F.V.E.A.A. NEWSLETTER

February 1992

President
Douglas F. Marsh
336 McKee St.
Batavia, IL 60510
(708) 879-8089

Vice President
Kenneth Woods
1264 Harvest Court
Naperville, IL 60565
(708) 420-1118

Secretary
William H. Shafer
308 South East Dr.
Oak Park, IL 60302
(708) 383-0186

Treasurer
Dale Corel
595 Gates Head North
Elk Grove Village,
Illinois 60007
(708) 228-5952

Editor
Douglas F. Marsh
336 McKee St.
Batavia, IL 60510
(708) 879-8089

Director
John Emde
6542 Fairmount Ave.
Downers Grove
Illinois 60516
(708) 968-2692

Director
John Stockberger
2S643 Nelson Lake Rd.
Batavia, IL 60510
(708) 879-0207

NEXT MEETING

Febuary 21st @ 7:30
College of DuPage
Student Resource Center
Room 1046
Use Lambert Rd. Entrance, Lot 7 at the Northwest corner of 22nd & Lambert
Nonmembers are always welcome!

MEETING ROOM CHANG

Due to a scheduling conflict at the college of Du have been moved to ROOM 1046 at the student resource center. There is a map on the next page. We have simply been to the building across the street. This will be our permanent meeting place from now on.

PREZSEZ

Well, Its seems that automakers world wide are starting to take the legislation mandating zero emission vehicles seriously. At this years Chicago Auto Show a majority of the concept vehicles that were displayed were electric. Surprisingly absent was GM's Impact and VW's Chico. I have choosen this months newsletter to focus on the vehicles displayed at the auto show. Granted, all the EVs displayed are concept vehicles, which usually means that if they ever get to market they will not resemble the original vehicle and will go by a different name, but at least there are efforts being made.

Just a comment about the paper we are now using for the newsletter. The paper is the lowest impact paper I could find. It is made of 100% recycled paper, 65% post consumer waste and is unbleached. It is purchased from Earth Care Paper, Inc. of Madison Wisconsin.

Once again I invite those who have not renewed your memberships to do so, and as always we welcome new members. The dues is still $15.00. What a bargain!

DOUG

Fox Valley Electric Auto Association
336 McKee Street
Batavia, IL 60510

FIRST CLASS

John Emde
6542 Fairmount Avenue
Downers Grove, IL 60516

ODRESS
CORRECTION
REQUESTED

Minutes of January 17, 1992 FVEAA Meeting

The meeting was called to order by President Marsh at 7:38 pm. He announced that the College of DuPage has closed the west campus (Building K) and that our future meetings will be in Room 1046, Student Resource Center, adjacent to the cafeteria. There were 18 members and 1 guest attending.

President Marsh announced he has taken over the preparation and distribution of the FVEAA monthly newsletter from former Editor, Rick Sachschale, who has received his BSEE and became a new father in January. If any member has material for the newsletter please get it to Doug by the first friday of each month. This includes notices of cars or equipment for sale.

President Marsh noted he purchased the two Citicars offered in the last issue of the FVEAA newsletter. He is in the process of restoring one, with the objective of developing and testing a microprocessor-controlled controller. He has also learned that according to the Anderson, Indiana local paper, GM has set aside space in the Delco plant in that city to produce batteries for their much awaited electric car.

Treasurer Corel reported a balance of $1523.18 in the checking account and $1973.33 in the FVEAA savings account. He noted that 1992 annual dues of $15 are now due from members who have not renewed.

Visitor Frank Cylio, a recent retiree from Fermilab, was introduced and made a few remarks. He asked what motors members have used for conversions. These include G-32, G-23 & CM 77 aircraft surplus motors. No one has yet used an Advanced DC or Warfield motor which have listed prices from $900 - 1500 from distributors.

Member Krajnovich reported on his investigation of a replacement battery group purchase. A poll of members present indicate 60 batteries would be involved. EZ-go, a golf cart manufacturer in Lake Zurich offered Trojan T-105 for $46.50 each if picked up and a $60 charge if delivered to a single site. Illinois Battery Distributors in Aurora offered Alco 2000 for a $50 pick up price each and site delivery of $5 per batttery. After discussion President Marsh agreed to contact the second firm and obtain a proposal for at least 48 units with either pick up or the extra cost for delivery to 6 different sites. Disposal of old batteries was discussed.

Nine menbers reported on the current status of their electric cars. Most are sidelined for the winter.

