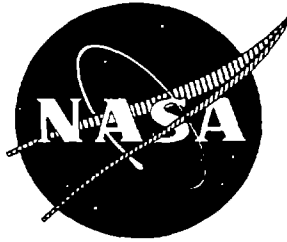


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**SINGLE-STAGE
EXPERIMENTAL EVALUATION OF
TANDEM-AIRFOIL ROTOR AND STATOR
BLADING FOR COMPRESSORS**

PART VII - DATA AND PERFORMANCE FOR STAGE E

by J. G. Cheatham

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DIVISION OF UNITED AIRCRAFT CORPORATION
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Prepared for
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16. Abstract An axial flow compressor stage, having tandem airfoil blading, was designed for zero rotor prewhirl, constant rotor work across the span, and axial discharge flow. The stage was designed to produce a pressure ratio of 1.265 at a rotor tip velocity of 757 ft/sec. The rotor had an inlet hub/tip ratio of 0.8. The design procedure accounted for the rotor inlet boundary layer and included the effects of axial velocity ratio and secondary flow on blade row performance. The objectives of this experimental program were (1) to obtain performance with uniform and distorted inlet flow for comparison with the performance of a stage consisting of single-airfoil blading designed for the same vector diagrams and (2) to evaluate the effectiveness of accounting for the inlet boundary layer, axial velocity ratio, and secondary flows in the stage design. With uniform inlet flow, Rotor E achieved a maximum adiabatic efficiency of 90.0% at design equivalent rotor speed and a pressure ratio of 1.322. The stage maximum adiabatic efficiency at design equivalent rotor speed with uniform inlet flow was 83.7% at a pressure ratio of 1.275. Tip radial distortion of the inlet flow at design rotor speed caused a 7.0% reduction in surge pressure ratio whereas hub radial and circumferential distortion produced reductions of approximately 2.5 and 2.5%, respectively.					
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FOREWORD

This report was prepared by the Pratt & Whitney Aircraft Division of United Aircraft Corporation, West Palm Beach, Florida, to present the data and performance for Stage E, which was tested under Contract NAS3-11158, Single-Stage Experimental Evaluation of Tandem-Airfoil Rotor and Stator Blading for Compressors. Mr. Everett E. Bailey, NASA-Lewis Research Center, Fluid System Components Division, was Project Manager.

The requirements of NASA Policy Directive NPD 2220.4 (September 14, 1970) regarding the use of SI Units have been waived in accordance with the provisions of paragraph 5d of that Directive by the Director of Lewis Research Center.

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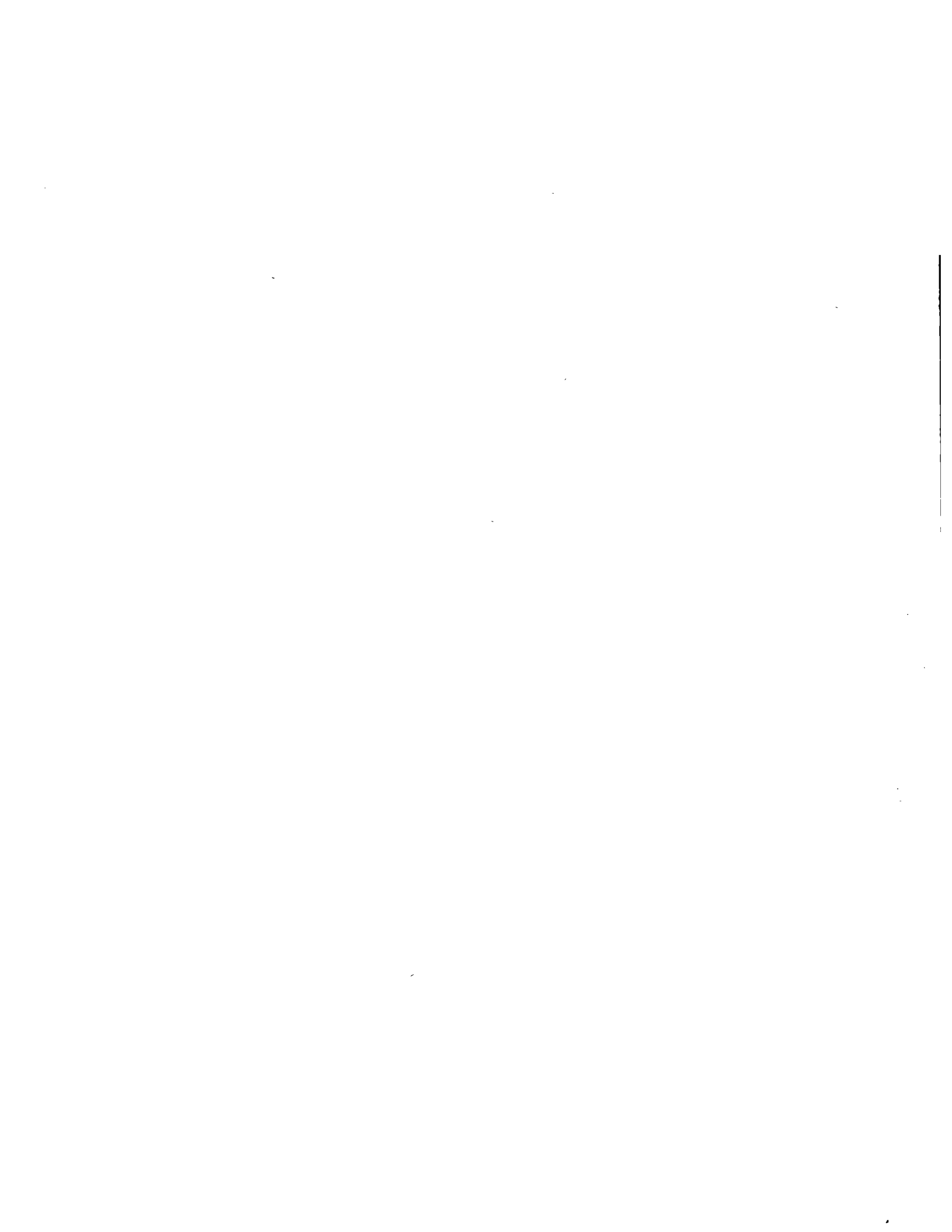
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SUMMARY

