Electric Auto Association NEWS

DECEMBER 1985 VOL. XVII NO. 12

THE BEST OF SORRENTO

DRIVE ELECTRIC ITALY 85

RAY GEDDES OF UNIQUE MOBILITY:

THE BATTERY TUNNEL, COMPOSITE STRUCTURE AND AN ADVANCED PERMANENT MAGNET TRACTION MOTOR; KEYS TO A SUCCESSFUL ELECTRIC AUTOMOBILE.

Ray Geddes of UMI described thier new self-synchronous permanent magnet DC traction motor. "A motor of tube or sleeve design in which radially directed permanent magnets are mounted on a cylindrical rotor which coaxially "sandwiches" a radially thin hollow stator." Ray contrasted the motor used in the series I Electrek vehicle with the new motor in these numbers:

Electrek	Experimental motor
32 HP GE motor	40 HP Uniq motor
11.5" dia.	7.5" dia
16" long	3" long
255 lbs.	8 lbs

Imagine: the GE motor is almost 32 times heavier!! Before we go any further, and before the reader starts writing an order, this motor is under development; it's not for sale. In Geddes' Sorrento paper he discribed these as "wheel mounted motors," although this is not necessarily advantageous and may not come to pass. In fact, uses of the motor for other than EV applications become more interesting. The Unique Mobility (UMI) motor, Geddes reports, is derived from a highly efficient electromagnetic transducer that UMI's Gene Fisher first developed as a high speed computer tape drive motor for IBM several years ago. The motor technology is generically similar to a brushless DC motor: commutation is electronic, torque is proporional to current and back emf is proportional to speed.

DR. VICTOR WOUK AT SORRENTO:

ONE IMPORTANT KEY to the UMI light-weight PM motor is the magnet material, described in Dr. Victor Wouk's interesting paper at Sorrento, "Two Decades of Progress in EV Development Since the 'Renaissance' of EV's in 1965." "The figure of merit of a PM, 'megagaussoersteds,' is approximately 4 for common ferrite pm's. For samarium-cobalt it is 20 with a potential of over 30. Neodymium-iron has 40 with a potential of over 60." The September issue of AET described GM's work on neodymium. GM's first use of the new material will be starter motors for 1986 Corvette V-8's and Buick V-6's. The starters are just half the size and weight of those used on 1985 models.

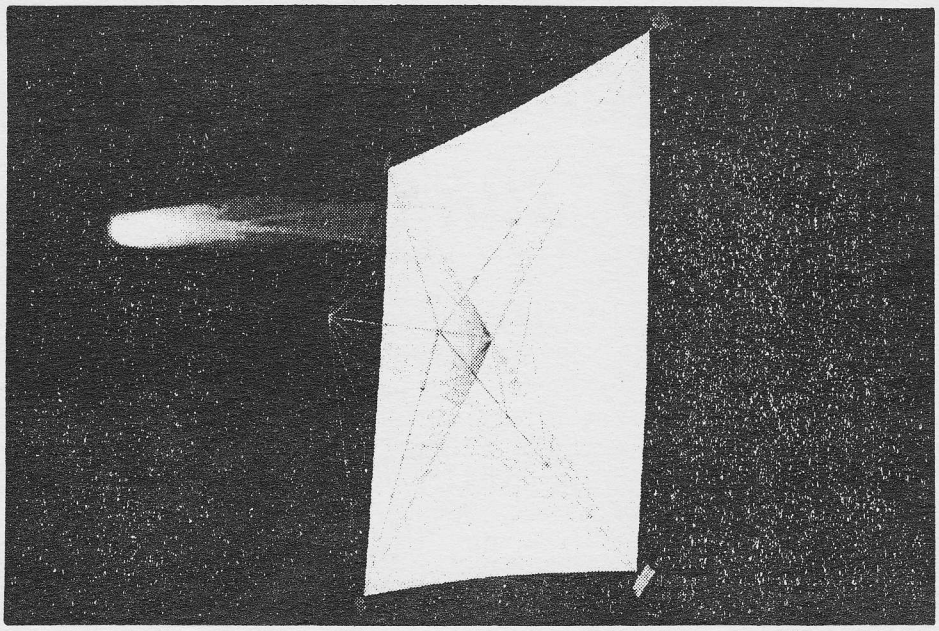
Dr. Wouk also attended The First International Workshop on Battery Testing at Heidelberg Germany in Nov. The Meeting was co-sponsored by USDOE and the German government. Of this Dr. Wouk made one very profound statement which most of us have accepted, "lead batteries are here for a long time to come".

