11/10-11-91 85①

ORNL-6672/S1

**OAK RIDGE
NATIONAL
LABORATORY**

**LIGHT-DUTY VEHICLE SUMMARY:
First Six Months of Model Year 1991**

MARTIN MARIETTA

P. S. Hu

**MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY**

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, P. O. Box 62, Oak Ridge, TN 37831; prices available from (615) 576-8401, FTS 626-8401.

Available to the public from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, VA 22161.

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

ORNL--6672/S1

DE92 000520

**LIGHT-DUTY VEHICLE SUMMARY:
FIRST SIX MONTHS OF MODEL YEAR 1991**

Patricia S. Hu

August 1991

**Prepared for
Office of Transportation Technologies
U.S. Department of Energy**

**Prepared by the
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under
Contract No. DE-AC05-84OR21400**

MASTER

Table 1
Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies
of New *Domestic and Import Automobiles*, Model Years 1976-1991^a

	1976	1980	1982	1984	1986	1988	1989	1990	1991 ^b
MINICOMPACT									
Total sales, units		428,346	221,699	41,368	191,490	84,186	20,677	76,698	38,049
Market share, %		4.7	2.9	0.4	1.7	0.8	0.2	0.8	0.9
Fuel economy, mpg		29.4	36.5	29.0	31.9	37.8	24.9	26.4	27.9
SUBCOMPACT									
Total sales, units	2,625,929	3,441,480	2,404,489	2,510,929	2,350,081	1,983,353	1,963,385	2,030,226	1,029,030
Market share, %	27.1	37.8	31.4	24.6	21.2	19.1	19.3	22.0	25.7
Fuel economy, mpg	23.5	27.3	30.2	30.5	30.7	31.7	31.3	31.3	31.6
COMPACT									
Total sales, units	2,839,603	599,423	1,300,372	2,768,056	3,829,093	4,199,638	3,690,419	3,156,481	1,197,319
Market share, %	29.3	6.6	17.0	27.1	34.5	40.5	36.3	34.2	29.9
Fuel economy, mpg	17.1	22.3	30.1	30.6	30.0	29.8	29.8	28.9	28.6
MIDSIZE									
Total sales, units	1,815,505	3,073,103	2,533,121	3,059,647	2,985,835	2,550,964	2,939,948	2,511,503	1,107,166
Market share, %	18.7	33.8	33.1	30.0	26.9	24.6	28.9	27.2	27.6
Fuel economy, mpg	15.3	21.3	24.1	24.1	25.6	26.9	26.4	25.9	25.8
LARGE									
Total sales, units	2,206,102	1,336,190	995,561	1,502,097	1,467,077	1,368,717	1,400,514	1,279,092	567,067
Market share, %	22.8	14.7	13.0	14.7	13.2	13.2	13.8	13.9	14.2
Fuel economy, mpg	13.9	19.3	20.6	20.2	23.8	24.2	23.9	23.5	23.3
TWO SEATER									
Total sales, units	199,716	215,964	202,929	328,968	275,470	186,127	158,884	170,465	68,621
Market share, %	2.1	2.4	2.6	3.2	2.5	1.8	1.6	1.8	1.7
Fuel economy, mpg	20.1	21.0	25.1	26.5	28.4	27.3	27.0	28.0	27.4
FLEET									
Total sales, units	9,686,855	9,094,506	7,658,171	10,211,065	11,099,046	10,372,985	10,173,827	9,224,465	4,007,252
Market share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel economy, mpg	17.2	23.2	26.3	26.3	27.9	28.5	28.0	27.6	27.5

^aThese figures represent only those sales that could be matched to corresponding EPA fuel economy values.

^bRepresents sales for the first six months of model year 1991 (October through March).

Fig. 1. *Automobile MPG, Model Years 1976 to the First Six Months of Model Year 1991.*

Fig. 2. Fuel Economies of Domestic and Import Automobiles by EPA Size Classification, Model Years 1976 to the First Six Months of Model Year 1991.

Fig. 3. Market Shares of Domestic and Import Automobiles by EPA Size Classification, Model Years 1976 to the First Six Months of Model Year 1991.

Table 2
Fuel Economies of New *Automobiles*
 by Production Location and Sponsorship
 Model Years 1976-1991^a

Model year	Manufactured in U.S. (Domestic)		Manufactured abroad (Import)	
	U.S. owned	Transplants & joint ventures	Foreign owned	Captive imports
1976	16.4	--	25.6	25.8
1977	17.5	--	27.9	27.2
1978	18.6	--	27.4	33.0
1979	19.3	32.4	26.3	31.9
1980	21.6	34.6	28.3	31.6
1981	23.7	39.1	30.2	31.4
1982	24.7	38.5	30.9	34.0
1983	24.4	35.5	31.8	33.9
1984	25.0	35.2	31.1	36.7
1985	25.9	33.6	30.2	38.2
1986	26.7	33.3	30.1	41.9
1987	26.9	33.2	29.8	37.3
1988	27.3	32.9	30.0	38.5
1989	26.9	31.8	29.2	38.1
1990	26.5	30.7	28.4	35.9
1991 ^a	26.6	30.0	28.3	34.4

^aRepresents sales for the first six months of model year 1991 (October through March).

Table 3
Market Shares of New *Automobiles*
 by Production Location and Sponsorship
 Model Years 1976-1991^a

Model year	Manufactured in U.S. (Domestic)		Manufactured abroad (Import)	
	U.S. owned	Transplants & joint ventures	Foreign owned	Captive imports
1976	87.3	0.0	11.9	0.8
1977	83.6	0.0	15.0	1.4
1978	82.4	0.0	15.8	1.8
1979	78.7	1.3	17.8	2.2
1980	72.2	2.1	23.4	2.2
1981	72.4	1.8	24.1	1.7
1982	71.0	1.4	26.2	1.4
1983	72.5	1.3	25.1	1.1
1984	75.5	2.0	21.7	0.8
1985	74.2	2.2	22.3	1.3
1986	69.8	2.8	24.8	2.6
1987	65.2	5.2	26.8	2.8
1988	65.0	5.8	25.8	3.4
1989	65.3	7.3	24.0	3.4
1990	62.4	11.2	23.1	3.3
1991 ^a	62.7	12.3	22.4	2.7

^aRepresents sales for the first six months of model year 1991 (October through March).