A single-stage axial flow compressor, having tandem-airfoil blading (i. e., blading composed of two airfoils positioned one behind the other so that there was an interblade passage whose width was approximately 10% of the individual airfoil chords) was designed and tested as part of an overall program to evaluate the effectiveness of tandem airfoils for increasing the design point loading capability and stable operating range of compressors. The stage was designed with zero rotor prewhirl, constant rotor work across the span, and axial discharge flow. The design procedure accounted for the rotor inlet boundary layer and included the effects of axial velocity ratio and secondary flow on blade row performance. The resulting blading had large variations in twist (i. e., end-bends) in the endwall regions. The rotor had an inlet hub/tip ratio of 0.8 and a design tip velocity of 757 ft/sec. The specific flow and resulting rotor inlet Mach number were generally consistent with design practice for compressor middle stages; however, the blade loading was appreciably higher. The stage was tested with uniform inlet flow and with hub radial, tip radial, and 90-deg one-per-revolution circumferential distortion of the inlet flow.

Overall and blade element performance data for uniform inlet flow were obtained at 50, 70, 90, 100, and 110% of design equivalent rotor speed and are presented herein. At design equivalent rotor speed and flow, the rotor achieved an adiabatic efficiency of 89.7% at a pressure ratio of 1.291, compared with respective design values of 89.9% and 1.28. At the same flow and rotor speed, the stage achieved an adiabatic efficiency of 83.7% at a pressure ratio of 1.275 relative to respective design values of 84.8 and 1.260. At design equivalent rotor speed, maximum rotor and stage adiabatic efficiencies of 90.0 and 83.7% were reached at approximately 98 and 100% of design equivalent flow, respectively.

For both hub radial and tip radial distortion of the inlet flow, overall performance, blade element performance, and flow distribution data were obtained at 70, 90, and 100% of design equivalent rotor speed and are also presented herein. For circumferential distortion of the inlet flow, overall performance data were obtained at 70, 90, and 100% of design equivalent rotor speed. Flow distribution data were also obtained with circumferential distortion of the inlet flow for two operating points (defined as a combination of flow and speed) at design equivalent rotor speed and one operating point at 90% design equivalent rotor speed.

Hub radial and circumferential distortion of the inlet flow produced moderate changes in surge pressure ratio for the stage, whereas tip radial distortion caused a substantial decrease in surge pressure ratio. At design equivalent rotor speed with hub radial, tip radial, and circumferential distortion, the surge pressure ratio decreased 2.5, 7.0, and 2.5%, respectively, when compared with the uniform inlet flow value. At design equivalent rotor speed and flow, hub, tip, and circumferential distortion reduced stage adiabatic efficiency by 4.3, 4.3, and 5.9%, respectively, when compared to the uniform inlet value. Similarly, stage pressure ratio was reduced by 2.4, 2.4, and 1.6%. Comparable reductions in stage efficiency and pressure ratio occurred for all speedlines and at no combination of speed and flow was the performance of Stage E with inlet flow distortion improved over that obtained with uniform inlet flow. With the exception of small increases in stall point efficiency occurring with hub and circumferential distortion of the inlet flow at 90 and 100% design equivalent rotor speed, the rotor also exhibited a similar trend towards reduced efficiency and pressure ratio with the addition of inlet flow distortion.

INTRODUCTION

The effectiveness of tandem airfoils as a means for increasing the loading limit and stable operating range of highly loaded compressor blade rows was investigated for the National Aeronautics and Space Administration at the Florida Research and Development Center of Pratt & Whitney Aircraft under Task I of Contract NAS3-11158 (References 1 through 3). During this program, tandem rotors demonstrated higher pressure rise and efficiency than a single airfoil rotor with identical inlet and exit airfoil angles. The performance of the conventional stage was controlled to a large extent by three-dimensional flow effects associated with high losses near the walls. The three-dimensional flows resulted even though the blading was designed with increased work input near the walls to compensate for the high losses in these regions and, thereby, maintained a constant radial pressure distribution.

A second single-stage compressor investigation was initiated to evaluate the potential of tandem blading for improving the performance over that of a more moderately loaded stage, which was composed of single airfoil blade rows. A study was performed to select a radial work gradient for the rotor, which resulted in maximum rotor and stator loading levels consistent with good performance (Reference 4). Based on this study, a rotor design with uniform work input at all radii and an overall pressure ratio of 1.28 at a design rotor tip speed of 757 ft/sec was chosen for this investigation. This rotor has lower work input near the walls than the rotors of References 1 through 3. This lower work input near the walls should reduce the three-dimensional flows and high wall losses that are characteristic of highly loaded blade rows and provide a stage design that is not characterized by a highly three-dimensional flow and associated poor performance.

A single-airfoil rotor and stator, a dual-airfoil tandem rotor and a dual-airfoil tandem stator were designed and fabricated for this investigation. Because of the large inlet boundary layer noted during the testing described in References 1 through 3, a design procedure was used that accounted for the inlet total pressure gradient and the effects of axial velocity ratio and secondary flow on blade row performance. This report presents the data and performance obtained with Stage E, which was composed of tandem rotor and stator blading. A discussion of the aerodynamic and mechanical design of Stage E is presented in Reference 4. The overall and blade element performance for the single airfoil blading designed for the same vector diagrams are given in Reference 5.

DESIGN SUMMARY

Blading Design

The stage was designed with zero rotor prewhirl, constant rotor work across the span, and axial discharge flow. A rotor tip inlet Mach number of approximately 0.8 and a specific flow of 33 lb/sec-ft² were selected to be generally representative of current design practice for highly loaded compressor middle stages.

To ensure a valid comparison between the conventional single-airfoil and the tandem-airfoil stages, the design velocity diagrams selected for the conventional stage were used in the design of the tandem stage. The design velocity diagrams were calculated by means of a computer program that solves the continuity, energy, and radial equilibrium equations for an axisymmetric flow field. The rotor inlet total pressure distortion from the data of the Reference 1 program was used for the velocity diagram calculations. Radial gradients of enthalpy and entropy were included in the calculation, and the influences of wall and stream-line curvature on the radial distribution of static pressure were taken into account.

