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REPORT NO. DOT-TSC-OST-76-47

ENERGY USE AND OTHER COMPARISONS BETWEEN DIESEL AND GASOLINE TRUCKS

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FEBRUARY 1977

FINAL REPORT

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Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY
Office of the Assistant Secretary for
Systems Development and Technology
Office of Systems Engineering
Washington DC 29590

NOTICE

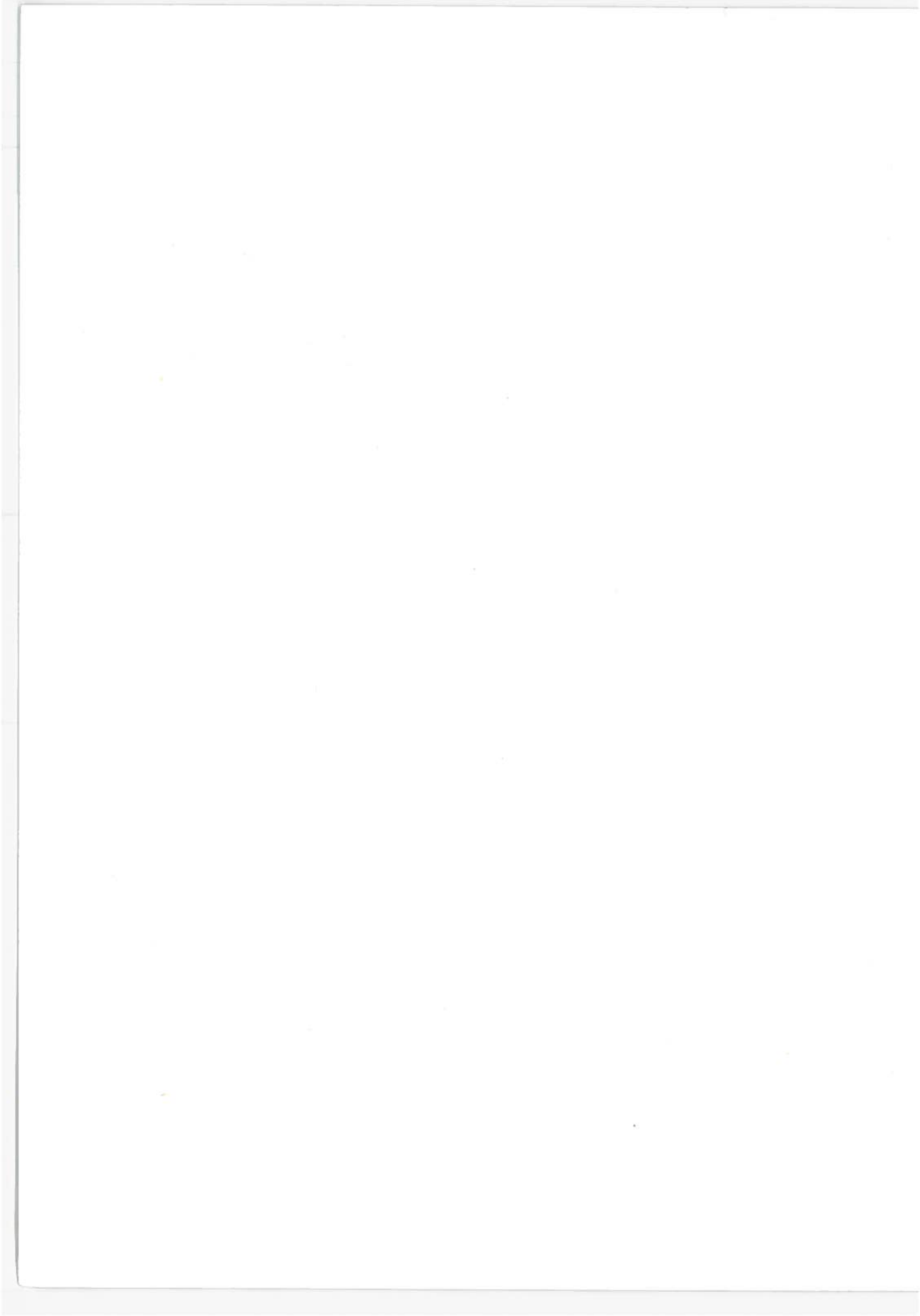
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Technical Report Documentation Page

1. Report No. DOT-TSC-OST-76-47		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle ENERGY USE AND OTHER COMPARISONS BETWEEN DIESEL AND GASOLINE TRUCKS				5. Report Date February 1977	
				6. Performing Organization Code	
7. Author(s) Kenneth M. Jacobs				8. Performing Organization Report No. DOT-TSC-OST-76-47	
9. Performing Organization Name and Address State of Maine Department of Transportation* Materials and Research Division Box 1206, Hogan Road Bangor ME 04401				10. Work Unit No. (TRAIS) OS714/R7508	
				11. Contract or Grant No. DOT-TSC-1042	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Office of the Secretary Office of the Asst. Sec. for Systems Dev. and Tech. Office of Systems Engineering, Washington DC 20590				13. Type of Report and Period Covered Final Report Oct. 1975-June 1976	
				14. Sponsoring Agency Code	
15. Supplementary Notes *Under contact to:		U.S. Department of Transportation Transportation Systems Center Kendall Square Cambridge MA 02142			
16. Abstract <p>This report presents fuel consumption and other data on comparable diesel and gasoline trucks. The data was compiled from actual, operational records of the Maine Department of Transportation for trucks of about 24,000 pounds gross vehicle weight and 150 to 180 horsepower. Information on the use of other petroleum based products such as engine oil and lubes is also given, together with initial maintenance costs.</p> <p>The information is broken down in various ways as the original data source allowed. In particular, information is given on winter and summer operations so that it is possible to consider the effects of different seasonal effects, such as usage, in the comparisons. The period covered is from 1972 through 1976.</p> <p>In general, the diesel trucks used approximately one-third less fuel than comparable gasoline trucks.</p>					
17. Key Words Diesel Truck Gasoline Truck Fuel Usage			18. Distribution Statement DOCUMENT IS AVAILABLE TO THE U.S. PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 140	22. Price



PREFACE

The State of Maine Department of Transportation has maintained computerized records on operating and maintenance costs for its highway maintenance truck fleet since July 1, 1971. Thus, quite complete cost data was stored, almost from date of purchase, on a group of similar 1972 Model Year dump trucks composed equally of gasoline and diesel powered units. Recognizing the opportunity to obtain comparative cost information based on actual experience, to help those considering changing over from gasoline to diesel trucks, the Office of the Secretary, Office of the Assistant Secretary for Systems Development and Technology, Office of Systems Engineering, of the U.S. Department of Transportation, through the Transportation Systems Center, sponsored a study under the Automotive Energy Efficiency Program, at the State of Maine Department of Transportation, Materials and Research Division under Contract DOT-TSC-1042. The purpose was to extract and assemble the pertinent information from the computer system and to conduct an initial analysis of the gasoline versus diesel truck cost relationships.

In actuality, two data bases are considered in this report. The first was the 1972 Model Year fleet consisting of 50, 1972 Model Year highway patrol trucks of about 24,000 lbs. gross vehicle weight, (G.V.W.), equally divided between gasoline and diesel powered units, but comparable in all other significant respects. The second data base covered 175 trucks of mixed ages. These trucks were comparable to the 1972 Model Year group and included it. This larger fleet had 122 gasoline powered trucks and 53 diesel units.

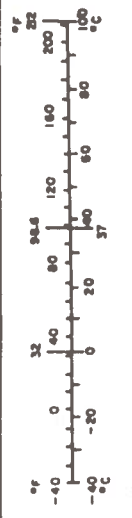
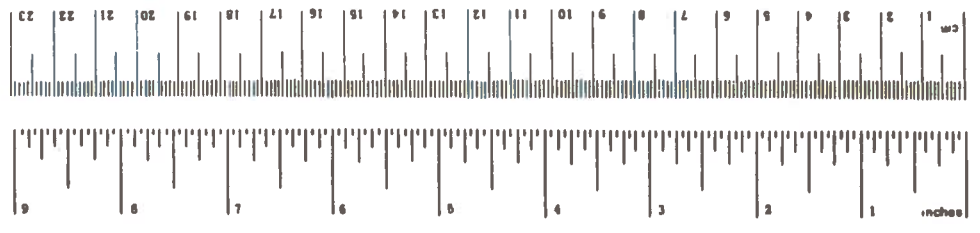
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
m ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tblsp	tablespoons	5	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	acres
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	short tons
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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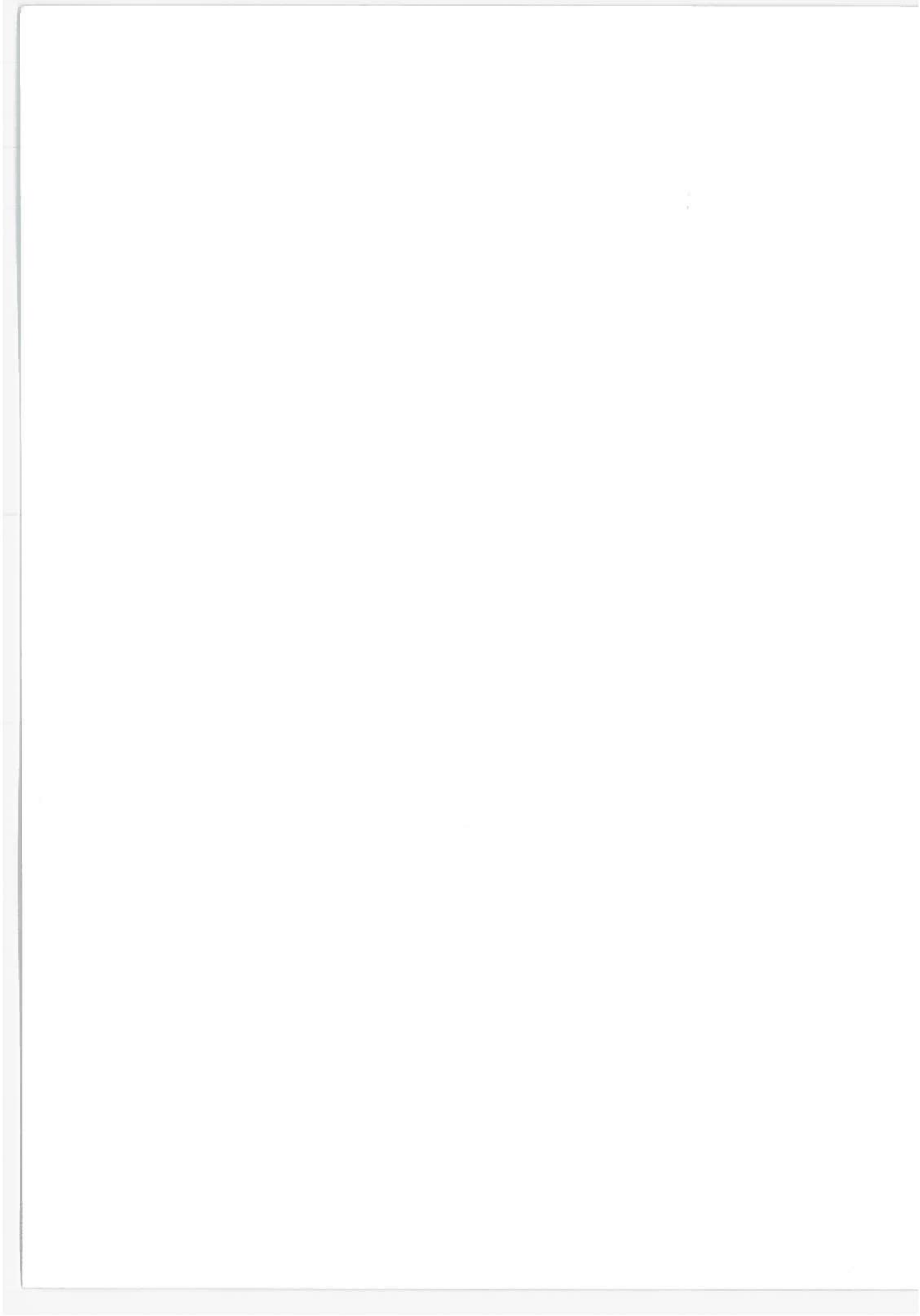
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1. INTRODUCTION

1.1 GENERAL

The primary goal of this study was to determine fuel economies and reliability differences, if any, between gasoline and diesel engines used in highway maintenance trucks. Comparisons were also made between diesel and gasoline engines for maintenance costs, reliability and depreciation. The study considered trucks of the same model, year, and gross vehicle weight (G.V.W.), as well as trucks of different model years and nearly the same gross vehicle weight.

The Maine Department of Transportation (MDOT) originally tested one diesel engine which was furnished by the manufacturer. The engine's performance was evaluated against that of gasoline engines and found to be superior in many respects. As a result of the tests, the Department embarked on a gradual dieselization of the maintenance truck fleet. Thus, the records of the Department provide excellent data for the analysis and comparison of fuel consumptions of diesel and gasoline trucks under actual operating conditions. At the same time, since the system was designed for the needs of Maine DOT, it does not always lend itself completely to the extraction of the most desirable form of data for a study such as this one.

1.2 SCOPE

The study used two data bases as follows:

Model 72 Data Base

50 trucks, 1972 models, all purchased the same year,
24,000 to 24,500 G.V.W.,

25 Gasoline Trucks 150 HP (Primarily),

25 Diesel Trucks 180 HP.

All trucks fitted with 4 cu. yd. dump bodies.

Mixed Ages Data Base

175 trucks - all ages (Includes Model 72 Data Base trucks),
22,000 to 24,500 G.V.W.,
122 Gasoline trucks 150 HP (Primarily),
53 Diesel trucks 180 HP.
All trucks fitted with 4 cu. yd. dump bodies.

General specifications for the trucks, fuels and lubes, as well as the preventive maintenance schedule are given in the appendixes.

The Maine DOT began keeping computerized maintenance records beginning July 1, 1971. Thus, on Model 72 Data Base trucks, there were nearly complete data from the day of purchase. Reliability for the Model 72 trucks was based on FY 75 and FY 76 data* since computerized downtime records were not initiated until July 1, 1974.

The data compiled and analyzed for the Mixed Ages Data Base were for the same years as for the Model 72 Data Base. However, because of age biases, there is higher confidence in the 1972 data base than in the Mixed Ages Data Base.

It should be noted that because Maine DOT was changing to diesels during the period these data were gathered, the diesel trucks are, in general, newer than the gasoline trucks in the Mixed Ages Data Base. This gives a bias for higher mileage to the gasoline units.

The Model 72 Data Bases allowed for the comparison of diesel and gasoline trucks of nearly the same age and weight; the Mixed Ages base allowed the comparison of diesel and gasoline trucks of nearly the same weight but of different ages. A winter-summer comparison of fuel economy was made to determine seasonal differences in fuel consumption due to temperature and usage. These comparisons were completed for the three geographical areas within the state shown in Figure 1A of Appendix A.

*The Maine DOT fiscal year is from July 1 to June 30.

2. METHODOLOGY

The Maine DOT operation records were stored on magnetic tape and provided a nearly ideal source for developing fuel consumption comparisons between diesel and gasoline engines. These records also provided information for comparison of parts, labor and depreciation costs for the two engine types. Additional information on reliability was compiled for the period beginning July 1, 1974 (when the Maine DOT began keeping these records) to June 30, 1976.

Analysis results were compared with each data base to determine the differences in fuel consumption between diesel and gasoline units. The two data bases were broken down into fiscal year of operation and into winter-summer operations. The data were also broken out by three geographical areas as shown in Figure 1A of Appendix A. This allowed comparisons for different general and seasonal usages and conditions. The areas were, broadly: Area 1 - northern part of the state, rolling hills, heavy snowfall and cold temperatures, (Maintenance Division 1); Area 2 - northwestern part of state, mountainous, heavy snows and cold temperatures (northern portions of Maintenance Divisions 4 and 7, plus a small westerly portion of Maintenance Division 3); Area 3 - coastal and inland regions, milder temperatures, (Maintenance Divisions 2, 3, 5, 6 and portions of Maintenance Divisions 4 and 7). It should be noted the northern portion of Area 3 has very few miles of state maintained highway.

The statistical analyses were primarily made using an IBM 370 computer and the Statistical Package for Social Sciences, a system of computer programs.

The variables tabulated included miles and hours of operation, gallons of fuel, quarts of engine oil and pints of transmission oil. These variables were broken down by winter and summer for seasonal usage comparisons. Costs were tabulated for parts, labor, total

gas, oil and grease. Clock hours for repair of the ignition, injection and engine, as well as frequency of such repairs were used for reliability considerations. These data were tabulated for both data bases.

3. ANALYSIS OF DATA

The analysis of data for energy consumption was divided into two data bases as described in Section 2. In the tables which follow, n is the number of units covered by the data indicated.

3.1 MODEL 72 DATA

The diesel units were all Internationals and consisted of 25 units of 24,000 and 24,500 lb. G.V.W. classifications. The 24,000 and 24,500 G.V.W. trucks were identical. The company merely revised its G.V.W. rating for different batches of chassis. The gasoline units comprised 14 Internationals and 11 Fords, all in the 24,000 lb. G.V.W. classification.

3.1.1 Fuel Economy

The analysis of fuel economy was based on two dependent variables: miles per gallon and gallons per hour. The means of the miles per gallon (MPG) and gallons per hour (GPH) comparisons between the diesel and gasoline for the fiscal years 1973, 1974, 1975 and 1976 are shown in Table 1. These means are based on averages of total miles divided by total gallons for each fuel type.

TABLE 1. AVERAGE FUEL ECONOMY BY FISCAL YEAR AND FUEL TYPE

	1973		1974		1975		1976	
	MPG	GPH	MPG	GPH	MPG	GPH	MPG	GPH
Diesel	6.84	2.08	7.51	2.16	7.18	2.37	7.03	2.31
	+0.96	+0.29	+0.42	+0.11	+0.52	+0.16	+0.49	+0.15
Gasoline	5.19	2.84	5.80	2.08	5.47	3.13	5.21	3.02
	+0.32	+0.16	+0.36	+0.16	+0.24	+0.12	+0.25	+0.13

The diesel miles per gallon, based on total miles and total gallons for the four year period, was found to be 33 percent higher than that of the gasoline vehicles.*

This was found to be true the last three of the four years. Additional statistical parameters relating to fuel economy, where the means were based on the unit average, are shown in Tables A1 through A8.

3.1.2 Engine Oil Required

The analysis of the amount of engine oil required in 200 engine hours for diesel and gasoline engines for FY 1973, 1974, 1975 and 1976 are shown in Table 2. The basis for selecting this unit of time was that the preventive maintenance was scheduled at 200 engine hours of operation. It should be noted that the 100 hour drain period was extended to a 200 hour schedule in late 1973 and early 1974.

The amount of engine oil required was approximately 20 percent more for diesel than for gasoline engines. It must be noted that a standard oil change period whose length was judgmentally

* Each entry in this table, as in others in this report, contains a number directly under which is a number preceded by a + (plus-minus) sign. The first number is an average (mean) or, \bar{a} as in this case, the ratio of two averages, and the number below it is the standard error in this estimate. In the case of means, the standard error is the standard error in the mean (which is the square root of the sample variance divided by the sample size). In the case, as in Table 1, of the ratio of two means, \bar{x}/\bar{y} , the approximate formula

$$\sigma_{\bar{x}/\bar{y}} = \sqrt{\left(\frac{\bar{x}}{\bar{y}}\right)^2 \left[\left(\frac{\sigma_{\bar{x}}}{\bar{x}}\right)^2 + \left(\frac{\sigma_{\bar{y}}}{\bar{y}}\right)^2 \right]}$$

is used. The means referred to here, as all means referred to in this report, are over specified populations of vehicles for a specified time period. The standard error in the means is, of course, figured for the same population and time period. In Table 1, the means are over the 72 model gasoline trucks and diesel trucks for various fiscal years. As a general rule of thumb, in comparing two estimated (or mean) values, add twice the larger standard error to the smaller standard error and if the result is smaller than the difference in the estimate the difference may be assumed more than 95% significant.

established obtained for all vehicles. The oil "consumption" was therefore really a measure of crankcase capacity, which was larger in the case of the diesel units.

TABLE 2. QUARTS OF ENGINE OIL REQUIRED IN 200 HOURS

	<u>FY_1973</u>	<u>FY_1974</u>	<u>FY_1975</u>	<u>FY_1976</u>
Diesel	23.85*	25.42*	19.39	21.41
Gasoline	19.63*	19.04*	18.08	18.36

* Reflects 100 hour drain period.

Additional statistical parameters relative to engine oil required are shown in Table A1 through A8.

3.1.3 Gasoline, Oil and Grease Costs per Hour

The total gas, oil and grease costs per hour for fiscal years 1973, 1974, 1975 and 1976 are shown in Table 3. Table 3 reflects approximately a 40 percent savings on the cost of these items for its four year time period. Additional statistical parameters of fuel and costs are shown in Tables A1 through A8.

TABLE 3. TOTAL GAS, OIL AND GREASE COST PER ENGINE HOUR

	<u>FY_1973</u>	<u>FY_1974</u>	<u>FY_1975</u>	<u>FY_1976</u>
Diesel	\$0.40	\$0.70	\$1.07	\$1.13
Gasoline	0.84	1.17	1.80	1.74

3.1.4 Cross Tabulation Analysis

An analysis by cross tabulation was made by fuel type and miles per gallon for fiscal years 1973, 1974, 1975 and 1976. This analysis showed the largest number of gasoline vehicles to be grouped in the 5 to 6 MPG class for all four years and the largest number of diesel vehicles to be grouped in the 7 to 8 MPG class for the years 1973, 1974 and 1975 and 6 - 7 MPG in 1976. (See Tables A9 through A12).

3.1.5 Seasonal Usage Comparison

Winter-summer comparison of fuel consumption between diesel and gasoline units based on Model 72 Data Base for FY 1973, 1974, 1975 and 1976 is shown in Table 4. The mileage is total fleet miles divided by total fleet gallons. Table 4 is based on a two month period, January and February for winter, and July and August for summer. The entries reflect both seasonal temperature differentials and differences in seasonal usage.

TABLE 4. WINTER-SUMMER COMPARISON MODEL 72

	Winter (Jan.-Feb.)				Summer (July-Aug.)		
	1973	1974	1975	1976	1973	1974	1975
Gasoline	--	n=25	n=25	n=25	n=25	n=24	n=25
MPG	--	4.09	4.65	4.25	7.87	7.67	7.16
	--	+0.30	+0.34	+0.28	+0.82	+1.08	+0.72
GPH	--	-3.03	-3.24	-3.16	-2.46	-2.92	-2.65
	--	+0.20	+0.22	+0.20	+0.10	+0.30	+0.22
MPH	--	12.37	15.07	13.43	19.36	22.38	19.00
	--	+0.82	+0.42	+0.89	+1.74	+2.72	+1.46
Mi/Mo/ Veh	--	1464	1750	1684	2079	2321	1527
Hr/Mo/ Veh	--	118	116	125	107	104	80

Diesel	n=15*	n=25	n=24	n=23	n=25	n=25	n=24
MPG	5.93	5.19	5.53	5.85	10.59	9.76	9.39
	+0.62	+0.29	+0.36	+0.28	+1.33	+1.44	+1.07
GPH	-2.09	-2.45	-2.71	-2.46	-1.79	-2.11	-2.04
	+0.23	+0.14	+0.20	+0.12	+0.18	+0.28	+0.19
MPH	12.38	12.71	14.97	14.38	18.91	20.60	19.20
	+1.22	+0.66	+0.86	+0.78	+2.10	+2.48	+2.09
Mi/Mo/ Veh	2011	1750	1704	2003	2363	2022	1497
Hr/Mo/ Veh	162	138	113	139	125	98	78

*The number of units is small because all the diesel units had not yet been purchased.

The table indicates a highly significant difference between the fuel consumption rates of winter and summer. The change in fuel consumption rates between winter and summer for both fuel types is relatively the same.

For additional statistical parameters on winter and summer consumption see Tables A13 through A24 and A25a. Table A25a is of special interest because of the invariance of the evidence of better fuel economy for diesels with regard to

1. Year.
2. Summer vs. winter.
3. MPG vs. GPH as the measure.
4. Fleet means vs. unit means.

The evidence for greater fuel economy of diesel trucks over gasoline trucks holds up as all these factors are varied simultaneously and the observed difference, while not absolutely constant as expected, is consistent with an invariable advantage of about 30%.

3.1.6 Seasonal Usage Comparison by Geographic Area

The winter-summer comparisons by areas within the state as given in Table 5 for FY 1975, give some indication that the climate and terrain may influence fuel consumption.

TABLE 5. MPG WINTER-SUMMER COMPARISON BY AREAS FY 1975

	Diesel MPG			Gasoline MPG		
	Number	Winter	Summer	Number	Winter	Summer
Area 1	3	7.86	9.56	1	6.30	7.40
Area 2	4	4.79	7.75	1	4.10	6.50
Area 3	18	6.71	9.02	23	5.24	6.14

Area 2, with cold winter temperatures and mountainous terrain, produced the lowest MPG for both diesel and gasoline in both the

winter and summer periods, although the numbers of vehicles sampled in both areas 1 and 2 are too small to prove the point definitively.

3.1.7 Effects of Vehicle Age

Effects of age on fuel consumption were analyzed by considering MPG against cumulative miles operated for the 1972 models. There were indications, although not definitive, of a slight decrease of mileage with age. The effects of age, broken down by winter-summer and gasoline-diesel, can be seen in Table 4. There is not an invariable clear cut effect. It should be remembered, however, that these vehicles were no more than 3 to 4 years old of a projected 7 year life.

3.1.8 Maintenance and Depreciation Costs

Maintenance and depreciation costs were analyzed by comparing the maintenance (parts and labor) costs, engine and non-engine, and depreciation costs.

This consideration reflected the data base problem that engine maintenance and depreciation costs per se were not available. However, it was felt that non-engine aspects of both gasoline and diesel units were sufficiently similar to cancel and that each overall maintenance cost therefore reflected the particular engine qualities.

The maintenance costs for FY 1973, 1974, 1975 and 1976 are shown in Table 6.

TABLE 6. AVERAGE MAINTENANCE COST FOR 1972 MODELS

	n	Diesel		n	Gasoline	
		Parts	Labor		Parts	Labor
FY 73	25	\$ 189.30	\$236.27	25	\$ 280.67	\$421.14
FY 74	25	339.62	536.87	25	461.61	456.37
FY 75	24	758.04*	679.97*	25	752.95	732.15
FY 76	23	1215.49**	850.30**	25	1348.03	741.66

*Based on 24 Vehicles (Warranty unit removed from data base).

**Based on 23 Vehicles (Two warranty units removed from data base).

As shown in Table 6 the parts and labor for the diesel units were slightly less than for the gasoline units for the four year period. The fact that several of the 1972 model diesel trucks were found to have engines improperly assembled at the factory resulted in those units being removed from the data. For additional statistical information on maintenance costs see Tables A28 through A35.

The depreciation costs for the Model 72 Data Base for FY 1973 are shown in Table 7.

TABLE 7. COST ECONOMY OF 1972 MODELS

	n=25 Diesel Units	n=25 Gasoline Units
Original Capital Costs (1973) (means)	\$8,598.17	\$6,787.23
Range	1,571.84	1,127.76
Standard Deviation	551.34	409.30
Monthly Depreciation (1973) (means)	\$ 113.84	\$ 94.52
Range	27.00	14.00
Standard Deviation	10.08	3.47

The minimum capital cost of a gasoline unit was \$6,288.05 and the maximum capital cost was \$7,415.81. The minimum capital cost of a diesel unit was \$7,673.32 and the maximum capital cost was \$9,245.16. For additional statistical analyses of depreciation see Tables A36 through A43. The depreciation schedule established by Motor Transport Division was a six year depreciation with a residual value of 10 percent of the original cost. The high inflation rate has created a problem that when a unit has been amortized, the capital cost of the replacement unit is considerably more than the amount amortized.

3.1.9 Reliability

Reliability was analyzed from data obtained from the Equipment Downtime File. The data analyzed covered the time period from July 1, 1974 to June 30, 1976. The measure of reliability was determined by the number of clock hours of repair and the frequency of repair. These two parameters provided an indication of downtime

and availability of the equipment for operation. The clock hours were based on the engine, ignition and injection repair times. The statistical data for the equipment is shown in Table 8.

TABLE 8. CLOCK HOURS OF REPAIR TIME

		<u>Diesel</u>	<u>Gasoline</u>
		n=23	n=25
FY 1975	Mean	9.93	22.64
	Standard Deviation	9.48	19.55
	Standard Error	1.98	3.91
		n=23	n=25
FY 1976	Mean	12.30	20.78
	Standard Deviation	11.21	17.71
	Standard Error	2.34	3.54

*Behrens-Fisher Statistics; FY 1975 $d = 2.900$, $\theta = 26.82^\circ$, Significant Difference at 99% Probability; FY 1976 $d = 1.997$, $\theta = 33.42^\circ$ Significant Difference at 90% Probability.

The data in Table 8 show the clock hours of repair for the diesel units to be approximately half of what was found for gasoline units for the two year period. There was a significant difference in total annual repair time between diesel and gasoline for both fiscal years. It should be noted that two diesel units were removed from the data base because the units had manufacturing defects which were covered under warranty.

Another aspect of reliability is revealed by a study of the frequency of repair incidents referring to the same repairs for which the total clock hours are analyzed in Table 8. For the gasoline engines there were 153 repair incidents in FY 75 and 133 in FY 76, giving average repair times of 3.7 hours and 3.9 hours respectively. For diesel engines, the number of incidents were 62 in FY 75 and 69 in FY 76, giving average repair times of 3.7 and

4.1 hours respectively. Over the two years, then, the diesels had a 50% lower repair frequency with nearly the same average time per repair.

A facet of reliability which may not have appeared in the data but has been observed in the field is that diesel engines have proven more reliable in such operations as snowplowing, in which the ignition on gasoline engines has become wet and failed at critical periods. Also, the gasoline engines, under severe operating conditions, have had a higher incidence of general failure than diesel engines. These things are difficult to measure but nevertheless are worthy of mention.*

3.2 MIXED AGES DATA

The fuel economy analysis for this data base was similar to that of the Model 72 data.

The Mixed Ages Data Base contained approximately 120 gasoline units for the four year period. There were 31 diesel units in 1973, increasing to 53 units in 1976. It was pointed out in Section 2 that the Mixed Ages Data Base had a bias towards higher mileages for the gasoline trucks as opposed to the diesels. The results in this section should, therefore, be viewed as supporting material. The primary quantitative conclusions are not to be drawn from the Mixed Ages Data Base but from the Model 72 Data Base just discussed.

3.2.1 Fuel Economy

The fuel economy for the Mixed Ages Data Base is shown in Table 9.

* Personal conversation (9/2/76) with R. F. Vigue, Director Motor Transportation Service, Maine DOT.

TABLE 9. AVERAGE FUEL ECONOMY, MIXED AGES

	1973		1974		1975		1976	
	<u>MPG</u>	<u>GPH</u>	<u>MPG</u>	<u>GPH</u>	<u>MPG</u>	<u>GPH</u>	<u>MPG</u>	<u>GPH</u>
Diesel	6.91 +0.93	2.05 +0.28	7.44 +0.34	2.13 +0.09	7.00 +0.50	2.35 +0.16	6.85 +0.33	2.30 +0.10
Gasoline	4.84 +0.16	3.02 +0.11	5.42 +0.16	2.89 +0.08	5.00 +0.14	3.28 +0.08	4.87 +0.16	3.24 +0.10

These results in Table 9 were in close agreement with those found in the Model 72 Data Base analysis; that is, the diesels had approximately 40 percent better MPG than did the gasoline units. Additional statistics relating to fuel economy, where the means were based on unit averages, are shown in Tables A44 through A51.

