Electric Auto Association NEWS

APRIL 1986 VOL. XVIII NO. 4

MILLION DOLLAR SHOWCASE

85,000 PEOPLE PER DAY

The TRANS-CANADA-RALLY has been dropped in favor of a more localized series of events in the Vancouver area--including four days at EXPO '86.

The Canadian Electrical Association, B C Hydro, and EVAC are sponsoring these events. The EV display will be in the Kodak Pacific Bowl. This open air Stadium will accomodate 5000 people, and will be the location for the RCMP's Musical Ride event twice daily throughout the Exposition. A covered Tent with 6000 sq. feet of usable space is adjacent to the Bowl for Static Displays. With an estimated attendance of 85,000 people per day, this is a fantastic opportunity for us to show off our technical achievements and Vehicles.

I IMPLOR EVERYONE WHO POSSIBLY CAN HELP US PUT ON A SPECTACULAR SHOW!!!

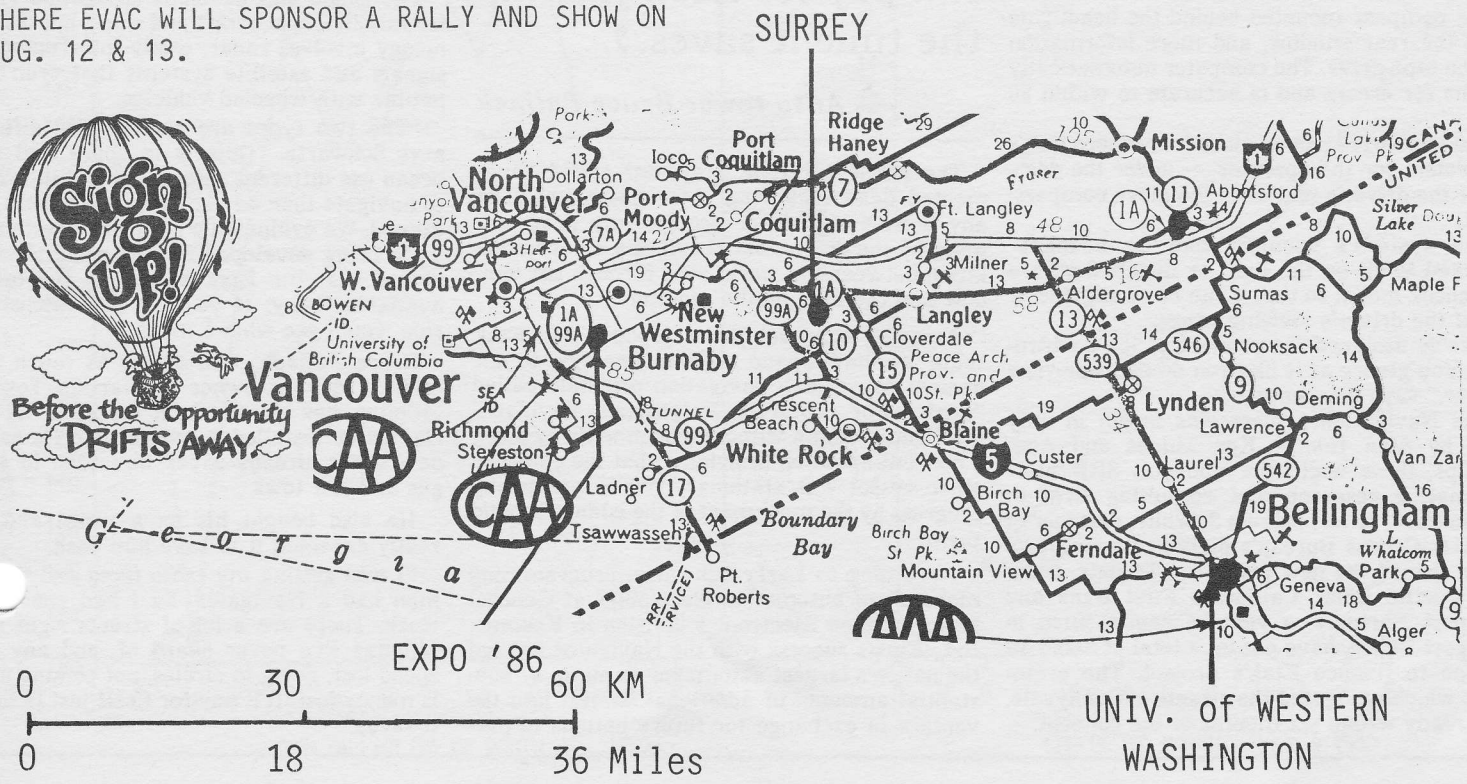
THE EAA INTERNATIONAL RALLY WILL BE AUG. 11 FROM BELLINGHAM WASHINGTON TO SURREY B C, WHERE EVAC WILL SPONSOR A RALLY AND SHOW ON AUG. 12 & 13.

