

Technical Report

Light-Duty Automotive Technology and
Fuel Economy Trends Through 1993

by

J. Dillard Murrell
Karl H. Hellman
Robert M. Heavenrich

May 1993

NOTICE

Technical Reports do not necessarily represent final EPA decisions or positions. They are intended to present technical analysis of issues using data which are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments which may form the basis for a final EPA decision, position or regulatory action.

U. S. Environmental Protection Agency
Office of Air and Radiation
Office of Mobile Sources
Emission Control Technology Division
Control Technology and Applications Branch
2565 Plymouth Road
Ann Arbor, MI 48105

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ANN ARBOR, MICHIGAN 48105

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Exemption From Peer and Administrative Review

FROM: Karl H. Hellman, Chief, TDG *KH*

TO: Charles L. Gray, Jr. Director, RPT

The attached report entitled "Light-Duty Automotive Technology and Fuel Economy Trends Through 1993," (EPA/AA/TDG/93-01) describes the trends in car and light truck fuel economy and trends in vehicle technological attributes important to fuel economy.

Since this report is concerned only with the presentation of data and its analysis, and does not involve matters of policy or regulation, your concurrence is requested to waive administrative review according to the policy outlined in your directive of April 22, 1982.

Concurrence: *Charles L. Gray, Jr.* Date: 5-20-93
Charles L. Gray, Jr., Dir., RPT

Nonconcurrence: _____ Date: _____
Charles L. Gray, Jr., Dir., RPT

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I. Summary

This, the twenty-fifth in this series of papers and reports, examines trends in light-duty vehicle fuel economy and technology usage through model year 1993.

II. Introduction

Light-duty automotive technology and fuel economy trends are examined herein, as in preceding papers in this series, [1-24],* using the latest and most complete EPA data available. The source database was frozen in December 1992.

Through model year 1991, the fuel economy and vehicle sales database used for this report was formed from the most complete database used for MPG standards and Gas Guzzler regulatory compliance purposes. For all practical purposes, these databases are stable and are not expected to change in the future. For model years 1992 and 1993, the fuel economy database used for this report was formed from the final compliance data if available and augmented with data from the database used for the government's fuel economy public information programs: the gas mileage Guide and the MPG labels that are placed on new vehicles. The vehicle sales database for 1992 and 1993 used for this report was formed from the compliance and information databases, adjusted to take into account sales data available in trade publications at the time the database was frozen.

The MPG data in this series and this paper are unadjusted data values, with no correction factors for laboratory to on-road shortfall or "test procedure adjustment." Because the test procedure adjustments have not been made, the MPG values in this report are always lower than those reported by the Department of Transportation. This difference for the combined car and truck fleet has averaged 0.3 MPG for the last 14 years. This systematic 1 percent difference does not influence the fuel economy and technology trends in this report. Where only one MPG value is presented, it is 55/45 combined MPG. All vehicle weight data are based on inertia weight class (nominally curb weight plus 300 lbs). The light truck data in this paper include vehicles classified as light-duty trucks with gross vehicle weight ratings (GVWR) up to 8,500 lbs for all years shown.

This paper includes an estimate of 0 to 60 MPH acceleration time, calculated from engine rated horsepower and vehicle inertia weight, as in reference 25, and a top speed index similarly

* Numbers in brackets denote references listed at the end of the text.

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calculated using an analysis of actual vehicle performance data. These estimates provide quantitative "indexes" of vehicle performance capability.

Vehicle classification as to vehicle type, size class and manufacturer/origin generally follows fuel economy label, Gas Mileage Guide, and CAFE protocols; exceptions are listed in Appendix A. In some passenger car tables, Large Sedans and Wagons are aggregated as "Large," Midsize Sedans and Wagons are aggregated as "Midsize," and "Small" includes all other cars. Pickups, Vans and Utility Trucks are sometimes each subdivided as "Small," and "Large." The truck classification scheme used in this paper is explained in reference 14.

Grouping all vehicles into classes and then constructing time trends of parameters of interest like MPG can provide interesting and useful results. The results, however, are a strong function of the definitions used to define the classes. Nowhere is this more important than in the definition of Domestic and Import or Domestic and European and Asian vehicles used in this series of papers.

Classes based on other definitions are possible and results from these other classifications may also be useful. Some other classification scheme concepts, not all mutually exclusive, could be:

- Grouping of vehicles made in the U.S.A.
(and/or in Canada and/or in Mexico);

- Various percents of domestically added value;

- Grouping by who markets vehicles instead of who makes them;

- Grouping based on where the profits or losses wind up; and

- Grouping by whether or not vehicles are assembled with union or non-union labor.

This report did not analyze a sensitivity to class definitions because the magnitude of the effort is too large for this report, and because the basic reasons for investigating these different classification schemes have less to do with MPG trends than they do with job policy and/or industrial policy, which are not the subject of this report. (The initial reason behind the Domestic and Import definition in the fuel economy standards legislation was based on concern with jobs, not on any reason dealing with MPG technology.)

Appendix B lists the model year 1992 nameplates and their average MPG as of the data freeze date. Appendix C presents similar data for 1993.

III. General Car and Truck Trends

Table 1 gives characteristics of passenger cars, light trucks, and all light-duty vehicles (cars and light trucks) for model years 1975 to 1993. Figures 1 through 4 show some of the general time trends in some of the data from Table 1.

The 1993 MPG for cars, trucks, and both: 28.0, 20.8, and 25 are not greatly changed from those of 1992 and, in fact, are all within 1 MPG of the corresponding data since 1985. Figures 3 and 4 show that average vehicle weight is creeping up. Cars have gained more than 6 percent in weight since the minimum in 1987 and the more obvious truck trend shows an 11 percent increase since then. Since the average MPG has remained constant and not decreased in "response" to these weight increases, the 1993 car and truck fleets are the most efficient ever on the basis of ton-MPG.

There is substantial experience now with the current fuel economy standards. In the more than 15 years for which fuel economy standards have been established, it is of interest to look at what the response of the industry has been to the requirements. Figure 1 shows that the car and truck fleets have essentially attained the regulatory requirements on a fleetwide average basis. Figure 2 shows this data in more detail. The type of standards that exist now involve a substantial penalty for being below the standards and no long-term benefit for being above the requirements. Other influences, including market forces such as the cost of gasoline and consumer preferences being equal, such a standard would tend to make all manufacturers approach the same value--the standard. Considering manufacturer groups as an indication, Figure 2 indicates that the trends roughly show an approach toward similar values. What Figure 2 also shows is that the "rising tide" (the performance of the Domestic manufacturers since 1975) does not "lift all ships" (the other manufacturer groups).

Clearly, the MPG-related vehicle attribute which has changed most dramatically in the last decade is performance. Figure 5 uses an estimate of 0 to 60 MPH acceleration time as the performance indicator and Figure 6 likewise uses an analytical estimate of top speed as the performance metric. In addition to the trends depicted on Figures 5 and 6, Figure 5 provides an estimate of what the MPG of the car fleet would be if the performance were kept constant at the level of that of 1984. A fleet MPG in excess of 30 MPG has been foregone in favor of higher performance.

Figures 7 and 8 present the average performance, weight and volume characteristics of 1993 passenger cars in different MPG bands. The results show that vehicles with high MPG have less performance, are lighter, and tend to have smaller interior volume than vehicles with low MPG.

MPG by Model Year

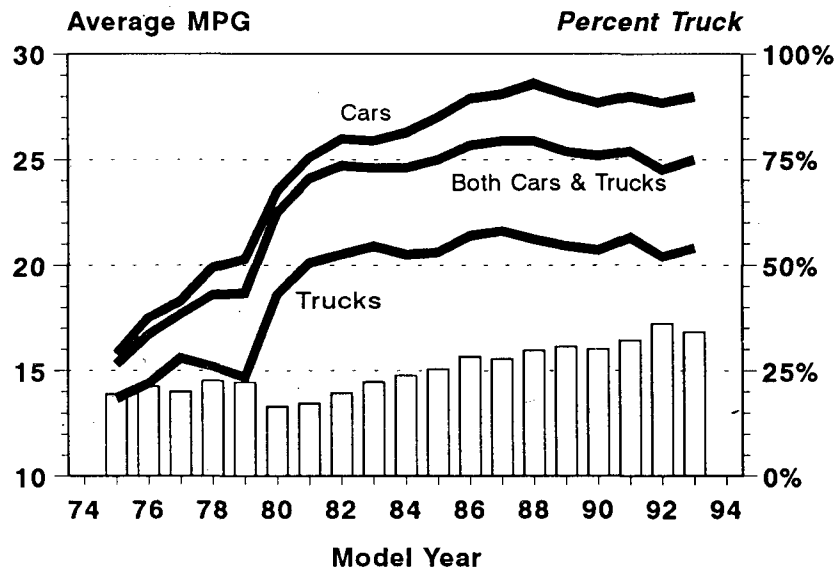


Figure 1

MPG, 1975 to 1993 Cars

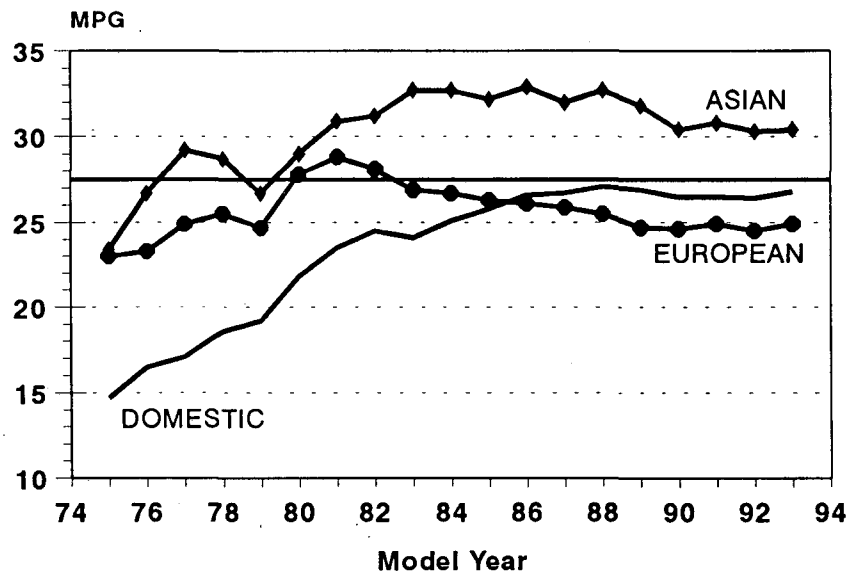


Figure 2

TABLE 1 CHARACTERISTICS OF 1975 TO 1993 LIGHT DUTY VEHICLES

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
<u>Cars</u>																
1975	8237	.806	13.7	19.5	15.8	4058		288	136	14.2	111.4	.515	.0331	32.3		
1976	9722	.788	15.2	21.3	17.5	4059		287	134	14.4	110.5	.502	.0324	35.5		
1977	11300	.800	16.0	22.3	18.3	3944	110.9	279	133	14.0	111.4	.516	.0335	36.4	2091	4021
1978	11175	.773	17.2	24.5	19.9	3588	109.5	251	124	13.7	111.1	.538	.0342	35.9	2240	3926
1979	10794	.778	17.7	24.6	20.3	3485	109.4	238	119	13.8	110.3	.545	.0338	35.4	2258	3878
1980	9443	.835	20.3	29.0	23.5	3101	104.7	188	100	14.3	106.7	.583	.0322	36.6	2507	3841
1981	8733	.827	21.7	31.1	25.1	3076	107.0	182	99	14.4	106.3	.594	.0320	38.9	2744	4161
1982	7819	.803	22.3	32.7	26.0	3054	106.6	175	99	14.4	106.4	.609	.0320	40.1	2836	4273
1983	8002	.777	22.1	32.7	25.9	3112	109.2	182	104	14.0	107.8	.615	.0330	40.7	2904	4426
1984	10675	.761	22.4	33.3	26.3	3099	108.0	179	106	13.8	108.8	.637	.0339	41.1	2910	4425
1985	10791	.746	23.0	34.3	27.0	3093	108.6	177	111	13.3	110.7	.671	.0355	41.9	2990	4548
1986	11015	.717	23.7	35.5	27.9	3041	107.8	167	111	13.2	111.2	.701	.0360	42.6	3057	4585
1987	10731	.722	23.9	35.9	28.1	3031	107.1	162	112	13.0	111.9	.732	.0365	42.8	3051	4569
1988	10736	.702	24.2	36.6	28.6	3047	107.5	160	116	12.8	113.1	.759	.0375	43.7	3119	4693
1989	10018	.693	23.8	36.3	28.1	3099	108.2	163	121	12.5	114.7	.783	.0387	43.8	3080	4723
1990	8836	.699	23.4	35.9	27.7	3179	107.6	164	129	12.1	116.8	.828	.0401	44.2	3011	4744
1991	8540	.678	23.6	36.3	28.0	3153	107.3	163	132	11.8	118.3	.851	.0414	44.3	3038	4742
1992	7812	.639	23.2	36.2	27.7	3223	108.4	168	139	11.6	120.1	.869	.0425	44.8	3036	4843
1993	9099	.658	23.5	36.6	28.0	3234	108.4	169	141	11.5	120.8	.872	.0430	45.4	3066	4908
<u>Trucks</u>																
1975	1987	.194	12.1	16.2	13.7	4072		311	142	13.6	113.7	.476	.0349	28.4		
1976	2612	.212	12.8	16.9	14.4	4155		319	141	13.8	112.7	.458	.0340	30.5		
1977	2823	.200	14.0	18.1	15.6	4135		318	147	13.3	114.8	.482	.0356	33.0		
1978	3273	.227	13.8	17.5	15.2	4151		314	146	13.4	114.2	.481	.0351	32.4		
1979	3088	.222	13.4	16.8	14.7	4252		298	138	14.3	111.0	.486	.0325	32.1		
1980	1863	.165	16.5	21.9	18.6	3869		248	121	14.5	108.2	.528	.0313	36.3		
1981	1821	.173	17.8	23.9	20.1	3806		247	119	14.6	107.8	.508	.0311	38.8		
1982	1914	.197	18.1	24.4	20.5	3806		243	120	14.5	108.5	.524	.0317	39.6		
1983	2300	.223	18.3	25.2	20.9	3763		231	118	14.5	107.9	.543	.0313	39.9		
1984	3345	.239	17.9	24.8	20.5	3782		224	118	14.7	107.7	.557	.0310	39.3		
1985	3669	.254	18.0	24.9	20.6	3795		224	124	14.2	109.7	.586	.0326	39.6		
1986	4350	.283	18.8	25.9	21.4	3738		211	123	14.0	110.0	.621	.0330	40.4		
1987	4134	.278	18.8	26.5	21.6	3713		210	131	13.3	112.7	.654	.0351	40.4		
1988	4559	.298	18.3	26.2	21.2	3841		227	141	12.9	115.1	.650	.0366	40.9		
1989	4435	.307	18.1	25.8	20.9	3921		234	146	12.8	116.2	.653	.0372	41.2		
1990	3805	.301	17.8	25.8	20.7	4005		237	151	12.6	117.2	.668	.0377	41.8		
1991	4047	.322	18.3	26.6	21.3	3949		228	150	12.5	117.3	.681	.0379	42.2		
1992	4420	.361	17.5	25.7	20.4	4122		243	157	12.5	118.3	.673	.0383	42.3		
1993	4728	.342	17.7	26.3	20.8	4125		244	165	12.0	120.7	.698	.0400	42.9		
<u>Both</u>																
1975	10224	1.000	13.4	18.7	15.3	4060		293	137	14.1	111.8	.507	.0335	31.6		
1976	12334	1.000	14.6	20.2	16.7	4079		294	135	14.3	111.0	.493	.0328	34.4		
1977	14123	1.000	15.6	21.3	17.7	3982		287	136	13.8	112.1	.510	.0339	35.7		
1978	14448	1.000	16.3	22.5	18.6	3715		266	129	13.6	111.8	.525	.0344	35.1		
1979	13882	1.000	16.5	22.3	18.7	3655		252	124	13.9	110.5	.532	.0335	34.7		
1980	11306	1.000	19.6	27.5	22.5	3228		198	104	14.3	106.9	.574	.0320	36.6		
1981	10554	1.000	20.9	29.5	24.1	3202		193	102	14.4	106.6	.580	.0318	38.9		
1982	9732	1.000	21.3	30.7	24.7	3202		188	103	14.4	106.8	.593	.0320	40.0		
1983	10302	1.000	21.2	30.6	24.6	3257		193	107	14.1	107.8	.599	.0327	40.5		
1984	14020	1.000	21.2	30.8	24.6	3262		190	109	14.0	108.5	.618	.0332	40.7		
1985	14460	1.000	21.5	31.3	25.0	3271		189	114	13.6	110.5	.650	.0347	41.3		
1986	15365	1.000	22.1	32.2	25.7	3238		180	114	13.4	110.9	.678	.0351	42.0		
1987	14865	1.000	22.2	32.6	25.9	3221		175	118	13.1	112.1	.710	.0361	42.1		
1988	15295	1.000	22.1	32.7	25.9	3283		180	123	12.8	113.7	.726	.0372	42.9		
1989	14454	1.000	21.7	32.3	25.4	3351		185	129	12.5	115.2	.743	.0382	43.0		
1990	12641	1.000	21.4	32.1	25.2	3427		186	135	12.2	117.0	.780	.0394	43.4		
1991	12587	1.000	21.6	32.4	25.4	3409		184	138	12.1	118.0	.796	.0403	43.6		
1992	12232	1.000	20.8	31.5	24.5	3548		195	146	11.9	119.4	.798	.0410	43.9		
1993	13826	1.000	21.1	32.3	25.0	3539		195	149	11.7	120.7	.812	.0420	44.5		

TABLE 1 (Continued) CHARACTERISTICS OF 1975 TO 1993 LIGHT DUTY VEHICLES (PERCENTAGE BASIS)

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED			
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN	IMPORT
<u>Cars</u>																
1975	6.5		19.9		5.1		5.1	94.6	.2	55.4	23.3	21.3	81.6	8.2	10.3	18.4
1976	5.8		17.1		3.2		3.2	96.6	.3	55.4	25.2	19.4	84.9	5.4	9.7	15.1
1977	6.8		16.8		4.2		4.2	95.3	.5	51.9	24.5	23.5	82.2	5.5	12.2	17.8
1978	9.6		20.2	6.7	5.1		5.1	94.0	.9	44.7	34.4	21.0	80.2	6.3	13.5	19.8
1979	11.9	.3	22.3	8.0	4.7		4.7	93.2	2.1	43.7	34.2	22.1	80.4	5.6	14.0	19.6
1980	29.7	.9	31.9	16.5	6.9	.7	6.2	88.7	4.4	54.4	34.4	11.3	71.2	8.4	20.4	28.8
1981	37.0	.7	30.4	33.3	8.8	2.6	6.1	85.3	5.9	51.5	36.4	12.2	71.7	6.0	22.3	28.3
1982	45.6	.8	29.7	51.4	17.0	9.8	7.2	78.4	4.7	56.5	31.0	12.5	70.4	6.3	23.3	29.6
1983	47.3	3.1	27.4	56.7	28.3	18.9	9.5	69.6	2.1	53.1	31.8	15.1	71.0	5.5	23.5	29.0
1984	53.7	1.0	24.2	58.3	39.4	24.4	15.0	58.9	1.7	57.4	29.4	13.2	75.9	6.0	18.1	24.1
1985	61.6	2.1	23.6	58.7	53.5	32.0	21.4	45.6	.9	55.7	28.9	15.4	72.3	6.2	21.6	27.7
1986	71.1	1.1	24.8	58.0	65.1	28.4	36.7	34.5	.3	59.5	27.9	12.6	68.2	6.6	25.1	31.8
1987	77.0	1.1	24.9	59.5	73.0	30.5	42.5	26.8	.3	63.5	24.3	12.2	61.6	6.9	31.5	38.4
1988	81.7	.8	24.3	66.1	83.7	30.0	53.7	16.3		64.8	22.3	12.8	61.2	6.3	32.5	38.8
1989	82.5	1.0	21.0	69.3	90.2	27.8	62.4	9.7		58.3	28.2	13.5	61.9	5.5	32.6	38.1
1990	84.3	1.0	19.6	73.0	98.6	21.4	77.2	1.4		58.4	28.6	13.1	57.0	4.9	38.1	43.0
1991	83.3	1.4	20.5	73.6	99.8	21.8	78.0		.1	61.6	26.2	12.3	56.4	4.5	39.1	43.6
1992	81.9	.7	20.0	73.4	99.9	9.4	90.6		.1	58.8	27.1	14.1	57.2	4.3	38.5	42.8
1993	81.6	.6	19.3	74.5	100.0	7.8	92.2			58.4	25.7	15.9	57.9	4.3	37.8	42.1
<u>Trucks</u>																
1975		17.1	37.0		.1			99.9		13.7		86.3	88.7			11.3
1976		22.9	34.8		.1			99.9		11.1		88.9	90.9			9.1
1977		23.6	32.0		.1			99.9		13.5		86.5	88.5			11.5
1978		29.0	32.4		.1			99.1	.8	13.3		86.7	89.1			10.9
1979		18.0	35.2	2.1	.3			97.9	1.8	18.5		81.5	84.7			15.3
1980	1.4	25.0	53.0	24.6	1.7			94.9	3.5	30.3		69.7	69.4			30.6
1981	2.0	20.1	51.6	31.1	1.1			93.3	5.6	27.6		72.4	72.0			28.0
1982	1.7	20.0	45.7	33.2	.7			90.0	9.3	33.9		66.1	76.3			23.7
1983	1.4	25.8	45.9	36.1	.6			94.7	4.7	45.5		54.5	78.5			21.5
1984	4.9	31.0	42.1	35.1	2.6			95.1	2.3	46.0		54.0	78.0			22.0
1985	7.1	30.6	37.1	42.2	12.3	.2		86.7	1.1	50.5		49.5	80.1			19.9
1986	5.9	30.3	42.7	42.0	40.5	18.7	21.8	58.7	.7	56.8		43.2	70.3			29.7
1987	7.4	31.5	39.9	44.8	66.9	33.6	33.3	32.9	.3	61.8		38.2	72.3			27.7
1988	9.0	33.3	35.5	53.1	87.7	44.4	43.3	12.1	.2	57.2		42.8	81.1			18.9
1989	9.9	32.0	32.7	56.8	93.5	47.6	45.9	6.3	.2	56.7		43.3	81.9			18.1
1990	15.5	31.3	28.1	67.4	96.0	40.8	55.2	3.9	.2	53.4		46.6	80.3			19.7
1991	9.8	35.2	31.0	67.4	98.2	43.2	55.0	1.6	.1	64.4		35.6	79.7			20.3
1992	11.7	35.9	24.9	73.2	98.9	33.1	65.8	1.0	.1	56.5		43.5	83.8			16.2
1993	14.5	35.5	24.1	74.2	98.9	27.8	71.1	1.1	.1	48.7		51.3	83.1			16.9
<u>Both</u>																
1975	5.3	3.3	23.2		4.1		4.1	95.7	.2	47.3		52.7	82.9			17.1
1976	4.6	4.8	20.9		2.5		2.5	97.3	.2	46.0		54.0	86.2			13.8
1977	5.5	4.7	19.8		3.4		3.4	96.2	.4	44.2		55.8	83.5			16.5
1978	7.4	6.6	23.0	5.2	3.9		3.9	95.2	.9	37.6		62.4	82.2			17.8
1979	9.2	4.3	25.1	6.7	3.7		3.7	94.2	2.0	38.1		61.9	81.4			18.6
1980	25.0	4.9	35.4	17.8	6.0	.6	5.2	89.7	4.3	50.4		49.6	70.9			29.1
1981	31.0	4.0	34.1	33.0	7.5	2.2	5.1	86.7	5.9	47.4		52.6	71.7			28.3
1982	37.0	4.6	32.8	47.8	13.8	7.9	5.8	80.6	5.6	52.1		47.9	71.6			28.4
1983	37.0	8.1	31.5	52.1	22.1	14.7	7.3	75.2	2.7	51.4		48.6	72.7			27.3
1984	42.1	8.2	28.5	52.8	30.6	18.6	11.4	67.6	1.8	54.7		45.3	76.4			23.6
1985	47.8	9.3	27.0	54.5	43.0	23.9	16.0	56.1	.9	54.4		45.6	74.2			25.8
1986	52.6	9.3	29.8	53.5	58.2	25.7	32.5	41.4	.4	58.7		41.3	68.8			31.2
1987	57.7	9.6	29.1	55.4	71.3	31.4	39.9	28.4	.3	63.0		37.0	64.6			35.4
1988	60.0	10.5	27.6	62.2	84.9	34.3	50.6	15.0	.1	62.6		37.4	67.1			32.9
1989	60.2	10.5	24.6	65.5	91.2	33.9	57.3	8.7	.1	57.8		42.2	68.1			31.9
1990	63.6	10.1	22.2	71.3	97.8	27.2	70.6	2.1	.1	56.9		43.1	64.0			36.0
1991	59.6	12.3	23.8	71.6	99.3	28.7	70.6	.6	.1	62.5		37.5	63.9			36.1
1992	56.5	13.4	21.8	73.3	99.5	18.0	81.6	.4	.1	58.0		42.0	66.8			33.2
1993	58.6	12.5	21.0	74.4	99.6	14.6	85.0	.4		55.1		44.9	66.5			33.5

Passenger Car MPG and Inertia Weight

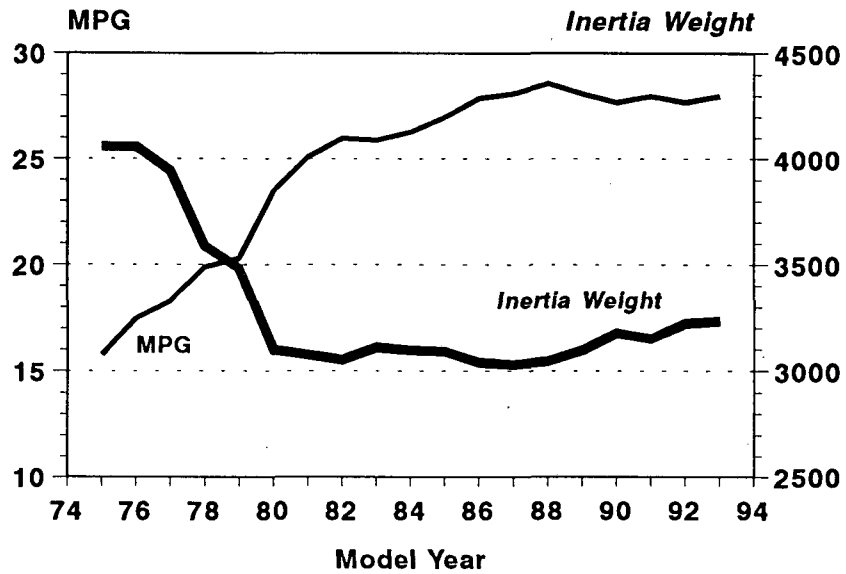


Figure 3

Light Duty Truck MPG and Weight

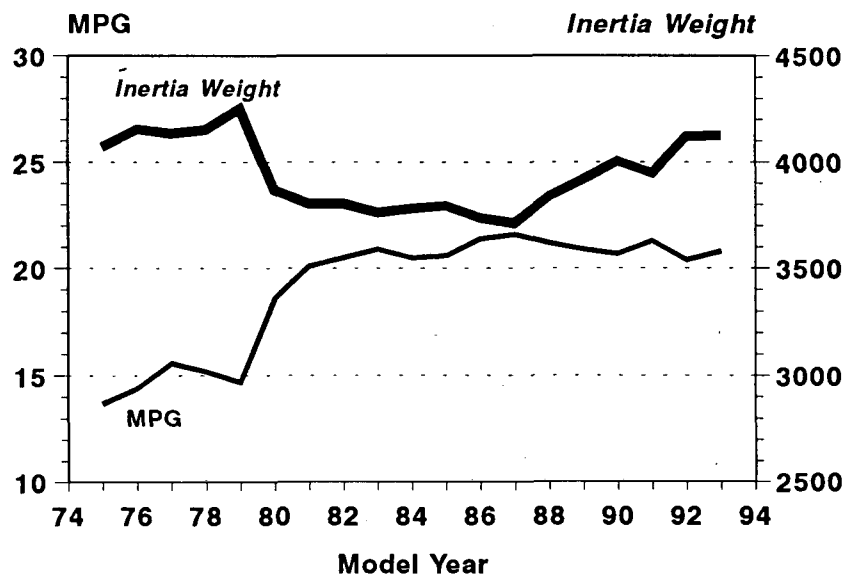


Figure 4

MPG and Performance Passenger Cars

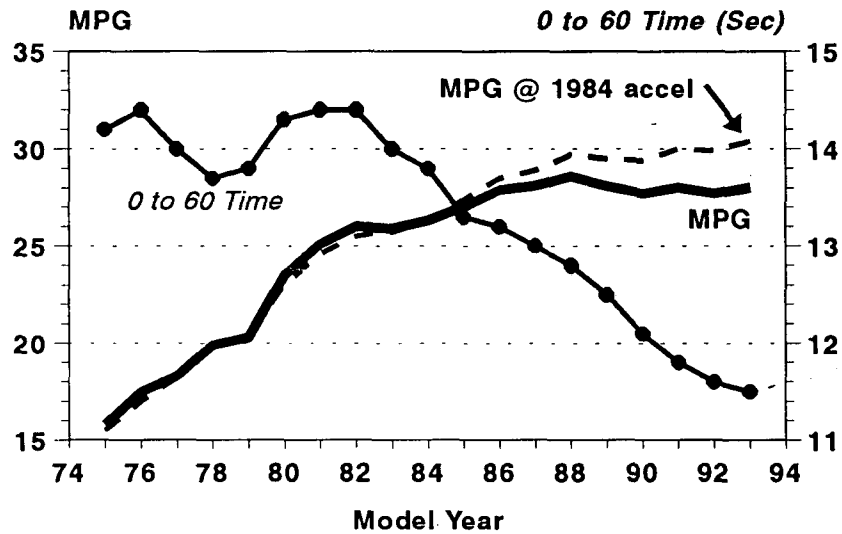


Figure 5

MPG and Performance Passenger Cars

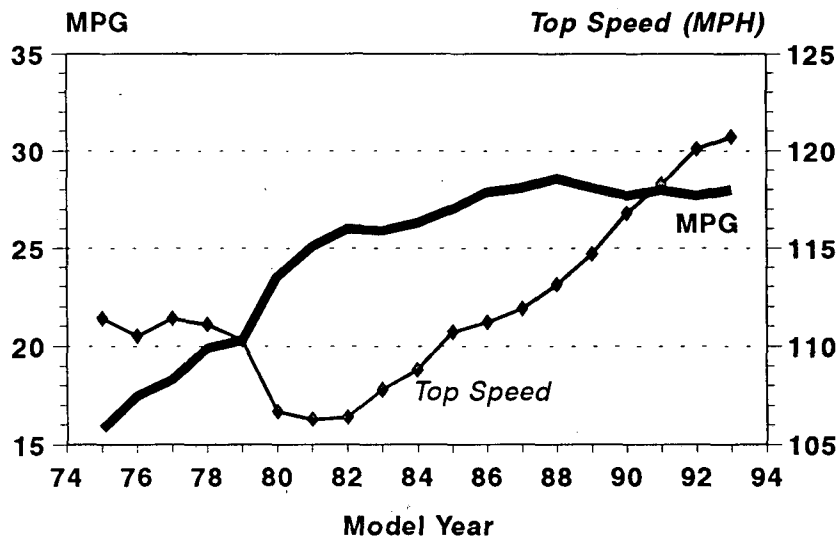


Figure 6

Top Speed and 0 to 60 vs MPG 1993 Passenger Cars

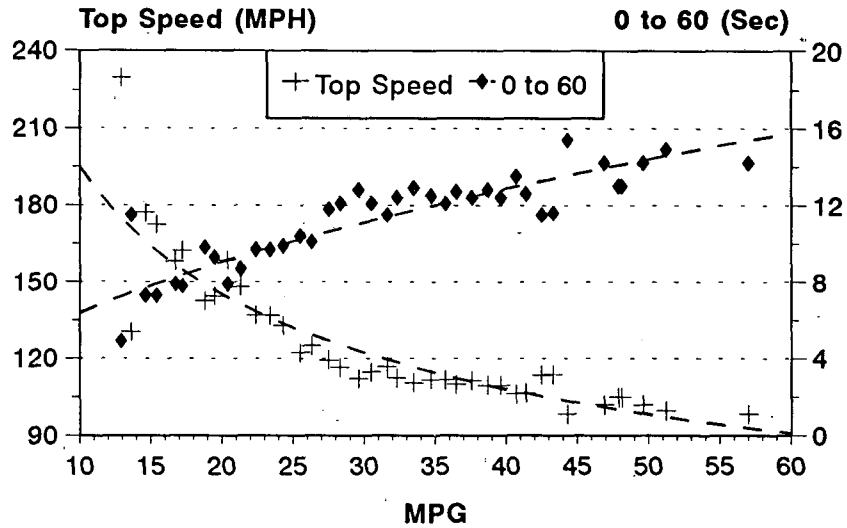


Figure 7

Weight and Volume vs MPG 1993 Passenger Cars

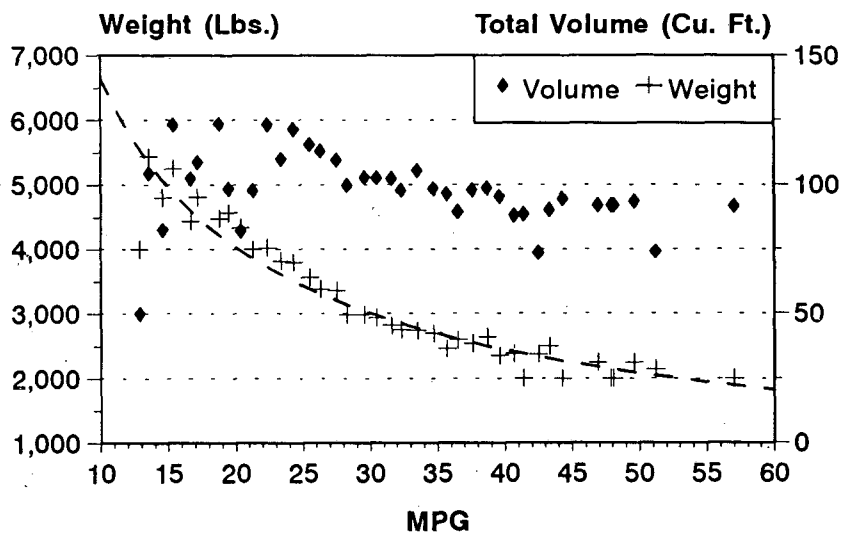


Figure 8

Horsepower, CID and Horsepower per CID 1975 to 1993 Passenger Cars

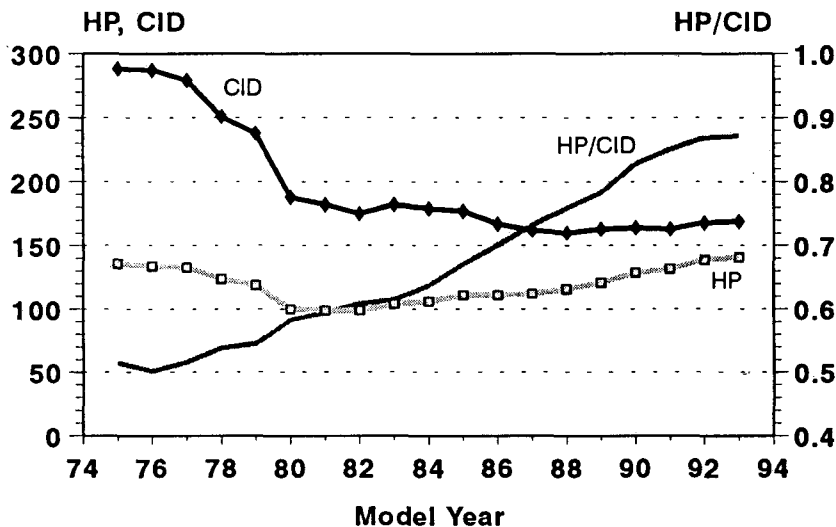


Figure 9

Vehicle performance depends strongly on power-to-weight ratio. If, as indicated earlier, weight is trending upward, then the reason for the increase in performance must lie with increased horsepower; Table 1 indicates this upward trend in engine power.

Engine power can be increased by increasing displacement and by increasing specific power (HP/CID). Figure 9 shows trends in HP, CID, and HP/CID since 1975. For the past 10 years or so, the trend in HP has been up. CID has not shown a major upward trend being close to 170 CID for several years now. In contrast, the trend in HP/CID has been dramatic. Specific power has increased by 74 percent since 1976, and by 45 percent since the HP minimum in 1981-82.

Since the early 1980s, therefore, the substantial trends in performance-related metrics are due to increased horsepower which has been achieved primarily via increased specific power.

IV. Technology Trends

There are technology changes that can explain the trends seen previously in specific power. One way to increase specific power is the use of more than two valves per cylinder. Three or four valves per cylinder can increase an engine's volumetric efficiency leading to more horsepower. The benefits of this technology can be used in more than one way. If the displacement of the engine is kept constant, multi-valve engines can produce more horsepower yielding increased vehicle performance. On the other hand, increased specific power allows use of a smaller displacement engine with benefits in fuel economy, while keeping vehicle performance constant. Because the benefits of a technological change can be used for either better performance or better fuel economy, it is not surprising that projections of future fuel economy capabilities vary due to different assumptions about how presumed future technological improvements will be used.

In order to track the trends in multi-valve engine use, the database was augmented with information about the number of valves per cylinder. The information was based on published sources [32,33,34] to the extent possible, augmented by other sources.[35] Data were available back to 1986 that were useful for studying trends. Only the passenger car database was augmented with the valves per cylinder data.

Multi-valve engines do have higher specific power. Figure 10 shows that 4-valve engines have the highest HP/CID, more than 1.0 HP/CID; 3-valve engines, intermediate values (approaching 1.0 HP/CID); and 2-valve engines, the lowest (approaching 0.8 HP/CID). Notice also that there is an upward trend in HP/CID in all three groups. Since 1986, for example, the specific power of 2-valve engines has increased 11 percent. More information on the trends in valves per cylinder can be found in Appendix D.

Greater market penetration of multi-valve engines with higher specific power could be responsible for the fleetwide increase in specific power. This is shown in Figure 11, which indicates that multi-valve engines now exceed 35 percent of the car market and most of them are 4-valve engines.

Separate from any other knowledge about manufacturers' product plans, do the data indicate that 4-valve engines are going to rise to a dominant market share? This technology replacement question is obviously of great interest. Figure 12 compares 4-valve market penetration to two other technologies which have effectively replaced prior technologies: port fuel injection replacing carburetion, and front-wheel drive (FWD) replacing rear-wheel drive. Figure 13 compares 4-valve market penetration to that of technologies which "came and went," i.e. were unsuccessful in replacing other technologies: throttle-body fuel injection (TBI)

HP/CID by Number of Valves Per Cylinder 1986 to 1993 Passenger Cars

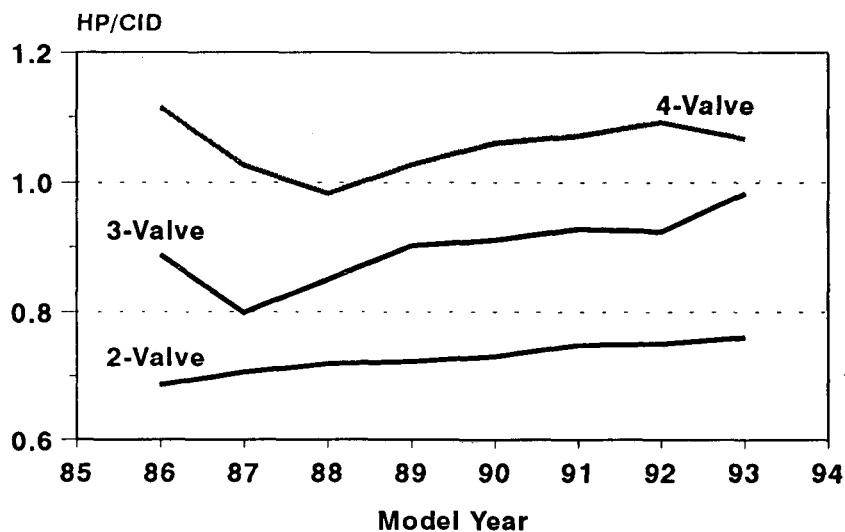


Figure 10

Number of Valves Per Cylinder Model Year 1986 to 1993 Passenger Cars

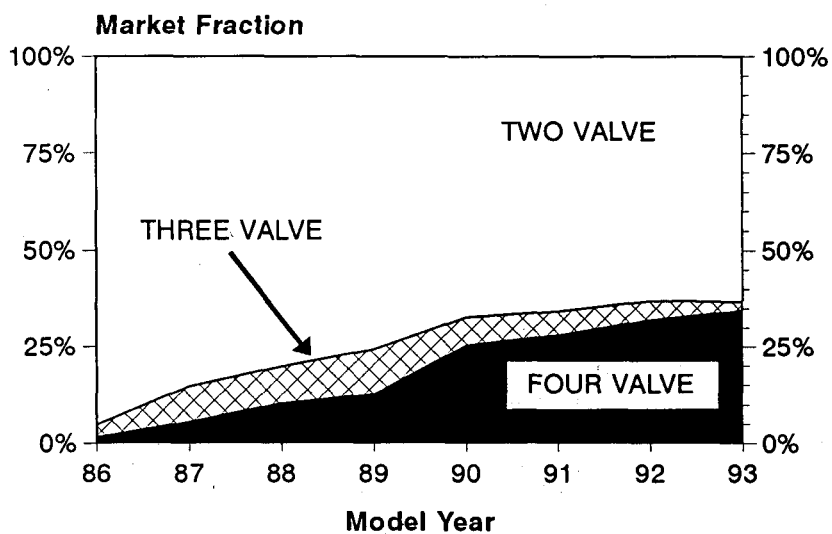


Figure 11

losing out to port fuel injection, and 3-valve engines losing out to 2-valve and 4-valve engines.

An answer to the replacement question is not apparent from looking at Table 1 and Figures 12 and 13. It is likely that one or two more years of data are necessary since although Figure 13 looks subjectively like a better fit, the 4-valve curve could increase to market dominance like PFI and FWD or it could die out like TBI, 3-valve engines, and Diesels, or it could stabilize at some intermediate value near 50 percent.

An important observation from Figure 12 is that technology replacement in the automotive industry takes time. For PFI and FWD the times to exceed 80 percent of the market were 12 and 13 years, respectively. This kind of a time constant needs to be kept in mind when studying possible future scenarios for emissions and fuel economy, especially if changes in either are predicated on new or replacement technology.

Appendix D provides additional figures and tables that describe technology trends.

V. Fuel Economy Improvement Potential

In references 20 and 24, MPG capability contained in the then current fleet was examined using a method called the best-in-class (BIC) analysis. In a BIC analysis, one divides the baseline fleet of vehicles into classes and then examines the MPG characteristics of each class. If one selects the MPG performance of the best cars in the class (hence the name), one can recompute a fleet average using the best cars' MPG and the same relative sales proportions of the fleet that existed in the baseline. The BIC analysis was one of the methods used to investigate future fleet MPG capability when the original fuel economy standards were set.

The classes may be generated in any way, but the most common classes are those that are based on the car classes used for the EPA/DOE Gas Mileage Guide and the inertia weight classes used for EPA's emission certification program. We have chosen to use inertia weight classes, since if the sales proportions in each inertia weight class (IWC) are held constant, the average weight of the fleet does not change.

One potential problem with a BIC analysis is that the high MPG cars used may be unusual in some way--so unusual that the hypothetical fleet made up of them, although a high MPG fleet, may be deficient in some other attributes considered desirable by car buyers. We chose to look at both the best and the worst cars in each class to see how the best and the worst-in-class (WIC) cars differed from the average car in each class.

Passenger Car Technology Penetration Years After First Significant Use

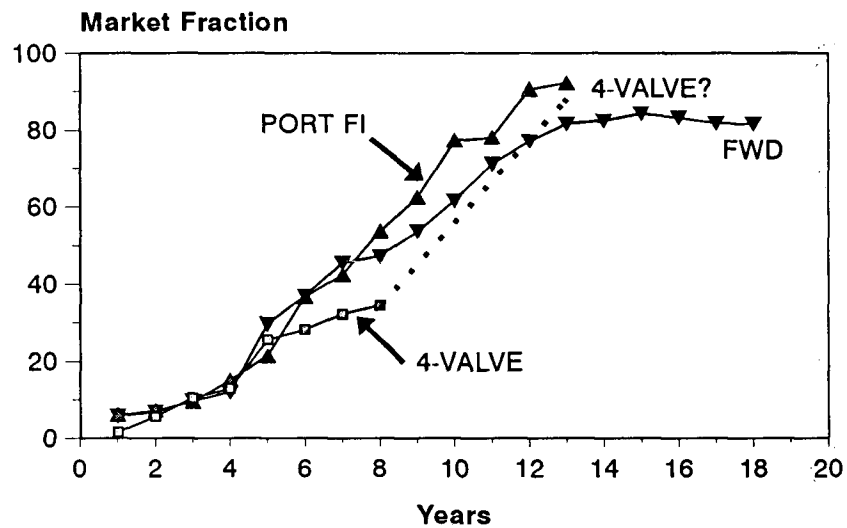


Figure 12

Passenger Car Technology Penetration Years After First Significant Use

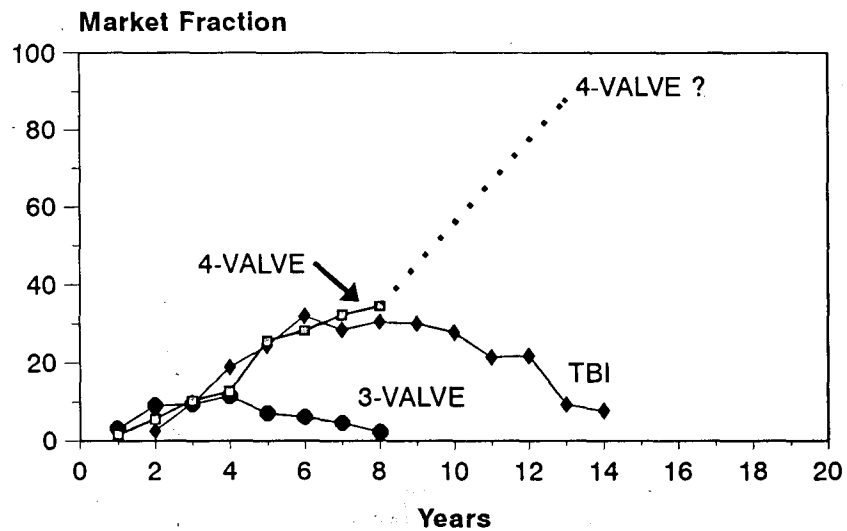


Figure 13

Table 2 shows the results of the BIC analysis for 1993. If the fleet were comprised of cars with the MPG of the best dozen cars in each class, the fleet would be 30.4 MPG, more than 8 percent better than the 28 MPG average of the current fleet. The cars that comprise the best dozen in each class are listed in Appendix E. The list of vehicles considered best (or worst) in class includes as one entry vehicles with different nameplates, but identical powertrains and fuel economy such as the Ford Taurus and Mercury Sable. The list of vehicles also excludes vehicles sold by small volume importers. The BIC cars represent 21 percent of the market while the WIC cars represent only 8 percent. The BIC cars are actually fairly close to the average in interior volume, performance, and size mix. The biggest departure from the average for the BIC cars is a larger share of manual transmissions. BIC cars are therefore much more representative of the average cars than are the WIC cars.

