

F.V.E.A.A. NEWSLETTER

August 1992

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NEXT MEETING

August 21st @ 7:30
College of Dupage
Student Resource Center
Room 1046

Use Lambert Rd. Entrance, Lot 7 at the Southeast corner of 22nd & Lambert
Nonmembers are always welcome!

Director

John Stockberger
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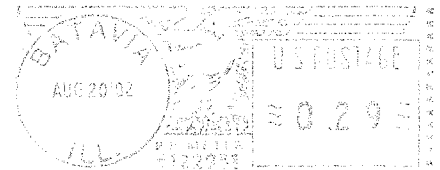
MEMBERSHIP INFORMATION

Membership to the Fox Valley Electric Auto Association is open to the public. Anyone interested in electric vehicles or electric transportation are encouraged to join. The cost to join is \$15 per year from November to November. If joining in the middle of the year the cost is \$1.25 for every month remaining til November of that year. The cost for new members joining this month is \$3.75.

Fox Valley Electric Auto Association

336 McKee Street
Batavia, IL 60510

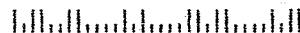
FOX VALLEY 17:53 08-20-92



First Class

ADDRESS
CORRECTION
REQUESTED

...		...
:	John Emde	:
:	6542 Fairmount Avenue	:
:	Downers Grove, IL 60516	:
:	USA	:
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PRESEZ

I will start by apologizing for bringing this newsletter to you late. It has been a very busy month. The weekend that I usually spend wrapping up the newsletter I was given the opportunity to attend the Champion Sparkplug 400 NASCAR race in Brooklyn, Michigan courtesy of my good friend Bill Whiting.

It was fun for me to compare the major differences between this very established and popular sport and the races that I have been covering in the electric vehicle industry such as the Solar and Electric 500 and the American Tour de Sol.

I have heard numerous comments from people who attended both that electric racing will never cut it because of the lack of noise. That it is the noise that gets people excited and pumped up over racing. I have to admit that I think that is probably true. I doubt that any EV race will ever attract 100,000 plus spectators. It just doesn't have the excitement.

Certainly the speeds of electric vehicle racing will begin to match or exceed that of NASCAR or INDY in the future, but will people get as reved up? or should it be "... as wound up?" when speaking of electric racing?

If this becomes the situation, then this could severely slow electric vehicle technology and its popularity. It's a given that auto racing is a key factor in pushing automotive technology, so if EV racing does not appeal to the fans than there becomes a lack of sponsorship, and thus a trickle down to investment in the technology.

It could be 20 to 30 years from now everyone is driving EVs, but a majority of racing is still internal combustion. Just a thought!

It is getting to the point where you can not pick up a publication without finding some blurb on electric vehicles. In particular Popular Science. I strongly recommend the June issue. It features articles on environmental technology. As a result there are several articles on EVs. One of which I have published in this issue of the newsletter.

On a side note. Does anyone have an electric lawn mower for sale? With a cord or battery. Please contact me if you do.

Douglas F. Marsh

MINUTES OF JULY 16, 1992 FVEAA MEETING

The meeting in the Student Resource Center at the College of DuPage was called to order by President Marsh at 7:44 PM. There were 17 members and one guest present.

Treasurer Corel reported the checking and savings account balances. There were no questions.

President Marsh circulated information about the BAT battery additive compound that can reportedly extend life for a lead acid battery to over 400 charge-discharge cycles. There was a general discussion, including consideration if the FVEAA should conduct an impartial test of the compound. Such a test might put the material in 6 batteries of a 36-volt system parallel string with the other 6 remaining unaltered. No conclusion was reached. Member Vana reported on his experience with the EDTA compound use.

President Marsh, members Emde and Shafer reported on FVEAA participation in the Amherst Alternative Energy Fair, June 19-21. About 7500 persons attended the event. Both FVEAA cars exhibited suffered damage in transit. One solar panel on Johanna's Fiat was lost in transit between Downer's Grove and Amherst. Her car was inoperative when returned.

Member Clark's Unique Mobility car was improperly secured during transit which caused damage to tie rods, brake lines and loss of braking when the car was returned. In addition, the car was quite dirty both outside and inside. Member Clark stated he would never again permit his car to be out of his possession. The membership agreed the poor experience with this event make future participation unlikely.

President Marsh reported the Milwaukee Alternative Fuel Car Display during their Summerfest was unsatisfactory. Although there were a number of vehicles on display - including FVEAA member's Fiat and Unique Mobility that were transported from the Amherst event a week earlier - the area was outside the general activities and only a few persons came to the exhibit.