Simulated double-circular-arc airfoil sections (i. e., the mean camber line and the suction and pressure surface lines of each blade element are lines with a constant rate of angle change with path distance on a specified conical surface) were selected for the rotor and stator blading to be as consistent as possible with studies being conducted by NASA-Lewis Research Center (Reference 6). To ensure interchangeability with the conventional stage, radial distributions of overall axial chord for the tandem airfoils were maintained equal to the distributions selected for the conventional Stage D blading. To minimize the number of variables to be investigated in the selection of tandem Stage E metal geometry, the individual airfoil maximum thickness-to-chord ratio for each tandem airfoil was maintained equal to the corresponding values selected for the conventional Stage D airfoils. The individual airfoil chords of the tandem blades were arbitrarily set equal. The rotor and stator camber angles were selected to provide approximately an equal distribution of lift between the front and rear airfoils. The individual airfoils for both the rotor and stator were positioned so that:

1. The leading edge metal angle of the front airfoil and the trailing edge metal angle for the rear airfoil were equal to the leading and trailing edge metal angles, respectively, selected for Stage D.
2. There was zero axial overlap of the front and rear airfoils.
3. The passage width between the airfoils was approximately 10% of the front airfoil chord.
4. The passage between the airfoils would be slightly convergent (inlet-to-exit area ratio slightly greater than one).

Photographs of both the Rotor E and Stator E blading are shown in figure 1. The large variations in twist in the endwall regions resulted from using the actual inlet pressure gradient in the velocity diagram calculation and including the effects of axial velocity ratio and secondary flow on blade row performance. Details of the Stage E blading aerodynamic and mechanical design are presented in Reference 4.

Rotor and stator design velocity diagram data, blade element geometry data, and predicted performance are presented in tables I and II for the tandem rotor and stator, respectively. Symbols and performance variables are defined in Appendix C.

Table I. Tandem Rotor E Blade Element Design

VELOCITY DIAGRAM DATA

Equivalent Rotor Speed = 4210 rpm
Equivalent Weight Flow = 110 lb/sec

Percent Span From Tip		V_{zle} (ft/sec)	$V_{\theta le}$ (ft/sec)	U_{je} (ft/sec)	V_{te} (ft/sec)	V_{zte} (ft/sec)	$V_{\theta te}$ (ft/sec)	U_{te} (ft/sec)	α (deg)
Leading Edge	Trailing Edge								
Hub 96.8	95.0	458.8	608.7	608.7	416.8	371.3	193.5	610.5	1.52
92.0	90.0	488.5	615.8	615.8	493.9	448.9	204.8	617.6	1.37
86.9	85.0	500.5	623.8	623.8	535.6	491.5	215.9	624.7	0.89
71.0	70.0	501.1	642.9	642.9	575.8	519.6	249.0	645.9	-1.17
49.5	50.0	499.9	680.6	680.6	630.1	525.8	293.7	674.3	-4.21
28.1	30.0	496.5	713.2	713.2	622.8	521.1	339.8	702.6	-7.16
12.0	15.0	473.4	737.8	737.8	596.0	464.2	370.0	723.9	-9.37
7.1	10.0	428.7	745.3	745.3	553.0	400.9	379.7	730.9	-9.64
Tip 3.0	5.0	375.1	751.5	751.5	483.5	270.0	388.9	738.0	-9.07

Note: $\beta_{le} = 0$ and is constant with radius.

DESIGN PERFORMANCE DATA

Rotor Pressure Ratio: 1.282

Adiabatic Efficiency: 89.9%

Percent Span From Tip		i_m (deg)	D	$\bar{\omega}'$	Loss Parameter	δ' (deg)	P_{te} (psia)	T_{te} (°R)	P_{te} (psia)	T_{te} (°R)
Leading Edge	Trailing Edge									
Hub 96.8	95.0	0.57	0.604	0.236	0.0604	12.79	14.427	518.7	17.765	561.14
92.0	90.0	0.58	0.530	0.162	0.0432	10.38	14.659	518.7	18.361	561.14
86.9	85.0	0.52	0.484	0.106	0.0288	9.08	14.694	518.7	18.735	561.14
71.0	70.0	0.15	0.453	0.064	0.0177	7.05	14.699	518.7	19.000	561.34
49.5	50.0	-0.36	0.436	0.046	0.0129	6.16	14.693	518.7	19.063	561.34
28.1	30.0	-0.88	0.426	0.056	0.0158	5.44	14.701	518.7	19.010	561.07
12.0	15.0	-1.41	0.461	0.123	0.0335	6.82	14.602	518.7	18.465	561.28
7.1	10.0	-2.32	0.504	0.150	0.0382	10.45	14.308	518.7	17.915	561.14
Tip 3.0	5.0	-3.90	0.567	0.201	0.0428	17.12	13.820	518.7	17.130	561.38

GEOMETRY DATA

Airfoil: Simulated Double-Circular-Arc

Number of Blades: 70

Overall Chord Length: 2.57 in.

Percent Span From Tip		Front Airfoil				Rear Airfoil				Each Airfoil	
Front Body Leading Edge	Rear Body Trailing Edge	κ_{le} (deg)	ϕ (deg)	γ° (deg)	T_{te} (in.)	κ_{te} (deg)	ϕ (deg)	γ° (deg)	T_{te} (in.)	σ	t/c
Hub 96.8	95.0	52.420	13.200	45.820	0.006	42.420	15.140	27.280	28.780	0.904	0.078
92.0	90.0	50.910	13.000	44.410	0.006	41.180	14.150	26.930	27.615	0.896	0.076
86.9	85.0	50.570	12.780	44.180	0.006	41.140	14.630	26.510	27.725	0.887	0.074
71.0	70.0	52.040	12.160	45.960	0.006	43.580	18.640	24.940	31.110	0.859	0.068
49.5	50.0	53.960	11.370	48.275	0.006	45.470	23.190	22.280	34.330	0.818	0.060
28.1	30.0	55.880	10.720	50.520	0.006	47.640	27.500	20.140	37.670	0.771	0.052
12.0	15.0	58.510	10.420	53.300	0.006	50.790	31.530	19.260	41.160	0.733	0.046
7.1	10.0	62.120	13.100	55.570	0.011	52.430	33.030	19.400	42.730	0.719	0.044
Tip 3.0	5.0	68.000	15.900	60.050	0.016	55.790	35.870	19.920	45.830	0.705	0.042