NOTICE !!! NOTICE !!! NOW ! NOW !

THERE ARE ONLY NINE SPOTS ON CAR CARRIER TO BELLINGHAM, FIRST COME FIRST SERVED SO SEND DEPOSIT NOW!!! $150 PLUS PHOTO AND SHORT DISCRIPTION OF CAR. Check to EAA Canada Fund Mail to Lee Hemstreet 787 Florales Dr. Palo Alto, CA 94306

THE COST IS $650 PER CAR: the plan is to devide this by three between EVAC, EAA, & Owner so the most you will pay will be less than $250 FOR WHICH YOU WILL NOT ONLY HAVE YOUR CAR TRANSPORTED BOTH WAYS BUT HAVE FREE BED & BREAKFAST AND FOUR DAYS ADMISSION TO EXPO. WHICH WOULD COST YOU MORE THAN $250.

EST. 30% Attendance from CALIFORNIA



Glass may boost battery life

Chicago Tribune

DEVELOPMENT of a new kind of glass at the Argonne National Laboratory southwest of Chicago may lead to batteries that could store energy much more efficiently than existing technology.

Such batteries should encourage production of automobiles that run on electricity.

The key lies in a new glass electrolyte that conducts a current of sodium ions 10 times better than any other advanced glass electrolyte. The experimental sodium-sulfur battery has the potential of storing more than five times as much energy as a conventional lead-acid battery of the same weight.

Electrolytes conduct charged particles between positive and negative electrodes inside a battery. Sulfuric acid is the electrolyte in a conventional auto battery.

"The glass electrolyte has passed a number of preliminary tests, and we are getting ready to test it in single tube, sodium-sulfur cells," said James Battles of Argonne's chemical technology division.

DEMI HAS COMPACT RUNNING ON LITHIUM Dreisbach Electro--Motive Inc. of Santa Barbara, California only three years after breaking 6 world speed records (see AVN Feb. '83) with the X-1 using nickle-cadmium batteries, now has a car running on a lithium fuel cell. The car has a range of 200 miles befor recharging by replacing electrolite.

A map you don't have to fold

NAVIGATOR, from Page 9B

installing an audio system or cruise control.

An on-board computer about the size of a shoe box and with as much storage capacity as an IBM PC (256 K) is placed in the trunk. It processes distance data from sensors mounted on the wheels, directional data from an electronic compass mounted behind the headlights or in the rear window, and more information via the tape drive. The computer automatically adjusts for errors and is accurate to within 50 feet.

The tape drive can be placed anywhere that's convenient for the operator — under the dash, under the driver's seat or in the glove compartment.

The system's monitor can be bracket-mounted to sit on the dash or installed with a gooseneck mount so that it can be swung into or out of the driver's viewing range.

"We've designed the product so it's unobtrusive. You glance at it like you do the rear-view mirror," says Warkentin.

The Navigation project was begun in July 1983 by Stan Honey, Ken Milnes and Alan Phillips, three engineers who quit SRI International, a research and consulting firm in Menlo Park. Later, Marvin S. White, designer of the U.S. Census Bureau's digital mapping program, joined the new company. To date, Security Pacific Bank, California First Bank and Newport Partners, a venture capital firm in Newport Beach, have put up a total of about $5 million to finance Etak's project. The prototype, which navigated the streets of Sunnyvale, was ready within six months of the concept.

