

FEBRUARY 1989

MEETING NOTICE

The next meeting will be Feb. 17th, at CRAGIN FEDERAL SAVINGS & LOAN 333 W. Wesley St. Wheaton, Ill. -Time - 7:30 P.M. sharp. Guests are welcome and need not be members to attend the meeting.

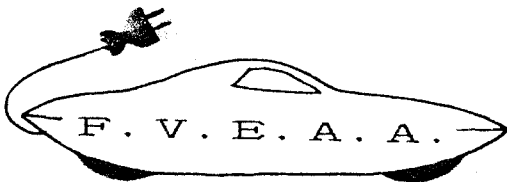
THE PRES SAYS

I was glad to see a resolution of the Club Fiat question. Member Frank Delmonico is correct in his observation that this topic has occupied entirely too much time at our meetings. The decision to first offer the car for sale will give any interested club member or other person the opportunity to acquire an electric car that has lots of work invested in it. Sale would also bolster our club treasury for possible purchase of an engine and other parts if we decide to build a petro-electric car.

At our February meeting we will formulate our plans for the May 6th Rally at Triton.

I plan to distribute a summary paper on the petro-electric design status and we can resume discussion of this matter if I can find time from my reelection campaign.

Bill



FOX VALLEY ELECTRIC AUTO ASSOCIATION 624 Pershing St. Wheaton, Il 60187

FIRST CLASS

ADDRESS CORRECTION REQUESTED

MINUTES OF JANUARY 29, 1989 MEETING

There were 15 persons at the first 1989 meeting of the FVEAA.

Treasurer Vana reported \$ 1103.11 in the checking account and \$ 835.32 in the savings account.

Member Shafter announced that new member Henry Setton had purchased Len Fisher's car and moved it back to Illinois. We hope that Len will retain his electric car interest.

There was a discussion of the paper(s) to be presented at the National Consumer's Week April 27th program sponsored by the Chicago Use Energy Wisely Committee and others. Their program calls for simultaneous sessions beginning at 1:00 PM at the State of Illinois Center in Chicago and at Moraine Valley Community College. Members Shafter and Woods agreed to prepare the paper with Bill presenting the paper at the Chicago session and Ken the paper at Moraine Valley.

Several members have agreed to have their cars available for exhibit on the 27th. Bill agreed to have his remodeled DAF and to request Mr Ohba to furnish one of his Escorts at the Chicago program. Members Vana and Emde will try have their vehicles at Moraine. Member Krajnovick may have a new motor in his car by this time also.

There was considerable discussion concerning the future of the Club Flat. Four options emerged:

1. Junk the car after salvaging the electrical components.
2. Repair the car and continue to make it available for member use.
3. Donate the car to Triton as-is.
4. Offer the car for sale.

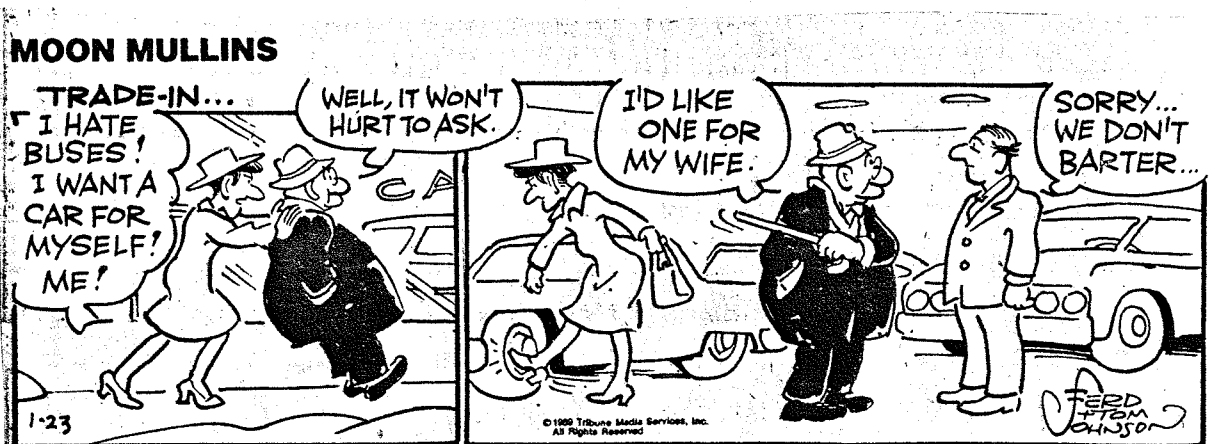
It was moved by Member Delmonico and seconded by Member Ness that the car be offered for sale for 60 days. The minimum sale price was set at \$2000. The motion was approved by a 12-3 vote.

