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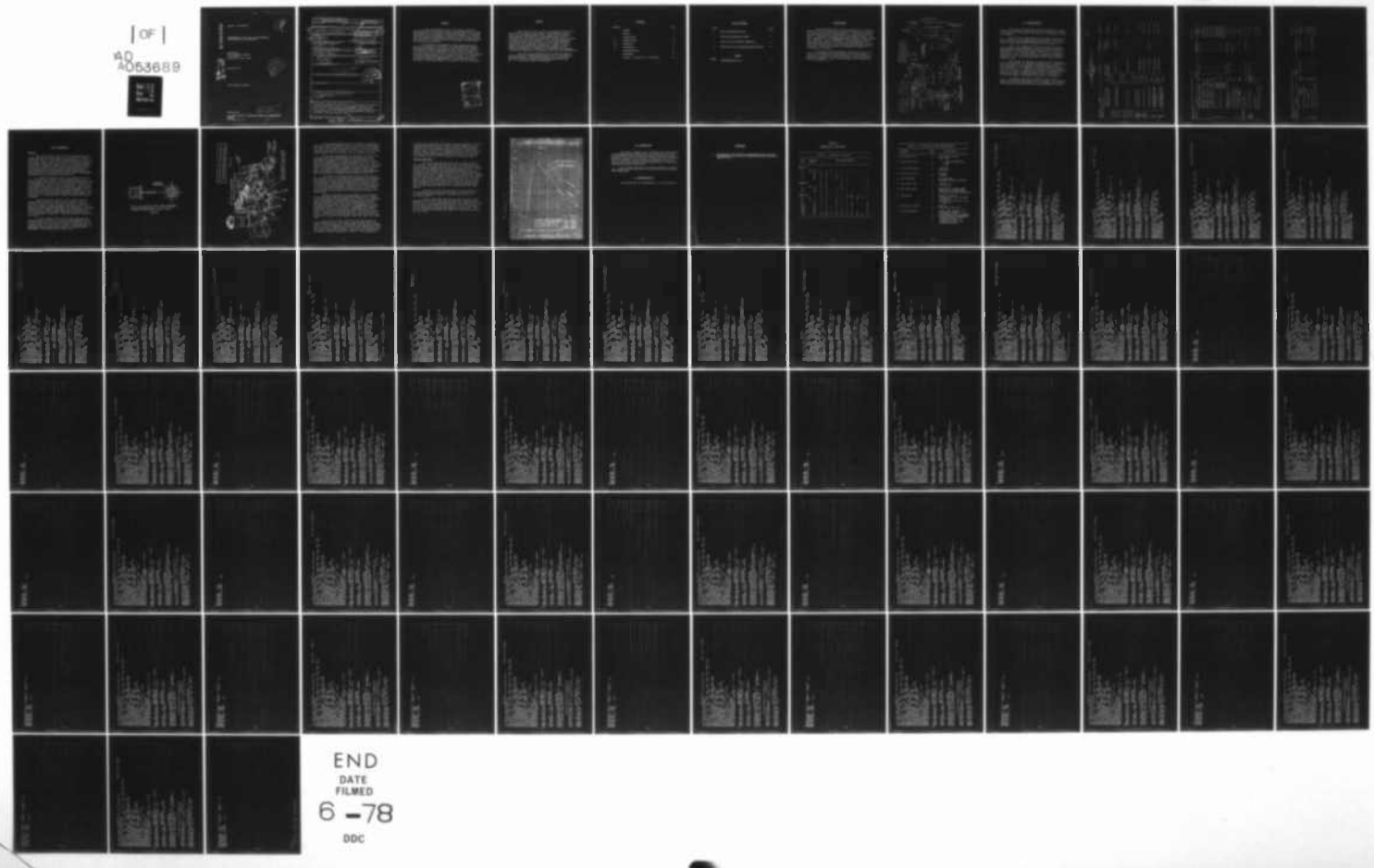

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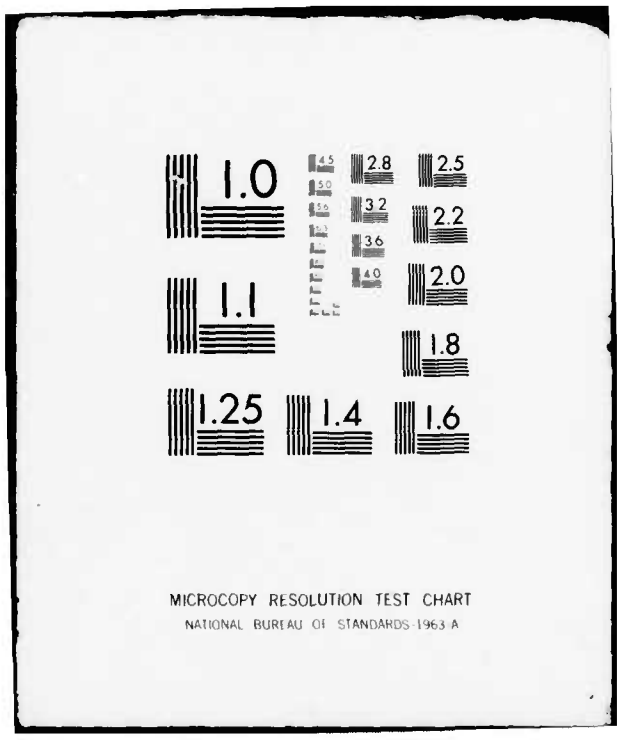
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PERFORMANCE OF THE LACV-30 AIR MANAGEMENT SYSTEM MODIFIED CONFIGURATION

Frank Bond
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February 1978

Final Technical Report

Prepared For

U.S. ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT COMMAND
Fort Belvoir, VA

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This report presents the results of a test program to evaluate candidate modifications to the Air Management System of the LACV-30 and to verify adequate performance of the modified design after it had been fabricated and installed on the vehicle. It demonstrates that the modified AMS does maintain positive pressures at the main engine inlets.

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SUMMARY

A prior investigation of the LACV-30 Air Management system had noted certain deficiencies, recommended design changes, and predicted the performance of the modified system. The present investigation first evaluated two candidate changes and determined that one of them, consisting of changes to the fan inlet, offered little potential for improvement and should not be further pursued while the other, a diffuser at the fan discharge, was beneficial and should be incorporated.

The finalized Air Management System configuration was fabricated, installed and tested. Its performance fell somewhat short of predictions, primarily as a result of pressure losses attributable to higher than expected (or required) scavenge airflow from the inertial separators. However, the requirement for a positive gage pressure at the engine inlets was met, with achieved pressures ranging between 1 and 3 inches of water. The potential for further increasing these pressures by reducing the filter scavenge flow was also demonstrated. It was concluded that the modified Air Management System is suitable for use on the LACV-30.

PREFACE

This report is one of a set of two reports documenting the results of a program to improve the performance of the LACV-30 Air Management System (AMS). Report No. 7467-928007, "Performance of the LACV-30 Air Management System Initial Configuration" describes the original AMS configuration, presents test data showing the performance of its various components, recommends a design modification to provide higher pressures and an additional stage of filtration, and predicts the performance of the recommended modification. Report No. 7467-928008, "Performance of the LACV-30 Air Management System Modified Configuration" presents the results of a test program conducted to demonstrate the adequacy of the AMS after modification.

The program was performed by Bell Aerospace Textron under Contract No. DAAK02-55-C-9149 with the U.S. Army Mobility Equipment Research & Development Command. Mr. John Sargent was the Contracting Officer's Technical Representative and Mr. C. E. Burr was the BAT Program Manager.

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LIST OF FIGURES

TABLES

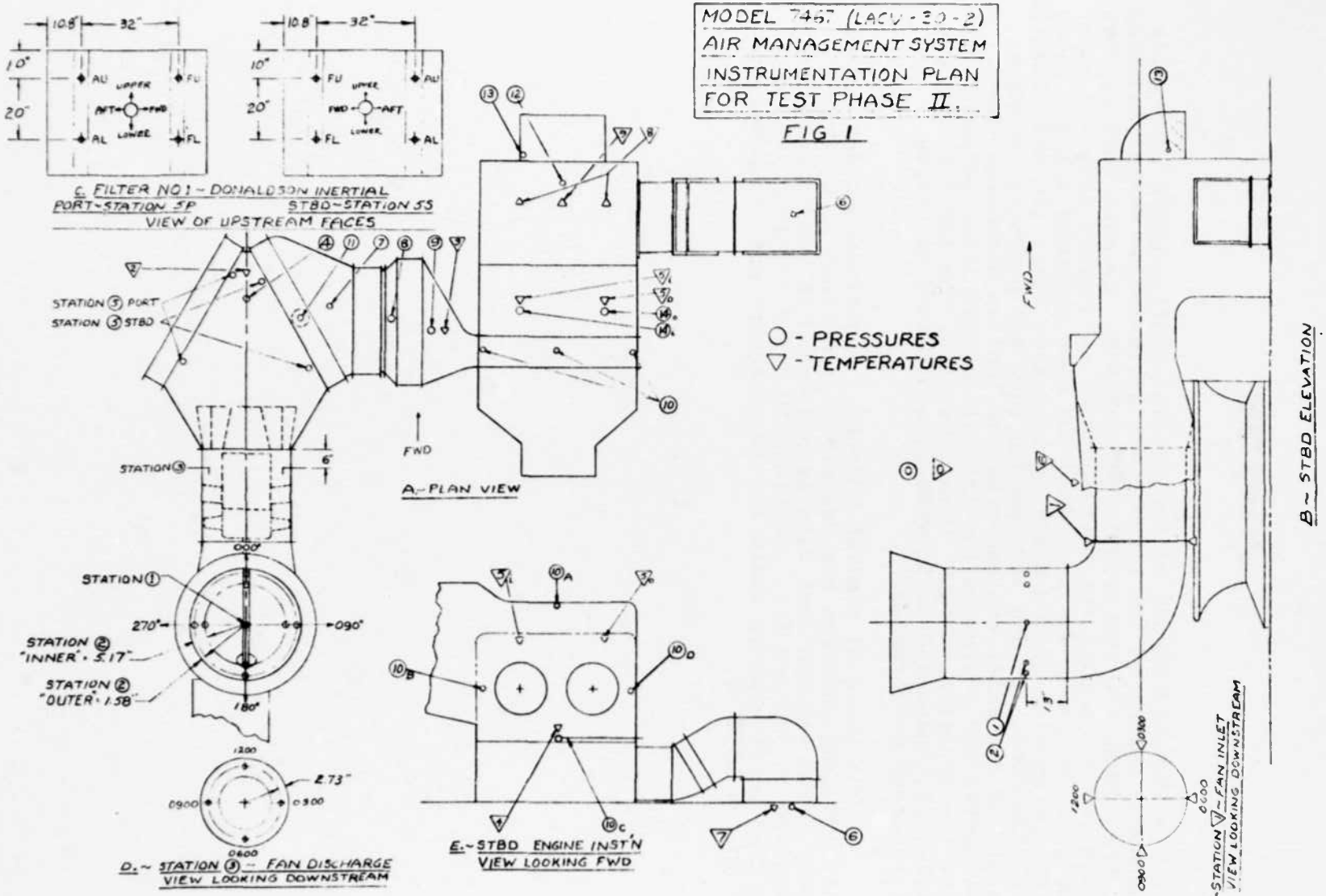
I. INTRODUCTION

The performance of the initial configuration of the Air Management System of the LACV-30 was evaluated by tests conducted in June, 1976, and reported in Reference 1. Several deficiencies were noted and a plan for modifications to correct them was outlined. A rationale was presented for each proposed change, along with a prediction of the system performance after the modifications were completed. It was recommended that two potential changes, one at the fan inlet and the other at the fan discharge, be implemented and tested on the initial configuration before finalizing the modified design. When finalized, the modified AMS was fabricated, installed on LACV-30-2, and tested to verify satisfactory performance.

The tests of the two potential modifications and of the final AMS configuration are described in Section II of this report. The reduced test data is presented in the Appendix and discussed in Section III. Sections IV and V conclude that the modified configuration meets its requirements and recommend its use on the LACV-30.

MODEL 747 (LACV-30-2)
AIR MANAGEMENT SYSTEM
INSTRUMENTATION PLAN
FOR TEST PHASE II.

FIG 1



II. INVESTIGATION

The overall test program from which the AMS and engine performance data was acquired consisted of 16 tests with a total of 58 runs, all of which have been reduced by a computer program for analysis.

Tests 1-6 were conducted during the first week of June 1976. These were the Phase I tests which provided the basis for the system changes recommended in Reference 1. The reduced data for those tests appears in Appendix B of Reference 1.

Tests 7-10, comprising a total of 15 runs at various engine powers, were performed in early July 1976, to evaluate the potential for obtaining higher system pressures through the reduction of fan inlet losses and/or the use of a diffuser at the fan exit. This data was needed to finalize the recommended AMS modifications. Because they were performed with the AMS otherwise in its initial configuration, they are designated as Phase IB tests.

Test numbers 11 through 16 comprise 24 runs conducted in early August 1976, to evaluate the performance of the modified AMS incorporating all the changes recommended in Reference 1. The arrangement of instrumentation for these Phase II tests is shown in Figure 1. The types of instrument and their purposes are listed in Table I. With minor exceptions, dictated by configuration differences between the initial and modified AMS configurations, Phase II instrumentation and test philosophy is the same for Phase I, described in more detail in Reference 1.

The reduced data from the Phase IB and the Phase II tests are included in the Appendix to this report. Also included there is a table correlating the test run designations with the configuration variables tested, for all three phases of testing.

MODEL 7467 (LACV-30)
PERFORMANCE TESTS OF THE AIR MANAGEMENT SYSTEM
INSTRUMENTATION PLAN
PHASE II

STATION NO.	PURPOSE	PARAMETER		ACQUIRED BY	RANGE
PRESSURES (INCHES OF H_2O)					
0	ADJUST DATA TO STD BASE	PO - AMBIENT PRESSURE		BAROMETER	-
1	INLET DUCT FLOW VELOCITY	ΔP1 - VELOCITY HEAD		PITOT-STATIC	0 TO +2.0
	INLET DUCT AIR DENSITY	P1 - STATIC PRESSURE		" "	-2.0 TO 0
2-000°-i 2-090°-i 2-190°-i 2-270°-i	INLET DUCT FLOW VELOCITY (i=INNER RING, 0=OUTER RING)	ΔP-000°-i ΔP-270°-0	VELOCITY HEAD	PITOT-STATIC	0 TO +2.0
2-000°-i 2-090°-i 2-180°-i 2-270°-i	INLET DUCT AIR DENSITY	P2-000°-i P2-270°-0	STATIC PRESSURE	" "	-2.0 TO 0
3-0300 3-0600 3-0900 3-1200	FAN DISCHARGE VELOCITY AND FLOW DISTRIBUTION	ΔP3-0300 ΔP3-0300	VELOCITY HEAD	" "	0 TO +10.0
3-0300 3-0600 3-0900 3-1200	FAN DISCH. AIR DENSITY	P3-0300 P3-1200	STATIC PRESSURE	" "	-2.0 TO +20.0
4	COMPARE WITH EARLIER DATA	P4	STATIC PRESSURE	STATIC TAP	-2.0 TO +20.0
5SFU AU FL AL	EVALUATE PRESSURE DISTRIBUTION AT INLET TO FILTER NO. 1, (STBD SIDE)	P5SFU P5SAL	STATIC PRESSURE	" "	-2.0 TO +20.0
5P5PFU AU FL AL	EVALUATE PRESSURE DISTRIBUTION AT INLET TO FILTER NO. 1, (PORT SIDE)	P5PFU P5PAL	STATIC PRESSURE	" "	-2.0 TO +20.0

PRESSURES (CONT'D)

STATION NO.	PURPOSE	PARAMETER	ACQUIRED BY	RANGE
6S	COOLING AIR SPLY. PRESS.(STBD)	P6S - STATIC PRESSURE	STATIC TAP	0 TO +20.0
6P	COOLING AIR SPLY. PRESS.(PORT)	P6P " "	" "	0 TO +20.0
7S	INLET PRESS., FILTER NO. 2 (STBD)	P7S " "	" "	-3.5 TO +20.0
7P	INLET PRESS., FILTER NO. 2 (PORT)	P7P " "	" "	-3.5 TO +20.0
8S	INLET PRESS., FILTER NO. 3 (STBD)	P8S " "	" "	-6.0 TO +20.0
8P	INLET PRESS., FILTER NO. 3 (PORT)	P8P " "	" "	-6.0 TO +20.0
9S	EXIT PRESS., FILTER NO. 3 (STBD)	P9S " "	" "	-9.0 TO +20.0
9P	EXIT PRESS., FILTER NO. 3 (PORT)	P9P " "	" "	-9.0 TO +20.0
10SA	ENGINE INLET PRESS. STBD, TOP	P10SA " "	" "	-9.0 TO +20.0
B	INBOARD	B " "	" "	-9.0 TO +20.0
C	BOTTOM	C " "	" "	-9.0 TO +20.0
D	OUTBOARD	D " "	" "	-9.0 TO +20.0
10PA	ENGINE INLET PRESS. PORT, TOP	P10PA " "	" "	-9.0 TO +20.0
B	INBOARD	B " "	" "	-9.0 TO +20.0
C	BOTTOM	C " "	" "	-9.0 TO +20.0
D	OUTBOARD	D " "	" "	-9.0 TO +20.0
11S	SCAVENGE FLOW, FILT. NO. 1, STBD	ΔP11S - VELOCITY HEAD	PITOT STATIC	0 TO 1.5
	SCAVENGE AIR DENSITY FILTER NO. 1, STBD	P11S STATIC PRESSURE	" "	0 TO 10.0
12S	OIL COOLER INLET PRESSURE	P12S " "	STATIC TAP	0 TO 15.0
13S	OIL COOLER OUTLET PRESSURE	P13S " "	" "	0 TO 10.0
14S-i	MONITOR "SECT. 3"(HOT SECT. PRESSURE) INBOARD	P14S-i " "	" "	0 TO 10.0
o	" " OUTBOARD	P14S-o " "	" "	0 TO 10.0

TEMPERATURES (^{o}F ^{o}C AS NOTED)

0	ADJUST DATA TO STD BASE	T-0 - AMBIENT TEMP. (^{o}F)	Cu CONSTANTAN T.C.	0 TO 125^{o}F
1-0300 0600 0900 1200	FAN INLET TEMPERATURE	T-0300 T-0600 T-0900 T-1200 TOTAL TEMP (^{o}F)	" " "	0 TO 200^{o}F
2	FAN EFFICIENCY	T-2 " " "	" " "	0 TO 200^{o}F
3S	ENGINE AIR SUPPLY TEMP. (STBD)	T-3 " " "	" " "	0 TO 200^{o}F
4S	ENG. COMPR. AIR BLEED INFLUENCE	T-4 " " "	" " "	0 TO 250^{o}F

STATION NO.	PURPOSE	PARAMETER		ACQUIRED BY	RANGE
5S-i	MONITOR "SECT 3" (HOT SECT.) INBOARD	T5S-i	TOTAL TEMP. (^{o}F)	Cu CONSTANTAN T.C.	0 TO 400^{o}F
	OUTBOARD	T5S-o	" " "	" " "	0 TO 400^{o}F
6S	MONITOR AIR TEMP. VICINITY #2 GEARBOX	T6S	" " "	" " "	0 TO 250^{o}F
7S	COOLING AIR TEMPERATURE	T7S	" " "	" " "	0 TO 150^{o}F
7P	" " "	T7P	" " "	" " "	0 TO 150^{o}F
8S-i	LUBE OIL INPUT, PWR. SECT. #3	T8S-i	" " (^{o}C)	PILOT HOUSE INSTR'N	0 TO 130^{o}C
8S-o	" " " " " #4	T8S-o	" " "	" " "	0 TO 130^{o}C
9S	LUBE OIL INPUT, COMB. GEAR, STBD	T9S	" " "	" " "	0 TO 130^{o}C

III. DISCUSSION

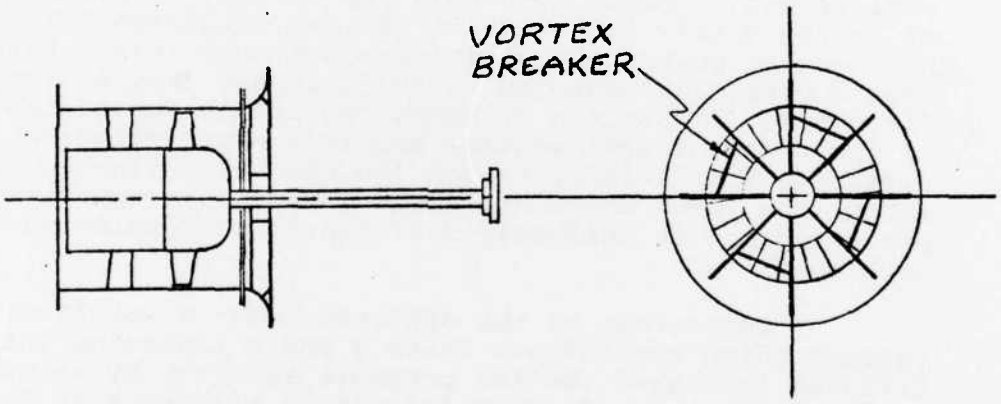
PHASE IB

The first Phase IB test, No. 7, was conducted in the initial AMS configuration to provide baseline data in both the 'tethered' mode, i.e., stationary, and underway. For tests Nos. 8 and 9 the air inlet stack and elbow assembly was replaced by a Buffalo Forge Company fan inlet bell and vortex breaker, illustrated in Figure 2. These tests were to determine whether or not flow disturbances caused by the inlet stack and elbow were having adverse effects on the performance of the fan and thus contributing to the low pressures being experienced. Because the test inlet represents a nearly ideal installation, its performance is indicative of the upper limit of improvement achievable with any practical elbow and stack.

