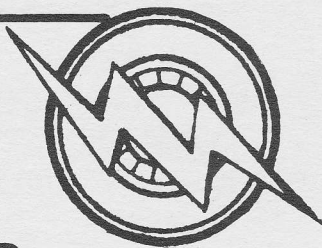


Electric
Auto



NEWS

AUGUST 1985

Association

VOL. XVII NO. 8

EXPO 86 COMMUNIQUE

13th
INTERNATIONAL

ANNUAL

SYMPOSIUM
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JOSEPH CALLAHAN ON THE

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JOHN ANDERSON

METAL HYDROXIDE BATTERY

ERWIN

ULBRICK UPDATE ON TEST

OF SEVERAL
BATTERY TYPES

HANDOUTS ON STATUS OF ADVANCE BATTERY SYSTEMS
DIRECT FROM CONTRACTOR

ELECTR[⚡]CS AL[⚡]VE [⚡]N '85[⚡]



ELECTRIC VEHICLE ASSOCIATION OF CANADA

SUITE 500
275 SLATER STREET, OTTAWA, ONTARIO K1P 5H9

TELEPHONE (613) 236-2497

EXPO '86

TRANS-CANADA ELECTRIC VEHICLE RALLY

BASIC CONCEPT

Introduction

The Electric Vehicle Association of Canada (EVAC), in consultation with Expo '86 officials and prospective industrial and individual participants, has decided to organize a trans-Canada rally for vehicles utilizing electricity as their main means of propulsion. This can include vehicles using batteries only (e.g. lead-acid, nickel-iron, sodium-sulphur, lithium, fuel-cells, aluminum-air, etc.) or various hybrid configurations (petrol-battery, propane-battery, CNG-battery, etc.).

Scope

Expo '86 is an international event. Accordingly, the EV Rally is open to participants and sponsors from any country of the world.

Timing & Format

The starting time of the rally has been chosen, along with the format, to ensure that the vehicles can reach the Expo '86 site during Alternative Fuels & Power Week (AFPW), August 11-16, 1986. An appropriate exhibition can be arranged on-site, as well as a series of seminars on EVs.

- Starting time in Halifax, N.S. will be on the 27th July, 1986. Finishing time will be in Vancouver on 11 August, 1986, for a total of 15 days.
- All vehicles will attempt to meet at selected staging points along the route, as indicated in the attached itinerary;
- Vehicles can proceed between staging points either under their own power (e.g. hybrids, extended battery operation, etc.) or otherwise (towed, carried, etc.);
- At each staging point, an appropriate public event, including possible exhibitions, parades, rides, interviews with various media, etc. will be organized;

Note: Those having been able to proceed from point to point under their own power should be able to reap additional publicity!
- At the termination point (Expo '86 site), participants can engage in exhibitions, rides for the public, seminars, etc.

Involvement in the Rally can consist either as an actual participant or as a sponsor. EVAC will cooperate fully, as needed, in bringing prospective sponsors and participants together.

Conditions of Participation

Except for good planning, design, hard work and resources, all that is required for participation is that EVAC be notified of your intention to participate and your agreement to conform as closely as possible to the proposed format:

EV Rally Coordinator
EVAC
Suite 500, 275 Slater Street
Ottawa, Ontario
K1P 5H9

Further Information

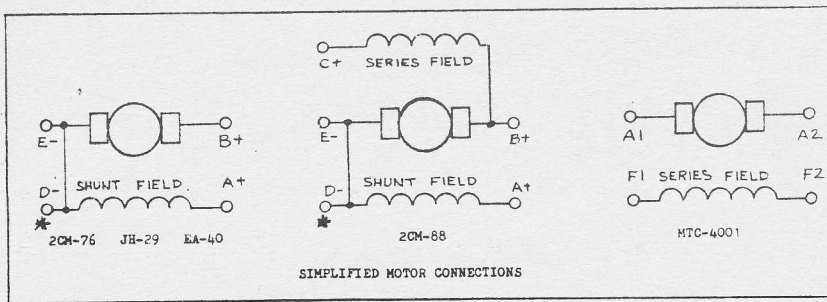
All persons or organizations which will have notified EVAC of their intended involvement will be provided with additional information (hotels, motels, refuelling and recharging points, sources of replacement parts, etc.) in due course.

