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PERFORMANCE OF A LOW-PRESSURE FAN STAGE WITH REVERSE FLOW

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The reverse-flow aerodynamic performance of a 51-centimeter-diameter fan stage is presented. The stage was tested with the variable-pitch rotor blades set through feather at -75°, -80°, and -85° from design setting angle. Of the three tested the stage with the rotor blades set at -75° exhibited the highest pressure ratio and highest flow. For all three configurations, there was little or no flow in the inner third of the exit passage due to the rotor blade being almost perpendicular to the axial direction in the hub region.

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SUMMARY

The reverse-flow aerodynamic performance of a 51-centimeter-diameter fan stage is presented. The stage was designed for a pressure ratio of 1.2 at a tip speed of 213 meters per second and a flow of 31.2 kilograms per second. The stage was tested with the variable-pitch rotor blades set through feather at -75°, -80°, and -85° from design setting angle. Of the three tested, the stage with the rotor blades set at -75° exhibited the highest pressure ratio and highest flow. This configuration produced approximately 66 percent of the design forward thrust. For all three configurations, there was little or no flow in the inner third of the exit passage due to the rotor blade being almost perpendicular to the axial direction in the hub region.

INTRODUCTION

The National Aeronautics and Space Administration in a coordinated effort with industry is investigating powered lift engines for short haul commercial aircraft application. These aircraft must be dependable, economical, have low noise generation for urban application, and perform efficiently under varied operating conditions. The aircraft engines must be capable of efficient operation at takeoff, cruise, and approach and must also provide thrust reversal power on landing.

In support of this program, the Lewis Research Center is investigating a number of fan stages for powered lift engine application (refs. 1 to 7). One of these fan stages was designed and fabricated by the Hamilton-Standard Division of United Technologies Corporation under contract to NASA Lewis Research Center. The low-tip-speed, low-pressure-ratio stage was built with variable-pitch rotor blades which could be turned (through feather) past the axial direction for reverse thrust application. This fan stage, designated stage 55, has been tested with the rotor blades set at three different forward flow angles and the results reported in references 1 to 4.

This report presents the performance of the stage operating with reverse flow. Data were obtained at three different rotor blade angle settings: design -75°, -80°, and -85°. Performance was obtained over a range of flows at speeds from 50 to 100 percent of design speed. These tests were conducted in the Lewis single-stage test facility. With reverse flow operation, the stator blades act like inlet guide vanes and introduce swirl to the rotor. Radial surveys of the flow conditions were made upstream of the stator, between stator and rotor, and downstream of the rotor.

APPARATUS AND PROCEDURE

Test Stage

The basic test stage is the same one used in references 1 to 4. Briefly the stage was designed for a pressure ratio of 1.2 at a tip speed of 213 meters per second and a weight flow of 31.2 kilograms per second. Photographs of rotor 55 and stator 55 are shown in figure 1. The rotor blade tips were contoured so that the blades could be turned past the axial direction while maintaining a minimum tip clearance of 0.06 centimeter at the blade stacking line. As shown in the flow path diagram (fig. 2), the stators in reverse flow operation become inlet guide vanes which turn the flow opposite the direction of rotation.

In this report, the configuration with the rotor blades turned to design -75° has been designated stage 55R3; the configuration with design -80°, stage 55R; and the configuration with design -85°, stage 55R2.

Test Facility

A schematic diagram of the Lewis single-stage compressor test facility is shown in figure 3. The drive system consists of a 2238-kilowatt electric motor with a variable frequency power supply. The motor is coupled to a 5.52-to-1 gear-ratio speed increaser gearbox that in turn drives the test rotor. Air enters the test facility at the inlet located on the roof of the building. The air passes through the thin-plate orifice plate, through the butterfly throttle valve, and into the plenum chamber. Next, the air is accelerated to the test stage and flows through a throttle valve into a double exit collector; it is then exhausted into one of the two laboratory exhauster systems.

To obtain the reverse flow through the test stage, the Lewis single-stage test facility (fig. 3) was modified. The 90° elbows were removed from both sides of the cylindrical collector and replaced by a screen (fig. 4). Air was drawn from the room and into the collector. The air then passed through the test section, into the plenum, and was

exhausted through the inlet throttle valves and orifice piping system on the roof. Flow was varied by controlling the inlet throttle valves. The collector throttle valve was wide open for all tests.

Instrumentation

Radial surveys of the flow were made at three axial stations (fig. 2). At each of the measuring stations, two combination probes and two wedge probes were used (fig. 5). The total pressure, total temperature, and flow angle were measured by the combination probe (fig. 5(a)) and the static pressure was determined from the 8° C-shaped wedge probe (fig. 5(b)). Each probe was positioned with a null-balancing, stream-directional sensitive control system that automatically alined the probes to the direction of flow. The thermocouple material was Chromel-constantan. Inner and outer wall static-pressure taps were located at the same axial station as the survey probes. The circumferential locations of both types of survey probes along with the static taps are shown in figure 6.

An electronic speed counter, in conjunction with a magnetic pickup, was used to measure rotative speed.

The estimated errors of the data based on inherent accuracies of the instrumentation and recording system are as follows:

Weight flow, kg/sec	±0.3
Rotative speed	±30
Flow angle, deg	±1
Temperature, K	±0.6
Total pressure, N/cm^2	
Station 1 and 2	0.04
Station 3	0.10
Static pressure, N/cm^2	
Station 1 and 2	0.04
Station 3	0.07

Test Procedure

Survey data were taken at speeds from 50 to 100 percent of design speed. The data at each speed from 70 to 100 percent were obtained over a range of weight flows from maximum flow to the stall condition. Data was obtained for maximum flow only at 50 and 60 percent speeds. The maximum flow was limited by system losses. Data were

recorded at nine radial positions for each operating condition. The radial positions selected were the same as those used for forward flow operation. Values of pressure, temperature, and flow angle were recorded at each radial position.

Calculation Procedure

At each radial position and each measuring station, the values of total pressure, total temperature, static pressure, and flow angle were mass averaged to obtain the values presented in this report. Because of the physical construction of the wedge probe, it was not possible to obtain static pressure measurements at radial positions 1 and 2. The static pressures presented at radial positions 1 and 2 are based on a linear interpolation between radial position 3 and the outer wall.

The total pressure and total temperature at stations 1 and 3 were integrated to determine the stage total pressure ratio, stage total temperature ratio, and stage adiabatic efficiency shown in tables I to III. The weight flows are based on the orifice measurements.

The sea-level static thrust is composed of both the momentum thrust and the pressure thrust. The momentum thrust is a product of the flow rate and the outlet velocity. The pressure thrust consists of a product of the outlet area and the difference between the outlet static pressure and inlet total pressure.

RESULTS AND DISCUSSION

The results from this investigation are presented in two sections. The overall performance of the stage with reverse flow is presented first for the three different rotor blade setting angles. Then some typical radial distribution of pressure, temperature, and flow angle are presented. All of the data are presented in tabular form in tables I to III.

Overall Performance

The overall stage pressure ratio is presented in figure 7 as a function of weight flow for the three configurations. Data are presented for speeds from 50 to 100 percent of design speed. Of the three tested, stage 55R3 (design -75°) exhibits both the high pressure ratio and highest weight flow.

At the maximum flow condition, stage 55R3 has a pressure ratio of 1.197 at a weight flow of 18.9 kilograms per second. Stage 55R2 (design -85°) has the lowest maximum flow and lowest pressure ratio: 14.4 kilograms per second and 1.146, respectively.

One purpose of the variable-pitch rotor blades was to provide the required reverse thrust upon landing. The effect of rotor blade setting angle on the maximum reverse thrust calculated from the aerodynamic measurements is as follows:

Setting angle	Stage	Sea-level static thrust, N
Design	55	5500
Design -75°	55R3	-3650
Design -80°	55R	-3150
Design -85°	55R2	-2800

For all three setting angles, the reverse thrust was at least half the design forward thrust. Stage 55R3 (design -75°) produced a reverse thrust that was 66 percent of the design value.

Radial Distributions

Values of total pressure, static pressure, total temperature, and flow angle obtained in the radial surveys at stations 1, 2, and 3 are listed in tables I to III for all tested conditions. Typical radial distributions of pressure and flow angle are present in figures 8 and 9 for design speed.

The effects of flow on the radial distribution of flow angle and total and static pressure at the rotor discharge (station 3) for stage 55R3 (design -75°) are presented in figure 8. (Similar effects were noted with the other two stages.) The measured inlet total pressure was relatively constant from the outer to inner wall. At the rotor exit (station 3), the total pressure and flow angle increases at every radii with decreasing flow. Over the inner third of the passage the static and total pressures are approximately equal indicating very low throughflow velocity in this region. This trend was expected because the blade chord in the hub region is almost perpendicular to the axial direction.

The effect of the rotor setting angle on the radial distributions of flow angle and total and static pressure at the rotor exit (station 3) for the maximum flow conditions at design speed is presented in figure 9. As the blade is set to more negative angles, pressure

and maximum flow decreases; also the low or zero flow region moves further out from the inner wall. The flow angles in the low flow region vary almost randomly radially and between configurations. As a result of the low velocity, there was insufficient flow across the measuring probe to get a true balance of the probe and thus a good angle measurement.

SUMMARY OF RESULTS

This report presents the reverse flow performance of a 51-centimeter-diameter fan stage. The stage was designed for a pressure ratio of 1.2 at a tip speed of 213 meters per second and a weight flow of 31.2 kilograms per second. The stage was tested with the rotor blades set (through feather) at -75°, -80°, and -85° from design setting angle. Radial surveys of pressure, temperature, and flow angle were recorded over the stable operating flow range for speeds of 50 to 100 percent of design speed. The aerodynamic measurements were used to calculate the sea-level static thrust. The following principal results were obtained:

1. The stage with the rotor blades set at -75° exhibits the highest pressure ratio and highest weight flow of the three tested. This configuration produced approximately 66 percent of the design forward sea-level static thrust.

2. Because of the rotor blade being almost perpendicular to the axial direction in the hub, there was little or no flow in the inner third of the exit passage for all three setting angles. As the blade was set to more negative angles, the no flow region moves further out from the inner wall.

3. For all three setting angles, the rotor outlet pressure and flow angle increased with decreasing flow.

Lewis Research Center,
National Aeronautics and Space Administration,
Cleveland, Ohio, November 7, 1975,
505-04.

APPENDIX - DEFINITIONS AND UNITS USED IN TABLES

ABS BETAZ	absolute flow angle, deg
RP	radial position
RADIUS	radius, cm
STATIC PRESS	static pressure, N/cm^2
TOTAL PRESS	total pressure, N/cm^2
TOTAL TEMP	total temperature, K
WEIGHT FLOW	flow at orifice, kg/sec

REFERENCES

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TABLE I. - PERFORMANCE FOR STAGE 55R-55R

(a) Reading number 2117

STAGE TOTAL PRESSURE RATIO	1.040
STAGE TOTAL TEMPERATURE RATIO	1.014
STAGE ADIABATIC EFFICIENCY	0.820
WEIGHT FLOW	8.68
ROTATIVE SPEED	4009.6
PERCENT DESIGN SPEED	50.0

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.99	288.74	-2.56
2	24.646	10.15	10.00	288.81	-3.24
3	24.036	10.14	9.99	288.64	-3.96
4	22.192	10.15	9.99	288.25	-5.89
5	19.776	10.13	9.98	287.82	-8.87
6	17.386	10.10	9.97	287.71	-10.80
7	15.568	10.11	9.97	287.90	-12.25
8	14.938	10.16	9.97	287.78	0.16
9	14.295	10.12	9.97	288.14	-10.41

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.15	9.97	288.57	19.45
2	23.818	10.16	9.98	288.64	17.84
3	23.454	10.15	9.97	288.57	18.15
4	21.387	10.16	9.98	286.29	16.93
5	18.636	10.16	9.99	288.12	17.84
6	15.883	10.15	10.00	288.02	21.69
7	13.810	10.16	10.00	288.11	28.88
8	13.119	10.16	10.00	287.28	30.27
9	12.428	10.15	10.00	288.28	35.57

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	10.66	10.18	293.48	22.17
2	24.023	10.67	10.19	293.20	21.97
3	23.312	10.68	10.19	292.58	21.11
4	21.145	10.55	10.19	291.69	20.24
5	18.260	10.28	10.16	290.60	14.15
6	15.464	10.17	10.16	290.68	14.72
7	13.467	10.16	10.17	291.36	47.34
8	12.781	10.16	10.16	290.78	14.92
9	12.225	10.16	10.17	291.72	16.98

TABLE I. - Continued.

(d) Reading number 2120

STAGE TOTAL PRESSURE RATIO	1.087
STAGE TOTAL TEMPERATURE RATIO	1.028
STAGE ADIABATIC EFFICIENCY	0.872
WEIGHT FLOW	11.74
ROTATIVE SPEED	5644.1
PERCENT DESIGN SPEED	70.4

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.89	288.55	-2.38
2	24.646	10.16	9.90	288.67	-3.56
3	24.056	10.17	9.90	288.19	-5.07
4	22.192	10.16	9.88	288.52	-6.80
5	19.776	10.11	9.89	287.98	-12.47
6	17.386	10.10	9.87	287.93	-15.96
7	15.588	10.09	9.84	287.90	-19.37
8	14.958	10.12	9.86	287.93	-16.35
9	14.295	10.12	9.85	288.36	-10.12

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.19	9.84	288.40	18.24
2	23.818	10.21	9.88	288.65	17.40
3	23.454	10.22	9.86	288.24	16.63
4	21.387	10.21	9.84	288.55	16.43
5	18.656	10.22	9.89	288.17	16.68
6	15.883	10.19	9.91	288.11	20.36
7	13.810	10.18	9.91	288.42	29.94
8	13.119	10.19	9.93	288.35	33.37
9	12.428	10.19	9.93	288.65	34.72

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.26	10.29	298.39	22.47
2	24.023	11.28	10.30	297.91	22.24
3	23.312	11.28	10.32	296.88	22.25
4	21.145	11.03	10.28	295.70	22.34
5	18.260	10.48	10.25	292.90	14.57
6	15.464	10.25	10.24	293.37	27.29
7	13.467	10.28	10.26	294.32	20.26
8	12.781	10.26	10.25	294.14	35.12
9	12.225	10.26	10.26	294.22	73.59

TABLE I. - Continued.