Table 2			
Results of "Best-In-Class" Analysis 1993 Passenger Cars			
	Worst 12 In Class	Actual Fleet	Best 12 In Class
55/45 MPG	23.7	28.0	30.4
Inertia weight	3234	3234	3234
Interior volume	89	108	109
Percent of sales	8%	100%	21%
CID	209	169	156
Horsepower	189	141	130
Top speed	138	121	117
0 to 60 acceleration	9.7	11.5	12.0
Percent of Vehicles Equipped With:			
Front-Wheel drive	62%	82%	87%
Manual transmission	45%	19%	47%
Lockup transmission	24%	75%	51%
Percent of Vehicles That are:			
Small	99%	58%	54%
Midsize	0%	26%	33%
Large	1%	16%	14%
Domestic	56%	58%	54%
European	21%	4%	1%
Asian	23%	38%	45%

Of course, the BIC analysis is sensitive to the selection of the best cars. If the BIC analysis is based on the best five or best one car in each class instead of the best dozen, the fleet MPG projected changes from 30.4 MPG (best 12), to 31.8 MPG (best 5), to 33.6 MPG (best 1). Further information from the BIC analysis is included in Appendix E. The results in this appendix use the same methods described in reference 24. Appendix F contains detailed data by weight class. Appendix G contains data stratified by car and truck class, and Appendix H contains data arranged using cylinder count.

The best-in-class analysis is only one of several methods that can be used to make inferences about the potential for obtaining other fuel economy levels. The major use of such methods is to investigate the potential for higher than current fuel economy levels. There is no interest in projections of lower than current fuel economy levels. In addition to the best-in-class approach, regression analysis, learning curve approaches, the menu method, the Delphi method, and engine map-based methods are the primary methods used.

Using regression analysis in determining the relationship between fuel economy and variables that can explain it is frequently used. Armed with an equation that describes MPG, one can alter one or more of the variables considered to be independent and examine what the MPG effect would be. Such approaches have been used, for example, to infer the effect reduced weight and reduced engine displacement would have on fuel economy. In most regression studies, the variables and the functional forms for them are very often not based on any physical or engineering hypothesis, so the mechanistic cause-and-effect relationships are not sought and, consequently, not found.

Like best-in-class analyses, the regression approach cannot infer what would be the effect of a technical change that was not present in the database, or inaccurately represented in the analysis with respect to its causal strength. For example, if the original database did not contain the results for shutting off the engine at idle or multi-valve engine use, then both the best-in-class and the regression methods would fail to predict the MPG benefit of using these technologies. Another limitation to both the best-in-class and regression analysis methods is that neither method predicts when the predicted MPG improvement can be attained.

Learning curve studies have been used a great deal in cost studies, but not very much in MPG projections. The basic theory used is that the more a given process is done, the more efficiently it can be performed. In cost studies, "more" is translated into cumulative production and the "more efficiently" is translated into piece cost for a mass-produced item. Many manufacturing systems show behavior that can be modeled well enough to make projections

concerning the cost reduction due to each doubling of cumulative production volume. When the "more-efficiently" variable is changed to fuel consumption (l/MPG), the fuel consumption versus cumulative production approach yields results that can be interpreted to imply that since 1975, fuel economy has improved by at least 8 percent for each cumulative doubling in production. Extrapolating that trend into the future implies that shortly after the year 2000 the new car fleet could be projected to exceed 30 MPG. Learning curve analysis, like best-in-class and regression analysis, cannot explain from an engineering perspective how the forecasted MPG improvement will occur. In addition, like any time series study, the results can be confounded by time trends in other factors affecting MPG.

One of the difficulties with the learning curve approach is that the improvements in fuel economy seen over time may be due to reasons other than simply the industry getting better at doing the same thing. An example could be the introduction of new and different technology. The improvement seen over time could be due to increased penetration into the market of new, more fuel efficient technologies and the learning curve approach might be inappropriate.

In order to focus on this issue we identified a subset of vehicles that were nominally the same and tracked their change in MPG over time. Thus, a "single vehicle type" is identified and any improvements in MPG would be consistent with a learning curve explanation.

The analysis compares all cars against just the subset of cars at the same weight, front-wheel drive, horsepower range, transmission type, fuel metering and number of valves per cylinder. The figure of merit used was the ratio of the MPG in 1993 to the MPG in 1981. The results are shown in Table 3.

Table 3	
MPG Improvements Over Time For Different Vehicle Types	
Vehicle Type	1993 MPG/1981 MPG
All cars	1.12
3,000-lb cars, all drives, horsepower, fuel metering and valves/cylinder	1.18
3,000-lb cars, FWD, 100 to 135 HP, auto trans., fuel injection 2 valves/cyl.	1.41

As the vehicle group becomes more and more defined, the improvement over time does not go away, it, in fact, increases. This means that the learning curve method cannot be dismissed as an approach to investigating future MPG improvements. Further studies are probably necessary before numerical values of learning curve MPG improvement factors can be determined, however.

The menu method derives its name from the list of fuel economy improving technologies or approaches available. In order to use the method, the technological characteristics of the baseline fleet are used as the starting point. To make a future projection of higher MPG, the fleet penetrations of technologies that result in fuel economy improvements are increased, and new technologies can be added. The addition of new technologies is an important characteristic of this approach. If a fuel economy improving technology (e.g., a lean burn engine or a 6-speed automatic transmission with lockup) can have a numerical fuel economy improvement assigned to it, then on paper it can be introduced into the fleet and its percent market penetration increased with resulting fleet fuel economy improvements. Points of (sometimes controversial) discussion with the menu method are: which technologies should be on the menu, what the fuel economy impact of each technology is, how to model the results of combining more than one technology, and how fast the technologies on the list can penetrate into the new car fleet. Much of the analysis work for recent studies of automobile fuel economy [28,29,30] have been of this type, and all have been directly or indirectly influenced by work supported by the Department of Energy.

The Delphi method is another methodology that can be used to study future fuel economy levels. In this approach a panel of experts is formed, each of which possesses in-depth knowledge of the subject area. The panelists independently answer questions that deal with fuel economy potential. After the results are tabulated, the answers are sent back to each of the panel members so that the panelists can see how their answer compared to the consensus of, or the distribution of, the other answers. The panelists are then given a chance to change their answers, and the second-round results obtained are generally considered to be representative of "informed opinion" on the subject. This type of methodology requires the least amount of experimental data and tends to be the most subjective.

The engine map method utilizes hard data about the measured fuel consumption of an engine as a function of engine speed and engine load (an engine map) and vehicle characteristics such as weight, drag coefficient, frontal area, the rolling resistance of its tires, and the characteristics of its transmission, and predicts the fuel consumed over a given vehicle duty cycle. If the duty cycle is the same one that is used to generate MPG values for the government's regulatory and public information programs dealing

with MPG, then forecasts can be made of likely MPG improvements due to changes in engine efficiency or vehicle characteristics. Most of the public development of this method was done by the U.S. Department of Transportation (DOT).[31] This method uses, as input data, fuel consumption maps and so is limited by the availability of engine maps. DOT did generate several engine maps for analysis purposes, but the engine mapping work stopped more than 10 years ago. Recently, some work in modeling has been reported [36,37] that utilizes simplified, generalized engine maps. This approach also shows promise.

All of the methods for making estimates of future MPG potential have pros and cons. A robust approach could utilize some or all of the usual analysis methods, gaining improved understanding from both the similarities and differences in the resultant projections.

VI. Trends by Market Segment

Table 4 shows the characteristics of Domestic, European, and Asian passenger cars. The MPG performance of the car groups shown in Figure 2 indicates that the European cars trail the Domestics by about 2 MPG and the Asians by about 5.5 MPG and this pattern has held since 1990. The Europeans (up more than 300 lbs in the last 5 years) and the Asians (up more than 200 lbs) are gaining weight faster than the Domestics (up 100 lbs) in the same time period.

European cars have the highest weight, horsepower, performance, and specific power. Asians cars lead in fuel economy, ton-MPG, and cu-ft MPG. Domestic cars lead in interior volume, CID, and cu-ft ton MPG.

The data in Table 5 for Domestic and Import light trucks show that since 1981, Domestic trucks have increased from 18.2 MPG to 20.3 MPG (+12 percent) even though MPG has been fairly constant for the past few years. In contrast, over the same time period, Import trucks have decreased from 27.3 to 23.0 MPG (-16 percent). These trends show another example of the effect of the current MPG standards--different manufacturer groups' MPG performance approaching the standard over time. The trend with trucks is more pronounced than was the trend with passenger cars noted earlier in this report.

Figure 14 and Table 5 show that Domestic trucks and Asian cars have experienced the largest growth in market share since 1975, their growth coming at the expense of Domestic cars.

The sales trends shown in Figure 14 and Tables 4 and 5 for the five vehicle groups can be combined with the fuel economy values of the groups to yield a relative total fuel consumption value,

Sales Fraction by Vehicle Type *Cars and Light Trucks*

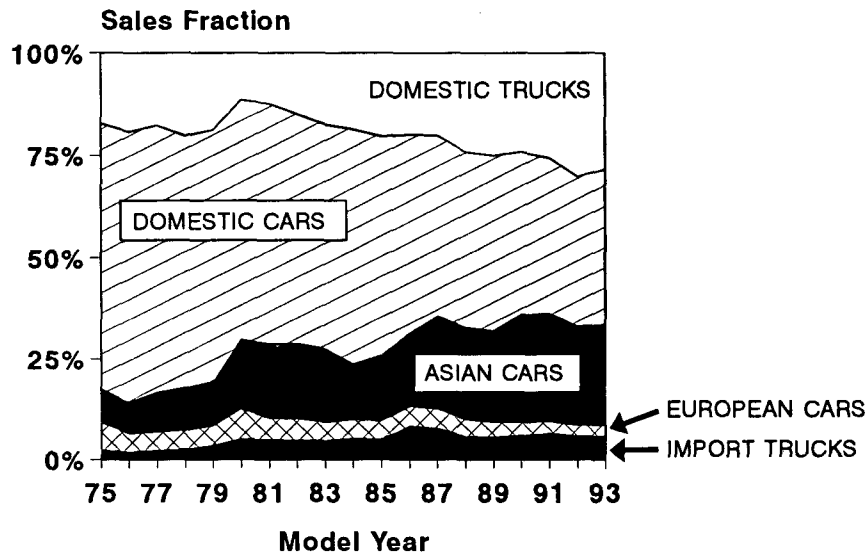


Figure 14

assuming all vehicles travel the same distance. Data comparing 1975 and 1993 are shown in Table 6, normalizing total fuel consumption to 100 for each year.

Since 1975, Asian cars have quadrupled their relative share of the total fuel consumed by the light fleet, Import trucks have tripled their share, and Domestic trucks have increased their share from one-fifth to one-third of the total. Changes in relative share reflect changes in sales and fuel economy.

If actual fuel consumption, not normalized fuel consumption, is the measure only the Domestic and European car classes have reduced fuel consumption since 1975. If all classes had reduced actual fuel consumption as much as the Domestic car class has, today's fleet would use less than one-half of the fuel used by the 1975 fleet. Changes in actual fuel consumption also reflect changes in sales and fuel economy.

Table 7 presents another way to compare cars and light trucks in this case by size class. In the 15 size classes shown in Table 7, Domestic vehicles lead in six, European vehicles lead in one, and Asian vehicles lead in eight. The best cars are sometimes dramatically different from the worst cars in MPG, comparing the results from Tables 7 and 8.

TABLE 4 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
<u>Domestic</u>																
1975	6718	.816	12.8	18.1	14.7	4380		328	147	14.2	112.6	.456	.0332	32.6		
1976	8253	.849	14.4	20.1	16.5	4317		318	142	14.4	111.4	.455	.0324	35.8		
1977	9293	.822	14.9	20.7	17.1	4246	115.8	316	144	13.9	112.8	.460	.0337	36.4	2005	4220
1978	8958	.802	16.1	23.0	18.6	3853	114.4	287	134	13.6	112.6	.480	.0346	36.0	2170	4129
1979	8682	.804	16.8	23.3	19.2	3711	114.4	270	129	13.6	112.0	.500	.0345	35.8	2230	4100
1980	6728	.712	18.9	27.1	21.9	3341	110.5	220	110	14.1	108.3	.530	.0328	36.6	2446	4067
1981	6261	.717	20.2	29.4	23.5	3291	113.2	209	106	14.2	107.5	.549	.0323	38.7	2706	4408
1982	5506	.704	20.8	31.3	24.5	3247	112.1	200	105	14.3	107.4	.567	.0323	40.0	2800	4504
1983	5683	.710	20.5	30.9	24.1	3310	114.6	208	111	14.0	108.7	.565	.0331	40.2	2828	4611
1984	8102	.759	21.3	32.1	25.1	3233	111.5	197	109	13.8	109.0	.593	.0336	40.8	2857	4553
1985	7797	.723	21.8	33.2	25.8	3246	112.7	199	117	13.2	111.7	.625	.0357	41.9	2950	4734
1986	7517	.682	22.4	34.5	26.6	3199	111.6	190	117	13.0	112.3	.646	.0364	42.6	2998	4767
1987	6608	.616	22.4	34.8	26.7	3200	112.1	189	120	12.8	113.6	.666	.0374	42.7	3017	4801
1988	6574	.612	22.7	35.7	27.1	3247	112.2	189	126	12.4	115.3	.695	.0386	44.1	3069	4963
1989	6204	.619	22.4	35.6	26.9	3276	112.6	190	128	12.3	116.0	.703	.0391	44.0	3047	4972
1990	5033	.570	21.9	35.4	26.5	3363	113.0	194	134	12.2	117.2	.713	.0398	44.5	3010	5044
1991	4813	.564	22.0	35.5	26.5	3334	112.9	194	139	11.8	119.2	.730	.0414	44.3	3024	5021
1992	4470	.572	21.8	35.5	26.4	3379	113.4	199	145	11.5	120.9	.748	.0426	44.7	3018	5086
1993	5271	.579	22.2	36.0	26.8	3375	113.3	198	147	11.5	121.6	.754	.0431	45.3	3062	5151
<u>European</u>																
1975	673	.082	19.6	29.1	23.0	2704		114	83	15.3	102.6	.729	.0299	31.4		
1976	527	.054	20.1	29.3	23.4	2720		119	85	14.8	103.9	.728	.0311	32.2		
1977	623	.055	21.3	31.4	24.9	2676	89.6	115	84	14.8	103.7	.734	.0311	34.0	2368	3093
1978	707	.063	21.9	32.0	25.5	2579	91.1	112	83	14.5	104.1	.743	.0318	33.9	2505	3120
1979	599	.056	21.7	31.4	25.2	2680	89.3	118	84	14.9	103.9	.720	.0312	34.7	2415	3145
1980	791	.084	24.3	35.1	28.2	2574	89.6	112	78	15.2	102.4	.699	.0303	37.5	2690	3397
1981	525	.060	25.5	36.0	29.4	2765	93.1	121	84	15.2	103.1	.694	.0302	42.1	2928	3939
1982	494	.063	25.1	34.3	28.6	2895	96.4	128	92	14.8	105.1	.718	.0315	42.7	2923	4143
1983	440	.055	23.7	33.0	27.2	3041	98.5	140	107	13.5	110.1	.773	.0352	42.0	2785	4181
1984	640	.060	23.2	32.8	26.7	2987	99.9	139	110	13.0	111.7	.798	.0367	40.8	2772	4086
1985	665	.062	22.8	32.3	26.3	3070	102.5	145	117	12.8	113.7	.823	.0380	41.1	2818	4231
1986	732	.066	22.6	32.2	26.1	3016	103.0	146	123	12.2	116.2	.857	.0401	39.8	2793	4128
1987	743	.069	22.5	31.8	25.9	3032	100.8	145	128	11.9	117.8	.890	.0414	39.5	2699	4017
1988	675	.063	21.9	31.9	25.5	3084	103.1	149	133	11.7	119.2	.899	.0422	39.6	2707	4102
1989	550	.055	21.1	31.1	24.7	3209	104.4	156	144	11.3	122.1	.934	.0441	39.9	2653	4185
1990	437	.049	21.0	31.2	24.6	3360	105.1	155	148	11.5	121.8	.962	.0433	41.7	2658	4394
1991	383	.045	21.1	31.8	24.9	3393	104.6	156	150	11.5	122.1	.969	.0434	42.6	2686	4467
1992	332	.043	20.7	31.6	24.5	3485	104.2	158	162	11.0	125.4	1.029	.0457	42.9	2625	4488
1993	390	.043	21.0	32.2	24.9	3528	104.7	160	171	10.6	128.2	1.072	.0477	43.9	2643	4611
<u>Asian</u>																
1975	846	.103	20.1	29.3	23.4	2575		113	93	13.4	108.6	.814	.0355	30.8		
1976	942	.097	23.0	33.3	26.7	2550		108	86	13.9	106.0	.795	.0334	34.3		
1977	1383	.122	25.4	35.8	29.2	2485	83.7	104	84	13.9	105.6	.798	.0333	37.0	2543	3105
1978	1510	.135	25.3	34.3	28.7	2482	85.3	106	83	14.0	105.5	.784	.0332	36.2	2531	3097
1979	1513	.140	23.4	32.4	26.7	2506	84.9	107	78	14.6	103.0	.734	.0310	33.9	2356	2895
1980	1924	.204	25.5	34.7	29.0	2482	88.5	107	77	14.6	102.8	.720	.0309	36.4	2647	3232
1981	1948	.223	27.5	36.5	30.9	2469	88.6	109	78	14.5	103.3	.713	.0314	38.6	2815	3426
1982	1819	.233	27.6	37.2	31.2	2512	90.6	113	80	14.5	103.6	.707	.0315	39.7	2924	3611
1983	1879	.235	28.7	39.4	32.7	2528	93.1	112	82	14.2	104.6	.731	.0322	41.9	3159	3924
1984	1933	.181	28.5	39.9	32.7	2569	93.6	114	88	13.7	106.8	.768	.0340	42.5	3174	4004
1985	2328	.216	28.1	39.2	32.2	2585	94.6	113	89	13.9	106.8	.782	.0339	42.2	3175	4013
1986	2765	.251	28.8	40.0	32.9	2616	96.8	110	90	13.8	106.8	.810	.0338	43.5	3287	4211
1987	3380	.315	27.9	39.2	32.0	2700	97.1	111	93	13.9	107.2	.827	.0338	43.6	3194	4236
1988	3487	.325	28.6	39.6	32.7	2662	98.1	108	93	13.6	107.7	.851	.0344	43.8	3291	4299
1989	3264	.326	27.6	38.9	31.8	2745	98.9	112	103	12.9	110.9	.908	.0368	43.9	3216	4341
1990	3365	.381	26.3	37.5	30.4	2879	98.6	119	118	12.0	115.6	.983	.0402	44.0	3056	4341
1991	3343	.391	26.7	38.0	30.8	2865	98.3	119	120	11.8	116.8	1.011	.0412	44.4	3099	4372
1992	3010	.385	26.0	37.9	30.3	2963	100.1	122	127	11.7	118.2	1.032	.0420	45.1	3109	4522
1993	3437	.378	26.2	38.2	30.5	2983	99.9	124	129	11.6	118.7	1.031	.0423	45.7	3121	4567

TABLE 4 (Continued) CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS (PERCENTAGE BASIS)

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE
<u>Domestic</u>												
1975	1.3		8.2		.6		.6	99.4		45.9	28.1	26.1
1976	1.4		8.1		.9		.9	99.1		47.7	29.4	22.9
1977	1.4		4.4		.7		.7	99.3		41.8	29.6	28.6
1978	3.3		6.9	8.4	1.1		1.1	98.5	.4	31.2	42.7	26.1
1979	5.4		9.1	10.0	1.2		1.2	97.3	1.6	30.4	42.1	27.5
1980	22.3	.6	15.7	23.2	1.2	1.0	.2	95.6	3.2	36.4	47.7	15.8
1981	32.4	.3	15.3	45.3	3.7	3.7		91.3	5.0	32.7	50.3	17.0
1982	42.9	.4	15.4	70.5	13.9	13.9		82.4	3.7	38.8	43.4	17.8
1983	42.4	.6	12.3	72.8	27.3	26.6	.7	71.5	1.2	34.7	44.1	21.3
1984	51.3	.3	13.6	69.1	38.3	32.0	6.3	60.7	.9	45.3	37.2	17.4
1985	60.0		11.0	69.6	57.5	44.2	13.3	42.3	.2	40.7	38.0	21.3
1986	68.2	.1	11.7	70.6	70.7	41.0	29.6	29.2	.1	43.6	38.1	18.3
1987	74.3	.1	10.8	70.6	84.8	45.2	39.6	15.1	.1	43.3	37.1	19.6
1988	78.8		10.0	80.3	95.5	36.1	59.4	4.5		48.1	31.8	20.1
1989	80.7	.3	8.5	81.8	98.4	34.6	63.8	1.6		40.4	38.7	21.0
1990	84.2	.1	6.2	85.5	99.4	27.9	71.5	.6		36.4	41.2	22.4
1991	82.5		7.1	87.9	100.0	26.7	73.3			40.8	38.1	21.1
1992	82.4		8.4	85.7	100.0	12.6	87.4			42.3	33.8	23.8
1993	80.9		7.9	86.9	100.0	10.3	89.7			41.8	31.2	27.0
<u>European</u>												
1975	46.1		68.5		38.8		38.8	58.3	2.9	94.8	5.2	
1976	46.3		65.5		33.7		33.7	61.6	4.7	95.8	4.2	
1977	55.0		73.1		52.4		52.4	38.9	8.6	95.6	4.4	
1978	61.9		74.2		53.9		53.9	36.7	9.5	96.9	3.1	
1979	54.0		73.2		47.6		47.6	37.1	15.3	94.2	5.8	
1980	69.3		78.0		48.9		48.9	25.3	25.8	96.0	4.0	
1981	61.1		68.7		61.4		61.4	2.2	36.4	95.0	5.0	
1982	54.8		61.2	.1	65.6		65.6	6.3	28.1	93.8	6.2	
1983	42.0	.1	53.6	.3	77.1		77.1	3.5	19.4	90.5	9.3	.1
1984	45.4	.5	51.0	.6	84.2		84.2	2.2	13.6	81.6	18.4	
1985	45.0	.6	46.4	7.1	88.8		88.8	.3	10.9	79.5	20.5	
1986	47.1	1.2	47.1	11.9	91.4		91.4	5.3	3.3	76.4	22.1	1.5
1987	45.7	1.4	49.3	11.2	90.3		90.3	6.6	3.1	78.5	19.7	1.9
1988	50.7	1.0	41.1	25.4	94.2	2.4	91.8	5.7	.1	68.4	23.6	8.0
1989	44.4	.9	31.5	29.5	98.7	.1	98.7	.5	.8	66.0	24.6	9.4
1990	42.9	1.0	29.2	32.7	99.2		99.2		.8	62.9	30.9	6.2
1991	42.5	1.1	29.6	31.1	96.9		96.9	.2	2.8	64.7	26.7	8.6
1992	38.4	.5	29.1	32.9	98.5		98.5		1.5	65.0	24.5	10.5
1993	40.9	1.7	26.4	37.5	99.2		99.2		.8	65.0	27.6	7.4
<u>Asian</u>												
1975	17.0		74.0		14.4		14.4	85.6		100.0		
1976	21.2		69.2		6.0		6.0	94.0		100.0		
1977	22.0		74.4		6.3		6.3	93.7		100.0		
1978	22.8		74.1		5.9		5.9	94.1		100.0		
1979	32.4	2.5	77.8		8.1		8.1	91.9		100.0		
1980	39.2	2.4	69.7		9.4		9.4	90.6		100.0		
1981	45.5	2.1	68.7	3.7	11.0		11.0	88.2	.8	100.0		
1982	51.3	2.2	64.4	7.4	13.1		13.1	85.6	1.3	100.0		
1983	63.2	11.3	67.1	21.4	20.2		20.2	79.3	.5	100.0		
1984	66.8	4.2	59.4	32.3	29.1	.5	28.6	70.1	.8	100.0		
1985	71.8	9.4	59.0	36.6	29.9	.4	29.5	69.9	.2	99.2	.8	
1986	85.3	3.6	54.4	36.1	43.2	1.7	41.4	56.8	.1	98.1	1.9	
1987	89.3	3.0	47.1	48.3	46.1	8.5	37.6	53.9		99.6	.4	
1988	93.0	2.3	47.9	47.3	59.6	23.9	35.7	40.4		95.8	4.2	
1989	92.4	2.3	43.0	52.2	73.2	19.6	53.6	26.8		91.0	9.0	
1990	89.9	2.3	38.3	59.5	97.4	14.4	82.9	2.6		90.7	9.3	
1991	89.1	3.4	38.7	57.9	99.9	17.2	82.7	.1		91.1	8.9	
1992	85.8	1.8	36.2	59.7	100.0	5.6	94.4			82.6	17.4	
1993	87.4	1.3	36.0	59.6	100.0	4.8	95.2			82.9	17.1	

TABLE 5 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
			CITY	HWY	55/45		CID	HP					
<u>Domestic</u>													
1975	1763	.887	11.6	15.4	13.1	4227	335	149	13.4	114.8	.441	.0354	28.1
1976	2374	.909	12.4	16.3	13.9	4282	339	146	13.8	113.4	.427	.0342	30.3
1977	2499	.885	13.4	17.2	14.9	4298	343	154	13.2	116.0	.449	.0360	32.4
1978	2915	.891	13.2	16.7	14.5	4304	337	152	13.2	115.4	.451	.0356	31.8
1979	2615	.847	12.7	15.7	13.8	4504	330	148	14.2	112.5	.449	.0329	31.8
1980	1292	.694	14.9	19.8	16.8	4323	303	136	14.4	110.1	.451	.0315	36.8
1981	1310	.720	16.1	21.7	18.2	4173	293	132	14.4	109.8	.453	.0317	38.4
1982	1459	.763	16.8	22.7	19.0	4077	277	130	14.3	110.1	.486	.0323	39.3
1983	1806	.785	17.2	23.8	19.6	3977	256	125	14.5	108.8	.508	.0314	39.6
1984	2608	.780	16.8	23.4	19.2	3991	250	125	14.6	108.7	.523	.0313	38.9
1985	2939	.801	17.0	23.7	19.5	3963	245	130	14.2	110.5	.553	.0327	39.2
1986	3057	.703	17.4	24.2	19.9	3994	242	134	13.8	111.6	.580	.0335	40.1
1987	2989	.723	17.7	25.2	20.4	3932	237	143	13.0	115.2	.629	.0364	40.5
1988	3695	.811	17.7	25.5	20.5	3989	247	150	12.7	116.8	.629	.0375	41.2
1989	3634	.819	17.5	25.3	20.3	4048	253	153	12.6	117.7	.630	.0380	41.5
1990	3055	.803	17.3	25.4	20.2	4142	257	158	12.5	118.3	.633	.0382	42.1
1991	3227	.797	17.8	26.2	20.8	4051	247	156	12.4	118.5	.648	.0386	42.5
1992	3703	.838	17.1	25.3	20.0	4232	260	163	12.4	119.4	.644	.0387	42.6
1993	3930	.831	17.3	25.9	20.3	4224	261	171	11.9	122.0	.670	.0408	43.1
<u>Imported</u>													
1975	224	.113	18.6	26.9	21.6	2857	120	89	14.8	104.7	.752	.0314	31.1
1976	238	.091	19.3	28.4	22.6	2879	122	91	14.6	105.4	.761	.0319	33.2
1977	325	.115	21.8	30.9	25.1	2884	128	92	14.3	106.0	.741	.0323	37.0
1978	358	.109	22.2	29.9	25.1	2903	126	89	14.7	104.4	.719	.0309	37.2
1979	472	.153	20.3	28.0	23.1	2854	124	84	15.0	102.9	.688	.0298	33.7
1980	570	.306	21.5	29.0	24.3	2839	124	86	14.7	103.8	.701	.0307	35.1
1981	510	.280	24.2	32.5	27.3	2862	130	84	15.2	102.6	.650	.0296	39.9
1982	454	.237	24.1	32.0	27.1	2932	134	87	15.2	103.3	.648	.0300	40.6
1983	495	.215	24.1	32.1	27.1	2982	137	92	14.6	104.7	.672	.0310	41.0
1984	736	.220	23.7	31.2	26.6	3043	134	91	14.9	103.8	.680	.0300	40.9
1985	730	.199	23.5	30.9	26.3	3119	139	100	14.4	106.7	.719	.0322	41.4
1986	1293	.297	23.1	31.2	26.2	3132	138	99	14.2	106.2	.717	.0317	41.1
1987	1145	.277	22.5	30.6	25.6	3139	139	99	14.2	106.3	.718	.0318	40.3
1988	864	.189	21.9	29.3	24.7	3211	142	105	13.9	107.8	.743	.0327	39.7
1989	801	.181	21.1	28.4	23.9	3347	149	113	13.6	109.6	.756	.0338	40.1
1990	750	.197	20.5	27.9	23.3	3448	153	123	13.0	112.6	.807	.0359	40.4
1991	820	.203	20.3	27.9	23.1	3547	155	125	13.2	112.4	.811	.0354	41.2
1992	716	.162	20.1	27.6	22.9	3557	155	127	13.0	112.9	.822	.0358	41.0
1993	797	.169	20.1	28.0	23.0	3637	159	133	12.8	114.1	.837	.0365	42.1

TABLE 5 (Continued) CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS (Percentage Basis)

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE	
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	LARGE
<u>Domestic</u>											
1975		19.3	31.1					100.0		2.7	97.3
1976		25.2	30.1					100.0		2.2	97.8
1977		26.7	25.3					100.0		2.3	97.7
1978		31.7	25.5					99.1	.9	2.7	97.3
1979		17.6	25.6	2.4				97.9	2.1	3.8	96.2
1980		27.1	36.8	35.4				95.9	4.1	4.3	95.7
1981	.3	19.0	35.6	43.2				98.4	1.6	3.3	96.7
1982		18.2	31.2	43.6				93.3	6.7	18.1	81.9
1983		26.1	33.8	45.8				95.9	4.1	33.8	66.2
1984	5.7	33.0	30.1	43.0				98.1	1.9	39.3	60.7
1985	8.2	30.7	26.5	49.7	9.5	.2		89.6	.9	44.0	56.0
1986	7.6	29.9	25.4	55.5	44.6	19.8	24.8	54.8	.6	46.4	53.6
1987	9.4	29.8	26.0	56.2	79.2	38.6	40.6	20.6	.3	53.6	46.4
1988	10.8	30.0	25.9	61.7	96.0	50.7	45.3	3.8	.2	52.0	48.0
1989	11.8	29.8	24.2	64.2	98.5	52.8	45.7	1.3	.2	52.0	48.0
1990	18.8	26.8	19.0	76.1	98.7	48.6	50.1	1.1	.2	50.8	49.2
1991	12.0	32.6	24.0	74.6	99.7	51.0	48.7	.1	.2	64.5	35.5
1992	13.4	34.3	18.2	79.9	99.8	37.5	62.4		.2	55.8	44.2
1993	14.2	33.6	18.7	79.7	99.9	33.3	66.6		.1	45.6	54.4
<u>Imported</u>											
1975			83.5		.5			99.5		100.0	
1976			82.1		.7			99.3		100.0	
1977			83.2		.7			99.3		100.0	
1978		6.5	88.6		.8			99.2		100.0	
1979		20.1	88.1		1.8			98.2		100.0	
1980	4.6	20.3	89.8		5.4			92.6	2.0	89.3	10.7
1981	6.5	22.8	92.8		4.0			80.1	15.9	90.2	9.8
1982	7.1	26.1	92.2		2.8			79.5	17.7	84.7	15.3
1983	6.2	24.6	90.2	.9	3.0			90.3	6.8	88.0	12.0
1984	2.0	23.9	84.6	7.4	11.7			84.6	3.8	70.0	30.0
1985	2.4	30.0	79.8	12.0	23.5			75.0	1.6	76.7	23.3
1986	1.8	31.2	83.5	10.2	31.0	16.2	14.8	68.1	.9	81.6	18.4
1987	2.3	35.9	76.3	15.0	34.8	20.5	14.4	64.9	.2	83.1	16.9
1988	1.4	47.2	76.5	16.3	52.4	17.7	34.7	47.6		79.6	20.4
1989	1.2	42.2	71.1	23.2	70.9	24.3	46.6	29.1		77.9	22.1
1990	2.3	49.5	65.3	31.9	84.9	9.0	75.8	15.1		63.7	36.3
1991	.8	45.7	58.4	39.1	92.3	12.5	79.8	7.7		64.1	35.9
1992	3.3	44.4	59.4	38.5	93.9	10.7	83.2	6.1		60.3	39.7
1993	15.9	44.5	50.9	47.1	93.7	.5	93.2	6.3		64.1	35.9

Table 6		
Relative Fuel Consumption For Five Vehicle Groups		
Vehicle Group	Relative Fuel Consumption	
	1975	1993
Domestic cars	69	37
European cars	4	3
Asian cars	5	20
Domestic trucks	20	34
Import trucks	2	6

Figures 15 through 18 show ways in which the three market segments are similar and ways in which they are different. Figure 15 reinforces the earlier discussion about weight trends, showing that for the European and Asian groups, the trend has been an increasing one for more than 10 years.

Figure 16 indicates that increased volumes have accompanied the European and Asian cars' increased weight, although the Domestics still have the largest volume.

Figure 17 shows that in HP/CID, the European and Asian trends are essentially identical having increased and been above 1.0 HP/CID for some years now. The Domestics trail in HP/CID but also show an increasing trend.

As seen in Figure 18 all three groups show very similar trends in terms of performance especially in the last 3 or 4 years.

Table 7

Best 1993 Vehicle by Size Class

<u>Class</u>	<u>Make</u>	<u>Name</u>	<u>Type</u>	<u>MPG</u>
Small Pickup	Nissan	Truck 2WD	Asian	29.1
Large Pickup	Ford	Ranger 2WD	Domestic	30.8
Small Van	Eagle	Summit	Asian	29.8
Large Van	Chevy	G10/20 Van	Domestic	22.2
Small Utility	Suzuki	Samari	Asian	33.5
Large Utility	Jeep	Grand Cherokee	Domestic	20.9
Two-Seater	GEO	Metro LSI	Asian	50.8
Minicompact	Nissan	NX	Asian	38.0
Subcompact	GEO	Metro XFi	Asian	65.3
Compact	Pontiac	Lemans	Asian	40.6
Midsize	Mazda	626	Asian	34.1
Large	Eagle	Vision	Domestic	26.8
Small Wagon	Ford	Tracer	Domestic	37.8
Midsize Wagon	Volvo	240	European	28.2
Large Wagon	Chevy	Caprice	Domestic	22.8

Table 8

Size Class Characteristics For 1993

	<u>Class</u>		<u>Percent of Class That Is:</u>			
	<u>Avg</u> <u>MPG</u>	<u>Low</u> <u>MPG</u>	<u>Dom.</u>	<u>Eur.</u>	<u>Asian</u>	<u>Imported</u>
Small Pickup	25.4	23.0	64.9			35.1
Large Pickup	19.9	12.5	85.6			14.4
Small Van	22.9	19.1	81.8			18.2
Large Van	17.8	14.5	100.0			0.0
Small Utility	21.0	16.9	78.2			21.8
Large Utility	17.6	12.6	95.5			4.5
Two-Seater	29.8	10.0	15.6	8.1	76.3	84.4
Minicompact	30.8	17.1		8.4	91.6	100.0
Subcompact	31.5	13.9	30.3	4.2	65.5	69.7
Compact	29.5	14.6	52.7	5.1	42.2	47.3
Midsize	26.0	13.9	71.9	3.4	24.7	28.1
Large	24.3	13.6	98.0	2.0		2.0
Small Wagon	30.7	22.7	48.3	1.5	50.2	51.7
Midsize Wagon	25.6	21.4	41.7	25.7	32.6	58.3
Large Wagon	22.5	22.4	100.0			0.0

Weight, 1975 to 1993 Cars

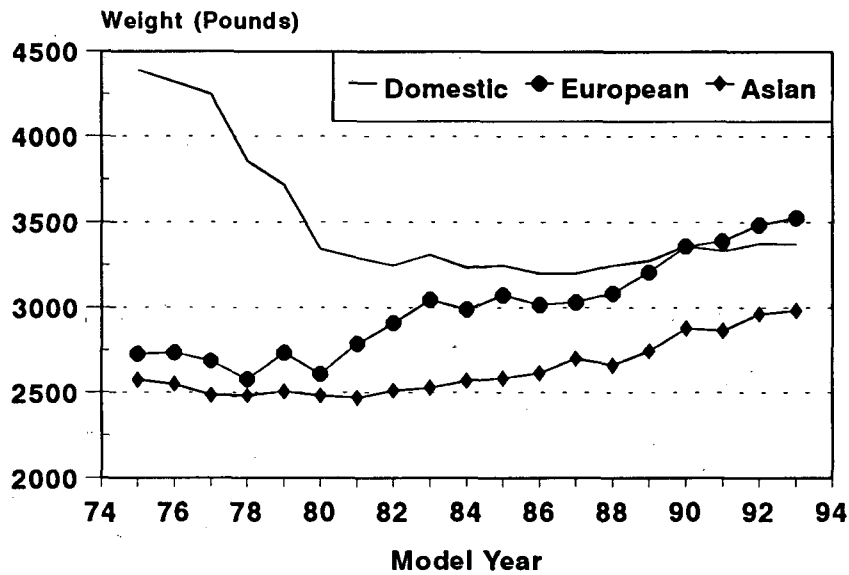


Figure 15

Passenger Car Interior Volume

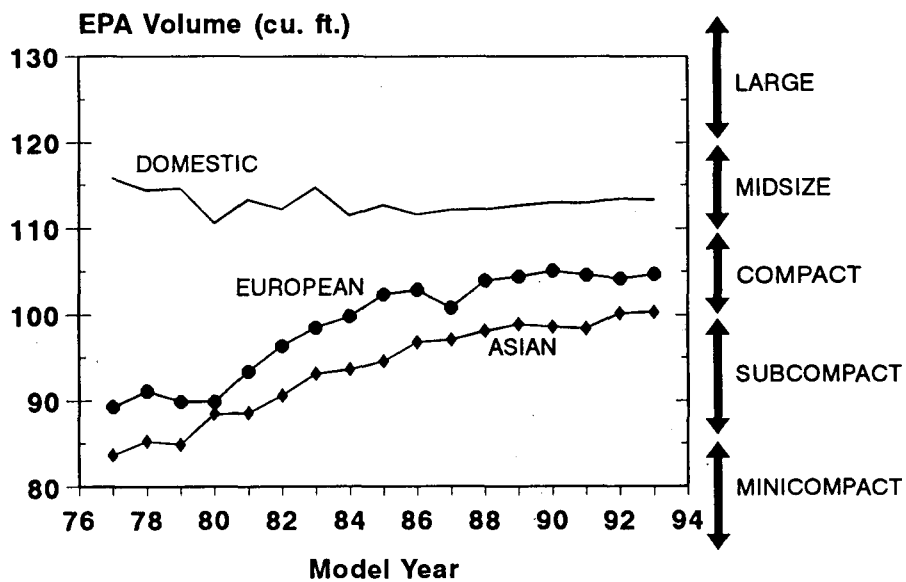


Figure 16

Horsepower per CID, 1975 to 1993 Cars

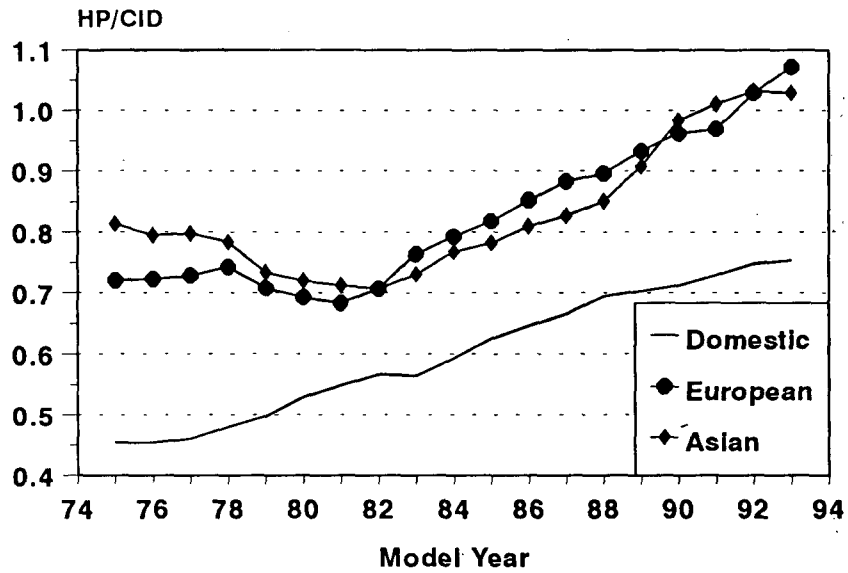


Figure 17

0 to 60 Time, 1975 to 1993 Cars

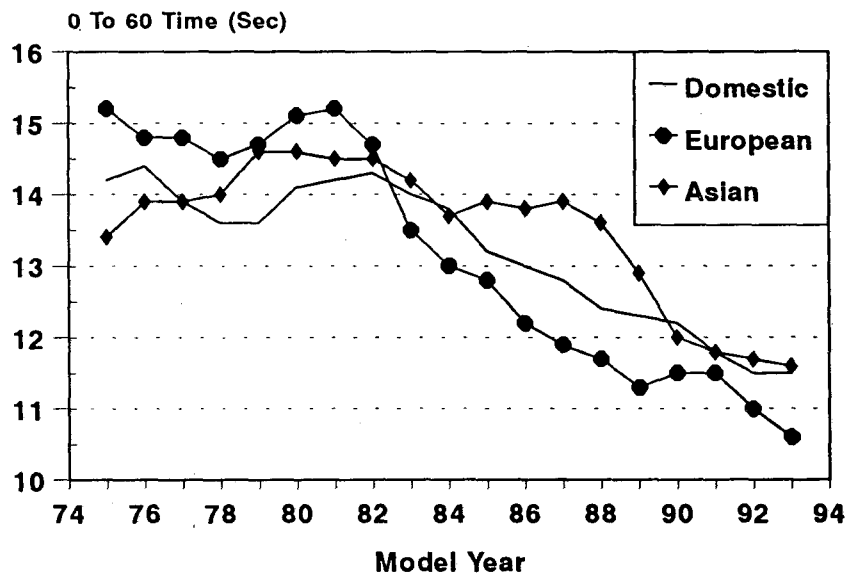


Figure 18

VII. Conclusions

1. The 1993 MPG values for passenger cars, light trucks, and both together is little changed from last year and are all within 1 MPG of the values since 1985.

2. For roughly the last decade, the most significant trend has been increased vehicle performance.

3. Increased vehicle performance has been achieved by increased horsepower which has been achieved primarily due to increased specific power.

4. Since 1987, vehicle weight has increased by 6 percent for cars and 11 percent for trucks.

5. Engines with more than two valves per cylinder exceed 35 percent of the market; most of these have four valves per cylinder.

6. Technology replacement in the automobile industry takes more than a decade to accomplish.

7. There are several methods that can be used to assess future MPG potential. A best-in-class analysis indicates that the current passenger car fleet has the potential of attaining more than 30 MPG.

8. Since 1975, Domestic trucks and Asian cars have experienced the major growth in market share at the expense of Domestic cars.

9. Since 1975, Domestic trucks have increased their relative share of the fuel consumed by the light-duty fleet from one-fifth to one-third of the total. Asian cars have quadrupled their relative fuel consumption, now accounting for one-fifth of the total. Domestic cars have shown the greatest reduction in actual fuel consumption.

VIII. Acknowledgments

The authors wish to express their thanks to those colleagues in the industry who assisted with the preparation and review of the valves-per-cylinder database, their thanks to reviewers at the U.S. EPA, the U.S. Department of Transportation, and the U.S. Department of Energy for their comments on and corrections of the draft of this report, and their sincere appreciation to Jennifer Criss of TDG for word processing, editing, and report preparation.

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Appendix A : Light Duty Vehicle Classification Convention

Manufacturer/Vehicles	Years	Are Classified As:
American Motors	75-87	American Motors
American Motors	87-93	Chrysler
Chrysler Vehicles by Diamond Star	All	Chrysler/Asian
Chrysler Vehicles by Maserati	All	Chrysler/Asian
Chrysler Vehicles by Mitsubishi	All	Chrysler/Asian
Chrysler Colt 4wd Wagon	All	Passenger Car (Small Wagon)
Chrysler Colt Vista	All	Small Van
Chrysler Summit Wagon	All	Small Van
Mitsubishi Space Wagon	All	Small Van
Mitsubishi EXPO	All	Small Van
Dodge Monaco	75-77	Domestic
Dodge Monaco	90-93	European
Eagle Premier	90-93	European
Eagle 4wd Wagon	All	Passenger Car
Dodge Ramcharger	All	Domestic
Lamborghini	75-89	Lamborghini
Lamborghini	90-93	Chrysler European
Aston Martin	75-87	Aston Martin
Aston Martin	88-93	Ford/European
Jaguar	75-89	Jaguar
Jaguar	90-93	Ford/European
Ford Vehicles by Mazda	All	Ford/Asian
Ford Festiva	All	Ford/Asian
Ford Merkur/Scorpio	All	Ford/European
Ford Probe (4 cyl)	All	Ford/Asian
Ford Probe (6 cyl)	93	Ford/Asian
Mercury Capri	75-86	Domestic
Mercury Capri	91-93	Ford/Asian
Ford Escort (All)	81-90	Ford/Domestic
Ford Escort (1.8 L)	91-93	Ford/Asian
Ford Escort (1.9 L)	91-93	Ford/Domestic
Mercury Tracer (1.8 L)	91-93	Ford/Asian
Mercury Tracer (1.9L)	91-93	Ford/Domestic
Ford Taurus SHO	All	Ford/Asian

Appendix A : Light Duty Vehicle Classification Convention (Continued)

Manufacturer/Vehicles	Years	Are Classified As:
Ford Pinto Van	All	Passenger Car
Ford Villager	All	Ford/Asian
Nissan Quest	All	Nissan/Asian
General Motors vehicles by Isuzu	All	GM/Asian
General Motors vehicles by Nummi	All	GM/Asian
General Motors vehicles by Suzuki	All	GM/Asian
Pontiac Lemans	75-81	GM/Domestic
Pontiac Lemans	91-93	GM/Asian
Cadillac Allante	All	Domestic
Mazda Navajo	All	Domestic
Saab	75-89	Saab/European
Saab	90-93	GM/European
Lotus	75-87	Lotus
Lotus	88-93	GM/European
Sterling	All	Asian
Subaru 4wd Sedans/Wagons	All	Passenger Cars

Note : Classification of a vehicle as Domestic, European or Asian is based on the authors' judgement of where the majority of the engine and emission control system design and development work was done. It is meant to be a tracking system for technical parameters related to engine and emission control technology and is not a replacement for the Domestic/Import classification used in implementing fuel economy standards legislation.