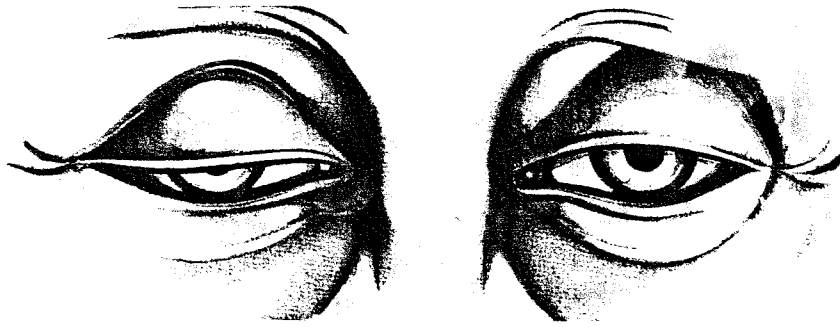
There was a brief discussion of a Spring rally at Triton. The date selected was May 6th which is before Triton classes are concluded. This will assist in getting the student SAE Chapter attendance.

Secretary Pro-Tem

*Bill Shafter*

PHONE #	Y/N ?	MEMBER	ADDRESS	CITY	ST	ZIP
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312 228-5952	Y	DALE COREL	595 GATES HEAD NORTH.	ELKGROVE VIL.	IL	60007
312 544-6312	Y	FRANK DELMONICO	5629 BOHLANDER AVE.	BERKELEY	IL	60163
312 968-2692	Y	JOHN EMDE	6542 FAIRMOUNT AVE.	DOWNERS GROVE	IL	60516
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312 968-2486	Y	ALEXANDER GLOWIAK	101 RUMSEY RD.	WESTMONT	IL	60559
312 877-7290	Y	HENDLY HALL	530 LAWN DRIVE	LOVES PARK	IL	61111
312 232-0344	Y	EVERETT HARRIS	214 NEBRASKA ST.	GENEVA	IL	60134
312 674-6632	Y	PAUL HARRIS	9421 N. KILDARE	SKOKIE	IL	60076
312 484-0525	Y	RALPH JOHNSON	P. O. BOX 232	RIVERSIDE	IL	60546
312 282-4828	Y	THOMAS KAMINSKI	4828 W. WARWICK	CHICAGO	IL	60641
312 834-0370	Y	GEORGE KRAJNOVICH	17W381 EISENHOWER RD.	OAKBROOK TER.	IL	60181
312 534-2686	Y	JOHN KRUEGER	10 LOCUST PL BOX 102	MONEE	IL	60449
312 437-0453	Y	DONALD KUBICK	249 ARLINGTON HTS. RD.	ELKGROVE VIL.	IL	60007
312 850-7246	Y	LAD KUCERA	8 ARTHUR AVE	CLARENDON HIL	IL	60514
XXX XXX-XXXX	Y	RAY E. MALLORY	P.O. BOX 115	ATTICA	NY	14011
312 742-2052	Y	CHARLES MILLER	156 S. WESTON	ELGIN	IL	60120
312 293-3497	Y	JERRY MITCHELL	4517 LILAC	GLENVIEW	IL	60025
312 759-8033	Y	DANA MOCK	154 DENVER DR.	BOLINGBROOK	IL	60439
317 784-8661	Y	PHILLIP MULLIS	325 WOODHILL DR	INDIANAPOLIS	IN	46227
312 584-6057	Y	KENNETH MYERS	1303 INDIANA	ST. CHARLES	IL	60174
312 889-7757	Y	RICHARD NESS	2129 N. NARRAGANSETT	CHICAGO	IL	60639
312 469-3434	Y	JOHN NEWTON	22 W 450 AHLSTRAND DR.	GLEN ELLYN	IL	60137
312 560-0715	Y	RAYMOND OVIYACH	16800 LARAMIE AVE	OAK FOREST	IL	60452
219 874-3171	Y	HAROLD PASCHACK	1400 ELSTON ST.	MICHIGAN CITY	IN	46360
312 255-1665	Y	FRANK PIETROLDONARDO	1122 E. THOMAS ST.	ARLINGTON HTS	IL	60004
312 XXX-XXXX	Y	BOB RANDERSON	25 S. SPRING	LAGRANGE	IL	60525
312 485-0334	Y	HENRY SETTON	3625 ARDEN AVE.	BROOKFIELD	IL	60513
312 383-0186	Y	WILLIAM SHAFER	308 S. EAST AVE	OAK PARK	IL	60302
312 879-0207	Y	JOHN STOCKBERGER	29643 NELSON LAKE RD.	BATAVIA	IL	60510
312 429-4955	Y	CARL SWICK	7550 WILLOWOOD CT.	ORLAND PARK	IL	60462
313 994-5151	Y	JAMES TWINING	3535 DELHI-OVERLOOK	ANN ARBOR	MI	48103
312 246-3046	Y	VLADIMIR VANA	5558 FRANKLIN	LAGRANGE	IL	60525
312 420-1118	Y	KENNETH WOODS	1264 HARVEST CT.	NAPERVILLE	IL	60565





