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16. Abstract Through 1992, the National Highway Traffic Safety Administration (NHTSA) based its estimates of fatality and injury rates per registered vehicles on Federal Highway Administration (FHWA) registered vehicle data. However, in recent years, the FHWA registered passenger car and light truck numbers did not appear to reflect the dramatic increase in light truck sales. Beginning with the 1993 Traffic Safety Facts report, NHTSA published rates per registered car and light truck based on data from R.L. Polk. This technical report describes how the estimates of registered vehicles were developed from the Polk car and light truck data and what the impact of using these estimates is on commonly published rates.					
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TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	R.L. POLK DATA	2
III.	ADJUSTMENT FOR PASSENGER VANS	4
IV.	ADJUSTMENT FOR OKLAHOMA	5
V.	ADJUSTMENT FOR MISSING OLDER TRUCKS	8
VI.	POLK'S NEW SYSTEM	15
VII.	COMPARING POLK AND FHWA DATA	16
VIII.	RESULTS	19
	APPENDIX 1	23
	APPENDIX 2	25

I. INTRODUCTION

Through 1992, the National Highway Traffic Safety Administration (NHTSA) used registered vehicle data collected from the states by the Federal Highway Administration (FHWA) as the denominator for calculating rates per registered vehicles, such as the passenger car occupant fatality rate or the light truck fatal crash involvement rate. These rates are published in NHTSA's fact sheets and reports. (Please see Appendix 1.) However, for the last several years, questions have been raised concerning the accuracy of the FHWA registered vehicle numbers for cars and light trucks. During the production of the *1992 Traffic Safety Facts Report*, coding differences became apparent between what NHTSA classifies as passenger cars and light trucks for its regulatory activities and crash statistics and what the states provide FHWA for their registered vehicle counts. NHTSA classifies pickup trucks, vans and utility vehicles under 4,500 kg GVWR as light trucks. Some, if not many, of the states include passenger vans and possibly other light trucks with passenger cars for FHWA's registered vehicle counts. Without knowing the full extent of the differences, a footnote was added to two tables in the *1992 Traffic Safety Facts Report* that contained car and light truck rates per registered vehicle. (Please see Appendix 1.) NHTSA began an investigation for using an alternative data source for registered passenger cars and light trucks. This paper describes the alternative source and what adjustments were necessary before using this alternative source.

II. R.L. POLK DATA

Since 1975, NHTSA has purchased R.L. Polk registered vehicle data for the U.S. and states in several formats: hard copy, automated files, or microfilm. Polk data provide a detailed snapshot of vehicles on the road as of July 1 of each year. Polk data are more precise than FHWA in defining vehicle classifications because Polk relies on vehicle identification numbers (VIN) to classify vehicles as cars or light trucks. NHTSA's definitions and Polk's definitions for cars and light trucks are comparable (or can be made comparable).

Before Polk data could be considered as an alternative to FHWA registered vehicle data for computing rates, several adjustments had to be made. The next three sections of this paper describe the *three adjustments*: one for *passenger vans*, one for *Oklahoma*, and one for *older light trucks*. Polk counts of domestic cars, imported cars, and light trucks are shown in **Table 1**, prior to any adjustments.

**Table 1: R.L.Polk Registered Passenger Cars and Light Trucks,
1975 to 1993, Prior to Any Adjustments (000's)**

Year*	Passenger Cars			Light Trucks	Total
	Domestic	Imported	Total		
1975	82,201	11,806	94,007	14,836	108,843
1976	83,982	12,641	96,623	16,946	113,569
1977	85,155	13,534	98,689	19,049	117,738
1978	86,985	14,669	101,655	22,141	123,796
1979	87,601	15,795	103,395	24,309	127,705
1980	86,321	16,981	103,302	27,262	130,563
1981	86,040	18,482	104,523	27,987	132,510
1982	85,718	19,760	105,478	28,648	134,127
1983	86,337	21,195	107,533	29,357	136,890
1984	87,945	22,652	110,597	30,799	141,396
1985	90,583	24,203	114,786	33,198	147,985
1986	91,268	26,000	117,268	35,290	152,558
1987	91,741	28,107	119,849	37,152	157,001
1988	91,305	30,214	121,519	39,403	160,922
1989	90,710	32,048	122,758	41,462	164,220
1990	88,897	34,380	123,277	43,865	167,141
1991	87,224	36,103	123,327	45,264	168,592
1992	83,518	36,829	120,347	53,836	174,183
1993	82,906	38,149	121,055	56,574	177,629

*As of July 1 of that year.