COURSE SUMMARY

Day	Start City	Distance		Estimated Road Time
		Miles	Km	
1	Halifax, N.S.	330	528	7 hours
2	Fredericton, N.B.	380	608	8 $\frac{1}{2}$
3	Quebec City, P.Q.	167	267	3 $\frac{1}{2}$
4	Montreal, P.Q.	124	198	2 $\frac{1}{2}$
5	Ottawa, Ont.	257	411	5 $\frac{1}{2}$
6	Toronto, Ont.	408	653	9
7	Sault Ste. Marie, Ont.	441	706	10
8	Thunder Bay, Ont.	440	704	10
9	Winnipeg, Man.	354	566	8
10	Regina, Sask.	167	267	3 $\frac{1}{2}$
11	Saskatoon, Sask.	336	538	7 $\frac{1}{2}$
12	Edmonton, Alta.	183	293	4
13	Calgary, Alta.	413	661	9 $\frac{1}{2}$
14	Kamloops, B.C.	285	456	6 $\frac{1}{2}$
15+	Vancouver, B.C.	Vehicle display at Expo '86		

Notes:

- Days on the road 15
Longest lap 441 mi./706 km
Shortest lap 124 mi./198 km
Average lap length 306 mi./490 km
- Biberonage points will be arranged on all but the two shortest laps.
- Meetings with various media (including U.S. and other international, where possible) will be arranged wherever practical.
- The possibility of a common vehicle for spares, tools, etc. is being examined.
- Public display, rides etc. will be arranged where practical.



WHAT MOTOR CHARACTERISTICS DOES YOUR CHOSEN CAR REQUIRE?

SH-1 converts loaded gross vehicle weight into required thrust values.

SH-2 converts thrust values vs tire dia. to drive axle torque values

SH-3 Convert required axle torque vs. ratios to required transmission outlet torques.