3.2.2 Engine Oil

The analysis of the amount of engine oil required in 200 engine hours are shown in Table 10.

TABLE 10. QUARTS OF ENGINE OIL REQUIRED IN 200 HOURS

	<u>FY 1973</u>	<u>FY 1974</u>	<u>FY 1975</u>	<u>FY 1976</u>
Diesel	23.36*	25.28*	17.86	19.86
Gasoline	18.19*	19.06*	16.99	17.24

*Reflects 100 hour drain period.

As in the Model 72 Data Base, the diesel engine required approximately 20 percent more engine oil than the gasoline engines (see Section 3.1.2 Discussion). Additional statistical parameters relative to quarts of engine oil required are shown in Tables A44 through A51.

3.2.3 Gasoline, Oil and Grease Costs per Hour

The total gas, oil, and grease costs per hour for the Mixed Ages Data Base for FY 1973, 1974, 1975 and 1976 are shown in Table 11.

TABLE 11. TOTAL GAS, OIL AND GREASE COST PER ENGINE HOUR.

	<u>FY 1973</u>	<u>FY 1974</u>	<u>FY 1975</u>	<u>FY 1976</u>
Diesel	\$0.40	\$0.69	\$1.03	\$1.12
Gasoline	0.85	1.21	1.74	1.87

Table 11 reflects the approximate 43 percent, less cost of diesels over gasoline engines, on these items for the four year time period. The 43 percent saving in costs, agrees closely with the 40 percent found in the Model 72 Data Base. Additional statistical parameters on gas, oil, and grease costs are shown in Tables A44 through A51.

3.2.4 Cross Tabulation Analysis

An analysis by cross tabulation of miles per gallon by fuel type, was made for FY 1973, 1974, 1975 and 1976. The cross tabulation analysis showed the largest number of gasoline units were grouped in the 3 - 4 MPG in FY 1973 and 1976, 4 - 5 MPG in FY 1974 and 1975. The largest number of diesel units were grouped in the 6 - 7 MPG in FY 1973, 1974, 1975 and 5 - 6 MPG in FY 1976. (See Tables A52 through A55.)

3.2.5 Seasonal Usage Comparison

Winter-summer comparison of the Mixed Ages Data Base produced results similar to those found for the Model 72 data. The Mixed Ages results are shown in Table 12.

TABLE 12. WINTER-SUMMER COMPARISON, MIXED AGES

	Winter (Jan.-Feb.)				Summer (July-Aug.)		
	1973	1974	1975	1976	1973	1974	1975
Gasoline	n=	n=122	n=118	n=116	n=124	n=122	n=118
MPG	--	3.80	4.22	3.83	7.82	6.69	6.67
	--	+0.50	+0.26	+0.12	+0.38	+0.42	+0.34
GPH	--	-3.25	-3.78	-3.60	-2.26	-2.91	-2.72
	--	+0.11	+0.11	+0.10	+0.09	+0.15	+0.29
MPH	--	12.85	15.98	13.79	17.64	19.46	18.12
Mi/Mo/Veh	--	1587	1835	1823	1968	1959	1505
Hr/Mo/Veh	--	128	115	132	112	101	83
Diesel	n=16	n=31	n=49	n=52	n=32	n=34	n=52
MPG	6.02	5.21	5.64	5.50	10.25	9.93	9.26
	+0.62	+0.26	+0.28	+0.24	+1.12	+1.16	+0.70
GPH	-2.07	-2.46	-2.65	-2.51	-1.77	-2.02	-1.95
	+0.22	+0.12	+0.12	+0.10	+0.16	+0.22	+0.12
MPH	12.47	12.82	14.94	13.81	18.11	20.03	18.11
Mi/Mo/Veh	2030	1775	1862	1998	2254	2008	1554
Hr/Mo/Veh	162	138	125	145	124	100	85

For additional statistical parameters see Tables A56 through A68.

3.2.6 Maintenance Costs

The maintenance costs (parts and labor), engine and non-engine for the diesel vehicles of mixed ages were found to be approximately 30 percent less than for the gasoline vehicles of mixed ages for the four year period shown in Table 13.

TABLE 13. AVERAGE MAINTENANCE COST FOR MIXED AGES VEHICLES

	n	Diesel		n	Gasoline	
		Parts	Labor		Parts	Labor
FY 73	31	\$ 181.25	\$ 242.64	122	\$ 548.23	\$ 590.88
FY 74	34	348.87	540.05	122	742.83	677.90
FY 75	52	660.93	586.66	118	1028.46	870.66
FY 76	51	1234.26	789.22	118	1341.16	903.37

Additional statistical maintenance information is shown in Tables A70 through A77.

4. CONCLUSIONS

The results of the energy study were based on 22,000-24,500 GVW diesel and gasoline trucks which were used on highway maintenance operations. These trucks were separated into two data bases, one being of same age and GVW and the second being of mixed ages and nearly the same GVW. The results based on the Model 1972 data (and supported by the Mixed Age Data) indicated the following:

1. The miles per gallon was approximately one-third more for the diesel units than for the gasoline units.
2. The engine oil required was approximately 20 percent more for the diesel units than for the gasoline units.
3. The total fuel, engine oil, and grease costs for the diesel units were approximately 40 percent less than those costs for the gasoline units.
4. The fuel economy of vehicles appears to have been affected by climate and terrain.
5. Age (miles operated) had a minor effect on fuel economy.
6. Reliability of the diesel engines was found to be significantly better than the gasoline engines.
7. Maintenance costs (parts and labor), engine and non-engine, for the Model 72 Data Base was found to be slightly less for the diesels than for gasoline units, but the difference was not significant.
8. The data seems to indicate an overall economic advantage to the diesel trucks. Appendix E contains a comparative economic analysis based on the data presented in the body of this report.

APPENDIX A. BACKUP DATA

The following tables include the basic data drawn from the Maine DOT baseline data.

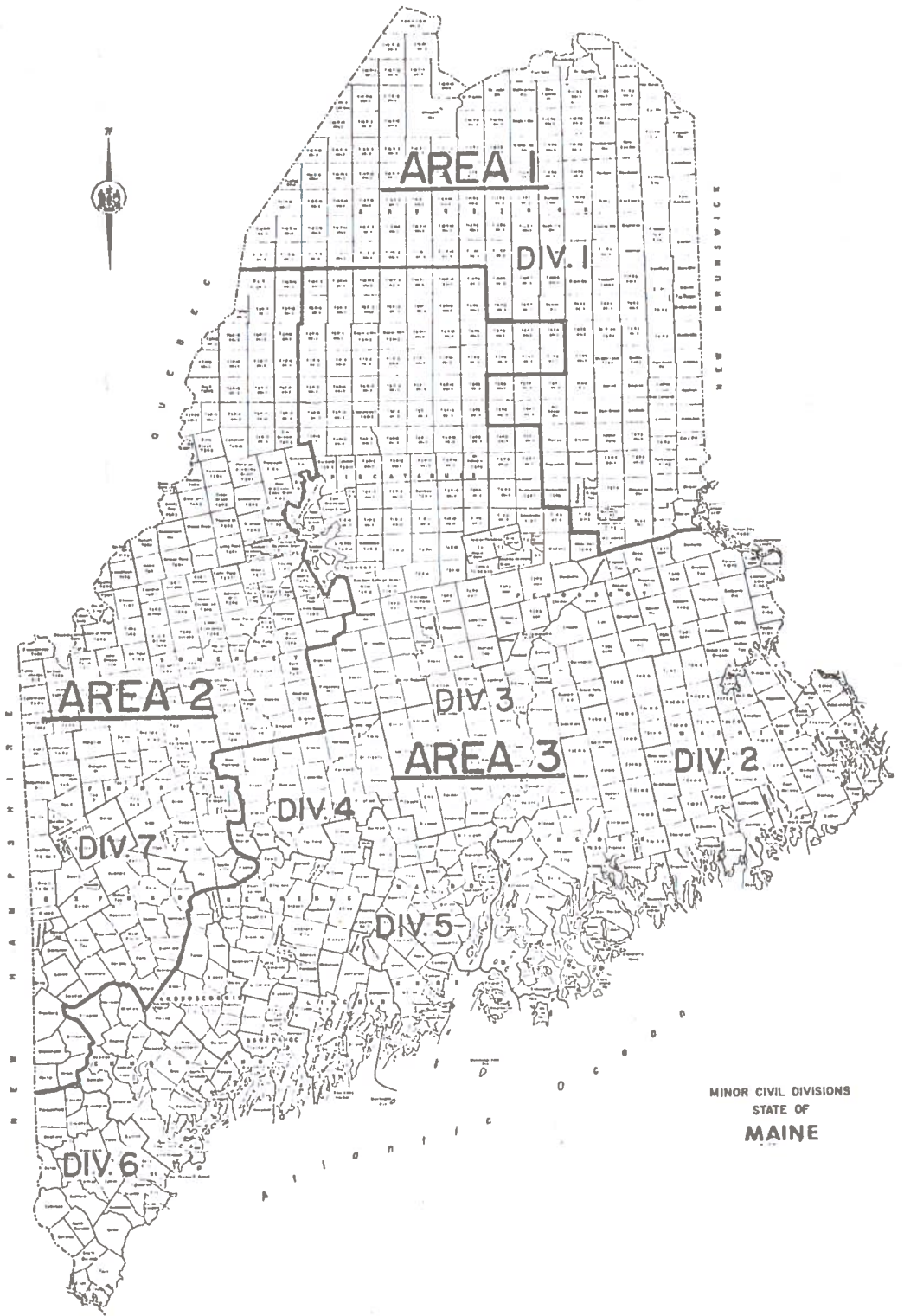


FIGURE A1. MAP OF AREAS

TABLE A1. GASOLINE FUEL ECONOMY FY 73

מספר תחנת דלק: 7771

FILE: AILVH24 (CONTINUING DATE = 08/15/74)

VARIABLE	MILES	MILES PER GALLON	STD ERROR	STD DEV
MEAN	3.275		0.146	0.731
VARIANCE	0.535		7.434	2.344
RANGE	3.350		4.234	8.083
VALID OBSERVATIONS -	25		MISSING OBSERVATIONS -	0

VARIABLE	GALLONS	GALLONS PER HOUR	STD ERROR	STD DEV
MEAN	2.958		0.089	0.443
VARIANCE	0.196		-0.870	-0.088
RANGE	1.628		2.132	3.810
VALID OBSERVATIONS -	25		MISSING OBSERVATIONS -	0

VARIABLE	QUARTS	QUARTS PER 200 MILES	STD ERROR	STD DEV
MEAN	19.626		1.195	5.975
VARIANCE	35.791		-0.838	0.558
RANGE	17.815		11.829	31.644
VALID OBSERVATIONS -	25		MISSING OBSERVATIONS -	0

VARIABLE	TG06CHR	TOTAL GAS OIL AND GREASE COST PER HOUR	STD ERROR	STD DEV
MEAN	0.942		0.025	0.127
VARIANCE	0.016		-0.762	-0.079
RANGE	0.459		0.619	1.086
VALID OBSERVATIONS -	25		MISSING OBSERVATIONS -	0

VARIABLE	TG06CS	TOTAL GAS OIL AND GREASE COSTS	STD ERROR	STD DEV
MEAN	1109.561		46.371	231.853
VARIANCE	53755.926		0.689	0.525
RANGE	1061.500		680.780	1742.280
VALID OBSERVATIONS -	25		MISSING OBSERVATIONS -	0

TABLE A2. DIESEL FUEL ECONOMY FY 73

EQUIPMENT STATEMENT OF 1972 MODELS

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE MILEAL MILES PER GALLON

MEAN 6.950 STD ERROR 0.199 STD DEV 0.992
 VARIANCE 0.935 KURTOSIS 0.391 SKEWNESS 0.469
 RANGE 4.290 MINIMUM 5.319 MAXIMUM 9.610

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE GALHR GALLONS PER HOUR

MEAN 2.037 STD ERROR 0.091 STD DEV 0.607
 VARIANCE 0.165 KURTOSIS -0.757 SKEWNESS 0.102
 RANGE 1.430 MINIMUM 1.335 MAXIMUM 2.815

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE QT200 QUARTS PER 200 HOURS

MEAN 23.846 STD ERROR 0.958 STD DEV 4.789
 VARIANCE 22.933 KURTOSIS 0.206 SKEWNESS 0.706
 RANGE 18.905 MINIMUM 17.219 MAXIMUM 36.123

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE TGO5CHR TOTAL GAS OIL AND GREASE COST PER HOUR

MEAN 0.624 STD ERROR 0.013 STD DEV 0.066
 VARIANCE 0.024 KURTOSIS -0.977 SKEWNESS 0.004
 RANGE 0.237 MINIMUM 0.239 MAXIMUM 0.526

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE TGO6CS TOTAL GAS OIL AND GREASE COSTS

MEAN 310.678 STD ERROR 29.737 STD DEV 148.685
 VARIANCE 22107.355 KURTOSIS 0.003 SKEWNESS 0.806
 RANGE 578.760 MINIMUM 99.200 MAXIMUM 677.960

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

TABLE A3. GASOLINE FUEL ECONOMY FY 74

COMPANY STATISTICAL 1972 MODELS

FILE ALLVH24 (CREATION DATE = 08/15/76)

VARIABLE	MIL/GAL	MILES PER GALLON	MEAN	STD ERROR	STD DEV	MINIMUM	KURTOSIS	MAXIMUM	MISSING OBSERVATIONS
MEAN	5.333		0.129		0.644				
VARIANCE	2.415		1.607		1.146				
RANGE	2.775		5.030		7.805				
VALID OBSERVATIONS	25		MISSING OBSERVATIONS - 0						

VARIABLE	GAL/HR	GALLONS PER HOUR	MEAN	STD ERROR	STD DEV	MINIMUM	KURTOSIS	MAXIMUM	MISSING OBSERVATIONS
MEAN	2.958		0.095		0.424				
VARIANCE	0.190		-0.750		0.023				
RANGE	1.595		2.068		3.622				
VALID OBSERVATIONS	25		MISSING OBSERVATIONS - 0						

VARIABLE	Q/200	QUARTS PER 200 MILES	MEAN	STD ERROR	STD DEV	MINIMUM	KURTOSIS	MAXIMUM	MISSING OBSERVATIONS
MEAN	19.037		1.106		5.529				
VARIANCE	30.569		-0.568		0.530				
RANGE	20.596		11.323		31.909				
VALID OBSERVATIONS	25		MISSING OBSERVATIONS - 0						

VARIABLE	TG/GCHR	TOTAL GAS OIL AND GREASE COST PER HOUR	MEAN	STD ERROR	STD DEV	MINIMUM	KURTOSIS	MAXIMUM	MISSING OBSERVATIONS
MEAN	1.174		0.032		0.160				
VARIANCE	0.026		-0.430		0.036				
RANGE	0.658		0.871		1.530				
VALID OBSERVATIONS	25		MISSING OBSERVATIONS - 0						

VARIABLE	TG/GCS	TOTAL GAS OIL AND GREASE COSTS	MEAN	STD ERROR	STD DEV	MINIMUM	KURTOSIS	MAXIMUM	MISSING OBSERVATIONS
MEAN	1377.350		61.027		305.134				
VARIANCE	93106.500		-0.729		-0.365				
RANGE	1127.130		708.250		1835.430				
VALID OBSERVATIONS	25		MISSING OBSERVATIONS - 0						

TABLE A4. DIESEL FUEL ECONOMY FY 74

EQUIPMENT STATEWIDE 1972 MODELS

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE	MILGAL	MILES PER GALLON	STD ERROR KURTOSIS MINIMUM	STD DEV SKEWNESS MAXIMUM
MEAN	7.577	0.173	0.090	0.449
VARIANCE	3.752	-0.306	-0.691	0.291
RANGE	3.492	6.075	1.423	3.053
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	

VARIABLE	GALHR	GALLONS PER HOUR	STD ERROR KURTOSIS MINIMUM	STD DEV SKEWNESS MAXIMUM
MEAN	2.184	0.090	0.090	0.449
VARIANCE	0.201	-0.691	-0.691	0.291
RANGE	1.626	1.423	1.423	3.053
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	

VARIABLE	QT200	QUARTS PER 200 HOURS	STD ERROR KURTOSIS MINIMUM	STD DEV SKEWNESS MAXIMUM
MEAN	25.423	0.742	0.742	3.703
VARIANCE	13.752	0.214	0.214	0.765
RANGE	14.559	20.204	20.204	34.763
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	

VARIABLE	TGDCCHR	TOTAL GAS OIL AND GREASE COST PER HOUR	STD ERROR KURTOSIS MINIMUM	STD DEV SKEWNESS MAXIMUM
MEAN	0.702	0.025	0.025	0.126
VARIANCE	0.016	-0.849	-0.849	0.292
RANGE	0.443	0.498	0.498	0.941
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	

VARIABLE	TGDCGS	TOTAL GAS OIL AND GREASE COSTS	STD ERROR KURTOSIS MINIMUM	STD DEV SKEWNESS MAXIMUM
MEAN	935.763	33.581	33.581	167.904
VARIANCE	29191.797	-0.290	-0.290	0.489
RANGE	665.980	635.740	635.740	1301.720
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	

TABLE A5. GASOLINE FUEL ECONOMY FY 75

EQUIPMENT STATEWIDE 1972 MODEL
 FILE ALLV424 CREATION DATE = 08/15/75

VARIABLE	MILSAL	MILES PER GALLON	STD ERROR	STD DEV	7.903
MEAN	5.532	5.532	0.0774	1.091	
VARIANCE	1.191	1.191	3.610	1.090	
RANGE	5.946	5.946	1.747	7.793	
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0

VARIABLE	GALHR	GALLONS PER HOUR	STD ERROR	STD DEV	0.428
MEAN	3.140	3.140	0.0874	1.788	
VARIANCE	3.197	3.197	17.598	4.278	
RANGE	9.493	9.493	2.347	11.831	
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0

VARIABLE	QTZOO	QUARTS PER 200 HOURS	STD ERROR	STD DEV	7.108
MEAN	18.076	18.076	1.422	1.180	
VARIANCE	50.529	50.529	0.846	36.703	
RANGE	27.180	27.180	9.524		
VALID OBSERVATIONS	-	25	MISSING OBSERVATIONS	-	0

VARIABLE	TGOCCH	TOTAL GAS OIL AND GREASE COST PER HOUR	STD ERROR	STD DEV	0.907
MEAN	1.900	1.900	0.181	4.281	
VARIANCE	3.823	3.823	17.613	6.035	
RANGE	4.812	4.812	1.222		
VALID OBSERVATIONS	-	25	MISSING OBSERVATIONS	-	0

VARIABLE	TGOGFS	TOTAL GAS OIL AND GREASE COSTS	STD ERROR	STD DEV	1165.209
MEAN	2143.168	2143.168	233.042	4.289	
VARIANCE	*****	*****	17.639	7585.875	
RANGE	6375.625	6375.625	1210.250		
VALID OBSERVATIONS	-	25	MISSING OBSERVATIONS	-	0

TABLE A6. DIESEL FUEL ECONOMY FY 75

EQUIPMENT STATEWIDE 1972 MODEL S

FILE ALLVH24 (CREATION DATE = 08/15/76)

VARIABLE MILEGAL MILES PER GALLON

MEAN 7.094 STD ERROR 0.234 STD DEV 1.168
 VARIANCE 1.354 KURTOSIS 0.957 SKEWNESS -0.669
 RANGE 5.520 MINIMUM 3.762 MAXIMUM 9.282
 VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE GALLHR GALLONS PER HOUR

MEAN 2.475 STD ERROR 0.113 STD DEV 0.565
 VARIANCE 0.319 KURTOSIS 6.357 SKEWNESS 2.147
 RANGE 2.929 MINIMUM 1.779 MAXIMUM 4.627
 VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE QT200 QUARTS PER 200 HOURS

MEAN 19.392 STD ERROR 1.079 STD DEV 5.397
 VARIANCE 29.128 KURTOSIS 0.126 SKEWNESS 0.517
 RANGE 24.059 MINIMUM 8.696 MAXIMUM 32.755
 VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 7

VARIABLE TGO6CHR TOTAL GAS OIL AND GREASE COST PER HOUR

MEAN 1.073 STD ERROR 0.044 STD DEV 0.218
 VARIANCE 0.048 KURTOSIS 6.532 SKEWNESS 1.791
 RANGE 1.032 MINIMUM 0.821 MAXIMUM 1.853
 VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TGO6CS TOTAL GAS OIL AND GREASE COSTS

MEAN 1187.588 STD ERROR 57.512 STD DEV 287.559
 VARIANCE 82599.750 KURTOSIS 4.333 SKEWNESS -1.565
 RANGE 1429.750 MINIMUM 170.450 MAXIMUM 1600.219
 VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

TABLE A7. GASOLINE FUEL ECONOMY FY 76

EXPLANATORY STATEMENTS 1972 MODELS

FILE ALLVMS4 (CREATION DATE = 08/15/76)

VARIABLE		MILCS PER GALLON		MILCS PER QUART		MILCS PER GALLON		MILCS PER QUART		
MEAN	5.730	STD ERROR	0.133	STD DEV	0.690	STD ERROR	0.133	STD DEV	0.690	
VARIANCE	7.477	KURTOSIS	1.430	SKEWNESS	0.399	KURTOSIS	1.430	SKEWNESS	0.399	
RANGE	3.536	MINIMUM	3.636	MAXIMUM	7.191	MINIMUM	3.636	MAXIMUM	7.191	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0

VARIABLE		GALLONS PER HOUR		GALLONS PER HOUR		GALLONS PER HOUR		GALLONS PER HOUR		
MEAN	3.229	STD ERROR	0.094	STD DEV	0.472	STD ERROR	0.094	STD DEV	0.472	
VARIANCE	7.227	KURTOSIS	-0.662	SKEWNESS	-0.217	KURTOSIS	-0.662	SKEWNESS	-0.217	
RANGE	1.837	MINIMUM	1.969	MAXIMUM	3.866	MINIMUM	1.969	MAXIMUM	3.866	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0

VARIABLE		QUARTS PER 200 MILES		QUARTS PER 200 MILES		QUARTS PER 200 MILES		QUARTS PER 200 MILES		
MEAN	19.699	STD ERROR	1.893	STD DEV	9.465	STD ERROR	1.893	STD DEV	9.465	
VARIANCE	89.591	KURTOSIS	-0.659	SKEWNESS	0.696	KURTOSIS	-0.659	SKEWNESS	0.696	
RANGE	32.294	MINIMUM	7.899	MAXIMUM	40.183	MINIMUM	7.899	MAXIMUM	40.183	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0

VARIABLE		TOTAL GAS OIL AND GREASE COST PER HOUR		TOTAL GAS OIL AND GREASE COST PER HOUR		TOTAL GAS OIL AND GREASE COST PER HOUR		TOTAL GAS OIL AND GREASE COST PER HOUR		
MEAN	1.737	STD ERROR	0.055	STD DEV	0.274	STD ERROR	0.055	STD DEV	0.274	
VARIANCE	7.075	KURTOSIS	-0.732	SKEWNESS	-0.138	KURTOSIS	-0.732	SKEWNESS	-0.138	
RANGE	1.104	MINIMUM	1.142	MAXIMUM	2.246	MINIMUM	1.142	MAXIMUM	2.246	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0

VARIABLE		TOTAL GAS OIL AND GREASE COSTS		TOTAL GAS OIL AND GREASE COSTS		TOTAL GAS OIL AND GREASE COSTS		TOTAL GAS OIL AND GREASE COSTS		
MEAN	1879.478	STD ERROR	57.792	STD DEV	338.908	STD ERROR	57.792	STD DEV	338.908	
VARIANCE	114853.500	KURTOSIS	0.641	SKEWNESS	-0.672	KURTOSIS	0.641	SKEWNESS	-0.672	
RANGE	1423.640	MINIMUM	1141.910	MAXIMUM	2565.550	MINIMUM	1141.910	MAXIMUM	2565.550	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0

TABLE A8. DIESEL FUEL ECONOMY FY 76

EQUIPMENT STATEWIDE 1972 MODELS

FILE ALLVH24 (CREATION DATE = 08/15/76)

VARIABLE	MILEAL	MILES PER GALLON	STD ERROR	STD DEV
MEAN	7.030		0.187	0.916
VARIANCE	2.839		2.501	-0.654
RANGE	4.844		4.216	9.060
VALID OBSERVATIONS	24		MISSING OBSERVATIONS	0

VARIABLE	GALHR	GALLONS PER HOUR	STD ERROR	STD DEV
MEAN	2.349		0.074	0.361
VARIANCE	0.131		-0.764	0.415
RANGE	1.283		1.825	3.108
VALID OBSERVATIONS	24		MISSING OBSERVATIONS	0

VARIABLE	QT200	QUARTS PER 200 WHIPS	STD ERROR	STD DEV
MEAN	21.409		1.223	5.994
VARIANCE	35.923		0.057	0.850
RANGE	23.760		11.896	35.656
VALID OBSERVATIONS	24		MISSING OBSERVATIONS	0

VARIABLE	TG06CHR	TOTAL GAS OIL AND GREASE COST PER HOUR	STD ERROR	STD DEV
MEAN	1.130		0.034	0.164
VARIANCE	0.027		-0.181	0.514
RANGE	0.657		0.869	1.536
VALID OBSERVATIONS	24		MISSING OBSERVATIONS	0

VARIABLE	TG06CS	TOTAL GAS OIL AND GREASE COSTS	STD ERROR	STD DEV
MEAN	1224.508		53.726	263.205
VARIANCE	69276.750		1.017	-0.694
RANGE	1182.800		475.490	1658.290
VALID OBSERVATIONS	24		MISSING OBSERVATIONS	0

TABLE A9. CROSSTABS, MPG BY FUEL TYPE FY 73

EQUIPMENT STATEWIDE MODEL 1972 CROSSSTAR

FILE ALLVH24 (CREATION DATE = 08/15/76)

CROSS TABULATION OF FUEL TYPE OF FUEL BY MILGAL

	MILGAL										ROW TOTAL
	3-4	4-5	5-6	6-7	7-8	8-9	9.1				
COUNT	10	14	0	0	0	1	0	1	0	25	
ROW PCT	40.0	56.0	0.0	0.0	0.0	4.0	0.0	4.0	0.0	50.0	
COL PCT	102.0	73.7	9.9	0.0	33.3	0.0	0.0				
TOT PCT	20.0	28.0	0.0	0.0	2.0	0.0	0.0				
FUEL	-67372032.										
	0	5	7	10	2	1	25				
	0.0	20.0	28.0	40.0	8.0	4.0	50.0				
	9.9	26.3	100.0	100.0	66.7	100.0					
	0.0	10.0	14.0	20.0	4.0	2.0					
	10	19	7	10	3	1	50				
COLUMN TOTAL	20.0	38.0	14.0	20.0	6.0	2.0	100.0				

CHI SQUARE = 32.59667 WITH 5 DEGREES OF FREEDOM SIGNIFICANCE = 0.0000
 CRAMER'S V = 0.90762
 CONTINGENCY COEFFICIENT = 0.62821
 LAMBEA (ASYMMETRIC) = 0.75200 WITH FUEL DEPENDENT. = 0.16129 WITH MILGAL DEPENDENT.
 LAMBDA (ASYMMETRIC) = 0.42857
 UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.62894 WITH FUEL DEPENDENT. = 0.28424 WITH MILGAL DEPENDENT.
 UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.39153
 KENDALL'S TAU A = 0.66407 SIGNIFICANCE = 0.0000
 KENDALL'S TAU C = 0.91440 SIGNIFICANCE = 0.0000
 GAMMA = 0.92743
 SOMER'S D (ASYMMETRIC) = 0.54149 WITH FUEL DEPENDENT. = 0.81440 WITH MILGAL DEPENDENT.
 SOMER'S D (SYMMETRIC) = 0.65048
 ETA = 0.80747 WITH FUEL DEPENDENT. = 0.68716 WITH MILGAL DEPENDENT.

TABLE A10. CROSSTABS, MPG BY FUEL TYPE FY 74

EQUIPMENT STATEWIDE MODEL 1972 CROSSTAB

FILE ALL-V424 (CREATION DATE = 09/15/76)

CROSS TABULATION BY FUEL
 CROSSTABS BY FUEL

		MILGAL					RD4 TOTAL	
		4-5	5-6	6-7	7-8	8-9		
		5.1	5.1	7.1	7.1	9.1		
COUNT	PERCENT							
TOTAL	TOTAL							
FUEL		17	7	1	1	0	25	
GAS		49.0	29.0	4.0	0.0	0.0	57.0	
		100.0	50.0	10.0	0.0	0.0		
		34.0	14.0	2.0	0.0	0.0		
DIESEL		0	7	0	7	2	25	
		0.0	28.0	36.0	28.0	8.0	50.0	
		0.0	50.0	90.0	100.0	100.0		
		3.0	14.0	18.0	14.0	4.0		
COLUMN		17	14	10	7	2	50	
TOTAL		34.0	28.0	20.0	14.0	4.0	100.0	

CHI SQUARE = 32.39999 WITH 4 DEGREES OF FREEDOM SIGNIFICANCE = 0.0000

GRAMER'S V = 0.90498

CONFIDENCE COEFFICIENT = 0.62706

LAMBDA (ASYMMETRIC) = 0.68000 WITH FUEL DEPENDENT.

LAMBDA (SYMMETRIC) = 0.44823

UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.62620 WITH FUEL DEPENDENT.

UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.40522

KENDALL'S TAU B = 0.72495 SIGNIFICANCE = 0.0000

KENDALL'S TAU C = 0.88480 SIGNIFICANCE = 0.0000

GAMMA = 0.97531

SOMERS'S D (ASYMMETRIC) = 0.52398 WITH FUEL DEPENDENT.

SOMERS'S D (SYMMETRIC) = 0.71080

FTA = 0.90498 WITH FUEL DEPENDENT.

= 0.76271 WITH MILGAL DEPENDENT.

= 0.29953 WITH MILGAL DEPENDENT.

= 0.27273 WITH MILGAL DEPENDENT.

TABLE A11. CROSSTABS, MPG BY FUEL TYPE FY 75

COMPUTATION STATEMENT MODEL 1977 (CROSS TAB)
 FILE ALLM024 (CREATION DATE = 08/15/76)

CROSSTABS BY FUEL TYPE BY MILGAL

	MILGAL										ROW TOTAL
	0-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9+		
COUNT											
ROW PCT											
COL PCT											
TOT PCT											
FUEL	1.1	3.1	4.1	5.1	6.1	7.1	8.1	9.1	9.1		
GAS	4.0	0.0	24.0	44.0	24.0	4.0	0.0	0.0	0.0	25	
	100.0	0.0	100.0	78.6	50.0	10.0	0.0	0.0	0.0	50.0	
	2.0	0.0	12.0	22.0	12.0	2.0	0.0	0.0	0.0		
DIESEL	0.0	1.1	0.0	3.1	6.1	0.0	5.1	1.1	1.1	25	
	0.0	4.0	0.0	12.0	24.0	36.0	20.0	4.0	4.0	50.0	
	0.0	100.0	0.0	21.4	50.0	90.0	100.0	100.0	100.0		
	0.0	2.0	0.0	6.0	12.0	18.0	10.0	2.0	2.0		
COLUMN TOTAL	1	1	5	14	24.0	20.0	10.0	2.0	2.0	50	
	2.2	2.0	12.0	28.0	24.0	20.0	10.0	2.0	2.0	102.0	

CHI SQUARE = 24.97141 WITH 7 DEGREES OF FREEDOM SIGNIFICANCE = 0.0008
 CRAMER'S V = 0.70670
 CONTINGENCY COEFFICIENT = 0.57713
 LANGLA (ASYMMETRIC) = 0.67000 WITH FUEL DEPENDENT. = 0.16667 WITH MILGAL DEPENDENT.
 LANGLA (SYMMETRIC) = 0.34426
 UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.45631 WITH FUEL DEPENDENT. = 0.18175 WITH MILGAL DEPENDENT.
 UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.25996
 KENDALL'S TAU B = 0.57365 SIGNIFICANCE = 0.0000
 KENDALL'S TAU C = 0.71200 SIGNIFICANCE = 0.0000
 GAMMA = 0.81353
 SOMER'S D (ASYMMETRIC) = 0.44580 WITH FUEL DEPENDENT. = 0.71200 WITH MILGAL DEPENDENT.
 SOMER'S D (SYMMETRIC) = 0.54887
 ETA = 0.70670 WITH FUEL DEPENDENT. = 0.58359 WITH MILGAL DEPENDENT.