Table II. Tandem Stator E Blade Element Design

VELOCITY DIAGRAM DATA

Equivalent Rotor Speed = 4210 rpm
Equivalent Weight Flow = 110 lb/sec

Percent Span From Tip		V_{le} (ft/sec)	V_{zle} (ft/sec)	$V_{\theta le}$ (ft/sec)	β_{le} (deg)	V_{le} (ft/sec)	V_{zle} (ft/sec)	$V_{\theta le}$ (ft/sec)	θ_{le} (deg)	α (deg)
Hub	95.0	569.9	383.9	417.7	47.65	395.1	395.1	0.0	0.0	-0.29
	90.0	616.8	456.9	412.8	41.90	472.2	472.2	0.0	0.0	-0.57
	85.0	645.3	501.1	407.9	39.20	514.3	514.3	0.0	0.0	-0.86
	70.0	659.8	526.2	396.8	37.00	543.9	543.9	0.0	0.0	-1.72
	50.0	659.9	533.7	380.5	35.50	554.2	554.2	0.0	0.0	-2.86
	30.0	642.5	529.8	362.9	34.40	547.8	547.8	0.0	0.0	-4.00
	15.0	595.2	471.9	354.3	36.50	486.2	486.2	0.0	0.0	-4.86
	10.0	538.1	407.2	349.0	40.40	417.2	417.2	0.0	0.0	-5.14
Tip	5.0	450.2	284.3	349.1	52.50	298.4	298.4	0.0	0.0	-5.43

DESIGN PERFORMANCE DATA

Stage Pressure Ratio: 1.265
Stage Adiabatic Efficiency: 84.6%

Percent Span From Tip

Percent Span From Tip		M_{le}	i_m (deg)	D	Loss Parameter	δ° (deg)	P_{te} (psia)
Hub	95.0	0.5024	-2.51	0.540	0.02216	8.83	17.419
	90.0	0.5463	-1.48	0.462	0.02027	11.31	18.117
	85.0	0.5751	-1.08	0.423	0.01902	11.31	18.472
	70.0	0.5867	-1.02	0.389	0.01714	10.97	18.748
	50.0	0.5832	-1.18	0.369	0.01610	11.01	18.864
	30.0	0.5709	-1.43	0.364	0.01865	11.66	18.762
	15.0	0.5262	-2.15	0.418	0.03165	12.44	18.153
	10.0	0.4748	-3.11	0.488	0.04575	12.68	17.534
Tip	5.0	0.3958	-6.64	0.630	0.04282	4.85	16.738

Airfoil: Simulated Double-Circular-Arc

Number of Vanes: 66

Overall Chord Length: 2.35 in.

GEOMETRY DATA

Percent Span From Tip		Front Airfoil				Rear Airfoil				Each Airfoil		
Front Body Leading Edge	Rear Body Leading Edge	κ_{le} (deg)	ϕ (deg)	γ° (deg)	r_{le} (in.)	κ_{le} (deg)	ϕ (deg)	γ° (deg)	r_{le} (in.)	r_{le} (in.)	σ	τ/c
Hub 95.0	95.0	50.160	25.00	37.660	0.008	28.170	-8.830	37.00	9.670	0.006	0.775	0.09
90.0	90.0	43.380	19.780	31.580	0.007	22.940	-11.310	34.25	5.815	0.006	0.738	0.09
85.0	85.0	40.280	17.630	28.955	0.006	20.990	-11.310	32.30	4.840	0.006	0.713	0.09
70.0	70.0	38.020	16.880	27.450	0.006	18.890	-10.970	29.86	3.960	0.006	0.678	0.09
50.0	50.0	36.680	16.680	26.680	0.006	18.490	-11.010	29.50	3.740	0.006	0.656	0.09
30.0	30.0	35.830	16.470	26.150	0.006	18.320	-11.660	29.98	3.330	0.006	0.614	0.09
15.0	15.0	38.650	17.000	27.825	0.008	19.600	-12.410	32.04	3.380	0.006	0.643	0.09
10.0	10.0	43.110	19.360	31.235	0.013	20.930	-12.680	33.61	4.125	0.006	0.645	0.09
Tip 5.0	5.0	59.140	27.140	43.140	0.035	31.650	-4.850	36.50	13.400	0.006	0.619	0.09

TEST EQUIPMENT

Compressor Test Facility

A schematic of the compressor test facility is shown in figure 2. The compressor is driven by a single-stage turbine, powered by exhaust gases from a J75 slave engine, with compressor speed controlled by means of the engine throttle. Air enters the compressor through a 103-ft combined inlet duct, plenum, and bellmouth inlet, and is exhausted through an exit diffuser to the atmosphere. The inlet duct contains a flow measuring orifice designed and installed in accordance with ASME standards. The area contraction ratio from plenum to compressor inlet is approximately 10 to 1.

Compressor Test Rig

A schematic of the compressor test rig is shown in figure 3. The flowpath dimensions are shown in figure 4. The hub/tip ratio at the rotor inlet is 0.798. The test section has a constant hub diameter of 32.85 in., and the outer wall converges from a diameter of 41.15 in. at the rotor leading edge to 39.99 in. at the stator trailing edge. Rotor bearing loads are transmitted to the rig support through struts located in the inlet and exhaust case assemblies. The inlet struts are sufficiently far upstream so that their wakes are dissipated ahead of the rotor. The stage design specifications of zero rotor prewhirl and axial discharge flow eliminated the need for inlet and exit guide vanes. Flowrate and/or backpressure were varied with a set of motor-driven throttle vanes located in the exhaust case.

