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J57-59W ENGINE EMISSION TEST REPORT.(U)
JUL 78 A F SOUZA, H A SCOTT
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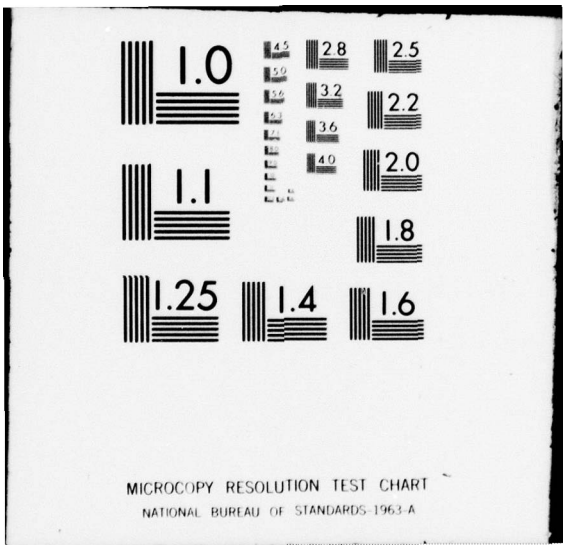
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CEEDO-TR-78-37

J57-59W Engine Emission Test Report

SCOTT ENVIRONMENTAL TECHNOLOGY, INCORPORATED
PLUMBSTEADVILLE, PENNSYLVANIA 18949

Anthony F Souza
Harold A Scott, Jr

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FINAL REPORT FOR PERIOD NOVEMBER 1976-DECEMBER 1977

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CEEDO

CIVIL AND ENVIRONMENTAL
ENGINEERING DEVELOPMENT OFFICE
(AIR FORCE SYSTEMS COMMAND)
TYNDALL AIR FORCE BASE
FLORIDA 32403

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19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Gas Turbine Engines	Air Pollution	Carbon Monoxide
Exhaust Emissions	Smoke	Total Hydrocarbons
J57-59W	Particulate	Oxides of Nitrogen

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

The exhaust emissions from three J57-59W water injected turbojet engines were measured. Emission rates of hydrocarbons, carbon monoxide and oxides of nitrogen were calculated. Smoke opacity and particulate loading were also measured. Best estimate emission factors are presented.

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PREFACE

This report documents work performed during the period November 1976 through December 1977 by Scott Environmental Technology, Inc, Plumbsteadville PA 18949, under Contract FY8952-77-625 with Det 1 Armament Development and Test Center, Air Force Systems Command, Tyndall Air Force Base FL 32403. Lieutenant Harold A. Scott, Det 1 ADTC/ECA, managed the program.

A special thanks is given to SMSgt John Hamilton and the 189th MAF, Arkansas National Guard, Little Rock Air Force Base AR for their outstanding support of this project.

AlC William Burdick performed all Ringelmann opacity readings and compiled the data.

This report has been reviewed by the Office of Information (OI) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This report is approved for publication.

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TABLE OF CONTENTS

Section	Title	Page
I	INTRODUCTION	1
II	SUMMARY	2
III	EXHAUST EMISSION MEASUREMENT	4
	3.0 Description of Data	4
IV	PARTICULATE MEASUREMENTS	8
V	SMOKE OPACITY	12
VI	DISCUSSION OF RESULTS	13
APPENDICES		
A	Model Summaries	15
B	Individual Engine Test Reports	18
C	Mass Data Calculations	22
D	Engine Test Data	35
E	Smoke Edit Reports	39
F	Concentration Edit Reports	43
G	Ringelmann Opacity Readings	82

LIST OF ILLUSTRATIONS

Figure	Title	Page
3-1	Photograph of MEL	5
3-2	Photograph of MEL Interior	5
3-3	MEL Adjacent to J57 Test Cell	6
3-4	Sample Probe and Opacity Meter Installed Behind J57 Test Cell	6
4-1	Particulate Sampling System	9

LIST OF TABLES

Table	Title	Page
2-1	J57-59W Engine Emission Factors - Gaseous Emissions	2
2-2	J57-59W Engine Emission Factors - Particulate Emissions	3
2-3	J57-59W Opacity Measurements	3
4-1	Particulate Summary J57-59W Engine Tests, Little Rock AFB, September 1977	10
5-1	Smoke Transmissometer Readings	12
6-1	Relative Emissions Increases from Water Augmentation J57-59W	14
6-2	J57-59W Opacity and Smoke Number Measurements	14
6-3	J57-59W Opacity Measurements (Ringelmann)	84

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SECTION I

INTRODUCTION

In a program performed under Air Force Contract Number F08635-77-C-0216, Scott Environmental Technology, Inc., measured the exhaust emissions of three J57-59W engines. The tests were performed on two overhauled and one recently repaired engine at the Air National Guard Test Cell at Little Rock Air Force Base, Arkansas. The emission tests consisted of analysis of the exhaust gases, smoke level and particulate emissions. Smoke and gas analysis were performed using the Air Force Mobile Emissions Laboratory (MEL). The MEL is a state-of-the-art analysis system for turbine engine exhaust emissions measurement. It meets all the standards of the Environmental Protection Agency (40CFR87) and the SAE Aerospace Recommended Practice (ARP) 1256.

A traversing probe was used to collect exhaust samples from four centers of equal area located along an exhaust plane radius. The center point was also sampled for completeness. Complete traverses across the exhaust plume were not possible due to interferences between the traverse probe and the engine stand restraint system. The traverse probe sample inlets were located 1.23 meters downstream of the engine exhaust plane. The smoke transmissometer mounting frame was located 0.51 meters behind the engine exhaust plane. The smoke meter light beam was directed horizontally across the J57 exhaust plume. In addition, Ringelmann readings were made of the exhaust plume.

The emission tests were made at idle, intermediate, military and take-off power. The J57-59W uses water injection at take-off power. Emissions tests were performed during continuous engine operation at idle, intermediate and military power. Due to the restriction of running time at take-off power, the engine was returned to military in between five- minute power bursts to take-off power. One each power burst was used for each one of the five probe samples.

The engine tests are marked 4, 5, and 6 in the data to separate them from tests of a different engine model performed earlier in the program.

SECTION II

SUMMARY

As a result of the tests reported herein, the best estimate emission factors for the J57-59W engine have been determined. The factors for the gaseous and particulates emissions are the mean values for the three tests. Likewise, the smoke opacity data are the means for the three engines tested.

TABLE 2-1. J57-59W ENGINE EMISSION FACTORS
Gaseous Emissions

Pollutant	Mode	Emission Index Grams Per Kilograms of Fuel	Emission Rate Kilograms Per Hour
Total Hydrocarbons	Idle	52.90	29.89
	Int.	1.13	1.98
	Mil.	0.21	0.74
	T/O*	2.19	12.02
Carbon Monoxide	Idle	64.90	36.65
	Int.	8.85	15.47
	Mil.	2.37	8.53
	T/O*	21.10	116.12
Total Oxides of Nitrogen	Idle	2.38	1.36
	Int.	6.13	10.75
	Mil.	11.30	40.46
	T/O*	2.71	14.88

*Water augmentation was used in the T/O mode.

TABLE 2-2. J57-59W ENGINE EMISSION FACTORS
Particulate Emissions

Pollutant	Mode	Emission Index Grams Per Kilograms of Fuel	Emission Rate Kilograms Per Hour
Particulates	Mil.	10.43	2.27
	T/O*	123.83	19.05

*Water augmentation was used in the T/O mode.

TABLE 2-3. J57-59W ENGINE SMOKE OPACITY MEASUREMENTS

Parameter	Mode	Smoke Opacity (%)
Smoke Opacity	Idle	1
	Int.	5
	Mil.	8
	T/O*	18

*Water augmentation was used in the T/O mode.

SECTION III

EXHAUST EMISSION MEASUREMENTS

These measurements were performed by the techniques described in Reference 1 using the Air Force Mobile Emissions Laboratory (MEL) instrumentation and sampling systems. Figures 3-1 and 3-2 are photographs of the MEL and its interior. Figure 3-3 illustrates the MEL's location adjacent to the J57 test cell at Little Rock Air Force Base and Figure 3-4 shows the sample probe being aligned behind the test engine and the opacity meter framework location behind the engine. Calculation of gaseous emission rates was performed using the concentrations measured at the engine exhaust. The procedure is specified in SAE ARP 1256 (Reference 2). The emission rates of total hydrocarbon, carbon monoxide and total oxides of nitrogen were calculated from the exhaust concentrations measured at the various power levels tested. The emission rates of the total oxides of sulfur were calculated from the fuel analysis and fuel flow rates. Emission rates are reported in Emission Index (pounds per thousand pounds of fuel) and pounds per hour. The gas analysis data are contained in several computer generated reports which follow in the appendix. The first report called the Model Summary Report (Appendix A) is a statistical summary of the test results in an emission index format. Next are listed the Individual Engine Test Reports (Appendix B) which describe the test results obtained from each engine. The raw data which were used in calculating the results listed in the first two reports are contained in the remaining material in this section. These reports are: Mass Calculation; Engine Edit Report; Smoke Edit Report; and Concentration Edit Report (Appendices C through F).

Due to restrictions imposed on the traversing probe movement by the proximity of the engine test stand restraining harness, only the lower right hand quadrant of the engine exhaust plane (observer facing upstream) could be sampled. Four sample points at centers of equal area plus the engine center point were sampled. The traversing probe was located 1.23 meters behind the engine exhaust plane.

3.0 Description Of Data

All the data of tests 4 and 5 are mass flow weighted. The data of test 6 are area weighted since no exhaust gas temperatures were available for use in calculating exhaust gas flow rates. This was caused by a failure of the exhaust gas thermocouple which went undetected during the test run.

Ref. 1 Air Force Emissions Survey, Scott Environmental Technology, Inc., August 1977, Report Number 1492-50-08-77

Ref. 2 Procedure for the Continuous Measurement of Gas Turbine Exhaust Emissions - Society of Automotive Engineers, ARP 1256.

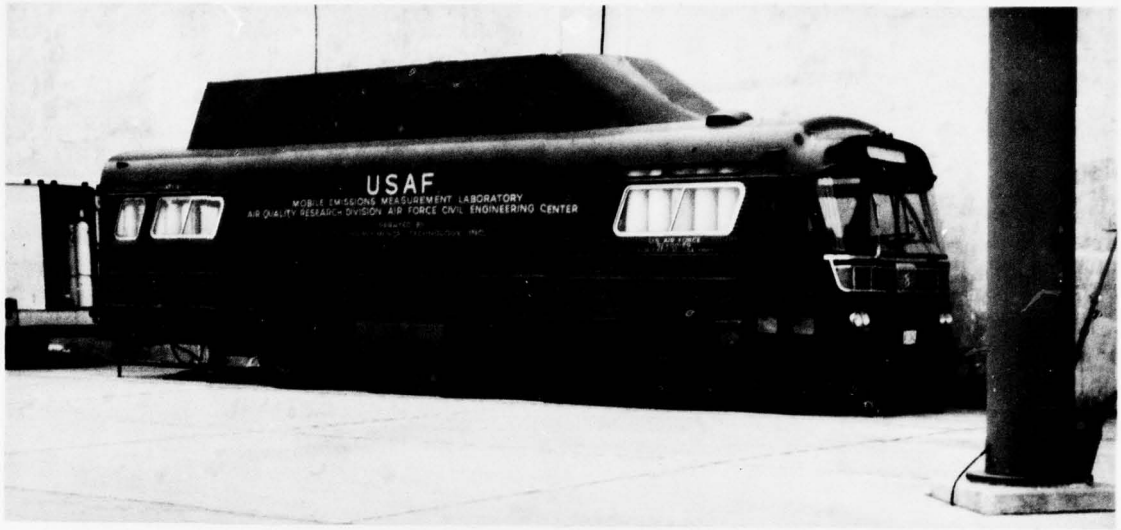

Figure 3-1. Photograph of MEL

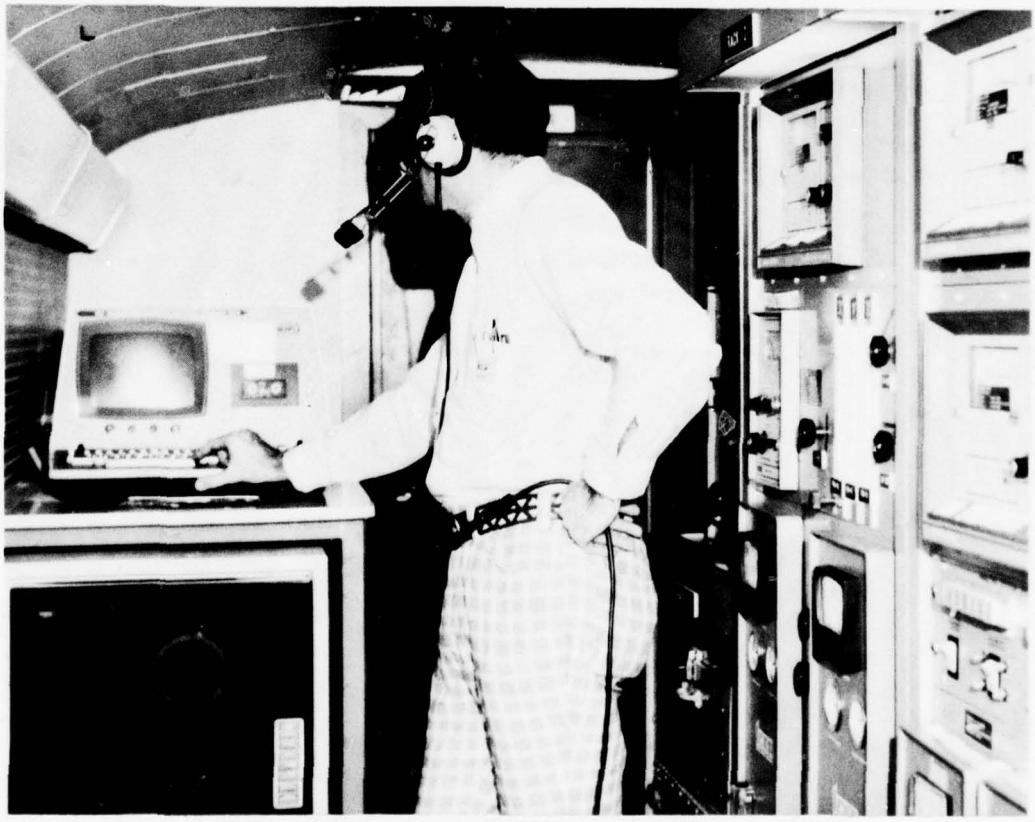

Figure 3-2. Photograph of MEL Interior

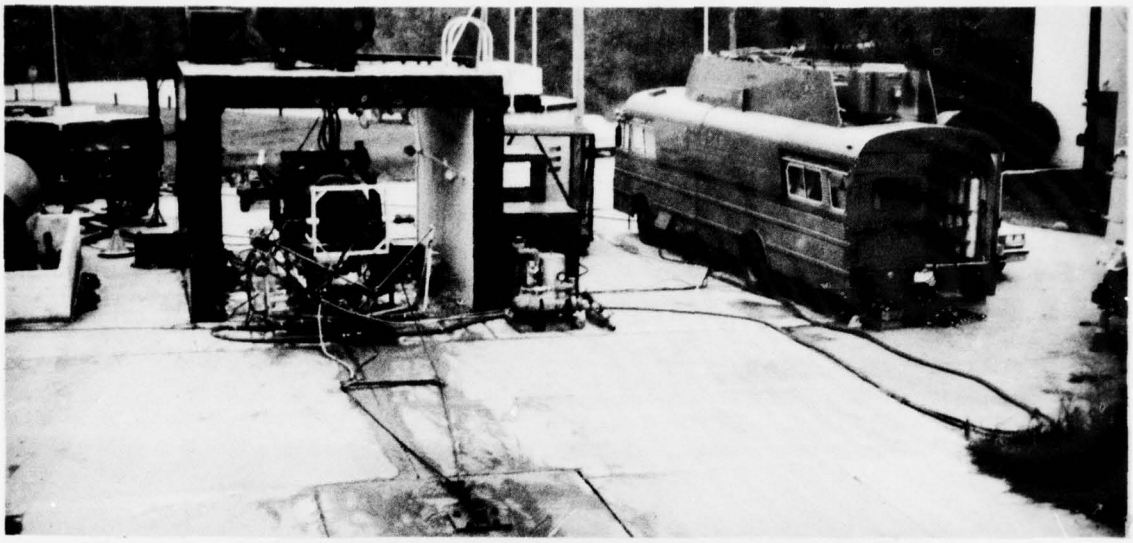

Figure 3-3. MEL Adjacent to J57 Test Cell

Figure 3-4. Sample Probe and Opacity Meter Installed Behind J-57 Test Engine

The variations in the data are typical for turbine engine tests. A larger sample would have produced a more statistically significant result. The results for the main pollutants of interest; total hydrocarbons, carbon monoxide, and total oxides of nitrogen, are quite consistent from engine to engine. Total hydrocarbons at military power always show significant variation mostly because the emission levels are very low and a change in a few parts per million of hydrocarbon concentration changes the emission index several percent.

SECTION IV

PARTICULATE MEASUREMENTS

Particulate loading measurements of the J57 exhaust were made at military and take-off power setting. The technique used conformed to Environmental Protection Agency Method 5 as published in 40CFR 23 December 1971. The condensible fraction was determined using the method of LAAPCD Source Testing Manual, December 1972.

The particulate sampling system is illustrated in Figure 4-1. A special particulate probe was fashioned from one-fourth inch OD stainless steel tubing bent so that the inlet end of the tube faced into the jet exhaust. The particulate probe inlet was positioned halfway between the smoke probe and the gas probe inlets on the traversing probe. A constant flow rate was drawn into the particulate system using a Scott Model 100 sampling system which conforms to the specifications of EPA Method 5. The sample rate of approximately 0.35 liters/second was set by adjusting ΔH to 4.57 centimeters of water differential.

