NASA CR- 72667
PWA-3653

HIGH-LOADING LOW-SPEED FAN STUDY
II. DATA AND PERFORMANCE
UNSLOTTED BLADES AND VANES

by
K. G. Harley
E. A. Burdsall (Acoustics)

Pratt & Whitney Aircraft Division
United Aircraft Corporation

prepared for
National Aeronautics and Space Administration

NASA Lewis Research Center
Contract NAS3-10483
T. F. Gelder, Program Manager
Fluid Systems Components Division

Pratt & Whitney Aircraft DIVISION OF UNITED AIRCRAFT CORPORATION

19 November 1971

To: Distribution

Subject: Errata Sheet for Report No. CR-72667

Contract: NAS3-10483

Enclosed herewith is an errata sheet for report number CR-72667 entitled:

High-Loading Low-Speed Fan Study II
Data and Performance Unslotted Blades
and Vanes.

UNITED AIRCRAFT CORPORATION
Pratt & Whitney Aircraft Division

K. G. Harley
Assistant Project Engineer

EAST HARTFORD, CONNECTICUT 06108

ERRATA

NASA Contractor Report CR-72667

HIGH-LOADING LOW-SPEED FAN STUDY

II DATA AND PERFORMANCE

UNSLOTTED BLADES AND VANES

By K. G. Harley and E. A. Burdsall

Page 13, paragraph 3, line 9: Insert the words "area at the screen axial location" after the words "inlet annulus".

Page 19, paragraph 3, line 2: Insert the words "rotor-blade" after the words "first-bending".

Page 71, Figure 32: The position of the screen should be from 73 to 100 percent span at the screen axial location instead of 60 to 100 percent span.

Page 97, Figure 45: The ordinate scale values should be 113, 117, 121, 125, 129, and 133 instead of 118, 122, 126, 130, 134, and 138.

Page 109, Appendix 1: Delete all parenthetical references to table numbers.

Page 118: Replace with attached table. Values followed by a dot have been changed to provide better agreement and accuracy.

Date of publication, May 1970, was omitted.

Aerodynamic Design - Blade Element and Over-all Performance

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.130	16.330	614	995	605.4	• 560	0	• 823		• 56.1	35.5	• -28.6	751	• 638	-412	305	424	518
10	14.100	16 790	620	• 989	621.5	• 612	0	775.8	0	• 51.7	37.0	• -20.8	778	• 655	-445	• 232	455	544
15	15.170	17.560	627	971	627.4	• 637	0	734.6	0	49.2	38.6	• -14.7	804	655	-488	170	489	568
30	18.230	19.910	650	916	652.1	640.4	0	655.1	0	45.6	42.7	- 0.6	877	641	-602	7	586	643
50	22.190	23.090	671	836	671.1	606.1	0	576.4	0	43.8	47.2	15.5	981	629	-716	-173	714	742
70	25.850	26.260	680	782	680.4	583.9	0	554.8	0	41.7	51.1	29.4	1077	668	-836	-328	838	848
85	28.450	28.610	682	755	682.6	569.9	0	492.3	0	40.8	53.3	37.5	1145	715	-918	-432	918	923
90	29.320	29.410	683	747	682.8	564.1	0	488.0	0	40.8	54.1	39.6	1167	729	-946	-461	944	949
95	30.150	30.180	683	737	682.6	556.9	0	487.9	0	41.3	54.9	41.8	1189	738	-974	-488	969	973

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.1	0.81	10.3	61.7	71.1	2.41	.390	.0673	.0124	.0124	1.540	.9601	.9576	0	.5654	.902	.698	.514
10	-5.0	1.65	11.5	58.0	66.1	2.30	.385	.0377	.0077	.0077	1.540	.9750	.9735	0	.5718	.891	.717	.586
15	-4.3	1.99	12.2	54.0	63.0	2.18	.400	.0264	.0057	.0057	1.540	.9807	.9795	0	.5797	.828	.738	.594
30	-3.0	2.69	13.0	43.3	53.2	1.93	.473	.0334	.0085	.0085	1.540	.9719	.9702	0	.6045	.820	.813	.574
50	-1.6	3.41	11.2	31.7	39.0	1.69	.535	.0481	.0136	.0136	1.540	.9535	.9506	0	.6245	.740	.909	.551
70	-0.5	3.73	9.0	21.7	26.9	1.53	.537	.0673	.0190	.0165	1.540	.9274	.9229	.0087	.6328	.686	1.001	.586
85	0.0	3.71	7.1	15.8	19.5	1.43	.525	.0867	.0238	.0199	1.540	.9022	.8961	.0142	.6342	.658	1.066	.624
90	0.0	3.63	6.8	14.5	18.3	1.40	.523	.0979	.0269	.0225	1.540	.8871	.8800	.0162	.6360	.649	1.089	.635
95	-0.2	3.20	7.0	13.0	17.4	1.38	.533	.1197	.0313	.0263	1.540	.8672	.8589	.0186	.6358	.642	1.110	.642

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7400.0	185.0	42.0	1.1410	1.5400	93.3	93.8	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	978	575	622.7	575	747	0	49.7	0	-16.9	46.30	652	818	179	-601	571	598
10	18.350	19.110	962	600	641.6	600	710	0	47.8	0	-11.4	46.05	657	850	119	-618	592	616
15	19.070	19.740	947	617	659.3	617	678	0	45.8	0	- 5.9	46.00	662	882	64	-637	614	637
30	21.140	21.600	914	636	673.8	636	614	0	42.4	0	6.1	47.55	676	943	-68	-698	682	697
50	23.970	24.200	875	630	674.3	630	555	0	39.5	0	17.8	51.00	708	1005	-216	-782	777	782
70	26.790	26.880	840	624	665.0	624	511	0	37.6	0	28.0	54.23	752	1070	-354	-867	868	871
85	28.860	28.900	818	619	655.4	619	488	0	36.7	0	33.9	56.52	889	1120	-442	-933	939	935
90	29.570	29.600	811	616	649.8	616	484	0	36.8	0	35.8	57.30	802	1135	-469	-954	956	957
95	30.240	30.270	805	612	642.4	612	485	0	37.0	0	37.3	58.08	809	1152	-492	-978	977	978

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	0	3.95	16.2	49.7	61.8	2.105	.593	.210	.0485	.0495	.9184	.7682	0	0	.885	.4923	.5890	.706
10	0	4.25	15.9	47.8	59.2	2.032	.558	.165	.0399	.0399	.9365	.7989	0	0	.870	.5142	.5928	.734
15	0	4.32	15.5	45.8	56.8	1.950	.528	.129	.0307	.0307	.9526	.8338	0	0	.854	.5335	.5965	.763
30	0	4.79	13.9	42.4	51.7	1.758	.495	.069	.0171	.0171	.9751	.8926	0	0	.817	.5510	.6053	.823
50	0	5.48	10.3	39.5	44.7	1.552	.483	.046	.0154	.0154	.9831	.9114	0	0	.777	.5458	.6305	.867
70	0	6.09	12.5	37.6	44.4	1.388	.473	.043	.0192	.0192	.9830	.8940	0	0	.743	.5389	.6654	.920
85	0	6.50	15.2	36.7	45.2	1.285	.473	.061	.0273	.0273	.9789	.8571	0	0	.719	.5322	.6955	.960
90	0	6.59	15.8	36.8	45.9	1.258	.477	.073	.0312	.0312	.9765	.8397	0	0	.712	.5281	.7037	.975
95	0	6.75	16.3	37.0	46.8	1.230	.484	.096	.0369	.0369	.9729	.8163	0	0	.705	.5234	.7070	.988

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7400.0	185.0	42.0	1.1410	1.5000	87.3	88.1	11.0	12.0	90.00	90.00

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T. F. Gelder, Program Manager
Fluid Systems Components Division

FOREWORD

This report was prepared by the Pratt & Whitney Aircraft Division of United Aircraft Corporation, East Hartford, Connecituct, to present data and performance of the unslotted tests conducted under Contract NAS3-10483, High-Loading Low-Speed Fan Study.

TABLE OF CONTENTS

		Page
FOREWORD		iii
LIST OF ILLUSTRATIONS		vii
LIST OF TABLES		ix
I. SUMMARY		1
II. INTRODUCTION		3
III. APPARATUS AND PROCEDURES		5
A. Test Facility		5
B. Test Compressor		5
1. Rotor		5
2. Stator		6
C. Instrumentation and Calibration		7
1. Aerodynamic Instrumentation		7
2. Acoustic Instrumentation		10
D. Test Procedure		12
E. Aerodynamic Performance Calculation Procedure		13
F. Acoustic Data Reduction Procedure		15
IV. RESULTS AND DISCUSSION		17
A. Shakedown Tests		17
B. Uniform Inlet Flow Performance		18
C. Inlet Distortion Performance		19
D. Noise		20
V. SUMMARY OF RESULTS		23
REFERENCES		24
APPENDIX 1	Symbol and Performance Parameter Definitions	107
	A. Symbols	109
	B. Performance Parameter Definitions	112
APPENDIX 2	Blade-Element and Over-All Performance with Uniform Inlet Flow	115
APPENDIX 3	Blade-Element and Over-All Performance with Support Screen (Distortion Baseline)	169

TABLE OF CONTENTS (Cont'd)

		Page
APPENDIX 4	Blade-Element and Over-All Performance with Radial Inlet Distortion	181
APPENDIX 5	Flow Distribution and Over-All Performance Circumferential Inlet Distortion	193
APPENDIX 6	Broadband Noise Levels in One-Third-Octave Band Widths	217
APPENDIX 7	Derivation of Sound Power Level Equation	221
DISTRIBUTION LIST		225

LIST OF ILLUSTRATIONS

Figure	Title	Page
1	Schematic of Compressor Test Facility	25
2	Cross-Section of Test Compressor for Radial Distortion Tests	25
3	Distortion Support Screen	26
4	Test Compressor with Nonrotating Nose Cone	26
5	Rotor Assembly and Rotor Blade	27
6	MCA Stator Blade	28
7	Stator Hub Bleed Slits	29
8	Compressor Instrumentation	30
9	Axial Locations of Instrumentation	31
10	Circumferential Locations of Instrumentation	31
11	Microphone Locations	32
12	Acoustic Data-Recording System for Evaluating Plenum Reverberation Characteristics	33
13	Reverberation Time vs. Frequency for the Inlet Plenum	33
14	Radial Distributions of Broadband and Discrete Noise for Plenum Chamber	34
15	Acoustic Recording System for Fan Noise Tests	35
16	Acoustic Data-Reduction System	35
17	Effects of Stator-Hub-Slit Suction and Recirculation	36-37
18	Pressure Distributions vs. Percent Vane Gap With and Without Stator Hub Slit Suction	38
19	Quartz-Crystal Dynamic Pressure Traces for Evaluating Rotating Stall	39

LIST OF ILLUSTRATIONS (Cont'd)

Figure	Title	Page
20	Over-All Stage Performance Uniform Inlet Flow	40
21	Over-All Rotor Performance Uniform Inlet Flow	41
22	Rotor Efficiency vs. Percent Span, 100% Design Speed	42
23	Rotor Blade Element Performance, Uniform Inlet Flow	43-51
24	Stator Blade Element Performance, Uniform Inlet Flow	52-60
25	Rotor Total Pressure Loss Coefficient vs. Percent Span	61
26	Stator Total Pressure Loss Coefficient vs. Percent Span	61
27	Circumferential Pressure and Temperature Distributions vs. Percent Vane Gap, 100% Design Speed	62
28	Over-All Stage Performance With Support Screen, Uniform Inlet Flow	63
29	Over-All Rotor Performance With Support Screen, Uniform Inlet Flow	64
30	Rotor Blade Element Performance, Baseline Screen	65-67
31	Stator Blade Element Performance, Baseline Screen	68-70
32	Rotor Inlet Radial Distortion Pattern at 95% Design Speed	71
33	Over-All Stage Performance, Radial Inlet Distortion, Circumferential Inlet Distortion	72
34	Over-All Rotor Performance, Radial Inlet Distortion	73
35	Rotor Blade Element Performance, Radial Distortion	74-76
36	Stator Blade Element Performance, Radial Inlet Distortion	77-79
37	Rotor Inlet Circumferential Distortion Patterns, 95% Design Speed	80-81
38	Stator Discharge Circumferential Distortion Patterns, 95% Design Speed	82

LIST OF ILLUSTRATIONS (Cont'd)

Figure	Title	Page
39	Stator Discharge Circumferential Temperature Patterns, 95% Design Speed	83
40	Circumferential Screen Pressure Recovery	84
41	Circumferential Patterns of Rotor Inlet Static Pressure During Circumferential Distortion	85-86
42	Compressor Noise Spectra from Plenum Microphones, 100% Design Speed, Near Stall ($W\sqrt{\theta}/\delta$ = 183.2 lbs/sec)	87-90
43	Sound-Pressure Spectra, Microphone Number 5	91-95
44	Compressor Inlet Noise Spectra with and without Inlet Support Struts, 100% Design Speed	96
45	Average Sound Power Level vs. Blade Tip Relative Mach Number	97
46	Total Sound Power Level	97
47	Time-Averaged Blade-Passing Frequency Inlet Noise vs. Blade Tip Mach Number, Part Throttle	98
48	Time-Averaged Blade-Passing Frequency Inlet Noise vs. Blade Tip Mach Number, Wide-Open Throttle	99
49	Noise Level Difference Between Blade-Passing Frequency and the First Harmonic Tone	100
50	Time Averaged Blade-Passing Frequency Discharge Noise vs. Blade Tip Relative Mach Number	101
51	Compressor Discharge Noise Spectra, Wide-Open and Part-Throttle Operating Lines	102-105
52	Supersonic Fan Noise Level (Combination Tones) vs. Blade Tip Relative Mach Number	106

LIST OF TABLES

Table	Title	Page
1	Rotor Design Data	6
2	Stator Design Data	7
3	Performance and Blade-Element Instrumentation	8
4	Continuously Recorded Performance Instrumentation	11
Appendix 2		
	Identification of Blade-Element and Overall Performance Table Headings	117
	Aerodynamic Design Data, Blade-Element and Over-all Performance	118
	Blade-Element and Overall Performance with Stator-Hub Slit Suction, 65%, 80%, 90%, 95%, 100%, 105% and 110% of Design Speed, Uniform Inlet Flow	119-158
	Blade-Element and Over-all Performance without Stator-Hub Slit Suction, 100% of Design Speed, Uniform Inlet Flow	159-164
	Blade-Element and Over-all Performance with Stator-Hub Slit Recirculation, 100% of Design Speed, Uniform Inlet Flow	165-167
Appendix 3		
	Blade-Element and Overall Performance with Stator-Hub Slit Suction, 80%, 90% and 95% of Design Speed, Distortion Baseline	171-179
Appendix 4		
	Blade-Element and Overall Performance with Stator-Hub Slit Suction, 80% 90% and 95% Design Speed, Radial Inlet Distortion	183-191
Appendix 5		
	Rotor Inlet Circumferential Distribution, Disk Probe Station 4, 80%, 90% and 95% of Design Speed, Inlet Circumferential Distortion	195-203
	Stator Discharge Circumferential Distribution, Disk Probe Station 13, 80%, 90% and 95% of Design Speed, Inlet Circumferential Distortion	204-212

LIST OF TABLES (Cont'd)

Table	Title	Page
	Stator Discharge Circumferential Distribution, Temperature Rake Station 13, 80%, 90% and 95% of Design Speed, Inlet Circumferential Distortion	213-215
	Stage Overall Performance for Inlet Circumferential Distortion Tests	216
	Appendix 6	
	Broadband Noise Pressure Levels in One-Third-Octave Bands	219
	Appendix 7	
	Derivation of Sound Power Level Equation	223

ABSTRACT

High-Loading, Low-Speed Fan Study

II. Data and Performance, Unslotted Blades and Vanes

A single-stage fan with a tip speed of 1000 ft/sec (304.8 m/sec) and a hub-tip ratio of 0.392 was tested from 65 to 110 percent of design speed. The tests were conducted with uniform inlet flow and with the inlet flow distorted both radially and circumferentially. At design speed, maximum stage pressure ratio was 1.484 and maximum efficiency was 88.1 percent. Stator-hub-slit suction was used to improve stator performance. Noise measurements were made at the stage inlet and exit and show trends different from those of other fans.

I. SUMMARY

Tests were conducted to determine detailed aerodynamic and some acoustic characteristics of a highly-loaded single-stage fan. The stage consisted of a low-tip-speed rotor separated from the stator by two rotor-chord lengths. In addition to tests with uniform inlet flow, tests were conducted with the inlet flow distorted both radially and circumferentially. Stator-hub-slit suction was investigated to determine its effect on aerodynamic performance. Acoustic measurements were taken in the inlet plenum and downstream of the stator vanes.

Over-all performance tests with uniform-inlet flow at 100 percent of design speed demonstrated a peak stage efficiency of 88.1 percent and a pressure ratio of 1.484 at a near-stall throttle setting. At design speed and weight flow, a stage pressure ratio of 1.458 and an efficiency of 84.8 percent were obtained compared with design values of 1.5 and 87.3 respectively. Little stall margin existed at 100 percent of design speed and above.

Rotor mid-span losses at near-stall are lower than predicted for design speed. Rotor-hub losses are considerably higher than design, as are rotor-tip deviation angles. Stator spanwise losses at near-stall are less than predicted for design speed. Stator-hub losses are higher than those of the tip, even with stator-hub-slit suction. Blade loadings in terms of diffusion factor were accurately predicted as 0.53 at 5 percent span from the rotor tip and 0.61 at 5 percent from the stator hub.

Stator-hub-slit suction reduced stator-hub losses, so that over-all efficiency at 100 percent of design speed was improved by 1½ percent. A slit flow of approximately 0.2 percent of total inlet flow was used.

Imposed inlet distortions, either radial (outer two-fifths of the annulus area) or circumferential (90-degree sector) caused only small decreases in over-all efficiency and pressure ratio from the values for undistorted flow performance. The radial distortion reduced the stall margin at lower speeds. With circumferential distortion, the stall margin appeared to be slightly improved.

Upstream broadband noise generated by the stage was relatively constant over the range of speeds and flows tested, whereas other fan stages tested in the same facility have shown increased broadband noise with increased tip relative Mach number. Sound-pressure levels of blade-passing-frequency noise increase with increased blade tip relative Mach number. Supersonic fan noise (combination noise) existed only at 105 percent design speed and above.

II. INTRODUCTION

The objective of this program is to determine the aerodynamic performance characteristics of a highly-loaded low-speed fan stage that would be applicable to a low-noise engine. Since fan noise is related to the physical characteristics of the stage and its operating conditions, an attempt has been made in the design of this stage to reduce fan noise by (1) eliminating inlet guide vanes, (2) designing for low rotor-tip Mach numbers, (3) spacing the rotor and stator apart by two rotor chord lengths, and (4) selecting a number of stator vanes equal to twice the number of rotor blades, plus sixteen. Design details are reported in Reference 1.

Creating a useful pressure ratio with low tip speeds requires larger rotor turnings (relative air angles past the axial direction at the hub), high stator inlet Mach numbers, and high aerodynamic blade loadings. The high loadings limit the potential for stall margin and for tolerance to inlet distortion.

Tolerance to inlet distortion can be the most significant single factor in determining engine operating stability. Inlet distortion may change the performance of a compressor in several ways. Efficiency and the speed-flow relationship may be altered, but the most significant possibility is that the stall-limit may move closer to the engine operating line. Tests were therefore conducted with both radial and circumferential inlet-flow distortions in addition to the tests with uniform inlet flow.

The fan was designed with a flow per unit of annulus area at the rotor leading edge of 42 lb/sec/ft^2, and with an over-all pressure ratio of 1.50. The designed rotor tip speed is 1000 ft/sec, and design stator inlet Mach number range is from 0.90 at the hub to 0.70 at the tip. Air turning at the rotor hub is 72.6 degrees, which results in a rotor exit relative air angle of -39.6 degrees. The rotor and stator aspect ratios are 1.92 and 3.67 respectively. There are 24 rotor blades and 64 stator vanes.

This report presents the test results for this highly-loaded, low-tip speed fan stage, with and without radial and circumferential distortion. Test results include detailed aerodynamic performance and some data on noise.

III. APPARATUS AND PROCEDURES

A. Test Facility

The test program was carried out in the sea-level X-202 stand (Figure 1) at the Willgoos facility. The stand is equipped with a gas-turbine-drive engine using a 2.1:1 gearbox to provide optimum speed-range capability.

Entering airflow is measured through a calibrated nozzle. From the nozzle, it flows through a 72-foot straight section of 42-inch diameter pipe to a 90-inch diameter inlet plenum. Wire-mesh screen and an "egg-crate" structure are located midway through the plenum to provide uniform pressure to the compressor.

The compressor discharge flow is exhausted into a toroidal collector and then into a six-foot-diameter discharge stack. A six-foot-diameter valve in the stack provides back pressure for the test compressor. Two smaller valves in the bypass lines, one 24-inch and one 12-inch, provide vernier control of back pressure.

Bleed suction for stator hub end-wall slits is provided by exhausters at the Willgoos facility. Eight bleed lines provided the air passage from the stator hub cavity to the exhaust header in the stand.

Twelve inlet struts, supporting the slip-ring assembly and the inlet fairing are located 22 inches upstream of the rotor (Figure 2). The forward end of the nose fairing extends 30 inches upstream of the rotor leading edge during uniform inlet tests and 39 inches upstream during distortion tests. Inlet distortion and support screens were 32 inches upstream of the rotor for distortion testing only (Figure 2). The distortion support screen (Figure 3) is shown with instrumentation lead wires protruding from the non-rotating nose fairing. The inlet support struts and non-rotating nose fairing (Figure 4) were replaced with a short rotating nose cone for most of the noise tests. Eight discharge support struts were located 7 inches downstream of the stator.

B. Test Compressor

The test compressor (Figure 2) is a single-stage design with no inlet guide vanes. The overall flowpath convergence was determined by setting the inlet-to-exit axial velocity roughly at unity. A constant outer diameter was chosen to permit maximum flow convergence at the rotor hub, allowing maximum rotor-exit wheel speed and thereby reducing the amount of rotor hub turning necessary for a given pressure ratio. Running tip-clearance was 0.025 inch at 100 percent of design speed. Static tip clearance was 0.043 inch.

Design values for the rotor and stator from NASA CR-72536 (Reference 1) are as follows:

1. Rotor

The pressure ratio for the rotor alone was set constant at 1.54 from root to tip. A design tip speed of 1000 ft/sec limits the relative tip Mach number to 1.13. The rotor inlet flow

flow per unit area is 42.0 lb/sec/ft^2. The rotor was designed with an aspect ratio of 1.92 and a rotor inlet hub-tip ratio of 0.392. Twenty-four blades with multiple-circular-arc sections were used; a typical blade is shown in Figure 5. Rotor-blade metal angles for the nine streamlines at which blade-element data were obtained are given in Table 1. The streamlines chosen pass through 5, 10, 15, 30, 50, 70, 85, 90 and 95 percent of rotor-blade trailing edge passage height. Aerodynamic design data are presented in Appendix 2. Symbols and performance parameters are defined in Appendix 1.

The total rotor losses in Appendix 2 are the estimated losses used in blade design. However, the profile losses in Appendix 2 do not agree with the loss correlation in the design report (Reference 1, Figure 35), which were derived by subtracting normal shock model losses from high-speed-rotor loss data. This type of shock model may reflect too large a portion of the total loss, resulting in low profile losses. Initial estimates of supersonic turning resulted in large supersonic acceleration and high shock losses, which compensated for the low profile losses. Design iterations reduced the amount of supersonic turning, but adjustments were not made to reapportion the shock and profile losses because the total loss was realistic, based on other low-speed-rotor data. The latest P&WA data indicate that the profile loss correlation in Figure 35 of the design report should be increased by 0.005 if the normal shock model is to be used in the low-speed range.

TABLE 1
Rotor Design Data
(Stations 5 and 6 of Figure 9)

	% Span	Dia. In, inches	Dia. Out, inches	β'_5* degrees	β'_6* degrees	β^*_{5s} degrees	β^*_{sh} degrees
Hub	5	13.12	16.03	34.17	-36.78	41.08	27.18
	10	14.10	16.79	35.01	-31.13	41.66	28.44
	15	15.17	17.58	36.17	-26.88	42.46	29.31
	30	18.28	19.91	39.54	-13.70	45.23	32.64
	50	22.19	23.09	43.57	4.53	48.58	38.14
	70	25.88	26.26	46.96	20.02	51.19	43.54
	85	28.45	28.61	49.58	30.03	53.29	46.56
	90	29.32	29.41	50.56	32.29	54.09	47.69
Tip	95	30.15	30.18	51.58	34.15	54.97	48.69

2. Stator

The stator (Figure 6) is a multiple-circular-arc airfoil designed on conical surfaces approximating streamlines of revolution. The number of stator vanes was set by acoustical considerations at twice the number of rotor blades plus sixteen, for a total of 64. The stator has a constant radially-projected chord of 1.83 inches and an aspect ratio of 3.67.

Stator-vane metal angles for the nine streamlines at which data were obtained are summarized in Table 2. Aerodynamic design data are given in Appendix 2. The streamlines chosen pass through 5, 10, 15, 30, 50, 70, 85, 90, and 95 percent of rotor-blade trailing-edge-passage-height from the hub.

TABLE 2
Stator Design Data
(Stations 11 and 12 of Figure 9)

	% Span	Dia. In, inches	Dia. Out, inches	β^*_{11} degrees	β^*_{12} degrees	β^*_{11s} degrees	β^*_{sh} degrees
Hub	5	17.72	18.58	45.34	-16.48	49.29	39.06
	10	18.35	19.11	43.27	-15.92	47.52	37.19
	15	19.07	19.74	41.41	-15.42	45.74	35.31
	30	21.14	21.60	37.70	-13.97	42.49	32.50
	50	23.97	24.20	34.03	-10.74	39.51	30.05
	70	26.79	26.88	31.46	-12.79	37.56	27.83
	85	28.86	28.90	30.22	-15.02	36.72	26.56
	90	29.57	29.60	30.22	-15.73	36.92	26.37
Tip	95	30.24	30.27	30.42	-16.33	37.17	26.34

To prevent boundary-layer separation and to improve lift coefficient, a slit was designed for suction at the stator hub. The slit (Figure 7) is 0.017 inch wide and is located on the suction-surface corner of the vane and the inner case, and it extends from 15 to 85 percent of airfoil chord.

C. Instrumentation and Calibration

1. Aerodynamic Instrumentation

Airflow was measured with a flow nozzle designed to ISA flow-nozzle specifications (Reference 2). Accuracy of the flow-rate measurement was within one percent of the reading. Compressor speed was measured with an impulse-type pickup, and electromagnetic device that counts the number of gear teeth passing within an interval of time and converts the count to revolutions per minute. The accuracy of the speed measurement was within 0.2 percent of the indicated speed between 3600 and 8900 rpm.

Instrumentation (Figure 8) for measuring over-all and blade-element performance data is listed in Table 3. Axial and circumferential positions of instrumentation are shown in Figures 9 and 10. All traversing probe measurements were recorded at nine radial locations defined by design streamlines which pass the rotor trailing edges at 5, 10, 15, 30, 50, 70, 85, 90, and 95 percent from the hub. Fixed radial rakes for measuring total pressure near the rotor leading edge (Station 4, Figure 9) were in place only during testing with inlet flow distortions.

TABLE 3

PERFORMANCE AND BLADE-ELEMENT INSTRUMENTATION

	Instrument Plane Location	Parameter	Type and Quantity
Station 0	plenum chamber	P	6 pressure taps on plenum wall, 4 on automatic data-acquisition system transducers, 2 on manometers
		T	6 bare wire thermocouples, 4 on automatic data-acquisition system, 2 on self-balancing precision potentiometers
		inlet noise	8 condenser-type microphones
Station 0.1 Station 0.2 Station 1.1 Station 2.1		p	2 O.D. and 2 I.D. wall static taps located top and bottom dead center
Station 4	rotor inlet	P, p, β	2 disk traverse probes 180 degrees apart, 9 radial positions*
		p	4 O. D. and 4 I. D. wall static taps
		P	2 fixed radial rakes spaced 180 degrees apart, 9 radii*
Station 6.1	rotor exit	p	4 O.D. and 4 I.D. wall static taps
Station 10	stator inlet	P, p, β	1 disk traverse probe, 9 radial positions*
		p	4 O.D. and 4 I.D. wall static taps located on extension of mid-channel line
		p	4 O.D. and 4 I.D. wall static taps spaced across vane gap

TABLE 3 (Cont'd)

PERFORMANCE AND BLADE-ELEMENT INSTRUMENTATION

	Instrument Plane Location	Parameter	Type and Quantity
Station 11	stator leading edge	P	2 sets of impact tubes at 9 radii*
Station 13	stator exit	P	2 equally spaced, 14-element circumferential wake rakes traversable to each of nine radial locations.*
		T	6 fixed radial temperature rakes at each of 9 radii*, spaced circumferentially to obtain readings across a vane gap. A 7th probe located 180 degrees from a probe spaced in the center of a channel was installed for checking purposes and subsequent distortion testing.
		P, p, β	2 disk traverse probes, 9 radial positions*
		p	4 O.D. and 4 I D. wall static taps located on extension of mid-channel line
		p	4 O.D. and 4 I.D. wall static taps spaced across vane gap
		downstream noise	1 crystal microphone
Station 15.1	rig exit	P	1 fixed five-element radial rake

*Radial position of each axial station defined as the intersection of the axial station and the design streamline which passes through 5, 10, 15, 30, 50, 70, 85, 90, and 95% of passage-height locations at rotor trailing edge.

All pressures from probes, fixed rakes, and static taps were measured with transducers and recorded in millivolts by an automatic data-acquistion system. Pressure accuracy is within 0.2 percent of the full-scale value. Disk probes were calibrated for Mach number as a function of indicated static-to-total pressure ratio, with pitch angles as a parameter. Total pressure recovery and yaw angle deviation were calibrated as functions of Mach number and pitch angle. Air-angle position accuracy is within one percent.

All temperatures were measured with chromel-alumel Type K thermocouples and were recorded in millivolts by the automatic data-acquisition system. Temperature elements and leadwires were calibrated over their full operating temperature range. Temperature recovery was calibrated as a function of Mach number. Variations of the recovery correction with pressure were applied as noted in Reference 3. Over-all RMS temperature accuracy was estimated to be within 0.7°F.

Various parameters (Table 4) were continuously recorded on a 14-track tape recorder during excursions into stall. To detect and evaluate rotating stall, three quartz-crystals were located at the rotor exit at 25, 50, and 85 percent from the hub and at unequal circumferential locations. These were used to record pressure pulses continuously when operating near or within the stall region at 70, 90, and 100 percent of design speed.

Critical stationary and rotating parts were instrumented with strain gages to determine the levels of steady and vibratory stress over the operating range of the compressor.

2. Acoustic Instrumentation and Calibrations

Compressor inlet noise was measured by microphones (Figure 11) in the fan inlet plenum chamber. Acoustic characteristics of the chamber were investigated to determine the number and location of microphones needed to calculate the acoustic power output from the inlet of the fan stage. Both reverberation time and sound-pressure-level-distribution surveys were conducted to evaluate the chamber characteristics.

The reverberation time of a room is defined as the time required for the mean squared sound pressure level therein (orginally in a steady state) to decrease 60 dB after the source is stopped. Reverberation times greater than about 1.2 seconds are indicative of reverberant fields, as described in the General Radio Noise Handbook (1968) and other standard texts.

To evaluate the reverberation characteristic of the inlet plenum, an acoustic driver with a capacity of 75 acoustic watts was placed in the same axial plane as the fan rotor, with the rotor removed. The input to the driver of one-third octave-band filtered pink noise covering the frequency range from 500-10,000 Hz. Signals from three microphones fixed within the plenum chamber were processed through a one-tenth-octave band filter and recorded on a strip chart as a function of time. A block diagram of the instrumentation system used to obtain these data is shown in Figure 12. Results of these tests (Figure 13) show that the reverberation time, as a function of frequency, varies from approximately 2.8 sec. at 500 Hz to 1.8 sec. at 10,000 Hz, thus constituting a reverberant field over the frequency range of interest.

TABLE 4

CONTINUOUSLY RECORDED PERFORMANCE INSTRUMENTATION

	Instrument Plane Location	Parameter	Type and Quantity
Station 0.1	bellmouth	p	static pressure
	downstream	p	1 O.D. wall static tap
Station 4	rotor inlet	p	1 O.D. wall static tap
Station 6.1	rotor exit	P, frequency	3 quartz-crystal dynamic-pressure probes, at unequal circumferential spacing. Sensors located at 25, 50, and 85% of blade height from hub (for detection of rotating stall)
Station 10	stator inlet	p	1 O.D. wall static tap
Station 11	stator leading edge	P	3 impact tubes located at 5, 50, and 95% of passage height
Station 13	stator exit	p	1 O.D. wall static tap
Station 15.1	rig exit	P	1 element of fixed 5-element radial rake
	gearbox	N	impulse pickup in gearbox

To complete the determination of the acoustic characteristics of the plenum chamber, axial and radial sound-pressure surveys of the chamber were made for octave bands of pink noise (equal energy per octave) as well as discrete-frequency tones at 1000, 2000, 3000, 5000, and 7000 Hz. Microphone readings were recorded at six-inch intervals in the radial plane. Figure 14 shows the observed sound pressure levels of both broadband and discrete-frequency noise plotted against radial distance from one wall of the plenum. The broadband noise levels vary 6 dB radially within any one octave. The discrete-frequency data show variations as much as 20 dB, which are due to standing-wave patterns within the chamber. Because the locations of the maximum and minimum pressures in the standing-wave pattern vary with frequency, the output of any one microphone placed in a fixed location within the chamber cannot yield an accurate indication of the discrete-sound-pressure levels in the chamber over the entire compressor operating range. As a result of these investigations, eight microphone positions (Figure 11) were selected to sample compressor inlet noise.

A one quarter-inch-diameter dynamic pressure transducer was installed in a probe, one inch downstream of the stator trailing edge (Figure 11) to obtain blade-passing-frequency data downstream of the fan stage. Three different radial locations of the probe were investigated during the shakedown tests. The position selected for the noise tests showed the highest ratio of blade-passing-signal to background-signal over most of the operating range.

A block diagram of the acoustic recording system used during the compressor tests is shown in Figure 15. The output of each microphone and the one-quarter-inch-diameter transducer was placed into a monitoring instrument which applied a positive or negative gain to the signal in order to meet the optimum input voltage range of the tape recorder. All data were recorded in the FM mode on magnetic tape at a speed of 30 inches per second.

D. Test Procedure

Vibrational stress surveys were made along operating lines at wide-open and near-stall throttle. Steady-state surveys were made along the wide-open throttle operating line.

Tests to identify rotating stall, which is characterized by low flow zones rotating about the compressor axis, were conducted from wide-open to stall throttle at 70, 90, and 100 percent of design speed. Quartz-crystal dynamic pressure probes at the rotor exit (Station 6.1, Figure 9) were used for detecting rotating stall. Data from these probes were recorded on magnetic tape together with rotor and stator vibratory stresses. Continuously recorded performance data (Table 4) with the exception of the quartz-crystal data, were continuously recorded at the rate of ten readings per second on printed tape. In addition to the automatic recordings, rotor speed and nozzle differential pressures were also manually recorded. Stall limit flow was calculated by using nozzle data from either the manual records or the printed tape. Stall was characterized by an abrupt increase in flow-nozzle downstream static pressure as the throttle was slowly closed. Indicatons of rotating stall from the crystal probes were not correlated with airflow measurements.

Stator-hub-slit suction was investigated at 100 percent of design speed to determine its effect on aerodynamic performance. Seven operating points were recorded with stator-slit suction and an equal number with the slits sealed. Three additonal points were taken without suction,

allowing the hub boundary-layer air to recirculate down through the slit and manifold. These tests demonstrated that performance was improved with slit suction, and the remaining tests were made with stator-hub-slit suction.

When the seven traverse probes were simultaneously immersed, there were data inaccuracies caused by probe blockage. However, it was possible to divide the probes into two groups, with no interference effects within either group. All four stator discharge probes (two -wake-rakes, two disk probes) were immersed simultaneously during a second sequence. Each traverse sequence was preceded by a fixed instrumentation reading to furnish a check on the compressor operating condition. Uniform inlet-flow performance was obtained at 65, 80, 90, 95, 100, 105, and 110 percent of design speed.

The inlet configuration for the distortion tests is shown in Figure 2. The non-rotating nose cone was moved from 30 to 39 inches forward of the rotor leading edge, with screen configurations and supporting struts added to the flowpath 32 inches upstream of the rotor leading edge. Inlet distortion patterns were created by overlaying four screens with various mesh sizes to produce the maximum pressure drop. These screens were mounted on a supporting base screen with a one-inch mesh (Figure 3). Baseline performance tests with the screen were conducted at 80, 90, and 95 percent of design speed to document any changes in performance. Flow was distorted radially by using a screen which covered the outer 2/5 of the inlet annulus. Flow was distorted circumferentially with a 90-degree screen, which was rotated to six positions so that twelve circumferential readings could be made with the dual instrumentation probes, which were mounted 180 degrees apart. Distortion tests were conducted at 80, 90, and 95 percent of design speed. Stress surveys were also conducted with the distortion screens mounted.

Noise tests were conducted at 65, 80, 90, 100, 105, and 110 percent of design speed. A short bullet-shaped nose cone was used, extending nine inches forward of the rotor leading edge. All radially-mounted instrumentation was removed, except for the stator leading-edge impact tubes and the five-element pressure rake at the rig exit. Struts between the plenum and rotor were also removed before these tests were run.

E. Aerodynamic Performance Calculation Procedure

All performance data were automatically recorded on computer cards in millivolts. These data were converted to engineering units, and thermocouple-wire corrections were made. Aerodynamic corrections and averaging techniques were made for the various instrumentaion as follows:

1. Total pressure probes located in supersonic flow were corrected for shock losses. Circumferential distributions of total pressure from the two wake rakes were mass-flow-averaged at each radial position, using a constant circumferentail static pressure which was determined by linear interpolation between wall static pressures. A peak value from the circumferential distribution of each wake rake was chosen to represent free stream, or rotor exit, pressure. A wake-blockage factor, defined in Appendix 1, was calculated at each radial position for use in the flow field calculation program to improve the accuracy of the static pressure and velocity cal-

culations. Free-stream pressures, circumferentially mass-flow-averaged pressures, and wake blockage factors from both rakes were each arithmetically averaged at each radial location. These radial distributions were the input to a streamline analysis program which radially mass-flow-averaged pressures and temperatures for over-all perfor-mance. Radial distributions of static pressure used for the radial mass-flow-averaging were calculated by the streamline analysis program.

2. Mach numbers from radially-traversed disk probes were determined from the ratio of measured-static to measured-total pressure. Corrections to total pressure and yaw angle were made using recovery calibrations for the individual probes. Static pressure was calculated using the measured total pressure and Mach number. The output for each probe consisted of measured total-pressure and calculated static-pressure ratios, Mach number, and air angle at nine radial locations. An arithmetic average of the two stator-exit probe-angle readings for each radial position was used in the flow-field calculation.

3. Temperature probes were corrected for Mach number recovery, including the pressure-level effect. Six radial rakes were approximately equally-spaced about the annulus at the stator exit, and located at different circumferential positions relative to a stator gap. A circumferential mass-flow average was calculated at each radial position and used in the flow-field calculation. Circumferential wake-rake total-pressure distributions were used for the circumferential mass-flow averaging of the stator exit temperatures.

Over-all performance calculations were based upon the inlet plenum as a reference for uniform inlet flow and upon rotor inlet (Station 4, Figure 9) measured mass-flow average pressure for radial and circumferential inlet distortion flow tests. Over-all performance calculations computed by the streamline-analysis program (Appendices 2, 3, and 4) were obtained by translating rotor-inlet measured pressures along streamlines and by mass-flow-averaging at the rotor leading edge (Station 5, Figure 9).

All averaging techniques were the same for both uniform inlet flow and for radial distortion. Different averaging techniques were applied to temperatures and pressures for evaluating over all performance for the circumferential-distortion tests. Each of the six individual temperature rakes was radially mass-averaged for each screen position, and the 36 resulting values (six probes from each of six screen positons) were arithmetically averaged. Total pressures from each wake rake (14 elements mass-averaged) were radially mass-averaged for all six screen positons, and the twelve resulting values were circumferentially mass-averaged. Over-all stage efficiency for circumferential inlet-distortion-flow tests was calculated from the resulting values.

Velocity vectors were calculated from measured disk probe data at the instrumentation plane upstream of the rotor (Station 4, Figure 9) and downstream of the stator (Station 13). Results of this calculation were used to analyze the effects of circumferential inlet distortion. All velocities were corrected to standard-day inlet temperature so that direct comparison of all performance data may be made. Vector calculations were made at each of the nine radial positions where disk traverse data was taken.

Blade element performance for uniform inlet, distortion baseline, and inlet radial distortion

tests was calculated by a streamline-analysis computer program. All parameters were corrected to standard-day conditions. Measurements used for the solution of the flow-field program were:

1. Compressor Inlet (Station 0, Figure 9): Corrected weight flow and corrected rotor speed.

2. Rotor Inlet (Station 4) Constant radial distribution of standard-day temperature. Axial inlet absolute air angle. Constant radial distribution of standard-day total pressure for uniform inlet tests. For radial distortion and baseline tests, radial distributions of total pressure from the two rotor-inlet rakes. The radial mass-averaged pressure was adjusted to standard-day conditons.

3. Stator Inlet (Station 11): Radial distribution of total-pressure free-stream values from the wake rakes behind the stator, ratioed to the rotor inlet.

4. Stator Exit (Station 13): Radial distribution of total temperature from the circumferentially mass-averaged temperature rakes, ratioed to the rotor inlet (Calculation Procedure, Item E-3). Radial distribution of the total pressure from both wake rakes, ratioed to the rotor inlet. Radial distribution of wake blockage factors from both wake rakes. Radial distribution of absolute air angle from two disk probes.

All static-pressure distributions and air angles behind the rotor were calculated by the program from considerations of mass-flow continuity, radial equilibrium, and energy equations, assuming axisymmetric flow. Curvature, enthalpy, and entropy gradient terms were used in the equilibrium calculations. Blade-element performance parameters at the blade edges were calculated by translating the measured data from the instrument plane along streamlines. Blade-element performance parameters were calculated at nine radial locations defined by streamlines passing through the rotor trailing edge at 5, 10, 15, 30, 50, 70, 85, 90, and 95 percent of passage height. Pertinent performance parameters are defined in Appendix 1.

F. Acoustic Data Reduction Procedure

A block diagram of the acoustic data reduction system is shown in Figure 16. Tape-recorded data were processed through a wave analyzer having a 50 Hz bandwidth filter. The output of the analyzer was then recorded on a graphic-level recorder so that a trace of sound pressure level as a function of frequency could be obtained. From these traces, broadband noise and supersonic-tip-speed combination tone (multiple pure tones or buzz-saw) noise, hereafter referred to as supersonic fan noise, were evaluated. Blade-passing-frequency data were time-averaged for 30 seconds at each compressor operating point. This was accomplished by tuning the wave analyzer to the blade-passing frequency (BPF) and obtaining a trace on the recorder of BPF sound-pressure-level vs. time. The average level obtained from this trace was termed "the time-averaged BPF sound-pressure level."

Supersonic fan noise (combination tone noise) was computed by summing the sound pressure levels of discrete frequency tones below blade-passage frequency which existed at integral

multiples of rotor speed. The discrete frequency levels were obtained directly from the 50 Hz bandwidth spectrum traces from each of the microphones and were logarithmically averaged.

The average acoustic power level for each one-third-octave band was calculated for the broadband noise from the following equation, which is derived in Appendix 7.

$$PWL = SPL + 10 \log v - 10 \log H - 19.4 \text{ dB}$$

In order to determine the average value of broadband SPL to use in this equation, each spectrum trace was marked in preferred one-third-octave bands. The average pressure reading within each band was determined after deleting all discrete frequency tones. A correction was then applied to the averaged sound pressure level to account for the fact that a 50 Hz bandwidth filter was used rather than a one-third-octave filter. The correction is as follows:

$$Corr = 10 \log \frac{f_z}{50}$$

The values of corrected broadband SPL from the microphones were then logarithmically-averaged within each one-third-octave band for each operating point. These average broadband sound pressure levels and the reverberation time (H) obtained from Figure 13 were used to calculate the radiated sound power level from the acoustic power level equation.

The equivalent chamber volume (v) in the acoustic power-level equation is particularly difficult to determine for an open-end plenum such as that used for these tests. The calculated power level, however, is relatively insensitive to chamber volume (e.g., doubling the volume affects the power level only 3 dB). Data trends are unaffected because the volume is constant. A good approximation of the volume was considered to be 442 ft^3.

IV. RESULTS AND DISCUSSION

Performance results are discussed under the headings of shakedown test, uniform inlet flow, inlet distortion flow, and noise.

Over-all performance of the rotor and stage are presented in terms of pressure ratio and efficiency versus corrected weight flow ($W\sqrt{\theta}/\delta$), with corrected speed ($N/\sqrt{\theta}$) as a parameter. Rotor and stator blade-element performance plots, including loss coefficient, diffusion factor, and deviation are presented as functions of incidence. Tabulations of Mach-number ranges for each speed line were included on the blade-element plots for convenience.

Over-all performance and blade-element data are presented for uniform inlet flow, support-screen baseline, and inlet radial-distortion tests. Over-all performance is presented for inlet circumferential distortion tests. Performance comparisons are made showing the effectiveness of stator-hub-slit suction and stator-hub-slit recirculation. Results of rotating stall are included for the uniform-inlet-flow tests. Baseline distortion data are presented to establish any performance changes resulting from the addition of the support screen for inlet distortion tests. Radial and circumferential distributions of pressure, velocity, and air angle are included to describe the effect of inlet distortions on the flow conditions at the rotor inlet and stator discharge. Noise data are presented as sound spectrum traces of pressure level for 50 Hz bandwidths. Supersonic fan noise (combination tones) and blade-passing frequency tones are presented versus rotor-tip relative Mach number. Sound power level is presented for broadband noise, using one-third-octave-band analysis.

All data, unless otherwise noted, were obtained using stator-hub-slit suction.

A. Shakedown Tests

Shakedown tests were conducted with uniform inlet flow to determine aerodynamic and mechanical limitations of the rig, such as stress boundaries, rotating stall, and stall flow limits. The shakedown tests were also used to evaluate the effects of stator-hub-slit suction.

Measured rotor-blade steady-state stresses due to centrifugal and untwist loads were lower than the predicted level of 62,000 psi (Reference 1). The lower stress was apparently due to the fact that the blade platform could deform elastically. Rotor-blade vibratory stresses were also lower than estimated. Stator continuous vibratory stresses increased with rotor speed, exceeding the allowable 10,000 psi at 115 percent of design speed and limiting the range of performance operation to 110 percent of design speed. Stator continuous vibratory stresses at 115 percent of design speed were highest at wide-open throttle, moderate from part-throttle to near-stall, and exceeded 20,000 psi transient while operating at the stall limit. Low-speed limitations were dictated by drive-engine power and speed-control problems, which prevented running at 50 percent of design speed. These limitations resulted in the selection of 65, 80, 90, 95, 100, 105, and 110 percent of design speed for performance testing.

The effects of stator-hub-slit suction and recirculation (slits open but no applied suction) may be seen in Figure 17, where stator loss coefficient and diffusion factor are plotted versus

incidence angle. At 5 to 30 percent span from the hub, slit suction reduces stator losses. Recirculation alone results in a performance similar to that when the slits are closed, except at 5 percent span from the hub, where stator losses appear to be slightly higher. The effect of suction diminishes toward mid-span, but the over-all effect represents an efficiency gain of 1.5 percent in stage efficiency at design speed.

A total slit suction flow of approximately 0.4 lb/sec (corrected to stage inlet) was used over the entire range of operation. At design speed and flow, 0.2 percent of the total compressor flow was removed by suction. Figure 18 illustrates the effect of slit suction on the stator hub total pressure wake at design speed: The pressure wake is both narrower and shallower with slit suction.

To determine rotating stall , pressure fluctuations versus time were recorded by three pressure transducers at 25, 50, and 85 percent of blade height from the hub and at circumferential positions of 20, 50, and 110 degrees (Figure 10). Traces of pressure versus time for 70, 90, and 100 percent of design speed and near-stall throttle settings are shown in Figure 19. Rotating-stall pressure fluctuations were strongest at 85 percent, were still well-defined at 50 percent, and were difficult to discern at 25 percent of blade height. At all three speeds, one stall cell which rotated at approximately one-half rotor speed was the most probable stall pattern, based upon the phase difference between stall patterns of the three pressure probes. Review of rotor blade strain gauge response, in conjunction with the three pressure traces, might also indicate either two or three cells rotating at one-quarter rotor speed.

B. Uniform Inlet Flow Performance

Stage and rotor-only over-all performance are presented in Figures 20 and 21. Tabulated results are presented in Appendix 2. The stall line was established by extrapolating the characteristic speed lines to the measured stall airflows, shown as slashed symbols. Stall operation above 100 percent of design speed was avoided because of high stator stresses. The 172.5 lb/sec stall flow obtained at 100 percent of design speed was recorded during rotating-stall tests and could not be repeated one week later during performance testing, when a minimum flow of 180 lb/sec occurred three times in succession.

A maximum stage efficiency of 88.1 percent (Figure 20) at design equivalent speed was obtained near stall at 182.4 lb/sec airflow and 1.484 pressure ratio. At design speed and design airflow (185 lb/sec), stage pressure ratio and efficiency were 1.458 and 84.8 percent respectively, compared to the design values of 1.50 and 87.3 percent. The apparent lack of stall margin is a problem which must be solved if highly-loaded low speed fans are to find useful application.

Peak rotor efficiency (Figure 21) remains essentially constant at 93.5 percent up through design speed. At speeds above design, peak efficiency may not have been attained because of the limited throttling permitted by stress conditions. Rotor pressure ratio appears lower than predicted as a result of under-estimated rotor tip deviations (i.e., inadequate rotor work). Rotor spanwise efficiency for design speed is shown in Figure 22. Severe blade endwall losses were encountered at both hub and tip.

Blade-element performance of the rotor and stator at nine radial locations is tabulated in Appendix 2. Figures 23 and 24 present some of these data in plots of diffusion factor, deviation, and total-pressure-loss coefficients versus incidence for the rotor and stator. Data were calculated at axial stations slanted for the rotor (Figure 9) corresponding to the leading and trailing edges of the blade. Rotor and stator loss coefficients are plotted versus percent span for near-stall and wide-open throttle conditions at design speed (Figures 25 and 26). Rotor mid-span losses (Figure 25) at near-stall throttle are markedly lower than predicted design losses. Rotor-hub losses, however, are much greater than predicted, (i.e., 0.21 compared to 0.065 at 5 percent from the hub). Stator losses (Figure 26) are highest at the hub as predicted. Figure 27 shows the stator-wake distribution of total pressure and temperature at the stator discharge as measured by the wake rakes and temperature probes. The severity of the stator profile losses may be compared between outer case, mid-span, and hub (90, 50, and 10 percent of span respectively).

C. Inlet Distortion Performance

Over-all baseline performance of the stage and the rotor only (Figures 28 and 29), with the one-inch mesh support screen in place, appears somewhat lower than in tests without the support screen. Compressor inlet conditions are defined by the mass-average total pressure from the fixed radial rakes upstream of the rotor. Rotor and stator blade-element performance with the support screen in place indicate an increase in stator and rotor losses at the hub (Figures 30 and 31). Dirt deposits in the stator hub region were found at teardown, which might explain the increased losses. Tabulations of the blade-element data for rotor and stator with the support screen attached are presented in Appendix 3.

Distortion data were obtained for three throttle settings at each of three speeds: 80, 90, and 95 percent of design speed. With radial distortion, first-bending flutter created high vibration stresses above 95 percent of design speed, which prevented testing at 100 percent of design speed. Such stresses were not present with circumferential distortion. A maximum inlet distortion parameter (P_{max}-P_{min}/P_{max}) equal to about 0.12 at 95 percent of design speed was used throughout for both radial and circumferential distortion tests.

Radial distortion was created with a screen located axially as in Figure 2 which covered the outer two-fifths of the compressor inlet annulus. Inlet pressure and velocity-distortion patterns at 95 percent of design speed, as measured by the inlet disk probes, are shown in Figure 32. Overall stage and rotor performance for radial distortion is shown in Figures 33 and 34, wherein the solid curves represent the baseline performance with the support screen in place. At 95 percent of design speed and 168.2 lb/sec airflow, over-all pressure ratio was 1.437 percent compared with 1.430 for the baseline. Over-all efficiency under the same conditions was 84.3 percent, compared with 86 percent for the baseline. Stall at 80 percent of design speed occurred at a flow 15 lb/sec higher than the baseline tests. In general, the tip radial distortion imposed had only a modest effect on stage performance. Figures 35 and 36 illustrate the rotor and stator blade-element performance for radial distortion as plots of diffusion factor, deviation, and loss coefficient versus incidence. Tabulations of blade-element and over-all data are presented in Appendix 4.

Circumferential distortion was imposed on the compressor by placing a 90-degree screen at the inlet annulus. This screen created the rotor-inlet circumferential patterns of total pressure, flow angle, and velocity illustrated in Figure 37 at 95 percent of design speed. The consequent stator discharge patterns are shown in Figure 38. Stator discharge temperature patterns at 10, 50, and 90 percent span are shown in Figure 39. When the disk probes at the stator discharge were traversed to the hub, they were adversely affected by the stator wakes so that disk-probe measurements were not true indications of the distortion effects. For this reason, data at 10 percent from the hub are not presented. Over-all stage performance is presented in Figure 33. Stage pressure ratio and efficiency at 95 percent of design speed and 160 lbs/sec were 1.423 and 84.3 percent, compared with 1.430 and 86 percent for the baseline. Stall at 95 percent of design speed occurred at a flow 11 lb/sec lower than the baseline tests. In general, the circumferential distortion imposed had only modest effects on stage performance. Tables in Appendix 5 contain circumferential distributions of the following parameters:

1. Rotor inlet disk probes (Station 4, Figure 9)

   a) total pressure ratioed to the inlet plenum
   b) static pressure ratioed to the inlet plenum
   c) absolute air angle
   d) velocity, referenced to standard day

2. Stator discharge disk probes (Station13)

   same as rotor inlet disk probes

3. Stator discharge temperature rakes (Station 13)

   total temperature from two rakes on extensions of mid-channel, ratioed to inlet plenum

Temperature and pressure values presented in the tables of Appendix 5 are ratioed to the inlet plenum. Ratios to rotor inlet total pressure may be determined by applying the pressure recovery of the circumferential screen as given in Figure 40.

Static pressure taps at five axial planes between the distortion screen and the rotor inlet on both the outer case and the inner hub produced circumferential distributions typical of those shown in Figure 41 for 95 percent speed.

D. Noise

Inlet noise was measured by eight microphones in the rig inlet plenum chamber. Examples of spectrum traces of noise from each microphone are shown in Figure 42. These data were taken at 100 percent design speed at the near-stall fan operating condition. Comparison of these spectra show similar shapes but differing levels from each microphone of broadband noise and the fundamental and first harmonic of blade-passing-frequency noise. The high amplitude below about 500 Hz is due to the electronic characteristics of the filtering system

and is not representative of compressor-generated noise.

Measurements from microphone number 5 were chosen as typical of the sound-pressure-spectrum characteristics along the wide-open and near-stall operating lines from 65% to 110% design speed (Figure 43). The multiplicity of discrete-frequency tones in the 65% near-stall spectrum are thought to be indicative of an unstable aerodynamic condition such as may occur with rotating stall or flutter. The spikes represent sum and difference frequencies about the blade-passing frequency and its higher harmonics. However, since performance instrumentation did not indicate rotating stall, the exact cause of these tones is not known. Future tests should include transducers, flush-mounted over the blade-tips, to determine the origin of these tones.

During the initial portion of testing, a discrete tone was detected at a fundamental frequency of about 4000 Hz which did not vary linearly with rotor speed. The source of this noise was vortices shed from the slip ring support struts. Figure 44 compares the spectra with and without the presence of these struts. The struts were removed for subsequent noise testing. Problems with inlet instrumentation had been anticipated, and the instrumentation was removed before noise testing began.

Appendix 6 contains broadband sound-pressure level data from six of the eight microphones. Data from two of the microphones were considered unreliable and were not used. The one-third-octave sound pressure levels of the remaining six microphones were averaged and used to calculate the one-third-octave-band sound power levels. The averaged power levels for three one-third-octave bands plotted against blade-tip relative Mach number for the part-throttle fan operating line shown in Figure 45. Figure 46 shows the total power level, which was calculated from the logarithmic sum of all the one-third-octave-band levels for the wide-open, part-throttle, and near-stall operating lines. The broadband noise remained essentially constant with increased blade-tip relative Mach number, whereas other fans tested in the same facility have shown increased broadband noise with increased blade-tip relative Mach number. This flat broadband noise characteristic prompted an investigation of sources other than the fan rig as a possible influence on the measured broadband noise. One such investigation concerned the noise generated by the airflow passing through the facility ducting.

Flow noise generated in a pipe is characterized by an increase in noise level as flow is increased. Because the noise levels measured along a fixed throttle setting did not increase with increased fan speed (Figure 46), it appears unlikely that the noise was generated by ducting airflows. Further evidence against ducting noises is that broadband noise decreased as the fan rig throttle was opened at low speeds. If the duct airflow noise were significant, the measured noise would have increased as the fan rig throttle was opened. At the present, no other influential sources of noise are recognized, and the constant broadband noise appears to be a characteristic of this fan stage.

Time-averaged blade-passing-frequency noise plotted against blade-tip relative Mach number for the part-throttle and wide-open operating lines (Figures 47 and 48) shows a general trend of increasing blade-passing-frequency noise with increasing blade speed. The time-averaged sound-pressure level of each microphone and the calculated logarithmic average of all microphones are plotted to indicate measured variations. Discrete tones measured by individual

microphones within the chamber can differ significantly because of standing-wave patterns, as discussed in the Instrumentation and Calibration section.

A plot of the difference in calculated average sound pressure levels between the blade-passing fundamental and its first harmonic as a function of relative tip Mach number (Figure 49) reveals that the sound pressure level of the first harmonic is of the same order as the fundamental at low speeds, but that it becomes insignificant as the speed is increased.

Fundamental blade-passing-frequency signals were also measured by a one-quarter-inch-diameter dynamic pressure transducer located downstream of the fan stage. Figure 50 shows a plot of time-averaged discrete-frequency levels versus tip relative Mach number for both the wide-open and part-throttle operating lines. Both curves show a trend of increasing blade-passing-frequency signal level with increasing Mach number. From the spectra (Figure 51) for the wide-open and part-throttle operating lines, it is apparent that the ratio of blade-passing-frequency level to background level is sufficient to allow amplitudes to be read at speeds below 100 percent design speed. At 65 percent of design speed, part-throttle, the extra tones are like those seen from the inlet plenum microphones (Figure 43) at this speed near stall.

Supersonic-fan noise (combination tone noise) was calculated by summing the sound-pressure levels of discrete-frequency tones which were below the blade-passing frequency and which existed at integral multiples of shaft rotation speed. One point at 105 percent of design speed, three points at 110 percent, and one each at 115 and 120 percent were the only fan operating points where this type of noise was noted. (The data at 115 and 120 percent of design speed were obtained during shakedown tests only.) Figure 52 shows the supersonic-fan noise level as a function of rotor-tip relative Mach number. The points below Mach 1.0 indicate the broadband noise content below the blade-passing frequency at rotational speeds below that at which supersonic-fan noise is generated. The trend is typical of all fans and full-scale engines which operate in this transonic Mach number range, and it shows the large contribution that supersonic-fan noise makes to radiated inlet noise levels.

V. SUMMARY OF RESULTS

Tests of a 31-inch diameter highly-loaded single stage fan with a design tip speed of 1000 feet per second and pressure ratio of 1.5 yielded the following principal results:

1. Over-all Performance

Over-all performance in uniform-inlet-flow tests at 100 percent of design speed demonstrated a stage pressure ratio of 1.458 and an efficiency of 84.8 percent at a design flow of 185 lb/sec, compared with design values of 1.5 and 87.3 respectively. A peak stage efficiency of 88.1 percent at 100 percent of design speed occurred near stall, at a pressure ratio of 1.484. Little stall margin existed at 100 percent of design speed and above.

2. Effect of Slit Suction

Stator-hub-slit suction reduced stator-hub losses, so that over-all efficiency at 100 percent of design speed was improved by 1½ percent. A slit flow of approximately 0.2 percent of total inlet flow was used.

3. Effect Distortion

Imposed inlet distortions, either radial (outer two-fifths of the annulus area) or circumferential (90-degree sector) caused only small decreases in over-all efficiency and pressure ratio from the values for undistorted flow performance. Radial distortion reduced the stall margin at lower speeds.

4. Noise Trends

Upstream broadband noise generated by the stage was relatively constant over the range of speeds and flows tested, whereas other fan stages tested in the same facility have shown increased broadband noise with increased relative tip Mach number.

Sound-pressure levels of blade-passing frequency noise generally increased with increasing rotor-tip Mach numbers. Supersonic-fan noise (combination-tone noise) existed only at 105 percent of design speed and above.

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2. ASME Research Committee on Fluid Meters. *Fluid Meters - - Their Theory and Application, Fifth Edition.* American Society of Mechanical Engineers, New York, N. Y., 1959, p. 47.

3. Glawe, George E., Simmons, Frederick S., and Stickney, Truman N. *Radiation and Recovery Corrections and Time Constants of Several Chromel-Alumel Thermocouple Probes at High Temperature in High Velocity Gas Streams.* NACA Technical Note 3766, October, 1956.

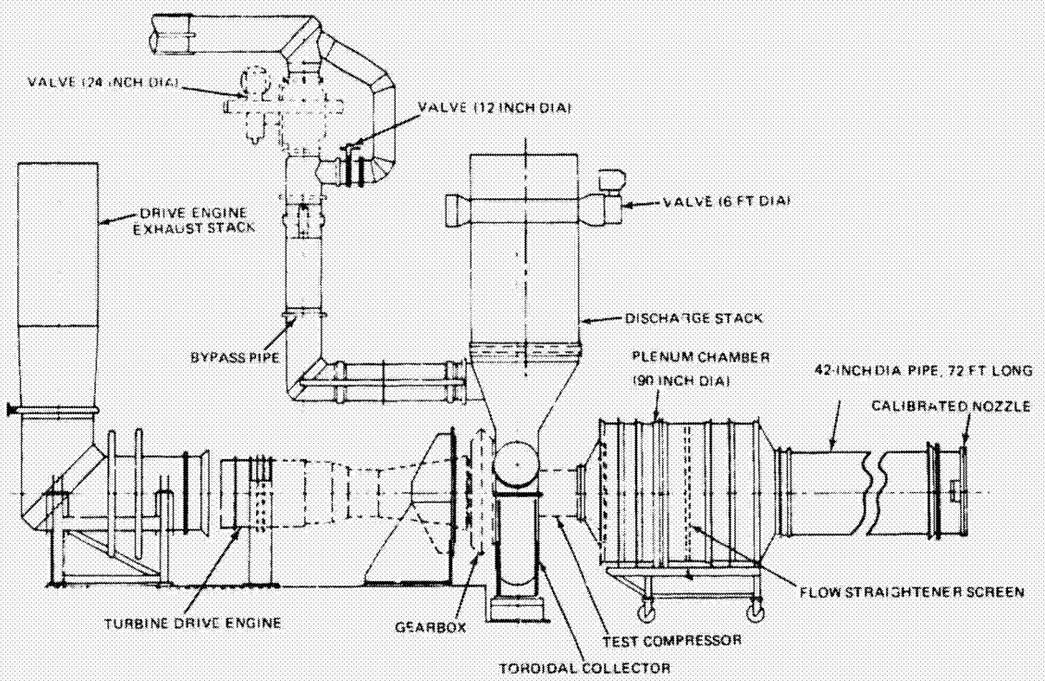


Figure 1 Schematic of Compressor Test Facility

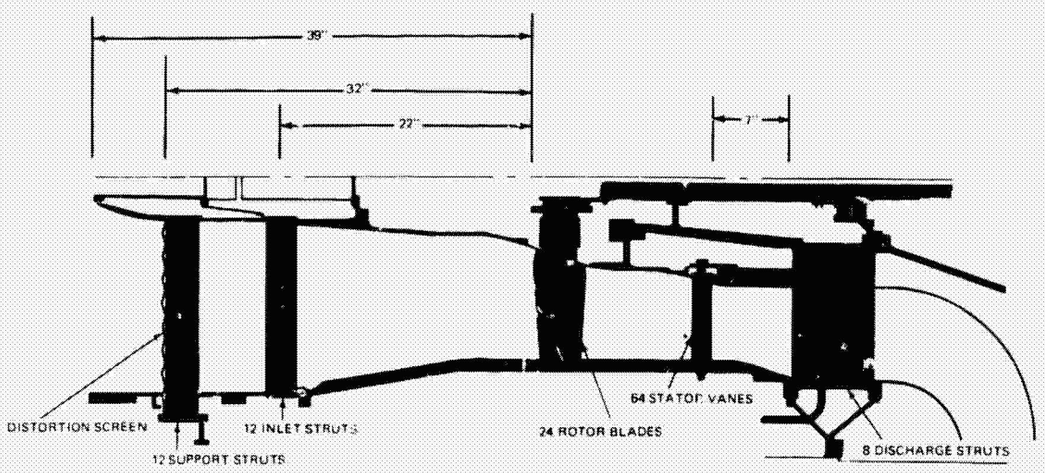


Figure 2 Cross-Section of Test Compressor for Radial Distortion Tests

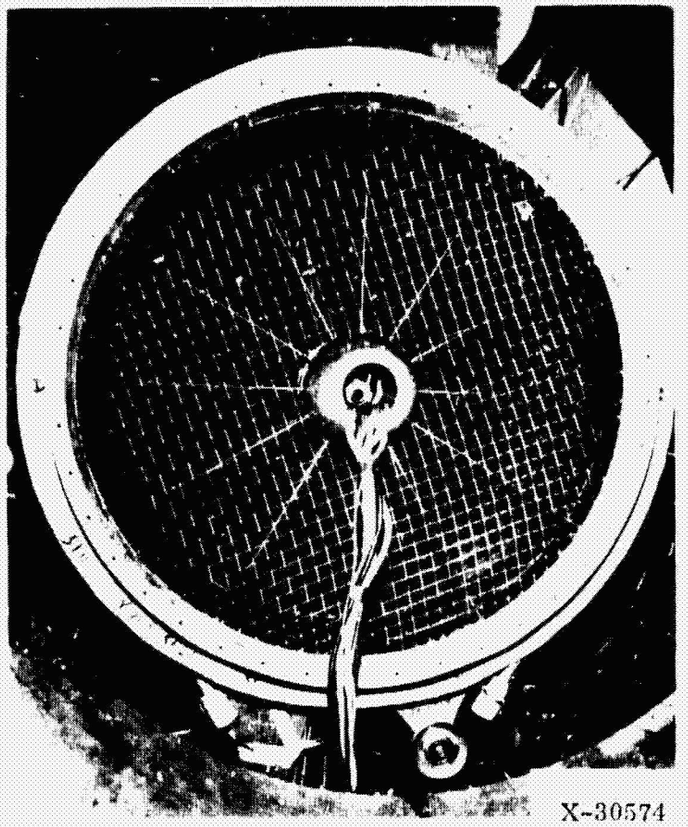
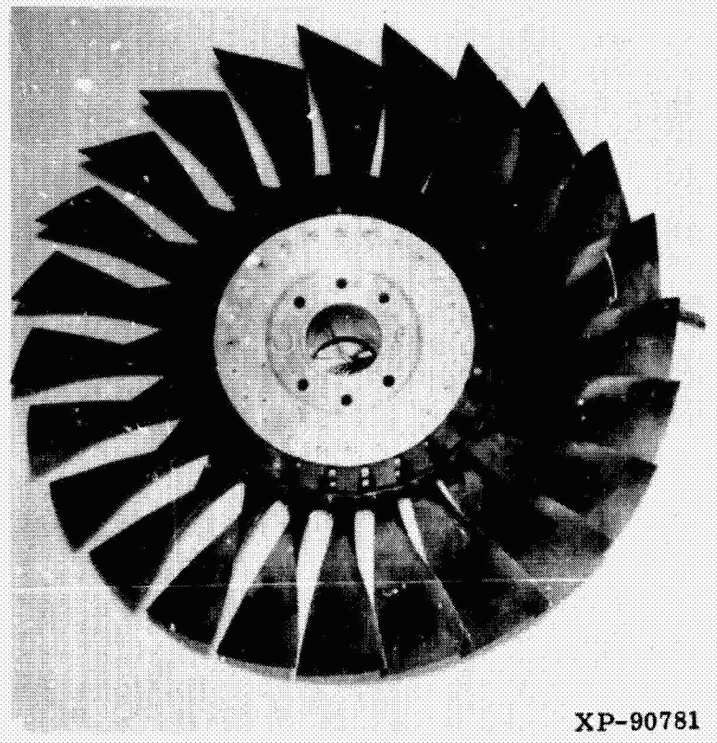


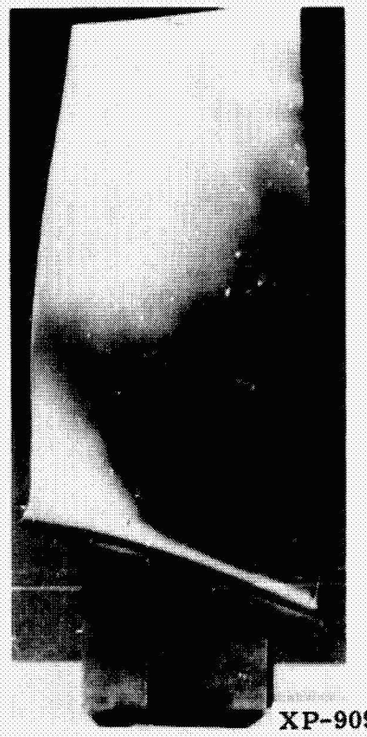
Figure 3 Distortion Support Screen

Figure 4 Test Compressor with Nonrotating Nose Cone



XP-90781

Rear View



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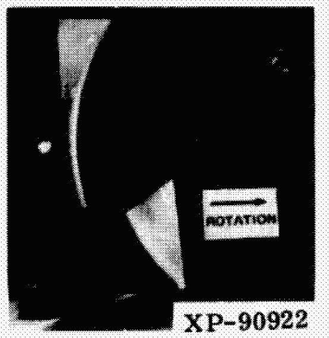
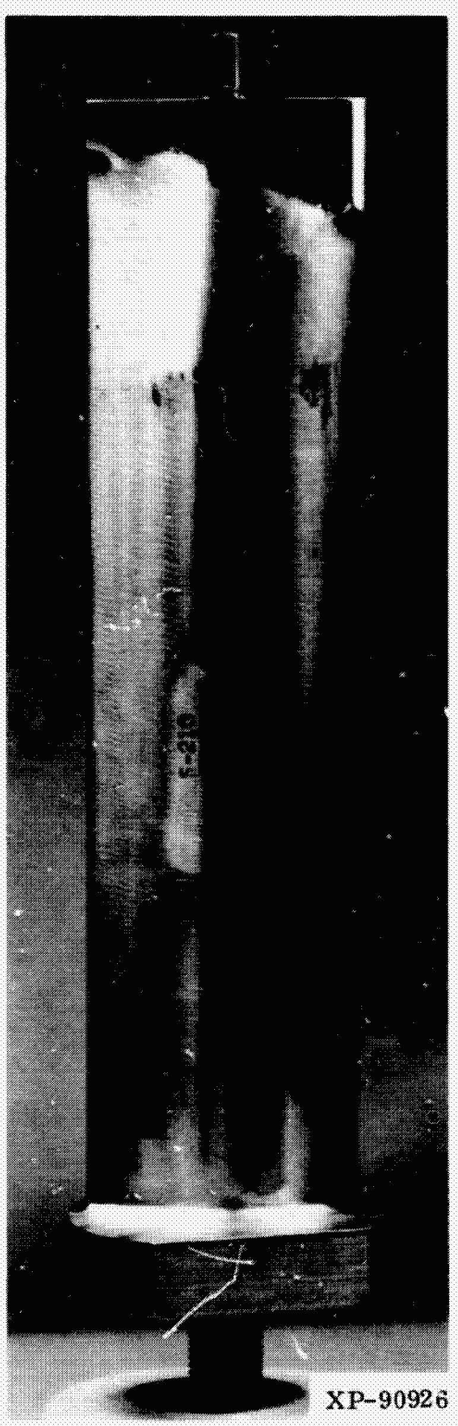


XP-90922

Figure 5 Rotor Assembly and Rotor Blade

XP-90929



XP-90926

Figure 6 MCA Stator Blade

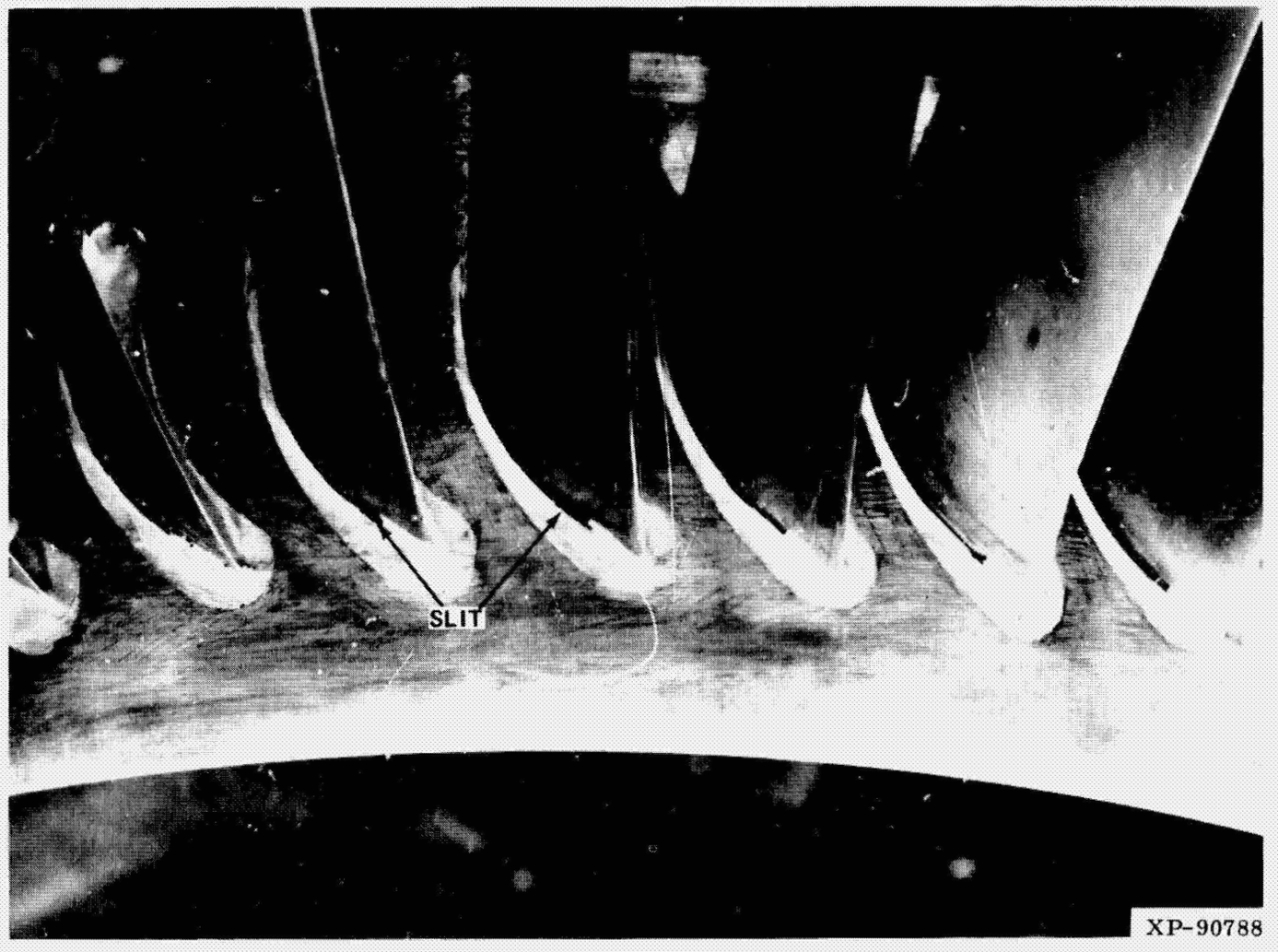
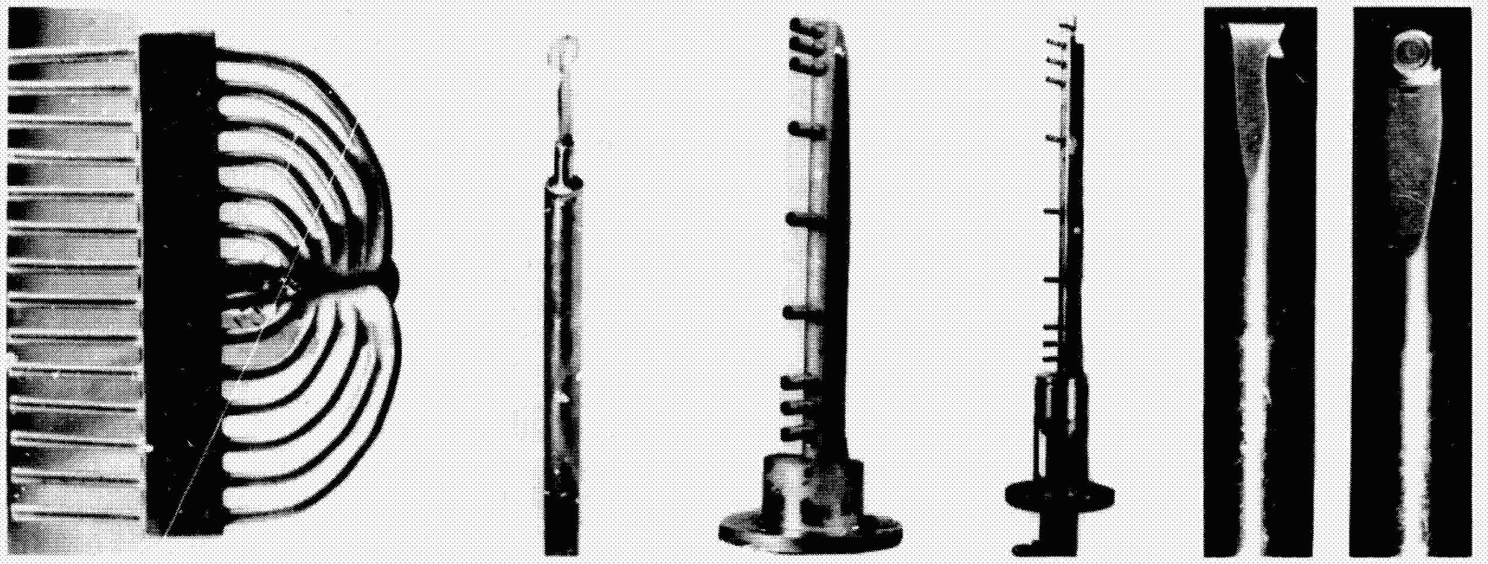


Figure 7 Stator Hub Bleed Slits



A XP-90924 B XP-79802 C XPN-659 D XPN-657 E XP-52934

A. Traversable total pressure wake rake
B. Traversable disk probe
C. Temperature rake
D. Shielded total pressure rake
E. Quartz-crystal pressure probe

Figure 8 Compressor Instrumentation

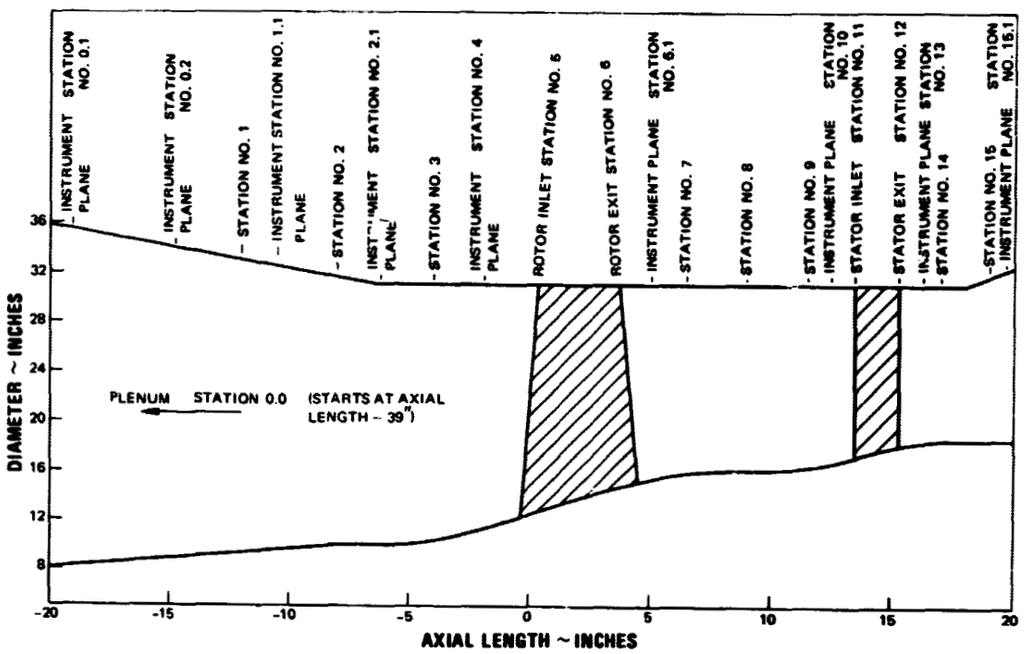


Figure 9 Axial Locations of Instrumentation

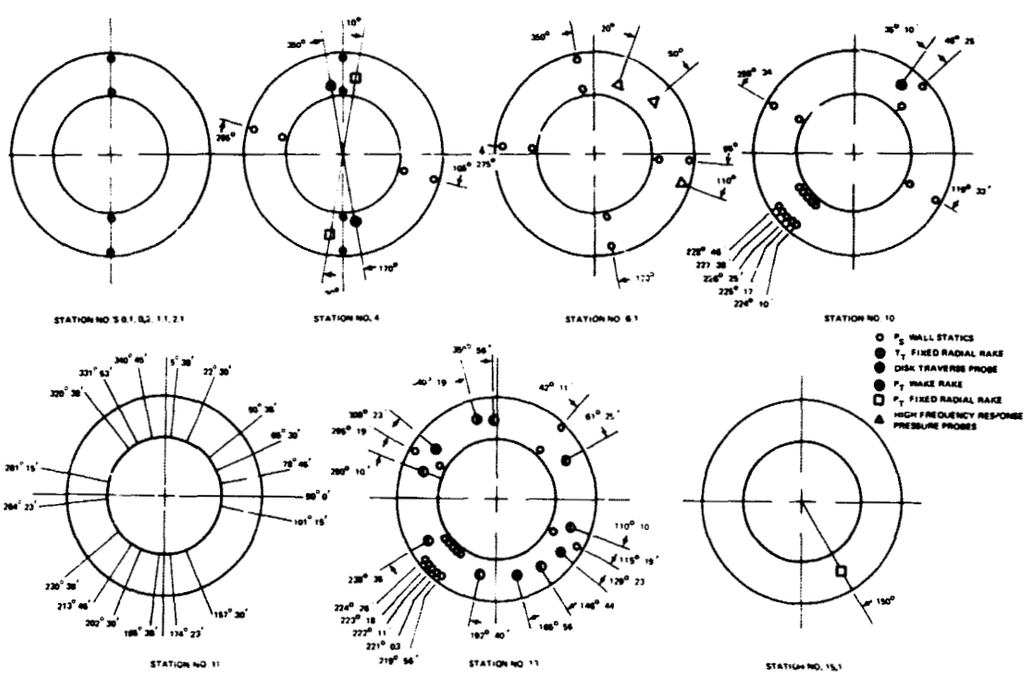


Figure 10 Circumferential Locations of Instrumentation, Looking Downstream, Rotor Rotation Counterclockwise

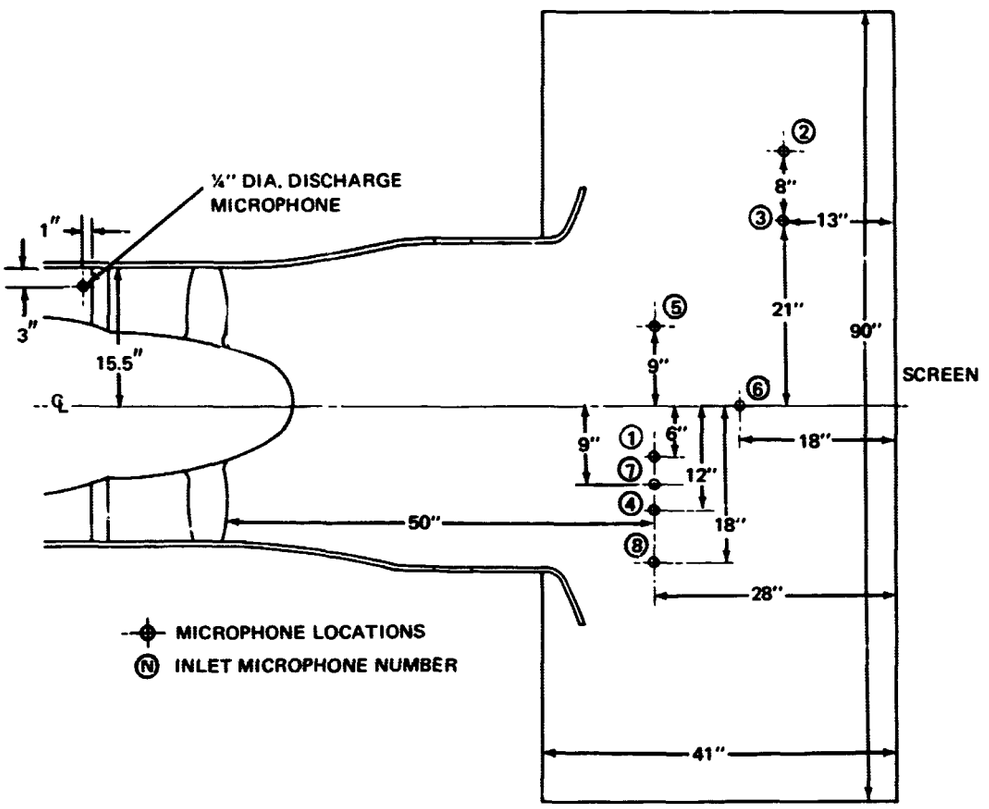
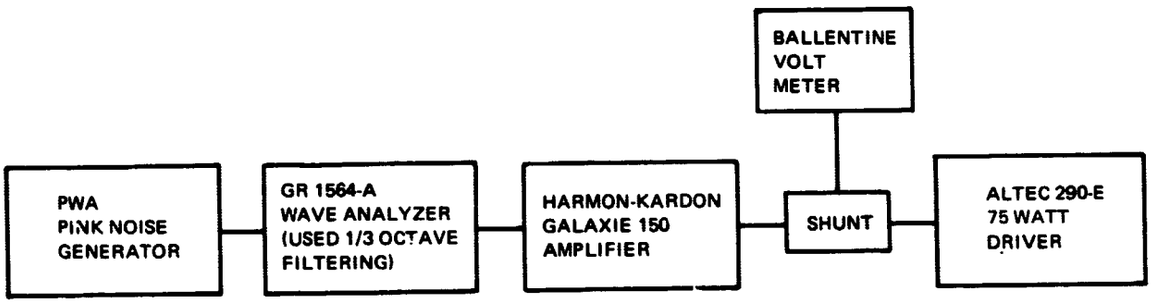
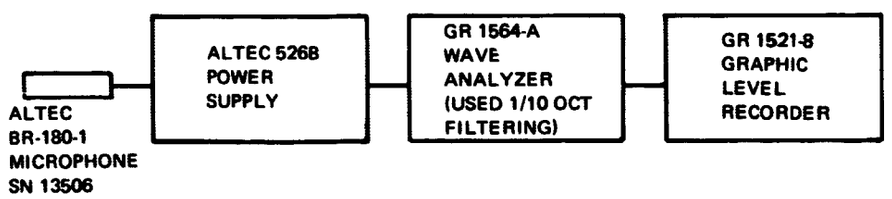


Figure 11 Microphone Locations



SOUND INPUT DIAGRAM



NOISE MEASUREMENT SYSTEM

Figure 12 Acoustic Data-Recording System for Evaluating Plenum Reverberation Characteristics

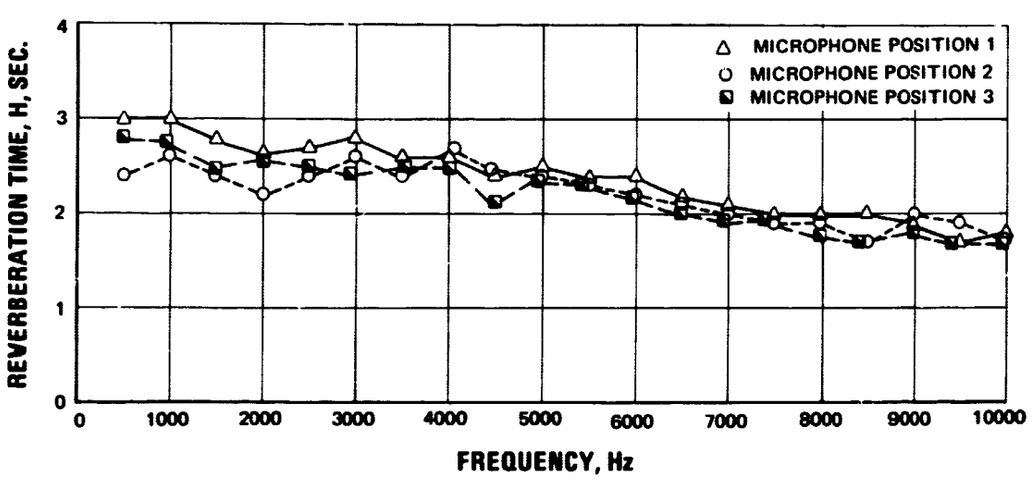


Figure 13 Reverberation Time vs. Frequency for the Inlet Plenum

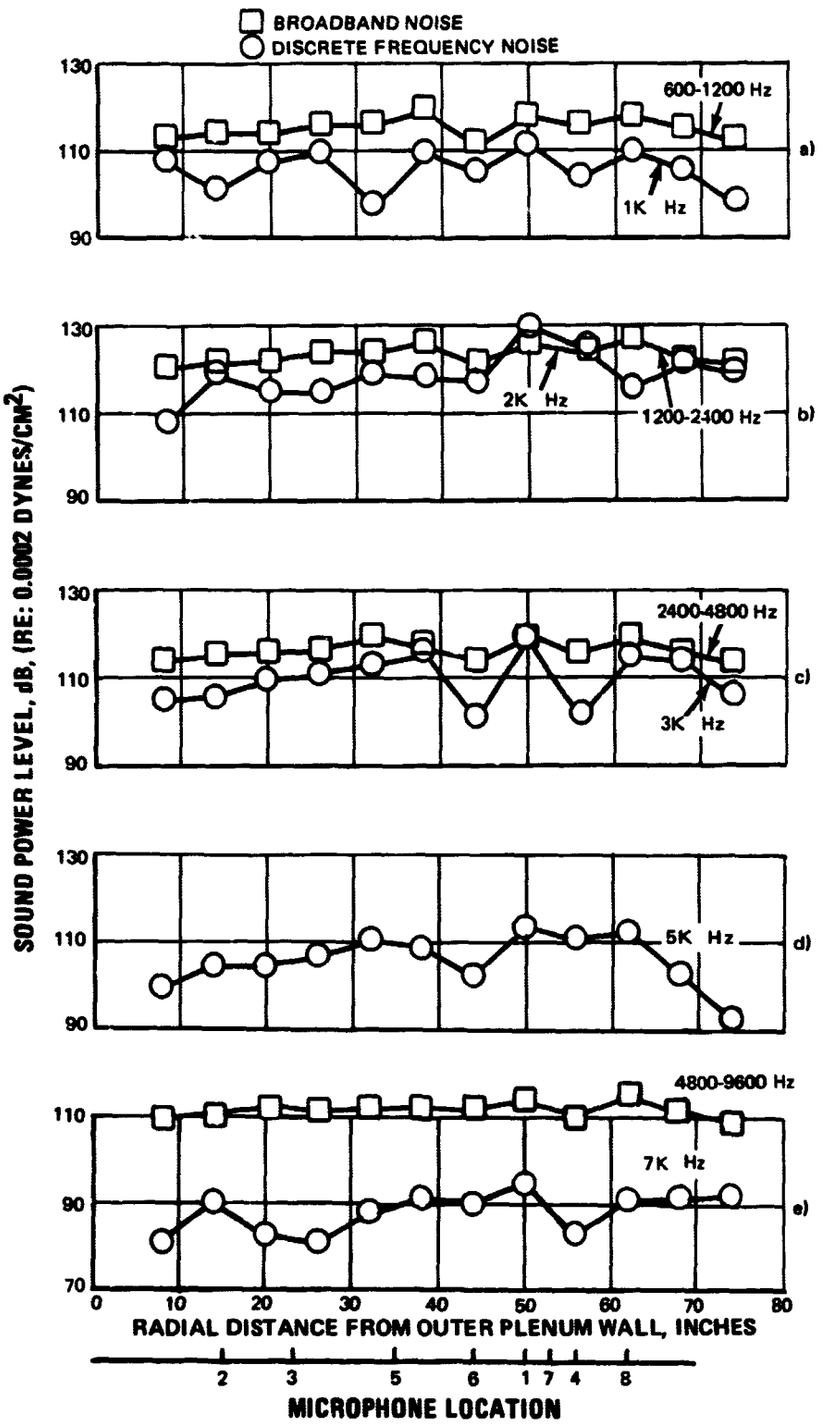


Figure 14 Radial Distributions of Broadband and Discrete Noise for Plenum Chamber

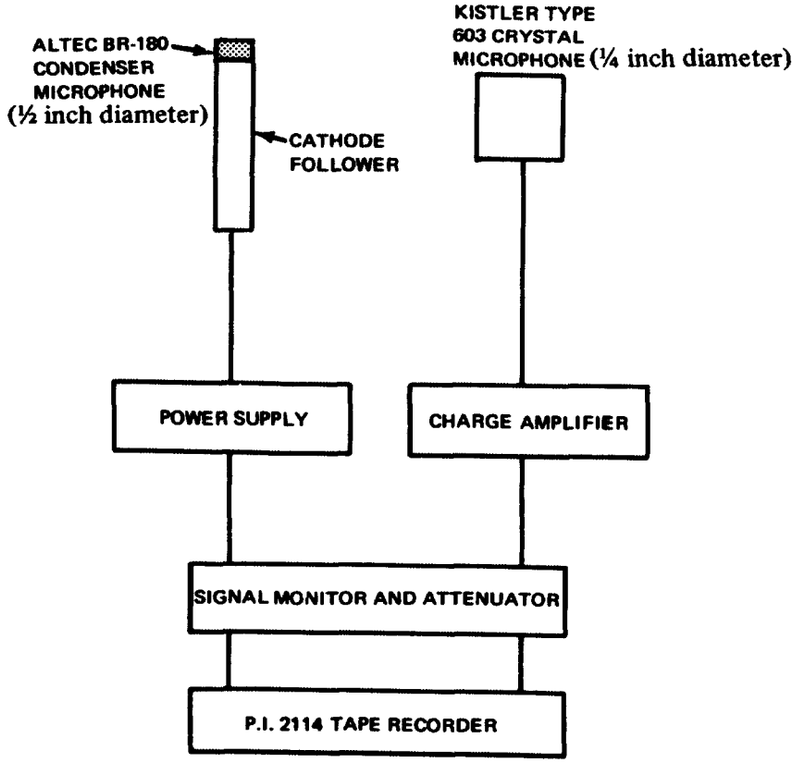


Figure 15 Acoustic Recording System for Fan Noise Tests

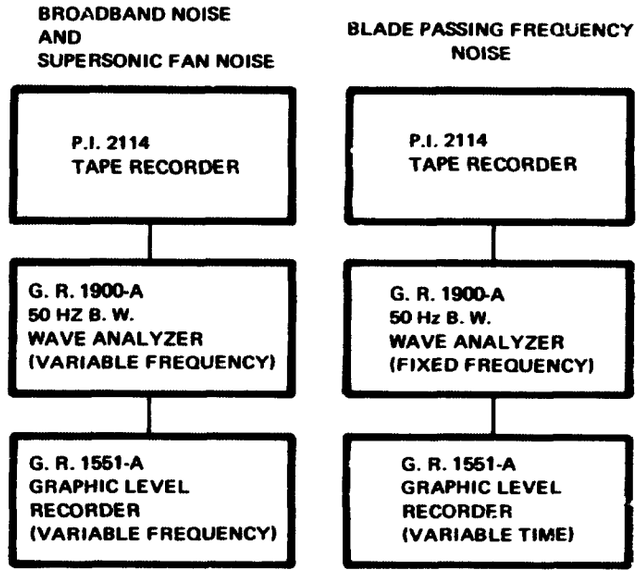


Figure 16 Acoustic Data-Reduction System

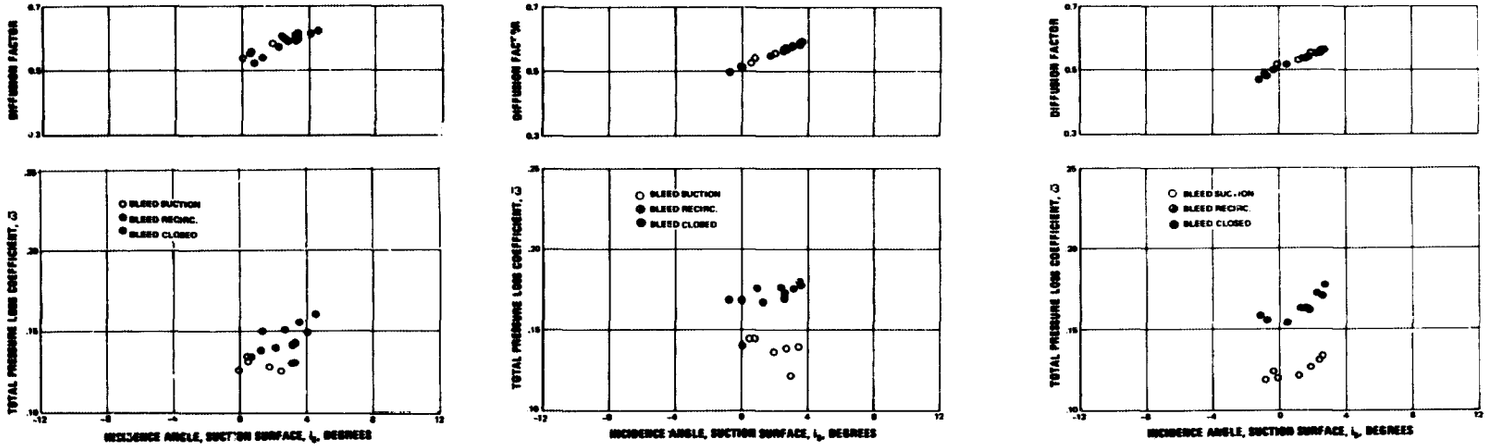


Figure 17 Effects of Stator-Hub-Slit Suction and Recirculation

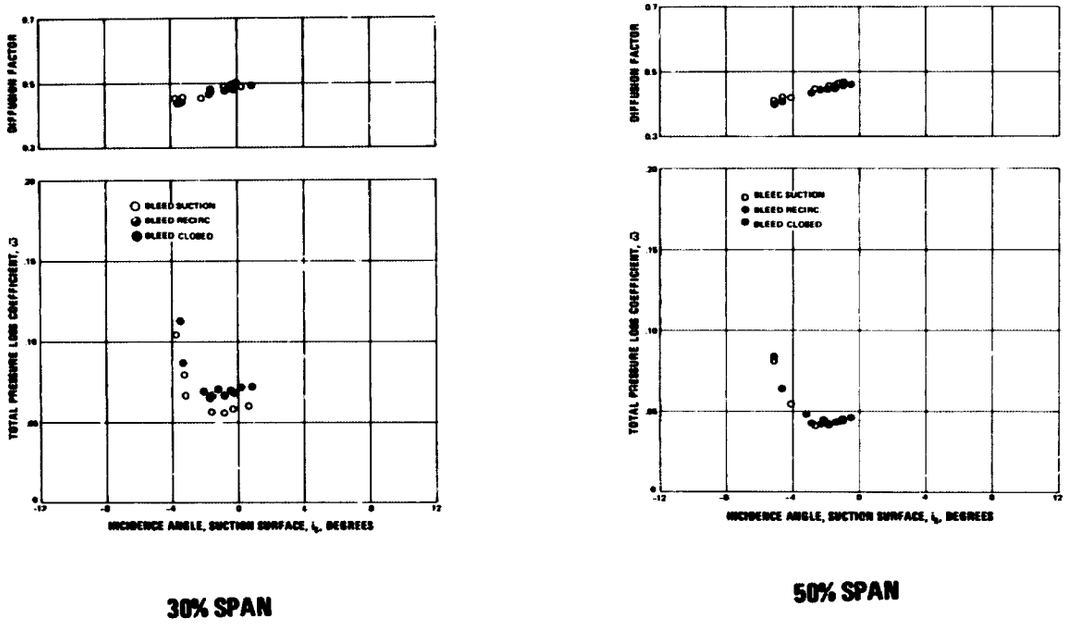


Figure 17 Effects of Stator-Hub-Slit Suction and Recirculation

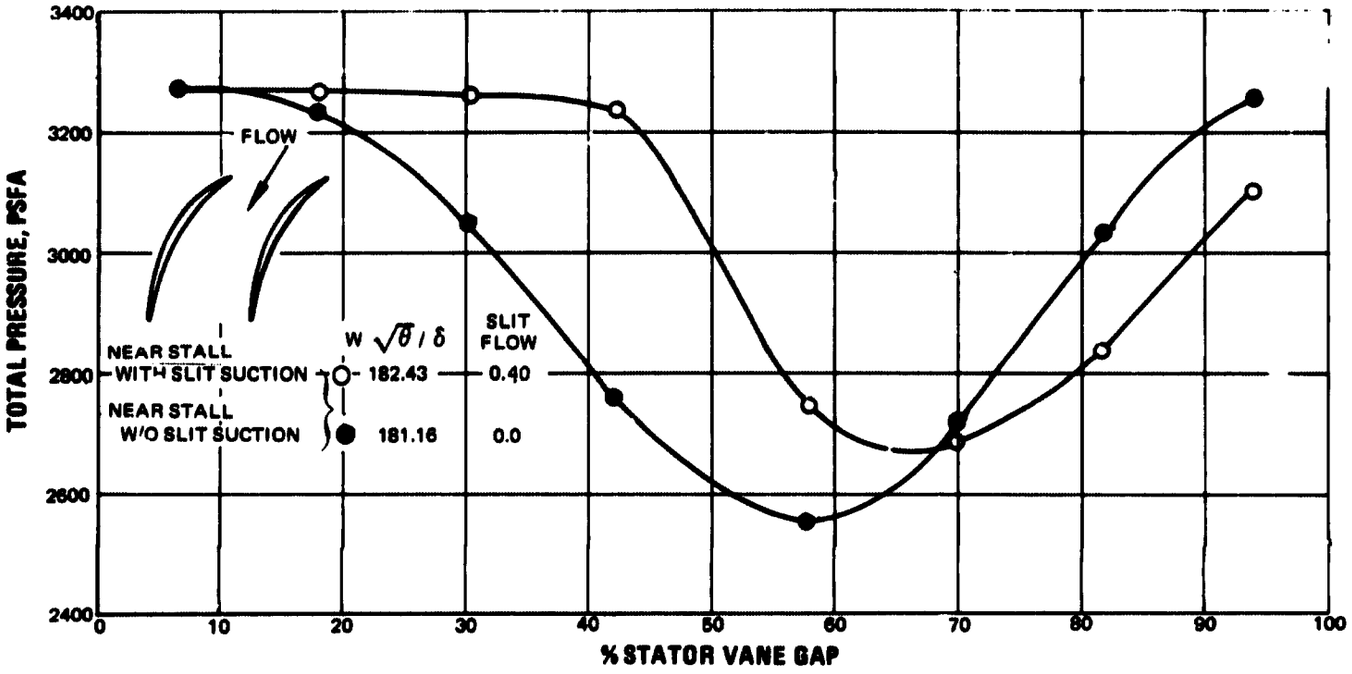


Figure 18 Pressure Distributions vs Percent Vane Gap With and Without Stator Hub Slit Suction, 100% Design Speed, 10% Span From Hub