Member Shafer presented slides of the recycling and conversion of his Mazda RX-7.

The meeting adjourned at 10:15 pm

Submitted by

William H. Shafer
Secretary

Chicago Electric Vehicle Demonstration Project

Information supplied by Commonwealth Edison

The CEVDP is a cooperative effort between the City of Chicago, Commonwealth Edison, and the Ford Motor Company to demonstrate the feasibility of advanced electric vehicles. The purpose of the project is to provide important test data for Ford and large fleet owners such as municipal governments and utilities. Documenting actual operating experience is the first step toward placing electric vehicles in production and making them available to the public. Although Ford vehicles are also being tested in Detroit, Chicago's cold winters, salted streets, and heavy urban traffic may pose unique engineering challenges.

The project will be announced at a press conference in McCormick Place North at 9:30 am. on Monday, February 3, 1992. Those participating will be Chicago Mayor Richard Daley, Ford Motor company-Automotive group president Allan D. Gilmour and Commonwealth Edison President Bide L. Thomas.

Edison will lease five prototype electric Ecostar light trucks from Ford. Three of these will be used as regular fleet vehicles by Edison and two will be used as regular fleet vehicles by the City. Ford will provide the vehicles, as well as open an electric vehicle maintenance facility in Chicago. This facility will document the performance of the Ecostars under actual operating conditions and provide information to Ford engineers that will lead to the eventual commercialization of this vehicle.

The City will integrate two vehicles into its fleet and participate in the program to document problems and facilitate design improvements. This experience will help the City's fleet management plan for electric vehicles by all manufacturers as they become commercially available. The Ecostar is a two seat light truck built on an Escort chassis. It has overall dimensions similar to a compact car and can carry 850 lbs of cargo. It is powered by advanced sodium-sulphur batteries connected to a 75 hp, 3-phase AC motor. The vehicle has a top speed of 70 mph and a range of 100 miles in city traffic on a single battery charge.

First, the Ecostar is perhaps the most innovative electric vehicle presently under consideration by a major American manufacturer. Successful demonstration of the vehicle's sodium sulphur batteries and high-tech control system would be a major step forward in the commercialization of electric vehicles. Second, Ford already has a world-class assembly plant and vast network of maintenance facilities in Chicago.

Each prototype vehicle has an on-board "data logger." This computer records and stores information for analysis by Ford engineers. Five vehicles will be delivered individually, the first arriving during the fourth quarter of 1992 and the final vehicle arriving during the first quarter of 1994. Each vehicle will be tested for a period of 30 months and returned to Ford.

Protecting the natural environment and reducing America's dependence on foreign oil are urgent national priorities. Electric vehicles produce no exhaust and are fueled by domestically generated electricity. In northern Illinois, 80% of this electricity comes from nuclear plants. Most of the balance is from low-sulphur coal. Even considering the emissions from electric generating plants, air pollution for electric vehicles is a tiny fraction of that produced by conventional vehicles.

Solar-Powered Ants

Solar Energy Intelligence Report

Solar-Powered ants only three to seven millimeters long have been patented by Johannes Smits of Boston University College of Engineering. Smits expects his little robots to swarm over nuclear laboratories, picking up radioactive dust in tiny pinchers, or to guard produce from real ants in a RoboAnt real-life thriller. The Acoustically controlled critters could remove diseased blood cells from blood or even be used by spies to literally "bug" a room. The body of the ant is a piece of silicon in which microcircuits are embedded. The motor is only a millimeter long and the width of a human hair. The first ant walks off the production line on six tiny legs in two years.

No middleman

Hornets draw energy directly from the sun

Chicago Tribune, Sunday, Febuary 2, 1992

Hornets gather energy directly from the sun through their skin and convert it for their own use, scientists at Tel Aviv University have found.

Physiology professor Jacob Ishay has spent more than 20 years studying the insects and hopes to learn how their skin converts sunlight to energy so the technique might be borrowed by solar -cell and semiconductor technology.

"Both the electrical resistance of the hornet cuticle (skin) and the hornet's silk cocoon pointed to them being organic semiconductors," Ishay said. "The distribution of the hornet's daily activities seems to be correlated with the hours of maximal irradiation. In the course of our research, we found that the hornet stores a sizable amount of energy that it utilitzes through the production of an electric current and possibly also by other means."

