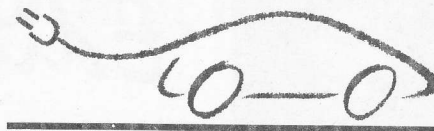


CURRENT EVENTS



October 1994

Promoting the use of electric vehicles since 1967

Vol. 26 No. 10



Paul Brasch, CE's former Editor-in-Chief, shown here as Master of Ceremonies at Wescon '94 EV Showcase. (See page 12.)

Electric Cars for California

BY CALIFORNIA SENATOR BARBARA BOXER

Electric cars are the wave of the future and California is leading the way. In fact, by the end of the decade, many Californians will find themselves behind the wheel of their own electric cars produced in a California factory.

I have visited electric vehicle production facilities all over the state to take a first-hand look at this cutting-edge industry. I've driven passenger cars and trucks, and ridden in electric busses.

By promoting electric cars, we have a unique opportunity to help a new California industry and protect public health through cleaner air.

More than 90% of Californians live in areas where the air does not meet Federal clean air standards. Over two-thirds of this pollution can be traced

to mobile sources such as cars and trucks. Particularly disturbing is the fact that, on average, children in the Los Angeles Basin suffer a 15% reduction in lung function by age 12 because of exposure to smog.

We must develop practical alternatives to this poison at the tailpipe. Electric vehicles are part of the solution because they produce no polluting emissions. The California Air Resources board has established regulations requiring that 2% of cars sold in California produce zero emissions by 1998. As a result, California will be the largest market in the world for electric vehicles well into the 21st Century.

We must act now to jump-start California's emerging electric car in-

Continued on page 5

Hot Exhausts Worsen CA Fire Danger

BY JOHN NEWELL

On Wednesday, August 24, 1994, the *San Francisco Chronicle* reports that six Western states have fires that are uncontrolled or uncontained. In California, more than 24 fires have started since July 1, each exceeding 500 acres. Arson investigators have been able to pin down the causes for only eight of these. Two were due to lightning, one was criminal arson and two were caused by equipment use. What started the other 16 blazes?

One likely culprit is automobile exhaust systems. The catalytic converters required by law on late-model passenger cars and trucks must reach high temperatures before they can operate. These temperatures are well above the ignition point of dry grass and brush. Contact with the searing-hot canisters of catalytic converters

Continued on page 4

FEATURES

SEE Highs & Lows 3

MI Lightweight Race 4

Annual Proxy & Bylaws 6&7

Tribute to Paul Brasch 8&9

Electric Car Magazine 10



Editor's Note

BY CLARE BELL

Taillights

The word came over the fax machine, in solemn black and white. It was from Stan Skokan, dated 8/14. It said, "Last night, when I returned from East Bay Rally, I found a sad message on my answering machine. Paul Brasch passed away in sleep Friday night. There will be no funeral, only a memorial service."

Shock made me pick up the fax slowly and stare at it in disbelief. Could the firebrand of EAA really have gone out? The battery bank gone flat? It couldn't be. Paul had beaten the odds so many times, squeaked through when no-one thought he would make it. It was hard to accept that this time he ... hadn't.

Long-time friend Mike Brown had come over from Santa Cruz to talk with Paul about a data logging system. When Paul didn't answer the doorbell, Mike did some checking and found out what had happened. I imagine it was a profound jolt to him, as it is to the rest of the EV community.

Paul signed himself "Pb", using his initials to identify himself with the lead-acid battery, the unsung and often abused workhorse of today's EVs. That he was, but not just one battery. Heck, he was a full trackside dump-charge pack! After a newsletter production session with him, I often felt like an EV that had been stuffed to the gills with high-voltage electrons.

I used to plug my Lightning Bug in at his house while we did the newsletter. I got my inspiration plugged in too. I'm still running on some of those soul-charges Paul gave me back then.

He was tricky to handle sometimes, brim-full of power and sometimes seeping acid. Many a time I drove home in Lightning Bug from a marathon session with my sensibilities stinging a bit. But boy could he blow away the roadblocks with that strong will of his! He made things happen and kept them happening.

I met #13 in the pages of Current EVents, and then later, in the flesh while the Red Lead Sled was recharging in his driveway. Ron Rassmussen had driven the 914 over from Santa Cruz for the 1992 EAA September Rally. That alone impressed the hell out of me. Electric cars didn't DO that, or... did they? I was a believer, but I knew my 96 volt Bug didn't have the oomph to climb over Highway 17 at any reasonable speed. If this Porsche electric did, she must be something else. #13 had also just finished a high-speed publicity run with pro-EV Supervisor Rod Diridon at the wheel. Paul, with his talent at networking, had arranged the media EVent and picked the best car he could find.

Continued on page 6

FRONT COVER PHOTO CREDIT: SCHNEEVEIS/CORNELL:

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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. 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

If you would like to submit an ad, refer to Advertising Rate Sheet or contact contact Susan Hollis, Advertising Mgr. at (408) 374-8605.

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

SEER Highs and Lows, According to JJ

BY JESSE JAMES

Considering who-all walked away with the SEER races, I think the event should be called the *Arizona Eco-Car Challenge*. Well, #84 and driver received a nice certificate from the SEER folks. We had a fun time, though, but missed having Clare and #13 around. They did make it to the Exploratorium for the San Francisco part of the Eco-Car Challenge and participated in the send-off parade. Shades of the LA Clean Air Road Rally, though, I nearly followed #13 on the turnoff before the Golden Gate, thinking her driver knew something about the route that I didn't.

One of the big highs was the Shadown Mountain High School team and Mike Golden, their faculty advisor. They're the ones that fielded that pretty little metal-flake blue Porsche 914 electric fireball at Phoenix and LA. #17 Porsche made a welcome sight at SEER. Mike kept his team together during summer vacation, kept his good nature and sense of humor on a limited budget (four teenagers, camping every night, peanut butter and tuna daily) and in true AZ fashion, entered every event and did well. Electro Automotive's Mike Brown (he of the Aztec, running on the new US 1450s) helped out #17 by loaning the kids a connector.

Higher still on the adrenaline mountain was the Saturday night intermission matchup between Bob Schneeveis' SnowWhite and a Grand American Modified Stock. It may have been a demo run, but the two sides were out for blood (gasoline or battery electrolyte?) on that 1/4 mile oval. SnowWhite made music of her own that drowned out the Saturday Night Thunder; a singing duet of motor keen and tire wash coupled with thunder-equivalent performance. She made EVs *real* for a lot of motorheads and pleased the "Turn Two Electraholics," perched atop a U-Haul, no end.

Yes, we're preaching to the choir at most of these events, but demos like this are essential to converting "non-choir members". Kudos to Bob Schneeveis and Barry Goldine for a great show.

Another bump on the high road was the hospitality shown by California motels to out-of-state EVs by providing opportunity charging. Astro Motel hosted multiple vehicles. The manager of the Santa Rosa Travelodge donated his snack machine circuit to a hungry #84 Ghia.

A quick side-trip to Richard von Ehrenkrook's cabinet shop in Petaluma

Lucky they didn't try #84 — that would have blunted their stingers.

Overall impression? 'Way over on the up side. Great vehicle variety, with some really good-looking and practical entries. There were informative public displays from the City of Santa Rosa, Sacramento Municipal Utility District, PG&E, EAA and various individual entrants. Chris Kovaleski did a good job and stayed in the kitchen when it got hot. Volunteers powered the Saturday night dance with their leg muscles (no way I was signing on for that one — #84

Overall impression? 'Way over on the up side. Great vehicle variety, with some really good-looking and practical entries.

was rewarded by a look at his beautiful work and directions to great refreshments.

Well, there have to be a few lows to balance the highs. (Wasn't it Lucy in the Peanuts strip who wanted to go from a high to a higher-high, eliminating the lows? Ah, for such a world!) What the Mendocino County Tourist Board calls "unique microclimates", we 'Zonies call "just-as-hot-as-home (needless to say, our jackets didn't get the use we expected). Those wimps from fog-bound San Francisco and vicinity never had a snowball's chance.

Chris K.'s computer cartography program kept confusing "the other left". And then there was that swarm of bees that resented my having a photo taken right next to *their* redwood, and left me with a dozen painful souvenirs.

is s'posed to do the work at these things!).

The heat must have affected Allaire Patterson of the Women's Electric Racing Team (WERE'IT) — she entered the HPV Challenge on the spur of the moment. The Women's Wacing Wabbit, #6 Hopalong is looking better all the time (just got a shimmering new coat of silver). Looked almost as gorgeous as the Northern California scenery.

The next time SEER/REDI does an Event, we'll be back!

The outlaw Jesse James and the Ghia, #84.

(Jesse runs Sunbelt Battery in Tempe, AZ. For more information call (602) 968-8605.)

Michigan Leaps into Electrathon

BY DANN PARKS

Seventeen high schools competed in the inaugural Great Lakes Electrathon Association Event at the Berlin Speedway in Marne, Michigan on June 11th. This premier Event became both the largest Electrathon event in US history to date, and the largest high school event as well. The technical excellence of the vehicles and teams produced near-record distances that place the Great Lakes region in head-to-head competition with the more experienced "lead-foots" on the West Coast.

