NO. DOT-TSC-NHTSA-79-7

HS-803-836

PERFORMANCE CHARACTERISTICS OF AUTOMOTIVE ENGINES IN THE UNITED STATES

Third Series - Report No. 7
1978, Ford, 98 CID (1.6 Liters), 2V

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BARTLESVILLE ENERGY TECHNOLOGY CENTER
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FEBRUARY 1979

INTERIM REPORT

Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
Office of Research and Development
Washington DC 20590

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
HS-803-836		

4. Title and Subtitle
PERFORMANCE CHARACTERISTICS OF AUTOMOTIVE ENGINES IN THE UNITED STATES, Third Series - Report No. 7, 1978 Ford, 98 CID (1.6 Liters), 2V

5. Report Date
February 1979

6. Performing Organization Code

8. Performing Organization Report No.
BETC/OP-78/34
DOT-TSC-NHTSA-79-7

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9. Performing Organization Name and Address
U.S. Department of Energy*
Bartlesville Energy Technology Center
P.O. Box 1398
Bartlesville OK 74003

10. Work Unit No. (TRAIS)
HS927/R9404

11. Contract or Grant No.
RA-77-07

13. Type of Report and Period Covered
Interim Report
July 1978

12. Sponsoring Agency Name and Address
U.S. Department of Transportation
National Highway Traffic Safety Administration,
Office of Research and Development,
Office of Passenger Vehicle Research,
Technology Assessment Division Washington DC 20590

14. Sponsoring Agency Code

15. Supplementary Notes
*Interagency agreement with: U.S. Department of Transportation
Research and Special Programs Administration
Transportation Systems Center
Kendall Square, Cambridge MA 02142

16. Abstract

Experimental data were obtained in dynamometer tests of a 1978 Ford 98 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.

17. Key Words	18. Distribution Statement
Fuel Economy Auto Emissions	DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	63	

PREFACE

This report, prepared by the U.S. Department of Energy, Bartlesville Energy Technology 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 United States. The Ford 98 CID engine used in this work is one of a series of 15 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.

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

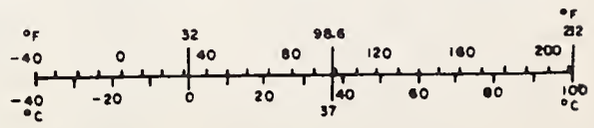
METRIC CONVERSION FACTORS

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 fuel economy and emissions for varied engine service and duty. The intent of the work done at Bartlesville Energy Technology Center is to provide basic engine characteristic data required as input for engineering calculations of the fuel consumption and emissions involving ground transportation.

The data acquired from tests of a 1978 Ford 98 CID engine are presented in this report. The engine, as equipped, is intended for use in a forty-nine state (Federal) vehicle with automatic transmission. Ford uses the 98 CID engine in the 2,000 lb Fiesta. 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 REPORT

The engine test setup included a complete engine (SAE definition) coupled to an eddy-current dynamometer. A cooling tower was used in place of the fan and radiator. The alternator was included but was not wired into the engine's electrical system. Emission control systems included exhaust-gas-recirculation, positive crankcase ventilation, air injection, and an oxidation catalyst. The manufacturer's engine specifications are listed in Table 1.

Prior to testing, engine break-in consisted of approximately 1,500 miles of operation with the engine installed in the vehicle. A single batch of unleaded regular grade gasoline was used throughout the tests; a detailed fuel analysis is given in Table 2. Engine testing began on April 5, 1978 and ended on April 17, 1978.

During steady-state tests, the engine was operated at the following speed/load modes:

Speeds: 1,000; 1,600; 2,000; 2,500; 3,200; 3,800; 4,500; 5,000 rpm

Loads: 0, 10, 25, 40, 60, 75, 90, 100 pct of full load (0, 10, 25, 60, and 75 pct points were repeated at all engine speeds)

Idle speed/load modes: 850 rpm -- 0, 10, 15 lb-ft
750 rpm -- 5 lb-ft

Over speed point: 5,200 rpm -- 68 lb-ft (WOT)

At the conclusion of the steady-state engine tests, the engine was motored at 1,000; 1,500; and 2,000 rpm. At each of these speeds, the engine was motored with the throttle in the idle position, ignition on; throttle in the idle position, ignition off; and wide-open-throttle, ignition off.

Total number of test modes.....	67
Total number of repeats.....	54
Total number of motoring modes.....	9
Total number of tests.....	130

The following data were recorded for each test point:

Test number
Data source code (1=before catalyst, 2=after catalyst)
Date
Barometric pressure, mm Hg
Dew point, °F
Inlet air temperature, °F

Speed, rpm
Torque, lb-ft -- Daytronics strain gauge load cell
Fuel rate, lb/hr -- Fluidyne positive displacement fuel flow meter
Ignition timing, °BTC
Manifold vacuum, in. Hg
Throttle angle, degrees
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 = Dew point, °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. 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

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

5. 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.

6. Air/Fuel ratio (dimensionless):

$$AF = \frac{68.9994}{MW_{fuel}} \left[\frac{(1 + \frac{x}{2} - y)(CO) + (2 + \frac{x}{2} - y)(CO_2) + 2(O_2) + \frac{NO_x}{10^4} - H_2}{CO + CO_2 + C_w\,(\frac{HC}{10^4})} \right]$$

where O_2 = Oxygen concentration (percent)
NO_x = Oxides of nitrogen (ppm)
HC = Unburned hydrocarbon concentration (ppmC)
x = Fuel hydrogen/carbon atomic ratio
y = Fuel oxygen/carbon atomic ratio
MW_{fuel} = Fuel molecular weight per carbon atom
= 12.01115 + 1.00797x + 15.9994y

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

$$M_{CO} = \left(\frac{MW_{CO}}{MW_{fuel}}\right) \left[\frac{(\%CO)\,(M_F)}{\%CO + \%CO_2 + C_w(\%HC)}\right] (453.59237)$$

MW_{CO} = Molecular weight of CO (28.01055)
M_f = Fuel rate in lbs/hour
%HC = HC(ppm)/10^4

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

$$M_{HC} = \left(\frac{MW_{HC}}{MW_{fuel}}\right) \left[\frac{(\%HC)\ (M_F)\ (C_W)}{\%CO + \%CO_2 + C_w(\%HC)}\right] \quad (453.59237)$$

MW_{HC} = Molecular weight of hydrocarbon per carbon atom
= 12.01115 + 1.00797x + 15.9994y

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

$$M_{NO_X} = \left(\frac{MW_{NO_X}}{MW_{fuel}}\right) \left[\frac{\%NO_x + M_f}{\%CO + \%CO_2 + C_w(\%HC)}\right] \quad (453.59237)\ (K_H)$$

MW_{NO_X} = Molecular weight of NO_2 = 46.0055
$\%NO_X = NO_X(ppm)/10^4$

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

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

where N = Engine speed (revolutions per minute)
T = Brake torque (lb-ft)
t = Air temperature (°F)

3. DISCUSSION OF TEST 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 brake horsepower produced by the engine was similar to the value quoted in Table 1. The maximum torque produced by the engine was similar to the value quoted in Table 1 but was found at a slightly lower speed.

Fuel rates were found to be nearly a linear function of power for most engine speeds (Figure 2) and were repeatable for all speeds duplicated. The air-fuel ratios were relatively lean for most engine speeds and are plotted as a function of power for all engine speeds (Figure 3). Due to the effects by the air injection system on the air-fuel calculations, the air-fuel ratios do not represent the actual stoichiometry in the combustion chamber. The air-fuel ratios were highly repeatable for all speeds duplicated.

Emissions of carbon monoxide (CO), hydrocarbon (HC), and oxides of nitrogen (NO_x) are plotted as a function of power for all engine speeds (Figures 4, 5, 6). The oxidation catalyst effectively reduced the emissions of CO and HC at all engine speeds except those at which the air-fuel ratios were relatively low. The low air-fuel ratios and the higher emission levels of CO and HC at the modes indicate a lack of available oxygen to support the oxidation process, thus reducing the effectiveness of the catalyst. Emissions of NO_x tended to peak at approximately 75 to 90 percent of maximum power at each speed and were repeatable for most speeds duplicated.

4. CONCLUSIONS

The experimental work to obtain performance data for the Ford Fiesta 98 CID engine has been completed, and these data are presented in the tables accompanying this report.

TABLE 1. MANUFACTURER'S ENGINE SPECIFICATIONS

Displacement, cubic inches	98
Maximum horsepower, bhp @ 5,000 rpm	66
Maximum torque, lb-ft @ 3,200 rpm	82
Bore and stroke, inches	3.19 and 3.06
Configuration	inline 4-cylinder
Compression ratio	8.5
Firing order	1-2-4-3
Ignition timing at idle speed, °BTDC @ 850 rpm	12
Block material	cast iron
Head material	cast iron
Number of crankshaft main bearings	5
Number of compression rings/piston	2
Number of oil rings/piston	1
Cam drive type	chain
Valve lift:	
Intake, inches	0.353
Exhaust, inches	0.353
Valve timing:	
Intake opens, °BTC	29
Intake closes, °ABC	63
Exhaust opens, °BBC	71
Exhaust closes, °ATC	21
Spark plug gap, inches	0.049
Engine weight, lbs	310
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	2 V downdraft
Distributor specifications:*	
Centrifugal advance, begins, ° @ 1,040 rpm	0
Centrifugal advance, intermediate, °@ 1,600 rpm	8
Centrifugal advance, full, ° @ 5,000 rpm	16
Vacuum advance, begins, ° @ 2 in. Hg	1
Vacuum advance, maximum, ° @ 24 in. Hg	12
Carburetor number	771FGC
EGR valve number	771F-9D475-AC
Distributor number	77IF-12100-AB

*Engine rpm, crankshaft degrees.

TABLE 2. FUEL ANALYSIS

Fuel No.	7718
Research octane No.	91.8
Motor octane No.	84.0
Specific gravity	0.717
API gravity, degrees	65.9
Distillation, °F:	
10 pct evaporated	123
50 pct "	209
95 pct "	402
100 pct "	413
Reid vapor pressure, psi	11.26
FIA analysis, pct:	
Aromatics	9
Olefins	15
Paraffins	76
Sulfur, pct	0.016
Lead, grams per gallon	trace
Hydrogen/carbon atomic ratio	2.038

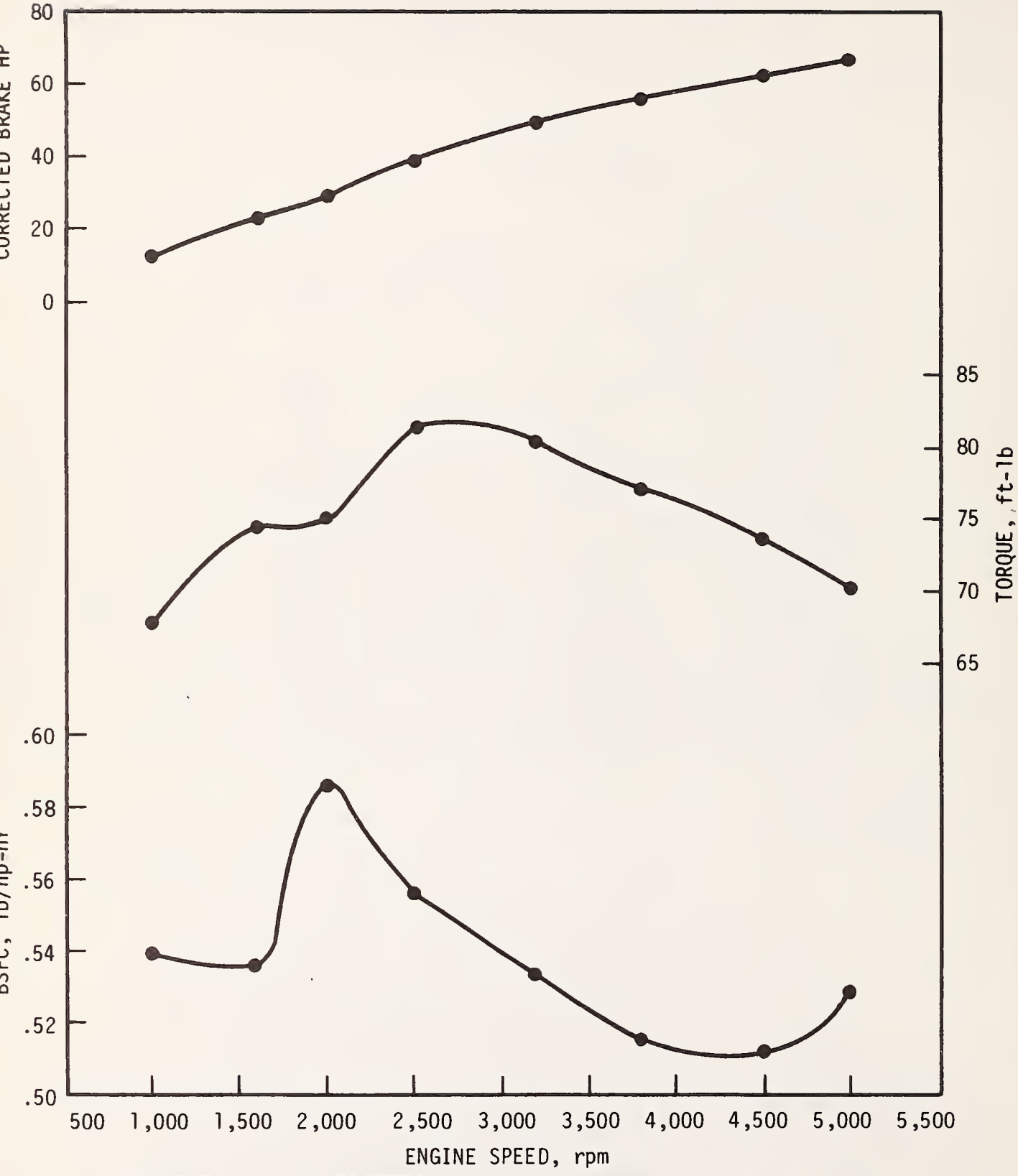


FIGURE 1. Brake Specific Fuel Consumption, Torque, and Brake Horsepower Versus Engine rpm at Wide-Open-Throttle--Ford Fiesta 98 CID Engine.