Table 4-1 lists the results of the particulate measurements. It was not possible to calculate the particulate emission rates for test 6 due to the missing exhaust volume rates. The particulate emission rates were calculated from the measured particulate loadings and the measured exhaust volume flow rates. The following equations were used:

$$\text{Exhaust Volume Flow Rate (l/s)} = \overline{\rho V}\, Ag \times 2.17\ \text{l/kg} = \dot{V} \qquad (1)$$

$$\text{Emission Rate (kg/hr)} = \frac{\text{mg}}{\text{l}} \times \frac{1.0\text{g}}{1000\text{mg}} \times \dot{V} \times 3600\ \text{s/hr} \qquad (2)$$

$$\text{Emission Rate (g/kg)} = \frac{\text{g/hr emission}}{\text{kg/hr fuel}} \qquad (3)$$

Where: $\overline{\rho V}$ is the mass weighting parameter and has the units kg-s/m^3

A is the nozzle area ($0.30\ \text{m}^2$)

g is the gravitational constant $9.81\ \text{m/s}^2$

$\dot{V}$ is the exhaust volume flow rate l/s

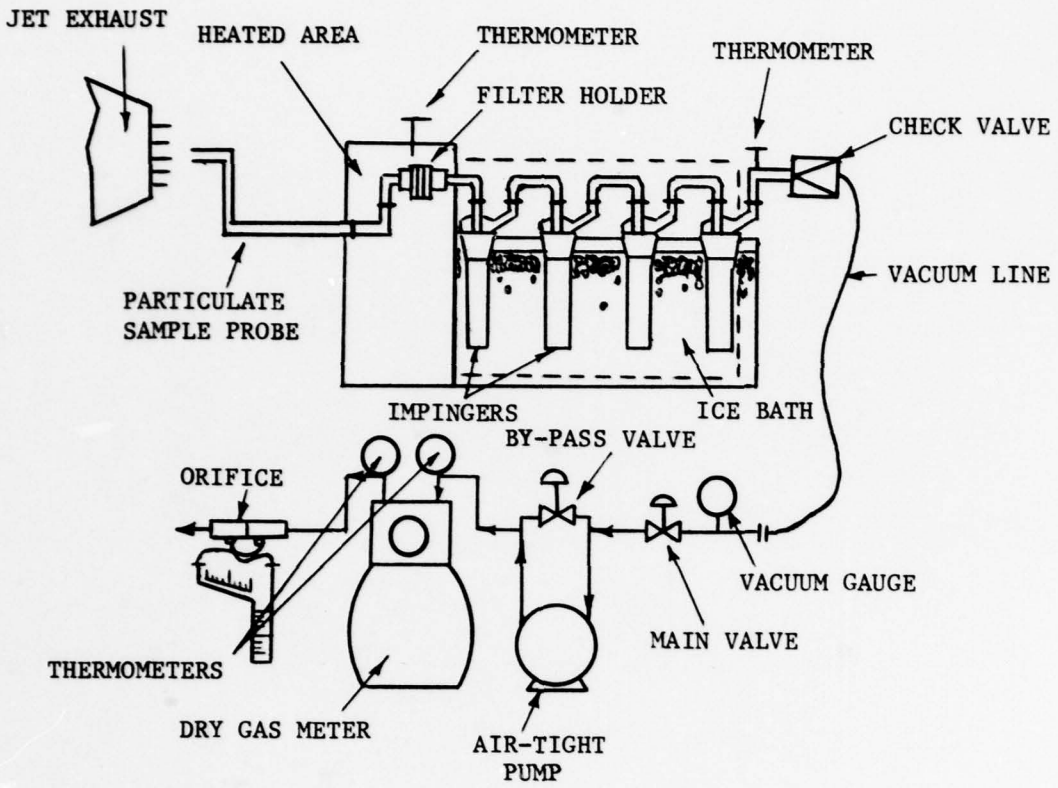

Figure 4-1. Particulate Sampling System

TABLE 4-1. PARTICULATE SUMMARY
J57-59W ENGINE TESTS, LITTLE ROCK AFB, SEPTEMBER 1977

Test No.	4		5		6	
	MIL	T/O	MIL	T/O	MIL	T/O
Acetone Front Fraction - mg	3.00	4.3	3.1	3.5	13.4	6.9
Filter Fraction - mg	10.9	56.6	27.3	59.2	24.8	84.2
Total Front - mg	13.9	60.9	30.4	62.7	38.2	91.1
Organic Extract Fraction - mg	11.9	11.9	13.1	2.4	12.7	11.5
Water Residue Fraction - mg	14.5	6.0	13.0	3.7	18.7	3.4
Total Back - mg	26.4	17.9	26.1	6.1	31.4	14.9
Total - mg	40.3	78.8	56.5	68.8	69.6	106.0
Sample Volume						
Measured Vol. - Cu Ft	10.663	4.618	8.743	4.316	8.794	4.413
Wet Test Meter Temp. - ^{o}R	537.1	538.1	534.2	540.6	533.5	537.1
Barometric Press. - ΔHg	29.91	29.91	29.70	29.70	29.70	29.70
ΔH Orifice Press. Drop - ΔHg	1.6	1.8	1.8	1.8	1.8	1.8
Sample Vol. - scf*	10.56	4.566	8.647	4.218	8.709	4.341
Water Content						
Final Vol of H_2O Impinger + Silica Gel - ml	176.2	221.8	215.9	245.6	186.2	217.5
Initial Vol. of H_2O - ml	200	200	200	200	200	200
Vol. of H_2O Collected - ml	-23.8	21.8	15.9	45.6	-13.8**	17.5
% Moisture in Exhaust	--	18.5	8.02	33.9	--	16.04
Particulate Loading mg/scf	1.31	13.34	3.52	14.86	4.39	20.99
Organic Exhaust Fraction mg/scf	1.13	2.61	1.51	0.57	1.46	2.65
Residual H_2O Fraction mg/scf	1.37	1.31	1.50	0.88	2.15	0.78
Total Emission - mg/scf	3.82	17.3	6.53	16.3	7.99	24.4

* 29.92 inches Hg, 70^{o}F

** Accidental water loss (occurred after test)

TABLE 4-1. PARTICULATE SUMMARY
J57-59W ENGINE TESTS LITTLE ROCK AFB, SEPTEMBER 1977 (continued)

Test No.	4		5		6	
	MIL	T/O	MIL	T/O	MIL	T/O
% of Total by Weight						
Solvent Solubles	29.5	15.1	23.2	3.5	18.2	10.9
Water Solubles	36.0	7.6	23.0	5.4	26.9	3.2
Filtrate	34.5	77.3	53.8	91.1	54.9	85.9
	100	100	100	100	100	100
Emission Rates						
Particulate #/hr	22.73	249.28	60.55	297.38	*	*
Particulate #/K# fuel	2.88	20.8	7.66	24.2	*	*

* Exhaust volume flow not measured

SECTION V

SMOKE OPACITY

The smoke opacity of the J57-59W test engines was measured using a Wager Model P5 Smoke Transmissometer. The smoke meter was mounted so as to measure horizontally across the exhaust plane at a point 50.8 cm aft of the exhaust nozzle. Table 5-1 contains the smoke density readings obtained on the three J57-59W engines tested. Zero opacity corresponds to no attenuation of the light beam and 100 percent opacity would be complete obscuration of the light beam.

TABLE 5-1. SMOKE TRANSMISSOMETER READINGS

Test No.	Power Mode	Percent Smoke Opacity
4	Idle	1
	Int	4
	Mil	9
	T/O	17
5	Idle	1
	Int	5
	Mil	8
	T/O	17
6	Idle	1
	Int	-
	Mil	7.5
	T/O	19

SECTION VI

DISCUSSION OF RESULTS

The injection of water into the J57-59W results in higher carbon monoxide, hydrocarbon, and particulate emissions rates. Oxides of nitrogen emissions are decreased by the water augmentation. The variations in emissions over the military thrust mode are very significant. Table 6-1 presents the percentage changes in emissions between the military and water augmentation modes.

The drastic changes in emissions are caused by the water being injected in front of the engine's primary compressor turbines. The injection of water quenches the combustion reaction thereby inhibiting formation of nitrogen oxides and complete combustion of the fuel. This quenching is clearly demonstrated by the fact that the water augmented exhaust temperature is only $2^{o}C$ higher than that in military, in spite of a 56 percent greater fuel flow. The net result is an increase in carbon monoxide and hydrocarbons and a decrease in oxides of nitrogen emissions. There is also an increase in particulate emissions because of the addition of the particulate matter from the water and collection of some of the additional hydrocarbons as particulate matter.

Water augmentation also increases the opacity of the J57-59W engine's plume. The opacity of the plume was measured by a transmissometer and a Ringelmann reader. The results from the transmissometer data are much lower than the Ringelmann opacity readings (Table 6-2). This was because the Ringelmann readings were taken after condensation of steam in the plume began to occur. Therefore, the transmissometer indicated a lower opacity measurement than the plumes maximum opacity. Smoke Number measurements were also taken and are shown in Table 6-2.

Table 6-2 presents the means for smoke number, transmissometer and Ringelmann data. The percent change between military and water augmentation is calculated for each type of measurement. The relative increases indicate major increases in both particulate emissions and smoke using water injection.

In conclusion. the results indicate that water augmentation causes increases in almost all emissions except oxides of nitrogen which are lower. These factors are "best estimates" and should be used for environmental assessments.

TABLE 6-1. RELATIVE EMISSIONS INCREASES FROM WATER AUGMENTATION J57-59W

Pollutant	Emissions (kg/hr) Military	Water Augmentation	Percent Increase (Decrease)
Carbon Monoxide	8.5	116.30	1264
Hydrocarbons	0.7	12.0	1556
Oxides of Nitrogen	40.5	14.9	(63)
Particulates	18.9	124.0	557

TABLE 6-2. J57-59W OPACITY AND SMOKE NUMBER MEASUREMENTS

Type of Measurement	Military	Water Augmentation	Percent Increase
Transmissometer (percent opacity)	8.2	18.0	120
Ringelmann (percent opacity)	15.5	45.5	194
S.A.E. Smoke Number	43.0	62.4	45

APPENDIX A

MODEL SUMMARIES

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SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
ENGINE MODEL SUMMARY REPORT

SET 1628-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216

ENGINE MODEL : J57-59W

TEST LOCATION : LRAFB, ARK.

ENGINE 2, PAGE 1

***** CATEGORY B TESTS ONLY *****

EXHAUST MASS EMISSION INDICES :

PARAM	TEST MODE	# / 1000# FUEL NO. OBS	MAX VALUE	MIN VALUE	MEAN	STND DEV	% COEF VAR	# / HR NO. OBS	MAX VALUE	MIN VALUE	MEAN	STND DEV	% COEF VAR
THC	IDLE	3	69.01	38.17	52.91	15.464	29.23	3	86.26	49.62	65.92	18.652	28.30
		0						0					
	INTERMED.	3	1.37	0.74	1.13	0.339	30.05	3	5.35	2.81	4.37	1.366	31.25
	MILITARY	3	0.45	0.05	0.21	0.214	103.36	3	3.57	0.37	1.64	1.701	103.93
	TAKE-OFF	3	2.65	1.95	2.19	0.401	18.35	3	31.85	23.72	26.51	4.629	17.46
CO	IDLE	3	72.84	50.63	64.93	12.407	19.11	3	91.1	65.8	80.8	13.31	1.65
		0						0					
	INTERMED.	3	11.27	6.75	8.85	2.278	25.75	3	42.8	26.3	34.1	8.29	2.43
	MILITARY	3	2.92	2.04	2.37	0.477	20.11	3	23.1	16.1	18.8	3.79	2.02
	TAKE-OFF	3	22.70	18.88	21.12	1.994	9.44	3	274.6	226.6	256.4	26.00	1.01
NOX	IDLE	3	2.40	2.35	2.38	0.026	1.11	3	3.11	2.88	2.98	0.119	4.01
		0						0					
	INTERMED.	3	6.44	5.60	6.13	0.464	7.56	3	25.13	21.27	23.73	2.137	9.01
	MILITARY	3	12.03	10.48	11.29	0.778	6.89	3	95.06	82.79	89.22	6.157	6.90
	TAKE-OFF	3	3.32	2.36	2.71	0.533	19.68	3	39.86	28.57	32.80	6.156	18.77
NO	IDLE	3	0.57	0.19	0.35	0.199	57.28	3	0.71	0.25	0.43	0.244	56.26
		0						0					
	INTERMED.	3	4.87	3.89	4.51	0.537	11.91	3	18.97	14.78	17.43	2.307	13.24
	MILITARY	3	10.56	9.24	9.95	0.665	6.68	3	83.45	72.97	78.57	5.277	6.72
	TAKE-OFF	3	1.52	1.46	1.49	0.030	2.01	3	18.33	17.65	18.08	0.374	2.07
NO2	IDLE	3	2.21	1.78	2.04	0.227	11.14	3	2.87	2.23	2.55	0.320	12.57
		0						0					
	INTERMED.	3	1.71	1.49	1.63	0.122	7.46	3	6.58	5.81	6.29	0.421	6.69
	MILITARY	3	1.47	1.24	1.35	0.116	8.61	3	11.61	9.82	10.65	0.902	8.47
	TAKE-OFF	3	1.80	0.90	1.22	0.506	41.57	3	21.60	10.91	14.72	5.972	40.58
SOX	IDLE	0						3	1.82	1.20	1.42	0.344	24.20
		0						0					
	INTERMED.	0						3	5.32	3.90	4.37	0.820	18.75
	MILITARY	0						3	11.05	7.89	8.94	1.824	20.40
	TAKE-OFF	0						3	16.78	12.09	13.72	2.652	19.33

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SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
ENGINE MODEL SUMMARY REPORT

ENGINE MODEL : J57-59W TEST LOCATION : LRAFB, ARK. ENGINE 2, PAGE 2

***** CATEGORY B TESTS ONLY *****

MEASURED FUEL FLOW & SMOKE NUMBER :

		MEAS. FUEL FLOW - #/HR					SMOKE NUMBER					
	TEST MODE	NO. OBS	MAX VALUE	MIN VALUE	MEAN	STND DEV	% COEF VAR	NO. OBS	MAX VALUE	MIN VALUE	MEAN	STND DEV	% COEF VAR
	IDLE	3	1300	1200	1250	50.0	4.00	3	8.38	4.75	6.54	1.815	27.74
		0						0					
	INTERMED.	3	3900	3800	3867	57.7	1.49	3	34.13	25.75	30.13	4.202	13.95
	MILITARY	3	7900	7900	7900	0.0	0.00	3	43.88	41.75	43.00	1.114	2.59
	TAKE-OFF	3	12300	12000	12133	152.8	1.26	3	67.38	53.75	62.42	7.534	12.07

APPENDIX B

INDIVIDUAL ENGINE TEST REPORTS

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
INDIVIDUAL ENGINE TEST REPORT

SCOTT TEST NUMBER 4, TYPE B TEST DATE : 9/ 6/77 ENGINE 2, NUMBER 1

ENGINE TYPE & MODEL : J57-59W
ENGINE SERIAL # : P630584
TOTAL ENGINE TIME : 0 HRS.
PERFORMANCE TEST RESULTS : PASS

AIR FLOW MEASUREMENT METHOD : NONE

TEST LOCATION : LRAFB - ARK.
TEST CELL NUMBER : NC
TEST CELL OPERATOR : WM
SCOTT SUPERVISOR : FL
INSTRUMENT OPERATOR : PR
SMOKE OPERATOR : DO

TEST ENVIRONMENTAL CONDITIONS :

	START	FINISH
TEST TIME (MIL.TIME) :	1350	1600
INLET AIR TEMP.(DEG.F) :	89.0	89.0
ATMOSPHERIC PRESS.(IN.HG) :	29.58	29.58
RELATIVE HUMIDITY (%) :	64	64
INLET AIR HUMIDITY - (GM H2O/GM DRY AIR) :	0.0190	0.0190

SAMPLE LINE :
FLOW RATE : 23 LPM
TEMPERATURE : 300 DEG.F
LENGTH : 100 FT.

FUEL ANALYSIS :
SAMPLE # : 4
TYPE : JP-4
WT.% CARBON : 85.55
WT.% HYDROGEN : 14.30
WT.% SULFUR : 0.07
H/C RATIO-ATM.: 2.01
C/H RATIO-MASS: 5.98

TEST MODE	% RATED POWER	THRUST #	FUEL FLOW #/HR	AIR FLOW #/HR	F/A ACT	F/A CALC	EPR	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	SMOKE SN	SMOKE #/A
IDLE	2	200	1300			.006		379.26	288.1	1.07	8.29	0.65	7.64	4.75	0.0232
INTERMED.	40	3750	3800			.007	1.500	9.69	84.4	1.49	25.53	17.73	7.79	25.75	0.0232
MILITARY	100	9190	7900			.011	2.300	8.65	23.7	2.18	69.94	61.64	8.29	43.88	0.0232
TAKE-OFF	125	11400	12000			.016	2.790	73.84	300.9	3.14	32.22	14.76	17.46	66.13	0.0232

EXHAUST MASS EMISSION INDICES :

	# / 1000# FUEL						# / HR						
	THC	CO	CO2	NOX	NO	NO2	THC	CO	CO2	NOX	NO	NO2	SOX
IDLE	38.17	50.63	2951	2.39	0.19	2.21	49.62	65.8	3837	3.11	0.25	2.87	1.82
INTERMED.	0.74	11.27	3116	5.60	3.89	1.71	2.81	42.8	11840	21.27	14.78	6.49	5.32
MILITARY	0.45	2.16	3131	10.48	9.24	1.24	3.57	17.1	24734	82.79	72.97	9.82	11.05
TAKE-OFF	2.65	18.88	3099	3.32	1.52	1.80	31.85	226.6	37182	39.86	18.26	21.60	16.78

** AVERAGE CONCENTRATION AND MASS EMISSION DATA ARE MASS-WEIGHTED.

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SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
INDIVIDUAL ENGINE TEST REPORT

SET 1626-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216

SCOTT TEST NUMBER 5, TYPE B

TEST DATE : 9/ 7/77

ENGINE 2, NUMBER 2

ENGINE TYPE & MODEL : J57-59W
ENGINE SERIAL # : P634272
TOTAL ENGINE TIME : 0 HRS.
PERFORMANCE TEST RESULTS : PASS

AIR FLOW MEASUREMENT METHOD : NONE

TEST LOCATION : LRAFB - ARK.
TEST CELL NUMBER : NG
TEST CELL OPERATOR : WM
SCOTT SUPERVISOR : FL
INSTRUMENT OPERATOR : PR
SMOKE OPERATOR : DO

TEST ENVIRONMENTAL CONDITIONS :

	START	FINISH
TEST TIME (MIL.TIME) :	1410	1610
INLET AIR TEMP.(DEG.F) :	87.0	87.0
ATMOSPHERIC PRESS.(IN.HG) :	29.70	29.70
RELATIVE HUMIDITY (%) :	63	63
INLET AIR HUMIDITY - (GM H2O/GM DRY AIR) :	0.0176	0.0176

SAMPLE LINE :
FLOW RATE : 23 LPM
TEMPERATURE : 300 DEG.F
LENGTH : 100 FT.

FUEL ANALYSIS :
SAMPLE # : 5
TYPE : JP-4
WT.% CARBON : 85.53
WT.% HYDROGEN : 14.62
WT.% SULFUR : 0.05
H/C RATIO-ATM.: 2.05
C/H RATIO-MASS: 5.85

TEST MODE	% RATED POWER	THRUST #	FUEL FLOW #/HR	AIR FLOW #/HR	F/A ACT	F/A CALC	EPR	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	SMOKE SN	SMOKE M/A
IDLE	2	250	1250			.005		632.30	382.2	0.94	7.51	1.81	5.69	8.38	0.0233
INTERMED.	40	3460	3900			.007	1.500	16.30	49.6	1.46	28.43	21.76	6.67	30.50	0.0233
MILITARY	100	9090	7900			.011	2.310	0.91	22.7	2.22	81.64	71.66	9.97	43.38	0.0233
TAKE-OFF	125	11580	12300			.016	2.790	55.92	358.2	3.23	24.39	14.92	9.47	67.38	0.0233

EXHAUST MASS EMISSION INDICES :

	# / 1000# FUEL						# / HR						
	THC	CO	CO2	NOX	NO	NO2	THC	CO	CO2	NOX	NO	NO2	SOX
IDLE	69.01	72.84	2823	2.35	0.57	1.78	86.26	91.1	3528	2.94	0.71	2.23	1.25
INTERMED.	1.27	6.75	3112	6.36	4.87	1.49	4.95	26.3	12138	24.79	18.97	5.81	3.90
MILITARY	0.05	2.04	3123	12.03	10.56	1.47	0.37	16.1	24673	95.06	83.45	11.61	7.89
TAKE-OFF	1.95	21.78	3087	2.44	1.49	0.95	23.95	267.9	37969	29.96	18.33	11.64	12.29

** AVERAGE CONCENTRATION AND MASS EMISSION DATA ARE MASS-WEIGHTED.

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
INDIVIDUAL ENGINE TEST REPORT

SCOTT TEST NUMBER 6, TYPE B TEST DATE : 9/ 8/77 ENGINE 2, NUMBER 3

ENGINE TYPE & MODEL : J57-59W
ENGINE SERIAL # : P634817
TOTAL ENGINE TIME : 1759 HRS.
PERFORMANCE TEST RESULTS : PASS

AIR FLOW MEASUREMENT METHOD : NONE

TEST LOCATION : LRAFB - ARK.
TEST CELL NUMBER : N6
TEST CELL OPERATOR : WM
SCOTT SUPERVISOR : FL
INSTRUMENT OPERATOR : PR
SMOKE OPERATOR : AS

TEST ENVIRONMENTAL CONDITIONS :

	START	FINISH
TEST TIME (MIL.TIME) :	1315	1500
INLET AIR TEMP.(DEG.F) :	88.0	88.0
ATMOSPHERIC PRESS.(IN.HG) :	29.70	29.70
RELATIVE HUMIDITY (%) :	55	55
INLET AIR HUMIDITY - (GM H2O/GM DRY AIR) :	0.0159	0.0159

SAMPLE LINE :
FLOW RATE : 23 LPM
TEMPERATURE : 300 DEG.F
LENGTH : 100 FT.