A comparison of the fan exit total pressure with the bell installed, Run 8-C2A0707, with the baseline test, at a similar engine power (650 HP), run 7-C2A0706, showed an increase of approximately 1.0" w.g. in the fan discharge total head. At high engine power, the difference was much less. Further, the static pressures measured at the upstream face of the Donaldson Filters No. 1 (Station 5) showed so little improvement as to be of the order of data scatter and were minor compared to the diffusion inefficiency of the fan discharge kinetic head. Apparently, the inlet stack and elbow losses were approximately as predicted and no seriously detrimental flow patterns were being developed.

Comparison of the diffuser Tests 9 and 10 with the corresponding no-diffuser Tests 7 and 8 indicates that the diffuser increases the fan pressure recovery by as much as 3.0 w.g., and a study of the 8 individual pressures at Station 5 showed the range of pressure extremes was reduced 50%. This performance is essentially as predicted, and justifies the inclusion of the diffuser. Phase II began with Test 11 on August 7th after major changes to the AMS concept and configuration had been incorporated on LACV-30-2. The modified AMS is illustrated in Figure 3.

A major redesign was made of the AMS ducts from the downstream face of Filter No. 1 to the engine compartment inlet in order to provide for the installation of Filter No.3, the barrier filter. The first Phase II test, 11, was made with the modified ducting in place, but the barrier filters removed. All subsequent tests included these filters and permitted direct measurement of the pressure drop across them.

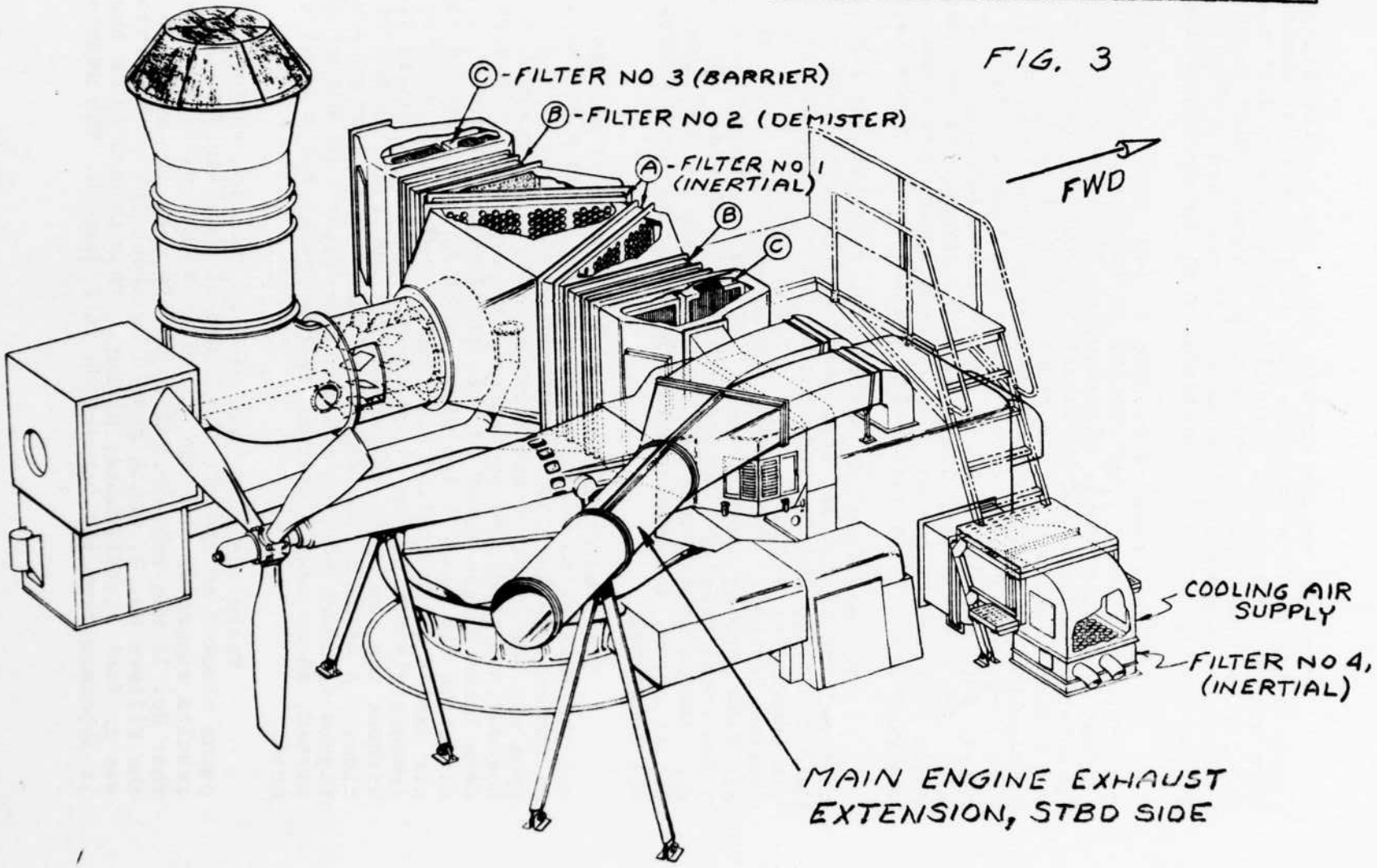


AIR MANAGEMENT FAN WITH BUFFALO FORGE COMPANY BELL MOUTH INLET.

FIG 2

LACV-30 AIR MGT. SYSTEM AND EXHAUST EXTENSION

FIG. 3



From the manufacturer's data, the barrier filter was expected to impose a pressure drop of 1.5" w.g. at maximum power. This drop would increase with time in service to 4.0" w.g. when the filter load reached 340 grams per panel. Test measurements indicated pressure drops between 1.5" w.g. and 3.3" w.g. at high engine powers, which is consistent with the design estimates.

Pressure sensors mounted at four points in each of the two engine air inlet compartments during Phase I tests had indicated unsatisfactory distribution and inordinately high turbulence, accompanied by excessive pressure losses. To alleviate these conditions, the cross-sectional area of the inlet passage had been increased from 1.51 sq. ft. to 2.69 sq. ft. The effect of this change was to reduce the kinetic head by approximately 68%, and was found to reduce the inlet loss by 2" to 3" w.g. The extreme turbulence which is thought to have been a major contributor to compressor surge during the speed maneuvers was also practically eliminated and the surge is now rare.

The modified AMS design also relieved the AMS fan of that portion of its air load which had previously been allocated the oil cooling and for ventilating the compartments which house the engine hot sections, by providing this air from the lift systems instead. This change was expected to reduce the AMS fan air flow rate by approximately 7,000 cfm, which would result in a fan total pressure increase of about 4.0" w.g. The measured air flow reduction was less than expected, as described in more detail below, and consequently the full pressure increase was not achieved.

The predicted effect on the system of all the changes was the ability to maintain a positive pressure at the inlets of the main engine ranging between 4" w.g. and 7" w.g., depending upon the condition of the barrier filter, as shown in Figure 4. However, the predicted pressures were developed from Phase I data taken during tests of the vehicle when underway, in which situation the stack inlet experienced an unexpectedly high ram-air assist of about 1.5" w.g. due to a downdraft that develops immediately aft of the pilot house. Under stationary tests without the ram head, the system pressures fell short of predictions. A study of the data from Test No. 13 also presented in Figure 4, revealed that the fan flow rates were higher than predicted, which caused greater system losses and a lower fan output head.

Tests 15-1, -2, and -3 were run with various airflow paths blocked to isolate the cause of the high fan flows; the results suggested that the filter scavenge airflows were excessive. Test No. 16 was implemented to verify that the scavenge flow from the Filters No. 1, which should be about 10% of the incoming flow, was in fact significantly higher. This proved to be the case as is apparent from the tabulation in Figure 3. The scavenge air

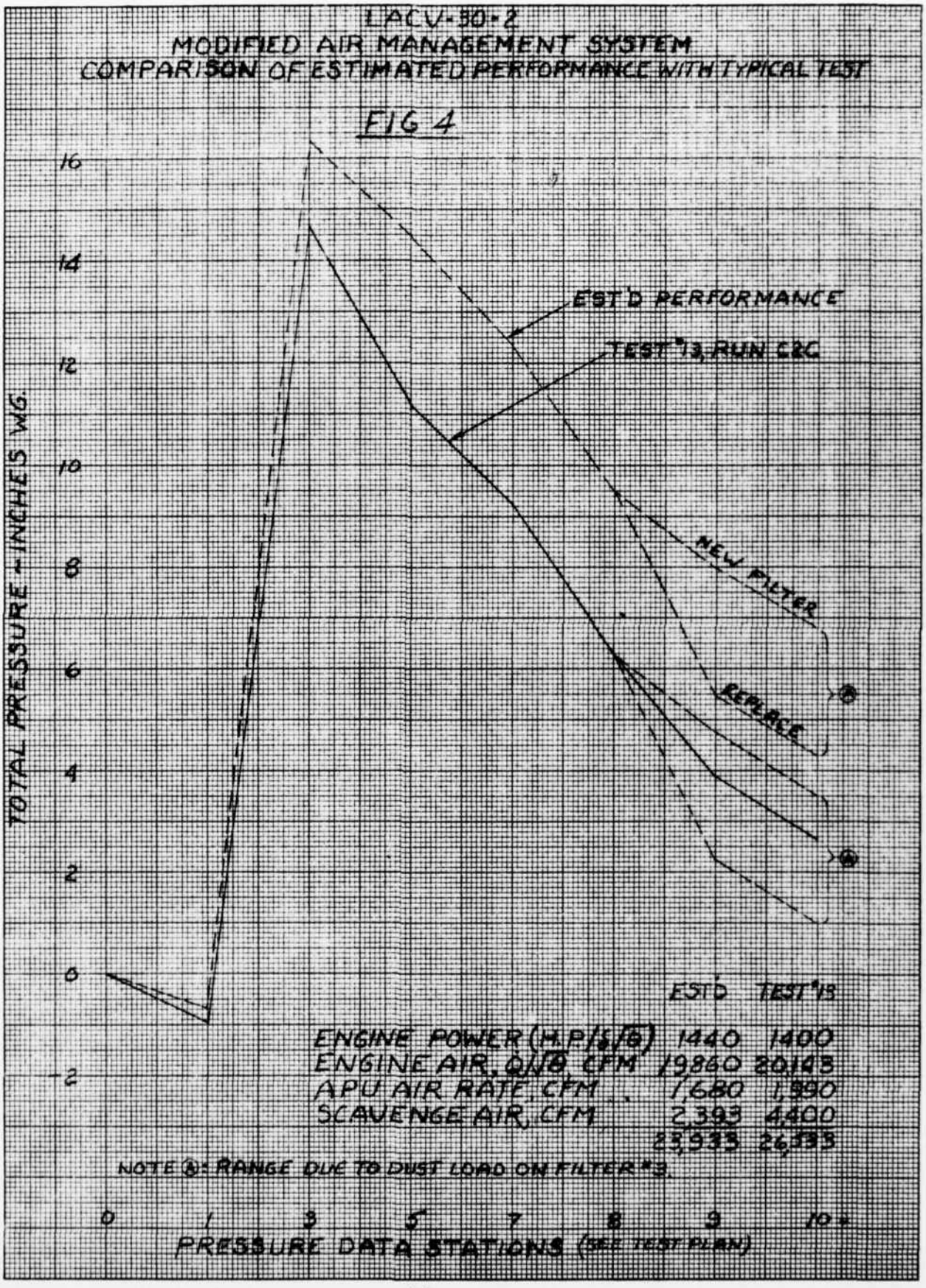
flow was 65% (about 2000 cfm) higher than was necessary. The test also evaluated the effect of various orifices installed at the discharge end of the inertial filter scavenge pipes and demonstrated a means for adjusting the scavenge flow to any desired level. Test 16-3 with a 5.0" diameter orifice in each of the two scavenge lines raised the engine pressure recorded in test run 16-1 (with wide open scavenge lines) by 1.2" w.g., and reduced the scavenge flow from 17.3% to 12.7% of the fln flow rate.

RELATED SUBSYSTEMS

In the modified AMS the cooling air is taken from the lift system. Ducts installed outboard from the forward engine bays of both main engines conduct air from the lift system plenum through inertial separators into those bays (see Figure 3). From these bays, approximately 6000 cfm passes through the six oil coolers and the remainder ventilates the two middle engine compartments where the main engine combustors and exhausts are located. The rate at which air is supplied by the lift system varies roughly 25% with gross vehicle weight, and about 50% with lift fan speed. However, the cooling capability varies positively with the lift power demand and therefore tends to vary with the rate at which heat is rejected to the cooling system. This is an advantageous reversal from the characteristics of the original system, with which cooling capacity tended to vary inversely with the power demand.

All Phase II tests were made with this configuration. The test data verifies that high pressures are present in the oil cooler compartment whenever the engines are providing significant power.

Figure 3 shows the design of an exhaust duct extension developed in conjunction with the AMS redesign. Though not properly a part of the air management system, the extension is relevant in that it is advantageous to prevent the ingestion of exhaust gas by either the AMS fan, which supplies air to the main engines, or the lift system fans which now supply oil cooling air. This duct is intended to minimize the probability of exhaust ingestion in either place.



IV. CONCLUSIONS

The several changes in the arrangement and configuration of the AMS discussed in this report have alleviated the problem of sand ingestion and provided for substantially positive gage pressures at the inlets of the main engines under all contemplated operating conditions. The transfer of cooling air from the AMS to the lift system raised the pressures throughout the system and has practically eliminated the overheating of the main engine reduction gear lubrication system.

Still higher pressures can be made available by reducing the scavenge flow from the inertial separators without degrading their performance.

V. RECOMMENDATIONS

The modified AMS is recommended for use on the LACV-30.

REFERENCES

1. Performance of the LACV-30 Air Management System Original Configuration, Bell Aerospace Textron Report No. 7467-928007, February, 1978.

APPENDIX

PHASES IB & II TEST DATA

TABLE A-1. SUMMARY OF AMS TESTS

TEST NO.	TEST DATE (1976)	TEST CONFIGURATION A	B	C	D	E	F	G	H	I	J
Phase 1											
1	June 8, 9	1	1	1	1	1	1	1	1	1	1
2	10		1	2							
3	11		2	1							
4	15		3								
5	15		1								
6	16				2						
Phase IB											
7	July 6				1						
8	7	2									
9	15	2				2					
10	20	1									
Phase II											
11	Aug 7						2	2	2	2	
12	7								3		
13	9										
14	9				2						
15-1	10				1			3			2
15-2	10										3
15-3	10										1
16-1	11										1
16-2	11										4
16-3	11										5

TABLE A-2. DEFINITION OF TEST CONFIGURATIONS

VARIABLE	CODE	CONFIGURATION
A - Fan Inlet Duct	1	Inlet Stack & Elbow
	2	Inlet Bell
B - Rotor Blade Angle	1	= 36^{o} (as delivered)
	2	= $38\frac{1}{2}^{o}$ "
	3	= 33^{o} "
C - Oil Cooler Louvers	1	Full Open
	2	Haof Open
D - Vehicle Condition	1	Tethered
	2	Underway
E - FAN DISCHARGE	1	Two Splitters
	2	Concentric Annular Diffuser
F - Eng. Inlet Duct	1	1.51 sq. ft.
	2	2.69 sq. ft.
G - Eng. Exh. Ducts	1	Elbow with 2 Turning Vanes
	2	Elbow with 1 turning Vane
	3	Bifurcated Duct with Extensions
H - Filtration	1	Filters #1 and #2
	2	New Duct, Filt. #1 & #2 only Installed
	3	New Duct, Filt. #1, #2, & #3 Installed
I - Cooling Air Source	1	AMS Fan
	2	Lift System Side Deck
J - Air Distributuon	1	Normal (Main Engines, APU, Scavenge & Cooling)
	2	Main Engines, APU, & Scavenge
	3	Filter Scavenge Flows Blocked
	4	Filters #1 with 6" diam. Scavenge Orifices
	5	Filters #1 with 5" diam. Scavenge Orifices

TEST No. 7 C1A0706

INPUT DATA

```
N2=   0.0     0.0     0.0     0.0
 TOP      0.0     0.0     0.0     0.0
STACK VEL. HO.=     0.60    0.75    0.40    0.50    0.50    0.50    0.35    0.50    0.55
STACK STATIC HO.=   -0.80   -0.80   -0.80   -0.80   -0.80   -0.70    0.0    -0.50   -0.50
FAN VEL. HO.=       4.200   3.000   3.400   3.900
FAN STATIC HEAO=    11.000  10.500  10.500  10.000
PRESS. AT DONALOSON-STBO    11.000  10.500  12.500  10.000
PRESS. AT DONALOSON-PORT=    10.000  11.000  10.500  11.500
OIL COOLER VEL. HO.= 2.800    OIL COOLER STATIC= 6.500
PEERLESS PRESS-STBO= 9.500    PORT= 9.500
PRESS AFT OF PEERLESS-STBO= 9.500    PORT= 9.500
ENGINE PLENUM PRESS-STBO=    9.50    9.30    9.50    9.20
ENGINE PLENUM PRESS-PORT=    9.30    9.00    9.30    9.00
SCAV.  EXH. PRESS=     4.800  HOT SECT. PRESS.=     4.800  COOLER PRESS=     0.100
OUTSIOE AIR TEMP.=  82.800
STACK TEMPS. =      85.000    83.000    84.000    85.000
FAN DISCHARGE TEMP.= 94.000
ENGINE PLENUM AIR TEMP.=   93.00   94.00
```

ENGINE PREFORMANCE

```
TEMP=   93.00    AOJ. HP=    0.0       TEMP=   94.00    AOJ. HP=    0.0
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.0
ENGINE AIR(BOTH SIDES)-CFM=  0.0          TAVG(3&4)=  93.500
```

STACK PERFORMANCE

```
AVG STACK TEMP=     84.25     TEMP RISE IN STACK       1.45
STACK PRESSURES  VEL= 0.537  STATIC=-0.675  TOTAL HEAO=-0.137
FLOW IN STACK-CFM=  0.1982E 05
```

A-3

FAN PERFORMANCE

```
PRESS. RECOVERY WITH OIFFUSER(56( OF VEL HO.) = 12.53
FAN DISCHARGE PRESS. STATIC=10.500  VEL. HEAO= 3.625  TOTAL HEAO=14.125
STATIC PRESS. COR.=    11.011  TOTAL PRESS. COR.=    14.636
FAN PRESS INCREASE=14.262  FAN FLOW CFM=  0.2194E 05  FAN HORSEPOWER=  0.4931E 02
AVG. OF STACK AND FAN FLOW-CFM=  0.2088E 05
```

APU AND OIL COOLER FLOWS

```
APU AIR FLOW, CFM =  0.1635E 04
OIL COOLER FLOW CFM=  0.1235E 05   VEL. FT/SEC=  0.1143E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT DONALSON, STB= 11.00   PORT= 10.75   AVG= 10.87
OONALDSON PRESS. DROP, STB=  1.50   PORT=  1.25    AVG=  1.37
PEERLESS PRESS. OROP,  STB=  0.0    PORT=  0.0     AVG =  0.0
PRESS OROP TO ENG.,  STB=  0.13   PORT=  0.35    AVG=  0.24
PLENUM PRESS.,  PORT=     9.375  STBO=     9.150  AVG=     9.262
SCAV. PRESS. DROP=     4.700
OIL COOLER OUCT OROP=     3.000
OUCT TO HOT COMP. DROP=     1.700
OUCT TO OIL COOLER DROP=     6.400
```

TEST NO. 7 C1B0706

```
                                INPUT DATA
N2=  44.000  43.300  43.000  43.000
 TOP     2.000   6.000   2.000   4.000
STACK VEL. HD.=     0.85    1.00    0.70    0.60    0.65    0.65    0.50    0.65    0.75
STACK STATIC HD.=   -1.00   -1.00   -1.00   -1.10   -1.20   -1.00   -0.20   -1.00   -0.90
FAN VEL. HD.=       6.200   4.000   6.200   4.500
FAN STATIC HEAD=     11.000  11.000  10.000  10.200
PRESS. AT DONALDSON-STBD      11.000  10.000  13.500   9.500
PRESS. AT DONALDSON-PORT=      9.400  12.000  11.000  12.500
OIL COOLER VEL. HD.= 2.600    OIL COOLER STATIC= 6.000
PEERLESS PRESS-STBD= 8.700    PORT= 8.500
PRESS AFT OF PEERLESS-STBD= 8.000    PORT= 8.000
ENGINE PLENUM PRESS-STBD=    7.90    7.50    7.50    7.40
ENGINE PLENUM PRESS-PORT=    6.90    6.20    7.00    7.30
SCAV. EXH. PRESS=      4.400  HOT SECT. PRESS.=     4.500  COOLER PRESS=     0.100
OUTSIDE AIR TEMP.=  82.800
STACK TEMPS. =       84.000    83.000    84.000    84.000
FAN DISCHARGE TEMP.= 93.000
ENGINE PLENUM AIR TEMP.=   93.00  122.00


                            ENGINE PREFORMANCE
TEMP=   93.00    ADJ. HP=    0.5076E 02TEMP=  122.00    ADJ. HP=    0.4948E 02
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.5240E 02
ENGINE AIRIBOTH SIDES)-CFM=  0.1230E 05  TAVG(3&4)= 107.500


                            STACK PERFORMANCE
AVG STACK TEMP=      83.75    TEMP RISE IN STACK       0.95
STACK PRESSURES  VEL= 0.742  STATIC=-0.950  TOTAL HEAD=-0.208
FLOW IN STACK-CFM=  0.2327E 05


                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56I OF VEL HD.) = 13.48
FAN DISCHARGE PRESS. STATIC=10.550  VEL. HEAD= 5.225  TOTAL HEAD=15.775
STATIC PRESS. COR.=    11.053  TOTAL PRESS. COR.=    16.278
FAN PRESS INCREASE=15.983  FAN FLOW CFM=  0.2626E 05  FAN HORSEPOWER=  0.6615E 02
AVG. OF STACK AND FAN FLOW-CFM=  0.2477E 05


                            APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1596E 04
OIL COOLER FLOW CFM=  0.1189E 05   VEL. FT/SEC=  0.1101E 03


                            SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, STB= 11.00  PORT= 11.22   AVG= 11.11
DONALDSON PRESS. DROP, STB=  2.30   PORT=  2.72    AVG=  2.51
PEERLESS PRESS. DROP,  STB=  0.70   PORT=  0.50    AVG =  0.60
PRESS DROP TO ENG.,  STB=  0.43   PORT=  1.15    AVG=  0.79
PLENUM PRESS.,  PORT=     7.575  STBD=     6.850  AVG=     7.212
SCAV. PRESS. DROP=     4.100
OIL COOLER DUCT DROP=     2.500
DUCT TO HOT COMP. DROP=    1.500
DUCT TO OIL COOLER DROP=     5.900
```