# FATIGUE FIGHTERS

You've probably felt it... that lagging feeling that strikes in the midst of a long drive.

Your eyelids grow heavy; you may experience a drifting sensation; things seem slightly out of focus;

sounds seem a bit muffled; you find it difficult to focus on the road ahead. It's fatigue.

Studies show that some 1 in 4 automobile accidents occur because of fatigue. It becomes more probable

after you've spent more than ten hours on the road in one day. And the likelihood of falling asleep at the wheel increases with the driver's age.

Commonly used fatigue fighters include caffeine pills, cola and coffee. While these may give you a temporary lift, they can be dangerous if you plan to continue driving. That's because they can wear off unexpectedly and leave you feeling **more** tired than before you took them.

Be aware of how a long drive affects your body and your mind. Take good care of yourself — it's important for the safety of your family, not to mention you.

## Stay-Alert Tips

The best tonic for driver's fatigue combines a good night's sleep, shorter driving times, and frequent rest stops. Here are a few other fatigue fighters:

- Stop at **least** every two hours and take a break.
- Eat lightly before a long trip. Big, heavy meals tend to make you drowsy.
- During the winter, take off heavy outerwear or cut back on the heat inside your car. Too much warmth can make you sleepy.
- Listen to the car radio to keep you alert and sing along with the music; it will keep you involved!

# Customize your car with TURN LIGHTS!

By HERB GILL

Just bolt on two accessory lights that are activated by your turn signal lever. A simple circuit keeps them lighted while you're turning.

YOU CAN BE as up-to-date as those luxury-automobile owners by installing a pair of side-looking turn lights on your car. These, in case you haven't guessed, are those white lights on the sides of the front fenders that go on when the turn signals are blinking to light up the road into which your car is turning.

You can't connect these lights to the regular turn switch or blinker without having them blink, too, but a time-delay system in the circuit will keep them turned on continuously. The control system described here uses a capacitor across a sensitive relay coil to keep the circuit closed while the other lights blink.

During the "on" period of the blinker, the capacitor is charged to full voltage through the diode. When it's "off," the diode blocks return of the electricity through the coil, holding it energized.

All control components can be mounted in a small plastic box placed anywhere under the hood of your car. A point near the horn relay is good since battery power for side lights can be easily picked up from the hot side of the horn relay.

The drawing at right shows the positioning of all of the parts in the box. The frames of the relays are hot and, consequently, so are mounting screws. For this reason, the relays should not be mounted on the bottom of the box where the screws could short to the car body.

Connect the parts by following the pictorial diagram. Be sure to observe the polarity of the diodes and of the capacitors. For a negative-ground system, the positive end of the diodes must be on the relay side, and the positive end of the

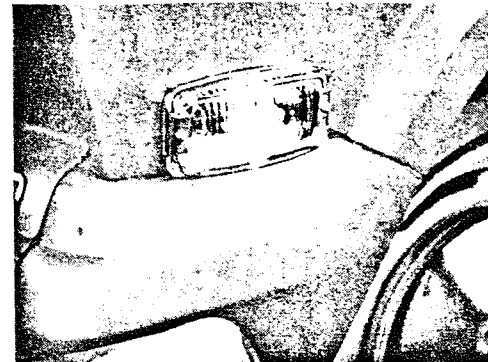
capacitor must be on the diode terminal of the relay coil. For a positive-ground system, both the diodes and the capacitors must be reversed. The parts list specifies the components to be purchased specifically for 6 or 12-volt systems.