FUEL ANALYSIS :
SAMPLE # : 6
TYPE : JP-4
WT.% CARBON : 85.59
WT.% HYDROGEN : 14.28
WT.% SULFUR : 0.05
H/C RATIO-ATM.: 2.00
C/H RATIO-MASS: 5.99

TEST MODE	% RATED POWER	THRUST #	FUEL FLOW #/HR	AIR FLOW #/HR	F/A ACT	F/A CALC	EPR	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	SMOKE SN	SMOKE M/A
IDLE	2	200	1200			.005		480.64	380.8	0.98	7.80	0.92	6.88	6.50	0.0232
INTERMED.	40	4570	3900			.006	1.500	15.90	56.5	1.32	26.02	19.21	6.81	34.13	0.0232
MILITARY	100	9720	7900			.010	2.280	2.12	28.9	1.98	66.64	60.60	6.04	41.75	0.0232
TAKE-OFF	125	13160	12100			.017	2.780	57.93	384.1	3.33	24.32	15.03	9.29	53.75	0.0232

EXHAUST MASS EMISSION INDICES :

	# / 1000# FUEL						# / HR						
	THC	CO	CO2	NOX	NO	NO2	THC	CO	CO2	NOX	NO	NO2	SOX
IDLE	51.56	71.32	2884	2.40	0.28	2.12	61.87	85.6	3461	2.88	0.34	2.54	1.20
INTERMED.	1.37	8.52	3121	6.44	4.76	1.69	5.35	33.2	12170	25.13	18.55	6.58	3.90
MILITARY	0.12	2.92	3133	11.37	10.04	1.33	0.97	23.1	24749	89.82	79.29	10.52	7.89
TAKE-OFF	1.96	22.70	3097	2.36	1.46	0.90	23.72	274.6	37470	28.57	17.65	10.91	12.09

** AVERAGE CONCENTRATION AND MASS EMISSION DATA ARE AREA-WEIGHTED.

@FIN

STOP REPORT

APPENDIX C

MASS DATA CALCULATIONS

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * START RUN 4 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P630584 TEST TYPE : B
BP : 29.58 IN.HG IAT : 89.0 DEG.F FUEL : # 4 - JP-4 H/C RATIO(ATM) : 2.01 FUEL SULFUR : .07 %

***** MODE 1 - IDLE (THRUST = 200 #) *****

PT1 = .00 IN.H2O PT2 = .00 IN.H2O PS2 = .00 IN.H2O PT3 = 17.1 PSIG PT5/7 = 32.6 IN.HG
EPR = .000 FUEL FLOW = 1300. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	W/A
1	, ,	320.8	14.5	.0000	.00	.0000	236.73	278.64	.69	5.57	.99	4.58	3.00	.0232
2	, ,	381.2	15.3	.0015	384.70	.5665	347.65	261.04	.89	6.74	.69	6.05	5.50	.0232
3	, ,	461.2	15.6	.0014	471.54	.6375	439.97	309.39	1.10	8.51	.69	7.82	5.00	.0232
4	, ,	525.0	15.8	.0013	529.01	.6712	348.32	290.74	1.19	9.40	.59	8.81	5.50	.0232
* 5	, ,	523.2	15.5	.0013	464.83	.5876	347.09	283.66	1.16	9.22	.52	8.70	12.00	.0232
AVERAGE : NUM.		422.1	15.3	.0014	461.75	.6251	343.17	284.95	.97	7.55	.74	6.81	4.75	.0232
MASS-WGHTD.							379.28	288.11	1.07	8.29	.65	7.64		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .005 , MASS-WGHTD. = .006

MASS EMISSIONS :

	---- THC --- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ---* #/1000#	#/HR	*---- NOX ---* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ---* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	38.06	49.48	55.19	71.7	2944.	3828.	2.40	3.12	.24	.31	2.17	2.82	1.82
MASS-WGHTD.	38.17	49.62	50.63	65.8	2951.	3837.	2.39	3.11	.19	.25	2.21	2.87	1.82

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * CONT. RUN 4 * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P630584 TEST TYPE : B
BP : 29.58 IN.HG IAT : 89.0 DEG.F FUEL : # 4 - JP-4 H/C RATIO(ATM) : 2.01 FUEL SULFUR : .07 %

***** MODE 3 - INTERMED. (THRUST = 3750 #) *****

PT1 = .00 IN.H20 PT2 = .00 IN.H20 PS2 = .00 IN.H20 PT3 = 29.3 PSIG PT5/7 = 44.8 IN.HG
EPR = .000 FUEL FLOW = 3800. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	SMOKE N/A
1	, .	423.9	16.0	.0014	536.89	.7620	12.65	51.43	1.04	16.56	11.82	4.74	30.00	.0232
2	, .	532.1	18.2	.0013	861.60	1.1295	10.44	57.73	1.38	23.11	15.95	7.16	4.00	.0232
3	, .	656.0	20.5	.0012	1120.75	1.3490	14.11	121.55	1.67	29.05	19.31	9.74	37.00	.0232
4	, .	702.2	20.9	.0012	1173.93	1.3636	3.04	88.27	1.64	29.05	20.96	8.09	32.00	.0232
* 5	, .	675.8	19.9	.0012	1082.99	1.2701	.10	70.55	1.50	26.34	19.56	6.78	40.50	.0232
AVERAGE : NUM.		578.6	18.9	.0013	923.29	1.1510	10.06	79.75	1.43	24.44	17.01	7.43	25.75	.0232
MASS-WGHTD.							9.69	84.43	1.49	25.53	17.73	7.79		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .007 , MASS-WGHTD. = .007

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	.80	3.03	11.04	42.0	3116.	11841.	5.56	21.12	3.87	14.70	1.69	6.42	5.32
MASS-WGHTD.	.74	2.81	11.27	42.8	3116.	11840.	5.60	21.27	3.89	14.78	1.71	6.49	5.32

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * C O N T . R U N 4 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P630584 TEST TYPE : B
BP : 29.58 IN.HG IAT : 89.0 DEG.F FUEL : # 4 - JP-4 H/C RATIO(ATM) : 2.01 FUEL SULFUR : .07 %

***** MODE 4 - MILITARY (THRUST = 9190 #) *****

PT1 = .00 IN.H2O PT2 = .00 IN.H2O PS2 = .00 IN.H2O PT3 = 44.8 PSIG PT5/7 = 68.2 IN.HG
EPR = .000 FUEL FLOW = 7900. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	w/A
1	, .	605.8	18.8	.0012	953.13	1.1731	.00	15.11	1.56	46.16	43.19	2.97	40.50	.0232
2	, .	786.3	23.3	.0011	1375.61	1.5343	10.61	19.89	2.11	65.38	59.36	6.02	43.00	.0232
3	, .	961.8	28.6	.0010	1734.74	1.7976	7.80	25.97	2.48	79.68	68.98	10.70	47.00	.0232
4	, .	1002.3	30.3	.0010	1825.85	1.8683	7.67	30.05	2.34	79.23	68.04	11.19	45.00	.0232
* 5	, .	956.8	27.3	.0010	1676.34	1.7209	6.25	37.04	2.02	67.21	57.75	9.46	48.00	.0232
AVERAGE : NUM.		839.0	25.2	.0011	1472.33	1.5933	8.76	22.75	2.13	67.61	59.89	7.72	43.87	.0232
MASS-WGHTD.							8.65	23.70	2.18	69.94	61.64	8.29		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .010 , MASS-WGHTD. = .011

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	.47	3.71	2.13	16.8	3131.	24734.	10.40	82.18	9.21	72.79	1.19	9.38	11.05
MASS-WGHTD.	.45	3.57	2.16	17.1	3131.	24734.	10.48	82.79	9.24	72.97	1.24	9.82	11.05

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * CONT. RUN 4 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P630584 TEST TYPE : B
BP : 29.58 IN.HG IAT : 89.0 DEG.F FUEL : # 4 - JP-4 H/C RATIO(ATM) : 2.01 FUEL SULFUR : .07 %

***** MODE 5 - TAKE-OFF (THRUST = 11400 #) *****

PT1 = .00 IN.H20 PT2 = .00 IN.H20 PS2 = .00 IN.H20 PT3 = 44.3 PSIG PT5/7 = 82.0 IN.HG
EPR = .000 FUEL FLOW = 12000. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	W/A
1	, .	727.8	21.3	.0011	1215.80	1.3889	3.45	236.80	2.37	65.64	30.78	34.86	71.00	.0232
2	, .	884.4	26.3	.0011	1589.04	1.6964	95.44	324.20	2.97	19.02	8.29	10.73	65.00	.0232
3	, .	1032.0	32.5	.0010	1921.47	1.9639	113.44	356.88	3.60	24.51	9.89	14.62	64.00	.0232
4	, .	1041.3	30.8	.0010	1868.78	1.8699	64.95	268.39	3.39	27.46	13.85	13.61	64.50	.0232
AVERAGE : NUM.		921.4	27.7	.0011	1648.77	1.7298	69.32	296.57	3.08	34.16	15.70	18.45	66.12	.0232
MASS-WGHTD.							73.84	300.85	3.14	32.22	14.76	17.46		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .015 , MASS-WGHTD. = .016

MASS EMISSIONS :

	---- THC --- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ---* #/1000#	#/HR	*---- NOX ---* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ---* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	2.54	30.48	18.97	227.7	3099.	37185.	3.59	43.08	1.65	19.80	1.94	23.27	16.78
MASS-WGHTD.	2.65	31.85	18.88	226.6	3099.	37182.	3.32	39.86	1.52	18.26	1.80	21.60	16.78

* MID-POINT - NOT INCLUDED IN AVERAGES

* * * * * * * * * * * * END RUN 4 * * * * * * * * * * * *

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * START RUN 5 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634272 TEST TYPE : B
BP : 29.70 IN.HG IAT : 87.0 DEG.F FUEL : # 5 - JP-4 H/C RATIO(ATM) : 2.05 FUEL SULFUR : .05 %

***** MODE 1 - IDLE (THRUST = 250 #) *****

PT1 = .00 IN.H2O PT2 = .00 IN.H2O PS2 = .00 IN.H2O PT3 = 16.7 PSIG PT5/7 = 32.5 IN.HG
EPR = .000 FUEL FLOW = 1250. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	W/A
1	, .	308.6	14.9	.0016	235.75	.3782	403.75	235.97	.66	5.38	2.56	2.82	12.00	.0233
2	, .	393.1	15.2	.0015	345.65	.5024	566.79	327.08	.82	6.57	1.86	4.71	6.00	.0233
3	, .	466.6	15.5	.0013	437.00	.5880	768.54	439.74	1.04	7.99	1.59	6.40	7.00	.0233
4	, .	532.9	15.7	.0013	497.48	.6268	694.91	460.60	1.12	9.09	1.54	7.55	8.50	.0233
* 5	, .	547.0	15.4	.0012	430.79	.5323	530.53	423.17	1.16	9.57	1.47	8.10	6.50	.0233
AVERAGE : NUM.		425.3	15.3	.0014	378.97	.5239	608.50	365.85	.91	7.26	1.89	5.37	8.37	.0233
MASS-WGHTD,							632.30	382.19	.94	7.51	1.81	5.69		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .005 , MASS-WGHTD. = .005

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	68.83	86.03	72.26	90.3	2824.	3530.	2.35	2.94	.61	.77	1.74	2.18	1.25
MASS-WGHTD.	69.01	86.26	72.84	91.1	2823.	3528.	2.35	2.94	.57	.71	1.78	2.23	1.25

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * CONT. RUN 5 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634272 TEST TYPE : B
BP : 29.70 IN.HG IAT : 87.0 DEG.F FUEL : # 5 - JP-4 H/C RATIO(ATM) : 2.05 FUEL SULFUR : .05 %

***** MODE 3 - INTERMED. (THRUST = 3460 #) *****

PT1 = .00 IN.H20 PT2 = .00 IN.H20 PS2 = .00 IN.H20 PT3 = 28.8 PS16 PT5/7 = 45.0 IN.HG
EPR = .000 FUEL FLOW = 3900. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

SAMPLE POINT NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	SMOKE SN	SMOKE B/A
1	, .	453.2	16.4	.0014	600.44	.8330	22.19	36.73	1.07	19.34	14.98	4.36	19.00	.0233
2	, .	549.7	18.2	.0013	861.64	1.1129	18.20	49.85	1.36	25.97	19.76	6.21	28.00	.0233
3	, .	663.8	20.3	.0012	1102.83	1.3185	18.52	58.70	1.62	31.87	23.79	8.08	33.00	.0233
4	, .	710.7	20.9	.0012	1171.97	1.3554	8.95	48.40	1.61	32.68	25.59	7.09	42.00	.0233
* 5	, .	709.0	19.8	.0011	1083.47	1.2362	5.92	45.04	1.55	30.89	25.13	5.76	46.00	.0233
AVERAGE : NUM.		594.4	18.9	.0013	934.22	1.1549	16.96	48.42	1.41	27.46	21.03	6.44	30.50	.0233
MASS-WGHTD,							16.30	49.58	1.46	28.43	21.76	6.67		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .007 , MASS-WGHTD. = .007

MASS EMISSIONS :

	THC #/1000#	THC #/HR	CO #/1000#	CO #/HR	CO2 #/1000#	CO2 #/HR	NOX #/1000#	NOX #/HR	NO #/1000#	NO #/HR	NO2 #/1000#	NO2 #/HR	SOX #/HR
AREA-WGHTD.	1.36	5.30	6.78	26.4	3112.	12137.	6.32	24.63	4.84	18.86	1.48	5.77	3.90
MASS-WGHTD.	1.27	4.95	6.75	26.3	3112.	12138.	6.36	24.79	4.87	18.97	1.49	5.81	3.90

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * CONT. RUN 5 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634272 TEST TYPE : B
BP : 29.70 IN.HG IAT : 87.0 DEG.F FUEL : # 5 - JP-4 H/C RATIO(ATM) : 2.05 FUEL SULFUR : .05 %

***** MODE 4 - MILITARY (THRUST = 9090 #) *****

PT1 = .00 IN.H20 PT2 = .00 IN.H20 PS2 = .00 IN.H20 PT3 = 43.5 PS16 PT5/7 = 68.8 IN.HG
EPR = .000 FUEL FLOW = 7900. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

SAMPLE POINT NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	SMOKE SN	SMOKE W/A
1	, .	635.3	19.3	.0012	1005.52	1.2164	1.34	13.19	1.63	56.28	51.94	4.34	37.00	.0233
2	, .	798.1	23.2	.0011	1370.66	1.5169	1.27	19.58	2.15	74.79	69.67	5.12	43.50	.0233
3	, .	973.7	28.5	.0010	1733.15	1.7843	.32	26.84	2.55	97.13	81.57	15.56	46.00	.0233
4	, .	1011.7	30.1	.0010	1819.75	1.8519	.00	27.57	2.33	88.97	76.71	12.26	47.00	.0233
* 5	, .	980.4	27.4	.0010	1689.92	1.7126	.00	26.31	2.10	80.47	70.74	9.73	50.50	.0233
AVERAGE : NUM.		854.7	25.3	.0011	1482.27	1.5924	.98	21.79	2.16	79.29	69.97	9.32	43.37	.0233
MASS-WGHTD.							.91	22.71	2.22	81.64	71.66	9.97		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .011 , MASS-WGHTD. = .011

MASS EMISSIONS :

	THC #/1000#	THC #/HR	CO #/1000#	CO #/HR	CO2 #/1000#	CO2 #/HR	NOX #/1000#	NOX #/HR	NO #/1000#	NO #/HR	NO2 #/1000#	NO2 #/HR	SOX #/HR
AREA-WGHTD.	.05	.41	2.00	15.8	3123.	24673.	11.96	94.47	10.55	83.37	1.41	11.10	7.89
MASS-WGHTD.	.05	.37	2.04	16.1	3123.	24673.	12.03	95.06	10.56	83.45	1.47	11.61	7.89

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * CONT. RUN 5 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634272 TEST TYPE : B
BP : 29.70 IN.HG IAT : 87.0 DEG.F FUEL : # 5 - JP-4 H/C RATIO(ATM) : 2.05 FUEL SULFUR : .05 %

***** MODE 5 - TAKE-OFF (THRUST = 11580 #) *****

PT1 = .00 IN.H2O PT2 = .00 IN.H2O PS2 = .00 IN.H2O PT3 = 42.0 PSIG PT5/7 = 81.9 IN.HG
EPR = .000 FUEL FLOW = 12300. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	F/A
1	, .	694.6	22.1	.0012	1246.17	1.4843	58.38	281.94	2.48	16.88	10.37	6.51	67.00	.0233
2	, .	773.6	27.4	.0012	1564.33	1.8490	68.84	389.11	3.14	21.53	12.66	8.87	62.00	.0233
3	, .	1012.6	32.7	.0010	1910.96	1.9887	69.08	394.14	3.70	26.48	15.31	11.17	65.50	.0233
4	, .	1025.0	34.7	.0011	1987.11	2.0880	30.18	350.89	3.40	30.28	19.78	10.50	75.00	.0233
* 5	, .	.0	32.0	.0000	.00	.0000	20.65	339.26	2.85	29.19	19.68	9.31	58.00	.0233
AVERAGE : NUM.		876.4	29.2	.0011	1677.14	1.8525	56.62	354.02	3.18	23.79	14.53	9.26	67.37	.0233
MASS-WGHTD.							55.92	358.22	3.23	24.39	14.92	9.47		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .016 , MASS-WGHTD. = .016

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	2.00	24.64	21.87	269.0	3087.	37966.	2.41	29.70	1.47	18.14	.94	11.56	12.29
MASS-WGHTD.	1.95	23.95	21.78	267.9	3087.	37969.	2.44	29.96	1.49	18.33	.95	11.64	12.29

* MID-POINT - NOT INCLUDED IN AVERAGES

* * * * * * * * * * * * END RUN 5 * * * * * * * * * * * *

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * START RUN 6 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634817 TEST TYPE : B
BP : 29.70 IN.HG IAT : 88.0 DEG.F FUEL : # 6 - JP-4 H/C RATIO(ATM) : 2.00 FUEL SULFUR : .05 %

***** MODE 1 - IDLE (THRUST = 200 #) *****

PT1 = .00 IN.H2O PT2 = .00 IN.H2O PS2 = .00 IN.H2O PT3 = 16.7 PSIG PT5/7 = 32.2 IN.HG
EPR = .000 FUEL FLOW = 1200. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	SMOKE W/A
2	, .	.0	15.4	.0000	.00	.0000	456.94	350.36	.90	7.10	.85	6.25	5.00	.0232
3	, .	.0	15.6	.0000	.00	.0000	549.12	423.67	1.05	8.17	.84	7.33	6.00	.0232
4	, .	.0	15.6	.0000	.00	.0000	435.85	368.31	.99	8.13	1.08	7.05	8.50	.0232
* 5	, .	.0	15.6	.0000	.00	.0000	378.52	338.79	1.02	8.61	1.35	7.26	6.00	.0232
AVERAGE : NUM.		.0	15.5	.0000	.00	.0000	480.64	380.78	.98	7.80	.92	6.88	6.50	.0232
MASS-WGHTD,							.00	.00	.00	.00	.00	.00		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .005 , MASS-WGHTD. = .000

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	51.56	61.87	71.32	85.6	2884.	3461.	2.40	2.88	.28	.34	2.12	2.54	1.20
MASS-WGHTD.	.00	.00	.00	.0	0.	0.	.00	.00	.00	.00	.00	.00	1.20

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * CONT. RUN 6 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634817 TEST TYPE : B
BP : 29.70 IN.HG IAT : 88.0 DEG.F FUEL : # 6 - JP-4 H/C RATIO(ATM) : 2.00 FUEL SULFUR : .05 %

