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PERFORMANCE CHARACTERISTICS OF AUTOMOTIVE ENGINES IN THE UNITED STATES

Second Series - Report No. 7

1977 Ford 171 CID (2.8 Liters), 2V

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INTERIM REPORT

Prepared for

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Washington DC 20590

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16. Abstract

Experimental data were obtained in dynamometer tests of a 1977 Ford 171 CID engine to determine fuel consumption and emissions (hydrocarbon, carbon monoxide, oxides of nitrogen) at steady-state engine-operating modes. The objective of the program is to obtain engine performance data for estimating emissions and fuel economy for varied engine service and duty. The intent of the work is to provide basic engine characteristic data required as input for engineering calculations involving ground transportation.

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PREFACE

This report, prepared by the U.S. Department of Energy, Bartlesville Energy Research Center, for the U.S. Department of Transportation, Transportation Systems Center, Energy Technology Branch, Cambridge MA, presents results of experimental work to obtain information on performance characteristics of an engine used in automobiles sold in the U.S. The engine used in this work is one of a series of 10 engines to be tested in the current program. This is the seventh of the reports to be published covering work with those engines.

This project is funded by the National Highway Traffic Safety Administration, Office of Research and Development, Office of Passenger Vehicle Research, Technology Assessment Division.

Ralph G. Colello and James A. Kidd, Jr., of the U.S. Department of Transportation, Transportation Systems Center, are the technical monitors.

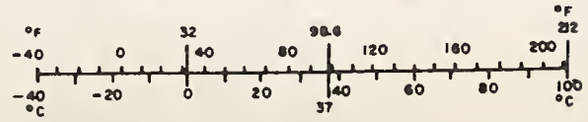
METRIC CONVERSION FACTORS

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			
in^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			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	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	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	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



1. INTRODUCTION

The objective of this program is to obtain engine performance data for estimating emissions and fuel economy for varied engine service and duty. The intent of this work is to provide basic engine characteristic data required as input for engineering calculations of fuel consumption and emissions involving ground transportation.

The data acquired from tests of a 1977 Ford 171 CID engine are presented in this report. This engine is used by Ford in Pinto wagon and Mustang II models (3,000-3,500 lb wt class vehicle). The test results are sufficient to establish steady-state maps for fuel consumption and emissions (carbon monoxide, unburned hydrocarbon, and oxides of nitrogen) over the entire operating range of the engine.

2. ENGINE TEST PROCEDURE

The engine test setup included a new mean-tolerance engine with the exception of a fan and a cooling tower which were used in place of the radiator. The alternator was included but was not wired into the engine's electrical system. The engine was equipped with emission control systems including a Thermactor air pump, an oxidation catalyst, and exhaust-gas recirculation (EGR). General engine specifications are listed in table 1. A single batch of unleaded regular grade gasoline was used throughout the breakin (table 2) and test; a detailed fuel analysis is given in table 3. The engine breakin consisted of 40 hours of engine operation on the dynamometer. The engine was operated at various speeds and loads designed to simulate road/load conditions (table 4). Engine testing began on 23 February and ended on 18 March 1977. The following data items were recorded at each test point:

Test number
Date
Barometric pressure, mm Hg
Dewpoint, °F
Inlet air temperature, °F
Speed, rpm
Torque, lb-ft -- BLH strain gage load cell; Daytronics indicator
Fuel rate, lb/hr -- Fluidyne positive displacement fuel flowmeter
Ignition timing, °BTC
Manifold vacuum, in. Hg
Throttle angle, deg.
CO, pct -- Beckman NDIR
CO_2, pct -- Beckman NDIR
O_2, pct -- Beckman polarographic detector
HC, ppmC -- Custom-built heated flame ionization detector
NO_x, ppm -- Thermo-Electron chemiluminescent detector
Oil temperature, °F
Oil pressure, psig
Coolant temperature, °F
Exhaust temperature, °F
Exhaust pressure, in. H_2O
Intake manifold temperature, °F.

The following equations were used in calculating power, air/fuel ratio, absolute humidity, and mass emission rates of carbon monoxide (CO), unburned hydrocarbons (HC), and oxides of nitrogen (NO_x):

1. Partial pressure of water vapor in intake air (millimeters of mercury):

$$P = \exp\left[18.717 - \frac{7308.1}{393 + D}\right],$$

where D = dewpoint, °F.

2. Absolute humidity (grains moisture per pound dry air):

$$H = \frac{4347.8(P)}{B - P},$$

where B = barometric pressure, mm Hg.

3. Humidity correction factor (dimensionless):

$$K_H = \frac{1}{1 - 0.0047(H - 75)}.$$

Note: This factor is used to correct the NO_x mass emission rate to a standard humidity of 75 grains moisture per pound dry air.

4. Stoichiometric air/fuel ratio (dimensionless):

$$AF_s = \frac{69\left(2 + \frac{x}{2} - y\right)}{MW_{fuel}},$$

where x = hydrogen-carbon atomic ratio of fuel,
y = oxygen-carbon atomic ratio of fuel,
MW_{fuel} = fuel molecular weight per carbon atom,
= 12.01115 + 1.00797x + 15.9994y.

5. Hydrogen concentration in raw exhaust (percent):

$$H_2 = \frac{x(CO)(CO + CO_2)}{2(CO + 3CO_2)}$$

where CO = carbon-monoxide concentration (percent),
CO_2 = carbon-dioxide concentration (percent).

Note: This equation assumes a water-gas shift equilibrium constant

$$\frac{(CO)(H_2O)}{(CO_2)(H_2)} = 3 .$$

6. Correction factor for emission concentrations from wet basis to dry basis (dimensionless):

$$C_W = 1 + \frac{(\frac{x}{2})(CO + CO_2) - H_2}{100} .$$

Note: In these tests only HC is measured on a wet basis. All other species are measured on a dry basis.

7. Air/fuel ratio (dimensionless):

$$AF = \frac{AF_S}{2 + \frac{x}{2} - y}\left[\frac{(1+ \frac{x}{2} - y)(CO) + (2 + \frac{x}{2} - y)(CO_2) + 2(O_2) + \frac{NO_x}{10^4} - H_2}{CO + CO_2 + C_W\,(\frac{HC}{10^4})}\right] ,$$

where O_2 = oxygen concentration (percent),
NO_x = oxides of nitrogen (ppm),
HC = unburned hydrocarbon concentration (ppmC).

8. Exhaust flow (pounds per hour):

$$M_{EX} = M_F(1 + AF) ,$$

where M_F = fuel flow rate (pounds per hour).

9. Carbon monoxide mass emission rate (grams per hour):

$$M_{CO} = \frac{M_{EX}}{C_W}(\frac{CO}{100})(\frac{MW_{CO}}{MW_{EX}})453.59237 ,$$

where MW_{CO} = molecular weight of CO (=28.01115),
MW_{EX} = molecular weight of exhaust gas (=28.967).

10. Unburned hydrocarbon mass emission rate (grams per hour):

$$M_{HC} = M_{EX}(\frac{HC}{10^6})(\frac{MW_{HC}}{MW_{EX}})\,453.59237 ,$$

where MW_{HC} = molecular weight per carbon atom of HC,
= 12.01115 + 1.00797x + 15.9994y.

11. Oxides of nitrogen mass emission rate (grams per hour):

$$m_{NO_x} = \frac{M_{EX}}{C_W}\left(\frac{NO_x}{10^6}\right)\left(\frac{MW_{NO_x}}{MW_{EX}}\right)(K_H)453.59237,$$

where MW_{NO_x} = molecular weight of NO_2 (=46.0028).

12. Power (brake horsepower corrected to a standard barometric pressure of 736.6 mm Hg and a standard temperature of 85° F):

$$HP = \frac{N(T)}{5252.113}\left(\frac{736.6}{B - P}\right)\sqrt{\frac{t + 460}{545}},$$

where N = engine speed (revolutions per minute),
T = brake torque (foot-pounds),
t = air temperature (°F).

3. DISCUSSION OF RESULTS

Maximum corrected brake horsepower, maximum corrected torque, and brake specific fuel consumption (bsfc) are plotted as a function of engine speed at wide-open-throttle (WOT) in figure 1. The maximum power output of the engine gave results similar to those quoted in table 1. The maximum torque was found at a slightly lower rpm, and the torque was slightly lower than the specified value. The minimum bsfc value and the maximum torque output from the engine occurred at the same engine speed. The conditions which promote the low bsfc and the maximum torque are thought to be operation at an air-fuel ratio near stoichiometric (figure 2). The fuel rate seems to be nearly linear for all speeds except 2,000 and 2,400 rpm.

The effect of the air-injection system on the calculation of air-fuel ratios can be seen in figure 3; these numbers do not reflect the actual stoichiometry in the combustion chamber. The air is injected into the exhaust gas stream for post-combustion oxidation of unburned hydrocarbons and carbon monoxide (figures 3 and 4). Both oxides of nitrogen and fuel rate increase with BHP. See figures 5 and 6.

4. CONCLUSIONS

The experimental work to obtain performance data for the Ford 171 CID engine has been completed and is presented in the tables accompanying this report.

TABLE 1. MANUFACTURER'S ENGINE SPECIFICATIONS

Displacement, cu. in.	171
Maximum horsepower, bhp @ 4,600 rpm	93
Maximum torque, lb-ft @ 2,800 rpm	141
Bore and stroke, in	3.66 x 2.70
Configuration	V-6
Compression ratio	8.7:1
Firing order	1-4-2-5-3-6
Ignition timing at idle speed, °BTDC @ 700 rpm	12
Block material	cast iron
Head material	cast iron
Number of crankshaft main bearings	4
Number of compression rings/piston	2
Number of oil rings/piston	1
Cam drive type	gear drive
Valve lift:	
Intake, in.	0.359
Exhaust, in.	0.357
Valve timing:	
Intake opens, °BTC	20
Intake closes, °ABC	56
Exhaust opens, °BBC	62
Exhaust closes, °ATC	14
Spark plug gap, in	0.034
Exhaust-gas-recirculation system:	
Valve type	tapered stem
Control signal	ported vacuum
Point of discharge	intake manifold
Crankcase emission control:	
Control method	positive crankcase ventilation
Point of discharge	intake manifold
Carburetor type	2V downdraft
Distributor specifications:*	
Centrifugal advance, begins, ° @ 600 rpm	0
Centrifugal advance, intermediate, ° @ 700 rpm	6.8
Centrifugal advance, full, ° @ 2,500 rpm	11
Vacuum advance, begins, ° @ 2 in. Hg	10
Vacuum advance, maximum, ° @ 8 in. Hg	16
Carburetor number	D-74E-9510AA
EGR valve number	9D475-D2A
Distributor number	76TF-12OO-EA-6BA

*Distributor rpm and deg.

TABLE 2. ENGINE BREAK-IN SCHEDULE

Simulated Vehicle Speed, mph	Engine Speed, rpm	Manifold Vacuum, in. Hg	Fraction of Time in Mode
0	Idle	15	1/10
20	1,350	14.6	"
30	1,600	13.9	"
40	1,950	9.4	"
50	2,250	8.5	"
25	1,500	14.0	"
35	1,800	9.5	"
45	2,050	9.3	"
55	2,550	8.0	"
60	2,750	7.0	"

Time per cycle = 2-1/2 hours.
Mileage per cycle = 90 miles.
Total mileage accumulated over the 40-hour break-in period = 1,440 miles.

TABLE 3. FUEL SPECIFICATIONS

Fuel No.	7619
Research octane No.	91.5
Motor octane No.	83.5
Specific gravity, deg.	0.7161
API gravity, degrees.	66.1
Distillation, °F:	
10 pct evaporated.	128
50 pct " .	218
95 pct " .	404
100 pct " .	417
Reid vapor pressure, psig.	9.5
FIA analysis, pct:	
Aromatics.	6
Olefins.	17
Paraffins.	77
Sulfur, pct.	0.024
Lead, g/gal.	Trace
Hydrogen/carbon atomic ratio.	2.040
Oxygen/carbon atomic ratio.	0.000

TABLE 4. TEST-NUMBER CROSS-REFERENCE INDEX

Pct Full Load	Engine Speed, rpm								
	750	1,000	1,600	2,000	2,400	2,800	3,200	3,600	4,600
0	1 71 141*	14 84	22 92	30 100	38 108	46 113	54 118	62 123	70
10	2 72 142*	13 83	91	29 99	37 107	45	53	61	69
25	3 73 143*	82	20 90	28 98	36 106	44 112	52 117	60 122	68 127
40		11 81	19 89	27 97	35	43 111	51 116	59 121	67 126
60	4** 74 144*	10 80	18 88	26 96	34 104	42 110	115	58 120	66 125
75	5** 75 145*	9 79	17 87	25 95	33 103	41 109	49 114	57 119	65 124
90	6** 76 146*	8 78	16 86	24 94	32	40	48 134	56	64
100		7 149	15	23	31	39	47	55	63

*With air.
**Idles at 0, 20, 30 ft-lb.

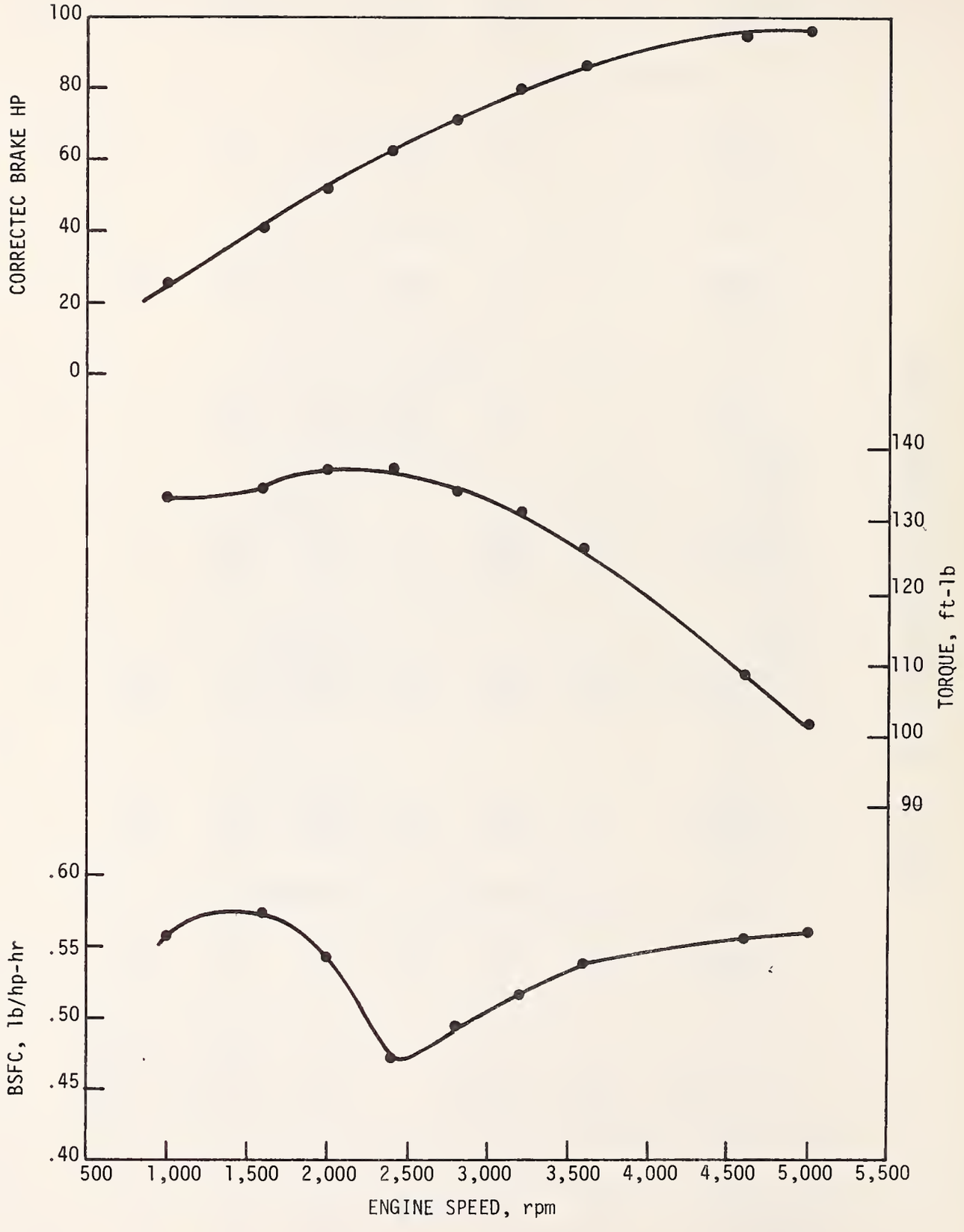


FIGURE 1. Brake Specific Fuel Consumption, Torque, and Brake Horsepower versus Engine rpm at Wide-Open-Throttle--1977 Ford 2.8 liter Engine.

