI)

Sharp looker, good performer. Mike Slominski's 1979 VW jackrabbits away with the Silicon Valley Rally win.

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Article Submissions

If you would like to submit an article for Current EVents—the preferred form is on a floppy disk, formatted for DOS (Ascii Format) along with a printed copy of the article. Also include camera-ready photos or graphics or include TIF formatted files with your copy.

Articles and graphics or line art may also be submitted for the MAC. Please specify PC or MAC and identify software used. Please include a hard copy.

The deadline for articles is the 1st of the month. Articles submitted after the 1st of each month will be retained for future issues of Current EVents. Contact Clare Bell, Managing Editor for further information.

Advertisements

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Membership/Address Changes

For information on new membership or change of address, please send your requests to:

EAA Membership

Hal & June Munro

2710 St. Giles Lane

Mountain View, CA 94040



Letters to the Editor

These letters were received earlier in the year and have not been run due to lack of space. —CB

Dear Ms. Bell,

I have read the articles on modifying a Curtis/PMC controller for regeneration in **Home Power** and **Current Events**. There is more to the story. Why would anyone want to open up, trace out, and modify a well-built controller such as the PMC 1221B? Because regeneration is essential to the future of EVs and right now it belongs mainly to those people who can afford a costly AC drive or may a Soleq DC controller. This leaves most of the individual EV enthusiasts out in the cold.

The really frustrating aspect is that there is no need to modify a Curtis controller for regeneration. The advertise and sell in Europe a controller with full regeneration capability! Apparently the liability problem in the US has prevented Curtis from offering the regen unit to individual EV enthusiasts.

Why is Curtis so worried about liability? The 1221B has plug braking capability. How can regen be more dangerous than plug braking? I have had the pleasure of driving an AC motor EV with regen. The braking action is very nice, but it should not be a safety issue. If the controller failed while braking, the driver would just push harder on the brake pedal and stop safely. An EV without regen braking depends 100 percent on the wheel brakes, with the only backup being the handbrake. Regen of any type should add to the vehicle's safety.

The controller modification seemed very innovative, but complex. Instead of argu-

ing the merits of the modification, the EAA and its members should use our expertise and resources to convince Curtis to market their regen controller in the US. There must be reasonable ways to limit the manufacturer's liability. There are thousands of businesses in America that sell automotive brake parts and repair service. Surely a liability waiver, license or agreement could solve the problem so that reasonably-priced EV regeneration can enter the US market.

Art Mander 12807 Steele Ct.
Thornton, CO 80241

Dear Clare:

I was a member of EAA last year, and other than receiving **CURRENT EVENTS** and the newsletters from EAA DC, I'm in the fog as to membership benefits for those of us not residing in an area where there is a local chapter.

Is there a directory of EAA members available so members could perhaps correspond with others who live too far from chapters to participate in activities.

It might be wise to give this some thought before running classifieds in **POPULAR MECHANICS** or **POPULAR SCIENCE** soliciting new members.

Sam Kessell, Two Downing St.
Charleston, WV, 25301

Dear Clare,

I certainly enjoy receiving **Current Events** from EAA. You do a very good job. It must take a good percentage of your time to publish it.

I am writing to you to ask you or one of your chapters would have the address of the New Zealand Electric Vehicle Association. I was a member in the late seventies, but lost contact when I got married.

If you could help, it would be greatly appreciated.

Bill Zablosky, 63 Beckett Dr. Brantford,
Ontario N3T 6H9 Canada Editor, EV
Surge, newsletter for EVSC

Board Highlights

Board Meeting Minutes for 9/24/94

The EAA Board of Directors met at 787 Florales Ave, Palo Alto, CA, from 10:00 AM to 2:45 PM. Attending were Hemstreet, Cornell, Slominski, Skokan, Harold Bell, and Clare Bell. John Newell also attended as Technical Advisor.

Mike Slominski reported EAA paid chapter rebates for July and August combined (they were small). A \$520 cost overrun for the special SEER CE August issue was split between the New Membership committee (60%) and the contingency bucket (40%). It turned out to be more cost-effective to put the information that would have otherwise have gone into a brochure into additional pages of CE.

EAA is experiencing a misunderstanding with the IRS about 1993's tax return filing. Mike expects the problem will be ironed out within a few weeks; in the meanwhile, he moved that EAA pay the \$830 bill with the expectation that most will be refunded. Stan Skokan seconded and the vote was unanimous in favor of paying.

Lee Hemstreet reported on the 9/17/94 Silicon Valley Rally. The chapter went slightly in the hole for the event, but felt it was worth the expense.

