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# REPORT TO THE CONGRESS



BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES



LM103088

## Convincing The Public To Buy The More Fuel-Efficient Cars: An Urgent National Need

Environmental Protection Agency  
Federal Energy Administration

This report describes what Federal agencies responsible for the compilation and distribution of gas mileage information have been doing. Fuel economy figures and mileage guides prepared by these agencies have helped some energy-conscious consumers to select fuel-efficient cars. However, if more consumers are made aware of these guides and how to use them effectively, automobile fuel consumption will be greatly reduced, and Americans will save millions of barrels of petroleum and millions of dollars annually.

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AUGUST 10, 1977

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COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

B-166506

To the President of the Senate and the  
Speaker of the House of Representatives

This report describes the efforts of the Federal agencies responsible for the compilation and distribution of gas mileage information. Fuel economy figures and mileage guides prepared by these agencies have helped some energy-conscious consumers to select fuel-efficient cars. However, if more consumers are made aware of these guides and how to use them effectively, automobile fuel consumption will be greatly reduced, and Americans will save millions of barrels of petroleum annually.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Copies of this report are being sent to the Director, Office of Management and Budget; the Administrator, Environmental Protection Agency; the Administrator, Federal Energy Administration; interested congressional committees; Members of Congress; and other interested parties.

A handwritten signature in black ink, reading "Luther B. Studd".

Comptroller General  
of the United States

COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

CONVINCING THE PUBLIC TO BUY  
THE MORE FUEL-EFFICIENT CARS:  
AN URGENT NATIONAL NEED  
Environmental Protection Agency  
Federal Energy Administration

D I G E S T

"How can the American public be convinced of the need for changeover to more fuel-efficient motor vehicles, and be induced to accept the types of automobiles which will achieve desirable fuel economy?"

This question was asked by a Federal Task Force <sup>1/</sup> nearly a year ago. The motor vehicle is the single largest user of petroleum in the United States. Petroleum savings are possible by convincing the public to buy the more fuel-efficient cars. In attempting to answer the question on the basis of its own examination, GAO asked, in turn, four basic questions and the answers provided are given below in summary form.

Q. WHAT IS THE POTENTIAL FOR REDUCING AUTOMOBILE FUEL CONSUMPTION?

A. Since the fuel efficiency of vehicles bought today will affect the petroleum consumption of Americans for the next 10 years, it is important that the Federal gas mileage guide become as effective as possible in influencing consumers to buy the more fuel-efficient cars. Although the 1976 program was fairly successful, improvements are needed to convince the public that the need to buy the more fuel-efficient types of cars has become urgent. (See p. 11.) The mileage guide is a pocket-sized reference booklet containing comparable information by manufacturer and car type. The guide contains information on the engine size, number of

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<sup>1/</sup>"The Report by the Federal Task Force on Motor Vehicle Goals Beyond 1980," September 2, 1976.

cylinders; type of transmission and fuel system; interior volume (space), and city, highway, and combined city/highway average miles per gallon estimates. The guide also contains an estimate of the annual fuel costs based on what a driver would pay for fuel in 1 year if he drove 15,000 miles and paid 65 cents a gallon for gasoline. (See p. 4.)

The guide has two main printings each year. One printing is dated September to report new fuel economy figures for models introduced at this time; the other is dated January to add gas mileage values for new model types certified since September. (See p. 5 for sample pages of the mileage guide.)

GAO found that the new car buyer (1) does not always have gas mileage information available, (2) is often not aware of the guide, and (3) in many cases does not understand the guide. Only 7 percent of 1976 new car buyers surveyed were aware of the guide. Those aware of the guide experienced a 20- to 25-percent increase in gas mileage when replacing their old cars, while those not aware of the guide experienced only a .7 percent increase in gas mileage. (See pp. 9 and 23.)

Most 1977 model cars were available for sale in September 1976; however, the consumer guide, showing comparable mileage estimates, was not available in dealer showrooms until late October or early November 1976. By then, an estimated 766,000 cars had been sold. (See p. 18.)

- Q. IS THERE A NEED FOR A MORE EFFECTIVE PUBLIC INFORMATION PROGRAM?
- A. The Federal Energy Administration's promotion of gas mileage information in the model year 1976 was not as effective as it should and could have been. Although it is too early to fully evaluate the effectiveness of the 1977 program, it has several obvious weaknesses.

First, the Agency continued to rely on public service television advertising and news

releases to encourage consumers to use the gas mileage labels and guides. As a result, it has no control over the size or makeup of its audience and the number of times the ads are shown or printed.

Second, most of the Agency's television promotion did not begin until late December; therefore, they missed a peak period in new car sales--model introduction.

A well-designed advertising program under the direct control of the Agency--through the use of paid advertising--could be more effective in encouraging prospective new car buyers to purchase the more fuel-efficient cars.

While a Government agency could not hope to launch an advertising campaign as comprehensive as that of the automobile companies, many of their techniques could be used on a smaller scale to reach more prospective new car buyers. Paid advertising could be tried on a pilot basis before launching a full-scale advertising campaign. (See p. 16.)

Q. IS THERE NEED FOR MORE TIMELY DISTRIBUTION OF GAS MILEAGE GUIDES?

A. The Environmental Protection Agency as well as the Federal Energy Administration have not been taking full advantage of opportunities to encourage consumers to buy the more fuel-efficient cars. As previously shown, the mileage guide for 1977 model cars was not available in auto dealer showrooms until about 2 months after the cars were available. Without the guide, the new car buyer lacked enough data to select the more fuel-efficient automobile.

The timing of the printing and distribution of the guide depended on the timing of the Environmental Protection Agency's mileage testing. Since printing and distributing the guide takes about 2 months, the Agency's cutoff date for testing has to be advanced if the guide is to be in the dealers'

showrooms when new cars are available for sale. Although there are some problems in advancing the cutoff date for gas mileage testing, solutions are possible if earlier distribution of the guide is given priority.

The Federal Energy Administration also should consider other methods for making mileage data available on a timely basis in car dealers' showrooms. One alternative could be to distribute mileage comparison charts to new car dealers at the time new cars are available for sale and urge dealers to display the data for buyers' use. (See pp. 21 and 22.)

Q. ARE MILEAGE ESTIMATES RELIABLE AND CREDIBLE?

A. Although there is not enough data to draw firm conclusions concerning the reliability of Federal gas mileage estimates, indications are that these estimates are higher than what most consumers experience in everyday driving, because of the many ranges of variables which are not controllable in laboratory testing.

The Government's estimates show the relative performance between makes and models and provide useful information to consumers for comparing gas mileages of new cars. However, consumers may not understand the nature of the estimates and their usefulness in comparing the mileage efficiency of new cars.

It is necessary that consumers be better advised on how the estimates and the mileage guide can be used in selecting fuel-efficient automobiles suited to their individual needs. (See p. 28.)

#### RECOMMENDATIONS

The Administrator of the Environmental Protection Agency should:

--Work toward advancing the cutoff dates for mileage guide testing in order to make the mileage guides available in dealers' showrooms when new models are introduced. (See p. 22.)

The Administrator of the Federal Energy Administration should:

- Evaluate the effectiveness of the gas mileage advertising program for 1977 model cars.
- Design, implement, and evaluate a timely paid advertising campaign on a pilot basis for its gas mileage information program for the 1978 model cars.
- Undertake other methods of displaying gas mileage information in dealers' showrooms.
- Clearly inform the public, as part of its advertising campaign, how the mileage estimates can be used in selecting the more fuel-efficient cars. (See pp. 16, 22, and 28.)

#### AGENCY AND OTHER COMMENTS

The Administrator of the Environmental Protection Agency stated that GAO's report was a balanced and accurate review of the Government's efforts to have new cars labeled with fuel-economy information and to make copies of the gas mileage guide available to the public. The Administrator said that although the cutoff dates for mileage guide testing could not be accelerated for the 1978 model year, the Agency would continue to analyze the feasibility and advisability of advancing the deadlines for future model years.

With regard to the use of other methods, besides the guide, of getting the gas mileage information to the public at an earlier date, the Agency stated it is pursuing this alternative with the Federal Energy Administration and the auto industry in the hope of getting such charts distributed as early as the 1978 model year. (See p. 22.)

The Administrator of the Federal Energy Administration stated that an evaluation of the total advertising program had been started. With regard to paid advertising, the Federal Energy Administration stated that the Federal

Government could have future difficulty in obtaining free public advertising from the communications industry as a result. Regarding the effect that paid advertising would have on future governmental relations with the communications industry, it should be noted that similar paid advertising programs have already been used successfully by other Federal agencies with no harmful consequences to other Federal agency public service programs. (See p. 17.)

Generally, the four major American automobile manufacturers agreed with GAO's recommendation on the need for a more comprehensive, paid advertising campaign. Their informative comments are included in their entirety as appendixes. These may be of value to the Congress. (See pp. 17, and 37 to 80.)



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ABBREVIATIONS

EPA	Environmental Protection Agency
FEA	Federal Energy Administration
GAO	General Accounting Office
SAE	Society of Automotive Engineers

## CHAPTER 1

### INTRODUCTION

One of the first major Federal actions to conserve energy was the voluntary automobile gas mileage testing and labeling program started in 1973. The Environmental Protection Agency (EPA) was put in charge of the program and has published gas mileage data on new cars beginning with model year 1973 from information developed during its automobile emissions certification program. In model year 1974 manufacturers voluntarily labeled their new cars with the gas mileage estimates.

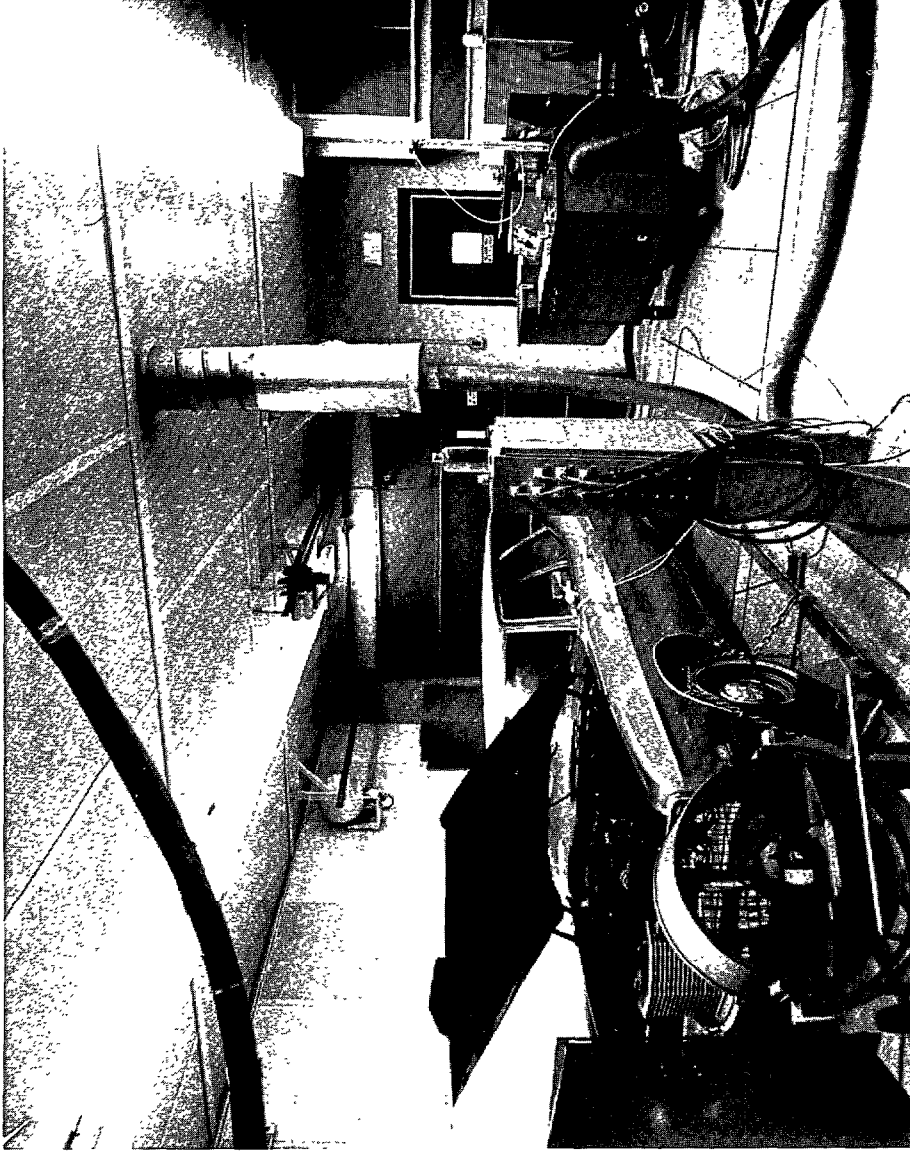
The Motor Vehicle Information and Cost Savings Act, as amended, (15 U.S.C. 1901 et seq.) now requires EPA to determine the gas mileage of new cars and to publish the results in conjunction with the Federal Energy Administration (FEA). Under the Act, the Administrator of EPA is required to prepare a simple, understandable guide or booklet containing comparative data on the gas mileages of automobiles manufactured each year. Under the Act the Administrator of FEA is responsible for publishing and distributing the booklet to auto dealers and consumers. Further, the Act requires (1) automobile manufacturers to affix a gas mileage label to their cars and (2) automobile dealers to make the gas mileage guides available to all prospective purchasers. Beginning in 1978, automobile manufacturers must produce a fleet of cars that meet minimum mandatory gas mileage standards.

### GAS MILEAGE TESTING

Since the beginning of the voluntary program, EPA has conducted gas mileage testing in conjunction with its program for emissions control. During emissions tests, which are run on a dynamometer (see p. 2), EPA compares the amount of gaseous emissions with the amount of gasoline used by the automobile. This data is used to measure both emission levels and gas mileage.

### GAS MILEAGE LABELS

Beginning with the latter half of the 1976 model year all new cars have been required to display a gas mileage label (see p. 3 for examples of 1977 labels). The label must show the gas mileage of the particular model car, the estimated annual fuel cost, and the range of the gas mileages of comparable vehicles.





This car is being tested on a chassis dynamometer. Its rear wheels are supported on two parallel rollers. While the car is operated during the test, its exhaust pipe is connected via pipes to a constant volume sampler (the large machine on the right side of the picture) which collects and samples the vehicle's exhaust gases.