Researchers find they can hook up a circuit of hornets to produce electricity to run small appliances such as digital clocks, but they don't expect that dead hornets will replace batteries. Instead, Ishay said, they hope to understand how hornet cuticles work so engineers can make artificaial versions that convert sunlight to electricity.

Raise gas prices, GM chief says

Chicago Tribune, September 20, 1991

If governments want to cut pollution caused by gasoline-burning cars, they should raise the price of fuel, not impose unreasonable restrictions on car manufacturers, said Robert Stempel, chairman of General Motors Corp. Stempel singled out the U.S. for keeping the price of motor fuel low in contrast to Eurpean countries. His reasonaing is the higher the price, the less consumers will buy and use cars. "The U.S. doesn't use that technique" he said at a Financial Times conference on the auto industry last week in Frankfurt, Germany. "It keeps the price low ... which is not a good method."

Bush Plugs Electric Cars

Chicago SunTimes, October 26, 1991

President Bush endorsed a $260 million public-private venture Friday to develop batteries for electric cars, saying the project would save more energy than proposed tougher fuel-economy standards.

"The development of a competitive electronic auto industry will do more to reduce oil imports than rigid fuel-efficiency standards that risk jobs and public safety," Bush said.

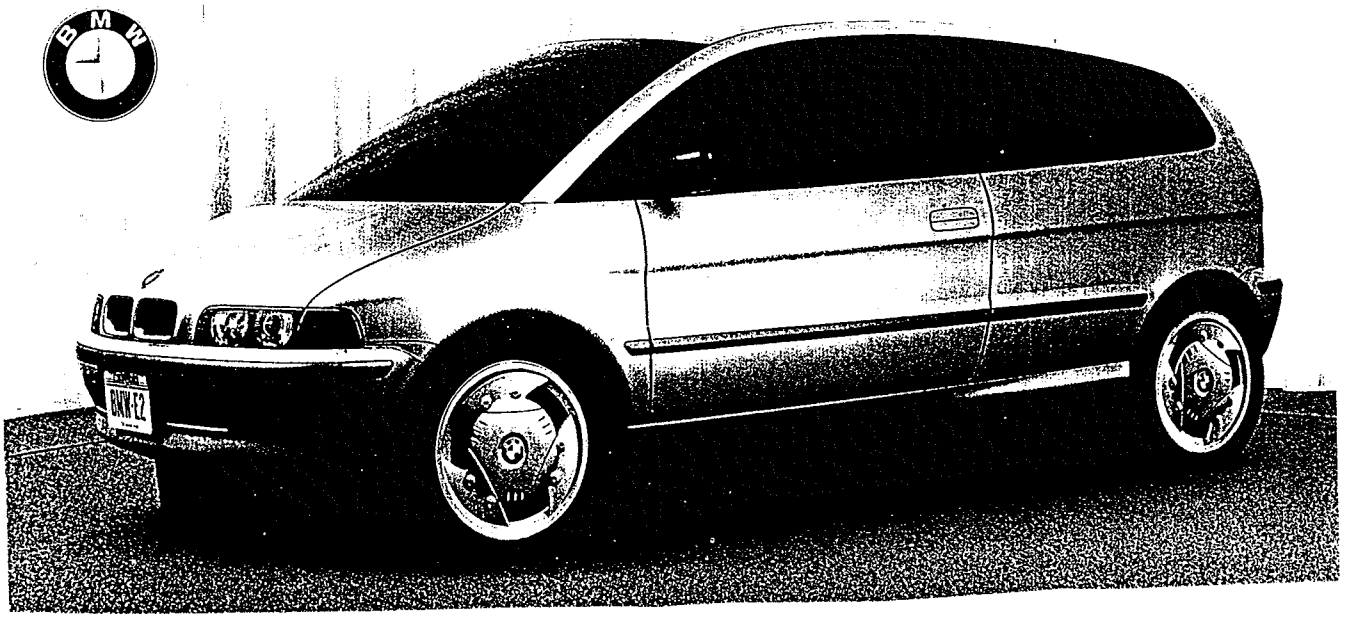
The president attended a White House ceremony at which Energy Secretary James Watkins and representatives of the nation's Big Three automakers signed an agreement to launch the four-year project. Bush said the goal was "to make electric vehicles competitive by the year 2000"

Reuters photo

Chicago Tribune, Tuesday, January 14, 1992

Green power

Volkswagen's Chico, a hybrid with an electric motor for the city and gas engine for the highway, is one of many "green" concept vehicles on display at the Detroit Auto Show.