Stan Skokan reported on the WESCON '94 EV Technical Session and Showcase. Irv Weiss of LA Chapter has organized an impressive speaker line-up. CE will have a WESCON report. Stan also said that the October issue of CE was the best one so far.

Anna Cornell reported on the East Bay Rally and handed out rally results. Clare Bell reported on Oct CE. The memorial to Paul Brasch and election materials (proxy) expanded the issue to 24 pages. Bell is also looking for an assistant editor for CE.

Cornell and Hemstreet reported on the upcoming election. One nomination was recieved from Irv Weiss in LA. The election location is (was, as of the meeting) still undetermined. Anna is working on getting a site in time to print the information in the next newsletter. She suggested that the next election proxy have lines for the printed name as well as written signature, in order to make them easier to validate.

Continued on page 12

DIY: Special Edition

"Watts Up Doc?"

BY SCOTT & ANNA CORNELL WITH CLARE BELL

The gold Cornell Rabbit wore a new tail up to SEER this year; a power trailer genset that turned Buzz Bunny 2 into a series hybrid for the California Eco-Car Challenge run to Ukiah. For Scott and family, the trip definitely was an EV adventure. From the Marin bicyclist who asked them "Do you know that the generator on your trailer is on?" to the final mixture of defeat and triumph seven miles short of Ukiah, the trip was memorable. "I don't quite equate it to the Joad's cross-country journey in Steinbeck's *Grapes of Wrath*, Scott confided to CE's editor, "but the experience certainly brought back memories of those scenes."

Nevertheless, with a little extra expense and ingenuity, the courageous Cornells made the trip in one day, whereas the rest of the EV fleet stopped overnight in Santa Rosa. The seven-mile shortfall was not the fault of the car or the power trailer. "I just plain ran out of gas," Cornell admitted. Anna thought we should get a refill, but I thought we had enough to make it."

Earlier in the EVent, while other Eco-Challenge cars were passing south of Hopland, Michael Hackleman leaned out of his white Honda to say to Scott, "I wondered when you were going to do that."

So how did the SPC \$800 SEER special perform? Well, Cornell learned that you get what you pay for. The constant output from "Watts Up" was about 40 amps, whereas Buzz Bunny 2 needed 135 A to maintain freeway speed, a 30% contribution. The break-even point where there was no net draw from the batteries was 25-35 mph on the flat. Due to inefficiencies and conversion losses, the fuel usage was a disappointing 35 miles per gallon. And, despite the muffler baffle, the hybrid was noisier than the original diesel car!

But... the Cornells got there. And they learned a tremendous amount that can be applied to the next SPC power trailer project.

The \$500 Costco 5 kW genset had a side-draft carburator Tecumseh en-

gine and an undersized alternator. Genset manufacturers do this deliberately so that the alternator never overloads the engine (a tactic that prevents cheap motors from early failure). However the result is that the engine never runs at full throttle, so it never reaches maximum efficiency.

A previous discussion of power trailers in CE stated that a genset could provide the 15 hp needed to push a car along the road. With the undersized alternator, amperage was limited to 47.1 amps at 120 V. Dropping the voltage down to match the car's 96 V pack sapped the horsepower further. The 468 watts per horsepower equation no longer applied; "Watts Up Doc" wasn't giving Buzz Bunny enough carrot juice. In short, you can't assume that the genset will put out its nameplated power under the conditions it experiences in a power trailer set-up.

"Doc" wasn't real healthy for the DC/DC converter. The unit croaked during the trip from the unregulated high-voltage input. Scott didn't know that he was out of 12V battery until the main contactor opened, but the resourceful Mr. Cornell stuck in a gell-cell from the walkie-talkies they were carrying for use during the rally. He also discovered that the genset's alternator had extra windings that could be tapped for 12 V. A few tools and an extension cord got that going, then Jesse James of Sunbelt Battery showed up with a 30 Ahr cell he was carrying for the Team New England crew. He relinquished it after one glance at the sidelined Buzz Bunny 2, saying "You need this more than they do."

The "shades of Steinbeck" feeling came while Scott was pulling out the alternator's 12 V windings. "I kept thinking of the scene where the Joad car is all apart and they're scrounging through the junkyards for parts." He wired in the TNE gell cell as backup and got BB 2 back on the road.

The family experienced another idiosyncrasy of the genset during a sharp brake and turn. Centripetal acceleration sent oil sloshing away from the low-oil cutoff and the switch did what

it was designed to do, namely kill the generator. In the middle of an intersection. Scott had to jump out and yank the startup cord to get going again.

At first the engine just happened to be running at the harmonic resonance of the trailer frame, making the hitch buzz and sending vibrations into the car body. For a while BB2 was a rolling Vibro-Massage until Scott changed the generator revs.