Winning the event was the Lake Orion High School team car driven by David Glanzter, with a distance of 34.125 miles. However, more remarkable was the high level of competitiveness shown by the close duels for position between individual vehicles during the race. This event and organization is a model for other groups who are forming Electrathon series around the country. For more information, contact the Great Lakes Electrathon Association (GLEA), PO Box 225, Sparta, MI, 49345.

(reprinted with permission from Electra, the Official Journal of Electrathon America. Thanks goes to Dann Parks —CB)

Hot Exhaust

Continued from page 1

can and does start fires. Sparks from exhaust pipe backfires leaping into dry tinder can cause an instant flareup that gets caught and spread by wind.

Such incidents are almost routinely reported in the news. For example, one fire was traced to a spark from a road-repair tractor. Arson investigators found that, although the tractor was required to have a spark arrester, and did when inspected, a photo taken earlier at the site showed that it may have not had the spark arrester installed on the exhaust at the time the fire started.

EVs, by their nature, have no exhaust components: no hot metal cannisters or tailpipe sparks. A properly designed EV has fuses and circuit breakers to trap trouble before it reaches the spark or flashover point. Evidence indicates that an properly designed and constructed EV should prove to be LESS of a fire hazard than an IC car, both in routine operation and under crash conditions.

Case in point — how many gasoline cars have you seen burning by the side of the road? How many EVs? And the difference in numbers doesn't completely account for it. We've never seen a large EV fire. Only one photo of a scorched EV has reached CE's desk, and that was a gimcrack-wired disaster, waiting to happen. Anything can be jerry-built enough to be a fire hazard, be it IC or EV.

An epidemic of fires is stretching the limits of firefighters in California and other states. Smoke from wildfires also blackens the skies, intensifying existing air pollution. It is a huge drain on human and economic resources and it may be largely due to automobiles. Does this warrant some investigation?

State and federal officials believe that it does. A newspaper article about the fires concludes with a request for help from the public in identifying arsonists and other sources.

Perhaps both the countryside and the air would be better off if all those trucks and four-wheel drives tooling around on the back roads were EVs. What do you think? —JN

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- H-25, 2500 W H-30, 3000 W
- Coolant temp. rise, H-15, 1/2°F/sec
- Air temp. rise, H-15, 70°F
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- Weight - 6 1/4-7 lb

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Model H-25

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Model H-30

\$495

RUSSCO

ELECTRO-MECHANICAL ENGINEERING
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Electric Cars

Continued from page 1

dustry. Other countries, such as Japan, are already racing to develop and market electric cars. Whoever wins this race will, in the future, have a global market at their feet. Studies have estimated that the world-wide demand for electric vehicles will reach nearly 2 million by 2007.

I am working in the US Senate for an industry-government collaboration to place 5,000 electric vehicles on the road by 1997. This program, called EV America, would help to build a sustainable market for electric vehicles in the United States.

We must also provide the right incentives to encourage consumers to buy electric cars. I recently introduced legislation to repeal the luxury tax for electric vehicles. Many electric vehicles on the market today are subject to the luxury tax because the cost of this new technology is still high.

My legislation will help spur the sales of electric cars, reduce costs for consumers and producers, and keep California in the driver's seat.

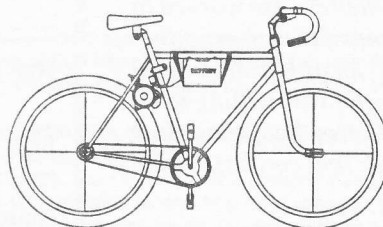
(From Legislative Update, published by Senator Boxer's office. Good work, Senator! —CB)

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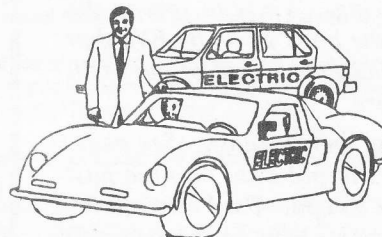
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Editorial

Continued from page 2

Paul always wanted to drive #13 himself, but the stiffness in his knees made it difficult to manage the 914's heavy clutch. When Ron put the Porsche up for sale and I bought her, I think Paul was a little envious. By now his VOLTS was garage-bound, hemmed in by boxes of flyers and newsletters. He worked to get the stiffness out of his knees so that he could drive to local Events in real style, but, although I was willing to let him take #13, it never happened. Life and commitments and conflicts got in the way.

He fought for this publication, poured his heart into it, wrestled with it, loved it, hated it, couldn't break loose from it, wanted to keep changing it to make it perfect, drove people up a tree over it, sweated and bled over it. And when it was finally done and all the blood, sweat, tears and tempers were cleaned up and or patched back together, he soared with it. He gave CE life and it gave him wings. Wings to spread the word and the hope given by EVs that this poor battered world of ours can have a future.

Stan Skokan, in his eulogy, (See page. 13), refuses to put Paul into the past tense. Stan's right. Paul's not gone, folks. CE was his baby and he never left it. He's there in those pages, in the new code of ethics, the revised by-laws, the higher-voltage cars, the Invicta tires, the defeat of the anti-EV forces at the March CARB review, the WESCON EV Showcase, the upsurge of interest in EVs, the recent media coverage, the Brasch Labs DC Energy Monitor, and last, but not least, the monthly on-time (mostly) continuing appearance of this newsletter. That powerhouse ain't never gonna run out of juice! Keep showin' the smoggers your taillights, Pb. —CB

1994 Election Proxy

The annual members' meeting of the Electric Auto Association will take place concurrently with the October monthly board meeting, Sat. Oct 29, 1994. Call Stan Skokan (415) 366-0643 for location. The Board recommends that the members approve both Items 1 and 2.

I hereby assign my proxy to the present Board of Directors if I do not attend the meeting and vote in person. Please sign below and date.

sign name

date

(1) Board Member Re-Election

The following three board members' terms expire this year and they are running for re-election. The Board recommends that members re-elect all three. Please indicate whether you agree or disagree by marking the box next to each name. You may also enter a write-in.

	For	Against
Harold Bell	☐	☐
George Gless	☐	☐
Bruce Brooks	☐	☐
_____	☐	☐

(2) Approval of By-Laws

Members' approval of the proposed By-Laws as printed in this issue of CE. The Board recommends approval. Vote in favor or against the revision by checking one box below:

- For the revised By-laws box ☐
- Against the revised Bylaws ☐

Proxies with unmarked boxes will be counted as a vote in favor of Board of Directors' recommendations.

The Board encourages chapter presidents to collect sealed completed proxies from their members and mail them in together.

Otherwise members may also send sealed proxies to:

1994 EAA Election
c/o Lee Hemstreet
787 Florales Avenue
Palo Alto, CA 94306

Revised Bylaws (9/1/94)
Electric Auto Association

(A California Nonprofit Public Benefit Corporation With Members)

I. CORPORATION PURPOSES:

- A. To act as a source of information for the membership, other organizations and the public on developments in electric automobile technology worldwide.
- B. To encourage experimentation in the building of electric vehicles, particularly in the area of reducing weight by the use of lightweight body construction with quality and safety in mind.
- C. To promote and organize public exhibits of electric automobiles built by members and others for the purpose of informing the public on the progress of electric automobile technology and conducting public opinion polls.
- D. To publish newsletters, information packages, and other materials designed to promote the cause of electric vehicles.

II. OFFICES:

- A. The principal office and any other office(s) shall be located at such place(s) as the Board of Directors shall authorize. [5160]*

III. MEETINGS AND VOTING RIGHTS:

- A. **REGULAR MEETINGS:** The annual meeting of the members of the corporation shall be held each year at a place, date and time arranged by the Board of Directors. Notice of the meeting shall be sent to each member of record, as of the date of notice, by mail not less than 20 nor more than 90 days prior to the meeting date. At each annual meeting directors shall be elected and any other business may be transacted which may properly come before the meeting. [5510(b), (c)]
- B. **CHAPTER MEETINGS:** For the convenience of participation, groups of members may form EAA chapters in geographic regions. Meetings of EAA chapters shall be held at times and places determined by the chapter officers and members. [5510(a)]
- C. **SPECIAL PURPOSE MEETINGS** of members may be called by the Board of Directors, the Chairman, the President or by 5% or more of the members. Special purpose meetings shall be held not less than 35 nor more than 90 days after receipt of a valid request. [5510(e), 5512]
- D. **NOTICE OF SPECIAL PURPOSE MEETINGS** of members shall be sent by EAA to all members of record, by mail, not less than 20 nor more than 90 days prior to the meeting date. Meeting notices shall state the business to be transacted and nominees for positions, if an election is to be held, as well as the time and place of the meeting and date by which proxies must be received. Business at special purpose meetings shall be limited to that stated in the meeting notice. A proxy form shall be furnished to each member with the meeting notice with which the member may vote absentia on the business or the candidate. [5511]
- E. **QUORUM FOR THE TRANSACTION OF BUSINESS:** At any meeting of the members those present plus those represented by proxy shall constitute a quorum, if 5% or more of the members are represented. The affirmative vote of a majority of those voting in person and by proxy shall be the act of the members. [5510(d), 5512]
- F. **ACTION BY WRITTEN BALLOT WITHOUT A MEETING:** Any action, including election of directors, which may be taken at a meeting of members maybe taken without a meeting by mailing to each member of record a ballot describing the proposed action with an opportunity for the member to specify approval or disapproval of the proposal(s). A reasonable time limit for the return of the ballots shall be stated. Approval on a majority of the ballots received by the stated time shall be the act of the members if 5% or more of the members voted. If directors are to be elected by mailed ballot, without a meeting, the number to be elected shall be stated and that number of candidates receiving the highest numbers of votes on ballots received by the stated time shall be considered elected. Written ballots are irrevocable. [5513(d)]
- G. **VOTING:** Each member shall be entitled to one vote on proposals and for candidates at general meetings of members in person or by proxy or by mailed ballot if a meeting is not held. [5610]
- H. **PROXIES:** Each member entitled to vote may do so by sending a proxy to the Secretary of the corporation which must be received by the date set in the meeting notice. A proxy shall be valid only for the specific meeting and proposal(s) stated in the meeting notice. Proxies must be delivered in a sealed envelope and are to be opened only by a teller committee appointed by the Board of Directors. [5613]