TEST No.7 C2A0706

```
                                INPUT DATA
N2= 96.800  96.300  96.000  96.800
 TOP    22.000  24.000  18.000  20.000
STACK VEL. HD.=    1.60    1.70    1.00    0.80    0.80    1.50    1.25    1.25    1.15
STACK STATIC HD.=  -1.50   -1.70   -1.50   -1.50   -1.70   -1.50   -1.40   -2.40   -1.50
FAN VEL. HD.=      4.800   4.800   6.500   5.200
FAN STATIC HEAD=       7.500   7.000   6.500   7.000
PRESS. AT DONALOSON-STBD       8.000   6.900   9.000   6.500
PRESS. AT DONALOSON-PORT=       5.000   8.600   7.400   9.500
OIL COOLER VEL. HD.= 1.500    OIL COOLER STATIC= 3.500
PEERLESS PRESS-STBD= 5.000    PORT= 4.800
PRESS AFT OF PEERLESS-STBD= 2.500    PORT= 1.800
ENGINE PLENUM PRESS-STBD=     1.20    0.0    -0.60   -1.80
ENGINE PLENUM PRESS-PORT=   -2.00   -1.20   -1.00   -1.00
SCAV. EXH. PRESS=     1.500  HOT SECT. PRESS.=     2.500  COOLER PRESS=     0.0
OUTSIDE AIR TEMP.= 82.800
STACK TEMPS. =     97.000    92.000    90.000    94.000
FAN DISCHARGE TEMP.= 99.000
ENGINE PLENUM AIR TEMP.= 103.00  140.00


                            ENGINE PREFORMANCE
TEMP= 103.00    ADJ. HP=    0.6731E 03TEMP= 140.00    ADJ. HP=    0.6520E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.7011E 03
ENGINE AIR(BOTH SIDES)-CFM= 0.1743E 05  TAVG(364)= 121.500


                            STACK PERFORMANCE
AVG STACK TEMP=     93.25    TEMP RISE IN STACK      10.45
STACK PRESSURES  VEL= 1.321  STATIC=-1.600  TOTAL HEAD=-0.279
FLOW IN STACK-CFM= 0.3122E 05


                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HD.) = 9.98
FAN DISCHARGE PRESS. STATIC= 7.000  VEL. HEAD= 5.325  TOTAL HEAD=12.325
STATIC PRESS. COR.=    7.462  TOTAL PRESS. COR.=    12.787
FAN PRESS INCREASE=12.604  FAN FLOW CFM= 0.2681E 05  FAN HORSEPOWER= 0.5325E 02
AVG. OF STACK AND FAN FLOW-CFM= 0.2902E 05


                            APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM = 0.1640E 04
OIL COOLER FLOW CFM= 0.9079E 04   VEL. FT/SEC= 0.8406E 02


                            SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, STB= 7.60   PORT= 7.62   AVG= 7.61
DONALDSON PRESS. DROP, STB= 2.60   PORT= 2.82   AVG= 2.71
PEERLESS PRESS. DROP,  STB= 2.50   PORT= 3.00   AVG = 2.75
PRESS DROP TO ENG.,  STB= 2.80   PORT= 3.10   AVG= 2.95
PLENUM PRESS.,  PORT=   -0.300  STBD=   -1.300  AVG=   -0.800
SCAV. PRESS. DROP=    3.300
OIL COOLER DUCT DROP=    1.300
DUCT TO HOT COMP. DROP=    1.000
DUCT TO OIL COOLER DROP=    3.500
```

TEST No. 7 C2B0706

```
                                INPUT DATA
N2=  94.000  94.000  93.000  94.000
 TOP     35.000  35.000  35.000  35.000
STACK VEL. HD.=     1.20     1.60     1.20     1.20     1.25     0.90     0.75     0.82     0.75
STACK STATIC HD.=   -1.70    -1.70    -1.20    -1.10    -1.50    -1.50    -1.00    -1.20    -1.50
FAN VEL. HD.=       5.600    6.000    6.200    5.900
FAN STATIC HEAD=      7.000    6.000    5.500    6.000
PRESS. AT DONALDSON-STBD       7.500    8.000    9.000    5.000
PRESS. AT DONALDSON-PORT=      4.000    7.000    6.500    8.500
OIL COOLER VEL. HD.= 1.000    OIL COOLER STATIC= 3.000
PEERLESS PRESS-STBD= 3.500    PORT= 4.000
PRESS APT OF PEERLESS-STBD= 1.500    PORT= 0.0
ENGINE PLENUM PRESS-STBD=   -1.20    -2.20    -3.00    -4.00
ENGINE PLENUM PRESS-PORT=   -5.00    -3.80    -2.80    -3.00
SCAV.  EXH. PRESS=   999.000  HOT SECT. PRESS.=   999.000  COOLER PRESS=   999.000
OUTSIDE AIR TEMP.=  82.800
STACK TEMPS. =      104.000   103.000   103.000   103.000
FAN DISCHARGE TEMP.= 103.000
ENGINE PLENUM AIR TEMP.=  112.00  112.00


                                ENGINE PREFORMANCE
TEMP=  112.00     ADJ. HP=     0.1081E 04TEMP=  112.00     ADJ. HP=     0.1081E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1135E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1904E 05  TAVG(364)= 112.000


                                STACK PERFORMANCE
AVG STACK TEMP=     103.25     TEMP RISE IN STACK       20.45
STACK PRESSURES  VEL= 1.106  STATIC=-1.458  TOTAL HEAD=-0.352
FLOW IN STACK-CFM=  0.2887E 05


                                FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) =  9.44
FAN DISCHARGE PRESS. STATIC= 6.125  VEL. HEAD= 5.925  TOTAL HEAD=12.050
STATIC PRESS. COR.=      6.648  TOTAL PRESS. COR.=     12.573
FAN PRESS INCREASE=12.402  FAN FLOW CFM=  0.2859E 05  FAN HORSEPOWER=  0.5588E 02
AVG. OF STACK AND FAN FLOW-CFM=  0.2873E 05


                                APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1846E 04
OIL COOLER FLOW CFM=  0.7439E 04   VEL. FT/SEC=  0.6883E 02


                                SYSTEM PRESSURE DROPS
PRESS. AT DONALSON. STB=  7.37   PORT=  6.50   AVG=  6.94
DONALDSON PRESS. DROP, STB=  3.87   PORT=  2.50    AVG=  3.19
PEERLESS PRESS. DROP,  STB=  2.00   PORT=  4.00    AVG =  3.00
PRESS DROP TO ENG.,  STB=  4.10   PORT=  3.65    AVG=  3.87
PLENUM PRESS.,  PORT=    -2.600  STBD=    -3.650  AVG=    -3.125
SCAV. PRESS. DROP=  -995.000
OIL COOLER DUCT DROP=      1.000
DUCT TO HOT COMP. DROP=  -996.000
DUCT TO OIL COOLER DROP=  -996.000
```

TEST No. 8 C1A0707

INPUT DATA

N2= 0.0 0.0 0.0 0.0
TOP 0.0 0.0 0.0 0.0
STACK VEL. HD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
STACK STATIC HD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
FAN VEL. HD.= 4.000 3.000 3.700 4.300
FAN STATIC HEAD= 10.750 10.500 10.500 10.000
PRESS. AT DONALOSON-STBD 11.500 10.000 11.500 10.500
PRESS. AT DONALOSON-PORT= 10.500 11.500 10.500 11.500
OIL COOLER VEL. HD.= 3.000 OIL COOLER STATIC= 6.250
PEERLESS PRESS-STBD= 9.600 PORT= 9.600
PRESS AFT OF PEERLESS-STBD= 9.500 PORT= 9.500
ENGINE PLENUM PRESS-STBD= 9.50 9.50 9.50 9.50
ENGINE PLENUM PRESS-PORT= 9.40 8.50 9.00 9.40
SCAV. EXH. PRESS= 5.000 HOT SECT. PRESS.= 4.500 COOLER PRESS= 0.100
OUTSIDE AIR TEMP.= 76.000
STACK TEMPS. = 76.000 76.000 77.000 76.000
FAN DISCHARGE TEMP.= 85.000
ENGINE PLENUM AIR TEMP.= 81.00 79.00

ENGINE PREFORMANCE

TEMP= 81.00 ADJ. HP= 0.0 TEMP= 79.00 ADJ. HP= 0.0
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.0
ENGINE AIR(BOTH SIDES)-CFM= 0.0 TAVG(3&4)= 80.000

STACK PERFORMANCE

AVG STACK TEMP= 76.25 TEMP RISE IN STACK 0.25
****** STACK NOT INSTALLED ******

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56(OF VEL HD.) = 12.54
FAN DISCHARGE PRESS. STATIC=10.437 VEL. HEAD= 3.750 TOTAL HEAD=14.187
STATIC PRESS. COR.= 10.785 TOTAL PRESS. COR.= 14.535
FAN PRESS INCREASE=14.540 FAN FLOW CFM= 0.2215E 05 FAN HORSEPOWER= 0.5075E 02
AVG. OF STACK AND FAN FLOW-CFM= 0.1107E 05

APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1605E 04
OIL COOLER FLOW CFM= 0.1268E 05 VEL. FT/SEC= 0.1174E 03

SYSTEM PRESSURE DROPS

PRESS. AT DONALSON, STB= 10.87 PORT= 11.00 AVG= 10.94
DONALDSON PRESS. DROP, STB= 1.28 PORT= 1.40 AVG= 1.34
PEERLESS PRESS. DROP, STB= 0.10 PORT= 0.10 AVG = 0.10
PRESS DROP TO ENG., STB= 0.0 PORT= 0.43 AVG= 0.21
PLENUM PRESS., PORT= 9.500 STBD= 9.075 AVG= 9.287
SCAV. PRESS. DROP= 4.600
OIL COOLER DUCT DROP= 3.350
DUCT TO HOT COMP. DROP= 1.750
DUCT TO OIL COOLER DROP= 6.150

TEST No. 8 C1B0707

```
                                INPUT DATA
N2=  40.000  39.000  20.500  40.000
 TOP      3.000    5.000    5.000    5.000
STACK VEL. HD.=      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
STACK STATIC HD.=    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
FAN VEL. HD.=      6.600    3.800    6.200    5.000
FAN STATIC HEAD=     10.750  10.750  10.250  10.250
PRESS. AT DONALDSON-STBD     12.000  10.000  12.500   9.500
PRESS. AT DONALOSON-PORT=     10.000  12.000  11.000  12.000
OIL COOLER VEL. HD.= 2.400    OIL COOLER STATIC= 6.000
PEERLESS PRESS-STBD= 8.700    PORT= 8.700
PRESS AFT OF PEERLESS-STBD= 8.500    PORT= 8.200
ENGINE PLENUM PRESS-STBD=    8.00     7.90     7.50     7.40
ENGINE PLENUM PRESS-PORT=    6.80     6.20     7.00     7.20
SCAV.  EXH. PRESS=      4.400  HOT SECT. PRESS.=      4.500  COOLER PRESS=      0.100
OUTSIDE AIR TEMP.=  76.000
STACK TEMPS. =       75.000    76.000    77.000    76.000
FAN DISCHARGE TEMP.=  85.000
ENGINE PLENUM AIR TEMP.=   81.00   79.00


                                ENGINE PREFORMANCE
TEMP=    81.00    ADJ. HP=     0.5232E 02TEMP=    79.00    ADJ. HP=     0.5241E 02
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.5341E 02
ENGINE AIR(BOTH SIDES)-CFM=  0.1203E 05  TAVG(3&4)=  80.000


                                STACK PERFORMANCE
AVG STACK TEMP=      76.00     TEMP RISE IN STACK        0.0
                   ****** STACK NOT INSTALLED ******


                                FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 13.52
FAN DISCHARGE PRESS. STATIC=10.500  VEL. HEAD= 5.400  TOTAL HEAD=15.900
STATIC PRESS. COR.=    10.844  TOTAL PRESS. COR.=    16.244
FAN PRESS INCREASE=16.252  FAN FLOW CFM=  0.2649E 05  FAN HORSEPOWER=  0.6783E 02
AVG. OF STACK AND FAN FLOW-CFM=  0.1324E 05


                                APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1570E 04
OIL COOLER FLOW CFM=  0.1134E 05   VEL. FT/SEC=  0.1050E 03


                                SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, STB= 11.00   PORT= 11.25   AVG= 11.12
DONALOSON PRESS. DROP, STB=  2.30   PORT=  2.55   AVG=  2.43
PEERLESS PRESS. DROP,  STB=  0.20   PORT=  0.50   AVG =  0.35
PRESS DROP TO ENG.,  STB=  0.80   PORT=  1.40   AVG=  1.10
PLENUM PRESS.,  PORT=      7.700  STBD=      6.800  AVG=      7.250
SCAV. PRESS. DROP=      4.300
OIL COOLER DUCT DROP=      2.700
DUCT TO HOT COMP. DROP=      1.500
DUCT TO OIL COOLER DROP=      5.900
```

TEST No. 8 C2A0707

```
                              INPUT DATA
N2=  95.500  95.000  95.000  96.000
 TOP    20.500  20.500  20.500  20.500
STACK VEL. HD.=     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
STACK STATIC HD.=     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
FAN VEL. HD.=       7.000   7.000   6.500   5.500
FAN STATIC HEAD=        7.600   6.700   7.200   7.000
PRESS. AT DONALDSON-STBD        8.500   7.300  10.000   6.000
PRESS. AT DONALDSON-PORT=       6.000   8.900   8.000   9.500
OIL COOLER VEL. HD.= 1.400    OIL COOLER STATIC= 4.700
PEERLESS PRESS-STBD= 5.000    PORT= 4.600
PRESS AFT OF PEERLESS-STBD= 2.400    PORT= 1.800
ENGINE PLENUM PRESS-STBD=     1.00    0.0    -0.60   -1.50
ENGINE PLENUM PRESS-PORT=   -2.00   -0.80   -0.80   -0.40
SCAV.  EXH. PRESS=      1.000  HOT SECT. PRESS.=      2.400  COOLER PRESS=      0.100
OUTSIDE AIR TEMP.=  85.000
STACK TEMPS. =       95.000   102.000    95.000    92.000
FAN DISCHARGE TEMP.= 102.000
ENGINE PLENUM AIR TEMP.=  102.00  141.00


                           ENGINE PREFORMANCE
TEMP=  102.00    ADJ. HP=     0.6501E 03TEMP=  141.00    ADJ. HP=     0.6286E 03
AVERAVGE HORSEPOWER--BOTH ENGINES=-  0.6765E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1732E 05  TAVG(364)= 121.500


                           STACK PERFORMANCE
AVG STACK TEMP=      96.00     TEMP RISE IN STACK       11.00
                  ****** STACK NOT INSTALLED ******


                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HD.) = 10.76
FAN DISCHARGE PRESS. STATIC= 7.125  VEL. HEAD= 6.500  TOTAL HEAD=13.625
STATIC PRESS. COR.=     7.633  TOTAL PRESS. COR.=    14.133
FAN PRESS INCREASE=13.977  FAN FLOW CFM=  0.2972E 05  FAN HORSEPOWER=  0.6547E 02
AVG. OF STACK AND FAN FLOW-CFM=  0.1486E 05


                           APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1624E 04
OIL COOLER FLOW CFM=  0.8794E 04   VEL. FT/SEC=  0.8143E 02


                           SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, STB=  7.95   PORT=  8.10   AVG=  8.02
DONALDSON PRESS. DROP, STB=  2.95   PORT=  3.50    AVG=  3.22
PEERLESS PRESS. DROP,  STB=  2.60   PORT=  2.80    AVG =  2.70
PRESS DROP TO ENG.,  STB=  2.67   PORT=  2.80    AVG=  2.74
PLENUM PRESS.,  PORT=    -0.275  STBD=    -1.000  AVG=    -0.637
SCAV. PRESS. DROP=     3.600
OIL COOLER DUCT DROP=    -0.100
DUCT TO HOT COMP. DROP=     2.300
DUCT TO OIL COOLER DROP=     4.600
```

TEST No 8 C2B0707

```
                                INPUT DATA
N2=  92.500  92.500  92.500  92.500
 TOP     35.000  35.000  35.000  35.000
STACK VEL. HD.=      0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
STACK STATIC HD.=    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
FAN VEL. HD.=        6.400   7.700   8.000   4.500
FAN STATIC HEAO=     6.000   5.200   5.800   5.200
PRESS. AT OONALDSON-STBD     7.400   7.000   8.500   4.600
PRESS. AT DONALOSON-PORT=    4.000   7.500   6.500   8.000
OIL COOLER VEL. HD.= 1.500   OIL COOLER STATIC= 3.500
PEERLESS PRESS-ST80= 3.000   PORT= 3.000
PRESS AFT OF PEERLESS-STBO= 0.500   PORT= 0.0
ENGINE PLENUM PRESS-STBO=   -1.80   -2.50   -3.00   -4.50
ENGINE PLENUM PRESS-PORT=   -3.00   -3.00   -3.50   -3.20
SCAV.  EXH. PRESS=     0.0   HOT SECT. PRESS.=     1.500  COOLER PRESS=     0.100
OUTSIOE AIR TEMP.=  85.000
STACK TEMPS. =      105.000   111.000   109.000   111.000
FAN DISCHARGE TEMP.= 116.000
ENGINE PLENUM AIR TEMP.=  115.00  132.00


                            ENGINE PREFORMANCE
TEMP=  115.00    AOJ. HP=    0.1064E 04TEMP=  132.00    ADJ. HP=    0.1049E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1120E 04
ENGINE AIR(BOTH SIOES)-CFM=  0.1913E 05  TAVG(3&4)= 123.500


                            STACK PERFORMANCE
AVG STACK TEMP=    109.00    TEMP RISE IN STACK      24.00
                 ****** STACK NOT INSTALLED ******

A-10

                            FAN PERFORMANCE
PRESS. RECOVERY WITH OIFFUSER(56( OF VEL HO.) =  9.27
FAN OISCHARGE PRESS. STATIC= 5.550  VEL. HEAO= 6.650  TOTAL HEAO=12.200
STATIC PRESS. COR.=     6.085  TOTAL PRESS. COR.=    12.735
FAN PRESS INCREASE=12.552  FAN FLOW CFM=  0.3027E 05  FAN HORSEPOWER=  0.5987E 02
AVG. OF STACK ANO FAN FLOW-CFM=  0.1514E 05


                            APU ANO OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1675E 04
OIL COOLER FLOW CFM=  0.9216E 04   VEL. FT/SEC=  0.8533E 02


                            SYSTEM PRESSURE OROPS
PRESS. AT OONALSON, ST8=  6.87   PORT=  6.50   AVG=  6.69
DONALDSON PRESS. DROP, STB=  3.87   PORT=  3.50   AVG=  3.69
PEERLESS PRESS. DROP,  STB=  2.50   PORT=  3.00   AVG =  2.75
PRESS DROP TO ENG.,  STB=  3.45   PORT=  3.17   AVG=  3.31
PLENUM PRESS.,  PORT=    -2.950  ST80=    -3.175  AVG=    -3.062
SCAV. PRESS. DROP=     3.000
OIL COOLER DUCT DROP=    -0.500
DUCT TO HOT COMP. DROP=     2.000
DUCT TO OIL COOLER DROP=     3.400
  STOP    999

ENO OF J08.

     52.7 SEC. USEO    .015 HRS. CHARGEO    2.895 HRS. REMAINING
```

TEST No.9 C1A0707

```
                                INPUT DATA
N2=   0.0      0.0      0.0      0.0
 TOP      0.0      0.0      0.0      0.0
STACK VEL. HD.=      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
STACK STATIC HD.=    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
FAN VEL. HD.=      3.500    2.900    2.700    2.400
FAN STATIC HEAD=     13.600   13.200   13.500   13.000
PRESS. AT DONALDSON-STBD      14.500   13.000   14.000   13.000
PRESS. AT DONALDSON-PORT=     13.000   14.200   13.300   14.000
OIL COOLER VEL. HD.= 2.700    OIL COOLER STATIC= 8.000
PEERLESS PRESS-STBD=12.500    PORT=12.200
PRESS AFT OF PEERLESS-STBD=12.500    PORT=12.200
ENGINE PLENUM PRESS-STBD=    12.00    12.00    12.00    12.20
ENGINE PLENUM PRESS-PORT=    12.00    10.50    11.70    12.00
SCAV. PRESS=      7.900  HOT SECT. PRESS=      6.000  OIL COOLER PRESS.=      0.100
OUTSIDE AIR TEMP.= 83.800
STACK TEMP.=       82.000     83.000     84.000     86.000
FAN DISCHARGE TEMP.= 92.000
ENGINE PLENUM AIR TEMP.=   90.00    91.00


                            ENGINE PREFORMANCE
TEMP=    90.00   ADJ. HP=     0.0        TEMP=    91.00   ADJ. HP=     0.0
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.0
ENGINE AIR(BOTH SIDES)-CFM=  0.0          TAVG(3&4)=  90.500


                            STACK PERFORMANCE
AVG STACK TEMP=       83.75     TEMP RISE IN STACK       -0.05
                   ****** STACK NOT INSTALLED ******


                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 14.93
FAN DISCHARGE PRESS. STATIC=13.325  VEL. HEAD= 2.875  TOTAL HEAD=16.200
FAN PRESS INCREASE=16.200  FAN FLOW CFM=  0.3559E 05  FAN HORSEPOWER=  0.9084E 02
STATIC PRESS COR.=    13.961  TOTAL PRESS. COR.=    16.836
AVG. OF STACK AND FAN FLOW-CFM=  0.1779E 05


                            APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1556E 04
OIL COOLER FLOW CFM=  0.1210E 05   VEL. FT/SEC=  0.1121E 03


                            SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, STB= 13.62   PORT= 13.62   AVG= 13.62
DONALDSON PRESS. DROP, STB=  1.12   PORT=  1.42   AVG=  1.27
PEERLESS PRESS. DROP,  STB=  0.0    PORT=  0.0    AVG =  0.0
PRESS DROP TO ENG.,  STB=  0.45   PORT=  0.65   AVG=  0.55
AVERAGE PLENUM PRESS.  STBD=    12.050PORT=    11.550AVG=    11.800
SCAV. PRESS DROP=     4.300
COOLER DUCT DROP=     4.200
DUCT TO HOT SECT. DROP=     2.000
DUCT TO COOLER DROP=     7.900
```