And how in the world did they end up running out of gas? Well, a number of factors conspired. After running a test the previous day, Scott didn't refill it, figuring that Buzz 2's fully charged batteries had about 50 miles and that an extra 4 gallons left in the genset's tank would do the trick.

What got him was the Caldecott grade, the incline of the Bay Bridge and the overloaded truck that dumped its cargo, stopping Bay Bridge traffic for 45 minutes. All that time the genset ran, consuming fuel.

Toward the end of the trip, with the batteries getting flat, Scott decided to stop and charge in preparation to tackle the hills before Ukiah. The family generator died. When Cornell got out to look, he found the tank bone-dry. Both gas and electric systems had pooped out.

The battery in the cellular phone wasn't working real well either and he had to go stand in the middle of a field in order to reach his parents, who were already in Ukiah. The family arrived at last, tired but triumphant.

What about the next go-round? Scott says he's thinking of selling this first prototype and doing another using a 10 kW Honda unit. The Honda's larger alternator is controlled electronically so that the engine can run at its max efficiency. Voltage regulation and adjustment allows a 96 V pack to be charged without major horsepower fall-off or overvoltage that can kill a DC/DC converter.

Wanna ask your EV bunny to tell you "Watts Up?" Until next time ... that's all folks! — SPC, AC and CB

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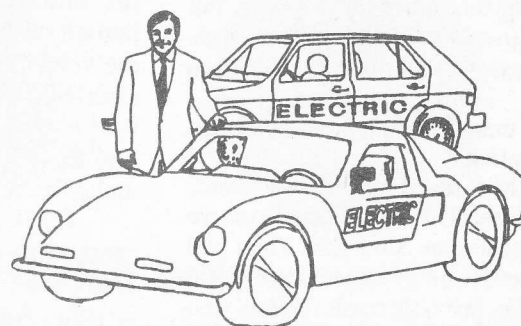
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Rollovers

(continued from page 1)

decision, NHSTA argued that driver carelessness rather than vehicle stability was to blame for 220,000 rollovers that annually kill 9,000 Americans and injure 56,000. Instead they are pursuing a program that educates purchasers via stickers that rate vehicle rollover potential on a 1-5 scale.

Blaming driver behavior for rollovers is unrealistic, according to internal NHTSA studies. Researchers determined that alcohol, drug use and driver age were poor indicators of rollover risk. The overwhelming factor was auto stability. Even the use of seatbelts could not prevent death or injury resulting in severe disability, such as quadriplegia. "If you make a mistake, these vehicles are really unforgiving," states a 1987 agency study on rollovers. "Sooner or later, every driver makes a mistake. Should that accident result in a rollover? Well, whether or not it does depends primarily on the vehicle."

We're not just talking about backwoods four-wheeling or boulder-jumping either. Yes, rough terrain makes it more likely that a vehicle will roll, but many rollovers have happened as a result of impacts on highways and surface streets.

But that won't happen to me, you say. My truck has a rollbar. No, it doesn't! The "rollbars" sold on these vehicles are cosmetic only. Their function is to serve as mounts for over-cab lights. They will not support the stock vehicle's weight in an accident, but will crush. Unless you replace the bar with an aftermarket rollbar or rollcage, preferably one sanctioned for competition, you have no rollover protection.

Pressure from auto manufacturers has forced NHTSA to back away from regulations and enforcement policies that could save lives. The result is tippy vehicles with fake rollbars, convertibles without any pretense of a rollbar whatsoever, trucks with "side-saddle" gas tanks that can explode on impact and the list goes on.

If you have or are thinking of converting a sport utility vehicle, keep two things in mind.

(1) Battery placement affects stability. A battery box mounted in place of a back seat, for instance, would make the center of gravity even higher than in the stock vehicle, increasing the chance of tipping. On the other hand, careful placement of batteries under or partially under the vehicle by sinking the battery box

into the floor could lower the CG and make the vehicle safer than stock.

(2) If you are going to convert a sport utility truck or 4X4 for individual use or sale, choose a lower risk model. Position the batteries or other heavy components as low as possible in the vehicle without interfering with the drivetrain. If you have questions, consult a professional conversion expert or automotive engineer.

Install an aftermarket rollbar or rollcage. Find out what tubing composition and thickness is required for the weight of your vehicle by sanctioning organizations such as Sports Car Club of America (SCCA). Have it welded or bolted in by someone who knows what they're doing. Cover it with competi-

Rollover Rates

Rollovers per 10,000 vehicles per year in sports utility vehicles during calendar years 1981-1990.