IV. BOARD OF DIRECTORS:

- A. **POWERS OF THE BOARD:** The activities and affairs of the corporation shall be conducted by or under the direction of the Board of Directors subject to any limitations in the Articles of incorporation or these bylaws. [5210, 5150 (a)]
- B. **NUMBER OF DIRECTORS:** The authorized number of directors of the corporation shall be an odd number not less than three(3) nor more than eleven(11). The exact number of directors shall be set within these limits from time to time by affirmative vote of a majority of the directors or by affirmative vote of a majority of members voting at a duly held meeting and by proxy or by mail received by the time limit stated in the notice. The maximum and/or minimum number of directors may be only changed by approval of the members. [5151]
- C. **DIRECTORS NOMINATION, ELECTION AND TERM:** Nominations of candidates for director may be made to the Board of Directors by any member at any time to fill vacancies or to replace members whose term has expired. Nominations shall close 60 days prior to the date of the meeting at which the election is to occur or the date by which written ballots must be received. The Board shall provide nominee a reasonable opportunity to accept or reject nomination, communicate to members their qualifications and reasons for candidacy and to solicit votes. Directors shall be elected at each annual meeting of members and shall hold office until the expiration of the term for which elected and until their respective successors are elected and qualified or until death, resignation, or removal. Directors shall be elected for terms not exceeding three(3) years. Terms shall be arranged so that no more than one half will expire in a single year. Any bylaw amendment increasing the terms of directors or extending any director's term must be approved by the members. [5220]
- D. **RESIGNATIONS:** Any director may resign effective upon giving written notice to the Chairman of the Board or to the Secretary of the Board. However, no director may resign if such resignation would leave the corporation without a duly elected director in charge of its affairs. [5224, 5226]
- E. **REMOVAL:** The Board of Directors may declare vacant the office of a director, elected subsequent to the adoption of this bylaw, who fails to attend or otherwise actively participate in three consecutive board meetings. If not in attendance, active participation may be by written input to the upcoming meeting. The entire Board of Directors, or any individual member of the board, may be removed from office by affirmative vote of the majority of members voting by written ballot or in person and by proxy at a duly held meeting for which such removal was stated in the meeting notice as a proposal to be decided at the meeting. If the members act to remove the entire board they must immediately elect a replacement board. [5221, 5222]
- F. **VACANCIES:** A vacancy(s) on the Board of Directors shall be deemed to exist whenever there are fewer directors than the authorized number. Such vacancies may be filled by a majority of the remaining directors or by a sole remaining director. The members may elect a director at any time to fill any vacancy not filled by the Board of Directors. [5075, 5224(b)]
- G. **REGULAR MEETINGS:** The board shall meet at least quarterly. One board meeting shall be held immediately after each regular meeting of members for the purpose of organization, appointment of officers and transaction of other business. [5211]

Revised EAA Bylaws (9/1/94)

Continued from page 8

- H. **SPECIAL MEETINGS OF THE BOARD OF DIRECTORS** may be called by the Chairman or the President or any Vice President or the Secretary of the corporation or by any two(2) directors or by five(5) percent or more of the members. [5211(a)(1)]
- I. **NOTICE OF MEETINGS:** Notice of the time, date and place of all meetings of the Board of Directors shall be delivered to the directors at least one week in advance by first class mail or by personal delivery, telegram or telephone within at least 48 hours before a special urgent meeting.. [5211(a)(2)]
- J. **ACTION WITHOUT A MEETING:** Any action which may be taken by the Board of Directors may be taken without a meeting if all directors consent in writing to such action. Such consents shall be filed with the minutes of proceedings of the Board of Directors. [5211(b)]
- K. **QUORUM AND TRANSACTION OF BUSINESS:** A majority of the authorized number of directors present in person or participating by phone shall constitute a quorum for the transaction of business. Every act done or decision made by a majority of directors present at a meeting duly held at which a quorum is present shall be the act of the Board of Directors. [5211(7),(8)]
- L. **MEETINGS:** The Chairman of the Board shall preside at every meeting of the board, if present. If no chairman is present a chairman chosen by a majority of directors present shall act as chairman. The Secretary of the corporation, or in the absence of the Secretary, any person appointed by the Chairman shall act as secretary of the meeting.
- M. **COMPENSATION:** Directors and members of any committees shall serve without compensation except for reimbursement of expense incurred on behalf of the corporation and subject to prior approval by the Board of Directors. [5235]
- N. **COMMITTEES:** The Board of Directors may create one or more committees each consisting of two or more directors and may include other members of the association. The board shall define the responsibilities and authority of each committee. [5212]
- V. **ORGANIZATION**
 - A. **OFFICERS:** The corporation shall have a Chairman of the Board, or a President or both, a Secretary, a Treasurer and such other officers with such titles and duties as the Board of Directors shall determine. All officers shall be chosen and appointed by the Board of Directors and serve at the pleasure of the Board. [5212, 5213]
 - B. **THE CHAIRMAN OF THE BOARD** shall exercise such powers and perform such duties as may be assigned by the Board of Directors. The Chairman may sign and execute, in the name of the corporation, any instrument authorized by the Board of Directors. The Chairman shall have all the general powers and duties of management usually vested in the President or Chief executive Officer of a corporation.
 - C. **THE SECRETARY** shall keep, or cause to be kept, in a place and form readily available to any director:
 - 1. Minutes of all meetings of the corporation members, Board of Directors and committees of the Board of Directors.
 - 2. Names and addresses of all members.
 - 3. The original or copy of the Articles of Incorporation.
 - 4. These bylaws including any revisions.
 - D. **THE TREASURER** shall be responsible for maintaining accurate and correct books and records of moneys of the corporation received and disbursed and for depositing same in the name to the credit of the corporation and shall provide a statement of financial condition of the corporation to the Board of Directors when called upon to do so.
 - E. **CHAPTERS:** Members may form Chapters. Each Chapter has its own meetings, procedures and activities. Chapters must establish and maintain a relationship as affiliates of the EAA and agree to abide by the bylaws and Code of Ethics of the Electric Auto Association.
- VI. **CONTRACTS AND LOANS:**
 - A. **CONTRACTS:** The Board of Directors may authorize any director, committee of directors or officer of the corporation to enter into any contract or execute and deliver any instrument in the name of and on behalf of the corporation. Without such expressed and recorded authorization no director, committee, officer or other person shall have the power or authority to bind the corporation or to render it liable for any purpose or in any amount. [5141, 5210]
 - B. **LOANS:** No loans shall be contracted on behalf of the corporation unless authorized by the Board of Directors.
- VII. **MEMBERSHIPS:**
 - A. **ADMISSION OF MEMBERS:** The corporation shall admit as a member anyone who pays the annual membership fee and shall consider each such person a member for one year following receipt by the corporation of each membership fee. Certain institutions, organizations and individuals may be granted complimentary memberships at the discretion of the Board of Directors. Any member may resign at any time by written notice to the Board of Directors. [5310]
 - B. **CLASS OF MEMBERS:** The corporation shall have one class of members and each member shall have one vote on matters to be voted on by the members. [5330]
 - C. **DUES:** The Board of Directors may levy upon members such dues, assessments and fees as it may deem appropriate. [5351]
- VIII. **INSPECTION OF CORPORATE RECORDS:**
 - A. Every director shall have the right to inspect and copy all books, records and documents of the corporation and to inspect the physical properties of the corporation at any reasonable time. Each member shall have the same right of inspection for purposes reasonably related to the business of the association and in the interests of the membership, upon written request stating the purpose, to the Board of Directors. No director or member shall use any record, such as members' names and addresses, for any purpose not in the best interests of the corporation.
- IX. **MISCELLANEOUS:**
 - A. **FISCAL YEAR:** The fiscal year of the corporation shall end on the last day of December of each calendar year.
 - B. **ANNUAL REPORT:** The Board of Directors shall cause an annual report to be prepared and sent to members, within 120 days after the close of each fiscal year. The report shall include, in appropriate detail: summaries of the corporation, chapter and member activities and corporation income and expenses.
 - C. **BYLAWS:** It is the intent of these bylaws to comply with mandatory requirements of the California Nonprofit Corporation Law. The Board of Directors will correct any noncompliance brought to its attention. These bylaws may be adopted, amended, revised or repealed by the Board of Directors or by the members unless the action would materially and adversely affect the rights of the members. [5150]
 - D. **CODE OF ETHICS:** The Association will adopt and abide by a Code of Ethics published to the membership as a separate document.
 - E. **AWARDS:** The association may grant awards for meritorious service, technical achievement, or other purposes as determined by the Board of Directors.