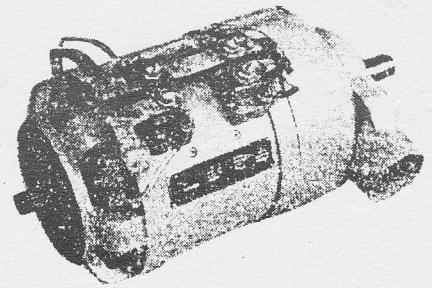
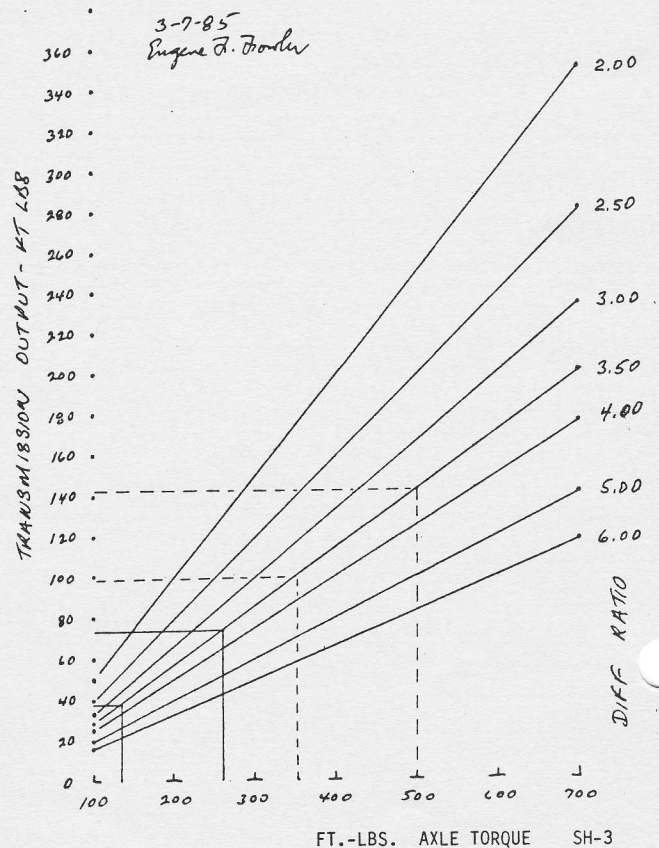
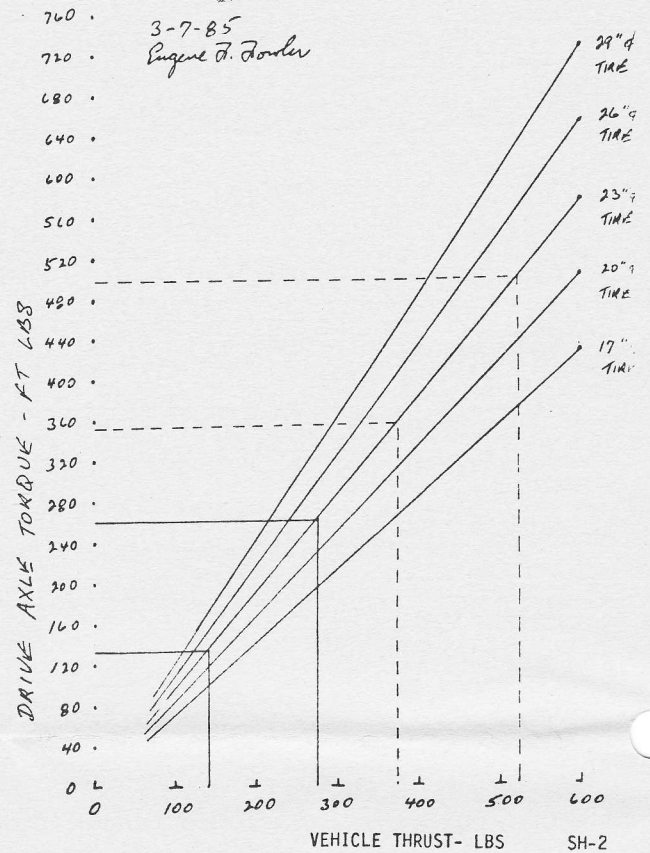
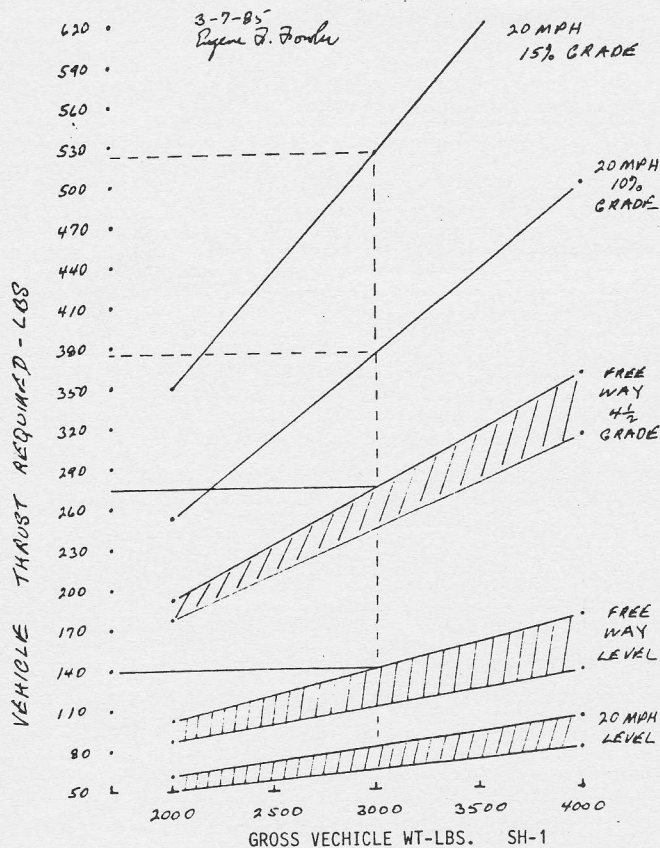
SH-4 Converts required transmission outlet torque vs gear shift ratios to required motor torque.

SH-5 Converts deff. gear ratio and tire dia. to transmisson outlet speeds in revs. per mile.