TABLE A12. CROSSTABS, MPG BY FUEL TYPE FY 76

EQUIPMENT STATEWIDE MODEL 1977 CROSSTAB
 FILE = ALI_AWH24 (CREATION DATE = 08/15/75)
 CROSSTAB BY MILTAL
 FUEL TYPE OF FUEL

	0-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	TOTAL
FUEL	1.0	3.0	4.0	5.0	6.0	7.0	9.0	9.0	50.0
GAS	0	1	6	16	1	1	1	1	25
	0.0	4.0	24.0	64.0	4.0	4.0	4.0	4.0	100.0
	0.0	100.0	85.7	100.0	8.3	10.0	10.0	10.0	100.0
	0.0	2.0	12.0	32.0	2.0	2.0	2.0	2.0	100.0
DIESEL	1	0	1	0	11	0	2	1	25
	4.0	0.0	4.0	0.0	44.0	0.0	8.0	4.0	100.0
	100.0	0.0	100.0	0.0	100.0	0.0	100.0	100.0	100.0
	2.0	0.0	2.0	0.0	22.0	0.0	4.0	2.0	100.0
TOTAL	1	3	7	16	12	10	2	1	50
	2.0	2.0	14.0	32.0	24.0	20.0	4.0	2.0	100.0

CHI SQUARE = 39.30473 WITH 7 DEGREES OF FREEDOM SIGNIFICANCE = 0.0000
 Cramer's V = 0.38542
 CONTINGENCY COEFFICIENT = 0.66341
 LAMBDA (ASYMMETRIC) = 0.33000 WITH FUEL DEPENDENT.
 LAMBDA (ASYMMETRIC) = 0.56032
 UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.72405 WITH FUEL DEPENDENT.
 UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.42516
 KENDALL'S TAU A = 0.62295 SIGNIFICANCE = 0.0000
 KENDALL'S TAU C = 0.74550 SIGNIFICANCE = 0.0000
 GAMMA = 0.81970
 SOMERS'S D (ASYMMETRIC) = 0.57514 WITH FUEL DEPENDENT.
 SOMERS'S D (SYMMETRIC) = 0.41490
 ETA = 0.38566 WITH FUEL DEPENDENT. = 0.56239 WITH MILTAL DEPENDENT.
 = 0.30093 WITH MILTAL DEPENDENT.

TABLE A13. WINTER 1973, DIESEL

WINTER (JAN-FEB) 72 MODEL WT24000

FILE ALL-VN24 (CREATION DATE = 08/15/76)

VARIABLE HOUR3D			
MEAN	324.826	STD ERROR	24.038
VARIANCE	16757.023	KURTOSIS	0.011
RANGE	572.000	MINIMUM	56.000
VALID OBSERVATIONS -	29	MISSING OBSERVATIONS -	0
VARIABLE MPG3D			
MEAN	6.452	STD ERROR	0.485
VARIANCE	6.809	KURTOSIS	1.802
RANGE	11.116	MINIMUM	3.745
VALID OBSERVATIONS -	29	MISSING OBSERVATIONS -	0
VARIABLE GPH3D			
MEAN	2.197	STD ERROR	0.170
VARIANCE	0.840	KURTOSIS	-1.077
RANGE	3.139	MINIMUM	3.718
VALID OBSERVATIONS -	29	MISSING OBSERVATIONS -	0
VARIABLE MPH3D			
MEAN	12.828	STD ERROR	0.542
VARIANCE	8.502	KURTOSIS	-0.958
RANGE	9.766	MINIMUM	8.799
VALID OBSERVATIONS -	29	MISSING OBSERVATIONS -	0
VARIABLE MILES3D			
MEAN	14022.069	STD ERROR	260.452
VARIANCE	6956.000	KURTOSIS	0.677
RANGE	6956.000	MINIMUM	586.000
VALID OBSERVATIONS -	29	MISSING OBSERVATIONS -	0
VARIABLE GAL3D 1			
MEAN	678.759	STD ERROR	56.332
VARIANCE	92024.062	KURTOSIS	0.249
RANGE	1366.000	MINIMUM	80.000
VALID OBSERVATIONS -	29	MISSING OBSERVATIONS -	0

TABLE A14. WINTER 1974, GASOLINE

WINTER (JAN-FEB) 1972 MODELS		FILE ALL.W424 (CREATION DATE = 08/15/76)	
VARIABLE HMP46G			
MEAN	236.800	STD ERROR	10.262
VARIANCE	5285.529	KURTOSIS	0.377
RANGE	306.000	MINIMUM	45.000
VALID OBSERVATIONS =	50	MISSING OBSERVATIONS =	0
VARIABLE MPG6G			
MEAN	6.562	STD ERROR	0.200
VARIANCE	6.197	KURTOSIS	2.624
RANGE	10.292	MINIMUM	1.197
VALID OBSERVATIONS =	50	MISSING OBSERVATIONS =	0
VARIABLE GPH6G			
MEAN	3.292	STD ERROR	0.235
VARIANCE	2.734	KURTOSIS	4.652
RANGE	3.214	MINIMUM	3.517
VALID OBSERVATIONS =	50	MISSING OBSERVATIONS =	0
VARIABLE WPM46G			
MEAN	12.748	STD ERROR	0.370
VARIANCE	6.845	KURTOSIS	1.208
RANGE	13.516	MINIMUM	3.497
VALID OBSERVATIONS =	50	MISSING OBSERVATIONS =	0
VARIABLE MILES4G			
MEAN	2028.600	STD ERROR	144.652
VARIANCE	8095.000	KURTOSIS	0.086
RANGE	4095.000	MINIMUM	480.000
VALID OBSERVATIONS =	50	MISSING OBSERVATIONS =	0
VARIABLE GAL6G			
MEAN	715.640	STD ERROR	37.550
VARIANCE	70699.125	KURTOSIS	-0.218
VALID OBSERVATIONS =	50	MISSING OBSERVATIONS =	0

TABLE A15. WINTER 1974, DIESEL

מספר תצפיות (N) = 50
 תאריך (DATE) = 02/15/76

VARIABLE = 50
 MEAN 275.160
 VARIANCE 5127.723
 RANGE 275.000
 MISSING OBSERVATIONS - 0

STD DEV 71.559
 SKEWNESS 7.325
 MAXIMUM 446.000

STD ERROR 19.120
 KURTOSIS -0.630
 MINIMUM 160.000

VARIABLE = 50
 MEAN 5.742
 VARIANCE 7.336
 RANGE 14.532
 MISSING OBSERVATIONS - 0

STD DEV 2.703
 SKEWNESS 1.866
 MAXIMUM 17.216

STD ERROR 0.382
 KURTOSIS 6.715
 MINIMUM 2.636

VARIABLE = 50
 MEAN 7.632
 VARIANCE 9.979
 RANGE 3.854
 MISSING OBSERVATIONS - 0

STD DEV 0.953
 SKEWNESS 0.087
 MAXIMUM 4.688

STD ERROR 0.135
 KURTOSIS -3.717
 MINIMUM 0.833

VARIABLE = 50
 MEAN 12.925
 VARIANCE 6.952
 RANGE 11.779
 MISSING OBSERVATIONS - 0

STD DEV 2.226
 SKEWNESS -0.382
 MAXIMUM 17.939

STD ERROR 0.315
 KURTOSIS 9.751
 MINIMUM 6.160

VARIABLE = 50
 MEAN 3499.960
 VARIANCE 86509.757
 RANGE 4190.000
 MISSING OBSERVATIONS - 7

STD DEV 919.514
 SKEWNESS 0.270
 MAXIMUM 5870.000

STD ERROR 130.039
 KURTOSIS -0.029
 MINIMUM 1590.000

VARIABLE = 50
 MEAN 576.260
 VARIANCE 4715.273
 RANGE 868.000
 MISSING OBSERVATIONS - 7

STD DEV 200.408
 SKEWNESS -0.090
 MAXIMUM 1398.000

STD ERROR 29.342
 KURTOSIS -0.728
 MINIMUM 253.000

TABLE A16. WINTER 1975, GASOLINE

WINTER (JAN-FEB) 1975 WFLS

FILE WFLS424 (CREATION DATE = 09/15/76)

VARIABLE WFLS5									
MEAN	232.730	STD ERROR	9.198	STD DEV	64.404				
VARIANCE	4147.919	KURTOSIS	-0.634	SKEWNESS	-0.374				
RANGE	230.000	MINIMUM	108.000	MAXIMUM	338.000				
VALID OBSERVATIONS -	50	MISSING OBSERVATIONS -		0					
VARIABLE WFLS6									
MEAN	5.370	STD ERROR	0.400	STD DEV	2.827				
VARIANCE	7.822	KURTOSIS	1.081	SKEWNESS	1.223				
RANGE	12.445	MINIMUM	2.066	MAXIMUM	14.511				
VALID OBSERVATIONS -	50	MISSING OBSERVATIONS -		0					
VARIABLE WFLS7									
MEAN	7.417	STD ERROR	0.198	STD DEV	1.398				
VARIANCE	1.954	KURTOSIS	-0.593	SKEWNESS	0.314				
RANGE	5.553	MINIMUM	1.177	MAXIMUM	6.730				
VALID OBSERVATIONS -	50	MISSING OBSERVATIONS -		0					
VARIABLE WFLS8									
MEAN	15.076	STD ERROR	0.300	STD DEV	2.122				
VARIANCE	4.511	KURTOSIS	1.796	SKEWNESS	0.792				
RANGE	11.990	MINIMUM	10.497	MAXIMUM	22.386				
VALID OBSERVATIONS -	50	MISSING OBSERVATIONS -		0					
VARIABLE WFLS9									
MEAN	1400.760	STD ERROR	162.510	STD DEV	1149.118				
VARIANCE	*****	KURTOSIS	-0.424	SKEWNESS	0.212				
RANGE	528.000	MINIMUM	1438.000	MAXIMUM	5966.000				
VALID OBSERVATIONS -	50	MISSING OBSERVATIONS -		0					
VARIABLE WFLS0									
MEAN	751.990	STD ERROR	42.215	STD DEV	298.506				
VARIANCE	90175.687	KURTOSIS	-3.513	SKEWNESS	0.463				
RANGE	1212.000	MINIMUM	282.000	MAXIMUM	1494.000				
VALID OBSERVATIONS -	50	MISSING OBSERVATIONS -		0					

TABLE A17. WINTER 1975, DIESEL

WINTER (JAN-FEB) 72 MODEL WT24000
 FILE ALL.VM24 (CREATION DATE = 08/15/76)

VARIABLE GALSD

MEAN	646.833	STD_ERROR	29.051	STD_DEV	201.270
VARIANCE	40509.758	KURTOSIS	0.774	SKEWNESS	0.796
RANGE	956.000	MINIMUM	250.000	MAXIMUM	1206.000
VALID OBSERVATIONS	48	MISSING OBSERVATIONS - 0			

VARIABLE MPG50

MEAN	6.146	STD_ERROR	0.413	STD_DEV	2.861
VARIANCE	9.183	KURTOSIS	-0.487	SKEWNESS	0.858
RANGE	10.496	MINIMUM	1.683	MAXIMUM	12.179
VALID OBSERVATIONS	48	MISSING OBSERVATIONS - 0			

VARIABLE GPHSD

MEAN	2.873	STD_ERROR	0.153	STD_DEV	1.062
VARIANCE	1.128	KURTOSIS	-0.762	SKEWNESS	0.193
RANGE	6.230	MINIMUM	1.078	MAXIMUM	5.308
VALID OBSERVATIONS	48	MISSING OBSERVATIONS - 0			

VARIABLE GPHSD

MEAN	15.029	STD_ERROR	0.344	STD_DEV	2.383
VARIANCE	5.628	KURTOSIS	-0.246	SKEWNESS	-0.072
RANGE	11.372	MINIMUM	8.934	MAXIMUM	20.306
VALID OBSERVATIONS	48	MISSING OBSERVATIONS - 0			

VARIABLE MILESD

MEAN	3409.833	STD_ERROR	168.858	STD_DEV	1031.317
VARIANCE	4504.000	KURTOSIS	-0.123	SKEWNESS	0.523
RANGE	4504.000	MINIMUM	1626.000	MAXIMUM	6130.000
VALID OBSERVATIONS	48	MISSING OBSERVATIONS - 0			

VARIABLE HOURS0

MEAN	227.708	STD_ERROR	8.668	STD_DEV	60.054
VARIANCE	3606.466	KURTOSIS	-0.832	SKEWNESS	0.125
RANGE	226.000	MINIMUM	118.000	MAXIMUM	344.000
VALID OBSERVATIONS	48	MISSING OBSERVATIONS - 0			

TABLE A18. WINTER 1976, GASOLINE

WINTER (JAN-FFR) 72 MODEL WT24000

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE		HOUR66		MPG66		GPH66		MPH66		MILE66		GAL66	
MEAN	250.680	STD_ERROR	11.192	STD_DEV	79.141	MEAN	4.642	STD_ERROR	0.365	STD_DEV	2.584	MEAN	791.600
VARIANCE	6263.281	KURTOSIS	-0.213	SKEWNESS	0.041	VARIANCE	7.397	KURTOSIS	31.036	SKEWNESS	0.365	VARIANCE	65386.445
RANGE	340.000	MINIMUM	86.000	MAXIMUM	434.000	RANGE	20.841	MINIMUM	1.079	MAXIMUM	19.793	RANGE	1218.000
VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50

VARIABLE MPH66													
MEAN	3.334	STD_ERROR	0.220	STD_DEV	1.558	MEAN	6.642	STD_ERROR	0.365	STD_DEV	2.584	MEAN	1170.274
VARIANCE	2.426	KURTOSIS	23.916	SKEWNESS	4.300	VARIANCE	7.397	KURTOSIS	0.028	SKEWNESS	0.176	VARIANCE	6632.000
RANGE	11.799	MINIMUM	0.852	MAXIMUM	12.651	RANGE	20.841	MINIMUM	7.339	MAXIMUM	19.793	RANGE	1368.000
VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50

VARIABLE MILE66													
MEAN	13.540	STD_ERROR	0.365	STD_DEV	2.584	MEAN	3367.200	STD_ERROR	165.502	STD_DEV	1170.274	MEAN	255.708
VARIANCE	6.675	KURTOSIS	0.028	SKEWNESS	0.176	VARIANCE	5458.000	KURTOSIS	0.583	SKEWNESS	0.365	VARIANCE	-0.387
RANGE	12.654	MINIMUM	7.339	MAXIMUM	19.793	RANGE	5458.000	MINIMUM	1174.000	MAXIMUM	6632.000	RANGE	1368.000
VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50

VARIABLE GAL66													
MEAN	791.600	STD_ERROR	36.163	STD_DEV	255.708	MEAN	791.600	STD_ERROR	36.163	STD_DEV	255.708	MEAN	255.708
VARIANCE	65386.445	KURTOSIS	-0.085	SKEWNESS	-0.387	VARIANCE	65386.445	KURTOSIS	-0.085	SKEWNESS	-0.387	VARIANCE	-0.387
RANGE	1218.000	MINIMUM	150.000	MAXIMUM	1368.000	RANGE	1218.000	MINIMUM	150.000	MAXIMUM	1368.000	RANGE	1368.000
VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50	MISSING OBSERVATIONS		0		VALID OBSERVATIONS	50

TABLE A19. WINTER 1976, DIESEL

WINTER (JAN-FEB) 72 MODEL W724000

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE HOUR60			
MEAN	278.578	STD. ERROR	10.534
VARIANCE	5104.387	KURTOSIS	-0.016
RANGE	322.000	MINIMUM	158.000
VALID OBSERVATIONS -	46	MISSING OBSERVATIONS -	0
VARIABLE MPG60			
MEAN	5.935	STD. ERROR	0.217
VARIANCE	2.159	KURTOSIS	0.930
RANGE	7.702	MINIMUM	2.461
VALID OBSERVATIONS -	46	MISSING OBSERVATIONS -	0
VARIABLE GPH60			
MEAN	2.557	STD. ERROR	0.091
VARIANCE	0.382	KURTOSIS	0.828
RANGE	3.162	MINIMUM	1.379
VALID OBSERVATIONS -	46	MISSING OBSERVATIONS -	0
VARIABLE MPH60			
MEAN	14.595	STD. ERROR	0.430
VARIANCE	8.587	KURTOSIS	-0.193
RANGE	11.965	MINIMUM	9.750
VALID OBSERVATIONS -	46	MISSING OBSERVATIONS -	0
VARIABLE MILE60			
MEAN	5005.043	STD. ERROR	155.428
VARIANCE	*****	KURTOSIS	-0.951
RANGE	4218.000	MINIMUM	1900.000
VALID OBSERVATIONS -	46	MISSING OBSERVATIONS -	0
VARIABLE GAL60			
MEAN	684.522	STD. ERROR	19.938
VARIANCE	18285.941	KURTOSIS	-0.526
RANGE	534.000	MINIMUM	438.000
VALID OBSERVATIONS -	46	MISSING OBSERVATIONS -	0

TABLE A20. SUMMER 1973, GASOLINE

SUMMER (JULY-AUGUST) 1972 MODEL S-FY73,74,75

FILE ALLVH24 (CREATION DATE = 09/15/76)

VARIABLE THOURS TOTAL HOURS			
MEAN	214.720	STD ERROR	10.341
VARIANCE	2673.376	KURTOSIS	-0.531
RANGE	193.000	MINIMUM	111.000
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0

VARIABLE MPG MILES PER GALLON			
MEAN	7.917	STD ERROR	0.334
VARIANCE	2.793	KURTOSIS	-0.416
RANGE	5.247	MINIMUM	5.199
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0

VARIABLE GPH GALLONS PER HOUR			
MEAN	2.451	STD ERROR	0.120
VARIANCE	0.362	KURTOSIS	-0.328
RANGE	2.113	MINIMUM	1.672
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0

VARIABLE MPH MILES PER HOUR			
MEAN	13.996	STD ERROR	0.825
VARIANCE	16.996	KURTOSIS	-0.541
RANGE	16.921	MINIMUM	10.399
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0

VARIABLE TOTAL TOTAL GALLONS			
MEAN	527.920	STD ERROR	38.508
VARIANCE	37070.992	KURTOSIS	-0.422
RANGE	693.000	MINIMUM	242.000
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0

VARIABLE TMILES TOTAL MILES			
MEAN	4157.199	STD ERROR	314.268
VARIANCE	*****	KURTOSIS	-1.023
RANGE	5661.000	MINIMUM	1688.000
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0

TABLE A21. SUMMER 1973, DIESEL

SUMMER (JULY-AUGUST) 72 MODELS-FY73,74,75

FILE ALL.VM24 (CREATION DATE = 08/15/76)

VARIABLE THOURS		TOTAL HOURS	
MEAN	249.960	STD ERROR	14.709
VARIANCE	5408.871	KURTOSIS	-0.002
RANGE	308.000	MINIMUM	107.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

STD DEV 73.545
SKEWNESS 0.212
MAXIMUM 415.000

VARIABLE MPG		MILES PER GALLON	
MEAN	10.633	STD ERROR	0.401
VARIANCE	4.027	KURTOSIS	2.435
RANGE	9.840	MINIMUM	7.087
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

STD DEV 2.007
SKEWNESS 1.127
MAXIMUM 16.928

VARIABLE GPH		GALLONS PER HOUR	
MEAN	1.791	STD ERROR	0.092
VARIANCE	0.212	KURTOSIS	-0.683
RANGE	1.767	MINIMUM	1.017
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

STD DEV 0.460
SKEWNESS 0.254
MAXIMUM 2.784

VARIABLE MPH		MILES PER HOUR	
MEAN	18.815	STD ERROR	1.069
VARIANCE	28.580	KURTOSIS	0.430
RANGE	22.350	MINIMUM	11.075
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

STD DEV 5.346
SKEWNESS 0.840
MAXIMUM 33.425

VARIABLE TOTGAL		TOTAL GALLONS	
MEAN	446.360	STD ERROR	37.236
VARIANCE	34662.238	KURTOSIS	0.189
RANGE	652.000	MINIMUM	235.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

STD DEV 186.178
SKEWNESS 1.024
MAXIMUM 881.000

VARIABLE TMILES		TOTAL MILES	
MEAN	4725.918	STD ERROR	445.652
VARIANCE	8510.000	KURTOSIS	1.437
RANGE	8510.000	MINIMUM	2403.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

STD DEV 2228.261
SKEWNESS 1.471
MAXIMUM 10913.000

TABLE A22. SUMMER 1974, GASOLINE

SUMMER (JULY-AUGUST) 72 MODELS--FY73.74.75
 FILE ALL.VH24 (CREATION DATE = 08/15/76)

TOTAL HOURS			TOTAL GALLONS			TOTAL MILES		
VARIABLE	T HOURS		VARIABLE	TOTAL		VARIABLE	TOTAL	
MEAN	207.375	STD ERROR	604.875	53.175	STD ERROR	4641.832	505.771	2477.760
VARIANCE	3048.071	KURTOSIS	67862.625	-1.376	KURTOSIS	*****	0.141	1.217
RANGE	195.000	MINIMUM	789.000	258.000	MINIMUM	7739.000	2291.000	10030.000
VALID OBSERVATIONS	24	MISSING OBSERVATIONS	24	MISSING OBSERVATIONS	24	MISSING OBSERVATIONS	24	MISSING OBSERVATIONS
		0		0		0		0

MILES PER GALLON			GALLONS PER HOUR		
VARIABLE	MPG		VARIABLE	GPH	
MEAN	7.961	STD ERROR	2.904	0.203	STD DEV
VARIANCE	7.587	KURTOSIS	0.993	-0.514	SKEWNESS
RANGE	9.066	MINIMUM	3.609	1.423	MAXIMUM
VALID OBSERVATIONS	24	MISSING OBSERVATIONS	24	MISSING OBSERVATIONS	24
		0		0	

MILES PER HOUR			TOTAL GALLONS		
VARIABLE	MPH		VARIABLE	TOTGAL	
MEAN	21.351	STD ERROR	604.875	53.175	STD DEV
VARIANCE	33.836	KURTOSIS	67862.625	-1.376	SKEWNESS
RANGE	19.095	MINIMUM	789.000	258.000	MAXIMUM
VALID OBSERVATIONS	24	MISSING OBSERVATIONS	24	MISSING OBSERVATIONS	24
		0		0	

TABLE A23. SUMMER 1974, DIESEL

SUMMER (JULY-AUGUST) 72 MODELS-FY73,74,75
 FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE		TOTAL HOURS		TOTAL GALLONS		TOTAL MILES	
MEAN	196.320	STD ERROR	14.169	STD DEV	70.046	STD DEV	70.046
VARIANCE	5019.141	KURTOSIS	0.226	SKEWNESS	0.725	SKEWNESS	0.725
RANGE	280.000	MINIMUM	91.000	MAXIMUM	371.000	MAXIMUM	371.000
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0

VARIABLE		MILES PER GALLON		TOTAL GALLONS		TOTAL MILES	
MEAN	10.585	STD ERROR	0.660	STD DEV	3.299	STD DEV	3.299
VARIANCE	10.883	KURTOSIS	-0.446	SKEWNESS	-0.017	SKEWNESS	-0.017
RANGE	13.341	MINIMUM	3.762	MAXIMUM	17.103	MAXIMUM	17.103
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0

VARIABLE		GALLONS PER HOUR		TOTAL GALLONS		TOTAL MILES	
MEAN	2.101	STD ERROR	0.180	STD DEV	0.900	STD DEV	0.900
VARIANCE	0.810	KURTOSIS	1.351	SKEWNESS	1.449	SKEWNESS	1.449
RANGE	3.656	MINIMUM	0.964	MAXIMUM	4.620	MAXIMUM	4.620
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0

VARIABLE		MILES PER HOUR		TOTAL GALLONS		TOTAL MILES	
MEAN	20.268	STD ERROR	1.057	STD DEV	5.286	STD DEV	5.286
VARIANCE	27.940	KURTOSIS	1.043	SKEWNESS	0.598	SKEWNESS	0.598
RANGE	25.202	MINIMUM	8.087	MAXIMUM	33.289	MAXIMUM	33.289
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0

VARIABLE		TOTAL GALLONS		TOTAL GALLONS		TOTAL MILES	
MEAN	416.160	STD ERROR	46.411	STD DEV	232.054	STD DEV	232.054
VARIANCE	53849.137	KURTOSIS	0.300	SKEWNESS	1.113	SKEWNESS	1.113
RANGE	818.000	MINIMUM	133.000	MAXIMUM	951.000	MAXIMUM	951.000
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0

VARIABLE		TOTAL MILES		TOTAL GALLONS		TOTAL MILES	
MEAN	4043.640	STD ERROR	389.504	STD DEV	1947.521	STD DEV	1947.521
VARIANCE	*****	KURTOSIS	0.201	SKEWNESS	0.882	SKEWNESS	0.882
RANGE	7455.000	MINIMUM	1116.000	MAXIMUM	8571.000	MAXIMUM	8571.000
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0	MISSING OBSERVATIONS -	0

TABLE A24. SUMMER 1975, GASOLINE

SUMMER (JULY-AUGUST) 1972 MODEL-S-PY73.74.75
 FILE ALLVH24 CREATION DATE = 08/15/76

VARIABLE THOURS		TOTAL HOURS		STDEV		SKEWNESS	
MEAN	160.680	STDEV	5.426	STDEV	27.132	STDEV	0.396
VARIANCE	746.143	KURTOSIS	-0.862	KURTOSIS	0.742	KURTOSIS	11.392
RANGE	95.070	MINIMUM	120.000	MINIMUM	215.000	MINIMUM	
VALID OBSERVATIONS =	25	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0

VARIABLE MPH		MILES PER GALLON		STDEV		SKEWNESS	
MEAN	7.357	STDEV	0.323	STDEV	1.617	STDEV	0.742
VARIANCE	2.615	KURTOSIS	-0.242	KURTOSIS	0.742	KURTOSIS	11.392
RANGE	6.174	MINIMUM	5.208	MINIMUM	11.392	MINIMUM	
VALID OBSERVATIONS =	25	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0

VARIABLE GPH		GALLONS PER HOUR		STDEV		SKEWNESS	
MEAN	2.629	STDEV	0.135	STDEV	0.673	STDEV	0.685
VARIANCE	7.453	KURTOSIS	-0.315	KURTOSIS	0.685	KURTOSIS	4.158
RANGE	2.541	MINIMUM	1.617	MINIMUM	4.158	MINIMUM	
VALID OBSERVATIONS =	25	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0

VARIABLE MPH		MILES PER HOUR		STDEV		SKEWNESS	
MEAN	19.807	STDEV	0.865	STDEV	4.325	STDEV	1.146
VARIANCE	18.702	KURTOSIS	0.396	KURTOSIS	1.146	KURTOSIS	28.455
RANGE	15.436	MINIMUM	13.019	MINIMUM	28.455	MINIMUM	
VALID OBSERVATIONS =	25	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0

VARIABLE TOTAL		TOTAL GALLONS		STDEV		SKEWNESS	
MEAN	426.240	STDEV	31.212	STDEV	156.062	STDEV	1.679
VARIANCE	24355.437	KURTOSIS	2.673	KURTOSIS	1.679	KURTOSIS	894.000
RANGE	687.000	MINIMUM	207.000	MINIMUM	894.000	MINIMUM	
VALID OBSERVATIONS =	25	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0

VARIABLE TMILES		TOTAL MILES		STDEV		SKEWNESS	
MEAN	3053.350	STDEV	212.017	STDEV	1963.086	STDEV	1.695
VARIANCE	6126.000	KURTOSIS	2.473	KURTOSIS	1.695	KURTOSIS	6116.000
RANGE	6126.000	MINIMUM	1902.000	MINIMUM	6116.000	MINIMUM	
VALID OBSERVATIONS =	25	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0	MISSING OBSERVATIONS =	0

TABLE A25 SUMMER 1975, DIESEL

SUMMER (JULY-AUGUST) 72 MODELS-FY73,74,75
 FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE		TOTAL HOURS		STD ERROR		KURTOSIS		MEAN		STD DEV	
				MINIMUM		MINIMUM				SKEWNESS	
										MAXIMUM	
MEAN	155.875		9.141								44.784
VARIANCE	2005.592		-0.515								-0.340
RANGE	171.000		58.000								229.000
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0						

VARIABLE		MILES PER GALLON		STD ERROR		KURTOSIS		MEAN		STD DEV	
				MINIMUM		MINIMUM				SKEWNESS	
										MAXIMUM	
MEAN	9.555		0.599								2.934
VARIANCE	8.607		-0.340								-0.282
RANGE	11.714		3.768								15.483
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0						

VARIABLE		GALLONS PER HOUR		STD ERROR		KURTOSIS		MEAN		STD DEV	
				MINIMUM		MINIMUM				SKEWNESS	
										MAXIMUM	
MEAN	2.167		0.103								0.897
VARIANCE	0.805		3.117								1.803
RANGE	3.928		0.986								4.914
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0						

VARIABLE		MILES PER HOUR		STD ERROR		KURTOSIS		MEAN		STD DEV	
				MINIMUM		MINIMUM				SKEWNESS	
										MAXIMUM	
MEAN	18.805		0.862								4.222
VARIANCE	17.830		0.443								0.474
RANGE	18.108		11.691								29.799
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0						

VARIABLE		TOTAL GALLONS		STD ERROR		KURTOSIS		MEAN		STD DEV	
				MINIMUM		MINIMUM				SKEWNESS	
										MAXIMUM	
MEAN	318.667		21.745								106.526
VARIANCE	11347.883		-0.083								0.560
RANGE	431.000		143.000								574.000
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0						

VARIABLE		TOTAL MILES		STD ERROR		KURTOSIS		MEAN		STD DEV	
				MINIMUM		MINIMUM				SKEWNESS	
										MAXIMUM	
MEAN	2993.250		274.474								1344.641
VARIANCE	611111.111		0.197								0.895
RANGE	5154.000		1074.000								6228.000
VALID OBSERVATIONS	-	24	MISSING OBSERVATIONS	-	0						

