APPENDIX A-1

MARCH 18, 1987 LETTER FROM MR. HARALD POLZ, MERCEDES-BENZ OF NORTH AMERICA, INC. TO DR. LAWRENCE R. SMITH, SOUTHWEST RESEARCH INSTITUTE

MERCEDES-BENZ OF NORTH AMERICA, INC.

CABLE: MERCEBENZ MTLE
OVERSEAS TELEX: 135404
DOMESTIC TELEX: 135404

ONE MERCEDES DRIVE
MONTVALE, NEW JERSEY 07645
PHONE: (201) 573-0600

March 18, 1987

Mr. Lawrence R. Smith
Southwest Research Institute
P.O. Drawer 28510
6220 Culebra Road
San Antonio, Texas 78284

Subject: SwRI / ARB Program - Trap-Equipped Light Duty Diesels

Dear Mr. Smith:

As discussed previously, we appreciate the opportunity to provide you with some comments by Daimler-Benz on your project "Characterization of Exhaust Emissions from Trap-Equipped Light Duty Diesels".

We know of course that the experience at SWRI with diesel engine concepts is quite extensive and none of this information might be too new for your purposes.

However, some definitions and/or concepts are critical and their clarification might still be useful.

1. <u>Impact of a non-regenerating T.O.</u>

   In general, the two extreme cases

   - ceramic substrate totally plugged, and
   - ceramic substrate destroyed

   can only be of academic interest. In the first case, the engine would no longer run, and in the second case emissions would no longer be influenced by the T.O. Any characterization of T.O. related emissions has to aim, therefore, for the conditions that still lead to at least some regeneration.

2. Normal T.O. condition

The T.O. is partially loaded due to automatic partial self-regeneration or basically not loaded after a full self-regeneration. This is the typical condition for most cases and can be verified as follows:

- automatic transmission, shift lever in position "P"
- test setting: high idle at 4000 rpm (zero load)
- test parameters: exhaust gas back pressure = pressure before T.O. (PbTO)
- test value: 1000 - PbTO - 2000 mbar.

The higher the T.O. loading, the sooner self-regeneration begins under driving conditions similar to the FTP 78 and/ or HWFET. Under most of these circumstances, depending on engine load and climatic conditions, at least "equilibrium" is achieved, i.e. engine-out particulate mass equals oxidized particulate mass ("surface" reaction). Under highway driving conditions also at least an initial "in depth" reaction is achieved. If the time period for this reaction is long enough, full regeneration takes place. In such a case residual incombustible ashes might cause a permanent back pressure increase if compared to a new T.O.

Due to the wide variation of the back pressure under transient operating conditions it is very hard to define a typical operating condition for comparison purposes.

However, based on experience a typical loading can be achieved by using the following procedure:

- ETW = 4000 lbs., AHP = 10.6
- autom. transmission in "L"
- 30 mph, and monitoring of differential pressure across T.O. until the desired pressure is achieved.

Any pressure sensors should be connected to rising pressure lines, whereas the actual sensor connection should face downward. Otherwise, condensation, deposits and corrosion might give erroneous readings.

3. Simulation of T.O. operation

The functional unit "T.O. with following turbocharger" comprises a system which is thermodynamically very sensitive. The T.O. acts as a pressure and heat sink and influences, therefore, the dynamic behavior of the turbocharger substantially.

In addition, the functional system of the emission control measures is tuned to the prevailing pressure conditions.

In case the T.O. is replaced by a fixed orifice most all of the essential parameters are shifted, and the resulting test values become mostly unrepresentative if not meaningless. Only under steady-state conditions some exceptions might be appropriate.

The only alternative would be a pressure controlled variable orifice with simulation of the actual T.O. conditions as determined in prior testing. Even then, all thermodynamic effects caused by the T.O. heat sink would be neglected.

Daimler-Benz does not have such a control system available, rates such a method as highly unsatisfactory, and suggests, therefore, to substitute all tests involving the simulation of a T.O. with the following alternative procedure.

4. Initial Baseline w/o T.O.

The tests simulating operation w/o T.O. should be carried out with a vehicle representing the actual non-T.O. production concept.

This can be very easily realized by modifying the existing vehicle:

- replace T.O. with exhaust manifold 603 140 0303 (sent to SWRI by DBAG),
- replace ECU with part #006 545 7532,
- disconnect plug for air-bypass valve,

Naturally, this procedure has to be reversed if the T.O. system is to be used again.

5. Testing with a failed T.O.

As outlined previously, the testing of non-regenerating T.O.s would be purely academic. However, it is possible to test trap oxidizers which developed some internal leaks and, therefore, have reduced filter efficiency.

Unfortunately, there is no method to determine with certainty whether a T.O. has such a fault without destroying the T.O. at the same time. Usually such faults are only detected, if at all, by monitoring test results over a long period of time.

If SWRI is interested in testing such a T.O., Daimler-Benz would initiate appropriate control measures on vehicles of its own fleet. In case such a suspect T.O. can be found, Daimler-Benz would ship it to SWRI. However, no guarantee can be given that such a T.O. would be detected in time for the program to be meaningful, or would survive transporation to SWRI.

We would appreciate your comments on this issue.

6. Atypical T.O. conditions

Under certain conditions it is possible that a T.O. does not regenerate and ends up being plugged. These extreme conditions are very rare and can usually be avoided:

- idling or similar condition over long periods
- extreme climatic conditions which might prevent reaching sufficient regeneration temperatures
- the use of unsuitable low quality diesel fuel.

Such a plugged condition can be verified and rectified by forcing regeneration using a combination of higher vehicle loads and speeds.

7. "Regeneration Cycle" and/or "Worst Case Regeneration"

Daimler-Benz does not have a defined regeneration cycle. All internal test programs made allowance to the facts discussed previously, i.e. self-regeneration depending on engine speed and load, and environmental conditions. Some parameters influencing regeneration are:

- exhaust gas temperature
- mass flow rate (back pressure)
- oxygen content of exhaust gas
- PM composition
- presence of catalysts and/or additives in diesel fuel
- mass and distribution of PM
- catalytic coating.

The following table lists some typical data for orientation purposes.

ETW = 4000 lbs

AHP	Speed [mph]	Transmission	Exhaust Gas Temp before T.O. [°C]	Exhaust Gas before T.O. [m bar]	Pressure after T.O
15			425	450	215
20	55	"D"	485	520	250
25*			510	635	360
30			510	730	460
15			370	1050	700
20	55	"S"	400	1450	890
25			435	1930	1075
30			480	1990	1100
full throttle*			720	1700	1300

* Reference data at 4000 rpm (high idle):

	Exhaust gas temp before T.O. [°C]	Exhaust gas before T.O. [m bar]	Pressure after T.O.
prior to 25 hp in "D" (T.O. Loaded)	350	1800	950
after 10 min with 25hp in "D" (T.O. partially regenerated)	350	1200	750
after 160 sec. with full load in "S" (T.O. regenerated)	350	1290	1170

8. General Comments

In order to maintain close control of the system during a test series it might be adviseable to define certain test parameters as control parameters and recheck these frequently at a defined operating condition, e.g. 4000 rpm (high idle).

Please feel free to call me if I can be of any further help.

Sincerely yours,

H. Reichelbach

for Harald Polz, Manager
Emission Control

HP/jl

APPENDIX A-2

VOLKSWAGEN JETTA
SHIFT POINTS

B 3112-26600140=VWOAAA /2627-53619761=VWW /85-07-09-14:30/022-001
Shiftpoints according to A/C 72 A IV.A.2.

Cycle	Speed mph	Time sec.	Gear
1	15.3	25.4	1-2
	22.7	47.0	2-3
	15.8	54.5	3-2
	24.6	61.0	2-3
	30.4	88.0	3-4
	15.0	120.1	D
2	15.3	167.6	1-2
	25.1	175.0	2-3
	17.2	187.0	3-2
	35.0	195.6	2-3
	40.0	198.6	3-4
	47.0	204.3	4-5
	20.0	323.1	D
3	15.3	351.4	1-2
	26.7	357.1	2-3
	34.5	365.0	3-4
	15.0	391.8	D
4	15.3	406.8	1-2
	26.7	411.6	2-3
	15.0	424.0	D
5	15.3	451.6	1-2
	26.7	455.2	2-3
	34.8	461.0	3-4
	15.0	499.5	D
6	15.3	519.7	1-2
	24.5	528.0	2-3
	15.0	547.5	D
7	15.3	573.5	1-2
	21.0	597.0	2-3
	22.7	606.0	3-2
	15.0	615.4	D
8	15.3	652.0	1-2
	25.3	659.0	2-3
	15.0	673.7	D
9	15.3	701.4	1-2
	22.5	710.0	2-3
	15.0	720.0	D
10	15.3	733.7	1-2
	26.7	741.3	2-3
	15.0	757.9	D
11	15.3	770.8	1-2
	26.7	779.2	2-3
	33.0	805.0	3-4
	19.2	840.0	4-2
	26.6	851.0	2-3
	15.0	951.6	D
12	15.3	964.0	1-2
	26.7	972.3	2-3
	15.0	1017.8	D
13	15.3	1057.5	1-2
	26.7	1066.7	2-3
	15.0	1081.0	D
14	15.3	1109.5	1-2
	21.0	1113.0	2-3
	15.0	1147.5	D
15	15.3	1173.0	1-2
	15.0	1181.5	D
16	15.3	1209.9	1-2
	21.0	1214.0	2-3
	15.0	1236.2	D
17	15.3	1270.4	1-2
	23.6	1277.0	2-3
	15.0	1307.9	D
18	15.3	1343.1	1-2
	21.9	1349.0	2-3
	15.0	1361.3	D

US 75 (FTP) Golf/Jetta Diesel M5 MY 1986

β 3112-26600140=VWOAAA /2627-53619761=VWW /85-07-09-14:30/022-002
Shiftpoints according to A/C 72 A IV.A.2.

Cycle	Speed mph	Time sec.	Gear
1	15.3	7.3	1-2
	26.7	12.7	2-3
	34.1	22.0	3-4
	43.5	57.0	4-5
	39.5	139.0	5-4
	43.7	149.0	4-5
	40.0	214.5	5-4
	43.1	220.0	4-5
	28.4	296.0	5-3
	40.0	303.8	3-4
	50.1	326.7	4-5
	46.2	616.0	5-4
	50.1	620.4	4-5
	46.8	640.0	5-4
	50.1	649.9	4-5
	20.0	752.8	D
2	15.3	787.3	1-2
	26.7	792.7	2-3
	34.1	802.0	3-4
	43.5	837.0	4-5
	39.5	919.0	5-4
	43.7	929.0	4-5
	40.0	994.5	5-4
	43.1	1000.0	4-5
	28.4	1076.0	5-3
	40.0	1083.8	3-4
	50.1	1106.7	4-5
	46.2	1396.0	5-4
	50.1	1400.4	4-5
	46.8	1420.0	5-4
	50.1	1429.9	4-5
	20.0	1532.8	D

HWFET(HDC) Golf/Jetta Diesel M5 MY 1986

APPENDIX A-3

LETTER OF TRANSMITTAL WITH FAILED INJECTORS FROM VOLKSWAGEN OF AMERICA, INC.

VOLKSWAGEN OF AMERICA, INC.
888 W. Big Beaver
P.O. Box 3951
Troy, Michigan 48007-3951
Tel. (313) 362-6000
WU Telex — 230 628

18 December, 1987.

Mr. Lawrence Smith
Southwest Research Institute
6220 Culebra Road
San Antonio, Texas
78284

Dear Mr. Smith:

Per our conversation of 17 December, 1987, I am forwarding eight (8) diesel injectors which have been returned to our Parts Investigation group.

These injectors have been diagnosed by dealership personnel as being damaged or worn to a degree as to affect performance. Although the specific failure mode has not been noted individually, in general, one would expect three types of failures with this injector: 1) damaged or severely worn pintle, which would affect the spray pattern and individual cylinder combustion efficiency; 2) damaged or broken return spring, which would cause the injector to remain open thereby preventing or, at least, severely impairing engine starting, and; 3) lodgement of debris in the injector inlet, which would proportionately reduce the fuel charge delivered to that cylinder and/or affect the spray pattern as noted above.

It should be noted that any one of these injector failure modes is usually sufficiently disruptive to cause the vehicle owner to seek repair. Accordingly, we would regard one faulty injector as a "normal" failure. The insertion of multiple faulty injectors, in our opinion, would represent a catastrophic vehicular failure mode and would almost certainly prevent the vehicle from starting.

As Volkswagen remains firmly committed to your research efforts, please do not hesitate in contacting me if our company can be of further assistance.

K. R. Parker
VWoA Emissions

APPENDIX B

COMPUTER PRINTOUTS FOR THE REGULATED EMISSIONS, MERCEDES

Table B-	Test Date	Test No.	Trap	Fuel Aromatics	Test Condition	Test Cycle
1	2/27/87	1-3	Original	Baseline	Baseline	FTP
2	2/25/87	1-1	Original	Baseline	Baseline	HFET
3	2/25/87	1-1	Original	Baseline	Baseline	NYCC
4	2/26/87	1-2	Original	Baseline	Baseline	FTP
5	2/26/87	1-2	Original	Baseline	Baseline	HFET
6	2/26/87	1-2	Original	Baseline	Baseline	NYCC
7	5/15/87	2-1	None	Baseline	Baseline	FTP
8	5/15/87	2-1	None	Baseline	Baseline	HFET
9	5/15/87	2-1	None	Baseline	Baseline	NYCC
10	5/18/87	2-2	None	Baseline	Baseline	FTP
11	5/18/87	2-2	None	Baseline	Baseline	HFET
12	5/18/87	2-2	None	Baseline	Baseline	NYCC
13	6/23/87	R-1	Original	Baseline	Regeneration	HFET
14	6/24/87	R-2	Original	Baseline	Regeneration	HFET
15	6/23/87	L-1	Original	Baseline	Loaded Trap	NYCC
16	8/21/87	2-3	None	Baseline	Baseline	FTP
17	8/25/87	4-1	None	Low	Baseline	FTP
18	8/25/87	4-2	None	Low	Baseline	FTP
19	2/25/88	11-1	Replacement	Baseline	Baseline	FTP
20	3/1/88	11-2	Replacement	Baseline	Baseline	FTP
21	3/3/88	13-1	Replacement	Low	Baseline	FTP
22	3/4/88	13-2	Replacement	Low	Baseline	FTP
23	3/9/88	R-1	Replacement	Low	Regeneration	HFET
24	3/11/88	R-2	Replacement	Low	Regeneration	HFET
25	3/15/88	R-3	Replacement	Low	Regeneration	HFET
26	3/17/88	11-3	Replacement	Baseline	Baseline	FTP
27	3/22/88	15-1	Replacement	Baseline	Worn Injectors	FTP
28	3/22/88	15-1	Replacement	Baseline	Worn Injectors	HFET
29	3/22/88	15-1	Replacement	Baseline	Worn Injectors	NYCC
30	3/29/88	11-4	Replacement	Baseline	Baseline	FTP
31	3/30/88	2-4	None	Baseline	Baseline	FTP
32	4/21/88	17-1	Replacement	Baseline	Retarded Timing	FTP
33	4/21/88	17-1	Replacement	Baseline	Retarded Timing	HFET
34	4/21/88	17-1	Replacement	Baseline	Retarded Timing	NYCC
35	4/22/88	17-2	Replacement	Baseline	Retarded Timing	FTP
36	4/22/88	17-2	Replacement	Baseline	Retarded Timing	HFET
37	4/22/88	17-2	Replacement	Baseline	Retarded Timing	NYCC
38	4/27/88	8-1	None	Baseline	Retarded Timing	FTP
39	4/27/88	8-1	None	Baseline	Retarded Timing	HFET
40	4/27/88	8-1	None	Baseline	Retarded Timing	NYCC
41	4/28/88	8-2	None	Baseline	Retarded Timing	FTP
42	4/28/88	8-2	None	Baseline	Retarded Timing	HFET
43	4/28/88	8-2	None	Baseline	Retarded Timing	NYCC
44	5/3/88	19-1	Replacement	Low	Retarded Timing	FTP
45	4/29/88	10-1	None	Low	Retarded Timing	FTP
46	5/6/88	11-5	Replacement	Baseline	Baseline	FTP
47	5/10/88	2-5	None	Baseline	Baseline	FTP

TABLE B-1. MERCEDES BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 3
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L[183. CID] -6
TRANSMISSION A3

VEHICLE NO.
DATE 2/27/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG[4250. LBS]
ACTUAL ROAD LOAD 7.9 KW[10.6 HP]
DIESEL EM-619-F
ODOMETER 18353. KM[11404. MILES]

BAROMETER 734.57 MM HG[28.92 IN HG]
RELATIVE HUMIDITY 53. PCT

DRY BULB TEMP. 25.0 DEG C[77.0 DEG F]
ABS. HUMIDITY 10.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O[IN. H2O]	1270.0 [50.0]	1270.0 [50.0]	1270.0 [50.0]	1270.0 [50.0]
BLOWER INLET P MM. H2O[IN. H2O]	1244.6 [49.0]	1244.6 [49.0]	1244.6 [49.0]	1244.6 [49.0]
BLOWER INLET TEMP. DEG. C[DEG. F]	43.3 [110.0]	41.1 [106.0]	43.3 [110.0]	42.2 [108.0]
BLOWER REVOLUTIONS	4970.	8537.	4869.	8542.
TOT FLOW STD. CU. METRES[SCF]	106.9 [3774.]	184.8 [6525.]	106.9 [3774.]	184.3 [6508.]
THC SAMPLE METER/RANGE/PPM	15.7/ 2/ 16.	14.3/ 2/ 14.	13.3/12/ 13.	12.3/12/ 12.
THC BCKGRD METER/RANGE/PPM	8.7/ 2/ 9.	9.8/ 2/ 10.	7.8/12/ 8.	8.5/12/ 9.
CO SAMPLE METER/RANGE/PPM	67.2/13/ 65.	54.9/13/ 52.	68.7/13/ 66.	49.4/13/ 46.
CO BCKGRD METER/RANGE/PPM	.6/13/ 1.	.7/13/ 1.	.4/13/ 0.	.3/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	60.1/ 3/1.0648	35.7/ 3/ .6019	54.5/ 3/ .9544	35.4/ 3/ .5965
CO2 BCKGRD METER/RANGE/PCT	4.1/ 3/ .0668	3.8/ 3/ .0619	3.4/ 3/ .0554	3.5/ 3/ .0571
NOX SAMPLE METER/RANGE/PPM	81.7/ 1/ 20.5	32.5/ 1/ 8.2	64.1/ 1/ 16.1	33.9/ 1/ 8.6
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1	.4/ 1/ .1	.4/ 1/ .1	.3/ 1/ .1
DILUTION FACTOR	12.60	22.22	14.05	22.45
THC CONCENTRATION PPM	8.	5.	6.	4.
CO CONCENTRATION PPM	62.	50.	64.	45.
CO2 CONCENTRATION PCT	1.0032	.5427	.9029	.5420
NOX CONCENTRATION PPM	20.4	8.1	16.0	8.5
FILTER WT. MG [EFFICIENCY, %]	.304 [77.]	.334 [84.]	.250 [68.]	.335 [85.]
THC MASS GRAMS	.47	.53	.38	.45
CO MASS GRAMS	7.70	10.71	7.93	9.59
CO2 MASS GRAMS	1963.4	1836.1	1766.7	1828.8
NOX MASS GRAMS	4.18	2.87	3.28	3.00
PARTICULATE MASS GRAMS	.18	.19	.17	.19
THC GRAMS/MI	.13	.13	.10	.12
CO GRAMS/MI	2.12	2.74	2.19	2.48
CO2 GRAMS/MI	540.8	470.2	489.0	472.5
NOX GRAMS/MI	1.15	.74	.91	.77
FUEL ECONOMY IN MPG	18.67	21.41	20.63	21.32
RUN TIME SECONDS	505.	868.	505.	868.
MEASURED DISTANCE MI	3.63	3.91	3.81	3.87
SCF, DRY	.973 .976	.978	.974 .976	.978
DFC, WET [DRY]	.942[.926]		.946[.930]	
TOT VOL [SCM] / SAM BLR [SCM]	291.7/ 0.00		291.2/ 0.00	
MI [MEASURED]	7.54		7.48	
FUEL ECONOMY MPG	20.0		21.0	

COMPOSITE RESULTS

TEST NUMBER		1
BAROMETER	MM HG	734.6
HUMIDITY	G/KG	10.8
TEMPERATURE	DEG C	25.0

		3-BAG	[4-BAG]
CARBON DIOXIDE	G/MI	490.0	[490.7]
FUEL ECONOMY	MPG	20.57	[20.55]
HYDROCARBONS [THC]	G/MI	.13	[.12]
CARBON MONOXIDE	G/MI	2.46	[2.38]
OXIDES OF NITROGEN	G/MI	.87	[.88]
PARTICULATES	G/MI	.049	[.049]

TABLE B-2. MERCEDES BASELINE WITH TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -

PROJECT 08-1280-001

TEST NO. 1 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 2/25/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18289. KM(11364. MILES)

BAROMETER 740.66 MM HG(29.16 IN HG)
RELATIVE HUMIDITY 49. PCT
BAG RESULTS

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 9.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR .96

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1244.6 (49.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.0 (104.0)
BLOWER REVOLUTIONS	7531.
TOT FLOW STD. CU. METRES(SCF)	165.2 (5835.)
THC SAMPLE METER/RANGE/PPM	17.2/12/ 17.
THC BCKGRD METER/RANGE/PPM	5.7/12/ 6.
CO SAMPLE METER/RANGE/PPM	56.7/12/ 121.
CO BCKGRD METER/RANGE/PPM	.2/12/ 0.
CO2 SAMPLE METER/RANGE/PCT	78.6/ 3/1.4397
CO2 BCKGRD METER/RANGE/PCT	3.9/ 3/ .0636
NOX SAMPLE METER/RANGE/PPM	78.1/ 1/ 19.6
NOX BCKGRD METER/RANGE/PPM	1.4/ 1/ .4
DILUTION FACTOR	9.30
THC CONCENTRATION PPM	12.
CO CONCENTRATION PPM	115.
CO2 CONCENTRATION PCT	1.3829
NOX CONCENTRATION PPM	19.3
FILTER WT. MG (EFFICIENCY, %)	.404 (81.)
THC MASS GRAMS	1.15
CO MASS GRAMS	22.17
CO2 MASS GRAMS	4183.8
NOX MASS GRAMS	5.86
PARTICULATE MASS GRAMS	.24
RUN TIME SECONDS	765.
DFC, WET (DRY)	.893 (.879)
SCF, WET (DRY)	1.000 (.971)
VOL (SCM)	165.2
SAM BLR (SCM)	0.00
MI (MEASURED)	10.23
TEST NUMBER,	1
BAROMETER, MM HG	740.7
HUMIDITY, G/KG	9.5
TEMPERATURE, DEG C	24.4
CARBON DIOXIDE, G/MI	409.2
FUEL ECONOMY, MPG	24.6
HYDROCARBONS, (THC) G/MI	.11
CARBON MONOXIDE, G/MI	2.17
OXIDES OF NITROGEN, G/MI	.57
PARTICULATES, G/MI	.023

TABLE B-3. MERCEDES BASELINE WITH TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -

PROJECT 08-1280-001

TEST NO. 1 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 2/25/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18305. KM(11374. MILES)

BAROMETER 740.66 MM HG(29.16 IN HG)
RELATIVE HUMIDITY 49. PCT
BAG RESULTS

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 9.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR .96

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 [50.0]
BLOWER INLET P MM. H2O(IN. H2O)	1244.6 [49.0]
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 [108.0]
BLOWER REVOLUTIONS	5902.
TOT FLOW STD. CU. METRES(SCF)	128.7 [4543.]
THC SAMPLE METER/RANGE/PPM	9.1/12/ 9.
THC BCKGRD METER/RANGE/PPM	6.1/12/ 6.
CO SAMPLE METER/RANGE/PPM	31.5/13/ 29.
CO BCKGRD METER/RANGE/PPM	.6/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	54.0/11/ .4258
CO2 BCKGRD METER/RANGE/PCT	8.0/11/ .0477
NOX SAMPLE METER/RANGE/PPM	41.6/ 1/ 10.5
NOX BCKGRD METER/RANGE/PPM	1.4/ 1/ .4
DILUTION FACTOR	31.47
THC CONCENTRATION PPM	3.
CO CONCENTRATION PPM	28.
CO2 CONCENTRATION PCT	.3796
NOX CONCENTRATION PPM	10.1
FILTER WT. MG (EFFICIENCY, %)	.155 [60.]
THC MASS GRAMS	.24
CO MASS GRAMS	4.12
CO2 MASS GRAMS	894.3
NOX MASS GRAMS	2.40
PARTICULATE MASS GRAMS	.12
RUN TIME SECONDS	600.
DFC, WET (DRY)	.968 [.953]
SCF, WET (DRY)	1.000 [.980]
VOL (SCM)	128.7
SAM BLR (SCM)	0.00
MI (MEASURED)	1.17
TEST NUMBER,	1
BAROMETER, MM HG	740.7
HUMIDITY, G/KG	9.5
TEMPERATURE, DEG C	24.4
CARBON DIOXIDE, G/MI	763.7
FUEL ECONOMY, MPG	13.2
HYDROCARBONS, (THC) G/MI	.20
CARBON MONOXIDE, G/MI	3.52
OXIDES OF NITROGEN, G/MI	2.05
PARTICULATES, G/MI	.106

TABLE B-4. MERCEDES BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 2/26/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18306. KM(11375. MILES)

BAROMETER 738.38 MM HG(29.07 IN HG)
RELATIVE HUMIDITY 62. PCT

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 11.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.03

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1244.6 (49.0)	1244.6 (49.0)	1244.6 (49.0)	1244.6 (49.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	39.4 (103.0)	40.0 (104.0)	42.2 (108.0)	41.7 (107.0)
BLOWER REVOLUTIONS	4969.	8544.	4965.	8546.
TOT FLOW STD. CU. METRES(SCF)	108.8 (3842.)	186.8 (6594.)	107.8 (3807.)	185.9 (6563.)
THC SAMPLE METER/RANGE/PPM	14.0/12/ 14.	12.1/12/ 12.	14.8/12/ 15.	13.6/12/ 14.
THC BCKGRD METER/RANGE/PPM	5.9/12/ 6.	6.3/12/ 6.	6.7/12/ 7.	7.1/12/ 7.
CO SAMPLE METER/RANGE/PPM	68.0/13/ 66.	69.2/13/ 67.	78.5/13/ 77.	55.8/13/ 53.
CO BCKGRD METER/RANGE/PPM	1.0/13/ 1.	1.2/13/ 1.	.7/13/ 1.	.8/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	96.2/11/ .9916	66.2/11/ .5622	91.9/11/ .9198	67.0/11/ .5718
CO2 BCKGRD METER/RANGE/PCT	8.5/11/ .0509	8.4/11/ .0502	8.3/11/ .0496	8.3/11/ .0496
NOX SAMPLE METER/RANGE/PPM	81.3/ 1/ 20.4	33.8/ 1/ 8.5	59.5/ 1/ 14.9	34.4/ 1/ 8.7
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3	.5/ 1/ .1	.8/ 1/ .2	.4/ 1/ .1
DILUTION FACTOR	13.53	23.72	14.56	23.38
THC CONCENTRATION PPM	8.	6.	9.	7.
CO CONCENTRATION PPM	62.	64.	74.	50.
CO2 CONCENTRATION PCT	.9445	.5141	.8736	.5243
NOX CONCENTRATION PPM	20.1	8.4	14.7	8.6
FILTER WT. MG (EFFICIENCY, %)	.213 (77.)	.317 (85.)	.312 (82.)	.322 (81.)
THC MASS GRAMS	.53	.66	.53	.73
CO MASS GRAMS	7.89	13.89	9.26	10.92
CO2 MASS GRAMS	1881.5	1757.8	1724.5	1784.3
NOX MASS GRAMS	4.30	3.08	3.12	3.13
PARTICULATE MASS GRAMS	.13	.18	.18	.20
THC GRAMS/MI	.15	.17	.15	.19
CO GRAMS/MI	2.18	3.58	2.57	2.81
CO2 GRAMS/MI	520.5	453.3	477.9	459.4
NOX GRAMS/MI	1.19	.79	.86	.81
FUEL ECONOMY IN MPG	19.38	22.13	21.07	21.89
RUN TIME SECONDS	504.	868.	504.	868.
MEASURED DISTANCE MI	3.81	3.88	3.81	3.88
SCF, DRY	.971	.973 .975	.972	.974 .975
DFC, WET (DRY)		.946(.927)		.948(.929)
TOT VOL (SCM) / SAM BLR (SCM)		295.6/ 0.00		293.7/ 0.00
MI (MEASURED)		7.49		7.49
FUEL ECONOMY MPG		20.7		21.5

COMPOSITE RESULTS

TEST NUMBER		1
BAROMETER	MM HG	738.4
HUMIDITY	G/KG	11.5
TEMPERATURE	DEG C	23.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	474.0	(475.8)
FUEL ECONOMY	MPG	21.21	(21.15)
HYDROCARBONS (THC)	G/MI	.16	(.16)
CARBON MONOXIDE	G/MI	3.01	(2.79)
OXIDES OF NITROGEN	G/MI	.90	(.90)
PARTICULATES	G/MI	.046	(.047)

TABLE B-5. MERCEDES BASELINE WITH TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 2/26/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18330. KM(11390. MILES)

BAROMETER 737.36 MM HG(29.03 IN HG)
RELATIVE HUMIDITY 30. PCT

DRY BULB TEMP. 31.1 DEG C(88.0 DEG F)
ABS. HUMIDITY 8.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR .94

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1244.6 (49.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)
BLOWER REVOLUTIONS	7528.
TOT FLOW STD. CU. METRES(SCF)	163.2 (5762.)
THC SAMPLE METER/RANGE/PPM	19.2/12/ 19.
THC BCKGRD METER/RANGE/PPM	8.4/12/ 8.
CO SAMPLE METER/RANGE/PPM	59.1/12/ 127.
CO BCKGRD METER/RANGE/PPM	.1/12/ 0.
CO2 SAMPLE METER/RANGE/PCT	78.3/ 3/1.4336
CO2 BCKGRD METER/RANGE/PCT	3.7/ 3/ .0603
NOX SAMPLE METER/RANGE/PPM	74.1/ 1/ 18.6
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1
DILUTION FACTOR	9.34
THC CONCENTRATION PPM	12.
CO CONCENTRATION PPM	122.
CO2 CONCENTRATION PCT	1.3797
NOX CONCENTRATION PPM	18.5
FILTER WT. MG (EFFICIENCY, %)	.459 (78.)
THC MASS GRAMS	1.10
CO MASS GRAMS	23.21
CO2 MASS GRAMS	4122.2
NOX MASS GRAMS	5.44
PARTICULATE MASS GRAMS	.28
RUN TIME SECONDS	765.
DFC, WET (DRY)	.893 (.884)
SCF, WET (DRY)	1.000 (.977)
VOL (SCM)	163.2
SAM BLR (SCM)	0.00
MI (MEASURED)	10.22
TEST NUMBER,	1
BAROMETER, MM HG	737.4
HUMIDITY, G/KG	8.9
TEMPERATURE, DEG C	31.1
CARBON DIOXIDE, G/MI	403.4
FUEL ECONOMY, MPG	25.0
HYDROCARBONS, (THC) G/MI	.11
CARBON MONOXIDE, G/MI	2.27
OXIDES OF NITROGEN, G/MI	.53
PARTICULATES, G/MI	.027

TABLE B-6. MERCEDES BASELINE WITH TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183, CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 2/26/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18348. KM(11401. MILES)

BAROMETER 736.85 MM HG(29.01 IN HG)
RELATIVE HUMIDITY 48. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 11.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.02

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1244.6 (49.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	44.4 (112.0)
BLOWER REVOLUTIONS	5889.
TOT FLOW STD. CU. METRES(SCF)	126.8 (4478.)
THC SAMPLE METER/RANGE/PPM	11.8/12/ 12.
THC BCKGRD METER/RANGE/PPM	8.9/12/ 9.
CO SAMPLE METER/RANGE/PPM	36.6/13/ 34.
CO BCKGRD METER/RANGE/PPM	.2/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	55.4/11/ .4406
CO2 BCKGRD METER/RANGE/PCT	8.5/11/ .0509
NOX SAMPLE METER/RANGE/PPM	41.0/ 1/ 10.3
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .1
DILUTION FACTOR	30.37
THC CONCENTRATION PPM	3.
CO CONCENTRATION PPM	33.
CO2 CONCENTRATION PCT	.3914
NOX CONCENTRATION PPM	10.2
FILTER WT. MG (EFFICIENCY, %)	.172 (65.)
THC MASS GRAMS	.23
CO MASS GRAMS	4.82
CO2 MASS GRAMS	908.8
NOX MASS GRAMS	2.53
PARTICULATE MASS GRAMS	.13
RUN TIME SECONDS	598.
DFC, WET (DRY)	.967 (.952)
SCF, WET (DRY)	1.000 (.980)
VOL (SCM)	126.8
SAM BLR (SCM)	0.00
MI (MEASURED)	1.19
TEST NUMBER,	1
BAROMETER, MM HG	736.9
HUMIDITY, G/KG	11.3
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	766.1
FUEL ECONOMY, MPG	13.1
HYDROCARBONS, (THC) G/MI	.20
CARBON MONOXIDE, G/MI	4.06
OXIDES OF NITROGEN, G/MI	2.13
PARTICULATES, G/MI	.107

TABLE B-7. MERCEDES BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 5/15/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18575. KM(11542. MILES)

BAROMETER 743.20 MM HG(29.26 IN HG)
RELATIVE HUMIDITY 51. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 11.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.04

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	43.3 (110.0)	42.2 (108.0)	42.8 (109.0)
BLOWER REVOLUTIONS	4990.	8485.	4956.	8480.
TOT FLOW STD. CU. METRES(SCF)	100.4 (3545.)	170.4 (6018.)	99.8 (3525.)	170.6 (6024.)
THC SAMPLE METER/RANGE/PPM	25.3/22/ 25.	18.4/22/ 18.	21.0/22/ 21.	19.3/22/ 19.
THC BCKGRD METER/RANGE/PPM	8.6/22/ 9.	8.9/22/ 9.	9.2/22/ 9.	9.5/22/ 10.
CO SAMPLE METER/RANGE/PPM	42.2/13/ 39.	30.3/13/ 28.	34.9/13/ 32.	26.4/13/ 24.
CO BCKGRD METER/RANGE/PPM	.8/13/ 1.	.3/13/ 0.	.6/13/ 1.	.8/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	57.5/ 3/1.0132	35.1/ 3/ .5911	50.7/ 3/ .8808	33.8/ 3/ .5679
CO2 BCKGRD METER/RANGE/PCT	3.3/ 3/ .0538	3.2/ 3/ .0522	3.0/ 3/ .0489	2.7/ 3/ .0440
NOX SAMPLE METER/RANGE/PPM	78.1/ 1/ 19.6	32.6/ 1/ 8.2	59.0/ 1/ 14.8	35.6/ 1/ 9.0
NOX BCKGRD METER/RANGE/PPM	.1/ 1/ .0	.2/ 1/ .1	.4/ 1/ .1	.4/ 1/ .1
DILUTION FACTOR	13.26	22.70	15.26	23.63
THC CONCENTRATION PPM	17.	10.	12.	10.
CO CONCENTRATION PPM	37.	27.	30.	23.
CO2 CONCENTRATION PCT	.9635	.5412	.8351	.5257
NOX CONCENTRATION PPM	19.6	8.2	14.7	8.9
FILTER WT. MG (EFFICIENCY, %)	3.263 (97.)	3.560 (96.)	2.408 (93.)	3.104 (95.)
THC MASS GRAMS	1.00	.97	.71	1.00
CO MASS GRAMS	4.33	5.27	3.53	4.52
CO2 MASS GRAMS	1771.1	1688.7	1526.2	1642.1
NOX MASS GRAMS	3.91	2.77	2.92	3.01
PARTICULATE MASS GRAMS	1.48	1.59	1.16	1.48
THC GRAMS/MI	.28	.25	.20	.26
CO GRAMS/MI	1.20	1.36	.99	1.16
CO2 GRAMS/MI	490.8	434.8	427.2	421.4
NOX GRAMS/MI	1.08	.71	.82	.77
FUEL ECONOMY IN MPG	20.60	23.23	23.80	23.98
RUN TIME SECONDS	510.	868.	507.	868.
MEASURED DISTANCE MI	3.61	3.88	3.57	3.90
SCF, DRY	.974	.978	.975	.978
DFC, WET (DRY)	.977	.944(.929)	.977	.949(.933)
TOT VOL (SCM) / SAM BLR (SCM)		270.8/ 0.00		270.4/ 0.00
MI (MEASURED)		7.49		7.47
FUEL ECONOMY MPG		21.9		23.8

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	743.2
HUMIDITY	G/KG	11.9
TEMPERATURE	DEG C	27.2

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	444.3	(440.3)
FUEL ECONOMY	MPG	22.74	(22.95)
HYDROCARBONS (THC)	G/MI	.24	(.24)
CARBON MONOXIDE	G/MI	1.22	(1.16)
OXIDES OF NITROGEN	G/MI	.82	(.84)
PARTICULATES	G/MI	.387	(.378)

TABLE B-8. MERCEDES BASELINE WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L[183. CID] -6
TRANSMISSION A3

VEHICLE NO.
DATE 5/15/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG[4250. LBS]
ACTUAL ROAD LOAD 7.9 KW[10.6 HP]
DIESEL EM-619-F
ODOMETER 18599. KM[11557. MILES]

BAROMETER 741.93 MM HG[29.21 IN HG]
RELATIVE HUMIDITY 57. PCT
BAG RESULTS

DRY BULB TEMP. 25.6 DEG C[78.0 DEG F]
ABS. HUMIDITY 11.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.04

TEST CYCLE	HFET
BLOWER DIF P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET TEMP. DEG. C[DEG. F]	42.2 [108.0]
BLOWER REVOLUTIONS	7482.
TOT FLOW STD. CU. METRES[SCF]	150.4 [5310.]
THC SAMPLE METER/RANGE/PPM	28.8/22/ 29.
THC BCKGRD METER/RANGE/PPM	9.8/22/ 10.
CO SAMPLE METER/RANGE/PPM	48.0/13/ 45.
CO BCKGRD METER/RANGE/PPM	.7/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	64.2/ 3/1.1468
CO2 BCKGRD METER/RANGE/PCT	3.2/ 3/ .0522
NOX SAMPLE METER/RANGE/PPM	58.2/ 1/ 14.6
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	11.71
THC CONCENTRATION PPM	20.
CO CONCENTRATION PPM	42.
CO2 CONCENTRATION PCT	1.0991
NOX CONCENTRATION PPM	14.4
FILTER WT. MG [EFFICIENCY, %]	4.842 [96.]
THC MASS GRAMS	1.72
CO MASS GRAMS	7.44
CO2 MASS GRAMS	3026.0
NOX MASS GRAMS	4.32
PARTICULATE MASS GRAMS	2.16
RUN TIME SECONDS	765.
DFC, WET [DRY]	.915 [.898]
SCF, WET [DRY]	1.000 [.971]
VOL [SCM]	150.4
SAM BLR [SCM]	0.00
MI [MEASURED]	10.20
TEST NUMBER,	
BAROMETER, MM HG	741.9
HUMIDITY, G/KG	11.9
TEMPERATURE, DEG C	25.6
CARBON DIOXIDE, G/MI	296.6
FUEL ECONOMY, MPG	34.1
HYDROCARBONS, [THC] G/MI	.17
CARBON MONOXIDE, G/MI	.73
OXIDES OF NITROGEN, G/MI	.42
PARTICULATES, G/MI	.211

TABLE B-9. MERCEDES BASELINE WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. RUN 1	VEHICLE NO.	TEST WEIGHT 1928. KG(4250. LBS)
VEHICLE MODEL 86 MERCEDES 300SDL	DATE 5/15/87	ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
ENGINE 3.0 L(183. CID) -6	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 18615. KM(11567. MILES)
	CVS NO. 17	
BAROMETER 741.68 MM HG(29.20 IN HG)	DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)	
RELATIVE HUMIDITY 54. PCT	ABS. HUMIDITY 12.2 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.05

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)
BLOWER REVOLUTIONS	5850.
TOT FLOW STD. CU. METRES(SCF)	117.5 (4150.)
THC SAMPLE METER/RANGE/PPM	17.1/22/ 17.
THC BCKGRD METER/RANGE/PPM	12.7/22/ 13.
CO SAMPLE METER/RANGE/PPM	27.9/13/ 25.
CO BCKGRD METER/RANGE/PPM	.5/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	30.1/ 3/ .5026
CO2 BCKGRD METER/RANGE/PCT	3.3/ 3/ .0538
NOX SAMPLE METER/RANGE/PPM	42.3/ 1/ 10.6
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2
DILUTION FACTOR	26.68
THC CONCENTRATION PPM	5.
CO CONCENTRATION PPM	24.
CO2 CONCENTRATION PCT	.4508
NOX CONCENTRATION PPM	10.5
FILTER WT. MG (EFFICIENCY, %)	1.972 (94.)
THC MASS GRAMS	.33
CO MASS GRAMS	3.31
CO2 MASS GRAMS	969.9
NOX MASS GRAMS	2.48
PARTICULATE MASS GRAMS	.94
RUN TIME SECONDS	598.
DFC, WET (DRY)	.963 (.946)
SCF, WET (DRY)	1.000 (.978)
VOL (SCM)	117.5
SAM BLR (SCM)	0.00
MI (MEASURED)	1.19
TEST NUMBER,	
BAROMETER, MM HG	741.7
HUMIDITY, G/KG	12.2
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	818.5
FUEL ECONOMY, MPG	12.3
HYDROCARBONS, (THC) G/MI	.28
CARBON MONOXIDE, G/MI	2.79
OXIDES OF NITROGEN, G/MI	2.09
PARTICULATES, G/MI	.792