The following are examples of the FEA/EPA gas mileage labels for new 1977 vehicles.



**General label:**

FORM NO 83-320-0086  
PART NO 404024

**MANUFACTURER'S SUGGESTED RETAIL PRICE LABEL**  
affixed pursuant to Federal law

	GENERAL LABEL - 49 STATE Based on the results of tests conducted or certified by the U.S. Environmental Protection Agency, the typical gas mileage of this car is estimated to be:				
	Vehicle 1977 PLYMOUTH VOLARE WAGON, 6 CYLINDER, 225 CID, 2 BARREL CARBURETOR, AUTOMATIC TRANSMISSION, CATALYST EQUIPPED.				
These estimates are based on tests of vehicles equipped with frequently purchased optional equipment	MILES/GAL CITY DRIVING 10	MILES/GAL HIGHWAY DRIVING 21	MILES/GAL FOR COMBINED CITY & HIGHWAY DRIVING 18	BASED ON 15,000 MILES DRIVEN PER YEAR AND THE AVERAGE COMBINED FUEL ECONOMY INDICATED, THE ESTIMATED ANNUAL FUEL COST FOR THIS VEHICLE IS \$488 AT \$.65/GAL	AS OF 09-17-76 THE COMBINED CITY AND HIGHWAY FUEL ECONOMY FOR OTHER MID-SIZE STATION WAGON CLASS VEHICLES RANGED FROM 12 TO 20 MPG
	Reminder: The actual fuel economy of this vehicle will vary depending on the type of driving that you do, your driving habits, how well you maintain your car, optional equipment installed and used, and road and weather conditions. To compare the fuel economy of this vehicle with other vehicles and to learn how the tests were conducted, you may obtain an EPA/FEA booklet free upon request from the dealer or through the mail by writing to Fuel Economy, Pueblo, Colorado, 81008				

**Specific label:**

	Based on the results of tests conducted or certified by the U.S. Environmental Protection Agency, the typical gas mileage of this vehicle is estimated to be:		
	18 MILES PER GALLON FOR CITY DRIVING 25 MILES PER GALLON FOR HIGHWAY DRIVING 20 MILES PER GALLON FOR COMBINED CITY AND HIGHWAY DRIVING		
VEHICLE:	CENTURY/REGAL 6 CYLINDER, 231 CUBIC INCH DISPLACEMENT ENGINE 2 BARREL CARBURETOR AUTOMATIC TRANSMISSION, 2.73 AXLE RATIO CATALYST EQUIPPED, 4000 POUNDS TEST WEIGHT		
THESE FUEL ECONOMY NUMBERS ARE FROM TESTS OF THIS VEHICLE CONFIGURATION AND MAY NOT BE IN THE EPA/FEA BUYERS GUIDE. THE RANGE OF COMBINED CITY AND HIGHWAY FUEL ECONOMY VALUES FOR OTHER MID-SIZE VEHICLES IS FROM 11 TO 20 MILES PER GALLON AS OF SEPTEMBER 17, 1976.			
BASED ON \$.65 PER GALLON, 15,000 MILES DRIVEN PER YEAR, AND AN AVERAGE COMBINED FUEL ECONOMY OF 20 MILES PER GALLON, THE ESTIMATED ANNUAL FUEL COST FOR THIS VEHICLE IS \$488.			
These estimates are based on tests of vehicles equipped with frequently purchased optional equipment.			
Reminder: The actual fuel economy of this vehicle will vary depending on the type of driving you do, your driving habits, how well you maintain your vehicle, optional equipment installed, and road and weather conditions.			
To compare the fuel economy of this vehicle with other 1977 vehicles and to learn how the tests were conducted, ask your dealer for a free copy of the EPA/FEA 1977 Gas Mileage Guide for New Car Buyers.			
PRINTED IN USA			556121

The automobile manufacturer can use either of two basic types of label. The general label displays gas mileage estimates for a model type. A specific label contains the gas mileage of a specific vehicle configuration, and includes a more detailed description of the engine, weight of the vehicle, axle ratio, and the number of forward speeds of the transmission. If a manufacturer chooses to use a specific label, it is also required to apply specific labels to all automobiles of the same model types, i.e., all those automobiles that would have been covered by a single general label.

### MILEAGE GUIDE

The mileage guide is a pocket-sized reference booklet containing comparable information by manufacturer and car type (see p. 5 for sample pages of the mileage guide). The guide contains information on the engine size; number of cylinders; type of transmission and fuel system; interior volume (space); and city, highway, and combined city/highway average miles per gallon estimates. The guide also contains an estimate of the annual fuel costs based on what a driver would pay for fuel in 1 year if he drove 15,000 miles and paid 65 cents a gallon for gasoline.

Two versions of the guide are printed. One version is for California which has more stringent emissions standards; the other is for the remaining 49 States. The guide has two main printings each year. One printing is dated September to report new fuel economy figures for domestic models introduced at this time; the other is dated January to add gas mileage values for new model types certified since September.

## SUBCOMPACT CARS

Manufacturers	Vehicle Description				Fuel Economy				
	Model	Engine Size (CID) Cylinders	Transmission	Fuel System	Interior Volume Index (cu ft.) passenger/ trunk	City MPG	Highway MPG	Combined MPG	Average Annual Fuel Costs
<b>PLYMOUTH</b>									
CRICKET/ LANCER#	122/4*	M 2	74/7	20	33	24	\$406		
	122/4*	A 2	74/7	21	28	24	\$406		
<b>PONTIAC</b>									
ASTRE	140/4	M 2	80/10	24	33	28	\$348		
	140/4	A 2	80/10	21	28	24	\$406		
	151/4	M 2	80/10	26	37	30	\$325		
	151/4	A 2	80/10	24	32	27	\$361		
<b>FIREBIRD</b>									
	231/6	M 2	86/7	16	26	19	\$513		
	231/6	A 2	86/7	17	25	20	\$488		
	301/8	M 2	86/7	15	23	18	\$542		
	301/8	A 2	86/7	17	23	19	\$513		
	305/8	A 2	86/7	16	21	18	\$542		
	350/8	A 4	86/7	16	22	18	\$542		
	400/8	M 4	86/7	12	19	15	\$650		
	400/8	A 4	86/7	15	20	17	\$574		
<b>SUNBIRD</b>									
	151/4	M 2	79/7	26	37	30	\$325		
	151/4	A 2	79/7	24	32	27	\$361		
	231/6	M 2	79/7	18	29	21	\$464		
	231/6	A 2	79/7	19	26	21	\$464		
<b>RENAULT</b>									
12	100/4*	M 2	79/11	22	33	26	\$375		
	100/4*	A 2	79/11	21	26	23	\$424		
17	100/4*	A 2	72/8	20	26	22	\$443		
17 GORDINI	100/4*	M FI	72/8	21	36	26	\$375		
5	79/4*	M 2	74/10	25	41	30	\$325		
<b>SUBARU</b>									
SUBARU	97/4*	M 2	72/11	28	41	32	\$305		
	97/4*	A 2	72/11	24	31	26	\$375		
<b>TOYOTA</b>									
CELICA	134/4*	M 2	72/8	21	35	26	\$375		
	134/4*	A 2	72/8	22	29	25	\$390		
COROLLA	71/4	M 2	76/10	36	49	41	\$238		
	97/4*	M 2	76/10	28	39	32	\$305		
	97/4*	A 2	76/10	25	31	27	\$361		
CORONA	134/4*	M 2	80/10	21	35	25	\$390		
	134/4*	A 2	80/10	22	29	24	\$406		
<b>VOLKSWAGEN</b>									
BEETLE	97/4*	M FI	68/7	23	33	26	\$375		
DASHER	97/4*	M FI	84/15	24	36	28	\$348		
	97/4*	A FI	84/15	24	33	28	\$348		
DASHER DIESEL	90/4*	M FI	84/15	35	47	40	\$206		

\*NOT EQUIPPED WITH CATALYST  
#AVAILABLE IN PUERTO RICO

## SUBCOMPACT CARS

Manufacturers	Vehicle Description				Fuel Economy				
	Model	Engine Size (CID) Cylinders	Transmission	Fuel System	Interior Volume Index (cu ft.) passenger/ trunk	City MPG	Highway MPG	Combined MPG	Average Annual Fuel Costs
<b>VOLKSWAGEN</b>									
RABBIT	97/4	M 1	80/15	29	43	34	\$267		
	97/4	A 1	80/15	24	36	29	\$336		
	97/4*	M FI	80/15	24	37	28	\$348		
	97/4*	A FI	80/15	24	33	27	\$361		
RABBIT DIESEL	90/4*	M FI	80/15	39	52	44	\$188		
SCIROCCO	97/4	M 1	74/16	29	43	34	\$287		
	97/4	A 1	74/16	24	36	29	\$336		
	97/4*	M FI	74/16	24	37	28	\$348		
	97/4*	A FI	74/16	24	33	27	\$361		

## COMPACT CARS

Manufacturers	Vehicle Description				Fuel Economy				
	Model	Engine Size (CID) Cylinders	Transmission	Fuel System	Interior Volume Index (cu ft.) passenger/ trunk	City MPG	Highway MPG	Combined MPG	Average Annual Fuel Costs
<b>AMERICAN MOTORS</b>									
HORNET	232/6	M 1	89/11	18	23	20	\$488		
	232/6*	A 1	89/11	17	24	19	\$513		
	232/6	A 1	89/11	18	23	20	\$488		
	258/6	M 2	89/11	17	24	19	\$513		
	258/6*	A 2	89/11	17	23	19	\$513		
	304/8	A 2	89/11	14	18	16	\$609		
<b>PACER</b>									
	232/6	M 1	90/11	18	23	20	\$488		
	232/6*	A 1	90/11	17	24	19	\$513		
	232/6	A 1	90/11	18	23	20	\$488		
	258/6	M 2	90/11	17	24	19	\$513		
	258/6*	A 2	90/11	17	23	19	\$513		
<b>AUDI</b>									
100LS	114/4*	M FI	90/13	18	27	21	\$464		
	114/4*	A FI	90/13	17	23	19	\$513		
<b>BUICK</b>									
SKYLARK	231/6	M 2	93/14	16	26	19	\$513		
	231/6	A 2	93/14	18	25	20	\$488		
	301/8	A 2	93/14	17	23	19	\$513		
	305/8	A 2	93/14	16	21	18	\$542		
<b>CADILLAC</b>									
SEVILLE	350/8	A FI	95/13	14	19	16	\$609		
<b>CHEVROLET</b>									
MONTE CARLO	305/8	A 2	94/15	16	20	17	\$574		
	350/8	A 4	94/15	14	19	16	\$609		

\*NOT EQUIPPED WITH CATALYST

The above are sample pages from the 1977 Gas Mileage Guide for New Car Buyers, second edition, January 1977.

FUEL ECONOMY STANDARDS

The Act requires that beginning with the 1978 model cars, automobile manufacturers must produce a fleet of cars that, on an overall basis, meet certain minimum mileage standards shown below.

<u>Model year</u>	<u>Average fuel economy standard</u> (in miles per gallon)
1978	18.0
1979	19.0
1980	20.0
1981	a/22.0
1982	a/24.0
1983	a/26.0
1984	a/27.0
1985 and thereafter	27.5

a/Determined by Secretary of Transportation and published in 42 Fed. Reg. 33534 (June 30, 1977).

The gas mileage for an automobile shall be measured and a manufacturer's average fleet gas mileage calculated in accordance with testing procedures established by EPA for 1975 model year passenger automobiles (weighted 55-percent city cycle and 45-percent highway cycle), or procedures which yield comparable results.

Auto manufactures should be able to achieve the 1978 standards. The estimated overall fleet average for the 1976 and 1977 model cars was 17.8 and 18.6 miles per gallon, respectively. However, auto manufacturers stated that meeting the 1985 standards of 27.5 miles per gallon will be difficult. Recent gains in mileage are primarily attributable to reductions in size and weight of the cars, and manufacturers are doubtful that major gains can be assured in future years. Even though many small cars get exceptionally good mileage, a significant percentage of new car buyers still want large automobiles which generally do not get as good mileage.



## SCOPE OF REVIEW

The major portion of our review was conducted at EPA's Motor Vehicle Emissions Laboratory in Ann Arbor, Michigan. We also performed work at the Washington, D.C., headquarters of the Environmental Protection Agency, Federal Energy Administration, and the Department of Transportation. We examined pertinent records, documents, and reports and held discussions with responsible agency officials regarding the computation, publications, and dissemination of fuel economy information to the public.

We also had discussions with representatives of four major automobile manufacturers, several major oil companies, and a social research organization. We reviewed documents and reports provided by these organizations pertaining to the fuel economy information program.

We also obtained comments on matters discussed in this report from the Environmental Protection Agency, the Federal Energy Administration, Ford Motor Company, American Motors Corporation, Chrysler Corporation, and General Motors Corporation.

We are including the comments of the automobile manufacturers in their entirety as appendixes, even though they go beyond the scope of this report, because we believe they are very informative to the Congress and may be of value in future considerations of the program.

## CHAPTER 2

### POTENTIAL FOR REDUCING AUTOMOBILE

#### FUEL CONSUMPTION

"How can the American public be convinced of the need for changeover to more fuel-efficient motor vehicles, and be induced to accept the types of automobiles which will achieve desirable fuel economy? Without public acceptance and purchases, the most fuel-efficient design is useless.... This issue looms as the major dilemma facing the Federal Government and industry." 1/

According to the Federal Task Force on Motor Vehicle Goals Beyond 1980, the petroleum situation is critical in both the long and the short term. In the short term, the Nation has become dependent on uncertain petroleum imports to an undesirable extent and is additionally subject to the large outflow of dollars from our economy. In the long term, a worldwide petroleum shortage is projected in the next 50 years. This is especially true with respect to domestic production.

In 1975, the United States consumed the equivalent of about 6 billion barrels of crude oil; about 39 percent of the oil consumed was imported. The automobile is the single largest user of petroleum, consuming the equivalent of about 1.8 billion barrels of crude oil in 1975.

One way to reduce the need to import oil is by improving the gas mileage of cars. Potential savings are contingent on (1) successful development of technology to improve the gas mileage of cars and (2) convincing the public to buy the more fuel-efficient cars.