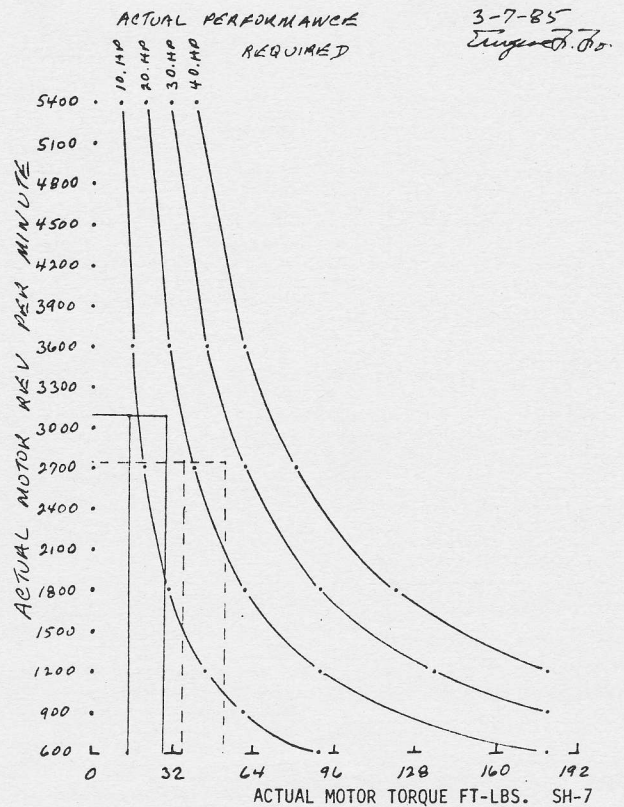
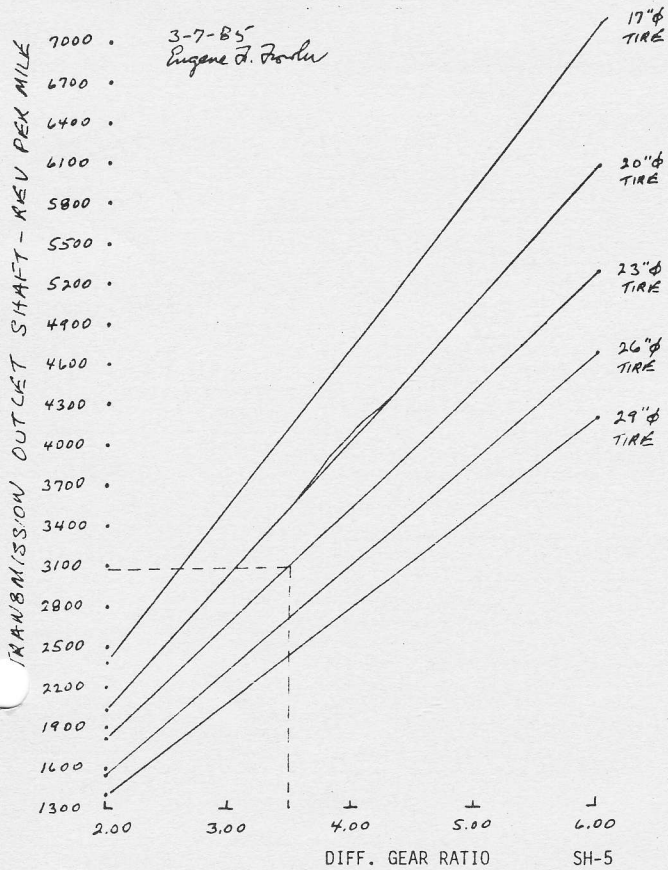
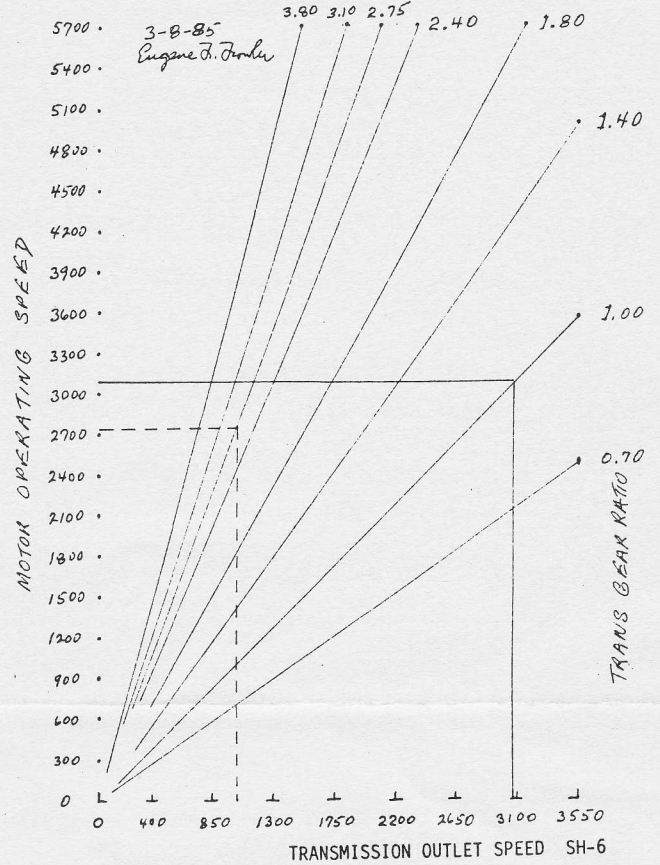
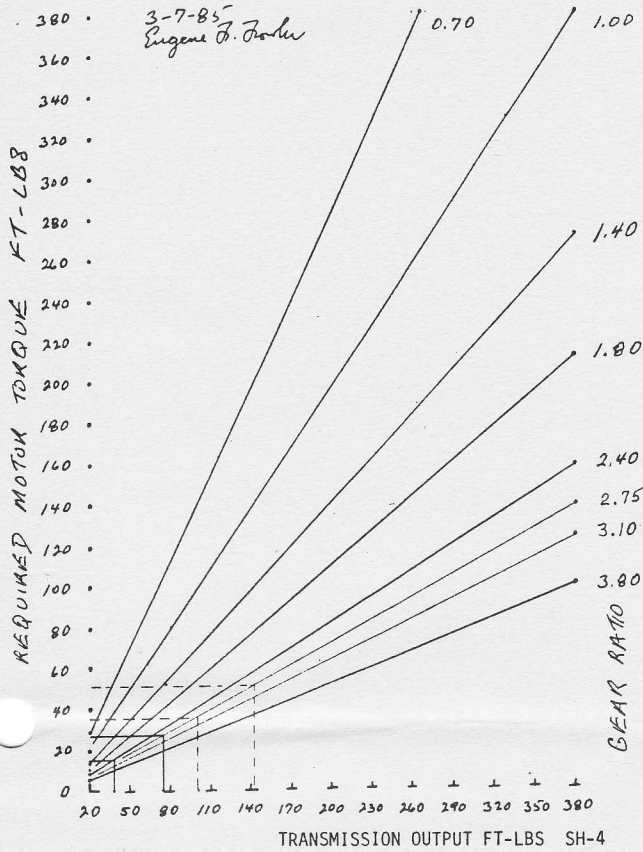
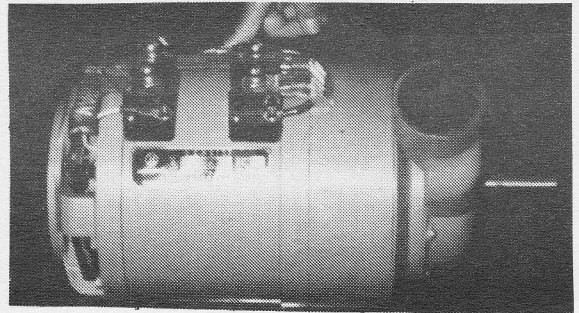
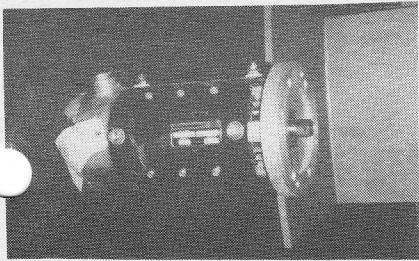
Sh-6 Converts transmisson outlet speed to motor operating speed in various gear ratios.