BMW E2

In developing an electric vehicle to meet American legislative requirements, driving conditions, and styling taste, BME AG sought the assistance of Designworks/USA, a Newbury Park, CA, design consultancy in which BMW AG has a 50 percent share.

The result of this collaboration is the prototype of a comfortable four-passenger sedan that is exactly as wide as the E1, 14.2 inches longer and 2 inches lower than its European counterpart. Weighing about 2205 pounds, 220 pounds heavier than the E1, the E2 delivers impressive performance. Powered by an electric motor producing approximately 32 kW (43 HP), the E2 is anticipated to accelerate to 31 mph in 6.5 seconds and to 50 mph in 15.6 seconds. It is estimated to reach a top speed of 75 mph, and its typical range under normal driving conditions should be 161 miles.

The E2 is based upon the same technical philosophy for emission-free motoring found in the E1. The electric motor is mounted on the rear axle with direct drive to the rear wheels; the battery is placed beneath the rear seats. The entire floor assembly is made oa aluminum, the body panels are recycled from other automobiles. The standard of safety offered by both the E1 and E2 rivals that of BMW's lager model series, and the E2's styling is typically BMW - elegant, fresh and youthful.

Inside the E1 variant is seating for four with storage behind the rear seat. A rounded dash integrates driver and passenger side airbags and a speedometer, range indicator, and a clock. Forward/reverse controls and an electric handbrake are also provided. Designworks/USA is currently working on a completely new and more luxurious interior for the E2.

Both rear-drive models utilize a new Unique Mobility (Englewood, Colorado) brushless DC motor mounted at the rear axle. The 45 hp motor is efficient, offering very respectible power by EV standards. But the E2's acceleration numbers point to fairly sedate performance when compared to internal combustion vehicles.

Technical Data

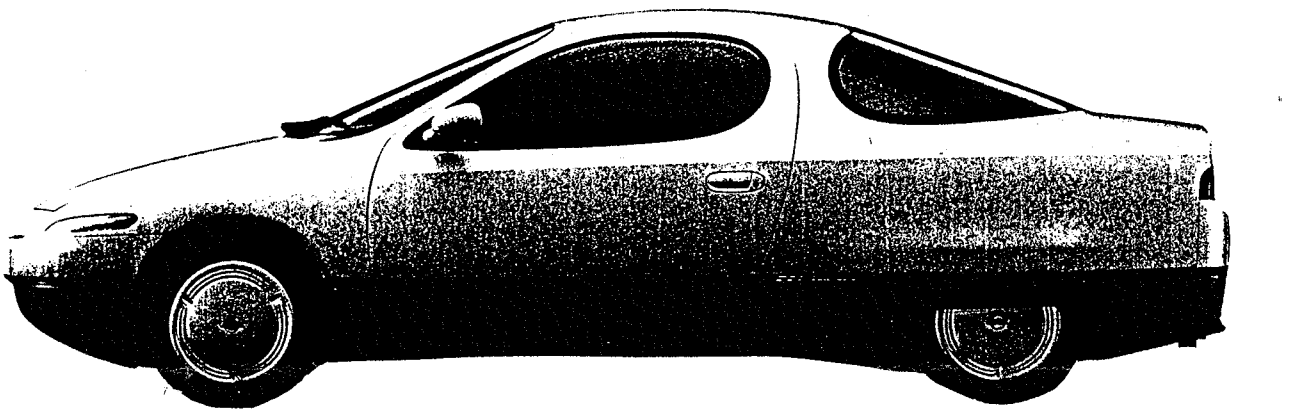
Length	150 in.
Width	63 in.
Height	58 in.
Wheelbase	91.5in.
Curb weight	2205 lbs.
Rated power	(hp/kW) 45/32
Torque	111 ft-lb.
Battery output	(V/kWh) 120/19
Motor type	DC brushless
Switches	MOSFET
Transmission	Gear reduction
Battery type	Sodium-sulfur
Drivetrain configuration	Rear motor, rear wheel drive
Controller	Insulated Gate Bipolar Transistors (IGBT)
Brakes	drum/drum, ABS, regenerative
Acceleration data	0 - 30 mph ..... 6.5 sec
	0 - 50 mph ..... 15.6 sec
	Top speed .... 75 mph
	Range ..... 161 miles

Peugeot unveils electric Car

Chicago Tribune 10/27/91

French automaker Peugeot has introduced the Citela, an egg-shaped electric car with a removable shell. The three-seat prototype has a top speed of 68 miles per hour, can cruise at 56 m.p.h. and travel 68 miles in city conditions on a single charge, the company said. Peugeot said the Citela's nickel-cadmium battery can be recharged in about six hours at an ordinary electrical outlet, and a sophisticated charger can provided 12 miles worth of energy in 10 minutes. Peugeot also unveiled a rechargeable scooter with a retractable cord that plugs into any electrical outlet.