TABLE B-10. MERCEDES BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 5/18/87
BAG CART NO. 1 / CVS NO. 17
DYND NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18646. KM(11586. MILES)

BAROMETER 739.90 MM HG(29.13 IN HG)
RELATIVE HUMIDITY 58. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 13.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.10

BAG NUMBER / DESCRIPTION	1 COLD TRANSIENT	2 STABILIZED	3 HOT TRANSIENT	4 STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.6 (114.0)	45.6 (114.0)	43.3 (110.0)	43.9 (111.0)
BLOWER REVOLUTIONS	4954.	8487.	4945.	8484.
TOT FLOW STD. CU. METRES(SCF)	98.3 (3470.)	168.3 (5943.)	98.7 (3486.)	169.1 (5971.)
THC SAMPLE METER/RANGE/PPM	27.5/12/ 27.	20.3/12/ 20.	24.1/12/ 24.	21.4/12/ 21.
THC BCKGRD METER/RANGE/PPM	11.8/12/ 12.	12.2/12/ 12.	12.6/12/ 13.	12.9/12/ 13.
CO SAMPLE METER/RANGE/PPM	42.2/13/ 39.	27.1/13/ 25.	35.7/13/ 33.	26.2/13/ 24.
CO BCKGRD METER/RANGE/PPM	.1/13/ 0.	0.0/13/ 0.	.1/13/ 0.	.1/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	55.3/ 3/ .9700	33.3/ 3/ .5590	49.6/ 3/ .8597	33.8/ 3/ .5679
CO2 BCKGRD METER/RANGE/PCT	3.0/ 3/ .0489	2.5/ 3/ .0408	2.9/ 3/ .0473	2.7/ 3/ .0440
NOX SAMPLE METER/RANGE/PPM	88.6/ 1/ 22.2	39.9/ 1/ 10.0	69.6/ 1/ 17.5	43.4/ 1/ 10.9
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .1	.6/ 1/ .2	.4/ 1/ .1	.8/ 1/ .2
DILUTION FACTOR	13.84	23.99	15.62	23.62
THC CONCENTRATION PPM	17.	9.	12.	9.
CO CONCENTRATION PPM	38.	24.	32.	23.
CO2 CONCENTRATION PCT	.9246	.5199	.8154	.5257
NOX CONCENTRATION PPM	22.1	9.9	17.4	10.7
FILTER WT. MG (EFFICIENCY, %)	3.236 (97.)	3.841 (98.)	2.713 (97.)	3.458 (98.)
THC MASS GRAMS	.94	.83	.70	.88
CO MASS GRAMS	4.29	4.67	3.62	4.51
CO2 MASS GRAMS	1663.3	1602.1	1474.0	1627.7
NOX MASS GRAMS	4.58	3.51	3.62	3.82
PARTICULATE MASS GRAMS	1.44	1.72	1.20	1.56
THC GRAMS/MI	.26	.21	.19	.23
CO GRAMS/MI	1.20	1.20	1.00	1.16
CO2 GRAMS/MI	463.5	413.2	409.1	419.9
NOX GRAMS/MI	1.28	.91	1.00	.99
FUEL ECONOMY IN MPG	21.81	24.45	24.72	24.06
RUN TIME SECONDS	506.	868.	506.	868.
MEASURED DISTANCE MI	3.59	3.88	3.60	3.88
SCF, DRY	.972	.976	.973	.976
DFC, WET (DRY)	.975		.975	
TOT VOL (SCM) / SAM BLR (SCM)	.947(.929)		.950(.932)	
MI (MEASURED)	266.6/ 0.00		267.8/ 0.00	
FUEL ECONOMY MPG	7.47		7.48	
	23.1		24.4	

COMPOSITE RESULTS

TEST NUMBER		2
BAROMETER	MM HG	739.9
HUMIDITY	G/KG	13.5
TEMPERATURE	DEG C	27.2

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	422.5	(424.5)
FUEL ECONOMY	MPG	23.92	(23.81)
HYDROCARBONS (THC)	G/MI	.22	(.22)
CARBON MONOXIDE	G/MI	1.15	(1.14)
OXIDES OF NITROGEN	G/MI	1.01	(1.03)
PARTICULATES	G/MI	.404	(.392)

TABLE B-11. MERCEDES BASELINE WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 5/18/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18670. KM(11601. MILES)

BAROMETER 739.14 MM HG(29.10 IN HG)
RELATIVE HUMIDITY 54. PCT

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 12.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.05

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.0 (113.0)
BLOWER REVOLUTIONS	7483.
TOT FLOW STD. CU. METRES(SCF)	148.4 (5241.)
THC SAMPLE METER/RANGE/PPM	31.8/12/ 32.
THC BCKGRD METER/RANGE/PPM	14.5/12/ 15.
CO SAMPLE METER/RANGE/PPM	46.4/13/ 43.
CO BCKGRD METER/RANGE/PPM	0.0/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	64.9/ 3/1.1609
CO2 BCKGRD METER/RANGE/PCT	2.9/ 3/ .0473
NOX SAMPLE METER/RANGE/PPM	75.2/ 1/ 18.9
NOX BCKGRD METER/RANGE/PPM	.8/ 1/ .2
DILUTION FACTOR	11.57
THC CONCENTRATION PPM	19.
CO CONCENTRATION PPM	42.
CO2 CONCENTRATION PCT	1.1178
NOX CONCENTRATION PPM	18.7
FILTER WT. MG (EFFICIENCY, %)	4.703 (98.)
THC MASS GRAMS	1.59
CO MASS GRAMS	7.17
CO2 MASS GRAMS	3037.4
NOX MASS GRAMS	5.58
PARTICULATE MASS GRAMS	2.08
RUN TIME SECONDS	766.
DFC, WET (DRY)	.914 (.898)
SCF, WET (DRY)	1.000 (.972)
VOL (SCM)	148.4
SAM BLR (SCM)	0.00
MI (MEASURED)	10.19
TEST NUMBER,	2
BAROMETER, MM HG	739.1
HUMIDITY, G/KG	12.2
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	298.2
FUEL ECONOMY, MPG	33.9
HYDROCARBONS, (THC) G/MI	.16
CARBON MONOXIDE, G/MI	.70
OXIDES OF NITROGEN, G/MI	.55
PARTICULATES, G/MI	.204

TABLE B-12. MERCEDES BASELINE WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L[183. CID] -6
TRANSMISSION A3

VEHICLE NO.
DATE 5/18/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG[4250. LBS]
ACTUAL ROAD LOAD 7.9 KW[10.6 HP]
DIESEL EM-619-F
ODOMETER 18686. KM[11611. MILES]

BAROMETER 739.14 MM HG[29.10 IN HG]
RELATIVE HUMIDITY 54. PCT
BAG RESULTS

DRY BULB TEMP. 26.7 DEG C[80.0 DEG F]
ABS. HUMIDITY 12.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.05

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET TEMP. DEG. C[DEG. F]	43.3 [110.0]
BLOWER REVOLUTIONS	5860.
TOT FLOW STD. CU. METRES[SCF]	116.8 [4125.]
THC SAMPLE METER/RANGE/PPM	20.1/12/ 20.
THC BCKGRD METER/RANGE/PPM	14.9/12/ 15.
CO SAMPLE METER/RANGE/PPM	20.6/13/ 18.
CO BCKGRD METER/RANGE/PPM	.3/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	56.4/11/ .4513
CO2 BCKGRD METER/RANGE/PCT	7.4/11/ .0440
NOX SAMPLE METER/RANGE/PPM	48.4/ 1/ 12.2
NOX BCKGRD METER/RANGE/PPM	1.6/ 1/ .4
DILUTION FACTOR	29.71
THC CONCENTRATION PPM	6.
CO CONCENTRATION PPM	18.
CO2 CONCENTRATION PCT	.4088
NOX CONCENTRATION PPM	11.8
FILTER WT. MG [EFFICIENCY, %]	1.641 [97.]
THC MASS GRAMS	.39
CO MASS GRAMS	2.41
CO2 MASS GRAMS	874.3
NOX MASS GRAMS	2.76
PARTICULATE MASS GRAMS	.73
RUN TIME SECONDS	600.
DFC, WET [DRY]	.966 [.949]
SCF, WET [DRY]	1.000 [.978]
VOL [SCM]	116.8
SAM BLR [SCM]	0.00
MI [MEASURED]	1.19
TEST NUMBER,	2
BAROMETER, MM HG	739.1
HUMIDITY, G/KG	12.2
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	734.1
FUEL ECONOMY, MPG	13.8
HYDROCARBONS, [THC] G/MI	.33
CARBON MONOXIDE, G/MI	2.03
OXIDES OF NITROGEN, G/MI	2.32
PARTICULATES, G/MI	.613

TABLE B-13. MERCEDES REGENERATION TEST, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-1 RUN
VEHICLE MODEL 86 Mercedes 300SDL
ENGINE 3.0 L[183. CID] -6
TRANSMISSION A3

VEHICLE NO.
DATE 6/23/87
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG[4250. LBS]
ACTUAL ROAD LOAD 7.9 KW[10.6 HP]
DIESEL EM-619-F
ODOMETER 18907. KM[11748. MILES]

BAROMETER 740.16 MM HG[29.14 IN HG]
RELATIVE HUMIDITY 64. PCT

DRY BULB TEMP. 26.1 DEG C[79.0 DEG F]
ABS. HUMIDITY 14.0 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.12

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET TEMP. DEG. C[DEG. F]	41.1 [106.0]
BLOWER REVOLUTIONS	7481.
TOT FLOW STD. CU. METRES[SCF]	150.2 [5305.]
THC SAMPLE METER/RANGE/PPM	15.0/12/ 15.
THC BCKGRD METER/RANGE/PPM	9.1/12/ 9.
CO SAMPLE METER/RANGE/PPM	79.0/13/ 195.
CO BCKGRD METER/RANGE/PPM	.0/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	79.6/ 1/1.4712
CO2 BCKGRD METER/RANGE/PCT	2.3/ 1/ .0406
NOX SAMPLE METER/RANGE/PPM	78.7/ 1/ 19.7
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2
DILUTION FACTOR	9.07
THC CONCENTRATION PPM	7.
CO CONCENTRATION PPM	185.
CO2 CONCENTRATION PCT	1.4351
NOX CONCENTRATION PPM	19.6
FILTER WT. MG [EFFICIENCY, %]	2.000 [97.]
THC MASS GRAMS	.60
CO MASS GRAMS	32.43
CO2 MASS GRAMS	3947.3
NOX MASS GRAMS	6.31
PARTICULATE MASS GRAMS	.75
RUN TIME SECONDS	766.
DFC, WET [DRY]	.890 [.871]
SCF, WET [DRY]	1.000 [.966]
VOL [SCM]	150.2
SAM BLR [SCM]	.00
MI [MEASURED]	10.22
TEST NUMBER,	R-1
BAROMETER, MM HG	740.2
HUMIDITY, G/KG	14.0
TEMPERATURE, DEG C	26.1
CARBON DIOXIDE, G/MI	386.1
FUEL ECONOMY, MPG	26.0
HYDROCARBONS, [THC] G/MI	.06
CARBON MONOXIDE, G/MI	3.17
OXIDES OF NITROGEN, G/MI	.62
PARTICULATES, G/MI	.073

TABLE B-14. MERCEDES REGENERATION TEST, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. T-R 2 RUN
VEHICLE MODEL 86 Mercedes 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 6/24/87
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 18907. KM(11748. MILES)

BAROMETER 739.65 MM HG(29.12 IN HG)
RELATIVE HUMIDITY 56. PCT
BAG RESULTS

DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)
ABS. HUMIDITY 11.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.02

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.0 (113.0)
BLOWER REVOLUTIONS	7487.
TOT FLOW STD. CU. METRES(SCF)	148.7 (5250.)
THC SAMPLE METER/RANGE/PPM	19.0/12/ 19.
THC BCKGRD METER/RANGE/PPM	12.6/12/ 13.
CO SAMPLE METER/RANGE/PPM	67.9/13/ 165.
CO BCKGRD METER/RANGE/PPM	.1/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	81.9/ 1/1.5150
CO2 BCKGRD METER/RANGE/PCT	2.9/ 1/ .0512
NOX SAMPLE METER/RANGE/PPM	20.5/ 2/ 20.6
NOX BCKGRD METER/RANGE/PPM	.1/ 2/ .1
DILUTION FACTOR	8.82
THC CONCENTRATION PPM	7.
CO CONCENTRATION PPM	157.
CO2 CONCENTRATION PCT	1.4696
NOX CONCENTRATION PPM	20.5
FILTER WT. MG (EFFICIENCY, %)	2.000 (97.)
THC MASS GRAMS	.59
CO MASS GRAMS	27.22
CO2 MASS GRAMS	4000.4
NOX MASS GRAMS	5.96
PARTICULATE MASS GRAMS	.65
RUN TIME SECONDS	765.
DFC, WET (DRY)	.887 (.871)
SCF, WET (DRY)	1.000 (.968)
VOL (SCM)	148.7
SAM BLR (SCM)	.00
MI (MEASURED)	10.23
TEST NUMBER,	T-R2
BAROMETER, MM HG	739.6
HUMIDITY, G/KG	11.4
TEMPERATURE, DEG C	25.0
CARBON DIOXIDE, G/MI	391.0
FUEL ECONOMY, MPG	25.7
HYDROCARBONS, (THC) G/MI	.06
CARBON MONOXIDE, G/MI	2.66
OXIDES OF NITROGEN, G/MI	.58
PARTICULATES, G/MI	.064

TABLE B-15. MERCEDES LOADED TRAP TEST, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. L-1 RUN
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L[183. CID] -6
TRANSMISSION A3

VEHICLE NO.
DATE 6/23/87
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG[4250. LBS]
ACTUAL ROAD LOAD 7.9 KW[10.6 HP]
DIESEL EM-619-F
ODOMETER 18905. KM[11747. MILES]

BAROMETER 740.16 MM HG[29.14 IN HG]
RELATIVE HUMIDITY 64. PCT
BAG RESULTS

DRY BULB TEMP. 26.1 DEG C[79.0 DEG F]
ABS. HUMIDITY 14.0 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.12

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET P MM. H2O[IN. H2O]	1778.0 [70.0]
BLOWER INLET TEMP. DEG. C[DEG. F]	41.1 [106.0]
BLOWER REVOLUTIONS	5844.
TOT FLOW STD. CU. METRES[SCF]	117.4 (4144.]
THC SAMPLE METER/RANGE/PPM	10.0/12/ 10.
THC BCKGRD METER/RANGE/PPM	9.1/12/ 9.
CO SAMPLE METER/RANGE/PPM	62.6/12/ 64.
CO BCKGRD METER/RANGE/PPM	.0/12/ 0.
CO2 SAMPLE METER/RANGE/PCT	74.2/14/ .5650
CO2 BCKGRD METER/RANGE/PCT	11.7/14/ .0404
NOX SAMPLE METER/RANGE/PPM	42.3/ 1/ 10.6
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3
DILUTION FACTOR	23.63
THC CONCENTRATION PPM	1.
CO CONCENTRATION PPM	62.
CO2 CONCENTRATION PCT	.5263
NOX CONCENTRATION PPM	10.4
FILTER WT. MG (EFFICIENCY, %)	.000 [88.]
THC MASS GRAMS	.09
CO MASS GRAMS	8.42
CO2 MASS GRAMS	1130.9
NOX MASS GRAMS	2.61
PARTICULATE MASS GRAMS	.02
RUN TIME SECONDS	598.
DFC, WET (DRY)	.958 (.938)
SCF, WET (DRY)	1.000 (.974)
VOL (SCM)	117.4
SAM BLR (SCM)	.00
MI (MEASURED)	1.17
TEST NUMBER,	L-1
BAROMETER, MM HG	740.2
HUMIDITY, G/KG	14.0
TEMPERATURE, DEG C	26.1
CARBON DIOXIDE, G/MI	967.6
FUEL ECONOMY, MPG	10.4
HYDROCARBONS, (THC) G/MI	.08
CARBON MONOXIDE, G/MI	7.20
OXIDES OF NITROGEN, G/MI	2.23
PARTICULATES, G/MI	.019

TABLE B-16. MERCEDES BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 3
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 8/21/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 19093. KM(11864. MILES)

BAROMETER 744.73 MM HG(29.32 IN HG)
RELATIVE HUMIDITY 52. PCT

DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)
ABS. HUMIDITY 10.6 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)	43.3 (110.0)	41.7 (107.0)	42.2 (108.0)
BLOWER REVOLUTIONS	4956.	8485.	4951.	8468.
TOT FLOW STD. CU. METRES(SCF)	99.8 (3525.)	170.9 (6034.)	100.2 (3537.)	171.0 (6038.)
THC SAMPLE METER/RANGE/PPM	26.5/12/ 26.	17.4/12/ 17.	18.5/12/ 18.	15.6/12/ 16.
THC BCKGRD METER/RANGE/PPM	6.5/12/ 7.	6.5/12/ 7.	6.5/12/ 7.	6.5/12/ 7.
CO SAMPLE METER/RANGE/PPM	40.3/13/ 37.	27.1/13/ 25.	32.2/13/ 29.	24.6/13/ 22.
CO BCKGRD METER/RANGE/PPM	.9/13/ 1.	.5/13/ 0.	.3/13/ 0.	.1/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	97.1/11/1.0071	67.1/11/ .5730	85.0/11/ .8126	66.4/11/ .5646
CO2 BCKGRD METER/RANGE/PCT	8.0/11/ .0477	7.8/11/ .0465	7.8/11/ .0465	7.9/11/ .0471
NOX SAMPLE METER/RANGE/PPM	89.9/ 1/ 22.5	39.7/ 1/ 10.0	64.5/ 1/ 16.2	41.2/ 1/ 10.4
NOX BCKGRD METER/RANGE/PPM	1.2/ 1/ .3	1.2/ 1/ .3	.6/ 1/ .2	.4/ 1/ .1
DILUTION FACTOR	13.34	23.42	16.54	23.79
THC CONCENTRATION PPM	20.	11.	12.	9.
CO CONCENTRATION PPM	35.	23.	28.	22.
CO2 CONCENTRATION PCT	.9630	.5285	.7690	.5195
NOX CONCENTRATION PPM	22.2	9.7	16.0	10.3
FILTER WT. MG (EFFICIENCY, %)	3.081 (98.)	3.130 (98.)	2.225 (***)	3.076 (98.)
THC MASS GRAMS	1.18	1.10	.71	.93
CO MASS GRAMS	4.08	4.66	3.29	4.28
CO2 MASS GRAMS	1760.0	1653.5	1410.4	1626.2
NOX MASS GRAMS	4.23	3.16	3.06	3.35
PARTICULATE MASS GRAMS	1.34	1.39	.99	1.39
THC GRAMS/MI	.33	.28	.20	.24
CO GRAMS/MI	1.13	1.20	.92	1.11
CO2 GRAMS/MI	488.3	426.4	394.7	420.9
NOX GRAMS/MI	1.17	.81	.86	.87
FUEL ECONOMY IN MPG	20.70 22.15	23.69	25.62 24.76	24.01
RUN TIME SECONDS	507.	868.	505.	867.
MEASURED DISTANCE MI	3.60 7.48	3.88	3.57 7.44	3.86
SCF, DRY	.974 .976	.978	.976 .977	.978
DFC, WET (DRY)	.945(.929)		.951(.935)	
TOT VOL (SCM) / SAM BLR (SCM)	270.7/ .00		271.2/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	744.7
HUMIDITY	G/KG	10.6
TEMPERATURE	DEG C	25.0

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	430.5	(428.9)
FUEL ECONOMY	MPG	23.47	(23.56)
HYDROCARBONS (THC)	G/MI	.27	(.26)
CARBON MONOXIDE	G/MI	1.11	(1.08)
OXIDES OF NITROGEN	G/MI	.90	(.92)
PARTICULATES	G/MI	.338	(.339)

TABLE B-17. MERCEDES WITHOUT TRAP AND WITH LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 4 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 8/25/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 19199. KM(11930. MILES)

BAROMETER 744.22 MM HG(29.30 IN HG)
RELATIVE HUMIDITY 60. PCT
BAG RESULTS

DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)
ABS. HUMIDITY 12.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.05

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.7 (107.0)	42.2 (108.0)	41.1 (106.0)	41.1 (106.0)
BLOWER REVOLUTIONS	4949.	8482.	4941.	8484.
TOT FLOW STD. CU. METRES(SCF)	100.0 (3531.)	171.2 (6044.)	100.0 (3530.)	171.6 (6060.)
THC SAMPLE METER/RANGE/PPM	20.3/12/ 20.	14.3/12/ 14.	19.3/12/ 19.	16.2/12/ 16.
THC BCKGRD METER/RANGE/PPM	6.3/12/ 6.	6.3/12/ 6.	7.8/12/ 8.	7.8/12/ 8.
CO SAMPLE METER/RANGE/PPM	36.8/13/ 34.	26.3/13/ 24.	32.8/13/ 30.	23.5/13/ 21.
CO BCKGRD METER/RANGE/PPM	.6/13/ 1.	.2/13/ 0.	.4/13/ 0.	.4/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	95.1/11/ .9728	66.0/11/ .5598	86.0/11/ .8276	64.3/11/ .5397
CO2 BCKGRD METER/RANGE/PCT	7.7/11/ .0458	7.5/11/ .0446	7.7/11/ .0458	7.5/11/ .0446
NOX SAMPLE METER/RANGE/PPM	87.5/ 1/ 21.9	38.3/ 1/ 9.6	65.5/ 1/ 16.4	37.3/ 1/ 9.4
NOX BCKGRD METER/RANGE/PPM	.8/ 1/ .2	.8/ 1/ .2	.4/ 1/ .1	.7/ 1/ .2
DILUTION FACTOR	13.43	23.31	15.78	24.17
THC CONCENTRATION PPM	15.	8.	12.	9.
CO CONCENTRATION PPM	32.	23.	29.	20.
CO2 CONCENTRATION PCT	.9304	.5171	.7846	.4970
NOX CONCENTRATION PPM	21.7	9.4	16.3	9.2
FILTER WT. MG (EFFICIENCY, %)	3.092 (99.)	2.650 (99.)	2.097 (99.)	2.497 (99.)
THC MASS GRAMS	.84	.83	.70	.87
CO MASS GRAMS	3.73	4.56	3.32	4.04
CO2 MASS GRAMS	1703.6	1620.4	1436.1	1561.7
NOX MASS GRAMS	4.35	3.24	3.27	3.17
PARTICULATE MASS GRAMS	1.35	1.18	.91	1.12
THC GRAMS/MI	.23	.21	.19	.23
CO GRAMS/MI	1.03	1.17	.92	1.04
CO2 GRAMS/MI	471.3	415.9	398.5	401.8
NOX GRAMS/MI	1.20	.83	.91	.82
FUEL ECONOMY IN MPG	20.52 21.84	23.23	24.26 24.15	24.05
RUN TIME SECONDS	506.	868.	505.	868.
MEASURED DISTANCE MI	3.61 7.51	3.90	3.60 7.49	3.89
SCF, DRY	.971 .974	.975	.973 .974	.975
DFC, WET (DRY)	.945(.927)		.951(.932)	
TOT VOL (SCM) / SAM BLR (SCM)	271.2/ .00		271.6/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	744.2
HUMIDITY	G/KG	12.1
TEMPERATURE	DEG C	25.0

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	422.6	(418.4)
FUEL ECONOMY	MPG	22.87	(23.10)
HYDROCARBONS (THC)	G/MI	.21	(.22)
CARBON MONOXIDE	G/MI	1.07	(1.03)
OXIDES OF NITROGEN	G/MI	.93	(.92)
PARTICULATES	G/MI	.304	(.299)

TABLE B-18. MERCEDES WITHOUT TRAP AND WITH LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH

FTP - VEHICLE EMISSIONS RESULTS -

PROJECT 08-1280-001

TEST NO. 4 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 8/27/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 19240. KM(11955. MILES)

BAROMETER 744.47 MM HG(29.31 IN HG)
RELATIVE HUMIDITY 61. PCT
DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 10.9 GM/KG
NOX HUMIDITY CORRECTION FACTOR 1.01

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)	42.2 (108.0)	41.7 (107.0)	42.2 (108.0)
BLOWER REVOLUTIONS	4930.	8491.	4934.	8485.
TOT FLOW STD. CU. METRES(SCF)	99.5 (3514.)	171.4 (6053.)	99.7 (3522.)	171.3 (6048.)
THC SAMPLE METER/RANGE/PPM	24.9/12/ 25.	17.3/12/ 17.	18.8/12/ 19.	17.3/12/ 17.
THC BCKGRD METER/RANGE/PPM	7.9/12/ 8.	7.9/12/ 8.	7.7/12/ 8.	7.7/12/ 8.
CO SAMPLE METER/RANGE/PPM	38.5/13/ 35.	28.1/13/ 25.	31.6/13/ 29.	26.0/13/ 24.
CO BCKGRD METER/RANGE/PPM	1.5/13/ 1.	1.8/13/ 2.	.9/13/ 1.	.8/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	96.4/11/ .9950	65.2/11/ .5503	86.8/11/ .8397	65.2/11/ .5503
CO2 BCKGRD METER/RANGE/PCT	7.5/11/ .0446	7.6/11/ .0452	7.2/11/ .0427	7.5/11/ .0446
NOX SAMPLE METER/RANGE/PPM	81.6/ 1/ 20.5	34.8/ 1/ 8.8	60.5/ 1/ 15.2	36.8/ 1/ 9.3
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .0	.5/ 1/ .1	.0/ 1/ .0	.7/ 1/ .2
DILUTION FACTOR	13.12	23.68	15.56	23.69
THC CONCENTRATION PPM	18.	10.	12.	10.
CO CONCENTRATION PPM	33.	23.	27.	22.
CO2 CONCENTRATION PCT	.9538	.5070	.7997	.5076
NOX CONCENTRATION PPM	20.4	8.7	15.2	9.1
FILTER WT. MG (EFFICIENCY, %)	2.285 (98.)	2.864 (99.)	1.897 (98.)	2.547 (99.)
THC MASS GRAMS	1.02	.97	.67	.99
CO MASS GRAMS	3.81	4.63	3.14	4.41
CO2 MASS GRAMS	1738.0	1591.4	1460.3	1591.9
NOX MASS GRAMS	3.90	2.85	2.91	3.00
PARTICULATE MASS GRAMS	1.01	1.28	.83	1.13
THC GRAMS/MI	.28	.25	.19	.26
CO GRAMS/MI	1.06	1.20	.87	1.14
CO2 GRAMS/MI	482.1	412.6	406.8	411.0
NOX GRAMS/MI	1.08	.74	.81	.77
FUEL ECONOMY IN MPG	20.06 21.66	23.40	23.77 23.63	23.50
RUN TIME SECONDS	505.	868.	505.	868.
MEASURED DISTANCE MI	3.61 7.46	3.86	3.59 7.46	3.87
SCF, DRY	.970 .973	.975	.972 .974	.975
DFC, WET (DRY)	.945(.927)		.950(.931)	
TOT VOL (SCM) / SAM BLR (SCM)	271.0/ .00		271.0/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	744.5
HUMIDITY	G/KG	10.9
TEMPERATURE	DEG C	22.8

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	425.4	(425.0)
FUEL ECONOMY	MPG	22.71	(22.74)
HYDROCARBONS (THC)	G/MI	.24	(.24)
CARBON MONOXIDE	G/MI	1.08	(1.06)
OXIDES OF NITROGEN	G/MI	.83	(.84)
PARTICULATES	G/MI	.294	(.282)

TABLE B-19. MERCEDES BASELINE WITH REPLACEMENT TRAP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 11 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 2/25/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 19396. KM(12052. MILES)

BAROMETER 748.28 MM HG(29.46 IN HG)
RELATIVE HUMIDITY 38. PCT

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 8.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR .93

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1524.0 (60.0)	1524.0 (60.0)	1524.0 (60.0)	1524.0 (60.0)
BLOWER INLET P MM. H2O(IN. H2O)	1524.0 (60.0)	1524.0 (60.0)	1524.0 (60.0)	1524.0 (60.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.9 (111.0)	44.4 (112.0)	43.3 (110.0)	43.3 (110.0)
BLOWER REVOLUTIONS	4970.	8541.	4963.	8531.
TOT FLOW STD. CU. METRES(SCF)	105.4 (3721.)	180.7 (6382.)	105.4 (3722.)	181.2 (6397.)
THC SAMPLE METER/RANGE/PPM	16.5/22/ 16.	14.3/22/ 14.	18.1/22/ 18.	15.7/22/ 16.
THC BCKGRD METER/RANGE/PPM	5.6/22/ 6.	5.6/22/ 6.	7.9/22/ 8.	7.9/22/ 8.
CO SAMPLE METER/RANGE/PPM	70.1/12/ 70.	63.9/12/ 64.	96.6/12/ 97.	60.8/12/ 61.
CO BCKGRD METER/RANGE/PPM	1.1/12/ 1.	1.2/12/ 1.	1.0/12/ 1.	1.7/12/ 2.
CO2 SAMPLE METER/RANGE/PCT	97.2/17/ .9909	76.5/17/ .6949	92.6/17/ .9211	75.4/17/ .6805
CO2 BCKGRD METER/RANGE/PCT	13.4/17/ .0865	13.5/17/ .0872	14.0/17/ .0906	14.1/17/ .0913
NOX SAMPLE METER/RANGE/PPM	83.9/ 1/ 21.0	33.0/ 1/ 8.3	59.8/ 1/ 15.0	33.7/ 1/ 8.5
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .0	.4/ 1/ .1	.2/ 1/ .0	.3/ 1/ .0
DILUTION FACTOR	13.53	19.24	14.50	19.65
THC CONCENTRATION PPM	11.	9.	11.	8.
CO CONCENTRATION PPM	67.	61.	93.	58.
CO2 CONCENTRATION PCT	.9107	.6122	.8367	.5939
NOX CONCENTRATION PPM	20.9	8.2	14.9	8.4
FILTER WT. MG (EFFICIENCY, %)	1.204 (98.)	.440 (88.)	.397 (93.)	.359 (86.)
THC MASS GRAMS	.69	.93	.65	.86
CO MASS GRAMS	8.23	12.89	11.40	12.18
CO2 MASS GRAMS	1756.9	2025.8	1614.6	1969.9
NOX MASS GRAMS	3.92	2.64	2.80	2.71
PARTICULATE MASS GRAMS	.52	.23	.19	.20
THC GRAMS/MI	.19	.24	.18	.21
CO GRAMS/MI	2.26	3.29	3.13	3.02
CO2 GRAMS/MI	482.0	517.5	443.7	487.9
NOX GRAMS/MI	1.08	.68	.77	.67
FUEL ECONOMY IN MPG	20.91 20.11	19.42	22.63 21.52	20.61
RUN TIME SECONDS	505.	869.	505.	868.
MEASURED DISTANCE MI	3.64 7.56	3.91	3.64 7.68	4.04
SCF, DRY	.979 .980	.981	.979 .981	.982
DFC, WET (DRY)	.940(.928)		.942(.931)	
TOT VOL (SCM) / SAM BLR (SCM)	286.1/ .00		286.6/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	748.3
HUMIDITY	G/KG	8.4
TEMPERATURE	DEG C	26.7

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	489.9	(481.3)
FUEL ECONOMY	MPG	20.53	(20.89)
HYDROCARBONS (THC)	G/MI	.21	(.20)
CARBON MONOXIDE	G/MI	3.03	(2.95)
OXIDES OF NITROGEN	G/MI	.78	(.78)
PARTICULATES	G/MI	.075	(.072)

TABLE B-20. MERCEDES BASELINE WITH REPLACEMENT TRAP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 11 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/ 1/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 19447. KM(12084. MILES)

BAROMETER 743.20 MM HG(29.26 IN HG)
RELATIVE HUMIDITY 55. PCT
BAG RESULTS

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 10.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.7 (107.0)	43.3 (110.0)	43.3 (110.0)	44.4 (112.0)
BLOWER REVOLUTIONS	4948.	8510.	4947.	8506.
TOT FLOW STD. CU. METRES(SCF)	99.8 (3525.)	171.0 (6038.)	99.4 (3510.)	170.3 (6014.)
THC SAMPLE METER/RANGE/PPM	17.0/22/ 17.	14.4/22/ 14.	16.1/22/ 16.	15.4/22/ 15.
THC BCKGRD METER/RANGE/PPM	6.5/22/ 7.	6.5/22/ 7.	8.2/22/ 8.	8.2/22/ 8.
CO SAMPLE METER/RANGE/PPM	88.4/13/ 89.	72.7/13/ 71.	92.7/13/ 94.	69.9/13/ 68.
CO BCKGRD METER/RANGE/PPM	1.7/13/ 1.	2.0/13/ 2.	1.8/13/ 2.	1.6/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	64.0/ 3/1.1428	73.3/11/ .6504	61.9/ 3/1.1007	74.0/11/ .6595
CO2 BCKGRD METER/RANGE/PCT	3.5/ 3/ .0571	7.9/11/ .0471	3.9/ 3/ .0636	8.0/11/ .0477
NOX SAMPLE METER/RANGE/PPM	86.4/ 1/ 21.6	33.2/ 1/ 8.4	62.2/ 1/ 15.6	33.9/ 1/ 8.6
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3	.3/ 1/ .0	.1/ 1/ .0	.1/ 1/ .0
DILUTION FACTOR	11.72	20.52	12.16	20.25
THC CONCENTRATION PPM	11.	8.	9.	8.
CO CONCENTRATION PPM	84.	67.	89.	64.
CO2 CONCENTRATION PCT	1.0906	.6056	1.0423	.6142
NOX CONCENTRATION PPM	21.4	8.3	15.6	8.5
FILTER WT. MG (EFFICIENCY, %)	.559 (74.)	.380 (87.)	.340 (91.)	.384 (91.)
THC MASS GRAMS	.64	.81	.49	.74
CO MASS GRAMS	9.74	13.33	10.27	12.75
CO2 MASS GRAMS	1993.6	1896.1	1896.9	1915.1
NOX MASS GRAMS	4.11	2.73	2.98	2.79
PARTICULATE MASS GRAMS	.33	.19	.16	.19
THC GRAMS/MI	.17	.21	.14	.19
CO GRAMS/MI	2.67	3.42	2.83	3.27
CO2 GRAMS/MI	547.1	485.9	522.4	490.7
NOX GRAMS/MI	1.13	.70	.82	.72
FUEL ECONOMY IN MPG	18.42 19.52	20.66	19.28 19.88	20.48
RUN TIME SECONDS	505.	868.	505.	868.
MEASURED DISTANCE MI	3.64 7.55	3.90	3.63 7.53	3.90
SCF, DRY	.972 .975	.976	.972 .975	.976
DFC, WET (DRY)	.938(.921)		.939(.922)	
TOT VOL (SCM) / SAM BLR (SCM)	270.8/ .00		269.7/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	743.2
HUMIDITY	G/KG	10.9
TEMPERATURE	DEG C	24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	508.7	(510.1)
FUEL ECONOMY	MPG	19.77	(19.72)
HYDROCARBONS (THC)	G/MI	.18	(.18)
CARBON MONOXIDE	G/MI	3.10	(3.06)
OXIDES OF NITROGEN	G/MI	.82	(.83)
PARTICULATES	G/MI	.056	(.056)

TABLE B-21. MERCEDES WITH REPLACEMENT TRAP AND LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 13 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/ 3/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 19578. KM(12165. MILES)

BAROMETER 741.17 MM HG(29.18 IN HG)
RELATIVE HUMIDITY 25. PCT

DRY BULB TEMP. 22.2 DEG C(72.0 DEG F)
ABS. HUMIDITY 4.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR .83

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.1 (106.0)	41.7 (107.0)	39.4 (103.0)	40.6 (105.0)
BLOWER REVOLUTIONS	4944.	8508.	4949.	8505.
TOT FLOW STD. CU. METRES(SCF)	99.5 (3514.)	171.1 (6040.)	100.0 (3532.)	171.4 (6053.)
THC SAMPLE METER/RANGE/PPM	10.6/1022/ 11.	9.0/1022/ 9.	10.8/1022/ 11.	10.2/1022/ 10.
THC BCKGRD METER/RANGE/PPM	3.2/1022/ 3.	5.0/1022/ 5.	4.6/1022/ 5.	6.2/1022/ 6.
CO SAMPLE METER/RANGE/PPM	55.5/ 12/ 56.	45.1/ 12/ 45.	59.5/ 12/ 60.	46.1/ 12/ 46.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.	.1/ 12/ 0.	.0/ 12/ 0.	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	97.7/ 14/1.0778	77.6/ 14/ .6197	92.8/ 14/ .9376	76.9/ 14/ .6080
CO2 BCKGRD METER/RANGE/PCT	12.0/ 14/ .0416	12.0/ 14/ .0416	11.9/ 14/ .0412	11.9/ 14/ .0412
NOX SAMPLE METER/RANGE/PPM	92.5/ 1/ 23.1	36.2/ 1/ 9.1	69.1/ 1/ 17.3	36.9/ 1/ 9.3
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .0	.3/ 1/ .0	.4/ 1/ .1	.1/ 1/ .0
DILUTION FACTOR	12.11	21.01	13.90	21.41
THC CONCENTRATION PPM	8.	4.	7.	4.
CO CONCENTRATION PPM	54.	44.	58.	45.
CO2 CONCENTRATION PCT	1.0397	.5801	.8994	.5688
NOX CONCENTRATION PPM	23.0	9.0	17.2	9.3
FILTER WT. MG (EFFICIENCY, %)	.352 (96.)	.422 (96.)	.196 (94.)	.345 (96.)
THC MASS GRAMS	.44	.42	.38	.43
CO MASS GRAMS	6.25	8.80	6.76	9.03
CO2 MASS GRAMS	1894.4	1816.5	1647.0	1785.0
NOX MASS GRAMS	3.62	2.44	2.72	2.51
PARTICULATE MASS GRAMS	.15	.18	.09	.15
THC GRAMS/MI	.12	.11	.11	.11
CO GRAMS/MI	1.73	2.27	1.88	2.33
CO2 GRAMS/MI	525.2	468.6	457.3	459.7
NOX GRAMS/MI	1.00	.63	.76	.65
FUEL ECONOMY IN MPG	18.40 19.46	20.57	21.10 21.03	20.96
RUN TIME SECONDS	504.	868.	505.	868.
MEASURED DISTANCE MI	3.61 7.48	3.88	3.60 7.48	3.88
SCF, DRY	.981 .984	.986	.983 .985	.986
DFC, WET (DRY)	.940(.932)		.944(.936)	
TOT VOL (SCM) / SAM BLR (SCM)	270.6/ .00		271.4/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	741.2
HUMIDITY	G/KG	4.3
TEMPERATURE	DEG C	22.2

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	477.2	(474.6)
FUEL ECONOMY	MPG	20.22	(20.32)
HYDROCARBONS (THC)	G/MI	.11	(.11)
CARBON MONOXIDE	G/MI	2.05	(2.07)
OXIDES OF NITROGEN	G/MI	.74	(.75)
PARTICULATES	G/MI	.041	(.038)

TABLE B-22. MERCEDES WITH REPLACEMENT TRAP AND LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 13 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/ 4/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 19605. KM(12182. MILES)

BAROMETER 745.74 MM HG(29.36 IN HG)
RELATIVE HUMIDITY 20. PCT
BAG RESULTS

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 3.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR .82

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.6 (114.0)	45.6 (114.0)	43.3 (110.0)	44.4 (112.0)
BLOWER REVOLUTIONS	4943.	8510.	4944.	8509.
TOT FLOW STD. CU. METRES(SCF)	99.1 (3499.)	170.6 (6024.)	99.8 (3524.)	171.2 (6044.)
THC SAMPLE METER/RANGE/PPM	10.6/22/ 11.	8.8/22/ 9.	10.8/22/ 11.	9.2/22/ 9.
THC BCKGRD METER/RANGE/PPM	3.9/22/ 4.	5.6/22/ 6.	5.0/22/ 5.	6.5/22/ 7.
CO SAMPLE METER/RANGE/PPM	54.2/13/ 51.	43.4/13/ 40.	60.3/13/ 57.	36.8/13/ 34.
CO BCKGRD METER/RANGE/PPM	.2/13/ 0.	.1/13/ 0.	.0/13/ 0.	.1/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	62.2/ 3/1.1067	37.8/ 3/ .6398	55.2/ 3/ .9680	36.4/ 3/ .6145
CO2 BCKGRD METER/RANGE/PCT	2.6/ 3/ .0424	2.9/ 3/ .0473	3.4/ 3/ .0554	2.7/ 3/ .0440
NOX SAMPLE METER/RANGE/PPM	97.3/ 1/ 24.3	39.9/ 1/ 10.0	71.0/ 1/ 17.8	37.4/ 1/ 9.4
NOX BCKGRD METER/RANGE/PPM	.2/ 1/ .0	.2/ 1/ .0	.1/ 1/ .0	.4/ 1/ .1
DILUTION FACTOR	11.80	20.37	13.47	21.23
THC CONCENTRATION PPM	7.	4.	6.	3.
CO CONCENTRATION PPM	50.	39.	56.	33.
CO2 CONCENTRATION PCT	1.0679	.5948	.9167	.5725
NOX CONCENTRATION PPM	24.2	10.0	17.8	9.3
FILTER WT. MG (EFFICIENCY, %)	.364 (94.)	.456 (93.)	.315 (94.)	.320 (91.)
THC MASS GRAMS	.41	.35	.36	.30
CO MASS GRAMS	5.71	7.82	6.50	6.59
CO2 MASS GRAMS	1937.6	1857.9	1675.1	1794.2
NOX MASS GRAMS	3.75	2.66	2.77	2.49
PARTICULATE MASS GRAMS	.16	.21	.15	.16
THC GRAMS/MI	.11	.09	.10	.08
CO GRAMS/MI	1.58	2.01	1.80	1.69
CO2 GRAMS/MI	534.9	476.7	464.8	460.2
NOX GRAMS/MI	1.04	.68	.77	.64
FUEL ECONOMY IN MPG	18.07 19.14	20.24	20.77 20.88	20.99
RUN TIME SECONDS	504.	868.	504.	868.
MEASURED DISTANCE MI	3.62 7.52	3.90	3.60 7.50	3.90
SCF, DRY	.983 .986	.987	.984 .986	.988
DFC, WET (DRY)	.938(.932)		.943(.937)	
TOT VOL (SCM) / SAM BLR (SCM)	269.7/ .00		271.0/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	745.7
HUMIDITY	G/KG	3.9
TEMPERATURE	DEG C	24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	485.5	(480.6)
FUEL ECONOMY	MPG	19.89	(20.09)
HYDROCARBONS (THC)	G/MI	.10	(.09)
CARBON MONOXIDE	G/MI	1.86	(1.77)
OXIDES OF NITROGEN	G/MI	.78	(.77)
PARTICULATES	G/MI	.049	(.044)

