F. V. E. A. A. NEWSLETTER

MAY 1990

PRESIDENT
William Shafer
308 S. East Ave.
Oak Park Il 60302
708/383-0186

VICE PRES.
Kenneth Woods
1264 Harvest Ct.
Naperville Il 60565
708/420-1118

TREASURER
Vladimir Vana
5558 Franklin
LaGrange Il 60525
708/246-3046

SECRETARY
Paul Harris
9421 N. Kildare
Skokie Il 60076
708/674-6632

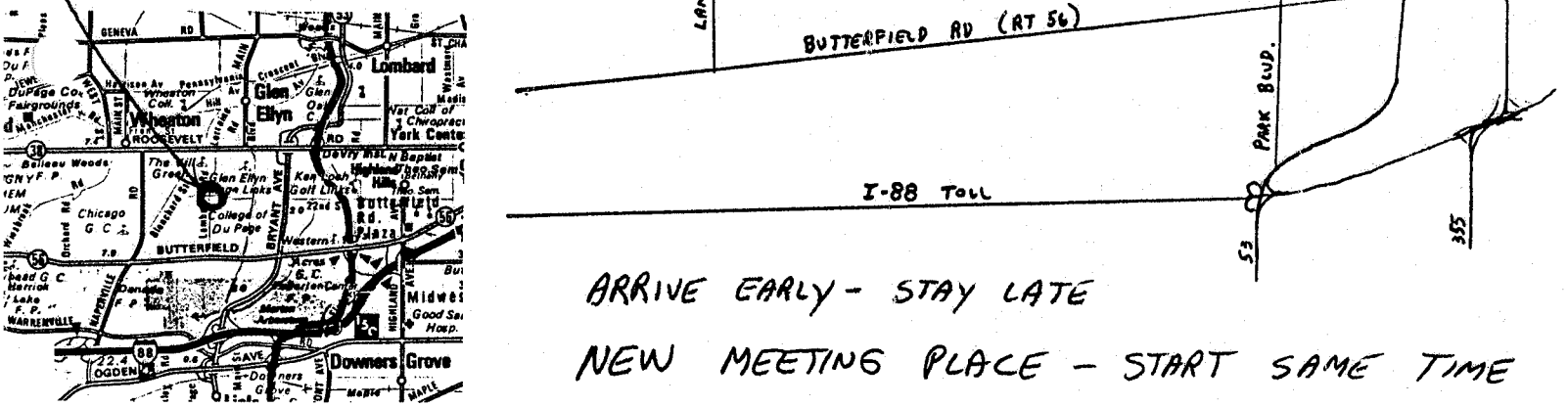
NEWSLETTER EDITOR
John Emde
6542 Fairmount
Downers Grove Il 60516
708/968-2692

MEETING NOTICE

The next FVEAA meeting will be MAY 18th at College of DuPage Building K 22nd & Lambert Rd. Glen Ellyn Time Meeting 7:30 P M. sharp. We can arrive at 7:00 Guests are welcome and need not be members to attend the meeting.

DEADLINE for newsletter *STUFF* - in my hands the friday before the next meeting. Editor

NEW MEETING PLACE - HERE ROOM K-127



ARRIVE EARLY - STAY LATE

NEW MEETING PLACE - START SAME TIME

F. V. E. A. A.

FOX VALLEY ELECTRIC AUTO ASSOCIATION
6542 Fairmount Downers Grove Il 60516

FIRST CLASS

ADDRESS CORRECTION REQUESTED

MINUTES OF THE FOX VALLEY ELECTRIC AUTO ASSOCIATION...APRIL 20, 1990.

The meeting was called to order promptly by Pres Shafer at 7:35 P.M.. at Cragin Fed. S/L.. This will be the last meeting at this location. There were 17 members present and 3 guests, Scott Douglas, Wayne Pritzel and Troy Peters.
Tres. V. Vana reported balances of $1,536.16 in the NOW account and $892. 19 in the savings account for a total of $2,428.35.
EVENTS: The following were reported upon.

EARTH DAY: Sunday April 22, 1990 in Lincoln Park. Exhibitors are to be, Richard Ness with his electric bike, Ray Oviyach with the Triton electric (ex club car), George Krajnovich, William Shafer, John Stockberger and John Emde. They will have their cars, M.I. self built URBA, DAAF, BRADLEY and SuBARU respectively. John Newton made a motion, which was seconded and passed unanimously, to accept Pres. Bill Shafer's "DECLARATION OF ENERGY INDEPENDENCE" ON behalf of the Association.

FATHERS DAY: June 14, 1990 thru June 16. 1990 at Yorktown Shopping Center " TOYS FOR DADS " theme of exhibits.

MONTGOMERY FEST PARADE. August 19, 1990 at Montgomery Illinois.

HERITAGE FESTIVAL, JUNE 23, 1990 Downers Grove, Illinois.

JULY 4th PARADE, AT WHEATON, Illinois.

The club declined an invitation to participate in the Woodale parade and the Pet parade in LaGrange, Illinois

Member Ken Woods is to give a speech at the Unitarian Universalist Church in Park Forest on May 5, 1990. Carl Swick will exhibit his vehicle.

General Motors information card was passed around to memberswho signed them on the IMPACT Vehicle. Pres. Shafer will forward them to G.M.