Fig. 4. Market Shares of *Automobiles* by Production Location and Sponsorship, Model Years 1976 to the First Six Months of Model Year 1991.

Table 4
Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies
of New *Domestic Automobiles*, Model Years 1976-1991^a

	1976	1980	1982	1984	1986	1988	1989	1990	1991 ^b
MINICOMPACT									
Total sales, units		191,128							
Market share, %		2.8							
Fuel economy, mpg		26.9							
SUBCOMPACT									
Total sales, units	1,670,282	1,687,997	891,038	1,066,496	958,978	559,744	727,659	989,855	617,381
Market share, %	19.8	25.0	16.1	13.5	11.9	7.6	9.9	14.6	20.6
Fuel economy, mpg	21.7	25.1	27.7	27.6	28.1	27.9	28.2	29.8	31.1
COMPACT									
Total sales, units	2,729,379	447,214	1,047,620	2,187,539	2,664,854	3,036,988	2,611,562	2,311,013	836,874
Market share, %	32.3	6.6	18.9	27.7	33.1	41.4	35.4	34.0	27.9
Fuel economy, mpg	17.0	22.2	30.7	30.5	30.1	30.0	30.3	29.4	29.1
MIDSIZE									
Total sales, units	1,809,197	3,057,885	2,530,583	2,999,888	2,867,062	2,324,670	2,615,703	2,185,428	974,421
Market share, %	21.4	45.2	45.6	37.9	35.6	31.7	35.4	32.2	32.4
Fuel economy, mpg	15.4	21.3	24.1	24.2	25.7	27.1	26.6	26.2	26.0
LARGE									
Total sales, units	2,206,102	1,336,190	995,561	1,502,097	1,459,034	1,357,109	1,390,425	1,270,741	562,713
Market share, %	26.1	19.8	18.0	19.0	18.1	18.5	18.8	18.7	18.7
Fuel economy, mpg	13.9	19.3	20.6	20.2	23.8	24.2	23.9	23.5	23.3
TWO SEATER									
Total sales, units	41,027	37,471	79,724	152,274	107,878	58,990	39,429	32,807	12,438
Market share, %	0.5	0.6	1.4	1.9	1.3	0.8	0.5	0.5	0.4
Fuel economy, mpg	15.8	16.9	27.4	28.5	26.2	25.1	23.6	22.6	22.3
FLEET									
Total sales, units	8,455,987	6,757,885	5,544,526	7,908,294	8,057,806	7,337,501	7,384,778	6,789,844	3,003,827
Market share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel economy, mpg	16.4	21.8	24.9	25.2	26.9	27.7	27.3	27.1	27.1

^aThese figures represent only those sales that could be matched to corresponding EPA fuel economy values.

^bRepresents sales for the first six months of model year 1991 (October through March).

Table 5
Sales-weighted Fuel Economies, ORNL vs. NHTSA
Domestic Cars
Selected Manufacturers and Model Years

Manufacturer	Model Year	ORNL Sales-Weighted MPG	NHTSA Sales-Weighted MPG
AMC ^a	1978	18.8	18.6
	1983	31.6	24.5
Chrysler	1978	18.1	18.4
	1983	27.2	26.9
	1989	27.3	28.0
Ford	1978	18.1	18.4
	1983	24.6	24.3
	1989	26.7	26.6
GMC	1978	18.9	19.0
	1983	23.6	24.0
	1989	26.9	27.3

^aAMC merged with Chrysler Corporation in 1987, thus sales are no longer reported for AMC products past 1987.

Fig. 5. Sales-weighted *Fuel Economies*, ORNL vs. NHTSA, *Domestic Automobiles*, for Selected Model Years.

Table 6
Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies
of New *Import Automobiles*, Model Years 1976-1991^a

	1976	1980	1982	1984	1986	1988	1989	1990	1991 ^b
MINICOMPACT									
Total sales, units	237,218	221,699	41,368	191,490	84,186	20,677	76,698	38,049	
Market share, %	10.2	10.5	1.8	6.3	2.8	0.7	3.2	3.8	
Fuel economy, mpg	31.8	36.5	29.0	31.9	37.8	24.9	26.4	27.9	
SUBCOMPACT									
Total sales, units	955,647	1,753,483	1,513,451	1,444,433	1,391,103	1,423,609	1,235,726	1,040,371	411,649
Market share, %	77.6	75.0	71.6	62.7	45.7	46.9	44.3	42.7	41.0
Fuel economy, mpg	27.5	29.9	31.9	33.1	32.8	33.5	33.4	32.9	32.3
COMPACT									
Total sales, units	110,224	152,209	252,752	580,517	1,164,239	1,162,650	1,078,857	845,468	360,445
Market share, %	9.0	6.5	12.0	25.2	38.3	38.3	38.7	34.7	35.9
Fuel economy, mpg	20.0	22.5	27.5	31.1	29.8	29.3	28.9	27.6	27.6
MIDSIZE									
Total sales, units	6,308	15,218	2,538	59,759	118,773	226,294	324,245	326,075	132,745
Market share, %	0.5	0.7	0.1	2.6	3.9	7.5	11.6	13.4	13.2
Fuel economy, mpg	13.0	21.1	19.0	22.1	23.5	24.6	24.9	24.2	24.1
LARGE									
Total sales, units					8,043	11,608	10,089	8,351	4,354
Market share, %					0.3	0.4	0.4	0.3	0.4
Fuel economy, mpg					28.0	25.7	25.9	24.3	23.8
TWO SEATER									
Total sales, units	158,689	178,493	123,205	176,694	167,592	127,137	119,455	137,658	56,183
Market share, %	12.9	7.6	5.8	7.7	5.5	4.2	4.3	5.7	5.6
Fuel economy, mpg	21.6	22.1	23.8	25.1	30.0	28.4	28.4	29.7	28.9
FLEET									
Total sales, units	1,230,868	2,336,621	2,113,645	2,302,771	3,041,240	3,005,484	2,789,049	2,434,621	1,003,425
Market share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel economy, mpg	25.6	28.6	31.0	31.3	30.9	30.8	30.1	29.1	28.8