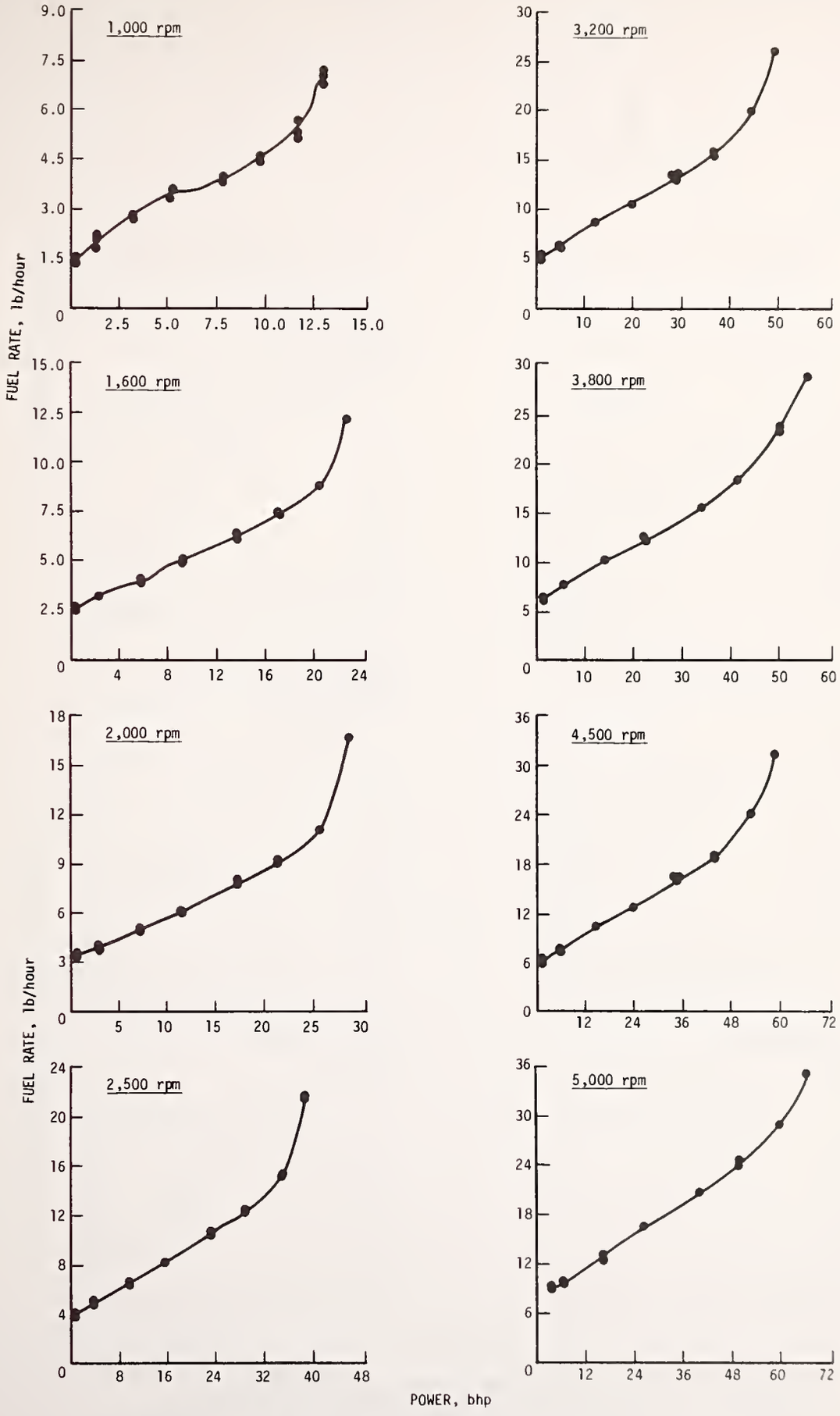


FIGURE 2. Fuel Rate Versus Power at Various Speed and Load Conditions--Ford Fiesta 98 CID Engine.

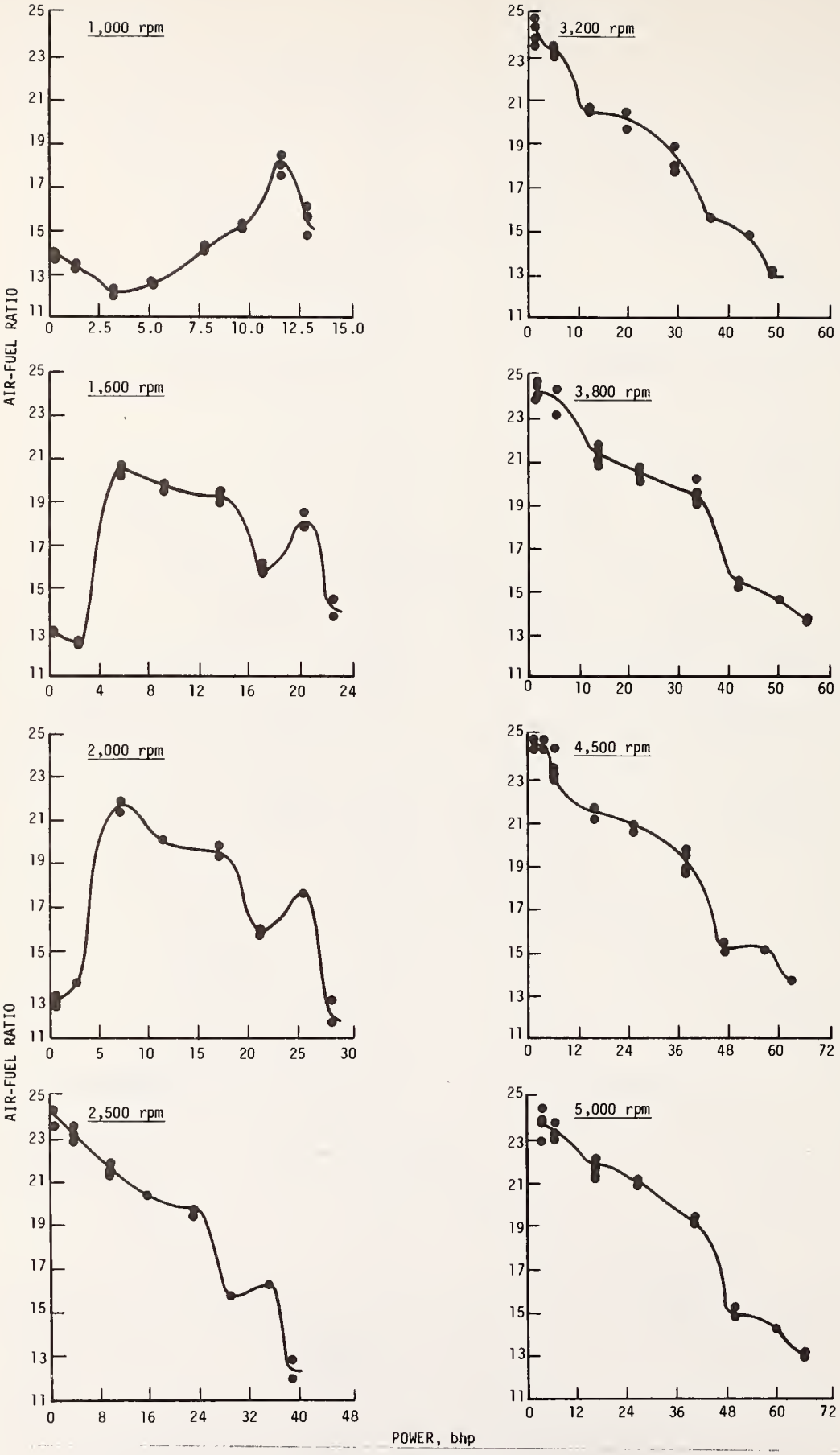


FIGURE 3. Air Fuel Ratio Versus Power at Various Speed and Load Conditions-- Ford Fiesta 98 CID Engine.

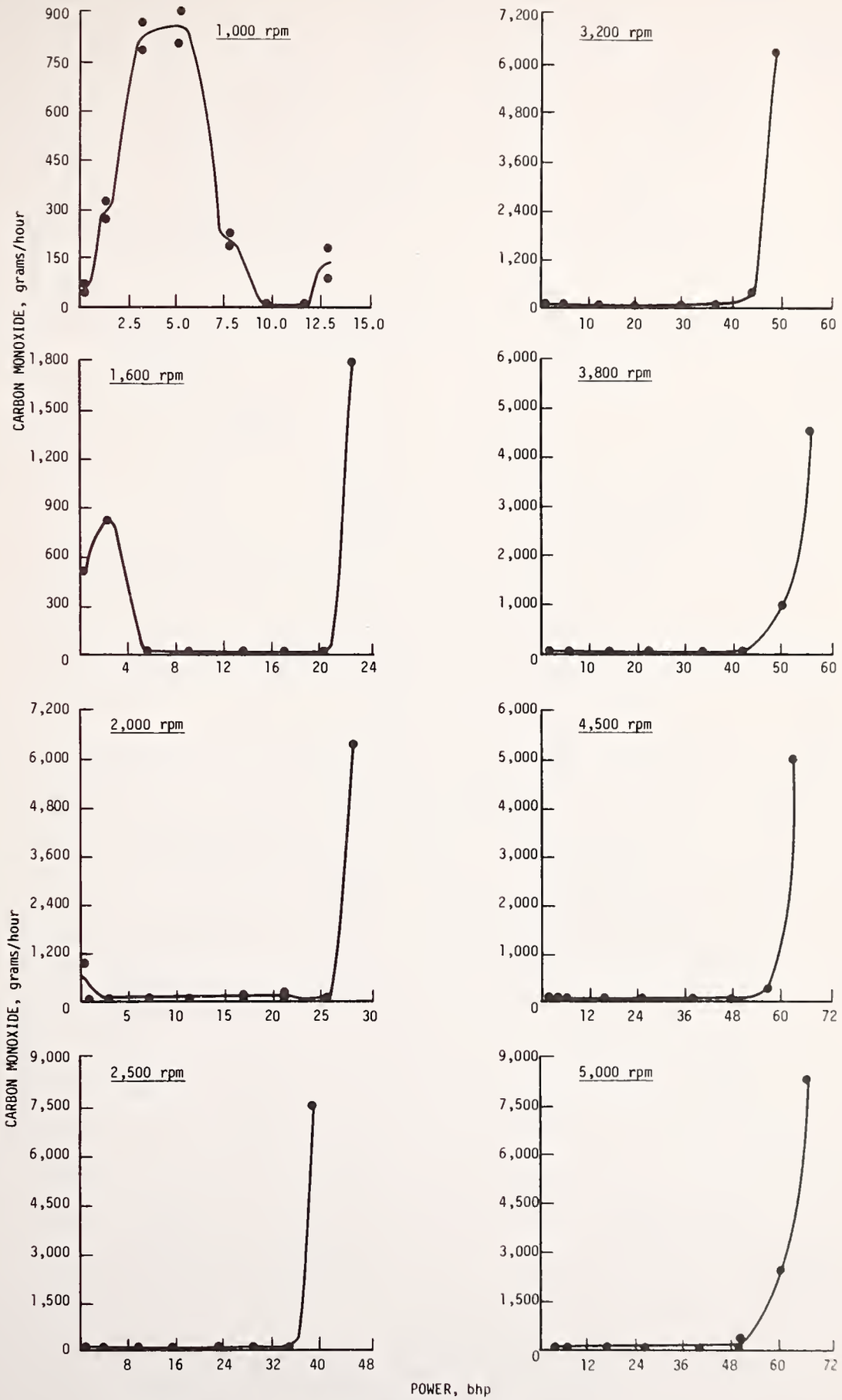


FIGURE 4. Carbon Monoxide Emissions Versus Power at Various Speed and Load Conditions--Ford Fiesta 98 CID Engine.

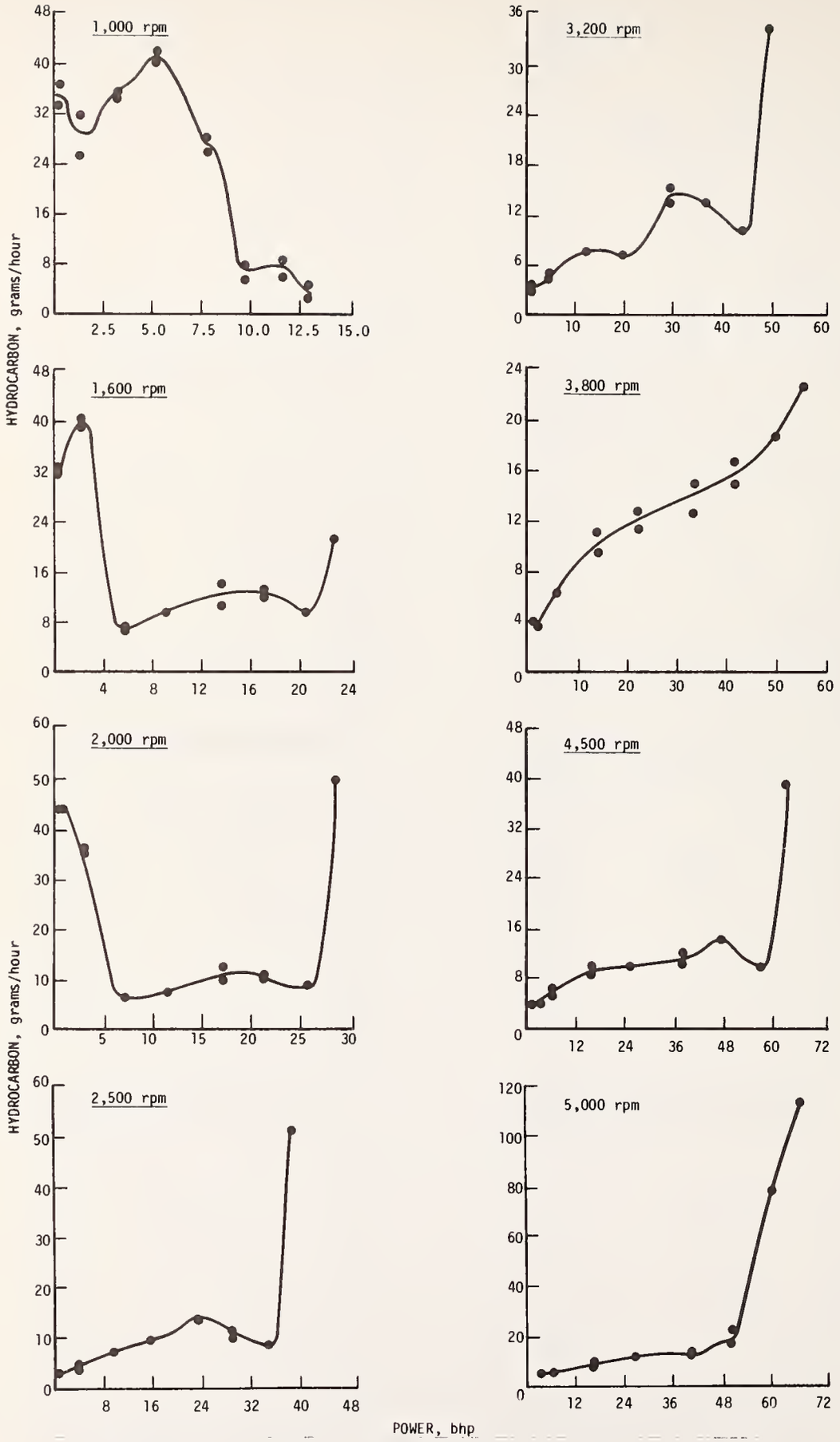


FIGURE 5. Hydrocarbon Emissions Versus Power at Various Speed and Load Conditions--Ford Fiesta 98 CID Engine.