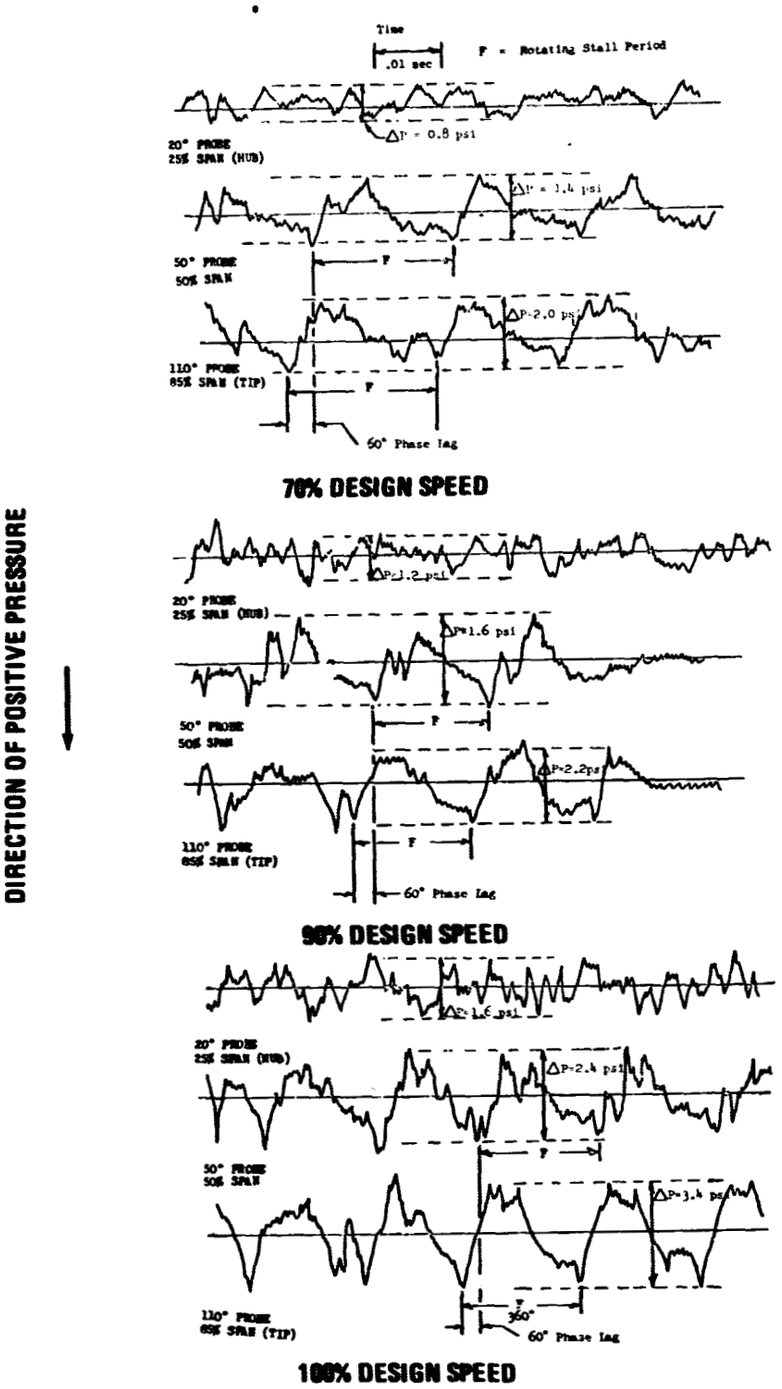


Figure 19 Quartz-Crystal Dynamic Pressure Traces for Evaluating Rotating Stall

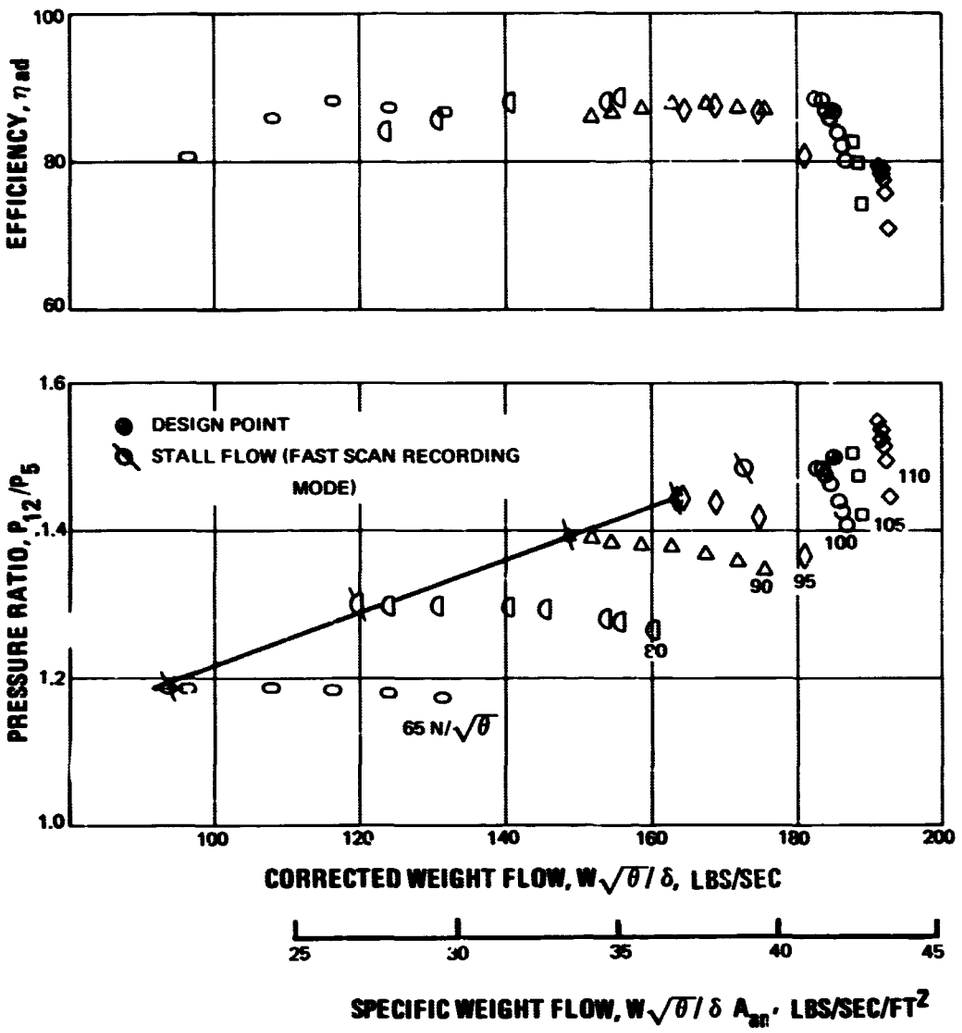


Figure 20 Over-All Stage Performance, Uniform Inlet Flow

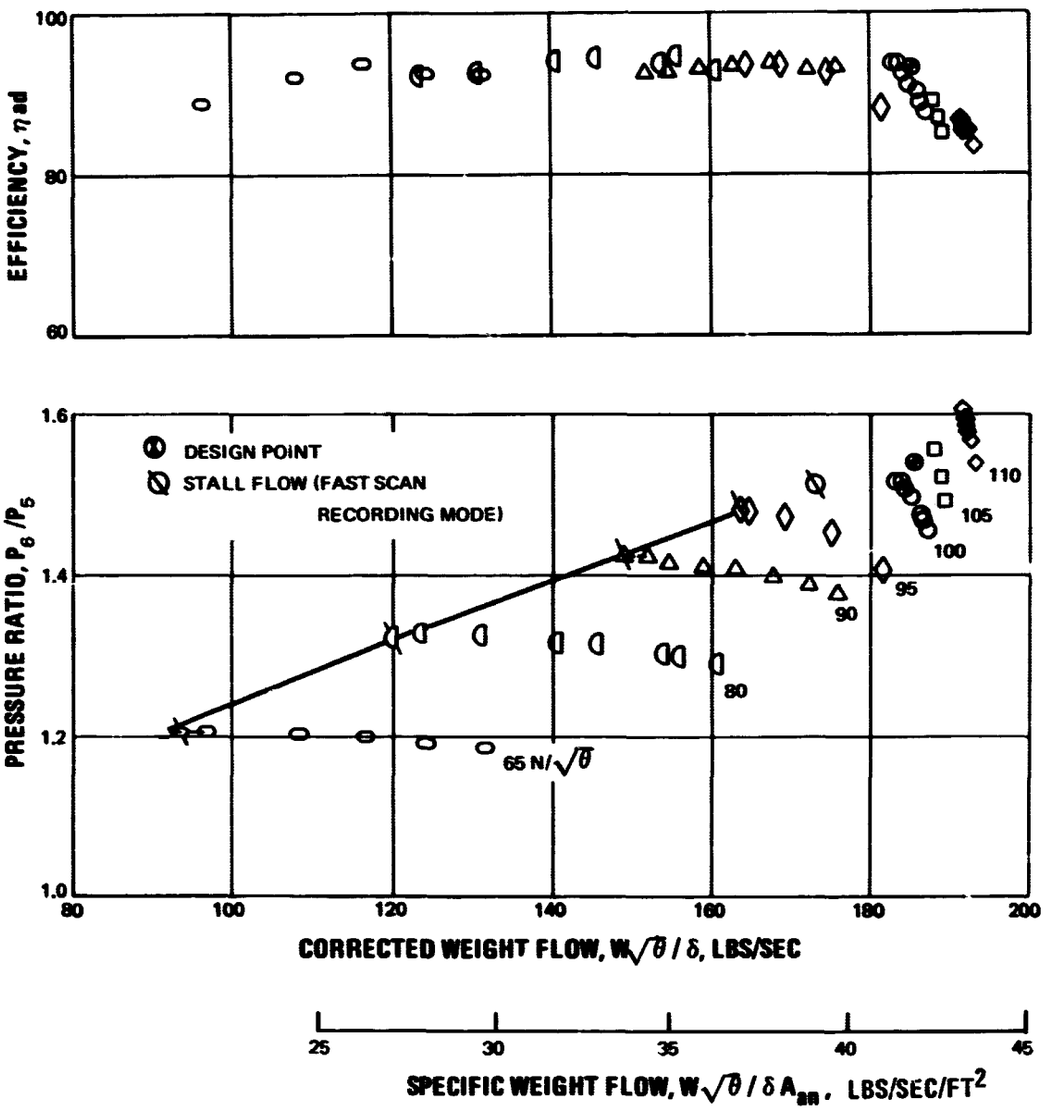


Figure 21 Over-All Rotor Performance, Uniform Inlet Flow

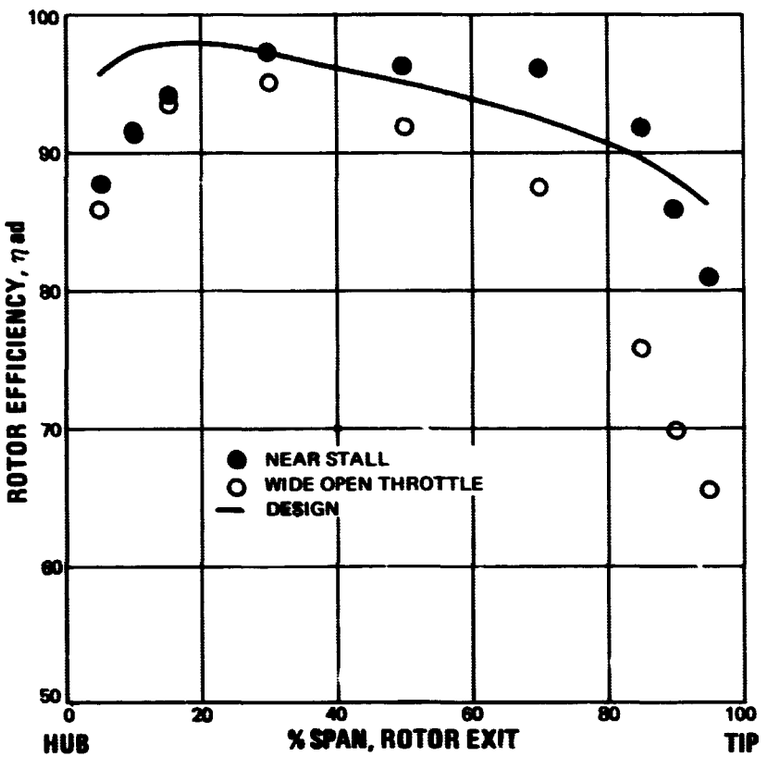


Figure 22 Rotor Efficiency vs. Percent Span, 100% Design Speed

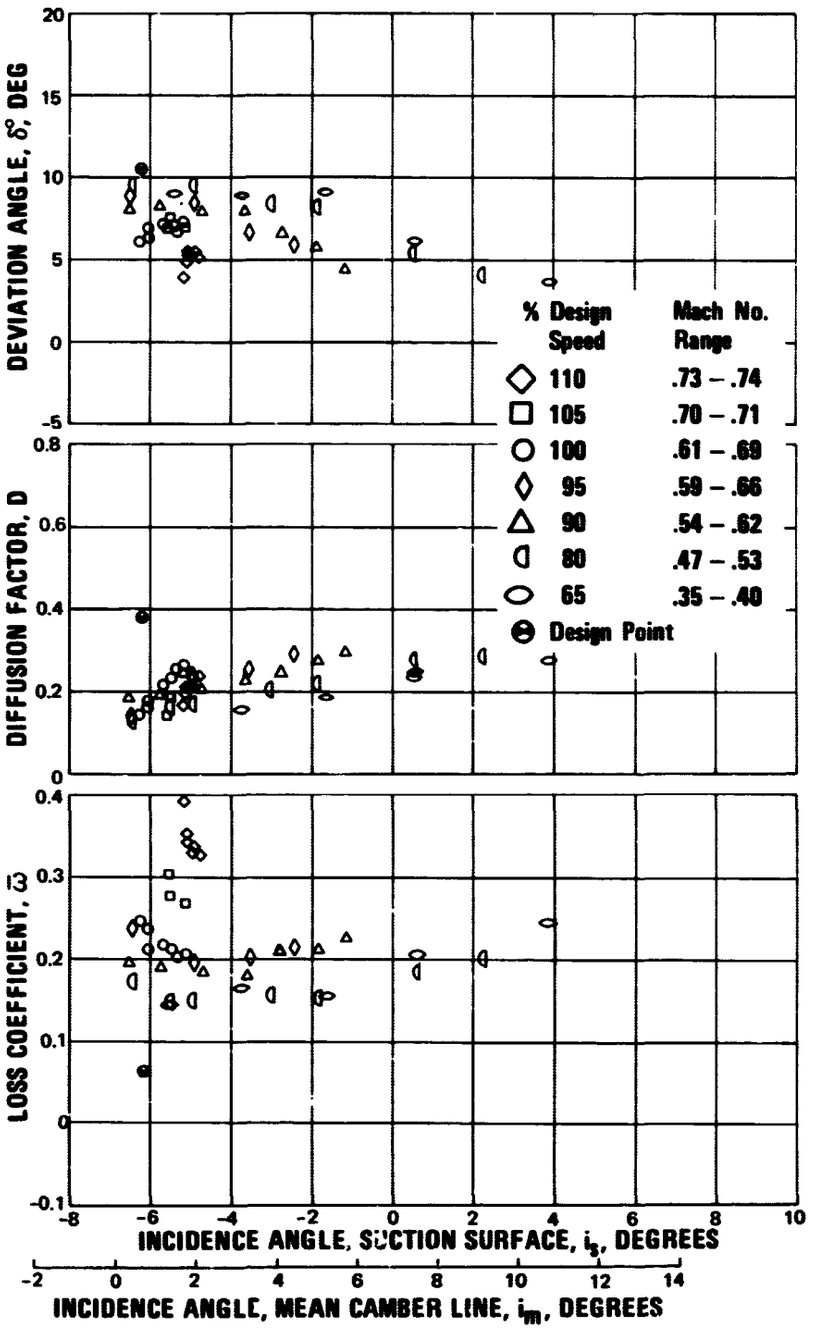


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 5% Span

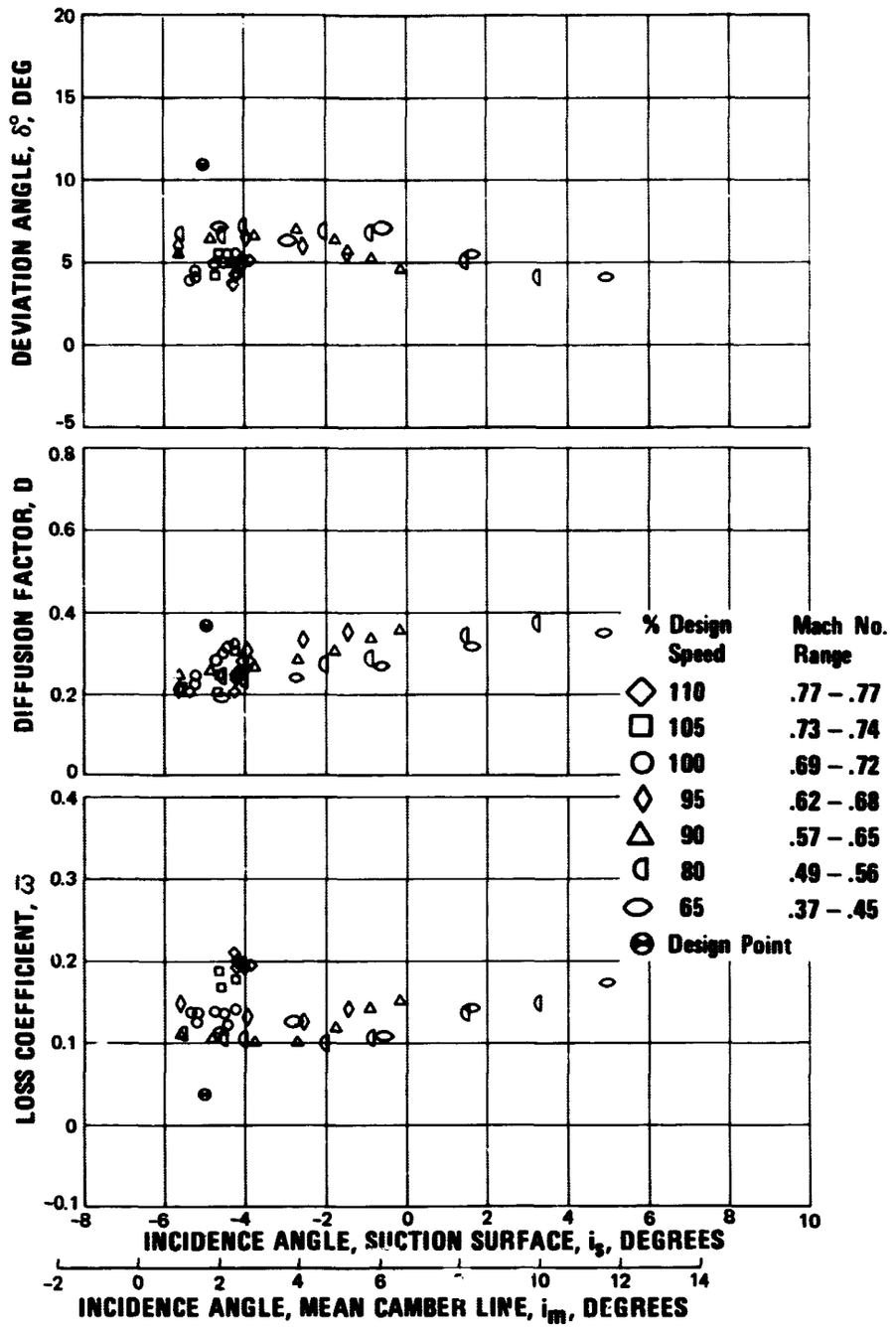


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 10% Span

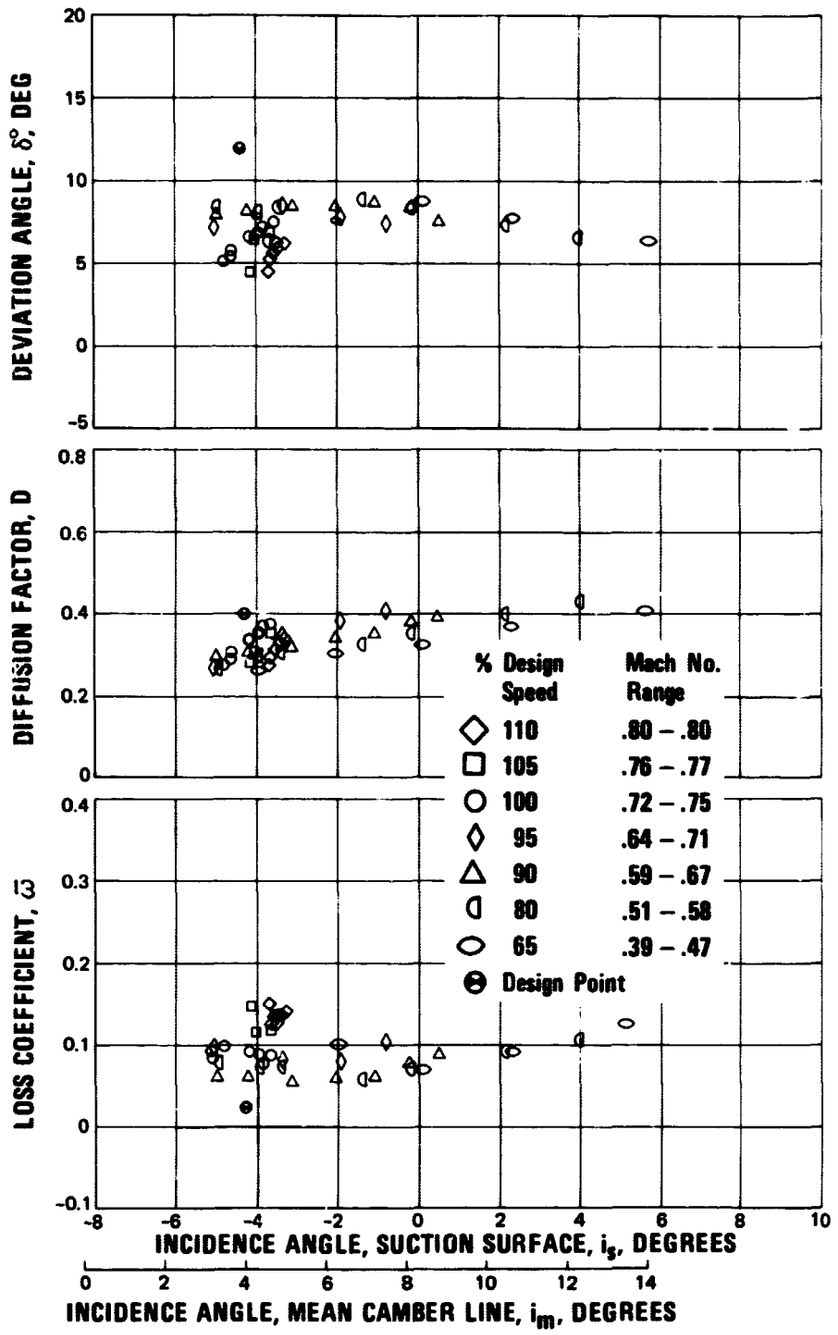


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 15% Span

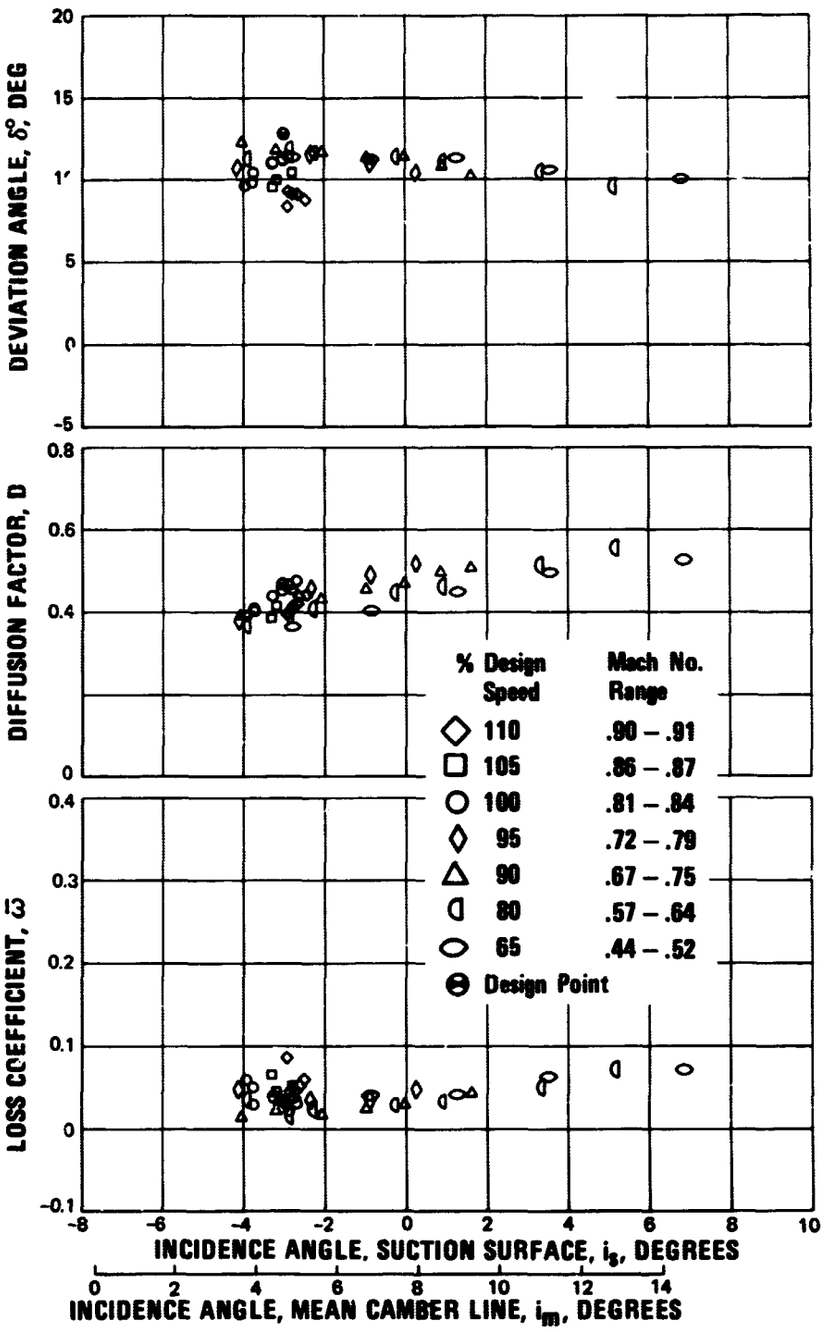


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 30% Span

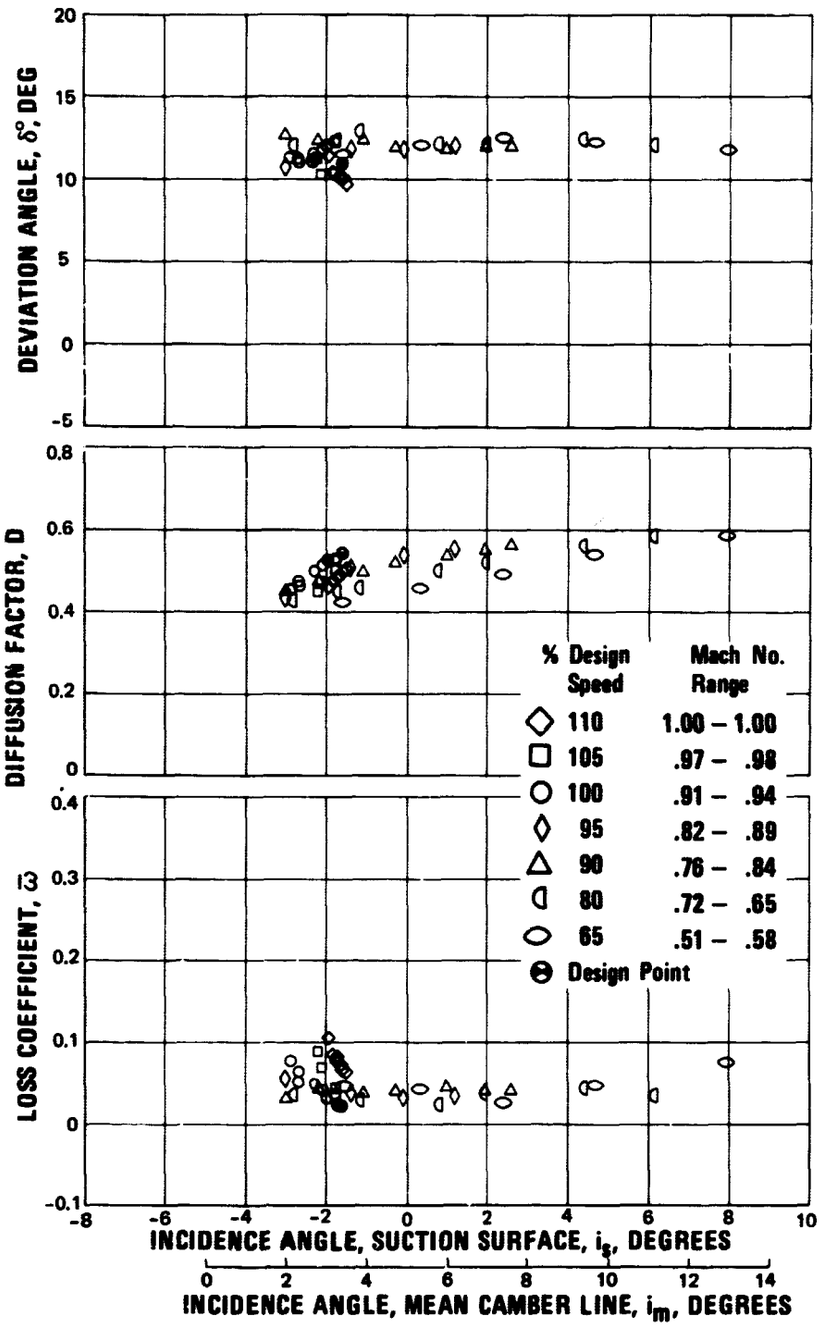


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 50% Span

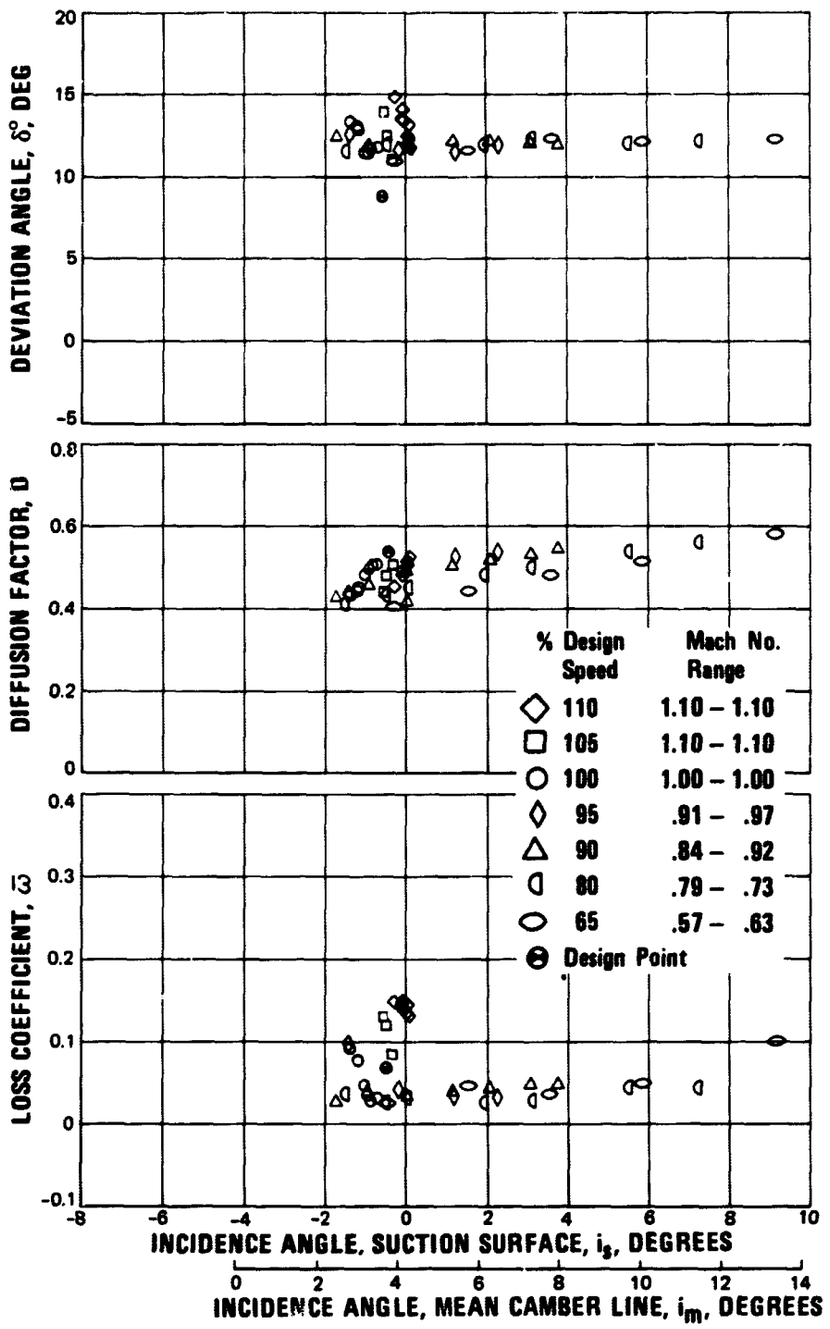


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 70% Span

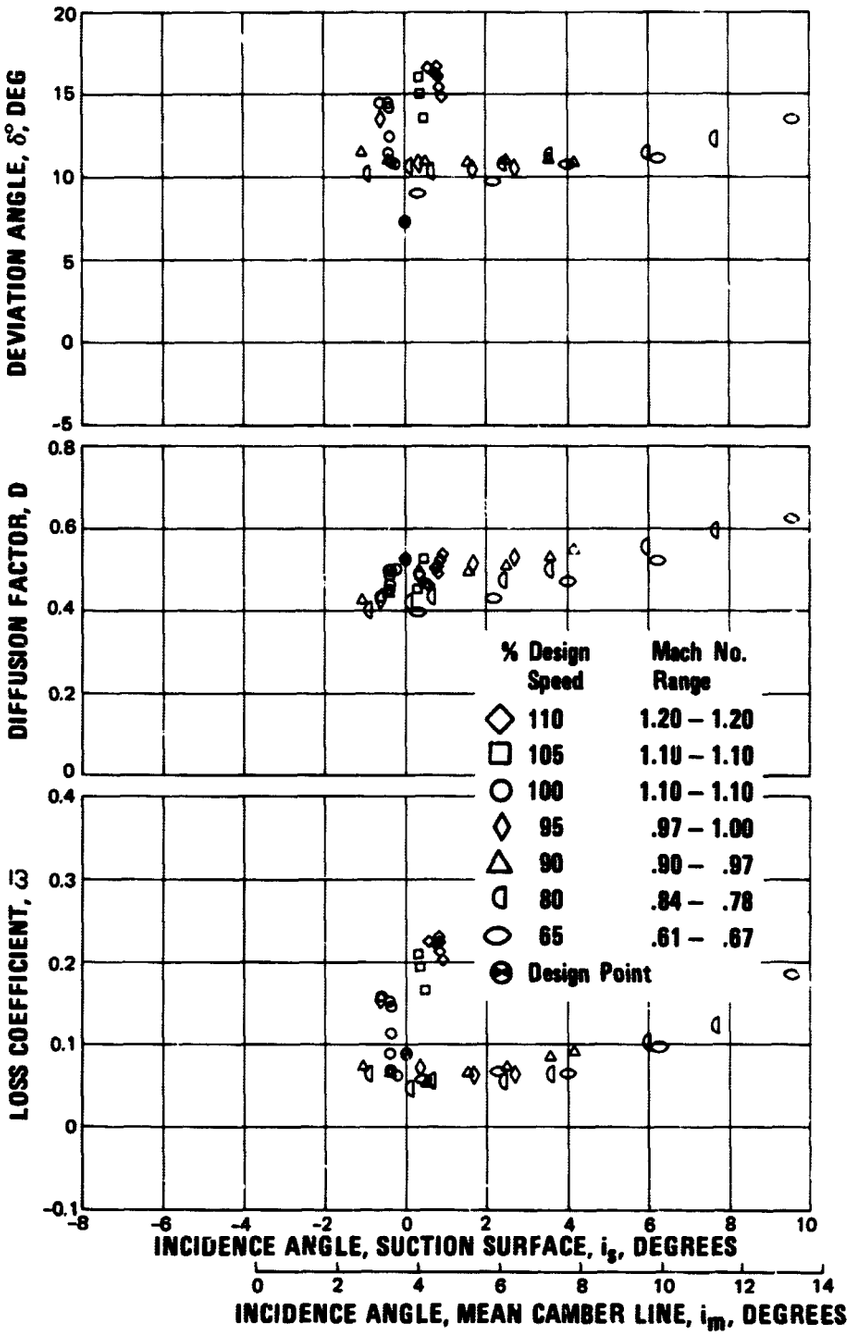


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 85% Span

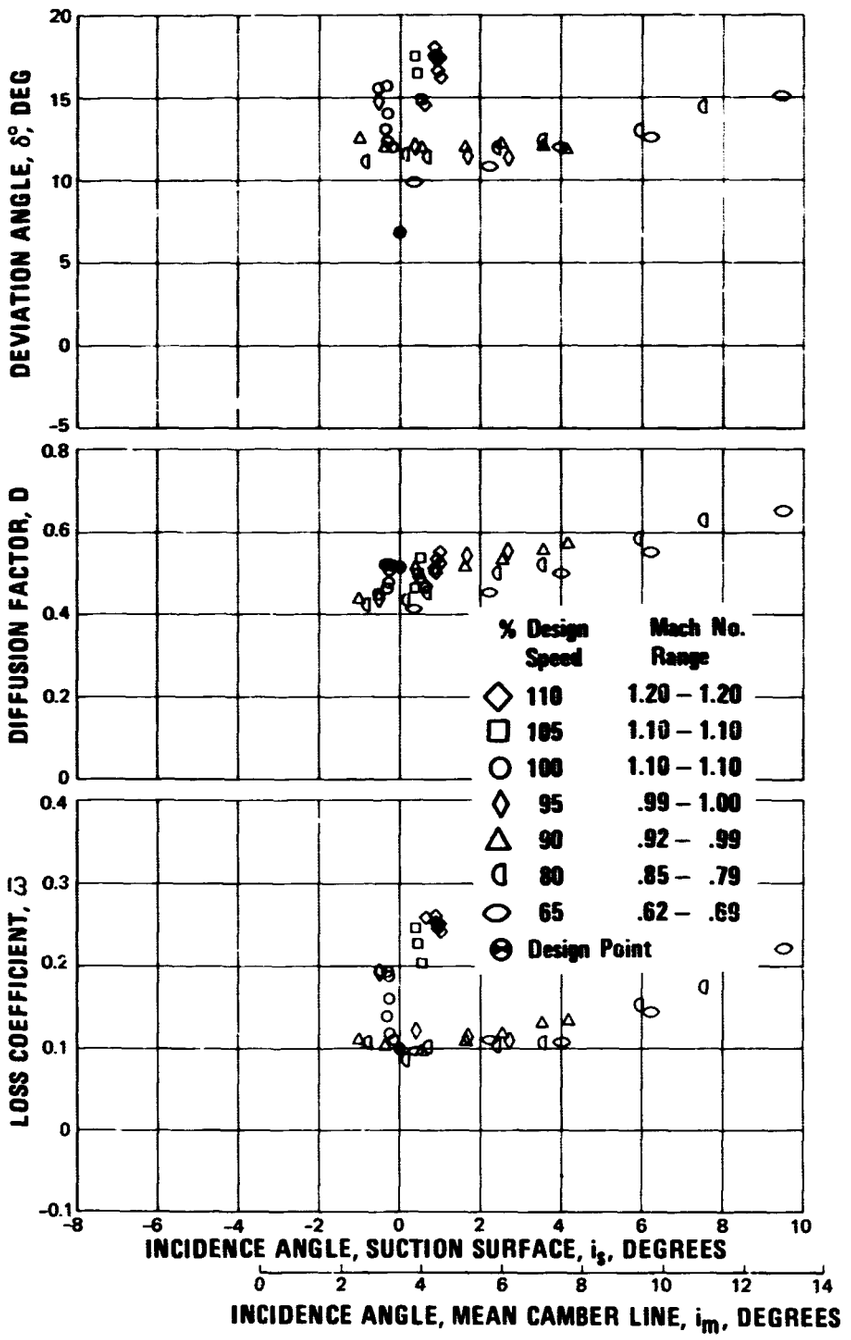


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 90% Span

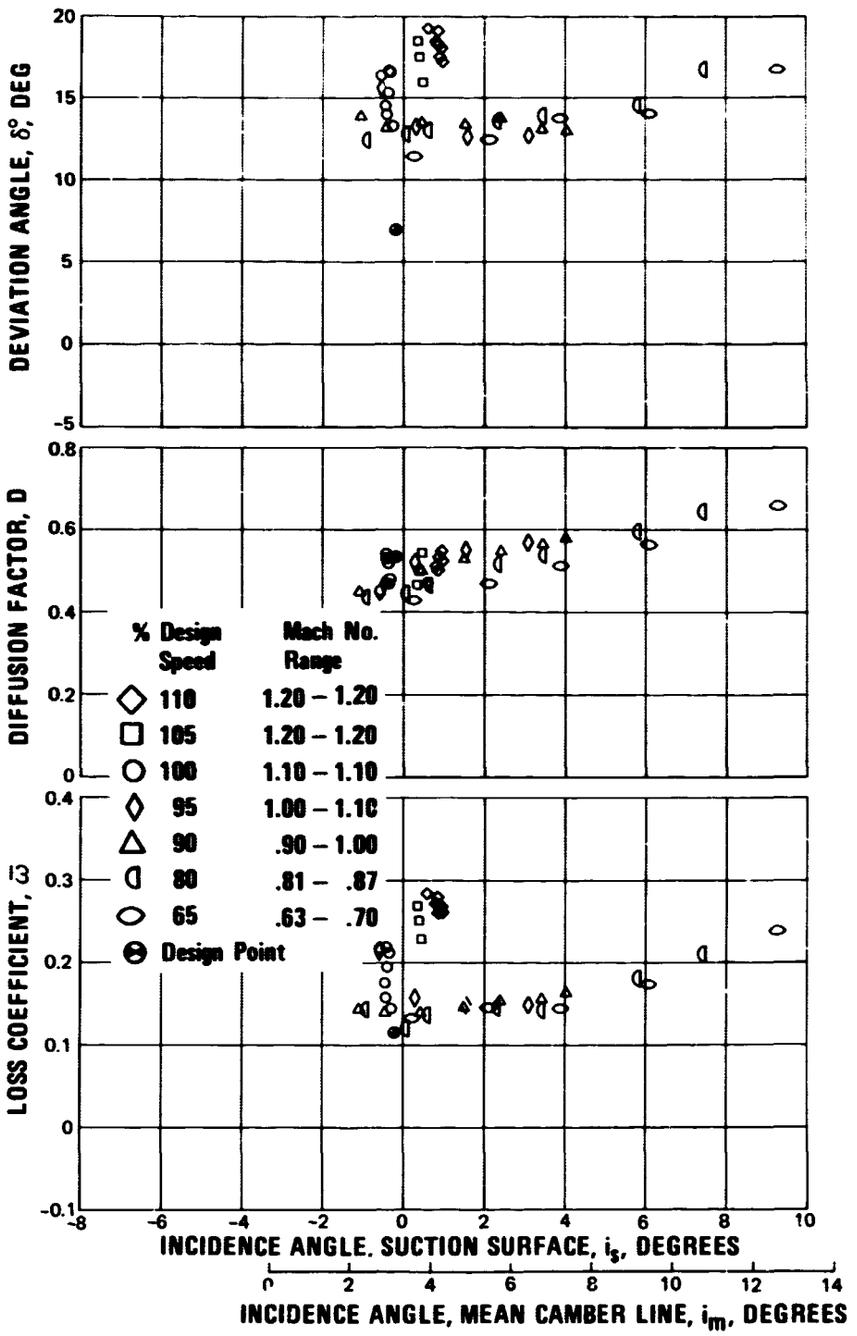


Figure 23 Rotor Blade Element Performance, Uniform Inlet Flow, 95% Span

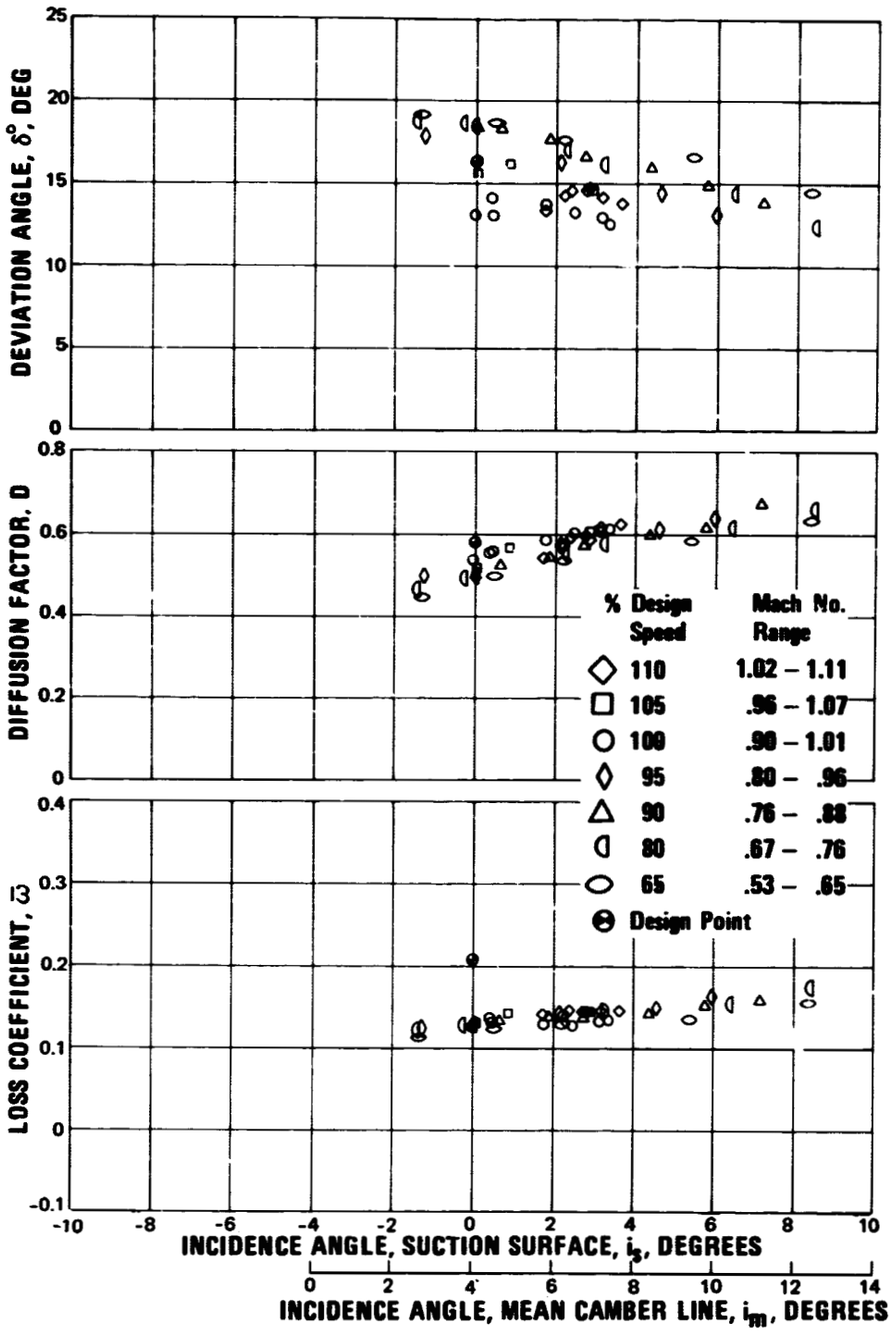


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 5% Span

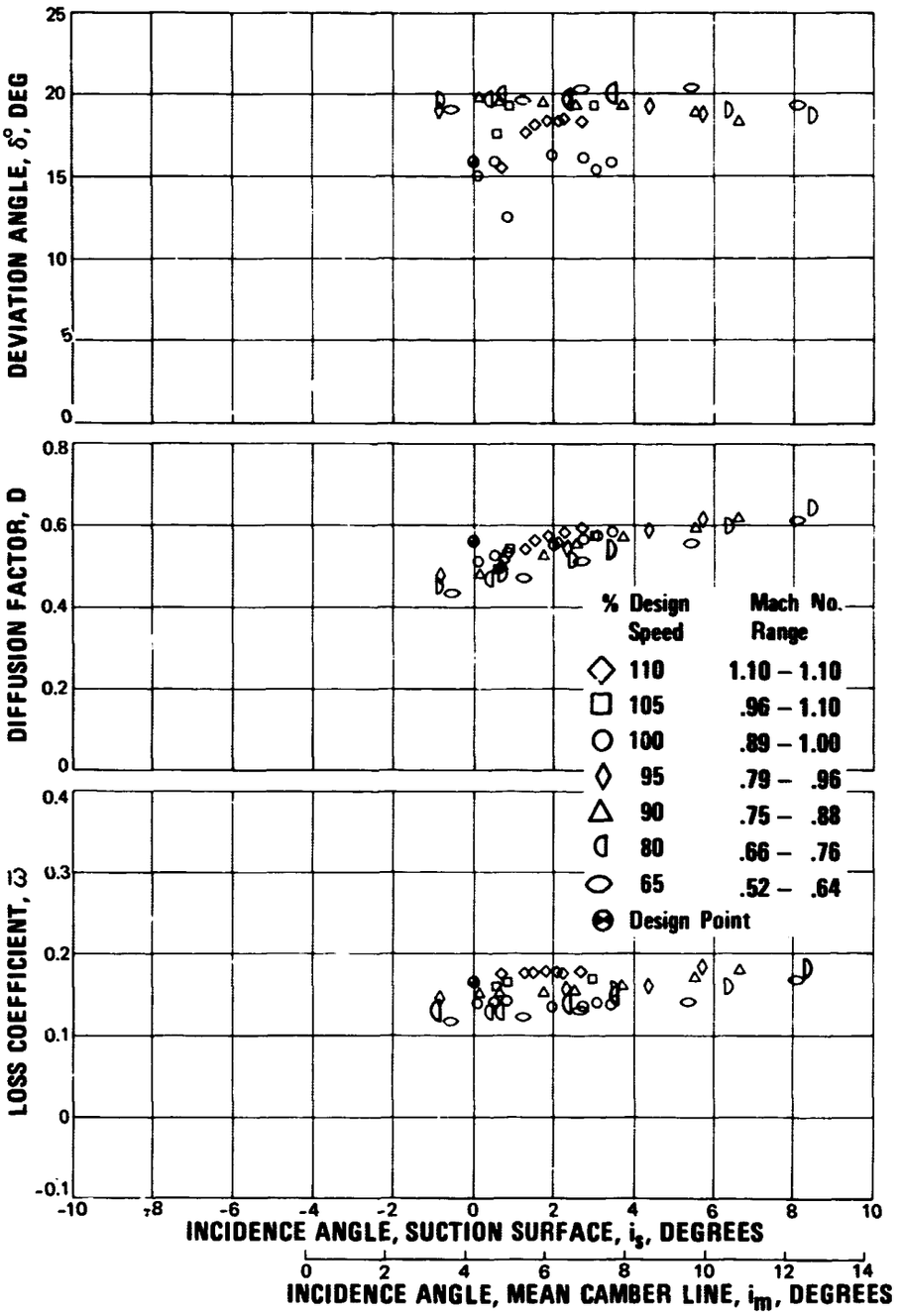


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 10% Span

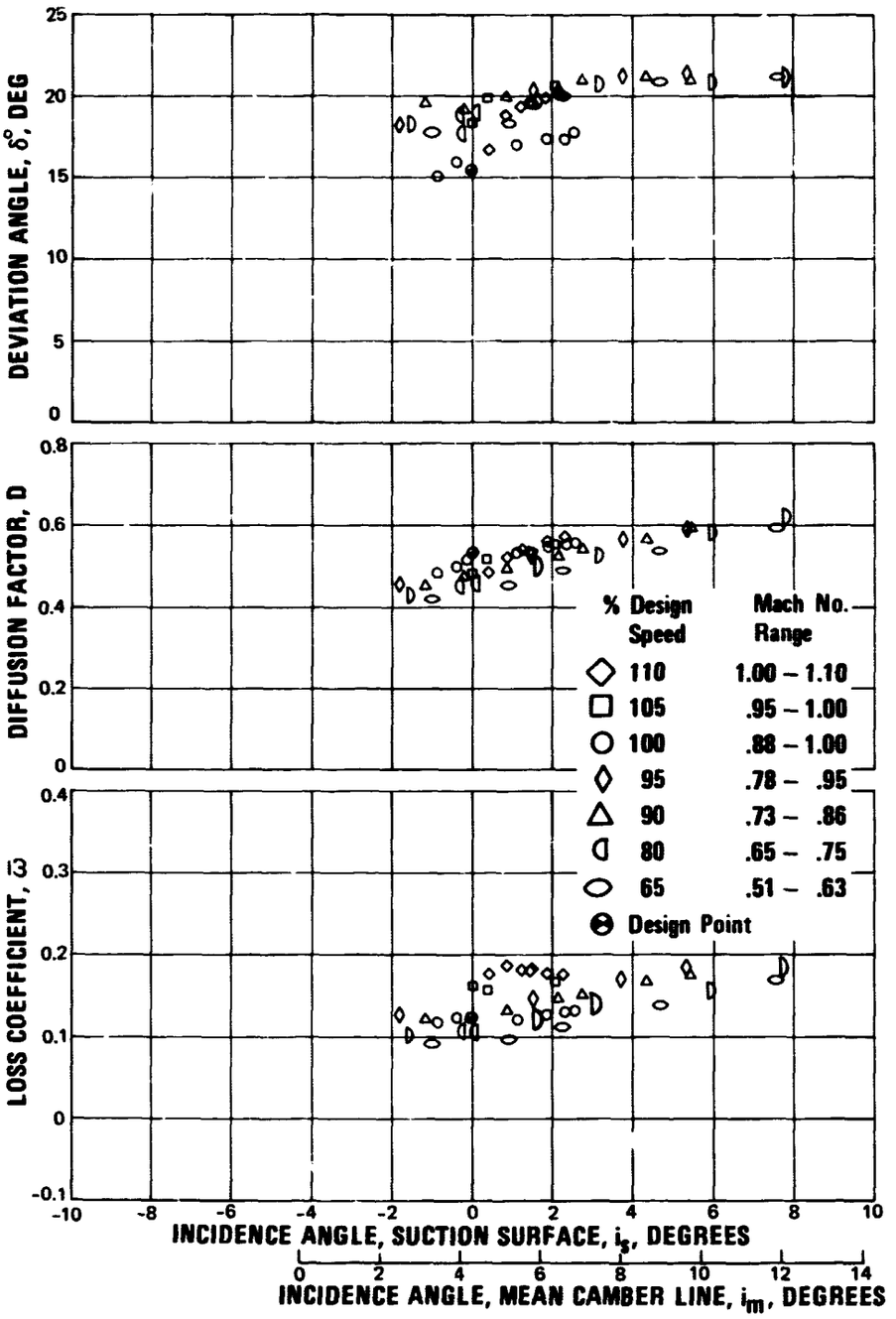


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 15% Span

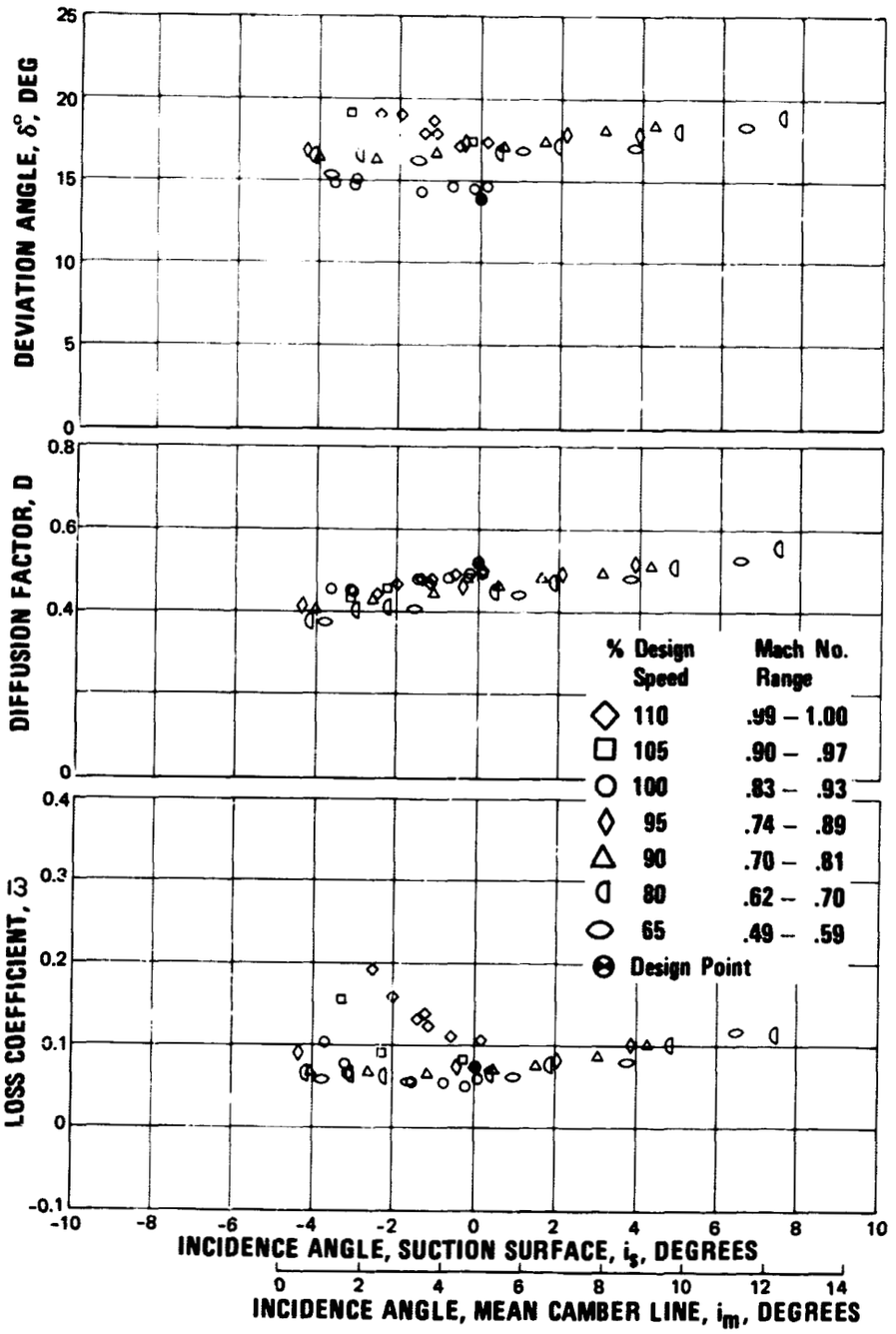


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow , 30% Span

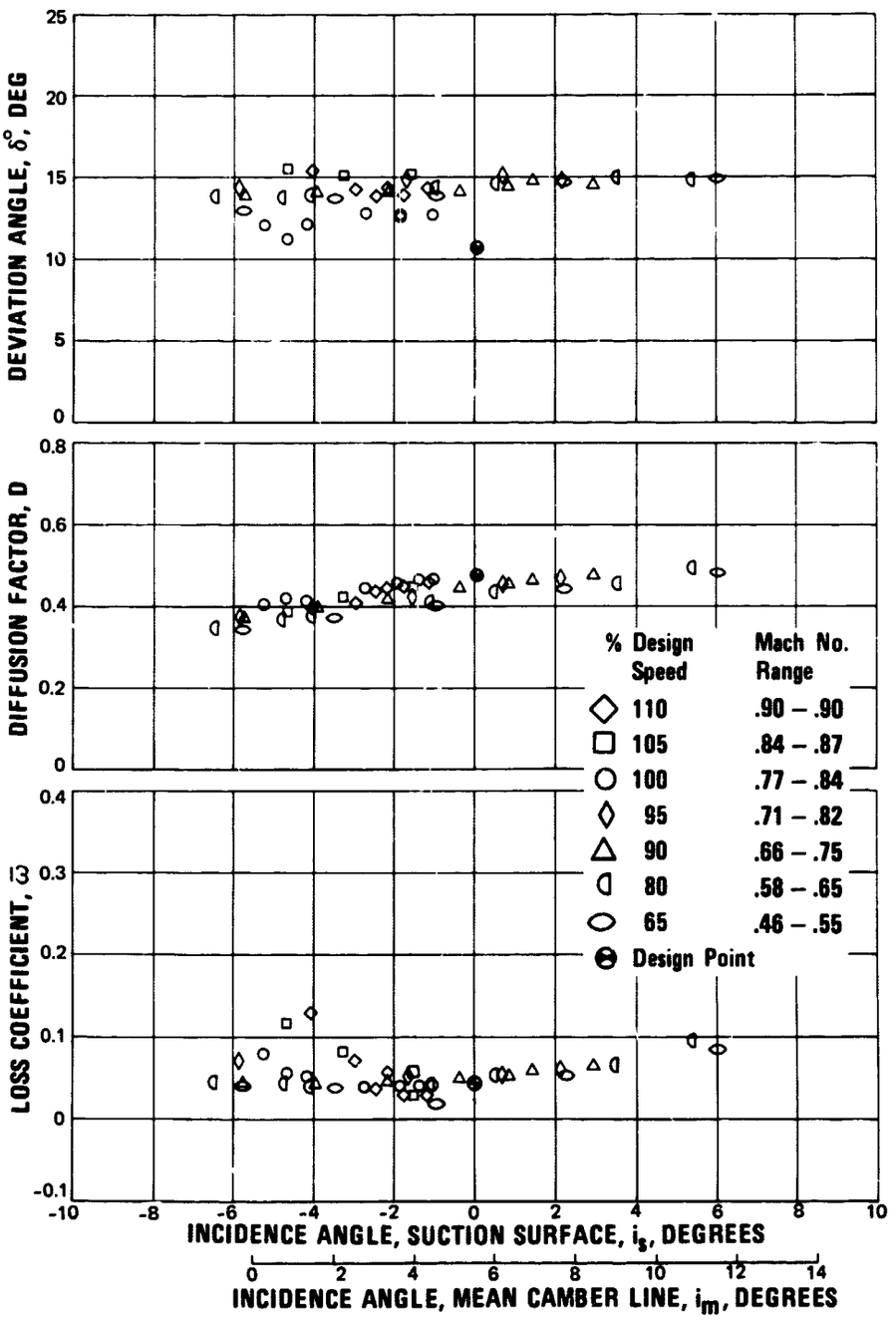


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 50% Span

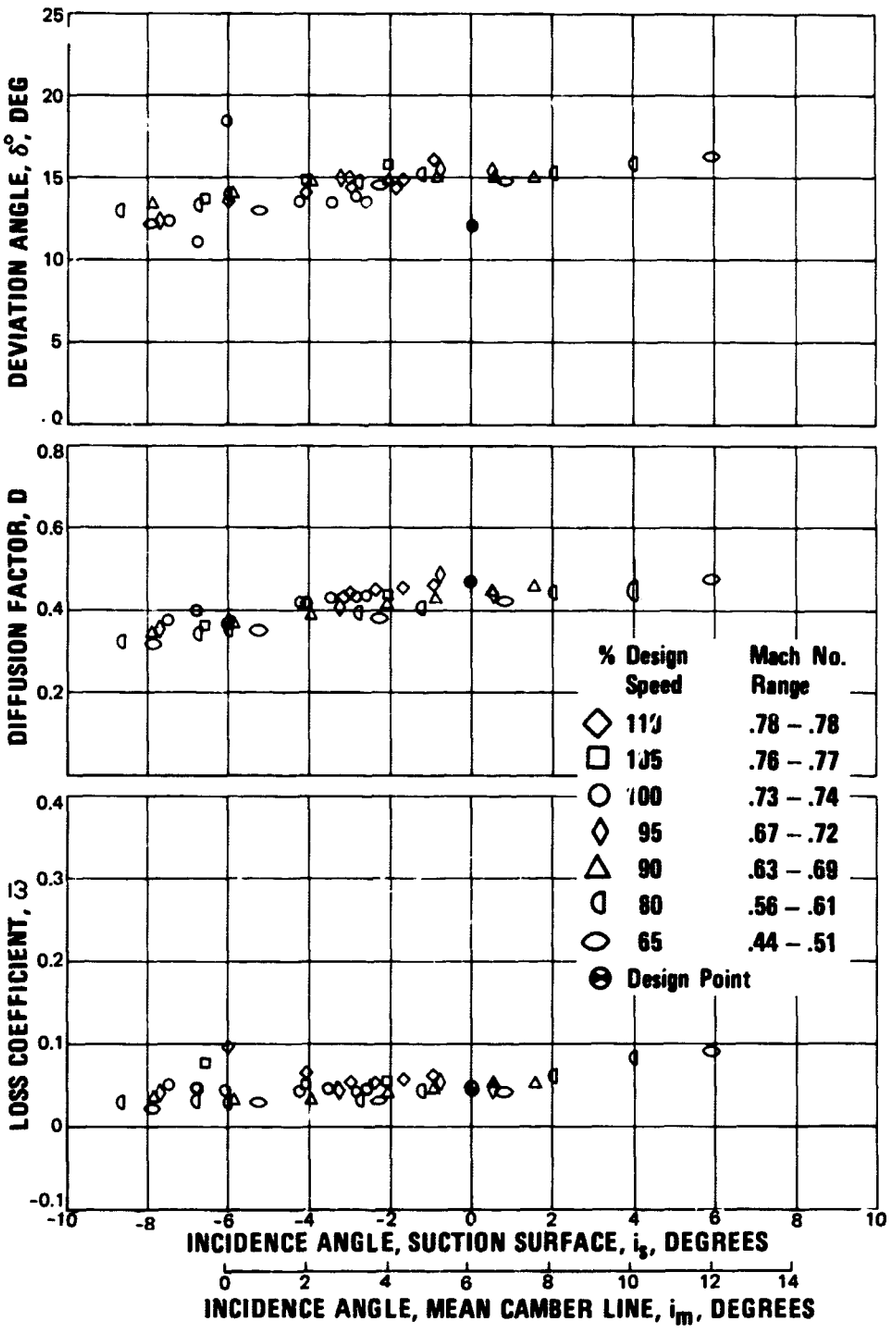


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 70% Span

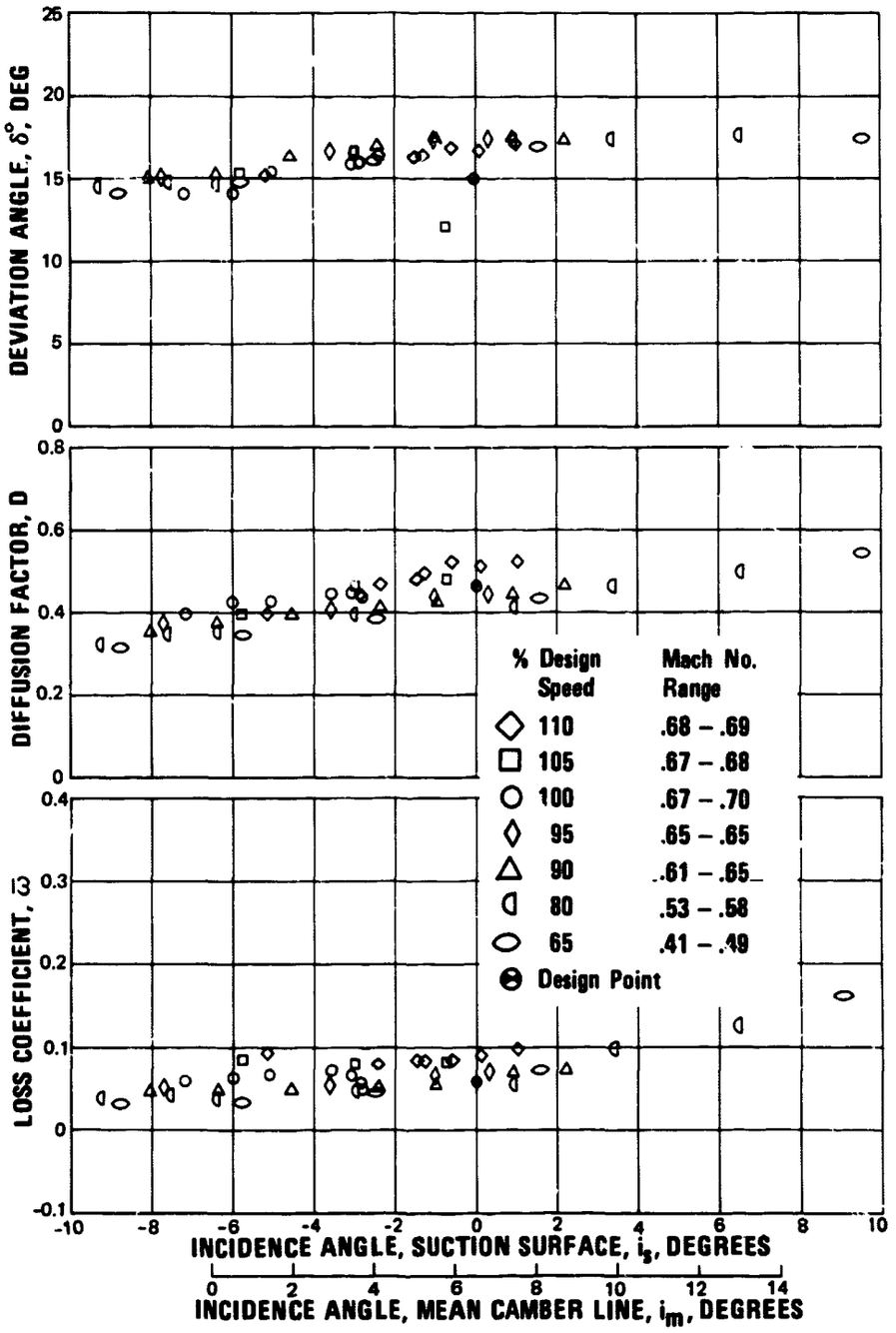


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 85% Span

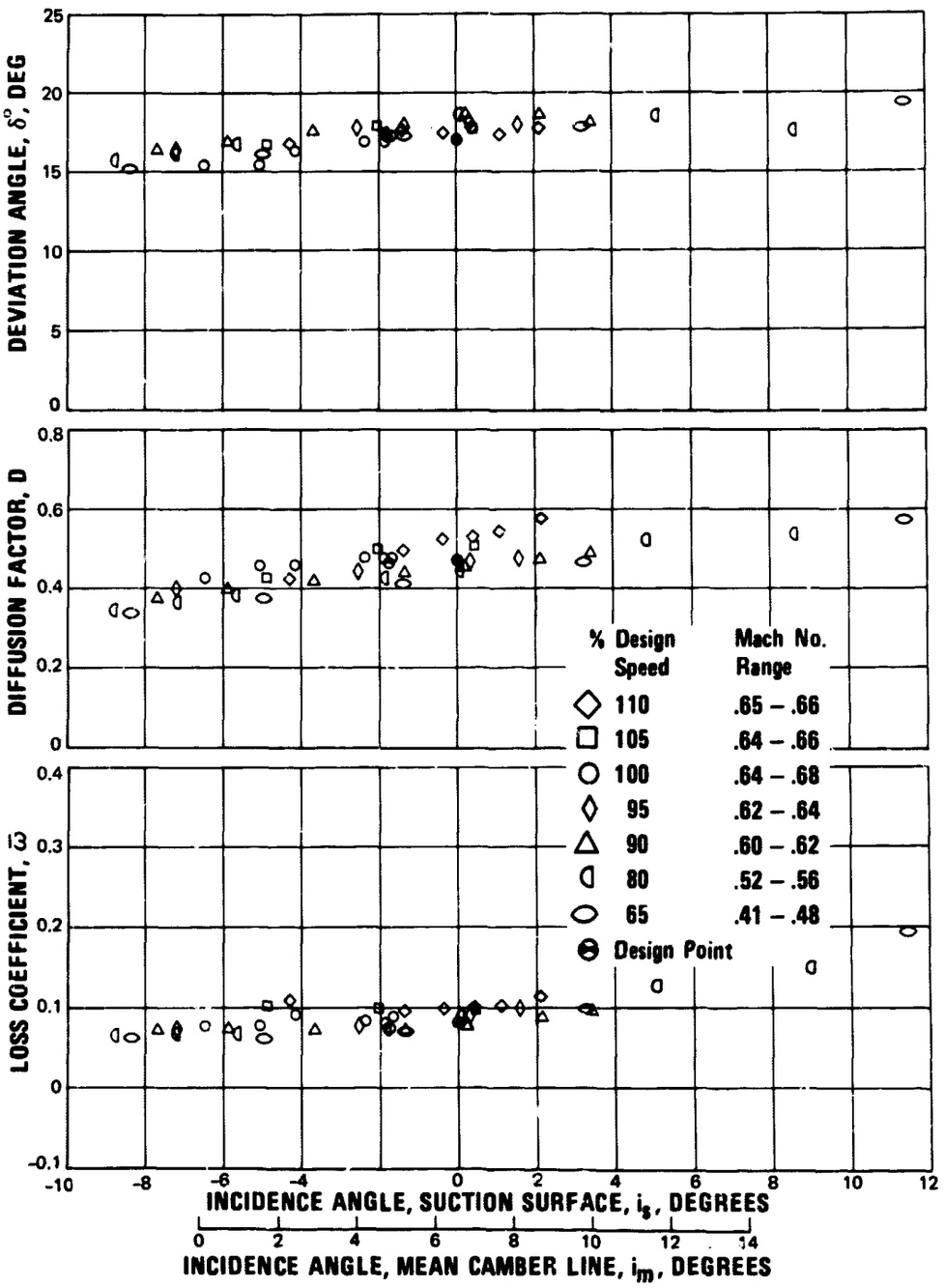


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 90% Span

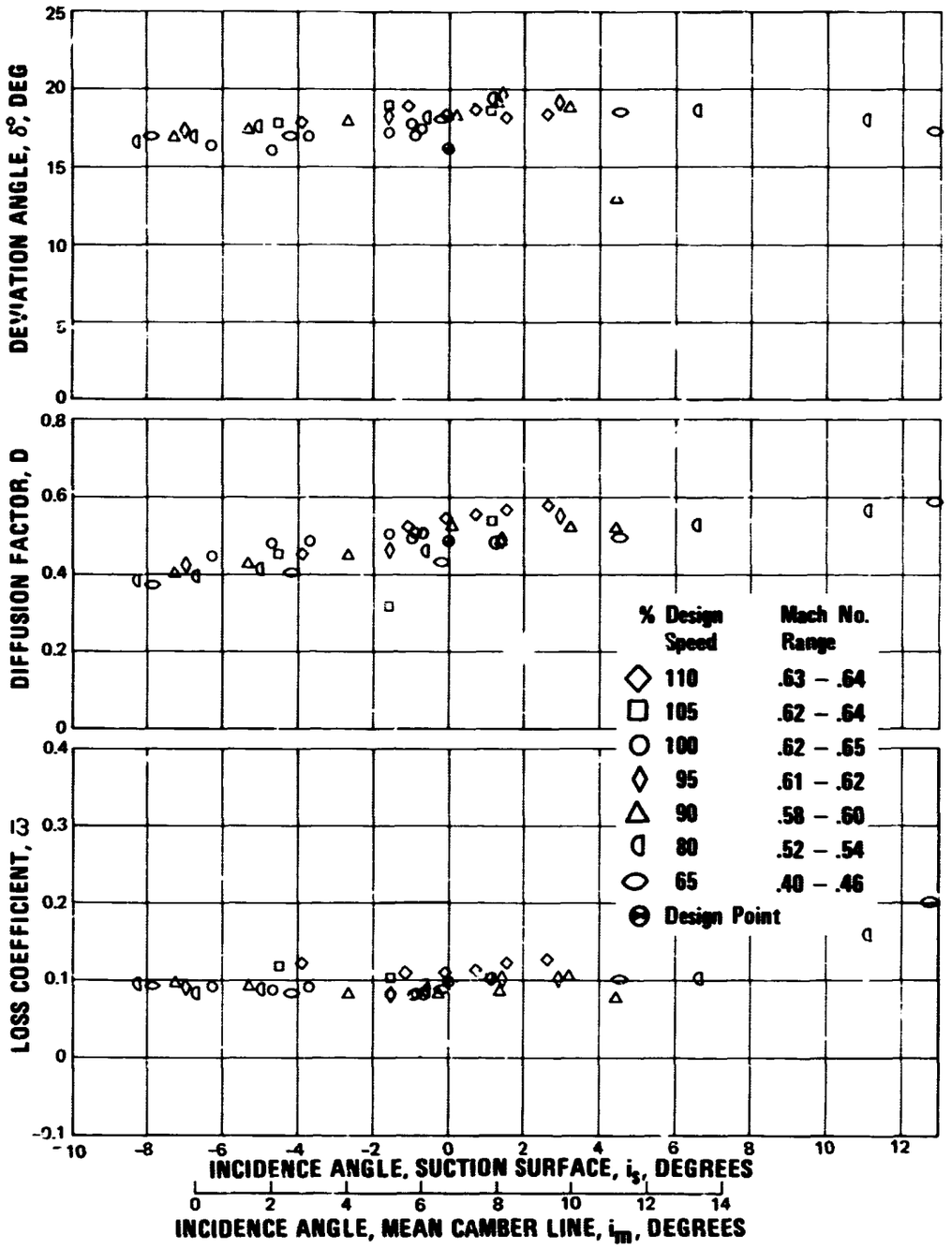


Figure 24 Stator Blade Element Performance, Uniform Inlet Flow, 95% Span

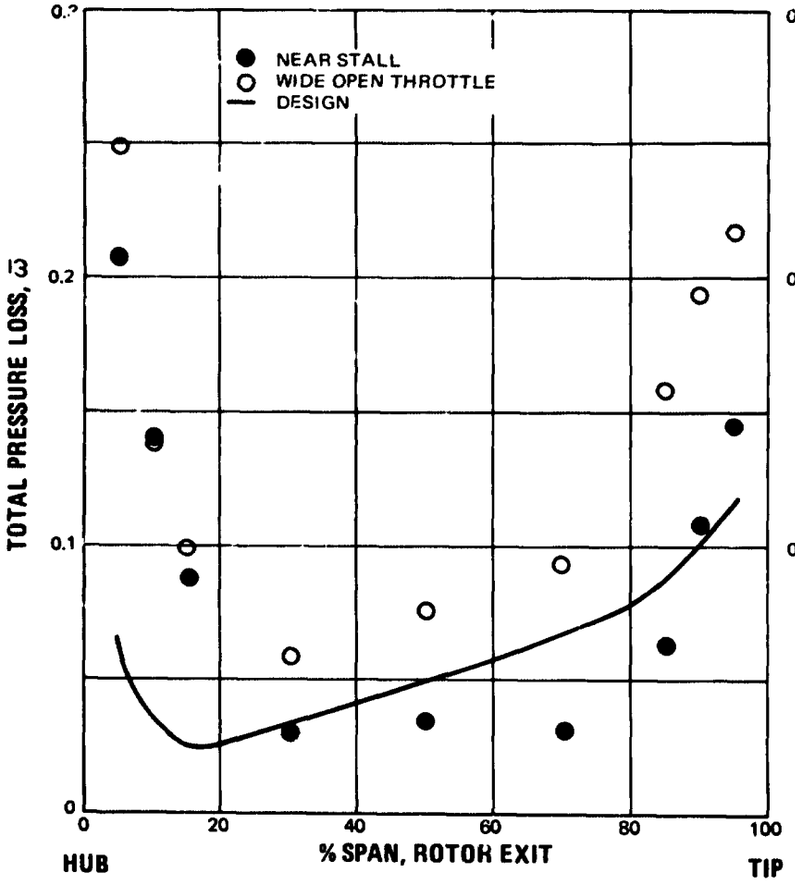


Figure 25 Rotor Total Pressure Loss Coefficient vs. Percent Span, 100% Design Speed

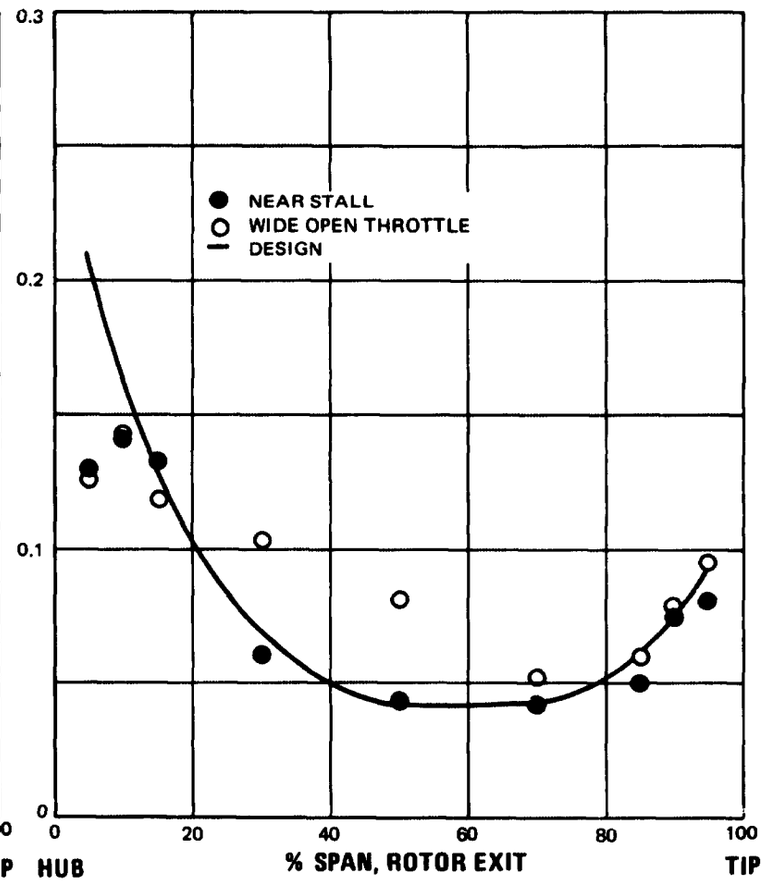


Figure 26 Stator Total Pressure Loss Coefficient vs. Percent Span, 100% Design Speed

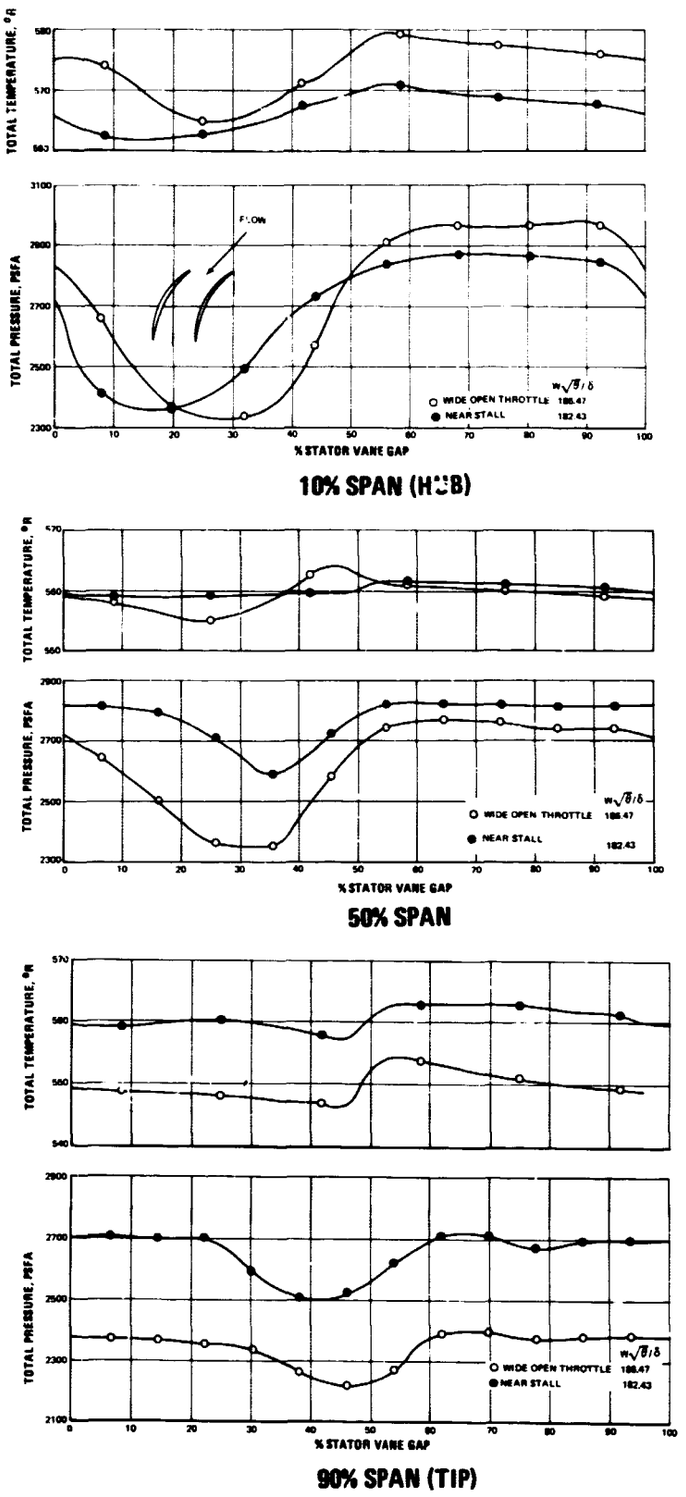


Figure 27 Circumferential Pressure and Temperature Distributions vs. Percent Vane Gap, 100% Design Speed

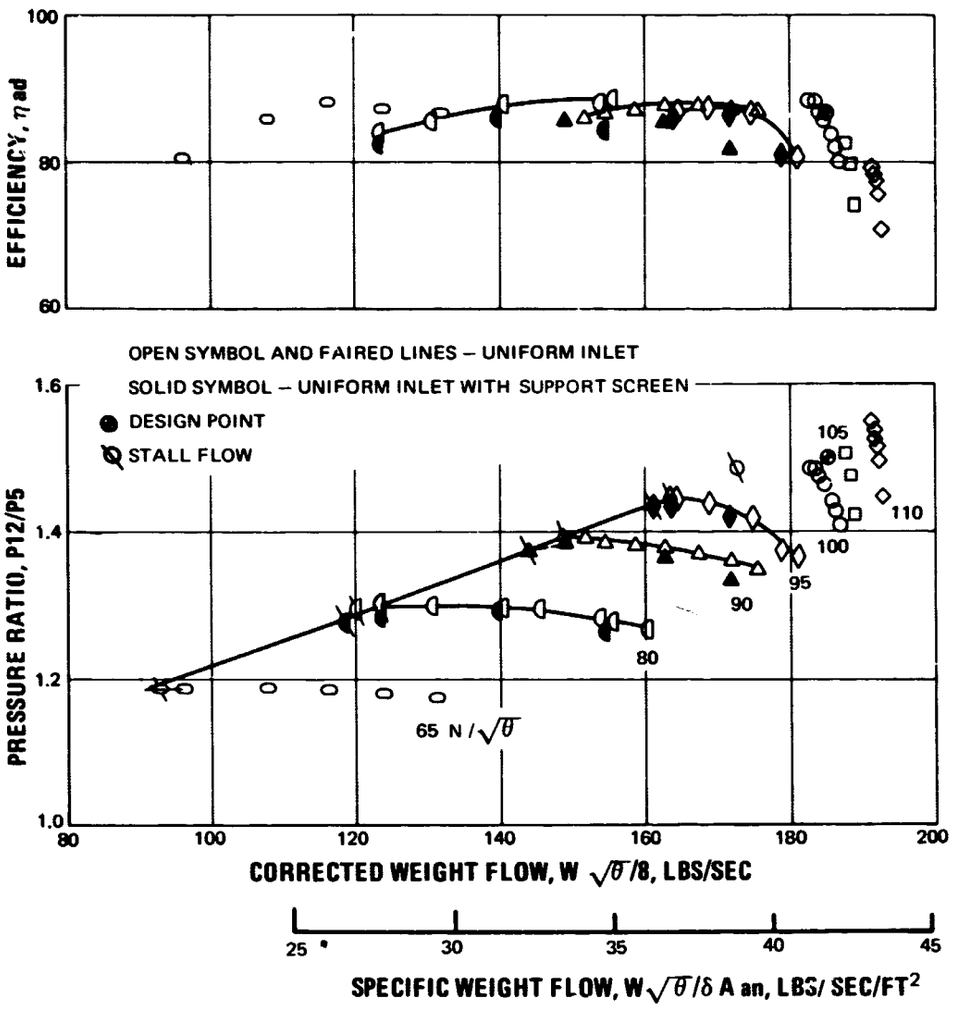


Figure 28 Over-All Stage Performance with Support Screen, Uniform Inlet Flow

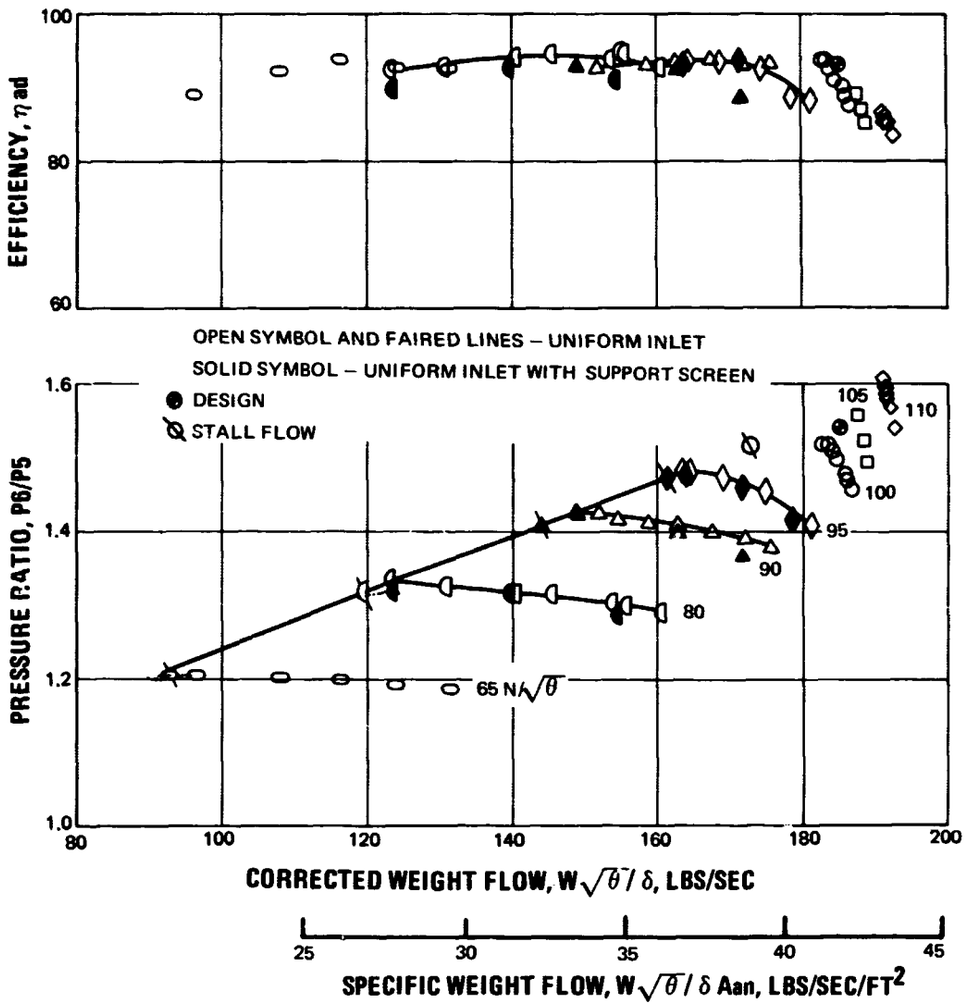


Figure 29 Over-All Rotor Performance With Support Screen, Uniform Inlet Flow

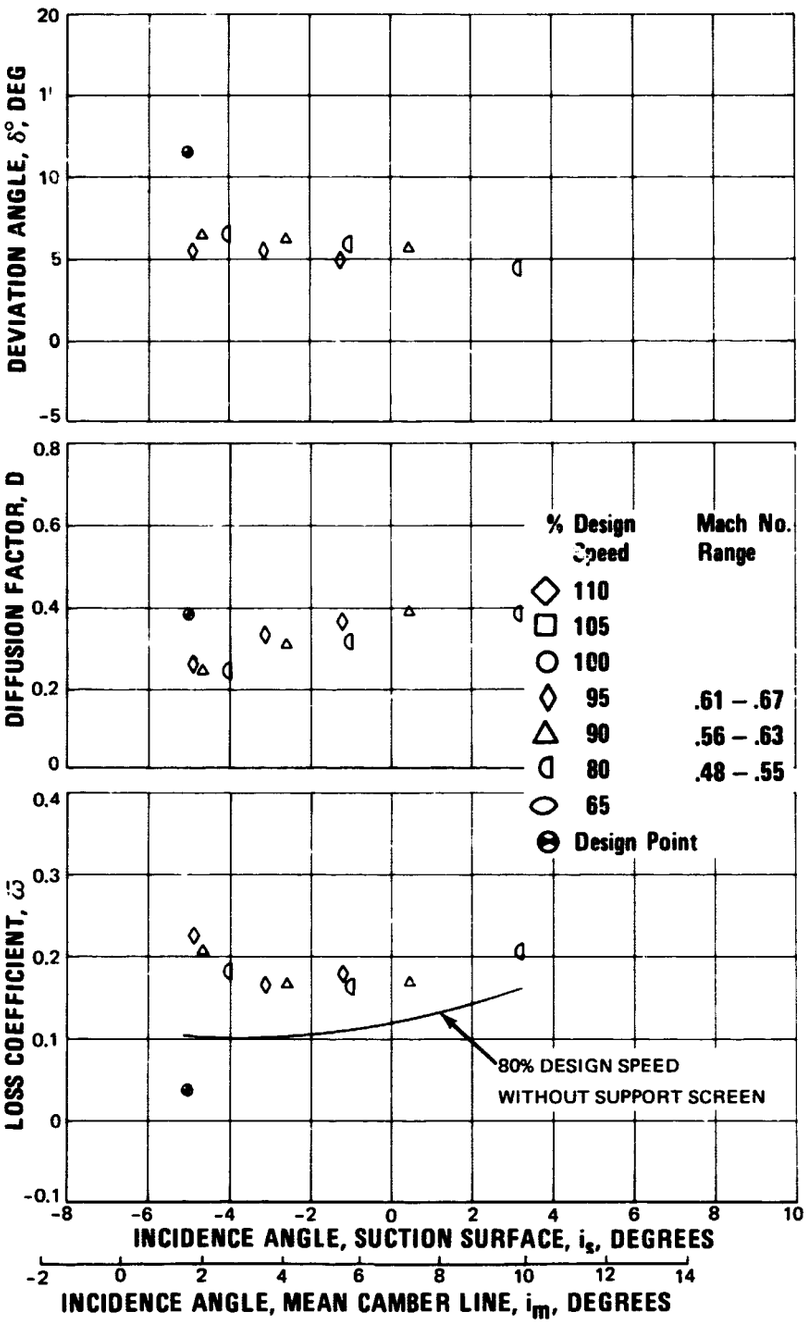


Figure 30 Rotor Blade Element Performance with Baseline Screen, 10% Span

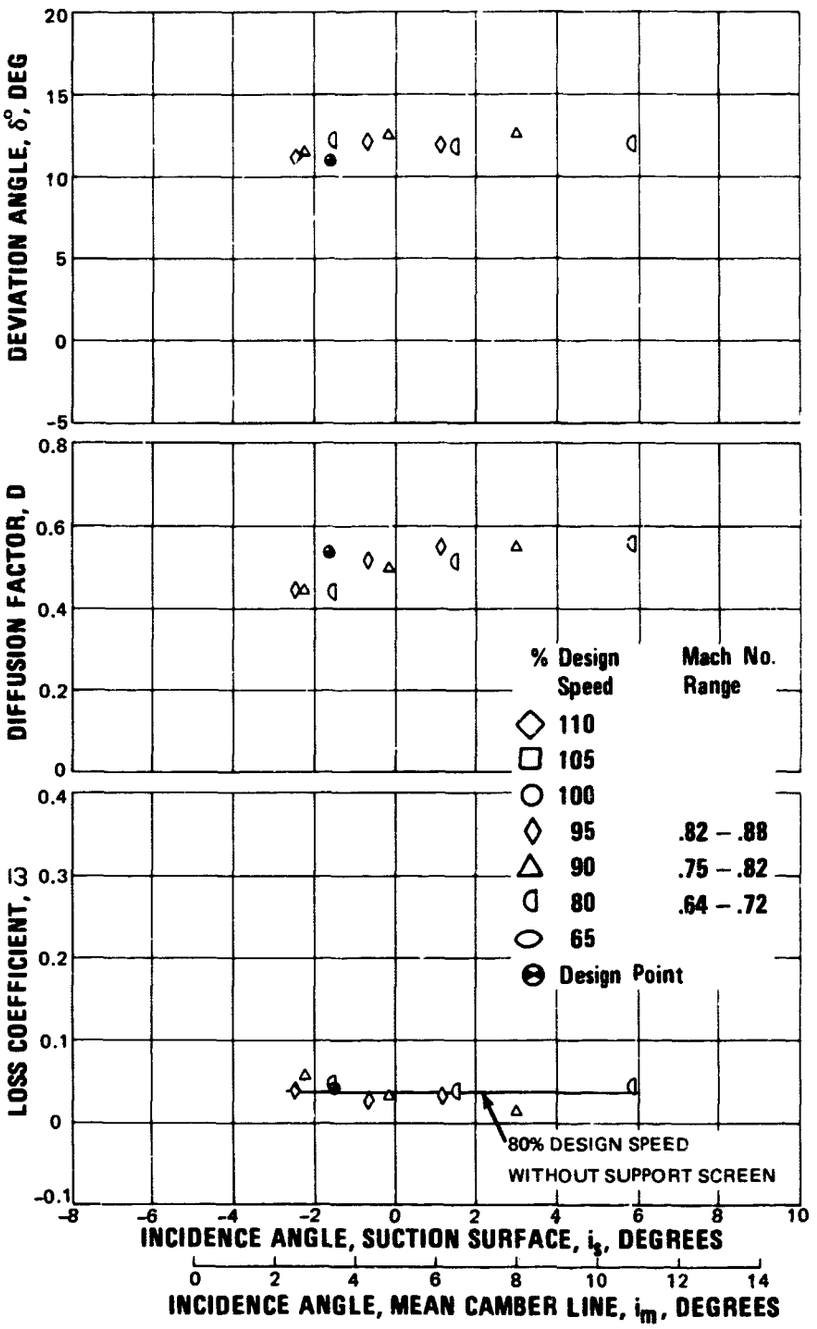


Figure 30 Rotor Blade Element Performance with Baseline Screen, 50% Span

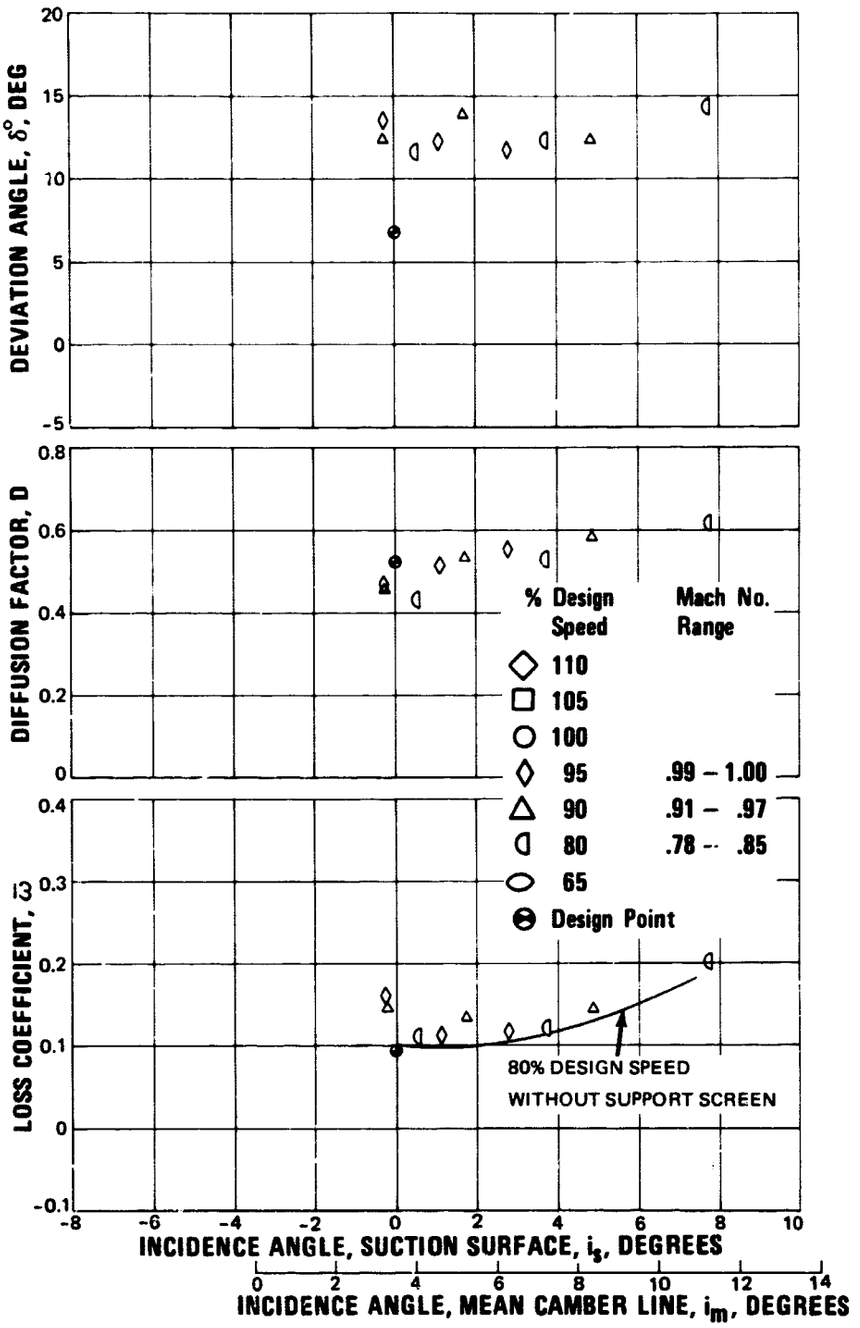


Figure 30 Rotor Blade Element Performance with Baseline Screen, 90% Span

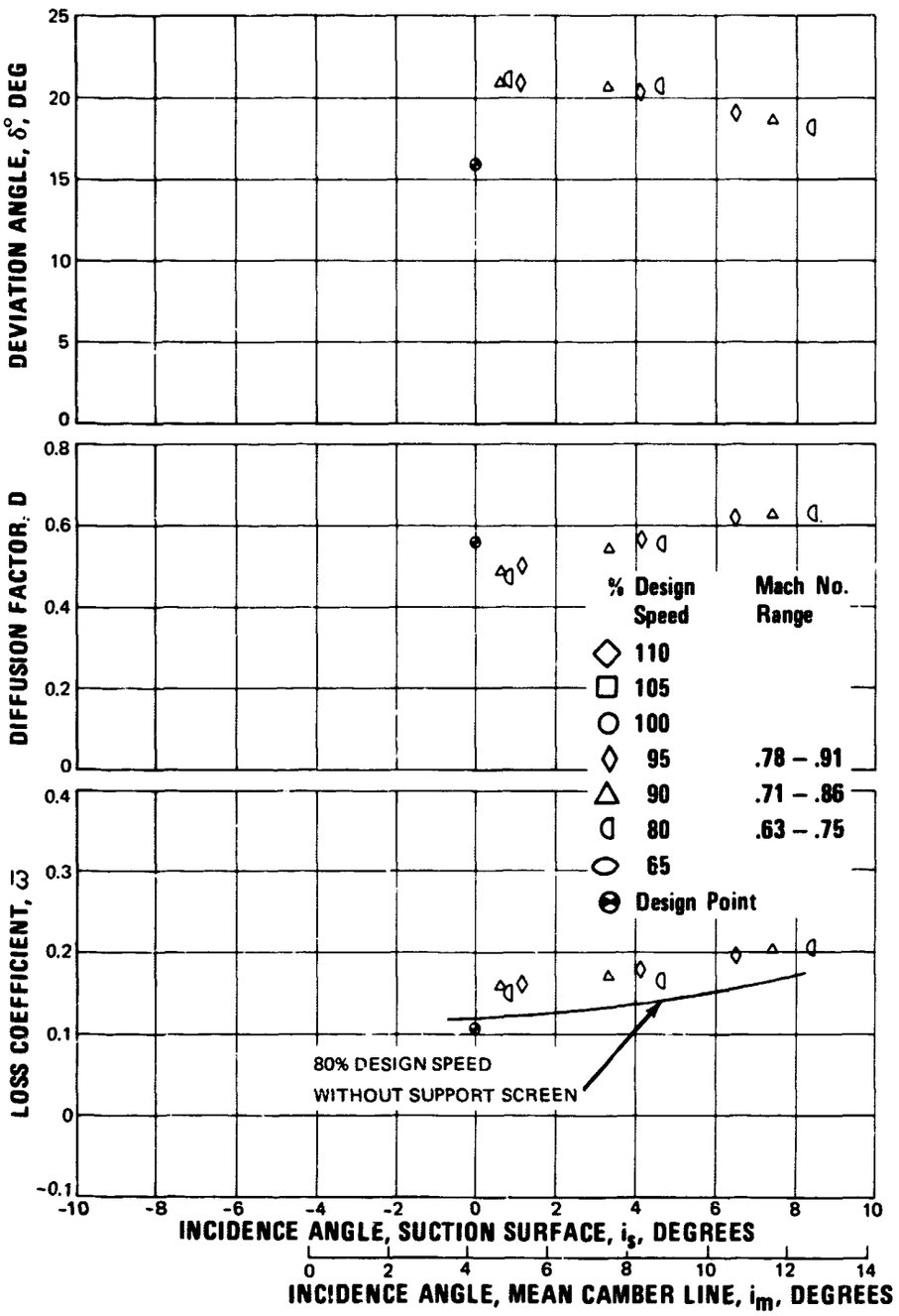


Figure 31 Stator Blade Element Performance with Baseline Screen, 10% Span

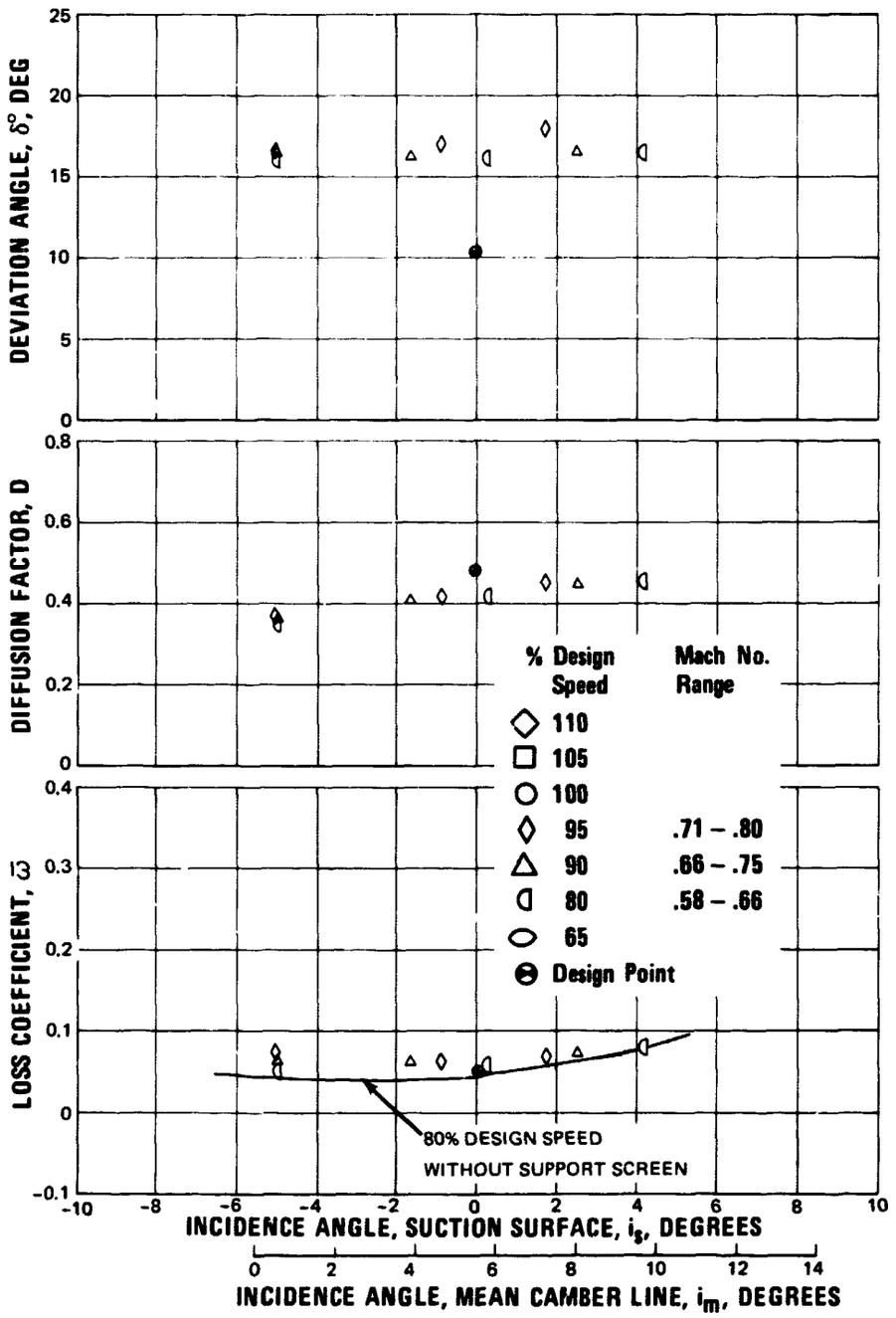


Figure 31 Stator Blade Element Performance with Baseline Screen, 50% Span

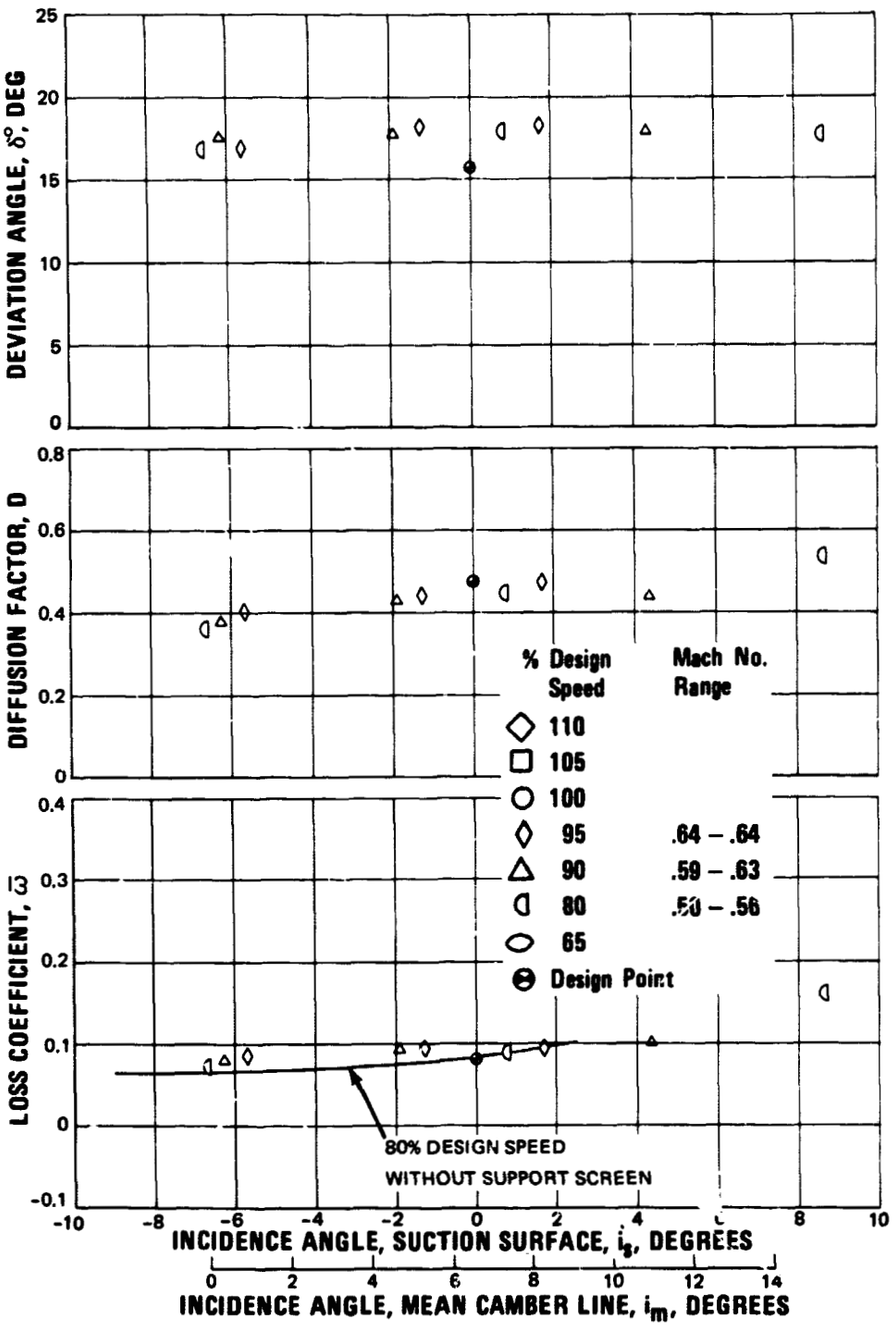


Figure 31 Stator Blade Element Performance with Baseline Screen, 90% Span

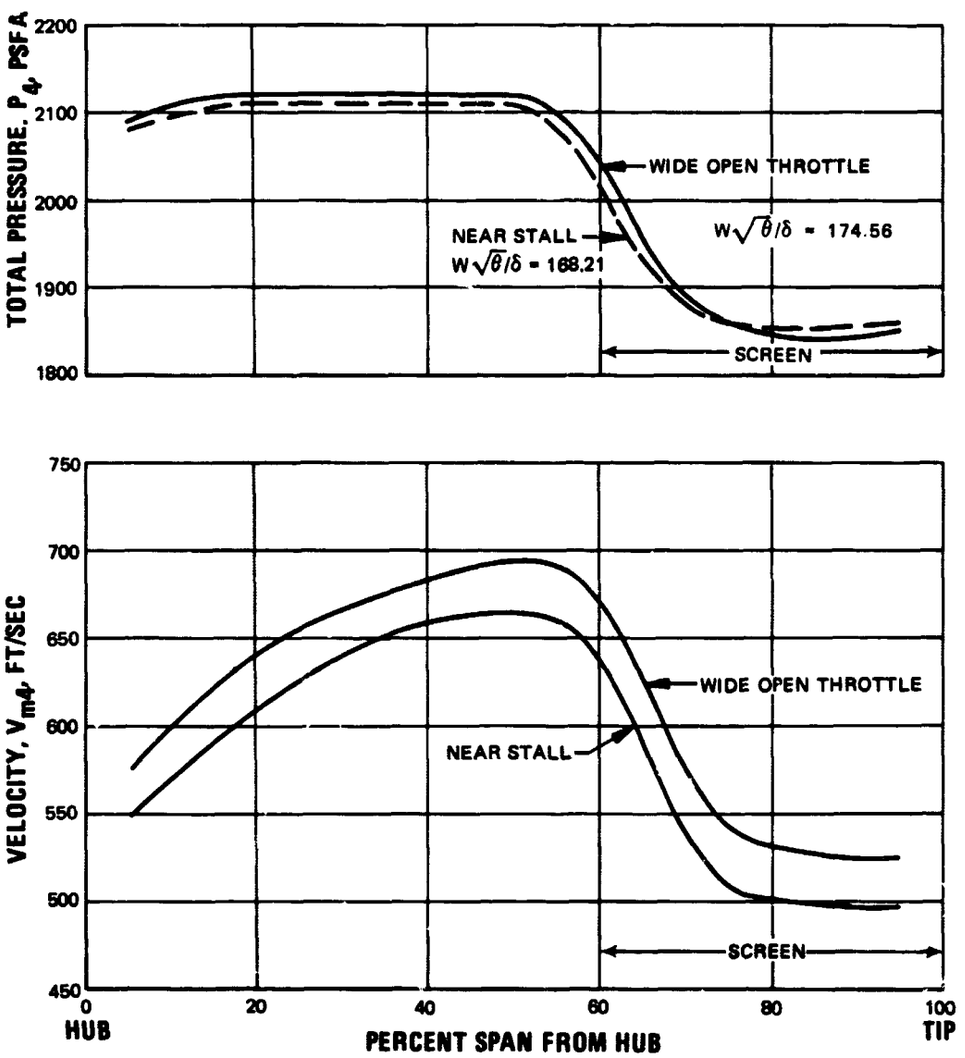


Figure 32 Rotor Inlet Radial Distortion Pattern at 95% Design Speed

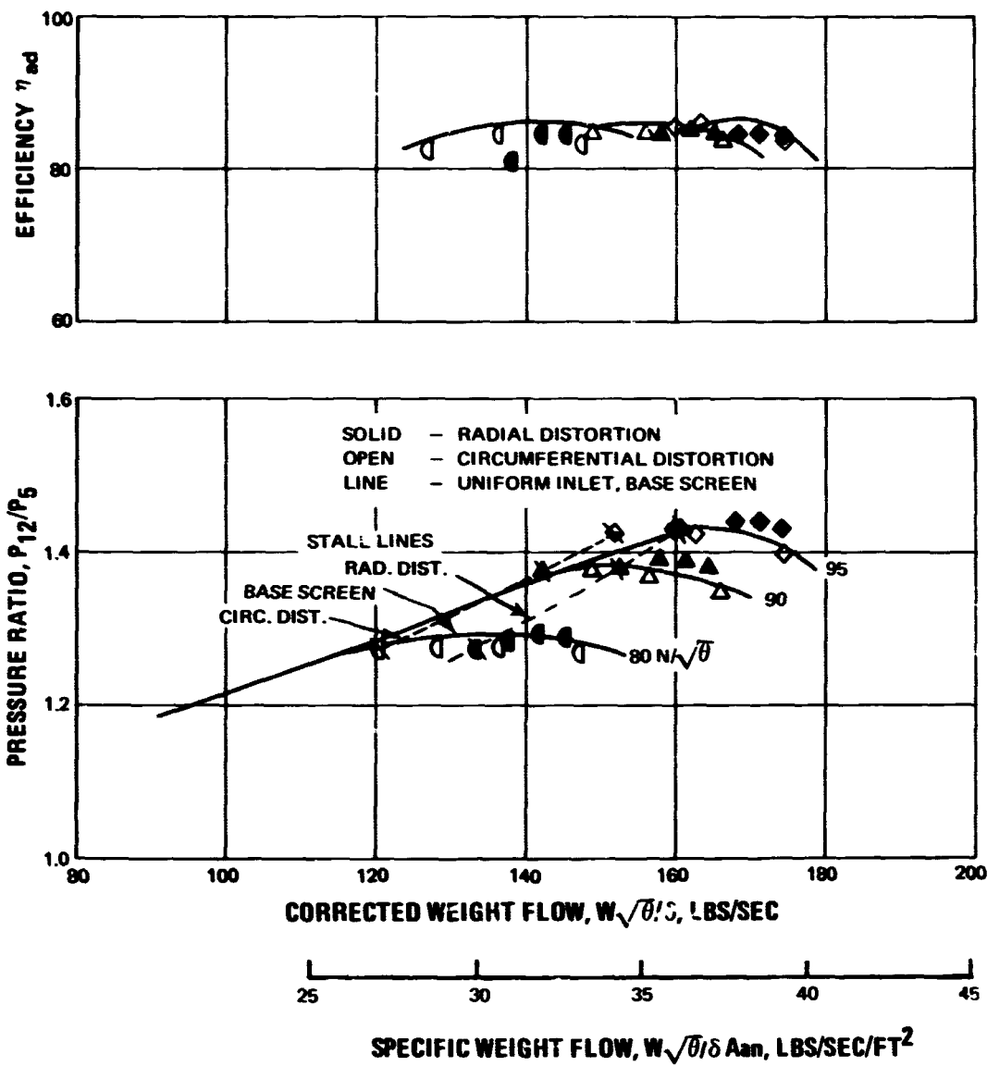


Figure 33 Over-All Stage Performance, Radial Inlet Distortion, Circumferential Inlet Distortion.