TABLE B-23. MERCEDES REGENERATION WITH REPLACEMENT TRAP AND LOW AROMATIC FUEL, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-1 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/ 9/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 19706. KM(12245. MILES)

BAROMETER 743.20 MM HG(29.26 IN HG)
RELATIVE HUMIDITY 12. PCT
BAG RESULTS

DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)
ABS. HUMIDITY 2.6 GM/KG

NOX HUMIDITY CORRECTION FACTOR .79

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.1 (115.0)
BLOWER REVOLUTIONS	7497.
TOT FLOW STD. CU. METRES(SCF)	149.3 (5273.)
THC SAMPLE METER/RANGE/PPM	18.0/22/ 18.
THC BCKGRD METER/RANGE/PPM	3.9/22/ 4.
CO SAMPLE METER/RANGE/PPM	46.0/13/ 108.
CO BCKGRD METER/RANGE/PPM	.1/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	80.3/ 1/1.4845
CO2 BCKGRD METER/RANGE/PCT	2.4/ 1/ .0423
NOX SAMPLE METER/RANGE/PPM	94.6/ 1/ 23.6
NOX BCKGRD METER/RANGE/PPM	1.1/ 1/ .3
DILUTION FACTOR	8.77
THC CONCENTRATION PPM	15.
CO CONCENTRATION PPM	104.
CO2 CONCENTRATION PCT	1.4470
NOX CONCENTRATION PPM	23.3
FILTER WT. MG (EFFICIENCY, %)	.668 (90.)
THC MASS GRAMS	1.27
CO MASS GRAMS	18.13
CO2 MASS GRAMS	3956.5
NOX MASS GRAMS	5.27
PARTICULATE MASS GRAMS	.31
RUN TIME SECONDS	765.
DFC, WET (DRY)	.886 (.883)
SCF, WET (DRY)	1.000 (.982)
VOL (SCM)	149.3
SAM BLR (SCM)	.00
MI (MEASURED)	10.21

TEST NUMBER,		
BAROMETER,	MM HG	743.2
HUMIDITY,	G/KG	2.6
TEMPERATURE,	DEG C	26.1
CARBON DIOXIDE,	G/MI	387.4
FUEL ECONOMY,	MPG	24.9
HYDROCARBONS, (THC)	G/MI	.12
CARBON MONOXIDE,	G/MI	1.77
OXIDES OF NITROGEN,	G/MI	.52
PARTICULATES,	G/MI	.031

TABLE B-24. MERCEDES REGENERATION WITH REPLACEMENT TRAP AND LOW AROMATIC FUEL, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH

HFET - VEHICLE EMISSIONS RESULTS -

PROJECT 08-1280-001

TEST NO. R-2 RUN
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/11/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 19821. KM(12316. MILES)

BAROMETER 735.58 MM HG(28.96 IN HG)
RELATIVE HUMIDITY 36. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 8.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR .93

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)
BLOWER REVOLUTIONS	7499.
TOT FLOW STD. CU. METRES(SCF)	148.6 (5248.)
THC SAMPLE METER/RANGE/PPM	16.3/22/ 16.
THC BCKGRD METER/RANGE/PPM	4.2/22/ 4.
CO SAMPLE METER/RANGE/PPM	66.6/13/ 158.
CO BCKGRD METER/RANGE/PPM	.1/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	82.6/ 1/1.5284
CO2 BCKGRD METER/RANGE/PCT	2.5/ 1/ .0441
NOX SAMPLE METER/RANGE/PPM	94.0/ 1/ 23.5
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	8.50
THC CONCENTRATION PPM	13.
CO CONCENTRATION PPM	151.
CO2 CONCENTRATION PCT	1.4895
NOX CONCENTRATION PPM	23.3
FILTER WT. MG (EFFICIENCY, %)	.845 (93.)
THC MASS GRAMS	1.09
CO MASS GRAMS	26.16
CO2 MASS GRAMS	4053.3
NOX MASS GRAMS	6.16
PARTICULATE MASS GRAMS	.39
RUN TIME SECONDS	765.
DFC, WET (DRY)	.882 (.872)
SCF, WET (DRY)	1.000 (.973)
VOL (SCM)	148.6
SAM BLR (SCM)	.00
MI (MEASURED)	10.34
TEST NUMBER,	
BAROMETER, MM HG	735.6
HUMIDITY, G/KG	8.4
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	391.9
FUEL ECONOMY, MPG	24.5
HYDROCARBONS, (THC) G/MI	.11
CARBON MONOXIDE, G/MI	2.53
OXIDES OF NITROGEN, G/MI	.60
PARTICULATES, G/MI	.037

TABLE B-25. MERCEDES REGENERATION WITH REPLACEMENT TRAP AND LOW AROMATIC FUEL, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-3
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/15/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 19875. KM(12350. MILES)

BAROMETER 744.73 MM HG(29.32 IN HG)
RELATIVE HUMIDITY 15. PCT
BAG RESULTS

DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)
ABS. HUMIDITY 3.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR .80

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)
BLOWER REVOLUTIONS	7492.
TOT FLOW STD. CU. METRES(SCF)	151.4 (5345.)
THC SAMPLE METER/RANGE/PPM	14.8/1022/ 15.
THC BCKGRD METER/RANGE/PPM	5.4/1022/ 5.
CO SAMPLE METER/RANGE/PPM	57.2/ 13/ 134.
CO BCKGRD METER/RANGE/PPM	.2/ 13/ 0.
CO2 SAMPLE METER/RANGE/PCT	81.6/ 1/1.5093
CO2 BCKGRD METER/RANGE/PCT	2.8/ 1/ .0494
NOX SAMPLE METER/RANGE/PPM	25.8/ 2/ 25.9
NOX BCKGRD METER/RANGE/PPM	.2/ 2/ .2
DILUTION FACTOR	8.62
THC CONCENTRATION PPM	10.
CO CONCENTRATION PPM	129.
CO2 CONCENTRATION PCT	1.4656
NOX CONCENTRATION PPM	25.7
FILTER WT. MG (EFFICIENCY, %)	.545 (88.)
THC MASS GRAMS	.98
CO MASS GRAMS	22.74
CO2 MASS GRAMS	4062.1
NOX MASS GRAMS	5.96
PARTICULATE MASS GRAMS	.27
RUN TIME SECONDS	765.
DFC, WET (DRY)	.884 (.880)
SCF, WET (DRY)	1.000 (.980)
VOL (SCM)	151.4
SAM BLR (SCM)	.00
MI (MEASURED)	10.30
TEST NUMBER,	
BAROMETER, MM HG	744.7
HUMIDITY, G/KG	3.2
TEMPERATURE, DEG C	26.1
CARBON DIOXIDE, G/MI	394.2
FUEL ECONOMY, MPG	24.4
HYDROCARBONS, (THC) G/MI	.09
CARBON MONOXIDE, G/MI	2.21
OXIDES OF NITROGEN, G/MI	.58
PARTICULATES, G/MI	.026

TABLE B-26. MERCEDES BASELINE WITH REPLACEMENT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 11 RUN 3
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/17/88
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20006. KM(12431. MILES)

BAROMETER 741.17 MM HG(29.18 IN HG)
RELATIVE HUMIDITY 59. PCT

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 11.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.02

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)	43.3 (110.0)	42.2 (108.0)
BLOWER REVOLUTIONS	4948.	8542.	4947.
TOT FLOW STD. CU. METRES(SCF)	99.4 (3508.)	171.0 (6039.)	99.3 (3507.)
THC SAMPLE METER/RANGE/PPM	16.5/1022/ 16.	15.6/1022/ 16.	16.2/1022/ 16.
THC BCKGRD METER/RANGE/PPM	5.0/1022/ 5.	5.0/1022/ 5.	4.7/1022/ 5.
CO SAMPLE METER/RANGE/PPM	72.4/ 13/ 70.	76.4/ 13/ 75.	51.2/ 12/ 107.
CO BCKGRD METER/RANGE/PPM	1.6/ 13/ 1.	1.2/ 13/ 1.	.4/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	62.4/ 3/1.1107	37.2/ 3/ .6289	55.6/ 3/ .9759
CO2 BCKGRD METER/RANGE/PCT	2.8/ 3/ .0456	2.9/ 3/ .0473	3.3/ 3/ .0538
NOX SAMPLE METER/RANGE/PPM	85.2/ 1/ 21.3	34.1/ 1/ 8.6	64.5/ 1/ 16.2
NOX BCKGRD METER/RANGE/PPM	.8/ 1/ .2	.8/ 1/ .2	.5/ 1/ .1
DILUTION FACTOR	12.08	21.20	13.69
THC CONCENTRATION PPM	12.	11.	12.
CO CONCENTRATION PPM	66.	72.	102.
CO2 CONCENTRATION PCT	1.0688	.5839	.9260
NOX CONCENTRATION PPM	21.2	8.4	16.1
FILTER WT. MG (EFFICIENCY, %)	.205 (86.)	.155 (87.)	.231 (89.)
THC MASS GRAMS	.68	1.07	.68
CO MASS GRAMS	7.67	14.25	11.81
CO2 MASS GRAMS	1944.4	1828.0	1684.0
NOX MASS GRAMS	4.08	2.79	3.10
PARTICULATE MASS GRAMS	.10	.08	.11
THC GRAMS/MI	.19	.28	.19
CO GRAMS/MI	2.12	3.68	3.28
CO2 GRAMS/MI	535.9	471.9	467.0
NOX GRAMS/MI	1.12	.72	.86
FUEL ECONOMY IN MPG	18.83	21.24	21.50
RUN TIME SECONDS	505.	872.	505.
MEASURED DISTANCE MI	3.63	3.87	3.61
SCF, DRY	.971	.975	.972

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	741.2
HUMIDITY	G/KG	11.2
TEMPERATURE	DEG C	23.9

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	483.9	(.0)
FUEL ECONOMY	MPG	20.76	(.00)
HYDROCARBONS (THC)	G/MI	.23	(.00)
CARBON MONOXIDE	G/MI	3.24	(.00)
OXIDES OF NITROGEN	G/MI	.84	(.00)
PARTICULATES	G/MI	.025	(.000)

TABLE B-27. MERCEDES WITH WORN INJECTORS, AND REPLACEMENT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 15 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/22/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20168. KM(12532. MILES)

BAROMETER 744.22 MM HG(29.30 IN HG)
RELATIVE HUMIDITY 49. PCT
BAG RESULTS

DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)
ABS. HUMIDITY 9.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR .97

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.1 (106.0)	42.2 (108.0)	43.3 (110.0)	44.4 (112.0)
BLOWER REVOLUTIONS	4946.	8509.	4944.	8506.
TOT FLOW STD. CU. METRES(SCF)	100.1 (3535.)	171.8 (6066.)	99.5 (3514.)	170.6 (6025.)
THC SAMPLE METER/RANGE/PPM	16.5/1022/ 17.	15.0/1022/ 15.	15.6/1022/ 16.	14.5/1022/ 15.
THC BCKGRD METER/RANGE/PPM	6.3/1022/ 6.	6.3/1022/ 6.	7.3/1022/ 7.	7.3/1022/ 7.
CO SAMPLE METER/RANGE/PPM	98.0/ 12/ 98.	77.1/ 12/ 77.	55.6/ 13/ 130.	66.8/ 12/ 67.
CO BCKGRD METER/RANGE/PPM	.6/ 12/ 1.	.6/ 12/ 1.	.2/ 13/ 0.	.6/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	64.8/ 1/1.1917	79.7/ 14/ .6559	95.8/ 14/1.0205	79.3/ 14/ .6488
CO2 BCKGRD METER/RANGE/PCT	2.8/ 1/ .0494	14.1/ 14/ .0502	13.1/ 14/ .0460	12.7/ 14/ .0444
NOX SAMPLE METER/RANGE/PPM	90.8/ 1/ 22.7	36.0/ 1/ 9.1	68.3/ 1/ 17.1	36.1/ 1/ 9.1
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3	.8/ 1/ .2	.4/ 1/ .1	.2/ 1/ .1
DILUTION FACTOR	11.24	20.33	13.07	20.58
THC CONCENTRATION PPM	11.	9.	9.	8.
CO CONCENTRATION PPM	94.	75.	125.	65.
CO2 CONCENTRATION PCT	1.1467	.6082	.9780	.6066
NOX CONCENTRATION PPM	22.4	8.9	17.0	9.0
FILTER WT. MG (EFFICIENCY, %)	.373 (86.)	.200 (74.)	.392 (89.)	.206 (72.)
THC MASS GRAMS	.62	.30	.51	.75
CO MASS GRAMS	10.92	14.92	14.49	12.82
CO2 MASS GRAMS	2101.7	1912.9	1782.0	1894.9
NOX MASS GRAMS	4.19	2.84	3.16	2.87
PARTICULATE MASS GRAMS	.19	.12	.19	.13
THC GRAMS/MI	.17	.23	.14	.19
CO GRAMS/MI	3.02	3.85	4.01	3.30
CO2 GRAMS/MI	580.3	493.3	492.9	488.6
NOX GRAMS/MI	1.16	.73	.87	.74
FUEL ECONOMY IN MPG	17.36 18.78	20.33	20.35 20.46	20.56
RUN TIME SECONDS	505.	868.	504.	868.
MEASURED DISTANCE MI	3.62 7.50	3.88	3.62 7.49	3.88
SCF, DRY	.973 .976	.978	.975 .977	.978
DFC, WET (DRY)	.936(.921)		.941(.926)	
TOT VOL (SCM) / SAM BLR (SCM)	271.9/ .00		270.2/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	744.2
HUMIDITY	G/KG	9.9
TEMPERATURE	DEG C	25.0

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	511.3	(509.9)
FUEL ECONOMY	MPG	19.64	(19.70)
HYDROCARBONS (THC)	G/MI	.19	(.18)
CARBON MONOXIDE	G/MI	3.72	(3.56)
OXIDES OF NITROGEN	G/MI	.86	(.86)
PARTICULATES	G/MI	.041	(.042)

TABLE B-28. MERCEDES WITH WORN INJECTORS AND REPLACEMENT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 15 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/22/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20192. KM(12547. MILES)

BAROMETER 744.22 MM HG(29.30 IN HG)
RELATIVE HUMIDITY 50. PCT
BAG RESULTS

DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)
ABS. HUMIDITY 10.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)
BLOWER REVOLUTIONS	7506.
TOT FLOW STD. CU. METRES(SCF)	151.3 (5344.)
THC SAMPLE METER/RANGE/PPM	16.1/1022/ 16.
THC BCKGRD METER/RANGE/PPM	6.4/1022/ 6.
CO SAMPLE METER/RANGE/PPM	76.0/ 13/ 183.
CO BCKGRD METER/RANGE/PPM	.2/ 13/ 0.
CO2 SAMPLE METER/RANGE/PCT	83.9/ 1/1.5533
CO2 BCKGRD METER/RANGE/PCT	2.0/ 1/ .0353
NOX SAMPLE METER/RANGE/PPM	83.7/ 1/ 21.0
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	8.60
THC CONCENTRATION PPM	10.
CO CONCENTRATION PPM	174.
CO2 CONCENTRATION PCT	1.5221
NOX CONCENTRATION PPM	20.8
FILTER WT. MG (EFFICIENCY, %)	.516 (86.)
THC MASS GRAMS	.91
CO MASS GRAMS	30.64
CO2 MASS GRAMS	4217.5
NOX MASS GRAMS	6.05
PARTICULATE MASS GRAMS	.27
RUN TIME SECONDS	766.
DFC, WET (DRY)	.884 (.869)
SCF, WET (DRY)	1.000 (.970)
VOL (SCM)	151.3
SAM BLR (SCM)	.00
MI (MEASURED)	10.34
TEST NUMBER,	
BAROMETER, MM HG	744.2
HUMIDITY, G/KG	10.9
TEMPERATURE, DEG C	26.1
CARBON DIOXIDE, G/MI	407.9
FUEL ECONOMY, MPG	24.6
HYDROCARBONS, (THC) G/MI	.09
CARBON MONOXIDE, G/MI	2.96
OXIDES OF NITROGEN, G/MI	.59
PARTICULATES, G/MI	.026

TABLE B-29. MERCEDES WITH WORN INJECTORS AND REPLACEMENT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 15 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/22/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20209. KM(12557. MILES)

BAROMETER 743.97 MM HG(29.29 IN HG)
RELATIVE HUMIDITY 48. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 11.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)
BLOWER REVOLUTIONS	5868.
TOT FLOW STD. CU. METRES(SCF)	118.1 (4169.)
THC SAMPLE METER/RANGE/PPM	12.8/1022/ 13.
THC BCKGRD METER/RANGE/PPM	6.3/1022/ 6.
CO SAMPLE METER/RANGE/PPM	43.8/ 12/ 44.
CO BCKGRD METER/RANGE/PPM	.7/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	65.9/ 14/ .4489
CO2 BCKGRD METER/RANGE/PCT	12.4/ 14/ .0432
NOX SAMPLE METER/RANGE/PPM	41.6/ 1/ 10.4
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	29.75
THC CONCENTRATION PPM	7.
CO CONCENTRATION PPM	42.
CO2 CONCENTRATION PCT	.4071
NOX CONCENTRATION PPM	10.3
FILTER WT. MG (EFFICIENCY, %)	.099 (63.)
THC MASS GRAMS	.46
CO MASS GRAMS	5.79
CO2 MASS GRAMS	880.0
NOX MASS GRAMS	2.35
PARTICULATE MASS GRAMS	.07
RUN TIME SECONDS	599.
DFC, WET (DRY)	.966 (.951)
SCF, WET (DRY)	1.000 (.980)
VOL (SCM)	118.1
SAM BLR (SCM)	.00
MI (MEASURED)	1.16
TEST NUMBER,	
BAROMETER, MM HG	744.0
HUMIDITY, G/KG	11.1
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	755.4
FUEL ECONOMY, MPG	13.3
HYDROCARBONS, (THC) G/MI	.39
CARBON MONOXIDE, G/MI	4.97
OXIDES OF NITROGEN, G/MI	2.02
PARTICULATES, G/MI	.059

TABLE B-30. MERCEDES BASELINE WITH REPLACEMENT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 11 RUN 4
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/29/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20336. KM(12636. MILES)

BAROMETER 740.92 MM HG(29.17 IN HG)
RELATIVE HUMIDITY 60. PCT

DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)
ABS. HUMIDITY 12.7 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.07

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1676.4 (66.0)	1676.4 (66.0)	1625.6 (64.0)
BLOWER INLET P MM. H2O(IN. H2O)	1714.5 (67.5)	1727.2 (68.0)	1676.4 (66.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	43.9 (111.0)	43.9 (111.0)
BLOWER REVOLUTIONS	4963.	8516.	4949.
TOT FLOW STD. CU. METRES(SCF)	100.9 (3562.)	172.2 (6081.)	101.0 (3566.)
THC SAMPLE METER/RANGE/PPM	21.0/1022/ 21.	16.5/1022/ 16.	15.7/1022/ 16.
THC BCKGRD METER/RANGE/PPM	4.5/1022/ 5.	4.5/1022/ 5.	4.1/1022/ 4.
CO SAMPLE METER/RANGE/PPM	79.5/ 12/ 80.	75.5/ 12/ 76.	92.1/ 12/ 92.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.	.1/ 12/ 0.	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	97.3/ 14/1.0654	76.7/ 14/ .6047	93.6/ 14/ .9589
CO2 BCKGRD METER/RANGE/PCT	11.9/ 14/ .0412	11.7/ 14/ .0404	11.6/ 14/ .0400
NOX SAMPLE METER/RANGE/PPM	83.5/ 1/ 20.9	35.5/ 1/ 8.9	68.1/ 1/ 17.1
NOX BCKGRD METER/RANGE/PPM	1.5/ 1/ .4	.9/ 1/ .2	.8/ 1/ .2
DILUTION FACTOR	12.57	22.03	13.95
THC CONCENTRATION PPM	17.	12.	12.
CO CONCENTRATION PPM	77.	73.	89.
CO2 CONCENTRATION PCT	1.0275	.5662	.9218
NOX CONCENTRATION PPM	20.5	8.7	16.9
FILTER WT. MG (EFFICIENCY, %)	.276 (84.)	.082 (61.)	.219 (81.)
THC MASS GRAMS	.98	1.21	.70
CO MASS GRAMS	9.00	14.70	10.44
CO2 MASS GRAMS	1897.8	1785.1	1704.3
NOX MASS GRAMS	4.24	3.07	3.48
PARTICULATE MASS GRAMS	.14	.06	.12
THC GRAMS/MI	.27	.31	.19
CO GRAMS/MI	2.46	3.73	2.87
CO2 GRAMS/MI	518.1	452.6	467.9
NOX GRAMS/MI	1.16	.78	.96
FUEL ECONOMY IN MPG	19.44	22.13	21.49
RUN TIME SECONDS	506.	868.	505.
MEASURED DISTANCE MI	3.66	3.94	3.64
SCF, DRY	.971	.975	.972

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 740.9
HUMIDITY G/KG 12.7
TEMPERATURE DEG C 25.6

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	470.3	(.0)
FUEL ECONOMY	MPG	21.35	(.00)
HYDROCARBONS (THC)	G/MI	.27	(.00)
CARBON MONOXIDE	G/MI	3.23	(.00)
OXIDES OF NITROGEN	G/MI	.90	(.00)
PARTICULATES	G/MI	.025	(.000)

TABLE B-31. MERCEDES BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 4
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 3/30/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20366. KM(12655. MILES)

BAROMETER 744.47 MM HG(29.31 IN HG)
RELATIVE HUMIDITY 29. PCT
BAG RESULTS

DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 5.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR .85

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	43.3 (110.0)	43.3 (110.0)
BLOWER REVOLUTIONS	4946.	8512.	4945.
TOT FLOW STD. CU. METRES(SCF)	99.8 (3524.)	171.4 (6053.)	99.6 (3517.)
THC SAMPLE METER/RANGE/PPM	21.5/1022/ 21.	13.2/1022/ 13.	14.3/1022/ 14.
THC BCKGRD METER/RANGE/PPM	4.1/1022/ 4.	4.1/1022/ 4.	3.7/1022/ 4.
CO SAMPLE METER/RANGE/PPM	34.7/ 12/ 35.	24.0/ 12/ 24.	27.6/ 12/ 28.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.	.7/ 12/ 1.	.6/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	95.4/ 14/1.0089	74.7/ 14/ .5727	89.6/ 14/ .8581
CO2 BCKGRD METER/RANGE/PCT	12.7/ 14/ .0444	12.3/ 14/ .0428	12.0/ 14/ .0416
NOX SAMPLE METER/RANGE/PPM	27.4/ 2/ 27.5	46.9/ 1/ 11.8	83.2/ 1/ 20.8
NOX BCKGRD METER/RANGE/PPM	.2/ 2/ .2	.1/ 1/ .0	.0/ 1/ .0
DILUTION FACTOR	13.33	23.45	15.68
THC CONCENTRATION PPM	18.	9.	11.
CO CONCENTRATION PPM	34.	23.	26.
CO2 CONCENTRATION PCT	.9679	.5318	.8192
NOX CONCENTRATION PPM	27.3	11.7	20.8
FILTER WT. MG (EFFICIENCY, %)	3.575 (99.)	3.361 (99.)	2.294 (98.)
THC MASS GRAMS	1.02	.91	.62
CO MASS GRAMS	3.93	4.59	3.07
CO2 MASS GRAMS	1768.5	1669.0	1493.6
NOX MASS GRAMS	4.40	3.25	3.35
PARTICULATE MASS GRAMS	1.66	1.47	1.00
THC GRAMS/MI	.28	.24	.17
CO GRAMS/MI	1.08	1.19	.85
CO2 GRAMS/MI	486.8	431.2	415.3
NOX GRAMS/MI	1.21	.84	.93
FUEL ECONOMY IN MPG	20.77	23.43	24.37
RUN TIME SECONDS	504.	868.	504.
MEASURED DISTANCE MI	3.63	3.87	3.60
SCF, DRY	.981	.985	.983

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	744.5
HUMIDITY	G/KG	5.1
TEMPERATURE	DEG C	22.8

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	438.4	(.0)
FUEL ECONOMY	MPG	23.06	(.00)
HYDROCARBONS (THC)	G/MI	.23	(.00)
CARBON MONOXIDE	G/MI	1.07	(.00)
OXIDES OF NITROGEN	G/MI	.94	(.00)
PARTICULATES	G/MI	.368	(.000)

TABLE B-32. MERCEDES WITH RETARDED TIMING AND REPLACEMENT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 17 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 4/21/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20667. KM(12842. MILES)

BAROMETER 736.60 MM HG(29.00 IN HG)
RELATIVE HUMIDITY 50. PCT

DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)
ABS. HUMIDITY 10.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR .99

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.9 (111.0)	44.4 (112.0)	45.6 (114.0)	45.6 (114.0)
BLOWER REVOLUTIONS	4956.	8499.	4961.	8501.
TOT FLOW STD. CU. METRES(SCF)	98.2 (3469.)	168.2 (5938.)	97.8 (3455.)	167.6 (5919.)
THC SAMPLE METER/RANGE/PPM	30.6/1022/ 31.	29.3/1022/ 29.	29.6/1022/ 30.	26.8/1022/ 27.
THC BCKGRD METER/RANGE/PPM	7.9/1022/ 8.	7.9/1022/ 8.	9.3/1022/ 9.	9.3/1022/ 9.
CO SAMPLE METER/RANGE/PPM	73.6/ 12/ 74.	68.3/ 12/ 68.	45.1/ 13/ 104.	62.3/ 12/ 62.
CO BCKGRD METER/RANGE/PPM	.6/ 12/ 1.	.7/ 12/ 1.	.3/ 13/ 1.	.6/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	97.5/ 14/1.0716	76.7/ 14/ .6047	92.9/ 14/ .9403	75.0/ 14/ .5774
CO2 BCKGRD METER/RANGE/PCT	13.5/ 14/ .0477	13.4/ 14/ .0473	13.7/ 14/ .0485	13.7/ 14/ .0485
NOX SAMPLE METER/RANGE/PPM	79.3/ 1/ 19.9	31.8/ 1/ 8.0	56.7/ 1/ 14.2	31.1/ 1/ 7.9
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1	.4/ 1/ .1	.6/ 1/ .2	.6/ 1/ .2
DILUTION FACTOR	12.50	22.00	14.18	23.06
THC CONCENTRATION PPM	23.	22.	21.	18.
CO CONCENTRATION PPM	71.	66.	100.	60.
CO2 CONCENTRATION PCT	1.0278	.5596	.8952	.5310
NOX CONCENTRATION PPM	19.7	7.9	14.1	7.7
FILTER WT. MG (EFFICIENCY, %)	.643 (69.)	.537 (66.)	.400 (65.)	.405 (68.)
THC MASS GRAMS	1.32	2.12	1.18	1.73
CO MASS GRAMS	8.07	12.91	11.38	11.75
CO2 MASS GRAMS	1848.4	1723.0	1603.5	1629.9
NOX MASS GRAMS	3.69	2.53	2.61	2.45
PARTICULATE MASS GRAMS	.40	.35	.26	.26
THC GRAMS/MI	.37	.54	.33	.44
CO GRAMS/MI	2.23	3.31	3.17	3.01
CO2 GRAMS/MI	511.7	441.4	445.9	417.7
NOX GRAMS/MI	1.02	.65	.73	.63
FUEL ECONOMY IN MPG	19.69 21.13	22.67	22.49 23.25	23.99
RUN TIME SECONDS	506.	868.	506.	868.
MEASURED DISTANCE MI	3.61 7.52	3.90	3.60 7.50	3.90
SCF, DRY	.974 .977	.978	.975 .977	.979
DFC, WET (DRY)	.942(.927)		.947(.931)	
TOT VOL (SCM) / SAM BLR (SCM)	266.4/ .00		265.5/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	736.6
HUMIDITY	G/KG	10.5
TEMPERATURE	DEG C	25.6

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	457.2	(450.1)
FUEL ECONOMY	MPG	21.94	(22.29)
HYDROCARBONS (THC)	G/MI	.45	(.42)
CARBON MONOXIDE	G/MI	3.05	(2.96)
OXIDES OF NITROGEN	G/MI	.75	(.74)
PARTICULATES	G/MI	.089	(.082)

TABLE B-33. MERCEDES WITH RETARDED TIMING AND REPLACEMENT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 17 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 4/21/87
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20691. KM(12857. MILES)

BAROMETER 736.60 MM HG(29.00 IN HG)
RELATIVE HUMIDITY 42. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 9.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR .97

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.6 (114.0)
BLOWER REVOLUTIONS	7496.
TOT FLOW STD. CU. METRES(SCF)	147.8 (5219.)
THC SAMPLE METER/RANGE/PPM	27.8/1022/ 28.
THC BCKGRD METER/RANGE/PPM	10.2/1022/ 10.
CO SAMPLE METER/RANGE/PPM	61.0/ 13/ 145.
CO BCKGRD METER/RANGE/PPM	.2/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	78.3/ 1/1.4464
CO2 BCKGRD METER/RANGE/PCT	2.8/ 1/ .0494
NOX SAMPLE METER/RANGE/PPM	69.0/ 1/ 17.3
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2
DILUTION FACTOR	9.24
THC CONCENTRATION PPM	19.
CO CONCENTRATION PPM	139.
CO2 CONCENTRATION PCT	1.4024
NOX CONCENTRATION PPM	17.2
FILTER WT. MG (EFFICIENCY, %)	.233 (28.)
THC MASS GRAMS	1.59
CO MASS GRAMS	23.92
CO2 MASS GRAMS	3795.1
NOX MASS GRAMS	4.71
PARTICULATE MASS GRAMS	.35
RUN TIME SECONDS	765.
DFC, WET (DRY)	.892 (.880)
SCF, WET (DRY)	1.000 (.973)
VOL (SCM)	147.8
SAM BLR (SCM)	.00
MI (MEASURED)	10.25

TEST NUMBER,		
BAROMETER,	MM HG	736.6
HUMIDITY,	G/KG	9.8
TEMPERATURE,	DEG C	27.2
CARBON DIOXIDE,	G/MI	370.1
FUEL ECONOMY,	MPG	27.2
HYDROCARBONS, (THC)	G/MI	.16
CARBON MONOXIDE,	G/MI	2.33
OXIDES OF NITROGEN,	G/MI	.46
PARTICULATES,	G/MI	.034

TABLE B-34. MERCEDES WITH RETARDED TIMING, AND REPLACEMENT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 17 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 4/21/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20707. KM(12867. MILES)

BAROMETER 736.60 MM HG(29.00 IN HG)
RELATIVE HUMIDITY 42. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 9.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR .97

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.1 (115.0)
BLOWER REVOLUTIONS	5849.
TOT FLOW STD. CU. METRES(SCF)	115.1 (4066.)
THC SAMPLE METER/RANGE/PPM	19.1/1022/ 19.
THC BCKGRD METER/RANGE/PPM	10.6/1022/ 11.
CO SAMPLE METER/RANGE/PPM	39.0/ 12/ 39.
CO BCKGRD METER/RANGE/PPM	.6/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	65.0/ 14/ .4375
CO2 BCKGRD METER/RANGE/PCT	13.8/ 14/ .0489
NOX SAMPLE METER/RANGE/PPM	36.5/ 1/ 9.2
NOX BCKGRD METER/RANGE/PPM	1.1/ 1/ .3
DILUTION FACTOR	30.50
THC CONCENTRATION PPM	9.
CO CONCENTRATION PPM	38.
CO2 CONCENTRATION PCT	.3902
NOX CONCENTRATION PPM	8.9
FILTER WT. MG (EFFICIENCY, %)	.304 (65.)
THC MASS GRAMS	.59
CO MASS GRAMS	5.05
CO2 MASS GRAMS	822.6
NOX MASS GRAMS	1.90
PARTICULATE MASS GRAMS	.21
RUN TIME SECONDS	597.
DFC, WET (DRY)	.967 (.954)
SCF, WET (DRY)	1.000 (.982)
VOL (SCM)	115.1
SAM BLR (SCM)	.00
MI (MEASURED)	1.14
TEST NUMBER,	
BAROMETER, MM HG	736.6
HUMIDITY, G/KG	9.8
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	723.4
FUEL ECONOMY, MPG	13.9
HYDROCARBONS, (THC) G/MI	.52
CARBON MONOXIDE, G/MI	4.44
OXIDES OF NITROGEN, G/MI	1.67
PARTICULATES, G/MI	.180

TABLE B-35. MERCEDES WITH RETARDED TIMING AND REPLACEMENT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 17 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 4/22/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20720. KM(12875. MILES)

BAROMETER 734.57 MM HG(28.92 IN HG)
RELATIVE HUMIDITY 48. PCT

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 10.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.7 (116.0)	46.1 (115.0)	46.7 (116.0)	46.7 (116.0)
BLOWER REVOLUTIONS	4959.	8504.	4952.	8490.
TOT FLOW STD. CU. METRES(SCF)	97.1 (3429.)	166.8 (5891.)	97.0 (3424.)	166.2 (5869.)
THC SAMPLE METER/RANGE/PPM	34.3/1022/ 34.	28.2/1022/ 28.	28.7/1022/ 29.	28.0/1022/ 28.
THC BCKGRD METER/RANGE/PPM	8.8/1022/ 9.	8.8/1022/ 9.	11.1/1022/ 11.	11.1/1022/ 11.
CO SAMPLE METER/RANGE/PPM	86.1/ 12/ 86.	76.6/ 12/ 77.	50.0/ 13/ 116.	29.2/ 13/ 66.
CO BCKGRD METER/RANGE/PPM	.4/ 12/ 0.	.0/ 12/ 0.	.4/ 13/ 1.	.7/ 13/ 2.
CO2 SAMPLE METER/RANGE/PCT	97.1/ 14/1.0593	75.5/ 14/ .5853	94.2/ 14/ .9752	77.0/ 14/ .6097
CO2 BCKGRD METER/RANGE/PCT	13.6/ 14/ .0481	13.3/ 14/ .0468	13.1/ 14/ .0460	13.3/ 14/ .0468
NOX SAMPLE METER/RANGE/PPM	76.9/ 1/ 19.3	30.5/ 1/ 7.7	58.8/ 1/ 14.7	32.5/ 1/ 8.2
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.6/ 1/ .2	.7/ 1/ .2	1.0/ 1/ .3
DILUTION FACTOR	12.62	22.69	13.66	21.84
THC CONCENTRATION PPM	26.	20.	18.	17.
CO CONCENTRATION PPM	83.	75.	111.	63.
CO2 CONCENTRATION PCT	1.0150	.5406	.9326	.5650
NOX CONCENTRATION PPM	19.1	7.6	14.6	7.9
FILTER WT. MG (EFFICIENCY, %)	.526 (70.)	.326 (65.)	.351 (63.)	.322 (63.)
THC MASS GRAMS	1.47	1.91	1.03	1.67
CO MASS GRAMS	9.37	14.53	12.57	12.18
CO2 MASS GRAMS	1804.7	1651.1	1655.4	1719.3
NOX MASS GRAMS	3.56	2.42	2.71	2.53
PARTICULATE MASS GRAMS	.32	.22	.24	.22
THC GRAMS/MI	.41	.49	.29	.43
CO GRAMS/MI	2.61	3.74	3.50	3.14
CO2 GRAMS/MI	501.7	424.9	460.7	442.9
NOX GRAMS/MI	.99	.62	.75	.65
FUEL ECONOMY IN MPG	20.05 21.71	23.51	21.77 22.21	22.63
RUN TIME SECONDS	506.	867.	506.	867.
MEASURED DISTANCE MI	3.60 7.48	3.89	3.59 7.48	3.88
SCF, DRY	.975 .978	.979	.976 .978	.979
DFC, WET (DRY)	.943(.928)		.944(.930)	
TOT VOL (SCM) / SAM BLR (SCM)	263.9/ .00		263.2/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 734.6
HUMIDITY G/KG 10.8
TEMPERATURE DEG C 26.7

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	450.6	(455.9)
FUEL ECONOMY	MPG	22.23	(21.99)
HYDROCARBONS (THC)	G/MI	.42	(.40)
CARBON MONOXIDE	G/MI	3.44	(3.26)
OXIDES OF NITROGEN	G/MI	.73	(.74)
PARTICULATES	G/MI	.066	(.067)

TABLE B-36. MERCEDES WITH RETARDED TIMING AND REPLACEMENT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 17 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 4/22/87
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20744. KM(12890. MILES)

BAROMETER 736.60 MM HG(29.00 IN HG)
RELATIVE HUMIDITY 42. PCT
DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 9.8 GM/KG
NOX HUMIDITY CORRECTION FACTOR .97

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	48.3 (119.0)
BLOWER REVOLUTIONS	7492.
TOT FLOW STD. CU. METRES(SCF)	146.5 (5171.)
THC SAMPLE METER/RANGE/PPM	30.1/1022/ 30.
THC BCKGRD METER/RANGE/PPM	13.0/1022/ 13.
CO SAMPLE METER/RANGE/PPM	65.1/ 13/ 156.
CO BCKGRD METER/RANGE/PPM	.9/ 13/ 2.
CO2 SAMPLE METER/RANGE/PCT	78.4/ 1/1.4483
CO2 BCKGRD METER/RANGE/PCT	2.8/ 1/ .0494
NOX SAMPLE METER/RANGE/PPM	69.8/ 1/ 17.5
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3
DILUTION FACTOR	9.22
THC CONCENTRATION PPM	18.
CO CONCENTRATION PPM	148.
CO2 CONCENTRATION PCT	1.4043
NOX CONCENTRATION PPM	17.3
FILTER WT. MG (EFFICIENCY, %)	.603 (69.)
THC MASS GRAMS	1.56
CO MASS GRAMS	25.18
CO2 MASS GRAMS	3765.4
NOX MASS GRAMS	4.69
PARTICULATE MASS GRAMS	.38
RUN TIME SECONDS	765.
DFC, WET (DRY)	.892 (.879)
SCF, WET (DRY)	1.000 (.973)
VOL (SCM)	146.5
SAM BLR (SCM)	.00
MI (MEASURED)	10.22
TEST NUMBER,	
BAROMETER, MM HG	736.6
HUMIDITY, G/KG	9.8
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	368.5
FUEL ECONOMY, MPG	27.3
HYDROCARBONS, (THC) G/MI	.15
CARBON MONOXIDE, G/MI	2.46
OXIDES OF NITROGEN, G/MI	.46
PARTICULATES, G/MI	.037

TABLE B-37. MERCEDES WITH RETARDED TIMING AND REPLACEMENT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 17 RUN 2	VEHICLE NO.	TEST WEIGHT 1928. KG(4250. LBS)
VEHICLE MODEL 86 MERCEDES 300SDL	DATE 4/22/88	ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
ENGINE 3.0 L(183. CID) -6	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20761. KM(12900. MILES)
	CVS NO. 17	
BAROMETER 736.60 MM HG(29.00 IN HG)	DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)	
RELATIVE HUMIDITY 42. PCT	ABS. HUMIDITY 9.8 GM/KG	NOX HUMIDITY CORRECTION FACTOR .97

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	48.9 (120.0)
BLOWER REVOLUTIONS	5847.
TOT FLOW STD. CU. METRES(SCF)	114.1 (4029.)
THC SAMPLE METER/RANGE/PPM	22.0/1022/ 22.
THC BCKGRD METER/RANGE/PPM	11.7/1022/ 12.
CO SAMPLE METER/RANGE/PPM	46.1/ 12/ 46.
CO BCKGRD METER/RANGE/PPM	1.3/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	65.3/ 14/ .4413
CO2 BCKGRD METER/RANGE/PCT	13.0/ 14/ .0456
NOX SAMPLE METER/RANGE/PPM	36.0/ 1/ 9.1
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	30.17
THC CONCENTRATION PPM	11.
CO CONCENTRATION PPM	44.
CO2 CONCENTRATION PCT	.3972
NOX CONCENTRATION PPM	8.9
FILTER WT. MG (EFFICIENCY, %)	.413 (67.)
THC MASS GRAMS	.70
CO MASS GRAMS	5.83
CO2 MASS GRAMS	829.7
NOX MASS GRAMS	1.88
PARTICULATE MASS GRAMS	.27
RUN TIME SECONDS	597.
DFC, WET (DRY)	.967 (.954)
SCF, WET (DRY)	1.000 (.982)
VOL (SCM)	114.1
SAM BLR (SCM)	.00
MI (MEASURED)	1.15
TEST NUMBER,	
BAROMETER, MM HG	736.6
HUMIDITY, G/KG	9.8
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	721.3
FUEL ECONOMY, MPG	13.9
HYDROCARBONS, (THC) G/MI	.61
CARBON MONOXIDE, G/MI	5.07
OXIDES OF NITROGEN, G/MI	1.64
PARTICULATES, G/MI	.232