Pres. Shafer read a letter from Cragin Fed. informing us that we can no longer have the use of the meeting room. John Ahearn is trying to locate a new spot..maybe Mid America again. John Newton to try College of DuPage. Ken Woods to try Mid America in Naperville.

A motion was made by John Emde and John Stockberger to spend up to $40.00 for a placque to be presented to Cragin Federal for their courteous treatment and generous hospitality of our club in the past and good will in the future.

Pres. Bill Shafer to apply for a GRANT for a generator package for a vehicle to be put into one of our members' cars for testing and evaluation purposes.

A technical discussion followed on DC or AC power led by Pres. Shafer. He then fielded questions. John Newton gave us some of NEWTONS LAWS in helping out.

Pres. Shafer adjourned the meeting at 9:25 P.M.

Respectively submitted,

Paul P. Harris, Secretary

TRIB 4/28/90

I enjoyed your article on the GM Impact electric car (April 19). One of the handicaps electric cars have suffered is bad press. They're always compared with gas-powered cars. Electric cars don't have to perform like gas-powered cars. The electric is intended for short-haul, stop-and-go urban duty and doesn't have to go 100 m.p.h. where speed limits are 30 to 50 m.p.h.
C.K., Joliet

One reason electrics have gotten bad press is that most have been bad cars. It looks as though Impact might reverse that trend because it was designed specifically for battery power and isn't a gas-powered car converted to electric by adding a bunch of batteries. Electrics are compared with gas-powered cars because unless the battery-powered car has similar performance (speed and driving range), it would require the motorist to have two vehicles—one for short-haul urban use, the other for longer hauls and higher-speed suburban and rural travel. Buying one vehicle at today's prices is a formidable assignment; buying two would be prohibitive and defeat the purpose.

THE PREZSEZ

Beginning May 18th our new meeting place will be Building K at the College of DuPage (COD). See separate story and map for detailed information. Thanks to John Newton for making the arrangements, and to John Ahern for working on a couple of other locations in Wheaton, and to Ken Woods for his efforts in Naperville. I beleive we have maintained a central meeting location for the majority of our members.

We had a good Earth Day exhibit in Lincoln Park. Members Stockberger, Ness, Krajonivch, Emde and Oviyach joined me at the event. It was a long trip for some, but a lot more people know about our activity. (eds note: Seems a yellow elect. backed into a custom elect. No sparks however.)

Our first meeting at COD will be mostly getting to know our new facillity. In addition, we will have an open evening for reports on our club past and future activities, and discussion of individual project status.

Bill

FOR SALE
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MOTER - Continental Elect.
11.5 HP 57 V.D.C. 186 AMP
1500 RPM Compound wound
Unused $150.00

MOTOR - Westinghouse
.55 HP 27 V.D.C. 22 AMP
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300 AMP 3150/8000 RPM
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BATTERY CHARGER
36 Volt Lestronic II
Motive Power Charger
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FOR SALE
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Stockberger—Pinto

The batteries are carried in the trunk and partially up front with the motor. A standard transmission and clutch arrangement is used yielding 25 mph (40 km/hr) in first gear and 40 mph (64 km/hr) in second gear.

Speed control is accomplished through voltage switching in four steps from 12 to 48 volts. The car is capable of speeds in excess of 40 mph (64 km/hr) and acceleration from zero to 30 mph (48 km/hr) in 15 seconds. The approximate maximum range is about 40 miles (64 km)

Recharging is achieved with an on- board charger using a standard 15-amp, 120-volt electrical outlet.

WITH EXTRA MOTOR $1000.00

CALL: BOB KYP 708 469-8121
GLEN ELLYN

COVER STORY

High-voltage vehicles due this summer

Autos get jolt from energy, environmental concerns

By David Landis
USA TODAY

WASHINGTON — "Give it some gas," Jeffrey Woods instructs the driver of the van.

What he really means is press down on the accelerator. This is a prototype electric-powered van, but you wouldn't know it at first glance. Its body and chassis are the same as any GMC Vandura van. The difference is that it's powered by a 2,500-pound pack of 36 six-volt batteries built into the chassis — not a tank of gas.

Turn the ignition key, and the only sound you hear is the quiet whir of the auxiliary motor, which operates the power brakes and power steering. The main motor gives off a persistent loud whine when you give it "gas," but that irritant will be corrected in future versions.

Out on the highway, the van merges smoothly into traffic. It has a top speed of about 55 mph and a range of 60 miles between charges. "It's not a rocket ship, but it's very driveable," says Woods, an automotive engineer who is testing the van for Potomac Electric Power Co., which serves the Washington, D.C., area.

Fewer than 40 of these G-Vans, as they're called, roam the road, but that will be changing. The need for cars that neither pollute nor deplete the ozone has spurred new interest in electric-powered vehicles. After nearly a century of tinkering, practical, mass-produced electric-powered vehicles are nearly a reality. Some developments:

▶ This summer, factory production of the G-Van will begin. Sales of 1,500 are projected over the first two years, mainly to electric utilities, which hope the G-Vans will pave the way for widespread use of electric cargo and passenger vans. Price: $32,000 each.

▶ The Los Angeles Initiative, a program underwritten by Southern California Edison Co. and the Los Angeles Department of Water and Power, promises to put 10,000 electric vehicles on the road by 1995. They will include the G-Van; the TEVan, a Chrysler passenger van suitable for car pools, and a four-passenger car developed by an Anglo-Swedish firm. Most of the early electric-car owners are expected to be utilities and companies with commercial van fleets.