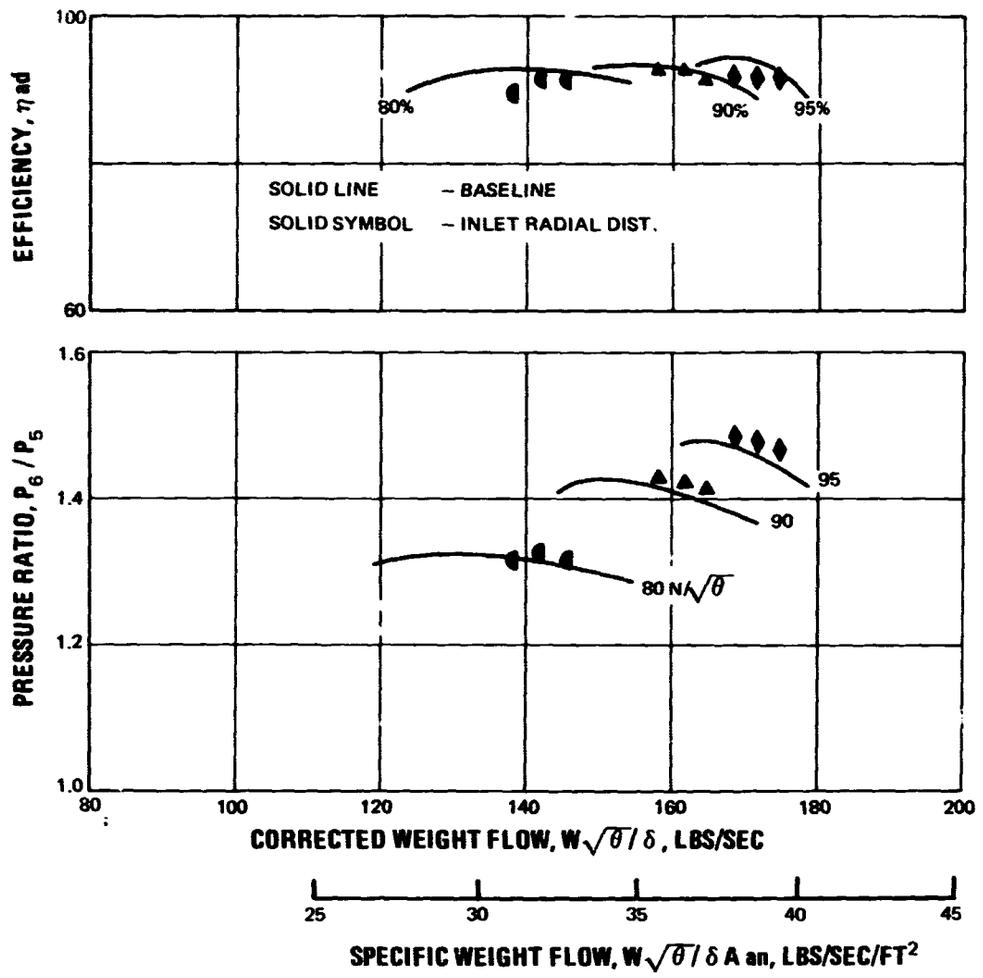


Figure 34 Over-All Rotor Performance, Radial Inlet Distortion

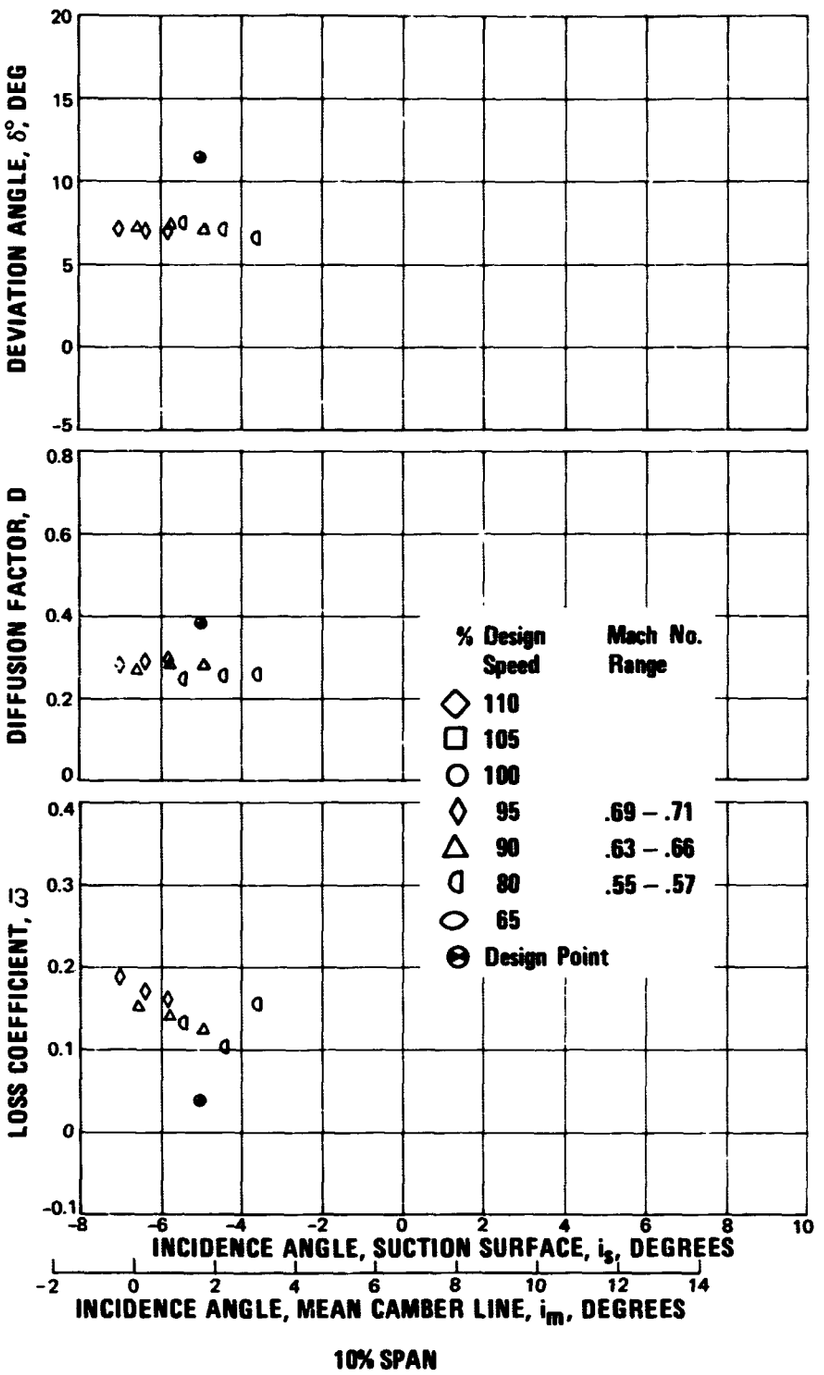


Figure 35 Rotor Blade Element Performance, Radial Distortion

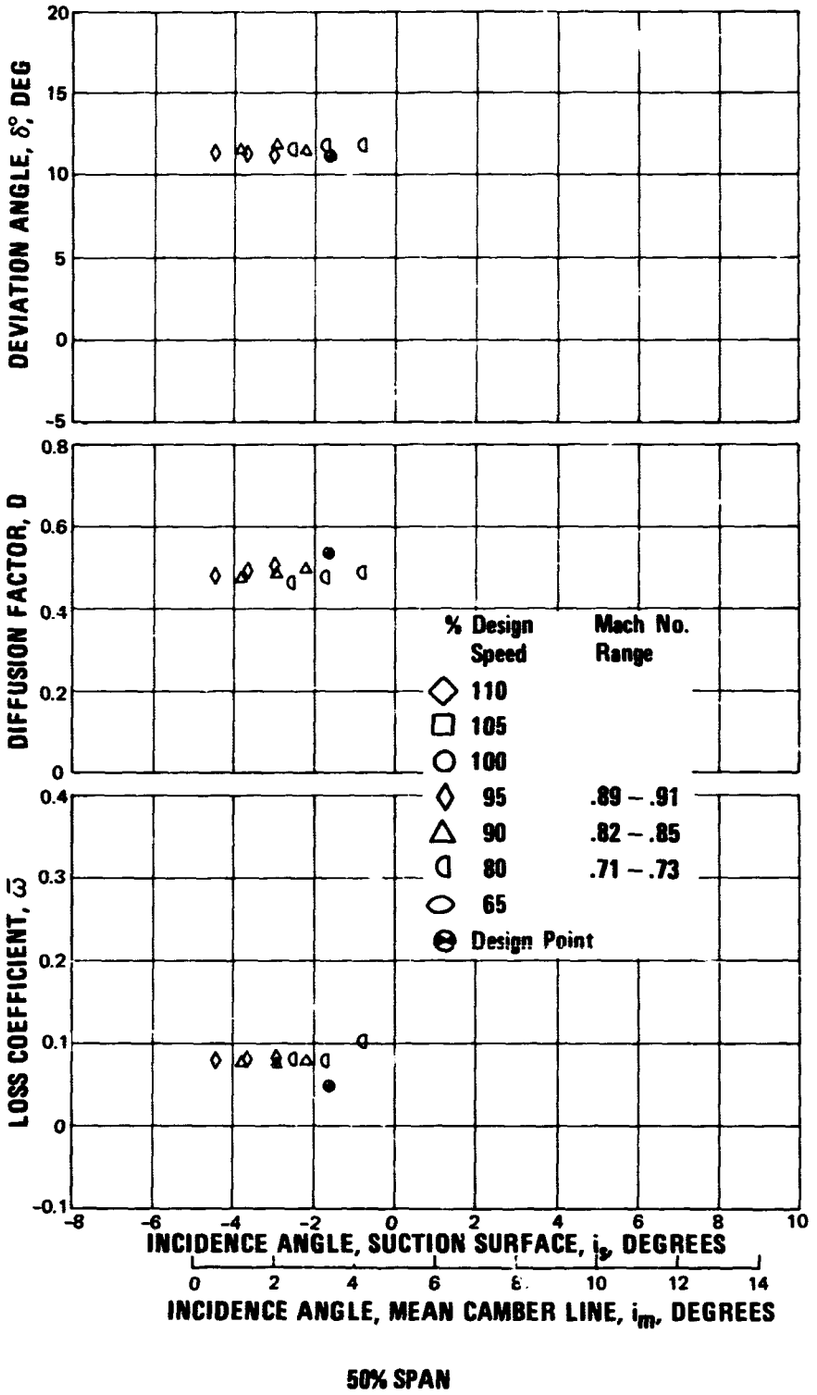


Figure 35 Rotor Blade Element Performance, Radial Distortion

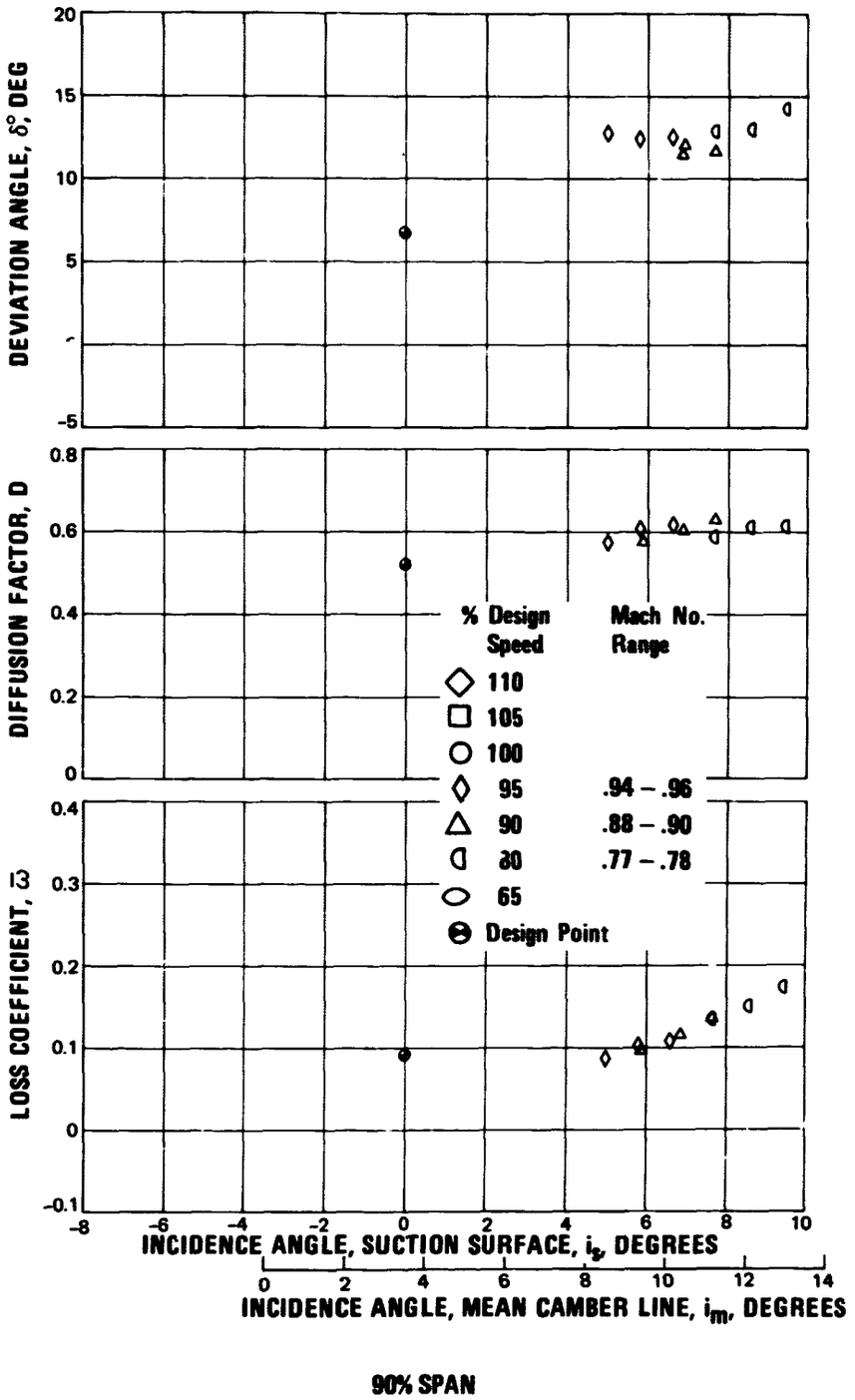


Figure 35 Rotor Blade Element Performance, Radial Distortion

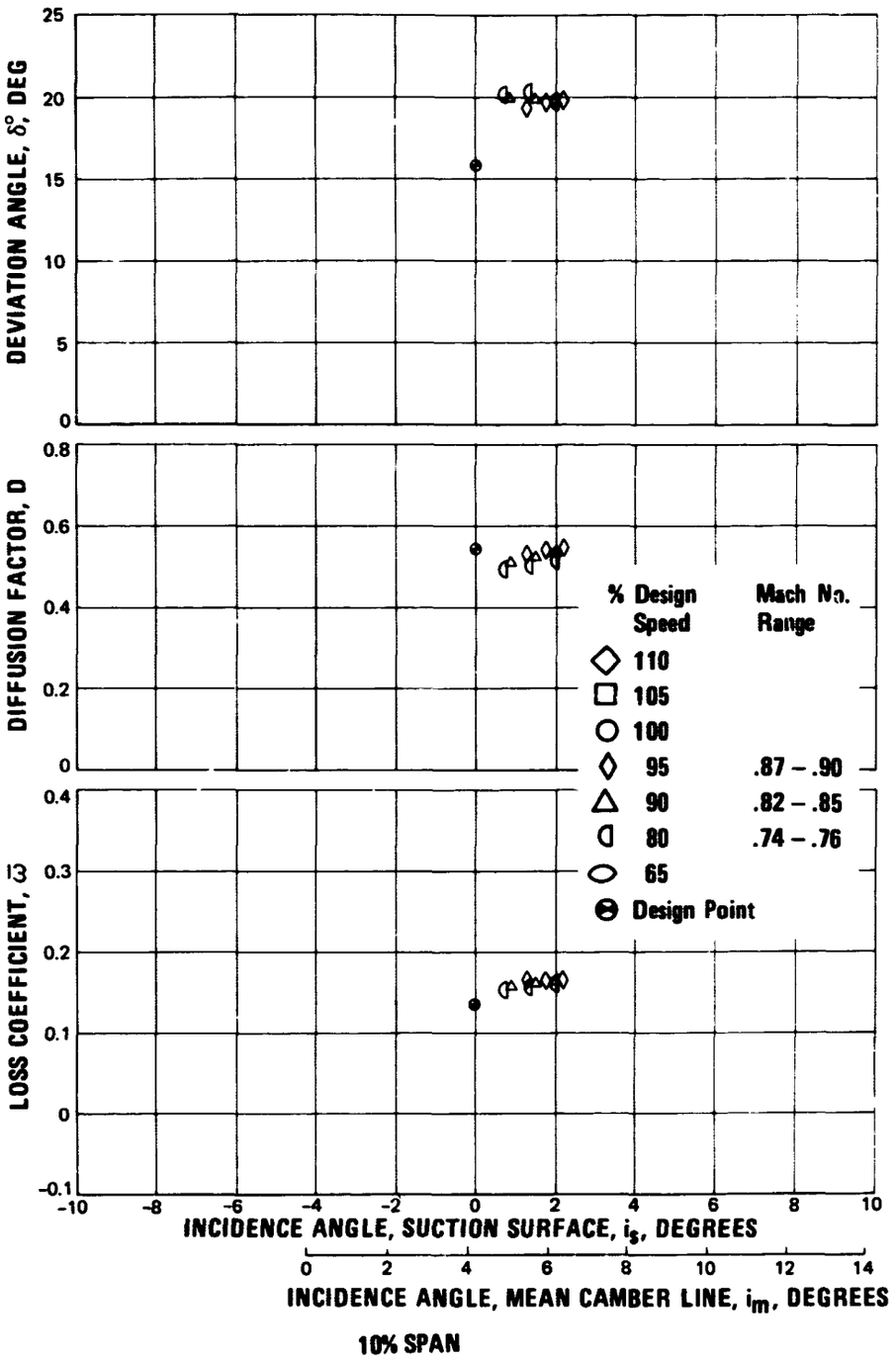


Figure 36 Stator Blade Element Performance, Radial Inlet Distortion

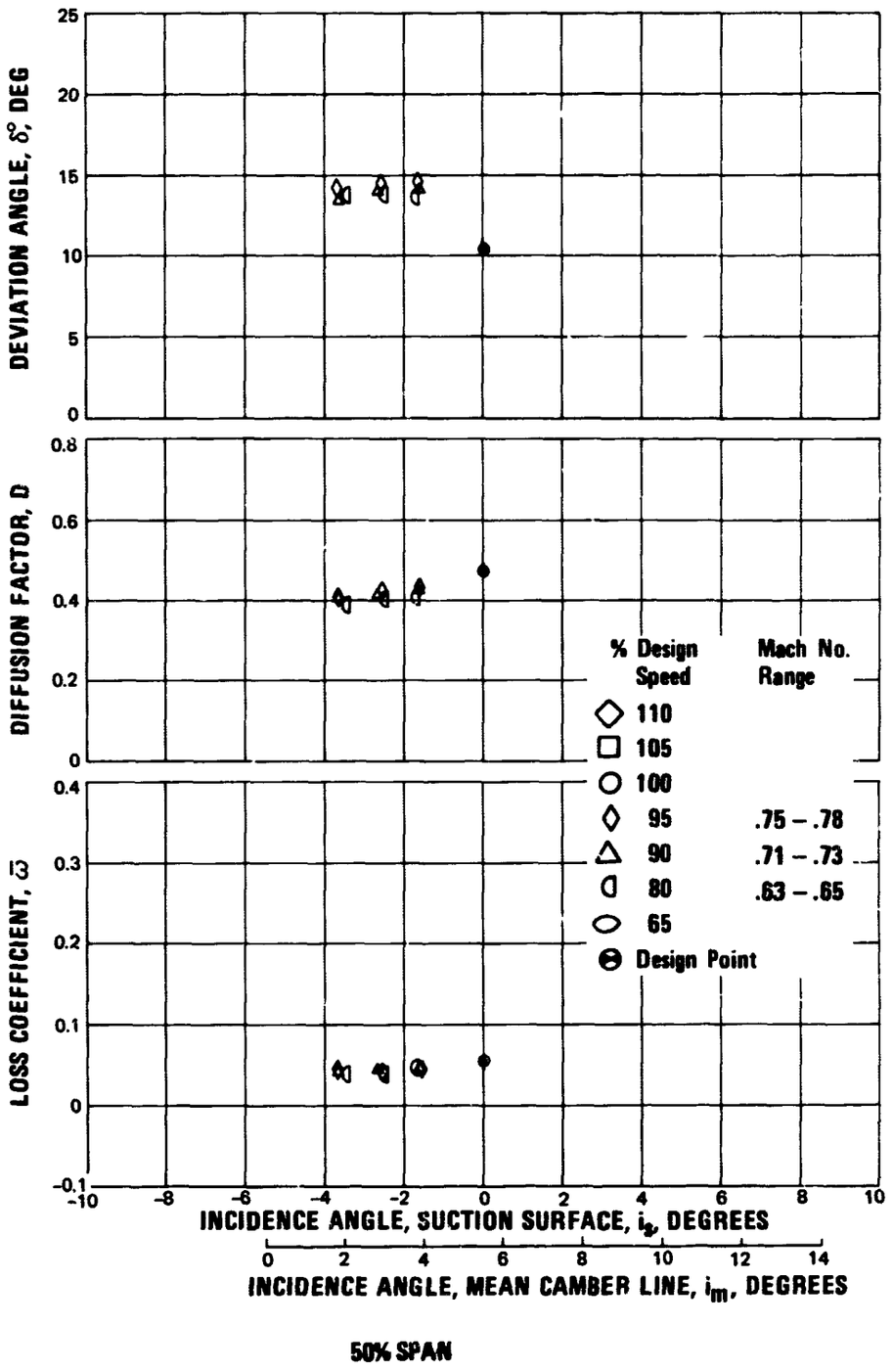


Figure 36 Stator Blade Element Performance, Radial Inlet Distortion

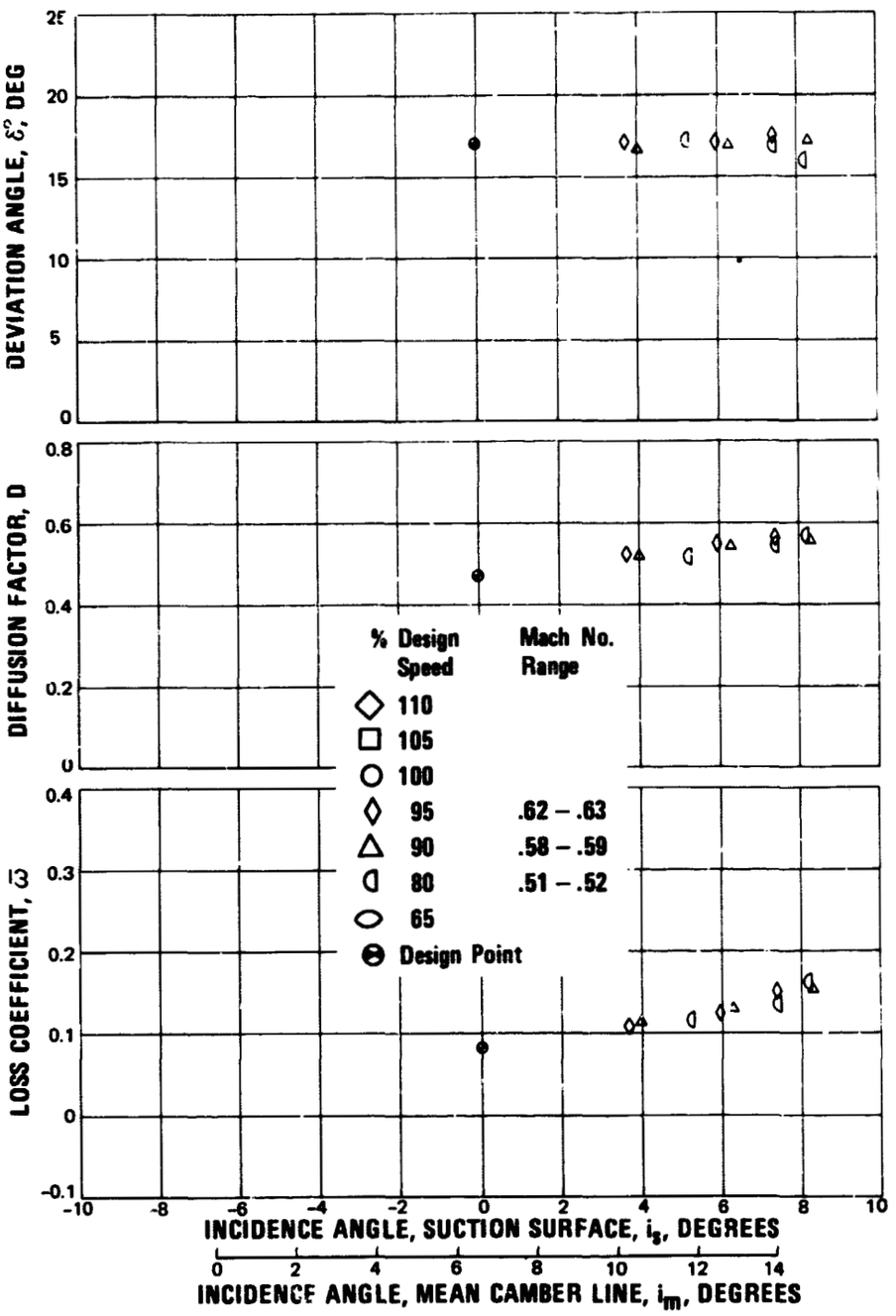
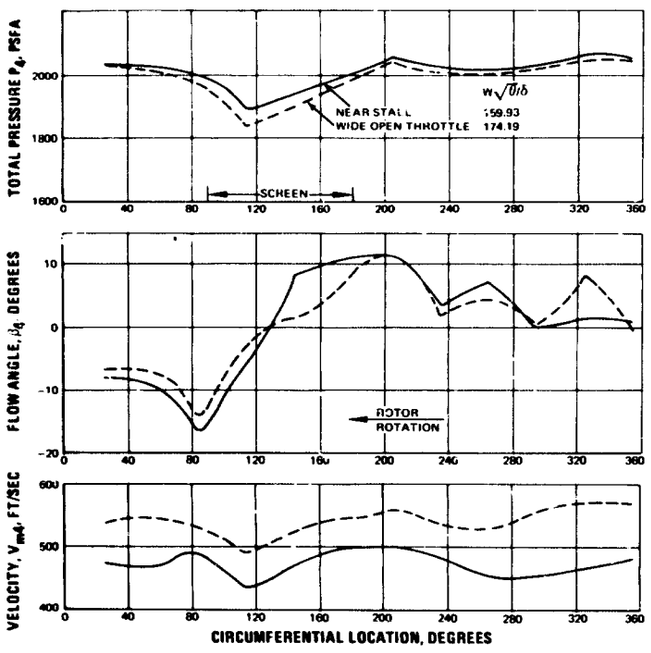
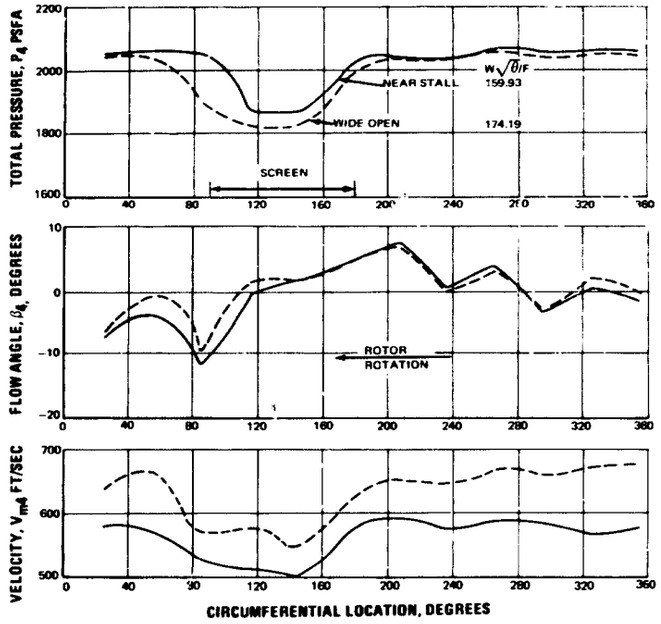


Figure 36 Stator Blade Element Performance, Radial Inlet Distortion

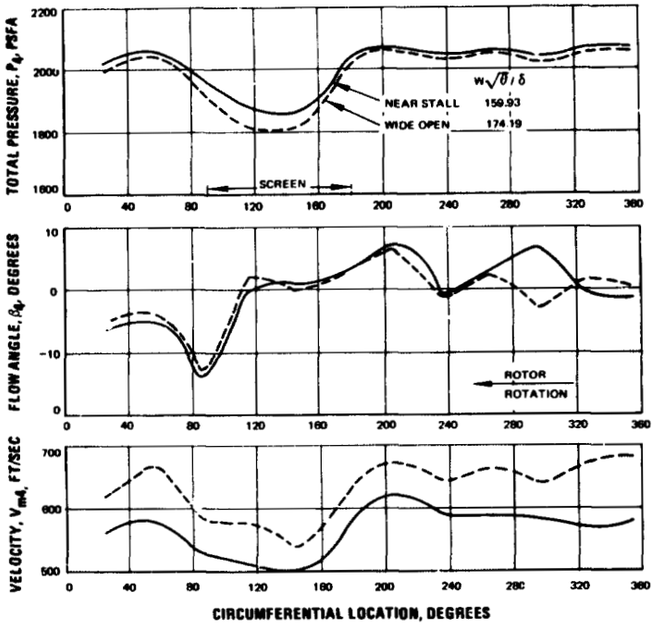


10% SPAN



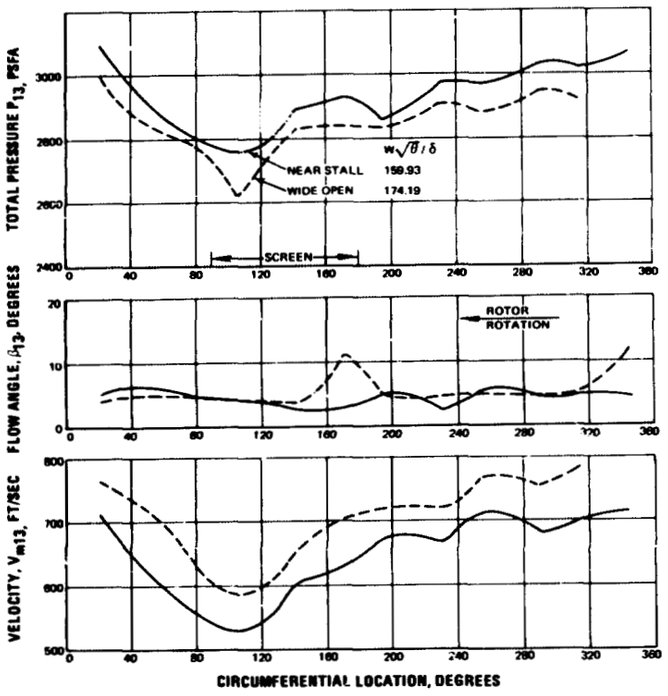
50% SPAN

Figure 37 Rotor Inlet Circumferential Distortion Patterns, 95% Design Speed

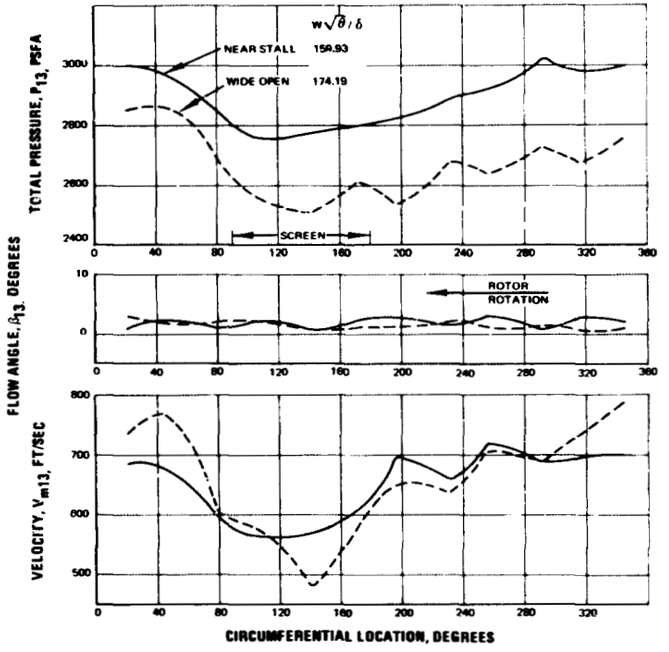


90% SPAN

Figure 37 Rotor Inlet Circumferential Distortion Patterns, 95% Design Speed



50% SPAN



90% SPAN

Figure 38 Stator Discharge Circumferential Distortion Patterns, 95% Design Speed

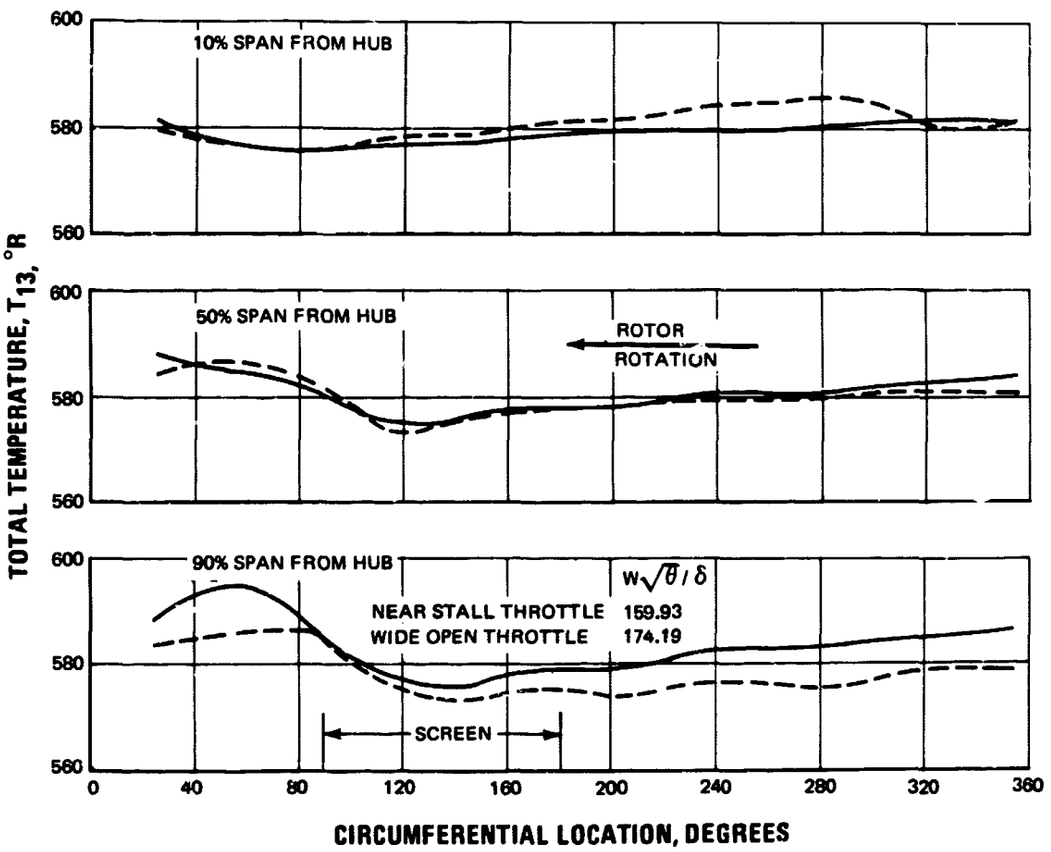


Figure 39 Stator Discharge Circumferential Temperature Patterns, 95% Design Speed

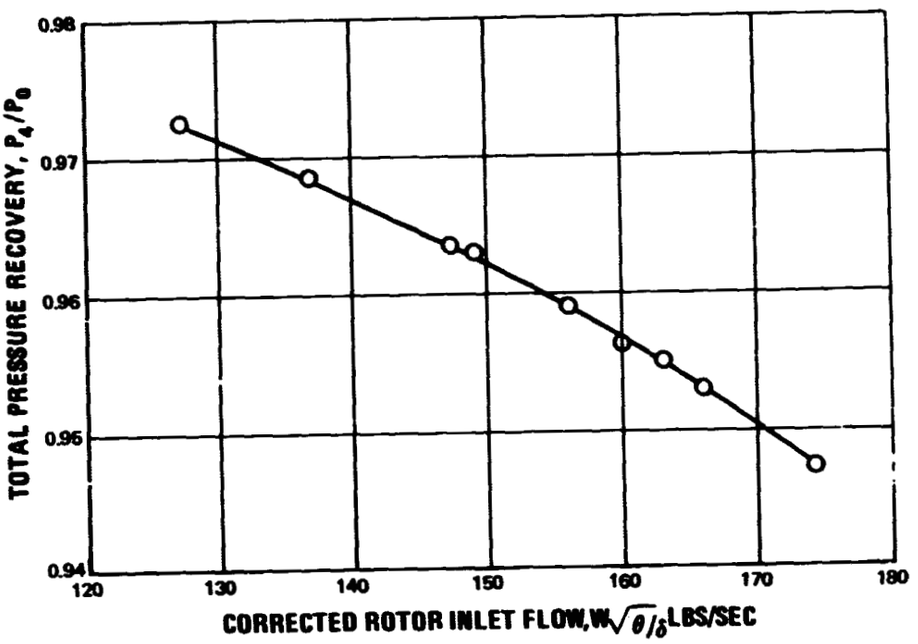


Figure 40 Circumferential Screen Pressure Recovery

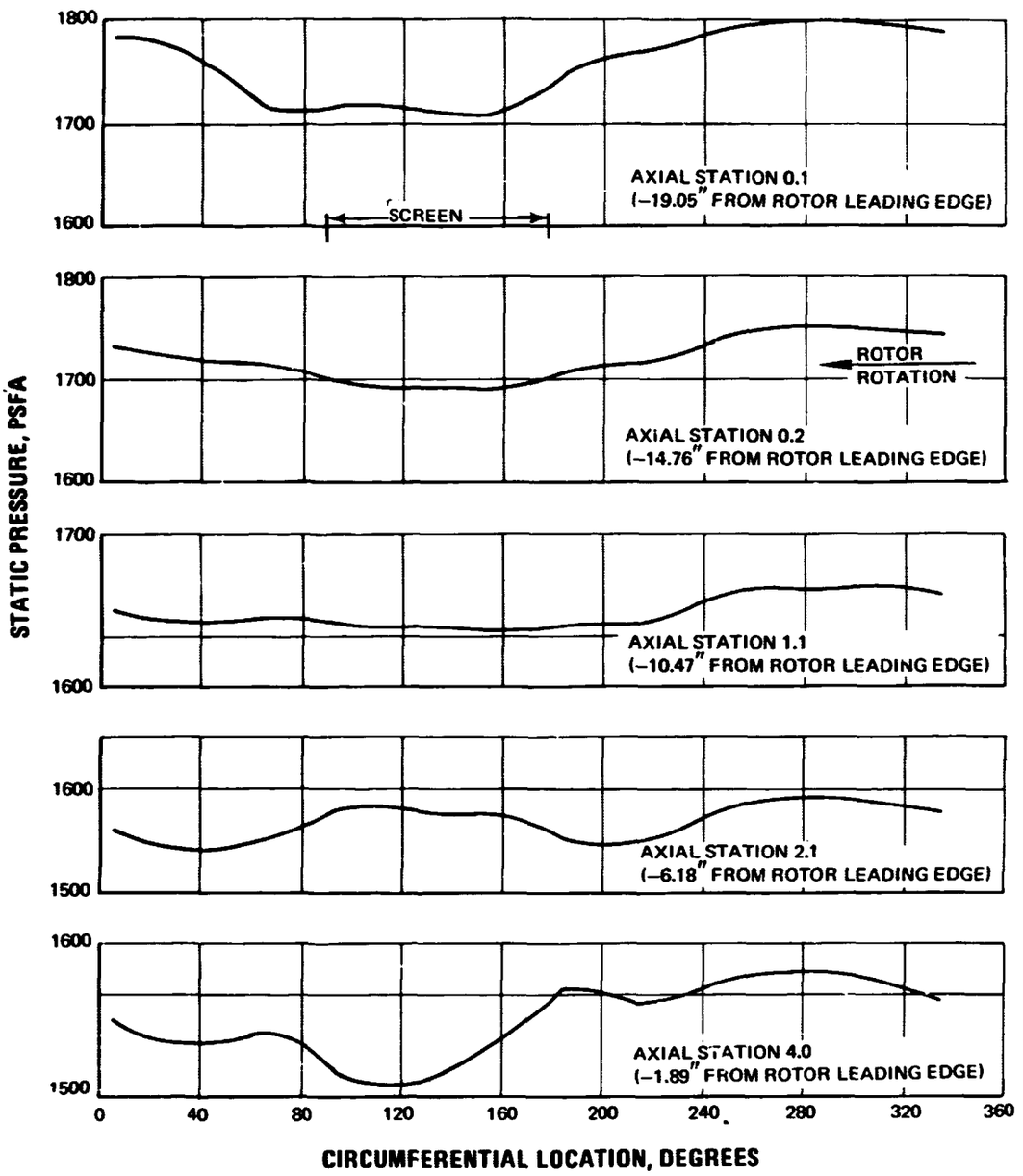


Figure 41 Circumferential Patterns of Rotor Inlet Static Pressure at the Tip During Circumferential Inlet Distortion, Near Stall, 95% Design Speed ($W\sqrt{\theta}/\delta$ = 159.93)

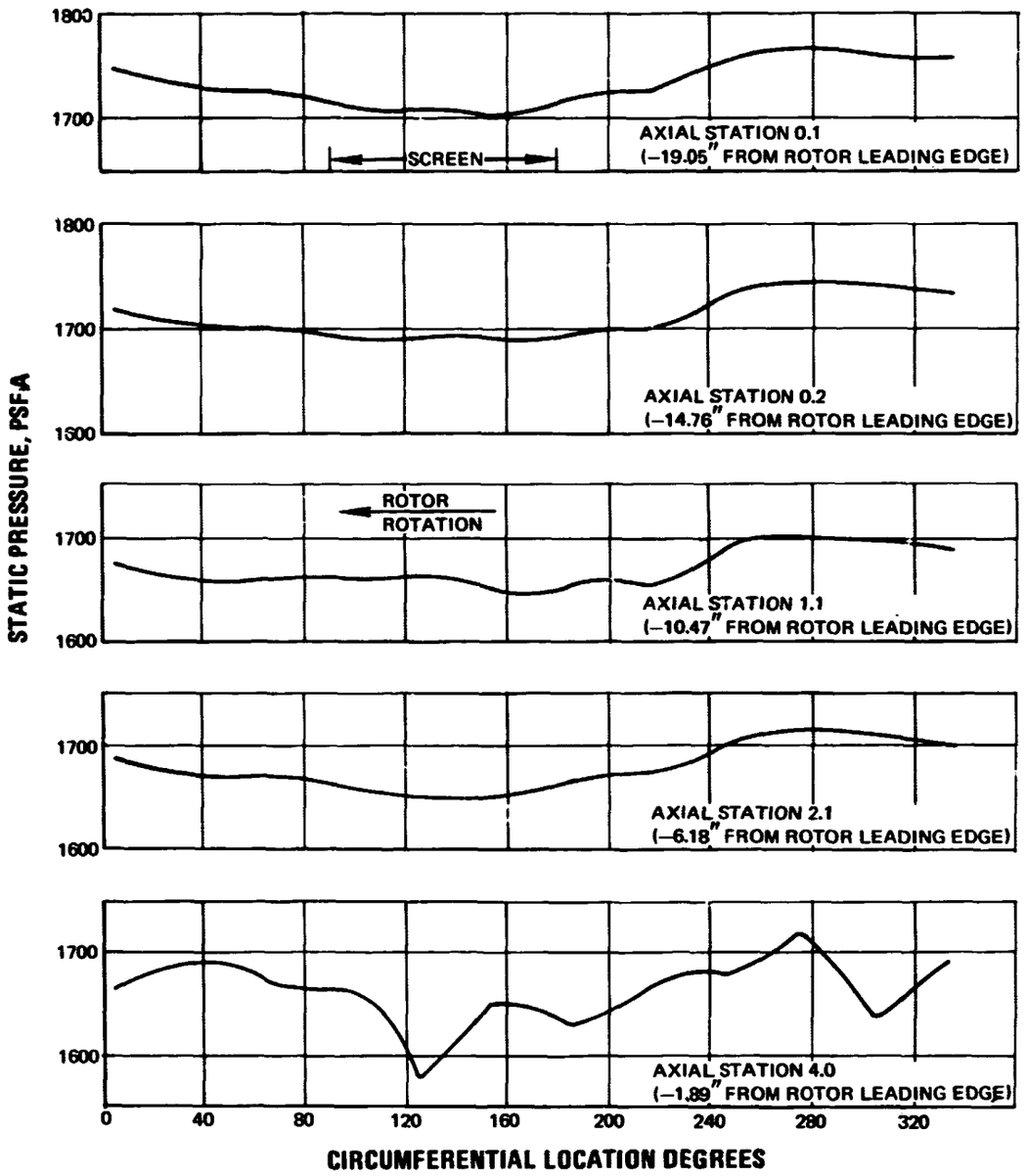
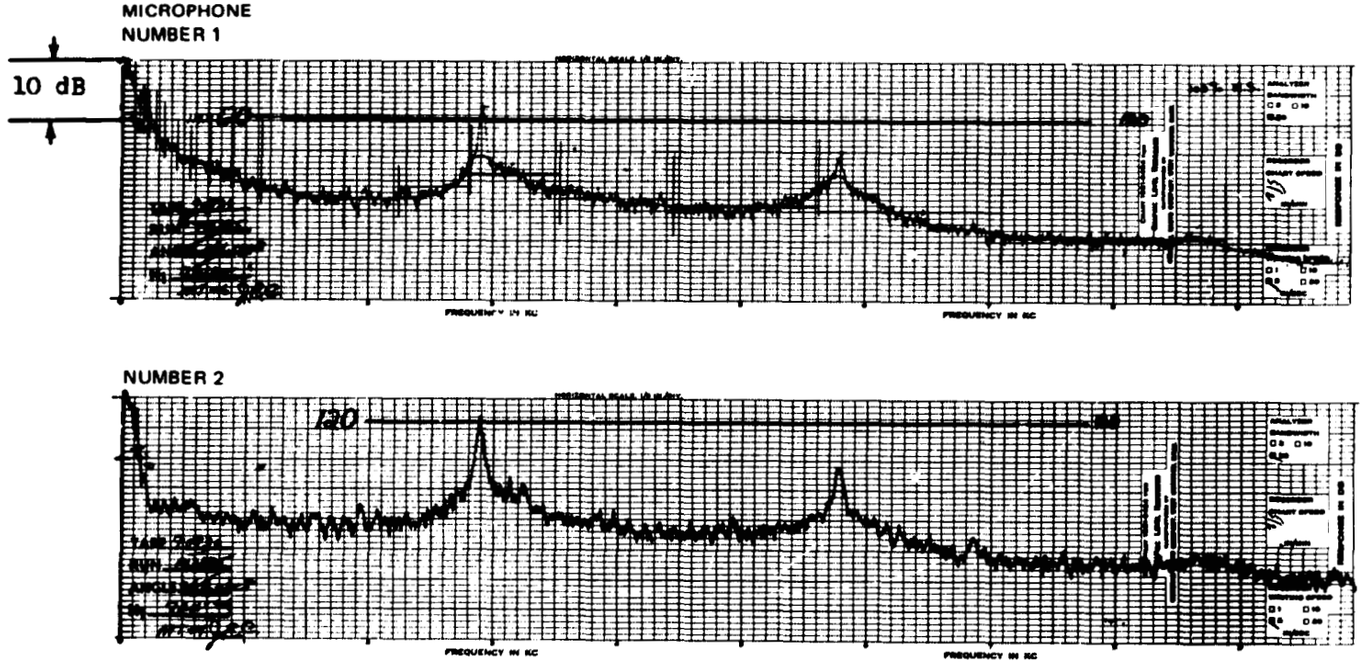


Figure 41 Circumferential Patterns of Rotor Inlet Static Pressure at the Hub, During Circumferential Inlet Distortion, Near Stall, 95% Design Speed ($W\sqrt{\theta}/\delta$ = 159.93)



NOTE: REFERENCE SPL LINE AT 120 dB,
RE .0002 DYNES/CM^2

Figure 42 Compressor Noise Spectra from Plenum Microphones, 100% Design Speed, Near Stall ($W\sqrt{\theta}/\delta$ = 183.2 LBS/SEC)

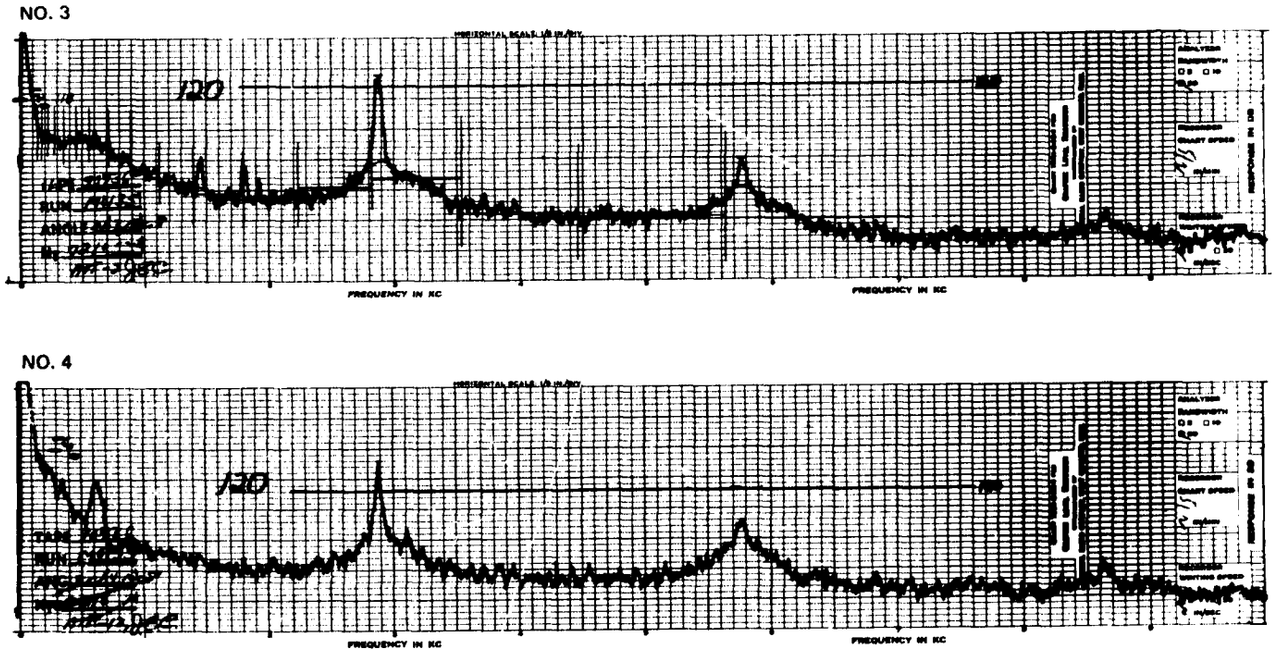
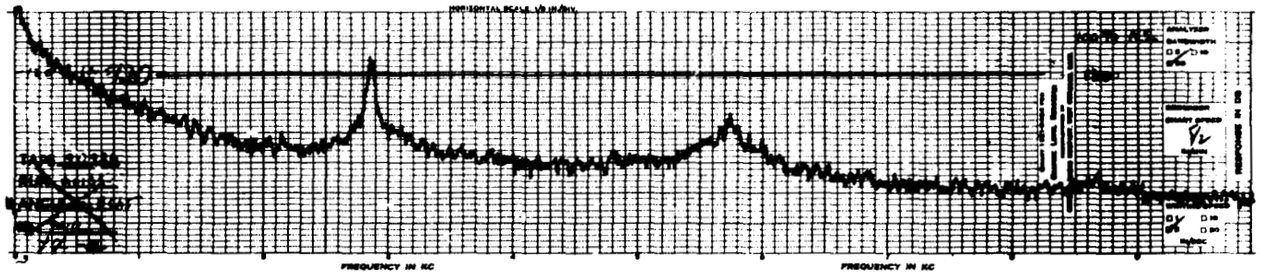
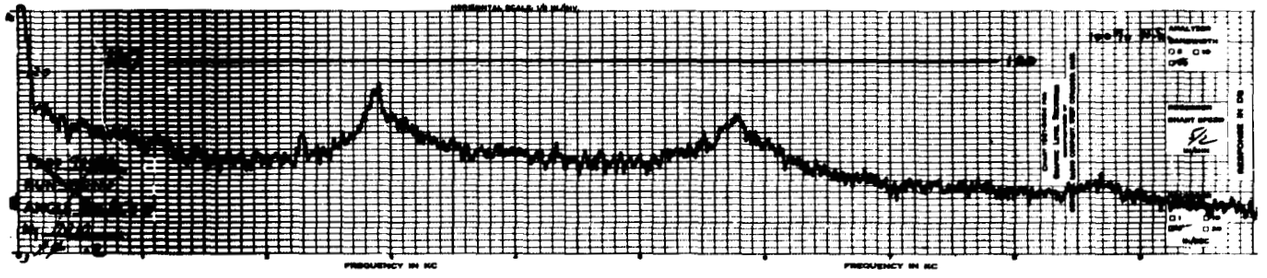


Figure 42 Compressor Noise Spectra from Plenum Microphones, 100% Design Speed, Near Stall ($W\sqrt{\theta}/\delta$ - 183.2 Lbs./Sec.)

NO. 5

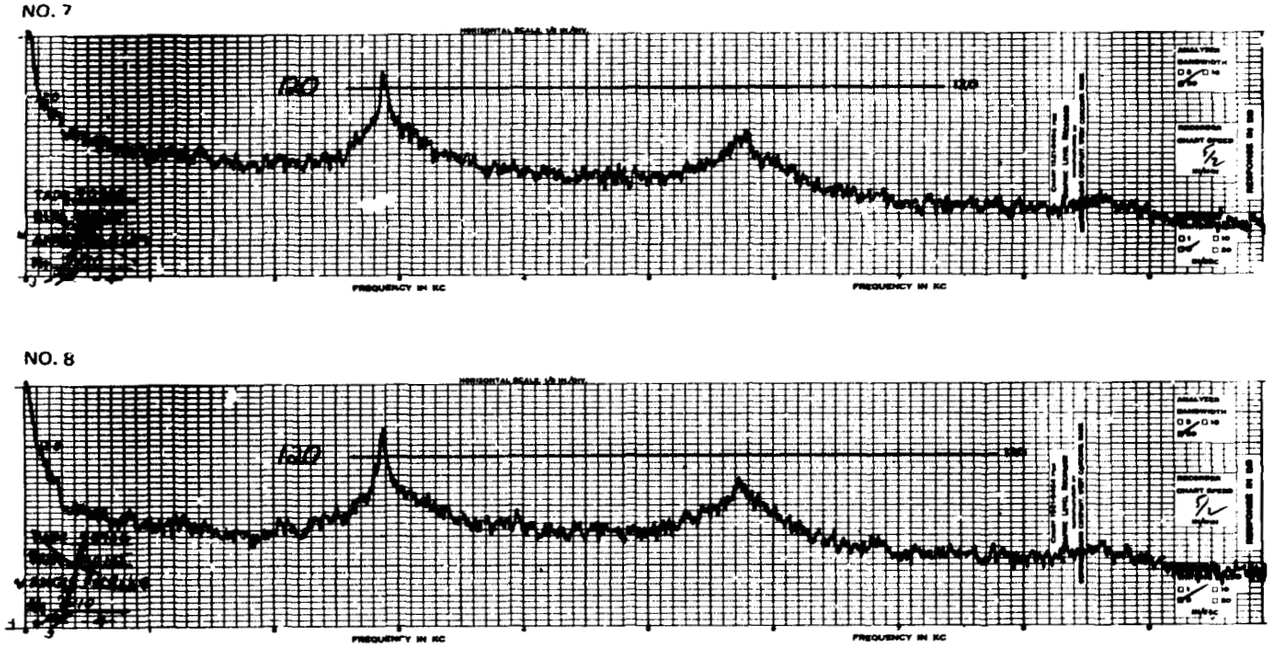


NO. 6



NOTE: REFERENCE SPL LINE AT 120 dB,
RE 0.0002 DYNES/CM^2

Figure 42 Compressor Noise Spectra from Plenum Microphones, 100% Design Speed, Near Stall ($W\sqrt{\theta}/\delta$ = 183.2 Lbs./Sec.)

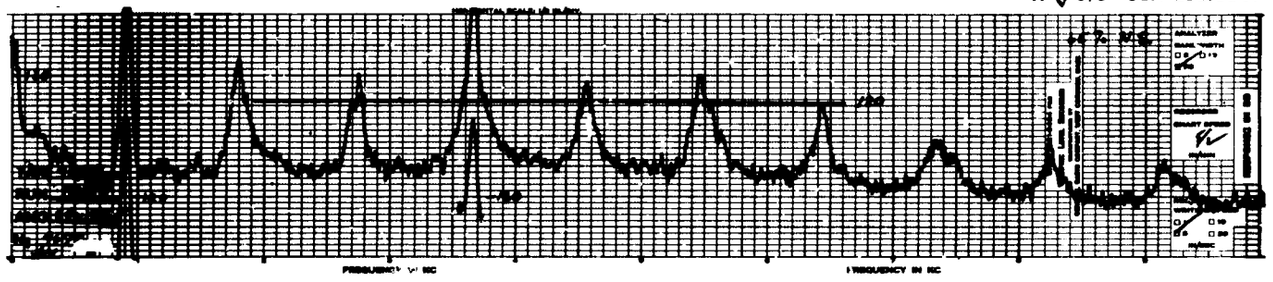


NOTE: REFERENCE SPL LINE AT 120 dB,
RE 0.0002 DYNES/CM^2

Figure 42 Compressor Noise Spectra from Plenum Microphones, 100% Design Speed, Near Stall ($W\sqrt{\theta}/\delta$ = 183.2 LBS/SEC)

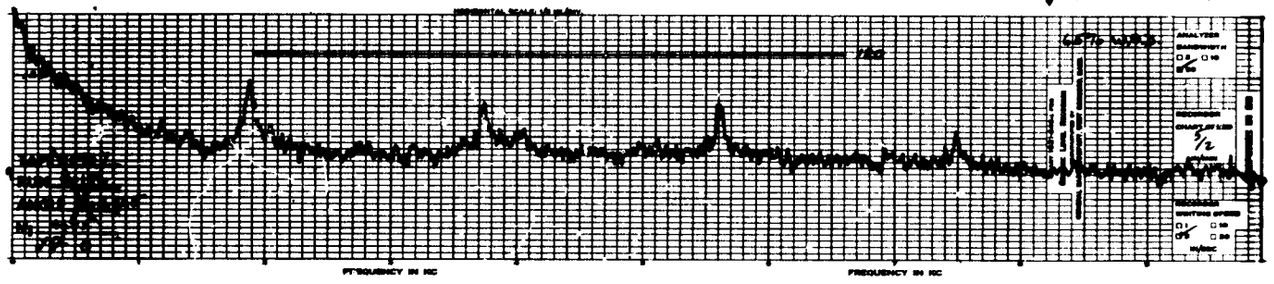
65% DESIGN SPEED, NEAR STALL

$W\sqrt{\theta}/\delta$ = 96.1 LBS/SEC.



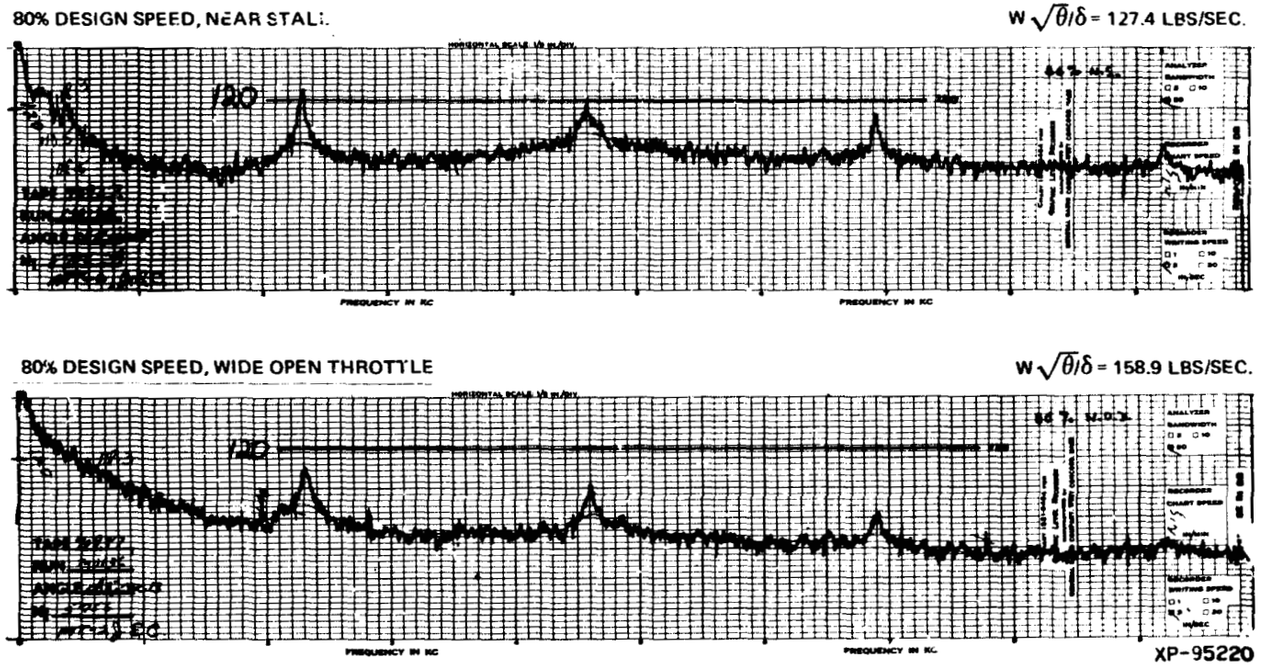
65% DESIGN SPEED, WIDE OPEN THROTTLE

$W\sqrt{\theta}/\delta$ = 129.7 LBS/SEC.



NOTE: REFERENCE SPL LINE AT 120 dB,
RE 0.0002 DYNES/CM^2

Figure 43 Sound-Pressure Spectra, Microphone Number 5

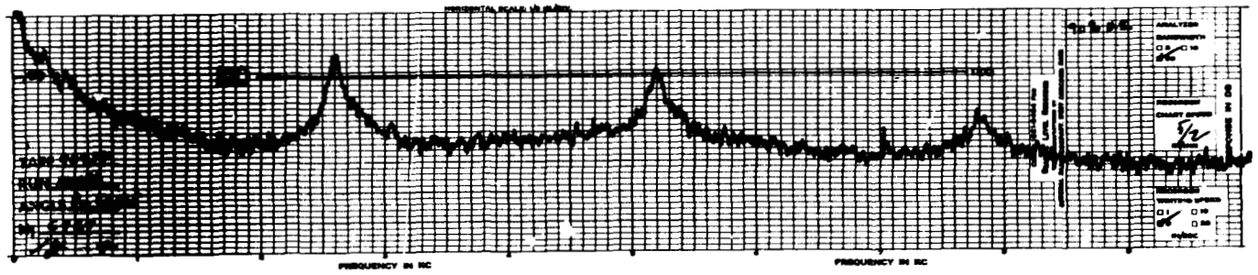


NOTE: REFERENCE SPL LINE AT 120 dB,
RE 0.0002 DYNES/CM^2

Figure 43 Sound Pressure Spectra Microphone Number 5

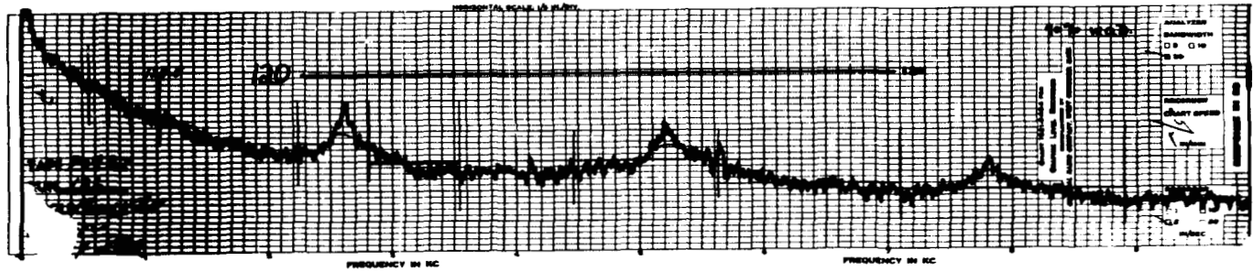
90% DESIGN SPEED, NEAR STALL

$W\sqrt{\theta}/\delta$ = 153.9 LBS/SEC.



90% DESIGN SPEED, WIDE OPEN THROTTLE

$W\sqrt{\theta}/\delta$ = 175.4 LBS/SEC.

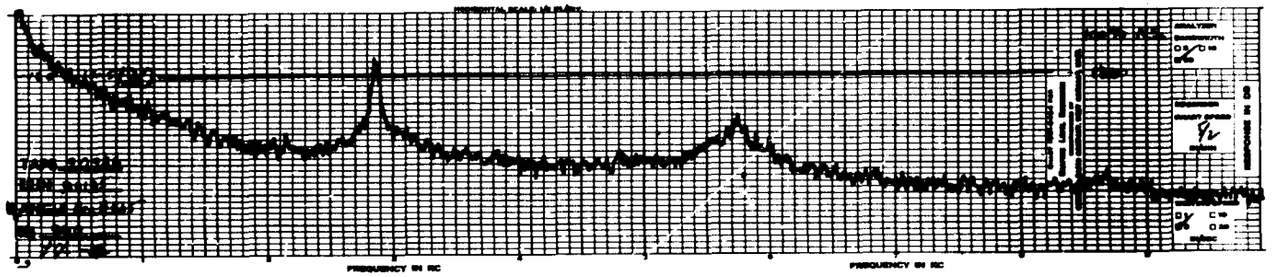


NOTE: REFERENCE SPL LINE AT 120 dB,
RE 0.0002 DYNES/CM^2

Figure 43 Sound Pressure Spectra Microphone Number 5

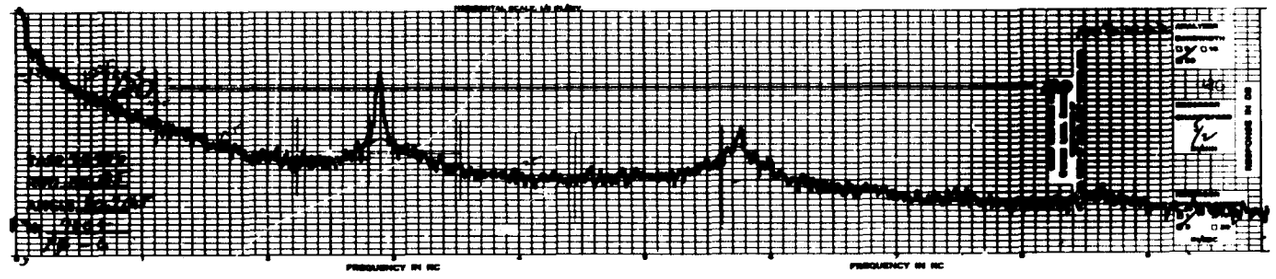
100% DESIGN SPEED, NEAR STALL

$W\sqrt{\theta}/\delta$ = 183.2 LBS/SEC.



100% DESIGN SPEED, WIDE OPEN THROTTLE

$W\sqrt{\theta}/\delta$ = 185.2 LBS/SEC.

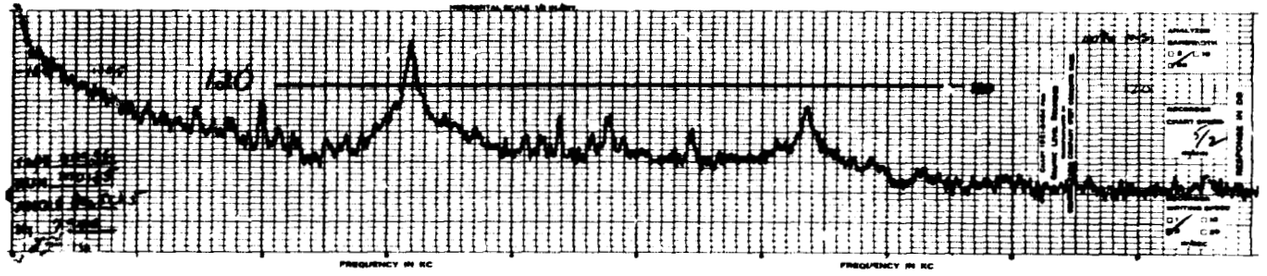


NOTE: REFERENCE SPL LINE AT 120 dB,
RE .0002 DYNES/CM^2

Figure 43 Sound Pressure Spectra Microphone Number 5

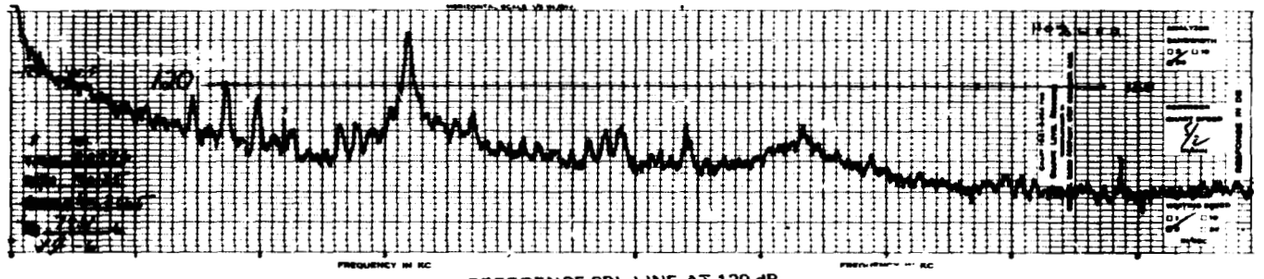
110% DESIGN SPEED, NEAR STALL

$W\sqrt{\theta}/\delta$ = 191.7 LBS/SEC. *



110% DESIGN SPEED, WIDE OPEN THROTTLE

$W\sqrt{\theta}/\delta$ = 189.9 LBS/SEC. *



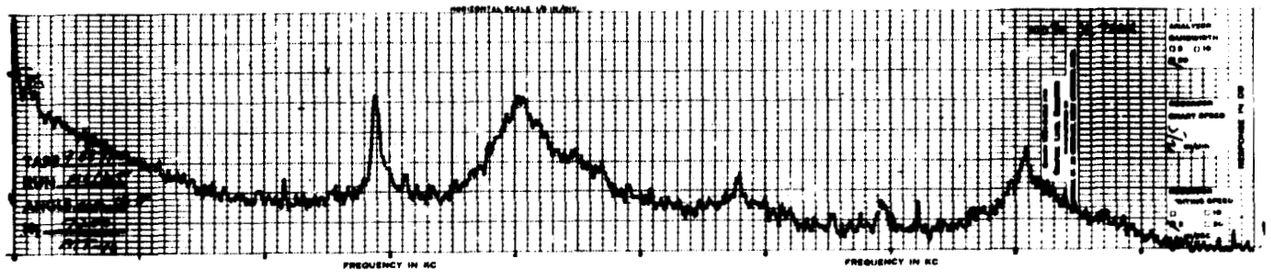
REFERENCE SPL LINE AT 120 dB
RE: .0002 DYNES/CM^2

*within flow measurement accuracy

Figure 43 Sound Pressure Spectra Microphone Number 5

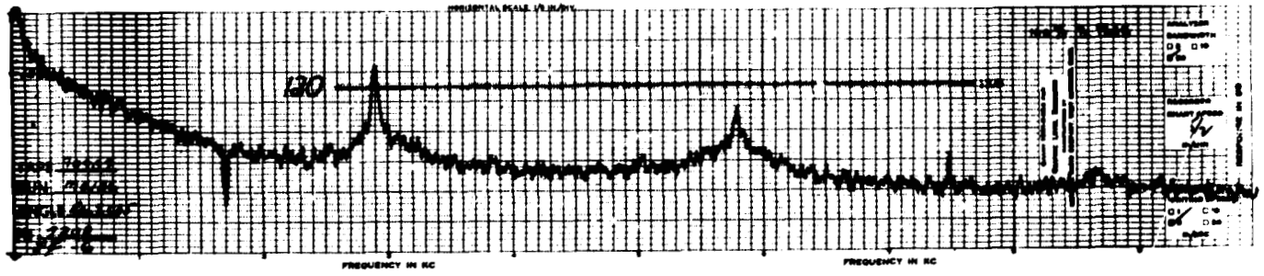
WITH SUPPORT STRUTS

$W\sqrt{\theta}/\delta$ = 184.9 LBS/SEC.



WITHOUT SUPPORT STRUTS

$W\sqrt{\theta}/\delta$ = 184.5 LBS/SEC.



NOTE: REFERENCE SPL LINE AT 120 dB
RE: .0002 DYNES/CM^2

Figure 44 Compressor Inlet Noise Spectra with and without Inlet Support Struts, 100% Design Speed

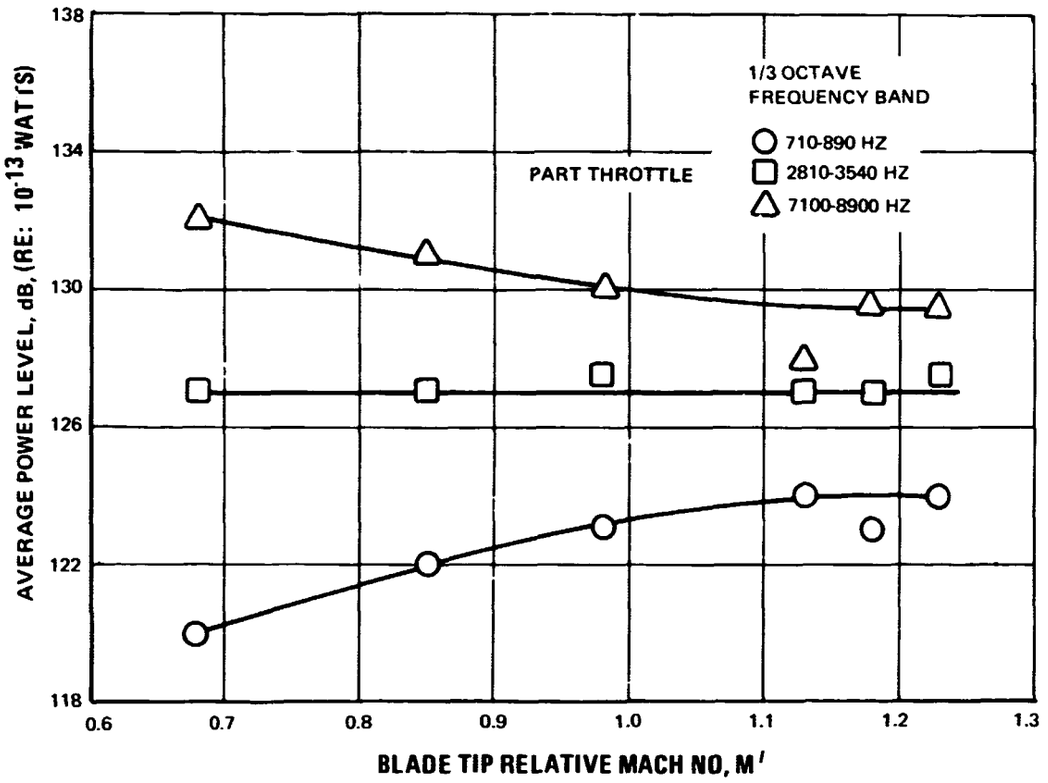


Figure 45 Average Sound Power Level vs. Blade Tip Relative Mach Number

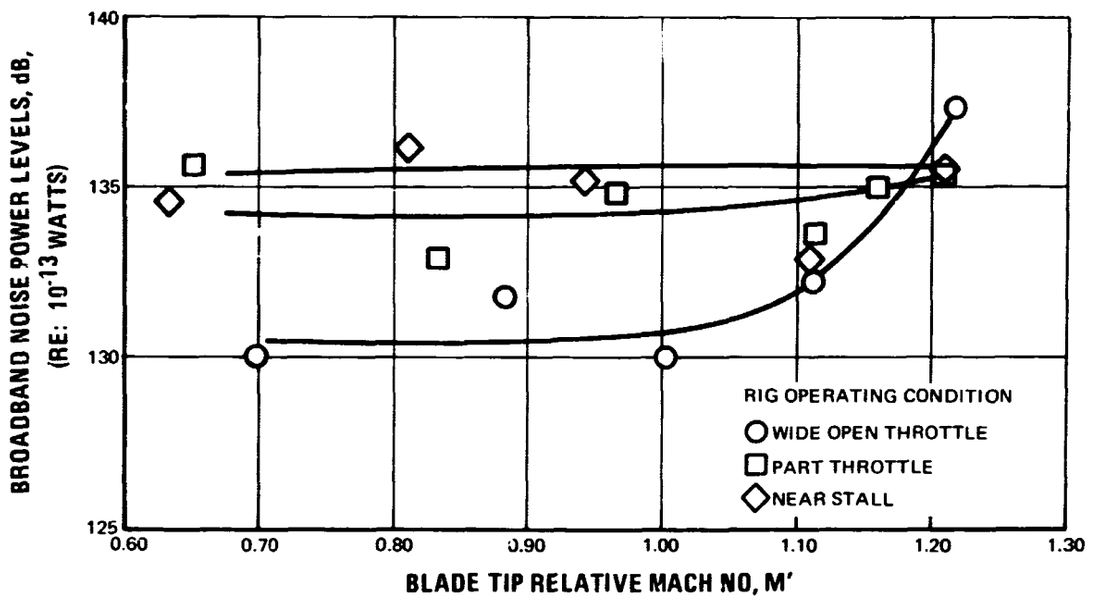


Figure 46 Total Sound Power Level

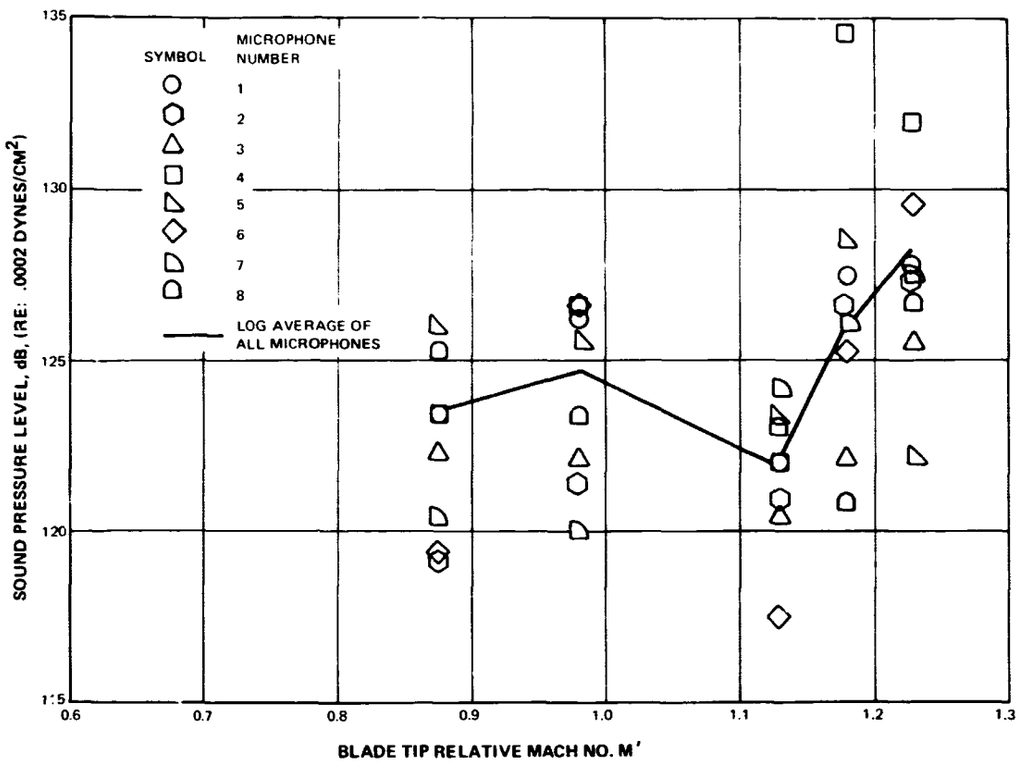


Figure 47 Time-Averaged Blade-Passing Inlet Frequency Noise vs. Blade Tip Mach Number, Part-Throttle

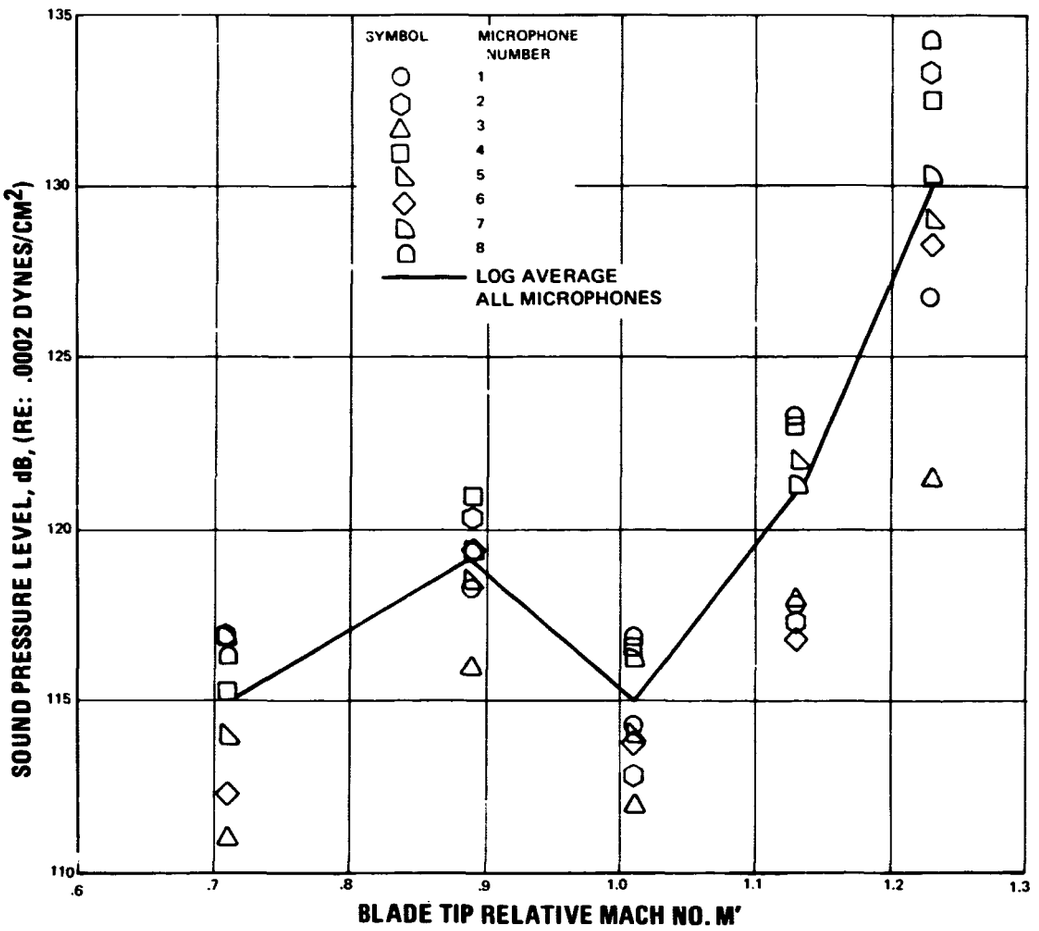


Figure 48 Time-Averaged Blade-Passing Frequency Inlet Noise vs. Blade Tip Mach Number, Wide-Open Throttle

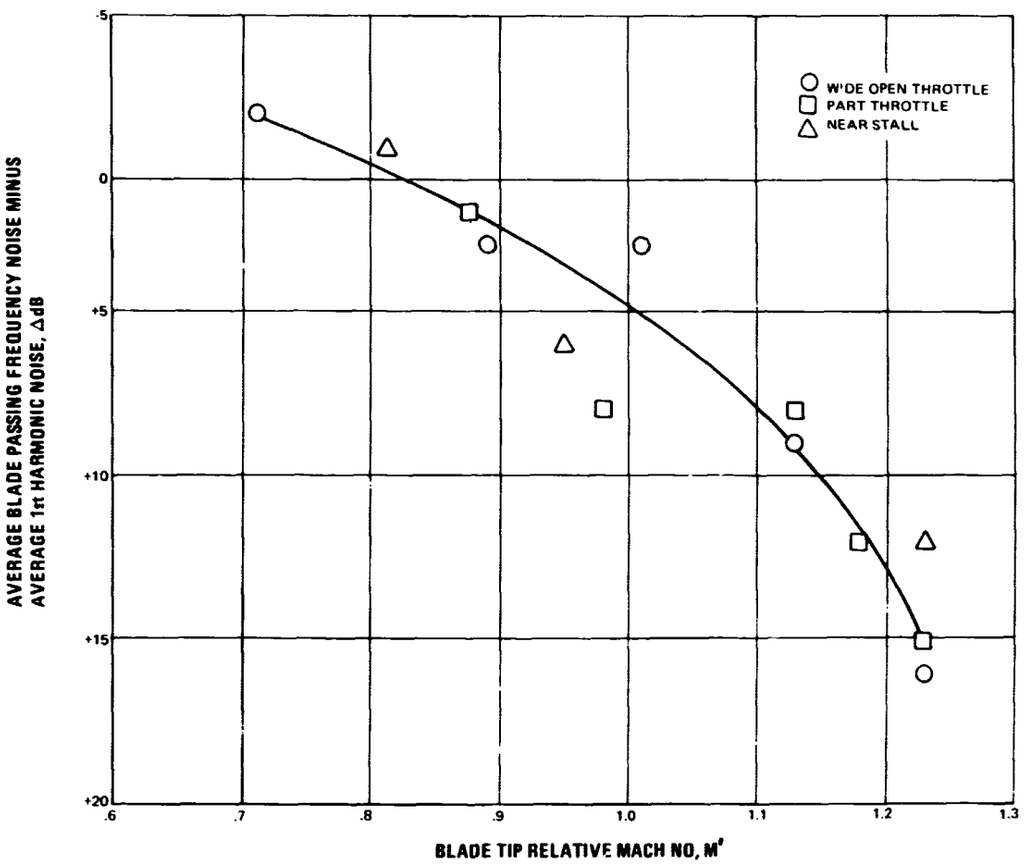


Figure 4.9 Noise Level Difference Between Blade-Passing Frequency and the First Harmonic Tone

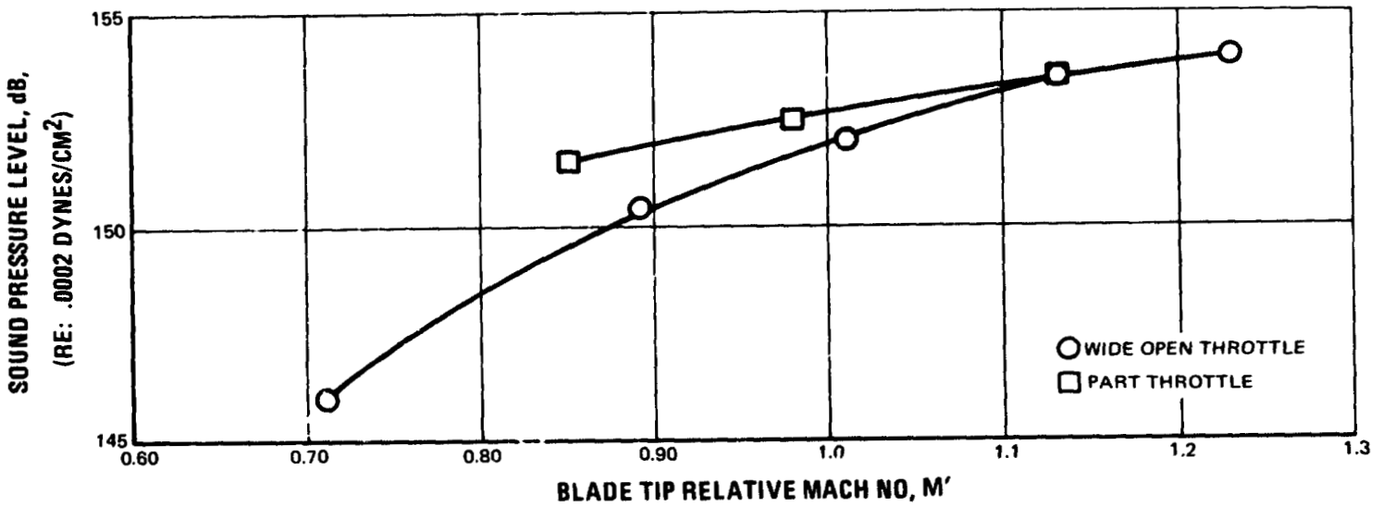
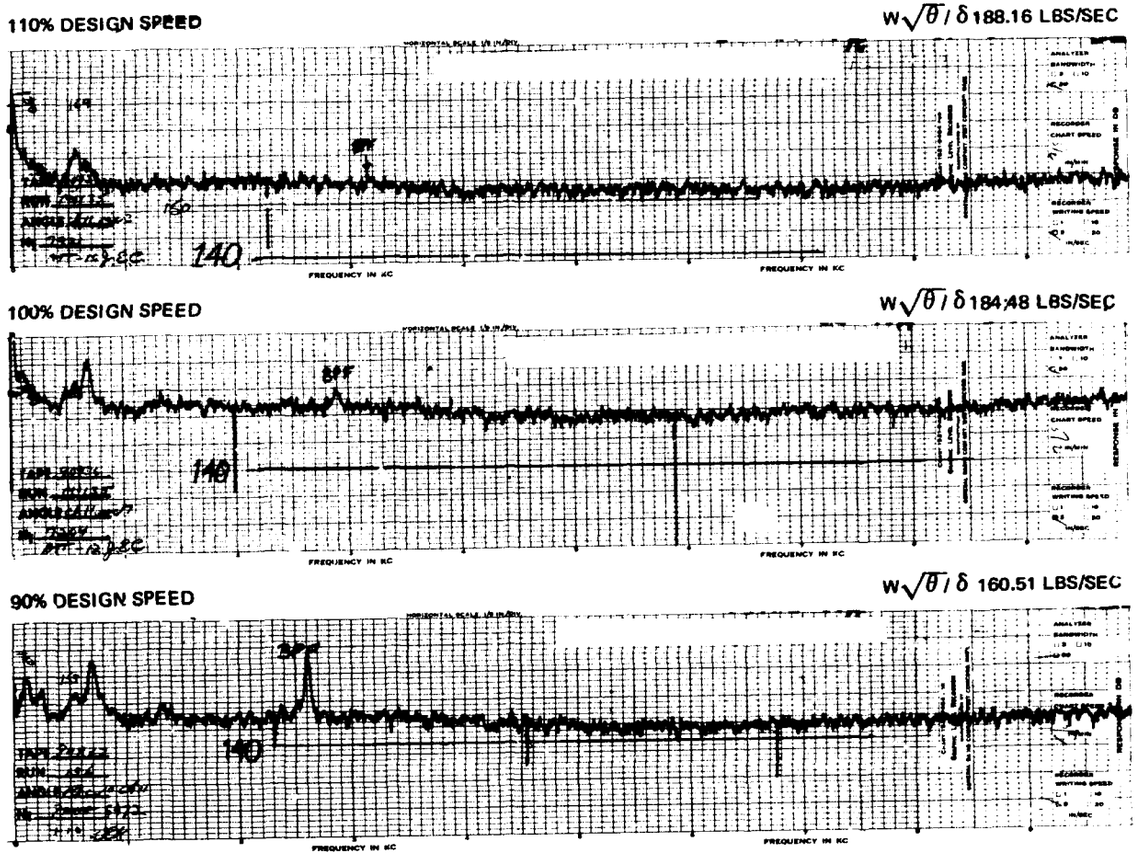
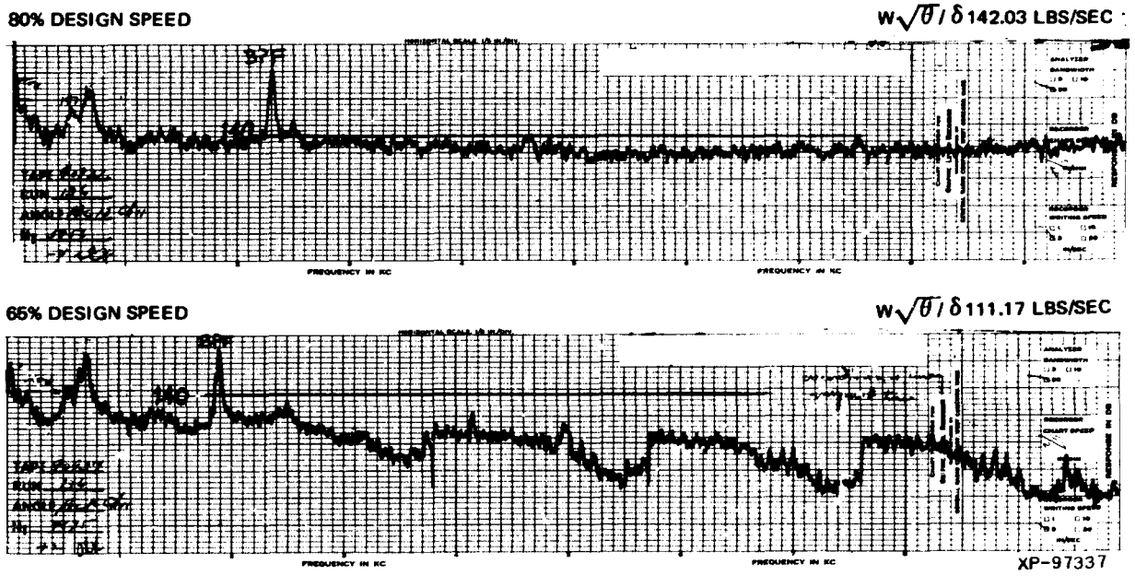


Figure 50 Time-Averaged Blade-Passing Frequency Discharge Noise vs. Blade Tip Relative Mach Number



NOTE: REFERENCE SPL LINE AT 140 dB
RE: 0.0002 DYNES/CM^2

Figure 51 Compressor Discharge Noise Spectra, Wide-Open Throttle Operating Line

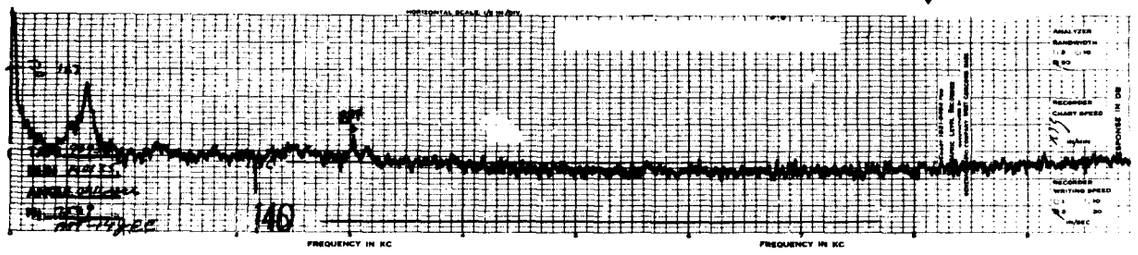


NOTE: REFERENCE SPL LINE AT 140 dB
RE: 0.0002 DYNES/CM^2

Figure 51 Compressor Discharge Noise Spectra, Wide-Open Throttle Operating Line

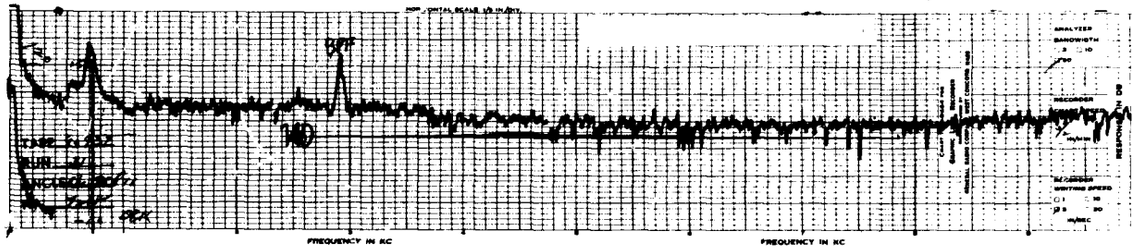
105% DESIGN SPEED

$W\sqrt{\theta}/\delta$ 191.71 LBS/SEC.