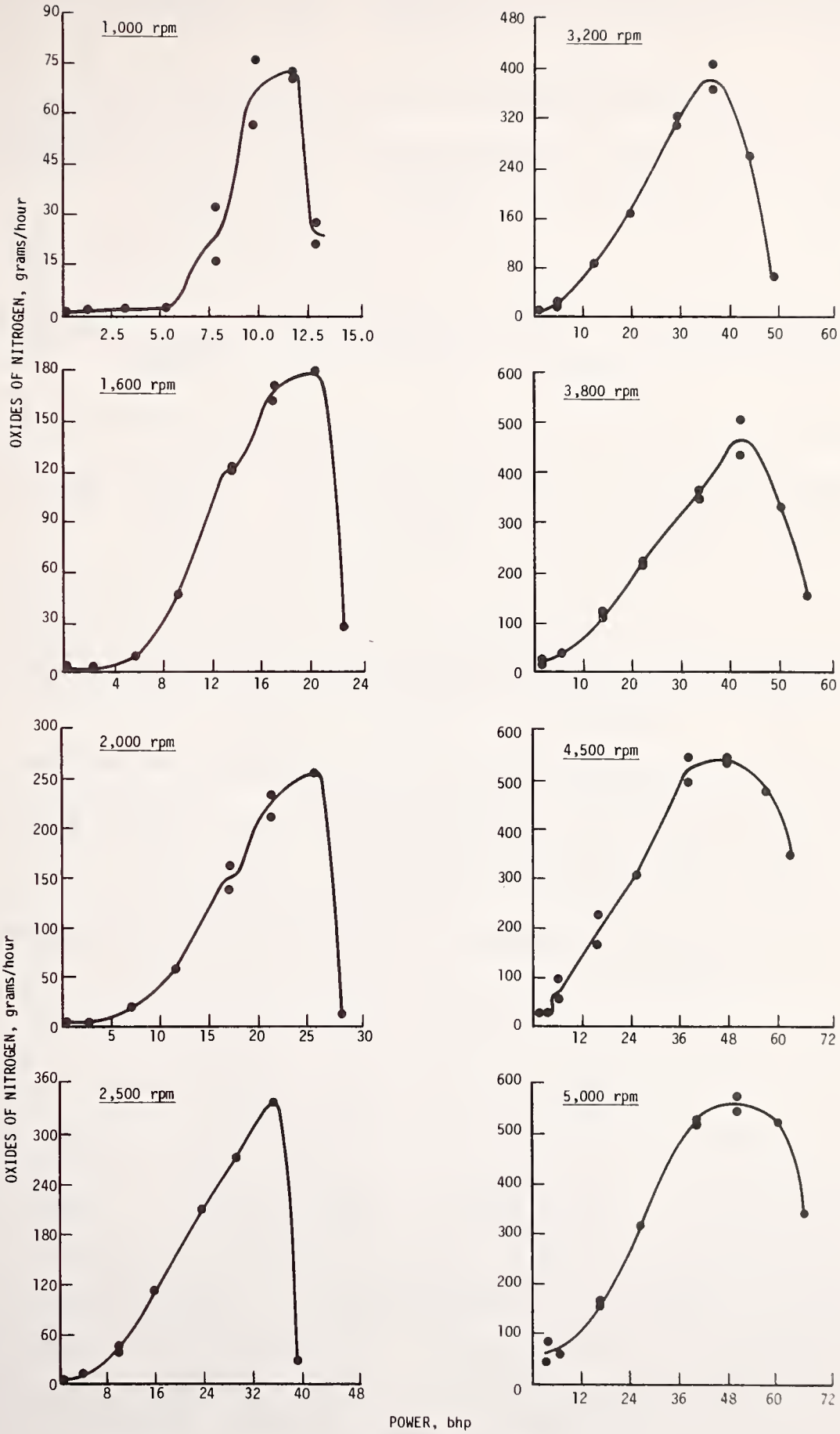


FIGURE 6. Oxides of Nitrogen Emissions Versus Power at Various Speed and Load Conditions--Ford Fiesta 98 CID Engine.

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

	1.01	1.02	2.01	2.02	3.01	3.02
TEST NUMBER	1.01	1.02	2.01	2.02	3.01	3.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78
BAROMETER, MMHG	739.0	739.0	739.0	739.1	739.1	739.1
HUMIDITY, GRAINS/LB	65	65	65	65	65	65
TEMPERATURE, F	85	85	80	80	80	80
ENGINE SPEED, RPM	850	850	850	850	850	850
TORQUE, FT-LB	.8	.8	10.0	10.0	15.0	15.0
POWER, BHP*	.1	.1	1.6	1.6	2.4	2.4
FUEL RATE, LB/HR	1.3	1.4	1.8	1.9	2.1	2.1
IGNITION TIMING, DEG BTDC	22.0	22.0	23.0	23.0	24.0	24.0
MANIFOLD VACUUM, IN HG	18.7	18.7	17.0	17.0	16.0	16.0
THROTTLE ANGLE, DEG	.3	.3	1.2	1.2	1.6	1.6
INTAKE MAN. TEMP., F	136	136	123	123	122	122
CONCENTRATIONS, DRY BASIS						
CO, %	1.1034	.1678	2.4725	2.6120	3.7122	3.5624
CO2, %	11.91	14.57	13.04	12.98	12.31	12.37
O2, %	2.98	.02	.26	.34	.24	.29
HC, PPMC	11553	4310	4899	5090	5351	5081
NOX, PPM	23	13	57	56	64	67
AIR/FUEL RATIO	15.15	14.33	13.48	13.45	12.93	13.04
EMISSION RATES, G/HR						
CO	94.0	14.5	257.7	278.7	426.3	410.8
HC	49.4	18.7	25.6	27.3	30.9	29.4
NOX+	.3	.2	.9	.9	1.1	1.2
OIL TEMPERATURE, F	198	198	159	159	158	158
OIL PRESSURE, PSI	22	22	31	31	31	31
COOLANT TEMPERATURE, F	166	166	166	166	169	169
EXHAUST PRESSURE, IN. H2O	.0	.0	.0	.0	.0	.0
EXHAUST TEMPERATURE, F	430	518	492	562	495	270

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID

FUEL CODE: 7718

TEST NUMBER	4.01	4.02	5.01	5.02	6.01	6.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78	4/14/78	4/14/78
BAROMETER, MMHG	739.1	739.1	739.1	739.1	741.8	741.8
HUMIDITY, GRAINS/LB	65	65	65	65	61	61
TEMPERATURE, F	80	80	81	81	78	78
ENGINE SPEED, RPM	750	750	1000	1000	1000	1000
TORQUE, FT-LB	4.6	4.6	68.0	68.0	61.2	61.2
POWER, BHP*	.7	.7	12.9	12.9	11.6	11.6
FUEL RATE, LB/HR	1.3	1.4	6.8	7.1	5.7	5.7
IGNITION TIMING, DEG BTDC	23.0	23.0	12.0	12.0	13.0	13.0
MANIFOLD VACUUM, IN HG	17.7	17.7	.4	.4	3.0	3.0
THROTTLE ANGLE, DEG	.2	.2	61.3	61.3	16.4	16.4
INTAKE MAN. TEMP., F	124	124	100	100	83	83
CONCENTRATIONS, DRY BASIS						
CO, %	2.2373	2.3975	3.5214	.2062	.4334	.0198
CO2, %	12.20	11.95	9.69	14.44	11.00	12.00
O2, %	1.43	1.51	4.05	.12	4.94	3.93
HC, PPMC	11655	11638	3395	222	2361	395
NOX, PPM	28	35	726	312	1128	1101
AIR/FUEL RATIO	13.63	13.61	15.60	14.79	18.47	18.00
EMISSION RATES, G/HR						
CO	172.6	195.5	1604.7	89.6	190.5	8.5
HC	45.2	47.7	77.7	4.8	52.1	8.5
NOX+	.3	.5	52.0	21.3	76.7	73.1
OIL TEMPERATURE, F	158	158	171	171	165	165
OIL PRESSURE, PSI	26	26	31	31	31	31
COOLANT TEMPERATURE, F	170	170	183	183	168	168
EXHAUST PRESSURE, IN. H2O	.0	.0	6.0	2.0	5.0	2.0
EXHAUST TEMPERATURE, F	412	232	812	1042	843	720

* CORRECTED SAE J816B

\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	7.01	7.02	8.01	8.02	9.01	9.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/ 5/78	4/ 5/78	4/14/78	4/14/78
BAROMETER, MMHG	739.6	739.6	739.1	739.1	741.8	741.8
HUMIDITY, GRAINS/LB	54	54	65	65	61	61
TEMPERATURE, F	75	75	82	82	77	77
ENGINE SPEED, RPM	1000	1000	1000	1000	1000	1000
TORQUE, FT-LB	51.0	51.0	40.8	40.8	27.2	27.2
POWER, BHP*	9.7	9.7	7.8	7.8	5.2	5.2
FUEL RATE, LB/HR	4.5	4.5	4.1	4.0	3.6	3.5
IGNITION TIMING, DEG BTDC	24.0	24.0	24.0	24.0	26.0	26.0
MANIFOLD VACUUM, IN HG	5.5	5.5	9.1	9.1	13.0	13.0
THROTTLE ANGLE, DEG	9.8	9.8	6.6	6.6	4.4	4.4
INTAKE MAN. TEMP., F	119	119	123	123	115	115
CONCENTRATIONS, DRY BASIS						
CO, %	.1687	.0120	1.6760	.0080	4.9602	4.7781
CO2, %	13.86	14.36	10.48	12.21	11.39	11.48
O2, %	.98	.36	4.33	3.30	.21	.25
HC, PPMC	2723	406	2850	429	4486	4395
NOX, PPM	1661	1834	440	458	85	75
AIR/FUEL RATIO	15.18	15.07	17.00	17.41	12.48	12.57
EMISSION RATES, G/HR						
CO	47.5	3.4	499.4	2.4	950.2	906.5
HC	38.5	5.7	42.6	6.4	43.2	41.9
NOX+	70.2	76.8	20.6	21.4	2.5	2.2
OIL TEMPERATURE, F	184	184	171	171	166	166
OIL PRESSURE, PSI	29	29	31	31	31	31
COOLANT TEMPERATURE, F	172	172	181	181	169	169
EXHAUST PRESSURE, IN. H2O	3.0	.0	3.0	.0	2.0	.0
EXHAUST TEMPERATURE, F	893	698	704	686	668	562

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID

FUEL CODE: 7718

	10.01	10.02	11.01	11.02	12.01	12.02
TEST NUMBER	1	2	1	2	1	2
DATA SOURCE CODE	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78	4/10/78	4/10/78
TEST DATE	736.0	736.0	736.0	736.0	739.6	739.6
BAROMETER, MMHG	65	65	65	65	46	46
HUMIDITY, GRAINS/LB	82	82	81	81	74	74
TEMPERATURE, F	1000	1000	1000	1000	1000	1000
ENGINE SPEED, RPM	17.0	17.0	6.8	6.8	1.6	1.6
TORQUE, FT-LB	3.2	3.2	1.3	1.3	.3	.3
POWER, BHP*	2.8	2.7	1.8	1.8	1.4	1.5
FUEL RATE, LB/HR	25.0	25.0	24.0	24.0	24.0	24.0
IGNITION TIMING, DEG BTDC	16.1	16.1	18.8	18.8	20.0	20.0
MANIFOLD VACUUM, IN HG	2.9	2.9	1.6	1.6	.8	.8
THROTTLE ANGLE, DEG	129	129	125	125	126	126
INTAKE MAN. TEMP., F						
CONCENTRATIONS, DRY BASIS						
CO, %	5.9437	6.2100	2.6224	2.5734	1.9612	.5670
CO2, %	10.65	10.53	12.78	12.64	12.58	14.48
O2, %	.17	.25	.25	.40	1.51	.07
HC, PPMC	5136	5041	4881	4812	11399	8769
NOX, PPM	70	71	54	58	36	23
AIR/FUEL RATIO	12.00	11.96	13.39	13.50	13.84	13.81
EMISSION RATES, G/HR						
CO	876.0	871.6	273.3	268.3	152.5	47.0
HC	38.0	35.5	25.5	25.2	44.5	36.5
NOX+	1.6	1.6	.9	1.0	.4	.3
OIL TEMPERATURE, F	172	172	164	164	179	179
OIL PRESSURE, PSI	31	31	32	32	30	30
COOLANT TEMPERATURE, F	170	170	167	167	172	172
EXHAUST PRESSURE, IN. H2O	2.0	.0	.0	.0	1.0	.0
EXHAUST TEMPERATURE, F	570	684	526	287	600	491

* CORRECTED SAE J816B

\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	13.01	13.02	14.01	14.02	15.01	15.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/14/78	4/14/78
BAROMETER, MMHG	743.6	743.6	743.6	743.6	741.8	741.8
HUMIDITY, GRAINS/LB	63	63	63	63	61	61
TEMPERATURE, F	83	83	83	83	78	78
ENGINE SPEED, RPM	1600	1600	1600	1600	1600	1600
TORQUE, FT-LB	75.0	75.0	67.5	67.5	56.3	56.3
POWER, BHP*	22.7	22.7	20.4	20.4	17.1	17.1
FUEL RATE, LB/HR	12.1	12.2	8.8	8.8	7.4	7.5
IGNITION TIMING, DEG BTDC	20.0	20.0	20.0	20.0	31.0	30.0
MANIFOLD VACUUM, IN HG	.5	.5	3.0	3.0	7.0	7.0
THROTTLE ANGLE, DEG	61.0	61.0	23.0	23.0	14.7	14.7
INTAKE MAN. TEMP., F	91	91	107	107	106	106
CONCENTRATIONS, DRY BASIS						
CO, %	5.0378	2.5613	.1803	.0036	.0711	.0097
CO2, %	9.05	13.13	11.25	12.10	13.33	13.78
O2, %	3.61	.02	4.69	3.63	1.59	1.23
HC, PPMC	3068	603	1896	289	2521	490
NOX, PPM	229	250	1777	1783	2267	2259
AIR/FUEL RATIO	14.48	13.67	18.50	17.78	15.73	15.71
EMISSION RATES, G/HR						
CO	3826.2	1793.2	122.7	2.3	34.6	4.8
HC	117.0	21.2	64.8	9.4	61.6	12.1
NOX+	27.1	27.2	188.3	180.8	170.6	171.5
OIL TEMPERATURE, F	200	200	196	196	180	180
OIL PRESSURE, PSI	34	34	33	33	33	33
COOLANT TEMPERATURE, F	182	182	185	185	179	179
EXHAUST PRESSURE, IN. H2O	16.0	16.0	10.0	5.0	5.0	3.0
EXHAUST TEMPERATURE, F	951	951	1001	836	983	750

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

	16.01	16.02	17.01	17.02	18.01	18.02
TEST NUMBER	1	2	1	2	1	2
DATA SOURCE CODE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
TEST DATE						
BAROMETER, MMHG	743.6	743.6	743.6	743.6	743.6	743.6
HUMIDITY, GRAINS/LB	63	63	63	63	63	63
TEMPERATURE, F	83	83	82	82	82	82
ENGINE SPEED, RPM	1600	1600	1600	1600	1600	1600
TORQUE, FT-LB	45.0	45.0	30.0	30.0	18.8	18.8
POWER, BHP*	13.6	13.6	9.1	9.1	5.7	5.7
FUEL RATE, LB/HR	6.1	6.3	5.0	5.1	3.9	3.9
IGNITION TIMING, DEG BTDC	31.0	31.0	31.0	31.0	29.0	29.0
MANIFOLD VACUUM, IN HG	9.0	9.0	14.5	14.5	17.0	17.0
THROTTLE ANGLE, DEG	10.5	10.5	7.2	7.2	4.9	4.9
INTAKE MAN. TEMP., F	135	135	141	141	142	142
CONCENTRATIONS, DRY BASIS						
CO, %	.0506	.0026	.1889	.0083	.9720	.0102
CO2, %	11.20	11.16	10.68	10.79	9.35	10.65
O2, %	5.06	5.20	5.64	5.60	6.95	5.93
HC, PPMC	1827	419	1975	450	2005	401
NOX, PPM	1642	1536	708	690	155	195
AIR/FUEL RATIO	18.96	19.38	19.46	19.84	20.41	20.19
EMISSION RATES, G/HR						
CO	24.4	1.3	77.7	3.5	323.8	3.3
HC	44.1	10.6	40.8	9.6	33.5	6.6
NOX+	123.0	120.7	45.3	45.6	8.0	10.0
OIL TEMPERATURE, F	200	200	199	199	193	193
OIL PRESSURE, PSI	33	33	33	33	33	33
COOLANT TEMPERATURE, F	180	180	181	181	179	179
EXHAUST PRESSURE, IN. H2O	7.0	2.0	6.0	1.0	3.0	1.0
EXHAUST TEMPERATURE, F	922	722	850	686	778	682