Distortion Screens

Twenty-mesh, 0.020-in. diameter wire was used for the distortion screens (i. e., tip radial, hub radial, and circumferential). The tip and hub radial distortion screens covered 35 and 40% of the inlet annulus area, respectively, and the circumferential screen covered a 90-deg sector of the inlet annulus area. The distortion screens were mounted on a 1.0-in. mesh 0.125-in. diameter wire support screen located approximately one rotor radius upstream of the rotor leading edge. The support screen, which spanned the entire annulus, was installed for all the Stage E tests.

Instrumentation

Instrumentation was provided to obtain overall and blade element performance data for each blade or vane row. The locations of axial instrumentation stations are indicated in figure 4. Axial and circumferential locations of the instrumentation are shown in figure 5. Except for the omission of one rotor inlet total pressure probe during uniform inlet and radial distortion tests, dual instrumentation was provided at each axial station. The dual instrumentation provided: (1) a redundant set of measurements during uniform and radially distorted inlet flow testing, and (2) measurements within and outside of the distorted region during the circumferential distortion testing.

Airflow was measured with an ASME standard thin-plate orifice located in the compressor facility inlet duct. Compressor rotor speed was measured with an electromagnetic sensor mounted adjacent to a 60-tooth gear on the rotor shaft. Gear tooth passing frequency was displayed as rpm on a digital counter. Rotor rpm was also recorded on magnetic tape. Inlet total temperature was measured in the inlet plenum by means of six half-shielded total temperature probes; inlet total pressure was measured in the plenum by means of five Kiel total pressure probes. Six equally spaced static pressure orifices were located on both the inner and outer walls at instrumentation Station 0.

Radial distributions of static pressure at the rotor inlet and exit and at the stator exit were measured by means of 8-deg wedge probes (figure 6). Four inner and four outer wall static pressure orifices, approximately equally spaced, were located at each of these stations. The rotor exit (i. e., stator inlet) instrumentation station also had two inner and three outer wall orifices installed across a vane gap to measure the static pressure variation across the gap. Likewise, the stator exit instrumentation station had four inner and four outer wall orifices installed across a vane gap to measure the gap-wise static pressure gradient on each wall. Eleven static pressure orifices were located over the rotor blade tips on the outer wall, between -26 and 107% rotor axial chord, to measure the rotor tip static pressures. Stator surface static pressure distributions at 10 and 90% span were measured with eight suction surface and three pressure surface orifices equally spaced from approximately 15 to 85% chord at both span locations for the front and rear airfoils of the tandem stator. The three pressure surface orifices at each percent span were installed on the same airfoil, i. e., one front and one rear airfoil; a different stator vane was used for each group of eight suction surface pressure orifices at a given percent span, i. e., two front airfoils and two rear airfoils for a total of six instrumented stators. The six stators were positioned in the stator assembly so that at least one uninstrumented vane separated those with static pressure orifices. The circumferential location of each instrumented airfoil and the location of the pressure orifices in terms of percent chord are shown in figure 7.

Twenty-deg wedge probes (figure 8) were used to measure the radial distributions of total pressure and flow angle at the rotor inlet and exit, and flow angle at the stator exit. Stator exit total pressure and temperature across a stator gap were measured at each of two circumferential locations by means of circumferentially traversed radial rakes with elements at nine radial positions (figure 9). The elements of each radial rake were designed to measure both total pressure and temperature. A fixed radial rake with five Kiel-type total pressure sensors was also installed downstream of the stator for use with the wall static measurements to calculate the freestream Mach number. This Mach number was used to correct the total temperature and the 8-deg wedge static pressure measurements.

As previously stated, dual instrumentation was provided at each axial measuring station to provide measurements within and outside of the distorted regions during the circumferential distortion testing. The dual instrumentation also reduced the number of circumferential distortion screen locations required to obtain a uniform spacing of flow distribution data relative to a reference screen location. Six screen locations resulted in the circumferential distributions (relative to a reference screen location) of data shown in figures 10a through 10c for Stations 1, 2, and 2A, respectively.

Steady-state pressure data were measured with a multichannel pressure transducer scanning system that includes automatic data recording on computer cards. Steady-state temperature measurements were also automatically recorded on computer cards by a multichannel scanning system in conjunction with a temperature reference oven and a digital voltmeter. Traverse pressure and temperature data and transient pressure data were recorded on magnetic tape at up to 600 samples per minute per channel.

One static pressure orifice located in the plenum, two of the outer wall static pressure orifices at Station 0, and a total pressure probe with sensors at 10, 50, and 90% spans at the rotor exit were close-coupled to transducers with 9-in. lengths of 0.040-in. inner diameter tubing for transient recording during operation into and out of surge. High-response pressure transducers mounted as total pressure probes at 10, 50, and 90% span from the tip behind the rotor (figure 11) were used to measure high-frequency total pressure oscillations and to indicate the initiation of rotating stall and/or surge. The high-response transducer output was recorded on magnetic tape and correlated in time with the transient recording of the plenum and Station 0 static and the stage exit total pressures.

Five rotor blades were instrumented with strain gages to provide vibratory stress data. Gage locations were determined by bench vibration tests with the aid of stress-coat, and the selected locations were verified by a fatigue test. The gage outputs were displayed on oscilloscopes and visually monitored during tests.

PROCEDURES

Test Procedures

Shakedown Tests

A shakedown test was performed to check out the rig and blade vibration levels, blade stress levels, instrumentation, and data reduction programs. Overall and blade element performance data were obtained for five operating points with uniform inlet flow at design equivalent rotor speed. One stall transient was performed during this test.

Performance Tests

Overall performance, blade element performance, flow distribution, and surge transient data were obtained during the uniform inlet flow tests at 50, 70, 90, 100, and 110% of design equivalent rotor speed. Five data points (defined as a combination of flow and speed) were recorded at each rotor speed to define stage performance between maximum obtainable flow and near surge. The near-surge point was determined on the basis of flow and rotor exit pressure. Overall performance, blade element performance and flow distribution data were obtained at three flow conditions, including maximum and near-surge flow, at 70, 90, and 100% of design equivalent rotor speed for the hub and tip radial inlet flow distortion tests. For circumferential distortion of the inlet flow, overall performance data were recorded for three data points at each of 70, 90, and 100% of design equivalent rotor speed. At each overall performance data point, data were recorded for two locations of the circumferential distortion

screen to assure a sampling of the rotor and stage performance in both the undistorted and distorted zones of the flow field. Flow distribution data were also obtained with circumferential distortion of the inlet flow for two of the data points at design equivalent rotor speed and one data point at 90% design equivalent rotor speed. To obtain an approximately uniform spacing of flow distribution data around the circumference of the compressor, data were recorded for six screen locations for each of these three data points. The resulting circumferential locations of the instrumentation relative to a reference screen location are shown in figure 10.