NISSAN FEV



Nissan FEV Literature - 1992

Nissan presented a look at its concept prototype - the Future Electric Vehicle (FEV) at the recent Chicago Auto Show. "The FEV is a tehcnologically advanced electric vehicle, featuring a long cruising range; high efficiency; a spacious, comfortable interior; and a Super-Quick Charging System that reduces the time needed to recharge batteries, allowing a 40% charge in as little as six minutes.

The FEV is a zero emission vehicle. None of the exhaust gases that come from the burning of gasoline are present in the operation of the FEV. Conventional combustion engines, the standard in automobiles since the turn of the centry, release hydrocarbons, carbon monoxide, and nitrogen oxides - components of smog and acid rain. The release of carbon dioxide is likely a contributing factor in the occurrence of "global warming".

The FEV does not require the use of a diminishing natural resource - oil - for its operation. Rather, the FEV's electrical power comes from a variety of generating sources, including solar, hydro, coal, nuclear, and wind. The FEV even features a solar panel to assist in the recharging of its battery system.

The FEV conserves electricity while it is running. Unlike conventional engines that burn fuel while idling, the FEV power source shuts off while the vehicle is stopped. Thus, the wasteful burning of fuel in traffic jams and at red lights becomes a thing of the past!

The FEV's features improve technical performance over prior generations of electric cars. Earlier electric vehicles showed poor dynamic performance, short cruising ranges, long battery-charging times, and cramped cabin space. The FEV represent one step toward overcoming these technical barriers. Nissan's FEV allows for faster recharging when necessary.

The FEV can travel for a longer range with half the amount of batteries required for the same distance in previous electric vehicles. Earlier models suffered from limited cruising ranges due to their battery's lower charge capacity. With the FEV's improved cruising range, drivers will be able to drive up to 100 miles at 45 mph before another charge is necessary.

The FEV is a prototype car, designed to comfortable accommodate two adults. Baggage space is also provided behind the rear seats, and this space can open into the trunk. An air conditioner/heater using a heat pump is provided. The FEV has no transmission. The high motor speed is reduced by a planetary gear.