> "... Any time I spend lost ... is money lost. It'll pay for itself just in the time it saves."
>
> — *Auto tower Bruce Pallack*

The Navigator uses a system called "augmented dead reckoning" that doesn't rely on any outside signals or require any programming by the driver, but provides a clear correlation between the world seen through the window and the map on the monitor.

Actually, to develop the product, the Etak team applied Space Age technology to an ancient Polynesian navigation principle called "*etak*." For centuries, Polynesians navigated the Pacific Ocean without instruments by using a concept based on imagining that the canoe or other vessel was stationary, while measuring progress by the movement of the islands around them.

According to Larry Schwartz, programming manager of automotive electronics at General Motors' Delco Electronics division in Kokomo, Ind., Etak's success with the Navigator has led the nation's largest automaker to pump a "substantial amount" of additional capital into the venture in exchange for future options to purchase 10 percent of Etak for automotive electronics.

In about three years, GM expects to begin installing the Navigator in its cars and trucks as the centerpiece of a sophisticated electronic communications system.

The Delco unit develops navigation systems for missiles, spacecraft and ships, but that technology involves radar, easily interrupted radio signals and satellite systems that aren't compatible with wheeled vehicles.

"The two types are really quite different," says Schwartz. "Objects in space and on the ocean use different references and information to navigate than do vehicles with wheels on the ground. We evaluated a number of systems that were being developed for the car and we concluded that the Etak system is the best one available today. If you get a (demonstration ride, you'll see what I mean."

Bruce Pallack, who drives as much as 200 miles a day as owner of Garbe's Towing in Milpitas, has already beat the rush. He had a Navigator installed a month ago. He says the device has already saved him $200 to $300 in gas and lost tows.

He also bought his on a whim and never really expected it to save him cash.

"I was getting my radio fixed and the sales man had a Navigator. So I had one put in a truck. There are a lot of streets right here in Milpitas I've never heard of, and any time spend lost, going in circles, not picking up cars is money lost. It'll pay for itself just in the time it saves."

TWENTY FIRST CENTURY ELECTRIC VEHICLES
8136 BYRON RD. - SUITE G
WHITTIER, CA, 90606

TO WHOM IT MAY CONCERN:

NEW DESIGN ALCO BATTERIES MANUFACTURED AT THE ALCO PLANT IN COSTA MESA, CA IN OCTOBER 1984 HAVE BEEN INDEPENDENTLY TESTED BY US USING OUR PROPRIETARY TEST EQUIPMENT.

AFTER A SOMEWHAT LONG BREAK-IN PERIOD, THE BATTERIES HAVE DELIVERED 41.7 MILES PER DAY FOR THE LAST 412 DAYS RESULTING IN A TOTAL OF 17169.8 MI.

THIS PERFORMANCE SURPASSES ALL OF THE OTHER 20 TYPES OF BATTERIES WHICH WE HAVE TESTED SINCE 1978, AND HAS THE POTENTIAL OF DELIVERING A BATTERY AMORTIZATION COST OF $.05 / MILE.

TESTING WILL CONTINUE DURING 1986.

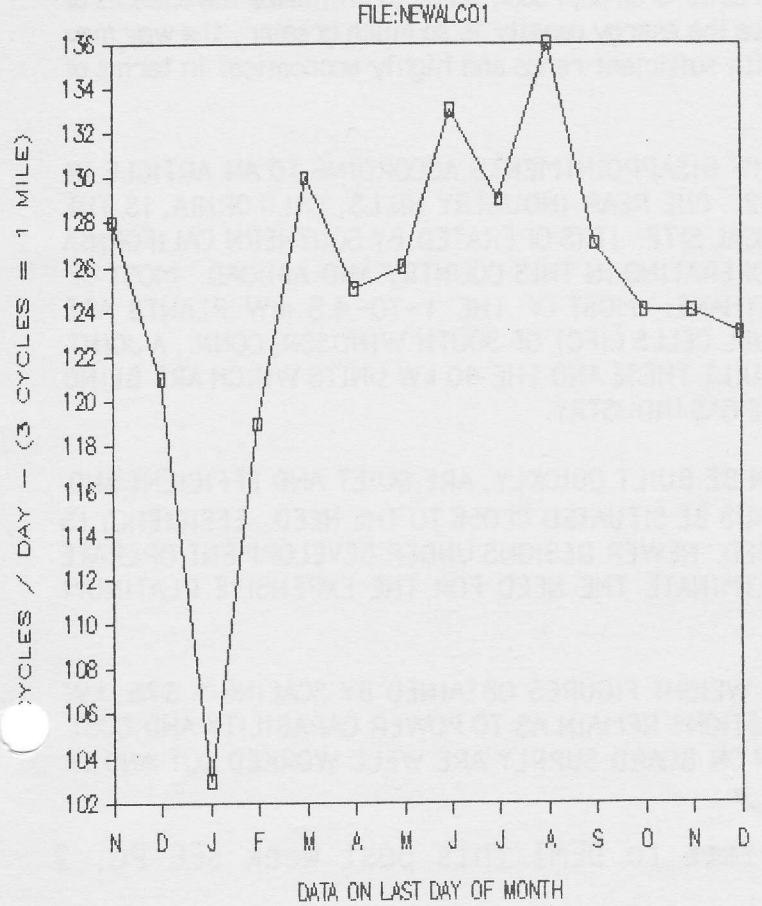
Erwin A. Ulbrich Jr.