^aThese figures represent only those sales that could be matched to corresponding EPA fuel economy values.

^bRepresents sales for the first six months of model year 1991 (October through March).

Table 7
Sales-weighted Fuel Economies, ORNL vs. NHTSA
Import Cars
Selected Manufacturers and Model Years

Manufacturer	Model Year	ORNL Sales-Weighted MPG ^a	NHTSA Sales-Weighted MPG ^a
Chrysler	1978	30.9	30.6
	1983	33.9	34.5
	1989	33.5	30.3
Ford	1978	38.0	37.3
	1983		
	1989	41.5	31.5
GMC	1978	27.0	
	1983		
	1989	39.5	37.1
Honda	1978	33.7	33.7
	1983	37.0	36.0
	1989	28.9	31.6
Nissan	1978	26.5	26.8
	1983	32.3	33.4
	1989	28.3	30.4
Toyota	1978	28.0	26.8
	1983	33.2	33.3
	1989	31.3	32.1
Volvo	1978	21.4	21.2
	1983	26.6	26.5
	1989	24.8	25.0
Volkswagen	1978	30.6	27.2
	1983	33.9	30.7
	1989	30.8	30.4

^aEmpty cells are the result of unavailable data.

Fig. 6. Sales-weighted *Fuel Economies*, ORNL vs. NHTSA, *Import Automobiles*, for Selected Model Years.

^a Represents sales of the 1st six months of 1991

Fig. 7. Market Shares of Domestic and Import Automobiles of Selected Manufacturers for Selected Model Years.

Table 8
Model Year Sales and Market Shares of Automobiles
Domestic Manufactures
Model Years 1978, 1983, 1991

[illegible]

Table 10
Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies
of New *Domestic and Import Light Trucks*, Model Years 1976-1991^a

	1976	1980	1982	1984	1986	1988	1989	1990	1991 ^b
SMALL PICKUP									
Total sales, units	170,351	516,412	579,263	1,012,298	1,225,570	1,026,551	877,839	678,488	286,669
Market share, %	7.1	23.3	27.2	28.0	27.0	21.6	18.4	15.0	15.4
Fuel economy, mpg	23.9	25.5	28.1	27.2	26.1	26.1	25.7	25.2	25.6
LARGE PICKUP									
Total sales, units	1,586,020	1,115,248	1,000,772	1,218,972	1,325,547	1,453,255	1,580,916	1,573,729	594,297
Market share, %	66.4	50.3	46.9	33.7	29.2	30.6	33.2	34.9	32.0
Fuel economy, mpg	15.1	17.0	18.6	17.5	18.4	18.5	18.2	18.9	18.9
SMALL VAN									
Total sales, units	18,651	13,649	11,964	222,798	640,936	851,384	859,311	932,693	409,411
Market share, %	0.8	0.6	0.6	6.2	14.1	18.0	18.0	20.7	22.1
Fuel economy, mpg	19.5	19.6	22.5	25.0	23.8	22.9	22.9	23.1	22.6
LARGE VAN									
Total sales, units	574,745	328,065	379,110	545,595	510,558	486,981	471,762	398,877	137,472
Market share, %	24.1	14.8	17.8	15.1	11.3	10.3	9.9	8.8	7.4
Fuel economy, mpg	15.4	16.3	17.0	16.3	17.3	17.0	16.7	16.9	17.1
SMALL UTILITY									
Total sales, units	4,716	75,875	28,376	398,000	598,652	701,005	747,550	738,294	365,578
Market share, %	0.2	3.4	1.3	11.0	13.2	14.8	15.7	16.4	19.7
Fuel economy, mpg	15.5	16.9	20.9	23.0	21.5	22.4	21.7	21.9	21.3
LARGE UTILITY									
Total sales, units	32,427	167,288	133,355	215,271	233,625	223,824	228,664	192,544	62,875
Market share, %	1.4	7.5	6.3	6.0	5.2	4.7	4.8	4.3	3.4
Fuel economy, mpg	14.7	14.6	16.9	15.7	15.9	16.2	16.2	16.1	16.2
FLEET									
Total sales, units	2,386,910	2,216,537	2,132,840	3,612,934	4,534,888	4,743,000	4,766,042	4,514,625	1,856,302
Market share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel economy, mpg	15.6	18.1	20.0	20.0	20.8	20.7	20.2	20.5	20.7

^aThese figures represent only those sales that could be matched to corresponding EPA fuel economy values.

^bRepresents sales for the first six months of model year 1991 (October through March).

Fig. 8. *Light Truck* MPG, Model Year 1976 to the First Six Months of Model Year 1991.

Fig. 9. Fuel Economies of Domestic and Import Light Trucks by Size Classification, Model Years 1976 to the First Six Months of Model Year 1991.

Fig. 10. Market Shares of Domestic and Import Light Trucks by Size Classification, Model Years 1976 to the First Six Months of Model Year 1991.