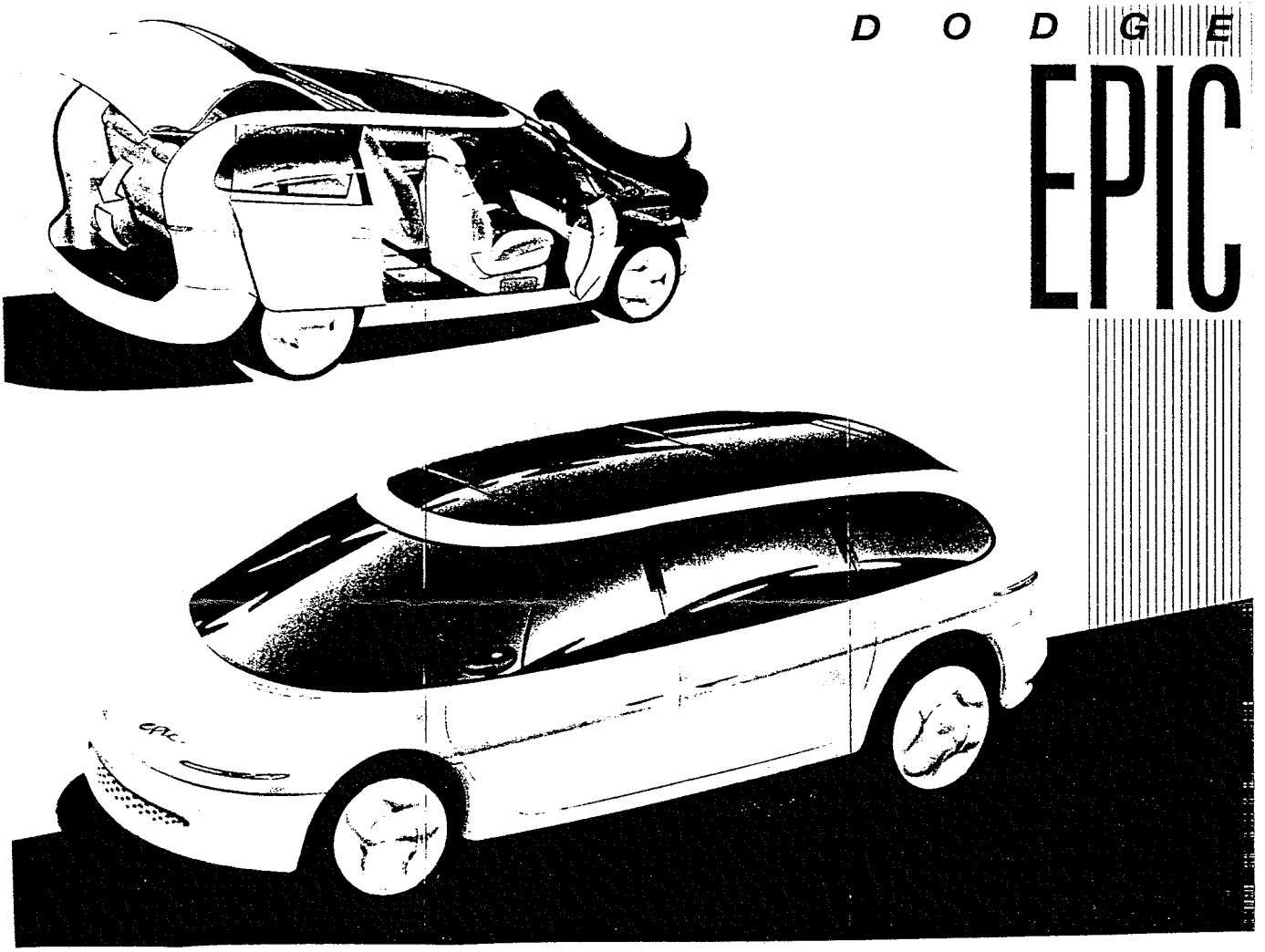
A solar cell located on the car's roof is used to augment the recharging system. Comprehensive systems also recover energy from braking and provide maximum efficiency. Passenger safety is enhanced by using air bags in the driver and fromt passenger seats as well as three-point seat belts.

Specifications

Overall length	157 in.	Overall width	67 in.
Overall height	51 in.	Wheelbase	96 in.
Tread front	57 in.	Tread rear	58 in.
Curb weight	1984 lbs.	Battery weight	444 lbs.

Drive system	- Front-wheel drive, right and left wheel independent
Maximum power	- 20 kW x 2
Battery system	- Super-Quick Charging System (nickel-cadmium)

Recharging time = 40% charge in 6 minutes (1/5 the time required conventional systems) at 440 v.



D O D G E

EPIC

THE MINIVAN OF THE FUTURE

Dodge EPIC sales brochure

The Challenge: To build a vehicle that is kinder to the environment. Employ practical applications to overcome constraints associated with electric-powered vehicles.

The Result: Dodge EPIC (Electric-Powered Intra-urban Commuter) EPIC sets a milestone for future applications.

Powered by nickel iron batteries, EPIC has a range of approximately 120 miles on a single charge. EPIC can reach a top speed of 65 miles per hour, has a battery life of 100,000 miles, and produces zero emissions.

The framework or EPIC is the "cab forward" design. This design offers better visibility and a roomier, more comfortable interior. "Cab Forward" will be utilized in future Chrysler vehicles.

EPIC's interior features a "stow and go" rear seat that folds completely into the floor for flat cargo sace, a cockpit-like instrument panel, electric power steering, and electric defroster, defogger and ceramic heater for instant heat.

And because such a vehicle should still be aesthetically pleasing, Chrysler designers furnished EPIC with a lavish exterior to grab attention, and an aerodynamic shape to slip through the wind