TEST No. 9 C1B0716

```
                                INPUT DATA
N2=  40.000  40.000  40.000  40.000
 TOP     2.500   2.500   2.500   2.500
STACK VEL. HO.=     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
STACK STATIC HO.=     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
FAN VEL. HO.=      2.100   4.500   3.500   4.000
FAN STATIC HEAO=      10.000  10.500  10.500  10.000
PRESS. AT DONALOSON-STBO      12.000  10.000  12.000  10.500
PRESS. AT DONALOSON-PORT=      10.000  11.500  10.500  11.500
OIL COOLER VEL. HO.= 4.000     OIL COOLER STATIC= 6.000
PEERLESS PRESS-STBO= 9.500     PORT= 9.500
PRESS AFT OF PEERLESS-STBO= 9.000     PORT= 9.000
ENGINE PLENUM PRESS-STBO=     8.50    8.20    8.20    8.50
ENGINE PLENUM PRESS-PORT=     8.00    7.50    8.00    8.30
SCAV. PRESS=      6.000  HOT SECT. PRESS=      4.800  OIL COOLER PRESS.=      0.100
OUTSIDE AIR TEMP.=  84.200
STACK TEMP.=      157.000   144.000   120.000   128.000
FAN DISCHARGE TEMP.= 150.000
ENGINE PLENUM AIR TEMP.=  135.00  164.00


                            ENGINE PREFORMANCE
TEMP=  135.00   AOJ. HP=     0.3231E 02TEMP=  164.00   AOJ. HP=     0.3155E 02
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.3460E 02
ENGINE AIR(BOTH SIOES)-CFM=  0.1249E 05  TAVG(3&4)= 149.500


                            STACK PERFORMANCE
AVG STACK TEMP=     137.25     TEMP RISE IN STACK       53.05
                   ****** STACK NOT INSTALLED ******


                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HO.) = 12.22
FAN DISCHARGE PRESS. STATIC=10.250  VEL. HEAO= 3.525  TOTAL HEAD=13.775
FAN PRESS INCREASE=13.775  FAN FLOW CFM=  0.4078E 05  FAN HORSEPOWER=  0.8853E 02
STATIC PRESS COR.=     11.796  TOTAL PRESS. COR.=     15.321
AVG. OF STACK AND FAN FLOW-CFM=  0.2039E 05


                            APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1723E 04
OIL COOLER FLOW CFM=  0.1549E 05   VEL. FT/SEC=  0.1434E 03


                            SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, STB= 11.12   PORT= 10.87   AVG= 11.00
DONALDSON PRESS. DROP, STB=  1.62   PORT=  1.37    AVG=  1.50
PEERLESS PRESS. DROP,  STB=  0.50   PORT=  0.50    AVG =  0.50
PRESS DROP TO ENG.,  STB=  0.65   PORT=  1.05    AVG=  0.85
AVERAGE PLENUM PRESS.  STBO=     8.350PORT=     7.950AVG=     8.150
SCAV. PRESS DROP=     3.500
COOLER DUCT DROP=     3.500
DUCT TO HOT SECT. DROP=     1.200
DUCT TO COOLER DROP=     5.900
```

TEST No. 9 C2A0716

```
                              INPUT DATA
N2=  95.200  95.000  94.500  95.300
 TOP    20.000  21.000  18.000  19.000
STACK VEL. HD.=     D.0      0.0      0.D      0.0      0.0      0.0      0.0      0.0      0.0
STACK STATIC HD.=     0.D      0.D      D.D      0.D      0.0      0.0      0.D      0.0      0.0
FAN VEL. HD.=       1.500    4.600    4.800    3.000
FAN STATIC HEAD=      7.300    7.500    8.000    7.500
PRESS. AT DONALDSON-ST8D      9.300    7.500    9.20D    7.7D0
PRESS. AT DONALDSDN-PORT=      7.00D    9.500    7.500    9.000
OIL COOLER VEL. HD.= 1.7D0    DIL COOLER STATIC= 4.500
PEERLESS PRESS-ST8D= 6.300    PORT= 6.000
PRESS AFT OF PEERLESS-ST8D= 3.800    PORT= 3.400
ENGINE PLENUM PRESS-ST8D=    2.4D     1.3D     D.9D    -D.3D
ENGINE PLENUM PRESS-PDRT=    2.4D     1.90     D.6D     0.8D
SCAV. PRESS=     4.00D  HDT SECT. PRESS=     3.700  OIL COOLER PRESS.=     0.100
OUTSIDE AIR TEMP.=  84.2DD
STACK TEMP.=       94.000   103.00D    95.00D    85.000
FAN DISCHARGE TEMP.= 104.00D
ENGINE PLENUM AIR TEMP.=  105.DO  145.DD


                           ENGINE PREFORMANCE
TEMP=  105.00   ADJ. HP=    D.6144E D3TEMP=  145.00   AOJ. HP=    0.5937E D3
AVERAVGE HORSEPDWER--BOTH ENGINES--  D.6410E D3
ENGINE AIR(BOTH SIDES)-CFM=  0.1719E 05  TAVG(364)= 125.00D


                           STACK PERFORMANCE
AVG STACK TEMP=      94.25     TEMP RISE IN STACK      10.D5
                  ****** STACK NOT INSTALLED ******

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                           FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56( DF VEL HD.) =  9.52
FAN DISCHARGE PRESS. STATIC= 7.575  VEL. HEAD= 3.475  TOTAL HEAD=11.D5D
FAN PRESS INCREASE=11.050  FAN FLOW CFM=  0.3820E 05  FAN HORSEPDWER=  0.6651E 02
STATIC PRESS COR.=     8.D9D  TOTAL PRESS. COR.=    11.565
AVG. DF STACK AND FAN FLOW-CFM=  D.1910E D5


                           APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1627E 04
OIL COOLER FLOW CFM=  0.9708E 04   VEL. FT/SEC=  0.8989E 02


                           SYSTEM PRESSURE DROPS
PRESS. AT DONALSDN, ST8=  8.42   PORT=  8.25   AVG=  8.34
DONALDSDN PRESS. DROP, ST8=  2.12   PDRT=  2.25   AVG=  2.19
PEERLESS PRESS. DRDP,  ST8=  2.50   PORT=  2.60   AVG =  2.55
PRESS DROP TO ENG.,  ST8=  2.73   PORT=  1.98   AVG=  2.35
AVERAGE PLENUM PRESS.  ST8D=     1.D75PDRT=     1.425AVG=     1.250
SCAV. PRESS ORDP=     2.000
COOLER OUCT DROP=     1.500
DUCT TO HOT SECT. DROP=     0.800
DUCT TO COOLER ORDP=     4.40D
```

TEST No. 9 C2B0716

INPUT DATA

N2= 93.200 92.000 91.700 92.500
TOP 37.000 38.000 34.000 36.000
STACK VEL. HD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
STACK STATIC HD.= 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
FAN VEL. HD.= 0.800 4.800 4.700 3.000
FAN STATIC HEAD= 7.000 6.000 7.500 6.000
PRESS. AT DONALOSON-STBD 8.200 6.400 8.000 6.400
PRESS. AT DONALOSON-PORT= 6.500 8.200 6.500 8.200
OIL COOLER VEL. HD.= 1.400 OIL COOLER STATIC= 3.500
PEERLESS PRESS-STBD= 5.000 PORT= 4.800
PRESS AFT OF PEERLESS-STBD= 1.800 PORT= 1.400
ENGINE PLENUM PRESS-STBD= -0.60 -1.80 -1.80 -3.90
ENGINE PLENUM PRESS-PORT= -0.40 -0.80 -2.00 -2.20
SCAV. PRESS= 3.000 HOT SECT. PRESS= 2.500 OIL COOLER PRESS.= 0.100
OUTSIDE AIR TEMP.= 84.200
STACK TEMP.= 108.000 95.000 103.000 107.000
FAN DISCHARGE TEMP.= 108.000
ENGINE PLENUM AIR TEMP.= 106.00 123.00

ENGINE PREFORMANCE

TEMP= 106.00 ADJ. HP= 0.1109E 04TEMP= 123.00 ADJ. HP= 0.1093E 04
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.1158E 04
ENGINE AIR(BOTH SIDES)-CFM= 0.1916E 05 TAVG(3&4)= 114.500

STACK PERFORMANCE

AVG STACK TEMP= 103.25 TEMP RISE IN STACK 19.05
****** STACK NOT INSTALLED ******

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56(OF VEL HD.) = 8.49
FAN DISCHARGE PRESS. STATIC= 6.625 VEL. HEAD= 3.325 TOTAL HEAD= 9.950
FAN PRESS INCREASE= 9.950 FAN FLOW CFM= 0.3673E 05 FAN HORSEPOWER= 0.5760E 02
STATIC PRESS COR.= 7.190 TOTAL PRESS. COR.= 10.515
AVG. OF STACK AND FAN FLOW-CFM= 0.1837E 05

APU AND OIL COOLER FLOWS

APU AIR FLOW, CFM = 0.1657E 04
OIL COOLER FLOW CFM= 0.8841E 04 VEL. FT/SEC= 0.8186E 02

SYSTEM PRESSURE DROPS

PRESS. AT DONALSON, STB= 7.25 PORT= 7.35 AVG= 7.30
DONALDSON PRESS. DROP, STB= 2.25 PORT= 2.55 AVG= 2.40
PEERLESS PRESS. DROP, STB= 3.20 PORT= 3.40 AVG = 3.30
PRESS DROP TO ENG., STB= 3.82 PORT= 2.75 AVG= 3.29
AVERAGE PLENUM PRESS. STBD= -2.025PORT= -1.350AVG= -1.687
SCAV. PRESS DROP= 1.800
COOLER DUCT DROP= 1.300
DUCT TO HOT SECT. DROP= 1.000
DUCT TO COOLER DROP= 3.400

TEST No. 10 C1A0720

```
                              INPUT DATA
N2=   0.0     0.0     0.0     0.0
 TOP      0.0      0.0      0.0      0.0
STACK VEL. HD.=     0.80    1.00    0.60    0.20    0.20    0.10    0.60    0.85    0.80
STACK STATIC HD.=   -1.00   -1.10   -1.00   -1.00   -1.10   -0.90   -0.90   -0.70   -0.80
FAN VEL. HD.=       1.500   2.800   2.500   2.800
FAN STATIC HEAD=    13.200  13.200  13.400  14.000
PRESS. AT DONALDSON-STBD    14.500  13.000  14.000  13.000
PRESS. AT DONALDSON-PORT=    13.000  14.000  13.000  14.000
OIL COOLER VEL. HD.= 3.400    OIL COOLER STATIC= 7.900
PEERLESS PRESS-STBD=12.500    PORT=12.300
PRESS AFT OF PEERLESS-STBD=12.000    PORT=12.000
ENGINE PLENUM PRESS-STBD=   12.00   12.00   12.00   12.00
ENGINE PLENUM PRESS-PORT=   11.50   11.50   11.50   11.80
SCAV. PRESS=     7.800  HOT SECT. PRESS=     6.000  OIL COOLER PRESS.=     0.100
OUTSIDE AIR TEMP.=  82.000
STACK TEMP.=      82.000    84.000    83.000    82.000
FAN DISCHARGE TEMP.= 92.000
ENGINE PLENUM AIR TEMP.=   90.00   91.00


                              ENGINE PREFORMANCE
TEMP=   90.00   ADJ. HP=    0.0        TEMP=   91.00   ADJ. HP=    0.0
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.0
ENGINE AIR(BOTH SIDES)-CFM=  0.0          TAVG(364)=  90.500


                              STACK PERFORMANCE
AVG STACK TEMP=      82.75    TEMP RISE IN STACK        0.75
STACK PRESSURES  VEL= 0.629  STATIC=-0.958  TOTAL HEAD=-0.329
FLOW IN STACK-CFM=  0.2068E 05


                              FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 14.79
FAN DISCHARGE PRESS. STATIC=13.450  VEL. HEAD= 2.400  TOTAL HEAD=15.850
FAN PRESS INCREASE=16.179  FAN FLOW CFM=  0.3218E 05  FAN HORSEPOWER=  0.8204E 02
STATIC PRESS COR.=     1.066  TOTAL PRESS. COR.=     16.466
AVG. OF STACK AND FAN FLOW-CFM=  0.2643E 05


                              APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1568E 04
OIL COOLER FLOW CFM=  0.1358E 05   VEL. FT/SEC=  0.1258E 03


                              SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, STB= 13.62   PORT= 13.50   AVG= 13.56
DONALDSON PRESS. DROP, STB=  1.12   PORT=  1.20   AVG=  1.16
PEERLESS PRESS. DROP,  STB=  0.50   PORT=  0.30   AVG =  0.40
PRESS DROP TO ENG.,  STB=  0.0    PORT=  0.43   AVG=  0.21
AVERAGE PLENUM PRESS.  STBD=    12.000PORT=    11.575AVG=    11.787
SCAV. PRESS DROP=      4.500
COOLER DUCT DROP=      4.400
DUCT TO HOT SECT. DROP=      1.900
DUCT TO COOLER DROP=      7.800
```

TEST NO.10 C1B0720

INPUT DATA

```
N2=  40.000  39.500  39.500  39.500
 TDP     2.000   5.000   3.000   3.000
STACK VEL. HD.=    1.00    1.30    0.60    0.60    0.50    1.20    0.90    1.00    1.00
STACK STATIC HD.=  -1.20   -1.40   -1.25   -1.25   -1.40   -1.25   -1.10   -1.00   -1.00
FAN VEL. HD.=      3.200   2.900   2.600   2.500
FAN STATIC HEAD=    11.100  10.800  11.000  11.000
PRESS. AT DONALDSON-ST8D     12.500  10.800  12.500  11.000
PRESS. AT DONALDSON-PORT=     10.000  12.500  11.000  12.000
OIL COOLER VEL. HD.= 2.600    OIL CODLER STATIC= 6.500
PEERLESS PRESS-ST8D= 9.500    PORT= 9.500
PRESS AFT OF PEERLESS-ST8D= 9.000    PORT= 8.500
ENGINE PLENUM PRESS-ST8D=    8.50    8.50    8.50    8.20
ENGINE PLENUM PRESS-PORT=    8.00    8.00    8.20    8.20
SCAV. PRESS=     6.600  HOT SECT. PRESS=    4.500  OIL COOLER PRESS.=    0.100
OUTSIDE AIR TEMP.= 82.000
STACK TEMP.=     112.000   101.000   119.000   113.000
FAN DISCHARGE TEMP.= 134.000
ENGINE PLENUM AIR TEMP.=  120.00  151.00
```

ENGINE PREFORMANCE

```
TEMP=  120.00   ADJ. HP=    0.4210E 02TEMP=  151.00   ADJ. HP=    0.4102E 02
AVERAVGE HORSEPDWER--BOTH ENGINES--  0.4450E 02
ENGINE AIR(BOTH SIDES)-CFM=  0.1248E 05  TAVG(3&4)= 135.500
```

STACK PERFORMANCE

```
AVG STACK TEMP=    111.25    TEMP RISE IN STACK      29.25
STACK PRESSURES  VEL= 0.925  STATIC=-1.204  TOTAL HEAD=-0.279
FLOW IN STACK-CFM=  0.2652E 05
```

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FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HD.) = 12.54
FAN DISCHARGE PRESS. STATIC=10.975  VEL. HEAD= 2.800  TOTAL HEAD=13.775
FAN PRESS INCREASE=14.054  FAN FLOW CFM=  0.3603E 05  FAN HORSEPOWER=  0.7980E 02
STATIC PRESS COR.=    12.081  TOTAL PRESS. COR.=    14.881
AVG. OF STACK AND FAN FLOW-CFM=  0.3128E 05
```

APU AND OIL COOLER FLOWS

```
APU AIR FLOW, CFM =  0.1691E 04
OIL COOLER FLOW CFM=  0.1232E 05   VEL. FT/SEC=  0.1141E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT DONALSON, ST8= 11.70   PORT= 11.37   AVG= 11.54
DONALDSON PRESS. DROP, ST8=  2.20   PORT=  1.88    AVG=  2.04
PEERLESS PRESS. DROP,  ST8=  0.50   PORT=  1.00    AVG =  0.75
PRESS DROP TO ENG.,  ST8=  0.58   PORT=  0.40    AVG=  0.49
AVERAGE PLENUM PRESS.  ST8D=     8.425PORT=     8.100AVG=     8.262
SCAV. PRESS DROP=     2.900
COOLER DUCT DROP=     3.000
DUCT TO HOT SECT. DROP=     2.000
DUCT TO COOLER DROP=     6.400
```

TEST NO. 10 C2A0720

```
                                INPUT DATA
N2=  95.000  95.000  94.000  95.000
 TOP    22.000  22.000  17.000  19.000
STACK VEL. HO.=     1.20     1.60     1.10     0.90     1.00     1.90     1.60     1.40     1.00
STACK STATIC HO.=   -2.20    -1.80    -1.90    -1.90    -1.90    -1.60    -1.50    -1.70    -1.90
FAN VEL. HO.=       4.500    2.000    4.500    2.000
FAN STATIC HEAD=      6.100    6.000    6.500    6.300
PRESS. AT DONALOSON-ST80      8.500    7.000    8.500    7.200
PRESS. AT DONALOSON-PORT=     6.000    8.500    6.800    7.800
OIL COOLER VEL. HO.= 1.200    OIL COOLER STATIC= 3.500
PEERLESS PRESS-ST80= 5.400    PORT= 5.000
PRESS AFT OF PEERLESS-ST80= 3.200    PORT= 2.500
ENGINE PLENUM PRESS-ST80=     1.00     0.40    -0.40    -0.40
ENGINE PLENUM PRESS-PORT=     0.80     0.40    -0.80    -1.00
SCAV. PRESS=   999.000  HOT SECT. PRESS=   999.000  OIL COOLER PRESS.=   999.000
OUTSIDE AIR TEMP.=  82.000
STACK TEMP.=      164.000   155.000   153.000   151.000
FAN DISCHARGE TEMP.= 166.000
ENGINE PLENUM AIR TEMP.=  160.00  202.00


                            ENGINE PREFORMANCE
TEMP=  160.00   AOJ. HP=    0.6001E 03TEMP=  202.00   AOJ. HP=    0.5807E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.6559E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1792E 05  TAVG(3&4)= 181.000


                            STACK PERFORMANCE
AVG STACK TEMP=    155.75    TEMP RISE IN STACK      73.75
STACK PRESSURES  VEL= 1.275  STATIC=-1.917  TOTAL HEAD=-0.642
FLOW IN STACK-CFM=  0.3242E 05


                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HO.) =  8.04
FAN DISCHARGE PRESS. STATIC= 6.225  VEL. HEAD= 3.250  TOTAL HEAD= 9.475
FAN PRESS INCREASE=10.117  FAN FLOW CFM=  0.3955E 05  FAN HORSEPOWER=  0.6304E 02
STATIC PRESS COR.=     7.386  TOTAL PRESS. COR.=    10.636
AVG. OF STACK AND FAN FLOW-CFM=  0.3598E 05


                        APU AND OIL COOLER FLOWS
APU AIR FLOW, CFM =  0.1814E 04
OIL COOLER FLOW CFM=  0.8593E 04   VEL. FT/SEC=  0.7957E 02


                            SYSTEM PRESSURE DROPS
PRESS. AT DONALSON, ST8=  7.80   PORT=  7.27   AVG=  7.54
DONALDSON PRESS. DROP, ST8=  2.40   PORT=  2.27    AVG=  2.34
PEERLESS PRESS. DROP,  ST8=  2.20   PORT=  2.50    AVG =  2.35
PRESS DROP TO ENG.,  ST8=  3.05   PORT=  2.65    AVG=  2.85
AVERAGE PLENUM PRESS.  ST80=     0.150PORT=    -0.150AVG=    -0.000
SCAV. PRESS DROP=  -994.000
COOLER DUCT DROP=     1.500
DUCT TO HOT SECT. DROP=  -995.500
DUCT TO COOLER DROP=  -995.500
  STOP    999
END OF JOB.