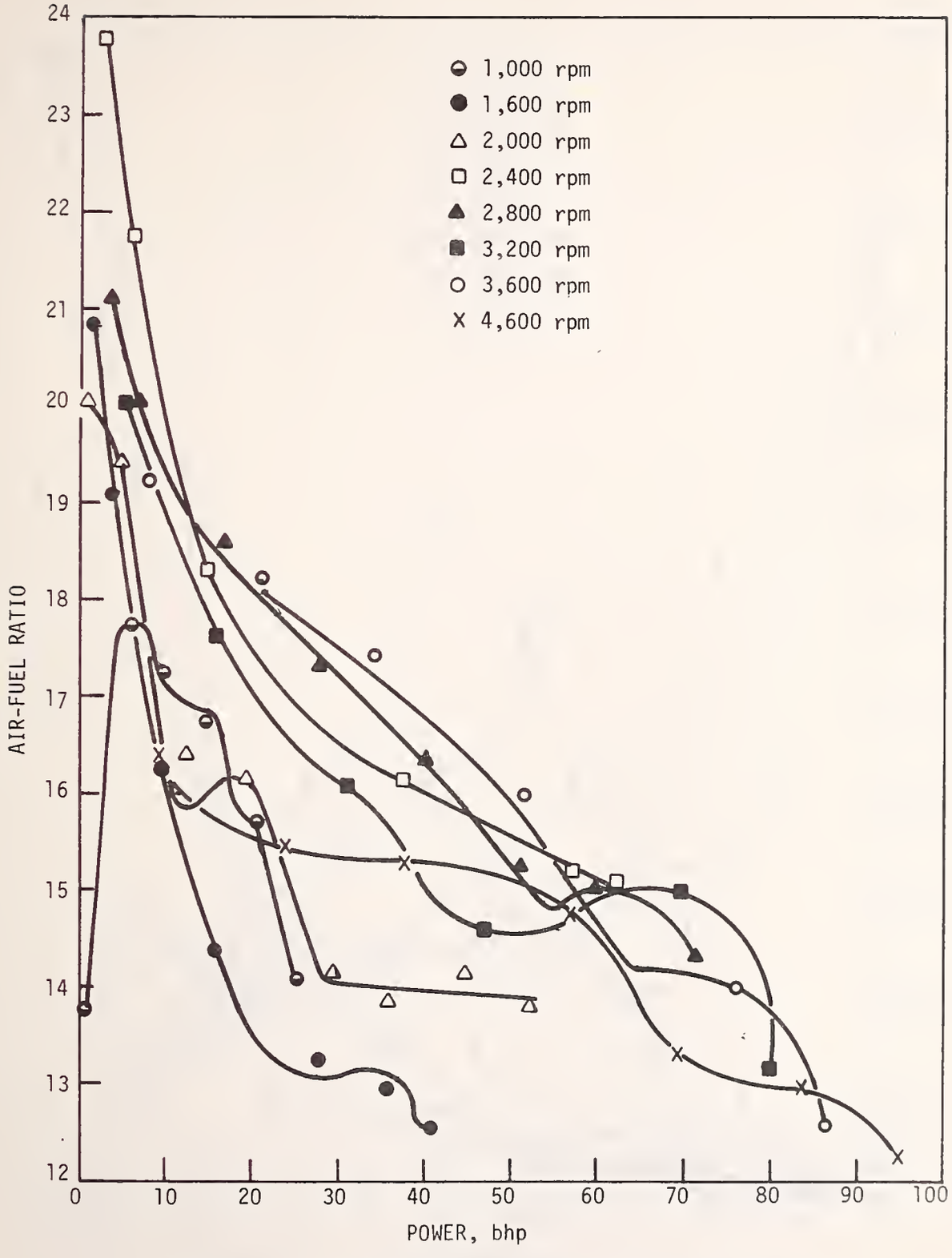


FIGURE 2. Air/Fuel Ratio versus Power at Various Speed and Load Conditions--1977 Ford 2.8 liter Engine.

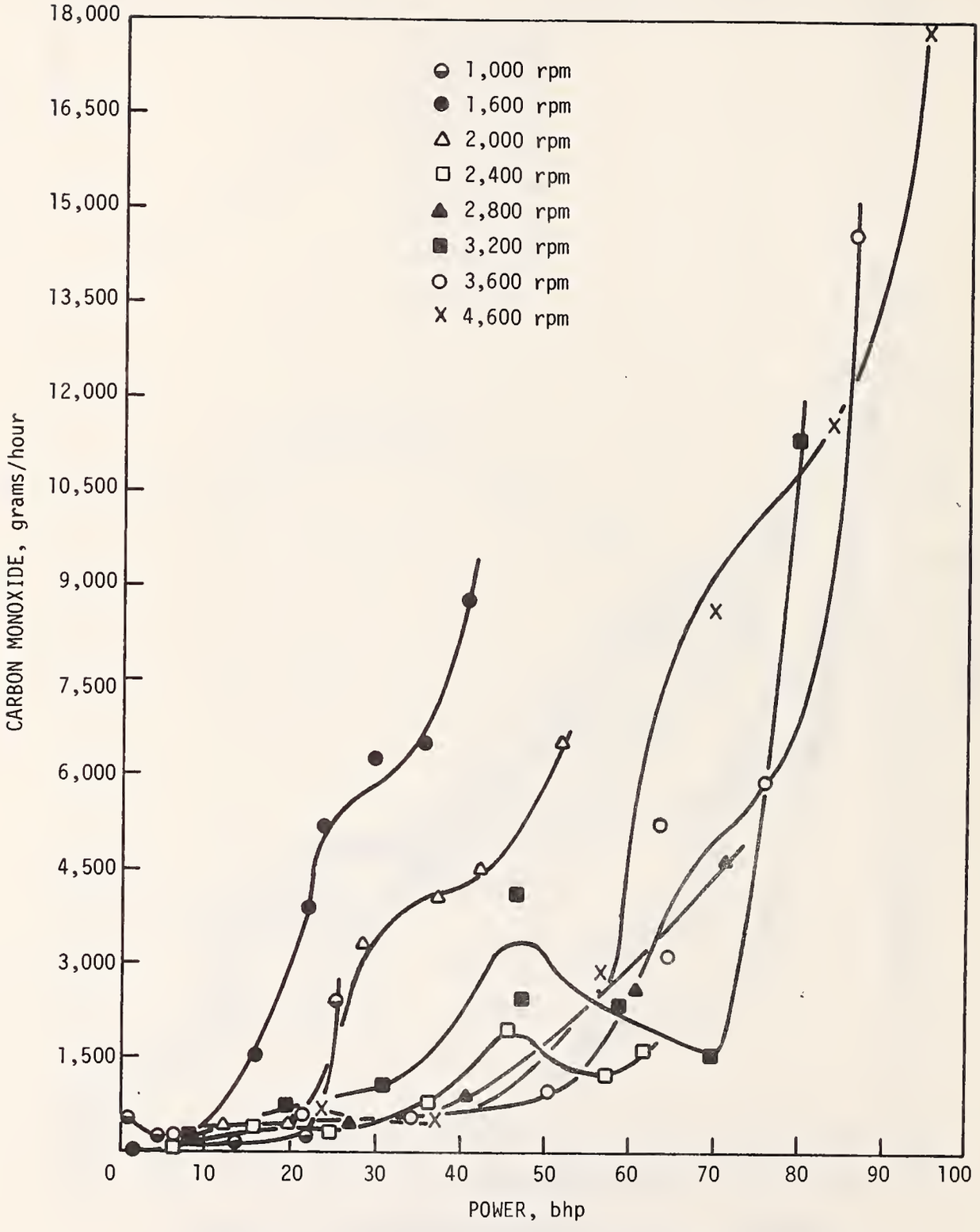


FIGURE 3. Carbon Monoxide Emissions versus Power at Various Speed and Load Conditions--1977 Ford 2.8 liter Engine.

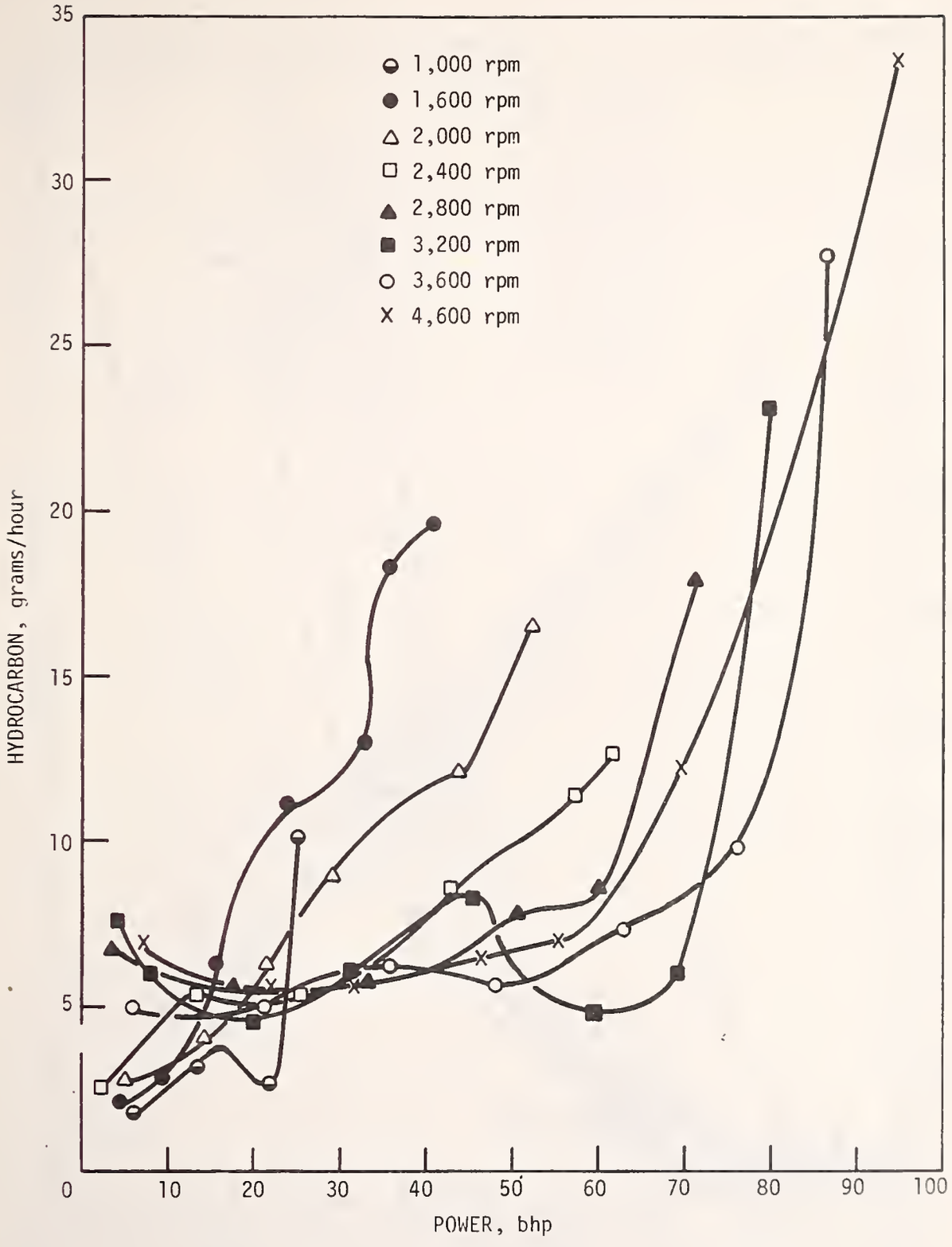


FIGURE 4. Hydrocarbon Emissions versus Power at Various Speed and Load Conditions--1977 Ford 2.8 liter Engine.

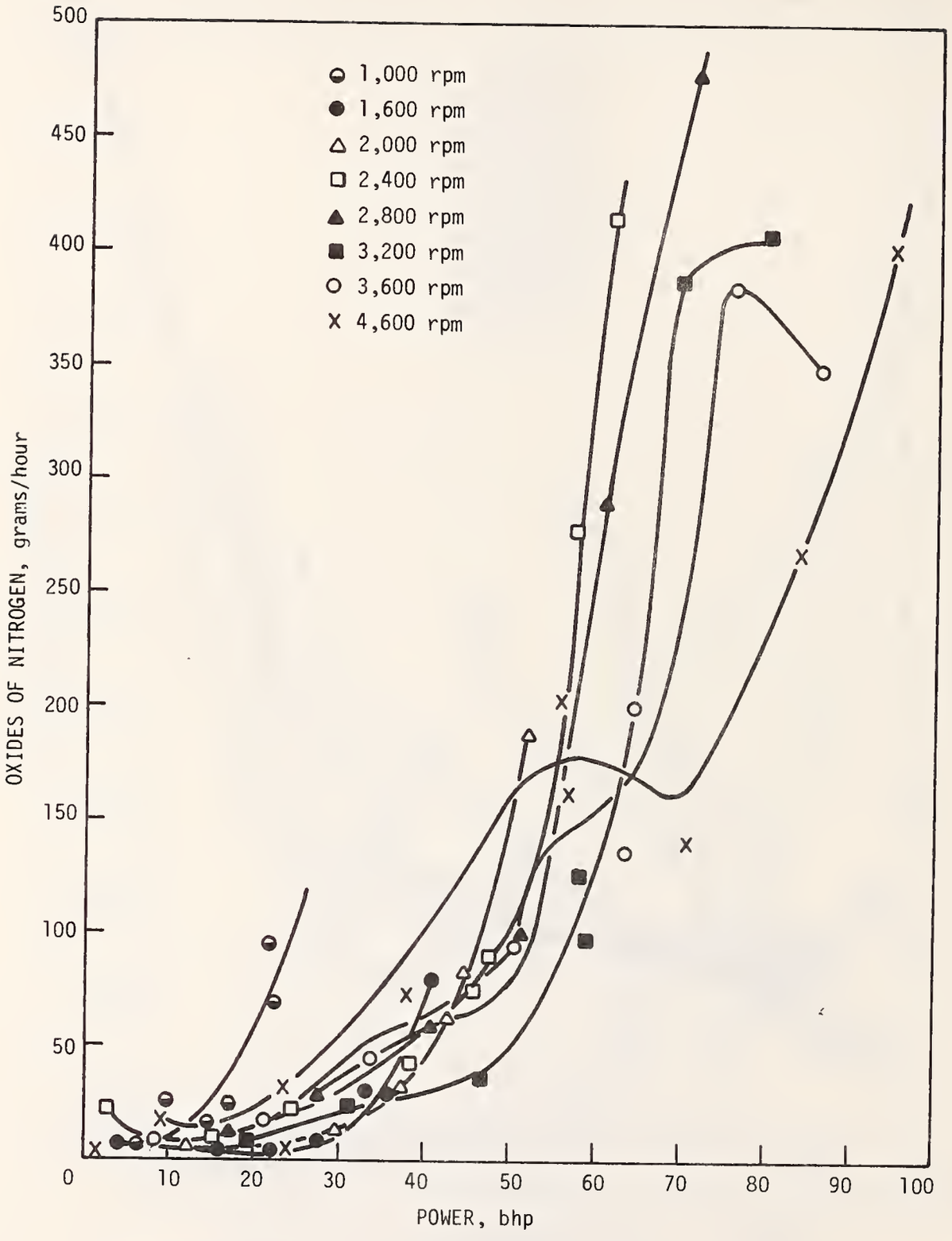


FIGURE 5. Oxides of Nitrogen Emissions versus Power at Various Speed and Load Conditions-- 1977 Ford 2.8 liter Engine.