Table 11
Fuel Economies of New *Light Trucks*
 by Production Location and Sponsorship
 Model Years 1976-1991^a

Model year	Manufactured in U.S. (Domestic)		Manufactured abroad (Import)	
	U.S. owned	Transplants & joint ventures	Foreign owned	Captive imports
1976	15.2	--	21.2	24.1
1977	16.7	--	24.6	27.2
1978	16.5	--	25.2	27.8
1979	15.6	--	21.4	25.5
1980	16.6	15.7	24.5	26.2
1981	18.1	--	28.5	26.3
1982	18.7	--	28.1	28.2
1983	19.3	--	27.9	28.3
1984	18.7	31.9	27.9	28.5
1985	19.1	27.3	27.9	27.7
1986	19.5	27.5	26.9	25.5
1987	19.7	24.8	26.2	25.7
1988	20.0	24.2	24.4	25.8
1989	19.7	23.6	23.6	25.9
1990	20.0	25.5	23.2	24.5
1991 ^a	20.2	24.6	22.5	24.7

^aRepresents sales for the first six months of model year 1991 (October through March).

Table 12
Market Shares of New *Light Trucks*
 by Production Location and Sponsorship
 Model Years 1976-1991^a

Model year	Manufactured in U.S. (Domestic)		Manufactured abroad (Import)	
	U.S. owned	Transplants & joint ventures	Foreign owned	Captive imports
1976	91.8	0.0	4.3	3.9
1977	87.5	0.0	7.2	5.3
1978	88.7	0.0	6.8	4.5
1979	83.0	0.0	9.3	7.7
1980	75.0	0.9	13.7	10.4
1981	74.9	0.0	15.9	9.2
1982	80.3	0.0	14.9	4.8
1983	81.3	0.0	16.2	2.5
1984	80.2	2.0	15.9	1.8
1985	77.8	2.6	17.5	2.1
1986	76.8	2.3	18.6	2.4
1987	76.4	1.7	19.1	2.8
1988	81.7	2.4	14.1	1.8
1989	83.6	2.6	12.4	1.4
1990	82.7	3.4	13.3	0.6
1991 ^a	81.4	4.3	14.0	0.4

^aRepresents sales for the first six months of model year 1991 (October through March).

ORNL-DWG 91-7846R

Fig. 11. Market Shares of *Light Trucks* by Production Location and Sponsorship, Model Years 1976 to the First Six Months of Model Year 1991.

Table 13
Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies
of New *Domestic Light Trucks*, Model Years 1976-1991^a

	1976	1980	1982	1984	1986	1988	1989	1990	1991 ^b
SMALL PICKUP									
Total sales, units			174,956	533,068	625,099	673,772	603,507	613,757	260,917
Market share, %			10.2	17.9	17.4	16.9	14.7	15.8	16.4
Fuel economy, mpg			26.9	25.3	24.3	26.1	25.3	25.3	25.6
LARGE PICKUP									
Total sales, units	1,586,020	1,115,248	1,000,772	1,151,696	1,178,326	1,313,554	1,461,531	1,293,795	487,010
Market share, %	72.4	66.3	58.4	38.7	32.9	32.9	35.6	33.3	30.6
Fuel economy, mpg	15.1	17.0	18.6	17.2	17.9	18.1	17.9	18.0	18.1
SMALL VAN									
Total sales, units				146,877	542,776	784,072	779,680	834,006	354,790
Market share, %				4.9	15.1	19.7	19.0	21.5	22.3
Fuel economy, mpg				25.0	23.6	22.8	22.8	23.1	22.7
LARGE VAN									
Total sales, units	574,745	328,065	379,110	545,595	510,558	486,981	471,762	398,877	137,472
Market share, %	26.2	19.5	22.1	18.4	14.2	12.2	11.5	10.3	8.6
Fuel economy, mpg	15.4	16.3	17.0	16.3	17.3	17.0	16.7	16.9	17.1
SMALL UTILITY									
Total sales, units	4,716	75,875	28,376	384,376	499,208	517,909	573,285	563,241	293,043
Market share, %	0.2	4.5	1.7	12.9	13.9	13.0	14.0	14.5	18.4
Fuel economy, mpg	15.5	16.9	20.9	23.0	20.8	22.0	21.7	22.2	21.4
LARGE UTILITY									
Total sales, units	25,536	163,387	130,505	211,178	228,450	213,370	219,134	182,626	56,914
Market share, %	1.2	9.7	7.6	7.1	6.4	5.3	5.3	4.7	3.6
Fuel economy, mpg	16.2	14.6	17.0	15.7	15.9	16.2	16.2	16.1	16.3
FLEET									
Total sales, units	2,191,017	1,682,575	1,713,719	2,972,790	3,584,417	3,989,658	4,108,899	3,886,302	1,590,146
Market share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel economy, mpg	15.2	16.6	18.7	18.9	19.6	20.1	19.8	20.2	20.4

^aThese figures represent only those sales that could be matched to corresponding EPA fuel economy values.

^bRepresents sales for the first six months of model year 1991 (October through March).

Table 14
 Sales-weighted Fuel Economies, ORNL vs. NHTSA
Domestic Light Trucks
 Selected Manufacturers and Model Years

Manufacturer	Model Year	ORNL Sales-Weighted MPG ^a	NHTSA Sales-Weighted MPG ^a
AMC ^b	1978	16.4	
	1983	19.4	23.3
Chrysler	1978	16.4	
	1983	17.3	17.6
	1989	20.3	21.1
Ford	1978	17.6	
	1983	17.9	19.7
	1989	19.0	20.1
GMC	1978	15.8	
	1983	21.0	20.5
	1989	19.9	20.9

^aEmpty cells are the result of unavailable data.

^bAMC merged with Chrysler Corporation in 1987, thus sales are no longer reported for AMC products past 1987.