(c) Reading number 2119

STAGE TOTAL PRESSURE RATIO	1.084
STAGE TOTAL TEMPERATURE RATIO	1.026
STAGE ADIABATIC EFFICIENCY	0.881
WEIGHT FLOW	12.03
ROTATIVE SPEED	5635.7
PERCENT DESIGN SPEED	70.2

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.88	288.49	-2.90
2	24.646	10.15	9.88	288.56	-3.20
3	24.036	10.16	9.88	288.49	-4.50
4	22.192	10.16	9.87	288.32	-7.26
5	19.776	10.14	9.87	287.90	-8.70
6	17.386	10.10	9.85	287.89	-14.18
7	15.568	10.11	9.85	287.91	-17.96
8	14.938	10.12	9.84	287.92	-16.98
9	14.295	10.10	9.81	288.01	-13.55

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.18	9.82	288.55	19.25
2	23.818	10.19	9.83	288.45	18.15
3	23.454	10.19	9.83	288.44	16.74
4	21.387	10.20	9.83	288.25	16.34
5	18.636	10.21	9.87	288.11	16.58
6	15.883	10.17	9.89	288.30	19.47
7	13.810	10.19	9.92	288.24	29.14
8	13.119	10.20	9.91	288.44	32.45
9	12.428	10.16	9.90	288.55	35.26

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.22	10.25	298.05	21.00
2	24.023	11.25	10.27	297.63	22.35
3	23.312	11.26	10.28	296.85	22.00
4	21.145	11.01	10.25	295.29	21.95
5	18.260	10.45	10.22	292.43	12.12
6	15.464	10.21	10.21	293.09	19.24
7	13.467	10.22	10.22	293.87	46.91
8	12.781	10.24	10.23	293.99	33.80
9	12.225	10.22	10.21	294.09	35.98

TABLE I. - Continued.

(b) Reading number 2118

STAGE TOTAL PRESSURE RATIO	1.060
STAGE TOTAL TEMPERATURE RATIO	1.020
STAGE ADIABATIC EFFICIENCY	0.841
WEIGHT FLOW	10.56
ROTATIVE SPEED	4812.2
PERCENT DESIGN SPEED	60.0

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.272	10.13	9.95	288.16	-3.77
2	24.646	10.14	9.94	288.81	-2.92
3	24.036	10.15	9.94	288.55	-5.81
4	22.192	10.15	9.94	288.20	-6.88
5	19.776	10.13	9.94	288.05	-10.52
6	17.586	10.11	9.92	287.94	-12.00
7	15.588	10.11	9.92	288.04	-18.01
8	14.958	10.11	9.91	287.94	-14.18
9	14.295	10.12	9.91	287.96	-12.76

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.13	9.91	288.06	15.70
2	23.818	10.16	9.90	288.53	17.90
3	23.454	10.18	9.91	288.49	17.68
4	21.587	10.18	9.91	288.57	16.71
5	18.656	10.18	9.94	288.27	17.02
6	15.883	10.16	9.95	288.41	21.58
7	13.810	10.17	9.97	288.27	29.29
8	13.119	10.17	9.96	288.54	32.53
9	12.428	10.16	9.97	288.47	35.69

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	10.92	10.22	295.47	24.82
2	24.023	10.94	10.22	295.26	21.36
3	23.312	10.94	10.23	294.75	21.43
4	21.145	10.76	10.22	293.51	21.30
5	18.260	10.36	10.19	291.65	14.22
6	15.464	10.19	10.18	291.65	15.40
7	13.467	10.13	10.19	292.48	24.96
8	12.781	10.19	10.19	292.54	26.45
9	12.225	10.19	10.20	292.54	28.38

TABLE I. - Continued.

(e) Reading number 2121

STAGE TOTAL PRESSURE RATIO	1.101
STAGE TOTAL TEMPERATURE RATIO	1.031
STAGE ADIABATIC EFFICIENCY	0.905
WEIGHT FLOW	9.17
ROTATIVE SPEED	5655.0
PERCENT DESIGN SPEED	70.2

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.99	288.46	-2.97
2	24.646	10.14	9.98	288.56	-3.58
3	24.056	10.14	9.98	288.29	-4.71
4	22.192	10.16	9.99	288.00	-7.09
5	19.776	10.13	9.98	288.18	-10.39
6	17.386	10.10	9.96	287.82	-15.20
7	15.568	10.11	9.96	287.92	-18.53
8	14.938	10.12	9.95	288.33	-16.25
9	14.295	10.12	9.94	288.43	-9.85

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.19	9.95	288.55	18.07
2	23.818	10.19	9.95	288.20	17.95
3	23.454	10.18	9.94	288.12	17.37
4	21.387	10.20	9.96	288.06	16.22
5	18.636	10.21	9.97	288.59	17.26
6	15.883	10.18	9.99	288.06	22.05
7	13.810	10.20	10.01	288.47	30.86
8	13.119	10.17	10.01	288.57	34.75
9	12.428	10.18	10.01	288.52	36.59

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.43	10.59	300.16	36.50
2	24.023	11.38	10.58	299.13	34.32
3	23.312	11.35	10.57	297.77	31.04
4	21.145	11.15	10.52	295.94	30.12
5	18.260	10.70	10.48	294.42	32.71
6	15.464	10.48	10.46	294.73	20.99
7	13.467	10.49	10.47	295.24	33.69
8	12.781	10.49	10.47	295.40	33.55
9	12.225	10.48	10.47	295.65	40.50

TABLE I. - Continued.

(f) Reading number 2122

STAGE TOTAL PRESSURE RATIO	1.089
STAGE TOTAL TEMPERATURE RATIO	1.028
STAGE ADIABATIC EFFICIENCY	0.889
WEIGHT FLOW	10.99
ROTATIVE SPEED	5636.5
PERCENT DESIGN SPEED	70.3

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.11	9.90	288.38	-2.30
2	24.646	10.15	9.91	288.44	-4.42
3	24.036	10.18	9.93	288.64	-5.81
4	22.192	10.15	9.90	288.24	-6.72
5	19.776	10.12	9.89	287.96	-9.58
6	17.386	10.11	9.89	287.80	-13.87
7	15.588	10.09	9.87	287.96	-17.59
8	14.938	10.13	9.88	287.89	-15.32
9	14.295	10.11	9.86	288.24	-11.95

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.18	9.85	288.44	18.18
2	23.818	10.20	9.86	288.38	16.75
3	23.454	10.23	9.88	288.54	16.77
4	21.387	10.20	9.86	288.30	16.47
5	18.636	10.20	9.89	288.29	16.93
6	15.885	10.19	9.93	288.08	21.07
7	13.810	10.17	9.93	288.64	30.28
8	13.119	10.21	9.95	288.44	33.02
9	12.428	10.17	9.93	288.73	35.68

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.29	10.36	298.68	25.08
2	24.023	11.30	10.37	297.86	24.26
3	23.312	11.30	10.38	297.13	23.67
4	21.145	11.06	10.33	295.67	23.61
5	18.260	10.52	10.29	293.12	17.30
6	15.464	10.30	10.29	293.46	24.41
7	13.467	10.32	10.30	294.46	27.29
8	12.781	10.32	10.30	294.51	29.01
9	12.225	10.30	10.29	294.97	41.60

TABLE I. - Continued.

(g) Reading number 2123

STAGE TOTAL PRESSURE RATIO	1.097
STAGE TOTAL TEMPERATURE RATIO	1.030
STAGE ADIABATIC EFFICIENCY	0.902
WEIGHT FLOW	10.04
ROTATIVE SPEED	5648.3
PERCENT DESIGN SPEED	70.4

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.14	9.93	288.62	-1.40
2	24.646	10.14	9.95	288.55	-3.93
3	24.036	10.16	9.96	288.46	-3.84
4	22.192	10.16	9.95	288.06	-7.52
5	19.776	10.12	9.93	287.95	-10.26
6	17.386	10.09	9.92	287.99	-14.51
7	15.688	10.11	9.92	287.75	-19.77
8	14.938	10.11	9.90	288.02	-13.75
9	14.295	10.12	9.92	288.38	-11.77

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.21	9.91	288.57	19.34
2	23.818	10.19	9.91	288.49	16.82
3	23.454	10.22	9.93	288.56	17.98
4	21.387	10.22	9.92	288.18	15.75
5	18.656	10.19	9.93	288.15	16.94
6	15.883	10.17	9.95	288.30	20.49
7	13.810	10.20	9.98	288.28	30.49
8	13.119	10.19	9.96	288.52	33.20
9	12.428	10.19	9.99	288.50	36.69

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.37	10.50	299.48	30.56
2	24.023	11.36	10.51	298.77	30.10
3	23.312	11.35	10.51	297.84	28.05
4	21.145	11.12	10.45	296.00	27.47
5	18.260	10.64	10.41	293.38	25.99
6	15.464	10.41	10.41	294.12	35.86
7	13.467	10.45	10.42	295.24	20.68
8	12.781	10.43	10.40	295.27	21.12
9	12.225	10.43	10.42	295.18	32.87

TABLE I. - Continued.

(h) Reading number 2124

STAGE TOTAL PRESSURE RATIO	1.113
STAGE TOTAL TEMPERATURE RATIO	1.035
STAGE ADIABATIC EFFICIENCY	0.889
WEIGHT FLOW	15.69
ROTATIVE SPEED	6448.7
PERCENT DESIGN SPEED	80.4

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.83	288.70	-2.33
2	24.646	10.17	9.82	288.57	-3.18
3	24.036	10.18	9.82	288.64	-4.83
4	22.192	10.19	9.82	288.26	-6.80
5	19.776	10.10	9.79	287.86	-12.12
6	17.386	10.07	9.76	287.89	-15.47
7	15.563	10.08	9.75	287.57	-19.96
8	14.958	10.10	9.74	287.85	-18.65
9	14.295	10.12	9.75	288.12	-16.15

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.22	9.75	288.79	18.72
2	23.818	10.22	9.75	288.55	18.22
3	23.454	10.23	9.75	288.53	17.01
4	21.387	10.25	9.76	288.34	16.43
5	18.636	10.23	9.79	288.24	16.41
6	15.883	10.20	9.82	288.10	21.21
7	13.810	10.21	9.84	288.02	28.31
8	13.119	10.19	9.85	288.28	32.70
9	12.428	10.20	9.86	288.43	35.74

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.61	10.29	301.11	21.56
2	24.023	11.63	10.32	300.38	21.39
3	23.312	11.65	10.34	299.67	21.19
4	21.145	11.32	10.31	297.60	21.78
5	18.260	10.55	10.25	294.05	12.48
6	15.464	10.25	10.24	294.43	20.83
7	13.467	10.28	10.25	295.63	18.79
8	12.781	10.28	10.26	295.93	32.21
9	12.225	10.26	10.26	296.02	45.20

TABLE I. - Continued.

(i) Reading number 2125

STAGE TOTAL PRESSURE RATIO	1.136
STAGE TOTAL TEMPERATURE RATIO	1.041
STAGE ADIABATIC EFFICIENCY	0.895
WEIGHT FLOW	9.98
ROTATIVE SPEED	6452.1
PERCENT DESIGN SPEED	80.5

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.95	288.51	-2.48
2	24.646	10.14	9.95	288.57	-4.04
3	24.036	10.16	9.96	288.48	-5.15
4	22.192	10.17	9.96	288.18	-7.89
5	19.776	10.11	9.94	287.89	-13.10
6	17.386	10.11	9.95	287.90	-16.64
7	15.568	10.10	9.92	288.00	-20.70
8	14.938	10.11	9.91	288.14	-16.36
9	14.295	10.12	9.92	288.14	-14.48

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.20	9.91	288.54	18.66
2	23.818	10.20	9.91	288.55	17.10
3	23.454	10.22	9.92	288.41	16.18
4	21.387	10.23	9.92	288.29	15.90
5	18.636	10.21	9.93	287.98	16.66
6	15.883	10.19	9.97	288.13	20.57
7	13.810	10.19	9.98	288.67	30.66
8	13.119	10.18	9.98	288.79	36.00
9	12.428	10.19	10.01	288.41	38.33

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.88	10.75	304.76	38.43
2	24.023	11.81	10.74	303.25	36.14
3	23.312	11.75	10.73	301.11	32.21
4	21.145	11.47	10.66	298.45	31.97
5	18.260	10.86	10.60	296.78	36.23
6	15.464	10.63	10.60	297.14	19.96
7	13.467	10.55	10.60	297.61	21.45
8	12.781	10.55	10.60	297.57	20.39
9	12.225	10.56	10.61	297.32	26.21

TABLE I. - Continued.

(j) Reading number 2126

STAGE TOTAL PRESSURE RATIO	1.130
STAGE TOTAL TEMPERATURE RATIO	1.039
STAGE ADIABATIC EFFICIENCY	0.908
WEIGHT FLOW	11.26
ROTATIVE SPEED	6459.0
PERCENT DESIGN SPEED	80.5

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.11	9.90	288.37	-3.03
2	24.646	10.17	9.92	288.43	-1.98
3	24.036	10.17	9.91	288.43	-4.61
4	22.192	10.16	9.91	288.19	-7.90
5	19.776	10.10	9.88	288.01	-10.83
6	17.386	10.12	9.87	288.02	-9.73
7	15.568	10.08	9.84	287.95	-19.30
8	14.938	10.12	9.85	287.99	-16.67
9	14.295	10.11	9.85	288.16	-13.27

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.20	9.84	288.40	18.50
2	23.818	10.24	9.87	288.49	18.18
3	23.454	10.22	9.86	288.41	17.48
4	21.387	10.24	9.86	288.23	16.51
5	18.636	10.21	9.87	288.36	16.32
6	15.883	10.20	9.90	288.42	23.69
7	13.810	10.17	9.91	288.40	30.16
8	13.119	10.19	9.93	288.70	33.99
9	12.428	10.19	9.94	288.46	36.06

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.77	10.63	302.72	31.30
2	24.023	11.78	10.65	302.10	30.90
3	23.312	11.75	10.65	300.94	28.76
4	21.145	11.46	10.58	298.34	28.60
5	18.260	10.81	10.54	295.50	26.71
6	15.464	10.53	10.52	296.22	44.56
7	13.467	10.55	10.52	297.51	19.94
8	12.781	10.55	10.53	297.73	22.17
9	12.225	10.54	10.52	297.66	38.60

TABLE I. - Continued.