Member Tom Spicer from U of I - Chicago reported on the solar car project. The car did not participate in the 1992 solar competition as expected for a number of reasons. Students working on the original construction have graduated and sustaining will require a new crew plus significant financial support for the project.

Member Emde presented a compilation of clips from various TV coverages of electric car events.

There was a question of holding the August meeting at COD because of the summer shutdown of the Campus. President Marsh stated the meeting location would be included in the next Newsletter.

The meeting was adjourned at 10:45.

Submitted by:

William H Shafer

NATIONAL TRANSIT SUPPORT STACKS UP FOR ELECTRIC 'STATION CARS'

by David Iyata
from Chicago Tribune,
Sunday, June 14, 1992

The idea of a electric "station cars" for commuters is catching on across the country, as made evident at a recent conference in Chicago that drew transit and electric utility officials from as far away as the West Coast and New England.

Nearly two dozen people met in Chicago Friday to form the National Station Car Consortium. The group will explore such far-fetched concepts as the Regional Transportation Authority's proposed Stackable Electric Rental Car, or SERC.

The forms may vary - the RTA envisions a vehicle whose nose and tail would fold up for stacking - but the idea essentially is the same: short-range electric vehicles available to rent to people to help them start or complete their rail commutes, to get from home to train or from train to office.

The goals are to get people out of private automobiles and onto mass transit, and to reduce traffic congestion and air pollution, said Martin J. Bernard III of Bevilacqua Knight Inc., an Oakland, Calif.-based consultant to the Electric Power Research Institute in Palo Alto, Calif.

Saying that the worst pollution from conventional gasoline-powered cars occurs during the first few miles of driving, while the engine is warming up, Bernard said, "you get more bang for the buck by eliminating short trips, and that's what the station car does."

"It's a vehicle you take to the train station, leave it there and forget about it," said Frank J. Wilson, general manager of the Bay Area Rapid Transit District, San Francisco. "You take transit to where you need to, and if you need to make multiple stops, you pick up another one of these little suckers to do it.

"In the last year, more and more people in our organization, and more and more people I've talked to on the outside have grown to be enamored of this concept," said Marc A. Hillier, assistant executive director of capital programs

and technology at the RTA.

In attendance at Friday's formative meeting of the station car consortium were representatives of the RTA, transit authorities in Boston, Los Angeles and San Francisco, and electrical utilities in California, Georgia, Illinois, Massachusetts, New York and Pennsylvania.

The next consortium meeting is expected to be in September in Boston.

Boston plans to put 50 electric station cars on the road in the coming year as part of a \$3.3 million demonstration project. The electric cars would be available for lease at Massachusetts BAY Transportation Authority garages along the ring roads encircling Boston.

In what could be a model for funding future demonstrations, 80 percent of the Boston project will be paid for out of federal congestion mitigation and air quality funds made available under the Intermodal Surface Transportation Efficiency Act.

Local funding will come from a group whose members include two local electric utilities, the Massachusetts energy office, and Hughes Aircraft, manufacturer of vehicle charging systems.

Ronald J. Odegaard, economic development coordinator at Commonwealth Edison Co., Chicago, endorsed the concept, saying that besides benefiting commuters, the station cars "would introduce the technology to people so they can get acquainted with the concept of electric vehicles.

"The station car needs a national consortium if it's going to go," said Clark W. Gellings, vice president of the Electric Power Research Institute, a driving force behind the formation of the station car group. "no one transit authority can carry this."

David A. Christensen, director of research and development at Pacific Gas and Electric Co., San Ramon, Calif., said the station car concept "clearly has potential for a niche to get electric vehicles on the road, to get familiarity and market

acceptance and experience with manufacturing."

"On the other hand, I see a couple of potential downsides - for instance, if we put out a vehicle that does not perform well, that's unsafe or unreliable, or if there aren't enough of them to meet the demand at transit stations," Christensen said.

Christensen also expressed skepticism about using strictly "off-the-shelf" technology, like ordinary lead-acid batteries, in the proposed station cars.

"To the extent we're not pushing state-of-the-art technology for better motors, better controllers and higher-capacity batteries, we're not advancing the end goal of getting more capable vehicles to solve society's problems," Christensen said.

"This will take an effort not by any one industry or group, but by government, utilities, the RTA and certainly automobile manufacturers," said Commonwealth Edison's Odegaard. "They need to work closely together as a team. If this does not happen, this concept will not happen."