ERWIN A. ULBRICH, JR.
CA.REG.ELEC.ENGR. E-8776

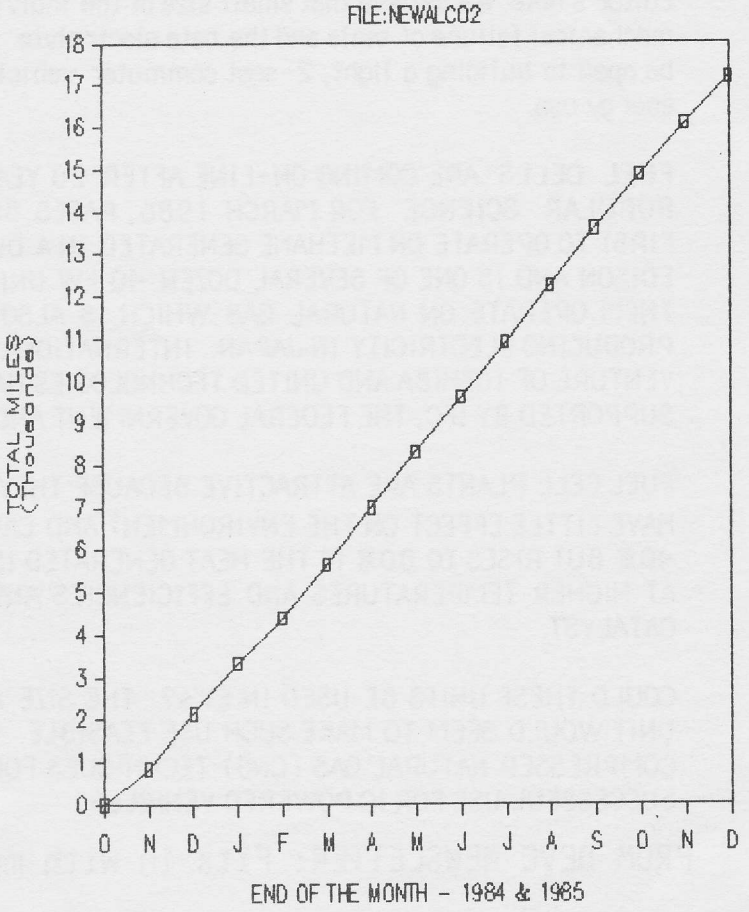
GOOD SPOT FOR A THANK YOU
to John Anderson and ALCO
for thier support

C.W.E.