TABLE A25a. WINTER-SUMMER COMPARISON

Model 72 Data Base		<u>Winter (Jan. - Feb.)</u>				<u>Summer (July - Aug.)</u>		
	1973	1974	1975	1976	1973	1974	1975	
Gasoline	n=25	n=25	n=25	n=25	n=25	n=24	n=25	
M P G		4.09 +0.30	4.65 +0.34	4.25 +0.28	7.87 +0.82	7.67 +1.08	7.16 +0.72	
*M P G		4.54 +0.29	5.37 +0.40	4.64 +0.38	7.94 +0.34	7.96 +0.56	7.37 +0.32	
G P H		3.03 +0.20	3.24 +0.22	3.16 +0.20	2.46 +0.10	2.92 +0.30	2.65 +0.22	
*G P H		3.29 +0.24	3.42 +0.20	3.33 +0.22	2.45 +0.12	2.90 +0.20	2.63 +0.14	
M P H		12.37 +0.82	15.07 +0.92	13.43 +0.89	19.36 +1.74	22.38 +2.72	19.00 +1.46	
*M P H		12.35 +0.37	15.01 +0.30	13.54 +0.36	19.00 +0.82	21.35 +1.18	18.81 +0.86	
x Mi/Mo/Veh		1464	1750	1684	2079	2321	1527	
x Hr/Mo/Veh		118	116	125	107	104	80	
Diesel								
	n=15	n=25	n=24	n=23	n=25	n=25	n=24	
M P G		5.93 +0.62	5.19 +0.29	5.53 +0.36	5.85 +0.28	10.59 +1.33	9.76 +1.44	9.39 +1.07
*M P G		6.65 +0.48	5.74 +0.38	6.15 +0.41	5.93 +0.22	10.63 +0.40	10.58 +0.66	9.55 +0.60
G P H		2.09 +0.23	2.45 +0.14	2.71 +0.16	2.46 +0.12	1.79 +0.18	2.11 +0.28	2.04 +0.18
*G P H		2.20 +0.17	2.60 +0.14	2.87 +0.15	2.56 +0.09	1.79 +0.09	2.10 +0.18	2.17 +0.18
M P H		12.38 +1.22	12.71 +0.66	14.97 +0.86	14.38 +0.78	18.91 +2.10	20.60 +2.48	19.20 +2.09
*M P H		12.83 +0.54	12.90 +0.32	15.03 +0.34	14.60 +0.43	18.82 +1.06	20.27 +1.06	18.80 +0.86
x Mi/Mo/Veh	2011	1750	1705	2003	2363	2022	1497	
x Hr/Mo/Veh	162	138	114	139	125	98	78	

*Denotes unit means

TABLE A25b. WINTER-SUMMER COMPARISON BY AREAS (1 of 3)

Model 72 Data Base
FY 1975

AREA 1 - GAS

Eq. Num.	<u>Winter</u>					<u>Summer</u>				
	Miles	Gallons	Hours	M.P.G.	M.P.H.	Miles	Gallons	Hours	M.P.G.	M.P.H.
11116	6069	967	300	6.3	20.2	12633	1700	410	7.4	30.8
AREA 1 - DIESEL										
11239	5078	650	285	7.8	17.8	4905	457	297	10.7	16.5+
11240	3399	460	190	7.4	17.9	5433	443	242	12.3	22.5-
11258	4816	582	348	8.3	13.8	8602	1082	256	8.0	33.6
x	13293	1692	823			18940	1982	795		
S _x	903.29	96.27	79.54			1999.55	364.95	28.58		
\bar{x}	4431.0	564.0	274.3	7.86	16.15	6313.3	660.7	265.00	9.56	23.8

AREA 1 - GAS

11201	3140	764	266	4.1	11.8	7662	1184	424	6.5	18.1
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AREA 2 - DIESEL

11247	3296	685	191	4.8	17.3	5330	613	273	7.9	19.52
11248	4990	585	208	8.5	24.0	8593	793	292	10.8	29.43
11249	3925	853	213	4.6	18.4	3715	428	233	8.7	15.94
11257	2161	879	214	2.5	10.1	6425	1269	295	5.1	21.78
x	14372	3002	826			24063	3103	1093		
S _x	1183.31	139.88	10.66			2047.23	361.02	28.55		
\bar{x}	3593.0	750.5	206.5	4.79	17.40	6015.8	775.8	273.25	7.75	22.02

TABLE A25b. WINTER-SUMMER COMPARISON BY AREAS (2 of 3)

		Model 72 Data Base FY 1975				AREA 3 - DIESEL					
		<u>Winter</u>				<u>Summer</u>					
Eq. No.	Miles	Gallons	Hours	M.P.G.	M.P.H.	Miles	Gallons	Hours	M.P.G.	M.P.H.	
11228	5622	762	294	7.4	19.1	6707	1053	397	6.4	16.9	
11229	5365	634	357	8.5	15.0	7706	694	415	11.1	18.6	
11231	3648	659	233	5.5	15.7	5430	547	320	9.9	17.0	
11232	4134	588	341	7.0	12.1	3941	355	231	11.1	17.1	
11238	2383	420	195	5.7	12.2	3042	254	125	12.0	24.3	
11241	3835	661	310	5.8	12.4	4827	692	389	7.0	16.7	
11242	4820	698	335	6.9	14.4	4790	445	307	10.8	15.6	
11243	5210	652	384	8.0	13.6	4462	429	280	10.4	15.9	
11244	5478	594	342	9.2	16.0	4562	638	266	7.2	17.2	
11245	3995	631	285	6.3	14.0	6087	686	257	8.9	23.7	
11246	3371	558	183	6.0	18.4	4008	357	174	11.2	23.0	
11250	2905	433	186	6.7	15.6	1699	119	79	14.3	21.5	
11251	4011	737	317	5.4	12.7	4706	512	349	9.2	13.5	
11252	2356	608	216	3.9	10.9	4027	303	253	13.3	15.9	
11254	5401	641	291	8.4	18.6	5214	594	275	8.8	19.0	
11256	3349	614	178	5.5	18.8	4243	762	271	5.6	15.7	
11259	4596	495	261	9.3	17.6	4947	492	257	10.1	19.2	
11260	3265	598	232	5.5	14.1	4419	471	304	9.4	14.5	
x	73744	10983	4940			84817	9403	4949			
S_x	1057.45	90.74	66.08			1317.17	216.89	87.83			
\bar{x}	4096.9	610.4	274.4	6.71	14.93	4712.1	522.4	274.9	9.02	17.14	

TABLE A25b. WINTER-SUMMER COMPARISON BY AREAS (3 of 3)

Model 72 Data Base
FY 1975

AREA 3 - GAS

Eq. No.	<u>Winter</u>					<u>Summer</u>				
	Miles	Gallons	Hours	M.P.G.	M.P.H.	Miles	Gallons	Hours	M.P.G.	M.P.H.
11102	3439	361	197	9.5	17.5	8447	1673	388	5.0	21.8
11103	3871	308	220	12.6	17.6	9051	1464	469	6.2	19.3
11104	3829	910	331	4.2	11.6	6241	1375	399	4.5	15.6
11105	4038	723	332	5.6	12.2	5621	962	357	5.8	15.7
11109	3760	824	194	4.6	19.4	4355	774	300	5.6	14.5
11110	5072	962	293	5.3	17.3	5461	1092	357	5.0	15.3
11111	3484	757	223	4.6	15.6	4360	661	277	6.6	15.7
11112	4225	1121	267	3.8	15.8	5440	814	366	6.7	14.9
11113	3507	885	252	4.0	13.9	4445	768	336	5.8	13.2
11120	3015	569	240	5.3	12.6	4394	690	361	6.4	12.2
11123	3957	955	224	4.1	17.7	6218	746	320	8.3	19.4
11135	4754	541	296	8.8	16.1	5094	646	242	7.9	21.0
11138	4149	663	256	6.3	16.2	5516	1100	289	5.0	19.1
11202	3665	837	317	4.4	11.6	8073	1333	409	6.1	19.7
11203	5046	882	263	5.7	19.2	6266	1073	358	5.8	17.5
11204	4337	741	241	5.9	18.0	7693	1347	333	5.7	23.1
11205	3320	891	327	3.7	10.2	7096	903	384	7.9	18.5
11206	3396	778	281	4.4	12.1	8322	1094	471	7.6	17.7
11207	3411	709	264	4.8	12.9	5838	1060	377	5.5	15.5
11208	4521	695	294	6.5	15.4	8594	1674	372	5.1	23.1
11209	4245	912	222	4.7	19.1	10340	1360	436	7.6	23.7
11210	2483	444	185	5.6	13.4	8378	875	372	9.6	22.5
11211	3267	486	205	6.7	15.9	7030	1316	469	5.3	15.0
x	88791	16954	5924			152273	24800	8442		
S _x	636.32	206.88	45.43			1717.21	315.22	59.92		
\bar{x}	3860.5	737.1	257.6	5.24	14.99	6620.6	1078.3	367.0	6.14	18.04

TABLE A26. SCATTERGRAM, GASOLINE

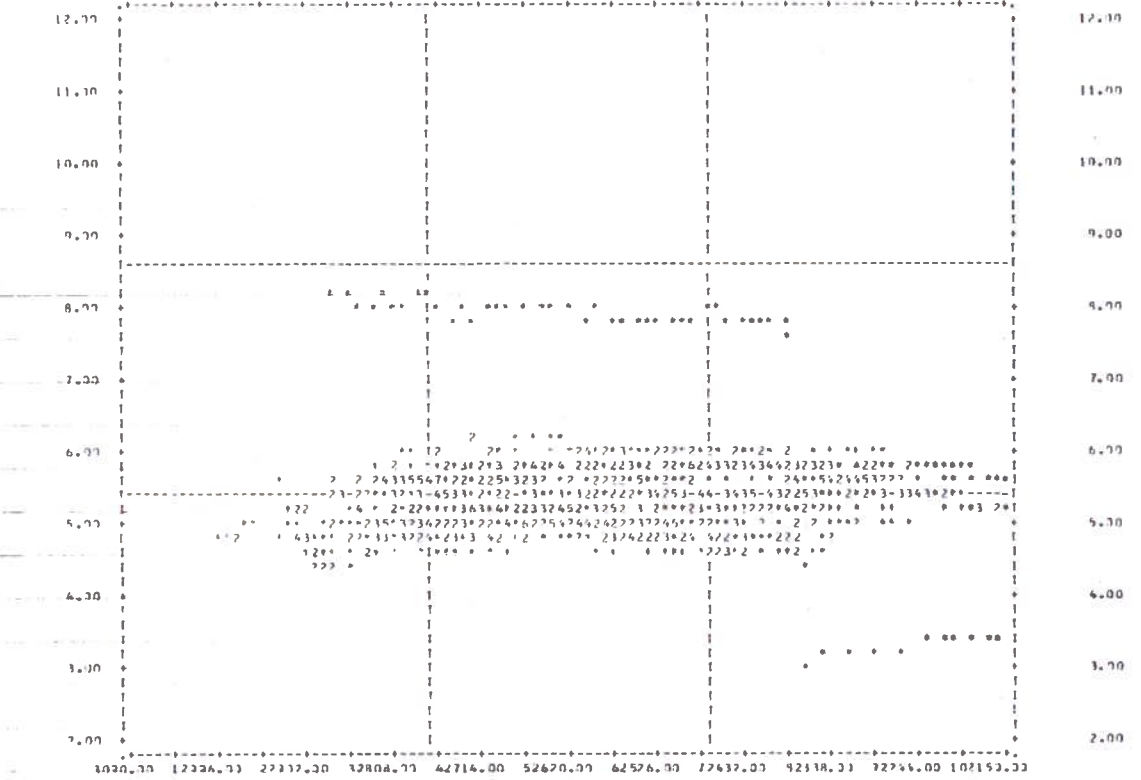
SCATTERGRAM - SUMMR BY CUMMLES

FILE ALLVH24 (CREATION DATE = 08/15/76)

SCATTERGRAM OF (SUMMR) SUMMR

(A*ROSS) CUMMLES

0041.00 17340.00 27855.00 37761.00 47667.00 57573.00 67479.00 77445.00 87311.00 97197.00



SCATTERGRAM - SUMMR BY CUMMLES

STATISTICS

CORRELATION (R)	0.72355	R SQUARED	0.52351	SIGNIFICANCE	0.18012
STD ERR OF EST	0.58297	INTERCEPT (A)	5.44261	SLOPE (B)	0.394980-06
PRINTED VALUES	363	EXCLUDED VALUES	12	MISSING VALUES	0

***** IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED.

TABLE A27. SCATTERGRAM, DIESEL

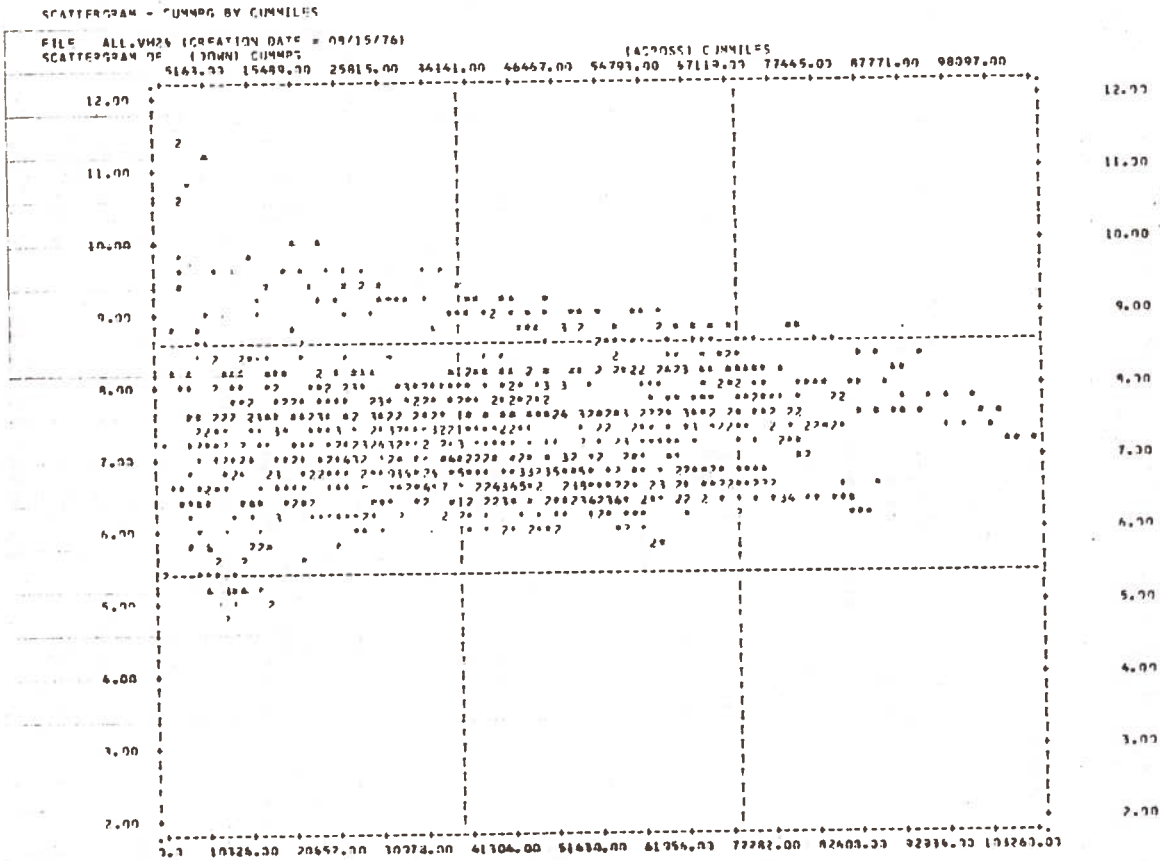


TABLE A28. MAINTENANCE COSTS, GASOLINE FY 73

EQUIPMENT STATISTICS FOR MODEL S

FILE ALL MODEL S CREATION DATE = 03/15/75

VARIABLE COSTS TOTAL MAINT COSTS

MEAN 421.192 STD ERROR 39.073 STD DEV 190.167
 VARIANCE 16230.621 KURTOSIS -0.207 SKEWNESS -0.064
 RANGE 764.710 MINIMUM 49.830 MAXIMUM 914.590

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE COSTS TOTAL MATERIAL COSTS

MEAN 297.676 STD ERROR 39.751 STD DEV 198.806
 VARIANCE 39524.550 KURTOSIS 7.090 SKEWNESS 2.371
 RANGE 972.630 MINIMUM 79.250 MAXIMUM 1751.830

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE COSTS TOTAL TIRE COSTS

MEAN 113.262 STD ERROR 22.034 STD DEV 110.169
 VARIANCE 12137.035 KURTOSIS -0.291 SKEWNESS 1.004
 RANGE 342.640 MINIMUM 0.0 MAXIMUM 349.440

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE MAINT

MEAN 815.077 STD ERROR 67.394 STD DEV 336.920
 VARIANCE 113515.312 KURTOSIS 0.769 SKEWNESS 0.259
 RANGE 1565.449 MINIMUM 136.460 MAXIMUM 1701.930

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE COSTS TOTAL COSTS

MEAN 1924.638 STD ERROR 105.829 STD DEV 529.147
 VARIANCE 27335.637 KURTOSIS 1.242 SKEWNESS 0.539
 RANGE 2511.740 MINIMUM 532.420 MAXIMUM 3444.209

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

TABLE A29. MAINTENANCE COSTS, DIESEL FY 73

EQUIPMENT STATEMENT 1972 מודלים

DATE ALL-UNIT OPERATION DATE = 01/15/73

VARIABLE COSTS		TOTAL LABOR COSTS		TOTAL MATERIAL COSTS		TOTAL TIRE COST		
MEAN	236.274	STD ERROR	33.210	STD DEV	156.052	STD DEV	185.986	
VARIANCE	27573.622	KURTOSIS	2.193	SKEWNESS	1.593	SKEWNESS	1.502	
RANGE	679.257	MINIMUM	59.370	MAXIMUM	739.620	MAXIMUM	707.380	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		MISSING OBSERVATIONS -		0

VARIABLE COSTS		TOTAL LABOR COSTS		TOTAL MATERIAL COSTS		TOTAL TIRE COST		
MEAN	189.295	STD ERROR	37.797	STD DEV	105.986	STD DEV	130.495	
VARIANCE	35715.777	KURTOSIS	1.322	SKEWNESS	1.502	SKEWNESS	3.622	
RANGE	691.750	MINIMUM	26.320	MAXIMUM	707.380	MAXIMUM	139.570	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		MISSING OBSERVATIONS -		0

VARIABLE COSTS		TOTAL LABOR COSTS		TOTAL MATERIAL COSTS		TOTAL TIRE COST		
MEAN	436.203	STD ERROR	67.475	STD DEV	317.023	STD DEV	317.023	
VARIANCE	100507.975	KURTOSIS	1.175	SKEWNESS	1.254	SKEWNESS	1.254	
RANGE	1266.170	MINIMUM	106.140	MAXIMUM	1370.310	MAXIMUM	1370.310	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		MISSING OBSERVATIONS -		0

VARIABLE COSTS		TOTAL LABOR COSTS		TOTAL MATERIAL COSTS		TOTAL TIRE COST		
MEAN	746.981	STD ERROR	89.296	STD DEV	446.679	STD DEV	446.679	
VARIANCE	120343.637	KURTOSIS	0.341	SKEWNESS	1.011	SKEWNESS	1.011	
RANGE	1697.670	MINIMUM	256.000	MAXIMUM	1953.690	MAXIMUM	1953.690	
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -		0		MISSING OBSERVATIONS -		0

TABLE A30. MAINTENANCE COSTS, GASOLINE FY 74

EQUIPMENT STATEMENT 1972 MODELS

FILE ALL.VH24 (CREATION DATE = 08/15/75)

VARIABLE LABEL TOTAL LABOR COSTS

MEAN 454.373 STD ERROR 43.941 STD DEV 219.653
 VARIANCE 49287.426 KURTOSIS -0.712 SKEWNESS 0.134
 RANGE 802.727 MINIMUM 59.370 MAXIMUM 862.091

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE LABELS TOTAL MATERIAL COSTS

MEAN 461.514 STD ERROR 99.050 STD DEV 495.301
 VARIANCE 245323.125 KURTOSIS 12.559 SKEWNESS 3.452
 RANGE 2573.319 MINIMUM 19.427 MAXIMUM 2612.743

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE LABELS TOTAL TIRE COST

MEAN 210.833 STD ERROR 30.807 STD DEV 154.034
 VARIANCE 23726.492 KURTOSIS -0.799 SKEWNESS 0.479
 RANGE 532.770 MINIMUM 0.0 MAXIMUM 532.770

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE LABELS

MEAN 1149.820 STD ERROR 137.023 STD DEV 685.116
 VARIANCE 469383.750 KURTOSIS 4.447 SKEWNESS 1.776
 RANGE 3395.810 MINIMUM 175.240 MAXIMUM 3571.060

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE LABELS TOTAL COSTS

MEAN 2525.159 STD ERROR 181.072 STD DEV 905.358
 VARIANCE 81973.912 KURTOSIS 1.524 SKEWNESS 0.888
 RANGE 4175.596 MINIMUM 1025.820 MAXIMUM 5201.406

VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

TABLE A31. MAINTENANCE COSTS, DIESEL FY 74

מחירי המבצע 1072 מטרות

FILE = MLL0025 (מחירי המבצע) DATE = 28/15/74

VARIABLE	MEAN	STANDARD DEVIATION	STANDARD ERROR	MINIMUM	MAXIMUM	STD DEV	SKEWNESS	MAXIMUM
MEAN	535.350	19.815				199.073		
VARIANCE	38579.878	-0.511				3.724		
RANGE	717.270	261.270				279.490		
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0					

VARIABLE	MEAN	STANDARD DEVIATION	STANDARD ERROR	MINIMUM	MAXIMUM	STD DEV	SKEWNESS	MAXIMUM
MEAN	330.516	36.812				134.559		
VARIANCE	34762.747	0.058				9.973		
RANGE	669.230	117.870				785.100		
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0					

VARIABLE	MEAN	STANDARD DEVIATION	STANDARD ERROR	MINIMUM	MAXIMUM	STD DEV	SKEWNESS	MAXIMUM
MEAN	172.591	31.518				157.591		
VARIANCE	24334.977	-1.345				9.265		
RANGE	470.050	0.0				470.050		
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0					

VARIABLE	MEAN	STANDARD DEVIATION	STANDARD ERROR	MINIMUM	MAXIMUM	STD DEV	SKEWNESS	MAXIMUM
MEAN	1049.026	82.424				412.118		
VARIANCE	140841.250	-0.681				3.460		
RANGE	1454.620	447.959				1912.580		
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0					

VARIABLE	MEAN	STANDARD DEVIATION	STANDARD ERROR	MINIMUM	MAXIMUM	STD DEV	SKEWNESS	MAXIMUM
MEAN	1994.829	104.649				523.238		
VARIANCE	23777.017	-0.255				3.486		
RANGE	1099.670	1214.670				3214.299		
VALID OBSERVATIONS -	25	MISSING OBSERVATIONS -	0					

TABLE A32. MAINTENANCE COSTS, GASOLINE FY 75

EQUIPMENT STATEMENT 1975 MONTHS

FILE ALL.VM24 (CREATION DATE = 08/15/75)

VARIABLE TIRES TOTAL LABOR COSTS

MEAN 732.148 STD ERROR 36.714 STD DEV 483.570
 VARIANCE 233830.750 SKEDWESS 2.153
 RANGE 2367.926 MINIMUM 188.250 MAXIMUM 2556.176

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TMAIS TOTAL MATERIAL COSTS

MEAN 752.951 STD ERROR 99.210 STD DEV 496.049
 VARIANCE 244063.750 SKEDWESS 0.382
 RANGE 1633.619 MINIMUM 31.370 MAXIMUM 1714.990

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TIRES TOTAL TIRE COST

MEAN 374.421 STD ERROR 27.577 STD DEV 137.885
 VARIANCE 10012.277 SKEDWESS 0.702
 RANGE 679.260 MINIMUM 183.940 MAXIMUM 562.000

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TMAINT

MEAN 1959.511 STD ERROR 189.501 STD DEV 972.504
 VARIANCE 914513.625 SKEDWESS 0.869
 RANGE 3831.565 MINIMUM 500.650 MAXIMUM 4332.215

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TCOSTS TOTAL COSTS

MEAN 4001.688 STD ERROR 268.460 STD DEV 1342.301
 VARIANCE 1833477.777 SKEDWESS 1.459
 RANGE 6731.761 MINIMUM 1710.890 MAXIMUM 3642.864

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

TABLE A33. MAINTENANCE COSTS, DIESEL FY 75

COMPUTATION STATEMENT 1972 MODELS

FILE ALLVH26 (CREATION DATE = 09/15/74)

VARIABLE	MEAN	VARIANCE	RANGE	STD ERROR	KURTOSIS	MINIMUM	MAXIMUM	STD DEV	SKEWNESS	MAXIMUM
TOTAL LABOR COSTS										
MEAN	793.717			56.911				294.653		
VARIANCE	91727.520			-0.234				0.455		
RANGE	1150.908			144.067				1294.958		
VALID OBSERVATIONS	MISSING OBSERVATIONS - 0									
TOTAL MATERIAL COSTS										
MEAN	937.716			137.441				687.205		
VARIANCE	472250.675			1.499				1.468		
RANGE	7437.920			112.370				2750.290		
VALID OBSERVATIONS	MISSING OBSERVATIONS - 0									
TOTAL TIME COST										
MEAN	262.219			29.029				145.145		
VARIANCE	21067.492			-0.831				0.145		
RANGE	522.580			0.0				522.580		
VALID OBSERVATIONS	MISSING OBSERVATIONS - 0									
TOTAL MAINT										
MEAN	1903.146			189.123				945.616		
VARIANCE	396130.312			0.930				1.034		
RANGE	4945.936			256.430				4302.426		
VALID OBSERVATIONS	MISSING OBSERVATIONS - 0									
TOTAL COSTS										
MEAN	2990.735			217.161				1085.804		
VARIANCE	53288.931			0.898				0.296		
RANGE	5328.931			426.880				5755.773		
VALID OBSERVATIONS	MISSING OBSERVATIONS - 0									

TABLE A34. MAINTENANCE COSTS, GASOLINE FY 76

EQUIPMENT STATEWIDE 1972 MONTHS

FILE ALL.VH24 (CREATION DATE = 08/15/75)

VARIABLE LABOR TOTAL LABOR COSTS

MEAN 741.654 STD ERROR 73.331 STD DEV 366.973
 VARIANCE 134617.625 KURTOSIS -0.477 SKEWNESS 0.799
 RANGE 1372.005 MINIMUM 128.800 MAXIMUM 1507.805

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TUNTS TOTAL MATERIAL COSTS

MEAN 1349.930 STD ERROR 204.148 STD DEV 1020.740
 VARIANCE 444444.444 KURTOSIS -0.399 SKEWNESS 0.959
 RANGE 3527.479 MINIMUM 149.150 MAXIMUM 3776.640

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TIRES TOTAL TIRE COST

MEAN 345.372 STD ERROR 45.631 STD DEV 228.476
 VARIANCE 52169.164 KURTOSIS -0.919 SKEWNESS 0.471
 RANGE 736.570 MINIMUM 5.980 MAXIMUM 792.570

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE TUNING

MEAN 2436.065 STD ERROR 292.243 STD DEV 1461.313
 VARIANCE 444444.444 KURTOSIS -0.557 SKEWNESS 0.605
 RANGE 5343.566 MINIMUM 429.920 MAXIMUM 5773.489

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE COSTS TOTAL COSTS

MEAN 4315.539 STD ERROR 331.292 STD DEV 1656.460
 VARIANCE 444444.444 KURTOSIS -0.409 SKEWNESS 0.333
 RANGE 5219.945 MINIMUM 1591.770 MAXIMUM 7911.715

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

TABLE A35. MAINTENANCE COSTS, DIESEL FY 76

מחירי תחזוקה דיזל (1976) מודלים (1972)
 FILE ALL.MAINT (מחירי תחזוקה דיזל = 09/15/76)

VARIABLE	מחירי תחזוקה דיזל	TOTAL MAINT COSTS	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל
MEAN	1175.576		63.616		409.965
VARIANCE	10971.412		-0.610		0.310
RANGE	5423.316		170.800		1794.805
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	TOTAL MATERIAL COSTS	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל
MEAN	1131.222		230.910		1131.222
VARIANCE	1.613		2.043		1.613
RANGE	4703.207		73.300		4703.207
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	TOTAL FUEL COST	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל
MEAN	163.935		34.463		163.935
VARIANCE	-0.220		-0.873		-0.220
RANGE	612.380		1.390		612.380
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	TOTAL OIL COSTS	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל
MEAN	1506.735		307.561		1506.735
VARIANCE	1.123		1.279		1.123
RANGE	6906.711		363.410		6906.711
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	TOTAL COSTS	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל	מחירי תחזוקה דיזל
MEAN	1692.543		343.448		1692.543
VARIANCE	0.932		1.170		0.932
RANGE	8684.219		438.900		8684.219
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

A36. CAPITAL COST AND DEPRECIATION, GASOLINE FY 73

EQUIPMENT STATEWIDE 1979 MODELS

FILE ALL.VH24 (CREATION DATE = 03/15/76)

VARIABLE	CAPACITY	CAPITAL COST	STD ERROR	STD DEV
MEAN	6797.230	81.859	409.297	
VARIANCE	157526.312	-1.609	3.149	
RANGE	1127.752	6299.047	7415.809	
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0	

VARIABLE	DEPRECIATION	STD ERROR	STD DEV
MEAN	649.740	38.679	193.395
VARIANCE	37401.637	-1.859	-0.143
RANGE	457.000	427.000	984.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

VARIABLE	MONTHLY DEPRECIATION	STD ERROR	STD DEV
MEAN	94.520	0.606	3.479
VARIANCE	12.093	-0.109	0.541
RANGE	14.000	99.000	103.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

VARIABLE	CURRENT FISCAL DEPRECIATION	STD ERROR	STD DEV
MEAN	1030.720	7.651	39.251
VARIANCE	1453.233	-0.109	0.541
RANGE	154.000	979.000	1133.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

VARIABLE	DEPRECIATION TO DATE	STD ERROR	STD DEV
MEAN	1689.630	44.956	224.831
VARIANCE	50543.725	-1.814	-0.135
RANGE	573.000	1411.000	1994.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

Table A37. CAPITAL COST AND DEPRECIATION, DIESEL FY 73

EQUIPMENT STATEMENT 1972 MODELS

FILE ALLV424 (CREATION DATE = 03/15/76)

VARIABLE CAPCOST CAPITAL COST
 MEAN 4509.168 STD ERROR 110.269 STD DEV 551.343
 VARIANCE 301979.137 KURTOSIS -1.594 SKWNESS -0.558
 RANGE 1571.850 MINIMUM 7673.316 MAXIMUM 9245.156
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE DEPTOD DEPRECIATION TO DATE
 MEAN 11342.239 STD ERROR 3699.414 STD DEV 18497.070
 VARIANCE 134089.019 KURTOSIS -1.040 SKWNESS 0.980
 RANGE 60404.039 MINIMUM 0.0 MAXIMUM 60404.039
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE CUPREP CURRENT FISCAL DEPRECIATION
 MEAN 113.940 STD ERROR 2.017 STD DEV 10.086
 VARIANCE 101.723 KURTOSIS -1.469 SKWNESS -0.577
 RANGE 27.000 MINIMUM 0.000 MAXIMUM 125.000
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE DEPTOD DEPRECIATION TO DATE
 MEAN 624.360 STD ERROR 56.997 STD DEV 276.986
 VARIANCE 75617.312 KURTOSIS 2.859 SKWNESS 2.044
 RANGE 994.000 MINIMUM 374.000 MAXIMUM 1369.000
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE CUPREP CURRENT FISCAL DEPRECIATION
 MEAN 595.200 STD ERROR 39.516 STD DEV 197.582
 VARIANCE 30039.832 KURTOSIS 2.154 SKWNESS 1.732
 RANGE 715.000 MINIMUM 374.000 MAXIMUM 1089.000
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE DEPTOD DEPRECIATION TO DATE
 MEAN 624.360 STD ERROR 56.997 STD DEV 276.986
 VARIANCE 75617.312 KURTOSIS 2.859 SKWNESS 2.044
 RANGE 994.000 MINIMUM 374.000 MAXIMUM 1369.000
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

TABLE A38. CAPITAL COST AND DEPRECIATION, GASOLINE FY 74

EQUIPMENT STATEMENT 1972 MODELS

FILE ALL.V424 (CREATION DATE = 08/15/76)