The purpose of EPA/FEA's gas mileage information program is to encourage consumers to buy the more fuel-efficient cars by informing them of the gas mileage of the various alternatives. A 1976 FEA study by Abt Associates, Inc. showed that the information program for 1976 model cars had a positive

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1/Draft of "The Report by the Federal Task Force on Motor Vehicle Goals Beyond 1980," September 2, 1976. The task force was established by the Energy Resources Council because of the Nation's long-range need to conserve energy.

impact on reducing fuel consumption. Petroleum savings attributed to the 1976 model year program were estimated to be about 900 million gallons of gasoline, or 21 million barrels of petroleum. At 65 cents a gallon retail, the estimated dollar savings to consumers was about \$585 million.

#### GREATER CONSUMER AWARENESS CAN RESULT IN REDUCED FUEL CONSUMPTION

The FEA study concluded that the use of public education can result in reduced fuel consumption. The study showed 1976 new car buyers who were aware of EPA/FEA gas mileage labels and guides experienced a 20- to 25-percent increase in gas mileage when replacing their old cars. In contrast, buyers who were not aware of labels and guides experienced only a .7-percent increase in gas mileage.

Although the 1976 fuel economy information program was fairly successful, the FEA study showed that many buyers were not aware of the gas mileage information. Of 1976 model car buyers interviewed, only 53 percent (422 of 796) remembered seeing the labels and only 7 percent were aware of the gas mileage guide. In view of the relatively low awareness and use of the gas mileage information in 1976, an improved public information program could play a major role in helping to reduce fuel consumption in future years.

If more consumers can be persuaded to buy the more fuel-efficient cars, the Nation's overall fleet average fuel economy will increase. An analysis by the Federal Task Force on Motor Vehicle Goals Beyond 1980 showed that by increasing fleet gas mileage from 15 to 20 miles per gallon, we can save about 1.2 million barrels of oil a day, or 432 million barrels a year. Studies show that automobiles average about 8 to 10 years of useful life. Therefore, today's decision to buy fuel-efficient cars will have a lasting effect on future fuel consumption. The sooner we can achieve major gains in automobile fleet gas mileage, the greater the savings.

#### HOW FUEL ECONOMY INFORMATION CAN HELP THE CONSUMER

The gas mileage of small cars is generally assumed to be higher than large cars. Accordingly, it might be concluded that consumers wanting good gas mileage should buy a small car. However, this is deceiving, because some vehicles in the mid-size and large car categories get gasoline mileage equal to or greater than some compacts or sub-compacts. Two primary factors affecting gas mileage are

size/weight of the car and size of the engine. For instance, a small subcompact Chevrolet Camaro with a large 350 cubic inch engine gets only 14 miles per gallon in the city, while a large Oldsmobile Delta 88 with a small 260 cubic inch engine gets 17 miles per gallon in the city--an improvement of 3 miles per gallon. The following table shows additional examples of large cars which get mileage equal to or greater than some smaller cars.

1977 model car	Category	Engine size/ cylinders (note a)	Miles per gallon		
			City	Highway	Combined
Chevrolet Camaro	Subcompact	350/8	14	18	15
Ford Mustang	Subcompact	302/8	16	21	18
Chevrolet Nova	Compact	350/8	14	18	15
Oldsmobile Omega	Compact	305/8	16	22	19
Oldsmobile Cutlass	Mid-size	260/8	17	26	20
Dodge Monaco	Mid-size	225/6	17	22	19
Buick LeSabre	Large	231/6	17	25	20
Oldsmobile Delta 88	Large	260/8	17	23	19

a/Engine size refers to the cubic inch displacement or overall size of the cylinders. The greater the inches the more powerful the engine.

Buying a subcompact will not guarantee good mileage. For example, combined EPA mileage estimates in the subcompact category can range from 15 to 41 miles per gallon. Assuming a person drives 15,000 miles in 1 year, the difference in gas consumed by two vehicles in the subcompact category could be 634 gallons of gasoline. At 65 cents a gallon, the difference in cost to a consumer would be \$412 a year.

## CONCLUSIONS

Since the fuel efficiency of vehicles bought today will affect our petroleum consumption for the next 10 years, it is important that EPA/FEA's gas mileage information program be as effective as possible in influencing consumers to buy the more fuel-efficient cars. Although the 1976 program was fairly successful, improvements are needed to convince the public of the urgent need to buy the more fuel-efficient cars.

### CHAPTER 3

#### NEED FOR A MORE EFFECTIVE

#### PUBLIC INFORMATION PROGRAM

FEA needs to develop a more comprehensive and aggressive program to inform the public of the need to conserve gas through the purchase of the more fuel-efficient automobiles. FEA's promotion of gas mileage information for 1976 and 1977 model year automobiles was not as effective as it could have been, because it relied solely on free public service advertising which minimized FEA's direction and control over the program. While public service advertising is good and should be encouraged, FEA may not be reaching many prospective new car buyers through the program.

In contrast, organizations who pay for advertising can design programs directed (1) at large, general audiences or (2) at specific audiences demographically suited to their objective. They can also control the number of times the ads (television, radio, or printed media) are shown and effectively evaluate the response.

We believe improvements are needed in FEA's program to encourage new car buyers to use gas mileage data when purchasing a new car. FEA should evaluate the effectiveness of its advertising program for 1977 model cars and consider, on a pilot basis, alternative approaches, such as a positive paid advertising campaign designed to reach a maximum number of prospective new car buyers. FEA should evaluate the effectiveness of the pilot program before embarking on a nationwide campaign.

#### RESULTS OF THE 1976 AND 1977 FEA PROMOTIONAL EFFORTS

FEA's promotion program for 1976 gas mileage information was not as effective as it could have been. Although manufacturers have cooperated with EPA's voluntary labeling program, the FEA study showed that only 53 percent of the 1976 new car buyers remembered seeing the label.

The gas mileage guide was even less effective. The FEA study showed that only 7 percent of the new car buyers interviewed were even aware of the existence of the gas mileage guide. Promotion of the gas mileage guide was done through public service television advertising informing the public that the guides were available upon request.

For model year 1976, FEA printed 500,000 California guides and 2,500,000 guides for the other 49 states. FEA did not keep accurate records regarding distribution of the guides and could only estimate that about 250,000 copies of each guide were still on hand. Most of the guides were bulk distributed by FEA, however, single copies could be requested from the Government Printing Office Document Distribution Center in Pueblo, Colorado. The Center distributed 55,850 California guides and 263,400 guides for the other 49 states. FEA did not know how many guides eventually reached the hands of consumers.

Steps have been taken to make 1977 buyers more aware of the fuel economy information. For example, EPCA requires that gas mileage labels be affixed to all cars sold in the United States. The Act also requires that gas mileage guides be available in dealers' showrooms. Furthermore, EPA issued news releases on the gas mileage figures to the media and FEA prepared some public service television advertisements regarding the guide and label which were distributed to the media in late December 1976.

Although it is still uncertain how effective FEA will be in promoting 1977 model year gas mileage information, several weaknesses are apparent in the program. Furthermore, FEA told us that no evaluation is planned for the 1977 model year similar to the Abt study for 1976.

First, FEA was not timely in promoting their 1977 gas mileage information. The mileage guide for 1977 model cars was not available in auto dealer showrooms until about 2 months after the cars were available for sale and an estimated 766,000 new cars had been sold. This subject is discussed in more detail in chapter 4. Not until late December, almost 4 months after new models were for sale, did FEA release to the media the public service television ads promoting the label and guide. During this period 1.9 million new cars were purchased by consumers.

FEA also continued to rely on public service advertising which minimized its control over the program.

#### PUBLIC SERVICE VS. PAID ADVERTISING

##### Public service advertising

FEA relies on public service advertising to publicize gas mileage information on the guide and label through television and printed media advertising. While this technique is relatively inexpensive, it has inherent limitations.

For instance, according to an FEA official, who is responsible for advertising and promotion, a public service campaign usually gets limited exposure. Such a campaign is in competition with other public service material from Federal, State, and local groups for a limited amount of free time. Also, since the majority of advertising is paid for, it is not likely that public service announcements would be run during prime time. Sponsors who pay for time on radio and television demand maximum exposure for their dollar, and public service announcements are relegated to the less desirable, "whatever is available" time.

Another inherent problem with public service announcements, according to the FEA official, is that they usually obtain greater exposure on the smaller, less popular stations. The larger stations with the larger audiences are the prime targets of the sponsors who have money to buy time. Popular stations have little free time to fill with public service advertisements.

The printed media generally use public service ads as filler materials to complete a page or take the place of some paid advertising that was canceled at the last minute. For this and other reasons, the FEA official stated that a public service campaign directed through the printed media is very unreliable, in terms of attempting to affect large or specific audiences.

#### Paid advertising

The primary advantage of paid advertising is that specific time and space can be obtained. The advertiser can assure his exposure in any media and direct his message to a specific target audience.

An added benefit is that the advertiser can release his message in an effective, reinforcing manner. The advertiser can select the optimum times to saturate the market and build on a theme. Effective advertising can make a product or service known quickly.

A final advantage of paid advertising is that it lends itself to evaluation. The advertiser can target his audiences, control and guarantee the exposure of his message, and thereby determine the effectiveness of his approach. There appear to be no legal constraints on using paid advertising to promote the gas mileage information program. When an appropriation is available for a particular object or purpose, it is also available to pay expenses which



are necessary for proper execution of that objective. Section 381 of the Energy Policy and Conservation Act (42 U.S.C. 6361) requires FEA to establish and carry out a responsible public education program to encourage energy conservation. Thus, if FEA believes paid advertising is necessary for an effective energy conservation program, then the appropriations available to FEA for carrying out the purpose of the program would be available for paid advertising.

#### LESSONS CAN BE LEARNED FROM AUTO MANUFACTURERS

Since both FEA and the automobile manufacturers try to influence the same market--prospective new car buyers--FEA could improve its program by using some of the promotion methods used by the automobile companies. Officials of two major auto companies told us that their advertising is geared to get people into the showrooms. They try to appeal to their needs and desires. FEA's objective is similar in that prospective buyers must be made aware that the gas mileage information is available. Once the prospective buyer has the information it can be used to sell him on the advantages of buying a fuel-efficient car.

Manufacturers we interviewed mentioned several important elements of their advertising which are missing from the FEA public service advertising campaign. These include (1) use of prime time advertising to gain exposure to large audiences, (2) selection of electronic media time slots and printed media that appeal to the prospective new car market, (3) continuous advertising to keep the product in the public eye, (4) timing the advertising with peak sales periods, and (5) pretest of promotional themes.

Representatives from two major auto companies told us that they make extensive use of television advertising because it gives maximum exposure for the dollar. One manufacturer spends about 50 percent of its advertising budget for television. Prime time television advertising is used to get broad coverage or ads may be run during specific shows having viewers which include a good percentage of prospective buyers. The manufacturers also consider it very important to show the ads throughout the year to keep their products in the public eye.

The timing of an advertising campaign is also important. One manufacturer told us that about 65 percent of its advertising budget is spent during fall and spring campaigns--the two peak periods for new automobile sales. The fall advertising period is of particular importance because it is the consumers' first exposure to the new models.

The manufacturers told us they pretest almost all of the promotional themes before they are given broad exposure. If themes are not appealing during pretest, other approaches are tried.

### CONCLUSIONS

FEA'S promotion of model year 1976 gas mileage information was not as effective as it could have been. FEA had no plans to evaluate the 1977 program. Although it is too early to fully evaluate the effectiveness of the 1977 program, it has several obvious weaknesses.

First, FEA continued to rely on public service television advertising and news releases to encourage consumers to use the labels and guides. As a result, FEA has no control over the size or makeup of its audience and the number of times the ads are shown or printed. Second, most of FEA's television promotion did not begin until late December; therefore, they missed a peak period in new car sales--model introduction.

A well-designed advertising program under the direct control of FEA--through the use of paid advertising--could be more effective in encouraging prospective new car buyers to purchase the more fuel-efficient cars.

While a Government agency such as FEA could not hope to launch an advertising campaign as comprehensive as that of the automobile companies, many of their techniques could be used on a smaller scale to reach more prospective new car buyers. Paid advertising could be tried, on a pilot basis, before launching a full-scale advertising campaign.

### RECOMMENDATIONS

We recommend that the Administrator of FEA:

- Evaluate the effectiveness of its gas mileage advertising program for 1977 model cars through the use of consumer surveys similar to the one used for the 1976 program.
- Design, implement, and evaluate a timely paid advertising campaign, on a pilot basis, for the 1978 model cars. The advertising should be directed to large audiences which include considerable numbers of prospective new car buyers.

AGENCY AND INDUSTRY COMMENTS  
AND OUR EVALUATION

In commenting on our report (see app. I), FEA stated that an evaluation of the total advertising program had been initiated, and that a separate assessment of the use of all media in promoting the program, including television and radio "spots," will be prepared. With regard to paid advertising, FEA stated that the recommendation could cause the Federal Government to have future difficulty in obtaining free public advertising from the communications industry and that it could raise other problems.

The four major domestic auto makers agreed there was a need for a comprehensive paid advertising campaign to convince the public through the use of the mileage guide to purchase the more fuel-efficient new cars. (See apps. III to VI.)

We believe that the actions initiated by FEA show a positive effort to improve the program. Regarding the effect that paid advertising would have on future governmental relations with the communications industry, similar paid advertising programs have been used in the past by other Federal agencies with success and with no harmful consequences to other Federal agency public service programs. Furthermore, FEA has in the past initiated requests for funding from the Congress for just such a program.

## CHAPTER 4

### NEED FOR MORE TIMELY DISTRIBUTION OF

#### GAS MILEAGE GUIDES

The mileage guide for 1977 model cars was not available in auto dealers' showrooms until about 2 months after most cars were available. Each new car sold had a label which showed the specific mileage data for the car itself and the mileage range for other cars in the same size classification. However, without the guide, the new car buyer could not readily identify the specific make or mileages of other cars within the class range. During this 2-month period, about 766,000 new 1977 model cars were sold.

The printing and distribution of the guide depend on when the results of EPA's mileage testing are available. For the 1977 model cars, a manufacturer could have its cars tested as late as September 3, about the same time that many new model cars are already available for sale. If the printing and distributing of the guide continues to take about 2 months, EPA's cutoff date for testing would have to be advanced, if the guide is to be in the dealers' showrooms when new cars are available for sale.