▶ General Motors Corp. recently unveiled a prototype of an electric-powered sports car, dubbed Impact. GM says it will decide in the next two months whether to put the car into production. The Impact is the first electric car with enough acceleration and range to challenge the internal combustion engine. GM says the Impact beat a Nissan 300ZX in acceleration tests, although Nissan disputes that. The two-seat Impact has a top speed of more than 100 mph and can go 120 miles without a recharge.

That's a big improvement over previous prototypes, but electric cars still don't have enough range to be useful to most drivers. A Honda Accord, for example, can go 510 miles on one tank of gas. Even though you can plug the Impact or the G-Van into a 220-volt outlet at home — the kind that you would plug your electric stove or water heater into — it takes up to eight hours to fully recharge the batteries. Recharging the G-Van takes about as much electricity as the average household uses in a day and a half; the Impact uses less because it gets three times as much mileage per kilowatt-hour. GM says the Impact's operating costs — including electricity and the $1,500 cost of replacing the car's battery pack every two years or 25,000 miles — are about twice those of a gasoline-powered car. The G-Van battery pack lasts four years or 30,000 miles.

Electric-car backers are undaunted. "We operate with the philosophy that Louis Chevrolet didn't start out in life building a Corvette," says Thomas Morron, a vice president at Edison Electric Institute, a utility trade group. "The electric-vehicle industry is in the early days, working its way toward the Corvette."

Actually, electric cars have been around for nearly 100 years. The top two finishers in the USA's first auto track race in 1896 at Narragansett Park, R.I., were electrics. But cheap and plentiful supplies of gasoline have for decades dimmed U.S. automakers' interest in electricity except for a few sporadic spurts of activity during the oil crises of the 1970s and early 1980s.

Concern for the environment is prompting a new sense of urgency about developing clean-running cars. "Automakers are going to have a really hard time meeting environmental requirements," says Gary Purcell of the Electric Power Research Institute, the main sponsor of the G-Van and TEVan projects. "I don't think the environmental crisis is going to go away."

Southern California is considering a timetable for increasingly strict auto pollution limits beginning in 1994. By 2000, virtually every new car sold in the region would have to be a "low-emission vehicle" — it could not emit more than a fraction of the smog-forming hydrocarbons that today's cars produce. Cars powered by methanol, compressed natural gas — even gasoline, with the help of a new-generation catalytic converter — could meet that low-emission standard. But the next standard, "ultra-low-emission vehicles" which would take effect sometime early next century, could only be met by electric cars, which produce no tailpipe emissions.

To be ready, developers of electric cars have a lot of work to do. The current generation, while using sophisticated engineering and materials, still is powered by an energy source that's been around since the turn of the century — the lead-acid battery. It's the same kind of battery that starts your gas-powered car, but on a much larger scale. The Impact's battery pack weighs 870 pounds — one-third of the car's 2,550-pound weight. Battery weight is one of the biggest barriers to be overcome.

But electric-car makers say they can't afford to wait around until a better battery is built. "If you don't get something into commercialization, you get stuck in a loop," Purcell says. "You can do R&D (research and development) forever. You've got to get that product into the market."

Also, U.S. carmakers must be mindful of foreign competition. BMW, Volkswagen, Nissan and Toyota, among others, have developed electric-car protytpes.

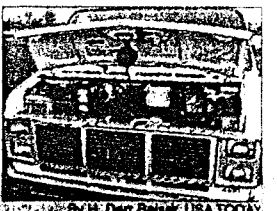
Light-duty delivery vans are the perfect pioneers because they don't travel great distances in a single day and are parked in a central area all night — which makes recharging convenient.

Although electric vehicles emit no exhaust pollutants, electric-generating plants — particularly coal-fired plants — can be big polluters. If power plants must burn more fossil fuel to keep electric cars running, the improvement to the environment is lessened. The electric utility industry hopes that when electric cars are in widespread use, though, most recharging will be done at night when demand for electricity is at its lowest levels. Using power during off-peak hours would mean that utilties might not have to build new power plants to supply a growing electric-car industry.

While vehicles such as the G-Van blaze the trail for electric cars, researchers around the world are trying to come up with another chemical combination for electric-car batteries. The TEVan will use a nickel-iron battery, which will give it a range of 120 miles and a top speed of 65 mph. Meanwhile, Ford is developing an Aerostar van powered by a sodium-sulfur battery — considered the most promising type of car battery because its ingredients are cheap and long-lasting. That and a more efficient alternating-current drivetrain — G-Van and Impact have direct-current drivetrains — could produce a van with a range of 150 to 200 miles. Also, the battery would last for 120,000 miles or more.

There's a catch, though: Sodium-sulfur batteries are very volatile and must be kept at a constant temperature of 662 degrees Fahrenheit. Researchers now are working on containment systems that will keep the battery hot and its users safe. Ford believes it can get its sodium-sulfur-powered Aerostar van, dubbed ETX-II, on the road by the mid-1990s.