III. ADJUSTMENT FOR PASSENGER VANS

Polk data include passenger vans in the passenger car counts from 1975 to 1979. NHTSA classifies these vans as light trucks. Passenger vans were identified (vehicle code "70"), removed from the Polk car counts, and added to the light truck counts for these years. Table 2 shows the number of passenger vans in each car category for 1975 to 1979. These counts were added to the light truck total for these years.

**Table 2: R.L. Polk Registered Passenger Vans Listed
as Cars, 1975 to 1979**

Year	Domestic Passenger Vans	Imported Passenger Vans	Total Passenger Vans
1975	524,107	349,614	873,721
1976	634,105	355,741	989,846
1977	733,906	390,195	1,124,101
1978	836,360	402,905	1,239,265
1979	912,110	398,808	1,310,918

IV. ADJUSTMENT FOR OKLAHOMA

Registered vehicle counts from Oklahoma were not available on Polk's automated files for years prior to 1986. For 1982 to 1985 these numbers were extracted from microfilm and added to the totals. For 1975 to 1981, adjustments were made to the national totals to account for the missing Oklahoma data. Separate inflation factors were derived for domestic cars, imported cars, and light trucks based on Oklahoma's average percentage contribution to the national total for the four-year period, 1982 through 1985. The four-year period was used because Oklahoma's contribution to the total dropped slightly after 1985 and the assumption was made that 1982 to 1985 were more like 1975 to 1981 than more recent years. **Table 3** shows Oklahoma car and light truck counts, with estimates for 1975 through 1981.

**Table 3: R.L.Polk Registered Cars and Light Trucks in Oklahoma,
1975 to 1992 (000's)**

Year	Domestic Cars	% of US Total	Imported Cars	% of US Total	Total Cars	Light Trucks	% of US Total
1975*	1,232	1.51%	113	0.99%	1,345	336	2.14%
1976*	1,257	1.51%	122	0.99%	1,378	383	2.14%
1977*	1,273	1.51%	130	0.99%	1,403	431	2.14%
1978*	1,299	1.51%	141	0.99%	1,440	499	2.14%
1979*	1,307	1.51%	152	0.99%	1,459	547	2.14%
1980*	1,302	1.51%	168	0.99%	1,469	582	2.14%
1981*	1,297	1.51%	183	0.99%	1,480	598	2.14%
1982	1,265	1.48%	194	0.98%	1,458	582	2.03%
1983	1,337	1.55%	216	1.02%	1,553	646	2.20%
1984	1,353	1.54%	227	1.00%	1,580	686	2.23%
1985	1,331	1.47%	231	0.95%	1,562	692	2.09%
1986	1,228	1.35%	228	0.88%	1,456	712	2.02%
1987	1,167	1.27%	228	0.81%	1,395	707	1.90%
1988	1,166	1.28%	241	0.80%	1,407	735	1.86%
1989	1,153	1.27%	253	0.79%	1,406	740	1.78%
1990	1,149	1.29%	267	0.78%	1,416	771	1.76%
1991	1,144	1.31%	285	0.79%	1,429	781	1.73%
1992	1,145	1.37%	300	0.82%	1,445	1,007	1.87%

*Totals are estimated in row based on 1982 to 1985 average.

Table 4 shows the modified Polk registered cars and light trucks for 1975 to 1993 with the Oklahoma and passenger van adjustments. The domestic and imported car counts have been added together.

Table 4: R.L.Polk Registered Vehicles for 1975 to 1993, with Oklahoma and Passenger Van Adjustments (000's)

Year	Cars	Light Trucks	Total
1975	94,478	16,045	110,523
1976	97,012	18,319	115,330
1977	98,968	20,604	119,572
1978	101,856	23,880	125,735
1979	103,544	26,167	129,711
1980	104,771	27,844	132,615
1981	106,003	28,585	134,588
1982	106,937	29,231	136,167
1983	109,085	30,002	139,088
1984	112,177	31,484	143,662
1985	116,348	33,891	150,239
1986	117,268	35,290	152,558
1987	119,849	37,152	157,001
1988	121,519	39,403	160,922
1989	122,758	41,462	164,220
1990	123,277	43,865	167,141
1991	123,327	45,264	168,592
1992	120,347	53,836	174,183
1993	121,055	56,574	177,629

V. ADJUSTMENT FOR MISSING OLDER LIGHT TRUCKS

Polk light truck registration counts are not a census of light trucks for data prior to 1992. Two separate inflation factors were applied to the Polk data to increase the number of light truck registrations for 1975 through 1991 to represent total light truck registrations.