TABLE B-38. MERCEDES WITH RETARDED TIMING AND WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 4/27/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20868. KM(12967. MILES)

BAROMETER 743.20 MM HG(29.26 IN HG)
RELATIVE HUMIDITY 34. PCT

DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)
ABS. HUMIDITY 7.0 GM/KG

NOX HUMIDITY CORRECTION FACTOR .89

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	48.9 (120.0)	47.8 (118.0)	48.9 (120.0)	47.2 (117.0)
BLOWER REVOLUTIONS	4921.	8502.	4916.	8524.
TOT FLOW STD. CU. METRES(SCF)	97.1 (3427.)	168.5 (5951.)	96.9 (3423.)	169.3 (5978.)
THC SAMPLE METER/RANGE/PPM	29.6/1022/ 30.	23.0/1022/ 23.	24.8/1022/ 25.	22.0/1022/ 22.
THC BCKGRD METER/RANGE/PPM	6.1/1022/ 6.	6.1/1022/ 6.	6.9/1022/ 7.	6.9/1022/ 7.
CO SAMPLE METER/RANGE/PPM	37.1/ 12/ 37.	29.9/ 12/ 30.	32.6/ 12/ 33.	23.7/ 12/ 24.
CO BCKGRD METER/RANGE/PPM	.1/ 12/ 0.	.1/ 12/ 0.	.1/ 12/ 0.	.1/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	94.9/ 14/ .9947	74.7/ 14/ .5727	91.9/ 14/ .9144	72.6/ 14/ .5408
CO2 BCKGRD METER/RANGE/PCT	12.7/ 14/ .0444	12.6/ 14/ .0440	12.6/ 14/ .0440	12.7/ 14/ .0444
NOX SAMPLE METER/RANGE/PPM	96.3/ 1/ 24.0	40.0/ 1/ 10.1	76.8/ 1/ 19.2	37.7/ 1/ 9.5
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.6/ 1/ .2	.6/ 1/ .2	.6/ 1/ .2
DILUTION FACTOR	13.50	23.39	14.69	24.79
THC CONCENTRATION PPM	24.	17.	18.	15.
CO CONCENTRATION PPM	36.	29.	32.	23.
CO2 CONCENTRATION PCT	.9536	.5306	.8734	.4982
NOX CONCENTRATION PPM	23.9	9.9	19.1	9.3
FILTER WT. MG (EFFICIENCY, %)	2.743 (95.)	2.753 (96.)	2.217 (95.)	2.399 (96.)
THC MASS GRAMS	1.34	1.67	1.03	1.50
CO MASS GRAMS	4.07	5.75	3.58	4.59
CO2 MASS GRAMS	1694.5	1637.3	1550.0	1544.2
NOX MASS GRAMS	3.95	2.84	3.16	2.69
PARTICULATE MASS GRAMS	1.24	1.22	.99	1.06
THC GRAMS/MI	.37	.42	.28	.38
CO GRAMS/MI	1.12	1.46	.98	1.17
CO2 GRAMS/MI	465.3	415.9	424.9	393.4
NOX GRAMS/MI	1.08	.72	.87	.69
FUEL ECONOMY IN MPG	21.71 22.95	24.23	23.79 24.71	25.64
RUN TIME SECONDS	506.	867.	507.	868.
MEASURED DISTANCE MI	3.64 7.58	3.94	3.65 7.57	3.93
SCF, DRY	.980 .983	.984	.981 .983	.984
DFC, WET (DRY)	.946(.936)		.950(.939)	
TOT VOL (SCM) / SAM BLR (SCM)	265.6/ .00		266.2/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	743.2
HUMIDITY	G/KG	7.0
TEMPERATURE	DEG C	25.6

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	428.6	(421.9)
FUEL ECONOMY	MPG	23.55	(23.92)
HYDROCARBONS (THC)	G/MI	.37	(.36)
CARBON MONOXIDE	G/MI	1.26	(1.17)
OXIDES OF NITROGEN	G/MI	.84	(.83)
PARTICULATES	G/MI	.306	(.294)

TABLE B-39. MERCEDES WITH RETARDED TIMING AND WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 1	VEHICLE NO.	TEST WEIGHT 1928. KG(4250. LBS)
VEHICLE MODEL 86 MERCEDES 300SDL	DATE 4/27/88	ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
ENGINE 3.0 L(183. CID) -6	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20893. KM(12982. MILES)
	CVS NO. 17	
BAROMETER 743.20 MM HG(29.26 IN HG)	DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)	
RELATIVE HUMIDITY 29. PCT	ABS. HUMIDITY 6.5 GM/KG	NOX HUMIDITY CORRECTION FACTOR .88

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	48.3 (119.0)
BLOWER REVOLUTIONS	7509.
TOT FLOW STD. CU. METRES(SCF)	148.6 (5247.)
THC SAMPLE METER/RANGE/PPM	27.6/1022/ 28.
THC BCKGRD METER/RANGE/PPM	7.7/1022/ 8.
CO SAMPLE METER/RANGE/PPM	42.6/ 12/ 43.
CO BCKGRD METER/RANGE/PPM	.1/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	70.3/ 1/1.2951
CO2 BCKGRD METER/RANGE/PCT	2.7/ 1/ .0476
NOX SAMPLE METER/RANGE/PPM	90.9/ 1/ 22.7
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1
DILUTION FACTOR	10.38
THC CONCENTRATION PPM	21.
CO CONCENTRATION PPM	41.
CO2 CONCENTRATION PCT	1.2521
NOX CONCENTRATION PPM	22.6
FILTER WT. MG (EFFICIENCY, %)	3.925 (97.)
THC MASS GRAMS	1.77
CO MASS GRAMS	7.12
CO2 MASS GRAMS	3406.0
NOX MASS GRAMS	5.65
PARTICULATE MASS GRAMS	1.72
RUN TIME SECONDS	766.
DFC, WET (DRY)	.904 (.895)
SCF, WET (DRY)	1.000 (.979)
VOL (SCM)	148.6
SAM BLR (SCM)	.00
MI (MEASURED)	10.32
TEST NUMBER,	
BAROMETER, MM HG	743.2
HUMIDITY, G/KG	6.5
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	330.1
FUEL ECONOMY, MPG	30.6
HYDROCARBONS, (THC) G/MI	.17
CARBON MONOXIDE, G/MI	.69
OXIDES OF NITROGEN, G/MI	.55
PARTICULATES, G/MI	.167

TABLE B-40. MERCEDES WITH RETARDED TIMING AND WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 1	VEHICLE NO.	TEST WEIGHT 1928. KG(4250. LBS)
VEHICLE MODEL 86 MERCEDES 300SDL	DATE 4/27/88	ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
ENGINE 3.0 L(183. CID) -6	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20910. KM(12993. MILES)
	CVS NO. 17	
BAROMETER 743.46 MM HG(29.27 IN HG)	DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)	
RELATIVE HUMIDITY 29. PCT	ABS. HUMIDITY 6.5 GM/KG	NOX HUMIDITY CORRECTION FACTOR .88

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	49.4 (121.0)
BLOWER REVOLUTIONS	5859.
TOT FLOW STD. CU. METRES(SCF)	115.6 (4080.)
THC SAMPLE METER/RANGE/PPM	17.4/1022/ 17.
THC BCKGRD METER/RANGE/PPM	7.5/1022/ 8.
CO SAMPLE METER/RANGE/PPM	20.8/ 12/ 21.
CO BCKGRD METER/RANGE/PPM	.1/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	64.4/ 14/ .4301
CO2 BCKGRD METER/RANGE/PCT	12.8/ 14/ .0448
NOX SAMPLE METER/RANGE/PPM	42.4/ 1/ 10.6
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2
DILUTION FACTOR	31.15
THC CONCENTRATION PPM	10.
CO CONCENTRATION PPM	21.
CO2 CONCENTRATION PCT	.3868
NOX CONCENTRATION PPM	10.5
FILTER WT. MG (EFFICIENCY, %)	1.326 (95.)
THC MASS GRAMS	.68
CO MASS GRAMS	2.76
CO2 MASS GRAMS	818.2
NOX MASS GRAMS	2.04
PARTICULATE MASS GRAMS	.61
RUN TIME SECONDS	598.
DFC, WET (DRY)	.968 (.959)
SCF, WET (DRY)	1.000 (.987)
VOL (SCM)	115.6
SAM BLR (SCM)	.00
MI (MEASURED)	1.16
TEST NUMBER,	
BAROMETER, MM HG	743.5
HUMIDITY, G/KG	6.5
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	702.4
FUEL ECONOMY, MPG	14.4
HYDROCARBONS, (THC) G/MI	.58
CARBON MONOXIDE, G/MI	2.37
OXIDES OF NITROGEN, G/MI	1.75
PARTICULATES, G/MI	.522

TABLE B-41. MERCEDES WITH RETARDED TIMING AND WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 4/28/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20930. KM(13005. MILES)

BAROMETER 743.71 MM HG(29.28 IN HG)
RELATIVE HUMIDITY 44. PCT

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 9.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR .97

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	44.4 (112.0)	45.0 (113.0)	45.0 (113.0)	45.0 (113.0)
BLOWER REVOLUTIONS	4955.	8509.	4954.	8491.
TOT FLOW STD. CU. METRES(SCF)	99.3 (3507.)	170.3 (6012.)	99.1 (3500.)	169.9 (5997.)
THC SAMPLE METER/RANGE/PPM	34.9/1022/ 35.	25.8/1022/ 26.	25.8/1022/ 26.	23.6/1022/ 24.
THC BCKGRD METER/RANGE/PPM	6.5/1022/ 7.	6.5/1022/ 7.	8.2/1022/ 8.	8.2/1022/ 8.
CO SAMPLE METER/RANGE/PPM	42.0/ 12/ 42.	32.5/ 12/ 33.	33.4/ 12/ 34.	27.1/ 12/ 27.
CO BCKGRD METER/RANGE/PPM	1.2/ 12/ 1.	1.2/ 12/ 1.	.7/ 12/ 1.	.6/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	97.0/ 14/1.0562	77.3/ 14/ .6147	90.9/ 14/ .8894	74.0/ 14/ .5619
CO2 BCKGRD METER/RANGE/PCT	13.4/ 14/ .0473	13.5/ 14/ .0477	13.0/ 14/ .0456	13.1/ 14/ .0460
NOX SAMPLE METER/RANGE/PPM	95.6/ 1/ 23.8	40.5/ 1/ 10.2	71.6/ 1/ 17.9	38.5/ 1/ 9.7
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.8/ 1/ .2	.3/ 1/ .1	.6/ 1/ .2
DILUTION FACTOR	12.71	21.79	15.10	23.84
THC CONCENTRATION PPM	29.	20.	18.	16.
CO CONCENTRATION PPM	40.	31.	32.	26.
CO2 CONCENTRATION PCT	1.0127	.5692	.8468	.5178
NOX CONCENTRATION PPM	23.7	10.0	17.9	9.5
FILTER WT. MG (EFFICIENCY, %)	3.886 (95.)	3.163 (95.)	2.407 (94.)	2.704 (95.)
THC MASS GRAMS	1.66	1.93	1.04	1.54
CO MASS GRAMS	4.57	6.07	3.67	5.14
CO2 MASS GRAMS	1841.2	1774.1	1536.8	1610.2
NOX MASS GRAMS	4.38	3.16	3.30	3.02
PARTICULATE MASS GRAMS	1.79	1.39	1.11	1.27
THC GRAMS/MI	.45	.49	.29	.39
CO GRAMS/MI	1.25	1.54	1.01	1.31
CO2 GRAMS/MI	504.4	450.9	422.0	409.1
NOX GRAMS/MI	1.20	.80	.91	.77
FUEL ECONOMY IN MPG	20.02 21.17	22.35	23.95 24.31	24.65
RUN TIME SECONDS	506.	868.	505.	868.
MEASURED DISTANCE MI	3.65 7.59	3.93	3.64 7.58	3.94
SCF, DRY	.976 .979	.980	.978 .980	.981
DFC, WET (DRY)	.942(.929)		.949(.936)	
TOT VOL (SCM) / SAM BLR (SCM)	269.6/ .00		269.0/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 743.7
HUMIDITY G/KG 9.9
TEMPERATURE DEG C 26.7

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	454.0	(441.7)
FUEL ECONOMY	MPG	22.22	(22.85)
HYDROCARBONS (THC)	G/MI	.43	(.40)
CARBON MONOXIDE	G/MI	1.34	(1.27)
OXIDES OF NITROGEN	G/MI	.91	(.90)
PARTICULATES	G/MI	.369	(.359)

TABLE B-42. MERCEDES WITH RETARDED TIMING AND WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH

HFET - VEHICLE EMISSIONS RESULTS -

PROJECT 08-1280-001

TEST NO. 8 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 4/28/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20954. KM(13020. MILES)

BAROMETER 744.22 MM HG(29.30 IN HG)
RELATIVE HUMIDITY 51. PCT
BAG RESULTS

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 11.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.02

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.6 (114.0)
BLOWER REVOLUTIONS	7485.
TOT FLOW STD. CU. METRES(SCF)	149.6 (5282.)
THC SAMPLE METER/RANGE/PPM	31.0/1022/ 31.
THC BCKGRD METER/RANGE/PPM	8.8/1022/ 9.
CO SAMPLE METER/RANGE/PPM	48.6/ 12/ 49.
CO BCKGRD METER/RANGE/PPM	.4/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	74.6/ 1/1.3763
CO2 BCKGRD METER/RANGE/PCT	2.7/ 1/ .0476
NOX SAMPLE METER/RANGE/PPM	91.6/ 1/ 22.9
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2
DILUTION FACTOR	9.77
THC CONCENTRATION PPM	23.
CO CONCENTRATION PPM	46.
CO2 CONCENTRATION PCT	1.3335
NOX CONCENTRATION PPM	22.7
FILTER WT. MG (EFFICIENCY, %)	4.535 (97.)
THC MASS GRAMS	1.99
CO MASS GRAMS	8.06
CO2 MASS GRAMS	3652.0
NOX MASS GRAMS	6.65
PARTICULATE MASS GRAMS	1.97
RUN TIME SECONDS	765.
DFC, WET (DRY)	.898 (.883)
SCF, WET (DRY)	1.000 (.971)
VOL (SCM)	149.6
SAM BLR (SCM)	.00
MI (MEASURED)	10.28
TEST NUMBER,	
BAROMETER, MM HG	744.2
HUMIDITY, G/KG	11.4
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	355.4
FUEL ECONOMY, MPG	28.5
HYDROCARBONS, (THC) G/MI	.19
CARBON MONOXIDE, G/MI	.78
OXIDES OF NITROGEN, G/MI	.65
PARTICULATES, G/MI	.192

TABLE B-43. MERCEDES WITH RETARDED TIMING AND WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH

NYCC - VEHICLE EMISSIONS RESULTS -

PROJECT 08-1280-001

TEST NO. 8 RUN 2
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) -6
TRANSMISSION A3

VEHICLE NO.
DATE 4/28/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 20970. KM(13030. MILES)

BAROMETER 743.97 MM HG(29.29 IN HG)
RELATIVE HUMIDITY 45. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 10.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR .99

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.1 (115.0)
BLOWER REVOLUTIONS	5855.
TOT FLOW STD. CU. METRES(SCF)	116.8 (4124.)
THC SAMPLE METER/RANGE/PPM	21.1/1022/ 21.
THC BCKGRD METER/RANGE/PPM	3.7/1022/ 9.
CO SAMPLE METER/RANGE/PPM	22.6/ 12/ 23.
CO BCKGRD METER/RANGE/PPM	3.3/ 12/ 3.
CO2 SAMPLE METER/RANGE/PCT	63.4/ 14/ .4180
CO2 BCKGRD METER/RANGE/PCT	13.7/ 14/ .0485
NOX SAMPLE METER/RANGE/PPM	39.6/ 1/ 10.0
NOX BCKGRD METER/RANGE/PPM	1.3/ 1/ .3
DILUTION FACTOR	32.01
THC CONCENTRATION PPM	13.
CO CONCENTRATION PPM	19.
CO2 CONCENTRATION PCT	.3710
NOX CONCENTRATION PPM	9.6
FILTER WT. MG (EFFICIENCY, %)	1.485 (92.)
THC MASS GRAMS	.86
CO MASS GRAMS	2.59
CO2 MASS GRAMS	793.2
NOX MASS GRAMS	2.13
PARTICULATE MASS GRAMS	.67
RUN TIME SECONDS	598.
DFC, WET (DRY)	.969 (.955)
SCF, WET (DRY)	1.000 (.982)
VOL (SCM)	116.8
SAM BLR (SCM)	.00
MI (MEASURED)	1.14

TEST NUMBER,		
BAROMETER,	MM HG	744.0
HUMIDITY,	G/KG	10.4
TEMPERATURE,	DEG C	27.2
CARBON DIOXIDE,	G/MI	694.7
FUEL ECONOMY,	MPG	14.5
HYDROCARBONS, (THC)	G/MI	.75
CARBON MONOXIDE,	G/MI	2.27
OXIDES OF NITROGEN,	G/MI	1.86
PARTICULATES,	G/MI	.583

TABLE B-44. MERCEDES WITH RETARDED TIMING, REPLACEMENT TRAP AND LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 19 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 5/ 3/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 21168. KM(13153. MILES)

BAROMETER 742.44 MM HG(29.23 IN HG)
RELATIVE HUMIDITY 45. PCT

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 10.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR .99

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	43.3 (110.0)	44.4 (112.0)	45.0 (113.0)
BLOWER REVOLUTIONS	4993.	8508.	4960.	8503.
TOT FLOW STD. CU. METRES(SCF)	100.4 (3544.)	170.7 (6029.)	99.2 (3503.)	169.7 (5993.)
THC SAMPLE METER/RANGE/PPM	18.5/1022/ 19.	17.9/1022/ 18.	18.2/1022/ 18.	16.4/1022/ 16.
THC BCKGRD METER/RANGE/PPM	6.5/1022/ 7.	6.5/1022/ 7.	7.1/1022/ 7.	7.1/1022/ 7.
CO SAMPLE METER/RANGE/PPM	63.4/ 12/ 64.	70.7/ 12/ 71.	79.6/ 12/ 80.	62.7/ 12/ 63.
CO BCKGRD METER/RANGE/PPM	.1/ 12/ 0.	.4/ 12/ 0.	.2/ 12/ 0.	.5/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	95.3/ 14/1.0061	75.4/ 14/ .5838	91.8/ 14/ .9119	74.2/ 14/ .5650
CO2 BCKGRD METER/RANGE/PCT	11.6/ 14/ .0400	11.7/ 14/ .0404	11.8/ 14/ .0408	11.8/ 14/ .0408
NOX SAMPLE METER/RANGE/PPM	75.7/ 1/ 19.0	30.7/ 1/ 7.8	60.2/ 1/ 15.1	31.7/ 1/ 8.0
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .0	.3/ 1/ .0	.3/ 1/ .0	.2/ 1/ .0
DILUTION FACTOR	12.95	22.17	14.25	22.93
THC CONCENTRATION PPM	13.	12.	12.	10.
CO CONCENTRATION PPM	61.	69.	77.	61.
CO2 CONCENTRATION PCT	.9692	.5452	.8740	.5260
NOX CONCENTRATION PPM	18.9	7.7	15.0	7.9
FILTER WT. MG (EFFICIENCY, %)	.365 (62.)	.226 (55.)	.201 (61.)	.210 (60.)
THC MASS GRAMS	.73	1.16	.67	.95
CO MASS GRAMS	7.16	13.65	8.90	12.00
CO2 MASS GRAMS	1780.8	1704.2	1587.3	1634.5
NOX MASS GRAMS	3.59	2.48	2.82	2.56
PARTICULATE MASS GRAMS	.25	.18	.14	.14
THC GRAMS/MI	.20	.30	.19	.24
CO GRAMS/MI	1.98	3.51	2.47	3.09
CO2 GRAMS/MI	491.4	437.7	439.7	420.4
NOX GRAMS/MI	.99	.64	.78	.66
FUEL ECONOMY IN MPG	19.63 20.74	21.88	21.88 22.36	22.81
RUN TIME SECONDS	510.	868.	506.	868.
MEASURED DISTANCE MI	3.62 7.52	3.89	3.61 7.50	3.89
SCF, DRY	.976 .978	.980	.977 .979	.980
DFC, WET (DRY)	.943(.929)		.947(.933)	
TOT VOL (SCM) / SAM BLR (SCM)	271.1/ .00		268.9/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	742.4
HUMIDITY	G/KG	10.4
TEMPERATURE	DEG C	27.2

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	449.4	(444.3)
FUEL ECONOMY	MPG	21.37	(21.63)
HYDROCARBONS (THC)	G/MI	.25	(.23)
CARBON MONOXIDE	G/MI	2.90	(2.78)
OXIDES OF NITROGEN	G/MI	.75	(.76)
PARTICULATES	G/MI	.049	(.046)

TABLE B-45. MERCEDES WITH RETARDED TIMING, WITHOUT TRAP, AND WITH LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 10 RUN 1
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 4/29/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-752-F
ODOMETER 21052. KM(13081. MILES)

BAROMETER 740.41 MM HG(29.15 IN HG)
RELATIVE HUMIDITY 64. PCT

DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)
ABS. HUMIDITY 14.0 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.12

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	43.3 (110.0)	43.9 (111.0)	45.0 (113.0)
BLOWER REVOLUTIONS	4960.	8510.	4957.	8501.
TOT FLOW STD. CU. METRES(SCF)	99.3 (3507.)	170.1 (6008.)	98.9 (3493.)	169.1 (5971.)
THC SAMPLE METER/RANGE/PPM	28.9/1022/ 29.	20.0/1022/ 20.	21.0/1022/ 21.	19.8/1022/ 20.
THC BCKGRD METER/RANGE/PPM	10.1/1022/ 10.	10.1/1022/ 10.	9.2/1022/ 9.	9.2/1022/ 9.
CO SAMPLE METER/RANGE/PPM	37.8/ 12/ 38.	26.8/ 12/ 27.	29.3/ 12/ 29.	23.6/ 12/ 24.
CO BCKGRD METER/RANGE/PPM	1.1/ 12/ 1.	1.0/ 12/ 1.	1.2/ 12/ 1.	.8/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	94.8/ 14/ .9919	74.4/ 14/ .5681	89.1/ 14/ .8464	72.8/ 14/ .5438
CO2 BCKGRD METER/RANGE/PCT	13.6/ 14/ .0481	13.5/ 14/ .0477	13.6/ 14/ .0481	13.6/ 14/ .0481
NOX SAMPLE METER/RANGE/PPM	81.9/ 1/ 20.5	34.9/ 1/ 8.8	65.0/ 1/ 16.3	35.2/ 1/ 8.9
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1	.4/ 1/ .1	.4/ 1/ .1	.5/ 1/ .1
DILUTION FACTOR	13.15	22.93	15.43	23.96
THC CONCENTRATION PPM	20.	10.	12.	11.
CO CONCENTRATION PPM	35.	25.	27.	22.
CO2 CONCENTRATION PCT	.9475	.5225	.8014	.4977
NOX CONCENTRATION PPM	20.4	8.7	16.2	8.7
FILTER WT. MG (EFFICIENCY, %)	2.500 (91.)	2.096 (92.)	1.756 (89.)	2.108 (91.)
THC MASS GRAMS	1.13	1.02	.72	1.09
CO MASS GRAMS	4.09	4.98	3.13	4.38
CO2 MASS GRAMS	1722.9	1627.5	1451.4	1540.9
NOX MASS GRAMS	4.35	3.17	3.44	3.17
PARTICULATE MASS GRAMS	1.17	1.00	.86	1.02
THC GRAMS/MI	.31	.26	.20	.28
CO GRAMS/MI	1.13	1.28	.87	1.12
CO2 GRAMS/MI	476.3	418.0	401.2	393.9
NOX GRAMS/MI	1.20	.81	.95	.81
FUEL ECONOMY IN MPG	20.29 21.65	23.10	24.11 24.32	24.51
RUN TIME SECONDS	506.	868.	506.	867.
MEASURED DISTANCE MI	3.62 7.51	3.89	3.62 7.53	3.91
SCF, DRY	.970 .972	.974	.971 .973	.974
DFC, WET (DRY)	.944(.925)		.950(.930)	
TOT VOL (SCM) / SAM BLR (SCM)	269.5/ .00		268.0/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	740.4
HUMIDITY	G/KG	14.0
TEMPERATURE	DEG C	26.1

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	425.4	(418.3)
FUEL ECONOMY	MPG	22.71	(23.09)
HYDROCARBONS (THC)	G/MI	.26	(.26)
CARBON MONOXIDE	G/MI	1.13	(1.09)
OXIDES OF NITROGEN	G/MI	.93	(.93)
PARTICULATES	G/MI	.265	(.266)

TABLE B-46. MERCEDES BASELINE WITH REPLACEMENT TRAP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 11 RUN 5
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

BAROMETER 742.44 MM HG(29.23 IN HG)
RELATIVE HUMIDITY 51. PCT

VEHICLE NO.
DATE 5/6/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17
DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 11.9 GM/KG

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 21295. KM(13232. MILES)

NOX HUMIDITY CORRECTION FACTOR 1.04

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.7 (116.0)	47.2 (117.0)	46.1 (115.0)
BLOWER REVOLUTIONS	4966.	8502.	4964.
TOT FLOW STD. CU. METRES(SCF)	98.7 (3484.)	168.6 (5952.)	98.8 (3487.)
THC SAMPLE METER/RANGE/PPM	16.1/1022/ 16.	12.9/1022/ 13.	13.7/1022/ 14.
THC BCKGRD METER/RANGE/PPM	5.4/1022/ 5.	5.4/1022/ 5.	5.5/1022/ 6.
CO SAMPLE METER/RANGE/PPM	82.3/ 12/ 83.	83.7/ 12/ 84.	44.7/ 13/ 104.
CO BCKGRD METER/RANGE/PPM	.6/ 12/ 1.	.1/ 12/ 0.	.3/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	99.3/ 14/1.1295	79.2/ 14/ .6471	95.1/ 14/1.0004
CO2 BCKGRD METER/RANGE/PCT	12.1/ 14/ .0420	12.2/ 14/ .0424	12.8/ 14/ .0448
NOX SAMPLE METER/RANGE/PPM	91.2/ 1/ 22.8	37.4/ 1/ 9.4	72.8/ 1/ 18.2
NOX BCKGRD METER/RANGE/PPM	.1/ 1/ .0	.3/ 1/ .1	1.7/ 1/ .4
DILUTION FACTOR	11.87	20.59	13.36
THC CONCENTRATION PPM	11.	8.	9.
CO CONCENTRATION PPM	79.	81.	100.
CO2 CONCENTRATION PCT	1.0910	.6067	.9589
NOX CONCENTRATION PPM	22.8	9.3	17.8
FILTER WT. MG (EFFICIENCY, %)	.467 (68.)	.394 (65.)	.583 (79.)
THC MASS GRAMS	.64	.75	.49
CO MASS GRAMS	9.06	15.98	11.49
CO2 MASS GRAMS	1970.7	1872.4	1733.7
NOX MASS GRAMS	4.47	3.13	3.51
PARTICULATE MASS GRAMS	.29	.26	.32
THC GRAMS/MI	.18	.19	.14
CO GRAMS/MI	2.50	4.09	3.18
CO2 GRAMS/MI	544.6	479.2	479.7
NOX GRAMS/MI	1.24	.80	.97
FUEL ECONOMY IN MPG	18.52	20.91	20.96
RUN TIME SECONDS	506.	868.	507.
MEASURED DISTANCE MI	3.62	3.91	3.61
SCF, DRY	.973	.978	.974

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	742.4
HUMIDITY	G/KG	11.9
TEMPERATURE	DEG C	27.2

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	492.8	(.0)
FUEL ECONOMY	MPG	20.38	(.00)
HYDROCARBONS (THC)	G/MI	.17	(.00)
CARBON MONOXIDE	G/MI	3.51	(.00)
OXIDES OF NITROGEN	G/MI	.94	(.00)
PARTICULATES	G/MI	.075	(.000)

TABLE B-47. MERCEDES BASELINE WITHOUT TRAP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 5
VEHICLE MODEL 86 MERCEDES 300SDL
ENGINE 3.0 L(183. CID) L-6
TRANSMISSION A3

VEHICLE NO.
DATE 5/10/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1928. KG(4250. LBS)
ACTUAL ROAD LOAD 7.9 KW(10.6 HP)
DIESEL EM-619-F
ODOMETER 21395. KM(13294. MILES)

BAROMETER 742.95 MM HG(29.25 IN HG)
RELATIVE HUMIDITY 47. PCT

DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)
ABS. HUMIDITY 10.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR .98

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	44.4 (112.0)	45.0 (113.0)	45.0 (113.0)
BLOWER REVOLUTIONS	4945.	8498.	4958.
TOT FLOW STD. CU. METRES(SCF)	99.0 (3494.)	169.8 (5994.)	99.1 (3498.)
THC SAMPLE METER/RANGE/PPM	22.4/1022/ 22.	12.5/1022/ 13.	13.9/1022/ 14.
THC BCKGRD METER/RANGE/PPM	5.3/1022/ 5.	5.3/1022/ 5.	5.0/1022/ 5.
CO SAMPLE METER/RANGE/PPM	37.7/ 12/ 38.	23.1/ 12/ 23.	28.0/ 12/ 28.
CO BCKGRD METER/RANGE/PPM	.3/ 12/ 0.	.1/ 12/ 0.	.5/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	97.6/ 14/1.0751	75.9/ 14/ .5887	91.2/ 14/ .8965
CO2 BCKGRD METER/RANGE/PCT	12.7/ 14/ .0426	12.7/ 14/ .0426	12.8/ 14/ .0430
NOX SAMPLE METER/RANGE/PPM	26.6/ 2/ 26.7	11.2/ 2/ 11.3	20.4/ 2/ 20.5
NOX BCKGRD METER/RANGE/PPM	.2/ 2/ .2	.3/ 2/ .3	.2/ 2/ .2
DILUTION FACTOR	12.51	22.83	15.01
THC CONCENTRATION PPM	18.	7.	9.
CO CONCENTRATION PPM	36.	23.	27.
CO2 CONCENTRATION PCT	1.0359	.5479	.8564
NOX CONCENTRATION PPM	26.5	11.0	20.3
FILTER WT. MG (EFFICIENCY, %)	3.371 (96.)	3.230 (97.)	2.581 (93.)
THC MASS GRAMS	1.00	.73	.53
CO MASS GRAMS	4.17	4.46	3.09
CO2 MASS GRAMS	1876.6	1703.0	1553.1
NOX MASS GRAMS	4.92	3.50	3.77
PARTICULATE MASS GRAMS	1.49	1.42	1.20
THC GRAMS/MI	.28	.19	.15
CO GRAMS/MI	1.15	1.14	.85
CO2 GRAMS/MI	518.1	435.7	429.7
NOX GRAMS/MI	1.36	.89	1.04
FUEL ECONOMY IN MPG	19.52	23.21	23.56
RUN TIME SECONDS	505.	868.	506.
MEASURED DISTANCE MI	3.62	3.91	3.61
SCF, DRY	.975	.980	.977

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 743.0
HUMIDITY G/KG 10.2
TEMPERATURE DEG C 26.1

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	451.1	(.0)
FUEL ECONOMY	MPG	22.42	(.00)
HYDROCARBONS (THC)	G/MI	.19	(.00)
CARBON MONOXIDE	G/MI	1.06	(.00)
OXIDES OF NITROGEN	G/MI	1.03	(.00)
PARTICULATES	G/MI	.365	(.000)

APPENDIX C

COMPUTER PRINTOUTS FOR THE REGULATED EMISSIONS, VOLKSWAGEN

Table C-	Test Date	Test No.	Trap	Fuel Aromatics	Test Condition	Test Cycle
1	9/1/87	1-1	yes	Baseline	Baseline	FTP
2	9/1/87	1-1	yes	Baseline	Baseline	HFET
3	9/1/87	1-1	yes	Baseline	Baseline	NYCC
4	9/2/87	1-2	yes	Baseline	Baseline	FTP
5	9/2/87	1-2	yes	Baseline	Baseline	HFET
6	9/2/87	1-2	yes	Baseline	Baseline	NYCC
7	9/10/87	2-1	no	Baseline	Baseline	FTP
8	9/10/87	2-1	no	Baseline	Baseline	HFET
9	9/10/87	2-1	no	Baseline	Baseline	NYCC
10	9/11/87	2-2	no	Baseline	Baseline	FTP
11	9/11/87	2-2	no	Baseline	Baseline	HFET
12	9/11/87	2-2	no	Baseline	Baseline	NYCC
13	10/15/87	R-1	yes	Baseline	Regeneration	HFET
14	10/19/87	R-2	yes	Baseline	Regeneration	HFET
15	10/20/87	R-3	yes	Baseline	Regeneration	HFET
16	10/15/87	L-1	yes	Baseline	Loaded Trap	NYCC
17	11/20/87	1-3	yes	Baseline	Baseline	FTP
18	11/23/87	2-3	no	Baseline	Baseline	FTP
19	12/22/87	3-1	yes	Low	Baseline	FTP
20	12/23/87	3-2	yes	Low	Baseline	FTP
21	1/6/88	4-1	no	Low	Baseline	FTP
22	1/7/88	4-2	no	Low	Baseline	FTP
23	2/25/88	L-2	yes	Baseline	Loaded Trap	FTP
24	4/1/88	R-1	yes	Low	Regeneration	HFET
25	4/4/88	R-2	yes	Low	Regeneration	HFET
26	4/5/88	1-4	yes	Baseline	Baseline	FTP
27	4/6/88	2-4	no	Baseline	Baseline	FTP
28	4/11/88	5-3	yes	Baseline	Failed Injectors	FTP
29	4/7/88	5-1	yes	Baseline	Failed Injectors	HFET
30	4/7/88	5-1	yes	Baseline	Failed Injectors	NYCC
31	4/8/88	5-2	yes	Baseline	Failed Injectors	FTP
32	4/8/88	5-2	yes	Baseline	Failed Injectors	HFET
33	4/8/88	5-2	yes	Baseline	Failed Injectors	NYCC
34	4/12/88	6-1	no	Baseline	Failed Injectors	FTP
35	4/12/88	6-1	no	Baseline	Failed Injectors	HFET
36	4/12/88	6-1	no	Baseline	Failed Injectors	NYCC
37	4/13/88	6-2	no	Baseline	Failed Injectors	FTP
38	4/13/88	6-2	no	Baseline	Failed Injectors	HFET
39	4/13/88	6-2	no	Baseline	Failed Injectors	NYCC
40	4/19/88	1-5	yes	Baseline	Baseline	FTP
41	4/27/88	1-6	yes	Baseline	Baseline	FTP

APPENDIX C (CONT'D)

COMPUTER PRINTOUTS FOR THE REGULATED EMISSIONS, VOLKSWAGEN

Table C-	Test Date	Test No.	Trap	Fuel Aromatics	Test Condition	Test Cycle
42	4/18/88	2-5	no	Baseline	Baseline	FTP
43	5/6/88	7-1	yes	Baseline	Retarded Timing	FTP
44	5/6/88	7-1	yes	Baseline	Retarded Timing	HFET
45	5/6/88	7-1	yes	Baseline	Retarded Timing	NYCC
46	5/9/88	7-2	yes	Baseline	Retarded Timing	FTP
47	5/9/88	7-2	yes	Baseline	Retarded Timing	HFET
48	5/9/88	7-2	yes	Baseline	Retarded Timing	NYCC
49	5/10/88	8-1	no	Baseline	Retarded Timing	FTP
50	5/10/88	8-1	no	Baseline	Retarded Timing	HFET
51	5/10/88	8-1	no	Baseline	Retarded Timing	NYCC
52	5/13/88	8-2	no	Baseline	Retarded Timing	FTP
53	5/13/88	8-2	no	Baseline	Retarded Timing	HFET
54	5/13/88	8-2	no	Baseline	Retarded Timing	NYCC
55	5/17/88	9-1	yes	Low	Retarded Timing	FTP
56	5/16/88	10-1	no	Low	Retarded Timing	FTP
57	5/18/88	1-7	yes	Baseline	Baseline	FTP
58	5/19/88	2-6	no	Baseline	Baseline	FTP

TABLE C-1. VOLKSWAGEN BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 9/ 1/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 20463. KM(12715. MILES)

BAROMETER 746.25 MM HG(29.38 IN HG)
RELATIVE HUMIDITY 63. PCT

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 12.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.05

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.7 (107.0)	41.7 (107.0)	41.1 (106.0)	41.1 (106.0)
BLOWER REVOLUTIONS	4968.	8540.	4964.	8552.
TOT FLOW STD. CU. METRES(SCF)	110.6 (3904.)	190.1 (6712.)	110.6 (3906.)	190.6 (6730.)
THC SAMPLE METER/RANGE/PPM	27.7/12/ 28.	22.9/12/ 23.	24.3/12/ 24.	24.0/12/ 24.
THC BCKGRD METER/RANGE/PPM	6.5/12/ 7.	6.5/12/ 7.	7.0/12/ 7.	7.0/12/ 7.
CO SAMPLE METER/RANGE/PPM	38.5/13/ 35.	27.1/13/ 25.	33.3/13/ 30.	27.3/13/ 25.
CO BCKGRD METER/RANGE/PPM	.2/13/ 0.	.2/13/ 0.	.1/13/ 0.	.5/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	68.7/11/ .5925	49.2/11/ .3769	62.6/11/ .5200	49.1/11/ .3759
CO2 BCKGRD METER/RANGE/PCT	7.3/11/ .0433	6.9/11/ .0409	7.1/11/ .0421	6.9/11/ .0409
NOX SAMPLE METER/RANGE/PPM	51.2/ 1/ 12.9	33.0/ 1/ 8.3	42.9/ 1/ 10.8	33.9/ 1/ 8.6
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.6/ 1/ .2	1.0/ 1/ .3	.3/ 1/ .0
DILUTION FACTOR	22.58	35.42	25.73	35.50
THC CONCENTRATION PPM	21.	17.	18.	17.
CO CONCENTRATION PPM	34.	24.	29.	24.
CO2 CONCENTRATION PCT	.5510	.3372	.4796	.3362
NOX CONCENTRATION PPM	12.7	8.2	10.5	8.5
FILTER WT. MG (EFFICIENCY, %)	.159 (72.)	.473 (79.)	.145 (75.)	.381 (80.)
THC MASS GRAMS	1.37	1.82	1.12	1.89
CO MASS GRAMS	4.40	5.24	3.79	5.24
CO2 MASS GRAMS	1115.5	1173.5	971.3	1173.3
NOX MASS GRAMS	2.84	3.14	2.35	3.26
PARTICULATE MASS GRAMS	.11	.28	.09	.23
THC GRAMS/MI	.38	.47	.31	.49
CO GRAMS/MI	1.22	1.35	1.06	1.35
CO2 GRAMS/MI	310.3	302.3	270.9	302.8
NOX GRAMS/MI	.79	.81	.66	.84
FUEL ECONOMY IN MPG	32.44 32.84	33.23	37.16 34.98	33.17
RUN TIME SECONDS	505.	867.	504.	868.
MEASURED DISTANCE MI	3.59 7.48	3.88	3.59 7.46	3.87
SCF, DRY	.974 .976	.976	.975 .976	.976
DFC, WET (DRY)	.966(.946)		.968(.948)	
TOT VOL (SCM) / SAM BLR (SCM)	300.6/ .00		301.2/ .00	

COMPOSITE RESULTS

TEST NUMBER		1 1
BAROMETER	MM HG	746.3
HUMIDITY	G/KG	12.3
TEMPERATURE	DEG C	24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	295.4	(295.5)
FUEL ECONOMY	MPG	34.04	(34.03)
HYDROCARBONS (THC)	G/MI	.41	(.41)
CARBON MONOXIDE	G/MI	1.24	(1.24)
OXIDES OF NITROGEN	G/MI	.76	(.77)
PARTICULATES	G/MI	.051	(.047)

TABLE C-2. VOLKSWAGEN BASELINE WITH TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 9/ 1/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20489. KM(12731. MILES)
	CVS NO. 17	
BAROMETER 746.25 MM HG(29.38 IN HG)	DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)	
RELATIVE HUMIDITY 59. PCT	ABS. HUMIDITY 11.6 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.03

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.0 (104.0)
BLOWER REVOLUTIONS	7543.
TOT FLOW STD. CU. METRES(SCF)	168.5 (5951.)
THC SAMPLE METER/RANGE/PPM	25.0/12/ 25.
THC BCKGRD METER/RANGE/PPM	8.0/12/ 8.
CO SAMPLE METER/RANGE/PPM	36.0/13/ 33.
CO BCKGRD METER/RANGE/PPM	.6/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	76.7/11/ .6953
CO2 BCKGRD METER/RANGE/PCT	7.1/11/ .0421
NOX SAMPLE METER/RANGE/PPM	67.6/ 1/ 17.0
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	19.29
THC CONCENTRATION PPM	17.
CO CONCENTRATION PPM	31.
CO2 CONCENTRATION PCT	.6553
NOX CONCENTRATION PPM	16.8
FILTER WT. MG (EFFICIENCY, %)	.249 (69.)
THC MASS GRAMS	1.69
CO MASS GRAMS	6.17
CO2 MASS GRAMS	2022.1
NOX MASS GRAMS	5.57
PARTICULATE MASS GRAMS	.17
RUN TIME SECONDS	766.
DFC, WET (DRY)	.948 (.930)
SCF, WET (DRY)	1.000 (.975)
VOL (SCM)	168.5
SAM BLR (SCM)	.00
MI (MEASURED)	10.22
TEST NUMBER,	
BAROMETER, MM HG	746.3
HUMIDITY, G/KG	11.6
TEMPERATURE, DEG C	24.4
CARBON DIOXIDE, G/MI	197.9
FUEL ECONOMY, MPG	51.0
HYDROCARBONS, (THC) G/MI	.17
CARBON MONOXIDE, G/MI	.60
OXIDES OF NITROGEN, G/MI	.54
PARTICULATES, G/MI	.017