At each data point, traverse surveys were followed by the recording of fixed pressure and temperature instrumentation data. Blade stresses were monitored during steady-state and surge transient operation at all rotor speeds.

Transient measurements of bellmouth static pressure, rotor speed, and rotor exit total pressure were recorded 10 times per second to define surge characteristics as the stage was operated into and out of surge. The output from a high-response total pressure probe (10, 50, and 90% spans) at the rotor exit was also recorded as the stage was operated into and out of surge. These high-response total pressure probe data were correlated in time with the other transient measurements.

Data Reduction Procedures

Data reduction was accomplished in two steps. The first step involved the use of two computer programs (1) to convert millivolt readings to appropriate engineering units, and (2) to provide a tabulated and plotted array of pressures, temperature, and air angle data at each station. Conversion of data to absolute values, appropriate Mach number corrections, and adjustment of pressures and temperature to equivalent NASA standard day conditions were performed in the second computer program.

The second step in the data reduction procedure involved a third computer program to calculate overall and blade element performance variables for the rotor and stator. The array of data provided in step one, above, was analyzed for the selection of radial distributions of pressures, temperature, and air angle at each axial station for input into this computer program.

Overall Performance

Total pressure ratios and adiabatic efficiencies were calculated for the rotor and the rotor-stator (stage). The rotor and stator exit total pressures and total temperatures were weighted according to local mass flow to obtain average values. The mass-averaged stator exit total temperatures were used for both the rotor and stage efficiency calculations.

The stator wake total pressures and total temperatures at each radial measuring station were mass-averaged using the local total pressure in the wake, the local total temperature in the wake, and the 8-deg wedge probe static pressure. Mach number was determined from the local total and static pressure measurements. The local mass flow was then obtained from the relationship

$$\bar{m} = \frac{W\sqrt{T}}{PA} = \sqrt{\frac{\gamma g_c}{R}} M \left[1 + \frac{\gamma - 1}{2} M^2 \right]^{\frac{1 + \gamma}{2(1 - \gamma)}}$$

where A is the flow area associated with each radial measurement increment.

For circumferential distortion, the mass flow averaged values of total pressure and total temperature measured at one circumferential location within and one circumferential location outside of the undistorted flow region, were weighed according to the circumferential extent of the distorted and undistorted flow to obtain the values used to calculate the pressure ratio and efficiency (i. e., the values from the undistorted region were multiplied by 3/4 and the values from the distorted region were multiplied by 1/4 and the resultant answers added to obtain the final average performance). It was necessary to record data for two screen positions to ensure that measurements were obtained both within and outside of the distorted region at all instrumentation stations. It was assumed that the relative extent of distorted and undistorted flow remained the same through each blade row.

Blade Element Performance and Flow Distribution Data

Blade element performance and flow distribution data are presented for each blade row for uniform and radially distorted inlet flow. Performance calculations were made along design streamlines that pass through 5, 10, 15, 30, 50, 70, 85, 90, and 95% span at instrumentation Station 2. The calculations were performed at the instrumentation stations and at the rotor and stator leading and trailing edges. The pressures, temperatures, and air angles at the blade row leading and trailing edges were obtained by translating the measured values from the instrumentation stations assuming conservation of angular momentum, conservation of energy, continuity, and flow along design streamlines. A description of the translation method is presented in Reference 3. For circumferentially distorted inlet flow, flow distribution data (i. e., total pressure, total temperature, flow angle, velocity, Mach number, and turning) are presented for the three data points with six screen positions. These flow distribution data are at the instrumentation stations and not translated to the blade row leading and trailing edges.

Surge Transient Data

Bellmouth static pressure at incipient surge was determined from plots similar to the one shown in figure 12 and the corresponding weight flow was determined from the correlation of bellmouth static pressure and orifice weight flow shown in figure 13. The steady-state pressure ratio data were extrapolated to the surge flow using the shape of the transient data curve as a guide line. Incipient surge points were determined in this manner for each rotor speed.

PRESENTATION OF DATA

Uniform Inlet

Overall Performance

Overall performance data are presented in terms of total pressure ratio and adiabatic efficiency as functions of equivalent weight flow ($W\sqrt{\theta}/\delta$) and equivalent rotor speed ($N/\sqrt{\theta}$) for the rotor in figure 14 and the rotor-stator (stage) in figure 15. The design total pressure ratio and adiabatic efficiency for the rotor were 1.28 and 89.9%, respectively, at design flow. The corresponding design values for the stage were 1.26 and 84.8%. The design point is shown on each figure for comparison with the performance results. The solid

symbol on the stall line in figures 14 and 15 is the surge point determined from the transient data. Pressure ratio, adiabatic efficiency, and polytropic efficiency for the rotor and stage are also tabulated for the steady-state data points in table A-1 of Appendix A.

Based on a curve faired through the data points, the rotor achieved an adiabatic efficiency of 89.7% and a total pressure ratio of 1.291 at design equivalent rotor speed and flow. At the same flow and rotor speed the stage achieved an adiabatic efficiency of 83.7% and a total pressure ratio of 1.275. At design equivalent rotor speed, maximum rotor and stage adiabatic efficiencies of 89.9 and 83.9%, respectively, were reached at approximately 98 and 100% design equivalent flow.