     29.3 SEC. USED    .009 HRS. CHARGED    2.886 HRS. REMAINING
```

TEST No11 C1B0807

```
                                INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  40.000  40.000  40.000  40.000
 TOP      2.000    5.000    3.000    4.000
STACK VEL. HD.=     0.90     0.90     0.70     0.90     0.80     0.80     0.80     1.00     0.90
STACK STATIC HD.=  -0.30    -0.30    -0.30    -0.30    -0.40    -0.30    -0.20    -0.20    -0.30
FAN VEL. HD.=       5.000    5.100    0.500    0.300
FAN STATIC HEAD=        7.700    7.300    7.300    7.200
PRESS. AT INERTIAL FILTER-STBD      10.000   9.500  10.000   9.500
PRESS. AT INERTIAL FILTER-PORT=       9.500  10.000   9.500  10.000
COOLING AIR SPLY PRESS.,STBD = 3.200    PORT = 3.100
PEERLESS PRESS-STBD= 9.000    PORT= 9.000
PRESS AFT OF PEERLESS-STBD= 8.500    PORT= 8.500
PRESS AFT OF BARRIER-STBD= 8.500    PORT= 8.500
ENGINE PLENUM PRESS-STBD=     8.50     8.00     8.00     8.00
ENGINE PLENUM PRESS-PORT=     8.00     8.00     8.00     8.00
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   4.000  STATIC HD.=   3.800
OIL COOLER PRESS.-INLET =   1.800  OUTLET =   0.200
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  75.000
STACK TEMP.=        78.000    78.000    78.000    78.000
FAN DISCHARGE TEMP.=  87.000
ENGINE PLENUM AIR TEMP.=   87.00  124.00
AIR TEMP.VIC.NO.2.GEAR BOX = 130.000
COOLING AIR TEMP.-STBD.=  78.000  PORT=  86.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  52.0000EG.C  NO.4 =  55.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  60.0000EG.C

                            ENGINE PREFORMANCE
TEMP=   87.00   ADJ. HP=    0.4718E 02TEMP=  124.00   ADJ. HP=    0.4566E 02
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.4644E 02
ENGINE AIR(BOTH SIDES)-CFM=  0.1223E 05  TAVG(3&4)= 105.500

                            STACK PERFORMANCE
AVG STACK TEMP=     78.00    TEMP RISE IN STACK       3.00
STACK PRESSURES  VEL= 0.867  STATIC=-0.292  TOTAL HEAD= 0.575
FLOW IN STACK-CFM=  0.2511E 05

                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) =  8.90
FAN DISCHARGE PRESS. STATIC= 7.375  VEL. HEAD= 2.725  TOTAL HEAD=10.100
FAN PRESS INCREASE= 9.525  FAN FLOW CFM=  0.1650E 05  FAN HORSEPOWER=  0.2477E 02
STATIC PRESS COR.=     7.645  TOTAL PRESS. COR.=    10.370
AVG. OF STACK AND FAN FLOW-CFM=  0.2080E 05

              APU FLOW AND INERTIAL FILTER SCAVENGING FLOW
APU AIR FLOW, CFM =  0.1700E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1742E 04   VEL.-FT/SEC =  0.1358E 03

                            SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB=  9.75   PORT=  9.75   AVG=  9.75
INERTIAL FILTER PRESS. DROP, STB=  0.75   PORT=  0.75    AVG=  0.75
PEERLESS PRESS. DROP,  STB=  0.50   PORT=  0.50    AVG =  0.50
BARRIER FILTER PRESS.DROP =    0.0
PRESS DROP TO ENG.,  STB= 0.38   PORT=  0.50    AVG=  0.44
AVERAGE PLENUM PRESS.  STBD=     8.125PORT=     8.000AVG=     8.062
```

SCAV. PRESS DROP= 5.200
COOLER DUCT DROP= 3.150
DROP TO HOT SECT.= 1.800
PRESS. DROP ACROSS OIL COOLER = 1.600

TEST NO. 11 C2A0807

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  95.000  95.000  95.000  95.000
 TOP     20.000  20.000  20.000  20.000
STACK VEL. HD.=     0.90     0.90     0.70     0.90     0.80     0.80     0.80     1.00     0.90
STACK STATIC HD.=  -0.70    -0.80    -0.75    -0.75    -0.90    -0.70    -0.60    -0.80    -0.70
FAN VEL. HD.=       7.200    8.800    1.300    0.0
FAN STATIC HEAD=      10.750  10.000    8.900  10.000
PRESS. AT INERTIAL FILTER-STBD      14.000  12.000  13.500  12.500
PRESS. AT INERTIAL FILTER-PORT=      12.000  13.500  12.500  13.500
COOLING AIR SPLY PRESS..STBD =11.500     PORT =11.500
PEERLESS PRESS-STBD=11.000     PORT=11.000
PRESS AFT OF PEERLESS-STBD= 8.500     PORT= 8.500
PRESS AFT OF BARRIER-STBD= 8.000     PORT= 8.200
ENGINE PLENUM PRESS-STBD=     8.00     7.80     7.60     7.20
ENGINE PLENUM PRESS-PORT=     7.50     7.50     7.60     7.60
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   5.000  STATIC HD.=   4.500
OIL COOLER PRESS.-INLET =   7.300  OUTLET =   5.600
HOT SECT. PRESS.-INBRD.=   0.600  OUTBD.=   0.600
OUTSIDE AIR TEMP.=  75.000
STACK TEMP.=       78.000    78.000    78.000    78.000
FAN DISCHARGE TEMP.=  87.000
ENGINE PLENUM AIR TEMP.=   86.00   99.00
AIR TEMP.VIC.NO.2.GEAR BOX = 211.000
COOLING AIR TEMP.-STBD.= 104.000  PORT= 113.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  85.0000EG.C  NO.4 =  90.0000EG.C
LUBE OIL INPUT TEMP..COMB.GEAR,STB.=  90.0000EG.C
```

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ENGINE PREFORMANCE

```
TEMP=   86.00   ADJ. HP=    0.6409E 03TEMP=   99.00   ADJ. HP=    0.6334E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.6574E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1687E 05  TAVG(3641=  92.500
```

STACK PERFORMANCE

```
AVG STACK TEMP=      78.00     TEMP RISE IN STACK        3.00
STACK PRESSURES  VEL= 0.867  STATIC=-0.725  TOTAL HEAD= 0.142
FLOW IN STACK-CFM=  0.2511E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 12.33
FAN DISCHARGE PRESS. STATIC= 9.912  VEL. HEAD= 4.325  TOTAL HEAD=14.237
FAN PRESS INCREASE=14.096  FAN FLOW CFM=  0.1949E 05  FAN HORSEPOWER=  0.4329E 02
STATIC PRESS COR.=    10.276  TOTAL PRESS. COR.=    14.601
AVG. OF STACK AND FAN FLOW-CFM=  0.2230E 05
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

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APU AIR FLOW, CFM =  0.1630E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1948E 04   VEL.-FT/SEC =  0.1518E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 13.00   PORT= 12.87   AVG= 12.94
INERTIAL FILTER PRESS. DROP, STB=  2.00   PORT=  1.88    AVG=  1.94
PEERLESS PRESS. DROP,  STB=  2.50   PORT=  2.50    AVG =  2.50
BARRIER FILTER PRESS.DROP =    0.40
PRESS DROP TO ENG..  STB=  0.35   PORT=  0.65    AVG=  0.50
AVERAGE PLENUM PRESS.  STBD=     7.650PORT=     7.550AVG=     7.600
```

SCAV. PRESS DROP= 6.500
COOLER DUCT DROP= 11.500
DROP TO HOT SECT.= 7.300
PRESS. DROP ACROSS OIL COOLER = 1.700

TEST No11 C2B0807

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

N2= 94.000 94.000 93.000 93.000
TOP 36.000 36.000 36.000 38.000
STACK VEL. HD.= 1.10 1.30 1.10 1.10 1.10 1.50 1.40 1.00 0.50
STACK STATIC HD.= -1.50 -1.50 -1.30 -1.50 -1.30 -1.30 -1.40 -1.30 -1.50
FAN VEL. HD.= 7.500 7.200 2.500 0.0
FAN STATIC HEAD= 9.000 8.000 7.000 8.000
PRESS. AT INERTIAL FILTER-STBD 12.000 10.500 11.500 10.000
PRESS. AT INERTIAL FILTER-PORT= 9.600 12.000 10.500 11.000
COOLING AIR SPLY PRESS.,STBD =11.000 PORT =10.500
PEERLESS PRESS-STBD= 9.000 PORT= 9.000
PRESS AFT OF PEERLESS-STBD= 6.400 PORT= 6.000
PRESS AFT OF BARRIER-STBD= 5.500 PORT= 5.500
ENGINE PLENUM PRESS-STBD= 4.50 3.60 3.50 3.50
ENGINE PLENUM PRESS-PORT= 4.00 3.80 3.30 3.30
FILTER NO.1 SCAV. PRESS.-VEL.HD.= 4.000 STATIC HD.= 3.600
OIL COOLER PRESS.-INLET = 4.800 OUTLET = 0.200
HOT SECT. PRESS.-INBRD.= 0.0 OUTBD.= 0.0
OUTSIDE AIR TEMP.= 75.000
STACK TEMP.= 100.000 100.000 92.000 90.000
FAN DISCHARGE TEMP.= 102.000
ENGINE PLENUM AIR TEMP.= 106.00 115.00
AIR TEMP.VIC.NO.2.GEAR BOX = 123.000
COOLING AIR TEMP.-STBD.= 131.000 PORT= 121.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 100.000DEG.C NO.4 = 104.000DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.= 100.000DEG.C

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ENGINE PREFORMANCE

TEMP= 106.00 AOJ. HP= 0.1131E 04TEMP= 115.00 AOJ. HP= 0.1122E 04
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.1181E 04
ENGINE AIR(BOTH SIDES)-CFM= 0.1920E 05 TAVG(3&4)= 110.500

STACK PERFORMANCE

AVG STACK TEMP= 95.50 TEMP RISE IN STACK 20.50
STACK PRESSURES VEL= 1.117 STATIC=-1.425 TOTAL HEAD=-0.308
FLOW IN STACK-CFM= 0.2880E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56(OF VEL HD.) = 10.41
FAN DISCHARGE PRESS. STATIC= 8.000 VEL. HEAD= 4.300 TOTAL HEAD=12.300
FAN PRESS INCREASE=12.608 FAN FLOW CFM= 0.2043E 05 FAN HORSEPOWER= 0.4058E 02
STATIC PRESS COR.= 8.563 TOTAL PRESS. COR.= 12.863
AVG. OF STACK AND FAN FLOW-CFM= 0.2461E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1683E 04
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1766E 04 VEL.-FT/SEC = 0.1376E 03

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 11.00 PORT= 10.77 AVG= 10.89
INERTIAL FILTER PRESS. DROP, STB= 2.00 PORT= 1.77 AVG= 1.89
PEERLESS PRESS. DROP, STB= 2.60 PORT= 3.00 AVG = 2.80
BARRIER FILTER PRESS.DROP = 0.70
PRESS DROP TO ENG., STB= 1.73 PORT= 1.90 AVG= 1.81
AVERAGE PLENUM PRESS. STBD= 3.775PORT= 3.600AVG= 3.687

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SCAV. PRESS DROP= 5.400
COOLER DUCT DROP= 10.750
DROP TO HOT SECT.= 4.800
PRESS. DROP ACROSS OIL COOLER = 4.600

TEST No 11 C2C0807

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

N2= 94.000 94.000 91.000 92.000
TOP 38.000 39.000 39.000 41.000
STACK VEL. HD.= 1.10 1.50 1.00 1.10 1.00 1.00 0.90 0.80 0.60
STACK STATIC HD.= -1.50 -1.50 -1.50 -1.50 -1.30 -1.30 -1.30 -1.30 -1.50
FAN VEL. HD.= 7.200 7.500 2.600 0.0
FAN STATIC HEAD= 8.100 8.000 7.000 8.200
PRESS. AT INERTIAL FILTER-STBD 12.000 10.000 11.500 10.500
PRESS. AT INERTIAL FILTER-PORT= 12.000 10.500 10.000 11.500
COOLING AIR SPLY PRESS.,STBD =10.500 PORT =10.500
PEERLESS PRESS-STBD= 9.000 PORT= 8.600
PRESS AFT OF PEERLESS-STBD= 5.400 PORT= 5.000
PRESS AFT OF BARRIER-STBD= 5.000 PORT= 5.000
ENGINE PLENUM PRESS-STBD= 5.20 4.00 3.50 3.50
ENGINE PLENUM PRESS-PORT= 5.00 4.00 3.50 3.50
FILTER NO.1 SCAV. PRESS.-VEL.HD.= 4.200 STATIC HD.= 3.500
OIL COOLER PRESS.-INLET = 3.800 OUTLET = 5.000
HOT SECT. PRESS.-INBRD.= 0.100 OUTBD.= 0.100
OUTSIDE AIR TEMP.= 75.000
STACK TEMP.= 90.000 93.000 92.000 90.000
FAN DISCHARGE TEMP.= 99.000
ENGINE PLENUM AIR TEMP.= 102.00 106.00
AIR TEMP.VIC.NO.2.GEAR BOX = 125.000
COOLING AIR TEMP.-STBD.= 132.000 PORT= 118.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 100.0000EG.C NO.4 = 103.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.= 100.0000EG.C

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ENGINE PREFORMANCE

TEMP= 102.00 ADJ. HP= 0.1210E 04 TEMP= 106.00 ADJ. HP= 0.1206E 04
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.1259E 04.
ENGINE AIR(BOTH SIDES)-CFM= 0.1941E 05 TAVG(3&4)= 104.000

STACK PERFORMANCE

AVG STACK TEMP= 91.25 TEMP RISE IN STACK 16.25
STACK PRESSURES VEL= 1.025 STATIC=-1.433 TOTAL HEAD=-0.408
FLOW IN STACK-CFM= 0.2752E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 10.25
FAN DISCHARGE PRESS. STATIC= 7.825 VEL. HEAD= 4.325 TOTAL HEAD=12.150
FAN PRESS INCREASE=12.558 FAN FLOW CFM= 0.2044E 05 FAN HORSEPOWER= 0.4045E 02
STATIC PRESS COR.= 8.312 TOTAL PRESS. COR.= 12.637
AVG. OF STACK AND FAN FLOW-CFM= 0.2398E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1674E 04
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.1804E 04 VEL.-FT/SEC = 0.1407E 03

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 11.00 PORT= 11.00 AVG= 11.00
INERTIAL FILTER PRESS. DROP, STB= 2.00 PORT= 2.40 AVG= 2.20
PEERLESS PRESS. DROP, STB= 3.60 PORT= 3.60 AVG = 3.60
BARRIER FILTER PRESS.DROP = 0.20
PRESS DROP TO ENG., STB= 0.95 PORT= 1.00 AVG= 0.98
AVERAGE PLENUM PRESS. STBD= 4.050PORT= 4.000AVG= 4.025

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SCAV. PRESS DROP= 5.300
COOLER DUCT DROP= 10.500
DROP TO HOT SECT.= 3.800
PRESS. DROP ACROSS OIL COOLER = -1.200

TEST NO. 12 C1B0807

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                              INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  43.000  43.000  41.000  42.000
 TOP      2.000    4.000    4.000    4.000
STACK VEL. HO.=     0.30     0.30     0.25     0.25     0.30     0.45     0.30     0.40     0.30
STACK STATIC HO.=   -0.30    -0.30    -0.30    -0.30    -0.40    -0.30    -0.30    -0.25    -0.30
FAN VEL. HO.=        4.200    5.400    0.200    0.200
FAN STATIC HEAD=       7.500    6.500    7.100    7.000
PRESS. AT INERTIAL FILTER-STBD      10.000    9.500   10.000    9.500
PRESS. AT INERTIAL FILTER-PORT=       9.200   10.000    9.500    9.500
COOLING AIR SPLY PRESS.,STBD = 3.400     PORT = 3.300
PEERLESS PRESS-STBD= 9.000     PORT= 9.000
PRESS AFT OF PEERLESS-STBD= 8.500     PORT= 8.500
PRESS AFT OF BARRIER-STBD= 8.500     PORT= 8.300
ENGINE PLENUM PRESS-STBD=     8.00     8.00     7.80     8.00
ENGINE PLENUM PRESS-PORT=     8.00     7.50     7.50     7.50
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   3.800  STATIC HD.=    3.700
OIL COOLER PRESS.-INLET =    1.900  OUTLET =    0.100
HOT SECT. PRESS.-INBRD.=    0.0     OUTBD.=    0.0
OUTSIDE AIR TEMP.=  81.000
STACK TEMP.=        82.000     82.000     88.000     86.000
FAN DISCHARGE TEMP.=  92.000
ENGINE PLENUM AIR TEMP.=    92.00  132.00
AIR TEMP.VIC.NO.2.GEAR BOX =  96.000
COOLING AIR TEMP.-STBD.=  92.000  PORT= 102.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  57.0000EG.C  NO.4 =  58.000DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  65.000DEG.C

                              ENGINE PREFORMANCE
TEMP=    92.00   ADJ. HP=     0.4949E 02TEMP=  132.00   ADJ. HP=     0.4778E 02
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.5103E 02
ENGINE AIR(BOTH SIDES)-CFM=  0.1233E 05  TAVG(3&4)= 112.000

                              STACK PERFORMANCE
AVG STACK TEMP=      84.50     TEMP RISE IN STACK        3.50
STACK PRESSURES  VEL= 0.312  STATIC=-0.304  TOTAL HEAD= 0.008
FLOW IN STACK-CFM=  0.1513E 05

                              FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(% OF VEL HD.) =  8.42
FAN DISCHARGE PRESS. STATIC= 7.025  VEL. HEAD= 2.500  TOTAL HEAD= 9.525
FAN PRESS INCREASE= 9.517  FAN FLOW CFM=  0.1521E 05  FAN HORSEPOWER=  0.2281E 02
STATIC PRESS COR.=     7.370  TOTAL PRESS. COR.=     9.870
AVG. OF STACK AND FAN FLOW-CFM=  0.1517E 05

                  APU FLOW AND INERTIAL FILTER SCAVENGING FLOW
APU AIR FLOW, CFM =  0.1726E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1706E 04   VEL.-FT/SEC =  0.1330E 03

                              SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB=  9.75   PORT=  9.55   AVG=  9.65
INERTIAL FILTER PRESS. DROP, STB=  0.75   PORT=  0.55    AVG=  0.65
PEERLESS PRESS. DROP,  STB=  0.50   PORT=  0.50    AVG =  0.50
BARRIER FILTER PRESS.DROP =    0.10
PRESS DROP TO ENG.,  STB=  0.55   PORT=  0.67    AVG=  0.61
AVERAGE PLENUM PRESS.  STBD=     7.950PORT=     7.625AVG=     7.787
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SCAV. PRESS DROP= 5.300
COOLER DUCT DROP= 3.350
DROP. TO HOT SECT.= 14900
PRESS. DROP ACROSS OIL COOLER = 1.800

TEST No 12 C2A 0807

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

N2= 95.000 95.000 95.000 95.000
TOP 20.000 22.000 18.000 21.000
STACK VEL. HO.= 0.80 0.80 0.65 0.80 0.80 0.55 0.65 0.60 0.60
STACK STATIC HO.= -0.80 -0.95 -0.85 -0.80 -0.90 -0.75 -0.75 -0.90 -0.75
FAN VEL. HO.= 7.600 8.200 1.100 7.600
FAN STATIC HEAO= 11.000 10.250 8.750 10.000
PRESS. AT INERTIAL FILTER-ST80 14.000 12.500 14.000 12.500
PRESS. AT INERTIAL FILTER-PORT= 12.000 14.000 12.500 13.500
COOLING AIR SPLY PRESS.,ST80 =11.000 PORT =11.000
PEERLESS PRESS-ST80=11.500 PORT=11.500
PRESS AFT OF PEERLESS-ST80= 9.000 PORT= 9.000
PRESS AFT OF BARRIER-ST80= 8.000 PORT= 7.600
ENGINE PLENUM PRESS-ST80= 7.20 6.80 6.80 6.20
ENGINE PLENUM PRESS-PORT= 6.60 6.50 6.00 6.00
FILTER NO.1 SCAV. PRESS.-VEL.HO.= 5.800 STATIC HO.= 4.700
OIL COOLER PRESS.-INLET = 5.500 OUTLET = 0.600
HOT SECT. PRESS.-INBRO.= 0.0 OUT8O.= 0.0
OUTSIOE AIR TEMP.= 81.000
STACK TEMP.= 80.000 80.000 81.000 80.000
FAN DISCHARGE TEMP.= 88.000
ENGINE PLENUM AIR TEMP.= 88.00 96.00
AIR TEMP.VIC.NO.2.GEAR BOX = 230.000
COOLING AIR TEMP.-ST80.= 113.000 PORT= 130.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 87.0000EG.C NO.4 = 90.000DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,ST8.= 90.0000EG.C

ENGINE PREFORMANCE

TEMP= 88.00 ADJ. HP= 0.6478E 03TEMP= 96.00 ADJ. HP= 0.6431E 03
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.6656E 03
ENGINE AIRI BOTH SIDES)-CFM= 0.1690E 05 TAVGI3&4)= 92.000

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STACK PERFORMANCE

AVG STACK TEMP= 80.25 TEMP RISE IN STACK -0.75
STACK PRESSURES VEL= 0.721 STATIC=-0.821 TOTAL HEAO=-0.100
FLOW IN STACK-CFM= 0.2291E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH OIFFUSERI56I OF VEL HO.) = 13.43
FAN OISCHARGE PRESS. STATIC=10.000 VEL. HEAD= 6.125 TOTAL HEAO=16.125
FAN PRESS INCREASE=16.225 FAN FLOW CFM= 0.2711E 05 FAN HORSEPOWER= 0.6932E 02
STATIC PRESS COR.= 10.410 TOTAL PRESS. COR.= 16.535
AVG. OF STACK ANO FAN FLOW-CFM= 0.2501E 05

APU FLOW ANO INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1576E 04
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2099E 04 VEL.-FT/SEC = 0.1637E 03

SYSTEM PRESSURE OROPS

PRESS. AT INERTIAL FILTER, ST8= 13.25 PORT= 13.00 AVG= 13.12
INERTIAL FILTER PRESS. OROP, ST8= 1.75 PORT= 1.50 AVG= 1.62
PEERLESS PRESS. OROP, ST8= 2.50 PORT= 2.50 AVG = 2.50
BARRIER FILTER PRESS.OROP = 1.20
PRESS OROP TO ENG., ST8= 1.25 PORT= 1.33 AVG= 1.29
AVERAGE PLENUM PRESS. ST80= 6.750PORT= 6.275AVG= 6.512

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SCAV. PRESS DROP= 6.800
COOLER DUCT DROP= 11.000
DROP TO HOT SECT.= 5.500
PRESS. DROP ACROSS OIL COOLER = 4.900