Table 15
Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies
of New *Import Light Trucks*, Model Years 1976-1991^a

	1976	1980	1982	1984	1986	1988	1989	1990	1991 ^b
SMALL PICKUP									
Total sales, units	170,351	516,412	404,307	479,230	600,471	352,779	274,332	64,731	25,752
Market share, %	87.0	96.7	96.5	74.9	63.2	46.8	41.7	10.3	9.7
Fuel economy, mpg	23.9	25.5	28.6	29.7	28.2	26.1	26.5	25.0	24.9
LARGE PICKUP									
Total sales, units				67,276	147,221	139,701	119,385	279,934	107,287
Market share, %				10.5	15.5	18.5	18.2	44.6	40.3
Fuel economy, mpg				24.1	24.4	24.1	22.9	24.9	24.0
SMALL VAN									
Total sales, units	18,651	13,649	11,964	75,921	98,160	67,312	79,631	98,687	54,621
Market share, %	9.5	2.6	2.9	11.9	10.3	8.9	12.1	15.7	20.5
Fuel economy, mpg	19.5	19.6	22.5	25.2	24.7	24.0	23.7	23.3	22.3
LARGE VAN									
Total sales, units									
Market share, %									
Fuel economy, mpg									
SMALL UTILITY									
Total sales, units	6,891	3,901	2,850	13,624	99,444	183,096	174,265	175,053	72,535
Market share, %	3.5	0.7	0.7	2.1	10.5	24.3	26.5	27.9	27.3
Fuel economy, mpg	11.0	13.5	14.0	21.2	25.9	23.3	21.8	21.0	20.9
LARGE UTILITY									
Total sales, units				4,093	5,175	10,454	9,530	9,918	5,961
Market share, %				0.6	0.5	1.4	1.5	1.6	2.2
Fuel economy, mpg				14.0	14.0	15.6	15.0	15.4	15.3
FLEET									
Total sales, units	195,893	533,962	419,121	640,144	950,471	753,342	657,143	628,323	286,156
Market share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel economy, mpg	22.5	25.2	28.2	28.0	26.8	24.6	23.9	23.2	22.5

^aThese figures represent only those sales that could be matched to corresponding EPA fuel economy values.

^bRepresents sales for the first six months of model year 1991 (October through March).

Table 16
Sales-weighted Fuel Economies, ORNL vs. NHTSA
Import Light Trucks
Selected Manufacturers and Model Years

Manufacturer	Model Year	ORNL Sales-Weighted MPG ^a	NHTSA Sales-Weighted MPG ^a
Chrysler	1978		
	1983	26.5	29.1
	1989	25.2	20.5
Ford	1978	28.6	
	1983	31.8	31.1
	1989		
GMC	1978	26.8	
	1983	29.3	20.5
	1989	31.4	31.2
Nissan	1978	26.6	
	1983	26.5	28.7
	1989	20.2	23.7
Toyota	1978	25.6	
	1983	27.7	27.1
	1989	24.3	24.6
Volkswagen	1978	19.5	
	1983	24.7	21.4
	1989	21.1	20.8

^aEmpty cells are the result of unavailable data.

Table 17
Model Year Sales and Market Shares of Light Trucks
Domestic Manufacturers
Model Years 1978, 1983, 1991

[illegible]

Table 19
 Light-Duty Vehicle Sales, Market Shares, and Sales-Weighted Fuel Economies,
Domestic and Import
 Model Years 1976-1991^a

Model year	Automobiles			Light trucks			Fleet		
	Sales	Market shares	MPG	Sales	Market shares	MPG	Sales	Market shares	MPG
76	9,686,855	80.2	17.2	2,386,910	19.8	15.6	12,073,765	100.0	16.8
77	10,565,797	81.0	18.6	2,479,513	19.0	17.5	13,045,310	100.0	18.4
78	11,090,649	79.0	19.7	2,946,459	21.0	17.2	14,037,108	100.0	19.1
79	10,788,257	79.4	20.5	2,801,163	20.6	16.5	13,589,420	100.0	19.5
80	9,094,506	80.4	23.2	2,216,537	19.6	18.1	11,311,043	100.0	22.0
81	8,879,864	82.1	25.3	1,935,416	17.9	19.8	10,815,280	100.0	24.1
82	7,658,171	78.2	26.3	2,132,840	21.8	20.0	9,791,011	100.0	24.6
83	8,770,413	76.5	26.1	2,687,299	23.5	20.5	11,457,712	100.0	24.5
84	10,211,065	73.9	26.3	3,612,934	26.1	20.0	13,823,999	100.0	24.3
85	10,968,515	72.1	27.0	4,235,365	27.9	20.5	15,203,880	100.0	24.8
86	11,099,046	71.0	27.9	4,534,888	29.0	20.8	15,633,934	100.0	25.4
87	10,434,137	69.5	28.1	4,580,036	30.5	20.9	15,014,173	100.0	25.5
88	10,372,985	68.6	28.5	4,743,000	31.4	20.7	15,115,985	100.0	25.5
89	10,173,827	68.1	28.0	4,766,042	31.9	20.2	14,939,869	100.0	25.0
90	9,224,465	67.1	27.6	4,514,625	32.9	20.5	13,739,090	100.0	24.8
91 ^a	4,007,252	68.3	27.5	1,856,302	31.7	20.7	5,863,554	100.0	24.9

^aRepresents sales for the first six months of model year 1991 (October through March).

Fig. 12. *Light-Duty Vehicle MPG, Model Years 1976 to the First Six Months of Model Year 1991.*

ORNL-DWG 91-7835R

Fig. 13. *Fuel Economies of Domestic and Import Light-Duty Vehicles, Model Years 1976 to the First Six Months of Model Year 1991.*

Fig. 14. Market Shares of Domestic and Import Light-Duty Vehicles, Model Years 1976 to the First Six Months of Model Year 1991.