Info from AET Newsletter.

'86 Calendar Coming Events

WE WOULD LIKE OUR JAN. ISSUE TO BE THE MOST COMPLETE CALANDAR OF EVents EVER PUBLISHED REGULAR HANG ON THE WALL CALANDER PLAN AND REPORT NOW !! NOW!!!!

Moon is finish line in far-out sailing race



National Aeronautics and Space Administration

An artist's conception shows one idea for a solar-powered sailing craft.

Los Angeles Times

STOCKHOLM

THE GREAT SAILING race to the moon is on — sort of.

A handful of engineers, scientists and, yes, travel agents from the mid-Pyrenees region of southern France recently announced at a press conference here that they are sponsoring the first race to the moon by solar sailing craft. The craft would use the sun's radiation to propel them through space, much as a sailboat uses wind to glide across the ocean.

"It's an exciting idea," said Louis Friedman, executive director of the Planetary Society, headquartered in Pasadena.

Race to the moon with solar vehicles

"Why not?"

Although the race was announced with some levity, several scientists who took part in the press conference are serious. Representatives from the United States, France, Japan and England all said active programs are under way in their countries to develop a solar sail capable of sailing to the moon.

Lending further credibility to the effort was the presence at the race announcement of such luminaries as Patrick Baudry, the first Frenchman in space. He was a crew member aboard the American space shuttle earlier this year.

The sponsors of the race conceded, however, that they have no starting date and that the rules still are a little vague. All entries would have to be launched into low Earth orbit by a conventional rocket, such as a space shuttle or the European Ariane.

The first "space sail" to pass the moon would be the winner. Thereafter, any sail that reached the moon in a shorter time would be declared the new champion.

None of the spacecraft would carry people, but all would require extensive ground support facilities to keep them on track.

Alain Perret, a French engineer, said the cost would be "about the cost of a ship to compete for America's Cup," the most prestigious trophy in the world of yachting. "A new ship, of course."

Kristan Lattu of the World Space Foundation of Pasadena, who also took part in the press conference, estimated that it would cost about $2 million to build the U.S. entry, excluding launch expenses.

Lattu, an engineer at the Jet Propulsion Laboratory in Pasadena, said that a full-scale model of the sail already has been built and that the foundation hopes to enter into a joint launch agreement with the National Aeronautics and Space Administration.

The concept behind solar-cell sails has been around for many years. NASA has experimented with several applications, although no one has tried yet to use the technology for a trip to the moon.

Light travels from the sun in tiny particles, called photons, which impart a small amount of energy whenever they strike a solid object. That is why, for instance, the gossamer tail of a comet extends away from the sun, regardless of the direction of the comet's course.

That energy has been demonstrated in many ways, including toy windmills enclosed in a vacuum that turn slowly when hit by light.

A large, reflective surface would be driven faster and faster by the photons if its mast were light enough, scientists believe. Thus, if a sail made of extremely strong but lightweight material could be put into orbit and controlled from the ground, it could be angled so that it would pick up speed as the photons bounced off its surface.

ELECTRIC VEHICLE USER TASK FORCE
PRODUCT IMPROVEMENT TEST AND EVALUATION PROGRAM

@ The following product reviews are from the Feb. 85 Summary Report to the U.S. D.O.E. from THE AEROSPACE CORPORATION as part of the ELECTRIC VEHICLE USER TASK FORCE, PRODUCT IMPROVEMENT TEST AND EVALUATION PROGRAM.