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TEST No 13 C2B0809

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  94.000  94.000  92.500  93.500
 TOP    35.000  36.000  35.000  37.000
STACK VEL. HD.=     1.00    1.10    1.00    0.90    0.90    1.10    1.00    1.00    0.75
STACK STATIC HD.=  -1.20   -1.30   -1.10   -1.30   -1.40   -1.10   -1.05   -1.10   -1.20
FAN VEL. HD.=       7.800   8.200   1.500   8.000
FAN STATIC HEAD=     10.000   9.300   8.200   9.200
PRESS. AT INERTIAL FILTER-STBD      13.000  11.500  13.000  11.500
PRESS. AT INERTIAL FILTER-PORT=      10.500  13.000  11.500  12.500
COOLING AIR SPLY PRESS.,STBD =11.000     PORT =11.000
PEERLESS PRESS-STBD=10.000     PORT=10.000
PRESS AFT OF PEERLESS-STBD= 7.800     PORT= 7.800
PRESS AFT OF BARRIER-STBD= 7.500     PORT= 7.500
ENGINE PLENUM PRESS-STBD=     5.00    4.20    4.00    3.80
ENGINE PLENUM PRESS-PORT=     5.00    4.00    4.00    4.00
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   7.200  STATIC HD.=   1.100
OIL COOLER PRESS.-INLET =   4.500  OUTLET =   4.800
HOT SECT. PRESS.-INBRD.=   0.500  OUTBD.=   0.100
OUTSIDE AIR TEMP.=  69.000
STACK TEMP.=       74.000    75.000    71.000    71.000
FAN DISCHARGE TEMP.=  81.000
ENGINE PLENUM AIR TEMP.=   84.00   85.00
AIR TEMP.VIC.NO.2.GEAR BOX =  82.000
COOLING AIR TEMP.-STBD.=  93.000  PORT=  87.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  83.0000DEG.C  NO.4 =  84.0000DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  83.0000DEG.C
```

A-30

ENGINE PREFORMANCE

```
TEMP=   84.00   AOJ. HP=    0.1130E 04TEMP=   85.00   AOJ. HP=    0.1129E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1157E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1876E 05  TAVG(364)=  84.500
```

STACK PERFORMANCE

```
AVG STACK TEMP=      72.75     TEMP RISE IN STACK        3.75
STACK PRESSURES  VEL= 0.979  STATIC=-1.196  TOTAL HEAD=-0.217
FLOW IN STACK-CFM=  0.2655E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 12.74
FAN DISCHARGE PRESS. STATIC= 9.175  VEL. HEAD= 6.375  TOTAL HEAD=15.550
FAN PRESS INCREASE=15.767  FAN FLOW CFM=  0.2773E 05  FAN HORSEPOWER=  0.6890E 02
STATIC PRESS COR.=     9.418  TOTAL PRESS. COR.=    15.793
AVG. OF STACK AND FAN FLOW-CFM=  0.2714E 05
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

```
APU AIR FLOW, CFM =  0.1557E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.2324E 04   VEL.-FT/SEC =  0.1812E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 12.25   PORT= 11.87   AVG= 12.06
INERTIAL FILTER PRESS. DROP, STB=  2.25   PORT=  1.88    AVG=  2.06
PEERLESS PRESS. DROP,  STB=  2.20   PORT=  2.20    AVG =  2.20
BARRIER FILTER PRESS.DROP =    0.30
PRESS DROP TO ENG.,  STB=  3.25   PORT=  3.25    AVG=  3.25
AVERAGE PLENUM PRESS.  STBD=     4.250PORT=     4.250AVG=     4.250
```

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SCAV. PRESS DROP= 8.900
COOLER DUCT DROP= 11.000
DROP TO HOT SECT.= 4.500
PRESS. DROP ACROSS OIL COOLER = -0.300

TEST No. 13 C2C0809

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

N2= 92.500 92.500 92.000 93.000
TOP 43.000 43.000 42.000 44.000
STACK VEL. HD.= 1.20 1.30 1.00 0.90 0.90 1.10 1.00 1.10 0.80
STACK STATIC HD.= -1.80 -2.00 -1.50 -1.60 -1.80 -1.40 -1.50 -1.50 -1.50
FAN VEL. HD.= 7.800 10.000 2.000 8.000
FAN STATIC HEAD= 9.000 7.000 6.500 7.900
PRESS. AT INERTIAL FILTER-STBD 12.000 10.500 12.000 10.500
PRESS. AT INERTIAL FILTER-PORT= 10.000 12.000 10.500 12.000
COOLING AIR SPLY PRESS.,STBD =10.500 PORT =10.500
PEERLESS PRESS-STBD= 9.500 PORT= 9.000
PRESS AFT OF PEERLESS-STBD= 6.300 PORT= 6.300
PRESS AFT OF BARRIER-STBD= 6.000 PORT= 6.000
ENGINE PLENUM PRESS-STBD= 3.50 2.50 2.40 2.00
ENGINE PLENUM PRESS-PORT= 3.50 2.50 2.40 2.40
FILTER NO.1 SCAV. PRESS.-VEL.HD.= 7.000 STATIC HD.= 1.000
OIL COOLER PRESS.-INLET = 4.500 OUTLET = 0.0
HOT SECT. PRESS.-INBRD.= 0.100 OUTBD.= 0.100
OUTSIDE AIR TEMP.= 69.000
STACK TEMP.= 71.000 74.000 74.000 73.000
FAN DISCHARGE TEMP.= 81.000
ENGINE PLENUM AIR TEMP.= 83.00 86.00
AIR TEMP.VIC.NO.2.GEAR BOX = 81.000
COOLING AIR TEMP.-STBD.= 93.000 PORT= 89.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 85.0000EG.C NO.4 = 87.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.= 85.0000EG.C

ENGINE PREFORMANCE

TEMP= 83.00 ADJ. HP= 0.1346E 04 TEMP= 86.00 ADJ. HP= 0.1342E 04
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.1376E 04
ENGINE AIR(BOTH SIDES)-CFM= 0.1961E 05 TAVG(3&4)= 84.500

STACK PERFORMANCE

AVG STACK TEMP= 73.00 TEMP RISE IN STACK 4.00
STACK PRESSURES VEL= 1.075 STATIC=-1.667 TOTAL HEAD=-0.592
FLOW IN STACK-CFM= 0.2789E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56(OF VEL HD.) = 11.49
FAN DISCHARGE PRESS. STATIC= 7.600 VEL. HEAD= 6.950 TOTAL HEAD=14.550
FAN PRESS INCREASE=15.142 FAN FLOW CFM= 0.2914E 05 FAN HORSEPOWER= 0.6952E 02
STATIC PRESS COR.= 7.805 TOTAL PRESS. COR.= 14.755
AVG. OF STACK AND FAN FLOW-CFM= 0.2846E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1556E 04
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2292E 04 VEL.-FT/SEC = 0.1786E 03

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 11.25 PORT= 11.12 AVG= 11.19
INERTIAL FILTER PRESS. DROP, STB= 1.75 PORT= 2.12 AVG= 1.94
PEERLESS PRESS. DROP, STB= 3.20 PORT= 2.70 AVG = 2.95
BARRIER FILTER PRESS.DROP = 0.30
PRESS DROP TO ENG., STB= 3.40 PORT= 3.30 AVG= 3.35
AVERAGE PLENUM PRESS. STBD= 2.600PORT= 2.700AVG= 2.650

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SCAV. PRESS DROP= 8.250
COOLER DUCT DROP= 10.500
DROP TO HOT SECT.= 4.500
PRESS. DROP ACROSS OIL COOLER = 4.500

TEST No.14 C3B0809

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

N2= 94.000 93.500 93.500 93.200
TOP 34.000 35.000 34.000 36.000
STACK VEL. HD.= 0.80 0.80 0.90 0.60 0.80 1.00 0.90 0.75 0.75
STACK STATIC HD.= -0.20 -0.40 -0.20 -0.20 -0.40 -0.40 -0.10 -0.20 -0.10
FAN VEL. HD.= 0.900 8.000 2.600 8.000
FAN STATIC HEAD= 11.000 9.700 9.000 10.000
PRESS. AT INERTIAL FILTER-STBD 14.000 12.000 13.000 12.500
PRESS. AT INERTIAL FILTER-PORT= 11.000 14.000 12.000 13.500
COOLING AIR SPLY PRESS..STBD =11.500 PORT =11.500
PEERLESS PRESS-STBD=11.000 PORT=11.000
PRESS AFT OF PEERLESS-STBD= 5.000 PORT= 8.000
PRESS AFT OF BARRIER-STBD= 6.200 PORT= 6.200
ENGINE PLENUM PRESS-STBD= 5.20 4.80 4.60 4.60
ENGINE PLENUM PRESS-PORT= 5.20 4.80 4.20 4.20
FILTER NO.1 SCAV. PRESS.-VEL.HD.= 8.000 STATIC HD.= 1.200
OIL COOLER PRESS.-INLET = 6.000 OUTLET = 0.900
HOT SECT. PRESS.-INBRD.= 0.0 OUTBD.= 0.0
OUTSIDE AIR TEMP.= 73.000
STACK TEMP.= 68.000 69.000 68.000 71.000
FAN DISCHARGE TEMP.= 74.000
ENGINE PLENUM AIR TEMP.= 78.00 80.00
AIR TEMP.VIC.NO.2.GEAR BOX = 240.000
COOLING AIR TEMP.-STBD.= 78.000 PORT= 91.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 83.0000EG.C NO.4 = 85.0000EG.C
LUBE OIL INPUT TEMP..COMB.GEAR,STB.= 85.0000EG.C

ENGINE PREFORMANCE
TEMP= 78.00 ADJ. HP= 0.1105E 04TEMP= 80.00 ADJ. HP= 0.1103E 04
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.1125E 04
ENGINE AIR(BOTH SIDES)-CFM= 0.1857E 05 TAVG(364)= 79.000

STACK PERFORMANCE
AVG STACK TEMP= 69.00 TEMP RISE IN STACK -4.00
STACK PRESSURES VEL= 0.800 STATIC=-0.233 TOTAL HEAD= 0.567
FLOW IN STACK-CFM= 0.2390E 05

FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56) OF VEL HD.) = 12.65
FAN DISCHARGE PRESS. STATIC= 9.925 VEL. HEAD= 4.875 TOTAL HEAD=14.800
FAN PRESS INCREASE=14.233 FAN FLOW CFM= 0.2339E 05 FAN HORSEPOWER= 0.5246E 02
STATIC PRESS COR.= 10.116 TOTAL PRESS. COR.= 14.991
AVG. OF STACK AND FAN FLOW-CFM= 0.2365E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW
APU AIR FLOW, CFM = 0.1569E 04
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.2434E 04 VEL.-FT/SEC = 0.1897E 03

SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 12.87 PORT= 12.62 AVG= 12.75
INERTIAL FILTER PRESS. DROP, STB= 1.88 PORT= 1.62 AVG= 1.75
PEERLESS PRESS. DROP, STB= 3.00 PORT= 3.00 AVG = 3.00
BARRIER FILTER PRESS.DROP = 1.80
PRESS DROP TO ENG., STB= 1.40 PORT= 1.60 AVG= 1.50
AVERAGE PLENUM PRESS. STBD= 4.800PORT= 4.600AVG= 4.700

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SCAV. PRESS DROP= 9.800
COOLER DUCT DROP= 11.500
DROP TO HOT SECT.= 6.000
PRESS. DROP ACROSS OIL COOLER = 5.100

TEST NO. 14 C3B0809

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  92.500  92.500  92.000  93.000
 TOP    44.000  45.000  45.000  46.000
STACK VEL. HD.=     1.30     0.90     0.50     1.10     1.40     1.20     1.20     1.40     1.20
STACK STATIC HD.=    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
FAN VEL. HD.=       8.200    8.200    3.800    8.000
FAN STATIC HEAD=    10.000   9.500    8.400    9.400
PRESS. AT INERTIAL FILTER-STBD      13.500  12.000  13.000  12.000
PRESS. AT INERTIAL FILTER-PORT=     10.500  13.500  11.500  13.000
COOLING AIR SPLY PRESS.,STBD =12.000     PORT =11.500
PEERLESS PRESS-STBD=10.000    PORT=10.000
PRESS AFT OF PEERLESS-STBD= 7.600    PORT= 7.400
PRESS AFT OF BARRIER-STBD= 7.200    PORT= 7.200
ENGINE PLENUM PRESS-STBD=    4.80     3.20     3.00     3.00
ENGINE PLENUM PRESS-PORT=    4.20     3.00     3.00     3.00
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   8.200  STATIC HD.=   0.800
OIL COOLER PRESS.-INLET =   6.000  OUTLET =   0.800
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  73.000
STACK TEMP.=       68.000    68.000    66.000    69.000
FAN DISCHARGE TEMP.=  75.000
ENGINE PLENUM AIR TEMP.=   75.00   79.00
AIR TEMP.VIC.NO.2.GEAR BOX = 195.000
COOLING AIR TEMP.-STBD.=  93.000  PORT=  89.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  85.0000EG.C  NO.4 =  87.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  87.0000EG.C
```

ENGINE PREFORMANCE

```
TEMP=   75.00   ADJ. HP=    0.1419E 04TEMP=   79.00   ADJ. HP=    0.1413E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1440E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1976E 05  TAVG(3&4)=  77.000
```

STACK PERFORMANCE

```
AVG STACK TEMP=      67.75     TEMP RISE IN STACK      -5.25
STACK PRESSURES  VEL= 1.175  STATIC= 0.0    TOTAL HEAD= 1.175
FLOW IN STACK-CFM=  0.2878E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 13.27
FAN DISCHARGE PRESS. STATIC= 9.325  VEL. HEAD= 7.050  TOTAL HEAD=16.375
FAN PRESS INCREASE=15.200  FAN FLOW CFM=  0.2986E 05  FAN HORSEPOWER=  0.7153E 02
STATIC PRESS COR.=     9.482  TOTAL PRESS. COR.=    16.532
AVG. OF STACK AND FAN FLOW-CFM=  0.2932E 05
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

```
APU AIR FLOW, CFM =  0.1535E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.2466E 04   VEL.-FT/SEC =  0.1923E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 12.62   PORT= 12.12   AVG= 12.37
INERTIAL FILTER PRESS. DROP, STB=  2.62   PORT=  2.12    AVG=  2.37
PEERLESS PRESS. DROP,  STB=  2.40   PORT=  2.60    AVG =  2.50
BARRIER FILTER PRESS.DROP =    0.30
PRESS DROP TO ENG.,  STB=  3.70   PORT=  3.90    AVG=  3.80
AVERAGE PLENUM PRESS.  STBD=     3.500PORT=     3.300AVG=     3.400
```

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SCAV. PRESS DROP= 9.200
COOLER DUCT DROP= 11.750
DROP TO HOT SECT.= 64.000
PRESS. DROP ACROSS OIL COOLER = 5.200

TEST No. 15-1 AC2B0810

```
                                INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  93.000  93.000  93.000  93.500
 TOP    35.000  37.000  35.000  38.000
STACK VEL. HD.=     0.50     0.60     0.50     0.40     0.25     0.40     0.40     0.50     0.50
STACK STATIC HD.=  -0.70    -0.80    -0.60    -0.80    -0.80    -0.60    -0.50    -0.90    -0.70
FAN VEL. HD.=       7.000    7.400    0.600    2.500
FAN STATIC HEAD=     10.000    9.800    9.000    9.100
PRESS. AT INERTIAL FILTER-STBD      13.000  12.000  12.500  12.000
PRESS. AT INERTIAL FILTER-PORT=      10.500  12.500  12.000  12.500
COOLING AIR SPLY PRESS.,STBD =11.500     PORT =11.000
PEERLESS PRESS-STBD=10.500     PORT=10.500
PRESS AFT OF PEERLESS-STBD= 8.500     PORT= 8.000
PRESS AFT OF BARRIER-STBD= 6.000     PORT= 6.000
ENGINE PLENUM PRESS-STBD=     6.00     5.00     4.80     5.00
ENGINE PLENUM PRESS-PORT=     4.50     4.80     4.20     4.20
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   0.0    STATIC HD.=   0.200
OIL COOLER PRESS.-INLET =    5.400  OUTLET =   0.200
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  80.000
STACK TEMP.=        70.000     70.000     70.000     73.000
FAN DISCHARGE TEMP.=  81.000
ENGINE PLENUM AIR TEMP.=    84.00    87.00
AIR TEMP.VIC.NO.2.GEAR BOX =  75.000
COOLING AIR TEMP.-STBD.=  86.000  PORT=  88.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  80.0000EG.C  NO.4 =  82.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  80.0000EG.C
C
                                ENGINE PREFORMANCE
C  TEMP=   84.00   AOJ. HP=     0.1141E 04TEMP=   87.00   AOJ. HP=     0.1138E 04
C  AVERAVGE HORSEPOWER--BOTH ENGINES--   0.1168E 04
   ENGINE AIR(BOTH SIDES)-CFM=  0.1882E 05  TAVG(3&4)=  85.500
C
                                STACK PERFORMANCE
C  AVG STACK TEMP=      70.75     TEMP RISE IN STACK       -9.25
   STACK PRESSURES  VEL= 0.562  STATIC=-0.708  TOTAL HEAD=-0.246
   FLOW IN STACK-CFM=  0.1815E 05
C
                                FAN PERFORMANCE
C  PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 11.92
   FAN DISCHARGE PRESS. STATIC= 9.475  VEL. HEAD= 4.375  TOTAL HEAD=13.850
C  FAN PRESS INCREASE=14.096  FAN FLOW CFM=  0.2201E 05  FAN HORSEPOWER=  0.4890E 02
   STATIC PRESS COR.=     9.690  TOTAL PRESS. COR.=    14.065
   AVG. OF STACK AND FAN FLOW-CFM=  0.2008E 05
C
                    APU FLOW AND INERTIAL FILTER SCAVENGING FLOW
   APU AIR FLOW, CFM =  0.1598E 04
C  INERTIAL FILTER SCAVENGING FLOW-CFM =  0.0          VEL.-FT/SEC =  0.0
C
                                SYSTEM PRESSURE DROPS
   PRESS. AT INERTIAL FILTER, STB= 12.37   PORT= 11.87   AVG= 12.12
   INERTIAL FILTER PRESS. DROP, STB=  1.88   PORT=  1.37    AVG=  1.62
C  PEERLESS PRESS. DROP,  STB=  2.00   PORT=  2.50    AVG =  2.25
   BARRIER FILTER PRESS.DROP =    2.25
   PRESS DROP TO ENG.,  STB=  0.80   PORT=  1.58    AVG=  1.19
C  AVERAGE PLENUM PRESS.  STBD=     5.200PORT=     4.425AVG=     4.812
```

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SCAV. PRESS DROP= 9.800
COOLER DUCT DROP= 11.250
DROP TO HOT SECT.= 5.400
PRESS. DROP ACROSS OIL COOLER = 5.200

TEST No 15-1 AC2C0810

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  93.000  93.000  91.500  92.500
 TOP    42.000  43.000  42.000  46.000
STACK VEL. HD.=     0.65    0.70    0.65    0.30    0.20    0.30    0.50    0.50    0.70
STACK STATIC HD.=   -0.95   -1.00   -0.90   -0.95   -0.90   -0.90   -0.55   -1.00   -0.80
FAN VEL. HD.=       8.800   8.500   1.000   7.300
FAN STATIC HEAD=    11.200  11.000   9.500   9.900
PRESS. AT INERTIAL FILTER-STBD     13.500  13.000  14.000  13.500
PRESS. AT INERTIAL FILTER-PORT=    12.000  14.000  13.000  13.500
COOLING AIR SPLY PRESS.,STBD =11.500    PORT =11.000
PEERLESS PRESS-STBD=11.500    PORT=11.500
PRESS AFT OF PEERLESS-STBD= 9.000    PORT= 0.0
PRESS AFT OF BARRIER-STBD= 6.200    PORT= 6.200
ENGINE PLENUM PRESS-STBD=    5.20    5.00    4.80    4.80
ENGINE PLENUM PRESS-PORT=    5.00    5.00    4.40    4.40
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   0.500  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   5.200  OUTLET =   0.200
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  80.000
STACK TEMP.=      71.000    71.000    70.000    72.000
FAN DISCHARGE TEMP.=  81.000
ENGINE PLENUM AIR TEMP.=   83.00   85.00
AIR TEMP.VIC.NO.2 GEAR BOX =  78.000
COOLING AIR TEMP.-STBD.=  90.000  PORT=  90.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  83.0000EG.C  NO.4 =  85.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  83.0000EG.C
```

ENGINE PREFORMANCE

```
TEMP=   83.00   ADJ. HP=    0.1353E 04TEMP=   85.00   ADJ. HP=    0.1351E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1384E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1964E 05  TAVG(364)=  84.000
```

STACK PERFORMANCE

```
AVG STACK TEMP=     71.00    TEMP RISE IN STACK      -9.00
STACK PRESSURES  VEL= 0.537  STATIC=-0.900  TOTAL HEAD=-0.362
FLOW IN STACK-CFM=  0.1936E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 13.98
FAN DISCHARGE PRESS. STATIC=10.400  VEL. HEAD= 6.400  TOTAL HEAD=16.800
FAN PRESS INCREASE=17.162  FAN FLOW CFM=  0.2733E 05  FAN HORSEPOWER=  0.7391E 02
STATIC PRESS COR.=    10.641  TOTAL PRESS. COR.=    17.041
AVG. OF STACK AND FAN FLOW-CFM=  0.2334E 05
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

```
APU AIR FLOW, CFM =  0.1549E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.6125E 03   VEL.-FT/SEC =  0.4774E 02
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 13.50   PORT= 13.12   AVG= 13.31
INERTIAL FILTER PRESS. DROP, STB=  2.00   PORT=  1.62    AVG=  1.81
PEERLESS PRESS. DROP,  STB=  2.50   PORT= 11.50    AVG =  7.00
BARRIER FILTER PRESS.DROP =   -1.70
PRESS DROP TO ENG.,  STB=  1.25   PORT=  1.50    AVG=  1.38
AVERAGE PLENUM PRESS.  STBD=     4.950PORT=     4.700AVG=     4.825
```