TWO SEATERS	55/45 ***** MPG	MINICOMPACT SEDANS	55/45 ***** MPG	SUBCOMPACT SEDANS	55/45 ***** MPG
GM METRO LSi CONVERTIBLE	46.2			GM METRO Xfi	65.3
				HONDA CIVIC HB VX	58.6
				GM FIREFLY	49.1
				SUZUKI SPRINT	48.8
				GM METRO	48.8
				SUZUKI SWIFT	44.2
				FORD FESTIVA	42.0
				HONDA CIVIC	41.2
				SUBARU JUSTY	40.7
				DAIHATSU CHARADE	40.3
				NISSAN SENTRA	36.7
				SUZUKI SWIFT GT	35.9
				HYUNDAI EXCEL	35.8
				CHRYSLER COLT	35.8
				SUBARU JUSTY 4WD	35.8
				TOYOTA TERCEL	35.0
		NISSAN NX	35.0	CHRYSLER SUMMIT	35.0
		TOYOTA PASEO	34.4	mitsubishi MIRAGE	34.6
				HYUNDAI SCOUPE	34.1
				GM STORM	33.6
				VW/AUDI FOX	32.6
				TOYOTA COROLLA	32.5
				MAZDA MX-3	31.9
				GM PRIZM	31.7
				GM SC	31.6
LOTUS ELAN	31.1				
MAZDA MX-5 MIATA	31.1	VW/AUDI CABRIOLET	31.3		
				HONDA INTEGRA	30.8
				GM SUNBIRD	30.4
				GM CAVALIER	30.1
				ISUZU IMPULSE	29.9
ALFA ROMEO SPIDER	28.6	FORD CAPRI	29.7	TOYOTA CELICA	29.7
				HONDA PRELUDE	28.6
				CHRYSLER LASER	28.4
				MITSUBISHI ECLIPSE	28.4
				CHRYSLER SHADOW CONVERTIBLE ..	28.1
TOYOTA MR2	28.0				
		TOYOTA CELICA CONVERTIBLE	27.8	CHRYSLER DAYTONA	27.6
		NISSAN 240SX	27.4		
				CHRYSLER TALON	26.9
				VW/AUDI CORRADO	26.7
				CHRYSLER LEBARON CONVERTIBLE .	26.5
				BMW 318i CONVERTIBLE	26.3
				MERCEDES-BENZ 190E 2.3	26.2
				MERCEDES-BENZ 190E 2.6	25.4
				FORD MUSTANG	24.8
				VW/AUDI 80	24.7
				NISSAN M30	24.6
				SAAB 900 CONVERTIBLE	24.6
				BMW 325i	24.5
HONDA NSX	24.4				
GM REATTa	24.4			CHRYSLER STEALTH	23.7
LOTUS ESPIRIT	24.2			VW/AUDI 80 QUATTRO	23.7
				GM CAMARO/FIREBIRD/TRANS AM...	23.6
				SUBARU SVX	23.5
				NISSAN 300ZX 2+2	23.5
				MITSUBISHI 3000 GT	23.5
NISSAN 300ZX	23.4			BMW 325i CONVERTIBLE.....	23.4
PORSCHE 968	23.2	PORSCHE 968	23.2		
				TOYOTA SUPRA	23.0
				TOYOTA SC300/SC400	22.9
GM CORVETTE	22.8				
MAZDA RX-7	22.5			MERCEDES-BENZ 300CE	22.5
MERCEDES-BENZ 300SL	21.9	PORSCHE 911 CARRERA 4/2	21.9		
PORSCHE 911 CARRERA 4/2	21.8				
GM ALLANTE	20.4			JAGUAR XJ-S COUPE	17.3
CHRYSLER VIPER	18.5				
MERCEDES-BENZ 500SL	18.3	PORSCHE 911 TURBO	18.3	FERRARI MONDIAL T / CAB	16.7
FERRARI 348 TB/TS	17.5			BMW 850i	16.6
JAGUAR XJ-S CONVERTIBLE.....	17.0				
				ASTON MARTIN VIRAGE SALOON ...	15.2
FERRARI F40	16.0			ROLLS-ROYCE CORNICHE/BENTLEY..	13.9
FERRARI TESTAROSSA	14.5				
LAMBORGHINI DB132/DIABLO	12.8				

COMPACT SEDANS	55/45	MIDSIZE SEDANS	55/45	LARGE SEDANS	55/45
*****	MPG	*****	MPG	*****	MPG
FORD ESCORT FS	40.9				
HYUNDAI PRECIS	35.7				
MAZDA 323	35.4				
GM LEMANS	34.9				
FORD ESCORT	34.3				
ISUZU STYLUS	33.9				
FORD TRACER	33.8				
GM SL	33.4				
MERCEDES-BENZ 300D 2.5 TURBO ..	33.0				
MAZDA PROTEGE	32.7				
VW/AUDI JETTA	31.8				
VW/AUDI GOLF/GTI	31.4				
CHRYSLER SHADOW/SUNDANCE.....	30.2				
SUBARU LOYALE	30.1				
GM ACHIEVA	29.7				
		MAZDA 626/MX-6	29.5		
GM GRAND AM	29.4				
HONDA ACCORD	29.0				
SUBARU LEGACY	29.0				
HYUNDAI J-CAR	28.8				
GM SKYLARK	28.3				
SUBARU LOYALE AWD	28.3				
FORD TEMPO FS	28.0				
GM CORSICA	27.9				
		CHRYSLER ACCLAIM	27.8		
VW/AUDI JETTA/GTI 16V	27.6	CHRYSLER SPIRIT	27.6		
MINISUBISHI GALANT	27.5				
NISSAN STANZA	27.5	VW/AUDI PASSAT	27.2		
PEUGEOT 405 SEDAN	27.1				
GM BERETTA	27.1				
FORD TOPAZ	26.9				
FORD TEMPO	26.8				
SUBARU LEGACY 4WD	26.7				
CHRYSLER LEBARON	26.7				
		GM CUTLASS CIERA	26.6		
FORD PROBE	26.5	FORD TAURUS	26.5		
HONDA VIGOR	26.4				
		GM CENTURY	26.3		
		TOYOTA CAMRY	26.3		
SAAB 900	25.9	FORD SABLE	26.0		
VOLVO 240	25.5	GM LUMINA	25.8		
		VOLVO 740	25.5		
		HYUNDAI SONATA	25.5		
MERCEDES-BENZ 300E 2.6	25.4	NISSAN MAXIMA	25.5		
		CHRYSLER DYNASTY	25.3		
		GM GRAND PRIX	25.3		
		GM CUTLASS SUPREME	25.3		
		CHRYSLER NEW YORKER	25.0		
ALFA ROMEO STERLING 827	24.8	FORD THUNDERBIRD	24.9		
PEUGEOT 405 SEDAN 4WD	24.8	FORD COUGAR	24.9		
		GM REGAL	24.6	MERCEDES-BENZ 300SD	24.7
TOYOTA CRESSIDA	24.5			CHRYSLER IMPERIAL	24.6
HONDA LEGEND	24.4			GM EIGHTY-EIGHT/LASABRE.....	24.6
		GM TORONADO	24.4	CHRYSLER MONACO/PREMIER	24.5
SUBARU LEGACY 4WD TURBO	24.3	GM RIVIERA	24.4	VOLVO 960	24.4
		MAZDA 929	24.4	GM NINETY-EIGHT	24.4
FORD PROBE	24.1				
				GM BONNEVILLE	24.3
ALFA ROMEO 164	23.9	VOLVO 940 GLE 16-VALVE	23.9	GM PARK AVENUE	24.2
MINISUBISHI DIAMANTE	23.7			FORD LTD CROWN VICTORA	24.1
				SAAB 9000	24.1
		VOLVO 780/940	23.6		
MERCEDES-BENZ 300E	23.3	VW/AUDI 100	23.5	FORD GRAND MARQUIS	23.5
BMW 525i	23.3				
TOYOTA ES300	23.1	TOYOTA LS400	23.1	GM CAPRICE	22.9
		FORD MARK VII	22.9	FORD TOWN CAR/CONTINENTAL	22.8
				GM ROADMASTER/BROUGHAM	22.7
FORD JAGUAR XJ6	22.5	GM SEVILLE	22.5	GM FLEETWOOD/DEVILLE	22.5
		GM ELDORADO	22.5		
BMW 535i	21.5	NISSAN Q45	21.6		
MERCEDES-BENZ 300E-4MATIC	21.3				
		BMW 735i/735iL	20.5		
MERCEDES-BENZ 500E	18.1	NISSAN Q45 FULL-ACTIVE	18.9	MERCEDES-BENZ 300SE	19.2
BMW M5	17.5				
		BMW 750iL	16.8	MERCEDES-BENZ 400SE	17.4
ROLLS-ROYCE BENTLEY CONT.	14.6	ROLLS-ROYCE BENTLEY TURBO	14.6	MERCEDES-BENZ 500SEL	16.5
		ROLLS-ROYCE BENTLEY/SILVER SP.	13.9	MERCEDES-BENZ 600SEL	14.6

Appendix B (Continued) - 1992 Nameplate Average MPG, by Vehicle Size Class

SMALL WAGONS		MIDSIZE WAGONS		LARGE WAGONS	
*****		*****		*****	
	55/45		55/45		55/45
	MPG		MPG		MPG
FORD TRACER	34.4				
FORD ESCORT	34.3				
TOYOTA COROLLA	33.2				
SUBARU LOYALE	30.4				
GM CAVALIER	29.6				
SUBARU LOYALE	29.1				
SUBARU LEGACY	28.8				
TOYOTA COROLLA ALL-TRAC	28.6				
SUBARU LOYALE 4WD	28.5				
HONDA ACCORD	27.2				
		VW/AUDI PASSAT	27.2		
		TOYOTA CAMRY	26.4		
		GM CENTURY	26.4		
SUBARU LEGACY 4WD	26.3				
		GM CUTLASS CRUISER	26.2		
		FORD TAURUS	25.9		
		FORD SABLE	25.9		
		VOLVO 240	25.8		
		VOLVO 740	25.3		
		PEUGEOT 405	24.8		
		VOLVO 960	24.4		
		VOLVO 940 GLE 16-VALVE	23.9		
		VOLVO 940	23.6		
		PEUGEOT 505	23.0		
				GM ROADMASTER	22.7
				GM CAPRICE	22.7
				GM CUSTOM CRUISER	22.7
		MERCEDES-BENZ 300TE	21.4		
		MERCEDES-BENZ 300TE-4MATIC ...	20.5		

Appendix B (Continued) - 1992 Nameplate Average MPG, by Vehicle Size Class

SMALL PICKUPS *****	55/45 MPG	SMALL VANS *****	55/45 MPG	SMALL UTILITY *****	55/45 MPG
				SUZUKI SAMURAI SOFT-TOP	33.4
				SUZUKI SAMURAI 2WD	33.4
				SUZUKI SIDEKICK 2WD	30.1
				GM TRACKER CONVERTIBLE	29.2
				SUZUKI SIDEKICK SOFT-TOP	28.9
				GM TRACKER VAN 4WD	28.8
				SUZUKI SIDEKICK HARDTOP	28.4
		MITSUBISHI EXPO.LRV	28.9		
NISSAN TRUCK 2WD	28.2				
		CHRYSLER SUMMIT/COLT VISTA ...	27.6		
		NISSAN AXXESS	26.6	DAIHATSU ROCKY 4WD	26.9
ISUZU PICKUP 2WD	25.8				
GM S10 PICKUP 2WD	25.7				
		MITSUBISHI EXPO	25.6		
FORD RANGER PICKUP 2WD.....	25.5				
GM SONOMA PICKUP 2WD	25.3				
MITSUBISHI TRUCK 2WD	24.7				
CHRYSLER RAM 50 2WD	24.7				
		CHRYSLER CARAVAN C/V 2WD	24.4		
		NISSAN AXXESS AWD	23.8		
		CHRYSLER CARAVAN/VOYAGER 2WD .	23.7		
		FORD AEROSTAR VAN	23.0		
		GM APV/TRANS SPORT 2WD	22.9		
		CHRYSLER TOWN & COUNTRY	22.8		
GM COACHBUILDER WAGON.....	22.6	GM SILHOUETTE 2WD	22.6		
		TOYOTA PREVIA	22.4		
		MAZDA MPV	22.0	GM JIMMY/S10 BLAZER 2WD	22.0
FORD RANGER PICKUP 4WD	21.9			MAZDA NAVAJO	21.7
		GM ASTRO/SAFARI 2WD (CARGO) ..	21.7		
		TOYOTA PREVIA ALL-TRAC	21.7	CHRYSLER WRANGLER 4WD	21.4
		FORD AEROSTAR	21.4	TOYOTA 4-RUNNER 2WD	21.3
				FORD EXPLORER 2WD	21.2
		GM ASTRO/SAFARI 2WD (PASS) ...	21.1		
		CHRYSLER CARAVAN C/V 4WD	20.7	ISUZU AMIGO 4WD	20.8
				CHRYSLER CHEROKEE 2WD	20.7
				GM BRAVADA AWD	20.7
				MAZDA NAVAJO 4X4	20.6
		GM ASTRO/SAFARI AWD (CARGO) ..	20.6	GM JIMMY/S10 BLAZER 4WD	20.6
GM COMMERCIAL CHASSIS	20.5			NISSAN PATHFINDER 2WD	20.5
		CHRYSLER CARAVAN/VOYAGER 4WD .	20.1	ISUZU RODEO 2WD	20.1
		FORD AEROSTAR VAN AWD	20.1		
				FORD EXPLORER 4WD	19.9
		GM ASTRO/SAFARI AWD (PASS) ...	19.8		
		FORD AEROSTAR	19.8		
		CHRYSLER TOWN & COUNTRY	19.8		
		NISSAN PATHFINDER VAN	19.7	CHRYSLER CHEROKEE 4WD	19.5
GRUMMAN-OLSON POSTAL CAB CHAS	19.3			NISSAN PATHFINDER 4WD	19.4
PAS-SYCLONE	19.1			MITSUBISHI MONTERO	19.2
				ISUZU TROOPER	19.1
				PAS-TYPHOON	19.1
				MAZDA MPV 4X4	19.1
				ISUZU RODEO 4WD	19.1
				TOYOTA 4-RUNNER 4WD	17.5

Appendix B (Continued) - 1992 Nameplate Average MPG, by Vehicle Size Class

LARGE PICKUPS *****	55/45 MPG	LARGE VANS *****	55/45 MPG	LARGE UTILITY *****	55/45 MPG
TOYOTA TRUCK 2WD	26.8				
MAZDA B2200/B2600I	26.1				
TOYOTA TRUCK 4WD/TOYOT	23.9				
TOYOTA 1-TON TRUCK 2WD	23.4				
CHRYSLER POWER RAM 50 4WD	22.6				
MAZDA B2600I 4X4	22.2				
MITSUBISHI TRUCK 4WD	22.2				
NISSAN TRUCK 4WD	22.0				
CHRYSLER COMANCHE PICKUP	21.8				
ISUZU PICKUP 2WD 1TON	21.3				
GM SONOMA PICKUP 4	20.7				
GM S10 PICKUP 4WD	20.7				
ISUZU PICKUP 4WD	20.2				
CHRYSLER DAKOTA PICKUP 2WD ...	20.1				
GM C1500 SIERRA 2WD	19.2				
GM C1500 PICKUP 2WD	18.8	GM G10/20/ VAN 2WD	18.8		
		GM G15/25 VANDURA	18.7		
TOYOTA TRUCK 4WD	18.5				
GM C2500 PICKUP 2WD	18.5				
GM C2500 SIERRA 2WD	18.5				
FORD F150 PICKUP 2WD	18.5				
		GM G30 VAN 2WD	18.4		
		GM G35 VANDURA 2WD	18.4		
CHRYSLER DAKOTA PICKUP 4WD ...	18.2				
FORD F250 PICKUP 2WD	17.6	FORD E150 ECONOLINE	17.3		
		GM G10/20 SPORTVAN	17.3		
GM K1500 PICKUP 4WD	17.3	GM G15/25 RALLY 2WD	17.3		
GM K1500 SIERRA 4WD	17.2				
FORD F150 PICKUP 4WD	17.1				
CHRYSLER D100/D150 PICKU	17.0				
GM K2500 SIERRA 4WD	16.9	GM G30 SPORTVAN 2WD	16.9	GM C1500 SUBURBAN	16.9
GM K2500 PICKUP 4WD	16.9	GM G35 RALLY 2WD	16.9	GM K1500 YUKON 4WD	16.9
CHRYSLER W100/W150	16.8	FORD E150 CLUB WAGON	16.8	GM K1500 BLAZER 4WD	16.9
		CHRYSLER B150/B250 VAN 2WD....	16.7		
				CHRYSLER RAMCHARGER 2WD	16.6
CHRYSLER D250 PICKUP 2WD	16.3				
		CHRYSLER B350 VAN 2WD	16.3	RANGE ROVER	16.3
		FORD E250 ECONOLINE	16.1	FORD BRONCO 4WD	16.1
CHRYSLER DAKOTA CAB CHASSIS ..	16.0				
		CHRYSLER B150/B250	15.8		
				GM K1500 SUBURBAN	15.4
CHRYSLER W250 PICKUP 4WD	14.6	CHRYSLER B350 2WD	14.3	TOYOTA LAND CRUISER	14.6
CHRYSLER D250 CAB CHASSIS	14.2				
				CHRYSLER RAMCHARGER 4WD	13.7
TOYOTA CAB/CHASSIS 2WD	13.2			CHRYSLER GRAND WAGONEER	13.7

Appendix C - 1993 Nameplate Average MPG, by Vehicle Size Class

TWO SEATERS

MPG

GM METRO LSi CONVERTIBLE 46.2

HONDA CIVIC DEL SOL 37.6

MAZDA MX-5 MIATA 31.1

LOTUS ELAN 30.2

ALFA ROMEO SPIDER 28.7

TOYOTA MR2 27.7

HONDA NSX 24.6

LOTUS ESPRIT 24.2

MAZDA RX-7 23.5

NISSAN 300ZX 23.4

PORSCHE 968 23.0

GM CORVETTE 22.9

JAGUAR XJS CONVERTIBLE 21.9

PORSCHE 911 CARRERA 4/2 21.8

MERCEDES-BENZ 300SL 21.3

MERCEDES-BENZ 500SL 20.4

GM ALLANTE 19.6

CHRYSLER VIPER 18.5

FERRARI 348 17.5

MERCEDES-BENZ 600SL 17.0

JAGUAR XJRS CONVERTIBLE 15.3

FERRARI 512 14.5

CHRYSLER DB132/DIABLO 12.8

VECTOR W8 10.0

MINICOMPACT SEDANS

MPG

NISSAN NX 35.3

TOYOTA PASEO 34.4

VW/AUDI CABRIOLET 29.8

FORD CAPRI 29.7

TOYOTA CELICA CONVERTIBLE 27.8

NISSAN 240SX 27.5

PORSCHE 968 23.2

PORSCHE 911 CARRERA 4/2 21.8

PORSCHE 928 GTS 18.6

***** UNADJ
SUBCOMPACT SEDANS 55/45
***** MPG

GM METRO Xfi 65.3

HONDA CIVIC HB VX 58.4

GM FIREFLY 49.3

SUZUKI SPRINT 49.3

GM METRO 49.0

GM METRO LSi 47.9

SUZUKI SWIFT 44.2

FORD FESTIVA 42.2

HONDA CIVIC 40.7

SUBARU JUSTY 40.7

CHRYSLER COLT/ SUMMIT 38.6

MITSUBISHI MIRAGE 37.4

SUZUKI SWIFT GT 36.0

SUBARU JUSTY AWD 36.0

NISSAN SENTRA 35.8

HYUNDAI EXCEL 35.8

TOYOTA TERCEL 35.4

GM STORM 34.3

GM SC 34.0

HYUNDAI SCOUPE 33.8

VW/AUDI FOX 32.6

MAZDA MX-6 32.2

MAZDA MX-3 31.9

SUBARU IMPREZA 31.2

HONDA INTEGRA 31.0

ISUZU IMPULSE 30.2

FORD PROBE 29.9

GM CAVALIER 29.9

SUBARU IMPREZA AWD 29.8

TOYOTA CELICA 29.7

BMW 318i, 318is 29.1

MITSUBISHI ECLIPSE 28.7

HONDA PRELUDE 28.5

CHRYSLER DAYTONA 28.5

CHRYSLER SHADOW CONVERTIBLE .. 28.5

CHRYSLER LASER 28.3

GM SUNBIRD 28.2

CHRYSLER LEBARON CONVERTIBLE . 27.2

CHRYSLER TALON 26.9

MERCEDES-BENZ 190E 2.3 26.6

BMW 325i, 325is 26.4

GM FIREBIRD 25.9

GM CAMARO 25.8

MERCEDES-BENZ 190E 2.6 25.6

FORD MUSTANG 25.1

SAAB CONVERTIBLE 24.3

MERCEDES-BENZ 300CE 24.3

MITSUBISHI 3000 GT 24.3

CHRYSLER STEALTH 24.0

SUBARU SVX 23.9

VW/AUDI CORRADO SLC 23.7

NISSAN J30 23.6

SUBARU SVX AWD 23.5

NISSAN 300ZX 2+2 23.4

BMW 325i CONVERTIBLE 23.3

VW/AUDI 90 QUATTRO 23.2

TOYOTA SC300/SC400 23.1

JAGUAR XJS COUPE 21.9

BMW 850ci 16.6

FERRARI MONDIAL 16.6

JAGUAR XJRS COUPE 15.5

ROLLS-ROYCE CORNICHE/BENTLEY 13.9

COMPACT SEDANS	55/45 MPG	MIDSIZE SEDANS	55/45 MPG	LARGE SEDANS	55/45 MPG
FORD ESCORT FS	39.8				
MAZDA 323	35.3				
HYUNDAI PRECIS	35.2				
GM LEMANS	35.0				
GM SL	34.5				
MERCEDES-BENZ 300D 2.5 TURBO	34.0				
ISUZU STYLUS	33.8				
FORD ESCORT/TRACER	33.7				
TOYOTA COROLLA	33.4				
MAZDA PROTEGE	32.9				
GM PRIZM	32.4				
		MAZDA 626	31.8		
CHRYSLER SHADOW	30.5				
SUBARU LOYALE	30.4				
VW/AUDI GOLF III / GTI	30.3				
CHRYSLER SUNDANCE	30.2				
NISSAN G20	29.5				
HONDA ACCORD	29.3				
GM GRAND AM	29.2				
SUBARU LEGACY	29.1				
VW/AUDI JETTA III	28.8				
GM CORSICA	28.8				
HYUNDAI ELANTRA	28.7				
GM ACHIEVA	28.7				
SUBARU LOYALE 4WD	28.5				
NISSAN STANZA ALTIMA	28.5				
MITSUBISHI GALANT	28.2	CHRYSLER SPIRIT	28.2		
		CHRYSLER ACCLAIM	28.0		
FORD TOPAZ	27.7				
GM BERETTA	27.7				
CHRYSLER LEBARON	27.6				
GM SKYLARK	27.5				
FORD TEMPO	27.5				
		GM CUTLASS CIERA	27.4		
SUBARU LEGACY AWD	27.1	VOLVO 850	27.1		
		GM CENTURY	27.1		
		CHRYSLER DYNASTY	27.0		
		FORD TAURUS	26.9		
		FORD SABLE	26.5		
				CHRYSLER INTREPID\CONCORDE	26.4
HONDA VIGOR	26.1	GM REGAL	26.3	CHRYSLER VISION	26.1
		VW/AUDI PASSAT	26.1	GM EIGHT-EIGHT\LESABRE	26.0
				GM BONNEVILLE	25.6
VOLVO 240	25.5	CHRYSLER NEW YORKER	25.9	CHRYSLER FIFTH AVENUE/IMPERIAL	25.5
SAAB 900	25.3	GM RIVIERA	25.6	GM NINETY-EIGHT	25.4
		GM LUMINA	25.6		
		TOYOTA CAMRY	25.5	GM PARK AVENUE	25.2
MERCEDES-BENZ 300E 2.8	24.8	NISSAN MAXIMA	25.3	MERCEDES-BENZ 300SD	24.8
BMW 525i	24.5	FORD COUGAR	25.3		
SUBARU LEGACY AWD TURBO	24.4	GM CUTLASS SUPREME	25.2	VOLVO 960	24.4
		HYUNDAI SONATA	25.0	FORD GRAND MARQUIS	24.4
		GM GRAND PRIX	25.0	FORD TOWN CAR	24.4
				FORD LTD CROWN VICTORIA	24.4
		FORD THUNDERBIRD	24.6		
		VW/AUDI 100	24.4	SAAB 9000	23.9
		MAZDA 929	24.4	FORD CONTINENTAL	23.8
MERCEDES-BENZ 300E	24.3				
HONDA LEGEND	24.0	VOLVO 940	24.2		
ALFA ROMEO 164	23.9	VOLVO 940 GLE 16-VALVE	23.9		
MITSUBISHI DIAMANTE	23.6				
VOLVO 780	23.6	FORD MARK VIII	23.5		
VW/AUDI 90	23.6				
MERCEDES-BENZ 400E	23.4	TOYOTA LS400	23.1		
TOYOTA ES300	23.2				
VW/AUDI S4	23.2	GM SEVILLE	22.5	GM ROADMASTER	22.4
JAGUAR XJ6	23.1	GM ELDORADO	22.5	GM FLEETWOOD	22.4
VW/AUDI 100 QUATTRO	22.8	NISSAN Q45	22.4	FORD CROWN VICTORIA	22.3
				GM CAPRICE	22.3
				GM DEVILLE	22.3
BMW 535i	21.5				
MERCEDES-BENZ 300E-4MATIC	21.4	BMW 740i	21.0		
MERCEDES-BENZ 500E	20.5	BMW 740iL	20.3	MERCEDES-BENZ 300SE	19.4
		NISSAN Q45 FULL-ACTIVE	19.4	MERCEDES-BENZ 400SEL	18.6
VW/AUDI V8	19.0			MERCEDES-BENZ 500SEL	17.3
BMW M5	17.5	MERCEDES-BENZ 500SEC	17.3	MERCEDES-BENZ 600SEL/SEC	15.4
		BMW 750iL	16.8		
ROLLS-ROYCE BENTLEY CONTIN.	14.6	ROLLS-ROYCE BENTLEY TURBO	14.6		
		ROLLS-ROYCE BENTLEY/SILVER ST.	13.9		

Appendix C (Continued) - Nameplate Average MPG, by Vehicle Size Class

SMALL WAGONS *****	55/45 MPG	MIDSIZE WAGONS *****	55/45 MPG	LARGE WAGONS *****	55/45 MPG
TOYOTA COROLLA	34.3				
FORD ESCORT	34.1				
FORD TRACER	34.0				
GM SW	33.8				
SUBARU IMPREZA	31.4				
SUBARU LOYALE	30.5				
SUBARU IMPREZA AWD	29.7				
SUBARU LOYALE 4WD	29.1				
GM CAVALIER	28.9				
SUBARU LEGACY	28.8				
HONDA ACCORD	27.5				
SUBARU LEGACY AW	27.0				
		GM CENTURY	27.0		
		FORD TAURUS	26.8		
		VW/AUDI PASSAT	26.4		
		GM CUTLASS CRUISER	26.4		
		FORD SABLE	26.3		
		VOLVO 240	25.8		
		TOYOTA CAMRY	25.5		
		MITSUBISHI DIAMANTE	24.6		
		VOLVO 960	24.4		
		MERCEDES-BENZ 300TE	24.3		
BMW 525i Touring	24.2	VOLVO 940	24.2		
VW/AUDI 100 QUATTRO	22.7	VOLVO 940 GLE 16-VALVE	23.9		
				GM CAPRICE	22.5
				GM ROADMASTER	22.4
		MERCEDES-BENZ 300TE-4MATIC ...	21.4		

Appendix C (Continued) - 1993 Nameplate Average MPG by Vehicle Size Class

SMALL PICKUPS *****	55/45 MPG	SMALL VANS *****	55/45 MPG	SMALL UTILITY *****	55/45 MPG
				SUZUKI SAMURAI SOFT-TOP	33.5
				SUZUKI SAMURAI 2WD	33.4
				SUZUKI SIDEKICK 2WD	29.6
				GM TRACKER CONVERTIBLE	29.2
				SUZUKI SIDEKICK SOFT-TOP	29.1
				SUZUKI SIDEKICK HARDTO	28.4
				GM TRACKER VAN 4WD	28.3
		MITSUBISHI EXPO.LRV	27.9		
NISSAN TRUCK 2WD	27.6	CHRYSLER COLT VISTA/SUMMIT ...	27.1		
ISUZU PICKUP 2WD	26.5	MITSUBISHI EXPO	26.2		
GM SONOMA PICKUP 2	25.4	CHRYSLER CARAVAN C/V 2WD	24.7		
GM S10 PICKUP 2WD	25.3	CHRYSLER VOYAGER 2WD	24.2		
CHRYSLER RAM 50 2WD	24.7	CHRYSLER CARAVAN 2WD	24.1		
MITSUBISHI TRUCK 2WD	24.7	CHRYSLER TOWN & COUNTRY	23.4		
		GM APV/TRANS SPORT	23.1		
		FORD AEROSTAR VAN	22.9		
		GM SILHOUETTE 2WD	22.9		
		NISSAN QUEST	22.8		
		FORD VILLAGER FWD	22.8		
		GM COACHBUILDER WA	22.4	GM JIMMY/ S10 BLAZER 2WD	22.7
		TOYOTA PREVIA	22.3	ISUZU AMIGO 4WD	22.4
		FORD AEROSTAR	22.1		
		CHRYSLER CARAVAN/VOYAGER 4WD ..	22.1		
		CHRYSLER TOWN & COUNTRY	22.0		
		GM ASTRO/SAFARI 2WD (CARGO) ..	21.8	ISUZU AMIGO 2WD	21.9
		TOYOTA PREVIA ALL-TRAC	21.8	MAZDA NAVAJO	21.8
		MAZDA MPV	21.7		
		FORD AEROSTAR VAN AL	21.4	FORD EXPLORER 2WD	21.7
		VOLKSWAGEN EUROVAN	21.3	ISUZU RODEO 2WD	21.6
GM COMMERCIAL CHASSIS	20.9	GM ASTRO/SAFARI 2WD (PASS) ...	20.9		
		GM ASTRO/SAFARI AWD (CARGO) ..	20.7	TOYOTA 4-RUNNER 2WD	21.3
				CHRYSLER WRANGLER 4WD	21.0
				CHRYSLER CHEROKEE 2WD	20.9
				GM JIMMY 4WD	20.8
				ISUZU RODEO 4WD	20.8
				GM S10 BLAZER 4WD	20.8
				GM BRAVADA AWD	20.7
				MAZDA NAVAJO 4X4	20.7
				NISSAN PATHFINDER 2WD	20.7
		FORD AEROSTAR	20.0	FORD EXPLORER 4WD	20.4
		GM ASTRO/SAFARI AWD (PASS)....	19.8	CHRYSLER CHEROKEE 4WD	20.0
GRUMMAN-OLSON POSTAL CAB CHAS	19.3			ISUZU TROOPER	19.3
		MAZDA MPV 4X4	19.1	MITSUBISHI MONTERO	19.2
				NISSAN PATHFINDER 4WD	18.9
				PAS-TYPHOON	18.5
				TOYOTA 4-RUNNER 4WD	17.7

Appendix C (Continued) - 1993 Nameplate Average MPG, by Vehicle Size Class

LARGE PICKUPS	55/45	LARGE VANS	55/45	LARGE UTILITY	55/45
*****	MPG	*****	MPG	*****	MPG
TOYOTA TRUCK 2WD/ T100.....	27.7				
MAZDA B2200/B2600I	26.4				
FORD RANGER PICKUP 2WD	25.2				
TOYOTA TRUCK 2WD	23.4				
CHRYSLER POWER RAM 50 4WD	23.1				
FORD RANGER PICKUP 4WD	22.4				
MITSUBISHI TRUCK 4WD	22.2				
MAZDA B2600I 4X4	22.2				
NISSAN TRUCK 4WD	22.1				
GM S10 PICKUP 4WD	21.2				
CHRYSLER COMANCHE PICKUP	21.1				
GM SONOMA PICKUP 4WD	21.1				
TOYOTA TRUCK 4WD /T100	21.0				
ISUZU PICKUP 4WD	20.6				
CHRYSLER DAKOTA PICKUP 2WD ...	20.1				
				CHRYSLER GRAND CHEROKEE	19.3
GM C1500 SIERRA 2WD	19.2				
FORD F150 PICKUP 2WD	19.1				
GM C1500 PICKUP 2WD	19.1				
		GM G10/20 VAN 2WD	18.9		
		GM G15/25 VANDURA	18.8		
		GM G30 VAN 2WD	18.6		
		GM G35 VANDURA 2WD	18.6		
GM C2500 PICKUP 2WD	18.5				
GM C2500 SIERRA 2WD	18.5				
FORD F250 PICKUP 2WD	17.9				
FORD F150 PICKUP 4WD	17.8				
CHRYSLER DAKOTA PICKUP 4WD ...	17.8				
		FORD E150 ECONOLINE	17.5		
		GM G10/20 SPORTVAN	17.3		
		GM G15/25 RALLY 2WD	17.3		
GM K1500 PICKUP 4WD	17.3				
GM K1500 SIERRA 4WD	17.2				
CHRYSLER D100/D150 PICKUP	17.0	CHRYSLER B150/B250 VAN 2WD ...	17.0	GM C1500 SUBURBAN	17.0
		GM G30 SPORTVAN 2WD	17.0		
		GM G35 RALLY 2WD	17.0		
GM K2500 SIERRA 4WD	16.9				
GM K2500 PICKUP 4WD	16.9				
CHRYSLER D250 PICKUP 2WD	16.7	FORD E150 CLUB WAGON	16.8		
		CHRYSLER B350 VAN 2WD	16.6	CHRYSLER RAMCHARGER 2WD	16.6
				GM K1500 BLAZER 4WD	16.5
				GM K1500 YUKON 4WD	16.5
		CHRYSLER B150/B250	16.4	FORD BRONCO 4WD	16.4
CHRYSLER W100/W150 PICKUP	16.3				
CHRYSLER DAKOTA CAB CHASSIS ..	15.8	FORD E250 ECONOLINE	15.6	GM K1500 SUBURBAN	15.6
CHRYSLER W250 PICKUP 4WD	15.6			CHRYSLER RAMCHARGER 4WD	15.6
				TOYOTA LAND CRUISER	15.5
				RANGE ROVER	15.3
CHRYSLER D250 CAB CHASSIS	15.1	CHRYSLER B350 2WD	15.1		
TOYOTA CAB/CHASSIS 2WD	13.2			ROVER DEFENDER 110	12.6

Fuel Metering and Number of Valves/Cylinder 1975 to 1993 Passenger Cars

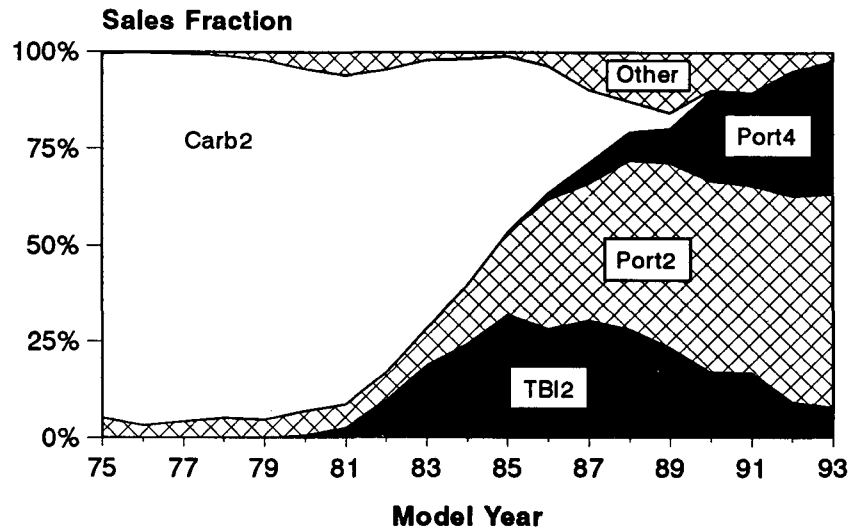


Figure D1

HP/CID by Fuel Metering and Valves/Cylinder 1975 to 1993 Passenger Cars

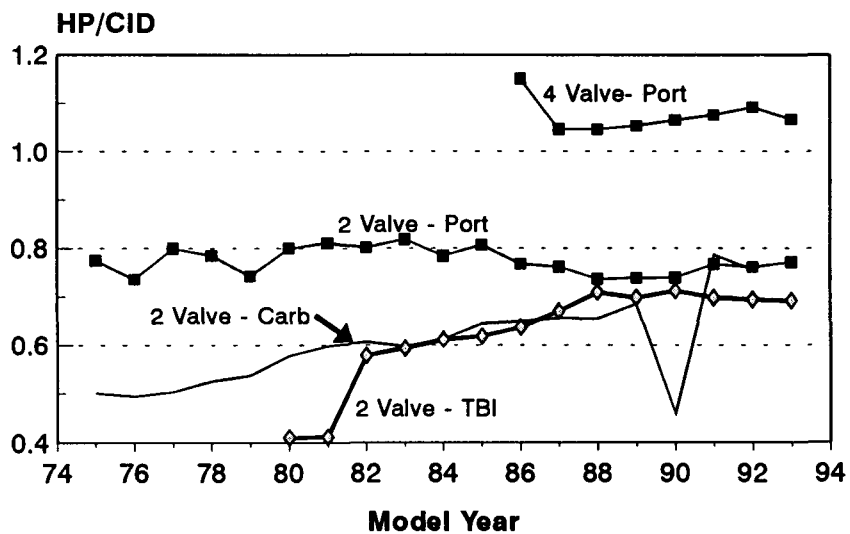


Figure D2

Sales Fraction by Fuel Metering Passenger Cars

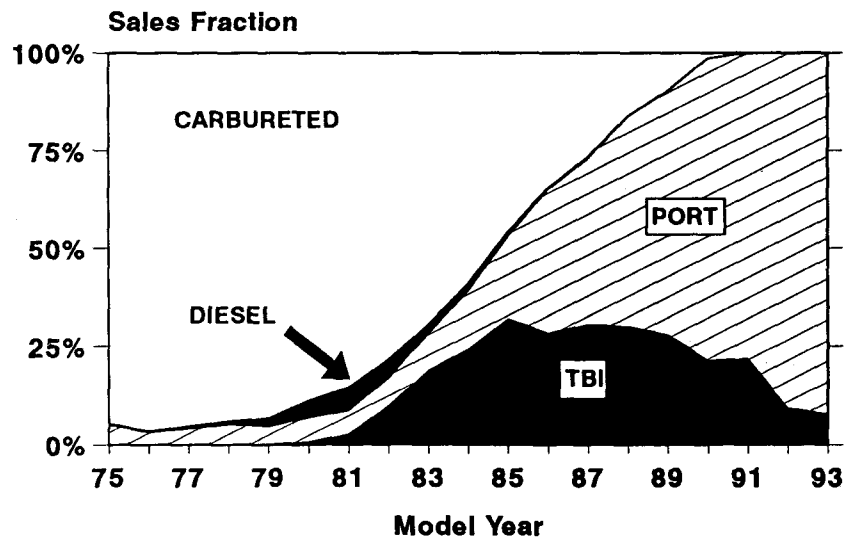


Figure D3

Front Wheel Drive Usage Passenger Cars

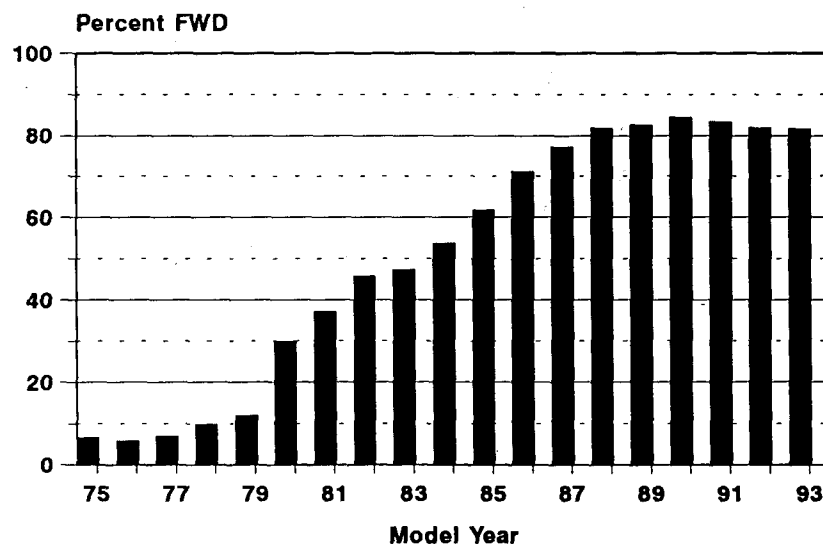


Figure D4

TABLE D-1 CHARACTERISTICS OF 1986 TO 1993 PASSENGER CARS BY VALVES/CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
<u>Two Valves</u>																
1986	10490	.952	23.6	35.4	27.8	3053	108.0	170	111	13.2	110.9	.687	.0357	42.6	3064	4612
1987	9155	.853	23.2	35.3	27.4	3085	108.5	171	115	13.0	112.3	.706	.0367	42.5	3034	4625
1988	8601	.801	23.6	36.1	27.9	3109	109.2	171	118	12.8	113.3	.719	.0375	43.6	3111	4776
1989	7575	.756	23.0	35.8	27.4	3180	110.5	177	123	12.6	114.6	.723	.0382	43.7	3077	4843
1990	5936	.672	22.4	35.5	26.8	3295	111.3	183	129	12.4	116.0	.731	.0390	44.3	3028	4947
1991	5609	.657	22.5	35.8	27.0	3270	111.2	184	135	12.0	117.9	.749	.0406	44.3	3055	4945
1992	4921	.630	22.4	35.9	26.9	3316	112.0	190	139	11.9	119.0	.751	.0413	44.8	3067	5033
1993	5749	.632	22.8	36.4	27.5	3294	111.8	187	139	11.8	119.4	.761	.0417	45.3	3111	5082

Three Valves

1986	349	.032	27.9	39.8	32.2	2668	96.7	115	102	12.3	112.0	.888	.0382	43.1	3117	4180
1987	975	.091	30.2	41.4	34.4	2524	93.4	101	82	14.4	104.5	.799	.0322	43.6	3223	4069
1988	1017	.095	28.2	39.4	32.4	2689	99.4	109	93	13.6	107.7	.850	.0343	43.7	3247	4347
1989	1161	.116	26.8	38.5	31.0	2788	100.3	117	105	12.5	111.8	.902	.0375	43.5	3156	4366
1990	639	.072	27.0	39.0	31.4	2738	98.5	117	106	12.3	112.8	.911	.0385	43.2	3139	4259
1991	526	.062	27.7	39.4	32.0	2692	100.7	111	102	12.5	111.5	.928	.0377	43.2	3254	4353
1992	364	.047	27.4	39.3	31.7	2707	100.2	112	103	12.4	111.9	.924	.0379	43.1	3208	4318
1993	210	.023	30.8	42.2	35.0	2440	96.1	92	90	12.6	109.4	.983	.0369	43.1	3415	4146

Four Valves

1986	176	.016	23.9	34.7	27.8	3032	89.0	125	144	10.6	124.5	1.150	.0470	42.5	2487	3754
1987	601	.056	25.9	37.2	30.0	3025	98.4	123	126	11.8	117.6	1.026	.0413	45.8	3021	4518
1988	1117	.104	26.7	38.2	30.9	2889	97.1	120	119	12.0	116.0	.983	.0405	44.9	3063	4367
1989	1282	.128	26.2	37.7	30.4	2901	97.9	120	124	11.5	118.1	1.027	.0422	44.3	3029	4340
1990	2260	.256	25.3	36.3	29.3	2996	98.6	125	132	11.3	120.3	1.060	.0437	44.0	2927	4349
1991	2405	.282	25.6	36.8	29.6	2983	97.8	125	133	11.2	120.8	1.071	.0441	44.4	2952	4354
1992	2527	.323	24.5	36.5	28.7	3117	100.9	132	144	10.9	123.3	1.092	.0456	45.0	2952	4550
1993	3139	.345	24.3	36.6	28.6	3175	101.5	140	148	10.9	124.0	1.066	.0459	45.7	2961	4638

Percentage Basis Comparison:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
<u>Two Valves</u>															
1986	70.4	1.1	22.8	59.2	65.1	29.9	35.3	34.6	.3	57.5	29.3	13.1	71.7	6.5	21.8
1987	74.2	1.2	20.7	61.2	77.4	35.8	41.7	22.3	.3	57.4	28.5	14.1	72.2	7.4	20.4
1988	78.4	.8	19.4	68.7	90.0	35.2	54.8	10.0		57.9	26.3	15.9	75.0	6.9	18.1
1989	79.8	.7	15.2	72.4	94.4	31.0	63.4	5.6	.1	46.9	35.4	17.7	79.6	6.3	14.2
1990	82.4	.4	11.0	78.6	99.4	25.4	74.0	.6	.1	41.9	38.8	19.3	82.8	6.0	11.2
1991	81.6	.3	11.4	80.7	99.8	25.8	74.0		.2	45.6	35.9	18.5	84.9	5.0	10.1
1992	81.2	.3	12.1	78.9	99.9	14.8	85.1		.1	46.1	32.0	21.8	85.8	4.2	10.0
1993	80.8	.5	12.2	79.8	99.9	12.3	87.7		.1	47.6	28.2	24.2	86.3	3.3	10.4