ELECTRIC AUTOS CHARGE AHEAD

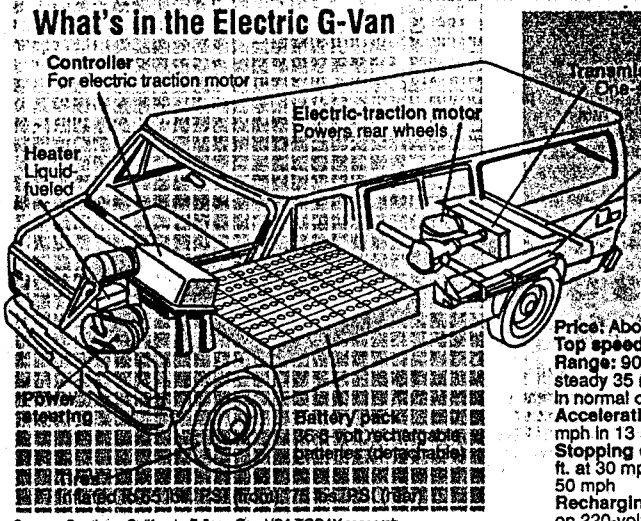


By H. Darr Beiser, USA TODAY

The G-Van looks like an ordinary GMC Vandura van on the outside, except for the battery pack that protrudes below the chassis. It will be built by a Canadian firm, Vehma International, and will be sold and serviced through GM's dealer network.

Under the hood: New gadgets like a battery-pack charging plug and a battery watering and venting system.

What's in the Electric G-Van



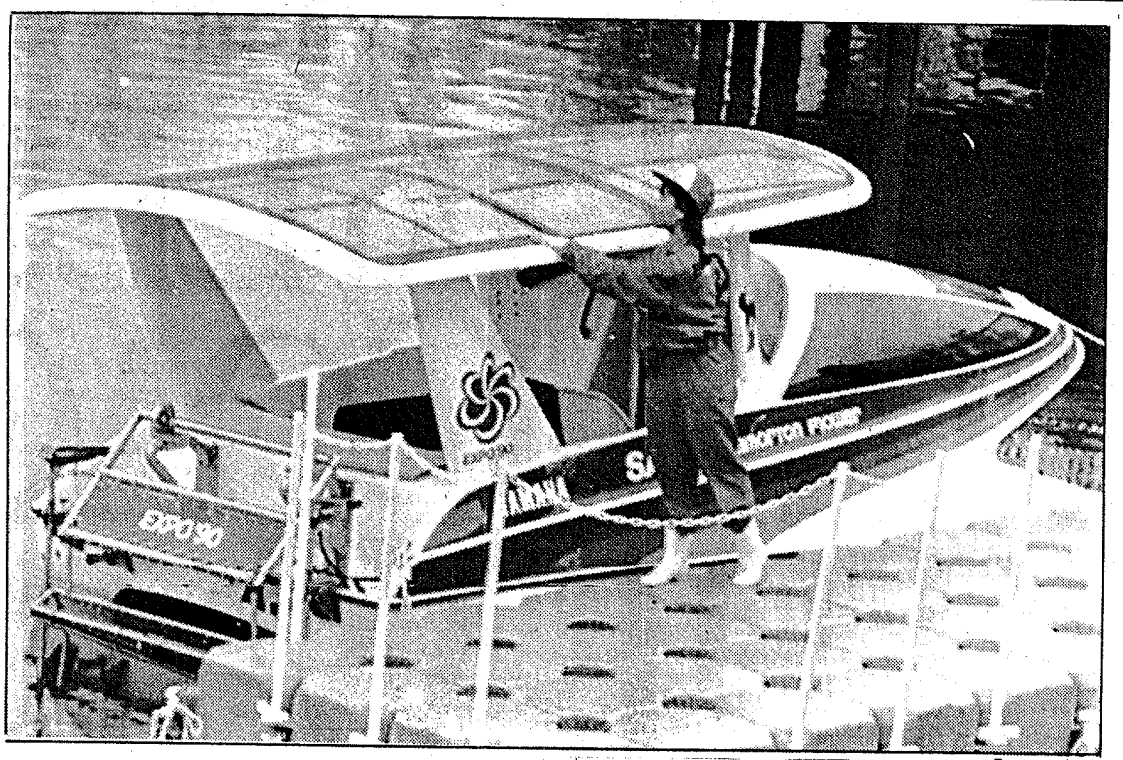
Price: About $32,000
Top speed: 55 mph
Range: 90 miles at steady 35 mph, 60 miles in normal city driving
Acceleration: 0 to 30 mph in 13 seconds
Stopping distance: 52 ft. at 30 mph, 168 ft. at 50 mph
Recharging: 8 hours on 220-volt outlet

Source: Southern California Edison Co.; USA TODAY research

By John Sherlock, USA TODAY

COVER STORY

Electric auto surge



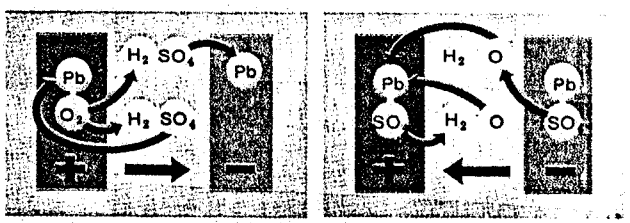
Reuters photo

Motorboat making waves

Chicago Tribune, Tuesday, April 3, 1990

Yuka Nagata tries to figure out a motorboat unveiled by Sanyo Electric at Osaka Expo. The low-speed boat is powered by a silicon solar cell and runs on solar-generated electricity stored in a rechargeable battery, eliminating pollution from engine exhaust.