***** MODE 3 - INTERMED. (THRUST = 4570 #) *****

PT1 = .00 IN.H20 PT2 = .00 IN.H20 PS2 = .00 IN.H20 PT3 = 33.7 PSIG PT5/7 = 44.4 IN.HG
EPR = .000 FUEL FLOW = 3900. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	W/A
1	, ,	.0	17.1	.0000	.00	.0000	22.10	46.37	1.05	19.84	14.79	5.05	28.00	.0232
2	, ,	.0	19.3	.0000	.00	.0000	16.31	59.40	1.34	26.26	19.07	7.19	30.00	.0232
3	, ,	.0	20.7	.0000	.00	.0000	15.87	66.79	1.52	30.56	22.26	8.28	35.50	.0232
4	, ,	.0	20.7	.0000	.00	.0000	9.34	53.59	1.36	27.41	20.69	6.72	43.00	.0232
* 5	, ,	.0	19.8	.0000	.00	.0000	6.26	49.48	1.37	27.06	21.38	5.68	40.50	.0232
AVERAGE : NUM.		.0	19.4	.0000	.00	.0000	15.90	56.54	1.32	26.02	19.21	6.81	34.12	.0232
MASS-WGHTD.							.00	.00	.00	.00	.00	.00		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .006 , MASS-WGHTD. = .000

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	1.37	5.35	8.52	33.2	3121.	12170.	6.44	25.13	4.76	18.55	1.69	6.58	3.90
MASS-WGHTD.	.00	.00	.00	.0	0.	0.	.00	.00	.00	.00	.00	.00	3.90

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * CONT. RUN 6 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634817 TEST TYPE : B
BP : 29.70 IN.HG IAT : 88.0 DEG.F FUEL : # 6 - JP-4 H/C RATIO(ATM) : 2.00 FUEL SULFUR : .05 %

***** MODE 4 - MILITARY (THRUST = 9720 #) *****

PT1 = .00 IN.H2O PT2 = .00 IN.H2O PS2 = .00 IN.H2O PT3 = 42.1 PSIG PT5/7 = 67.9 IN.HG
EPR = .000 FUEL FLOW = 7900. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	W/A
1	, .	.0	.0	.0000	.00	.0000	3.72	23.73	1.63	50.75	47.39	3.36	44.00	.0232
2	, .	.0	24.8	.0000	.00	.0000	2.58	28.88	2.04	69.99	62.67	7.32	40.00	.0232
3	, .	.0	29.3	.0000	.00	.0000	1.94	33.41	2.32	82.16	70.71	11.45	38.00	.0232
4	, .	.0	29.7	.0000	.00	.0000	.24	29.75	1.92	71.68	61.64	10.04	45.00	.0232
* 5	, .	.0	28.3	.0000	.00	.0000	.18	31.07	2.06	79.33	68.60	10.73	47.00	.0232
AVERAGE : NUM.		.0	27.9	.0000	.00	.0000	2.12	28.94	1.98	68.64	60.60	8.04	41.75	.0232
MASS-WGHTD,							.00	.00	.00	.00	.00	.00		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .010 , MASS-WGHTD. = .000

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	.12	.97	2.92	23.1	3133.	24749.	11.37	89.82	10.04	79.29	1.33	10.52	7.89
MASS-WGHTD.	.00	.00	.00	.0	0.	0.	.00	.00	.00	.00	.00	.00	7.89

* MID-POINT - NOT INCLUDED IN AVERAGES

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - MASS DATA CALCULATIONS

* * * * * * * * * * * * CONT. RUN 6 * * * * * * * * * * * *

ENGINE TYPE : J57-59W ENGINE SN : P634817 TEST TYPE : B
BP : 29.70 IN.HG IAT : 88.0 DEG.F FUEL : # 6 - JP-4 H/C RATIO(ATM) : 2.00 FUEL SULFUR : .05 %

***** MODE 5 - TAKE-OFF (THRUST = 13160 #) *****

PT1 = .00 IN.H2O PT2 = .00 IN.H2O PS2 = .00 IN.H2O PT3 = 43.4 PSIG PT5/7 = 81.9 IN.HG
EPR = .000 FUEL FLOW = 12100. #/HR AIR FLOW = 0. #/HR ACTUAL F/A RATIO = .000

* SAMPLE POINT * NO	LOCATION	TEMP. DEG.F	PTOT PSIA	DENS. (RHO)	EXH.VEL FT/SEC	MASS FL. (RHO*V)	THC PPMC	CO PPM	CO2 %	NOX PPM	NO PPM	NO2 PPM	*--- SMOKE ---* SN	W/A
1	, .	.0	21.3	.0000	.00	.0000	63.76	308.31	2.74	16.25	9.88	6.37	51.00	.0232
2	, .	.0	.0	.0000	.00	.0000	66.22	436.17	3.42	22.16	12.97	9.19	52.00	.0232
3	, .	.0	28.9	.0000	.00	.0000	77.95	467.61	3.76	27.47	15.86	11.59	52.00	.0232
4	, .	.0	34.6	.0000	.00	.0000	23.79	324.17	3.42	31.41	21.39	10.02	60.00	.0232
* 5	, .	.0	30.9	.0000	.00	.0000	8.06	268.39	3.59	36.41	27.07	9.34	66.00	.0232
AVERAGE : NUM.		.0	28.3	.0000	.00	.0000	57.93	384.07	3.33	24.32	15.03	9.29	53.75	.0232
MASS-WGHTD,							.00	.00	.00	.00	.00	.00		

CALCULATED F/A RATIOS FOR ABOVE AVERAGE CONCENTRATIONS : AREA-WGHTD.(NUM) = .017 , MASS-WGHTD. = .000

MASS EMISSIONS :

	---- THC ---- #/1000#	#/HR	*---- CO ----* #/1000#	#/HR	*---- CO2 ----* #/1000#	#/HR	*---- NOX ----* #/1000#	#/HR	*---- NO ----* #/1000#	#/HR	*---- NO2 ----* #/1000#	#/HR	* SOX * #/HR
AREA-WGHTD.	1.96	23.72	22.70	274.6	3097.	37470.	2.36	28.57	1.46	17.65	.90	10.91	12.09
MASS-WGHTD.	.00	.00	.00	.0	0.	0.	.00	.00	.00	.00	.00	.00	12.09

* MID-POINT - NOT INCLUDED IN AVERAGES

* * * * * * * * * * * * END RUN 6 * * * * * * * * * * * *

@FIN

STOP MASS

APPENDIX D

ENGINE TEST DATA

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
EDIT REPORT - ENGINE TEST DATA

SET 1628-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216

SCOTT TEST NUMBER 4, TYPE B

TEST DATE : 9/ 6/77

ENGINE 2, NUMBER 1

ENGINE TYPE & MODEL : J57-59W
ENGINE SERIAL # : P630584
TOTAL ENGINE TIME : 0 HRS.
PERFORMANCE TEST RESULTS : PASS

AIR FLOW MEASUREMENT METHOD : NONE

TEST LOCATION : LRAFB - ARK.
TEST CELL NUMBER : N6
TEST CELL OPERATOR : WM
SCOTT SUPERVISOR : FL
INSTRUMENT OPERATOR : PR
SMOKE OPERATOR : DO

TEST ENVIRONMENTAL CONDITIONS :

	START	FINISH
TEST TIME (MIL.TIME) :	1350	1600
INLET AIR TEMP.(DEG.F) :	89.0	89.0
ATMOSPHERIC PRESS.(IN.HG) :	29.58	29.58
RELATIVE HUMIDITY (%) :	64	64
INLET AIR HUMIDITY - (GM H2O/GM DRY AIR) :	0.0190	0.0190

SAMPLE LINE :
FLOW RATE : 23 LPM
TEMPERATURE : 300 DEG.F
LENGTH : 100 FT.

FUEL ANALYSIS :
SAMPLE # : 4
TYPE : JP-4

WT.% CARBON :	85.55
WT.% HYDROGEN :	14.30
WT.% SULFUR :	0.07
H/C RATIO-ATM.:	2.01
C/H RATIO-MASS:	5.98

TEST MODE	% RATED POWER	THRUST #	FUEL FLOW #/HR	N1 SPEED RPM	N2 SPEED RPM	PT1 COTP IN.H2O	PT2 CITP IN.H2O	PS2 CISP IN.H2O	PT3 COTP PSIG	PT5/PT7 TDTP IN.HG	TT2 CIT DEG.F	TT5/TT7 EGT DEG.F	NOZZLE OPEN. %
IDLE	2	200	1300		6634				17.1	32.6		600	
INTERMED.	40	3750	3800		8579				29.3	44.8		775	
MILITARY	100	9190	7900		9427				44.8	68.2		1075	
TAKE-OFF	125	11400	12000		9517				44.3	82.0		1100	

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
EDIT REPORT - ENGINE TEST DATA

SET 1628-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216

SCOTT TEST NUMBER 5, TYPE B

TEST DATE : 9/ 7/77

ENGINE 2, NUMBER 2

ENGINE TYPE & MODEL : J57-59W
ENGINE SERIAL # : P634272
TOTAL ENGINE TIME : 0 HRS.
PERFORMANCE TEST RESULTS : PASS

AIR FLOW MEASUREMENT METHOD : NONE

TEST LOCATION : LRAFB - ARK.
TEST CELL NUMBER : N6
TEST CELL OPERATOR : WM
SCOTT SUPERVISOR : FL
INSTRUMENT OPERATOR : PR
SMOKE OPERATOR : DO

TEST ENVIRONMENTAL CONDITIONS :

	START	FINISH
TEST TIME (MIL.TIME) :	1410	1610
INLET AIR TEMP.(DEG.F) :	87.0	87.0
ATMOSPHERIC PRESS.(IN.HG) :	29.70	29.70
RELATIVE HUMIDITY (%) :	63	63
INLET AIR HUMIDITY - (GM H2O/GM DRY AIR) :	0.0176	0.0176

SAMPLE LINE :
FLOW RATE : 23 LPM
TEMPERATURE : 300 DEG.F
LENGTH : 100 FT.

FUEL ANALYSIS :
SAMPLE # : 5
TYPE : JP-4
WT.% CARBON : 85.53
WT.% HYDROGEN : 14.62
WT.% SULFUR : 0.05
H/C RATIO-ATM.: 2.05
C/H RATIO-MASS: 5.85

TEST MODE	% RATED POWER	THRUST #	FUEL FLOW #/HR	N1 SPEED RPM	N2 SPEED RPM	PT1 CDTP IN.H2O	PT2 CITP IN.H2O	PS2 CISP IN.H2O	PT3 CDTP PSIG	PT5/PT7 TDTP IN.HG	TT2 CIT DEG.F	TT5/TT7 EGT DEG.F	NOZZLE OPEN. %
IDLE	2	250	1250		6405				16.7	32.5		600	
INTERMED.	40	3460	3900		8529				28.8	45.0		780	
MILITARY	100	9090	7900		9457				43.5	68.8		1116	
TAKE-OFF	125	11580	12300		9597				42.0	81.9		1116	

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
EDIT REPORT - ENGINE TEST DATA

SCOTT TEST NUMBER 6, TYPE 8 TEST DATE : 9/ 8/77 ENGINE 2, NUMBER 3

ENGINE TYPE & MODEL : J57-59W
ENGINE SERIAL # : P634817
TOTAL ENGINE TIME : 1759 HRS.
PERFORMANCE TEST RESULTS : PASS

AIR FLOW MEASUREMENT METHOD : NONE

TEST LOCATION : LRAFB - ARK.
TEST CELL NUMBER : NG
TEST CELL OPERATOR : WM
SCOTT SUPERVISOR : FL
INSTRUMENT OPERATOR : PR
SMOKE OPERATOR : AS

TEST ENVIRONMENTAL CONDITIONS :

	START	FINISH
TEST TIME (MIL.TIME) :	1315	1500
INLET AIR TEMP.(DEG.F) :	88.0	88.0
ATMOSPHERIC PRESS.(IN.HG) :	29.70	29.70
RELATIVE HUMIDITY (%) :	55	55
INLET AIR HUMIDITY - (GM H2O/GM DRY AIR) :	0.0159	0.0159

SAMPLE LINE :
FLOW RATE : 23 LPM
TEMPERATURE : 300 DEG.F
LENGTH : 100 FT.

FUEL ANALYSIS :
SAMPLE # : 6
TYPE : JP-4
WT.% CARBON : 85.59
WT.% HYDROGEN : 14.28
WT.% SULFUR : 0.05
H/C RATIO-ATM.: 2.00
C/H RATIO-MASS: 5.99

TEST MODE	% RATED POWER	THRUST #	FUEL FLOW #/HR	N1 SPEED RPM	N2 SPEED RPM	PT1 CDTP IN.H2O	PT2 CITP IN.H2O	PS2 CISP IN.H2O	PT3 CDTP PSIG	PT5/PT7 TDTP IN.HG	TT2 CIT DEG.F	TT5/TT7 EGT DEG.F	NOZZLE OPEN. %
IDLE	2	200	1200		6385				16.7	32.2		575	
INTERMED.	40	4570	3900		8500				33.7	44.4		766	
MILITARY	100	9720	7900		9467				42.1	67.9		1078	
TAKE-OFF	125	13160	12100		9627				43.4	81.9		1090	

38

@FIN

STOP ENGEDT

APPENDIX E

SMOKE EDIT REPORTS

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
EDIT REPORT - SAMPLE POINT SMOKE DATA

SET 1628-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216

** RUN 4 **

SAMPLE POINT	TEMP DEG.F	PRESS PSIA	FLOW CFM	VOLUME CF	W/A #/SQ.IN	SAMPLE REFL.	PAPER REFL.	SN
101	80.0	14.8	.50	.455	.0232	97.00	100.00	3.00
102	80.0	14.8	.50	.455	.0232	94.50	100.00	5.50
103	80.0	14.8	.50	.455	.0232	95.00	100.00	5.00
104	80.0	14.8	.50	.455	.0232	94.50	100.00	5.50
105	80.0	14.8	.50	.455	.0232	88.00	100.00	12.00
301	80.0	14.8	.50	.455	.0232	70.00	100.00	30.00
302	80.0	14.8	.50	.455	.0232	96.00	100.00	4.00
303	80.0	14.8	.50	.455	.0232	63.00	100.00	37.00
304	80.0	14.8	.50	.455	.0232	68.00	100.00	32.00
305	80.0	14.8	.50	.455	.0232	59.50	100.00	40.50
401	80.0	14.8	.50	.455	.0232	59.50	100.00	40.50
402	80.0	14.8	.50	.455	.0232	57.00	100.00	43.00
403	80.0	14.8	.50	.455	.0232	53.00	100.00	47.00
404	80.0	14.8	.50	.455	.0232	55.00	100.00	45.00
405	80.0	14.8	.50	.455	.0232	52.00	100.00	48.00
501	80.0	14.8	.50	.455	.0232	29.00	100.00	71.00
502	80.0	14.8	.50	.455	.0232	35.00	100.00	65.00
503	80.0	14.8	.50	.455	.0232	36.00	100.00	64.00
504	80.0	14.8	.50	.455	.0232	35.50	100.00	64.50

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
EDIT REPORT - SAMPLE POINT SMOKE DATA

SET 1628-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216

** RUN 5 **

SAMPLE POINT	TEMP DEG.F	PRESS PSIA	FLOW CFM	VOLUME CF	W/A G/SQ.IN	SAMPLE REFL.	PAPER REFL.	SN
101	78.0	14.8	.50	.455	.0233	88.00	100.00	12.00
102	78.0	14.8	.50	.455	.0233	94.00	100.00	6.00
103	78.0	14.8	.50	.455	.0233	93.00	100.00	7.00
104	78.0	14.8	.50	.455	.0233	91.50	100.00	8.50
105	78.0	14.8	.50	.455	.0233	93.50	100.00	6.50
301	78.0	14.8	.50	.455	.0233	81.00	100.00	19.00
302	78.0	14.8	.50	.455	.0233	72.00	100.00	28.00
303	78.0	14.8	.50	.455	.0233	67.00	100.00	33.00
304	78.0	14.8	.50	.455	.0233	58.00	100.00	42.00
305	78.0	14.8	.50	.455	.0233	54.00	100.00	46.00
401	78.0	14.8	.50	.455	.0233	63.00	100.00	37.00
402	78.0	14.8	.50	.455	.0233	56.50	100.00	43.50
403	78.0	14.8	.50	.455	.0233	54.00	100.00	46.00
404	78.0	14.8	.50	.455	.0233	53.00	100.00	47.00
405	78.0	14.8	.50	.455	.0233	49.50	100.00	50.50
501	78.0	14.8	.50	.455	.0233	33.00	100.00	67.00
502	78.0	14.8	.50	.455	.0233	38.00	100.00	62.00
503	78.0	14.8	.50	.455	.0233	34.50	100.00	65.50
504	78.0	14.8	.50	.455	.0233	25.00	100.00	75.00
505	78.0	14.8	.50	.455	.0233	42.00	100.00	58.00

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
EDIT REPORT - SAMPLE POINT SMOKE DATA

SET 1628-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216

** RUN 6 **

SAMPLE POINT	TEMP DEG.F	PRESS PSIA	FLOW CFM	VOLUME CF	W/A #/SQ.IN	SAMPLE REFL.	PAPER REFL.	SN
101	80.0	14.8	.50	.455	.0232	80.00	100.00	20.00
102	80.0	14.8	.50	.455	.0232	95.00	100.00	5.00
103	80.0	14.8	.50	.455	.0232	94.00	100.00	6.00
104	80.0	14.8	.50	.455	.0232	91.50	100.00	8.50
105	80.0	14.8	.50	.455	.0232	94.00	100.00	6.00
301	80.0	14.8	.50	.455	.0232	72.00	100.00	28.00
302	80.0	14.8	.50	.455	.0232	70.00	100.00	30.00
303	80.0	14.8	.50	.455	.0232	64.50	100.00	35.50
304	80.0	14.8	.50	.455	.0232	57.00	100.00	43.00
305	80.0	14.8	.50	.455	.0232	59.50	100.00	40.50
401	80.0	14.8	.50	.455	.0232	56.00	100.00	44.00
402	80.0	14.8	.50	.455	.0232	60.00	100.00	40.00
403	80.0	14.8	.50	.455	.0232	62.00	100.00	38.00
404	80.0	14.8	.50	.455	.0232	55.00	100.00	45.00
405	80.0	14.8	.50	.455	.0232	53.00	100.00	47.00
501	80.0	14.8	.50	.455	.0232	49.00	100.00	51.00
502	80.0	14.8	.50	.455	.0232	48.00	100.00	52.00
503	80.0	14.8	.50	.455	.0232	48.00	100.00	52.00
504	80.0	14.8	.50	.455	.0232	40.00	100.00	60.00
505	80.0	14.8	.50	.455	.0232	34.00	100.00	66.00

$FIN

STOP SMOKIN

APPENDIX F

CONCENTRATION EDIT REPORTS

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
CONCENTRATION EDIT REPORT

SET 1628-002-1077

REFERENCE CURVE TABLES - NON-LINEAR INSTRUMENTS

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216
CAL. DATE 7/22/77

	CO - HI			CO - LOW			CO2		
	PPMV	VOLTS	ANGLE	PPMV	VOLTS	ANGLE	% VOL	VOLTS	ANGLE
RANGE 1 :									
	.00	.0000	1.5705	.00	.0000	1.5695	.00	.0000	1.4161
	245.00	.0650	1.5705	30.10	.0400	1.5694	1.46	.1950	1.4600
	895.00	.2130	1.5706	60.30	.0830	1.5694	3.20	.3500	1.4950
	1840.00	.3930	1.5706	78.40	.1060	1.5696	4.49	.4310	1.5145
	2400.00	.4940	1.5706	176.00	.2240	1.5696	6.09	.5110	1.5259
	4127.00	.7760	1.5707	245.00	.3000	1.5698	8.90	.6230	1.5357
	8100.00	1.2080	1.5707	614.00	.6100	1.5700	12.10	.7200	1.5432
	9600.00	1.3780	1.5707	895.00	.8340	1.5700	15.00	.7920	1.5487
RANGE 2 :									
	.00	.0000	1.5703	.00	.0000	1.5676	.00	.0000	1.3459
	176.00	.0710	1.5705	30.10	.1000	1.5674	1.46	.2850	1.4101
	245.00	.0900	1.5705	60.30	.2060	1.5674	3.20	.5100	1.4605
	614.00	.2070	1.5705	78.40	.2640	1.5677	4.49	.6290	1.4886
	895.00	.3000	1.5705	176.00	.5570	1.5679	6.09	.7450	1.5051
	1840.00	.5910	1.5705	245.00	.7460	1.5682	8.90	.9110	1.5193
	2400.00	.7460	1.5705	-1.00	-1.0000	.0000	12.10	1.0520	1.5342
	4127.00	1.2320	1.5705	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000
RANGE 3 :									
	.00	.0000	1.5687	.00	.0000	1.5611	.00	.0000	1.3382
	30.10	.0510	1.5695	30.10	.3000	1.5606	1.46	.3320	1.3562
	176.00	.1840	1.5700	60.30	.6150	1.5611	3.20	.6950	1.3884
	245.00	.2300	1.5700	78.40	.7790	1.5624	4.49	.9020	1.4350
	614.00	.6030	1.5697	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000
	895.00	.9610	1.5694	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000

** NOTES **

SPAN VOLTAGES ALREADY CORRECTED FOR ZERO GAS VOLTAGES.