Union-Industry-School-Public Consortium To Build Electric Cars In California

from
SystemNews

WASHINGTON (PAI) - The Machinists announced the creation of a nonprofit union-industry-university-public agency consortium in California to develop and build electric cars and other advanced transportation modes such as high speed rail, employing workers hurt by defense cuts and the recession.

Called CALSTART, the consortium received the keys to a closed Lockheed manufacturing plant in Burbank, Calif. on June 8. Working with CALSTART, the recently-formed Amerigon company will build at the plant a showcase electric vehicle with at least 30 parts manufactured in a unique on-site production arrangement.

Amerigon, in cooperation with IAM District 727 in Burbank and District 720 in Long Beach and Torrance, developed a list of technical skills needed to design and build the innovative electric car. The IAM is matching the list with the skills of laid-off IAM aerospace workers.

IAM President George J. Kourpias hailed the skills matching as "a significant move towards conversion of factories from war to peace-time industry. The IAM is on record proposing a U.S. economic conversion policy for more than 15 years."

The union said CALSTART is an idea whose time has come, considering the recession, traffic congestion, pollution, and the California Clean Air Act, which requires zero emissions for 2 percent of California vehicle sales by the year 2003.

MARYLAND: from the State Environment Report June 24, 1992

The state Department of Economic and Employment Development has joined Baltimore Gas and Electric Co. (BG&E), Chrysler Corp. and Linthicum, Md. based Westinghouse Electric

Corp. in an effort to develop a commercially viable electric car. The venture, known as the Chesapeake Consortium, is seeking a \$4 million grant from the U.S. Transportation Department; if it is approved, The Economic Development agency will kick in another \$1 million. BG&E reportedly has won state approval to implement an electric rate structure and billing system that would help stimulate electric-car use.

JUICED UP OVER A NEW BATTERY

from
Business Week August 10, 1992

Do we need another kind of automotive battery? General Motors thinks so. The giant auto maker, at least, believes it's worth investing \$20 million in Valence Technology, which has developed a proprietary solid-state lithium polymer battery. GM's auto-parts division, Delco Remy, has just signed a three-year, \$20 million research and development pact with Valence to develop the battery.

"it's a revolutionary battery that has significant price and performance advantages over both existing and emerging technologies," says analyst Thomas Lloyd-Butler of Montgomery Securities in San Francisco. the battery, he explains, is three to four times more powerful than existing ones and can be produced at a significantly lower cost than available batteries. While existing batteries use the traditional liquid electrolyte, the solid-polymer electrolyte used in the Valence battery makes the product lighter and much safer, he adds. Delco placed an initial \$350,000 order for a limited number of the batteries, to be shipped in August.

Whispers are that a major communications company will sign a \$100 million strategic alliance pact with Valence in a month or so. that company may also buy an equity stake. Valence Chairman Lev Dawson, who owns 47% of the stock, says serious talks are going on but refused to be specific.

Valence went public on May 7 at 8, and hit 10 in a month. It has since pulled back to 9 1/4 on July 29. Such institutional investors as Putnam Cos. and Wellington Management were buyers. Lloyd-Butler says Valence will be in the red through the end of 1994, but he sees earnings of 75 cent in 1995, \$1.50 in 1996, and \$3.25 in 1997.

For Sale: Electric Bicycle

Custom built electric powered bicycle. 12 volt system. \$700.00 invested. Want \$500.00. New battery included.

Contact Richard Ness

(312) 889-7757

WANTED: Dead Truck

Any make of light pickup suitable for conversion to electric power.

Call Steve Marshall of Milwaukee Technical High School.

(414) 962-9012 (Home)
(414) 271-1708 (Work)

Looking for '80s model with structural integrity other than the engine.

No 4-wheel drives.

WANNA BUY A DAF?

License plate 137EL has been transferred and the insurance policy changed now that my Mazda conversion project is complete. I am willing to sell my 1966 DAF which was converted to electric power in 1974 to someone who can use the components for a project. The car is suffering from terminal structural rust which was the major reason for the project.

The 48-volt electrical system consists of a 400-amp, aircraft starter-generator that may need new brushes, a power transistor controller, a Ken Myers-built battery charger for both the 48 and 12 volt systems, a 28-volt vacuum pump, 8 deep discharge batteries that are not very good and a 12-volt auxiliary battery that is ok, a 28-volt blower, voltmeter, shunt & ammeter, auxiliary relays, and 1/0 power cables. At 45 volts, the motor runs at 3000 RPM. Curb weight of the converted car is 1980 lbs.