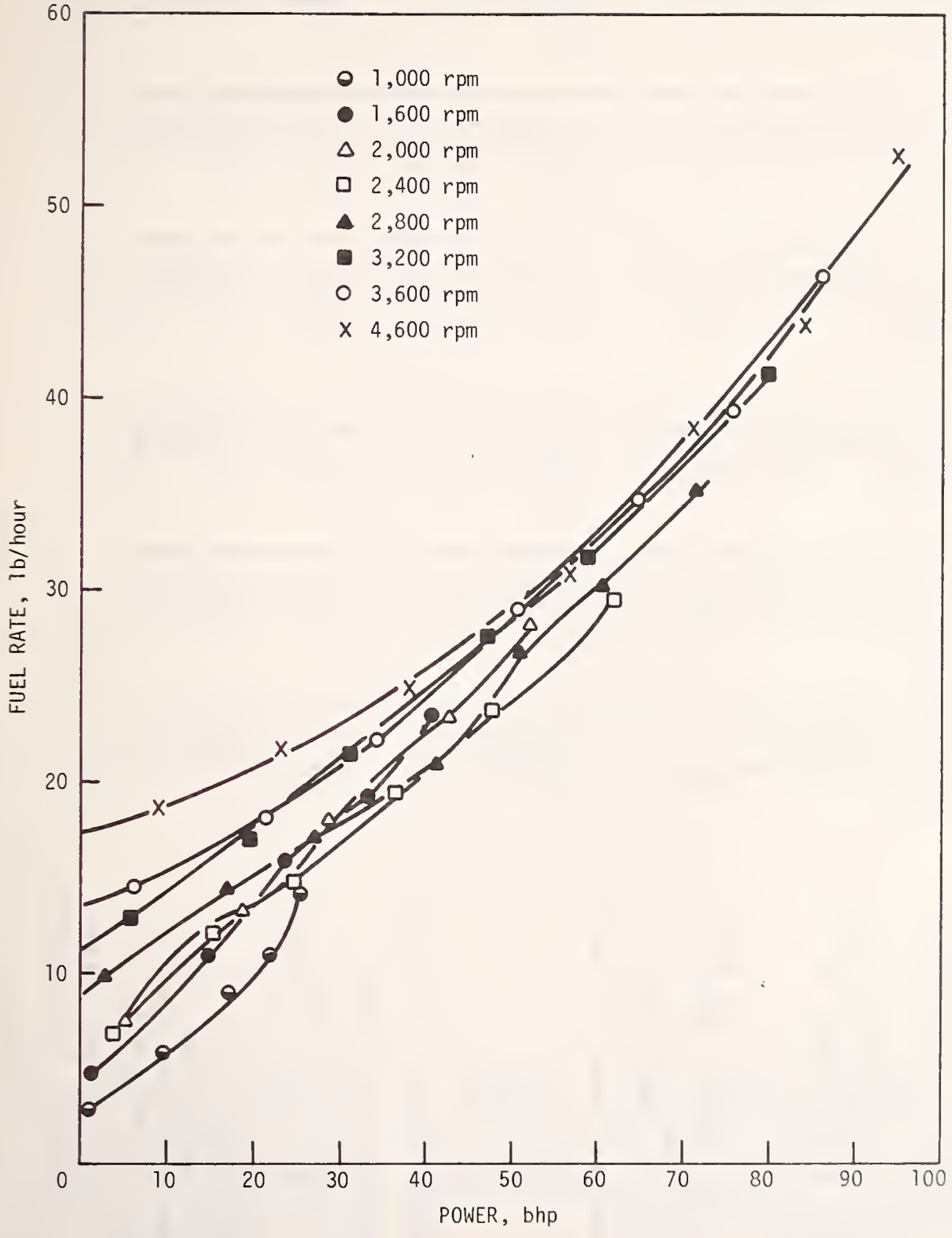


FIGURE 6. Fuel Rate versus Power at Various Speed and Load Conditions--1977 Ford 2.8 liter Engine.

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	1.1	1.2	2.1	2.2	3.1	3.2
TEST DATE	2/23/77	2/23/77	2/23/77	2/23/77	2/23/77	2/23/77
BAROMETER, MMHG	742.4	742.4	742.4	742.4	742.4	742.4
HUMIDITY, GRAINS/LB	51	51	51	51	51	51
TEMPERATURE, F	75	61	64	64	66	66
ENGINE SPEED, RPM	750	750	750	750	750	750
TORQUE, FT-LB	3.3	3.3	10.0	10.0	20.0	20.0
POWER, BHP*	.5	.5	1.4	1.4	2.8	2.8
FUEL RATE, LB/HR	2.4	2.4	2.5	2.5	2.8	2.8
IGNITION TIMING, DEG BTDC	23.0	23.0	23.0	23.0	23.0	23.0
MANIFOLD VACUUM, IN HG	20.0	20.0	18.7	18.7	17.1	17.1
THROTTLE ANGLE, DEG	.0	.0	.5	.5	1.0	1.0
INTAKE MAN. TEMP., F	96	96	96	96	96	96
CONCENTRATIONS, DRY BASIS						
CO, %	6.2700	6.4200	5.1000	5.1000	3.7000	3.5000
CO2, %	10.70	11.10	11.55	11.80	12.40	12.90
O2, %	.95	.55	.90	.45	.95	.45
HC, PPMC	1145	1150	861	863	632	634
NOX, PPM	44	51	60	69	105	125
AIR/FUEL RATIO	12.65	12.43	13.13	12.90	13.76	13.57
EMISSION RATES, G/HR						
CO	786.1	777.9	675.6	662.3	581.5	541.6
HC	7.2	7.0	5.7	5.6	5.0	4.9
NOX+	.8	.9	1.2	1.3	2.4	2.9
OIL TEMPERATURE, F	162	162	171	171	173	173
OIL PRESSURE, PSI	20	20	16	16	16	16
COOLANT TEMPERATURE, F	184	186	186	186	188	188
EXHAUST PRESSURE, IN. H2O	.0	.0	.0	.0	.0	.0
EXHAUST TEMPERATURE, F	419	381	408	335	433	336

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	4.1	4.2	5.1	5.2	6.1	6.2
TEST DATE	2/23/77	2/23/77	2/23/77	2/23/77	2/23/77	2/23/77
BAROMETER, MMHG	742.4	742.4	742.4	742.4	742.4	742.4
HUMIDITY, GRAINS/LB	51	51	51	51	49	51
TEMPERATURE, F	67	66	66	66	67	67
ENGINE SPEED, RPM	700	700	700	700	700	700
TORQUE, FT-LB	10.4	10.4	20.0	20.0	30.0	30.0
POWER, BHP*	1.4	1.4	2.6	2.6	3.9	3.9
FUEL RATE, LB/HR	2.3	2.3	2.6	2.7	3.0	2.9
IGNITION TIMING, DEG BTDC	23.0	23.0	23.0	23.0	23.0	23.0
MANIFOLD VACUUM, IN HG	18.5	18.5	17.1	17.0	15.7	15.7
THROTTLE ANGLE, DEG	.0	.0	1.0	1.0	1.5	1.5
INTAKE MAN. TEMP., F	96	96	96	96	96	96
CONCENTRATIONS, DRY BASIS						
CO, %	5.6500	5.6500	3.5000	3.6000	3.0000	2.9000
CO2, %	11.00	11.40	12.40	12.70	13.00	13.30
O2, %	1.05	.45	1.10	.45	.75	.50
HC, PPMC	824	827	620	622	656	646
NOX, PPM	55	63	110	118	250	260
AIR/FUEL RATIO	12.97	12.68	13.93	13.52	13.95	13.85
EMISSION RATES, G/HR						
CO	693.5	691.9	521.9	534.8	508.4	471.1
HC	5.1	5.1	4.6	4.6	5.6	5.3
NOX+	1.0	1.1	2.4	2.6	6.2	6.2
OIL TEMPERATURE, F	173	174	172	172	154	154
OIL PRESSURE, PSI	15	15	15	15	15	15
COOLANT TEMPERATURE, F	186	185	185	186	180	188
EXHAUST PRESSURE, IN. H2O	.0	.0	.0	.0	.0	.0
EXHAUST TEMPERATURE, F	397	390	406	409	487	545

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	7.1	7.2	8.1	8.2	9.1	9.2
TEST DATE	3/21/77	3/21/77	4/12/77	4/12/77	2/23/77	2/23/77
BAROMETER, MMHG	748.0	748.0	746.7	746.7	742.4	742.4
HUMIDITY, GRAINS/LB	65	65	56	56	51	51
TEMPERATURE, F	83	83	65	65	65	66
ENGINE SPEED, RPM	1000	1000	1000	1000	1000	1000
TORQUE, FT-LB	133.0	133.0	118.0	118.0	91.0	91.0
POWER, BHP*	25.3	25.3	22.0	22.0	17.1	17.1
FUEL RATE, LB/HR	13.7	14.1	11.3	11.2	9.1	9.0
IGNITION TIMING, DEG BTDC	12.0	12.0	12.0	12.0	11.0	11.0
MANIFOLD VACUUM, IN HG	.3	.3	2.0	2.0	3.2	3.2
THROTTLE ANGLE, DEG	75.0	75.0	18.0	18.0	13.0	13.0
INTAKE MAN. TEMP., F	88	88	88	88	96	97
CONCENTRATIONS, DRY BASIS						
CO, %	4.6500	2.9500	2.7000	.3300	2.9500	.3700
CO2, %	9.45	12.10	10.85	14.60	11.40	14.25
O2, %	3.38	.93	3.50	1.13	3.25	1.50
HC, PPMC	315	246	214	63	329	184
NOX, PPM	650	680	640	655	250	280
AIR/FUEL RATIO	14.83	14.08	15.98	15.42	15.60	15.64
EMISSION RATES, G/HR						
CO	3942.3	2413.3	2015.3	231.2	1716.7	212.8
HC	13.4	10.1	8.0	2.2	9.6	5.3
NOX+	86.6	87.4	72.3	69.4	21.5	23.8
OIL TEMPERATURE, F	171	171	150	150	180	180
OIL PRESSURE, PSI	25	25	25	25	20	20
COOLANT TEMPERATURE, F	197	197	182	182	193	193
EXHAUST PRESSURE, IN. H2O	19.0	11.0	15.0	8.0	11.0	8.0
EXHAUST TEMPERATURE, F	806	1192	794	1141	791	1124

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	10.1	10.2	11.1	11.2	13.1	13.2
TEST DATE	2/23/77	2/23/77	2/23/77	2/23/77	2/23/77	2/23/77
BAROMETER, MMHG	742.4	742.4	742.4	742.4	742.4	742.4
HUMIDITY, GRAINS/LB	51	51	51	51	51	51
TEMPERATURE, F	67	67	78	78	68	68
ENGINE SPEED, RPM	1000	1000	1000	1000	1000	1000
TORQUE, FT-LB	72.6	72.6	48.0	48.0	12.0	12.0
POWER, BHP*	13.6	13.6	9.1	9.1	2.3	2.3
FUEL RATE, LB/HR	7.1	7.2	6.0	6.0	3.1	3.1
IGNITION TIMING, DEG BTDC	22.0	22.0	22.0	22.0	23.0	23.0
MANIFOLD VACUUM, IN HG	9.0	9.0	12.5	12.5	18.7	18.7
THROTTLE ANGLE, DEG	7.5	7.5	5.0	5.0	2.0	2.0
INTAKE MAN. TEMP., F	96	96	96	96	119	119
CONCENTRATIONS, DRY BASIS						
CO, %	1.9000	.2500	3.7000	.1700	2.4000	2.3200
CO2, %	11.00	12.85	9.00	13.30	13.60	13.60
O2, %	4.45	3.20	5.50	2.70	.55	.50
HC, PPMC	304	181	312	142	410	398
NOX, PPM	440	445	280	320	113	115
AIR/FUEL RATIO	17.18	17.08	17.00	16.69	14.10	14.11
EMISSION RATES, G/HR						
CO	954.5	125.3	1571.4	69.7	429.2	413.9
HC	7.7	4.6	6.7	2.9	3.7	3.6
NOX+	32.6	32.9	17.6	19.4	3.0	3.0
OIL TEMPERATURE, F	184	184	185	185	175	175
OIL PRESSURE, PSI	20	20	20	20	21	21
COOLANT TEMPERATURE, F	192	191	189	189	178	178
EXHAUST PRESSURE, IN. H2O	9.0	5.0	6.0	4.0	1.0	.0
EXHAUST TEMPERATURE, F	696	926	599	1082	522	486

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	14.1	14.2	15.1	15.2	16.1	16.2
TEST DATE	2/24/77	2/24/77	3/21/77	3/21/77	3/ 9/77	3/ 9/77
BAROMETER, MMHG	737.0	737.0	748.0	748.0	738.1	738.1
HUMIDITY, GRAINS/LB	25	25	65	65	40	40
TEMPERATURE, F	75	75	85	85	73	73
ENGINE SPEED, RPM	1000	1000	1600	1600	1600	1600
TORQUE, FT-LB	2.5	2.5	134.0	134.0	110.0	110.0
POWER, BHP*	.5	.5	40.8	40.8	33.4	33.4
FUEL RATE, LB/HR	2.8	2.8	23.3	23.4	19.3	19.3
IGNITION TIMING, DEG BTDC	23.0	23.0	28.0	28.0	28.0	28.0
MANIFOLD VACUUM, IN HG	20.0	20.0	.4	.4	2.5	2.5
THROTTLE ANGLE, DEG	1.5	1.5	75.0	75.0	25.0	25.0
INTAKE MAN. TEMP., F	116	116	83	83	88	88
CONCENTRATIONS, DRY BASIS						
CO, %	2.9500	2.4700	7.6500	7.1700	6.4200	5.3500
CO2, %	12.10	12.85	7.80	9.30	9.00	10.70
O2, %	.75	.70	3.25	1.50	3.45	1.55
HC, PPMC	628	654	324	317	287	239
NOX, PPM	65	68	440	410	160	200
AIR/FUEL RATIO	13.91	14.11	13.20	12.54	13.98	13.40
EMISSION RATES, G/HR						
CO	470.3	397.9	9921.0	8804.9	7223.1	5715.7
HC	5.0	5.3	21.1	19.6	16.2	12.8
NOX+	1.4	1.5	89.6	79.1	25.5	30.2
OIL TEMPERATURE, F	179	172	200	200	196	196
OIL PRESSURE, PSI	20	20	28	28	30	30
COOLANT TEMPERATURE, F	166	166	191	191	173	173
EXHAUST PRESSURE, IN. H2O	.0	.0	41.0	24.0	35.0	20.0
EXHAUST TEMPERATURE, F	570	624	946	1301	863	1273