Blade Element Performance and Flow Distribution Data

As discussed on page 10, the blade element performance and flow distribution data were calculated for the instrumentation stations and for the rotor and stator leading and trailing edges. Table A-2 of Appendix A presents the data at the instrumentation stations at the near design point operating condition and is included only to illustrate the small differences at the near design point between values calculated from the data at the instrumentation stations and the values calculated from the data that have been translated to the rotor and stator leading and trailing edges. Because of the small differences between translated and untranslated values, only the translated values are given in table A-3 of Appendix A for the remaining compressor test points. The plotted results discussed for the rotor and stator in the following paragraphs are based on the translated data.

Rotor Blade Element Performance - Rotor diffusion factor, deviation angle, and loss coefficient are shown as functions of incidence angle in figures 16a through 16i. At the design incidence angle and rotor speed, total pressure losses were less than or equal to the design value from 15 to 95% span from the tip and greater than the design value only at 5 and 10% span. Deviation angles were essentially equal to the design value between 10 and 70% span from the tip, greater than the design value at 5, 85, and 90% span and less at 95% span. The diffusion factor at design incidence angle and rotor speed was greater than the design value at 5, 10, 15, 85, and 90% span from the tip, approximately equal to the design value at 30, 50, and 70% span, and slightly less than the design value at 95% span.

Loss parameter versus diffusion factor is presented in figures 17a through 17e for 10, 30, 50, 70, and 95% span, respectively. The design curve representing a correlation of the minimum loss data from Reference 3, References 8 through 14, and unpublished Pratt & Whitney Aircraft in-house data are shown in these figures for comparison with the performance data. Although the data from References 8 through 14 are for Series 65 blade sections, the data presented in Reference 7 indicate that a single correlation of loss parameter vs diffusion factor can be used for Series 65 and double-circular-arc blade sections. The range of data in the Reference 7 correlation and the two-dimensional cascade data from figure 149 of Reference 7 are also shown at 10, 50, and 90% span in figures 17a, 17c, and 17e, respectively, for comparison with the selected design loss curves. At design equivalent rotor speed, the loss parameter value

that corresponds to the minimum loss coefficient at 10, 30, 50, 70, and 90% span (figures 16b, 16d, 16e, 16f, and 16h, respectively) are above the design curve at 10 and 90% span and on or slightly below the design curve at 30, 50, and 70% span.

Axial gradients of rotor tip static pressure ratio (p_L/p at -7.0% axial chord) are shown in figure 18 for each flowrate at design equivalent rotor speed. This figure indicates (1) that the rotor tip loading shifted toward the leading edge of the blade as the compressor was throttled toward surge flow; and (2) that approximately an equal static pressure rise occurred across both front and rear airfoils at design equivalent flow.

Stator Blade Element Performance - Stator diffusion factor, deviation angle, and loss coefficient are presented as functions of incidence angle in figures 19a through 19i. For design incidence angle and rotor speed, the stator losses were less than design at 30, 50, 70, and 95% span from the tip and greater than design at 5, 10, 15, 85, and 90% span. Deviation angles, at design incidence, were from 1 to 3 deg greater than the design values from 5 to 90% span and approximately 1 deg less than design at 95% span. Diffusion factors, at design incidence angle and rotor speed, were less than the design value at 5, 10, 15, 30, and 95% span from the tip, approximately equal to the design value at 50 and 70% span, and greater than the design value at 85 and 90% span.

Loss parameter versus diffusion factor is shown in figures 20a through 20e for 10, 30, 50, 70, and 90% span, respectively. The design curve, representing a correlation of the minimum loss data derived from the same references discussed in the rotor blade element performance section, is shown on each figure. The design point, the range of stator data from Reference 7, and the two-dimensional cascade data from Reference 7 are also included in the figures for comparison with Stator E performance data. For design equivalent rotor speed, the loss parameter values corresponding to the minimum measured loss coefficients were below the design curve at 10, 30, 50, and 70% span from the tip and above the design curve value at 90% span.

The stator static pressure coefficient distributions at 10 and 90% span from the tip are shown in figures 21a through 21h for design equivalent rotor speed. Static pressure coefficient distributions for all uniform inlet data points are tabulated in Appendix B. Vane suction surface instrumentation at 10% span and 30 and 45% chord on the front airfoil (i. e., 11.6 and 16.5% overall axial chord); and pressure surface instrumentation at 10% span and 15% chord on the rear airfoil (i. e., 56.5% overall axial chord) was inoperative and prevented the calculation of static pressure coefficients at these locations. As shown on figure 21, the rear airfoil loading, represented by the area between the suction surface and the pressure surface static pressure coefficients, decreased, while the front airfoil loading increased, as the compressor was throttled toward surge flow. The ability of the tandem-airfoil configuration to control the stator rear airfoil incidence is suggested by the variations in the shape of the static pressure coefficient distribution for each airfoil. Operating between the maximum and minimum flowrates at design equivalent rotor speed, the stator front airfoil experienced large variations in the shape of its static pressure coefficient distribution, while the shape of the corresponding distribution for the rear airfoil exhibited only slight variations.

Wall Static Pressure - The wall static pressure data were examined to determine if circumferential gradients with respect to the stator vanes were significant. In general, the variations of static pressure at different circumferential locations (solid symbols in figure 22), at approximately the same location relative to the stator vane, are as large as any variations that may be noted within one stator vane pitch. It was, therefore, concluded that no significant pitch variation was present in these data. Representative curves for two flow conditions at design equivalent rotor speed are presented as figures 22a and 22b.

Hub and Tip Radial Inlet Flow Distortion

Overall performance, blade element performance, and flow distribution data were obtained with hub radial and tip radial distortion of the inlet flow. The screens used to produce the distortion are described on page 6. At flows of approximately 115 lb/sec (i. e., 105% design equivalent flow), the hub and tip radial distortion screens produced 14.6 and 14.0% total pressure distortion, i. e., $(P_{1\max} - P_{1\min})/P_{1\max}$. Rotor inlet total pressure profiles are presented in figure 23.

Overall Performance

Overall performance data obtained with hub radial distortion of the inlet flow are presented in terms of pressure ratio and adiabatic efficiency as functions of equivalent weight flow and equivalent rotor speed for the rotor in figure 24 and the stage in figure 25. Similarly presented in figures 26 and 27 is the overall performance obtained with a tip radial distortion of the inlet flow. Uniform inlet flow data and the rotor and stage design points are presented in these figures for comparison with the radially distorted inlet flow data. The surge line shown was determined from surge transient data. Pressure ratio, adiabatic efficiency, and polytropic efficiency for the rotor and stage are also tabulated for the steady-state data points with radial distortion in table A-4 of Appendix A.