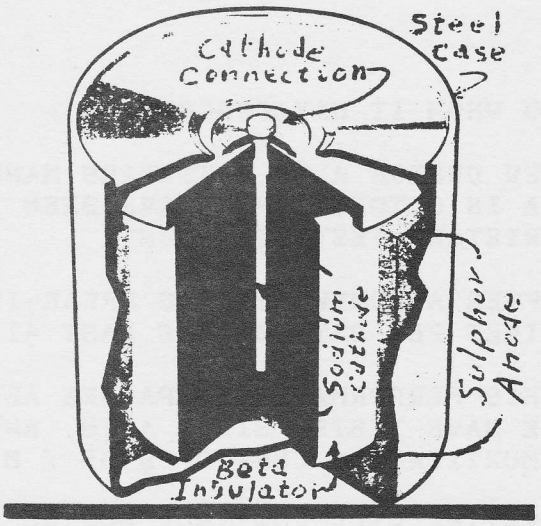
BATTERY TESTS - NOV 84 TO DEC 85



TOTAL RANGE



BETA BATTERY SPURRED TOWARD VOLUME PRODUCTION is an item in the English section of an **Automotive Engineering** report on **TECHNICAL HIGHLIGHTS OF 1986 EUROPEAN VEHICLES.** The recently announced support by the U.S. Department of Energy for the sodium-sulphur battery pioneered in Britain by the Chloride Group will accelerate its development. It has four times the storage capacity for a given weight than the lead-acid battery and could give a vehicle a range of 240 km (149 mi), about 3 times that of one with lead-acid power. The life span is a predicted maintenance-free 5 years.



Sandia National Laboratories are investing $6 million in the project in a 3-year effort to bring about commercialization. The Electric Power Research Institute may enter the effort at a later date.

Pictured here is a drawing of one of the cells with a sodium cathode and a sulphur anode with a beta-alumina ceramic electrolyte separating them. It is much like a "D" flashlight cell with a pressed steel case but a little larger.

The cells must be maintained at 350 degrees C to keep the active materials in the liquid state for proper operation. A complete recharge can be done in 4 or 5 hours.

Vehicle trials with a Bedford van are expected to begin in late 1986. The 200v battery consists of 4000 Beta cells. Since each cell develops 2 volts, there must be something like 40 strings in parallel with 100 in each string. (Automotive Engineering, Jan. 1986, pages 46 & 47.)

Editor's note: we believe that small size of the individual cells is an approach taken to minimize the chances of mechanical failure of seals and the beta electrolyte. Since the energy density is so much greater, the way may be open to buliding a light, 2-seat commuter vehicle with sufficient renge and highly economical in terms of energy use.

FUEL CELLS ARE COMING ON-LINE AFTER 20 YEARS OF DISAPPOINTMENTS ACCORDING TO AN ARTICLE IN **POPULAR SCIENCE** FOR MARCH 1986, PAGES 80-82. ONE NEAR INDUSTRY HILLS, CALIFORNIA, IS THE FIRST TO OPERATE ON METHANE GENERATED IN A DISPOSAL SITE. IT IS OPERATED BY SOUTHERN CALIFORNIA EDISON AND IS ONE OF SEVERAL DOZEN 40 kW UNITS OPERATING IN THIS COUNTRY AND ABROAD. MOST OF THEM OPERATE ON NATURAL GAS WHICH IS ALSO METHANE. MOST OF THE 1-TO-4.5 mW PLANTS ARE PRODUCING ELECTRICITY IN JAPAN. INTERNATIONAL FUEL CELLS (IFC) OF SOUTH WINDSOR, CONN., A JOINT VENTURE OF TOSHIBA AND UNITED TECHNOLOGIES HAS BUILT THESE AND THE 40 kW UNITS WHICH ARE BEING SUPPORTED BY IFC, THE FEDERAL GOVERNMENT AND THE GAS INDUSTRY.

FUEL CELL PLANTS ARE ATTRACTIVE BECAUSE THEY CAN BE BUILT QUICKLY, ARE QUIET AND EFFICIENT AND HAVE LITTLE EFFECT ON THE ENVIRONMENT AND CAN THUS BE SITUATED CLOSE TO THE NEED. EFFICIENCY IS 40% BUT RISES TO 80% IF THE HEAT GENERATED IS USED. NEWER DESIGNS UNDER DEVELOPMENT OPERATE AT HIGHER TEMPERATURES AND EFFICIENCIES AND ELIMINATE THE NEED FOR THE EXPENSIVE PLATINUM CATALYST.

COULD THESE UNITS BE USED IN EV's? THE SIZE AND WEIGHT FIGURES OBTAINED BY SCALING A 375 kW UNIT WOULD SEEM TO MAKE SUCH USE FEASIBLE. QUESTIONS REMAIN AS TO POWER CAPABILITY AND COST. COMPRESSED NATURAL GAS (CNG) TECHNIQUES FOR AN ON BOARD SUPPLY ARE WELL WORKED OUT AND IN SUCCESSFUL USE FOR IC POWERED VEHICLES.