There are probably many choices of suitable lights. Of the two I am familiar with, the simplest to mount is the J. C. Whitney unit shown above. This unit mounts flush and requires only three holes. The light comes in kit form with enough wire to make all the connections.

The light should be mounted on the fender so the main beam is horizontal or slightly below; too high a beam will glare in another driver's eye, and too low a beam will not be effective. To be sure of adequate light, use a 21-candlepower bulb.

You can connect the 12-v.d.c. terminal of the control box to the headlight circuit, in which case the side lights will only work when you headlights are on; but if the circuit is connected to the horn relay, the side lights will work at all times.

Cement the capacitors and the diodes to the bottom of the chassis box with nonhardening cement so vibration will not break the leads. Then seal the lid of the control box thoroughly to keep out dust and water. ★★★

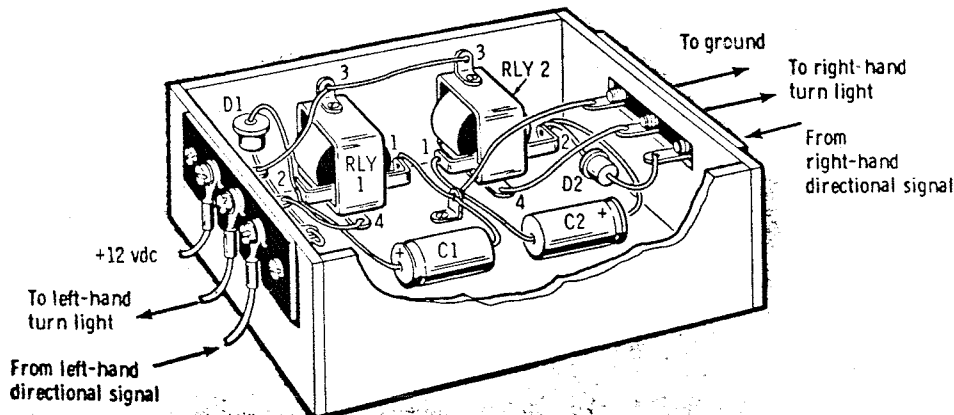
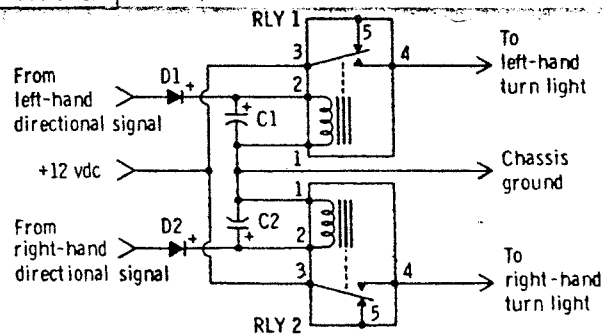


TURN LIGHT shown here is actually one of a pair of flush-mount, backup lights from J. C. Whitney

## PARTS LIST

C1, C2—Electrolytic capacitors: for 12-v. system, 150 mfd., 15 v. (Allied Radio 4386634 or equiv.); for 6-v. system, 600 mfd., 6 v. (Allied 4386490 or equiv.)  
 D1, D2—Diodes: 250 ma., 50 v. or higher (1N536, 1N537, 1N3491, 1N3492 or equiv.)  
 RLY1, RLY2—Relays: for 12-v. system, Sigma 11F-1500-G/SIL (Allied 41E5070 or equiv.); for 6-v. system, Sigma 11F-1000-G/SIL (Allied 41E5068 or equiv.)  
 Turn lights—J. C. Whitney & Co., backup-light kit, No. 89-2865 (12-v. system) or No. 89-2864 (6-v. system) or equiv. Address: 1917 Archer Ave., Chicago 60616  
 Misc.—Two 3-screw terminal strips, plastic case, 4x3x1 1/4", and cover (Allied 4287895 and 428896, respectively), hookup wire hardware, solder

WIRING DETAILS appear in schematic diagram form and pictorially. Parts list, above, specifies source of lights, relays and capacitors for either 6 or 12-volt electrical systems. All other parts, including diodes, can be used with either voltage. In operation, capacitor C1 or C2 energizes relay RLY 1 or RLY 2 during the time the directional turn signal is not flashing. In this manner, the battery voltage is supplied to the appropriate turn light continuously for as long as your directional signal turn lever is in a left or right-turn position.