I estimate the new value of these electrical parts to be about \$ 1500. My asking price for the car and components is \$ 1,000. The offer is good until my birthday on August 1st after which I'll dismantle the electrical system and keep the components for a possible future project of my own.

Bill Shafer
308 South East Avenue
Oak Park, IL 60302
(708) 383-0186

FOR SALE Electric E-20 Riding Mower

Does not run - also has snowblower & extra parts for same. Contact: Gerald Robson

329 E. Monroe St.
Box 84
Spring Green, WI 53588

(608) 568-2661 or (800) 487-3816

EDITED BY KEN GROSS



Kaz Wysocki in his 1963 Daffodil sedan. Note distinctive steering wheel hub.

PHOTOS BY JOHN L. MATRAS

Kaz's DAFs

The electronic continuously variable transmission (ECVT) on today's Subaru first appeared in the Sixties on Dutch cars made by a company called DAF. We talked to a man who owns a whole stable of them.

"I take them in like lost kittens," says Kazmier Wysocki about his DAFs, microcars, and electric vehicles. Especially DAFs. The Hackensack, New Jersey, resident owns fifteen of the distinctive little Dutch cars in various condition.

Wysocki's interest in electric cars led him to DAFs. From a former converter (who had electrified about twenty-five DAFs), Kaz purchased a leftover that still had its original engine. That was more than ten years ago. Now Wysocki is president of the DAF Club USA (about six members) and, along with Californian Bill Radke, is probably the biggest DAF enthusiast in the United States.

Why DAF? Although the 750-cc horizontally opposed twin is a purported paragon of reliability—if not horsepower—

Kaz was fascinated by the DAF Variomatic, a continuously variable-ratio transmission based on large rubber vee belts and a pair of centrifugally controlled pulleys. The sides of the front (drive) pulleys move closer with speed, forcing the belt to ride higher and changing the effective diameter of the pulley; spring-loaded rear (driven) pulleys separate as the belt length stays constant. An engine vacuum override holds lower ratios for acceleration or hill-climbing. As with Subaru's steel-belted ECVT, changing the relative sizes of the pulleys varies the drive ratio for stepless no-shift driving.

The first DAF car, the 594-cc model 600, was built in 1958. The engine grew by 25 percent in 1961 for the DAF 750, followed in '63 by a "luxury" model, the Daffodil. During the early Sixties, several tries at selling DAFs in the United States failed: A less than macho image and a 0-to-50-mph time of 22 seconds doomed it in the land of the Falcon and the Chevy II. DAFs were popular in Europe, despite a reputation

as a grandmother's car. Shift-for-themselves Europeans dismissed the Variomatic rather than the car's small size despite another engine enlargement (850 cc) and then the use of the 1108-cc Renault four as DAF's biggest engine. To its credit, the DAF performed well in rallies (the twin belt system gave a form of limited slip), and several Formula 3 cars were campaigned by a factory team. DAF continued to build heavy trucks (with conventional transmissions), but Volvo bought the car business in 1975. To this day, the Variomatic is an option on Volvo's 430.

We drove Kaz's Renault-powered 1974 model 66 military vehicle and a 1963 model 33 Combi, a panel-van affair with a torquey DAF twin. Both easily matched urban traffic and climbed a steep viaduct—hills are hard to come by in Hackensack—without slowing. The Combi, though, is as Spartan as the armymobile—a low fuel warning light subs for a gas gauge. (Daffodil models have a nice flower on the steering wheel hub, though.) The floor shifter has three positions: forward, neutral, and reverse. Don't rev the engine in neutral before selecting a gear. That will spin the driveshaft, and you'll have to wait for it to stop before the gears, located between the drive pulleys, will engage without clashing. Remember to use the parking brake, too, because the centrifugal clutch won't hold the car when the engine is off.

Last year, Wysocki attended the tenth-anniversary meet of the international DAF club in Holland, an event attended by 1000 DAF cars. He brought back, as a gift, a 1962 DAF 750 pickup truck. Another little lost kitten comes home. —John L. Matras

Wysocki stands amid four of his DAFs. Left to right: 1966 33 Combi, 1963 Daffodil sedan, 1974 66 YA military vehicle (also pictured below), and 1970 55 coupe.



Munich—

W

elcome to the world of the electric car, BMW style. The ultracompact E1 prototype—and the longer, U.S.-bound E2 version—were designed to combine the smogless virtues of battery power with the virtues of a true BMW, which include style, above-average active and passive safety equipment, quality, and, of course, driving pleasure. To find out how the plug-in baby Bimmer might live up to these goals, when and if it is produced, we took the E1 for a four-hour, eighty-mile ride through and around Munich.