Subject: The Grumman-Olson Kubvan made by Grumman Olson Division, Grumman Allied Industries, Inc., 445 Broadhollow Rd., Melville, New York 11747 (516) 454-8228

The vehicle, called the Kubvan, is a front-wheel drive, all-aluminum body, 3200 lb GVWT truck rated for 400 lb payload. It features a removable battery tray for 14 ALCO 2200's, a PMC 96-v controller, and a Prestolite MTC 4001 motor with a Volkswagon 4-speed transaxle.

The Long Island Lighting Company which has been testing six Kubvans since May 84, reports that it is very pleased with the capabilities of the vehicles, although the top speed is only 53 mph with fully charged batteries. The removable battery tray makes servicing very convenient. One vehicle is being used for mail delivery and logs over 30 mi per day.

Subject: Battery Watering System made by Turbo-Electric Corporation, 1000 East Campbell Rd, Suite 120, Richardson, Texas 75081

The Water Wand battery watering system consists of a hand-held nozzle with a trigger, connected to a source of ordinary tap water through a deionizer unit. The fill level can be adjusted via a rubber grommet on the nozzle that limits the penetration depth. Built-in LED and sonic alarms indicate when the electrolyte level in the cell being watered has reached the preset maximum level and the soleniod has shut off the water flow. The wand nozzle can then be moved to the next cell to be watered. Specially designed Aqua-Quick battery caps permit insertion of the nozzle without removing the caps.

The deionizer unit uses a commercial-grade, mixed-bed resin to replace metallic ions in tap water with hydroxyl and hydrogen ions, which are harmless to the battery. A neon indicator light remains on while the resin is active and goes off when the resin needs replacement. The unit is rated for flow rates of up to one gal/min.

Arizona Public Service (APS), which has been testing the units, reports that familiarization with the system's operation is resulting in progressively shorter battery fill time periods. For a pack of 24 Alco 2200 Batteries on Jet 1000P trucks, they report a watering time of only 6 min total or 15 sec. per 6V battery when the starting water level was 1/4 inch or less below the fill line and only 14 min. 21 sec. (or 36 sec/6V bat) when the starting level was a fat 3/4 inch low. These times include setup times. The stop point accuracy of filling was judged to be 1/16 in. No battery top cleaning or drying is generally needed after the filling operation. APS estimates that this represents a reduction of battery maintenance costs by 30 percent. ...PB...

Edited By Paul Brash

Stella Giammasi, Director of Public Information, (212) 560-3007
WNET/THIRTEEN, 356 West 58 Street, New York, NY 10019

PRESS RELEASE

FOR IMMEDIATE RELEASE

POWER STRUGGLE, DOCUMENTARY NARRATED BY MERYL STREEP

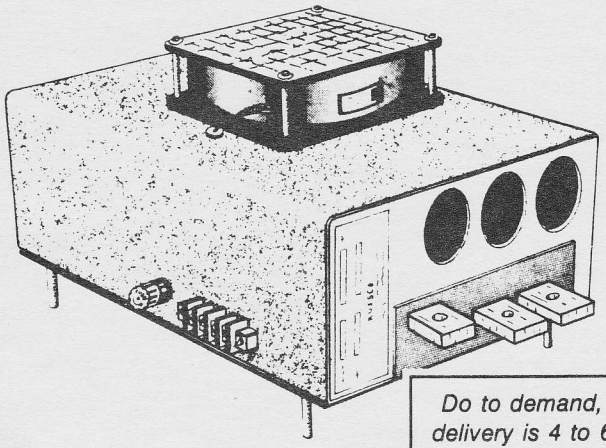
ABOUT ALTERNATIVE ENERGY SOURCES

TO AIR MONDAY, DECEMBER 9 AT 10 P.M.* ON PUBLIC TELEVISION

*Check local listings.