Light Truck Inflation Factor 1

The first inflation factor was applied to 1975 to 1979 Polk light truck counts to inflate these data to represent 15 model years of data. For these years, registration data for only model years 1966 and newer were available. In the 1975 Polk file, only 10 years of light truck model year data are available, i.e., registered light truck counts are available for model years 1966 through 1975. Eleven model years of data are available in the 1976 Polk light truck file, 12 years in the 1977 Polk file, 13 years in the 1978 Polk file, and 14 years in the 1979 Polk file. Starting with the 1980 Polk light truck file and continuing until 1991, 15 model years of data are included. In 1992, all model years of light trucks are included in the Polk light truck registration numbers.

The first light truck inflation factor was based on the average contribution of each light truck model year, 11 to 15 years of age, to the most recent ten years of registered light trucks. The average was based on data from 1976 through 1984, so that each average would be based on five years of data. The averages are shown in **Table 5**.

Table 5: Percent Contribution of Registered Older Light Trucks to 10-Year Total Registered Light Trucks, 1975 to 1984 Polk Data

File Year	Age of Registered Light Truck					Inflation Factor Applied
	11 years	12 years	13 years	14 years	15 years	
1975	*	*	*	*	*	21.34%
1976	5.36%	*	*	*	*	16.08%
1977	5.04%	4.54%	*	*	*	11.44%
1978	4.90%	4.24%	3.74%	*	*	7.29%
1979	5.80%	4.28%	3.59%	3.17%	*	3.49%
1980	5.19%	5.32%	3.91%	3.25%	2.83%	**
1981	**	4.81%	4.90%	3.58%	2.98%	**
1982	**	**	4.60%	4.63%	3.38%	**
1983	**	**	**	4.37%	4.37%	**
1984	**	**	**	**	3.90%	**
Average	5.26%	4.64%	4.15%	3.80%	3.49%	

*Not available.

**Not needed or used.

The application of this light truck inflation factor is best illustrated through an example: In Table 4, the 1976 light truck count is given as 18,319,000. This number can be separated into three components:

- Ten model years (1967 to 1976) of registered light trucks:
17,023,000,
- Eleven year-old (1966 model year) light trucks: 913,000; and,
- Estimated Oklahoma light trucks for all model years: 383,000.

Note that Oklahoma light truck counts were only estimates for 1975 to 1979 because these data are not available from Polk. These counts were excluded from the first inflation factor calculations because estimates of estimates would have to be used and the effects on the totals would be negligible anyway.

In the 1976 file, light truck counts were missing for 12, 13, 14 and 15 year-old and older light trucks. The sum of the average factors for the 12 through 15 year-old model years, 16.08%, from Table 5 was used to inflate the ten-year total for 1976:

$$17,023,000 * (1+16.08\%) = 19,760,000.$$

This number was added to the known number of 11-year old light trucks registered and the number of Oklahoma light trucks missing from the file. The result is an approximation of 15 model years of data for 1976:

$$19,760,000 + 913,000 + 383,000 = 21,056,000.$$

After applying this first inflation factor to 1975 through 1979 data, all years of Polk light truck data from 1975 through 1991 represented 15 model years of registered light trucks.

Light Truck Inflation Factor 2

The second inflation factor was used to inflate data from 1975 to 1991 that reflected only 15 model years of data to represent all model years of light truck registrations, including vehicles older than 15 model years. Data for all model years of light trucks were available for two years of Polk data, 1992 and 1993. The contribution of light trucks older than 15 model years to total registered light trucks for these years was known, 15% for 1992 and 16% for 1993. But these factors were not necessarily applicable for the earlier years of data, therefore, alternative inflation factors were considered.

The first factor considered was the contribution of older domestic cars to the domestic car total. **Table 6** shows the dramatic increase in the percentage of registered older domestic cars to total registered domestic cars from 1975 through 1993. However, this increase was not believed to be true for light trucks, because light truck owners probably did not replace their vehicles at the high rate shown for car owners in the late 1970s and early 1980s.