Although EPA raised a number of problems in advancing the cutoff date for mileage testing, we believe the problems can be dealt with, and EPA should work toward advancing the date in the interest of more timely distribution of the guide. We also believe FEA should consider other methods for making mileage data available on a timely basis in car dealers' showrooms. One possibility would be to distribute mileage comparison charts to new car dealers at the time new cars are available for sale and urge dealers to display the data for buyers' use, at least until the mileage guides become available. Such a chart, in the form of a news release, had been published by EPA in September 1976--the same month 1977 model cars first became available.

#### QUESTIONS RAISED CONCERNING THE ABILITY TO ACHIEVE MORE TIMELY DISTRIBUTION OF GAS MILEAGE GUIDES

In a letter dated August 13, 1976, we informed the Administrators of EPA and FEA that because of the apparent lack of emphasis on the timely distribution of the 1977 gas mileage guide, the guides would not be available in dealers' showrooms until late October at the earliest. We asked both agencies to comment on the distribution schedule and to

advise us of any plans to expedite the distribution of the mileage guide. We also discussed with representatives of four major automobile manufacturers the feasibility of advancing the gas mileage testing cutoff date as a way of getting the guide in car dealers' showrooms earlier.

The responses from the agencies and auto manufacturers were generally negative. EPA and FEA said that action was being taken to expedite the printing and distribution after the estimates were computed by EPA; however, very little could be done to expedite the testing and computation of the figures. Major improvements in the timeliness of the guide depends on earlier cutoff dates for computing the estimates that go into the guide. The agencies and the auto manufacturers believed that earlier cutoff dates for testing would decrease the number of models appearing in the guide, disrupt testing schedules, and jeopardize the accuracy of the estimates. The following sections present a discussion of specific objections raised and our comments concerning these objections.

#### Number of cars listed in the guide

For model year 1977 automobiles, EPA accepted manufacturers' test results for computing mileage guide estimates until September 3, 1976. EPA sent the final figures to FEA for publication on September 17, 1976. EPA stated that most of the data used in computing gas mileage estimates is a product of new car emissions certification, and little can be done to make fuel economy data available at an earlier date. FEA stated that an earlier cutoff date would mean that fewer models would be listed in the guide and that the public would only have limited gas mileage information.

Although an earlier cutoff date might result in fewer models being shown in the guide, our analysis of the 1977 fuel economy program showed that 85 percent of the tests used to compute 1977 mileage estimates were completed by July 31, 1976. If 1977 testing for mileage guide entries had been cutoff at July 31, 1976, there would have been enough data to compute estimates for 94.6 percent (440 of 465) of the models listed in the 49-State guide. A similar analysis of the California guide showed there was enough data to compute estimates for 89.7 percent (261 of 291) of the models listed in the 1977 California guide.

We believe the advantages of having a mileage guide available early in September outweigh the disadvantages of

having a few less car models in the mileage guide. Furthermore, if both EPA and automobile manufacturers are given an earlier cutoff date, it is conceivable that testing schedules could be reorganized so that more cars would be tested by July 31.

#### Testing schedules and credibility of the estimates

Automobile manufacturers expressed concern that if mileage guide cutoff dates were advanced, it would be difficult to complete testing. They said under present conditions it is difficult to schedule testing at EPA's emissions laboratory because of the tight schedules. One manufacturer's policy is to assure that its cars meet emissions certification standards before trying to maximize gas mileage. The company believes the gas mileage of its vehicles will suffer if the testing time is cut short.

Manufacturers and EPA also said earlier cutoff dates would jeopardize the credibility of the estimates because there would be fewer tests available for computing the estimates. Our analysis showed that the four domestic manufacturers had 100 percent, 97 percent, 82 percent, and 67 percent of their testing done by July 31. Foreign manufacturers also had a considerable portion of their testing done by July 31. Four of nine foreign manufacturers had 100 percent of their testing complete by July 31--two were over 90-percent complete, two were over 80-percent complete, and was only 59-percent complete.

Our analysis also showed that if tests completed after July 31 had not been used in the computations, changes would have occurred in one of the city, highway, or combined ratings for only 15 percent (72 of 465) of the models in the 49-State guide and 4 percent (12 of 291) of the cars in the California guide. Eighty-one percent of the changes were 1 mile per gallon differences, 10 percent were 2 miles per gallon differences, 6 percent were 3 miles per gallon differences, and 2 percent were 4 miles per gallon differences.

#### Use of the guide by early buyers

FEA stated that many of the early purchases are made by customers who buy only by nameplate and frequently without even seeing the vehicle. This implies that early buyers are not concerned about gas mileage. However, 56 percent of the 1976 model car buyers interviewed for the FEA study

considered gas mileage very important and 21 percent responded that gas mileage was one of their reasons for deciding on the model bought. Since the sample was drawn from new car registrations early in the model year, September, October, and November of 1975, we believe early buyers are concerned about gas mileage and it is important that they have access to the mileage guide.

Another factor that should be considered is that advertising is intensified when the new models are available. Although many consumers decide to buy later in the year, shopping often begins early. Marketing research has shown that 70 percent of new car buyers pick up brochures at showrooms before making their decision. EPA and FEA are not taking full advantage of opportunities to influence consumers because mileage guides are not available along with other brochures when the new models are introduced.

#### Accuracy of the estimates

EPA emphasized that it must have enough review time to assure the accuracy of the estimates published in the guide.

We agree that the accuracy of the estimates is very important, and EPA should continue to make the necessary review to assure accuracy. However, if testing can be completed sooner, EPA will still have enough time to review the mileage figures before forwarding them to FEA for printing and distribution of the guide.

#### CONCLUSIONS

EPA and FEA have not been taking full advantage of opportunities to encourage consumers to buy the more fuel-efficient cars because the mileage guide for 1977 model cars was not available in auto dealers' showrooms until about 2 months after the cars were available. Without the guide the new car buyer lacked enough data to select the more fuel-efficient automobile.

The timing of the printing and distribution of the guide depended on the timing of the EPA mileage testing. Since printing and distributing the guide takes about 2 months, EPA's cutoff date for testing would have to be advanced if the guide is to be in the dealers' showrooms when new cars are available for sale. Although there are some problems in advancing the cutoff date for gas mileage testing, solutions are possible if earlier distribution of the guide is given priority.

We believe FEA also should consider other methods for making mileage data available on a timely basis in car dealers' showrooms. One alternative could be to distribute mileage comparison charts to new car dealers at the time new cars are available for sale and urge dealers to display the data for buyers' use.

#### RECOMMENDATIONS

We recommend that the Administrator of EPA work toward advancing cutoff dates for mileage guide testing in order to make the guides available in dealers' showrooms when new models are introduced. In addition, the Administrator of FEA should undertake other methods of displaying gas mileage information in dealers' showrooms.

#### AGENCY AND INDUSTRY COMMENTS AND OUR EVALUATION

In commenting on our report (see app. II), EPA stated that they found it to be a balanced and accurate review and critique of their efforts to have new cars labeled with fuel economy information and to make available to the public copies of the Gas Mileage Guide.

With regard to advancing the cutoff dates for mileage guide testing, EPA stated that it is already too late to accelerate 1978 model testing but that they will continue to analyze the feasibility and advisability of advancing the testing deadlines for future model years. Also by letter to FEA dated June 20, 1977, EPA emphasized its plan to consider such an earlier cutoff date for its mileage tests. FEA commented that an earlier cutoff date would be acceptable to FEA, and that it would continue to insure the fastest possible printing and distribution of the guide. The four major domestic automakers expressed some difficulty in meeting an accelerated cutoff date on the mileage testing of all models under production, particularly for 1978 model cars. (See apps. III to VI.)

With regard to the use of other methods, besides the guide, of getting the gas mileage information to the public at an earlier date, EPA stated that it is investigating the possibility of distributing charts containing fuel economy information for display in dealers' showrooms until the guides are available. EPA states that it is pursuing this alternative with FEA and the auto industry, in the hope of getting such charts distributed as early as the 1978 model year.



## CHAPTER 5

### CREDIBILITY OF MILEAGE ESTIMATES

Most drivers will not experience EPA's estimated mileage figures, but they are reliable for comparing mileage rates of different model cars. EPA's tests are conducted in a controlled and scientific environment and cannot readily account for the ranges of some important variables affecting fuel economy, such as road and weather conditions and individual driving habits.

Several independent studies have been done which indicate that EPA mileage ratings are higher than consumers experience in everyday driving. The studies are not comprehensive enough to definitely conclude that EPA mileage ratings are inflated; however, they do indicate that consumers are likely to experience mileage which is lower than estimated by EPA. This could be having adverse effects on consumers' confidence in the EPA estimates.

There are valid reasons why many consumers will not match EPA estimates. EPA mileage ratings are estimates and are not intended to predict the actual mileage drivers will obtain. However, the FEA survey of 1976 new car buyers indicates that many consumers do not understand the intent and usefulness of the estimates in making a buying decision. Because this could reflect unfavorably on the credibility of the mileage estimates, we believe FEA should clearly inform the public, as part of its advertising campaign, how the EPA estimates can best be used in selecting the more fuel-efficient automobiles.

### USEFULNESS OF THE EPA ESTIMATES

The EPA estimates can be used by consumers who are comparison shopping for a fuel-efficient car. In interviewing auto manufacturers, Government agencies, and independent organizations, the consensus was that consumers could expect to obtain better gas mileage from those vehicles with better EPA ratings.

A General Motors survey showed good relative correlation between EPA estimates and consumer experienced mileage. For example, the study showed that consumers who owned cars with higher EPA ratings experienced better mileage than those who owned cars with lower EPA ratings.

EPA acknowledges that many consumers will not match its mileage estimates. The gas mileage guide states that the

mileage ratings are estimates and consumers may not get the listed mileage because of where and how they drive and discusses various factors affecting gas mileage. For example, the guide states that with an 18 mile per hour headwind, about a 10 percent (2 miles per gallon) loss in gas mileage will occur.

Even with EPA's explanations in the guide, there is still uncertainty concerning credibility of the estimates and how consumers perceive them, as discussed below.

#### CRITICISM OF THE EPA ESTIMATES

When EPA began publishing mileage ratings for 1973 model cars, the program received considerable public support. The automobile industry, however, was critical of EPA's testing procedures because the mileage ratings only represented city driving and did not reflect highway driving.

Responding to the criticism, EPA developed a highway cycle for the 1975 model cars which reflected long distance driving on nonurban roads and on interstate highways at speeds averaging about 48 miles per hour with no stops. Manufacturers began emphasizing the highway mileages in their advertising because the mileage rates were considerably higher than the urban ratings. Consumers then complained that the highway estimates were higher than actual mileages being experienced.

In model year 1976, EPA made another change by computing a combined city/highway estimate based on 55 percent city and 45 percent highway driving. This estimate is computed by averaging the results of city and highway test cycles.

There is less criticism; however, indications of a credibility gap remain. The FEA survey of 1976 new car buyers showed that 64 percent of the buyers who were aware of the labels did not believe the estimates. Fifty-two percent who were aware of the gas mileage guide also did not believe the EPA estimates. The reason given most frequently for not believing the label was that the estimates were too high.

#### ARE EPA ESTIMATES REPRESENTATIVE OF MILEAGE THAT CONSUMERS CAN EXPECT TO OBTAIN?

Although several studies indicate EPA's combined mileage estimates were generally higher than consumers experience in

everyday driving, they were not comprehensive enough to conclude that EPA estimates were inflated. In fact, one study showed a good correlation between EPA combined city/highway estimates and experienced mileage. Most studies showed, however, that consumers' average experienced mileage in everyday driving relates more closely to EPA's city estimates. The results of these studies are presented below.

#### General Motors post card surveys

General Motors Corporation conducted several surveys to determine the gas mileage experienced by owners of 1975 General Motors cars. The surveys were divided into three parts: (1) a winter survey of 4,491 customers, (2) a spring-summer low mileage survey of 3,868 customers, and (3) a spring-summer high mileage survey of 4,178 customers. A total of 12,537 post cards were mailed and 2,600 valid responses were received.

The survey showed that General Motors customers reported gas mileages 11 percent lower than EPA's combined 55 city/45 highway split. More specifically, the survey showed General Motors customers were experiencing mileages about

- 1.6 miles per gallon less than the EPA combined 55/45 estimated,
- 0.4 miles per gallon more than the EPA city rating, and
- 4.9 miles per gallon lower than the EPA highway estimate.

#### DuPont study

In an attempt to project fuel consumption in future years, DuPont analyzed EPA mileage estimates. DuPont's analysis showed gas mileages achieved by owners of 1974 and 1975 models was lower than predicted by EPA composite values. Motorists' mileage was closer to the EPA city gas mileage estimates than the composite estimates. DuPont ultimately used EPA's city mileage estimates to predict future gasoline consumption.

#### Shell of Canada study

A comparison of EPA combined estimates with mileage obtained by Shell employees on twenty-three 1975 vehicles in

normal driving indicated a good correlation between estimates and actual experience. The study concluded that the gas mileage of most cars improves with accumulated mileage. For the 23 cars tested the average mileage on the road was only 0.1 percent below the average of EPA ratings for the same models.

### Other studies

In addition to studies comparing EPA estimates with mileages experienced by consumers, other studies have been done which indicate EPA estimates may be somewhat high. For example, an EPA six-car study of 1975 models showed that vehicles running the highway cycle on a test track got 5 percent lower mileage than they received on a dynamometer. EPA attributed this to the rough surface of the test track.

At EPA's request, a Society of Automotive Engineers (SAE) committee was formed to develop road testing fuel economy measurement procedures. A comparison of mileage rates derived from SAE's test procedures with EPA mileages showed that EPA rates were much higher than the figures derived from SAE road tests.

### WHY CONSUMERS MAY NOT MATCH EPA ESTIMATES

EPA acknowledges that many drivers will not match its estimates because the tests are conducted in a controlled and scientific environment and many ranges of variables cannot be readily accounted for without destroying the comparability of the estimates. Some of the more important variables are (1) travel and trip characteristics; (2) individual driving habits; (3) weather, road conditions, and vehicle maintenance; and (4) vehicle characteristics and options. An explanation of the impact of these variables on gas mileage estimates follows.