Three Valves

1986	100.0		60.5	39.5	48.4		48.4	51.6		100.0					100.0
1987	99.4	.6	53.7	46.3	18.9		18.9	81.1		100.0					100.0
1988	95.9	1.3	49.8	50.1	27.7		27.7	72.3		86.5	13.5				100.0
1989	92.2	.1	44.5	54.5	70.0	21.2	48.9	30.0		89.1	10.9				100.0
1990	89.0	.8	49.1	46.5	86.1	25.7	60.4	13.9		84.1	15.9				100.0
1991	98.2	1.2	41.9	51.0	99.5	13.7	85.8	.5		80.3	19.7				100.0
1992	100.0		43.2	49.8	99.9		99.9	.1		80.1	19.9				100.0
1993	100.0		58.9	31.4	100.0		100.0			100.0					100.0

Four Valves

1986	56.6		72.2	23.1	100.0		100.0			94.8		5.2		27.9	72.1
1987	84.6		43.4	54.8	93.2		93.2	6.8		97.7		2.3		11.3	88.7
1988	94.2	.8	38.1	60.9	86.5	17.4	69.1	13.5		98.7	.1	1.2	10.7	7.5	81.7
1989	90.0	3.1	33.8	64.7	84.1	15.6	68.5	15.9		97.4	1.8	.8	13.7	5.9	80.4
1990	88.0	2.5	33.7	65.7	100.0	9.6	90.4			94.4	5.4	.3	5.2	3.6	91.2
1991	84.1	3.9	36.8	62.0	100.0	14.3	85.7			94.8	4.9	.4	2.2	4.3	93.5
1992	80.6	1.5	32.1	66.2	100.0	.2	99.8			80.4	18.5	1.1	9.7	5.0	85.2
1993	81.6	.8	29.7	67.6	100.0		100.0			75.2	22.9	1.9	9.9	6.4	83.7

Appendix E "Best in Weight Class Analysis" 1993 Role Model Cars

Weight	Make	Model	Size Class	Int. Volume	Engine CID	HP	Tran	MPG	TOP SPD
1750	GEO	METRO XFi	SUBCOMPACT	89.1	61	49	M5	65.3	96
(No Other 1750 pounders)									
2000	GEO	SPRINT	SUBCOMPACT	92.0	61	55	M5	56.1	97
2000	GEO	METRO LSi	SUBCOMPACT	92.0	61	55	M5	56.0	97
2000	GEO	METRO	SUBCOMPACT	92.2	61	55	M5	55.8	97
2000	GEO	METRO LSi CONV.	TWO-SEATER	50.0	61	55	M5	50.8	97
2000	SUZUKI	SWIFT	SUBCOMPACT	92.0	79	70	M5	48.1	105
2000	SUZUKI	SWIFT	SUBCOMPACT	92.0	79	70	M5	47.9	105
2000	FORD	FESTIVA	SUBCOMPACT	98.4	81	63	M5	44.7	101
2000	GEO	SPRINT	SUBCOMPACT	92.0	61	55	A3	44.1	97
2000	GEO	METRO LSi	SUBCOMPACT	92.0	61	55	A3	44.1	97
2000	GEO	METRO	SUBCOMPACT	92.2	61	55	A3	44.0	97
2000	SUBARU	JUSTY	SUBCOMPACT	88.6	73	73	M5	41.4	107
2000	GEO	METRO LSi CONV.	TWO-SEATER	50.0	61	55	A3	40.7	97
2250	HONDA	CIVIC HB VX	SUBCOMPACT	90.5	91	91	M5	59.4	112
2250	HONDA	CIVIC HB VX	SUBCOMPACT	90.5	91	91	M5	54.8	112
2250	HONDA	CIVIC	SUBCOMPACT	93.5	91	70	M5	51.5	102
2250	HONDA	CIVIC	SUBCOMPACT	93.5	91	70	M5	49.6	102
2250	SUZUKI	SWIFT	SUBCOMPACT	92.0	79	70	M5	46.9	102
2250	SUZUKI	SWIFT	SUBCOMPACT	92.0	79	70	M5	46.9	102
2250	CHRYSLER	COLT/SUMMIT	SUBCOMPACT	98.8	90	92	M5	42.8	113
2250	SUBARU	JUSTY	SUBCOMPACT	88.6	73	73	M5	40.6	103
2250	SUBARU	JUSTY	SUBCOMPACT	88.6	73	73	AV	40.3	103
2250	TOYOTA	TERCEL	SUBCOMPACT	95.0	89	82	M4	39.4	108
2250	FORD	FESTIVA	SUBCOMPACT	98.4	81	63	A3	37.7	99
2250	SUBARU	JUSTY AWD	SUBCOMPACT	88.4	73	73	AV	37.2	103
2500	HONDA	CIVIC	SUBCOMPACT	93.9	91	101	M5	43.3	114
2500	HONDA	CIVIC DEL SOL	TWO-SEATER	50.0	91	102	M5	42.2	114
2500	CHRYSLER	COLT/SUMMIT	SUBCOMPACT	97.7	90	92	M5	40.8	110
2500	GEO	LEMANS	COMPACT	106.5	98	74	M5	40.6	101
2500	HONDA	CIVIC	SUBCOMPACT	93.9	91	101	L4	40.0	114
2500	FORD	ESCORT FS	COMPACT	108.4	116	88	M5	39.8	108
2500	HONDA	CIVIC DEL SOL	TWO-SEATER	50.0	91	102	L4	39.3	114
2500	FORD	ESCORT	COMPACT	106.8	116	88	M5	38.7	108
2500	ISUZU	STYLUS	COMPACT	101.4	97	90	M5	38.2	109
2500	NISSAN	NX	MINICOMPACT	72.1	98	110	M5	38.0	118
2500	NISSAN	SENTRA	SUBCOMPACT	96.6	98	110	M5	37.8	118
2500	HONDA	CIVIC	SUBCOMPACT	93.9	97	123	M5	37.7	124

Appendix E (Cont.) "Best in Weight Class Analysis" 1993 Role Model Cars

Weight	Make	Model	Size Class	Int. Volume	Engine CID	HP	Tran	MPG	TOP SPD
2750	HONDA	CIVIC	SUBCOMPACT	93.9	91	101	L4	38.7	111
2750	HONDA	CIVIC DEL SOL	TWO-SEATER	50.0	91	102	L4	37.8	111
2750	FORD	TRACER/ESCORT	COMPACT	103.4	116	88	M5	37.8	105
2750	FORD	TRACER/ESCORT	SMALL WAGON	124.4	116	88	M5	37.8	105
2750	NISSAN	SENTRA	SUBCOMPACT	96.6	98	110	M5	37.2	115
2750	HONDA	CIVIC	SUBCOMPACT	93.9	97	123	M5	37.0	120
2750	MAZDA	PROTEGE	COMPACT	105.1	112	103	M5	36.3	112
2750	HONDA	CIVIC DEL SOL	TWO-SEATER	50.0	97	125	M5	36.1	121
2750	NISSAN	NX	MINICOMPACT	72.1	98	110	M5	36.1	115
2750	NISSAN	NX	MINICOMPACT	72.1	98	110	L4	35.9	115
2750	TOYOTA	COROLLA	COMPACT	102.1	97	102	M5	35.5	111
2750	GEO	PRIZM	COMPACT	101.0	108	115	M5	35.4	117
3000	MAZDA	626	MIDSIZE	111.0	122	118	M5	34.1	115
3000	CHRYSLER	SHADOW	COMPACT	101.8	135	93	M5	34.1	105
3000	FORD	PROBE	SUBCOMPACT	98.4	121	118	M5	33.4	115
3000	GM	CAVALIER etc.	SUBCOMPACT	94.8	134	110	M5	33.2	112
3000	TOYOTA	CELICA	SUBCOMPACT	86.8	97	102	M5	32.5	109
3000	CHRYSLER	SUNDANCE etc.	COMPACT	101.8	152	100	M5	32.2	108
3000	HONDA	INTEGRA	SUBCOMPACT	95.3	112	140	M5	32.2	124
3000	GM	ACHIEVA/GRAND A	COMPACT	103.6	139	120	M5	32.1	116
3000	HONDA	ACCORD	COMPACT	105.7	132	125	M5	31.6	118
3000	NISSAN	INFINITI G20	COMPACT	103.6	122	140	M5	31.5	124
3000	FORD	TOPAZ	COMPACT	102.7	140	98	M5	31.2	107
3000	CHRYSLER	TALON	SUBCOMPACT	89.2	107	92	M5	31.0	105
3500	MERCEDES	300D 2.5 TURBO	COMPACT	107.1	152	121	A4	34.0	111
3500	HONDA	ACCORD WAGON	SMALL WAGON	125.9	132	125	M5	29.1	113
3500	FORD	MUSTANG	SUBCOMPACT	90.3	140	105	M5	29.1	106
3500	SUBARU	LEGACY WAGON	SMALL WAGON	128.6	135	130	L4	28.5	115
3500	TOYOTA	CELICA CONV.	MINICOMPACT	77.7	132	130	M5	28.3	115
3500	VOLVO	240 WAGON	MIDSIZE WAG	132.8	141	114	M5	28.2	109
3500	FORD	TAURUS/SABLE	MIDSIZE	118.1	182	140	L4	27.9	118
3500	FORD	TAURUS/SABLE	MIDSIZE WAG	138.1	182	140	L4	27.9	118
3500	NISSAN	STANZA ALTIMA	COMPACT	106.8	146	150	L4	27.9	122
3500	VOLVO	850	MIDSIZE	111.4	149	168	M5	27.9	128
3500	FORD	MUSTANG	SUBCOMPACT	90.3	140	105	L4	27.9	106
3500	GM	LUMINA	MIDSIZE	113.2	134	110	L3	27.7	107

Appendix E (Continued) "Best in Weight Class Analysis" 1993 Role Model Cars

[illegible]

Table E-1 Results of "Best 12 In Class" Analysis

1993 Passenger Cars			
	As Is Scenario	Remix #1 Scenario	Remix #2 Scenario
55/45 MPG	30.4	32.8	35.1
Inertia Weight	3234	3011	2819
Interior Volume	109	103	99
Percent of Sales	21%	21%	21%
CID	156	134	118
Horsepower	130	118	109
Top Speed	117	115	113
0 to 60	12.0	12.2	12.3

Percent of Vehicles Equipped With:

Front Wheel Drive	87%	94%	97%
Manual Transmission	47%	63%	73%
Lockup Transmission	51%	35%	24%

Percent of Vehicles That Are:

Small	54%	71%	83%
Midsize	33%	23%	14%
Large	14%	6%	3%
Domestic	54%	40%	28%
European	1%	1%	0%
Asian	45%	60%	71%

Table E-2 Results of "Best 5 In Class" Analysis

1993 Passenger Cars			
	As Is Scenario	Remix #1 Scenario	Remix #2 Scenario
55/45 MPG	31.8	34.4	37.1
Inertia Weight	3234	3011	2819
Interior Volume	109	110	102
Percent of Sales	7.6%	7.6%	7.6%
CID	140	123	111
Horsepower	119	110	102
Top Speed	113	111	110
0 to 60	12.7	12.8	12.9

Percent of Vehicles Equipped With:

Front Wheel Drive	82%	89%	94%
Manual Transmission	56%	67%	73%
Lockup Transmission	37%	29%	25%

Percent of Vehicles That Are:

Small	76%	84%	89%
Midsize	13%	11%	8%
Large	11%	5%	2%
Domestic	35%	28%	23%
European	6%	4%	2%
Asian	59%	67%	75%

Table E-3 Results of "Best Vehicle In Class" Analysis

1993 Passenger Cars			
	As Is Scenario	Remix #1 Scenario	Remix #2 Scenario
55/45 MPG	33.6	36.1	38.7
Inertia Weight	3234	3011	2819
Interior Volume	104	99	93
Percent of Sales	1.8%	1.8%	1.8%
CID	142	124	110
Horsepower	122	114	107
Top Speed	114	113	112
0 to 60	12.5	12.4	12.4

Percent of Vehicles Equipped With:

Front Wheel Drive	67%	78%	87%
Manual Transmission	37%	49%	57%
Lockup Transmission	31%	29%	30%

Percent of Vehicles That Are:

Small	57%	63%	72%
Midsize	42%	37%	28%
Large	2%	1%	0%
Domestic	17%	8%	4%
European	32%	22%	13%
Asian	52%	71%	84%

TABLE F-1 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

1750 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	-----	-----	-----	-----	-----
1985	37	.003	51.9	66.1	57.4	1750	82.6	61	48	16.1	95.8	.787	.0274	50.4	4756	4161
1986	81	.007	50.8	63.7	55.9	1750	84.6	61	46	16.3	94.8	.759	.0264	49.8	4809	4208
1987	38	.004	51.3	65.4	56.8	1750	84.4	61	46	16.2	94.7	.756	.0264	50.1	4828	4224
1988	55	.005	47.0	58.7	51.6	1750	84.6	61	47	16.3	95.0	.766	.0267	46.0	4443	3888
1989	25	.003	54.1	67.4	59.4	1750	90.9	61	49	15.4	96.5	.806	.0281	52.0	5400	4725
1990	4	.001	59.1	74.8	65.3	1750	89.1	61	49	15.4	96.4	.803	.0280	57.1	5815	5088
1991	4	.000	59.2	74.7	65.3	1750	89.1	61	55	14.1	99.9	.902	.0314	57.1	5815	5089
1992	5	.001	59.2	74.7	65.3	1750	89.1	61	49	15.4	96.4	.803	.0280	57.1	5815	5089
1993	6	.001	59.2	74.7	65.3	1750	89.1	61	49	15.4	96.4	.803	.0280	57.1	5815	5089

PERCENT OF 1750 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1985	100.0		90.1						100.0	100.0					100.0
1986	100.0		64.7						100.0	100.0					100.0
1987	100.0		100.0						100.0	100.0					100.0
1988	100.0		59.5		2.8	2.8			97.2	100.0					100.0
1989	100.0		100.0		100.0	100.0				100.0					100.0
1990	100.0		100.0		100.0	100.0				100.0					100.0
1991	100.0		100.0		100.0	100.0				100.0					100.0
1992	100.0		100.0		100.0	100.0				100.0					100.0
1993	100.0		100.0		100.0	100.0				100.0					100.0

TABLE F-2 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

2000 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	-----	-----	-----	-----	-----
1975	105	.013	27.3	38.5	31.4	2000		83	54	15.9	96.6	.655	.0272	31.5		
1976	154	.016	28.4	39.8	32.6	2000		83	56	15.6	97.4	.670	.0279	32.9		
1977	157	.014	31.3	44.0	36.0	2000	73.7	84	61	14.4	100.4	.739	.0307	36.8	2709	2709
1978	270	.024	30.9	41.7	34.9	2000	80.3	90	62	14.3	100.9	.695	.0312	35.3	2847	2847
1979	234	.022	28.2	38.3	32.0	2000	80.1	88	62	14.4	100.9	.712	.0312	32.3	2594	2594
1980	280	.030	29.0	39.6	33.0	2000	85.7	90	63	14.3	101.1	.696	.0314	33.4	2860	2860
1981	209	.024	34.3	44.9	38.4	2000	86.7	86	64	14.0	101.8	.744	.0321	38.8	3362	3362
1982	157	.020	35.9	47.3	40.3	2000	87.3	86	61	14.5	100.4	.715	.0308	40.7	3554	3554
1983	94	.012	38.7	51.6	43.6	2000	86.0	84	61	14.4	100.4	.728	.0308	44.0	3783	3783
1984	92	.009	39.4	52.3	44.3	2000	73.5	86	67	13.5	103.4	.776	.0335	45.0	3297	3297
1985	62	.006	39.5	52.4	44.4	2000	60.2	89	69	13.6	104.7	.782	.0348	45.5	2757	2757
1986	58	.005	31.7	45.0	36.6	2000	72.3	76	56	15.4	97.6	.750	.0281	38.9	2658	2658
1987	106	.010	35.7	46.8	40.0	2000	79.9	70	55	15.9	97.1	.799	.0276	41.7	3256	3256
1988	186	.017	39.5	49.8	43.6	2000	91.0	77	59	15.0	98.9	.770	.0293	44.4	4009	4009
1989	135	.013	39.8	49.1	43.5	2000	92.4	76	59	15.2	99.0	.782	.0294	44.5	4056	4056
1990	71	.008	42.6	55.4	47.5	2000	92.7	72	58	15.2	98.6	.813	.0290	48.0	4449	4449
1991	142	.017	42.3	54.7	47.1	2000	88.8	67	58	15.3	98.4	.866	.0288	47.7	4243	4243
1992	137	.018	42.7	54.6	47.4	2000	89.2	65	57	15.5	97.9	.876	.0284	48.0	4283	4283
1993	144	.016	42.7	55.3	47.6	2000	88.4	65	57	15.5	98.0	.878	.0285	48.2	4264	4264

PERCENT OF 2000 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	100.0		100.0						100.0	100.0			2.3	97.7	
1976	92.5		89.7						100.0	100.0			10.1	89.9	
1977	100.0		87.0						100.0	100.0			6.0	94.0	
1978	100.0		100.0						100.0	100.0			53.9	46.1	
1979	100.0		100.0						100.0	100.0			39.8	60.2	
1980	100.0		83.9						100.0	100.0			43.3	56.7	
1981	82.7		90.6						100.0	100.0			5.4	94.6	
1982	85.1		93.0	2.5					100.0	100.0			15.3	84.7	
1983	91.9		100.0		8.1		8.1	91.9		100.0			9.4	90.6	
1984	98.7		96.7	3.1	1.3		1.3	98.7		100.0				100.0	
1985	100.0		94.7	5.3	11.9		11.9	88.1		100.0				100.0	
1986	100.0		100.0					100.0		100.0			61.2	38.8	
1987	100.0		80.5		6.3		6.3	93.7		100.0			45.9	54.1	
1988	93.9	6.1	99.0		14.0		14.0	86.0		100.0			14.5	85.5	
1989	100.0		65.0		57.2	19.3	37.9	42.8		100.0			1.7	98.3	
1990	100.0		89.8		97.4	46.9	50.5	2.6		100.0				100.0	
1991	100.0		68.4		98.3	69.2	29.1	1.7		100.0			.5	99.5	
1992	100.0		60.8		99.7	77.7	22.1	.3		100.0				100.0	
1993	100.0		60.4		100.0	79.6	20.4			100.0				100.0	

TABLE F-3 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

2250 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
1975	375	.046	24.0	36.4	28.3	2250		89	66	15.3	100.1	.749	.0294	32.1		
1976	570	.059	25.8	36.1	29.6	2250		91	66	15.3	100.3	.736	.0296	33.6		
1977	851	.075	27.8	39.5	32.1	2250	85.5	90	68	14.8	101.1	.762	.0303	36.8	2799	3149
1978	886	.079	28.1	38.3	31.9	2250	85.6	89	67	15.0	100.5	.758	.0298	36.8	2814	3166
1979	699	.065	27.5	37.9	31.4	2250	88.0	88	65	15.2	99.8	.745	.0291	35.9	2813	3165
1980	1162	.123	28.4	38.9	32.4	2250	89.6	92	67	15.0	100.3	.722	.0296	37.1	2956	3325
1981	1191	.136	30.2	41.5	34.4	2250	91.3	96	68	14.8	100.9	.710	.0302	39.3	3187	3586
1982	884	.113	31.3	42.7	35.6	2250	92.5	94	66	15.0	100.1	.703	.0294	40.5	3328	3744
1983	985	.123	31.8	43.7	36.2	2250	96.4	94	67	14.9	100.6	.709	.0298	41.2	3528	3969
1984	899	.084	32.6	44.6	37.1	2250	97.2	94	68	14.8	101.1	.721	.0303	42.3	3657	4114
1985	840	.078	33.2	44.7	37.5	2250	96.9	94	70	14.6	102.0	.748	.0312	42.7	3678	4138
1986	745	.068	34.2	45.3	38.5	2250	93.1	93	68	14.8	101.2	.737	.0304	43.8	3627	4080
1987	461	.043	34.8	45.7	39.0	2250	89.7	90	69	14.6	101.6	.766	.0308	44.2	3534	3976
1988	401	.037	34.8	45.6	38.9	2250	91.7	90	73	13.9	103.5	.808	.0325	44.2	3603	4053
1989	280	.028	34.6	45.4	38.7	2250	93.4	89	78	13.3	105.9	.876	.0347	44.0	3655	4112
1990	97	.011	35.6	45.9	39.6	2250	87.6	86	77	13.5	105.3	.891	.0341	45.1	3456	3888
1991	129	.015	34.0	44.6	38.1	2250	90.3	88	81	12.9	107.4	.921	.0360	43.7	3444	3874
1992	124	.016	34.7	46.2	39.1	2250	93.8	88	80	13.1	106.8	.908	.0355	45.3	3775	4247
1993	132	.015	35.1	46.5	39.5	2250	94.6	88	80	13.0	106.9	.909	.0356	45.4	3815	4292

PERCENT OF 2250 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	46.1		90.3		22.6		22.6	77.4		100.0				65.0	35.0
1976	37.5		72.2		5.7		5.7	94.3		100.0			32.9	36.9	30.2
1977	43.0		78.9		14.4		14.4	83.7	1.9	100.0			15.7	33.6	50.7
1978	41.6		80.6		16.7		16.7	79.2	4.1	100.0			13.9	26.6	59.5
1979	44.8		87.0		15.6		15.6	79.0	5.5	100.0			11.3	27.5	61.2
1980	57.9		80.7		14.9		14.9	75.7	9.3	100.0			20.5	26.2	53.3
1981	69.8		82.7	5.0	6.5		6.5	84.3	9.2	100.0			33.3	15.7	51.0
1982	79.8		74.9	6.8	5.7		5.7	89.6	4.7	100.0			27.0	11.2	61.9
1983	93.2	1.6	72.6	10.2	20.1	12.1	8.0	78.5	1.4	100.0			29.4	7.5	63.0
1984	91.1		71.8	13.5	23.3	16.5	6.8	74.1	2.6	100.0			36.9	8.4	54.7
1985	97.1	.3	65.3	21.6	10.2	8.6	1.6	89.7	.1	100.0			20.9		79.1
1986	96.3		65.5	20.1	14.0	6.3	7.7	85.9		100.0			10.0		90.0
1987	96.3		70.5	14.1	13.2	3.4	9.9	86.8		100.0			7.1		92.9
1988	100.0		69.9	18.0	37.5	28.1	9.4	62.5		100.0				2.9	97.1
1989	100.0		63.5	15.0	33.1	28.0	5.1	66.9		100.0				.1	99.9
1990	95.4	4.6	70.3	3.6	59.6	20.3	39.4	40.4		100.0					100.0
1991	95.7	4.3	69.6	22.3	99.1	18.8	80.3	.9		100.0				.1	99.9
1992	100.0		69.1	17.5	99.8	2.1	97.7	.2		100.0					100.0
1993	100.0		78.0	9.5	100.0	1.4	98.6			100.0					100.0

TABLE F-4 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

2500 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	-----	-----	-----	-----	-----
1975	406	.049	20.9	30.5	24.4	2500		95	73	15.2	100.9	.774	.0292	30.7		
1976	349	.036	22.4	33.1	26.2	2500		97	73	15.1	101.1	.755	.0294	33.1		
1977	465	.041	25.5	35.8	29.3	2500	90.3	98	75	14.9	101.7	.764	.0299	36.9	2674	3343
1978	782	.070	24.6	33.5	27.9	2500	91.6	101	74	15.1	101.4	.734	.0297	35.3	2582	3227
1979	1078	.100	24.7	33.1	27.9	2500	90.6	101	72	15.4	100.3	.710	.0287	35.1	2543	3178
1980	1172	.124	24.8	33.3	28.0	2500	92.3	104	71	15.6	99.9	.680	.0283	35.3	2607	3259
1981	1531	.175	25.8	35.3	29.4	2500	94.8	108	76	14.8	102.4	.711	.0305	37.0	2816	3520
1982	1442	.184	27.1	38.1	31.2	2500	91.5	106	72	15.4	100.5	.683	.0289	39.4	2898	3623
1983	1240	.155	28.1	39.1	32.2	2500	94.8	106	75	15.0	101.9	.705	.0300	40.7	3104	3879
1984	1529	.143	28.4	40.0	32.7	2500	96.3	107	78	14.7	103.2	.726	.0312	41.3	3194	3993
1985	1699	.157	28.5	40.4	32.8	2500	98.3	109	82	14.2	105.2	.760	.0330	41.5	3284	4106
1986	1622	.147	29.4	40.9	33.7	2500	100.0	106	80	14.3	104.2	.759	.0321	42.4	3399	4249
1987	1975	.184	29.3	40.5	33.4	2500	98.9	104	78	14.6	103.1	.749	.0311	42.1	3330	4162
1988	1802	.168	30.1	40.9	34.1	2500	99.5	100	78	14.5	103.4	.785	.0314	42.9	3418	4272
1989	1335	.133	30.1	41.5	34.4	2500	98.0	98	85	13.6	106.3	.865	.0339	43.2	3384	4231
1990	942	.107	30.9	42.1	35.1	2500	94.0	97	89	13.0	108.2	.920	.0356	44.1	3330	4162
1991	748	.088	31.4	43.1	35.8	2500	94.2	96	91	12.8	109.2	.957	.0365	45.0	3406	4258
1992	550	.070	31.4	44.7	36.3	2500	94.2	98	93	12.6	110.2	.961	.0373	45.7	3458	4322
1993	660	.073	31.4	45.3	36.5	2500	93.6	100	94	12.5	110.3	.949	.0375	45.9	3442	4303

PERCENT OF 2500 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	36.0		75.3		20.4		20.4	79.6		100.0				47.2	52.8
1976	18.3		67.5		12.9		12.9	87.1		100.0				27.1	72.9
1977	20.7		69.3		12.5		12.5	86.3	1.2	100.0				15.8	84.2
1978	34.3		53.2		8.0		8.0	92.0		100.0			41.6	10.0	48.5
1979	43.7	3.5	56.8		2.3		2.3	97.2	.6	100.0			46.3	5.6	48.0
1980	47.9	3.9	52.5		3.8		3.8	93.5	2.8	100.0			38.0	8.2	53.7
1981	53.6	2.7	52.4	.9	4.1		4.1	93.4	2.5	96.3	3.7		49.8	5.3	44.9
1982	69.3	.6	57.3	8.6	4.6		4.6	92.4	3.0	99.3	.7		50.3	5.9	43.8
1983	68.9	13.1	57.2	20.7	3.2	.1	3.2	96.3	.4	98.6	1.4		42.3	2.4	55.3
1984	75.4	2.4	47.3	26.4	13.5	1.6	11.9	84.4	2.2	99.9	.1		46.5	8.2	45.2
1985	77.1	9.2	58.5	19.8	19.9	4.2	15.7	78.4	1.7	100.0			46.6	10.5	42.8
1986	94.3	.9	49.5	22.1	22.2	5.3	16.9	76.8	1.0	100.0			42.7	11.7	45.6
1987	97.7	.8	47.7	32.6	33.2	19.5	13.6	66.8		100.0			28.2	8.9	62.9
1988	99.7	.3	48.3	41.8	63.4	51.5	11.9	36.6		100.0			17.1	5.7	77.2
1989	97.8	2.2	52.0	37.6	72.0	47.3	24.7	28.0		100.0			14.7	4.6	80.7
1990	94.4	.1	56.7	34.2	95.5	51.0	44.5	4.5		100.0			11.9	3.5	84.6
1991	94.7	.1	62.7	36.5	100.0	35.9	64.1			100.0			11.0	1.4	87.6
1992	95.5		64.2	35.1	100.0	16.5	83.5			100.0			18.5	1.9	79.6
1993	87.1		64.9	32.0	100.0	12.2	87.8			100.0			26.5	1.7	71.8

TABLE F-5 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

2750 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
1975	281	.034	18.5	27.7	21.7	2750		127	100	12.8	110.5	.799	.0365	30.4		
1976	203	.021	21.1	30.4	24.5	2750		121	95	13.4	108.4	.794	.0348	34.1		
1977	349	.031	21.3	30.9	24.8	2750	80.3	126	96	13.3	108.7	.765	.0350	34.5	2026	2786
1978	498	.045	21.4	30.9	24.8	2750	88.6	129	94	13.4	107.9	.740	.0344	34.5	2220	3052
1979	459	.043	20.5	30.3	24.0	2750	82.2	132	94	13.6	107.6	.710	.0341	33.3	2017	2773
1980	973	.103	22.1	33.3	26.1	2750	96.0	141	93	13.6	107.4	.665	.0339	36.3	2549	3505
1981	714	.082	24.0	34.2	27.7	2750	107.2	136	92	13.8	106.7	.678	.0333	38.3	2972	4086
1982	961	.123	24.5	36.5	28.8	2750	104.3	124	87	14.4	104.7	.707	.0316	39.6	3006	4133
1983	863	.108	26.2	37.0	30.2	2750	106.3	124	88	14.2	105.2	.712	.0320	41.8	3235	4448
1984	2050	.192	25.9	37.5	30.1	2750	102.7	127	89	14.1	105.6	.705	.0324	41.7	3112	4279
1985	1878	.174	26.4	37.9	30.6	2750	102.9	128	93	13.6	107.5	.735	.0340	42.2	3163	4349
1986	1899	.172	26.4	38.2	30.6	2750	102.0	125	95	13.4	108.3	.769	.0347	42.4	3140	4318
1987	1896	.177	26.5	38.4	30.8	2750	101.7	124	96	13.3	108.7	.790	.0350	42.6	3142	4321
1988	1519	.141	27.1	39.3	31.5	2750	102.1	123	97	13.1	109.1	.804	.0354	43.5	3225	4435
1989	1204	.120	27.3	39.7	31.8	2750	101.7	118	96	13.3	108.5	.820	.0349	43.8	3240	4455
1990	1081	.122	27.5	39.3	31.8	2750	98.7	111	100	12.9	110.3	.919	.0364	43.8	3146	4326
1991	1462	.171	27.8	40.7	32.4	2750	100.3	112	100	12.9	110.4	.913	.0364	44.8	3272	4499
1992	1219	.156	27.7	40.8	32.4	2750	98.4	110	106	12.3	112.9	.978	.0386	44.8	3208	4411
1993	1335	.147	28.2	41.2	32.8	2750	99.2	111	108	12.2	113.5	.982	.0391	45.4	3272	4499

PERCENT OF 2750 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	.4		70.7		3.9		3.9	96.1		100.0			9.2	17.4	73.3
1976	.9		63.5		3.6		3.6	96.4		100.0			15.3	27.3	57.4
1977	2.0		67.5		9.4		9.4	90.6		100.0			21.2	26.8	52.0
1978	.9		66.7		5.5		5.5	94.5		100.0			27.7	13.9	58.4
1979	5.4		59.6		6.1		6.1	93.9		100.0			60.1	16.1	23.7
1980	47.9		53.6		13.8		13.8	86.2		66.9	33.1		69.0	6.8	24.2
1981	70.0		36.0		18.3		18.3	81.1	.6	43.2	56.8		69.8	7.5	22.7
1982	77.9	3.1	33.7	30.2	12.2	5.8	6.4	87.4	.4	69.7	30.3		73.8	6.5	19.8
1983	89.4	4.0	31.2	33.0	52.9	40.6	12.3	46.5	.6	70.5	29.5		76.3	7.2	16.6
1984	87.7	2.2	30.5	36.3	54.7	42.4	12.2	44.3	1.0	85.7	14.3		80.6	2.3	17.1
1985	93.3	2.8	21.8	45.1	74.0	59.5	14.5	25.6	.4	86.0	14.0		72.9	3.2	23.9
1986	92.7	2.9	34.7	47.5	84.7	52.6	32.1	15.0	.3	91.3	8.7		59.6	1.6	38.8
1987	95.7	1.9	31.5	44.0	83.2	58.4	24.7	16.6	.2	92.7	7.3		61.0	1.6	37.4
1988	97.4	1.8	31.0	58.1	78.6	59.8	18.9	21.4		85.9	14.1		60.7	6.3	32.9
1989	97.5	1.1	29.6	59.2	85.6	63.8	21.8	14.1	.3	91.2	8.8		64.3	6.2	29.5
1990	99.1	.9	25.7	65.5	99.5	43.0	56.5	.4	.2	100.0			40.4	6.0	53.7
1991	99.3	.2	28.1	68.0	99.7	36.1	63.5		.3	100.0			46.3	5.3	48.4
1992	99.7	.3	28.2	68.1	99.9	1.4	98.5		.1	100.0			40.9	4.3	54.8
1993	99.9	.1	29.6	66.4	100.0	1.4	98.6			100.0			38.0	1.5	60.5

TABLE F-6 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

3000 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
1975	828	.100	18.4	26.8	21.4	3000		147	98	14.4	107.2	.674	.0329	32.6		
1976	884	.091	20.1	29.7	23.5	3000		147	95	14.6	105.8	.657	.0317	35.7		
1977	584	.052	20.2	28.6	23.2	3000	87.6	146	104	13.7	109.4	.715	.0347	35.3	2078	3117
1978	903	.081	19.7	27.3	22.5	3000	97.3	164	102	13.9	108.4	.637	.0339	34.2	2215	3322
1979	1286	.119	19.1	27.4	22.1	3000	96.3	162	100	13.9	107.8	.634	.0333	33.5	2152	3228
1980	2026	.215	20.3	29.4	23.6	3000	100.9	164	100	13.8	107.9	.624	.0334	35.6	2392	3589
1981	1626	.186	21.1	30.0	24.4	3000	103.8	165	101	13.9	108.0	.619	.0335	36.8	2544	3816
1982	1554	.199	21.9	32.6	25.7	3000	104.2	163	103	13.6	109.0	.640	.0343	39.0	2717	4076
1983	1515	.189	22.0	32.8	25.8	3000	105.4	161	104	13.4	109.6	.658	.0349	39.1	2749	4123
1984	1994	.187	22.5	33.6	26.4	3000	104.9	157	107	13.3	110.6	.689	.0357	40.0	2789	4183
1985	2037	.189	23.0	34.5	27.1	3000	106.4	153	110	13.0	111.7	.727	.0366	41.0	2906	4359
1986	2829	.257	23.4	34.9	27.5	3000	106.6	151	108	13.2	110.9	.723	.0359	41.5	2956	4433
1987	2743	.256	23.8	35.4	27.9	3000	106.3	147	111	12.9	112.3	.767	.0371	42.3	2997	4496
1988	3146	.293	24.2	36.1	28.4	3000	105.3	145	114	12.6	113.4	.797	.0380	43.0	3017	4526
1989	3402	.340	24.1	36.2	28.4	3000	105.2	146	118	12.3	114.9	.815	.0393	42.8	3001	4502
1990	2856	.323	24.3	36.2	28.6	3000	103.9	142	121	12.0	116.4	.867	.0405	43.0	2981	4471
1991	2732	.320	23.9	35.8	28.1	3000	104.0	146	125	11.8	117.7	.867	.0416	42.4	2937	4406
1992	2032	.260	24.2	36.4	28.5	3000	102.7	145	125	11.7	118.0	.885	.0418	42.9	2938	4407
1993	2430	.267	24.5	37.1	28.9	3000	102.5	145	124	11.8	117.6	.871	.0415	43.6	2981	4472

PERCENT OF 3000 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	3.5		48.6		17.1		17.1	82.9		100.0			69.7	7.1	23.3
1976	2.5		50.4		9.8		9.8	90.2		100.0			66.5	4.0	29.4
1977	3.6		51.3		22.4		22.4	77.6		100.0			51.7	8.7	39.6
1978	4.4		35.2		18.0		18.0	82.0		62.0	38.0		71.0	8.2	20.8
1979	2.6		39.7		14.1		14.1	85.8	.1	71.5	28.5		70.5	4.9	24.7
1980	32.0		30.9	1.0	7.5		7.5	92.0	.5	62.4	37.6		82.0	4.1	13.8
1981	45.4		21.6	.7	11.9		11.9	87.8	.4	55.3	44.7		78.3	3.9	17.8
1982	53.2		17.0	65.1	45.5	26.9	18.6	53.8	.7	52.5	47.5		77.0	5.0	18.0
1983	63.0		17.2	62.7	49.2	26.5	22.7	50.1	.7	44.2	55.8		75.5	7.5	17.0
1984	73.9	.2	16.3	58.2	57.2	29.6	27.6	42.1	.8	44.4	55.6		79.7	11.1	9.2
1985	77.9	.5	14.4	53.5	72.2	34.7	37.5	27.4	.4	39.8	60.2		81.5	11.0	7.5
1986	82.2	1.0	15.1	56.4	84.8	49.0	35.7	15.0	.2	46.3	53.6	.1	80.6	9.3	10.1
1987	84.1	1.9	15.7	63.5	99.1	49.5	49.6	.9		52.4	47.6		71.9	8.9	19.2
1988	90.6	1.2	17.2	66.8	100.0	30.1	69.9			73.1	25.6	1.3	71.5	6.5	22.0
1989	91.3	1.4	16.4	71.5	97.4	24.0	73.4	2.6		67.0	31.9	1.1	63.3	5.1	31.7
1990	95.0	.7	20.8	68.8	99.9	25.0	74.9	.1		79.4	20.6		51.9	1.8	46.3
1991	93.4	1.5	18.2	72.6	100.0	24.1	75.9			74.8	25.2		54.7	1.5	43.8
1992	94.4	.6	23.8	62.6	100.0	13.5	86.5			87.6	12.4		59.9	1.4	38.8
1993	94.1	.9	22.8	65.8	100.0	12.5	87.5			87.5	12.5		60.2	3.2	36.6

TABLE F-7 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

3500 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	-----	-----	-----	-----	-----
1975	1029	.125	15.9	22.0	18.2	3500		227	102	15.6	104.5	.463	.0292	32.4		
1976	933	.096	17.2	23.1	19.4	3500		231	100	15.8	103.7	.447	.0286	34.3		
1977	724	.064	17.9	24.1	20.2	3500	102.4	232	104	15.3	105.1	.458	.0297	35.9	2104	3682
1978	2991	.268	17.6	24.6	20.2	3500	111.1	257	119	13.8	110.8	.468	.0342	35.5	2253	3943
1979	2684	.249	17.8	24.1	20.2	3500	112.3	252	120	13.7	110.8	.477	.0342	35.4	2273	3978
1980	2147	.227	18.1	25.3	20.7	3500	111.3	244	115	14.1	109.2	.477	.0329	36.5	2325	4068
1981	1829	.209	19.2	27.4	22.2	3500	113.3	234	113	14.3	108.3	.487	.0322	39.1	2534	4435
1982	1421	.182	19.3	27.9	22.4	3500	112.0	237	118	14.0	110.3	.505	.0338	39.6	2546	4455
1983	1669	.209	19.4	29.0	22.8	3500	111.8	238	122	13.6	111.5	.524	.0348	40.2	2577	4509
1984	2220	.208	19.4	29.2	22.9	3500	109.6	236	127	13.1	113.4	.556	.0363	40.4	2538	4442
1985	2461	.228	19.7	30.3	23.4	3500	111.9	228	133	12.7	115.5	.603	.0379	41.0	2629	4600
1986	2760	.251	20.3	32.4	24.4	3500	113.5	225	141	12.0	118.7	.654	.0404	42.9	2787	4878
1987	2520	.235	20.3	33.2	24.6	3500	114.0	217	147	11.6	120.7	.703	.0421	43.1	2818	4931
1988	2693	.251	20.9	34.4	25.4	3500	113.5	212	151	11.4	122.0	.732	.0431	44.6	2902	5078
1989	2688	.268	20.7	34.1	25.1	3500	114.2	207	151	11.4	122.0	.751	.0431	44.2	2887	5052
1990	2700	.306	21.0	34.5	25.5	3500	113.0	194	150	11.4	121.8	.795	.0429	44.7	2894	5064
1991	2134	.250	20.9	34.1	25.3	3500	111.2	195	156	11.1	123.9	.821	.0446	44.5	2837	4964
1992	2506	.321	21.0	34.3	25.5	3500	113.4	192	157	11.1	124.1	.840	.0447	44.7	2904	5082
1993	2865	.315	21.5	34.7	25.9	3500	113.0	192	158	11.0	124.7	.842	.0452	45.5	2944	5152

PERCENT OF 3500 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1975			19.3		6.5		6.5	91.6	1.9	97.7	2.3		91.4	8.6	
1976			17.2		5.7		5.7	92.9	1.4	98.1	1.9		92.1	7.9	
1977			16.2		6.1		6.1	91.1	2.7	97.1	2.9		90.6	9.4	
1978			4.7	6.4	1.4		1.4	98.1	.5	34.2	65.8		98.0	2.0	
1979			4.0	16.9	1.3		1.3	97.9	.8	23.4	76.6		97.7	2.3	
1980	.2	.4	3.1	37.9	2.2		2.2	96.2	1.7	18.4	81.4	.1	96.2	3.8	
1981		.5	3.4	84.4	3.0		3.0	94.5	2.5	13.7	86.2		94.5	5.2	.3
1982	.5	.6	6.9	88.4	9.5	4.4	5.1	85.6	4.9	27.8	72.2		91.2	6.0	2.7
1983	.9	.8	8.7	83.4	14.4	5.3	9.1	83.0	2.6	35.0	65.0		90.1	4.7	5.2
1984	8.2	.2	7.7	88.9	35.6	12.1	23.5	63.0	1.4	39.5	60.5		90.0	4.4	5.6
1985	35.2		8.3	88.8	69.9	32.3	37.6	29.5	.7	35.1	45.3	19.6	86.1	4.3	9.5
1986	49.2	.5	8.6	88.5	80.1	20.7	59.4	19.9	.1	33.2	41.3	25.5	87.1	5.0	8.0
1987	64.1	.4	8.8	87.8	92.1	15.0	77.1	7.4	.4	36.6	34.1	29.3	80.3	6.2	13.5
1988	72.8	.2	7.9	89.7	99.7	11.4	88.2	.3		30.5	44.5	24.9	84.4	5.2	10.4
1989	80.6	.2	6.9	88.2	100.0	12.2	87.8			22.8	51.7	25.5	83.0	5.8	11.2
1990	84.5	1.9	6.3	89.5	100.0	2.8	97.2			23.6	59.0	17.4	76.8	7.9	15.3
1991	79.6	2.7	7.3	88.2	99.9	3.9	96.0		.1	30.6	58.1	11.4	72.1	8.1	19.8
1992	80.0	1.0	7.3	89.4	99.9	3.1	96.8		.1	25.2	62.0	12.8	66.0	6.8	27.3
1993	82.3	.4	5.6	91.3	99.9	.1	99.9		.1	23.0	59.7	17.3	68.9	6.4	24.7

TABLE F-8 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

4000 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	1089	.132	13.8	18.6	15.6	4000		292	130	14.5	110.4	.443	.0325	31.8		
1976	1977	.203	15.6	21.2	17.7	4000		280	122	15.4	107.8	.433	.0305	35.7		
1977	3323	.294	15.8	21.4	17.9	4000	113.5	293	133	14.2	111.4	.453	.0333	36.0	2044	4087
1978	2235	.200	15.7	21.9	18.0	4000	114.9	305	145	13.1	115.3	.474	.0362	36.2	2092	4184
1979	2643	.245	15.6	21.5	17.8	4000	119.6	311	147	13.0	115.9	.472	.0367	35.8	2150	4300
1980	1316	.139	16.2	23.5	18.8	4000	122.4	302	136	13.9	112.3	.453	.0339	38.3	2349	4698
1981	1312	.150	17.2	26.0	20.3	4000	123.2	295	133	14.0	111.6	.458	.0334	41.2	2542	5085
1982	1215	.155	17.3	26.7	20.6	4000	126.4	287	135	13.8	112.2	.479	.0339	41.6	2626	5252
1983	1445	.181	17.1	26.4	20.3	4000	126.7	287	139	13.4	113.4	.490	.0348	40.9	2588	5176
1984	1702	.159	17.3	26.8	20.6	4000	126.3	289	139	13.4	113.3	.485	.0347	41.3	2603	5207
1985	1671	.155	18.2	28.6	21.7	4000	125.3	294	148	12.8	116.4	.508	.0371	43.6	2733	5467
1986	918	.083	18.4	29.1	22.1	4000	124.9	299	154	12.4	118.2	.520	.0384	44.3	2774	5548
1987	912	.085	18.3	28.4	21.7	4000	122.2	294	157	12.3	119.3	.551	.0392	43.7	2676	5352
1988	829	.077	18.5	29.4	22.2	4000	125.8	289	160	12.1	120.3	.569	.0400	44.6	2819	5639
1989	860	.086	19.1	30.6	23.0	4000	125.1	275	154	12.5	118.5	.576	.0386	46.2	2892	5783
1990	1016	.115	18.9	30.7	22.9	4000	123.3	265	165	12.0	121.9	.638	.0412	45.9	2829	5658
1991	1114	.130	19.1	31.7	23.3	4000	124.9	265	186	10.7	129.0	.718	.0466	46.7	2917	5833
1992	1118	.143	19.3	31.7	23.4	4000	123.0	258	191	10.5	130.5	.763	.0478	46.9	2886	5772
1993	1384	.152	19.5	32.0	23.6	4000	122.1	253	199	10.2	133.1	.811	.0497	47.4	2895	5790

PERCENT OF 4000 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975			7.6		.6		.6	99.4		94.4	4.6	1.0	98.4	1.6	
1976			6.9		.4		.4	99.0	.6	82.6	17.1	.3	98.6	1.4	
1977			3.3		.5		.5	99.1	.4	51.9	19.3	28.9	99.1	.9	
1978			3.0	10.4	.9		.9	98.4	.7	40.8	18.9	40.4	98.4	1.6	
1979	5.3		2.2	10.4	2.8		2.8	94.8	2.3	24.1	24.7	51.2	98.3	1.7	
1980	10.9	2.3	.9	40.1	7.4	4.9	2.5	83.0	9.6	15.7	29.2	55.1	97.4	2.6	
1981	11.1	.9	.9	82.8	11.5	10.3	1.2	75.3	13.2	12.2	29.1	58.8	97.5	2.5	
1982	11.1	1.3		89.6	20.5	18.7	1.8	70.0	9.4	5.6	28.1	66.3	95.2	4.8	
1983	12.5	1.3		94.6	39.9	38.0	2.0	55.7	4.4	5.8	23.4	70.8	95.0	5.0	
1984	12.8	1.1		95.8	43.2	41.1	2.1	53.9	2.8	5.1	22.8	72.1	95.8	4.2	
1985	13.0		.1	94.8	45.2	41.4	3.8	52.7	2.0	5.2	30.7	64.2	94.3	5.7	
1986	.2	.7	.2	92.5	52.7	4.4	48.3	46.8	.5	9.4	26.6	64.0	91.9	7.1	1.0
1987	1.1	.4	4.0	87.9	54.1	3.2	50.9	44.7	1.2	12.7	31.9	55.3	86.2	9.6	4.3
1988	6.3	.3	1.6	92.7	77.2	2.2	75.0	22.8		10.8	21.1	68.1	86.7	10.9	2.4
1989	8.9		2.5	92.5	98.0	13.6	84.4	2.0		8.0	28.1	63.9	89.2	8.7	2.1
1990	32.2	.1	1.8	95.7	99.9	7.4	92.5		.1	5.2	32.9	61.9	86.2	6.0	7.9
1991	38.6	.9	1.9	95.5	99.6	12.9	86.8		.4	5.9	26.7	67.3	86.9	5.6	7.5
1992	41.5	1.4	2.3	97.0	100.0	6.0	94.0			12.5	27.6	59.9	81.2	3.8	14.9
1993	42.7	1.4	1.9	96.3	100.0	4.9	95.1			17.5	22.8	59.7	75.2	4.8	20.0