Table 6: Contribution of Older Domestic Cars to Total Registered Domestic Cars, R.L. Polk

Year	Total Domestic Cars	% Older Than 15 Model Years
1975	81,6765,897	1.85%
1976	83,347,801	2.02%
1977	84,420,892	2.23%
1978	86,149,135	2.55%
1979	86,688,547	2.97%
1980	86,320,818	3.59%
1981	85,040,437	4.46%
1982	85,718,476	5.37%
1983	86,337,447	6.11%
1984	87,945,030	6.80%
1985	90,582,943	7.41%
1986	91,267,848	7.85%
1987	91,741,335	8.11%
1988	91,305,240	8.60%
1989	90,710,298	9.07%
1990	88,896,723	10.91%
1991	87,223,879	11.52%
1992	83,517,924	13.03%
1993	82,906,007	14.63%

*Unknown model years are included in the percentage of older vehicles.

The lack of applicability of the domestic car percentages was confirmed by a quick analysis conducted by NHTSA. Using sales and scrappage for selected years, some rough estimates of the percentage contribution of light trucks older than 15 model years to the estimated light truck on-the-road total were developed: 12% in 1984, 10% in 1985 through 1988, 11% in 1989 through 1991, 12% in 1992, and 13% in 1993. These estimates confirmed that the car percentages were not an accurate substitute for light trucks.

The next factor developed to account for light trucks older than 15 model years was based on the contribution of light truck occupant fatalities in trucks older than 15 model years to total light truck occupant fatalities. This factor was chosen for a number of reasons. First, the fatal adjustment factors were similar to the sales and scrappage estimates described above. Second, the fatality numbers were easily obtained for 1975 through 1993 from the Fatal Accident Reporting System (FARS). Also, for the two years that complete Polk data were available, 1992 and 1993, the older registered truck percentage data matched closely to the percentage of fatalities in older trucks. Finally, looking at cars again, the fatality percentages for cars older than 15 model years matched closely to the percentage of older registered cars.

Table 7 shows fatalities that occurred in light trucks older than 15 model years and the percent contribution to total light truck fatalities. For the two years that complete data were available, 1992 and 1993, the fatality percents were only 5 percent below the actual number of

registered old trucks. Therefore, a 5 percent factor was applied to the older truck fatality percent column to get a final inflation factor, that was applied to Polk light truck figures prior to 1992.

Table 7: Light Truck Occupant Fatalities in Older Light Trucks and All Light Trucks, 1975 to 1993, FARS

Year	Occupant Fatalities In:		Percent	Final Inflation Factor
	Older* Light Trucks	All Light Trucks		
1975	337	4,856	6.94%	7.28%
1976	428	5,438	7.87%	8.26%
1977	432	5,976	7.23%	7.58%
1978	480	6,745	7.12%	7.47%
1979	508	7,178	7.08%	7.43%
1980	568	7,486	7.59%	7.96%
1981	626	7,081	8.84%	9.28%
1982	638	6,359	10.03%	10.53%
1983	604	6,202	9.74%	10.22%
1984	742	6,496	11.42%	11.98%
1985	710	6,689	10.61%	11.14%
1986	884	7,317	12.08%	12.68%
1987	939	8,058	11.65%	12.23%
1988	1044	8,306	12.57%	13.19%
1989	1115	8,551	13.04%	13.68%
1990	1131	8,601	13.15%	13.80%
1991	1201	8,391	14.31%	15.02%
1992	1203	8,098	14.86%	15.65%**
1993	1369	8,487	16.13%	16.86%**

*Older than 15 model years.

**Actual percentage from Polk data.

VI. POLK'S NEW SYSTEM

The adjustments described in the previous sections (adjustments for Oklahoma, passenger vans, and missing older light trucks) were intended to create Polk registered passenger car and light truck numbers that were consistent from 1975 through 1993. However, one inconsistency in the Polk data cannot be adjusted. Polk redesigned their registered vehicle recording system in 1992 to improve the removal of duplicate records. Polk describes these changes in a press release (Appendix 2): "Under the new system, the vehicle census is actually produced from a national vehicle identification number (VIN) file." Under Polk's old system, "duplicate registrations were removed as the individual state registration files were processed; however, there was no economical way to conduct a national duplicate registration removal routine." As a result of this new Polk system, there appears to be a slight inconsistency in data from 1991 to more recent years. The number of registered passenger cars actually decreased from 1991 to 1992 and light trucks appear to have increased more than average. Comparing rates using 1991 and 1992 registered vehicle data should be done with some care, because differences in rates from these two years may be the result of the new Polk system.

VII. COMPARING POLK AND FHWA DATA

Table 8 shows the final Polk adjusted data and FHWA registered car and light truck data for 1975 to 1993. The most interesting comparison of these data is in the percentage columns. The contribution of registered light trucks to the car and light truck total has increased from 17% to 32% according to the Polk data, but only 16% to 22% according to the FHWA data. Considering the increasing popularity of minivans and utility vehicles in recent years, the Polk registered vehicle numbers appear to be more realistic.