EV Marketplace

SAFETY ELECTRIC VEHICLE CONTROLLER Model HV-500



Do to demand, delivery is 4 to 6 weeks. HV-500 Controller price subject to change January 1, 1985.

SPECIFICATIONS:

- 100–500 AMP
- 24–120 VOLT
- 4000 HZ EFFICIENCY
- FULLY PROTECTED
- REGULATED COOLING FLOW
- SIZE — 4″ D x 8″ W x 12″ L (101.6mm x 203.2mm x 304.8mm)
- WEIGHT — 14.5 lb. (6.59 kg)
- FULL LINE OF ACCESSORIES AVAILABLE

SAFETY FEATURES:

- NON-GROUNDED SYSTEM
- ACCELERATOR INTERLOCK
- SOFT-START ACCELERATION
- HIGH-VOLTAGE DISCHARGED WHEN OFF
- OSHA YELLOW ENCLOSURE
- HIGH VOLTAGE WARNING LABEL
- AXIAL FAN GUARD

$550 **MODELS AVAILABLE UP TO 1000 AMPS AND 300 VOLTS**

CALL OR WRITE FOR DETAILS

P.O. Box 3761
Santa Rosa, CA 95402

Telephone:
(707) 542-4151

RUSSCO
ELECTRO-MECHANICAL ENGINEERING

FOR SALE: Huge Gould EV Motor from postal Jeep rated 2900 RPM @ 54 volts, Built in Reverse, blower housing, thermal switch, tach/speed fitting, mounting brackets. 17" long. $350 (805)489-1421.

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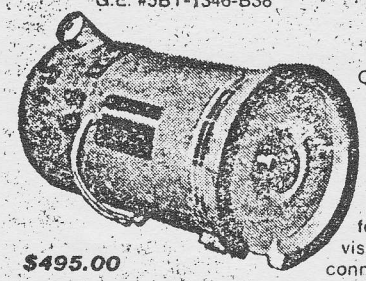
H&R CORPORATION
A HERBACH & RADEMAN COMPANY
401 E. ERIE AVE., PHILADELPHIA, PA 19134
CATALOG SALES — 215-426-1708

G.E. #5BT-1346-B38



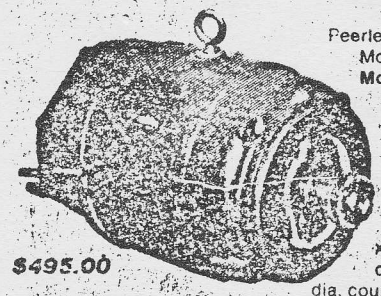
$495.00

4-Pole Series Wound 20 H.P. 90 VDC Battery Truck/Fork Lift Motor

Originally designed for use in fork lifts and other battery operated vehicles. **Rated 20.9 H.P., 90. VDC, 184 A, 4707 RPM, Int. duty.** 4-pole series wound motor with internal thermostatic protection. Ideal for replacement use. Unit features end bell mounting. Provisions for forced air cooling with all connections to stud terminals (wires for thermostat connection). Motor size, 17¾ long x 10.30" max. dia. Output coupling hub, 2.24" dia. with 6 holes tapped 0.357-24 UNF for clutch or drive shaft connection. Supplied with connection diagram showing termination and reversal connections. Removed from new equipment; excellent condition. Original cost over $1600.00. Shipping Weight, 150 lbs.

H&R# **TM23K644**

4-POLE SERIES WOUND 120 VDC BATTERY TRUCK/FORK LIFT *20 H.P. MOTOR*



$495.00

Peerless Electric Div. H. K. Porter Co. Model #154-60-0001-0 Frame D254AK **Motor rated 20 H.P., 120 VDC, 134 Amps, 4500 RPM, Intermittent duty.** Originally designed for use in battery operated vehicles and fork lifts. Unit features shaft end bell mounting; also provisions for forced air cooling, wire leads for connections. Motor size, 17 long x 12½" dia. Output shaft size, 1¾ dia. x 1⅝" long with attached 3³/₁₆" dia. coupling hub with 6 tapped bolt holes for clutch or drive shaft connection. Supplied with connection diagram showing termination and reversal connections. Removed from new equipment, excellent condition. Shpg Wt, 200 lbs.