(k) Reading number 2127

STAGE TOTAL PRESSURE RATIO	1.126
STAGE TOTAL TEMPERATURE RATIO	1.033
STAGE ADIABATIC EFFICIENCY	0.911
WEIGHT FLOW	11.89
ROTATIVE SPEED	6443.2
PERCENT DESIGN SPEED	80.3

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.14	9.89	288.36	-2.06
2	24.646	10.16	9.87	288.67	-3.28
3	24.036	10.15	9.86	288.65	-3.92
4	22.192	10.17	9.87	288.26	-7.48
5	19.776	10.13	9.86	288.03	-11.26
6	17.386	10.08	9.85	287.57	-15.16
7	15.568	10.09	9.82	287.84	-19.19
8	14.938	10.13	9.83	287.97	-17.90
9	14.295	10.10	9.80	288.34	-10.77

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.23	9.82	288.47	19.13
2	23.818	10.22	9.82	288.65	17.24
3	23.454	10.20	9.80	288.54	16.68
4	21.387	10.24	9.82	288.22	16.64
5	18.636	10.24	9.86	288.28	15.91
6	15.883	10.19	9.83	287.94	21.80
7	13.810	10.21	9.90	288.34	29.86
8	13.119	10.22	9.92	288.36	33.25
9	12.428	10.18	9.89	288.61	36.01

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.74	10.53	302.26	26.98
2	24.023	11.75	10.54	301.43	26.74
3	23.312	11.71	10.53	300.45	26.09
4	21.145	11.43	10.49	298.08	25.95
5	18.260	10.75	10.45	295.11	20.78
6	15.464	10.44	10.43	295.42	34.36
7	13.467	10.47	10.44	296.76	18.51
8	12.781	10.48	10.45	297.13	19.33
9	12.225	10.46	10.44	297.20	31.89

TABLE I. - Continued.

(*l*) Reading number 2128

STAGE TOTAL PRESSURE RATIO	1.143
STAGE TOTAL TEMPERATURE RATIO	1.044
STAGE ADIABATIC EFFICIENCY	0.885
WEIGHT FLOW	15.19
ROTATIVE SPEED	7194.3
PERCENT DESIGN SPEED	89.7

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.75	288.78	-2.49
2	24.646	10.20	9.76	288.67	-2.17
3	24.036	10.19	9.74	288.60	-4.48
4	22.192	10.20	9.74	288.10	-7.58
5	19.776	10.08	9.72	287.89	-13.83
6	17.386	10.06	9.68	287.77	-16.38
7	15.568	10.07	9.65	287.81	-21.00
8	14.938	10.10	9.64	287.94	-19.83
9	14.295	10.09	9.63	288.25	-16.64

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.23	9.65	288.54	18.96
2	23.818	10.25	9.66	288.49	17.95
3	23.454	10.24	9.65	288.46	17.84
4	21.387	10.27	9.67	288.04	16.26
5	18.636	10.28	9.72	288.30	16.87
6	15.883	10.20	9.75	288.09	19.69
7	13.810	10.23	9.76	288.66	30.03
8	13.119	10.19	9.77	288.58	32.75
9	12.428	10.17	9.77	289.03	36.81

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.02	10.35	304.50	21.35
2	24.023	12.06	10.37	303.57	21.20
3	23.312	12.05	10.38	302.60	22.36
4	21.145	11.61	10.33	299.94	22.86
5	18.260	10.66	10.29	295.36	11.72
6	15.464	10.28	10.27	296.09	58.31
7	13.467	10.32	10.28	297.68	20.11
8	12.781	10.30	10.26	298.06	19.61
9	12.225	10.30	10.28	298.21	40.47

TABLE I. - Continued.

(m) Reading number 2130

STAGE TOTAL PRESSURE RATIO	1.171
STAGE TOTAL TEMPERATURE RATIO	1.052
STAGE ADIABATIC EFFICIENCY	0.894
WEIGHT FLOW	11.25
ROTATIVE SPEED	7222.1
PERCENT DESIGN SPEED	90.1

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.91	288.38	-2.48
2	24.646	10.15	9.90	288.50	-3.90
3	24.036	10.17	9.92	288.05	-5.68
4	22.192	10.18	9.91	288.20	-8.36
5	19.776	10.11	9.90	287.95	-13.22
6	17.386	10.10	9.86	287.95	-11.93
7	15.568	10.08	9.65	288.12	-19.79
8	14.938	10.11	9.84	288.17	-19.02
9	14.295	10.10	9.83	288.81	-13.83

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.22	9.84	288.29	18.26
2	23.818	10.25	9.85	288.37	17.36
3	23.454	10.24	9.85	287.97	16.22
4	21.387	10.26	9.86	288.16	15.92
5	18.636	10.25	9.89	288.32	16.52
6	15.883	10.18	9.89	288.53	21.95
7	13.810	10.18	9.92	288.82	32.07
8	13.119	10.18	9.93	288.78	35.60
9	12.428	10.19	9.94	289.11	38.89

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.32	10.90	308.04	37.83
2	24.023	12.26	10.89	306.56	35.81
3	23.312	12.19	10.88	303.93	32.13
4	21.145	11.83	10.81	301.01	31.83
5	18.260	11.06	10.73	299.54	36.02
6	15.464	10.71	10.69	299.82	22.04
7	13.467	10.71	10.71	300.31	48.89
8	12.781	10.64	10.70	300.39	20.40
9	12.225	10.67	10.71	300.53	21.19

TABLE I. - Continued.

(n) Reading number 2131

STAGE TOTAL PRESSURE RATIO	1.164
STAGE TOTAL TEMPERATURE RATIO	1.049
STAGE ADIABATIC EFFICIENCY	0.901
WEIGHT FLOW	12.63
ROTATIVE SPEED	7215.8
PERCENT DESIGN SPEED	90.0

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.08	9.81	288.45	-3.30
2	24.646	10.17	9.86	288.42	-2.99
3	24.036	10.17	9.84	288.45	-4.70
4	22.192	10.19	9.85	288.56	-6.25
5	19.776	10.11	9.82	287.93	-11.68
6	17.386	10.08	9.80	287.84	-13.03
7	15.568	10.10	9.78	287.85	-20.42
8	14.938	10.11	9.78	288.17	-18.62
9	14.295	10.09	9.75	288.12	-15.89

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.19	9.75	288.59	18.85
2	23.818	10.25	9.78	288.28	17.65
3	23.454	10.24	9.77	288.46	16.42
4	21.387	10.26	9.79	288.51	16.79
5	18.636	10.24	9.82	288.25	15.83
6	15.883	10.20	9.85	288.14	19.49
7	13.810	10.22	9.88	288.57	29.51
8	13.119	10.21	9.88	288.84	33.84
9	12.428	10.17	9.87	288.68	36.55

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.20	10.75	306.30	31.72
2	24.023	12.22	10.77	305.38	30.45
3	23.312	12.18	10.77	305.98	28.87
4	21.145	11.80	10.69	301.19	28.50
5	18.260	10.98	10.64	297.37	25.79
6	15.464	10.62	10.62	298.42	36.63
7	13.467	10.68	10.64	299.85	16.63
8	12.781	10.66	10.62	300.23	16.49
9	12.225	10.63	10.61	300.43	16.58

TABLE I. - Continued.

(o) Reading number 2132

STAGE TOTAL PRESSURE RATIO	1.156
STAGE TOTAL TEMPERATURE RATIO	1.047
STAGE ADIABATIC EFFICIENCY	0.897
WEIGHT FLOW	13.42
ROTATIVE SPEED	7211.6
PERCENT DESIGN SPEED	89.9

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.80	288.78	-2.87
2	24.646	10.16	9.80	288.76	-3.60
3	24.036	10.18	9.80	288.50	-5.35
4	22.192	10.19	9.80	288.14	-7.11
5	19.776	10.09	9.76	288.01	-11.25
6	17.386	10.08	9.75	287.79	-18.19
7	15.568	10.08	9.73	287.65	-20.12
8	14.938	10.11	9.71	287.99	-19.49
9	14.295	10.09	9.69	288.09	-15.27

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.23	9.72	288.67	19.32
2	23.818	10.23	9.71	288.60	17.51
3	23.454	10.25	9.72	288.56	16.82
4	21.387	10.27	9.73	288.16	16.42
5	18.636	10.24	9.76	288.24	16.69
6	15.883	10.21	9.81	288.23	19.57
7	13.810	10.20	9.82	288.47	28.98
8	13.119	10.21	9.83	288.58	33.68
9	12.428	10.17	9.82	288.60	36.36

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.16	10.61	305.96	26.46
2	24.023	12.16	10.62	304.86	25.79
3	23.312	12.12	10.62	303.16	25.68
4	21.145	11.74	10.54	300.83	25.38
5	18.260	10.83	10.48	296.39	19.38
6	15.464	10.48	10.49	297.48	43.15
7	13.467	10.55	10.50	298.98	15.22
8	12.781	10.54	10.50	299.45	20.08
9	12.225	10.51	10.50	299.37	37.17

TABLE I. - Continued.

(p) Reading number 2133

STAGE TOTAL PRESSURE RATIO	1.181
STAGE TOTAL TEMPERATURE RATIO	1.054
STAGE ADIABATIC EFFICIENCY	0.895
WEIGHT FLOW	16.73
ROTATIVE SPEED	8005.6
PERCENT DESIGN SPEED	99.8

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.65	288.43	-2.68
2	24.646	10.18	9.64	288.75	-4.19
3	24.036	10.23	9.67	288.71	-3.52
4	22.192	10.21	9.66	288.33	-9.17
5	19.776	10.06	9.62	287.81	-14.22
6	17.386	10.08	9.60	287.93	-18.44
7	15.568	10.06	9.54	287.78	-20.93
8	14.938	10.10	9.52	287.94	-19.41
9	14.295	10.09	9.52	287.62	-15.61

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.25	9.53	288.46	18.29
2	23.818	10.26	9.52	288.63	16.83
3	23.454	10.29	9.55	288.73	17.42
4	21.387	10.33	9.57	288.21	16.39
5	18.636	10.33	9.63	288.52	16.54
6	15.883	10.24	9.69	288.36	19.58
7	13.810	10.22	9.68	288.68	29.01
8	13.119	10.22	9.68	288.93	33.93
9	12.428	10.20	9.70	288.62	36.43

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.53	10.39	308.04	21.05
2	24.023	12.55	10.42	307.34	21.66
3	23.312	12.56	10.46	306.34	21.91
4	21.145	12.00	10.38	303.14	23.25
5	18.260	10.78	10.33	296.87	10.69
6	15.464	10.35	10.32	298.57	14.81
7	13.467	10.37	10.32	300.37	18.88
8	12.781	10.35	10.31	300.52	21.33
9	12.225	10.33	10.33	300.41	45.60

TABLE I. - Continued.

(q) Reading number 2134

STAGE TOTAL PRESSURE RATIO	1.210
STAGE TOTAL TEMPERATURE RATIO	1.063
STAGE ADIABATIC EFFICIENCY	0.684
WEIGHT FLOW	12.69
ROTATIVE SPEED	7993.4
PERCENT DESIGN SPEED	99.7

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.14	9.86	288.39	-3.29
2	24.646	10.16	9.84	288.65	-3.46
3	24.036	10.18	9.84	288.48	-5.06
4	22.192	10.18	9.80	288.23	-7.03
5	19.776	10.06	9.77	287.77	-14.05
6	17.386	10.10	9.79	287.93	-22.03
7	15.568	10.11	9.76	288.04	-23.66
8	14.938	10.15	9.77	287.79	-21.12
9	14.295	10.11	9.74	288.57	-16.14

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.24	9.78	288.42	18.45
2	23.818	10.24	9.76	288.51	17.60
3	23.454	10.24	9.76	288.41	16.41
4	21.387	10.25	9.73	288.30	16.75
5	18.636	10.24	9.76	288.11	16.11
6	15.883	10.22	9.85	288.30	19.75
7	13.810	10.19	9.87	288.62	29.70
8	13.119	10.22	9.90	288.43	35.40
9	12.428	10.20	9.90	289.25	39.25

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.86	11.07	312.83	37.19
2	24.023	12.81	11.07	310.75	35.68
3	23.312	12.71	11.06	308.06	32.52
4	21.145	12.21	10.90	304.39	31.09
5	18.260	11.24	10.82	300.81	32.20
6	15.464	10.91	10.84	302.24	13.00
7	13.467	10.89	10.85	303.12	27.76
8	12.781	10.90	10.87	302.99	33.83
9	12.225	10.88	10.86	303.59	40.13

TABLE I. - Continued.

(r) Reading number 2135

STAGE TOTAL PRESSURE RATIO	1.208
STAGE TOTAL TEMPERATURE RATIO	1.062
STAGE ADIABATIC EFFICIENCY	0.890
WEIGHT FLOW	13.64
ROTATIVE SPEED	8013.3
PERCENT DESIGN SPEED	99.9

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.78	288.76	-2.63
2	24.646	10.17	9.79	288.67	-3.36
3	24.036	10.19	9.79	288.37	-5.10
4	22.192	10.20	9.80	288.28	-7.86
5	19.776	10.09	9.77	287.97	-13.84
6	17.386	10.06	9.72	287.69	-17.72
7	15.568	10.09	9.71	287.91	-22.51
8	14.938	10.10	9.69	287.95	-20.54
9	14.295	10.11	9.71	287.98	-18.01

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.23	9.70	288.63	18.72
2	23.818	10.25	9.70	288.65	17.46
3	23.454	10.26	9.70	288.27	16.54
4	21.387	10.29	9.72	288.40	16.80
5	18.636	10.28	9.76	288.35	16.68
6	15.883	10.20	9.78	288.25	19.98
7	13.810	10.21	9.82	288.60	28.97
8	13.119	10.18	9.81	288.82	34.24
9	12.428	10.22	9.86	288.90	37.90

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.74	10.96	311.45	32.68
2	24.023	12.77	10.98	310.38	31.76
3	23.312	12.72	10.99	307.87	30.24
4	21.145	12.22	10.88	304.44	29.53
5	18.260	11.22	10.81	300.15	29.26
6	15.464	10.79	10.76	301.91	14.92
7	13.467	10.85	10.79	303.19	16.91
8	12.781	10.82	10.78	303.37	17.26
9	12.225	10.83	10.81	303.59	24.34

TABLE I. - Continued.

(s) Reading number 2136

STAGE TOTAL PRESSURE RATIO	1.200
STAGE TOTAL TEMPERATURE RATIO	1.060
STAGE ADIABATIC EFFICIENCY	0.888
WEIGHT FLOW	14.44
ROTATIVE SPEED	8015.3
PERCENT DESIGN SPEED	99.9

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.75	288.52	-3.62
2	24.646	10.18	9.74	288.58	-3.97
3	24.036	10.19	9.74	288.56	-4.92
4	22.192	10.21	9.74	288.29	-6.75
5	19.776	10.07	9.69	287.84	-12.58
6	17.386	10.07	9.67	287.85	-20.06
7	15.568	10.07	9.65	287.94	-21.69
8	14.958	10.08	9.61	287.95	-20.16
9	14.295	10.10	9.60	288.08	-17.85

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.25	9.64	288.75	18.50
2	23.818	10.25	9.64	288.42	17.55
3	23.454	10.25	9.64	288.31	17.30
4	21.387	10.29	9.66	288.30	16.38
5	18.636	10.26	9.68	288.29	16.60
6	15.885	10.20	9.74	288.34	18.28
7	13.810	10.23	9.76	288.75	30.26
8	13.119	10.18	9.75	288.75	34.14
9	12.428	10.17	9.77	288.94	37.05

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.71	10.81	310.73	28.67
2	24.023	12.69	10.83	309.02	29.00
3	23.312	12.69	10.83	307.61	27.58
4	21.145	12.16	10.73	304.12	27.58
5	18.260	11.07	10.66	298.68	23.05
6	15.464	10.64	10.65	300.56	39.26
7	13.467	10.71	10.66	302.23	14.94
8	12.781	10.68	10.63	302.44	20.57
9	12.225	10.67	10.65	302.59	30.84

TABLE I. - Concluded.