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6

FUEL CODE: 7619

TEST NUMBER	17.1	17.2	18.1	18.2	19.1	19.2
TEST DATE	3/ 9/77	3/ 9/77	3/ 9/77	3/ 9/77	3/ 9/77	3/ 9/77
BAROMETER, MMHG	738.1	738.1	738.1	738.1	738.1	738.1
HUMIDITY, GRAINS/LB	40	40	40	40	40	40
TEMPERATURE, F	73	73	73	73	81	81
ENGINE SPEED, RPM	1600	1600	1600	1600	1600	1600
TORQUE, FT-LB	91.5	91.5	73.2	73.2	48.8	48.8
POWER, BHP*	27.8	27.8	22.2	22.2	14.9	14.9
FUEL RATE, LB/HR	16.6	16.7	14.2	14.2	11.0	11.0
IGNITION TIMING, DEG BTDC	28.0	28.0	32.0	32.0	41.0	40.0
MANIFOLD VACUUM, IN HG	4.1	4.1	6.0	6.0	11.0	9.0
THROTTLE ANGLE, DEG	17.0	17.0	13.5	13.5	9.0	9.0
INTAKE MAN. TEMP., F	103	103	124	124	120	120
CONCENTRATIONS, DRY BASIS						
CO, %	7.3500	5.8500	7.1700	4.8700	7.1700	1.6500
CO2, %	8.25	10.20	7.80	10.80	7.00	13.60
O2, %	3.63	1.70	4.25	1.60	5.25	.75
HC, PPMC	326	273	346	262	476	190
NOX, PPM	40	58	28	38	19	39
AIR/FUEL RATIO	13.61	13.24	14.04	13.61	14.64	14.55
EMISSION RATES, G/HR						
CO	6946.0	5370.2	6027.6	3905.1	4899.4	1072.6
HC	15.5	12.6	14.6	10.5	16.3	6.2
NOX+	5.3	7.5	3.3	4.3	1.8	3.6
OIL TEMPERATURE, F	188	188	180	180	176	176
OIL PRESSURE, PSI	34	34	35	35	38	38
COOLANT TEMPERATURE, F	170	170	168	168	166	166
EXHAUST PRESSURE, IN. H2O	29.0	16.0	24.0	13.0	20.0	9.0
EXHAUST TEMPERATURE, F	812	1313	750	1377	673	1502

* CORRECTED SAE J8168

\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	20.1	20.2	22.1	22.2	23.1	23.2
TEST DATE	2/24/77	2/24/77	2/24/77	2/24/77	3/21/77	3/21/77
BAROMETER, MMHG	737.0	737.0	737.0	737.0	748.0	748.0
HUMIDITY, GRAINS/LB	25	25	25	25	65	65
TEMPERATURE, F	80	84	75	75	82	82
ENGINE SPEED, RPM	1600	1600	1600	1600	2000	2000
TORQUE, FT-LB	32.0	32.0	4.2	4.2	137.0	137.0
POWER, BHP*	9.8	9.8	1.3	1.3	52.0	52.0
FUEL RATE, LB/HR	9.2	9.2	4.8	4.9	28.4	28.2
IGNITION TIMING, DEG BTDC	38.0	38.0	40.0	40.0	28.0	28.0
MANIFOLD VACUUM, IN HG	15.7	15.7	21.0	21.0	.4	.4
THROTTLE ANGLE, DEG	7.5	7.5	3.5	3.5	75.0	75.0
INTAKE MAN. TEMP., F	94	94	90	90	68	68
CONCENTRATIONS, DRY BASIS						
CO, %	6.2700	.2900	2.4700	.0650	5.6700	4.1000
CO2, %	6.82	13.60	7.40	10.45	9.45	11.55
O2, %	6.25	2.25	8.75	6.50	3.38	1.25
HC, PPMC	342	91	414	166	282	206
NOX, PPM	79	115	29	61	590	750
AIR/FUEL RATIO	15.94	16.26	21.69	20.81	14.33	13.79
EMISSION RATES, G/HR						
CO	3886.5	176.8	1091.5	27.3	9578.7	6556.6
HC	10.6	2.8	9.2	3.5	23.9	16.5
NOX+	6.5	9.3	1.7	3.4	156.6	188.4
OIL TEMPERATURE, F	178	184	174	174	200	200
OIL PRESSURE, PSI	35	35	37	37	40	40
COOLANT TEMPERATURE, F	189	189	174	178	193	193
EXHAUST PRESSURE, IN. H2O	17.0	8.0	3.0	5.0	66.0	38.0
EXHAUST TEMPERATURE, F	651	1467	951	605	1008	1333

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	24.1	24.2	25.1	25.2	26.1	26.2
TEST DATE	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77
BAROMETER, MMHG	737.0	737.0	737.0	737.0	737.0	737.0
HUMIDITY, GRAINS/LB	25	25	25	25	25	25
TEMPERATURE, F	75	76	76	76	75	75
ENGINE SPEED, RPM	2000	2000	2000	2000	2000	2000
TORQUE, FT-LB	112.5	112.5	93.7	93.7	75.0	75.0
POWER, BHP*	42.7	42.7	35.6	35.6	28.4	28.4
FUEL RATE, LB/HR	23.2	23.3	21.0	21.0	18.4	18.1
IGNITION TIMING, DEG BTDC	30.0	30.0	28.0	28.0	30.0	30.0
MANIFOLD VACUUM, IN HG	2.2	2.2	3.7	3.7	5.5	5.5
THROTTLE ANGLE, DEG	32.0	32.0	22.5	22.5	15.2	15.2
INTAKE MAN. TEMP., F	80	80	101	101	123	123
CONCENTRATIONS, DRY BASIS						
CO, %	5.3500	3.4000	6.2700	3.6000	7.1700	3.2200
CO2, %	9.82	12.55	9.00	12.40	8.25	12.70
O2, %	3.30	.85	3.30	.90	3.70	.90
HC, PPMC	283	184	287	201	331	190
NOX, PPM	430	360	128	160	50	77
AIR/FUEL RATIO	14.44	13.87	13.95	13.81	13.73	13.97
EMISSION RATES, G/HR						
CO	7426.1	4496.0	7671.1	4279.0	7583.5	3324.4
HC	19.7	12.2	17.6	12.0	17.6	9.8
NOX+	79.4	63.3	20.8	25.3	7.0	10.6
OIL TEMPERATURE, F	199	202	206	204	198	196
OIL PRESSURE, PSI	36	36	36	36	40	40
COOLANT TEMPERATURE, F	191	193	188	187	182	180
EXHAUST PRESSURE, IN. H2O	54.0	32.0	45.0	26.0	38.0	20.0
EXHAUST TEMPERATURE, F	995	1447	949	1459	872	1501

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	27.1	27.2	28.1	28.2	29.1	29.2
TEST DATE	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77
BAROMETER, MMHG	737.0	737.0	737.0	737.0	737.0	737.0
HUMIDITY, GRAINS/LB	25	25	25	25	25	25
TEMPERATURE, F	74	73	82	78	78	81
ENGINE SPEED, RPM	2000	2000	2000	2000	2000	2000
TORQUE, FT-LB	50.0	50.0	31.2	31.2	12.5	12.5
POWER, BHP*	18.9	18.9	11.9	11.9	4.8	4.8
FUEL RATE, LB/HR	13.6	13.2	12.2	12.3	7.3	7.5
IGNITION TIMING, DEG BTDC	39.0	39.0	38.0	38.0	39.0	39.0
MANIFOLD VACUUM, IN HG	8.5	8.5	12.6	12.6	19.5	19.5
THROTTLE ANGLE, DEG	12.2	12.2	9.5	9.5	6.0	6.0
INTAKE MAN. TEMP., F	157	157	160	160	113	113
CONCENTRATIONS, DRY BASIS						
CO, %	5.2500	.4200	6.8500	.4700	3.0000	.1080
CO2, %	7.80	13.60	6.65	14.16	8.25	11.55
O2, %	5.50	2.20	6.25	1.05	7.50	5.50
HC, PPMC	316	126	728	86	226	89
NOX, PPM	31	64	12	43	90	143
AIR/FUEL RATIO	16.02	16.14	15.50	15.30	19.47	19.37
EMISSION RATES, G/HR						
CO	4822.4	364.0	5494.5	360.2	1793.2	64.3
HC	14.6	5.5	29.3	3.3	6.8	2.7
NOX+	3.8	7.4	1.3	4.4	7.2	11.3
OIL TEMPERATURE, F	192	190	183	186	191	191
OIL PRESSURE, PSI	.40	40	42	42	40	40
COOLANT TEMPERATURE, F	177	177	188	188	183	182
EXHAUST PRESSURE, IN. H2O	29.0	16.0	22.0	12.0	12.0	7.0
EXHAUST TEMPERATURE, F	793	1475	738	1675	772	1175

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	30.1	30.2	31.1	31.2	32.1	32.2
TEST DATE	2/24/77	2/24/77	3/21/77	3/21/77	3/18/77	3/18/77
BAROMETER, MMHG	737.0	737.0	748.0	748.0	737.0	737.0
HUMIDITY, GRAINS/LB	25	25	65	65	71	71
TEMPERATURE, F	79	82	84	84	84	84
ENGINE SPEED, RPM	2000	2000	2400	2400	2400	2400
TORQUE, FT-LB	5.0	5.0	135.5	135.5	124.0	124.0
POWER, BHP*	1.9	1.9	61.8	61.8	57.5	57.5
FUEL RATE, LB/HR	5.9	6.5	30.2	29.6	26.5	26.6
IGNITION TIMING, DEG BTDC	37.0	37.0	30.0	30.0	29.0	29.0
MANIFOLD VACUUM, IN HG	20.6	20.6	.8	.8	2.0	2.0
THROTTLE ANGLE, DEG	5.0	5.0	75.0	75.0	41.0	41.0
INTAKE MAN. TEMP., F	102	102	80	80	84	85
CONCENTRATIONS, DRY BASIS						
CO, %	3.1500	.1500	3.2200	.9000	2.6500	.7700
CO2, %	7.40	10.90	11.25	14.05	11.36	14.40
O2, %	8.25	6.00	3.00	1.00	3.50	1.00
HC, PPMC	263	106	216	138	227	138
NOX, PPM	38	70	1150	1450	1025	1050
AIR/FUEL RATIO	20.35	20.03	15.34	15.10	15.98	15.14
EMISSION RATES, G/HR						
CO	1590.4	81.1	6135.9	1636.3	4620.0	1259.8
HC	6.7	2.9	20.6	12.6	19.8	11.4
NOX+	2.6	5.0	344.2	414.1	289.0	277.8
OIL TEMPERATURE, F	188	187	200	200	195	199
OIL PRESSURE, PSI	40	40	42	42	40	40
COOLANT TEMPERATURE, F	181	180	193	196	194	195
EXHAUST PRESSURE, IN. H2O	10.0	7.0	81.0	49.0	73.0	43.0
EXHAUST TEMPERATURE, F	753	1106	1123	1380	1113	1424

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	33.1	33.2	34.1	34.2	35.1	35.2
TEST DATE	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77
BAROMETER, MMHG	737.0	737.0	737.0	737.0	737.0	737.0
HUMIDITY, GRAINS/LB	25	25	25	25	25	25
TEMPERATURE, F	73	73	72	72	73	72
ENGINE SPEED, RPM	2400	2400	2400	2400	2400	2400
TORQUE, FT-LB	101.0	101.0	80.0	80.0	54.0	54.0
POWER, BHP*	45.9	45.9	36.3	36.3	24.5	24.5
FUEL RATE, LB/HR	24.4	24.2	18.8	19.4	14.9	14.8
IGNITION TIMING, DEG BTDC	28.0	28.0	34.0	34.0	39.0	39.0
MANIFOLD VACUUM, IN HG	3.0	3.0	5.5	5.5	8.2	8.2
THROTTLE ANGLE, DEG	29.0	29.0	20.0	20.0	14.5	14.5
INTAKE MAN. TEMP., F	94	94	131	131	170	170
CONCENTRATIONS, DRY BASIS						
CO, %	4.3000	1.3200	3.1500	.6200	2.2500	.2900
CO2, %	10.20	13.60	10.45	13.45	10.45	12.70
O2, %	3.65	.90	3.85	2.05	5.00	3.75
HC, PPMC	215	109	220	91	207	96
NOX, PPM	350	380	300	290	120	155
AIR/FUEL RATIO	15.20	14.82	15.98	15.95	17.45	17.49
EMISSION RATES, G/HR						
CO	6610.4	1935.1	3927.2	782.4	2420.9	307.5
HC	16.6	8.0	13.7	5.8	11.2	5.1
NOX+	71.6	74.1	49.8	48.7	17.2	21.9
OIL TEMPERATURE, F	209	209	183	183	199	200
OIL PRESSURE, PSI	40	40	45	45	43	43
COOLANT TEMPERATURE, F	187	187	190	192	189	188
EXHAUST PRESSURE, IN. H2O	65.0	39.0	44.0	27.0	32.0	18.0
EXHAUST TEMPERATURE, F	1663	1516	984	1341	939	1197

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	36.1	36.2	37.1	37.2	38.1	38.2
TEST DATE	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77	2/24/77
BAROMETER, MMHG	737.0	737.0	737.0	737.0	737.0	737.0
HUMIDITY, GRAINS/LB	25	25	25	25	25	25
TEMPERATURE, F	72	71	78	78	78	82
ENGINE SPEED, RPM	2400	2400	2400	2400	2400	2400
TORQUE, FT-LB	33.5	33.5	13.4	13.4	5.9	5.9
POWER, BHP*	15.2	15.2	6.1	6.1	2.7	2.7
FUEL RATE, LB/HR	12.1	12.0	8.4	8.4	6.8	6.7
IGNITION TIMING, DEG BTDC	40.0	40.0	40.0	40.0	40.0	40.0
MANIFOLD VACUUM, IN HG	10.7	10.7	17.2	17.2	21.0	21.0
THROTTLE ANGLE, DEG	12.0	12.0	8.5	8.5	6.5	6.5
INTAKE MAN. TEMP., F	171	171	136	136	112	112
CONCENTRATIONS, DRY BASIS						
CO, %	2.1000	.2230	1.0500	.1200	1.4500	.1620
CO2, %	9.68	11.95	8.80	9.95	7.95	9.00
O2, %	6.25	4.50	8.00	7.25	9.25	8.50
HC, PPMC	250	107	219	121	136	72
NOX, PPM	44	68	62	86	210	240
AIR/FUEL RATIO	18.77	18.31	22.02	21.77	23.40	23.79
EMISSION RATES, G/HR						
CO	1973.1	202.1	810.6	91.2	963.2	108.4
HC	11.8	4.9	8.5	4.6	4.5	2.4
NOX+	5.5	8.2	6.4	8.7	18.6	21.4
OIL TEMPERATURE, F	199	198	192	192	189	188
OIL PRESSURE, PSI	42	42	42	42	42	42
COOLANT TEMPERATURE, F	185	184	179	180	178	178
EXHAUST PRESSURE, IN. H2O	25.0	14.0	16.0	9.0	11.0	6.0
EXHAUST TEMPERATURE, F	897	1141	855	946	738	806