HOW A BATTERY WORKS



Power for an electric car, in its present stage of development, comes from the lead-acid battery design that provides electricity in your automobile. The schematic drawings above show a battery cell as it is discharging—that is, producing electricity chemically *(left)*—and as it is being recharged *(right)*, which reverses the reactions and returns the battery to its original chemical state. A standard 12-volt battery has six cells, each of which works the same way.

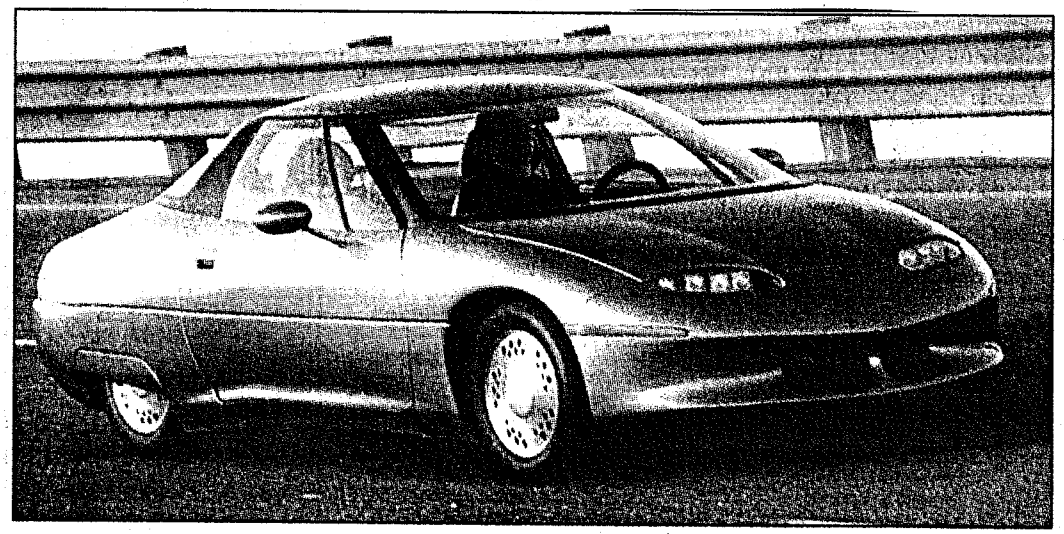
A battery cell has three basic components: positive plates made of lead peroxide (PbO_2), negative plates of pure lead (Pb), and a solution called electrolyte that contains water and sulfuric acid (H_2SO_4). When the cell is producing electricity, a chemical reaction takes place: the sulfuric acid reacts with the lead in both plates to form lead sulfate ($PbSO_4$). The interaction between the plates and the acid creates a flow of electric current *(straight arrow pointing right)*.

At the same time, however, the oxygen (O) from the positive plates joins the hydrogen (H) of the electrolyte to produce water (H_2O). As discharging continues, this manufactured water dilutes the electrolyte until eventually it halts the chemical reaction—and the production of electricity.

The cell must then be recharged. Electricity from an outside source reverses the discharging procedure *(straight arrow pointing left)*. The electricity breaks down the lead sulfate and water into their basic chemicals, which regroup into their original chemical structure. Now the cell can begin generating electricity again. Eventually, however, the chemically active materials erode and the battery can no longer accept a charge.

Recharging is slow and inconvenient. Some new battery designs, however, may yet make possible an efficient electric car.

GM gives go-ahead to electric car



A 2-passenger prototype of the General Motors Impact battery-powered car

By Jim Mateja
Auto writer

General Motors Corp., shifting into an environmental gear along with other major companies in advance of Earth Day, made it official Wednesday: It will produce an electric car.

GM went one step further, assuring that the battery-powered car will have all the power and none of the pollutants of gasoline-powered vehicles.

The giant automaker said the electric car, called Impact, will equal the performance of gasoline-powered vehicles by accelerating from zero to 60 m.p.h. in 8 seconds and reaching a top speed of 100 m.p.h., but will emit no pollutants.

With its announcement, GM joined a number of corporations that have been promoting their contributions to saving the planet, or at least conserving its resources, as Earth Day (Sunday) approaches.

GM Chairman Roger Smith said the battery-powered Impact will help clean the nation's air, though he refused to clear the air on certain particulars about the car. He wouldn't provide such details as when the car will be built, how many will be assembled and by which GM division, whether the subcompact will seat two or four and the price tag.

A prototype Impact, a 2-passenger, battery-powered car, was unveiled at the Chicago Auto Show in February. It was an immediate hit with energy conservationists and clean-air advocates.

Despite the promise of zero emissions, the Impact has drawbacks, most notably the need to pause for two to eight hours to recharge the batteries, on a normal 110- to 220-volt circuit, after 125 miles of travel. Then there is the hefty expense, $2,000 to $3,000, of replacing, after only 25,000 miles, the 32 10-volt batteries that power the car. Still unanswered is the question whether those discarded batteries can be recycled.

To increase driving range and stretch the battery replacement mileage, GM has been considering making Impact a hybrid; that is, a battery-powered car that also has a small gasoline engine.

If that were done, the driver would have the option of switching to gasoline to extend the 125-mile travel range. It also could extend the life of the 32-battery pack.

Smith said GM's goal is to be the first automaker to mass-produce electric cars that perform as well as gas-driven vehicles. He attributed his refusal to discuss details of the vehicle to "competitive purposes."