Make	Rollover rate
Toyota RM60 Short pickup, '84-85	115.7
Ford Ranger pickup 4x4, '83-87	85.8
Jeep CJ7, '81-86	76.1
Dodge Mitsubishi Raider '87	70.3
Ford Bronco II 4x4 '84-87	69.2
Ford Ranger pickup 4x2 '83-'87	65.6
Nissan 720 short pickup '83-'86	60.6
Ford Bronco II 4x2 '87	60.1
Mitsubishi Montero '84-'88	53.5
Suzuki Samurai '86-88	52.0
Mercury LM1 '82-83	50.8
Toyota 4Runner '85-88	50.3
Ford EXP '82-87	45.3
Toyota Rn50 short pickup, '84-87	41.1
Isuzu Trooper, '84-'88	40.8

Source, SF Examiner, p. A-9, Oct 2, 1994

tion approved padding so that you don't bang your skull on it. If you are going to go play in the dirt, get a helmet and wear a five-point harness.

Yes, those things may cost some bucks. So do medical bills. It ain't fun living with a broken neck or a severed spine or a messed-up brain. Since pressure by the automakers has prevented the NHTSA from safeguarding our lives and those of our passengers, the burden now falls upon us. Happy sport truck and four-wheel EVing! —CB

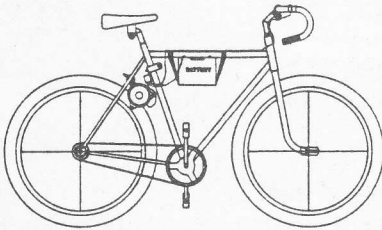
(From information appearing in a San Francisco Examiner front-page article, Oct 2, 1994 by Diana Hembree and Eve Pell at the Center for Investigative Reporting. Center Associates Rose Arrieta and Josh Romonek contributed to the report.)

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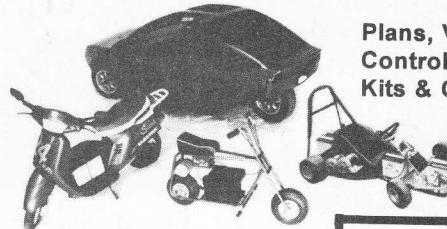
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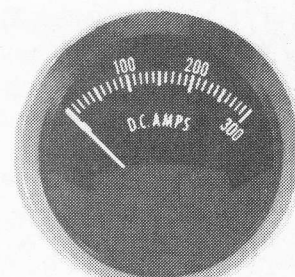
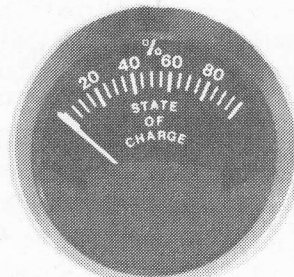
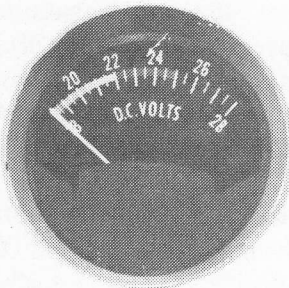
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Silicon Valley Rally Results

(Continued from page 1)

Forty-two miles were driven prior Silicon Valley Rally to the rally; 5 freeway miles and the rest city driving with stops, at speeds between 25-45. The pre-rally route included Old Country Road through Belmont and San Carlos, Bay Road through Atherton, Central Expressway to the Sunnyvale Lockheed area, with several loops made on Central Expressway to accumulate 42 miles. The vehicle was driven with closed windows to reduce air drag.

All these techniques plus a well-cycled, well-balanced pack earned Slominski's PLUG-IT-IN well-deserved first place honors. He'll mount that plaque along with all the others on his Rabbit's immaculate dash.

Mike used the same techniques (except for heating the batteries) in the East Bay Rally, held in Berkeley. He drove to the East Bay event from his shop in San Mateo, a total of 31.7 miles, of which 20 were freeway. The length, grade and number of stops on the way allowed only a total miles per charge range of 76.5.

His son, Adam Slominski, participated as an EV driver in the Silicon Valley Rally. He drove entry #64, the electric Renault LeCar. Adam was the

youngest licensed driver in the EVent, having received his license only 1 month prior to the rally. It was also his first time behind the wheel of a stick-shift car, let alone an electric one. Good debut, Adam Slominski!