Technical Data

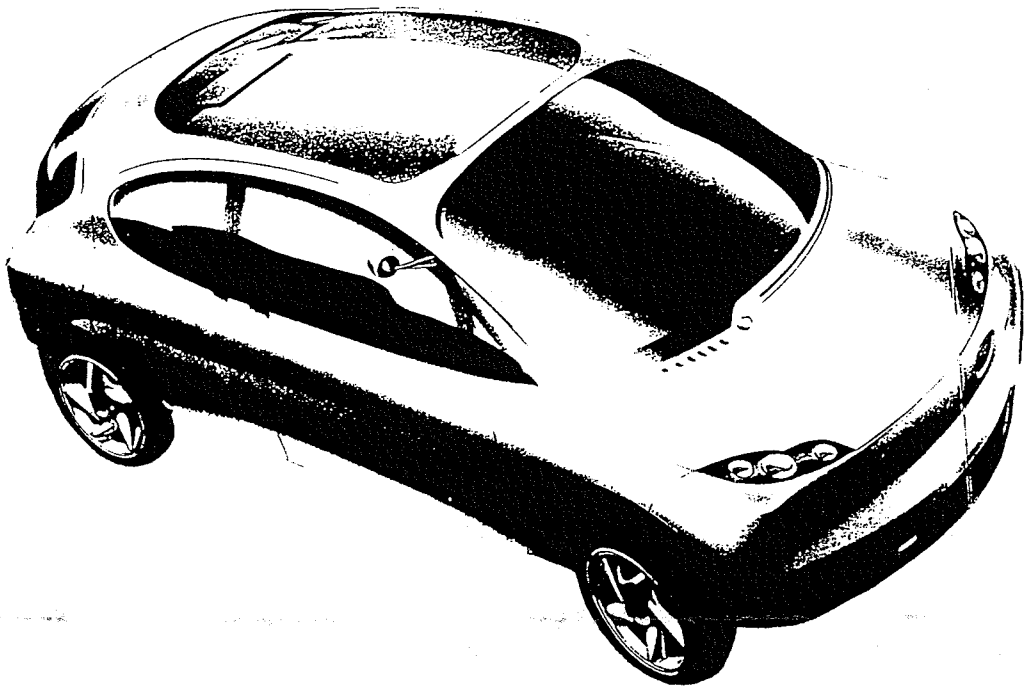
ENGINE
- Electric
- 120 mile range (on a single charge)
- Top speed: 65 mph
- Battery life: 100,000 miles

TRANSAXLE
- Semi-automatic

BODY
- Seven-passenger minivan

BRAKES
- Power-assisted

DIMENSIONS:
- Wheelbase: 119.3"
- Overall Length: 190.1"
- Overall Width: 78.2"
- Overall Hidth: 8.3"
- Front Track: 60.0"
- Rear Track: 67.0"
- Front Tire Size: 195/55R19
- Rear Tire Size: 195/55R22



The Ford Connecta

The Ford Motor Company sales brochure

If the vehicle's name sounds electric, it should. This futuristic concept car is powered by a very common energy source available at low cost in almost every household in the country. **Electricity.** More than that, its drivetrain is not some technical question mark for tomorrow but a practical design under development for Ford's new Ecostar van today. At its heart is a new battery invented by Ford for the callenges every real-world vehicle must face. One that allows frequent recharges and provides enough power and range to make the electric car a real answer to some very real environmental needs. But beyond the benefits of clean and very quiet operation, electric vehicles have to perform useful work. Because an electric powertrain works particularly well for short trips with many starts and stops, Connecta's interior space and its three doors are unlike any other van, wagon, or sedan. People do one thing again and again in short trips. They get in and out. On the driver's side there is one door but the passenger side has two unique center-opening doorswith no middle pillar. Entering the people-friendly interior, with its extra headroom and legroom, is as easy as entering your house. Connecta might really be best described as the family taxi. With this function-first electric car, Ford has shown that a vehicle can serve both its owner's daily transportation needs and the need for a cleaner environment.

Beneath the Ford Connecta's folding rear seats is the Sodium-sulphur battery that enables this electric vehicle to approach the performance of conventional gasoline powered cars and trucks. It has over twice the energy storage of lead-acid batteries and is placed between the wheel wells to keep weight low for best handling and maximum interior volume. It can be recharged by normal household current or special 220 volt outlets.

Connecta's passenger side configuration features two doors that open from the center to provide the easiest possible entry and exit. An electronic interlock prevents the rear door from being opened before the front, and both doors from opening while the car is in motion. In addition to easy access, Connecta's interior has rear seats that fold forward to allow children or packages to use the space behind them. Two more rear facing seats open out of the cargo area floor. The front passenger seat is equipped with an integral child seat and the driver's side features a unique space-saving control pod. Topping this unusual interior is a double skin glass roof with a solar-powered ventilation panel.