TABLE C-3. VOLKSWAGEN BASELINE WITH TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 9/ 1/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-719-F
ODOMETER 20505. KM(12741. MILES)

BAROMETER 745.74 MM HG(29.36 IN HG)
RELATIVE HUMIDITY 59. PCT
BAG RESULTS

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 11.1 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.01

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.1 (106.0)
BLOWER REVOLUTIONS	5909.
TOT FLOW STD. CU. METRES(SCF)	131.6 (4646.)
THC SAMPLE METER/RANGE/PPM	19.9/12/ 20.
THC BCKGRD METER/RANGE/PPM	7.1/12/ 7.
CO SAMPLE METER/RANGE/PPM	24.9/13/ 22.
CO BCKGRD METER/RANGE/PPM	4.3/13/ 4.
CO2 SAMPLE METER/RANGE/PCT	38.6/11/ .2775
CO2 BCKGRD METER/RANGE/PCT	7.0/11/ .0415
NOX SAMPLE METER/RANGE/PPM	24.7/ 1/ 6.3
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2
DILUTION FACTOR	48.00
THC CONCENTRATION PPM	13.
CO CONCENTRATION PPM	18.
CO2 CONCENTRATION PCT	.2368
NOX CONCENTRATION PPM	6.1
FILTER WT. MG (EFFICIENCY, %)	.125 (66.)
THC MASS GRAMS	.98
CO MASS GRAMS	2.80
CO2 MASS GRAMS	570.5
NOX MASS GRAMS	1.56
PARTICULATE MASS GRAMS	.09
RUN TIME SECONDS	600.
DFC, WET (DRY)	.979 (.961)
SCF, WET (DRY)	1.000 (.979)
VOL (SCM)	131.6
SAM BLR (SCM)	.00
MI (MEASURED)	1.17
TEST NUMBER,	
BAROMETER, MM HG	745.7
HUMIDITY, G/KG	11.1
TEMPERATURE, DEG C	23.9
CARBON DIOXIDE, G/MI	488.3
FUEL ECONOMY, MPG	20.5
HYDROCARBONS, (THC) G/MI	.84
CARBON MONOXIDE, G/MI	2.40
OXIDES OF NITROGEN, G/MI	1.33
PARTICULATES, G/MI	.079

TABLE C-4. VOLKSWAGEN BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 9/ 2/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 20527. KM(12755. MILES)

BAROMETER 744.98 MM HG(29.33 IN HG)
RELATIVE HUMIDITY 69. PCT
BAG RESULTS

DRY BULB TEMP. 22.2 DEG C(72.0 DEG F)
ABS. HUMIDITY 11.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.04

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)	1270.0 (50.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.7 (107.0)	40.0 (104.0)	42.2 (108.0)	39.4 (103.0)
BLOWER REVOLUTIONS	4972.	8546.	4968.	8546.
TOT FLOW STD. CU. METRES(SCF)	110.4 (3900.)	190.6 (6729.)	110.2 (3892.)	190.8 (6738.)
THC SAMPLE METER/RANGE/PPM	26.2/12/ 26.	21.6/12/ 22.	23.0/12/ 23.	23.7/12/ 24.
THC BCKGRD METER/RANGE/PPM	7.0/12/ 7.	7.0/12/ 7.	8.2/12/ 8.	8.2/12/ 8.
CO SAMPLE METER/RANGE/PPM	40.7/13/ 38.	30.1/13/ 27.	33.2/13/ 30.	27.0/13/ 24.
CO BCKGRD METER/RANGE/PPM	1.0/13/ 1.	.5/13/ 0.	.9/13/ 1.	.8/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	68.9/11/ .5949	48.7/11/ .3720	63.8/11/ .5339	49.4/11/ .3789
CO2 BCKGRD METER/RANGE/PCT	7.4/11/ .0440	7.3/11/ .0433	7.6/11/ .0452	7.4/11/ .0440
NOX SAMPLE METER/RANGE/PPM	51.8/ 1/ 13.0	36.4/ 1/ 9.2	44.7/ 1/ 11.2	34.9/ 1/ 8.8
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.4/ 1/ .1	1.0/ 1/ .3	1.1/ 1/ .3
DILUTION FACTOR	22.49	35.88	25.07	35.23
THC CONCENTRATION PPM	19.	15.	15.	16.
CO CONCENTRATION PPM	36.	26.	29.	23.
CO2 CONCENTRATION PCT	.5529	.3298	.4905	.3362
NOX CONCENTRATION PPM	12.9	9.1	11.0	8.5
FILTER WT. MG (EFFICIENCY, %)	.080 (67.)	.140 (71.)	.110 (73.)	.148 (69.)
THC MASS GRAMS	1.24	1.62	.96	1.73
CO MASS GRAMS	4.57	5.80	3.67	5.12
CO2 MASS GRAMS	1118.0	1150.9	989.7	1174.6
NOX MASS GRAMS	2.82	3.43	2.40	3.23
PARTICULATE MASS GRAMS	.06	.10	.07	.10
THC GRAMS/MI	.35	.42	.27	.45
CO GRAMS/MI	1.27	1.50	1.02	1.33
CO2 GRAMS/MI	311.4	298.0	276.4	305.9
NOX GRAMS/MI	.79	.89	.67	.84
FUEL ECONOMY IN MPG	32.32 33.02	33.70	36.46 34.50	32.86
RUN TIME SECONDS	505.	867.	504.	868.
MEASURED DISTANCE MI	3.59 7.45	3.86	3.58 7.42	3.84
SCF, DRY	.972 .974	.974	.973 .974	.974
DFC, WET (DRY)	.966(.945)		.967(.946)	
TOT VOL (SCM) / SAM BLR (SCM)	301.0/ .00		301.0/ .00	

COMPOSITE RESULTS

TEST NUMBER		1
BAROMETER	MM HG	745.0
HUMIDITY	G/KG	11.8
TEMPERATURE	DEG C	22.2

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	294.9	(297.2)
FUEL ECONOMY	MPG	34.10	(33.85)
HYDROCARBONS (THC)	G/MI	.36	(.37)
CARBON MONOXIDE	G/MI	1.32	(1.27)
OXIDES OF NITROGEN	G/MI	.81	(.79)
PARTICULATES	G/MI	.022	(.022)

TABLE C-5. VOLKSWAGEN BASELINE WITH TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 9/ 2/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20553. KM(12771. MILES)
	CVS NO. 17	
BAROMETER 745.24 MM HG(29.34 IN HG)	DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)	
RELATIVE HUMIDITY 55. PCT	ABS. HUMIDITY 10.4 GM/KG	NOX HUMIDITY CORRECTION FACTOR .99

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)
BLOWER REVOLUTIONS	7546.
TOT FLOW STD. CU. METRES(SCF)	167.3 (5906.)
THC SAMPLE METER/RANGE/PPM	24.1/12/ 24.
THC BCKGRD METER/RANGE/PPM	9.1/12/ 9.
CO SAMPLE METER/RANGE/PPM	34.4/13/ 31.
CO BCKGRD METER/RANGE/PPM	.6/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	77.1/11/ .7007
CO2 BCKGRD METER/RANGE/PCT	7.8/11/ .0465
NOX SAMPLE METER/RANGE/PPM	66.1/ 1/ 16.6
NOX BCKGRD METER/RANGE/PPM	1.7/ 1/ .4
DILUTION FACTOR	19.14
THC CONCENTRATION PPM	15.
CO CONCENTRATION PPM	30.
CO2 CONCENTRATION PCT	.6566
NOX CONCENTRATION PPM	16.2
FILTER WT. MG (EFFICIENCY, %)	.170 (69.)
THC MASS GRAMS	1.49
CO MASS GRAMS	5.84
CO2 MASS GRAMS	2010.6
NOX MASS GRAMS	5.12
PARTICULATE MASS GRAMS	.12
RUN TIME SECONDS	766.
DFC, WET (DRY)	.948 (.931)
SCF, WET (DRY)	1.000 (.976)
VOL (SCM)	167.3
SAM BLR (SCM)	.00
MI (MEASURED)	10.20
TEST NUMBER,	
BAROMETER, MM HG	745.2
HUMIDITY, G/KG	10.4
TEMPERATURE, DEG C	23.9
CARBON DIOXIDE, G/MI	197.1
FUEL ECONOMY, MPG	51.2
HYDROCARBONS, (THC) G/MI	.15
CARBON MONOXIDE, G/MI	.57
OXIDES OF NITROGEN, G/MI	.50
PARTICULATES, G/MI	.011

TABLE C-6. VOLKSWAGEN BASELINE WITH TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 9/ 2/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-719-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20569. KM(12781. MILES)
	CVS NO. 17	
BAROMETER 745.24 MM HG(29.34 IN HG)	DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)	
RELATIVE HUMIDITY 55. PCT	ABS. HUMIDITY 10.4 GM/KG	NOX HUMIDITY CORRECTION FACTOR .99

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET P MM. H2O(IN. H2O)	1270.0 (50.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	38.3 (101.0)
BLOWER REVOLUTIONS	5895.
TOT FLOW STD. CU. METRES(SCF)	132.1 (4663.)
THC SAMPLE METER/RANGE/PPM	20.9/12/ 21.
THC BCKGRD METER/RANGE/PPM	10.9/12/ 11.
CO SAMPLE METER/RANGE/PPM	21.3/13/ 19.
CO BCKGRD METER/RANGE/PPM	.8/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	38.9/11/ .2801
CO2 BCKGRD METER/RANGE/PCT	7.7/11/ .0458
NOX SAMPLE METER/RANGE/PPM	26.5/ 1/ 6.7
NOX BCKGRD METER/RANGE/PPM	2.0/ 1/ .5
DILUTION FACTOR	47.58
THC CONCENTRATION PPM	10.
CO CONCENTRATION PPM	18.
CO2 CONCENTRATION PCT	.2353
NOX CONCENTRATION PPM	6.2
FILTER WT. MG (EFFICIENCY, %)	.064 (65.)
THC MASS GRAMS	.78
CO MASS GRAMS	2.77
CO2 MASS GRAMS	568.8
NOX MASS GRAMS	1.55
PARTICULATE MASS GRAMS	.05
RUN TIME SECONDS	598.
DFC, WET (DRY)	.979 (.962)
SCF, WET (DRY)	1.000 (.980)
VOL (SCM)	132.1
SAM BLR (SCM)	.00
MI (MEASURED)	1.18
TEST NUMBER,	1
BAROMETER, MM HG	745.2
HUMIDITY, G/KG	10.4
TEMPERATURE, DEG C	23.9
CARBON DIOXIDE, G/MI	481.0
FUEL ECONOMY, MPG	20.9
HYDROCARBONS, (THC) G/MI	.66
CARBON MONOXIDE, G/MI	2.34
OXIDES OF NITROGEN, G/MI	1.31
PARTICULATES, G/MI	.041

TABLE C-7. VOLKSWAGEN BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 9/10/87
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 20608. KM(12805. MILES)

BAROMETER 740.92 MM HG(29.17 IN HG)
RELATIVE HUMIDITY 70. PCT

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 13.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.10

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.0 (104.0)	40.6 (105.0)	40.6 (105.0)	41.1 (106.0)
BLOWER REVOLUTIONS	4931.	8496.	4928.	8489.
TOT FLOW STD. CU. METRES(SCF)	99.4 (3511.)	171.1 (6043.)	99.2 (3504.)	170.7 (6029.)
THC SAMPLE METER/RANGE/PPM	32.0/12/ 32.	26.2/12/ 26.	27.1/12/ 27.	27.6/12/ 28.
THC BCKGRD METER/RANGE/PPM	7.0/12/ 7.	10.8/12/ 11.	9.5/12/ 10.	12.7/12/ 13.
CO SAMPLE METER/RANGE/PPM	36.7/12/ 37.	25.1/12/ 25.	27.2/12/ 27.	26.5/12/ 27.
CO BCKGRD METER/RANGE/PPM	1.1/12/ 1.	1.3/12/ 1.	1.4/12/ 1.	.9/12/ 1.
CO2 SAMPLE METER/RANGE/PCT	77.8/14/ .6230	60.5/14/ .3842	73.4/14/ .5528	61.4/14/ .3945
CO2 BCKGRD METER/RANGE/PCT	12.7/14/ .0444	12.2/14/ .0424	12.4/14/ .0432	12.2/14/ .0424
NOX SAMPLE METER/RANGE/PPM	54.4/ 1/ 13.6	37.2/ 1/ 9.4	52.9/ 1/ 13.3	40.5/ 1/ 10.2
NOX BCKGRD METER/RANGE/PPM	.9/ 1/ .2	.9/ 1/ .2	.9/ 1/ .2	1.1/ 1/ .3
DILUTION FACTOR	21.46	34.73	24.22	33.81
THC CONCENTRATION PPM	25.	16.	18.	15.
CO CONCENTRATION PPM	34.	23.	25.	25.
CO2 CONCENTRATION PCT	.5807	.3430	.5114	.3533
NOX CONCENTRATION PPM	13.4	9.1	13.0	9.9
FILTER WT. MG (EFFICIENCY, %)	1.665 (96.)	1.655 (95.)	1.260 (97.)	1.532 (96.)
THC MASS GRAMS	1.45	1.55	1.03	1.51
CO MASS GRAMS	3.99	4.63	2.90	4.97
CO2 MASS GRAMS	1057.1	1074.8	929.0	1104.5
NOX MASS GRAMS	2.80	3.28	2.71	3.54
PARTICULATE MASS GRAMS	.72	.73	.56	.69
THC GRAMS/MI	.40	.40	.29	.39
CO GRAMS/MI	1.11	1.20	.81	1.29
CO2 GRAMS/MI	295.1	278.5	259.1	286.5
NOX GRAMS/MI	.78	.85	.76	.92
FUEL ECONOMY IN MPG	34.09 35.10	36.09	38.91 36.83	35.09
RUN TIME SECONDS	504.	868.	504.	868.
MEASURED DISTANCE MI	3.58 7.44	3.86	3.59 7.44	3.86
SCF, DRY	.972 .973	.974	.972 .973	.974
DFC, WET (DRY)	.965(.943)		.966(.944)	
TOT VOL (SCM) / SAM BLR (SCM)	270.6/ .00		270.0/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	740.9
HUMIDITY	G/KG	13.4
TEMPERATURE	DEG C	23.9

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	276.6	(279.0)
FUEL ECONOMY	MPG	36.38	(36.07)
HYDROCARBONS (THC)	G/MI	.37	(.37)
CARBON MONOXIDE	G/MI	1.07	(1.10)
OXIDES OF NITROGEN	G/MI	.81	(.83)
PARTICULATES	G/MI	.182	(.179)

TABLE C-8. VOLKSWAGEN BASELINE WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 9/10/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20633. KM(12821. MILES)
	CVS NO. 17	
BAROMETER 741.68 MM HG(29.20 IN HG)	DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)	
RELATIVE HUMIDITY 53. PCT	ABS. HUMIDITY 10.7 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.7 (107.0)
BLOWER REVOLUTIONS	7416.
TOT FLOW STD. CU. METRES(SCF)	148.9 (5258.)
THC SAMPLE METER/RANGE/PPM	31.7/12/ 32.
THC BCKGRD METER/RANGE/PPM	11.4/12/ 11.
CO SAMPLE METER/RANGE/PPM	32.9/12/ 33.
CO BCKGRD METER/RANGE/PPM	1.1/12/ 1.
CO2 SAMPLE METER/RANGE/PCT	87.8/14/ .8168
CO2 BCKGRD METER/RANGE/PCT	11.8/14/ .0408
NOX SAMPLE METER/RANGE/PPM	83.4/ 1/ 20.9
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3
DILUTION FACTOR	16.42
THC CONCENTRATION PPM	21.
CO CONCENTRATION PPM	31.
CO2 CONCENTRATION PCT	.7785
NOX CONCENTRATION PPM	20.6
FILTER WT. MG (EFFICIENCY, %)	2.418 (98.)
THC MASS GRAMS	1.80
CO MASS GRAMS	5.36
CO2 MASS GRAMS	2122.5
NOX MASS GRAMS	5.87
PARTICULATE MASS GRAMS	1.07
RUN TIME SECONDS	765.
DFC, WET (DRY)	.939 (.923)
SCF, WET (DRY)	1.000 (.976)
VOL (SCM)	148.9
SAM BLR (SCM)	.00
MI (MEASURED)	10.19
TEST NUMBER,	
BAROMETER, MM HG	741.7
HUMIDITY, G/KG	10.7
TEMPERATURE, DEG C	25.0
CARBON DIOXIDE, G/MI	208.3
FUEL ECONOMY, MPG	48.5
HYDROCARBONS, (THC) G/MI	.18
CARBON MONOXIDE, G/MI	.53
OXIDES OF NITROGEN, G/MI	.58
PARTICULATES, G/MI	.105

TABLE C-9. VOLKSWAGEN BASELINE WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 9/10/87
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-719-F
ODOMETER 20649. KM(12831. MILES)

BAROMETER 740.92 MM HG(29.17 IN HG)
RELATIVE HUMIDITY 59. PCT
DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 11.7 GM/KG
NOX HUMIDITY CORRECTION FACTOR 1.03

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.6 (105.0)
BLOWER REVOLUTIONS	5852.
TOT FLOW STD. CU. METRES(SCF)	117.9 (4161.)
THC SAMPLE METER/RANGE/PPM	25.2/12/ 25.
THC BCKGRD METER/RANGE/PPM	11.4/12/ 11.
CO SAMPLE METER/RANGE/PPM	20.2/12/ 20.
CO BCKGRD METER/RANGE/PPM	.9/12/ 1.
CO2 SAMPLE METER/RANGE/PCT	51.4/14/ .2909
CO2 BCKGRD METER/RANGE/PCT	11.9/14/ .0412
NOX SAMPLE METER/RANGE/PPM	29.0/ 1/ 7.3
NOX BCKGRD METER/RANGE/PPM	1.1/ 1/ .3
DILUTION FACTOR	45.77
THC CONCENTRATION PPM	14.
CO CONCENTRATION PPM	19.
CO2 CONCENTRATION PCT	.2506
NOX CONCENTRATION PPM	7.0
FILTER WT. MG (EFFICIENCY, %)	.730 (95.)
THC MASS GRAMS	.95
CO MASS GRAMS	2.61
CO2 MASS GRAMS	540.7
NOX MASS GRAMS	1.64
PARTICULATE MASS GRAMS	.34
RUN TIME SECONDS	598.
DFC, WET (DRY)	.978 (.959)
SCF, WET (DRY)	1.000 (.978)
VOL (SCM)	117.9
SAM BLR (SCM)	.00
MI (MEASURED)	1.18

TEST NUMBER,		
BAROMETER,	MM HG	740.9
HUMIDITY,	G/KG	11.7
TEMPERATURE,	DEG C	24.4
CARBON DIOXIDE,	G/MI	459.9
FUEL ECONOMY,	MPG	21.8
HYDROCARBONS, (THC)	G/MI	.81
CARBON MONOXIDE,	G/MI	2.22
OXIDES OF NITROGEN,	G/MI	1.39
PARTICULATES,	G/MI	.292

TABLE C-10. VOLKSWAGEN BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 9/11/87
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 20738. KM(12886. MILES)

BAROMETER 755.65 MM HG(29.75 IN HG)
RELATIVE HUMIDITY 66. PCT

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 12.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.06

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	42.8 (109.0)	41.1 (106.0)	41.7 (107.0)
BLOWER REVOLUTIONS	4915.	8478.	4936.	8475.
TOT FLOW STD. CU. METRES(SCF)	101.0 (3567.)	174.3 (6156.)	101.9 (3598.)	174.7 (6169.)
THC SAMPLE METER/RANGE/PPM	34.9/12/ 35.	26.5/12/ 26.	26.6/12/ 27.	27.8/12/ 28.
THC BCKGRD METER/RANGE/PPM	8.8/12/ 9.	9.9/12/ 10.	11.0/12/ 11.	11.0/12/ 11.
CO SAMPLE METER/RANGE/PPM	40.2/12/ 40.	25.5/12/ 26.	27.2/12/ 27.	25.1/12/ 25.
CO BCKGRD METER/RANGE/PPM	1.2/12/ 1.	1.0/12/ 1.	.5/12/ 1.	.4/12/ 0.
CO2 SAMPLE METER/RANGE/PCT	79.9/14/ .6594	61.7/14/ .3979	73.4/14/ .5528	61.4/14/ .3945
CO2 BCKGRD METER/RANGE/PCT	12.9/14/ .0452	13.0/14/ .0456	13.0/14/ .0456	13.0/14/ .0456
NOX SAMPLE METER/RANGE/PPM	58.9/ 1/ 14.8	39.7/ 1/ 10.0	52.9/ 1/ 13.3	40.0/ 1/ 10.1
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1	.4/ 1/ .1	.5/ 1/ .1	1.0/ 1/ .3
DILUTION FACTOR	20.27	33.54	24.22	33.82
THC CONCENTRATION PPM	26.	17.	16.	17.
CO CONCENTRATION PPM	38.	24.	26.	24.
CO2 CONCENTRATION PCT	.6165	.3537	.5090	.3502
NOX CONCENTRATION PPM	14.7	9.9	13.1	9.8
FILTER WT. MG (EFFICIENCY, %)	2.013 (97.)	1.612 (96.)	1.273 (97.)	1.500 (94.)
THC MASS GRAMS	1.54	1.70	.94	1.72
CO MASS GRAMS	4.44	4.86	3.08	4.91
CO2 MASS GRAMS	1140.1	1128.9	949.7	1120.1
NOX MASS GRAMS	2.99	3.48	2.70	3.46
PARTICULATE MASS GRAMS	.88	.72	.57	.71
THC GRAMS/MI	.43	.44	.26	.45
CO GRAMS/MI	1.24	1.26	.86	1.28
CO2 GRAMS/MI	317.5	292.4	265.3	291.0
NOX GRAMS/MI	.83	.90	.76	.90
FUEL ECONOMY IN MPG	31.69 33.02	34.37	38.01 36.12	34.53
RUN TIME SECONDS	504.	867.	505.	867.
MEASURED DISTANCE MI	3.59 7.45	3.86	3.58 7.43	3.85
SCF, DRY	.973 .974	.975	.974 .975	.975
DFC, WET (DRY)	.963(.942)		.966(.946)	
TOT VOL (SCM) / SAM BLR (SCM)	275.4/ .00		276.6/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	755.6
HUMIDITY	G/KG	12.4
TEMPERATURE	DEG C	23.9

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	290.2	(289.7)
FUEL ECONOMY	MPG	34.67	(34.72)
HYDROCARBONS (THC)	G/MI	.39	(.39)
CARBON MONOXIDE	G/MI	1.15	(1.15)
OXIDES OF NITROGEN	G/MI	.85	(.85)
PARTICULATES	G/MI	.191	(.190)

TABLE C-11. VOLKSWAGEN BASELINE WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 9/11/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20677. KM(12848. MILES)
	CVS NO. 17	
BAROMETER 741.17 MM HG(29.18 IN HG)	DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)	
RELATIVE HUMIDITY 54. PCT	ABS. HUMIDITY 10.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR .98

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.1 (106.0)
BLOWER REVOLUTIONS	7469.
TOT FLOW STD. CU. METRES(SCF)	150.2 (5304.)
THC SAMPLE METER/RANGE/PPM	29.5/12/ 29.
THC BCKGRD METER/RANGE/PPM	10.0/12/ 10.
CO SAMPLE METER/RANGE/PPM	29.7/12/ 30.
CO BCKGRD METER/RANGE/PPM	1.0/12/ 1.
CO2 SAMPLE METER/RANGE/PCT	86.2/14/ .7820
CO2 BCKGRD METER/RANGE/PCT	13.0/14/ .0456
NOX SAMPLE METER/RANGE/PPM	79.8/ 1/ 20.0
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3
DILUTION FACTOR	17.16
THC CONCENTRATION PPM	20.
CO CONCENTRATION PPM	28.
CO2 CONCENTRATION PCT	.7390
NOX CONCENTRATION PPM	19.7
FILTER WT. MG (EFFICIENCY, %)	2.432 (97.)
THC MASS GRAMS	1.74
CO MASS GRAMS	4.88
CO2 MASS GRAMS	2032.4
NOX MASS GRAMS	5.54
PARTICULATE MASS GRAMS	1.08
RUN TIME SECONDS	766.
DFC, WET (DRY)	.942 (.925)
SCF, WET (DRY)	1.000 (.975)
VOL (SCM)	150.2
SAM BLR (SCM)	.00
MI (MEASURED)	10.18
TEST NUMBER,	
BAROMETER, MM HG	741.2
HUMIDITY, G/KG	10.0
TEMPERATURE, DEG C	23.3
CARBON DIOXIDE, G/MI	199.6
FUEL ECONOMY, MPG	50.6
HYDROCARBONS, (THC) G/MI	.17
CARBON MONOXIDE, G/MI	.48
OXIDES OF NITROGEN, G/MI	.54
PARTICULATES, G/MI	.106

TABLE C-12. VOLKSWAGEN BASELINE WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 9/11/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-719-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 20695. KM(12859. MILES)
	CVS NO. 17	
BAROMETER 740.92 MM HG(29.17 IN HG)	DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)	
RELATIVE HUMIDITY 55. PCT	ABS. HUMIDITY 10.5 GM/KG	NOX HUMIDITY CORRECTION FACTOR .99

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.1 (106.0)
BLOWER REVOLUTIONS	5860.
TOT FLOW STD. CU. METRES(SCF)	117.9 (4162.)
THC SAMPLE METER/RANGE/PPM	23.8/12/ 24.
THC BCKGRD METER/RANGE/PPM	12.8/12/ 13.
CO SAMPLE METER/RANGE/PPM	19.4/12/ 20.
CO BCKGRD METER/RANGE/PPM	.0/12/ 0.
CO2 SAMPLE METER/RANGE/PCT	51.3/14/ .2899
CO2 BCKGRD METER/RANGE/PCT	12.6/14/ .0440
NOX SAMPLE METER/RANGE/PPM	27.4/ 1/ 6.9
NOX BCKGRD METER/RANGE/PPM	.9/ 1/ .2
DILUTION FACTOR	45.94
THC CONCENTRATION PPM	11.
CO CONCENTRATION PPM	19.
CO2 CONCENTRATION PCT	.2469
NOX CONCENTRATION PPM	6.7
FILTER WT. MG (EFFICIENCY, %)	.737 (94.)
THC MASS GRAMS	.77
CO MASS GRAMS	2.63
CO2 MASS GRAMS	532.8
NOX MASS GRAMS	1.50
PARTICULATE MASS GRAMS	.35
RUN TIME SECONDS	599.
DFC, WET (DRY)	.978 (.961)
SCF, WET (DRY)	1.000 (.980)
VOL (SCM)	117.9
SAM BLR (SCM)	.00
MI (MEASURED)	1.19
TEST NUMBER,	
BAROMETER, MM HG	740.9
HUMIDITY, G/KG	10.5
TEMPERATURE, DEG C	23.9
CARBON DIOXIDE, G/MI	448.5
FUEL ECONOMY, MPG	22.4
HYDROCARBONS, (THC) G/MI	.65
CARBON MONOXIDE, G/MI	2.21
OXIDES OF NITROGEN, G/MI	1.26
PARTICULATES, G/MI	.295

TABLE C-13. VOLKSWAGEN REGENERATION TEST, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-1 RUN	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 10/15/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-719-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 33698. KM(20939. MILES)
	CVS NO. 17	
BAROMETER 743.46 MM HG(29.27 IN HG)	DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)	
RELATIVE HUMIDITY 46. PCT	ABS. HUMIDITY 8.2 GM/KG	NOX HUMIDITY CORRECTION FACTOR .92

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.6 (105.0)
BLOWER REVOLUTIONS	7497.
TOT FLOW STD. CU. METRES(SCF)	151.7 (5356.)
THC SAMPLE METER/RANGE/PPM	26.2/12/ 26.
THC BCKGRD METER/RANGE/PPM	5.8/12/ 6.
CO SAMPLE METER/RANGE/PPM	74.2/13/ 72.
CO BCKGRD METER/RANGE/PPM	1.8/13/ 2.
CO2 SAMPLE METER/RANGE/PCT	90.5/11/ .8972
CO2 BCKGRD METER/RANGE/PCT	7.6/11/ .0452
NOX SAMPLE METER/RANGE/PPM	76.1/ 1/ 19.1
NOX BCKGRD METER/RANGE/PPM	.0/ 1/ .0
DILUTION FACTOR	14.91
THC CONCENTRATION PPM	21.
CO CONCENTRATION PPM	69.
CO2 CONCENTRATION PCT	.8551
NOX CONCENTRATION PPM	19.1
FILTER WT. MG (EFFICIENCY, %)	1.527 (88.)
THC MASS GRAMS	1.82
CO MASS GRAMS	12.12
CO2 MASS GRAMS	2374.7
NOX MASS GRAMS	5.12
PARTICULATE MASS GRAMS	.75
RUN TIME SECONDS	766.
DFC, WET (DRY)	.933 (.919)
SCF, WET (DRY)	1.000 (.977)
VOL (SCM)	151.7
SAM BLR (SCM)	.00
MI (MEASURED)	10.26
TEST NUMBER,	1
BAROMETER, MM HG	743.5
HUMIDITY, G/KG	8.2
TEMPERATURE, DEG C	22.8
CARBON DIOXIDE, G/MI	231.4
FUEL ECONOMY, MPG	43.5
HYDROCARBONS, (THC) G/MI	.18
CARBON MONOXIDE, G/MI	1.18
OXIDES OF NITROGEN, G/MI	.50
PARTICULATES, G/MI	.073

TABLE C-14. VOLKSWAGEN REGENERATION TEST, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-2 RUN
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 10/19/87
BAG CART NO. 1
DYNO NO. 3
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 33811. KM(21009. MILES)

BAROMETER 740.16 MM HG(29.14 IN HG)
RELATIVE HUMIDITY 56. PCT
DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 10.9 GM/KG
NOX HUMIDITY CORRECTION FACTOR 1.01

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.0 (104.0)
BLOWER REVOLUTIONS	7428.
TOT FLOW STD. CU. METRES(SCF)	149.4 (5275.)
THC SAMPLE METER/RANGE/PPM	18.3/12/ 18.
THC BCKGRD METER/RANGE/PPM	5.8/12/ 6.
CO SAMPLE METER/RANGE/PPM	56.0/13/ 53.
CO BCKGRD METER/RANGE/PPM	1.2/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	88.1/11/ .8596
CO2 BCKGRD METER/RANGE/PCT	7.6/11/ .0452
NOX SAMPLE METER/RANGE/PPM	70.2/ 1/ 17.6
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3
DILUTION FACTOR	15.60
THC CONCENTRATION PPM	13.
CO CONCENTRATION PPM	50.
CO2 CONCENTRATION PCT	.8173
NOX CONCENTRATION PPM	17.4
THC MASS GRAMS	1.11
CO MASS GRAMS	8.73
CO2 MASS GRAMS	2235.2
NOX MASS GRAMS	5.00
RUN TIME SECONDS	765.
DFC, WET (DRY)	.936 (.919)
SCF, WET (DRY)	1.000 (.974)
VOL (SCM)	149.4
SAM BLR (SCM)	.00
MI (MEASURED)	10.19
TEST NUMBER,	2
BAROMETER, MM HG	740.2
HUMIDITY, G/KG	10.9
TEMPERATURE, DEG C	24.4
CARBON DIOXIDE, G/MI	219.4
FUEL ECONOMY, MPG	46.0
HYDROCARBONS, (THC) G/MI	.11
CARBON MONOXIDE, G/MI	.86
OXIDES OF NITROGEN, G/MI	.49

TABLE C-15. VOLKSWAGEN REGENERATION TEST, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-3 RUN	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 10/20/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-719-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 33890. KM(21058. MILES)
	CVS NO. 17	
BAROMETER 746.25 MM HG(29.38 IN HG)	DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)	
RELATIVE HUMIDITY 42. PCT	ABS. HUMIDITY 8.5 GM/KG	NOX HUMIDITY CORRECTION FACTOR .93

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)
BLOWER REVOLUTIONS	7484.
TOT FLOW STD. CU. METRES(SCF)	151.1 (5337.)
THC SAMPLE METER/RANGE/PPM	22.5/12/ 22.
THC BCKGRD METER/RANGE/PPM	5.3/12/ 5.
CO SAMPLE METER/RANGE/PPM	66.1/13/ 64.
CO BCKGRD METER/RANGE/PPM	.2/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	89.8/11/ .8861
CO2 BCKGRD METER/RANGE/PCT	7.4/11/ .0440
NOX SAMPLE METER/RANGE/PPM	85.8/ 1/ 21.5
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1
DILUTION FACTOR	15.11
THC CONCENTRATION PPM	18.
CO CONCENTRATION PPM	61.
CO2 CONCENTRATION PCT	.8451
NOX CONCENTRATION PPM	21.4
FILTER WT. MG (EFFICIENCY, %)	.590 (84.)
THC MASS GRAMS	1.53
CO MASS GRAMS	10.82
CO2 MASS GRAMS	2338.6
NOX MASS GRAMS	5.77
PARTICULATE MASS GRAMS	.31
RUN TIME SECONDS	765.
DFC, WET (DRY)	.934 (.921)
SCF, WET (DRY)	1.000 (.978)
VOL (SCM)	151.1
SAM BLR (SCM)	.00
MI (MEASURED)	10.20

TEST NUMBER,		
BAROMETER,	MM HG	746.3
HUMIDITY,	G/KG	8.5
TEMPERATURE,	DEG C	25.0
CARBON DIOXIDE,	G/MI	229.3
FUEL ECONOMY,	MPG	43.9
HYDROCARBONS, (THC)	G/MI	.15
CARBON MONOXIDE,	G/MI	1.06
OXIDES OF NITROGEN,	G/MI	.57
PARTICULATES,	G/MI	.030

TABLE C-16. VOLKSWAGEN LOADED TRAP TEST, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. L-1 RUN	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 10/15/87	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 33693. KM(20936. MILES)
	CVS NO. 17	
BAROMETER 744.22 MM HG(29.30 IN HG)	DRY BULB TEMP. 21.7 DEG C(71.0 DEG F)	
RELATIVE HUMIDITY 49. PCT	ABS. HUMIDITY 8.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR .92

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)
BLOWER REVOLUTIONS	5874.
TOT FLOW STD. CU. METRES(SCF)	118.6 (4188.)
THC SAMPLE METER/RANGE/PPM	21.9/12/ 22.
THC BCKGRD METER/RANGE/PPM	4.9/12/ 5.
CO SAMPLE METER/RANGE/PPM	24.6/13/ 22.
CO BCKGRD METER/RANGE/PPM	.1/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	43.7/11/ .3239
CO2 BCKGRD METER/RANGE/PCT	7.2/11/ .0427
NOX SAMPLE METER/RANGE/PPM	25.9/ 1/ 6.6
NOX BCKGRD METER/RANGE/PPM	.1/ 1/ .0
DILUTION FACTOR	41.18
THC CONCENTRATION PPM	17.
CO CONCENTRATION PPM	22.
CO2 CONCENTRATION PCT	.2822
NOX CONCENTRATION PPM	6.5
FILTER WT. MG (EFFICIENCY, %)	.202 (69.)
THC MASS GRAMS	1.17
CO MASS GRAMS	2.99
CO2 MASS GRAMS	612.8
NOX MASS GRAMS	1.36
PARTICULATE MASS GRAMS	.13
RUN TIME SECONDS	599.
DFC, WET (DRY)	.976 (.960)
SCF, WET (DRY)	1.000 (.981)
VOL (SCM)	118.6
SAM BLR (SCM)	.00
MI (MEASURED)	1.17
TEST NUMBER,	1
BAROMETER, MM HG	744.2
HUMIDITY, G/KG	8.0
TEMPERATURE, DEG C	21.7
CARBON DIOXIDE, G/MI	524.0
FUEL ECONOMY, MPG	19.1
HYDROCARBONS, (THC) G/MI	1.00
CARBON MONOXIDE, G/MI	2.55
OXIDES OF NITROGEN, G/MI	1.16
PARTICULATES, G/MI	.108

TABLE C-17. VOLKSWAGEN BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 3
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 11/20/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-719-F
ODOMETER 33959. KM(21101. MILES)

BAROMETER 753.62 MM HG(29.67 IN HG)
RELATIVE HUMIDITY 25. PCT

DRY BULB TEMP. 23.9 DEG C(75.0 DEG F)
ABS. HUMIDITY 4.6 GM/KG

NOX HUMIDITY CORRECTION FACTOR .83

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1803.4 (71.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1803.4 (71.0)	1803.4 (71.0)	1803.4 (71.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.0 (104.0)	40.6 (105.0)	39.4 (103.0)
BLOWER REVOLUTIONS	4941.	8502.	4943.
TOT FLOW STD. CU. METRES(SCF)	101.6 (3587.)	174.4 (6157.)	101.8 (3593.)
THC SAMPLE METER/RANGE/PPM	26.6/12/ 27.	19.3/12/ 19.	20.8/12/ 21.
THC BCKGRD METER/RANGE/PPM	6.0/12/ 6.	5.0/12/ 5.	5.8/12/ 6.
CO SAMPLE METER/RANGE/PPM	38.8/13/ 36.	28.2/13/ 26.	31.8/13/ 29.
CO BCKGRD METER/RANGE/PPM	1.6/13/ 1.	1.4/13/ 1.	1.1/13/ 1.
CO2 SAMPLE METER/RANGE/PCT	73.6/11/ .6543	52.5/11/ .4103	66.9/11/ .5706
CO2 BCKGRD METER/RANGE/PCT	8.1/11/ .0483	8.1/11/ .0483	8.2/11/ .0490
NOX SAMPLE METER/RANGE/PPM	60.7/ 1/ 15.2	41.6/ 1/ 10.5	55.4/ 1/ 13.9
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.7/ 1/ .2	.9/ 1/ .2
DILUTION FACTOR	20.47	32.59	23.49
THC CONCENTRATION PPM	21.	14.	15.
CO CONCENTRATION PPM	34.	24.	28.
CO2 CONCENTRATION PCT	.6083	.3634	.5237
NOX CONCENTRATION PPM	15.1	10.3	13.7
FILTER WT. MG (EFFICIENCY, %)	.400 (99.)	.400 (81.)	.280 (71.)
THC MASS GRAMS	1.22	1.46	.89
CO MASS GRAMS	3.98	4.87	3.26
CO2 MASS GRAMS	1131.5	1160.3	975.7
NOX MASS GRAMS	2.44	2.85	2.22
PARTICULATE MASS GRAMS	.18	.22	.18
THC GRAMS/MI	.34	.38	.25
CO GRAMS/MI	1.10	1.26	.91
CO2 GRAMS/MI	313.3	300.0	271.2
NOX GRAMS/MI	.68	.74	.62
FUEL ECONOMY IN MPG	32.16	33.53	37.19
RUN TIME SECONDS	505.	868.	505.
MEASURED DISTANCE MI	3.61	3.87	3.60
SCF, DRY	.986	.988	.987

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	753.6
HUMIDITY	G/KG	4.6
TEMPERATURE	DEG C	23.9

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	294.8	(.0)
FUEL ECONOMY	MPG	34.15	(.00)
HYDROCARBONS (THC)	G/MI	.33	(.00)
CARBON MONOXIDE	G/MI	1.13	(.00)
OXIDES OF NITROGEN	G/MI	.69	(.00)
PARTICULATES	G/MI	.054	(.000)

TABLE C-18. VOLKSWAGEN BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 3
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 11/23/87
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-719-F
ODOMETER 34010. KM(21133. MILES)

BAROMETER 742.95 MM HG(29.25 IN HG)
RELATIVE HUMIDITY 86. PCT

DRY BULB TEMP. 21.1 DEG C(70.0 DEG F)
ABS. HUMIDITY 13.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.11

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1803.4 (71.0)	1803.4 (71.0)	1803.4 (71.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.1 (106.0)	41.7 (107.0)	41.1 (106.0)
BLOWER REVOLUTIONS	4946.	8484.	4935.
TOT FLOW STD. CU. METRES(SCF)	99.5 (3515.)	170.5 (6020.)	99.3 (3507.)
THC SAMPLE METER/RANGE/PPM	34.6/12/ 35.	24.7/12/ 25.	25.3/12/ 25.
THC BCKGRD METER/RANGE/PPM	5.8/12/ 6.	6.1/12/ 6.	5.0/12/ 5.
CO SAMPLE METER/RANGE/PPM	36.2/13/ 33.	28.2/13/ 26.	31.7/13/ 29.
CO BCKGRD METER/RANGE/PPM	.2/13/ 0.	.4/13/ 0.	.0/13/ 0.
CO2 SAMPLE METER/RANGE/PCT	71.1/11/ .6223	51.1/11/ .3960	63.7/11/ .5327
CO2 BCKGRD METER/RANGE/PCT	6.7/11/ .0396	6.8/11/ .0403	6.8/11/ .0403
NOX SAMPLE METER/RANGE/PPM	49.9/ 1/ 12.5	34.2/ 1/ 8.6	44.7/ 1/ 11.2
NOX BCKGRD METER/RANGE/PPM	.2/ 1/ .0	.3/ 1/ .0	.0/ 1/ .0
DILUTION FACTOR	21.49	33.72	25.12
THC CONCENTRATION PPM	29.	19.	20.
CO CONCENTRATION PPM	32.	24.	28.
CO2 CONCENTRATION PCT	.5845	.3569	.4941
NOX CONCENTRATION PPM	12.5	8.6	11.2
FILTER WT. MG (EFFICIENCY, %)	1.855 (95.)	1.855 (93.)	1.355 (94.)
THC MASS GRAMS	1.67	1.84	1.17
CO MASS GRAMS	3.68	4.83	3.21
CO2 MASS GRAMS	1065.2	1114.1	898.4
NOX MASS GRAMS	2.65	3.10	2.38
PARTICULATE MASS GRAMS	.87	.85	.62
THC GRAMS/MI	.46	.47	.33
CO GRAMS/MI	1.02	1.24	.89
CO2 GRAMS/MI	295.2	285.7	250.0
NOX GRAMS/MI	.73	.80	.66
FUEL ECONOMY IN MPG	34.08	35.16	40.28
RUN TIME SECONDS	505.	867.	504.
MEASURED DISTANCE MI	3.61	3.90	3.59
SCF, DRY	.967	.969	.967