#### Trip characteristics and driving habits

The type of driving people do greatly affects their gas mileage. Assuming other variables are equal, drivers who do a lot of city driving, characterized by short stop-and-go trips, are likely to get less mileage than people whose driving is characterized by longer trips on the highway. Maximum mileage is generally achieved when driving at speeds which average between 30 to 40 miles per hour. As average speed exceeds 40 miles per hour, the mileage will go down.

Individual driving habits also have a major impact on gas mileage. It is also one of the most difficult factors to account for in a gas mileage test procedure.

Tests conducted by the Automobile Club of Michigan showed that cars could experience as much as a 44-percent loss in gas mileage when operated by a poor driver as compared to a good driver. To determine the effects of bad driving habits, the test driver made jack rabbit starts, rapid stops, and weaved in and out of traffic. The Club also ran the tests using good driving techniques including smooth acceleration, travel at an even rate of speed, and using brakes only for routine stops. Traveling in mid-afternoon traffic, the test car got 14.36 miles per gallon using good driving habits and 8.11 miles per gallon with bad habits.

Weather, road conditions,  
and vehicle maintenance

EPA tests are run under ideal conditions. Vehicles are tested in temperatures ranging from 68 to 86 degrees, the dynamometer assumes smooth level roads, and test vehicles are in a good state of maintenance. In real driving, motorists experience various temperatures, road conditions, and degrees of vehicle maintenance. The following chart shows how these conditions can affect gas mileage.

<u>Road conditions</u>	<u>Miles per gallon loss</u>  (percent)
Broken and patched asphalt	15
Gravel	35
Dry sand	45
3% grade	32
7% grade	55
 <u>Environment</u>	
18 miles per hour tailwind.....(12% gain)	
18 miles per hour crosswind	1
18 miles per hour headwind	10
20° F temperature	8
Altitude (4,000 ft.)	15
 <u>State of vehicle maintenance</u>	
One plug misfiring 50% of time	7
Tires underinflated 35%	7
Front wheels 1/4 inch out of alignment	2

## Vehicle characteristics and options

With all the models, car lines, and options available to new car buyers, a veritable plethora of vehicle configurations are possible. EPA officials estimate that considering only characteristics, such as car line, transmission type, engine displacement, axle ratio, and engine type, about 8,700 different configurations exist. Considering other factors, such as power steering, air-conditioning, and nonperformance options, the number of different combinations available would be even larger.

EPA's testing procedure does account for the effect some vehicle characteristics have on gas mileage. Factors considered, at least to some extent, include aerodynamic drag, axle ratio  $\frac{1}{\quad}$ , and air-conditioning. A factor not considered is the effect of radial and various types of tires.

## CONCLUSIONS

Although there is not enough data to draw firm conclusions concerning the reliability of EPA gas mileage estimates, indications are that these estimates are higher than what most consumers experience in everyday driving, because of the many ranges of variables which are not controllable in laboratory testing.

EPA's estimates show the relative performance between makes and models, and provide useful information to consumers for comparing gas mileages of new cars. However, consumers may not understand the nature of the estimates and their usefulness in comparing the mileage efficiency of new cars.

Therefore, we believe it is necessary that consumers be better advised on how the estimates and the mileage guide can be used in selecting fuel-efficient automobiles suited to their individual needs.

## RECOMMENDATION

We recommend that FEA clearly inform the public, as part of its advertising campaign, how the EPA estimates can be used in selecting the more fuel-efficient automobiles.

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$\frac{1}{\quad}$ /Axle ratio is measured by the number of times the drive-shaft turns for each time the rear wheels turn.

## AGENCY COMMENTS AND OUR EVALUATION

In commenting on our report (see app. I), FEA agreed that getting the public to use the gas mileage guide would in fact be easier and more quickly accomplished if there was more public confidence in EPA's mileage figures. In response, EPA stated (see app. II) that in discussions of the credibility of EPA estimates, the underlying assumption is that in-use experience yields lower mileages than those expected, resulting in a lack of confidence in EPA mileages.

We believe that the comments of both of these agencies recognize the need for the public to be better advised of the mileage figures and the manner in which they are to be used, as a means of encouraging the purchase of more fuel-efficient automobiles.



FEDERAL ENERGY ADMINISTRATION  
WASHINGTON, D.C. 20461

June 3, 1977

OFFICE OF THE ADMINISTRATOR

Mr. Monte Canfield  
Director  
Energy and Minerals Division  
General Accounting Office  
Washington, D.C. 20548

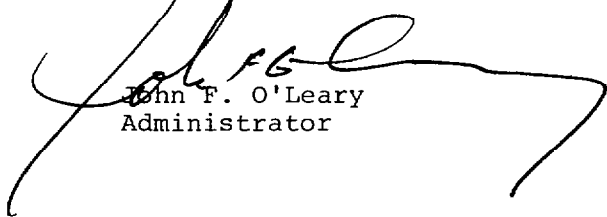
Dear Mr. Canfield:

This is in response to your letter of April 27, 1977, requesting our comments on the draft report "Convincing the Public to Buy the More Fuel-Efficient Cars: An Urgent National Need."

A general comment on the report and the overall program is that more attention and analyses are needed on the fuel economy numbers themselves. Convincing the public to use the Gas Mileage Guide and to refer to the Fuel Economy Label prior to purchase could be easier and more quickly accomplished if there was more public confidence in the numbers. We believe that the report should give increased emphasis to this issue.

A staff analysis of your report, including specific recommendations, is enclosed. If we can provide any additional information, please let us know.

Sincerely,



John F. O'Leary  
Administrator

Enclosures



STAFF ANALYSIS

This GAO draft report made three main recommendations for FEA:

1. Evaluate the effectiveness of the gas mileage advertising program for 1977 model cars through the use of consumer surveys similar to the one used for the 1976 program. (p. 22)
2. Design, implement, and evaluate a timely paid advertising campaign on a pilot basis for the 1978 model cars. (p. 22)
3. Clearly inform the public, as part of its advertising campaign, how the EPA estimates can be used in selecting the more fuel-efficient cars. (p. 38)

Comments are addressed to each recommendation in sequence:

1. An ongoing evaluation of the total program is being conducted, in-house. We are examining such aspects as the inventories of Guides in the Pueblo Distribution Center and in our warehouse, the type and extent of media exposure (written as well as TV and radio) and comments received by the Federal Regional Offices of the Federal Energy Administration (FEA) and the Environmental Protection Agency (EPA), including spot checks of automobile dealerships around the country. The report gives the inference that "advertising" is defined simply as TV and radio spots. We, however, include all methods of informing the car-buying public about the Label and the Guide.

A specific separate assessment of the usage of the TV and radio spots will be prepared. These spots were released in late December to sustain interest in the program between the fall and the spring buying surges. Our goal has been to keep the program in the public's view through the whole model year. The regular media (newspapers, magazines, and automobile industry advertisements) publicize the numbers extensively in the fall and again in the early spring when the second publication is issued. To fill the gap between these news items, we released the spots.

Questionnaires will be sent to all stations which received the spots in order to elicit critical comments on the usage and content. When we have assembled the information we will send it to you.

2. It can be argued that paid advertising has certain advantages over public service announcements. However, such a move would have serious consequences as far as the entire Federal Government and its relations with the communications industry are concerned. First, it would set a precedent that would seriously impair the government's ability in obtaining free space and air time for public service messages and programs. Such a move would also involve the government in the highly competitive time and space buying business thereby opening itself to possible charges of discriminatory practices from those media not selected for commercial time or space. Finally, it would involve the Federal Government in providing financial assistance for a free press.
3. Many efforts have been made to "clearly inform" the public about how to use these estimates. A warning is on the Label itself; the manufacturers include the warning in their advertising; the text in the Guide addresses this issue, including a warning in a color box in the center of the Guide. According to the letters about their fuel economy, the public is generally aware that these numbers are estimates and should be used as relative indicators of performance. However, they are dissatisfied with the degree of difference between the Label values and their in-use experience. The problem, therefore, with this Program may be more with the numbers themselves and not how to better explain the ways of using them.

All the studies of in-use fuel economy of which FEA is aware, show that the EPA estimates are "inflated" by 10 to 15 percent. They are not in or near the middle of the range of the actual in-use fuel economy for a given car model. It is recognized that no one test procedure can measure all the factors which affect fuel economy; however, the tests should produce estimates which fall in the middle of the range of the model's fuel economy performance if they are to be useful to the public. These same studies also lend credence to the argument that the estimates, while generally good relative indicators for a given model year, may fail on a year-to-year basis as accurate measures of relative fuel economy.

The GAO Report also does not appear to give sufficient emphasis to certain points in two of the fuel economy studies it cites.

#### DuPont Study

The Report does not discuss the main thrust of the DuPont study; that production cars, when tested on the EPA cycle, are failing to achieve the same fuel economy as the certification cars. This raises questions about the relationship between certification and production cars. In addition, the study shows that the EPA composite estimates are higher than actual in-use experience.

#### Shell of Canada Study

There are two important qualifiers in the Shell study which the Report omits. The cars in question were not necessarily U. S. type models and thus direct comparison with the EPA estimates for U. S. models may be misleading. The study also notes that their driving conditions are about 80 percent highway driving, not the 45 percent used in the EPA estimates. As such, the Shell in-use results would be better compared to the EPA highway figures rather than the composite.

FEA, in order to better quantify the differences and to better understand what kind of fuel economy information is the most useful, has undertaken a major study of in-use fuel economy as it compares to the EPA estimates on both an absolute and a comparative basis. It is hoped that the results of this study will lead to improvements in the fuel economy estimates so that they more accurately represent average in-use fuel economy.

It is recommended that Chapter 5 of the Report address these issues prior to making recommendations for improvements in the program. It is also recommended that the interpretations of the fuel economy studies be clarified.

Other sections of the report contain minor criticisms of FEA's handling of the 1977 program. One criticism relates to the timing of the program's promotion and discusses the time required to publish and distribute the Guide. The Report's statement that this process took approximately 2 months is in error. We received the copy from EPA on September 17, and on October 11 (3 weeks later) began receiving return and reorder postcards from the dealers indicating not only that they had received the Guides, but

that they also wanted additional copies. All Guides were printed and distributed by October 29--a total of 6 weeks. This was the largest (12.5 million) and fastest (ordinarily 8-10 weeks was the usual printing time) printing of the Guides to date.

There was a recommendation that a chart something like the EPA press release be circulated to the 25,000 dealers to cover the gap between the model year introduction and the printing of the booklets. There are two main difficulties with this approach: One is that reproduction of the charts could be almost as lengthy a process as having the Guides printed. An order of that size would have to go to the Government Printing Office to be typeset rather than just mimeographed or xeroxed. This preparation process and printing time could take 3 to 4 weeks.

The second reason is that no legal authority exists for requiring the dealer to post such information. The Act requires the Guide (Section 506 (b) (1) of Title III, P.L. 94-163, refers to "a simple and readily understandable booklet"); a chart is technically not the Guide nor a booklet and therefore, not subject to rulemaking.

If some other format, like a wall chart, were printed, this would also require printing time as well as extra funds. To incur this cost (approximately 20-25 cents each) on top of printing the Guides, in order to give the dealers the information either when the Guides arrive or a couple days early, does not appear to be an effective use of funds.

The issue of when to cut off the testing and still provide the maximum fuel economy information to the public is up to EPA. If EPA determined that an earlier cutoff date could be feasible, that would be acceptable to FEA. However, if they believe that early September allows more useful information to be printed in the Guide, then FEA will continue to ensure the fastest printing and distribution possible.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JUN 14 1977

JUN 16 1977

OFFICE OF  
PLANNING AND MANAGEMENT

Mr. Henry Eschwege  
Director, Community and Economic Development Division  
United States General Accounting Office  
Washington, D.C. 20548

Dear Mr. Eschwege:

We have reviewed your draft report on "Convincing the Public to Buy More Fuel-Efficient Cars: An Urgent National Need."

In general we found the draft to be a balanced and accurate review and critique of our efforts to have new cars labeled with fuel economy information and to make available to the public copies of the Gas Mileage Guide. Our substantive comments are directed toward the two principal EPA-related recommendations contained in the draft report and the discussion and recommendation relating to the credibility of the EPA mileage estimates.

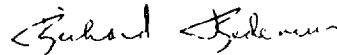
The draft report contains a recommendation that EPA work toward getting the Gas Mileage Guides distributed earlier by advancing the date on which all fuel economy testing must be completed. Attached is a staff paper which analyzes the feasibility of doing this for future model years. As noted in that paper, it is already too late to accelerate 1978 model testing to accomplish significantly earlier guide distribution. We will continue to analyze the feasibility and advisability of advancing the testing deadline for future model years, but the paramount consideration must be retention of the accuracy and credibility of the guides. We will work toward implementing alternatives that do not significantly compromise credibility or accuracy and which can otherwise be incorporated into the program.

The second principal recommendation for EPA in the draft is that we investigate the possibility of distributing charts containing fuel economy information for display in dealers' showrooms until the guides are available. We are pursuing this alternative with the Federal Energy Administration and the industry in the hope of getting such charts distributed, possibly as early as the 1978 model year.

The discussion of the credibility of the EPA estimates points out that "Most drivers will not experience EPA's estimated mileage figures, but they are reliable for comparing mileage rates of different model cars." As the ensuing discussion in the draft illustrates, the mileages of cars vary considerably depending on how they are tested or driven in use. It must be borne in mind that most drivers will not experience the fuel economy generated in any testing program, nor could they expect to experience an average mileage calculated from an extensive in-use data base -- most drivers will always either get higher or lower mileage than any test or in-use average. In most discussions of the accuracy or credibility of the EPA estimates, the underlying assumption is that inaccuracy means that in-use experience yields lower mileages than those generated by EPA. While it would be simple to design a test which would generate much lower fuel economies than do our current procedures, doing this might well rank cars improperly and would thus not provide data "reliable for comparing mileage rates of different model cars."

We appreciate the opportunity to review the draft report prior to its submission to Congress.

Sincerely yours,



Richard D. Redenius  
Acting Assistant Administrator  
for Planning and Management

Enclosure

GAO note: Agency enclosure not included in this report.