(t) Reading number 2137

STAGE TOTAL PRESSURE RATIO	1.195
STAGE TOTAL TEMPERATURE RATIO	1.059
STAGE ADIABATIC EFFICIENCY	0.883
WEIGHT FLOW	14.96
ROTATIVE SPEED	8015.4
PERCENT DESIGN SPEED	99.9

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.11	9.70	288.70	-2.61
2	24.646	10.17	9.71	288.43	-3.27
3	24.036	10.20	9.72	288.46	-4.19
4	22.192	10.21	9.71	288.27	-6.58
5	19.776	10.06	9.66	287.90	-14.69
6	17.586	10.09	9.66	287.92	-18.72
7	15.568	10.06	9.61	287.71	-20.71
8	14.958	10.12	9.61	287.90	-20.85
9	14.295	10.10	9.58	288.17	-16.71

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.24	9.58	288.77	19.13
2	23.818	10.26	9.60	288.59	17.80
3	23.454	10.27	9.61	288.54	18.10
4	21.587	10.29	9.62	288.51	17.26
5	18.686	10.27	9.65	288.36	16.42
6	15.883	10.25	9.74	288.35	19.62
7	13.810	10.22	9.73	288.77	29.55
8	13.119	10.21	9.75	288.73	33.57
9	12.428	10.21	9.74	288.96	36.44

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.62	10.68	310.21	25.86
2	24.023	12.65	10.71	308.53	25.44
3	23.312	12.65	10.72	307.02	25.38
4	21.145	12.14	10.64	304.13	25.68
5	18.260	10.99	10.57	298.18	19.02
6	15.464	10.58	10.58	299.95	50.54
7	13.467	10.59	10.56	301.58	22.17
8	12.781	10.61	10.56	301.91	19.62
9	12.225	10.57	10.54	302.02	32.03

TABLE II. - PERFORMANCE FOR STAGE 55R2-55R

(a) Reading number 2140

STAGE TOTAL PRESSURE RATIO	1.034
STAGE TOTAL TEMPERATURE RATIO	1.012
STAGE ADIABATIC EFFICIENCY	0.841
WEIGHT FLOW	7.63
ROTATIVE SPEED	4037.3
PERCENT DESIGN SPEED	50.3

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.09	10.01	288.52	-0.57
2	24.646	10.12	10.01	288.48	0.12
3	24.036	10.12	10.01	288.36	0.05
4	22.192	10.13	10.01	288.29	0.30
5	19.776	10.14	10.01	288.00	-0.07
6	17.386	10.15	10.00	287.90	-1.11
7	15.563	10.15	10.00	288.01	-1.12
8	14.958	10.15	9.99	288.08	-5.72
9	14.295	10.15	9.99	288.14	-0.99

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.12	9.99	288.54	16.83
2	23.818	10.12	9.99	288.42	16.49
3	23.454	10.14	9.99	288.17	16.45
4	21.387	10.13	9.99	288.11	19.24
5	18.656	10.14	10.00	287.63	24.65
6	15.883	10.15	10.01	287.67	29.17
7	13.810	10.13	10.01	287.78	30.87
8	13.119	10.14	10.02	287.94	31.00
9	12.428	10.13	10.02	288.24	33.98

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	10.56	10.15	292.44	21.64
2	24.023	10.60	10.15	292.40	20.87
3	23.312	10.59	10.16	291.89	19.79
4	21.145	10.47	10.14	291.33	21.92
5	18.260	10.20	10.14	289.58	8.00
6	15.464	10.14	10.14	290.53	12.07
7	13.467	10.13	10.14	291.08	10.74
8	12.781	10.13	10.13	291.18	23.00
9	12.225	10.13	10.13	291.45	38.54

TABLE II. - Continued.

(b) Reading number 2141

STAGE TOTAL PRESSURE RATIO	1.047
STAGE TOTAL TEMPERATURE RATIO	1.018
STAGE ADIABATIC EFFICIENCY	0.725
WEIGHT FLOW	9.11
ROTATIVE SPEED	4863.5
PERCENT DESIGN SPEED	60.6

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.94	288.33	-2.86
2	24.646	10.14	9.94	288.23	-1.41
3	24.036	10.14	9.94	288.19	-0.28
4	22.192	10.13	9.94	287.79	1.34
5	19.776	10.12	9.93	288.25	-2.74
6	17.586	10.14	9.93	288.07	-2.76
7	15.568	10.14	9.92	288.41	-0.06
8	14.953	10.14	9.92	288.64	0.63
9	14.295	10.14	9.91	288.28	1.98

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.08	9.90	288.48	15.87
2	23.818	10.11	9.91	288.33	15.70
3	23.454	10.10	9.91	288.40	16.02
4	21.587	10.11	9.91	288.17	18.84
5	18.636	10.12	9.92	288.25	24.11
6	15.883	10.13	9.94	288.02	28.95
7	13.810	10.12	9.95	288.04	30.39
8	13.119	10.11	9.94	288.22	31.55
9	12.428	10.11	9.95	288.44	33.74

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	10.74	10.13	294.59	21.55
2	24.023	10.79	10.14	294.40	20.72
3	23.312	10.79	10.15	293.94	19.94
4	21.145	10.60	10.12	293.24	22.02
5	18.260	10.21	10.11	291.06	6.14
6	15.464	10.12	10.11	292.05	9.25
7	13.467	10.12	10.12	292.46	29.20
8	12.781	10.11	10.11	292.86	19.29
9	12.225	10.12	10.11	292.70	10.67

TABLE II. - Continued.

(c) Reading number 2142

STAGE TOTAL PRESSURE RATIO	1.071
STAGE TOTAL TEMPERATURE RATIO	1.024
STAGE ADIABATIC EFFICIENCY	0.803
WEIGHT FLOW	10.49
ROTATIVE SPEED	5645.8
PERCENT DESIGN SPEED	70.4

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.06	9.90	288.57	-3.86
2	24.646	10.10	9.90	288.14	-3.90
3	24.036	10.12	9.92	288.19	-2.89
4	22.192	10.12	9.90	288.08	-2.32
5	19.776	10.14	9.91	288.11	-4.03
6	17.386	10.16	9.90	288.01	-0.68
7	15.568	10.14	9.87	287.93	-1.54
8	14.938	10.18	9.89	288.31	0.17
9	14.295	10.16	9.88	288.63	1.17

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.10	9.85	288.67	15.38
2	23.818	10.10	9.85	288.11	15.11
3	23.454	10.12	9.87	288.13	15.99
4	21.387	10.13	9.85	288.06	18.78
5	18.656	10.15	9.89	288.05	23.87
6	15.883	10.16	9.91	288.10	28.61
7	13.810	10.14	9.90	288.35	30.20
8	13.119	10.16	9.92	288.73	31.09
9	12.428	10.13	9.93	288.79	32.54

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.01	10.16	296.81	21.77
2	24.023	11.05	10.17	296.18	20.86
3	23.312	11.06	10.20	295.74	20.04
4	21.145	10.80	10.14	295.05	22.45
5	18.260	10.26	10.14	292.35	5.29
6	15.464	10.15	10.15	293.50	9.37
7	13.467	10.13	10.13	293.90	5.67
8	12.781	10.14	10.14	294.19	5.15
9	12.225	10.13	10.14	294.08	5.71

TABLE II. - Continued.

(d) Reading number 2143

STAGE TOTAL PRESSURE RATIO	1.087
STAGE TOTAL TEMPERATURE RATIO	1.028
STAGE ADIABATIC EFFICIENCY	0.844
WEIGHT FLOW	8.51
ROTATIVE SPEED	5622.7
PERCENT DESIGN SPEED	70.1

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.09	9.96	288.18	-3.99
2	24.646	10.12	9.98	288.30	-3.71
3	24.036	10.13	9.98	288.13	-3.13
4	22.192	10.14	9.98	288.10	-1.84
5	19.776	10.14	9.98	288.07	-3.38
6	17.386	10.09	9.96	288.01	-12.42
7	15.568	10.16	9.96	288.09	0.12
8	14.958	10.16	9.96	288.53	-3.70
9	14.295	10.16	9.95	288.73	1.47

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.11	9.92	288.25	16.20
2	23.818	10.14	9.94	288.41	15.72
3	23.454	10.14	9.94	288.28	15.61
4	21.387	10.15	9.94	288.09	19.34
5	18.636	10.15	9.96	288.16	24.54
6	15.883	10.15	9.98	288.79	21.92
7	13.810	10.15	9.98	288.55	30.55
8	13.119	10.15	9.99	288.84	31.95
9	12.428	10.13	10.00	288.94	34.52

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.18	10.45	298.52	31.25
2	24.023	11.19	10.46	297.59	29.34
3	23.312	11.18	10.47	296.72	27.72
4	21.145	10.97	10.43	295.34	28.59
5	18.260	10.55	10.42	294.63	34.19
6	15.464	10.40	10.41	295.15	38.40
7	13.467	10.41	10.41	295.01	33.05
8	12.781	10.41	10.42	295.28	46.58
9	12.225	10.41	10.42	295.41	35.66

TABLE II. - Continued.

(e) Reading number 2144

STAGE TOTAL PRESSURE RATIO	1.078
STAGE TOTAL TEMPERATURE RATIO	1.027
STAGE ADIABATIC EFFICIENCY	0.816
WEIGHT FLOW	9.24
ROTATIVE SPEED	5833.3
PERCENT DESIGN SPEED	70.2

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.08	9.93	288.13	-3.57
2	24.646	10.11	9.95	288.28	-3.50
3	24.036	10.14	9.95	288.56	-4.57
4	22.192	10.15	9.94	288.11	-5.92
5	19.776	10.10	9.93	288.02	-9.47
6	17.586	10.16	9.93	288.07	-2.03
7	15.588	10.15	9.92	288.05	0.60
8	14.938	10.16	9.91	287.98	0.85
9	14.295	10.14	9.91	288.03	-4.30

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.10	9.89	288.50	15.86
2	23.818	10.13	9.90	288.34	15.65
3	23.454	10.15	9.91	288.41	18.13
4	21.387	10.15	9.90	288.05	17.52
5	18.636	10.14	9.92	288.50	17.22
6	15.883	10.15	9.94	288.26	28.62
7	13.810	10.14	9.94	288.65	30.65
8	13.119	10.14	9.94	288.63	31.21
9	12.428	10.14	9.95	289.08	35.81

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.752	11.10	10.34	297.77	27.09
2	24.023	11.16	10.35	297.27	25.34
3	25.312	11.13	10.35	296.53	24.54
4	21.145	10.89	10.29	295.17	26.04
5	18.260	10.42	10.28	293.51	21.31
6	15.464	10.29	10.29	294.29	23.54
7	13.467	10.28	10.29	294.66	25.04
8	12.781	10.28	10.28	294.65	25.29
9	12.225	10.28	10.28	294.67	25.58

TABLE II. - Continued.

(f) Reading number 2145

STAGE TOTAL PRESSURE RATIO	1.091
STAGE TOTAL TEMPERATURE RATIO	1.032
STAGE ADIABATIC EFFICIENCY	0.790
WEIGHT FLOW	11.78
ROTATIVE SPEED	6455.7
PERCENT DESIGN SPEED	80.2

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.07	9.84	289.17	-4.12
2	24.646	10.13	9.85	288.40	-4.85
3	24.038	10.13	9.84	288.55	-5.10
4	22.192	10.15	9.86	288.09	-6.92
5	19.776	10.10	9.89	288.09	-8.22
6	17.336	10.16	9.84	287.99	-1.50
7	15.568	10.09	9.82	288.07	-18.34
8	14.938	10.18	9.82	288.22	0.50
9	14.295	10.18	9.81	288.52	1.10

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.07	9.78	288.22	15.30
2	25.818	10.14	9.79	288.30	17.68
3	23.454	10.13	9.78	288.26	18.06
4	21.987	10.16	9.81	288.17	16.95
5	18.658	10.14	9.82	288.43	19.54
6	15.885	10.18	9.85	288.60	29.11
7	13.810	10.14	9.88	289.04	31.17
8	13.119	10.16	9.86	288.90	31.61
9	12.428	10.15	9.86	289.13	32.28

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.30	10.19	299.49	21.68
2	24.023	11.38	10.20	298.79	20.01
3	23.312	11.34	10.21	297.97	20.89
4	21.145	11.01	10.16	297.12	24.38
5	18.260	10.31	10.15	293.11	7.30
6	15.464	10.15	10.15	294.92	19.69
7	13.467	10.15	10.16	295.66	9.67
8	12.781	10.15	10.16	295.93	10.23
9	12.225	10.15	10.15	296.21	19.16

TABLE II. - Continued.

(g) Reading number 2146

STAGE TOTAL PRESSURE RATIO	1.115
STAGE TOTAL TEMPERATURE RATIO	1.058
STAGE ADIABATIC EFFICIENCY	0.827
WEIGHT FLOW	0.65
ROTATIVE SPEED	6449.5
PERCENT DESIGN SPEED	80.4

		STATION 1			
RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.06	9.89	288.24	-5.89
2	24.648	10.11	9.91	288.06	-4.91
3	24.036	10.13	9.91	288.32	-4.22
4	22.102	10.12	9.91	288.27	-6.62
5	19.776	10.14	9.92	287.99	-3.43
6	17.386	10.17	9.92	288.04	-2.68
7	15.868	10.16	9.89	288.01	0.47
8	14.958	10.12	9.88	288.40	-6.00
9	14.295	10.14	9.87	288.46	1.05

		STATION 2			
RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.09	9.85	298.22	16.54
2	23.818	10.10	9.86	298.16	18.51
3	23.454	10.13	9.86	298.27	18.51
4	21.367	10.13	9.86	298.50	17.19
5	18.896	10.15	9.89	298.16	25.55
6	15.283	10.16	9.92	298.35	27.86
7	13.810	10.14	9.92	298.68	30.29
8	13.119	10.15	9.95	298.77	32.67
9	12.428	10.12	9.93	299.05	33.58

		STATION 3			
RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.50	10.55	301.12	30.89
2	24.023	11.54	10.58	300.46	29.46
3	23.312	11.52	10.58	299.71	29.26
4	21.145	11.23	10.51	298.35	31.27
5	18.260	10.67	10.50	296.68	34.08
6	15.464	10.50	10.50	297.05	74.82
7	13.467	10.48	10.49	297.40	54.47
8	12.781	10.48	10.49	297.61	39.81
9	12.225	10.48	10.49	297.59	35.02

TABLE II. - Continued.