TABLE F-9 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

4500 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
1975	1791	.217	12.4	17.6	14.3	4500		347	158	13.6	115.5	.455	.0351	32.5		
1976	2223	.229	13.6	19.3	15.7	4500		346	157	13.5	115.3	.454	.0349	35.6		
1977	3496	.309	14.5	20.0	16.5	4500	118.7	346	157	13.4	115.2	.454	.0349	37.4	1973	4440
1978	1997	.179	14.0	20.6	16.3	4500	123.8	356	161	13.1	116.6	.453	.0358	37.0	2038	4586
1979	1527	.142	14.3	20.3	16.5	4500	127.6	353	157	13.4	115.3	.445	.0349	37.4	2122	4775
1980	363	.038	16.0	24.4	19.0	4500	137.3	350	137	15.1	109.3	.394	.0305	43.7	2661	5988
1981	318	.036	17.1	26.8	20.4	4500	137.1	343	127	16.1	106.2	.374	.0282	47.3	2876	6471
1982	183	.023	17.5	27.7	21.0	4500	148.3	323	127	16.1	106.2	.401	.0283	48.6	3153	7095
1983	188	.023	16.4	26.7	19.9	4500	146.6	311	143	14.4	111.1	.463	.0318	45.2	2935	6603
1984	185	.017	16.7	26.9	20.2	4500	152.0	308	148	14.0	112.6	.482	.0329	45.6	3074	6917
1985	104	.010	17.3	28.4	21.0	4500	160.2	306	150	13.8	113.1	.490	.0333	47.3	3369	7579
1986	101	.009	17.7	28.9	21.5	4500	156.5	308	150	14.0	113.1	.485	.0333	48.6	3398	7646
1987	78	.007	18.3	30.4	22.3	4500	160.2	306	140	14.6	110.1	.458	.0311	50.1	3570	8033
1988	105	.010	18.8	30.3	22.6	4500	144.8	305	144	14.4	111.5	.474	.0321	51.1	3296	7416
1989	87	.009	18.1	28.9	21.8	4500	141.1	306	151	14.1	113.5	.494	.0336	49.3	3118	7016
1990	67	.008	16.8	27.3	20.3	4500	130.1	322	178	12.6	121.8	.555	.0397	46.3	2729	6140
1991	72	.008	17.2	28.5	20.9	4500	133.6	312	201	11.3	128.8	.648	.0448	47.6	2894	6511
1992	105	.013	17.6	29.8	21.5	4500	137.2	332	195	11.4	126.7	.600	.0433	48.9	3017	6789
1993	121	.013	17.4	30.2	21.5	4500	139.9	341	194	11.4	126.7	.582	.0432	48.6	3038	6835

PERCENT OF 4500 LB. CARS:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	VEHICLE SIZE SMALL MID LARGE	DESIGNED DOM EUR ASIAN
1975	.9	.6	1.6	1.6 98.4	27.6 69.7 2.7 98.9 1.1
1976	2.0	.1	2.3	2.3 97.7	28.0 69.8 2.2 99.4 .6
1977	1.3	.1	1.6	1.6 98.4	24.9 49.9 25.2 99.7 .3
1978	2.7	12.9	3.1	3.1 95.3 1.5	2.9 48.9 48.2 99.6 .4
1979	4.4	9.3	3.4	3.4 91.1 5.5	3.7 35.9 60.4 99.3 .7
1980	7.5	54.2		71.3 28.7	.1 7.6 92.3 99.9 .1
1981	8.6	61.7	29.7 29.7	26.1 44.2	8.6 91.4 100.0
1982	6.3	99.8		54.7 45.3	.2 6.3 93.5 100.0
1983	1.4	100.0		87.7 12.3	1.4 98.6 99.7 .3
1984	.6	100.0		95.8 4.2	.6 99.4 100.0
1985	.1	100.0		98.9 1.1	.1 .1 99.8 100.0
1986		91.2	8.7	8.7 91.3	8.7 91.2 91.2 8.8
1987		100.0	.1	.1 99.9	.1 21.6 78.3 99.9 .1
1988		100.0	2.9	2.9 97.1	2.8 97.1 97.1 2.9
1989		96.2	8.0	8.0 92.0	3.8 4.2 92.0 92.0 8.0
1990		84.4	51.1 30.5 20.5	48.9	9.4 11.1 79.5 79.5 20.5
1991		.7 82.1	100.0 73.8 26.2		13.8 12.5 73.8 73.8 23.0 3.2
1992		.3 88.9	100.0 86.2 13.8		8.6 1.9 89.5 86.2 12.7 1.1
1993		.3 95.3	100.0 90.6 9.4		5.1 4.3 90.6 90.6 8.2 1.2

TABLE F-10 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

5000 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	1505	.183	11.1	16.0	12.9	5000		388	166	14.0	114.6	.429	.0333	32.6		
1976	1494	.154	12.8	17.8	14.6	5000		378	166	13.9	114.6	.440	.0333	36.7		
1977	1051	.093	12.1	17.7	14.1	5000	129.7	387	175	13.3	117.1	.453	.0351	35.5	1843	4606
1978	477	.043	12.4	18.6	14.6	5000	132.3	403	179	13.1	118.2	.445	.0358	36.7	1947	4869
1979	182	.017	12.3	18.2	14.4	5000	126.5	396	169	13.7	115.5	.426	.0339	36.7	1861	4653
1980	2	.000	11.0	15.2	12.5	5000	121.9	382	156	14.6	111.8	.409	.0312	31.5	1549	3873
1981	2	.000	10.3	14.2	11.7	5000	122.2	387	156	14.6	111.6	.402	.0311	29.4	1446	3615
1982	2	.000	9.7	13.6	11.2	5000	121.4	378	176	13.7	117.5	.482	.0353	28.0	1362	3406
1983	1	.000	10.1	14.0	11.5	5000	126.4	373	157	14.7	112.0	.426	.0314	28.9	1463	3658
1984	2	.000	9.8	13.6	11.2	5000	122.1	374	176	13.7	117.2	.485	.0351	28.1	1375	3439
1985	1	.000	9.5	13.2	10.9	5000	113.5	394	187	12.9	120.5	.494	.0375	27.2	1234	3085
1986	1	.000	9.3	13.1	10.7	5000	114.2	378	205	12.2	125.4	.574	.0409	26.8	1223	3058
1987	1	.000	10.1	13.6	11.4	5000	113.0	410	191	12.4	121.5	.466	.0382	28.6	1295	3236
1988	1	.000	10.7	15.1	12.3	5000	112.0	408	207	11.6	126.0	.509	.0413	30.9	1384	3461
1989	1	.000	10.8	15.2	12.4	5000	112.9	410	206	11.6	125.7	.502	.0411	31.0	1400	3500
1990		.000	9.3	13.9	10.9	5000	95.9	326	240	10.3	135.4	.736	.0480	27.3	1048	2620
1992	15	.002	14.7	21.6	17.2	5000	125.9	280	296	9.0	151.2	1.052	.0592	43.5	2189	5473
1993	19	.002	15.9	23.5	18.6	5000	125.7	250	266	9.7	142.9	1.071	.0533	47.0	2360	5900

PERCENT OF 5000 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975								100.0			33.5	66.5	100.0		
1976	.3							100.0			28.7	71.3	100.0		
1977	3.3				.7		.7	99.3		15.2	25.8	59.0	100.0		
1978	4.9			14.1	.4		.4	98.7	.9		18.5	81.5	100.0		
1979					.9		.9	90.0	9.1		39.4	60.6	100.0		
1980					6.7		6.7	93.3		31.2		68.8	68.8	31.2	
1981					100.0	57.4	42.6			6.6	36.0	57.4	57.4	42.6	
1982				14.2	85.8	41.5	44.2	14.2			58.5	41.5	41.5	58.5	
1983				6.5	93.5	74.2	19.3	6.5		2.4	23.4	74.2	74.2	25.8	
1984				15.8	84.2	46.8	37.4	15.8		1.4	51.7	46.8	46.8	53.2	
1985				16.3	83.7		83.7	16.3		2.3	97.7			100.0	
1986				30.6	69.4		69.4	30.6		1.6	98.4			100.0	
1987				1.8	100.0		100.0			1.8	98.2			100.0	
1988				4.9	100.0		100.0			4.9	95.1			100.0	
1989					100.0		100.0			2.0	98.0			100.0	
1990				100.0	100.0		100.0			100.0				100.0	
1992					91.9		91.9		8.1			100.0		100.0	
1993					93.7		93.7		6.3		3.1	96.9		100.0	

TABLE F-11 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

5500-LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT- -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	828	.100	10.5	15.1	12.2	5500		458	208	12.6	122.7	.454	.0378	33.6		
1976	934	.096	11.6	16.2	13.3	5500		460	203	12.7	121.5	.443	.0370	36.6		
1977	298	.026	10.7	16.1	12.6	5500	131.8	447	194	13.2	119.0	.435	.0353	34.8	1664	4577
1978	134	.012	10.8	16.6	12.8	5500	130.7	445	191	13.3	118.3	.429	.0348	35.3	1682	4625
1979	2	.000	9.8	12.9	11.0	5500	112.7	417	174	14.4	113.7	.417	.0317	30.4	1247	3430
1980		.000	9.6	12.6	10.7	5500	100.7	412	170	14.7	112.6	.413	.0309	29.6	1084	2982
1981		.000	9.2	12.6	10.5	5500	98.8	412	170	14.7	112.6	.413	.0309	28.9	1043	2869
1982		.000	8.9	12.2	10.1	5500	92.5	412	170	14.7	112.6	.413	.0309	27.9	937	2577
1983		.000	9.4	13.7	10.9	5500	92.3	412	170	14.7	112.6	.413	.0309	30.1	1010	2778
1984		.000	9.4	13.8	11.0	5500	92.6	412	170	14.7	112.6	.413	.0309	30.1	1015	2792
1985		.000	9.4	13.8	11.0	5500	92.5	412	170	14.7	112.6	.413	.0309	30.2	1015	2792
1986		.000	9.4	13.8	11.0	5500	92.4	412	170	14.7	112.6	.413	.0309	30.1	1012	2784
1987		.000	9.5	13.2	10.9	5500	92.0	412	187	13.7	117.1	.454	.0340	30.1	1007	2771
1988		.000	10.6	14.8	12.2	5500	91.3	412	205	12.6	121.9	.498	.0373	33.4	1109	3050
1989		.000	10.8	15.4	12.5	5500	103.8	412	259	10.7	136.3	.630	.0472	34.4	1300	3576
1990	1	.000	11.3	16.2	13.1	5500	107.2	412	250	11.0	133.8	.607	.0455	36.0	1405	3863
1991	1	.000	11.4	16.3	13.2	5500	107.5	412	237	11.4	130.5	.577	.0432	36.2	1414	3890
1992	1	.000	11.8	18.8	14.1	5500	106.6	412	257	10.7	135.6	.623	.0467	38.9	1509	4151
1993	2	.000	12.2	19.3	14.7	5500	117.6	389	318	9.3	151.8	.831	.0578	40.4	1732	4763

PERCENT OF 5500 LB. CARS:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING					VEHICLE SIZE			DESIGNED		
			FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	8.2						100.0	5.2	11.3	83.4	99.9	.1	
1976	7.4		2.9		2.9	97.1		5.8	12.1	82.1	99.9	.1	
1977	15.9		3.1		3.1	96.9		.4	32.7	66.9	99.6	.4	
1978	33.7		30.0		30.0	70.0		.7	33.7	65.6	99.3	.7	
1979						100.0		58.8		41.2	41.2	58.8	
1980			5.0		5.0	95.0		100.0				100.0	
1981			100.0		100.0			100.0				100.0	
1982			100.0		100.0			100.0				100.0	
1983			100.0		100.0			100.0				100.0	
1984			100.0		100.0			100.0				100.0	
1985			100.0		100.0			100.0				100.0	
1986			100.0		100.0			100.0				100.0	
1987			100.0		100.0			100.0				100.0	
1988			100.0		100.0			100.0				100.0	
1989			100.0		100.0			47.2	52.8			100.0	
1990			100.0		100.0			18.0	82.0			100.0	
1991			100.0		100.0			16.5	83.5			100.0	
1992		100.0	100.0		100.0			19.5	80.5			100.0	
1993		51.2	100.0		100.0			7.2	44.1	48.8		100.0	

TABLE F-12 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

6000 LB. CARS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	---	-----	-----	-----	-----
1985		.000	8.9	12.2	10.1	6000	157.5	412	170	15.7	110.0	.413	.0283	30.4	1595	4786
1986		.000	8.9	12.2	10.1	6000	157.5	412	170	15.7	110.0	.413	.0283	30.4	1595	4786
1987		.000	9.3	12.3	10.4	6000	157.5	412	173	15.5	110.8	.420	.0288	31.3	1645	4935
1988		.000	10.5	14.0	11.8	6000	157.5	412	205	13.5	118.8	.498	.0341	35.5	1863	5590
1993		.000	11.3	18.0	13.6	6000	139.3	412	221	12.7	122.8	.536	.0368	40.7	1890	5671

PERCENT OF 6000 LB. CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1985					100.0							100.0		100.0	
1986					100.0							100.0		100.0	
1987					100.0							100.0		100.0	
1988					100.0							100.0		100.0	
1993				100.0	100.0							100.0		100.0	

TABLE F-13 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

2000 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1979	1	.000	23.2	29.5	25.7	2000	49	41	19.7	89.5	.837	.0205	25.7
1980	3	.002	22.5	29.4	25.2	2000	49	41	19.7	89.5	.837	.0205	25.2
1981	1	.000	22.5	29.4	25.2	2000	49	41	19.7	89.5	.837	.0205	25.2
1982	1	.001	23.7	27.3	25.2	2000	59	45	18.3	91.6	.763	.0225	25.2
1983	1	.001	23.7	27.3	25.2	2000	59	45	18.3	91.6	.763	.0225	25.2

PERCENT OF 2000 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	VEHICLE SIZE SMALL MID LARGE	DESIGNED DOM	IMPORT
1979	100.0	100.0	100.0	100.0		100.0
1980	100.0	100.0	100.0	100.0		100.0
1981	100.0	100.0	100.0	100.0		100.0
1982	100.0	100.0	100.0	100.0		100.0
1983	100.0	100.0	100.0	100.0		100.0

TABLE F-14 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

2250 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1979		.000	22.3	29.3	25.0	2250	49	41	21.6	87.7	.837	.0182	28.1
1980	25	.013	28.1	38.5	32.0	2250	94	64	15.9	99.0	.677	.0284	38.1
1981	24	.013	36.9	48.9	41.5	2250	97	52	17.9	93.1	.536	.0231	46.7
1982	13	.007	36.1	43.5	39.1	2250	91	51	18.2	92.6	.570	.0226	45.8
1983	4	.002	26.6	31.0	28.4	2250	71	47	19.4	90.8	.692	.0210	33.9
1984	7	.002	30.2	32.1	31.1	2250	70	47	19.5	90.7	.697	.0209	35.6
1985	6	.002	28.1	29.6	28.8	2250	61	45	20.8	89.7	.738	.0200	32.4
1986	37	.008	30.2	37.5	33.1	2250	81	64	15.3	99.0	.790	.0284	37.2
1987	63	.015	30.2	37.5	33.1	2250	81	64	15.3	99.0	.790	.0284	37.2
1988	83	.018	30.6	37.3	33.3	2250	81	64	15.3	99.0	.790	.0284	37.4
1989	5	.001	30.9	37.0	33.4	2250	80	64	15.3	99.0	.797	.0284	37.5

PERCENT OF 2250 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN FRONT	4WD	TRANSMISSION MANUAL	LOCK	FUEL METERING FI	TBI	PORT	CARB	DSL	VEHICLE SIZE SMALL	MID	LARGE	DESIGNED DOM	IMPORT
1979		100.0	100.0						100.0	100.0				100.0
1980	100.0		100.0		54.6				45.4	100.0				100.0
1981	100.0		100.0						100.0	100.0				100.0
1982	85.0	15.0	100.0			15.0	85.0		100.0	100.0				100.0
1983	31.3	68.7	91.1			68.7	31.3		100.0				13.3	86.7
1984	28.9	71.1	82.7			71.1	28.9		100.0				28.9	71.1
1985		100.0	100.0			100.0			100.0					100.0
1986		100.0	100.0			100.0			100.0					100.0
1987		100.0	100.0			100.0			100.0					100.0
1988		100.0	100.0			100.0			100.0					100.0
1989		100.0	100.0			100.0			100.0					100.0

TABLE F-15 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

2500 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY CITY HWY 55/45	WGHT LB	ENGINE CID HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1978	23	.007	23.5 33.7 27.2	2500	97 67	16.0	98.2	.691	.0268	34.2
1979	39	.013	24.1 33.5 27.5	2500	97 67	16.0	98.2	.691	.0268	34.5
1980	16	.009	22.1 32.3 25.8	2500	97 68	15.8	98.6	.701	.0272	32.3
1981	27	.015	24.9 34.2 28.4	2500	108 73	14.9	101.1	.683	.0294	35.5
1982	36	.019	24.8 32.0 27.6	2500	132 81	13.9	104.7	.625	.0326	34.9
1983	33	.014	25.4 32.8 28.2	2500	137 86	13.3	107.0	.636	.0346	36.4
1984	18	.005	24.2 31.4 27.0	2500	110 74	15.8	101.2	.686	.0295	34.2
1985	4	.001	26.2 35.2 29.6	2500	109 73	15.3	100.9	.670	.0292	37.0
1986	5	.001	26.4 36.0 30.0	2500	109 73	14.9	100.9	.670	.0292	37.5
1987	1	.000	26.3 35.5 29.8	2500	109 73	14.9	100.9	.670	.0292	37.2
1989	39	.009	28.8 34.9 31.3	2500	97 80	14.1	104.1	.825	.0320	39.2
1990	34	.009	29.2 35.9 31.9	2500	94 78	14.3	103.0	.827	.0310	39.8
1991	15	.004	28.7 35.1 31.2	2500	91 75	14.7	101.8	.829	.0300	39.1
1992	12	.003	28.0 34.3 30.5	2500	92 76	14.6	102.4	.828	.0305	38.3
1993	16	.003	27.4 33.7 29.9	2500	95 78	14.3	103.3	.826	.0313	37.5

PERCENT OF 2500 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	VEHICLE SIZE SMALL MID LARGE	DESIGNED DOM	IMPORT
1978	100.0	100.0		100.0		100.0
1979	100.0	100.0		100.0		100.0
1980	9.5 90.5	90.5	9.5	90.5		100.0
1981	34.2 65.8	100.0	34.2	65.8		100.0
1982	49.7 20.1	58.4	9.4	90.6	30.1	69.9
1983	48.9 13.2	59.4 2.7	2.6	97.4	37.9	62.1
1984	29.9 53.1	79.8 3.3		100.0	46.9	53.1
1985	100.0	95.6 4.4		100.0		100.0
1986	100.0	100.0		100.0		100.0
1987	100.0	100.0		100.0		100.0
1989	100.0	56.2 43.8	100.0 100.0	100.0		100.0
1990	95.5	100.0	100.0 100.0	100.0		100.0
1991	20.6	100.0	100.0 100.0	100.0		100.0
1992	18.6	86.5 13.5	100.0 100.0	100.0		100.0
1993	100.0	81.2 18.8	100.0 12.5 87.5	100.0		100.0

TABLE F-16 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

2750 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
-----	-----	-----	CITY	HWY	55/45	-----	CID	HP	-----	-----	---	---	-----
1975	204	.102	18.1	26.0	21.0	2750	155	101	12.9	110.7	.713	.0367	29.4
1976	202	.078	19.6	27.5	22.5	2750	150	98	13.0	109.6	.727	.0358	31.5
1977	270	.096	21.1	29.3	24.2	2750	146	98	13.0	109.4	.732	.0356	33.8
1978	241	.074	21.0	27.3	23.5	2750	157	98	12.9	109.5	.700	.0357	33.1
1979	250	.081	19.8	27.4	22.6	2750	126	90	13.7	106.2	.720	.0329	31.6
1980	324	.174	22.3	30.0	25.2	2750	126	91	13.6	106.6	.728	.0333	34.9
1981	222	.122	24.7	33.3	27.9	2750	130	90	13.8	106.2	.695	.0329	38.7
1982	227	.119	24.9	33.8	28.3	2750	130	91	13.7	106.5	.699	.0331	39.1
1983	340	.148	25.4	34.3	28.8	2750	132	87	14.2	104.6	.658	.0315	39.8
1984	328	.098	25.1	33.5	28.3	2750	130	87	14.2	104.9	.672	.0318	39.2
1985	246	.067	26.3	35.7	29.9	2750	130	90	14.1	106.1	.693	.0328	41.3
1986	316	.073	26.0	35.2	29.5	2750	132	92	13.6	106.8	.695	.0334	40.8
1987	244	.059	26.1	35.8	29.7	2750	133	93	13.5	107.3	.695	.0338	41.0
1988	120	.026	24.6	33.1	27.8	2750	136	98	12.9	109.3	.721	.0356	38.4
1989	76	.017	24.5	32.7	27.6	2750	135	97	12.9	109.2	.721	.0354	38.1
1990	45	.012	24.3	30.6	26.8	2750	129	95	13.3	108.2	.745	.0346	36.9
1991	28	.007	26.5	32.6	28.9	2750	97	80	15.2	101.7	.825	.0291	39.9
1992	28	.006	26.6	32.6	29.0	2750	97	80	15.1	101.9	.828	.0292	39.9
1993	28	.006	26.5	32.4	28.8	2750	97	81	15.1	102.0	.832	.0294	39.7

PERCENT OF 2750 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	IMPORT
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	-----
1975		23.2	91.3					100.0		100.0			23.2	76.8
1976		20.2	82.0					100.0		100.0			20.2	79.8
1977		16.3	81.9					100.0		100.0			16.3	83.7
1978		24.0	86.9					100.0		100.0			24.0	76.0
1979			82.7					100.0		100.0			3.7	96.3
1980			86.9					100.0		97.6		2.4		100.0
1981			90.3					98.6	1.4	98.8		1.2		100.0
1982	1.4		87.1	4.9				98.3	1.7	97.5		2.5	22.3	77.7
1983	4.0	.1	89.4	.2	.1			99.1	.9	100.0			43.0	57.0
1984	6.5	.1	86.1	2.9	1.1			98.2	.7	66.7		33.3	15.4	84.6
1985	3.4		92.0	.8	1.4			98.1	.4	100.0			25.4	74.6
1986	1.7		88.3	.8				99.6	.4	100.0			14.8	85.2
1987	1.6		89.9	.9				100.0		100.0			18.1	81.9
1988			99.4		.6		.6	99.4		100.0				100.0
1989			100.0					100.0		100.0				100.0
1990		31.1	68.9	31.1	31.1	31.1		68.9		31.1		68.9		100.0
1991		100.0	56.7	43.3	100.0	100.0				100.0				100.0
1992		98.1	58.8	41.2	100.0	98.1	1.9			100.0				100.0
1993		100.0	55.2	44.8	100.0		100.0			100.0				100.0

TABLE F-17 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

3000 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
-----	-----	-----	CITY	HWY	55/45	----	CID	HP	-----	-----	----	----	----
1975	60	.030	18.2	24.9	20.7	3000	107	70	18.2	95.8	.667	.0234	31.2
1976	73	.028	18.3	25.4	21.0	3000	136	77	17.4	98.6	.628	.0258	32.5
1977	91	.032	22.9	31.3	26.0	3000	147	81	16.4	100.1	.596	.0270	40.9
1978	144	.044	22.4	29.9	25.2	3000	148	83	16.0	101.0	.599	.0278	39.5
1979	226	.073	19.6	25.7	21.9	3000	154	89	15.2	103.4	.607	.0297	34.2
1980	212	.114	20.2	26.7	22.7	3000	146	86	15.3	102.1	.620	.0286	34.9
1981	249	.137	23.0	30.8	25.9	3000	150	86	15.7	102.2	.591	.0287	40.3
1982	379	.198	22.6	31.4	25.9	3000	162	97	14.3	106.6	.604	.0323	39.8
1983	414	.180	22.5	31.2	25.7	3000	158	94	14.5	105.5	.610	.0315	39.4
1984	575	.172	22.7	31.6	26.0	3000	153	94	14.5	105.4	.626	.0313	39.6
1985	658	.179	22.9	31.8	26.2	3000	151	100	13.9	107.6	.662	.0332	39.7
1986	840	.193	23.4	32.5	26.8	3000	143	99	13.8	107.5	.691	.0331	40.4
1987	799	.193	23.4	32.9	26.9	3000	145	100	13.8	107.8	.690	.0334	40.5
1988	740	.162	23.9	33.4	27.4	3000	145	98	14.0	107.2	.675	.0329	41.4
1989	609	.137	24.0	33.2	27.4	3000	145	102	13.4	108.7	.704	.0341	41.3
1990	446	.117	24.4	33.4	27.8	3000	142	110	12.8	111.7	.770	.0366	42.0
1991	594	.147	24.0	33.5	27.5	3000	148	109	12.9	111.3	.737	.0363	41.4
1992	425	.096	24.0	33.2	27.4	3000	145	113	12.4	113.0	.786	.0377	41.4
1993	388	.082	23.8	33.2	27.2	3000	146	113	12.4	113.2	.781	.0378	41.1

PERCENT OF 3000 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	IMPORT
1975			69.3					100.0		100.0				100.0
1976		14.3	80.2					100.0		100.0			14.3	85.7
1977		14.0	86.2					100.0		100.0			14.0	86.0
1978		13.8	85.6					100.0		100.0			13.8	86.2
1979		47.4	88.2					100.0		100.0			22.9	77.1
1980		65.7	94.6					100.0		77.9	22.1		20.4	79.6
1981		52.6	93.2	1.4				78.4	21.6	82.5	17.5		16.5	83.5
1982		26.2	75.1	22.0				84.2	15.8	92.1	7.9		53.4	46.6
1983		23.8	75.1	9.6				92.0	8.0	95.5	4.5		56.8	43.2
1984	3.7	19.7	72.7	13.6	4.4			91.7	3.9	92.9	7.1		57.9	42.1
1985	4.3	11.4	64.7	28.4	30.9			67.5	1.6	98.1	1.9		58.0	42.0
1986	2.6	5.7	78.0	17.6	51.5	31.7	19.8	47.7	.8	98.6	1.4		34.4	65.6
1987	2.8	6.6	74.3	19.6	61.5	37.9	23.6	38.2	.3	97.4	2.6		41.5	58.5
1988	1.6	2.3	77.3	16.7	66.4	36.8	29.6	33.6		97.9	2.1		61.0	39.0
1989	1.6	3.6	82.2	12.4	77.5	46.0	31.5	22.5		96.1	3.9		51.9	48.1
1990	.7	6.3	86.9	10.4	82.3	14.1	68.2	17.7		78.4	21.6		39.3	60.7
1991	1.0	1.8	87.0	10.2	89.7	38.0	51.8	10.3		78.3	21.7		51.1	48.9
1992	4.9	7.9	83.4	13.0	90.1	30.3	59.8	9.9		74.5	25.5		40.2	59.8
1993	4.6	8.1	83.1	12.8	87.2	29.9	57.3	12.8		68.6	31.4		39.3	60.7

TABLE F-18 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

3500 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY CITY HWY 55/45	WGHT LB	ENGINE CID HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	55	.028	13.9 19.9 16.1	3500	308 138	12.5	117.5	.453	.0395	28.6
1976	83	.032	14.9 20.3 16.9	3500	303 132	12.9	115.2	.443	.0377	30.0
1977	74	.026	15.5 20.7 17.5	3500	311 136	12.7	116.8	.446	.0389	30.9
1978	100	.031	16.4 22.4 18.6	3500	267 128	13.2	113.9	.498	.0367	32.9
1979	69	.022	15.4 19.2 16.9	3500	251 110	14.7	107.4	.463	.0315	30.0
1980	82	.044	16.4 21.4 18.3	3500	211 106	15.3	105.8	.526	.0302	32.4
1981	122	.067	18.5 24.9 20.9	3500	238 108	14.7	106.6	.474	.0308	36.9
1982	145	.076	19.5 26.4 22.1	3500	205 104	15.2	105.1	.533	.0297	39.0
1983	275	.120	20.2 28.9 23.3	3500	174 105	14.8	105.7	.620	.0301	41.1
1984	738	.221	19.9 27.6 22.7	3500	164 102	15.2	104.5	.634	.0292	40.1
1985	953	.260	20.0 28.1 23.0	3500	168 106	15.0	105.8	.647	.0302	40.5
1986	1125	.259	20.2 27.9 23.0	3500	164 114	14.0	108.9	.704	.0327	40.6
1987	1236	.299	19.9 28.4 23.0	3500	178 125	13.2	112.8	.711	.0358	40.5
1988	1166	.256	19.5 28.1 22.6	3500	189 134	12.5	116.2	.721	.0384	39.9
1989	999	.225	19.5 27.8 22.5	3500	197 136	12.5	116.7	.704	.0389	39.7
1990	745	.196	19.7 28.6 22.9	3500	195 140	12.1	118.3	.730	.0401	40.5
1991	697	.172	19.7 28.3 22.8	3500	202 141	12.1	118.4	.709	.0402	40.4
1992	604	.137	19.7 28.3 22.8	3500	197 142	12.0	118.9	.730	.0406	40.6
1993	737	.156	20.2 29.2 23.4	3500	193 145	11.9	119.9	.756	.0414	41.5

PERCENT OF 3500 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	IMPORT
1975			9.7		1.8			98.2		3.0	97.0		97.0	3.0
1976			13.7		1.9			98.1		5.4	94.6		94.6	5.4
1977			11.8		3.0			97.0		6.7	93.3		93.3	6.7
1978			21.4		2.7			97.3		11.7	88.3		88.3	11.7
1979		55.5	64.8		12.2			87.8		75.1	24.9		80.3	19.7
1980		15.1	46.7	36.8	14.6			85.4		40.7	59.3		66.8	33.2
1981		6.7	61.7	31.3	6.5			93.5		17.9	82.1		80.5	19.5
1982		26.1	77.0	19.1	4.3			93.2	2.6	13.2	86.8		63.4	36.6
1983		54.6	66.0	28.7	3.7			94.9	1.5	70.9	29.1		68.3	31.7
1984	15.3	53.3	48.4	25.2	7.0			91.8	1.2	84.4	15.6		74.4	25.6
1985	23.3	46.7	44.5	32.6	14.7	.7		84.9	.4	71.5	28.5		74.1	25.9
1986	20.2	54.0	45.6	34.6	49.4	19.7	29.7	50.4	.1	75.9	24.1		70.8	29.2
1987	20.2	49.4	39.9	47.8	64.9	20.7	44.2	35.0	.1	74.0	26.0		74.3	25.7
1988	18.1	49.9	36.4	55.5	93.7	30.2	63.5	6.3		76.8	23.2		82.5	17.5
1989	22.3	35.7	32.2	49.8	95.0	37.5	57.6	5.0		79.6	20.4		83.6	16.4
1990	26.4	34.7	31.8	66.0	96.0	20.1	75.9	4.0		82.4	17.6		82.1	17.9
1991	7.3	32.8	40.6	58.4	99.7	39.4	60.3	.3		82.8	17.2		83.1	16.9
1992	9.0	37.2	46.2	52.5	99.7	27.9	71.8	.3		82.9	17.1		80.1	19.9
1993	25.3	28.3	40.9	58.1	99.9	25.1	74.8	.1		63.3	36.7		83.9	16.1

TABLE F-19 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

4000 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	1021	.514	12.3	17.2	14.1	4000	324	141	13.5	114.1	.433	.0353	28.8
1976	1234	.473	13.2	17.9	15.0	4000	326	137	13.7	112.7	.419	.0342	30.8
1977	1165	.413	14.7	19.3	16.5	4000	322	144	13.1	115.2	.447	.0361	33.5
1978	1317	.402	14.3	18.3	15.9	4000	319	144	13.1	114.9	.449	.0359	32.5
1979	702	.227	14.4	18.5	15.9	4000	301	140	13.4	113.7	.465	.0350	32.4
1980	536	.288	16.5	22.2	18.6	4000	279	125	14.5	108.9	.453	.0314	37.5
1981	675	.371	16.9	22.8	19.1	4000	282	127	14.3	109.4	.452	.0317	38.6
1982	490	.256	16.5	22.4	18.7	4000	286	127	14.5	109.5	.446	.0318	37.9
1983	501	.218	16.7	22.9	19.0	4000	269	123	14.8	108.3	.469	.0309	38.5
1984	688	.206	16.4	23.0	18.9	4000	265	121	15.0	107.6	.471	.0303	38.4
1985	742	.202	17.1	23.8	19.6	4000	259	132	14.2	111.0	.523	.0330	39.7
1986	935	.215	17.5	24.5	20.1	4000	243	132	14.0	111.1	.572	.0330	40.6
1987	856	.207	17.8	25.3	20.5	4000	227	141	13.3	114.2	.649	.0354	41.3
1988	1189	.261	18.1	26.2	21.1	4000	230	148	12.8	116.2	.668	.0369	42.4
1989	1391	.314	18.5	26.9	21.5	4000	225	149	12.7	116.8	.686	.0373	43.2
1990	1229	.323	18.3	26.7	21.3	4000	219	148	12.8	116.3	.694	.0370	42.9
1991	1502	.371	18.4	27.0	21.5	4000	221	151	12.6	117.4	.702	.0378	43.2
1992	1484	.336	18.3	27.1	21.4	4000	220	152	12.5	117.7	.703	.0380	43.1
1993	1624	.344	18.4	27.6	21.6	4000	225	165	11.7	122.0	.743	.0413	43.5

PERCENT OF 4000 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	IMPORT
1975		2.0	33.8					100.0			.6	99.4	99.4	.6
1976		2.7	33.4					100.0			.6	99.4	99.4	.6
1977		3.4	29.7					100.0			1.3	98.7	98.7	1.3
1978		3.8	29.3					99.5	.5		1.0	99.0	99.0	1.0
1979		6.4	35.0	7.6				100.0			.6	99.4	99.4	.6
1980		5.8	50.0	21.7	.7			99.3			1.0	99.0	99.0	1.0
1981	.4	7.3	42.9	37.4	.5			99.5			.7	99.3	99.3	.7
1982		9.1	31.3	33.8	.6			99.0	.4		1.4	98.6	98.6	1.4
1983		16.7	27.6	50.1	.7			99.2	.1		14.3	85.7	99.0	1.0
1984		20.6	29.0	43.5	.8			99.2			19.3	80.7	98.9	1.1
1985		27.4	20.6	50.2	8.0			92.0			35.5	64.5	99.0	1.0
1986		23.2	25.7	57.1	59.8	34.8	24.9	39.7	.5		46.0	54.0	89.3	10.7
1987	3.6	27.9	19.2	70.8	87.0	47.5	39.5	13.0			64.4	35.6	89.6	10.4
1988	15.8	27.5	21.8	71.3	100.0	51.9	48.1				66.0	34.0	86.8	13.2
1989	14.9	34.8	19.3	78.0	100.0	48.7	51.3				72.7	27.3	85.6	14.4
1990	31.8	29.0	17.5	79.8	100.0	41.8	58.2				72.0	28.0	82.8	17.2
1991	22.4	37.0	17.0	82.8	100.0	42.0	58.0				77.0	23.0	79.1	20.9
1992	29.9	32.9	14.9	85.0	100.0	26.5	73.5				79.8	20.2	85.3	14.7
1993	29.4	35.4	14.8	85.1	100.0	11.2	88.8				69.1	30.9	82.3	17.7

TABLE F-20 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

4500 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
-----	-----	-----	CITY	HWY	55/45	----	CID	HP	----	-----	---	----	-----
1975	386	.194	10.7	13.6	11.9	4500	350	160	13.3	116.3	.456	.0356	26.9
1976	610	.234	11.6	15.1	12.9	4500	353	158	13.5	115.5	.445	.0351	29.3
1977	862	.305	12.5	15.9	13.8	4500	359	164	13.0	117.4	.456	.0364	31.3
1978	986	.301	12.3	15.4	13.5	4500	353	161	13.1	116.4	.456	.0357	30.8
1979	960	.311	12.8	15.9	13.9	4500	323	145	14.3	111.7	.452	.0322	32.0
1980	389	.209	14.0	18.3	15.7	4500	319	144	14.3	111.4	.453	.0320	35.7
1981	373	.205	14.9	19.9	16.8	4500	311	143	14.4	111.0	.461	.0318	38.2
1982	407	.213	14.9	19.7	16.8	4500	310	150	13.9	113.1	.484	.0333	38.2
1983	517	.225	15.0	20.2	17.0	4500	310	148	14.0	112.7	.481	.0330	38.6
1984	691	.207	14.7	20.0	16.7	4500	310	149	13.9	112.9	.481	.0332	38.0
1985	745	.203	14.5	19.4	16.4	4500	311	157	13.4	115.3	.505	.0349	37.2
1986	769	.177	15.3	20.6	17.3	4500	307	151	13.8	113.6	.493	.0337	39.3
1987	636	.154	15.0	20.6	17.1	4500	315	165	12.9	117.8	.523	.0367	38.7
1988	814	.179	15.4	21.6	17.7	4500	321	172	12.5	119.8	.535	.0382	40.0
1989	894	.202	15.3	21.7	17.6	4500	320	174	12.4	120.4	.541	.0386	39.9
1990	832	.219	15.6	22.7	18.2	4500	307	171	12.6	119.6	.561	.0380	41.3
1991	909	.225	16.1	23.8	18.8	4500	285	172	12.5	119.8	.615	.0382	42.6
1992	1237	.280	16.1	23.7	18.8	4500	286	172	12.5	119.9	.615	.0383	42.5
1993	1242	.263	16.3	24.4	19.1	4500	289	179	12.0	122.1	.631	.0399	43.3

PERCENT OF 4500 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	IMPORT
1975		31.9	27.8					100.0				100.0	100.0	
1976		44.1	30.3					100.0		.2		99.8	99.8	.2
1977		45.0	22.0					100.0		.1		99.9	99.9	.1
1978		50.0	21.0					98.0	2.0	.2		99.8	99.8	.2
1979		15.7	20.7	.2				99.7	.3			100.0	100.0	.0
1980		31.6	27.0	41.1				97.3	2.7			100.0	100.0	.0
1981	.2	24.7	18.3	54.4				99.0	1.0	.2		99.8	99.8	.2
1982	.1	20.5	13.7	53.1				99.6	.4	.6		99.4	99.4	.6
1983		26.7	14.1	59.2				99.6	.4	.7		99.3	99.3	.7
1984		27.5	14.0	59.9				99.8	.2	.8		99.2	99.2	.8
1985		25.1	11.9	62.6	.4.6			95.4		.8		99.2	99.2	.8
1986		25.8	12.4	68.6	22.1		22.1	77.9				100.0	99.7	.3
1987		23.2	13.2	48.8	79.3	43.2	36.1	20.7				100.0	99.0	1.0
1988		31.3	15.1	60.8	97.4	66.4	31.0	2.5	.1			100.0	98.7	1.3
1989		29.6	23.5	61.2	98.5	59.8	38.7	1.4	.1			100.0	98.9	1.1
1990		28.5	15.7	74.6	99.1	59.1	40.0	.8	.1	16.0		84.0	94.5	5.5
1991		44.9	15.6	82.0	99.5	45.3	54.2	.4		39.0		61.0	95.9	4.1
1992		38.4	14.9	82.6	99.9	33.5	66.4		.1	35.7		64.3	94.5	5.5
1993	.1	32.8	16.5	81.5	100.0	39.1	60.9			30.9		69.1	92.4	7.6

TABLE F-21 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

5000 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	201	.101	10.2	12.4	11.1	5000	365	165	14.1	114.2	.450	.0330	27.9
1976	297	.114	11.0	13.7	12.1	5000	364	156	14.7	111.8	.428	.0313	30.4
1977	256	.091	11.9	14.8	13.1	5000	372	167	14.0	114.7	.446	.0333	32.8
1978	324	.099	11.7	14.6	12.8	5000	371	170	13.6	115.7	.459	.0340	32.1
1979	673	.218	11.4	13.7	12.3	5000	363	156	15.1	111.6	.426	.0311	31.8
1980	242	.130	13.4	17.9	15.1	5000	347	154	14.8	111.0	.443	.0307	39.1
1981	122	.067	14.1	18.7	15.8	5000	330	146	15.4	109.0	.447	.0293	40.6
1982	170	.089	15.1	20.2	17.0	5000	331	144	15.6	108.3	.438	.0288	44.5
1983	173	.075	14.8	20.6	17.0	5000	332	150	15.0	110.1	.458	.0301	44.0
1984	260	.078	14.0	19.5	16.0	5000	327	159	14.4	112.5	.488	.0318	41.0
1985	277	.076	13.8	19.4	15.9	5000	326	164	14.1	114.0	.504	.0328	40.3
1986	289	.067	14.1	20.0	16.3	5000	323	162	14.1	113.5	.503	.0325	41.1
1987	235	.057	13.8	19.3	15.9	5000	327	175	13.4	117.2	.534	.0351	40.0
1988	366	.080	14.2	20.3	16.4	5000	330	180	13.2	118.4	.541	.0360	41.3
1989	340	.077	14.0	19.8	16.1	5000	322	176	13.4	117.3	.547	.0352	40.7
1990	390	.103	14.0	20.6	16.4	5000	332	188	12.7	120.8	.568	.0377	41.1
1991	245	.061	13.9	20.2	16.2	5000	325	188	12.6	120.8	.582	.0377	40.7
1992	510	.115	14.3	21.2	16.7	5000	331	189	12.7	121.0	.571	.0378	42.2
1993	538	.114	14.7	21.9	17.2	5000	321	191	12.5	121.6	.598	.0382	43.3

PERCENT OF 5000 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	VEHICLE SIZE SMALL MID LARGE	DESIGNED DOM	IMPORT
1975	48.9	24.2		100.0	100.0	
1976	50.3	24.6		100.0	100.0	
1977	40.8	22.1		100.0	100.0	
1978	56.5	27.0		100.0	100.0	
1979	22.4	15.5 1.2		92.2 7.8	100.0	
1980	51.8	18.5 56.3		82.5 17.5	100.0	
1981	50.7	17.4 53.8		85.6 14.4	100.0	
1982	42.0	17.9 54.6		67.9 32.1	100.0	
1983	48.9	12.1 67.2		81.7 18.3	100.0	
1984	60.0	12.6 59.0		93.4 6.6	100.0	
1985	63.5	11.8 63.6	3.2	94.0 2.8	100.0	
1986	62.7	9.5 68.8	16.2	16.2 82.3 1.5	100.0	
1987	70.3	13.0 53.5	70.7 40.0 30.7	28.5 .8	100.0	
1988	61.1	9.8 64.3	97.4 47.8 49.6	1.4 1.1	100.0	
1989	62.7	12.6 64.7	99.3 39.1 60.2	.7	100.0	96.6
1990	58.9	8.7 84.4	99.4 54.7 44.7	.6 .1	99.9	97.8
1991	69.9	10.5 82.8	99.3 48.2 51.1	.7 3.9	96.1	93.2
1992	59.2	6.7 88.5	99.4 47.4 51.9	.6 2.7	97.3	96.8
1993	61.9	7.4 87.4	99.7 39.9 59.8	.3 3.7	96.3	96.8

TABLE F-22 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

5500 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
			CITY	HWY	55/45		CID	HP					
1975	59	.030	9.2	11.3	10.0	5500	380	175	14.7	113.8	.456	.0317	27.7
1976	109	.042	10.3	13.1	11.4	5500	385	173	14.8	113.4	.445	.0315	31.5
1977	101	.036	10.7	13.4	11.8	5500	398	184	14.1	116.3	.458	.0334	32.8
1978	133	.041	11.0	13.8	12.1	5500	380	173	14.5	113.5	.457	.0315	33.4
1979	158	.051	10.3	12.2	11.1	5500	400	183	14.3	116.1	.454	.0333	30.8
1980	28	.015	11.7	15.4	13.1	5500	353	162	15.2	110.4	.458	.0294	36.3
1981	6	.003	12.2	16.1	13.7	5500	350	163	15.2	110.7	.466	.0296	37.7
1982	41	.022	18.7	26.4	21.5	5500	350	132	17.9	102.6	.378	.0240	60.0
1983	35	.015	17.6	25.4	20.4	5500	373	136	17.6	103.8	.367	.0248	57.9
1984	34	.010	15.6	22.1	17.9	5500	367	145	16.8	106.1	.398	.0264	51.9
1985	28	.008	13.9	20.2	16.1	5500	359	157	15.8	109.2	.440	.0286	45.8
1986	28	.006	13.8	20.0	16.0	5500	341	157	15.8	109.2	.475	.0286	45.3
1987	58	.014	14.3	21.0	16.7	5500	351	206	12.6	122.1	.588	.0374	46.1
1988	77	.017	13.9	20.3	16.2	5500	350	199	12.9	120.4	.569	.0362	44.8
1989	47	.011	14.4	22.4	17.2	5500	350	205	12.7	122.0	.587	.0374	47.6
1990	51	.013	14.1	22.0	16.8	5500	350	206	12.6	122.2	.589	.0375	46.5
1991	37	.009	14.0	21.5	16.7	5500	347	201	12.9	120.8	.578	.0365	46.1
1992	90	.020	14.0	20.8	16.4	5500	339	195	13.3	119.3	.574	.0355	45.4
1993	122	.026	14.1	21.4	16.7	5500	344	202	12.9	121.0	.584	.0367	46.0

PERCENT OF 5500 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	IMPORT
1975		84.9	2.6					100.0				100.0	100.0	
1976		86.1	3.3					100.0				100.0	100.0	
1977		76.1	1.7					100.0				100.0	100.0	
1978		89.9	1.1					100.0				100.0	100.0	
1979		11.9	29.5					100.0				100.0	100.0	
1980		60.6	22.9	41.6				100.0				100.0	100.0	
1981		73.2	24.3	55.0				100.0				100.0	100.0	
1982		79.9	13.2	85.7				7.2	92.8			100.0	100.0	
1983		67.5	3.6	94.1				19.9	80.1			100.0	100.0	
1984		67.2	4.5	88.8				42.1	57.9			100.0	100.0	
1985		79.8	4.1	86.5				70.0	30.0			100.0	100.0	
1986		76.2	10.1	82.7				74.5	25.5	7.1		92.9	100.0	
1987		35.9	.4	95.8	92.6	91.6	.9	3.8	3.6			100.0	100.0	
1988		36.4	1.2	89.5	97.7	88.3	9.3	.4	1.9			100.0	100.0	
1989		4.6	1.0	93.2	96.9	89.8	7.1		3.1			100.0	100.0	
1990		3.5	1.1	98.0	97.2	83.1	14.1		2.8			100.0	100.0	
1991		8.0	.6	99.4	95.6	72.0	23.5		4.4	.6		99.4	100.0	
1992		12.2	1.6	95.7	99.1	59.5	39.6		.9			100.0	100.0	
1993		37.2	.9	97.3	98.7	80.6	18.1		1.3			100.0	100.0	