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	19.01	19.02	20.01	20.02	21.01	21.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/ 6/78	4/ 6/78	4/ 5/78	4/ 5/78
BAROMETER, MMHG	739.6	739.6	743.6	743.6	736.0	736.0
HUMIDITY, GRAINS/LB	59	59	63	63	64	64
TEMPERATURE, F	76	76	81	81	86	91
ENGINE SPEED, RPM	1600	1600	1600	1600	2000	2000
TORQUE, FT-LB	7.5	7.5	.7	.7	74.5	74.5
POWER, BHP*	2.3	2.3	.2	.2	28.5	28.5
FUEL RATE, LB/HR	3.2	3.2	2.5	2.5	16.7	16.7
IGNITION TIMING, DEG BTDC	30.0	30.0	29.0	29.0	20.0	20.0
MANIFOLD VACUUM, IN HG	20.0	20.0	21.5	21.5	1.0	1.0
THROTTLE ANGLE, DEG	2.5	2.5	1.9	1.9	61.0	61.0
INTAKE MAN. TEMP., F	131	131	137	137	87	87
CONCENTRATIONS, DRY BASIS						
CO, %	4.9559	4.9003	3.7932	3.7643	7.7442	7.2144
CO2, %	11.46	11.70	12.25	12.36	7.90	9.90
O2, %	.24	.03	.25	.21	2.92	.01
HC, PPMC	4769	4609	4649	4626	3064	1135
NOX, PPM	86	85	72	66	99	103
AIR/FUEL RATIO	12.49	12.43	12.97	12.97	12.74	11.70
EMISSION RATES, G/HR						
CO	846.8	829.1	518.3	511.9	7321.7	6313.8
HC	40.9	39.2	31.9	31.6	145.5	49.9
NOX+	2.2	2.2	1.5	1.4	14.6	14.1
OIL TEMPERATURE, F	191	191	184	184	209	209
OIL PRESSURE, PSI	33	33	34	34	34	27
COOLANT TEMPERATURE, F	176	176	176	176	179	181
EXHAUST PRESSURE, IN. H2O	1.0	.0	2.0	2.0	24.0	11.0
EXHAUST TEMPERATURE, F	777	619	662	662	1039	1339

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID

FUEL CODE: 7718	22.01	22.02	23.01	23.02	24.01	24.02
TEST NUMBER	1	2	1	2	1	2
DATA SOURCE CODE	4/ 5/78	4/ 5/78	4/14/78	4/14/78	4/ 5/78	4/ 5/78
TEST DATE	736.0	736.0	741.8	741.8	736.0	736.0
BAROMETER, MMHG	64	64	61	61	64	64
HUMIDITY, GRAINS/LB	81	81	78	78	89	89
TEMPERATURE, F	2000	2000	2000	2000	2000	2000
ENGINE SPEED, RPM	67.0	67.0	55.8	55.8	44.7	44.7
TORQUE, FT-LB	25.6	25.6	21.2	21.2	17.1	17.1
POWER, BHP*	11.0	11.1	9.2	9.1	8.0	7.8
FUEL RATE, LB/HR	20.0	20.0	30.0	30.0	31.0	31.0
IGNITION TIMING, DEG BTDC	3.5	3.5	7.0	7.0	9.5	9.5
MANIFOLD VACUUM, IN HG	27.5	27.5	17.6	17.6	13.4	13.4
THROTTLE ANGLE, DEG	99	99	105	105	128	128
INTAKE MAN. TEMP., F						
CONCENTRATIONS, DRY BASIS						
CO, %	.3817	.0086	.0678	.0081	.0579	.0059
CO2, %	11.74	12.20	13.33	13.59	10.91	11.02
O2, %	3.89	3.55	1.58	1.27	5.31	5.14
HC, PPMC	1396	217	2216	328	1574	305
NOX, PPM	1933	2001	2264	2260	1640	1627
AIR/FUEL RATIO	17.63	17.71	15.76	15.77	19.32	19.40
EMISSION RATES, G/HR						
CO	309.6	7.1	41.3	4.9	37.5	3.8
HC	56.9	8.9	67.8	10.0	51.2	9.8
NOX+	245.0	255.5	213.5	211.7	166.1	162.2
OIL TEMPERATURE, F	207	207	191	191	214	214
OIL PRESSURE, PSI	34	34	34	34	34	34
COOLANT TEMPERATURE, F	176	176	179	179	177	177
EXHAUST PRESSURE, IN. H2O	17.0	9.0	9.0	4.0	11.0	5.0
EXHAUST TEMPERATURE, F	1150	1033	1076	842	1046	877

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	25.01	25.02	26.01	26.02	27.01	27.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78	4/10/78	4/10/78
BAROMETER, MMHG	736.0	736.0	736.0	736.0	739.6	739.6
HUMIDITY, GRAINS/LB	64	64	64	64	59	59
TEMPERATURE, F	89	89	90	90	76	76
ENGINE SPEED, RPM	2000	2000	2000	2000	2000	2000
TORQUE, FT-LB	29.8	29.8	18.6	18.6	7.5	7.5
POWER, BHP*	11.4	11.4	7.1	7.1	2.8	2.8
FUEL RATE, LB/HR	6.1	6.0	5.0	5.0	3.9	3.9
IGNITION TIMING, DEG BTDC	30.0	30.0	30.0	30.0	30.0	30.0
MANIFOLD VACUUM, IN HG	14.0	14.0	16.5	16.5	19.5	19.5
THROTTLE ANGLE, DEG	9.3	9.3	6.6	6.6	4.4	4.4
INTAKE MAN. TEMP., F	138	138	140	140	136	136
CONCENTRATIONS, DRY BASIS						
CO, %	.1396	.0075	.2312	.0052	2.9130	2.4222
CO2, %	10.43	10.64	9.62	10.04	12.85	13.24
O2, %	5.94	5.72	7.05	6.70	.26	.00
HC, PPMC	1629	305	1573	290	3670	3208
NOX, PPM	735	722	264	293	123	85
AIR/FUEL RATIO	19.97	20.05	21.36	21.31	13.41	13.49
EMISSION RATES, G/HR						
CO	71.4	3.8	103.5	2.3	631.0	529.5
HC	41.9	7.7	35.4	6.5	39.9	35.2
NOX+	58.8	57.0	18.5	20.4	4.1	2.8
OIL TEMPERATURE, F	211	211	208	208	206	206
OIL PRESSURE, PSI	34	34	34	34	34	34
COOLANT TEMPERATURE, F	176	176	176	176	177	177
EXHAUST PRESSURE, IN. H2O	7.0	3.0	5.0	2.0	3.0	.0
EXHAUST TEMPERATURE, F	999	817	928	779	970	788

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	28.01	28.02	29.01	29.02	30.01	30.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/14/78	4/14/78	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78
BAROMETER, MMHG	741.8	741.8	736.0	736.0	736.0	736.0
HUMIDITY, GRAINS/LB	61	61	64	64	64	64
TEMPERATURE, F	78	78	78	78	78	78
ENGINE SPEED, RPM	2000	2000	2500	2500	2500	2500
TORQUE, FT-LB	1.1	1.1	81.0	81.0	73.0	73.0
POWER, BHP*	.4	.4	38.7	38.7	34.9	34.9
FUEL RATE, LB/HR	3.4	3.4	21.6	21.4	15.2	15.1
IGNITION TIMING, DEG BTDC	30.0	30.0	20.0	20.0	20.0	20.0
MANIFOLD VACUUM, IN HG	22.0	22.0	1.0	1.0	3.0	3.0
THROTTLE ANGLE, DEG	3.7	3.7	61.0	61.0	36.4	36.4
INTAKE MAN. TEMP., F	132	132	88	88	89	89
CONCENTRATIONS, DRY BASIS						
CO, %	5.2330	5.2215	7.1305	6.6912	.4014	.0107
CO2, %	11.28	11.25	8.65	10.37	12.75	13.31
O2, %	.13	.08	2.49	-.01	2.50	1.97
HC, PPMC	4880	4798	2700	907	1561	169
NOX, PPM	72	73	153	148	2097	2099
AIR/FUEL RATIO	12.30	12.28	12.85	11.94	16.36	16.32
EMISSION RATES, G/HR						
CO	957.5	958.2	8660.8	7547.9	415.0	10.9
HC	44.8	44.2	164.7	51.4	81.1	8.7
NOX+	2.0	2.1	29.0	26.1	338.8	336.0
OIL TEMPERATURE, F	194	194	195	195	203	203
OIL PRESSURE, PSI	34	34	35	35	35	35
COOLANT TEMPERATURE, F	174	174	175	175	182	182
EXHAUST PRESSURE, IN. H2O	3.0	1.0	35.0	19.0	26.0	15.0
EXHAUST TEMPERATURE, F	781	617	1197	1413	1321	1165

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	31.01	31.02	32.01	32.02	33.01	33.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/10/78	4/10/78	4/ 5/78	4/ 5/78
BAROMETER, MMHG	739.6	739.6	739.6	739.6	736.0	736.0
HUMIDITY, GRAINS/LB	59	59	59	59	64	64
TEMPERATURE, F	77	77	77	77	78	78
ENGINE SPEED, RPM	2500	2500	2500	2500	2500	2500
TORQUE, FT-LB	60.7	60.7	48.6	48.6	32.4	32.4
POWER, BHP*	28.8	28.8	23.1	23.1	15.5	15.5
FUEL RATE, LB/HR	12.3	12.2	10.5	10.4	8.1	8.1
IGNITION TIMING, DEG BTDC	32.0	32.0	32.0	32.0	33.0	33.0
MANIFOLD VACUUM, IN HG	6.0	6.0	9.0	9.0	13.0	13.0
THROTTLE ANGLE, DEG	24.3	24.3	18.3	18.3	12.7	12.8
INTAKE MAN. TEMP., F	103	103	120	120	135	135
CONCENTRATIONS, DRY BASIS						
CO, %	.0959	.0111	.0727	.0112	.0875	.0072
CO2, %	13.49	13.85	10.94	11.08	10.34	10.45
O2, %	1.57	1.29	5.44	5.31	6.23	6.06
HC, PPMC	2105	290	1353	314	1370	274
NOX, PPM	2100	2225	1580	1595	1009	1015
AIR/FUEL RATIO	15.73	15.77	19.45	19.52	20.40	20.49
EMISSION RATES, G/HR						
CO	77.3	8.8	61.8	9.5	60.9	5.0
HC	85.2	11.6	57.8	13.4	47.9	9.6
NOX+	258.9	269.9	205.5	206.8	109.7	110.4
OIL TEMPERATURE, F	194	194	217	217	224	224
OIL PRESSURE, PSI	35	35	35	35	35	35
COOLANT TEMPERATURE, F	182	182	180	180	177	177
EXHAUST PRESSURE, IN. H2O	16.0	8.0	16.0	9.0	12.0	5.0
EXHAUST TEMPERATURE, F	1224	1045	1145	998	1082	900

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	34.01	34.02	35.01	35.02	36.01	36.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78	4/ 5/78
BAROMETER, MMHG	736.0	736.0	736.0	736.0	736.0	736.0
HUMIDITY, GRAINS/LB	64	64	64	64	64	64
TEMPERATURE, F	78	78	78	78	78	78
ENGINE SPEED, RPM	2500	2500	2500	2500	2500	2500
TORQUE, FT-LB	20.3	20.3	8.1	8.1	1.3	1.3
POWER, BHP*	9.7	9.7	3.9	3.9	.6	.6
FUEL RATE, LB/HR	6.5	6.5	4.8	4.8	4.0	4.1
IGNITION TIMING, DEG BTDC	33.0	33.0	33.0	33.0	32.0	32.0
MANIFOLD VACUUM, IN HG	15.0	15.0	19.0	19.0	20.5	20.5
THROTTLE ANGLE, DEG	10.0	10.0	6.6	6.6	5.1	5.1
INTAKE MAN. TEMP., F	140	140	144	144	145	145
CONCENTRATIONS, DRY BASIS						
CO, %	.1095	.0068	.2943	.0082	.4239	.0083
CO2, %	9.80	9.93	8.99	9.18	8.56	8.98
O2, %	6.96	6.83	7.96	7.95	8.53	8.14
HC, PPMC	1211	243	723	167	546	129
NOX, PPM	458	458	102	138	51	62
AIR/FUEL RATIO	21.40	21.52	22.84	23.26	23.67	23.66
EMISSION RATES, G/HR						
CO	64.4	4.0	136.0	3.9	169.9	3.4
HC	35.7	7.2	16.8	3.9	11.0	2.6
NOX+	42.0	42.3	7.4	10.2	3.2	3.9
OIL TEMPERATURE, F	222	222	219	219	213	213
OIL PRESSURE, PSI	35	35	35	35	35	35
COOLANT TEMPERATURE, F	180	180	179	179	176	176
EXHAUST PRESSURE, IN. H2O	10.0	3.0	7.0	2.0	6.0	1.0
EXHAUST TEMPERATURE, F	1027	865	997	825	973	781

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	37.01	37.02	38.01	38.02	39.01	39.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 5/78	4/ 5/78	4/ 5/78	4/ 6/78	4/10/78	4/10/78
BAROMETER, MMHG	736.0	736.0	736.0	736.0	739.6	739.6
HUMIDITY, GRAINS/LB	64	64	64	64	59	59
TEMPERATURE, F	79	79	79	79	79	79
ENGINE SPEED, RPM	3200	3200	3200	3200	3200	3200
TORQUE, FT-LB	80.0	80.0	72.0	72.0	60.0	60.0
POWER, BHP*	48.9	48.9	44.0	44.0	36.5	36.5
FUEL RATE, LB/HR	26.1	26.1	20.0	20.0	15.6	15.7
IGNITION TIMING, DEG BTDC	23.0	23.0	23.0	23.0	36.0	36.0
MANIFOLD VACUUM, IN HG	1.5	1.5	3.0	3.0	6.0	6.0
THROTTLE ANGLE, DEG	61.0	61.0	40.8	40.8	29.4	29.4
INTAKE MAN. TEMP., F	93	93	91	91	115	115
CONCENTRATIONS, DRY BASIS						
CO, %	4.8380	4.3841	1.5584	.3262	.1196	.0158
CO2, %	11.13	12.01	12.88	14.52	13.74	14.03
O2, %	.96	.01	1.23	.08	1.40	1.15
HC, PPMC	908	480	1409	166	1827	271
NOX, PPM	294	285	1436	1351	2300	2360
AIR/FUEL RATIO	13.22	12.94	14.83	14.75	15.62	15.66
EMISSION RATES, G/HR						
CO	7108.5	6291.0	1933.9	395.8	120.3	15.9
HC	67.0	34.6	87.8	10.1	92.3	13.7
NOX+	67.4	64.0	278.6	256.4	353.9	363.6
OIL TEMPERATURE, F	230	230	220	220	231	231
OIL PRESSURE, PSI	36	36	36	36	35	35
COOLANT TEMPERATURE, F	182	182	180	180	184	184
EXHAUST PRESSURE, IN. H2O	55.0	33.0	38.0	22.0	24.0	14.0
EXHAUST TEMPERATURE, F	1482	1430	1425	1375	1307	1132