* Numbers in brackets refer to California Nonprofit Corporation Law.

Arizona EAA Electric Vehicle BBS

BY DAN MERRITT

Announcing the world's first electronic BBS (Bulletin Board Service) devoted to the electric vehicle. This is also the only BBS known to be strictly for EVs. Accredited by EAA. The EAA Electric Vehicle BBS is the place to find:

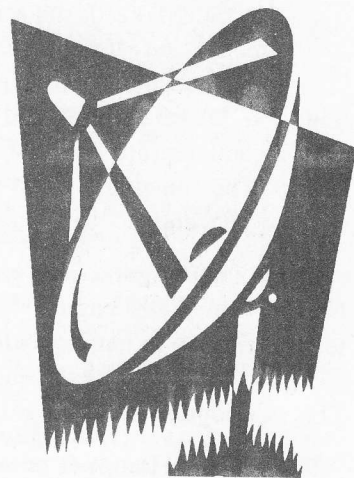
- ☐ Others who are interested in EVs
- ☐ Reviews of articles from magazines and newspapers
- ☐ Schedule of upcoming EV events, worldwide
- ☐ The EAA national newsletter, Current EV events
- ☐ Information about pending or enacted legislation affecting EVs
- ☐ Answers to technical queries

You can drop in 24 hours a day for information and updates. Or to share your information with others. You can find suppliers, read ads and catalogs and compare prices. Sell extra EV items and buy what you need.

To use this free service, set your modem to 14,400 BPS, 8 bits, no parity, 1 stop bit and dial (602) 371-1182. This is an evolving project, so check in often, watch the changes and growth. Or help with some of the projects by volunteering to type reviews, manage an area of interest, or just giving your opinion.

EV and parts dealers welcome. We have areas devoted to posting products, advice and information. We are also seeking corporate sponsors. This is a community undertaking.

For help by phone, call Dan Merritt, Sysop, (602) 371-1343 (Arizona).



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When you need components and service call EVA.

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Electric Vehicles of America, Inc.

48 Acton Street PO Box 59 Maynard, MA 01754-0059

(508) 897-9393 Fax (508) 897-6740

Committed to Quality and Safety

Do You Have A Dead Diesel?

THE RECENT REFORMULATION OF DIESEL FUEL IN CALIFORNIA MAY HAVE AN unexpected effect on electrics; more cars may become available for conversion because their engines were damaged by the new fuel formulation. VW Diesel Rabbits and pickup trucks have a tendency to blow engines anyway and the reformulated fuel may be the coup de grace for many faltering diesels. The non-running vehicle section of used car ads may see a proliferation of these cars and a corresponding drop in prices.

Diesels make good conversion candidates since the stock suspensions are heavier (the diesel engine is heavier than its gasoline counterpart) and require less beefing up to handle battery weight. They also tend to have good interiors and good bodies, since the engines develop problems at relatively low mileage. This is a popular kind of car for conversion and bolt-in kits are available.

If your diesel bunny is one of the casualties, consider resurrecting it — as an electric! If you don't feel ready to take that step, consider donating the car to a local high school for an EV conversion project. Who knows; you might see your ex-diesel in the lineup for the ASP Phoenix Student Electric competition.

If you have a dead diesel (or know of one) contact your local EAA chapter or EV converter/mechanic. Most dead diesel passenger cars are potential electrics. Let's get 'em on the road.

Argus Electric Car Magazine

Argus Publishers in LA is starting up two ventures to spread the word about EVs. The first, *Electric Car Magazine*, will start with its first issue in October. The second, RPM, a TV program focusing on autos and automotive technology, will feature segments on EVs and the EV industry. *Current Events* will be one of *Electric Car's* contributors; they will be printing, with permission, the first two paragraphs of "EAA Offers EV Test Drives" from the August 1994 CE special issue.

CE's editor has already sent several proposed stories and one completed piece, so maybe that will be showing up in the magazine too. Argus already has several showcar and kit-car magazines, but we anticipate that *Electric Car*, by the nature of its subject, will be unique among commercial publications.

Current Events welcomes the debut of *Electric Car Magazine* and wishes it highly-charged success. We hope Argus does well enough with it to continue publication. This new launch shows that magazine publishers are starting to take EVs seriously. CE will be looking forward to *Electric Car's* first issue and/or pre-pub review copy or at least an issue summary. We'll also be watching for the EV segments on RPM and hopefully will be able to give broadcast dates, times and channels.

Electric Car's first issue will be newstand sales only, but interested individuals can order the magazine directly from Argus. Write to Greg Brown, *Electric Car Magazine*, Argus Publishers, 12100 Wilshire Blvd. Suite 250, Los Angeles, CA 90025. Or call Peter Wu at Argus, (310) 820-3601, x261.

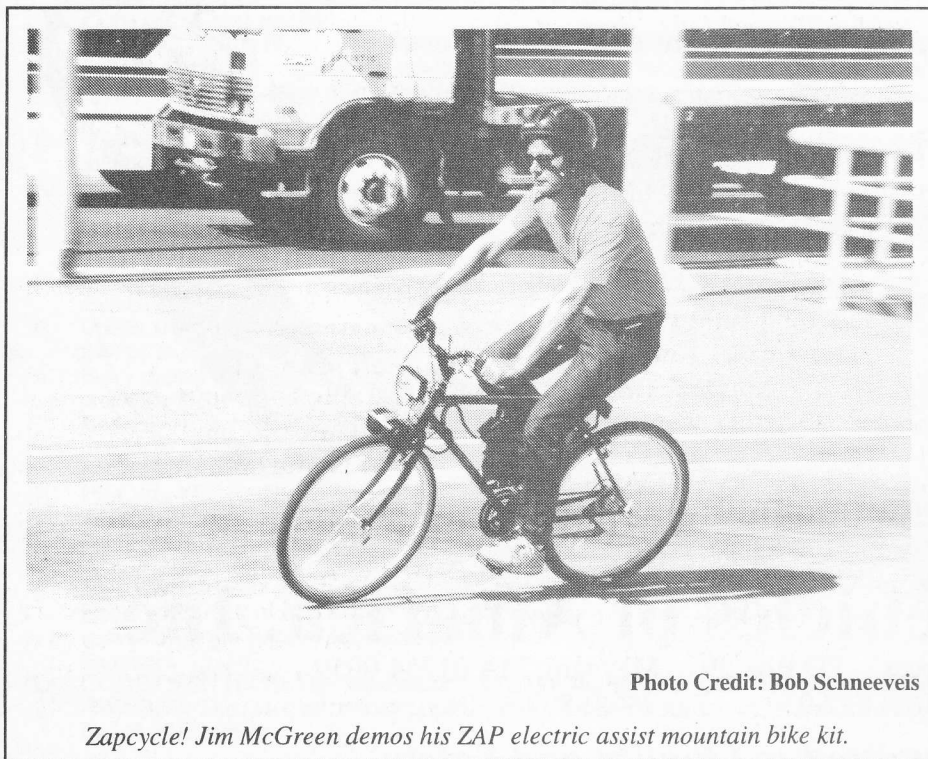


Photo Credit: Bob Schneeveis

Zapcycle! Jim McGreen demos his ZAP electric assist mountain bike kit.

Tech Gurus Answer CE's Call

A number of very talented and knowledgeable folk have responded to CE's need for one or more "tech gurus" to help run an "Ask Mr./Ms. Voltwrench" tech query column. So far the respondents include Otmar Ebenhoech and Chris Schaefer, Mike Brown and Shari Prange, Scott and Anna Cornell, Gary Jackson. Those tech gurus who sent in bio/background information (bless 'em!) will be the first to be listed.

Gary Jackson

I would be happy to contribute to EV news as a "Tech Guru". I'd probably learn something in the process! Here's my EV-oriented resume'. I generally downplay the "Dr." unless necessary. I think the tech guru should be pretty informal. Cheers, Gary

Dr. Jackson received his Ph. D. from University of Arizona in 1977 in Electrical Engineering, with a physics minor. Since that time, he has been employed by General Atomics, San Diego, CA. He has made numerous contributions to the international fusion effort, particularly in the areas of plasmas and tokamak operations, including the commissioning of a stationary 250-ton flywheel to provide pulsed power (240 MVA) for plasma experiments. Dr. Jackson has travelled extensively both in the US and abroad, including extended collaborations in England, Japan and Germany. He is the author of 13 refereed papers, 27 conference presentations, and a contributing author to more than 100 papers in the field of fusion plasmas. He has also contributed several articles on electric vehicles to the Electric Vehicle Associations of

Southern California (EVAOSC) and San Diego (EVAOSD) and has written a column, "Nuts and Volts", for these associations' newsletters.

Dr. Jackson has been active in the field of electric vehicles for 25 years, beginning with the construction of his first electric vehicle in 1969. Since then he has operated an electric vehicle on almost a continuous basis and has collected extensive test data on the operation and efficiency of electric vehicles. He is active in promoting EVs, research in the EV field, and proving EVs in a racing environment. Dr. Jackson is vice president of the local electric vehicle chapter (EVAOSD) and has been interviewed for numerous newspaper stories and TV appearances. He is also the owner of Little Guy Racing and Consulting. In order to prove the efficiency of electric vehicles, Dr. Jackson has led a team to the Solar and Electric 500 at Phoenix International Raceway for the last 4 years.