# A TECHNOLOGICAL REVOLUTION

## Electronic Continuously Variable Transmission

The new ECVT from Subaru is truly a revolution in the automotive industry! It's the first automatic transmission that provides both the performance and the economy of a five-speed transmission.

This "shiftless" transmission replaces traditional gears with unique split pulleys that continuously vary the ratio of engine speed to drive wheel speed. This allows the engine to operate at its most efficient RPM with no gear shifts and no interruption of power.

The system operates in an oil bath at temperatures about one-third those of conventional automatic transmissions. As a result, lightweight and compact ECVT generates very little heat or wear. It's an exceptionally durable system that's virtually maintenance free!

### CVT — Not A New Idea

The concept of a continuously variable transmission is

not new; it has been used in machine tools and farm equipment for many years. But only with recent advances in machining, metallurgy and electronics, can the technology be applied to automobiles.

The "E" in the ECVT stands for "electronic." The main use of electronics in this system is the computer-controlled, electro-magnetic clutch which transmits power from the engine to the driveshaft in a smooth, continuous fashion.

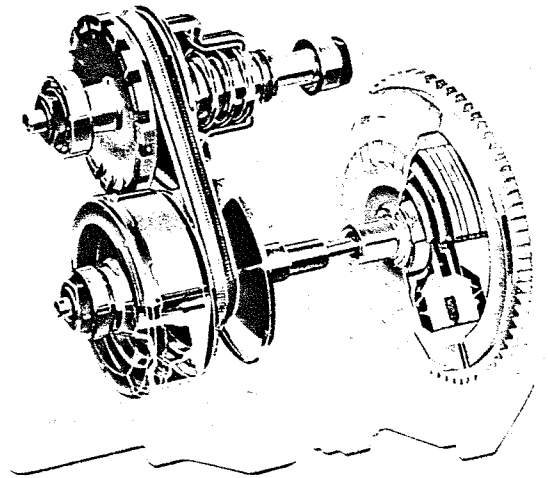
Fuji Heavy Industries — the Japanese industrial giant which designs and builds Subaru vehicles — was the first manufacturer in the world to introduce the modern CVT in 1987 in Japan. Ford of Europe was second, Fiat was third. Today, Fiat buys CVT systems from Fuji.

**THE ECVT**

*You Have To Drive It To  
Appreciate It!*  
*—Autoblog*

The ECVT has lots going for it — and you! There is no shifting and no interruption of motion or power from the engine. The transition from one gear ratio to another is smooth and continuous — you won't even know it's happening!

The ECVT also delivers a wider range of ratios than conventional automatic transmissions. This provides livelier acceleration and lower engine revs at

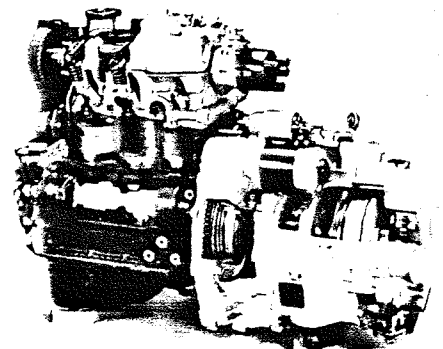
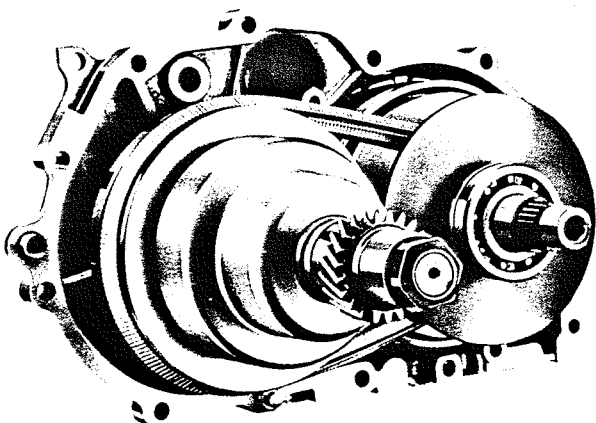


cruising speed. Plus, you get better fuel economy and quieter operation.