SH-7 Relates actual motor load torque and actual motor operating speed to actual HP motor load.

Note: Plot the actual dynamic limits of the motor you are considering on this graph by Gene Fowler 3/85

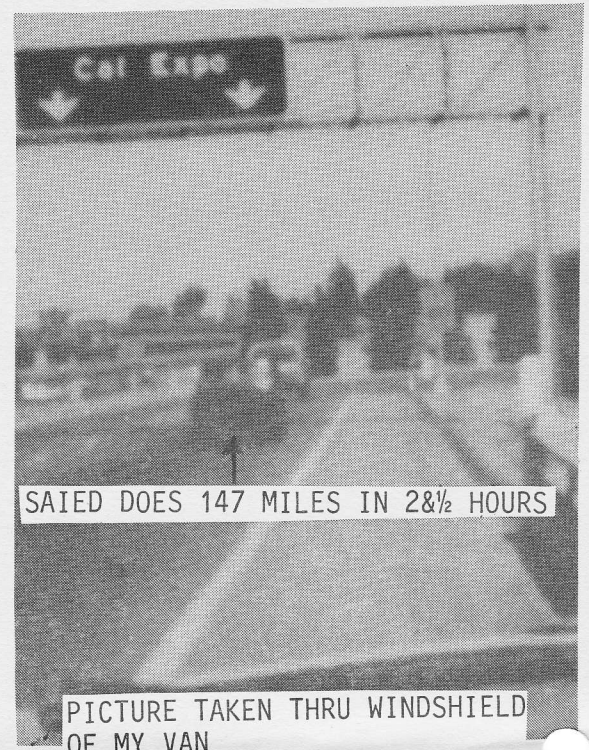
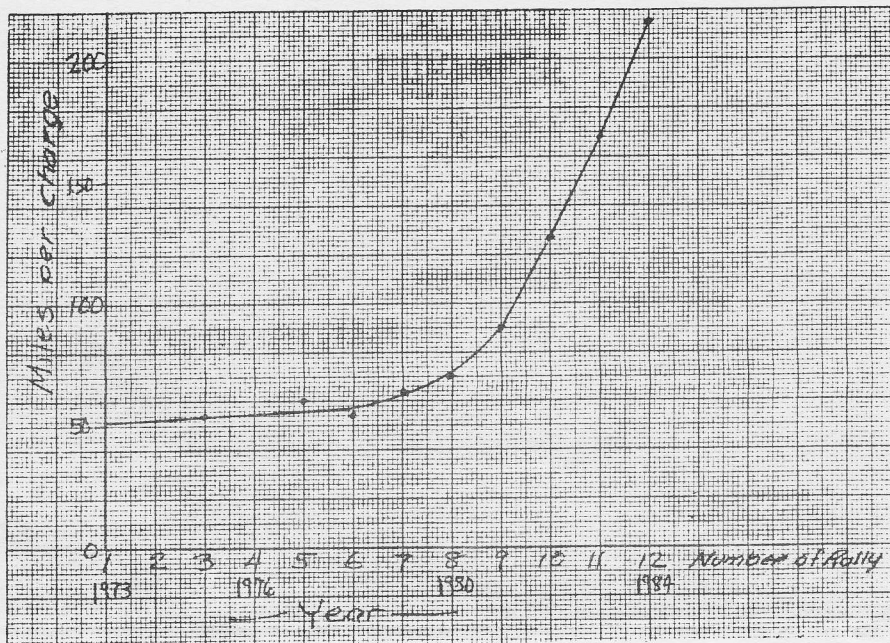


GENE FOWLER
ON MOTORS
CON'T.



WE NEED SOME PEOPLE WITH THE OLD PIONEER SPIRIT TO TAKE A SHOT AT THIS TRANS-CANADA RUN, PLEASE CONTACT ME ASAP. CLARENCE

1986----4,285 MILES



PROGRESS IS OUR MOST IMPORTANT ACCOMPLISHMENT, GRAPH BY FRANK WILLEY

Amps from aqua

People who live next to a small stream or creek can probably use the running force of the water to generate part of their electricity, thanks to John Hawthorne, founder of Northwest Energy System, Malone, WA.

Hawthorne's idea for generating hydroelectricity for himself and a few friends turned into a business when he developed the HP-1000 and formed NWES in 1979.

The HP-1000 is a vertical shaft turbine utilizing one jet that normally generates about 250 continual watts in most installations. It was a small start in the alternative energy business and sales reflected a small demand.

"Sales were 21 units during 1980, and between 56 units and 67 units through 1983," explained Hawthorne.

"So far (by mid-November) I have sold 123 units during 1984," he added.

Hawthorne attributes the recent spurt in growth to several factors. First, he developed a new model, the HP-2000, that incorporates a horizontal shaft utilizing four jets. This has made his line of turbines more adaptable to various water venues and increased wattage by 33%.

Along with a better product, Hawthorne attributes the higher

sales to "increased consumer awareness, more people know about hydro and I have advertised more."

This awareness also includes a spillover effect from other renewable technologies. Hawthorne is quick to point out: "Photovoltaics has helped a lot. Many people who bought PV systems wanted to augment them during the short sunshine months in the winter. Since Western Washington has lots of running water and rare freezes in the winter, hydroelectricity was the perfect adjunct to a PV system."

Next year, Hawthorne plans to "duplicate sales again." After 1985, he sees the possibility for a decline in business if no new products are introduced. He is prepared.