In the 1991 inaugural EVent, he won third place overall and was the first finisher using only conventional lead-acid batteries. In 1993, the Little Guy Racing team placed in two EVents; third in the open competition and first place in Stock B (commercial lead-acid battery) division. For the 1994 EVent, a newer car was added, a 1994 Geo Metro. Quick charge capability was added to the legendary Jackson #43 Rabbit. These cars placed 2nd and 3rd in the Lead-acid Stock Division. The Geo Metro also competed in the 1994 Los Angeles Clean Air Road Rally, placing fourth. Dr. Jackson is committed to electric vehicles and their implementation in America's transportation infrastructure.

See story on pg. 18 - Electric Ford Escort.

Foundation Seeks EV Expertise

(From the Oakland Tribune, 8/30, 1994. Submitted by Edward Holsinger, 2127 Russell St., Berkeley, CA 94705)

Time is getting short if you want to help out the East Bay Community Foundation and the California Environmental Vehicle Consortium. They are seeking to contract for 12 months with one or more established consulting group(s) to perform a detailed technical and cost assessment for the mass production of hybrid electric vehicles.

Their cutoff date was 9/7/94 to receive a Request for Proposals form from Mr. William Master, CEVCO Technical Director, 472 Daytona Dr., Goleta, CA 93117, Ph. 805-968-4323. You can probably get them after the date, but he wants them back by 9/20 at the above address.

Professional experience is required in:

- ☐ Performing under standard mandated for Federal grants.
- ☐ Principles and practises of automotive engineering.
- ☐ Hybrid electric power train systems in automobile applications.
- ☐ Assessing manufacturing capability.
- ☐ Estimating component manufacturing costs.
- ☐ Working as part of a multiple contractor team.
- ☐ Working with major automobile manufacturers.

In addition, he is also looking for five independent technical experts with national recognition to perform peer review services related to a major study on the technical and cost feasibility of mass producing hybrid electrics. Same address, same requirements. Interested? Get hustling! —CB

Special Tribute



Silent Drive

BY MICHAEL HACKLEMAN

Paul Brasch, an EV pioneer and advocate, creator of the EAA's publication *Current EVents*, died on August 13, 1994, after contracting AIDS through a blood transfusion in 1985.

Paul was a six-time president of the founding Silicon Valley Chapter of the EAA (a 22-year member), a former member of its national board of directors, and the winner of the Keith Crock Electric Vehicle Technical Achievement Award at Wescon '93.

With a 29-year background in the electronics industry, including experience with Intel and National Semiconductor, Paul was the designer of and sole source for the Precision DC Energy Monitor from Brasch Laboratories. (Paul's father informs us that the Monitor is not available at this time, please, no orders.)

An article submitted by Paul to *Home Power Magazine* entitled "Electric Cars: Toys or Reality" will appear in an upcoming issue of *Home Power*.

We will miss Paul's perceptions, dedication and bright spirit. —MH
(Reprinted with permission from *Home Power Magazine*.)



Autumn

Winter

White
color
their

The summer sun is just
heat wanes, the sunsh

Autumn's light is more gol
It has a pleasant co
The colors of the leaves,
gold's is nature's colorful r
winter is not t

All year long the trees' g
soaking up t
Soaking...soaking...soakin
light 'till the

Heavy with their load of
twigs and branches and j
Autumn's precious ca

Susan Hollis Current EVents

Paul & I began working together on the next two years, we continued to build the publication from a "4-p publication packed with photos, art

I know Paul was proud of CE and re nition for his hard work and dedica His opinions were strong, his voice seeds of change that was needed.

I'm glad I had the time to know Paul ing much of time, he never gave up. this fiery guy. Thanks Paul.

to Paul Brasch

umn's Gift of Gold

light is bleak, cold and sterile
white.

Spring arrives, the warm gold
ins to show itself. Trees hurry
aves to capture this precious
golden sunshine.

fit and hot. But as summer's
richens with golden light.

in color than any other season.
portable warm glow to it.

e oranges, reds, yellows and
ssurance that the approaching
end, but will pass.

en leaves have been hungrily
golden sunshine.

up and solidifying the golden
an take no more.

ld, they lose their grip on the
tter to the ground. Giving us
et of solidified sunshine.

Paul Brasch, 1986

e CE newsletter in September 1991. In
ake changes and improvements in CE
e ransom note" to a significant 24-page
es and news for the EAA.

ived a great deal of support and recog-
n in this and other work for the EAA.
was loud, but his ideas were often the

Even though he was in pain and suffer-
e fought for his ideas. I know I'll miss

Stan Skokan
Chair, EAA Board of Directors

I have known Paul for about 20 years. I do not know the details of his personal life or his illness. I never became that close to him. We shared a common hobby and similar profession. I do know that he is a remarkable man. Not "was" but he still is!

He was dedicated to the cause of better living for all of us. He was a man who refused to compromise his principles. He was a leader and a courageous man. He was always ready for a challenge.

When I first met Paul, he was demonstrating EV technology while the big corporations were denying that it could be done. He took it upon himself to spread the word and educate others.

He organized the EV Rallies, lectured at EAA meetings, wrote papers, published newsletters and rattled the bureaucracies. He was not afraid to confront politicians or corporations. He always volunteered when others gave up. He never questioned the need to expend his energy despite his serious health problems. He understood and always defended the difference between right and wrong.

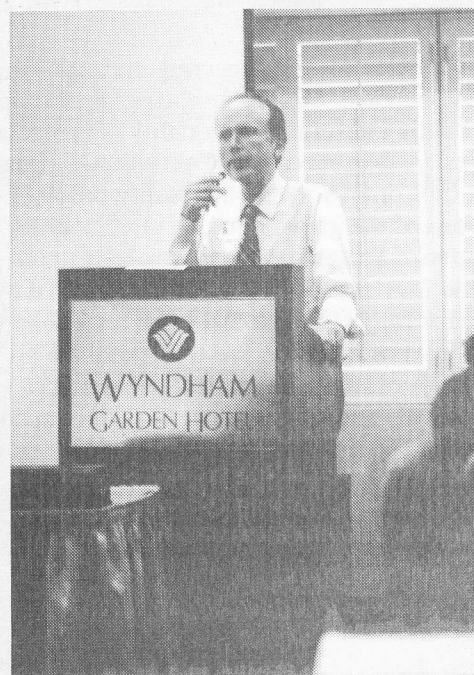
We served together on the Board of Directors. He was the one concerned about the ethics of his colleagues' conduct and about the financial strength of our organization. He was not afraid to make enemies and his views prevailed.

He will be remembered, not only as a promoter of EV technology, but also as a technical contributor. He sold several of his Brasch digital DC watt-hour meters to General Motors. How many of us have done that!

Paul, we will continue spreading the EV word and we will prevail. Paul, we will remember you and we will miss you. —SS

John Newell
Charter Member, EAA

Paul became part of EAA in the early '70's. He made his presence known from Silicon Valley to Detroit, dedicating himself to promoting efficient electric cars. He performed to the utmost for EAA and EVs, inspiring others to do so. Hail and farewell to a remarkable individual, who made a difference to the world despite the tremendous odds against him.—JN



EAA Letter Supports Jacqueline Schafer

To: Jacqueline Schafer, Chair
California Air Resources Board
2020 L Street
Sacramento, CA 95812

April 29th, 1994

On behalf of the Board of Directors and the thousands of members of the Electric Auto Association, we would like to express our support for the California Air Resources Board (CARB) LEV/ZEV legislative mandate.

EAA has been promoting EVs since 1967 as a solution to the air quality problem in California and elsewhere. We have initiated the public, government, utility and auto industry interest in EVs.

Thousands of EV owners have proven the practicality of EVs with a 50 mile range. There is no doubt that today's 100 mile-plus battery technology can make a substantial improvement in the quality of life here in California and in other urban areas around the world.

Association members have witnessed the rapid progress of EV technology in the last decade since major automakers got involved. Our members have driven their latest prototypes and talked to their very capable engineering teams. There is no doubt that their excellent products will be well received by the general public.

The revival of business and economy in California depends on redirecting defense spending into major civilian industry. Californians have the right talent and desire to make EVs and EV infrastructure a reality. It would be a step backward to slow the ZEV introduction at this time. This technological progress is synonymous with California and its high-tech image.

We urge the California Air Resources Board to confirm the existing standards and give a green light to California's future.

Thanks, Stan Skokan, Chairman of the Board, EAA (with help from Clare Bell, CE's editor)

Dear Mr. Skokan:

Thank you for your recent letter regarding California's zero-emission vehicle (ZEV) mandate. Your enthusiasm for electric vehicle technology and its potential to benefit California's air quality is appreciated. The introduction of electric vehicles is a key part of the California Air Resources Board's (ARB) plan to assure that California's severe air quality problem will improve over time, and that this issue is of the greatest interest to Governor Pete Wilson and the California Environmental Protection Agency.

The ZEV mandate is due to be reviewed by the ARB at a public meeting scheduled for May 1994. At that time, testimony will be presented by experts from all segments of industry. We will evaluate all of the available information and affirm the existing ZEV implementation schedule, if it is determined to be technically and commercially feasible. In addition, the ARB welcomes your participation in this public meeting. If you would like to testify through written or oral presentation.