(h) Reading number 2147

STAGE TOTAL PRESSURE RATIO	1.103
STAGE TOTAL TEMPERATURE RATIO	1.035
STAGE ADIABATIC EFFICIENCY	0.822
WEIGHT FLOW	10.45
ROTATIVE SPEED	6425.6
PERCENT DESIGN SPEED	80.1

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.08	9.88	288.22	-5.68
2	24.646	10.08	9.86	288.03	-4.66
3	24.036	10.13	9.88	288.22	-3.41
4	22.192	10.13	9.88	288.15	-2.01
5	19.776	10.13	9.88	288.09	-7.14
6	17.386	10.15	9.86	288.02	-1.10
7	15.568	10.15	9.85	288.17	-0.70
8	14.958	10.16	9.84	288.19	0.45
9	14.295	10.18	9.85	288.69	1.57

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.11	9.82	288.16	15.59
2	23.818	10.09	9.81	288.07	15.18
3	23.454	10.14	9.82	288.04	16.23
4	21.387	10.13	9.82	288.29	18.97
5	18.656	10.15	9.86	288.13	18.26
6	15.883	10.15	9.86	289.40	29.10
7	13.810	10.14	9.87	288.91	30.66
8	13.119	10.13	9.88	288.96	31.61
9	12.428	10.14	9.91	289.17	33.82

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.42	10.40	300.41	26.96
2	24.023	11.44	10.39	299.64	25.38
3	23.312	11.43	10.40	298.61	24.51
4	21.145	11.14	10.35	297.72	26.06
5	18.260	10.51	10.34	295.00	20.71
6	15.464	10.31	10.32	296.04	23.60
7	13.467	10.28	10.29	296.64	40.65
8	12.781	10.31	10.32	296.84	39.86
9	12.225	10.32	10.34	297.13	30.97

TABLE II. - Continued.

(i) Reading number 2148

STAGE TOTAL PRESSURE RATIO	1.119
STAGE TOTAL TEMPERATURE RATIO	1.041
STAGE ADIABATIC EFFICIENCY	0.798
WEIGHT FLOW	13.20
ROTATIVE SPEED	7245.0
PERCENT DESIGN SPEED	90.3

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.05	9.77	288.20	-4.63
2	24.646	10.09	9.77	288.26	-4.14
3	24.036	10.10	9.78	288.02	-3.81
4	22.192	10.11	9.76	288.07	-2.25
5	19.776	10.16	9.79	288.20	-3.74
6	17.386	10.14	9.74	288.29	-3.47
7	15.568	10.19	9.76	288.05	-1.77
8	14.958	10.18	9.73	288.22	-0.02
9	14.295	10.18	9.72	288.26	-0.01

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.07	9.69	288.01	14.84
2	23.818	10.10	9.69	288.41	14.71
3	23.454	10.11	9.69	287.99	15.13
4	21.387	10.13	9.68	288.23	18.13
5	18.636	10.17	9.74	288.20	23.06
6	15.883	10.15	9.75	288.67	28.32
7	13.810	10.18	9.80	288.51	30.07
8	13.119	10.15	9.78	289.05	31.25
9	12.428	10.13	9.79	288.80	32.35

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.64	10.19	302.52	21.97
2	24.023	11.73	10.22	302.08	20.91
3	23.312	11.70	10.24	300.91	20.52
4	21.145	11.24	10.15	299.66	23.69
5	18.260	10.34	10.16	294.33	3.40
6	15.464	10.15	10.14	297.38	6.13
7	13.467	10.16	10.16	297.90	5.28
8	12.781	10.15	10.15	298.10	9.11
9	12.225	10.16	10.14	298.08	8.58

TABLE II. - Continued.

(j) Reading number 2149

STAGE TOTAL PRESSURE RATIO	1.146
STAGE TOTAL TEMPERATURE RATIO	1.048
STAGE ADIABATIC EFFICIENCY	0.834
WEIGHT FLOW	11.04
ROTATIVE SPEED	7248.2
PERCENT DESIGN SPEED	90.4

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.07	9.87	288.25	-4.05
2	24.646	10.11	9.88	288.35	-4.76
3	24.036	10.12	9.87	288.34	-2.85
4	22.192	10.14	9.88	288.07	-2.35
5	19.776	10.14	9.85	288.05	-2.90
6	17.386	10.07	9.83	287.94	-14.68
7	15.568	10.18	9.84	288.11	0.65
8	14.938	10.20	9.84	288.32	0.75
9	14.295	10.19	9.83	288.65	1.43

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.11	9.80	288.50	15.25
2	23.818	10.12	9.81	288.50	15.21
3	23.484	10.13	9.80	288.47	15.21
4	21.387	10.16	9.81	288.34	18.22
5	18.636	10.15	9.81	288.36	23.50
6	15.883	10.13	9.86	288.68	20.90
7	13.810	10.17	9.88	288.72	30.59
8	13.119	10.17	9.90	288.85	32.26
9	12.428	10.15	9.91	289.12	34.80

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.94	10.68	304.77	31.20
2	24.023	11.95	10.68	305.89	29.18
3	23.312	11.93	10.68	302.92	27.81
4	21.145	11.52	10.60	300.47	28.77
5	18.260	10.78	10.57	298.63	31.55
6	15.464	10.55	10.55	299.20	55.97
7	13.467	10.58	10.58	299.95	73.51
8	12.781	10.58	10.59	300.02	8.95
9	12.225	10.58	10.58	300.16	-4.41

TABLE II. - Continued.

(k) Reading number 2150

STAGE TOTAL PRESSURE RATIO	1.138
STAGE TOTAL TEMPERATURE RATIO	1.045
STAGE ADIABATIC EFFICIENCY	0.827
WEIGHT FLOW	11.56
ROTATIVE SPEED	7254.5
PERCENT DESIGN SPEED	90.5

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.08	9.83	288.31	-3.85
2	24.646	10.10	9.82	288.21	-4.28
3	24.036	10.11	9.84	288.08	-2.82
4	22.192	10.11	9.81	287.90	-2.86
5	19.776	10.12	9.81	288.07	-4.26
6	17.386	10.16	9.81	288.21	-1.49
7	15.568	10.17	9.78	288.40	0.22
8	14.938	10.17	9.78	288.46	1.15
9	14.295	10.18	9.78	288.48	1.70

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.08	9.76	288.37	15.07
2	23.818	10.12	9.75	288.27	14.91
3	23.454	10.13	9.76	288.20	15.30
4	21.387	10.13	9.74	287.96	18.42
5	18.636	10.15	9.78	288.03	23.69
6	15.683	10.16	9.82	288.47	28.24
7	13.810	10.14	9.82	289.18	31.09
8	13.119	10.13	9.82	289.38	31.04
9	12.428	10.14	9.85	288.95	33.55

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.84	10.53	304.46	28.50
2	24.023	11.86	10.53	303.02	26.35
3	23.312	11.87	10.56	302.02	25.04
4	21.145	11.42	10.45	300.17	27.21
5	18.260	10.65	10.44	297.45	24.63
6	15.464	10.43	10.43	298.94	55.25
7	13.467	10.43	10.43	299.45	41.43
8	12.781	10.43	10.44	299.60	28.14
9	12.225	10.44	10.45	299.45	24.96

TABLE II. - Continued.

(*l*) Reading number 2151

STAGE TOTAL PRESSURE RATIO	1.128
STAGE TOTAL TEMPERATURE RATIO	1.043
STAGE ADIABATIC EFFICIENCY	0.807
WEIGHT FLOW	11.88
ROTATIVE SPEED	7233.7
PERCENT DESIGN SPEED	90.2

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.07	9.81	288.29	-4.52
2	24.646	10.09	9.81	288.14	-3.88
3	24.036	10.12	9.82	288.08	-3.27
4	22.192	10.12	9.80	288.04	-2.74
5	19.776	10.17	9.85	288.01	-3.43
6	17.386	10.19	9.81	288.16	-0.45
7	15.568	10.08	9.76	288.09	-19.10
8	14.958	10.08	9.74	288.26	-18.20
9	14.295	10.14	9.76	289.08	-6.86

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.09	9.73	288.57	14.87
2	23.818	10.10	9.73	288.57	14.87
3	23.454	10.13	9.74	288.07	15.15
4	21.387	10.14	9.72	288.22	17.72
5	18.636	10.18	9.79	287.89	22.97
6	15.883	10.19	9.82	288.32	27.97
7	13.810	10.15	9.84	289.04	31.24
8	13.119	10.11	9.83	289.09	34.59
9	12.428	10.14	9.86	289.02	34.48

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.71	10.40	303.44	25.59
2	24.023	11.80	10.42	302.63	24.03
3	23.312	11.82	10.44	301.68	22.97
4	21.145	11.33	10.33	299.88	25.94
5	18.260	10.56	10.35	296.27	16.64
6	15.464	10.34	10.35	298.19	30.61
7	13.467	10.32	10.32	298.50	-0.01
8	12.781	10.31	10.32	298.58	7.61
9	12.225	10.31	10.32	298.68	15.53

TABLE II. - Continued.

(m) Reading number 2152

STAGE TOTAL PRESSURE RATIO	1.146
STAGE TOTAL TEMPERATURE RATIO	1.051
STAGE ADIABATIC EFFICIENCY	0.784
WEIGHT FLOW	14.41
ROTATIVE SPEED	8058.9
PERCENT DESIGN SPEED	100.5

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.14	9.73	288.65	-3.39
2	24.646	10.13	9.70	288.37	-3.88
3	24.036	10.14	9.74	288.30	-3.05
4	22.192	10.16	9.73	288.14	-1.30
5	19.776	10.18	9.72	287.86	-2.09
6	17.586	10.06	9.66	287.96	-18.63
7	15.568	10.11	9.64	288.06	-21.78
8	14.938	10.10	9.64	288.28	-18.79
9	14.295	10.07	9.62	288.57	-15.95

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.14	9.63	288.55	18.94
2	23.818	10.10	9.60	288.09	14.54
3	23.454	10.14	9.63	288.30	15.14
4	21.387	10.17	9.63	288.57	17.85
5	18.636	10.19	9.67	288.34	23.11
6	15.883	10.14	9.73	288.41	21.26
7	13.810	10.13	9.75	288.73	29.35
8	13.119	10.11	9.74	288.68	34.35
9	12.428	10.09	9.75	289.24	36.57

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.06	10.22	305.47	19.26
2	24.023	12.13	10.24	304.63	21.11
3	23.312	12.13	10.30	304.40	20.95
4	21.145	11.53	10.19	302.44	24.33
5	18.260	10.40	10.19	296.02	3.71
6	15.464	10.16	10.17	298.76	3.54
7	13.467	10.17	10.18	299.86	2.05
8	12.781	10.17	10.18	300.12	5.35
9	12.225	10.16	10.16	300.51	2.04

TABLE II. - Continued.

(n) Reading number 2153

STAGE TOTAL PRESSURE RATIO	1.185
STAGE TOTAL TEMPERATURE RATIO	1.059
STAGE ADIABATIC EFFICIENCY	0.838
WEIGHT FLOW	11.79
ROTATIVE SPEED	8057.0
PERCENT DESIGN SPEED	100.5

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.13	9.82	288.45	-5.26
2	24.646	10.11	9.81	288.34	-4.12
3	24.036	10.11	9.83	288.26	-2.39
4	22.192	10.13	9.82	288.06	-0.92
5	19.776	10.16	9.82	288.06	-2.85
6	17.386	10.17	9.80	288.01	-0.55
7	15.568	10.07	9.78	287.95	-11.56
8	14.938	10.09	9.75	288.20	-18.02
9	14.295	10.10	9.75	288.74	-15.70

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.14	9.74	288.32	19.23
2	23.818	10.11	9.73	288.31	14.61
3	23.454	10.12	9.75	288.33	15.10
4	21.387	10.14	9.73	288.38	18.39
5	18.636	10.18	9.78	288.38	25.32
6	15.883	10.19	9.81	288.77	28.30
7	13.810	10.15	9.84	288.58	31.63
8	13.119	10.12	9.84	289.10	35.11
9	12.428	10.12	9.87	289.45	39.48

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.46	10.89	308.95	30.56
2	24.023	12.44	10.88	307.57	30.53
3	23.312	12.43	10.91	306.35	29.18
4	21.145	11.89	10.78	303.45	30.28
5	18.260	11.00	10.76	301.39	35.59
6	15.464	10.76	10.75	302.80	39.39
7	13.467	10.73	10.73	303.06	60.49
8	12.781	10.72	10.71	303.03	25.35
9	12.225	10.74	10.73	303.14	18.90

TABLE II. - Continued.

(o) Reading number 2154

STAGE TOTAL PRESSURE RATIO	1.171
STAGE TOTAL TEMPERATURE RATIO	1.057
STAGE ADIABATIC EFFICIENCY	0.805
WEIGHT FLOW	12.75
ROTATIVE SPEED	8057.3
PERCENT DESIGN SPEED	100.5

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.06	9.75	288.27	-4.71
2	24.646	10.09	9.75	288.03	-4.04
3	24.036	10.09	9.75	288.33	-2.95
4	22.192	10.13	9.76	288.16	-2.62
5	19.776	10.13	9.74	287.95	-2.25
6	17.586	10.16	9.74	288.14	-1.88
7	15.568	10.18	9.73	288.18	2.00
8	14.938	10.19	9.71	288.27	0.88
9	14.295	10.19	9.69	288.50	1.51

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.05	9.66	288.30	14.56
2	23.818	10.11	9.66	288.14	14.55
3	23.454	10.10	9.66	288.59	15.03
4	21.387	10.15	9.67	288.39	17.97
5	18.636	10.14	9.69	288.34	22.42
6	15.883	10.17	9.75	288.87	27.76
7	13.810	10.17	9.78	288.65	30.92
8	13.119	10.15	9.78	289.14	31.61
9	12.428	10.13	9.79	289.54	33.85

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.27	10.63	308.42	28.78
2	24.023	12.30	10.61	306.75	26.27
3	23.312	12.31	10.64	306.01	25.48
4	21.145	11.72	10.53	303.19	28.13
5	18.260	10.76	10.52	300.09	24.72
6	15.464	10.53	10.53	301.95	28.15
7	13.467	10.55	10.55	302.24	47.12
8	12.781	10.55	10.54	302.71	39.77
9	12.225	10.54	10.55	302.84	-17.60

TABLE II. - Concluded.