The start-up procedure in an electric car is kind of an anticlimax. You turn the ignition key, and nothing happens—nothing, except that the instrument panel comes alive. In the case of the E1, the parking brake warning light and the “stop” light disappear, and the gearshift indicator reads P for park. That’s it—no hum, no buzz, no vibration, no idle speed clatter, not even the distant whir of a fan.

Before the copper-metallic electric egg will move an inch in any direction, you must slide the tiny in-dash joystick from park through neutral to drive. But even in drive, the silent Bavarian won’t

start crawling like your average autobox sedan. Instead, it remains idle—at least as long as you’re parked on an even surface. On a slope, the car is liable to take off all by itself, slowly but unerringly gaining momentum, no doubt encouraged by the 1940-pound curb weight, the low-rolling-resistance tires, and the almost total absence of drivetrain friction.

In traffic, it takes a while to adopt the appropriate driving style. The brakes, in particular, feel a little odd. They are neither progressive nor particularly powerful, and they require high pedal pressures. Project engineer Alexander Pregel explains: “Don’t forget that an electric car has no engine brake. All the work must therefore be done by the four brake drums that form part of the wheel. The system lacks power assistance, but it is equipped with ABS and a regenerative device that feeds the energy freed under braking straight back to the battery.”

In downtown Munich, the E1 created about as much attention as a nude Miss World in a pink Lamborghini Diablo roadster. You see, the battery-powered BMW is as wide as a 325i but even shorter than a Fiat Panda. These unusual proportions make it look tall, purposeful, and very different. Despite the bonsai dimensions, the E1 is a proper four-seater with a trunk to match. Getting into and out of the car is surprisingly painless, and once you’ve installed yourself behind the air-bag-equipped steering wheel, you enjoy a commanding, panoramic view of the road.

The tall seats with integrated belts and jazzy trim are comfortable and generously adjustable. The cockpit is covered with a furry mouse-gray material that looks classy and is nice to touch. The ergonomics are faultless, and the instruments are easy to read. There are three analog gauges: a clock, a speedometer (75 mph maximum), and a driving range meter (125 miles maximum). The rack-and-pinion steering is as unassisted as the brakes, but at least you never take a hand off to shift because the electric motor drives the rear wheels directly through a differential.

At traffic lights, the E1 is a crowd stopper par excellence, but as soon as you put your foot down, the expression on the onlookers’ faces changes to respect. The E1 accelerates in a totally silent six seconds from 0 to 31 mph, and it will reach the 50-mph mark in eighteen seconds—fast by EV standards. Al-

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BY GEORG KACHER

BMW E1



*Behind the wheel of the
ultimate zero-emissions
driving machine.*

BMW E1

though the slippery (0.32 Cd) electric hatchback is capable of topping 75 mph, it really isn't at home on the autobahn, where trucks and delivery vans are constantly snapping at its heels. What this car does best is weasel through town, squeezing itself through the tightest gaps and into tiny parking spots. It handles like a go-kart and has the turning circle of a scooter, but it could do with a permanent warning whistle to stop pedestrians and cyclists from behaving as if they were alone on the planet.

The small electric motor that splits the integral rear axle delivers 45 bhp and 111 pounds-feet of torque. It is linked to a 440-pound sodium-sulfur set of batteries that produces 120 volts and 22 kilowatts. At this point, the energy cell is still much too expensive (at \$25,000 apiece), and it lasts no more than three years. Other drawbacks to the sodium-sulfur concept are the high operating temperature (570 degrees Fahrenheit), the potential crash risk (after all, you sit on top of hot chemicals), and the need to recharge the batteries every four days.

"We're committed to this project," confirms Henning Wallentowitz, the new chief of BMW's Technik think

tank. "But before we can prepare the E1 for production, the battery question needs to be solved. We simply need more time to exorcise the bugs." If our drive in the first and only prototype was anything to go by, the rest of the car doesn't need a lot more development work. The packaging is in fact so convincing that it wouldn't be hard to live with a gasoline-burning version until the batteries get their act together—with any luck—in 1996 or 1997.