A CONCENTRATION VALUE OF -1.0 INDICATES NO DATA.

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

CALIBRATION DATA FOR PERIOD 1355 TO 1425

NON-LINEAR INSTRUMENTS : REFERENCE CURVES CALIBRATION DATE : 7/22/77

	CO - HI		CO - LO		CO2	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
RANGE 1						
SPAN ADJ.FACTOR	.9912	.9912	.9945	.9945	1.0013	1.0013
ZERO READING	.0146	.0146	.0207	.0207	.0104	.0104
RANGE 2						
SPAN ADJ.FACTOR	.9829	.9829	1.4195	1.4195	1.1958	1.1958
ZERO READING	.0177	.0177	.0455	.0455	.0155	.0155
RANGE 3						
SPAN ADJ.FACTOR	.8936	.8936	.9470	.9470	1.0245	1.0245
ZERO READING	.0378	.0437	.1399	.1571	.0101	.0092

LINEAR INSTRUMENTS :

	THC		NOX		NO	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
SPAN ADJ.FACTOR	1.1650	1.1650	1.0082	1.0082	1.0148	1.0148

ZEROES FOR RANGES

	(THC)	(NOX/NO)					
1	1.0	2.5	.1750	.0702	.8502	.8387	.8798	.4233
2	5.0	10.0	.0287	.0140	.1709	.2097	.0423	.1058
3	10.0	25.0	.0086	.0070	.0675	.0839	.0201	.0423
4	50.0	100.0	.0012	.0014	.0179	.0210	.0101	.0106
5	100.0	250.0	-.0042	.0007	.0082	.0084	.0080	.0042
6	500.0	1000.0	.0000	.0001	.0034	.0021	.0071	.0011
7	1000.0	2500.0	.0000	.0001	.0009	.0008	.0069	.0004
8	5000.0	10000.0	.0000	.0000	.0002	.0002	.0002	.0001

SPAN GAS CONCENTRATIONS :

	THC-PPMC	NOX-PPM	NO-PPM	CO-HI-PPM	CO-LO-PPM	CO2-%
SPAN 1	24.48	19.70	19.70	245.00	78.40	4.49
SPAN 2	417.00	90.40	90.40	2400.00	245.00	8.90
SPAN 3	4620.00					

TOT.PRESS.FACT. 1.000, ADJ. .00
SAMPLE PROBE TYPE - SP
THERMOCOUPLE TYPE - K

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63056 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.-IF.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-01														
SPAN/ZERO ADJ.	1.16	.0275	1.01	.1740	1.01	.0474	.89	.0383	1.42	.0455	1.02	.0100		
SAMPLE DATA :														
TIME : 1357	5.00	.9177	10.00	.5508	10.00	.1104	3	.1948	2	.8363	3	.1661	.0	77.1
PROBE POS.:		.9670		.5482		.1051		.1995		.8427		.1688	.0	76.8
11.68 IN.		.9421		.5478		.0936		.1919		.8354		.1661	.0	76.4
PRESS.: 14.53 PSIA		.9380		.5528		.0946		.1964		.8204		.1688	.0	75.8
		.9697		.5842		.0931		.1993		.8472		.1707	.0	75.6
AVERAGE :		.9469		.5568		.0994		.1964		.8364		.1681	.0	76.3
CONCENTRATION :	236.73 PPMC		5.57 PPMV		.99 PPMV		193.77 PPMV		280.58 PPMV		.72 % VOL		320.8 DEG.F	
MODE-POINT : 1-02														
SPAN/ZERO ADJ.	1.16	.0083	1.01	.1779	1.01	.0537	.89	.0389	1.42	.0455	1.02	.0100		
SAMPLE DATA :														
TIME : 1400	10.00	.6819	10.00	.6651	10.00	.0728	3	.2419	2	1.0719	3	.2140	.0	74.6
PROBE POS.:		.7078		.6962		.0721		.2453		1.0804		.2109	.0	72.8
9.73 IN.		.6866		.6733		.0669		.2437		1.0910		.2102	.0	73.4
PRESS.: 15.26 PSIA		.6991		.6768		.0653		.2455		1.0840		.2086	.0	72.2
		.7011		.6599		.0662		.2435		1.0681		.2148	.0	71.7
AVERAGE :		.6953		.6742		.0687		.2440		1.0791		.2117	.0	72.9
CONCENTRATION :	347.65 PPMC		6.74 PPMV		.69 PPMV		261.53 PPMV		.00 PPMV		.92 % VOL		381.2 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-03														
SPAN/ZERO ADJ.	1.16	.0082	1.01	.1802	1.01	.0575	.89	.0392	.99	.0207	1.02	.0099		
SAMPLE DATA :														
TIME : 1402	10.00	.8813	10.00	.8365	10.00	.0741	3	.3006	1	.3636	3	.2588	.0	74.7
PROBE POS.:		.8759		.8498		.0692		.3023		.3588		.2644	.0	74.9
7.66 IN.		.8563		.8459		.0688		.3007		.3619		.2570	.0	76.2
PRESS.: 15.65 PSIA		.8546		.8485		.0665		.3015		.3592		.2548	.0	75.7
		.9317		.8749		.0666		.3055		.3642		.2623	.0	74.7
AVERAGE :		.8799		.8511		.0690		.3021		.3616		.2595	.0	75.2
CONCENTRATION :	439.97 PPMC		8.51 PPMV		.69 PPMV		327.12 PPMV		311.64 PPMV		1.13 % VOL		461.2 DEG.F	
MODE-POINT : 1-04														
SPAN/ZERO ADJ.	1.16	.0082	1.01	.0724	1.01	.0613	.89	.0396	.99	.0207	1.02	.0098		
SAMPLE DATA :														
TIME : 1404	10.00	.6656	25.00	.3766	10.00	.0634	3	.2889	1	.3440	3	.2803	.0	75.8
PROBE POS.:		.7138		.3792		.0601		.2903		.3422		.2849	.0	76.1
9.34 IN.		.6959		.3749		.0592		.2959		.3394		.2772	.0	77.6
PRESS.: 15.81 PSIA		.7391		.3769		.0569		.2930		.3509		.2791	.0	76.3
		.6688		.3721		.0550		.2890		.3477		.2791	.0	75.5
AVERAGE :		.6966		.3759		.0589		.2914		.3449		.2801	.0	76.3
CONCENTRATION :	348.32 PPMC		9.40 PPMV		.59 PPMV		315.43 PPMV		292.96 PPMV		1.22 % VOL		525.0 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-05														
SPAN/ZERO ADJ.	1.16	.0080	1.01	.0737	1.01	.0664	.89	.0400	.99	.0207	1.02	.0098		
SAMPLE DATA :														
TIME : 1406	10.00	.6814	25.00	.3732	10.00	.0531	3	.2707	1	.3388	3	.2713	.0	74.7
PROBE POS.:		.6956		.3695		.0528		.2827		.3345		.2720	.0	75.5
-.10 IN.		.6908		.3698		.0532		.2720		.3380		.2733	.0	75.4
PRESS.: 15.55 PSIA		.7319		.3679		.0488		.2790		.3413		.2744	.0	75.2
		.6854		.3649		.0531		.2691		.3401		.2713	.0	75.2
		.6800		.3684		.0529		.2688		.3380		.2748	.0	75.3
AVERAGE :		.6942		.3690		.0523		.2737		.3384		.2729	.0	75.2
CONCENTRATION :	347.09 PPMC		9.22 PPMV		.52 PPMV		295.69 PPMV		285.90 PPMV		1.19 % VOL		523.2 DEG.F	
MODE-POINT : 3-01														
SPAN/ZERO ADJ.	1.16	.1247	1.01	.0753	1.01	.0308	.89	.0406	.95	.1481	1.02	.0097		
SAMPLE DATA :														
TIME : 1409	1.00	.3059	25.00	.6615	25.00	.4626	3	.0780	3	.5001	3	.2482	.0	77.4
PROBE POS.:		.2629		.6775		.4816		.0762		.5441		.2457	.0	77.5
11.66 IN.		.2472		.6599		.4669		.0781		.5459		.2467	.0	78.2
PRESS.: 16.03 PSIA		.2311		.6663		.4779		.0746		.5876		.2455	.0	78.3
		.2179		.6470		.4743		.0753		.5624		.2446	.0	78.5
AVERAGE :		.2530		.6625		.4727		.0764		.5480		.2461	.0	78.0
CONCENTRATION :	12.65 PPMC		16.56 PPMV		11.82 PPMV		51.85 PPMV		53.62 PPMV		1.07 % VOL		423.9 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63056 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 3-02														
SPAN/ZERO ADJ.	1.16	.1184	1.01	.0763	1.01	.0321	.89	.0410	.95	.1492	1.02	.0096		
SAMPLE DATA :														
TIME : 1411	1.00	.2436	25.00	.9231	25.00	.6399	3	.0893	3	.6326	3	.3205	.0	77.9
PROBE POS.:		.2091		.9320		.6337		.0931		.5926		.3216	.0	77.5
9.84 IN.		.1870		.9273		.6416		.0930		.6079		.3216	.0	77.4
PRESS.: 18.16 PSIA		.2030		.9301		.6361		.0944		.6213		.3205	.0	77.8
		.2011		.9088		.6383		.0911		.6101		.3228	.0	77.0
AVERAGE :		.2088		.9242		.6379		.0922		.6129		.3214	.0	77.5
CONCENTRATION :	10.44 PPMC		23.11 PPMV		15.95 PPMV		67.29 PPMV		60.08 PPMV		1.41 % VOL		532.1	DEG.F
MODE-POINT : 3-03														
SPAN/ZERO ADJ.	1.16	.1121	1.01	.0197	1.01	.0334	.89	.0413	1.42	.0455	1.02	.0096		
SAMPLE DATA :														
TIME : 1413	1.00	.2613	100.00	.2909	25.00	.7761	3	.1091	2	.4071	3	.3869	.0	76.2
PROBE POS.:		.3658		.2883		.7646		.1076		.3978		.3855	.0	76.7
7.68 IN.		.2776		.2905		.7854		.1084		.3936		.3803	.0	75.8
PRESS.: 20.46 PSIA		.2573		.2879		.7570		.1049		.4126		.3820	.0	76.2
		.2488		.2949		.7793		.1058		.4089		.3844	.0	75.3
AVERAGE :		.2822		.2905		.7725		.1072		.4040		.3838	.0	76.0
CONCENTRATION :	14.11 PPMC		29.05 PPMV		19.31 PPMV		83.22 PPMV		124.08 PPMV		1.70 % VOL		656.1	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 3-04														
SPAN/ZERO ADJ.	1.16	.1037	1.01	.0200	1.01	.0352	.89	.0418	1.42	.0455	1.02	.0095		
SAMPLE DATA :														
TIME : 1415	1.00	.0534	100.00	.2951	25.00	.8468	3	.0878	2	.3156	3	.3771	.0	76.1
PROBE POS.:		.0670		.2944		.8428		.0901		.3073		.3795	.0	76.5
9.43 IN.		.0825		.2843		.8309		.0909		.2921		.3762	.0	77.3
PRESS.: 20.88 PSIA		.0632		.2886		.8339		.0892		.3033		.3781	.0	77.3
		.0373		.2903		.8381		.0924		.2936		.3787	.0	77.5
AVERAGE :		.0607		.2905		.8385		.0901		.3024		.3779	.0	76.9
CONCENTRATION :	3.04 PPMC		29.05 PPMV		20.96 PPMV		65.17 PPMV		90.80 PPMV		1.67 % VOL		702.2 DEG.F	
MODE-POINT : 3-05														
SPAN/ZERO ADJ.	1.16	.1017	1.01	.0200	1.01	.0357	.89	.0419	1.42	.0455	1.02	.0095		
SAMPLE DATA :														
TIME : 1416	1.00	.0107	100.00	.2660	25.00	.7798	3	.0844	2	.2699	3	.3484	.0	78.5
PROBE POS.:		.0015		.2643		.7922		.0835		.2513		.3490	.0	79.1
-.09 IN.		.0257		.2655		.7887		.0855		.2437		.3469	.0	79.3
PRESS.: 19.92 PSIA		-.0110		.2617		.7775		.0843		.2491		.3464	.0	79.4
		-.0166		.2596		.7747		.0815		.2212		.3466	.0	79.4
AVERAGE :		.0020		.2634		.7826		.0838		.2471		.3475	.0	79.1
CONCENTRATION :	.10 PPMC		26.34 PPMV		19.56 PPMV		58.94 PPMV		72.98 PPMV		1.53 % VOL		675.8 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-01														
SPAN/ZERO ADJ.	1.16	.0828	1.01	.0206	1.01	.0105	.89	.0430	.95	.1550	1.02	.0093		
SAMPLE DATA :														
TIME : 1421	1.00	-.0706	100.00	.4672	100.00	.4376	3	.0516	3	.1822	3	.3709	.0	78.2
PROBE POS.:		-.0652		.4610		.4267		.0512		.1740		.3657	.0	78.1
11.62 IN.		-.0942		.4579		.4372		.0526		.1740		.3653	.0	78.6
PRESS.: 18.84 PSIA		-.1072		.4663		.4375		.0503		.1624		.3631	.0	78.2
		-.1032		.4557		.4207		.0510		.1746		.3624	.0	78.1
AVERAGE :		-.0881		.4616		.4319		.0513		.1734		.3655	.0	78.2
CONCENTRATION :		.00 PPMC		46.16 PPMV		43.19 PPMV		30.36 PPMV		17.57 PPMV		1.61 % VOL	605.8	DEG.F

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

CALIBRATION DATA FOR PERIOD 1425 TO 1511

NON-LINEAR INSTRUMENTS : REFERENCE CURVES CALIBRATION DATE : 7/22/77

	CO - HI		CO - LO		CO2	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
RANGE 1						
SPAN ADJ.FACTOR	.9912	.9912	.9945	.9945	1.0013	1.0013
ZERO READING	.0146	.0146	.0207	.0207	.0104	.0104
RANGE 2						
SPAN ADJ.FACTOR	.9829	.9829	1.4195	1.4195	1.1958	1.1958
ZERO READING	.0177	.0126	.0455	.0513	.0155	.0113
RANGE 3						
SPAN ADJ.FACTOR	.8936	.8936	.9470	.9470	1.0245	1.0245
ZERO READING	.0437	.0107	.1571	.0771	.0092	.0062

LINEAR INSTRUMENTS :

	THC		NOX		NO	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
SPAN ADJ.FACTOR	1.1650	1.1650	1.0082	1.0082	1.0148	1.0148

	ZEROES FOR RANGES (THC)	(NOX/NO)				
1	1.0	2.5	.0702	.2385	.8387	.8593	.4233	.3933
2	5.0	10.0	.0140	.0407	.2097	.2148	.1058	.0983
3	10.0	25.0	.0070	.0168	.0839	.0859	.0423	.0393
4	50.0	100.0	.0014	.0041	.0210	.0215	.0106	.0098
5	100.0	250.0	.0007	.0020	.0084	.0086	.0042	.0039
6	500.0	1000.0	.0001	.0004	.0021	.0021	.0011	.0010
7	1000.0	2500.0	.0001	.0002	.0008	.0009	.0004	.0004
8	5000.0	10000.0	.0000	.0000	.0002	.0002	.0001	.0001

SPAN GAS CONCENTRATIONS :

	THC-PPMC	NOX-PPM	NO-PPM	CO-HI-PPM	CO-LO-PPM	CO2-%
SPAN 1	24.48	19.70	19.70	245.00	78.40	4.49
SPAN 2	417.00	90.40	90.40	2400.00	245.00	8.90
SPAN 3	4620.00					

TOT.PRESS.FACT. 1.000, ADJ. .00
SAMPLE PROBE TYPE - SP
THERMOCOUPLE TYPE - K

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

	THC		NOX		NO		CO-HI		CO-LO		CO2		TEMP.- F.-	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-02														
SPAN/ZERO ADJ.	1.16	.0746	1.01	.0210	1.01	.0106	.89	.0429	.95	.1550	1.02	.0091		
SAMPLE DATA :														
TIME : 1426	1.00	.2090	100.00	.6538	100.00	.5974	3	.0520	3	.1985	3	.4690	.0	76.4
PROBE POS.:		.2132		.6625		.5991		.0534		.1937		.4803	.0	76.6
9.78 IN.		.2069		.6554		.5928		.0555		.2130		.4737	.0	77.2
PRESS.: 23.34 PSIA		.2184		.6521		.5871		.0548		.2250		.4768	.0	77.1
		.2105		.6505		.5970		.0553		.2586		.4831	.0	77.4
		.2148		.6487		.5879		.0571		.2628		.4777	.0	77.3
AVERAGE :		.2121		.6538		.5936		.0547		.2253		.4801	.0	77.0
CONCENTRATION :	10.61 PPMC		65.38 PPMV		59.36 PPMV		32.98 PPMV		22.73 PPMV		2.14 % VOL		786.3 DEG.F	
MODE-POINT : 4-03														
SPAN/ZERO ADJ.	1.16	.0812	1.01	.0210	1.01	.0105	.89	.0416	.95	.1519	1.02	.0090		
SAMPLE DATA :														
TIME : 1428	1.00	.1536	100.00	.7940	100.00	.6860	3	.0654	3	.2900	3	.5610	.0	77.3
PROBE POS.:		.1775		.7831		.6765		.0651		.2802		.5559	.0	77.4
7.69 IN.		.1807		.8145		.7005		.0662		.2860		.5602	.0	76.9
PRESS.: 28.56 PSIA		.1817		.7922		.6931		.0658		.2869		.5586	.0	77.3
		.0863		.8002		.6928		.0651		.3003		.5593	.0	77.2
AVERAGE :		.1559		.7968		.6898		.0655		.2887		.5590	.0	77.2
CONCENTRATION :	7.80 PPMC		79.68 PPMV		68.98 PPMV		41.99 PPMV		28.99 PPMV		2.51 % VOL		961.9 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63058 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-04														
SPAN/ZERO ADJ.	1.16	.0965	1.01	.0210	1.01	.0105	.89	.0386	.95	.1446	1.02	.0087		
SAMPLE DATA :														
TIME : 1432	1.00	.1564	100.00	.7838	100.00	.6793	3	.0674	3	.3368	3	.5360	.0	77.4
PROBE POS.:		.1553		.8004		.6824		.0662		.3190		.5298	.0	77.4
4.39 IN.		.1573		.7985		.6889		.0685		.3167		.5355	.0	77.8
PRESS.: 30.30 PSIA		.1575		.7831		.6739		.0682		.3366		.5320	.0	77.3
		.1535		.7959		.6838		.0678		.3407		.5271	.0	77.3
		.1647		.7921		.6741		.0681		.3311		.5262	.0	77.9
AVERAGE :		.1575		.7923		.6804		.0677		.3302		.5311	.0	77.5
CONCENTRATION :		7.87 PPMC		79.23 PPMV		68.04 PPMV		43.91 PPMV		33.03 PPMV		2.37 % VOL	1002.3	DEG.F
MODE-POINT : 4-05														
SPAN/ZERO ADJ.	1.16	.1118	1.01	.0211	1.01	.0104	.89	.0356	.95	.1373	1.02	.0085		
SAMPLE DATA :														
TIME : 1436	1.00	.0965	100.00	.6692	100.00	.5751	3	.0694	3	.4288	3	.4588	.0	77.5
PROBE POS.:		.1294		.6784		.5822		.0684		.3966		.4622	.0	76.9
-.04 IN.		.1340		.6783		.5802		.0682		.4058		.4631	.0	77.4
PRESS.: 27.25 PSIA		.1334		.6682		.5761		.0669		.3929		.4612	.0	76.8
		.1316		.6661		.5742		.0687		.3846		.4591	.0	76.8
AVERAGE :		.1250		.6721		.5775		.0683		.4017		.4609	.0	77.1
CONCENTRATION :		6.25 PPMC		67.21 PPMV		57.75 PPMV		44.45 PPMV		39.81 PPMV		2.05 % VOL	956.8	DEG.F