Differences between the two systems are apparent also in the total number of cars and light trucks registered. Coverage differences between FHWA and Polk account for some of the differences in the total registered vehicle numbers that the two agencies report. First, FHWA gathers their data on a calendar year basis for each state. If a car is registered in one state and later in the year is registered in another state or if the car is sold and re-registered in the same state, that car would be listed twice in the FHWA numbers. On the other hand, Polk checks the VINs to remove duplicate records within and across states. As explained in the news release (Attachment II), the methodology to exclude duplicates continues to be improved. However, Polk registrations reflect what vehicles are on the road at one point in time, July 1st of that year. If a vehicle was registered on January 1 and totalled in a crash on January 2, that vehicle would be counted in the FHWA file, but may not be in the Polk file.

Another small difference between Polk and FHWA totals is due to the exclusion of United States government vehicles from Polk data, but not from the published FHWA data that NHTSA uses. U.S. motor vehicle fleet information was obtained from the General Services Administration for both cars and light trucks for 1975 to 1993, but these numbers were not added to the Polk registration numbers for several reasons. First, the GSA numbers reflect a calendar year total, which may or may not be the same as Polk's reference date of July 1. Also, the definitions for the GSA registered cars and light trucks cannot be confirmed to be the same as the Polk VIN-derived classifications. Finally, and most importantly, when the GSA government fleet totals were added to the Polk registrations, the car and light truck registrations increased by less than one percent. Also, when new fatality rates per registered vehicles were calculated, these rates decreased by less than one percent.

**Table 8: Final Adjusted R.L. Polk and Federal Highway Administration
Registered Passenger Cars and Light Trucks (000's), 1975 to 1993**

Year*	R.L. Polk and Co. **					Federal Highway Administration				
	Cars		Light Trucks		Total	Cars		Light Trucks		Total
Number	%	Number	%	Number		%	Number	%		
1975	94,478	82%	20,887	18%	115,365	106,706	84%	20,418	16%	127,124
1976	97,012	81%	22,795	19%	119,806	110,189	83%	22,301	17%	132,489
1977	98,968	80%	24,433	20%	123,400	112,288	83%	23,624	17%	135,912
1978	101,856	79%	27,285	21%	129,141	116,573	82%	25,476	18%	142,049
1979	103,544	78%	28,933	22%	132,477	118,429	81%	27,022	19%	145,451
1980	104,771	78%	30,061	22%	134,832	121,601	81%	27,876	19%	149,477
1981	106,003	77%	31,236	23%	137,239	123,098	81%	28,928	19%	152,026
1982	106,937	77%	32,308	23%	139,244	123,702	81%	29,792	19%	153,494
1983	109,085	77%	33,068	23%	142,154	126,444	80%	31,214	20%	157,658
1984	112,177	76%	35,258	24%	147,435	128,158	80%	32,106	20%	160,264
1985	116,348	76%	37,665	24%	154,013	131,864	80%	33,865	20%	165,730
1986	117,268	75%	39,763	25%	157,032	135,431	80%	34,820	20%	170,251
1987	119,849	74%	41,695	26%	161,544	137,208	79%	35,841	21%	173,050
1988	121,519	73%	44,599	27%	166,119	141,252	79%	37,096	21%	178,348
1989	122,758	72%	47,134	28%	169,893	143,026	79%	37,918	21%	180,943
1990	123,277	71%	49,916	29%	173,193	143,453	79%	38,864	21%	182,317
1991	123,327	70%	52,062	30%	175,389	142,569	78%	39,067	22%	181,636
1992	120,347	69%	53,836	31%	174,183	144,213	78%	39,533	22%	183,747
1993	121,055	68%	56,574	32%	177,629	146,314	78%	40,903	22%	187,217

*R.L. Polk data have a reference date of July 1 of the year.

**Adjustments have been made as described earlier in this paper.

VIII. RESULTS

With the adjustments described in this paper, Polk registered passenger car and light truck data are being used by NHTSA in place of FHWA registered vehicle data. Fatality and injury rates per registered vehicle have been revised back to 1975, and the revised rates were published in the *1993 Traffic Safety Facts Report*.

Table 9 presents occupant fatality rates previously published that were based on FHWA and the revised rates based on Polk data. The revised light truck occupant fatality rates per Polk registered trucks decreased significantly from the rates based on FHWA registered light trucks, especially for recent years. On the other hand, passenger car occupant fatality rates per Polk registered cars increased significantly from the rates based on FHWA registered passenger cars.