BMW E1

Base price (estimated) \$22,000

GENERAL:

Rear-engine, rear-wheel-drive hatchback
2 + 2-passenger, 2-door aluminum frame,
plastic panel body

POWERTRAIN:

Uniq DC motor with integrated differential
360 120-volt sodium-sulfur batteries, wired in series
Battery capacity 19.2 kW/h
Power 45 bhp
Torque 111 lb-ft

CHASSIS:

Independent front and rear suspension
Rack-and-pinion steering
Front and rear drum brakes
Regenerative braking system
572/145R 14 front, 612/175R-16 rear Pirelli tires

MEASUREMENTS:

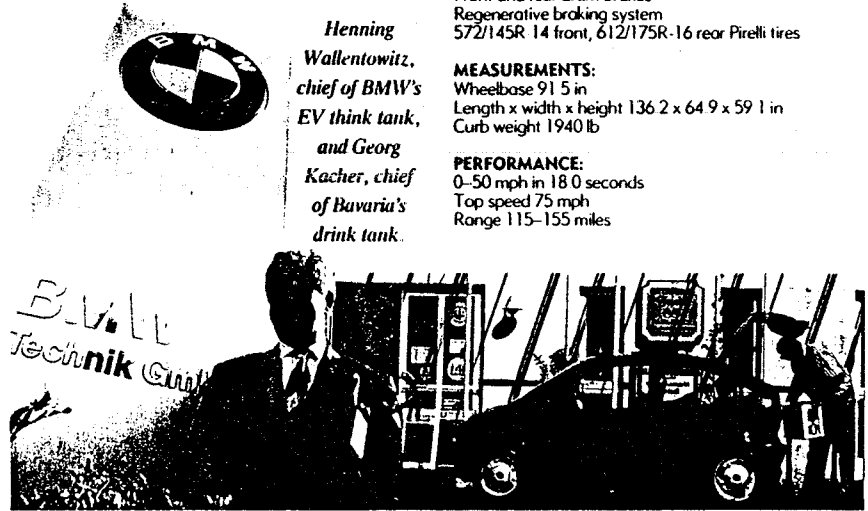
Wheelbase 91.5 in
Length x width x height 136.2 x 64.9 x 59.1 in
Curb weight 1940 lb

PERFORMANCE:

0-50 mph in 18.0 seconds
Top speed 75 mph
Range 115-155 miles

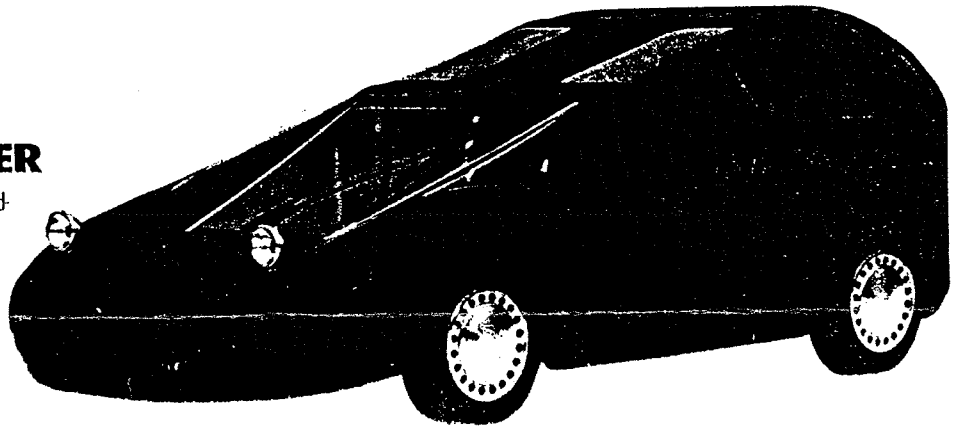
Henning

Wallentowitz,
chief of BMW's
EV think tank,
and Georg
Kacher, chief
of Bavaria's
drink tank.



TWO-MODE TRAVELER

This Swedish two-seater is powered two ways: on lead-acid batteries only or in conjunction with a gas-powered seven-kilowatt generator. Without the generator, the car's range is 43 miles and top speed is 70 mph; with it, the range stretches to 350 miles, although top speed drops to 56 mph. The Solon's chassis provides rollover and side-impact protection. Solon AB, Box 274, 651 07 Karlstad, Sweden.



LIGHTNING VOLTS

Offset seats for the driver and passenger suggest a motorcycle-and-sidecar combination in this sporty electric-car prototype, as do the cutaway front wheel shrouds and steep windshield. Called Blitz (German for lightning), the open roadster from Italian car maker Carrosseria Bertone has two hefty motors chain-driving the rear wheels; full torque at switch-on spurs it to a brisk start. Batteries are carried in compartments on both sides.