FROM DEVC NEWSLETTER: Fits in with my visit to DEMI this past week SEE Pg. 2

EV Marketplace

FOR SALE

'68 Datsun L520 Pickup, Adapter Plate for Prestolite Motor, wood battery box in bed (18 Batteries) Yellow Toneau Cover for Bed, Four 6.00-14 Radial Recaps little wear $100. CALL: (415)456-9653 Gordon or Margaret

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FOR SALE

ANTIQUE ELECTRIC CAR PARTS PAT. 1906. G.E. MERCURY ARC RECTIFIER, COMPLETE MOTOR, CONTROLLER, & ASSORTED PARTS. CALL: Bill Maier (818)842-6696

Rick Lenz, P.O.Box 580, Bloomington, CA, 92316

$25.00 check enclosed for membership

I don't have an electric car, but am an Auto-Historian, &have tryed to save printedproof (sales brochures from the manufacturers) of the passenger-cars that have been available to the public, & taking photos of actual examples (That's my photo of the"Unique Mobility ElecTrek Hatchback" in the 1983"World Cars"book). UN-fortunately many Calif-made cars have already escaped into oblivion with no Printed-Proof left behind, to show they ever existed (Samson, Dynamo Jr.,etc.), I'm interested in information on all current cars(made for sale) from anywhere in U.S., & in buying sales-literature I lack (or trading for some, I do have a "Nepa"brochure around here somewhere) for my Reference-library.

Yours truly,

Rick Lenz

ENERGY UTILIZATION of a Honda Civic:
Baldor motor, 14 Alco Batteries, Electronic controler, #2 Battery cables and 21" dia. tires. Acro graphite transmission fluid.

TIRE ROLLING LOSS; Responds to tire design a increase of DOT rating and especially to rolling dia. rather than width. A 25% improvement in ralley distance, going from 21" to 23".

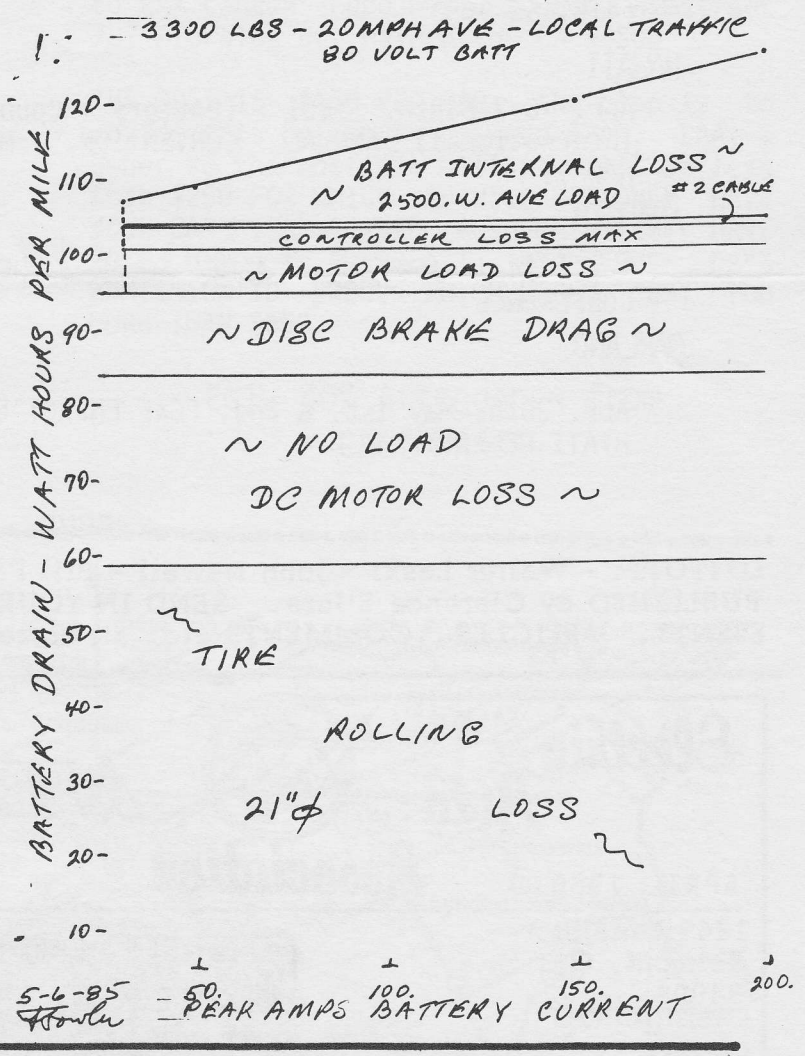
DC MOTOR LOSS; Baldor has a no load loss of 1000w, and a full load loss of about 1800W. An AC motor of 20% more weight has a no load loss of 200 W and a full load loss of about the same. The maximum HP capability is at least double.