**American Motors  
Corporation**

Vehicle Environmental and Energy Regulations  
14250 Plymouth Road  
Detroit, Michigan 48232

June 2, 1977

Mr. Walter C. Herrmann, Jr.  
Regional Manager  
United States General Accounting  
Office  
Regional Office  
427 Michigan Avenue  
Detroit, Michigan 48226

Dear Mr. Herrmann:

Thank you for the opportunity to review and comment on a draft of GAO's proposed report to the Congress entitled "Convincing the Public to Buy the More Fuel-Efficient Cars: An Urgent National Need."

American Motors comments are attached and are primarily concerned with the credibility of the fuel economy estimates. We believe this issue needs attention before a broader and more comprehensive information program could be made more effective.

American Motors agrees that an urgent national need exists and hopes that our comments are constructive.

Sincerely,

Stuart R. Perkins  
Director -  
Vehicle Emissions and  
Fuel Economy

j

AMERICAN MOTORS COMMENTS ON THE DRAFT REPORT ENTITLED "CONVINCING THE PUBLIC TO BUY THE MORE FUEL-EFFICIENT CARS: AN URGENT NATIONAL NEED" PROPOSED BY THE GENERAL ACCOUNTING OFFICE

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American Motors considers the issue of reducing the consumer credibility gap in the published Environmental Protection Agency (EPA) mileage estimates fundamental to the stated goal and is disappointed to see it placed last among the three issues comprising the General Accounting Office's proposed program.

Consumers need to understand the following fuel economy facts:

1. The EPA mpg values can be useful as an aid in purchasing a fuel efficient car.
2. Individuals should not expect to duplicate the EPA fuel economy numbers listed for the city, highway or combined categories. Actual vehicle in-use factors will yield a wide distribution of fuel economy results.
3. The EPA testing procedure has some limitations, not discussed in the report, that tend to make the EPA fuel economy estimates unrepresentative. For example:
  - a. Some vehicle configurations are not tested, however, to comply with the labeling requirement fuel economy estimates are given the vehicle from another vehicle considered to be comparable.
  - b. The practical aspects of fuel economy data generation preclude measurement of a statistically valid sample.



In fact, a single test usually represents tens of thousands of eventual production vehicles.

c. Inherent with the limited testing is the actual EPA test variability as well as the vehicle's test variability. "The limits of variability due to measurement error and vehicle variability on a 1975 FTP are estimated at  $\pm 19\%$  of the mean for HC,  $\pm 33\%$  of the mean for CO, and  $\pm 5\%$  of the mean for CO<sub>2</sub>. These limits define the range for which 95% of the test measurements would be expected to fall if there is no variation in the true level of these vehicles."<sup>1/</sup> Since these compounds comprise the EPA fuel economy formula, based on the carbon balance technique, their variability suggests that their combined results are far from an absolute measurement and must be treated accordingly.

4. If consumers wish to determine the fuel economy of their car a specific method or methods should be recommended. Under no circumstances should fuel economy measurements be considered representative of a vehicle until it has experienced at least 4,000 miles.

As a vehicle manufacturer we are concerned with the credibility issue and believe that it is the necessary foundation of an

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<sup>1/</sup> W. K. Juneja, D. D. Horchler, H. M. Haskew, A Treatise on Exhaust Emission Test Variability (SAE 770136), page 18.

effective public information program. It is not our intent to criticize the EPA test procedure or the handling of fuel economy data in this response. Nevertheless, we are compelled to point out certain limitations we believe result in an unrealistic fuel economy estimate for a given vehicle.

A final point that we believe causes a considerable credibility gap is the current vehicle comparison system which groups 1977 vehicles into five passenger car classes and three station wagon classes. Gross overlapping of the 1977 class ranges result in a loss of credibility. The fuel economy range for the mid-size class is virtually the same as that of the large class and this could help some consumers rationalize purchases of larger cars rather than mid-size cars. This type of regulated information dissemination causes a credibility gap and should not have been required. Attached is American Motors Corporation comments to the fuel economy labeling and disclosure procedures and requirements, dated January 3, 1977 for your information.

American Motors recommends that before any massive public information program is launched that the education of the public concerning the usefulness of the EPA fuel economy estimates be considered. Also the fuel economy labels need to be simplified by eliminating any misleading or confusing information. This simplified label could be supported by a more comprehensive and well publicized Guide.

**American Motors  
Corporation**

Vehicle Environmental and Energy Regulations  
14250 Plymouth Road  
Detroit, Michigan 48232

January 3, 1977

Mr. E. O. Stork  
Deputy Assistant Administrator  
Mobile Source Air Pollution Control  
401 M Street, S.W.  
Washington, D. C. 20460

Dear Mr. Stork:

American Motors Corporation submits the attached comments in response to the November 10, 1976 Federal Register publication (41 F.R. 49752) regarding Fuel Economy Testing, Labeling and Information Disclosure Procedures and Requirements for 1977 and Later Model Year Automobiles.

We are encouraged that EPA is considering revisions in these procedures and hope that our comments on the classification of comparable automobiles and the MPG label are beneficial to you in bringing about a more realistic and practical regulation.

Sincerely,

A handwritten signature in cursive script that reads "Stuart R. Perkins".

Stuart R. Perkins  
Director -  
Vehicle Emissions Programs

/jr

Attachment

American Motors Corporation Comments on the MPG Labeling and Disclosure Procedures and Requirements for the 1977 and Later Model Year Automobiles Published in the Federal Register on November 10, 1976 (41 F.R. 49752)

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The Federal Register of November 10, 1976 contained the Final MPG Labeling and Information Disclosure Procedures and Requirements for the 1977 and Later Model Year Automobiles. The affected vehicles are light-duty trucks of 6000 pounds GVWR or less and passenger cars.

The regulations require that each affected vehicle when offered for sale carry a label showing its MPG (city, highway and combined), the average fuel cost for 15,000 miles, and the MPG range of vehicles that are considered comparable. The regulations require that the dealers maintain the MPG labels on the vehicles through the time of sale and have copies of the Federal Energy Administration's Gas Mileage Guide for that model year.

As a result of some criticisms of the label format and the methodology for classifying comparable vehicles, EPA is reconsidering these issues for 1978 and has requested comments.

Comparable Vehicle Classification

The current "Interior Volume Index" is an attempt to quantify the space inside a car (sedans, hatchbacks, and station wagons) based on the approximate volume of the front and second seat areas and the cargo or trunk area. The seating volume is the product of head, leg, and shoulder dimensions from the Society of Automotive Engineers J1100a (Recommended Practice). The cargo or trunk volumes are approximated from dimensions in this procedure, with modification. These volumes are combined into an index because the calculations based on the available dimensions do not yield a true interior volume. The range for 1977 passenger cars was from 77 to 172 cubic feet.

The SAE J1100a dimensions are the basis for the current FEA/EPA Comparable Vehicle Classification. These dimensions are published yearly for all vehicle manufacturers through the Motor Vehicle Manufacturers Association Specifications Form. They are a convenient data source, however, care must be exercised when these data are utilized for other than intended purposes. Problems arose in the application of these dimensions to yield the 1977 Interior Volume Index for certain vehicles.

The SAE J1100a interior dimensions are minimum linear dimensions selected for identifying head, leg and shoulder room. They were not intended to be multiplied together for interior volume calculations as used in the FEA/EPA Comparable Vehicle Classification. The product of the three interior dimensions yields a value that

is more appropriately termed a minimum index rather than a comparable volume.

The current comparison system is misleading. It does not group comparable vehicles into classes useful to the consumer. The problem is clear when the resulting 49-State 1977 MPG ranges are inspected for these classes:

PASSENGER CARS

<u>FEA/EPA Class</u>	<u>MPG Range</u>
2-Seater *	15 - 21
Subcompact	15 - 44
Compact	13 - 26
Mid-Size	11 - 20
Large	11 - 20

STATION WAGONS

Small	19 - 40
Mid-Size	12 - 20
Large	12 - 19

\* Not based on interior volume

Gross overlaps of the MPG ranges for subcompact and compact classes are bound to confuse some consumers. The MPG range for the mid-size class is virtually the same as that of the large class and this could help some consumers rationalize purchases of large cars rather than mid-size cars.

The insensitivity of the current comparison system to the vehicle

population is obvious. The need to improve seems equally obvious.

American Motors suggests that if interior volume is the only parameter to be utilized for comparing vehicles then a new procedure should be developed with the specific objective to define the useful interior volume of vehicles. SAE J1100a can remain intact continuing to serve the purpose for which it was developed. This new procedure should be developed through SAE with the normal inputs from industry, FEA, EPA and other interested parties.

While we have definite suggestions on what we would like to recommend as far as new dimensions, it would be improper for American Motors or any single company to develop a set of definitions for interior dimensions that would be the yardstick for the entire industry. Therefore, we are encouraged to see the recent efforts of the Federal Energy Administration (FEA) in meeting with the Human Factors group of the SAE. We recognize that the goal of achieving the necessary improvements in time for the 1978 model year may be optimistic and suggest that a more realistic effective date would be the 1979 model year. In the meantime, the existing procedure with a more appropriate rear shoulder room dimension and provisions for hidden cargo volume could be carried over for the 1978 model year.

Recognizing the inadequacy of the current system, we suggest that the vehicle manufacturers be permitted the opportunity to reclassify

a vehicle they consider to be misclassified. Also, this process would tend to reduce the unrealistic aspects of the objective class cutpoints.

### Label

We recommend retention of specific labels and general labels. We contend that the current label formats contain too much information, are repetitive of the price sticker and Gas Mileage Guide, and force use of labels that are too large. If the customer cares to know the details the current labels carry, he could be directed to the Guide by a short statement on the label.

We propose that the revised label formats include:

1. The combined city and highway MPG value only.
2. Range of comparable vehicles--or the current statement indicating lack of a range on a certain date.
3. A statement referring the perspective buyer to the Gas Mileage Guide for operating costs, city and highway fuel economy values could be included with the statement currently directing him to the Guide.
4. The current reminder statement could be included in the Guide and a short reminder or qualification statement incorporated on the label.

This proposed format would permit reducing the size of the label



by at least 50 percent to facilitate handling and to provide for convenient utilization on the current price sticker format. The protection of the label would also be more manageable by the size reduction.

We are not opposed to the use of graphics on the label but believe any graphics must be functional and must not create label size problems of the type we are currently experiencing.

**CHRYSLER  
CORPORATION**

CHARLES M HEINEN  
DIRECTOR EMISSIONS FUEL ECONOMY  
CERTIFICATION AND MATERIALS ENGINEERING  
ENGINEERING OFFICE

June 7, 1977

Mr. Walter C. Herrman, Jr.  
Regional Manager  
United States General Accounting  
Office  
477 Michigan Avenue  
Detroit, Michigan 48226

Dear Mr. Herrman:

Attached are Chrysler Corporation's comments on your proposed report to the Congress entitled, "Convincing the Public to Buy the More Fuel-Efficient Cars: An Urgent National Need." Our comments are in response to your May 4, 1977 letter which requested our appraisal of the draft report.

Thank you for the opportunity to comment on your proposed report. We believe your initiative in this study and your effective review of the EPA/FEA fuel economy labeling and guide programs will serve as the catalyst for some important improvements that should be made in the program.

Sincerely yours,



CMH/vms

Attachments

cc: R. J. Piscopink

Comments on the GAO Proposed Report  
Entitled, "Convincing the Public to  
Buy the More Fuel-Efficient Cars: An  
Urgent National Need."

Prepared by  
Chrysler Corporation

June 7, 1977

Comments on the Proposed GAO Report"Convincing the Public to Buy  
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Summary of Comments

- I. Chrysler Corporation agrees and supports the GAO recommendation that FEA establish a comprehensive paid advertising campaign to acquaint prospective automobile purchasers with the EPA/FEA fuel economy values shown on labels and in the guide.
  
- II. Chrysler Corporation believes that alternative (and more attractive) methods than proposed by GAO are available to make the guides securable in dealer's showrooms when new models are introduced.
  
- III. Chrysler Corporation believes that measures in addition to those recommended by GAO can be taken to reduce the consumer-EPA fuel economy credibility gap.

What follows is a detailed critique of the GAO proposed report entitled "Convincing the Public to Buy the More Fuel-Efficient Cars: An Urgent National Need."

Digest Comments

page i GAO states:  
& ii

"For example, the combined Environmental Protection Agency mileage rating for subcompacts can range from 15 to 41 miles per gallon. Assuming a person drives 15,000 miles in a year, the difference in fuel consumed by two cars in the subcompact category could be about 600 gallons of gasoline and \$400 in cost. If we can increase our national fleet average mileage for all cars from 15 to 20 miles per gallon, it is estimated that about 432 million barrels of petroleum could be saved each year."

Chrysler comments:

The range for subcompact is either incorrect or out-of-date. Specifically, the January 25, 1977 letter from L. I. Ranka, EPA, to G. W. Robertson, states the range for subcompacts is 11 to 44 mpg. (This is combined mpg and for Federal--which should be stated in the text.) Using these figures, the difference is 1022 gallons of gasoline and \$665 in cost.

Digest Comments (Continued)

GAO should make the point in their summary of pages 10 through 14 that buying a subcompact will not guarantee good mileage. This is because the range of fuel economy in the subcompact class of vehicles is from 11 to 44 miles per gallon. The public may be misled in assuming that buying a small car assures good fuel economy.

page ii GAO states:

"...average of 27.5 miles per gallon. Many cars are achieving that level now ..."

Chrysler comments:

The term many seems overstated. GAO should offer some summary statistics such as x% of the model types offered for sale were 27.5 mpg or greater.

page iii GAO states:

Most 1977 model cars were available for sale in September 1976. It was not until late October or early November 1976 that the consumer guide, showing comparable mileage estimates, was available in dealer showrooms. An estimated 766,000 cars were sold during this period."

Chrysler comments:

These summary statements imply that consumers could not make judgments using comparable mileage figures because the information was not available. Certainly this state-

Digest Comments (Continued)

ment should be conditioned to explain that (1) all new cars offered for sale were required to have fuel economy labels on them and consumers could, by going from showroom to showroom, compare the fuel economy of new cars, (2) all the fuel economy information contained in the November guide was released to the press by EPA in September, and (3) manufacturers were advertising fuel economy numbers as part of their new model introduction advertising campaigns when the fuel economy results were attractive.

page iii GAO states:

"A Federal Energy Administration study estimated that a reduction of about 900 million gallons in annual fuel consumption was attributable to the 1976 gas mileage information program. These savings occurred despite the fact that only 7 percent of the new car buyers surveyed were aware of the consumer guides published by that agency."