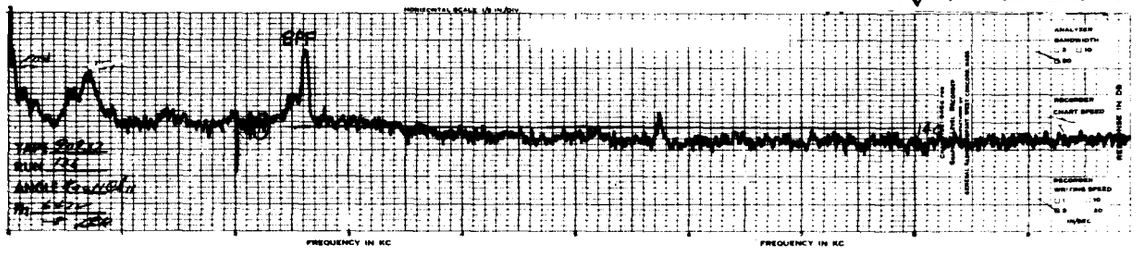
100% DESIGN SPEED

$W\sqrt{\theta}/\delta$ -185.25 LBS/SEC



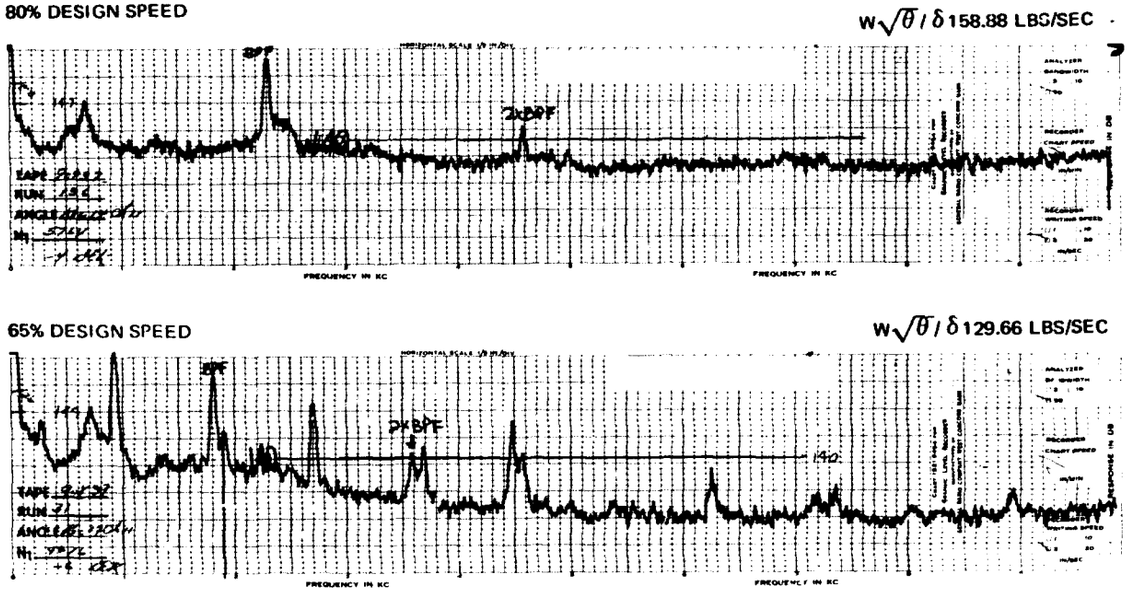
90% DESIGN SPEED

$W\sqrt{\theta}/\delta$ 175.36 LBS/SEC



NOTE: REFERENCE SPL LINE AT 140 dB
RE: 0.0002 DYNES/CM^2

Figure 51 Compressor Discharge Noise Spectra, Part-Throttle Operating Line



NOTE: REFERENCE SPL LINE AT 140 dB
RE: 0.0002 DYNES/CM^2

Figure 51 Compressor Discharge Noise Spectra, Part-Throttle Operating Line

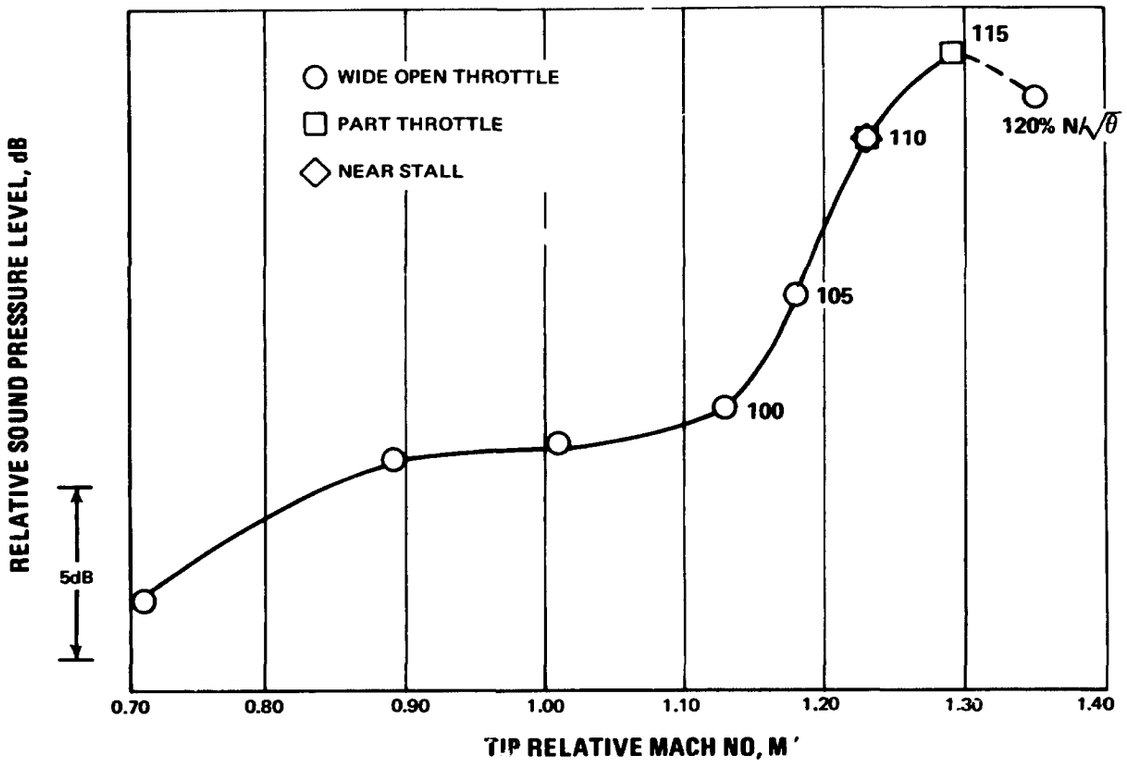


Figure 52 Supersonic Fan Noise Level (Combination Tones) vs. Blade Tip Relative Mach Number

APPENDIX 1

Symbol and Performance Parameter Definitions

APPENDIX 1

A. Symbols

A_{an}	-	annulus area, ft^2 (station 3, fig 9)
a	-	total room absorption
D	-	diffusion factor
dB	-	decibel
F	-	rotating stall period
fz	-	bandwidth of each 1/3 octave, Hz
g_c	-	conversion factor, 32.17 lb_m ft/lb sec^2
H	-	reverberation time, sec
i_m	-	incidence angle, angle between inlet air direction and line tangent to blade mean camber line at leading edge, degrees
i_s	-	incidence angle, angle between inlet air direction and line tangent to blade suction surface at leading edge, degrees
M	-	Mach number
MR	-	mass average in radial direction (tables 25-33)
N	-	rotor speed, rpm
P	-	total pressure, psfa
PWL	-	sound power level based on a reference power of 10^{-13} watt
p	-	static pressure, psfa
R	-	gas constant for air, ft lb/lb_m °R
r	-	radius, ft
S	-	acoustic pressure, dynes/cm^2
So	-	reference acoustic pressure of 2×10^{-4} dyne/cm^2
SPL	-	sound pressure level (dB, 0.0002 dyne/cm^2)
T	-	total temperature, °R
t	-	static temperature, °R
U	-	rotor speed, ft/sec
V	-	air velocity, ft/sec
V_z	-	axial air velocity, ft/sec
Vm	-	meridional air velocity, $(V_r^2 + V_z^2)^{1/2}$, ft/sec

V_θ - tangential component of air velocity $(V^2 - Vm^2)^{1/2}$, ft/sec

v - volume of a chamber, ft^3

W - weight flow, lbs/sec

w - acoustic power-ergs/sec

w_o - reference power of 10^{-13} watt

z - characteristic impedance of the medium, rayls, c.g.s. units

β - absolute air angle $\left[\cot^{-1} (V_m/V_\theta)\right]$ degrees

β'^* - metal angle on conical surface between tangent to mean camber line and axial direction at leading and trailing edge, degrees

$\Delta\beta$ - air turning angle $\beta'_5 - \beta'_6$ for rotors and $\beta_{11} - \beta_{12}$ for stators, degrees

$\Delta\beta^*$ - camber angle, degrees

λ - ratio of specific heats for air, 1.4

δ - ratio of inlet total pressure to standard pressure of 2116.22 lbs/ft^2

δ^c - deviation angle, angle between exit air direction and tangent to blade mean camber line at trailing edge, degrees

ϵ - angle between tangent to streamline projected on meridional plane and axial direction, degrees

η - efficiency, %

θ - ratio of inlet total temperature to standard temperature of 518.6°R

ρ - mass density, lbs-sec^2/ft^4

σ - solidity, ratio of chord to spacing

$\bar{\omega}$ - total pressure loss coefficient

ω - angular velocity of rotor, radians/sec

Superscripts:

' - relative to moving blades

* - designates blade metal angle

Subscripts:

ad - adiabatic

p - polytropic or profile

r - radial direction

sh - shock

s - suction surface

z - axial direction

0 - plenum chamber

4 - instrument plane upsteam of rotor

5 - station at rotor inlet

6 - station at rotor exit

10 - instrument plane upstream of stator

11 - station at stator leading edge

12 - station at stator trailing edge

13 - instrument plane downstream of stator

B. Performance Parameter Definitions

a) Relative total temperature

$$T'_5 = t_5 \left[1 + \frac{\gamma - 1}{2} (M'_5)^2\right] \qquad \text{(rotor in)}$$

$$T'_6 = T'_5 + \left[\frac{(\omega r_5)^2 - (\omega r_6)^2}{\frac{2\gamma}{\gamma - 1} Rg_c}\right] \qquad \text{(rotor out)}$$

b) Incidence angle based on mean camber line

$$i_m = \beta'_5 - \beta'^*_5 \qquad \text{(rotor)}$$

$$i_m = \beta_{11} - \beta^*_{11} \qquad \text{(stator)}$$

c) Deviation (DEV, Table 8, $\delta°$)

$$\delta° = \beta'_6 - \beta'^*_6 \qquad \text{(rotor)}$$

$$\delta° = \beta_{12} - \beta^*_{12} \qquad \text{(stator)}$$

d) Diffusion factor (D-FAC, Table 8)

$$D = 1 - \frac{V'_6}{V'_5} + \frac{r_6 V_{\theta 6} - r_5 V_{\theta 5}}{(r_5 + r_6)\sigma V'_5} \qquad \text{(rotor)}$$

$$D = 1 - \frac{V_{12}}{V_{11}} + \frac{r_{11} V_{\theta 11} - r_{12} V_{\theta 12}}{(r_{11} + r_{12})\sigma V_{11}} \qquad \text{(stator)}$$

e) Loss coefficient (OMEGA-B, Table 8)

$$\bar{\omega} = \frac{P'_5 \left[\frac{T'_6}{T'_5}\right]^{\frac{\gamma}{\gamma - 1}} - P'_6}{P'_5 - p_5} \qquad \text{(rotor)}$$

$$\bar{\omega} = \frac{P_{11} - P_{12}}{P_{11} - p_{11}} \qquad \text{(stator)}$$

f) Loss parameter (LOSS-P, Table 8)

$$\frac{\bar{\omega} \cos \beta'_6}{2\sigma} \qquad \text{(rotor)}$$

$$\frac{\bar{\omega} \cos \beta_{12}}{2\sigma} \qquad \text{(stator)}$$

g) Polytropic efficiency (EFF-P, TOTAL, Table 8)

1) $$\eta_p = \frac{\frac{\gamma-1}{\gamma} \ln\left[\frac{P_6}{P_5}\right]}{\ln\left[\frac{T_6}{T_5}\right]} \qquad \text{(rotor)}$$

2) $$\eta_p = \frac{\frac{\gamma-1}{\gamma} \ln\left[\frac{p_{12}}{p_{11}}\right]}{\ln\left[\frac{t_{12}}{t_{11}}\right]} \qquad \text{(stator)}$$

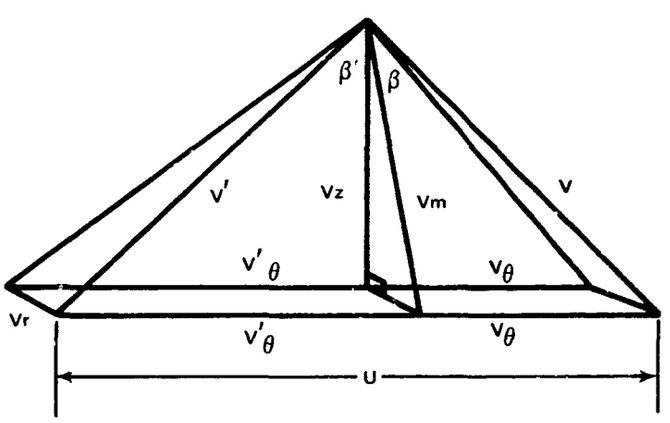
h) Adiabatic efficiency (EFF-AD, TOTAL, Table 8)

$$\eta_{ad} = \frac{\left[\frac{P_6}{P_5}\right]^{\frac{\gamma-1}{\gamma}} - 1}{\left[\frac{T_6}{T_5}\right] - 1} \qquad \text{(rotor)}$$

$$\eta_{ad} = \frac{\left[\frac{P_{12}}{P_5}\right]^{\frac{\gamma-1}{\gamma}} - 1}{\left[\frac{T_{12}}{T_5}\right] - 1} \qquad \text{(stage)}$$

i) Wake blockage factor

$$\bar{K} = \frac{\sum_1^n \rho AV}{n} \Big/ \rho AV_{avg}$$



APPENDIX 2

Blade-Element and Overall Performance with Uniform Inlet Flow

ROTOR — Identification of Blade-Element and Overall Performance Table Headings

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5 10 15 30 50 70 85 90 95	$2r_5$	$2r_6$	V_5	V_6	V_{m5}	V_{m6}	$V_{\theta 5}$	$V_{\theta 6}$	β_5	β_6	β'_5	β'_6	V'_5	V'_6	$V'_{\theta 5}$	$V'_{\theta 6}$	U_5	U_6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5 10 15 30 50 70 85 90 95	i_{s5}	i_{m5}	δ°_6	$\Delta\beta$	$\Delta\beta^*$	σ	D	$\bar{\omega}$	$\frac{\bar{\omega}\cos\beta'_6}{2\sigma}$	$\frac{(\bar{\omega}-\bar{\omega}_{sh})\cos\beta'_6}{2\sigma}$	$\frac{P_6}{P_5}$	η_p	η_{ad}	$\bar{\omega}_{sh}$	M_5	M_6	M'_5	M'_6

NCOR-1 RPM	NCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
$\frac{N}{\sqrt{\theta}}$	$\frac{W\sqrt{\theta}}{\delta}$	$\frac{W\sqrt{\theta}}{\delta A_{an}}$	$\frac{T_6}{T_5}$	$\frac{P_6}{P_5}$	η_{ad}	η_p				

See Figure 9

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5 10 15 30 50 70 85 90 95	$2r_{11}$	$2r_{12}$	V_{11}	V_{12}	V_{m11}	V_{m12}	$V_{\theta 11}$	$V_{\theta 12}$	β_{11}	β_{12}	β'_{11}	β'_{12}	V'_{11}	V'_{12}	$V'_{\theta 11}$	$V'_{\theta 12}$	U_5	U_6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5 10 15 30 50 70 85 90 95	i_{s11}	i_{m11}	δ°_{12}	$\Delta\beta$	$\Delta\beta^*$	σ	D	$\bar{\omega}$	$\frac{\bar{\omega}\cos\beta'_{12}}{2\sigma}$	$\frac{(\bar{\omega}-\bar{\omega}_{sh})\cos\beta'_{12}}{2\sigma}$	$\frac{P_{12}}{P_{11}}$	$\bar{\omega}_{sh}$	η_{ad}	η_p	M_{11}	M_{12}	M'_{11}	M'_{12}

NCOR-1 RPM	NCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
$\frac{N}{\sqrt{\theta}}$	$\frac{W\sqrt{\theta}}{\delta}$	$\frac{W\sqrt{\theta}}{\delta A_{an}}$	$\frac{T_{12}}{T_5}$	$\frac{P_{12}}{P_5}$	η_{ad}	η_p				

See Figure 9

Aerodynamic Design - Blade Element and Over-all Performance

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	614	995	505.4	538.5	0	807.8	0	55.9	35.5	-26.2	751	632	-412	305	424	518
10	14.100	16.790	620	983	621.5	586.1	0	775.8	0	52.0	37.0	-21.0	778	645	-445	241	455	544
15	15.170	17.580	627	971	627.4	630.0	0	734.8	0	49.2	38.6	-15.4	804	656	-488	170	489	568
30	18.280	19.910	650	916	652.1	640.4	0	655.1	0	45.6	42.7	- 0.6	877	641	-502	7	586	643
50	22.190	23.090	671	836	671.1	606.1	0	576.4	0	43.8	47.2	15.5	981	629	-716	-173	714	742
70	25.880	26.260	680	782	680.4	583.9	0	554.8	0	41.7	51 1	29.4	1077	668	-836	-328	838	848
85	28.450	28.610	682	755	682.6	569.9	0	492.3	0	40.8	53.3	37.5	1145	715	-918	-432	918	923
90	29.320	29.410	683	747	682.8	564.1	0	488.0	0	40.8	54.1	39.6	1167	729	-946	-461	944	949
95	30.150	30.180	683	737	682.6	556.9	0	487.9	0	41.3	54.8	41.8	1189	738	-974	-488	969	973

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.1	0.81	10.3	61.7	71.1	2 41	.390	.0673	.0124	.0124	1.540	.9601	.9576	0	.5654	.902	.698	.514
10	-5.0	1.65	11.5	58.0	66.1	2.30	.385	.0377	.0077	.0077	1.540	.9750	.9735	0	.5718	.891	.717	.586
15	-4.3	1.99	12.2	54.0	63.0	2.18	.400	.0264	.0057	.0057	1.540	.9807	.9795	0	.5797	.828	.738	.594
30	-3.0	2.69	13.0	43.3	53.2	1.93	.473	.0334	.0085	.0085	1.540	.9719	.9702	0	.6045	.820	.813	.574
50	-1.6	3.41	11.2	31.7	39.0	1.69	.535	.0481	.0136	.0136	1.540	.9535	.9506	0	.6245	.740	.909	.551
70	-0.5	3.73	9.0	21.7	26.9	1.53	.537	.0673	.0190	.0165	1.540	.9274	.9229	.0087	6328	.686	1.001	.586
85	0.0	3.71	7.1	15.8	19.5	1.43	.525	.0867	.0238	.0215	1.540	.9022	.8961	.0142	.6342	.658	1.066	.624
90	0.0	3.63	6.8	14.5	18.3	1.40	.523	.0979	.0269	.0225	1.540	.8871	.8800	.0162	.6360	.649	1.089	.635
95	-0.2	3.20	7.0	13.0	17.4	1.38	.533	.1197	.0313	.0263	1.540	.8672	.8589	.0196	.6358	.642	1.110	.642

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7400.0	185.0	42.0	1.1410	1.5400	93.3	93.8	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	978	575	622.7	575	747	0	49.7	0	-16.[illegible]	46.30	652	818	179	-601	571	598
10	18.350	19.110	962	600	641.6	600	710	0	47.8	0	-21.4	46.05	657	850	119	-618	592	616
15	19.070	19.740	947	617	659.3	617	678	0	45.8	0	- 5.9	46.00	662	882	64	-637	614	637
30	21.140	21.600	914	636	673.9	636	614	0	42.4	0	6.1	47.55	676	943	-68	-693	682	697
50	23.970	24.200	875	630	674.3	630	5[illegible]5	0	39.5	0	17.8	51.00	708	1005	-216	-782	777	782
70	26.790	26.880	840	624	665.0	624	511	0	37.6	0	28.0	54.23	752	1070	-354	-867	868	871
85	28.860	28.900	818	619	655.4	619	488	0	36.7	0	33.9	56.52	889	1120	-442	-933	939	935
90	29.570	29.600	811	616	649.8	616	484	0	36.8	0	35.8	57.30	802	1135	-469	-954	956	957
95	30.240	30.270	805	612	642.4	612	485	0	37.0	0	37.3	58.08	809	1152	-492	-978	977	978

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	0	3.95	16.2	49.7	61.8	2.105	.593	.210	.0485	.0435	.9184	.7682	0	0	.885	.4923	.5890	.706
10	0	4.25	15.9	47.8	59.[illegible]	2.032	.558	.165	.0399	.0399	.9365	.7989	0	0	.870	.5142	.5928	.734
15	0	4.32	15.5	45.8	56.8	1.950	.528	.129	.0307	.0307	.9526	.8338	0	0	.854	.5335	.5965	.763
30	0	4.79	13.9	42.4	51.7	1.758	.495	.069	.0171	.0171	.9751	.8926	0	0	.817	.5510	.6053	.823
50	0	5.48	10.3	39.5	44.7	1.552	.483	.046	.0154	.0154	.9831	.9114	0	0	.777	.5458	.6305	.867
70	0	6.09	12.5	37.6	44.4	1.388	.473	.043	.0192	.0192	.9830	.8940	0	0	.743	.5389	.6654	.920
85	0	6.50	15.2	36.7	45.2	1.285	.473	.061	.0273	.0273	.9789	.8571	0	0	.719	.5322	.6955	.960
90	0	6.59	15.8	36.8	45.9	1.258	.477	.073	.0312	.0312	.9765	.8397	0	0	.712	.5281	.7037	.975
95	0	6 75	16.3	37.0	46.8	1.230	.484	.096	.0369	.0369	.9729	.8163	0	0	.705	.5234	.7070	.988

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7400.0	185.0	42.0	1.1410	1.5008	87.3	88.1	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR — 65% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	386.2	768.7	386.2	492.1	.0	590.6	.00	50.20	35.38	-27.43	473.7	554.5	-274.2	255.5	274.2	335.1
10	14.100	16.790	393.6	748.8	393.6	483.7	.0	570.6	.00	49.71	36.82	-24.39	491.8	531.4	-294.7	219.6	294.7	360.9
15	15.170	17.580	401.0	719.7	401.0	481.8	.0	534.5	.00	47.94	38.32	-19.08	511.3	510.6	-317.1	167.0	317.1	367.4
30	18.286	19.910	418.3	648.8	418.3	478.2	.0	437.0	.00	42.38	42.38	-2.43	566.6	480.4	-382.1	20.9	382.1	416.1
50	22.190	23.090	432.0	573.2	432.0	452.7	.0	351.4	.00	37.79	47.01	16.13	633.9	472.8	-463.8	-131.2	463.8	482.6
70	25.880	26.260	437.4	519.9	437.4	432.9	.0	287.8	.00	33.61	51.02	31.03	695.8	506.1	-540.9	-261.0	540.9	548.9
85	28.450	28.610	437.8	492.3	437.8	417.8	.0	260.4	.00	31.94	53.63	38.94	738.4	537.3	-594.6	-337.6	594.6	598.0
90	29.320	29.410	437.3	472.6	437.3	397.8	.0	256.3	.00	32.88	54.49	42.09	752.9	535.1	-618.8	-358.4	618.8	614.7
95	30.150	30.180	436.7	448.8	436.7	371.0	.0	252.5	.00	34.24	55.28	45.55	766.7	529.9	-630.2	-378.3	630.2	630.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.58	1.33	9.54	62.81	71.12	2.4320	.1113	.1469	.0268	.0268	1.2190	.9189	.9166	.0000	.3509	.6994	.4315	.5045
10	-4.62	2.00	6.80	61.21	66.10	2.2837	.1054	.1102	.0220	.0220	1.2262	.9354	.9336	.0000	.3585	.6785	.4499	.4820
15	-3.94	2.32	7.83	57.40	62.98	2.1549	.2615	.0864	.0189	.0189	1.2238	.9444	.9428	.0000	.3654	.6511	.4681	.4619
30	-2.82	2.83	11.28	44.81	53.28	1.9028	.3630	.0357	.0094	.0094	1.2119	.9698	.9689	.0000	.3808	.5830	.5178	.4322
50	-1.60	3.36	11.61	30.88	39.15	1.6895	.4212	.0438	.0124	.0124	1.1928	.9520	.9507	.0000	.3930	.5129	.5787	.4230
70	-.24	3.95	10.95	19.99	26.99	1.5344	.4682	.0430	.0120	.0120	1.1767	.9406	.9391	.0000	.3979	.4639	.6339	.4516
85	.30	3.98	8.98	14.70	19.69	1.4421	.3950	.0581	.0157	.0157	1.1681	.9100	.9078	.0000	.3981	.4384	.6728	.4785
90	.35	3.86	9.82	12.39	18.34	1.4148	.4097	.0941	.0247	.0247	1.1583	.8508	.8474	.0000	.3977	.4201	.6856	.4757
95	.26	3.63	11.40	9.73	17.48	1.3891	.4275	.1342	.0338	.0338	1.1462	.7817	.7771	.0000	.3971	.3982	.6976	.4701

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4790.	131.33	29.61	1.0546	1.1883	92.542	92.81	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	715.0	511.7	476.5	511.1	533.1	24.1	48.21	2.70	-18.86	35.48	503.5	627.6	162.8	-364.2	370.4	388.3
10	18.350	19.110	712.0	519.3	483.6	518.5	522.5	28.7	47.21	3.17	-16.03	35.56	503.3	637.4	139.0	-378.7	383.5	399.4
15	19.070	19.740	697.4	525.7	491.7	525.3	494.4	19.8	45.14	2.16	-11.03	36.78	501.5	656.0	95.8	-392.8	398.6	412.6
30	21.140	21.600	656.7	518.7	511.1	518.4	412.0	18.3	38.84	2.02	3.32	39.87	513.2	675.7	-29.9	-433.2	441.9	451.5
50	23.970	24.200	608.5	501.6	505.4	501.2	338.5	19.0	33.79	2.17	17.77	44.14	531.8	698.9	-162.5	-486.8	501.0	505.8
70	26.790	26.880	570.1	490.6	495.3	490.6	282.1	-4.9	29.66	-.58	29.25	49.11	568.3	749.7	-277.8	-566.8	560.0	561.8
85	28.860	28.900	549.8	481.4	485.4	481.3	258.1	-8.7	28.00	-1.03	35.41	51.85	595.7	779.2	-345.1	-612.8	603.2	604.1
90	29.570	29.600	533.9	457.3	469.2	457.3	254.8	-3.8	28.62	-.47	37.76	53.71	593.5	772.6	-363.2	-622.5	618.1	618.7
95	30.240	30.270	513.8	426.7	447.8	426.7	252.0	-2.2	29.37	-.30	40.32	56.09	587.4	765.0	-380.1	-634.9	632.1	632.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.33	2.65	19.19	45.52	62.53	2.1080	.4488	.1142	.0271	.0271	.9720	.0000	.0000	.7900	.6457	.4533	.4551	.5560
10	-.67	3.69	19.12	44.04	59.87	2.0300	.4376	.1192	.0293	.0293	.9710	.0000	.0000	.7799	.6402	.4602	.4535	.5649
15	-1.00	3.33	17.58	42.98	57.06	1.9472	.4177	.0920	.0236	.0236	.9784	.0000	.0000	.8226	.6265	.4664	.4529	.5821
30	-3.81	1.01	15.99	36.82	51.73	1.7528	.3788	.0581	.0166	.0166	.9877	.0000	.0000	.8684	.5897	.4611	.4624	.6086
50	-5.73	-.23	12.97	31.52	44.81	1.5485	.3441	.0373	.0120	.0120	.9932	.0000	.0000	.8968	.5460	.4461	.4776	.6215
70	-7.88	-1.77	12.24	30.23	44.25	1.3868	.3205	.0240	.0087	.0087	.9961	.0000	.0000	.9154	.5110	.4367	.5091	.6673
85	-8.76	-2.25	14.01	29.03	45.29	1.2867	.3128	.0305	.0118	.0118	.9954	.0000	.0000	.8814	.4921	.4284	.5331	.6934
90	-8.34	-1.74	15.24	28.99	45.96	1.2554	.3363	.0615	.0245	.0245	.9911	.0000	.0000	.7883	.4713	.4061	.5303	.6861
95	-7.81	-1.06	16.03	29.67	46.76	1.2271	.3710	.0930	.0379	.0379	.9875	.0000	.0000	.7232	.4582	.3780	.5236	.6777

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4790.	131.33	29.61	1.0546	1.1760	86.860	87.28	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

65% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	361.2	736.0	361.2	455.0	.0	578.4	.00	51.81	37.23	-28.11	453.6	516.0	-274.4	243.2	274.4	335.3
10	14.100	16.790	368.1	715.8	368.1	447.9	.0	558.3	.00	51.25	38.70	-24.78	471.7	493.7	-294.9	207.1	294.9	351.2
15	15.170	17.580	374.9	689.0	374.9	446.6	.0	524.6	.00	49.58	40.23	-19.32	491.2	473.9	-317.3	156.9	317.3	367.7
30	18.280	19.910	391.0	623.8	391.0	445.5	.0	436.5	.00	44.38	44.33	-2.52	547.0	447.6	-382.3	20.1	382.3	416.4
50	22.190	23.090	403.7	554.0	403.7	424.2	.0	356.2	.00	40.00	48.96	16.58	615.2	444.1	-464.1	-126.7	464.1	482.9
70	25.880	26.260	408.6	503.3	408.6	405.4	.0	298.2	.00	36.32	52.93	31.70	678.3	477.5	-541.3	-251.1	541.3	549.2
85	28.450	28.610	408.8	477.2	408.8	389.9	.0	275.1	.00	35.21	55.51	39.67	722.0	506.7	-595.0	-323.3	595.0	598.4
90	29.320	29.410	408.2	457.3	408.2	367.0	.0	272.8	.00	36.65	56.34	43.03	736.7	502.2	-613.2	-342.4	613.2	615.1
95	30.150	30.180	407.6	435.4	407.6	341.9	.0	269.6	.00	38.26	57.12	46.60	750.9	497.7	-630.6	-361.6	630.6	631.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-3.72	3.18	8.86	65.34	71.12	2.4319	.1508	.1681	.0305	.0305	1.2129	.9130	.9106	.0000	.5277	.6673	.4127	.4678
10	-2.74	3.68	6.42	63.68	66.10	2.2837	.2348	.1288	.0256	.0256	1.2194	.9290	.9269	.0000	.3547	.6472	.4310	.4464
15	-2.03	4.23	7.59	59.35	62.98	2.1549	.3010	.1021	.0223	.0223	1.2180	.9382	.9365	.0000	.3410	.6215	.4491	.4275
30	-.87	4.78	11.20	46.84	53.28	1.9028	.3998	.0406	.0106	.0106	1.2114	.9680	.9671	.0000	.3552	.5598	.4999	.4017
50	.34	5.31	12.06	32.38	39.15	1.6895	.4526	.0413	.0117	.0117	1.1971	.9878	.9566	.0000	.3666	.4947	.5607	.3965
70	1.47	5.86	11.62	21.23	26.99	1.5344	.4902	.0455	.0126	.0126	1.1839	.9920	.9906	.0000	.3709	.4481	.6169	.4251
85	2.17	5.85	9.72	15.84	19.70	1.4421	.4306	.0675	.0180	.0180	1.1771	.9048	.9024	.0000	.3710	.4239	.6567	.4501
90	2.20	5.72	10.76	13.31	18.34	1.4188	.4494	.1082	.0280	.0280	1.1678	.8446	.8409	.0000	.3705	.4055	.6697	.4452
95	2.10	5.47	12.44	10.53	17.48	1.3891	.4665	.1461	.0361	.0361	1.1574	.7852	.7804	.0000	.3699	.3853	.6820	.4404

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4793.	123.90	27.94	1.0558	1.1923	92.392	92.64	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	680.9	463.4	436.8	462.9	522.3	17.6	50.09	2.16	-19.15	38.71	462.4	593.3	151.7	-371.0	370.6	388.6
10	18.350	19.110	677.4	472.3	444.3	471.3	511.3	31.1	49.01	3.77	-16.01	38.03	462.3	598.3	127.5	-368.6	383.8	399.7
15	19.070	19.740	663.2	479.1	452.1	478.5	485.0	24.0	47.00	2.87	-10.80	39.09	460.7	616.7	86.2	-388.9	398.9	412.9
30	21.140	21.600	627.6	481.5	473.7	481.1	411.4	19.1	40.95	2.27	3.68	41.96	475.8	647.1	-30.7	-432.7	442.2	451.8
50	23.970	24.200	583.5	468.4	471.7	467.7	343.2	23.8	36.02	2.91	18.43	45.86	498.4	672.1	-158.1	-482.4	501.3	506.2
70	26.790	26.880	547.3	457.7	462.7	457.7	292.2	1.8	32.27	.23	30.85	50.74	535.2	723.6	-268.1	-560.4	560.3	562.2
85	28.860	28.900	528.8	450.9	453.2	450.9	272.5	-2.3	31.02	-.28	36.16	53.38	561.4	756.0	-331.2	-606.7	603.6	604.5
90	29.570	29.600	512.8	427.9	435.2	427.8	271.1	3.3	31.93	.45	38.61	55.21	557.0	750.0	-347.4	-615.8	618.5	619.1
95	30.240	30.270	494.2	401.1	414.5	401.1	269.1	4.6	32.99	.66	41.24	57.45	551.3	745.6	-363.4	-628.5	632.5	633.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.51	4.49	18.65	47.93	62.53	2.1082	.4907	.1214	.0288	.0288	.9728	.0000	.0000	.7948	.6127	.4093	.4166	.5241
10	1.23	5.49	19.72	45.24	59.56	2.0305	.4733	.1245	.0306	.0306	.9724	.0000	.0000	.7875	.6071	.4173	.4152	.5287
15	.91	5.24	18.30	44.13	57.06	1.9478	.4525	.0987	.0253	.0253	.9789	.0000	.0000	.8232	.5943	.4238	.4149	.5455
30	-1.66	3.15	16.23	38.68	51.72	1.7534	.4088	.0579	.0165	.0165	.9888	.0000	.0000	.8775	.5623	.4267	.4275	.5735
50	-3.48	2.02	13.70	33.12	44.79	1.5488	.3729	.0384	.0124	.0124	.9935	.0000	.0000	.9027	.5223	.4153	.4462	.5959
70	-5.26	.84	13.04	32.84	44.24	1.3870	.3546	.0304	.0110	.0110	.9954	.0000	.0000	.9076	.4893	.4061	.4778	.6420
85	-5.75	.75	14.76	31.30	45.28	1.2867	.3489	.0341	.0133	.0133	.9952	.0000	.0000	.8876	.4721	.3998	.5008	.6703
90	-4.95	1.65	16.16	31.49	45.96	1.2554	.3734	.0606	.0241	.0241	.9919	.0000	.0000	.8173	.4571	.3786	.4962	.6636
95	-4.18	2.57	16.99	32.33	46.75	1.2271	.4062	.0841	.0343	.0343	.9896	.0000	.0000	.7709	.4393	.3642	.4898	.6583

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4793.	123.90	27.94	1.0558	1.1805	87.035	87.40	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

65% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	335.3	731.6	335.3	423.6	.0	559.6	.00	52.87	39.31	-27.88	433.3	479.3	-274.5	224.2	274.5	335.4
10	14.100	16.790	341.0	663.6	341.0	420.1	.0	539.2	.00	52.06	40.81	-24.06	451.4	460.5	-295.0	187.9	295.0	351.3
15	15.170	17.560	347.9	659.2	347.9	421.0	.0	507.1	.00	50.29	42.36	-18.27	470.9	444.0	-317.4	139.3	317.4	367.8
30	18.280	19.910	362.8	696.5	362.8	409.2	.0	433.8	.00	46.64	46.47	-2.36	527.3	411.2	-382.5	17.3	382.5	416.6
50	22.190	23.090	375.3	535.1	375.3	394.4	.0	361.5	.00	42.49	51.02	17.07	597.1	414.0	-464.3	-121.6	464.3	483.1
70	25.640	26.260	386.8	487.8	380.6	375.3	.0	310.9	.00	39.59	54.87	32.34	662.8	445.7	-541.5	-238.5	541.5	549.4
85	28.450	28.610	381.4	461.2	381.4	358.7	.0	289.9	.00	38.96	57.34	40.72	707.0	473.4	-595.2	-308.7	595.2	598.6
90	29.320	29.410	381.1	442.9	381.1	335.6	.0	288.9	.00	40.76	58.15	44.23	722.2	468.4	-613.4	-326.4	613.4	615.3
95	30.150	30.160	380.6	423.3	380.6	310.0	.0	288.2	.00	42.92	58.89	47.90	736.7	462.5	-630.8	-343.2	630.8	631.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-1.65	5.26	9.03	67.19	71.04	2.4326	.1858	.1502	.0287	.0287	1.2080	.9228	.9206	.0000	.3036	.6345	.3933	.4333
10	-.63	6.00	7.11	64.87	66.06	2.2845	.2638	.1472	.0214	.0214	1.2152	.9439	.9422	.0000	.3099	.6165	.4114	.4153
15	.11	6.38	5.63	60.63	62.95	2.1559	.3252	.0719	.0158	.0158	1.2153	.9585	.9573	.0000	.3157	.5932	.4294	.3995
30	1.27	6.94	11.35	48.83	53.26	1.9038	.4451	.0424	.0111	.0111	1.2103	.9687	.9678	.0000	.3288	.5340	.4793	.3681
50	2.40	7.38	12.55	33.95	39.13	1.6902	.4890	.0262	.0074	.0078	1.2043	.9749	.9742	.0000	.3430	.4768	.5419	.3609
70	3.59	7.80	12.28	22.53	27.01	1.5347	.4807	.0369	.0102	.0102	1.1956	.9568	.9556	.0000	.3459	.4332	.6001	.3959
85	4.00	7.69	10.75	16.62	19.67	1.4422	.4730	.0639	.0168	.0168	1.1902	.9176	.9154	.0000	.3456	.4087	.6413	.4194
90	4.01	7.53	11.95	13.92	18.33	1.4148	.4930	.1050	.0266	.0266	1.1824	.8625	.8590	.0000	.3453	.3917	.6849	.4142
95	3.87	7.25	13.75	10.99	17.48	1.3891	.5131	.1449	.0350	.0350	1.1748	.8071	.8025	.0000	.3448	.3736	.6677	.4082

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4795.	116.20	26.20	1.0570	1.1992	93.599	93.72	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	643.1	413.1	397.6	412.8	505.5	7.9	51.81	1.07	-18.72	42.69	419.8	561.8	134.7	-380.9	370.7	388.7
10	18.350	19.110	639.9	422.6	406.6	421.3	494.0	32.3	50.54	4.36	-15.15	41.10	421.4	559.1	110.1	-367.5	383.9	399.8
15	19.070	19.740	627.7	429.7	417.7	428.3	468.4	34.3	48.27	4.58	-9.45	41.48	423.9	571.8	69.4	-378.7	399.0	413.0
30	21.140	21.600	593.6	438.6	430.4	437.9	408.6	22.1	43.49	2.89	4.43	44.45	432.7	613.7	-33.7	-429.8	442.3	451.9
50	23.970	24.200	553.6	436.2	436.7	435.5	348.2	24.3	38.55	3.19	19.29	47.88	463.6	649.7	-153.3	-482.0	501.5	506.3
70	26.790	26.880	527.3	430.0	430.3	429.4	304.7	13.3	35.29	1.77	36.69	51.94	501.0	697.4	-255.8	-548.1	560.8	562.4
85	28.860	28.900	509.1	421.9	420.3	421.8	287.2	8.4	34.35	1.14	36.99	54.72	526.3	730.5	-316.6	-596.3	603.8	604.7
90	29.570	29.600	494.4	401.0	402.5	400.8	287.0	11.9	35.51	1.70	39.50	56.58	521.7	727.8	-331.6	-607.4	618.7	619.3
95	30.240	30.270	478.1	379.1	381.9	378.9	287.6	12.2	36.98	1.84	42.10	58.62	514.2	727.6	-345.1	-621.1	632.7	633.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.22	6.19	17.56	50.74	62.53	2.1084	.5365	.1274	.0302	.0302	.9742	.0000	.0000	.8005	.5767	.3640	.3772	.4950
10	2.66	6.92	20.32	46.16	59.54	2.0314	.5130	.1337	.0328	.0328	.9732	.0000	.0000	.7806	.5724	.3725	.3788	.4928
15	2.26	6.59	20.06	43.69	57.03	1.9494	.4893	.1155	.0295	.0295	.9776	.0000	.0000	.8084	.5614	.3791	.3806	.5045
30	.94	5.74	16.84	40.60	51.69	1.7589	.4443	.0632	.0180	.0180	.9869	.0000	.0000	.8751	.5306	.3875	.3874	.5423
50	-.92	4.57	13.96	35.35	44.76	1.5495	.4049	.0443	.0143	.0143	.9931	.0000	.0000	.8959	.4991	.3858	.4136	.5746
70	-2.23	3.87	14.57	31.53	44.23	1.3872	.3832	.0377	.0136	.0136	.9947	.0000	.0000	.8973	.4702	.3803	.4457	.6169
85	-2.43	4.07	16.17	33.21	45.27	1.2868	.3838	.0464	.0180	.0180	.9939	.0000	.0000	.8665	.4532	.3728	.4682	.6455
90	-1.39	5.21	17.43	33.80	45.96	1.2554	.4105	.0712	.0283	.0283	.9912	.0000	.0000	.8099	.4395	.3637	.4634	.6419
95	-.19	6.56	18.17	35.14	46.76	1.2271	.4417	.0876	.0357	.0357	.9898	.0000	.0000	.7795	.4236	.3336	.4359	.6404

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4795.	116.20	26.20	1.0570	1.1869	88.133	88.40	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

65% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	309.6	676.7	309.8	378.3	.0	561.1	.00	56.01	41.53	-30.82	413.9	440.6	-274.4	225.8	274.4	335.3
10	14.160	16.790	315.7	656.8	315.7	380.7	.0	538.1	.00	54.56	43.04	-25.75	432.0	423.2	-294.9	183.9	294.9	351.2
15	15.170	17.580	321.5	633.9	321.5	386.5	.0	502.3	.00	52.41	44.61	-19.16	451.8	409.9	-317.3	134.6	317.3	367.7
30	18.280	19.910	335.1	576.9	335.1	375.9	.0	437.8	.00	49.31	48.73	-3.14	508.5	378.0	-382.3	21.1	382.3	416.4
50	22.190	23.090	345.7	521.0	345.7	364.0	.0	372.7	.00	45.65	53.29	16.77	578.8	384.6	-464.1	-110.3	464.1	482.9
70	25.880	26.260	349.7	480.8	349.7	353.1	.0	326.1	.00	42.78	57.12	32.23	644.6	415.3	-541.3	-223.2	541.3	548.2
85	28.450	28.610	349.3	453.2	349.3	329.3	.0	311.2	.00	43.41	59.58	41.11	690.0	437.2	-595.1	-287.2	595.1	598.4
90	29.320	29.410	348.7	436.4	348.7	304.1	.0	318.9	.00	46.85	60.38	44.85	706.5	489.0	-613.2	-308.2	613.2	615.1
95	30.150	30.180	348.0	422.5	348.0	283.9	.0	313.2	.00	47.84	61.11	48.27	720.2	426.2	-630.6	-318.0	630.6	631.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	.58	7.49	6.14	72.35	71.11	2.4319	.2419	.2067	.0365	.0365	1.2048	.9079	.9053	.0000	.2803	.6100	.3756	.3972
10	1.61	8.23	6.43	68.80	66.69	2.2836	.3151	.1442	.0284	.0284	1.2100	.9302	.9282	.0000	.2862	.5908	.3939	.3807
15	2.35	8.61	7.75	63.76	62.98	2.1546	.3696	.0935	.0205	.0205	1.2109	.9498	.9484	.0000	.2916	.5691	.4123	.3600
30	3.63	9.18	10.66	51.87	53.29	1.9026	.4921	.0622	.0163	.0163	1.2096	.9577	.9565	.0000	.3034	.5153	.4628	.3576
50	4.67	9.64	12.25	36.52	39.15	1.6694	.5348	.0466	.0132	.0132	1.2073	.9593	.9581	.0000	.3128	.4633	.5258	.3394
70	5.06	10.05	12.14	24.89	26.98	1.5343	.5169	.0493	.0136	.0136	1.2036	.9476	.9461	.0000	.3168	.4261	.5648	.3709
85	6.24	9.91	11.17	18.47	19.71	1.4421	.5233	.0960	.0251	.0251	1.1981	.8893	.8863	.0000	.3158	.4005	.6260	.3864
90	6.23	9.74	12.58	15.53	18.34	1.4148	.5489	.1414	.0354	.0354	1.1916	.8352	.8309	.0000	.3152	.3849	.6394	.3783
95	6.08	9.45	14.11	12.84	17.48	1.3891	.5649	.1733	.0415	.0415	1.1868	.7952	.7900	.0000	.3146	.3720	.6520	.3752

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4793.	107.92	24.33	1.0591	1.2036	92.877	96.87	5.0	6.0	86.08	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.560	618.3	375.0	353.6	374.8	507.2	.4	55.12	.05	-21.12	46.00	379.1	539.7	136.6	-388.2	370.6	388.6
10	18.350	19.110	611.9	380.8	364.8	379.6	491.2	29.4	53.39	4.42	-16.41	44.29	388.5	530.3	107.4	-370.3	383.8	399.7
15	19.070	19.740	600.4	384.7	380.6	382.9	464.1	37.2	50.62	5.55	-9.74	44.45	386.7	536.4	65.2	-375.7	398.9	412.9
30	21.140	21.600	570.2	400.5	394.1	399.9	412.0	22.3	46.26	3.19	4.33	47.04	396.2	586.9	-36.2	-429.5	442.2	451.8
50	23.970	24.200	539.5	405.4	402.6	404.4	359.0	27.8	41.71	3.93	19.39	49.77	427.8	626.5	-142.4	-478.4	501.4	506.2
70	26.790	26.886	514.0	406.1	406.8	406.8	319.4	14.3	38.41	2.01	30.85	53.46	469.7	681.0	-241.0	-547.0	560.3	562.8
85	28.860	28.900	494.9	393.9	387.5	393.7	307.8	13.2	38.47	1.93	37.37	56.34	487.6	710.4	-295.8	-591.2	603.6	604.5
90	29.570	29.600	481.1	374.1	367.6	373.9	310.4	14.0	40.20	2.14	39.98	58.29	479.6	711.4	-308.0	-605.1	616.5	619.1
95	30.240	30.270	469.7	358.0	350.6	357.7	312.5	13.7	41.71	2.19	42.38	59.99	474.7	715.3	-320.0	-619.5	632.5	633.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	5.41	9.36	16.53	55.07	62.52	2.1087	.5831	.1339	.0318	.0318	.9748	.0000	.0000	.8066	.5522	.3297	.3395	.4744
10	5.40	9.65	20.35	48.98	59.53	2.0317	.5591	.1423	.0349	.0349	.9737	.0000	.0000	.7931	.5462	.3349	.3416	.4664
15	4.66	6.98	20.97	45.08	57.02	1.9502	.5378	.1364	.0346	.0348	.9757	.0000	.0000	.7915	.5362	.3385	.3464	.4721
30	3.76	8.56	17.16	43.07	51.68	1.7564	.4897	.0817	.0232	.0232	.9868	.0000	.0000	.8529	.5093	.3529	.3535	.5172
50	2.28	7.76	14.66	37.77	44.71	1.5505	.4453	.0550	.0177	.0177	.9920	.0000	.0000	.8833	.4812	.3575	.3800	.5524
70	.87	6.96	14.81	36.39	44.21	1.3877	.4234	.0489	.0176	.0176	.9935	.0000	.0000	.8834	.4676	.3582	.4167	.6018
85	1.60	8.09	16.95	36.55	45.27	1.2870	.4352	.0724	.0281	.0281	.9910	.0000	.0000	.8246	.4399	.3468	.4329	.6285
90	3.24	9.84	17.80	38.06	48.96	1.2556	.4676	.0986	.0392	.0392	.9884	.0000	.0000	.7742	.4266	.3287	.4250	.6250
95	4.57	11.31	18.51	39.52	46.75	1.2272	.4969	.1176	.0479	.0479	.9869	.0000	.0000	.7366	.4150	.3139	.4188	.6273

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4793.	107.92	24.33	1.0591	1.1891	86.948	86.87	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

65% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B*-1 DEGREE	B*-2 DEGREE	V*-1 FT/SEC	V*-2 FT/SEC	V0*-1 FT/SEC	V0*-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	275.9	657.7	275.9	342.4	.0	561.5	.00	58.62	44.85	-33.42	389.2	410.6	-274.5	226.1	274.5	335.4
10	14.100	16.790	281.1	635.6	281.1	349.1	.0	531.1	.00	56.67	46.37	-27.21	407.5	393.1	-295.0	179.8	295.0	351.3
15	15.170	17.580	286.3	612.7	286.3	353.8	.0	500.1	.00	54.72	47.93	-20.47	427.5	378.2	-317.4	132.3	317.4	367.8
30	18.280	19.910	298.1	561.6	298.1	349.1	.0	439.8	.00	51.54	52.03	-3.72	485.0	351.3	-382.4	23.3	382.4	416.6
50	22.190	23.696	306.2	509.1	306.2	333.0	.0	385.1	.00	49.13	56.56	16.33	556.2	348.3	-464.3	-98.0	464.3	483.1
70	25.880	26.260	307.5	470.2	307.5	314.5	.0	349.5	.00	48.04	60.39	32.44	622.7	373.5	-541.5	-199.9	541.5	549.4
85	28.450	28.610	305.2	437.0	305.2	268.2	.0	344.8	.00	52.14	62.85	43.42	668.9	369.5	-595.2	-253.7	595.2	598.6
90	29.320	29.410	304.1	426.2	304.1	246.1	.0	347.8	.00	54.73	63.63	47.41	684.7	363.8	-613.4	-267.5	613.4	615.3
95	30.180	30.180	303.0	417.1	303.0	230.4	.0	347.7	.00	56.48	64.34	50.90	699.8	365.6	-630.8	-283.7	630.8	631.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-S SHOCK	M-1	M-2	M*-1	M*-2
5	3.91	10.82	3.58	78.27	71.16	2.4315	.2715	.2439	.0419	.0419	1.2040	.9036	.9010	.0000	.2492	.5916	.3530	.3692
10	4.95	11.56	4.00	73.58	66.12	2.2829	.3456	.1737	.0338	.0338	1.2070	.9244	.9223	.0000	.2545	.5706	.3716	.3529
15	5.69	11.94	6.46	68.40	63.01	2.1538	.4067	.1255	.0273	.0273	1.2075	.9394	.9377	.0000	.2603	.5490	.3904	.3389
30	6.83	12.47	10.01	55.75	53.32	1.9013	.5240	.0719	.0189	.0189	1.2104	.9556	.9544	.0000	.2696	.5009	.4422	.3133
50	7.96	12.89	11.81	40.23	39.16	1.6884	.5826	.0746	.0212	.0212	1.2104	.9416	.9400	.0000	.2765	.4819	.5066	.3098
70	9.16	13.32	12.28	27.95	26.92	1.5338	.5845	.1022	.0281	.0281	1.2085	.9048	.9021	.0000	.2773	.4157	.5661	.3302
85	9.51	13.16	13.52	19.43	19.76	1.4420	.6269	.1857	.0468	.0468	1.2010	.8156	.8106	.0000	.2751	.3846	.6074	.3252
90	9.47	12.97	15.13	16.22	18.34	1.4148	.6484	.2198	.0526	.0526	1.1988	.7795	.7737	.0000	.2741	.3744	.6205	.3196
95	9.29	12.64	16.75	13.44	17.48	1.3890	.6567	.2393	.0543	.0543	1.1975	.7589	.7495	.0000	.2733	.3659	.6328	.3204

NCOR-1 RPM	WCOR-1 LBM/SEC	WG/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4795.0	96.23	21.70	1.0620	1.2067	89.017	89.33	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B*-1 DEGREE	B*-2 DEGREE	V*-1 FT/SEC	V*-2 FT/SEC	V0*-1 FT/SEC	V0*-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.660	597.6	339.5	314.4	338.9	508.2	-12.2	58.26	-2.07	-23.61	49.78	343.2	525.0	137.4	-400.9	370.7	388.7
10	18.350	19.110	588.2	339.6	329.0	338.8	487.5	20.8	55.99	3.52	-17.49	48.20	345.1	508.4	103.6	-379.0	383.9	399.8
15	19.070	19.740	574.7	341.9	341.9	340.2	461.9	34.3	53.48	5.75	-10.44	48.07	348.0	509.1	62.9	-378.7	399.0	413.0
30	21.140	21.600	548.0	366.1	360.4	365.0	413.8	28.2	46.94	4.42	4.47	49.25	362.3	559.2	-28.4	-423.7	442.3	451.9
50	23.970	24.260	520.0	376.0	384.8	376.4	370.6	27.5	45.44	4.19	19.67	51.98	388.3	608.2	-130.9	-478.8	501.8	506.3
70	26.790	26.880	495.0	373.2	358.2	372.5	341.6	23.5	43.65	3.60	31.43	55.33	420.3	655.3	-218.9	-538.9	560.3	562.4
85	28.860	28.900	468.8	341.5	322.4	341.2	340.2	14.3	46.55	2.39	39.27	59.96	416.6	681.9	-263.6	-590.3	603.8	604.6
90	29.570	29.600	460.1	331.4	305.0	331.3	344.4	7.1	48.48	1.22	41.98	61.57	410.3	696.1	-274.3	-612.2	618.7	619.3
95	30.240	30.270	463.1	326.2	291.4	326.1	346.9	5.2	49.96	.91	44.43	62.64	408.2	707.3	-285.8	-628.1	632.7	633.3

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1 SHOCK	OMEGA-S TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M*-1	M*-2
5	8.39	12.34	14.42	60.36	62.52	2.1089	.6336	.1546	.0366	.0366	.9727	.0000	.0000	.7928	.5319	.2979	.3069	.4607
10	8.06	12.32	19.44	52.47	59.52	2.0323	.6134	.1706	.0419	.0419	.9707	.0000	.0000	.7684	.5236	.2980	.3085	.4462
15	7.57	11.64	21.17	47.74	56.99	1.9515	.5918	.1671	.0426	.0426	.9725	.0000	.0000	.7628	.5125	.3002	.3109	.4470
30	6.48	11.26	28.39	44.52	51.65	1.7585	.5302	.1168	.0331	.0331	.9824	.0000	.0000	.8066	.4898	.3219	.3224	.4918
50	6.62	11.49	34.91	41.24	44.67	1.6519	.4882	.0855	.0275	.0275	.9884	.0000	.0000	.8361	.4631	.3307	.3434	.5349
70	5.96	12.04	46.46	40.05	44.21	1.3682	.4770	.0987	.0355	.0355	.9878	.0000	.0000	.7965	.4399	.3279	.3723	.5758
85	9.56	16.06	17.46	44.16	48.29	1.2872	.5415	.1724	.0669	.0669	.9808	.0000	.0000	.6642	.4147	.2989	.3682	.5968
90	11.43	18.02	16.94	47.26	45.96	1.2557	.5715	.1929	.0768	.0768	.9794	.0000	.0000	.6312	.4060	.2896	.3620	.6083
95	12.86	19.59	17.24	49.05	46.75	1.2272	.5896	.2035	.0829	.0829	.9789	.0000	.0000	.6021	.3987	.2837	.3581	.6171

NCOR-1 RPM	WCOR-1 LBM/SEC	WG/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
4795.0	96.23	21.70	1.0620	1.1858	80.495	81.02	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	491.9	945.7	491.9	606.0	.0	726.1	.00	50.15	34.80	-27.31	596.9	882.1	-338.1	313.0	338.1	413.1
10	14.100	16.790	501.7	925.2	501.7	600.6	.0	703.7	.00	49.52	35.91	-24.27	619.4	859.2	-363.3	271.1	363.3	432.6
15	15.170	17.580	511.6	891.7	511.6	601.1	.0	658.4	.00	47.58	37.37	-16.82	643.9	836.1	-390.9	208.4	390.9	453.0
30	18.280	19.910	535.8	800.3	535.4	592.3	.0	537.8	.00	42.20	41.31	-2.34	713.3	594.9	-471.0	24.8	471.0	513.0
50	22.190	23.090	555.0	707.2	555.0	562.7	.0	428.1	.00	37.23	45.83	16.47	797.0	588.7	-571.8	-166.9	571.8	595.0
70	25.880	26.260	563.1	636.4	563.1	533.5	.0	346.9	.00	33.02	49.80	31.66	872.9	628.0	-666.9	-329.8	666.9	676.7
85	28.450	28.610	563.6	593.5	563.6	504.8	.0	312.2	.00	31.75	52.44	40.10	924.8	660.1	-733.1	-425.0	733.1	737.2
90	29.320	29.410	562.9	567.5	562.9	477.0	.0	307.3	.00	32.82	53.31	43.38	942.2	656.5	-755.5	-450.5	755.5	757.8
95	30.150	30.180	562.1	540.6	562.1	447.3	.0	303.7	.00	34.18	54.11	46.65	958.9	651.7	-776.9	-474.0	776.9	777.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.47	.44	9.56	61.82	71.01	2.4326	.1322	.1769	.0323	.0323	1.3355	.8993	.8950	.0000	.4502	.8676	.5472	.6257
10	-5.56	1.08	6.88	60.18	66.03	2.2848	.2060	.1144	.0228	.0228	1.3550	.9311	.9280	.0000	.4603	.8454	.5702	.6024
15	-4.91	1.37	8.07	56.20	62.94	2.1560	.2665	.0792	.0174	.0174	1.3540	.9475	.9452	.0000	.4697	.8116	.5932	.5789
30	-3.90	1.77	11.37	43.65	53.26	1.9038	.3720	.0358	.0094	.0094	1.3327	.9688	.9675	.0000	.4916	.7219	.6566	.5366
50	-2.79	2.18	11.95	29.35	39.13	1.6899	.4231	.0333	.0094	.0094	1.3026	.9626	.9612	.0000	.5101	.6329	.7341	.5268
70	-1.46	2.74	11.58	18.14	26.99	1.5345	.4108	.0372	.0103	.0103	1.2723	.9479	.9461	.0000	.5176	.5670	.8036	.5295
85	-.89	2.79	10.15	12.35	19.70	1.4421	.4036	.0667	.0177	.0177	1.2507	.8966	.8934	.0000	.5180	.5270	.8515	.5861
90	-.83	2.68	11.11	9.93	18.34	1.4148	.4187	.1063	.0273	.0273	1.2337	.8322	.8272	.0000	.5173	.5025	.8671	.5812
95	-.91	2.47	12.50	7.46	17.48	1.3891	.4344	.1451	.0358	.0358	1.2165	.7662	.7596	.0000	.5165	.4773	.8817	.5754

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5905.6	160.34	36.15	1.0818	1.2907	92.492	92.82	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	880.0	615.7	587.0	615.1	655.6	25.8	48.16	2.39	-18.73	36.37	619.9	763.9	199.0	-453.0	456.6	478.8
10	18.350	19.110	881.7	630.0	601.6	628.9	644.6	37.6	46.98	3.43	-15.93	35.87	625.7	776.1	171.7	-454.8	472.8	492.4
15	19.070	19.760	866.3	640.5	616.2	639.8	608.7	31.2	44.64	2.80	-10.78	36.73	627.9	798.3	117.3	-477.4	491.4	508.7
30	21.140	21.600	814.6	633.3	637.4	632.6	506.7	28.8	38.46	2.61	3.39	39.83	640.0	824.0	-38.0	-527.8	544.7	556.6
50	23.970	24.200	755.1	614.2	632.5	613.3	412.3	32.3	33.08	3.01	17.94	43.94	666.1	852.2	-205.4	-591.3	617.7	623.6
70	26.790	26.980	702.9	596.2	615.1	596.1	340.0	2.0	28.92	.19	29.63	49.18	708.5	912.5	-350.4	-690.6	690.3	692.6
85	28.860	28.900	669.5	575.6	593.7	575.6	309.4	-5.4	27.53	-.53	36.18	52.50	735.7	945.6	-434.2	-750.1	743.7	744.7
90	29.570	29.600	648.4	545.0	571.9	545.0	305.5	.5	28.12	.06	38.61	54.44	731.9	937.3	-456.5	-762.2	762.8	762.7
95	30.240	30.270	626.1	510.4	547.9	510.4	303.1	2.5	28.95	.28	40.99	56.72	725.9	930.1	-476.2	-777.5	779.2	780.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.42	2.56	18.89	43.77	62.54	2.1077	.4657	.1208	.0286	.0286	.9585	.0000	.0000	.0171	.7998	.5418	.5645	.6722
10	-.89	3.36	19.38	43.55	59.53	2.0296	.4512	.1321	.0325	.0325	.9545	.0000	.0000	.0853	.7975	.5549	.5680	.6836
15	-1.56	2.78	18.23	41.84	57.08	1.9469	.4284	.1065	.0273	.0273	.9644	.0000	.0000	.5486	.7816	.5654	.5700	.7046
30	-4.22	.60	16.57	35.85	51.75	1.7524	.3877	.0667	.0190	.0190	.9798	.0000	.0000	.9218	.7337	.5605	.5789	.7293
50	-6.47	-.96	13.81	30.67	44.82	1.5482	.3581	.0453	.0146	.0146	.9879	.0000	.0000	.9437	.6788	.5443	.5999	.7553
70	-8.63	-2.51	13.02	28.73	44.26	1.3867	.3248	.0313	.0113	.0113	.9926	.0000	.0000	.9391	.6306	.5291	.6357	.8098
85	-9.22	-2.72	14.51	28.06	45.29	1.2866	.3228	.0370	.0144	.0144	.9920	.0000	.0000	.8936	.5989	.5103	.6582	.8382
90	-8.73	-2.12	15.78	28.06	45.96	1.2554	.3466	.0652	.0260	.0260	.9868	.0000	.0000	.8381	.5786	.4817	.6531	.8283
95	-8.24	-1.48	16.60	28.67	46.76	1.2271	.3803	.0950	.0387	.0387	.9819	.0000	.0000	.7876	.5571	.4495	.6460	.8192

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5905.6	160.34	36.15	1.0818	1.2691	86.154	86.69	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	15.120	16.030	473.4	914.6	473.4	574.3	.0	711.9	.00	51.11	35.49	-27.54	581.5	647.7	-337.5	299.5	337.5	412.4
10	14.100	16.790	482.8	892.2	482.8	565.7	.0	689.8	.00	50.64	36.92	-24.47	603.9	622.0	-362.8	257.9	362.8	432.0
15	15.170	17.580	492.2	860.1	492.2	567.5	.0	646.0	.00	48.68	38.40	-18.81	628.2	600.5	-390.3	193.7	390.3	452.3
30	18.280	19.910	515.0	774.9	515.0	564.5	.0	530.5	.00	43.18	42.37	-1.79	697.6	566.8	-470.3	18.3	470.3	512.2
50	22.190	23.090	533.8	687.5	533.8	534.8	.0	431.8	.00	38.89	46.90	16.83	781.7	560.5	-570.9	-162.2	570.9	594.0
70	25.880	26.260	541.8	621.3	541.8	509.1	.0	356.0	.00	34.95	50.85	32.05	858.5	602.0	-665.8	-319.6	665.8	675.6
85	28.450	28.610	542.6	580.7	542.6	484.4	.0	320.3	.00	33.47	53.45	40.64	911.1	638.7	-731.9	-415.8	731.9	736.1
90	29.320	29.410	542.6	556.9	542.0	459.4	.0	314.6	.00	34.43	54.30	43.90	926.9	637.8	-754.3	-442.0	754.3	756.6
95	30.150	30.180	541.3	533.1	541.3	432.9	.0	311.1	.00	35.70	55.09	47.06	945.9	635.6	-775.7	-465.4	775.7	776.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01 TOTAL	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.48	1.43	9.35	63.02	71.02	2.4325	.1628	.1541	.0281	.0281	1.3343	.9147	.9112	.0000	.4327	.8359	.5324	.5919
10	-4.55	2.09	6.66	61.39	66.04	2.2847	.2416	.1081	.0215	.0215	1.3491	.9366	.9338	.0000	.4422	.8121	.5552	.5662
15	-3.88	2.40	8.03	57.21	62.94	2.1560	.2999	.0712	.0156	.0156	1.3487	.9539	.9519	.0000	.4511	.7800	.5779	.5446
30	-2.84	2.83	11.91	44.17	53.26	1.9038	.3952	.0154	.0040	.0040	1.3339	.9861	.9855	.0000	.4720	.6972	.6410	.5100
50	-1.72	3.25	12.31	30.07	39.13	1.6899	.4494	.0221	.0063	.0063	1.3097	.9757	.9747	.0000	.4896	.6137	.7185	.5004
70	-.42	3.78	11.98	18.79	27.00	1.5345	.4347	.0261	.0072	.0072	1.2852	.9649	.9636	.0000	.4970	.5522	.7884	.5350
85	.11	3.80	10.63	12.81	19.69	1.4422	.4212	.0493	.0130	.0130	1.2670	.9270	.9245	.0000	.4977	.5146	.8371	.5659
90	.16	3.68	11.63	10.40	18.34	1.4148	.4333	.0847	.0216	.0216	1.2522	.8723	.8682	.0000	.4971	.4922	.8530	.5637
95	.07	3.45	12.91	8.03	17.48	1.3891	.4464	.1201	.0294	.0294	1.2376	.8155	.8099	.0000	.4964	.4700	.8680	.5604

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5896.0	155.74	35.12	1.0823	1.2993	94.451	94.68	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	848.4	573.9	553.7	573.4	642.8	21.5	49.26	2.14	-18.65	38.53	584.4	732.9	186.9	-456.5	455.9	478.0
10	18.350	19.110	846.6	588.0	563.5	586.7	631.9	39.7	48.27	3.87	-15.83	37.61	565.8	740.5	159.8	-451.9	472.1	491.7
15	19.070	19.740	831.5	597.6	578.2	596.4	597.2	36.4	45.92	3.50	-10.46	38.32	588.6	760.3	106.6	-471.4	490.6	507.9
30	21.140	21.600	784.3	598.7	604.1	598.1	499.8	28.3	39.58	2.71	4.14	41.40	607.0	797.5	-44.1	-527.4	543.9	555.7
50	23.970	24.200	729.8	584.2	599.5	583.4	415.9	30.3	34.73	2.97	18.47	45.42	633.3	831.6	-200.8	-592.3	616.7	622.6
70	26.790	26.880	681.9	569.3	585.8	569.2	348.9	4.8	30.77	.48	30.12	50.33	678.1	892.1	-340.4	-686.7	689.2	691.6
85	28.860	28.900	650.8	550.5	568.2	550.5	317.4	-3.2	29.19	-.32	36.80	53.60	709.7	927.8	-425.1	-746.7	742.5	743.5
90	29.570	29.600	631.5	523.5	548.5	523.5	312.8	2.9	29.70	.33	39.25	55.40	708.4	921.8	-448.0	-758.6	760.8	761.5
95	30.240	30.270	611.9	496.1	527.3	496.1	310.4	4.8	30.48	.55	41.56	57.34	704.8	919.4	-467.6	-774.0	778.0	778.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01 SHOCK	OMEGA-B TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	-.26	3.71	18.63	47.12	62.54	2.1077	.4928	.1284	.0304	.0304	.9585	.0000	.0000	.7970	.7673	.5035	.5290	.6431
10	.40	4.66	19.83	44.40	59.58	2.0296	.4738	.1330	.0327	.0327	.9572	.0000	.0000	.7891	.7626	.5164	.5296	.6503
15	-.28	4.05	18.93	42.42	57.08	1.9470	.4511	.1112	.0285	.0285	.9653	.0000	.0000	.8175	.7476	.5258	.5327	.6689
30	-3.07	1.75	16.68	36.87	51.73	1.7527	.4057	.0654	.0186	.0186	.9815	.0000	.0000	.8722	.7045	.5285	.5474	.7039
50	-4.79	.71	13.76	31.77	44.81	1.5484	.3690	.0434	.0140	.0140	.9892	.0000	.0000	.8979	.6541	.5161	.5683	.7347
70	-6.77	-.66	13.30	30.28	44.25	1.3868	.3466	.0337	.0122	.0122	.9925	.0000	.0000	.9031	.6099	.5035	.6064	.7891
85	-7.56	-1.06	14.72	29.52	45.29	1.2866	.3453	.0423	.0165	.0165	.9914	.0000	.0000	.8689	.5807	.4865	.6331	.8199
90	-7.15	-.55	16.04	29.37	45.96	1.2554	.3663	.0664	.0264	.0264	.9872	.0000	.0000	.8116	.5622	.4614	.6306	.8125
95	-6.70	.06	16.86	29.93	46.76	1.2271	.3926	.0833	.0340	.0340	.9848	.0000	.0000	.7818	.5433	.4361	.6257	.8081

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5896.0	155.74	35.12	1.0823	1.2786	88.468	88.88	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction
80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	466.3	906.1	466.3	657.5	.0	706.4	.00	51.22	35.98	-27.28	576.3	638.6	-338.6	292.7	338.6	413.7
10	14.100	16.790	475.5	883.4	475.5	559.0	.0	684.0	.00	50.74	37.42	-24.13	598.7	612.9	-363.9	250.7	363.9	433.3
15	15.170	17.580	484.7	851.5	484.7	560.3	.0	640.9	.00	48.82	38.92	-18.44	623.1	591.6	-391.5	187.2	391.5	453.7
30	18.280	19.910	506.9	769.5	506.9	554.0	.0	533.8	.00	43.90	42.91	-2.01	692.6	556.3	-471.7	20.0	471.7	513.8
50	22.190	23.090	525.2	683.4	525.2	526.0	.0	436.1	.00	39.63	47.45	16.84	777.1	551.4	-572.6	-159.8	572.6	595.9
70	25.880	26.260	532.9	619.9	532.9	502.5	.0	362.9	.00	35.82	51.39	32.00	854.5	593.7	-667.9	-314.8	667.9	677.7
85	28.450	28.610	533.6	583.5	533.6	479.4	.0	332.6	.00	34.76	53.99	40.24	907.6	628.3	-734.2	-405.7	734.2	738.3
90	29.320	29.410	533.0	556.2	533.0	450.9	.0	328.9	.00	36.14	54.84	43.66	925.5	623.5	-756.6	-430.1	756.6	759.0
95	30.150	30.180	532.2	531.9	532.2	420.6	.0	325.6	.00	37.75	55.63	47.13	942.7	618.4	-778.1	-453.2	778.1	778.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-D SHOCK	M-1	M-2	M'-1	M'-2
5	-4.98	1.93	9.62	83.26	71.03	2.4325	.1689	.1539	.0281	.0281	1.3331	.9160	.9125	.0000	.4259	.8273	.5275	.5830
10	-4.04	2.60	7.03	61.55	66.05	2.2846	.2480	.1099	.0219	.0219	1.3468	.9363	.9336	.0000	.4353	.8032	.5503	.5573
15	-3.36	2.92	8.45	57.35	62.94	2.1559	.3064	.0742	.0163	.0163	1.3463	.9526	.9506	.0000	.4440	.7715	.5731	.5360
30	-2.29	3.37	11.70	44.92	53.26	1.9037	.4075	.0249	.0065	.0065	1.3346	.9789	.9780	.0000	.4643	.6916	.6361	.5000
50	-1.17	3.86	12.32	30.60	39.13	1.6899	.4595	.0277	.0078	.0078	1.3123	.9706	.9695	.0000	.4813	.6095	.7138	.4918
70	.13	4.33	11.93	19.39	27.00	1.5345	.4444	.0306	.0085	.0085	1.2907	.9602	.9587	.0000	.4885	.5504	.7843	.5272
85	.65	4.33	10.23	13.75	19.69	1.4421	.4352	.0578	.0153	.0153	1.2762	.9182	.9154	.0000	.4890	.5164	.8334	.5560
90	.76	4.21	11.39	11.17	18.34	1.4148	.4522	.0996	.0255	.0255	1.2603	.8573	.8526	.0000	.4884	.4926	.8495	.5501
95	.61	3.98	12.98	8.50	17.48	1.3891	.4684	.1390	.0340	.0340	1.2441	.7970	.7907	.0000	.4877	.4680	.8644	.5441

WCOR-1 RPM	WCOR-2 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5914.0	153.79	34.68	1.0839	1.3029	93.696	93.93	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	838.2	560.8	543.8	560.3	637.8	19.0	49.55	1.93	-18.36	39.81	573.0	725.3	180.5	-460.5	457.3	479.5
10	18.350	19.110	836.0	573.7	553.2	572.5	626.7	37.3	48.56	3.73	-15.47	38.52	574.2	731.8	153.1	-455.8	473.5	493.2
15	19.070	19.740	820.6	583.3	567.6	582.2	592.4	35.2	46.22	3.46	-10.04	39.16	577.0	750.9	100.3	-474.2	492.1	509.4
30	21.140	21.600	776.7	587.7	591.6	587.0	502.9	29.0	40.35	2.83	4.09	41.98	594.4	789.9	-42.6	-528.4	545.5	557.4
50	23.970	24.200	723.6	573.2	589.1	572.4	420.0	31.0	35.47	3.10	18.57	46.02	622.7	824.7	-198.5	-593.5	618.6	624.5
70	26.790	26.880	678.6	561.3	577.9	561.1	355.6	11.0	31.60	1.12	30.11	50.56	668.9	883.8	-335.7	-682.7	691.4	693.7
85	28.860	28.900	651.8	547.2	562.3	547.2	329.6	3.2	30.38	.34	36.44	53.62	699.1	922.5	-415.2	-742.6	744.8	745.8
90	29.570	29.600	631.3	517.6	540.0	517.5	326.9	8.9	31.20	.99	38.94	55.57	694.4	915.5	-436.2	-755.0	763.1	763.9
95	30.240	30.270	609.4	486.5	515.5	486.4	324.9	10.2	32.22	1.20	41.46	57.75	687.9	911.6	-455.5	-770.9	780.4	781.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.02	3.99	18.42	47.62	62.53	2.1081	.5016	.1293	.0306	.0306	.9591	.0000	.0000	.7986	.7571	.4916	.5180	.6358
10	.69	4.95	19.69	44.83	59.56	2.0303	.4833	.1345	.0331	.0331	.9576	.0000	.0000	.7903	.7522	.5033	.5185	.6420
15	.08	4.41	18.91	42.75	57.06	1.9477	.4601	.1113	.0285	.0285	.9660	.0000	.0000	.8187	.7375	.5126	.5215	.6599
30	-2.27	2.55	16.88	37.52	51.72	1.7532	.4150	.0637	.0181	.0181	.9823	.0000	.0000	.8771	.6971	.5180	.5351	.6962
50	-4.14	1.46	13.83	32.37	44.79	1.5486	.3802	.0429	.0138	.0138	.9894	.0000	.0000	.9018	.6480	.5057	.5580	.7276
70	-5.93	.17	13.94	30.48	44.25	1.3869	.3556	.0317	.0114	.0114	.9930	.0000	.0000	.9123	.6064	.4957	.5972	.7805
85	-6.38	.12	15.31	30.04	45.29	1.2867	.3549	.0394	.0153	.0153	.9919	.0000	.0000	.8829	.5809	.4827	.6228	.8138
90	-5.67	.94	16.71	30.21	45.96	1.2554	.3806	.0664	.0264	.0264	.9872	.0000	.0000	.8203	.5612	.4552	.6171	.8052
95	-4.96	1.80	17.53	31.02	46.76	1.2271	.4120	.0866	.0353	.0353	.9844	.0000	.0000	.7852	.5399	.4265	.6094	.7992

WCOR-1 RPM	WCOR-2 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5914.0	153.79	34.68	1.0838	1.2827	87.980	88.49	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	434.1	872.2	434.1	525.0	.0	696.5	.00	52.99	37.92	-28.34	550.3	596.6	-338.2	283.3	338.2	413.2
10	14.100	16.790	442.5	849.0	442.5	523.7	.0	668.1	.00	51.90	39.39	-24.17	572.7	574.6	-363.4	235.3	363.4	432.8
15	15.170	17.580	451.0	819.3	451.0	528.6	.0	625.8	.00	49.80	40.91	-18.05	597.0	556.8	-391.0	172.7	391.0	453.1
30	18.280	19.910	471.6	741.3	471.6	513.3	.0	534.7	.00	46.15	44.94	-2.33	666.8	515.5	-471.2	21.5	471.2	513.2
50	22.190	23.090	489.2	663.6	489.2	489.0	.0	448.6	.00	42.51	49.43	16.63	752.8	512.1	-572.0	-146.6	572.0	595.2
70	25.880	26.260	497.6	604.7	497.6	468.6	.0	362.1	.00	39.19	53.26	32.11	832.3	554.3	-667.1	-294.8	667.1	676.9
85	28.450	28.610	499.0	568.7	499.0	445.0	.0	354.1	.00	38.52	55.76	40.76	887.0	587.6	-733.3	-383.4	733.3	737.5
90	29.320	29.410	498.7	545.5	498.7	415.0	.0	353.9	.00	40.48	56.58	44.27	905.5	579.6	-755.8	-404.2	755.8	758.1
95	30.150	30.180	498.1	522.4	498.1	383.6	.0	354.6	.00	42.75	57.34	47.81	923.1	571.3	-777.2	-423.4	777.2	777.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-3.65	3.86	8.49	66.26	70.96	2.4330	.2020	.1598	.0289	.0289	1.3287	.9189	.9155	.0000	.3954	.7928	.5022	.5423
10	-2.07	4.58	6.97	63.56	66.02	2.2853	.2740	.1022	.0204	.0204	1.3408	.9442	.9418	.0000	.4039	.7691	.5245	.5206
15	-1.36	4.93	8.34	58.96	62.92	2.1566	.3280	.0564	.0124	.0124	1.3422	.9657	.9642	.0000	.4118	.7399	.5470	.5029
30	-.26	5.41	11.38	47.28	53.24	1.9044	.4460	.0287	.0075	.0075	1.3344	.9775	.9766	.0000	.4304	.6640	.6096	.4617
50	.80	5.79	12.11	32.80	39.12	1.6905	.4992	.0252	.0071	.0071	1.3235	.9752	.9742	.0000	.4468	.5899	.6879	.4552
70	1.98	6.19	12.06	21.15	27.01	1.5348	.4845	.0275	.0076	.0076	1.3098	.9673	.9660	.0000	.4546	.5350	.7603	.4905
85	2.42	6.11	10.78	15.00	19.67	1.4422	.4762	.0572	.0150	.0150	1.2983	.9266	.9238	.0000	.4560	.5014	.8113	.5180
90	2.44	5.96	11.99	12.31	18.33	1.4148	.4982	.1033	.0261	.0261	1.2849	.8668	.8621	.0000	.4557	.4795	.8280	.5094
95	2.32	5.70	13.66	9.53	17.48	1.3891	.5194	.1463	.0354	.0354	1.2718	.8095	.8030	.0000	.4552	.4577	.8437	.5006

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5907.0	145.53	32.81	1.0865	1.3148	94.116	94.35	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	799.6	502.9	493.0	502.6	629.5	4.2	51.93	.46	-19.31	43.36	522.4	691.4	172.7	-474.7	456.8	478.9
10	18.350	19.110	794.8	514.5	506.2	513.4	612.7	33.6	50.43	3.74	-15.43	41.80	525.3	688.6	139.7	-459.0	473.0	492.6
15	19.070	19.740	780.8	523.0	524.7	521.6	578.0	38.8	47.76	4.26	-9.37	42.02	532.3	702.1	86.5	-470.0	491.6	508.8
30	21.140	21.600	739.3	537.4	541.1	536.7	503.5	26.6	42.92	2.84	4.34	44.63	543.8	754.5	-41.4	-530.1	544.9	556.8
50	23.970	24.200	695.2	533.7	544.6	532.7	431.9	32.7	38.40	3.51	18.79	47.96	576.4	795.8	-185.9	-591.1	617.9	623.8
70	26.790	26.880	656.1	527.0	538.7	526.6	374.5	17.9	34.80	1.95	30.36	52.02	625.1	856.2	-316.1	-674.9	690.5	692.9
85	28.860	28.900	630.6	512.8	524.0	512.7	350.8	12.7	33.81	1.42	36.89	55.00	655.2	894.0	-393.1	-732.3	743.9	744.9
90	29.570	29.600	612.1	485.5	500.9	485.3	351.6	15.2	35.08	1.80	39.35	57.02	647.9	891.5	-410.6	-747.7	762.2	763.0
95	30.240	30.270	593.1	460.4	476.1	460.1	353.8	15.2	36.62	1.90	41.80	58.97	638.7	892.8	-425.7	-765.0	779.5	780.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.30	6.26	16.95	51.47	62.53	2.1082	.5520	.1335	.0317	.0317	.9610	.0000	.0000	.8089	.7181	.4391	.4703	.6038
10	2.45	6.70	19.69	46.69	59.54	2.0312	.5279	.1400	.0344	.0344	.9596	.0000	.0000	.7987	.7125	.4496	.4737	.6018
15	1.71	6.04	19.63	43.50	57.04	1.9492	.5037	.1257	.0321	.0321	.9648	.0000	.0000	.8097	.6993	.4578	.4790	.6146
30	.38	5.18	16.80	40.08	51.69	1.7548	.4544	.0662	.0188	.0188	.9831	.0000	.0000	.8800	.6613	.4716	.4872	.6621
50	-1.07	4.42	14.28	34.89	44.76	1.5494	.4164	.0456	.0147	.0147	.9896	.0000	.0000	.9026	.6204	.4687	.5138	.6989
70	-2.73	3.38	14.75	32.85	44.23	1.3871	.3923	.0370	.0133	.0133	.9924	.0000	.0000	.9080	.5839	.4631	.5554	.7525
85	-2.97	3.53	16.45	32.39	45.27	1.2867	.3949	.0468	.0182	.0182	.9910	.0000	.0000	.8790	.5597	.4501	.5812	.7846
90	-1.81	4.79	17.52	33.26	45.96	1.2554	.4255	.0731	.0291	.0291	.9868	.0000	.0000	.8253	.5417	.4247	.5732	.7799
95	-.56	6.19	18.22	34.72	46.76	1.2271	.4562	.0860	.0350	.0350	.9854	.0000	.0000	.8039	.5229	.4015	.5629	.7786

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5907.0	145.53	32.81	1.0865	1.2945	88.564	88.99	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	415.9	853.6	415.9	504.7	.0	688.5	.00	53.75	39.09	-28.63	535.9	575.1	-337.9	275.6	337.9	412.8
10	14.100	16.790	423.9	828.8	423.9	501.5	.0	659.8	.00	52.76	40.58	-24.36	558.2	551.9	-363.1	227.4	363.1	432.4
15	15.170	17.580	431.9	800.2	431.9	502.7	.0	622.5	.00	51.06	42.12	-18.61	582.5	531.2	-390.7	169.7	390.7	452.8
30	18.280	19.910	451.4	726.4	451.4	490.8	.0	535.5	.00	47.47	46.17	-2.58	652.4	493.1	-470.8	22.7	470.8	512.8
50	22.190	23.090	468.2	651.0	468.2	466.6	.0	453.8	.00	44.18	50.65	16.73	738.9	489.1	-571.5	-140.9	571.5	594.7
70	25.880	26.260	476.2	594.8	476.2	450.4	.0	388.6	.00	46.78	54.44	32.52	819.2	535.2	-666.5	-287.7	666.5	676.3
85	28.450	28.610	477.5	558.5	477.5	423.2	.0	364.4	.00	40.74	56.90	41.35	874.6	563.9	-732.7	-372.4	732.7	736.8
90	29.320	29.410	477.2	540.1	477.2	398.3	.0	364.6	.00	42.50	57.71	44.62	893.3	559.7	-755.1	-392.8	755.1	757.4
95	30.150	30.180	476.7	520.1	476.7	370.7	.0	364.8	.00	44.54	58.45	48.04	911.1	554.6	-776.5	-412.4	776.5	777.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-1.87	5.03	8.23	67.72	70.98	2.4329	.2171	.1549	.0279	.0279	1.3264	.9243	.9212	.0000	.3784	.7744	.4885	.5218
10	-.87	5.77	6.79	64.94	66.03	2.2851	.2939	.1079	.0215	.0215	1.3354	.9432	.9408	.0000	.3864	.7492	.5108	.4981
15	-.15	6.13	8.28	60.72	62.93	2.1565	.3536	.0702	.0154	.0154	1.3373	.9593	.9576	.0000	.3939	.7210	.5332	.4787
30	.96	6.64	11.13	48.74	53.24	1.9044	.4686	.0325	.0085	.0085	1.3339	.9757	.9747	.0000	.4114	.6495	.5956	.4408
50	2.91	7.00	12.20	33.92	39.12	1.6905	.5231	.0312	.0088	.0088	1.3257	.9709	.9697	.0000	.4269	.5777	.6741	.4340
70	3.16	7.37	12.46	21.92	27.02	1.5348	.5023	.0280	.0077	.0077	1.3156	.9681	.9668	.0000	.4343	.5255	.7470	.4728
85	3.56	7.25	11.37	15.55	19.67	1.4422	.5000	.0668	.0174	.0174	1.3046	.9187	.9156	.0000	.4356	.4914	.7985	.4962
90	3.57	7.09	12.34	13.09	18.33	1.4148	.5179	.1060	.0267	.0267	1.2953	.8701	.8653	.0000	.4353	.4739	.8154	.4911
95	3.44	6.82	13.89	10.41	17.48	1.3891	.5355	.1437	.0346	.0346	1.2849	.8220	.8155	.0000	.4348	.4551	.8313	.4853

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5902.	140.46	31.67	1.0875	1.3183	93.955	94.22	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	780.8	473.3	471.4	472.9	622.4	-3.1	52.86	-.38	-19.40	45.51	499.8	675.0	166.0	-481.6	456.4	478.5
10	18.350	19.110	773.2	480.7	482.1	479.4	604.5	33.3	51.42	3.96	-15.30	43.74	500.0	663.7	131.9	-458.9	472.6	492.2
15	19.070	19.740	759.4	491.5	496.4	489.4	574.6	45.5	49.16	5.31	-9.55	43.40	503.9	673.7	83.4	-462.9	491.1	508.4
30	21.140	21.600	721.0	511.5	515.2	510.6	504.2	29.2	44.36	3.27	4.43	45.90	517.9	733.9	-40.3	-527.1	544.4	556.3
50	23.970	24.290	678.7	512.4	519.1	511.1	437.0	35.4	40.07	3.96	19.08	48.97	550.6	779.1	-180.4	-587.8	617.3	623.2
70	26.790	26.880	642.5	509.2	517.4	508.7	386.8	21.7	36.35	2.45	30.82	52.80	603.2	841.8	-309.1	-670.5	690.0	692.3
85	28.860	28.900	616.7	494.5	500.0	494.2	361.0	19.3	35.83	2.25	37.41	55.72	629.5	877.4	-382.3	-725.0	743.3	744.3
90	29.570	29.600	602.4	476.6	481.2	470.8	362.3	23.9	36.99	2.91	39.69	57.52	625.4	875.4	-399.3	-738.4	761.5	762.3
95	30.240	30.270	586.2	448.5	459.5	447.9	364.0	24.0	38.39	3.07	42.07	59.34	619.0	878.3	-414.8	-755.5	778.8	779.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOT'L	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.23	7.19	16.10	53.24	62.53	2.1082	.5793	.1431	.0339	.0339	.9599	.0000	.0000	.8035	.6991	.4126	.4485	.5885
10	3.53	7.79	19.90	47.47	59.54	2.0312	.5560	.1516	.0372	.0372	.9583	.0000	.0000	.7893	.6916	.4193	.4492	.5789
15	3.17	7.50	20.73	43.85	57.03	1.9494	.5277	.1356	.0346	.0346	.9638	.0000	.0000	.8012	.6788	.4293	.4521	.5884
30	1.84	6.63	17.23	41.09	51.69	1.7553	.4758	.0781	.0222	.0222	.9810	.0000	.0000	.8639	.6439	.4479	.4629	.6427
50	.61	6.10	14.72	36.11	44.74	1.5496	.4347	.0532	.0171	.0171	.9884	.0000	.0000	.8906	.6045	.4490	.4894	.6827
70	-1.18	4.92	15.25	33.90	44.22	1.3872	.4085	.0444	.0160	.0160	.9912	.0000	.0000	.8949	.5708	.4466	.5348	.7383
85	-.94	5.55	17.28	33.58	45.27	1.2867	.4131	.0556	.0216	.0216	.9898	.0000	.0000	.8634	.5460	.4329	.5569	.7681
90	.10	6.70	18.63	34.08	45.96	1.2554	.4423	.0876	.0348	.0348	.9847	.0000	.0000	.7996	.5320	.4108	.5521	.7641
95	1.22	7.97	19.40	35.32	46.76	1.2271	.4710	.1028	.0418	.0418	.9829	.0000	.0000	.7741	.5159	.3904	.5445	.7645

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5902.	140.46	31.67	1.0875	1.2960	87.951	88.40	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	383.3	824.1	383.3	453.5	.0	680.1	.00	56.61	41.40	-31.24	511.0	530.6	-337.9	275.2	337.9	412.9
10	14.100	16.790	390.7	797.2	390.7	454.7	.0	654.7	.00	55.21	42.90	-26.01	533.4	506.6	-363.2	222.3	363.2	432.5
15	15.170	17.580	398.1	768.7	398.1	459.2	.0	616.4	.00	53.30	44.45	-19.55	557.8	488.1	-390.7	163.5	390.7	452.8
30	18.280	19.910	415.5	702.2	415.5	449.9	.0	539.1	.00	50.13	48.54	-3.26	628.1	452.4	-470.8	26.3	470.8	512.8
50	22.190	23.090	429.7	634.2	429.7	433.2	.0	463.1	.00	46.89	53.03	16.81	715.2	454.3	-571.6	-131.6	571.6	594.7
70	25.880	26.260	435.4	588.9	435.4	423.3	.0	409.5	.00	44.05	56.83	32.19	796.3	501.1	-666.6	-266.9	666.6	676.4
85	28.450	28.610	435.0	553.7	435.0	387.4	.0	395.5	.00	45.61	59.30	41.41	852.2	516.7	-732.8	-341.5	732.8	736.9
90	29.320	29.410	434.2	534.5	434.2	356.0	.0	398.4	.00	48.25	60.10	45.27	871.1	506.0	-755.2	-359.1	755.2	757.5
95	30.150	30.180	433.2	518.8	433.2	331.0	.0	399.5	.00	50.36	60.84	48.77	889.3	502.4	-776.6	-377.9	776.6	777.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	.44	7.35	5.66	72.64	71.04	2.4322	.2662	.1868	.0328	.0328	1.3232	.9167	.9133	.0000	.3881	.7446	.4653	.4794
10	1.45	8.09	5.15	68.92	66.06	2.2842	.3422	.1358	.0267	.0267	1.3289	.9341	.9313	.0000	.3565	.7179	.4879	.4562
15	2.19	8.46	7.34	64.21	62.96	2.1553	.4000	.0933	.0204	.0204	1.3300	.9499	.9479	.0000	.3424	.6902	.5185	.4383
30	3.33	8.99	10.45	51.80	53.27	1.9032	.5144	.0509	.0133	.0133	1.3324	.9654	.9640	.0000	.3780	.6260	.5735	.4033
50	4.41	9.38	12.28	36.23	39.13	1.6897	.5600	.0424	.0120	.0120	1.3304	.9638	.9623	.0000	.3909	.5614	.6524	.4021
70	5.57	9.76	12.10	24.64	26.99	1.5344	.5394	.0436	.0120	.0120	1.3295	.9556	.9538	.0000	.3959	.5189	.7258	.4415
85	5.96	9.63	11.48	17.89	19.71	1.4421	.5550	.1051	.0273	.0273	1.3201	.8870	.8824	.0000	.3955	.4853	.7774	.4529
90	5.95	9.47	13.00	14.83	18.34	1.4148	.5811	.1519	.0378	.0378	1.3106	.8356	.8291	.0000	.3947	.4669	.7940	.4420
95	5.81	9.18	14.62	12.07	17.48	1.3891	.5968	.1842	.0437	.0437	1.3041	.7983	.7906	.0000	.3939	.4520	.8095	.4378

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5903.0	130.64	29.46	1.0908	1.3257	92.384	92.78	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	749.6	433.1	417.8	432.4	622.4	-15.9	56.13	-2.11	-21.66	48.82	449.6	657.0	166.0	-494.5	456.4	478.6
10	18.350	19.110	738.9	434.0	429.9	433.2	608.9	23.7	54.41	3.13	-16.61	47.24	448.8	638.1	128.2	-468.6	472.6	492.2
15	19.070	19.740	723.3	437.0	446.4	435.0	569.0	41.0	51.88	5.38	-9.90	47.06	453.6	538.6	77.8	-467.5	491.2	508.5
30	21.140	21.600	690.7	468.3	468.2	467.0	507.6	33.8	47.29	4.14	4.46	48.20	470.8	700.9	-37.0	-522.6	544.5	556.4
50	23.970	24.200	655.0	479.3	479.6	478.1	446.0	33.9	42.91	4.05	19.58	50.94	510.2	759.0	-171.4	-589.5	617.4	623.3
70	26.790	26.880	629.1	486.0	484.7	485.5	400.9	21.6	39.59	2.55	30.78	54.09	564.8	828.1	-289.1	-670.7	690.0	692.4
85	28.860	28.900	604.6	466.8	461.1	466.4	391.0	19.9	40.31	2.45	37.40	57.23	580.5	861.7	-352.4	-724.4	743.4	744.4
90	29.570	29.600	589.0	444.9	436.6	444.5	395.2	18.4	42.16	2.37	40.02	59.14	570.1	866.8	-366.5	-744.1	761.6	762.4
95	30.240	30.270	576.3	426.9	416.3	426.5	398.6	17.4	43.75	2.34	42.41	60.77	563.9	873.5	-380.4	-762.2	778.9	779.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	6.42	10.37	14.37	58.24	62.52	2.1089	.8194	.1570	.0372	.0372	.9591	.0000	.0000	.7942	.6680	.3766	.4015	.5712
10	6.48	10.74	19.05	51.29	59.51	2.0323	.6005	.1719	.0422	.0422	.9564	.0000	.0000	.7731	.6583	.3774	.4017	.5549
15	5.95	10.27	20.83	46.50	57.00	1.9513	.5791	.1681	.0429	.0429	.9589	.0000	.0000	.7678	.6451	.3803	.4053	.5558
30	4.84	9.62	18.14	43.15	51.68	1.7578	.5145	.1041	.0295	.0295	.9766	.0000	.0000	.8300	.6156	.4086	.4185	.6116
50	3.52	8.99	14.75	38.86	44.66	1.5511	.4698	.0675	.0217	.0217	.9862	.0000	.0000	.8705	.5820	.4186	.4507	.6630
70	2.03	8.11	15.34	37.05	44.20	1.3878	.4442	.0617	.0222	.0222	.9883	.0000	.0000	.8683	.5574	.4246	.4987	.7235
85	3.40	9.90	17.47	37.86	45.27	1.2870	.4662	.0941	.0365	.0365	.9835	.0000	.0000	.7979	.5338	.4065	.5120	.7503
90	5.17	11.77	18.08	39.80	45.96	1.2556	.4993	.1182	.0470	.0470	.9803	.0000	.0000	.7573	.5181	.3862	.5014	.7524
95	6.62	13.36	18.67	41.41	46.75	1.2272	.5286	.1374	.0559	.0559	.9781	.0000	.0000	.7209	.5049	.3695	.4931	.7562

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5903.0	130.64	29.46	1.0908	1.2986	85.361	85.99	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR

80% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	359.4	805.8	359.4	422.6	.0	686.1	.00	58.36	43.23	-32.80	493.2	503.5	-337.8	273.4	337.8	412.7
10	14.100	16.790	366.2	777.1	366.2	425.0	.0	650.5	.00	56.82	44.74	-27.13	515.7	478.4	-363.0	218.2	363.0	432.3
15	15.170	17.580	373.1	748.8	373.1	431.4	.0	612.0	.00	54.81	46.30	-20.22	540.2	460.5	-390.6	159.4	390.6	452.6
30	18.280	19.910	389.4	685.6	389.4	418.1	.0	543.2	.00	52.39	50.36	-4.14	611.0	421.0	-470.6	30.6	470.6	512.6
50	22.190	23.090	402.8	627.1	402.8	415.5	.0	469.6	.00	48.88	54.79	16.63	699.1	435.3	-571.3	-124.9	571.3	594.5
70	25.880	26.260	407.5	583.0	407.5	404.6	.0	419.6	.00	46.05	58.53	32.34	781.1	479.9	-666.3	-256.5	666.3	676.1
85	28.450	28.610	406.2	545.8	406.2	357.9	.0	411.9	.00	49.04	60.98	42.24	837.6	483.5	-732.5	-324.7	732.5	736.6
90	29.320	29.410	405.1	527.3	405.1	322.1	.0	417.0	.00	52.36	61.78	46.63	856.7	469.1	-754.9	-340.2	754.9	757.2
95	30.150	30.180	403.9	510.0	403.9	290.1	.0	419.4	.00	55.32	62.51	50.93	875.0	460.6	-776.2	-357.7	776.2	777.0

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	2.27	9.17	4.03	76.10	71.05	2.4322	.2937	.2018	.0348	.0348	1.3216	.9156	.9122	.0000	.3259	.7265	.4486	.4539
10	3.29	9.92	4.03	71.87	66.06	2.2841	.3724	.1529	.0298	.0298	1.3248	.9300	.9272	.0000	.3328	.6983	.4711	.4298
15	4.03	10.30	6.67	66.52	62.96	2.1552	.4296	.1065	.0232	.0232	1.3257	.9460	.9438	.0000	.3391	.6709	.4938	.4126
30	5.15	10.81	9.58	54.49	53.27	1.9032	.5541	.0707	.0185	.0185	1.3309	.9551	.9532	.0000	.3536	.6098	.5569	.3745
50	6.16	11.13	12.10	38.16	39.13	1.6896	.5798	.0333	.0095	.0095	1.3390	.9728	.9717	.0000	.3657	.5543	.6368	.3848
70	7.28	11.46	12.23	26.19	26.97	1.5342	.5620	.0426	.0117	.0117	1.3398	.9591	.9578	.0000	.3698	.5128	.7116	.4221
85	7.65	11.31	12.33	18.74	19.73	1.4420	.5937	.1242	.0319	.0319	1.3294	.8752	.8700	.0000	.3684	.5771	.7637	.4227
90	7.62	11.13	14.36	15.15	18.34	1.4147	.6248	.1743	.0423	.0423	1.3212	.8240	.8169	.0000	.3674	.4595	.7803	.4087
95	7.47	10.83	16.78	11.58	17.48	1.3890	.6462	.2116	.0480	.0480	1.3140	.7842	.7756	.0000	.3664	.4430	.7955	.4002

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5900.50	123.44	27.83	1.0926	1.3316	92.075	92.4	5.0	6.0	86.05	95.02

STATOR

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	738.9	398.6	386.0	397.0	620.7	-28.8	58.12	-4.14	-23.07	51.93	419.6	644.1	164.5	-507.2	456.2	478.4
10	18.350	19.110	717.2	396.7	396.5	396.1	597.5	16.1	56.42	2.34	-17.51	50.23	416.0	619.2	125.0	-475.9	472.4	492.8
15	19.070	19.740	700.7	398.1	414.7	396.0	564.7	40.0	53.70	5.76	-10.09	49.78	421.7	613.3	73.8	-468.2	491.0	508.2
30	21.190	21.600	669.3	439.8	431.6	437.3	511.3	38.5	49.81	5.04	4.29	49.80	434.0	677.6	-33.0	-517.6	544.3	556.1
50	23.970	24.200	642.1	458.9	455.8	457.6	452.1	34.3	44.76	4.28	19.81	52.13	485.5	745.8	-165.0	-588.8	617.1	623.1
70	26.790	26.880	617.1	468.7	460.7	468.0	410.5	25.1	41.71	3.07	31.21	54.93	539.2	814.9	-279.2	-667.0	689.7	692.1
85	28.860	28.900	598.3	485.2	427.8	484.7	406.6	20.5	43.56	2.63	38.19	58.42	544.4	849.5	-336.4	-723.6	743.0	744.1
90	29.570	29.600	575.9	425.9	401.2	425.7	412.8	13.9	45.84	1.87	41.01	60.36	531.6	860.9	-348.5	-748.2	761.3	762.1
95	30.240	30.270	561.3	409.5	374.3	409.4	418.3	12.0	48.18	1.68	43.90	61.92	19.5	869.7	-360.2	-767.3	778.6	779.3

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	8.48	12.38	12.34	62.27	62.52	2.1089	.6607	.1701	.0402	.0402	.9576	.0000	.0000	.7871	.6492	.3459	.3731	.5589
10	8.94	12.70	18.26	54.89	59.51	2.0323	.6420	.1850	.0455	.0455	.9555	.0000	.0000	.7676	.6373	.3442	.3718	.5374
15	7.79	12.11	21.28	47.94	57.00	1.9517	.6199	.1857	.0473	.0473	.9571	.0000	.0000	.7563	.6238	.3457	.3759	.5326
30	7.81	12.18	19.05	44.78	51.69	1.7586	.5822	.1165	.0330	.0330	.9755	.0000	.0000	.8180	.5951	.3822	.3843	.5899
50	5.90	10.86	24.95	40.47	44.62	1.5517	.4936	.0959	.0308	.0308	.9811	.0000	.0000	.8247	.5695	.4000	.4275	.6501
70	4.07	10.15	15.86	38.64	44.20	1.3882	.4649	.0892	.0321	.0321	.9837	.0000	.0000	.8188	.5460	.4086	.4753	.7104
85	6.58	13.07	17.65	40.93	45.27	1.2872	.4998	.1281	.0497	.0497	.9786	.0000	.0000	.7412	.5198	.3865	.4790	.7373
90	8.68	15.27	17.58	43.97	45.96	1.2557	.5361	.1507	.0600	.0600	.9760	.0000	.0000	.7085	.5057	.3686	.4673	.7450
95	11.06	17.79	18.01	46.59	46.75	1.2272	.5651	.1614	.0657	.0657	.9756	.0000	.0000	.6816	.4903	.3534	.4523	.7504

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5900.50	123.44	27.83	1.0926	1.2998	84.905	84.6	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	554.4	1041.5	554.4	644.1	.0	818.5	.00	51.80	34.48	-28.75	672.5	734.7	-380.7	353.4	380.7	465.2
10	14.100	16.790	565.9	1023.3	565.9	646.1	.0	793.4	.00	50.83	35.87	-25.33	698.3	715.4	-409.2	306.2	409.2	487.2
15	15.170	17.580	577.7	985.0	577.7	655.2	.0	735.0	.00	48.26	37.30	-18.90	726.3	694.0	-440.2	224.9	440.2	510.2
30	18.280	19.910	606.4	880.6	606.4	649.5	.0	594.7	.00	42.44	41.15	-1.43	805.9	652.0	-530.5	16.9	530.5	577.8
50	22.190	23.090	629.9	776.9	629.9	610.6	.0	480.1	.00	38.14	45.60	17.22	901.0	641.4	-643.9	-190.0	643.9	670.1
70	25.880	26.260	639.1	701.6	639.1	583.2	.0	390.0	.00	33.75	49.59	32.48	986.3	692.9	-751.0	-372.1	751.0	762.0
85	28.450	28.610	636.6	644.4	636.8	540.0	.0	351.6	.00	33.08	52.27	41.55	1043.9	721.9	-825.6	-478.6	825.6	830.2
90	29.320	29.410	637.7	616.3	637.7	511.1	.0	348.3	.00	33.99	53.15	44.90	1063.3	721.8	-850.8	-509.2	850.8	853.5
95	30.150	30.180	636.4	589.0	636.4	481.2	.0	339.6	.00	35.22	53.97	48.09	1081.9	720.5	-874.9	-536.2	874.9	875.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-8.51	.40	6.04	63.23	70.92	2.4329	.1827	.1993	.0359	.0359	1.4311	.8880	.8822	.0000	.5100	.9578	.6196	.6756
10	-5.62	1.03	5.77	61.19	65.98	2.2854	.2456	.1107	.0219	.0219	1.4658	.9341	.9305	.0000	.5219	.9372	.6458	.6553
15	-4.99	1.29	7.98	56.20	62.92	2.1566	.2962	.0606	.0133	.0133	1.4645	.9597	.9574	.0000	.5333	.8982	.6725	.6328
30	-4.06	1.61	12.28	42.58	53.25	1.9039	.3926	.0139	.0036	.0036	1.4344	.9868	.9861	.0000	.5608	.7947	.7470	.5881
50	-3.01	1.96	12.70	28.38	39.13	1.6898	.4486	.0297	.0084	.0084	1.3939	.9670	.9654	.0000	.5834	.6936	.8368	.5726
70	-1.66	2.52	12.38	17.10	26.98	1.5343	.4271	.0272	.0075	.0075	1.3589	.9626	.9609	.0000	.5920	.6233	.9160	.6155
85	-1.06	2.61	11.62	10.72	19.72	1.4421	.4256	.0743	.0193	.0193	1.3216	.8894	.8849	.0000	.5915	.5695	.9696	.6379
90	-.99	2.52	12.63	8.25	18.34	1.4148	.4357	.1092	.0273	.0273	1.3009	.8338	.8275	.0000	.5904	.5430	.9867	.6359
95	-1.06	2.31	13.93	5.88	17.48	1.3891	.4471	.1438	.0346	.0334	1.2814	.7767	.7688	.0050	.5892	.5173	1.0028	.6328

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6650.	175.26	39.52	1.1031	1.3792	93.336	93.71	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	969.0	650.6	626.3	650.1	739.4	22.4	49.73	1.96	-19.77	38.48	665.6	830.5	225.2	-516.8	514.2	539.2
10	18.350	19.110	976.1	669.2	650.4	667.6	727.7	45.1	48.21	3.86	-16.71	37.35	679.3	839.8	195.2	-509.4	532.5	554.6
15	19.070	19.740	957.9	685.0	674.3	683.2	680.0	49.7	45.22	4.16	-10.65	37.44	687.0	860.5	126.6	-523.1	553.4	572.8
30	21.140	21.600	897.9	681.4	701.4	680.7	560.2	29.2	38.59	2.45	4.32	41.27	704.8	906.0	-53.2	-597.7	613.5	626.8
50	23.970	24.200	829.7	657.9	688.7	656.9	462.4	35.7	33.86	3.11	18.66	45.40	728.3	936.1	-233.2	-666.6	695.6	702.3
70	26.790	26.880	772.2	641.0	671.0	641.0	382.2	6.1	29.66	.54	30.47	50.35	779.5	1005.2	-395.2	-774.0	777.4	780.0
85	28.860	28.900	724.9	605.8	635.6	605.8	348.6	-.7	28.74	-.05	37.57	54.18	802.1	1035.2	-488.9	-839.3	837.5	838.7
90	29.570	29.600	701.5	573.4	612.4	573.4	342.2	5.8	29.20	.58	40.12	56.10	801.0	1028.2	-515.9	-853.2	858.1	859.0
95	30.240	30.270	678.9	539.8	588.2	539.8	338.9	6.1	29.95	.65	42.48	58.25	797.7	1025.8	-538.7	-872.3	877.5	878.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.07	4.03	18.46	47.77	62.55	2.1071	.4997	.1294	.0307	.0307	.9487	.0000	.0000	.8076	.8822	.5673	.6081	.7242
10	.16	4.41	19.82	44.34	59.60	2.0286	.4828	.1530	.0376	.0376	.9387	.0000	.0000	.7782	.8831	.5844	.6183	.7333
15	-1.17	3.17	19.61	41.06	57.10	1.9458	.4505	.1210	.0310	.0310	.9529	.0000	.0000	.8183	.8645	.6004	.6256	.7542
30	-4.09	.73	16.43	36.14	51.76	1.7516	.4077	.0677	.0193	.0193	.9762	.0000	.0000	.8782	.8086	.5997	.6380	.7975
50	-5.71	-.20	13.91	30.75	44.83	1.5478	.3721	.0480	.0155	.0155	.9852	.0000	.0000	.8971	.7444	.5796	.6555	.8247
70	-7.89	-1.78	13.38	29.12	44.28	1.3865	.3452	.0355	.0128	.0128	.9903	.0000	.0000	.9050	.6912	.5658	.6984	.8873
85	-8.02	-1.51	15.00	28.79	45.31	1.2866	.3514	.0477	.0185	.0185	.9883	.0000	.0000	.8642	.6458	.5334	.7150	.9114
90	-7.64	-1.03	16.30	28.63	45.96	1.2554	.3735	.0731	.0291	.0291	.9831	.0000	.0000	.8078	.6233	.5032	.7118	.9023
95	-7.24	-.48	16.97	29.30	46.76	1.2271	.4045	.0963	.0392	.0392	.9791	.0000	.0000	.7697	.6015	.4721	.7068	.8972

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6650.	175.26	39.52	1.1031	1.3503	86.915	87.60	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA=1 IN	DIA=2 IN	V=1 FT/SEC	V=2 FT/SEC	VM=1 FT/SEC	VM=2 FT/SEC	V0=1 FT/SEC	V0=2 FT/SEC	B=1 DEGREE	B=2 DEGREE	BI=1 DEGREE	BI=2 DEGREE	VI=1 FT/SEC	VI=2 FT/SEC	V0I=1 FT/SEC	V0I=2 FT/SEC	U=1 FT/SEC	U=2 FT/SEC
5	13.120	16.030	539.1	1023.4	539.1	629.2	.0	807.1	.00	52.06	35.22	-28.53	659.9	716.3	-380.6	342.2	380.4	465.0
10	14.100	16.790	550.1	1003.3	550.1	633.3	.0	778.1	.00	50.85	36.63	-24.66	685.5	697.4	-409.0	291.1	409.0	487.0
15	15.170	17.580	561.3	986.5	561.3	637.4	.0	726.2	.00	48.71	38.09	-18.70	713.3	674.1	-440.0	216.3	440.0	509.9
30	18.280	19.910	588.7	867.6	588.7	627.7	.0	598.7	.00	43.61	41.98	-1.86	792.4	630.2	-530.2	21.2	530.2	577.5
50	22.190	23.090	611.7	765.4	611.7	586.3	.0	491.9	.00	39.97	46.43	16.82	888.1	618.5	-643.7	-177.8	643.7	649.8
70	25.880	26.260	622.0	695.2	622.0	561.9	.0	409.3	.00	36.05	50.34	32.03	975.0	664.3	-750.7	-352.5	750.7	761.7
85	28.450	28.610	623.3	647.0	623.3	530.4	.0	370.5	.00	34.94	52.93	40.90	1034.2	702.0	-825.2	-459.4	825.2	829.9
90	29.320	29.410	622.8	621.5	622.8	502.7	.0	365.3	.00	36.02	53.78	44.15	1054.1	700.8	-850.5	-487.8	850.5	853.1
95	30.150	30.180	621.9	595.5	621.9	472.4	.0	362.5	.00	37.50	54.58	47.35	1073.2	697.4	-874.6	-512.9	874.6	875.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D=FAC	OMEGA=B TOTAL	LOSS=P PROFILE	LOSS=P	P02/ P01	EFF=P TOTAL	EFF=AD TOTAL	OMEGA=B SHOCK	M=1	M=2	M'=1	M'=2
5	-5.76	1.15	8.26	63.75	70.92	2.4331	.1910	.1914	.0345	.0345	1.4280	.8948	.8894	.0000	.4952	.9391	.6070	.6573
10	-4.85	1.80	6.45	61.29	65.98	2.2855	.2525	.1050	.0209	.0209	1.4579	.9384	.9351	.0000	.5065	.9170	.6330	.6374
15	-4.27	2.08	8.18	56.78	62.91	2.1567	.3082	.0639	.0140	.0140	1.4573	.9585	.9562	.0000	.5173	.8793	.6593	.6133
30	-3.23	2.45	11.85	43.84	53.24	1.9043	.4112	.0215	.0056	.0056	1.4346	.9812	.9802	.0000	.5431	.7810	.7324	.5672
50	-2.19	2.79	12.30	29.61	39.12	1.6902	.4749	.0422	.0120	.0120	1.3991	.9558	.9537	.0000	.5652	.6816	.8218	.5472
70	-.93	3.27	11.97	18.30	27.00	1.5346	.4563	.0379	.0105	.0105	1.3735	.9515	.9493	.0000	.5751	.6156	.9022	.5883
85	-.40	3.28	10.94	12.04	19.69	1.4422	.4458	.0670	.0176	.0176	1.3479	.9063	.9022	.0000	.5764	.5708	.9578	.6190
90	-.36	3.16	11.87	9.64	18.34	1.4148	.4578	.1028	.0261	.0261	1.3298	.8541	.8481	.0000	.5758	.5463	.9758	.6161
95	-.44	2.94	13.20	7.23	17.48	1.3891	.4718	.1398	.0341	.0341	1.3115	.7986	.7907	.0000	.5750	.5217	.9926	.6110

NCOR=1 RPM	WCOR=1 LBM/SEC	WC/A=1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF=AD %	EFF=P %	STA=1	STA=2	SLANT=1 DEGREE	SLANT=2 DEGREE
6647.	171.92	38.77	1.1059	1.3893	93.001	93.48	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA=1 IN	DIA=2 IN	V=1 FT/SEC	V=2 FT/SEC	VM=1 FT/SEC	VM=2 FT/SEC	V0=1 FT/SEC	V0=2 FT/SEC	B=1 DEGREE	B=2 DEGREE	BI=1 DEGREE	BI=2 DEGREE	VI=1 FT/SEC	VI=2 FT/SEC	V0I=1 FT/SEC	V0I=2 FT/SEC	U=1 FT/SEC	U=2 FT/SEC
5	17.720	18.580	946.5	615.7	603.2	615.3	729.4	19.7	50.41	1.82	-19.65	40.16	640.6	805.2	215.4	-519.2	514.0	538.9
10	18.350	19.110	950.5	633.3	628.1	632.0	713.3	40.7	48.63	3.68	-16.08	39.10	653.9	814.4	181.1	-513.6	532.3	554.3
15	19.070	19.740	932.9	648.0	647.7	646.6	671.1	41.8	46.00	3.70	-10.33	39.38	659.1	836.6	118.0	-530.8	553.2	572.6
30	21.140	21.600	877.8	651.6	672.5	651.0	563.9	26.5	39.95	2.33	4.18	42.66	675.7	885.5	-49.3	-600.1	613.2	626.5
50	23.970	24.200	813.4	630.1	661.0	629.1	473.7	35.6	35.61	3.24	18.48	46.63	698.3	916.6	-221.6	-666.4	695.3	702.0
70	26.790	26.880	763.4	620.2	649.5	620.0	401.1	17.8	31.69	1.27	30.03	50.99	751.1	985.6	-376.0	-765.9	777.1	779.7
85	28.860	28.900	725.6	595.2	626.1	595.1	367.2	5.4	30.39	.53	36.89	54.45	783.0	1023.8	-470.0	-832.9	837.1	838.3
90	29.570	29.600	705.2	565.6	604.5	565.4	363.0	11.2	30.99	1.13	39.30	56.29	781.3	1018.9	-494.7	-847.4	857.7	858.6
95	30.240	30.270	684.1	534.8	580.7	534.7	361.7	10.4	31.92	1.11	41.59	58.36	776.5	1019.2	-515.5	-867.7	877.2	878.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D=FAC	OMEGA=B TOTAL	LOSS=P PROFILE	LOSS=P	P02/ P01	OMEGA=B SHOCK	EFF=AD TOTAL	EFF=P STATIC	M=1	M=2	M'=1	M'=2
5	.67	4.64	18.32	48.59	62.55	2.1075	.5229	.1322	.0313	.0313	.9496	.0000	.0000	.8125	.8585	.5356	.5836	.7004
10	.67	4.92	19.63	44.95	59.58	2.0297	.5041	.1522	.0374	.0374	.9416	.0000	.0000	.7854	.8578	.5517	.5931	.7094
15	-.19	4.15	19.14	42.30	57.08	1.9472	.4752	.1237	.0317	.0317	.9539	.0000	.0000	.8169	.8403	.5661	.5975	.7309
30	-2.66	2.15	16.30	37.62	51.73	1.7529	.4301	.0666	.0190	.0190	.9775	.0000	.0000	.8831	.7890	.5715	.6094	.7767
50	-3.92	1.58	14.03	32.37	44.80	1.5483	.3981	.0460	.0148	.0148	.9863	.0000	.0000	.9057	.7280	.5528	.6260	.8042
70	-5.86	.25	14.10	30.41	44.25	1.3867	.3700	.0342	.0123	.0123	.9908	.0000	.0000	.9151	.6814	.5451	.6705	.8662
85	-6.36	.15	15.57	29.86	45.29	1.2866	.3735	.0472	.0183	.0183	.9885	.0000	.0000	.8759	.6454	.5223	.6963	.8983
90	-5.85	.75	16.85	29.86	45.96	1.2554	.3966	.0722	.0287	.0287	.9833	.0000	.0000	.8238	.6252	.4947	.6927	.8912
95	-5.27	1.49	17.44	30.81	46.76	1.2271	.4274	.0915	.0373	.0373	.9800	.0000	.0000	.7931	.6046	.4661	.6863	.8883

NCOR=1 RPM	WCOR=1 LBM/SEC	WC/A=1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF=AD %	EFF=P %	STA=1	STA=2	SLANT=1 DEGREE	SLANT=2 DEGREE
6647.	171.92	38.77	1.1059	1.3612	86.962	87.62	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	517.9	1000.2	517.9	602.9	.0	798.1	.00	52.93	36.28	-28.95	642.5	889.1	-380.2	333.6	380.2	464.5
10	14.100	16.790	528.3	977.8	528.3	608.3	.0	765.4	.00	51.51	37.71	-24.60	667.9	669.7	-408.6	278.9	408.6	486.5
15	15.170	17.580	538.9	943.0	538.9	614.7	.0	714.9	.00	49.29	39.19	-18.44	695.5	649.0	-439.6	205.5	439.6	509.4
30	18.280	19.910	565.0	849.0	565.0	602.2	.0	598.3	.00	44.79	43.12	-1.95	774.6	604.6	-529.7	21.4	529.7	576.9
50	22.190	23.090	587.9	750.0	587.9	560.2	.0	498.5	.00	41.64	47.53	16.88	871.4	587.4	-643.0	-170.6	643.0	669.1
70	25.880	26.260	599.4	683.0	599.4	537.7	.0	421.1	.00	38.06	51.35	32.22	960.1	636.9	-749.9	-339.8	749.9	760.9
85	28.450	28.610	601.9	640.9	601.9	512.6	.0	384.6	.00	36.89	53.86	40.92	1020.8	678.7	-824.4	-444.4	824.4	829.0
90	29.320	29.410	601.8	616.2	601.8	482.8	.0	382.7	.00	38.43	54.69	44.22	1041.1	673.7	-849.6	-469.5	849.6	852.2
95	30.150	30.180	601.2	589.0	601.2	448.1	.0	382.3	.00	40.47	55.46	47.68	1060.5	665.7	-873.6	-492.2	873.6	874.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-4.70	2.21	7.81	65.23	70.88	2.4335	.2081	.1855	.0334	.0334	1.4261	.9018	.8968	.0000	.4747	.9149	.5896	.6303
10	-3.76	2.90	6.51	62.32	65.97	2.2859	.2696	.1030	.0205	.0205	1.4506	.9415	.9384	.0000	.4853	.8909	.6151	.6102
15	-3.09	3.20	8.42	57.64	62.90	2.1573	.3224	.0551	.0121	.0121	1.4524	.9651	.9632	.0000	.4954	.8556	.6409	.5889
30	-2.09	3.60	11.75	45.07	53.23	1.9050	.4305	.0162	.0042	.0042	1.4363	.9860	.9852	.0000	.5197	.7623	.7131	.5428
50	-1.10	3.90	12.35	30.65	39.11	1.6908	.4981	.0381	.0108	.0108	1.4076	.9618	.9599	.0000	.5416	.6662	.8028	.5218
70	.07	4.28	12.18	19.12	27.02	1.5349	.4805	.0334	.0092	.0092	1.3889	.9592	.9573	.0000	.5528	.6033	.8847	.5625
85	.52	4.21	10.94	12.94	19.66	1.4422	.4661	.0553	.0145	.0145	1.3717	.9266	.9233	.0000	.5553	.5638	.9421	.5970
90	.55	4.07	11.94	10.47	18.33	1.4148	.4830	.0968	.0245	.0245	1.3547	.8710	.8654	.0000	.5552	.5402	.9609	.5906
95	.45	3.83	13.53	7.78	17.48	1.3891	.5021	.1401	.0339	.0339	1.3359	.8116	.8037	.0000	.5547	.5144	.9784	.5814

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6640.	167.39	37.74	1.1077	1.4000	93.740	94.08	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	919.9	578.9	570.5	578.7	721.5	11.4	51.67	1.11	-20.03	42.32	607.4	782.7	208.1	-527.0	513.5	538.4
10	18.350	19.110	919.5	593.4	594.0	592.1	701.8	37.9	49.75	3.65	-15.99	41.07	618.1	785.3	170.1	-515.9	531.7	553.7
15	19.070	19.740	903.1	606.6	615.8	604.8	660.2	47.4	46.98	4.48	-9.93	40.94	625.9	800.6	107.7	-524.6	552.6	572.0
30	21.140	21.600	851.6	620.5	638.5	619.8	563.3	30.1	41.40	2.78	4.39	43.86	641.8	859.8	-49.3	-595.8	612.6	625.9
50	23.970	24.200	790.9	602.3	628.5	601.4	479.9	34.2	37.35	3.25	18.80	47.95	665.3	898.2	-214.7	-667.0	694.6	701.2
70	26.790	26.880	745.5	595.2	620.8	594.9	412.7	20.5	33.61	1.97	30.32	51.87	720.0	964.0	-363.6	-758.4	776.3	778.9
85	28.860	28.900	714.5	577.2	604.4	577.0	381.1	12.4	32.24	1.24	36.98	55.03	756.7	1006.8	-455.1	-825.0	836.2	837.4
90	29.570	29.600	694.9	549.0	581.5	548.7	380.4	17.2	33.20	1.79	39.34	56.86	751.9	1003.9	-476.4	-840.5	856.8	857.7
95	30.240	30.270	673.1	519.9	554.6	519.8	381.4	13.9	34.52	1.53	41.74	58.95	743.2	1007.6	-494.8	-863.2	876.2	877.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.90	5.88	17.61	50.55	62.54	2.1078	.5493	.1352	.0321	.0321	.9508	.0000	.0000	.8156	.8302	.5023	.5507	.6792
10	1.74	6.00	19.59	46.10	59.56	2.0305	.5284	.1535	.0377	.0377	.9442	.0000	.0000	.7909	.8271	.5155	.5594	.6823
15	.86	5.20	19.91	42.50	57.05	1.9485	.4989	.1326	.0339	.0339	.9531	.0000	.0000	.8094	.8112	.5283	.5654	.6973
30	-1.17	3.64	16.74	38.62	51.70	1.7542	.4475	.0670	.0191	.0191	.9785	.0000	.0000	.8842	.7635	.5427	.5766	.7520
50	-2.15	3.35	14.04	34.09	44.78	1.5489	.4191	.0475	.0153	.0153	.9865	.0000	.0000	.9050	.7059	.5268	.5939	.7856
70	-3.92	2.19	14.78	31.64	44.24	1.3869	.3907	.0386	.0139	.0139	.9901	.0000	.0000	.9087	.6633	.5213	.6401	.8442
85	-4.51	1.99	16.28	31.00	45.27	1.2866	.3926	.0493	.0191	.0191	.9883	.0000	.0000	.8779	.6337	.5047	.6709	.8805
90	-3.66	2.95	17.52	31.41	45.96	1.2554	.4180	.0717	.0286	.0286	.9839	.0000	.0000	.8338	.6143	.4784	.6646	.8749
95	-2.66	4.09	17.86	32.99	46.76	1.2271	.4499	.0832	.0339	.0339	.9824	.0000	.0000	.8173	.5926	.4515	.6544	.8749

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6640.	167.39	37.74	1.1077	1.3721	87.876	86.45	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction
90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	499.1	977.5	499.1	582.6	.0	784.9	.00	53.42	37.32	-28.79	627.5	664.8	-380.4	320.1	380.4	464.8
10	14.100	16.790	508.9	954.4	508.9	588.9	.0	750.9	.00	51.88	38.77	-24.13	652.8	645.8	-408.8	264.1	408.8	484.8
15	15.170	17.580	519.0	922.3	519.0	591.2	.0	707.8	.00	50.12	40.27	-18.48	680.4	624.2	-439.8	198.1	439.8	509.7
30	18.280	19.910	543.8	834.1	543.8	577.0	.0	602.3	.00	46.21	44.23	-2.40	759.5	579.5	-530.0	25.0	530.0	577.3
50	22.190	23.090	565.4	741.8	565.4	539.8	.0	509.7	.00	43.39	48.66	16.46	856.6	563.8	-643.4	-159.8	643.4	669.5
70	25.800	26.260	576.1	676.4	576.1	518.1	.0	434.9	.00	40.00	52.46	32.10	946.1	613.2	-750.4	-326.5	750.4	761.4
85	28.450	28.610	578.5	636.6	578.5	492.5	.0	403.3	.00	39.33	54.95	40.88	1007.5	651.5	-824.9	-426.2	824.9	829.5
90	29.320	29.410	578.3	614.1	578.3	463.0	.0	403.3	.00	41.08	55.77	44.16	1028.2	645.6	-850.1	-449.5	850.1	852.7
95	30.150	30.180	577.7	590.8	577.7	439.8	.0	403.1	.00	43.10	56.54	47.60	1047.8	639.0	-874.2	-471.9	874.2	875.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-3.66	3.25	7.99	66.10	70.90	2.4334	.2232	.1824	.0329	.0329	1.4209	.9062	.9015	.0000	.4567	.8916	.5751	.6064
10	-2.70	3.95	6.99	62.90	65.99	2.2858	.2841	.1021	.0204	.0204	1.4424	.9435	.9405	.0000	.4668	.8672	.6005	.5869
15	-2.01	4.28	6.40	58.75	62.96	2.1571	.3413	.0602	.0132	.0132	1.4467	.9632	.9613	.0000	.4763	.8347	.6262	.5649
30	-.97	4.71	11.31	46.63	53.23	1.9049	.4537	.0233	.0062	.0062	1.4373	.9810	.9800	.0000	.4992	.7472	.6979	.5190
50	.03	5.03	11.93	32.21	39.11	1.6907	.5211	.0415	.0118	.0118	1.4176	.9605	.9585	.0000	.5197	.6575	.7875	.4997
70	1.18	5.40	12.11	20.31	27.02	1.5349	.5026	.0377	.0104	.0104	1.4021	.9567	.9545	.0000	.5301	.5961	.8699	.5404
85	1.62	5.31	10.89	14.08	19.66	1.4422	.4925	.0657	.0172	.0172	1.3883	.9188	.9149	.0000	.5324	.5585	.9277	.5715
90	1.64	5.16	11.88	11.61	18.33	1.4148	.5109	.1076	.0273	.0273	1.3738	.8664	.8603	.0000	.5322	.5368	.9467	.5643
95	1.52	4.90	13.45	8.94	17.48	1.3891	.5287	.1474	.0358	.0358	1.3581	.8151	.8069	.0000	.5317	.5139	.9645	.5566