Ford Motor Co. and Chrysler Corp. have prototype electric vehicles under development, Ford a battery-powered Aerostar mini-van and Chrysler a battery-powered Plymouth Voyager mini-van.

Ford long has said it favors battery-powered vehicles for commercial use, such as delivery trucks used during the day that can be plugged in for a battery charging at night.

Chrysler says its battery-powered vehicle is technologically feasible, but it hasn't been proven that such a vehicle is economically feasible. Chrysler questions whether there would be enough demand to justify production.

This isn't the first time GM has vowed to bring out a battery-powered car. In the early 1980s, the automaker announced plans to build an electric car after producing a prototype Electrovette, a subcompact Chevrolet Chevette with batteries replacing the gasoline engine. However, the car never made it into production.

When asked why Impact had a chance when Electrovette didn't, Smith said the difference was that Impact was designed to be an electric from the outset, not a battery conversion like the Electrovette.

Smith wouldn't discuss price. However, in an interview with the Tribune in February, Donald Runkle, a GM vice president for advanced engineering, said, "$20,000 is a back-of-the-envelope number for now."

Smith said GM has set "an aggressive schedule in order to pull along the technological developments that we still need," which include applying for nearly a dozen patents on innovations in electronics, motor design, structural materials, tires and batteries.

Smith also said GM must work with federal officials to determine whether the same safety rules that apply to gasoline-powered cars will apply to electric cars. GM also wants the government to come up with a formula giving automakers credits toward meeting federal fuel economy requirements by building battery-powered cars.

"We may need to review and adjust the regulatory structure to recognize the new technology involved in an electric car," Smith said.

Observers believe Smith can't set a specific date to bring out Impact because GM still hopes to extend the driving range and prolong battery life.

Runkle had said that 25,000 miles of battery life might be a bit on the high side.

"The 25,000 miles isn't a bad number if you drive 30 miles a day, but if you drive 60 miles a day, you could lose half that 25,000-mile life," he said.

GM has been considering leasing or renting batteries to electric vehicle owners to help reduce replacement costs and foster demand for the vehicles. But that wouldn't help driving range.

Runkle also said GM was considering building a handful of battery-powered Impacts to undergo consumer testing. In 1962, Chrysler conducted such a test of 50 cars equipped with a gas turbine engine. The test proved unsuccessful, and the project was dropped.

Smith wouldn't comment on a test program.

Making waves against Japan

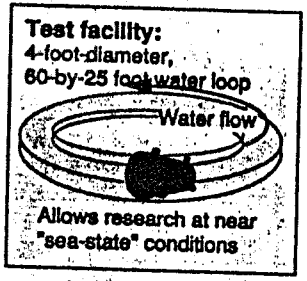
By Jon Van

Americans and the Japanese are in a boat race, and first prize may be a new technology that would power ships and submarines more quickly, quietly and efficiently.

If successful, the technology could lead to cargo submarines that would cross oceans on the surface or underwater to avoid storms.

Instead of using propellers, the new technology, which has no moving parts, harnesses the physical properties of magnetic fields and electricity to pump water through a tube, using the water much like a jet plane uses air, sucking it in the front of the tube and pushing it out the back to propel the vessel forward.

The technology was conceived and tested in the U.S. more than 20 years ago, but it languished until Japanese engineers recently started building prototype boats based upon it.



Now the federal government is sponsoring an effort it hopes will leapfrog Japanese research and put this country back in the contest to develop technology that may usher in a new generation of water transportation.

The Japanese are following the traditional path to technology development, building small-scale prototype boats to study how this new jetstream sea power system, called magnetohydrodynamic (MHD) propulsion, works. In the U.S., however, researchers are pinning their hopes on equipment that was lying around unused, a victim of America's on-again, off-again approach to research funding.

The world's largest superconducting dipole electromagnet, built at Argonne National Laboratory at Lemont eight years ago for $12 million, will be used for the first time to study actual conditions when large amounts of water are pumped through a water jet.

MHD propulsion works by running an electrical current through water positioned in a tube in a powerful magnetic field. Force lines set up between the current and the magnetic field push the water out the back of the tube. If the current flow is reversed, so are the lines of force, and the water is pumped in the opposite direction.

Argonne researchers will get $4 million from the Defense Department to construct a large water loop that will run water through a cavity in the center of their big magnet.

The water tunnel, four feet in diameter, will provide a setting much like what a ship or submarine might use for one water jet pump, said Argonne's Michael Petrick, who is directing the research.

The apparatus, which should be set up within a year, will give researchers a full-size laboratory for the study of how fast the electromagnetic system can pump water, what corrosive effects the electrified water may have and other real-life characteristics of the system.

The Japanese plan to launch a 150-ton ship powered by MHD thrusters next year. Their effort is still scaled down from a full-size propulsion system, said Petrick, so the information gleaned from Argonne research should be more relevant to what could be expected for a production model submarine or ship.

The Argonne magnet was built for research to improve the efficiency of generating electricity by burning coal. Researchers planned to drive superheated coal gas through powerful magnetic fields to generate electricity directly, but by the time the magnet was built, the Reagan administration withdrew funding.

This new seapower technology provides the Argonne magnet with a useful research role for the first time.

"It's very cost efficient," Petrick said.

Tom Taylor, acting director of naval technology for the Defense Advanced Research Projects Agency, which is funding the research, said his agency hopes the Argonne work will demonstrate that magnetic propulsion is feasible for military and commercial use.