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 743.0
HUMIDITY G/KG 13.8
TEMPERATURE DEG C 21.1

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	277.9	(.0)
FUEL ECONOMY	MPG	36.18	(.00)
HYDROCARBONS (THC)	G/MI	.43	(.00)
CARBON MONOXIDE	G/MI	1.10	(.00)
OXIDES OF NITROGEN	G/MI	.75	(.00)
PARTICULATES	G/MI	.211	(.000)

TABLE C-19. VOLKSWAGEN WITH TRAP AND LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 3 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 12/22/87
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-752-F
ODOMETER 34247. KM(21280. MILES)

BAROMETER 744.22 MM HG(29.30 IN HG)
RELATIVE HUMIDITY 45. PCT

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 8.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR .94

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	39.4 (103.0)	41.1 (106.0)	39.4 (103.0)	41.1 (106.0)
BLOWER REVOLUTIONS	4949.	8499.	4948.	8498.
TOT FLOW STD. CU. METRES(SCF)	100.6 (3551.)	172.0 (6074.)	100.5 (3550.)	172.0 (6072.)
THC SAMPLE METER/RANGE/PPM	16.8/1022/ 17.	14.0/1022/ 14.	16.4/1022/ 16.	16.8/1022/ 17.
THC BCKGRD METER/RANGE/PPM	4.1/1022/ 4.	6.0/1022/ 6.	8.9/1022/ 9.	8.9/1022/ 9.
CO SAMPLE METER/RANGE/PPM	27.5/ 13/ 25.	18.6/ 13/ 17.	22.8/ 13/ 21.	19.5/ 13/ 17.
CO BCKGRD METER/RANGE/PPM	.1/ 13/ 0.	.1/ 13/ 0.	.0/ 13/ 0.	.6/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	74.0/ 11/ .6595	53.0/ 11/ .4154	65.9/ 11/ .5586	51.7/ 11/ .4021
CO2 BCKGRD METER/RANGE/PCT	7.1/ 11/ .0421	7.1/ 11/ .0421	7.3/ 11/ .0433	7.4/ 11/ .0440
NOX SAMPLE METER/RANGE/PPM	62.8/ 1/ 15.8	45.2/ 1/ 11.4	56.2/ 1/ 14.1	43.3/ 1/ 10.9
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.4/ 1/ .1	.8/ 1/ .2	.7/ 1/ .2
DILUTION FACTOR	19.79	31.39	23.36	32.39
THC CONCENTRATION PPM	13.	8.	8.	8.
CO CONCENTRATION PPM	24.	16.	20.	17.
CO2 CONCENTRATION PCT	.6195	.3747	.5171	.3595
NOX CONCENTRATION PPM	15.6	11.3	13.9	10.7
FILTER WT. MG (EFFICIENCY, %)	.226 (65.)	.257 (79.)	.120 (58.)	.137 (56.)
THC MASS GRAMS	.75	.82	.46	.82
CO MASS GRAMS	2.83	3.24	2.34	3.32
CO2 MASS GRAMS	1140.5	1179.9	951.8	1131.8
NOX MASS GRAMS	2.82	3.48	2.52	3.31
PARTICULATE MASS GRAMS	.16	.14	.09	.11
THC GRAMS/MI	.21	.21	.13	.21
CO GRAMS/MI	.79	.83	.65	.85
CO2 GRAMS/MI	317.2	304.0	264.9	290.8
NOX GRAMS/MI	.79	.90	.70	.85
FUEL ECONOMY IN MPG	30.46 31.13	31.77	36.50 34.70	33.19
RUN TIME SECONDS	505.	868.	505.	868.
MEASURED DISTANCE MI	3.60 7.48	3.88	3.59 7.49	3.89
SCF, DRY	.979 .981	.981	.980 .981	.982
DFC, WET (DRY)	.961(.947)		.965(.951)	
TOT VOL (SCM) / SAM BLR (SCM)	272.6/ .00		272.5/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 744.2
HUMIDITY G/KG 8.8
TEMPERATURE DEG C 24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	296.0	(292.1)
FUEL ECONOMY	MPG	32.64	(33.07)
HYDROCARBONS (THC)	G/MI	.19	(.19)
CARBON MONOXIDE	G/MI	.77	(.78)
OXIDES OF NITROGEN	G/MI	.82	(.81)
PARTICULATES	G/MI	.035	(.032)

TABLE C-20. VOLKSWAGEN WITH TRAP AND LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 3 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 12/23/87
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-752-F
ODOMETER 34289. KM(21306. MILES)

BAROMETER 741.43 MM HG(29.19 IN HG)
RELATIVE HUMIDITY 54. PCT

DRY BULB TEMP. 22.8 DEG C(73.0 DEG F)
ABS. HUMIDITY 9.6 GM/KG

NOX HUMIDITY CORRECTION FACTOR .96

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	39.4 (103.0)	42.2 (108.0)	42.8 (109.0)	42.2 (108.0)
BLOWER REVOLUTIONS	4950.	8497.	4941.	8497.
TOT FLOW STD. CU. METRES(SCF)	100.1 (3535.)	170.7 (6026.)	99.1 (3500.)	170.7 (6026.)
THC SAMPLE METER/RANGE/PPM	19.3/1022/ 19.	16.5/1022/ 16.	17.3/1022/ 17.	18.0/1022/ 18.
THC BCKGRD METER/RANGE/PPM	8.0/1022/ 8.	8.0/1022/ 8.	8.3/1022/ 8.	8.3/1022/ 8.
CO SAMPLE METER/RANGE/PPM	28.6/ 12/ 29.	19.7/ 12/ 20.	23.9/ 12/ 24.	20.1/ 12/ 20.
CO BCKGRD METER/RANGE/PPM	1.9/ 12/ 2.	1.8/ 12/ 2.	1.6/ 12/ 2.	1.3/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	79.1/ 14/ .6453	63.6/ 14/ .4204	74.5/ 14/ .5696	62.7/ 14/ .4096
CO2 BCKGRD METER/RANGE/PCT	14.0/ 14/ .0497	13.6/ 14/ .0481	13.3/ 14/ .0468	13.1/ 14/ .0460
NOX SAMPLE METER/RANGE/PPM	61.1/ 1/ 15.3	44.7/ 1/ 11.2	57.0/ 1/ 14.3	43.5/ 1/ 10.9
NOX BCKGRD METER/RANGE/PPM	1.4/ 1/ .4	1.4/ 1/ .4	.9/ 1/ .2	.7/ 1/ .2
DILUTION FACTOR	20.20	30.98	22.89	31.77
THC CONCENTRATION PPM	12.	9.	9.	10.
CO CONCENTRATION PPM	26.	18.	22.	18.
CO2 CONCENTRATION PCT	.5980	.3738	.5248	.3650
NOX CONCENTRATION PPM	15.0	10.9	14.1	10.7
FILTER WT. MG (EFFICIENCY, %)	.124 (60.)	.186 (68.)	.092 (47.)	.135 (58.)
THC MASS GRAMS	.68	.87	.54	.99
CO MASS GRAMS	3.04	3.50	2.52	3.68
CO2 MASS GRAMS	1096.0	1168.1	952.4	1140.6
NOX MASS GRAMS	2.76	3.41	2.57	3.38
PARTICULATE MASS GRAMS	.09	.12	.09	.10
THC GRAMS/MI	.19	.22	.15	.26
CO GRAMS/MI	.84	.90	.70	.95
CO2 GRAMS/MI	304.6	301.1	265.9	294.5
NOX GRAMS/MI	.77	.88	.72	.87
FUEL ECONOMY IN MPG	31.71 31.89	32.06	36.34 34.38	32.75
RUN TIME SECONDS	505.	868.	505.	868.
MEASURED DISTANCE MI	3.60 7.48	3.88	3.58 7.46	3.87
SCF, DRY	.976 .978	.979	.977 .978	.979
DFC, WET (DRY)	.961(.945)		.964(.947)	
TOT VOL (SCM) / SAM BLR (SCM)	270.8/ .00		269.8/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 741.4
HUMIDITY G/KG 9.6
TEMPERATURE DEG C 22.8

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	292.2	(290.2)
FUEL ECONOMY	MPG	33.05	(33.26)
HYDROCARBONS (THC)	G/MI	.20	(.21)
CARBON MONOXIDE	G/MI	.84	(.85)
OXIDES OF NITROGEN	G/MI	.81	(.81)
PARTICULATES	G/MI	.028	(.026)

TABLE C-21. VOLKSWAGEN WITHOUT TRAP AND WITH LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 4 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 1/ 6/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-752-F
ODOMETER 34425. KM(21391. MILES)

BAROMETER 743.20 MM HG(29.26 IN HG)
RELATIVE HUMIDITY 32. PCT

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 6.2 GM/KG

NOX HUMIDITY CORRECTION FACTOR .87

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.1 (106.0)	41.7 (107.0)	42.2 (108.0)	42.2 (108.0)
BLOWER REVOLUTIONS	4950.	8503.	4941.	8508.
TOT FLOW STD. CU. METRES(SCF)	100.0 (3531.)	171.6 (6058.)	99.6 (3515.)	171.5 (6055.)
THC SAMPLE METER/RANGE/PPM	14.6/1022/ 15.	12.7/1022/ 13.	12.2/1022/ 12.	12.3/1022/ 12.
THC BCKGRD METER/RANGE/PPM	3.8/1022/ 4.	3.4/1022/ 3.	4.1/1022/ 4.	4.1/1022/ 4.
CO SAMPLE METER/RANGE/PPM	24.9/ 13/ 22.	20.2/ 13/ 18.	22.5/ 13/ 20.	20.8/ 13/ 19.
CO BCKGRD METER/RANGE/PPM	.7/ 13/ 1.	.7/ 13/ 1.	.1/ 13/ 0.	.0/ 13/ 0.
CO2 SAMPLE METER/RANGE/PCT	72.0/ 11/ .6337	51.5/ 11/ .4001	66.3/ 11/ .5634	50.9/ 11/ .3940
CO2 BCKGRD METER/RANGE/PCT	8.4/ 11/ .0502	8.3/ 11/ .0496	7.9/ 11/ .0471	7.9/ 11/ .0471
NOX SAMPLE METER/RANGE/PPM	60.9/ 1/ 15.3	40.7/ 1/ 10.2	54.2/ 1/ 13.6	40.4/ 1/ 10.2
NOX BCKGRD METER/RANGE/PPM	1.9/ 1/ .5	1.6/ 1/ .4	1.4/ 1/ .4	1.0/ 1/ .3
DILUTION FACTOR	20.61	32.58	23.18	33.08
THC CONCENTRATION PPM	11.	9.	8.	8.
CO CONCENTRATION PPM	21.	17.	20.	18.
CO2 CONCENTRATION PCT	.5859	.3520	.5183	.3483
NOX CONCENTRATION PPM	14.8	9.8	13.3	9.9
FILTER WT. MG (EFFICIENCY, %)	1.117 (92.)	1.123 (91.)	1.249 (94.)	1.693 (93.)
THC MASS GRAMS	.64	.94	.48	.83
CO MASS GRAMS	2.49	3.44	2.29	3.66
CO2 MASS GRAMS	1072.8	1105.7	944.8	1093.5
NOX MASS GRAMS	2.47	2.81	2.20	2.83
PARTICULATE MASS GRAMS	.55	.55	.59	.81
THC GRAMS/MI	.18	.24	.13	.22
CO GRAMS/MI	.69	.89	.64	.95
CO2 GRAMS/MI	298.2	285.4	263.6	282.9
NOX GRAMS/MI	.69	.73	.61	.73
FUEL ECONOMY IN MPG	32.42 33.12	33.80	36.67 35.29	34.10
RUN TIME SECONDS	505.	867.	505.	868.
MEASURED DISTANCE MI	3.60 7.47	3.87	3.58 7.45	3.87
SCF, DRY	.983 .985	.986	.984 .985	.986
DFC, WET (DRY)	.963(.953)		.965(.955)	
TOT VOL (SCM) / SAM BLR (SCM)	271.6/ .00		271.0/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	743.2
HUMIDITY	G/KG	6.2
TEMPERATURE	DEG C	24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	282.1	(281.3)
FUEL ECONOMY	MPG	34.23	(34.32)
HYDROCARBONS (THC)	G/MI	.20	(.19)
CARBON MONOXIDE	G/MI	.78	(.80)
OXIDES OF NITROGEN	G/MI	.69	(.69)
PARTICULATES	G/MI	.151	(.171)

TABLE C-22. VOLKSWAGEN WITHOUT TRAP AND WITH LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 4 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 1/ 7/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-752-F
ODOMETER 34466. KM(21416. MILES)

BAROMETER 748.79 MM HG(29.48 IN HG)
RELATIVE HUMIDITY 30. PCT
BAG RESULTS

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 5.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR .85

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)	42.8 (109.0)	41.7 (107.0)	41.7 (107.0)
BLOWER REVOLUTIONS	4949.	8504.	4943.	8503.
TOT FLOW STD. CU. METRES(SCF)	100.4 (3546.)	172.9 (6104.)	100.7 (3557.)	173.3 (6119.)
THC SAMPLE METER/RANGE/PPM	16.6/12/ 17.	16.8/12/ 17.	15.5/12/ 16.	15.5/12/ 16.
THC BCKGRD METER/RANGE/PPM	3.3/12/ 3.	4.1/12/ 4.	8.5/12/ 9.	8.5/12/ 9.
CO SAMPLE METER/RANGE/PPM	25.0/12/ 25.	20.0/12/ 20.	21.0/12/ 21.	18.8/12/ 19.
CO BCKGRD METER/RANGE/PPM	4.3/12/ 4.	3.2/12/ 3.	1.1/12/ 1.	1.0/12/ 1.
CO2 SAMPLE METER/RANGE/PCT	76.7/14/ .6047	60.1/14/ .3797	71.4/14/ .5233	59.1/14/ .3687
CO2 BCKGRD METER/RANGE/PCT	13.7/14/ .0485	13.3/14/ .0468	12.4/14/ .0432	12.4/14/ .0432
NOX SAMPLE METER/RANGE/PPM	65.3/ 1/ 16.4	43.8/ 1/ 11.0	59.4/ 1/ 14.9	43.9/ 1/ 11.0
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.7/ 1/ .2	.7/ 1/ .2	1.0/ 1/ .3
DILUTION FACTOR	22.20	35.26	25.66	36.33
THC CONCENTRATION PPM	13.	13.	7.	7.
CO CONCENTRATION PPM	20.	17.	20.	18.
CO2 CONCENTRATION PCT	.5584	.3342	.4818	.3267
NOX CONCENTRATION PPM	16.2	10.8	14.7	10.8
FILTER WT. MG (EFFICIENCY, %)	1.130 (93.)	1.300 (92.)	.843 (93.)	1.205 (93.)
THC MASS GRAMS	.78	1.28	.43	.73
CO MASS GRAMS	2.39	3.36	2.31	3.57
CO2 MASS GRAMS	1026.8	1057.8	888.4	1036.3
NOX MASS GRAMS	2.65	3.05	2.41	3.04
PARTICULATE MASS GRAMS	.57	.64	.41	.60
THC GRAMS/MI	.22	.33	.12	.19
CO GRAMS/MI	.67	.87	.65	.93
CO2 GRAMS/MI	286.6	274.3	248.5	270.1
NOX GRAMS/MI	.74	.79	.68	.79
FUEL ECONOMY IN MPG	35.25 36.01	36.74	40.69 38.89	37.36
RUN TIME SECONDS	505.	868.	505.	868.
MEASURED DISTANCE MI	3.58 7.44	3.86	3.58 7.41	3.84
SCF, DRY	.985 .986	.987	.986 .986	.987
DFC, WET (DRY)	.966(.956)		.968(.959)	
TOT VOL (SCM) / SAM BLR (SCM)	273.3/ .00		274.0/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 748.8
HUMIDITY G/KG 5.4
TEMPERATURE DEG C 23.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	269.8	(268.5)
FUEL ECONOMY	MPG	37.41	(37.60)
HYDROCARBONS (THC)	G/MI	.25	(.21)
CARBON MONOXIDE	G/MI	.77	(.78)
OXIDES OF NITROGEN	G/MI	.75	(.75)
PARTICULATES	G/MI	.151	(.147)

TABLE C-23. VOLKSWAGEN LOADED TRAP TEST WITH NO ADDITIVE, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. L2 RUN
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 2/25/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 35261. KM(21910. MILES)

BAROMETER 750.82 MM HG(29.56 IN HG)
RELATIVE HUMIDITY 35. PCT
BAG RESULTS

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 6.7 GM/KG

NOX HUMIDITY CORRECTION FACTOR .88

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.6 (105.0)	41.7 (107.0)	42.8 (109.0)
BLOWER REVOLUTIONS	4946.	8503.	4952.
TOT FLOW STD. CU. METRES(SCF)	101.4 (3581.)	173.9 (6141.)	101.0 (3567.)
THC SAMPLE METER/RANGE/PPM	12.9/1022/ 13.	10.7/1022/ 11.	12.1/1022/ 12.
THC BCKGRD METER/RANGE/PPM	4.0/1022/ 4.	4.0/1022/ 4.	4.3/1022/ 4.
CO SAMPLE METER/RANGE/PPM	33.4/ 12/ 34.	23.8/ 12/ 24.	28.7/ 12/ 29.
CO BCKGRD METER/RANGE/PPM	1.5/ 12/ 2.	1.2/ 12/ 1.	.7/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	80.0/ 14/ .6612	64.1/ 14/ .4264	76.1/ 14/ .5950
CO2 BCKGRD METER/RANGE/PCT	14.4/ 14/ .0514	13.8/ 14/ .0489	13.2/ 14/ .0464
NOX SAMPLE METER/RANGE/PPM	64.2/ 1/ 16.1	45.7/ 1/ 11.5	58.7/ 1/ 14.7
NOX BCKGRD METER/RANGE/PPM	.9/ 1/ .2	.5/ 1/ .1	.0/ 1/ .0
DILUTION FACTOR	19.73	30.55	21.93
THC CONCENTRATION PPM	9.	7.	8.
CO CONCENTRATION PPM	31.	22.	28.
CO2 CONCENTRATION PCT	.6124	.3791	.5507
NOX CONCENTRATION PPM	15.9	11.3	14.7
FILTER WT. MG (EFFICIENCY, %)	.094 (76.)	.212 (80.)	.087 (82.)
THC MASS GRAMS	.54	.69	.47
CO MASS GRAMS	3.69	4.52	3.23
CO2 MASS GRAMS	1136.9	1207.2	1018.5
NOX MASS GRAMS	2.72	3.34	2.51
PARTICULATE MASS GRAMS	.05	.12	.05
THC GRAMS/MI	.15	.18	.13
CO GRAMS/MI	1.02	1.15	.89
CO2 GRAMS/MI	314.4	308.3	279.9
NOX GRAMS/MI	.75	.85	.69
FUEL ECONOMY IN MPG	30.71	31.28	34.50
RUN TIME SECONDS	505.	868.	505.
MEASURED DISTANCE MI	3.62	3.92	3.64
SCF, DRY	.982	.985	.983

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	750.8
HUMIDITY	G/KG	6.7
TEMPERATURE	DEG C	24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	301.8	(.0)
FUEL ECONOMY	MPG	31.98	(.00)
HYDROCARBONS (THC)	G/MI	.16	(.00)
CARBON MONOXIDE	G/MI	1.05	(.00)
OXIDES OF NITROGEN	G/MI	.79	(.00)
PARTICULATES	G/MI	.022	(.000)

TABLE C-24. VOLKSWAGEN REGENERATION WITH LOW AROMATIC FUEL, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/ 1/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-752-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 35797. KM(22243. MILES)
	CVS NO. 17	

BAROMETER 735.08 MM HG(28.94 IN HG)	DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)	
RELATIVE HUMIDITY 50. PCT	ABS. HUMIDITY 11.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.01

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1803.4 (71.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	44.4 (112.0)
BLOWER REVOLUTIONS	7497.
TOT FLOW STD. CU. METRES(SCF)	147.4 (5206.)
THC SAMPLE METER/RANGE/PPM	17.6/1022/ 18.
THC BCKGRD METER/RANGE/PPM	5.6/1022/ 6.
CO SAMPLE METER/RANGE/PPM	82.8/ 12/ 197.
CO BCKGRD METER/RANGE/PPM	.6/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	85.1/ 14/ .8141
CO2 BCKGRD METER/RANGE/PCT	12.2/ 14/ .0747
NOX SAMPLE METER/RANGE/PPM	73.8/ 1/ 18.5
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	15.73
THC CONCENTRATION PPM	12.
CO CONCENTRATION PPM	189.
CO2 CONCENTRATION PCT	.7442
NOX CONCENTRATION PPM	18.3
FILTER WT. MG (EFFICIENCY, %)	.540 (68.)
THC MASS GRAMS	1.06
CO MASS GRAMS	32.48
CO2 MASS GRAMS	2008.7
NOX MASS GRAMS	5.23
PARTICULATE MASS GRAMS	.34
RUN TIME SECONDS	765.
DFC, WET (DRY)	.936 (.921)
SCF, WET (DRY)	1.000 (.976)
VOL (SCM)	147.4
SAM BLR (SCM)	.00
MI (MEASURED)	10.26
TEST NUMBER,	1
BAROMETER, MM HG	735.1
HUMIDITY, G/KG	11.0
TEMPERATURE, DEG C	26.1
CARBON DIOXIDE, G/MI	195.8
FUEL ECONOMY, MPG	48.3
HYDROCARBONS, (THC) G/MI	.10
CARBON MONOXIDE, G/MI	3.17
OXIDES OF NITROGEN, G/MI	.51
PARTICULATES, G/MI	.033

TABLE C-25. VOLKSWAGEN REGENERATION WITH LOW AROMATIC FUEL, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. R-2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/ 4/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-752-F
ODOMETER 35921. KM(22320. MILES)

BAROMETER 740.41 MM HG(29.15 IN HG)
RELATIVE HUMIDITY 44. PCT
BAG RESULTS

DRY BULB TEMP. 29.4 DEG C(85.0 DEG F)
ABS. HUMIDITY 11.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.04

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1828.8 (72.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	47.2 (117.0)
BLOWER REVOLUTIONS	7501.
TOT FLOW STD. CU. METRES(SCF)	147.2 (5197.)
THC SAMPLE METER/RANGE/PPM	19.4/1022/ 19.
THC BCKGRD METER/RANGE/PPM	6.8/1022/ 7.
CO SAMPLE METER/RANGE/PPM	45.6/ 12/ 46.
CO BCKGRD METER/RANGE/PPM	3.3/ 12/ 3.
CO2 SAMPLE METER/RANGE/PCT	85.4/ 14/ .7652
CO2 BCKGRD METER/RANGE/PCT	13.9/ 14/ .0493
NOX SAMPLE METER/RANGE/PPM	70.9/ 1/ 17.8
NOX BCKGRD METER/RANGE/PPM	.8/ 1/ .2
DILUTION FACTOR	17.02
THC CONCENTRATION PPM	13.
CO CONCENTRATION PPM	41.
CO2 CONCENTRATION PCT	.7188
NOX CONCENTRATION PPM	17.6
FILTER WT. MG (EFFICIENCY, %)	.525 (78.)
THC MASS GRAMS	1.12
CO MASS GRAMS	7.06
CO2 MASS GRAMS	1936.8
NOX MASS GRAMS	5.12
PARTICULATE MASS GRAMS	.29
RUN TIME SECONDS	766.
DFC, WET (DRY)	.941 (.928)
SCF, WET (DRY)	1.000 (.978)
VOL (SCM)	147.2
SAM BLR (SCM)	.00
MI (MEASURED)	10.26

TEST NUMBER,		
BAROMETER,	MM HG	740.4
HUMIDITY,	G/KG	11.8
TEMPERATURE,	DEG C	29.4
CARBON DIOXIDE,	G/MI	188.8
FUEL ECONOMY,	MPG	51.1
HYDROCARBONS, (THC)	G/MI	.11
CARBON MONOXIDE,	G/MI	.69
OXIDES OF NITROGEN,	G/MI	.50
PARTICULATES,	G/MI	.028

TABLE C-26. VOLKSWAGEN BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 4
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/ 5/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 36030. KM(22388. MILES)

BAROMETER 740.41 MM HG(29.15 IN HG)
RELATIVE HUMIDITY 57. PCT
BAG RESULTS

DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)
ABS. HUMIDITY 12.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.06

BAG NUMBER / DESCRIPTION	1 COLD TRANSIENT	2 STABILIZED	3 HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)	43.9 (111.0)	44.4 (112.0)
BLOWER REVOLUTIONS	4941.	8508.	4945.
TOT FLOW STD. CU. METRES(SCF)	98.8 (3488.)	169.8 (5995.)	98.5 (3479.)
THC SAMPLE METER/RANGE/PPM	18.8/1022/ 19.	13.9/1022/ 14.	15.5/1022/ 16.
THC BCKGRD METER/RANGE/PPM	4.8/1022/ 5.	4.8/1022/ 5.	5.1/1022/ 5.
CO SAMPLE METER/RANGE/PPM	53.8/ 12/ 54.	24.6/ 12/ 25.	35.8/ 12/ 36.
CO BCKGRD METER/RANGE/PPM	.5/ 12/ 1.	.5/ 12/ 1.	.2/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	81.3/ 14/ .6848	64.6/ 14/ .4326	76.7/ 14/ .6047
CO2 BCKGRD METER/RANGE/PCT	12.5/ 14/ .0436	12.7/ 14/ .0444	13.0/ 14/ .0456
NOX SAMPLE METER/RANGE/PPM	58.5/ 1/ 14.7	41.8/ 1/ 10.5	54.0/ 1/ 13.5
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1	.5/ 1/ .1	.5/ 1/ .1
DILUTION FACTOR	19.54	30.98	22.17
THC CONCENTRATION PPM	14.	9.	11.
CO CONCENTRATION PPM	52.	24.	35.
CO2 CONCENTRATION PCT	.6435	.3896	.5612
NOX CONCENTRATION PPM	14.5	10.4	13.4
FILTER WT. MG (EFFICIENCY, %)	.275 (69.)	.288 (66.)	.170 (54.)
THC MASS GRAMS	.81	.91	.61
CO MASS GRAMS	5.95	4.67	3.97
CO2 MASS GRAMS	1163.9	1211.1	1012.2
NOX MASS GRAMS	2.91	3.57	2.68
PARTICULATE MASS GRAMS	.17	.19	.14
THC GRAMS/MI	.22	.23	.17
CO GRAMS/MI	1.65	1.20	1.10
CO2 GRAMS/MI	321.9	310.0	279.4
NOX GRAMS/MI	.81	.91	.74
FUEL ECONOMY IN MPG	31.26	32.52	36.10
RUN TIME SECONDS	504.	869.	505.
MEASURED DISTANCE MI	3.62	3.91	3.62
SCF, DRY	.975	.978	.976

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	740.4
HUMIDITY	G/KG	12.4
TEMPERATURE	DEG C	26.1

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	304.1	(.0)
FUEL ECONOMY	MPG	33.14	(.00)
HYDROCARBONS (THC)	G/MI	.21	(.00)
CARBON MONOXIDE	G/MI	1.26	(.00)
OXIDES OF NITROGEN	G/MI	.84	(.00)
PARTICULATES	G/MI	.045	(.000)

TABLE C-27. VOLKSWAGEN BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 4
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/ 6/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 36144. KM(22459. MILES)

BAROMETER 748.28 MM HG(29.46 IN HG)
RELATIVE HUMIDITY 31. PCT
BAG RESULTS

DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)
ABS. HUMIDITY 6.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR .87

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.9 (111.0)	43.9 (111.0)	42.8 (109.0)
BLOWER REVOLUTIONS	4959.	8499.	4954.
TOT FLOW STD. CU. METRES(SCF)	100.4 (3544.)	172.0 (6074.)	100.6 (3553.)
THC SAMPLE METER/RANGE/PPM	23.1/1022/ 23.	17.9/1022/ 18.	18.4/1022/ 18.
THC BCKGRD METER/RANGE/PPM	4.6/1022/ 5.	4.6/1022/ 5.	4.1/1022/ 4.
CO SAMPLE METER/RANGE/PPM	31.3/ 12/ 31.	24.4/ 12/ 25.	25.9/ 12/ 26.
CO BCKGRD METER/RANGE/PPM	.9/ 12/ 1.	.6/ 12/ 1.	.5/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	73.9/ 14/ .5604	61.9/ 14/ .4002	71.7/ 14/ .5276
CO2 BCKGRD METER/RANGE/PCT	12.4/ 14/ .0432	12.3/ 14/ .0428	12.9/ 14/ .0452
NOX SAMPLE METER/RANGE/PPM	57.0/ 1/ 14.3	43.2/ 1/ 10.8	54.6/ 1/ 13.7
NOX BCKGRD METER/RANGE/PPM	.1/ 1/ .0	.1/ 1/ .0	.0/ 1/ .0
DILUTION FACTOR	23.89	33.42	25.41
THC CONCENTRATION PPM	19.	13.	14.
CO CONCENTRATION PPM	30.	24.	25.
CO2 CONCENTRATION PCT	.5190	.3587	.4842
NOX CONCENTRATION PPM	14.3	10.8	13.7
FILTER WT. MG (EFFICIENCY, %)	2.101 (95.)	1.695 (95.)	1.212 (93.)
THC MASS GRAMS	1.08	1.33	.84
CO MASS GRAMS	3.50	4.72	2.93
CO2 MASS GRAMS	953.8	1129.7	891.9
NOX MASS GRAMS	2.39	3.11	2.30
PARTICULATE MASS GRAMS	.88	.75	.57
THC GRAMS/MI	.30	.34	.23
CO GRAMS/MI	.96	1.21	.81
CO2 GRAMS/MI	262.9	289.2	246.2
NOX GRAMS/MI	.66	.80	.63
FUEL ECONOMY IN MPG	38.31	34.80	40.95
RUN TIME SECONDS	506.	868.	506.
MEASURED DISTANCE MI	3.63	3.91	3.62
SCF, DRY	.985	.987	.985

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	748.3
HUMIDITY	G/KG	6.3
TEMPERATURE	DEG C	25.6

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	272.0	(.0)
FUEL ECONOMY	MPG	37.03	(.00)
HYDROCARBONS (THC)	G/MI	.30	(.00)
CARBON MONOXIDE	G/MI	1.05	(.00)
OXIDES OF NITROGEN	G/MI	.72	(.00)
PARTICULATES	G/MI	.193	(.000)

TABLE C-28. VOLKSWAGEN WITH FAILED INJECTORS AND TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 5 RUN 3
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/11/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 22677. KM(14091. MILES)

BAROMETER 745.49 MM HG(29.35 IN HG)
RELATIVE HUMIDITY 21. PCT
DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 3.8 GM/KG
NOX HUMIDITY CORRECTION FACTOR .81

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	41.7 (107.0)	42.8 (109.0)	42.8 (109.0)	42.8 (109.0)
BLOWER REVOLUTIONS	5007.	8512.	4944.	8512.
TOT FLOW STD. CU. METRES(SCF)	101.5 (3582.)	172.1 (6075.)	99.9 (3528.)	172.1 (6075.)
THC SAMPLE METER/RANGE/PPM	20.1/1022/ 20.	17.9/1022/ 18.	15.2/1022/ 15.	17.0/1022/ 17.
THC BCKGRD METER/RANGE/PPM	5.8/1022/ 6.	5.8/1022/ 6.	5.7/1022/ 6.	5.7/1022/ 6.
CO SAMPLE METER/RANGE/PPM	76.3/ 12/ 77.	26.7/ 12/ 27.	45.0/ 12/ 45.	24.9/ 12/ 25.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.	.0/ 12/ 0.	.0/ 12/ 0.	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	80.0/ 14/ .6612	63.5/ 14/ .4192	74.1/ 14/ .5635	61.7/ 14/ .3979
CO2 BCKGRD METER/RANGE/PCT	12.2/ 14/ .0424	12.0/ 14/ .0416	11.6/ 14/ .0400	11.7/ 14/ .0404
NOX SAMPLE METER/RANGE/PPM	66.5/ 1/ 16.7	42.5/ 1/ 10.7	56.3/ 1/ 14.1	39.8/ 1/ 10.0
NOX BCKGRD METER/RANGE/PPM	.9/ 1/ .2	.9/ 1/ .2	.7/ 1/ .2	.5/ 1/ .1
DILUTION FACTOR	20.15	31.91	23.74	33.62
THC CONCENTRATION PPM	15.	12.	10.	11.
CO CONCENTRATION PPM	75.	26.	44.	25.
CO2 CONCENTRATION PCT	.6209	.3789	.5251	.3587
NOX CONCENTRATION PPM	16.4	10.4	13.9	9.9
FILTER WT. MG (EFFICIENCY, %)	.072 (71.)	.127 (71.)	.090 (70.)	.105 (97.)
THC MASS GRAMS	.85	1.22	.56	1.14
CO MASS GRAMS	8.87	5.30	5.15	4.95
CO2 MASS GRAMS	1153.3	1193.5	960.7	1130.0
NOX MASS GRAMS	2.60	2.80	2.17	2.64
PARTICULATE MASS GRAMS	.04	.08	.06	.05
THC GRAMS/MI	.23	.31	.15	.29
CO GRAMS/MI	2.40	1.36	1.42	1.27
CO2 GRAMS/MI	312.6	305.3	264.9	289.6
NOX GRAMS/MI	.70	.72	.60	.68
FUEL ECONOMY IN MPG	32.06 32.52	32.96	37.99 36.24	34.75
RUN TIME SECONDS	511.	868.	504.	868.
MEASURED DISTANCE MI	3.69 7.60	3.91	3.63 7.53	3.90
SCF, DRY	.987 .989	.989	.988 .989	.990
DFC, WET (DRY)	.962(.955)		.966(.959)	
TOT VOL (SCM) / SAM BLR (SCM)	273.5/ .00		272.0/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 745.5
HUMIDITY G/KG 3.8
TEMPERATURE DEG C 23.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	295.8	(291.1)
FUEL ECONOMY	MPG	33.99	(34.54)
HYDROCARBONS (THC)	G/MI	.25	(.25)
CARBON MONOXIDE	G/MI	1.59	(1.57)
OXIDES OF NITROGEN	G/MI	.68	(.67)
PARTICULATES	G/MI	.017	(.015)

TABLE C-29. VOLKSWAGEN WITH FAILED INJECTORS AND TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 5 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/ 7/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22595. KM(14040. MILES)
	CVS NO. 17	
BAROMETER 743.20 MM HG(29.26 IN HG)	DRY BULB TEMP. 28.9 DEG C(84.0 DEG F)	
RELATIVE HUMIDITY 20. PCT	ABS. HUMIDITY 5.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR .84

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.0 (113.0)
BLOWER REVOLUTIONS	7483.
TOT FLOW STD. CU. METRES(SCF)	149.5 (5280.)
THC SAMPLE METER/RANGE/PPM	20.6/1022/ 21.
THC BCKGRD METER/RANGE/PPM	9.7/1022/ 10.
CO SAMPLE METER/RANGE/PPM	69.7/ 12/ 70.
CO BCKGRD METER/RANGE/PPM	.3/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	90.0/ 14/ .8676
CO2 BCKGRD METER/RANGE/PCT	12.2/ 14/ .0424
NOX SAMPLE METER/RANGE/PPM	88.3/ 1/ 22.1
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .0
DILUTION FACTOR	15.42
THC CONCENTRATION PPM	12.
CO CONCENTRATION PPM	68.
CO2 CONCENTRATION PCT	.8280
NOX CONCENTRATION PPM	22.0
FILTER WT. MG (EFFICIENCY, %)	.164 (70.)
THC MASS GRAMS	1.00
CO MASS GRAMS	11.84
CO2 MASS GRAMS	2266.7
NOX MASS GRAMS	5.29
PARTICULATE MASS GRAMS	.10
RUN TIME SECONDS	765.
DFC, WET (DRY)	.935 (.929)
SCF, WET (DRY)	1.000 (.986)
VOL (SCM)	149.5
SAM BLR (SCM)	.00
MI (MEASURED)	10.29
TEST NUMBER,	
BAROMETER, MM HG	743.2
HUMIDITY, G/KG	5.0
TEMPERATURE, DEG C	28.9
CARBON DIOXIDE, G/MI	220.2
FUEL ECONOMY, MPG	45.7
HYDROCARBONS, (THC) G/MI	.10
CARBON MONOXIDE, G/MI	1.15
OXIDES OF NITROGEN, G/MI	.51
PARTICULATES, G/MI	.010

TABLE C-30. VOLKSWAGEN WITH FAILED INJECTORS AND TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 5 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/ 7/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22611. KM(14050. MILES)
	CVS NO. 17	
BAROMETER 742.19 MM HG(29.22 IN HG)	DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)	
RELATIVE HUMIDITY 28. PCT	ABS. HUMIDITY 6.3 GM/KG	NOX HUMIDITY CORRECTION FACTOR .87

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.7 (116.0)
BLOWER REVOLUTIONS	5857.
TOT FLOW STD. CU. METRES(SCF)	116.2 (4105.)
THC SAMPLE METER/RANGE/PPM	16.6/1022/ 17.
THC BCKGRD METER/RANGE/PPM	9.7/1022/ 10.
CO SAMPLE METER/RANGE/PPM	24.4/ 12/ 25.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	53.3/ 14/ .3089
CO2 BCKGRD METER/RANGE/PCT	13.0/ 14/ .0456
NOX SAMPLE METER/RANGE/PPM	27.3/ 1/ 6.9
NOX BCKGRD METER/RANGE/PPM	.3/ 1/ .0
DILUTION FACTOR	43.19
THC CONCENTRATION PPM	7.
CO CONCENTRATION PPM	24.
CO2 CONCENTRATION PCT	.2643
NOX CONCENTRATION PPM	6.8
FILTER WT. MG (EFFICIENCY, %)	.106 (59.)
THC MASS GRAMS	.48
CO MASS GRAMS	3.28
CO2 MASS GRAMS	562.6
NOX MASS GRAMS	1.33
PARTICULATE MASS GRAMS	.08
RUN TIME SECONDS	598.
DFC, WET (DRY)	.977 (.968)
SCF, WET (DRY)	1.000 (.988)
VOL (SCM)	116.2
SAM BLR (SCM)	.00
MI (MEASURED)	1.17
TEST NUMBER,	
BAROMETER, MM HG	742.2
HUMIDITY, G/KG	6.3
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	482.4
FUEL ECONOMY, MPG	20.8
HYDROCARBONS, (THC) G/MI	.41
CARBON MONOXIDE, G/MI	2.81
OXIDES OF NITROGEN, G/MI	1.14
PARTICULATES, G/MI	.068

TABLE C-31. VOLKSWAGEN WITH FAILED INJECTORS AND TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 5 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/ 8/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 22615. KM(14052. MILES)

BAROMETER 740.66 MM HG(29.16 IN HG)
RELATIVE HUMIDITY 32. PCT
DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 6.3 GM/KG
NOX HUMIDITY CORRECTION FACTOR .87

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.6 (114.0)	45.6 (114.0)	46.7 (116.0)	46.1 (115.0)
BLOWER REVOLUTIONS	4947.	8513.	4936.	8504.
TOT FLOW STD. CU. METRES(SCF)	98.3 (3471.)	169.2 (5973.)	97.7 (3451.)	168.6 (5954.)
THC SAMPLE METER/RANGE/PPM	21.0/1022/ 21.	30.0/1022/ 20.	22.5/1022/ 23.	25.3/1022/ 25.
THC BCKGRD METER/RANGE/PPM	8.0/1022/ 8.	8.0/1022/ 8.	12.0/1022/ 12.	12.0/1022/ 12.
CO SAMPLE METER/RANGE/PPM	87.1/ 13/ 87.	32.7/ 13/ 30.	69.1/ 13/ 67.	32.8/ 13/ 30.
CO BCKGRD METER/RANGE/PPM	4.9/ 13/ 4.	4.1/ 13/ 4.	4.0/ 13/ 4.	3.7/ 13/ 3.
CO2 SAMPLE METER/RANGE/PCT	74.5/ 11/ .6660	55.1/ 11/ .4374	69.8/ 11/ .6060	54.0/ 11/ .4258
CO2 BCKGRD METER/RANGE/PCT	9.2/ 11/ .0553	9.2/ 11/ .0553	9.6/ 11/ .0578	9.4/ 11/ .0566
NOX SAMPLE METER/RANGE/PPM	61.2/ 1/ 15.4	39.3/ 1/ 9.9	53.8/ 1/ 13.5	38.8/ 1/ 9.8
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3	1.0/ 1/ .3	1.4/ 1/ .4	1.8/ 1/ .5
DILUTION FACTOR	19.98	30.56	21.99	31.34
THC CONCENTRATION PPM	13.	12.	11.	14.
CO CONCENTRATION PPM	81.	26.	62.	26.
CO2 CONCENTRATION PCT	.6135	.3839	.5508	.3711
NOX CONCENTRATION PPM	15.1	9.6	13.2	9.3
FILTER WT. MG (EFFICIENCY, %)	.071 (53.)	.145 (74.)	.084 (57.)	.133 (60.)
THC MASS GRAMS	.76	1.20	.62	1.33
CO MASS GRAMS	9.28	5.09	7.06	5.16
CO2 MASS GRAMS	1104.2	1189.0	985.6	1145.7
NOX MASS GRAMS	2.48	2.72	2.15	2.62
PARTICULATE MASS GRAMS	.06	.15	.06	.10
THC GRAMS/MI	.21	.31	.17	.34
CO GRAMS/MI	2.57	1.31	1.96	1.33
CO2 GRAMS/MI	306.1	305.2	273.1	294.3
NOX GRAMS/MI	.69	.70	.59	.67
FUEL ECONOMY IN MPG	32.71 32.85	32.98	36.74 35.36	34.18
RUN TIME SECONDS	504.	868.	503.	868.
MEASURED DISTANCE MI	3.61 7.50	3.90	3.61 7.50	3.89
SCF, DRY	.984 .985	.986	.984 .985	.986
DFC, WET (DRY)	.961(.951)		.963(.953)	
TOT VOL (SCM) / SAM BLR (SCM)	267.5/ .00		266.4/ .00	