Both the Ford Ecostar and Connecta share the same drivetrain and battery technology. An electronic module in the Power Electronics Center manages the flow of charging electricity to the battery from the power grid (wall plug) or from regenerative braking, and converts the battery's power from 330 volt dc to 330 volt ac for the 3 phase ac drive motor, and the air conditioning, lighting and power systems. The microprocessor based controller monitors all critical vehicle functions and optimizes the complete operation of the vehicle using multiplex technology. The high speed, 3-phase ac motor delivers power to a single-speed, direct-coupled transaxle. The NaS traction battery brings new performance to electric vehicles with over twice the energy storage capacity of lead-acid batteries.

For more information call 1-800-ALT-FUEL.

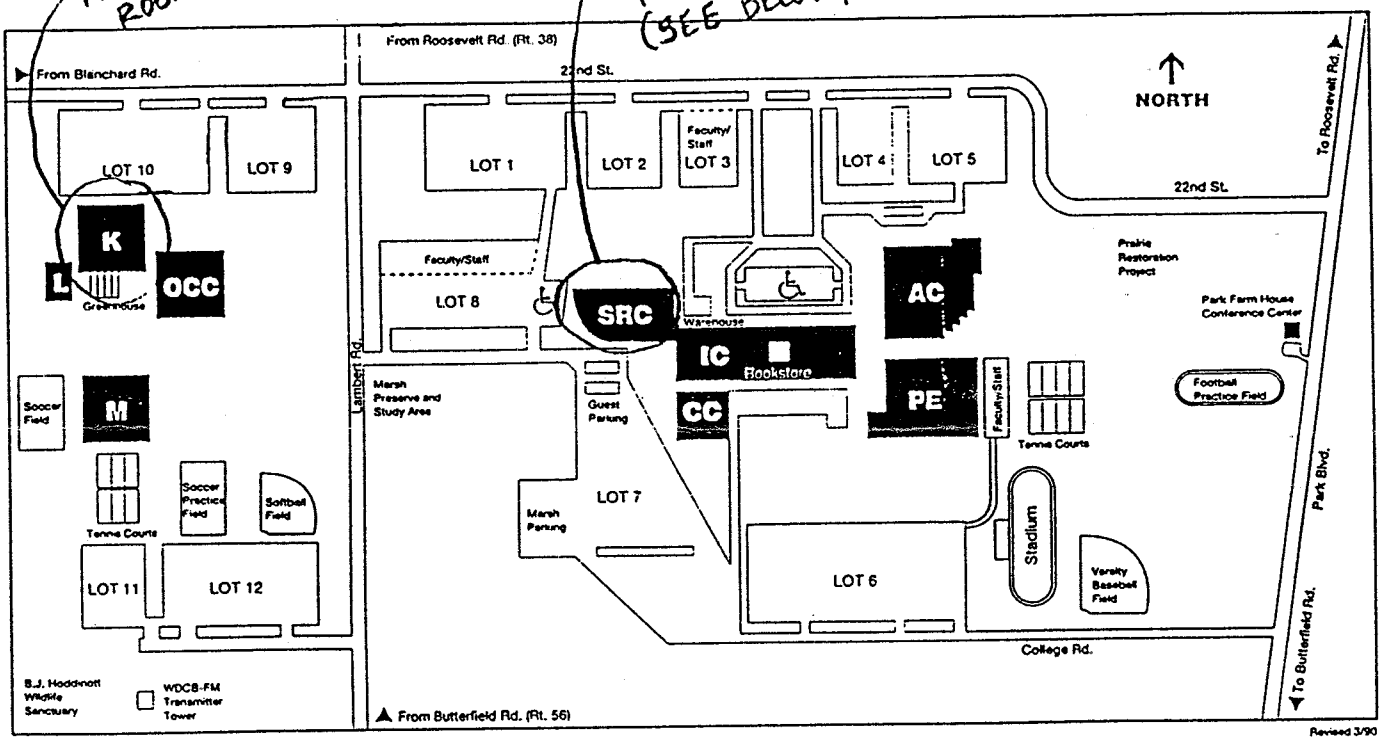
22nd Street and Lambert Road
Glen Ellyn, IL 60137-6599
(708) 858-2800

OLD MEETING ROOM (K-127)

NEW MEETING ROOM (SEE BELOW)

LEGEND

AC	Arts Center	OCC	Open Campus Center
CC	Computing Center	PE	Physical Education and Community Recreation Center
IC	Instructional Center		
K	Building K	SRC	Student Resource Center
M	Building M (Multi-University)		



Revised 3/90

Student Resource Center

First Floor