Thank you again for writing. Should you have any questions or need further assistance, please contact Mr. Tom Cackette, Chief Deputy Executive Officer, at (916) 322-2892.

Sincerely,
Jacqueline E. Schafer, Chairwoman

High Voltage Road Racing

Saturday, August 6, 1994—The ESR-1 prototype electric road race car demonstrated dramatic improvement in its performance after upgrades to the drive system and body. At a Sports Car Club of America Solo I event, the car turned a 2:07.28 lap on the challenging Laguna Seca track. This represented an 11-second improvement over its previous lap time at Laguna.

The ESR-1 had recently been upgraded from a 120-volt system to a 144-volt system. This was made possible by a new higher-voltage speed controller from manufacturer Curtis/PMC. It uses special 12-volt lead acid electric vehicle batteries from U.S. Batteries.

In addition, the ESR-1 has been fitted with a new, sleeker body from A-mac Fabrications.

This event established the first official SCCA lap time for an electric vehicle on Laguna Seca. It was the second time the ESR-1 had participated in a competition in the ESR class. This is a proposed new SCCA spec class, for which the ESR-1 is the prototype.

Driver Dan Sullivan was delighted with the results of the upgrade. "We haven't taken it to the limit yet. We can get it under two minutes."

The ESR-1 is a joint project of Electric Sports Racing (Mountain View, CA) and Electro Automotive (Felton, CA). The two companies plan to keep demonstrating, testing, and refining the prototype car this year, and go into production on turnkey cars this winter.

For more information, contact Dan Sullivan at Electric Sports Racing, (408) 739-ESR1.

My Electric Car Design

BY RODGER EDGAR

In my side yard sits an old Blue Vette;
It hasn't run in three years and yet;
My goal is to make it an Electric Car
To design it Build it and travel far.

My Electric Car zooms quietly at highway speeds;
It uses one sixth the energy a gas engine needs;
It has one tenth of Detroit's moving parts
It scorns tune-ups, spark plugs and oil in quarts.

It won't smoke, pollute or foul the air;
And a crash won't explode it, even on a dare;
Its tanks are empty of explosive fluid;
It runs on pure energy like it should.

It drives past the station for smog inspection;
Without needing a garage mechanic's attention;
Its cost is less than one half internal combustion;
From my billfold comes less dollar consumption.

It accelerates fast with lots of horses;
And uses many optional power sources;
It can use solar, wind or nuclear power
And zip along quietly for many an hour.

I would take you for a long scenic ride;
And show you the luxurious interior inside;
But it isn't quite ready for the open road;
It is still pencil lines on my drawing board.



FOR SALE

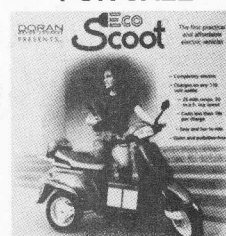


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FOR SALE

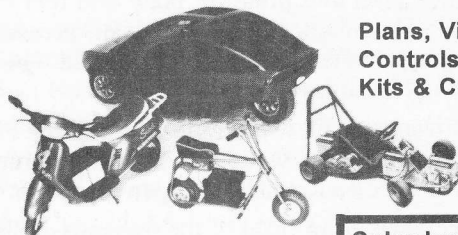


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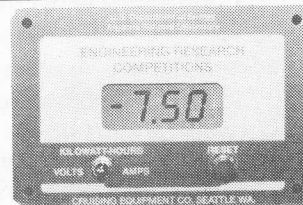
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Phone (206) 782-8100

Electric Ford Escort

BY CHIP AND MONICA GRIBBE—LAUREL, MARYLAND

The donor car was purchased in October 1992 for \$1,200. But before we journeyed into the project we gave the car a name: Wattson. We bought a conversion kit from KTA Services, located in California, for \$4884.47.

The project was started in January 1993 with the removal of the engine, gas tank, exhaust, and all the other IC parts. Before the new stuff was put in, the engine compartment was cleaned and painted.

We bought a new clutch and pressure plate and had the flywheel resurfaced. The adapter plate, flywheel, pressure plate, and clutch were attached to the motor and the whole unit was bolted to the transmission.

A 1/4 inch angle-iron rack that spans the width of the engine compartment was installed. It supports the motor, three of the batteries, the controller, and the charger.

Another rack was installed in front of the transmission to hold three other propulsion batteries and the 12-volt battery. An aluminum belly pan was mounted under the front of the car to protect the motor from road splash.

In the back there are 10 batteries in a box behind the rear seat. It is constructed out of plywood and has an exhaust fan to vent the batteries during charging. Air shocks were added to support the weight of the batteries. The cable connecting the front and rear batteries are run under the car inside PVC pipe. The circuit breaker is installed under the hood and can be switched off and on from the dashboard.

Vacuum was restored to the brakes by adding a power brake module that includes a vacuum pump, reservoir, and vacuum switch. The RUSSCO Heater warms up the car in about 2 minutes. This heater uses the same heater core and controls. Wattson was finished in December 1993 and will never see a gas pump again.

ESPN Broadcasts EV Race

On August 30, 1994, ESPN aired the Electricore Inagural Formula Lightning (trademarked) Race on its Thursday Night Thunder. This is from the flyer that CE received prior to the broadcast.

"From Indianapolis Raceway Park, Indianapolis, Indiana. Title-sponsored by Electricore, an Indianapolis-based electric vehicle consortium, the race is believed to be the first-ever electric race car EVent to be televised live. It will feature ten of the Solar and Electric Racing Association's Formula Lightnings (identical rolling chassis) with power systems developed by major universities, including Notre Dame, Ohio State, Georgia Tech, the University of Oklahoma, Bowling Green University, West Virginia University, Wright State University, Arizona State University (and Carl Hayden High School)

1995 Racing Schedule Available Oct. 1st. 4-6 Lightning support races to major motorsports EVents in both University and Pro Divisions.

For information on Formula Lightning (trademarked) and additional 1994 Events, contact Terry Riley at:

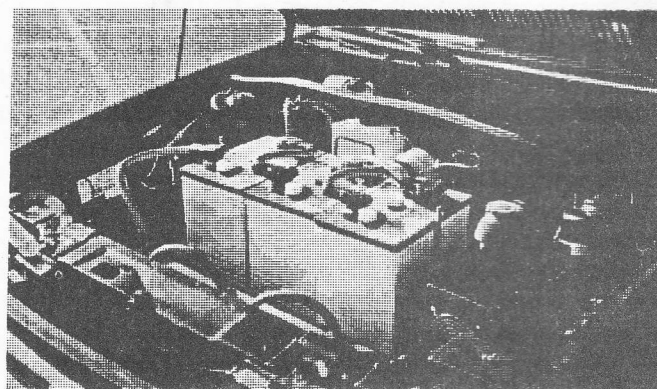
Solar and Electric Racing Association
11811 N. Tatum Blvd., #3031
Phoneix, AZ 85028
Tel. (602) 953-6672, Fax (602) 953-7733

The Formula Lightning electrics will be running a support race to the USAC Copenhagen Skoal-Clark Oil/Mel Kenyon Classic national midget race."

Did anyone tune and check this out? Or tape it? How was it?—CB

Specificifications

Weight before conversion	3130 lbs
Weight after conversion	3950 lbs
Propulsion system	96 volts (16-volt batteries)
Top speed	70 mph
Range	50 miles
Charge time	12-14 hours (@15 amp, 125 VAC)
Cost of conversion	\$10,727.36 (car, kit, batteries, parts)



Board Highlights

(EAA BOARD MINUTES FOR 8/27/94)

The EAA Board of Directors met at Tandem Computer from 10:30 AM to 3:00 PM. Attending were Clare Bell, Harold Bell, Bruce Brooks, and Cornell, Lee Hemstreet, Stan Skokan. Pat Hardage and Dann Parks were also present. Anna Cornell read the previous meeting's minutes. They were amended. B. Brooks moved that the revised minutes be accepted. C. Bell seconded.

Skokan and Brooks reported on finances. Chapter rebates have been paid. EAA has advanced \$2 K to Spirit Publications to finance the *EV Buyer's Guide* by Phil Terpstra. EAA will receive 2,000 copies for distribution to members in lieu of one issue of CE. EAA has also committed to get 5K worth of advertising. Stan Skokan is doing the advertising in exchange for a small percentage commission. September Board meeting is the deadline for all Board members to submit changes to the Buyer's Guide. Review for content is Oct. 25, press deadline, Nov. 1st.

Hemstreet reported that Silicon Valley Chapter voted to contribute funds to the Buyer's Guide project if the EAA Board gets into a bind money-wise.

C. Bell reported on the newsletter and the San Mateo County Fair EV display. She gave an apology for printing the wrong EAA Rally date. The Fair had 2 EAA cars; Victor Rodriguez' recent Golf conversion and Bell's Porsche. The display may generate considerable interest in EVs and EAA.

A. Cornell reported on recent activities. Twelve EVs participated in the East Bay Rally. Some drove to the site and got credit for mileage. Entrants underwent rolling resistance and turning radius tests. Cornell also presented an analysis of 800 number calls to EAA from Nov. 1993 to June 1994. Bar graphs showed where the public's interest is the highest.