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59A # P63058 LRAFB FIELD TEST 1

CALIBRATION DATA FOR PERIOD 1511 TO 1534

NON-LINEAR INSTRUMENTS : REFERENCE CURVES CALIBRATION DATE : 7/22/77

	CO - HI		CO - LO		CO2	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
RANGE 1						
SPAN ADJ.FACTOR	.9912	.9912	.9945	.9945	1.0013	1.0013
ZERO READING	.0146	.0146	.0207	.0207	.0104	.0104
RANGE 2						
SPAN ADJ.FACTOR	.9829	1.0275	1.4195	1.4337	1.1958	1.0982
ZERO READING	.0126	.0126	.0513	-.0002	.0113	.0113
RANGE 3						
SPAN ADJ.FACTOR	.8936	.8885	.9470	.8936	1.0245	1.1711
ZERO READING	.0107	.0056	.0771	.0051	.0062	.0059

LINEAR INSTRUMENTS :

	THC		NOX		NO	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
SPAN ADJ.FACTOR	1.1650	.9578	1.0082	1.2760	1.0148	1.1948

	ZEROES FOR RANGES (THC)	(NOX/NO)					
1	1.0	2.5	.2385	.2655	.8593	.9788	.3933	.2939
2	5.0	10.0	.0407	.0483	.2148	.2447	.0983	.0735
3	10.0	25.0	.0168	.0197	.0859	.0952	.0393	.0293
4	50.0	100.0	.0041	.0047	.0215	.0251	.0098	.0099
5	100.0	250.0	.0020	.0023	.0086	.0098	.0039	.0029
6	500.0	1000.0	.0004	.0005	.0021	.0024	.0010	.0007
7	1000.0	2500.0	.0002	.0002	.0009	.0010	.0004	.0003
8	5000.0	10000.0	.0000	.0000	.0002	.0002	.0001	.0001

SPAN GAS CONCENTRATIONS :

	THC-PPMC	NOX-PPM	NO-PPM	CO-HI-PPM	CO-LO-PPM	CO2-%
SPAN 1	24.48	19.70	19.70	245.00	78.40	4.49
SPAN 2	417.00	90.40	90.40	2400.00	245.00	8.90
SPAN 3	4620.00					

TOT.PRESS.FACT. 1.000, ADJ. .00
SAMPLE PROBE TYPE - SP
THERMOCOUPLE TYPE - K

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63056 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 5-01														
SPAN/ZERO ADJ.	1.15	.2407	1.03	.0218	1.03	.0098	.89	.0103	.94	.0714	1.04	.0062		
SAMPLE DATA :														
TIME : 1513	1.00	.1206	100.00	.6628	100.00	.3068	3	.2090	3	.5967*	3	.5380	.0	79.1
PROBE POS.:		.0757		.6663		.3177		.2191		.6565*		.5403	.0	78.8
11.56 IN.		.0607		.6471		.3012		.2351		1.0982*		.5373	.0	78.5
PRESS.: 21.28 PSIA		.0189		.6496		.3054		.2350		1.4839*		.5327	.0	78.2
AVERAGE :		.0690		.6564		.3078		.2245		.0000		.5371	.0	78.6
CONCENTRATION :		3.45 PPMC		65.64 PPMV		30.78 PPMV		237.95 PPMV		.00 PPMV		2.40 % VOL	727.8	DEG.F
MODE-POINT : 5-02														
SPAN/ZERO ADJ.	1.15	.0413	1.03	.0867	1.03	.0378	.89	.0103	1.42	.0473	1.04	.0062		
SAMPLE DATA :														
TIME : 1513	5.00	.3671	25.00	.7809	25.00	.3409	3	.2922	2	1.2536*	3	.6668	.0	75.2
PROBE POS.:		.3737		.7522		.3334		.2992		1.9242*		.6515	.0	77.1
9.87 IN.		.3941		.7573		.3186		.3082		.9072*		.6520	.0	77.8
PRESS.: 26.30 PSIA		.3922		.7528		.3335		.3035		.9684*		.6602	.0	76.7
AVERAGE :		.3818		.7608		.3316		.3008		.0000		.6576	.0	76.7
CONCENTRATION :		95.44 PPMC		19.02 PPMV		8.29 PPMV		325.68 PPMV		.00 PPMV		3.00 % VOL	884.4	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 4,TYPE B 6/ 9/77 J 57 59W # P63056 LRAFB FIELD TEST 1

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 5-03														
SPAN/ZERO ADJ.	1.10	.0177	1.09	.0226	1.07	.0330	.89	.0091	.99	.0207	1.07	.0061		
SAMPLE DATA :														
TIME : 1518	10.00	.2604	100.00	.2416	25.00	.3761	3	.3331	1	.6831*	3	.7634	.0	77.7
PROBE POS.:		.2425		.2418		.4060		.3323		.8470*		.7692	.0	77.2
7.79 IN.		.1880		.2423		.3955		.3251		.9274*		.7687	.0	76.5
PRESS.: 32.47 PSIA		.2221		.2522		.4115		.3338		.9980*		.7740	.0	76.6
		.2214		.2475		.3895		.3337		1.0480*		.7781	.0	77.0
AVERAGE :		.2269		.2451		.3957		.3316		.0000		.7707	.0	77.0
CONCENTRATION :	113.44 PPMC		24.51 PPMV		9.89 PPMV		358.72 PPMV		.00 PPMV		3.63 % VOL		1032.0 DEG.F	
MODE-POINT : 5-04														
SPAN/ZERO ADJ.	1.08	.0180	1.11	.0229	1.09	.0314	.89	.0087	.99	.0207	1.08	.0061		
SAMPLE DATA :														
TIME : 1520	10.00	.1768	100.00	.2693	25.00	.5417	3	.2397	1	.2866*	3	.7357	.0	78.0
PROBE POS.:		.1209		.2724		.5574		.2453		.5526*		.7244	.0	78.1
4.39 IN.		.1255		.2830		.5558		.2532		.7399*		.7382	.0	78.4
PRESS.: .00 PSIA		.1088		.2713		.5674		.2535		.8449*		.7290	.0	78.8
		.1176		.2771		.5477		.2650		.9414*		.7454	.0	77.9
AVERAGE :		.1299		.2746		.5540		.2513		.0000		.7345	.0	78.2
CONCENTRATION :	64.95 PPMC		27.46 PPMV		13.85 PPMV		270.09 PPMV		.00 PPMV		3.42 % VOL		1041.4 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

@FIN

STOP CONC

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
CONCENTRATION EDIT REPORT

SET 1628-002-1077

REFERENCE CURVE TABLES - NON-LINEAR INSTRUMENTS

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216
CAL. DATE 7/22/77

	CO - HI			CO - LOW			CO2		
	PPMV	VOLTS	ANGLE	PPMV	VOLTS	ANGLE	% VOL	VOLTS	ANGLE
RANGE 1 :									
	.00	.0000	1.5705	.00	.0000	1.5695	.00	.0000	1.4161
	245.00	.0650	1.5705	30.10	.0400	1.5694	1.46	.1950	1.4600
	895.00	.2130	1.5706	60.30	.0830	1.5694	3.20	.3500	1.4950
	1840.00	.3930	1.5706	78.40	.1060	1.5696	4.49	.4310	1.5145
	2400.00	.4940	1.5706	176.00	.2240	1.5696	6.09	.5110	1.5259
	4127.00	.7760	1.5707	245.00	.3000	1.5698	8.90	.6230	1.5357
	8100.00	1.2080	1.5707	614.00	.6100	1.5700	12.10	.7200	1.5432
	9600.00	1.3780	1.5707	895.00	.8340	1.5700	15.00	.7920	1.5487
RANGE 2 :									
	.00	.0000	1.5703	.00	.0000	1.5676	.00	.0000	1.3459
	176.00	.0710	1.5705	30.10	.1000	1.5674	1.46	.2850	1.4101
	245.00	.0900	1.5705	60.30	.2060	1.5674	3.20	.5100	1.4605
	614.00	.2070	1.5705	78.40	.2640	1.5677	4.49	.6290	1.4886
	895.00	.3000	1.5705	176.00	.5570	1.5679	6.09	.7450	1.5051
	1840.00	.5910	1.5705	245.00	.7460	1.5682	8.90	.9110	1.5193
	2400.00	.7460	1.5705	-1.00	-1.0000	.0000	12.10	1.0520	1.5342
	4127.00	1.2320	1.5705	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000
RANGE 3 :									
	.00	.0000	1.5687	.00	.0000	1.5611	.00	.0000	1.3382
	30.10	.0510	1.5695	30.10	.3000	1.5606	1.46	.3320	1.3562
	176.00	.1840	1.5700	60.30	.6150	1.5611	3.20	.6950	1.3884
	245.00	.2300	1.5700	78.40	.7790	1.5624	4.49	.9020	1.4350
	614.00	.6030	1.5697	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000
	895.00	.9610	1.5694	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000

** NOTES **

SPAN VOLTAGES ALREADY CORRECTED FOR ZERO GAS VOLTAGES.

A CONCENTRATION VALUE OF -1.0 INDICATES NO DATA.

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST S,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

CALIBRATION DATA FOR PERIOD 1359 TO 1635

NON-LINEAR INSTRUMENTS : REFERENCE CURVES CALIBRATION DATE : 7/22/77

	CO - HI		CO - LO		CO2	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
RANGE 1						
SPAN ADJ.FACTOR	.9999	1.0019	1.0571	.9429	1.0299	1.1732
ZERO READING	.0196	.0236	.0178	.0307	.0110	.0110
RANGE 2						
SPAN ADJ.FACTOR	1.0069	.9629	1.0570	.8621	1.0293	1.1921
ZERO READING	.0249	.0249	.0427	.0427	.0164	.0082
RANGE 3						
SPAN ADJ.FACTOR	.8388	.8138	1.0623	.7732	1.0320	1.2898
ZERO READING	.0616	.0655	.1302	.1840	.0098	.0065

LINEAR INSTRUMENTS :

	THC		NOX		NO	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
SPAN ADJ.FACTOR	.9502	.8216	1.1749	1.2782	1.1588	1.1902

	ZEROES FOR RANGES (THC)	(NOX/NO)					
1	1.0	2.5	.2065	.2006	.7890	1.1254	.4106	.2988
2	5.0	10.0	.0377	.0390	.1836	.2741	.0448	.0515
3	10.0	25.0	.0110	.0150	.0733	.1128	.0220	.0245
4	50.0	100.0	.0017	.0026	.0197	.0288	.0105	.0111
5	100.0	250.0	.0015	.0017	.0090	.0113	.0062	.0030
6	500.0	1000.0	.0003	.0003	.0020	.0028	.0010	.0007
7	1000.0	2500.0	.0001	.0002	.0008	.0011	.0004	.0003
8	5000.0	10000.0	.0000	.0000	.0002	.0003	.0001	.0001

SPAN GAS CONCENTRATIONS :

	THC-PPMC	NOX-PPM	NO-PPM	CO-HI-PPM	CO-LO-PPM	CO2-%
SPAN 1	24.48	19.70	19.70	245.00	78.40	4.49
SPAN 2	417.00	90.40	90.40	2400.00	245.00	8.90
SPAN 3	4620.00					