Table 20
 Light-Duty Vehicle Sales, Market Shares, and Sales-Weighted Fuel Economies,
Domestic
 Model Years 1976-1991^a

Model year	Automobiles			Light trucks			Fleet		
	Sales	Market shares	MPG	Sales	Market shares	MPG	Sales	Market shares	MPG
76	8,455,987	79.4	16.4	2,191,017	20.6	15.2	10,647,004	100.0	16.1
77	8,834,948	80.3	17.5	2,169,429	19.7	16.7	11,004,377	100.0	17.3
78	9,143,269	77.8	18.6	2,612,057	22.2	16.5	11,755,326	100.0	18.1
79	8,629,199	78.8	19.4	2,325,574	21.2	15.6	10,954,773	100.0	18.4
80	6,757,885	80.1	21.8	1,682,575	19.9	16.6	8,440,460	100.0	20.5
81	6,586,378	82.0	23.9	1,449,747	18.0	18.1	8,036,125	100.0	22.6
82	5,544,526	76.4	24.9	1,713,719	23.6	18.7	7,258,245	100.0	23.1
83	6,474,750	74.8	24.5	2,184,144	25.2	19.3	8,658,894	100.0	23.0
84	7,908,294	72.7	25.2	2,972,790	27.3	18.9	10,881,084	100.0	23.1
85	8,380,378	71.1	26.0	3,406,282	28.9	19.3	11,786,660	100.0	23.6
86	8,057,806	69.2	26.9	3,584,417	30.8	19.6	11,642,223	100.0	24.1
87	7,346,196	67.3	27.3	3,576,366	32.7	19.8	10,922,562	100.0	24.3
88	7,337,501	64.8	27.7	3,989,658	35.2	20.1	11,327,159	100.0	24.4
89	7,384,778	64.3	27.3	4,108,899	35.7	19.8	11,493,677	100.0	24.0
90	6,789,844	63.6	27.1	3,886,302	36.4	20.2	10,676,146	100.0	24.1
91 ^a	3,003,827	65.4	27.1	1,590,146	34.6	20.4	4,593,973	100.0	24.3

^aRepresents sales for the first six months of model year 1991 (October through March).

Table 21
 Light-Duty Vehicle Sales, Market Shares, and Sales-Weighted Fuel Economies,
Import
 Model Years 1976-1991^a

Model year	Automobiles			Light trucks			Fleet		
	Sales	Market shares	MPG	Sales	Market shares	MPG	Sales	Market shares	MPG
76	1,230,868	86.3	25.6	195,893	13.7	22.5	1,426,761	100.0	25.1
77	1,730,849	84.8	27.8	310,084	15.2	25.7	2,040,933	100.0	27.5
78	1,947,380	85.3	27.9	334,402	14.7	26.1	2,281,782	100.0	27.6
79	2,159,058	81.9	26.8	475,589	18.1	23.1	2,634,647	100.0	26.1
80	2,336,621	81.4	28.6	533,962	18.6	25.2	2,870,583	100.0	27.9
81	2,293,486	82.5	30.3	485,669	17.5	27.7	2,779,155	100.0	29.8
82	2,113,645	83.5	31.0	419,121	16.5	28.2	2,532,766	100.0	30.5
83	2,295,663	82.0	31.9	503,155	18.0	27.9	2,798,818	100.0	31.1
84	2,302,771	78.2	31.3	640,144	21.8	28.0	2,942,915	100.0	30.5
85	2,588,137	75.7	30.5	829,083	24.3	27.9	3,417,220	100.0	29.9
86	3,041,240	76.2	30.9	950,471	23.8	26.8	3,991,711	100.0	29.8
87	3,087,941	75.5	30.3	1,003,670	24.5	26.1	4,091,611	100.0	29.2
88	3,035,484	80.1	30.8	753,342	19.9	24.6	3,788,826	100.0	29.3
89	2,789,049	80.9	30.1	657,143	19.1	23.9	3,446,192	100.0	28.6
90	2,434,621	79.5	29.1	628,323	20.5	23.2	3,062,944	100.0	27.7
91 ^a	1,003,425	79.0	28.8	266,156	21.0	22.5	1,269,581	100.0	27.2

^aRepresents sales for the first six months of model year 1991 (October through March).

Fig. 15. Market Shares of *Light-Duty Vehicles* by Domestic and Import and by Automobile and Light Truck, Model Years 1976 to the First Six Months of Model Year 1991.

Table 22
 Light-Duty Vehicle Sales and Market Shares
 Domestic and Import
 Selected Manufacturers and Model Years

Manufacturer	Model Year	Automobiles		Light Truck		Fleet	
		Sales	Market Shares	Sales	Market Shares	Sales	Market Shares
AMC ^a	1978	201,021	97.9	4,246	2.1	205,267	100.0
	1983	183,005	72.6	68,931	27.4	251,936	100.0
Chrysler	1978	1,192,503	76.7	361,998	23.3	1,554,501	100.0
	1983	913,179	78.4	251,338	21.6	1,164,517	100.0
	1991 ^b	391,830	51.9	363,508	48.1	755,338	100.0
Ford	1978	2,676,091	71.1	1,088,130	28.9	3,764,221	100.0
	1983	1,484,049	63.7	846,218	36.3	2,330,267	100.0
	1991	835,627	61.3	528,098	38.7	1,363,725	100.0
GMC	1978	5,263,545	80.3	1,290,549	19.7	6,554,094	100.0
	1983	3,875,367	78.1	1,084,316	21.9	4,959,683	100.0
	1991	1,383,059	68.8	626,762	31.2	2,009,821	100.0
Honda	1978	252,289	100.0			252,289	100.0
	1983	381,774	100.0			381,774	100.0
	1991	367,326	100.0			367,326	100.0
Nissan	1978	349,845	80.1	86,759	19.9	436,604	100.0
	1983	522,170	78.6	141,811	21.4	663,981	100.0
	1991	179,685	70.4	75,684	29.6	255,369	100.0
Toyota	1978	442,129	83.8	85,261	16.2	527,390	100.0
	1983	525,548	75.2	173,593	24.8	699,141	100.0
	1991	349,776	73.3	127,134	26.7	476,910	100.0
Other Asian	1978	158,101	97.1	4,761	2.9	162,862	100.0
	1983	374,800	78.9	100,438	21.1	475,238	100.0
	1991	272,886	71.0	111,465	29.0	384,351	100.0
European	1978	555,125	95.7	24,755	4.3	579,880	100.0
	1983	510,521	96.1	20,654	3.9	531,175	100.0
	1991	227,063	90.6	23,651	9.4	250,714	100.0

^a AMC merged with Chrysler Corporation in 1987, thus sales are no longer reported for AMC products.