(p) Reading number 2155

STAGE TOTAL PRESSURE RATIO	1.158
STAGE TOTAL TEMPERATURE RATIO	1.053
STAGE ADIABATIC EFFICIENCY	0.806
WEIGHT FLOW	13.06
ROTATIVE SPEED	8019.0
PERCENT DESIGN SPEED	100.0

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.14	9.77	288.53	-3.56
2	24.646	10.14	9.74	288.57	-4.74
3	24.036	10.18	9.77	288.50	-5.66
4	22.192	10.16	9.75	288.03	-8.10
5	19.776	10.05	9.74	287.79	-15.80
6	17.386	10.08	9.72	287.83	-12.88
7	15.568	10.11	9.71	287.98	-19.43
8	14.958	10.23	9.74	288.70	1.18
9	14.295	10.24	9.71	288.51	1.14

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.16	9.67	288.40	19.43
2	23.818	10.14	9.64	288.53	17.66
3	23.454	10.18	9.67	288.44	16.70
4	21.587	10.19	9.67	288.06	16.25
5	18.696	10.20	9.73	288.06	16.15
6	15.883	10.16	9.77	288.54	22.45
7	13.810	10.17	9.80	288.75	29.67
8	13.119	10.21	9.80	289.09	30.19
9	12.428	10.17	9.79	289.24	33.03

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.19	10.48	306.63	22.19
2	24.023	12.23	10.47	305.81	22.17
3	23.312	12.23	10.51	304.92	25.36
4	21.145	11.65	10.41	302.45	27.87
5	18.260	10.67	10.41	297.85	17.76
6	15.464	10.40	10.40	300.09	65.37
7	13.467	10.40	10.40	300.79	72.22
8	12.781	10.41	10.41	301.38	31.62
9	12.225	10.41	10.42	301.77	22.45

TABLE III. - PERFORMANCE FOR STAGE 55R3-55R

(a) Reading number 2165

STAGE TOTAL PRESSURE RATIO	1.045
STAGE TOTAL TEMPERATURE RATIO	1.015
STAGE ADIABATIC EFFICIENCY	0.827
WEIGHT FLOW	10.05
ROTATIVE SPEED	4010.0
PERCENT DESIGN SPEED	50.0

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.10	9.93	288.23	-1.28
2	24.646	10.11	9.92	288.25	-1.95
3	24.036	10.12	9.92	288.17	-1.47
4	22.192	10.13	9.92	288.12	-0.17
5	19.776	10.14	9.92	288.04	-0.17
6	17.386	10.14	9.91	288.09	-0.23
7	15.568	10.15	9.90	288.32	-0.56
8	14.938	10.15	9.90	288.38	-0.10
9	14.295	10.14	9.90	288.31	-0.93

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.10	9.89	287.97	15.34
2	23.818	10.10	9.88	287.92	14.77
3	23.454	10.11	9.89	287.90	15.28
4	21.387	10.13	9.89	288.05	18.10
5	18.656	10.13	9.90	288.06	23.17
6	15.883	10.15	9.91	288.24	27.33
7	13.810	10.14	9.91	288.12	29.83
8	13.119	10.13	9.91	288.42	29.55
9	12.428	10.13	9.91	288.57	31.08

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	10.70	10.18	294.17	29.34
2	24.023	10.71	10.18	293.82	27.39
3	23.312	10.71	10.18	293.31	23.90
4	21.145	10.63	10.16	292.11	19.53
5	18.260	10.36	10.14	291.25	16.90
6	15.464	10.16	10.13	290.81	15.46
7	13.467	10.14	10.14	291.17	19.74
8	12.781	10.13	10.13	291.20	34.03
9	12.225	10.13	10.14	291.55	32.20

TABLE III. - Continued.

(b) Reading number 2166

STAGE TOTAL PRESSURE RATIO	1.066
STAGE TOTAL TEMPERATURE RATIO	1.022
STAGE ADIABATIC EFFICIENCY	0.835
WEIGHT FLOW	12.01
ROTATIVE SPEED	4827.1
PERCENT DESIGN SPEED	60.2

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.08	9.83	288.17	-1.43
2	24.646	10.12	9.83	288.25	-2.12
3	24.036	10.11	9.84	288.26	-1.23
4	22.192	10.13	9.83	287.83	-0.29
5	19.776	10.14	9.83	288.17	0.07
6	17.586	10.15	9.82	288.21	0.31
7	15.568	10.16	9.80	288.30	0.34
8	14.958	10.16	9.80	288.32	0.20
9	14.295	10.15	9.79	288.48	-0.48

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.07	9.77	287.95	14.94
2	23.818	10.09	9.77	288.00	14.55
3	23.454	10.10	9.78	288.06	15.22
4	21.387	10.13	9.78	287.84	18.19
5	18.636	10.14	9.79	287.91	22.59
6	15.883	10.15	9.82	288.21	27.12
7	13.810	10.14	9.82	288.40	29.75
8	13.119	10.14	9.82	288.16	29.50
9	12.428	10.12	9.82	288.18	31.13

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	10.97	10.19	297.03	28.78
2	24.023	10.98	10.21	296.32	27.08
3	23.312	10.99	10.21	295.67	23.80
4	21.145	10.86	10.18	295.85	19.47
5	18.260	10.45	10.14	292.34	16.31
6	15.464	10.17	10.14	291.81	15.72
7	13.467	10.14	10.14	292.61	26.01
8	12.781	10.14	10.14	292.58	24.29
9	12.225	10.14	10.14	292.43	24.87

TABLE III. - Continued.

(c) Reading number 2167

STAGE TOTAL PRESSURE RATIO	1.090
STAGE TOTAL TEMPERATURE RATIO	1.030
STAGE ADIABATIC EFFICIENCY	0.847
WEIGHT FLOW	13.75
ROTATIVE SPEED	5604.3
PERCENT DESIGN SPEED	69.9

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.08	9.75	288.21	-1.14
2	24.646	10.12	9.75	288.32	-1.28
3	24.036	10.13	9.76	288.10	-1.60
4	22.192	10.15	9.75	287.98	-0.03
5	19.776	10.17	9.74	288.31	0.01
6	17.386	10.17	9.74	288.25	-1.56
7	15.568	10.04	9.70	287.90	-12.18
8	14.938	10.07	9.69	288.31	-18.16
9	14.295	10.06	9.68	288.15	-12.75

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.09	9.67	287.94	14.96
2	23.818	10.11	9.68	288.09	14.83
3	23.454	10.11	9.68	287.85	15.15
4	21.387	10.16	9.68	287.87	17.84
5	18.636	10.16	9.70	288.19	22.74
6	15.883	10.19	9.73	288.25	27.13
7	13.810	10.14	9.76	288.26	28.59
8	13.119	10.13	9.76	288.90	31.32
9	12.428	10.11	9.77	288.50	33.71

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.752	11.30	10.24	300.10	28.19
2	24.023	11.33	10.26	299.23	26.92
3	23.312	11.35	10.27	297.99	23.94
4	21.145	11.15	10.22	295.99	19.83
5	18.260	10.57	10.17	293.73	16.06
6	15.464	10.20	10.17	292.86	15.61
7	13.467	10.17	10.17	293.43	17.97
8	12.781	10.18	10.16	294.07	11.26
9	12.225	10.17	10.17	294.17	58.84

TABLE III. - Continued.

(d) Reading number 2168

STAGE TOTAL PRESSURE RATIO	1.123
STAGE TOTAL TEMPERATURE RATIO	1.041
STAGE ADIABATIC EFFICIENCY	0.829
WEIGHT FLOW	15.42
ROTATIVE SPEED	6417.5
PERCENT DESIGN SPEED	80.0

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.11	9.70	287.97	-3.97
2	24.646	10.17	9.70	288.45	-5.21
3	24.036	10.19	9.70	288.66	-5.97
4	22.192	10.19	9.68	288.24	-8.44
5	19.776	10.10	9.66	288.07	-11.52
6	17.586	10.08	9.64	287.85	-14.84
7	15.568	10.07	9.59	288.03	-20.90
8	14.938	10.10	9.60	287.99	-19.51
9	14.295	10.10	9.60	288.24	-17.60

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.19	9.60	288.38	18.55
2	23.818	10.20	9.59	288.68	17.43
3	23.454	10.22	9.60	288.87	17.27
4	21.387	10.22	9.60	288.38	16.58
5	18.636	10.22	9.64	288.65	16.68
6	15.885	10.18	9.69	288.48	21.26
7	13.810	10.17	9.70	288.78	28.69
8	13.119	10.14	9.69	288.59	31.71
9	12.428	10.15	9.70	288.80	34.82

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.77	10.33	304.45	25.71
2	24.023	11.78	10.35	303.15	25.00
3	23.312	11.81	10.37	301.93	23.88
4	21.145	11.51	10.30	299.02	22.33
5	18.260	10.75	10.24	295.84	19.87
6	15.464	10.30	10.24	294.71	15.74
7	13.467	10.28	10.23	296.11	7.38
8	12.781	10.27	10.23	296.07	8.79
9	12.225	10.25	10.24	296.34	14.33

TABLE III. - Continued.

(e) Reading number 2169

STAGE TOTAL PRESSURE RATIO	1.131
STAGE TOTAL TEMPERATURE RATIO	1.043
STAGE ADIABATIC EFFICIENCY	0.838
WEIGHT FLOW	13.24
ROTATIVE SPEED	6422.8
PERCENT DESIGN SPEED	80.1

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.11	9.76	288.73	-6.04
2	24.646	10.15	9.76	288.55	-6.37
3	24.036	10.16	9.76	288.27	-5.36
4	22.192	10.18	9.75	288.11	-8.20
5	19.776	10.12	9.73	287.98	-11.74
6	17.386	10.07	9.71	287.78	-16.69
7	15.568	10.07	9.69	287.89	-20.39
8	14.938	10.11	9.69	288.26	-12.36
9	14.295	10.20	9.69	288.59	-0.20

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.16	9.68	288.77	18.65
2	23.818	10.18	9.68	288.76	17.94
3	23.454	10.19	9.68	288.31	17.08
4	21.587	10.20	9.69	288.18	16.97
5	18.636	10.19	9.71	288.41	16.93
6	15.883	10.15	9.75	288.17	19.81
7	13.810	10.17	9.77	288.57	28.35
8	13.119	10.16	9.77	288.32	31.05
9	12.428	10.19	9.78	288.31	31.17

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.85	10.52	305.80	33.94
2	24.023	11.82	10.52	304.28	31.44
3	23.312	11.84	10.52	302.02	27.49
4	21.145	11.55	10.46	299.18	26.48
5	18.260	10.88	10.40	296.32	25.58
6	15.464	10.43	10.39	295.52	26.17
7	13.467	10.40	10.38	296.81	22.32
8	12.781	10.39	10.39	296.88	45.58
9	12.225	10.40	10.40	297.38	61.95

TABLE III. - Continued.

(f) Reading number 2170

STAGE TOTAL PRESSURE RATIO	1.128
STAGE TOTAL TEMPERATURE RATIO	1.042
STAGE ADIABATIC EFFICIENCY	0.840
WEIGHT FLOW	14.53
ROTATIVE SPEED	6433.3
PERCENT DESIGN SPEED	80.2

• • •		STATION 1			• • •
RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.10	9.72	288.94	-5.26
2	24.646	10.16	9.72	288.50	-5.12
3	24.036	10.18	9.71	288.33	-5.33
4	22.192	10.19	9.71	288.09	-7.14
5	19.776	10.07	9.68	287.94	-12.71
6	17.386	10.05	9.66	287.89	-17.01
7	15.568	10.23	9.66	288.10	-4.09
8	14.933	10.08	9.61	287.79	-19.44
9	14.295	10.10	9.60	288.19	-17.09

• • •		STATION 2			• • •
RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.16	9.65	289.09	18.71
2	23.818	10.19	9.65	288.71	17.53
3	23.454	10.15	9.65	288.50	15.50
4	21.387	10.21	9.65	288.13	17.15
5	18.686	10.20	9.66	288.43	16.54
6	15.883	10.15	9.71	288.55	20.17
7	13.810	10.23	9.71	288.78	28.95
8	13.119	10.15	9.72	288.62	57.74
9	12.428	10.13	9.73	288.80	34.05

• • •		STATION 3			• • •
RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	11.79	10.42	304.94	29.29
2	24.023	11.81	10.43	305.58	27.94
3	23.312	11.82	10.42	302.08	25.29
4	21.145	11.54	10.37	299.00	24.01
5	18.260	10.82	10.32	296.12	22.99
6	15.464	10.55	10.30	295.11	21.45
7	13.467	10.31	10.31	296.56	60.08
8	12.781	10.32	10.30	296.87	12.98
9	12.225	10.31	10.30	296.99	11.54

TABLE III. - Continued.

(g) Reading number 2172

STAGE TOTAL PRESSURE RATIO	1.159
STAGE TOTAL TEMPERATURE RATIO	1.053
STAGE ADIABATIC EFFICIENCY	0.817
WEIGHT FLOW	17.18
ROTATIVE SPEED	7195.6
PERCENT DESIGN SPEED	89.7

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.59	288.52	-4.37
2	24.646	10.19	9.60	288.58	-5.49
3	24.036	10.22	9.59	288.45	-6.47
4	22.192	10.22	9.57	288.25	-9.72
5	19.776	10.05	9.54	287.67	-16.05
6	17.386	10.06	9.50	287.95	-19.97
7	15.568	10.08	9.47	287.91	-22.08
8	14.938	10.11	9.46	288.11	-20.86
9	14.295	10.10	9.47	288.64	-18.49

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.20	9.46	288.76	18.87
2	23.818	10.25	9.48	288.72	17.18
3	23.454	10.25	9.47	288.55	18.00
4	21.387	10.27	9.47	288.50	16.33
5	18.636	10.26	9.55	288.49	16.92
6	15.885	10.19	9.58	288.40	19.67
7	13.810	10.22	9.61	288.61	28.02
8	13.119	10.17	9.60	288.83	31.84
9	12.428	10.18	9.62	289.14	35.29

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.24	10.41	308.65	25.64
2	24.023	12.27	10.42	306.84	24.48
3	23.312	12.29	10.43	307.12	24.05
4	21.145	11.88	10.35	302.05	22.56
5	18.260	10.91	10.30	297.60	20.71
6	15.464	10.34	10.28	296.33	19.91
7	13.467	10.35	10.28	297.94	7.89
8	12.781	10.32	10.28	298.36	11.33
9	12.225	10.29	10.29	298.41	24.53

TABLE III. - Continued.