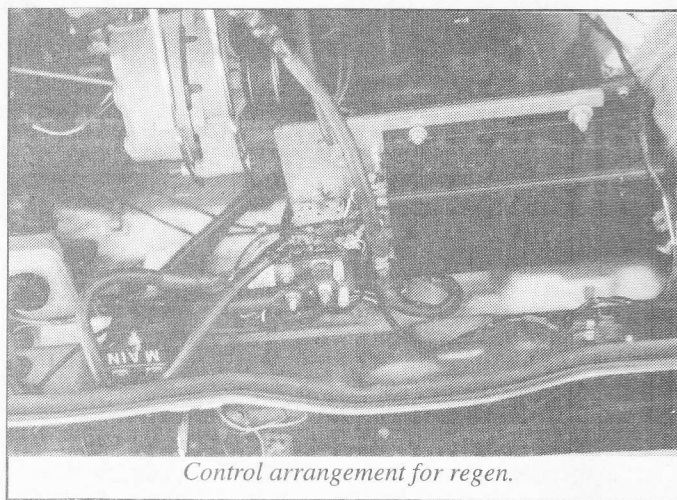
The expected post-SEER rematch between Mike and Otmar Ebenhoech

of the Electric Speed Shop didn't materialize due to a stray alligator clip that found its way between the buss bars on Otmar's high-amp controller. Palo Alto's "Arc Angel" told CE that that the big cannister caps "went off like Chinese firecrackers."

Team New England's Lightweight three-wheeler, ably piloted by Marianne Walpert of the Women's Electric Racing Team (WE'RE-IT) repeated the efficiency performance it showed in the recent Tour de Sol to sail away with the 3-wheel class win. Good job Marianne!

You must have been cooked under that plex canopy, but you stuck with it.

Robert Westman's orange 850 Fiat Spyder with the custom-fabbed air dam (the car made its debut at SEER this year) took second. Westman credits the US

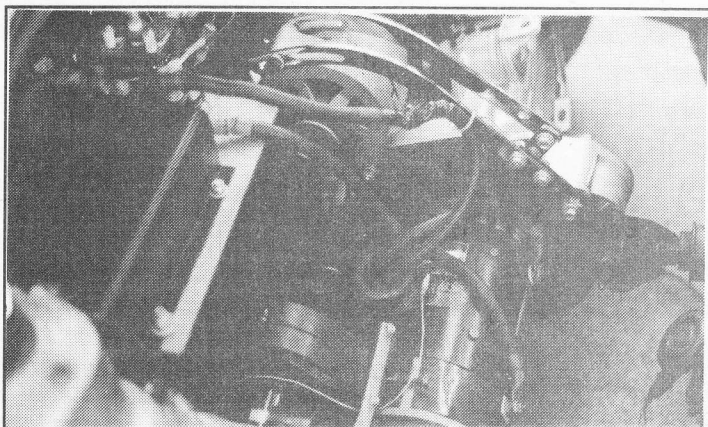


Control arrangement for regen.

Battery 2300s and the car's low frontal area. And perhaps some of the laugh-energy Westman and passenger got upon seeing the WE'RE-IT Rabbit, #61, Hopalong, completing its final lap in reverse (see below).

Empirical Engineering's formerly five-wheel hybrid Fiat X1-9 showed up with four wheels and pure electric drivetrain. Running on two strings of 132 V 12 V Eveready (\$38 at Costco) batteries, the Fiat performed impressively in the acceleration tests and still had enough oomph left to take 3rd in the 4-wheel class. And all with batteries that were on their first cycle! Driver/builder Bob Schnneeveis said he could have pushed more laps, but he didn't want to completely trash the Evereadys. Congrats, Bob, but I still miss that OTW (Off The Wall) fifth pusher wheel. Couldn't you stick it back on just to up the weirdness quotient? After all, the Fiat has to live with a solar electric lawn-chair and that demon of a #8 racing wheelbarrow.

How well do Rabbits hop backwards? CE's editor decided to find out when #61, Hopalong, got balky during the last lap of a 19-lap run. Running bassackwards for expediency and the



The Rabbit uses a GM alternator, which is switched in for regen braking.

sheer fun of it, the Rabbit safely delivered both driver and passenger, cotton-tailing to fourth place as the announcement went out over the PA. (Don't say that I didn't warn ya, guys!) 77.9 miles isn't bad for 12 V batteries. The car was running on 11 Trojan 5HSPs, a total pack voltage of 132V.

The hot wheels of the day were William Kuehl's Fiero, which ran the 100 yard sprint in 9.09 sec, followed by Schneeveis' 132 V Fiat X1-9, with a time of 9.34 sec. The Fiero came all the way from Nevada to participate. Now that is dedication!

On the sidelines, things were livened up by John Allen and son Eric with their kid-and-dad-built electric 4X4 jeep. This tough little car could haul several kids, including Dean Cornell, who was having a high old time standing on the tailgate. Talk about starting them early, John. Outstanding!