COMPOSITE RESULTS

TEST NUMBER		5
BAROMETER	MM HG	740.7
HUMIDITY	G/KG	6.3
TEMPERATURE	DEG C	24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	296.6	(293.3)
FUEL ECONOMY	MPG	33.87	(34.24)
HYDROCARBONS (THC)	G/MI	.25	(.26)
CARBON MONOXIDE	G/MI	1.75	(1.75)
OXIDES OF NITROGEN	G/MI	.67	(.66)
PARTICULATES	G/MI	.028	(.024)

TABLE C-32. VOLKSWAGEN WITH FAILED INJECTORS AND TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 5 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/ 8/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22640. KM(14068. MILES)
	CVS NO. 17	
BAROMETER 741.43 MM HG(29.19 IN HG)	DRY BULB TEMP. 27.8 DEG C(82.0 DEG F)	
RELATIVE HUMIDITY 31. PCT	ABS. HUMIDITY 7.4 GM/KG	NOX HUMIDITY CORRECTION FACTOR .90

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.7 (116.0)
BLOWER REVOLUTIONS	7499.
TOT FLOW STD. CU. METRES(SCF)	148.6 (5248.)
THC SAMPLE METER/RANGE/PPM	24.5/1022/ 24.
THC BCKGRD METER/RANGE/PPM	14.1/1022/ 14.
CO SAMPLE METER/RANGE/PPM	53.6/ 13/ 51.
CO BCKGRD METER/RANGE/PPM	5.1/ 13/ 4.
CO2 SAMPLE METER/RANGE/PCT	88.2/ 11/ .8611
CO2 BCKGRD METER/RANGE/PCT	8.8/ 11/ .0527
NOX SAMPLE METER/RANGE/PPM	84.0/ 1/ 21.1
NOX BCKGRD METER/RANGE/PPM	1.3/ 1/ .3
DILUTION FACTOR	15.57
THC CONCENTRATION PPM	11.
CO CONCENTRATION PPM	45.
CO2 CONCENTRATION PCT	.8118
NOX CONCENTRATION PPM	20.7
FILTER WT. MG (EFFICIENCY, %)	.150 (71.)
THC MASS GRAMS	.97
CO MASS GRAMS	7.79
CO2 MASS GRAMS	2209.1
NOX MASS GRAMS	5.31
PARTICULATE MASS GRAMS	.09
RUN TIME SECONDS	766.
DFC, WET (DRY)	.936 (.926)
SCF, WET (DRY)	1.000 (.982)
VOL (SCM)	148.6
SAM BLR (SCM)	.00
MI (MEASURED)	10.22
TEST NUMBER,	5
BAROMETER, MM HG	741.4
HUMIDITY, G/KG	7.4
TEMPERATURE, DEG C	27.8
CARBON DIOXIDE, G/MI	216.1
FUEL ECONOMY, MPG	46.7
HYDROCARBONS, (THC) G/MI	.09
CARBON MONOXIDE, G/MI	.76
OXIDES OF NITROGEN, G/MI	.52
PARTICULATES, G/MI	.009

TABLE C-33. VOLKSWAGEN WITH FAILED INJECTORS AND TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 5 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/ 8/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22656. KM(14078. MILES)
	CVS NO. 17	
BAROMETER 741.68 MM HG(29.20 IN HG)	DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)	
RELATIVE HUMIDITY 37. PCT	ABS. HUMIDITY 7.7 GM/KG	NOX HUMIDITY CORRECTION FACTOR .91

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	47.8 (118.0)
BLOWER REVOLUTIONS	5852.
TOT FLOW STD. CU. METRES(SCF)	115.6 (4083.)
THC SAMPLE METER/RANGE/PPM	21.0/1022/ 21.
THC BCKGRD METER/RANGE/PPM	14.0/1022/ 14.
CO SAMPLE METER/RANGE/PPM	32.2/ 13/ 29.
CO BCKGRD METER/RANGE/PPM	6.5/ 13/ 6.
CO2 SAMPLE METER/RANGE/PCT	43.9/ 11/ .3258
CO2 BCKGRD METER/RANGE/PCT	9.2/ 11/ .0553
NOX SAMPLE METER/RANGE/PPM	27.7/ 1/ 7.0
NOX BCKGRD METER/RANGE/PPM	1.3/ 1/ .3
DILUTION FACTOR	40.87
THC CONCENTRATION PPM	7.
CO CONCENTRATION PPM	23.
CO2 CONCENTRATION PCT	.2719
NOX CONCENTRATION PPM	6.7
FILTER WT. MG (EFFICIENCY, %)	.103 (55.)
THC MASS GRAMS	.49
CO MASS GRAMS	3.14
CO2 MASS GRAMS	575.6
NOX MASS GRAMS	1.34
PARTICULATE MASS GRAMS	.08
RUN TIME SECONDS	598.
DFC, WET (DRY)	.976 (.964)
SCF, WET (DRY)	1.000 (.985)
VOL (SCM)	115.6
SAM BLR (SCM)	.00
MI (MEASURED)	1.16
TEST NUMBER,	5
BAROMETER, MM HG	741.7
HUMIDITY, G/KG	7.7
TEMPERATURE, DEG C	25.6
CARBON DIOXIDE, G/MI	495.2
FUEL ECONOMY, MPG	20.3
HYDROCARBONS, (THC) G/MI	.42
CARBON MONOXIDE, G/MI	2.70
OXIDES OF NITROGEN, G/MI	1.16
PARTICULATES, G/MI	.071

TABLE C-34. VOLKSWAGEN WITH FAILED INJECTORS AND WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 6 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/12/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 22792. KM(14162. MILES)

BAROMETER 743.97 MM HG(29.29 IN HG)
RELATIVE HUMIDITY 14. PCT

DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)
ABS. HUMIDITY 2.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR .79

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	43.3 (110.0)	43.3 (110.0)	45.0 (113.0)
BLOWER REVOLUTIONS	4939.	8477.	4938.	8482.
TOT FLOW STD. CU. METRES(SCF)	99.5 (3515.)	170.5 (6019.)	99.3 (3507.)	169.7 (5992.)
THC SAMPLE METER/RANGE/PPM	22.0/1022/ 22.	21.3/1022/ 21.	25.0/1022/ 25.	24.9/1022/ 25.
THC BCKGRD METER/RANGE/PPM	6.6/1022/ 7.	6.6/1022/ 7.	7.0/1022/ 7.	7.0/1022/ 7.
CO SAMPLE METER/RANGE/PPM	52.0/ 12/ 52.	25.8/ 12/ 26.	43.7/ 12/ 44.	28.1/ 12/ 28.
CO BCKGRD METER/RANGE/PPM	1.0/ 12/ 1.	.5/ 12/ 1.	.5/ 12/ 1.	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	79.5/ 14/ .6523	64.6/ 14/ .4326	75.2/ 14/ .5806	63.4/ 14/ .4180
CO2 BCKGRD METER/RANGE/PCT	12.5/ 14/ .0436	12.3/ 14/ .0428	12.4/ 14/ .0432	12.5/ 14/ .0436
NOX SAMPLE METER/RANGE/PPM	77.8/ 1/ 19.5	57.6/ 1/ 14.4	60.4/ 1/ 15.1	43.1/ 1/ 10.8
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1	.4/ 1/ .1	.0/ 1/ .0	.0/ 1/ .0
DILUTION FACTOR	20.49	30.91	23.01	31.94
THC CONCENTRATION PPM	16.	15.	18.	18.
CO CONCENTRATION PPM	50.	25.	43.	28.
CO2 CONCENTRATION PCT	.6109	.3912	.5393	.3757
NOX CONCENTRATION PPM	19.4	14.3	15.1	10.8
FILTER WT. MG (EFFICIENCY, %)	2.054 (98.)	2.132 (98.)	1.777 (96.)	1.880 (98.)
THC MASS GRAMS	.90	1.47	1.05	1.77
CO MASS GRAMS	5.82	4.99	4.93	5.51
CO2 MASS GRAMS	1113.4	1220.8	980.7	1167.5
NOX MASS GRAMS	2.93	3.71	2.28	2.79
PARTICULATE MASS GRAMS	.92	.94	.79	.84
THC GRAMS/MI	.25	.37	.29	.45
CO GRAMS/MI	1.60	1.27	1.36	1.41
CO2 GRAMS/MI	306.3	311.7	270.3	298.5
NOX GRAMS/MI	.81	.95	.63	.71
FUEL ECONOMY IN MPG	32.83 32.55	32.29	37.19 35.26	33.64
RUN TIME SECONDS	504.	868.	505.	868.
MEASURED DISTANCE MI	3.63 7.55	3.92	3.63 7.54	3.91
SCF, DRY	.990 .991	.992	.990 .991	.992
DFC, WET (DRY)	.962(.957)		.964(.960)	
TOT VOL (SCM) / SAM BLR (SCM)	270.0/ .00		269.0/ .00	

COMPOSITE RESULTS

TEST NUMBER		6
BAROMETER	MM HG	744.0
HUMIDITY	G/KG	2.9
TEMPERATURE	DEG C	25.6

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	299.2	(295.3)
FUEL ECONOMY	MPG	33.62	(34.04)
HYDROCARBONS (THC)	G/MI	.32	(.35)
CARBON MONOXIDE	G/MI	1.36	(1.41)
OXIDES OF NITROGEN	G/MI	.83	(.76)
PARTICULATES	G/MI	.237	(.229)

TABLE C-35. VOLKSWAGEN WITH FAILED INJECTORS AND WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 6 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/12/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22816. KM(14177. MILES)
	CVS NO. 17	
BAROMETER 743.20 MM HG(29.26 IN HG)	DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)	
RELATIVE HUMIDITY 13. PCT	ABS. HUMIDITY 3.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR .80

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.0 (113.0)
BLOWER REVOLUTIONS	7490.
TOT FLOW STD. CU. METRES(SCF)	149.7 (5286.)
THC SAMPLE METER/RANGE/PPM	28.0/1022/ 28.
THC BCKGRD METER/RANGE/PPM	7.3/1022/ 7.
CO SAMPLE METER/RANGE/PPM	33.2/ 12/ 33.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	88.6/ 14/ .8349
CO2 BCKGRD METER/RANGE/PCT	12.6/ 14/ .0440
NOX SAMPLE METER/RANGE/PPM	96.8/ 1/ 24.1
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2
DILUTION FACTOR	16.07
THC CONCENTRATION PPM	21.
CO CONCENTRATION PPM	33.
CO2 CONCENTRATION PCT	.7936
NOX CONCENTRATION PPM	24.0
FILTER WT. MG (EFFICIENCY, %)	2.293 (97.)
THC MASS GRAMS	1.83
CO MASS GRAMS	5.69
CO2 MASS GRAMS	2175.1
NOX MASS GRAMS	5.47
PARTICULATE MASS GRAMS	1.01
RUN TIME SECONDS	765.
DFC, WET (DRY)	.938 (.934)
SCF, WET (DRY)	1.000 (.988)
VOL (SCM)	149.7
SAM BLR (SCM)	.00
MI (MEASURED)	10.33
TEST NUMBER,	6
BAROMETER, MM HG	743.2
HUMIDITY, G/KG	3.0
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	210.5
FUEL ECONOMY, MPG	48.0
HYDROCARBONS, (THC) G/MI	.18
CARBON MONOXIDE, G/MI	.55
OXIDES OF NITROGEN, G/MI	.53
PARTICULATES, G/MI	.098

TABLE C-36. VOLKSWAGEN WITH FAILED INJECTORS AND WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 6 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/12/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22833. KM(14188. MILES)
	CVS NO. 17	
BAROMETER 743.20 MM HG(29.26 IN HG)	DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)	
RELATIVE HUMIDITY 13. PCT	ABS. HUMIDITY 3.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR .80

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.6 (114.0)
BLOWER REVOLUTIONS	5863.
TOT FLOW STD. CU. METRES(SCF)	117.0 (4131.)
THC SAMPLE METER/RANGE/PPM	17.4/1022/ 17.
THC BCKGRD METER/RANGE/PPM	7.5/1022/ 8.
CO SAMPLE METER/RANGE/PPM	21.4/ 12/ 22.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	51.9/ 14/ .2955
CO2 BCKGRD METER/RANGE/PCT	12.8/ 14/ .0448
NOX SAMPLE METER/RANGE/PPM	28.5/ 1/ 7.2
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1
DILUTION FACTOR	45.15
THC CONCENTRATION PPM	10.
CO CONCENTRATION PPM	21.
CO2 CONCENTRATION PCT	.2517
NOX CONCENTRATION PPM	7.1
FILTER WT. MG (EFFICIENCY, %)	.904 (94.)
THC MASS GRAMS	.68
CO MASS GRAMS	2.91
CO2 MASS GRAMS	539.2
NOX MASS GRAMS	1.26
PARTICULATE MASS GRAMS	.43
RUN TIME SECONDS	599.
DFC, WET (DRY)	.978 (.974)
SCF, WET (DRY)	1.000 (.993)
VOL (SCM)	117.0
SAM BLR (SCM)	.00
MI (MEASURED)	1.16
TEST NUMBER,	6
BAROMETER, MM HG	743.2
HUMIDITY, G/KG	3.0
TEMPERATURE, DEG C	26.7
CARBON DIOXIDE, G/MI	464.2
FUEL ECONOMY, MPG	21.6
HYDROCARBONS, (THC) G/MI	.58
CARBON MONOXIDE, G/MI	2.51
OXIDES OF NITROGEN, G/MI	1.09
PARTICULATES, G/MI	.367

TABLE C-37. VOLKSWAGEN WITH FAILED INJECTORS AND WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 6 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/13/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2 / CVS NO. 17	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22835. KM(14189. MILES)
BAROMETER 743.46 MM HG(29.27 IN HG)	DRY BULB TEMP. 26.1 DEG C(79.0 DEG F)	
RELATIVE HUMIDITY 12. PCT	ABS. HUMIDITY 2.6 GM/KG	NOX HUMIDITY CORRECTION FACTOR .79

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)	44.4 (112.0)	43.9 (111.0)	45.0 (113.0)
BLOWER REVOLUTIONS	4940.	8480.	4938.	8500.
TOT FLOW STD. CU. METRES(SCF)	99.3 (3507.)	169.8 (5996.)	99.1 (3499.)	170.0 (6002.)
THC SAMPLE METER/RANGE/PPM	29.7/1022/ 30.	26.6/1022/ 27.	27.9/1022/ 28.	27.5/1022/ 28.
THC BCKGRD METER/RANGE/PPM	10.2/1022/ 10.	10.2/1022/ 10.	11.2/1022/ 11.	11.2/1022/ 11.
CO SAMPLE METER/RANGE/PPM	54.5/ 12/ 55.	26.9/ 12/ 27.	43.0/ 12/ 43.	26.0/ 12/ 26.
CO BCKGRD METER/RANGE/PPM	.9/ 12/ 1.	.6/ 12/ 1.	1.4/ 12/ 1.	1.2/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	79.9/ 14/ .6594	64.3/ 14/ .4289	75.8/ 14/ .5901	62.2/ 14/ .4037
CO2 BCKGRD METER/RANGE/PCT	15.4/ 14/ .0557	15.2/ 14/ .0548	14.9/ 14/ .0535	14.8/ 14/ .0531
NOX SAMPLE METER/RANGE/PPM	67.3/ 1/ 16.9	41.9/ 1/ 10.5	57.6/ 1/ 14.4	39.9/ 1/ 10.0
NOX BCKGRD METER/RANGE/PPM	.9/ 1/ .2	.7/ 1/ .2	.4/ 1/ .1	.8/ 1/ .2
DILUTION FACTOR	20.24	31.13	22.64	33.04
THC CONCENTRATION PPM	20.	17.	17.	17.
CO CONCENTRATION PPM	53.	26.	41.	25.
CO2 CONCENTRATION PCT	.6065	.3758	.5390	.3522
NOX CONCENTRATION PPM	16.6	10.3	14.3	9.8
FILTER WT. MG (EFFICIENCY, %)	2.278 (98.)	1.911 (98.)	1.724 (98.)	1.923 (99.)
THC MASS GRAMS	1.15	1.64	.98	1.64
CO MASS GRAMS	6.11	5.17	4.74	4.88
CO2 MASS GRAMS	1102.7	1168.4	977.7	1096.1
NOX MASS GRAMS	2.50	2.65	2.15	2.52
PARTICULATE MASS GRAMS	1.02	.84	.76	.83
THC GRAMS/MI	.31	.42	.27	.42
CO GRAMS/MI	1.68	1.32	1.30	1.24
CO2 GRAMS/MI	302.6	297.7	268.3	278.9
NOX GRAMS/MI	.69	.68	.59	.64
FUEL ECONOMY IN MPG	33.20 33.49	33.76	37.49 36.72	36.03
RUN TIME SECONDS	504.	868.	504.	868.
MEASURED DISTANCE MI	3.64 7.57	3.92	3.64 7.57	3.93
SCF, DRY	.990 .991	.992	.991 .992	.992
DFC, WET (DRY)	.962(.958)		.965(.961)	
TOT VOL (SCM) / SAM BLR (SCM)	269.1/ .00		269.1/ .00	

COMPOSITE RESULTS

TEST NUMBER		6
BAROMETER	MM HG	743.5
HUMIDITY	G/KG	2.6
TEMPERATURE	DEG C	26.1

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	290.7	(285.1)
FUEL ECONOMY	MPG	34.58	(35.25)
HYDROCARBONS (THC)	G/MI	.36	(.36)
CARBON MONOXIDE	G/MI	1.39	(1.36)
OXIDES OF NITROGEN	G/MI	.65	(.64)
PARTICULATES	G/MI	.225	(.225)

TABLE C-38. VOLKSWAGEN WITH FAILED INJECTORS AND WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 6 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/13/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22861. KM(14205. MILES)
	CVS NO. 17	
BAROMETER 742.95 MM HG(29.25 IN HG)	DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)	
RELATIVE HUMIDITY 19. PCT	ABS. HUMIDITY 4.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR .82

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.0 (113.0)
BLOWER REVOLUTIONS	7492.
TOT FLOW STD. CU. METRES(SCF)	149.7 (5285.)
THC SAMPLE METER/RANGE/PPM	26.4/1022/ 26.
THC BCKGRD METER/RANGE/PPM	8.6/1022/ 9.
CO SAMPLE METER/RANGE/PPM	32.3/ 12/ 32.
CO BCKGRD METER/RANGE/PPM	.5/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	89.0/ 14/ .8441
CO2 BCKGRD METER/RANGE/PCT	12.4/ 14/ .0432
NOX SAMPLE METER/RANGE/PPM	93.7/ 1/ 23.4
NOX BCKGRD METER/RANGE/PPM	.7/ 1/ .2
DILUTION FACTOR	15.91
THC CONCENTRATION PPM	18.
CO CONCENTRATION PPM	31.
CO2 CONCENTRATION PCT	.8036
NOX CONCENTRATION PPM	23.2
FILTER WT. MG (EFFICIENCY, %)	2.403 (97.)
THC MASS GRAMS	1.58
CO MASS GRAMS	5.44
CO2 MASS GRAMS	2201.9
NOX MASS GRAMS	5.44
PARTICULATE MASS GRAMS	1.04
RUN TIME SECONDS	766.
DFC, WET (DRY)	.937 (.931)
SCF, WET (DRY)	1.000 (.986)
VOL (SCM)	149.7
SAM BLR (SCM)	.00
MI (MEASURED)	10.32
TEST NUMBER,	6
BAROMETER, MM HG	743.0
HUMIDITY, G/KG	4.0
TEMPERATURE, DEG C	25.6
CARBON DIOXIDE, G/MI	213.3
FUEL ECONOMY, MPG	47.4
HYDROCARBONS, (THC) G/MI	.15
CARBON MONOXIDE, G/MI	.53
OXIDES OF NITROGEN, G/MI	.53
PARTICULATES, G/MI	.101

TABLE C-39. VOLKSWAGEN WITH FAILED INJECTORS AND WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 6 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 4/13/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 22878. KM(14216. MILES)
	CVS NO. 17	
BAROMETER 742.95 MM HG(29.25 IN HG)	DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)	
RELATIVE HUMIDITY 19. PCT	ABS. HUMIDITY 4.0 GM/KG	NOX HUMIDITY CORRECTION FACTOR .82

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.1 (115.0)
BLOWER REVOLUTIONS	5854.
TOT FLOW STD. CU. METRES(SCF)	116.5 (4115.)
THC SAMPLE METER/RANGE/PPM	16.7/1022/ 17.
THC BCKGRD METER/RANGE/PPM	7.1/1022/ 7.
CO SAMPLE METER/RANGE/PPM	23.2/ 12/ 23.
CO BCKGRD METER/RANGE/PPM	.1/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	52.5/ 14/ .3012
CO2 BCKGRD METER/RANGE/PCT	12.8/ 14/ .0448
NOX SAMPLE METER/RANGE/PPM	28.3/ 1/ 7.2
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3
DILUTION FACTOR	44.29
THC CONCENTRATION PPM	10.
CO CONCENTRATION PPM	23.
CO2 CONCENTRATION PCT	.2574
NOX CONCENTRATION PPM	6.9
FILTER WT. MG (EFFICIENCY, %)	1.073 (99.)
THC MASS GRAMS	.66
CO MASS GRAMS	3.12
CO2 MASS GRAMS	549.2
NOX MASS GRAMS	1.26
PARTICULATE MASS GRAMS	.48
RUN TIME SECONDS	599.
DFC, WET (DRY)	.977 (.971)
SCF, WET (DRY)	1.000 (.991)
VOL (SCM)	116.5
SAM BLR (SCM)	.00
MI (MEASURED)	1.18
TEST NUMBER,	6
BAROMETER, MM HG	743.0
HUMIDITY, G/KG	4.0
TEMPERATURE, DEG C	25.6
CARBON DIOXIDE, G/MI	466.3
FUEL ECONOMY, MPG	21.5
HYDROCARBONS, (THC) G/MI	.56
CARBON MONOXIDE, G/MI	2.65
OXIDES OF NITROGEN, G/MI	1.07
PARTICULATES, G/MI	.407

TABLE C-40. VOLKSWAGEN BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 5
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/19/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23080. KM(14341. MILES)

BAROMETER 741.93 MM HG(29.21 IN HG)
RELATIVE HUMIDITY 27. PCT

DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)
ABS. HUMIDITY 5.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR .85

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)	43.3 (110.0)	41.7 (107.0)
BLOWER REVOLUTIONS	4943.	8508.	4940.
TOT FLOW STD. CU. METRES(SCF)	99.4 (3510.)	170.6 (6023.)	99.5 (3512.)
THC SAMPLE METER/RANGE/PPM	13.6/1022/ 14.	12.0/1022/ 12.	12.1/1022/ 12.
THC BCKGRD METER/RANGE/PPM	5.7/1022/ 6.	5.7/1022/ 6.	5.0/1022/ 5.
CO SAMPLE METER/RANGE/PPM	41.4/ 12/ 41.	22.4/ 12/ 23.	29.1/ 12/ 29.
CO BCKGRD METER/RANGE/PPM	1.0/ 12/ 1.	.8/ 12/ 1.	.5/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	79.4/ 14/ .6506	62.6/ 14/ .4084	74.9/ 14/ .5759
CO2 BCKGRD METER/RANGE/PCT	12.6/ 14/ .0440	12.6/ 14/ .0440	12.8/ 14/ .0448
NOX SAMPLE METER/RANGE/PPM	67.6/ 1/ 16.9	45.6/ 1/ 11.4	60.9/ 1/ 15.3
NOX BCKGRD METER/RANGE/PPM	.6/ 1/ .2	.6/ 1/ .2	.4/ 1/ .1
DILUTION FACTOR	20.61	32.82	23.31
THC CONCENTRATION PPM	8.	6.	7.
CO CONCENTRATION PPM	40.	21.	28.
CO2 CONCENTRATION PCT	.6087	.3658	.5330
NOX CONCENTRATION PPM	16.8	11.3	15.2
FILTER WT. MG (EFFICIENCY, %)	.276 (62.)	.245 (62.)	.140 (52.)
THC MASS GRAMS	.47	.64	.42
CO MASS GRAMS	4.59	4.25	3.26
CO2 MASS GRAMS	1107.7	1142.3	970.5
NOX MASS GRAMS	2.72	3.14	2.46
PARTICULATE MASS GRAMS	.20	.17	.12
THC GRAMS/MI	.13	.16	.11
CO GRAMS/MI	1.26	1.09	.90
CO2 GRAMS/MI	304.7	293.8	266.8
NOX GRAMS/MI	.75	.81	.68
FUEL ECONOMY IN MPG	33.10	34.35	37.85
RUN TIME SECONDS	504.	868.	504.
MEASURED DISTANCE MI	3.64	3.89	3.64
SCF, DRY	.985	.988	.986

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	741.9
HUMIDITY	G/KG	5.4
TEMPERATURE	DEG C	25.0

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	288.6	(.0)
FUEL ECONOMY	MPG	34.97	(.00)
HYDROCARBONS (THC)	G/MI	.14	(.00)
CARBON MONOXIDE	G/MI	1.07	(.00)
OXIDES OF NITROGEN	G/MI	.76	(.00)
PARTICULATES	G/MI	.043	(.000)

TABLE C-41. VOLKSWAGEN BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 6
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 4/27/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23112. KM(14361. MILES)

BAROMETER 742.44 MM HG(29.23 IN HG)
RELATIVE HUMIDITY 35. PCT

DRY BULB TEMP. 26.7 DEG C(80.0 DEG F)
ABS. HUMIDITY 7.9 GM/KG

NOX HUMIDITY CORRECTION FACTOR .91

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.7 (116.0)	47.2 (117.0)	46.1 (115.0)
BLOWER REVOLUTIONS	4950.	8506.	4944.
TOT FLOW STD. CU. METRES(SCF)	98.3 (3471.)	168.6 (5955.)	98.4 (3473.)
THC SAMPLE METER/RANGE/PPM	13.6/1022/ 14.	10.4/1022/ 10.	11.5/1022/ 11.
THC BCKGRD METER/RANGE/PPM	5.6/1022/ 6.	5.6/1022/ 6.	5.2/1022/ 5.
CO SAMPLE METER/RANGE/PPM	34.6/ 12/ 35.	22.9/ 12/ 23.	29.8/ 12/ 30.
CO BCKGRD METER/RANGE/PPM	.5/ 12/ 1.	.4/ 12/ 0.	.1/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	79.2/ 14/ .6471	63.2/ 14/ .4156	75.3/ 14/ .5822
CO2 BCKGRD METER/RANGE/PCT	13.1/ 14/ .0460	13.0/ 14/ .0456	12.8/ 14/ .0448
NOX SAMPLE METER/RANGE/PPM	62.9/ 1/ 15.8	43.3/ 1/ 10.9	57.2/ 1/ 14.3
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1	.4/ 1/ .1	.4/ 1/ .1
DILUTION FACTOR	20.74	32.27	23.06
THC CONCENTRATION PPM	8.	5.	7.
CO CONCENTRATION PPM	33.	22.	29.
CO2 CONCENTRATION PCT	.6033	.3714	.5393
NOX CONCENTRATION PPM	15.7	10.8	14.2
FILTER WT. MG (EFFICIENCY, %)	.172 (63.)	.178 (68.)	.128 (57.)
THC MASS GRAMS	.47	.48	.37
CO MASS GRAMS	3.82	4.37	3.34
CO2 MASS GRAMS	1085.6	1146.6	971.1
NOX MASS GRAMS	2.69	3.17	2.45
PARTICULATE MASS GRAMS	.22	.11	.10
THC GRAMS/MI	.13	.12	.10
CO GRAMS/MI	1.06	1.12	.92
CO2 GRAMS/MI	301.4	293.1	268.6
NOX GRAMS/MI	.75	.81	.68
FUEL ECONOMY IN MPG	33.50	34.43	37.60
RUN TIME SECONDS	506.	868.	505.
MEASURED DISTANCE MI	3.60	3.91	3.62
SCF, DRY	.983	.985	.983

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	742.4
HUMIDITY	G/KG	7.9
TEMPERATURE	DEG C	26.7

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	288.1	(.0)
FUEL ECONOMY	MPG	35.04	(.00)
HYDROCARBONS (THC)	G/MI	.12	(.00)
CARBON MONOXIDE	G/MI	1.05	(.00)
OXIDES OF NITROGEN	G/MI	.76	(.00)
PARTICULATES	G/MI	.035	(.000)

TABLE C-42. VOLKSWAGEN BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 6
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

BAROMETER 736.85 MM HG(29.01 IN HG)
RELATIVE HUMIDITY 34. PCT

VEHICLE NO.
DATE 4/18/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17
DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 6.2 GM/KG

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 22980. KM(14279. MILES)

NOX HUMIDITY CORRECTION FACTOR .87

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)	43.3 (110.0)	39.4 (103.0)
BLOWER REVOLUTIONS	4941.	8495.	4939.
TOT FLOW STD. CU. METRES(SCF)	98.2 (3466.)	168.7 (5958.)	99.0 (3497.)
THC SAMPLE METER/RANGE/PPM	22.8/1022/ 23.	19.2/1022/ 19.	18.0/1022/ 18.
THC BCKGRD METER/RANGE/PPM	6.4/1022/ 6.	6.4/1022/ 6.	5.2/1022/ 5.
CO SAMPLE METER/RANGE/PPM	33.6/ 12/ 34.	25.1/ 12/ 25.	27.0/ 12/ 27.
CO BCKGRD METER/RANGE/PPM	1.5/ 12/ 2.	1.0/ 12/ 1.	.1/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	78.2/ 14/ .6298	61.2/ 14/ .3922	73.6/ 14/ .5558
CO2 BCKGRD METER/RANGE/PCT	12.6/ 14/ .0440	12.3/ 14/ .0428	11.6/ 14/ .0400
NOX SAMPLE METER/RANGE/PPM	65.9/ 1/ 16.5	43.0/ 1/ 10.8	60.6/ 1/ 15.2
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1	.6/ 1/ .2	.3/ 1/ .1
DILUTION FACTOR	21.28	34.09	24.13
THC CONCENTRATION PPM	17.	13.	13.
CO CONCENTRATION PPM	32.	24.	26.
CO2 CONCENTRATION PCT	.5879	.3506	.5175
NOX CONCENTRATION PPM	16.4	10.6	15.1
FILTER WT. MG (EFFICIENCY, %)	1.941 (91.)	1.588 (92.)	1.350 (92.)
THC MASS GRAMS	.94	1.26	.74
CO MASS GRAMS	3.60	4.68	3.05
CO2 MASS GRAMS	1056.5	1083.3	938.2
NOX MASS GRAMS	2.68	2.99	2.49
PARTICULATE MASS GRAMS	.94	.77	.65
THC GRAMS/MI	.26	.32	.20
CO GRAMS/MI	.99	1.19	.84
CO2 GRAMS/MI	291.4	276.0	258.5
NOX GRAMS/MI	.74	.76	.69
FUEL ECONOMY IN MPG	34.60	36.45	39.04
RUN TIME SECONDS	504.	867.	504.
MEASURED DISTANCE MI	3.63	3.92	3.63
SCF, DRY	.983	.986	.984

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	736.9
HUMIDITY	G/KG	6.2
TEMPERATURE	DEG C	23.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	274.4	(.0)
FUEL ECONOMY	MPG	36.71	(.00)
HYDROCARBONS (THC)	G/MI	.28	(.00)
CARBON MONOXIDE	G/MI	1.05	(.00)
OXIDES OF NITROGEN	G/MI	.74	(.00)
PARTICULATES	G/MI	.204	(.000)

TABLE C-43. VOLKSWAGEN WITH RETARDED TIMING AND TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 7 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/ 6/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23163. KM(14393. MILES)

BAROMETER 743.97 MM HG(29.29 IN HG)
RELATIVE HUMIDITY 55. PCT
BAG RESULTS

DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)
ABS. HUMIDITY 12.7 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.07

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)	43.9 (111.0)	44.4 (112.0)	45.6 (114.0)
BLOWER REVOLUTIONS	4956.	8501.	4977.	8498.
TOT FLOW STD. CU. METRES(SCF)	99.7 (3521.)	170.7 (6029.)	99.8 (3526.)	169.8 (5996.)
THC SAMPLE METER/RANGE/PPM	39.9/1022/ 40.	30.7/1022/ 31.	30.5/1022/ 30.	31.0/1022/ 31.
THC BCKGRD METER/RANGE/PPM	7.6/1022/ 8.	7.6/1022/ 8.	8.0/1022/ 8.	8.0/1022/ 8.
CO SAMPLE METER/RANGE/PPM	61.9/ 13/ 59.	37.1/ 13/ 34.	47.1/ 13/ 44.	36.6/ 13/ 34.
CO BCKGRD METER/RANGE/PPM	1.8/ 13/ 2.	1.4/ 13/ 1.	1.2/ 13/ 1.	1.0/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	73.0/ 11/ .6465	52.6/ 11/ .4113	64.6/ 11/ .5433	51.8/ 11/ .4031
CO2 BCKGRD METER/RANGE/PCT	7.3/ 11/ .0433	7.3/ 11/ .0433	7.5/ 11/ .0446	7.5/ 11/ .0446
NOX SAMPLE METER/RANGE/PPM	49.8/ 1/ 12.5	34.5/ 1/ 8.7	42.5/ 1/ 10.7	32.0/ 1/ 8.1
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1	.3/ 1/ .1	.8/ 1/ .2	.4/ 1/ .1
DILUTION FACTOR	20.60	32.36	24.55	33.01
THC CONCENTRATION PPM	33.	23.	23.	23.
CO CONCENTRATION PPM	56.	32.	42.	32.
CO2 CONCENTRATION PCT	.6053	.3693	.5005	.3599
NOX CONCENTRATION PPM	12.4	8.6	10.5	8.0
FILTER WT. MG (EFFICIENCY, %)	.353 (62.)	.401 (68.)	.297 (56.)	.410 (66.)
THC MASS GRAMS	1.88	2.30	1.31	2.28
CO MASS GRAMS	6.49	6.37	4.85	6.31
CO2 MASS GRAMS	1105.2	1154.4	914.9	1118.8
NOX MASS GRAMS	2.53	3.01	2.14	2.77
PARTICULATE MASS GRAMS	.25	.25	.23	.27
THC GRAMS/MI	.52	.59	.36	.59
CO GRAMS/MI	1.78	1.63	1.35	1.62
CO2 GRAMS/MI	304.0	295.3	254.2	287.7
NOX GRAMS/MI	.70	.77	.59	.71
FUEL ECONOMY IN MPG	32.96 33.45	33.91	39.49 36.91	34.80
RUN TIME SECONDS	505.	868.	506.	867.
MEASURED DISTANCE MI	3.64 7.54	3.91	3.60 7.49	3.89
SCF, DRY	.977 .978	.979	.977 .978	.979
DFC, WET (DRY)	.963(.946)		.966(.949)	
TOT VOL (SCM) / SAM BLR (SCM)	270.5/ .00		269.7/ .00	

COMPOSITE RESULTS

TEST NUMBER		7
BAROMETER	MM HG	744.0
HUMIDITY	G/KG	12.7
TEMPERATURE	DEG C	27.2

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	285.9	(283.6)
FUEL ECONOMY	MPG	35.06	(35.33)
HYDROCARBONS (THC)	G/MI	.51	(.51)
CARBON MONOXIDE	G/MI	1.58	(1.58)
OXIDES OF NITROGEN	G/MI	.71	(.69)
PARTICULATES	G/MI	.064	(.066)

TABLE C-44. VOLKSWAGEN WITH RETARDED TIMING AND TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 7 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 5/ 6/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYND NO. 2	ODOMETER 23189. KM(14409. MILES)
	CVS NO. 17	
BAROMETER 743.97 MM HG(29.29 IN HG)	DRY BULB TEMP. 27.8 DEG C(82.0 DEG F)	
RELATIVE HUMIDITY 49. PCT	ABS. HUMIDITY 11.6 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.03

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.1 (115.0)
BLOWER REVOLUTIONS	7494.
TOT FLOW STD. CU. METRES(SCF)	149.5 (5278.)
THC SAMPLE METER/RANGE/PPM	26.7/1022/ 27.
THC BCKGRD METER/RANGE/PPM	8.1/1022/ 8.
CO SAMPLE METER/RANGE/PPM	51.8/ 13/ 49.
CO BCKGRD METER/RANGE/PPM	1.0/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	90.2/ 11/ .8925
CO2 BCKGRD METER/RANGE/PCT	7.3/ 11/ .0433
NOX SAMPLE METER/RANGE/PPM	73.8/ 1/ 18.5
NOX BCKGRD METER/RANGE/PPM	1.0/ 1/ .3
DILUTION FACTOR	15.02
THC CONCENTRATION PPM	19.
CO CONCENTRATION PPM	46.
CO2 CONCENTRATION PCT	.8520
NOX CONCENTRATION PPM	18.3
FILTER WT. MG (EFFICIENCY, %)	.530 (67.)
THC MASS GRAMS	1.66
CO MASS GRAMS	8.05
CO2 MASS GRAMS	2331.7
NOX MASS GRAMS	5.39
PARTICULATE MASS GRAMS	.33
RUN TIME SECONDS	765.
DFC, WET (DRY)	.933 (.919)
SCF, WET (DRY)	1.000 (.976)
VOL (SCM)	149.5
SAM BLR (SCM)	.00
MI (MEASURED)	10.24
TEST NUMBER,	7
BAROMETER, MM HG	744.0
HUMIDITY, G/KG	11.6
TEMPERATURE, DEG C	27.8
CARBON DIOXIDE, G/MI	227.6
FUEL ECONOMY, MPG	44.3
HYDROCARBONS, (THC) G/MI	.16
CARBON MONOXIDE, G/MI	.79
OXIDES OF NITROGEN, G/MI	.53
PARTICULATES, G/MI	.032

TABLE C-45. VOLKSWAGEN WITH RETARDED TIMING AND TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 7 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 5/ 6/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 23205. KM(14419. MILES)
	CVS NO. 17	
BAROMETER 743.71 MM HG(29.28 IN HG)	DRY BULB TEMP. 28.3 DEG C(83.0 DEG F)	
RELATIVE HUMIDITY 49. PCT	ABS. HUMIDITY 12.2 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.05

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.7 (116.0)
BLOWER REVOLUTIONS	5857.
TOT FLOW STD. CU. METRES(SCF)	116.6 (4116.)
THC SAMPLE METER/RANGE/PPM	23.7/1022/ 24.
THC BCKGRD METER/RANGE/PPM	7.7/1022/ 8.
CO SAMPLE METER/RANGE/PPM	33.9/ 13/ 31.
CO BCKGRD METER/RANGE/PPM	.8/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	41.0/ 11/ .2990
CO2 BCKGRD METER/RANGE/PCT	7.5/ 11/ .0446
NOX SAMPLE METER/RANGE/PPM	22.8/ 1/ 5.8
NOX BCKGRD METER/RANGE/PPM	1.2/ 1/ .3
DILUTION FACTOR	44.41
THC CONCENTRATION PPM	16.
CO CONCENTRATION PPM	30.
CO2 CONCENTRATION PCT	.2554
NOX CONCENTRATION PPM	5.5
FILTER WT. MG (EFFICIENCY, %)	.148 (53.)
THC MASS GRAMS	1.09
CO MASS GRAMS	4.02
CO2 MASS GRAMS	545.1
NOX MASS GRAMS	1.28
PARTICULATE MASS GRAMS	.12
RUN TIME SECONDS	598.
DFC, WET (DRY)	.977 (.962)
SCF, WET (DRY)	1.000 (.981)
VOL (SCM)	116.6
SAM BLR (SCM)	.00
MI (MEASURED)	1.16
TEST NUMBER,	7
BAROMETER, MM HG	743.7
HUMIDITY, G/KG	12.2
TEMPERATURE, DEG C	28.3
CARBON DIOXIDE, G/MI	471.9
FUEL ECONOMY, MPG	21.2
HYDROCARBONS, (THC) G/MI	.94
CARBON MONOXIDE, G/MI	3.48
OXIDES OF NITROGEN, G/MI	1.11
PARTICULATES, G/MI	.105

TABLE C-46. VOLKSWAGEN WITH RETARDED TIMING AND TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 7 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/ 9/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23236. KM(14438. MILES)

BAROMETER 740.66 MM HG(29.16 IN HG)
RELATIVE HUMIDITY 62. PCT

DRY BULB TEMP. 28.3 DEG C(83.0 DEG F)
ABS. HUMIDITY 15.5 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.19