H&R# **TM23K643**

1981 BRADLEY GTII ELECTRIC, 450 MILES-ODOM-$3900. CALL: Clarence (408) 248-2588 D/N

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

EV Marketplace

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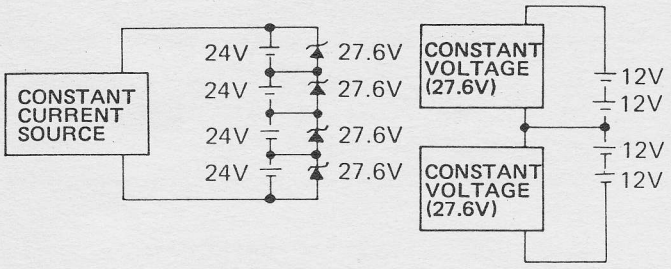
ELECTRIC MOTOR CARS

Of Richardson, Texas, a DOE site operator is selling some of its electric passenger cars due to cutbacks by DOE. These EVs have been driven by customers as leased vehicles for business and personal use only 2000 to 6000 miles. All are factory remanufactured conversions using state-of-the-art controls by JET, EVA, LECTRA, etc. They are equipped with ALCO 2200 battery packs and are in running condition. We have for sale (1) '81 Ford EVA Granada Auto, P/B, A/C. (1) '80 Jet Omni, (1) '83 Lectra J-2000, P/S, P/B. (2) Jet '82 Omnis priced from $1500 to $3000 FOB our dock. (214)669-8525, George Thiess, ELECTRIC MOTOR CARS, 525 International Pkwy. Richardson, TX 75081.

* *

1. Use type "A" Gel/Cell batteries.
2. Use Gel/Cells of the same age.
3. Avoid installation near hot spots (e.g. heat sinks and power resistors).
4. Charge the string in 24 volt battery groups with a constant voltage of 2.25 to 2.30 volts per cell.

Typical charging techniques which have been utilized involve either individual constant voltage chargers connected in series or a constant current source with appropriate zener diode regulation across individual batteries or battery groups.



Use 7.5 Volt Zeners for 6 Volt batteries.

DC-TO-DC CONVERTER

CHARGE YOUR ACCESSORY BATTERY

FROM YOUR DRIVE BATTERIES

NEXT MONTH

FOR SALE: Recently completed state of the art vehicle based on Honda 600 body. Ten deep cycle batteries, Willey 9 Controller, full instrumentation, assembled by professional engineer. Lester charging system, 3/0 wiring. Four speed, front wheel drive, 50+ MPH, radial tires, disc brakes, AM/FM Stereo.

$2,000 B/O
TRANSFERED MUST SELL

Stu Horn 185 Vineyard Rd. Huntington, NY 11743, CALL: (516)271-2596 Evenings.

* * * * * * * * * * *

FOR SALE: GE 2CM76 Aircraft Gen.+ Westinghouse 400 Amp. Motor Generator + Willey 8 Controller, each item $100...MMC P.O. Box 5223 Ventura, CA 93003

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FOR SALE: 76 Audi, auto trans, 96 volt-16 batteries + 12 volt aux. Dual voltage Charger 96 & 12 volt, 120 or 240 volt input, power brakes. All in working condition. John Duygou Box 2032 Carmel, CA 93921. Call: (408)624-4563.