TABLE F-23 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

6000 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	1	.000	10.0	12.3	10.9	6000	329	152	16.9	105.5	.463	.0253	33.2
1976	1	.001	10.6	13.9	11.9	6000	373	161	16.3	107.8	.433	.0268	35.8
1977	2	.001	11.2	14.2	12.4	6000	362	165	16.0	108.8	.458	.0275	37.4
1978	2	.001	10.7	13.4	11.8	6000	373	170	15.6	110.1	.458	.0284	35.4
1979	10	.003	9.7	12.6	10.8	6000	411	189	15.7	114.8	.448	.0315	32.6
1980	4	.002	10.8	14.9	12.3	6000	362	169	15.8	109.8	.467	.0282	37.5
1982	4	.002	18.2	26.2	21.1	6000	350	130	19.5	100.1	.372	.0217	63.4
1983	4	.002	17.4	25.3	20.2	6000	378	131	19.4	100.3	.346	.0218	61.3
1984	4	.001	17.4	25.8	20.4	6000	378	131	19.4	100.3	.346	.0218	61.9
1985	8	.002	18.0	27.6	21.4	6000	378	132	19.3	100.5	.349	.0219	64.6
1986	6	.001	18.8	28.5	22.2	6000	379	130	19.5	100.0	.343	.0217	66.8
1987	3	.001	18.1	26.8	21.2	6000	377	136	19.0	101.6	.363	.0227	64.5
1988	4	.001	16.0	23.6	18.7	6000	369	158	17.3	107.0	.431	.0263	57.7
1989	33	.007	13.5	20.0	15.8	6000	352	205	13.7	118.7	.584	.0341	47.8
1990	32	.008	13.6	20.4	16.0	6000	352	206	13.6	119.0	.587	.0343	48.3
1991	18	.005	13.5	19.9	15.8	6000	351	206	13.5	119.1	.588	.0344	47.5
1992	29	.007	12.9	19.9	15.3	6000	350	209	13.3	119.7	.596	.0348	46.0
1993	32	.007	13.2	20.2	15.6	6000	350	209	13.3	119.8	.598	.0349	46.8

PERCENT OF 6000 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	VEHICLE SIZE SMALL MID LARGE	DESIGNED DOM	IMPORT
1975	14.6	74.8	100.0	100.0	100.0	
1976	64.4	38.8	100.0	100.0	100.0	
1977	53.5	36.7	100.0	100.0	100.0	
1978	64.2	33.8	100.0	100.0	100.0	
1979	43.1		100.0	100.0	100.0	
1980	2.3	76.5	100.0	100.0	100.0	
1982	99.3	100.0	.7 99.3	100.0	100.0	
1983	95.5	95.5	4.5 95.5	100.0	100.0	
1984	95.4	95.4	4.6 95.4	100.0	100.0	
1985	41.2	2.5 97.5	4.7 95.3	100.0	100.0	
1986	41.5	.3 99.7	100.0	100.0	100.0	
1987	48.5	7.9 92.1	7.8 7.8 92.2	100.0	100.0	
1988	61.9	7.4 92.6	32.9 32.9 67.1	100.0	100.0	
1989	96.3	1.1 98.9	93.7 93.7 6.3	100.0	100.0	
1990	96.8	.7 99.3	94.5 94.5 5.5	100.0	100.0	
1991	94.9	.1 99.9	94.7 94.7 5.3	100.0	100.0	
1992	82.6	100.0	99.5 82.6 16.9 .5	100.0	100.0	
1993	92.8	100.0	99.5 92.8 6.7 .5	100.0	100.0	

TABLE F-24 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

6500 LB. TRUCKS

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY CITY HWY 55/45	WGHT LB	ENGINE CID HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
-----	-----	-----	-----	----	-----	----	-----	---	----	-----
1975	1	.000	9.9 11.6 10.6	6500	321 150	18.6	103.1	.468	.0231	34.5
1976	1	.000	10.4 13.3 11.5	6500	324 144	19.2	101.6	.447	.0222	37.6
1977	1	.001	11.4 13.6 12.3	6500	316 142	19.3	101.2	.453	.0219	40.1
1978	2	.000	10.7 13.2 11.7	6500	327 155	18.1	104.3	.474	.0239	38.2
1980	1	.000	10.6 14.5 12.0	6500	368 150	18.5	103.1	.408	.0231	39.2
1991	1	.000	16.8 26.7 20.2	6500	379 140	19.6	100.7	.369	.0215	65.5

PERCENT OF 6500 LB. TRUCKS:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	VEHICLE SIZE SMALL MID LARGE	DESIGNED DOM	IMPORT
-----	-----	-----	-----	-----	-----	-----
1975			100.0	100.0	100.0	
1976		.2	100.0	100.0	100.0	
1977			100.0	100.0	100.0	
1978			100.0	100.0	100.0	
1980			100.0	100.0	100.0	
1991	100.0	100.0	100.0	100.0	100.0	

Table F-25 Average Fleet Characteristics for
Passenger Cars, 1975 to 1993

<u>Year</u>	<u>Weight</u>	<u>Vol.</u>	<u>Displ</u>	<u>FE City</u>	<u>Hiway</u>	<u>55/45</u>
Using Each Year's Actual Mix						
1975	4058.		288.	13.7	19.5	15.8
1976	4059.		287.	15.2	21.3	17.5
1977	3944.	110.9	279.	16.0	22.3	18.3
1978	3588.	109.5	251.	17.2	24.5	19.9
1979	3485.	109.4	238.	17.7	24.6	20.3
1980	3101.	104.7	188.	20.3	29.0	23.5
1981	3076.	107.0	182.	21.7	31.1	25.1
1982	3054.	106.6	175.	22.3	32.7	26.0
1983	3112.	109.2	182.	22.1	32.7	25.9
1984	3099.	108.0	179.	22.4	33.3	26.3
1985	3093.	108.6	177.	23.0	34.3	27.0
1986	3041.	107.8	167.	23.7	35.5	27.9
1987	3031.	107.1	162.	23.9	35.9	28.1
1988	3047.	108.5	160.	24.2	36.6	28.6
1989	3099.	108.2	163.	23.8	36.3	28.1
1990	3179.	107.6	164.	23.4	35.9	27.7
1991	3153.	107.3	163.	23.6	36.3	28.0
1992	3223.	108.4	168.	23.2	36.2	27.7
1993	3234.	108.4	169.	23.5	36.6	28.0
Using Constant (1978) Size Class Mix						
1975	4169.	109.5	301.	13.3	19.0	15.3
1976	4109.	109.5	292.	15.0	21.1	17.3
1977	3922.	109.5	277.	16.1	22.4	18.4
1978	3588.	109.5	251.	17.2	24.5	19.9
1979	3508.	109.5	241.	17.6	24.5	20.1
1980	3277.	109.5	209.	19.4	27.9	22.5
1981	3177.	109.5	194.	21.1	30.6	24.6
1982	3166.	109.5	189.	21.7	32.0	25.3
1983	3182.	109.5	192.	21.6	32.0	25.3
1984	3231.	109.5	195.	21.3	31.9	25.0
1985	3153.	109.5	187.	22.5	33.9	26.5
1986	3128.	109.5	180.	22.9	35.0	27.1
1987	3147.	109.5	178.	22.9	35.1	27.2
1988	3158.	109.5	176.	23.4	35.9	27.7
1989	3201.	109.5	178.	22.9	35.4	27.2
1990	3295.	109.5	178.	22.4	35.1	26.8
1991	3295.	109.5	179.	22.6	35.5	27.0
1992	3330.	109.5	180.	22.5	35.6	27.0
1993	3325.	109.5	179.	22.8	36.0	27.3
Using Constant (1978) Weight Mix						
1975	3587.		237.	15.4	21.6	17.7
1976	3587.		235.	16.9	23.5	19.3
1977	3587.	104.0	238.	17.5	24.2	20.0
1978	3587.	109.0	251.	17.2	24.5	19.9
1979	3587.	110.0	250.	17.3	24.1	19.8
1980	3587.	112.9	246.	17.9	25.7	20.7
1981	3587.	114.7	241.	18.8	27.4	21.9
1982	3587.	116.7	235.	19.0	28.2	22.3
1983	3587.	117.2	233.	18.9	28.5	22.3
1984	3587.	117.1	232.	19.1	28.7	22.4
1985	3587.	118.6	231.	19.5	29.7	23.1
1986	3587.	118.4	230.	19.8	30.4	23.5
1987	3587.	118.2	228.	20.1	30.8	23.8
1988	3587.	116.3	225.	20.6	31.8	24.5
1989	3587.	115.9	220.	20.6	31.8	24.5
1990	3587.	112.2	217.	20.5	31.9	24.4
1991	3587.	112.9	216.	20.6	32.3	24.6
1992	3587.	114.8	210.	21.2	33.7	25.5
1993	3587.	115.0	209.	21.5	34.2	25.8

Table F-26 Average Fleet Characteristics for
Light Duty Trucks, 1975 to 1993

<u>Year</u>	<u>Weight</u>	<u>Displ</u>	<u>FE City</u>	<u>Hiway</u>	<u>55/45</u>
Using Each Year's Actual Mix					
1975	4072.	311.	12.1	16.2	13.7
1976	4155.	319.	12.8	16.9	14.4
1977	4135.	318.	14.0	18.1	15.6
1978	4151.	314.	13.8	17.5	15.2
1979	4252.	298.	13.4	16.8	14.7
1980	3869.	248.	16.5	21.9	18.6
1981	3806.	247.	17.8	23.9	20.1
1982	3806.	243.	18.1	24.4	20.5
1983	3763.	231.	18.3	25.2	20.9
1984	3782.	224.	17.9	24.8	20.5
1985	3795.	224.	18.0	24.9	20.6
1986	3738.	211.	18.8	25.9	21.4
1987	3713.	210.	18.8	26.5	21.6
1988	3841.	227.	18.3	26.2	21.2
1989	3921.	234.	18.1	25.8	20.9
1990	4005.	237.	17.8	25.8	20.7
1991	3949.	228.	18.3	26.6	21.3
1992	4122.	243.	17.5	25.7	20.4
1993	4125.	244.	17.7	26.3	20.8
Using Constant (1978) Size Class Mix					
1975	4089.	313.	12.1	16.2	13.6
1976	4131.	315.	12.9	17.1	14.5
1977	4142.	319.	14.0	18.1	15.6
1978	4151.	314.	13.8	17.5	15.2
1979	4334.	308.	13.2	16.5	14.4
1980	4130.	278.	15.5	20.6	17.5
1981	4023.	272.	16.7	22.5	18.9
1982	4088.	275.	16.8	22.6	19.0
1983	4160.	277.	16.5	22.6	18.8
1984	4075.	266.	16.5	22.5	18.7
1985	4136.	270.	16.3	22.2	18.5
1986	4148.	263.	16.8	22.9	19.1
1987	4134.	263.	16.7	23.1	19.0
1988	4237.	278.	16.5	23.4	19.0
1989	4263.	280.	16.3	23.2	18.8
1990	4263.	278.	16.4	23.8	19.1
1991	4242.	272.	16.6	24.1	19.3
1992	4411.	283.	16.2	23.8	18.9
1993	4301.	272.	16.8	24.9	19.7
Using Constant (1978) Weight Mix					
1975	4151.	315.	11.9	15.7	13.3
1976	4151.	317.	12.8	16.9	14.4
1977	4151.	319.	14.0	18.1	15.6
1978	4151.	314.	13.8	17.5	15.2
1979	4151.	295.	13.8	17.4	15.2
1980	4151.	280.	15.5	20.6	17.4
1981	4151.	279.	16.3	21.9	18.4
1982	4151.	280.	16.7	22.4	18.8
1983	4151.	273.	16.7	22.8	19.0
1984	4151.	270.	16.3	22.5	18.6
1985	4151.	268.	16.4	22.6	18.7
1986	4151.	259.	17.0	23.4	19.4
1987	4151.	255.	16.9	23.7	19.4
1988	4151.	258.	17.2	24.4	19.8
1989	4151.	256.	17.2	24.6	19.9
1990	4151.	250.	17.3	25.0	20.1
1991	4151.	242.	17.5	25.4	20.4
1992	4151.	242.	17.5	25.6	20.4
1993	4151.	244.	17.7	26.1	20.7

Car and Truck Sales by Size Class

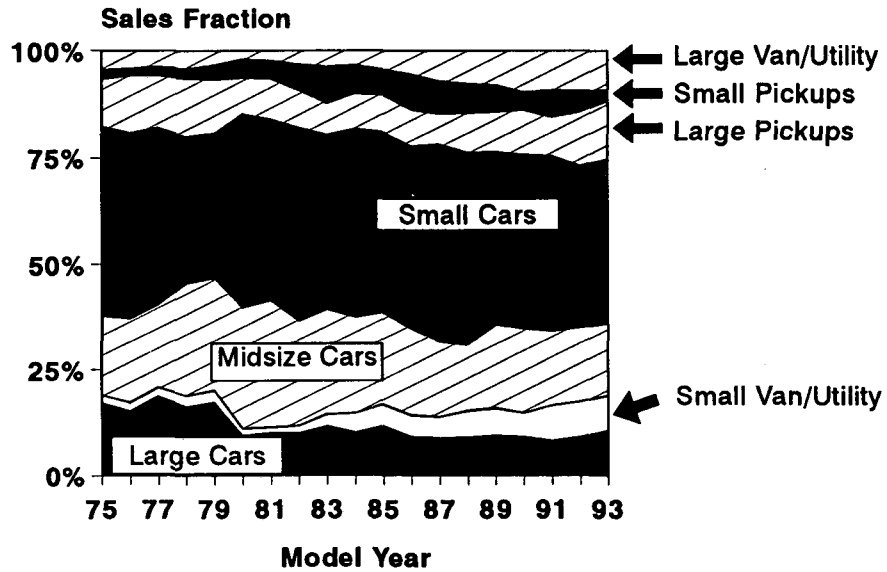


Figure G1

Sales Fraction by Car Class

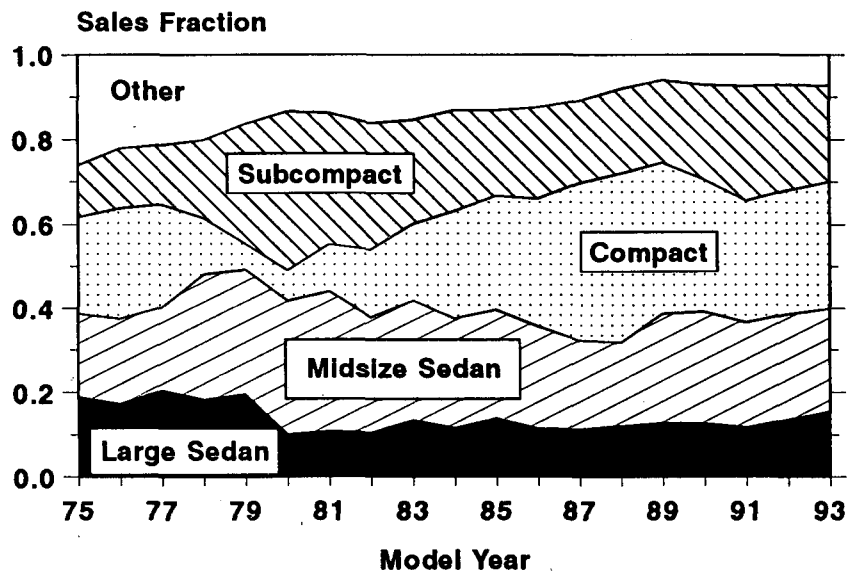


Figure G2

MPG for Four Car Classes

▲ Subcompact ◆ Compact ■ Midsize Sedans ▼ Large Sedans — All Cars

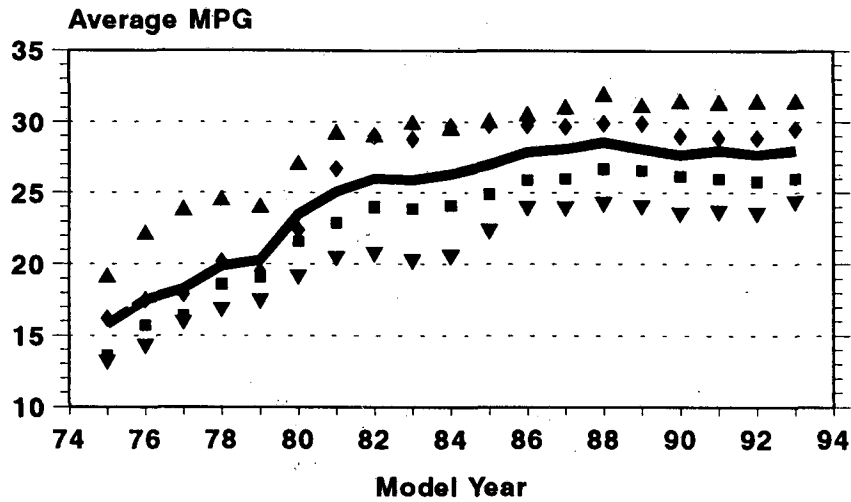


Figure G3

Inertia Weight for Four Car Classes

▼ Large Sedans ■ Midsize ◆ Compact ▲ Subcompact — All Cars

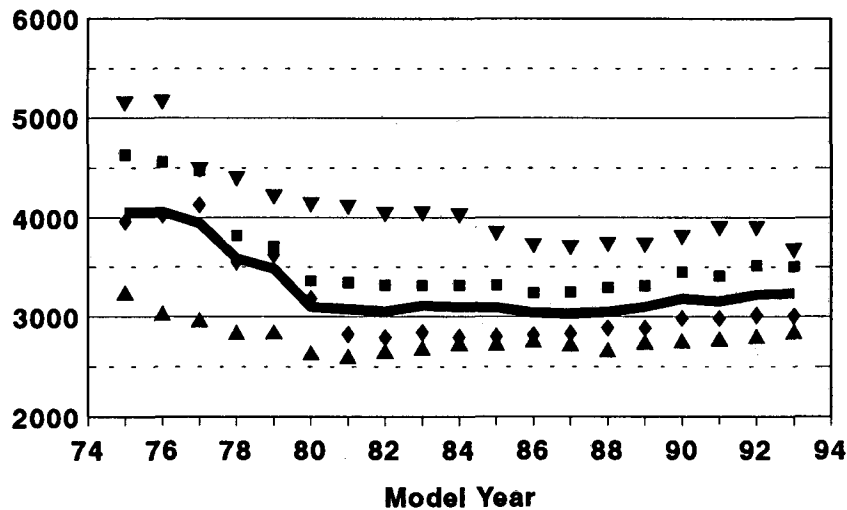


Figure G4

Top Speed for Four Car Classes

▲ Subcompact ♦ Compact ■ Midsize Sedans ▼ Large Sedans — All Cars

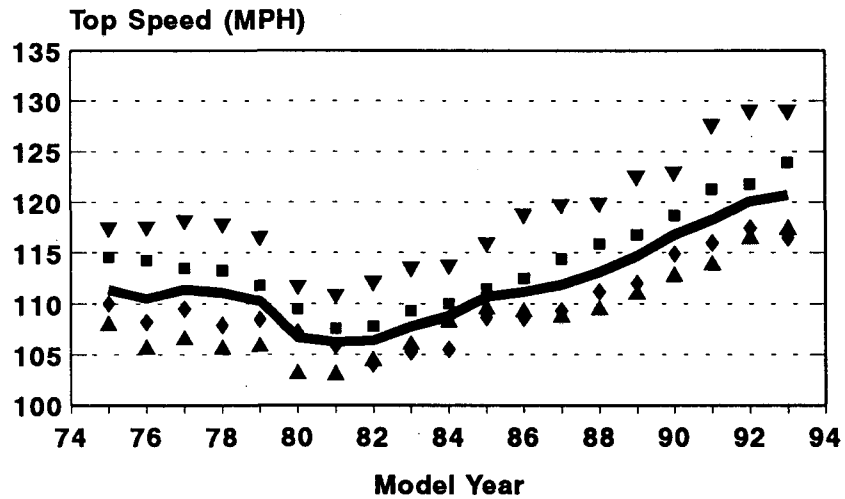


Figure G5

0 to 60 Time for Four Car Classes

▼ Large Sedan ■ Midsize Sedan ♦ Compact ▲ Subcompact — All Cars

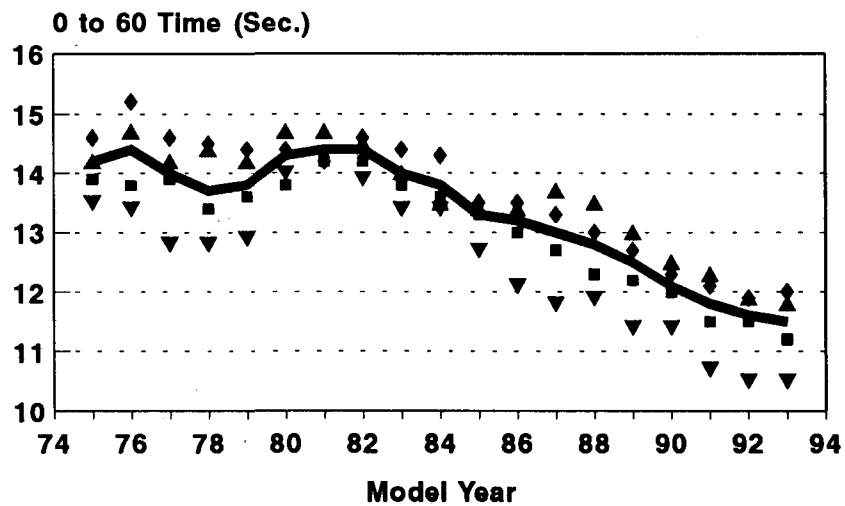


Figure G6

TABLE G-1 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

TWO-SEATER

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	-----	-----	-----	-----	-----
1975	244	.030	16.7	25.0	19.7	3015		173	125	12.6	116.8	.764	.0406	29.5		
1976	203	.021	16.5	24.6	19.4	3032		187	136	12.1	120.0	.752	.0429	29.4		
1977	221	.020	17.2	25.0	20.0	3062	50.0	183	134	12.4	119.1	.755	.0421	30.7	1032	1534
1978	191	.017	16.6	24.4	19.4	3079	50.0	187	143	11.8	122.2	.795	.0446	29.9	1002	1495
1979	256	.024	17.0	25.6	20.1	3026	50.0	180	128	12.2	117.6	.735	.0411	30.6	1039	1528
1980	200	.021	17.3	26.7	20.6	2954	50.0	180	121	12.3	115.8	.702	.0400	30.8	1058	1539
1981	162	.019	18.9	27.0	21.9	3005	50.0	202	142	10.6	124.2	.758	.0469	33.2	1125	1660
1982	263	.034	21.9	32.7	25.7	2726	50.0	146	106	13.0	112.0	.734	.0377	35.7	1337	1784
1983	137	.017	20.4	29.9	23.9	2756	50.0	146	115	11.8	116.0	.778	.0411	33.2	1216	1660
1984	348	.033	22.5	34.6	26.7	2886	50.0	174	121	12.1	116.6	.717	.0410	39.7	1423	1983
1985	335	.031	22.8	34.5	26.9	2826	50.0	158	123	11.7	118.1	.806	.0425	39.1	1443	1955
1986	303	.028	23.8	36.3	28.1	2915	50.0	166	130	11.7	119.4	.818	.0430	41.9	1504	2097
1987	282	.026	23.1	35.7	27.5	2920	50.0	167	134	11.5	120.9	.830	.0442	41.5	1487	2074
1988	203	.019	23.0	35.7	27.4	2940	50.0	170	138	11.2	122.5	.845	.0455	41.8	1505	2091
1989	113	.011	22.6	35.0	26.9	3030	50.0	198	160	10.2	129.6	.891	.0509	42.4	1508	2121
1990	177	.020	23.4	35.4	27.7	2979	50.0	164	160	10.3	129.7	1.019	.0511	42.1	1484	2103
1991	177	.021	24.7	36.7	29.0	2890	50.0	149	151	10.8	127.0	1.041	.0492	42.9	1573	2146
1992	94	.012	22.0	34.0	26.1	3089	50.0	185	187	10.0	137.9	1.040	.0569	40.9	1417	2045
1993	170	.019	25.4	37.8	29.8	2904	50.0	153	168	10.0	133.9	1.155	.0548	44.5	1608	2227

PERCENT OF TWO-SEATERS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1975			74.6		42.4		42.4	57.6		16.4	50.1	33.6
1976			70.5		37.1		37.1	62.9		22.9	49.3	27.8
1977			70.5		40.2		40.2	59.8		22.3	50.0	27.7
1978			71.8		46.9		46.9	53.1		22.7	44.0	33.3
1979			72.8		31.5		31.5	68.5		18.6	36.8	44.6
1980			74.0	13.6	34.4		34.4	65.6		17.6	36.9	45.5
1981			61.3	20.1	55.4		55.4	44.6		23.4	23.4	53.2
1982	47.8		69.2	9.5	32.8	9.5	23.3	67.2		57.3	6.7	36.0
1983	17.1		81.0	4.5	40.3		40.3	59.7		17.1	9.6	73.3
1984	17.9		60.4	33.7	73.6	53.1	20.5	26.4		57.0	3.8	39.3
1985	25.0		67.4	26.3	64.9	11.6	53.3	35.1		37.1	4.8	58.1
1986	29.8		62.4	30.7	81.7	11.7	70.0	18.3		46.7	6.9	46.4
1987	32.7		64.0	28.5	85.9	14.6	71.3	14.1		36.1	7.2	56.7
1988	41.9		62.1	27.4	100.0	26.1	73.9			36.3	8.1	55.6
1989	32.6	16.5	51.5	36.6	100.0	14.2	85.8			30.7	14.4	54.8
1990	31.3		66.9	27.2	100.0	11.5	88.5			19.0	7.2	73.8
1991	35.2		68.4	21.3	100.0	18.7	81.3			13.0	8.4	78.6
1992	17.3	.7	59.1	24.2	100.0	14.3	85.7			22.5	15.5	62.0
1993	49.9	.5	69.9	22.3	100.0	10.0	90.0			15.6	8.1	76.3

TABLE G-2 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

MINICOMPACT SEDAN

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
1975	941	.114	19.6	29.3	23.0	2721		128	82	15.2	102.4	.669	.0298	32.1		
1976	913	.094	22.4	32.3	26.0	2688		124	80	15.1	102.1	.673	.0297	35.3		
1977	915	.081	24.2	34.4	27.9	2544	78.8	116	83	14.0	104.9	.756	.0326	36.1	2297	2839
1978	901	.081	24.1	32.8	27.4	2583	79.1	120	83	14.1	104.6	.730	.0322	35.9	2256	2846
1979	436	.040	24.1	33.7	27.6	2450	79.7	113	77	14.4	103.1	.689	.0312	34.0	2239	2718
1980	383	.041	24.5	34.3	28.1	2458	82.8	116	78	14.4	103.2	.675	.0314	34.7	2385	2875
1981	227	.026	30.6	40.1	34.3	2164	82.6	92	67	14.5	101.2	.723	.0307	37.6	2909	3105
1982	178	.023	31.7	41.5	35.5	2193	82.7	95	70	14.6	101.9	.727	.0311	39.6	3065	3287
1983	156	.020	31.5	42.7	35.7	2273	82.0	99	77	14.2	104.1	.754	.0327	41.5	3094	3412
1984	42	.004	21.6	32.9	25.6	2855	75.9	151	141	10.5	125.3	.927	.0484	37.0	2017	2812
1985	73	.007	31.1	44.8	36.0	2300	79.2	114	95	13.4	110.7	.818	.0380	44.2	3406	3518
1986	176	.016	26.1	39.1	30.7	2407	80.5	113	104	12.8	113.9	.881	.0403	39.4	2903	3176
1987	71	.007	26.2	38.7	30.7	2636	77.2	128	130	11.3	122.6	.985	.0469	42.4	2721	3300
1988	43	.004	26.8	38.7	31.1	2619	77.9	128	129	11.7	122.0	.954	.0462	43.4	2877	3411
1989	28	.003	23.0	33.7	26.9	2866	77.2	146	148	10.7	127.9	.985	.0504	39.2	2157	3051
1990	76	.009	22.4	33.5	26.3	3019	80.7	148	145	10.5	125.0	.969	.0475	39.8	2146	3216
1991	95	.011	24.5	35.9	28.6	2912	75.5	127	137	10.8	123.2	1.076	.0464	41.9	2184	3164
1992	102	.013	26.6	38.5	30.8	2737	80.1	112	120	11.2	118.8	1.079	.0437	42.3	2512	3390
1993	106	.012	26.5	38.3	30.8	2753	80.0	112	121	11.2	118.7	1.080	.0435	42.5	2506	3402

PERCENT OF MINICOMPACT SEDAN:

MODEL	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
YEAR	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
----	-----		-----		----	----	----	----	----	----	----	----
1975	19.6		67.7		11.5		11.5	88.5		55.6	13.6	30.8
1976	22.1		63.5		4.5		4.5	95.5		53.6	7.1	39.3
1977	25.4		70.6		1.9		1.9	98.1		19.2	5.7	75.1
1978	22.3		63.0		1.5		1.5	98.5		36.5	4.6	58.9
1979	44.8		73.4		3.4		3.4	96.6		39.4	6.6	54.0
1980	47.2		60.0		1.6		1.6	98.4		47.0	9.5	43.5
1981	83.2		81.2		1.0		1.0	99.0			5.9	94.1
1982	80.4		80.8		6.4		6.4	93.6		.1	19.9	80.0
1983	81.8		80.9	.2	20.6		20.6	79.4		.2	21.4	78.4
1984	30.6		84.3	.2	92.6		92.6	7.4		.2	96.9	2.9
1985	67.7		86.1	.1	46.9		46.9	53.1		.1	49.5	50.4
1986	54.6		82.7	5.1	52.2		52.2	47.8			43.8	56.2
1987	54.9		81.9	3.9	85.9		85.9	14.1			69.4	30.6
1988	62.4		76.6	8.3	77.0		77.0	23.0			62.7	37.3
1989	62.4	3.5	65.3	16.1	100.0		100.0				74.6	25.4
1990	11.4		61.6	32.1	100.0		100.0				20.6	79.4
1991	50.9		59.8	36.3	100.0		100.0				10.7	89.3
1992	69.3	.3	52.8	44.0	100.0		100.0				8.6	91.4
1993	69.7	.5	55.7	40.7	100.0		100.0				8.4	91.6

TABLE G-3 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

SUBCOMPACT SEDAN

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	---	---	-----	-----	-----
1975	1011	.123	16.6	23.8	19.2	3242		206	107	14.2	108.1	.585	.0329	31.4		
1976	1368	.141	19.3	27.0	22.2	3033		181	97	14.7	105.8	.607	.0316	33.8		
1977	1577	.140	20.9	28.9	23.9	2966	90.7	174	98	14.2	106.7	.633	.0325	36.1	2329	3268
1978	2056	.184	21.5	30.0	24.6	2842	89.7	159	93	14.4	105.8	.649	.0321	35.7	2387	3201
1979	3044	.282	21.1	29.3	24.1	2847	90.4	155	94	14.2	106.0	.659	.0323	34.8	2297	3140
1980	3552	.376	23.7	32.9	27.1	2640	89.9	128	82	14.7	103.3	.669	.0308	36.2	2523	3251
1981	2712	.311	25.8	35.0	29.3	2604	90.3	124	81	14.7	103.2	.676	.0308	38.7	2744	3491
1982	2329	.298	25.3	35.5	29.1	2657	91.8	133	86	14.5	104.6	.666	.0317	39.4	2792	3613
1983	1968	.246	25.9	37.2	30.0	2687	93.3	136	90	14.0	106.2	.693	.0330	41.0	2941	3829
1984	2545	.238	25.4	36.9	29.6	2737	93.3	140	97	13.5	108.4	.722	.0348	41.1	2883	3830
1985	2181	.202	25.9	37.4	30.1	2734	93.9	136	100	13.4	109.7	.760	.0358	41.5	2941	3901
1986	2376	.216	26.4	37.9	30.6	2764	94.7	136	100	13.4	109.4	.765	.0354	42.7	3018	4048
1987	2088	.195	26.8	38.4	31.1	2728	92.7	128	99	13.7	108.9	.795	.0350	42.8	2995	3965
1988	2143	.200	27.8	39.2	32.0	2668	93.2	122	99	13.5	109.6	.823	.0358	43.1	3116	4019
1989	1950	.195	26.9	38.6	31.2	2748	93.1	129	104	13.0	111.1	.852	.0369	43.3	3044	4034
1990	1974	.223	27.4	38.5	31.5	2762	94.5	117	108	12.5	112.9	.962	.0385	43.8	3067	4142
1991	2303	.270	27.0	39.3	31.4	2779	94.8	124	111	12.3	114.0	.938	.0392	44.1	3086	4180
1992	1942	.249	27.0	39.6	31.5	2805	93.3	124	119	11.9	116.6	.984	.0413	44.8	3068	4177
1993	2069	.227	26.8	39.9	31.5	2851	94.1	128	122	11.8	117.5	.972	.0419	45.4	3087	4270

PERCENT OF SUBCOMPACT SEDAN:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1975	17.6		40.9		8.9		8.9	91.1		55.9	22.8	21.3
1976	13.1		42.8		3.1		3.1	96.9		55.9	17.0	27.1
1977	19.4		46.5		12.5		12.5	86.3	1.2	53.6	19.7	26.8
1978	22.3		54.4		11.7		11.7	86.6	1.8	45.5	20.0	34.6
1979	25.9		51.5		7.3		7.3	91.3	1.5	58.2	10.3	31.5
1980	35.3	.4	58.2	3.5	10.9		10.9	85.6	3.4	45.9	13.6	40.4
1981	36.0	.3	58.9	8.5	12.1		12.1	82.4	5.5	36.8	10.9	52.3
1982	39.8	.2	55.1	23.6	18.1	3.2	14.8	77.8	4.1	33.6	9.9	56.5
1983	53.4	.2	55.8	32.0	24.2	2.7	21.5	74.6	1.2	32.3	8.2	59.5
1984	49.8	.5	51.5	35.1	31.9	3.0	28.9	66.3	1.7	39.5	10.9	49.6
1985	58.7	.3	49.4	34.1	33.9	5.1	28.8	65.9	.2	35.7	6.8	57.6
1986	64.5	1.1	50.3	34.0	41.4	4.9	36.5	58.5	.1	32.9	5.8	61.4
1987	69.1	.5	51.3	39.4	47.0	6.8	40.3	52.9	.1	25.1	10.1	64.8
1988	77.7	1.2	53.6	40.0	50.9	15.2	35.7	49.1		20.7	8.4	70.9
1989	72.3	1.1	46.5	45.3	65.1	20.6	44.5	34.9		24.9	5.5	69.6
1990	87.9	.4	44.9	51.1	95.5	24.0	71.5	4.5		14.7	4.1	81.2
1991	84.3	1.4	39.1	56.2	99.8	40.3	59.6	.2		30.6	3.1	66.4
1992	83.9	1.5	39.6	54.0	100.0	8.2	91.7			27.2	4.0	68.7
1993	82.5	1.0	42.2	50.2	100.0	8.2	91.8			30.3	4.2	65.5

TABLE G-4 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

COMPACT SEDAN

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	-----	-----	-----	-----	-----
1975	1893	.230	14.3	19.3	16.2	3958		287	129	14.6	110.0	.454	.0322	32.5		
1976	2557	.263	15.5	21.0	17.5	4025		289	125	15.2	108.2	.434	.0307	35.5		
1977	2767	.245	15.8	21.4	17.9	4128	107.3	291	131	14.6	109.5	.452	.0315	37.1	1946	3986
1978	1482	.133	17.5	24.7	20.2	3552	105.1	236	113	14.5	107.9	.506	.0318	36.0	2163	3782
1979	668	.062	17.1	23.5	19.5	3624	105.3	246	117	14.4	108.5	.495	.0321	35.7	2095	3761
1980	690	.073	19.4	27.6	22.4	3184	106.2	186	102	14.4	107.2	.577	.0324	36.1	2438	3830
1981	976	.112	23.0	33.5	26.7	2825	104.3	142	91	14.2	105.9	.671	.0325	37.9	2852	3959
1982	1268	.162	24.7	37.0	29.0	2794	102.9	128	86	14.6	104.1	.695	.0310	40.7	3035	4193
1983	1456	.182	24.7	36.2	28.8	2844	103.2	141	91	14.4	105.3	.677	.0318	41.2	3051	4259
1984	2731	.256	25.6	36.9	29.7	2798	103.1	136	90	14.3	105.5	.687	.0321	41.9	3134	4319
1985	2929	.271	25.7	37.2	29.8	2804	103.1	138	98	13.5	108.7	.727	.0347	42.2	3155	4356
1986	3348	.304	25.7	37.2	29.8	2819	103.2	137	98	13.5	108.6	.735	.0346	42.4	3143	4372
1987	4012	.374	25.5	37.3	29.7	2836	102.8	135	100	13.3	109.3	.759	.0351	42.4	3110	4359
1988	4317	.402	25.6	37.6	29.9	2889	103.6	136	106	13.0	111.2	.794	.0365	43.4	3147	4500
1989	3585	.358	25.6	37.5	29.9	2886	102.8	130	108	12.7	112.0	.837	.0372	43.3	3110	4452
1990	2771	.314	24.7	36.7	29.0	2984	103.3	138	118	12.3	114.9	.857	.0393	43.4	3027	4484
1991	2472	.290	24.6	36.6	28.9	2984	104.5	137	121	12.1	116.0	.885	.0402	43.4	3072	4542
1992	2303	.295	24.5	37.0	28.9	3015	104.2	140	125	11.9	117.4	.898	.0412	43.8	3055	4565
1993	2745	.302	25.1	37.7	29.5	3007	104.1	139	122	12.0	116.5	.888	.0405	44.5	3112	4635

PERCENT OF COMPACT SEDAN:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1975	2.4		8.1		4.4		4.4	94.6	1.0	94.4	5.6	
1976	2.5		6.3		3.6		3.6	95.4	.9	96.5	3.5	
1977	2.3		4.4		3.8		3.8	95.1	1.1	96.6	3.4	
1978	17.8		10.0	16.3	9.1		9.1	88.8	2.2	92.3	7.7	
1979	13.6		9.0		14.8		14.8	77.2	8.0	81.5	18.5	
1980	56.8	5.8	14.5	6.7	10.8		10.8	80.9	8.4	79.1	20.9	
1981	81.4	2.1	32.9	5.8	8.0		8.0	86.0	6.0	86.0	14.0	
1982	84.8	1.9	34.8	39.7	21.5	13.1	8.3	73.2	5.3	81.4	13.7	4.9
1983	74.7	2.2	32.3	42.4	50.6	37.4	13.2	45.1	4.4	77.3	12.7	10.0
1984	82.0	.8	28.4	41.0	54.0	32.4	21.6	43.1	2.8	81.4	6.7	11.9
1985	85.3	.2	28.3	42.8	70.8	46.9	24.0	26.7	2.4	71.7	11.0	17.3
1986	86.6	.2	28.5	50.0	76.4	43.4	33.0	22.9	.7	65.3	9.6	25.2
1987	90.5	.4	29.5	49.3	74.6	42.2	32.4	25.1	.3	52.6	7.4	40.0
1988	91.2	.2	25.6	59.0	91.4	42.7	48.7	8.6		59.2	5.1	35.7
1989	95.8	.5	26.1	56.2	94.9	40.0	54.9	5.0	.1	53.7	6.0	40.3
1990	95.5	.8	19.3	63.6	99.9	33.2	66.7		.1	53.2	5.9	40.9
1991	95.1	1.5	21.5	65.5	99.6	17.2	82.4		.4	46.4	6.2	47.4
1992	96.9	.4	23.7	62.7	99.8	9.8	90.0		.2	56.0	5.0	39.0
1993	95.4	.3	20.8	67.8	99.9	8.4	91.5		.1	52.7	5.1	42.2

TABLE G-5 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

MIDSIZE SEDAN

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	----	----	CID	HP	----	----	----	----	----	----	-----
1975	1631	.198	11.7	16.9	13.6	4630		353	158	13.9	114.6	.447	.0341	31.9		
1976	1964	.202	13.6	19.4	15.7	4558		343	156	13.8	114.3	.454	.0340	36.1		
1977	2226	.197	14.3	20.2	16.4	4473	112.9	332	151	13.9	113.5	.454	.0337	37.1	1880	4186
1978	3339	.299	16.0	23.0	18.6	3820	113.0	292	135	13.4	113.3	.464	.0353	35.5	2139	4015
1979	3211	.297	16.7	23.2	19.1	3710	113.1	272	128	13.6	111.8	.474	.0345	35.6	2197	4023
1980	2987	.316	18.6	26.9	21.6	3362	113.2	228	113	13.8	109.5	.512	.0336	36.5	2478	4132
1981	2902	.332	19.8	28.6	22.9	3346	113.9	220	107	14.2	107.6	.509	.0322	38.5	2645	4393
1982	2136	.273	20.5	30.5	24.0	3321	113.9	211	107	14.2	107.8	.529	.0324	40.2	2785	4576
1983	2269	.284	20.4	30.3	23.9	3316	113.8	212	111	13.8	109.3	.544	.0336	39.9	2770	4542
1984	2770	.260	20.5	30.6	24.1	3318	113.7	210	113	13.6	110.0	.563	.0342	40.2	2780	4565
1985	2777	.257	21.2	31.9	24.9	3318	113.6	205	117	13.3	111.5	.606	.0354	41.5	2873	4714
1986	2666	.242	21.9	33.4	25.9	3241	113.8	194	118	13.0	112.5	.640	.0364	42.1	2978	4786
1987	2252	.210	22.0	33.6	26.0	3247	113.7	188	123	12.7	114.4	.684	.0379	42.3	2993	4817
1988	2113	.197	22.3	35.1	26.7	3293	113.4	183	129	12.3	115.9	.718	.0389	44.0	3057	4995
1989	2591	.259	22.2	35.3	26.6	3314	113.6	181	131	12.2	116.8	.735	.0396	44.2	3049	5027
1990	2339	.265	21.7	35.1	26.2	3449	113.7	187	140	12.0	118.7	.757	.0406	45.3	3001	5153
1991	2114	.248	21.6	34.8	26.0	3412	113.5	191	146	11.5	121.3	.773	.0428	44.5	2973	5050
1992	1949	.250	21.4	34.5	25.8	3515	113.9	191	151	11.5	121.8	.803	.0428	45.4	2955	5177
1993	2213	.243	21.5	34.7	26.0	3504	113.8	191	157	11.2	123.9	.830	.0445	45.6	2974	5188

PERCENT OF MIDSIZE SEDAN:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1975	2.7		.6		.7		.7	99.3		99.3	.7	
1976	2.5		.4		.6		.6	99.4		99.8	.2	
1977	2.1		.3		.7		.7	99.3		99.7	.3	
1978	1.4		1.7	11.1	1.4		1.4	98.6		99.8	.2	
1979	5.2		1.9	21.4	2.3		2.3	96.3	1.4	99.5	.5	
1980	30.2		7.8	25.3	2.5	1.5	1.0	94.9	2.5	99.5	.5	
1981	32.3		5.6	52.2	2.4	2.3	.1	93.7	4.0	99.9	.1	
1982	44.7		2.0	82.6	15.6	15.4	.2	80.7	3.8	99.8	.2	
1983	48.9		1.2	80.0	17.7	17.2	.5	80.6	1.7	99.3	.7	
1984	55.1		.9	82.0	29.4	25.6	3.8	69.7	1.0	97.3	2.7	
1985	61.9		1.3	77.6	50.1	37.1	13.0	49.6	.3	96.5	3.5	
1986	71.0	.1	1.8	76.4	67.7	42.3	25.4	32.1	.2	95.6	4.4	
1987	77.3	.2	1.5	77.6	84.1	43.4	40.7	15.5	.4	95.3	4.7	
1988	87.0	.1	3.8	91.1	94.9	28.0	66.9	5.1		87.8	5.6	6.5
1989	86.5	.1	4.7	91.7	99.3	21.0	78.3	.7		85.6	3.8	10.7
1990	85.2	.2	3.9	93.9	100.0	13.4	86.6			82.5	4.1	13.4
1991	87.2	.1	3.6	94.5	99.9	11.2	88.7		.1	82.3	3.5	14.1
1992	80.0		4.6	94.3	100.0	8.1	91.9			71.6	3.0	25.4
1993	81.8		3.2	95.6	100.0	3.5	96.5			71.9	3.4	24.7

TABLE G-6 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

LARGE SEDAN

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	1555	.189	11.3	16.2	13.1	5142		409	180	13.5	117.3	.439	.0348	33.9		
1976	1679	.173	12.3	17.2	14.2	5156		410	180	13.4	117.4	.440	.0349	36.6		
1977	2319	.205	13.8	19.5	15.9	4482	128.1	366	165	12.8	118.0	.453	.0370	35.7	2065	4573
1978	2048	.183	14.5	20.9	16.8	4394	128.5	357	162	12.8	117.7	.457	.0370	37.2	2193	4775
1979	2111	.196	15.2	21.1	17.4	4210	130.0	339	154	12.9	116.4	.454	.0365	36.8	2279	4783
1980	963	.102	16.3	24.1	19.1	4130	130.9	314	137	14.0	111.6	.440	.0331	39.8	2526	5213
1981	956	.109	17.1	26.7	20.4	4108	131.0	304	133	14.3	110.7	.444	.0325	42.6	2712	5571
1982	832	.106	17.4	26.9	20.7	4034	131.0	292	135	13.9	112.0	.468	.0337	42.1	2730	5517
1983	1079	.135	16.9	26.4	20.2	4041	131.3	292	140	13.4	113.4	.481	.0347	40.9	2657	5370
1984	1236	.116	17.2	26.9	20.5	4022	130.9	294	140	13.4	113.6	.478	.0349	41.3	2688	5407
1985	1512	.140	18.5	29.8	22.3	3841	129.3	279	143	12.7	115.8	.512	.0371	42.9	2887	5543
1986	1267	.115	19.6	32.7	23.9	3719	127.4	260	147	12.1	118.6	.577	.0396	44.5	3055	5672
1987	1218	.113	19.5	32.8	23.9	3696	127.0	259	149	11.8	119.6	.587	.0405	44.1	3036	5599
1988	1303	.121	19.8	33.2	24.2	3730	128.1	262	150	11.9	119.7	.587	.0405	45.2	3111	5793
1989	1289	.129	19.6	33.0	24.0	3721	127.4	261	158	11.4	122.4	.619	.0427	44.7	3064	5696
1990	1122	.127	19.2	32.5	23.5	3804	126.7	260	161	11.4	122.8	.635	.0427	44.7	2988	5671
1991	1012	.118	19.3	32.6	23.6	3893	129.0	264	178	10.7	127.5	.685	.0459	46.0	3053	5941
1992	1070	.137	19.2	32.5	23.5	3893	129.5	264	182	10.5	128.9	.702	.0470	45.8	3051	5930
1993	1423	.156	19.8	33.3	24.3	3868	128.8	259	182	10.5	128.8	.714	.0470	47.0	3138	6053