58

SCAV. PRESS DROP= 11.500
COOLER DUCT DROP= 11.250
DROP TO HOT SECT.= 5.200
PRESS. DROP ACROSS OIL COOLER = 5.000

59

TEST NO 15-2 BC2B0810

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

N2= 92.500 92.500 92.000 92.500
TOP 35.000 36.000 35.000 37.000
STACK VEL. HD.= 0.70 0.75 0.65 0.60 0.50 0.40 0.50 0.35 0.55
STACK STATIC HD.= -1.10 -1.00 -0.90 -1.10 -0.90 -1.00 -0.20 -1.00 -0.80
FAN VEL. HD.= 8.000 8.200 1.400 3.500
FAN STATIC HEAD= 11.000 11.000 9.500 10.000
PRESS. AT INERTIAL FILTER-STBD 14.000 13.000 14.000 13.000
PRESS. AT INERTIAL FILTER-PORT= 12.000 14.000 13.000 13.500
COOLING AIR SPLY PRESS.,STBD =11.000 PORT =10.000
PEERLESS PRESS-STBD=11.500 PORT=11.000
PRESS AFT OF PEERLESS-STBD= 9.000 PORT= 0.0
PRESS AFT OF BARRIER-STBD= 6.800 PORT= 6.000
ENGINE PLENUM PRESS-STBD= 5.80 5.50 5.40 5.50
ENGINE PLENUM PRESS-PORT= 5.50 5.50 5.00 5.00
FILTER NO.1 SCAV. PRESS.-VEL.HD.= 0.300 STATIC HD.= 0.0
OIL COOLER PRESS.-INLET = 5.500 OUTLET = 0.0
HOT SECT. PRESS.-INBRD.= 0.0 OUTBD.= 0.0
OUTSIDE AIR TEMP.= 80.000
STACK TEMP.= 90.000 80.000 78.000 84.000
FAN DISCHARGE TEMP.= 83.000
ENGINE PLENUM AIR TEMP.= 97.00 96.00
AIR TEMP.VIC.NO.2.GEAR BOX = 83.000
COOLING AIR TEMP.-STBD.= 97.000 PORT= 95.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 = 85.0000EG.C NO.4 = 88.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.= 85.000DEG.C

A-42

ENGINE PREFORMANCE

TEMP= 97.00 ADJ. HP= 0.1103E 04TEMP= 96.00 ADJ. HP= 0.1104E 04
AVERAVGE HORSEPOWER--BOTH ENGINES-- 0.1143E 04
ENGINE AIR(BOTH SIDES)-CFM= 0.1887E 05 TAVG(3&4)= 96.500

STACK PERFORMANCE

AVG STACK TEMP= 83.00 TEMP RISE IN STACK 3.00
STACK PRESSURES VEL= 0.592 STATIC=-0.942 TOTAL HEAD=-0.350
FLOW IN STACK-CFM= 0.2073E 05

FAN PERFORMANCE

PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 13.33
FAN DISCHARGE PRESS. STATIC=10.375 VEL. HEAD= 5.275 TOTAL HEAD=15.650
FAN PRESS INCREASE=16.000 FAN FLOW CFM= 0.2522E 05 FAN HORSEPOWER= 0.6359E 02
STATIC PRESS COR.= 10.855 TOTAL PRESS. COR.= 16.130
AVG. OF STACK AND FAN FLOW-CFM= 0.2298E 05

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

APU AIR FLOW, CFM = 0.1572E 04
INERTIAL FILTER SCAVENGING FLOW-CFM = 0.4753E 03 VEL.-FT/SEC = 0.3705E 02

SYSTEM PRESSURE DROPS

PRESS. AT INERTIAL FILTER, STB= 13.50 PORT= 13.12 AVG= 13.31
INERTIAL FILTER PRESS. DROP, STB= 2.00 PORT= 2.12 AVG= 2.06
PEERLESS PRESS. DROP, STB= 2.50 PORT= 11.00 AVG = 6.75
BARRIER FILTER PRESS.DROP = -1.90
PRESS DROP TO ENG., STB= 1.25 PORT= 0.75 AVG= 1.00
AVERAGE PLENUM PRESS. STBD= 5.550PORT= 5.250AVG= 5.400

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SCAV. PRESS DROP= 11.250
COOLER DUCT DROP= 10.500
DROP TO HOT SECT.= 5.500
PRESS. DROP ACROSS OIL COOLER = 5.500

TEST NO15-2 BC2C0810

```
                                INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  92.000  92.000  91.000  92.000
 TOP    43.000  44.000  42.000  45.000
STACK VEL. HD.=     0.75     0.80     0.70     0.60     0.70     0.50     0.40     0.50     0.50
STACK STATIC HD.=   -1.00    -1.00    -0.80    -0.90    -0.90    -0.80    -0.10    -1.10    -1.05
FAN VEL. HD.=       7.800    8.000    1.100    6.500
FAN STATIC HEAD=     11.000  11.000    9.200    9.700
PRESS. AT INERTIAL FILTER-STBD      14.000  12.500  13.500  12.500
PRESS. AT INERTIAL FILTER-PORT=      12.000  13.500  12.500  13.500
COOLING AIR SPLY PRESS.,STBD =11.000    PORT =10.500
PEERLESS PRESS-STBD=11.000     PORT=11.000
PRESS AFT OF PEERLESS-STBD= 8.000     PORT= 0.0
PRESS AFT OF BARRIER-STBD= 5.800     PORT= 5.000
ENGINE PLENUM PRESS-STBD=     4.80     4.00     4.00     4.40
ENGINE PLENUM PRESS-PORT=     4.50     4.00     3.80     3.80
FILTER NO.1 SCAV. PRESS.-VEL.HD.=    0.300  STATIC HD.=   -0.100
OIL COOLER PRESS.-INLET =    5.400  OUTLET =    0.0
HOT SECT. PRESS.-INBRD.=    0.0     OUTBD.=    0.0
OUTSIDE AIR TEMP.=  80.000
STACK TEMP.=        82.000     82.000     81.000     84.000
FAN DISCHARGE TEMP.=  93.000
ENGINE PLENUM AIR TEMP.=    93.00    95.00
AIR TEMP.VIC.NO.2.GEAR BOX =  87.000
COOLING AIR TEMP.-STBD.=  97.000  PORT=  98.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  85.0000EG.C  NO.4 =  87.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  85.0000EG.C

                            ENGINE PREFORMANCE
TEMP=    93.00   ADJ. HP=     0.1338E 04TEMP=    95.00   ADJ. HP=     0.1335E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1381E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1976E 05  TAVG(3&4)=  94.000

                            STACK PERFORMANCE
AVG STACK TEMP=      82.25     TEMP RISE IN STACK        2.25
STACK PRESSURES  VEL= 0.642  STATIC=-0.887  TOTAL HEAD=-0.246
FLOW IN STACK-CFM=  0.2159E 05

                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HD.) = 13.50
FAN DISCHARGE PRESS. STATIC=10.225  VEL. HEAD= 5.850  TOTAL HEAD=16.075
FAN PRESS INCREASE=16.321  FAN FLOW CFM=  0.2657E 05  FAN HORSEPOWER=  0.6833E 02
STATIC PRESS COR.=     10.683  TOTAL PRESS. COR.=     16.533
AVG. OF STACK AND FAN FLOW-CFM=  0.2408E 05

                APU FLOW AND INERTIAL FILTER SCAVENGING FLOW
APU AIR FLOW, CFM =  0.1592E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.4797E 03   VEL.-FT/SEC =  0.3739E 02

                            SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 13.12   PORT= 12.87   AVG= 13.00
INERTIAL FILTER PRESS. DROP, STB=  2.12   PORT=  1.88    AVG=  2.00
PEERLESS PRESS. DROP,  STB=  3.00   PORT= 11.00    AVG =  7.00
BARRIER FILTER PRESS.DROP =   -1.40
PRESS DROP TO ENG.,  STB=  1.50   PORT=  0.98    AVG=  1.24
AVERAGE PLENUM PRESS.  STBD=     4.300PORT=     4.025AVG=     4.162
```

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```
SCAV. PRESS DROP=     11.100
COOLER DUCT DROP=     10.750
DROP TO HOT SECT.=     5.400
PRESS. DROP ACROSS OIL COOLER =      5.400
```

TEST NO. 15-3 CC280810

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  92.500  92.500  92.500  93.500
 TOP    35.000  36.000  31.000  33.000
STACK VEL. HD.=     1.10    1.40    1.70    1.50    1.30    1.40    1.30    1.40    1.30
STACK STATIC HD.=  -1.40   -1.50   -1.70   -1.40   -1.10   -1.50   -1.30   -1.30   -1.10
FAN VEL. HD.=       7.200   7.400   3.000   7.200
FAN STATIC HEAD=      8.900   8.200   6.700   8.000
PRESS. AT INERTIAL FILTER-STBD      12.500  11.000  12.000  10.000
PRESS. AT INERTIAL FILTER-PORT=     10.000  12.000  10.500  11.000
COOLING AIR SPLY PRESS.,STBD =10.500     PORT =10.500
PEERLESS PRESS-STBD= 9.500     PORT= 9.500
PRESS AFT OF PEERLESS-STBD= 6.800     PORT= 0.0
PRESS AFT OF BARRIER-STBD= 5.500     PORT= 4.000
ENGINE PLENUM PRESS-STBD=     3.40    2.50    2.80    2.20
ENGINE PLENUM PRESS-PORT=     3.00    2.50    2.40    2.40
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   0.0    STATIC HD.=   0.900
OIL COOLER PRESS.-INLET =    5.000  OUTLET =    0.100
HOT SECT. PRESS.-INBRD.=    0.0     OUTBD.=    0.0
OUTSIDE AIR TEMP.=  80.000
STACK TEMP.=      103.000   112.000   104.000   103.000
FAN DISCHARGE TEMP.= 117.000
ENGINE PLENUM AIR TEMP.=  116.00  117.00
AIR TEMP.VIC.NO.2.GEAR BOX = 116.000
COOLING AIR TEMP.-STBD.= 125.000  PORT= 117.000
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =  93.0000EG.C  NO.4 =  95.0000EG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=  93.0000EG.C
```

ENGINE PREFORMANCE

```
TEMP=  116.00   ADJ. HP=     0.1028E 04TEMP=  117.00   ADJ. HP=     0.1027E 04
AVERAVGE HORSEPOWER--BOTH ENGINES=    0.1083E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1890E 05  TAVG(3&4)= 116.500
```

STACK PERFORMANCE

```
AVG STACK TEMP=     105.50     TEMP RISE IN STACK       25.50
STACK PRESSURES  VEL= 1.308  STATIC=-1.375  TOTAL HEAD=-0.067
FLOW IN STACK-CFM=  0.3158E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) = 11.42
FAN DISCHARGE PRESS. STATIC= 7.950  VEL. HEAD= 6.200  TOTAL HEAD=14.150
FAN PRESS INCREASE=14.217  FAN FLOW CFM=  0.2890E 05  FAN HORSEPOWER=  0.6473E 02
STATIC PRESS COR.=      8.663  TOTAL PRESS. COR.=     14.863
AVG. OF STACK AND FAN FLOW-CFM=  0.3024E 05
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

```
APU AIR FLOW, CFM =  0.1668E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.0          VEL.-FT/SEC =  0.0
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 11.37   PORT= 10.87   AVG= 11.12
INERTIAL FILTER PRESS. DROP, STB=  1.88   PORT=  1.37   AVG=  1.62
PEERLESS PRESS. DROP,  STB=  2.70   PORT=  9.50   AVG =  6.10
BARRIER FILTER PRESS.DROP =  -1.35
PRESS DROP TO ENG.,  STB=  2.78   PORT=  1.43   AVG=  2.10
AVERAGE PLENUM PRESS.  STBD=     2.725PORT=     2.575AVG=     2.650
```

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SCAV. PRESS DROP= 8.600
COOLER DUCT DROP= 10.500
DROP TO HOT SECT.= 5.000
PRESS. DROP ACROSS OIL COOLER = 4.900

TEST NO. 16-1 C1B0911

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  95.000  95.000  95.000  95.000
 TOP     22.000  24.000  21.000  23.000
STACK VEL. HD.=     0.30     0.10     0.40     0.30     0.40     0.70     0.75     0.60     0.70
STACK STATIC HD.=  -1.50    -0.60    -1.50    -1.80    -2.00    -1.40    -1.30    -1.60    -1.20
FAN VEL. HD.=       0.0      0.0      0.0      0.0
FAN STATIC HEAD=      0.0      0.0      0.0      0.0      0.0
PRESS. AT INERTIAL FILTER-STBD      12.500  12.000  11.000  13.000
PRESS. AT INERTIAL FILTER-PORT=     11.000  13.000   2.500  12.500
COOLING AIR SPLY PRESS..STBD = 9.500     PORT = 8.000
PEERLESS PRESS-STBD= 9.500     PORT= 9.000
PRESS AFT OF PEERLESS-STBD= 8.000     PORT= 8.000
PRESS AFT OF BARRIER-STBD= 6.800     PORT= 6.500
ENGINE PLENUM PRESS-STBD=     4.00     4.00     4.50     5.50
ENGINE PLENUM PRESS-PORT=     4.00     4.00     4.00     4.00
FILTER NO.1 SCAV. PRESS.-VEL.HD.=    7.500  STATIC HD.=    0.0
OIL COOLER PRESS.-INLET =    5.000  OUTLET =    0.0
HOT SECT. PRESS.-INBRD.=    0.0    OUTBD.=    0.0
OUTSIDE AIR TEMP.=  72.000
STACK TEMP.=       97.000   101.000   100.000    90.000
FAN DISCHARGE TEMP.= 107.000
ENGINE PLENUM AIR TEMP.= 106.00  109.60
AIR TEMP.VIC.NO.2.GEAR BOX = 111.000
COOLING AIR TEMP.-STBD.= 101.000  PORT=    0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =    0.0  DEG.C  NO.4 =    0.0  DEG.C
LUBE OIL INPUT TEMP..COMB.GEAR.STB.=    0.0  DEG.C
```

ENGINE PREFORMANCE

```
TEMP=  104.00    ADJ. HP=     0.7094E 03TEMP=  109.60    ADJ. HP=     0.7059E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.7396E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1742E 05  TAVG(3641= 106.800
```

STACK PERFORMANCE

```
AVG STACK TEMP=      97.00     TEMP RISE IN STACK       25.00
STACK PRESSURES  VEL= 0.596  STATIC=-1.450  TOTAL HEAD=-0.854
FLOW IN STACK-CFM=  0.2065E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0     VEL. HEAD= 0.0     TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.854  FAN FLOW CFM=  0.0          FAN HORSEPOWER=  0.0
STATIC PRESS COR.=      0.0     TOTAL PRESS. COR.=      0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.1032E 05
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

```
 0A210I PROGRAM INTERRUPT     OLD PSW IS     FF55000F6201FECA
APU AIR FLOW, CFM =  0.2243E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.2428E 04   VEL.-FT/SEC =  0.1893E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 12.12   PORT=  9.75   AVG= 10.94
INERTIAL FILTER PRESS. DROP, STB=  2.62   PORT=  0.75    AVG=  1.69
PEERLESS PRESS. DROP,  STB=  1.50   PORT=  1.00    AVG =  1.25
BARRIER FILTER PRESS.DROP =    1.35
```

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```
PRESS DROP TO ENG..  STB= 2.30   PORT= 2.50    AVG= 2.40
AVERAGE PLENUM PRESS.  STBD=     4.500PORT=     4.000AVG=     4.250
SCAV. PRESS DROP=     9.250
COOLER DUCT DROP=     8.750
DROP TO HOT SECT.=    5.000
PRESS. DROP ACROSS OIL COOLER =     5.000
```

TEST No. 16-1 C1C0911

```
                                INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  93.000  93.000  93.000  93.000
 TOP    29.000  30.000  30.000  31.000
STACK VEL. HD.=     0.60     0.30     0.60     0.20     0.70     0.80     0.70     0.60     1.00
STACK STATIC HD.=   -1.60    -0.90    -1.40    -1.60    -1.60    -1.30    -1.30    -1.90    -1.40
FAN VEL. HD.=       0.0      0.0      0.0      0.0
FAN STATIC HEAD=      0.0      0.0      0.0      0.0
PRESS. AT INERTIAL FILTER-STBD      12.000  10.500  12.500   9.000
PRESS. AT INERTIAL FILTER-PORT=     10.000  12.500  10.000  10.500
COOLING AIR SPLY PRESS.,STBD =10.000    PORT = 9.000
PEERLESS PRESS-STBD= 8.000    PORT= 8.000
PRESS AFT OF PEERLESS-STBD= 7.000    PORT= 7.000
PRESS AFT OF BARRIER-STBD= 5.000    PORT= 5.000
ENGINE PLENUM PRESS-STBD=    3.50     3.50     3.60     4.00
ENGINE PLENUM PRESS-PORT=    4.00     3.50     3.60     3.60
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   7.500  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   5.000  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  72.000
STACK TEMP.=      91.000   115.000   101.000    84.000
FAN DISCHARGE TEMP.=  90.000
ENGINE PLENUM AIR TEMP.=   98.90  100.00
AIR TEMP.VIC.NO.2.GEAR BOX =  90.000
COOLING AIR TEMP.-STBD.=  96.000  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C

                            ENGINE PREFORMANCE
TEMP=   98.90   ADJ. HP=    0.9302E 03TEMP=  100.00   ADJ. HP=    0.9293E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.9653E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1823E 05  TAVG(3&4)=  99.450

                            STACK PERFORMANCE
AVG STACK TEMP=     97.75     TEMP RISE IN STACK      25.75
STACK PRESSURES .VEL= 0.608  STATIC=-1.483  TOTAL HEAD=-0.875
FLOW IN STACK-CFM=  0.2110E 05

                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56( OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0    VEL. HEAD= 0.0    TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.875  FAN FLOW CFM=  0.0         FAN HORSEPOWER=  0.0
STATIC PRESS COR.=     0.0    TOTAL PRESS. COR.=     0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.1055E 05

            APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

 0A210I PROGRAM INTERRUPT    OLD PSW IS    FF55000F6201FECA
APU AIR FLOW, CFM =  0.2176E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.2392E 04   VEL.-FT/SEC =  0.1864E 03

                            SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 11.00   PORT= 10.75   AVG= 10.87
INERTIAL FILTER PRESS. DROP, STB=  3.00   PORT=  2.75    AVG=  2.87
PEERLESS PRESS. DROP,  STB=  1.00   PORT=  1.00    AVG =  1.00
BARRIER FILTER PRESS.DROP =    2.00
```

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PRESS DROP TO ENG., STB= 1.35 PORT= 1.33 AVG= 1.34
AVERAGE PLENUM PRESS. STBD= 3.650PORT= 3.675AVG= 3.662
SCAV. PRESS DROP= 8.000
COOLER DUCT DROP= 9.500
DROP TO HOT SECT.= 5.000
PRESS. DROP ACROSS OIL COOLER = 5.000

TEST No. 16-1 C1D0911

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  92.000  92.000  91.000  91.000
 TOP    41.000  42.000  46.000  45.000
STACK VEL. HD.=     1.20     0.50     0.80     0.80     0.50     0.75     0.80     0.70     0.90
STACK STATIC HD.=  -1.70    -0.70    -1.40    -1.70    -1.70    -1.50    -1.40    -2.00    -1.50
FAN VEL. HD.=       0.0      0.0      0.0      0.0
FAN STATIC HEAD=    0.0      0.0      0.0      0.0
PRESS. AT INERTIAL FILTER-STBD      11.500   9.500  11.000  10.000
PRESS. AT INERTIAL FILTER-PORT=      8.500  11.000  10.000  11.000
COOLING AIR SPLY PRESS.,STBD = 9.500    PORT = 9.500
PEERLESS PRESS-STBD= 8.000    PORT= 8.500
PRESS AFT OF PEERLESS-STBD= 6.000    PORT= 6.000
PRESS AFT OF BARRIER-STBD= 4.800    PORT= 5.000
ENGINE PLENUM PRESS-STBD=    1.40    1.40    1.60    2.00
ENGINE PLENUM PRESS-PORT=    2.00    2.00    1.80    1.80
FILTER NO.1 SCAV. PRESS.-VEL.HD.=   6.500  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   4.800  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.= 72.000
STACK TEMP.=      87.000    93.000    75.000    82.000
FAN DISCHARGE TEMP.= 86.000
ENGINE PLENUM AIR TEMP.=  90.40   88.80
AIR TEMP.VIC.NO.2.GEAR BOX =  80.300
COOLING AIR TEMP.-STBD.=  90.800  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C
```

ENGINE PREFORMANCE

```
TEMP=   90.40   ADJ. HP=    0.1337E 04TEMP=   88.80   ADJ. HP=    0.1339E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1377E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1968E 05  TAVG(3&4)=  89.600
```

STACK PERFORMANCE

```
AVG STACK TEMP=     84.25    TEMP RISE IN STACK      12.25
STACK PRESSURES  VEL= 0.879  STATIC=-1.558  TOTAL HEAD=-0.679
FLOW IN STACK-CFM=  0.2528E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0    VEL. HEAD= 0.0    TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.679  FAN FLOW CFM=  0.0         FAN HORSEPOWER=  0.0
STATIC PRESS COR.=     0.0    TOTAL PRESS. COR.=     0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.1259E 05
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

```
 0A210I PROGRAM INTERRUPT    OLD PSW IS    FF55000F6201FECA
APU AIR FLOW, CFM =  0.2160E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.2218E 04   VEL.-FT/SEC =  0.1729E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 10.50   PORT= 10.12   AVG= 10.31
INERTIAL FILTER PRESS. DROP, STB=  2.50   PORT=  1.62    AVG=  2.06
PEERLESS PRESS. DROP,  STB=  2.00   PORT=  2.50    AVG =  2.25
BARRIER FILTER PRESS.DROP =    1.10
```