^b Represents sales for the first six months of model year 1991 (October through March).

^a AMC merged with Chrysler in 1987, thus sales are no longer reported for AMC products.

Fig. 16. *Market Shares of Automobiles vs. Light Trucks of Selected Domestic Manufacturers for Selected Model Years.*

Fig. 17. Market Shares of Automobiles vs. Light Trucks of Selected Import Manufacturers for Selected Model Years.

Table 23
 Sales-Weighted *Engine Size of Domestic and Import Automobiles* by Size Class
 Model Years 1976-1991^a
 (cubic inches -- 1 liter = 61.026 cubic inches)

Model year	Minicompact	Subcompact	Compact	Midsize	Large	Two seater	Fleet
76		163.1	304.9	357.0	414.2	176.2	298.5
77	120.8	166.4	292.4	333.5	367.2	171.6	278.3
78	125.5	162.8	241.0	298.6	376.3	183.8	264.4
79	113.2	146.0	228.5	268.9	339.4	168.8	230.8
80	115.8	128.2	184.8	237.9	312.3	170.0	196.5
81	96.1	124.6	134.2	221.2	304.8	151.7	182.0
82	93.5	127.2	129.3	212.0	288.4	147.2	176.1
83	97.8	133.6	134.3	210.3	302.0	153.8	182.1
84	132.7	135.3	135.1	207.3	297.1	152.4	181.2
85	118.8	139.8	138.8	205.5	283.6	150.9	178.3
86	88.4	133.6	134.6	194.9	267.3	172.5	168.3
87	90.2	133.4	134.4	182.4	266.3	157.1	163.5
88	92.5	125.0	135.1	183.1	263.4	167.9	162.2
89	155.2	127.0	128.8	183.5	263.1	171.3	163.5
90	147.7	119.6	137.5	190.7	264.3	157.0	166.1
91 ^a	133.2	120.3	136.7	192.9	268.8	164.9	167.2

^aRepresents sales for the first six months of model year 1991 (October through March).

Table 24
Sales-Weighted *Curb Weight of Domestic and Import Automobiles* by Size Class
Model Years 1976-1991^a
(pounds)

Model year	Minicompact	Subcompact	Compact	Midsize	Large	Two seater	Fleet
76		2,577.2	3,608.7	4,046.1	4,562.7	2,624.1	3,608.0
77	2,228.0	2,586.3	3,549.8	3,900.3	4,025.8	2,608.1	3,424.4
78	2,199.6	2,444.3	3,137.5	3,426.8	3,955.7	2,762.5	3,196.5
79	2,120.1	2,366.7	3,048.0	3,286.7	3,763.4	2,699.1	3,000.4
80	2,154.3	2,270.4	2,812.5	3,080.9	3,667.4	2,713.6	2,790.3
81	1,919.8	2,370.5	2,381.7	2,995.7	3,671.8	2,583.0	2,744.3
82	2,002.1	2,301.7	2,421.8	2,991.9	3,702.8	2,524.8	2,729.8
83	2,072.0	2,333.9	2,441.3	3,026.5	3,779.0	2,662.5	2,787.9
84	2,375.5	2,380.4	2,453.7	2,990.0	3,733.6	2,559.3	2,787.7
85	2,210.8	2,391.8	2,464.3	2,953.6	3,575.4	2,538.6	2,743.4
86	2,120.3	2,414.8	2,431.5	2,856.7	3,451.2	2,574.5	2,675.3
87	1,959.7	2,422.5	2,474.0	2,856.8	3,483.0	2,601.8	2,688.5
88	1,932.7	2,346.3	2,558.1	2,880.3	3,487.3	2,693.0	2,716.8
89	2,575.8	2,357.3	2,517.1	2,984.5	3,495.7	2,734.9	2,759.6
90	2,650.7	2,368.4	2,637.2	3,065.3	3,593.9	2,656.3	2,827.7
91 ^a	2,615.1	2,405.1	2,645.7	3,081.9	3,627.7	2,679.3	2,843.7

^aRepresents sales for the first six months of model year 1991 (October through March).

Table 25
 Sales-Weighted *Interior Space of Domestic and Import Automobiles* by Size Class
 Model Years 1976-1991^c
 (cubic feet)

Model year	Minicompact (< 85)	Subcompact (85-99)	Compact (100-109)	Midsize (110-119)	Large (> 120)	Two seater ^a	Fleet
76 ^b							
77	78.8	89.8	107.1	113.0	128.0		107.9
78	79.4	89.8	105.3	112.9	128.5		107.9
79	80.0	90.2	105.8	113.4	130.1		106.9
80	82.4	89.9	105.4	113.5	130.8		104.9
81	83.3	90.2	103.6	113.7	130.6		105.5
82	83.1	91.3	102.9	113.9	130.4		106.0
83	82.7	93.3	103.0	113.1	131.3		107.3
84	77.0	93.8	103.0	113.3	130.7		108.0
85	77.8	94.1	103.1	113.5	129.7		107.9
86	80.1	94.5	102.8	113.8	127.6		107.0
87	81.6	93.1	103.0	113.9	127.5		106.9
88	81.0	93.5	103.3	113.6	127.2		107.0
89	75.0	93.3	102.7	113.8	127.4		107.5
90	79.9	93.9	103.2	113.8	127.8		107.3
91 ^c	77.0	94.4	103.1	113.8	128.3		107.1

^aInterior volumes of two seaters are not reported to EPA.