(h) Reading number 2173

STAGE TOTAL PRESSURE RATIO	1.170
STAGE TOTAL TEMPERATURE RATIO	1.056
STAGE ADIABATIC EFFICIENCY	0.821
WEIGHT FLOW	13.91
ROTATIVE SPEED	7205.6
PERCENT DESIGN SPEED	89.8

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.11	9.73	288.39	-6.39
2	24.646	10.16	9.73	288.53	-7.29
3	24.036	10.17	9.73	288.49	-7.72
4	22.192	10.18	9.72	288.28	-9.20
5	19.776	10.14	9.71	287.98	-11.25
6	17.386	10.07	9.68	287.80	-18.07
7	15.568	10.09	9.66	287.74	-22.07
8	14.938	10.11	9.65	288.20	-21.78
9	14.295	10.09	9.64	288.34	-15.81

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.18	9.64	288.57	18.76
2	23.818	10.20	9.64	288.49	17.88
3	23.454	10.21	9.64	288.42	17.18
4	21.387	10.22	9.65	288.39	16.50
5	18.636	10.21	9.68	288.22	16.63
6	15.883	10.17	9.72	288.50	20.62
7	13.810	10.18	9.75	289.45	28.75
8	13.119	10.16	9.74	288.68	32.70
9	12.428	10.15	9.76	288.82	34.94

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.41	10.75	311.99	39.44
2	24.023	12.33	10.75	309.13	36.31
3	23.312	12.29	10.74	306.35	31.99
4	21.145	11.95	10.66	302.08	28.50
5	18.260	11.15	10.58	298.77	28.28
6	15.464	10.58	10.55	298.11	29.16
7	13.467	10.56	10.55	299.66	31.55
8	12.781	10.56	10.55	299.93	32.50
9	12.225	10.56	10.56	299.98	67.48

TABLE III. - Continued.

(i) Reading number 2174

STAGE TOTAL PRESSURE RATIO	1.166
STAGE TOTAL TEMPERATURE RATIO	1.054
STAGE ADIABATIC EFFICIENCY	0.838
WEIGHT FLOW	15.51
ROTATIVE SPEED	7206.2
PERCENT DESIGN SPEED	89.9

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.65	288.59	-5.75
2	24.646	10.20	9.66	288.61	-6.05
3	24.056	10.21	9.65	288.50	-6.62
4	22.192	10.19	9.64	288.27	-10.09
5	19.776	10.07	9.61	287.81	-15.34
6	17.386	10.07	9.59	287.67	-17.75
7	15.568	10.10	9.55	288.03	-22.46
8	14.938	10.11	9.54	288.13	-21.17
9	14.295	10.11	9.54	288.43	-18.48

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.21	9.54	288.73	18.69
2	23.818	10.23	9.55	288.73	18.35
3	23.454	10.24	9.55	288.69	17.36
4	21.387	10.27	9.56	288.56	16.23
5	18.636	10.27	9.60	288.44	16.24
6	15.883	10.19	9.65	288.12	20.69
7	13.810	10.22	9.67	288.93	27.46
8	13.119	10.18	9.67	288.81	31.40
9	12.428	10.18	9.69	289.01	35.75

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.30	10.57	309.78	30.28
2	24.023	12.35	10.58	307.81	28.54
3	23.312	12.35	10.60	305.79	26.47
4	21.145	11.94	10.50	302.04	24.82
5	18.260	11.05	10.44	298.30	23.90
6	15.464	10.48	10.42	297.21	23.67
7	13.467	10.43	10.43	299.06	42.01
8	12.781	10.42	10.42	299.26	40.48
9	12.225	10.42	10.43	299.61	31.86

TABLE III. - Continued.

(j) Reading number 2175

STAGE TOTAL PRESSURE RATIO	1.197
STAGE TOTAL TEMPERATURE RATIO	1.062
STAGE ADIABATIC EFFICIENCY	0.844
WEIGHT FLOW	18.85
ROTATIVE SPEED	7991.7
PERCENT DESIGN SPEED	99.6

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.51	288.14	-4.29
2	24.646	10.20	9.46	288.49	-6.32
3	24.036	10.22	9.46	288.50	-7.17
4	22.192	10.23	9.43	288.27	-10.39
5	19.776	10.04	9.38	287.68	-14.78
6	17.386	10.03	9.35	287.81	-19.96
7	15.568	10.12	9.29	288.42	-26.07
8	14.938	10.12	9.27	288.48	-22.89
9	14.295	10.08	9.26	288.64	-17.29

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.30	9.55	288.65	19.44
2	23.818	10.25	9.50	288.64	18.03
3	23.454	10.28	9.50	288.75	17.54
4	21.387	10.31	9.50	288.50	16.18
5	18.656	10.29	9.57	288.56	17.00
6	15.883	10.19	9.44	288.37	19.40
7	13.810	10.18	9.48	288.99	28.27
8	13.119	10.17	9.47	288.96	32.38
9	12.428	10.16	9.47	288.91	35.33

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.79	10.49	312.73	25.28
2	24.023	12.77	10.46	311.17	25.22
3	23.312	12.85	10.51	309.27	24.31
4	21.145	12.29	10.42	304.70	22.80
5	18.260	11.04	10.31	299.45	20.20
6	15.464	10.37	10.31	298.32	18.74
7	13.467	10.39	10.32	300.52	9.60
8	12.781	10.36	10.32	301.09	13.22
9	12.225	10.32	10.31	301.35	21.21

TABLE III. - Continued.

(k) Reading number 2176

STAGE TOTAL PRESSURE RATIO	1.215
STAGE TOTAL TEMPERATURE RATIO	1.064
STAGE ADIABATIC EFFICIENCY	0.887
WEIGHT FLOW	16.18
ROTATIVE SPEED	7957.2
PERCENT DESIGN SPEED	99.2

STATION 1

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.65	287.79	-5.52
2	24.646	10.19	9.65	288.17	-5.49
3	24.036	10.22	9.66	288.24	-5.64
4	22.192	10.23	9.64	288.60	-9.47
5	19.776	10.08	9.61	287.79	-11.94
6	17.586	10.04	9.55	287.69	-15.33
7	15.568	10.02	9.51	287.94	-17.87
8	14.938	10.09	9.51	288.90	-18.47
9	14.295	10.10	9.49	289.20	-14.92

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.27	9.52	288.21	19.76
2	23.818	10.30	9.52	287.82	17.17
3	23.454	10.29	9.54	287.59	17.54
4	21.387	10.31	9.54	287.62	16.62
5	18.636	10.32	9.59	287.84	16.49
6	15.383	10.24	9.63	287.79	19.35
7	13.811	10.25	9.65	287.82	28.71
8	13.119	10.21	9.66	288.30	32.13
9	12.428	10.22	9.67	288.47	35.64

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.93	10.86	314.86	35.34
2	24.023	12.92	10.86	312.05	32.00
3	23.312	12.90	10.88	308.97	29.19
4	21.145	12.45	10.78	304.60	27.44
5	18.260	11.38	10.70	299.97	26.96
6	15.464	10.68	10.65	299.20	26.78
7	13.467	10.64	10.64	301.27	39.42
8	12.781	10.65	10.65	301.98	47.77
9	12.225	10.66	10.66	302.48	45.43

TABLE III. - Concluded.

(*l*) Reading number 2177

STAGE TOTAL PRESSURE RATIO	1.213
STAGE TOTAL TEMPERATURE RATIO	1.064
STAGE ADIABATIC EFFICIENCY	0.894
WEIGHT FLOW	17.33
ROTATIVE SPEED	7970.8
PERCENT DESIGN SPEED	99.4

STATION 1

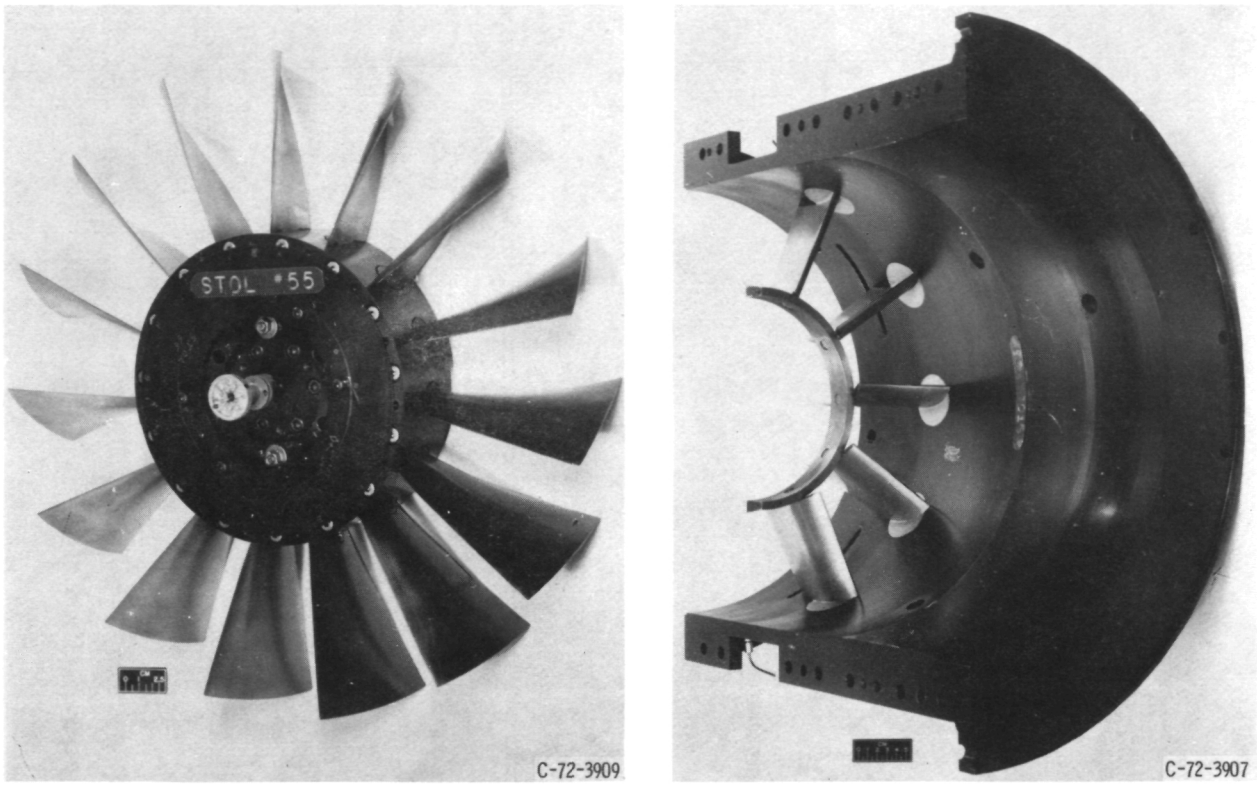
RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	25.278	10.12	9.61	288.19	-4.26
2	24.646	10.23	9.60	288.26	-4.27
3	24.036	10.25	9.59	288.21	-5.44
4	22.192	10.24	9.58	288.11	-9.20
5	19.776	10.04	9.55	287.89	-14.88
6	17.386	10.05	9.49	287.78	-14.16
7	15.568	10.02	9.46	288.80	-19.48
8	14.938	10.06	9.44	288.69	-19.64
9	14.295	10.09	9.43	288.72	-15.08

STATION 2

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.491	10.30	9.46	288.19	19.66
2	23.818	10.31	9.45	288.09	17.75
3	23.454	10.31	9.46	287.86	17.35
4	21.387	10.37	9.47	287.86	16.26
5	18.636	10.38	9.54	287.99	15.12
6	15.883	10.25	9.57	287.73	19.94
7	13.810	10.29	9.62	288.34	28.59
8	13.119	10.22	9.60	288.14	32.33
9	12.428	10.23	9.61	288.33	36.86

STATION 3

RP	RADIUS	TOTAL PRESS	STATIC PRESS	TOTAL TEMP	ABS BETAZ
1	24.732	12.89	10.72	313.41	29.65
2	24.023	12.96	10.76	311.43	28.89
3	23.312	12.98	10.76	309.05	26.63
4	21.145	12.44	10.66	304.66	24.95
5	18.260	11.30	10.60	299.97	24.50
6	15.464	10.59	10.53	298.47	23.60
7	13.467	10.56	10.56	301.09	78.21
8	12.781	10.52	10.53	301.59	35.94
9	12.225	10.52	10.53	301.73	28.54



(a) Rotor 55.

(b) Stator 55.

Figure 1. - Fan stage 55.

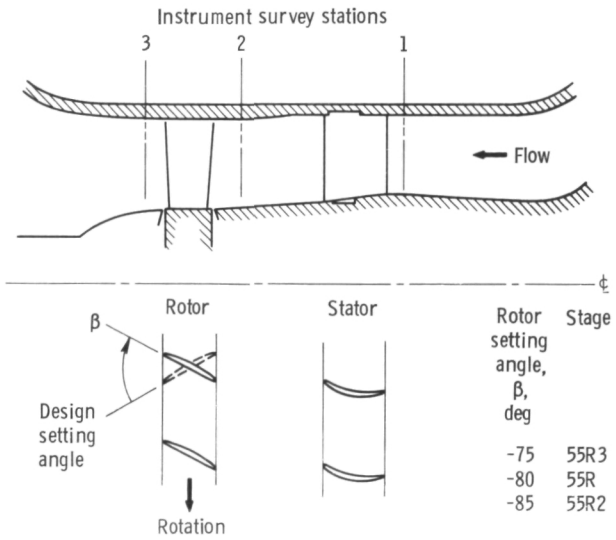


Figure 2. - Flow path for stage 55 with reverse flow.