While Anna Cornell handled the info table, Scott Cornell got down to business (yes, your butt nearly does drag on the pavement with that thing) in his funky Sinclair 3-wheeler. He proved that it is possible to go 16.4 miles on 24 volts, assuming something massive like a Mini or a VW doesn't run you over first.

Members of Peninsula Chapter grilled hotdogs and scrambled all over each other to get the lemonade mixed. But they successfully fast-charged (fast-stuffed?) Rally participants and attendees. EAA cups, T-shirts and keychains were available at the adjoining booth. Bob Wheeler provided a generator-run mobile charging facility that could charge two cars at once. And CE and EAA alike hail the unsung and unidentified members of the cleanup crew.

In short, a good time was had by all, both wheeled and footed alike, while demonstrating the capability of today's EVs to a growing number of interested people. —CB



Rally Results - Silicon Valley

September 17, 1994

Name	Car No.	Total Miles	100Yd Dash (sec.)	Vehicle Description
Mike Slominski	44	102.9	12.63	'79 VW Rabbit
Bob Westman	49	90.2	10.44	850 Fiat Spyder
Bob Schneeveis	52	86.1	9.34	Fiat X1-9
Clare Bell	61	77.9	12.55	'80 VW Rabbit
Jeff Nilles	57	75.8	10.84	Ford Fairmont
Will Beckett	46	68.8	11.61	not known
Adam Slominski	64	66.0	13.64	Renault LeCar
Lee Hemstreet	59	62.3	12.23	VW Bug
Stan Skokan	54	66.0	10.89	Jet Escort
William Kuehl	53	61.2	9.09	Fiero
Peter Barnes	45	60.5	—	VW Rabbit Truck
Bruce Brooks	60	53.3	11.15	Karmann Ghia
Don Gillis	50	49.2	10.59	914 Porsche
Bill Nalbandinn	48	45.1	10.47	'75 Honda Civic
Chuck Olson	47	40.0	12.07	'61 Saab
Paul Hebert	55	34.1	10.07	Sunbeam Alpine
John Newell	51	22	12.75	Jet Escort
Paul Bell	65	8	—	Jet Escort
Three Wheel Class				
Marianne Walpert	62	94.3	13.79	TNE Lightweight
Scott Cornell	63	16.4	18.22	Sinclair C5

Results provided by Lee Hemstreet—Judge - Pete Morris

News in Brief . . .

Compiled by Ruth M. Shipley from Environmental Information Network. If this is reprinted, please credit CE and Ruth Shipley.

Germany's ZEBRA Battery

A division of Daimler Benz is developing a sodium-nickel chloride battery that is expected to meet most technical criteria for mid-term batteries set by the U.S. Advanced Battery Consortium (USABC). AEG says tests indicate the ZEBRA battery can be charged and discharged at least 600 times before replacement; the 1998 development target is 1,000 times, or the equivalent of 90,000-100,000 miles. The batteries require charging about every 100 miles.

The battery is now being used by Mercedes and BMW in Europe and is being evaluated by Volkswagen and Peugeot. In the upcoming "Rugen" field trial project in Germany, the company will supply battery packs for 32 of the 60 different EVs entered.

In June, AEG opened a pilot plant in Germany to build 300-400 batteries a year, beginning its marketing efforts in the U.S. The company will decide whether to build a full-scale plant, producing 25,000-30,000 batteries a year, by 1996.

For more information, contact Heinz Hammerling at (908) 204-8932.

(KEEPING CURRENT: VOL.2 No.4, 1994)

B.A.T. Moves to Southern California

Battery Automated Transportation (B.A.T.) has moved its main operation to California and is opening a California assembly line for converting vehicles to electric power. It becomes the most recent addition to CALSTART's advanced transportation business incubator program, called Project Hatchery,

which is designed to help small advanced transportation companies quickly become more competitive.

B.A.T.'s main assembly site will be in CALSTART's 155,000-square-foot facility in Burbank, and it will be able to make full use of CALSTART services. For more information, contact Bill Van Amburg or Date Sotero of CALSTART at (818) 565-5606.

(CALSTART: NEWS 8/30)

DOE & Westinghouse Research Power Train

The Department of Energy, in cooperation with the Defense Department's Advanced Research Projects Agency, has teamed with Westinghouse in a \$15.36 million cooperative agreement to research, develop and test technologies that would improve electric power trains used in EVs and hybrid vehicles. The federal government's share of the funding is expected to total \$7.68 million over the 2-year program.

For more information, contact Christopher Powers at (303) 275-4742.