PERCENT OF LARGE SEDAN:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
1975	1.5							100.0		100.0		
1976	1.5				1.2		1.2	98.8		100.0		
1977	1.5				.5		.5	99.5		100.0		
1978	1.1			2.5	.2		.2	98.5	1.4	100.0		
1979				6.5	.2		.2	96.4	3.5	100.0		
1980				41.6	2.0	2.0		87.5	10.4	100.0		
1981				89.8	17.1	17.1		67.7	15.2	100.0		
1982				93.1	20.1	20.1		69.9	10.0	100.0		
1983				99.9	37.3	37.3		60.3	2.4	100.0		
1984				99.9	39.0	39.0		60.3	.8	100.0		
1985	31.9			100.0	64.0	44.9	19.1	35.7	.3	100.0		
1986	55.9		.7	99.2	81.2	15.8	65.4	18.8		99.2	.8	
1987	60.9		.5	99.5	85.1	15.2	69.9	14.9		98.9	1.1	
1988	58.7		.4	99.6	89.5	12.6	76.9	10.5		95.9	4.1	
1989	61.9		.3	99.7	97.0	22.2	74.8	3.0		96.0	4.0	
1990	67.2		.2	99.8	99.0	8.5	90.4	1.0		97.6	2.4	
1991	59.8		.4	99.6	100.0	16.7	83.3			96.8	3.2	
1992	58.4		.4	97.9	99.9	11.9	88.0		.1	96.7	3.3	
1993	60.1		.2	98.4	99.9	10.5	89.4		.1	98.0	2.0	

TABLE G-7 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

SMALL WAGON

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	477	.058	19.3	27.7	22.4	2833		128	87	14.8	104.0	.713	.0307	32.1		
1976	345	.036	20.7	29.4	23.9	2902		136	86	15.2	103.0	.668	.0297	35.0		
1977	384	.034	22.4	30.6	25.5	2801	108.0	134	85	14.9	103.5	.685	.0305	36.2	2824	3897
1978	361	.032	21.4	29.3	24.3	2805	108.0	134	90	14.3	105.3	.709	.0319	34.6	2692	3732
1979	310	.029	22.5	31.2	25.7	2711	105.1	123	81	15.1	102.1	.684	.0295	35.0	2742	3682
1980	310	.033	25.1	34.6	28.6	2591	108.2	113	75	15.4	100.9	.685	.0289	37.6	3175	4068
1981	418	.048	26.2	36.6	30.0	2531	110.6	108	79	14.4	103.4	.755	.0313	38.2	3356	4228
1982	382	.049	26.5	37.6	30.6	2580	112.2	109	75	15.3	100.8	.698	.0289	39.6	3463	4447
1983	531	.066	28.2	39.1	32.2	2565	108.2	105	74	15.3	100.8	.713	.0289	41.5	3507	4483
1984	461	.043	27.6	39.4	31.9	2620	116.5	107	77	15.2	101.6	.719	.0294	42.1	3762	4905
1985	496	.046	28.3	39.7	32.5	2579	117.7	106	78	15.2	102.1	.727	.0300	42.2	3870	4963
1986	348	.032	27.1	37.6	31.0	2647	118.4	113	82	14.7	103.3	.730	.0308	41.3	3729	4895
1987	361	.034	26.8	37.4	30.7	2795	120.0	116	91	14.2	105.8	.788	.0324	43.2	3733	5184
1988	253	.024	27.5	37.6	31.3	2757	118.7	113	93	13.7	107.0	.829	.0336	43.3	3748	5140
1989	159	.016	27.5	38.3	31.5	2766	118.6	112	96	13.5	108.1	.862	.0344	43.7	3769	5185
1990	160	.018	25.5	36.2	29.4	3026	122.2	120	110	12.9	111.3	.920	.0361	44.6	3631	5455
1991	209	.024	26.2	38.0	30.5	3005	123.3	120	106	13.3	109.8	.880	.0350	46.0	3807	5666
1992	155	.020	25.6	37.3	29.8	3104	124.0	121	113	13.0	111.5	.927	.0360	46.3	3737	5749
1993	219	.024	26.3	38.7	30.7	2988	122.4	123	107	13.1	110.7	.871	.0358	46.0	3798	5631

PERCENT OF SMALL WAGON:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
1975	13.3		48.6		.8		.8	99.2		34.8	10.9	54.3
1976	12.2		42.8		3.2		3.2	96.8		49.7	5.2	45.1
1977	23.3		52.9		6.4		6.4	93.0	.6	37.4	7.2	55.4
1978	23.0		56.3		6.9		6.9	93.1		33.7	9.6	56.7
1979	13.3	12.1	59.3		1.0		1.0	99.0		32.5	1.4	66.1
1980	24.4	9.8	67.3	4.6	1.1		1.1	92.5	6.3	19.2	6.7	74.1
1981	57.9	8.0	62.0	8.1	4.0		4.0	93.9	2.2	41.6	3.5	54.8
1982	68.3	8.9	54.0	19.4	5.6	.7	4.8	93.3	1.2	44.9	1.8	53.3
1983	55.4	39.3	64.7	23.7	20.7	17.0	3.7	79.0	.3	35.0	1.1	64.0
1984	81.4	15.6	43.7	39.2	37.3	32.2	5.1	61.1	1.6	53.4	1.4	45.2
1985	60.0	39.6	59.1	42.2	21.7	15.4	6.2	77.8	.5	35.2	1.4	63.4
1986	78.4	20.7	43.3	29.0	31.0	24.3	6.8	68.2	.8	49.1	1.2	49.6
1987	76.6	23.4	34.4	41.0	71.8	42.6	29.2	28.2		35.1	1.8	63.1
1988	80.2	19.8	37.8	34.6	93.4	62.8	30.6	6.6		34.5	6.5	58.9
1989	89.9	10.1	26.6	51.8	89.7	48.8	41.0	10.3		36.3	2.0	61.8
1990	68.3	31.7	30.6	58.8	100.0	40.6	59.4			21.0	1.2	77.8
1991	79.1	20.9	24.4	74.1	100.0	20.0	80.0			43.7		56.3
1992	90.4	9.6	28.8	69.0	100.0	10.1	89.9			33.3		66.7
1993	88.7	10.2	27.7	70.1	100.0	15.6	84.4			48.3	1.5	50.2

TABLE G-8 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

MIDSIZE WAGON

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	CITY	HWY	55/45	-----	-----	CID	HP	-----	-----	---	----	-----	-----	-----
1975	289	.035	11.4	16.5	13.2	4791		361	162	13.8	114.7	.473	.0338	32.1		
1976	485	.050	14.0	19.4	16.0	4555		315	142	14.8	110.3	.458	.0311	36.7		
1977	548	.048	14.4	19.6	16.3	4410	143.6	297	135	15.1	109.0	.459	.0305	36.1	2368	5190
1978	503	.045	16.3	22.6	18.6	3836	140.0	258	123	14.4	109.2	.484	.0320	35.8	2630	5010
1979	482	.045	16.9	22.9	19.1	3758	139.7	249	118	14.7	108.1	.480	.0313	36.1	2698	5046
1980	257	.027	18.4	25.8	21.1	3534	139.7	228	107	15.0	106.0	.482	.0304	37.5	2985	5231
1981	272	.031	20.2	28.0	23.1	3285	136.2	193	103	14.5	106.6	.562	.0316	38.1	3187	5187
1982	284	.036	20.6	28.9	23.7	3384	136.1	205	108	14.3	107.6	.551	.0320	40.3	3265	5481
1983	276	.034	21.2	29.9	24.4	3348	136.2	200	109	14.1	108.0	.568	.0325	41.0	3368	5586
1984	365	.034	21.6	31.0	25.0	3298	135.9	172	107	14.1	107.7	.633	.0324	41.4	3428	5622
1985	341	.032	21.6	31.6	25.2	3356	130.2	170	112	13.9	109.2	.679	.0334	42.4	3280	5531
1986	409	.037	22.1	33.1	26.0	3355	137.8	162	115	13.6	110.2	.718	.0342	43.6	3592	6014
1987	359	.033	21.7	33.0	25.6	3434	140.2	173	125	13.0	113.2	.735	.0363	44.0	3606	6182
1988	285	.027	22.0	34.4	26.2	3378	139.4	171	126	12.7	114.1	.743	.0372	44.5	3677	6199
1989	239	.024	21.4	33.8	25.6	3436	139.9	176	132	12.4	115.7	.765	.0383	44.1	3597	6177
1990	185	.021	21.0	33.9	25.3	3497	141.6	181	139	12.0	117.7	.782	.0397	44.4	3592	6278
1991	122	.014	21.4	34.7	25.9	3506	142.3	181	140	12.0	118.2	.794	.0401	45.5	3700	6483
1992	167	.021	21.3	35.1	25.9	3509	142.9	190	142	11.8	119.0	.779	.0406	45.5	3708	6501
1993	125	.014	21.4	33.5	25.6	3538	138.6	176	156	11.2	123.3	.911	.0440	45.4	3556	6289

PERCENT OF MIDSIZE WAGON:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED		
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	EUR	ASIA
1975			4.0		7.6		7.6	92.2	.2	91.7	8.3	
1976			7.1		3.4		3.4	96.5	.1	96.4	3.6	
1977			4.6		3.5		3.5	96.2	.3	96.2	3.8	
1978			5.3	17.2	3.0		3.0	96.8	.3	96.7	3.3	
1979			5.3	9.1	2.5		2.5	95.0	2.5	96.4	3.6	
1980			9.9	43.8	4.3		4.3	89.8	5.9	93.6	6.4	
1981	35.6		12.8	28.5	6.9		6.9	87.2	5.9	91.2	8.8	
1982	28.2		7.4	62.6	5.7		5.7	88.0	6.3	90.8	9.2	
1983	32.8		6.2	50.2	7.9		7.9	89.8	2.3	90.5	9.5	
1984	69.9		6.5	62.5	30.7	20.3	10.4	66.8	2.5	88.1	11.9	
1985	69.5	4.5	5.9	64.7	56.2	30.5	25.7	42.0	1.8	83.2	11.4	5.4
1986	82.2	2.1	9.1	71.0	79.3	28.0	51.3	20.6	.2	76.2	11.1	12.7
1987	83.9	.1	4.4	83.6	94.5	22.8	71.7	4.7	.8	84.9	11.3	3.8
1988	87.7	.7	3.8	87.2	100.0	29.8	70.2			82.3	13.9	3.7
1989	77.5	8.2	7.1	80.7	100.0	12.3	87.7			76.3	15.6	8.0
1990	81.2	.4	1.7	87.9	100.0	1.5	98.5			79.0	21.0	
1991	79.6	1.3	2.4	85.6	100.0	.7	99.3			77.0	23.0	
1992	75.5	.4	.9	90.9	100.0	.3	99.7			69.2	14.2	16.7
1993	63.8	.5	1.1	79.3	100.0		100.0			41.7	25.7	32.6

TABLE G-9 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

LARGE WAGON

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY CITY HWY 55/45	WGHT LB	VOL CU-FT	ENGINE CID HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1975	197	.024	10.3 14.9 11.9	5453		410 181	14.0	115.9	.441	.0333	32.7		
1976	207	.021	11.8 16.5 13.5	5444		416 185	13.7	116.9	.445	.0340	36.9		
1977	340	.030	13.6 18.7 15.5	4713	163.1	365 161	13.6	115.0	.442	.0342	36.9	2567	6008
1978	293	.026	13.8 19.7 15.9	4664	162.4	354 162	13.4	115.7	.460	.0348	37.3	2601	6056
1979	275	.026	14.2 19.3 16.1	4466	162.5	333 155	13.4	114.8	.465	.0346	36.1	2633	5872
1980	102	.011	16.3 24.2 19.1	4423	161.5	323 134	15.2	108.8	.418	.0304	43.2	3152	6975
1981	108	.012	16.7 26.0 19.9	4394	161.4	312 131	15.3	108.1	.424	.0299	44.7	3273	7199
1982	146	.019	16.0 25.4 19.2	4396	161.3	306 139	14.6	110.5	.456	.0316	42.6	3130	6872
1983	130	.016	16.3 25.9 19.6	4379	161.6	307 142	14.1	111.6	.465	.0325	43.0	3174	6944
1984	176	.017	16.6 26.3 19.9	4371	161.7	305 144	13.9	112.2	.472	.0330	43.6	3227	7049
1985	145	.013	17.3 28.0 20.9	4354	161.7	305 153	13.2	115.4	.504	.0354	45.6	3382	7360
1986	120	.011	18.1 30.0 22.0	4381	161.4	304 146	13.9	112.8	.479	.0334	48.3	3558	7791
1987	88	.008	18.3 29.9 22.1	4348	161.8	304 143	14.0	112.2	.470	.0330	48.2	3583	7789
1988	75	.007	19.0 30.4 22.8	4349	161.7	304 143	14.0	112.2	.470	.0330	49.7	3691	8025
1989	63	.006	18.7 29.9 22.5	4334	161.8	304 143	13.9	112.4	.471	.0332	48.8	3643	7887
1990	31	.004	18.8 30.2 22.7	4337	161.6	304 143	13.9	112.4	.471	.0332	49.2	3664	7942
1991	34	.004	18.7 31.8 22.9	4402	169.1	304 177	11.9	122.3	.581	.0404	50.4	3877	8535
1992	30	.004	18.3 31.9 22.7	4500	170.2	331 176	12.1	121.0	.533	.0391	51.0	3858	8681
1993	28	.003	18.1 32.1 22.5	4500	169.3	340 178	12.0	121.6	.524	.0395	50.6	3804	8560

PERCENT OF LARGE WAGON:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	DESIGNED DOM EUR ASIA
-----	-----	-----	-----	-----
1975			100.0	100.0
1976			100.0	100.0
1977			100.0	100.0
1978			98.6 1.4	100.0
1979			100.0	100.0
1980		74.0	73.3 26.7	100.0
1981		100.0 .2 .2	74.6 25.2	100.0
1982		100.0	89.0 11.0	100.0
1983		100.0 24.1 24.1	71.3 4.6	99.9 .1
1984		100.0 25.8 25.8	72.7 1.5	100.0
1985		100.0 29.2 29.2	70.4 .4	100.0
1986		100.0 23.7	23.7 76.3	100.0
1987		100.0 30.3	30.3 69.7	100.0
1988		100.0 30.2	30.2 69.8	100.0
1989		100.0 33.1	33.1 66.9	100.0
1990		100.0 32.7	32.7 67.3	100.0
1991		100.0 100.0 80.5 19.5		100.0
1992		100.0 100.0 100.0		100.0
1993		100.0 100.0 100.0		100.0

TABLE G-10 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

MALL PICKUP

MODEL	SALES		FUEL ECONOMY			WGHT	ENGINE		0-60	TOP	HP/	HP/	TON
YEAR	(000)	FRAC	CITY	HWY	55/45	LB	CID	HP	TIME	SPEED	CID	WT	-MPG
1975	217	.109	19.0	27.5	22.1	2821	116	88	14.7	104.8	.762	.0315	31.3
1976	227	.087	20.2	29.4	23.5	2829	117	90	14.6	105.4	.772	.0320	33.5
1977	306	.109	22.8	32.4	26.3	2820	121	91	14.2	105.9	.756	.0325	37.5
1978	339	.104	23.3	31.1	26.3	2844	120	88	14.7	104.3	.731	.0310	37.8
1979	459	.149	20.5	28.3	23.4	2832	123	84	14.9	103.0	.692	.0300	33.8
1980	489	.262	22.4	30.2	25.3	2792	123	86	14.5	104.2	.706	.0311	35.8
1981	449	.247	24.9	33.4	28.1	2822	129	83	15.2	102.5	.647	.0295	40.5
1982	591	.309	24.1	33.2	27.5	2880	144	93	14.3	105.9	.645	.0322	40.2
1983	875	.381	23.5	32.7	26.9	2978	145	92	14.5	104.9	.641	.0311	40.5
1984	905	.271	22.6	32.0	26.0	3080	146	93	14.9	104.2	.638	.0302	40.5
1985	886	.242	23.4	32.8	26.9	2974	148	98	14.0	107.2	.663	.0330	40.3
1986	1253	.288	23.4	32.6	26.8	3003	145	101	13.6	108.3	.697	.0337	40.5
1987	1108	.268	23.3	33.1	26.9	3018	147	103	13.6	108.7	.695	.0340	40.7
1988	1040	.228	22.9	32.2	26.3	3077	153	106	13.5	109.3	.690	.0343	40.7
1989	882	.199	22.8	32.0	26.2	3133	161	112	13.0	111.1	.704	.0356	41.2
1990	526	.138	22.6	31.8	26.0	3222	164	124	12.3	115.0	.765	.0385	42.1
1991	803	.198	22.2	31.6	25.6	3240	176	124	12.5	114.6	.715	.0381	41.7
1992	596	.135	21.8	31.1	25.2	3354	181	132	12.1	116.5	.741	.0393	42.5
1993	328	.069	22.0	31.2	25.4	3175	177	128	11.9	117.0	.738	.0403	40.6

PERCENT OF SMALL PICKUP:

MODEL	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED	
YEAR	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	IMPORT
1975			83.1					100.0			100.0
1976			81.4					100.0			100.0
1977			82.3					100.0			100.0
1978		6.9	88.1					100.0			100.0
1979		20.5	88.1					100.0			100.0
1980	5.4	13.1	88.6		3.1			94.6	2.3		100.0
1981	7.4	16.3	92.3	.1	2.0			79.9	18.0	.7	99.3
1982	5.4	10.7	78.8	15.5	.6			86.8	12.7	38.5	61.5
1983	3.5	16.7	77.1	10.7	.2			95.2	4.6	52.8	47.2
1984	1.4	21.9	75.3	14.6				96.7	3.2	55.1	44.9
1985		8.2	71.7	22.8	19.5			79.1	1.5	52.6	47.4
1986		8.2	78.2	16.5	44.5	25.1	19.4	54.7	.7	35.7	64.3
1987		7.5	74.7	18.9	53.4	32.1	21.3	46.3	.3	44.0	56.0
1988		8.8	72.1	23.6	65.3	33.3	32.1	34.7		61.2	38.8
1989		7.3	72.4	23.8	75.8	38.0	37.8	24.2		55.7	44.3
1990		8.8	68.0	32.0	93.8	14.8	79.0	6.2		66.4	33.6
1991		5.3	66.7	33.3	96.8	49.3	47.5	3.2		80.0	20.0
1992	.1	10.8	66.2	33.8	97.5	37.0	60.4	2.5		78.7	21.3
1993	.1		68.2	31.8	93.2	64.5	28.8	6.8		64.9	35.1

TABLE G-11 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

LARGE PICKUP

MODEL	SALES		FUEL ECONOMY			WGHT	ENGINE		0-60	TOP	HP/	HP/	TON
YEAR	(000)	FRAC	CITY	HWY	55/45	LB	CID	HP	TIME	SPEED	CID	WT	-MPG
-----	-----	-----	-----	-----	-----	----	-----	----	-----	-----	---	-----	-----
1975	1126	.567	11.5	15.7	13.1	4241	343	151	13.3	115.5	.438	.0358	28.3
1976	1639	.628	12.4	16.3	13.9	4301	344	146	13.8	113.5	.423	.0341	30.5
1977	1719	.609	13.4	17.2	14.9	4318	347	156	13.1	116.4	.449	.0363	32.7
1978	1928	.589	13.3	16.8	14.7	4326	339	154	13.2	115.7	.454	.0357	32.3
1979	1748	.566	13.1	16.2	14.3	4486	330	149	14.1	113.1	.452	.0334	32.7
1980	947	.508	15.4	20.5	17.4	4227	294	134	14.3	110.1	.467	.0318	37.2
1981	990	.544	16.7	22.5	18.9	4068	285	130	14.2	110.0	.464	.0321	38.7
1982	849	.444	16.8	22.6	19.0	4151	287	133	14.3	110.4	.475	.0322	39.9
1983	754	.328	16.2	22.1	18.4	4197	289	135	14.2	110.7	.479	.0323	39.3
1984	1138	.340	16.6	22.5	18.8	4048	270	131	14.2	110.3	.503	.0324	38.6
1985	1192	.325	16.4	22.2	18.6	4139	275	141	13.7	113.0	.533	.0341	39.0
1986	1279	.294	16.8	22.8	19.1	4133	266	139	13.7	112.2	.550	.0335	39.8
1987	1039	.251	16.9	23.1	19.2	4068	261	145	13.2	114.6	.578	.0355	39.4
1988	1418	.311	16.4	23.3	19.0	4221	285	161	12.5	118.5	.580	.0380	40.3
1989	1349	.304	16.3	23.2	18.8	4242	285	163	12.5	119.0	.586	.0383	40.1
1990	1308	.344	16.5	23.9	19.2	4212	280	162	12.4	119.0	.600	.0384	40.7
1991	1148	.284	16.9	24.6	19.6	4149	269	160	12.4	118.7	.617	.0384	41.0
1992	1514	.343	16.3	24.0	19.0	4349	284	167	12.5	119.2	.604	.0382	41.5
1993	1893	.400	16.9	25.2	19.9	4274	271	170	12.1	120.8	.645	.0396	42.6

PERCENT OF LARGE PICKUP:

MODEL	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED	IMPORT
YEAR	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1975		16.1	33.0					100.0		100.0	
1976		23.8	32.9					100.0		100.0	
1977		25.2	27.7					100.0		100.0	
1978		30.5	28.5					98.6	1.4	100.0	
1979		10.5	27.3	1.7				96.9	3.1	100.0	
1980		25.2	43.4	33.3				94.9	5.1	93.6	6.4
1981	.3	17.1	42.0	39.9				97.8	2.2	94.9	5.1
1982	.1	22.6	36.6	39.3				91.4	8.6	91.8	8.2
1983		28.4	32.2	48.1				95.9	4.1	92.1	7.9
1984		27.0	38.6	41.0	1.7			96.0	2.3	80.6	19.4
1985		38.2	36.6	41.8	13.3	.5		85.6	1.1	85.7	14.3
1986		41.8	38.9	44.0	33.2	10.2	23.0	66.3	.5	81.6	18.4
1987		44.8	41.1	39.4	64.8	31.9	32.9	34.9	.3	82.0	18.0
1988		42.8	35.5	49.9	97.1	59.3	37.9	2.6	.3	88.3	11.7
1989		43.0	39.3	53.1	99.0	59.7	39.4	.7	.3	87.6	12.4
1990		35.6	36.9	57.0	93.8	52.1	41.7	5.9	.3	79.7	20.3
1991		37.8	40.6	57.0	96.7	49.7	47.0	3.1	.3	75.7	24.3
1992		34.1	31.5	65.9	97.9	40.1	57.8	1.8	.3	82.0	18.0
1993		36.7	35.1	62.3	98.4	35.8	62.6	1.5	.1	85.6	14.4

TABLE G-12 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

SMALL VAN

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	1	.001	18.0	25.3	20.7	3496	109	67	21.0	91.8	.615	.0192	36.2
1976	1	.001	16.8	25.8	19.9	3500	120	67	20.9	91.8	.558	.0191	34.9
1977	2	.001	19.1	27.6	22.2	3500	120	67	20.8	91.8	.558	.0191	38.9
1978	3	.001	17.4	24.5	20.0	3500	120	67	20.9	91.8	.558	.0191	35.0
1979	8	.003	16.5	22.6	18.7	3500	120	67	20.9	91.8	.558	.0191	32.9
1980	16	.008	16.3	23.9	19.0	3618	120	67	21.4	91.3	.558	.0186	34.4
1981	11	.006	16.3	22.3	18.5	3644	120	67	21.6	91.2	.558	.0185	33.8
1982	15	.008	19.7	24.9	21.7	3668	111	61	23.4	89.1	.550	.0168	42.1
1983	14	.006	17.4	23.5	19.7	3567	118	69	20.9	92.2	.583	.0194	35.7
1984	217	.065	21.9	29.2	24.7	3380	136	94	15.8	102.6	.694	.0281	42.0
1985	442	.121	20.7	28.2	23.5	3521	169	109	14.9	106.8	.664	.0310	41.5
1986	650	.149	20.1	28.5	23.2	3671	181	115	14.6	107.7	.651	.0313	42.6
1987	868	.210	20.0	28.7	23.2	3672	185	133	13.1	114.1	.730	.0362	42.5
1988	804	.176	19.8	29.1	23.1	3816	194	140	12.9	115.2	.732	.0366	44.1
1989	922	.208	19.8	28.9	23.1	3843	191	138	13.2	114.2	.738	.0358	44.4
1990	970	.255	19.4	28.7	22.8	3934	197	140	13.2	114.4	.721	.0357	44.9
1991	836	.207	19.4	28.4	22.6	4013	197	142	13.2	114.3	.736	.0354	45.4
1992	1020	.231	19.0	28.2	22.3	4052	201	146	13.0	115.2	.735	.0360	45.2
1993	1121	.237	19.5	29.3	22.9	3971	201	150	12.6	117.3	.756	.0378	45.6

PERCENT OF SMALL VAN:

MODEL YEAR	DRIVETRAIN FRONT	4WD	TRANSMISSION MANUAL	LOCK	FUEL METERING FI	TBI	PORT	CARB	DSL	DESIGNED DOM	IMPORT
1975			70.8		100.0						100.0
1976			84.8		100.0						100.0
1977			89.9		100.0						100.0
1978			85.0		100.0						100.0
1979			81.2		100.0						100.0
1980			82.9		100.0						100.0
1981			81.2		100.0						100.0
1982			89.0		61.7				38.3		100.0
1983	4.2		76.9		93.6				6.4	4.2	95.8
1984	69.5		30.2	19.1	30.5			68.6	.9	62.8	37.2
1985	58.6	.7	15.3	34.7	17.8			82.2		78.9	21.1
1986	39.2	2.1	12.0	54.1	49.4	26.1	23.3	50.3	.3	84.3	15.7
1987	35.3	12.7	13.3	72.1	81.9	23.6	58.3	18.1		85.5	14.5
1988	51.1	1.1	4.8	85.5	100.0	36.0	64.0			93.1	6.9
1989	47.6	1.0	3.7	77.7	100.0	34.1	65.9			92.5	7.5
1990	60.8	8.5	2.0	96.4	100.0	34.9	65.1			91.9	8.1
1991	47.2	13.5	1.6	98.0	100.0	30.3	69.7			82.8	17.2
1992	50.8	21.1	1.7	98.3	100.0	20.0	80.0			90.2	9.8
1993	61.0	9.3	1.5	98.5	100.0	17.6	82.4			81.2	18.8

TABLE G-13 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

LARGE VAN

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
			CITY	HWY	55/45		CID	HP					
1975	455	.229	11.7	15.2	13.1	4198	318	143	13.9	113.2	.447	.0341	28.0
1976	500	.191	12.3	16.4	13.8	4202	324	146	13.7	114.0	.447	.0348	29.7
1977	512	.181	13.3	17.0	14.7	4255	333	153	13.2	115.8	.458	.0360	31.7
1978	622	.190	12.9	16.2	14.2	4253	330	149	13.3	114.8	.453	.0352	30.7
1979	472	.153	12.2	15.4	13.5	4559	325	146	14.5	111.4	.449	.0320	31.2
1980	226	.121	14.6	19.5	16.5	4404	299	135	14.8	109.2	.452	.0307	36.6
1981	234	.128	15.5	20.5	17.4	4357	292	132	15.0	108.6	.453	.0303	38.2
1982	296	.154	15.3	20.2	17.1	4376	296	136	14.8	109.6	.459	.0310	37.8
1983	368	.160	15.6	21.1	17.7	4445	301	139	14.7	110.0	.461	.0312	39.8
1984	459	.137	15.0	20.6	17.1	4402	302	141	14.5	111.0	.464	.0319	38.0
1985	412	.112	14.5	19.5	16.4	4462	308	150	13.9	113.4	.487	.0336	36.9
1986	394	.091	15.3	20.7	17.4	4537	304	148	14.2	112.2	.485	.0326	39.6
1987	398	.096	14.9	20.6	17.1	4599	310	161	13.5	115.7	.516	.0350	39.4
1988	329	.072	15.3	21.4	17.5	4632	313	164	13.3	116.4	.522	.0355	40.8
1989	355	.080	15.0	21.3	17.3	4614	315	168	13.1	117.7	.529	.0365	40.1
1990	292	.077	15.0	21.5	17.4	4628	319	177	12.6	120.5	.552	.0384	40.3
1991	198	.049	15.1	21.8	17.5	4636	316	175	12.7	119.8	.551	.0379	40.7
1992	288	.065	14.9	21.7	17.3	4827	318	181	12.8	120.4	.568	.0379	42.0
1993	241	.051	15.1	22.5	17.8	4849	317	185	12.5	121.3	.583	.0385	43.2

PERCENT OF LARGE VAN:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED	
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	DOM	IMPORT
1975			23.3					100.0		100.0	
1976			20.3					100.0		100.0	
1977			14.0					100.0		100.0	
1978			12.7					100.0		100.0	
1979			13.6	6.9				100.0		100.0	
1980			22.0	41.7				100.0		100.0	
1981	.3		19.1	48.9				100.0		100.0	
1982			12.0	48.1				100.0		100.0	
1983			9.6	61.7				95.6	4.4	100.0	
1984			8.5	58.2				98.6	1.4	100.0	
1985			4.2	61.0				99.4	.6	100.0	
1986			2.8	69.9	19.4		19.4	80.2	.5	100.0	
1987		10.3	2.7	53.4	70.1	33.1	37.0	29.6	.2	100.0	
1988			1.1	61.9	98.8	59.5	39.3	.8	.4	100.0	
1989			.9	73.5	99.8	61.8	37.9		.2	100.0	
1990			.2	83.7	99.7	65.0	34.7		.3	100.0	
1991			.1	90.1	99.6	63.2	36.4		.4	100.0	
1992				88.4	99.6	30.3	69.3		.4	100.0	
1993			.1	90.4	99.6	39.7	59.9		.4	100.0	

TABLE G-14 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

SMALL UTILITY

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY CITY HWY 55/45	WGHT LB	ENGINE CID HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	53	.027	14.1 19.3 16.1	2897	273 118	11.9	116.9	.429	.0416	23.3
1976	60	.023	14.2 18.6 15.9	2985	273 108	12.7	111.5	.397	.0367	24.0
1977	73	.026	15.2 19.8 17.0	3073	274 111	12.7	111.8	.406	.0366	26.2
1978	93	.029	14.8 19.6 16.7	3026	275 110	12.7	111.8	.400	.0368	25.3
1979	105	.034	15.4 18.5 16.7	3196	261 117	12.7	112.5	.463	.0366	26.7
1980	60	.033	17.0 21.8 18.8	3083	227 95	14.6	104.8	.454	.0306	29.3
1981	43	.023	18.2 23.9 20.4	3054	224 102	13.6	108.2	.475	.0335	31.4
1982	42	.022	18.5 23.8 20.5	2922	207 97	13.9	107.0	.495	.0331	30.0
1983	156	.068	19.0 26.9 21.9	3512	189 107	14.7	106.4	.586	.0309	38.8
1984	417	.125	19.0 26.9 21.9	3546	175 105	15.1	105.2	.609	.0297	39.0
1985	524	.143	18.9 27.9 22.1	3643	168 106	15.5	104.7	.632	.0291	40.5
1986	569	.131	19.3 27.0 22.2	3550	163 116	14.0	109.1	.720	.0328	39.5
1987	577	.140	19.4 27.7 22.4	3512	174 122	13.5	111.6	.716	.0348	39.3
1988	763	.167	19.0 27.3 22.0	3528	188 134	12.7	115.4	.725	.0377	39.0
1989	709	.160	18.8 26.5 21.6	3665	214 146	12.1	118.5	.700	.0398	39.7
1990	534	.140	18.5 26.3 21.4	3652	198 142	12.4	117.4	.737	.0390	39.1
1991	969	.239	17.9 26.1 20.8	3974	223 157	12.1	119.6	.716	.0396	41.5
1992	880	.199	17.6 25.6 20.5	3938	225 159	11.9	120.6	.718	.0406	40.4
1993	854	.181	18.1 26.3 21.0	3949	225 169	11.4	124.0	.761	.0431	41.5

PERCENT OF SMALL UTILITY:

MODEL YEAR	DRIVETRAIN FRONT 4WD	TRANSMISSION MANUAL LOCK	FUEL METERING FI TBI PORT CARB DSL	DESIGNED DOM	IMPORT
1975	88.3	100.0		88.3	11.7
1976	85.6	84.6		85.6	14.4
1977	78.1	90.3		78.1	21.9
1978	83.2	87.2		83.2	16.8
1979	87.0	77.6		95.0	5.0
1980	100.0	88.6		91.8	8.2
1981	100.0	90.5 8.8		94.0	6.0
1982	74.2	67.4 6.8		85.3	14.7
1983	78.5	49.9 42.1		94.8	5.2
1984	88.1	38.9 42.1		93.2	6.8
1985	83.2	36.3 63.4	5.8	93.9 .2	8.8
1986	89.6	48.4 50.9	60.6 34.9 25.7	38.5 .9	74.2
1987	87.6	45.4 50.5	71.7 47.0 24.8	28.2	64.5
1988	85.7	41.4 56.6	82.6 31.2 51.4	17.4	70.0
1989	84.3	32.9 64.3	93.5 44.2 49.3	6.5	76.9
1990	87.3	38.5 59.9	94.4 29.6 64.8	5.6	58.3
1991	79.5	24.4 74.9	99.8 36.8 63.0	.2	77.1
1992	80.6	23.8 75.3	99.8 29.8 70.0	.2	76.8
1993	74.7	25.8 73.3	99.9 3.2 96.7	.1	78.2

TABLE G-15 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

LARGE UTILITY

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
			CITY	HWY	55/45		CID	HP					
1975	134	.067	11.0	13.6	12.1	4724	350	157	13.9	113.7	.447	.0333	28.7
1976	183	.070	11.8	15.4	13.2	4745	356	151	14.4	112.0	.424	.0320	31.4
1977	210	.075	13.0	16.9	14.5	4632	351	155	13.9	113.7	.440	.0335	33.8
1978	287	.088	12.3	16.2	13.8	4676	359	161	13.4	115.3	.449	.0346	32.4
1979	296	.096	10.6	12.9	11.6	4975	355	153	15.0	110.9	.430	.0307	28.9
1980	125	.067	12.7	16.8	14.3	4810	328	148	14.8	110.5	.452	.0308	34.7
1981	93	.051	13.8	18.5	15.6	4734	320	145	14.8	110.0	.454	.0305	37.2
1982	120	.063	14.8	20.2	16.8	4855	324	141	15.4	108.4	.438	.0293	42.4
1983	132	.057	14.4	20.0	16.5	4905	333	145	15.3	109.2	.439	.0297	41.8
1984	208	.062	13.6	18.7	15.5	4910	331	152	14.7	111.2	.461	.0310	39.2
1985	212	.058	13.8	19.2	15.8	4945	333	161	14.2	113.6	.485	.0327	39.7
1986	204	.047	14.1	20.1	16.3	4955	328	157	14.4	112.4	.481	.0318	40.9
1987	143	.035	13.7	19.6	15.8	5093	340	185	13.1	119.0	.544	.0362	41.0
1988	204	.045	13.9	19.8	16.1	5093	334	181	13.3	118.1	.543	.0355	41.3
1989	216	.049	13.8	20.0	16.0	5173	333	184	13.2	118.4	.553	.0356	41.9
1990	175	.046	13.7	20.8	16.2	5244	337	191	12.9	120.0	.569	.0366	42.8
1991	93	.023	13.7	20.3	16.0	5283	325	192	12.9	119.9	.595	.0364	42.6
1992	121	.027	13.7	20.7	16.2	5324	334	198	12.7	121.4	.595	.0374	43.2
1993	290	.061	14.9	22.7	17.6	4737	301	202	11.3	127.5	.683	.0435	41.6

PERCENT OF LARGE UTILITY:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					DESIGNED DOM	IMPORT
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL		
1975		82.4	17.9					100.0		100.0	
1976		85.3	17.3					100.0		100.0	
1977		84.1	17.2					100.0		100.0	
1978		90.0	17.1					100.0		100.0	
1979		63.0	17.6	.8				99.8	.2	100.0	
1980		82.8	21.4	38.7				96.5	3.5	100.0	
1981		86.0	18.3	55.9				100.0		100.0	
1982		81.3	16.4	54.8				79.3	20.7	100.0	
1983		82.7	10.1	62.4				85.3	14.7	100.0	
1984		78.6	10.1	44.6				93.1	6.9	100.0	
1985	.2	73.3	7.0	52.1	4.4		.2	91.1	4.5	100.0	
1986	.2	76.3	6.6	69.4	19.1	.2	19.0	77.6	3.3	98.9	1.1
1987		68.0	5.6	71.2	66.8	65.6	1.2	30.8	2.3	95.4	4.6
1988		76.2	3.6	70.5	89.6	57.2	32.5	9.0	1.4	95.0	5.0
1989		77.0	3.8	73.2	93.2	57.6	35.5	5.7	1.1	95.5	4.5
1990		73.7	2.6	86.5	95.0	60.6	34.4	3.9	1.1	96.1	3.9
1991		71.4	1.4	89.9	94.5	52.0	42.5	4.0	1.5	83.7	16.3
1992		67.9	1.8	96.3	100.0	67.5	32.5			90.6	9.4
1993		82.7	5.0	95.0	100.0	35.8	64.2			95.5	4.5

Engine Size Market Shares Passenger Cars

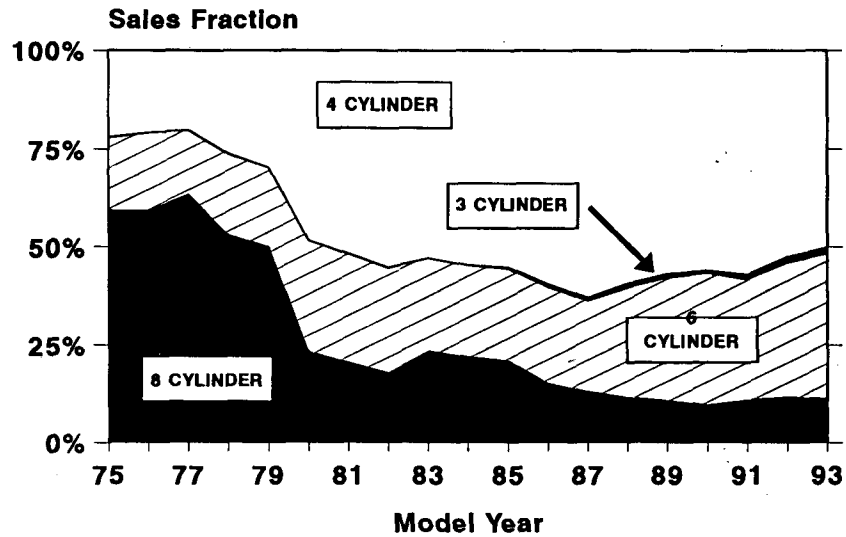


Figure H1

Passenger Car MPG by Model Year and Number of Cylinders

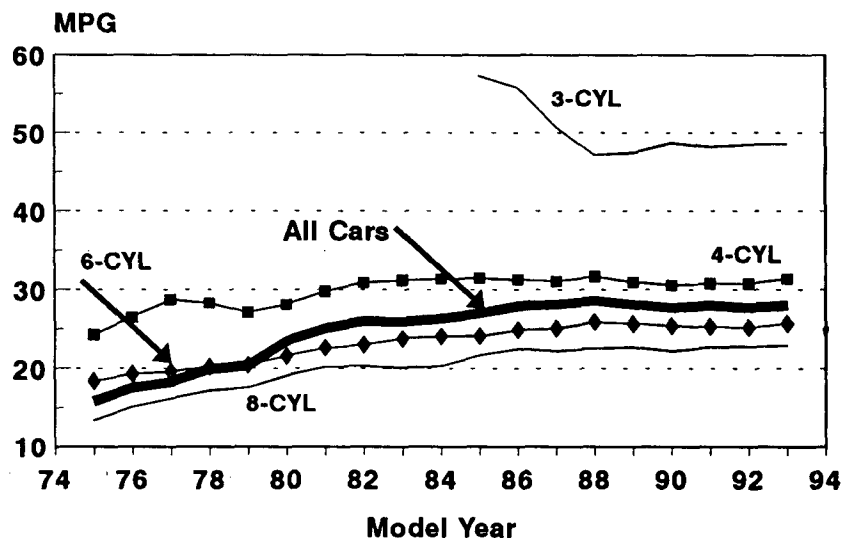


Figure H2

Average Zero to 60 Acceleration Passenger Cars

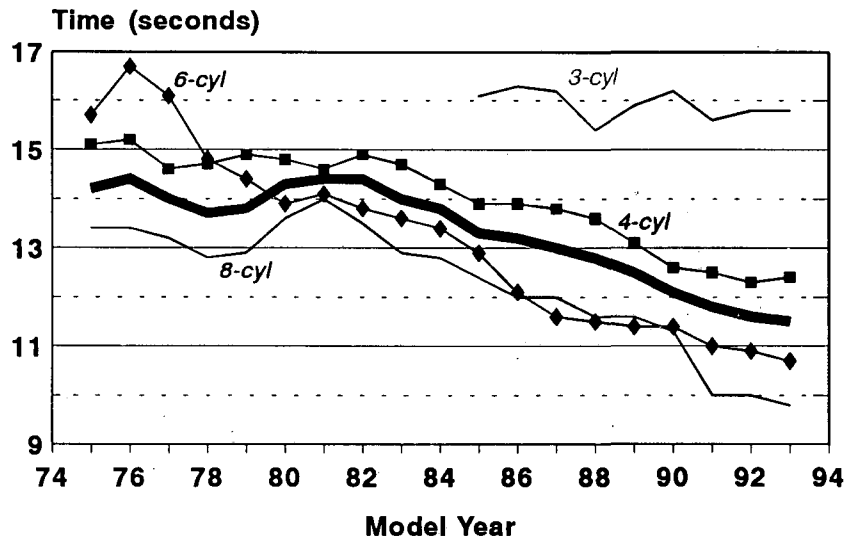


Figure H3

Passenger Car Top Speed by Model Year and Number of Cylinders

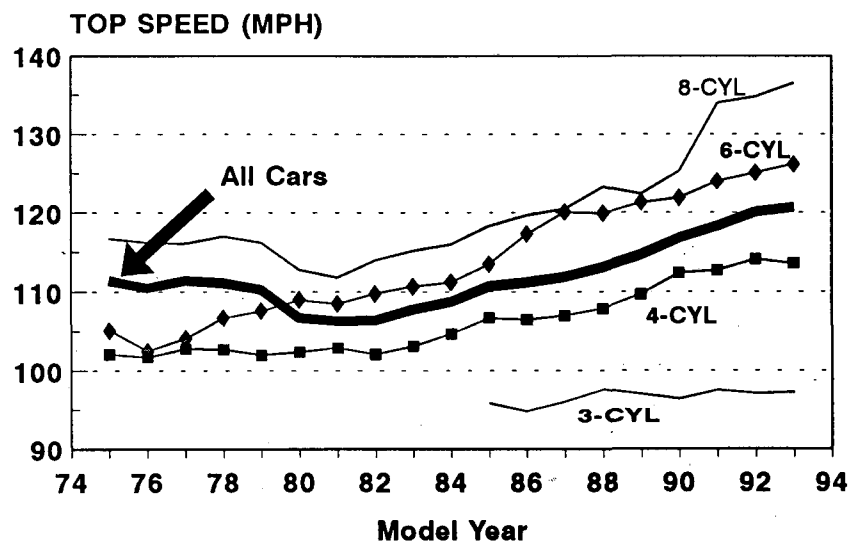


Figure H4

Average Engine Horsepower Passenger Cars

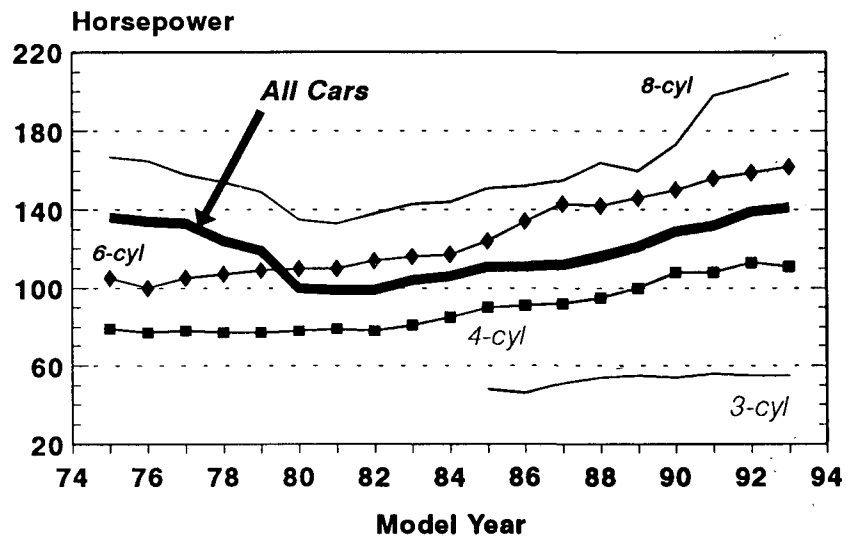


Figure H5

Average Engine Size Passenger Cars

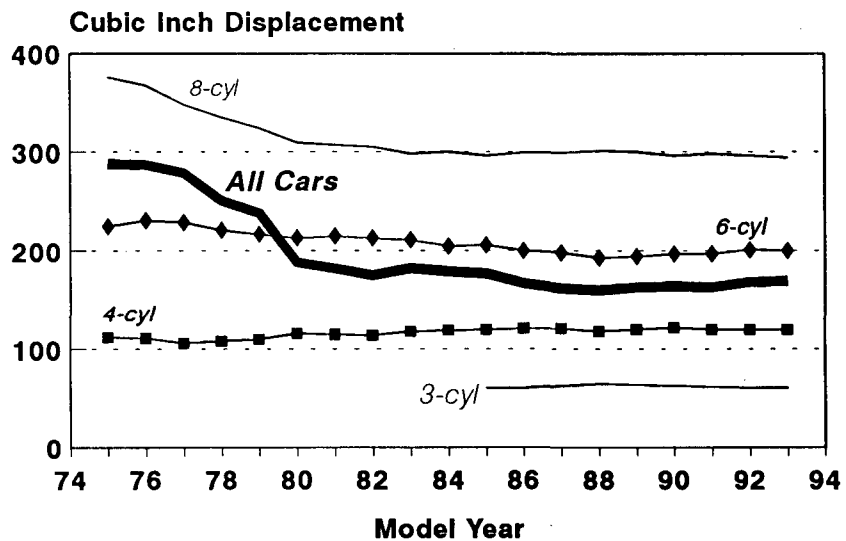


Figure H6

Horsepower per CID, 1975 to 1993 Cars

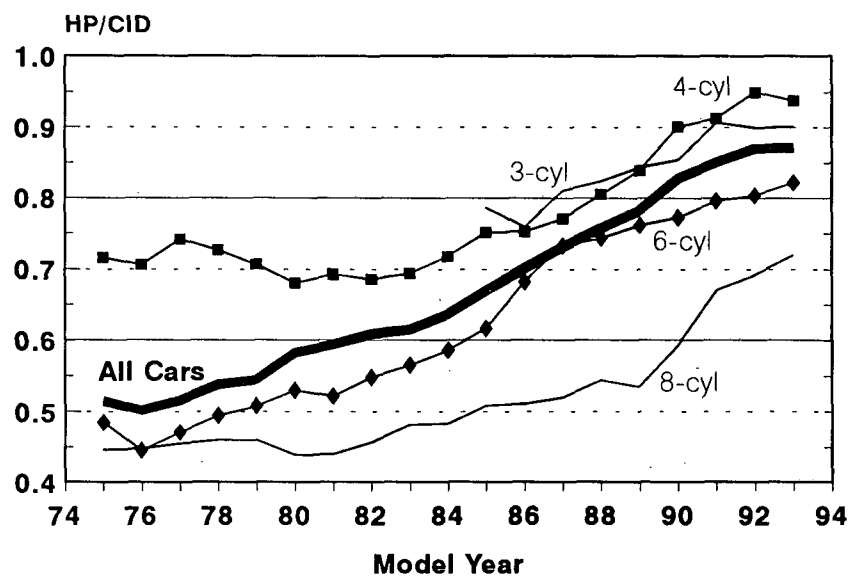


Figure H7

TABLE H-1 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

MODEL YEAR	SALES		FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	THREE CYLINDER		
	(000)	FRAC	CITY	HWY	55/45			CID	HP					TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
1985	37	.003	51.9	66.1	57.4	1750	82.6	61	48	16.1	95.8	.787	.0274	50.4	4756	4161
1986	81	.007	50.8	63.7	55.9	1750	84.6	61	46	16.3	94.8	.759	.0264	49.8	4809	4208
1987	78	.007	46.0	58.1	50.8	1878	84.8	63	51	16.2	96.0	.810	.0271	48.1	4369	4074
1988	103	.010	42.8	54.1	47.2	1866	86.6	65	54	15.4	97.6	.824	.0286	44.8	4168	3871
1989	85	.008	43.4	53.8	47.5	1975	90.9	64	55	15.9	97.0	.843	.0276	47.6	4446	4331
1990	46	.005	44.3	55.2	48.7	2021	87.9	63	54	16.2	96.4	.854	.0269	50.3	4437	4440
1991	111	.013	43.6	55.3	48.2	2008	85.5	62	56	15.6	97.5	.907	.0280	49.2	4232	4232
1992	115	.015	44.0	55.4	48.5	1998	86.9	61	55	15.8	97.1	.900	.0277	49.2	4304	4288
1993	124	.014	43.9	55.9	48.6	1997	86.1	61	55	15.8	97.2	.901	.0278	49.3	4283	4262