VARIABLE CAPACT CAPITAL COST

MEAN 6787.230 STD ERROR 81.859 STD DEV 409.297
 VARIANCE 147524.312 KURTOSIS -1.609 SKEWNESS 0.149
 RANGE 1127.762 MINIMUM 6238.067 MAXIMUM 7415.809

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE PRIOR FISCAL DEPRECIATION

MEAN 678.719 STD ERROR 9.196 STD DEV 40.931
 VARIANCE 1675.318 KURTOSIS -1.609 SKEWNESS 0.149
 RANGE 112.740 MINIMUM 628.800 MAXIMUM 741.580

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE MONTHLY DEPRECIATION

MEAN 94.520 STD ERROR 0.696 STD DEV 3.478
 VARIANCE 12.093 KURTOSIS -0.109 SKEWNESS 0.541
 RANGE 14.000 MINIMUM 99.000 MAXIMUM 103.000

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE CURRENT FISCAL DEPRECIATION

MEAN 199.720 STD ERROR 7.651 STD DEV 39.253
 VARIANCE 1463.233 KURTOSIS -0.109 SKEWNESS 0.541
 RANGE 154.000 MINIMUM 979.000 MAXIMUM 1133.000

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE DEPTOT DEPRECIATION TO DATE

MEAN 2822.720 STD ERROR 52.241 STD DEV 261.207
 VARIANCE 69229.125 KURTOSIS -1.717 SKEWNESS -0.095
 RANGE 705.000 MINIMUM 2479.000 MAXIMUM 3138.000

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

TABLE A39. CAPITAL COST AND DEPRECIATION, DIESEL FY 74

תוצאות סטטיסטיקה 1972 מודלים

FILE ALL 0426 (כוכב) יומן = 08/15/74)

VARIABLE CAPITAL COST

MEAN 4707.475 STD ERROR 101.618 STD DEV 509.092
 VARIANCE 250176.525 KURTOSIS -0.504 SKEWNESS -1.041
 RANGE 1571.840 MINIMUM 7673.315 MAXIMUM 9245.156
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE PREVIOUS FISCAL DEPRECIATION

MEAN 870.937 STD ERROR 10.132 STD DEV 50.909
 VARIANCE 2591.639 KURTOSIS -0.509 SKEWNESS -1.041
 RANGE 157.190 MINIMUM 767.330 MAXIMUM 924.510
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE MTHDEP MONTHLY DEPRECIATION

MEAN 107.120 STD ERROR 1.222 STD DEV 6.112
 VARIANCE 37.360 KURTOSIS 0.055 SKEWNESS -0.250
 RANGE 26.000 MINIMUM 95.000 MAXIMUM 121.000
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE CURRESP CURRENT FISCAL DEPRECIATION

MEAN 1745.970 STD ERROR 12.643 STD DEV 93.216
 VARIANCE 3687.242 KURTOSIS -0.956 SKEWNESS -0.793
 RANGE 257.770 MINIMUM 1078.000 MAXIMUM 1347.000
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

VARIABLE DEPTD DEPRECIATION TO DATE

MEAN 1954.120 STD ERROR 49.000 STD DEV 745.002
 VARIANCE 50026.109 KURTOSIS 0.811 SKEWNESS 0.771
 RANGE 1007.000 MINIMUM 1556.000 MAXIMUM 2555.000
 VALID OBSERVATIONS = 25 MISSING OBSERVATIONS = 0

TABLE A40. CAPITAL COST AND DEPRECIATION, GASOLINE FY 75

EQUATION STATEMENT 1972 MODEL		FILE ALL.VH24 (CREATION DATE = 03/15/74)	

VARIABLE	CAPITAL COST		
MEAN	5797.230	STD ERROR	409.297
VARIANCE	167524.312	KURTOSIS	0.149
RANGE	1127.752	MINIMUM	7415.809
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

VARIABLE	QUARTERLY ORIGINAL FISCAL DEPRECIATION		
MEAN	578.719	STD ERROR	40.931
VARIANCE	1675.318	KURTOSIS	0.149
RANGE	112.790	MINIMUM	741.590
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

VARIABLE	MONTHLY DEPRECIATION		
MEAN	94.520	STD ERROR	3.478
VARIANCE	12.093	KURTOSIS	0.541
RANGE	14.000	MINIMUM	103.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

VARIABLE	CURRENT FISCAL DEPRECIATION		
MEAN	1099.720	STD ERROR	34.253
VARIANCE	1463.293	KURTOSIS	0.541
RANGE	154.000	MINIMUM	1133.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

VARIABLE	DEPRECIATION TO DATE		
MEAN	3056.960	STD ERROR	293.985
VARIANCE	9932.137	KURTOSIS	-0.743
RANGE	868.000	MINIMUM	415.000
VALID OBSERVATIONS	25	MISSING OBSERVATIONS	0

TABLE A41. CAPITAL COST AND DEPRECIATION, DIESEL FY 75

מחירי הרכיבים
 FILE ALL.VARIABLES DEPRECIATION DATE = 08/15/75

VARIABLE	ממוצע	מקסימום	מינימום	מספר תצפיות	מספר תצפיות	מספר תצפיות	מספר תצפיות
MEAN	936.562	1308.504	0.0	261.701	17.192	57.908	191.395
VARIANCE	9265.156	9245.156	0.0	14.670	-0.509	-1.041	-3.709
RANGE				0.0	747.330	924.510	1331.000
VALID OBSERVATIONS -	25			MISSING OBSERVATIONS -	0		

VARIABLE	ממוצע	מקסימום	מינימום	מספר תצפיות	מספר תצפיות	מספר תצפיות	מספר תצפיות
MEAN	102.630	22.233	0.0	4.447	16.778	4.447	121.000
VARIANCE	406.310	4.142	0.0	0.0			
RANGE	121.000						
VALID OBSERVATIONS -	25			MISSING OBSERVATIONS -	0		

VARIABLE	ממוצע	מקסימום	מינימום	מספר תצפיות	מספר תצפיות	מספר תצפיות	מספר תצפיות
MEAN	1142.970	181.395	0.0	36.279	14.320	14.320	1331.000
VARIANCE	32904.000	3.709	0.0	333.000			
RANGE	993.000						
VALID OBSERVATIONS -	25			MISSING OBSERVATIONS -	0		

VARIABLE	ממוצע	מקסימום	מינימום	מספר תצפיות	מספר תצפיות	מספר תצפיות	מספר תצפיות
MEAN	3125.600	696.608	0.0	139.282	14.910	14.910	3744.000
VARIANCE	48694.250	3.811	0.0	0.0			
RANGE	3744.000						
VALID OBSERVATIONS -	25			MISSING OBSERVATIONS -	0		

TABLE A42. CAPITAL COST AND DEPRECIATION, GASOLINE FY 76

EQUIPMENT STATEMENT 1977 MONTHS

FILE ALLVH24 (CREATION DATE = 08/15/76)

VARIABLE CAPROST CAPITAL COST

MEAN 6787.230 STD ERROR 91.856 STD DEV 409.297
 VARIANCE 157524.312 KURTOSIS -1.609 SKEWNESS 0.149
 RANGE 1127.762 MINIMUM 6298.067 MAXIMUM 7415.809

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE PRIFYOP PRIOR FISCAL DEPRECIATION

MEAN 678.719 STD ERROR 8.186 STD DEV 40.931
 VARIANCE 1675.318 KURTOSIS -1.609 SKEWNESS 0.149
 RANGE 112.782 MINIMUM 628.830 MAXIMUM 741.580

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE MTHDFP MONTHLY DEPRECIATION

MEAN 95.040 STD ERROR 0.826 STD DEV 4.129
 VARIANCE 17.040 KURTOSIS 0.279 SKEWNESS 0.758
 RANGE 17.000 MINIMUM 89.000 MAXIMUM 106.000

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE CURDFP CURRENT FISCAL DEPRECIATION

MEAN 1042.440 STD ERROR 3.237 STD DEV 41.197
 VARIANCE 1696.360 KURTOSIS 0.222 SKEWNESS 0.645
 RANGE 172.000 MINIMUM 979.000 MAXIMUM 1151.000

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

VARIABLE DEPTOT DEPRECIATION TO DATE

MEAN 5093.918 STD ERROR 58.029 STD DEV 340.145
 VARIANCE 115699.637 KURTOSIS -1.470 SKEWNESS 0.000
 RANGE 1054.000 MINIMUM 4615.000 MAXIMUM 5669.000

VALID OBSERVATIONS - 25 MISSING OBSERVATIONS - 0

TABLE A43. CAPITAL COST AND DEPRECIATION, DIESEL FY 76

EQUIPMENT STATEMENT 1972 MODEL

FILE ALLVH24 CREATION DATE = 09/15/76)

VARIABLE	CAPITAL COST	STD ERROR KURTOSIS MINIMUM	376.045 15.851 0.0	STD DEV SKEWNESS MAXIMUM	1342.237 -4.051 9245.156
MEAN	8315.510				
VARIANCE	9245.156				
RANGE					
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	MONTHLY DEPRECIATION	STD ERROR KURTOSIS MINIMUM	10.424 -0.620 767.330	STD DEV SKEWNESS MAXIMUM	51.066 -0.995 924.510
MEAN	362.013				
VARIANCE	2607.755				
RANGE	157.190				
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	MONTHLY DEPRECIATION	STD ERROR KURTOSIS MINIMUM	4.628 15.928 0.0	STD DEV SKEWNESS MAXIMUM	22.671 -4.045 121.000
MEAN	102.417				
VARIANCE	513.993				
RANGE	121.000				
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	CURRENT FISCAL DEPRECIATION	STD ERROR KURTOSIS MINIMUM	22.093 5.604 763.000	STD DEV SKEWNESS MAXIMUM	109.184 -2.007 1331.000
MEAN	1158.275				
VARIANCE	11703.809				
RANGE	569.000				
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

VARIABLE	DEPRECIATION TO DATE	STD ERROR KURTOSIS MINIMUM	197.067 15.883 0.0	STD DEV SKEWNESS MAXIMUM	965.428 -4.052 4950.000
MEAN	4359.092				
VARIANCE	92052.062				
RANGE	4950.000				
VALID OBSERVATIONS -	24		MISSING OBSERVATIONS -	0	

TABLE A44. GASOLINE FUEL ECONOMY, FY 73

EQUIPMENT STATEMENT 1972 MODEL C

FILE ALLV424 (CREATION DATE = 02/15/76)

VARIABLE	MILGAL	MILES PER GALLON	STD ERROR STATISTICS MINIMUM	STD DEV SKENESS MAXIMUM
MEAN	5.107		0.124	1.372
VARIANCE	1.893		16.437	3.722
RANGE	3.955		3.496	13.362
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0	

VARIABLE	GALHR	GALLONS PER HOUR	STD ERROR STATISTICS MINIMUM	STD DEV SKENESS MAXIMUM
MEAN	2.900		0.057	3.574
VARIANCE	7.329		7.126	2.287
RANGE	2.835		1.357	4.237
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0	

VARIABLE	QT200	QUARTS PER 200 METERS	STD ERROR STATISTICS MINIMUM	STD DEV SKENESS MAXIMUM
MEAN	13.199		0.594	6.565
VARIANCE	43.797		1.126	7.641
RANGE	40.579		0.0	40.579
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0	

VARIABLE	TSOGRHP	TOTAL GAS OIL AND GREASE COST PER HOUR	STD ERROR STATISTICS MINIMUM	STD DEV SKENESS MAXIMUM
MEAN	0.854		0.015	3.167
VARIANCE	7.028		0.726	7.536
RANGE	7.859		0.338	1.197
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0	

VARIABLE	TGOCFS	TOTAL GAS OIL AND GREASE COSTS	STD ERROR STATISTICS MINIMUM	STD DEV SKENESS MAXIMUM
MEAN	1137.674		28.830	313.433
VARIANCE	170392.812		2.590	1.032
RANGE	1731.150		51.420	1732.530
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0	

TABLE A45. DIESEL FUEL ECONOMY, FY 73

ENGINE TEST PERIOD 1972 MONTHS

FILE ALL4424 (CREATING DATE = 08/15/76)

VARIABLE	MEAN	STANDARD DEVIATION	VARIANCE	RANGE	MINIMUM	MAXIMUM	STANDARD DEVIATION	SKEWNESS	KURTOSIS	VALID OBSERVATIONS
MILES PER GALLON										
MEAN	7.152	0.208	0.043	5.319	-0.214	9.532	1.157	0.257	2.915	31
VARIANCE	0.043									
RANGE	5.319									
MINIMUM	-0.214									
MAXIMUM	9.532									
VALID OBSERVATIONS	31									
GALLONS PER HOUR										
MEAN	2.073	0.071	0.005	1.335	-0.265	2.915	0.396	0.257	2.915	31
VARIANCE	0.005									
RANGE	1.335									
MINIMUM	-0.265									
MAXIMUM	2.915									
VALID OBSERVATIONS	31									
QUARTS PER 200 HOURS										
MEAN	23.363	0.835	0.697	10.979	0.943	36.123	4.925	0.203	36.123	31
VARIANCE	0.697									
RANGE	25.214									
MINIMUM	0.943									
MAXIMUM	36.123									
VALID OBSERVATIONS	31									
TOTAL GAS OIL AND GREASE COST PER HOUR										
MEAN	7.226	0.011	0.000	0.289	-0.831	0.064	0.064	0.159	0.526	31
VARIANCE	0.000									
RANGE	0.289									
MINIMUM	-0.831									
MAXIMUM	0.064									
VALID OBSERVATIONS	31									
TOTAL GAS OIL AND GREASE COSTS										
MEAN	226.938	28.817	830.78	64.190	-0.560	160.448	160.448	0.502	677.960	31
VARIANCE	830.78									
RANGE	64.190									
MINIMUM	-0.560									
MAXIMUM	160.448									
VALID OBSERVATIONS	31									

TABLE A46. GASOLINE FUEL ECONOMY, FY 74

EXHIBIT STATISTICS 1972 MODEL

FILE ALLV424 (CREATION DATE = 08/15/74)

VARIABLE MILES PER GALLON

MEAN 3.511 STD DEV 0.837
 VARIANCE 0.792 SKEWNESS 0.200
 RANGE 3.335 MAXIMUM 7.866

VALID OBSERVATIONS = 122 MISSING OBSERVATIONS = 0

VARIABLE GALLONS PER HOUR

MEAN 2.917 STD DEV 0.537
 VARIANCE 0.289 SKEWNESS 0.188
 RANGE 3.034 MAXIMUM 4.494

VALID OBSERVATIONS = 122 MISSING OBSERVATIONS = 0

VARIABLE QUARTS PER 100 MILES

MEAN 19.060 STD DEV 5.584
 VARIANCE 43.350 SKEWNESS 1.044
 RANGE 35.417 MAXIMUM 45.305

VALID OBSERVATIONS = 122 MISSING OBSERVATIONS = 0

VARIABLE TOTAL GAS OIL AND GREASE COST PER HOUR

MEAN 1.277 STD DEV 0.229
 VARIANCE 0.522 SKEWNESS -0.183
 RANGE 1.338 MAXIMUM 1.825

VALID OBSERVATIONS = 122 MISSING OBSERVATIONS = 0

VARIABLE TOTAL GAS OIL AND GREASE COSTS

MEAN 1512.690 STD DEV 372.139
 VARIANCE 139487.375 SKEWNESS 0.064
 RANGE 1991.950 MAXIMUM 2474.730

VALID OBSERVATIONS = 122 MISSING OBSERVATIONS = 0

TABLE A47. DIESEL FUEL ECONOMY, FY 74

CONJUNCTION STATE FOR 1972 MODEL

FILE # 14.424 (CREATION DATE = 09/15/74)

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	MISSING OBSERVATIONS
MILES PER GALLON	7.513	0.151	0.101	9.879	0
VARIANCE	0.172	0.101	0.101	0.531	0
RANGE	3.602	5.865	5.865	9.557	0
VALID OBSERVATIONS	34				

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	MISSING OBSERVATIONS
GALLONS PER HOUR	2.166	0.071	-0.195	2.415	0
VARIANCE	0.173	0.195	1.429	0.341	0
RANGE	1.624	1.429	1.429	3.053	0
VALID OBSERVATIONS	34				

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	MISSING OBSERVATIONS
GALLONS PER HOUR	25.274	0.615	0.157	3.587	0
VARIANCE	12.866	0.157	19.363	0.674	0
RANGE	15.470	19.363	19.363	34.763	0
VALID OBSERVATIONS	34				

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	MISSING OBSERVATIONS
TOTAL GAS OIL AND GREASE COST PER HOUR	0.694	0.029	-0.571	0.119	0
VARIANCE	0.014	-0.571	0.494	0.260	0
RANGE	0.657	0.494	0.494	0.941	0
VALID OBSERVATIONS	34				

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	MISSING OBSERVATIONS
TOTAL GAS OIL AND GREASE COSTS	942.962	28.588	-0.260	166.691	0
VARIANCE	2786.473	-0.260	635.740	0.544	0
RANGE	569.740	635.740	635.740	1305.480	0
VALID OBSERVATIONS	34				

TABLE A48. GASOLINE FUEL ECONOMY, FY 75

EQUIPMENT STATEMENT 1972 מכוניות 1972

FILE ALL.V424 (CREATION DATE = 08/15/76)

VARIABLE	MILGAL	MILES PER GALLON	STD ERROR KURTOSIS MINIMUM	0.096 5.321 1.747	STD DEV SKEWNESS MAXIMUM	1.047 1.082 10.443
MEAN	5.068					
VARIANCE	1.732					
RANGE	3.635					
VALID OBSERVATIONS -	117			MISSING OBSERVATIONS -	7	

VARIABLE	GALLONS PER HOUR	STD ERROR KURTOSIS MINIMUM	0.099 50.593 1.979	STD DEV SKEWNESS MAXIMUM	2.956 5.923 11.831
MEAN	3.354				
VARIANCE	2.314				
RANGE	3.852				
VALID OBSERVATIONS -	117		MISSING OBSERVATIONS -	0	

VARIABLE	GALONS PER 200 HOURS	STD ERROR KURTOSIS MINIMUM	0.709 0.266 3.960	STD DEV SKEWNESS MAXIMUM	7.709 3.871 39.725
MEAN	16.979				
VARIANCE	58.290				
RANGE	35.765				
VALID OBSERVATIONS -	117		MISSING OBSERVATIONS -	7	

VARIABLE	TOTAL GAS OIL AND GREASE COST PER HOUR	STD ERROR KURTOSIS MINIMUM	0.045 48.266 1.049	STD DEV SKEWNESS MAXIMUM	2.433 5.779 6.035
MEAN	1.744				
VARIANCE	2.238				
RANGE	4.936				
VALID OBSERVATIONS -	117		MISSING OBSERVATIONS -	7	

VARIABLE	TOTAL GAS OIL AND GREASE COSTS	STD ERROR KURTOSIS MINIMUM	62.820 34.771 470.400	STD DEV SKEWNESS MAXIMUM	632.400 4.447 7535.875
MEAN	2063.947				
VARIANCE	465570.250				
RANGE	7115.473				
VALID OBSERVATIONS -	117		MISSING OBSERVATIONS -	7	

TABLE A49. DIESEL FUEL ECONOMY, FY 75

מספרים ממוצעים ל-1975

FILE ALL.VM25 (CENSUS DATE = 09/15/75)

VARIABLE	MEAN	STDEV	STD DEV	STDEV
מיליגל	7.221	0.195	0.195	1.423
מרחק	2.024	1.667	1.667	0.931
מרחק	3.134	3.762	3.762	11.807

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE	MEAN	STDEV	STD DEV	STDEV
מיליגל	7.358	0.069	0.069	0.503
מרחק	2.253	6.254	6.254	1.427
מרחק	3.334	1.275	1.275	6.627

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE	MEAN	STDEV	STD DEV	STDEV
מיליגל	17.959	0.796	0.796	5.793
מרחק	22.559	3.039	3.039	1.579
מרחק	31.221	8.696	8.696	39.917

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE	MEAN	STDEV	STD DEV	STDEV
מיליגל	1.031	0.027	0.027	0.197
מרחק	2.030	2.942	2.942	1.204
מרחק	1.270	0.643	0.643	1.853

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE	MEAN	STDEV	STD DEV	STDEV
מיליגל	1092.645	56.932	56.932	399.910
מרחק	15927.912	0.674	0.674	-0.922
מרחק	1667.270	125.050	125.050	1792.320

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

TABLE A50. GASOLINE FUEL ECONOMY, FY 76

EXHIBIT STATISTICS 1977 MODEL

FILE ALLV424 CREATION DATE = 08/15/74

VARIABLE MILGAL MILLS PER GALLON

MEAN 4.959 STD ERROR 0.079 STD DEV 0.942
 VARIANCE 2.479 KURTOSIS 0.836 SKEWNESS 2.654
 RANGE 4.558 MINIMUM 3.450 MAXIMUM 9.119

VALID OBSERVATIONS = 119 MISSING OBSERVATIONS = 0

VARIABLE GAI4P GALLONS PER HOUR

MEAN 3.248 STD ERROR 0.046 STD DEV 0.502
 VARIANCE 1.252 KURTOSIS 0.465 SKEWNESS 0.055
 RANGE 2.939 MINIMUM 1.969 MAXIMUM 4.808

VALID OBSERVATIONS = 119 MISSING OBSERVATIONS = 0

VARIABLE QTR00 CHARTS PER 200 HOURS

MEAN 17.244 STD ERROR 0.876 STD DEV 9.516
 VARIANCE 92.560 KURTOSIS 2.020 SKEWNESS 1.486
 RANGE 47.044 MINIMUM 5.499 MAXIMUM 52.542

VALID OBSERVATIONS = 113 MISSING OBSERVATIONS = 0

VARIABLE TGR040 TOTAL GAS OIL AND GREASE COST PER HOUR

MEAN 1.868 STD ERROR 0.026 STD DEV 0.285
 VARIANCE 0.231 KURTOSIS 0.294 SKEWNESS 2.011
 RANGE 1.591 MINIMUM 1.134 MAXIMUM 2.715

VALID OBSERVATIONS = 119 MISSING OBSERVATIONS = 0

VARIABLE TGR005 TOTAL GAS OIL AND GREASE COSTS

MEAN 2041.012 STD ERROR 46.958 STD DEV 510.100
 VARIANCE 24202.000 KURTOSIS 1.599 SKEWNESS -2.574
 RANGE 3030.800 MINIMUM 199.420 MAXIMUM 3239.220

VALID OBSERVATIONS = 119 MISSING OBSERVATIONS = 0

TABLE A51. DIESEL FUEL ECONOMY, FY 76

EXPLANATION OF SYMBOLS 1972 MODELS

FILE ALLVH24 (DEFINITION DATE = 03/15/76)

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	STANDARD DEVIATION	MINIMUM	MAXIMUM
MPG	5.895	0.130	0.000	10.129	0.949	0.000	10.129
VARIANCE	3.971	3.132			0.252		
RANGE	5.754	4.166			1.0129		

VALID OBSERVATIONS - 53 MISSING OBSERVATIONS - 0

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	STANDARD DEVIATION	MINIMUM	MAXIMUM
GALLONS PER HOUR	2.331	0.047	0.000	3.108	0.345	0.000	3.108
VARIANCE	0.110	0.443			0.609		
RANGE	1.387	1.722			3.108		

VALID OBSERVATIONS - 53 MISSING OBSERVATIONS - 0

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	STANDARD DEVIATION	MINIMUM	MAXIMUM
CHARTS PER 200 MILES	19.863	0.836	0.000	40.032	6.083	0.000	40.032
VARIANCE	37.034	1.854			1.799		
RANGE	30.354	9.677			40.032		

VALID OBSERVATIONS - 53 MISSING OBSERVATIONS - 0

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	STANDARD DEVIATION	MINIMUM	MAXIMUM
TOTAL GAS OIL AND GREASE COST PER HOUR	1.118	0.022	0.000	1.536	0.159	0.000	1.536
VARIANCE	0.025	0.201			0.654		
RANGE	0.686	0.850			1.536		

VALID OBSERVATIONS - 53 MISSING OBSERVATIONS - 0

VARIABLE	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	STANDARD DEVIATION	MINIMUM	MAXIMUM
TOTAL GAS OIL AND GREASE COSTS	1285.709	41.075	0.000	2210.110	299.031	0.000	2210.110
VARIANCE	9949.750	1.570			9.143		
RANGE	1734.520	475.490			2210.110		

VALID OBSERVATIONS - 53 MISSING OBSERVATIONS - 0

TABLE A53. CROSSTABS MPG BY FUEL TYPE FY74 (MIXED AGES)

EQUIPMENT STATEMENT MODEL 1977 CROSSTAR

FILE ALL.VM24 (OPERATION DATE = 08/15/75)

CROSSTABS TABULATION DEPENDENT BY MILEGAL

FUEL	TYPE OF FUEL	1-2	3	4	5	6	7	8	9	ROW TOTAL
		1	5	27	56	27	7	9	9	123
		0.9	4.1	22.0	45.5	22.0	5.7	9.0	9.0	76.4
		29.0	109.0	109.0	98.2	77.1	31.8	9.0	9.0	
		0.6	3.1	16.8	34.8	15.8	4.3	0.0	0.0	
		4	7	9	1	9	15	7	3	38
		17.5	0.0	9.0	2.6	21.1	39.5	18.4	7.9	23.6
		80.0	0.0	0.0	1.8	22.9	68.2	100.0	107.0	
		2.5	0.0	0.0	0.6	5.0	9.3	4.3	1.9	
		5	5	27	57	35	22	7	3	151
		3.1	3.1	16.8	35.4	21.7	13.7	4.3	1.9	100.0

CHI SQUARE = 90.42097 WITH 7 DEGREES OF FREEDOM SIGNIFICANCE = 0.0000
 CRAMER'S V = 0.74941
 CONTINGENCY COEFFICIENT = 0.59979
 LAMBDA (ASYMMETRIC) = 0.55262 WITH FUEL DEPENDENT. = 0.13462 WITH MILEGAL DEPENDENT.
 LAMBDA (SYMMETRIC) = 0.24649
 UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.54403 WITH FUEL DEPENDENT. = 0.17520 WITH MILEGAL DEPENDENT.
 UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.26506
 KENDALL'S TAU B = 0.45741 SIGNIFICANCE = 0.0000
 KENDALL'S TAU C = 0.43809 SIGNIFICANCE = 0.0000
 GAMMA = 0.73979
 SOMER'S D (ASYMMETRIC) = 0.31174 WITH FUEL DEPENDENT. = 0.67116 WITH MILEGAL DEPENDENT.
 SOMER'S D (SYMMETRIC) = 0.42573
 ETA = 0.74942 WITH FUEL DEPENDENT. = 0.42157 WITH MILEGAL DEPENDENT.

TABLE A54. CROSSTABS MPG BY FUEL TYPE FY 75 (MIXED AGES)

EQUIPMENT STATEWIDE MODEL 1972 CROSSTAR

FILE ALLVH24 (CREATION DATE = 08/15/76)

***** C O S S T A B U L A T I O N * F * * * * *
 FUEL TYPE OF FUEL BY MILEAGE

FUEL	MILEAGE										ROW TOTAL
	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	
GAS	36.8	39.1	30.5	16.9	7.0	0.0	0.0	0.0	0.0	0.0	118
	25.0	97.9	85.7	55.6	12.5	0.0	0.0	0.0	0.0	0.0	67.8
	7.6	75.0	20.7	11.5	1.1	0.0	0.0	0.0	0.0	0.0	3.6
DIESEL	3.7	1.7	6.1	1.5	1.7	5.1	4.1	2.1	2.1	2.1	56
	5.6	1.8	10.7	28.6	30.4	10.7	7.1	3.6	3.6	3.6	32.2
	75.0	7.1	2.2	14.3	48.4	89.5	100.0	100.0	100.0	100.0	66.7
	1.7	0.6	3.4	9.7	9.9	3.4	2.3	1.1	1.1	1.1	174
COLUMN TOTAL	4	14	42	34	19	6	4	3	3	3	174
	2.3	3.7	26.4	24.1	20.7	3.4	2.3	1.7	1.7	1.7	100.0

CHI SQUARE = 86.23419 WITH 8 DEGREES OF FREEDOM SIGNIFICANCE = 0.0000
 Cramer's V = 0.70419
 CONTINGENCY COEFFICIENT = 0.57576
 Lambda (ASYMMETRIC) = 0.50000 WITH FUEL DEPENDENT.
 Lambda (SYMMETRIC) = 0.23913
 UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.44264 WITH FUEL DEPENDENT.
 UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.22571
 KENDALL'S TAU B = 0.53284 SIGNIFICANCE = 0.0000
 KENDALL'S TAU C = 0.59730 SIGNIFICANCE = 0.0000
 GAMMA = 0.75255
 SYMPLETTIC D (ASYMMETRIC) = 0.36957 WITH FUEL DEPENDENT.
 SYMPLETTIC D (SYMMETRIC) = 0.57901
 FTA = 0.70419 WITH FUEL DEPENDENT.
 = 0.51471 WITH MILEAGE DEPENDENT.
 = 0.63417 WITH MILEAGE DEPENDENT.
 = 0.12500 WITH MILEAGE DEPENDENT.
 = 0.15238 WITH MILEAGE DEPENDENT.

TABLE A55. CROSSTABS MPG BY FUEL TYPE FY76 (MIXED AGES)

EQUIPMENT STATE/TIME MODEL 1972 CROSSTAB

FILE ALLV024 (CREATION DATE = 09/15/76)

FUEL TYPE OF FUEL CROSSTABULATION OF BY MILGAL

	1-2	3	4	5	6	7	8	9	10	11	ROW TOTAL
FUEL	0	12	49	48	6	2	1	0	0	0	118
GAS	0.0	10.2	41.5	40.7	5.1	1.7	0.3	0.0	0.0	0.0	67.8
	0.0	100.0	94.1	98.0	16.7	11.8	25.0	0.0	0.0	0.0	
	0.0	6.0	28.2	27.6	3.4	1.1	0.6	0.0	0.0	0.0	
	3	0	2	1	30	15	7	1	1	1	56
DIESEL	5.4	0.0	3.6	1.8	53.6	26.9	5.4	1.8	1.3	1.3	32.2
	100.0	0.0	3.0	2.0	83.3	98.2	75.0	100.0	100.0	100.0	
	1.7	0.0	1.1	0.6	17.2	8.6	1.7	0.6	0.6	0.6	
COLUMN TOTAL	3	12	51	49	36	17	4	1	1	1	174
	1.7	6.0	29.3	28.2	20.7	9.8	2.3	0.6	0.6	0.6	100.0

CHI SQUARE = 126.27725 WITH 9 DEGREES OF FREEDOM SIGNIFICANCE = 0.0

CRAMER'S V = 0.95190

CONTINGENCY COEFFICIENT = 0.64849

LAMBDA (ASYMMETRIC) = 0.78571 WITH FUEL DEPENDENT.

LAMBDA (SYMMETRIC) = 0.60223

UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.65237 WITH FUEL DEPENDENT.

UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.45690

KENDALL'S TAU A = 0.57686 SIGNIFICANCE = 0.0000

KENDALL'S TAU C = 0.67182 SIGNIFICANCE = 0.0000

SAMMA = 0.81371

SOMERS'S D (ASYMMETRIC) = 0.43243 WITH FUEL DEPENDENT.

SOMERS'S D (SYMMETRIC) = 0.55371

ETA = 0.95190 WITH FUEL DEPENDENT.

CONTINGENCY COEFFICIENT = 0.22764 WITH MILGAL DEPENDENT.

LAMBDA (ASYMMETRIC) = 0.24557 WITH MILGAL DEPENDENT.