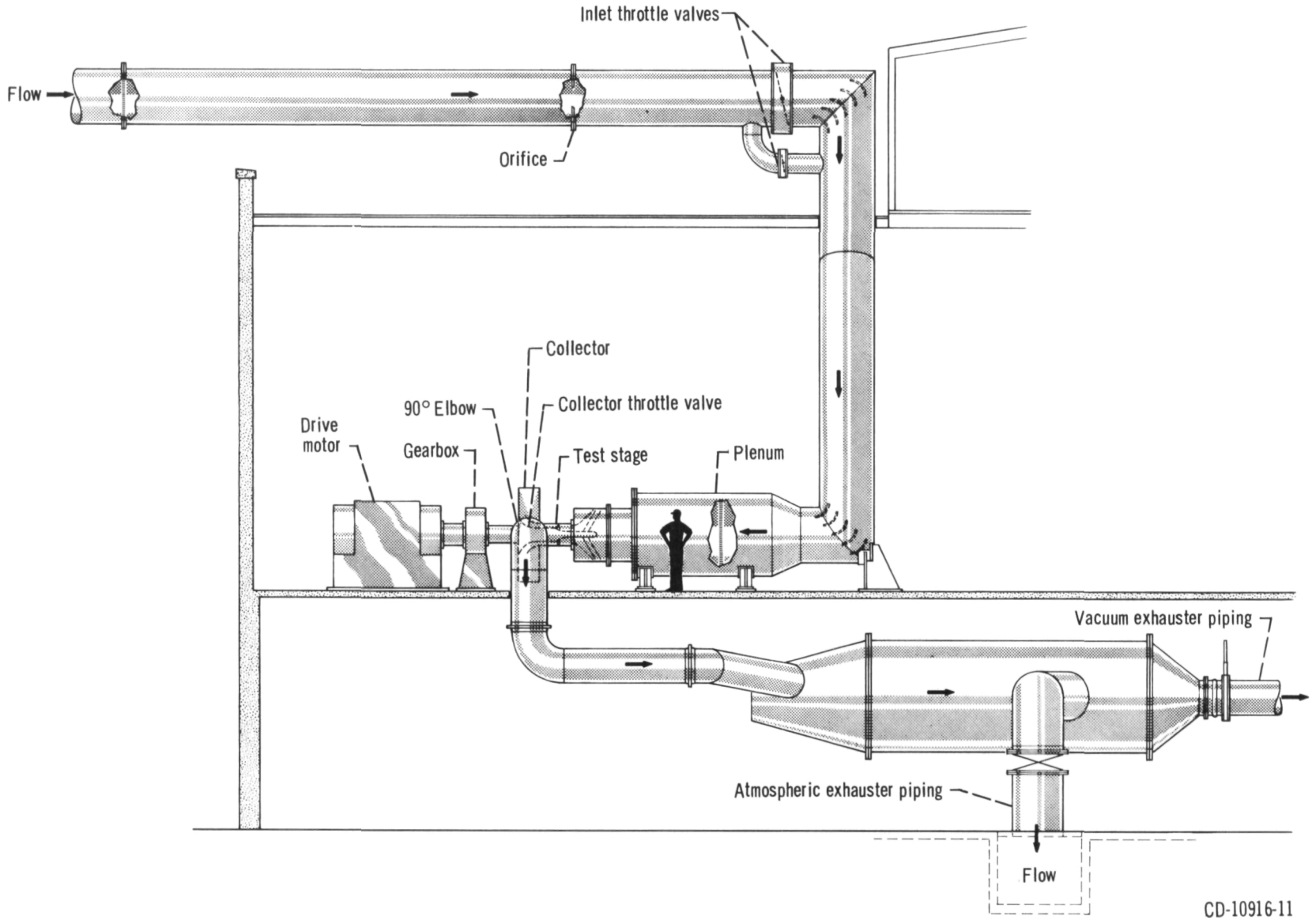


Figure 3. - Single-stage compressor facility.

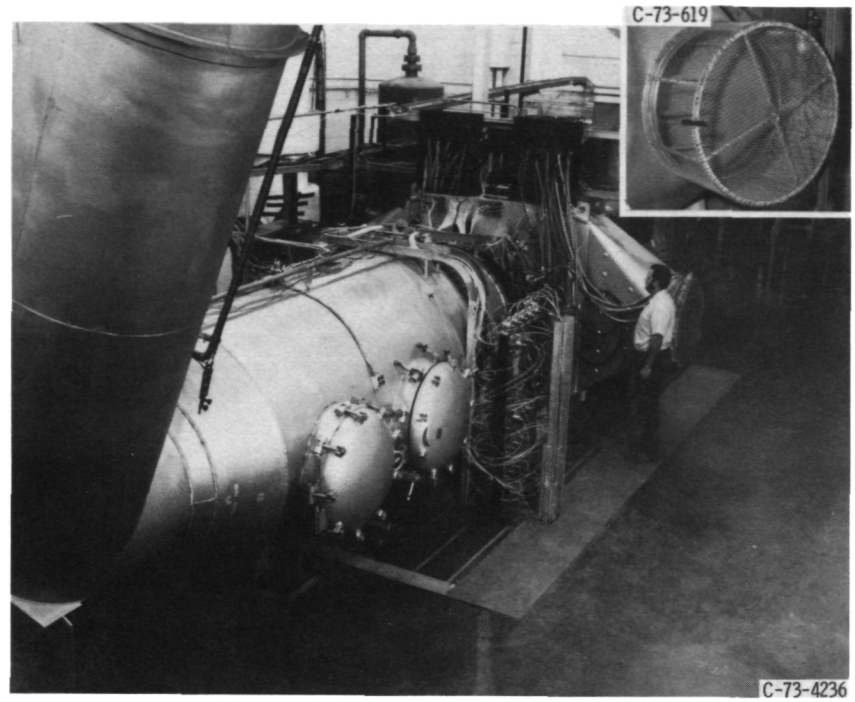
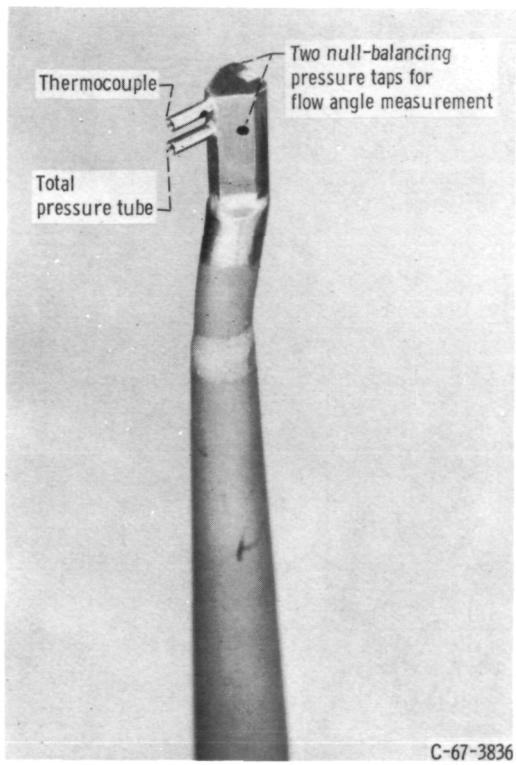
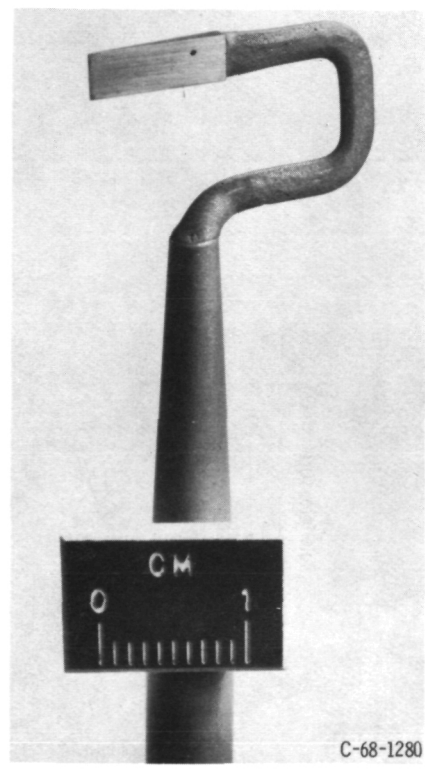


Figure 4. - Modified test facility.



(a) Combination total pressure, total temperature, and flow angle probe.



(b) Static pressure probe; 8^{O} C-shaped wedge.

Figure 5. - Survey probes.

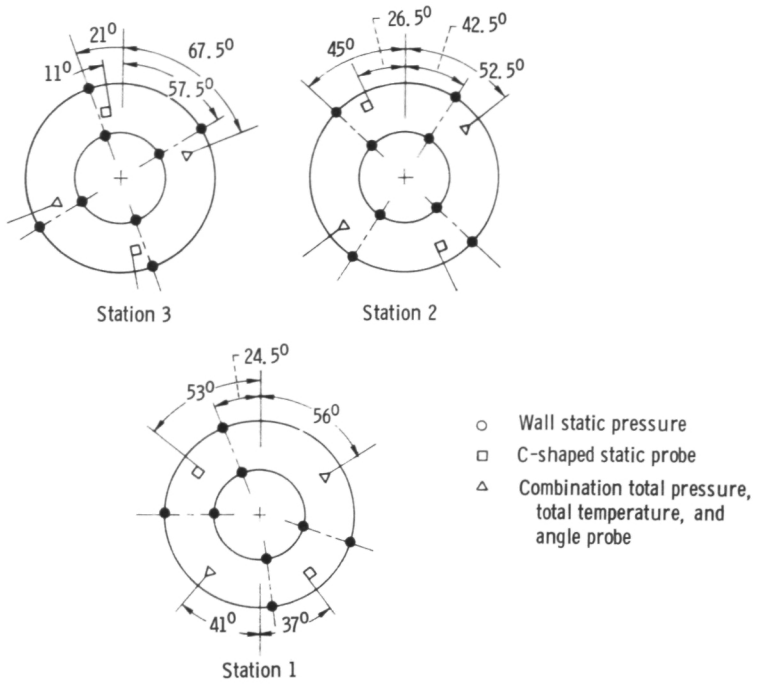
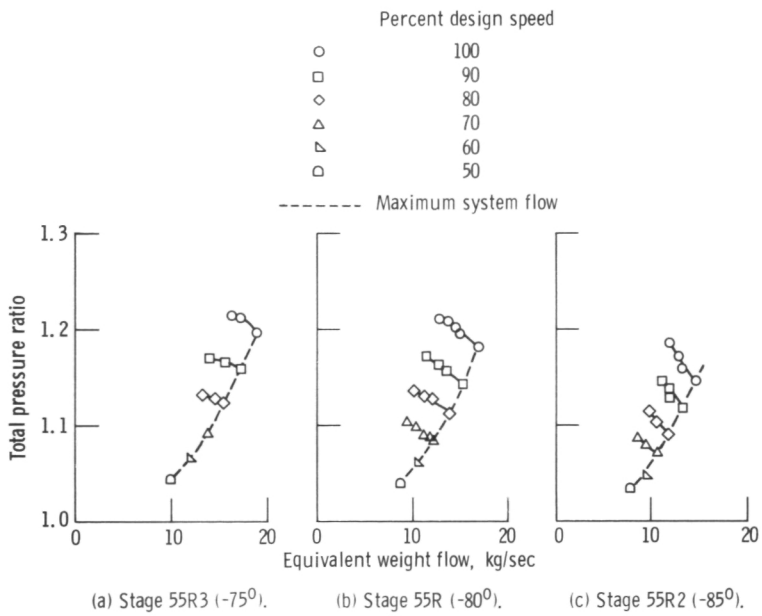


Figure 6. - Circumferential location of survey instrumentation at each station looking downstream.



(a) Stage 55R3 (-75°). (b) Stage 55R (-80°). (c) Stage 55R2 (-85°).

Figure 7. - Overall performance with reverse flow.

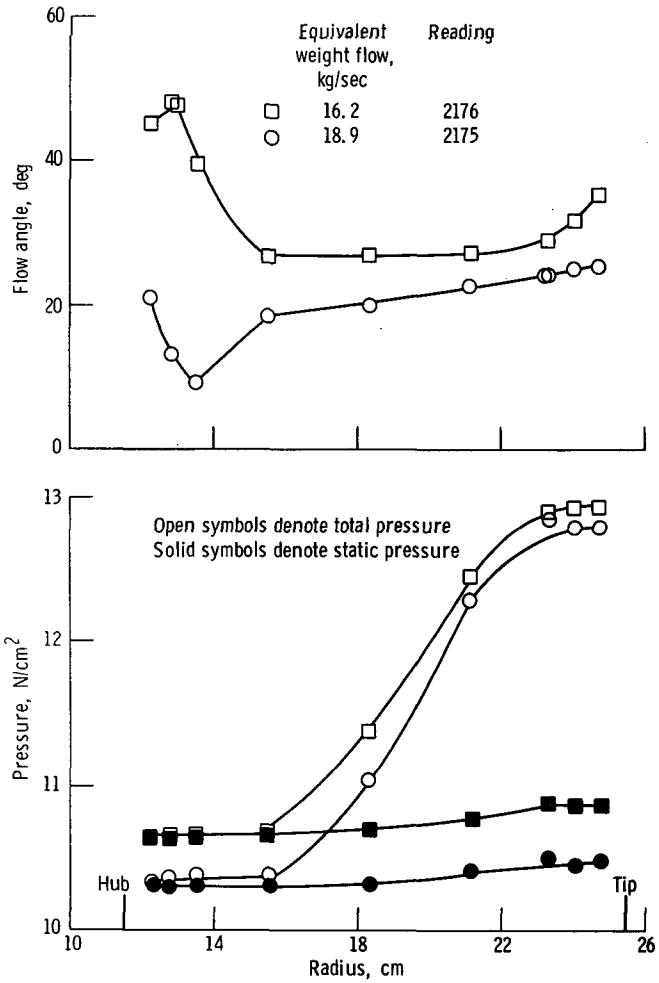


Figure 8. - Radial distribution of outlet flow parameters for stage 55R3 (-75°). Station 3; design speed.

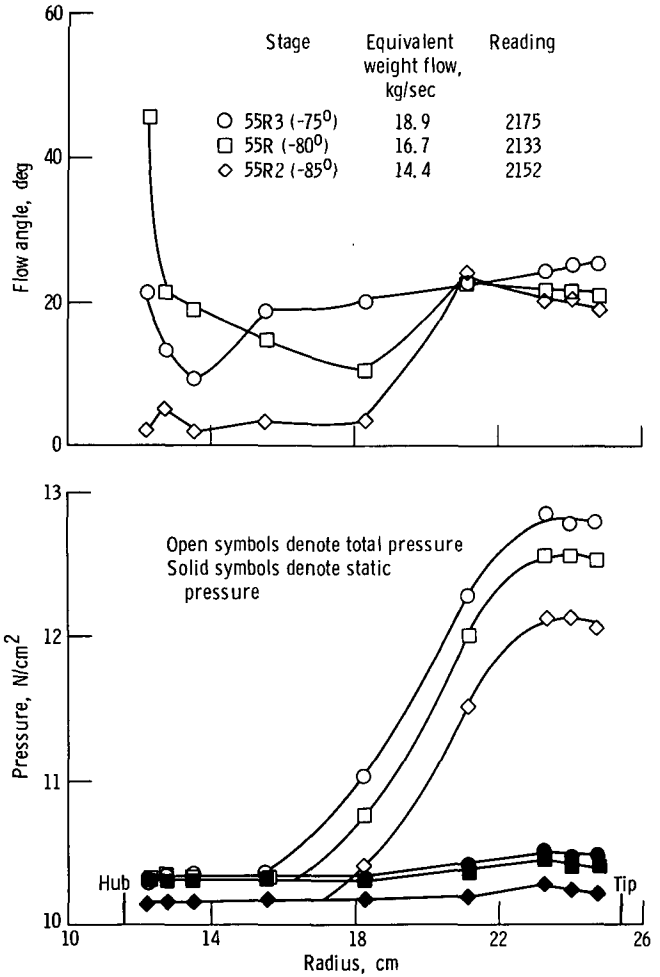


Figure 9. - Effect of rotor blade reset on radial distribution of outlet flow parameters. Maximum flow conditions; station 3; design speed.

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