Chrysler comments:

Although we have not evaluated in detail the results or validity of the FEA study, the FEA report (Volume I, page 15) very carefully (and properly so) stated "It is important to note that this analysis is not intended to imply that awareness has actually caused buyers to become more interested in fuel economy; instead, the program has enabled buyers who are already interested in obtaining good gas mileage to make more fuel efficient choices."



Digest Comments (Continued)

The GAO draft says this saving was attributable to the FEA program. According to Webster "attribute" means "to explain by indicating a cause"-- exactly what the FEA report says should not be implied. The main point is that these "aware" buyers were interested in fuel economy and the guides/labels were tools that helped them obtain fuel efficient vehicles (or, as FEA said, "facilitated by the FEA/EPA fuel economy program").

page V GAO recommends:

"That the administrator of the Environmental Protection Agency:

--Work toward advancing the cutoff dates for mileage guide testing in order to make the mileage guides available in dealer's showrooms when new models are introduced."

Chrysler comments:

Advancing the cutoff dates for mileage guide testing is just one technique for making the information available to consumers in dealer's showrooms in a more timely manner. If the objective is to have comparative fuel economy information available at or before general model introduction, the GAO may want to recommend to the EPA Administrator that he take steps to achieve this goal and not be so specific or to the techniques used to accomplish the objective.

Chapter 1 Comments

page 2 GAO states:

"During emissions tests, which are run on a dynamometer (see page 3), EPA compares the amount of gaseous emission with the amount of gasoline used by the automobile."

Chrysler comments:

This statement appears to be misleading. EPA computes the amount of gasoline used by the automobile from the gaseous emissions that are measured to determine compliance with exhaust emission standards. EPA does not directly measure the amount of gasoline used.

page 8 GAO states:

"Auto manufacturers should be able to achieve the 1978 standards. The estimated overall fleet average for the 1976 and 1977 model cars was 17.8 and 18.6 miles per gallon, respectively. However, auto manufacturers stated that meeting the 1985 standards of 27.5 miles per gallon will be difficult."

Chrysler comments:

While the facts are accurate, this is almost misleading in several respects. The quoted 1976 and 1977 numbers are for all vehicles including imports. The 1978 standard of 18 is a task for three of the four U.S. companies. The standards after 1978 also are a task. And, achieving the fuel economy standards is heavily dependent on emission standards.

Chapter 2 Comments

page 10 GAO states:

"In 1975, the United States consumed the equivalent of about 6 billion barrels of crude oil, and about 39 percent of the oil consumed was imported. The automobile is the single largest user of petroleum and in 1975 consumed the equivalent of 2.3 billion barrels of crude oil."

Chrysler comments:

Both figures seem slightly high. The "National Energy Outlook," published by FEA in 1976, indicates on page xxiii, the percentage is 37 percent. DOT reported (Federal Highway Administration, Table VM-1, dated January, 1977) that in 1975 passenger cars used 76,000 million gallons (this is 1.8 billion barrels) and all motor vehicles (passenger cars, motor cycles, commercial buses, school buses, other buses, and single unit and combination cargo vehicles) consumed 108,984 million gallons (this is 2.6 billion barrels).

page 12 GAO states:

"In view of the relatively low awareness and use of the gas mileage information in 1976, the potential for reduction in fuel consumption is even greater in future years."

Chrysler comments:

We question this basic conclusion that public education alone can result in sharply reduced fuel consumption. The

Chapter 2 Comments (Continued)

report bases this conclusion on a FEA study which showed a difference in purchase/consumption decisions based on a difference in awareness of EPA/FEA gas mileage labels and guides. We believe it is very possible that this data reflects the behavior of those car buyers who place a high premium on fuel efficiency. Most new car buyers do not discriminate between brands on the basis of fuel efficiency. Those who do are the very ones likely to demonstrate awareness of the EPA/FEA labels. In other words, the program may already have worked efficiently on the prime prospects, but it is doubtful whether the balance of new car buyers will respond with the same behavior when exposed to additional information on mileage labels and guides.

While it is probably true that the EPA/FEA fuel economy programs have resulted in reduced fuel consumption, it would appear that the FEA study quoted is not totally definitive in this respect. In addition, GAO should acknowledge that automobile manufacturers have also played a role in encouraging fuel conservation by means of product actions and promotional efforts. Auto companies have devoted considerable efforts to improved fuel efficiency of existing products as well as to the introduction of new and more efficient models. In addition to the extensive promotion of fuel efficient models, often referencing EPA mileage data, manufacturers have contributed to changes in consumer product purchasing patterns and to fuel conservation and this factor must be recognized when evaluating

Chapter 2 Comments (Continued)

the effectiveness of the FEA/EPA program.

The FEA study suggests that many buyers consider fuel economy important and a major buying rationale. While we would not dispute these findings, we should note that they are not indicated as resulting from the fuel economy information program of EPA/FEA. No casual relationship is shown or suggested in the FEA study. Hence, this would not appear to constitute support for the statement that the program "has had a positive impact on reducing fuel consumption."

Chapter 3 Comments

page 22 GAO states:

"We recommend that the Administrator of FEA:

- evaluate the effectiveness of its gas mileage advertising program for 1977 model cars through the use of consumer surveys similar to the one used for the 1976 program.
- design, implement, and evaluate a timely paid advertising campaign on a pilot basis for the 1978 model cars. The advertising should be directed to large audiences which include substantial numbers of prospective new car buyers."

Chrysler comments:

We suggest that any future research on the effectiveness of the gas mileage program should focus more directly on the relationship between awareness of labels and/or guide and actual purchasing patterns. The research should answer the question: Were new car purchasers motivated in terms of the car they bought by the EPA/FEA guide or labels?

Chapter 3 Comments (Continued)

Concerning paid advertising, we believe the consumers lack of knowledge of the buyer's guide is primarily due to the lack of promotion to the public that it is available. A paid advertising campaign would certainly help correct this. In this campaign, over and above the promotion of the availability of the guide, the proper use of it should be explained. Through this, consumers would then be encouraged to ask for the guide at the dealerships. Consumers will have to request or seek out the guides, since dealers selling products with unfavorable mileage will not readily give the guides to prospects or encourage its use.

Chapter 4 Comments

page 23

GAO states:

"The printing and distribution of the guide depends on when the results of EPA's mileage testing are available. For the 1977 model cars, a manufacturer could have its cars tested as late as September 3, about the same time that many new model cars are already available for sale. Since printing and distribution of the guide takes about 2 months, EPA's cutoff date for testing would have to be advanced if the guide is to be in the dealer's showrooms when new cars are available for sale."

Chrysler comments:

GAO's suggestion that EPA should work toward advancing the cutoff date for mileage testing does not acknowledge the

Chapter 4 Comments (Continued)

fact that the cutoff date selected is a compromise date and is selected, according to EPA, to achieve the maximum amount of information in the most timely manner. While it is possible to advance the cutoff date, it must be recognized that the entire certification program would then have to be advanced--earlier guide cutoff, earlier certification completion, earlier certification start, earlier EPA format rules finalized, earlier emission standards established, earlier engine development, etc. The most important point is that the guide cutoff date must be established well in advance so that a manufacturer can plan accordingly.

GAO appears to concur that printing and distribution of the guide takes about two months, although there are a number of publications throughout the government and private industry where printing and distribution is accomplished on a much shorter time frame. A good example in the government is the Federal Register. Since the information is targeted at the consumer through dealer showroom distribution, it may be more expedient to purchase advertisement space in the dealers press such as Automotive News or other suitable publications. A contract could be let to allow publishers to bid on the use of their printing and distribution channels in order to provide the fuel economy guide to the dealers in a more timely manner.

Chapter 4 Comments (Continued)

Appendix II (September 2, 1976 FEA letter) indicates on page 2, second paragraph, that the 1977 guide will be printed on one large sheet and folded--to save approximately two weeks in printing. We note that the guide was not printed in this manner. Perhaps this resulted in delay or perhaps the estimate was incorrect.

page 24 GAO states:

"We also believe FEA should consider other methods for making mileage data available on a timely basis in car dealer's showrooms. One possibility would be to distribute mileage comparison charts to new car dealers at the time new cars are available for sale and require dealers to display the data for buyer's use. Such a chart, in the form of a new release, had been published by EPA in September 1976--the same month 1977 model cars first became available."

Chrysler comments:

While the proposal certainly should be investigated, the following points should be noted.

- Printing a chart may slow down getting the booklet out to the public. Publishing facilities and distribution channels would have to be used first for the chart, then for the guide.
- The Energy Policy and Conservation Act still requires a booklet be distributed.
- The public would not really be able to do their own study (at home etc.) of a wall chart.
- Preparing and printing wall charts probably would take almost as long as the booklet.



Chapter 4 Comments (Continued)

- Preparing and printing wall charts would add to the program costs.
- Charts would have to be quite large for complete coverage or type so small it would be hardly legible.
- Many dealers have policies wherein they do not use this type of material in their dealerships.
- Dealers selling products not favorably shown on the chart would not utilize it.

As another possibility, we suggest again that FEA might want to consider a two page tear out type advertisement in the dealers press (like Automotive News) with the suggestion that it be posted. This probably would be relatively low expense and would get to the automotive dealer very quickly. It probably would be appreciated by dealers, customers, manufacturers, etc.

page 25  
& 26

GAO states:

"Although an earlier cutoff date might result in fewer models being shown in the guide, our analysis of the 1977 fuel economy program showed that 85 percent of the tests used to compute 1977 mileage estimates were completed by July 31, 1976. If 1977 testing for mileage guide entries had been cutoff at July 31, 1976, there would have been sufficient data to compute estimates for 94.6 percent (440 of 465) of the models listed in the 49 State guide. A similar analysis of the California guide showed there was sufficient data to compute estimates for 89.7 percent (261 of 291) of the models listed in the 1977 California guide."

Chapter 4 Comments (Continued)

## Chrysler comments:

The statistics used cite percent of testing and percent of listed models in the September guide. These statistics fail to acknowledge that the September 3 cutoff date already precluded an amount of testing and a number of models from the September guide. The statistics concerning tests available and number of models listed should be based on the models offered for sale in September, not the models listed in the September guide.

Further, advancing the cutoff date without sufficient notice (at least one model year) would be unfair because manufacturers with greater resources could accelerate their testing programs to meet the new schedule. Smaller manufacturers, with less resources, would not be able to accelerate their testing schedules to meet the advanced cutoff date. In effect, the larger manufacturers would gain a fuel economy level advantage because they have the resources to buy the extra testing that offsets EPA's selection of "worst case" emissions-data vehicles for certification that are used for the fuel economy value determination.

page 27 GAO states:

"Our analysis showed that the four domestic manufacturers had 100 percent, 97 percent, 82 percent, and 67 percent of

Chapter 4 Comments (Continued)

their testing done by July 31. Foreign manufacturers also had a substantial portion of their testing done by July 31. Four of nine foreign manufacturers had 100 percent of their testing complete by July 31, two were over 90 percent complete, two were over 80 percent complete, and one was only 59 percent complete."

Our analysis also showed that if tests completed after July 31 had not been used in the computations, changes would have occurred in one of the city, highway, or combined ratings for only 15 percent (72 of 465) of the models in the 49 state guide and 4 percent (12 of 291) of the cars in the California guide. Eighty-one percent of the changes were 1 mile per gallon differences, 10 percent were 2 miles per gallon differences, 6 percent were 3 miles per gallon differences, and 2 percent were 4 miles per gallon differences."

Chrysler comments:

These statistics do not point out that they are the percent of testing used in the first edition of the guide and not the percent of testing available for use when the models are introduced in September. The same is true of the statistics on the miles per gallon differences between the

Chapter 4 Comments (Continued)

July 31 cutoff date and the September 3 cutoff date. The statistics should be based on the percent difference between a value calculated on July 31, September 3, and other dates throughout the year as the manufacturers continue to improve their product offerings through running changes.

page 28 GAO states:

"EPA emphasized that it must have enough review time to assure the accuracy of the estimates published in the guide.

We agree that the accuracy of the estimates is very important, and EPA should continue to perform the necessary review to assure accuracy. However, if testing can be completed sooner, EPA will still have sufficient time to review the mileage figures before forwarding them to FEA for printing and distribution of the guide."

Chrysler comments:

This statement fails to acknowledge that the accuracy of the estimate is dependent on more factors than just assuring that no transcriptional errors were made when handling the calculations. One point that is extremely significant was not stated. The point is that a determination of the fuel

Chapter 4 Comments (Continued)

economy estimate for a particular model is both a subjective and an objective process based on data available at the time that the estimate must be made. Statistically, the greater the number of tests run on any given car, the more accurate the fuel economy number that is assigned to that car will be. The more vehicles tested within a model type, the more accurate the information on which to base the reasonableness of each individual test result. Finally, the higher the percentage representation of the vehicle configurations tested within a model type the more accurate the fuel economy estimate for that model type will be.

Chapter 5 Comments

page 37	GAO states: <u>"Environment</u>	<u>Miles per gallon loss (percent)</u>
	18 miles per hour tailwind (19% gain)	
	18 miles per hour crosswind	2
	18 miles per hour headwind	17
	.	.
	.	.
	.	.

State of Vehicle Maintenance

One plug misfiring 50% of time	7
.	.
.	.
	"

Chrysler comments:

The percent (gain) loss in fuel economy for the preceding cited environment conditions do not agree with the percent (gain) losses given by EPA/FEA in the first edition of the

Chapter 5 Comments (Continued)1977 Gas Mileage Guide.

The state of vehicle maintenance percent loss for one plug misfiring is dependent upon whether the vehicle is equipped with a 4, 6, or 8 cylinder engine. This difference should be indicated.

page 38

GAO states:

"Although data is insufficient to draw firm conclusions concerning the reliability of EPA gas mileage estimates, indications are that they are higher than consumers experience in everyday driving because of the many ranges of variables which are not controllable in laboratory testing."

Chrysler comments:

This conclusion is only partially correct and is also incomplete. It does not explain why 36% of the customers surveyed by FEA get better fuel economy than EPA estimates. It also fails to explain that one major reason EPA estimates do not reflect customer experience is that the vehicle configurations tested to estimate the fuel economy of a model type may be different than the vehicle configurations purchased by the customer.