Hemstreet reported on the upcoming EAA Board election. Requirements for the proxy form were developed to cover the revised By-laws and the 3 Board members who are up for re-election. Members can mail in the proxies or chapter presidents can collect sealed proxies and mail them in a batch. The annual membership meeting will be held in conjunction with the Oct. 29 Board meeting. Cornell is checking to see if East Bay Chapter can host it.

Dann Parks of Electrathon America discussed EAA's possible role in helping develop lightweight EV competitions. It was suggested that Electrathon America might become a special interest chapter of EAA and receive the newsletter. He also distributed a copy of Electrathon America's patent on the term "Electrathon" and requested that EAA and CE only use the word when referring to races or vehicle designs sanctioned by Electrathon America. Parks, C. Bell, Bruce Brooks and CE columnist Steve Van Ronk will work together to resolve the problem.

Brooks handed out a proposal for a chapter handbook plus other items. This was discussed and changes made. EAA will send 2 packages to the chapters: one with Cornell's description of what an EAA chapter is, one that Mike Slominski and Bruce Brooks developed with guidelines for chapters. Board members were requested to put their ideas in writing for discussion at the next meeting. H. Bell moved to accept materials presented so far and Hemstreet seconded.

The Board is also seeking a suitable memorial for Paul Brasch. Suggestions so far include a "Paul Brasch Award", naming the annual rally after him, or setting up a scholarship fund. H. Bell will look into this.

The next meeting will be at Lee Hemstreet's house, 787 Florales Drive, Palo Alto from 10:00 to 3:00 PM.

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News in Brief . . .

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

Horizon Battery for Thailand's Electric Tuk-Tuk

Electrosources Inc. (Austin, TX) successfully demonstrated its production-version Horizon battery in an electric-powered version of a three-wheel vehicle called the Tuk-Tuk, which is widely used for transportation in Thailand.

Advanced Electric Car Technology (AECT) (Van Nuys, CA) conducted the demonstration in preparation for full-scale testing. After driving the Tuk-Tuk, Chas Haba, AECT president and CEO, said, "It was amazing how much the Horizon battery boosted the Tuk-Tuk's acceleration. In my 20 years developing and operating electric vehicles, this is the most significant performance improvement I have ever seen from using a new battery."

For further information, contact James M. Rosel, vice president of Electrosources at (512) 445-6606.

(ELECTROSOURCES NEWS: 7/28)

EV Sales in Europe Could Reach 200,000 by 2000

Peugeot-Citroen predicts that sales of EVs will reach 200,000 by the year 2000 in the European Union. The French market will make up 50,000 of this figure.

Peugeot-Citroen will rely on mass production to reduce the price of EVs and make them more competitive or even cheaper than their gasoline or diesel counterparts. The company plans to market a new EV in 1995. Renault believes the market for EVs will grow as well and plans to market a new EV in 1996.

A survey of French companies that lease EVs from Peugeot-Citroen found that their employees' driving habits were very similar to those in a previous survey of individuals who leased gasoline-powered cars.

(POWER EUROPE: 7/26)

High-Tech Firms Join Ford in Hybrid Research

Seven U.S. advanced technology companies have joined Ford Motor Co. in a 5-year cooperative research program to develop prototype hybrid EVs. The \$122 million effort, 50% co-funded by the U.S. Department of Energy, supports the goals of the national "Partnership for a New Generation of Vehicles."

Partners in the Ford/DOE program include Directed Technologies, Inc. (Arlington, VA), Energy Partners (West Palm Beach, FL), GE Research and Development Center (Schenectady, NY), GNB Battery Technologies, Inc. (Lombard, IL), Onan Corporation (Minneapolis, MN), Pinnacle Research Institute, Inc. (Los Gatos, CA), and Unique Mobility (Golden, CO). DOE laboratories participating in the project include the Idaho National Engineering Laboratory and the National Labs in Los Alamos, NM, Oak Ridge, TN, and Livermore, CA.

(FORD MOTOR CO. NEWS: 7/26)

U.S. Electricar Creates EV Financing Corp.

U.S. Electricar has created the Electricar Credit Corporation (ECC) to provide financing to customers, distributors and dealers of EVs.

ECC intends to offer EV financing in at least four market areas: (1) Sedan and light pickup trucks to utilities, governments and businesses; (2) Buses to transit

authorities, schools and airports; (3) Inventory and showroom floor models for U.S. Electricar's existing industrial vehicle dealer network; and (4) Financing on sales made to the industrial vehicle dealers' customers. ECC will also develop a service contract.

For more information, contact Abba Anderson at (707) 522-1223.

(BUSINESS WIRE: 8/1)

Energy Partners, Texas A&M, SRI and PEM Fuel Cell

Energy Partners, Inc. (West Palm Beach, FL) has signed a cooperative research agreement with Texas A&M University and the Southwest Research Institute to increase the market viability of proton exchange membrane fuel cell (PEMFC) technology. The consortium will share critical information to expedite and enhance current research to improve the performance and reduce the production cost of PEMFC's.

PEMFC's have been successfully demonstrated in both mobile and stationary power applications with efficiencies as high as 38%, compared to an internal combustion engine with 20% efficiencies and diesel generators with 25-27% efficiencies. The primary factors preventing widespread use are weight (for transportation) and cost (for all applications). The consortium will focus on research that will have the greatest potential impact on these factors. For more information, contact Ed Trlica at (407) 688-0500.

(ENERGY PARTNERS NEWS: 7/25)

Delco Drops Negotiations with USABC

Delco Battery (Anderson, IN) has discontinued negotiations with the United States Advanced Battery Consortium

News in Brief . . .

(USABC) on a proposed contract to develop an ambient-temperature, lithium-polymer battery for EVs with USABC and Department of Energy funding.

Company officials say they will independently develop the technology with Valence Technology, Inc. (San Jose, CA), which owns the key patents and proprietary information that make this battery feasible.

The USABC to date has awarded three contracts to developers working on lithium-based battery technologies. For more information, contact Dave Hines of Delco Battery at (317) 646-7101.

(U.S. ADVANCED BATTERY CONSORTIUM NEWS: 8/5)

Hybrid Fuel Cell/EV Built by UCR Students

Students at the University of California (Riverside)'s College of Engineering-Center for Environmental Research and Technology recently built a hybrid fuel cell/electric concept vehicle. The fuel cell uses hydrogen generated by an electrolyzer at the Solar Hydrogen Facility.

UCR's 500-pound fuel cell vehicle — a modified golf cart — will serve as a test bed to evaluate power output, fuel cell temperature, vehicle range and efficiency, said James Heffel, CE-CERT project engineer. A \$25,000 contract from the University of California Energy Institute will fund the vehicle testing program, including instrumentation.

For more information, contact Kathy Barton at (909) 787-5326.

(UNIVERSITY OF CALIF. RIVERSIDE NEWS: 8/9)

Tokyo's Koganei City Opens Charging Station

As part of the "Ecostation 2000 Plan" of Japan's Agency of Natural Resources and Energy, a public charging station that can refuel an EV in 30 minutes has opened in Koganei City, Tokyo Prefecture.

The Japanese hope to have 20,000 alternative fuel vehicles (electric, natural gas, or methanol) with 2,000 fuel supply facilities by the year 2000. With capital assistance from the Ecostation Promotion Society (EPS) this year, 11 electric, 5 natural gas, and 4 methanol stations will open. EPS estimates there are 1,800 EVs nationwide.

(PAC RIM INTELLIGENCE REPORT: 8/11)

K&W Engineering Announces On-Board Battery Chargers

K&W Engineering has developed two compact, lightweight, transformer-free onboard battery chargers. The BC-25 can charge battery packs of 60-108 volts when strapped for 120 VAC operation, or 114-216 volts when strapped for 240 VAC operation. The BC-20 will charge battery packs of 60-108 volts or, with the optional LB-20 Line Booster, 114 and 120 volts. An input circuit breaker provides overload protection.

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Both chargers operate in a constant current mode until the battery is nearly fully charged, then change to a constant voltage float mode. This permits charging to nearly 100% without overcharging the battery pack. Safety features on both chargers include an input circuit breaker, an output fuse, a cooling fan and a ground fault circuit interrupter (GFCI).

For more information, contact Brian Klosterman at (319) 378-0866.

(K&W ENGINEERING RELEASE: 8/94)

Events Calendar

SEP. 27-29	WESCON '94 - West Coast Electronics Trade Show, Anaheim Convention Center, Anaheim, CA. EAA plans to repeat the highly successful EV Showcase. Call (800) 877-2668.
SEP. 30 - OCT. 2	San Jose Electrathon Velodrome Challenge '94 at Hellyer Park Velodrome, San Jose, CA. High-banked, high-voltage excitement. Limited charging in grass infield. Entry fee \$25 per driver. Please RSVP if you are coming. For info contact Dann Parks (408) 733-2539.
OCT. 3-5	S/EV '94. Sustainable Transportation and Solar/Electric Vehicle Symposium. The NorthEast Sustainable Energy Association (NESEA) will host a series of workshops and a trade show. This is the one that the big three bring cars to! Providence, RI. Contact NESEA for more info. Tel. (413) 774-6051 Fax (413) 774-6053
OCT. 8	Lightweight electrathon-type event in downtown Portland, OR. Open electrathon race and EV drag race. Contact Lon Gillas at (503)434-4332.
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.
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) 985-7561
Anna Cornell, EEvents Co-ordinator, 510-685-7580	

GM Impact Shows Potential for EV of the Future

Excerpt from "California Focus", a column by Thomas D. Elias, from Santa Monica, CA. Appeared in the San Mateo Times, 9/2/94

First and last paragraphs

"The shape and feel of what CA's electric car mandate has wrought stands in pleasant and surprising contrast to the moaning of car-makers who didn't want to build anything really different from what they sell today."