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6644.	162.71	36.69	1.1103	1.4093	93.401	93.78	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	893.8	544.1	543.2	543.9	709.8	1.1	52.57	.11	-19.84	44.56	577.6	764.8	196.0	-537.6	513.8	538.7
10	18.350	19.110	891.5	554.7	566.9	553.4	687.9	33.9	50.51	3.50	-15.38	43.22	588.1	759.6	155.9	-520.1	532.0	554.1
15	19.070	19.740	877.5	566.6	585.6	564.5	653.3	48.5	48.12	4.91	-9.73	42.86	594.7	770.1	100.4	-523.9	552.9	572.3
30	21.140	21.600	831.2	592.3	607.6	591.4	567.1	31.7	43.01	3.07	4.29	45.14	610.5	838.7	-45.9	-594.6	612.9	626.5
50	23.970	24.200	777.6	581.3	602.9	580.2	490.8	34.5	39.13	3.40	18.65	48.97	637.7	884.3	-204.2	-667.1	695.0	701.7
70	26.790	26.880	734.8	575.8	598.6	575.4	426.2	20.8	35.44	2.06	30.31	52.81	694.2	952.3	-350.6	-758.6	776.7	779.4
85	28.860	28.900	706.9	560.2	583.0	559.9	399.6	18.6	34.43	1.91	36.86	55.65	728.8	992.5	-437.1	-813.4	836.8	837.9
90	29.970	29.600	689.3	535.2	560.8	534.7	400.7	22.8	35.56	2.44	39.16	57.37	723.3	992.0	-456.6	-835.4	857.3	858.2
95	30.240	30.270	670.2	510.1	536.1	509.8	402.3	18.0	36.89	2.02	41.51	59.33	715.9	999.5	-474.5	-859.7	876.8	877.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.76	6.73	16.59	52.47	62.53	2.1081	.5748	.1371	.0325	.0325	.9524	.0000	.0000	.8195	.8037	.4712	.5221	.6623
10	2.57	6.83	19.43	47.01	59.54	2.0311	.5542	.1579	.0388	.0388	.9454	.0000	.0000	.7899	.8001	.4808	.5306	.6584
15	2.12	6.45	20.34	43.21	57.03	1.9794	.5275	.1457	.0372	.0372	.9509	.0000	.0000	.7964	.7865	.4919	.5350	.6687
30	.48	5.28	17.03	39.94	51.69	1.7552	.4685	.0704	.0200	.0200	.9783	.0000	.0000	.8817	.7436	.5164	.5467	.7313
50	-.34	5.15	14.17	35.73	44.75	1.5494	.4406	.0500	.0161	.0161	.9863	.0000	.0000	.9034	.6925	.5068	.5672	.7710
70	-2.08	4.02	14.87	33.38	44.23	1.3871	.4148	.0400	.0144	.0144	.9901	.0000	.0000	.9108	.6522	.5026	.6151	.8311
85	-2.33	4.17	16.94	32.53	45.27	1.2867	.4168	.0505	.0196	.0196	.9883	.0000	.0000	.8839	.6251	.4881	.6442	.8646
90	-1.32	5.28	18.16	33.12	45.96	1.2554	.4418	.0706	.0281	.0281	.9844	.0000	.0000	.8460	.6077	.4647	.6374	.8613
95	-.29	6.46	18.34	34.87	46.76	1.2271	.4724	.0804	.0327	.0327	.9832	.0000	.0000	.8304	.5883	.4414	.6283	.8648

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6644.	162.71	36.69	1.1103	1.3812	87.657	88.28	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	482.9	961.4	482.9	552.8	.0	786.6	.00	54.90	38.22	-30.22	614.7	639.8	-380.3	322.0	380.3	464.6
10	14.100	16.790	492.4	937.4	492.4	565.8	.0	747.2	.00	52.85	39.68	-24.71	639.9	623.5	-408.7	260.6	408.7	486.6
15	15.170	17.580	502.2	905.9	502.2	576.2	.0	698.9	.00	50.48	41.19	-18.15	667.5	607.3	-439.7	189.4	439.7	509.5
30	18.280	19.910	526.0	821.0	526.0	558.9	.0	601.4	.00	47.08	45.17	-2.40	746.7	561.2	-529.8	24.3	529.8	577.1
50	22.190	23.090	546.7	734.5	546.7	523.3	.0	515.4	.00	44.54	49.61	16.33	844.3	547.2	-643.2	-153.9	643.2	669.2
70	25.880	26.260	556.9	670.2	556.9	503.4	.0	442.4	.00	41.31	53.39	32.27	934.4	596.6	-750.1	-318.7	750.1	761.1
85	28.450	28.610	559.0	631.0	559.0	477.0	.0	413.0	.00	40.90	55.86	41.12	996.3	633.3	-824.6	-416.3	824.6	829.2
90	29.320	29.410	558.8	609.3	558.8	447.0	.0	413.9	.00	42.83	56.67	44.47	1017.1	626.4	-849.8	-438.5	849.8	852.4
95	30.150	30.180	558.2	586.9	558.2	415.5	.0	414.4	.00	44.92	57.43	47.92	1037.0	620.2	-873.9	-460.3	873.9	874.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-2.76	4.15	6.54	68.43	70.88	2.4334	.2483	.2116	.0376	.0376	1.4159	.8955	.8903	.0000	.4413	.8746	.5625	.5820
10	-1.79	4.87	6.40	64.39	65.97	2.2859	.3032	.1195	.0237	.0237	1.4357	.9361	.9328	.0000	.4509	.8499	.5877	.5653
15	-1.09	5.20	6.72	59.35	62.90	2.1572	.3506	.0601	.0132	.0132	1.4407	.9641	.9622	.0000	.4601	.8185	.6134	.5487
30	-.03	5.65	11.30	47.58	53.23	1.9048	.4685	.0308	.0081	.0081	1.4341	.9765	.9753	.0000	.4821	.7342	.6851	.5019
50	.97	5.97	11.80	33.28	39.11	1.6907	.5357	.0453	.0129	.0129	1.4217	.9585	.9564	.0000	.5017	.6501	.7748	.4843
70	2.11	6.32	12.22	21.12	27.02	1.5349	.5167	.0423	.0116	.0116	1.4082	.9533	.9510	.0000	.5115	.5897	.8575	.5249
85	2.52	6.21	11.13	14.75	19.66	1.4422	.5084	.0731	.0191	.0191	1.3957	.9132	.9090	.0000	.5136	.5526	.9158	.5546
90	2.53	6.06	12.19	12.21	18.33	1.4148	.5282	.1160	.0293	.0293	1.3822	.8618	.8553	.0000	.5133	.5317	.9348	.5466
95	2.41	5.79	13.77	9.51	17.48	1.3891	.5458	.1548	.0373	.0373	1.3684	.8139	.8054	.0000	.5128	.5103	.9527	.5392

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6643.	158.69	29.78	1.1115	1.4123	92.990	93.40	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	876.3	521.2	511.4	521.0	711.6	-5.5	54.30	-.62	-21.16	46.24	548.5	753.3	198.0	-544.0	513.6	538.5
10	18.350	19.110	872.1	530.1	538.7	528.9	685.7	31.7	51.84	3.41	-15.95	44.63	560.5	743.3	153.8	-522.2	531.9	553.9
15	19.070	19.740	858.2	540.8	565.5	538.3	645.3	52.4	48.76	5.56	-9.31	44.00	573.6	748.3	92.6	-519.8	552.7	572.1
30	21.140	21.600	814.5	571.2	585.3	570.1	566.2	34.6	44.03	3.47	4.52	46.04	588.4	821.6	-46.6	-591.5	612.7	626.1
50	23.970	24.200	766.8	567.9	584.4	566.6	496.3	37.7	40.32	3.81	18.69	49.49	618.2	872.8	-198.5	-663.7	694.7	701.4
70	26.790	26.880	725.5	563.0	581.7	562.6	433.6	22.0	36.70	2.24	30.47	53.37	675.7	943.4	-342.9	-757.1	776.5	779.1
85	28.860	28.900	698.4	546.9	566.0	546.4	409.1	22.4	35.86	2.36	37.06	56.17	709.4	981.5	-427.4	-815.2	836.5	837.6
90	29.570	29.600	681.6	524.1	543.4	523.4	411.3	27.3	37.13	2.98	39.37	57.78	703.0	981.9	-445.8	-830.6	857.1	857.9
95	30.240	30.270	663.9	501.2	519.4	500.5	413.5	25.0	38.53	2.86	41.71	59.58	695.8	988.5	-463.0	-852.4	876.5	877.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	4.40	8.37	15.87	54.91	62.54	2.1080	.5947	.1402	.0332	.0332	.9530	.0000	.0000	.8201	.7852	.4505	.4946	.6511
10	3.73	7.99	19.35	48.43	59.55	2.0311	.5726	.1620	.0398	.0398	.9461	.0000	.0000	.7909	.7808	.4587	.5059	.6432
15	2.75	7.08	20.98	43.21	57.03	1.9497	.5433	.1540	.0393	.0393	.9500	.0000	.0000	.7898	.7679	.4689	.5153	.6487
30	1.52	6.32	17.44	40.56	51.68	1.7557	.4822	.0762	.0217	.0217	.9774	.0000	.0000	.8744	.7275	.4971	.5257	.7151
50	.87	6.36	14.56	36.52	44.73	1.5498	.4510	.0536	.0173	.0173	.9857	.0000	.0000	.8979	.6818	.4943	.5486	.7597
70	-.82	5.28	15.04	34.46	44.22	1.3872	.4280	.0448	.0161	.0161	.9891	.0000	.0000	.9028	.6428	.4905	.5974	.8217
85	-.92	5.58	17.38	33.51	45.26	1.2867	.4319	.0595	.0231	.0231	.9866	.0000	.0000	.8689	.6165	.4754	.6258	.8531
90	.24	6.84	18.71	34.15	45.96	1.2554	.4553	.0763	.0304	.0304	.9836	.0000	.0000	.8382	.5996	.4541	.6182	.8506
95	1.36	8.11	19.19	35.67	46.76	1.2271	.4834	.0858	.0349	.0349	.9824	.0000	.0000	.8222	.5816	.4327	.6092	.8535

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6643.	158.69	35.78	1.1115	1.3830	87.078	87.73	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	467.4	941.8	467.4	526.1	.0	781.1	.00	56.04	39.11	-31.05	602.4	614.2	-380.0	316.8	380.0	464.3
10	14.100	16.790	476.7	915.5	476.7	532.4	.0	744.6	.00	54.42	40.59	-25.85	627.7	592.4	-408.4	258.3	408.4	486.3
15	15.170	17.580	486.1	884.4	486.1	546.3	.0	695.3	.00	51.83	42.10	-18.78	655.3	577.9	-439.4	186.1	439.4	509.2
30	18.280	19.910	508.8	807.4	508.8	534.8	.0	604.7	.00	48.49	46.11	-2.92	734.4	537.4	-529.5	28.1	529.5	576.7
50	22.190	23.090	527.8	724.5	527.8	507.4	.0	517.1	.00	45.52	50.58	16.58	831.8	531.3	-642.7	-151.7	642.7	668.8
70	25.880	26.260	536.3	666.1	536.3	489.1	.0	452.2	.00	42.75	54.40	32.17	921.8	579.1	-749.6	-308.4	749.6	760.6
85	28.450	28.610	537.2	628.8	537.2	460.4	.0	428.1	.00	42.93	56.89	41.03	983.7	610.5	-824.0	-400.5	824.0	828.7
90	29.320	29.410	536.6	610.8	536.6	433.1	.0	430.4	.00	44.84	57.71	44.23	1004.6	604.6	-849.2	-421.4	849.2	851.8
95	30.150	30.180	535.9	593.7	535.9	407.1	.0	432.2	.00	46.71	58.46	47.34	1024.6	600.9	-873.3	-442.0	873.3	874.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-1.87	1.04	5.74	70.16	70.92	2.4329	.2735	.2133	.0376	.0376	1.4136	.8979	.8928	.0000	.4268	.8545	.5510	.5573
10	-.89	5.76	5.25	66.44	65.98	2.2852	.3383	.1420	.0280	.0280	1.4284	.9266	.9228	.0000	.4361	.8275	.5762	.5354
15	-.18	6.10	8.10	60.88	62.92	2.1565	.3821	.0781	.0171	.0171	1.4329	.9551	.9528	.0000	.4450	.7967	.6020	.5206
30	.90	6.57	10.79	49.03	53.25	1.9041	.4934	.0363	.0095	.0095	1.4350	.9735	.9722	.0000	.4659	.7205	.6739	.4796
50	1.95	6.93	12.05	34.00	39.12	1.6902	.5485	.0412	.0117	.0117	1.4254	.9632	.9615	.0000	.4837	.6404	.7634	.4696
70	3.1[illegible]	7.33	12.11	22.23	27.00	1.5346	.5327	.0467	.0129	.0129	1.4167	.9508	.9483	.0000	.4917	.5853	.8458	.5087
85	3.56	7.24	11.07	15.87	19.69	1.4422	.5307	.0871	.0228	.0228	1.4058	.9021	.8975	.0000	.4925	.5495	.9035	.5335
90	3.57	7.08	11.95	13.48	18.34	1.4148	.5499	.1277	.0323	.0323	1.3958	.8561	.8491	.0000	.4920	.5319	.9222	.5265
95	3.44	6.82	13.19	11.12	17.48	1.3891	.5654	.1620	.0395	.0395	1.3868	.8161	.8075	.0000	.4912	.5153	.9398	.5216

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6638.	154.37	34.81	1.1132	1.4179	92.737	93.13	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	IA-2 N	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.72	18.580	856.6	496.3	484.6	495.7	706.4	-14.6	55.55	-1.69	-21.72	48.11	521.7	742.6	193.1	-552.8	513.3	538.2
10	18.350	19.110	849.3	500.7	503.1	499.7	684.1	26.8	53.67	3.06	-16.89	46.50	525.9	726.1	152.6	-526.7	531.5	553.5
15	19.070	19.740	834.4	509.2	532.5	506.6	642.2	51.4	50.33	5.79	-9.60	45.77	540.6	726.2	89.9	-520.3	552.4	571.8
30	21.140	21.600	798.1	549.7	559.0	548.3	569.4	40.0	45.51	4.17	4.35	46.88	561.8	802.3	-42.9	-585.7	612.3	625.6
50	23.970	24.200	753.4	550.4	565.2	549.1	498.0	38.4	41.37	4.00	19.08	50.33	599.3	860.6	-196.3	-662.6	694.3	700.9
70	26.790	26.880	717.6	550.5	564.5	550.1	443.0	21.5	38.12	2.24	30.49	53.99	656.9	935.9	-332.9	-757.1	776.0	778.6
85	28.860	28.900	692.2	536.7	547.4	536.3	423.7	22.5	37.75	2.41	36.99	56.64	685.4	975.3	-412.2	-814.6	835.9	837.1
90	29.570	29.600	678.5	517.4	527.0	516.7	427.3	27.0	39.04	2.98	39.17	58.10	679.8	978.1	-429.2	-830.4	856.5	857.3
95	30.240	30.270	665.5	498.3	507.0	497.8	431.2	21.4	40.38	2.46	41.25	59.80	674.4	989.7	-444.7	-855.3	875.9	876.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	5.82	9.78	14.79	57.24	62.53	2.1083	.6156	.1510	.0358	.0358	.9512	.0000	.0000	.8081	.7650	.4283	.4673	.6409
10	5.55	9.80	18.99	50.60	59.54	2.0313	.5967	.1728	.0425	.0425	.9450	.0000	.0000	.7819	.7580	.4323	.4732	.6270
15	4.34	8.67	21.22	44.53	57.02	1.9503	.5675	.1671	.0426	.0426	.9483	.0000	.0000	.7764	.7452	.4405	.4843	.6282
30	3.03	7.82	18.17	41.34	51.70	1.7568	.4975	.0884	.0251	.0251	.9747	.0000	.0000	.8574	.7118	.4775	.5005	.6969
50	1.94	7.42	14.71	37.37	44.68	1.5504	.4649	.0604	.0194	.0194	.9844	.0000	.0000	.8879	.6692	.4783	.5303	.7479
70	.59	6.68	15.03	35.88	44.21	1.3875	.4449	.0527	.0190	.0190	.9875	.0000	.0000	.8906	.6349	.4786	.5784	.8136
85	.93	7.42	17.43	35.34	45.26	1.2869	.4496	.0684	.0265	.0265	.9848	.0000	.0000	.8555	.6098	.4654	.6032	.8456
90	2.11	8.71	18.70	36.06	45.96	1.2555	.4723	.0874	.0348	.0348	.9814	.0000	.0000	.8216	.5958	.4472	.5966	.8453
95	3.23	9.98	18.79	37.92	46.75	1.2271	.5020	.1034	.0421	.0421	.9788	.0000	.0000	.7904	.5820	.4292	.5889	.8525

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6638.	154.37	34.81	1.1132	1.3860	86.391	87.06	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	BT-1 DEGREE	BT-2 DEGREE	VT-1 FT/SEC	VT-2 FT/SEC	VUT-1 FT/SEC	VUT-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	437.2	935.8	457.2	506.4	.0	786.9	.00	57.24	39.81	-32.38	595.3	599.8	-381.2	321.3	381.2	465.7
10	14.100	16.790	466.2	907.7	466.2	517.0	.0	745.9	.00	55.26	41.30	-26.50	620.6	578.6	-409.6	258.1	409.6	487.8
15	15.170	17.580	475.4	876.6	475.4	531.1	.0	697.2	.00	52.69	42.82	-19.31	648.3	563.7	-440.7	186.5	440.7	510.7
30	18.280	19.910	497.7	802.4	497.7	520.4	.0	610.6	.00	49.54	46.82	-3.46	727.9	523.3	-531.1	32.2	531.1	578.4
50	22.190	23.090	516.6	720.8	516.6	496.7	.0	522.3	.00	46.42	51.27	16.57	826.2	520.1	-644.6	-148.5	644.6	670.8
70	25.880	26.260	525.1	665.8	525.1	480.5	.0	460.9	.00	43.81	55.05	32.10	917.2	568.3	-751.8	-302.0	751.8	762.9
85	28.450	28.610	526.1	630.2	526.1	450.4	.0	440.7	.00	44.39	57.52	40.93	979.8	596.3	-826.5	-390.5	826.5	831.2
90	29.320	29.410	525.6	613.8	525.6	424.2	.0	443.3	.00	46.28	58.32	44.11	1000.9	590.9	-851.8	-411.0	851.8	854.4
95	30.150	30.180	524.9	598.1	524.9	399.9	.0	444.8	.00	45.04	59.07	47.20	1021.1	588.7	-875.9	-432.0	875.9	876.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	MT-1	MT-2
5	-1.17	5.74	4.38	72.20	70.89	2.4330	.2912	.2295	.0398	.0398	1.4161	.8936	.8483	-.0000	.4171	.8478	.5439	.5434
10	-.18	6.47	4.59	67.80	65.97	2.2853	.3535	.1536	.0301	.0301	1.4285	.9227	.9187	.0000	.4261	.8192	.5691	.5222
15	.53	6.82	7.57	62.13	62.92	2.1566	.3981	.0896	.0196	.0196	1.4329	.9499	.9473	.0000	.4348	.7886	.5949	.5071
30	1.61	7.29	10.24	50.28	53.25	1.9043	.5104	.0434	.0114	.0114	1.4391	.9695	.9679	.0000	.4552	.7151	.6670	.4664
50	2.64	7.62	12.04	34.70	39.11	1.6903	.5810	.0411	.0117	.0117	1.4323	.9842	.9523	.0000	.4729	.6364	.7572	.4591
70	3.78	7.98	12.03	22.95	27.01	1.5346	.5452	.0465	.0128	.0128	1.4281	.9524	.9499	.0000	.4810	.5843	.8405	.4987
85	4.18	7.86	10.97	15.59	19.68	1.4422	.5478	.0919	.0241	.0241	1.4197	.9005	.8954	.0000	.4819	.5498	.8989	.5203
90	4.18	7.70	11.83	14.21	18.33	1.4148	.5664	.1310	.0332	.0332	1.4114	.8577	.9507	.0000	.4814	.5336	.9179	.5138
95	4.05	7.42	13.04	11.87	17.48	1.3891	.5803	.1628	.0398	.0398	1.4040	.8218	.8131	.0000	.4807	.5185	.9356	.5103

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6658.	151.81	34.23	1.1154	1.4266	92.548	93.04	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	BT-1 DEGREE	BT-2 DEGREE	VT-1 FT/SEC	VT-2 FT/SEC	VUT-1 FT/SEC	VUT-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	849.3	478.8	463.1	477.9	712.0	-22.8	56.95	-2.73	-23.05	49.64	503.5	738.1	197.2	-562.5	514.8	539.8
10	18.350	19.110	839.5	479.2	484.5	478.5	685.5	20.3	54.75	2.43	-17.47	48.18	508.1	717.7	152.4	-534.9	533.1	555.2
15	19.070	19.740	823.8	486.9	514.0	484.6	643.7	47.2	51.38	5.56	-9.91	47.36	522.3	715.4	89.7	-526.3	554.0	573.5
30	21.140	21.600	790.0	532.0	541.6	530.4	574.9	40.8	46.69	4.40	4.10	47.87	544.2	791.0	-39.2	-586.7	614.1	627.5
50	25.970	24.200	746.9	539.6	552.1	538.4	503.0	35.9	42.33	3.81	19.23	51.08	585.9	857.4	-193.4	-667.2	696.4	703.0
70	26.790	26.880	715.2	543.7	554.7	543.3	451.6	21.3	39.14	2.24	30.47	54.42	644.3	934.0	-326.8	-759.6	778.3	780.9
85	28.860	28.900	692.0	532.3	537.3	531.9	436.0	22.2	39.07	2.39	36.84	56.95	671.3	975.2	-402.4	-817.4	838.4	839.6
90	29.570	29.600	679.7	514.0	518.0	513.5	440.1	22.2	40.36	2.47	38.97	58.49	666.3	982.7	-419.0	-837.7	859.0	859.9
95	30.240	30.270	668.1	496.2	499.3	498.0	443.8	14.3	41.63	1.65	41.04	60.17	662.1	997.2	-434.7	-865.1	878.5	879.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	MT-1	MT-2
5	7.15	11.11	13.76	59.68	62.53	2.1083	.6368	.1560	.0370	.0370	.9504	.0000	.0000	.8076	.7566	.4125	.4501	.6390
10	6.63	10.88	18.35	52.32	59.53	2.0315	.6200	.1803	.0443	.0443	.9438	.0000	.0000	.7782	.7478	.4130	.4563	.6186
15	5.43	9.75	20.99	45.82	57.02	1.9507	.5907	.1765	.0450	.0450	.9467	.0000	.0000	.7699	.7348	.4204	.4670	.6177
30	4.24	9.02	18.42	42.30	51.70	1.7575	.5164	.1024	.0290	.0290	.9712	.0000	.0000	.8402	.7038	.4611	.4837	.6856
50	2.92	8.40	14.50	38.52	44.65	1.5909	.4780	.0657	.0211	.0211	.9833	.0000	.0000	.8810	.6626	.4682	.5171	.7439
70	1.60	7.69	15.03	36.89	44.20	1.3877	.4560	.0588	.0212	.0212	.9862	.0000	.0000	.8822	.6319	.4719	.5672	.8105
85	2.23	8.73	17.41	36.67	45.25	1.2870	.4629	.0745	.0289	.0289	.9835	.0000	.0000	.8471	.6086	.4606	.5899	.8438
90	3.42	10.02	18.19	37.89	45.96	1.2556	.4885	.0961	.0382	.0382	.9795	.0000	.0000	.8084	.5958	.4433	.5838	.8475
95	4.49	11.24	17.97	39.99	46.75	1.2272	.5191	.1137	.0463	.0463	.9766	.0000	.0000	.7739	.5832	.4265	.5771	.8573

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6658.	154.81	34.23	1.1154	1.3921	85.963	86.63	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

95% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	584.1	1121.6	584.1	709.8	.0	868.4	.00	50.74	34.56	-28.03	708.7	804.2	-401.4	378.0	401.4	490.4
10	14.100	16.790	596.6	1103.3	596.6	707.5	.0	846.5	.00	50.10	35.87	-25.17	736.3	782.2	-431.4	332.8	431.4	513.7
15	15.170	17.580	609.5	1066.3	609.5	712.5	.0	793.0	.00	48.04	37.28	-19.66	766.1	757.9	-464.1	255.1	464..	537.9
30	18.280	19.910	640.9	957.7	640.9	705.5	.0	647.3	.00	42.50	41.08	-3.04	850.8	708.8	-559.3	38.1	559.3	609.2
50	22.190	23.090	664.6	850.3	664.6	669.8	.0	523.5	.00	37.98	45.58	15.27	950.2	696.5	-678.9	-182.9	678.9	706.4
70	25.880	26.260	668.7	734.6	668.7	608.8	.0	411.0	.00	34.00	49.80	32.74	1036.6	726.1	-791.8	-392.4	791.8	803.4
85	28.450	28.610	663.5	652.8	663.5	544.7	.0	359.6	.00	33.44	52.68	43.43	1094.5	750.6	-870.4	-515.7	870.4	875.3
90	29.320	29.410	660.8	620.5	660.8	511.3	.0	351.4	.00	34.52	53.62	47.01	1114.2	750.3	-897.1	-548.4	897.1	899.8
95	30.150	30.180	658.5	597.3	658.5	487.1	.0	345.7	.00	35.36	54.48	49.85	1133.4	755.8	-922.5	-577.7	922.5	923.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL SHOCK	OMEGA-B	M-1	M-2	M'-1	M'-2
5	-6.49	.42	8.82	62.53	70.99	2.4324	.1423	.2395	.0434	.0434	1.4753	.8668	.8594	.0000	.5392	1. 388	.6554	.7448
10	-5.62	1.02	5.95	61.04	66.01	2.2847	.2110	.1487	.0294	.0294	1.5184	.9132	.9080	.0000	.5524	1. 168	.6840	.7209
15	-5.01	1.26	7.23	56.94	62.94	2.1557	.2683	.0963	.0210	.0210	1.5238	.9384	.9346	.0000	.5652	.9775	.7131	.6948
30	-4.12	1.52	10.67	44.13	53.29	1.9026	.3749	.0460	.0121	.0121	1.4925	.9615	.9593	.0000	.5957	.8668	.7944	.6415
50	-2.98	1.94	10.74	30.31	39.15	1.6884	.4331	.0546	.0156	.0156	1.4475	.9434	.9403	.0000	.6185	.7606	.8909	.6230
70	-1.36	2.78	12.57	17.06	26.92	1.5337	.4295	.0969	.0266	.0266	1.3598	.8729	.8673	.0000	.6210	.6517	.9707	.6441
85	-.60	3.03	13.53	9.25	19.75	1.4420	.4284	.1550	.0390	.0370	1.2953	.7680	.7593	.0078	.6153	.5753	1.0225	.6615
90	-.51	2.99	14.73	6.61	18.33	1.4148	.4382	.1897	.0457	.0436	1.2706	.7078	.6978	.0089	.6130	.5450	1.0388	.6590
95	-.56	2.79	15.70	4.62	17.48	1.3890	.4430	.2134	.0495	.0471	1.2545	.6642	.6533	.0103	.6110	.5233	1.0541	.6620

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	ST_A-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7011.	180.96	40.80	1.1159	1.4051	88.085	90.55	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1048.8	705.4	696.6	705.0	784.0	17.2	48.38	1.39	-19.14	38.02	737.4	895.0	241.8	-551.2	542.2	568.5
10	18.350	19.110	1058.1	727.6	720.6	726.5	774.7	40.3	47.07	3.17	-16.49	36.85	751.7	907.8	213.3	-544.4	561.4	584.7
15	19.070	19.740	1044.4	744.2	743.4	743.2	733.1	38.1	44.59	2.94	-11.40	37.28	759.2	934.2	149.7	-565.9	583.5	604.0
30	21.140	21.600	982.1	736.6	769.3	735.6	609.9	37.0	38.38	2.88	2.72	40.29	771.8	964.7	-36.9	-623.9	646.8	660.9
50	23.970	24.200	908.6	717.1	755.5	715.7	504.5	45.0	33.71	3.60	16.84	44.16	790.8	998.1	-228.8	-685.4	733.4	740.4
70	26.790	26.880	808.1	662.2	700.2	662.1	403.3	8.0	29.92	.67	30.71	50.87	816.0	1050.1	-416.4	-814.4	819.7	822.4
85	28.860	28.900	734.3	599.2	641.9	599.2	356.7	.1	29.06	.02	39.35	55.88	830.4	1068.2	-526.3	-884.1	883.0	884.2
90	29.570	29.600	705.6	561.7	613.1	561.6	349.2	5.4	29.67	.56	42.19	58.05	827.6	1061.4	-555.5	-900.3	904.7	905.6
95	30.240	30.270	685.4	530.9	592.3	530.8	344.9	8.7	30.21	.94	44.41	59.94	829.3	1060.0	-580.4	-917.4	925.2	926.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.25	2.72	17.89	46.99	62.55	2.1068	.4966	.1244	.0295	.0295	.9945	.0000	.0000	.8201	.9614	.6143	.6779	.7794
10	-.84	3.42	19.14	43.90	59.62	2.0275	.4797	.1470	.0362	.0362	.9337	.0000	.0000	.7907	.9648	.6346	.6886	.7918
15	-1.80	2.54	18.38	41.65	57.12	1.9442	.4552	.1267	.0325	.0325	.9439	.0000	.0000	.8183	.9474	.6515	.6948	.8177
30	-4.38	.45	16.90	35.50	51.82	1.7502	.4143	.0916	.0261	.0261	.9630	.0000	.0000	.8455	.8877	.6472	.7021	.8477
50	-5.86	-.34	14.39	30.11	44.81	1.5472	.3730	.0716	.0231	.0231	.9745	.0000	.0000	.8548	.8162	.6311	.7134	.8784
70	-7.65	-1.53	13.57	29.25	44.33	1.3864	.3565	.0420	.0152	.0152	.9876	.0000	.0000	.8990	.7215	.5829	.7307	.9243
85	-7.70	-1.19	15.08	29.04	45.33	1.2865	.3726	.0520	.0202	.0202	.9870	.0000	.0000	.8672	.6516	.5254	.7382	.9366
90	-7.16	-.56	16.28	29.11	45.96	1.2554	.3979	.0722	.0288	.0288	.9833	.0000	.0000	.8269	.6247	.4908	.7332	.9274
95	-6.98	-.22	17.27	29.27	46.76	1.2271	.4251	.0940	.0383	.0383	.9794	.0000	.0000	.7933	.6057	.4624	.7328	.9233

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	ST_A-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7011.	180.96	40.80	1.1159	1.3663	80.505	81.40	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

95% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	551.2	1039.9	551.2	627.1	.0	829.5	.00	52.91	36.08	-28.37	682.1	712.8	-401.7	338.7	401.7	490.8
10	14.100	16.790	562.5	1016.7	562.5	625.8	.0	801.1	.00	51.99	37.50	-24.62	709.1	689.0	-431.7	287.1	431.7	514.0
15	15.170	17.580	574.0	981.0	574.0	632.6	.0	749.6	.00	49.82	38.96	-16.43	738.4	667.9	-464.4	211.4	464.4	538.2
30	18.280	19.910	602.5	887.9	602.5	621.8	.0	633.7	.00	45.52	42.86	-2.16	822.5	624.2	-559.6	24.1	559.6	609.5
50	22.190	23.090	627.1	794.9	627.1	588.5	.0	534.2	.00	42.21	47.26	16.30	924.7	615.2	-679.3	-172.7	679.3	706.9
70	25.880	26.260	638.5	723.7	638.5	563.4	.0	454.2	.00	38.87	51.12	31.76	1017.7	664.0	-792.3	-349.7	792.3	803.9
85	28.450	28.610	640.1	676.2	640.1	532.4	.0	416.8	.00	38.08	53.68	40.78	1080.9	703.3	-871.0	-459.1	871.0	875.9
90	29.320	29.410	639.5	648.3	639.5	497.1	.0	415.9	.00	39.95	54.53	44.28	1102.2	694.5	-897.6	-484.5	897.6	900.4
95	30.150	30.180	638.6	624.2	638.6	465.1	.0	416.4	.00	41.84	55.32	47.49	1122.4	688.5	-923.0	-507.6	923.0	924.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-4.91	2.01	8.39	64.45	70.89	2.4332	.2298	.1987	.0359	.0359	1.4681	.8930	.8871	.0000	.5068	.9518	.6280	.6524
10	-3.98	2.67	6.48	62.12	65.96	2.2857	.2969	.1306	.0260	.0260	1.4949	.9254	.9211	.0000	.5184	.9262	.6553	.6277
15	-3.33	2.97	8.44	57.40	62.90	2.1570	.3479	.0818	.0180	.0180	1.4980	.9485	.9455	.0000	.5295	.8897	.6830	.6058
30	-2.55	3.33	11.85	45.01	53.23	1.9048	.4516	.0353	.0093	.0093	1.4872	.9714	.9698	.0000	.5564	.7963	.7604	.5598
50	-1.36	3.62	11.77	30.96	39.11	1.6905	.5087	.0394	.0112	.0112	1.4689	.9613	.9591	.0000	.5803	.7051	.8563	.5456
70	-.15	4.05	11.70	19.36	27.01	1.5347	.4939	.0417	.0116	.0116	1.4459	.9510	.9484	.0000	.5918	.6377	.9430	.5851
85	.35	4.03	10.82	12.90	19.66	1.4422	.4834	.0723	.0190	.0166	1.4225	.9084	.9037	.0092	.5929	.5928	1.0029	.6165
90	.39	3.91	12.01	10.25	18.34	1.4148	.5035	.1189	.0301	.0275	1.4010	.8485	.8412	.0101	.5923	.5659	1.0222	.6062
95	.30	3.68	13.34	7.83	17.48	1.3891	.5202	.1581	.0384	.0357	1.3839	.7971	.7876	.0114	.5914	.5428	1.0401	.5987

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7016.	174.85	39.43	1.1218	1.4533	92.600	93.03	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	953.9	582.7	589.8	582.3	749.6	-2.8	51.80	-.30	-19.35	44.46	625.2	816.1	207.1	-571.6	542.5	568.8
10	18.350	19.110	953.9	598.8	608.4	597.3	734.6	40.3	50.37	3.85	-15.87	42.36	632.6	808.5	172.9	-544.8	561.8	585.1
15	19.070	19.740	937.6	609.1	631.9	606.8	692.4	53.4	47.61	5.03	-9.77	42.24	641.9	819.6	108.6	-551.0	583.8	604.3
30	21.140	21.600	889.9	633.3	660.0	632.2	596.7	37.1	42.10	3.36	4.34	44.62	663.2	888.5	-50.5	-624.2	647.2	661.3
50	23.970	24.200	838.0	628.2	661.4	626.5	514.5	46.1	37.86	4.20	18.30	47.94	697.9	955.7	-219.4	-694.8	733.8	740.9
70	26.790	26.880	784.6	618.9	652.3	618.5	445.2	23.7	34.30	2.19	29.85	52.25	733.1	1010.7	-375.0	-799.3	820.2	822.9
85	28.860	28.900	750.6	598.4	631.6	598.1	412.6	19.2	33.18	1.84	36.70	55.36	787.9	1052.3	-470.7	-865.5	883.5	884.8
90	29.570	29.600	732.2	585.6	604.4	585.3	413.1	20.2	34.36	2.04	39.17	57.46	779.6	1051.1	-492.2	-886.0	905.3	906.2
95	30.240	30.270	712.9	541.0	579.4	540.7	415.4	19.8	35.64	2.10	41.37	59.20	772.2	1055.9	-510.4	-906.9	925.8	926.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.16	6.12	16.19	62.10	62.53	2.1081	.5718	.1415	.0336	.0336	.9457	.0000	.0000	.8184	.8601	.5030	.5653	.7045
10	2.36	6.62	19.79	46.52	59.56	2.0305	.5474	.1587	.0390	.0390	.9392	.0000	.0000	.7935	.8573	.5174	.5719	.6946
15	1.51	5.85	20.46	42.58	57.06	1.9485	.5216	.1454	.0372	.0372	.9458	.0000	.0000	.8019	.8418	.5275	.5791	.7098
30	-.45	4.35	17.33	38.75	51.71	1.7543	.4652	.0738	.0210	.0210	.9747	.0000	.0000	.8794	.7974	.5511	.5952	.7732
50	-1.63	3.87	14.97	33.66	44.76	1.5490	.4295	.0516	.0166	.0166	.9840	.0000	.0000	.9025	.7475	.5471	.6224	.8149
70	-3.23	2.88	15.00	32.11	44.24	1.3870	.4083	.0442	.0159	.0159	.9876	.0000	.0000	.9033	.7017	.5395	.6683	.8810
85	-3.59	2.91	16.85	31.35	45.28	1.2867	.4095	.0521	.0202	.0202	.9866	.0000	.0000	.8810	.6678	.5207	.6969	.9156
90	-2.52	4.09	17.76	32.32	46.96	1.2554	.4411	.0764	.0304	.0304	.9814	.0000	.0000	.8379	.6454	.4901	.6870	.9107
95	-1.53	5.22	18.42	33.54	46.76	1.2271	.4671	.0837	.0341	.0341	.9806	.0000	.0000	.8273	.6256	.4671	.6773	.9115

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7016.	174.85	39.43	1.1218	1.4199	86.553	87.25	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

95% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	524.1	1008.5	524.1	578.4	.0	826.1	.00	55.00	37.46	-30.10	660.2	668.7	-401.6	335.4	401.6	490.6
10	14.100	16.790	534.6	982.6	534.6	585.1	.0	789.3	.00	53.44	38.91	-25.18	687.1	647.2	-431.6	275.4	431.6	513.9
15	15.170	17.580	545.4	949.3	545.4	591.3	.0	742.5	.00	51.46	40.40	-19.03	716.3	626.4	-464.3	204.5	464.3	538.1
30	18.280	19.910	572.1	862.4	572.1	580.5	.0	637.6	.00	47.66	44.33	-2.71	800.4	583.2	-559.5	28.2	559.5	609.4
50	22.190	23.090	595.6	775.9	595.6	553.9	.0	543.3	.00	44.43	48.72	16.38	903.5	579.2	-679.2	-163.4	679.2	706.7
70	25.880	26.260	607.2	714.5	607.2	535.5	.0	473.1	.00	41.46	52.51	31.63	998.2	630.2	-792.1	-330.6	792.1	803.8
85	28.450	28.610	609.4	675.1	609.4	510.3	.0	441.6	.00	40.90	55.01	40.38	1062.8	670.1	-870.8	-433.9	870.8	875.7
90	29.320	29.410	608.9	652.9	608.9	477.6	.0	445.0	.00	43.00	55.84	43.64	1084.5	660.1	-897.4	-455.2	897.4	900.2
95	30.150	30.180	608.2	631.5	608.2	446.9	.0	446.1	.00	44.95	56.61	46.89	1105.2	654.2	-922.8	-477.6	922.8	923.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-3.53	3.39	6.63	67.56	70.86	2.4332	.2699	.2031	.0361	.0361	1.4680	.8966	.8909	.0000	.4806	.9184	.6063	.6090
10	-2.58	4.08	5.90	64.09	64.95	2.2858	.3312	.1288	.0255	.0255	1.4892	.9296	.9256	.0000	.4914	.8911	.6332	.5869
15	-1.90	4.40	7.84	59.42	62.90	2.1571	.3834	.0813	.0178	.0178	1.4942	.9512	.9484	.0000	.5017	.8572	.6606	.5656
30	-.88	4.80	10.99	47.04	51.23	1.9050	.4891	.0359	.0094	.0094	1.4912	.9725	.9709	.0000	.5265	.7704	.7172	.5209
50	.09	5.08	11.84	32.34	39.10	1.6907	.5400	.0323	.0092	.0092	1.4830	.9697	.9679	.0000	.5492	.6859	.8332	.5120
70	1.23	5.44	11.58	20.88	27.02	1.5348	.5241	.0338	.0094	.0094	1.4739	.9627	.9606	.0000	.5605	.6275	.9211	.5534
85	1.68	5.36	10.41	14.63	19.67	1.4422	.5141	.0640	.0169	.0169	1.4611	.9252	.9211	.0000	.5626	.5898	.9924	.5854
90	1.70	5.22	11.36	12.20	18.33	1.4148	.5366	.1115	.0285	.0254	1.4456	.8702	.8634	.0123	.5622	.5680	1.0023	.5742
95	1.59	4.97	12.74	9.72	17.48	1.3891	.5535	.1497	.0368	.0335	1.4314	.8245	.8155	.0134	.5615	.5472	1.0207	.5669

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7014.	168.84	38.07	1.1252	1.4735	93.535	93.98	.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	918.6	534.2	534.4	533.3	747.1	-20.5	54.42	-2.22	-20.96	47.84	572.4	794.8	204.8	-589.2	542.4	568.7
10	18.350	19.110	913.7	541.8	557.6	540.7	723.8	32.4	52.39	3.43	-16.22	45.62	580.9	773.0	162.1	-552.5	561.7	584.9
15	19.070	19.740	898.7	548.6	580.9	545.7	685.5	55.7	49.71	5.83	-9.95	45.14	590.4	773.7	101.8	-548.5	583.7	604.2
30	21.140	21.600	855.9	589.5	609.8	588.2	600.4	39.9	44.54	3.88	4.33	46.56	612.8	855.6	-46.7	-621.2	647.0	661.1
50	23.970	24.200	811.5	594.3	620.2	592.5	523.2	45.9	40.14	4.43	18.68	49.53	655.9	913.3	-210.5	-694.8	733.7	740.7
70	26.790	26.880	774.7	597.5	630.6	596.8	463.6	28.2	36.76	2.71	29.82	53.07	716.1	993.8	-356.3	-794.5	820.0	822.7
85	28.860	28.900	747.8	581.8	606.7	581.3	437.3	23.6	35.80	2.33	36.34	55.97	752.9	1038.9	-446.0	-860.9	883.3	884.6
90	29.570	29.600	730.7	555.3	581.8	554.7	441.9	27.2	37.23	2.81	38.53	57.74	743.8	1039.3	-463.2	-878.8	905.1	906.0
95	30.240	30.270	713.9	533.2	558.1	532.5	445.1	27.1	38.58	2.92	40.72	59.37	736.4	1045.2	-480.4	-899.4	925.6	926.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	4.63	8.60	14.27	56.64	62.53	2.1082	.6121	.1485	.0352	.0352	.9465	.0000	.0000	.8154	.8227	.4595	.5148	.6837
10	4.40	8.65	19.36	48.95	59.54	2.0311	.5891	.1718	.0422	.0422	.9387	.0000	.0000	.7853	.8174	.4663	.5227	.6653
15	3.73	8.06	21.26	43.88	57.03	1.9498	.5656	.1698	.0433	.0433	.9410	.0000	.0000	.7783	.8036	.4728	.5294	.6669
30	2.05	6.84	17.89	40.66	51.71	1.7560	.4952	.0840	.0239	.0239	.9731	.0000	.0000	.8676	.7640	.5107	.5467	.7412
50	.69	6.18	15.15	35.71	44.69	1.5499	.4561	.0557	.0179	.0179	.9837	.0000	.0000	.8984	.7212	.5154	.5814	.7921
70	-.75	5.34	15.50	34.05	44.21	1.3873	.4308	.0458	.0165	.0165	.9876	.0000	.0000	.9039	.6857	.5186	.6323	.8626
85	-1.00	5.50	17.36	33.47	45.26	1.2868	.4367	.0657	.0255	.0255	.9834	.0000	.0000	.8608	.6593	.5039	.6635	.8998
90	.32	6.92	18.53	34.42	45.96	1.2555	.4659	.0910	.0362	.0362	.9780	.0000	.0000	.8165	.6417	.4789	.6529	.8963
95	1.42	8.17	19.24	35.66	46.75	1.2271	.4916	.1013	.0412	.0412	.9766	.0000	.0000	.7992	.6240	.4581	.6431	.8981

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7014.	168.84	38.07	1.1252	1.4376	87.273	88.01	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR — 95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	503.9	987.9	503.9	552.0	.0	819.3	.00	56.03	38.53	-30.77	644.3	642.6	-401.5	328.7	401.5	490.5
10	14.100	16.790	513.9	960.3	513.9	559.5	.0	780.4	.00	54.36	40.01	-25.45	671.0	620.2	-431.5	266.6	431.5	513.8
15	15.170	17.580	524.1	928.1	524.1	562.5	.0	738.1	.00	52.68	41.52	-19.54	700.2	597.7	-464.2	200.2	464.2	538.0
30	18.280	19.910	549.5	846.8	549.5	553.1	.0	641.0	.00	49.19	45.48	-3.23	784.3	556.0	-559.4	31.8	559.4	609.3
50	22.190	23.090	572.3	764.3	572.3	533.0	.0	547.6	.00	45.76	49.35	16.53	888.2	557.8	-679.0	-158.9	679.0	706.6
70	25.880	26.260	583.9	706.3	583.9	518.2	.0	480.0	.00	42.80	53.58	31.92	984.0	611.7	-791.9	-323.6	791.9	803.6
85	28.450	28.610	586.3	671.6	586.3	496.1	.0	452.6	.00	42.39	56.04	40.45	1049.6	652.1	-870.6	-422.9	870.6	875.5
90	29.320	29.410	585.9	652.5	585.9	466.1	.0	456.4	.00	44.42	56.45	43.60	1071.6	643.7	-897.2	-443.6	897.2	900.0
95	30.150	30.180	585.3	631.9	585.3	433.7	.0	459.6	.00	46.66	57.61	46.92	1092.6	635.1	-922.6	-463.9	922.6	923.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-2.44	4.47	5.96	69.31	70.85	2.4332	.2900	.2141	.0378	.0378	1.4625	.8951	.8893	.0000	.4613	.8971	.5906	.5835
10	-1.47	5.19	5.63	65.47	65.95	2.2857	.3523	.1433	.0283	.0283	1.4795	.9243	.9201	.0000	.4714	.8684	.6173	.5608
15	-.78	5.52	7.33	61.06	62.90	2.1571	.4086	.1010	.0221	.0221	1.4849	.9418	.9385	.0000	.4811	.8357	.6444	.5382
30	.26	5.95	10.47	48.70	53.22	1.9051	.5144	.0494	.0129	.0129	1.4891	.9642	.9622	.0000	.5045	.7546	.7204	.4955
50	1.21	6.21	11.99	33.32	39.09	1.6908	.5577	.0341	.0097	.0097	1.4871	.9692	.9675	.0000	.5264	.6743	.8165	.4922
70	2.30	6.51	11.83	21.66	27.02	1.5349	.5384	.0325	.0090	.0090	1.4832	.9653	.9634	.0000	.5377	.6192	.9055	.5362
85	2.70	6.39	10.47	15.59	19.66	1.4422	.5287	.0628	.0166	.0166	1.4765	.9296	.9256	.0000	.5400	.5857	.9677	.5686
90	2.71	6.23	11.33	13.25	18.33	1.4148	.5501	.1077	.0276	.0276	1.4646	.8799	.8734	.0000	.5397	.5667	.9879	.5591
95	2.59	5.97	12.77	10.69	17.48	1.3891	.5702	.1493	.0367	.0329	1.4513	.8329	.8240	.0154	.5391	.5466	1.0066	.5494

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7013.	164.20	37.02	1.1267	1.4794	93.471	93.90	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	896.0	502.5	503.5	501.0	741.2	-29.9	55.81	-3.42	-21.58	50.05	541.5	780.6	198.9	-598.5	542.2	568.6
10	18.350	19.110	888.0	505.4	526.4	504.5	715.2	26.5	53.64	3.00	-16.27	47.90	548.5	752.5	153.6	-558.3	561.5	584.8
15	19.070	19.740	873.1	512.8	546.3	509.9	681.0	54.0	51.26	6.04	-10.12	47.17	555.4	750.1	97.5	-550.1	583.6	604.1
30	21.140	21.600	835.2	561.1	577.0	559.4	603.6	43.2	46.27	4.41	4.24	47.83	579.9	833.5	-83.3	-617.8	646.9	661.0
50	23.970	24.200	795.4	576.9	595.3	575.3	527.4	42.8	41.53	4.25	19.02	50.48	630.9	904.5	-206.1	-697.8	733.5	740.5
70	26.790	26.880	763.4	584.9	601.2	584.2	470.3	27.3	38.03	2.68	30.13	53.69	695.9	986.8	-389.5	-795.2	819.8	822.5
85	28.860	28.900	741.6	574.1	590.9	573.7	448.0	21.8	37.17	2.18	36.37	56.37	734.0	1036.0	-435.2	-862.6	883.1	884.4
90	29.570	29.600	727.5	550.4	569.1	549.7	453.1	26.5	38.54	2.76	38.46	57.98	726.7	1037.0	-451.8	-879.3	904.9	905.8
95	30.240	30.270	711.6	529.4	544.1	528.8	458.6	26.5	40.13	2.87	40.62	59.56	716.9	1043.7	-466.8	-999.8	925.4	926.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	6.00	9.96	13.06	59.23	62.52	2.1086	.6387	.1609	.0381	.0381	.9444	.0000	.0000	.8055	.7994	.4314	.4851	.6702
10	5.73	9.98	18.92	50.64	59.52	2.0319	.6175	.1859	.0457	.0457	.9367	.0000	.0000	.7726	.7923	.4341	.4915	.6463
15	5.34	9.66	21.47	45.22	57.01	1.9511	.5930	.1849	.0471	.0471	.9388	.0000	.0000	.7641	.7790	.4409	.4963	.6449
30	3.84	8.62	18.45	41.86	51.72	1.7574	.5166	.1024	.0291	.0291	.9686	.0000	.0000	.8431	.7439	.4848	.5152	.7201
50	2.12	7.60	14.92	37.28	44.63	1.5508	.4699	.0620	.0199	.0199	.9825	.0000	.0000	.8885	.7056	.4994	.5570	.7829
70	.52	6.61	15.47	35.35	44.21	1.3876	.4425	.0495	.0178	.0178	.9870	.0000	.0000	.8990	.6744	.5067	.6126	.8550
85	.36	6.86	17.20	34.99	45.25	1.2869	.4489	.0703	.0273	.0273	.9826	.0000	.0000	.8546	.6525	.4963	.6454	.8955
90	1.60	8.19	18.48	35.77	45.96	1.2555	.4768	.0979	.0389	.0389	.9766	.0000	.0000	.8068	.6380	.4738	.6371	.8927
95	2.98	9.73	19.19	37.26	46.75	1.2271	.5032	.1082	.0440	.0440	.9753	.0000	.0000	.7871	.6207	.4540	.6245	.8949

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7013.	164.20	37.02	1.1267	1.4411	86.880	87.60	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

100% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	609.8	1200.9	609.8	733.9	.0	950.5	.00	52.33	34.74	-30.59	742.1	852.6	-422.9	433.8	422.9	516.7
10	14.100	16.790	623.1	1181.0	623.1	738.8	.0	921.3	.00	51.27	36.10	-27.20	771.3	831.1	-454.5	380.1	454.5	541.2
15	15.170	17.580	637.0	1137.3	637.0	739.4	.0	863.7	.00	49.41	37.50	-21.84	803.0	798.1	-489.0	297.1	489.0	566.7
30	18.280	19.910	671.2	1008.4	671.2	731.0	.0	694.2	.00	43.47	41.25	-4.03	893.3	735.7	-589.2	52.4	589.2	641.8
50	22.190	23.090	697.9	878.8	697.9	684.7	.0	550.6	.00	38.77	45.68	15.77	999.5	714.0	-715.2	-193.7	715.2	744.3
70	25.880	25.260	704.0	762.6	704.0	631.6	.0	427.3	.00	34.05	49.82	33.50	1091.7	759.9	-834.2	-419.1	834.2	846.4
85	28.450	28.610	699.0	674.0	699.0	559.2	.0	376.2	.00	33.95	52.68	44.31	1153.1	782.0	-917.0	-545.9	917.0	922.2
90	29.320	29.410	696.3	641.4	696.3	524.6	.0	368.8	.00	35.14	53.62	47.83	1173.9	781.8	-945.1	-579.1	945.1	948.0
95	30.150	30.180	693.8	619.0	693.8	500.8	.0	363.9	.00	36.00	54.47	50.56	1194.1	788.5	-971.8	-608.9	971.8	972.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.26	.65	6.16	65.32	70.88	2.4329	.1407	.2496	.0442	.0442	1.5600	.8677	.8592	.0000	.5641	1.1174	.6874	.7933
10	-5.39	1.26	3.86	63.31	65.95	2.2855	.2064	.1382	.0269	.0269	1.6151	.9225	.9171	.0000	.5782	1.0931	.7175	.7693
15	-4.80	1.49	5.04	59.34	62.92	2.1565	.2737	.0991	.0213	.0213	1.6151	.9390	.9347	.0000	.5920	1.0454	.7486	.7336
30	-3.96	1.70	9.68	45.28	53.27	1.9032	.3888	.0583	.0153	.0153	1.5607	.9532	.9502	.0000	.6259	.9126	.8361	.6658
50	-2.90	2.03	11.25	29.90	39.15	1.6887	.4517	.0766	.0218	.0218	1.4893	.9223	.9179	.0000	.6521	.7842	.9400	.6371
70	-1.35	2.80	13.34	16.32	26.92	1.5338	.4322	.0923	.0251	.0228	1.4020	.8803	.8744	.0082	.6566	.6755	1.0262	.6730
85	-.61	3.03	14.41	8.37	19.75	1.4420	.4353	.1583	.0393	.0357	1.3278	.7671	.7575	.0140	.6510	.5924	1.0816	.6873
90	-.51	2.98	15.55	5.78	18.33	1.4148	.4452	.1934	.0459	.0420	1.3017	.7081	.6970	.0162	.6486	.5616	1.0989	.6846
95	-.56	2.79	16.40	3.92	17.48	1.3890	.4494	.2165	.0495	.0452	1.2858	.6672	.6552	.0187	.6465	.5405	1.1152	.6884

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7387	186.47	42.05	1.1292	1.4559	87.691	88.41	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1124.8	728.6	726.2	727.2	859.0	-43.7	49.79	-3.47	-21.62	41.48	781.2	970.6	287.9	-642.6	571.2	598.9
10	18.350	19.110	1135.0	762.9	759.8	762.7	843.2	-12.1	47.98	-.92	-18.33	39.47	800.5	988.1	251.7	-628.0	591.5	616.0
15	19.070	19.740	1115.5	778.2	779.4	778.1	797.7	-5.7	45.65	-.42	-13.22	39.52	801.5	1008.8	183.0	-641.9	614.7	636.3
30	21.140	21.900	1034.7	749.6	801.2	749.5	653.5	9.5	39.17	.73	1.98	42.50	803.6	1016.7	-27.9	-686.8	681.4	696.2
50	23.970	24.200	937	719.0	772.9	718.8	530.2	15.2	34.42	1.21	17.39	46.76	811.7	1049.8	-242.4	-764.8	772.6	780.0
70	26.790	26.880	835.0	671.0	722.2	670.9	419.0	-6.9	30.10	-.61	31.58	52.45	849.5	1101.8	-444.5	-873.4	863.5	866.4
85	28.860	28.900	754.7	632.1	656.1	602.0	373.0	-11.0	29.63	-1.04	40.34	57.44	861.1	1118.6	-557.2	-942.6	930.2	931.5
90	29.570	29.600	725.7	564.5	626.3	564.5	366.5	-3.7	30.35	-.36	43.13	59.49	858.4	1112.0	-586.6	-957.8	953.1	954.1
95	30.240	30.270	706.2	536.3	605.8	536.3	363.0	1.1	30.93	.12	45.27	61.18	861.0	1112.4	-611.7	-974.6	974.7	975.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.01	3.97	13.04	53.26	62.57	2.1060	.5387	.1260	.0299	.0243	.9382	.0235	.0000	.8354	1.0346	.6300	.7222	.8392
10	.10	4.36	15.06	48.90	59.65	2.0262	.5101	.1404	.0346	.0282	.9302	.0262	.0000	.8150	1.0364	.6617	.7338	.8570
15	-.86	3.50	15.04	46.07	57.16	1.9425	.4845	.1180	.0304	.0248	.9428	.0215	.0000	.8484	1.0110	.6776	.7338	.8785
30	-3.71	1.14	14.78	38.44	51.88	1.7486	.4511	.1037	.0296	.0296	.9550	.0000	.0000	.8470	.9313	.6548	.7305	.8881
50	-5.21	.33	12.00	33.21	44.82	1.5465	.4095	.0810	.0262	.0262	.9698	.0000	.0000	.8542	.8382	.6291	.7310	.9186
70	-7.48	-1.35	12.29	30.71	44.34	1.3861	.3799	.0516	.0186	.0186	.9840	.0000	.0000	.8879	.7433	.5883	.7598	.9660
85	-7.12	-.61	14.02	30.67	45.34	1.2865	.3998	.0596	.0232	.0232	.9845	.0000	.0000	.8601	.6673	.5255	.7633	.9763
90	-6.47	.13	15.36	30.71	45.97	1.2553	.4251	.0781	.0311	.0311	.9811	.0000	.0000	.8266	.6403	.4909	.7581	.9670
95	-6.26	.50	16.44	30.81	46.76	1.2271	.4494	.0942	.0384	.0384	.9784	.0000	.0000	.8051	.6221	.4649	.7585	.9644

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7387	186.47	42.05	1.1292	1.4103	79.896	81.62	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

100% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	607.5	1184.0	607.5	720.0	.0	939.9	.00	52.55	34.90	-30.38	740.8	834.6	-423.9	422.1	423.9	517.9
10	14.100	16.790	620.7	1162.9	620.7	722.6	.0	911.1	.00	51.58	36.27	-27.01	759.9	811.6	-455.5	368.7	455.5	542.4
15	15.170	17.580	634.4	1121.7	634.4	726.1	.0	854.6	.00	49.62	37.68	-21.49	801.7	781.8	-490.1	286.6	490.1	567.9
30	18.280	19.910	668.5	997.9	668.5	718.2	.0	692.3	.00	43.90	41.43	-3.85	892.1	722.6	-590.6	49.1	590.6	643.2
50	22.190	23.090	695.2	875.8	695.2	676.9	.0	555.4	.00	39.33	45.85	15.70	998.8	705.6	-716.9	-190.6	716.9	745.9
70	25.880	26.200	701.4	763.6	701.4	627.1	.0	435.6	.00	34.76	49.99	33.29	1091.5	752.6	-836.1	-412.7	836.1	848.4
85	28.450	28.610	696.1	672.6	696.1	550.2	.0	386.8	.00	35.13	52.86	44.33	1153.0	769.6	-919.1	-537.4	919.1	924.3
90	29.320	29.410	693.2	638.7	693.2	512.4	.0	381.1	.00	36.67	53.80	48.01	1173.8	766.2	-947.2	-569.0	947.2	950.1
95	30.150	30.180	690.5	615.3	690.5	486.2	.0	377.0	.00	37.79	54.66	50.88	1194.0	770.8	-974.0	-598.0	974.0	975.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.09	.82	6.37	65.28	70.89	2.4329	.1601	.2389	.0424	.0424	1.5585	.8729	.8648	.0000	.5618	1.0988	.6860	.7745
10	-5.22	1.43	4.06	63.28	65.95	2.2855	.2273	.1387	.0270	.0270	1.6083	.9219	.9165	.0000	.5757	1.0733	.7161	.7490
15	-4.62	1.66	5.39	59.17	62.92	2.1566	.2899	.0926	.0200	.0200	1.6121	.9427	.9388	.0000	.5894	1.0287	.7471	.7170
30	-3.78	1.88	9.86	45.28	53.27	1.9033	.4021	.0497	.0130	.0130	1.5654	.9599	.9573	.0000	.6230	.9016	.8345	.6528
50	-2.73	2.20	11.17	30.15	39.14	1.6888	.4611	.0617	.0176	.0176	1.5057	.9379	.9342	.0000	.6494	.7806	.9389	.6289
70	-1.18	2.97	13.13	16.70	26.92	1.5337	.4413	.0778	.0212	.0188	1.4236	.9012	.8962	.0000	.6539	.6756	1.0259	.6658
85	-.42	3.21	14.43	8.53	19.75	1.4420	.4491	.1528	.0379	.0342	1.3463	.7819	.7725	.0180	.6479	.5901	1.0815	.6752
90	-.33	3.27	15.73	5.79	18.33	1.4148	.4621	.1925	.0455	.0415	1.3190	.7193	.7080	.0168	.6453	.5581	1.0937	.6695
95	-.37	2.97	16.72	3.79	17.48	1.3890	.4681	.2183	.0496	.0452	1.3022	.6763	.6640	.0195	.6431	.5359	1.1148	.6714

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7404	185.97	41.93	1.1308	1.4689	88.792	89.47	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1106.9	696.2	708.3	695.4	849.4	-30.0	50.17	-.50	-21.35	42.20	760.6	938.7	277.0	-630.3	572.5	600.2
10	18.350	19.110	1113.8	730.6	738.1	730.5	834.1	.3	48.49	.01	-18.10	40.19	776.7	956.3	241.3	-617.0	592.8	617.4
15	19.070	19.740	1096.9	747.6	761.3	747.5	789.3	5.4	46.02	.41	-12.82	40.22	781.6	979.2	173.2	-632.4	616.1	637.7
30	21.190	21.600	1021.9	737.3	786.5	737.2	652.0	8.8	39.63	.69	2.24	43.06	788.9	1009.2	-31.0	-689.0	683.0	697.8
50	23.970	24.200	933.5	709.3	764.9	709.0	534.9	10.3	34.94	.83	17.36	47.41	803.1	1048.1	-239.5	-771.6	774.4	781.8
70	26.790	26.880	833.7	659.6	745.9	659.2	427.2	10.8	30.81	1.83	31.45	53.42	840.8	1197.4	-438.3	-889.2	865.5	868.4
85	28.860	28.900	750.2	584.1	684.8	583.8	383.4	10.3	30.74	-.98	40.41	58.27	847.2	1110.1	-549.0	-944.0	932.4	933.6
90	29.570	29.600	719.8	545.8	612.1	545.7	378.5	2.4	31.75	-.25	43.30	60.35	841.4	1103.4	-576.8	-958.6	955.3	956.3
95	30.240	30.270	699.1	517.7	589.3	517.7	376.1	-2.6	32.54	-.29	45.55	62.17	841.7	1108.8	-600.9	-980.6	976.9	977.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.43	4.80	14.00	52.57	62.56	2.1065	.5551	.1351	.0320	.0267	.9353	.8225	.0000	.8284	1.0131	.6003	.6995	.8094
10	.54	4.80	15.99	48.48	59.53	2.0270	.5249	.1941	.0356	.0294	.9304	.8251	.0000	.8150	1.0150	.6318	.7112	.8270
15	-.37	3.99	15.86	45.61	57.14	1.9434	.4990	.1232	.0317	.0264	.9418	.8207	.0000	.8420	.9932	.6490	.7138	.8500
30	-3.21	1.64	14.72	38.34	51.86	1.7491	.4562	.0791	.0226	.0226	.9663	.9000	.0000	.8846	.9199	.6431	.7162	.8802
50	-4.68	.85	11.51	34.11	44.82	1.5465	.4219	.0628	.0203	.0203	.9768	.9000	.0000	.8911	.8338	.6193	.7224	.9154
70	-6.77	-.63	11.07	32.64	48.38	1.3861	.4022	.0865	.0158	.0168	.9857	.9000	.0000	.9051	.7405	.5770	.7509	.9687
85	-5.98	.53	14.06	31.72	45.34	1.2865	.4252	.0630	.0245	.0245	.9839	.9000	.0000	.8621	.6615	.5191	.7492	.9658
90	-5.06	1.55	15.47	32.00	45.97	1.2553	.4525	.0781	.0311	.0311	.9815	.9000	.0000	.8374	.6333	.4730	.7410	.9562
95	-4.65	2.11	16.03	32.84	46.76	1.2271	.4801	.0895	.0365	.0365	.9799	.9000	.0000	.8252	.6141	.4472	.7395	.9579

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7404	185.97	41.93	1.1308	1.4288	82.061	83.02	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

100% of Design Speed

ROTOR

%SPAN	DIA=1 IN	DIA=2 IN	V=1 FT/SEC	V=2 FT/SEC	V=1 FT/SEC	V=2 FT/SEC	VO=1 FT/SEC	VO=2 FT/SEC	B=1 DEGREE	B=2 DEGREE	B'=1 DEGREE	B'=2 DEGREE	V'=1 FT/SEC	V'=2 FT/SEC	VO'=1 FT/SEC	VO'=2 FT/SEC	U=1 FT/SEC	U=2 FT/SEC
5	13.120	16.630	606.5	1167.1	606.5	711.6	.0	925.3	.00	52.43	34.91	-29.81	739.6	820.2	-423.3	407.8	423.3	517.2
10	14.100	16.790	619.6	1146.4	619.6	709.5	.0	900.4	.00	51.76	36.28	-26.79	768.7	795.3	-454.9	358.6	454.9	541.7
15	15.170	17.580	633.2	1134.8	633.2	712.6	.0	843.9	.00	49.80	37.69	-21.17	800.4	765.7	-489.5	276.7	489.5	567.2
30	18.280	19.910	667.1	987.1	667.1	710.8	.0	584.6	.00	43.88	41.45	-3.33	890.6	714.6	-589.8	42.2	589.8	642.4
50	22.190	23.090	693.6	871.1	693.8	694.8	.0	558.0	.00	39.81	45.88	15.60	997.1	696.6	-716.0	-187.0	716.0	745.0
70	25.880	25.260	699.8	763.2	699.8	621.3	.0	443.2	.00	35.48	50.02	32.98	1089.7	743.0	-835.0	-404.0	835.0	847.3
85	28.450	28.610	694.6	671.5	694.4	542.7	.0	395.5	.00	36.10	52.89	44.19	1151.0	757.4	-917.9	-527.6	917.9	923.1
90	29.320	29.410	691.4	637.6	691.4	504.8	.0	389.4	.00	37.68	53.83	47.96	1171.8	754.1	-946.0	-559.5	946.0	948.9
95	30.150	30.180	686.8	614.5	688.8	478.8	.0	385.2	.00	38.81	54.70	50.86	1191.9	758.8	-972.8	-588.6	972.8	973.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M=1	M=2	M'=1	M'=2
5	-6.08	.83	6.96	64.72	70.92	2.4328	.1737	.2147	.0383	.0383	1.5564	.8845	.8771	.0000	.5608	1.0809	.6850	.7596
10	-5.21	1.44	4.29	63.08	65.96	2.2854	.2439	.1266	.0247	.0247	1.6040	.9280	.9231	.0000	.5747	1.0558	.7150	.7325
15	-4.61	1.68	5.76	58.86	62.92	2.1565	.3056	.0844	.0102	.0102	1.6059	.9472	.9436	.0000	.5883	1.0114	.7459	.7007
30	-3.76	1.90	10.38	44.79	53.27	1.9033	.4077	.0291	.0076	.0076	1.5685	.9754	.9738	.0000	.6217	.8911	.8330	.6450
50	-2.71	2.23	11.47	30.27	39.15	1.6888	.4701	.0487	.0139	.0139	1.5164	.9510	.9481	.0000	.6479	.7758	.9372	.6203
70	-1.15	3.00	12.82	17.03	26.92	1.5337	.4515	.0671	.0183	.0160	1.4398	.9163	.9119	.0085	.6523	.6746	1.0241	.6567
85	-.39	3.24	14.29	8.70	19.75	1.4420	.4614	.1460	.0363	.0326	1.3618	.7963	.7872	.0144	.6462	.5884	1.0796	.6437
90	-.29	3.20	15.67	5.88	18.33	1.4148	.4741	.1855	.0439	.0399	1.3346	.7357	.7247	.0166	.6435	.5565	1.0967	.6241
95	-.34	3.01	16.71	3.84	17.48	1.3890	.4798	.2110	.0480	.0436	1.3182	.6942	.6820	.0191	.6413	.5347	1.1127	.6604

NCOR=1 RPM	WCOR=1 LBM/SEC	WC/A=1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA=1	STA=2	SLANT=1 DEGREE	SLANT=2 DEGREE
7394	185.73	41.88	1.1313	1.4786	90.076	90.67	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA=1 IN	DIA=2 IN	V=1 FT/SEC	V=2 FT/SEC	V=1 FT/SEC	V=2 FT/SEC	VO=1 FT/SEC	VO=2 FT/SEC	U=1 DEGREE	U=2 DEGREE	B'=1 DEGREE	B'=2 DEGREE	V'=1 FT/SEC	V'=2 FT/SEC	VO'=1 FT/SEC	VO'=2 FT/SEC	U=1 FT/SEC	U=2 FT/SEC
5	17.720	18.580	1088.6	682.6	697.8	681.4	835.6	-40.2	50.13	-3.38	-20.71	43.20	746.0	934.6	263.8	-639.7	571.7	599.5
10	18.350	19.110	1096.7	714.8	723.4	713.6	824.2	-42.3	48.73	-3.39	-17.79	42.72	759.9	971.2	232.2	-658.9	592.1	616.6
15	19.070	19.740	1078.7	731.6	745.0	730.3	779.7	-43.4	46.29	-3.40	-12.46	42.97	763.8	998.1	164.4	-680.3	615.3	636.9
30	21.140	21.600	1009.6	731.0	776.8	730.9	644.7	14.3	39.66	1.12	2.73	43.03	779.4	1000.3	-37.4	-682.7	682.1	696.9
50	23.970	24.200	927.2	706.2	755.5	706.0	537.4	16.0	35.41	1.31	17.32	47.29	793.0	1040.9	-235.9	-764.8	775.4	780.8
70	26.790	26.860	830.5	656.7	707.7	647.5	434.6	66.1	31.54	5.60	31.24	50.71	829.4	1033.2	-429.7	-801.2	864.4	867.3
85	28.860	28.900	746.8	577.9	635.6	577.8	392.0	6.1	31.67	.61	40.31	58.04	833.9	1092.1	-539.2	-926.3	931.2	932.4
90	29.570	29.600	716.4	539.5	602.9	539.5	386.8	5.7	32.70	.61	43.26	60.39	828.2	1092.2	-567.3	-949.3	954.1	955.0
95	30.240	30.270	696.6	512.2	580.3	512.2	384.2	5.4	33.51	.61	45.54	62.19	828.6	1098.0	-591.5	-971.2	975.7	976.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/P01 SHOCK	OMEGA-B	EFF-AD TOTAL	EFF-P STATIC	M=1	M=2	M'=1	M'=2
5	.47	4.44	13.12	53.51	62.55	2.1068	.5598	.1324	.0314	.0314	.9381	.0000	.0000	.8299	.9954	.5884	.6843	.8057
10	.83	5.08	12.58	52.12	59.62	2.0274	.5395	.1437	.0354	.0295	.9322	.0000	.0000	.8153	.9967	.6177	.6934	.8393
15	-.12	4.23	12.05	49.69	57.13	1.9439	.5149	.1193	.0306	.0306	.9450	.0000	.0000	.8471	.9755	.6346	.6970	.8657
30	-3.14	1.70	15.15	38.55	51.85	1.7494	.4523	.0659	.0188	.0188	.9724	.0000	.0000	.9028	.9088	.6377	.7071	.8725
50	-4.19	1.34	12.09	34.13	44.82	1.5604	.4189	.0538	.0174	.0174	.9803	.0000	.0000	.9056	.8272	.6165	.7124	.9086
70	-6.02	.11	18.56	25.94	44.34	1.3061	.3698	.0459	.0165	.0165	.9860	.0000	.0000	.9053	.7368	.5737	.7396	.9026
85	-5.06	1.45	15.67	31.06	45.34	1.2865	.4268	.0660	.0257	.0257	.9833	.0000	.0000	.8578	.6577	.5019	.7363	.9485
90	-4.12	2.49	16.32	32.09	45.97	1.2553	.4536	.0809	.0322	.0322	.9810	.0000	.0000	.8346	.6295	.4669	.7284	.9450
95	-3.68	3.08	16.94	32.90	46.76	1.2271	.4856	.0912	.0372	.0372	.9797	.0000	.0000	.8241	.6104	.4419	.7268	.9471

NCOR=1 RPM	WCOR=1 LBM/SEC	WC/A=1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA=1	STA=2	SLANT=1 DEGREE	SLANT=2 DEGREE
7394	186.78	41.88	1.1313	1.4417	83.940	84.81	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	597.5	1128.7	597.5	677.7	.0	902.6	.00	53.10	35.32	-29.62	732.3	779.7	-423.4	385.3	423.4	517.3
10	14.100	16.790	610.2	1105.5	610.2	676.8	.0	874.1	.00	52.24	36.71	-26.13	761.2	754.4	-455.0	332.3	455.0	561.8
15	15.170	17.580	623.3	1066.7	623.3	682.9	.0	819.1	.00	50.16	38.13	-20.19	792.6	729.0	-489.5	251.8	489.5	567.3
30	18.280	19.910	656.0	956.1	656.0	676.9	.0	674.9	.00	44.88	41.93	-2.68	882.3	680.0	-589.9	32.5	589.9	642.5
50	22.190	23.090	683.7	850.2	683.7	638.8	.0	560.8	.00	41.26	46.30	16.03	990.2	666.8	-716.0	-184.2	716.0	745.1
70	25.880	26.260	694.5	772.1	694.5	611.7	.0	471.0	.00	37.59	50.23	31.55	1086.3	719.6	-835.1	-376.3	835.1	847.4
85	28.450	28.610	693.4	694.2	693.4	547.4	.0	426.8	.00	37.96	52.93	42.21	1150.5	739.5	-918.0	-496.4	918.0	923.2
90	29.320	29.410	691.7	658.2	691.7	504.6	.0	422.3	.00	39.97	53.83	46.25	1172.0	729.9	-946.1	-526.7	946.1	949.0
95	30.150	30.180	689.9	632.3	689.9	472.2	.0	420.6	.00	41.69	54.66	49.51	1192.7	727.4	-972.9	-553.3	972.9	973.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.68	1.24	7.11	64.93	70.85	2.4332	.2139	.2177	.0389	.0389	1.5395	.8825	.8752	.0000	.5518	1.0396	.6771	.7181
10	-4.79	1.87	4.94	62.83	65.93	2.2859	.2819	.1396	.0274	.0274	1.5775	.9203	.9150	.0000	.5650	1.0127	.7065	.6910
15	-4.17	2.13	6.68	58.33	62.90	2.1573	.3372	.0909	.0198	.0198	1.5820	.9430	.9392	.0000	.5778	.9718	.7365	.6641
30	-3.28	2.40	11.02	44.61	53.24	1.9046	.4383	.0382	.0100	.0100	1.5547	.9687	.9667	.0000	.6095	.8597	.8211	.6114
50	-2.32	2.65	11.51	30.26	39.12	1.6900	.4972	.0465	.0132	.0132	1.5215	.9538	.9510	.0000	.6370	.7547	.9247	.5919
70	-1.01	3.18	11.44	18.68	26.97	1.5343	.4797	.0473	.0131	.0107	1.4888	.9440	.9408	.0088	.6474	.6806	1.0159	.6343
85	-.39	3.27	12.30	10.72	19.73	1.4420	.4862	.1125	.0289	.0251	1.4281	.8548	.8474	.0145	.6460	.6071	1.0763	.6467
90	-.31	3.19	13.9[illegible]	7.57	18.34	1.4148	.5047	.1595	.0390	.0349	1.3978	.7905	.7804	.0166	.6443	.5728	1.0952	.6353
95	-.37	2.99	15.36	5.14	17.48	1.3890	.5171	.1936	.0453	.0408	1.3786	.7425	.7306	.0191	.6426	.5482	1.1127	.6307

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7395.	184.47	41.59	1.1345	1.4980	91.037	91.59	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1043.1	627.2	650.0	626.2	815.8	-30.3	51.45	-2.81	-20.57	45.17	694.3	888.4	244.0	-629.9	571.8	599.5
10	18.350	19.110	1045.8	656.1	672.5	655.9	800.8	4.8	49.98	.40	-17.24	43.01	704.3	897.1	208.7	-611.9	592.1	616.6
15	19.070	19.740	1029.2	669.9	697.2	669.7	756.7	16.9	47.33	1.45	-11.47	42.79	712.2	912.6	141.3	-620.0	615.4	637.0
30	21.140	21.600	966.9	680.0	728.3	680.0	635.6	4.5	41.09	.38	3.63	45.51	731.3	970.7	-46.5	-692.5	682.1	697.0
50	23.970	24.200	900.1	665.2	719.9	664.8	540.1	23.0	36.86	1.99	17.91	48.73	758.1	1008.3	-233.4	-757.8	773.5	780.9
70	26.790	26.880	839.8	649.5	701.5	649.4	461.7	9.4	33.34	.83	29.84	52.86	809.9	1076.3	-402.8	-857.9	864.5	867.4
85	28.860	28.900	772.9	587.9	646.9	587.9	422.9	6.1	33.18	.62	38.17	57.61	823.1	1097.4	-508.4	-926.4	931.3	932.5
90	29.570	29.600	741.6	550.8	611.6	550.7	419.3	10.8	34.45	1.12	41.18	59.75	812.7	1093.5	-534.9	-944.4	954.2	955.1
95	30.240	30.270	719.3	524.7	584.3	524.6	419.5	8.6	35.68	.94	43.59	61.55	806.8	1101.2	-556.3	-968.2	975.8	976.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.79	5.75	13.69	54.26	62.54	2.1075	.5869	.1287	.0305	.0305	.9436	.0000	.0000	.8400	.9458	.5388	.6314	.7631
10	1.98	6.24	16.36	49.57	59.59	2.0291	.5563	.1364	.0336	.0336	.9401	.0000	.0000	.8303	.9447	.5648	.6398	.7722
15	1.12	5.46	16.90	45.88	57.10	1.9462	.5304	.1208	.0310	.0310	.9482	.0000	.0000	.8459	.9265	.5783	.6454	.7879
30	-1.57	3.26	14.37	40.71	51.76	1.7518	.4807	.0558	.0159	.0159	.9782	.0000	.0000	.9168	.8676	.5903	.6593	.8426
50	-2.70	2.82	12.79	34.87	44.82	1.5476	.4454	.0401	.0130	.0130	.9861	.0000	.0000	.9304	.8030	.5779	.6785	.8760
70	-4.21	1.92	13.68	32.51	44.29	1.3864	.4204	.0432	.0156	.0156	.9856	.0000	.0000	.9123	.7454	.5649	.7203	.9362
85	-3.54	2.96	15.67	32.57	45.32	1.2865	.4486	.0722	.0280	.0280	.9807	.0000	.0000	.8526	.6807	.5089	.7258	.9499
90	-2.37	4.23	16.83	33.34	46.96	1.2553	.4766	.0827	.0329	.0329	.9795	.0000	.0000	.8386	.6508	.4749	.7135	.9426
95	-1.51	5.25	17.26	34.74	46.76	1.2271	.5033	.0856	.0349	.0349	.9800	.0000	.0000	.8395	.6292	.4507	.7057	.9459

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7395.	184.47	41.59	1.1345	1.4642	85.628	86.42	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

100% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.03.	592.6	1109.7	592.6	661.0	.0	891.4	.00	53.44	35.52	-29.53	728.1	759.7	-423.1	374.5	423.1	516.9
10	14.100	16.790	605.8	1087.7	605.0	659.9	.0	864.6	.00	52.64	36.92	-26.07	756.8	735.3	-454.7	323.2	454.7	541.4
15	15.170	17.580	617.9	1049.2	617.9	666.1	.0	810.4	.00	50.56	38.36	-20.03	788.1	710.3	-489.2	243.5	489.2	566.9
30	18.280	19.910	650.1	942.6	650.1	661.2	.0	671.5	.00	45.41	42.17	-2.49	877.7	664.1	-589.4	29.5	589.4	642.0
50	22.190	23.090	678.6	839.2	678.6	622.7	.0	562.4	.00	42.06	46.49	16.24	986.3	650.6	-715.5	-182.1	715.5	744.5
70	25.880	26.360	691.8	768.5	691.8	601.5	.0	478.4	.00	38.49	50.32	31.44	1084.1	706.4	-834.5	-368.4	834.5	846.8
85	28.450	28.610	693.1	703.5	693.1	549.4	.0	439.3	.00	38.67	52.92	41.35	1149.8	732.1	-917.4	-483.3	917.4	922.5
90	29.320	29.410	692.2	668.3	692.2	506.7	.0	435.5	.00	40.72	53.79	45.37	1171.8	721.4	-945.4	-512.9	945.4	948.3
95	30.150	30.180	691.0	641.4	691.0	471.6	.0	434.7	.00	42.67	54.59	48.77	1192.8	715.8	-972.2	-538.4	972.2	973.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.47	1.44	7.18	65.05	70.83	2.4335	.2332	.2142	.0383	.0383	1.5327	.8843	.8772	.0000	.5469	1.0194	.6727	.6979
10	-4.67	2.09	5.00	62.98	65.92	2.2863	.3000	.1370	.0269	.0269	1.5709	.9218	.9167	.0000	.5597	.9940	.7017	.6719
15	-3.94	2.36	6.83	58.39	62.88	2.1577	.3544	.0893	.0194	.0194	1.5751	.9440	.9403	.0000	.5722	.9537	.7313	.6457
30	-3.04	2.65	11.21	44.65	53.22	1.9053	.4524	.0324	.0085	.0085	1.5542	.9733	.9716	.0000	.6032	.8461	.8148	.5961
50	-2.14	2.85	11.71	30.25	39.11	1.6906	.5121	.0403	.0114	.0114	1.5270	.9600	.9576	.0000	.6315	.7438	.9183	.5766
70	-.94	3.26	11.37	18.89	27.00	1.5346	.4931	.0346	.0096	.0071	1.5070	.9592	.9568	.0089	.6447	.6768	1.0111	.6218
85	-.41	3.27	11.40	11.57	19.70	1.4421	.4961	.0892	.0232	.0195	1.4626	.8881	.8820	.0144	.6459	.6147	1.0739	.6397
90	-.35	3.16	13.10	8.42	18.34	1.4148	.5159	.1375	.0341	.0300	1.4327	.8251	.8160	.0164	.6450	.5812	1.0938	.6273
95	-.43	2.94	14.62	5.82	17.48	1.3891	.5311	.1755	.0416	.0371	1.4124	.7745	.7633	.0188	.6438	.5555	1.1122	.6199

NCOR-1 RPM	%COR-1	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7390	183.75	41.43	1.1355	1.5099	92.189	92.74	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1020.4	602.7	626.1	601.5	805.7	-34.4	52.15	-3.31	-20.51	46.49	668.6	873.7	234.3	-633.5	571.4	599.1
10	18.350	19.110	1023.6	631.0	648.2	630.9	792.2	1.4	50.71	.11	-17.19	44.26	678.6	881.0	200.5	-614.8	591.7	616.2
15	19.070	19.740	1006.4	642.1	672.4	641.7	748.5	21.1	48.05	1.88	-11.25	43.80	686.3	889.2	133.6	-615.5	614.9	636.5
30	21.140	21.600	947.3	660.7	705.8	660.7	632.3	6.6	41.84	.57	3.97	46.23	709.0	955.3	-49.4	-689.9	681.7	696.5
50	23.970	24.200	886.1	648.2	701.2	647.9	541.5	20.0	37.66	1.77	18.20	49.55	739.5	999.1	-231.4	-760.4	772.9	780.3
70	26.790	26.880	836.6	641.8	692.8	641.8	468.4	7.6	34.08	.68	29.66	53.23	798.3	1072.6	-395.0	-859.1	863.8	866.8
85	28.860	28.900	784.2	598.7	652.3	598.6	435.2	7.8	33.72	.76	37.22	57.07	819.3	1101.2	-495.4	-924.1	930.6	931.9
90	29.570	29.600	754.7	561.5	618.3	561.3	432.5	11.0	34.99	1.11	40.13	59.24	808.7	1098.0	-520.9	-943.5	953.5	954.5
95	30.240	30.270	732.3	534.7	590.1	534.7	433.7	6.3	36.32	.67	42.53	61.13	800.8	1107.4	-541.4	-969.8	975.1	976.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.50	6.46	13.19	55.45	62.54	2.1077	.6004	.1284	.0299	.0299	.9465	.0000	.0000	.8434	.9226	.5171	.6063	.7496
10	2.72	6.98	16.06	50.60	59.57	2.0298	.5699	.1380	.0340	.0340	.9414	.0000	.0000	.8300	.9219	.5424	.6145	.7572
15	1.88	6.22	17.32	46.17	57.08	1.9473	.5441	.1264	.0324	.0324	.9477	.0000	.0000	.8398	.9040	.5532	.6202	.7661
30	-.77	4.05	14.55	41.26	51.73	1.7829	.4889	.0552	.0158	.0158	.9792	.0000	.0000	.9168	.8492	.5727	.6374	.8280
50	-1.87	3.64	12.55	35.90	44.79	1.5482	.4574	.0413	.0133	.0133	.9861	.0000	.0000	.9283	.7896	.5621	.6602	.8664
70	-3.46	2.65	13.51	33.40	44.26	1.3866	.4311	.0456	.0162	.0162	.9863	.0000	.0000	.9094	.7424	.5573	.7088	.9314
85	-3.02	3.49	15.80	32.96	45.30	1.2866	.4482	.0660	.0256	.0256	.9819	.0000	.0000	.8647	.6912	.5178	.7224	.9525
90	-1.86	4.75	16.83	33.88	45.96	1.2554	.4784	.0803	.0320	.0320	.9795	.0000	.0000	.8443	.6624	.4835	.7099	.9456
95	-.87	5.89	17.00	35.64	46.76	1.2271	.5076	.0837	.0341	.0341	.9798	.0000	.0000	.8434	.6402	.4588	.7000	.9502

NCOR-1 RPM	%COR-1	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7390	183.75	41.43	1.1355	1.4760	86.827	87.63	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

100% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	589.1	1094.2	589.1	641.9	.0	886.2	.00	54.08	35.65	-29.95	724.9	740.9	-422.5	370.0	422.5	516.2
10	14.100	16.790	601.4	1070.2	601.4	647.0	.0	852.4	.00	52.79	37.05	-25.70	753.5	718.6	-454.0	311.8	454.0	540.7
15	15.170	17.580	614.1	1032.8	614.1	652.7	.0	800.2	.00	50.78	38.49	-19.69	784.7	694.4	-488.5	234.1	488.5	566.1
30	18.280	19.910	646.1	930.6	646.1	648.3	.0	667.4	.00	45.80	42.30	-2.25	874.2	651.0	-588.7	26.3	588.7	641.1
50	22.190	23.090	674.7	829.9	674.7	610.7	.0	561.7	.00	42.59	46.62	16.52	982.9	639.0	-714.6	-181.8	714.6	743.5
70	25.880	26.260	688.6	760.8	688.6	589.3	.0	481.2	.00	39.22	50.42	31.67	1081.2	693.9	-833.4	-364.4	833.4	845.6
85	28.450	28.610	690.9	708.9	690.9	552.0	.0	444.7	.00	38.88	52.98	40.82	1147.5	729.6	-916.2	-476.6	916.2	921.3
90	29.320	29.410	690.2	676.8	690.2	511.8	.0	442.6	.00	40.89	53.83	44.61	1169.6	719.0	-944.2	-504.4	944.2	947.1
95	30.150	30.180	689.3	648.0	689.3	475.2	.0	440.6	.00	42.83	54.63	48.18	1190.7	712.9	-970.9	-531.3	970.9	971.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.35	1.57	6.75	65.60	70.83	2.4336	.2542	.2051	.0365	.0365	1.5321	.8895	.8827	.0000	.5434	1.0029	.6693	.6791
10	-4.45	2.22	5.35	62.75	65.91	2.2864	.3152	.1246	.0246	.0246	1.5658	.9284	.9238	.0000	.5561	.9761	.6982	.6554
15	-3.81	2.49	7.18	58.18	62.88	2.1578	.3687	.0787	.0172	.0172	1.5706	.9503	.9471	.000	.5684	.9372	.7277	.6301
30	-2.90	2.79	11.44	44.56	53.22	1.9054	.4639	.0213	.0056	.0056	1.5554	.9818	.9806	.0000	.5991	.8343	.8108	.5836
50	-2.01	2.98	11.99	30.10	39.10	1.6908	.5220	.0304	.0086	.0086	1.5319	.9695	.9676	.0000	.6275	.7347	.9142	.5657
70	-.86	3.35	11.62	18.74	27.01	1.5348	.5042	.0281	.0078	.0053	1.5146	.9666	.9646	.0089	.6414	.6690	1.0072	.6100
85	-.36	3.32	10.86	12.16	19.68	1.4422	.4989	.0680	.0178	.0141	1.4860	.9157	.9109	.0143	.6437	.6194	1.0708	.6375
90	-.31	3.21	12.33	9.22	18.34	1.4148	.5192	.1166	.0293	.0252	1.4590	.8546	.8468	.0162	.6430	.5886	1.0910	.6252
95	-.39	2.98	14.03	6.44	17.48	1.3891	.5346	.1558	.0374	.0329	1.4363	.8032	.7930	.0186	.6421	.5611	1.1098	.6172

NCOR-1 RPM	NCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7380.	183.19	41.31	1.1356	1.5182	93.467	93.91	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1004.2	586.5	605.2	585.1	801.3	-36.7	52.94	-3.62	-20.86	47.35	647.8	863.6	230.7	-635.0	570.6	598.3
10	18.350	19.110	1004.5	612.3	631.3	612.1	781.2	.3	51.06	.01	-16.78	45.14	659.5	867.8	190.3	-615.1	590.9	615.4
15	19.070	19.740	987.8	622.7	655.2	622.3	738.9	21.0	48.43	1.93	-10.80	44.65	667.7	874.7	124.8	-614.7	614.1	635.7
30	21.140	21.600	933.3	646.8	689.7	646.8	628.4	7.0	42.32	.62	4.30	46.78	693.1	944.8	-52.3	-688.6	680.8	696.6
50	23.970	24.200	875.0	636.9	687.6	636.5	540.9	21.5	38.18	1.93	18.51	49.96	726.5	989.8	-231.4	-757.8	771.9	777.3
70	26.790	26.880	828.6	632.5	681.3	632.3	471.6	12.5	34.68	1.14	29.82	53.44	786.2	1062.0	-391.1	-853.0	862.7	865.6
85	28.860	28.900	789.2	607.2	654.8	607.1	440.5	9.4	33.94	.90	36.75	56.62	817.3	1103.4	-488.8	-921.2	929.4	930.6
90	29.570	29.600	763.1	571.2	623.5	570.9	439.8	15.2	35.21	1.52	39.43	58.67	807.3	1098.3	-512.4	-930.0	952.2	953.2
95	30.240	30.270	739.2	541.7	594.3	541.6	439.6	11.2	36.49	1.19	41.95	60.66	799.1	1105.3	-534.2	-963.5	975.8	974.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.17	7.14	12.87	56.56	62.54	2.1077	.6096	.1307	.0309	.0309	.9460	.0000	.0000	.8411	.9052	.5028	.5864	.7403
10	3.07	7.32	15.96	51.04	59.57	2.0299	.5780	.1405	.0346	.0346	.9420	.0000	.0000	.8275	.9028	.5259	.5962	.7454
15	2.31	6.65	17.37	46.50	57.07	1.9477	.5527	.1310	.0336	.0336	.9473	.0000	.0000	.8333	.8860	.5360	.6021	.7530
30	-.26	4.55	14.60	41.70	51.73	1.7335	.4945	.0583	.0166	.0166	.9786	.0000	.0000	.9118	.8353	.5601	.6221	.8181
50	-1.33	4.17	12.71	36.24	44.77	1.5485	.4626	.0425	.0137	.0137	.9859	.0000	.0000	.9260	.7790	.5517	.6474	.8575
70	-2.85	3.26	13.95	33.55	44.24	1.3868	.4360	.0442	.0159	.0159	.9867	.0000	.0000	.9117	.7347	.5486	.6970	.9211
85	-2.81	3.69	15.94	33.04	45.28	1.2866	.4427	.0575	.0224	.0224	.9841	.0000	.0000	.8802	.6961	.5252	.7208	.9545
90	-1.65	4.95	17.24	33.69	45.96	1.2554	.4730	.0778	.0310	.0310	.9798	.0000	.0000	.8482	.6701	.4919	.7088	.9457
95	-.69	6.07	17.51	35.30	46.76	1.2271	.5032	.0826	.0336	.0336	.9798	.0000	.0000	.8448	.6462	.4647	.6964	.9482

NCOR-1 RPM	NCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7380.	183.19	41.31	1.1356	1.4844	88.136	88.84	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

100% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	584.9	1084.8	584.9	636.3	.0	878.6	.00	54.09	55.84	-29.66	721.5	732.3	-422.5	362.4	422.5	516.2
10	14.100	16.790	597.0	1060.0	597.0	635.8	.0	848.0	.00	53.13	37.25	-25.77	750.1	706.7	-454.0	307.3	454.0	540.6
15	15.170	17.580	609.6	1023.5	609.6	645.9	.0	794.8	.00	50.90	38.69	-19.44	781.2	685.4	-488.5	228.3	488.5	566.1
30	18.280	19.910	641.3	923.0	641.3	639.9	.0	668.0	.00	46.08	42.52	-2.08	870.6	642.5	-588.6	23.9	588.6	641.1
50	22.190	23.090	669.9	825.0	669.9	604.2	.0	561.6	.00	42.89	46.82	16.69	979.6	632.8	-714.5	-181.9	714.5	743.5
70	25.880	26.260	684.3	756.7	684.3	583.0	.0	482.2	.00	39.59	50.59	31.87	1078.4	687.9	-833.3	-363.5	833.3	845.6
85	28.450	28.810	687.3	709.0	687.3	551.5	.0	445.4	.00	38.93	53.12	40.80	1145.3	728.7	-916.1	-475.9	916.1	921.3
90	29.320	29.410	686.9	682.3	686.9	517.3	.0	444.7	.00	40.71	55.96	48.17	1167.6	721.4	-944.1	-508.3	944.1	947.0
95	30.150	30.180	686.2	656.8	686.2	484.9	.0	442.9	.00	42.41	54.75	47.48	1188.9	717.6	-970.8	-528.9	970.8	971.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.16	1.76	7.05	65.50	70.83	2.4336	.2602	.2085	.0372	.0372	1.5257	.8878	.8810	.0000	.5393	.9932	.6859	.6705
10	-4.25	2.42	5.28	63.02	65.91	2.2864	.3265	.1401	.0276	.0276	1.5580	.9200	.9149	.0000	.5518	.9654	.6986	.6437
15	-3.61	2.70	7.43	58.13	62.88	2.1579	.3754	.0865	.0189	.0189	1.5623	.9457	.9422	.0000	.5639	.9278	.7239	.6213
30	-2.69	3.00	11.62	44.59	53.21	1.9055	.4707	.0297	.0078	.0078	1.5487	.9755	.9740	.0000	.5942	.8267	.8067	.5754
50	-1.81	3.19	12.16	30.13	39.09	1.6909	.5267	.0344	.0097	.0097	1.5294	.9660	.9639	.0000	.6225	.7300	.9101	.5599
70	-.69	3.53	11.82	18.72	27.02	1.5349	.5087	.0314	.0087	.0062	1.5136	.9532	.9510	.0091	.6371	.6649	1.0035	.6044
85	-.22	3.47	10.82	12.32	19.87	1.4428	.4989	.0853	.0166	.0128	1.4987	.9217	.9172	.0184	.6401	.6194	1.0677	.6366
90	-.18	3.34	11.90	9.79	18.33	1.4148	.5170	.1076	.0273	.0231	1.4693	.8668	.8595	.0165	.6397	.5935	1.0883	.6274
95	-.27	3.11	13.32	7.27	17.48	1.3891	.5306	.1441	.0350	.0305	1.4498	.8197	.8101	.0187	.6390	.5689	1.1074	.6216

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7380	182.43	41.13	1.1355	1.5175	93.364	93.84	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	994.6	578.7	598.4	577.0	794.4	-40.3	53.01	-4.03	-20.50	47.90	639.0	860.8	223.8	-638.6	570.6	598.3
10	18.350	19.110	993.2	602.7	618.1	602.5	777.7	.3	51.51	.01	-18.80	45.59	645.8	861.0	186.5	-615.1	590.9	615.3
15	19.070	19.740	977.5	612.8	645.6	612.3	733.6	24.2	48.64	2.26	-10.51	44.96	657.4	865.3	119.6	-611.5	614.1	635.6
30	21.140	21.600	924.4	637.8	679.7	637.8	626.2	8.7	42.64	.78	4.55	47.11	693.2	937.4	-54.5	-686.9	680.7	695.5
50	23.970	24.200	869.3	631.2	680.4	630.9	540.8	21.6	38.47	1.96	18.70	50.20	719.7	986.0	-231.0	-757.6	771.8	779.2
70	26.790	26.880	824.7	628.7	675.8	628.6	472.6	10.5	34.96	.96	29.96	53.67	780.9	1061.3	-390.0	-855.1	862.6	865.5
85	28.860	28.900	789.7	609.9	654.9	609.8	441.2	10.8	33.97	1.03	36.70	56.46	817.0	1103.7	-488.1	-919.8	929.3	930.6
90	29.570	29.600	768.6	578.4	628.8	578.2	441.9	17.4	35.11	1.72	39.06	58.29	810.0	1100.1	-510.3	-935.7	952.4	953.1
95	30.240	30.270	748.1	552.4	603.6	552.3	442.0	13.9	36.21	1.44	41.38	60.11	804.5	1108.2	-531.8	-960.8	973.7	974.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1 SHOCK	OMEGA-B TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	3.35	7.31	12.96	57.04	62.54	2.1079	.6129	.1312	.0310	.0310	.9466	.0000	.0000	.8395	.8951	.4960	.5766	.7378
10	3.47	7.72	15.95	51.50	59.56	2.0301	.5819	.1392	.0343	.0343	.9436	.0000	.0000	.8297	.8918	.5174	.5837	.7392
15	2.52	6.86	17.70	46.38	57.07	1.9480	.5559	.1327	.0340	.0340	.9475	.0000	.0000	.8314	.8760	.5273	.5923	.7446
30	.07	4.88	14.77	41.86	51.72	1.7538	.4981	.0604	.0172	.0172	.9781	.0000	.0000	.9084	.8267	.5519	.6125	.8112
50	-1.03	4.47	12.73	36.50	44.76	1.5488	.4655	.0438	.0141	.0141	.9857	.0000	.0000	.9238	.7735	.5466	.6406	.8538
70	-2.57	3.53	13.76	34.01	44.23	1.5869	.4393	.0421	.0152	.0152	.9874	.0000	.0000	.9158	.7309	.5450	.6916	.9201
85	-2.79	3.71	16.06	32.94	45.27	1.2867	.4392	.0505	.0196	.0196	.9860	.0000	.0000	.8943	.6966	.5277	.7285	.9548
90	-1.76	4.84	17.44	33.39	45.96	1.2554	.4673	.0741	.0295	.0295	.9805	.0000	.0000	.8544	.6754	.4983	.7115	.9476
95	-.96	5.80	17.77	34.77	46.76	1.2271	.4946	.0801	.0326	.0326	.9800	.0000	.0000	.8473	.6544	.4741	.7035	.9512

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7380	182.43	41.13	1.1355	1.4846	88.125	88.84	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

105% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	623.6	1241.6	623.6	762.9	.0	979.5	.00	52.09	35.43	-29.83	765.3	879.5	-443.6	437.5	443.6	542.0
10	14.100	16.790	637.4	1224.5	637.4	763.6	.0	957.2	.00	51.42	36.79	-27.01	795.9	857.4	-476.7	389.5	476.7	567.7
15	15.170	17.580	651.8	1184.2	651.8	759.0	.0	908.7	.00	50.11	38.19	-22.45	829.4	822.6	-512.9	314.3	512.9	594.4
30	18.280	19.910	688.0	1057.3	688.0	764.1	.0	730.2	.00	43.65	41.91	-4.20	925.0	769.2	-618.1	57.0	618.1	673.2
50	22.190	23.090	715.5	920.4	715.5	714.3	.0	580.2	.00	39.05	46.33	15.68	1036.9	744.3	-750.3	-200.5	750.3	780.7
70	25.880	26.260	718.7	786.5	718.7	644.0	.0	451.4	.00	35.00	50.58	34.08	1132.5	780.2	-875.1	-436.5	875.1	887.9
85	28.450	28.610	710.4	679.6	710.4	551.7	.0	396.8	.00	35.74	53.55	45.96	1195.9	794.3	-961.9	-570.6	961.9	967.4
90	29.320	29.410	706.6	643.5	706.6	512.1	.0	389.5	.00	37.29	54.52	49.75	1217.4	793.1	-991.4	-604.9	991.4	994.4
95	30.150	30.180	703.3	619.2	703.3	485.8	.0	384.0	.00	38.33	55.40	52.64	1238.5	800.8	-1019.4	-636.4	1019.4	1020.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.57	1.34	6.90	65.26	70.87	2.4330	.1400	.3051	.0544	.0544	1.5894	.8412	.8304	.0000	.5776	1.1574	.7098	.8199
10	-4.70	1.95	4.05	63.80	65.94	2.2856	.2088	.1895	.0369	.0369	1.6567	.8971	.8893	.0000	.5922	1.1349	.7415	.7946
15	-4.11	2.18	4.43	60.64	62.91	2.1567	.2807	.1463	.0313	.0313	1.6675	.9142	.9075	.0000	.6067	1.0893	.7743	.7566
30	-3.30	2.35	9.51	46.11	53.27	1.9030	.3842	.0648	.0170	.0170	1.6261	.9496	.9461	.0000	.6430	.9577	.8680	.6967
50	-2.22	2.69	11.14	30.66	39.14	1.6882	.4509	.0889	.0254	.0254	1.5424	.9132	.9078	.0000	.6701	.8206	.9795	.6636
70	-.53	3.60	13.90	16.51	26.92	1.5335	.4418	.1295	.0350	.0309	1.4261	.8391	.8309	.0148	.6708	.6944	1.0690	.6888
85	.30	3.92	16.05	7.59	19.74	1.4420	.4512	.2105	.0507	.0447	1.3299	.7010	.6888	.0242	.6618	.5943	1.1252	.6945
90	.40	3.89	17.46	4.77	18.32	1.4148	.4618	.2464	.0563	.0499	1.3007	.6409	.6274	.0273	.6585	.5604	1.1425	.6907
95	.36	3.69	18.48	2.76	17.48	1.3890	.4651	.2682	.0586	.0518	1.2834	.6016	.5874	.0309	.6559	.5376	1.1588	.6952

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7749.0	188.81	42.57	1.1428	1.4930	84.941	85.87	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1158.6	764.7	747.6	764.4	885.1	-12.4	49.81	-.95	-20.93	39.97	800.5	997.4	285.9	-640.6	599.1	628.2
10	18.350	19.110	1172.3	795.1	780.4	794.7	874.7	23.1	48.26	1.65	-18.05	38.10	820.9	1009.9	254.3	-623.1	620.4	646.1
15	19.070	19.740	1157.3	806.4	796.9	805.4	838.8	40.5	46.45	2.88	-13.68	37.90	821.0	1020.7	194.0	-627.0	644.8	667.4
30	21.140	21.600	1078.4	787.5	830.2	784.2	687.6	71.8	39.60	5.24	1.86	40.02	832.7	1024.2	-27.2	-658.5	714.8	730.3
50	23.970	24.200	976.1	755.4	800.0	752.7	559.0	62.9	34.92	4.77	17.43	45.08	840.2	1066.7	-251.4	-755.4	810.5	818.2
70	26.790	26.880	859.5	699.7	736.5	699.6	443.1	10.2	31.01	.81	32.12	52.08	871.5	1139.5	-462.7	-898.6	905.8	908.9
85	28.860	28.900	763.7	612.7	654.5	612.7	393.5	2.7	31.02	.26	41.67	57.85	876.5	1151.4	-582.3	-974.5	975.8	977.2
90	29.570	29.600	731.0	571.5	620.2	571.4	386.9	9.2	31.97	.95	44.67	60.05	872.3	1144.7	-612.9	-991.6	999.8	1000.8
95	30.240	30.270	709.5	541.3	597.2	541.1	383.0	13.4	32.67	1.42	46.95	61.82	875.0	1145.9	-639.5	-1010.1	1022.5	1023.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.08	4.07	15.56	50.76	62.58	2.1056	.5196	.1310	.0311	.0243	.9333	.0288	.0000	.8247	1.0667	.6598	.7407	.8606
10	.58	4.84	17.64	46.61	59.66	2.0256	.4972	.1614	.0398	.0313	.9165	.0338	.0000	.7826	1.0715	.6875	.7520	.8731
15	.03	4.40	18.34	43.58	57.17	1.9420	.4773	.1610	.0414	.0333	.9183	.0313	.0000	.7869	1.0484	.6992	.7508	.8850
30	-3.30	1.55	19.29	34.36	51.87	1.7490	.4304	.1567	.0446	.0446	.9280	.0000	.0000	.7607	.9714	.6863	.7573	.8925
50	-4.66	.87	15.54	30.15	44.80	1.5471	.3892	.1327	.0427	.0427	.9476	.0000	.0000	.7486	.8732	.6593	.7555	.9310
70	-6.55	-.42	13.71	30.20	44.33	1.3865	.3670	.0787	.0284	.0284	.9746	.0000	.0000	.8149	.7642	.6116	.7768	.9960
85	-5.73	.77	15.32	30.76	45.33	1.2866	.3964	.0847	.0329	.0329	.9778	.0000	.0000	.7973	.6729	.5323	.7734	1.0002
90	-4.86	1.74	16.66	31.03	45.96	1.2554	.4239	.1025	.0408	.0408	.9751	.0000	.0000	.7699	.6423	.4945	.7666	.9905
95	-4.50	2.25	17.75	31.25	46.75	1.2271	.4492	.1186	.0483	.0483	.9728	.0000	.0000	.7508	.6217	.4668	.7665	.9883

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7749.0	188.81	42.57	1.1428	1.4208	73.920	75.25	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

105% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	621.8	1198.4	621.8	730.1	.0	950.3	.00	52.46	35.50	-29.22	763.7	836.7	-443.5	408.5	443.5	541.8
10	14.100	16.790	635.5	1179.9	635.5	737.3	.0	921.1	.00	51.32	36.87	-25.60	794.4	818.0	-476.6	353.5	476.6	567.5
15	15.170	17.580	649.8	1143.0	649.8	739.4	.0	871.4	.00	49.67	38.27	-20.51	827.8	790.6	-512.8	277.2	512.8	594.2
30	18.280	19.910	695.3	1033.1	695.3	737.6	.0	723.0	.00	44.39	42.01	-3.82	922.9	741.7	-617.9	50.0	617.9	673.0
50	22.190	23.090	712.4	916.1	712.4	693.9	.0	597.9	.00	40.73	46.45	14.74	1034.7	719.7	-750.1	-182.5	750.1	780.5
70	25.880	26.260	716.2	791.6	716.2	626.0	.0	484.6	.00	37.73	50.67	32.73	1130.8	746.8	-874.8	-403.1	874.8	887.6
85	28.450	28.610	708.6	687.8	708.6	538.5	.0	427.8	.00	36.48	53.61	45.04	1194.6	762.7	-961.7	-539.3	961.7	967.1
90	29.320	29.410	705.1	655.4	705.1	501.8	.0	421.5	.00	40.06	54.57	48.78	1216.3	761.9	-991.1	-572.6	991.1	994.1
95	30.150	30.180	702.0	633.7	702.0	476.8	.0	417.4	.00	41.20	55.44	51.65	1237.5	768.6	-1019.1	-602.8	1019.1	1020.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.50	1.41	7.52	64.72	70.87	2.4329	.1857	.2795	.0501	.0501	1.5776	.8513	.8414	.0000	.5758	1.1101	.7082	.7750
10	-4.63	2.02	5.47	62.46	65.95	2.2855	.2459	.1680	.0332	.0332	1.6353	.9059	.8990	.0000	.5904	1.0874	.7400	.7539
15	-4.03	2.26	6.37	58.78	62.92	2.1565	.3068	.1155	.0251	.0251	1.6490	.9297	.9244	.0000	.6047	1.0468	.7728	.7240
30	-3.19	2.46	9.89	45.83	53.27	1.9030	.4105	.0454	.0119	.0119	1.6306	.9638	.9613	.0000	.6402	.9326	.8656	.6695
50	-2.12	2.80	10.21	31.70	39.14	1.6883	.4787	.0677	.0194	.0194	1.5787	.9365	.9313	.0000	.6669	.8145	.9764	.6398
70	-.46	3.68	12.55	17.94	26.92	1.5336	.4801	.1191	.0327	.0285	1.4765	.8619	.8542	.0148	.6685	.6963	1.0465	.6567
85	.35	3.97	15.13	8.57	19.74	1.4420	.4860	.1937	.0475	.0414	1.3842	.7449	.7331	.0242	.6602	.5993	1.1234	.6645
90	.44	3.93	16.49	5.79	18.32	1.4148	.4963	.2282	.0532	.0467	1.3502	.6929	.6794	.0273	.6572	.5688	1.1409	.6611
95	.40	3.74	17.49	3.79	17.48	1.3890	.5004	.2506	.0560	.0490	1.3430	.6576	.6431	.0309	.6546	.5481	1.1575	.6649

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7746.0	188.43	42.49	1.1470	1.5233	86.887	88.14	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1110.1	679.7	703.2	679.3	884.9	-3.2	50.69	-.30	-28.29	42.90	749.8	927.5	280.0	-631.2	599.0	628.0
10	18.350	19.110	1120.2	705.8	737.9	704.8	842.7	41.3	48.76	3.34	-16.78	40.64	770.8	928.4	222.5	-604.7	620.3	646.0
15	19.070	19.740	1108.3	724.5	762.0	728.4	804.5	55.2	46.85	4.37	-11.86	40.27	779.2	946.8	159.9	-612.1	644.6	667.2
30	21.140	21.600	1050.8	746.6	799.8	745.1	681.1	46.8	40.40	3.59	2.37	42.51	802.1	1011.1	-33.5	-683.4	714.6	730.1
50	23.970	24.200	972.6	730.3	783.8	728.2	576.1	55.3	36.31	4.34	16.63	46.31	819.2	1054.7	-234.1	-762.7	810.2	818.0
70	26.790	26.880	861.7	663.2	718.6	662.8	475.4	22.6	33.48	1.94	30.89	53.18	839.2	1107.1	-430.1	-886.0	905.6	908.6
85	28.860	28.900	764.2	569.1	635.7	568.9	424.2	16.0	33.72	1.62	40.94	59.38	841.9	1116.9	-551.3	-960.9	975.5	976.9
90	29.570	29.600	733.9	532.1	602.8	531.7	414.5	19.9	34.79	2.16	43.95	61.53	837.5	1115.8	-581.0	-980.7	999.5	1000.5
95	30.240	30.270	714.4	506.9	580.6	506.4	416.3	22.4	35.64	2.53	46.22	63.16	839.2	1121.7	-605.9	-1000.8	1022.2	1023.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	A STATIC	M-1	M-2	M'-1	M'-2
5	.89	4.85	16.20	50.99	62.55	2.1069	.5676	.1604	.0333	.0274	.9328	.0249	.0080	.8281	1.0130	.5827	.6878	.7951
10	.88	5.14	19.31	45.45	59.61	2.0280	.5424	.1686	.0415	.0349	.9183	.0269	.0000	.7925	1.0186	.6062	.7042	.7974
15	.39	4.73	19.82	42.18	57.11	1.9451	.5166	.1577	.0404	.0343	.9248	.0239	.0000	.8002	1.0034	.6241	.7095	.8156
30	-2.30	2.53	17.61	36.81	51.80	1.7510	.4595	.0921	.0262	.0262	.9593	.0000	.0000	.8640	.9474	.6477	.7270	.8772
50	-3.23	2.29	15.11	31.96	44.79	1.5471	.4210	.0608	.0196	.0196	.9762	.0000	.0000	.8983	.8683	.6342	.7345	.9159
70	-4.07	2.06	14.84	31.54	44.34	1.3862	.4194	.0526	.0190	.0190	.9831	.0000	.0000	.9001	.7607	.5751	.7447	.9599
85	-2.99	3.52	16.68	32.10	45.34	1.2865	.4627	.0804	.0312	.0312	.9790	.0000	.0000	.8449	.6686	.4904	.7392	.9623
90	-2.01	4.60	17.87	32.63	45.97	1.2553	.4912	.0945	.0376	.0376	.9771	.0000	.0000	.8233	.6411	.4568	.7324	.9578
95	-1.55	5.21	18.86	33.11	46.76	1.2271	.5150	.1044	.0425	.0425	.9760	.0000	.0000	.8106	.6229	.4338	.7320	.9600

