

December 1984

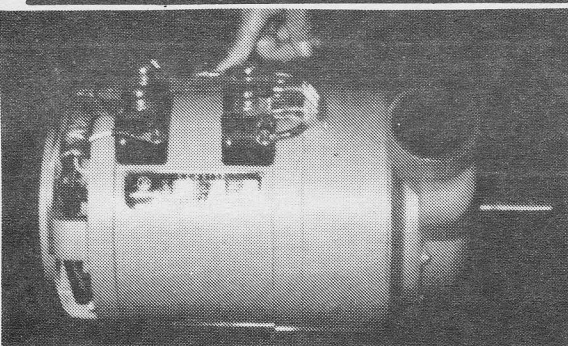
Association

VOL. XVI NO. 12

SLOW BOAT FROM CHINA ARRIVES!!



BY *Shari Prange*



At long last, the China Motors are here! After five years, the first motor designed specifically for electric vehicles is a reality.



The China Motor was originally designed by Roy Kaylor in 1979, using a Jack & Heintz G23 aircraft generator as a basis. Unable to find a manufacturer in the U.S., Kaylor finally made an agreement with the Beijing Motor Works to produce the motor.

The project passed through several hands and finally came to Michael Brown of Electro Automotive. Mr. Brown has spent the last two years arranging the financing and negotiating with the Chinese to set up an initial production run of 25 motors.

Four prototype motors were individually produced by the Beijing Motor Works at the beginning of the project. Three of those have been installed and tested in vehicles and run satisfactorily: One in a hybrid Starlet in southern California, one in a VW bug which ran in the '84 rally in Sunnyvale, CA, and one in a Datsun pickup which ran in the '82 and '83 Sunnyvale rallies, and is now in the final stages of hybridization.

The China Motor is an improvement over aircraft generators in many respects. It's quieter and produces higher hp at lower (more usable) rpms. It has two separate shunt fields that can be set up in series or parallel. The motor is reversible, and has an extended driveshaft allowing connections for hydraulics, hybridization, or other options. It has a large air plenum for improved cooling.

With the Chinese production facilities now in operation, the China Motor will be easier to get than the increasingly scarce aircraft generators. Also, since it retains the same output shaft and mounting, it can serve as a direct bolt-on replacement for a generator.

With the arrival of the China Motor, Electro Automotive carries a complete line of electric vehicle components. In addition, Mr. Brown has recently added 750 sq. ft. of shop space to his facilities, to be used for electric vehicle repairs, conversion, and research and development.

For further information about the China Motor or Electro Automotive, write to: Michael Brown, Electro Automotive, 5040 Scotts Valley Dr., Scotts Valley, CA, 95066, or call (408) 438-3606 weekdays.

WHERE ARE ALL THE EV'S?



Yes, where are the 10,000 Electric Autos the D.O.E. 160 million dollar ELECTRIC AND HYBRID VEHICLE PROGRAM was to put on the roads by 1986? Except for a few prototype cars built at cost of many millions, there is very little to show of any consequence.

Ford's Manager of Strategy for New-Product Concepts Richard Morrisseft says, "We weren't particularly excited about the demonstration project. I happen to believe in free enterprise, and I hate to see the government involved in any facet of our business."

The lackadaisical efforts of the auto people to promote the Electric Auto are nothing but a ploy to pacify the government and hoodwink the people. We are more convinced than ever that they are fighting to keep the Electrics in the background and would do anything to deter others from getting them on the road.

Henry Ford II has said "I don't see the Electric Car as a feasible method of transportation in my lifetime."

Lee Iacocca of Chrysler has said "I've had so much experience with Electrics, all bad. WE put millions into Electric Cars at my former employer (Ford) and we never could cut it. Electric Cars need a breakthrough like a polio vaccine almost. You have to have a battery that really does the job. Once you have the battery, the car will follow. Until then forget it. In this century, no way."

When you consider and analyze a few reasons, you can see why the auto companies will not or should not be self-assertive in advancing the Electrics.

Remember, the top officials in a company are holders of large blocks of stock not only in the auto firm but also may have many shares in the oil companies. They are not about to do anything that will jeopardize their dividends or earnings-like a no-gas car.

Reason #1 It is claimed that an auto plant will not set up an assembly line unless assured of yearly sales of 100,000 units of a single model. Such a market for Electrics at this time is most unlikely.

Reason #2 Detroit's tremendous investment in the piston engine is perhaps the strongest deterrent to a widespread takeover by electric power in the near future.

Reason #3 After-market sales. Thirty to forty billions are spent in the U.S.A. alone each year for auto parts like spark plugs; carburetors; filters; alternators; fuel and water pumps; starters; hoses; fan belts; mufflers; in addition to many other parts. Electric autos do not require such replacement parts.

Reason #4 When consumers revolt because of high new car prices and sales drop, prices on parts for the older cars can be increased to compensate profit wise.