As the fuel economy of automobiles becomes more and more of a discriminator on which customers base their decisions to purchase, the automobile industry will continue to implement

Chapter 5 Comments (Continued)

fuel economy improvements into their products and product lines as they become feasible to do so. The EPA policy of establishing only one fuel economy rating for a model type for the entire model year, and only publishing two fuel economy guides (the second guide only adding model types not included in the first guide) during a model year, will become a major deterrent to manufacturers attempting to inform customers of improvements in the fuel economy of their products.

With the additional testing requirements associated with calculating a manufacturer's fleet average fuel economy, it becomes feasible to maintain a running record of the fuel economy ratings associated with a model type throughout a model year. This affords manufacturers the opportunity for public recognition of improvements in their products and product offerings. These data, if used to update labels and guides, will also go a long way in minimizing the credibility gap in the published mileage estimates.

There are two major problems associated with maintaining a controlled and manageable schedule for updating fuel economy labels and guides. The first is to avoid customer confusion when different label values appear on the same model types and guide listings show more

Chapter 5 Comments (Continued)

than one fuel economy estimate for a model type. This problem can be solved in a number of ways. Labels can be coded or dated to differentiate the vehicle with respect to its fuel economy rating. The codes or dates can be displayed in the guide. Manufacturers may update the vehicles in dealer's stock with revised calibrations and hardware (if that is feasible) and revise the labels to reflect improvements. Where vehicles and their labels can not be updated, price differentials or promotional programs can be used to sell the different fuel efficient versions of a given model type.

With respect to minimizing confusion because of an updated guide being available at dealerships, the guide could be updated semi-annually and could be timed to arrive at dealerships just prior to vehicles with updated and dated or coded labels. The updated labels could be referred to the most recent guide for comparative information. The new guide could contain the cumulative listing of all values and indicate the respective code or date associated with each fuel economy value. The consumer would then be made aware of the most recent fuel economy improvements for each manufacturer and, where no improvements were made, be notified that only one set of values exist for a given model type.



Chapter 5 Comments (Continued)

The second major problem to be overcome is the timely publication of the updated guide. FEA contends that it takes two months to publish and distribute the guide. It appears that the reason that it takes this length of time is because FEA is not prepared to accomplish the task on a more timely basis. There are many examples of Federal agencies that publish information in a more timely basis. Some examples are:

<u>Agency</u>	<u>Publication</u>	<u>Frequency</u>
Office of Consumer Affairs	Consumer News Letter Consumer Legislative Report	Monthly Monthly
National Bureau of Standards	Technical News Bulletin	Monthly
Food & Drug Administration	FDA Papers	10 times a year
Federal Power Commission	FPC News	Daily
Federal Trade Commission	News Summary Consumer Alert Quarterly Financial Report	Daily Monthly Quarterly
Consul on Environmental Quality	102 Monitor Environmental Quarterly	Monthly Quarterly
National Weather Service	Weather Map	Daily
National Park Service	NPS Newsletter National Park Carrier	Weekly Monthly
Federal Aviation Administration	FAA Aviation	Monthly

If FEA can be set up to publish and distribute an updated guide in a timely manner and EPA can calculate revised

Chapter 5 Comments (Continued)

fuel economy values periodically, the accuracy and credibility of the fuel economy estimate can be improved considerably.

Some additional measures that EPA and FEA could take to increase the credibility of the EPA mileage estimate would be:

- Communicate the idea that mileage figures are simply "potential" under ideal conditions, but do provide a good basis for shopping comparison (all data taken under same conditions).
- Show by actual test thru media coverage that some drivers can actually exceed the mileage figures with good driving techniques.
- Remove the mystique from EPA numbers by showing the public how they are determined.
- We also recommend that EPA and FEA increase public awareness of good driving habits on fuel economy by:
  - exposing the public to a positive program of visual aids and readily understood results (money saved) of good driving habits.
  - sponsor fuel economy driving contests to increase awareness of potential for given cars
  - use driver education classes to establish good fuel economy driving habits and techniques with our youth to form life long habits.
  - sponsor high school fuel economy driving contests in programs like the President's physical fitness crusade.

It should be noted that the FEA study by Abt Associates has indicated that the credibility gap could be minimized when the facts are known. Quoting from these conclusions:

Chapter 5 Comments (Continued)

"Interestingly, the EPA combined city/highway estimate seems to be an accurate indication of what actual experience will be like. Buyer's actual gas mileage is about one mpg less than the EPA combined estimate."<sup>1</sup>

---

<sup>1</sup> ABT Associates, Inc., Impact of the FEA/EPA Fuel Economy Information Program, 1976.



D. A. Jensen  
Director  
Automotive Emissions and  
Fuel Economy Office  
Environmental and Safety  
Engineering Staff

Ford Motor Company  
The American Road  
Dearborn, Michigan 48121

May 23, 1977

Mr. Walter C. Herrmann, Jr.  
Regional Manager  
United States General Accounting Office  
Patrick V. McNamara Federal Bldg.  
477 Michigan Ave.  
Detroit, Michigan 48226

Dear Mr. Herrmann:

This is in response to your letter of May 4, 1977 requesting my comments on your draft report entitled, "Convincing the Public to Buy the More Fuel Efficient Cars: An Urgent National Need".

From my point of view, this subject presents the toughest, most critical task faced by the automobile industry in the coming years. I agree that without significant shift in consumer preference toward smaller cars, the 1985 goal of 27.5 mpg fleet average fuel economy probably cannot be realized. Certainly, a shift in the other direction would guarantee non-compliance in almost any model year. Our ability to force the market toward smaller cars is quite limited, as evidenced by recent sales history, and we would therefore welcome constructive, non-restrictive aid in this direction.

To this end, the three recommendations outlined in the draft report are, in my opinion, and in the order given:

- (1) necessary and welcome
- (2) unnecessary, of limited effectiveness and unworkable
- (3) desirable but impossible to attain

Mr. Walter C. Herrmann, Jr.

May 23, 1977

In the following, I would like to address each of these points individually and then mention a few less significant items you may want to re-examine in the report.

Recommendation (1): Establish a Comprehensive Paid Advertising Campaign Directed at Prospective Car Buyers

This program I believe, could be beneficial toward achieving the desired market composition. The reason that such a campaign by an agency such as the FEA can augment the industry's own small-car-oriented advertising is that the audience will perceive no vested interest or other possibly negative connotation to the promotion. For example, appealing to one's patriotic senses is quite properly the arena of government and would probably fall flat if attempted by an individual manufacturer.

On the other hand, the campaign must be even-handed in its appeal. Favoring certain manufacturers over others would present an unwarranted interference in the free marketplace.

Recommendation (2): Make Available Comprehensive Gas Mileage Guides at the Time New Models Are Available for Purchase

I agree with Mr. Alm and Mr. Hill that it is impossible to provide a mileage guide of acceptable quality at the time most new cars are introduced. In the report, it is estimated that a sufficiently high percentage of new cars will have been certified two months prior to the model year start so that a mileage guide could be assembled on time. What this fails to take into account is that many of the most fuel-efficient calibrations are those which are optimized, of necessity, just prior to introduction. It would be a disservice to the prospective buyer to exclude these from the guide.

Aside from the logistics problem just mentioned, I believe that little in the way of fuel conservation can be accomplished by advancing the guide's publication date. Sales at the beginning of the model year consist mainly of large fleet sales and of large cars. Small car sales historically peak later in the model year.

Mr. Walter C. Herrmann, Jr.

May 23, 1977

Fleet purchasers are extremely well-informed purchasers and the large-car-every-year purchaser probably is the least influenced, as a group, by the material in a buyers guide. Therefore, the number of early purchasers which would be influenced by an earlier edition of the guide is quite limited. For this reason I believe that the effort required to publish the guide concurrently with the start of the model year is out of proportion to its benefit.

Recommendation (3): Reduce the Consumer Credibility Gap in the Published Mileage Estimates

The draft report correctly concludes that no single fuel economy test can predict the actual fuel economy experienced by the customer. The assertion in the report that the average customer always experiences fuel economy lower than the certified values is misleading however, and does not lead one to the conclusion that the test values should be arbitrarily lowered to reduce the credibility gap. Indeed, a recent study by the EPA shows that the certified values are indeed achieved in production models with increased mileage accumulation.

I agree with the report's conclusion that the values published in the guide are correct only in a relative sense. Reducing the credibility gap may best be confined to educating the prospective buyer to this fact. Any effort to change the test procedure or modify the values obtained in order to arrive at a more "accurate" number will only result in greater complexity while still failing to do the job.

As it stands, the guide's value lies in affording a repeatable basis of comparison for automobiles of the same class. A prospective buyer is assured that the figures cited were derived from the same measuring method and that they constitute a valid basis for comparison.

There are a few minor points you should consider in the draft. On page 2 it is stated that EPA compares the gaseous emissions with the amount of gasoline used. Actually, the amount of gasoline used is calculated from the measurement of the gaseous emissions: HC, CO, CO<sub>2</sub>.

4

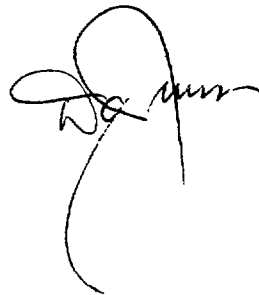
Mr. Walter C. Herrmann, Jr.

May 23, 1977

On page 10, it is stated that the automobile consumed 2.3 billion barrels of crude oil in 1975. The automobile is a large consumer but not that large. The actual figure is 1.5 billion barrels. Given that the total national consumption of crude was 6 billion barrels, the latter figure is calculated by noting that all transportation consumed half of 6 billion barrels and that half of the transportation portion is consumed by automobiles.

Thank you for allowing me to comment on your draft report. If I can be of further help, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'W.C. Herrmann, Jr.', written in a cursive style.

jr

GENERAL MOTORS CORPORATION  
GENERAL MOTORS BUILDING  
DETROIT, MICHIGAN 48202

ROBERT F. MAGILL  
VICE PRESIDENT

June 2, 1977

Mr. Walter C. Herrmann, Jr.  
Regional Manager  
U.S. General Accounting Office  
477 Michigan Avenue  
Detroit, Michigan 48226

Dear Mr. Herrmann:

Thank you for the opportunity to review the draft report "Convincing the Public to Buy the More Fuel-Efficient Cars: An Urgent National Need."

In general, we find no problems with respect to the public information portion of the report -- roughly through page 22. If an advertising program is to be considered to increase awareness of fuel economy data, our advertising people believe it would be helpful to first conduct a pilot program to determine potential effectiveness of the advertising before launching a major campaign nationwide.

In addition, we urge that the objective of any advertising program be strictly to increase awareness and not go beyond this by using examples from a manufacturer's products. As I am sure you can appreciate, such examples could result in an unfair competitive advantage.

Turning to the question of timely distribution of the EPA Mileage Guide, the draft suggests advancing the testing cut-off dates in order to have the Guide available in dealer showrooms when the new cars go on sale.



Mr. W. C. Herrmann, Jr.

-2-

June 2, 1977

As you may know emission certification and fuel economy testing already begins early in September of the previous year. Even beginning this early, the testing reaches a peak around July and August, just prior to the start of production. Advancing the cut-off date for data to be included in the Mileage Guide earlier than the last week of August or the first week in September, more likely will result in fewer cars being listed in the Guide because of the extremely heavy test burden that occurs during the months of July and August. Presumably, some manufacturers -- most notably foreign manufacturers -- may be able to complete their testing somewhat sooner due to a less extensive number of models to be tested. Rather than advancing the cut-off date, perhaps, as suggested in the report, mileage comparison charts could be made available to dealers on a more timely basis than the present Mileage Guide in booklet form.

Despite some possible inaccuracies in absolute fuel economy values, we concur with the conclusion expressed in the draft report that the fuel economy values can be useful to consumers in comparing various makes and models. For this purpose, absolute accuracy would be of secondary importance.

In summary, except for the very difficult problems associated with advancing the cut-off date for providing test data, the report appears to be a fair evaluation of the present situation, and the recommendations reasonable.

As another matter, you might want to consider incorporating in the report a reference to other potential fuel economy savings which could be accelerated by government information and action programs. More education of the public, and new drivers in particular, as to more fuel efficient driving habits and the fuel economy benefits of proper maintenance could be of real

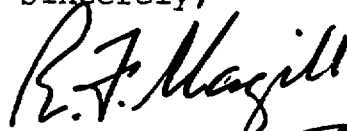
Mr. W. C. Herrmann, Jr.      -3-

June 2, 1977

value. Also, a significant gain could be made if the government could persuade states and localities to review and improve traffic flow patterns; for example, right turn on red.

Thank you again for the opportunity to provide you with our comments.

Sincerely,

  
R. F. Magill

PRINCIPAL OFFICIALS OF EPA AND FEA RESPONSIBLE  
FOR ADMINISTERING ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>ENVIRONMENTAL PROTECTION AGENCY</u>		
ADMINISTRATOR:		
Douglas M. Costle	Mar. 1977	Present
John R. Quarles, Jr. (acting)	Jan. 1977	Mar. 1977
Russell E. Train	Sept. 1973	Jan. 1977
John R. Quarles, Jr. (acting)	Aug. 1973	Sept. 1973
Robert W. Fri (acting)	Apr. 1973	Aug. 1973
William D. Ruckelshaus	Dec. 1970	Apr. 1973
DEPUTY ASSISTANT ADMINISTRATOR FOR MOBILE SOURCE AIR POLLUTION CONTROL PROGRAM:		
Eric O. Stork	May 1973	Present
<u>FEDERAL ENERGY ADMINISTRATION</u>		
ADMINISTRATOR:		
John F. O'Leary	Feb. 1977	Present
Gorman C. Smith (acting)	Jan. 1977	Feb. 1977
Frank G. Zarb	Dec. 1974	Jan. 1977
ASSISTANT ADMINISTRATOR, OFFICE OF ENERGY CONSERVATION AND ENVIRONMENT:		
Martin E. Seneca, Jr. (acting)	Jan. 1977	Present
Dr. Samuel J. Tuthill	July 1976	Jan. 1977
Dennis W. Bakke (acting)	May 1976	July 1976
Roger W. Sant	Aug. 1974	May 1976

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