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

	40.01	40.02	41.01	41.02	42.01	42.02
TEST NUMBER	1	2	1	2	1	2
DATA SOURCE CODE	4/14/78	4/14/78	4/ 6/78	4/ 6/78	4/10/78	4/10/78
TEST DATE	741.8	741.8	736.0	736.0	739.6	739.6
BAROMETER, MMHG	61	61	64	64	59	59
HUMIDITY, GRAINS/LB	79	79	79	79	78	78
TEMPERATURE, F	3200	3200	3200	3200	3200	3200
ENGINE SPEED, RPM	48.0	48.0	32.0	32.0	20.0	20.0
TORQUE, FT-LB	29.1	29.1	19.6	19.6	12.2	12.2
POWER, BHP*	13.6	13.6	10.5	10.5	8.6	8.6
FUEL RATE, LB/HR	38.0	38.0	36.0	36.0	36.0	36.0
IGNITION TIMING, DEG BTDC	9.0	9.0	12.5	12.5	16.0	16.0
MANIFOLD VACUUM, IN HG	23.5	23.5	16.4	16.4	11.6	11.6
THROTTLE ANGLE, DEG	115	115	134	134	139	139
INTAKE MAN. TEMP., F						
CONCENTRATIONS, DRY BASIS						
CO, %	.0862	.0114	.1061	.0048	.3622	.0289
CO2, %	11.60	12.08	10.73	10.48	10.06	10.50
O2, %	3.75	3.90	5.54	6.02	6.61	6.23
HC, PPMC	1483	264	851	159	833	205
NOX, PPM	2003	2042	1197	1192	710	770
AIR/FUEL RATIO	17.77	18.01	19.67	20.47	20.67	20.60
EMISSION RATES, G/HR						
CO	89.4	11.5	91.9	4.3	266.4	21.3
HC	77.2	13.4	37.0	7.2	30.8	7.6
NOX+	321.2	319.8	162.1	167.8	79.8	86.8
OIL TEMPERATURE, F	233	233	246	246	244	244
OIL PRESSURE, PSI	35	35	35	35	35	35
COOLANT TEMPERATURE, F	185	185	180	180	180	180
EXHAUST PRESSURE, IN. H2O	19.0	12.0	17.0	10.0	11.0	5.0
EXHAUST TEMPERATURE, F	1214	1047	1178	1017	1132	986

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	43.01	43.02	44.01	44.02	45.01	45.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
BAROMETER, MMHG	736.0	736.0	736.0	736.0	742.4	742.4
HUMIDITY, GRAINS/LB	64	64	64	64	60	60
TEMPERATURE, F	78	78	78	78	79	79
ENGINE SPEED, RPM	3200	3200	3200	3200	3800	3800
TORQUE, FT-LB	8.0	8.0	1.9	1.9	77.5	77.5
POWER, BHP*	4.9	4.9	1.2	1.2	55.7	55.7
FUEL RATE, LB/HR	6.2	6.3	5.3	5.3	28.7	28.7
IGNITION TIMING, DEG BTDC	35.0	36.0	36.0	36.0	28.0	28.0
MANIFOLD VACUUM, IN HG	19.0	19.0	20.0	20.0	.5	.5
THROTTLE ANGLE, DEG	8.7	8.7	7.2	7.2	61.4	61.4
INTAKE MAN. TEMP., F	147	147	147	148	96	96
CONCENTRATIONS, DRY BASIS						
CO, %	.1462	.0061	.1541	.0056	3.1912	2.7595
CO2, %	9.08	9.26	8.92	8.72	12.41	12.98
O2, %	7.95	7.89	8.20	8.58	.51	.05
HC, PPMC	610	139	446	108	487	272
NOX, PPM	176	211	103	114	648	607
AIR/FUEL RATIO	23.01	23.14	23.45	24.43	13.72	13.65
EMISSION RATES, G/HR						
CO	88.5	3.7	81.4	3.1	5291.5	4542.7
HC	18.6	4.3	11.8	3.0	40.6	22.5
NOX+	16.7	20.2	8.5	9.9	165.3	153.6
OIL TEMPERATURE, F	235	235	233	232	232	232
OIL PRESSURE, PSI	36	36	36	36	36	37
COOLANT TEMPERATURE, F	178	178	178	178	184	184
EXHAUST PRESSURE, IN. H2O	8.0	4.0	7.0	3.0	68.0	39.0
EXHAUST TEMPERATURE, F	1077	889	1068	848	1577	1422

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	46.01	46.02	47.01	47.02	48.01	48.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/14/78	4/14/78	4/14/78	4/14/78
BAROMETER, MMHG	742.4	742.4	741.8	741.8	741.8	741.8
HUMIDITY, GRAINS/LB	60	60	61	61	61	61
TEMPERATURE, F	79	79	80	80	79	79
ENGINE SPEED, RPM	3800	3800	3800	3800	3800	3800
TORQUE, FT-LB	69.8	69.8	58.1	58.1	46.5	46.5
POWER, BHP*	50.1	50.1	41.9	41.9	33.5	33.5
FUEL RATE, LB/HR	23.6	23.4	18.6	18.6	15.7	15.7
IGNITION TIMING, DEG BTDC	28.0	28.0	40.0	40.0	40.0	40.0
MANIFOLD VACUUM, IN HG	3.3	3.3	6.0	6.0	8.5	8.5
THROTTLE ANGLE, DEG	43.3	43.3	31.8	31.8	26.8	26.8
INTAKE MAN. TEMP., F	100	100	106	106	117	117
CONCENTRATIONS, DRY BASIS						
CO, %	1.4595	.6773	.1321	.0176	.0930	.0172
CO2, %	13.11	14.16	13.60	13.90	10.72	11.36
O2, %	.81	.08	1.11	.85	5.10	4.84
HC, PPMC	1236	261	1783	274	1101	238
NOX, PPM	1609	1513	2703	2715	1865	1879
AIR/FUEL RATIO	14.62	14.59	15.44	15.47	19.27	19.02
EMISSION RATES, G/HR						
CO	2116.1	964.0	159.5	21.2	121.0	21.4
HC	90.0	18.6	108.1	16.6	71.9	14.9
NOX+	358.9	331.4	504.8	505.8	375.3	362.3
OIL TEMPERATURE, F	243	243	240	240	253	253
OIL PRESSURE, PSI	37	37	36	36	36	36
COOLANT TEMPERATURE, F	184	184	186	186	183	183
EXHAUST PRESSURE, IN. H2O	48.0	28.0	28.0	17.0	28.0	16.0
EXHAUST TEMPERATURE, F	1445	1360	1331	1166	1233	1104

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	49.01	49.02	50.01	50.02	51.01	51.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
BAROMETER, MMHG	743.3	743.3	743.3	743.3	743.7	743.7
HUMIDITY, GRAINS/LB	60	60	60	60	66	66
TEMPERATURE, F	80	80	80	80	79	79
ENGINE SPEED, RPM	3800	3800	3800	3800	3800	3800
TORQUE, FT-LB	31.0	31.0	19.4	19.4	7.8	7.8
POWER, BHP*	22.2	22.2	13.9	13.9	5.6	5.6
FUEL RATE, LB/HR	12.5	12.5	10.2	10.1	7.8	7.8
IGNITION TIMING, DEG BTDC	39.0	39.0	41.0	41.0	40.0	40.0
MANIFOLD VACUUM, IN HG	12.0	12.0	15.0	15.0	18.2	18.2
THROTTLE ANGLE, DEG	19.4	19.4	15.3	15.3	10.8	10.8
INTAKE MAN. TEMP., F	131	131	106	106	135	135
CONCENTRATIONS, DRY BASIS						
CO, %	.1045	.0149	.1357	.0134	.1403	.0062
CO2, %	10.14	10.18	9.91	9.75	8.63	9.35
O2, %	6.08	6.14	6.57	6.93	8.79	7.94
HC, PPMC	894	229	745	235	791	164
NOX, PPM	1266	1298	753	762	261	325
AIR/FUEL RATIO	20.45	20.72	21.03	21.75	24.33	23.11
EMISSION RATES, G/HR						
CO	114.5	16.5	123.1	12.5	111.6	4.7
HC	49.2	12.7	33.9	11.0	31.6	6.2
NOX+	213.3	221.0	105.0	109.3	32.8	38.5
OIL TEMPERATURE, F	250	250	249	249	236	236
OIL PRESSURE, PSI	36	36	36	36	36	36
COOLANT TEMPERATURE, F	183	183	182	182	182	182
EXHAUST PRESSURE, IN. H2O	24.0	12.0	17.0	8.0	13.0	6.0
EXHAUST TEMPERATURE, F	1187	1015	1135	940	1042	838

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	52.01	52.02	53.01	53.02	54.01	54.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
BAROMETER, MMHG	743.7	743.7	743.7	743.7	743.6	743.6
HUMIDITY, GRAINS/LB	66	66	66	66	66	66
TEMPERATURE, F	79	79	81	81	82	82
ENGINE SPEED, RPM	3800	3800	4500	4500	4500	4500
TORQUE, FT-LB .	1.7	1.7	74.0	74.0	66.6	66.6
POWER, BHP*	1.2	1.2	63.0	63.0	56.8	56.8
FUEL RATE, LB/HR	6.4	6.4	32.3	32.2	26.8	26.8
IGNITION TIMING, DEG BTDC	40.0	40.0	30.0	30.0	28.0	28.0
MANIFOLD VACUUM, IN HG	19.6	19.6	1.5	1.5	2.9	2.9
THROTTLE ANGLE, DEG	9.3	9.3	61.3	61.3	48.6	48.6
INTAKE MAN. TEMP., F	139	139	98	98	105	105
CONCENTRATIONS, DRY BASIS						
CO, %	.1473	.0069	2.9438	2.7202	.8737	.1728
CO2, %	8.89	8.78	12.62	12.94	13.33	14.25
O2, %	8.53	8.80	.48	.04	1.11	.50
HC, PPMC	406	115	950	418	818	119
NOX, PPM	133	157	1288	1188	1984	1792
AIR/FUEL RATIO	23.87	24.61	13.78	13.66	15.15	15.12
EMISSION RATES, G/HR						
CO	94.5	4.5	5478.3	5030.5	1482.1	289.5
HC	13.1	3.8	88.8	38.9	69.7	10.0
NOX+	13.5	16.4	378.3	346.8	531.2	474.0
OIL TEMPERATURE, F	242	242	245	245	264	264
OIL PRESSURE, PSI	36	36	37	37	37	37
COOLANT TEMPERATURE, F	182	182	184	184	185	185
EXHAUST PRESSURE, IN. H2O	4.0	4.0	80.0	50.0	65.0	39.0
EXHAUST TEMPERATURE, F	820	820	1571	1450	1494	1362

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	55.01	55.02	56.01	56.02	57.01	57.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
BAROMETER, MMHG	743.6	743.6	743.6	743.6	743.6	743.6
HUMIDITY, GRAINS/LB	66	66	67	67	67	67
TEMPERATURE, F	84	84	83	83	83	83
ENGINE SPEED, RPM	4500	4500	4500	4500	4500	4500
TORQUE, FT-LB	55.5	55.5	44.4	44.4	29.6	29.6
POWER, BHP*	47.3	47.3	37.9	37.9	25.3	25.3
FUEL RATE, LB/HR	22.4	22.3	19.1	19.1	15.1	15.1
IGNITION TIMING, DEG BTDC	42.0	42.0	42.0	42.0	42.0	42.0
MANIFOLD VACUUM, IN HG	5.5	5.5	7.3	7.3	11.5	11.5
THROTTLE ANGLE, DEG	37.6	37.6	32.5	32.5	23.5	23.5
INTAKE MAN. TEMP., F	118	118	125	125	132	132
CONCENTRATIONS, DRY BASIS						
CO, %	.2764	.0217	.1104	.0099	.1102	.0102
CO2, %	14.01	14.43	11.03	11.33	10.05	10.40
O2, %	.56	.22	4.55	4.62	6.48	6.06
HC, PPMC	1772	206	692	134	742	150
NOX, PPM	2490	2467	2020	2039	1420	1488
AIR/FUEL RATIO	14.97	15.02	18.73	18.87	20.91	20.56
EMISSION RATES, G/HR						
CO	386.4	30.3	169.7	15.0	147.0	13.3
HC	124.4	14.4	53.4	10.2	49.7	9.9
NOX+	549.3	542.6	493.1	493.2	300.6	309.5
OIL TEMPERATURE, F	284	284	285	285	278	278
OIL PRESSURE, PSI	36	36	36	36	36	36
COOLANT TEMPERATURE, F	184	184	182	182	181	181
EXHAUST PRESSURE, IN. H2O	44.0	25.0	45.0	27.0	32.0	17.0
EXHAUST TEMPERATURE, F	1443	1298	1326	1186	1232	1081

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	58.01	58.02	59.01	59.02	60.01	60.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
BAROMETER, MMHG	743.6	743.6	743.6	743.6	743.6	743.6
HUMIDITY, GRAINS/LB	67	67	67	67	67	67
TEMPERATURE, F	82	82	82	82	81	81
ENGINE SPEED, RPM	4500	4500	4500	4500	4500	4500
TORQUE, FT-LB	18.5	18.5	7.4	7.4	1.5	1.5
POWER, BHP*	15.8	15.8	6.3	6.3	1.3	1.3
FUEL RATE, LB/HR	12.2	12.4	9.2	9.3	7.9	7.7
IGNITION TIMING, DEG BTDC	42.0	42.0	42.0	42.0	42.0	42.0
MANIFOLD VACUUM, IN HG	14.4	14.4	17.6	17.6	18.9	18.9
THROTTLE ANGLE, DEG	18.3	18.3	13.5	13.5	11.7	11.7
INTAKE MAN. TEMP., F	141	141	146	146	146	146
CONCENTRATIONS, DRY BASIS						
CO, %	.1344	.0130	.1436	.0108	.1364	.0102
CO2, %	9.86	9.86	8.84	9.24	8.44	8.77
O2, %	6.75	6.92	8.23	7.81	8.98	8.57
HC, PPMC	621	177	493	138	450	104
NOX, PPM	890	927	347	400	195	220
AIR/FUEL RATIO	21.26	21.69	23.59	23.08	24.86	24.36
EMISSION RATES, G/HR						
CO	147.4	14.7	132.4	9.8	113.3	8.1
HC	34.2	10.1	22.8	6.3	18.8	4.1
NOX+	155.1	166.4	50.8	57.4	25.7	27.7
OIL TEMPERATURE, F	274	274	272	272	269	269
OIL PRESSURE, PSI	36	36	36	36	36	36
COOLANT TEMPERATURE, F	182	182	181	181	181	181
EXHAUST PRESSURE, IN. H2O	24.0	12.0	17.0	7.0	14.0	6.0
EXHAUST TEMPERATURE, F	1194	1027	1123	978	1102	920