LAMBDA (SYMMETRIC) = 0.24557 WITH MILGAL DEPENDENT.

UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.24557 WITH MILGAL DEPENDENT.

UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.24557 WITH MILGAL DEPENDENT.

KENDALL'S TAU A = 0.76952 WITH MILGAL DEPENDENT.

KENDALL'S TAU C = 0.96198 WITH MILGAL DEPENDENT.

SAMMA = 0.96198 WITH MILGAL DEPENDENT.

SOMERS'S D (ASYMMETRIC) = 0.96198 WITH MILGAL DEPENDENT.

SOMERS'S D (SYMMETRIC) = 0.96198 WITH MILGAL DEPENDENT.

ETA = 0.96198 WITH MILGAL DEPENDENT.

TABLE A56. WINTER 1973, DIESEL (MIXED AGES)

WINTER (JAN-FEB) 72 MODEL WT24000

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE HOUR3D						
MEAN	325.562	STD ERROR	21.779	STD DEV	123.198	
VARIANCE	15177.734	KURTOSIS	0.295	SKENNESS	0.374	
RANGE	572.000	MINIMUM	56.000	MAXIMUM	628.000	
VALID OBSERVATIONS --	32	MISSING OBSERVATIONS --		0		
VARIABLE MPG3D						
MEAN	7.001	STD ERROR	0.588	STD DEV	3.328	
VARIANCE	11.076	KURTOSIS	4.110	SKENNESS	1.997	
RANGE	15.295	MINIMUM	3.745	MAXIMUM	19.040	
VALID OBSERVATIONS --	32	MISSING OBSERVATIONS --		0		
VARIABLE GPH3D						
MEAN	2.175	STD ERROR	0.170	STD DEV	0.962	
VARIANCE	0.925	KURTOSIS	-1.083	SKENNESS	0.236	
RANGE	3.302	MINIMUM	0.556	MAXIMUM	3.857	
VALID OBSERVATIONS --	32	MISSING OBSERVATIONS --		0		
VARIABLE MPH3D						
MEAN	12.809	STD ERROR	0.524	STD DEV	2.963	
VARIANCE	8.779	KURTOSIS	-0.976	SKENNESS	0.554	
RANGE	9.766	MINIMUM	8.799	MAXIMUM	18.565	
VALID OBSERVATIONS --	32	MISSING OBSERVATIONS --		0		
VARIABLE MILES3D						
MEAN	4060.812	STD ERROR	242.162	STD DEV	1369.874	
VARIANCE	6956.000	KURTOSIS	0.714	SKENNESS	0.042	
RANGE	6956.000	MINIMUM	588.000	MAXIMUM	7544.000	
VALID OBSERVATIONS --	32	MISSING OBSERVATIONS --		0		
VARIABLE GAL3D						
MEAN	674.250	STD ERROR	55.594	STD DEV	314.407	
VARIANCE	98902.375	KURTOSIS	-0.082	SKENNESS	0.245	
RANGE	1364.000	MINIMUM	80.000	MAXIMUM	1444.000	
VALID OBSERVATIONS --	32	MISSING OBSERVATIONS --		0		

TABLE A57. WINTER 1974, GASOLINE (MIXED AGES)

WINTER (JAN-FEB) 72 MODEL WT24000

FILE ALL.VR24 (CREATION DATE = 08/15/76)

VARIABLE HOUR4G						
MEAN	256.967	STD_ERROR	5.077	STD_DEV	79.309	
VARIANCE	6289.957	KURTOSIS	0.473	SKEWNESS	0.097	
RANGE	452.000	MINIMUM	46.000	MAXIMUM	498.000	
VALID OBSERVATIONS	244	MISSING OBSERVATIONS		0		

VARIABLE MPG4G						
MEAN	3.829	STD_ERROR	0.121	STD_DEV	1.885	
VARIANCE	3.954	KURTOSIS	1.762	SKEWNESS	0.808	
RANGE	11.482	MINIMUM	0.0	MAXIMUM	11.482	
VALID OBSERVATIONS	244	MISSING OBSERVATIONS		0		

VARIABLE GPH4G						
MEAN	3.535	STD_ERROR	0.110	STD_DEV	1.722	
VARIANCE	2.967	KURTOSIS	4.043	SKEWNESS	0.936	
RANGE	13.116	MINIMUM	0.0	MAXIMUM	13.116	
VALID OBSERVATIONS	244	MISSING OBSERVATIONS		0		

VARIABLE MPH4G						
MEAN	12.938	STD_ERROR	0.169	STD_DEV	2.644	
VARIANCE	6.989	KURTOSIS	0.819	SKEWNESS	-0.379	
RANGE	17.479	MINIMUM	1.826	MAXIMUM	19.305	
VALID OBSERVATIONS	244	MISSING OBSERVATIONS		0		

VARIABLE MILES4G						
MEAN	3173.639	STD_ERROR	64.478	STD_DEV	1007.174	
VARIANCE	888888.889	KURTOSIS	0.400	SKEWNESS	-0.385	
RANGE	5780.000	MINIMUM	420.000	MAXIMUM	6200.000	
VALID OBSERVATIONS	244	MISSING OBSERVATIONS		0		

VARIABLE GAL4G						
MEAN	835.451	STD_ERROR	23.574	STD_DEV	368.241	
VARIANCE	135601.875	KURTOSIS	0.431	SKEWNESS	0.030	
RANGE	2108.000	MINIMUM	0.0	MAXIMUM	2108.000	
VALID OBSERVATIONS	244	MISSING OBSERVATIONS		0		

TABLE A58. WINTER 1974, DIESEL (MIXED AGES)

WINTER (JAN-FEB) 72 MODEL WT24000

FILE ALL.VR24 (CREATION DATE = 08/15/76)

VARIABLE HOUR40									
MEAN	276.903	STD ERROR	8.894	STD_DEV	70.034				
VARIANCE	4904.742	KURTOSIS	-0.604	SKEWNESS	0.221				
RANGE	294.000	MINIMUM	152.000	MAXIMUM	446.000				
VALID OBSERVATIONS	62	MISSING OBSERVATIONS		0					
VARIABLE MPG40									
MEAN	5.749	STD ERROR	0.330	STD_DEV	2.601				
VARIANCE	6.768	KURTOSIS	4.576	SKEWNESS	1.814				
RANGE	14.532	MINIMUM	2.684	MAXIMUM	17.216				
VALID OBSERVATIONS	62	MISSING OBSERVATIONS		0					
VARIABLE GPH40									
MEAN	2.627	STD ERROR	0.132	STD_DEV	1.039				
VARIANCE	1.079	KURTOSIS	0.579	SKEWNESS	0.611				
RANGE	5.246	MINIMUM	0.833	MAXIMUM	6.079				
VALID OBSERVATIONS	62	MISSING OBSERVATIONS		0					
VARIABLE MPH40									
MEAN	13.069	STD ERROR	0.321	STD_DEV	2.524				
VARIANCE	6.369	KURTOSIS	2.336	SKEWNESS	0.856				
RANGE	16.208	MINIMUM	6.160	MAXIMUM	22.368				
VALID OBSERVATIONS	62	MISSING OBSERVATIONS		0					
VARIABLE MILES40									
MEAN	3549.742	STD ERROR	111.587	STD_DEV	878.636				
VARIANCE	77202.125	KURTOSIS	-0.055	SKEWNESS	0.174				
RANGE	4190.000	MINIMUM	1680.000	MAXIMUM	5870.000				
VALID OBSERVATIONS	62	MISSING OBSERVATIONS		0					
VARIABLE GAL40									
MEAN	680.903	STD ERROR	25.416	STD_DEV	200.125				
VARIANCE	40050.184	KURTOSIS	-0.800	SKEWNESS	-0.128				
RANGE	848.000	MINIMUM	250.000	MAXIMUM	1098.000				
VALID OBSERVATIONS	62	MISSING OBSERVATIONS		0					

TABLE A59. WINTER 1975, GASOLINE (MIXED AGES)

WINTER (JAN-FEB) 72 MODEL WT24000

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE HOUR5G									
MEAN	229.602	STD. ERROR	3.884	STD. DEV.	59.666				
VARIANCE	3560.028	KURTOSIS	-0.224	SKEWNESS	-0.241				
RANGE	320.000	MINIMUM	52.000	MAXIMUM	372.000				
VALID OBSERVATIONS -	236	MISSING OBSERVATIONS -		0					
VARIABLE MPG5G									
MEAN	4.909	STD. ERROR	0.312	STD. DEV.	4.799				
VARIANCE	23.033	KURTOSIS	118.625	SKEWNESS	9.522				
RANGE	66.468	MINIMUM	0.709	MAXIMUM	67.177				
VALID OBSERVATIONS -	236	MISSING OBSERVATIONS -		0					
VARIABLE GPM5G									
MEAN	4.032	STD. ERROR	0.148	STD. DEV.	2.273				
VARIANCE	5.167	KURTOSIS	66.096	SKEWNESS	6.123				
RANGE	28.776	MINIMUM	0.839	MAXIMUM	29.615				
VALID OBSERVATIONS -	236	MISSING OBSERVATIONS -		0					
VARIABLE MPH5G									
MEAN	15.917	STD. ERROR	0.783	STD. DEV.	12.024				
VARIANCE	144.568	KURTOSIS	204.285	SKEWNESS	13.930				
RANGE	186.080	MINIMUM	8.272	MAXIMUM	194.351				
VALID OBSERVATIONS -	236	MISSING OBSERVATIONS -		0					
VARIABLE MILE5G									
MEAN	3670.178	STD. ERROR	214.088	STD. DEV.	3286.884				
VARIANCE	49828.000	KURTOSIS	179.096	SKEWNESS	12.644				
RANGE	49828.000	MINIMUM	1092.000	MAXIMUM	50928.000				
VALID OBSERVATIONS -	236	MISSING OBSERVATIONS -		0					
VARIABLE GAL5G									
MEAN	868.856	STD. ERROR	20.761	STD. DEV.	318.931				
VARIANCE	101716.750	KURTOSIS	-0.274	SKEWNESS	0.161				
RANGE	1704.000	MINIMUM	94.000	MAXIMUM	1798.000				
VALID OBSERVATIONS -	236	MISSING OBSERVATIONS -		0					

TABLE A60. WINTER 1975, DIESEL (MIXED AGES)

WINTER (JAN-FEB) 72 MODEL WTZ4000

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE GAL5D									
MEAN	660.531	STD_ERROR	25.235	STD_DEV	749.818				
VARIANCE	62409.199	KURTOSIS	-0.139	SKEWNESS	0.445				
RANGE	1132.000	MINIMUM	126.000	MAXIMUM	1258.000				
VALID OBSERVATIONS -	98	MISSING OBSERVATIONS -		0					
VARIABLE MPG5D									
MEAN	6.422	STD_ERROR	0.329	STD_DEV	3.253				
VARIANCE	10.581	KURTOSIS	0.802	SKEWNESS	1.148				
RANGE	15.449	MINIMUM	1.683	MAXIMUM	17.132				
VALID OBSERVATIONS -	98	MISSING OBSERVATIONS -		0					
VARIABLE GPH5D									
MEAN	2.761	STD_ERROR	0.106	STD_DEV	1.054				
VARIANCE	1.111	KURTOSIS	-0.406	SKEWNESS	0.267				
RANGE	4.883	MINIMUM	0.680	MAXIMUM	5.563				
VALID OBSERVATIONS -	98	MISSING OBSERVATIONS -		0					
VARIABLE MPH5D									
MEAN	14.884	STD_ERROR	0.296	STD_DEV	2.928				
VARIANCE	8.571	KURTOSIS	-0.580	SKEWNESS	0.047				
RANGE	16.886	MINIMUM	6.679	MAXIMUM	23.566				
VALID OBSERVATIONS -	98	MISSING OBSERVATIONS -		0					
VARIABLE MILE5D									
MEAN	3723.143	STD_ERROR	123.319	STD_DEV	1270.800				
VARIANCE	*****	KURTOSIS	-0.019	SKEWNESS	0.128				
RANGE	6054.000	MINIMUM	780.000	MAXIMUM	6834.000				
VALID OBSERVATIONS -	98	MISSING OBSERVATIONS -		0					
VARIABLE HOUR5D									
MEAN	249.224	STD_ERROR	6.588	STD_DEV	65.220				
VARIANCE	4253.660	KURTOSIS	-0.606	SKEWNESS	-0.257				
RANGE	308.000	MINIMUM	82.000	MAXIMUM	390.000				
VALID OBSERVATIONS -	98	MISSING OBSERVATIONS -		0					

TABLE A61. WINTER 1976, GASOLINE (MIXED AGES)

WINTER (JAN-FER) 72 MODEL WT24000

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE HOUR6G									
MEAN	264.405	STD ERROR	5.237	STD DEV	79.773				
VARIANCE	6363.695	KURTOSIS	0.235	SKEWNESS	-0.299				
RANGE	404.000	MINIMUM	54.000	MAXIMUM	458.000				
VALID OBSERVATIONS -	232	MISSING OBSERVATIONS -		0					
VARIABLE MPG6G									
MEAN	4.049	STD ERROR	0.110	STD DEV	1.674				
VARIANCE	2.803	KURTOSIS	0.759	SKEWNESS	5.325				
RANGE	21.160	MINIMUM	0.759	MAXIMUM	21.920				
VALID OBSERVATIONS -	232	MISSING OBSERVATIONS -		0					
VARIABLE GPH6G									
MEAN	3.801	STD ERROR	0.097	STD DEV	1.472				
VARIANCE	2.168	KURTOSIS	14.513	SKEWNESS	3.027				
RANGE	11.971	MINIMUM	0.852	MAXIMUM	12.824				
VALID OBSERVATIONS -	232	MISSING OBSERVATIONS -		0					
VARIABLE MPH6G									
MEAN	13.949	STD ERROR	0.175	STD DEV	2.672				
VARIANCE	7.139	KURTOSIS	1.121	SKEWNESS	0.172				
RANGE	18.772	MINIMUM	5.331	MAXIMUM	24.103				
VALID OBSERVATIONS -	232	MISSING OBSERVATIONS -		0					
VARIABLE MILE6G									
MEAN	3646.465	STD ERROR	78.506	STD DEV	1195.768				
VARIANCE	6292.000	KURTOSIS	0.244	SKEWNESS	0.024				
RANGE	6292.000	MINIMUM	480.000	MAXIMUM	6772.000				
VALID OBSERVATIONS -	232	MISSING OBSERVATIONS -		0					
VARIABLE GAL6G									
MEAN	952.957	STD ERROR	19.604	STD DEV	298.598				
VARIANCE	89160.937	KURTOSIS	0.072	SKEWNESS	-0.119				
RANGE	1662.000	MINIMUM	150.000	MAXIMUM	1812.000				
VALID OBSERVATIONS -	232	MISSING OBSERVATIONS -		0					

TABLE A62. WINTER 1976, DIESEL (MIXED AGES)

WINTER (JAN-FEB) 72 MODEL WT24000
 FILE ALL.WM24 (CREATION DATE = 08/15/76)

VARIABLE		HOUR6D		STD_ERROR		8.534		STD_DEV	
MEAN	289.442	KURTOSIS	0.113	SKEWNESS	0.040	MAXIMUM	87.027		
VARIANCE	7573.625	MINIMUM	20.000				0.040		
RANGE	474.000						494.000		
VALID OBSERVATIONS -	104	MISSING OBSERVATIONS -	0						

VARIABLE		MPG6D		STD_ERROR		0.160		STD_DEV	
MEAN	5.618	KURTOSIS	1.265	SKEWNESS	0.002	MAXIMUM	1.635		
VARIANCE	2.674	MINIMUM	0.294				0.002		
RANGE	9.869						10.165		
VALID OBSERVATIONS -	104	MISSING OBSERVATIONS -	0						

VARIABLE		GPH6D		STD_ERROR		0.146		STD_DEV	
MEAN	2.710	KURTOSIS	59.159	SKEWNESS	7.017	MAXIMUM	1.492		
VARIANCE	2.225	MINIMUM	1.379				7.017		
RANGE	14.621						16.000		
VALID OBSERVATIONS -	104	MISSING OBSERVATIONS -	0						

VARIABLE		MPH6D		STD_ERROR		0.335		STD_DEV	
MEAN	13.933	KURTOSIS	1.230	SKEWNESS	-0.026	MAXIMUM	3.411		
VARIANCE	11.637	MINIMUM	1.548				-0.026		
RANGE	21.065						22.614		
VALID OBSERVATIONS -	104	MISSING OBSERVATIONS -	0						

VARIABLE		MILE6D		STD_ERROR		134.084		STD_DEV	
MEAN	3995.808	KURTOSIS	0.438	SKEWNESS	0.068	MAXIMUM	1367.399		
VARIANCE	8044.000	MINIMUM	94.000				0.068		
RANGE							8138.000		
VALID OBSERVATIONS -	104	MISSING OBSERVATIONS -	0						

VARIABLE		GAL6D		STD_ERROR		20.671		STD_DEV	
MEAN	726.385	KURTOSIS	0.454	SKEWNESS	0.290	MAXIMUM	210.800		
VARIANCE	44436.664	MINIMUM	204.000				0.290		
RANGE	1070.000						1274.000		
VALID OBSERVATIONS -	104	MISSING OBSERVATIONS -	0						

TABLE A63. SUMMER 1973, GASOLINE (MIXED AGES)

SUMMER (JULY-AUGUST) ALL MODELS-FY73,74,75

FILE ALL.VM24 (CREATION DATE = 08/15/76)

VARIABLE THOURS		TOTAL HOURS		STD ERROR		KURTOSIS		5.042		STD DEV		55.923	
MEAN	223.203	3127.344	297.000	MINIMUM	0.160	92.000	MAXIMUM	0.186	389.000	STD DEV	0.186	389.000	
VARIANCE	297.000	3127.344	297.000	MINIMUM	0.160	92.000	MAXIMUM	0.186	389.000	SKENNESS	0.186	389.000	
RANGE	297.000	3127.344	297.000	MINIMUM	0.160	92.000	MAXIMUM	0.186	389.000	MAXIMUM	0.186	389.000	
VALID OBSERVATIONS -	123	123	123	MISSING OBSERVATIONS -	0	0	0	0	0	0	0	0	
VARIABLE MPG		MILES PER GALLON		STD ERROR		KURTOSIS		0.160		STD DEV		1.771	
MEAN	7.991	3.138	9.151	MINIMUM	0.719	4.392	MAXIMUM	0.890	13.562	STD DEV	0.890	13.562	
VARIANCE	3.138	9.151	3.138	MINIMUM	0.719	4.392	MAXIMUM	0.890	13.562	SKENNESS	0.890	13.562	
RANGE	9.151	3.138	9.151	MINIMUM	0.719	4.392	MAXIMUM	0.890	13.562	MAXIMUM	0.890	13.562	
VALID OBSERVATIONS -	123	123	123	MISSING OBSERVATIONS -	0	0	0	0	0	0	0	0	
VARIABLE GPH		GALLONS PER HOUR		STD ERROR		KURTOSIS		0.059		STD DEV		0.649	
MEAN	2.272	0.421	3.147	MINIMUM	-0.054	0.920	MAXIMUM	0.655	4.067	STD DEV	0.655	4.067	
VARIANCE	0.421	3.147	0.421	MINIMUM	-0.054	0.920	MAXIMUM	0.655	4.067	SKENNESS	0.655	4.067	
RANGE	3.147	0.421	3.147	MINIMUM	-0.054	0.920	MAXIMUM	0.655	4.067	MAXIMUM	0.655	4.067	
VALID OBSERVATIONS -	123	123	123	MISSING OBSERVATIONS -	0	0	0	0	0	0	0	0	
VARIABLE MPH		MILES PER HOUR		STD ERROR		KURTOSIS		0.392		STD DEV		4.353	
MEAN	17.590	18.947	19.957	MINIMUM	-0.413	9.751	MAXIMUM	0.358	29.709	STD DEV	0.358	29.709	
VARIANCE	18.947	19.957	18.947	MINIMUM	-0.413	9.751	MAXIMUM	0.358	29.709	SKENNESS	0.358	29.709	
RANGE	19.957	18.947	19.957	MINIMUM	-0.413	9.751	MAXIMUM	0.358	29.709	MAXIMUM	0.358	29.709	
VALID OBSERVATIONS -	123	123	123	MISSING OBSERVATIONS -	0	0	0	0	0	0	0	0	
VARIABLE TOTGAL		TOTAL GALLONS		STD ERROR		KURTOSIS		16.788		STD DEV		186.180	
MEAN	503.618	34665.875	923.000	MINIMUM	0.177	170.000	MAXIMUM	0.791	1101.000	STD DEV	0.791	1101.000	
VARIANCE	34665.875	923.000	34665.875	MINIMUM	0.177	170.000	MAXIMUM	0.791	1101.000	SKENNESS	0.791	1101.000	
RANGE	923.000	34665.875	923.000	MINIMUM	0.177	170.000	MAXIMUM	0.791	1101.000	MAXIMUM	0.791	1101.000	
VALID OBSERVATIONS -	123	123	123	MISSING OBSERVATIONS -	0	0	0	0	0	0	0	0	
VARIABLE TMILES		TOTAL MILES		STD ERROR		KURTOSIS		134.644		STD DEV		1493.277	
MEAN	3936.528	3936.528	3936.528	MINIMUM	1.919	1342.000	MAXIMUM	1.115	10339.000	STD DEV	1.115	10339.000	
VARIANCE	3936.528	3936.528	3936.528	MINIMUM	1.919	1342.000	MAXIMUM	1.115	10339.000	SKENNESS	1.115	10339.000	
RANGE	3936.528	3936.528	3936.528	MINIMUM	1.919	1342.000	MAXIMUM	1.115	10339.000	MAXIMUM	1.115	10339.000	
VALID OBSERVATIONS -	123	123	123	MISSING OBSERVATIONS -	0	0	0	0	0	0	0	0	

TABLE A64. SUMMER 1973, DIESEL (MIXED AGES)

SUMMER (JULY-AUGUST) ALL MODELS-FY73,74,75

FILE ALL.VR24 (CREATION DATE = 00/15/76)

VARIABLE	THOURS	TOTAL HOURS	STD ERROR	STD_DEV	STD_DEV
MEAN	248.935		13.306		74.087
VARIANCE	5488.859		-0.084		0.040
RANGE	310.000		105.000		415.000
VALID OBSERVATIONS	-	31	MISSING OBSERVATIONS - 0		

VARIABLE	MPG	MILES PER GALLON	STD ERROR	STD_DEV	STD_DEV
MEAN	10.251		0.408		2.269
VARIANCE	5.148		1.471		0.610
RANGE	11.731		5.197		16.928
VALID OBSERVATIONS	-	31	MISSING OBSERVATIONS - 0		

VARIABLE	GPH	GALLONS PER HOUR	STD ERROR	STD_DEV	STD_DEV
MEAN	1.809		0.094		0.525
VARIANCE	0.275		1.602		1.127
RANGE	2.459		1.017		3.476
VALID OBSERVATIONS	-	31	MISSING OBSERVATIONS - 0		

VARIABLE	MPH	MILES PER HOUR	STD ERROR	STD_DEV	STD_DEV
MEAN	18.187		0.960		5.344
VARIANCE	28.560		0.742		0.654
RANGE	26.202		7.223		33.425
VALID OBSERVATIONS	-	31	MISSING OBSERVATIONS - 0		

VARIABLE	TOTGAL	TOTAL GALLONS	STD ERROR	STD_DEV	STD_DEV
MEAN	439.871		30.288		168.635
VARIANCE	28437.914		0.938		1.204
RANGE	652.000		235.000		887.000
VALID OBSERVATIONS	-	31	MISSING OBSERVATIONS - 0		

VARIABLE	THILES	TOTAL MILES	STD ERROR	STD_DEV	STD_DEV
MEAN	4507.578		392.168		2127.822
VARIANCE	8658.000		1.951		1.560
RANGE	8658.000		2255.000		10913.000
VALID OBSERVATIONS	-	31	MISSING OBSERVATIONS - 0		

TABLE A65. SUMMER 1974, GASOLINE (MIXED AGES)

SUMMER (JULY-AUGUST) ALL MODELS-FY73,74,75
 FILE ALL.VM24 (CREATION DATE = 08/15/76)

VARIABLE		TOTAL HOURS								
MEAN	199.802	STD ERROR	5.187	STD DEV	57.053					
VARIANCE	3255.094	KURTOSIS	0.351	SKEWNESS	-0.063					
RANGE	303.000	MINIMUM	18.000	MAXIMUM	321.000					
VALID OBSERVATIONS	-	121	MISSING OBSERVATIONS		-	0				
VARIABLE		MILES PER GALLON								
MEAN	7.022	STD ERROR	0.214	STD DEV	2.353					
VARIANCE	5.235	KURTOSIS	0.492	SKEWNESS	0.795					
RANGE	13.129	MINIMUM	1.108	MAXIMUM	14.237					
VALID OBSERVATIONS	-	121	MISSING OBSERVATIONS		-	0				
VARIABLE		GALLONS PER HOUR								
MEAN	2.875	STD ERROR	0.096	STD DEV	1.053					
VARIANCE	1.108	KURTOSIS	0.045	SKEWNESS	0.814					
RANGE	5.261	MINIMUM	1.000	MAXIMUM	6.261					
VALID OBSERVATIONS	-	121	MISSING OBSERVATIONS		-	0				
VARIABLE		MILES PER HOUR								
MEAN	18.800	STD ERROR	0.508	STD DEV	5.589					
VARIANCE	31.235	KURTOSIS	-0.020	SKEWNESS	0.239					
RANGE	27.575	MINIMUM	4.970	MAXIMUM	32.944					
VALID OBSERVATIONS	-	121	MISSING OBSERVATIONS		-	0				
VARIABLE		TOTAL GALLONS								
MEAN	581.347	STD ERROR	26.148	STD DEV	287.630					
VARIANCE	82731.187	KURTOSIS	-0.026	SKEWNESS	0.869					
RANGE	1341.000	MINIMUM	18.000	MAXIMUM	1359.000					
VALID OBSERVATIONS	-	121	MISSING OBSERVATIONS		-	0				
VARIABLE		TOTAL MILES								
MEAN	3886.471	STD ERROR	176.673	STD DEV	1943.406					
VARIANCE	9938.000	KURTOSIS	1.756	SKEWNESS	1.279					
RANGE	9938.000	MINIMUM	92.000	MAXIMUM	10030.000					
VALID OBSERVATIONS	-	121	MISSING OBSERVATIONS		-	0				

TABLE A66. SUMMER 1974, DIESEL (MIXED AGES)

SUMMER (JULY-AUGUST) ALL MODELS-FY73-74-75
 FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE THOURS		TOTAL HOURS	
MEAN	200.485	STD ERROR	11.570
VARIANCE	4341.379	KURTOSIS	0.296
RANGE	280.000	MINIMUM	91.000
VALID OBSERVATIONS	33	MISSING OBSERVATIONS	0

VARIABLE MPG		MILES PER GALLON	
MEAN	10.870	STD ERROR	0.676
VARIANCE	15.061	KURTOSIS	2.423
RANGE	19.181	MINIMUM	5.077
VALID OBSERVATIONS	33	MISSING OBSERVATIONS	0

VARIABLE GPH		GALLONS PER HOUR	
MEAN	2.024	STD ERROR	0.144
VARIANCE	0.682	KURTOSIS	0.729
RANGE	3.282	MINIMUM	0.892
VALID OBSERVATIONS	33	MISSING OBSERVATIONS	0

VARIABLE MPH		MILES PER HOUR	
MEAN	20.233	STD ERROR	0.994
VARIANCE	32.584	KURTOSIS	1.206
RANGE	26.875	MINIMUM	6.447
VALID OBSERVATIONS	33	MISSING OBSERVATIONS	0

VARIABLE TOTGAL		TOTAL GALLONS	
MEAN	404.212	STD ERROR	36.624
VARIANCE	44283.009	KURTOSIS	0.900
RANGE	818.000	MINIMUM	133.000
VALID OBSERVATIONS	33	MISSING OBSERVATIONS	0

VARIABLE TMILES		TOTAL MILES	
MEAN	4015.273	STD ERROR	298.627
VARIANCE	*****	KURTOSIS	0.985
RANGE	7455.000	MINIMUM	1116.000
VALID OBSERVATIONS	33	MISSING OBSERVATIONS	0

TABLE A67. SUMMER 1975, GASOLINE (MIXED AGES)

SUMMER (JULY-AUGUST) ALL MODELS-FY73-74,75

FILE ALL.VM24 (CREATION DATE = 08/15/76)

VARIABLE	THOURS	TOTAL HOURS	STD ERROR	4.387	STD DEV	47.651
MEAN	165.475		KURTOSIS	0.984	SKEWNESS	0.415
VARIANCE	2270.593		MINIMUM	36.000	MAXIMUM	324.600
RANGE	288.000					
VALID OBSERVATIONS -	118		MISSING OBSERVATIONS -	0		

VARIABLE	MPG	MILES PER GALLON	STD ERROR	0.163	STD DEV	1.771
MEAN	6.757		KURTOSIS	0.639	SKEWNESS	0.581
VARIANCE	3.137		MINIMUM	2.314	MAXIMUM	12.620
RANGE	10.106					
VALID OBSERVATIONS -	118		MISSING OBSERVATIONS -	0		

VARIABLE	GPH	GALLONS PER HOUR	STD ERROR	0.069	STD DEV	0.745
MEAN	2.778		KURTOSIS	-0.323	SKEWNESS	0.593
VARIANCE	0.556		MINIMUM	1.412	MAXIMUM	4.643
RANGE	3.231					
VALID OBSERVATIONS -	118		MISSING OBSERVATIONS -	0		

VARIABLE	MPH	MILES PER HOUR	STD ERROR	0.402	STD DEV	4.387
MEAN	18.057		KURTOSIS	0.230	SKEWNESS	0.263
VARIANCE	19.075		MINIMUM	6.438	MAXIMUM	28.704
RANGE	22.266					
VALID OBSERVATIONS -	118		MISSING OBSERVATIONS -	0		

VARIABLE	TOTGAL	TOTAL GALLONS	STD ERROR	15.456	STD DEV	167.890
MEAN	451.220		KURTOSIS	2.894	SKEWNESS	1.302
VARIANCE	28187.145		MINIMUM	156.000	MAXIMUM	1119.088
RANGE	963.000					
VALID OBSERVATIONS -	118		MISSING OBSERVATIONS -	0		

VARIABLE	TMILES	TOTAL MILES	STD ERROR	111.635	STD DEV	1212.667
MEAN	2998.830		KURTOSIS	2.168	SKEWNESS	1.203
VARIANCE	7610.000		MINIMUM	361.000	MAXIMUM	7971.000
RANGE						
VALID OBSERVATIONS -	118		MISSING OBSERVATIONS -	0		

TABLE A68. SUMMER 1975, DIESEL (MIXED AGES)

SUMMER (JULY-AUGUST) ALL MODELS-FY73,74,75

FILE ALL-VH24 (CREATION DATE = 08/15/76)

VARIABLE THOURS		TOTAL HOURS		STD DEV	
MEAN	171.615	7.043	50.788	0.210	310.000
VARIANCE	2579.378	0.219	0.210	0.210	310.000
RANGE	260.000	58.000	58.000	58.000	58.000
VALID OBSERVATIONS	-	52	MISSING OBSERVATIONS	-	0

VARIABLE MPG		MILES PER GALLON		STD DEV	
MEAN	9.456	0.376	2.713	0.209	15.909
VARIANCE	7.360	-0.215	0.209	0.209	15.909
RANGE	12.141	3.768	3.768	3.768	3.768
VALID OBSERVATIONS	-	52	MISSING OBSERVATIONS	-	0