Reason #5 Effect on used car prices and sales. If a sizable percentage of the 27 million families in America who own two or more cars were to get an Electric Auto as a second car, instead of keeping their old car when trading for a new car, the used car market would become flooded and prices could plunge, thus reducing profits.

Reason #6 Effect of dependable, long life of electric motors. While many people would purchase Electric Autos because they believe they contribute to eliminating air-pollution, conserving the country's energy pool and improving the international imbalance of payments, the auto people while admitting to the benefits of the Electric Auto may fear a loss in sales because the motoring public will keep the electrics longer.

Reason #7 Effect of competition. With plants operating under capacity, the auto companies are not in a position to give birth to another competitor of their own volition. They have enough competition already, trying to keep ahead of foreign makers without pushing battery-power cars.

Space-Age Fuel Cell Provides Power for San Francisco Office Building

A device that provided American astronauts with electricity in space is being used by PG&E to provide electricity and hot water for a large state office building in San Francisco.

The device is called a fuel cell and PG&E is testing one to get a better idea of cost and efficiency on earth.

PG&E has installed a 40-kilowatt package plant powered by fuel cells in the six-story office building at 350 McAllister Street.

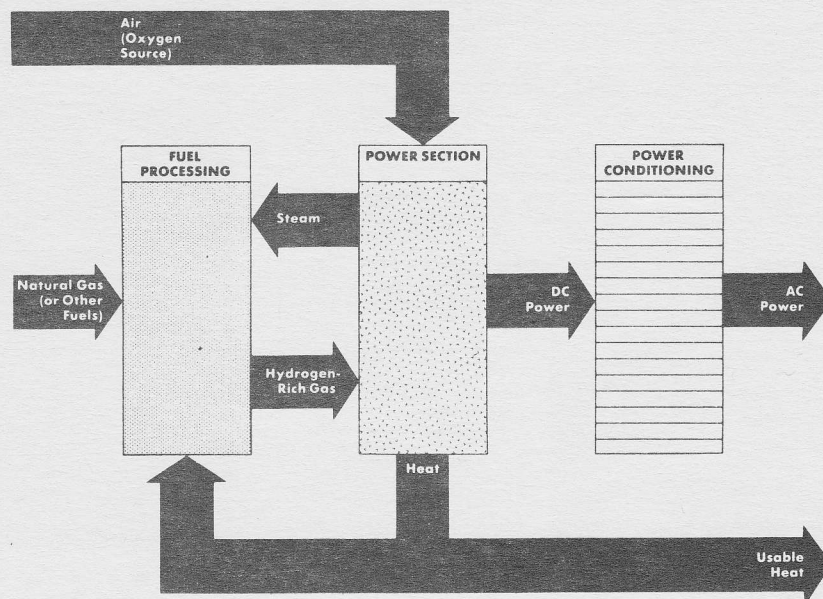
The building houses the State Supreme Court and offices of several agencies, including the Franchise Tax Board, Board of Equalization and The California Public Utilities Commission.

In a residential setting, this unit would be able to meet the average needs of about 40 typical family homes.

The fuel cell package plant weighs about 8,000 pounds and is nine feet long, about five feet wide and stands six and a half feet high.

The heart of the plant consists of stacks of fuel cells. Each uses an electrochemical process to combine hydrogen with oxygen to produce cogenerated electricity, heat and steam, as shown in the diagram on this page.

Direct current electricity from the fuel cells is converted



This diagram shows how a fuel cell generates power.

to alternating current for customer use. The heat from the process is captured and used for water heating in the building. And the steam is piped to another part of the small plant where it converts natural gas to hydrogen-rich gas needed to sustain a reaction in the fuel cells.

The fuel cell plant operates quietly and emits no pollutants. It is also highly efficient in extracting usable energy from fuel, attaining cogeneration efficiencies of 80 percent compared with about 35 percent in large conventional power plants.

Installation and operation of the fuel cell package is sponsored by 30 participating com-

panies. Funds for research and development for the fuel cell power plant program come from the Gas Research Institute and the U.S. Department of Energy.

When the research is completed and large scale production can begin, the cost of energy generated by fuel cells will be competitive with other methods of generating electricity currently being used in PG&E's service territory.

The state building is one of 45 field sites throughout the United States, Mexico and Japan where the fuel cell plant is being tested.

'85 Calendar Coming Events

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For Car of Future, Go West, Young Man

PASADENA, Calif.

From wood-paneled wagons of the 1950s to muscle cars of the '60s, sun roofs of the '70s and minivans of the '80s, California leads America down the highway.

Car manufacturers recognize that fact and use the Golden State to test new concepts and come up with fresh ideas in automotive design. Such Japanese auto makers as Toyota, Nissan, Honda, Mazda, Subaru, Mitsubishi and Isuzu have opened design centers in California. General Motors and Chrysler established advanced-design centers in 1983; Ford, last January. Several

California offers car makers another reason to pay close attention: It is the fifth-largest auto market in the world. Manufacturers call Californians more open-minded, style conscious, status seeking, brand disloyal and pragmatic than buyers anywhere else in the country. "This is a marketing battleground," remarks Chrysler executive Tom Flanagan.