(CONSERVATION UPDATE: 8/94)

VA Power Expands EV Fleet

U.S. Electricar, Inc. recently delivered 25 electric pickups to Virginia Power, giving the utility one of the largest utility EV fleets in the nation. Virginia Power has 33 EVs and by year's end will have more than 50.

The pickups are designed for light fleet use and feature a 50 kW alternating current drive system with a power storage unit of 52 sealed lead-acid batteries. The trucks can travel 50-90 miles per charge and have a controlled top speed of 75 mph. Virginia Power will use the Magne-Charge inductive charging system. It can use more than 120,000 watts of power to fully charge a vehicle in 6 minutes. For more infor-

mation, contact Virginia Power's Ken Blackwell or Charles Taylor at (804)771-6115, or Electricar's Alex Campbell at (707)525-3227.

(Virginia Power News: 9/12)

EPA Approves Northeast Clean Car Petition

In a move that the Edison Electric Institute calls the first step towards clean air, the EPA recently approved the Northeast states' petition for clean cars.

In a Supplemental Notice of Proposed Rulemaking, issued by EPA in response to a petition by the Ozone Transport Commission, EPA has proposed to approve the petition, which includes a component for low emission vehicles and EVs. Under the Clean Air Act, EPA is required to rule on the petition by the OTC, which currently addresses mobile source emissions.

"We think we have a 49 state car, and that is the [EV]," said EEI president Thomas Kuhn, concluding that EV technology advancements "all add up to a zero emission vehicle, right here, right now —giving consumers...clean air and clean air cars."

For more information, contact Gloria Quinn at (202)508-5659, ext. 5662.

(EDISON ELECTRIC INSTITUTE NEWS: 9/13)

CA Police Station Goes Electric

Green Motorworks (North Hollywood, CA) is delivering the first 4 of 6 Kewetts to the City of Alhambra for use by the police department for parking enforcement applications. These cars are being used in the nation's first "EV-Ready" police station in the country, which is equipped with EV charging ports.

Funding for this demonstration program is being provided by the State of California's AB 2766 funding

News in Brief . . .

mechanism, as well as CALSTART in conjunction with the ARPA EVTI national EV test program. The local police chief and captain worked closely with the South Coast Air Quality Management District to develop the program. For more information, contact Mary Kelley or Cindy Smith at (818)570-3249.

(GREEN MOTORWORKS NEWS: 9/13)

Magne-Charge System Featured at Electroexpo

CYPLEX Corp. (Nashua, NH) recently teamed with Delco Electronics Power Control Systems and Virginia Power to demonstrate an external communications control system for EV chargers at the "electroexpo '94" in Richmond. The system demonstration featured Delco's Magne-Charge inductive charger and CYPLEX's Power Line Communications (PLC) technology.

The CYPLEX PLC communications systems gives an EV user the ability to control the power output during charging and to pre-schedule charging times from a remote communications control device in the user's home. This allows the EV user to use discounted utility off-peak electric rates.

For more information, contact Norman Booth at (603)882-8104.

(CYPLEX NEWS: 9/94)

BTI & Powercell Join in EV Technology Development

Battery Technologies, Inc. (BTI) of Canada, developers of the RAM battery system, have reached agreement with Powercell Corp. (Cambridge, MA) to conduct research and development projects on rechargeable and other cell technologies. The companies plan to jointly develop, manufacture and market products resulting from this arrangement.

Powercell develops and manufactures rechargeable high-energy batteries and

electrochemical energy storage systems based on its Zinc-Flow technology. Constructed of special conductive plastics, Powercell batteries will reportedly cost less than conventional batteries while providing higher energy storage capacity. Tests suggest the batteries are capable of providing long driving range, performance and service life.

For more information, contact Kathryn Freer at BTI at (905)881-5100 or Reznor Orr at Powercell at (617) 374-9444.

(BUSINESS WIRE: 9/16)

GM to Sell EV Components

General Motors officials say the company plans to sell EV charging and control electronics plus electric and electric-hybrid propulsion systems. Though all three domestic automakers say they can't make whole EVs, GM's announcement suggests that the company will sell pieces of the technology to entrepreneurs willing to take the marketing risk. Three GM divisions — AC Delco Systems, Delco Electronics Corp. and Allison Transmission — will be participating in GM's EV technology sale.

A GM spokesman declined to provide any additional details about electric or hybrid-vehicle component sales strategy.

(AUTOMOTIVE NEWS: 9/19)

ENVIRONMENTAL  INFORMATION
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UC Students Develop EV Hybrid 'AfterShock'

Mechanical engineering students at the University of California at Davis have developed a hybrid EV dubbed the "AfterShock."