TOT.PRESS.FACT. 1.000, ADJ. .00
SAMPLE PROBE TYPE - SP
THERMOCOUPLE TYPE - K

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-01														
SPAN/ZERO ADJ.	.95	.0110	1.17	.1836	1.16	.0448	.84	.0616	1.06	.0427	1.03	.0098		
SAMPLE DATA :														
TIME : 1359	10.00	.9102	10.00	.5366	10.00	.2915	3	.2341	2	.7336	3	.1652	.0	75.5
PROBE POS.:		.7053		.5447		.2746		.2322		.6905		.1589	.0	75.2
11.69 IN.		.7193		.5080		.2632		.2296		.7026		.1564	.0	75.6
PRESS.: 14.89 PSIA		.7174		.5437		.2449		.2308		.7295		.1621	.0	76.1
		.8992		.5507		.2344		.2387		.7533		.1593	.0	76.6
		.8936		.5462		.2283		.2395		.7532		.1586	.0	77.1
AVERAGE :		.8075		.5383		.2562		.2342		.7271		.1601	.0	76.0
CONCENTRATION :	403.75 PPMC		5.38 PPMV		2.56 PPMV		249.95 PPMV		237.79 PPMV		.69 % VOL		308.6 DEG.F	
MODE-POINT : 1-02														
SPAN/ZERO ADJ.	.95	.0017	1.18	.1847	1.16	.0449	.84	.0617	1.06	.0179	1.03	.0097		
SAMPLE DATA :														
TIME : 1401	50.00	.2229	10.00	.6599	10.00	.2158	3	.2984	1	.3806	3	.1957	.0	79.1
PROBE POS.:		.2287		.6671		.2010		.3028		.3791		.1969	.0	79.6
9.90 IN.		.2306		.6322		.1877		.3005		.3802		.1968	.0	78.6
PRESS.: 15.19 PSIA		.2250		.6462		.1753		.2984		.3731		.1977	.0	78.4
		.2261		.6934		.1743		.3018		.3774		.1970	.0	78.2
		.2269		.6433		.1648		.2959		.3703		.1954	.0	78.7
AVERAGE :		.2267		.6570		.1865		.2997		.3768		.1966	.0	78.8
CONCENTRATION :	566.79 PPMC		6.57 PPMV		1.86 PPMV		324.47 PPMV		328.97 PPMV		.85 % VOL		393.1 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-03														
SPAN/ZERO ADJ.	.95	.0017	1.18	.1861	1.16	.0450	.84	.0617	1.05	.0181	1.04	.0097		
SAMPLE DATA :														
TIME : 1403	50.00	.2971	10.00	.7932	10.00	.1676	3	.3870	1	.4672	3	.2479	.0	77.6
PROBE POS.:		.3071		.7941		.1636		.3899		.4715		.2478	.0	76.4
7.69 IN.		.3125		.8040		.1583		.3924		.4707		.2448	.0	76.3
PRESS.: 15.53 PSIA		.3083		.8005		.1551		.3929		.4730		.2453	.0	76.0
		.3121		.8038		.1522		.3943		.4730		.2477	.0	76.0
AVERAGE :		.3074		.7991		.1594		.3913		.4711		.2467	.0	76.5
CONCENTRATION :	768.54 PPMC		7.99 PPMV		1.59 PPMV		419.61 PPMV		441.80 PPMV		1.07 % VOL		466.6 DEG.F	
MODE-POINT : 1-04														
SPAN/ZERO ADJ.	.95	.0017	1.18	.1871	1.16	.0451	.84	.0618	1.05	.0183	1.04	.0097		
SAMPLE DATA :														
TIME : 1405	50.00	.2720	10.00	.9110	10.00	.1604	3	.4059	1	.4875	3	.2658	.0	76.3
PROBE POS.:		.2792		.9055		.1562		.4099		.4893		.2647	.0	76.8
4.30 IN.		.2804		.9011		.1527		.4088		.4880		.2614	.0	76.4
PRESS.: 15.67 PSIA		.2742		.9237		.1536		.4086		.4857		.2645	.0	77.1
		.2840		.9062		.1494		.4105		.4893		.2675	.0	77.1
AVERAGE :		.2780		.9095		.1545		.4087		.4880		.2648	.0	76.7
CONCENTRATION :	694.91 PPMC		9.09 PPMV		1.54 PPMV		436.74 PPMV		462.67 PPMV		1.15 % VOL		532.9 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-05														
SPAN/ZERO ADJ.	.94	.0017	1.18	.1878	1.16	.0451	.84	.0618	1.05	.0184	1.04	.0096		
SAMPLE DATA :														
TIME : 1406	50.00	.2132	10.00	.9648	10.00	.1580	3	.3807	1	.4560	3	.2713	.0	77.6
PROBE POS.:		.2127		.9646		.1502		.3923		.4573		.2738	.0	78.0
-.02 IN.		.2129		.9684		.1486		.3789		.4586		.2751	.0	77.9
PRESS.: 15.42 PSIA		.2106		.9613		.1406		.3839		.4587		.2725	.0	78.2
		.2117		.9264		.1366		.3766		.4578		.2741	.0	79.2
AVERAGE :		.2122		.9575		.1468		.3825		.4577		.2734	.0	78.2
CONCENTRATION :	530.53 PPMC		9.57 PPMV		1.47 PPMV		410.85 PPMV		425.35 PPMV		1.19 % VOL		547.1	DEG.F
MODE-POINT : 3-01														
SPAN/ZERO ADJ.	.94	.0378	1.18	.0203	1.16	.0221	.84	.0619	1.04	.1337	1.05	.0096		
SAMPLE DATA :														
TIME : 1409	5.00	.1027	100.00	.1978	25.00	.6050	3	.0847	3	.3872	3	.2543	.0	76.8
PROBE POS.:		.0893		.1928		.6007		.0862		.3978		.2536	.0	76.8
11.55 IN.		.0885		.1926		.6029		.0857		.4006		.2549	.0	76.7
PRESS.: 16.38 PSIA		.0863		.1921		.5941		.0898		.3738		.2500	.0	76.3
		.0770		.1914		.5934		.0882		.3941		.2501	.0	75.8
AVERAGE :		.0888		.1934		.5992		.0869		.3907		.2526	.0	76.5
CONCENTRATION :	22.19 PPMC		19.34 PPMV		14.98 PPMV		62.01 PPMV		38.77 PPMV		1.10 % VOL		453.3	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 3-02														
SPAN/ZERO ADJ.	.94	.0378	1.18	.0204	1.16	.0105	.84	.0619	1.04	.1343	1.05	.0095		
SAMPLE DATA :														
TIME : 1411	5.00	.0712	100.00	.2606	100.00	.2004	3	.0992	3	.5267	3	.3180	.0	76.9
PROBE POS.:		.0774		.2606		.1981		.1033		.5356		.3186	.0	77.2
9.87 IN.		.0719		.2576		.1954		.1012		.5391		.3134	.0	77.2
PRESS.: 18.17 PSIA		.0755		.2610		.1971		.1034		.5325		.3166	.0	77.4
		.0680		.2588		.1970		.1023		.5277		.3170	.0	77.3
AVERAGE :		.0728		.2597		.1976		.1019		.5323		.3167	.0	77.2
CONCENTRATION :	18.20 PPMC		25.97 PPMV		19.76 PPMV		77.49 PPMV		52.11 PPMV		1.39 % VOL		549.7 DEG.F	
MODE-POINT : 3-03														
SPAN/ZERO ADJ.	.94	.2060	1.18	.0205	1.16	.0106	.84	.0620	1.04	.1349	1.05	.0095		
SAMPLE DATA :														
TIME : 1413	1.00	.3663	100.00	.3216	100.00	.2414	3	.1111	3	.6275	3	.3730	.0	79.0
PROBE POS.:		.3756		.3171		.2336		.1100		.6189		.3694	.0	78.7
7.67 IN.		.3897		.3147		.2390		.1124		.6320		.3734	.0	78.3
PRESS.: 20.32 PSIA		.3770		.3200		.2353		.1137		.6228		.3748	.0	77.8
		.3436		.3202		.2400		.1120		.6143		.3723	.0	78.2
AVERAGE :		.3704		.3187		.2379		.1118		.6231		.3726	.0	78.4
CONCENTRATION :	18.52 PPMC		31.87 PPMV		23.79 PPMV		88.37 PPMV		61.14 PPMV		1.65 % VOL		663.8 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST S,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 3-04														
SPAN/ZERO ADJ.	.94	.2059	1.18	.0206	1.16	.0106	.84	.0620	1.03	.1354	1.06	.0095		
SAMPLE DATA :														
TIME : 1414	1.00	.1757	100.00	.3279	100.00	.2543	3	.1030	3	.5108	3	.3739	.0	76.8
PROBE POS.:		.1736		.3222		.2539		.1008		.5198		.3722	.0	76.6
9.26 IN.		.1708		.3291		.2601		.1020		.5151		.3717	.0	77.6
PRESS.: 20.94 PSIA		.1590		.3304		.2567		.1031		.5277		.3691	.0	76.7
		.2155		.3248		.2546		.1045		.5202		.3703	.0	76.8
AVERAGE :		.1789		.3268		.2559		.1027		.5187		.3714	.0	76.9
CONCENTRATION :		8.95 PPMC		32.68 PPMV		25.59 PPMV		78.33 PPMV		50.80 PPMV		1.64 % VOL	710.7	DEG.F
MODE-POINT : 3-05														
SPAN/ZERO ADJ.	.94	.2059	1.19	.0206	1.16	.0106	.84	.0620	1.03	.1358	1.06	.0094		
SAMPLE DATA :														
TIME : 1415	1.00	.1227	100.00	.3106	100.00	.2504	3	.1027	3	.4685	3	.3580	.0	76.1
PROBE POS.:		.1131		.3101		.2527		.1030		.4888		.3592	.0	76.5
-.06 IN.		.1180		.3049		.2500		.1016		.4873		.3562	.0	76.9
PRESS.: 19.80 PSIA		.1195		.3096		.2521		.1037		.4863		.3593	.0	77.7
		.1192		.3092		.2513		.1042		.4814		.3582	.0	77.6
AVERAGE :		.1185		.3089		.2513		.1030		.4825		.3582	.0	77.0
CONCENTRATION :		5.92 PPMC		30.89 PPMV		25.13 PPMV		78.70 PPMV		47.36 PPMV		1.58 % VOL	709.0	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-01														
SPAN/ZERO ADJ.	.93	.2057	1.19	.0208	1.16	.0106	.84	.0621	1.03	.1368	1.06	.0094		
SAMPLE DATA :														
TIME : 1418	1.00	.0301	100.00	.5631	100.00	.5134	3	.0759	3	.1457	3	.3766	.0	75.9
PROBE POS.:		.0258		.5625		.5264		.0764		.1617		.3781	.0	75.6
11.65 IN.		.0300		.5673		.5232		.0761		.1575		.3767	.0	75.2
PRESS.: 19.26 PSIA		.0318		.5628		.5160		.0751		.1492		.3724	.0	76.2
		.0162		.5585		.5178		.0774		.1532		.3715	.0	75.2
AVERAGE :		.0268		.5628		.5194		.0762		.1535		.3750	.0	75.6
CONCENTRATION :	1.34 PPMC		56.28 PPMV		51.94 PPMV		51.60 PPMV		15.57 PPMV		1.66 % VOL		635.3 DEG.F	
MODE-POINT : 4-02														
SPAN/ZERO ADJ.	.93	.2057	1.19	.0209	1.16	.0106	.84	.0621	1.03	.1370	1.06	.0094		
SAMPLE DATA :														
TIME : 1419	1.00	.0255	100.00	.7531	100.00	.7083	3	.0825	3	.2035	3	.4894	.0	77.7
PROBE POS.:		.0281		.7545		.7065		.0827		.2171		.4913	.0	78.3
9.89 IN.		.0277		.7442		.6924		.0823		.2221		.4901	.0	78.4
PRESS.: 23.19 PSIA		.0197		.7454		.6872		.0852		.2309		.4870	.0	78.6
		.0259		.7422		.6889		.0825		.2336		.4867	.0	78.7
AVERAGE :		.0254		.7479		.6967		.0830		.2214		.4889	.0	78.3
CONCENTRATION :	1.27 PPMC		74.79 PPMV		69.67 PPMV		58.17 PPMV		22.35 PPMV		2.18 % VOL		798.1 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-C216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 JET 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI --*		*-- CO-LO --*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-03														
SPAN/ZERO ADJ.	.93	.2057	1.19	.0209	1.16	.0106	.84	.0621	1.02	.1374	1.07	.0093		
SAMPLE DATA :														
TIME : 1420	1.00	.0074	100.00	.9735	100.00	.8187	3	.0921	3	.2797	3	.5756	.0	77.0
PROBE POS.:		.0031		.9695		.8150		.0919		.2965		.5764	.0	76.3
7.68 IN.		.0100		.9693		.8137		.0937		.2999		.5717	.0	77.1
PRESS.: 28.54 PSIA		.0080		.9596		.8087		.0943		.2967		.5712	.0	76.3
		.0034		.9845		.8226		.0955		.3128		.5718	.0	74.4
AVERAGE :		.0064		.9713		.8157		.0935		.2971		.5733	.0	76.2
CONCENTRATION :		.32 PPMC		97.13 PPMV		81.57 PPMV		68.64 PPMV		29.82 PPMV		2.58 % VOL	973.7	DEG.F
MODE-POINT : 4-04														
SPAN/ZERO ADJ.	.93	.2056	1.19	.0210	1.16	.0106	.84	.0622	1.02	.1378	1.07	.0093		
SAMPLE DATA :														
TIME : 1421	1.00	-.0018	100.00	.8685	100.00	.7571	3	.0956	3	.3177	3	.5266	.0	75.5
PROBE POS.:		-.0057		.8796		.7539		.1034		.2854		.5288	.0	75.3
4.38 IN.		-.0113		.8885		.7798		.0967		.3072		.5264	.0	75.8
PRESS.: 30.08 PSIA		-.0132		.8868		.7767		.0974		.3074		.5262	.0	75.8
		-.0245		.9250		.7679		.0956		.2979		.5257	.0	75.6
AVERAGE :		-.0113		.8897		.7671		.0977		.3031		.5271	.0	75.6
CONCENTRATION :		.00 PPMC		88.97 PPMV		76.71 PPMV		73.08 PPMV		30.41 PPMV		2.36 % VOL	1011.7	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-05														
SPAN/ZERO ADJ.	.93	.2056	1.19	.0210	1.16	.0106	.84	.0622	1.02	.1380	1.07	.0093		
SAMPLE DATA :														
TIME : 1422	1.00	.0015	100.00	.7989	100.00	.7038	3	.0960	3	.3183	3	.4729	.0	77.2
PROBE POS.:		-.0022		.8009		.7068		.0954		.3021		.4794	.0	77.6
-.02 IN.		-.0125		.8057		.7038		.0936		.2875		.4778	.0	78.0
PRESS.: 27.38 PSIA		-.0174		.8019		.7062		.0945		.2752		.4808	.0	78.8
		-.0202		.8159		.7166		.0935		.2588		.4788	.0	78.5
AVERAGE :		-.0102		.8047		.7074		.0946		.2884		.4779	.0	78.0
CONCENTRATION :		.00 PPMC		80.47 PPMV		70.74 PPMV		69.63 PPMV		28.96 PPMV		2.13 % VOL	980.4	DEG.F
MODE-POINT : 5-01														
SPAN/ZERO ADJ.	.90	.0127	1.22	.0235	1.17	.0108	.83	.0633	.97	.0427	1.14	.0084		
SAMPLE DATA :														
TIME : 1505	10.00	.1078	100.00	.1770	100.00	.1121	3	.2173	2	.5764*	3	.5692	.0	75.9
PROBE POS.:		.1089		.1743		.1086		.2458		.6490*		.5646	.0	76.0
11.71 IN.		.1109		.1654		.1021		.2752		.9000*		.5576	.0	76.6
PRESS.: 20.33 PSIA		.1288		.1636		.0976		.2833		1.5553*		.5541	.0	76.5
		.1273		.1638		.0983		.2921		1.8153*		.5533	.0	77.5
AVERAGE :		.1168		.1688		.1037		.2627		.0000		.5598	.0	76.5
CONCENTRATION :		58.38 PPMC		16.88 PPMV		10.37 PPMV		283.19 PPMV		.00 PPMV		2.51 % VOL	694.6	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 057 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : S-02														
SPAN/ZERO ADJ.	.89	.0127	1.22	.0236	1.17	.0108	.83	.0633	1.01	.0234	1.14	.0084		
SAMPLE DATA :														
TIME : 1506	10.00	.1448	100.00	.2186	100.00	.1309	3	.3458	1	.5673*	3	.6919	.0	79.9
PROBE POS.:		.1436		.2114		.1255		.3584		.7783*		.6863	.0	79.0
9.94 IN.		.1386		.2130		.1238		.3633		.8968*		.6873	.0	78.9
PRESS.: .00 PSIA		.1288		.2178		.1271		.3724		.9716*		.6932	.0	79.3
		.1327		.2157		.1256		.3727		1.0542*		.6892	.0	77.5
AVERAGE :		.1377		.2153		.1266		.3625		.0000		.6896	.0	78.9
CONCENTRATION :		68.84 PPMC		21.53 PPMV		12.66 PPMV		390.72 PPMV		.00 PPMV		3.17 % VOL	773.6	DEG.F
MODE-POINT : S-03														
SPAN/ZERO ADJ.	.89	.0127	1.22	.0236	1.17	.0108	.83	.0633	1.01	.0234	1.14	.0084		
SAMPLE DATA :														
TIME : 1506	10.00	.1378	100.00	.2724	100.00	.1590	3	.3417	1	.5526*	3	.7925	.0	77.2
PROBE POS.:		.1433		.2622		.1530		.3578		.7592*		.7903	.0	76.2
7.76 IN.		.1421		.2657		.1511		.3723		.9345*		.7862	.0	75.8
PRESS.: .00 PSIA		.1347		.2629		.1514		.3794		1.0470*		.7859	.0	75.4
		.1329		.2611		.1508		.3871		1.1339*		.7839	.0	75.7
AVERAGE :		.1382		.2648		.1531		.3677		.0000		.7878	.0	76.1
CONCENTRATION :		69.08 PPMC		26.48 PPMV		15.31 PPMV		395.96 PPMV		.00 PPMV		3.73 % VOL	1012.6	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 5,TYPE B 7/ 9/77 J57 59W # P63427 LRAFB FIELD TEST 2

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 5-04														
SPAN/ZERO ADJ.	.89	.0383	1.22	.0240	1.17	.0108	.83	.0634	1.00	.0239	1.15	.0082		
SAMPLE DATA :														
TIME : 1512	5.00	.1168	100.00	.3110	100.00	.2027	3	.3076	1	.9075*	3	.7392	-.0	76.7
PROBE POS.:		.1131		.3053		.1988		.3131		1.0076*		.7465	-.0	77.1
9.50 IN.		.1176		.2983		.1993		.3252		1.1174*		.7359	-.0	76.5
PRESS.: 30.63 PSIA		.1238		.3003		.1938		.3352		1.2173*		.7377	-.0	77.0
		.1322		.2989		.1946		.3482		1.3334*		.7271	-.0	76.5
AVERAGE :		.1207		.3028		.1978		.3258		.0000		.7373	-.0	76.8
CONCENTRATION :	30.18 PPMC		30.28 PPMV		19.78 PPMV		352.63 PPMV		.00 PPMV		3.43 % VOL		.0 DEG.F	
MODE-POINT : 5-05														
SPAN/ZERO ADJ.	.89	.0383	1.22	.0241	1.17	.0108	.83	.0635	1.00	.0240	1.16	.0082		
SAMPLE DATA :														
TIME : 1514	5.00	.0846	100.00	.3057	100.00	.2152	3	.3155	1	1.0893*	3	.6347	-.0	75.5
PROBE POS.:		.0844		.2927		.2004		.3153		.9385*		.6470	-.0	75.9
-.07 IN.		.0808		.2882		.1937		.3128		.9578*		.6294	-.0	76.5
PRESS.: 32.40 PSIA		.0819		.2881		.1937		.3143		1.0188*		.6329	-.0	76.4
		.0812		.2849		.1909		.3153		1.0941*		.6269	-.0	76.3
AVERAGE :		.0826		.2919		.1988		.3146		.0000		.6342	-.0	76.1
CONCENTRATION :	20.65 PPMC		29.19 PPMV		19.88 PPMV		340.67 PPMV		.00 PPMV		2.68 % VOL		.0 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

@FIN

STOP CONC

SCOTT ENVIRONMENTAL TECHNOLOGY INC.
USAF TURBINE ENGINE EMISSIONS INVENTORY
CONCENTRATION EDIT REPORT

SET 1628-002-1077

REFERENCE CURVE TABLES - NON-LINEAR INSTRUMENTS

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216
CAL. DATE 7/22/77

	CO - HI			CO - LOW			CO2		
	PPMV	VOLTS	ANGLE	PPMV	VOLTS	ANGLE	% VOL	VOLTS	ANGLE
RANGE 1 :									
	.00	.0000	1.5705	.00	.0000	1.5695	.00	.0000	1.4161
	245.00	.0650	1.5705	30.10	.0400	1.5694	1.46	.1950	1.4600
	895.00	.2130	1.5706	60.30	.0830	1.5694	3.20	.3500	1.4950
	1840.00	.3930	1.5706	78.40	.1060	1.5696	4.49	.4310	1.5145
	2400.00	.4940	1.5706	176.00	.2240	1.5696	6.09	.5110	1.5259
	4127.00	.7760	1.5707	245.00	.3000	1.5698	8.90	.6230	1.5357
	8100.00	1.2080	1.5707	614.00	.6100	1.5700	12.10	.7200	1.5432
	9600.00	1.3780	1.5707	895.00	.8340	1.5700	15.00	.7920	1.5487
RANGE 2 :									
	.00	.0000	1.5703	.00	.0000	1.5676	.00	.0000	1.3459
	176.00	.0710	1.5705	30.10	.1000	1.5674	1.46	.2850	1.4101
	245.00	.0900	1.5705	60.30	.2060	1.5674	3.20	.5100	1.4605
	614.00	.2070	1.5705	78.40	.2640	1.5677	4.49	.6290	1.4886
	895.00	.3000	1.5705	176.00	.5570	1.5679	6.09	.7450	1.5051
	1840.00	.5910	1.5705	245.00	.7460	1.5682	8.90	.9110	1.5193
	2400.00	.7460	1.5705	-1.00	-1.0000	.0000	12.10	1.0520	1.5342
	4127.00	1.2320	1.5705	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000
RANGE 3 :									
	.00	.0000	1.5687	.00	.0000	1.5611	.00	.0000	1.3382
	30.10	.0510	1.5695	30.10	.3000	1.5606	1.46	.3320	1.3562
	176.00	.1840	1.5700	60.30	.6150	1.5611	3.20	.6950	1.3884
	245.00	.2300	1.5700	78.40	.7790	1.5624	4.49	.9020	1.4350
	614.00	.6030	1.5697	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000
	895.00	.9610	1.5694	-1.00	-1.0000	.0000	-1.00	-1.0000	.0000

** NOTES **

SPAN VOLTAGES ALREADY CORRECTED FOR ZERO GAS VOLTAGES.

A CONCENTRATION VALUE OF -1.0 INDICATES NO DATA.

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-C216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

CALIBRATION DATA FOR PERIOD 1326 TO 1605

NON-LINEAR INSTRUMENTS : REFERENCE CURVES CALIBRATION DATE : 7/22/77

	CO - HI		CO - LO		CO2	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
RANGE 1						
SPAN ADJ.FACTOR	.9896	.9652	.9922	.2684	1.0532	1.0941
ZERO READING	.0276	.0344	.0122	.0246	-99.0000	-99.0000
RANGE 2						
SPAN ADJ.FACTOR	.9916	.9893	.9979	.3341	1.0695	1.1171
ZERO READING	.0386	.0478	.0359	.0628	.0092	.0068
RANGE 3						
SPAN ADJ.FACTOR	.8893	.8046	.9016	.8117	1.1186	1.1847
ZERO READING	.1017	.1265	.1124	.1944	.0054	.0021

LINEAR INSTRUMENTS :

	THC		NOX		NO	
	PERIOD START	PERIOD END	PERIOD START	PERIOD END	PERIOD START	PERIOD END
SPAN ADJ.FACTOR	.9887	1.0031	1.0118	1.1991	1.0071	1.2413

	ZEROES FOR RANGES (THC)	(NOX/NO)				
1	1.0	2.5	.2287	.3304	.1520	.3563	.3093	.1621
2	5.0	10.0	.0428	.0556	.0194	.0851	.0205	.0181
3	10.0	25.0	.0186	.0261	.0133	.0335	.0128	.0107
4	50.0	100.0	.0033	.0049	.0039	.0098	.0079	.0077
5	100.0	250.0	.0020	.0028	.0024	.0036	.0071	.0016
6	500.0	1000.0	.0004	.0006	.0004	.0009	.0008	.0004
7	1000.0	2500.0	.0002	.0003	.0002	.0004	.0003	.0002
8	5000.0	10000.0	.0000	.0001	.0000	.0001	.0001	.0000

SPAN GAS CONCENTRATIONS :

	THC-PPMC	NOX-PPM	NO-PPM	CO-HI-PPM	CO-LO-PPM	CO2-%
SPAN 1	24.48	19.70	19.70	245.00	78.40	4.49
SPAN 2	417.00	90.40	90.40	2400.00	245.00	8.90
SPAN 3	4620.00					