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7746.0	188.43	42.49	1.1470	1.4741	79.734	80.92	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

105% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	613.5	1154.7	613.5	681.9	.0	931.9	.00	53.81	35.88	-29.74	757.2	785.4	-443.8	389.7	443.8	542.2
10	14.100	16.790	626.8	1133.5	626.8	683.9	.0	903.9	.00	52.88	37.26	-26.14	787.6	762.4	-476.9	336.0	476.9	567.9
15	15.170	17.580	640.6	1096.7	640.6	695.0	.0	848.1	.00	50.65	38.68	-20.00	820.8	740.7	-513.1	253.5	513.1	594.6
30	18.280	19.910	675.4	994.6	675.4	691.6	.0	714.6	.00	45.91	42.44	-3.36	915.8	694.9	-618.3	41.1	618.3	673.4
50	22.190	23.090	704.0	899.1	704.0	665.5	.0	604.5	.00	42.23	46.81	14.83	1029.2	690.4	-750.5	-176.5	750.5	781.0
70	25.880	26.260	711.3	803.4	711.3	616.8	.0	514.7	.00	39.84	50.88	31.16	1128.1	725.0	-875.3	-373.5	875.3	888.2
85	28.450	28.610	705.8	706.8	705.8	532.2	.0	465.0	.00	41.17	53.74	43.37	1193.4	732.6	-962.3	-502.7	962.3	967.7
90	29.320	29.410	702.8	676.9	702.8	495.0	.0	461.4	.00	43.01	54.67	47.14	1215.5	728.1	-991.7	-533.3	991.7	994.7
95	30.150	30.180	700.0	657.2	700.0	470.2	.0	459.2	.00	44.32	55.53	50.05	1236.9	732.5	-1019.8	-561.6	1019.8	1020.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.13	1.79	6.96	65.62	70.84	2.4330	.2408	.2680	.0478	.0478	1.5702	.8575	.8481	.0000	.5674	1.0620	.7012	.7224
10	-4.24	2.42	4.88	63.41	65.90	2.2859	.3047	.1796	.0353	.0353	1.6163	.8995	.8924	.0000	.5813	1.0369	.7321	.6974
15	-3.63	2.67	6.87	58.68	62.90	2.1571	.3545	.1174	.0256	.0256	1.6278	.9281	.9229	.0000	.5950	.9979	.7642	.6740
30	-2.77	2.90	10.34	45.80	53.25	1.9040	.4545	.0521	.0137	.0137	1.6188	.9592	.9563	.0000	.6293	.8929	.8553	.6238
50	-1.79	3.16	10.30	31.98	39.13	1.6891	.5062	.0438	.0125	.0125	1.6045	.9583	.9554	.0000	.6581	.7968	.9671	.6118
70	-.29	3.86	11.00	19.72	26.92	1.5338	.5087	.0844	.0235	.0193	1.5446	.9078	.9021	.0151	.6640	.7047	1.0614	.6341
85	.46	4.09	13.47	10.37	19.75	1.4420	.5216	.1656	.0417	.0354	1.4590	.7998	.7890	.0244	.6578	.6137	1.1210	.6361
90	.54	4.04	14.86	7.53	18.33	1.4148	.5353	.2038	.0490	.0423	1.4344	.7496	.7367	.0275	.6550	.5851	1.1392	.6294
95	.49	3.84	15.90	5.48	17.48	1.3890	.5415	.2285	.0528	.0456	1.4211	.7162	.7019	.0311	.6527	.5662	1.1563	.6310

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7751.0	187.36	42.25	1.1513	1.5561	88.951	89.76	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1060.4	621.1	644.0	620.1	842.4	-20.7	52.60	-1.95	-20.67	46.30	688.4	898.0	243.1	-649.2	599.3	628.4
10	18.350	19.110	1065.1	641.4	669.3	640.2	828.6	37.7	51.07	3.36	-17.26	43.55	700.9	883.3	207.9	-608.6	620.7	646.4
15	19.070	19.740	1051.4	654.1	700.7	651.6	783.6	57.7	48.19	5.06	-11.20	43.11	714.9	892.5	138.6	-610.0	645.0	667.7
30	21.140	21.600	1000.3	691.5	739.7	690.3	673.1	41.4	42.28	3.43	3.21	44.94	742.2	975.5	-42.0	-689.2	715.0	730.6
50	23.970	24.200	947.2	695.9	747.0	693.7	582.3	54.7	37.93	4.51	16.97	47.74	782.3	1032.0	-228.4	-763.8	810.7	818.5
70	26.790	26.880	869.9	660.8	708.4	659.9	504.8	33.1	35.47	2.86	29.52	52.99	815.6	1097.3	-401.3	-876.0	906.1	909.2
85	28.860	28.980	782.8	576.9	632.9	576.6	460.6	20.4	36.06	2.03	39.17	58.93	816.7	1117.7	-515.5	-957.1	976.1	977.5
90	29.570	29.680	755.3	543.0	600.7	542.6	457.8	20.4	37.33	2.15	42.09	61.04	809.5	1121.1	-542.4	-980.8	1000.1	1001.2
95	30.240	30.270	738.3	520.9	579.1	520.5	458.0	20.7	38.34	2.28	44.28	62.57	809.0	1130.1	-564.9	-1005.1	1022.8	1023.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.92	6.87	14.54	54.55	62.54	2.1076	.6030	.1446	.0343	.0343	.9355	.0000	.0000	.8256	.9582	.5303	.6239	.7667
10	3.02	7.27	19.31	47.71	59.58	2.0291	.5767	.1720	.0423	.0423	.9229	.0000	.0000	.7957	.9600	.5482	.6360	.7550
15	2.08	6.41	20.51	43.13	57.08	1.9469	.5516	.1683	.0431	.0431	.9260	.0000	.0000	.7922	.9456	.5605	.6461	.7648
30	-.30	4.51	17.45	38.85	51.75	1.7531	.4864	.0850	.0242	.0242	.9653	.0000	.0000	.8744	.8975	.5968	.6675	.8418
50	-1.59	3.92	15.29	33.42	44.79	1.5482	.4440	.0593	.0191	.0191	.9779	.0000	.0000	.8986	.8443	.6015	.6984	.8921
70	-2.07	4.06	15.75	32.61	44.31	1.3866	.4353	.0557	.0200	.0200	.9819	.0000	.0000	.8929	.7683	.5705	.7214	.9473
85	-.68	5.82	17.08	34.03	45.33	1.2866	.4814	.0807	.0314	.0314	.9782	.0000	.0000	.8479	.6847	.4948	.7150	.9585
90	.48	7.08	17.87	35.17	45.96	1.2554	.5116	.0950	.0378	.0378	.9760	.0000	.0000	.8292	.6585	.4639	.7058	.9577
95	1.16	7.91	18.61	36.06	46.75	1.2271	.5356	.1054	.0429	.0429	.9745	.0000	.0000	.8171	.6415	.4436	.7027	.9623

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7751.0	187.36	42.25	1.1513	1.5079	82.260	83.37	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

110% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	V-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	643.2	1299.5	643.2	757.6	.0	1055.8	.00	54.34	35.88	-32.75	793.8	900.8	-465.3	487.4	465.3	568.5
10	14.100	16.780	657.7	1282.3	657.7	793.6	.0	1007.2	.00	51.76	37.24	-27.41	826.2	894.4	-500.0	411.6	500.0	595.4
15	15.170	17.580	673.2	1241.7	673.2	795.5	.0	953.3	.00	50.15	38.62	-22.47	861.8	861.9	-538.0	329.9	538.0	623.4
30	18.280	19.910	712.6	1106.7	712.6	769.1	.0	773.9	.00	44.39	42.27	-4.84	963.5	795.2	-648.3	67.8	648.3	706.1
50	22.190	23.090	742.9	955.0	742.9	735.2	.0	609.2	.00	39.61	46.62	15.91	1082.3	767.2	-786.9	-209.6	786.9	818.8
70	25.880	26.260	746.7	806.6	746.7	655.4	.0	470.1	.00	35.63	50.85	35.07	1183.3	803.6	-917.8	-461.1	917.8	931.2
85	28.450	28.610	738.0	703.5	738.0	565.9	.0	417.8	.00	36.45	53.81	46.52	1250.1	823.0	-1008.9	-596.8	1008.9	1014.6
90	29.320	29.410	734.0	666.0	734.0	524.9	.0	409.8	.00	38.02	54.78	50.35	1272.8	823.1	-1039.8	-633.2	1039.8	1042.9
95	30.150	30.180	730.6	636.9	730.6	493.3	.0	402.8	.00	39.24	55.65	53.52	1295.0	830.1	-1069.2	-667.5	1063.2	1070.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.15	1.78	3.94	68.63	70.82	2.4340	.1657	.3942	.0681	.0681	1.6412	.8034	.7890	.0000	.5963	1.2123	.7364	.8404
10	-4.28	2.40	3.55	64.65	65.82	2.2868	.2072	.2113	.0410	.0410	1.7289	.8887	.8796	.0000	.6117	1.1919	.7696	.8313
15	-3.69	2.61	4.39	61.09	62.89	2.1577	.2750	.1506	.0322	.0322	1.7477	.9141	.9069	.0000	.6276	1.1458	.8049	.7949
30	-2.94	2.72	8.87	47.11	53.25	1.9036	.3942	.0848	.0222	.0222	1.6972	.9369	.9319	.0000	.6677	1.0011	.9058	.7210
50	-1.94	2.98	11.37	30.71	30.14	1.6883	.4608	.1062	.0303	.0261	1.5947	.8990	.8921	.0144	.6982	.8498	1.0259	.6816
70	-.26	3.86	14.89	15.78	26.91	1.5335	.4511	.1494	.0396	.0333	1.4562	.8177	.8079	.0240	.6995	.7099	1.1210	.7072
85	.56	4.18	16.61	7.29	19.74	1.4420	.4578	.2247	.0536	.0445	1.3609	.6901	.6764	.0372	.6900	.6130	1.1803	.7171
90	.66	4.14	18.05	4.43	18.32	1.4148	.4673	.2594	.0585	.0489	1.3295	.6328	.6178	.0415	.6865	.5778	1.1985	.7140
95	.61	3.95	19.37	2.13	17.48	1.3890	.4710	.2827	.0605	.0505	1.3074	.5907	.5750	.0463	.6836	.5506	1.2158	.7177

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8127.0	192.62	43.43	1.1575	1.5405	83.393	84.52	5.0	5.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1210.3	784.5	743.2	783.2	955.2	-42.5	52.11	-3.13	-23.73	41.85	812.1	1051.5	326.8	-701.4	628.4	658.9
10	18.350	19.110	1224.5	819.6	805.9	819.4	921.9	-7.3	48.84	-.53	-18.60	39.90	850.4	1068.1	271.2	-685.0	650.7	677.7
15	19.070	19.740	1210.7	837.6	832.2	837.4	879.2	18.6	46.56	1.27	-13.69	39.14	857.2	1079.6	202.9	-681.4	676.3	700.0
30	21.140	21.600	1123.9	807.0	855.4	803.9	728.4	70.0	40.38	4.99	1.42	40.88	857.9	1063.4	-21.2	-695.9	749.7	766.0
50	23.970	24.200	1008.8	775.0	820.3	772.3	587.0	63.1	35.56	4.66	17.77	45.81	863.4	1108.9	-263.1	-795.1	850.0	858.2
70	26.790	26.880	880.6	712.1	749.9	712.0	461.4	7.9	31.58	.62	33.05	52.99	896.8	1184.1	-488.6	-945.3	950.0	953.2
85	28.860	28.900	769.5	634.4	672.2	634.4	414.1	2.9	31.64	.28	42.19	58.17	907.7	1203.0	-609.3	-1021.9	1023.4	1024.5
90	29.570	29.600	756.7	593.8	637.8	593.7	407.1	10.7	32.56	1.05	45.17	60.26	905.0	1197.0	-641.5	-1039.0	1048.6	1049.7
95	30.240	30.270	731.4	559.5	611.1	559.4	401.8	14.7	33.33	1.51	47.65	62.15	907.4	1197.5	-670.6	-1058.7	1072.4	1073.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-P	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.76	5.77	13.43	55.24	62.60	2.1044	.5434	.1406	.0333	.0210	.9246	.0522	.0000	.8293	1.1130	.6720	.7566	.9006
10	.73	4.99	15.46	49.37	59.70	2.0242	.5143	.1758	.0434	.0315	.9041	.0483	.0000	.7791	1.1212	.7051	.7852	.9189
15	.43	4.80	16.74	45.29	57.20	1.9408	.4879	.1756	.0453	.0343	.9056	.0427	.0000	.7700	1.0964	.7230	.7807	.9319
30	-2.55	2.31	19.05	35.39	51.89	1.7484	.4470	.1930	.0550	.0513	.9064	.0129	.0000	.7181	1.0097	.6993	.7791	.9214
50	-4.03	1.50	15.44	30.89	44.81	1.5472	.3984	.1625	.0523	.0523	.9330	.0000	.0000	.7008	.9003	.6733	.7747	.9634
70	-5.97	.15	15.51	30.97	44.33	1.3866	.3765	.0993	.0358	.0358	.9669	.0000	.0000	.7709	.7813	.6198	.7970	1.0306
85	-5.12	1.38	15.34	31.36	45.33	1.2867	.3987	.0931	.0362	.0362	.9743	.0000	.0000	.7775	.6944	.5490	.7986	1.0410
90	-4.29	2.31	16.77	31.51	45.96	1.2554	.4238	.1077	.0429	.0429	.9725	.0000	.0000	.7581	.6633	.5118	.7930	1.0315
95	-3.65	2.90	17.83	31.82	46.75	1.2271	.4505	.1220	.0497	.0497	.9707	.0000	.0000	.7436	.6388	.4805	.7920	1.0283

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8127.0	192.62	43.43	1.1575	1.4478	70.783	72.38	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

110% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	640.6	1254.8	640.6	733.1	.0	1818.4	.00	54.25	35.97	-31.57	791.5	860.4	-464.9	450.4	464.9	568.0
10	14.100	16.790	655.0	1234.1	655.0	755.7	.0	975.6	.00	52.23	37.33	-26.72	823.8	846.6	-499.6	380.7	499.6	594.9
15	15.170	17.580	670.2	1197.3	670.2	763.1	.0	922.5	.00	50.39	38.72	-21.39	859.2	820.6	-537.5	299.6	537.5	622.9
30	18.280	19.910	708.8	1084.5	708.8	765.8	.0	767.5	.00	45.03	42.39	-4.57	960.3	770.8	-647.7	62.1	647.7	705.4
50	22.190	23.090	738.2	954.2	738.2	716.4	.0	630.1	.00	41.31	46.78	14.72	1078.6	743.1	-786.2	-188.0	786.2	818.1
70	25.880	26.260	741.9	811.9	741.9	632.9	.0	567.2	.00	38.70	51.04	33.73	1179.1	763.8	-917.0	-423.2	917.0	930.4
85	28.450	28.610	731.8	704.3	731.8	537.9	.0	454.4	.00	40.21	54.02	46.11	1245.7	776.5	-1008.0	-559.2	1008.0	1013.7
90	29.320	29.410	727.8	673.0	727.8	502.1	.0	448.0	.00	41.77	54.98	49.79	1268.5	778.3	-1038.8	-594.0	1038.8	1042.0
95	30.150	30.180	724.4	652.1	724.4	478.8	.0	442.8	.00	42.76	55.86	52.60	1290.4	788.7	-1068.2	-626.6	1068.2	1069.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.05	1.87	5.13	67.53	70.83	2.4336	.2037	.3434	.0601	.0601	1.6351	.8250	.8124	.0000	.5940	1.1634	.7344	.7978
10	-4.18	2.49	4.27	64.05	65.86	2.2864	.2538	.2034	.0397	.0397	1.7028	.8904	.8816	.0000	.6092	1.1389	.7676	.7813
15	-3.59	2.71	5.47	60.11	62.90	2.1574	.3118	.1354	.0292	.0292	1.7251	.9208	.9143	.0000	.6247	1.0978	.8025	.7524
30	-2.82	2.84	9.14	46.96	53.26	1.9033	.4158	.0489	.0128	.0128	1.7144	.9625	.9595	.0000	.6639	.9789	.9027	.6958
50	-1.78	3.14	10.18	32.06	39.14	1.6882	.4873	.0768	.0220	.0178	1.6444	.9292	.9240	.0145	.6934	.8467	1.0222	.6593
70	-.07	4.06	13.55	17.31	26.91	1.5335	.4933	.1425	.0386	.0320	1.5122	.8387	.8291	.0240	.6935	.7105	1.1167	.6690
85	.76	4.38	16.20	7.91	19.79	1.4420	.5035	.2228	.0536	.0443	1.4136	.7170	.7030	.0371	.6836	.6104	1.1755	.6729
90	.86	4.35	17.50	5.19	18.32	1.4148	.5115	.2537	.0579	.0482	1.3883	.6711	.6556	.0413	.6801	.5809	1.1936	.6717
95	.81	4.15	18.45	3.25	17.48	1.3890	.5125	.2721	.0595	.0493	1.3741	.6416	.6253	.0461	.6773	.5611	1.2108	.6786

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
8120.0	191.98	43.29	1.1629	1.5786	85.496	86.52

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1159.1	695.5	703.4	694.8	921.1	-21.1	52.64	-1.77	-22.64	44.35	782.3	971.9	293.4	-679.4	627.8	656.3
10	18.350	19.110	1167.3	720.1	751.6	719.4	893.1	29.5	49.91	2.33	-17.91	42.00	790.0	948.0	282.9	-647.6	650.2	677.1
15	19.070	19.740	1156.3	735.9	782.4	734.0	851.2	52.3	47.41	4.07	-12.65	41.40	802.5	928.5	275.6	-647.1	675.7	699.4
30	21.140	21.600	1097.3	757.5	825.1	755.1	722.9	61.2	41.20	4.63	1.79	42.99	827.2	1032.5	-28.1	-704.1	749.0	765.3
50	23.970	24.200	1008.8	750.2	805.6	748.5	607.2	50.3	36.99	3.84	16.72	47.15	842.8	1101.0	-242.1	-807.2	849.3	857.4
70	26.790	26.880	880.8	666.6	726.7	666.1	497.7	25.4	34.39	2.17	31.84	54.28	857.4	1142.2	-451.5	-927.0	949.2	952.4
85	28.860	28.900	779.7	568.3	636.4	567.9	450.4	19.0	35.30	1.92	41.96	60.53	856.2	1154.6	-572.1	-1005.0	1022.5	1024.0
90	29.570	29.600	750.0	531.0	603.7	530.5	444.9	21.2	36.40	2.30	44.96	62.69	853.4	1156.7	-602.8	-1027.6	1047.7	1048.8
95	30.240	30.270	731.1	505.7	582.7	505.2	441.6	22.7	37.16	2.57	47.22	64.30	858.1	1165.1	-629.8	-1049.8	1071.4	1072.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.58	6.56	14.74	54.41	62.57	2.1038	.5885	.1427	.0339	.0237	.9280	.0427	.0000	.8358	1.0556	.5919	.7002	.8271
10	1.85	6.10	16.31	47.58	59.65	2.0264	.5616	.1778	.0438	.0339	.9093	.0404	.0000	.7921	1.0608	.6143	.7233	.8258
15	1.22	5.57	19.53	43.33	57.14	1.9438	.5378	.1819	.0467	.0377	.9085	.0351	.0000	.7810	1.0455	.6295	.7302	.8370
30	-1.51	3.32	18.65	36.57	51.80	1.7508	.4794	.1359	.0387	.0387	.9365	.0000	.0000	.8109	.9882	.6527	.7490	.8896
50	-2.55	2.97	14.60	33.15	44.78	1.5473	.4336	.0734	.0237	.0237	.9698	.0000	.0000	.8781	.8988	.6482	.7539	.9514
70	-3.14	3.00	15.07	32.22	44.39	1.3862	.4359	.0547	.0197	.0197	.9819	.0000	.0000	.9004	.7744	.5747	.7578	.9846
85	-1.39	5.12	16.98	33.38	45.34	1.2865	.4660	.0814	.0316	.0316	.9782	.0000	.0000	.8504	.6784	.4863	.7478	.9880
90	-.39	6.21	18.02	34.10	45.97	1.2553	.5169	.0977	.0389	.0389	.9757	.0000	.0000	.8268	.6515	.4526	.7424	.9860
95	-.04	6.73	18.90	34.59	46.76	1.2271	.5416	.1103	.0449	.0449	.9738	.0000	.0000	.8141	.6341	.4298	.7446	.9903

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
8120.0	191.98	43.29	1.1628	1.5143	77.247	78.68

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

110% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	641.5	1268.7	641.5	741.0	.0	1029.8	.00	54.26	35.92	-31.94	792.2	873.3	-464.7	462.0	464.7	567.8
10	14.100	16.790	656.0	1249.7	656.0	776.9	.0	983.5	.00	51.90	37.28	-26.75	824.5	863.7	-499.4	388.8	499.4	594.7
15	15.170	17.580	671.4	1212.6	671.4	776.1	.0	931.6	.00	50.19	38.66	-21.66	860.0	836.0	-537.3	308.9	537.3	622.7
30	18.280	19.910	710.2	1092.7	710.2	778.1	.0	766.8	.00	44.54	42.33	-4.46	961.2	783.2	-647.5	61.5	647.5	705.2
50	22.190	23.090	739.1	955.5	739.1	722.7	.0	625.0	.00	40.83	46.74	14.96	1079.1	750.4	-786.0	-192.9	786.0	817.9
70	25.880	26.260	741.0	807.1	741.0	638.3	.0	494.0	.00	37.73	51.03	34.29	1178.9	775.5	-916.7	-436.1	916.7	930.2
85	28.450	28.610	731.1	698.0	731.1	540.4	.0	441.8	.00	39.28	54.04	46.61	1245.0	787.2	-1007.7	-571.7	1007.7	1013.4
90	29.320	29.410	726.8	664.3	726.8	502.4	.0	434.4	.00	40.88	55.01	50.40	1267.7	788.8	-1038.6	-607.3	1038.6	1041.7
95	30.150	30.180	723.2	641.7	723.2	477.8	.0	428.3	.00	41.87	55.89	53.27	1289.8	789.4	-1068.0	-640.7	1068.0	1069.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.10	1.82	4.76	67.86	70.83	2.4337	.1913	.3523	.0614	.0614	1.6800	.8217	.8086	.0000	.5948	1.1787	.7351	.8113
10	-4.23	2.44	4.25	64.03	65.86	2.2864	.2359	.1933	.0378	.0378	1.7154	.8963	.8879	.0000	.6102	1.1562	.7684	.7991
15	-3.65	2.65	5.21	60.32	62.90	2.1573	.2973	.1276	.0275	.0275	1.7386	.9258	.9196	.0000	.6260	1.1143	.8036	.7682
30	-2.88	2.77	9.26	46.78	53.27	1.9031	.4033	.0454	.0119	.0119	1.7155	.9649	.9620	.0000	.6655	.9879	.9044	.7081
50	-1.81	3.10	10.41	31.77	39.14	1.6880	.4793	.0846	.0242	.0201	1.6314	.9215	.9159	.0144	.6943	.8487	1.0235	.6664
70	-.06	4.07	14.12	16.74	26.91	1.5335	.4796	.1460	.0393	.0327	1.4972	.8307	.8211	.0239	.6932	.7081	1.1170	.6802
85	.80	4.41	16.69	7.43	19.73	1.4420	.4911	.2296	.0547	.0455	1.3898	.7003	.6862	.0370	.6826	.6057	1.1751	.6831
90	.49	4.38	18.10	4.62	18.32	1.4148	.4991	.2612	.0588	.0493	1.3624	.6512	.6358	.0413	.6790	.5741	1.1930	.6816
95	.85	4.19	19.12	2.62	17.48	1.3890	.4998	.2795	.0602	.0502	1.3466	.6198	.6037	.0461	.6761	.5529	1.2100	.6887

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8117.0	192.04	43.30	1.1609	1.5676	85.121	86.18	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1175.1	727.0	716.1	726.2	931.7	-26.7	52.45	-2.13	-23.00	43.32	778.1	998.3	304.0	-684.8	627.7	658.1
10	18.350	19.110	1185.6	771.6	753.2	900.1	20.5	49.40	1.54	-17.97	41.07	811.3	999.1	250.2	-656.4	650.0	676.9	
15	19.070	19.740	1174.8	767.7	800.8	766.4	859.4	44.7	47.02	3.34	-12.93	40.50	822.2	1007.9	183.9	-654.5	675.5	699.2
30	21.140	21.600	1106.9	771.8	838.4	768.8	722.2	67.5	40.72	5.02	1.80	42.21	840.7	1038.2	-26.6	-697.6	748.8	765.1
50	23.970	24.200	1010.2	759.4	810.9	758.0	602.3	46.4	36.58	3.49	16.92	46.91	849.3	1110.3	-246.8	-810.9	849.1	857.2
70	26.790	26.680	878.1	676.8	732.1	676.6	484.9	14.9	33.51	1.25	32.35	54.16	868.7	1156.6	-464.0	-937.2	948.9	952.1
85	28.860	28.900	776.1	578.4	640.7	578.2	437.9	14.1	34.36	1.40	42.37	60.20	867.7	1163.7	-584.4	-1009.6	1022.3	1023.7
90	29.570	29.600	744.5	538.8	606.6	538.5	431.5	18.3	35.44	1.95	45.44	62.41	864.8	1162.7	-615.9	-1030.2	1047.4	1048.5
95	30.240	30.270	723.9	511.3	584.4	510.9	427.2	20.7	36.17	2.32	47.77	64.09	869.6	1169.1	-643.9	-1051.5	1071.1	1072.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.24	6.24	14.38	54.58	62.58	2.1052	.5706	.1399	.0332	.0225	.9280	.0452	.0000	.8361	1.0737	.6202	.7189	.8516
10	1.31	5.57	17.53	47.85	59.67	2.0255	.5436	.1781	.0440	.0337	.9071	.0416	.0000	.7861	1.0808	.6448	.7455	.8548
15	.87	5.23	18.79	43.68	57.15	1.9427	.5215	.1861	.0478	.0383	.9042	.0369	.0000	.7698	1.0632	.6585	.7485	.8645
30	-2.05	2.79	19.04	35.70	51.82	1.7502	.4693	.1597	.0454	.0419	.9243	.0125	.0000	.7755	.9972	.6662	.7624	.8962
50	-2.96	2.56	14.25	33.89	44.78	1.5474	.4249	.6944	.0305	.0305	.9611	.0000	.0000	.8381	.9009	.6573	.7604	.9610
70	-4.04	2.09	14.15	32.26	44.34	1.3863	.4218	.6605	.0218	.0218	.9800	.0000	.0000	.8839	.7740	.5851	.7690	.9929
85	-2.35	4.16	16.46	32.96	45.33	1.2865	.4668	.0805	.0313	.0313	.9786	.0000	.0000	.8444	.6769	.4963	.7590	.9985
90	-1.36	5.24	17.68	33.48	45.96	1.2553	.4972	.0959	.0382	.0382	.9764	.0000	.0000	.8229	.6479	.4605	.7536	.9938
95	-1.02	5.74	18.64	33.85	46.75	1.2271	.5224	.1082	.0440	.0440	.9747	.0000	.0000	.8102	.6288	.4357	.7556	.9963

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8117.0	192.04	43.30	1.1609	1.4949	75.620	77.08	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction
110% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	638.1	1243.6	638.1	724.1	.0	1011.0	.00	54.39	36.07	-31.46	789.5	848.9	-464.9	443.0	464.9	568.0
10	14.100	16.790	652.5	1223.4	652.5	752.1	.0	964.8	.00	52.06	37.44	-26.17	821.8	838.5	-499.6	369.8	499.6	595.0
15	15.170	17.580	667.6	1187.5	667.6	757.0	.0	914.8	.00	50.38	38.83	-21.04	857.2	812.1	-537.6	291.8	537.6	623.0
30	18.280	19.910	705.7	1078.3	705.7	758.0	.0	766.7	.00	45.29	42.52	-4.55	958.1	762.9	-647.8	61.2	647.8	705.5
50	22.190	23.090	734.6	950.1	734.6	709.1	.0	632.2	.00	41.69	46.92	14.71	1076.2	735.4	-786.3	-186.0	786.3	818.2
70	25.880	26.260	737.4	812.5	737.4	626.5	.0	517.4	.00	39.55	51.18	33.36	1176.9	752.9	-917.1	-413.1	917.1	930.5
85	28.450	28.610	728.3	705.3	728.3	531.6	.0	463.4	.00	41.09	54.15	45.99	1243.7	765.8	-1008.1	-550.4	1008.1	1013.8
90	29.320	29.410	724.4	676.2	724.4	498.1	.0	457.2	.00	42.57	55.11	49.58	1266.6	768.8	-1039.0	-585.0	1039.0	1042.2
95	30.150	30.130	721.1	657.7	721.1	477.4	.0	452.4	.00	43.45	55.98	52.26	1289.0	780.3	-1068.4	-617.1	1068.4	1069.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-4.94	1.93	5.24	67.53	70.83	2.4335	.2142	.3379	.0592	.0592	1.6324	.8276	.8150	.0000	.5915	1.1511	.7325	.7858
10	-4.07	2.60	4.83	63.61	65.87	2.2863	.2588	.1910	.0375	.0375	1.6999	.8965	.8883	.0000	.6067	1.1277	.7657	.7729
15	-3.48	2.82	5.83	59.87	62.90	2.1572	.3180	.1279	.0277	.0277	1.7221	.9249	.9187	.0000	.6221	1.0875	.8007	.7437
30	-2.69	2.97	9.16	47.07	53.26	1.9032	.4225	.0447	.0117	.0117	1.7166	.9656	.9628	.0000	.6608	.9724	.9005	.6679
50	-1.63	3.23	10.17	32.21	39.14	1.6861	.4938	.0739	.0212	.0169	1.6498	.9323	.9272	.0147	.6897	.8423	1.0195	.6519
70	.08	4.20	13.18	17.82	26.91	1.5335	.5045	.1435	.0391	.0324	1.5258	.8409	.8312	.0241	.6897	.7110	1.1141	.6586
85	.90	4.51	16.08	8.16	19.74	1.4420	.5138	.2221	.0535	.0442	1.4273	.7236	.7095	.0372	.6800	.6105	1.1730	.6628
90	.99	4.48	17.29	5.53	18.32	1.4148	.5208	.2512	.0576	.0478	1.4042	.6813	.6658	.0416	.6767	.5830	1.1912	.6628
95	.94	4.28	18.11	3.72	17.48	1.3890	.5210	.2681	.0591	.0488	1.3922	.6548	.6385	.0463	.6740	.5653	1.2085	.6707

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8121.0	191.47	43.17	1.1641	1.5864	85.797	86.86	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1146.4	675.9	691.1	675.1	914.7	-21.1	52.92	-1.83	-2[illegible]	45.18	748.4	958.1	286.7	-679.5	627.9	658.4
10	18.350	19.110	1154.7	701.6	744.0	700.9	883.1	29.6	49.89	2.40	-17.38	42.74	779.7	954.3	232.9	-647.6	650.2	677.2
15	19.070	19.740	1144.5	719.2	772.9	717.3	843.9	51.3	47.51	4.09	-12.28	42.10	791.6	966.8	168.2	-648.2	675.8	699.5
30	21.140	21.600	1089.8	749.2	815.8	747.5	722.2	50.0	41.49	3.83	1.87	43.73	817.9	1034.8	-26.9	-715.4	749.1	765.4
50	23.970	24.200	1003.7	740.8	797.6	739.4	609 1	45.6	37.35	3.52	16.76	47.67	834.5	1098.4	-240.2	-812.0	849.4	857.5
70	26.790	26.880	880.6	659.3	719.5	658.9	507 5	22.3	35.20	1.92	31.54	54.67	846.1	1140.6	-441.7	-930.2	949.3	952.5
85	28.860	28.900	778.7	559.9	628.8	559.7	459.3	15.8	36.16	1.62	41.86	60.97	844.7	1153.5	-563.4	-1008.3	1022.7	1024.1
90	29.570	29.600	750.7	524.7	597.8	524.4	454.0	18.5	37.23	2.03	44.81	63.02	842.9	1156.4	-593.9	-1030.4	1047.8	1048.9
95	30.240	30.270	733.9	501.9	578.9	501.5	451.2	20.4	37.93	2.33	46.98	64.51	848.6	1165.6	-620.4	-1052.2	1071.6	1072.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.79	6.78	14.68	54.75	62.57	2.1061	.5997	.1448	.0344	.0245	.9281	.0417	.0000	.8365	1.0421	.5745	.6869	.8143
10	1.86	6.12	18.38	47.48	59.63	2.0270	.5707	.1791	.0441	.0349	.9100	.0376	.0000	.7922	1.0482	.5979	.7125	.8132
15	1.42	5.76	19.55	43.42	57.12	1.9446	.5461	.1805	.0463	.0377	.9105	.0334	.0000	.7829	1.0344	.6144	.7190	.8260
30	-1.18	3.64	17.84	37.66	51.79	1.7513	.4862	.1249	.0356	.0356	.9422	.0000	.0000	.8265	.9809	.6449	.7396	.8907
50	-2.18	3.34	14.29	33.83	44.78	1.5474	.4422	.0650	.0210	.0210	.9735	.0000	.0000	.8933	.8934	.6392	.7457	.9478
70	-2.32	3.81	14.82	33.27	44.34	1.3862	.4495	.0554	.0200	.0200	.9817	.0000	.0000	.9014	.7729	.5671	.7466	.9812
85	-.53	5.98	16.66	34.54	45.34	1.2864	.5021	.0830	.0322	.0322	.9779	.0000	.0000	.8517	.6764	.4782	.7366	.9850
90	.43	7.04	17.75	35.19	45.97	1.2553	.5319	.0999	.0398	.0398	.9751	.0000	.0000	.8268	.6513	.4465	.7323	.9838
95	.74	7.56	18.66	35.60	46.76	1.2271	.5551	.1140	.0464	.0464	.9728	.0000	.0000	.8118	.6358	.4259	.7354	.9890

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8121.0	191.47	43.17	1.1641	1.5251	78.037	79.44	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

110% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	634.2	1282.7	634.2	705.6	.0	1000.0	.00	54.87	36.24	-31.56	786.3	825.7	-464.8	432.1	464.8	567.9
10	14.100	16.790	648.3	1198.9	648.3	730.2	.0	950.8	.00	52.47	37.61	-25.97	818.4	812.7	-499.5	356.0	499.5	594.8
15	15.170	17.580	663.1	1161.4	663.1	733.5	.0	900.4	.00	50.82	38.01	-20.69	853.6	785.0	-537.5	277.6	537.5	622.8
30	18.280	19.910	700.6	1081.8	700.6	731.9	.0	769.0	.00	46.39	42.72	-4.91	954.2	736.9	-647.6	63.6	647.6	705.4
50	22.190	23.190	730.5	947.3	730.5	696.2	.0	642.3	.00	42.67	47.08	14.17	1073.3	720.3	-786.2	-175.7	786.2	818.0
70	25.880	26.260	735.4	825.6	735.4	622.9	.0	541.9	.00	41.03	51.25	31.92	1175.5	736.4	-916.9	-388.4	916.9	930.4
85	28.450	28.610	727.5	721.0	727.5	529.6	.0	485.1	.00	42.74	54.18	44.72	1243.1	745.9	-1007.9	-524.5	1007.9	1013.6
90	29.320	29.410	723.8	692.1	723.8	494.6	.0	483.9	.00	44.40	55.13	48.45	1266.1	746.2	-1038.8	-558.0	1038.8	1042.0
95	30.150	30.180	720.6	672.6	720.6	470.9	.0	480.3	.00	45.56	55.99	51.34	1288.5	754.2	-1068.2	-589.0	1068.2	1069.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-4.78	2.14	5.15	67.79	70.83	2.4336	.2373	.3282	.0575	.0575	1.6288	.8323	.8201	.0000	.5876	1.1280	.7291	.7618
10	-3.90	2.77	5.02	63.58	65.86	2.2863	.2831	.1959	.0385	.0385	1.6806	.8933	.8830	.0000	.6025	1.1012	.7620	.7465
15	-3.29	3.00	6.18	59.70	62.89	2.1574	.3427	.1414	.0307	.0307	1.7003	.9166	.9099	.0000	.6174	1.0598	.7965	.7163
30	-2.49	3.18	8.80	47.63	53.25	1.9038	.4481	.0587	.0154	.0154	1.7101	.9562	.9526	.0000	.6551	.9545	.8948	.6624
50	-1.50	3.43	9.63	32.91	39.14	1.6886	.5094	.0633	.0182	.0138	1.6715	.9428	.9383	.0140	.6854	.8384	1.0143	.6374
70	.12	4.25	11.75	19.33	26.92	1.5336	.5248	.1300	.0380	.0292	1.5720	.8624	.8533	.0241	.6880	.7211	1.1115	.6430
85	.91	4.53	14.81	9.46	19.74	1.4420	.5367	.2099	.0517	.0423	1.4754	.7523	.7385	.0372	.6794	.6227	1.1718	.6442
90	1.00	4.49	16.16	6.68	18.33	1.4148	.5459	.2414	.0566	.0466	1.4520	.7101	.6946	.0418	.6762	.5952	1.1904	.6417
95	.95	4.29	17.19	4.65	17.48	1.3890	.5489	.2618	.0589	.0484	1.4392	.6817	.6650	.0462	.6735	.5765	1.2080	.6464

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8119.0	190.47	43.06	1.1680	1.6081	86.457	87.59	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1121.9	639.6	663.3	638.4	904.8	-30.2	53.75	-2.74	-22.66	47.15	718.9	939.1	277.0	-688.4	627.8	658.3
10	18.350	19.110	1125.7	658.9	713.4	658.2	870.7	27.8	50.67	2.41	-17.18	44.61	746.8	924.5	220.6	-649.2	650.1	677.0
15	19.070	19.740	1112.0	672.4	739.1	670.3	830.7	53.3	48.33	4.55	-11.85	43.94	755.7	930.9	155.0	-646.0	675.6	699.4
30	21.140	21.600	1067.7	722.9	784.1	721.5	728.3	43.5	42.71	3.45	1.77	45.00	786.0	1020.6	-24.6	-721.7	749.0	765.3
60	23.970	24.200	997.3	723.7	781.9	722.4	618.9	44.2	38.35	3.50	16.40	48.37	816.6	1087.8	-230.4	-813.1	849.2	857.4
70	26.790	26.880	891.2	657.9	715.4	657.3	531.5	29.2	36.61	2.53	30.27	54.53	830.1	1133.9	-417.6	-923.1	949.1	952.3
85	28.860	28.900	792.6	559.8	627.0	559.4	484.7	19.8	37.72	2.03	40.62	60.87	826.5	1149.7	-537.7	-1004.1	1022.5	1023.9
90	29.570	29.600	765.0	525.3	595.3	524.9	480.3	19.0	38.91	2.08	43.63	62.98	822.6	1156.0	-567.3	-1029.6	1047.6	1048.7
95	30.240	30.270	747.6	502.6	574.0	502.3	478.9	18.8	39.84	2.15	45.90	64.51	825.0	1167.2	-592.4	-1053.6	1071.4	1072.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.66	7.64	13.76	56.49	62.56	2.1066	.6232	.1447	.0343	.0244	.9304	.0419	.0000	.8404	1.0145	.5423	.6558	.7962
10	2.70	6.95	18.37	48.26	59.61	2.0280	.5952	.1789	.0441	.0351	.9135	.0364	.0000	.7979	1.0163	.5599	.6780	.7855
15	2.25	6.62	20.01	43.78	57.10	1.9460	.5714	.1780	.0456	.0374	.9154	.0322	.0000	.7907	1.0020	.5725	.6838	.7926
30	.11	4.92	17.47	39.26	51.77	1.7524	.5025	.1062	.0303	.0303	.9525	.0000	.0000	.8531	.9587	.6202	.7078	.8757
60	-1.18	4.34	14.28	34.84	44.79	1.5476	.4592	.0605	.0195	.0195	.9757	.0000	.0000	.9025	.8869	.6226	.7283	.9358
70	-.90	5.24	15.43	34.08	44.33	1.3862	.4645	.0622	.0224	.0224	.9792	.0000	.0000	.8907	.7815	.5640	.7508	.9790
85	1.02	7.53	17.08	35.69	45.34	1.2865	.5215	.0973	.0378	.0378	.9734	.0000	.0000	.8326	.6874	.4763	.7192	.9782
90	2.12	8.72	17.80	36.83	45.97	1.2553	.5534	.1152	.0459	.0459	.9705	.0000	.0000	.8079	.6622	.4452	.7128	.9797
95	2.65	9.41	18.47	37.69	46.76	1.2271	.5783	.1282	.0522	.0522	.9687	.0000	.0000	.7952	.6458	.4247	.7128	.9863

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8119.0	190.97	43.06	1.1680	1.5494	79.256	80.64	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

110% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VQ-1 FT/SEC	VQ-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VQ'-1 FT/SEC	VQ'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	640.2	1253.4	640.2	735.0	.0	1015.3	.00	54.10	35.99	-31.32	791.3	860.4	-465.0	447.2	465.0	564.2
10	14.100	16.790	654.6	1232.7	654.6	762.0	.0	968.8	.00	51.81	37.36	-26.11	823.6	849.1	-499.8	373.7	499.8	595.1
15	15.170	17.580	669.8	1196.3	669.8	764.2	.0	920.3	.00	50.28	38.74	-21.20	859.0	820.6	-537.7	297.1	537.7	623.1
30	18.280	19.910	708.1	1084.7	708.1	765.5	.0	768.2	.00	45.07	42.43	-4.60	960.0	770.5	-647.9	62.5	647.9	705.7
50	22.190	23.090	737.3	954.3	737.3	715.0	.0	632.9	.00	41.45	46.82	14.63	1078.2	741.2	-786.5	-186.4	786.5	818.4
70	25.880	26.260	740.2	812.8	740.2	632.8	.0	510.1	.00	38.86	51.08	33.57	1178.9	762.3	-917.3	-420.7	917.3	930.8
85	28.450	28.610	731.1	705.1	731.1	537.2	.0	456.6	.00	40.38	54.05	46.06	1245.6	774.8	-1008.4	-557.5	1008.4	1014.1
90	29.320	29.410	727.1	674.1	727.1	502.5	.0	449.2	.00	41.82	55.02	49.73	1268.4	777.9	-1039.2	-583.2	1039.2	1042.4
95	30.150	30.180	723.9	653.6	723.8	480.2	.0	443.3	.00	42.71	55.89	52.51	1290.7	789.4	-1068.6	-626.4	1068.6	1069.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.02	1.89	5.39	67.31	70.83	2.4335	.2027	.3425	.0601	.0601	1.6333	.8251	.8123	.0000	.5936	1.1622	.7343	.7977
10	-4.15	2.51	4.89	63.46	65.87	2.2863	.2487	.1959	.0385	.0385	1.7009	.8939	.8854	.0000	.6089	1.1380	.7676	.7839
15	-3.56	2.73	5.67	59.95	62.90	2.1572	.3111	.1368	.0296	.0296	1.7224	.9199	.9134	.0000	.6244	1.0968	.8026	.7524
30	-2.78	2.88	9.11	47.03	53.26	1.9033	.4162	.0515	.0135	.0135	1.7137	.9608	.9576	.0000	.6633	.9791	.9025	.6954
50	-1.73	3.18	10.09	32.19	39.14	1.6882	.4893	.0815	.0234	.0191	1.6435	.9253	.9198	.0146	.6925	.8466	1.0217	.6575
70	-.02	4.10	13.39	17.51	26.91	1.5335	.4952	.1453	.0395	.0388	1.5141	.8365	.8267	.0241	.6926	.7119	1.1163	.6676
85	.80	4.42	16.15	8.00	19.74	1.4420	.5054	.2252	.0542	.0449	1.4147	.7152	.7010	.0372	.6828	.6109	1.1751	.6712
90	.89	4.38	17.44	5.29	18.32	1.4148	.5120	.2543	.0581	.0484	1.3896	.6712	.6558	.0415	.6794	.5817	1.1933	.6713
95	.85	4.19	18.36	3.38	17.48	1.3890	.5121	.2713	.0594	.0498	1.3758	.6432	.6269	.0463	.6767	.5624	1.2106	.6793

NCOP-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8123.0	191.85	43.26	1.1633	1.5787	85.278	86.33	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VQ-1 FT/SEC	VQ-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VQ'-1 FT/SEC	VQ'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1157.2	692.2	703.8	691.4	918.6	-22.2	52.34	-1.07	-28.82	44.55	761.5	970.5	290.5	-680.8	628.1	658.5
10	18.350	19.110	1165.4	716.2	756.3	715.5	886.6	27.8	49.53	2.21	-17.34	42.23	792.5	966.4	236.2	-649.5	650.4	677.3
15	19.070	19.740	1154.8	732.5	782.8	730.8	848.8	50.2	47.31	3.93	-12.45	41.63	808.2	977.7	172.9	-649.5	675.9	699.7
30	21.140	21.600	1097.5	756.7	824.8	755.0	723.5	50.8	43.23	3.85	1.76	43.42	828.5	1039.8	-25.7	-714.8	749.3	765.6
50	23.970	24.200	1009.2	748.7	804.7	747.5	609.0	41.9	37.10	3.21	16.64	47.46	841.5	1106.8	-240.6	-815.8	849.6	857.7
70	26.790	26.880	882.4	665.9	726.8	665.7	500.5	17.3	34.54	1.47	31.70	54.55	856.2	1168.8	-449.1	-935.4	949.5	952.7
85	28.860	28.900	780.3	566.4	635.6	566.2	452.6	13.7	35.47	1.39	41.90	60.74	854.4	1158.7	-570.3	-1010.6	1022.9	1024.3
90	29.570	29.600	750.7	529.7	603.7	529.5	446.2	16.2	36.48	1.76	46.92	62.86	852.8	1161.0	-601.9	-1033.0	1048.1	1049.1
95	30.240	30.270	732.1	505.2	583.5	504.9	442.2	17.7	37.15	2.00	47.17	64.43	858.5	1169.8	-629.7	-1055.2	1071.8	1072.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.40	6.38	14.64	54.41	62.57	2.1059	.5905	.1435	.0340	.0281	.9278	.0418	.0000	.8367	1.0539	.5890	.7004	.8258
10	1.54	5.80	18.19	47.32	59.64	2.0267	.5632	.1792	.0442	.0348	.9088	.0380	.0000	.7903	1.0594	.6110	.7250	.8245
15	1.24	5.59	19.38	43.38	57.13	1.9442	.5400	.1815	.0466	.0378	.9088	.0393	.0000	.7800	1.0446	.6264	.7291	.8360
30	-1.46	3.36	17.86	37.39	51.60	1.7510	.4831	.1329	.0379	.0370	.9379	.0000	.0000	.8155	.9885	.6519	.7487	.8957
50	-2.44	3.09	13.97	33.89	44.70	1.5473	.4385	.0706	.0228	.0228	.9710	.0000	.0000	.8834	.8990	.6467	.7526	.9559
70	-2.99	3.15	14.37	33.07	44.34	1.3862	.4423	.0554	.0200	.0200	.9816	.0000	.0000	.9001	.7755	.5738	.7565	.9898
85	-1.22	5.28	16.45	34.07	45.34	1.2864	.4926	.0829	.0322	.0322	.9778	.0000	.0000	.8493	.6786	.4844	.7460	.9910
90	-.32	6.29	17.48	34.72	45.97	1.2553	.5223	.0984	.0392	.0392	.9755	.0000	.0000	.8269	.6520	.4514	.7418	.9894
95	-.04	6.72	18.33	35.15	46.76	1.2271	.5461	.1108	.0451	.0451	.9737	.0000	.0000	.8142	.6349	.4293	.7450	.9941

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8123.0	191.85	43.26	1.1633	1.5151	77.148	78.56	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

110% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	636.7	1229.3	636.7	712.4	.0	1001.8	.00	54.58	36.13	-31.35	788.2	834.2	-464.7	434.0	464.7	567.8
10	14.100	16.790	650.9	1207.0	650.9	738.7	.0	954.4	.00	52.26	37.50	-25.95	820.4	822.0	-499.4	359.7	499.4	594.7
15	15.170	17.580	665.9	1169.9	665.9	741.8	.0	904.4	.00	50.63	38.89	-20.75	855.7	794.3	-537.3	281.7	537.3	622.7
30	18.280	19.910	703.7	1066.3	703.7	742.9	.0	764.7	.00	45.80	42.59	-4.51	956.4	747.6	-647.5	59.5	647.5	705.2
50	22.190	23.090	733.3	946.3	733.3	701.5	.0	635.0	.00	42.13	46.96	14.62	1075.1	727.2	-786.0	-182.9	786.0	817.9
70	25.880	26.260	737.5	818.0	737.5	624.2	.0	528.6	.00	40.26	51.16	32.71	1176.7	744.6	-916.7	-401.6	916.7	930.2
85	28.450	28.610	729.4	713.6	729.4	532.2	.0	475.3	.00	41.79	54.10	45.31	1244.0	757.4	-1007.8	-538.1	1007.8	1013.4
90	29.320	29.410	725.7	684.6	725.7	497.8	.0	469.8	.00	43.36	55.05	48.96	1267.0	758.7	-1038.6	-572.0	1038.6	1041.8
95	30.150	30.180	722.5	665.5	722.5	476.0	.0	465.2	.00	44.34	55.92	51.74	1289.4	769.0	-1068.0	-603.9	1068.0	1069.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-4.89	2.03	5.35	67.47	70.83	2.4335	.2289	.3302	.0579	.0579	1.6284	.8307	.8184	.0000	.5901	1.1355	.7311	.7705
10	-4.01	2.66	5.05	63.44	65.86	2.2863	.2746	.1940	.0381	.0381	1.6884	.8942	.8859	.0000	.6051	1.1100	.7642	.7559
15	-3.41	2.88	6.11	59.65	62.90	2.1573	.3346	.1380	.0299	.0299	1.7058	.9185	.9120	.0000	.6203	1.0688	.7988	.7257
30	-2.62	3.04	9.19	47.10	53.25	1.9036	.4370	.0521	.0136	.0136	1.7092	.9605	.9572	.0000	.6584	.9598	.8977	.6729
50	-1.61	3.32	10.08	32.34	39.14	1.6884	.5017	.0667	.0191	.0149	1.6589	.9390	.9348	.0147	.6983	.8382	1.0171	.6441
70	.04	4.17	12.54	18.45	26.92	1.5336	.5146	.1342	.0368	.0301	1.5492	.8542	.8450	.0240	.6902	.7151	1.1132	.6508
85	.84	4.46	15.41	8.79	19.74	1.4420	.5240	.2117	.0516	.0423	1.4535	.7431	.7293	.0371	.6813	.6171	1.1730	.6550
90	.93	4.42	16.68	6.89	18.33	1.4148	.5324	.2425	.0563	.0465	1.4302	.7003	.6850	.0413	.6781	.5896	1.1915	.6534
95	.88	4.22	17.59	4.18	17.48	1.3890	.5335	.2607	.0581	.0478	1.4177	.6732	.6569	.0461	.6754	.5714	1.2090	.6602

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8118.0	191.35	43.15	1.1655	1.5958	86.257	87.28	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1130.7	655.6	676.0	654.5	906.3	-25.8	53.28	-2.29	-22.40	46.25	731.3	946.9	278.6	-683.9	627.7	658.1
10	18.350	19.110	1136.4	677.6	726.6	676.8	873.8	30.3	50.25	2.55	-17.12	43.69	760.4	936.0	223.8	-646.6	650.0	676.9
15	19.070	19.740	1123.9	692.8	752.7	690.8	834.4	52.7	47.94	4.36	-11.93	43.11	769.9	946.1	158.9	-646.6	675.5	699.2
30	21.140	21.600	1075.4	734.9	798.2	733.9	720.3	38.8	42.04	3.02	2.02	44.69	800.3	1032.6	-28.5	-726.4	748.8	765.1
50	23.970	24.200	998.5	730.9	789.0	729.8	611.8	40.2	37.77	3.15	16.72	48.21	825.4	1095.7	-237.2	-817.0	849.1	857.2
70	26.790	26.880	885.1	657.9	717.4	657.4	518.5	23.9	35.86	2.07	30.96	54.68	838.4	1138.1	-430.4	-928.3	948.9	952.1
85	28.860	28.900	786.4	561.3	629.7	561.0	471.0	15.9	36.81	1.62	41.21	60.89	837.4	1153.7	-551.3	-1007.8	1022.3	1023.7
90	29.570	29.600	758.6	526.2	598.2	526.0	466.4	15.7	37.96	1.71	44.17	63.01	834.2	1159.3	-581.0	-1032.8	1047.4	1048.5
95	30.240	30.270	741.5	503.2	578.4	503.0	464.0	15.8	38.74	1.79	46.38	64.54	838.6	1170.1	-607.2	-1056.5	1071.2	1072.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.18	7.16	14.21	55.57	62.56	2.1064	.6114	.1441	.0342	.0245	.9299	.0407	.0000	.8389	1.0247	.5566	.6688	.8039
10	2.28	6.53	18.52	47.70	59.62	2.0276	.5827	.1780	.0438	.0350	.9127	.0361	.0000	.7960	1.0281	.5766	.6919	.7965
15	1.86	6.21	19.82	43.58	57.11	1.9454	.5588	.1768	.0453	.0371	.9146	.0320	.0000	.7896	1.0139	.5908	.6977	.8089
30	-.60	4.22	17.04	39.02	51.76	1.7518	.4952	.1105	.0315	.0315	.9500	.0000	.0000	.8464	.9667	.6317	.7221	.8876
50	-1.75	3.76	13.92	34.62	44.79	1.5474	.4518	.0602	.0194	.0194	.9757	.0000	.0000	.9022	.8884	.6298	.7370	.9442
70	-1.66	4.48	14.97	33.79	44.34	1.3862	.4578	.0584	.0211	.0211	.9806	.0000	.0000	.8967	.7765	.5650	.7390	.9774
85	.13	6.63	16.68	35.18	45.34	1.2864	.5110	.0901	.0350	.0350	.9737	.0000	.0000	.8413	.6827	.4786	.7295	.9836
90	1.16	7.77	17.43	36.25	45.97	1.2553	.5428	.1080	.0430	.0430	.9727	.0000	.0000	.8161	.6575	.4470	.7239	.9846
95	1.54	8.30	18.12	36.94	46.76	1.2271	.5676	.1223	.0498	.0498	.9704	.0000	.0000	.8013	.6416	.4262	.7260	.9910

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
8118.0	191.35	43.15	1.1655	1.5375	78.970	80.33	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance without Stator-Hub Slit Section

ROTOR — 100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	605.1	1193.4	605.1	709.7	.0	959.4	.00	53.50	34.97	-31.93	738.4	836.4	-423.3	442.2	423.3	517.1
10	14.100	16.790	618.4	1171.1	618.4	748.5	.0	900.5	.00	50.26	36.33	-25.59	767.7	830.6	-454.9	358.9	454.9	541.7
15	15.170	17.580	632.3	1128.7	632.3	750.6	.0	842.7	.00	48.29	37.73	-20.10	799.6	800.5	-489.4	275.5	489.4	567.1
30	18.260	19.910	665.9	1004.4	665.9	730.2	.0	689.2	.00	43.30	41.50	-3.59	889.6	734.4	-589.7	46.8	589.7	642.3
50	22.190	23.090	691.2	876.6	691.2	663.2	.0	549.1	.00	38.75	45.98	15.97	995.3	713.1	-715.9	-195.8	715.9	744.9
70	25.880	26.260	696.0	758.9	696.0	628.3	.0	425.6	.00	34.08	50.16	33.80	1087.1	758.6	-834.9	-421.6	834.9	847.2
85	28.450	28.610	690.4	669.5	690.4	554.0	.0	375.9	.00	34.16	53.04	44.64	1148.5	779.1	-917.8	-547.1	917.8	923.0
90	29.320	29.410	687.6	636.7	687.6	519.5	.0	368.0	.00	35.34	53.98	48.19	1169.4	779.7	-945.9	-580.7	945.9	948.8
95	30.150	30.180	685.0	614.3	685.0	496.2	.0	362.1	.00	36.12	54.84	50.93	1189.7	787.6	-972.6	-611.5	972.6	973.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	*6.04	.80	4.78	60.90	70.84	2.4331	.1610	.2897	.0505	.0505	1.5514	.8489	.8393	.0000	.5592	1.1078	.6832	.7764
10	*5.17	1.49	5.46	61.93	65.93	2.2855	.1970	.1243	.0245	.0245	1.6051	.9294	.9245	.0000	.5734	1.0838	.7136	.7687
15	*4.57	1.71	6.78	57.83	62.93	2.1562	.2611	.0825	.0180	.0180	1.6058	.9484	.9448	.0000	.5875	1.0378	.7454	.7360
30	*3.70	1.94	10.12	45.09	53.28	1.9027	.3863	.0629	.0165	.0165	1.5541	.9497	.9465	.0000	.6207	.9088	.8329	.6845
50	*2.59	2.33	11.44	30.00	39.15	1.6685	.4498	.0847	.0241	.0241	1.4833	.9147	.9099	.0000	.6453	.7822	.9360	.6362
70	*1.00	3.19	13.63	16.36	26.92	1.5337	.4309	.1034	.0280	.0280	1.3931	.8663	.8599	.0007	.6484	.6721	1.0215	.6717
85	-.24	3.40	14.74	8.41	19.75	1.4420	.4354	.1722	.0425	.0388	1.3181	.7475	.7374	.0146	.6423	.5882	1.0765	.6844
90	-.15	3.35	15.91	5.80	18.33	1.4148	.4447	.2061	.0486	.0446	1.2923	.6896	.6782	.0167	.6397	.5574	1.0937	.6824
95	-.19	3.15	16.76	3.91	17.48	1.3890	.4476	.2272	.0516	.0472	1.2765	.6506	.6383	.0192	.6376	.5363	1.1100	.6875

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7393.5	185.30	41.78	1.1287	1.4484	86.788	87.61	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1114.7	743.7	699.0	742.2	868.3	-42.1	51.10	-3.27	-22.99	40.84	759.4	981.2	296.7	-641.5	571.7	599.4
10	18.350	19.110	1121.2	762.4	758.3	761.9	825.8	10.3	47.44	.76	-17.14	38.50	793.7	973.9	233.8	-606.2	592.0	616.5
15	19.070	19.740	1102.3	770.4	781.1	769.5	777.6	36.3	44.86	2.70	-11.74	37.97	798.4	976.1	162.4	-600.5	615.2	636.8
30	21.140	21.600	1026.5	759.1	794.8	758.9	649.1	18.8	39.21	1.40	2.35	41.78	797.3	1018.0	-32.8	-678.3	682.0	696.8
50	23.970	24.200	935.1	727.0	770.9	726.7	529.0	21.1	34.43	1.66	17.55	46.25	810.3	1051.5	-244.2	-759.6	773.3	780.7
70	26.790	26.860	833.3	678.1	721.1	678.1	417.5	-5.4	30.05	-.47	31.75	52.13	849.7	1105.5	-446.8	-872.6	864.3	867.2
85	28.860	28.900	752.7	607.8	654.0	607.6	372.6	-12.4	29.68	-1.17	40.49	57.25	860.3	1123.5	-558.4	-944.8	931.0	932.3
90	29.570	29.600	723.6	587.8	624.3	587.8	365.7	-4.9	30.38	-.47	43.30	59.40	858.0	1115.5	-588.2	-959.8	953.9	954.9
95	30.240	30.270	703.7	536.8	603.9	536.8	361.3	2.0	30.89	.21	45.49	61.15	861.4	1112.7	-614.3	-974.6	975.6	976.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.71	4.70	13.24	54.43	62.58	2.1055	.5226	.1350	.0320	.0253	.9347	.0281	.0000	.8260	1.0216	.6441	.7052	.8497
10	-.75	3.51	16.74	46.68	59.65	2.0262	.4957	.1680	.0415	.0361	.9179	.0217	.0000	.7770	1.0229	.6625	.7301	.8462
15	*1.22	3.14	18.15	42.16	57.14	1.9436	.4708	.1581	.0406	.0363	.9246	.0170	.0000	.7781	1.0001	.6710	.7278	.8502
30	*3.57	1.27	15.42	37.81	51.83	1.7501	.4338	.1124	.0321	.0321	.9517	.0000	.0000	.8201	.9261	.6840	.7242	.8978
50	*5.16	.36	12.45	32.77	44.82	1.5472	.3969	.0839	.0271	.0271	.9689	.0000	.0000	.8397	.8377	.6367	.7296	.9209
70	*7.52	-1.39	12.42	30.52	44.33	1.3863	.3688	.0445	.0160	.0160	.9863	.0000	.0000	.8972	.7427	.5951	.7598	.9701
85	*7.07	-.57	13.89	30.85	46.34	1.2865	.3912	.0519	.0202	.0202	.9866	.0000	.0000	.8725	.6658	.5307	.7625	.9811
90	*6.46	.15	15.25	30.84	45.96	1.2533	.4191	.0768	.0306	.0306	.9815	.0000	.0000	.8249	.6385	.4940	.7578	.9703
95	*6.30	.46	16.54	30.68	46.76	1.2271	.4450	.0997	.0406	.0406	.9772	.0000	.0000	.7908	.6198	.4655	.7589	.9648

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7393.5	189.30	41.78	1.1287	1.3992	78.294	79.35	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance without Stator-Hub Slit Suction

ROTOR

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	14.030	605.2	1176.9	605.2	697.6	.0	947.8	.00	53.64	34.96	-31.70	738.5	820.0	-423.2	430.8	423.2	517.0
10	14.100	16.790	618.5	1155.6	618.5	729.5	.0	895.3	.00	50.82	36.32	-25.85	767.7	811.2	-454.8	353.7	454.8	541.5
15	15.170	17.560	632.3	1114.2	632.3	735.8	.0	836.5	.00	48.65	37.72	-20.06	799.6	784.5	-489.3	269.5	489.3	567.0
30	18.280	19.910	666.1	994.9	666.1	721.0	.0	685.2	.00	43.50	41.48	-3.35	889.7	724.8	-589.6	43.1	589.6	642.2
50	22.190	23.090	692.0	875.0	692.0	676.7	.0	554.5	.00	39.30	45.94	15.68	995.7	705.2	-715.7	-190.3	715.7	744.7
70	25.880	26.260	697.3	762.0	697.3	625.7	.0	434.8	.00	34.78	50.11	33.32	1087.8	751.1	-834.7	-412.1	834.7	847.0
85	28.450	28.610	691.7	670.4	691.7	548.3	.0	385.7	.00	35.14	52.99	44.41	1149.1	768.0	-917.6	-537.1	917.6	922.8
90	29.320	29.410	688.8	636.3	688.8	511.9	.0	378.7	.00	36.53	53.93	48.07	1169.9	766.5	-945.7	-569.8	945.7	948.6
95	30.150	30.180	686.2	614.2	686.2	487.6	.0	373.6	.00	37.46	54.79	50.89	1190.2	773.1	-972.4	-599.8	972.4	973.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.05	.87	5.01	66.65	70.84	2.4331	.1796	.2769	.0484	.0484	1.5478	.8541	.8449	.0000	.5593	1.0900	.6832	.7595
10	-5.18	1.48	5.19	62.17	65.92	2.2856	.2205	.1280	.0252	.0252	1.5989	.9270	.9220	.0000	.5734	1.0660	.7134	.7487
15	-4.58	1.71	6.81	57.79	62.92	2.1564	.2791	.0776	.0169	.0169	1.6025	.9510	.9476	.0000	.5874	1.0222	.7450	.7197
30	-3.72	1.93	10.36	44.63	53.27	1.9030	.3960	.0464	.0122	.0122	1.5594	.9623	.9598	.0000	.6208	.8992	.8325	.6550
50	-2.64	2.29	11.15	30.26	39.15	1.6886	.4596	.0674	.0192	.0192	1.5002	.9325	.9285	.0000	.6461	.7800	.9360	.6286
70	-1.06	3.09	13.15	16.79	26.92	1.5337	.4905	.0869	.0234	.0210	1.4162	.8911	.8856	.0086	.6498	.6742	1.0222	.6645
85	-.29	3.34	14.51	8.58	19.75	1.4420	.4483	.1608	.0398	.0362	1.3385	.7701	.7604	.0145	.6435	.5882	1.0774	.6738
90	-.20	3.29	15.79	5.85	18.33	1.4148	.4594	.1977	.0467	.0427	1.3119	.7106	.6992	.0166	.6409	.5566	1.0945	.6699
95	-.25	3.10	16.73	3.90	17.48	1.3890	.4635	.2207	.0501	.0457	1.2959	.6707	.6584	.0191	.6387	.5353	1.1107	.6737

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7391	185.50	41.83	1.1299	1.4622	88.304	88.97	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1096.1	713.2	682.5	711.6	857.7	-42.2	51.49	-3.42	-22.74	42.03	740.1	958.3	286.2	-641.5	571.5	599.3
10	18.350	19.110	1102.0	733.5	735.2	732.7	820.9	16.0	46.15	1.23	-17.31	39.32	770.2	947.5	229.1	-600.3	591.8	616.4
15	19.070	19.740	1064.9	743.8	761.6	741.8	772.3	54.2	45.39	4.18	-11.67	38.14	778.3	943.1	157.3	-582.5	615.1	636.7
30	21.140	21.600	1015.7	747.7	783.8	747.5	645.5	15.6	39.45	1.19	2.63	42.32	786.3	1011.4	-36.3	-681.1	681.8	696.7
50	23.970	24.200	933.2	719.2	765.0	718.8	534.3	22.7	34.91	1.81	17.32	48.50	802.9	1044.7	-238.9	-757.8	773.1	780.5
70	26.790	26.880	834.7	669.2	717.4	669.2	426.6	-3.8	30.72	-.34	31.35	52.44	841.7	1098.7	-437.5	-870.8	864.1	867.0
85	28.060	28.900	750.9	592.7	646.3	592.7	382.3	-4.6	30.61	-.43	40.33	57.68	848.0	1108.7	-548.5	-936.7	930.8	932.1
90	29.570	29.600	720.7	552.6	614.7	552.8	376.3	-.5	31.49	-.05	43.22	59.94	843.7	1104.0	-577.5	-955.2	953.7	954.7
95	30.240	30.270	700.5	523.9	593.1	523.9	372.6	1.1	32.14	.12	45.45	61.75	845.6	1107.0	-602.7	-975.2	975.3	976.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.23	5.21	13.09	54.91	62.57	2.1060	.5400	.1387	.0329	.0329	.9346	.0000	.0000	.8232	1.0012	.6161	.6833	.8277
10	-.00	4.25	17.21	46.52	57.64	2.0269	.5107	.1673	.0413	.0358	.9204	.0221	.0000	.7820	1.0033	.6355	.7066	.8209
15	-.78	3.57	19.63	41.21	57.12	1.9444	.4811	.1558	.0399	.0399	.9275	.0000	.0000	.7875	.9832	.6463	.7094	.8195
30	-3.28	1.55	15.21	38.25	51.81	1.7507	.4388	.0861	.0246	.0246	.9637	.0000	.0000	.8632	.9164	.6533	.7136	.8837
50	-4.63	.84	12.60	33.10	44.81	1.5471	.4053	.0629	.0203	.0203	.9768	.0000	.0000	.8840	.8353	.6289	.7223	.9136
70	-6.85	-.71	12.56	31.06	44.33	1.3853	.3837	.0400	.0144	.0144	.9876	.0000	.0000	.9137	.7425	.5860	.7518	.9621
85	-6.12	.38	14.62	31.05	45.34	1.2855	.4107	.0576	.0224	.0224	.9852	.0000	.0000	.8687	.6627	.5162	.7503	.9655
90	-5.33	1.27	15.67	31.54	45.97	1.2553	.4411	.0792	.0316	.0316	.9811	.0000	.0000	.8304	.6346	.4796	.7436	.9577
95	-5.05	1.71	16.45	32.02	46.76	1.2271	.4680	.0955	.0389	.0389	.9784	.0000	.0000	.8092	.6157	.4531	.7434	.9574

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7391	185.50	41.83	1.1299	1.4196	81.080	82.05	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance without Stator-Hub Slit Suction

ROTOR

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	597.6	1137.2	597.6	676.6	.0	914.0	.00	53.49	35.33	-30.37	732.5	734.3	-423.6	396.5	423.6	517.5
10	14.100	16.790	610.3	1113.7	610.3	695.4	.0	869.7	.00	51.34	36.71	-25.21	761.4	769.3	-455.2	327.7	455.2	542.0
15	15.170	17.580	623.5	1075.2	623.5	703.8	.0	812.6	.00	49.08	38.14	-19.15	792.9	796.2	-489.7	245.1	489.7	567.5
30	18.280	19.910	655.9	965.1	655.9	686.9	.0	677.7	.00	44.58	41.95	-2.84	882.5	890.0	-590.1	34.9	590.1	642.8
50	22.190	23.090	682.4	859.1	682.4	648.4	.0	563.4	.00	40.96	46.36	15.64	989.6	675.5	-716.4	-182.0	716.4	745.4
70	25.880	26.260	691.4	774.1	691.4	614.6	.0	470.7	.00	37.44	50.37	31.50	1084.6	722.7	-835.5	-377.1	835.5	847.7
85	28.450	28.610	689.0	687.7	689.0	539.7	.0	426.1	.00	38.31	53.12	42.68	1148.2	734.6	-918.4	-497.5	918.4	923.6
90	29.320	29.410	686.9	651.6	686.9	497.7	.0	420.4	.00	40.22	54.03	46.77	1169.5	726.9	-946.5	-529.1	946.5	949.4
95	30.150	30.180	684.9	626.8	684.9	467.9	.0	417.1	.00	41.71	54.87	49.97	1190.2	727.7	-973.3	-557.2	973.3	974.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.67	1.24	6.34	69.70	70.83	2.4333	.2113	.2405	.0427	.0427	1.5391	.8714	.8634	.0000	.9518	1.0480	.6771	.7227
10	-4.78	1.88	5.86	61.92	65.94	2.2858	.2612	.1267	.0251	.0251	1.5798	.9272	.9224	.0000	.5652	1.0221	.7068	.7060
15	-4.16	2.15	7.73	57.29	62.91	2.1569	.3138	.0729	.0160	.0160	1.5850	.9536	.9505	.0000	.5783	.9816	.7373	.6812
30	-3.26	2.41	10.87	44.79	53.25	1.9040	.4280	.0424	.0111	.0111	1.5554	.9656	.9634	.0000	.6098	.8687	.8222	.6211
50	-2.25	2.72	11.11	30.73	39.13	1.6896	.4890	.0530	.0151	.0151	1.5205	.9479	.9447	.0000	.6359	.7633	.9252	.6001
70	-.85	3.32	11.36	18.88	26.95	1.5341	.4760	.0633	.0176	.0151	1.4772	.9256	.9216	.0090	.6443	.6826	1.0151	.6372
85	-.19	3.46	12.78	10.44	19.74	1.4420	.4892	.1398	.0356	.0316	1.4065	.8193	.8104	.0148	.6413	.6010	1.0743	.6420
90	-.11	3.40	14.50	7.26	18.34	1.4147	.5057	.1832	.0444	.0402	1.3770	.7580	.7469	.0169	.6393	.5669	1.0927	.6324
95	-.17	3.19	15.82	4.90	17.48	1.3890	.5148	.2125	.0492	.0447	1.3592	.7150	.7024	.0194	.6375	.5434	1.1099	.6309

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7399	184.20	41.53	1.1346	1.4911	89.847	90.48	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.380	1047.8	648.6	643.7	646.7	826.8	-45.5	52.10	-4.04	-21.59	44.93	692.3	913.7	254.7	-645.3	572.1	599.8
10	18.350	19.110	1050.1	665.0	682.9	664.3	797.7	7.8	49.43	.65	-16.74	42.50	713.3	901.5	205.3	-609.1	592.4	616.9
15	19.070	19.740	1034.0	677.1	711.0	675.2	750.6	50.6	46.54	4.28	-10.75	40.99	724.4	894.5	134.9	-586.7	615.6	637.3
30	21.140	21.600	974.0	698.4	735.4	698.2	638.3	14.1	40.94	1.15	3.41	44.36	738.2	977.0	-44.2	-683.2	682.5	697.3
50	23.970	24.200	909.8	682.7	730.0	682.2	542.6	25.4	36.61	2.13	17.52	47.92	767.0	1018.4	-231.2	-755.9	773.8	781.2
70	26.790	26.880	843.8	659.4	706.5	659.3	461.4	7.2	33.14	.61	29.71	52.53	814.7	1084.5	-403.5	-860.6	864.9	867.8
85	28.860	28.900	768.8	589.5	642.5	589.5	422.2	-.7	33.32	-.06	38.43	57.74	820.4	1104.5	-509.5	-933.7	931.7	933.0
90	29.570	29.600	737.1	550.2	607.4	550.1	417.4	5.7	34.51	.62	41.50	59.93	811.2	1097.9	-537.2	-949.8	954.6	955.6
95	30.240	30.270	715.2	521.4	581.8	521.3	416.0	11.3	35.57	1.24	43.91	61.64	807.7	1097.6	-560.2	-965.9	976.2	977.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.11	6.03	12.48	56.14	62.05	2.1872	.5743	.1406	.0333	.0333	.9381	.0000	.0000	.8250	.9500	.5579	.6323	.7860
10	1.33	5.59	16.61	48.78	59.59	2.0292	.5482	.1669	.0411	.0411	.9262	.0000	.0000	.7903	.9500	.5731	.6498	.7770
15	.44	4.78	19.72	42.26	57.08	1.9474	.5154	.1545	.0396	.0396	.9332	.0000	.0000	.7963	.9331	.5852	.6567	.7731
30	-1.66	3.16	15.14	39.78	51.74	1.7532	.4635	.0643	.0183	.0183	.9746	.0000	.0000	.8984	.8760	.6072	.6657	.8495
50	-2.93	2.58	12.92	34.48	44.80	1.5482	.4320	.0418	.0135	.0135	.9852	.0000	.0000	.9245	.8130	.5940	.6868	.8860
70	-4.40	1.72	13.47	32.53	44.30	1.3866	.4123	.0385	.0139	.0139	.9880	.0000	.0000	.9195	.7497	.5741	.7248	.9443
85	-3.41	3.09	14.99	33.38	45.32	1.2866	.4467	.0627	.0244	.0244	.9834	.0000	.0000	.8690	.6769	.5104	.7231	.9562
90	-2.32	4.29	16.33	33.90	45.96	1.2654	.4759	.0782	.0311	.0311	.9808	.0000	.0000	.8451	.6467	.4744	.7119	.9466
95	-1.62	5.14	17.57	34.32	46.76	1.2271	.5014	.0899	.0366	.0366	.9792	.0000	.0000	.8314	.6256	.4480	.7066	.9431

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7399	184.20	41.53	1.1346	1.4543	83.926	84.82	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance without Stator-Hub Slit Suction

ROTOR

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	591.4	1103.1	591.4	647.1	.0	893.4	.00	54.08	35.61	-30.15	727.4	748.5	-423.5	375.9	423.5	517.5
10	14.100	16.790	603.8	1078.6	603.8	661.5	.0	851.9	.00	52.16	37.01	-25.08	756.1	731.0	-455.2	309.8	455.2	542.0
15	15.170	17.580	616.6	1041.8	616.6	670.8	.0	796.9	.00	49.89	38.44	-18.83	787.5	709.9	-489.7	229.4	489.7	567.5
30	18.280	19.910	648.6	939.4	648.6	691.4	.0	666.9	.00	45.21	42.26	-2.02	877.1	664.0	-590.1	24.1	590.1	642.7
50	22.190	23.090	676.3	836.6	676.3	622.7	.0	558.6	.00	41.87	46.62	16.64	985.3	652.0	-716.3	-186.8	716.3	745.4
70	25.880	26.260	688.3	764.2	688.3	597.9	.0	476.0	.00	38.52	50.50	31.82	1082.6	705.2	-835.4	-371.7	835.4	847.7
85	28.450	28.610	688.9	695.3	688.9	540.1	.0	437.8	.00	39.06	53.12	41.99	1148.1	726.9	-918.4	-485.8	918.4	923.6
90	29.320	29.410	687.7	660.5	687.7	497.2	.0	434.5	.00	41.18	53.99	46.01	1170.0	716.2	-946.5	-514.9	946.5	949.4
95	30.150	30.180	686.4	636.1	686.4	466.3	.0	432.7	.00	42.86	54.80	49.26	1191.0	714.7	-973.3	-541.6	973.3	974.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.39	1.53	6.56	65.76	70.83	2.4336	.2486	.2186	.0388	.0388	1.5335	.8826	.8753	.0000	.5456	1.0119	.6718	.6865
10	-4.49	2.18	5.98	62.09	65.92	2.2863	.3010	.1217	.0241	.0241	1.5679	.9298	.9252	.0000	.5585	.9851	.7009	.6676
15	-3.85	2.45	8.04	57.28	62.89	2.1576	.3501	.0675	.0148	.0148	1.5743	.9568	.9539	.0000	.5710	.9469	.7308	.6452
30	-2.94	2.74	11.68	44.28	53.20	1.9050	.4507	.0197	.0052	.0052	1.5673	.9829	.9818	.0000	.6019	.8432	.8145	.5960
50	-2.00	2.98	12.11	29.98	39.11	1.6904	.5091	.0318	.0090	.0090	1.5289	.9680	.9660	.0000	.6293	.7415	.9178	.5778
70	-.76	3.43	11.74	18.67	26.99	1.5345	.4928	.0343	.0095	.0070	1.5049	.9594	.9571	.0092	.6412	.6726	1.0099	.6206
85	-.20	3.47	12.05	11.14	19.71	1.4421	.4994	.0964	.0248	.0210	1.4558	.8791	.8726	.0148	.6416	.6072	1.0721	.6347
90	-.14	3.37	13.74	7.98	18.34	1.4148	.5193	.1446	.0355	.0313	1.4286	.8161	.8068	.0168	.6404	.5740	1.0918	.6224
95	-.22	3.15	15.11	5.54	17.48	1.3891	.5308	.1773	.0416	.0371	1.4091	.7718	.7606	.0193	.6392	.5507	1.1101	.6187

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7398.	183.3	41.34	1.1348	1.5091	92.536	93.07	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1011.0	610.7	607.4	608.7	808.1	-44.5	53.07	-4.20	-21.24	46.62	651.8	886.5	236.1	-644.3	572.0	599.8
10	18.350	19.110	1010.6	622.9	640.9	622.3	781.2	8.8	50.63	.79	-16.43	44.33	668.3	870.2	188.9	-608.1	592.4	616.9
15	19.070	19.740	994.9	635.4	669.2	633.6	735.9	47.0	47.71	4.24	-10.20	42.97	680.6	865.9	120.3	-590.2	615.6	637.2
30	21.140	21.600	941.7	668.1	701.5	667.9	628.0	16.2	41.82	1.39	4.41	45.55	705.0	954.0	-54.5	-681.1	682.4	697.3
50	23.970	24.200	883.0	656.2	700.1	655.6	537.9	27.5	37.52	2.40	18.56	48.97	739.9	999.1	-235.9	-753.7	773.8	781.2
70	26.790	26.880	833.4	647.6	690.6	647.4	466.5	16.8	34.03	1.48	29.95	52.72	798.0	1069.5	-398.3	-851.0	864.8	867.7
85	28.860	28.900	778.1	601.0	646.1	600.9	433.6	7.1	33.88	.69	37.64	57.02	816.0	1104.0	-498.0	-925.8	931.6	932.9
90	29.570	29.600	748.7	561.2	611.8	561.0	431.5	12.2	35.21	1.26	40.54	59.26	805.1	1097.7	-523.0	-943.3	954.6	955.5
95	30.240	30.270	728.4	534.6	586.7	534.4	431.7	16.4	36.34	1.76	42.86	60.92	800.5	1099.3	-544.5	-960.7	976.2	977.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.16	7.13	12.29	57.27	62.54	2.1076	.5917	.1417	.0335	.0335	.9409	.0000	.0000	.8246	.9115	.5243	.5914	.7610
10	2.56	6.81	16.74	49.84	59.57	2.0300	.5679	.1692	.0417	.0417	.9295	.0000	.0000	.7897	.9095	.5355	.6058	.7481
15	1.63	5.96	19.68	43.47	57.06	1.9484	.5355	.1588	.0406	.0406	.9354	.0000	.0000	.7927	.8940	.5476	.6145	.7463
30	-.74	4.87	15.37	40.43	51.72	1.7544	.4734	.0663	.0189	.0189	.9752	.0000	.0000	.8950	.8445	.5796	.6332	.8277
50	-1.97	3.53	13.17	35.13	44.77	1.5489	.4423	.0422	.0136	.0136	.9858	.0000	.0000	.9232	.7874	.5697	.6599	.8674
70	-3.51	2.60	14.30	32.56	44.25	1.3868	.4170	.0388	.0140	.0140	.9882	.0000	.0000	.9187	.7399	.5628	.7083	.9294
85	-2.87	3.63	15.73	33.20	45.30	1.2866	.4405	.0561	.0218	.0218	.9849	.0000	.0000	.8810	.6858	.5200	.7192	.9552
90	-1.64	4.96	16.98	33.95	45.96	1.2554	.4734	.0772	.0307	.0307	.9806	.0000	.0000	.8476	.6569	.4833	.7063	.9454
95	-.84	5.92	18.09	34.58	46.76	1.2271	.4982	.0872	.0355	.0355	.9792	.0000	.0000	.8349	.6366	.4588	.6995	.9434

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7398.	183.3	41.34	1.1348	1.4729	86.780	87.58	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance without Stator-Hub Slit Suction

ROTOR

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	586.9	1092.1	586.9	640.1	.0	884.8	.00	54.12	35.84	-29.82	723.9	737.9	-423.9	366.9	423.9	517.9
10	14.100	16.790	599.2	1068.1	599.2	656.4	.0	842.5	.00	52.07	37.24	-24.55	752.7	722.2	-455.5	300.1	455.5	542.4
15	15.170	17.580	611.8	1031.9	611.8	664.7	.0	789.2	.00	49.88	38.68	-18.36	784.0	701.4	-490.1	221.2	490.1	567.9
30	18.280	19.910	643.3	931.1	643.3	649.7	.0	666.9	.00	45.72	42.52	-2.01	873.4	652.3	-590.6	23.7	590.6	643.2
50	22.190	23.090	670.9	830.6	670.9	613.1	.0	560.3	.00	42.40	46.87	16.78	982.0	642.4	-716.9	-185.7	716.9	745.9
70	25.880	26.260	683.7	760.9	683.7	590.7	.0	479.7	.00	39.07	50.71	31.92	1080.1	697.4	-836.1	-368.7	836.1	848.4
85	28.450	28.610	685.2	703.1	685.2	545.0	.0	444.1	.00	39.19	53.29	41.39	1146.4	726.8	-919.1	-480.2	919.1	924.3
90	29.320	29.410	684.4	673.0	684.4	506.9	.0	442.3	.00	41.14	54.15	45.07	1168.6	717.9	-947.2	-507.8	947.2	950.1
95	30.150	30.180	683.3	648.0	683.3	472.4	.0	443.6	.00	43.20	54.95	48.36	1189.8	711.0	-974.0	-531.3	974.0	975.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.16	1.76	6.89	65.66	70.83	2.4335	.2569	.2234	.0398	.0398	1.5262	.8801	.8728	.0000	.5412	1.0004	.6683	.6759
10	-4.25	2.41	6.51	61.79	65.92	2.2862	.3065	.1234	.0245	.0245	1.5605	.9288	.9242	.0000	.5540	.9745	.6974	.6589
15	-3.61	2.69	8.51	57.05	62.89	2.1575	.3555	.0707	.0156	.0156	1.5669	.9549	.9519	.0000	.5663	.9370	.7272	.6369
30	-2.69	3.00	11.69	44.53	53.22	1.9051	.4618	.0330	.0086	.0086	1.5509	.9730	.9713	.0000	.5965	.8347	.8105	.5847
50	-1.76	3.23	12.26	33.09	39.11	1.6906	.5176	.0396	.0112	.0112	1.5265	.9610	.9586	.0000	.6238	.7355	.9135	.5688
70	-.56	3.64	11.85	18.79	27.00	1.5347	.5000	.0386	.0107	.0080	1.5071	.9551	.9525	.0095	.6365	.6691	1.0063	.6131
85	-.04	3.64	11.44	11.90	19.69	1.4421	.5007	.0883	.0230	.0190	1.4712	.8911	.8851	.0151	.6379	.6139	1.0694	.6345
90	.01	3.53	12.80	9.08	18.34	1.[illegible]	.5196	.1339	.0334	.0291	1.4466	.8333	.8245	.0171	.6371	.5849	1.0896	.6239
95	-.07	3.30	14.26	6.59	17.48	1.[illegible]	.5367	.1736	.0415	.0368	1.4278	.7824	.7713	.0196	.6360	.5607	1.1083	.6152

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7404	182.5	41.15	1.1357	1.5110	92.258	92.77	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	998.9	598.2	597.6	595.4	800.4	-52.8	53.25	-5.09	-20.87	47.63	639.7	883.9	227.9	-653.1	572.5	600.2
10	18.350	19.110	998.8	610.1	632.7	609.5	772.8	5.0	50.69	.46	-15.88	45.12	657.9	864.1	180.0	-612.3	592.8	617.4
15	19.070	19.740	983.6	622.5	660.4	620.8	728.7	45.4	47.80	4.18	-9.68	43.65	670.6	858.0	112.6	-592.3	616.1	637.7
30	21.140	21.600	932.0	657.3	688.4	657.0	628.0	19.2	42.36	1.67	4.53	45.91	691.9	944.7	-55.0	-678.6	682.9	697.8
50	23.970	24.200	876.3	647.5	690.3	646.9	539.6	28.1	38.00	2.49	18.72	49.35	730.3	993.4	-234.8	-753.7	774.4	761.8
70	26.790	26.880	830.7	642.6	684.9	642.2	470.1	21.0	34.46	1.88	29.97	52.83	791.5	1063.4	-395.4	-847.3	865.5	868.4
85	28.860	28.900	786.2	610.0	651.6	609.9	439.9	14.8	34.03	1.40	37.09	56.43	817.0	1103.0	-492.5	-918.8	932.3	933.6
90	29.570	29.600	761.7	571.7	622.2	571.5	439.2	15.3	35.23	1.54	39.69	58.72	808.6	1101.1	-516.1	-940.9	955.3	956.3
95	30.240	30.270	741.3	545.4	594.7	545.2	442.6	14.0	36.66	1.47	41.94	60.51	799.5	1107.4	-534.3	-963.9	976.9	977.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.32	7.29	11.40	58.34	62.54	2.1078	.5994	.1437	.0340	.0340	.9412	.0000	.0000	.8231	.8094	.5133	.5800	.7585
10	2.63	6.88	16.39	50.24	59.56	2.0305	.5744	.1724	.0425	.0425	.9295	.0000	.0000	.7864	.8981	.5242	.5957	.7425
15	1.78	6.11	19.61	43.62	57.05	1.9490	.5418	.1624	.0415	.0415	.9351	.0000	.0000	.7880	.8833	.5362	.6045	.7391
30	-.17	4.63	15.66	40.68	51.71	1.7550	.4785	.0665	.0189	.0189	.9756	.0000	.0000	.8947	.8349	.5696	.6204	.8187
50	-1.48	4.01	13.24	35.51	44.75	1.5492	.4483	.0418	.0135	.0135	.9861	.0000	.0000	.9242	.7808	.5615	.6503	.8614
70	-3.08	3.03	14.69	32.58	44.24	1.3870	.4208	.0362	.0130	.0130	.9890	.0000	.0000	.9248	.7371	.5579	.7016	.9232
85	-2.73	3.77	16.43	32.63	45.29	1.2867	.4340	.0485	.0188	.0188	.9867	.0000	.0000	.8963	.6933	.5278	.7202	.9543
90	-1.64	4.96	17.25	33.69	45.96	1.2554	.4709	.0793	.0316	.0316	.9795	.0000	.0000	.8448	.6688	.4923	.7098	.9481
95	-.51	6.24	17.80	35.19	46.76	1.2271	.4997	.0875	.0356	.0356	.9785	.0000	.0000	.8342	.6478	.4677	.6984	.9496

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7404	182.5	41.15	1.1357	1.4754	86.631	87.41	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance without Stator-Hub Slit Suction

ROTOR — 100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	579.2	1075.1	579.2	623.4	.0	876.0	.00	54.56	36.09	-30.01	716.8	720.0	-422.2	360.1	422.2	515.8
10	14.190	16.790	591.2	1048.7	591.2	633.5	.0	835.5	.00	52.82	37.50	-24.97	745.3	699.5	-453.7	295.2	453.7	540.3
15	15.170	17.580	603.7	1012.5	603.7	645.5	.0	779.9	.00	50.37	38.95	-18.32	776.4	680.9	-488.1	214.2	488.1	565.7
30	18.280	19.910	634.6	916.0	634.6	628.1	.0	666.5	.00	46.68	42.80	-2.29	865.4	630.7	-588.2	25.9	588.2	640.7
50	22.190	23.090	662.4	821.2	662.4	597.5	.0	563.1	.00	43.28	47.12	16.69	974.1	625.8	-714.0	-179.9	714.0	783.0
70	25.880	26.260	676.4	755.1	676.4	578.0	.0	485.9	.00	40.08	50.90	31.80	1073.0	681.9	-832.8	-359.1	832.8	885.0
85	28.450	28.610	679.1	707.0	679.1	545.1	.0	450.2	.00	39.57	53.43	40.80	1139.9	720.3	-915.5	-470.4	915.5	920.6
90	29.320	29.410	678.7	680.9	678.7	511.8	.0	448.8	.00	41.27	54.27	44.21	1162.2	714.2	-943.5	-497.6	943.5	946.4
95	30.150	30.180	677.9	655.7	677.9	477.5	.0	449.3	.00	43.25	55.06	47.53	1183.6	707.4	-970.2	-521.9	970.2	971.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-4.91	2.00	6.70	66.19	70.83	2.4335	.2717	.2059	.0366	.0366	1.5251	.8902	.8835	.0000	.5338	.9829	.6612	.6582
10	-4.00	2.67	6.09	62.46	65.91	2.2863	.3278	.1241	.0246	.0246	1.5526	.9289	.9244	.0000	.5461	.9543	.6899	.6366
15	-3.35	2.95	8.55	57.27	62.89	2.1576	.3727	.0674	.0148	.0148	1.5583	.9571	.9544	.0000	.5582	.9174	.7193	.6170
30	-2.41	3.28	11.41	45.89	53.22	1.9053	.4816	.0346	.0091	.0091	1.5475	.9722	.9704	.0000	.5876	.8195	.8016	.5643
50	-1.51	3.49	12.15	30.43	39.09	1.6909	.5317	.0316	.0090	.0090	1.5326	.9689	.9670	.0000	.6150	.7261	.9043	.5533
70	-.38	3.83	11.75	19.10	27.82	1.5368	.5134	.0293	.0081	.0081	1.5196	.9661	.9640	.0000	.6291	.6631	.9976	.5983
85	.09	3.78	10.83	12.63	19.87	1.4422	.5054	.0645	.0169	.0131	1.4963	.9215	.9170	.0147	.6318	.6171	1.0617	.6287
90	.13	3.65	11.93	10.06	18.33	1.4148	.5222	.1068	.0271	.0229	1.4758	.8697	.8624	.0166	.6314	.5919	1.0823	.6207
95	.04	3.41	13.38	7.52	17.48	1.3891	.5390	.1471	.0357	.0311	1.4565	.8194	.8097	.0189	.6306	.5675	1.1015	.6122

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7378	181.16	40.85	1.1359	1.5203	93.550	94.02	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	980.9	575.0	578.2	571.9	792.3	-55.7	53.88	-5.58	-21.01	48.81	619.6	868.5	222.1	-653.6	570.2	597.9
10	18.350	19.110	977.2	582.7	605.4	582.1	767.0	-1.6	51.71	-.17	-16.26	46.63	630.8	848.0	176.5	-616.5	590.5	614.9
15	19.070	19.740	961.2	593.2	636.4	591.6	728.2	43.0	48.53	4.15	-9.52	45.03	645.8	837.1	106.5	-592.2	613.6	635.2
30	21.140	21.600	913.1	634.7	663.0	634.4	627.6	20.2	43.91	1.83	4.50	46.75	666.4	926.3	-52.6	-674.8	680.3	695.1
50	23.970	24.200	863.8	633.2	672.2	632.8	542.3	22.5	38.88	2.03	18.75	50.07	711.2	986.2	-229.0	-756.3	771.3	778.7
70	26.790	26.880	823.4	632.4	671.7	632.2	476.2	17.6	35.33	1.60	29.84	53.26	775.3	1057.3	-385.9	-847.3	862.1	865.0
85	28.860	28.900	788.8	614.4	650.6	614.1	445.9	16.8	34.43	1.57	36.58	56.08	810.3	1100.6	-482.7	-913.1	928.7	930.0
90	29.570	29.600	768.3	579.8	625.6	579.6	445.8	15.0	35.48	1.48	38.96	58.27	804.6	1102.3	-505.7	-937.5	951.5	952.5
95	30.240	30.270	748.0	552.4	598.8	552.2	448.3	13.4	36.82	1.39	41.23	60.11	796.2	1108.1	-524.8	-960.7	973.1	974.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	4.06	8.03	10.91	59.45	62.54	2.1080	.6146	.1503	.0355	.0355	.9402	.0000	.0000	.8166	.8805	.4928	.5588	.7445
10	3.61	7.86	15.76	51.88	59.54	2.0309	.5934	.1773	.0437	.0437	.9299	.0000	.0000	.7845	.8763	.4999	.5700	.7275
15	2.52	6.85	19.58	44.37	57.04	1.9497	.5599	.1695	.0433	.0433	.9347	.0000	.0000	.7824	.8616	.5101	.5808	.7198
30	.91	5.71	15.83	41.59	51.71	1.7557	.4920	.0709	.0202	.0202	.9748	.0000	.0000	.8892	.8165	.5490	.5958	.8012
50	-.58	4.91	12.76	36.85	48.71	1.5496	.4600	.0448	.0144	.0144	.9855	.0000	.0000	.9196	.7686	.5483	.6318	.8540
70	-2.20	3.90	10.40	33.73	48.22	1.3871	.4322	.0398	.0144	.0144	.9881	.0000	.0000	.9187	.7297	.5882	.6858	.9165
85	-2.33	4.17	16.80	32.86	45.27	1.2867	.4323	.0446	.0173	.0173	.9877	.0000	.0000	.9047	.6956	.5314	.7181	.9520
90	-1.40	5.20	17.20	34.00	45.96	1.2554	.4685	.0777	.0310	.0310	.9796	.0000	.0000	.8470	.6749	.4993	.7066	.9492
95	-.34	6.41	17.72	35.43	46.75	1.2271	.4983	.0882	.0359	.0359	.9780	.0000	.0000	.8319	.6538	.4737	.6956	.9502

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7378	181.16	40.85	1.1359	1.4839	87.844	88.58	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Recirculation

100% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	600.0	1123.5	600.0	662.7	.0	907.3	.00	53.86	35.19	-30.50	734.1	769.1	-423.1	390.4	423.1	516.9
10	14.100	16.790	612.7	1099.9	612.7	670.0	.0	872.1	.00	52.46	36.57	-26.25	763.0	747.7	-454.7	330.7	454.7	541.4
15	15.170	17.580	625.9	1061.3	625.9	679.2	.0	815.2	.00	50.18	38.00	-20.04	794.5	724.3	-489.2	248.3	489.2	566.9
30	18.280	19.910	658.9	955.3	658.9	679.1	.0	671.7	.00	44.66	41.79	-2.42	884.3	681.9	-589.5	29.7	589.5	642.0
50	22.190	23.090	686.7	847.7	686.7	633.9	.0	562.7	.00	41.57	46.15	15.95	991.9	661.4	-715.5	-181.8	715.5	744.6
70	25.880	26.260	697.7	772.3	697.7	610.6	.0	472.9	.00	37.75	50.09	31.43	1087.9	717.3	-834.5	-373.9	834.5	846.8
85	28.450	28.610	696.8	697.9	696.8	549.5	.0	430.1	.00	38.07	52.78	41.88	1152.1	738.4	-917.4	-492.5	917.4	922.6
90	29.320	29.410	695.1	661.8	695.1	506.1	.0	426.2	.00	40.14	53.67	45.92	1173.5	727.7	-945.5	-522.2	945.5	948.4
95	30.150	30.180	693.4	634.8	693.4	472.4	.0	424.1	.00	41.92	54.5	49.29	1194.2	724.3	-972.2	-549.1	972.2	973.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.81	1.10	6.21	65.69	70.83	2.4334	.2316	.2207	.0391	.0391	1.5411	.8809	.8735	.0000	.5541	1.0334	.6787	.7074
10	-4.93	1.74	4.80	62.82	65.91	2.2861	.2918	.1311	.0257	.0257	1.5789	.9248	.9196	.0000	.5673	1.0067	.7080	.6843
15	-4.31	1.99	6.83	58.04	62.89	2.1574	.3435	.0783	.0170	.0170	1.5839	.9502	.9469	.0000	.5803	.9664	.7381	.6595
30	-3.42	2.25	11.28	44.21	53.24	1.9046	.4364	.0150	.0039	.0039	1.5636	.9864	.9855	.0000	.6124	.8592	.8230	.6132
50	-2.47	2.51	11.42	30.20	39.12	1.6900	.5041	.0516	.0118	.0118	1.5263	.9585	.9559	.0000	.6400	.7522	.9265	.5868
70	-1.16	3.03	11.32	18.56	26.97	1.5343	.4832	.0385	.0107	.0083	1.4971	.9541	.9514	.0000	.6506	.6807	1.0175	.6321
85	-.54	3.12	11.96	10.90	19.73	1.4421	.4889	.1023	.0264	.0227	1.4399	.8687	.8618	.0142	.6494	.6103	1.0781	.6457
90	-.47	3.04	13.65	7.75	18.34	1.4148	.5084	.1509	.0371	.0330	1.4092	.8033	.7936	.0165	.6478	.5759	1.0970	.6333
95	-.53	2.83	15.13	5.22	17.48	1.3890	.5213	.1863	.0437	.0395	1.3868	.7539	.7423	.0188	.6461	.5502	1.1145	.6278

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
7390	184.97	41.71	1.1347	1.5052	92.022	92.54

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1033.7	623.6	628.8	621.6	820.5	-46.0	52.53	-4.27	-21.60	46.07	676.4	896.0	249.0	-645.2	571.4	599.1
10	18.350	19.110	1035.4	644.7	657.7	644.3	799.6	2.5	50.56	.22	-17.55	43.60	689.9	889.9	207.9	-613.7	591.7	616.2
15	19.070	19.740	1018.5	653.2	685.2	652.2	753.2	36.7	47.69	3.21	-11.42	42.61	699.8	886.1	138.3	-589.9	614.9	636.5
30	21.140	21.600	962.6	686.4	725.3	686.3	632.6	8.2	41.08	.68	3.85	45.07	728.3	972.2	-49.1	-688.4	681.7	696.5
50	23.970	24.200	897.7	669.1	715.5	669.0	542.0	14.4	37.13	1.23	17.84	48.85	753.0	1017.1	-230.9	-765.9	772.9	780.4
70	26.790	26.880	842.1	656.0	703.0	656.0	463.6	-1.4	33.39	-.13	29.63	52.91	809.9	1088.5	-400.3	-868.2	863.9	866.8
85	28.860	28.900	779.5	599.8	652.8	599.8	426.1	-.8	33.14	-.06	37.71	57.26	825.4	1109.1	-504.6	-932.7	930.6	931.9
90	29.570	29.600	748.7	562.3	617.5	562.3	423.1	6.2	34.44	.64	40.67	59.34	814.3	1102.7	-530.4	-948.3	953.5	954.5
95	30.240	30.270	725.4	533.8	589.3	533.7	423.1	9.1	35.68	.98	43.13	61.10	807.5	1104.5	-552.0	-967.0	975.1	976.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.74	6.71	12.23	56.80	62.54	2.1075	.5913	.1513	.0358	.0358	.9347	.0000	.0000	.8128	.9350	.5354	.6146	.7693
10	2.52	6.77	16.16	50.35	59.58	2.0294	.5630	.1697	.0418	.0418	.9266	.0000	.0000	.7888	.9338	.5545	.6260	.7654
15	1.54	5.88	18.66	44.48	57.08	1.9474	.5358	.1626	.0417	.0417	.9314	.0000	.0000	.7898	.9169	.5632	.6335	.7640
30	-1.50	3.31	14.68	40.40	51.74	1.7534	.4697	.0659	.0188	.0188	.9745	.0000	.0000	.8963	.8650	.5964	.6560	.8447
50	-2.40	3.11	12.02	35.89	44.79	1.5483	.4432	.0409	.0132	.0132	.9859	.0000	.0000	.9264	.8013	.5814	.6732	.8838
70	-4.15	1.96	12.72	33.52	44.27	.3866	.4196	.0419	.0151	.0151	.9870	.0000	.0000	.9124	.7483	.5709	.7202	.9472
6	-3.60	2.90	14.99	33.21	45.31	1.2866	.4432	.0678	.0264	.0264	.9816	.0000	.0000	.8578	.6875	.5195	.7283	.9606
90	-2.41	4.19	16.35	33.80	45.96	1.2554	.4706	.0800	.0318	.0318	.9798	.0000	.0000	.8410	.6576	.4850	.7153	.9510
95	-1.50	5.25	17.31	34.70	46.76	1.2271	.4965	.0855	.0348	.0348	.9797	.0000	.0000	.8369	.6347	.4587	.7063	.9490

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
7390	184.97	41.71	1.1347	1.4672	85.95	86.76

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Recirculation

100% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.050	590.4	1099.5	590.4	640.3	.0	893.8	.80	54.38	35.58	-30.54	726.0	743.5	-422.4	377.7	422.4	516.1
10	14.100	16.790	602.8	1074.2	602.8	662.7	.0	863.0	.00	52.57	36.98	-25.56	754.6	724.1	-453.9	312.5	453.9	540.5
15	15.170	17.580	615.6	1037.9	615.6	661.1	.0	799.9	.00	50.41	38.42	-19.43	785.8	702.2	-488.4	233.9	488.4	566.0
30	18.260	19.910	647.7	935.7	647.7	655.4	.0	667.6	.00	45.50	42.23	-2.25	875.3	658.1	-588.5	26.6	588.5	641.0
50	22.190	23.090	675.8	839.1	675.8	814.4	.0	562.5	.00	42.45	46.56	16.35	983.5	642.4	-714.4	-180.9	714.4	743.4
70	25.680	26.260	689.0	761.9	689.0	591.5	.0	480.2	.00	39.06	50.39	31.63	1081.3	696.2	-833.2	-365.2	833.2	845.4
85	28.450	28.610	690.8	706.2	690.8	551.0	.0	441.7	.00	38.74	52.97	41.03	1147.2	730.7	-915.9	-479.4	915.9	921.1
90	29.320	29.410	690.0	672.6	690.0	529.9	.0	438.4	.00	40.73	53.83	44.94	1169.3	720.5	-943.9	-508.4	943.9	946.8
95	30.150	30.180	689.0	645.7	689.0	473.3	.0	436.2	.00	42.66	54.63	48.51	1190.3	714.7	-970.6	-535.4	970.6	971.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	3.48	1.50	6.17	66.11	70.83	2.4336	.2541	.2191	.0381	.0381	1.5336	.8846	.8775	.0000	.5447	1.0080	.6703	.6816
10	4.52	2.15	5.49	62.54	65.91	2.2864	.3091	.1242	.0245	.0245	1.5661	.9285	.9239	.0000	.5575	.9804	.6992	.6609
15	3.89	2.42	7.43	57.85	62.88	2.1577	.3595	.0715	.0156	.0156	1.5733	.9546	.9516	.0000	.5699	.9426	.7288	.6378
30	2.98	2.71	11.44	44.48	53.22	1.9052	.4565	.0173	.0045	.0045	1.5576	.9848	.9839	.0000	.6007	.8395	.8122	.5904
50	2.06	2.93	11.81	30.22	39.10	1.6906	.5191	.0340	.0097	.0097	1.5302	.9661	.9641	.0000	.6287	.7379	.9153	.5689
70	-.86	3.33	11.57	18.76	27.00	1.5347	.5017	.0332	.0092	.0068	1.5095	.9609	.9586	.0088	.6419	.6701	1.0077	.6123
85	-.36	3.32	11.08	11.94	19.69	1.4421	.4969	.0750	.0196	.0159	1.4763	.9066	.9013	.0142	.6436	.6172	1.0708	.6385
90	-.31	3.21	12.67	8.86	18.34	1.4148	.5165	.1230	.0308	.0267	1.4478	.8451	.8369	.0162	.6428	.5850	1.0909	.6266
95	-.39	2.98	14.36	6.12	17.48	1.3891	.5316	.1618	.0386	.0341	1.4253	.7935	.7830	.0188	.6418	.5575	1.1095	.6189

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7378.0	183.3	41.33	1.1353	1.5148	93.126	93.59	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	1006.3	593.9	599.0	590.9	808.5	-55.3	53.46	-5.38	-21.67	47.87	644.7	881.1	238.0	-653.4	570.5	598.2
10	18.350	19.110	1004.6	610.6	630.5	610.1	782.0	-.2	51.12	-.03	-16.88	45.24	659.0	866.7	191.3	-615.5	590.8	615.2
15	19.070	19.740	989.5	618.9	638.1	617.7	738.8	38.5	48.29	3.56	-10.74	44.02	670.5	859.1	124.7	-597.0	613.9	635.5
30	21.140	21.600	936.7	660.1	694.2	660.0	628.7	10.2	42.15	.89	4.25	46.06	697.5	951.5	-51.9	-685.2	680.6	695.4
50	23.970	24.200	879.3	649.7	692.5	649.5	541.7	14.6	38.02	1.29	18.32	49.63	730.8	1003.2	-230.0	-764.4	771.7	779.1
70	26.790	26.880	832.9	643.0	686.1	643.0	470.6	4.7	34.44	.42	29.70	53.22	790.8	1074.5	-391.9	-860.7	862.5	865.4
85	28.860	28.900	789.3	612.2	656.9	612.1	437.6	-.2	33.68	.00	36.82	56.67	820.7	1114.0	-491.6	-930.6	929.1	930.4
90	29.570	29.600	761.7	573.9	624.8	573.7	435.5	11.2	34.89	1.12	39.59	58.65	810.9	1102.9	-516.5	-941.7	952.0	952.9
95	30.240	30.270	737.6	543.6	595.5	543.5	435.2	10.5	36.16	1.11	42.11	60.58	802.8	1106.7	-538.3	-964.0	973.5	974.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1 SHOCK	OMEGA-B TOTAL	EFF-AD STATIC	M-1	M-2	M'-1	M'-2
5	3.59	7.56	11.12	58.84	62.54	2.1078	.6092	.1556	.0368	.0368	.9356	.0000	.0000	.8112	.9062	.5092	.5839	.7555
10	3.09	7.34	15.91	51.15	59.56	2.0303	.5800	.1748	.0430	.0430	.9279	.0000	.0000	.7846	.9035	.5243	.5965	.7443
15	2.23	6.57	19.80	44.72	57.05	1.9488	.5525	.1724	.0442	.0442	.9305	.0000	.0000	.7787	.8886	.5326	.6046	.7392
30	-.39	4.41	14.88	41.26	51.72	1.7548	.4812	.0686	.0196	.0196	.9746	.0000	.0000	.8919	.8398	.5723	.6259	.8249
50	-1.47	4.03	12.05	38.73	44.75	1.5491	.4534	.0417	.0135	.0135	.9861	.0000	.0000	.9247	.7837	.5635	.6511	.8702
70	-3.09	3.01	13.23	34.02	44.24	1.3869	.4286	.0386	.0139	.0139	.9883	.0000	.0000	.9200	.7384	.5584	.7013	.9330
85	-3.08	3.42	15.04	33.68	45.28	1.2847	.4397	.0549	.0213	.0213	.9848	.0000	.0000	.8831	.6966	.5300	.7241	.9645
90	-1.97	4.63	16.84	33.77	45.96	1.2554	.4684	.0770	.0307	.0307	.9800	.0000	.0000	.8473	.6693	.4946	.7123	.9505
95	-1.01	5.74	17.43	35.06	46.76	1.2271	.4975	.0834	.0340	.0340	.9796	.0000	.0000	.8411	.6451	.4667	.7020	.9501

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7378.0	183.3	41.33	1.1353	1.4774	87.213	87.96	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Recirculation

ROTOR

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	586.8	1091.0	586.8	620.8	.0	897.1	.00	55.31	35.79	-31.47	723.5	728.0	-423.1	380.1	423.1	517.0
10	14.100	16.790	599.1	1065.0	599.1	643.2	.0	848.7	.00	52.83	37.20	-25.50	752.2	713.3	-454.7	307.2	454.7	541.5
15	15.170	17.580	611.8	1028.2	611.8	651.1	.0	795.6	.00	50.69	38.64	-19.30	783.5	690.9	-489.3	228.6	489.3	567.0
30	18.280	19.910	643.8	928.7	643.8	644.0	.0	669.0	.00	46.06	42.45	-2.32	873.1	646.7	-589.6	26.8	589.6	642.1
50	22.190	23.090	672.1	828.6	672.1	607.5	.0	563.4	.00	42.83	46.77	16.56	981.9	635.7	-715.7	-181.2	715.7	744.7
70	25.880	26.260	685.8	756.4	685.8	582.7	.0	485.3	.00	39.78	50.57	31.76	1060.4	686.8	-834.7	-361.6	834.7	846.9
85	28.450	28.610	688.1	708.1	688.1	568.5	.0	447.7	.00	39.24	53.13	40.90	1147.0	725.9	-917.6	-475.0	917.6	922.7
90	29.320	29.410	687.6	679.7	687.6	511.5	.0	447.4	.00	41.21	53.97	44.43	1169.2	716.4	-945.6	-501.1	945.6	948.5
95	30.150	30.180	686.7	653.5	686.7	477.4	.0	446.2	.00	43.06	54.77	47.83	1190.4	711.3	-972.4	-527.2	972.4	973.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.21	1.71	5.23	67.28	70.82	2.4837	.2739	.2208	.0387	.0387	1.5357	.8829	.8757	.0000	.5410	.9982	.6676	.6661
10	-4.30	2.37	5.55	62.70	65.89	2.2665	.3198	.1163	.0229	.0229	1.5075	.9332	.9289	.0000	.5537	.9706	.6964	.6501
15	-3.67	2.64	7.57	57.93	62.88	2.1579	.3705	.0669	.0146	.0146	1.5731	.9575	.9547	.0000	.5661	.9325	.7261	.6266
30	-2.76	2.94	11.38	44.77	53.22	1.9054	.4686	.0154	.0040	.0040	1.5612	.9864	.9855	.0000	.5967	.8321	.8094	.5794
50	-1.86	3.14	12.02	30.21	39.10	1.6908	.5254	.0249	.0071	.0071	1.5384	.9749	.9733	.0000	.6248	.7333	.9129	.5626
70	-.70	3.51	11.70	18.82	27.01	1.5348	.5116	.0302	.0084	.0058	1.5193	.9647	.9626	.0092	.6386	.6662	1.0060	.6032
85	-.21	3.48	10.93	12.23	19.68	1.4422	.5028	.0654	.0171	.0133	1.4931	.9195	.9149	.0147	.6409	.6183	1.0697	.6338
90	-.16	3.35	12.15	9.54	18.33	1.4148	.5227	.1125	.0284	.0242	1.4699	.8614	.8536	.0166	.6404	.5908	1.0902	.6226
95	-.25	3.12	13.67	6.94	17.48	1.3891	.5375	.1504	.0363	.0317	1.4497	.8128	.8029	.0191	.6395	.5656	1.1091	.6156