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	61.01	61.02	62.01	62.02	63.01	63.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
BAROMETER, MMHG	743.6	743.6	743.6	743.6	743.6	743.6
HUMIDITY, GRAINS/LB	63	63	63	63	63	63
TEMPERATURE, F	83	83	84	84	85	85
ENGINE SPEED, RPM	5000	5000	5000	5000	5000	5000
TORQUE, FT-LB	70.6	70.6	63.5	63.5	53.0	53.0
POWER, BHP*	66.7	66.7	60.0	60.0	50.1	50.1
FUEL RATE, LB/HR	35.3	35.1	28.9	28.9	24.6	24.6
IGNITION TIMING, DEG BTDC	29.0	29.0	28.0	28.0	39.0	39.0
MANIFOLD VACUUM, IN HG	2.0	2.0	3.2	3.2	5.5	5.5
THROTTLE ANGLE, DEG	61.0	61.0	45.4	45.4	38.3	38.3
INTAKE MAN. TEMP., F	92	92	97	97	97	97
CONCENTRATIONS, DRY BASIS						
CO, %	4.2347	4.3036	1.4290	1.4532	.5122	.2700
CO2, %	11.91	12.00	13.72	13.88	14.22	14.57
O2, %	.42	.04	.33	.06	.42	.11
HC, PPMC	1901	1170	1894	911	2008	292
NOX, PPM	1179	1133	2043	1978	2469	2345
AIR/FUEL RATIO	13.13	12.95	14.28	14.20	14.74	14.81
EMISSION RATES, G/HR						
CO	8255.6	8320.0	2434.9	2461.3	763.8	403.2
HC	186.1	113.6	162.1	77.5	150.4	21.9
NOX+	358.0	341.2	542.1	521.7	573.3	545.4
OIL TEMPERATURE, F	244	244	271	271	294	294
OIL PRESSURE, PSI	38	38	36	36	35	35
COOLANT TEMPERATURE, F	182	182	185	185	185	185
EXHAUST PRESSURE, IN. H2O	82.0	52.0	63.0	39.0	49.0	30.0
EXHAUST TEMPERATURE, F	1530	1405	1536	1368	1494	1334

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	64.01	64.02	65.01	65.02	66.01	66.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78
BAROMETER, MMHG	743.6	743.6	743.6	743.6	743.6	743.6
HUMIDITY, GRAINS/LB	63	63	63	63	63	63
TEMPERATURE, F	85	85	83	83	83	83
ENGINE SPEED, RPM	5000	5000	5000	5000	5000	5000
TORQUE, FT-LB	42.4	42.4	28.0	28.0	17.6	17.6
POWER, BHP*	40.1	40.1	26.5	26.5	16.6	16.6
FUEL RATE, LB/HR	20.5	20.5	16.5	16.5	12.9	13.0
IGNITION TIMING, DEG BTDC	41.0	41.0	39.0	39.0	40.0	40.0
MANIFOLD VACUUM, IN HG	7.5	7.5	11.5	11.5	15.0	15.0
THROTTLE ANGLE, DEG	32.2	32.2	23.8	23.8	17.9	17.9
INTAKE MAN. TEMP., F	126	126	130	130	141	141
CONCENTRATIONS, DRY BASIS						
CO, %	.1182	.0106	.1236	.0114	.1383	.0103
CO2, %	10.92	11.07	10.02	10.28	9.71	9.74
O2, %	5.29	5.19	6.71	6.42	7.24	7.27
HC, PPMC	665	135	715	157	545	147
NOX, PPM	2045	2039	1322	1409	774	842
AIR/FUEL RATIO	19.41	19.47	21.14	20.96	21.85	22.13
EMISSION RATES, G/HR						
CO	197.0	17.8	180.1	16.5	163.3	12.3
HC	55.7	11.3	52.3	11.4	32.3	8.9
NOX+	530.7	529.7	300.0	316.9	142.2	157.7
OIL TEMPERATURE, F	294	294	269	269	275	275
OIL PRESSURE, PSI	36	36	37	37	36	36
COOLANT TEMPERATURE, F	183	183	184	184	181	181
EXHAUST PRESSURE, IN. H2O	52.0	32.0	37.0	22.0	28.0	14.0
EXHAUST TEMPERATURE, F	1346	1212	1258	1106	1227	1067

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	67.01	67.02	68.01	68.02	69.01	69.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 6/78	4/ 6/78	4/ 6/78	4/ 6/78	4/ 7/78	4/ 7/78
BAROMETER, MMHG	743.6	743.6	743.6	743.6	748.6	748.6
HUMIDITY, GRAINS/LB	63	63	63	63	82	82
TEMPERATURE, F	81	81	81	81	83	83
ENGINE SPEED, RPM	5000	5000	5000	5000	850	850
TORQUE, FT-LB	7.1	7.1	3.6	3.6	.5	.5
POWER, BHP*	6.7	6.7	3.4	3.4	.1	.1
FUEL RATE, LB/HR	9.9	9.9	9.2	9.2	1.3	1.2
IGNITION TIMING, DEG BTDC	38.0	38.0	40.0	40.0	21.0	21.0
MANIFOLD VACUUM, IN HG	18.0	18.0	19.5	19.5	19.0	19.0
THROTTLE ANGLE, DEG	12.5	12.5	10.2	10.2	.0	.0
INTAKE MAN. TEMP., F	142	142	140	140	123	123
CONCENTRATIONS, DRY BASIS						
CO, %	.1440	.0119	.3069	.0123	2.3355	.6576
CO2, %	8.91	9.35	9.14	9.04	12.45	14.65
O2, %	8.40	7.84	8.02	8.36	1.87	.12
HC, PPMC	369	100	294	90	16184	11047
NOX, PPM	355	414	207	277	23	18
AIR/FUEL RATIO	23.73	23.02	22.87	23.86	13.51	13.62
EMISSION RATES, G/HR						
CO	141.7	11.4	268.7	11.2	165.1	44.5
HC	18.2	4.8	12.9	4.1	57.4	37.5
NOX+	54.4	61.5	28.2	39.5	.3	.2
OIL TEMPERATURE, F	267	267	266	266	165	165
OIL PRESSURE, PSI	37	37	37	37	27	27
COOLANT TEMPERATURE, F	183	183	183	183	164	163
EXHAUST PRESSURE, IN. H2O	19.0	9.0	16.0	7.0	1.0	.0
EXHAUST TEMPERATURE, F	1159	983	1199	982	568	588

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	70.01	70.02	71.01	71.02	72.01	72.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78
BAROMETER, MMHG	748.6	748.6	748.6	748.6	748.6	748.6
HUMIDITY, GRAINS/LB	82	82	82	82	82	82
TEMPERATURE, F	83	83	82	82	83	83
ENGINE SPEED, RPM	850	850	850	850	1000	1000
TORQUE, FT-LB	10.0	10.0	15.0	15.0	51.0	51.0
POWER, BHP*	1.6	1.6	2.4	2.4	9.7	9.7
FUEL RATE, LB/HR	1.9	1.8	2.1	2.1	4.6	4.6
IGNITION TIMING, DEG BTDC	21.0	21.0	21.0	21.0	25.0	25.0
MANIFOLD VACUUM, IN HG	17.5	17.5	16.0	16.0	6.0	6.0
THROTTLE ANGLE, DEG	1.0	1.0	1.5	1.5	9.7	9.7
INTAKE MAN. TEMP., F	124	124	126	126	121	121
CONCENTRATIONS, DRY BASIS						
CO, %	2.6804	2.8155	3.6428	3.7183	.1460	.0064
CO2, %	13.26	13.15	12.67	12.65	14.23	14.76
O2, %	.37	.34	.32	.31	1.26	.84
HC, PPMC	5087	4954	4989	4951	3061	550
NOX, PPM	53	57	75	77	1183	1197
AIR/FUEL RATIO	13.47	13.41	13.08	13.05	15.32	15.35
EMISSION RATES, G/HR						
CO	279.1	284.3	415.2	422.5	41.1	1.8
HC	26.6	25.1	28.6	28.3	43.3	7.7
NOX+	.9	1.0	1.4	1.5	56.6	56.8
OIL TEMPERATURE, F	164	164	168	168	182	182
OIL PRESSURE, PSI	28	28	27	27	29	29
COOLANT TEMPERATURE, F	171	171	176	176	170	170
EXHAUST PRESSURE, IN. H2O	1.0	.0	1.0	.0	3.0	.0
EXHAUST TEMPERATURE, F	583	481	596	377	884	677

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	73.01	73.02	74.01	74.02	75.01	75.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78
BAROMETER, MMHG	748.6	748.6	748.6	748.6	748.6	748.6
HUMIDITY, GRAINS/LB	82	82	82	82	73	73
TEMPERATURE, F	81	81	79	79	80	80
ENGINE SPEED, RPM	1000	1000	1000	1000	1000	1000
TORQUE, FT-LB	40.8	40.8	17.0	17.0	6.8	6.8
POWER, BHP*	7.8	7.8	3.2	3.2	1.3	1.3
FUEL RATE, LB/HR	4.0	4.0	2.8	2.8	2.2	2.1
IGNITION TIMING, DEG BTDC	25.0	25.0	25.0	25.0	23.0	23.0
MANIFOLD VACUUM, IN HG	9.0	9.0	16.5	16.5	19.0	19.0
THROTTLE ANGLE, DEG	6.5	6.5	2.5	2.5	1.3	1.3
INTAKE MAN. TEMP., F	130	130	128	128	128	128
CONCENTRATIONS, DRY BASIS						
CO, %	1.2759	.9898	5.6539	5.5188	2.9617	2.7239
CO2, %	14.20	14.54	11.52	11.57	12.73	12.89
O2, %	.46	.13	.30	.21	.39	.29
HC, PPMC	3555	2241	4863	4796	5348	5316
NOX, PPM	454	408	76	75	55	58
AIR/FUEL RATIO	14.24	14.28	12.32	12.32	13.32	13.36
EMISSION RATES, G/HR						
CO	292.6	228.2	802.4	787.2	359.0	323.3
HC	40.9	25.9	34.7	34.4	32.6	31.7
NOX+	17.7	16.0	1.8	1.8	1.1	1.1
OIL TEMPERATURE, F	186	186	183	183	181	181
OIL PRESSURE, PSI	28	28	29	29	29	29
COOLANT TEMPERATURE, F	184	184	180	180	177	177
EXHAUST PRESSURE, IN. H2O	2.0	.0	1.0	.0	1.0	.0
EXHAUST TEMPERATURE, F	826	628	660	486	634	434

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	76.01	76.02	77.01	77.02	78.01	78.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78
BAROMETER, MMHG	739.6	739.6	748.6	748.6	748.6	748.6
HUMIDITY, GRAINS/LB	54	54	73	73	73	73
TEMPERATURE, F	75	75	79	79	79	79
ENGINE SPEED, RPM	1000	1000	1600	1600	1600	1600
TORQUE, FT-LB	1.1	1.1	56.3	56.3	45.0	45.0
POWER, BHP*	.2	.2	17.0	17.0	13.6	13.6
FUEL RATE, LB/HR	1.5	1.5	7.4	7.5	6.4	6.4
IGNITION TIMING, DEG BTDC	24.0	24.0	31.0	31.0	31.0	31.0
MANIFOLD VACUUM, IN HG	19.5	19.5	6.0	6.0	9.0	9.0
THROTTLE ANGLE, DEG	.8	.8	15.2	15.2	10.4	10.4
INTAKE MAN. TEMP., F	127	127	113	113	127	127
CONCENTRATIONS, DRY BASIS						
CO, %	1.7102	.7846	.0690	.0056	.0572	.0066
CO2, %	12.67	14.24	13.14	13.46	10.99	11.05
O2, %	1.79	.04	2.02	1.57	5.28	5.23
HC, PPMC	11672	7628	1420	520	1671	537
NOX, PPM	37	32	1952	1983	1536	1455
AIR/FUEL RATIO	14.09	13.79	16.18	15.96	19.24	19.42
EMISSION RATES, G/HR						
CO	144.8	68.0	34.8	2.8	29.4	3.4
HC	49.6	33.2	35.9	13.1	43.1	14.0
NOX+	.5	.4	160.5	162.1	128.7	123.1
OIL TEMPERATURE, F	184	184	192	192	201	201
OIL PRESSURE, PSI	30	30	32	32	33	33
COOLANT TEMPERATURE, F	163	163	176	176	175	175
EXHAUST PRESSURE, IN. H2O	1.0	.0	6.0	2.0	6.0	2.0
EXHAUST TEMPERATURE, F	670	576	1038	840	970	798

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	79.01	79.02	80.01	80.02	81.01	81.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78	4/ 7/78
BAROMETER, MMHG	748.6	748.6	748.6	748.6	748.6	748.6
HUMIDITY, GRAINS/LB	73	73	73	73	73	73
TEMPERATURE, F	79	79	78	78	77	77
ENGINE SPEED, RPM	1600	1600	1600	1600	1600	1600
TORQUE, FT-LB	18.8	18.8	7.5	7.5	.4	.4
POWER, BHP*	5.7	5.7	2.3	2.3	.1	.1
FUEL RATE, LB/HR	4.0	4.0	3.2	3.2	2.6	2.5
IGNITION TIMING, DEG BTDC	30.0	30.0	30.0	30.0	29.0	29.0
MANIFOLD VACUUM, IN HG	16.5	16.5	20.5	20.5	21.5	21.5
THROTTLE ANGLE, DEG	4.7	4.7	3.1	3.1	1.8	1.8
INTAKE MAN. TEMP., F	133	133	133	133	129	129
CONCENTRATIONS, DRY BASIS						
CO, %	.9798	.0109	4.8643	4.8221	3.5418	3.7208
CO2, %	9.27	10.54	11.44	11.56	12.21	12.20
O2, %	7.21	6.11	.34	.12	.36	.16
HC, PPMC	2020	412	4815	4702	4736	4776
NOX, PPM	161	179	94	89	64	64
AIR/FUEL RATIO	20.67	20.42	12.56	12.47	13.10	12.92
EMISSION RATES, G/HR						
CO	340.7	3.7	833.4	823.1	506.6	503.8
HC	35.3	7.1	41.4	40.3	34.0	32.5
NOX+	9.1	10.0	2.6	2.5	1.5	1.4
OIL TEMPERATURE, F	201	201	197	197	185	185
OIL PRESSURE, PSI	33	33	33	33	33	33
COOLANT TEMPERATURE, F	177	177	175	175	177	177
EXHAUST PRESSURE, IN. H2O	5.0	1.0	3.0	.0	2.0	.0
EXHAUST TEMPERATURE, F	841	790	770	687	725	501