VARIABLE GPH		GALLONS PER HOUR		STD DEV	
MEAN	2.051	0.103	0.744	1.818	4.914
VARIANCE	0.554	4.367	4.367	4.367	4.367
RANGE	3.942	0.972	0.972	0.972	0.972
VALID OBSERVATIONS	-	52	MISSING OBSERVATIONS	-	0

VARIABLE MPH		MILES PER HOUR		STD DEV	
MEAN	18.158	0.646	4.659	0.663	30.231
VARIANCE	21.706	0.054	0.663	0.663	30.231
RANGE	19.728	10.503	10.503	10.503	10.503
VALID OBSERVATIONS	-	52	MISSING OBSERVATIONS	-	0

VARIABLE TOTGAL		TOTAL GALLONS		STD DEV	
MEAN	335.500	16.164	116.558	1.411	792.000
VARIANCE	1585.742	3.172	3.172	3.172	792.000
RANGE	649.000	143.000	143.000	143.000	143.000
VALID OBSERVATIONS	-	52	MISSING OBSERVATIONS	-	0

VARIABLE TMILES		TOTAL MILES		STD DEV	
MEAN	3108.096	178.465	1286.931	1.181	6756.000
VARIANCE	*****	1.204	1.204	1.204	6756.000
RANGE	5682.000	1074.000	1074.000	1074.000	1074.000
VALID OBSERVATIONS	-	52	MISSING OBSERVATIONS	-	0

TABLE A69a. SCATTERGRAM, DIESEL

SCATTERGRAM - CUMMINS BY CUMMILES

FILE	ALL-AMZ	CREATION DATE	08/15/75	IACROSSI	CUMMILES					
SCATTERGRAM OF	1563.00	15489.00	74815.00	36141.00	46457.00	56793.00	57119.00	77445.00	87771.00	98097.00
12.00	1	000								
11.00	2	?								
10.00	2	?								
9.00	3	228								
8.00	2	2								
7.00	2	2								
6.00	2	2								
5.00	2	2								
4.00	2	2								
3.00	2	2								
2.00	2	2								

SCATTERGRAM - CUMMINS BY CUMMILES

STATISTICS					
CORRELATION COEFFICIENT	-0.23408	R-SQUARED	0.00145	SIGNIFICANCE	0.05910
STD ERR OF EST	1.06151	INTERCEPT (A)	7.47210	SLOPE (B)	-0.185290-05
PLOTTED VALUES	1609	EXCLUDED VALUES	246	MISSING VALUES	3

***** IT PRINTED IF A PREDEFINITE PARAMETER IS PERMITTED

TABLE A70. MAINTENANCE COSTS, GASOLINE FY 73

מחירי תחזוקת מנוע 1972 ממונים

DATE 01/01/74 (CREATION DATE = 09/15/76)

VARIABLE TYPES		TOTAL LABOR COSTS	
MEAN	593.975	STD ERROR	27.579
VARIANCE	92457.552	KURTOSIS	3.993
RANGE	2398.892	MINIMUM	25.130
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0
STD DEV	306.069	SKEWNESS	0.965
MAXIMUM	2121.026	MAXIMUM	

VARIABLE TYPES		TOTAL MATERIAL COSTS	
MEAN	548.230	STD ERROR	45.290
VARIANCE	792241.975	KURTOSIS	7.450
RANGE	3257.040	MINIMUM	0.0
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0
STD DEV	579.242	SKEWNESS	2.292
MAXIMUM	3257.040	MAXIMUM	

VARIABLE TYPES		TOTAL TIRE COST	
MEAN	164.909	STD ERROR	11.335
VARIANCE	15813.043	KURTOSIS	-0.506
RANGE	507.930	MINIMUM	0.0
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0
STD DEV	125.750	SKEWNESS	0.593
MAXIMUM	507.930	MAXIMUM	

VARIABLE TYPES		TOTAL OIL COSTS	
MEAN	1303.914	STD ERROR	70.681
VARIANCE	602497.917	KURTOSIS	5.445
RANGE	5329.570	MINIMUM	48.490
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0
STD DEV	740.692	SKEWNESS	1.648
MAXIMUM	5329.570	MAXIMUM	

VARIABLE TYPES		TOTAL COSTS	
MEAN	2441.588	STD ERROR	86.755
VARIANCE	919224.052	KURTOSIS	1.350
RANGE	5737.328	MINIMUM	114.360
VALID OBSERVATIONS -	122	MISSING OBSERVATIONS -	0
STD DEV	958.242	SKEWNESS	0.478
MAXIMUM	5853.691	MAXIMUM	

TABLE A71. MAINTENANCE COSTS, GASOLINE FY 74

COMPILED STATEMENT 1972 MONTHS

FILE ALL.VH24 (COMPILED DATE = 08/15/76)

VARIABLE TITRES TOTAL LAMP COSTS

MEAN 577.902 STD ERROR 31.630 STD DEV 349.365
 VARIANCE 122056.052 KURTOSIS 0.974 SKEWNESS 0.835
 RANGE 1993.458 MINIMUM 59.370 MAXIMUM 1947.823

VALID OBSERVATIONS - 122 MISSING OBSERVATIONS - 0

VARIABLE TITRES TOTAL MATERIAL COSTS

MEAN 742.832 STD ERROR 50.529 STD DEV 558.116
 VARIANCE 311493.137 KURTOSIS 0.281 SKEWNESS 0.994
 RANGE 2593.310 MINIMUM 19.420 MAXIMUM 2612.747

VALID OBSERVATIONS - 122 MISSING OBSERVATIONS - 0

VARIABLE TITRES TOTAL TIRE COST

MEAN 249.619 STD ERROR 13.244 STD DEV 146.841
 VARIANCE 21562.211 KURTOSIS 1.128 SKEWNESS 0.707
 RANGE 944.457 MINIMUM 0.00 MAXIMUM 844.460

VALID OBSERVATIONS - 122 MISSING OBSERVATIONS - 0

VARIABLE TITRES

MEAN 1661.353 STD ERROR 82.757 STD DEV 914.038
 VARIANCE 835465.197 KURTOSIS 0.073 SKEWNESS 0.772
 RANGE 4404.672 MINIMUM 175.240 MAXIMUM 4579.914

VALID OBSERVATIONS - 122 MISSING OBSERVATIONS - 0

VARIABLE TCOSTS TOTAL COSTS

MEAN 3174.033 STD ERROR 105.332 STD DEV 1163.435
 VARIANCE 1444444.444 KURTOSIS -0.592 SKEWNESS 0.401
 RANGE 4932.395 MINIMUM 1025.820 MAXIMUM 5959.715

VALID OBSERVATIONS - 122 MISSING OBSERVATIONS - 0

TABLE A72. MAINTENANCE COSTS, GASOLINE FY 75

EQUIPMENT STATEMENTS 1972 שנת 1972

FILE ALL-מחלקה (CREATION DATE = 22/15/75)

VARIABLE COSTS - TOTAL LABOR COSTS

MEAN 370.654 STD ERROR 37.219 STD DEV 404.299
 VARIANCE 13857.937 KURTOSIS 1.600 SKEWNESS 0.742
 RANGE 2347.874 MINIMUM 198.290 MAXIMUM 2556.176

VALID OBSERVATIONS - 119 MISSING OBSERVATIONS - 0

VARIABLE COSTS - TOTAL MATERIAL COSTS

MEAN 1023.461 STD ERROR 58.473 STD DEV 635.182
 VARIANCE 413456.000 KURTOSIS -0.212 SKEWNESS 0.657
 RANGE 2862.330 MINIMUM 91.370 MAXIMUM 2923.709

VALID OBSERVATIONS - 119 MISSING OBSERVATIONS - 0

VARIABLE COSTS - TOTAL TIRE COST

MEAN 291.125 STD ERROR 14.401 STD DEV 156.433
 VARIANCE 24471.793 KURTOSIS -0.526 SKEWNESS 0.300
 RANGE 562.000 MINIMUM 0.0 MAXIMUM 562.000

VALID OBSERVATIONS - 119 MISSING OBSERVATIONS - 0

VARIABLE COSTS - TOTAL COSTS

MEAN 2190.259 STD ERROR 90.961 STD DEV 988.092
 VARIANCE 976325.587 KURTOSIS -0.512 SKEWNESS 0.300
 RANGE 4527.000 MINIMUM 418.639 MAXIMUM 4945.941

VALID OBSERVATIONS - 119 MISSING OBSERVATIONS - 0

VARIABLE COSTS - TOTAL COSTS

MEAN 4246.195 STD ERROR 121.304 STD DEV 1317.697
 VARIANCE 1782222.000 KURTOSIS -0.189 SKEWNESS 0.219
 RANGE 7083.192 MINIMUM 1359.739 MAXIMUM 8442.844

VALID OBSERVATIONS - 119 MISSING OBSERVATIONS - 0

TABLE A73. MAINTENANCE COSTS, GASOLINE FY 76

COMPUTATION STATISTICS 1972 MONTHLY

FILE ALL.VH24 (CREATION DATE = 08/15/76)

VARIABLE TLABR2 TOTAL LABOR COSTS

MEAN 373.357 STD ERROR 36.644 STD DEV 398.060
 VARIANCE 150451.375 KURTOSIS -0.594 SKEWNESS 0.127
 RANGE 1747.199 MINIMUM 70.000 MAXIMUM 1917.199

VALID OBSERVATIONS = 119 MISSING OBSERVATIONS = 0

VARIABLE TMAATC TOTAL MATERIAL COSTS

MEAN 1341.158 STD ERROR 73.595 STD DEV 798.473
 VARIANCE 677557.000 KURTOSIS 0.037 SKEWNESS 0.635
 RANGE 3776.540 MINIMUM 0.0 MAXIMUM 3776.640

VALID OBSERVATIONS = 119 MISSING OBSERVATIONS = 0

VARIABLE TTYPES TOTAL TYPE COST

MEAN 326.139 STD ERROR 17.069 STD DEV 185.414
 VARIANCE 34371.991 KURTOSIS 1.192 SKEWNESS 0.772
 RANGE 1032.010 MINIMUM 0.0 MAXIMUM 1032.010

VALID OBSERVATIONS = 119 MISSING OBSERVATIONS = 0

VARIABLE TMAINT

MEAN 2570.665 STD ERROR 108.063 STD DEV 1173.867
 VARIANCE 5793.453 KURTOSIS -0.204 SKEWNESS 0.275
 RANGE 5793.453 MINIMUM 116.190 MAXIMUM 5909.645

VALID OBSERVATIONS = 118 MISSING OBSERVATIONS = 0

VARIABLE TCOSTS TOTAL COSTS

MEAN 4611.576 STD ERROR 135.932 STD DEV 1476.602
 VARIANCE 800000.000 KURTOSIS -0.025 SKEWNESS -0.270
 RANGE 7495.172 MINIMUM 315.610 MAXIMUM 7811.715

VALID OBSERVATIONS = 118 MISSING OBSERVATIONS = 0

TABLE A74. MAINTENANCE COSTS, DIESEL FY 73

EQUIPMENT STATEMENT 1972 DIESEL

FILE ALL.VH24 (CREATION DATE = 09/15/76)

VARIABLE LABEL TOTAL LABEL COSTS

MEAN 742.639 STD ERROR 32.146 STD DEV 178.982
 VARIANCE 32034.552 KURTOSIS 0.765 SKEWNESS 1.246
 RANGE 693.470 MINIMUM 45.130 MAXIMUM 738.620

VALID OBSERVATIONS - 31 MISSING OBSERVATIONS - 0

VARIABLE TMAVS TOTAL MATERIAL COSTS

MEAN 141.255 STD ERROR 31.722 STD DEV 176.622
 VARIANCE 31105.179 KURTOSIS 1.836 SKEWNESS 1.557
 RANGE 697.979 MINIMUM 17.470 MAXIMUM 707.390

VALID OBSERVATIONS - 31 MISSING OBSERVATIONS - 0

VARIABLE TTJCS TOTAL TIRE COST

MEAN 13.078 STD ERROR 5.693 STD DEV 31.695
 VARIANCE 1004.543 KURTOSIS 6.418 SKEWNESS 2.604
 RANGE 138.570 MINIMUM 0.0 MAXIMUM 138.570

VALID OBSERVATIONS - 31 MISSING OBSERVATIONS - 0

VARIABLE TMAINT

MEAN 435.022 STD ERROR 56.409 STD DEV 314.073
 VARIANCE 96641.625 KURTOSIS 0.619 SKEWNESS 1.098
 RANGE 1265.170 MINIMUM 104.140 MAXIMUM 1370.310

VALID OBSERVATIONS - 31 MISSING OBSERVATIONS - 0

VARIABLE *COSTS TOTAL COSTS

MEAN 741.861 STD ERROR 81.897 STD DEV 455.982
 VARIANCE 207019.697 KURTOSIS -0.160 SKEWNESS 0.831
 RANGE 1751.619 MINIMUM 291.870 MAXIMUM 1953.490

VALID OBSERVATIONS - 31 MISSING OBSERVATIONS - 0

TABLE A75. MAINTENANCE COSTS, DIESEL FY 74

EQUIPMENT STATEMENT 1977 MODELS

FILE ALL-VH74 (CREATION DATE = 09/15/76)

VARIABLE TOTAL MAINT TOTAL LABOR COSTS

MEAN 547.951 STD ERROR 30.792 STD DEV 179.546
 VARIANCE 2225.374 KURTOSIS -1.234 SKEWNESS 0.596
 RANGE 717.270 MINIMUM 261.220 MAXIMUM 978.490

VALID OBSERVATIONS - 34 MISSING OBSERVATIONS - 0

VARIABLE TOTAL MATERIAL COSTS

MEAN 349.974 STD ERROR 29.479 STD DEV 171.891
 VARIANCE 29545.449 KURTOSIS -0.023 SKEWNESS 0.831
 RANGE 669.290 MINIMUM 117.920 MAXIMUM 796.100

VALID OBSERVATIONS - 34 MISSING OBSERVATIONS - 0

VARIABLE TOTAL TIRE COST

MEAN 197.911 STD ERROR 28.827 STD DEV 168.092
 VARIANCE 29254.801 KURTOSIS -1.274 SKEWNESS 0.277
 RANGE 527.220 MINIMUM 0.0 MAXIMUM 527.220

VALID OBSERVATIONS - 34 MISSING OBSERVATIONS - 0

VARIABLE TWAINT

MEAN 1076.746 STD ERROR 66.475 STD DEV 387.204
 VARIANCE 149276.687 KURTOSIS -0.749 SKEWNESS 0.325
 RANGE 1464.520 MINIMUM 447.959 MAXIMUM 1912.589

VALID OBSERVATIONS - 34 MISSING OBSERVATIONS - 0

VARIABLE TOTAL COSTS

MEAN 2013.628 STD ERROR 85.059 STD DEV 495.973
 VARIANCE 245933.975 KURTOSIS -0.402 SKEWNESS 0.344
 RANGE 1999.699 MINIMUM 1214.630 MAXIMUM 3214.299

VALID OBSERVATIONS - 34 MISSING OBSERVATIONS - 0

TABLE A76. MAINTENANCE COSTS, DIESEL FY 75

סיכומי עלויות שירותי תחזוקה 1975

קובץ נתונים: ALL_VH24 (תאריך יצוא = 08/15/76)

VARIABLE		TOTAL COSTS		STD DEV		SKEWNESS	
משתנה	סכום	קורטוזיס מינימום	קורטוזיס מקסימום	ממוצע	ממוצע	מקסימום	מקסימום
ממוצע	570.922	46.622	339.411	0.410	1392.667		
VAR	115192.562	-0.281					
RANGE	1350.567	42.000					
VALID OBSERVATIONS	53	MISSING OBSERVATIONS		0			

VARIABLE		TOTAL MATERIAL COSTS		STD DEV		SKEWNESS	
משתנה	סכום	קורטוזיס מינימום	קורטוזיס מקסימום	ממוצע	ממוצע	מקסימום	מקסימום
ממוצע	700.250	86.074	526.644	1.450	2750.290		
VAR	300697.562	1.840					
RANGE	2737.740	10.550					
VALID OBSERVATIONS	53	MISSING OBSERVATIONS		0			

VARIABLE		TOTAL TYPE COST		STD DEV		SKEWNESS	
משתנה	סכום	קורטוזיס מינימום	קורטוזיס מקסימום	ממוצע	ממוצע	מקסימום	מקסימום
ממוצע	225.493	26.393	192.140	0.360	658.130		
VAR	36917.930	-1.060					
RANGE	658.130	0.00					
VALID OBSERVATIONS	53	MISSING OBSERVATIONS		0			

VARIABLE		TOTAL COSTS		STD DEV		SKEWNESS	
משתנה	סכום	קורטוזיס מינימום	קורטוזיס מקסימום	ממוצע	ממוצע	מקסימום	מקסימום
ממוצע	1525.862	137.842	1003.503	0.787	4302.426		
VAR	4740.875	0.674					
RANGE		52.550					
VALID OBSERVATIONS	53	MISSING OBSERVATIONS		0			

VARIABLE		TOTAL COSTS		STD DEV		SKEWNESS	
משתנה	סכום	קורטוזיס מינימום	קורטוזיס מקסימום	ממוצע	ממוצע	מקסימום	מקסימום
ממוצע	2619.327	179.022	1303.302	0.177	5957.691		
VAR	570.000	0.052					
RANGE		177.670					
VALID OBSERVATIONS	53	MISSING OBSERVATIONS		0			

TABLE A77. MAINTENANCE COSTS, DIESEL FY 76

COMPILED BY STATISTICS 1972 MODELS

FILE ALLVH24 (CREATION DATE = 09/15/76)

VARIABLE LABELS TOTAL LABOR COSTS

MEAN 914.945 STD ERROR 55.230 STD DEV 402.518
 VARIANCE 162020.637 SKURTOSIS 0.941 SKEWNESS 0.953
 RANGE 1956.403 MINIMUM 170.800 MAXIMUM 2125.203

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE LABELS TOTAL MATERIAL COSTS

MEAN 1306.492 STD ERROR 161.887 STD DEV 1178.557
 VARIANCE 116644.544 SKURTOSIS 4.337 SKEWNESS 2.066
 RANGE 5945.534 MINIMUM 73.390 MAXIMUM 5919.074

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE LABELS TOTAL TIRE COST

MEAN 300.226 STD ERROR 30.375 STD DEV 221.133
 VARIANCE 4899.504 SKURTOSIS -1.218 SKEWNESS 0.114
 RANGE 702.090 MINIMUM 0.0 MAXIMUM 702.090

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE LABELS TMAINT

MEAN 2425.562 STD ERROR 221.004 STD DEV 1608.934
 VARIANCE 116644.544 SKURTOSIS 3.758 SKEWNESS 1.712
 RANGE 9319.096 MINIMUM 363.410 MAXIMUM 8692.496

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

VARIABLE LABELS TOTAL COSTS

MEAN 3711.362 STD ERROR 239.844 STD DEV 1746.087
 VARIANCE 116644.544 SKURTOSIS 3.123 SKEWNESS 1.450
 RANGE 7401.871 MINIMUM 838.900 MAXIMUM 10240.773

VALID OBSERVATIONS = 53 MISSING OBSERVATIONS = 0

APPENDIX B. DETAILED SPECIFICATIONS FOR 4X2 HEAVY DUTY
DIESEL DUMP TRUCK 24,000 POUND GROSS VEHICLE
WEIGHT, MINIMUM

PURPOSE AND INTENT

It is the purpose and intent of these specifications to describe a Heavy Duty Diesel Powered Patrol Truck with a minimum manufacturer's rated capacity of 24,000 lbs. G.V.W. equipped with conventional cab and sheet metal.

The truck offered must be of the latest model and satisfactory for general highway maintenance work including dump service, plowing and sanding. The frame and suspension must be designed and reinforced for the installation and operation of a heavy-duty one-way trip blade hydraulic plow w/R.H. wing. Standard steel cab. Tip forward hood or swing-out fenders not acceptable.

Heavy duty optional capacity windshield wiper motor, heating and defrosting systems are an absolute requirement for dependable and efficient operation under extreme conditions of winter service.

1. WHEELBASE & C.A.

- 1.1 Wheelbase shall be approximately 156", or no longer than is essential for mounting 9', 4 cubic yard body w/20" minimum space between cab and body for mounting plow tower.
- 1.2 Cab axle dimension shall be approximately 86", body overhand 12".

2. ENGINE

- 2.1 Automotive diesel.
- 2.2 Caterpillar, Cummins, IHC or approved equal.
- 2.3 Approx. 175 hp.
- 2.4 Approx. 300 lb./ft. torque.
- 2.5 Designed for No. 2 diesel fuel and/or 50/50 winter blend.
- 2.6 Proven history of application in similar service.

- 2.7 H.D. cooling system w/automatic radiator shutters
- 2.8 Water filter.
- 2.9 Sealed governor.
- 2.10 Standard oil filtration system.
- 2.11 Standard air filtration system.
- 2.12 All engine accessories shall be readily accessible for servicing and repairs.
- 2.13 Magnetic oil drain plug.
- 2.14 Space under radiator to mount crankshaft driven P.T.O. preferred.
- 3. CLUTCH
 - Heavy duty, 14" diameter S.P. or 13" 2-P.
- 4. TRANSMISSION
 - 4.1 5 speed, direct-in-5th (or 10-speed if single speed axle).
 - 4.2 P.T.O openings R & L.
 - 4.3 Input rating not less than engine output torque.
- 5. FRONT AXLE
 - 5.1 I-beam type.
 - 5.2 Suitable for snowplow and dump services.
 - 5.3 7000 lbs. cap., min.
 - 5.4 Hydraulic steering booster.
 - 5.5 Spring cap. 3500 lbs. at pad (each) min.
 - 5.6 HD double acting shock absorbers.
- 6. REAR AXLE
 - 6.1 17,000 lbs. cap., min.
 - 6.2 2-speed differential (single speed acceptable w/10-speed trains).

- 6.3 Dual tire chain clearance 2", min.
- 6.4 Geared to provide approx. 60 MPH at maximum governed engine RPM.
- 6.5 Spring capacity 8,000 lbs. each at pad, min.
- 6.6 Helper springs shall be largest capacity option available.
- 6.7 Optional HD spring brackets.
- 6.8 Magnetic oil drain plug.

NOTE: Axle shall be Eaton 17,500-16244 w/15-1/2 ring gear, axles 1.88 S.D. x 16S. x 11-11/16 B.D.; Rockwell 17,000-H340, axles 1-7/8 S.D. x 20S x 1-3/4 B.D., or approved equal.

7. BRAKE SYSTEM

- 7.1 Standard hydraulic brakes, front; 6" brakes, rear.
- 7.2 Power booster (vacuum) w/reservoir.
- 7.3 Standard parking brake.

8. WHEELS & TIRES

- 8.1 20X7 heavy duty spoke wheels.
- 8.2 General "Super Expressway" 900X20 12-ply Nygen, front.
- 8.3 General "Dual Cross Lug" 900X20 12-ply Nygen, dual rear & mounted spare tire.
- 8.4 3-piece HD demountable rims, Goodyear JM or approved equal.

9. FRAME

- 9.1 Heavy duty model, high tensile steel preferred.
- 9.2 Suitable for HD plow & dump service.
- 9.3 Inverted "L" or channel reinforcement.
- 9.4 Fishplates not acceptable.

10. FUEL TANK(S)

- 10.1 50 gallons cap., min., including auxiliary.
- 10.2 Step type preferred.
- 10.3 12" road clearance mandatory.
- 10.4 Must not be mounted above chassis rails, if mounted on right side.

11. ELECTRICAL SYSTEM

- 11.1 12 volt, 40 amp cap., min. w/high output at idling speeds.
- 11.2 70 amp-hr. HD battery.
- 11.3 3-way tail lights.
- 11.4 Directional lights.
- 11.5 Dual electric wipers (see Page 1, 3rd paragraph).
- 11.6 Optional cap. fresh air heater/defroster. (See Page 1, 3rd paragraph.)
- 11.7 Engine hour meter (electric tape).
- 11.8 Dual horns.
- 11.9 Cigarette lighter.

12. ACCESSORIES

- 12.1 Dual sun visors.
- 12.2 Windshield washers.
- 12.3 6" x 16" W.C. mirrors.
- 12.4 Mud flaps.
- 12.5 Seat belts.
- 12.6 Engine tachometer, electric type preferred.
- 12.7 Rust-proofing, cab & sheet metal (see attached section subject matter).

13. TOOLS W/EACH UNIT

13.1 Front & rear wheel bearing adjustment wrenches.

13.2 Tire change (wheel/rim) wrenches.

14. PAINT

14.1 Cab and chassis highway orange enamel.

14.2 Fenders and running boards black enamel.

14.3 Engine hood non-reflective flat black paint.

15. MANUALS

15.1 10 - Operators' manuals, chassis.

15.2 3 - Repair manuals, chassis.

15.3 3 - Parts books, chassis.

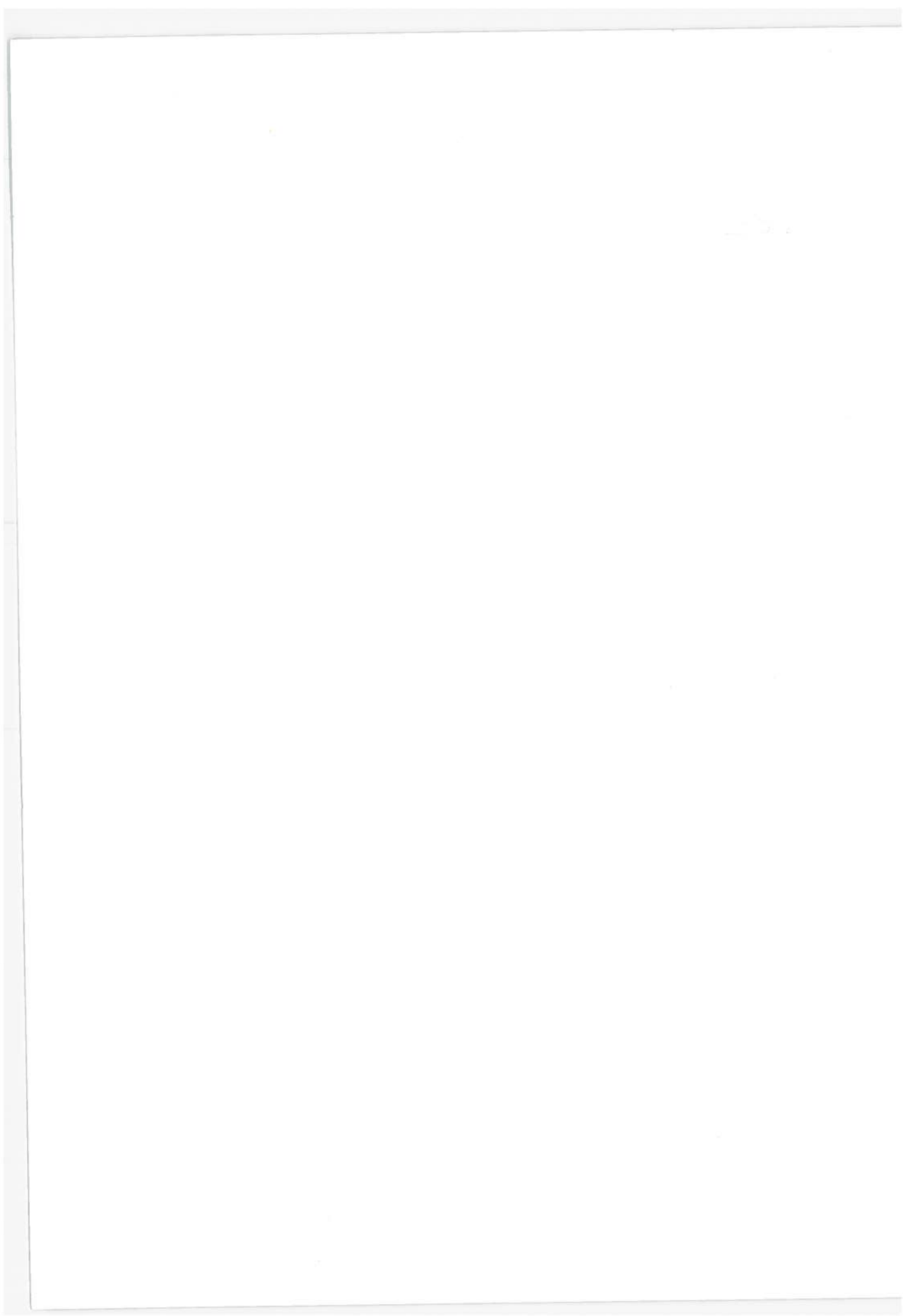
15.4 3 - Parts retail price list, chassis.

16. GENERAL

16.1 All manuals should be delivered prior to acceptance of the final chassis.

16.2 Chassis to be completely serviced, tuned up, wheels balanced (front) and steering geometry adjusted prior to delivery.

16.3 Vehicle offered must comply w/applicable Federal and State of Maine regulations.



APPENDIX C. DETAILED SPECIFICATIONS FOR 4X2 HEAVY DUTY
GASOLINE DUMP TRUCK 24,000 POUND GROSS
VEHICLE WEIGHT, MINIMUM

PURPOSE AND INTENT

It is the purpose and intent of these Specifications to describe a Heavy Duty Patrol Truck with a minimum manufacturer's rated capacity of 24,000 lbs. G.V.W. equipped with conventional cab and sheet metal.

The truck offered must be of the latest model and satisfactory for general highway maintenance work including dump service, plowing and sanding. The frame and suspension must be designed and reinforced for the installation and operation of a heavy-duty one-way trip blade hydraulic plow w/R.H. wing. Tip forward hood or swing-out fenders not acceptable if in conflict w/plow apparatus.

Heavy duty optional capacity windshield wiper motor, heating and defrosting systems are an absolute requirement for dependable and efficient operation under extreme conditions of plowing.

1. WHEELBASE & C.A.

- 1.1 Wheelbase shall be approximately 156", or no longer than is essential for mounting 9', 4 cubic yard body w/15" minimum space between cab and body for mounting plow tower.
- 1.2 Cab axle dimension shall be approximately 86"; body overhand 12".

2. ENGINE

- 2.1 6-cylinder, in-line, truck type, high-torque characteristics, 292 c.i.d., min.
- 2.2 Designed for regular octane gasoline.
- 2.3 Sealed governor.
- 2.4 H.D. cooling system.
- 2.5 Full-flow oil filter w/replaceable element.

2.6 Fuel filter, discardable in-line type.

2.7 H.D. air cleaner, dry type preferred.

3. CLUTCH

Heavy duty, optional size, 11-1/2" min.

4. TRANSMISSION

4.1 5 speed, direct-in-5th.

4.2 P.T.O. openings R & L.

5. FRONT AXLE

5.1 I-beam type.

5.2 Suitable for snowplow and dump services.

5.3 7000 lbs. cap., min.

5.4 Hydraulic steering booster.

5.5 Spring cap. 3500 lbs. at pad. (each) min.

5.6 H D double-acting shock absorbers.

6. REAR AXLE

6.1 17,000 lbs. cap., min.

6.2 2-speed differential.

6.3 Dual tire chain clearance 2", min.

6.4 Geared to provide approx. 60 MPH at maximum governed engine RPM.

6.5 Spring capacity 8,000 lbs. each at pad, min.

6.6 Helper springs shall be largest capacity option available.

6.7 Optional HD spring brackets.

6.8 An oil drain plug shall be provided.

NOTE: Axle shall be Eaton 17,500-16244 w/15-1/2 ring gear axle 1.88 S.D. x 16S. x 1-11/16 B.D.; Rockwell 17,000-H340, axles 1-7/8 S.D. x 20S. x 1-3/4 B.D., or approved equal.

7. BRAKE SYSTEM

7.1 Standard hydraulic brakes, front; 6" brakes, rear.

7.2 Power booster (vacuum) w/reservoir.

7.3 Standard parking brake.

8. WHEELS & TIRES

8.1 20X7 heavy duty spoke wheels.