$5500

* * * * * * * * * * *

FOR SALE: 2-NEW "JET" Electricars (Ford Escort) 2 door loaded, A/C, P/B, Heater, AM/FM Stereo, 12/96 volt Charger. $7000 or BEST OFFER, Can deliver.
1-NEW 10.5 HP Baldor Motor $375 or B/O.
1-1961 Renault 4 Dr. 72 Volt 3 speed contactors, 12/72 volt Charger. $1000 or B/O. Ken Bancroft Electric Motor Cars 4301 Kingfisher Houston, TX 77036, (713)729-8668

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FOR SALE: 1968 VW BUG with Kaylor Conversion, 30 HP, 30 Volts, 400 Amp. Motor, 12 Batteries, Relay Control. MUST SELL-$900 or Best Offer. Ron Cantoni (408)252-2920 anytime.

* * * * * * * * * * *

FOR SALE: Willey Model 8 Electronic Controller. Used as demonstrator; plexiglas cover. 360 amps. 72 volts, 2" inlet for blower connection. Factory reconditioned. Sale Price $395 F. Willey (602)972-4838.

* * * * * * * * * * *

FOR SALE: 1979 Electra Van 600. Driven only 3000 miles. Prestolite motor, GE SCR Controller, Lester Charger. Needs Batteries. $2500. Will consider financing. Ivan Marts (408)943-1102.

* * * * * * * * * * *

FOR SALE: 3 Wheel "FREEWAY" New motor, Batteries, overhauled controller. $2400 or B/O. Ed Schanz (415)245-6322.

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WHATS HAP'N

PENINSULA:

Sat. Dec. 7 PENINSULA Chapter annual Christmas Party, at the home of Mae Benson, 12:30, 8 San Juan Ave. Daly City. 591-6698

SANTA CLARA:

SAT. DEC. 21: Election of officers, PLEASE! come and offer your help. WE NEED MORE PARTICIPATION!!!! "86" Can be our most important CHALLENGE Call: 296-6944

DENVER DEVC:

ANNUAL HOLIDAY PARTY, Dec. 15, at the home of Ryssa and Dave Gransee in Longmont. Call: 666-7781.

* *

A CHANCE TO HELP MAKE HISTORY, AS ENTRANT, DRIVER, OR DONOR. THE TRANS-CANADA-RALLYE. CALL CLARENCE AT (408)248-2588 ANYTIME!!!!

* *

IN MEMORY OF TED BENSON

Christmas Season is approaching! At this time of the year, we miss, more than ever, the people who are not with us anymore. Ted Benson always will be remembered for his active contributions to EAA, and particularly to the Peninsula Chapter.

John Newell

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
Sacramento Chapter
Weldon Martell 916 726-6257
San Bruno: Peninsula Chapter
Mae Benson 415 992-5453
San Francisco Chapter
Bill Marquardt 415 586-6987
San Jose Chapter
Roy Paulson 408 269-7937
San Rafael: North Bay Chapter
Gordon Schaeffer 415 456-9653
Santa Clara Chapter
Lee Hemstreet 415 493-5892
DISTRICT OF COLUMBIA:
Washington: EVA/DC Chapter
Charles Dammers 301 439-1365
MARYLAND: Baltimore Chapter
D. Michalski 301 289-7896
NEW JERSEY: Moorestown Chapter
Sid Kreitsberg 609 829-2445
OKLAHOMA: Tulsa Chapter
W. E. Watson 918 743-9317
OREGON:
Albany: Linn Benton Chapter
Keith Sherry 503 745-5607
Medford: Rogue River Chapter
George Holbrook 503 772-6856
Salem: Willamette Chapter
Lee Brundidge 503 390-3871
TEXAS: Houston Chapter
Robert Nixon 713 668-4214
WASHINGTON: Seattle Chapter
Steven Lough 206 325-2600
WISCONSIN: Milwaukee Chapter
David Parez 414 481-9655

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Electric Auto Association NEWS

DEC. 1985

1249 Lane St.
Belmont, Ca.
94002

Season's Greetings

NON-PROFIT ORGANIZATION U.S POSTAGE PAID SAN JOSE, CALIF PERMIT NO. 3021

HELP !!

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

TIME DATED MATERIAL - DO NOT HOLD