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	82.01	82.02	83.01	83.02	84.01	84.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/ 8/78	4/ 8/78	4/ 8/78	4/ 8/78
BAROMETER, MMHG	739.6	739.6	741.5	741.5	741.5	741.5
HUMIDITY, GRAINS/LB	59	59	69	69	69	69
TEMPERATURE, F	76	76	81	81	81	81
ENGINE SPEED, RPM	2000	2000	2000	2000	2000	2000
TORQUE, FT-LB	55.8	55.8	44.7	44.7	18.6	18.6
POWER, BHP*	21.2	21.2	17.0	17.0	7.1	7.1
FUEL RATE, LB/HR	9.0	9.0	7.8	7.8	4.8	4.8
IGNITION TIMING, DEG BTDC	32.0	32.0	31.0	31.0	31.0	31.0
MANIFOLD VACUUM, IN HG	6.5	6.5	9.5	9.5	17.0	17.0
THROTTLE ANGLE, DEG	19.2	19.2	13.3	13.3	6.5	6.5
INTAKE MAN. TEMP., F	114	114	119	119	130	130
CONCENTRATIONS, DRY BASIS						
CO, %	.0655	.0075	.0581	.0099	.2244	.0094
CO2, %	13.40	13.70	10.67	10.87	9.53	9.85
O2, %	1.90	1.56	5.81	5.57	7.49	7.17
HC, PPMC	2217	359	1650	386	1514	306
NOX, PPM	2560	2574	1345	1331	228	268
AIR/FUEL RATIO	15.99	15.98	19.85	19.82	21.87	21.89
EMISSION RATES, G/HR						
CO	39.0	4.5	37.4	6.4	97.6	4.1
HC	66.4	10.7	53.4	12.6	33.1	6.7
NOX+	233.4	233.7	138.8	138.1	15.9	18.7
OIL TEMPERATURE, F	200	200	194	194	200	200
OIL PRESSURE, PSI	34	34	34	34	34	34
COOLANT TEMPERATURE, F	182	182	182	182	178	178
EXHAUST PRESSURE, IN. H2O	9.0	4.0	9.0	4.0	5.0	2.0
EXHAUST TEMPERATURE, F	1126	905	1005	801	872	717

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	85.01	85.02	86.01	86.02	87.01	87.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 8/78	4/ 8/78	4/10/78	4/10/78	4/ 8/78	4/ 8/78
BAROMETER, MMHG	741.5	741.5	739.6	739.6	741.5	741.5
HUMIDITY, GRAINS/LB	69	69	59	59	69	69
TEMPERATURE, F	80	80	75	75	82	82
ENGINE SPEED, RPM	2000	2000	2000	2000	2500	2500
TORQUE, FT-LB	7.5	7.5	1.9	1.9	60.7	60.7
POWER, BHP*	2.9	2.9	.7	.7	28.9	28.9
FUEL RATE, LB/HR	3.8	3.8	3.5	3.5	12.4	12.4
IGNITION TIMING, DEG BTDC	31.0	31.0	30.0	30.0	31.0	31.0
MANIFOLD VACUUM, IN HG	19.5	19.5	20.5	20.5	5.5	5.5
THROTTLE ANGLE, DEG	4.4	4.4	3.6	3.6	25.2	25.2
INTAKE MAN. TEMP., F	131	131	136	136	105	105
CONCENTRATIONS, DRY BASIS						
CO, %	2.8180	2.6474	4.0097	4.0219	.1081	.0064
CO2, %	12.90	13.09	12.11	12.32	13.42	13.74
O2, %	.28	.07	.31	.00	1.60	1.34
HC, PPMC	3628	3403	4714	4639	2002	249
NOX, PPM	94	82	64	62	2095	2081
AIR/FUEL RATIO	13.46	13.43	12.91	12.75	15.76	15.81
EMISSION RATES, G/HR						
CO	596.5	560.5	757.7	762.4	88.1	5.2
HC	38.6	36.2	44.7	44.2	81.9	10.2
NOX+	3.2	2.8	1.8	1.8	273.6	270.8
OIL TEMPERATURE, F	197	197	200	200	203	203
OIL PRESSURE, PSI	34	34	34	34	35	35
COOLANT TEMPERATURE, F	176	176	177	177	182	182
EXHAUST PRESSURE, IN. H2O	3.0	.0	2.0	.0	16.0	8.0
EXHAUST TEMPERATURE, F	852	610	912	661	1165	936

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	88.01	88.02	89.01	89.02	90.01	90.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 8/78	4/ 8/78	4/ 8/78	4/ 8/78	4/ 8/78	4/ 8/78
BAROMETER, MMHG	741.5	741.5	741.5	741.5	741.5	741.5
HUMIDITY, GRAINS/LB	69	69	69	69	69	69
TEMPERATURE, F	82	82	82	82	81	81
ENGINE SPEED, RPM	2500	2500	2500	2500	2500	2500
TORQUE, FT-LB	48.6	48.6	20.3	20.3	8.1	8.1
POWER, BHP*	23.1	23.1	9.7	9.7	3.9	3.9
FUEL RATE, LB/HR	10.5	10.5	6.4	6.4	5.1	5.1
IGNITION TIMING, DEG BTDC	31.0	31.0	32.0	32.0	31.0	31.0
MANIFOLD VACUUM, IN HG	8.5	8.5	16.5	16.5	19.0	19.0
THROTTLE ANGLE, DEG	18.6	18.6	9.4	9.4	7.1	7.1
INTAKE MAN. TEMP., F	119	119	132	132	133	133
CONCENTRATIONS, DRY BASIS						
CO, %	.0720	.0094	.1163	.0108	.1893	.0118
CO2, %	10.81	10.85	9.69	9.83	9.06	9.15
O2, %	5.50	5.54	7.27	7.14	8.15	8.27
HC, PPMC	1425	318	1173	253	756	188
NOX, PPM	1494	1480	362	379	112	140
AIR/FUEL RATIO	19.54	19.82	21.77	21.89	23.14	23.62
EMISSION RATES, G/HR						
CO	61.7	8.2	67.9	6.3	93.3	5.9
HC	61.4	13.8	34.4	7.4	18.7	4.7
NOX+	205.3	205.8	33.9	35.3	8.8	11.2
OIL TEMPERATURE, F	219	219	216	216	209	209
OIL PRESSURE, PSI	34	34	34	34	34	34
COOLANT TEMPERATURE, F	180	180	179	179	178	178
EXHAUST PRESSURE, IN. H2O	16.0	7.0	9.0	3.0	6.0	6.0
EXHAUST TEMPERATURE, F	1081	895	985	781	938	938

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	91.01	91.02	92.01	92.02	93.01	93.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/ 8/78	4/ 8/78	4/14/78	4/14/78	4/10/78	4/10/78
BAROMETER, MMHG	741.5	741.5	741.8	741.8	739.6	739.6
HUMIDITY, GRAINS/LB	69	69	61	61	59	59
TEMPERATURE, F	81	81	79	79	79	79
ENGINE SPEED, RPM	2500	2500	3200	3200	3200	3200
TORQUE, FT-LB	1.3	1.3	60.0	60.0	48.0	48.0
POWER, BHP*	.6	.6	36.4	36.4	29.2	29.2
FUEL RATE, LB/HR	3.9	4.0	15.8	15.8	13.5	13.6
IGNITION TIMING, DEG BTDC	32.0	32.0	36.0	36.0	38.0	36.0
MANIFOLD VACUUM, IN HG	20.5	20.5	6.0	6.0	8.5	8.5
THROTTLE ANGLE, DEG	5.6	5.6	28.5	28.5	25.0	25.0
INTAKE MAN. TEMP., F	134	134	103	103	127	127
CONCENTRATIONS, DRY BASIS						
CO, %	.3604	.0149	.1168	.0119	.1855	.0279
CO2, %	8.41	8.88	13.40	13.72	11.10	11.43
O2, %	8.93	8.64	1.36	1.06	5.02	4.69
HC, PPMC	689	146	2002	259	1252	287
NOX, PPM	45	67	2474	2523	1800	1880
AIR/FUEL RATIO	24.35	24.29	15.60	15.63	18.94	18.85
EMISSION RATES, G/HR						
CO	144.8	6.1	121.9	12.3	198.3	29.7
HC	13.9	3.0	104.9	13.5	67.2	15.4
NOX+	2.9	4.4	399.3	404.6	294.2	306.5
OIL TEMPERATURE, F	204	204	214	214	245	245
OIL PRESSURE, PSI	35	35	35	35	35	35
COOLANT TEMPERATURE, F	178	178	185	185	181	181
EXHAUST PRESSURE, IN. H2O	2.0	1.0	23.0	14.0	24.0	14.0
EXHAUST TEMPERATURE, F	914	678	1263	1081	1226	1091

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	95.01	95.02	96.01	96.02	97.01	97.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78
BAROMETER, MMHG	736.7	736.7	736.7	736.7	739.6	739.6
HUMIDITY, GRAINS/LB	64	64	64	64	59	59
TEMPERATURE, F	76	76	76	76	78	78
ENGINE SPEED, RPM	3200	3200	3200	3200	3800	3800
TORQUE, FT-LB	8.0	8.0	1.5	1.5	58.1	58.1
POWER, BHP*	4.9	4.9	.9	.9	41.9	41.9
FUEL RATE, LB/HR	6.1	6.2	5.0	5.2	18.7	18.7
IGNITION TIMING, DEG BTDC	37.0	37.0	38.0	38.0	40.0	40.0
MANIFOLD VACUUM, IN HG	18.8	18.8	20.1	20.1	6.0	6.0
THROTTLE ANGLE, DEG	9.0	9.0	7.3	7.3	31.7	33.7
INTAKE MAN. TEMP., F	138	138	137	137	98	98
CONCENTRATIONS, DRY BASIS						
CO, %	.1356	.0132	.1457	.0166	.2073	.0323
CO2, %	8.94	9.03	8.67	8.47	14.02	14.43
O2, %	8.10	7.98	8.26	8.68	.94	.65
HC, PPMC	680	162	451	134	2002	252
NOX, PPM	215	252	129	146	2380	2440
AIR/FUEL RATIO	23.31	23.43	23.78	24.80	15.23	15.30
EMISSION RATES, G/HR						
CO	81.7	8.1	74.7	9.1	242.6	37.7
HC	20.6	5.0	11.6	3.7	117.7	14.8
NOX+	20.2	24.2	10.4	12.6	426.0	434.9
OIL TEMPERATURE, F	229	229	228	228	206	206
OIL PRESSURE, PSI	35	35	35	35	37	37
COOLANT TEMPERATURE, F	180	180	181	181	173	173
EXHAUST PRESSURE, IN. H2O	9.0	4.0	8.0	3.0	32.0	18.0
EXHAUST TEMPERATURE, F	1049	871	1027	810	1378	1242

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

	98.01	98.02	99.01	99.02	100.01	100.02
TEST NUMBER	1	2	1	2	1	2
DATA SOURCE CODE	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78
TEST DATE	739.6	739.6	739.6	739.6	739.6	739.6
BAROMETER, MMHG	59	59	59	59	59	59
HUMIDITY, GRAINS/LB	79	79	78	78	78	78
TEMPERATURE, F	3800	3800	3800	3800	3800	3800
ENGINE SPEED, RPM	46.5	46.5	31.0	31.0	19.4	19.4
TORQUE, FT-LB	33.6	33.6	22.4	22.4	14.0	14.0
POWER, BHP*	15.6	15.6	12.2	12.5	10.1	10.1
FUEL RATE, LB/HR	40.0	40.0	40.0	40.0	40.0	40.0
IGNITION TIMING, DEG BTDC	8.5	8.5	12.5	12.5	15.5	15.5
MANIFOLD VACUUM, IN HG	29.0	29.0	20.0	20.0	14.5	14.5
THROTTLE ANGLE, DEG	122	122	132	132	137	137
INTAKE MAN. TEMP., F						
CONCENTRATIONS, DRY BASIS						
CO, %	.0935	.0165	.1188	.0200	.1453	.0202
CO2, %	10.57	11.11	10.70	10.63	10.25	10.11
O2, %	5.99	5.32	5.91	6.09	6.59	6.96
HC, PPMC	1024	196	815	214	666	209
NOX, PPM	1770	1800	1300	1335	850	865
AIR/FUEL RATIO	20.15	19.54	20.01	20.43	20.85	21.54
EMISSION RATES, G/HR						
CO	122.1	20.9	120.5	21.1	126.1	18.2
HC	67.2	12.5	41.5	11.3	29.0	9.4
NOX+	353.4	348.4	201.7	215.4	112.8	119.0
OIL TEMPERATURE, F	252	252	257	257	255	255
OIL PRESSURE, PSI	36	36	36	36	36	36
COOLANT TEMPERATURE, F	183	183	183	183	182	182
EXHAUST PRESSURE, IN. H20	33.0	19.0	23.0	12.0	17.0	9.0
EXHAUST TEMPERATURE, F	1265	1165	1227	1081	1179	1018

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	101.01	101.02	102.01	102.02	103.01	103.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/11/78	4/11/78	4/10/78	4/10/78
BAROMETER, MMHG	736.7	736.7	741.5	741.5	739.6	739.6
HUMIDITY, GRAINS/LB	57	57	45	45	57	57
TEMPERATURE, F	75	75	75	75	76	76
ENGINE SPEED, RPM	3800	3800	4500	4500	4500	4500
TORQUE, FT-LB	2.3	2.3	55.5	55.5	44.4	44.4
POWER, BHP*	1.7	1.7	47.2	47.2	38.0	38.0
FUEL RATE, LB/HR	6.4	6.4	21.6	21.5	18.4	18.3
IGNITION TIMING, DEG BTDC	40.0	40.0	42.0	42.0	41.0	41.0
MANIFOLD VACUUM, IN HG	19.7	19.7	6.2	6.2	8.0	8.0
THROTTLE ANGLE, DEG	9.4	9.4	35.3	35.3	30.3	30.3
INTAKE MAN. TEMP., F	138	138	107	107	114	114
CONCENTRATIONS, DRY BASIS						
CO, %	.1351	.0125	.1089	.0115	.1125	.0181
CO2, %	8.63	8.50	13.91	14.13	10.66	10.93
O2, %	8.41	8.56	1.15	.91	5.55	5.24
HC, PPMC	372	104	1667	203	731	160
NOX, PPM	628	196	2700	2700	2353	2374
AIR/FUEL RATIO	24.05	24.65	15.48	15.51	19.77	19.58
EMISSION RATES, G/HR						
CO	89.2	8.5	149.5	15.8	172.0	27.3
HC	12.3	3.5	114.9	13.9	56.1	12.1
NOX+	63.1	20.2	535.7	535.2	546.0	543.6
OIL TEMPERATURE, F	245	245	249	249	267	267
OIL PRESSURE, PSI	36	36	36	36	36	36
COOLANT TEMPERATURE, F	181	181	186	186	184	184
EXHAUST PRESSURE, IN. H2O	10.0	5.0	39.0	24.0	42.0	26.0
EXHAUST TEMPERATURE, F	1108	876	1435	1285	1290	1170

