ELECTRIC AUTO ASSOCIATION NEWS

August 1989 Vol. XXI No. 8

Early status of C.E.C.-Stanford-ETAP program.

BATTERIES

Bi-Polar lead acid batteries are reported to have very good capability ability. 1 KW. per kilogram (2.2 pounds), at 50 watthours per kilogram. A 200KG. (441 pound) battery could deliver 200 KW. at 350 Volts. The battery would store 10 Killowatt-hours of energy. More on this in later news letters as more information becomes available. This sounds great, hope this is can be developed in the coming months.

PULSAR has made a sealed, lead calcium-grid battery that weighs about half of regular batteries for the same capacity. It is supposed to have less than half of the internal resistance of regular batteries. It will stand very high vibration and shock without damage. Some units are available, call (714)537-8286 for more information and pricing.

Sodium-Sulphur batteries has been developed by Asea Brown Boveri. The 584 pound, 90 cell, 180 Volt battery has operated a BMW 3-series car for distance of 90 miles. The top speed of the BMW-3 was 62 MPH. This is about triple the specific energy of conventional lead-acid batteries. The drawback is that the normal operating temperature is at least 550 degrees F. If the battery is shut down for more than 3 to 4 days, it solidifies. It takes an internal heater 4 to 10 hours to melt to molten state again. This type of battery has been built and tested by BMW and others such as Ford with there Astro Van.

MOTORS Two motors, one DC and one 3 phase AC, are being considered for the project. At the present time, the project will probably build both systems as each has advantages: DC technology is well developed while AC technology has ultimately lower maintenance for the future. The coming months will see this study refined, and possibly both systems may be installed and tested.

CONTROLS FUJI Electric of Japan has developed power transistor modules of ratings of 480 amperes at 550 volts continuous at switching frequencies over 4000 cycles. These could be used for choppers in DC motor applications, and inverters in AC motor applications. Some modules include free-wheel high frequency diodes to prevent back current through the transistor. More on these as studies progress on how to apply them to electric car motor systems. FMC, in Palo Alto, has used 6 modules for an inverter to drive a 250 horsepower motor for their personal carrier.

ENGINE GENERATOR SET A wankel driven 3 phase 15 KW alternator is under consideration at his time, preliminary reports indicate a light weight may be possible. The unit is under development, testing on the east coast and looks promising.

VEHICLE A GMC chevorlet Corsica is being considered as the vehicle to convert to a hybrid car. Whether a manual 5 speed or a 3 speed automatic transmission will be used, has yet to be decided.

In the coming months many decisions on the design, testing and building for this project will have to be made and each of YOU could contribute to further the state of the electric car. Contact John Reuyl @ (415)857-9340 if you would like to be a part of this interesting program, all time and knowledge is a voluntary contribution.

POT*POUR*RI

The Ford experimental electric ETX-II vehicle is expected to use only 0.25 kwh/mile, equivalent to 74 miles per US gallon of petrol. This Ford vehicle is based on a Ford Aerostar and has a range of 100 miles and a

top speed of 65 mph.It can accelerate from 0-50 mph in under 20 secs.

Chrysler is also experimenting with electric vans in America, but their vehicle based on a Caravan/Voyager Minivan has a range of only 58 miles per charge and accelerates from 0-50 mph in 20.5 secs.

BMW is continuing its experiments with sodium-sulphur prototype batteries supplied by Asea Brown Boveri, the Swedish-Swiss consortium. The battery pack that they are now using weighs 584 lb. and is 56 inches long. Its energy storage capacity is three times better than lead acid. BMW have eight prototypes running with a city range of 93 miles and a top speed of 62 mph. Acceleration is 0-30 mph in 9 seconds.

At the 9th International Electric Vehicle Symposium in Toronto, Canada, there was a large delegation from California. They are trying to encourage by all means possible at least 10,000 cars, vans and minibuses to be electrically driven by 1995. They are even going so far as to introduce legislation penalizing internal combustion engine vehicles in the Los Angeles Central Business District at all times of the day, except between 2am and 7am in the morning!

BMW IS TESTING A HYDROGEN FUELED CAR. A 24.6 gallon lank is installed behind the rear seat of a 735iL and gives a range of 186 miles. BMW is also testing 3-series electrics (325). The company would like to use a smaller car, but the liquid hydrogen tank with its 70 layers of aluminum and fiberglass insulation needed to keep the hydrogen at -487°F would require modification of the smaller car body.

It has just been announced that Fulmen, one of the oldest battery manufacturers in Europe, based in France, and part of the C.F.C group, have taken over Chloride for a reputed £450 million. Chloride, along with Asea Brown-Boveri, are one of the two main companies engaged in developing the sodium-sulphur battery system.

A new technology for rapid recharge of batteries combined with an extensive network of charging stations could make various electric road vehicles practically independent of the limitations of the battery. Large sectors of the transportation system could thus be revolutionized both technically and economically, as well as environmentally.

This is the enthusiastic conclusion of the Swedish Institute of Microelectronics in Stockholm in a study on rapid recharge of batteries. According to the study, which has been supported by the Swedish Technical Unit, the Swedish State Power Board, the Swedish Telecommunications Administration and the Swedish Post Office, batteries when cooled can be fully charged in 30-45 minutes.