"The fact that the Japanese are doing it gave us some interest," said Taylor, "but that wasn't the overriding consideration. What the Japanese have done is on a very small scale. We want to know how this will work on a large scale. Also, it gives us a chance to cash in on this magnet that is already available."

Because magnetic water jet propulsion has no moving parts, the new technology should move boats and submarines through the water at greater speeds, with higher efficiency, researchers say. Also, this propulsion is certain to be quieter, less disruptive of sea life and perhaps more trouble-free than conventional systems.

As long ago as 1958, Stewart Way, an American engineer working at Westinghouse Electric Corp., designed plans for a magnetic propulsion system. In the 1960s, after Way began teaching at the University of California at Santa Barbara, he made it a class project to build a small submarine to demonstrate the technology.

Way's class made a tube 10 feet long, 18 inches across and weighing 900 pounds from $1,600 worth of materials. It worked, with the craft attaining a speed of 2 knots.

Improvements in superconducting magnets have come largely as a result of the needs of Fermi National Accelerator Laboratory at Batavia, where the world's most powerful atom smasher relies on such magnets. The advances have made magnetic propulsion feasible and attracted the attention of the Japanese, who also are building a superconducting electromagnetic levitating passenger train.

The technology being developed at Argonne and in Japan is based on low-temperature superconducting materials that offer no resistance to the flow of electricity once they are cooled to within a few degrees of absolute zero.

Magnetic water jet propulsion

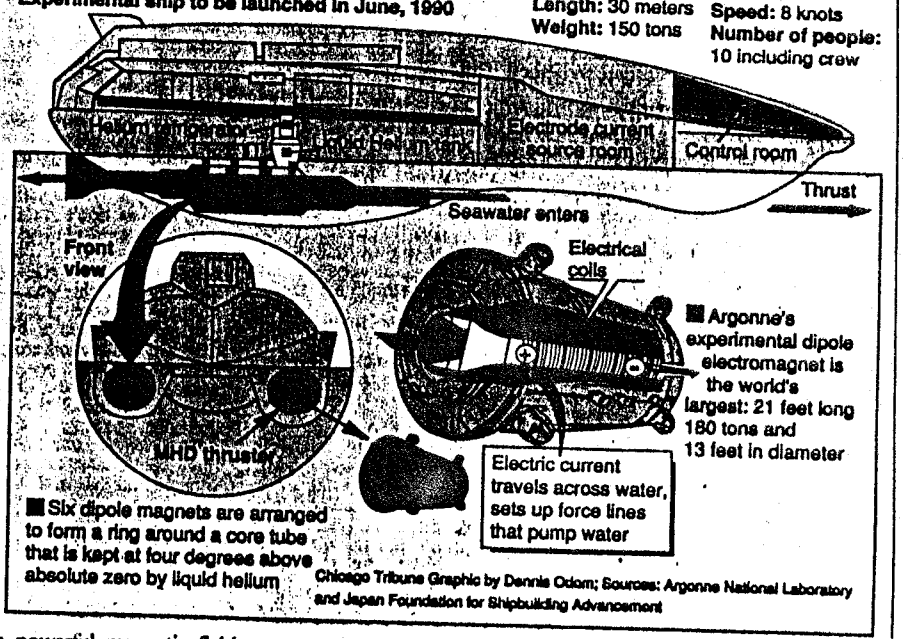
Revolutionary propulsion system for marine vessels could eliminate all moving parts, including propellers and motors.

Magnetohydrodynamic (MHD) propulsion is a system that uses a superconducting magnet to exert a powerful magnetic force on seawater passing through a duct in the magnet. The seawater is expelled as a water jet, which propels the vessel.

How it works: As the seawater flows through a duct surrounded by a superconducting magnet, an electric current is passed across the water in the duct and the resulting electromagnetic force drives the water out the back, creating forward motion.

Japanese MHD propulsion system vessel
Experimental ship to be launched in June, 1990

Length: 30 meters
Weight: 150 tons
Speed: 8 knots
Number of people: 10 including crew



Chicago Tribune Graphic by Dennis Odom; Sources: Argonne National Laboratory and Japan Foundation for Shipbuilding Advancement

A Tinkerer's Dream: Fueling Up the Car At the Burger King

* * *

Effluent of Deep-Fat Fryers Powers Auto Converted By Ecologist Wichinsky

By AMAL KUMAR NAJ
Staff Reporter of THE WALL STREET JOURNAL

MONTICELLO, N.Y.—To the white-haired septuagenarian at the wheel of the 1979 Volkswagen Rabbit, this is the ultimate joy ride.

After rounding a bend, the driver guns the engine. The speedometer inches toward 75. The foliage is resplendant. And the autumn air is as crisp as . . . a french fry?

"Smell it," says the driver, sniffing the fumes from the tailpipe with great satisfaction. "It's as good as gasoline. Right now, you're riding in the world's only vegetable-oil car."

We are riding with Louis Wichinsky, environmentalist and tinkerer. He aims to take vegetable oil from the deep-fat fryer to the fuel tank, because he believes vegetable oil to be less polluting than highly touted alternative fuels such as methanol and ethanol. In his dreams, he sees millions of cars converted to run on vegetable oil.

Filtering Out the Fries

Veggie cars are reliable and get good mileage. Mr. Wichinsky's Rabbit typically gets 54 miles to the gallon, roughly the same as it gets on diesel fuel. He has gone as far west as Las Vegas cruising on vegetable oil. Best of all, in Mr. Wichinsky's view, vegetable-oil cars give off no toxic emissions.