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	39.1	39.2	40.1	40.2	41.1	41.2
TEST DATE	3/21/77	3/21/77	2/24/77	2/24/77	3/ 9/77	3/ 9/77
BAROMETER, MMHG	748.0	748.0	737.0	737.0	738.1	738.1
HUMIDITY, GRAINS/LB	65	65	25	25	40	40
TEMPERATURE, F	84	84	70	71	71	71
ENGINE SPEED, RPM	2800	2800	2800	2800	2800	2800
TORQUE, FT-LB	134.0	134.0	115.0	115.0	96.0	96.0
POWER, BHP*	71.3	71.3	60.8	60.8	50.9	50.9
FUEL RATE, LB/HR	35.3	35.2	30.6	30.2	27.1	26.9
IGNITION TIMING, DEG BTDC	30.0	30.0	30.0	30.0	30.0	30.0
MANIFOLD VACUUM, IN HG	.9	.9	2.2	2.2	4.0	4.0
THROTTLE ANGLE, DEG	75.0	75.0	41.5	41.5	29.0	29.0
INTAKE MAN. TEMP., F	80	80	93	93	90	90
CONCENTRATIONS, DRY BASIS						
CO, %	3.1500	2.2500	2.4700	1.4000	4.1000	1.4500
CO2, %	11.55	13.00	11.25	13.60	9.80	12.80
O2, %	2.40	.75	3.00	1.25	3.75	1.00
HC, PPMC	239	172	164	92	202	103
NOX, PPM	1500	1475	1100	1175	280	300
AIR/FUEL RATIO	14.97	14.33	15.75	15.04	15.39	14.82
EMISSION RATES, G/HR						
CO	6846.5	4644.3	4910.3	2592.0	7098.1	2375.2
HC	26.1	17.8	16.4	8.5	17.6	8.4
NOX+	512.1	478.2	290.9	289.4	68.5	69.5
OIL TEMPERATURE, F	213	213	210	210	168	168
OIL PRESSURE, PSI	41	41	42	42	44	44
COOLANT TEMPERATURE, F	198	198	193	187	190	190
EXHAUST PRESSURE, IN. H2O	103.0	63.0	96.0	58.0	77.0	46.0
EXHAUST TEMPERATURE, F	1201	1383	1189	1465	1060	1503

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	42.1	42.2	43.1	43.2	44.1	44.2
TEST DATE	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77
BAROMETER, MMHG	737.1	737.1	737.1	737.1	737.1	737.1
HUMIDITY, GRAINS/LB	37	37	37	37	37	37
TEMPERATURE, F	73	71	73	73	75	75
ENGINE SPEED, RPM	2800	2800	2800	2800	2800	2800
TORQUE, FT-LB	77.0	77.0	51.0	51.0	32.0	32.0
POWER, BHP*	40.9	40.8	27.1	27.1	17.0	17.0
FUEL RATE, LB/HR	20.6	20.6	17.2	17.1	14.2	14.2
IGNITION TIMING, DEG BTDC	35.0	35.0	40.0	40.0	39.0	39.0
MANIFOLD VACUUM, IN HG	6.0	6.0	8.5	8.5	11.3	11.3
THROTTLE ANGLE, DEG	22.0	22.0	15.5	15.5	12.5	12.5
INTAKE MAN. TEMP., F	132	132	159	159	170	170
CONCENTRATIONS, DRY BASIS						
CO, %	3.2200	.6500	2.7000	.3700	2.7000	.2450
CO2, %	9.68	13.00	9.68	12.40	9.05	11.55
O2, %	4.00	2.00	5.25	3.50	6.13	4.75
HC, PPMC	190	74	190	85	216	101
NOX, PPM	290	310	110	150	39	70
AIR/FUEL RATIO	16.12	15.94	17.46	17.30	18.32	18.61
EMISSION RATES, G/HR						
CO	4462.9	875.1	3368.2	450.5	2921.8	266.9
HC	13.2	5.0	11.9	5.2	11.8	5.5
NOX+	56.1	58.3	19.2	25.5	5.9	10.6
OIL TEMPERATURE, F	180	194	205	205	204	200
OIL PRESSURE, PSI	42	42	41	41	41	41
COOLANT TEMPERATURE, F	193	194	190	192	185	184
EXHAUST PRESSURE, IN. H2O	59.0	35.0	40.0	23.0	33.0	18.0
EXHAUST TEMPERATURE, F	1030	1390	962	1273	922	1198

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	45.1	45.2	46.1	46.2	47.1	47.2
TEST DATE	2/25/77	2/25/77	2/25/77	2/25/77	3/21/77	3/21/77
BAROMETER, MMHG	737.1	737.1	737.1	737.1	748.0	748.0
HUMIDITY, GRAINS/LB	37	37	37	37	65	65
TEMPERATURE, F	73	73	73	73	85	85
ENGINE SPEED, RPM	2800	2800	2800	2800	3200	3200
TORQUE, FT-LB	12.8	12.8	7.0	7.0	131.0	131.0
POWER, BHP*	6.8	6.8	3.7	3.7	79.8	79.8
FUEL RATE, LB/HR	11.6	11.5	9.9	9.9	41.3	41.2
IGNITION TIMING, DEG BTDC	39.0	39.0	40.0	40.0	30.0	30.0
MANIFOLD VACUUM, IN HG	13.0	13.0	15.8	15.8	1.0	1.0
THROTTLE ANGLE, DEG	11.0	11.0	9.0	9.0	75.0	75.0
INTAKE MAN. TEMP., F	170	170	175	175	85	84
CONCENTRATIONS, DRY BASIS						
CO, %	1.5700	.2000	1.4500	.1550	5.0000	5.1000
CO2, %	9.00	10.85	8.50	10.20	11.10	11.70
O2, %	7.25	6.00	8.00	6.75	1.50	.75
HC, PPMC	380	172	312	166	223	207
NOX, PPM	25	46	22	44	750	1163
AIR/FUEL RATIO	20.47	19.99	21.65	21.08	13.55	13.14
EMISSION RATES, G/HR						
CO	1559.8	190.0	1295.1	134.6	11534.9	11340.5
HC	19.0	8.2	14.0	7.2	25.8	23.1
NOX+	3.5	6.1	2.7	5.3	271.8	406.2
OIL TEMPERATURE, F	198	196	194	193	225	225
OIL PRESSURE, PSI	43	43	43	43	45	45
COOLANT TEMPERATURE, F	183	182	181	180	195	197
EXHAUST PRESSURE, IN. H2O	25.0	14.0	20.0	11.0	117.0	75.0
EXHAUST TEMPERATURE, F	926	1131	929	1081	1208	1294

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	48.1	48.2	49.1	49.2	50.1	50.2
TEST DATE	2/25/77	2/25/77	2/25/77	2/25/77	3/ 9/77	3/ 9/77
BAROMETER, MMHG	737.1	737.1	737.1	737.1	738.1	738.1
HUMIDITY, GRAINS/LB	37	37	37	37	40	40
TEMPERATURE, F	73	71	70	70	72	72
ENGINE SPEED, RPM	3200	3200	3200	3200	3200	3200
TORQUE, FT-LB	115.0	115.0	96.0	96.0	77.0	77.0
POWER, BHP*	69.8	69.7	58.1	58.1	46.7	46.7
FUEL RATE, LB/HR	35.2	35.1	31.3	31.5	28.2	28.2
IGNITION TIMING, DEG BTDC	30.0	30.0	29.0	29.0	34.0	34.0
MANIFOLD VACUUM, IN HG	2.3	2.3	3.0	3.0	5.5	5.5
THROTTLE ANGLE, DEG	44.0	44.0	36.0	36.0	26.0	26.0
INTAKE MAN. TEMP., F	84	83	84	84	108	108
CONCENTRATIONS, DRY BASIS						
CO, %	2.3200	.7200	3.7000	1.0000	5.3500	2.4700
CO2, %	12.40	14.60	11.00	14.25	8.70	12.10
O2, %	2.30	.70	3.05	.75	3.50	1.00
HC, PPMC	126	54	142	46	235	125
NOX, PPM	1275	1300	430	470	130	150
AIR/FUEL RATIO	15.31	14.99	15.11	14.87	14.52	14.33
EMISSION RATES, G/HR						
CO	5120.9	1536.2	7217.5	1905.6	9191.3	4109.1
HC	13.9	5.8	13.9	4.4	20.3	10.5
NOX+	392.8	387.2	117.1	125.0	31.6	35.3
OIL TEMPERATURE, F	210	217	227	225	221	221
OIL PRESSURE, PSI	42	42	41	41	41	41
COOLANT TEMPERATURE, F	196	196	192	191	186	186
EXHAUST PRESSURE, IN. H2O	121.0	78.0	105.0	66.0	84.0	50.0
EXHAUST TEMPERATURE, F	1292	1515	1224	1585	1060	1610

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	51.1	51.2	52.1	52.2	53.1	53.2
TEST DATE	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77	2/25/77
BAROMETER, MMHG	737.1	737.1	737.1	737.1	737.1	737.1
HUMIDITY, GRAINS/LB	37	37	37	37	37	37
TEMPERATURE, F	72	72	82	82	78	76
ENGINE SPEED, RPM	3200	3200	3200	3200	3200	3200
TORQUE, FT-LB	51.0	51.0	32.0	32.0	13.0	13.0
POWER, BHP*	30.9	30.9	19.6	19.6	7.9	7.9
FUEL RATE, LB/HR	21.7	21.7	17.0	16.9	13.6	13.8
IGNITION TIMING, DEG BTDC	39.0	39.0	39.0	39.0	40.0	40.0
MANIFOLD VACUUM, IN HG	8.6	8.6	11.8	11.8	13.6	13.6
THROTTLE ANGLE, DEG	18.0	18.0	14.5	14.5	12.0	12.0
INTAKE MAN. TEMP., F	147	147	166	166	195	195
CONCENTRATIONS, DRY BASIS						
CO, %	4.3000	.7200	3.8000	.7200	3.0500	.2450
CO2, %	9.20	13.30	8.50	12.40	8.50	11.00
O2, %	5.00	2.35	6.00	3.50	6.75	6.00
HC, PPMC	207	80	227	85	282	106
NOX, PPM	78	110	32	57	18	38
AIR/FUEL RATIO	16.19	16.11	17.40	17.06	18.67	19.89
EMISSION RATES, G/HR						
CO	6287.5	1028.5	4709.0	850.8	3243.7	277.3
HC	15.2	5.7	14.2	5.0	15.1	6.0
NOX+	15.9	21.9	5.5	9.4	2.7	6.0
OIL TEMPERATURE, F	214	215	173	176	197	200
OIL PRESSURE, PSI	42	42	45	45	44	44
COOLANT TEMPERATURE, F	183	182	187	188	188	187
EXHAUST PRESSURE, IN. H2O	61.0	35.0	42.0	24.0	32.0	17.0
EXHAUST TEMPERATURE, F	997	1523	918	1403	1005	1329

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	54.1	54.2	55.1	55.2	56.1	56.2
TEST DATE	2/25/77	2/25/77	3/21/77	3/21/77	2/28/77	2/28/77
BAROMETER, MMHG	737.1	737.1	748.0	748.0	742.2	742.2
HUMIDITY, GRAINS/LB	37	37	65	65	22	22
TEMPERATURE, F	74	73	85	85	71	72
ENGINE SPEED, RPM	3200	3200	3600	3600	3600	3600
TORQUE, FT-LB	7.5	7.5	126.0	126.0	112.5	112.5
POWER, BHP*	4.6	4.6	86.3	86.3	75.9	76.0
FUEL RATE, LB/HR	13.1	13.1	46.6	46.4	39.3	39.3
IGNITION TIMING, DEG BTDC	40.0	40.0	32.0	32.0	31.0	31.0
MANIFOLD VACUUM, IN HG	14.0	14.0	1.0	1.0	2.7	2.7
THROTTLE ANGLE, DEG	11.0	11.0	75.0	75.0	43.5	43.5
INTAKE MAN. TEMP., F	196	196	78	78	73	74
CONCENTRATIONS, DRY BASIS						
CO, %	3.0500	.2300	6.0000	6.0700	3.3000	2.6200
CO2, %	8.25	10.85	11.25	11.40	12.40	13.40
O2, %	7.00	6.13	.63	.38	1.45	.45
HC, PPMC	386	133	287	230	132	87
NOX, PPM	16	33	950	925	1175	1300
AIR/FUEL RATIO	18.95	20.08	12.72	12.58	14.30	14.01
EMISSION RATES, G/HR						
CO	3178.1	251.0	14625.7	14566.7	7594.4	5883.0
HC	20.2	7.3	35.2	27.8	15.2	9.8
NOX+	2.3	5.0	363.7	348.7	356.3	384.7
OIL TEMPERATURE, F	201	200	227	227	214	222
OIL PRESSURE, PSI	44	44	44	44	42	42
COOLANT TEMPERATURE, F	186	186	195	195	195	193
EXHAUST PRESSURE, IN. H2O	33.0	18.0	129.0	83.0	140.0	82.0
EXHAUST TEMPERATURE, F	1016	1399	1240	1272	1332	1437

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	57.1	57.2	58.1	58.2	59.1	59.2
TEST DATE	2/28/77	2/28/77	2/28/77	2/28/77	2/28/77	2/28/77
BAROMETER, MMHG	742.2	742.2	742.2	742.2	742.2	742.2
HUMIDITY, GRAINS/LB	22	22	22	22	22	22
TEMPERATURE, F	73	73	73	72	73	72
ENGINE SPEED, RPM	3600	3600	3600	3600	3600	3600
TORQUE, FT-LB	94.0	94.0	75.0	75.0	50.0	50.0
POWER, BHP*	63.6	63.6	50.7	50.7	33.8	33.8
FUEL RATE, LB/HR	35.9	36.0	29.0	29.1	22.7	22.5
IGNITION TIMING, DEG BTDC	31.0	31.0	33.0	33.0	39.0	39.0
MANIFOLD VACUUM, IN HG	3.7	3.7	5.5	5.5	9.0	9.0
THROTTLE ANGLE, DEG	38.0	38.0	28.0	28.0	19.0	19.0
INTAKE MAN. TEMP., F	86	86	112	111	144	144
CONCENTRATIONS, DRY BASIS						
CO, %	3.7000	2.5500	2.9500	.5200	2.4700	.4200
CO2, %	11.80	13.60	11.55	14.05	10.70	13.00
O2, %	1.60	.20	3.05	1.45	4.70	3.35
HC, PPMC	126	69	119	40	152	68
NOX, PPM	460	510	310	390	163	215
AIR/FUEL RATIO	14.18	13.88	15.48	15.56	17.02	17.05
EMISSION RATES, G/HR						
CO	7744.2	5182.1	5435.4	959.1	3943.8	660.2
HC	13.2	7.1	11.0	3.7	12.2	5.4
NOX+	126.9	136.6	75.3	94.8	34.3	44.5
OIL TEMPERATURE, F	231	231	229	225	221	219
OIL PRESSURE, PSI	40	40	42	42	42	42
COOLANT TEMPERATURE, F	191	191	187	185	183	187
EXHAUST PRESSURE, IN. H2O	125.0	73.0	95.0	57.0	65.0	38.0
EXHAUST TEMPERATURE, F	1310	1529	1228	1490	1107	1344