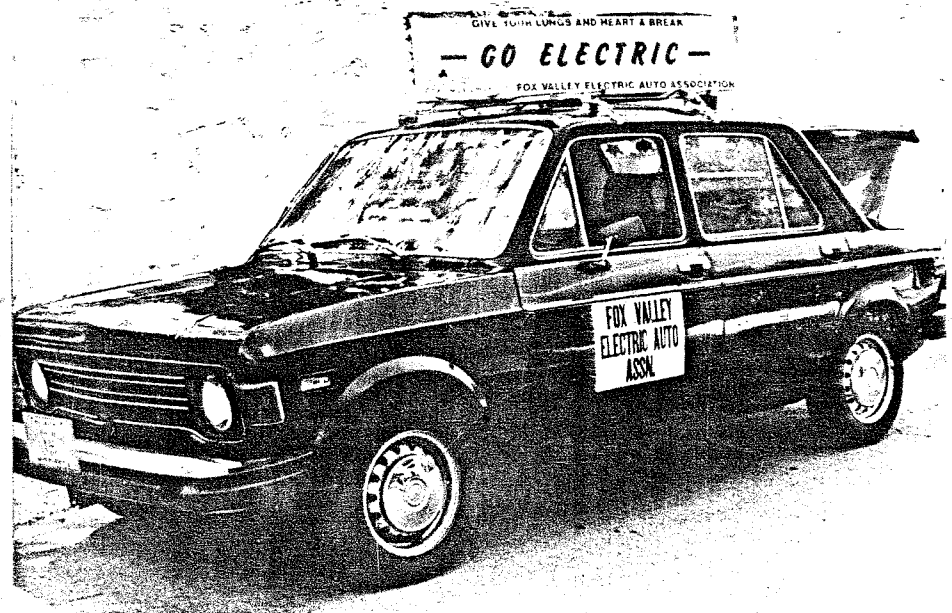
During initial acceleration, however, you must accustom yourself to the different sound of the engine — it revs more easily into its part- or full-throttle power curves. It also accelerates much faster than a similar-size car with a conventional automatic transmission.

But the best attribute is the ECVT is more fun to drive!

Your Subaru dealer can give you full details on what to expect from the great new Subaru ECVT. Ask him about the 1989 Justy with optional ECVT. It's the first car in the United States to offer this exciting technological advance! ■



# FOR SALE



## TECHNICAL SPECIFICATIONS

- CAR FIAT Model 128, Model year, 1975  
Curb weight of converted vehicle, \_\_\_\_\_ pounds.
- MOTOR 28-volt, 400-ampere, shunt wound, DC, 6000 RPM. Maximum power output about 19 Horsepower.
- PROPULSION 12 modules; each 6-volt, 75  
BATTERY amperes continuous for 105 minutes @ 77 degrees F. Series-parallel connected, six modules in each series connection. Battery weight 750 pounds.
- CONTROLLER Custom designed and made by:  
Electric Auto Crafters  
28643 Nelson Lake Road Batavia Ill. 60510 36 volts DC, 400 amperes 14 Kilowatts.
- BATTERY Custom designed and made by  
CHARGER Electric Auto Crafters Use on 115-volt, 20-amp AC circuit  
Approximate time to recharge, 4-8 hours
- PERFORMANCE Top speed in 1st gear MPH  
2nd gear MPH  
3rd gear MPH  
4th gear MPH

\$2000.