Already a winner of a hybrid vehicle competition, the prototype AfterShock will be displayed for California legislators in Sacramento during October.

The car is equipped with a 60-hp electric motor and 18-hp gasoline engine. Other specifications include: a modified Briggs & Stratton engine; 26 rechargeable nickel cadmium 12-volt batteries with a 120 mile range; a 6 hour recharge time utilizing a 220-volt outlet; and gull-wing doors to allow driver and passenger to climb over the batteries concealed on either side of the vehicle.

(SACRAMENTO BEE: 9/18)

Events Calendar

NOV. 18-19	Phoenix EAA Presents EV Weekend '94. Rally Ride and Drive & Scrutineering. Questions? Call Phil Terry (602) 243-5833 or Fax (602) 243-5812.
DEC. 1-7	EVS 12 at the Disneyland Hotel and Convention Center in Anaheim, CA. Includes a parade, press events, expo, and conference. Contact: SHO 167 South Antonio Road, Suite 10 Los Altos, Cal. 94022 Tel. (415) 949-2050. Also EPRI (415)949-2050.
DEC. 5-9	First IEEE World Conference on Photovoltaic Energy Conversion, Waikolao, Hawaii. For info contact Wendy Larsen, 303-384-6497. Sections include IEEE-PVSC (United States), PVSEC (Japan) and EC-ESC (European Community).
DEC 12-16	Project World - Conference and Exposition presented by Center for Management Research, Inc. Santa Clara Convention Center and Weston Hotel. Call (617) 431-9797 for more information.
JAN 10-12	10th Annual Battery Conference on Applications and Advances. California State University at Long Beach. Sections on power electronics. For info, fax Nga La or Renee Madrid at (310) 985-7581
Anna Cornell, EEvents Co-ordinator, 510-685-7580	

Board Meetings (continued from page 3)

Lee Hemstreet passed out his draft of a letter to Governor Wilson in response to the termination of CARB chair Jaqueline Schaefer's contract.

The next Board meeting will be 10:00 AM to 1:00 PM on 10/29/94, preceding the annual members' meeting and election

The meeting location will be at Electric Power Research Institute in Palo Alto, 3412 Hillview Ave. Building 1 Auditorium. Thanks to Lee Hemstreet and EPRI.

Anna Cornell, Board Secretary, EAA

EAA Brochure

The EAA brochures are out of date. Don't use them for shows. Use the promo pages from the August CE. For copies, call Anna.

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FOR SALE: Electra '81 Datsun 200SX, 20HP Series Prestolite, 4-wheel pwr disc brakes, regeneration, 5-speed, gas heater. Needs controller and batteries. \$1200. Call (415) 388-0838.

FOR SALE: '81 Jet Ford Courier Pickup, 120 volt, 23 hp GE Series motor, PMC controller, gas heater, batteries under bed, new tires, runs well. \$6,500. Call (415) 388-0838.

FOR SALE: Datsun Lektrikar II. (Datsun 310 factory conversion.) Looks sharp, batteries good, 9K miles on car, 108V, Prestolite motor, power brakes. \$4,700. (408) 945-7992.

FOR SALE: '74 VW w/fiberglass Dino Ferrari body. Charger, controller, 2 KW Hybrid system, gas heater, etc. Will deliver Washington or Northern Oregon. \$4,995/obo. (206) 542-0441.

FOR SALE: 1981 Bradley GTE. 1000 miles, red with white and tan interior, needs batteries, \$5,500/obo. Call (415) 771-6521.

FOR SALE: '81 Mercury Lynx 2-door Jet. Very good Exide 2200 batteries, low cycle time. Body straight, low miles. Must sell. Asking \$4,200. (408) 438-7085.

FOR SALE: Electric Moped, 3.5 HP Motor, new 30A Todd charger, 30 mph, needs little work. \$350. Call John at 415-961-6798 or 408-255-7120.

ORDERING INFORMATION: \$7 for the first 25 words. Each additional word, 25 cents. Please send check payable to Electric Auto Association, 18297 Baylor Avenue, Saratoga, CA 95070.

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Election Reminder

Nominations still open for Directors!



Final Notice to All Members!

Chapters may send proxies back in bulk quantity. Please send proxies (printed on page 6 of the October CE issue) to:

Lee Hemstreet
787 Florales Drive
Palo Alto, CA 94306

Anna Cornell
60 Alan Dr.
Pleasant Hill, CA 94523

Electric HOT Plates!

Current EVents will show a vanity license plate from one of our members electric vehicles. If you spot your license, send us a picture and brief description of your car for publication in an upcoming issue of CE. The OCTOBER issue plate [ELEC VW] belongs to Norman Cox in Missouri.



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