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	60.1	60.2	61.1	61.2	62.1	62.2
TEST DATE	2/28/77	2/28/77	2/28/77	2/28/77	2/28/77	2/28/77
BAROMETER, MMHG	742.2	742.2	742.2	742.2	742.2	742.2
HUMIDITY, GRAINS/LB	22	22	22	22	22	22
TEMPERATURE, F	73	72	72	72	72	72
ENGINE SPEED, RPM	3600	3600	3600	3600	3600	3600
TORQUE, FT-LB	31.4	31.4	12.5	12.5	9.1	9.1
POWER, BHP*	21.2	21.2	8.4	8.4	6.1	6.1
FUEL RATE, LB/HR	18.3	18.2	14.8	14.9	14.8	14.5
IGNITION TIMING, DEG BTDC	40.0	40.0	40.0	40.0	40.0	40.0
MANIFOLD VACUUM, IN HG	11.9	11.9	14.0	14.0	14.5	14.5
THROTTLE ANGLE, DEG	15.5	15.5	12.5	12.5	12.0	12.0
INTAKE MAN. TEMP., F	165	165	189	190	194	193
CONCENTRATIONS, DRY BASIS						
CO, %	1.7500	.2900	1.5200	.2500	1.5700	.2500
CO2, %	10.30	12.10	9.68	11.55	9.68	11.40
O2, %	5.50	4.50	6.50	5.50	6.50	5.25
HC, PPMC	128	62	144	73	150	84
NOX, PPM	65	95	30	53	27	47
AIR/FUEL RATIO	18.29	18.22	19.57	19.24	19.51	19.08
EMISSION RATES, G/HR						
CO	2428.5	395.2	1833.4	294.9	1886.4	285.0
HC	8.9	4.2	8.7	4.3	9.0	4.8
NOX+	11.9	17.1	4.8	8.2	4.3	7.1
OIL TEMPERATURE, F	218	216	211	209	205	204
OIL PRESSURE, PSI	43	43	45	45	45	45
COOLANT TEMPERATURE, F	185	184	180	180	180	179
EXHAUST PRESSURE, IN. H2O	50.0	28.0	40.0	20.0	40.0	20.0
EXHAUST TEMPERATURE, F	1079	1260	1091	1230	1106	1277

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	63.1	63.2	64.1	64.2	65.1	65.2
TEST DATE	3/21/77	3/21/77	2/28/77	2/28/77	2/28/77	2/28/77
BAROMETER, MMHG	748.0	748.0	742.2	742.2	742.2	742.2
HUMIDITY, GRAINS/LB	65	65	22	22	22	22
TEMPERATURE, F	87	87	70	70	71	71
ENGINE SPEED, RPM	4600	4600	4600	4600	4600	4600
TORQUE, FT-LB	108.0	108.0	97.2	97.2	81.0	81.0
POWER, BHP*	94.7	94.7	83.8	83.8	69.9	69.9
FUEL RATE, LB/HR	52.9	52.6	44.0	43.8	39.2	38.7
IGNITION TIMING, DEG BTDC	35.0	35.0	35.0	35.0	36.0	36.0
MANIFOLD VACUUM, IN HG	2.0	2.0	3.3	3.3	4.4	4.4
THROTTLE ANGLE, DEG	75.0	75.0	42.0	43.0	38.0	38.0
INTAKE MAN. TEMP., F	81	81	74	75	85	86
CONCENTRATIONS, DRY BASIS						
CO, %	6.1500	6.7000	4.8700	5.0000	4.4700	4.1000
CO2, %	10.85	10.85	11.55	12.10	12.00	12.70
O2, %	.25	.25	.60	.30	.90	.35
HC, PPMC	252	253	183	144	161	115
NOX, PPM	963	963	770	875	560	680
AIR/FUEL RATIO	12.40	12.24	13.11	12.96	13.47	13.34
EMISSION RATES, G/HR						
CO	16680.5	17827.4	11567.3	11630.5	9669.9	8648.9
HC	34.3	33.8	21.9	16.8	17.5	12.2
NOX+	410.3	402.5	241.0	268.2	159.6	189.0
OIL TEMPERATURE, F	234	234	213	224	239	241
OIL PRESSURE, PSI	45	45	41	41	40	40
COOLANT TEMPERATURE, F	196	196	196	196	195	194
EXHAUST PRESSURE, IN. H20	150.0	120.0	130.0	83.0	112.0	73.0
EXHAUST TEMPERATURE, F	1319	1261	1308	1306	1323	1372

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	66.1	66.2	67.1	67.2	68.1	68.2
TEST DATE	2/28/77	2/28/77	2/28/77	2/28/77	2/28/77	2/28/77
BAROMETER, MMHG	742.2	742.2	742.2	742.2	742.2	742.2
HUMIDITY, GRAINS/LB	22	22	22	22	22	22
TEMPERATURE, F	71	71	71	70	68	67
ENGINE SPEED, RPM	4600	4600	4600	4600	4600	4600
TORQUE, FT-LB	64.8	64.8	43.2	43.2	27.0	27.0
POWER, BHP*	55.9	55.9	37.3	37.2	23.2	23.2
FUEL RATE, LB/HR	31.0	31.6	25.4	25.6	21.6	21.8
IGNITION TIMING, DEG BTDC	40.0	40.0	44.0	44.0	44.0	44.0
MANIFOLD VACUUM, IN HG	6.2	6.2	9.1	9.1	11.7	11.7
THROTTLE ANGLE, DEG	29.5	29.5	22.5	22.5	18.0	18.0
INTAKE MAN. TEMP., F	109	108	140	150	153	154
CONCENTRATIONS, DRY BASIS						
CO, %	1.7500	.6700	1.4000	.3300	1.9500	.4000
CO2, %	13.00	14.25	13.00	14.25	12.40	14.05
O2, %	1.65	.70	2.25	1.35	2.43	1.20
HC, PPMC	109	49	114	63	114	64
NOX, PPM	825	800	450	525	135	180
AIR/FUEL RATIO	15.13	15.00	15.70	15.58	15.55	15.44
EMISSION RATES, G/HR						
CO	3357.6	1290.0	2280.5	535.4	2685.6	548.5
HC	10.5	4.8	9.3	5.1	7.9	4.4
NOX+	208.6	203.0	96.6	112.2	24.5	32.5
OIL TEMPERATURE, F	244	242	239	237	234	233
OIL PRESSURE, PSI	40	40	41	41	41	41
COOLANT TEMPERATURE, F	194	193	189	188	188	186
EXHAUST PRESSURE, IN. H2O	96.0	59.0	72.0	43.0	56.0	31.0
EXHAUST TEMPERATURE, F	1329	1413	1272	1358	1262	1411

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	69.1	69.2	70.1	70.2	71.1	71.2
TEST DATE	2/28/77	2/28/77	2/28/77	2/28/77	3/ 1/77	3/ 1/77
BAROMETER, MMHG	742.2	742.2	742.2	742.2	746.8	746.8
HUMIDITY, GRAINS/LB	22	22	22	22	25	25
TEMPERATURE, F	67	67	67	67	64	65
ENGINE SPEED, RPM	4600	4600	4600	4600	750	750
TORQUE, FT-LB	10.8	10.8	10.6	10.6	3.1	3.1
POWER, BHP*	9.3	9.3	9.1	9.1	.4	.4
FUEL RATE, LB/HR	18.7	18.8	18.6	18.9	2.4	2.3
IGNITION TIMING, DEG BTDC	44.0	45.0	45.0	45.0	22.0	22.0
MANIFOLD VACUUM, IN HG	13.5	13.5	13.5	13.5	20.0	20.0
THROTTLE ANGLE, DEG	15.5	15.5	15.5	15.5	.0	.0
INTAKE MAN. TEMP., F	171	173	170	170	139	137
CONCENTRATIONS, DRY BASIS						
CO, %	1.5700	.2500	1.4000	.2500	5.1000	4.8700
CO2, %	11.70	13.60	11.80	13.30	11.00	11.55
O2, %	3.18	2.20	3.40	2.35	.95	.50
HC, PPMC	356	120	288	85	834	803
NOX, PPM	63	108	73	100	44	51
AIR/FUEL RATIO	16.33	16.24	16.60	16.39	13.10	12.98
EMISSION RATES, G/HR						
CO	1979.5	311.0	1778.4	316.6	656.8	592.2
HC	22.5	7.5	18.4	5.4	5.4	4.9
NOX+	10.5	17.7	12.2	16.7	.8	.8
OIL TEMPERATURE, F	228	225	223	223	178	173
OIL PRESSURE, PSI	42	42	43	43	16	16
COOLANT TEMPERATURE, F	184	183	172	184	166	166
EXHAUST PRESSURE, IN. H2O	47.0	26.0	47.0	26.0	.0	.0
EXHAUST TEMPERATURE, F	1277	1397	1250	1389	457	648

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	72.1	72.2	73.1	73.2	74.1	74.2
TEST DATE	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
BAROMETER, MMHG	746.8	746.8	746.8	746.8	746.8	746.8
HUMIDITY, GRAINS/LB	25	25	25	25	18	25
TEMPERATURE, F	64	64	69	69	66	65
ENGINE SPEED, RPM	750	750	750	750	700	700
TORQUE, FT-LB	10.0	10.0	20.0	20.0	10.0	10.0
POWER, BHP*	1.4	1.4	2.8	2.8	1.3	1.3
FUEL RATE, LB/HR	2.6	2.6	3.0	2.9	2.3	2.5
IGNITION TIMING, DEG BTDC	22.0	22.0	22.0	22.0	22.0	22.0
MANIFOLD VACUUM, IN HG	19.0	19.0	17.5	17.5	18.5	18.5
THROTTLE ANGLE, DEG	.5	.5	1.5	1.5	.0	.0
INTAKE MAN. TEMP., F	127	126	116	116	124	124
CONCENTRATIONS, DRY BASIS						
CO, %	3.6000	3.9000	2.9500	2.8500	5.1000	5.2500
CO2, %	12.10	12.40	13.00	13.00	11.25	11.55
O2, %	.90	.50	.70	.55	1.10	.50
HC, PPMC	573	587	507	495	687	747
NOX, PPM	62	71	118	123	53	60
AIR/FUEL RATIO	13.75	13.42	13.94	13.89	13.23	12.86
EMISSION RATES, G/HR						
CO	519.3	548.2	503.8	468.7	632.6	695.7
HC	4.1	4.1	4.3	4.1	4.3	5.0
NOX+	1.2	1.3	2.7	2.7	.9	1.1
OIL TEMPERATURE, F	161	160	154	157	156	156
OIL PRESSURE, PSI	20	20	20	20	16	16
COOLANT TEMPERATURE, F	165	164	166	166	165	163
EXHAUST PRESSURE, IN. H2O	.0	.0	.0	.0	.0	.0
EXHAUST TEMPERATURE, F	417	378	445	348	393	323

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	75.1	75.2	76.1	76.2	78.1	78.2
TEST DATE	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
BAROMETER, MMHG	746.8	746.8	746.8	746.8	746.8	746.8
HUMIDITY, GRAINS/LB	25	25	25	25	25	25
TEMPERATURE, F	68	69	74	74	61	61
ENGINE SPEED, RPM	700	700	700	700	1000	1000
TORQUE, FT-LB	20.0	20.0	30.0	30.0	118.0	118.0
POWER, BHP*	2.6	2.6	3.9	3.9	21.8	21.8
FUEL RATE, LB/HR	2.7	2.8	3.1	3.1	11.0	10.8
IGNITION TIMING, DEG BTDC	22.0	22.0	22.0	22.0	12.0	12.0
MANIFOLD VACUUM, IN HG	17.5	17.5	16.8	16.8	2.0	2.0
THROTTLE ANGLE, DEG	1.0	1.0	2.0	2.0	19.0	19.0
INTAKE MAN. TEMP., F	117	116	111	110	87	87
CONCENTRATIONS, DRY BASIS						
CO, %	3.4000	3.8000	2.6200	2.5500	2.4500	.3300
CO2, %	12.10	12.40	13.00	13.15	11.00	13.60
O2, %	1.15	.55	.80	.65	3.50	1.50
HC, PPMC	561	552	460	472	248	103
NOX, PPM	100	100	260	270	925	1025
AIR/FUEL RATIO	13.99	13.49	14.14	14.08	16.13	15.74
EMISSION RATES, G/HR						
CO	522.3	595.5	471.6	448.6	1796.6	229.6
HC	4.3	4.3	4.2	4.2	9.1	3.6
NOX+	2.0	2.1	6.2	6.3	90.3	95.0
OIL TEMPERATURE, F	153	153	153	154	163	166
OIL PRESSURE, PSI	16	16	17	17	22	22
COOLANT TEMPERATURE, F	163	162	164	165	187	188
EXHAUST PRESSURE, IN. H2O	.0	.0	.0	.0	.0	8.0
EXHAUST TEMPERATURE, F	398	309	427	330	794	1056

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	80.1	80.2	81.1	81.2	82.1	82.2
TEST DATE	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77
BAROMETER, MMHG	746.8	746.8	746.8	746.8	746.8	746.8
HUMIDITY, GRAINS/LB	25	25	25	25	25	25
TEMPERATURE, F	62	62	73	73	72	72
ENGINE SPEED, RPM	1000	1000	1000	1000	1000	1000
TORQUE, FT-LB	79.0	79.0	52.4	52.4	33.0	33.0
POWER, BHP*	14.6	14.6	9.8	9.8	6.2	6.2
FUEL RATE, LB/HR	8.5	8.6	6.1	6.1	4.9	4.9
IGNITION TIMING, DEG BTDC	12.0	12.0	21.0	21.0	21.0	21.0
MANIFOLD VACUUM, IN HG	5.0	5.0	12.5	12.5	16.0	16.0
THROTTLE ANGLE, DEG	12.0	12.0	5.5	5.5	4.0	4.0
INTAKE MAN. TEMP., F	101	101	102	102	103	103
CONCENTRATIONS, DRY BASIS						
CO, %	1.8200	.1500	2.8700	.1500	3.9000	.1500
CO2, %	11.55	13.00	9.45	12.70	7.95	12.10
O2, %	3.45	2.65	5.50	3.30	6.80	3.80
HC, PPMC	209	85	251	90	276	90
NOX, PPM	180	200	320	440	85	110
AIR/FUEL RATIO	16.41	16.71	17.57	17.26	18.09	17.77
EMISSION RATES, G/HR						
CO	1045.5	87.9	1269.7	65.0	1446.7	53.6
HC	6.0	2.5	5.6	2.0	5.1	1.6
NOX+	13.8	15.6	18.9	25.4	4.2	5.2
OIL TEMPERATURE, F	178	178	177	177	173	173
OIL PRESSURE, PSI	21	21	21	21	21	21
COOLANT TEMPERATURE, F	185	185	178	178	172	172
EXHAUST PRESSURE, IN. H2O	10.0	6.0	9.0	4.0	5.0	3.0
EXHAUST TEMPERATURE, F	823	998	624	1012	545	1060

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	83.1	83.2	84.1	84.2	86.1	86.2
TEST DATE	3/ 1/77	3/ 1/77	3/ 1/77	3/ 1/77	3/ 3/77	3/ 3/77
BAROMETER, MMHG	746.8	746.8	746.8	746.8	736.2	736.2
HUMIDITY, GRAINS/LB	25	25	25	25	34	34
TEMPERATURE, F	67	67	66	66	81	81
ENGINE SPEED, RPM	1000	1000	1000	1000	1600	1600
TORQUE, FT-LB	13.0	13.0	4.1	4.1	117.0	117.0
POWER, BHP*	2.4	2.4	.8	.8	35.8	35.8
FUEL RATE, LB/HR	3.2	3.3	2.8	2.8	20.1	20.2
IGNITION TIMING, DEG BTDC	21.0	21.0	21.0	21.0	26.0	26.0
MANIFOLD VACUUM, IN HG	19.0	19.0	20.2	20.2	2.0	2.0
THROTTLE ANGLE, DEG	2.0	2.0	1.2	1.2	27.0	27.0
INTAKE MAN. TEMP., F	116	116	123	123	89	89
CONCENTRATIONS, DRY BASIS						
CO, %	2.4700	2.2500	3.2200	3.2200	8.5000	6.0000
CO2, %	13.00	13.30	12.70	12.70	6.77	10.20
O2, %	.55	.50	.70	.60	3.38	1.25
HC, PPMC	413	380	529	517	283	336
NOX, PPM	95	100	60	65	175	193
AIR/FUEL RATIO	14.05	14.12	13.82	13.76	12.76	12.91
EMISSION RATES, G/HR						
CO	455.8	425.1	505.4	504.3	9300.3	6488.2
HC	3.8	3.6	4.2	4.1	15.6	18.2
NOX+	2.3	2.5	1.3	1.4	26.4	28.8
OIL TEMPERATURE, F	167	167	163	164	188	188
OIL PRESSURE, PSI	24	24	25	25	30	30
COOLANT TEMPERATURE, F	168	168	166	166	183	186
EXHAUST PRESSURE, IN. H2O	.0	.0	.0	.0	34.0	20.0
EXHAUST TEMPERATURE, F	509	644	490	484	863	863