California blazed the trail for the success of gasoline-thrifty foreign imports in the 1960s, when Detroit dismissed the trend as a passing fad. Today, almost half of all new cars sold in California are imports, compared with 22 percent for all of the U.S.

American auto producers were somewhat encouraged last year by a slight decline in imported cars' share of the California market. Ford attributes its swift jump from fifth to first place in the California market for domestic makes to the acceptance of its aerodynamic and innovative new models.

California buyers currently are snapping up 22 percent of all the turbocharged Ford Thunderbirds, 19 percent of all the new Lincoln Mark VII's and nearly a third of all Ford Mustang convertibles.

"Niche cars." What new automotive trends are developing in California? The minivan is seen as ultimately replacing the working-class sedan. And there is a move

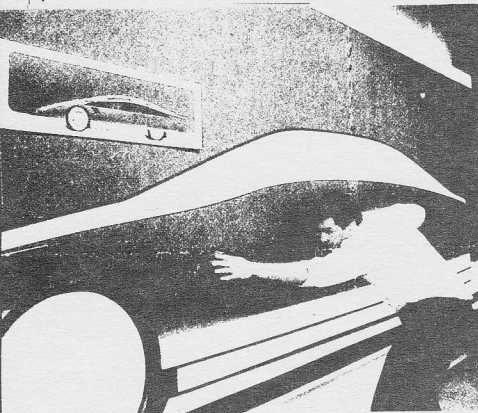
toward specialty cars.

"We're seeing a rebirth of 'niche cars' such as convertibles, stretch limousines and 'woody wagons' that sell only 25,000 or 30,000 a year," says John Pinko, a Chrysler design specialist.

Experts also note the upward sales curves of "blackout" European-style sporty sedans—devoid of ornamentation—supereconomy vehicles and small cars that offer both performance and economy, such as the Pontiac Fiero. They see a shift toward the "less is more" economy car—small, fuel efficient and full of sophisticated innovations.

However it might look, chances are that the car of tomorrow will be conceived and approved first in California's car-crazy culture.

By K. M. CHRYSLER



Student at design school in Pasadena puts finishing touches on a streamlined automotive prototype.

leading European manufacturers are on their way.

"It's not just what's being done in California but what is accepted here," explains Richard Hutting, a designer under contract to Ford. Keith Teter, chief of industrial design at Pasadena's influential Art Center College of Design, puts it this way: "Californians are more receptive to changes big and small—and this is a car culture." A Japanese executive says, "To us, California represents the New World."

What intrigues these observers is the state's unique mix of people and places. Within a short driving distance, Californians can reach beach, desert, mountains or forest. They spend more time in their cars, more money on their cars and more energy caring both for and about their cars than most other Americans.

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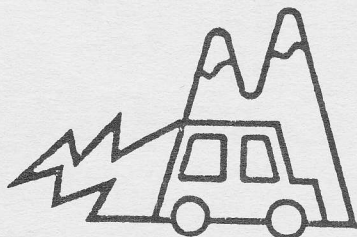
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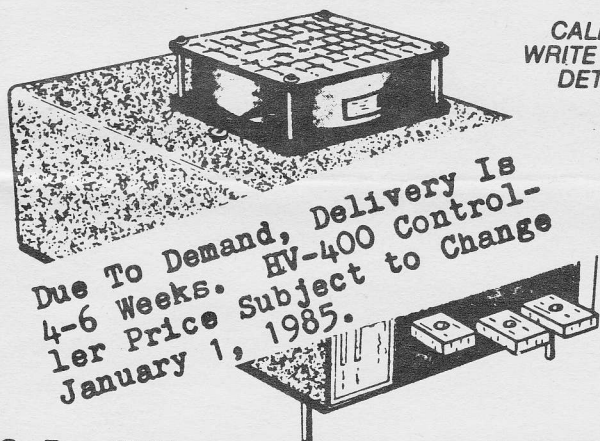
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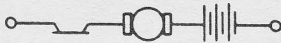


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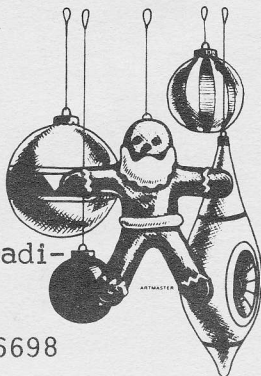
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tional Merry Christmas Party.

CALL: Lydia (415) 591-6698



British Post Office

80 new EV vans

In Britain the Post Office has ordered 80
battery-electric vans. 40 Sherpas from
the British Leyland subsidiary Freight
Rover, and 40 Bedford CF units. Also,
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