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	104.01	104.02	105.01	105.02	106.01	106.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78
BAROMETER, MMHG	739.6	739.6	739.6	739.6	739.6	739.6
HUMIDITY, GRAINS/LB	57	57	57	57	57	57
TEMPERATURE, F	77	77	76	76	76	76
ENGINE SPEED, RPM	4500	4500	4500	4500	4500	4500
TORQUE, FT-LB	18.5	18.5	7.4	7.4	4.4	4.4
POWER, BHP*	15.8	15.8	6.3	6.3	3.8	3.8
FUEL RATE, LB/HR	11.3	11.5	8.7	8.7	7.9	7.7
IGNITION TIMING, DEG BTDC	41.0	41.0	41.0	41.0	42.0	42.0
MANIFOLD VACUUM, IN HG	15.5	15.5	18.1	18.1	19.2	19.2
THROTTLE ANGLE, DEG	15.5	15.5	12.0	12.0	9.6	9.6
INTAKE MAN. TEMP., F	132	132	136	136	137	137
CONCENTRATIONS, DRY BASIS						
CO, %	.1529	.0179	.1394	.0162	.1339	.0149
CO2, %	9.96	9.87	8.60	9.16	8.43	8.76
O2, %	6.68	6.96	8.75	8.01	8.93	8.56
HC, PPMC	510	160	464	120	375	100
NOX, PPM	1361	1410	619	745	676	238
AIR/FUEL RATIO	21.15	21.74	24.43	23.37	24.86	24.35
EMISSION RATES, G/HR						
CO	153.7	18.8	125.1	13.9	111.0	11.9
HC	25.7	8.4	20.9	5.1	15.6	4.0
NOX+	207.7	224.2	84.4	96.5	85.1	28.7
OIL TEMPERATURE, F	273	273	268	268	265	265
OIL PRESSURE, PSI	36	36	36	36	36	36
COOLANT TEMPERATURE, F	182	182	182	182	181	181
EXHAUST PRESSURE, IN. H2O	21.0	10.0	16.0	6.0	13.0	5.0
EXHAUST TEMPERATURE, F	1210	1067	1122	968	1125	935

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	107.01	107.02	108.01	108.02	109.01	109.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/11/78	4/11/78	4/14/78	4/14/78	4/10/78	4/10/78
BAROMETER, MMHG	741.5	741.5	741.8	741.8	739.6	739.6
HUMIDITY, GRAINS/LB	45	45	61	61	59	59
TEMPERATURE, F	76	76	80	80	80	80
ENGINE SPEED, RPM	5000	5000	5000	5000	5000	5000
TORQUE, FT-LB	53.0	53.0	42.4	42.4	17.6	17.6
POWER, BHP*	50.0	50.0	40.2	40.2	16.7	16.7
FUEL RATE, LB/HR	23.8	23.7	20.5	20.4	12.7	12.7
IGNITION TIMING, DEG BTDC	39.0	39.0	41.0	41.0	40.0	40.0
MANIFOLD VACUUM, IN HG	5.5	5.5	8.0	8.0	15.5	15.5
THROTTLE ANGLE, DEG	38.2	38.2	32.6	32.6	18.1	18.1
INTAKE MAN. TEMP., F	113	113	117	117	125	125
CONCENTRATIONS, DRY BASIS						
CO, %	.1906	.0139	.1328	.0306	.1537	.0316
CO2, %	14.05	14.36	10.88	10.91	10.06	10.02
O2, %	.93	.58	5.13	5.21	6.81	7.04
HC, PPMC	1742	213	623	172	408	147
NOX, PPM	2680	2680	2171	2028	990	950
AIR/FUEL RATIO	15.27	15.27	19.29	19.53	21.22	21.68
EMISSION RATES, G/HR						
CO	284.8	20.6	221.6	51.5	172.1	35.9
HC	130.7	15.9	52.2	14.5	23.0	8.4
NOX+	578.7	575.4	560.3	527.6	169.5	165.0
OIL TEMPERATURE, F	279	279	282	282	296	296
OIL PRESSURE, PSI	36	36	36	36	35	35
COOLANT TEMPERATURE, F	186	186	184	184	181	181
EXHAUST PRESSURE, IN. H20	48.0	31.0	47.0	32.0	25.0	13.0
EXHAUST TEMPERATURE, F	1500	1357	1358	1235	1263	1118

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	110.01	110.02	111.01	111.02	112.01	112.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78
BAROMETER, MMHG	739.6	739.6	739.6	739.6	739.6	739.6
HUMIDITY, GRAINS/LB	59	59	57	57	57	57
TEMPERATURE, F	79	79	76	76	76	76
ENGINE SPEED, RPM	5000	5000	5000	5000	5200	5200
TORQUE, FT-LB	7.1	7.1	4.0	4.0	68.0	68.0
POWER, BHP*	6.7	6.7	3.8	3.8	67.2	67.2
FUEL RATE, LB/HR	9.6	9.7	9.2	9.1	36.6	36.4
IGNITION TIMING, DEG BTDC	40.0	40.0	42.0	42.0	30.0	30.0
MANIFOLD VACUUM, IN HG	19.0	19.0	18.2	18.2	2.2	2.2
THROTTLE ANGLE, DEG	12.0	12.0	10.4	10.4	60.3	60.3
INTAKE MAN. TEMP., F	142	142	141	141	95	95
CONCENTRATIONS, DRY BASIS						
CO, %	.2434	.0211	.1380	.0180	4.7726	4.7603
CO2, %	9.20	9.34	8.62	9.02	11.24	11.43
O2, %	8.14	8.03	8.74	8.24	.44	.07
HC, PPMC	307	99	382	88	2246	1756
NOX, PPM	370	410	564	624	1151	1590
AIR/FUEL RATIO	23.04	23.21	24.42	23.76	12.85	12.71
EMISSION RATES, G/HR						
CO	223.5	19.8	130.5	16.3	9715.8	9555.2
HC	14.1	4.6	18.1	4.0	229.6	177.0
NOX+	51.9	58.9	81.0	85.6	355.8	484.6
OIL TEMPERATURE, F	290	290	286	286	238	238
OIL PRESSURE, PSI	36	36	36	36	37	37
COOLANT TEMPERATURE, F	179	179	181	181	187	187
EXHAUST PRESSURE, IN. H2O	16.0	9.0	17.0	8.0	84.0	53.0
EXHAUST TEMPERATURE, F	1216	1030	1162	996	21495	1376

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	113.01	113.02	114.01	114.02	115.01	115.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78
BAROMETER, MMHG	739.6	739.6	739.6	739.6	739.6	739.6
HUMIDITY, GRAINS/LB	54	54	54	54	54	54
TEMPERATURE, F	75	75	76	76	75	75
ENGINE SPEED, RPM	1000	1000	1000	1000	1000	1000
TORQUE, FT-LB	51.0	51.0	40.8	40.8	1.1	1.1
POWER, BHP*	9.7	9.7	7.7	7.7	.2	.2
FUEL RATE, LB/HR	4.5	4.5	3.8	3.8	1.5	1.5
IGNITION TIMING, DEG BTDC	24.0	24.0	24.0	24.0	24.0	24.0
MANIFOLD VACUUM, IN HG	5.5	5.5	8.5	8.5	19.5	19.5
THROTTLE ANGLE, DEG	9.8	9.8	6.8	6.8	.8	.8
INTAKE MAN. TEMP., F	118	119	129	129	127	127
CONCENTRATIONS, DRY BASIS						
CO, %	.1687	.0120	1.5460	.8456	1.7102	.7846
CO2, %	13.86	14.36	13.60	14.23	12.67	14.24
O2, %	.98	.36	.31	.04	1.79	.04
HC, PPMC	2721	405	3203	2484	11672	7627
NOX, PPM	1661	1834	1030	954	37	32
AIR/FUEL RATIO	15.18	15.07	14.07	14.26	14.09	13.79
EMISSION RATES, G/HR						
CO	47.5	3.4	344.5	190.2	144.8	68.0
HC	38.5	5.7	35.9	28.1	49.6	33.2
NOX+	70.2	76.8	34.4	32.2	.5	.4
OIL TEMPERATURE, F	184	184	198	198	184	184
OIL PRESSURE, PSI	29	29	26	26	30	30
COOLANT TEMPERATURE, F	172	172	187	187	163	163
EXHAUST PRESSURE, IN. H2O	3.0	.0	2.0	.0	1.0	.0
EXHAUST TEMPERATURE, F	893	698	867	767	670	576

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	117.01	117.02	118.01	118.02	119.01	119.02
DATA SOURCE CODE	1	2	1	2	1	2
TEST DATE	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78	4/10/78
BAROMETER, MMHG	739.6	739.6	739.6	739.6	739.6	739.6
HUMIDITY, GRAINS/LB	59	59	46	46	46	46
TEMPERATURE, F	80	80	75	75	74	74
ENGINE SPEED, RPM	5000	5000	1000	1000	1000	1000
TORQUE, FT-LB	42.4	42.4	61.2	61.2	27.2	27.2
POWER, BHP*	40.3	40.3	11.6	11.6	5.2	5.2
FUEL RATE, LB/HR	20.6	20.7	5.2	5.3	3.3	3.3
IGNITION TIMING, DEG BTDC	41.0	41.0	12.0	12.0	26.0	26.0
MANIFOLD VACUUM, IN HG	8.0	8.0	3.0	3.0	12.5	12.5
THROTTLE ANGLE, DEG	33.0	33.0	16.3	16.3	3.8	3.8
INTAKE MAN. TEMP., F	124	124	99	99	127	127
CONCENTRATIONS, DRY BASIS						
CO, %	.1396	.0378	.3312	.0042	4.6295	4.5536
CO2, %	11.12	11.29	11.09	12.23	11.71	11.89
O2, %	5.04	4.96	4.74	3.40	.24	.06
HC, PPMC	572	155	2487	304	4619	4508
NOX, PPM	2100	2070	1200	1250	83	76
AIR/FUEL RATIO	19.12	19.15	18.34	17.54	12.63	12.58
EMISSION RATES, G/HR						
CO	229.7	62.2	134.0	1.7	825.9	807.9
HC	47.2	12.8	50.6	6.0	41.4	40.2
NOX+	528.4	521.0	70.2	71.1	2.1	2.0
OIL TEMPERATURE, F	299	299	178	178	187	187
OIL PRESSURE, PSI	35	35	29	29	28	28
COOLANT TEMPERATURE, F	182	182	174	174	175	175
EXHAUST PRESSURE, IN. H2O	51.0	33.0	4.0	2.0	2.0	.0
EXHAUST TEMPERATURE, F	1382	1259	905	797	735	604

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	120.01	120.02	121.01	121.02	122.01	123.01
DATA SOURCE CODE	1	2	1	2	1	1
TEST DATE	4/14/78	4/14/78	4/14/78	4/14/78	4/17/78	4/17/78
BAROMETER, MMHG	741.8	741.8	741.8	741.8	732.5	732.5
HUMIDITY, GRAINS/LB	61	61	61	61	74	74
TEMPERATURE, F	79	79	80	80	77	76
ENGINE SPEED, RPM	1000	1000	4500	4500	1000	1500
TORQUE, FT-LB	68.0	68.0	55.5	55.5	-1.0	-12.0
POWER, BHP*	12.9	12.9	47.4	47.4	.2	3.5
FUEL RATE, LB/HR	7.1	7.2	21.8	21.8	158.9	1.4
IGNITION TIMING, DEG BTDC	12.0	12.0	42.0	42.0	23.0	33.0
MANIFOLD VACUUM, IN HG	.5	.5	6.5	6.5	19.0	22.6
THROTTLE ANGLE, DEG	60.1	60.1	35.0	35.0	.8	.2
INTAKE MAN. TEMP., F	93	93	108	108	126	123
CONCENTRATIONS, DRY BASIS						
CO, %	3.2908	.4088	.1440	.0313	2.3953	1.9501
CO2, %	9.90	14.20	13.75	14.09	12.31	8.48
O2, %	4.50	.26	.88	.61	1.36	7.35
HC, PPMC	2905	115	1654	319	11519	11246
NOX, PPM	617	410	2674	2656	31	11
AIR/FUEL RATIO	16.10	14.80	15.28	15.28	13.56	18.46
EMISSION RATES, G/HR						
CO	1568.8	181.1	201.2	43.4	21677.0	218.4
HC	69.5	2.6	116.0	22.2	5235.5	63.3
NOX+	45.5	28.1	578.0	570.3	45.9	.2
OIL TEMPERATURE, F	179	179	258	258	188	173
OIL PRESSURE, PSI	31	31	36	36	27	33
COOLANT TEMPERATURE, F	181	181	186	186	171	170
EXHAUST PRESSURE, IN. H2O	6.0	2.0	37.0	23.0	.0	.0
EXHAUST TEMPERATURE, F	834	1010	1408	1249	620	400

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	124.01	125.01	126.01	127.01	128.01	129.01
DATA SOURCE CODE	1	1	1	1	1	1
TEST DATE	4/17/78	4/17/78	4/17/78	4/17/78	4/17/78	4/17/78
BAROMETER, MMHG	732.5	732.5	732.5	732.5	732.5	732.5
HUMIDITY, GRAINS/LB	74	74	74	74	74	74
TEMPERATURE, F	76	75	76	76	76	77
ENGINE SPEED, RPM	2000	1000	1500	2000	1000	1500
TORQUE, FT-LB	-17.4	-14.8	-17.4	-20.8	-11.0	-13.2
POWER, BHP*	6.7	2.8	5.0	8.0	2.1	3.8
FUEL RATE, LB/HR	1.4	.0	.0	.0	.0	.0
IGNITION TIMING, DEG BTDC	33.0	33.0	33.0	33.0	33.0	33.0
MANIFOLD VACUUM, IN HG	23.7	20.4	22.6	23.6	1.0	1.0
THROTTLE ANGLE, DEG	.1	.1	.2	.1	60.0	60.0
INTAKE MAN. TEMP., F	122	118	118	118	111	111
CONCENTRATIONS, DRY BASIS						
CO, %	1.7380	.0000	.0000	.0000	.0000	.0000
CO2, %	7.71	.01	.01	.01	.01	.01
O2, %	9.04	21.00	21.00	21.00	21.00	21.00
HC, PPMC	11152	0	1	0	0	0
NOX, PPM	12	0	1	0	0	0
AIR/FUEL RATIO	20.52	20615.44	20411.36	20615.44	20615.44	20615.44
EMISSION RATES, G/HR						
CO	203.7	.0	.0	.0	.0	.0
HC	65.6	.0	.0	.0	.0	.0
NOX+	.2	.0	.0	.0	.0	.0
OIL TEMPERATURE, F	173	166	165	168	169	170
OIL PRESSURE, PSI	34	31	33	34	31	33
COOLANT TEMPERATURE, F	168	160	159	156	159	159
EXHAUST PRESSURE, IN. H2O	.0	.0	.0	.0	3.0	6.0
EXHAUST TEMPERATURE, F	370	710	700	525	128	140

* CORRECTED SAE J8168
\+ CORRECTED FOR HUMIDITY

ENGINE: 1978 FORD FIESTA 98-CID
FUEL CODE: 7718

TEST NUMBER	130.01
DATA SOURCE CODE	1
TEST DATE	4/17/78
BAROMETER, MMHG	732.5
HUMIDITY, GRAINS/LB	74
TEMPERATURE, F	76
ENGINE SPEED, RPM	2000
TORQUE, FT-LB	-17.0
POWER, BHP*	6.5
FUEL RATE, LB/HR	.0
IGNITION TIMING, DEG BTDC	33.0
MANIFOLD VACUUM, IN HG	1.0
THROTTLE ANGLE, DEG	60.0
INTAKE MAN. TEMP., F	111
CONCENTRATIONS, DRY BASIS	
CO, %	.0000
CO2, %	.01
O2, %	21.00
HC, PPMC	0
NOX, PPM	0
AIR/FUEL RATIO	20615.44
EMISSION RATES, G/HR	
CO	.0
HC	.0
NOX+	.0
OIL TEMPERATURE, F	170
OIL PRESSURE, PSI	35
COOLANT TEMPERATURE, F	158
EXHAUST PRESSURE, IN. H2O	11.0
EXHAUST TEMPERATURE, F	163

* CORRECTED SAE J816B
\+ CORRECTED FOR HUMIDITY

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