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	87.1	87.2	88.1	88.2	89.1	89.2
TEST DATE	3/ 3/77	3/ 3/77	3/ 3/77	3/ 3/77	3/ 3/77	3/ 3/77
BAROMETER, MMHG	736.2	736.2	736.2	736.2	736.2	736.2
HUMIDITY, GRAINS/LB	34	34	34	34	34	34
TEMPERATURE, F	81	81	81	81	81	81
ENGINE SPEED, RPM	1600	1600	1600	1600	1600	1600
TORQUE, FT-LB	97.5	97.5	78.0	78.0	52.0	52.0
POWER, BHP*	29.8	29.8	23.9	23.9	15.9	15.9
FUEL RATE, LB/HR	18.2	18.2	16.0	15.9	11.9	11.6
IGNITION TIMING, DEG BTDC	27.0	27.0	28.0	28.0	39.0	39.0
MANIFOLD VACUUM, IN HG	3.5	3.5	5.0	5.0	9.5	9.5
THROTTLE ANGLE, DEG	19.0	19.0	15.0	15.0	10.0	10.0
INTAKE MAN. TEMP., F	103	103	121	121	129	129
CONCENTRATIONS, DRY BASIS						
CO, %	8.0000	6.5500	8.1700	6.2000	7.5000	2.2500
CO2, %	7.60	9.80	7.20	10.20	6.82	13.00
O2, %	3.38	1.25	3.75	1.13	5.00	.88
HC, PPMC	302	239	351	262	454	172
NOX, PPM	60	79	28	39	18	43
AIR/FUEL RATIO	13.10	12.67	13.20	12.77	14.28	14.37
EMISSION RATES, G/HR						
CO	8064.0	6276.8	7289.0	5215.3	5415.0	1535.9
HC	15.3	11.5	15.7	11.1	16.5	5.9
NOX+	8.3	10.4	3.4	4.5	1.8	4.0
OIL TEMPERATURE, F	190	190	188	188	183	183
OIL PRESSURE, PSI	30	30	32	32	35	35
COOLANT TEMPERATURE, F	184	184	180	180	175	175
EXHAUST PRESSURE, IN. H2O	30.0	16.0	25.0	14.0	20.0	10.0
EXHAUST TEMPERATURE, F	824	1282	780	1324	685	1487

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	91.1	91.2	92.1	92.2	94.1	94.2
TEST DATE	3/ 3/77	3/ 3/77	3/ 3/77	3/ 3/77	3/ 3/77	3/ 3/77
BAROMETER, MMHG	736.2	736.2	736.2	736.2	736.2	736.2
HUMIDITY, GRAINS/LB	34	34	34	34	34	34
TEMPERATURE, F	79	79	79	79	80	80
ENGINE SPEED, RPM	1600	1600	1600	1600	2000	2000
TORQUE, FT-LB	13.0	13.0	4.8	4.8	117.0	117.0
POWER, BHP*	4.0	4.0	1.5	1.5	44.7	44.7
FUEL RATE, LB/HR	6.4	6.1	4.5	4.5	23.6	23.6
IGNITION TIMING, DEG BTDC	38.0	38.0	38.0	38.0	27.0	27.0
MANIFOLD VACUUM, IN HG	20.0	20.0	21.0	21.0	1.9	1.9
THROTTLE ANGLE, DEG	5.0	5.0	4.0	4.0	35.0	35.0
INTAKE MAN. TEMP., F	99	99	109	109	82	82
CONCENTRATIONS, DRY BASIS						
CO, %	3.7500	.1500	2.2500	.0650	5.0000	3.2200
CO2, %	7.40	11.55	7.40	10.45	9.95	12.40
O2, %	7.50	5.25	8.50	6.50	3.50	1.25
HC, PPMC	263	90	316	184	260	166
NOX, PPM	43	83	28	61	390	440
AIR/FUEL RATIO	19.00	19.12	21.78	20.80	14.74	14.19
EMISSION RATES, G/HR						
CO	1903.6	71.8	928.5	25.2	7206.4	4417.4
HC	6.7	2.2	6.5	3.6	18.8	11.5
NOX+	3.0	5.5	1.6	3.3	77.5	83.2
OIL TEMPERATURE, F	175	175	171	171	195	195
OIL PRESSURE, PSI	36	36	40	40	37	37
COOLANT TEMPERATURE, F	170	170	167	167	188	188
EXHAUST PRESSURE, IN. H2O	10.0	4.0	6.0	3.0	52.0	32.0
EXHAUST TEMPERATURE, F	665	1073	575	904	997	1385

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	95.1	95.2	96.1	96.2	97.1	97.2
TEST DATE	3/ 9/77	3/ 9/77	3/ 9/77	3/ 9/77	3/ 9/77	3/ 9/77
BAROMETER, MMHG	736.2	736.2	736.2	736.2	736.2	736.2
HUMIDITY, GRAINS/LB	34	40	40	40	40	40
TEMPERATURE, F	80	80	80	80	80	80
ENGINE SPEED, RPM	2000	2000	2000	2000	2000	2000
TORQUE, FT-LB	97.5	97.5	78.0	78.0	52.0	52.0
POWER, BHP*	37.3	37.3	29.9	29.9	19.9	19.9
FUEL RATE, LB/HR	20.6	20.7	18.4	18.4	13.6	13.4
IGNITION TIMING, DEG BTDC	26.0	26.0	29.0	29.0	38.0	38.0
MANIFOLD VACUUM, IN HG	3.5	3.5	5.0	5.0	7.7	7.7
THROTTLE ANGLE, DEG	23.0	23.0	18.0	18.0	12.5	12.5
INTAKE MAN. TEMP., F	101	101	123	123	157	157
CONCENTRATIONS, DRY BASIS						
CO, %	5.6700	3.4000	6.2700	3.1500	4.5700	.4700
CO2, %	9.45	12.40	9.00	12.40	8.80	13.45
O2, %	3.50	1.25	3.50	1.25	5.25	2.25
HC, PPMC	790	161	270	160	257	103
NOX, PPM	159	188	75	90	45	69
AIR/FUEL RATIO	14.34	14.11	14.08	14.21	16.22	16.17
EMISSION RATES, G/HR						
CO	6953.6	4057.8	6766.9	3364.7	4197.6	414.6
HC	48.7	9.6	14.7	8.6	11.8	4.5
NOX+	26.9	31.7	11.5	13.6	5.8	8.6
OIL TEMPERATURE, F	200	200	197	197	191	191
OIL PRESSURE, PSI	37	37	40	40	41	41
COOLANT TEMPERATURE, F	187	187	181	181	178	178
EXHAUST PRESSURE, IN. H2O	44.0	26.0	38.0	22.0	27.0	15.0
EXHAUST TEMPERATURE, F	947	1424	887	1469	816	1395

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	98.1	98.2	99.1	99.2	100.1	100.2
TEST DATE	3/ 9/77	3/ 9/77	3/ 9/77	3/ 9/77	3/ 3/77	3/ 3/77
BAROMETER, MMHG	736.2	736.2	736.2	736.2	736.2	736.2
HUMIDITY, GRAINS/LB	40	34	34	34	34	34
TEMPERATURE, F	79	79	78	78	80	80
ENGINE SPEED, RPM	2000	2000	2000	2000	2000	2000
TORQUE, FT-LB	32.5	32.5	13.0	13.0	2.0	2.0
POWER, BHP*	12.4	12.4	5.0	5.0	.8	.8
FUEL RATE, LB/HR	11.7	11.6	7.8	7.7	6.5	6.6
IGNITION TIMING, DEG BTDC	38.0	38.0	38.0	38.0	38.0	38.0
MANIFOLD VACUUM, IN HG	10.3	10.3	19.1	19.1	21.0	21.0
THROTTLE ANGLE, DEG	10.0	10.0	6.0	6.0	5.0	5.0
INTAKE MAN. TEMP., F	160	160	113	113	102	102
CONCENTRATIONS, DRY BASIS						
CO, %	4.6500	.4200	3.3500	.1500	3.0500	.1500
CO2, %	8.15	13.30	7.40	11.25	7.40	11.00
O2, %	6.00	2.50	7.75	5.50	8.13	6.00
HC, PPMC	300	102	208	89	262	89
NOX, PPM	28	51	130	173	32	64
AIR/FUEL RATIO	16.79	16.39	19.67	19.45	20.36	19.99
EMISSION RATES, G/HR						
CO	3826.8	327.7	2161.1	92.5	1701.7	81.9
HC	12.4	4.0	6.7	2.8	7.4	2.4
NOX+	3.3	5.5	11.6	14.7	2.5	4.8
OIL TEMPERATURE, F	187	187	181	181	175	175
OIL PRESSURE, PSI	41	41	42	42	42	42
COOLANT TEMPERATURE, F	175	175	170	170	168	168
EXHAUST PRESSURE, IN. H2O	22.0	12.0	14.0	6.0	10.0	5.0
EXHAUST TEMPERATURE, F	774	1369	722	1191	722	1071

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	103.1	103.2	104.1	104.2	106.1	106.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	81	81	87	87	79	79
ENGINE SPEED, RPM	2400	2400	2400	2400	2400	2400
TORQUE, FT-LB	103.5	103.5	82.8	82.8	34.5	34.5
POWER, BHP*	47.6	47.6	38.3	38.3	15.9	15.9
FUEL RATE, LB/HR	23.7	23.7	20.1	20.1	13.0	13.0
IGNITION TIMING, DEG BTDC	28.0	28.0	30.0	30.0	39.0	39.0
MANIFOLD VACUUM, IN HG	3.5	3.5	5.0	5.0	11.0	11.0
THROTTLE ANGLE, DEG	28.0	28.0	21.0	21.0	12.0	12.0
INTAKE MAN. TEMP., F	101	101	131	131	170	170
CONCENTRATIONS, DRY BASIS						
CO, %	3.8000	1.2200	3.7000	.6700	3.3000	.3700
CO2, %	9.50	11.60	9.45	13.00	8.50	11.80
O2, %	4.00	2.80	4.50	2.50	6.00	3.75
HC, PPMC	224	135	224	125	243	118
NOX, PPM	330	340	200	195	35	55
AIR/FUEL RATIO	15.76	16.31	16.19	16.27	17.82	17.62
EMISSION RATES, G/HR						
CO	5911.6	1949.4	5005.3	896.8	3203.9	349.9
HC	17.5	10.8	15.2	8.4	11.9	5.6
NOX+	85.5	90.4	45.0	43.5	5.7	8.7
OIL TEMPERATURE, F	219	219	214	214	144	144
OIL PRESSURE, PSI	40	40	40	40	44	44
COOLANT TEMPERATURE, F	193	193	188	188	185	185
EXHAUST PRESSURE, IN. H2O	61.0	37.0	49.0	28.0	26.0	15.0
EXHAUST TEMPERATURE, F	1074	1489	1022	1442	820	1204

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	107.1	107.2	108.1	108.2	109.1	109.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	79	81	80	80	79	79
ENGINE SPEED, RPM	2400	2400	2400	2400	2800	2800
TORQUE, FT-LB	13.8	13.8	8.0	8.0	96.0	96.0
POWER, BHP*	6.3	6.4	3.7	3.7	51.5	51.5
FUEL RATE, LB/HR	7.6	7.8	6.9	6.9	26.5	26.5
IGNITION TIMING, DEG BTDC	39.0	39.0	39.0	39.0	29.0	29.0
MANIFOLD VACUUM, IN HG	20.0	20.0	21.0	21.0	4.0	4.0
THROTTLE ANGLE, DEG	7.5	7.5	6.5	6.5	29.0	29.0
INTAKE MAN. TEMP., F	139	139	115	115	101	101
CONCENTRATIONS, DRY BASIS						
CO, %	1.2000	.0000	1.1500	.1500	3.8000	1.1000
CO2, %	8.70	9.95	7.30	9.30	10.20	13.30
O2, %	8.00	7.00	9.00	8.10	3.75	1.38
HC, PPMC	137	83	141	85	175	86
NOX, PPM	168	153	144	153	310	360
AIR/FUEL RATIO	21.90	21.70	24.31	23.10	15.55	15.25
EMISSION RATES, G/HR						
CO	830.0	.0	816.8	99.3	6480.9	1816.3
HC	4.8	2.9	5.0	2.8	15.0	7.1
NOX+	19.3	17.9	17.0	16.9	88.0	99.0
OIL TEMPERATURE, F	181	181	189	189	194	194
OIL PRESSURE, PSI	43	43	42	42	42	42
COOLANT TEMPERATURE, F	189	189	184	184	196	196
EXHAUST PRESSURE, IN. H2O	15.0	7.0	11.0	6.0	75.0	44.0
EXHAUST TEMPERATURE, F	798	1013	741	867	1088	1477

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	110.1	110.2	111.1	111.2	112.1	112.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	81	81	80	80	79	79
ENGINE SPEED, RPM	2800	2800	2800	2800	2800	2800
TORQUE, FT-LB	77.0	77.0	51.0	51.0	32.0	32.0
POWER, BHP*	41.4	41.4	27.4	27.4	17.2	17.2
FUEL RATE, LB/HR	21.0	21.0	16.9	16.9	14.4	14.5
IGNITION TIMING, DEG BTDC	34.0	34.0	39.0	39.0	39.0	39.0
MANIFOLD VACUUM, IN HG	6.0	6.0	9.0	9.0	11.5	11.5
THROTTLE ANGLE, DEG	21.0	21.0	16.0	16.0	13.0	13.0
INTAKE MAN. TEMP., F	132	132	159	159	178	178
CONCENTRATIONS, DRY BASIS						
CO, %	2.0500	.4000	2.3200	.3700	2.5500	.3700
CO2, %	11.00	12.40	9.95	11.80	9.20	11.80
O2, %	4.25	2.50	5.25	3.75	6.00	4.25
HC, PPMC	174	102	190	99	194	101
NOX, PPM	400	410	113	145	45	66
AIR/FUEL RATIO	16.94	16.52	17.70	17.63	18.31	18.03
EMISSION RATES, G/HR						
CO	3008.9	572.1	2888.2	455.5	2803.3	397.7
HC	12.9	7.3	11.9	6.1	10.7	5.5
NOX+	97.7	97.6	23.4	29.7	8.2	11.8
OIL TEMPERATURE, F	207	207	210	210	206	206
OIL PRESSURE, PSI	41	41	41	41	41	41
COOLANT TEMPERATURE, F	194	194	191	191	186	186
EXHAUST PRESSURE, IN. H2O	53.0	32.0	40.0	23.0	32.0	17.0
EXHAUST TEMPERATURE, F	1080	1272	990	1265	943	1243