The pioneer in small hydro development has already developed a new line due to debut next spring. Hawthorne says the new system will not improve so much functionally, but the "look of the product will change dramatically" adding to customer appeal.

Hawthorne sees a continued market growth but emphasized that money was not his most powerful motivating force.

"I'm in business for the planet," and "I'm just lucky that I found something to do and enjoy the work," he said. The HP-2000 system, including alternator and associated parts, costs less than \$450.

12A Thursday, May 9, 1985 ■ San Jose Mercury News

Study drastically lowers U.S. oil reserve estimate

Washington Post

WASHINGTON — The Interior Department, after four years of dry holes and disappointing exploration, has lowered its estimate of recoverable oil in the nation's offshore waters by more than half.

The new calculations, not published although they were completed more than three months ago, indicate that 55 percent less oil and 44 percent less natural gas are beneath the sea than was estimated in 1981.

In the so-called "frontier" areas off Alaska, where the massive Prudhoe Bay discovery once fueled hopes of almost limitless domestic supplies, the estimates dropped even more precipitously.

Interior's new estimates were revealed Wednesday in an Office of Technology Assessment report warning that the nation may be heading for more trouble as oil imports rise and domestic reserves dwindle.

'Earth-shattering'

The report was prepared for a House Merchant Marine and Fisheries subcommittee hearing today on federal leasing law, and a panel aide called it "a little bit earth-shattering."

and would increase the trade deficit."

Astounded by estimates

The OTA researchers also said they were "astounded" by Interior's new estimates, forwarded last February when the report was still being prepared.

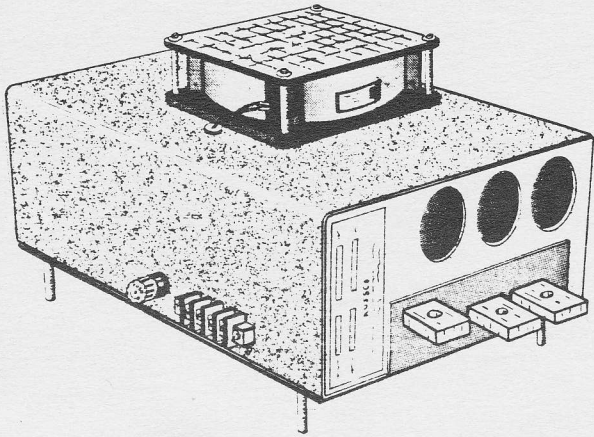
"When we were talking about revisions (to offshore leasing law) in 1973, industry was talking about these grand resources offshore," said James W. Curlin, who directed the OTA project. "The assumption was that our domestic resources were simply there for the taking. Now we had better start looking at the alternatives."

But industry representatives discounted the new calculations, contending that the department did not consider data from recent deep-water discoveries in the Gulf of Mexico and off California.

"If these figures were reflective, companies would not be acquiring leases and accelerating exploration," said Steve Chamberlin of the American Petroleum Institute.

He acknowledged, however, low industry interest in once-promising frontier areas. "That's because they haven't found anything yet," he said. "They are going where they can realize a return on their investment sooner — the Gulf and California."

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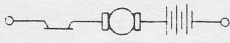
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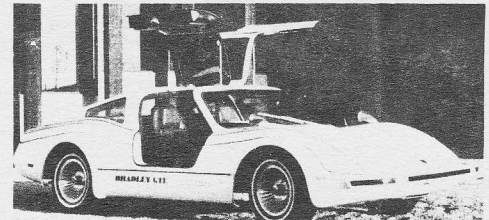
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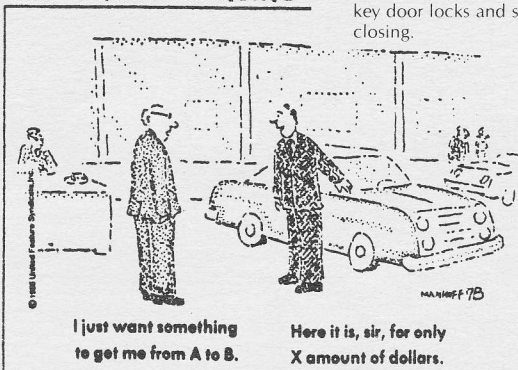
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INTERNATIONAL

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Call the contact person for meeting times and places.

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1st - 3rd october 1985

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Italy '85 - Sorrento

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AUGUST 1985

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