**Table 9: Occupant Fatality Rates per 100,000 Registered Vehicles Using
FHWA and R.L. Polk Data, 1975 to 1993**

Year	Passenger Car				Light Truck			
	Occupant Fatalities*	FHWA Rate	Polk Rate	Percent Change	Occupant Fatalities*	FHWA Rate	Polk Rate	Percent Change
1975	25,928	24.30	27.44	13%	4,856	23.78	23.25	-2%
1976	26,166	23.75	26.97	14%	5,438	24.38	23.86	-2%
1977	26,782	23.85	27.06	13%	5,976	25.30	24.46	-3%
1978	28,153	24.15	27.64	14%	6,745	26.48	24.72	-7%
1979	27,808	23.48	26.86	14%	7,178	26.56	24.80	-7%
1980	27,449	22.57	26.20	16%	7,486	26.85	24.90	-7%
1981	26,645	21.65	25.14	16%	7,081	24.48	22.67	-7%
1982	23,330	18.86	21.82	16%	6,359	21.34	19.68	-8%
1983	22,979	18.17	21.07	16%	6,202	19.87	18.76	-6%
1984	23,620	18.43	21.06	14%	6,496	20.23	18.42	-9%
1985	23,212	17.60	19.95	13%	6,689	19.75	17.76	-10%
1986	24,944	18.42	21.27	15%	7,317	21.01	18.40	-12%
1987	25,132	18.32	20.97	14%	8,058	22.48	19.33	-14%
1988	25,808	18.27	21.24	16%	8,306	22.39	18.62	-17%
1989	25,063	17.52	20.42	17%	8,551	22.55	18.14	-20%
1990	24,092	16.79	19.54	16%	8,601	22.13	17.23	-22%
1991	22,385	15.70	18.15	16%	8,391	21.48	16.12	-25%
1992	21,387	14.83	17.77	20%	8,098	20.48	15.04	-27%
1993	21,494	14.69	17.76	21%	8,487	20.75	15.00	-28%

*Source: Fatal Accident Reporting System

As a result of using Polk registered passenger car and light truck figures rather than FHWA numbers, total registered vehicle numbers have also been revised. For total registered vehicles (cars, light trucks, large trucks, buses, and motorcycles) the Polk counts for passenger cars and light trucks were added to the FHWA counts for large trucks, buses, and motorcycles. Total registered vehicles using FHWA alone and the combination of FHWA and Polk data are shown in **Table 10**. This method of deriving total registered vehicles from two sources will be used until a better alternative is developed.

**Table 10: Total Registered Vehicles,
1975 to 1993**

Year	Revised Total*	FHWA Total**	Difference
1975	126,153	137,913	-8.53%
1976	130,793	143,476	-8.84%
1977	134,514	147,026	-8.51%
1978	140,374	153,282	-8.42%
1979	144,317	157,291	-8.25%
1980	146,845	161,490	-9.07%
1981	149,330	164,118	-9.01%
1982	151,148	165,397	-8.62%
1983	153,830	169,334	-9.16%
1984	158,900	171,729	-7.47%
1985	165,382	177,098	-6.62%
1986	168,137	181,357	-7.29%
1987	172,366	183,872	-6.26%
1988	176,752	188,981	-6.47%
1989	180,792	191,694	-5.69%
1990	183,934	193,057	-4.73%
1991	186,052	192,548	-3.37%
1992	184,864	194,427	-4.92%
1993	188,453	196,866	-4.27%

*Polk cars and light trucks added to FHWA buses, motorcycles and other trucks.

**All FHWA numbers.

APPENDIX 1

**Table 7 (1992 Traffic Safety Facts)
Passenger Car Occupants Killed or Injured and Fatality and Injury Rates
per Registered Vehicle and Vehicle Miles of Travel, 1975-1992**