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7391.0	182.75	41.21	1.1365	1.5245	93.805	94.24	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	996.3	576.4	577.8	574.6	811.7	-60.1	54.55	-6.00	-22.57	48.91	625.8	874.9	240.2	-659.3	571.5	599.2
10	18.350	19.110	993.7	594.8	617.7	594.3	778.3	-4.3	51.56	-.42	-16.80	46.23	645.4	859.4	186.5	-620.6	591.8	616.3
15	19.070	19.740	977.4	602.7	644.6	601.6	734.5	36.4	48.72	3.46	-10.51	44.94	656.2	849.8	119.5	-600.2	615.0	636.6
30	21.140	21.600	927.2	648.7	680.0	648.5	630.0	13.2	42.79	1.17	4.32	46.49	683.3	942.3	-51.8	-683.4	681.8	696.6
50	23.970	24.200	872.8	841.8	683.6	641.3	542.6	16.8	38.43	1.50	18.56	49.97	722.4	997.3	-230.5	-763.7	773.1	780.5
70	26.790	26.380	827.6	835.6	677.2	635.5	475.6	7.7	35.07	.69	29.80	53.50	781.3	1068.9	-368.4	-859.2	864.0	866.9
85	28.660	28.900	790.5	811.6	654.4	612.6	443.4	3.9	34.13	.37	36.68	56.58	816.1	1112.3	-487.4	-928.2	930.8	932.1
90	29.570	29.690	767.9	578.5	626.1	578.4	444.5	11.3	35.39	1.12	39.13	58.49	807.2	1106.7	-509.2	-943.3	953.7	954.6
95	30.240	30.270	746.5	550.7	599.3	550.6	445.2	12.5	36.61	1.30	41.45	60.26	800.1	1109.9	-530.1	-963.7	975.3	976.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	4.52	8.50	10.49	60.55	62.54	2.1077	.6227	.1605	.0379	.0379	.9347	.0000	.0000	.8095	.8952	.4951	.5667	.7489
10	3.52	7.77	15.52	51.98	59.56	2.0304	.5914	.1604	.0444	.0444	.9269	.0000	.0000	.7803	.8920	.5102	.5831	.7371
15	2.70	7.03	16.89	45.26	57.05	1.9491	.5630	.1766	.0452	.0452	.9302	.0000	.0000	.7749	.8766	.5179	.5906	.7303
30	.26	5.07	15.17	41.63	51.72	1.7552	.4875	.0708	.0202	.0202	.9742	.0000	.0000	.8891	.8301	.5616	.6121	.8158
50	-1.04	4.45	12.24	36.93	44.73	1.5493	.4583	.0434	.0140	.0140	.9857	.0000	.0000	.9221	.7772	.5558	.6426	.8642
70	-2.45	3.65	13.50	34.35	44.23	1.3670	.4354	.0397	.0143	.0143	.9891	.0000	.0000	.9169	.7338	.5511	.6917	.9268
85	-2.64	3.86	15.41	33.76	45.28	1.2967	.4409	.0509	.0198	.0198	.9859	.0000	.0000	.8926	.6973	.5300	.7196	.9622
90	-1.49	5.11	16.84	34.26	45.96	1.2554	.4712	.0768	.0306	.0306	.9798	.0000	.0000	.8490	.6745	.4581	.7087	.9528
95	-.56	6.19	17.63	35.31	46.76	1.2271	.4983	.0849	.0346	.0346	.9789	.0000	.0000	.8384	.6526	.4724	.6991	.9520

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7391.0	182.75	41.21	1.1365	1.4866	87.886	88.62	11.0	12.0	90.00	90.00

APPENDIX 3

Blade-Element and Overall Performance with Support Screen (Distortion Baseline)

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	16.120	16.030	449.7	897.3	449.7	558.0	.0	702.7	.00	51.54	36.89	-27.47	562.4	829.0	-337.6	290.1	337.6	412.5
10	14.100	16.790	473.3	884.1	473.3	556.9	.0	686.6	.00	50.95	37.47	-24.54	596.4	812.6	-362.9	254.6	362.9	432.1
15	15.170	17.580	485.3	856.5	485.3	563.1	.0	645.0	.00	48.86	38.80	-18.86	622.9	796.0	-390.4	192.6	390.4	452.4
30	18.280	19.910	509.8	781.8	509.8	572.9	.0	531.7	.00	42.83	42.67	-1.89	693.8	575.1	-470.4	19.4	470.4	512.4
50	22.190	23.090	530.7	691.2	530.7	539.4	.0	432.1	.00	38.67	47.07	16.73	779.7	565.0	-571.1	-162.1	571.1	594.2
70	25.880	26.260	537.6	619.7	537.6	506.3	.0	357.2	.00	35.19	51.07	32.11	856.1	598.9	-666.0	-318.6	666.0	675.8
85	28.450	28.610	530.5	583.5	530.5	484.9	.0	324.5	.00	33.80	54.07	40.34	904.2	636.4	-732.2	-411.8	732.2	736.3
90	29.320	29.410	534.6	555.8	534.6	456.3	.0	320.0	.00	35.20	54.68	43.90	924.8	630.7	-754.5	-436.9	754.5	756.9
95	30.150	30.180	532.5	527.1	532.5	422.5	.0	315.4	.00	36.76	55.54	47.52	941.1	625.4	-775.9	-461.2	775.9	776.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-4.12	2.79	9.26	64.36	70.83	2.4315	.1642	.2312	.0422	.0422	1.3147	.8785	.8736	.0000	.4113	.8184	.5153	.5737
10	-4.03	2.80	6.56	62.02	66.01	2.2838	.2468	.1805	.0359	.0359	1.3303	.8965	.8922	.0000	.4340	.8039	.5488	.5570
15	-3.49	2.78	8.03	57.66	62.95	2.1553	.3005	.1290	.0283	.0283	1.3334	.9186	.9152	.0000	.4449	.7764	.5732	.5403
30	-2.54	3.12	11.82	44.56	53.27	1.9054	.3806	.0313	.0082	.0082	1.3300	.9735	.9724	.0000	.4672	.7040	.6377	.5178
50	-1.54	3.43	12.21	30.34	39.12	1.6897	.4423	.0488	.0138	.0138	1.3001	.9483	.9463	.0000	.4867	.6173	.7172	.5046
70	-.18	4.02	12.03	18.96	26.99	1.5345	.4372	.0631	.0174	.0174	1.2705	.9173	.9145	.0000	.4927	.5506	.7861	.5322
85	.70	4.58	10.39	13.73	19.70	1.4421	.4210	.0692	.0183	.0183	1.2622	.9003	.8970	.0000	.4867	.5169	.8306	.5637
90	.54	4.06	11.63	10.78	18.34	1.4148	.4405	.1195	.0304	.0304	1.2409	.8237	.8183	.0000	.4899	.4909	.8489	.5570
95	.52	3.89	13.36	8.02	17.48	1.3891	.4561	.1569	.0381	.0381	1.2242	.7632	.7564	.0000	.4880	.4842	.8631	.5508

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5897.0	154.19	34.77	1.0826	1.2886	91.008	91.37	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	828.3	559.0	532.1	556.1	634.8	28.5	50.03	2.90	-18.57	38.86	561.4	716.8	178.8	-449.7	456.0	478.2
10	18.350	19.110	835.6	577.2	550.3	574.8	628.7	52.1	48.80	5.17	-15.88	37.42	572.3	723.7	156.5	-439.7	472.2	491.8
15	19.070	19.740	825.0	593.0	570.1	590.1	596.0	59.5	46.26	5.76	-10.49	37.24	580.3	741.2	105.2	-448.5	490.8	508.0
30	21.140	21.600	789.7	610.0	610.2	608.0	500.9	49.5	39.36	4.66	4.01	39.78	612.9	791.3	-43.1	-506.4	544.0	555.4
50	23.970	24.200	733.5	593.6	603.9	591.1	426.2	53.5	34.55	5.17	18.36	43.90	637.5	821.0	-200.7	-569.3	616.9	622.8
70	26.790	26.880	681.3	571.9	584.4	571.5	350.1	21.8	30.92	2.19	30.10	49.51	676.3	880.7	-339.3	-669.9	689.4	691.7
85	28.860	28.900	654.6	559.5	570.2	559.5	321.5	5.7	29.42	.59	36.45	52.84	709.1	926.3	-421.2	-738.0	742.7	743.7
90	29.570	29.600	632.2	527.1	546.3	527.0	318.1	10.1	30.22	1.10	39.04	54.97	703.5	918.2	-442.9	-751.6	761.0	761.7
95	30.240	30.270	608.0	492.6	520.2	492.5	314.8	10.6	31.18	1.23	41.69	57.34	696.8	912.7	-463.4	-768.4	778.2	779.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.44	4.40	19.40	47.13	62.55	2.1675	.4943	.1338	.0317	.0317	.9565	.0000	.0000	.7857	.7497	.4901	.5094	.6285
10	.89	5.15	21.11	43.64	59.58	2.0297	.4752	.1542	.0378	.0378	.9515	.0000	.0000	.7551	.7526	.5064	.5177	.6350
15	.04	4.38	21.20	40.51	57.08	1.9473	.4445	.1316	.0336	.0336	.9595	.0000	.0000	.7793	.7424	.5216	.5258	.6519
30	-3.26	1.56	18.63	34.71	51.73	1.7533	.3881	.0812	.0231	.0231	.9767	.0000	.0000	.8340	.7103	.5390	.5530	.6991
50	-4.95	.55	15.96	29.39	44.79	1.5487	.3493	.0515	.0166	.0166	.9870	.0000	.0000	.8732	.6580	.5249	.5721	.7259
70	-6.61	-.51	15.01	28.73	44.25	1.3869	.3338	.0392	.0141	.0141	.9913	.0000	.0000	.8880	.6094	.5059	.6044	.7791
85	-7.34	-.84	15.63	28.83	45.29	1.2867	.3326	.0425	.0165	.0165	.9912	.0000	.0000	.8817	.5842	.4946	.6325	.8188
90	-6.64	-.04	16.82	29.12	45.96	1.2554	.3601	.0726	.0289	.0289	.9860	.0000	.0000	.7881	.5627	.4645	.6260	.8091
95	-6.00	.75	17.56	29.95	46.76	1.2271	.3936	.0970	.0395	.0395	.9826	.0000	.0000	.7461	.5394	.4326	.6180	.8016

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5897.0	154.19	34.77	1.0826	1.2649	84.130	84.68	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	420.4	841.0	420.4	482.4	.0	689.0	.00	55.00	38.79	-29.78	539.5	555.8	-338.0	276.0	338.0	413.0
10	14.100	16.790	426.1	824.3	426.1	488.6	.0	663.8	.00	53.64	40.44	-25.31	559.9	541.0	-363.2	231.3	363.2	432.5
15	15.170	17.580	435.3	799.0	435.3	494.7	.0	627.4	.00	51.73	41.90	-19.39	585.1	525.2	-390.8	174.5	390.8	452.9
30	18.280	19.910	457.2	729.8	457.2	491.8	.0	539.0	.00	47.60	45.81	-2.99	656.5	494.3	-470.9	26.1	470.9	512.9
50	22.190	23.090	476.8	658.3	476.8	475.4	.0	455.4	.00	43.75	50.14	16.32	744.5	497.0	-571.7	-139.5	571.7	594.8
70	25.880	26.260	473.9	599.7	473.9	449.7	.0	396.6	.00	41.40	54.57	31.82	818.4	530.5	-666.7	-279.9	666.7	676.5
85	28.450	28.610	435.3	562.3	435.3	422.3	.0	371.2	.00	41.34	59.32	40.92	852.6	559.0	-732.9	-365.8	732.9	737.0
90	29.320	29.410	472.8	539.1	472.8	390.1	.0	371.9	.00	43.66	57.95	44.70	891.1	549.0	-755.3	-385.8	755.3	757.7
95	30.150	30.180	479.8	519.3	479.8	363.3	.0	371.1	.00	45.61	58.29	48.20	913.0	545.2	-776.7	-406.4	776.7	777.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-2.17	4.74	6.96	68.57	70.87	2.4320	.2585	.2599	.0464	.0464	1.3056	.8715	.8665	.0000	.3826	.7616	.4920	.5033
10	-1.04	5.61	5.80	65.75	66.00	2.2845	.3158	.1645	.0325	.0325	1.3257	.9138	.9102	.0000	.3887	.7445	.5127	.4886
15	-.39	5.89	7.49	61.29	62.94	2.1559	.3692	.1116	.0244	.0244	1.3308	.9358	.9331	.0000	.3973	.7196	.5360	.4730
30	.60	6.27	10.72	48.81	53.25	1.9041	.4716	.0520	.0136	.0136	1.3309	.9617	.9601	.0000	.4170	.6525	.6000	.4419
50	1.51	6.50	11.80	33.82	39.12	1.6903	.5167	.0401	.0114	.0114	1.3239	.9626	.9610	.0000	.4352	.5846	.6803	.4413
70	3.30	7.51	11.75	22.75	26.99	1.5348	.5107	.0397	.0110	.0110	1.3183	.9560	.9543	.0000	.4322	.5296	.7464	.4685
85	5.68	9.36	10.98	18.39	1.70	1.4421	.4957	.0179	.0047	.0047	1.3342	.9784	.9775	.0000	.4007	.4945	.7800	.4916
90	3.75	7.26	12.43	13.26	18.34	1.4148	.5316	.1228	.0308	.0308	1.2950	.8528	.8473	.0000	.4321	.4726	.8150	.4813
95	3.27	6.64	14.04	10.10	17.48	1.3891	.5492	.1679	.0403	.0403	1.2791	.7940	.7868	.0000	.4377	.4540	.8339	.4766

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5904.0	139.97	31.56	1.0885	1.3173	92.620	92.94	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	764.4	459.1	443.0	458.8	622.9	1.1	54.58	.11	-20.58	46.14	473.3	662.3	166.4	-477.6	456.5	478.7
10	18.350	19.110	765.0	473.9	464.2	472.0	608.1	40.1	52.64	4.84	-16.26	43.77	483.6	653.7	135.4	-452.2	472.7	492.3
15	19.070	19.740	755.2	484.1	484.5	480.1	579.1	62.1	50.08	7.37	-10.29	42.92	492.9	655.6	87.9	-446.4	491.3	508.5
30	21.140	21.600	722.3	516.0	513.6	513.9	507.7	46.6	44.65	5.18	4.05	44.76	516.0	724.0	-36.9	-509.9	544.6	556.5
50	23.970	24.200	685.6	522.5	526.8	519.9	438.6	51.8	39.76	5.68	18.71	47.69	557.3	772.9	-178.9	-571.7	617.5	623.4
70	26.790	26.860	647.7	513.1	518.1	512.3	388.6	28.9	36.87	3.22	30.15	52.32	599.9	838.5	-301.5	-663.6	690.2	692.5
85	28.660	28.900	622.0	498.3	501.9	497.9	367.3	18.0	36.21	2.07	36.86	55.58	627.4	880.9	-376.2	-726.6	743.5	744.5
90	29.570	29.600	603.3	472.5	477.1	472.1	369.1	18.0	37.75	2.17	39.47	57.61	618.0	881.8	-392.6	-744.5	761.8	762.6
95	30.240	30.270	586.9	451.7	455.4	451.6	370.2	8.2	39.11	1.03	41.91	59.66	612.0	894.1	-408.8	-771.7	779.0	779.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	4.81	8.77	16.59	54.47	62.53	2.1083	.5877	.1482	.0352	.0352	.9600	.0000	.0000	.7962	.6847	.3998	.4258	.5768
10	4.69	8.95	20.77	47.80	59.54	2.0313	.5589	.1663	.0408	.0408	.9551	.0000	.0000	.7681	.6843	.4130	.4349	.5697
15	4.09	8.42	22.80	42.71	57.03	1.9499	.5307	.1620	.0412	.0412	.9572	.0000	.0000	.7631	.6752	.4224	.4420	.5720
30	2.17	6.96	19.17	39.48	51.70	1.7561	.4648	.0902	.0256	.0256	.9780	.0000	.0000	.8399	.6455	.4519	.4608	.6340
50	.31	5.79	16.41	34.03	44.70	1.5502	.4186	.0574	.0184	.0184	.9872	.0000	.0000	.8794	.6115	.4582	.4955	.6777
70	-.64	5.45	16.02	33.65	44.22	1.3875	.4075	.0529	.0190	.0190	.9894	.0000	.0000	.8749	.5754	.4498	.5313	.7350
85	-.64	5.86	17.10	34.13	45.27	1.2869	.4170	.0659	.0256	.0256	.9877	.0000	.0000	.8411	.5513	.4360	.5555	.7708
90	.81	7.41	17.89	35.58	45.96	1.2555	.4485	.0881	.0350	.0350	.9846	.0000	.0000	.7996	.5330	.4122	.5455	.7691
95	1.97	8.72	17.36	38.08	46.75	1.2272	.4817	.0991	.0404	.0404	.9835	.0000	.0000	.7791	.5163	.3929	.5376	.7778

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5904.0	139.97	31.[illegible]	1.[illegible]385	1.2925	86.000	86.53	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	342.1	792.9	342.1	405.2	.0	681.5	.00	59.27	44.59	-33.60	480.5	486.6	-337.4	269.3	337.4	412.2
10	14.100	16.790	367.5	769.9	367.5	421.3	.0	644.3	.00	56.81	44.62	-26.74	516.2	472.3	-362.6	212.5	362.6	431.8
15	15.170	17.580	374.5	745.5	374.5	430.1	.0	608.8	.00	54.75	46.16	-19.98	540.8	458.3	-390.1	156.7	390.1	452.1
30	18.280	19.910	392.5	692.8	392.5	437.7	.0	536.9	.00	50.79	50.11	-3.21	612.5	440.1	-470.1	24.9	470.1	512.0
50	22.190	23.090	407.0	633.1	407.0	429.3	.0	465.2	.00	47.28	54.48	16.61	701.0	449.5	-570.6	-128.6	570.6	593.8
70	25.880	26.260	408.8	577.9	408.8	396.7	.0	420.2	.00	46.68	58.42	32.74	781.2	472.7	-665.5	-255.1	665.5	675.3
85	28.450	28.610	399.6	536.1	399.6	344.8	.0	410.4	.00	49.97	61.35	43.33	833.7	474.3	-731.6	-325.4	731.6	735.7
90	29.320	29.410	402.5	525.2	402.5	323.0	.0	413.9	.00	52.05	61.98	46.69	854.7	471.0	-754.0	-342.4	754.0	756.3
95	30.150	30.190	400.5	515.7	400.5	305.6	.0	415.4	.00	53.65	62.68	49.71	872.7	472.9	-775.3	-360.8	775.3	776.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	3.53	10.43	3.17	78.20	70.94	2.4305	.3082	.2620	.0449	.0449	1.3106	.8950	.8909	.0000	.3115	.7138	.4384	.4381
10	3.16	9.78	4.38	71.36	66.06	2.2822	.3822	.2114	.0414	.0414	1.3100	.9022	.8983	.0000	.3341	.6915	.4724	.4242
15	3.87	10.13	6.92	66.14	62.99	2.1536	.4330	.1502	.0328	.0328	1.3146	.9234	.9204	.0000	.3408	.6679	.4953	.4106
30	4.88	10.53	10.51	53.31	53.31	1.9017	.5215	.0597	.0157	.0157	1.3287	.9613	.9597	.0000	.3569	.6170	.5602	.3919
50	5.86	10.81	12.08	37.87	39.15	1.6885	.5589	.0452	.0128	.0128	1.3312	.9629	.9614	.0000	.3698	.5602	.6415	.3978
70	7.24	11.41	12.59	25.68	26.92	1.5338	.5715	.0932	.0256	.0256	1.3205	.9113	.9077	.0000	.3701	.5082	.7137	.4156
85	7.92	11.57	13.43	18.02	19.75	1.4420	.6022	.1648	.0416	.0416	1.3102	.8343	.8278	.0000	.3637	.4684	.7616	.4144
90	7.75	11.25	14.42	15.21	18.34	1.4147	.6204	.2021	.0490	.0490	1.3051	.7943	.7863	.0000	.3648	.4577	.7787	.4104
95	.64	11.00	15.56	12.97	17.48	1.3890	.6295	.2234	.0520	.0520	1.3042	.7704	.7616	.0000	.3631	.4484	.7932	.4112

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
5893.0	123.43	27.83	1.0919	1.3199	89.876	90.28

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	718.1	402.7	367.8	400.8	616.8	-34.2	59.19	-4.87	-23.64	51.94	401.6	650.3	161.1	-512.1	455.7	477.8
10	18.350	19.110	709.7	400.3	392.5	399.6	591.3	15.7	56.42	2.24	-16.92	49.97	410.4	621.4	119.4	-475.8	471.9	491.4
15	19.070	19.740	696.9	405.2	412.6	401.9	561.6	51.8	53.69	7.34	-9.81	48.60	419.1	607.7	71.2	-455.8	490.4	507.6
30	21.140	21.600	677.5	456.0	451.1	451.6	505.3	63.1	48.23	7.96	4.79	47.46	453.6	668.2	-38.3	-492.4	543.6	555.5
50	23.970	24.200	649.7	483.4	470.8	481.0	447.7	48.6	43.55	5.78	19.65	50.01	500.9	748.7	-168.8	-573.7	616.4	622.3
70	26.790	26.880	613.5	467.6	455.8	466.8	410.6	28.1	42.02	3.45	31.40	54.84	534.7	811.1	-278.3	-663.1	688.9	691.3
85	28.860	28.900	580.4	434.0	415.7	433.5	405.1	19.6	44.26	2.59	39.04	59.07	535.3	843.6	-337.1	-723.6	742.2	743.2
90	29.570	29.600	572.2	423.8	399.4	423.6	409.6	13.9	45.73	1.88	41.31	60.45	531.7	859.0	-350.9	-747.3	760.4	761.2
95	30.240	30.270	565.5	417.0	384.8	417.0	414.3	5.8	47.11	.80	43.34	61.65	529.3	878.0	-363.3	-772.6	777.7	778.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	9.28	13.24	11.61	64.06	62.52	2.1086	.6495	.1748	.0413	.0413	.9572	.0000	.0000	.7761	.6379	.3497	.3588	.5646
10	8.47	12.72	18.15	54.18	59.51	2.0322	.6312	.2063	.0507	.0507	.9512	.0000	.0000	.7333	.6311	.3476	.3668	.5396
15	7.81	12.12	22.76	46.35	56.97	1.9524	.6019	.2101	.0534	.0534	.9519	.0000	.0000	.7165	.6208	.3522	.3735	.5281
30	5.90	10.66	22.05	40.28	51.71	1.7606	.5096	.1459	.0410	.0410	.9683	.0000	.0000	.7628	.6038	.3977	.4016	.5827
50	4.20	9.65	16.41	37.77	44.56	1.5531	.4524	.0808	.0259	.0259	.9837	.0000	.0000	.8408	.5776	.4223	.4413	.6541
70	4.31	10.39	16.23	38.58	44.19	1.3887	.4619	.0932	.0335	.0335	.9832	.0000	.0000	.8102	.5438	.4077	.4718	.7071
85	7.34	13.82	17.61	41.68	45.27	1.2874	.5101	.1405	.0545	.0545	.9772	.0000	.0000	.7205	.5105	.3765	.4698	.7318
90	8.65	15.23	17.59	43.84	45.95	1.2559	.5344	.1584	.0630	.0630	.9751	.0000	.0000	.6935	.5017	.3669	.4665	.7436
95	10.03	16.77	17.12	46.32	46.75	1.2273	.5568	.1684	.0686	.0686	.9742	.0000	.0000	.6801	.4943	.3602	.4608	.7585

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
5899.0	123.48	27.83	1.0919	1.2865	81.274	81.95

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR — 90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	535.5	1017.9	535.5	635.0	.0	795.5	.00	51.40	35.40	-27.50	657.0	715.8	-380.6	330.5	380.6	465.0
10	14.130	16.790	546.0	1004.9	546.0	635.9	.0	778.1	.00	50.74	36.84	-24.57	682.2	699.6	-409.0	291.0	409.0	487.1
15	15.170	17.580	558.4	973.4	558.4	641.7	.0	731.6	.00	48.73	38.23	-19.02	711.0	679.8	-440.1	221.6	440.1	510.0
30	18.280	19.910	587.4	886.5	587.4	648.0	.0	604.7	.00	42.99	42.05	-2.36	791.5	650.6	-530.3	27.1	530.3	577.6
50	22.190	23.090	613.0	788.1	613.0	614.2	.0	493.7	.00	38.77	46.38	16.01	889.0	641.0	-643.7	-176.1	643.7	669.9
70	25.880	26.260	623.1	698.1	623.1	567.8	.0	406.0	.00	35.56	50.29	32.00	975.8	671.0	-750.8	-355.8	750.8	761.8
85	28.450	28.610	620.0	648.6	620.0	534.5	.0	367.3	.00	34.51	53.08	40.89	1032.3	707.3	-825.3	-462.7	825.3	830.0
90	29.320	29.410	619.8	616.5	619.8	499.5	.0	361.2	.00	35.90	53.92	44.58	1052.5	701.5	-850.6	-492.0	850.6	853.2
95	30.150	30.180	616.2	588.0	616.2	468.3	.0	355.5	.00	37.20	54.83	47.99	1069.9	699.9	-874.7	-520.1	874.7	875.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.58	1.33	9.22	62.90	70.85	2.4324	.1842	.3088	.0563	.0563	1.3845	.8283	.8202	.0000	.4918	.9339	.6044	.6568
10	-4.66	1.99	6.49	61.41	65.95	2.2851	.2457	.2074	.0413	.0413	1.4241	.8799	.8738	.0000	.5028	.9187	.6300	.6396
15	-4.06	2.22	7.85	57.26	62.91	2.1565	.2998	.1502	.0329	.0329	1.4307	.9051	.9002	.0000	.5145	.8861	.6570	.6189
30	-3.16	2.51	11.35	44.40	53.24	1.9043	.3868	.0532	.0140	.0140	1.4263	.9562	.9540	.0000	.5419	.7997	.7315	.5868
50	-2.24	2.73	11.49	30.36	39.12	1.6899	.4462	.0556	.0158	.0158	1.3943	.9426	.9398	.0000	.5667	.7037	.8237	.5723
70	-.96	3.23	11.92	18.29	26.99	1.5345	.4488	.0836	.0231	.0231	1.3442	.8934	.8888	.0000	.5761	.6187	.9038	.5947
85	-.26	3.42	10.94	12.20	19.70	1.4421	.4386	.1058	.0277	.0277	1.3208	.8514	.8454	.0000	.5732	.5722	.9563	.6240
90	-.21	3.30	12.31	9.34	18.34	1.4148	.4549	.1483	.0373	.0373	1.2965	.7865	.7785	.0000	.5726	.5420	.9742	.6167
95	-.19	3.18	13.84	6.84	17.48	1.3891	.4655	.1776	.0428	.0428	1.2793	.7391	.7298	.0000	.5693	.5153	.9892	.6134

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6648.0	171.70	38.71	1.1057	1.3685	88.727	89.29	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	939.2	618.7	604.1	618.0	719.1	25.0	49.97	2.30	-18.75	39.75	638.0	803.9	205.1	-514.0	514.1	539.0
10	18.350	19.110	949.8	642.4	628.2	639.9	712.4	55.3	48.59	4.93	-16.00	37.95	653.6	811.6	180.1	-499.1	532.3	554.4
15	19.070	19.740	938.2	660.5	650.6	656.8	675.6	69.7	46.07	6.05	-10.67	37.44	662.8	827.3	122.4	-503.0	553.2	572.7
30	21.140	21.600	896.8	678.3	692.4	675.8	569.5	58.6	39.41	4.96	3.58	40.04	695.2	882.9	-43.8	-568.0	613.3	626.6
50	23.970	24.200	838.0	666.3	689.9	663.1	475.5	64.7	34.55	5.57	17.66	43.84	725.5	920.1	-219.9	-637.3	695.4	702.1
70	26.790	26.880	770.1	634.8	659.5	634.2	397.9	27.1	31.10	2.44	29.86	49.86	761.4	984.5	-379.2	-752.7	777.2	779.8
85	28.860	28.900	732.0	611.7	635.1	611.5	364.0	12.7	29.82	1.21	36.70	53.48	792.3	1027.6	-473.3	-825.7	837.2	838.4
90	29.570	29.600	705.7	574.7	607.5	574.5	359.0	17.4	30.59	1.74	39.39	55.68	786.3	1019.0	-498.8	-841.3	857.8	858.7
95	30.240	30.270	682.0	540.7	582.5	540.5	354.7	16.2	31.34	1.71	41.89	57.91	782.6	1017.4	-522.6	-862.0	877.3	878.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.33	4.30	18.79	47.67	62.55	2.1073	.5121	.1358	.0322	.0322	.9488	.0000	.0000	.7997	.8531	.5387	.5816	.7000
10	.67	4.92	20.88	43.67	59.58	2.0294	.4900	.1596	.0392	.0392	.9388	.0000	.0000	.7668	.8583	.5601	.5935	.7076
15	-.16	4.17	21.49	40.02	57.08	1.9470	.4583	.1390	.0355	.0355	.9477	.0000	.0000	.7871	.8465	.5775	.6022	.7234
30	-3.22	1.59	18.93	34.46	51.73	1.7530	.4037	.0909	.0258	.0258	.9681	.0000	.0000	.8322	.8084	.5963	.6288	.7761
50	-4.96	-.54	16.36	28.98	44.80	1.5485	.3620	.0646	.0207	.0207	.9798	.0000	.0000	.8575	.7523	.5866	.6519	.8100
70	-6.44	-.33	15.26	28.66	44.26	1.3868	.3491	.0476	.0172	.0172	.9871	.0000	.0000	.8751	.6885	.5589	.6805	.8668
85	-6.93	-.43	16.25	28.62	45.29	1.2866	.3507	.0523	.0203	.0203	.9870	.0000	.0000	.8513	.6517	.5378	.7053	.9034
90	-6.26	.35	17.45	28.86	45.96	1.2554	.3783	.0802	.0319	.0319	.9814	.0000	.0000	.7927	.6261	.5034	.6976	.8924
95	-5.85	.91	18.04	29.63	46.76	1.2271	.4093	.1015	.0414	.0414	.9779	.0000	.0000	.7595	.6032	.4719	.6921	.8880

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6648.0	171.70	38.71	1.1057	1.3340	81.203	82.03	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	491.5	960.3	491.5	564.1	.0	777.2	.00	54.02	37.75	-28.96	621.6	644.8	-380.6	312.2	380.6	465.0
10	14.100	16.790	506.2	944.3	506.2	571.1	.0	751.9	.00	52.78	38.94	-24.86	650.8	629.9	-409.0	264.9	409.0	487.0
15	15.170	17.580	518.3	914.2	518.3	573.4	.0	711.9	.00	51.14	40.32	-19.36	679.9	608.7	-440.0	201.9	440.0	509.9
30	18.280	19.910	545.1	837.1	545.1	578.9	.0	604.4	.00	46.20	44.18	-2.60	760.5	581.6	-530.2	26.9	530.2	577.5
50	22.190	23.090	569.4	745.8	569.4	553.7	.0	499.5	.00	42.03	48.48	17.05	859.5	581.1	-643.7	-170.3	643.7	669.8
70	25.880	26.260	579.3	676.6	579.3	527.5	.0	423.6	.00	38.76	52.33	32.60	948.3	627.4	-750.7	-338.1	750.7	761.7
85	28.450	28.610	574.7	634.5	574.7	496.3	.0	395.1	.00	38.54	55.14	41.23	1005.7	660.2	-825.2	-434.8	825.2	829.9
90	29.320	29.410	576.3	606.9	576.3	460.4	.0	395.1	.00	40.66	55.87	44.87	1027.4	649.8	-850.5	-458.0	850.5	853.1
95	30.150	30.180	573.5	581.9	573.5	428.4	.0	393.8	.00	42.59	56.74	48.34	1045.8	644.6	-874.6	-481.6	874.6	875.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-3.23	3.68	7.76	66.71	70.85	2.4323	.2454	.2518	.0453	.0453	1.3977	.8715	.8653	.0000	.4499	.8740	.5701	.5868
10	-2.56	4.08	6.20	63.80	65.95	2.2847	.3069	.1668	.0331	.0331	1.4241	.9089	.9042	.0000	.4647	.8566	.5993	.5714
15	-1.98	4.31	7.51	59.69	62.92	2.1563	.3653	.1250	.0273	.0273	1.4289	.9254	.9216	.0000	.4759	.8260	.6263	.5499
30	-1.03	4.64	11.10	46.78	53.24	1.9044	.4525	.0384	.0101	.0101	1.4335	.9703	.9687	.0000	.5007	.7499	.6997	.5210
50	-.15	4.83	12.52	31.43	39.11	1.6902	.4989	.0340	.0096	.0096	1.4115	.9667	.9650	.0000	.5239	.6620	.7919	.5158
70	1.06	5.26	12.53	19.73	27.00	1.5346	.4849	.0410	.0113	.0113	1.3883	.9516	.9493	.0000	.5372	.5970	.8737	.5536
85	1.79	5.47	11.28	13.91	19.69	1.4421	.4801	.0712	.0186	.0186	1.3757	.9106	.9065	.0000	.5291	.5570	.9273	.5796
90	1.74	5.26	12.60	11.00	18.34	1.4148	.5036	.1238	.0310	.0310	1.3542	.8432	.8364	.0000	.5301	.5307	.9468	.5682
95	1.72	5.09	14.19	8.40	17.48	1.3891	.5192	.1594	.0381	.0381	1.3397	.7939	.7873	.0000	.5276	.5071	.9628	.5617

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6647.0	162.81	36.71	1.1087	1.3977	92.393	92.80	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	877.6	537.0	525.6	537.6	702.8	4.4	53.21	.44	-19.75	44.83	558.5	758.2	188.8	-534.5	514.0	538.9
10	18.350	19.110	882.6	557.5	552.4	555.4	688.3	45.4	51.25	4.66	-15.78	42.49	574.1	753.4	156.1	-508.9	532.3	554.3
15	19.070	19.740	870.0	568.5	570.2	564.3	657.0	69.5	49.04	7.02	-10.34	41.72	580.1	756.0	103.8	-503.1	553.2	572.6
30	21.140	21.600	835.9	606.4	611.8	604.2	569.2	51.5	42.92	4.87	4.06	43.57	614.7	834.2	-44.0	-575.0	613.2	626.6
50	23.970	24.200	783.7	602.2	618.6	599.5	481.1	56.3	37.86	5.36	19.05	47.10	655.7	881.3	-214.2	-645.7	695.3	702.0
70	26.790	26.880	736.8	589.4	608.6	588.6	415.1	31.0	34.29	3.01	30.70	51.81	708.6	952.5	-362.0	-748.7	777.1	779.7
85	28.860	28.900	706.6	571.7	588.5	571.5	391.1	14.4	33.62	1.45	37.17	55.26	738.5	1002.9	-446.0	-823.9	837.1	838.3
90	29.570	29.600	684.5	539.8	560.8	539.4	392.4	18.2	35.00	1.92	39.70	57.30	728.9	998.8	-465.4	-840.4	857.7	858.6
95	30.240	30.270	664.0	514.0	535.3	514.0	393.0	8.8	36.28	.98	42.13	59.40	721.8	1009.8	-484.2	-869.2	877.2	878.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.42	7.39	16.93	52.77	62.54	2.1078	.5713	.1482	.0352	.0352	.9501	.0000	.0000	.7992	.7892	.4657	.5050	.6565
10	3.38	7.64	20.60	46.59	59.56	2.0304	.5435	.1713	.0420	.0420	.9418	.0000	.0000	.7651	.7910	.4833	.5166	.6531
15	2.99	7.32	22.46	42.82	57.06	1.9485	.5160	.1632	.0416	.0416	.9459	.0000	.0000	.7661	.7793	.4935	.5219	.6563
30	.37	5.17	18.86	38.04	51.72	1.7547	.4485	.0954	.0271	.0271	.9704	.0000	.0000	.8336	.7481	.5293	.5508	.7281
50	-1.62	3.87	16.12	32.49	44.74	1.5493	.4053	.0622	.0200	.0200	.9827	.0000	.0000	.8715	.6993	.5265	.5844	.7706
70	-3.23	2.87	15.82	31.26	44.23	1.3871	.3875	.0545	.0196	.0196	.9864	.0000	.0000	.8704	.6549	.5157	.6289	.8334
85	-3.17	3.35	16.48	32.17	45.28	1.2868	.3980	.0659	.0256	.0256	.9847	.0000	.0000	.8368	.6259	.4991	.6537	.8755
90	-1.90	4.70	17.63	33.88	45.96	1.2555	.4291	.0920	.0366	.0366	.9799	.0000	.0000	.7887	.6040	.4693	.6428	.8684
95	-.88	5.87	17.31	35.50	46.75	1.2271	.4615	.1011	.0412	.0412	.9792	.0000	.0000	.7759	.5833	.4455	.6336	.8751

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6647.0	162.81	36.71	1.1087	1.3636	85.269	85.95	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR

90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	429.8	895.6	429.6	474.1	.0	759.8	.00	58.03	41.49	-31.91	573.8	558.6	-380.2	295.3	380.2	464.5
10	14.100	16.790	454.1	872.3	454.1	491.8	.0	720.3	.00	55.67	41.97	-25.41	610.9	545.1	-408.6	233.8	408.6	486.5
15	15.170	17.580	464.1	845.5	464.1	503.7	.0	679.0	.00	53.42	43.43	-18.57	639.2	532.1	-439.6	169.6	439.6	509.4
30	18.280	19.910	487.4	782.1	487.4	504.2	.0	597.7	.00	49.83	47.35	-2.35	719.9	506.5	-529.7	20.8	529.7	576.9
50	22.190	23.090	508.0	716.8	508.0	499.1	.0	514.5	.00	45.86	51.66	17.17	819.5	524.0	-645.9	-154.5	643.0	669.0
70	25.880	26.260	514.7	659.7	514.7	472.4	.0	460.5	.00	44.27	55.51	32.39	909.7	560.6	-749.9	-300.4	749.9	760.9
85	28.450	28.610	507.9	625.9	507.9	442.2	.0	442.7	.00	45.05	58.36	41.16	968.3	587.4	-824.3	-386.3	824.3	829.0
90	29.320	29.410	510.3	606.7	510.3	407.4	.0	449.1	.00	47.82	59.30	44.72	991.1	573.4	-849.6	-403.0	849.6	852.2
95	30.150	30.180	508.2	589.6	508.2	378.5	.0	452.1	.00	50.06	59.81	48.12	1010.7	567.2	-873.6	-422.4	873.6	874.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD SHOCK	OMEGA-B	M-1	M-2	M'-1	M'-2
5	.47	7.30	4.81	73.40	70.87	2.4316	.3259	.2263	.0395	.0395	1.4016	.8987	.8937	.0000	.3921	.8083	.5245	.5042
10	.47	7.12	5.63	67.38	65.95	2.2837	.3883	.1695	.0335	.0335	1.4065	.9143	.9101	.0000	.4151	.7849	.5606	.4905
15	1.13	7.41	8.31	62.01	62.94	2.1552	.4321	.1097	.0241	.0241	1.4132	.9389	.9359	.0000	.4245	.7586	.5468	.4774
30	2.13	7.80	11.35	49.70	53.26	1.9036	.5236	.0423	.0111	.0111	1.4277	.9702	.9687	.0000	.4455	.6962	.6595	.4508
50	3.03	8.01	12.63	34.49	39.11	1.6897	.5499	.0166	.0047	.0047	1.4347	.9848	.9840	.0000	.4649	.6332	.7518	.4628
70	4.27	8.46	12.30	23.13	26.99	1.5343	.5498	.0483	.0133	.0133	1.4258	.9511	.9486	.0000	.4708	.5787	.8342	.4917
85	4.99	8.66	11.22	17.20	19.71	1.4421	.5523	.0885	.0231	.0231	1.4239	.9063	.9015	.0000	.4651	.5458	.8888	.5122
90	4.86	8.37	12.45	14.28	16.34	1.4148	.5818	.1445	.0363	.0363	1.4100	.8468	.8392	.0000	.4666	.5269	.9088	.4980
95	4.78	8.15	13.97	11.69	17.48	1.3891	.5999	.1798	.0432	.0432	1.4023	.8083	.7990	.0000	.4647	.5103	.9254	.4909

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6040.0	148.95	33.59	1.1140	1.4226	92.950	93.38	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	809.6	452.4	427.6	450.7	687.4	-33.2	58.12	-4.21	-22.13	51.73	461.8	727.9	174.0	-571.6	513.4	538.4
10	18.350	19.110	802.7	451.4	455.3	450.6	661.1	20.6	55.45	2.62	-15.87	49.79	475.3	698.0	129.4	-533.1	531.7	553.7
15	19.070	19.740	790.7	456.9	462.6	453.2	626.2	58.1	52.37	7.30	-8.69	48.59	488.6	685.1	73.7	-513.9	552.6	572.0
30	21.140	21.600	766.1	513.3	519.6	508.8	562.7	68.2	47.27	7.64	5.39	47.62	522.9	754.8	-49.8	-557.6	612.5	625.9
50	23.970	24.200	741.2	550.8	551.4	548.0	495.3	55.3	41.92	5.76	19.82	49.67	587.1	847.1	-199.3	-645.9	694.5	701.2
70	26.790	26.800	707.9	544.9	545.9	543.9	450.7	33.1	39.54	3.48	30.78	53.88	636.0	923.1	-325.5	-745.8	770.2	778.9
85	28.860	28.900	686.9	534.7	530.0	534.3	436.9	19.7	39.51	2.11	37.00	56.84	663.7	976.9	-399.3	-817.7	836.2	837.4
90	29.570	29.600	672.4	513.7	504.0	513.2	444.9	20.9	41.45	2.32	39.28	58.47	651.0	981.8	-411.9	-836.8	856.8	857.7
95	30.240	30.270	659.0	493.1	480.4	492.9	451.1	12.8	43.20	1.49	41.50	60.30	641.5	995.0	-425.1	-864.3	876.2	877.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	8.25	12.22	12.28	62.33	62.53	2.1085	.6476	.1742	.0412	.0412	.9489	.0000	.0000	.7834	.7192	.3898	.4124	.6273
10	7.44	11.68	13.53	52.83	59.51	2.0320	.6297	.2090	.0514	.0514	.9396	.0000	.0000	.7387	.7140	.3891	.4239	.6017
15	6.49	10.81	22.71	45.07	56.97	1.9522	.6023	.2177	.0553	.0553	.9386	.0000	.0000	.7164	.7041	.3942	.4354	.5912
30	4.99	9.75	21.80	39.63	51.77	1.7603	.5106	.1439	.0405	.0405	.9616	.0000	.0000	.7741	.6817	.4448	.4620	.6541
50	2.53	7.99	16.33	36.16	44.49	1.5529	.4468	.0748	.0240	.0240	.9812	.0000	.0000	.8575	.6590	.4788	.5178	.7364
70	2.02	8.10	16.26	36.07	44.18	1.3886	.4422	.0676	.0243	.0243	.9844	.0000	.0000	.8617	.6255	.4731	.5586	.8014
85	2.53	9.02	17.12	37.40	45.25	1.2873	.4575	.0815	.0316	.0316	.9822	.0000	.0000	.8352	.6049	.4628	.5841	.8456
90	4.36	10.95	18.04	39.13	45.95	1.2558	.4870	.1016	.0404	.0404	.9788	.0000	.0000	.7996	.5896	.4429	.5711	.8464
95	6.10	12.84	17.81	41.71	46.75	1.2273	.5225	.1209	.0492	.0492	.9758	.0000	.0000	.7546	.5745	.4235	.5576	.8545

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6640.0	148.95	33.59	1.1140	1.3838	85.324	86.03	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR — 95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	569.2	1070.5	569.2	656.2	.0	845.8	.00	52.19	35.17	-28.46	696.3	746.4	-401.1	355.7	401.1	490.1
10	14.100	16.790	579.9	1057.1	579.9	658.2	.0	827.2	.00	51.49	36.62	-25.48	722.5	729.5	-431.1	313.9	431.1	513.3
15	15.170	17.580	592.5	1026.2	592.5	667.7	.0	779.0	.00	49.38	38.04	-19.86	752.5	711.0	-463.8	241.6	463.8	537.4
30	18.280	19.910	623.8	935.3	623.8	682.7	.0	639.0	.00	43.07	41.83	-2.52	837.6	685.5	-558.8	30.3	558.8	608.7
50	22.190	23.090	651.4	836.2	651.4	651.9	.0	523.6	.00	38.75	46.14	15.65	940.7	679.0	-678.4	-182.3	678.4	705.9
70	25.880	26.260	660.7	728.8	660.7	590.8	.0	426.7	.00	35.82	59.12	32.41	1030.9	701.6	-791.2	-376.1	791.2	802.8
85	28.450	28.610	657.7	665.3	657.7	545.8	.0	380.4	.00	34.89	52.90	42.16	1090.5	736.7	-869.8	-494.2	869.8	874.6
90	29.320	29.410	653.6	632.9	653.6	508.2	.0	376.9	.00	36.59	53.90	45.81	1109.4	729.3	-896.4	-522.3	896.4	899.1
95	30.150	30.180	648.2	606.2	648.2	475.0	.0	376.6	.00	38.41	54.88	48.97	1126.9	723.8	-921.7	-546.1	921.7	922.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.82	1.09	8.25	63.63	70.85	2.4327	.2026	.3325	.0601	.0601	1.4284	.8153	.8058**	.0000	.5242	.9839	.6423	.6861
10	-4.88	1.78	5.54	62.10	65.90	2.2855	.2026	.2259	.0446	.0446	1.4756	.8699	.8626	.0000	.5354	.9677	.6687	.6678
15	-4.27	2.03	7.71	57.90	62.90	2.1569	.3125	.1561	.0340	.0340	1.4890	.9023	.8967	.0000	.5476	.9354	.6971	.6481
30	-3.38	2.29	11.13	44.35	53.24	1.9043	.3901	.0399	.0105	.0105	1.4882	.9069	.9650	.0000	.5777	.8444	.7772	.6188
50	-2.47	2.49	11.12	30.48	39.13	1.6894	.4459	.0390	.0111	.0111	1.4568	.9601	.9579	.0000	.6050	.7466	.8770	.6063
70	-1.11	3.07	12.23	17.71	26.96	1.5342	.4551	.0903	.0248	.0248	1.3817	.8865	.8812	.0000	.6134	.6449	.9611	.6208
85	-.40	3.26	12.25	10.74	19.73	1.4421	.4457	.1250	.0321	.0300	1.3402	.8244	.8170	.0080	.6098	.5855	1.0156	.6483
90	-.21	3.30	13.53	8.09	18.54	1.4148	.4628	.1658	.0409	.0386	1.3178	.7637	.7542	.0091	.6054	.5546	1.0315	.6391
95	-.14	3.22	14.82	5.91	17.48	1.3890	.4780	.1995	.0471	.0446	1.3024	.7138	.7029	.0107	.6008	.5292	1.0461	.6319

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7006.0	178.69	40.29	1.1176	1.4145	88.621	89.20	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	989.4	637.2	627.8	636.7	764.7	22.4	50.61	2.00	-19.55	40.60	666.3	838.5	223.0	-545.6	541.7	568.0
10	18.350	19.110	1000.5	664.3	653.8	661.8	757.3	56.2	49.19	4.83	-16.71	38.59	682.7	846.7	196.3	-528.1	561.0	584.2
15	19.070	19.740	991.5	685.9	681.8	682.1	719.5	72.7	46.53	6.09	-11.34	37.89	696.0	864.2	136.5	-530.8	583.0	603.5
30	21.140	21.600	948.4	708.2	732.5	705.5	601.9	62.6	39.39	5.07	3.42	40.27	735.2	924.8	-44.4	-597.8	646.3	660.3
50	23.970	24.200	889.3	700.8	732.2	697.2	504.4	70.3	34.54	5.75	17.32	43.82	768.4	967.0	-228.3	-669.5	732.8	739.8
70	26.790	26.880	803.1	654.9	685.4	654.1	418.4	31.0	31.39	2.70	30.27	50.38	794.8	1026.6	-400.6	-790.7	819.0	821.8
85	28.860	28.900	750.1	614.4	648.5	614.3	377.0	9.9	30.17	.93	37.93	54.89	822.4	1068.2	-505.3	-873.6	882.3	883.5
90	29.570	29.600	722.3	577.6	618.5	577.4	374.0	12.3	31.18	1.23	40.61	57.10	814.7	1063.3	-530.0	-892.6	904.0	904.9
95	30.240	30.270	700.3	545.6	591.0	545.4	375.6	14.4	32.44	1.51	42.88	59.09	806.6	1061.8	-548.9	-911.0	924.5	925.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.96	4.93	18.49	48.62	62.55	2.1070	.5295	.1394	.0331	.0331	.9433	.0000	.0000	.8056	.8988	.5521	.6074	.7265
10	1.20	5.46	20.79	44.36	59.60	2.0285	.5046	.1622	.0398	.0398	.9330	.0000	.0000	.7746	.9055	.5765	.6216	.7348
15	.24	4.58	21.54	40.45	57.11	1.9459	.4722	.1465	.0374	.0374	.9402	.0000	.0000	.7878	.8951	.5972	.6333	.7525
30	-3.29	1.53	19.06	34.32	51.75	1.7521	.4131	.0982	.0279	.0279	.9625	.0000	.0000	.8291	.8557	.6208	.6664	.8106
50	-4.97	.54	16.55	28.79	44.80	1.5482	.3685	.0736	.0237	.0237	.9747	.0000	.0000	.8465	.7984	.6155	.6910	.8494
70	-6.16	-.05	15.55	28.68	44.28	1.3866	.3588	.0492	.0177	.0177	.9857	.0000	.0000	.8786	.7166	.5749	.7097	.9011
85	-6.58	-.08	15.98	29.25	45.51	1.2806	.3709	.0619	.0240	.0240	.9841	.0000	.0000	.8392	.6660	.5380	.7304	.9354
90	-5.67	.93	16.94	29.95	45.96	1.2554	.4001	.0861	.0343	.0343	.9793	.0000	.0000	.7932	.6395	.5037	.7208	.9272
95	-4.75	2.01	17.84	30.92	46.76	1.2271	.4309	.1045	.0426	.0426	.9763	.0000	.0000	.7669	.6172	.4738	.7108	.9221

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7006.0	178.69	40.29	1.1176	1.3733	80.713	81.59	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	525.7	1005.7	525.7	578.7	.0	822.4	.00	54.87	37.36	-29.84	661.4	667.2	-401.4	332.0	401.4	490.4
10	14.100	16.790	544.7	988.6	544.7	588.1	.0	794.5	.00	53.48	38.38	-25.50	694.8	652.2	-431.4	280.9	431.4	513.7
15	15.170	17.580	556.9	956.6	556.9	597.4	.0	746.9	.00	51.33	39.80	-19.26	725.0	633.8	-464.1	209.1	464.1	537.8
30	18.280	19.910	585.2	875.3	585.2	605.3	.0	631.7	.00	46.20	43.67	-2.08	809.6	607.6	-559.3	22.6	559.3	609.1
50	22.190	23.090	611.8	784.4	611.8	574.5	.0	533.9	.00	42.88	47.95	16.66	914.0	601.6	-678.9	-172.5	678.9	706.4
70	25.880	26.260	624.2	715.7	624.2	551.0	.0	456.6	.00	39.64	51.73	32.12	1008.4	651.9	-791.8	-346.8	791.8	803.4
85	28.450	28.610	622.1	669.9	622.1	517.4	.0	425.3	.00	39.44	54.44	41.02	1069.9	686.0	-870.4	-450.0	870.4	875.3
90	29.320	29.410	622.2	642.4	622.2	481.3	.0	425.2	.00	41.49	55.25	44.61	1091.7	676.3	-897.0	-474.5	897.0	899.8
95	30.150	30.180	618.9	618.9	618.9	449.5	.0	424.1	.00	43.33	56.14	48.00	1110.8	671.8	-922.4	-499.2	922.4	923.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-3.64	3.28	6.87	67.20	70.85	2.4327	.2723	.2437	.0434	.0434	1.4519	.8749	.8682	.0000	.4824	.9157	.6079	.6075
10	-3.13	3.53	5.51	63.88	65.90	2.2853	.3333	.1649	.0326	.0326	1.4792	.9087	.9035	.0000	.5013	.8970	.6411	.5917
15	-2.51	3.79	7.61	59.05	62.90	2.1569	.3820	.1100	.0241	.0241	1.4859	.9332	.9294	.0000	.5127	.8644	.6691	.5727
30	-1.54	4.14	11.62	45.75	53.23	1.9049	.4627	.0197	.0052	.0052	1.4926	.9837	.9827	.0000	.5393	.7835	.7466	.5441
50	-.68	4.31	12.12	31.29	39.10	1.6905	.5177	.0268	.0076	.0076	1.4755	.9737	.9722	.0000	.5651	.6948	.8448	.5329
70	.46	4.66	12.06	19.61	27.21	1.5347	.5020	.0314	.0087	.0087	1.4552	.9634	.9614	.0000	.5773	.6299	.9328	.5738
85	1.13	4.78	11.06	13.42	19.68	1.4422	.4970	.0652	.0170	.0170	1.4386	.9232	.9160	.0000	.5752	.5662	.9907	.6003
90	1.12	4.64	12.34	10.64	18.34	1.4148	.5184	.1141	.0287	.0259	1.4172	.8597	.8528	.0112	.5750	.5598	1.0105	.5893
95	1.12	4.49	13.84	8.14	17.48	1.3891	.5327	.1479	.0356	.0326	1.4029	.8168	.8078	.0126	.5720	.5365	1.0272	.5832

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7011.0	171.54	38.68	1.1222	1.4600	93.455	93.89	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	917.1	545.0	536.3	544.7	744.0	-3.8	54.21	-.44	-20.62	46.41	573.1	790.2	201.8	-572.3	542.1	568.4
10	18.350	19.110	921.7	563.6	565.1	561.7	728.1	42.7	52.18	4.33	-16.44	43.97	589.3	780.6	166.7	-542.0	561.4	584.6
15	19.070	19.740	908.1	573.7	590.5	569.3	689.6	70.9	49.42	7.09	-10.21	43.11	600.6	779.9	106.1	-533.1	583.4	603.9
30	21.140	21.600	872.0	620.2	637.4	617.4	594.8	59.2	43.00	5.48	4.62	44.25	640.7	862.1	-51.9	-601.6	646.8	660.8
50	23.970	24.200	823.8	622.9	643.5	619.2	514.2	67.8	38.61	6.25	18.75	47.34	680.9	914.3	-219.2	-672.5	733.3	740.4
70	26.790	26.880	779.4	614.2	638.1	612.9	447.5	39.3	35.04	3.66	30.21	51.93	739.2	994.6	-372.1	-783.1	819.6	822.4
85	28.860	28.900	746.8	593.3	616.7	592.9	421.1	21.7	34.34	2.11	36.83	55.50	770.6	1046.7	-461.8	-862.5	882.9	884.2
90	29.570	29.600	725.0	563.1	589.2	562.5	422.3	24.7	35.64	2.50	39.31	57.43	761.6	1045.3	-482.3	-880.9	904.7	905.6
95	30.240	30.270	705.4	540.2	564.4	540.1	423.1	13.8	36.86	1.46	41.65	59.37	755.4	1060.2	-502.0	-912.3	925.2	926.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	4.41	8.39	16.06	54.65	62.55	2.1076	.5946	.1526	.0362	.0362	.9452	.0000	.0000	.8034	.4693	.5173	.6805
10	4.18	8.43	20.27	47.85	59.56	2.0301	.5675	.1809	.0444	.0444	.9345	.0000	.0000	.7666	.8251	.4858	.5308	.6728
15	3.32	7.65	22.53	42.32	57.06	1.9485	.5392	.1770	.0451	.0451	.9374	.0000	.0000	.7612	.8127	.4954	.5403	.6735
30	.48	5.28	19.48	37.53	51.72	1.7550	.4612	.0987	.0280	.0280	.9673	.0000	.0000	.8366	.7801	.5391	.5736	.7494
50	-.85	4.64	16.99	32.36	44.72	1.5495	.4174	.0638	.0205	.0205	.9808	.0000	.0000	.8755	.7339	.5422	.6056	.7959
70	-2.49	3.61	16.46	31.37	44.22	1.3872	.4003	.0592	.0213	.0213	.9838	.0000	.0000	.8680	.6916	.5350	.6548	.8664
85	-2.46	4.04	17.14	32.23	45.27	1.2868	.4132	.0734	.0285	.0285	.9814	.0000	.0000	.8319	.6600	.5155	.6805	.9094
90	-1.25	5.35	18.22	33.14	45.96	1.2555	.4417	.0944	.0376	.0376	.9774	.0000	.0000	.7961	.6382	.4872	.6699	.9044
95	-.30	6.45	17.79	35.39	46.75	1.2271	.4705	.0978	.0398	.0398	.9778	.0000	.0000	.7924	.6179	.4659	.6611	.9142

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7011.0	171.54	38.68	1.1222	1.4199	86.218	86.97	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR — 95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	487.4	971.9	487.4	532.3	.0	813.2	.00	56.79	39.46	-31.24	631.4	622.6	-401.3	322.9	401.3	490.3
10	14.100	16.790	508.5	953.0	508.5	545.6	.0	781.2	.00	55.06	40.30	-26.12	666.7	608.2	-431.3	267.6	431.3	513.6
15	15.170	17.580	520.7	925.3	520.7	560.1	.0	736.4	.00	52.73	41.69	-19.48	697.5	595.0	-464.0	198.6	464.0	537.7
30	18.280	19.910	547.5	844.7	547.5	550.1	.0	640.9	.00	49.33	45.57	-3.27	782.7	553.0	-559.1	31.9	559.1	609.0
50	22.190	23.090	573.4	767.4	573.4	539.5	.0	545.6	.00	45.30	49.78	16.50	868.6	564.4	-678.7	-160.7	678.7	706.3
70	25.880	26.260	585.6	711.7	585.6	524.6	.0	480.9	.00	42.51	53.49	31.51	984.8	616.5	-791.6	-322.3	791.6	803.2
85	28.450	28.610	582.3	669.0	582.3	493.3	.0	451.7	.00	42.49	56.21	40.65	1047.1	650.4	-870.2	-423.4	870.2	875.1
90	29.320	29.410	583.8	646.5	583.8	457.8	.0	456.2	.00	44.93	56.93	44.11	1070.2	537.6	-896.8	-443.4	896.8	899.6
95	30.150	30.180	581.3	625.7	581.3	424.1	.0	460.0	.00	47.33	57.77	47.51	1090.1	28.0	-922.2	-463.1	922.2	923.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01 TOTAL	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-1.53	5.38	5.47	70.70	70.85	2.4325	.3051	.2536	.0446	.0446	1.4489	.8793	.8729	.0000	.4459	.8808	.5786	.5642
10	-1.21	5.45	4.89	66.42	65.89	2.2851	.3665	.1795	.0353	.0353	1.4686	.9064	.9013	.0000	.4666	.8607	.6135	.5493
15	-.61	5.68	7.39	61.18	62.91	2.1567	.4097	.1130	.0247	.0247	1.4793	.9353	.9316	.0000	.4779	.8329	.6419	.5356
30	.35	6.04	10.43	48.84	53.22	1.9051	.5172	.0629	.0165	.0165	1.4831	.9550	.9524	.0000	.5026	.7526	.7187	.4927
50	1.15	6.15	11.95	33.28	39.08	1.6908	.5498	.0328	.0093	.0093	1.4854	.9702	.9685	.0000	.5274	.6775	.8169	.4983
70	2.21	6.42	11.46	21.98	27.02	1.5348	.5341	.0331	.0092	.0092	1.4837	.9648	.9628	.0000	.5394	.6242	.9066	.5407
85	2.86	6.55	10.68	15.56	19.67	1.4422	.5288	.0646	.0170	.0170	1.4740	.9277	.9237	.0000	.5363	.5833	.9655	.5671
90	2.86	6.32	11.83	12.82	18.33	1.4148	.5551	.1184	.0300	.0300	1.4567	.8681	.8610	.0000	.5375	.5613	.9866	.5535
95	2.76	6.13	13.36	10.26	17.48	1.3691	.5759	.1584	.0365	.0347	1.4452	.8231	.8138	.0157	.5351	.5409	1.0042	.5429

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7010.0	163.79	36.93	1.1265	1.4759	93.031	93.19	-5.0	-6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	878.9	487.0	480.8	485.8	735.7	-25.0	56.83	-2.96	-21.93	50.67	518.5	766.9	193.7	-593.3	542.0	568.3
10	18.350	19.110	878.7	496.2	508.9	495.1	716.3	27.4	54.60	3.16	-16.94	48.37	532.1	745.4	155.0	-557.1	561.3	584.5
15	19.070	19.740	869.3	507.5	542.2	503.3	679.4	64.5	51.40	7.29	-10.06	46.98	551.1	737.7	96.1	-539.3	583.3	603.8
30	21.140	21.600	832.1	559.7	572.6	555.6	603.5	67.7	46.49	6.95	4.25	46.86	575.4	812.6	-43.2	-593.0	646.6	660.7
50	23.970	24.200	798.1	586.8	600.6	583.6	525.4	61.3	41.17	6.00	19.01	49.30	636.4	895.3	-207.8	-678.9	733.2	740.2
70	26.790	26.880	769.4	594.2	608.2	592.8	471.3	39.9	37.76	3.64	29.75	52.83	701.3	981.7	-348.2	-782.4	819.5	822.2
85	28.860	28.900	741.2	577.3	591.3	576.8	446.9	24.5	37.09	2.44	36.40	56.13	734.7	1035.2	-435.9	-859.5	882.8	884.0
90	29.570	29.600	724.3	553.1	565.3	552.6	452.7	24.7	36.70	2.55	38.65	57.89	723.7	1039.8	-451.3	-880.7	904.5	905.4
95	30.240	30.270	708.1	530.1	539.2	529.9	459.0	13.6	40.41	1.47	40.83	59.85	712.7	1055.1	-466.0	-912.3	925.0	925.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01 SHOCK	OMEGA-B	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	7.01	10.99	13.53	59.79	62.54	2.1081	.6466	.1604	.0380	.0380	.9463	.0000	.0000	.8049	.7838	.4177	.4647	.6579
10	6.52	10.77	19.07	51.45	59.53	2.0313	.6240	.1959	.0481	.0481	.9345	.0000	.0000	.7617	.7838	.4259	.4785	.6397
15	5.46	9.79	22.72	44.11	57.01	1.9507	.5937	.2041	.0519	.0519	.9329	.0000	.0000	.7401	.7753	.4362	.4924	.6342
30	4.07	8.85	21.02	39.54	51.74	1.7577	.5079	.1190	.0336	.0336	.9637	.0000	.0000	.8167	.7409	.4835	.5108	.7020
50	1.79	7.27	16.65	35.16	44.60	1.5510	.4510	.0686	.0220	.0220	.9805	.0000	.0000	.8735	.7081	.5085	.5616	.7758
70	.26	6.35	16.63	33.92	44.20	1.3877	.4293	.0618	.0222	.0222	.9836	.0000	.0000	.8706	.6805	.5152	.6177	.8511
85	.24	6.73	17.45	34.65	45.25	1.2870	.4423	.0745	.0289	.0289	.9815	.0000	.0000	.8445	.6528	.4993	.6466	.8952
90	1.73	8.32	18.27	36.15	45.96	1.2556	.4715	.0937	.0373	.0373	.9778	.0000	.0000	.8126	.6353	.4763	.6347	.8954
95	3.27	10.02	17.79	38.94	46.75	1.2272	.5075	.1078	.0439	.0439	.9756	.0000	.0000	.7845	.6175	.4546	.6205	.9047

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7010.0	163.79	36.93	1.1265	1.4342	85.818	85.58	-11.0	-12.0	90.00	90.00

APPENDIX 4

Blade-Element and Overall Performance with Radial Inlet Distortion

Blade-Element and Overall Performance with Stator-Hub Slit Suction
80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	494.1	910.2	494.1	570.0	.0	709.5	.00	51.22	34.42	-27.43	598.9	642.3	-338.5	295.9	338.5	413.6
10	14.100	16.790	498.7	895.5	498.7	573.9	.0	687.3	.00	50.13	36.11	-23.86	617.3	627.9	-363.8	254.1	363.8	433.2
15	15.170	17.560	513.5	885.9	513.5	579.4	.0	643.3	.00	47.98	37.31	-18.11	645.7	610.3	-391.4	189.7	391.4	453.6
30	18.280	19.910	542.3	791.8	542.3	582.5	.0	536.2	.00	42.60	40.99	-2.16	718.9	584.5	-471.7	22.4	471.7	513.7
50	22.190	23.090	552.5	692.0	552.5	534.4	.0	439.7	.00	39.44	46.00	16.31	795.8	557.5	-572.6	-156.1	572.6	595.8
70	25.880	26.260	467.7	605.0	467.7	454.7	.0	399.1	.00	41.29	54.98	31.49	815.9	534.0	-667.8	-278.5	667.8	677.6
85	28.450	28.610	407.6	555.8	407.6	387.0	.0	398.8	.00	45.87	60.95	41.25	859.8	514.8	-734.1	-339.4	734.1	738.2
90	29.320	29.410	404.1	536.9	404.1	349.6	.0	407.0	.00	49.38	61.39	45.23	857.7	496.4	-756.5	-351.9	756.5	758.8
95	30.150	30.180	405.9	522.7	405.9	327.4	.0	407.4	.00	51.22	62.44	48.58	877.5	495.2	-777.9	-371.3	777.9	778.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.51	.40	9.70	61.85	71.29	2.4323	.1954	.2346	.0426	.0428	1.3124	.8627	.8573	.0000	.4516	.8313	.5489	.5866
10	-5.41	1.22	7.36	59.96	66.11	2.2844	.2477	.1333	.0267	.0267	1.341	.9187	.9153	.0000	.4585	.8155	.5693	.5718
15	-5.00	1.26	8.83	55.42	63.00	2.1562	.3027	.1000	.0220	.0220	1.3393	.9325	.9297	.0000	.4727	.7860	.5964	.5540
30	-4.20	1.45	11.55	43.14	53.26	1.9035	.3909	.0434	.0114	.0114	1.3296	.9619	.9604	.0000	.4988	.7135	.6633	.5267
50	-2.54	2.43	11.65	29.70	38.98	1.6906	.4660	.0807	.0229	.0229	1.2944	.9135	.9103	.0000	.5069	.6176	.7327	.4975
70	3.81	8.03	11.34	23.49	26.91	1.5349	.5060	.0437	.0122	.0122	1.3197	.9522	.9502	.0000	.4247	.5344	.7440	.4717
85	7.82	11.48	11.22	19.70	19.62	1.4422	.5521	.0774	.0202	.0202	1.3374	.9196	.9162	.0000	.3666	.4869	.7639	.4511
90	7.72	11.22	12.89	16.66	18.27	1.4148	.5892	.1353	.0337	.0337	1.3297	.8609	.8551	.0000	.3670	.4687	.7814	.4333
95	7.39	10.72	14.43	13.86	17.51	1.3888	.6030	.1691	.0403	.0403	1.3225	.8233	.8162	.0000	.3685	.4551	.7980	.4311

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5913	145.6	32.87	1.0900	1.3189	91.494	91.80	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	830.2	554.1	529.3	553.8	639.7	13.9	50.40	1.43	-19.02	46.05	559.8	723.5	182.4	-465.5	457.2	479.4
10	18.350	19.110	840.1	569.2	556.6	567.5	629.1	42.2	48.50	4.24	-15.62	36.47	578.1	724.9	155.7	-450.9	473.5	493.1
15	19.070	19.740	826.9	580.4	572.2	578.5	596.7	67.5	46.20	4.70	-10.39	30.60	582.3	740.3	104.7	-461.8	492.1	509.3
30	21.140	21.600	790.6	599.8	606.6	599.2	506.9	26.5	39.86	2.53	3.61	41.53	609.1	800.6	-38.5	-530.9	545.5	557.3
50	23.970	24.200	722.0	567.2	583.9	566.5	424.6	29.0	36.01	2.94	18.36	46.42	616.1	822.0	-193.9	-595.4	618.5	624.4
70	26.790	26.880	649.4	503.1	519.7	502.7	389.5	20.0	36.86	2.28	30.15	53.25	601.6	840.7	-301.8	-673.5	691.2	693.6
85	28.860	28.900	611.0	464.2	468.7	463.9	391.9	17.7	39.91	2.18	36.98	57.49	586.7	863.4	-352.8	-728.0	744.7	745.7
90	29.570	29.600	596.0	443.6	440.3	443.4	401.3	11.7	42.37	1.48	39.43	59.46	570.0	873.3	-361.7	-752.1	763.0	763.8
95	30.240	30.270	584.3	426.4	420.4	426.4	405.8	3.2	43.99	.43	41.68	61.27	563.0	887.1	-374.4	-777.8	780.3	781.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.51	4.50	17.92	48.97	62.54	2.1081	.5069	.1205	.0286	.0286	.9625	.0000	.0000	.8115	.7533	.4854	.5110	.6338
10	.71	4.96	20.20	44.26	59.58	2.0295	.4905	.1523	.0374	.0374	.9517	.0000	.0000	.7654	.7565	.4990	.5218	.6355
15	.05	4.38	20.13	41.50	57.05	1.9469	.4651	.1314	.0336	.0336	.9594	.0000	.0000	.7893	.7444	.5098	.5273	.6502
30	-2.74	2.06	16.56	37.33	51.79	1.7532	.4125	.0701	.0200	.0200	.9799	.0000	.0000	.8638	.7110	.5290	.5490	.7062
50	-3.46	2.04	13.66	33.08	44.70	1.5490	.3901	.0386	.0124	.0124	.9903	.0000	.0000	.9133	.6465	.4999	.5516	.7245
70	-.75	5.35	15.17	34.56	44.31	1.3875	.4299	.0668	.0240	.0240	.9865	.0000	.0000	.8555	.5774	.4406	.5339	.7363
85	2.92	9.41	17.23	37.73	45.31	1.2873	.4779	.0993	.0385	.0385	.9822	.0000	.0000	.8008	.5400	.4041	.5182	.7516
90	5.23	11.82	17.19	40.89	45.93	1.2556	.5159	.1167	.0464	.0464	.9801	.0000	.0000	.7794	.5249	.3848	.5026	.7575
95	6.83	13.57	16.75	43.56	46.74	1.2273	.5509	.1335	.0544	.0544	.9782	.0000	.0000	.7423	.5123	.3688	.4924	.7673

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5913	145.6	32.87	1.0900	1.2923	84.515	85.10	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	478.9	696.3	478.0	553.9	.0	734.6	.00	51.73	35.26	-27.76	585.4	626.1	-338.0	291.7	338.0	413.0
10	14.100	16.790	481.6	681.9	481.0	558.2	.0	692.7	.00	50.73	37.05	-24.12	602.8	611.9	-363.3	250.2	363.3	432.6
15	15.170	17.580	493.1	652.5	493.1	565.0	.0	648.2	.00	48.47	38.39	-18.14	629.2	595.2	-390.8	185.3	390.8	452.9
30	18.280	19.910	525.2	778.9	525.2	566.3	.0	535.6	.00	43.43	41.85	-2.24	705.6	567.3	-470.9	22.7	470.9	512.9
50	22.190	23.090	535.8	681.3	535.8	518.9	.0	441.4	.00	40.56	46.84	16.49	783.7	541.8	-571.7	-150.4	[illegible]	594.9
70	25.830	26.260	452.3	598.0	452.3	439.2	.0	405.7	.00	42.74	55.83	31.67	860.3	516.8	-666.7	-270.8	[illegible]	676.5
85	28.450	28.610	392.7	550.7	392.7	368.7	.0	410.8	.00	48.26	61.81	41.67	831.6	490.9	-732.9	-326.3	[illegible]	737.1
90	29.320	29.410	389.4	535.9	389.4	333.3	.0	419.3	.00	51.55	62.72	45.48	849.8	475.4	-755.4	-338.4	[illegible]	757.7
95	30.150	30.180	391.5	524.6	391.5	315.1	.0	419.5	.00	53.09	63.25	46.64	869.8	477.1	-776.7	-358.1	776.7	777.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01 TOTAL	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.64	1.27	9.44	63.03	71.32	2.4319	.2026	.2130	.0387	.0387	1.3165	.8797	.8749	.0000	.4362	.8173	.5359	.5709
10	-4.42	2.20	7.11	61.17	66.13	2.2838	.2544	.1081	.0216	.0216	1.3455	.9363	.9336	.0000	.4412	.8018	.5552	.5564
15	-3.91	2.34	6.81	56.53	63.02	2.1554	.3065	.0679	.0150	.0150	1.3454	.9556	.9536	.0000	.4535	.7727	.5811	.5395
30	-3.35	2.29	11.47	44.10	53.28	1.9026	.4037	.0368	.0097	.0097	1.3313	.9685	.9672	.0000	.4829	.7008	.6515	.5104
50	-1.69	3.28	11.07	30.35	38.97	1.6901	.4785	.0796	.0226	.0226	1.2965	.9171	.9140	.0000	.4907	.6072	.7212	.4828
70	4.75	8.96	11.52	24.16	26.92	1.5346	.5241	.0535	.0148	.0148	1.3217	.9438	.9415	.0000	.4090	.5275	.7346	.4559
85	8.71	12.36	11.82	20.14	19.60	1.4422	.5815	.1003	.0260	.0260	1.3396	.9003	.8961	.0000	.3523	.4816	.7561	.4293
90	8.55	12.04	13.14	17.25	18.27	1.4148	.6153	.1517	.0376	.0376	1.3352	.8503	.8441	.0000	.3534	.4671	.7738	.4143
95	8.19	11.52	14.49	14.61	17.51	1.3888	.6252	.1800	.0428	.0428	1.3305	.8193	.8118	.0000	.3551	.4563	.7904	.4149

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5904	141.8	32.00	1.0907	1.3222	91.613	92.01	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	816.9	537.3	513.8	537.0	635.1	11.3	51.03	1.19	-19.17	41.03	543.9	711.9	176.6	-467.3	456.5	478.7
10	18.350	19.110	826.5	552.5	540.7	550.7	625.0	42.7	49.13	4.42	-15.73	39.23	561.9	711.0	152.3	-449.6	472.7	492.3
15	19.070	19.740	813.1	563.0	556.8	560.8	592.2	50.0	46.75	5.10	-10.30	39.27	566.5	724.4	100.9	-458.5	491.3	508.6
30	21.140	21.600	776.2	583.0	588.2	582.4	506.2	26.6	40.70	2.61	3.71	42.28	590.6	787.5	-38.4	-529.9	544.6	556.5
50	23.970	24.200	708.4	550.6	565.8	549.9	426.2	29.3	36.98	3.06	18.69	47.21	598.1	809.7	-191.3	-594.1	617.5	623.5
70	26.790	26.980	638.7	488.0	501.6	487.4	395.4	23.3	38.26	2.73	30.45	53.91	592.4	828.3	-294.8	-669.2	690.2	692.5
85	28.860	28.900	601.4	446.7	445.9	446.4	403.3	16.4	42.14	2.10	37.35	58.48	561.0	854.2	-340.2	-728.1	743.5	744.5
90	29.570	29.600	589.5	429.4	420.0	429.2	413.3	9.5	44.56	1.25	39.73	60.31	545.9	867.0	-348.5	-753.1	761.8	762.6
95	30.240	30.270	580.4	416.3	403.5	416.2	417.8	3.0	46.00	.41	41.83	61.81	541.7	881.3	-361.2	-776.8	779.1	779.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.15	5.13	17.64	49.84	62.53	2.1084	.3189	.1697	.0293	.0293	.9625	.0000	.0000	.8095	.7401	.4702	.4958	.6230
10	1.34	5.59	20.34	44.71	59.57	2.0299	.5009	.1556	.0382	.0382	.9520	.0000	.0000	.7640	.7433	.4838	.5065	.6226
15	.64	4.97	20.54	41.65	57.03	1.9475	.4752	.1360	.0348	.0349	.9594	.0000	.0000	.7853	.7311	.4939	.5122	.6355
30	-1.88	2.92	16.64	38.08	51.78	1.7537	.4228	.0698	.0199	.0199	.9806	.0000	.0000	.8662	.6971	.5135	.5313	.6936
50	-2.49	3.01	13.77	33.92	44.68	1.5493	.4023	.0380	.0122	.0122	.9910	.0000	.0000	.9168	.6335	.4846	.5346	.7125
70	.62	6.72	15.02	35.53	44.31	1.3877	.4455	.0709	.0255	.0255	.9862	.0000	.0000	.8532	.5671	.4267	.5162	.7242
85	5.10	11.59	17.15	40.03	45.30	1.2873	.5068	.1153	.0440	.0448	.9803	.0000	.0000	.7809	.5304	.3880	.4943	.7418
90	7.41	14.00	16.96	43.31	45.93	1.2559	.5443	.1361	.0542	.0542	.9774	.0000	.0000	.7532	.5179	.3717	.4803	.7504
95	8.86	15.59	16.74	45.58	46.74	1.2273	.5742	.1537	.0626	.0626	.9752	.0000	.0000	.7137	.5083	.3593	.4726	.7608

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5904	141.8	32.00	1.0907	1.2950	84.549	85.10	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

80% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	460.4	695.6	460.4	542.7	.0	712.4	.00	52.70	36.32	-28.84	571.4	619.7	-338.4	298.9	338.4	413.5
10	14.100	16.790	467.2	876.5	467.2	546.6	.0	685.1	.00	51.41	37.89	-24.72	592.1	602.2	-363.7	252.0	363.7	433.1
15	15.170	17.580	479.3	847.3	479.3	553.6	.0	641.2	.00	49.18	39.22	-18.72	618.8	585.1	-391.3	187.8	391.3	453.5
30	18.280	19.910	510.6	776.2	510.6	556.8	.0	540.6	.00	44.12	42.70	-2.72	695.1	558.9	-471.5	27.0	471.5	513.6
50	22.190	23.090	520.2	675.2	520.2	508.3	.0	444.5	.00	41.17	47.72	16.58	773.6	530.9	-572.4	-151.1	572.4	595.6
70	25.880	26.260	436.4	587.8	436.4	425.3	.0	405.7	.00	43.66	56.81	32.57	791.2	505.4	-667.6	-271.7	667.6	677.4
85	28.450	28.610	377.5	543.5	377.5	358.3	.0	408.7	.00	48.76	62.77	42.59	825.4	486.7	-733.9	-329.3	733.9	738.0
90	29.320	29.410	373.7	527.6	373.7	323.1	.0	416.6	.00	52.24	63.70	46.67	843.6	470.9	-756.3	-342.0	756.3	758.6
95	30.150	30.180	374.8	514.8	374.8	303.0	.0	416.2	.00	53.95	64.27	50.08	863.3	472.4	-777.7	-362.3	777.7	778.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-E STOCK	M-1	M-2	M'-1	M'-2
5	-4.62	2.29	8.33	65.16	71.34	2.4317	.1975	.2427	.0437	.0437	1.3169	.8704	.8652	.0000	.4202	.8160	.5231	.5646
10	-3.58	3.04	6.50	62.61	66.13	2.2836	.2583	.1561	.0310	.0310	1.3366	.9118	.9080	.0000	.4283	.7961	.5452	.5470
15	-3.08	3.17	6.23	57.94	63.02	2.1552	.3124	.1129	.0248	.0248	1.3367	.9294	.9264	.0000	.4404	.7672	.5711	.5298
30	-2.51	3.14	10.99	45.42	53.26	1.9024	.4087	.0649	.0170	.0170	1.3262	.9475	.9453	.0000	.4689	.6978	.6413	.5025
50	-.79	4.17	11.85	31.14	36.95	1.6899	.4670	.1071	.0304	.0304	1.2899	.8919	.8880	.0000	.4756	.6012	.7113	.4727
70	5.73	9.94	12.42	24.24	26.92	1.5346	.5335	.0857	.0235	.0235	1.3097	.9122	.9088	.0000	.3941	.5180	.7265	.4454
85	9.67	13.33	12.52	20.18	19.59	1.4422	.5825	.1229	.0314	.0314	1.3289	.8790	.8740	.0000	.3382	.4752	.7498	.4255
90	9.54	13.03	14.33	17.03	18.27	1.4147	.6166	.1736	.0421	.0421	1.3241	.8297	.8228	.0000	.3386	.4596	.7674	.4103
95	9.21	12.54	15.94	14.18	17.52	1.3888	.6264	.2005	.0463	.0463	1.3191	.7997	.7916	.0000	.3395	.4475	.7837	.4107

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
5911	137.9	31.13	1.0911	1.3143	88.216	89.65

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	817.9	530.8	505.5	530.6	643.0	5.0	51.83	.53	-20.20	41.79	536.6	711.7	185.9	-474.2	457.1	479.3
10	18.350	19.110	821.3	542.4	529.8	541.1	627.5	35.8	49.83	3.77	-16.23	40.19	552.0	708.4	154.2	-457.1	473.3	492.9
15	19.070	19.740	807.4	551.1	546.0	549.3	594.5	44.4	47.43	4.63	-10.67	40.23	556.2	719.6	102.6	-464.8	491.9	509.2
30	21.140	21.600	772.5	575.4	579.3	574.7	510.8	28.9	41.39	2.88	3.36	42.58	561.5	780.7	-34.5	-528.3	545.3	557.2
50	23.970	24.200	700.9	542.5	554.0	541.7	429.3	29.5	37.77	3.12	18.84	47.66	586.2	804.7	-189.0	-594.7	618.3	624.2
70	26.790	26.880	625.5	469.6	484.4	469.1	395.7	21.2	39.25	2.58	31.37	55.06	568.0	820.0	-295.3	-672.2	691.1	693.4
85	28.860	28.900	590.7	430.8	433.3	430.7	401.3	10.5	42.82	1.39	38.39	59.63	552.8	852.0	-343.1	-735.0	744.4	745.5
90	29.570	29.600	578.1	414.6	406.5	414.5	410.8	1.6	45.32	.20	40.92	61.44	537.9	867.6	-352.0	-761.9	762.8	763.5
95	30.240	30.270	568.1	402.1	388.4	402.0	414.6	-8.3	46.87	-1.18	43.25	63.00	533.4	885.6	-365.5	-789.1	780.0	780.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B STOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.91	5.90	17.03	51.30	62.54	2.1082	.5315	.1357	.0322	.0322	.9588	.0000	.0000	.7982	.7390	.4640	.4895	.6222
10	2.00	6.26	19.73	46.05	59.57	2.0296	.5129	.1601	.0394	.0394	.9511	.0000	.0000	.7616	.7376	.4745	.4970	.6177
15	1.31	5.64	20.05	42.30	57.04	1.9471	.4888	.1446	.0370	.0370	.9571	.0000	.0000	.7760	.7252	.4829	.5023	.6305
30	-1.20	3.50	16.97	33.51	51.80	1.7534	.4307	.0815	.0232	.0232	.9776	.0000	.0000	.8466	.6930	.5063	.5227	.6869
50	-1.70	3.80	13.31	34.65	44.66	1.5491	.4089	.0472	.0152	.0152	.9899	.0000	.0000	.8978	.6258	.4769	.5233	.7074
70	1.64	7.74	15.47	36.66	44.31	1.3876	.4646	.0953	.0343	.0343	.9821	.0000	.0000	.8673	.5545	.4101	.5025	.7160
85	5.79	12.27	16.44	41.43	45.30	1.2873	.5275	.1452	.0564	.0564	.9756	.0000	.0000	.7298	.5204	.3738	.4869	.7392
90	8.15	14.73	15.91	45.12	45.93	1.2559	.5646	.1615	.0643	.0643	.9741	.0000	.0000	.7119	.5078	.3586	.4731	.7504
95	9.71	16.44	15.14	48.05	46.74	1.2273	.5954	.1736	.0707	.0707	.9731	.0000	.0000	.6826	.4969	.3469	.4651	.7641

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
5911	137.9	31.13	1.0911	1.2834	81.174	81.15

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

ROTOR

90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.3	561.3	1023.	561.3	541.1	.	797.2	.00	51.19	34.07	-27.44	678.2	722.5	-379.9	33..9	379.9	464.2
10	14.180	16.79	583.6	1006.7	583.6	644.3	.	773.5	.00	50.20	34.97	-24. 1	712.3	705.7	-408.3	287.3	408.3	486.2
15	15.170	17.58	599.6	974.7	599.6	651.8	.	723.8	.00	47.98	36.22	-18.21	743.3	687.2	-439.3	214.7	439.3	509.1
30	18.200	19.91	632.8	988.4	632.8	653.1	.	601.9	.00	42.63	39.89	-2.17	825.1	655.5	-529.4	25.4	529.4	576.6
50	22.190	23. 9	647.7	777.8	647.7	571.2	.	493.4	.00	39.37	44.76	16.29	912.6	627.4	-642.6	-75.3	642.6	668.7
70	25.880	26.26	559.2	680.3	559.2	512.9	.	446.8	.00	41.07	53.26	31.44	935.8	602.2	-749.5	-313.6	749.5	760.5
85	28.450	28.61	493.6	628.2	493.6	445.3	.	443.0	.00	44.86	59.07	40.9	960.6	589.2	-823.9	-385.6	823.9	828.5
90	29.320	29.41	488.6	607.9	488.6	406.9	.	451.1	.00	47.99	60.08	44.60	979.6	571.4	-849.1	-400.6	849.1	851.7
95	30.150	30.18	490.1	591.8	49 .1	381.9	.	452.1	.00	49.82	60.69	47.84	1001.2	569.2	-873.1	-421.9	873.1	874.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.93	-. 7	9.59	61.51	71.19	2.4324	.2004	.2160	.0394	.0394	1.4093	.8732	.8670	.0000	.5185	.9394	.6267	.6635
10	-6.55	.1	7.17	58.98	66.17	2.2852	.2674	.1534	.0307	.0307	1.4338	.9033	.8983	.0000	.5400	.9210	.6606	.6457
15	-6.07	.21	8.70	54.43	62.94	2.1574	.3177	.1110	.0244	.0244	1.4348	.9230	.9190	.0000	.5551	.8878	.6898	.6261
30	-5.3	.37	11.53	42.06	53.23	1.9049	.4048	.0507	.0133	.0133	1.4226	.9549	.9526	.0000	.5866	.8019	.7601	.5917
50	-3.82	1.17	11.68	28.47	39. 1	1.6914	.4753	.0273	.0219	.0219	1.3809	.9166	.9127	.0000	.6003	.6936	.8471	.5595
70	1.93	6.21	11.28	21.82	26.9	1.5352	.5136	.0298	.0083	.0083	1.4192	.9664	.9647	.0000	.5137	.599	.8598	.5302
85	5.86	9.53	11.92	18.17	19.67	1.4423	.5469	.0426	.0112	.0112	1.4511	.9549	.9525	.0000	.4484	.5479	.8786	.5139
90	5.93	9.43	12.27	15.49	18.28	1.4148	.5797	.0274	.0245	.0245	1.4424	.8996	.8943	.0000	.4463	.5278	.8969	.4962
95	5.65	8.99	13.68	12.86	17.51	1.3808	.5942	.1344	.0325	.0328	1.4326	.8599	.8526	.0000	.4476	.5123	.9156	.4927

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
6637	165.1	37.29	1.1130	1.4148	92.245	92.70

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
5.0	6.0	85.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.58.	932.0	604.0	593.2	603.7	718.8	10.3	50.47	.96	-19.12	41.16	627.8	801.9	205.7	-527.7	513.2	538.1
10	18.350	19.11.	942.1	621.2	621.1	619.6	708.4	43.0	48.76	3.96	-15.91	39.48	646.0	802.8	177.0	-510.4	531.4	553.4
15	19.070	19.74.	929.3	634.8	642.5	632.6	671..	52.7	46.23	4.76	-10.50	39.36	654.2	818.3	118.7	-519.0	552.2	571.6
30	21.140	21.60.	887.5	659.8	681..	658.3	568.7	25.9	39.84	2.26	3.63	42.31	683.8	890.5	-43.5	-599.6	612.2	625.5
50	23.970	24.20.	813.3	628.2	659.3	627.5	476.1	29.2	35.82	2.67	8.31	46.94	695.5	919.3	-218.0	-671.6	694.1	700.8
70	26.790	26.88.	733.1	558.9	589.1	558.4	436.3	23.0	36.53	2.35	29.96	53.51	680.6	939.7	-339.5	-755.4	775.8	778.4
85	28.860	28.90.	693.1	520.4	538.9	520.2	435.9	14.3	38.96	1.58	36.59	57.69	671.1	973.4	-399.8	-822.6	835.8	836.9
90	29.570	29.60.	677.5	500.1	510.3	500.0	445.2	8.8	41.12	.99	38.87	59.48	655.5	985.0	-411.1	-848.4	856.3	857.2
95	30.240	30.27.	665.0	483.2	489.1	483.6	450.5	.6	42.64	.07	41.00	61.13	648.2	1000.4	-425.3	-876.0	875.7	876.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.69	4.66	17.46	49.51	62.54	2.1077	.5278	.1254	.0297	.0297	.9533	.0000	.8195	.8467	.5253	.573.	.6974	
10	.89	5.13	19.92	44.80	59.59	2.0289	.5106	.1582	.0389	.0389	.9401	.0000	.8506	.7766	.8506	.5407	.5854	.6988
15	.01	4.35	20.21	41.47	57.69	1.9463	.4842	.1418	.0363	.0363	.9475	.0000	.8673	.7929	.8381	.5540	.5940	.7140
30	-2.79	2.62	16.28	37.58	51.79	1.7526	.4299	.0753	.0215	.0215	.9740	.0000	.8673	.7989	.8673	.5781	.6174	.7814
50	-3.66	1.85	13.41	33.15	44.73	1.5486	.4039	.0412	.0133	.0133	.9877	.0000	.8673	.9158	.7278	.5510	.6228	.8063
70	-1.95	5.06	15.24	34.18	44.32	1.3872	.4404	.0693	.0249	.0249	.9829	.0000	.8673	.8591	.6500	.4866	.6029	.8181
85	2.07	8.56	16.63	37.4.	45.32	1.2871	.4853	.1000	.0388	.0388	.9779	.0000	.8673	.8066	.6102	.4500	.5904	.8417
90	4.05	10.64	16.7.	40.14	45.94	1.2557	.5183	.1130	.0450	.0450	.9761	.0000	.8673	.7933	.5943	.4308	.5753	.8483
95	5.49	12.23	16.39	42.58	46.75	1.2273	.5492	.1241	.0506	.0506	.9747	.0000	.8673	.7683	.5804	.4145	.5645	.8586

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %
6637	165.1	37.29	1.1130	1.3793	85.162	85.91

STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	550.6	1005.6	550.6	621.1	.0	790.9	.00	51.86	34.66	-27.68	669.3	701.4	-380.7	325.8	380.7	465.1
10	14.100	16.790	567.8	986.8	567.8	626.5	.0	764.9	.00	50.67	35.77	-23.86	699.9	685.7	-409.1	277.8	409.1	487.1
15	15.170	17.560	584.0	956.6	584.0	635.2	.0	715.0	.00	48.36	36.99	-17.86	731.3	668.3	-440.1	204.9	440.1	510.1
30	18.280	19.910	616.2	874.9	616.2	657.7	.0	596.6	.00	43.17	40.69	-1.84	813.1	639.8	-530.4	21.1	530.4	577.7
50	22.190	23.090	629.6	767.8	629.6	585.3	.0	496.9	.00	40.33	45.62	16.50	900.6	611.4	-643.8	-173.0	643.8	669.9
70	25.860	26.260	540.8	676.4	540.8	498.5	.0	457.0	.00	42.53	54.22	31.46	926.1	585.3	-750.9	-304.9	750.9	761.9
85	28.450	28.810	475.2	627.5	475.2	426.1	.0	460.5	.00	47.23	60.03	40.94	952.9	564.2	-825.4	-369.6	825.4	830.1
90	29.320	29.410	470.9	607.8	470.9	386.8	.0	468.4	.00	50.49	61.03	44 91	972.4	546.1	-850.7	-384.9	850.7	853.3
95	30.150	30.180	472.3	591.9	472.3	362.1	.0	468.2	.00	52.29	61.63	48.36	994.1	545.2	-874.8	-407.4	874.8	875.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.36	.55	9.37	62.34	71.20	2.4325	.2192	.2160	.0395	.0393	1.4079	.8757	.8695	.0000	.5071	.9211	.6174	.6425
10	-5.76	.89	7.31	59.65	66.05	2.2851	.2301	.1421	.0284	.0284	1.4344	.9125	.9080	.0000	.5248	.9025	.6483	.6258
15	-5.30	.97	9.06	54.85	62.95	2.1571	.3293	.1006	.0222	.0222	1.4345	.9316	.9280	.0000	.5400	.8697	.6780	.6075
30	-4.60	1.17	11.86	42.54	53.24	1.9045	.4144	.0401	.0105	.0105	1.4263	.9649	.9631	.0000	.5703	.7883	.7542	.5764
50	-2.94	2.04	11.67	29.13	39.00	1.6911	.4874	.0735	.0208	.0208	1.3879	.9231	.9194	.0000	.5823	.6835	.8349	.5442
70	3.02	7.24	11.30	22.77	26.91	1.5350	.5299	.0342	.0095	.0095	1.4293	.9632	.9613	.0000	.4947	.5945	.8496	.5144
85	6.87	10.54	10.94	19.09	19.64	1.4422	.5760	.0636	.0166	.0166	1.4617	.9367	.9333	.0000	.4307	.5460	.8709	.4909
90	6.87	10.37	12.57	16.12	18.27	1.4149	.6089	.1170	.0293	.0293	1.4537	.8851	.8789	.0000	.4296	.5266	.8897	.4731
95	6.58	9.92	14.20	13.28	17.51	1.3838	.6212	.1507	.0360	.0360	1.4446	.8498	.8419	.0000	.4308	.5113	.9082	.4709

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6649.0	161.81	36.48	1.1146	1.4218	92.346	92.77	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	916.1	584.7	571.5	584.4	713.4	3.9	51.30	.37	-19.22	42.43	605.3	792.5	199.2	-535.1	514.1	539.1
10	18.350	19.110	923.2	600.8	600.6	599.2	701.0	41.1	49.41	3.91	-15.68	40.59	624.0	789.1	168.6	-513.4	539.4	554.5
15	19.070	19.740	909.4	611.8	622.2	609.4	662.9	54.2	46.81	5.08	-10.02	40.39	632.5	800.2	109.6	-518.5	559.3	572.7
30	21.140	21.600	870.9	640.8	661.9	640.0	565.6	31.3	40.49	2.80	4.10	42.91	665.0	874.2	-47.8	-595.3	613.3	626.7
50	23.970	24.200	799.8	611.6	640.3	610.6	479.3	35.2	36.81	3.30	18.66	47.52	676.8	904.5	-216.2	-667.0	695.5	702.1
70	26.790	26.880	724.9	547.5	571.8	546.9	445.5	24.4	37.93	2.55	30.13	54.08	661.7	933.0	-331.8	-755.5	777.3	779.9
85	28.860	28.900	687.5	508.2	517.5	507.9	452.5	16.2	41.18	1.82	36.65	58.29	645.0	966.7	-384.8	-822.3	837.3	838.5
90	29.570	29.600	672.4	488.3	488.1	488.1	462.2	10.3	43.46	1.19	39.06	60.08	628.6	979.1	-395.8	-848.5	857.9	858.8
95	30.240	30.270	659.9	471.0	466.7	471.0	466.5	2.8	44.99	.34	41.36	61.72	621.9	994.1	-410.9	-875.4	877.4	878.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.47	5.44	16.86	50.93	62.53	2.1079	.5400	.1282	.0304	.0304	.9538	.0000	.0000	.8178	.8282	.5078	.5514	.6893
10	1.51	5.77	19.87	45.50	59.58	2.0293	.5213	.1619	.0398	.0398	.9407	.0000	.0000	.7742	.8312	.5222	.5641	.6959
15	.63	4.97	20.52	41.72	57.07	1.9470	.4956	.1486	.0380	.0380	.9469	.0000	.0000	.7850	.8186	.5329	.5729	.6970
30	-2.09	2.71	16.82	37.69	51.76	1.7535	.4368	.0787	.0224	.0224	.9737	.0000	.0000	.8617	.7829	.5613	.5990	.7658
50	-2.67	2.82	14.04	33.51	48.72	1.6491	.4134	.0438	.0141	.0141	.9874	.0000	.0000	.9119	.7150	.5353	.6048	.7917
70	.32	6.42	15.44	35.38	44.31	1.3875	.4537	.0721	.0259	.0259	.9826	.0000	.0000	.8584	.6418	.4756	.5450	.8165
85	4.21	10.69	16.87	39.36	45.31	1.2872	.5072	.1140	.0443	.0443	.9752	.0000	.0000	.7849	.6038	.4381	.5663	.8333
90	5.34	12.93	16.90	42.26	45.94	1.2558	.5414	.1295	.0515	.0515	.9731	.0000	.0000	.7706	.5884	.4193	.5805	.8407
95	7.83	14.57	16.67	44.65	46.74	1.2273	.5723	.1431	.0583	.0583	.9714	.0000	.0000	.7414	.5745	.4031	.5900	.8507

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6649.0	161.81	36.48	1.1186	1.3849	85.107	85.64	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

90% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.30	530.5	996.4	530.5	607.3	.0	789.9	.00	52.44	35.60	-28.20	652.5	689.3	-379.9	325.7	379.9	464.1
10	14.100	16.790	549.6	978.9	549.6	613.7	.0	762.6	.00	51.16	35.60	-24.22	684.6	673.5	-408.2	276.4	408.2	486.1
15	15.170	17.580	567.1	946.7	567.1	622.5	.0	713.8	.00	48.86	37.75	-18.12	717.3	655.9	-439.2	204.0	439.2	509.0
30	18.280	19.910	599.5	866.7	599.5	624.0	.0	601.4	.00	43.92	41.41	-2.23	799.8	626.2	-529.3	24.9	529.3	576.5
50	22.190	23.090	612.1	762.2	612.1	572.0	.0	503.8	.00	41.37	46.37	16.10	887.6	596.1	-642.5	-164.8	642.5	668.5
70	25.880	26.260	523.0	672.9	523.0	485.0	.0	466.3	.00	43.89	55.07	31.24	914.5	568.1	-749.3	-294.0	749.3	760.3
85	28.450	28.610	459.4	623.2	459.4	408.4	.0	470.7	.00	49.06	60.84	41.22	943.3	543.0	-823.7	-357.7	823.7	824.4
90	29.320	29.410	454.7	605.0	454.7	368.8	.0	479.1	.00	52.44	61.82	45.33	963.1	524.6	-848.9	-372.4	848.9	851.5
95	30.150	30.180	456.2	590.4	456.2	345.5	.0	478.7	.00	54.18	62.41	48.81	985.0	525.0	-873.0	-395.1	873.0	873.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-5.43	1.48	8.86	63.81	71.23	2.4320	.2174	.1955	.0354	.0354	1.4156	.8924	.0870	.0000	.4883	.9114	.6015	.6305
10	-4.94	1.69	6.98	60.82	66.10	2.2843	.2812	.1269	.0253	.0255	1.4387	.9245	.9206	.0000	.5079	.8923	.6343	.6139
15	-4.55	1.71	8.81	55.87	62.98	2.1563	.3329	.0910	.0200	.0200	1.4367	.9399	.9367	.0000	.5241	.8597	.6651	.5956
30	-3.78	1.88	11.48	43.64	53.25	1.9038	.4227	.0389	.0102	.0102	1.4285	.9669	.9652	.0000	.5543	.7799	.7417	.5634
50	-2.18	2.80	11.45	30.27	38.99	1.6907	.4994	.0777	.0221	.0221	1.3923	.9216	.9178	.0000	.5650	.6776	.8221	.5300
70	3.95	8.16	11.09	23.83	26.91	1.5348	.5461	.0446	.0124	.0124	1.4334	.9544	.9521	.0000	.4764	.5907	.8379	.4987
85	7.72	11.38	11.19	19.62	19.62	1.4422	.5978	.0834	.0217	.0217	1.4620	.9201	.9158	.0000	.4145	.5414	.8616	.4717
90	7.65	11.15	12.99	18.49	18.27	1.4146	.6314	.1359	.0338	.0338	1.4555	.8710	.8640	.0000	.4144	.5234	.8808	.4538
95	7.35	10.68	14.67	17.59	17.51	1.3888	.6426	.1667	.0395	.0395	1.4479	.8090	.8035	.0000	.4156	.5093	.8991	.4529

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6635.0	158.21	35.67	1.1158	1.4254	92.075	92.53	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	905.2	573.1	558.4	572.9	712.5	.3	51.92	.01	-19.66	43.18	592.9	785.7	199.5	-537.6	513.1	538.0
10	18.350	19.110	913.4	587.9	588.0	586.4	698.9	39.3	49.92	3.82	-15.91	41.24	611.6	779.9	167.6	-514.0	531.3	553.3
15	19.070	19.740	898.9	597.8	608.8	595.2	661.0	55.7	47.35	5.34	-10.17	40.91	619.2	787.7	108.9	-515.9	552.2	571.5
30	21.140	21.600	861.1	629.0	647.1	628.2	567.8	31.0	41.25	2.83	3.89	43.40	649.9	864.9	-44.3	-594.4	612.1	625.4
50	23.970	24.200	791.2	599.7	624.5	598.6	485.7	35.4	37.87	3.39	18.46	48.01	659.3	895.2	-208.3	-665.3	694.0	700.7
70	26.790	26.880	717.2	534.1	554.8	533.5	464.4	25.5	39.33	2.73	30.09	54.65	641.8	923.1	-321.3	-752.8	775.7	778.3
85	28.860	28.900	678.2	491.4	496.1	491.2	402.3	15.4	42.99	1.80	36.97	59.11	621.0	957.1	-373.3	-821.3	835.6	836.8
90	29.570	29.600	664.1	473.4	466.3	473.2	472.5	12.0	45.40	1.44	39.48	60.74	604.0	968.7	-383.7	-845.1	856.2	857.0
95	30.240	30.270	652.7	458.7	445.6	458.6	476.9	8.6	46.95	1.07	41.81	62.14	598.0	981.6	-398.7	-867.9	875.6	876.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.05	6.02	16.51	51.90	62.53	2.1080	.5490	.1281	.0304	.0304	.9546	.0000	.0000	.8201	.8192	.4973	.5398	.6818
10	2.04	6.29	19.77	46.11	59.58	2.0295	.5302	.1627	.0400	.0400	.9415	.0000	.0000	.7755	.8213	.5106	.5520	.6773
15	1.21	5.53	20.78	42.00	57.06	1.9473	.5042	.1501	.0384	.0384	.9474	.0000	.0000	.7850	.8082	.5203	.5600	.6855
30	-1.32	3.48	16.84	38.42	51.76	1.7559	.4450	.0781	.0222	.0222	.9745	.0000	.0000	.8640	.7732	.5503	.5844	.7568
50	-1.61	3.89	14.11	34.48	44.70	1.5491	.4246	.0482	.0155	.0155	.9864	.0000	.0000	.9049	.7060	.5240	.5882	.7822
70	1.71	7.81	15.61	36.60	44.31	1.3875	.4703	.0880	.0317	.0317	.9792	.0000	.0000	.8313	.6338	.4632	.5665	.8003
85	5.99	12.47	16.85	41.19	45.31	1.2873	.5312	.1374	.0534	.0534	.9709	.0000	.0000	.7541	.5945	.4227	.5443	.8232
90	8.26	14.84	17.15	43.96	45.93	1.2559	.5632	.1527	.0608	.0608	.9691	.0000	.0000	.7375	.5799	.4056	.5282	.8299
95	9.79	16.53	17.39	45.88	46.74	1.2273	.5894	.1654	.0674	.0674	.9677	.0000	.0000	.7090	.5672	.3917	.5181	.8383

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
6635.0	158.21	35.67	1.1158	1.3861	84.467	89.22	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

95% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	617.7	1082.2	617.7	676.1	.0	844.9	.00	51.33	33.07	-27.60	737.1	763.0	-402.3	353.5	402.3	491.5
10	14.100	16.790	628.8	1065.7	628.8	678.7	.0	821.5	.00	50.43	34.50	-24.30	763.1	745.2	-432.3	306.8	432.3	514.8
15	15.170	17.580	644.4	1032.7	644.4	687.5	.0	770.2	.00	48.23	35.81	-18.56	794.8	726.3	-465.1	231.2	465.1	539.0
30	18.280	19.910	681.5	942.8	681.5	692.5	.0	639.5	.00	42.68	39.40	-2.35	882.5	695.2	-560.5	29.0	560.5	610.4
50	22.190	23.090	700.6	827.5	700.6	639.1	.0	525.5	.00	39.42	44.14	15.97	976.7	666.0	-680.3	-182.8	680.3	707.9
70	25.880	26.260	610.8	720.9	610.8	543.9	.0	473.2	.00	41.64	52.40	31.39	1002.1	638.3	-793.5	-331.9	793.5	805.1
85	28.450	28.610	541.5	662.3	541.5	471.8	.0	464.7	.00	44.58	58.16	41.17	1026.8	626.8	-872.3	-412.4	872.3	877.2
90	29.320	29.410	535.9	638.7	535.9	430.0	.0	471.8	.00	47.70	59.20	45.04	1046.6	608.6	-898.9	-429.9	898.9	901.7
95	30.150	30.180	537.3	620.5	537.3	402.7	.0	472.0	.00	49.53	59.83	48.37	1069.2	606.6	-924.4	-453.3	924.4	925.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-7.93	-1.01	9.34	60.67	71.07	2.4338	.2238	.2829	.0515	.0515	1.4363	.8268	.8174	.0000	.5714	.9967	.6825	.7027
10	-7.01	-.34	6.84	58.80	66.00	2.2870	.2792	.1899	.0378	.0378	1.4794	.8790	.8722	.0000	.5831	.9774	.7087	.6834
15	-6.48	-.18	8.32	54.37	62.88	2.1592	.3269	.1366	.0300	.0300	1.4861	.9051	.8998	.0000	.5984	.9428	.7388	.6631
30	-5.78	-.09	11.35	41.75	53.19	1.9063	.4101	.0601	.0157	.0157	1.4779	.9468	.9438	.0000	.6346	.8519	.8220	.6281
50	-4.45	.55	11.37	28.17	39.91	1.6920	.4802	.0801	.0228	.0228	1.4343	.9140	.9096	.0000	.6535	.7377	.9116	.5937
70	-1.11	5.34	11.23	21.01	26.90	1.5353	.5178	.0298	.0083	.0083	1.4770	.9662	.9643	.0000	.5682	.6335	.9254	.5609
85	4.96	8.63	11.20	16.99	19.68	1.4423	.5469	.0349	.0091	.0091	1.5135	.9625	.9603	.0000	.5760	.5431	.9431	.5452
90	5.05	8.55	12.71	14.16	18.28	1.4148	.5781	.0896	.0224	.0224	1.5017	.9071	.9017	.0000	.4914	.5528	.9621	.5267
95	4.70	8.13	14.22	11.46	17.51	1.3888	.5917	.1273	.0304	.0304	1.4888	.8665	.8589	.0000	.4927	.5352	.9818	.5232

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7025	17.456	39.44	1.1266	1.4685	91.664	92.19	5.0	6.0	86.05	95.92

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	983.9	620.4	622.1	620.2	762.3	2.8	50.78	.24	-19.39	42.42	659.6	840.3	219.0	-566.8	543.3	569.7
10	18.350	19.110	994.6	640.4	650.4	639.2	752.5	37.4	49.16	3.34	-16.28	40.63	677.7	842.3	189.9	-548.5	562.6	585.9
15	19.070	19.740	983.2	656.4	676.1	654.4	713.4	51.9	46.53	4.54	-10.81	40.21	689.3	856.9	128.8	-553.3	584.7	605.2
30	21.140	21.600	941.7	687.8	722.2	686.9	603.9	35.8	39.88	2.98	3.47	42.35	725.9	929.7	-44.2	-626.4	648.1	662.2
50	23.970	24.200	867.0	663.0	703.3	661.8	507.0	39.9	35.78	3.45	17.96	46.68	740.4	965.1	-227.9	-702.0	734.9	742.0
70	26.790	26.880	779.5	589.3	627.6	588.7	462.3	26.6	36.39	2.58	29.77	53.54	723.8	991.7	-359.0	-747.5	821.4	824.1
85	28.860	28.900	733.7	546.0	573.4	545.8	457.5	17.8	38.80	1.87	36.70	57.84	715.3	1025.7	-427.3	-868.2	884.8	886.1
90	29.570	29.600	715.2	522.2	542.3	522.0	465.9	12.8	40.69	1.39	39.12	59.73	699.0	1036.1	-440.7	-894.7	906.6	907.5
95	30.240	30.270	700.5	502.0	519.1	501.9	470.3	5.4	42.18	.61	41.35	61.45	691.6	1050.4	-456.8	-922.7	927.1	928.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.06	5.01	16.74	50.54	62.54	2.1076	.5482	.1320	.0313	.0313	.9468	.0000	.0000	.8207	.8937	.5367	.6015	.7269
10	1.23	5.48	19.30	45.83	59.59	2.0287	.5293	.1649	.0406	.0406	.9325	.0000	.0000	.7799	.8990	.5545	.6154	.7294
15	.30	4.64	19.99	41.99	57.09	1.9462	.5017	.1526	.0391	.0391	.9386	.0000	.0000	.7892	.8876	.5700	.6263	.7441
30	-2.75	2.06	17.00	36.90	51.78	1.7525	.4394	.0847	.0241	.0241	.9681	.0000	.0000	.8593	.8487	.6013	.6554	.8129
50	-3.70	1.80	14.20	32.33	44.74	1.5485	.4081	.0443	.0143	.0143	.9854	.0000	.0000	.9141	.7761	.5798	.6633	.8439
70	-1.18	4.93	15.47	33.81	44.32	1.3871	.4451	.0670	.0241	.0241	.9817	.0000	.0000	.8679	.6903	.5113	.6405	.8602
85	1.71	8.20	16.92	36.73	45.32	1.2870	.4884	.0959	.0372	.0372	.9767	.0000	.0000	.8192	.6446	.4703	.6280	.8833
90	3.66	10.25	17.10	39.30	45.95	1.2557	.5221	.1086	.0432	.0432	.9749	.0000	.0000	.8064	.6258	.4478	.6118	.8884
95	5.02	11.76	16.94	41.56	46.75	1.2273	.5537	.1200	.0489	.0489	.9734	.0000	.0000	.7844	.6098	.4288	.6008	.8974

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	T02/ T01	P02/ P01	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7025	174.56	39.44	1.1266	1.4267	84.429	85.26	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

95% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	597.3	1066.7	597.3	659.8	.0	838.1	.00	51.79	33.97	-27.70	720.2	745.3	-402.4	346.5	402.4	491.7
10	14.100	16.790	613.8	1048.1	613.8	662.2	.0	812.3	.00	50.81	35.16	-24.16	750.9	726.3	-432.5	297.4	432.5	515.0
15	15.170	17.580	629.6	1014.2	629.6	670.2	.0	760.9	.00	48.61	36.46	-18.28	782.9	706.8	-465.3	221.7	465.3	539.2
30	18.280	19.910	664.9	928.3	664.9	674.2	.0	638.0	.00	43.39	40.11	-2.27	869.9	676.7	-560.7	27.3	560.7	610.7
50	22.190	23.090	681.9	816.7	681.9	620.6	.0	530.9	.00	40.54	44.93	15.98	963.6	646.7	-680.6	-177.3	680.6	708.2
70	25.880	26.260	591.1	717.6	591.1	526.0	.0	488.0	.00	42.87	53.31	31.12	990.4	615.4	-793.8	-317.4	793.8	805.4
85	28.450	28.610	524.5	664.5	524.5	451.7	.0	487.2	.00	47.17	58.99	40.84	1018.2	597.2	-872.6	-390.3	872.6	877.5
90	29.320	29.410	519.3	646.8	519.3	415.8	.0	495.0	.00	50.00	59.99	44.42	1038.5	582.3	-899.3	-407.0	899.3	902.0
95	30.150	30.180	520.9	632.7	520.9	393.6	.0	495.4	.00	51.64	60.61	47.53	1061.4	583.2	-924.7	-430.2	924.7	925.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-7.05	-.14	9.28	61.67	71.12	2.4331	.2282	.2447	.0446	.0445	1.4508	.8556	.8479	.0000	.5521	.9802	.6664	.6849
10	-6.35	.31	7.00	59.32	66.03	2.2862	.2498	.1711	.0341	.0341	1.4827	.8932	.8871	.0000	.5689	.9590	.6972	.6646
15	-5.84	.46	8.61	54.74	62.91	2.1583	.3387	.1249	.0275	.0275	1.4858	.9146	.9098	.0000	.5840	.9238	.7275	.6438
30	-5.07	.61	11.44	42.38	53.21	1.9056	.4224	.0536	.0141	.0141	1.4810	.9534	.9508	.0000	.6182	.8371	.8095	.6101
50	-3.65	1.34	11.38	28.95	39.01	1.6916	.4949	.0794	.0226	.0226	1.4415	.9175	.9132	.0000	.6345	.7266	.8978	.5753
70	2.05	6.28	10.96	22.20	26.90	1.5352	.5402	.0375	.0109	.0105	1.4907	.9600	.9577	.0000	.5444	.6292	.9129	.5396
85	5.78	9.45	10.87	18.15	19.68	1.4423	.5798	.0563	.0148	.0148	1.5295	.9438	.9404	.0000	.4777	.5763	.9339	.5180
90	5.84	9.34	12.10	15.57	18.29	1.4148	.6080	.1041	.0263	.0263	1.5238	.8979	.8917	.0000	.4756	.5585	.9532	.5028
95	5.57	8.91	13.38	13.07	17.51	1.3888	.6186	.1361	.0331	.0331	1.5157	.8649	.8569	.0000	.4770	.5446	.9730	.5020

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7029	171.32	38.71	1.1289	1.4788	91.734	92.28	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.560	968.1	603.0	604.5	602.7	756.1	.8	51.36	.05	-19.38	43.36	640.8	829.0	212.7	-569.1	543.5	569.9
10	18.350	19.110	976.3	619.5	631.6	618.0	744.4	40.9	49.68	3.77	-16.04	41.42	657.4	824.2	181.6	-545.3	562.8	586.1
15	19.070	19.740	962.4	630.7	654.7	628.2	704.9	55.9	47.11	5.08	-10.42	41.18	666.4	834.7	120.0	-549.6	584.9	605.5
30	21.140	21.600	923.6	667.4	699.9	666.5	602.3	34.8	40.70	2.99	3.73	43.27	702.7	915.6	-46.1	-627.7	648.4	662.5
50	23.970	24.200	851.9	643.1	681.0	641.9	511.8	40.6	36.92	3.62	18.17	47.54	717.7	961.2	-223.4	-701.7	735.2	742.2
70	26.790	26.880	771.2	573.4	606.7	572.7	476.0	28.6	38.13	2.86	29.68	54.24	698.9	980.8	-345.7	-795.8	821.7	824.4
85	28.860	28.900	730.3	532.1	550.8	531.7	478.3	18.7	41.04	2.01	36.39	58.50	684.4	1017.8	-405.9	-867.7	885.2	886.4
90	29.570	29.600	716.7	514.9	523.9	514.3	488.8	12.4	43.03	1.37	38.61	60.12	670.5	1032.8	-418.1	-895.5	906.9	907.9
95	30.240	30.270	706.3	500.2	505.2	500.2	493.7	4.0	44.34	.46	40.65	61.58	666.0	1051.1	-433.8	-924.4	927.5	928.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDITY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.61	5.57	16.54	51.31	62.53	2.1079	.5578	.1318	.0313	.0313	.9482	.0000	.0000	.8228	.8772	.5210	.5831	.7164
10	1.77	6.03	19.73	45.91	59.58	2.0292	.5390	.1654	.0407	.0407	.9342	.0000	.0000	.7819	.8799	.5357	.5949	.7128
15	.94	5.27	20.53	42.02	57.07	1.9470	.5143	.1553	.0397	.0397	.9396	.0000	.0000	.7880	.8669	.5466	.6039	.7235
30	-1.89	2.92	17.00	37.71	51.76	1.7535	.4503	.0817	.0233	.0233	.9702	.0000	.0000	.8650	.8309	.5823	.6734	.7989
50	-2.56	2.94	14.37	33.30	44.73	1.5489	.4225	.0421	.0136	.0136	.9866	.0000	.0000	.9198	.7613	.5610	.6414	.8297
70	.54	6.64	15.75	35.27	44.31	1.3873	.4652	.0722	.0260	.0260	.9808	.0000	.0000	.8644	.6814	.4959	.6769	.8482
85	4.11	10.59	17.07	39.02	45.32	1.2871	.5163	.1115	.0433	.0433	.9733	.0000	.0000	.8012	.6396	.4564	.6091	.8731
90	5.98	12.56	17.08	41.66	45.94	1.2557	.5467	.1255	.0499	.0499	.9711	.0000	.0000	.7851	.6250	.4397	.5951	.8825
95	7.20	13.94	16.79	43.88	46.75	1.2273	.5741	.1376	.0561	.0561	.9692	.0000	.0000	.7584	.6132	.4259	.5767	.8950

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7029	171.32	38.71	1.1289	1.4365	84.573	85.46	11.0	12.0	90.00	90.00

Blade-Element and Overall Performance with Stator-Hub Slit Suction

95% of Design Speed

ROTOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.120	16.030	582.5	1057.0	582.5	647.1	.0	835.8	.00	52.25	34.60	-28.05	707.7	733.3	-401.8	344.8	401.8	491.0
10	14.100	16.790	600.0	1037.7	600.0	650.5	.0	808.4	.00	51.17	35.74	-24.30	739.3	714.3	-431.9	294.2	431.9	514.3
15	15.170	17.580	615.8	1003.6	615.8	658.3	.0	757.3	.00	48.98	37.03	-18.37	771.4	694.6	-464.6	218.8	464.6	538.4
30	18.280	19.910	649.3	919.7	649.3	661.3	.0	638.9	.00	43.98	40.74	-2.46	857.5	663.8	-559.9	29.1	559.9	609.8
50	22.190	23.090	665.3	809.4	665.3	607.0	.0	535.5	.00	41.41	45.59	15.84	951.2	632.0	-679.6	-171.8	679.6	707.2
70	25.880	26.260	575.0	712.4	575.0	514.0	.0	493.2	.00	43.84	54.03	31.20	980.0	601.8	-792.7	-311.1	792.7	804.3
85	28.450	28.610	507.1	660.6	507.1	438.9	.0	493.7	.00	48.37	59.80	41.09	1008.3	582.4	-871.4	-382.6	871.4	876.3
90	29.320	29.410	501.8	642.4	501.8	401.3	.0	501.2	.00	51.35	60.80	44.92	1028.7	566.7	-898.0	-399.5	898.0	900.8
95	30.150	30.180	503.4	627.2	503.4	377.0	.0	501.3	.00	53.06	61.40	48.28	1051.8	566.8	-923.4	-423.1	923.4	924.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	OMEGA-B SHOCK	M-1	M-2	M'-1	M'-2
5	-6.42	.49	8.96	62.64	71.15	2.4329	.2307	.2321	.0421	.0421	1.4558	.8675	.8598	.0000	.5379	.9699	.6542	.6729
10	-5.78	.88	6.87	60.04	66.05	2.2858	.2937	.1619	.0323	.0323	1.4845	.9011	.8955	.0000	.5556	.9482	.6860	.6527
15	-5.26	1.02	8.54	55.39	62.92	2.1580	.3437	.1186	.0260	.0260	1.4862	.9207	.9162	.0000	.5706	.9129	.7164	.6318
30	-4.44	1.23	11.25	43.20	53.22	1.9051	.4294	.0493	.0129	.0129	1.4839	.9581	.9557	.0000	.6028	.8282	.7973	.5978
50	-2.98	2.01	11.22	29.76	39.00	1.6914	.5052	.0807	.0230	.0230	1.4457	.9185	.9142	.0000	.6179	.7191	.8850	.5614
70	2.80	7.03	11.04	22.83	26.90	1.5351	.5510	.0416	.0116	.0116	1.4941	.9571	.9546	.0000	.5280	.6240	.9019	.5271
85	6.62	10.29	11.10	18.71	19.66	1.4423	.5926	.0622	.0163	.0163	1.5339	.9397	.9360	.0000	.4605	.5723	.9237	.5046
90	6.64	10.15	12.59	15.88	18.28	1.4148	.6216	.1106	.0277	.0277	1.5278	.8942	.8878	.0000	.4589	.5541	.9433	.4868
95	6.36	9.69	14.13	13.12	17.51	1.3898	.6328	.1434	.0343	.0343	1.5190	.8610	.8527	.0000	.4603	.5392	.9631	.4873

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7019.0	168.54	38.00	1.1296	1.4823	91.856	92.37	5.0	6.0	86.05	95.02

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.720	18.580	958.4	593.0	591.5	592.7	754.1	-1.4	51.89	-.16	-19.66	43.90	628.1	822.7	211.4	-570.5	542.7	569.1
10	18.350	19.110	965.8	608.3	619.4	606.8	740.9	40.5	50.10	3.81	-16.11	41.92	644.9	815.5	178.9	-544.8	562.0	585.3
15	19.070	19.740	950.8	618.6	641.4	616.0	701.5	57.4	47.56	5.32	-10.41	41.61	652.8	824.0	117.5	-547.2	584.1	604.6
30	21.140	21.600	913.1	657.1	685.4	656.1	603.0	36.5	41.32	3.19	3.68	43.60	688.2	906.2	-44.5	-625.0	647.5	661.6
50	23.970	24.200	841.6	632.1	664.7	630.7	516.1	42.0	37.82	3.81	18.17	47.94	700.6	941.9	-218.0	-699.2	734.2	741.2
70	26.790	26.880	761.7	561.7	590.6	560.9	480.9	30.5	39.17	3.11	29.91	54.70	682.0	971.5	-339.6	-792.8	820.5	823.3
85	28.860	28.900	721.0	518.8	532.7	518.4	485.8	19.6	42.37	2.17	36.78	59.08	665.2	1009.0	-398.2	-865.5	883.9	885.2
90	29.570	29.600	707.1	500.7	504.7	500.5	494.9	14.5	44.45	1.64	39.16	60.70	651.0	1023.1	-410.8	-892.1	905.7	906.6
95	30.240	30.270	695.5	485.7	484.1	485.6	499.4	8.1	45.90	.96	41.39	62.14	645.4	1039.4	-426.8	-919.0	926.2	927.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	SOLIDTY	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	OMEGA-B SHOCK	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.10	6.06	16.54	52.05	62.53	2.1079	.5638	.1326	.0315	.0315	.9487	.0000	.0000	.8226	.8675	.5121	.5712	.7105
10	2.20	6.46	19.76	46.29	59.58	2.0293	.5447	.1667	.0410	.0410	.9348	.0000	.0000	.7810	.8690	.5258	.5826	.7048
15	1.41	5.74	20.77	42.24	57.07	1.9472	.5197	.1561	.0399	.0399	.9405	.0000	.0000	.7875	.8553	.5358	.5905	.7136
30	-1.25	3.55	17.20	38.13	51.76	1.7536	.4549	.0818	.0233	.0233	.9707	.0000	.0000	.8649	.8203	.5728	.6192	.7899
50	-1.66	3.84	14.55	34.01	44.72	1.5488	.4296	.0463	.0149	.0149	.9855	.0000	.0000	.9125	.7506	.5506	.6249	.8203
70	1.58	7.68	16.00	36.06	44.32	1.3872	.4753	.0861	.0310	.0310	.9775	.0000	.0000	.8397	.6718	.4851	.6010	.8389
85	5.45	11.94	17.22	40.20	45.32	1.2871	.5315	.1350	.0524	.0524	.9684	.0000	.0000	.7619	.6303	.4443	.5812	.8640
90	7.39	13.97	17.35	42.81	45.94	1.2557	.5623	.1509	.0601	.0601	.9661	.0000	.0000	.7440	.6157	.4271	.5673	.8727
95	8.74	15.48	17.28	44.94	46.75	1.2273	.5893	.1635	.0666	.0666	.9645	.0000	.0000	.7191	.6028	.4129	.5580	.8836

NCOR-1 RPM	WCOR-1 LBM/SEC	WC/A-1 LBM/SEC SQFT	TO2/ TO1	PO2/ PO1	EFF-AD %	EFF-P %	STA-1	STA-2	SLANT-1 DEGREE	SLANT-2 DEGREE
7019.0	168.54	38.00	1.1296	1.4374	84.300	85.19	11.0	12.0	90.00	90.00

APPENDIX 5

Flow Distribution and Overall Performance, Circumferential Inlet Distortion.