FOX VALLEY ELECTRIC AUTO ASSOCIATION  
624 PERSHING AVENUE  
WHEATON, ILLINOIS 60187

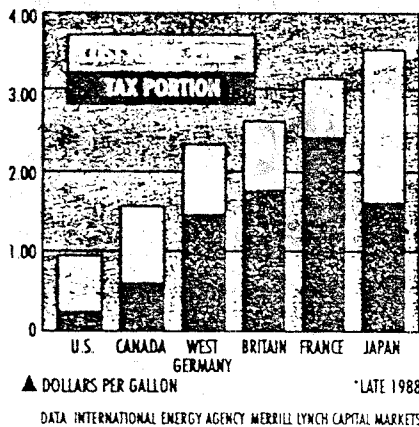
# Economic Trends

BY GENE KORETZ

## A TAX HIKE ON GAS? THE IDEA IS PICKING UP SPEED

A hike in the gasoline excise tax may be anathema to the oil industry, but its economic and political appeal is growing. In a recent analysis, Merrill Lynch & Co. economist Donald H. Straszheim notes that higher gasoline taxes could bring in "\$25 billion or more in revenues—at minimal cost to the economy." Meanwhile, House Ways & Means Committee Chairman Dan Rostenkowski (D-Ill.) and Federal Reserve Board Chairman Alan Greenspan have backed the idea of a gas tax hike. And incoming Budget Director Richard G.

### U.S. GASOLINE TAXES ARE FAR BEHIND THE PACK



Darman concedes that a fuel tax might be considered a user fee.

Advocates of a gasoline tax hike cite three main arguments:

- U.S. gasoline taxes and prices are extraordinarily low. The federal gasoline tax has been raised only once in the past 35 years, and in real terms it is below its level in the 1950s. Even counting state and local levies, U.S. gasoline taxes are the lowest in the industrial world, running at only 10% to 15% of the taxes paid by French, British, German, and Japanese consumers. And U.S. retail gasoline prices are roughly a third of those in the same countries (chart).

- By putting upward pressure on retail prices, higher gas taxes would dampen energy use and dependence on imports—at a time when both have begun to rise rapidly. A 25¢-per-gallon hike would still leave inflation-adjusted gasoline prices substantially below their levels in both 1974 and 1981, while promoting conservation and tempering pollution. Accord-

ing to an Energy Dept. study, a 10¢-per-gallon tax increase would reduce the trade deficit by about \$1.5 billion a year.

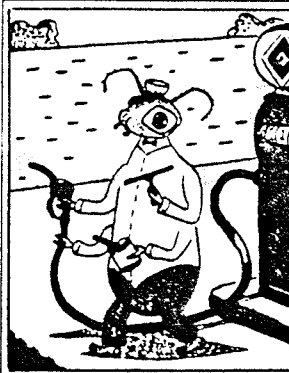
- Gasoline taxes are a big potential revenue source, with each penny-per-gallon hike producing roughly \$1 billion per year in gross tax receipts, or \$25 billion from a 25¢ increase. To be sure, some analysts claim that the net gain in revenues would be far less, once the reduced demand and lower economic output induced by a tax hike are factored in. However, Merrill Lynch's Straszheim notes that the impact on demand would be very modest over the short term. And economists Stephen Marris and Philip K. Verleger Jr. of the Institute for International Economics argue that a large tax hike would so brighten the budget outlook that interest rates would decline substantially, offsetting the negative effects of the tax on economic growth and cutting the deficit even more.

Finally, Verleger believes that a tax hike may well fall more heavily on gasoline refiners than consumers. He notes that refining profit margins have widened sharply in recent years, because tighter refining capacity has allowed the industry to maintain prices as crude oil prices fell. "Profit margins have been so large recently," Verleger says, "that refiners may be forced to absorb much of a tax increase in order to continue to maximize gasoline output."

## Developments to Watch

EDITED BY NAOMI FREUNDLICH

### THIS MICROBE CAN TURN CHAFF INTO CHEAP ETHANOL



Stuffing a corn stalk in your gas tank will get you nowhere—unless you invite some genetically doctored bacteria for dinner. The bacteria, developed by microbiologist Dr. Lonnie O. Ingram at the University of Florida, readily converts inedible—and cheap—vegetable waste such as stalks, stems, and leaves into ethanol, the key ingredient in alcohol-added fuels.

Gasohol, gasoline mixed with about 15% ethanol, is being used in some areas to reduce air pollution. But it's no bargain. At present only corn starch or cane sugar can be used in the bioconversion process, making ethanol three times as expensive to produce as gasoline. Using inedible plant waste as feedstock would bring down this cost significantly.

Ingram engineered his voracious bug by cloning the genes for ethanol production from one bacterium and inserting them into the common bacterium *E. coli*. According to Ingram, the modified *E. coli* can convert many different kinds of plant sugars to ethanol at 90%-to-95% efficiency. It could be time to replace the tiger in the tank with a bug.