Year	Registered Passenger Cars	Vehicle Miles Traveled (Millions)	Passenger Car Occupants Killed	Fatality Rate per 100,000 Registered Passenger Cars	Fatality Rate per 100 Million VMT	Passenger Car Occupants Injured	Injury Rate per 100,000 Registered Passenger Cars	Injury Rate per 100 Million VMT
1975	106,705,950	1,033,950	25,928	24.30	2.5	*	*	*
1976	110,188,640	1,078,215	26,166	23.75	2.4	*	*	*
1977	112,287,522	1,109,243	26,782	23.85	2.4	*	*	*
1978	116,573,394	1,146,508	28,153	24.15	2.5	*	*	*
1979	118,428,730	1,113,640	27,808	23.48	2.5	*	*	*
1980	121,600,843	1,111,596	27,449	22.57	2.5	*	*	*
1981	123,098,411	1,130,827	26,645	21.65	2.4	*	*	*
1982	123,701,665	1,166,256	23,330	18.86	2.0	*	*	*
1983	126,443,732	1,198,023	22,979	18.17	1.9	*	*	*
1984	128,157,682	1,224,919	23,620	18.43	1.9	*	*	*
1985	131,864,029	1,260,565	23,212	17.60	1.8	*	*	*
1986	135,431,112	1,301,214	24,944	18.42	1.9	*	*	*
1987	137,208,290	1,355,330	25,132	18.32	1.9	*	*	*
1988	141,251,695	1,429,297	25,808	18.27	1.8	2,585,000	1,830	181
1989	143,025,658	1,477,769	25,063	17.52	1.7	2,431,000	1,700	165
1990	143,453,040	1,513,184	24,092	16.79	1.6	2,376,000	1,656	157
1991	142,955,623	1,533,668	22,385	15.66	1.5	2,235,000	1,563	146
1992	**	**	21,366	**	**	2,232,000	**	**

* Injury data not available before 1988.

** Data not available at time of publication.

Source: Registered Vehicles and Vehicle Miles Traveled—Federal Highway Administration. The fatality and injury rates in this table may be lower than the true rates due to differences in the FHWA and NHTSA vehicle classification schemes.

APPENDIX 1, cont.

Table 8 (1992 Traffic Safety Facts)
 Light Truck Occupants Killed or Injured and Fatality and Injury Rates
 per Registered Vehicle and Vehicle Miles of Travel, 1975-1992

Year	Registered Light Trucks	Vehicle Miles Traveled (Millions)	Light Truck Occupants Killed	Fatality Rate per 100,000 Registered Light Trucks	Fatality Rate per 100 Million VMT	Light Truck Occupants Injured	Injury Rate per 100,000 Registered Light Trucks	Injury Rate per 100 Million VMT
1975	20,418,250	200,700	4,856	23.78	2.4	*	*	*
1976	22,300,740	225,834	5,438	24.38	2.4	*	*	*
1977	23,624,382	250,591	5,976	25.30	2.4	*	*	*
1978	25,476,057	279,414	6,745	26.48	2.4	*	*	*
1979	27,022,233	291,905	7,178	26.56	2.5	*	*	*
1980	27,875,934	290,935	7,486	26.85	2.6	*	*	*
1981	28,927,832	296,343	7,081	24.48	2.4	*	*	*
1982	29,791,960	306,141	6,359	21.34	2.1	*	*	*
1983	31,214,223	327,643	6,202	19.87	1.9	*	*	*
1984	32,106,388	357,999	6,496	20.23	1.8	*	*	*
1985	33,865,483	373,072	6,689	19.75	1.8	*	*	*
1986	34,820,377	389,047	7,317	21.01	1.9	*	*	*
1987	35,841,360	415,449	8,058	22.48	1.9	*	*	*
1988	37,095,808	439,423	8,306	22.39	1.9	478,000	1,288	109
1989	37,917,701	454,339	8,551	22.55	1.9	511,000	1,347	112
1990	38,883,550	466,092	8,601	22.13	1.8	505,000	1,300	108
1991	38,930,360	472,885	8,391	21.55	1.8	563,000	1,445	119
1992	**	**	8,082	**	**	545,000	**	**

* Injury data not available before 1988.

** Data not available at time of publication.

Source: Registered Vehicles and Vehicle Miles Traveled—Federal Highway Administration. The fatality and injury rates in this table may be higher than the true rates due to differences in the FHWA and NHTSA vehicle classification schemes.

APPENDIX 2



NEWS RELEASE

R. L. POLK & CO.
STATISTICAL SERVICES
DIVISION

SUBJECT: 1992 VEHICLE CENSUS

CONTACT: ROBERT BORTHWICK

PHONE: (313) 393-4762

DATE: 7/13/93

FOR RELEASE: IMMEDIATELY

**POLK RELEASES LATEST VEHICLE CENSUS:
U.S. PASSENGER CAR POPULATION DECLINES
TRUCK GROWTH CONTINUES**

DETROIT - The national passenger car population in the United States as of July 1, 1992, stood at 120.4 million, a decline of nearly 3 million units from the previous year. Trucks, on the other hand, showed growth of nearly 3 million units resulting in a total truck population of 61.2 million. These are two of the findings in the latest census of the national car and truck population just released by the Statistical Services Division of R. L. Polk & Co.