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 80% Speed

$W\sqrt{\theta}/\delta = 147.35$

Circumferential Position	25°				55°				85°				115°			
% Span	P_4/P_0	p_4/P_0	$90-\beta_4^*$	V_m	P_4/P_0	p_4/P_0	$90-\beta_4^*$	V_m	P_4/P_0	p_4/P_0	$90-\beta_4^*$	V_m	P_4/P_0	p_4/P_0	$90-\beta_4^*$	V_m
5 (hub)	.958	.882	98.6	378	.966	.877	100.8	404	.957	.860	109.4	408	.912	.843	95.2	371
10	.968	.877	98.7	411	.966	.875	100.8	409	.958	.855	107.6	424	.910	.839	95.2	378
15	.976	.871	97.6	442	.972	.868	97.7	442	.953	.851	107.7	425	.905	.830	90.9	390
30	.978	.856	97.0	475	.978	.853	93.8	488	.948	.837	105.2	451	.900	.818	90.8	410
50	.976	.841	97.4	505	.976	.841	93.4	508	.927	.826	102.7	433	.900	.809	90.8	433
70	.974	.836	97.3	512	.980	.832	94.4	532	.912	.823	101.2	416	.900	.806	90.8	438
85	.969	.835	95.2	508	.979	.834	94.4	526	.918	.824	102.5	425	.896	.806	90.8	435
90	.965	.838	95.2	494	.976	.834	94.4	522	.935	.826	104.2	452	.899	.807	90.8	436
95 (tip)	.965	.841	93.1	489	.972	.836	94.5	511	.951	.830	104.2	473	.897	.809	90.8	426
MR	.972	.846	96.6	491	.976	.843	94.7	504	.933	.832	103.8	435	.900	.813	91.0	424
	145°				175°				205°				235°			
5 (hub)	.935	.846	79.1	411	.956	.864	76.5	411	.975	.873	77.4	428	.968	.876	86.1	418
10	.931	.841	81.1	417	.962	.861	79.7	435	.978	.867	78.9	450	.965	.870	87.9	427
15	.923	.835	83.9	417	.971	.856	82.3	465	.977	.860	78.7	463	.965	.864	88.9	440
30	.899	.822	88.4	398	.971	.842	84.1	497	.970	.847	82.3	482	.970	.849	89.4	482
50	.899	.813	88.3	420	.957	.832	85.9	494	.974	.831	83.1	522	.971	.836	90.7	510
70	.897	.808	89.6	428	.956	.826	86.7	504	.976	.823	82.9	541	.976	.829	91.4	532
85	.895	.810	89.5	418	.959	.828	87.8	505	.981	.828	84.2	541	.977	.831	91.3	531
90	.894	.810	89.5	417	.958	.829	87.8	502	.979	.828	84.2	538	.974	.831	91.3	526
95 (tip)	.895	.812	86.3	413	.952	.832	85.8	484	.979	.830	84.2	534	.972	.834	89.8	516
MR	.902	.817	87.7	417	.960	.835	85.4	492	.976	.836	82.6	516	.972	.840	90.3	506
	265°				295°				325°				355°			
5 (hub)	.958	.876	85.1	393	.961	.876	91.0	404	.979	.880	88.1	431	.977	.879	89.4	429
10	.963	.871	85.0	418	.970	.871	90.5	436	.981	.873	87.9	451	.979	.873	89.3	448
15	.968	.864	85.0	445	.973	.863	90.9	457	.981	.867	87.8	465	.979	.867	89.2	462
30	.976	.845	84.4	499	.976	.847	93.0	498	.981	.849	87.4	502	.980	.851	88.8	496
50	.980	.831	87.0	536	.978	.834	93.7	525	.982	.832	88.3	536	.981	.832	90.0	534
70	.982	.823	86.7	554	.975	.828	93.6	532	.983	.824	89.9	553	.983	.825	90.7	551
85	.982	.826	86.7	547	.970	.829	93.5	523	.984	.828	89.9	547	.982	.828	90.7	544
90	.980	.826	86.7	544	.969	.831	93.5	517	.981	.829	89.9	541	.981	.829	90.7	541
95 (tip)	.976	.830	86.8	531	.968	.832	91.4	514	.979	.833	90.6	529	.979	.831	90.7	533
MR	.978	.835	86.2	524	.974	.838	93.0	510	.982	.838	88.9	526	.981	.838	90.1	523

1) Test environment: P_0 = 1989 psfa, To = 499.6°R
2) V_m calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta_4^* = \tan^{-1}[\tan \beta_4/\cos \epsilon]$

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 80% Speed

$W\sqrt{\theta}/\delta = 136.69$

Circumferential Position

	25°				55°				85°				115°			
% Span	P_4/P_0	p_4/P_0	$90-\beta°_4$	Vm	P_4/P_0	p_4/P_0	$90-\beta°_4$	Vm	P_4/P_0	p_4/P_0	$90-\beta°_4$	Vm	P_4/P_0	p_4/P_0	$90-\beta°_4$	Vm
5 (hub)	.965	.905	100.5	330	.973	.898	101.8	368	.965	.884	110.7	367	.929	.865	97.1	351
10	.970	.902	100.6	350	.970	.895	101.8	369	.968	.879	109.6	388	.926	.862	97.1	351
15	.976	.898	100.6	377	.976	.889	98.6	402	.966	.876	109.7	390	.920	.856	92.6	358
30	.981	.885	98.6	421	.981	.877	94.7	443	.960	.864	107.1	410	.913	.845	92.5	369
50	.981	.875	98.6	443	.980	.869	94.5	458	.950	.858	105.4	408	.913	.837	92.4	390
70	.979	.870	98.6	449	.982	.858	94.2	484	.939	.857	105.3	387	.912	.833	92.4	397
85	.974	.871	96.9	440	.982	.862	94.7	475	.943	.859	105.3	392	.911	.834	92.4	394
90	.973	.872	96.9	435	.980	.863	94.8	471	.954	.859	105.3	414	.911	.835	92.4	392
95 (tip)	.968	.874	96.8	420	.976	.865	94.9	458	.965	.864	105.3	424	.911	.837	92.4	386
MR	.977	.878	98.4	429	.980	.869	95.2	456	.952	.863	106.3	401	.914	.840	92.7	384
	145°				175°				205°				235°			
5 (hub)	.940	.868	80.4	369	.959	.883	76.7	371	.978	.891	76.4	392	.973	.895	84.8	383
10	.937	.862	81.8	380	.967	.878	78.9	404	.982	.887	78.1	413	.971	.888	86.6	395
15	.930	.856	84.7	380	.975	.874	81.7	433	.982	.882	78.0	426	.970	.883	88.1	407
30	.911	.845	89.0	364	.977	.864	83.5	461	.977	.871	81.8	445	.973	.870	88.9	442
50	.912	.838	89.3	386	.965	.853	85.4	462	.978	.857	83.4	478	.975	.858	90.1	472
70	.909	.833	90.6	393	.963	.849	86.6	468	.982	.848	83.1	502	.979	.851	91.3	494
85	.908	.835	90.5	384	.964	.850	87.6	469	.985	.850	84.0	504	.979	.852	91.2	492
90	.907	.835	90.5	380	.963	.851	87.5	466	.984	.851	84.0	501	.977	.853	91.2	485
95 (tip)	.907	.836	87.7	376	.958	.855	87.6	447	.984	.853	84.1	496	.974	.857	91.2	473
MR	.913	.841	88.7	382	.966	.857	85.2	457	.981	.859	82.5	477	.976	.881	90.1	467
	265°				295°				325°				355°			
5 (hub)	.969	.897	81.4	364	.964	.897	90.5	356	.981	.900	86.9	390	.979	.902	91.3	381
10	.968	.893	82.9	373	.971	.892	90.5	386	.983	.894	86.9	407	.982	.896	91.3	400
15	.970	.888	82.9	392	.975	.885	90.5	412	.983	.889	86.8	421	.982	.892	91.2	411
30	.979	.874	84.2	442	.980	.872	92.1	453	.983	.875	86.6	451	.982	.879	91.1	442
50	.984	.860	85.7	484	.982	.859	92.9	483	.984	.859	87.7	486	.983	.861	90.7	481
70	.986	.852	87.0	504	.980	.853	92.8	491	.986	.851	89.6	506	.985	.853	90.5	503
85	.986	.854	87.0	499	.976	.854	92.8	481	.985	.854	89.6	499	.985	.855	90.5	497
90	.984	.855	87.0	494	.974	.855	92.8	476	.983	.855	89.7	494	.984	.856	90.5	493
95 (tip)	.980	.858	87.1	481	.972	.859	92.8	465	.980	.858	89.8	481	.982	.859	90.6	484
MR	.982	.863	85.7	473	.976	.863	92.4	468	.984	.863	88.4	478	.983	.865	90.7	473

1) Test environment: P_0 = 1999 psfa, T_0 = 500.2 °R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta°_4 = \tan^{-1}[\tan \beta_4/\cos \epsilon]$

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 80% Speed

$W\sqrt{\theta}/\delta = 127.02$

Circumferential Position	25°				55°				85°				115°			
% Span	P_4/P_0	P_4/P_0	$90-\beta_4^*$	Vm	P_4/P_0	P_4/P_0	$90-\beta_4^*$	Vm	P_4/P_0	P_4/P_0	$90-\beta_4^*$	Vm	P_4/P_0	P_4/P_0	$90-\beta_4^*$	Vm
5 (hub)	.969	.915	103.3	310	.979	.910	104.2	347	.969	.897	110.9	343	.941	.882	98.1	335
10	.971	.914	103.4	320	.975	.909	104.2	342	.973	.895	111.1	358	.939	.879	98.1	338
15	.978	.909	101.1	353	.975	.904	100.0	361	.973	.888	109.0	380	.932	.875	98.1	330
30	.984	.897	99.9	396	.983	.894	96.8	405	.967	.878	107.6	392	.926	.864	92.1	351
50	.983	.889	99.9	415	.983	.889	96.8	417	.960	.874	105.9	393	.926	.856	92.1	370
70	.981	.886	99.9	417	.985	.881	96.8	432	.949	.874	105.8	366	.926	.854	92.1	375
85	.978	.867	97.6	412	.984	.886	96.8	426	.954	.876	105.8	373	.925	.855	92.0	371
90	.977	.888	97.6	405	.983	.887	96.8	422	.963	.876	105.8	393	.925	.856	92.0	369
95 (tip)	.975	.892	97.5	393	.987	.889	96.8	409	.971	.881	105.7	398	.925	.858	92.0	365
MR	.980	.892	99.5	400	.982	.890	97.4	412	.961	.878	106.7	382	.927	.860	92.9	363
		145°				175°				205°				235°		
5 (hub)	.948	.884	80.8	346	.964	.897	76.6	347	.979	.904	74.2	359	.979	.909	82.2	358
10	.947	.880	82.0	356	.970	.893	78.4	374	.984	.902	75.8	381	.976	.905	84.1	361
15	.940	.874	84.6	357	.977	.889	81.3	403	.985	.896	75.7	395	.975	.901	85.7	371
30	.924	.864	89.1	344	.978	.879	83.7	431	.981	.887	80.2	415	.975	.890	87.2	398
50	.923	.856	89.0	365	.970	.871	85.4	433	.979	.875	81.9	439	.977	.880	88.5	429
70	.924	.854	90.6	371	.969	.866	86.3	442	.982	.869	83.0	459	.980	.875	89.7	447
85	.922	.856	90.5	362	.968	.867	87.2	439	.986	.870	83.0	463	.981	.876	89.8	445
90	.920	.854	90.5	362	.965	.867	87.2	433	.985	.870	83.0	463	.979	.876	90.0	442
95 (tip)	.920	.857	88.1	354	.961	.871	87.1	415	.985	.872	83.4	458	.978	.879	90.0	432
MR	.926	.860	88.7	360	.970	.873	85.0	428	.982	.878	81.3	439	.978	.883	88.4	424
		265°				295°				325°				355°		
5 (hub)	.976	.915	79.8	331	.967	.916	89.3	309	.984	.919	86.5	346	.982	.918	90.5	345
10	.972	.911	81.9	333	.971	.913	89.3	329	.985	.915	86.5	360	.983	.914	90.4	359
15	.973	.909	81.9	345	.978	.908	89.2	361	.986	.912	86.4	370	.984	.910	90.4	371
30	.981	.895	81.8	398	.983	.897	91.1	401	.986	.903	86.3	392	.984	.900	90.3	396
50	.985	.886	84.8	430	.985	.888	92.2	426	.985	.887	86.2	429	.985	.888	90.3	428
70	.987	.882	86.3	443	.984	.884	92.1	434	.987	.884	90.1	440	.987	.886	92.1	436
85	.988	.883	86.3	442	.981	.886	92.1	423	.987	.887	90.1	434	.986	.888	92.1	429
90	.986	.884	86.3	438	.980	.887	92.0	418	.986	.888	90.1	428	.986	.889	92.1	425
95 (tip)	.985	.887	86.3	427	.976	.889	92.0	405	.981	.887	90.0	420	.984	.891	92.0	417
MR	.984	.889	84.6	420	.981	.891	91.6	412	.983	.892	88.1	418	.985	.893	91.2	416

1) Test environment: P_0 = 2015 psfa, T_0 = 500.7 °R

2) V_m calculation is based on standard-day inlet-plenum conditions

3) Circumferential reference position is TDC looking aft

4) Relative position of circumferential distortion screen is in second quadrant

5) $\beta_4^* = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 90% Speed

$W\sqrt{\theta}/\delta = 166.03$

Circumferential Position	25°				55°				85°				115°			
% Span	P_4/P_0	p_4/P_0	90 - β_4°	V_m	P_4/P_0	p_4/P_0	90 - β_4°	V_m	P_4/P_0	p_4/P_0	90 - β_4°	V_m	P_4/P_0	p_4/P_0	90 - β_4°	V_m
5 (hub)	.952	.843	97.7	458	.952	.836	99.4	471	.941	.816	106.8	478	.886	.795	93.6	435
10	.965	.834	96.7	502	.956	.826	97.1	502	.941	.808	104.9	498	.886	.785	91.0	458
15	.969	.827	96.7	520	.965	.820	96.9	528	.938	.800	104.1	510	.882	.779	90.9	465
30	.969	.807	96.2	561	.971	.798	92.8	582	.933	.782	102.1	541	.878	.760	88.2	503
50	.969	.788	96.1	595	.970	.779	91.5	614	.902	.768	99.5	520	.876	.747	88.9	527
70	.966	.780	95.9	605	.972	.772	93.7	629	.883	.764	99.5	495	.875	.742	88.7	536
85	.959	.781	94.9	593	.972	.775	93.6	623	.893	.766	100.9	509	.876	.744	88.7	531
90	.956	.784	94.9	584	.969	.777	93.7	616	.913	.767	102.9	537	.874	.745	88.7	527
95 (tip)	.950	.790	94.9	563	.966	.784	95.0	599	.937	.775	103.4	559	.874	.748	88.8	519
MR	.964	.794	95.9	576	.969	.786	93.7	600	.912	.776	1.1.5	520	.877	.753	89.1	516
		145°				175°				205°				235°		
5 (hub)	.919	.800	78.7	483	.945	.821	77.3	495	.969	.833	77.2	502	.959	.833	85.7	496
10	.913	.793	81.5	491	.952	.817	80.5	515	.972	.826	79.7	523	.953	.826	88.3	500
15	.901	.786	84.8	487	.964	.811	82.5	547	.970	.818	79.3	536	.953	.817	88.6	518
30	.875	.769	87.6	476		.817	80.3		.961	.799	82.2	560	.959	.799	89.4	564
50	.876	.756	88.1	507		.817	80.3		.968	.778	82.9	609	.966	.781	90.5	605
70	.873	.750	88.9	515		.817	80.2		.971	.770	83.5	627	.969	.774	91.1	621
85	.870	.750	88.0	508		.817	80.2		.977	.773	83.4	630	.967	.777	91.4	615
90	.869	.751	85.7	505		.817	80.2		.977	.774	83.3	628	.965	.776	90.5	613
95 (tip)	.869	.755	87.1	496		.817	80.2		.976	778	83.3	620	.963	.783	89.1	599
MR	.878	.761	87.1	500	.954	.817	80.1	520	.970	.785	82.5	600	.964	.787	90.1	592
		265°				295°				325°				355°		
5 (hub)	.948	.835	83.5	468	.955	.834	89.5	486	.972	.839	88.0	506	.969	.840	91.4	500
10	.955	.827	84.9	497	.962	.827	89.6	513	.974	.830	87.8	528	.972	.830	90.2	523
15	.960	.820	84.6	521	.967	.819	90.7	537	.975	.821	87.6	546	.971	.820	88.7	542
30	.970	.798	85.2	579	.969	.798	92.9	579	.974	.798	87.0	588		.830	89.8	
50	.975	.776	86.4	626	.973	.782	93.3	613	.974	.776	88.8	627		.830	89.8	
70	.977	.767	86.1	643	.966	.773	93.0	620	.977	.765	89.6	648		.830	89.8	
85	.977	.771	86.0	637	.964	.776	92.6	611	.977	.771	89.5	636		.830	89.8	
90	.973	.772	86.0	630	.962	.776	91.8	609	.975	.772	89.5	633		.830	89.8	
95 (tip)	.968	.776	86.1	615	.961	.782	90.7	597	.969	.777	89.6	617		.830	89.8	
MR	.972	.783	85.8	609	.967	.787	92.4	596	.975	.783	88.7	614	.971	.830	90.1	522

1) Test environment: P_0 = 1972 psfa, T_c = 494.1°R
2) V_m calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta_4° = \tan^{-1}[\tan \beta_4/\cos \epsilon]$

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 90% Speed

$W\sqrt{\theta}/\delta = 156.12$

Circumferential Position	25°				55°				85°				115°			
% Span	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m
5 (hub)	.956	.872	100.7	395	.961	.860	101.2	456	.953	.847	109.9	429	.903	.818	95.9	412
10	.965	.866	99.4	430	.959	.856	101.2	477	.957	.839	107.8	456	.899	.813	95.9	418
15	.972	.861	99.4	454	.967	.847	97.9	494	.953	.832	107.2	465	.894	.803	91.0	435
30	.974	.844	98.4	496	.973	.831	94.5	530	.948	.817	105.6	490	.889	.789	91.2	457
50	.975	.828	98.4	527	.973	.812	91.6	573	.931	.808	103.0	483	.889	.776	90.8	486
70	.971	.820	97.9	536	.974	.804	94.3	596	.914	.804	101.9	463	.887	.771	90.7	496
85	.967	.822	96.7	528	.975	.808	94.3	585	.322	.807	103.4	468	.888	.772	90.7	494
90	.963	.822	95.8	523	.972	.809	94.3	580	.937	.807	104.5	493	.887	.774	90.7	489
95 (tip)	.957	.827	95.9	502	.967	.814	96.2	567	.951	.814	105.2	502	.885	.777	90.8	477
MR	.970	.832	97.9	511	.972	.818	94.5	561	.934	.813	104.3	477	.889	.781	91.1	476
		145°				175°				205°				235°		
5 (hub)	.924	.822	80.1	445	.965	.853	77.1	449	.972	.859	75.9	450	.948	.840	84.6	463
10	.919	.816	82.6	451	.961	.847	80.1	478	.976	.852	78.5	478	.955	.835	87.4	469
15	.909	.809	85.7	452	.959	.839	82.8	509	.976	.844	78.3	492	.966	.831	88.2	484
30	.886	.793	89.2	442	.963	.821	84.8	538	.969	.828	81.9	518	.964	.816	89.2	527
50	.888	.784	89.2	467	.968	.805	86.3	541	.971	.808	81.2	558	.951	.803	90.2	564
70	.884	.776	90.4	479	.972	.797	87.2	556	.974	.801	83.9	580	.951	.796	91.3	586
85	.885	.779	90.3	473	.972	.798	88.0	558	.980	.798	82.8	591	.956	.799	91.2	585
90	.884	.779	90.3	470	.969	.798	88.0	557	.979	.801	83.6	586	.954	.798	91.2	579
95 (tip)	.882	.781	87.5	462	.968	.804	86.6	543	.977	.805	83.7	577	.951	.802	89.5	567
MR	.890	.787	88.7	464	.968	.809	85.9	540	.974	.813	82.0	555	.956	.807	90.0	557
		265°				295°				325°				355°		
5 (hub)	.958	.867	81.6	416	.958	.857	89.0	441	.974	.864	87.2	458	.972	.863	89.7	434
10	.959	.860	83.6	436	.964	.850	89.5	468	.976	.856	87.0	478	.974	.855	89.5	438
15	.965	.854	83.4	458	.968	.842	90.0	494	.978	.851	86.8	492	.975	.848	89.4	478
30	.972	.833	84.4	516	.973	.824	92.3	538	.978	.831	86.4	530	.976	.831	88.9	522
50	.978	.817	85.0	556	.975	.808	93.0	570	.977	.808	87.6	573	.977	.808	89.4	560
70	.980	.809	86.0	575	.971	.800	92.8	579	.979	.801	89.1	590	.980	.798	89.0	574
85	.980	.810	85.9	572	.968	.804	92.8	568	.977	.803	89.0	584	.978	.803	89.0	570
90	.977	.810	85.9	568	.966	.803	91.9	566	.976	.802	87.5	583	.977	.804	89.0	562
95 (tip)	.973	.814	85.9	556	.965	.808	90.7	556	.973	.811	88.5	562	.975	.810	89.1	545
MR	.975	.821	85.1	554	.970	.813	92.1	554	.977	.816	87.9	560	.977	.815	89.1	546

1) Test environment: P_o = 1979 psfa, T_o = 496.0 °R
2) V_m calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta_4° = \tan^{-1}\left[\tan \beta_4/\cos \epsilon\right]$

Rotor Inlet Circumferential Distributions

Disk Probe Station 4 90% Speed

$W\sqrt{\theta}/\delta = 148.96$

Circumferential Position

% Span	25° P_4/P_o	25° p_4/P_o	25° 90- β_4°	25° V_m	55° P_4/P_o	55° p_4/P_o	55° 90- β_4°	55° V_m	85° P_4/P_o	85° p_4/P_o	85° 90- β_4°	85° V_m	115° P_4/P_o	115° p_4/P_o	115° 90- β_4°	115° V_m
5 (hub)	.958	.879	99.9	384	.966	.874			.958	.854	109.0	424	.917	.841	95.8	389
10	.966	.876	100.0	409	.965	.872			.959	.847	107.7	443	.912	.829	92.9	407
15	.974	.871	100.0	435	.971	.864			.957	.843	107.8	448	.907	.825	92.8	408
30	.976	.850	97.7	487	.978	.851			.951	.826	104.8	181	.903	.809	90.1	440
50	.977	.837	97.9	514	.976	.837			.934	.818	102.6	469	.902	.796	89.7	468
70	.974	.830	97.8	522	.979	.825			.917	.813	101.6	449	.902	.794	90.7	472
85	.967	.829	96.7	514	.979	.831			.923	.816	102.4	455	.902	.797	90.7	466
90	.965	.833	96.7	504	.977	.832			.938	.816	103.6	481	.900	.797	90.7	463
95 (tip)	.961	.837	96.7	488	.972	.835			.953	.821	103.9	495	.900	.801	90.8	452
MR	.972	.841	97.8	497	.974	.847			.937	.822	103.7	465	.903	.803	90.8	454

% Span	145° P_4/P_o	145° p_4/P_o	145° 90- β_4°	145° V_m	175° P_4/P_o	175° p_4/P_o	175° 90- β_4°	175° V_m	205° P_4/P_o	205° p_4/P_o	205° 90- β_4°	205° V_m	235° P_4/P_o	235° p_4/P_o	235° 90- β_4°	235° V_m
5 (hub)	.933	.839	80.6	426	.955	.888	90.0	360	.976	.872	75.4	429				
10	.931	.833	82.3	437	.964	.885	90.0	387	.980	.868	77.8	451				
15	.921	.824	85.3	440	.963	.882	90.0	393	.980	.860	77.6	466				
30	.900	.810	88.8	431	.973	.874	90.0	433	.973	.845	80.7	490				
50	.901	.800	88.8	455	.978	.864	90.0	466	.975	.827	82.1	529				
70	.901	.795	89.8	467	.979	.855	90.0	487	.978	.816	83.0	556				
85	.897	.797	89.8	456	.979	.848	90.0	500	.981	.817	83.1	559				
90	.896	.796	89.8	455	.977	.846	90.0	502	.979	.814	83.0	562				
95 (tip)	.894	.800	89.8	442	.975	.844	90.0	502	.980	.819	83.0	554				
MR	.903	.804	88.5	451	.975	.861	90.0	467	.977	.830	81.7	528				

% Span	265° P_4/P_o	265° p_4/P_o	265° 90- β_4°	265° V_m	295° P_4/P_o	295° p_4/P_o	295° 90- β_4°	295° V_m	325° P_4/P_o	325° p_4/P_o	325° 90- β_4°	325° V_m	355° P_4/P_o	355° p_4/P_o	355° 90- β_4°	355° V_m
5 (hub)	.960	.878	80.9	392	.958	.879	89.6	390	.979	.884	86.6	422	.968	.860	90.0	456
10	.962	.871	82.2	413	.967	.873	88.7	424	.980	.880	86.5	434	.965	.857	90.0	456
15	.966	.866	82.2	433	.971	.866	89.5	447	.980	.874	86.4	447	.964	.854	90.0	459
30	.974	.848	84.1	488	.976	.851	91.7	489	.980	.857	86.0	483	.976	.847	90.0	498
50	.981	.834	85.6	529	.979	.837	92.4	522	.982	.838	88.1	525	.976	.837	90.0	517
70	.983	.825	85.3	550	.976	.829	92.5	532	.984	.831	89.7	542	.978	.828	90.0	538
85	.983	.830	86.1	541	.972	.833	92.4	518	.983	.836	89.7	532	.978	.822	90.0	549
90	.980	.829	86.1	537	.968	.833	92.4	511	.981	.834	89.7	533	.975	.820	90.0	549
95 (tip)	.975	.833	86.2	523	.965	.838	92.4	496	.978	.838	89.8	518	.970	.818	90.0	545
MR	.978	.838	85.0	517	.974	.841	91.9	505	.982	.844	88.3	513	.975	.835	90.0	520

1) Test environment: P_o = 1997 psfa, To = 501.2°R
2) V_m calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta_4^\circ = \tan^{-1}[\tan \beta_4/\cos \epsilon]$

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 95% Speed

$W\sqrt{\theta}/\delta = 174.19$

Circumferential Position	25°				55°				85°				115°			
% Span	P_4/P_o	p_4/P_o	$90-\beta_4^*$	V_m	P_4/P_o	p_4/P_o	$90-\beta_4^*$	V_m	P_4/P_o	p_4/P_o	$90-\beta_4^*$	V_m	P_4/P_o	p_4/P_o	$90-\beta_4^*$	V_m
5 (hub)	.944	.817	97.7	496	.945	.809	99.4	514	.935	.794	106.1	513	.860	.764	92.7	475
10	.960	.811	96.8	538	.950	.800	97.1	542	.934	.785	104.2	532	.870	.757	92.6	492
15	.964	.800	96.3	565	.962	.792	96.9	576	.930	.776	103.3	546	.865	.744	89.5	513
30	.964	.778	96.3	604	.964	.769	93.5	624	.927	.756	102.2	581	.862	.726	89.0	545
50	.964	.759	96.6	637	.964	.745	91.1	666	.897	.740	99.5	569	.859	.710	88.4	575
70	.959	.750	96.3	646	.967	.738	93.6	679	.879	.735	99.4	549	.859	.704	88.2	587
85	.951	.752	95.3	633	.968	.742	93.6	673	.893	.739	101.3	562	.860	.707	88.1	582
90	.943	.755	95.3	618	.965	.744	93.6	667	.912	.742	102.7	584	.858	.708	88.1	577
95 (tip)	.941	.764	95.3	598	.961	.752	94.8	648	.932	.752	103.5	592	.857	.712	88.2	567
MR	.957	.766	96.2	617	.964	.754	93.7	648	.907	.749	101.4	564	.860	.717	88.7	563
	145°				175°				205°				235°			
5 (hub)	.908	.774	87.6	518	.938	.797	78.8	518	.964	.812	79.0	537	.956	.811	85.4	532
10	.900	.766	88.7	525	.946	.793	80.3	546	.967	.800	78.7	562	.948	.804	88.1	536
15	.887	.757	88.4	521	.958	.785	82.5	582	.964	.793	81.2	574	.948	.794	88.1	554
30	.860	.739	87.0	514	.956	.768	84.4	612	.953	.771	82.5	599	.955	.773	89.3	603
50	.861	.725	88.8	545	.938	.753	85.6	615	.963	.750	83.0	651	.962	.756	90.2	645
70	.857	.719	90.0	552	.936	.745	86.4	625	.968	.743	83.8	670	.963	.749	91.1	657
85	.854	.721	90.0	542	.938	.750	87.4	620	.975	.747	83.6	672	.964	.752	91.0	652
90	.852	.721	90.0	538	.939	.750	87.4	622	.974	.748	83.6	670	.960	.754	91.1	645
95 (tip)	.852	.725	90.1	528	.941	.757	85.6	611	.974	.754	83.7	660	.957	.760	89.1	630
MR	.863	.731	89.0	536	.943	.759	85.2	610	.966	.758	82.9	641	.959	.763	89.9	628
	265°				295°				325°				355°			
5 (hub)	.941	.816	85.8	498	.950	.812	91.0	523	.966	.814	78.9	546	.964	.815	91.8	540
10	.948	.806	85.6	528	.957	.801	89.6	556	.969	.804	81.8	568	.967	.802	90.5	568
15	.954	.797	85.3	557	.963	.791	90.7	583	.970	.793	84.9	589	.968	.793	90.2	586
30	.964	.772	85.5	618	.965	.768	92.9	626	.968	.767	87.2	633	.969	.766	89.1	637
50	.972	.750	87.0	667	.967	.750	93.0	659	.968	.744	87.8	672	.969	.742	90.0	676
70	.972	.740	86.7	682	.959	.743	92.8	662	.972	.736	88.5	690	.972	.732	89.7	697
85	.973	.746	86.6	675	.955	.747	92.9	648	.972	.742	88.5	679	.972	.739	89.6	686
90	.969	.750	87.8	663	.953	.749	92.9	642	.968	.744	88.5	671	.969	.740	89.6	681
95 (tip)	.959	.755	88.0	641	.953	.756	90.6	632	.961	.751	85.3	651	.968	.746	89.7	669
MR	.967	.758	86.6	646	.960	.758	92.4	637	.969	.754	87.0	656	.970	.751	89.8	662

1) Test environment: P_o = 1957 psfa, To = 498.2 °R
2) V_m calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta_4^* = \tan^{-1}[\tan \beta_4/\cos \epsilon]$

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 95% Speed

$W\sqrt{\theta}/\delta = 162.90$

Circumferential Position	25°				55°				85°				115°			
% Span	P_4/P_o	p_4/P_o	$90 - \beta_4^*$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4^*$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4^*$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4^*$	V_m
5 (hub)	.953	.855	99.4	430	.955	.840	100.8	467	.950	.828	108.4	464	.891	.796	95.3	441
10	.964	.851	98.4	464	.955	.930	98.3	489	.952	.822	106.6	486	.889	.787	92.4	462
15	.970	.843	98.4	491	.963	.824	98.1	516	.948	.814	105.8	496	.884	.780	92.6	466
30	.973	.821	97.2	539	.969	.807	94.5	562	.944	.797	104.2	526	.879	.750	89.2	508
50	.972	.802	97.5	573	.969	.786	92.4	600	.924	.784	101.7	522	.878	.745	89.3	535
70	.968	.795	97.2	578	.971	.778	94.5	616	.904	.779	100.8	501	.878	.742	90.2	540
85	.960	.797	96.6	565	.971	.782	94.4	610	.912	.784	102.9	500	.878	.744	90.2	537
90	.952	.796	96.6	555	.970	.784	94.4	605	.928	.788	104.2	517	.876	.744	90.2	534
95 (tip)	.949	.805	96.7	532	.965	.793	96.7	580	.940	.797	106.6	514	.875	.750	90.3	520
MR	.966	.809	97.3	551	.968	.793	94.8	585	.927	.792	103.4	510	.879	.752	90.3	521
		145°				175°				205°				235°		
5 (hub)	.908	.8	79.9	479	.942	.820	77.6	482	.971	.849	75.4	469	.961	.831	84.2	501
10	.914	.786	80.7	486	.951	.815	80.5	511	.975	.842	78.0	494	.956	.825	87.5	505
15	.910	.786	82.7	487	.962	.808	82.5	545	.975	.836	79.2	508	.952	.816	87.9	519
30	.871	.768	88.0	482	.960	.791	84.9	578	.967	.818	81.4	534	.958	.797	88.8	565
50	.879	.756	88.8	512	.945	.775	86.0	585	.968	.796	82.2	577	.965	.779	90.1	609
70	.876	.750	89.7	521	.946	.768	87.0	600	.974	.785	83.0	605	.968	.771	90.9	626
85	.875	.751	89.0	514	.947	.771	87.7	597	.980	.784	82.7	615	.968	.773	91.0	623
90	.873	.750	89.0	514	.948	.772	87.7	595	.980	.785	82.7	614	.965	.775	91.0	615
95 (tip)	.871	.755	87.3	500	.943	.779	87.7	576	.978	.790	84.2	604	.962	.779	88.9	604
MR			88.1	505	.949	.781	85.8	581	.973	.800	82.0	577	.964	.785	89.7	596
		265°				295°				325°				355°		
5 (hub)	.954	.859	82.3	426	.953	.843	89.9	463	.881	.761	88.2	475	.969	.848	91.8	483
10	.957	.853	83.4	446	.959	.833	88.7	496	.972	.854	86.4	499	.970	.835	88.8	511
15	.961	.845	83.2	471	.964	.825	89.9	520	.974	.845	87.6	514	.971	.829	90.2	525
30	.971	.823	84.3	532	.969	.806	92.6	564	.974	.837	87.0	554	.972	.805	88.0	572
50	.978	.803	85.8	583	.971	.788	92.8	600	.974	.816	88.6	599	.973	.785	90.6	609
70	.979	.796	86.8	597	.966	.782	93.3	604	.975	.792	89.8	614	.976	.776	90.3	629
85	.978	.801	86.8	588	.963	.784	93.0	595	.978	.786	89.8	609	.976	.781	90.7	619
90	.975	.801	86.8	583	.959	.785	92.9	588	.977	.788	89.8	603	.975	.788	90.7	614
95 (tip)	.970	.808	86.9	563	.958	.793	93.0	572	.974	.789	89.8	585	.972	.788	90.8	602
MR	.974	.810	85.7	563	.965	.795	92.5	579	.979	.795	89.8	585	.973	.793	90.1	596

1) Test environment: P_o = 1978 psfa, T_o = 493.6°R
2) V_m calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta_4^* = \tan^{-1}[\tan \beta_4/\cos \epsilon]$

Rotor Inlet Circumferential Distributions
Disk Probe Station 4 95% Speed

$W\sqrt{\theta}/\delta = 159.93$

Circumferential Position	25°				55°				85°				115°			
% Span	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m	P_4/P_o	p_4/P_o	$90 - \beta_4°$	V_m
5 (hub)	.952	.854	99.5	431	.960	.852	102.1	448	.949	.826	108.4	468	.900	.809	96.0	430
10	.964	.845	98.1	474	.958	.843	99.1	467	.950	.819	106.4	488	.897	.803	96.0	438
15	.970	.838	98.1	501	.966	.837	99.0	493	.945	.809	105.5	502	.891	.792	91.6	455
30	.972	.818	97.3	543	.973	.820	94.6	543	.944	.793	103.9	532	.889	.779	91.2	480
50	.970	.797	97.6	578	.972	.803	94.0	574	.924	.781	101.7	528	.887	.763	90.8	512
70	.966	.790	97.2	585	.973	.793	95.1	592	.907	.776	100.7	512	.888	.759	90.6	522
85	.956	.791	96.5	570	.974	.799	95.1	583	.913	.781	102.9	507	.888	.762	90.6	516
90	.952	.793	96.4	560	.973	.799	95.1	580	.931	.785	103.9	529	.886	.761	90.6	514
95 (tip)	.946	.802	97.3	532	.968	.806	96.2	560	.942	.793	105.9	527	.886	.766	90.7	502
MR	.964	.804	97.3	556	.971	.808	95.5	562	.928	.789	103.2	518	.888	.770	91.1	500
	145°				175°				205°				235°			
5 (hub)	.924	.814	79.8	464	.946	.829	76.6	467	.970	.843	75.7	480	.966	.847	.5	477
10	.921	.808	82.1	472	.953	.824	79.6	496	.975	.389	76.4	501	.961	.841	.6	482
15	.909	.798	85.1	475	.963	.817	82.1	530	.974	.830	78.2	516	.959	.832	86.6	497
30	.885	.781	88.5	469	.962	.802	84.7	560	.965	.813	81.6	541	.963	.816	88.2	537
50	.885	.767	88.4	500	.950	.788	85.6	568	.968	.789	82.3	590	.967	.798	89.4	576
70	.884	.762	89.4	509	.948	.781	86.4	578	.972	.781	83.2	611	.968	.790	90.9	593
85	.881	.763	89.3	501	.949	.785	87.1	574	.979	.782	83.0	619	.970	.793	90.9	591
90	.878	.761	89.3	500	.948	.786	87.4	570	.977	.778	82.9	622	.968	.793	90.8	589
95 (tip)	.879	.767	86.9	486	.946	.791	85.8	555	.977	.785	84.0	611	.963	.800	90.6	567
MR	.888	.773	87.9	492	.952	.793	85.2	561	.972	.795	82.1	584	.966	.804	89.5	565
	265°				295°				325°				355°			
5 (hub)	.951	.854	83.0	431	.956	.859	89.8	435	.975	.870	88.7	447	.969	.861	92.4	455
10	.955	.848	82.8	454	.962	.850	89.8	465	.976	.861	88.5	468	.972	.851	90.1	482
15	.959	.842	84.2	476	.968	.850	89.8	492	.976	.852	88.4	486	.972	.844	91.0	495
30	.970	.810	84.5	540	.972	.824	92.7	534	.975	.833	87.9	524	.973	.824	88.9	539
50	.976	.799	86.2	588	.973	.809	93.3	565	.976	.812	89.5	566	.975	.805	91.4	575
70	.979	.790	86.8	607	.968	.802	93.2	570	.978	.801	90.7	587	.979	.797	91.1	595
85	.979	.797	87.1	595	.965	.806	93.5	558	.978	.807	90.6	578	.977	.804	91.5	581
90	.974	.797	87.1	589	.962	.808	93.4	550	.976	.810	90.6	569	.977	.805	91.5	579
95 (tip)	.968	.800	87.2	574	.960	.815	93.5	533	.970	.811	90.7	558	.974	.811	92.5	564
MR	.973	.806	86.0	570	.968	.815	92.8	546	.976	.818	89.7	554	.975	.812	92.0	562

1) Test environment: P_o = 1982 psfa, T_o = 494.8 °R
2) V_m calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta_4° = \tan^{-1}[\tan \beta_4/\cos \sigma]$

Stator Discharge Circumferential Distributions
Disk Probe Station 13 80% Speed

$W\sqrt{\theta}/\delta = 147.35$

Circumferential Position		21°			45°				81°				105°			
% Span	P_{13}/Po	P_{13}/Po	90 - β°_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β°_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β°_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β°_{13}	Vm
5 (hub)	1.140	1.016	93.5	470	1.099	1.000	88.6	424	1.102	1.034	92.5	350	1.111	1.009	88.1	427
10	1.102	1.013	84.5	401	1.070	1.006	83.8	344	1.063	1.045	83.1	182	1.104	1.015	83.9	396
15	1.075	1.014	80.3	331	1.124	1.011	82.7	446	1.065	1.049	80.3	170	1.212	1.023	83.8	560
30	1.316	1.038	84.9	665	1.237	1.019	83.5	604	1.202	1.051	86.2	509	1.196	1.028	86.5	537
50	1.287	1.041	85.1	629	1.261	1.020	84.0	628	1.210	1.055	86.1	513	1.182	1.033	84.4	507
70	1.255	1.036	87.9	598	1.251	1.010	87.7	631	1.208	1.050	88.1	516	1.182	1.027	87.4	521
85	1.241	1.023	88.6	601	1.235	1.000	89.9	627	1.203	1.041	90.0	524	1.191	1.018	87.4	548
90	1.231	1.023	88.8	589	1.216	.993	87.9	615	1.194	1.038	90.1	516	1.176	1.015	87.4	533
95 (tip)	1.216	1.019	88.4	577	1.208	.994	86.6	604	1.181	1.036	90.2	501	1.161	1.013	87.4	512
MR	1.250	1.031	86.7	600	1.228	1.009	86.0	606	1.193	1.047	87.7	499	1.183	1.024	86.3	525
		141°			171°				195°				231°			
5 (hub)	1.139	1.024	91.4	448	1.163	1.018	90.5	502	1.203	.980	88.2	619	1.222	1.015	88.9	586
10	1.071	1.021	82.8	300	1.081	1.014	83.2	349	1.238	.991	84.9	642	1.179	1.019	83.8	522
15	1.126	1.033	82.2	400	1.160	1.029	82.4	473	1.288	.997	85.7	689	1.292	1.032	84.3	648
30	1.256	1.051	88.3	577	1.275	1.044	88.0	610	1.262	1.004	86.2	650	1.288	1.036	88.2	638
50	1.225	1.053	86.9	534	1.248	1.046	86.1	570	1.230	1.008	84.2	605	1.256	1.038	86.0	595
70	1.187	1.047	88.7	489	1.223	1.042	88.5	546	1.221	.998	88.7	611	1.237	1.033	89.2	579
85	1.176	1.038	88.7	491	1.214	1.029	88.3	556	1.200	.989	90.4	597	1.229	1.019	89.0	590
90	1.157	1.034	88.9	467	1.199	1.028	90.1	538	1.186	.984	88.4	588	1.217	1.016	89.1	581
95 (tip)	1.145	1.033	91.6	446	1.176	1.024	92.2	509	1.169	.984	87.7	566	1.192	1.015	91.8	548
MR	1.194	1.044	88.0	505	1.223	1.037	87.8	554	1.227	.997	87.7	619	1.248	1.029	88.0	600
		255°			291°				315°				345°			
5 (hub)	1.238	.972	87.6	672	1.212	1.007	87.9	591	1.220	.968	87.7	661	1.171	.971	87.6	598
10	1.285	.982	86.1	706	1.229	1.018	83.9	593	1.282	.980	85.8	708	1.161	.976	83.7	572
15	1.291	.987	87.8	709	1.308	1.022	86.3	680	1.306	.985	87.6	727	1.290	.990	83.7	703
30	1.272	.997	85.7	672	1.296	1.033	88.1	652	1.285	.997	86.1	687	1.285	.999	86.5	685
50	1.251	1.000	84.0	642	1.266	1.035	86.2	613	1.254	1.001	84.0	644	1.262	1.003	83.6	650
70	1.232	.988	89.0	638	1.246	1.028	89.2	598	1.237	.989	89.2	644	1.247	.991	89.4	653
85	1.210	.977	90.9	628	1.243	1.015	90.9	613	1.216	.978	90.9	638	1.231	.980	90.5	650
90	1.193	.971	88.9	617	1.232	1.014	90.9	602	1.199	.971	88.6	625	1.213	.974	88.5	637
95 (tip)	1.175	.971	87.7	595	1.206	1.009	91.1	577	1.180	.971	87.5	602	1.197	.972	86.8	621
MR	1.239	.987	87.2	649	1.259	1.025	88.5	620	1.246	.987	87.3	657	1.248	.990	86.8	657

1) Test environment: Po = 1989 psfa, To = 499.6°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta 13^{\circ} = \tan^{-1}\left[\tan \beta 13/\cos \epsilon\right]$

Stator Discharge Circumferential Distributions

Disk Probe Station 13 80% Speed

$W\sqrt{\theta}/\delta = 136.69$

Circumferential Position	21°				45°				81°				105°			
% Span	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm
5 (hub)	1.123	1.069	99.4	305	1.105	1.048	90.6	318	1.128	1.062	96.4	281	1.117	1.056	89.3	327
10	1.078	1.076	84.9	50	1.078	1.061	86.3	176	1.092	1.088	86.0	86	1.095	1.067	85.0	222
15	1.067	1.067	79.4	0	1.076	1.065	83.4	141	1.086	1.085	81.1	30	1.163	1.067	83.5	401
30	1.165	1.083	80.6	371	1.181	1.064	82.3	445	1.175	1.094	82.1	365	1.225	1.069	86.1	505
50	1.304	1.099	85.2	565	1.275	1.065	82.7	580	1.231	1.100	86.1	465	1.203	1.076	84.4	461
70	1.295	1.099	87.5	554	1.272	1.058	86.7	587	1.244	1.102	88.7	485	1.201	1.070	86.6	473
85	1.269	1.089	87.6	538	1.260	1.051	88.4	585	1.252	1.094	88.5	510	1.213	1.062	86.6	507
90	1.257	1.087	87.7	526	1.238	1.048	88.4	562	1.244	1.090	88.5	505	1.201	1.061	87.3	491
95 (tip)	1.248	1.086	90.4	515	1.231	1.046	87.6	556	1.232	1.091	91.4	487	1.191	1.060	87.4	477
MR	1.262	1.092	86.6	522	1.241	1.058	85.6	549	1.225	1.096	87.5	463	1.201	1.068	86.0	474
		141°				171°				195°				237°		
5 (hub)	1.158	1.062	93.1	405	1.169	1.056	92.5	440	1.112	1.092	92.2	187	1.198	1.055	89.9	491
10	1.094	1.069	83.7	208	1.098	1.057	83.8	266	1.093	1.091	85.5	45	1.145	1.054	84.4	395
15	1.101	1.074	81.0	213	1.109	1.059	81.4	294	1.107	1.100	82.8	113	1.232	1.070	82.9	513
30	1.268	1.086	87.5	539	1.280	1.081	86.8	562	1.244	1.097	85.4	486	1.294	1.078	87.3	585
50	1.249	1.091	87.7	507	1.265	1.086	86.9	533	1.221	1.103	85.4	440	1.276	1.084	87.4	554
70	1.229	1.087	87.9	484	1.243	1.080	87.0	513	1.232	1.098	86.9	475	1.251	1.076	87.5	530
85	1.210	1.080	90.6	468	1.238	1.074	89.4	516	1.237	1.091	86.9	495	1.253	1.069	89.7	545
90	1.199	1.077	90.7	456	1.219	1.069	89.6	497	1.233	1.088	86.9	494	1.234	1.065	89.8	528
95 (tip)	1.193	1.075	90.7	450	1.200	1.064	89.7	476	1.223	1.086	86.9	482	1.215	1.060	90.0	508
MR	1.223	1.084	88.3	480	1.237	1.076	87.5	510	1.226	1.096	86.3	464	1.255	1.074	87 7	542
		255°				291°				315°				345°		
5 (hub)	1.208	1.015	88.2	573	1.171	1.047	90.3	462	1.154	1.011	88.2	503	1.157	1.018	89.0	494
10	1.265	1.026	85.8	624	1.119	1.048	83.7	351	1.190	1.021	84.7	536	1.111	1.022	83.7	396
15	1.290	1.030	87.3	649	1.214	1.064	83.7	499	1.301	1.032	85.3	658	1.181	1.031	83.0	506
30	1.273	1.039	85.8	615	1.294	1.075	87.3	590	1.289	1.036	86.0	635	1.312	1.041	85.6	657
50	1.262	1.043	84.0	593	1.282	1.062	87.5	564	1.256	1.043	84.6	588	1.263	1.045	84.7	595
70	1.252	1.036	87.9	594	1.259	1.074	87.5	545	1.252	1.035	87.7	596	1.255	1.038	87.1	596
85	1.254	1.026	87.9	611	1.260	1.067	89.9	559	1.250	1.025	87.6	608	1.247	1.028	88.0	601
90	1.238	1.021	87.0	599	1.245	1.064	90.0	545	1.235	1.022	86.8	595	1.228	1.025	87.0	582
95 (tip)	1.214	1.020	87.0	570	1.225	1.059	90.2	526	1.210	1.020	86.8	566	1.212	1.024	87.1	562
MR	1.255	1.033	86.5	603	1.259	1.071	87.9	551	1.254	1.032	86.4	603	1.250	1.035	86.1	594

1) Test environment: Po = 1999 psfa, To = 500.2°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^{\circ}_{13} = \tan^{-1}[\tan \beta_{13}/\cos\epsilon]$

Stator Discharge Circumferential Distributions
Disk Probe Station 13 80% Speed

$W\sqrt{\theta}/\delta = 127.02$

Circumferential Position		21°			45°				81°				105°			
% Span	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	VM	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm
5 (hub)	1.140	1.074	103.0	330	1.128	1.113	101.1	155	1.133	1.105	99.8	217	1.167	1.039	88.9	469
10	1.084	1.080	87.4	82	1.104	1.104	97.0	12	1.102	1.101	88.7	31	1.218	1.048	85.8	528
15	1.068	1.068	74.7	0	1.098	1.098	86.4	0	1.095	1.095	83.2	0	1.276	1 054	85.7	596
30	1.101	1.083	76.9	177	1.112	1.110	81.6	49	1.159	1.105	81.7	299	1.270	1.061	86.3	575
50	1.329	1.096	84.1	601	1.254	1.113	81.5	475	1.240	1.113	85.6	456	1.257	1.065	84.1	554
70	1.292	1.094	86.4	561	1.307	1.105	86.2	565	1.258	1.115	88.4	484	1.248	1.059	86.6	553
85	1.258	1.087	86.6	527	1.284	1.099	88.9	547	1.260	1.105	88.2	503	1.256	1.051	87.5	576
90	1.241	1.084	88.5	507	1.275	1.097	88.9	539	1.254	1.103	88.2	499	1.236	1.047	87.5	557
95 (tip)	1.230	1.083	90.6	496	1.268	1.095	89.0	532	1.242	1.103	91.2	480	1.218	1.044	87.5	538
MR	1.267	1.090	86.2	534	1.266	1.104	86.1	510	1.235	1.109	87.4	456	1.250	1.056	86.3	561
		141°				171°				195°				231°		
5 (hub)	1.158	1.065	94.0	352	1.171	1.077	92.6	397	1.169	1.020	88.7	508	1.160	1.066	91.1	401
10	1.104	1.095	84.7	126	1.108	1.086	84.7	196	1.221	1.031	85.5	561	1.107	1.075	84.2	235
15	1.103	1.097	81.4	100	1.116	1.090	81.9	210	1.278	1.036	85.4	623	1.158	1.077	83.0	370
30	1.268	1.105	84.9	506	1.278	1.099	84.9	531	1.268	1.044	86.4	603	1.295	1.091	86.5	567
50	1.266	1.107	84.9	503	1.276	1.102	84.8	522	1.248	1.046	84.1	570	1.285	1.098	86.6	543
70	1.252	1.106	88.1	487	1.265	1.098	87.5	513	1.240	1.039	87.7	574	1.275	1.092	86.5	538
85	1.250	1.097	87.9	501	1.260	1.090	89.5	522	1.244	1.028	87.7	594	1.267	1.083	88.9	545
90	1.240	1.094	88.0	493	1.251	1.086	89.5	517	1.230	1.027	87.7	580	1.257	1.080	89.0	536
95 (tip)	1.228	1.094	91.4	474	1.240	1.083	89.6	506	1.208	1.024	87.6	556	1.246	1.076	89.1	528
MR	1.246	1.102	87.0	483	1.254	1.095	86.9	505	1.244	1.037	86.5	562	1.263	1.088	87.1	531
		255°				291°				315°				345°		
5 (hub)	1.119	1.040	90.0	373	1.125	1.113	108.2	133	1.133	1.054	92.4	371	1.142	1.064	97.0	367
10	1.091	1.046	85.3	282	1.099	1.099	96.9	0	1.087	1.066	86.3	194	1.085	1.073	88.5	144
15	1.148	1.053	84.0	403	1.087	1.087	79.9	0	1.081	1.070	83.1	141	1.085	1.065	81.1	25
30	1.289	1.059	84.9	605	1.096	1.096	74.9	6	1.286	1.071	[illegible].2	583	1.163	1.071	80.1	392
50	1.281	1.068	83.7	580	1.314	1.118	82.6	551	1.293	1.075	84.1	586	1.309	1.078	84.2	601
70	1.268	1.062	86.6	574	1.313	1.116	86.9	555	1.271	1.073	86.5	565	1.279	1.076	85.8	570
85	1.259	1.054	87.3	576	1.259	1.109	87.3	494	1.248	1.067	86.5	543	1.243	1.074	85.8	526
90	1.243	1.053	87.3	558	1.242	1.107	88.9	472	1.232	1.064	86.5	527	1.222	1.074	87.1	497
95 (tip)	1.233	1.052	87.3	548	1.236	1.106	91.4	465	1.223	1.067	87.7	511	1.215	1.074	88.7	490
MR	1.256	1.059	85.6	564	1.274	1.112	85.8	509	1.258	1.071	85.5	551	1 248	1.075	85.3	531

1) Test environment: Po = 2015 psfa, T_o = 500.7°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^*_{13} = \tan^{-1}\left[\tan \beta_{13}/\cos\epsilon\right]$

Stator Discharge Circumferential Distributions
Disk Probe Station 13 90% Speed

$W\sqrt{\theta}/\delta = 166.03$

Circumferential Position	21°				45°				81°				105°			
% Span	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm
5 (hub)	1.156	1.019	93.9	494	1.115	.996	89.8	469	1.125	1.045	93.8	379	1.147	1.012	89.4	491
10	1.100	1.015	84.6	395	1.063	1.002	84.4	389	1.077	1.052	83.4	213	1.121	1.015	84.2	435
15	1.074	1.015	80.2	331	1.143	1.010	83.2	490	1.070	1.057	79.5	151	1.243	1.026	84.1	601
30	1.401	1.043	83.6	745	1.298	1.021	84.6	676	1.257	1.069	85.2	564	1.241	1.034	87.4	595
50	1.372	1.049	85.9	713	1.324	1.025	84.5	695	1.280	1.070	84.8	589	1.223	1.038	85.2	567
70	1.338	1.042	87.8	688	1.312	1.011	87.3	701	1.272	1.065	88.0	586	1.229	1.032	87.6	585
85	1.336	1.026	89.8	706	1.315	.999	90.1	720	1.256	1.053	89.3	584	1.236	1.022	88.4	611
90	1.311	1.019	87.5	692	1.308	.992	87.2	721	1.241	1.049	88.2	572	1.210	1.018	88.4	581
95 (tip)	1.290	1.022	89.5	666	1.307	.996	85.7	716	1.226	1.048	90.2	554	1.193	1.016	88.4	563
MR	1.329	1.036	86.9	687	1.295	1.011	86.2	685	1.250	1.061	87.1	563	1.224	1.028	87.0	583
		141°				171°				195°				231°		
5 (hub)	1.175	1.031	91.9	500	1.215	1.022	91.2	576	1.270	.974	89.2	710	1.299	1.017	89.5	684
10	1.097	1.027	83.2	353	1.117	1.015	84.0	428	1.298	.985	85.8	719	1.232	1.020	84.0	599
15	1.139	1.036	81.7	422	1.185	1.031	82.3	513	1.372	.992	86.7	780	1.381	1.032	85.3	743
30	1.334	1.061	88.1	661	1.356	1.050	88.4	695	1.337	1.003	86.7	734	1.366	1.040	88.2	719
50	1.295	1.066	86.7	613	1.317	1.053	86.5	645	1.301	1.011	84.2	685	1.330	1.045	86.8	675
70	1.231	1.058	88.5	543	1.279	1.048	89.1	612	1.281	.998	88.7	681	1.309	1.033	90.1	667
85	1.212	1.048	88.5	534	1.261	1.034	89.1	613	1.237	.985	91.0	653	1.282	1.020	90.1	655
90	1.188	1.043	88.8	506	1.236	1.030	89.3	588	1.213	.978	89.0	635	1.262	1.015	88.0	640
95 (tip)	1.175	1.043	92.4	484	1.209	1.029	92.2	554	1.198	.978	87.7	616	1.236	1.016	91.0	609
MR	1.246	1.054	87.9	568	1.279	1.043	88.2	621	1.287	.995	87.4	694	1.318	1.032	88.5	680
		255°				291°				315°				345°		
5 (hub)	1.320	.961	88.7	776	1.293	1.005	88.6	696	1.264	.951	88.4	740	1.206	.955	88.4	672
10	1.376	.971	86.9	809	1.297	1.016	84.2	683	1.334	.967	86.5	781	1.185	.961	84.0	635
15	1.389	.975	88.3	819	1.402	1.022	88.2	778	1.401	.970	87.9	836	1.364	.977	85.0	796
30	1.349	.996	86.2	756	1.380	1.031	87.9	743	1.366	.990	86.9	778	1.368	.987	86.4	783
50	1.324	1.001	84.1	722	1.341	1.036	86.7	698	1.334	.998	84.3	736	1.338	.999	84.1	740
70	1.291	.986	89.2	710	1.314	1.026	90.5	683	1.310	.981	88.6	734	1.331	.980	88.3	756
85	1.255	.973	90.8	690	1.293	1.008	90.4	684	1.275	.967	91.0	718	1.290	.964	91.0	737
90	1.228	.966	88.6	671	1.280	1.006	88.7	674	1.250	.960	88.6	703	1.264	.959	88.3	718
95 (tip)	1.210	.966	87.4	650	1.252	1.007	90.8	641	1.232	.953	87.2	680	1.260	.963	86.1	709
MR	1.305	.984	87.5	728	1.329	1.023	88.8	704	1.317	.979	87.5	746	1.320	.979	86.9	750

1) Test environment: Po = 1972 psfa, T_o = 494.1°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^*_{13} = \tan^{-1}[\tan \beta_{13}/\cos \epsilon]$

Stator Discharge Circumferential Distributions
Disk Probe Station 13 90% Speed

$W\sqrt{\theta}/\delta = 156.12$

Circumferential Position	21°				45°				81°				105°			
% Span	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vn.	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm	P_{13}/Po	P_{13}/Po	90 - β^*_{13}	Vm
5 (hub)	1.155	1.090	104.0	327	1.135	1.070	93.4	340	1.149	1.104	100.0	278	1.146	1.075	91.0	356
10	1.095	1.093	87.9	57	1.095	1.081	87.5	176	1.109	1.107	87.2	60	1.109	1.086	84.5	202
15	1.079	1.079	74.6	0	1.085	1.081	82.4	85	1.099	1.099	82.2	0	1.101	1.084	82.3	259
30	1.113	1.098	76.8	162	1.192	1.083	82.0	431	1.181	1.111	80.3	340	1.264	1.090	86.4	562
50	1.437	1.116	84.8	694	1.353	1.088	82.9	643	1.294	1.123	85.5	529	1.264	1.097	84.1	525
70	1.390	1.116	87.1	649	1.340	1.081	87.2	641	1.312	1.125	88.4	550	1.256	1.091	87.1	529
85	1.369	1.106	89.3	642	1.351	1.073	88.8	664	1.321	1.119	90.2	571	1.270	1.081	87.0	567
90	1.358	1.102	89.4	636	1.337	1.067	87.8	656	1.304	1.113	90.3	560	1.249	1.076	87.1	547
95 (tip)	1.348	1.099	89.4	630	1.319	1.067	87.9	641	1.290	1.109	90.4	548	1.235	1.077	88.0	525
MR	1.365	1.109	87.0	632	1.313	1.079	85.9	614	1.284	1.119	87.7	521	1.253	1.087	86.2	527
		141°				171°				195°				231°		
5 (hub)	1.191	1.075	94.8	443	1.213	1.068	93.0	496	1.256	1.023	89.2	625	1.273	1.067	89.7	583
10	1.113	1.079	84.2	245	1.124	1.063	84.2	327	1.306	1.036	85.9	659	1.202	1.066	84.7	480
15	1.115	1.087	80.8	219	1.135	1.070	81.5	335	1.362	1.043	86.0	707	1.334	1.086	83.6	624
30	1.344	1.105	86.7	609	1.360	1.095	87.1	641	1.348	1.053	85.9	682	1.379	1.089	87.4	670
50	1.319	1.110	86.9	576	1.339	1.102	87.3	605	1.319	1.057	84.0	643	1.357	1.093	85.5	639
70	1.288	1.104	87.0	548	1.304	1.093	87.0	577	1.310	1.047	88.3	649	1.323	1.086	87.7	612
85	1.257	1.094	89.5	525	1.287	1.083	89.4	574	1.302	1.035	88.8	657	1.319	1.072	89.2	626
90	1.244	1.092	89.6	509	1.261	1.078	89.6	548	1.287	1.029	87.2	648	1.297	1.069	89.4	607
95 (tip)	1.236	1.089	89.7	501	1.240	1.075	91.6	524	1.257	1.026	87.3	619	1.268	1.063	89.6	581
MR	1.281	1.100	87.6	543	1.296	1.089	87.8	575	1.313	1.044	86.7	657	1.332	1.083	87.3	627
		255°				291°				315°				275°		
5 (hub)	1.216	1.014	88.7	591	1.220	1.052	90.7	536	1.152	1.012	88.9	502	1.172	1.023	90.5	515
10	1.303	1.028	85.4	670	1.146	1.049	84.1	414	1.131	1.021	84.3	445	1.116	1.028	84.3	399
15	1.377	1.036	86.7	736	1.272	1.071	83.4	574	1.281	1.037	84.1	636	1.157	1.034	82.8	465
30	1.368	1.047	85.6	700	1.386	1.078	87.4	689	1.379	1.048	85.9	719	1.404	1.051	85.3	739
50	1.345	1.055	83.5	673	1.371	1.086	85.5	663	1.350	1.057	84.0	677	1.357	1.059	84.2	663
70	1.327	1.046	88.2	669	1.335	1.080	88.2	635	1.334	1.042	88.0	682	1.342	1.049	87.8	663
85	1.326	1.033	88.5	685	1.331	1.064	90.0	651	1.335	1.034	89.2	694	1.346	1.039	89.0	700
90	1.307	1.027	86.9	675	1.311	1.063	90.1	634	1.321	1.031	86.9	684	1.325	1.032	86.6	687
95 (tip)	1.280	1.025	86.9	648	1.284	1.059	90.3	606	1.293	1.027	86.4	661	1.301	1.029	85.9	667
MR	1.330	1.041	86.4	680	1.335	1.075	87.7	643	1.330	1.042	86.4	680	1.333	1.045	86.2	679

1) Test environment: P_o = 1969 psfa, T_o = 498.0°R
2) Vm calculation is based on standard-day inlet plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^*_{13} = \tan^{-1}[\tan \beta_{13}/\cos\alpha]$

Stator Discharge Circumferential Distributions
Disk Probe Station 13 90% Speed

$W\sqrt{\theta}/\delta = 148.96$

Circumferential Position	21°				45°				81°				105°			
% Span	P_{13}/P_o	P_{13}/P_o	$90-\beta^*_{13}$	Vm	P_{13}/P_o	P_{13}/P_o	$90-\beta^*_{13}$	Vm	P_{13}/P_o	P_{13}/P_o	$90-\beta^*_{13}$	Vm	P_{13}/P_o	P_{13}/P_o	$90-\beta^*_{13}$	Vm
5 (hub)	1.150	1.116	106.2	233	1.154	1.113	98.7	264	1.154	1.123	103.2	228	1.145	1.103	93.5	269
10	1.105	1.105	92.7	0	1.114	1.113	89.4	34	1.113	1.113	89.4	0	1.113	1.110	84.9	66
15	1.092	1.092	76.3	0	1.105	1.105	80.5	0	1.106	1.106	81.7	0	1.128	1.118	81.9	130
30	1.113	1.111	75.6	62	1.167	1.116	80.4	293	1.180	1.123	80.2	308	1.308	1.114	85.9	552
50	1.432	1.130	83.1	670	1.357	1.124	82.8	602	1.302	1.134	84.6	521	1.278	1.123	85.0	502
70	1.426	1.130	86.0	667	1.378	1.119	86.7	633	1.324	1.136	87.8	551	1.283	1.117	87.4	524
85	1.384	1.122	88.9	638	1.369	1.110	89.1	637	1.327	1.125	87.5	570	1.291	1.107	87.3	556
90	1.366	1.116	89.0	628	1.363	1.104	88.0	641	1.316	1.120	87.5	563	1.279	1.103	87.4	545
95 (tip)	1.356	1.114	89.0	621	1.356	1.104	88.0	636	1.302	1.120	90.4	546	1.268	1.102	87.4	532
MR	1.381	1.124	85.9	630	1.339	1.115	86.0	596	1.294	1.129	86.7	519	1.278	1.114	86.5	520
		141°				171°				195°				231°		
5 (hub)	1.199	1.095	94.1	416	1.228	1.097	92.5	467	1.234	1.034	89.5	562	1.225	1.080	91.5	493
10	1.123	1.106	84.5	168	1.144	1.088	85.2	310	1.294	1.048	86.0	631	1.154	1.080	84.9	358
15	1.127	1.111	81.2	161	1.176	1.097	82.5	363	1.356	1.054	86.0	688	1.238	1.095	83.2	466
30	1.354	1.124	85.3	592	1.362	1.116	85.9	615	1.350	1.064	85.9	670	1.376	1.106	86.4	645
50	1.338	1.129	85.4	571	1.351	1.124	86.0	589	1.334	1.071	83.6	641	1.366	1.116	86.5	619
70	1.315	1.122	85.4	555	1.332	1.114	86.0	580	1.324	1.061	87.0	644	1.350	1.107	86.5	613
85	1.309	1.114	88.6	562	1.318	1.103	88.5	582	1.322	1.051	88.4	658	1.339	1.094	88.1	619
90	1.295	1.110	88.6	553	1.304	1.099	88.6	572	1.308	1.043	86.8	652	1.325	1.089	88.4	612
95 (tip)	1.276	1.104	88.8	536	1.290	1.094	88.6	562	1.285	1.042	86.8	629	1.315	1.085	88.5	606
MR	1.309	1.119	86.4	550	1.319	1.111	86.7	571	1.325	1.057	86.2	651	1.338	1.102	86.9	607
		255°				291°				315°				345°		
5 (hub)	1.153	1.038	91.2	451	1.149	1.088	98.9	323	1.143	1.074	95.3	347	1.142	1.102	99.5	262
10	1.112	1.046	85.4	344	1.095	1.093	85.0	53	1.090	1.084	86.4	107	1.091	1.089	87.7	52
15	1.182	1.052	83.3	471	1.082	1.082	79.9	0	1.080	1.080	82.7	37	1.075	1.075	81.0	0
30	1.370	1.066	85.2	689	1.233	1.103	81.3	460	1.306	1.087	82.4	590	1.196	1.091	80.7	418
50	1.360	1.077	82.9	661	1.384	1.122	85.0	632	1.381	1.092	83.7	665	1.405	1.105	84.3	674
70	1.341	1.069	86.2	654	1.376	1.122	86.9	623	1.356	1.089	86.5	646	1.370	1.104	86.9	642
85	1.346	1.062	87.4	670	1.376	1.112	88.6	639	1.359	1.083	87.6	658	1.370	1.097	88.2	654
90	1.333	1.058	86.7	662	1.366	1.106	88.6	637	1.344	1.075	87.0	654	1.357	1.091	87.3	649
95 (tip)	1.313	1.052	86.7	651	1.359	1.103	88.6	635	1.339	1.078	86.8	645	1.346	1.089	87.3	641
MR	1.331	1.065	85.5	650	1.346	1.113	86.5	603	1.341	1.086	85.5	635	1.346	1.098	85.9	624

1) Test environment: P_o = 1997 psfa, T_o = 501.2°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^*_{13} = \tan^{-1}[\tan \beta_{13}/\cos \epsilon]$

Stator Discharge Circumferential Distributions

Disk Probe Station 13 95% Speed

$W\sqrt{\theta}/\delta = 174.19$

Circumferential Position	21°				45°				81°				105°			
% Span	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm
5 (hub)	1.165	1.016	94.7	516	1.122	.994	90.2	489	1.128	1.044	94.6	387	1.162	1.011	89.7	521
10	1.097	1.011	84.7	399	1.033	.999	84.6	397	1.078	1.051	83 7	222	1.125	1.015	84.2	444
15	1.068	1.011	80.1	328	1.143	1.008	83.4	496	1.067	1.057	79.5	139	1.261	1.028	84.0	623
30	1.437	1.036	83.9	788	1.330	1.020	85.1	714	1.275	1.070	84.2	589	1.268	1.036	87.6	628
50	1.421	1.048	86.1	763	1 351	1.023	85.1	729	1.311	1.074	85.7	624	1.238	1.041	85.7	586
70	1.379	1.037	88.5	737	1.349	1.010	88.3	742	1.308	1.069	87.8	627	1.245	1.034	87.8	607
85	1.373	1.019	88.2	753	1.384	.997	90.5	770	1.290	1.055	87.7	626	1.243	1.022	87.8	621
90	1.347	1.016	86.9	734	1.354	.989	88.2	771	1.268	1.053	87.9	603	1.209	1.020	87.8	581
95 (tip)	1.322	1.020	89.1	706	1.341	.994	87.4	756	1.252	1.050	88.0	589	1.191	1.019	88.7	558
MR	1.366	1.032	86.9	733	1.328	1.009	87.0	725	1.278	1.064	86.6	599	1.238	1.031	87.1	601
		141°				171°				195°				231°		
5 (hub)	1.197	1.035	92.4	530	1.232	1.022	91.6	601	1.300	.967	89.4	753	1.337	1.014	89.6	731
10	1.114	1.032	83.7	384					1.335	.980	86.4	765	1.278	1.019	84.2	659
15	1.150	1.041	82.0	436	1.408	1.050	87.7	747	1.419	.986	87.7	829	1.438	1.028	85.7	801
30	1.386	1.066	88.4	709	1.368	1.057	85.8	695	1.380	1.003	87.6	777	1.422	1.039	87.6	773
50	1.337	1.074	86.5	653		1.051	79.0		1.337	1.014	85.3	721	1.378	1.046	85.4	721
70	1.241	1.066	88.7	547	1.294	1.049	88.6	631	1.303	.997	89.3	709	1.345	1.035	89.5	703
85	1.199	1.055	89.0	505	1.264	1.039	88.7	612	1.245	.984	91.5	665	1.294	1.025	89.8	664
90	1.182	1.053	89.2	482	1.232	1.034	89.0	579	1.221	.977	89.0	647	1.261	1.019	88.1	637
95 (tip)	1.173	1.050	89.3	471	1.207	1.032	91.6	548	1.205	.977	87.8	629	1.234	1.018	90.5	606
MR	1.270	1.061	87.8	592	1.369	1.076	89.6	676	1.316	.995	88.1	726	1.355	1.033	87.9	719
		255°				291°				315°				345°		
5 (hub)	1.356	.945	89.1	829	1.337	.997	88.6	754	1.285	.937	88.9	782	1.218	.944	88.7	706
10	1.416	.958	88.1	861	1.352	1.009	84.9	750	1.352	.955	87.0	818	1.426	.977	87.0	845
15	1.429	.960	89.2	872	1.454	1.010	87.7	838	1.442	.955	88.4	889	1.381	.954	84.9	789
30	1.394	.988	87.2	807	1.441	1.023	86.5	806	1.415	.979	87.7	835			78.0	
50	1.363	.996	85.2	768	1.396	1.034	85.5	754	1.378	.993	84.9	786			78.1	
70	1.326	.978	89.6	756	1.362	1.019	89.9	741	1.354	.970	89.6	791	1.376	.968	89.8	813
85	1.277	.968	91.3	724	1.316	1.003	88.6	716	1.299	.956	91.5	758	1.329	.957	91.9	785
90	1.248	.959	88.8	704	1.288	1.003	88.8	690	1.263	.961	89.3	731	1.303	.953	89.0	767
95 (tip)	1.231	.961	87.3	684	1.257	.998	89.1	665	1.246	.954	87.6	710	1.299	.957	86.0	758
MR	1.340	.976	88.1	773	1.373	1.016	87.8	756	1.354	.969	88.1	795				

1) Test environment: P_0 = 1957 psfa, T_0 = 498.2°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^{\circ}_{13} = \tan^{-1}[\tan \beta_{13}/\cos \epsilon]$

Stator Discharge Circumferential Distributions
Disk Probe Station 13 95% Speed

$W\sqrt{\theta}/\delta = 162.90$

Circumferential Position	21°				45°				81°				105°			
% Span	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^{\circ}_{13}$	Vm
5 (hub)	1.152	1.117	104.8	242	1.160	1.091	96.1	349	1.163	1.131	107.6	222	1.164	1.094	92.5	348
10	1.106	1.108	90.3	0	1.112	1.100	88.5	149	1.118	1.118	91.8	0	1.118	1.106	84.8	146
15	1.093	1.093	76.3	0	1.096	1.095	82.2	40	1.109	1.109	79.4	0	1.140	1.106	81.8	241
30	1.123	1.113	76.9	126	1.210	1.100	81.3	430	1.158	1.136	78.8	192	1.320	1.108	86.9	561
50	1.475	1.135	84.5	711	1.390	1.108	83.6	661	1.328	1.142	85.1	549	1.293	1.114	85.2	542
70	1.447	1.133	87.6	689	1.366	1.102	88.1	647	1.362	1.143	87.5	589	1.287	1.109	87.3	547
85	1.427	1.121	89.6	687	1.399	1.094	88.0	691	1.356	1.133	88.9	598	1.302	1.099	87.3	586
90	1.419	1.120	89.6	682	1.391	1.088	87.6	692	1.345	1.129	88.9	591	1.280	1.094	87.3	564
95 (tip)	1.412	1.115	89.6	683	1.371	1.087	87.6	674	1.328	1.125	90.2	577	1.264	1.095	88.9	543
MR	1.416	1.127	37.1	664	1.350	1.099	86.2	634	1.326	1.137	87.3	554	1.283	1.106	86.8	545
		141°				171°				195°				231°		
5 (hub)	1.212	1.092	94.3	448	1.247	1.083	92.8	523	1.288	1.026	90.1	662	1.315	1.076	89.8	624
10	1.130	1.094	83.8	249	1.149	1.078	84.7	353	1.346	1.040	86.9	703	1.252	1.078	85.0	538
15	1.132	1.101	81.0	228	1.172	1.085	82.1	382	1.407	1.046	87.6	752	1.404	1.091	84.8	695
30	1.386	1.117	87.3	640	1.400	1.107	87.1	670	1.395	1.059	86.9	727	1.420	1.096	87.6	704
50	1.362	1.124	87.5	611	1.380	1.115	87.3	635	1.360	1.067	85.1	682	1.396	1.100	85.6	673
70	1.327	1.119	87.7	579	1.346	1.105	86.6	612	1.357	1.058	87.4	693	1.361	1.092	87.6	648
85	1.299	1.109	90.6	561	1.325	1.094	88.4	607	1.359	1.043	88.7	715	1.360	1.076	87.4	668
90	1.285	1.106	90.7	547	1.294	1.088	88.6	578	1.348	1.043	87.0	707	1.338	1.073	87.5	650
95 (tip)	1.273	1.102	90.8	539	1.276	1.088	91.2	556	1.305	1.035	87.2	674	1.305	1.071	90.5	617
MR	1.320	1.114	88.3	575	1.335	1.102	87.5	606	1.361	1.053	87.1	704	1.374	1.089	87.2	667
		255°				291°				315°				345°		
5 (hub)	1.161	1.038	92.9	468	1.203	1.064	94.7	489	1.144	1.044	93.2	426	1.166	1.047	94.4	460
10	1.118	1.042	86.5	370	1.117	1.061	85.1	319	1.098	1.047	86.0	305	1.109	1.051	86.7	325
15	1.181	1.051	84.0	475	1.126	1.068	82.3	324	1.116	1.054	83.3	335	1.101	1.053	82.4	296
30	1.398	1.063	85.6	723	1.421	1.091	85.6	711	1.403	1.069	84.9	722	1.388	1.071	83.5	704
50	1.407	1.077	84.7	711	1.432	1.102	85.5	706	1.409	1.077	85.0	714	1.428	1.081	85.4	728
70	1.387	1.074	86.9	697	1.406	1.094	86.8	692	1.393	1.074	86.9	703	1.424	1.080	87.0	726
85	1.396	1.064	87.7	718	1.392	1.079	88.0	698	1.409	1.066	87.8	728	1.428	1.070	88.6	743
90	1.380	1.058	87.2	712	1.383	1.077	88.1	693	1.386	1.061	86.9	715	1.396	1.063	87.6	723
95 (tip)	1.358	1.056	87.3	696	1.372	1.074	88.8	687	1.356	1.055	87.1	696	1.378	1.066	87.3	704
MR	1.371	1.066	86.3	693	1.385	1.088	86.8	681	1.376	1.068	86.3	696	1.391	1.073	86.4	706

1) Test environment: P_o = 1978 psfa, T_o = 493.6°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^{\circ}_{13} = \tan^{-1}[\tan \beta_{13}/\cos \epsilon]$

Stator Discharge Circumferential Distributions

Disk Probe Station 13 95% Speed

$W\sqrt{\theta}/\delta = 159.93$

Circumferential Position		21°				45°				81°				105°			
% Span	P_{13}/Po	p_{13}/Po	$90 - \beta^*_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^*_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^*_{13}$	Vm	P_{13}/Po	p_{13}/Po	$90 - \beta^*_{13}$	Vm
5 (hub)	1.151	1.110	104.2	260	1.174	1.116	99.5	314	1.159	1.130	106.1	216	1.146	1.114	95.3	234
10	1.103	1.103	89.7	0	1.126	1.123	89.4	78	1.115	1.115	90.6	0	1.113	1.113	84.4	27
15	1.089	1.089	76.4	0	1.110	1.110	81.2	0	1.109	1.109	79.9	0	1.125	1.122	81.1	72
30	1.115	1.107	75.9	115	1.179	1.121	80.3	313	1.167	1.130	79.6	249	1.333	1.124	86.5	574
50	1.465	1.126	84.8	713	1.393	1.128	83.6	640	1.332	1.140	85.7	556	1.303	1.131	85.7	529
70	1.445	1.128	87.4	693	1.386	1.123	88.4	642	1.363	1.142	87.9	592	1.306	1.125	88.0	549
85	1.426	1.115	89.1	692	1.408	1.115	88.3	676	1.360	1.132	89.0	604	1.320	1.116	88.0	584
90	1.414	1.114	89.2	685	1.405	1.109	87.6	682	1.345	1.128	89.1	593	1.301	1.111	88.0	568
95 (tip)	1.406	1.110	89.2	684	1.388	1.108	87.7	669	1.330	1.125	90.7	580	1.289	1.109	88.0	556
MR	1.411	1.120	86.9	671	1.365	1.119	86.4	623	1.326	1.135	87.5	556	1.303	1.122	87.1	547
		141°				171°				195°				231°		
5 (hub)	1.223	1.103	94.3	446	1.277	1.094	92.5	547	1.302	1.024	89.9	679	1.258	1.080	91.5	545
10	1.137	1.108	83.9	203	1.176	1.089	85.3	385	1.358	1.036	87.0	715	1.166	1.077	85.4	393
15	1.146	1.110	81.2	247	1.233	1.100	83.3	468	1.406	1.041	87.8	755	1.292	1.096	83.8	563
30	1.388	1.129	87.5	627	1.400	1.115	87.4	661	1.389	1.054	87.0	724	1.428	1.106	87.5	701
50	1.369	1.135	87.6	604	1.385	1.122	87.5	632	1.351	1.061	85.0	676	1.408	1.116	87.7	666
70	1.344	1.130	87.7	585	1.358	1.113	87.6	616	1.348	1.050	87.9	685	1.391	1.103	86.8	664
85	1.329	1.121	89.3	582	1.341	1.097	87.5	620	1.350	1.037	89.0	705	1.380	1.090	88.6	671
90	1.310	1.115	89.4	568	1.325	1.093	87.6	608	1.332	1.032	87.1	695	1.364	1.088	88.7	660
95 (tip)	1.294	1.109	89.5	556	1.308	1.094	90.5	587	1.295	1.027	87.1	663	1.353	1.083	88.7	655
MR	1.334	1.125	88.0	577	1.349	1.109	87.7	612	1.354	1.046	87.3	698	1.381	1.100	87.5	660
		255°				291°				315°				345°		
5 (hub)	1.19[illegible]	1.026	91.1	539	1.155	1.097	101.4	313	1.137	1.095	98.6	271	1.147	1.093	100.2	304
10	1.156	1.034	85.6	468	1.097	1.097	86.8	1	1.095	1.094	88.5	42	1.101	1.100	90.3	44
15	1.272	1.049	84.2	609	1.087	1.087	81.3	0	1.085	1.085	84.5	0	1.085	1.085	83.9	0
30	1.404	1.062	86.4	731	1.216	1.110	81.2	419	1.229	1.096	82.2	471	1.179	1.097	81.3	374
50	1.405	1.070	84.4	717	1.440	1.131	85.7	682	1.429	1.106	85.0	699	1.452	1.113	85.4	714
70	1.385	1.065	86.9	705	1.435	1.133	87.5	674	1.412	1.109	87.6	681	1.429	1.111	87.9	696
85	1.395	1.055	87.8	728	1.437	1.120	89.0	695	1.414	1.100	88.3	697	1.440	1.106	89.1	715
90	1.377	1.051	87.0	717	1.427	1.117	89.2	689	1.404	1.093	87.1	696	1.413	1.098	88.0	701
95 (tip)	1.352	1.046	87.0	701	1.416	1.113	89.2	686	1.391	1.093	87.1	686	1.397	1.098	87.9	687
MR	1.375	1.059	86.3	705	1.398	1.123	87.1	651	1.381	1.102	86.4	661	1.396	1.106	87.0	671

1) Test environment: $P_o = 1982$ psfa, $T_o = 494.8°R$
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Relative position of circumferential distortion screen is in second quadrant
5) $\beta^*_{13} = \tan^{-1}[\tan \beta_{13}/\cos \epsilon]$

$W\sqrt{\theta}/\delta = 147.35$ Stator Discharge Circumferential Distributions

Temperature Rakes, Station 13, 80% Speed

Circumferential Position	25°	45°	85°	115°	135°	175°	195°	235°	255°	285°	325°	345°
% Span	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0
5 (hub)	1.0841	1.0776	1.0746	1.0814	1.0831	1.0865	1.0904	1.0922	1.0974	1.0978	1.0922	1.0883
10	1.0851	1.0729	1.0705	1.0770	1.0787	1.0830	1.0859	1.0924	1.0931	1.0957	1.0886	1.0866
15	1.0884	1.0747	1.0731	1.0849	1.0847	1.0924	1.0939	1.0977	1.0982	1.1001	1.1007	1.0946
30	1.1101	1.0943	1.0806	1.0776	1.0801	1.0845	1.0830	1.0874	1.0837	1.0853	1.0908	1.0951
50	1.0989	1.1042	1.0897	1.0655	1.0725	1.0763	1.0774	1.0808	1.0814	1.0825	1.0864	1.0880
70	1.0873	1.1076	1.0931	1.0696	1.0668	1.0721	1.0712	1.0755	1.0741	1.0757	1.0802	1.0808
85	1.0901	1.1020	1.0988	1.0746	1.0658	1.0718	1.0692	1.0739	1.0719	1.0734	1.0784	1.0780
90	1.0930	1.1046	1.1022	1.0767	1.0672	1.0737	1.0706	1.0759	1.0733	1.0743	1.0808	1.0792
95 (tip)	1.0969	1.1114	1.1043	1.0769	1.0697	1.0752	1.0729	1.0783	1.0750	1.0761	1.0838	1.0828
MR	1.0949	1.0995	1.0894	1.0737	1.0728	1.0779	1.0771	1.0814	1.0804	1.0821	1.0859	1.0861

Test environment: Po = 1989 psfa, To = 499.6°R

$W\sqrt{\theta}/\delta = 136.69$

5 (hub)	1.0902	1.0781	1.0763	1.0817	1.0822	1.0860	1.0859	1.0882	1.0920	1.0940	1.0886	1.0874
10	1.0870	1.0723	1.0714	1.0755	1.0762	1.0809	1.0796	1.0859	1.0875	1.0879	1.0832	1.0828
15	1.0839	1.0699	1.0694	1.0779	1.0782	1.0866	1.0871	1.0925	1.0931	1.0948	1.0833	1.0843
30	1.0898	1.0807	1.0765	1.0789	1.0802	1.0846	1.0832	1.0871	1.0850	1.0871	1.0966	1.1023
50	1.1082	1.0993	1.0885	1.0706	1.0751	1.0797	1.0783	1.0818	1.0814	1.0825	1.0912	1.0914
70	1.1033	1.1112	1.0943	1.0695	1.0706	1.0763	1.0758	1.0789	1.0782	1.0796	1.0885	1.0871
85	1.1056	1.1137	1.1025	1.0757	1.0719	1.0781	1.0765	1.0808	1.0784	1.0802	1.0933	1.0899
90	1.1062	1.1158	1.1062	1.0785	1.0744	1.0806	1.0778	1.0837	1.0802	1.0824	1.0970	1.0931
95 (tip)	1.1094	1.1189	1.1075	1.0797	1.0771	1.0831	1.0808	1.0860	1.0832	1.0858	1.1027	1.0986
MR	1.1011	1.0998	1.0896	1.0747	1.0752	1.0807	1.0794	1.0835	1.0825	1.0843	1.0922	1.0920

Test environment: Po = 1999 psfa, To = 500.2°R

$W\sqrt{\theta}/\delta = 127.02$

5 (hub)	1.0870	1.0751	1.0766	1.0800	1.0815	1.0848	1.0859	1.0870	1.0913	1.0931	1.0904	1.0921
10	1.0866	1.0732	1.0714	1.0740	1.0745	1.0792	1.0788	1.0798	1.0825	1.0909	1.0829	1.0900
15	1.0855	1.0718	1.0689	1.0739	1.0761	1.0844	1.0840	1.0826	1.0840	1.0891	1.0813	1.0898
30	1.0859	1.0748	1.0706	1.0816	1.0799	1.0845	1.0847	1.0898	1.0900	1.0884	1.0938	1.0914
50	1.1028	1.0923	1.0867	1.0732	1.0768	1.0810	1.0802	1.0837	1.0837	1.0960	1.0869	1.1026
70	1.1091	1.1078	1.0951	1.0717	1.0727	1.0772	1.0777	1.0821	1.0842	1.0956	1.0871	1.0981
85	1.1086	1.1182	1.1035	1.0797	1.0749	1.0807	1.0822	1.0885	1.0884	1.1025	1.0949	1.1056
90	1.1084	1.1187	1.1067	1.0829	1.0770	1.0846	1.0856	1.0929	1.0928	1.1049	1.0987	1.1088
95 (tip)	1.1107	1.1199	1.1086	1.0858	1.0809	1.0887	1.0906	1.0981	1.0984	1.1117	1.1062	1.1145
MR	1.1016	1.0983	1.0891	1.0770	1.0765	1.0818	1.0823	1.0867	1.0875	1.0968	1.0910	1.1002

Test environment: Po = 2015 psfa, T_o = 500.7°R

$W\sqrt{\theta}/\delta = 166.03$ Stator Discharge Circumferential Distributions
Temperature Rakes, Station 13, 90% Speed

Circumferential Position	25°	45°	85°	115°	135°	175°	195°	235°	255°	285°	325°	345°
% Span	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0
5 (hub)	1.1057	1.1009	1.0964	1.1039	1.1080	1.1126	1.1168	1.1181	1.1219	1.1246	1.1143	1.1132
10	1.1058	1.0945	1.0912	1.0993	1.1016	1.1083	1.1115	1.1187	1.1211	1.1249	1.1087	1.1110
15	1.1077	1.0962	1.0914	1.1064	1.1067	1.1187	1.1206	1.1247	1.1272	1.1280	1.1222	1.1198
30	1.1383	1.1195	1.1046	1.1007	1.1012	1.1071	1.1054	1.1094	1.1062	1.1080	1.1153	1.1175
50	1.1223	1.1302	1.1166	1.0847	1.0912	1.0971	1.1005	1.1028	1.1043	1.1066	1.1105	1.1107
70	1.1116	1.1354	1.1189	1.0871	1.0839	1.0898	1.0914	1.0952	1.0927	1.0966	1.1028	1.1018
85	1.1128	1.1281	1.1241	1.0935	1.0823	1.0899	1.0888	1.0936	1.0899	1.0927	1.1014	1.1003
90	1.1169	1.1280	1.1280	1.0952	1.0829	1.0920	1.0897	1.0959	1.0904	1.0941	1.1049	1.1026
95 (tip)	1.1232	1.1343	1.1301	1.0955	1.0851	1.0929	1.0919	1.0981	1.0936	1.0963	1.1082	1.1069
MR	1.1189	1.1248	1.1141	1.0930	1.0915	1.0984	1.0988	1.1030	1.1018	1.1036	1.1092	1.1088

Test environment: $P_0 = 1972$ psfa, $T_0 = 494.1°R$

$W\sqrt{\theta}/\delta = 156.12$

5 (hub)	1.1149	1.1035	1.0968	1.1036	1.1036	1.1090	1.1115	1.1148	1.1174	1.1193	1.1142	1.1117
10	1.1125	1.0967	1.0912	1.0965	1.0960	1.1028	1.1053	1.1120	1.1125	1.1107	1.1079	1.1065
15	1.1104	1.0939	1.0885	1.0980	1.0976	1.1090	1.1140	1.1185	1.1198	1.1202	1.1053	1.1054
30	1.1139	1.1073	1.0976	1.1028	1.1012	1.1069	1.1054	1.1098	1.1089	1.1124	1.1134	1.1284
50	1.1406	1.1264	1.1142	1.0884	1.0948	1.1030	1.0996	1.1037	1.1031	1.1059	1.1170	1.1182
70	1.1327	1.1388	1.1215	1.0906	1.0883	1.0952	1.0968	1.0997	1.0982	1.1013	1.1127	1.1111
85	1.1302	1.1487	1.1298	1.0969	1.0904	1.0959	1.0968	1.1008	1.0984	1.1019	1.1179	1.1124
90	1.1341	1.1508	1.1328	1.0996	1.0926	1.0992	1.0996	1.1043	1.1001	1.1047	1.1213	1.1154
95 (tip)	1.1397	1.1545	1.1349	1.1006	1.0956	1.1018	1.1020	1.1064	1.1041	1.1087	1.1268	1.1219
MR	1.1293	1.1288	1.1146	1.0955	1.0943	1.1014	1.1012	1.1053	1.1044	1.1075	1.1156	1.1164

Test environment: $P_0 = 1969$ psfa, $T_0 = 498.0°R$

$W\sqrt{\theta}/\delta = 148.96$

5 (hub)	1.1124	1.0992	1.0966	1.1010	1.1042	1.1089	1.1101	1.1129	1.1157	1.1157	1.1139	1.1157
10	1.1106	1.0949	1.0909	1.0937	1.0962	1.1019	1.0999	1.1027	1.1031	1.1055	1.1115	1.1123
15	1.1090	1.0932	1.0884	1.0928	1.0985	1.1073	1.1071	1.1027	1.1012	1.1022	1.1107	1.1118
30	1.1102	1.0990	1.0924	1.1024	1.1011	1.1069	1.1086	1.1132	1.1159	1.1138	1.1105	1.1147
50	1.1370	1.1236	1.1118	1.0915	1.0964	1.1013	1.1022	1.1065	1.1068	1.1104	1.1189	1.1240
70	1.1379	1.1392	1.1224	1.0914	1.0903	1.0967	1.0985	1.1048	1.1050	1.1083	1.1168	1.1181
85	1.1321	1.1531	1.1302	1.0980	1.0920	1.0997	1.1017	1.1103	1.1112	1.1149	1.1238	1.1236
90	1.1348	1.1565	1.1340	1.1014	1.0953	1.1037	1.1050	1.1144	1.1135	1.1182	1.1277	1.1286
95 (tip)	1.1400	1.1589	1.1364	1.1039	1.0989	1.1075	1.1103	1.1192	1.1190	1.1250	1.1323	1.1374
MR	1.1295	1.1296	1.1145	1.0962	1.0957	1.1023	1.1037	1.1092	1.1098	1.1124	1.1186	1.1214

Test environment: $P_0 = 1997$ psfa, $T_0 = 501.2°R$

$W\sqrt{\theta}/\delta = 174.19$ Stator Discharge Circumferential Distributions
Temperature Rakes, Station 13, 95% Speed

Circumferential Position	25°	45°	85°	115°	135°	175°	195°	235°	255°	285°	325°	345°
% Span	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0	T_{13}/T_0
5 (hub)	1.1182	1.1146	1.1086	1.1186	1.1224	1.1275	1.1299	1.1334	1.1571	1.1419	1.1260	1.1271
10	1.1170	1.1089	1.1034	1.1126	1.1145	1.1227	1.1251	1.1342	1.1372	1.1402	1.1205	1.1246
15	1.1175	1.1094	1.1014	1.1171	1.1188	1.1318	1.1358	1.1436	1.1443	1.1449	1.1351	1.1349
30	1.1505	1.1342	1.1177	1.1136	1.1134	1.1205	1.1174	1.1238	1.1200	1.1228	1.1289	1.1311
50	1.1356	1.1456	1.1305	1.0951	1.1024	1.1104	1.1125	1.1168	1.1190	1.1221	1.1251	1.1243
70	1.1262	1.1485	1.1334	1.0967	1.0941	1.1014	1.1005	1.1067	1.1050	1.1101	1.1161	1.1133
85	1.1272	1.1396	1.1382	1.1029	1.0893	1.0993	1.0961	1.1033	1.0997	1.1036	1.1138	1.1109
90	1.1321	1.1407	1.1423	1.1045	1.0909	1.1014	1.0970	1.1065	1.1068	1.1046	1.1170	1.1136
95 (tip)	1.1369	1.1488	1.1454	1.1052	1.0943	1.1047	1.1005	1.1112	1.1041	1.1085	1.1222	1.1195
MR	1.1325	1.1386	1.1276	1.1042	1.1020	1.1106	1.1093	1.1162	1.1150	1.1189	1.1226	1.1215

Test environment: P_0 = 1957 psfa, T_0 = 498.2°R

$W\sqrt{\theta}/\delta = 162.90$

5 (hub)	1.1253	1.1168	1.1083	1.1149	1.1161	1.1222	1.1238	1.1274	1.1296	1.1273	1.1279	1.1278
10	1.1237	1.1106	1.1024	1.1077	1.1079	1.1159	1.1097	1.1217	1.1174	1.1153	1.1252	1.1210
15	1.1220	1.1083	1.0987	1.1074	1.1109	1.1224	1.1179	1.1306	1.1240	1.1196	1.1231	1.1189
30	1.1249	1.1176	1.1045	1.1149	1.1121	1.1184	1.1219	1.1230	1.1270	1.1286	1.1212	1.1339
50	1.1511	1.1416	1.1265	1.0992	1.1050	1.1113	1.1132	1.1157	1.1168	1.1194	1.1332	1.1312
70	1.1404	1.1538	1.1369	1.1006	1.0984	1.1062	1.1093	1.1124	1.1129	1.1161	1.1300	1.1272
85	1.1454	1.1693	1.1442	1.1074	1.0993	1.1079	1.1120	1.1161	1.1149	1.1197	1.1356	1.1300
90	1.1500	1.1709	1.1479	1.1104	1.1031	1.1109	1.1153	1.1190	1.1183	1.1225	1.1423	1.1347
95 (tip)	1.1570	1.1745	1.1510	1.1117	1.1069	1.1143	1.1229	1.1247	1.1249	1.1292	1.1494	1.1434
MR	1.1412	1.1450	1.1277	1.1062	1.1046	1.1124	1.1151	1.1187	1.1191	1.1215	1.1320	1.1307

Test environment: P_0 = 1978 psfa, T_0 = 493.6°R

$W\sqrt{\theta}/\delta = 159.93$

5 (hub)	1.1265	1.1127	1.1066	1.1116	1.1164	1.1216	1.1251	1.1281	1.1307	1.1268	1.1277	1.1257
10	1.1251	1.1075	1.1014	1.1044	1.1075	1.1153	1.1152	1.1174	1.1178	1.1197	1.1243	1.1227
15	1.1237	1.1049	1.1980	1.1029	1.1100	1.1220	1.1232	1.1123	1.1122	1.1166	1.1223	1.1227
30	1.1265	1.1111	1.0995	1.1137	1.1125	1.1183	1.1211	1.1236	1.1245	1.1220	1.1203	1.1263
50	1.1513	1.1383	1.1248	1.1001	1.1043	1.1115	1.1120	1.1214	1.1212	1.1244	1.1321	1.1347
70	1.1399	1.1530	1.1378	1.1007	1.0978	1.1063	1.1080	1.1187	1.1200	1.1227	1.1292	1.1308
85	1.1448	1.1700	1.1446	1.1074	1.0985	1.1097	1.1100	1.1252	1.1248	1.1292	1.1348	1.1371
90	1.1502	1.1733	1.1485	1.1114	1.1016	1.1141	1.1140	1.1300	1.1306	1.1343	1.1403	1.1434
95 (tip)	1.1571	1.1770	1.1518	1.1130	1.1054	1.1188	1.1211	1.1361	1.1396	1.1427	1.1478	1.1538
MR	1.1414	1.1451	1.1279	1.1058	1.1040	1.1131	1.1144	1.1232	1.1239	1.1260	1.1310	1.1338

Test environment: P_0 = 1982 psfa, T_0 = 494.8°R

Stage Overall Performance for Inlet Circumferential Distortion

% Speed	$W\sqrt{\theta}/\delta$	P_{13}/P_4	η	T_{13}/T_4
80	147.35	1.2639	83.4	1.0832
80	136.69	1.2800	84.8	1.0864
80	127.02	1.2838	82.7	1.0895
90	166.03	1.3450	83.9	1.1054
90	156.12	1.3648	84.9	1.1095
90	148.96	1.3736	84.9	1.1120
95	174.19	1.3923	83.9	1.1185
95	162.90	1.4200	85.7	1.1231
95	159.93	1.4231	85.3	1.1245

APPENDIX 6

Broadband Noise Pressure Levels in One-Third-Octave Bands

Broadband Noise Pressure Levels (dB, 0.0002 dyne/cm2) in 1/3-Octave Bands

OPEN THROTTLE

Frequency Band (HZ)	560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900
110% Design Speed	117.2	117.2	117.2	117.4	117.5	117.8	118.4	131.4	120.0	120.5	121.2	117.7
100% Design Speed	119.5	117.3	116.7	115.8	116.2	115.6	118.4	118.2	117.4	118.8	119.7	115.2
90% Design Speed	117.2	116.6	115.9	115.5	115.0	114.8	118.4	116.4	115.4	117.9	114.6	113.9
80% Design Speed	116.1	115.6	115.4	114.9	115.0	117.7	118.5	117.3	118.4	119.3	117.7	116.4
65% Design Speed	112.7	112.2	112.2	112.2	114.0	115.9	114.4	115.7	118.1	117.0	117.3	117.0

PART THROTTLE

Frequency Band (HZ)	560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5600	5600-7100	7100-8900
110% Design Speed	118.4	118.2	117.9	117.9	118.1	118.2	119.2	125.8	121.8	121.1	122.3	118.5
105% Design Speed	118.1	117.2	116.9	116.6	116.2	116.8	120.0	126.3	121.6	120.4	121.4	117.9
100% Design Speed	118.4	117.6	117.2	116.9	116.4	116.8	119.8	121.7	118.8	120.0	121.5	117.5
90% Design Speed	117.5	117.0	116.9	117.0	117.1	118.1	122.1	122.1	120.9	123.3	120.5	120.2
80% Design Speed	114.8	114.2	114.1	114.3	114.6	117.0	120.5	118.1	119.9	121.8	119.8	119.0
65% Design Speed	111.4	112.2	112.8	113.0	116.4	119.5	119.0	121.0	124.9	124.6	123.6	121.9

NEAR STALL

Frequency Band (HZ)	560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900
110% Design Speed	118.4	118.1	117.8	118.0	118.6	119.3	119.3	125.7	122.0	121.4	122.0	118.4
100% Design Speed	117.7	117.3	116.8	116.2	115.7	116.2	119.1	122.0	118.5	119.3	119.7	116.2
90% Design Speed	116.9	116.3	115.8	116.0	115.8	118.2	123.0	120.0	121.1	124.9	121.1	121.3
80% Design Speed	116.0	115.3	115.1	115.8	116.9	119.9	121.9	121.4	124.0	125.4	123.7	122.4
65% Design Speed	111.4	113.1	114.7	115.6	117.3	119.6	119.9	121.0	123.6	122.9	122.5	120.7

APPENDIX 7

Derivation of Sound Power Level Equation

APPENDIX 7
Derivation of Sound Power Level Equation

The acoustic power is given by: (1)

$$w = Ia$$

where $I = \frac{S^2}{4z}$ for random incident broadband sound, such as exists in a reverberation room

a = total room absorption in cm^2 units, obtained by multiplying the area of each surface by its respective absorption coefficient

Converting power to watts, and a to square foot units and substituting the expression for I yields

$$w = \frac{9.3 \times 10^{-7} a S^2}{4z} \quad (2)$$

In a relatively reverberant environment, the reverberation time H is given by

$$H = \frac{0.05v}{a}$$

where a = total room absorption in sabins, ft^2 units

Substituting in Equation (2) yields

$$w = \frac{9.3 \times 10^{-7} \times .05\, vS^2}{4zH} \quad (3)$$

Taking the logarithm to the base 10 of both sides of the above equation results in

$$10 \log w = 20 \log S + 10 \log v - 50 + 10 \log 9.3 + 10 \log 5 - 10 \log 4z - 10 \log H \quad (4)$$

Defining $PWL = 10 \log \frac{w}{wo}$

$$SPL = 20 \log \frac{S}{S_o}$$

Substituting the above into Equation (4) yields the equation for the power level in terms of the average sound pressure level, the volume of the reverberant plenum, and the reverberation time. Thus, using z = 40.8 rayls we obtain

$$PWL = SPL + 10 \log v - 10 \log H - 19.4 \text{ dB} \quad (5)$$