DISC. BRAKE LOSS; Use a no drag design or use proper designed drum brakes that require no power boost.

BATTERY INTERNAL LOSS; Points up how battery loss varies with way the battery is loaded.

BATTERY CABLE LOSS; Values are shown for the #2 copper cable size presented as optimum in another talk. 1.2 WH/mile at 200 AMPS.

CONTROLLER LOSS; Max loss is less than 2.7 W mile or the transistor controller will burn out. The driver through the controller has LARGE effects on battery and motor losses that may exceed transistor controller losses by a factor of ten.
by Gene Fowler 5/85



ADS must be received with payment by the 10th of the month, for the following month's issue. AD rate is min. 1 to 5 lines $5.00. 1/4 Pg. $15, Full Pg. $50.00, Full Pg. 2 sides $80.00, Wanted Trade, For Sale, etc. Mail to EAA 1249 Lane St. Belmont, CA 94002

WHATS HAP'N

EAST BAY:

Apr. 12, 1986 PG&E SERVICE CENTER
4801 Oakport St. Oakland
Tentatively scheduled: A SPEAKER ON PEOPLE-POWERED VEHICLES.

NORTH BAY:

APR. 12, 1986 COMMUNITY ROOM OF THE CITICORP SAVINGS, AND LOAN,
Novato Fair Shopping Center, deLong Ave Novato.
SHOULD THERE BE A NORTH BAY RALLY? (OF COURSE) RULES.

NEW OFFICERS 1986

PRESIDENT: Mike Callahan (707)584-5909
VICE PRES: JOHN WILLIAMS (415)383-0745
SEC.-TREAS: Gordon Schaeffer (415)456-9653

HAWAII

Apr. 6-7-8&9th. BCI (Battery Council International) ANNUAL CONVENTION, MAUI HAWAII

ANAHEIM

Apr. 14-15-16&17th. ASME SOLAR ENERGY CONFERENCE

OAKLAND

Apr. 30th.-May 1st. & 2nd. PG&E ENERGY SHOW HYATT REGENCY

EAA CHAPTERS
Call the contact person for meeting times and places.

ARIZONA: Phoenix Chapter
Greg Whitney 602 978-3380
ARKANSAS: Little Rock Chapter
B.S. Boykin 501 562-0252
CALIFORNIA:
Bakersfield Chapter
James Peters 805 393-1749
Concord: Contra Costa Chapter
Max Rosenstein 415 229-3469
Los Angeles: Burbank Chapter
Il. Weiss 213 849-7632
Oakland: East Bay Chapter
Jim Fahey 415 848-1468
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Keith Sherry 503 745-5607
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WISCONSIN: Milwaukee Chapter
David Parez 414 481-9655

EDITORS: - Walter Laski - John Newell - Bill Palmer - Paul Brasch - COMPILED AND PUBLISHED By Clarence Ellers. SEND IN YOUR PERSONAL AND CLUB NEWS AND COMING EVENTS. ARTICLES _ COMMENTS etc. all correspondence to address below.

Electric Auto Association NEWS

APRIL 1986

1249 Lane St.
Belmont, Ca.
94002

TIME DATED MATERIAL - DO NOT HOLD

HELP !!

EAA BASEBALL CAP
$25 "RALLY" DONATION
787 Florales Dr.
Palo Alto, CA 94306