"Whatever marketing tactics GM and the power companies work out, one thing is now very clear: electric cars can perform more than adequately and there is no reason to believe they won't quickly become a heavy-demand item."

We can't agree more! —CB

(Thanks to John Newell)

Chapter News

Contributions to: Ruth M. Shipley 102 Brighton Rd. #3 Pacifica CA 94044 (415) 359-1541, CompuServe 73043,60 Internet 73043.60@compuserve.com

Sacramento CA

Steve Smith and Tony Cygan helped staff the EAA booth at the Solar Energy Expo and Rally (SEER) in Ukiah, CA. Members hope to have a public Ride-and-Drive soon. Mark Bahlke needs volunteers to help publish the chapter newsletter. In a recent newsletter, Mark wrote about his trip to the airport, which is 30 miles from his home. He charged at the airport and a few places in between and logged 85 miles on the entire round trip.

San Diego CA

Don Eskridge has finished his Mustang Coupe and Joe Hadzicki and his brother converted a VW Jetta. Bob Goggin spoke at a recent meeting. Goggin is with the San Diego County Air Pollution Control District. He handed out a fact sheet on alternative fuels and told members that even though emissions from cars have dropped 90% in the past 30 years, cars are responsible for 60% of air pollution. He said that half of San Diego's pollution comes from the Los Angeles basin.

Central Virginia

CEVA has a new address: Central Virginia Electric Auto Association, 3106 Porter St., Richmond VA 23225, (804) 342-0925. They meet on the 3rd Wednesday of the month at The Science Museum of Virginia, 2500 West Broad St., Richmond.



This item came over the EV discussion list from Dave Erb, a previous CE contributor. His email addresses are derb@cc.weber.edu or DERB@staff.etb.weber.edu.

Response to editorial comments on EV crash safety — Fri, 29 Apr 1994

I read your editorial in the May issue of Current EVents with great appreciation and hearty concurrence. If anything, you're understating your case when you refer to 10-g crash loads. A few comments on crash safety design:

1) A good solid pothole will apply about a 4-g vertical load to anything rigidly mounted to a car's unibody (hence, isolated from road shock to the maximum extent of the suspension's capability). If the suspension bottoms out, it will be worse than that.

2) 40 g's is the limit of human tolerance, so there's little incentive to design structure that will withstand any greater load. Crop duster aircraft frames are, however, designed right on that limit, and that's the value we used in designing the battery box for Weber State's hybrid electric vehicle.

3) The unibody structure in a car is designed to progressively deform during a crash, so as to soak up crash energy in a controlled fashion. Design is thus very case-specific. I'm not particularly expert in all the nuances here, but have heard the (very rough) rule of thumb of 28 g's as an appropriate design level.

4) Seat belt mounts are designed for appropriate load levels, with a "standard" passenger mass of 80 kg (176 lbs) as a typical assumption. With appropriate tie-in structure to ALL of the rear seat seat belt mounts, converters of cars like Metros and Rabbits should be able to provide adequate restraint for 160 kg of battery pack with very little difficulty. It's the remaining battery/battery box mass that requires the bulk of the creativity! Integrity of the box itself is also an important (and often overlooked) concern. I hope this note is useful.

Dave Erb, Weber State University
Hybrid Electric Vehicle Faculty Advisor

Letters to the Editor

Dear CE:

I would like to express my astonishment and gratitude at seeing an article on the Ohmsmobile in CE. I thought the article would be sent to me first to proof read, but on the whole I don't mind. I suppose Paul Hebert may have burned some midnight oil to get this done. Well, thanks Paul.

I could go over some fine points that were inaccurate in the article. But could alter my priorities for getting things done, since I would have listed too many things that could be improved.

Right now I am just concentrating on getting the dimensions for the "rotary transmission" dialed in to the 0.1 mm level. I've got a 286 with 640K and a \$35 KeyCAD program churning out drawings. Next comes the cost estimate from the machinist who will build the thing. The rotary transmission transfers power from the engine to the motor and freewheels when the engine is idling or is off. Like a rotary engine on an airplane, the outer casing spins when the car moves.

Will it fly? Driving it to Ukiah this year is eh well maybe?

Sincerely
John Thielking

Paul Herbert did burn some midnight oil. Apologies for not sending you a proofsheet. Sometimes in the rush, the courtesies get overlooked. Good to get the update on the Ohmsmobile. Thanks —CB

Electric HOTPlates!

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 SEPTEMBER issue plate [DC VOLTS] belongs to Jeremy Phillips in San Diego, CA.



Member Want Ads

FOR SALE: VOLTS, Paul Brasch's high performance fiberglass body electric car is looking for a new tender-loving home. Needs some work. Call Stan at (415) 366-0643.

FOR SALE: '81 Ford Escort Hatchback (Yellow), 20 HP Prestolite DC series wound motor, 96V system, 4-speed, on-board 240V charger and kWh charging meter, gas heater, AM/FM Radio, dash-board meters for current and percentage charged. BATTERIES included, EV decals, runs great. \$5900/obo. Call Don at (707) 263-6752.

FOR SALE: Electric commuter car, converted 1980 Fiat Strada. 96V system, GE series motor, Curtis PMC controller. 1 1/2 yrs on batteries, 50-55mph, 35-50 mpc. Owner leaving country. Cost \$9500;sell for \$7500/obo. Call (415) 856-8906.

FOR SALE: 1969 Volkswagen converted to an electric flatbed truck, Kaylor Adapter, GE 400 amp, motor relays,. Needs new batteries and a controller. \$900/obo. Call nites or weekends at (415) 665-6620.

FOR SALE: 1981 Jet Electricas (Escorts), 12,500 miles+. Refurbished, PMC controller, new USB 2300 batteries, on board charger. \$7,500-8,500. Call (415) 964-3974.

FOR SALE: 1989 Chevy Spectrum (Red), 120V Trojan T125 low hours. Looks and runs great. Aluminum wheels, new Goodyear low resistance tires, long range, air condition, modified automatic, special built double shaft GE motor 28 hp, roll bar. Your choice, 2 PMC controllers in parallel, or 1 GE new controller. All gages. Invested \$18,280, sell \$9,500/firm. Free photo & details. Call Gene Cosmano (602) 376-6570/(602) 840-2497.

FOR SALE: 1981 Jet Electrica (Ford Escort), new brakes, wheel bearings, suspension and vacuum system. Good batterieis, tires, pain and interior. Needs some electrical repair. \$3000/obo. Call Phoenix Chapter EAA (602) 250-2131.

FOR SALE: Ford Escort Wagon, 1992 conversion, 120V w/new batteries and struts, heater. Also Nissan pickup, '93 conversion, 120V. Both have excellent performance. \$10,500/each. Call (503) 452-2467 (Oregon).

FOR SALE: Motors, 12-36 Volts. Excellent for motorcycles, bikes, carts, etc. 2HP, 13 lbs \$125/each. 24/36V motorcycle, \$625. Call Gregory Whitney (602) 271-2646 (Day) (602) 978-3380 (Evenings).

FOR SALE: 1980 Jet Electrica 007 Dodge. 2,500-plus miles, 30 HP GE motor and controller, gas heater, 240 VAC-120-12VDC Lester on-board charger, and 4-speed transmission. Manual included. Needs new batteries. S/W Oregon. \$3,900/obo. Call (503)-582-2039.

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

WANTED: Info/Shop Manual/Charger for 1980 Jet Industries Ford Courier Electric Pickup Truck. Call collect (510) 849-4973 or write Ed at 2127 Russell St, Berkeley CA, 94705.

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.

Want Ads are available to EAA members for the sale of electric vehicles, equipment and parts. The EAA is not responsible for the accuracy of ads. Please see advertising rates on next page for commercial products.

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Russco	4
VOLTAGE	23

EV Drag Racing

The PGE Power Smart Electric Vehicle Drag Race will take place from 11:00 to 2:00pm on Saturday, October 8, 1994. The 1/4 mile drag race will take place on Front Street in Downtown Portland. There will be over 20 EVs participating, from High School Electron Run vehiles to an electric Mazda RX-7 that is capable of doing wheelies.

Awards will be given to all participants and trophies to winners. There will also be displays at Waterfront Park showing clean air transportation and energy conservation. For further information and registration, contact Lon Gillas at (503) 434-4332 or Martha Richmond at (503) 464-7078.

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▼ Ads may be placed for 1, 3 or 12 months. Ads are due and payable at the time of the issue. Full payment for all issues must be received at the initial order along with the camera-ready copy. For 12 ads, an invoice will be billed quarterly. A minimum of 3 ads need to be prepaid per quarter.

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▼ Please contact Susan Hollis, Advertising Manager at (408) 374-8605 or by FAX at (408) 374-8750 for additional information or assistance. Camera-ready copy and payment for the ad should be sent to: Electric Auto Association, Attn: Advertising Mgr., 18297 Baylor Avenue, Saratoga, CA 95070.



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