Polk, the recognized "scorekeeper" for the North American automobile industry, has compiled the annual census from actual state registration records since 1924.

"This is the first time in history that the national passenger car population has declined," said R. D. Borthwick, vice president and manager, automotive replacement market services, a part of the Statistical Services Division. "This is indeed a profound occurrence and, in our opinion, the ultimate result of the increased popularity of the light truck which has evolved over the last decade."

Borthwick cautions that some of the dramatic change in the 1992 census figures is the result of a major re-design of Polk's vehicle census compilation system that was implemented during the past year. "Polk re-designed the "Vehicles in Operation" compilation system as part of its continuing improvement efforts," explained Borthwick. "Under the new system, the vehicle census is actually produced from a national vehicle identification number (VIN) file. It is impossible for any single VIN to be counted more than once. With the national VIN file, the stage is set to provide a higher level of accuracy on a more frequent and timely basis as the relevance of vehicle population data increases in the industries we serve," Borthwick added.

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A DIVISION OF THE AUTOMOTIVE MARKETING GROUP

APPENDIX 2, cont.

Polk's Vehicle Census - Page 2

Under Polk's previous census compilation methods, duplicate registrations were removed as the individual state registration files were processed; however, there was no economical way to conduct a national duplicate registration removal routine and maintain a timely delivery schedule. Historically, the 50 individual state files arrived and were processed independently over a 6 or 7-month time frame and it wasn't economically feasible to perform a national duplicate registration removal routine between all of the states.

As a result of those processing limitations, Polk estimates that its vehicle population counts may have been inflated by as much as 1½ percent because of the absence of a method for removing duplicate registrations between states. (An anomaly in Polk's newly implemented compilation system precluded the ability to precisely tabulate the level of duplicate registration volume that existed between the state files in this latest processing cycle).

"Assuming our estimate of a 1½ percent inflation factor is correct, the national passenger car population would have shown a decline between 1991 and 1992 under Polk's prior production method. It appears that our prediction of negative growth in the car population, as extended a year ago, has materialized," said Borthwick.

There were 8.2 million new cars registered in the year ending June 30, 1992, a decrease of 4.7 percent from the previous year. New passenger car registrations have now declined for six consecutive years.

The declining passenger car population is yielding an older car fleet. Polk reports that the median age of the car population on July 1, 1992, was 7.0 years, up from 6.7 years in 1991.

The growth of the truck population continues and, in fact, almost directly offsets the decline in the passenger car population. On July 1, 1992, 61.2 million trucks operated on the streets and highways in the United States, an increase of 3.0 million trucks over the previous year.

Indeed, the historical absence of a national duplicate registration removal process between states, has resulted in a level of inflation in the light truck segment that closely paralleled that of cars. (Special processing routines for handling the multiple state registration of over-the-road heavy trucks have existed in Polk's production system for decades). However, strong sales of new light trucks from the mid-1980s until now have obscured the effects of the duplicate registration between states in Polk's latest truck population reporting.

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APPENDIX 2, cont.

Polk's Vehicle Census - Page 3

The median age of the truck population is 7.2 years, up from 6.8 years on June 30, 1991.

New vehicle registrations (cars and trucks combined) have declined annually since July 1, 1986. Strong truck sales have not off-set weakening passenger car sales over the five-year period, resulting in an aging vehicle fleet. "This affects the automotive aftermarket positively," said Borthwick. "Consumers spend more money on vehicle maintenance to keep their older vehicles operational."

Polk's annual vehicle registrations census is marketed to vehicle manufacturers, the automotive aftermarket, and to tire, oil, glass and insurance industries. State and federal government agencies also use the Polk census for studies involving environmental, energy and vehicle safety issues.

R. L. Polk & Co. employs approximately 6,500 persons in more than 50 office and production locations in North America and overseas. In addition to being the statistician for the auto industry, Polk is the principal publisher of city directories in the U.S. and Canada, the leading publisher of international bank directories, a major resource for direct mail marketers, a leader in consumer database marketing, a provider of demographics and lifestyle data and the largest manufacturer of calendars and other advertising specialties.

For further information or a copy of the census, please contact: Robert Borthwick, R. L. Polk & Co., (313)393-0880 or Kim Pryor, Casey Communications Management, Inc., (313) 423-4600.