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PRESS DROP TO ENG., STB= 3.20 PORT= 3.10 AVG= 3.15
AVERAGE PLENUM PRESS. STBD= 1.600PORT= 1.900AVG= 1.750
SCAV. PRESS DROP= 8.250
COOLER DUCT DROP= 9.500
DROP TO HOT SECT.= 4.800
PRESS. DROP ACROSS OIL COOLER = 4.800

TEST No. 16-2 C2B0911

INPUT DATA
(ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)

```
N2=  95.000  95.000  95.000  95.000
 TOP    19.000  21.000  21.000  22.000
STACK VEL. HD.=     0.70    0.60    0.70    1.00    0.10    0.0     0.60    0.60    0.50
STACK STATIC HD.=  -1.00   -0.50   -0.70   -1.20   -1.20   -1.10   -1.10   -1.20   -0.90
FAN VEL. HD.=       0.0     0.0     0.0     0.0
FAN STATIC HEAD=      0.0     0.0     0.0     0.0
PRESS. AT INERTIAL FILTER-STBD      13.500  12.000  14.000  13.000
PRESS. AT INERTIAL FILTER-PORT=     11.500  13.000  12.500  14.000
COOLING AIR SPLY PRESS.,STBD =10.000    PORT =10.000
PEERLESS PRESS-STBD=12.000    PORT=12.000
PRESS AFT OF PEERLESS-STBD= 9.500    PORT= 9.500
PRESS AFT OF BARRIER-STBD= 8.000    PORT= 8.000
ENGINE PLENUM PRESS-STBD=    7.00    7.00    7.00    7.20
ENGINE PLENUM PRESS-PORT=    7.00    6.80    6.50    6.50
FILTER NO.1 SCAV. PRESS.-VEL.HD.=  10.700  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   5.000  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  75.100
STACK TEMP.=       72.600    78.000    74.800    73.400
FAN DISCHARGE TEMP.=  84.000
ENGINE PLENUM AIR TEMP.=   85.90   88.10
AIR TEMP.VIC.NO.2.GEAR BOX = 109.000
COOLING AIR TEMP.-STBD.=  97.200  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C
```

ENGINE PREFORMANCE

```
TEMP=   85.90   ADJ. HP=    0.6650E 03TEMP=   88.10   ADJ. HP=    0.6637E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.6821E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1692E 05  TAVG(3&4)=  87.000
```

STACK PERFORMANCE

```
AVG STACK TEMP=      74.70    TEMP RISE IN STACK      -0.40
STACK PRESSURES  VEL= 0.575  STATIC=-0.992  TOTAL HEAD=-0.417
FLOW IN STACK-CFM=  0.1913E 05
```

FAN PERFORMANCE

```
PRESS. RECOVERY WITH DIFFUSER(56) OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0    VEL. HEAD= 0.0    TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.417  FAN FLOW CFM=  0.0        FAN HORSEPOWER=  0.0
STATIC PRESS COR.=     0.0    TOTAL PRESS. COR.=     0.0
AVG. OF STACK AND FAN FLOW-CFM= 0.9565E 04
```

APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

```
 0A210I PROGRAM INTERRUPT    OLD PSW IS    FF55000F6201FECA
APU AIR FLOW, CFM =  0.2152E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.2087E 04   VEL.-FT/SEC =  0.2215E 03
```

SYSTEM PRESSURE DROPS

```
PRESS. AT INERTIAL FILTER, STB= 13.12   PORT= 12.75   AVG= 12.94
INERTIAL FILTER PRESS. DROP, STB=  1.12   PORT=  0.75    AVG=  0.94
PEERLESS PRESS. DROP,  STB=  2.50   PORT=  2.50    AVG =  2.50
BARRIER FILTER PRESS.DROP =    1.50
```

```
PRESS DROP TO ENG.,  STB=  0.95   PORT=  1.30    AVG=  1.13
AVERAGE PLENUM PRESS.  STBO=     7.050PORT=     6.700AVG=     6.875
SCAV. PRESS DROP=     12.000
COOLER DUCT DROP=     10.000
DROP TO HOT SECT.=     5.000
PRESS. DROP ACROSS OIL COOLER =      5.000
```

TEST NO. 16-2 C2C0911

```
                                INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  93.000  92.000  93.000  93.000
 TOP    30.000  32.000  30.000  31.000
STACK VEL. HD.=     1.00     0.0      0.30     0.70     0.80     0.80     0.70     0.50     0.40
STACK STATIC HD.=  -1.70    -0.50    -1.30    -1.20    -1.50    -1.40    -1.40    -1.60    -1.40
FAN VEL. HD.=       0.0      0.0      0.0      0.0
FAN STATIC HEAD=      0.0      0.0      0.0      0.0
PRESS. AT INERTIAL FILTER-STBD      12.500  11.000  12.000  10.000
PRESS. AT INERTIAL FILTER-PORT=     10.000  12.000  10.500  11.000
COOLING AIR SPLY PRESS.,STBD = 9.500    PORT = 9.000
PEERLESS PRESS-STBD= 9.000    PORT= 8.500
PRESS AFT OF PEERLESS-STBD= 7.000    PORT= 7.000
PRESS AFT OF BARRIER-STBD= 5.200    PORT= 5.000
ENGINE PLENUM PRESS-STBD=     2.50     2.50     3.00     3.20
ENGINE PLENUM PRESS-PORT=     4.00     3.00     3.00     3.00
FILTER NO.1 SCAV. PRESS.-VEL.HD.=    9.000  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   4.200  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  75.100
STACK TEMP.=      110.000     95.000     80.200    103.000
FAN DISCHARGE TEMP.= 118.000
ENGINE PLENUM AIR TEMP.=  114.10  120.00
AIR TEMP.VIC.NO.2.GEAR BOX =  94.000
COOLING AIR TEMP.-STBD.= 105.000  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C

                            ENGINE PREFORMANCE
TEMP=  114.10   ADJ. HP=     0.9381E 03TEMP=  120.00   ADJ. HP=     0.9333E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.9867E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1854E 05  TAVG(364)= 117.050

                            STACK PERFORMANCE
AVG STACK TEMP=      97.05     TEMP RISE IN STACK       21.95
STACK PRESSURES  VEL= 0.683  STATIC=-1.425  TOTAL HEAD=-0.742
FLOW IN STACK-CFM=  0.2140E 05

                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0     VEL. HEAD= 0.0     TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.742  FAN FLOW CFM=  0.0          FAN HORSEPOWER=  0.0
STATIC PRESS COR.=      0.0     TOTAL PRESS. COR.=      0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.1070E 05

            APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

 0A210I PROGRAM INTERRUPT     OLD PSW IS     FF55000F6201FECA
APU AIR FLOW, CFM =  0.2287E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1973E 04   VEL.-FT/SEC =  0.2094E 03

                            SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 11.37   PORT= 10.87   AVG= 11.12
INERTIAL FILTER PRESS. DROP, STB=  2.37   PORT=  2.37    AVG=  2.37
PEERLESS PRESS. DROP,  STB=  2.00   PORT=  1.50    AVG =  1.75
BARRIER FILTER PRESS.DROP =    1.90
```

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PRESS DROP TO ENG., STBA 2.40 PORT= 1.75 AVG= 2.07
AVERAGE PLENUM PRESS. STBD= 2.800PORT= 3.250AVG= 3.025
SCAV. PRESS DROP= 8.750
COOLER DUCT DROP= 9.250
DROP TO HOT SECT.= 4.200
PRESS. DROP ACROSS OIL COOLER = 4.200

TEST No. 16-2 C2D0911

```
                              INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  91.000  91.000  91.000  91.000
 TOP    39.000  40.000  44.000  45.000
STACK VEL. HD.=     1.10     0.0      0.40     0.40     0.30     0.70     0.75     0.60     0.70
STACK STATIC HD.=  -1.70    -0.70    -1.30    -1.60    -1.60    -1.50    -1.50    -2.00    -1.10
FAN VEL. HD.=       0.0      0.0      0.0      0.0
FAN STATIC HEAD=      0.0      0.0      0.0      0.0
PRESS. AT INERTIAL FILTER-STBD      12.000   9.500  11.500  10.500
PRESS. AT INERTIAL FILTER-PORT=      9.500  11.000  10.000  11.500
COOLING AIR SPLY PRESS.,STBD = 9.500    PORT = 9.000
PEERLESS PRESS-STBD= 9.500    PORT= 9.500
PRESS AFT OF PEERLESS-STBD= 6.800    PORT= 6.600
PRESS AFT OF BARRIER-STBD= 4.000    PORT= 4.000
ENGINE PLENUM PRESS-STBD=    2.20     2.20     2.00     2.60
ENGINE PLENUM PRESS-PORT=    2.50     2.50     2.20     2.20
FILTER NO.1 SCAV. PRESS.-VEL.HD.=  9.000  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   4.700  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  75.100
STACK TEMP.=     118.000   107.000    84.000    88.000
FAN DISCHARGE TEMP.=  96.000
ENGINE PLENUM AIR TEMP.=  95.00   90.40
AIR TEMP.VIC.NO.2.GEAR BOX =  80.000
COOLING AIR TEMP.-STBD.=  94.200  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C


                           ENGINE PREFORMANCE
TEMP=   95.00   ADJ. HP=    0.1279E 04TEMP=   90.40   ADJ. HP=    0.1284E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1322E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1951E 05  TAVG(3&4)=  92.700


                           STACK PERFORMANCE
AVG STACK TEMP=     99.25    TEMP RISE IN STACK      24.15
STACK PRESSURES  VEL= 0.687  STATIC=-1.508  TOTAL HEAD=-0.821
FLOW IN STACK-CFM=  0.2138E 05


                           FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(50% OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0    VEL. HEAD= 0.0    TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.821  FAN FLOW CFM=  0.0         FAN HORSEPOWER=  0.0
STATIC PRESS COR.=     0.0    TOTAL PRESS. COR.=     0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.1069E 05


          APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

 0A210I PROGRAM INTERRUPT    OLD PSW IS    FF55000F6201FECA
APU AIR FLOW, CFM =  0.2200E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1935E 04   VEL.-FT/SEC =  0.2054E 03


                           SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 10.87   PORT= 10.50   AVG= 10.69
INERTIAL FILTER PRESS. DROP, STB=  1.37   PORT=  1.00    AVG=  1.19
PEERLESS PRESS. DROP,  STB=  2.70   PORT=  2.90    AVG =  2.80
BARRIER FILTER PRESS.DROP =    2.70
```

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PRESS DROP TO ENG.. STB= 1.75 PORT= 1.65 AVG= 1.70
AVERAGE PLENUM PRESS. STBO= 2.250PORT= 2.350AVG= 2.300
SCAV. PRESS DROP= 9.500
COOLER DUCT DROP= 9.250
DROP TO HOT SECT.= 4.700
PRESS. DROP ACROSS OIL COOLER = 4.700

TEST No. 16-3 @3B0911

```
                                INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  95.000  95.000  95.000  95.000
 TOP    20.000  21.000  21.000  22.000
STACK VEL. HD.=    0.90    0.50    0.60    0.30    0.0     0.45    0.40    0.30    0.60
STACK STATIC HD.=  -0.80   -0.20   -0.60   -0.80   -0.80   -0.60   -0.60   -1.00   -0.60
FAN VEL. HD.=      0.0     0.0     0.0     0.0
FAN STATIC HEAD=     0.0     0.0     0.0     0.0
PRESS. AT INERTIAL FILTER-STBD     14.500  13.000  14.000  13.000
PRESS. AT INERTIAL FILTER-PORT=    13.000  14.000  13.000  14.000
COOLING AIR SPLY PRESS.,STBD =10.000    PORT =10.000
PEERLESS PRESS-STBD=11.500    PORT=11.500
PRESS AFT OF PEERLESS-STBD= 8.500    PORT= 8.500
PRESS AFT OF BARRIER-STBD= 7.500    PORT= 7.500
ENGINE PLENUM PRESS-STBD=    5.80    5.80    6.00    6.00
ENGINE PLENUM PRESS-PORT=    6.00    5.80    5.50    5.50
FILTER NO.1 SCAV. PRESS.-VEL.HD.=  12.000  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   4.800  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  75.100
STACK TEMP.=       74.000    81.000    85.000    76.000
FAN DISCHARGE TEMP.=  89.000
ENGINE PLENUM AIR TEMP.=   88.30   91.60
AIR TEMP.VIC.NO.2.GEAR BOX =  86.200
COOLING AIR TEMP.-STBD.= 103.000  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C

                                ENGINE PREFORMANCE
TEMP=   88.30   ADJ. HP=    0.6716E 03TEMP=   91.60   ADJ. HP=    0.6695E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.6903E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1699E 05  TAVG(3&4)=  89.950

                                STACK PERFORMANCE
AVG STACK TEMP=      79.00    TEMP RISE IN STACK        3.90
STACK PRESSURES  VEL= 0.562  STATIC=-0.700  TOTAL HEAD=-0.138
FLOW IN STACK-CFM=  0.1903E 05

                                FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(S) OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0    VEL. HEAD= 0.0    TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.139  FAN FLOW CFM=  0.0         FAN HORSEPOWER=  0.0
STATIC PRESS COR.=     0.0    TOTAL PRESS. COR.=     0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.9513E 04

                APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

 0A210I PROGRAM INTERRUPT    OLD PSW IS    FF5000F6201FECA
APU AIR FLOW, CFM =  0.2172E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1446E 04   VEL.-FT/SEC =  0.2356E 03

                                SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 13.62   PORT= 13.50   AVG= 13.56
INERTIAL FILTER PRESS. DROP, STB=  2.12   PORT=  2.00    AVG=  2.06
PEERLESS PRESS. DROP,  STB=  3.00   PORT=  3.00    AVG =  3.00
BARRIER FILTER PRESS.DROP =    1.00
```

```
PRESS DROP TO ENG..  STB= 1.60   PORT= 1.80    AVG= 1.70
AVERAGE PLENUM PRESS.  STBD=     5.900PORT=     5.700AVG=     5.800
SCAV. PRESS DROP=    11.500
COOLER DUCT DROP=    10.800
DROP TO HOT SECT.=    4.800
PRESS. DROP ACROSS OIL COOLER =     4.800
```

TEST No. 16-3 C3C 0911

```
                                INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  92.000  92.000  93.000  92.000
 TOP     30.000  32.000  30.000  30.000
STACK VEL. HD.=    1.00     0.30     0.50     0.20     0.0      0.70     0.70     0.60     0.70
STACK STATIC HD.=   -1.60    -0.40    -1.20    -1.20    -1.20    -1.10    -1.20    -1.40    -1.00
FAN VEL. HD.=      0.0      0.0      0.0      0.0
FAN STATIC HEAD=       0.0      0.0      0.0      0.0
PRESS. AT INERTIAL FILTER-STBD      12.500  11.500  13.500  12.000
PRESS. AT INERTIAL FILTER-PORT=      10.500  11.000  12.000  13.000
COOLING AIR SPLY PRESS.,STBD =10.000    PORT = 9.500
PEERLESS PRESS-STBD=10.500     PORT=10.000
PRESS AFT OF PEERLESS-STBD= 7.800     PORT= 7.800
PRESS AFT OF BARRIER-STBD= 6.000     PORT= 6.000
ENGINE PLENUM PRESS-STBD=     4.00     4.00     4.00     4.80
ENGINE PLENUM PRESS-PORT=     4.80     4.50     4.00     4.00
FILTER NO.1 SCAV. PRESS.=VEL.HD.=  10.500  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   5.000  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  75.100
STACK TEMP.=        75.300    74.000    73.000    75.500
FAN DISCHARGE TEMP.=  85.000
ENGINE PLENUM AIR TEMP.=   92.20   93.00
AIR TEMP.VIC.NO.2.GEAR BOX =  82.000
COOLING AIR TEMP.-STBD.=  94.000  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C


                            ENGINE PREFORMANCE
TEMP=   92.20   ADJ. HP=    0.9437E 03TEMP=   93.00   ADJ. HP=    0.9431E 03
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.9435E 03
ENGINE AIR(BOTH SIDES)-CFM=  0.1817E 05  TAVG(364)=  92.600


                            STACK PERFORMANCE
AVG STACK TEMP=      74.45     TEMP RISE IN STACK       -0.65
STACK PRESSURES  VEL= 0.642  STATIC=-1.258  TOTAL HEAD=-0.617
FLOW IN STACK-CFM=  0.2015E 05


                            FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56) OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0     VEL. HEAD= 0.0     TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.617  FAN FLOW CFM=  0.0          FAN HORSEPOWER=  0.0
STATIC PRESS COR.=      0.0     TOTAL PRESS. COR.=      0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.1007E 05


              APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

 0A2101 PROGRAM INTERRUPT     OLD PSW IS     FF55000F6201FECA
APU AIR FLOW, CFM =  0.2156E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1347E 04   VEL.-FT/SEC =  0.2196E 03


                            SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 12.37   PORT= 11.62   AVG= 12.00
INERTIAL FILTER PRESS. DROP, STB=  1.88   PORT=  1.62    AVG=  1.75
PEERLESS PRESS. DROP,  STB=  2.70   PORT=  2.20    AVG =  2.45
BARRIER FILTER PRESS.DROP =    1.80
```

AVG= 1.74
4.325AVG= 4.262

5.000

TEST No.16-3 C3D0911

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                              INPUT DATA
 (ALL PRESSURES INCHES OF WATER-ALL TEMP.DEG.F UNLESS OTHERWISE STATED)
N2=  92.000  92.000  91.000  91.000
 TOP    40.000  42.000  46.000  46.000
STACK VEL. HD.=   1.10    0.20    0.50    0.40    0.0     0.70    0.70    0.60    0.70
STACK STATIC HD.=  -1.40   -0.40   -1.20   -1.40   -1.50   -1.30   -1.30   -1.70   -1.10
FAN VEL. HD.=      0.0     0.0     0.0     0.0
FAN STATIC HEAD=     0.0     0.0     0.0     0.0
PRESS. AT INERTIAL FILTER-STBD     13.000  11.500  13.000  11.500
PRESS. AT INERTIAL FILTER-PORT=    10.000  12.500  11.500  12.500
COOLING AIR SPLY PRESS.,STBD =10.000    PORT = 9.500
PEERLESS PRESS-STBD=10.000    PORT= 9.800
PRESS AFT OF PEERLESS-STBD= 7.000    PORT= 7.000
PRESS AFT OF BARRIER-STBD= 4.400    PORT= 4.400
ENGINE PLENUM PRESS-STBD=    2.40    2.40    2.40    3.00
ENGINE PLENUM PRESS-PORT=    3.20    3.20    2.80    2.80
FILTER NO.1 SCAV. PRESS.-VEL.HD.=  10.200  STATIC HD.=   0.0
OIL COOLER PRESS.-INLET =   4.700  OUTLET =   0.0
HOT SECT. PRESS.-INBRD.=   0.0    OUTBD.=   0.0
OUTSIDE AIR TEMP.=  75.100
STACK TEMP.=       76.000    74.300    75.400    75.100
FAN DISCHARGE TEMP.=  83.100
ENGINE PLENUM AIR TEMP.=   85.90   85.80
AIR TEMP.VIC.NO.2.GEAR BOX =  83.000
COOLING AIR TEMP.-STBD.=  94.300  PORT=   0.0
LUBE OIL INPUT TEMP.-PWR.SECT.NO.3 =   0.0  DEG.C  NO.4 =   0.0  DEG.C
LUBE OIL INPUT TEMP.,COMB.GEAR,STB.=   0.0  DEG.C

                           ENGINE PREFORMANCE
TEMP=   85.90   ADJ. HP=    0.1342E 04TEMP=   85.80   ADJ. HP=    0.1342E 04
AVERAVGE HORSEPOWER--BOTH ENGINES--  0.1377E 04
ENGINE AIR(BOTH SIDES)-CFM=  0.1963E 05  TAVG(3&4)=  85.850

                           STACK PERFORMANCE
AVG STACK TEMP=      75.20     TEMP RISE IN STACK       0.10
STACK PRESSURES  VEL= 0.683  STATIC=-1.292  TOTAL HEAD=-0.608
FLOW IN STACK-CFM=  0.2079E 05

                           FAN PERFORMANCE
PRESS. RECOVERY WITH DIFFUSER(56% OF VEL HD.) =  0.0
FAN DISCHARGE PRESS. STATIC= 0.0    VEL. HEAD= 0.0    TOTAL HEAD= 0.0
FAN PRESS INCREASE= 0.608  FAN FLOW CFM=  0.0        FAN HORSEPOWER=  0.0
STATIC PRESS COR.=     0.0    TOTAL PRESS. COR.=     0.0
AVG. OF STACK AND FAN FLOW-CFM=  0.1040E 05

              APU FLOW AND INERTIAL FILTER SCAVENGING FLOW

 0A210I PROGRAM INTERRUPT    OLD PSW IS    FF55000F6201FECA
APU AIR FLOW, CFM =  0.2148E 04
INERTIAL FILTER SCAVENGING FLOW-CFM =  0.1326E 04   VEL.-FT/SEC =  0.2161E 03

                           SYSTEM PRESSURE DROPS
PRESS. AT INERTIAL FILTER, STB= 12.25   PORT= 11.62   AVG= 11.94
INERTIAL FILTER PRESS. DROP, STB=  2.25   PORT=  1.83    AVG=  2.04
PEERLESS PRESS. DROP,  STB=  3.00   PORT=  2.80    AVG =  2.90
BARRIER FILTER PRESS.DROP =    2.60
```

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PRESS DROP TO ENG.,  STB=  1.85   PORT=  1.40    AVG=  1.63
AVERAGE PLENUM PRESS.   STBD=      2.550PORT=      3.000AVG=      2.775
SCAV. PRESS DROP=       9.900
COOLER DUCT DROP=       9.750
DROP TO HOT SECT.=      4.700
PRESS. DROP ACROSS OIL COOLER =      4.700
  STOP     999
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```
END OF JOB.

     56.0 SEC. USED     .016 HRS. CHARGED     2.836 HRS. REMAINING
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