Vegetable oil isn't exactly cheap. At $2.60 a gallon wholesale, it costs more than twice as much as gasoline. But the frugal mechanic has come up with a way to power his car with *used* oil, courtesy of his neighborhood diner and the local Burger King.

Fueling up is a bit more problematic—he has to heat the oil and filter out the stray fries. Recycled oil, though messy, has several advantages. It's free. Filling stations are as accessible as the nearest fast-food joint. And the national diet being what it is, supplies are usually plentiful.

"The only thing you have to adjust to is the smell of a McDonald's on your tail," says Richard Sapienza, a chemist at Brookhaven National Laboratory in Upton, N.Y., who has studied the combustion of vegetable oil. Mr. Sapienza says that vegetable oil, when burned, doesn't give off the sulfur dioxide or hydrocarbons that gasoline does.

Louis Wichinsky

The outing with Mr. Wichinsky starts with a pit stop at the Miss Monticello Diner, near his home in Hurleyville. He is a regular, though not at the lunch counter. Typically, he heads for the drums of discarded oil behind the diner, but he is out of luck today. The drums are nearly empty.

Down the road is the Burger King. But when Mr. Wichinsky lifts the lid of the restaurant's dank dumpster, all he finds is an empty waste-oil container. A company that recycles oil for industrial uses has beaten him here.

Fortunately, Oscar Patton, manager of the Miss Monticello, comes to the rescue with two quarts of salad oil. "Louis, you're back again," Mr. Patton says, wrinkling his nose. "I can smell that french fry coming down the road."

Mr. Wichinsky is used to being seen as an oddball. A lifelong tinkerer, he has invented a bagel-making machine (3,600 bagels an hour) and an egg separator. Neither was a big commercial success, but the inventor says he isn't in this business for fame, glory or financial gain anyway.

Protecting the environment is a top priority. One of his current projects is a receptacle for plastic waste that would dispense cash prizes. Basically, he has attached a Bally's slot machine to a dumpster. "You need some incentive" for people to recycle plastic, he says.

Mr. Wichinsky first went vegetable during the oil crisis of 1973. Back then, he recalled that Rudolf Diesel, the late German inventor, had tried vegetable oil while running various fuels through his engine in the early 1900s. But the oil tended to clog the fuel injectors, bringing the engine to a sputtering stop. Mr. Wichinsky says he has solved that problem by injecting into the engine doses of a "super cleansing agent," a mixture of methanol and water.

His Rabbit is the fourth car he has modified to date. A switch under the steering wheel allows the driver to shift from diesel fuel to vegetable oil, which is stored in a 12-gallon tank in the trunk. The cost to convert: less than $100.

As the Rabbit whirs along Route 42 Wichinsky flicks the switch from veget oil to diesel and back to oil. The car doesn't flinch. But Mr. Wichinsky isn't satisfied. "I don't like this batch of oil," he says. "The idle is a little too erratic, not as smooth as peanut oil."

"The best is rapeseed oil," he muses in the tones of a connoisseur. Rapeseed is used to make lubricants, specialty plastics and an edible oil.

Mr. Wichinsky doesn't expect to see the nation's auto dealers plugging veggie cars anytime soon. Before mass-marketing his device, he wants the approval of the federal government. He recently submitted his designs to four government agencies, but he hasn't heard back yet. The U.S. Department of Energy's Office of Energy-Related Inventions says that his innovation "is under technical evaluation."

Vegetable oil faces tough competition from other alternative fuels, most notably methanol, which is made from coal or natural gas and burns cleaner than gasoline. General Motors Corp., Ford Motor Co. and Chrysler Corp. are manufacturing cars that can run on methanol or gasoline. Tougher clean-air laws enacted by several states, including California, will take effect over the next few years.

Other auto companies and manufacturers of alternative fuels are pushing even more exotic fuels, such as liquid propane, hydrogen and butanol, which can be made from molasses or corn. Several makers of photovoltaic cells continue to promote solar-powered autos. Mr. Wichinsky believes that vegetable oil is more practical than these fuels. Hydrogen, for instance, is highly explosive.

It's time to fill 'er up again. Mr. Wichinsky pulls up in front of Finkelstein & Schwartz, a food wholesaler outside Monticello. He strides past stacks of industrial-size cans of Idaho Mashed Potato, Heinz ketchup, All Trumps Enriched Bromated Flour, and Glorietta Apricot Nectar until he gets to the stockpile of Admiration Pure Vegetable Oil. A five-gallon container is $13.

The high price of vegetable oil doesn't bother Mr. Wichinsky, though. Prices would drop if certain states—say, New Mexico, Arizona and Texas—were ordered to grow nothing but rapeseed, he says. Growing oil beats importing it, he figures.

Cruising on Admiration Pure, Mr. Wichinsky breezes down a dirt road and pulls up in front of an old concrete and stone barn owned by his friend, Otto Tolski. Here on his 50-acre farm, Mr. Tolski is growing a test patch of rapeseed for Mr. Wichinsky.

The tiny yellow flowers on three-foot high plants glow in the sunlight. Some plants are already sprouting thin shoots full of tiny dark-brown seeds. "I would like to take these seeds and toss them into every empty field," Mr. Wichinsky says.