^bData not available.

^cRepresents sales for the first six months of model year 1991 (October through March).

Table 26
 Sales-Weighted *Wheel Base of Domestic and Import Automobiles* by Size Class
 Model Years 1976-1991^a
 (inches)

Model year	Minicompact	Subcompact	Compact	Midsize	Large	Two seater	Fleet
76		97.6	111.6	116.3	122.7	91.6	110.8
77	93.7	98.0	111.7	116.4	118.4	91.6	109.8
78	93.5	97.9	108.5	110.1	118.7	92.1	107.7
79	93.0	97.2	108.0	109.4	117.1	91.9	105.8
80	92.4	96.3	106.5	107.8	116.7	92.8	103.6
81	90.4	96.5	100.8	106.9	116.8	93.3	103.0
82	91.7	96.8	100.4	106.6	117.0	93.7	103.0
83	92.9	97.3	100.4	107.0	117.3	93.7	103.8
84	93.0	97.5	100.2	106.2	116.8	92.8	103.5
85	92.0	97.4	100.1	106.1	114.7	92.6	103.0
86	91.1	97.6	99.7	105.6	113.4	91.6	102.3
87	88.5	97.0	99.9	105.4	113.0	92.2	102.1
88	90.3	96.4	100.3	105.3	112.6	93.4	102.2
89	93.3	96.4	100.1	105.8	112.8	93.0	102.7
90	96.3	96.8	101.5	106.2	112.9	93.1	103.1
91 ^a	96.0	97.7	102.1	106.2	113.0	93.4	103.4

^aRepresents sales for the first six months of model year 1991 (October through March).

*Data not available for 1976.

Fig. 18 Trend of Normalized *Vehicle Characteristics* for Domestic and Import Automobiles, Model Years 1976 to the First Six Months of Model Year 1991.

Table 27
Sales-Weighted *Engine Size of Domestic and Import Light Trucks* by Size Class
Model Years 1976-1991^a
(cubic inches -- 1 liter = 61.026 cubic inches)

Model year	Small pickup	Large pickup	Small van	Large van	Small utility	Large utility	Fleet
76	116.7	339.6	120.0	328.8	329.1	303.1	318.9
77	122.8	334.4	120.0	324.7	333.4	302.1	306.7
78	123.9	332.6	120.0	322.7	310.8	329.7	306.5
79	125.3	314.1	120.0	313.3	275.7	323.3	281.7
80	125.0	308.4	120.0	306.7	261.6	329.0	264.2
81	130.4	294.1	120.0	295.5	240.6	314.3	253.4
82	142.7	304.4	109.4	300.5	237.0	321.3	258.8
83	143.7	303.5	114.3	308.6	186.0	326.1	244.2
84	145.0	301.8	136.2	308.7	171.2	329.0	235.9
85	145.5	290.8	161.9	312.6	172.7	327.5	229.8
86	148.0	285.6	169.8	313.1	169.4	338.6	222.6
87	149.0	286.0	180.8	317.8	171.1	331.0	222.6
88	156.5	285.7	192.2	318.2	191.7	336.3	232.8
89	160.8	286.9	189.5	318.3	213.6	332.8	239.9
90	177.0	274.0	200.8	318.0	206.1	334.1	239.6
91 ^a	177.4	276.9	200.8	319.1	221.8	330.9	238.9

^aRepresents sales for the first six months of model year 1991 (October through March).

INTERNAL DISTRIBUTION

1. V. Baxter	12. M. Morris
2. M. S. Bronzini	13. D. E. Reichle
3. R. S. Carlsmith	14. R. B. Shelton
4. F. C. Chen	15. J. E. Sorensen
5. S. Das	16. F. Southworth
6. S. C. Davis	17. ORNL Patent Office
7. D. L. Greene	18. Central Research Library
8. E. L. Hillsman	19. Document Reference Section
9. P. S. Hu	20-22. Laboratory Records
10. M. A. Kuliasha	23. Laboratory Records--RC
11. V. C. Mei	

EXTERNAL DISTRIBUTION

- 24. B. B. Buchanan, Professor, Computer Science Department, University of Pittsburgh, 206 Mineral Industries Building, Pittsburgh, PA 15260
- 25. J. J. Cuttica, Vice President, End Use Research and Development, Gas Research Institute, 8600 W. Bryn Mawr Avenue, Chicago, IL 60631
- 26. D. E. Morrison, Professor of Sociology, Michigan State University, 201 Berkeley Hall, East Lansing, MI 48824-1111
- 27. R. L. Perrine, Professor of Engineering and Applied Sciences, Engineering I, Room 2066, 405 Hilgard Avenue, University of California, Los Angeles, CA 90024-1600
- 28-78. P. D. Patterson, Office of Transportation Systems, Department of Energy CE 30, Forrestal Building, Room 6B094, 1000 Independence Avenue SW, Washington, DC 20585
- 79. M. Williams, Professor, Department of Economics, Northern Illinois University, DeKalb, IL 60115
- 80. J. Maples, 10102 Georgia Ave, Apt 303, Silver Spring, Md 20902
- 81-369. Center for Transportation Analysis, Energy Division
- 370-379. OSTI, U.S. Department of Energy, P.O. Box 62, Oak Ridge, TN 37831
- 380. Office of Assistant Manager of Energy Research and Development, DOE/ORO, P.O. Box 2001, Oak Ridge, TN 37831-8600

END

**DATE
FILMED**

11/108191

11