8.2 Uniroyal "Super Fleet Carrier" 900X20 10-ply nylon, front.

8.3 Uniroyal "Fleet Master Super Lug", dual rear.

8.4 All tires shall be tubed, premium quality.

8.5 Spare rim.

8.6 3-piece HD demountable rims, Goodyear JM or approved equal.

9. FRAME

9.1 Heavy duty model, high tensile steel preferred.

9.2 Suitable for HD plow & dump service.

9.3 Inverted "L" or channel reinforcement.

9.4 Fishplates not acceptable.

9.5 Local reinforcements or frame alterations not acceptable.

10. FUEL TANK(S)

10.1 50 gallons cap., min., including auxiliary.

10.2 Step type preferred.

10.3 12" road clearance mandatory.

10.4 Must not be mounted above chassis rails, if mounted on right side.

11. ELECTRICAL SYSTEM

- 11.1 12 volt, 40 amp cap., min.
- 11.2 70 amp-hr. HD battery.
- 11.3 3-way tail lights.
- 11.4 Directional lights.
- 11.5 Dual electric wipers. (see Page 1, 3rd paragraph)
- 11.6 Optional cap. fresh air heater/defroster. (see Page 1, 3rd paragraph.)
- 11.7 Engine hour meter (electric type).
- 11.8 Dual horns.
- 11.9 Cigarette lighter.

12. ACCESSORIES

- 12.1 Dual sun visors.
- 12.2 Windshield washers.
- 12.3 6" x 16" W.C. mirrors.
- 12.4 Holland Model T60A pintle hook on reinforced cross member.
- 12.5 Mud flaps.
- 12.6 Seat belts.
- 12.7 Engine tachometer, electric type preferred.

13. BODY

- 13.1 Latest model.
- 13.2 GarWood Type GC-2 dump body, or approved equal.
- 13.3 Four (4) cubic yards struck capacity.
- 13.4 8 gauge steel throughout including bracing.
- 13.5 Floor, sides and header "CORTEN" or approved equal.
- 13.6 Triple flange top rail.
- 13.7 6" running boards, catwalk to have 45 degree slopes to prevent dirt riding.

- 13.8 Tailgate horizontal braces shall have 45 degree slope to prevent direct riding. Tailgate, header and body sides shall be capped w/inverted angle to prevent dirt riding.
- 13.9 Side bracing shall be 6" box type, 8 gauge steel.
- 13.10 Hardware shall be extra heavy duty w/1-1/4" top & lower tailgate hinge pins. Tailgate top hinge shall be cast or fabricated from 1-1/4" steel plate, flame-cut. Tailgate lower hooks shall be not less than 5/8" in thickness.
- 13.11 8-full width 4" cross members, min., channel or approved equal.
- 13.12 Longitudinal members shall be 6" channel or approved equal.
- 13.13 Full width rear apron under tailgate.
- 13.14 3/8" welded link tailgate spreader chains, min.
- 13.15 Lever-type, self-locking tailgate trip, LH side.
- 13.16 12" overhang.
- 13.17 Body hinge pins shall be designed for positive manual lubrication, lube fittings located on outer end of the pins preferred.
- 13.18 Tailgate, header and sides to be of uniform height.

14. HOIST & SUB FRAME

- 14.1 GarWood Model A-50 or approved equal.
- 14.2 Class 40, 12 ton capacity, min.
- 14.3 Dual stop chains w/retainer springs.
- 14.4 Double-acting hydraulic cylinder(s).
- 14.5 Full heavy-duty design throughout.
- 14.6 5/8" HT hold-down bolts.
- 14.7 3/4" HT hinge bolts.

15. HYDRAULICS

P.T.O., pump & reservoir to be supplied and installed by State of Maine, including hoses, relief valve and controls.

16. INSTALLATION

16.1 Body & hoist installation shall be of first class workmanship throughout.

16.2 Hoist frame shall be secured to the chassis via three (3) L-shaped brackets on each siderail, formed from heavy angle iron and fastened via a minimum of four (4) heat treated bolts 5/8" in diameter at each of the six (6) mounting pads.

17. RUST-PROOFING

(See attached specs)

18. TOOLS W/EACH UNIT

18.1 Front and rear wheel bearing adjustment wrenches.

18.2 Tire change (wheel/rim) wrenches.

19. PAINT

19.1 Cab and chassis shall be painted highway orange enamel.

19.2 Body and hoist shall be painted highway orange enamel.

19.3 Fenders and running boards shall be painted black enamel.

19.4 Engine hood shall be w/non-reflective flat black paint.

20. MANUALS

20.1 9 - Operator's Manual, chassis.

20.2 7 - Repair Manual, chassis.

20.3 7 - Parts Book, chassis.

20.4 2 - Parts Retail Price List, chassis.

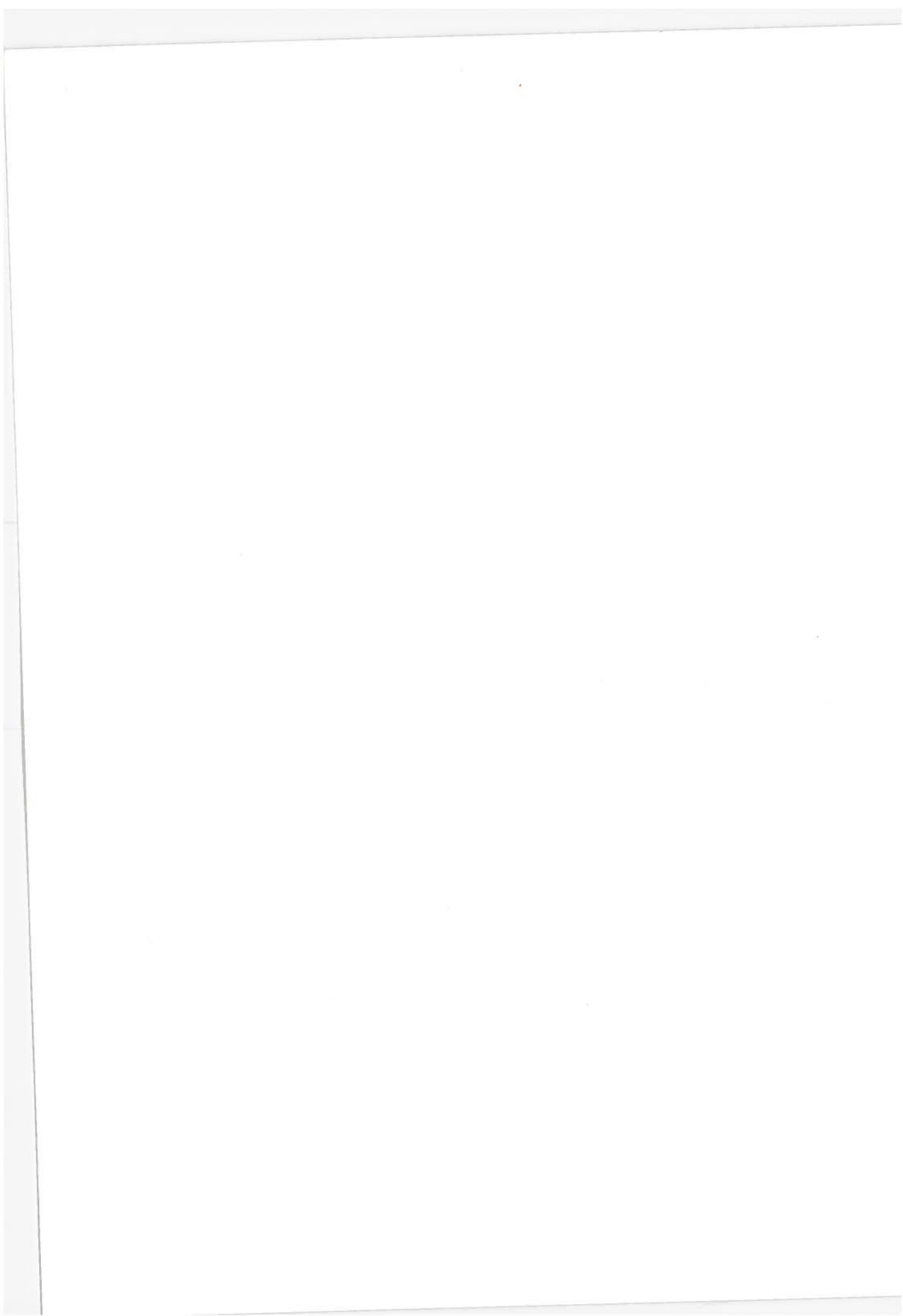
20.5 3 - Parts Book, body & hoist.

21. GENERAL

21.1 All manuals should be delivered prior to acceptance of the final chassis.

21.2 Chassis to be completely serviced, tuned up, wheels balanced (front) and steering geometry adjusted prior to delivery.

21.3 Vehicle offered must comply w/applicable Federal and State of Maine regulations.



APPENDIX D: PREVENTIVE MAINTENANCE SCHEDULE

The following preventive maintenance schedule was applicable to all 4X2 patrol trucks, 2,4000 lb. GVW, both gasoline and diesel, used in this study.

Regular grade gasoline was used. The Maine Department of Transportation accepts whatever the bulk supplier has, both leaded and unleaded gasolines. The diesel fuel specification calls for a 50/50 blend of #1 and #2 fuel oils (Gulf 250 diesel fuel).

The engine oils used for both diesel and gasoline vehicles, winter and summer, was SAE 30 (SAE 10W30 if vehicle was in cold storage).

INSPECTION, LUBRICATION & MAINTENANCE SCHEDULE

Equipment: Ford Type: 4X2 Patrol Truck Model: F-600

KEEP YOUR EQUIPMENT CLEAN

<u>INTERVAL</u>	<u>ITEM</u>	<u>SERVICES TO BE PERFORMED BY DRIVER</u>	<u>LUBRICANT</u>
	1	Check engine oil level	SAE 30 (10W30 if in cold storage)
	2	Check radiator coolant level	
	3	Check accessories drive belts	
	4	Check radiator hoses & connections for visual leaks	
	5	Check fluid level in windshield washer reservoir	
	6	Check gear boxes & differential for visual leaks	HD 90
	7	Check tires for visual cuts, bruises, rocks & flats	
	8	Check wheels for broken studs or loose nuts	
DAILY	9	Check springs for loose or broken leaves	
	10	Check rear wheel splash shields	
	11	Check plow apparatus for loose bolts, damage, etc.	
	12	Check cutting edges for wear, loose bolts, etc.	
	13	Check plow & wing rams for visual leaks	
	14	Check plow, hoist & spreader controls	
	15	Check defroster & heater	
	16	Check windshield wipers	
	17	Check & clean all lights & reflectors	

INTERVAL	ITEM	SERVICES TO BE PERFORMED BY DRIVER	LUBRICANT
	18	Check & adjust rear view mirrors	
	19	Clean windshield & door glass	
	20	Clean cab interior & exterior	
	21	Check tire & tow chains (winter only)	
	22	Check fire extinguisher & flare kit	
	23	Start engine and check all instruments & gauges	
DAILY	24	Refuel at end of each day's work	
	25	File DRIVER'S DAILY VEHICLE CONDITION REPORT	
	26	Report all defects of malfunctions to your foreman and/or MTS mechanic	
	27	Lubricate all plow sheaves & spreader bearings daily when used	

SERVICES TO BE PERFORMED BY DRIVER

Perform daily schedule

	28	Service air cleaner as required	
	29	Check air inlet system for leaks	
EACH	30	Check exhaust system for leaks or damage	
50	31	Check lubricant level in transmission	HD-90
ENGINE	32	Check lubricant level in differential	HD-90
HOURS	33	Check lubricant level in two-speed shift housing	SAE-10
	34	Check lubricant level in steering gear housing	HD-90
	35	Check oil level in hydraulic system	SAE-10
	36	Check oil level in power steering system	A.T.F.
	37	Check water level in all battery cells	

	38	Lubricate driveshaft U-joints & slip splines	Chassis Lube
	39	Lubricate PTO U-joints	Chassis Lube
	40	Lubricate PTO control cables	Chassis Lube
	41	Lubricate body & hoist fittings	Chassis Lube
	42	Lubricate the following:	Chassis Grease
		(a) Springs	(d) UJ on drive shaft
		(b) Kingpins	(e) UJ on PTO shaft
EACH		(c) Steering linkage	(f) Pins & hinges on body
50			(g) Plow sheaves & linkages
ENGINE			
HOURS	43	Lubricate throttle linkage	Engine Oil
EACH	44	Lubricate door latches, hinges & striker plates	Lubriplate
	45	Check tires for tread wear & matching	
	46	Check tire pressure w/gauge (65 lbs. front, 75 lbs. rear)	
	47	Secure all valve caps	
	48	Tighten all wheel lugs	

SERVICES TO BE PERFORMED BY MOTOR TRANSPORT SERVICE

Perform 50-hour schedule

	49	Check engine oil	SAE 30 (10w30 if in cold storage)
	50	Change engine oil filter	
	51	Clean crankcase breathers	
EACH	52	Check for steering defects	
200	53	Lubricate alternator bearings	SAE 30
ENGINE	54	Check brake system & adjust as required	
HOURS	55	Check fluid level in clutch master cylinder (if used)	Brake Fluid

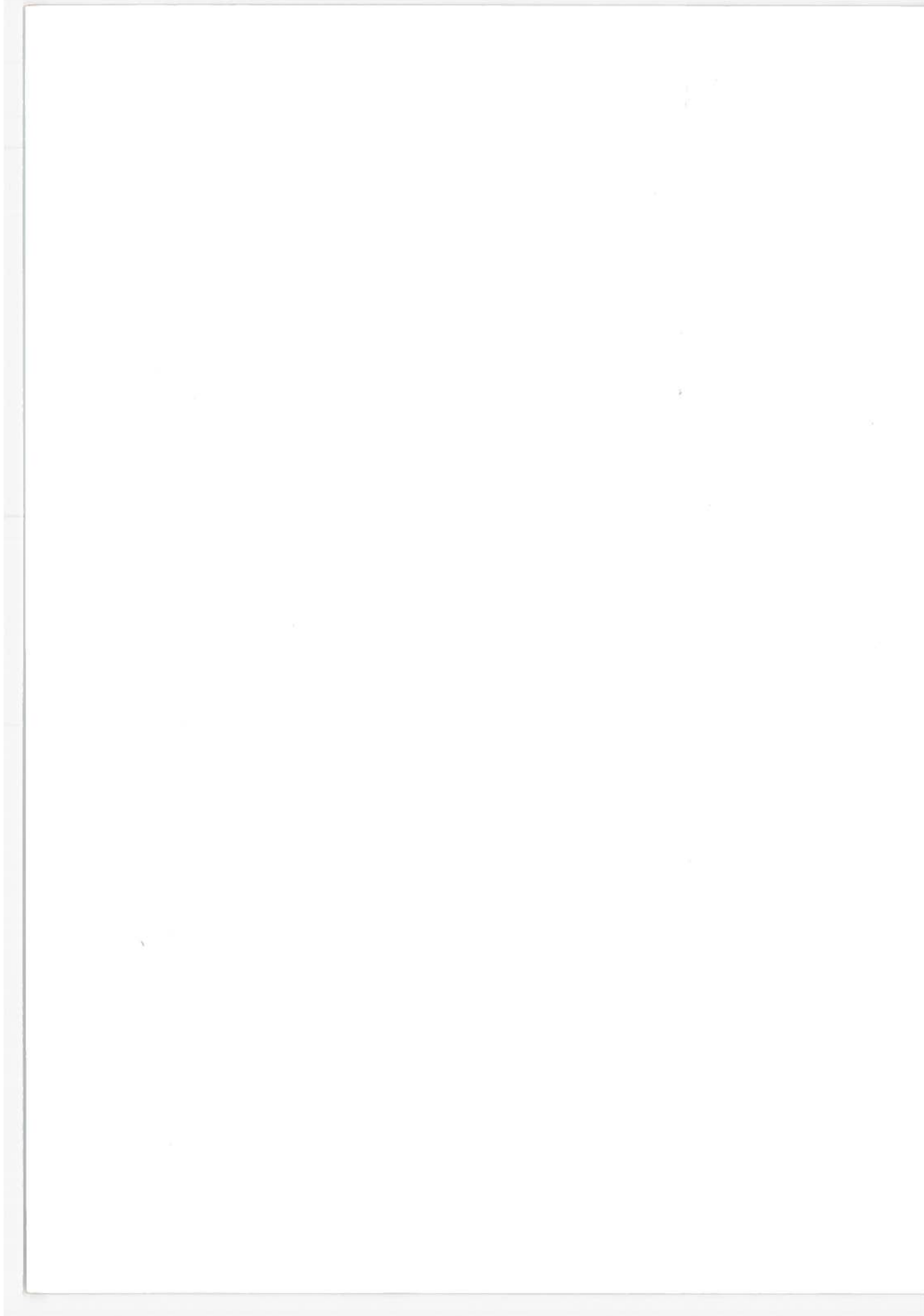
56	Check & adjust clutch	
57	Check battery cables & terminals	
58	Check and adjust all belts as required	
59	Lubricate clutch throwout bearing (if required)	H.T. Grease
60	Lubricate parking brake pins and linkage	SAE 30
61	Check hoist and body anchor bolts	

INTERVAL	ITEM	SERVICES TO BE PERFORMED BY MOTOR TRANSPORT SERVICE	LUBRICANT
	62	Check driveline joints for wear	
	63	Change fuel strainer (if used)	
	64	Clean breather on vacuum booster	
	65	Inspect & replace cooling system hoses as required	
	66	Replace PCV valve	
	67	Tune up engine to mfg's. recommendations	
	68	Check & adjust electrical system output	
	69	Check & adjust hydraulic system pressure	
EACH	70	Change transmission oil	HD-90
600	71	Change differential oil	HD-90
ENGINE	72	Change power steering filter	
HOURS	73	Lubricate speedometer adapter & cables	Chassis Grease & Graphite
	74	Check front wheel alignment	
	75	Check steering gear adjustment	
	76	Rotate & match tires	
	77	Check king pin assemblies for wear	

	78	Check tie-rod ends for wear	
EACH	79	Change oil in hoist/plow hydraulic system	SAE-10
600	80	Check hoist & body anchor bolts	
ENGINE	81	Tighten spring U-bolts	
HOURS	82	Check engine & transmission mounts	
	83	Check cab mounts	
	84	Check radiator mounts	
	85	Check upholstery & floor mat	
INTERVAL	ITEM	SERVICES TO BE PERFORMED BY MOTOR TRANSPORT SERVICE	LUBRICANT
	86	Steam clean chassis & body as required	
	87	Remove, clean & inspect air inlet system	
	88	Inspect brake drums, cylinders & linings for wear or damage	
EACH	89	Clean, inspect & repack wheel bearings	W.B. Grease
1200	90	Change hoist/plow hydraulic system filter	
ENGINE	91	Remove, clean, inspect & lubricate starter	SAE 30 (10W30 i in cold storage
HOURS	92	Remove, clean, inspect & lubricate alternator	
	93	Inspect fuel system for leaks or damage	
	94	Torque cylinder head to mfg's. specifications	
	95	Check valve lash & adjust as required	
	96	Inspect frame and cross members for cracks, loose bolts, etc.	
	97	Inspect suspension system & shock absorbers	

INTERVAL	ITEM	SERVICES TO BE PERFORMED BY MOTOR TRANSPORT SERVICE	LUBRICANTS
EACH 1200 ENGINE HOURS	98	Inspect cab & fender sheet metal for damage	
	99	Road test vehicle before release to using agency	

500 - Revised 6-6-74



APPENDIX E: COST OF DIESEL TRUCK OPERATION

INTRODUCTION

The Maine Department of Transportation carried out a fuel economy comparison study of diesel and gasoline patrol trucks. It is not possible to draw strict conclusions concerning the economic advantages of dieselizing a truck fleet from the results for a variety of reasons including:

- a. The effects of inflation on truck costs.
- b. The extraordinary and sharp increase in fuel costs over the study period.
- c. The trucks studied are still in service, i.e., they have not been worn out and retired.

However, operating costs of such trucks, as brought out by the Study, are of prime importance in any considerations of dieselizing a truck fleet. This memorandum derives operating costs for both diesel and gasoline trucks and gives the assumptions used.

Truck Life Expectancy and Use

The trucks in the Study had not yet been worn out. Maine DOT has, however, worn out many gasoline powered patrol trucks which are nearly identical to the trucks studied. The failure mode is usually general disintegration of the truck body. Diesel powered trucks, which, except for engine, are identical to gasoline powered trucks, should, therefore, have the same lifetime as gasoline powered trucks. Maine DOT gets 8,000 to 9,000 hours of service from a patrol truck before it is retired.

The data indicated that over the limited time of the Study, annual truck operating hours fell off as time progressed. Maine DOT says that this is not a result of truck aging but rather a general decline in truck usage due to other factors. For example, winter duty for these trucks is primarily snow plowing and is thus weather dependent. Summer duty is variable and may be subject to management decisions such as reducing monthly mileage totals. A

truck is normally used about 1200 hours per year. This, considered with the total hours of service above, gives a 7 year life expectancy.

Fuel Prices

Fuel prices doubled over the period of this Study. The last full year reported was 1975. The average fuel prices reported for 1975 was \$0.41 per gallon for diesel fuel and \$0.55 per gallon for gasoline. Fuel prices have been fairly stable since then so these prices will be assumed for the purposes of the cost analysis.

New Truck Prices

Inflation has significantly affected truck prices since the 1972 prices quoted in the Study. Since 1975 fuel prices are being used, it is reasonable to establish 1975 as the base year and estimate equivalent truck prices for that year. A truck manufacturer estimated that 25,000 lb. GVW dump truck prices increased 40% between 1972 and 1975. The adjusted truck prices are then \$9,500 for the gasoline powered truck and \$12,000 for the diesel powered truck.

Maintenance Costs

Diesel engines require only about half as much maintenance as gasoline engines. The bulk of the maintenance required by the trucks in the Study, however, was not associated with the engine. For example in FY 1975 there were 10 hours or roughly \$50 more labor on the average gasoline engine than on a diesel engine, while total truck maintenance was about \$700. Maintenance costs, moreover, are shown by the Study to be so sensitive to the truck's age that it is impossible to develop reliable maintenance cost data comparing diesel to gasoline powered trucks. For the purposes of this cost analysis, it is assumed that maintenance costs for both truck types is the same. It can be seen from the following table that the maintenance costs increase with truck age. The table is in 1975 dollars and the entries are estimates based on Study data.

<u>YEAR</u>	<u>LABOR</u>	<u>PARTS</u>	<u>TOTAL</u>
1	\$509	\$334	\$843
2	501	507	1008
3	732	752	1484
4	870	1348	2218
5	900	1350	2250
6	900	1350	2250
7	900	1350	2250

The discounted present value of life cycle costs of the truck can be calculated by the formula:

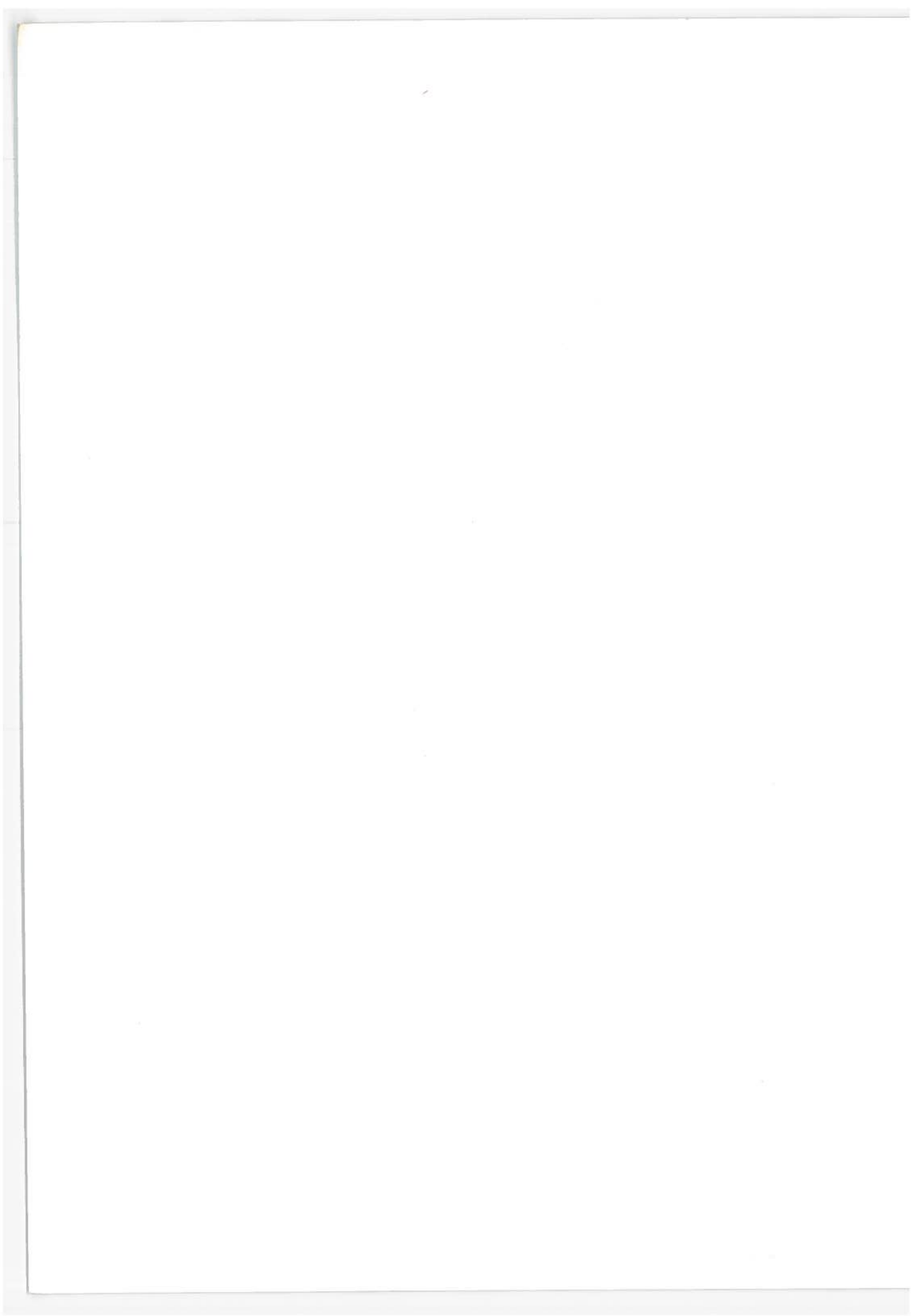
$$PV = \text{New Price} + \sum_{n=1}^7 \frac{(1200 \times \text{fuel cost/hr}) + \text{maintenance cost for year } n}{(1.1)^n}$$

The present values can be calculated using the assumptions and table above and the data found in the Study. The diesel and gasoline hourly fuel costs were \$1.07 and \$1.73 respectively. The fuel costs include oil and grease.

PV Diesel = \$26,303

PV Gasoline = \$27,667

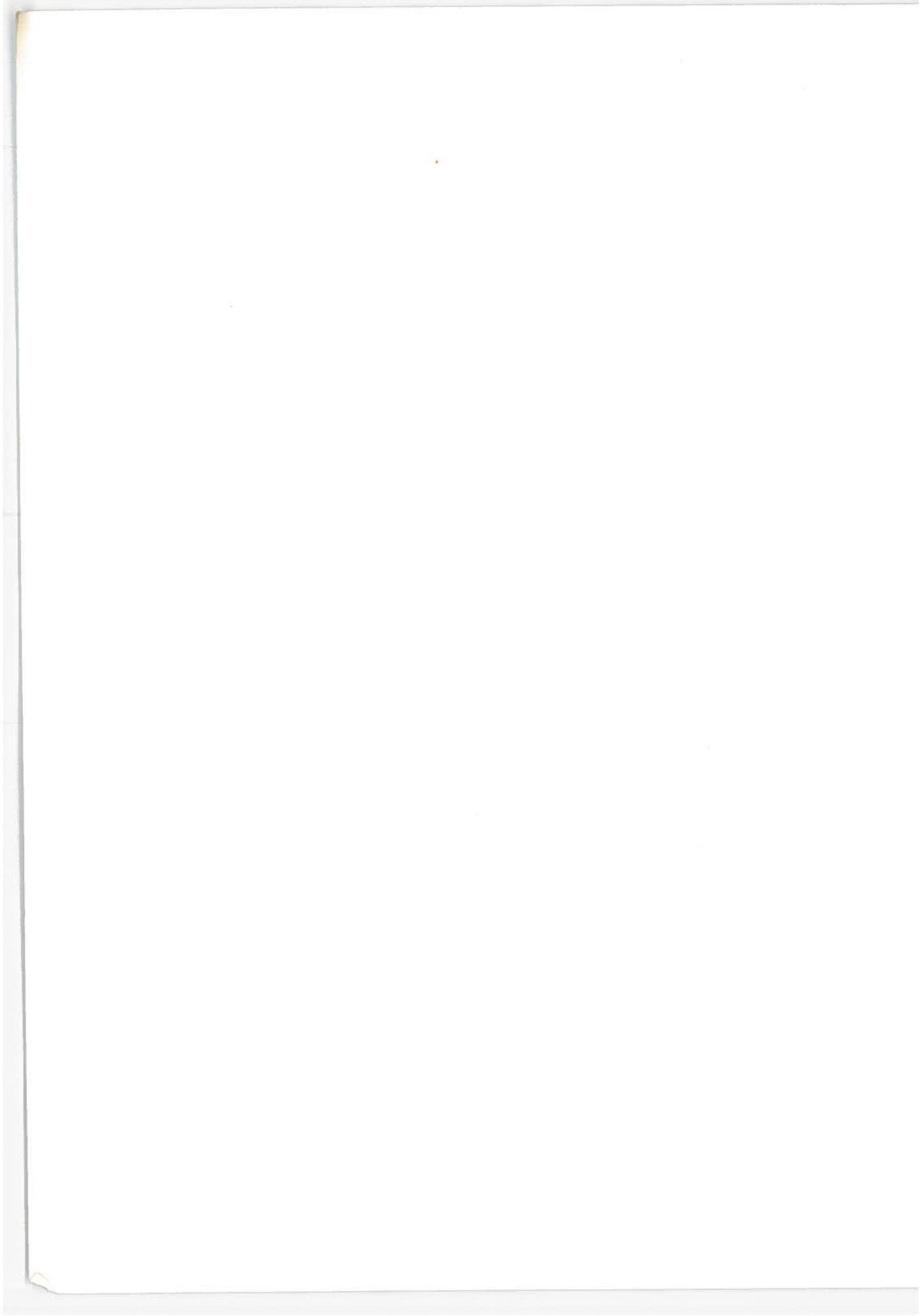
The diesel patrol truck can save \$1,346 in present value life cycle costs assuming a seven year lifetime. This value which is very sensitive to the assumptions above, is only 5.2% of the value of the gasoline truck. However, this value is believed to be on the conservative side for several reasons. A primary one is that this analysis assumed that maintenance costs for gasoline trucks were generally equal, while experience seems to indicate diesel maintenance to be less. This analysis also does not include an estimate of the scrappage value of the trucks since none of the truck studied have yet been scrapped. The diesel powered trucks are expected to have a higher relative scrap value. It is thus probable that the Maine DOT or similar truck fleet operators would save money by converting its 24,000 lb. class gasoline patrol trucks to diesels.



APPENDIX F: REPORT OF INVENTIONS

This report provides a comparative economic analysis of the operating and maintenance costs in diesel and gasoline trucks.

A diligent review of work performed under this contract has revealed no innovations, discoveries or improvements of inventions.



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