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	113.1	113.2	114.1	114.2	115.1	115.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	79	79	81	81	82	82
ENGINE SPEED, RPM	2800	2800	3200	3200	3200	3200
TORQUE, FT-LB	9.0	9.0	96.0	96.0	77.0	77.0
POWER, BHP*	4.8	4.8	58.9	58.9	47.3	47.3
FUEL RATE, LB/HR	10.1	10.2	31.7	31.8	27.6	27.6
IGNITION TIMING, DEG BTDC	40.0	40.0	29.0	29.0	34.0	34.0
MANIFOLD VACUUM, IN HG	16.5	16.5	3.9	3.9	5.8	5.8
THROTTLE ANGLE, DEG	9.0	9.0	34.0	34.0	25.0	25.0
INTAKE MAN. TEMP., F	168	168	91	91	118	118
CONCENTRATIONS, DRY BASIS						
CO, %	1.7500	.1500	4.2000	1.2500	5.0500	1.4500
CO2, %	8.60	10.70	10.20	13.60	9.45	13.00
O2, %	7.75	6.50	3.00	.50	3.75	1.00
HC, PPMC	253	122	147	52	203	63
NOX, PPM	45	47	270	310	133	155
AIR/FUEL RATIO	20.96	20.58	14.82	14.59	14.87	14.82
EMISSION RATES, G/HR						
CO	1541.9	130.2	8174.6	2366.4	8604.1	2432.2
HC	11.2	5.3	14.3	4.9	17.3	5.3
NOX+	6.6	6.8	87.5	97.7	37.7	43.3
OIL TEMPERATURE, F	200	200	176	176	210	210
OIL PRESSURE, PSI	42	42	42	42	42	42
COOLANT TEMPERATURE, F	182	182	196	196	193	193
EXHAUST PRESSURE, IN. H2O	21.0	12.0	100.0	62.0	83.0	51.0
EXHAUST TEMPERATURE, F	949	1134	1184	1586	1085	1649

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	116.1	116.2	117.1	117.2	118.1	118.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	80	80	78	78	78	78
ENGINE SPEED, RPM	3200	3200	3200	3200	3200	3200
TORQUE, FT-LB	51.0	51.0	32.0	32.0	10.0	10.0
POWER, BHP*	31.3	31.3	19.6	19.6	6.1	6.1
FUEL RATE, LB/HR	21.2	21.3	18.0	18.1	12.9	12.8
IGNITION TIMING, DEG BTDC	40.0	40.0	40.0	40.0	40.0	40.0
MANIFOLD VACUUM, IN HG	9.0	9.0	12.0	12.0	14.8	14.8
THROTTLE ANGLE, DEG	17.5	17.5	14.0	14.0	11.0	11.0
INTAKE MAN. TEMP., F	147	147	166	166	197	197
CONCENTRATIONS, DRY BASIS						
CO, %	4.7000	.7700	4.6500	.5700	2.1000	.2500
CO2, %	9.00	13.00	8.50	13.50	9.00	11.55
O2, %	5.00	2.25	5.75	2.50	6.75	5.25
HC, PPMC	201	85	251	63	287	134
NOX, PPM	65	94	30	49	21	41
AIR/FUEL RATIO	15.95	16.04	16.57	16.28	19.44	19.02
EMISSION RATES, G/HR						
CO	6621.5	1076.5	5805.6	686.3	2193.9	251.4
HC	14.3	6.0	15.7	3.8	15.1	6.8
NOX+	15.2	21.9	6.2	9.8	3.7	6.9
OIL TEMPERATURE, F	215	215	209	209	200	200
OIL PRESSURE, PSI	42	42	42	42	44	44
COOLANT TEMPERATURE, F	183	183	185	185	179	179
EXHAUST PRESSURE, IN. H2O	59.0	33.0	48.0	25.0	30.0	16.0
EXHAUST TEMPERATURE, F	980	1566	960	1561	1008	1282

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	119.1	119.2	120.1	120.2	121.1	121.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	79	79	80	80	78	78
ENGINE SPEED, RPM	3600	3600	3600	3600	3600	3600
TORQUE, FT-LB	94.0	94.0	75.0	75.0	50.0	50.0
POWER, BHP*	64.8	64.8	51.7	51.7	34.4	34.4
FUEL RATE, LB/HR	34.7	34.7	28.9	28.7	21.9	22.1
IGNITION TIMING, DEG BTDC	31.0	31.0	35.0	35.0	41.0	41.0
MANIFOLD VACUUM, IN HG	3.6	3.6	5.2	5.2	9.0	9.0
THROTTLE ANGLE, DEG	38.0	38.0	29.0	29.0	20.0	20.0
INTAKE MAN. TEMP., F	91	91	113	113	145	145
CONCENTRATIONS, DRY BASIS						
CO, %	3.2200	1.5200	2.1500	.4500	1.9500	.3700
CO2, %	12.10	13.95	11.95	13.60	11.00	12.70
O2, %	2.00	.50	3.13	2.00	4.75	3.75
HC, PPMC	143	78	131	80	163	91
NOX, PPM	570	590	430	510	200	250
AIR/FUEL RATIO	14.66	14.48	15.96	16.01	17.38	17.44
EMISSION RATES, G/HR						
CO	6707.6	3106.3	4066.4	844.3	3067.1	583.3
HC	15.0	8.0	12.4	7.5	12.9	7.2
NOX+	197.7	200.7	135.4	159.3	52.4	65.6
OIL TEMPERATURE, F	215	215	217	217	215	215
OIL PRESSURE, PSI	41	41	41	41	41	41
COOLANT TEMPERATURE, F	184	184	181	181	178	178
EXHAUST PRESSURE, IN. H2O	112.0	70.0	92.0	56.0	64.0	38.0
EXHAUST TEMPERATURE, F	1294	1529	1246	1443	1111	1319

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	122.1	122.2	123.1	123.2	124.1	124.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	77	77	77	77	73	73
ENGINE SPEED, RPM	3600	3600	3600	3600	4600	4600
TORQUE, FT-LB	31.4	31.4	14.0	14.0	81.0	81.0
POWER, BHP*	21.6	21.6	9.6	9.6	70.9	70.9
FUEL RATE, LB/HR	17.8	17.8	15.1	15.6	39.3	38.4
IGNITION TIMING, DEG BTDC	42.0	42.0	42.0	42.0	36.0	36.0
MANIFOLD VACUUM, IN HG	12.0	12.0	14.5	14.5	5.0	5.0
THROTTLE ANGLE, DEG	15.5	15.5	13.0	13.0	37.0	37.0
INTAKE MAN. TEMP., F	166	166	189	189	82	82
CONCENTRATIONS, DRY BASIS						
CO, %	1.9700	.4200	1.5700	.2500	5.4000	5.3000
CO2, %	10.20	12.10	9.95	11.50	11.05	11.55
O2, %	5.75	4.25	6.50	5.50	1.50	.88
HC, PPMC	151	84	167	90	195	161
NOX, PPM	55	75	29	52	380	410
AIR/FUEL RATIO	18.33	17.91	19.40	19.25	13.39	13.12
EMISSION RATES, G/HR						
CO	2661.9	551.6	1903.0	310.4	11720.6	10977.2
HC	10.2	5.6	10.2	5.6	21.2	16.7
NOX+	12.4	16.4	5.9	10.7	137.3	141.4
OIL TEMPERATURE, F	208	208	201	201	240	240
OIL PRESSURE, PSI	42	42	44	44	44	44
COOLANT TEMPERATURE, F	177	177	174	174	196	196
EXHAUST PRESSURE, IN. H2O	49.0	27.0	39.0	20.0	100.0	63.0
EXHAUST TEMPERATURE, F	1072	1287	1092	1240	1215	1270

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	125.1	125.2	126.1	126.2	127.1	127.2
TEST DATE	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77	3/ 8/77
BAROMETER, MMHG	741.6	741.6	741.6	741.6	741.6	741.6
HUMIDITY, GRAINS/LB	77	77	77	77	77	77
TEMPERATURE, F	74	74	74	74	73	73
ENGINE SPEED, RPM	4600	4600	4600	4600	4600	4600
TORQUE, FT-LB	64.8	64.8	43.2	43.2	27.0	27.0
POWER, BHP*	56.8	56.8	37.9	37.9	23.6	23.6
FUEL RATE, LB/HR	31.2	30.9	25.5	24.9	20.9	21.0
IGNITION TIMING, DEG BTDC	40.0	40.0	43.0	43.0	45.0	45.0
MANIFOLD VACUUM, IN HG	6.5	6.5	10.2	10.2	12.0	12.0
THROTTLE ANGLE, DEG	30.0	30.0	20.0	20.0	17.5	17.5
INTAKE MAN. TEMP., F	108	108	141	141	159	159
CONCENTRATIONS, DRY BASIS						
CO, %	2.8700	1.5700	3.6000	.5700	2.2500	.5200
CO2, %	11.50	13.75	11.40	14.25	12.10	14.25
O2, %	1.75	.88	2.50	1.00	2.75	1.25
HC, PPMC	148	92	182	86	148	92
NOX, PPM	570	530	185	290	100	140
AIR/FUEL RATIO	14.65	14.70	14.78	15.22	15.62	15.41
EMISSION RATES, G/HR						
CO	5418.6	2899.5	5586.7	877.9	3015.5	684.9
HC	14.0	8.5	14.2	6.7	10.0	6.1
NOX+	179.2	162.9	47.8	74.4	22.3	30.7
OIL TEMPERATURE, F	207	207	226	226	228	228
OIL PRESSURE, PSI	41	41	41	41	41	41
COOLANT TEMPERATURE, F	197	197	194	194	191	191
EXHAUST PRESSURE, IN. H2O	92.0	55.0	67.0	40.0	59.0	38.0
EXHAUST TEMPERATURE, F	1261	1422	1177	1448	1218	1421

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	129.1	129.2	141.1	141.2	142.1	142.2
TEST DATE	3/21/77	3/21/77	3/18/77	3/18/77	3/18/77	3/18/77
BAROMETER, MMHG	748.0	748.0	737.0	737.0	737.0	737.0
HUMIDITY, GRAINS/LB	65	65	71	71	71	71
TEMPERATURE, F	98	98	76	76	75	74
ENGINE SPEED, RPM	5000	5000	750	750	750	750
TORQUE, FT-LB	100.0	100.0	3.1	3.1	10.0	10.0
POWER, BHP*	96.3	96.3	.4	.4	1.4	1.4
FUEL RATE, LB/HR	53.7	53.9	2.2	2.2	2.3	2.4
IGNITION TIMING, DEG BTDC	45.0	45.0	24.0	24.0	24.0	24.0
MANIFOLD VACUUM, IN HG	2.4	2.4	19.5	19.5	19.0	19.0
THROTTLE ANGLE, DEG	75.0	75.0	.0	.0	.5	.5
INTAKE MAN. TEMP., F	91	91	132	132	127	126
CONCENTRATIONS, DRY BASIS						
CO, %	6.4200	6.5000	2.6700	2.6700	2.6000	2.6000
CO2, %	11.00	11.20	6.50	6.65	7.00	7.00
O2, %	.25	.25	9.25	9.00	8.63	8.50
HC, PPMC	276	288	584	542	457	467
NOX, PPM	913	875	10	19	18	26
AIR/FUEL RATIO	12.34	12.34	22.53	22.16	21.65	21.52
EMISSION RATES, G/HR						
CO	17568.1	17802.4	556.5	546.7	547.4	555.7
HC	37.9	39.6	6.1	5.6	4.8	5.0
NOX+	392.4	376.4	.3	.6	.6	.9
OIL TEMPERATURE, F	238	238	153	153	153	153
OIL PRESSURE, PSI	43	43	16	16	16	16
COOLANT TEMPERATURE, F	198	198	162	163	163	163
EXHAUST PRESSURE, IN. H2O	100.0	100.0	1.0	.0	1.0	.0
EXHAUST TEMPERATURE, F	1328	1279	399	323	389	315

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	143.1	143.2	144.1	144.2	145.1	145.2
TEST DATE	3/18/77	3/18/77	3/18/77	3/18/77	3/18/77	3/18/77
BAROMETER, MMHG	737.0	737.0	737.0	737.0	737.0	737.0
HUMIDITY, GRAINS/LB	71	71	71	71	71	71
TEMPERATURE, F	74	74	78	78	79	79
ENGINE SPEED, RPM	750	750	700	700	700	700
TORQUE, FT-LB	20.0	20.0	9.6	9.6	20.0	20.0
POWER, BHP*	2.9	2.9	1.3	1.3	2.7	2.7
FUEL RATE, LB/HR	2.6	2.7	2.2	2.3	2.4	2.4
IGNITION TIMING, DEG BTDC	24.0	24.0	24.0	24.0	24.0	24.0
MANIFOLD VACUUM, IN HG	17.3	17.3	18.5	18.5	17.0	17.0
THROTTLE ANGLE, DEG	1.0	1.0	.0	.0	1.0	1.0
INTAKE MAN. TEMP., F	121	120	132	132	130	129
CONCENTRATIONS, DRY BASIS						
CO, %	2.3200	2.4000	4.0000	.0500	3.4500	.0700
CO2, %	7.70	7.60	6.65	11.25	7.60	11.70
O2, %	8.00	8.00	7.88	5.13	7.75	5.13
HC, PPMC	448	448	600	201	505	179
NOX, PPM	47	55	12	36	39	54
AIR/FUEL RATIO	20.96	20.92	19.29	19.20	19.42	19.02
EMISSION RATES, G/HR						
CO	537.8	565.0	732.0	9.1	677.8	13.2
HC	5.2	5.3	5.5	1.8	5.0	1.7
NOX+	1.8	2.1	.4	1.1	1.2	1.6
OIL TEMPERATURE, F	153	154	153	155	159	162
OIL PRESSURE, PSI	16	16	16	16	15	15
COOLANT TEMPERATURE, F	165	166	178	179	183	183
EXHAUST PRESSURE, IN. H2O	1.0	.0	2.0	1.0	2.0	1.0
EXHAUST TEMPERATURE, F	383	316	450	880	395	839

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1977 FORD 171 CID V-6
FUEL CODE: 7619

TEST NUMBER	146.1	146.2
TEST DATE	3/18/77	3/18/77
BAROMETER, MMHG	737.0	737.0
HUMIDITY, GRAINS/LB	71	71
TEMPERATURE, F	78	78
ENGINE SPEED, RPM	700	700
TORQUE, FT-LB	30.0	30.0
POWER, BHP*	4.0	4.0
FUEL RATE, LB/HR	2.9	2.9
IGNITION TIMING, DEG BTDC	24.0	24.0
MANIFOLD VACUUM, IN HG	15.0	15.0
THROTTLE ANGLE, DEG	2.0	2.0
INTAKE MAN. TEMP., F	122	121
CONCENTRATIONS, DRY BASIS		
CO, %	2.8700	.1000
CO2, %	8.70	11.95
O2, %	7.00	4.75
HC, PPMC	454	208
NOX, PPM	110	123
AIR/FUEL RATIO	18.97	18.60
EMISSION RATES, G/HR		
CO	661.5	22.3
HC	5.3	2.3
NOX+	4.1	4.4
OIL TEMPERATURE, F	163	166
OIL PRESSURE, PSI	15	15
COOLANT TEMPERATURE, F	185	185
EXHAUST PRESSURE, IN. H2O	2.0	1.0
EXHAUST TEMPERATURE, F	395	790

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\+ CORRECTED FOR HUMIDITY

U. S. DEPARTMENT OF TRANSPORTATION
TRANSPORTATION SYSTEMS CENTER
KENDALL SQUARE, CAMBRIDGE, MA. 02142

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