PAUL HARVEY on EVs IN YOUR FUTURE--In his broadcast on May 27, 1989, Paul Harvey made the following comments on the status of EVs. He said that the GM G-Van would be in production in six months and would carry a payload of 1800 lb. with a range of 60 miles. Two dozen have been tested through the efforts of the Electric Power Research Institute, GM, Magna International and Chloride EV Systems. Chrysler's T-Van should be available in two years with a range of 110 miles, 2 speed transmission, front wheel drive, power steering, power brakes and NiFe batteries. The NiFe 220 batteries have 50% more capacity than lead acid and would take the G-Van over 100 miles. The G-Van and its predecessor have proved to be clean, quiet, dependable and cost-effective in over 2 million miles of service. EPRI predicts that there will be 2 million vans in use in ten years after tests by 11 utilities and other companies have proved their worth.

Mr. Harvey's file goes back 20 years and he first rode in an electric 15 years ago. His impression then, was that electrics were a viable alternative but he saw the young, startup companies fail one by one as they ran out of funds and the market for EVs dried up. The Japanese in 1976 predicted that an electric they were developing would have a range of 250 miles and would clean up the air in Tokyo, but the hybrid battery planned did not live up to its promise. El Car from Italy made a brief appearance until declared unsafe bv a consumer group. In 1989 we see the auto giants entering the picture and the EV now seems inevitable. Recorded on audio tape thanks to Art Keller.

MANY ROADS LEAD TO SUCCESS

Broad-Based Program to Promote Wind Energy
Citizens With Environmental Interests Are Called Upon

(grs) A new promotional program that was recently introduced by Dr. *Heinz Riesenhuber*, Federal Minister of Research and Technology, is expected to fill a gap in previous research activities in the area of wind energy. Within the next five years hundreds of wind power stations will be built in the Federal Republic of Germany. They will exhibit a combined capacity of 100 megawatts, and scientists are hoping to use them to compile statistically relevant information concerning the long-term operation of wind power facilities.

Of the 400 million D-Marks which the large-scale experiment entitled *100 MW Wind* is expected to entail, some 130 million D-Marks have been appropriated by the *Bundesministerium für Forschung und Technologie* (Federal Ministry of Research and Technology). This represents the sum needed to support the wind parks and individual facilities participating in the project for a period of ten years. Only newly constructed facilities are being sponsored. A broad-based measuring and evaluation program will accompany the experiments on a scientific level. The criterion for granting government funding has been set at a maximum price of 8 *Pfennig* per kilowatt hour generated. Private individuals and farmers can apply for a grant to help defray investment costs incurred by constructing the facility. The decision to accord grants reflects the following criteria: technical maturity, developmental stage, demonstration quality of the facility, as well as the site chosen to construct it. In addition to a variety of sites, a balanced representation of operating companies has to be guaranteed, including energy-producing industries local communities, farmers, small businesses, and individual persons. Another decision factor is the facility's possible contribution to the state of research and development in the Federal Republic of Germany as well as in the area of wind technology.

Apart from the technical advantages of the large-scale experiment the environmental aspect is certainly of great interest. Despite the small capacity of the facilities every kilowatt hour produced using "soft" energy leads to a reduction in environmental pollution.

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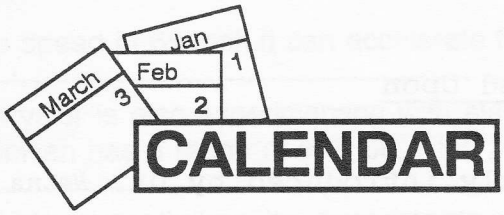

CALENDAR

The East Bay (Alameda and Contra Costa) Chapter of the EAA will hold an **Electric Auto Rally** (in place of the regular monthly meeting) on **Saturday, August 12th, at 10 A.M.** at the north parking lot of the P.G.&E. Service Center on the Frontage Road (Oakport St.) off Hwy. 880, south of the High Street Interchange. Members, guests and visitors are encouraged to bring their own lunches. For further information, call Charles Smith (415)525-4434.

Notice of Santa Clara Rally: Sept. 16, 1989 9:00 AM Check in Sunnyvale, Ca. Followed on Sunday Sept. 17 with a symposium.

August 7 -10 SAE Conf. & Expo Future Tran-Technolgy, Vancouver, BC

August 6 - 11 IECE 1989 Intersociety Energy Conf. Washington, DC

Sept. 8 - 16 ENER RUN alternatively powered Vehicles, Temecula, Ca.

Sept. 18 - 21 15th Intern. Human powered Speed Champs Adrian, Mich.

1976 Italin ELCAR. 52" X 80" 15 MPH, 8 --12 Volt batteries, 48 Volt charger, Willey Mod. 9 controller, trailer to haul it. $1500. Box 103, Finley, Calif. 95435

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Send your chapter news, coming events, articles to the address below

ELECTRIC AUTO ASSOCIATION NEWS

1249 Lane Street
Belmont, Ca. 94002

August 1989

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