PERCENT OF THREE CYLINDER CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1985	100.0		90.1					100.0		100.0					100.0
1986	100.0		64.7					100.0		100.0					100.0
1987	100.0		73.5		8.6		8.6	91.4		100.0					100.0
1988	89.0	11.0	76.5		14.7	1.5	13.2	85.3		100.0					100.0
1989	100.0		64.3		70.5	57.5	13.0	29.5		100.0					100.0
1990	89.0	11.0	77.7		94.3	70.1	24.2	5.7		100.0					100.0
1991	94.5	5.5	61.0		97.5	89.7	7.8	2.5		100.0					100.0
1992	100.0		52.3		99.5	94.8	4.8	.5		100.0					100.0
1993	100.0		52.5		100.0	95.6	4.4			100.0					100.0

TABLE H-2 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

FOUR CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	1805	.219	20.8	30.6	24.3	2651		112	79	15.1	102.1	.716	.0298	32.4		
1976	2017	.207	22.8	33.1	26.5	2613		111	77	15.2	101.7	.706	.0296	34.8		
1977	2287	.202	24.8	35.3	28.7	2523	86.8	106	78	14.6	102.8	.742	.0308	36.6	2556	3191
1978	2926	.262	24.7	34.3	28.3	2511	88.9	108	77	14.7	102.7	.727	.0308	36.0	2580	3208
1979	3157	.292	23.6	33.0	27.1	2564	90.1	110	77	14.9	102.0	.707	.0300	35.0	2491	3165
1980	4511	.478	24.4	34.3	28.1	2573	93.0	116	78	14.8	102.4	.681	.0303	36.4	2662	3394
1981	4469	.512	26.0	36.2	29.8	2555	97.7	115	79	14.6	102.9	.693	.0308	38.4	2953	3747
1982	4251	.544	26.7	38.2	30.9	2595	97.8	114	78	14.9	102.1	.686	.0300	40.3	3061	3951
1983	4158	.520	27.1	38.2	31.2	2622	101.2	118	81	14.7	103.1	.694	.0307	41.3	3213	4174
1984	5744	.538	27.1	38.7	31.4	2655	100.3	119	85	14.3	104.7	.718	.0320	42.0	3192	4208
1985	5865	.543	27.3	38.9	31.5	2671	101.7	120	90	13.9	106.7	.752	.0336	42.4	3251	4317
1986	6462	.587	27.1	38.6	31.3	2719	102.5	121	91	13.9	106.5	.753	.0332	42.8	3244	4389
1987	6679	.622	26.9	38.4	31.1	2732	102.1	121	92	13.8	107.0	.772	.0336	42.8	3207	4365
1988	6333	.590	27.5	39.0	31.7	2739	101.8	118	95	13.6	107.9	.805	.0343	43.7	3268	4448
1989	5671	.566	26.9	38.6	31.1	2794	101.5	120	100	13.1	109.7	.840	.0357	43.7	3196	4434
1990	4925	.557	26.4	38.1	30.6	2857	100.8	122	108	12.6	112.4	.901	.0378	43.9	3118	4434
1991	4842	.567	26.5	38.5	30.8	2846	100.9	120	108	12.5	112.7	.913	.0380	44.1	3150	4456
1992	4077	.522	26.3	38.8	30.8	2893	101.2	120	113	12.3	114.1	.949	.0390	44.8	3154	4534
1993	4540	.499	26.8	39.5	31.3	2884	101.0	120	112	12.3	113.6	.939	.0387	45.4	3201	4587

PERCENT OF FOUR CYLINDER CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	25.2		68.9		14.4		14.4	84.8	.8	98.7	1.3		29.5	32.1	38.4
1976	22.0		63.9		6.7		6.7	92.7	.6	99.4	.6		36.3	22.1	41.5
1977	28.3		69.5		11.9		11.9	86.3	1.8	99.3	.7		19.9	24.1	56.0
1978	31.8		67.4		10.4		10.4	87.8	1.7	97.6	2.4		31.1	20.9	48.0
1979	33.5	1.2	65.9		7.0		7.0	90.9	2.1	95.8	4.2		42.0	16.0	42.0
1980	44.8	1.0	60.3		9.1		9.1	87.3	3.6	89.5	10.5		45.5	14.9	39.6
1981	60.6	.9	55.2	1.7	7.5		7.5	88.5	4.0	82.7	17.3		50.9	9.5	39.7
1982	72.1	.9	49.5	21.4	18.7	11.2	7.5	78.7	2.6	83.8	16.2		54.1	8.7	37.2
1983	76.2	5.1	46.8	26.2	32.7	21.0	11.7	66.3	1.0	79.3	20.7		53.5	7.2	39.3
1984	81.3	1.4	40.0	30.4	43.7	28.3	15.4	54.7	1.6	85.0	15.0		63.4	7.2	29.4
1985	84.0	3.7	38.1	31.8	52.3	33.6	18.7	46.9	.8	81.6	18.4		58.5	7.4	34.1
1986	89.5	1.5	36.5	37.0	63.3	38.9	24.4	36.3	.4	79.3	20.6	.2	55.3	7.3	37.5
1987	92.0	1.5	34.4	43.0	68.1	43.2	24.9	31.8	.1	81.3	18.5	.2	49.6	7.0	43.3
1988	94.1	1.0	35.2	50.3	78.5	45.9	32.7	21.5		87.2	12.6	.2	45.0	6.6	48.4
1989	93.2	1.5	31.8	53.5	84.9	41.3	43.7	15.0	.1	86.3	13.5	.2	44.2	5.3	50.5
1990	93.2	1.5	30.6	57.9	98.2	35.3	62.9	1.7		88.9	11.0	.1	36.0	5.1	58.8
1991	92.5	2.1	31.2	60.9	99.9	31.0	68.9		.1	90.8	9.0	.2	36.9	4.6	58.5
1992	90.1	1.0	31.5	59.8	100.0	10.7	89.3			88.0	11.7	.2	36.5	4.5	59.0
1993	90.0	.7	32.4	59.4	100.0	9.0	91.0			89.3	10.5	.2	36.9	4.4	58.7

TABLE H-3 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

MODEL YEAR	SALES		FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	FIVE CYLINDER	
	(000)	FRAC	CITY	HWY	55/45			CID	HP						CU-FT -MPG	CU-FT- TON-MPG
1975	5	.001	23.9	31.4	26.8	3500		183	77	19.3	95.4	.421	.0220	46.8		
1976	12	.001	22.2	27.8	24.4	4000		183	77	21.4	93.0	.421	.0192	48.8		
1977	12	.001	23.0	27.7	24.9	4000	105.0	183	77	21.4	93.0	.421	.0192	49.8	2613	5227
1978	39	.003	18.4	25.1	20.9	3411	103.6	152	102	15.1	105.7	.690	.0306	37.0	2202	3821
1979	43	.004	20.5	26.5	22.8	3596	106.0	162	100	16.1	103.5	.636	.0284	42.3	2462	4499
1980	66	.007	20.8	29.0	23.8	3357	105.3	152	92	16.3	102.4	.630	.0281	41.6	2593	4399
1981	59	.007	22.4	30.5	25.4	3358	105.3	155	98	15.6	104.4	.650	.0297	44.0	2739	4671
1982	58	.007	23.9	31.7	26.9	3601	105.8	163	114	14.3	108.1	.705	.0319	49.9	2896	5300
1983	64	.008	24.5	32.2	27.4	3660	106.1	165	114	14.5	107.6	.696	.0313	51.4	2949	5462
1984	116	.011	21.5	29.9	24.6	3326	110.3	148	109	13.9	108.5	.748	.0330	42.1	2742	4619
1985	99	.009	21.0	29.2	24.0	3360	110.2	151	117	13.3	111.3	.788	.0352	41.1	2661	4509
1986	71	.006	20.0	29.2	23.3	3035	111.0	136	116	12.3	113.9	.854	.0383	35.6	2595	3949
1987	44	.004	20.5	29.8	23.9	3095	110.7	139	127	11.7	117.4	.914	.0409	37.4	2661	4132
1988	18	.002	20.7	30.7	24.3	3047	104.6	140	129	11.4	118.6	.920	.0422	37.3	2552	3894
1989	15	.002	20.5	29.6	23.8	3415	108.5	140	135	12.0	117.4	.969	.0398	40.7	2585	4430
1990	18	.002	20.5	29.7	23.8	3407	105.1	141	138	11.8	118.4	.980	.0406	41.0	2527	4319
1991	15	.002	20.7	31.4	24.5	3460	106.7	142	141	11.9	118.9	1.002	.0407	43.1	2658	4615
1992	16	.002	22.6	33.4	26.5	3460	100.7	149	164	10.5	127.3	1.098	.0474	46.2	2691	4663
1993	34	.004	22.6	34.8	26.8	3516	105.7	149	171	10.2	129.1	1.147	.0486	47.4	2853	5014

PERCENT OF FIVE CYLINDER CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975									100.0	100.0			100.0		
1976									100.0	100.0			100.0		
1977									100.0	100.0			100.0		
1978	58.9		8.1		58.9		58.9		41.1	100.0			100.0		
1979	40.4		8.9		38.0		38.0		62.0	94.1	5.9		100.0		
1980	56.6		18.5		41.9		41.9		58.1	95.2	4.8		100.0		
1981	51.0		21.5		40.8		40.8		59.2	96.0	4.0		100.0		
1982	37.1		11.0		35.3		35.3		64.7	94.7	5.3		100.0		
1983	32.2	.8	11.7		29.0		29.0		71.0	95.9	4.1		100.0		
1984	65.8	2.6	18.2		68.4		68.4		31.6	47.5	52.5		100.0		
1985	63.1	4.1	15.6		67.3		67.3		32.7	45.3	54.7		100.0		
1986	84.9	12.6	28.4		97.5		97.5		2.5	30.2	69.8		100.0		
1987	70.4	24.0	36.5		94.4		94.4		5.6	36.6	63.4		100.0		
1988	60.5	36.0	56.1		96.5		96.5		3.5	57.4	42.6		100.0		
1989	86.8	10.9	29.2		97.7		97.7		2.3	21.4	78.6		100.0		
1990	74.5	19.0	30.8		93.5		93.5		6.5	39.6	60.4		100.0		
1991	69.0	16.4	24.5	55.2	85.4		85.4		14.6	38.9	61.1		100.0		
1992	86.2		16.0	70.2	86.2		86.2		13.8	100.0			23.0	77.0	
1993	90.8	3.3	15.7	78.3	94.1		94.1		5.9	56.1	43.9		53.1	46.9	

TABLE H-4 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

SIX CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	VOL CU-FT	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
1975	1533	.186	16.2	22.1	18.4	3625		225	105	15.7	105.1	.485	.0295	33.5		
1976	1935	.199	17.1	23.0	19.3	3715		231	100	16.7	102.5	.445	.0273	36.0		
1977	1851	.164	17.3	23.3	19.6	3753	106.6	229	105	16.1	104.1	.471	.0284	36.9	2095	3955
1978	2325	.208	17.7	24.6	20.2	3482	108.6	221	107	14.8	106.7	.495	.0311	35.3	2206	3844
1979	2187	.203	17.9	24.6	20.4	3421	108.8	217	109	14.4	107.6	.508	.0319	34.9	2224	3814
1980	2644	.280	18.8	26.5	21.6	3332	111.0	213	110	13.9	109.0	.530	.0334	36.0	2407	4004
1981	2394	.274	19.6	27.8	22.6	3382	111.6	215	110	14.1	108.5	.522	.0328	38.3	2527	4283
1982	2080	.266	19.7	28.9	23.0	3404	112.9	213	114	13.8	109.8	.548	.0338	39.3	2614	4457
1983	1858	.232	20.3	30.1	23.8	3373	111.0	211	116	13.6	110.7	.565	.0346	40.2	2654	4481
1984	2455	.230	20.5	30.5	24.1	3364	111.3	205	117	13.4	111.2	.586	.0350	40.5	2684	4515
1985	2498	.232	20.3	31.2	24.1	3387	111.8	206	124	12.9	113.5	.617	.0368	40.8	2697	4566
1986	2694	.245	20.8	32.8	24.9	3377	112.0	200	134	12.1	117.3	.683	.0398	42.2	2805	4745
1987	2489	.232	20.8	33.7	25.1	3414	112.9	198	143	11.6	120.1	.733	.0419	42.9	2847	4862
1988	2985	.278	21.4	34.8	25.9	3397	113.6	193	142	11.5	119.9	.744	.0418	44.0	2952	5017
1989	3157	.315	21.2	34.6	25.7	3423	114.8	194	146	11.4	121.3	.762	.0429	44.0	2956	5059
1990	2985	.338	20.9	34.5	25.4	3504	114.0	197	150	11.4	121.9	.773	.0430	44.6	2911	5100
1991	2633	.308	20.9	34.2	25.3	3490	113.6	197	156	11.0	124.0	.796	.0448	44.2	2887	5040
1992	2691	.345	20.8	34.3	25.2	3511	114.1	201	159	10.9	125.1	.804	.0455	44.3	2887	5069
1993	3369	.370	21.2	34.5	25.7	3505	112.8	200	162	10.7	126.2	.822	.0464	45.0	2904	5092

PERCENT OF SIX CYLINDER CARS:

MODEL YEAR	DRIVETRAIN FRONT 4WD		TRANSMISSION MANUAL LOCK		FUEL METERING FI TBI PORT CARB DSL					VEHICLE SIZE SMALL MID LARGE			DESIGNED DOM EUR ASIAN		
1975			19.3		8.3		8.3	91.7		92.4	6.9	.7	89.1	4.2	6.7
1976			15.2		4.7		4.7	95.3		84.0	15.2	.8	93.3	2.7	4.0
1977			11.9		6.7		6.7	93.3		74.8	22.9	2.3	93.1	2.3	4.7
1978			9.1	8.3	5.3		5.3	94.7		54.0	43.9	2.1	94.0	1.5	4.5
1979	.5		9.1	8.2	6.9		6.9	93.1		40.5	57.8	1.7	92.5	1.4	6.1
1980	22.0	1.5	8.2	25.7	4.3		4.3	95.5	.2	29.0	66.6	4.4	95.5	1.2	3.3
1981	14.2	.8	5.4	58.8	6.8		6.8	92.9	.3	23.1	70.5	6.4	92.9	1.2	5.9
1982	19.5	1.1	5.3	89.3	17.8	8.0	9.8	79.6	2.6	25.0	65.1	10.0	88.8	2.3	8.9
1983	22.4	1.7	6.6	90.1	12.3		12.3	85.7	2.0	31.7	64.0	4.3	87.1	3.0	9.9
1984	31.5	.9	6.1	91.9	29.8	8.8	21.0	68.8	1.4	29.9	67.0	3.1	88.3	3.3	8.3
1985	48.6		6.3	92.7	62.7	21.6	41.1	36.7	.6	30.1	56.0	13.9	86.9	3.7	9.3
1986	63.4	.3	6.9	91.1	80.1	15.4	64.7	19.6	.3	35.0	43.6	21.4	86.8	5.3	7.9
1987	73.0	.2	7.9	89.2	96.7	7.9	88.8	2.5	.8	38.1	37.9	24.0	78.4	7.2	14.4
1988	83.8	.2	5.8	92.5	99.9	2.3	97.6	.1		33.1	46.1	20.8	84.0	6.7	9.3
1989	84.1	.3	5.0	93.1	100.0	.2	99.8			19.1	61.2	19.7	84.1	6.1	9.8
1990	86.2	.1	3.9	94.3	100.0	.1	99.8			19.4	61.1	19.5	83.4	4.7	12.0
1991	87.8	.4	4.3	93.7	99.9		99.9		.1	20.3	62.4	17.3	82.8	4.5	12.7
1992	88.9	.6	6.1	90.9	100.0	.1	99.9			26.5	55.5	18.0	80.3	4.5	15.2
1993	87.9	.5	5.0	91.9	100.0	.1	99.8			29.4	49.7	20.9	79.3	4.2	16.5

TABLE H-5 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

EIGHT CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	4840	.588	11.6	16.6	13.4	4732		376	167	13.4	116.7	.446	.0354	32.0		
1976	5728	.589	13.2	18.5	15.1	4689		368	165	13.4	116.2	.448	.0352	35.6		
1977	7132	.631	14.1	19.7	16.2	4450	119.0	348	158	13.2	116.1	.455	.0356	36.1	1939	4305
1978	5882	.526	14.9	21.4	17.2	4166	119.2	335	154	12.8	117.0	.460	.0371	36.1	2085	4317
1979	5354	.496	15.4	21.4	17.6	4060	120.6	324	149	12.9	116.2	.460	.0368	35.9	2145	4344
1980	2169	.230	16.4	24.0	19.1	3920	120.6	309	135	13.6	112.8	.439	.0346	37.9	2343	4616
1981	1778	.204	17.1	26.0	20.2	3973	123.0	307	133	14.0	111.8	.440	.0337	40.9	2538	5071
1982	1377	.176	17.0	26.5	20.3	3940	123.4	305	138	13.5	114.0	.457	.0355	40.5	2537	5054
1983	1859	.232	16.8	26.4	20.1	3946	125.0	298	143	12.9	115.2	.482	.0364	39.8	2519	4999
1984	2316	.217	17.0	26.8	20.3	3913	122.3	300	144	12.8	116.0	.483	.0371	39.8	2491	4915
1985	2229	.207	18.1	28.8	21.7	3895	122.8	296	151	12.4	118.3	.509	.0389	42.3	2670	5227
1986	1651	.150	18.6	30.1	22.5	3813	120.2	299	152	12.0	119.7	.511	.0403	42.9	2712	5201
1987	1387	.129	18.4	29.6	22.2	3846	120.2	299	155	12.0	120.5	.520	.0407	42.7	2676	5177
1988	1247	.116	18.7	30.4	22.6	3854	121.5	301	164	11.6	123.3	.544	.0430	43.6	2754	5349
1989	1070	.107	18.7	30.7	22.7	3831	121.5	300	160	11.6	122.4	.535	.0423	43.5	2765	5339
1990	842	.095	18.2	30.1	22.2	3949	121.7	296	173	11.3	125.3	.593	.0441	43.9	2709	5382
1991	925	.108	18.6	31.1	22.7	3927	121.6	298	198	10.0	133.9	.670	.0508	44.7	2773	5489
1992	899	.115	18.8	30.9	22.8	4002	123.2	296	203	10.0	134.8	.692	.0511	45.7	2822	5677
1993	1016	.112	18.7	31.4	22.9	4030	125.5	294	209	9.8	136.5	.720	.0523	46.2	2888	5843

PERCENT OF EIGHT CYLINDER CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	1.7		1.6		.7		.7	99.3		27.0	37.0	36.0	99.6	.4	
1976	2.0		1.2		1.4		1.4	98.6		29.9	37.4	32.7	99.8	.2	
1977	1.8		1.0		1.1		1.1	98.9		30.6	32.7	36.7	99.8	.2	
1978	2.1		1.2	9.5	1.9		1.9	97.5	.6	14.2	46.8	39.0	99.7	.3	
1979	3.7		1.4	12.9	2.2		2.2	95.3	2.6	13.3	42.8	43.9	99.6	.4	
1980	7.6		.8	40.5	4.4	3.0	1.4	85.8	9.8	9.9	46.4	43.7	99.2	.8	
1981	8.8		1.1	80.4	13.8	13.0	.8	69.5	16.8	8.8	39.9	51.3	99.2	.8	
1982	5.5		3.9	90.8	10.4	9.1	1.3	77.9	11.7	16.7	27.3	55.9	98.7	1.3	
1983	9.6		3.5	95.5	35.4	34.4	1.0	62.4	2.2	12.7	26.6	60.7	99.0	1.0	
1984	9.3		3.2	95.8	37.6	32.5	5.2	61.7	.7	17.7	24.6	57.7	98.9	1.1	
1985	18.2		2.5	96.0	47.4	42.4	5.1	52.5	.1	14.9	26.4	58.8	98.4	1.6	
1986	12.2		4.3	93.2	48.4	12.2	36.2	51.6		19.8	31.7	48.4	97.4	2.6	
1987	14.2		4.4	92.4	55.9	13.9	42.0	44.1		20.8	29.1	50.1	96.7	3.3	
1988	16.4		6.2	91.5	76.2	19.8	56.4	23.8		23.3	17.1	59.6	97.5	2.5	
1989	21.2		7.2	90.3	90.9	36.9	54.0	9.1		22.2	10.6	67.2	97.4	2.6	
1990	27.4		6.5	91.7	96.1	13.3	82.8	3.9		15.8	17.0	67.2	91.4	2.2	6.4
1991	22.2	.1	5.0	92.8	100.0	28.4	71.6			21.2	15.9	62.9	91.4	2.3	6.3
1992	22.2		5.1	92.7	100.0	20.7	79.3			16.8	16.0	67.2	90.9	2.3	6.8
1993	21.8		3.8	94.2	100.0	17.0	83.0			10.8	16.6	72.5	90.3	2.9	6.8

TABLE H-6 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

FOUR CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	221	.112	18.7	27.1	21.7	2856	120	88	14.8	104.5	.740	.0312	31.2
1976	225	.086	20.4	29.6	23.7	2831	117	89	14.7	105.0	.756	.0317	33.7
1977	306	.108	22.9	32.4	26.4	2824	122	90	14.3	105.7	.747	.0323	37.6
1978	342	.105	23.3	31.1	26.2	2849	120	88	14.7	104.2	.730	.0310	37.7
1979	481	.156	20.3	27.9	23.1	2850	123	84	15.0	102.7	.687	.0297	33.6
1980	584	.314	21.5	28.9	24.3	2842	124	86	14.7	103.8	.699	.0306	35.1
1981	522	.287	24.2	32.5	27.3	2861	130	84	15.2	102.6	.648	.0295	39.9
1982	517	.270	24.4	32.3	27.4	2897	132	86	15.1	103.3	.652	.0300	40.4
1983	744	.324	24.1	32.3	27.2	2924	135	87	14.9	103.5	.649	.0301	40.3
1984	1083	.324	23.4	31.3	26.4	3064	135	90	15.1	103.3	.666	.0295	40.8
1985	1253	.342	23.2	30.9	26.1	3157	141	97	14.8	105.4	.691	.0310	41.5
1986	1802	.414	23.2	31.4	26.3	3159	139	97	14.5	105.4	.698	.0309	41.7
1987	1539	.372	23.2	31.6	26.4	3122	139	97	14.5	105.4	.698	.0311	41.3
1988	1247	.274	23.4	31.7	26.6	3123	139	97	14.5	105.4	.698	.0310	41.6
1989	1121	.253	23.0	31.1	26.0	3184	143	104	13.9	107.6	.725	.0327	41.6
1990	770	.202	23.4	31.5	26.5	3155	141	108	13.4	109.7	.767	.0345	42.0
1991	905	.224	23.2	31.2	26.2	3243	143	109	13.7	109.1	.763	.0337	42.6
1992	728	.165	23.1	31.5	26.3	3229	142	111	13.4	110.2	.788	.0347	42.6
1993	707	.149	23.0	31.5	26.2	3256	142	112	13.4	110.1	.790	.0345	42.8

PERCENT OF FOUR CYLINDER TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	IMPORT
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	
1975			83.7		.5			99.5		100.0				100.0
1976			81.4		.7			99.3		100.0				100.0
1977			82.3		.7			99.3		100.0				100.0
1978		6.8	88.1		.8			99.2		100.0				100.0
1979		20.5	86.4		1.8			98.2		99.2		.8	2.7	97.3
1980	4.5	22.2	90.0		5.3			92.8	1.9	89.4		10.6	2.7	97.3
1981	6.4	24.5	92.9		3.9			80.6	15.5	90.4		9.6	2.6	97.4
1982	6.2	23.3	88.9	2.1	2.4			82.0	15.6	86.6		13.4	12.9	87.1
1983	4.2	19.2	84.8	1.4	2.0			92.5	5.6	92.0		8.0	34.1	65.9
1984	15.1	21.3	75.9	7.3	7.9			88.8	3.3	79.6		20.4	32.5	67.5
1985	20.7	21.7	65.9	12.1	27.7			71.1	1.2	86.0		14.0	42.2	57.8
1986	14.1	24.7	72.6	10.8	34.8	18.5	16.3	64.4	.8	86.5		13.5	30.7	69.3
1987	10.4	26.4	73.4	12.1	38.9	23.0	15.9	60.8	.2	86.1		13.9	29.7	70.3
1988	7.8	26.8	76.9	12.0	60.4	30.7	29.8	39.6		87.1		12.9	38.6	61.4
1989	16.8	21.7	68.4	13.2	79.2	41.6	37.7	20.8		87.2		12.8	45.0	55.0
1990	10.6	23.8	75.3	20.9	85.2	24.0	61.3	14.8		72.2		27.8	34.8	65.2
1991	5.5	18.8	69.6	28.2	93.1	29.8	63.3	6.9		75.0		25.0	39.3	60.7
1992	9.7	20.7	70.4	27.5	94.0	29.0	64.9	6.0		71.9		28.1	37.0	63.0
1993	12.0	25.7	68.1	29.6	92.8	23.0	69.9	7.2		61.1		38.9	36.7	63.3

TABLE H-5 CHARACTERISTICS OF 1975 TO 1993 PASSENGER CARS

EIGHT CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	VOL CU-FT	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG	CU-FT -MPG	CU-FT- TON-MPG
			CITY	HWY	55/45			CID	HP							
1975	4840	.588	11.6	16.6	13.4	4732		376	167	13.4	116.7	.446	.0354	32.0		
1976	5728	.589	13.2	18.5	15.1	4689		368	165	13.4	116.2	.448	.0352	35.6		
1977	7132	.631	14.1	19.7	16.2	4450	119.0	348	158	13.2	116.1	.455	.0356	36.1	1939	4305
1978	5882	.526	14.9	21.4	17.2	4166	119.2	335	154	12.8	117.0	.460	.0371	36.1	2085	4317
1979	5354	.496	15.4	21.4	17.6	4060	120.6	324	149	12.9	116.2	.460	.0368	35.9	2145	4344
1980	2169	.230	16.4	24.0	19.1	3920	120.6	309	135	13.6	112.8	.439	.0346	37.9	2343	4616
1981	1778	.204	17.1	26.0	20.2	3973	123.0	307	133	14.0	111.8	.440	.0337	40.9	2538	5071
1982	1377	.176	17.0	26.5	20.3	3940	123.4	305	138	13.5	114.0	.457	.0355	40.5	2537	5054
1983	1859	.232	16.8	26.4	20.1	3946	125.0	298	143	12.9	115.2	.482	.0364	39.8	2519	4999
1984	2316	.217	17.0	26.8	20.3	3913	122.3	300	144	12.8	116.0	.483	.0371	39.8	2491	4915
1985	2229	.207	18.1	28.8	21.7	3895	122.8	296	151	12.4	118.3	.509	.0389	42.3	2670	5227
1986	1651	.150	18.6	30.1	22.5	3815	120.2	299	152	12.0	119.7	.511	.0403	42.9	2712	5201
1987	1387	.129	18.4	29.6	22.2	3846	120.2	299	155	12.0	120.5	.520	.0407	42.7	2676	5177
1988	1247	.116	18.7	30.4	22.6	3854	121.5	301	164	11.6	123.3	.544	.0430	43.6	2754	5349
1989	1070	.107	18.7	30.7	22.7	3831	121.5	300	160	11.6	122.4	.535	.0423	43.5	2765	5339
1990	842	.095	18.2	30.1	22.2	3949	121.7	296	173	11.3	125.3	.593	.0441	43.9	2709	5382
1991	925	.108	18.6	31.1	22.7	3927	121.6	298	198	10.0	133.9	.670	.0508	44.7	2773	5489
1992	899	.115	18.8	30.9	22.8	4002	123.2	296	203	10.0	134.8	.692	.0511	45.7	2822	5677
1993	1016	.112	18.7	31.4	22.9	4030	125.5	294	209	9.8	136.5	.720	.0523	46.2	2888	5843

PERCENT OF EIGHT CYLINDER CARS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED		
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	EUR	ASIAN
1975	1.7		1.6		.7		.7	99.3		27.0	37.0	36.0	99.6	.4	
1976	2.0		1.2		1.4		1.4	98.6		29.9	37.4	32.7	99.8	.2	
1977	1.8		1.0		1.1		1.1	98.9		30.6	32.7	36.7	99.8	.2	
1978	2.1		1.2	9.5	1.9		1.9	97.5	.6	14.2	46.8	39.0	99.7	.3	
1979	3.7		1.4	12.9	2.2		2.2	95.3	2.6	13.3	42.8	43.9	99.6	.4	
1980	7.6		.8	40.5	4.4	3.0	1.4	85.8	9.8	9.9	46.4	43.7	99.2	.8	
1981	8.8		1.1	80.4	13.8	13.0	.8	69.5	16.8	8.8	39.9	51.3	99.2	.8	
1982	5.5		3.9	90.8	10.4	9.1	1.3	77.9	11.7	16.7	27.3	55.9	98.7	1.3	
1983	9.6		3.5	95.5	35.4	34.4	1.0	62.4	2.2	12.7	26.6	60.7	99.0	1.0	
1984	9.3		3.2	95.8	37.6	32.5	5.2	61.7	.7	17.7	24.6	57.7	98.9	1.1	
1985	18.2		2.5	96.0	47.4	42.4	5.1	52.5	.1	14.9	26.4	58.8	98.4	1.6	
1986	12.2		4.3	93.2	48.4	12.2	36.2	51.6		19.8	31.7	48.4	97.4	2.6	
1987	14.2		4.4	92.4	55.9	13.9	42.0	44.1		20.8	29.1	50.1	96.7	3.3	
1988	16.4		6.2	91.5	76.2	19.8	56.4	23.8		23.3	17.1	59.6	97.5	2.5	
1989	21.2		7.2	90.3	90.9	36.9	54.0	9.1		22.2	10.6	67.2	97.4	2.6	
1990	27.4		6.5	91.7	96.1	13.3	82.8	3.9		15.8	17.0	67.2	91.4	2.2	6.4
1991	22.2	.1	5.0	92.8	100.0	28.4	71.6			21.2	15.9	62.9	91.4	2.3	6.3
1992	22.2		5.1	92.7	100.0	20.7	79.3			16.8	16.0	67.2	90.9	2.3	6.8
1993	21.8		3.8	94.2	100.0	17.0	83.0			10.8	16.6	72.5	90.3	2.9	6.8

TABLE H-6 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

FOUR CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	221	.112	18.7	27.1	21.7	2856	120	88	14.8	104.5	.740	.0312	31.2
1976	225	.086	20.4	29.6	23.7	2831	117	89	14.7	105.0	.756	.0317	33.7
1977	306	.108	22.9	32.4	26.4	2824	122	90	14.3	105.7	.747	.0323	37.6
1978	342	.105	23.3	31.1	26.2	2849	120	88	14.7	104.2	.730	.0310	37.7
1979	481	.156	20.3	27.9	23.1	2850	123	84	15.0	102.7	.687	.0297	33.6
1980	584	.314	21.5	28.9	24.3	2842	124	86	14.7	103.8	.699	.0306	35.1
1981	522	.287	24.2	32.5	27.3	2861	130	84	15.2	102.6	.648	.0295	39.9
1982	517	.270	24.4	32.3	27.4	2897	132	86	15.1	103.3	.652	.0300	40.4
1983	744	.324	24.1	32.3	27.2	2924	135	87	14.9	103.5	.649	.0301	40.3
1984	1083	.324	23.4	31.3	26.4	3064	135	90	15.1	103.3	.666	.0295	40.8
1985	1253	.342	23.2	30.9	26.1	3157	141	97	14.8	105.4	.691	.0310	41.5
1986	1802	.414	23.2	31.4	26.3	3159	139	97	14.5	105.4	.698	.0309	41.7
1987	1539	.372	23.2	31.6	26.4	3122	139	97	14.5	105.4	.698	.0311	41.3
1988	1247	.274	23.4	31.7	26.6	3123	139	97	14.5	105.4	.698	.0310	41.6
1989	1121	.253	23.0	31.1	26.0	3184	143	104	13.9	107.6	.725	.0327	41.6
1990	770	.202	23.4	31.5	26.5	3155	141	108	13.4	109.7	.767	.0345	42.0
1991	905	.224	23.2	31.2	26.2	3243	143	109	13.7	109.1	.763	.0337	42.6
1992	728	.165	23.1	31.5	26.3	3229	142	111	13.4	110.2	.788	.0347	42.6
1993	707	.149	23.0	31.5	26.2	3256	142	112	13.4	110.1	.790	.0345	42.8

PERCENT OF FOUR CYLINDER TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED	
	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	DOM	IMPORT
1975			83.7		.5			99.5		100.0				100.0
1976			81.4		.7			99.3		100.0				100.0
1977			82.3		.7			99.3		100.0				100.0
1978		6.8	88.1		.8			99.2		100.0				100.0
1979		20.5	86.4		1.8			98.2		99.2		.8	2.7	97.3
1980	4.5	22.2	90.0		5.3			92.8	1.9	89.4		10.6	2.7	97.3
1981	6.4	24.5	92.9		3.9			80.6	15.5	90.4		9.6	2.6	97.4
1982	6.2	23.3	88.9	2.1	2.4			82.0	15.6	86.6		13.4	12.9	87.1
1983	4.2	19.2	84.8	1.4	2.0			92.5	5.6	92.0		8.0	34.1	65.9
1984	15.1	21.3	75.9	7.3	7.9			88.8	3.3	79.6		20.4	32.5	67.5
1985	20.7	21.7	65.9	12.1	27.7			71.1	1.2	86.0		14.0	42.2	57.8
1986	14.1	24.7	72.6	10.8	34.8	18.5	16.3	64.4	.8	86.5		13.5	30.7	69.3
1987	10.4	26.4	73.4	12.1	38.9	23.0	15.9	60.8	.2	86.1		13.9	29.7	70.3
1988	7.8	26.8	76.9	12.0	60.4	30.7	29.8	39.6		87.1		12.9	38.6	61.4
1989	16.8	21.7	68.4	13.2	79.2	41.6	37.7	20.8		87.2		12.8	45.0	55.0
1990	10.6	23.8	75.3	20.9	85.2	24.0	61.3	14.8		72.2		27.8	34.8	65.2
1991	5.5	18.8	69.6	28.2	93.1	29.8	63.3	6.9		75.0		25.0	39.3	60.7
1992	9.7	20.7	70.4	27.5	94.0	29.0	64.9	6.0		71.9		28.1	37.0	63.0
1993	12.0	25.7	68.1	29.6	92.8	23.0	69.9	7.2		61.1		38.9	36.7	63.3

TABLE H-7 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

SIX CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL CITY	ECONOMY HWY	55/45	WGHT LB	ENGINE CID	HP	0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
1975	272	.137	14.9	19.7	16.8	3960	269	102	16.9	101.5	.383	.0259	33.5
1976	445	.170	16.1	21.2	18.1	3936	267	102	16.7	101.8	.387	.0262	36.0
1977	410	.145	16.6	21.4	18.4	3956	271	110	15.9	104.2	.407	.0280	36.9
1978	558	.171	16.1	20.7	17.9	3973	273	116	15.2	106.0	.426	.0293	35.9
1979	515	.167	15.7	19.6	17.2	4066	264	122	14.8	107.5	.465	.0303	35.4
1980	555	.298	16.7	22.3	18.8	4016	268	118	15.1	106.5	.445	.0295	38.0
1981	636	.350	17.5	23.4	19.7	3956	272	119	14.8	107.2	.442	.0303	39.2
1982	642	.336	18.4	25.2	20.9	3693	243	113	14.6	107.2	.481	.0311	38.7
1983	751	.327	18.3	25.8	21.1	3754	229	112	15.0	106.3	.510	.0302	39.7
1984	1200	.359	18.0	25.5	20.8	3729	221	110	15.1	105.8	.523	.0298	38.9
1985	1217	.332	18.5	26.7	21.5	3704	216	117	14.5	108.3	.561	.0317	39.9
1986	1379	.317	18.2	25.7	20.9	3793	218	129	13.6	111.9	.623	.0344	39.7
1987	1689	.409	18.5	26.8	21.5	3756	214	141	12.6	116.3	.680	.0379	40.5
1988	2063	.453	18.5	27.1	21.6	3779	218	146	12.2	117.8	.689	.0389	40.9
1989	2104	.474	18.4	26.6	21.4	3887	227	148	12.4	117.6	.674	.0384	41.8
1990	1951	.513	18.4	26.9	21.4	3952	220	147	12.6	116.7	.687	.0376	42.5
1991	2386	.590	18.3	26.9	21.4	3989	228	153	12.3	118.2	.685	.0386	42.7
1992	2616	.592	17.8	26.2	20.8	4096	233	154	12.5	117.9	.677	.0380	42.7
1993	2798	.592	18.1	27.0	21.3	4060	232	163	11.9	121.0	.715	.0405	43.3

PERCENT OF SIX CYLINDER TRUCKS:

MODEL YEAR	DRIVETRAIN FRONT	4WD	TRANSMISSION MANUAL	LOCK	FUEL METERING FI	TBI	PORT	CARB	DSL	VEHICLE SIZE SMALL	MID	LARGE	DESIGNED DOM	IMPORT
1975		5.1	18.8					100.0		3.0	97.0	100.0		
1976		10.7	35.5					100.0		8.3	91.7	98.1		1.9
1977		14.2	32.4					100.0		10.6	89.4	96.1		3.9
1978		14.6	32.0					99.8	.2	9.8	90.2	97.2		2.8
1979		19.5	61.0	3.4				99.3	.7	10.9	89.1	99.2		.8
1980		18.3	61.9	20.8				99.1	.9	6.4	93.6	99.7		.3
1981		14.5	57.3	24.3				100.0		4.6	95.4	99.7		.3
1982		12.8	52.5	31.2				100.0		31.3	68.7	99.5		.5
1983		32.4	48.5	36.3				100.0		48.0	52.0	99.5		.5
1984		41.2	41.4	36.1				100.0		56.5	43.5	99.6		.4
1985		43.0	37.7	51.9	.5	.5		99.5		63.7	36.3	99.5		.5
1986		37.8	33.3	54.4	58.3	34.7	23.5	41.6	.1	66.3	33.7	96.8		3.2
1987	8.7	36.2	26.7	66.3	89.8	36.5	53.2	10.2		72.7	27.3	96.4		3.6
1988	15.2	35.5	26.5	67.5	98.5	38.2	60.3	1.5		73.8	26.2	95.5		4.5
1989	11.9	35.0	25.6	69.5	98.3	39.2	59.1	1.7		73.0	27.0	91.4		8.6
1990	26.1	31.8	20.1	76.9	98.6	32.0	66.6	1.4		75.6	24.4	87.5		12.5
1991	14.5	41.6	23.3	75.7	100.0	40.5	59.5			80.4	19.6	88.8		11.2
1992	17.1	41.3	19.5	78.8	100.0	23.6	76.4			75.3	24.7	90.3		9.7
1993	21.3	37.0	20.0	78.4	100.0	16.2	83.8			66.7	33.3	87.8		12.2

TABLE H-8 CHARACTERISTICS OF 1975 TO 1993 LIGHT TRUCKS

EIGHT CYLINDER

MODEL YEAR	SALES (000)	FRAC	FUEL ECONOMY			WGHT LB	ENGINE		0-60 TIME	TOP SPEED	HP/ CID	HP/ WT	TON -MPG
-----	-----	-----	CITY	HWY	55/45	----	CID	HP	----	-----	----	-----	-----
1975	1490	.750	11.2	14.9	12.6	4275	347	157	12.8	117.3	.452	.0371	27.1
1976	1938	.742	11.8	15.5	13.2	4361	355	155	13.1	116.1	.437	.0360	28.9
1977	2105	.745	12.9	16.6	14.4	4362	356	163	12.7	118.2	.457	.0375	31.5
1978	2372	.725	12.6	15.9	13.9	4381	352	161	12.7	117.6	.458	.0370	30.8
1979	2092	.677	12.1	14.9	13.2	4620	347	154	14.0	113.8	.445	.0336	30.9
1980	723	.388	13.7	18.2	15.4	4585	333	151	13.9	112.9	.453	.0331	35.9
1981	662	.364	14.9	20.1	16.9	4405	315	145	13.9	112.4	.462	.0331	37.6
1982	754	.394	15.2	20.4	17.2	4526	319	150	13.9	113.2	.473	.0335	39.9
1983	804	.350	15.0	20.5	17.0	4547	321	151	13.8	113.5	.477	.0336	39.7
1984	1062	.317	14.4	19.9	16.5	4573	320	154	13.7	114.2	.485	.0340	38.3
1985	1198	.327	14.3	19.6	16.3	4555	318	159	13.3	115.7	.502	.0352	37.5
1986	1169	.269	14.9	20.6	17.1	4563	315	157	13.5	114.9	.498	.0345	39.2
1987	906	.219	14.6	20.4	16.7	4637	323	171	12.9	118.5	.527	.0369	39.0
1988	1249	.274	14.9	21.3	17.2	4662	329	178	12.5	120.4	.538	.0383	40.2
1989	1210	.273	14.7	21.3	17.1	4663	330	182	12.3	121.9	.550	.0394	40.0
1990	1084	.285	14.6	21.6	17.1	4704	335	189	12.0	123.4	.562	.0404	40.3
1991	756	.187	14.6	21.7	17.1	4667	332	190	11.8	124.2	.573	.0410	40.0
1992	1076	.243	14.6	22.0	17.2	4790	336	196	11.8	124.9	.583	.0412	41.3
1993	1220	.258	14.9	22.6	17.6	4778	331	200	11.5	126.1	.605	.0422	42.1

PERCENT OF EIGHT CYLINDER TRUCKS:

MODEL YEAR	DRIVETRAIN		TRANSMISSION		FUEL METERING					VEHICLE SIZE			DESIGNED DOM	IMPORT
-----	FRONT	4WD	MANUAL	LOCK	FI	TBI	PORT	CARB	DSL	SMALL	MID	LARGE	-----	-----
1975		21.8	33.4					100.0		2.6		97.4	100.0	
1976		28.4	29.2					100.0		1.2		98.8	100.0	
1977		28.9	24.5					100.0		1.4		98.6	100.0	
1978		35.5	24.4					98.9	1.1	1.6		98.4	100.0	
1979		17.0	17.0	2.2				97.5	2.5	1.8		98.2	100.0	
1980		32.5	16.3	47.3				93.4	6.6	1.0		99.0	100.0	
1981	.5	22.0	13.6	62.1				96.8	3.2	.3		99.7	100.0	
1982	.1	24.0	10.2	56.3				87.0	13.0			100.0	100.0	
1983		25.6	7.4	68.2				91.7	8.3			100.0	100.0	
1984		29.3	8.5	62.4				96.0	4.0			100.0	100.0	
1985		27.4	6.5	63.8	8.1			89.9	2.0			100.0	100.0	
1986		29.9	7.6	75.7	28.5		28.4	70.2	1.3			100.0	100.0	
1987		31.3	7.8	60.1	71.7	46.1	25.7	27.5	.8			100.0	99.8	.2
1988		36.1	9.0	70.2	97.2	68.5	28.8	2.1	.7			100.0	99.7	.3
1989		36.3	11.8	75.1	98.4	68.0	30.4	1.0	.6			100.0	99.6	.4
1990		35.6	9.2	83.3	98.8	68.5	30.3	.6	.6			100.0	99.6	.4
1991		35.0	8.9	88.3	98.8	68.0	30.9	.5	.7	1.3		98.7	99.5	.5
1992		33.3	7.2	90.6	99.5	59.0	40.5		.5	.4		99.6	99.7	.3
1993		37.7	7.9	90.5	99.7	57.2	42.6		.3	.1		99.9	99.6	.4