TOT.PRESS.FACT. 1.000, ADJ. .00
SAMPLE PROBE TYPE - SP
THERMOCOUPLE TYPE - K

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-C216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-02														
SPAN/ZERO ADJ.	.99	.0034	1.02	.0223	1.02	.0204	.89	.1028	.96	.0128	1.12	.0053		
SAMPLE DATA :														
TIME : 1333	50.00	.1821	10.00	.7146	10.00	.0879	3	.3558	1	.3950	3	.2133	-.0	77.5
PROBE POS.:		.1826		.7024		.0867		.3589		.3959		.2135	-.0	77.8
9.73 IN.		.1789		.7231		.0857		.3593		.3971		.2157	-.0	78.1
PRESS.: 15.41 PSIA		.1833		.7063		.0830		.3594		.3971		.2143	-.0	77.9
		.1871		.7036		.0835		.3617		.3985		.2140	-.0	78.6
AVERAGE :		.1828		.7100		.0854		.3590		.3967		.2141	-.0	78.0
CONCENTRATION :	456.94 PPMC		7.10 PPMV		.85 PPMV		387.16 PPMV		352.16 PPMV		.93 % VOL		.0 DEG.F	
MODE-POINT : 1-03														
SPAN/ZERO ADJ.	.99	.0034	1.02	.0226	1.02	.0203	.89	.1029	.96	.0128	1.12	.0053		
SAMPLE DATA :														
TIME : 1334	50.00	.2159	10.00	.8191	10.00	.0857	3	.4399	1	.4595	3	.2493	-.0	78.5
PROBE POS.:		.2224		.8166		.0833		.4398		.4587		.2507	-.0	78.4
7.70 IN.		.2154		.8200		.0814		.4377		.4559		.2489	-.0	79.6
PRESS.: 15.64 PSIA		.2218		.8205		.0836		.4407		.4565		.2469	-.0	79.2
		.2226		.8106		.0848		.4435		.4588		.2486	-.0	78.7
AVERAGE :		.2196		.8174		.0838		.4403		.4579		.2489	-.0	78.9
CONCENTRATION :	549.12 PPMC		8.17 PPMV		.84 PPMV		467.06 PPMV		425.62 PPMV		1.08 % VOL		.0 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE 6 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 1-04														
SPAN/ZERO ADJ.	.99	.0034	1.02	.0231	1.02	.0203	.88	.1031	.95	.0129	1.12	.0052		
SAMPLE DATA :														
TIME : 1335	50.00	.1694	10.00	.8096	10.00	.1115	3	.3833	1	.4111	3	.2359	-.0	76.9
PROBE POS.:		.1717		.8172		.1088		.3871		.4131		.2375	-.0	75.7
9.44 IN.		.1738		.8078		.1065		.3899		.4104		.2368	-.0	75.8
PRESS.: 15.65 PSIA		.1797		.8104		.1067		.3866		.4123		.2329	-.0	73.7
		.1771		.8197		.1086		.3898		.4130		.2320	-.0	75.2
AVERAGE :		.1743		.8129		.1084		.3874		.4120		.2350	-.0	75.5
CONCENTRATION :	435.85 PPMC		8.13 PPMV		1.08 PPMV		415.71 PPMV		370.19 PPMV		1.02 % VOL		.0 DEG.F	
MODE-POINT : 1-05														
SPAN/ZERO ADJ.	.99	.0034	1.02	.0236	1.02	.0203	.88	.1033	.95	.0130	1.12	.0052		
SAMPLE DATA :														
TIME : 1336	50.00	.1505	10.00	.8545	10.00	.1402	3	.3605	1	.3871	3	.2402	-.0	74.3
PROBE POS.:		.1503		.8547		.1377		.3600		.3866		.2404	-.0	75.2
-.32 IN.		.1558		.8799		.1335		.3637		.3878		.2426	-.0	75.2
PRESS.: 15.59 PSIA		.1515		.8529		.1318		.3621		.3867		.2399	-.0	76.6
		.1489		.8618		.1322		.3606		.3862		.2401	-.0	76.4
AVERAGE :		.1514		.8608		.1351		.3614		.3869		.2406	-.0	75.5
CONCENTRATION :	378.52 PPMC		8.61 PPMV		1.35 PPMV		389.56 PPMV		340.65 PPMV		1.05 % VOL		.0 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 3-01														
SPAN/ZERO ADJ.	.99	.2352	1.02	.0146	1.02	.0127	.88	.1033	.90	.1176	1.12	.0052		
SAMPLE DATA :														
TIME : 1336	1.00	.5156	25.00	.8214	25.00	.6147	3	.0892	3	.5045	3	.2572	-.0	78.8
PROBE POS.:		.4701		.7954		.5857		.0889		.5023		.2483	-.0	78.9
11.41 IN.		.4396		.7809		.5926		.0865		.4862		.2469	-.0	77.3
PRESS.: 17.07 PSIA		.4085		.7858		.5844		.0850		.4890		.2481	-.0	77.0
		.3765		.7850		.5807		.0867		.4822		.2449	-.0	77.7
AVERAGE :		.4421		.7937		.5916		.0873		.4926		.2491	-.0	77.9
CONCENTRATION :	22.10 PPMC		19.84 PPMV		14.79 PPMV		62.33 PPMV		48.34 PPMV		1.08 % VOL		.0	DEG.F
MODE-POINT : 3-02														
SPAN/ZERO ADJ.	.99	.2356	1.02	.0043	1.02	.0079	.88	.1034	.90	.1179	1.12	.0052		
SAMPLE DATA :														
TIME : 1337	1.00	.3506	100.00	.2635	100.00	.1919	3	.0981	3	.6275	3	.3128	-.1	76.5
PROBE POS.:		.3383		.2612		.1924		.0993		.6258		.3150	-.1	77.0
9.63 IN.		.3283		.2614		.1893		.0997		.6241		.3145	-.1	75.9
PRESS.: 19.27 PSIA		.3034		.2637		.1901		.0994		.6265		.3119	-.1	75.9
		.3101		.2632		.1898		.1008		.6308		.3071	-.1	75.3
AVERAGE :		.3262		.2626		.1907		.0995		.6269		.3122	-.1	76.1
CONCENTRATION :	16.31 PPMC		26.26 PPMV		19.07 PPMV		74.90 PPMV		61.53 PPMV		1.37 % VOL		.0	DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 059 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 3-03														
SPAN/ZERO ADJ.	.99	.2372	1.03	.0044	1.03	.0079	.88	.1038	.89	.1192	1.12	.0051		
SAMPLE DATA :														
TIME : 1339	1.00	.3319	100.00	.3076	100.00	.2243	3	.1084	3	.6868	3	.3508	-.1	76.3
PROBE POS.:		.3012		.3051		.2240		.1080		.7006		.3528	-.1	76.4
7.53 IN.		.3126		.3061		.2228		.1101		.6945		.3529	-.1	77.7
PRESS.: 20.67 PSIA		.3044		.3059		.2221		.1104		.7000		.3539	-.0	77.6
		.3455		.3040		.2230		.1099		.7047		.3531	-.1	78.1
		.3091		.3049		.2204		.1104		.6943		.3492	-.0	78.5
AVERAGE :		.3175		.3056		.2228		.1095		.6968		.3521	-.1	77.4
CONCENTRATION :	15.87 PPMC		30.56 PPMV		22.28 PPMV		85.82 PPMV		68.99 PPMV		1.55 % VOL		.0 DEG.F	
MODE-POINT : 3-04														
SPAN/ZERO ADJ.	.99	.2383	1.03	.0044	1.03	.0079	.88	.1041	.89	.1201	1.12	.0051		
SAMPLE DATA :														
TIME : 1341	1.00	.2034	100.00	.2760	100.00	.2073	3	.0948	3	.5694	3	.3187	-.0	78.7
PROBE POS.:		.2028		.2739		.2068		.0956		.5658		.3155	-.0	78.7
4.38 IN.		.1850		.2736		.2075		.0972		.5712		.3157	-.1	79.9
PRESS.: 20.71 PSIA		.1456		.2750		.2066		.0959		.5707		.3163	-.1	79.3
		.1967		.2721		.2065		.0969		.5698		.3163	-.0	79.5
AVERAGE :		.1867		.2741		.2069		.0961		.5694		.3165	-.0	79.2
CONCENTRATION :	9.34 PPMC		27.41 PPMV		20.69 PPMV		71.32 PPMV		55.71 PPMV		1.39 % VOL		.0 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

[redacted] INC.
[redacted] EMISSIONS INVENTORY
[redacted] REPORT

SET 1628-002-1077

REPORT DATE 10/27/77
USAF CONTRACT F08635-77-0216
SCOTT TEST 6,TYPE B 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
[redacted]														
[redacted]	.99	.2391	1.03	.0045	1.03	.0079	.88	.1042	.89	.1207	1.13	.0051		
[redacted]	1.00	.1206	100.00	.2707	100.00	.2145	3	.0901	3	.5185	3	.3196	-.1	78.3
[redacted]		.1299		.2704		.2129		.0930		.5285		.3170	-.1	78.1
[redacted]		.1193		.2697		.2144		.0919		.5305		.3134	-.1	78.3
[redacted] PSIA		.1277		.2694		.2133		.0937		.5232		.3203	-.1	78.3
		.1283		.2726		.2139		.0900		.5346		.3203	-.1	77.6
		------		------		------		------		------		------	------	------
[redacted]		.1252		.2706		.2138		.0917		.5271		.3181	-.1	78.1
[redacted]	6.26 PPMC		27.06 PPMV		21.38 PPMV		66.86 PPMV		51.60 PPMV		1.40 % VOL		.0 DEG.F	
[redacted]														
[redacted]	.99	.2402	1.03	.0045	1.03	.0079	.88	.1045	.89	.1216	1.13	.0050		
[redacted]	1.00	.0771	100.00	.5107	100.00	.4737	3	.0676	3	.2534	3	.3757	-.0	78.3
[redacted]		.0702		.5105		.4763		.0691		.2489		.3755	-.0	78.3
[redacted]		.0857		.5080		.4754		.0681		.2625		.3775	-.0	78.3
[redacted] .00 PSIA		.0717		.5068		.4708		.0669		.2658		.3719	-.0	77.9
		.0672		.5018		.4734		.0658		.2632		.3758	-.0	77.9
		------		------		------		------		------		------	------	------
[redacted]		.0744		.5075		.4739		.0675		.2588		.3753	-.0	78.1
[redacted]	3.72 PPMC		50.75 PPMV		47.39 PPMV		43.72 PPMV		26.04 PPMV		1.66 % VOL		.0 DEG.F	

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-02														
SPAN/ZERO ADJ.	.99	.2402	1.03	.0045	1.03	.0079	.88	.1045	.89	.1216	1.13	.0050		
SAMPLE DATA :														
TIME : 1344	1.00	.0534	100.00	.6923	100.00	.6230	3	.0738	3	.3031	3	.4717	-.1	76.3
PROBE POS.:		.0534		.7074		.6340		.0787		.3084		.4650	-.1	76.3
9.92 IN.		.0572		.7008		.6245		.0794		.3088		.4683	-.1	75.2
PRESS.: 24.80 PSIA		.0451		.7026		.6263		.0778		.3170		.4639	-.1	75.9
		.0489		.6964		.6258		.0784		.3285		.4627	-.1	76.9
AVERAGE :		.0516		.6999		.6267		.0776		.3132		.4663	-.1	76.1
CONCENTRATION :		2.58 PPMC		69.99 PPMV		62.67 PPMV		52.98 PPMV		31.39 PPMV		2.07 % VOL		.0 DEG.F
MODE-POINT : 4-03														
SPAN/ZERO ADJ.	.99	.2410	1.03	.0046	1.04	.0079	.88	.1047	.89	.1223	1.13	.0050		
SAMPLE DATA :														
TIME : 1345	1.00	.0371	100.00	.8262	100.00	.7192	3	.0892	3	.3603	3	.5236	.0	78.6
PROBE POS.:		.0387		.8279		.7124		.0896		.3529		.5256	.0	78.8
7.68 IN.		.0377		.8223		.7132		.0928		.3638		.5236	.0	78.4
PRESS.: 29.32 PSIA		.0401		.8173		.6944		.0922		.3665		.5241	.0	79.3
		.0405		.8144		.6964		.0917		.3664		.5313	-.0	79.1
AVERAGE :		.0388		.8216		.7071		.0911		.3620		.5256	.0	78.8
CONCENTRATION :		1.94 PPMC		82.16 PPMV		70.71 PPMV		66.19 PPMV		36.06 PPMV		2.35 % VOL		417.7 DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 4-04														
SPAN/ZERO ADJ.	.99	.2632	1.08	.0059	1.09	.0078	.86	.1101	.87	.1402	1.14	.0043		
SAMPLE DATA :														
TIME : 1420	1.00	.0059	100.00	.7162	100.00	.6145	3	.0827	3	.3332	3	.4392	-.0	77.2
PROBE POS.:		.0019		.7108		.6149		.0798		.3198		.4390	-.0	77.0
4.34 IN.		.0062		.7168		.6153		.0803		.3204		.4374	-.0	77.1
PRESS.: 29.66 PSIA		.0031		.7262		.6229		.0819		.3176		.4404	-.0	76.8
		.0067		.7138		.6143		.0809		.3154		.4390	-.0	76.4
AVERAGE :		.0048		.7168		.6164		.0811		.3213		.4390	-.0	76.9
CONCENTRATION :		.24 PPMC		71.68 PPMV		61.64 PPMV		56.30 PPMV		32.17 PPMV		1.95 % VOL		.0 DEG.F
MODE-POINT : 4-05														
SPAN/ZERO ADJ.	.99	.2640	1.08	.0059	1.09	.0078	.86	.1103	.87	.1408	1.14	.0043		
SAMPLE DATA :														
TIME : 1421	1.00	.0004	100.00	.7992	100.00	.6898	3	.0840	3	.3294	3	.4718	.0	77.9
PROBE POS.:		-.0015		.7895		.6864		.0898		.3335		.4692	.0	77.7
-.23 IN.		.0016		.7907		.6845		.0847		.3324		.4717	.0	78.8
PRESS.: 28.26 PSIA		.0094		.7956		.6878		.0836		.3428		.4671	.0	79.7
		.0076		.7917		.6816		.0841		.3413		.4649	.0	79.2
AVERAGE :		.0035		.7933		.6860		.0852		.3359		.4689	.0	78.7
CONCENTRATION :		.18 PPMC		79.33 PPMV		68.60 PPMV		60.33 PPMV		33.58 PPMV		2.09 % VOL		1394.9 DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

SCOTT ENVIRONMENTAL TECHNOLOGY INC. SET 1628-002-1077 REPORT DATE 10/27/77
USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 J59 59# # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 5-01														
SPAN/ZERO ADJ.	.99	.0214	1.08	.0061	1.10	.0078	.86	.1111	.72	.0169	1.14	.0042		
SAMPLE DATA :														
TIME : 1426	10.00	.1298	100.00	.1711	100.00	.1063	3	.2215	1	.2648*	3	.6166	-.1	79.4
PROBE POS.:		.1236		.1628		.1031		.2522		.2804*		.6141	-.1	78.9
11.69 IN.		.1280		.1639		.0975		.3013		.3532*		.6111	-.1	79.8
PRESS.: 21.32 PSIA		.1245		.1604		.0950		.3204		.5214*		.6108	-.1	78.9
		.1316		.1546		.0922		.3359		.6167*		.6070	-.1	78.2
AVERAGE :		.1275		.1625		.0988		.2863		.0000		.6119	-.1	79.0
CONCENTRATION :	63.76 PPMC		16.25 PPMV		9.88 PPMV		309.73 PPMV		.00 PPMV		2.77 % VOL		.0 DEG.F	
MODE-POINT : 5-02														
SPAN/ZERO ADJ.	.99	.0215	1.08	.0062	1.10	.0078	.86	.1113	.71	.0170	1.14	.0041		
SAMPLE DATA :														
TIME : 1427	10.00	.1378	100.00	.2309	100.00	.1344	3	.3722	1	.5161*	3	.7448	-.1	78.2
PROBE POS.:		.1391		.2228		.1290		.4016		.7992*		.7424	-.1	77.0
9.82 IN.		.1301		.2196		.1299		.4142		.9158*		.7354	-.1	77.2
PRESS.: .00 PSIA		.1389		.2164		.1260		.4249		.9916*		.7421	-.1	77.4
		.1163		.2184		.1291		.4368		1.0381*		.7338	-.1	76.7
AVERAGE :		.1324		.2216		.1297		.4099		.0000		.7397	-.1	77.3
CONCENTRATION :	66.22 PPMC		22.16 PPMV		12.97 PPMV		437.92 PPMV		.00 PPMV		3.45 % VOL		.0 DEG.F	

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USAF TURBINE ENGINE EMISSIONS INVENTORY USAF CONTRACT F08635-77-0216
CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE B 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 5-03														
SPAN/ZERO ADJ.	.99	.0216	1.09	.0062	1.10	.0078	.86	.1115	.71	.0171	1.14	.0041		
SAMPLE DATA :														
TIME : 1429	10.00	.1603	100.00	.2821	100.00	.1620	3	.4203	1	.7402*	3	.8011	-.1	78.3
PROBE POS.:		.1537		.2769		.1609		.4304		.9018*		.8012	-.1	78.1
7.64 IN.		.1506		.2729		.1591		.4405		1.0214*		.8056	-.1	78.4
PRESS.: 28.90 PSIA		.1604		.2727		.1569		.4570		1.1113*		.7887	-.1	78.0
		.1546		.2689		.1550		.4660		1.1817*		.7919	-.1	78.5
AVERAGE :		.1559		.2747		.1588		.4428		.0000		.7977	-.1	78.3
CONCENTRATION :		77.95 PPMC		27.47 PPMV		15.88 PPMV		469.45 PPMV		.00 PPMV		3.79 % VOL		.0 DEG.F
MODE-POINT : 5-04														
SPAN/ZERO ADJ.	.99	.0219	1.09	.0065	1.11	.0078	.85	.1125	.68	.0176	1.15	.0040		
SAMPLE DATA :														
TIME : 1435	10.00	.0755	100.00	.2918	100.00	.1875	3	.2786	1	.2883*	3	.7119	-.1	78.5
PROBE POS.:		.0349		.3324		.2402		.3033		.5708*		.7618	-.1	77.5
4.14 IN.		.0435		.3150		.2140		.3033		.7487*		.7494	-.1	78.0
PRESS.: 34.59 PSIA		.0438		.3173		.2143		.3069		.8252*		.7319	-.0	77.7
		.0402		.3140		.2135		.3129		.8668*		.7417	-.0	77.2
AVERAGE :		.0476		.3141		.2139		.3010		.0000		.7393	-.1	77.8
CONCENTRATION :		23.79 PPMC		31.41 PPMV		21.39 PPMV		325.92 PPMV		.00 PPMV		3.45 % VOL		.0 DEG.F

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CONCENTRATION EDIT REPORT SCOTT TEST 6,TYPE 6 8/ 9/77 J59 59W # P63481 LRAFB FIELD TEST 3

	--- THC ---		*--- NOX ---*		*--- NO ---*		*-- CO-HI -*		*-- CO-LO -*		*--- CO2 ---*		*- TEMP.- F.-*	
	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	RNG	VOLTS	INPUT	REFER
MODE-POINT : 5-05														
SPAN/ZERO ADJ.	1.00	.3238	1.19	.0095	1.23	.0077	.81	.1249	.31	.0238	1.18	.0023		
SAMPLE DATA :														
TIME : 1555	1.00	.1680	100.00	.3710	100.00	.2795	3	.2277	1	.4269*	3	.7684	-.0	80.6
PROBE POS.:		.1699		.3650		.2708		.2482		.5967*		.7663	-.0	80.1
.43 IN.		.1702		.3642		.2718		.2454		.6910*		.7667	-.0	80.4
PRESS.: 30.93 PSIA		.1415		.3614		.2669		.2634		.8229*		.7745	-.0	80.8
		.1565		.3589		.2645		.2726		.9051*		.7742	-.0	80.7
AVERAGE :		.1612		.3641		.2707		.2514		.0000		.7700	-.0	80.5
CONCENTRATION :		8.06 PPMC		36.41 PPMV		27.07 PPMV		270.22 PPMV		.00 PPMV		3.62 % VOL		.0 DEG.F

** NOTE ** DATA MARKED WITH AN ASTERISK (*) NOT INCLUDED IN AVERAGE

81

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STOP CONC

APPENDIX G

RINGELMANN OPACITY OBSERVATIONS

Ringelmann observations were taken during the J57-59W emission tests by a qualified Air Force observer. The Method 9 procedure was used to make the Ringelmann readings except for two variations. The plume was observed for only two seconds at a point ten meters directly aft of the engines exhaust nozzel. The plume would normally be allowed to build up and a Ringelmann reading is taken of the maximum plume opacity. The turbine engine exhaust plume dissipated very rapidly. In order to measure the maximum plume opacity, readings could only be taken for two-second time periods. In addition, the maximum opacity occurred ten meters aft of exhaust nozzel for all power modes because the plume was detached from the source. The Ringelmann observations were made at this point.

The Ringelmann data is presented in Table 6-3. Atmospheric data was made at the base weather station located 1.5 kilometers from the test site. All readings were taken against a bluish-white sky.

TABLE 6-3. J57-59W OPACITY MEASUREMENTS (RINGELMANN)

TEST NO. 4			TEST NO. 6		
Engine Mode	Atmospheric Conditions Cond. Value	Average Opacity (Percent)	Engine Mode	Atmospheric Conditions Cond. Value	Average Opacity (Percent)
Idle	Temp 28°C Rel Hum 41% Wind 0.9m/s Clouds 40%	5	Idle	Temp 25°C Rel Hum 90% Wind 7.2 m/s Clouds 100%	3
Military	Temp 28°C Rel Hum 40% Wind 0.9m/s Clouds 40%	16	Military	Temp 25°C Rel Hum 90% Wind 7.2 m/s Clouds 100%	15
After Burner With Water Injected	Temp 28°C Rel Hum 40% Wind 0.9m/s Clouds 40%	51	After Burner With Water Injected	Temp 25°C Rel Hum 90% Wind 7.2m/s Clouds 100%	40

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