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	47.2 (117.0)	47.2 (117.0)	46.7 (116.0)	47.2 (117.0)
BLOWER REVOLUTIONS	4962.	8499.	4966.	8497.
TOT FLOW STD. CU. METRES(SCF)	98.1 (3463.)	168.0 (5931.)	98.3 (3471.)	167.9 (5929.)
THC SAMPLE METER/RANGE/PPM	44.4/1022/ 44.	32.9/1022/ 33.	32.4/1022/ 32.	33.5/1022/ 34.
THC BCKGRD METER/RANGE/PPM	7.5/1022/ 8.	7.5/1022/ 8.	8.4/1022/ 8.	8.4/1022/ 8.
CO SAMPLE METER/RANGE/PPM	57.1/ 12/ 57.	36.1/ 12/ 36.	49.8/ 12/ 50.	36.5/ 12/ 37.
CO BCKGRD METER/RANGE/PPM	.4/ 12/ 0.	.3/ 12/ 0.	.4/ 12/ 0.	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	79.4/ 14/ .6506	63.9/ 14/ .4240	76.3/ 14/ .5982	63.8/ 14/ .4228
CO2 BCKGRD METER/RANGE/PCT	12.2/ 14/ .0424	12.3/ 14/ .0428	12.2/ 14/ .0424	12.3/ 14/ .0428
NOX SAMPLE METER/RANGE/PPM	48.0/ 1/ 12.0	33.4/ 1/ 8.4	45.7/ 1/ 11.5	33.9/ 1/ 8.5
NOX BCKGRD METER/RANGE/PPM	.2/ 1/ .0	.5/ 1/ .1	.5/ 1/ .1	.5/ 1/ .1
DILUTION FACTOR	20.46	31.38	22.30	31.46
THC CONCENTRATION PPM	37.	26.	24.	25.
CO CONCENTRATION PPM	55.	35.	48.	36.
CO2 CONCENTRATION PCT	.6103	.3826	.5577	.3814
NOX CONCENTRATION PPM	12.0	8.3	11.3	8.4
FILTER WT. MG (EFFICIENCY, %)	.324 (62.)	.400 (67.)	.027 (13.)	.384 (75.)
THC MASS GRAMS	2.11	2.48	1.38	2.46
CO MASS GRAMS	6.28	6.82	5.49	6.95
CO2 MASS GRAMS	1095.7	1176.5	1003.7	1172.4
NOX MASS GRAMS	2.67	3.17	2.53	3.21
PARTICULATE MASS GRAMS	.22	.26	.09	.22
THC GRAMS/MI	.58	.64	.38	.63
CO GRAMS/MI	1.74	1.75	1.52	1.78
CO2 GRAMS/MI	303.1	301.8	278.7	300.3
NOX GRAMS/MI	.74	.81	.70	.82
FUEL ECONOMY IN MPG	33.04 33.10	33.16	36.02 34.56	33.32
RUN TIME SECONDS	506.	868.	507.	868.
MEASURED DISTANCE MI	3.61 7.51	3.90	3.60 7.51	3.90
SCF, DRY	.974 .975	.976	.974 .975	.976
DFC, WET (DRY)	.962(.943)		.963(.944)	
TOT VOL (SCM) / SAM BLR (SCM)	266.0/ .00		266.2/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 740.7
HUMIDITY G/KG 15.5
TEMPERATURE DEG C 28.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	295.8	(295.3)
FUEL ECONOMY	MPG	33.87	(33.92)
HYDROCARBONS (THC)	G/MI	.56	(.55)
CARBON MONOXIDE	G/MI	1.69	(1.69)
OXIDES OF NITROGEN	G/MI	.77	(.77)
PARTICULATES	G/MI	.054	(.051)

TABLE C-47. VOLKSWAGEN WITH RETARDED TIMING AND TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 7 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 5/ 9/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 23260. KM(14453. MILES)
	CVS NO. 17	
BAROMETER 741.17 MM HG(29.18 IN HG)	DRY BULB TEMP. 27.2 DEG C(81.0 DEG F)	
RELATIVE HUMIDITY 55. PCT	ABS. HUMIDITY 12.7 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.07

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	47.8 (118.0)
BLOWER REVOLUTIONS	7494.
TOT FLOW STD. CU. METRES(SCF)	147.9 (5224.)
THC SAMPLE METER/RANGE/PPM	30.3/1022/ 30.
THC BCKGRD METER/RANGE/PPM	9.3/1022/ 9.
CO SAMPLE METER/RANGE/PPM	50.8/ 12/ 51.
CO BCKGRD METER/RANGE/PPM	.5/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	90.9/ 14/ .8894
CO2 BCKGRD METER/RANGE/PCT	12.4/ 14/ .0432
NOX SAMPLE METER/RANGE/PPM	73.4/ 1/ 18.4
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1
DILUTION FACTOR	15.06
THC CONCENTRATION PPM	22.
CO CONCENTRATION PPM	49.
CO2 CONCENTRATION PCT	.8491
NOX CONCENTRATION PPM	18.3
FILTER WT. MG (EFFICIENCY, %)	.482 (72.)
THC MASS GRAMS	1.85
CO MASS GRAMS	8.38
CO2 MASS GRAMS	2299.9
NOX MASS GRAMS	5.54
PARTICULATE MASS GRAMS	.28
RUN TIME SECONDS	766.
DFC, WET (DRY)	.934 (.917)
SCF, WET (DRY)	1.000 (.974)
VOL (SCM)	147.9
SAM BLR (SCM)	.00
MI (MEASURED)	10.27
TEST NUMBER,	
BAROMETER, MM HG	741.2
HUMIDITY, G/KG	12.7
TEMPERATURE, DEG C	27.2
CARBON DIOXIDE, G/MI	224.1
FUEL ECONOMY, MPG	45.0
HYDROCARBONS, (THC) G/MI	.18
CARBON MONOXIDE, G/MI	.82
OXIDES OF NITROGEN, G/MI	.54
PARTICULATES, G/MI	.027

TABLE C-48. VOLKSWAGEN WITH RETARDED TIMING AND TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 7 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/ 9/88
BAG CART NO. 2
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23278. KM(14464. MILES)

BAROMETER 741.68 MM HG(29.20 IN HG)
RELATIVE HUMIDITY 52. PCT

DRY BULB TEMP. 28.3 DEG C(83.0 DEG F)
ABS. HUMIDITY 13.0 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.08

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	48.9 (120.0)
BLOWER REVOLUTIONS	5858.
TOT FLOW STD. CU. METRES(SCF)	115.4 (4073.)
THC SAMPLE METER/RANGE/PPM	30.2/1022/ 30.
THC BCKGRD METER/RANGE/PPM	9.4/1022/ 9.
CO SAMPLE METER/RANGE/PPM	32.5/ 12/ 33.
CO BCKGRD METER/RANGE/PPM	.6/ 12/ 1.
CO2 SAMPLE METER/RANGE/PCT	52.9/ 14/ .3051
CO2 BCKGRD METER/RANGE/PCT	12.7/ 14/ .0444
NOX SAMPLE METER/RANGE/PPM	22.9/ 1/ 5.8
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1
DILUTION FACTOR	43.43
THC CONCENTRATION PPM	21.
CO CONCENTRATION PPM	31.
CO2 CONCENTRATION PCT	.2617
NOX CONCENTRATION PPM	5.7
FILTER WT. MG (EFFICIENCY, %)	.127 (57.)
THC MASS GRAMS	1.40
CO MASS GRAMS	4.20
CO2 MASS GRAMS	552.6
NOX MASS GRAMS	1.36
PARTICULATE MASS GRAMS	.10
RUN TIME SECONDS	599.
DFC, WET (DRY)	.977 (.960)
SCF, WET (DRY)	1.000 (.980)
VOL (SCM)	115.4
SAM BLR (SCM)	.00
MI (MEASURED)	1.17
TEST NUMBER,	
BAROMETER, MM HG	741.7
HUMIDITY, G/KG	13.0
TEMPERATURE, DEG C	28.3
CARBON DIOXIDE, G/MI	470.9
FUEL ECONOMY, MPG	21.2
HYDROCARBONS, (THC) G/MI	1.19
CARBON MONOXIDE, G/MI	3.58
OXIDES OF NITROGEN, G/MI	1.16
PARTICULATES, G/MI	.081

TABLE C-49. VOLKSWAGEN WITH RETARDED TIMING AND WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/10/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23368. KM(14520. MILES)

BAROMETER 743.20 MM HG(29.26 IN HG)
RELATIVE HUMIDITY 46. PCT

DRY BULB TEMP. 25.6 DEG C(78.0 DEG F)
ABS. HUMIDITY 9.7 GM/KG

NOX HUMIDITY CORRECTION FACTOR .97

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.3 (110.0)	43.9 (111.0)	43.3 (110.0)	43.9 (111.0)
BLOWER REVOLUTIONS	4959.	8511.	4959.	8501.
TOT FLOW STD. CU. METRES(SCF)	99.6 (3519.)	170.7 (6029.)	99.6 (3518.)	170.5 (6021.)
THC SAMPLE METER/RANGE/PPM	53.6/1022/ 54.	33.8/1022/ 34.	34.5/1022/ 34.	35.6/1022/ 36.
THC BCKGRD METER/RANGE/PPM	7.3/1022/ 7.	7.3/1022/ 7.	9.2/1022/ 9.	9.2/1022/ 9.
CO SAMPLE METER/RANGE/PPM	64.2/ 13/ 62.	38.2/ 13/ 35.	46.4/ 13/ 43.	39.6/ 13/ 37.
CO BCKGRD METER/RANGE/PPM	1.2/ 13/ 1.	1.3/ 13/ 1.	.9/ 13/ 1.	.6/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	75.0/ 11/ .6726	52.3/ 11/ .4082	67.7/ 11/ .5802	52.3/ 11/ .4082
CO2 BCKGRD METER/RANGE/PCT	7.7/ 11/ .0458	7.5/ 11/ .0446	7.9/ 11/ .0471	7.6/ 11/ .0452
NOX SAMPLE METER/RANGE/PPM	55.5/ 1/ 13.9	36.1/ 1/ 9.1	50.1/ 1/ 12.6	36.2/ 1/ 9.1
NOX BCKGRD METER/RANGE/PPM	1.1/ 1/ .3	1.4/ 1/ .4	1.3/ 1/ .3	1.4/ 1/ .4
DILUTION FACTOR	19.76	32.57	22.99	32.55
THC CONCENTRATION PPM	47.	27.	26.	27.
CO CONCENTRATION PPM	59.	33.	41.	35.
CO2 CONCENTRATION PCT	.6291	.3650	.5352	.3644
NOX CONCENTRATION PPM	13.7	8.7	12.3	8.8
FILTER WT. MG (EFFICIENCY, %)	2.665 (92.)	1.822 (91.)	1.591 (91.)	1.881 (90.)
THC MASS GRAMS	2.68	2.63	1.48	2.63
CO MASS GRAMS	6.83	6.61	4.80	6.98
CO2 MASS GRAMS	1147.7	1140.9	976.4	1137.6
NOX MASS GRAMS	2.52	2.76	2.26	2.77
PARTICULATE MASS GRAMS	1.25	.87	.75	.90
THC GRAMS/MI	.75	.68	.41	.68
CO GRAMS/MI	1.90	1.70	1.33	1.79
CO2 GRAMS/MI	318.9	294.1	271.4	292.2
NOX GRAMS/MI	.70	.71	.63	.71
FUEL ECONOMY IN MPG	31.35 32.68	34.01	37.00 35.49	34.21
RUN TIME SECONDS	506.	868.	506.	868.
MEASURED DISTANCE MI	3.60 7.48	3.88	3.60 7.49	3.89
SCF, DRY	.979 .980	.981	.980 .981	.981
DFC, WET (DRY)	.962(.948)		.965(.950)	
TOT VOL (SCM) / SAM BLR (SCM)	270.4/ .00		270.1/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	743.2
HUMIDITY	G/KG	9.7
TEMPERATURE	DEG C	25.6

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	293.0	(292.4)
FUEL ECONOMY	MPG	34.17	(34.23)
HYDROCARBONS (THC)	G/MI	.62	(.62)
CARBON MONOXIDE	G/MI	1.64	(1.67)
OXIDES OF NITROGEN	G/MI	.69	(.69)
PARTICULATES	G/MI	.245	(.248)

TABLE C-50. VOLKSWAGEN WITH RETARDED TIMING AND WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 5/10/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 23392. KM(14535. MILES)
	CVS NO. 17	
BAROMETER 743.71 MM HG(29.28 IN HG)	DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)	
RELATIVE HUMIDITY 52. PCT	ABS. HUMIDITY 10.2 GM/KG	NOX HUMIDITY CORRECTION FACTOR .98

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	43.9 (111.0)
BLOWER REVOLUTIONS	7498.
TOT FLOW STD. CU. METRES(SCF)	150.5 (5315.)
THC SAMPLE METER/RANGE/PPM	34.0/1022/ 34.
THC BCKGRD METER/RANGE/PPM	9.4/1022/ 9.
CO SAMPLE METER/RANGE/PPM	43.0/ 13/ 40.
CO BCKGRD METER/RANGE/PPM	.3/ 13/ 0.
CO2 SAMPLE METER/RANGE/PCT	88.0/ 11/ .8580
CO2 BCKGRD METER/RANGE/PCT	7.6/ 11/ .0452
NOX SAMPLE METER/RANGE/PPM	76.2/ 1/ 19.1
NOX BCKGRD METER/RANGE/PPM	.8/ 1/ .2
DILUTION FACTOR	15.62
THC CONCENTRATION PPM	25.
CO CONCENTRATION PPM	38.
CO2 CONCENTRATION PCT	.8157
NOX CONCENTRATION PPM	18.9
FILTER WT. MG (EFFICIENCY, %)	2.416 (93.)
THC MASS GRAMS	2.19
CO MASS GRAMS	6.71
CO2 MASS GRAMS	2248.0
NOX MASS GRAMS	5.35
PARTICULATE MASS GRAMS	1.14
RUN TIME SECONDS	765.
DFC, WET (DRY)	.936 (.920)
SCF, WET (DRY)	1.000 (.975)
VOL (SCM)	150.5
SAM BLR (SCM)	.00
MI (MEASURED)	10.25
TEST NUMBER,	
BAROMETER, MM HG	743.7
HUMIDITY, G/KG	10.2
TEMPERATURE, DEG C	24.4
CARBON DIOXIDE, G/MI	219.3
FUEL ECONOMY, MPG	46.0
HYDROCARBONS, (THC) G/MI	.21
CARBON MONOXIDE, G/MI	.65
OXIDES OF NITROGEN, G/MI	.52
PARTICULATES, G/MI	.111

TABLE C-51. VOLKSWAGEN WITH RETARDED TIMING AND WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 1	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 5/10/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 1	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 23410. KM(14546. MILES)
	CVS NO. 17	
BAROMETER 743.71 MM HG(29.28 IN HG)	DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)	
RELATIVE HUMIDITY 58. PCT	ABS. HUMIDITY 10.6 GM/KG	NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	45.0 (113.0)
BLOWER REVOLUTIONS	5858.
TOT FLOW STD. CU. METRES(SCF)	117.2 (4139.)
THC SAMPLE METER/RANGE/PPM	35.2/1022/ 35.
THC BCKGRD METER/RANGE/PPM	8.2/1022/ 8.
CO SAMPLE METER/RANGE/PPM	35.5/ 13/ 33.
CO BCKGRD METER/RANGE/PPM	1.0/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	40.9/ 11/ .2981
CO2 BCKGRD METER/RANGE/PCT	7.6/ 11/ .0452
NOX SAMPLE METER/RANGE/PPM	22.1/ 1/ 5.6
NOX BCKGRD METER/RANGE/PPM	1.6/ 1/ .4
DILUTION FACTOR	44.35
THC CONCENTRATION PPM	27.
CO CONCENTRATION PPM	31.
CO2 CONCENTRATION PCT	.2539
NOX CONCENTRATION PPM	5.2
FILTER WT. MG (EFFICIENCY, %)	.931 (87.)
THC MASS GRAMS	1.84
CO MASS GRAMS	4.22
CO2 MASS GRAMS	544.9
NOX MASS GRAMS	1.16
PARTICULATE MASS GRAMS	.46
RUN TIME SECONDS	597.
DFC, WET (DRY)	.977 (.959)
SCF, WET (DRY)	1.000 (.979)
VOL (SCM)	117.2
SAM BLR (SCM)	.00
MI (MEASURED)	1.17
TEST NUMBER,	
BAROMETER, MM HG	743.7
HUMIDITY, G/KG	10.6
TEMPERATURE, DEG C	23.3
CARBON DIOXIDE, G/MI	466.2
FUEL ECONOMY, MPG	21.3
HYDROCARBONS, (THC) G/MI	1.58
CARBON MONOXIDE, G/MI	3.61
OXIDES OF NITROGEN, G/MI	1.00
PARTICULATES, G/MI	.396

TABLE C-52. VOLKSWAGEN WITH RETARDED TIMING AND WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 2
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/13/88
BAG CART NO. 2 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23450. KM(14571. MILES)

BAROMETER 745.74 MM HG(29.36 IN HG)
RELATIVE HUMIDITY 52. PCT
DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)
ABS. HUMIDITY 10.6 GM/KG
NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	40.6 (105.0)	38.9 (102.0)	37.8 (100.0)	40.6 (105.0)
BLOWER REVOLUTIONS	4973.	8509.	4967.	8499.
TOT FLOW STD. CU. METRES(SCF)	101.1 (3569.)	173.6 (6131.)	101.6 (3589.)	172.7 (6098.)
THC SAMPLE METER/RANGE/PPM	48.3/1022/ 48.	32.6/1022/ 33.	35.2/1022/ 35.	35.9/1022/ 36.
THC BCKGRD METER/RANGE/PPM	6.0/1022/ 6.	6.0/1022/ 6.	8.2/1022/ 8.	8.2/1022/ 8.
CO SAMPLE METER/RANGE/PPM	55.4/ 12/ 56.	33.1/ 12/ 33.	40.6/ 12/ 41.	34.5/ 12/ 35.
CO BCKGRD METER/RANGE/PPM	.0/ 12/ 0.	.1/ 12/ 0.	.0/ 12/ 0.	.0/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	78.9/ 14/ .6418	61.2/ 14/ .3922	74.4/ 14/ .5681	62.1/ 14/ .4026
CO2 BCKGRD METER/RANGE/PCT	12.0/ 14/ .0416	12.3/ 14/ .0428	12.8/ 14/ .0448	13.0/ 14/ .0456
NOX SAMPLE METER/RANGE/PPM	50.6/ 1/ 12.7	32.7/ 1/ 8.2	45.6/ 1/ 11.4	32.9/ 1/ 8.3
NOX BCKGRD METER/RANGE/PPM	.1/ 1/ .0	.3/ 1/ .1	.1/ 1/ .0	.4/ 1/ .1
DILUTION FACTOR	20.73	33.91	23.49	33.01
THC CONCENTRATION PPM	43.	27.	27.	28.
CO CONCENTRATION PPM	54.	32.	40.	34.
CO2 CONCENTRATION PCT	.6023	.3506	.5252	.3583
NOX CONCENTRATION PPM	12.7	8.2	11.4	8.2
FILTER WT. MG (EFFICIENCY, %)	2.365 (94.)	1.679 (90.)	1.505 (92.)	1.660 (91.)
THC MASS GRAMS	2.49	2.69	1.61	2.79
CO MASS GRAMS	6.34	6.53	4.68	6.79
CO2 MASS GRAMS	1114.6	1114.6	977.4	1133.0
NOX MASS GRAMS	2.44	2.70	2.21	2.70
PARTICULATE MASS GRAMS	1.14	.84	.74	.83
THC GRAMS/MI	.69	.69	.45	.72
CO GRAMS/MI	1.75	1.67	1.30	1.75
CO2 GRAMS/MI	307.2	285.4	271.4	291.8
NOX GRAMS/MI	.67	.69	.61	.69
FUEL ECONOMY IN MPG	32.58 33.80	35.03	36.99 35.52	34.25
RUN TIME SECONDS	507.	868.	506.	868.
MEASURED DISTANCE MI	3.63 7.53	3.90	3.60 7.48	3.88
SCF, DRY	.977 .979	.980	.978 .979	.979
DFC, WET (DRY)	.964(.947)		.965(.949)	
TOT VOL (SCM) / SAM BLR (SCM)	274.7/ .00		274.3/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 745.7
HUMIDITY G/KG 10.6
TEMPERATURE DEG C 25.0

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	286.1	(288.0)
FUEL ECONOMY	MPG	34.99	(34.76)
HYDROCARBONS (THC)	G/MI	.62	(.63)
CARBON MONOXIDE	G/MI	1.59	(1.61)
OXIDES OF NITROGEN	G/MI	.67	(.67)
PARTICULATES	G/MI	.233	(.232)

TABLE C-53. VOLKSWAGEN WTIH RETARDED TIMING AND WITHOUT TRAP, HFET

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
HFET - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 5/13/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYND NO. 2	ODOMETER 23476. KM(14587. MILES)
	CVS NO. 17	
BAROMETER 746.00 MM HG(29.37 IN HG)	DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)	
RELATIVE HUMIDITY 46. PCT	ABS. HUMIDITY 9.2 GM/KG	NOX HUMIDITY CORRECTION FACTOR .95

BAG RESULTS

TEST CYCLE	HFET
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	46.1 (115.0)
BLOWER REVOLUTIONS	7506.
TOT FLOW STD. CU. METRES(SCF)	150.3 (5306.)
THC SAMPLE METER/RANGE/PPM	36.8/1022/ 37.
THC BCKGRD METER/RANGE/PPM	10.0/1022/ 10.
CO SAMPLE METER/RANGE/PPM	38.3/ 12/ 38.
CO BCKGRD METER/RANGE/PPM	.2/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	89.0/ 14/ .8441
CO2 BCKGRD METER/RANGE/PCT	13.1/ 14/ .0460
NOX SAMPLE METER/RANGE/PPM	77.0/ 1/ 19.3
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1
DILUTION FACTOR	15.88
THC CONCENTRATION PPM	27.
CO CONCENTRATION PPM	37.
CO2 CONCENTRATION PCT	.8010
NOX CONCENTRATION PPM	19.2
FILTER WT. MG (EFFICIENCY, %)	2.438 (94.)
THC MASS GRAMS	2.38
CO MASS GRAMS	6.48
CO2 MASS GRAMS	2203.7
NOX MASS GRAMS	5.25
PARTICULATE MASS GRAMS	1.14
RUN TIME SECONDS	766.
DFC, WET (DRY)	.937 (.923)
SCF, WET (DRY)	1.000 (.978)
VOL (SCM)	150.3
SAM BLR (SCM)	.00
MI (MEASURED)	10.25
TEST NUMBER,	
BAROMETER, MM HG	746.0
HUMIDITY, G/KG	9.2
TEMPERATURE, DEG C	25.0
CARBON DIOXIDE, G/MI	214.9
FUEL ECONOMY, MPG	46.9
HYDROCARBONS, (THC) G/MI	.23
CARBON MONOXIDE, G/MI	.63
OXIDES OF NITROGEN, G/MI	.51
PARTICULATES, G/MI	.111

TABLE C-54. VOLKSWAGEN WITH RETARDED TIMING AND WITHOUT TRAP, NYCC

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
NYCC - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 8 RUN 2	VEHICLE NO.	TEST WEIGHT 1191. KG(2625. LBS)
VEHICLE MODEL 0 VW JETTA	DATE 5/13/88	ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
ENGINE 1.6 L(98. CID) L-4	BAG CART NO. 2	DIESEL EM-619-F
TRANSMISSION A3	DYNO NO. 2	ODOMETER 23492. KM(14597. MILES)
	CVS NO. 17	
BAROMETER 746.00 MM HG(29.37 IN HG)	DRY BULB TEMP. 25.0 DEG C(77.0 DEG F)	
RELATIVE HUMIDITY 46. PCT	ABS. HUMIDITY 9.2 GM/KG	NOX HUMIDITY CORRECTION FACTOR .95

BAG RESULTS

TEST CYCLE	NYCC
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	48.9 (120.0)
BLOWER REVOLUTIONS	5855.
TOT FLOW STD. CU. METRES(SCF)	116.2 (4103.)
THC SAMPLE METER/RANGE/PPM	33.7/1022/ 34.
THC BCKGRD METER/RANGE/PPM	9.6/1022/ 10.
CO SAMPLE METER/RANGE/PPM	31.5/ 12/ 32.
CO BCKGRD METER/RANGE/PPM	.4/ 12/ 0.
CO2 SAMPLE METER/RANGE/PCT	52.0/ 14/ .2965
CO2 BCKGRD METER/RANGE/PCT	13.0/ 14/ .0456
NOX SAMPLE METER/RANGE/PPM	23.1/ 1/ 5.9
NOX BCKGRD METER/RANGE/PPM	.5/ 1/ .1
DILUTION FACTOR	44.62
THC CONCENTRATION PPM	24.
CO CONCENTRATION PPM	31.
CO2 CONCENTRATION PCT	.2519
NOX CONCENTRATION PPM	5.7
FILTER WT. MG (EFFICIENCY, %)	.764 (87.)
THC MASS GRAMS	1.63
CO MASS GRAMS	4.14
CO2 MASS GRAMS	535.9
NOX MASS GRAMS	1.22
PARTICULATE MASS GRAMS	.39
RUN TIME SECONDS	598.
DFC, WET (DRY)	.978 (.963)
SCF, WET (DRY)	1.000 (.983)
VOL (SCM)	116.2
SAM BLR (SCM)	.00
MI (MEASURED)	1.17
TEST NUMBER,	
BAROMETER, MM HG	746.0
HUMIDITY, G/KG	9.2
TEMPERATURE, DEG C	25.0
CARBON DIOXIDE, G/MI	458.7
FUEL ECONOMY, MPG	21.7
HYDROCARBONS, (THC) G/MI	1.40
CARBON MONOXIDE, G/MI	3.54
OXIDES OF NITROGEN, G/MI	1.04
PARTICULATES, G/MI	.333

TABLE C-55. VOLKSWAGEN WITH RETARDED TIMING, TRAP, AND LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 9 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/17/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-752-F
ODOMETER 23702. KM(14728. MILES)

BAROMETER 741.17 MM HG(29.18 IN HG)
RELATIVE HUMIDITY 51. PCT

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 9.3 GM/KG

NOX HUMIDITY CORRECTION FACTOR .96

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	42.2 (108.0)	42.8 (109.0)	42.2 (108.0)
BLOWER REVOLUTIONS	4953.	8473.	4957.	8519.
TOT FLOW STD. CU. METRES(SCF)	99.3 (3507.)	170.2 (6010.)	99.4 (3511.)	171.1 (6041.)
THC SAMPLE METER/RANGE/PPM	34.3/1022/ 34.	26.0/1022/ 26.	28.6/1022/ 29.	25.3/1022/ 25.
THC BCKGRD METER/RANGE/PPM	9.6/1022/ 10.	9.6/1022/ 10.	11.8/1022/ 12.	11.8/1022/ 12.
CO SAMPLE METER/RANGE/PPM	42.3/ 13/ 39.	27.3/ 13/ 25.	35.4/ 13/ 32.	27.5/ 13/ 25.
CO BCKGRD METER/RANGE/PPM	.7/ 13/ 1.	.5/ 13/ 0.	1.1/ 13/ 1.	.8/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	75.4/ 11/ .6779	52.4/ 11/ .4093	66.6/ 11/ .5670	52.8/ 11/ .4134
CO2 BCKGRD METER/RANGE/PCT	8.3/ 11/ .0496	8.4/ 11/ .0502	8.7/ 11/ .0521	8.7/ 11/ .0521
NOX SAMPLE METER/RANGE/PPM	52.9/ 1/ 13.3	32.9/ 1/ 8.3	42.3/ 1/ 10.6	34.4/ 1/ 8.7
NOX BCKGRD METER/RANGE/PPM	1.6/ 1/ .4	.6/ 1/ .2	.5/ 1/ .1	.7/ 1/ .2
DILUTION FACTOR	19.17	31.70	22.92	31.39
THC CONCENTRATION PPM	25.	17.	17.	14.
CO CONCENTRATION PPM	37.	24.	31.	24.
CO2 CONCENTRATION PCT	.6309	.3606	.5171	.3629
NOX CONCENTRATION PPM	12.9	8.2	10.5	8.5
FILTER WT. MG (EFFICIENCY, %)	.370 (69.)	.224 (61.)	.206 (59.)	.208 (59.)
THC MASS GRAMS	1.46	1.66	1.00	1.38
CO MASS GRAMS	4.33	4.70	3.55	4.71
CO2 MASS GRAMS	1147.3	1123.7	941.5	1136.7
NOX MASS GRAMS	2.34	2.54	1.91	2.66
PARTICULATE MASS GRAMS	.22	.16	.15	.15
THC GRAMS/MI	.40	.42	.28	.36
CO GRAMS/MI	1.20	1.20	.99	1.21
CO2 GRAMS/MI	318.0	286.2	262.8	293.1
NOX GRAMS/MI	.65	.65	.53	.69
FUEL ECONOMY IN MPG	30.26 31.90	33.58	36.65 34.55	32.82
RUN TIME SECONDS	506.	863.	505.	869.
MEASURED DISTANCE MI	3.61 7.53	3.93	3.58 7.46	3.88
SCF, DRY	.977 .979	.980	.978 .979	.980
DFC, WET (DRY)	.961(.945)		.964(.948)	
TOT VOL (SCM) / SAM BLR (SCM)	269.5/ .00		270.5/ .00	

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	741.2
HUMIDITY	G/KG	9.3
TEMPERATURE	DEG C	23.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	286.4	(288.4)
FUEL ECONOMY	MPG	33.58	(33.36)
HYDROCARBONS (THC)	G/MI	.38	(.36)
CARBON MONOXIDE	G/MI	1.14	(1.15)
OXIDES OF NITROGEN	G/MI	.62	(.63)
PARTICULATES	G/MI	.045	(.045)

TABLE C-56. VOLKSWAGEN WITH RETARDED TIMING, WITHOUT TRAP, AND WITH LOW AROMATIC FUEL, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 10 RUN 1
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/16/88
BAG CART NO. 1 / CVS NO. 17
DYNO NO. 2

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-752-F
ODOMETER 23591. KM(14659. MILES)

BAROMETER 741.17 MM HG(29.18 IN HG)
RELATIVE HUMIDITY 63. PCT

DRY BULB TEMP. 24.4 DEG C(76.0 DEG F)
ABS. HUMIDITY 12.4 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.06

BAG RESULTS

BAG NUMBER	1	2	3	4
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT	STABILIZED
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.2 (108.0)	42.8 (109.0)	42.8 (109.0)	41.7 (107.0)
BLOWER REVOLUTIONS	4969.	8513.	4957.	8503.
TOT FLOW STD. CU. METRES(SCF)	99.8 (3524.)	170.8 (6030.)	99.4 (3511.)	170.9 (6036.)
THC SAMPLE METER/RANGE/PPM	30.8/1022/ 31.	23.2/1022/ 23.	24.6/1022/ 25.	24.7/1022/ 25.
THC BCKGRD METER/RANGE/PPM	6.3/1022/ 6.	6.3/1022/ 6.	7.8/1022/ 8.	7.8/1022/ 8.
CO SAMPLE METER/RANGE/PPM	39.4/ 13/ 36.	27.0/ 13/ 24.	31.7/ 13/ 29.	27.6/ 13/ 25.
CO BCKGRD METER/RANGE/PPM	1.9/ 13/ 2.	.7/ 13/ 1.	.0/ 13/ 0.	.1/ 13/ 0.
CO2 SAMPLE METER/RANGE/PCT	82.8/ 11/ .7803	50.7/ 11/ .3919	67.1/ 11/ .5730	52.2/ 11/ .4072
CO2 BCKGRD METER/RANGE/PCT	8.3/ 11/ .0496	7.9/ 11/ .0471	7.2/ 11/ .0427	7.3/ 11/ .0433
NOX SAMPLE METER/RANGE/PPM	49.2/ 1/ 12.4	29.5/ 1/ 7.5	45.1/ 1/ 11.3	33.9/ 1/ 8.6
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1	.2/ 1/ .1	.9/ 1/ .2	.9/ 1/ .2
DILUTION FACTOR	16.69	33.11	22.71	31.87
THC CONCENTRATION PPM	25.	17.	17.	17.
CO CONCENTRATION PPM	33.	23.	28.	24.
CO2 CONCENTRATION PCT	.7337	.3463	.5321	.3652
NOX CONCENTRATION PPM	12.3	7.4	11.1	8.3
FILTER WT. MG (EFFICIENCY, %)	1.725 (91.)	1.173 (86.)	1.021 (88.)	1.121 (86.)
THC MASS GRAMS	1.45	1.70	.99	1.71
CO MASS GRAMS	3.89	4.61	3.24	4.82
CO2 MASS GRAMS	1340.7	1082.7	968.6	1143.0
NOX MASS GRAMS	2.48	2.56	2.24	2.88
PARTICULATE MASS GRAMS	.82	.59	.50	.56
THC GRAMS/MI	.40	.43	.27	.44
CO GRAMS/MI	1.08	1.18	.89	1.23
CO2 GRAMS/MI	370.8	276.5	267.5	292.3
NOX GRAMS/MI	.69	.65	.62	.74
FUEL ECONOMY IN MPG	26.01 29.92	34.75	36.03 34.33	32.88
RUN TIME SECONDS	506.	867.	506.	868.
MEASURED DISTANCE MI	3.62 7.53	3.92	3.62 7.53	3.91
SCF, DRY	.972 .974	.976	.974 .975	.976
DFC, WET (DRY)	.959(.939)		.964(.944)	
TOT VOL (SCM) / SAM BLR (SCM)	270.6/ .00		270.4/ .00	

COMPOSITE RESULTS

TEST NUMBER
BAROMETER MM HG 741.2
HUMIDITY G/KG 12.4
TEMPERATURE DEG C 24.4

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	293.5	(298.1)
FUEL ECONOMY	MPG	32.79	(32.28)
HYDROCARBONS (THC)	G/MI	.38	(.38)
CARBON MONOXIDE	G/MI	1.08	(1.10)
OXIDES OF NITROGEN	G/MI	.65	(.67)
PARTICULATES	G/MI	.163	(.160)

TABLE C-57. VOLKSWAGEN BASELINE WITH TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 1 RUN 7
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/18/88
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 2380. KM(1479. MILES)

BAROMETER 739.65 MM HG(29.12 IN HG)
RELATIVE HUMIDITY 54. PCT

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 10.0 GM/KG

NOX HUMIDITY CORRECTION FACTOR .98

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	42.8 (109.0)	42.8 (109.0)	42.8 (109.0)
BLOWER REVOLUTIONS	4952.	8529.	4944.
TOT FLOW STD. CU. METRES(SCF)	99.0 (3497.)	170.7 (6026.)	98.9 (3491.)
THC SAMPLE METER/RANGE/PPM	19.4/1022/ 19.	14.9/1022/ 15.	15.9/1022/ 16.
THC BCKGRD METER/RANGE/PPM	6.4/1022/ 6.	6.4/1022/ 6.	5.5/1022/ 6.
CO SAMPLE METER/RANGE/PPM	38.0/ 13/ 35.	26.2/ 13/ 24.	33.0/ 13/ 30.
CO BCKGRD METER/RANGE/PPM	1.7/ 13/ 1.	1.2/ 13/ 1.	1.2/ 13/ 1.
CO2 SAMPLE METER/RANGE/PCT	73.5/ 11/ .6530	51.6/ 11/ .4011	68.2/ 11/ .5863
CO2 BCKGRD METER/RANGE/PCT	8.1/ 11/ .0483	7.9/ 11/ .0471	8.1/ 11/ .0483
NOX SAMPLE METER/RANGE/PPM	61.5/ 1/ 15.4	40.2/ 1/ 10.1	56.0/ 1/ 14.1
NOX BCKGRD METER/RANGE/PPM	.4/ 1/ .1	.3/ 1/ .1	.2/ 1/ .1
DILUTION FACTOR	20.53	33.39	22.88
THC CONCENTRATION PPM	13.	9.	11.
CO CONCENTRATION PPM	33.	22.	28.
CO2 CONCENTRATION PCT	.6070	.3554	.5401
NOX CONCENTRATION PPM	15.3	10.0	14.0
FILTER WT. MG (EFFICIENCY, %)	.255 (55.)	.209 (57.)	.226 (59.)
THC MASS GRAMS	.76	.86	.61
CO MASS GRAMS	3.75	4.39	3.26
CO2 MASS GRAMS	1100.7	1110.4	977.5
NOX MASS GRAMS	2.84	3.20	2.59
PARTICULATE MASS GRAMS	.19	.16	.16
THC GRAMS/MI	.21	.22	.17
CO GRAMS/MI	1.04	1.13	.91
CO2 GRAMS/MI	306.4	285.8	271.8
NOX GRAMS/MI	.79	.82	.72
FUEL ECONOMY IN MPG	32.93	35.27	37.14
RUN TIME SECONDS	505.	868.	505.
MEASURED DISTANCE MI	3.59	3.89	3.60
SCF, DRY	.977	.979	.977

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	739.6
HUMIDITY	G/KG	10.0
TEMPERATURE	DEG C	23.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	286.2	(.0)
FUEL ECONOMY	MPG	35.24	(.00)
HYDROCARBONS (THC)	G/MI	.20	(.00)
CARBON MONOXIDE	G/MI	1.05	(.00)
OXIDES OF NITROGEN	G/MI	.79	(.00)
PARTICULATES	G/MI	.045	(.000)

TABLE C-58. VOLKSWAGEN BASELINE WITHOUT TRAP, FTP

SOUTHWEST RESEARCH INSTITUTE - DEPARTMENT OF EMISSIONS RESEARCH
FTP - VEHICLE EMISSIONS RESULTS -
PROJECT 08-1280-001

TEST NO. 2 RUN 6
VEHICLE MODEL 0 VW JETTA
ENGINE 1.6 L(98. CID) L-4
TRANSMISSION A3

VEHICLE NO.
DATE 5/19/88
BAG CART NO. 1
DYNO NO. 2
CVS NO. 17

TEST WEIGHT 1191. KG(2625. LBS)
ACTUAL ROAD LOAD 5.2 KW(7.0 HP)
DIESEL EM-619-F
ODOMETER 23920. KM(14863. MILES)

BAROMETER 737.62 MM HG(29.04 IN HG)
RELATIVE HUMIDITY 58. PCT

DRY BULB TEMP. 23.3 DEG C(74.0 DEG F)
ABS. HUMIDITY 10.8 GM/KG

NOX HUMIDITY CORRECTION FACTOR 1.00

BAG RESULTS

BAG NUMBER	1	2	3
DESCRIPTION	COLD TRANSIENT	STABILIZED	HOT TRANSIENT
BLOWER DIF P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET P MM. H2O(IN. H2O)	1778.0 (70.0)	1778.0 (70.0)	1778.0 (70.0)
BLOWER INLET TEMP. DEG. C(DEG. F)	37.8 (100.0)	40.6 (105.0)	42.8 (109.0)
BLOWER REVOLUTIONS	4951.	8504.	4942.
TOT FLOW STD. CU. METRES(SCF)	99.8 (3525.)	170.3 (6013.)	98.5 (3477.)
THC SAMPLE METER/RANGE/PPM	25.4/1022/ 25.	17.9/1022/ 18.	18.2/1022/ 18.
THC BCKGRD METER/RANGE/PPM	5.6/1022/ 6.	5.6/1022/ 6.	5.2/1022/ 5.
CO SAMPLE METER/RANGE/PPM	37.0/ 13/ 34.	27.2/ 13/ 25.	30.3/ 13/ 28.
CO BCKGRD METER/RANGE/PPM	.5/ 13/ 0.	.5/ 13/ 0.	.4/ 13/ 0.
CO2 SAMPLE METER/RANGE/PCT	74.7/ 11/ .6687	52.0/ 11/ .4052	65.5/ 11/ .5539
CO2 BCKGRD METER/RANGE/PCT	7.6/ 11/ .0452	7.6/ 11/ .0452	6.4/ 11/ .0378
NOX SAMPLE METER/RANGE/PPM	62.8/ 1/ 15.8	40.3/ 1/ 10.1	55.5/ 1/ 13.9
NOX BCKGRD METER/RANGE/PPM	.9/ 1/ .2	.8/ 1/ .2	.7/ 1/ .2
DILUTION FACTOR	20.04	33.02	24.21
THC CONCENTRATION PPM	20.	12.	13.
CO CONCENTRATION PPM	33.	24.	26.
CO2 CONCENTRATION PCT	.6257	.3613	.5176
NOX CONCENTRATION PPM	15.5	9.9	13.8
FILTER WT. MG (EFFICIENCY, %)	1.892 (93.)	1.544 (91.)	1.420 (92.)
THC MASS GRAMS	1.16	1.23	.75
CO MASS GRAMS	3.78	4.67	3.03
CO2 MASS GRAMS	1143.5	1126.5	933.3
NOX MASS GRAMS	2.97	3.24	2.59
PARTICULATE MASS GRAMS	.89	.74	.66
THC GRAMS/MI	.32	.32	.21
CO GRAMS/MI	1.04	1.21	.84
CO2 GRAMS/MI	315.3	292.7	259.9
NOX GRAMS/MI	.82	.84	.72
FUEL ECONOMY IN MPG	31.97	34.39	38.81
RUN TIME SECONDS	506.	868.	504.
MEASURED DISTANCE MI	3.63	3.85	3.59
SCF, DRY	.975	.978	.976

COMPOSITE RESULTS

TEST NUMBER		
BAROMETER	MM HG	737.6
HUMIDITY	G/KG	10.8
TEMPERATURE	DEG C	23.3

		3-BAG	(4-BAG)
CARBON DIOXIDE	G/MI	288.4	(.0)
FUEL ECONOMY	MPG	34.93	(.00)
HYDROCARBONS (THC)	G/MI	.29	(.00)
CARBON MONOXIDE	G/MI	1.08	(.00)
OXIDES OF NITROGEN	G/MI	.80	(.00)
PARTICULATES	G/MI	.201	(.000)