With hub radial distortion of the inlet flow, rotor pressure ratio, and efficiency at design equivalent flow and rotor speed were 1.265 and 86.7%, compared with 1.291 and 89.7% for uniform inlet flow. Similarly, stage pressure ratio and efficiency were 1.245 and 79.4% as compared with 1.275 and 83.7% with uniform inlet flow. With the addition of hub radial distortion at 70, 90, and 100% design equivalent rotor speed, there were 0.9, 3.4, and 2.5% reductions, respectively, in stage surge pressure ratio. Therefore, Stage E was moderately affected by hub radial distortion.

With tip radial distortion of the inlet flow, rotor pressure ratio at design equivalent flow and rotor speed was 1.266 as compared with 1.291 for the uniform inlet flow. Rotor efficiency under the same conditions was 86.5%, compared with 89.7% for uniform inlet flow. The corresponding stage pressure ratio and efficiency were 1.245 and 79.4% as compared with 1.275 and 83.7% for the uniform inlet. Stage surge pressure ratio decreased by 3.6, 7.8, and 7.0% at 70, 90, and 100% design equivalent rotor speed, respectively, when compared to the uniform inlet test results. Consequently, Stage E was substantially affected by tip radial distortion.

Blade Element Performance and Flow Distribution Data

Blade element performance and flow distribution data with radial distortion were calculated for each of the nine design streamline locations, and the results, based on data translated to the blade row leading and trailing edges, are presented in tables A-5 and A-6 of Appendix A.

Rotor and Stator Blade Element Performance - Diffusion factor, deviation angle, and loss coefficient with hub radial and tip radial distortion of the inlet flow are presented as functions of incidence angle in figures 28a through 28i for the rotor and in figures 29a through 29i for the stator. Comparison of the data shown in figures 28 and 29 with the uniform inlet flow data shown in figures 16 and 19 indicates that the rotor and stator deviation angle, loss coefficient, and diffusion factor distributions with radial distortion are generally equivalent to or are a normal extension of the values obtained with uniform inlet flow.

Flow Distribution Data - Radial distributions of total and static pressure, total temperature, air angle, and axial velocity for the rotor inlet, stator inlet and stator exit are presented for hub and tip radial distortion of the inlet flow in figures 30a through 32c and 33a through 35c, respectively. The values for the nine design streamline locations are also tabulated in tables A-5 and A-6 of Appendix A.

The similarity of the stage inlet and exit total pressure and axial velocity profiles shown in figures 30a and 33a for hub and tip distortion, respectively, at design rotor speed and approximately 115 lb/sec (i. e., 105% design flow) indicates very little attenuation of either distortion pattern. Generally, this result is typical of the results obtained at other rotor speeds and flows.

Circumferential Distortion

Rotor and stage overall performance were obtained with circumferential distortion of the inlet flow. The screen used to produce the distortion is described on page 6. At a flow of approximately 117 lb/sec (i. e., 106% design equivalent flow), the screen produced 13.5% total pressure distortion, i. e., $(P_{1\max} - P_{1\min})/P_{1\max}$. A typical rotor inlet total pressure distribution at 94.0% design equivalent flow is presented in figure 36. The profile at approximately 106% design equivalent flow is not shown because at that flow, pressure data were recorded at only two circumferential locations.

Overall Performance

The rotor and stage overall performance achieved with circumferential distortion of the inlet flow are compared with uniform inlet performance in figures 37 and 38, respectively. The half-solid symbols of figures 37 and 38 indicate the data points for which both overall performance and flow distribution data were recorded, while the solid symbols are the surge points determined from the transient data. The surge line was extrapolated above 80 lb/sec flow because the surge flow obtained from the transient data at design rotor speed was greater than

the measured near-surge steady-state flow. The abrupt surge characteristics of Stage E preclude the possibility of a data point being taken in surge. Pressure ratio, adiabatic efficiency, and polytropic efficiency for the rotor and stage are also tabulated for the steady-state data points with the circumferential distortion in table A-7 of Appendix A.

With circumferential distortion of the inlet flow, rotor pressure ratio, and efficiency at design equivalent rotor speed and flow were 1.273 and 84.3% compared with 1.291 and 89.7% for uniform inlet flow. Similarly, stage pressure ratio and efficiency were 1.255 and 77.8%, compared to 1.275 and 83.7% with uniform inlet flow. Surge pressure ratio for the stage decreased by 2.6, 2.7, and 2.5% with circumferentially distorted inlet flow when compared with uniform inlet flow results at 70, 90, and 100% design equivalent rotor speed, respectively. Consequently, the Stage E surge margin was only moderately affected by circumferential distortion.

The peak rotor efficiency (figure 37) at 70, 90, and 100% design equivalent rotor speed with circumferential distortion was 6.3, 3.9, and 4.2 percentage points lower than the comparable values from the uniform inlet flow tests. Stage efficiencies (figure 38) were 3.8, 3.6, and 5.3 percentage points lower than the uniform inlet results. Peak efficiency for the rotor and the stage occurred at 100 and 90% design equivalent rotor speed, respectively.

As discussed on page 10, the overall performance shown in figures 37 and 38 was calculated from pressures and temperatures measured at one circumferential location within and one circumferential location outside the distorted region. In an effort to verify these pressure ratios and efficiencies, the overall performance was recalculated for the three data points of figures 37 and 38 for which data were recorded at six screen locations using a larger sample of the data within and outside of the distorted area. Average pressures and temperatures were obtained by area weighing the spanwise mass-average values from each of 12 circumferential locations around the flow field, thus providing a better average of the rotor and stage exit pressures and temperature than was used to calculate the pressure ratios and efficiencies shown in figures 37 and 38 and in table A-7. The overall performance calculated from the data at 12 circumferential locations is compared with the performance calculated from 2 circumferential locations in figures 39 and 40 for the rotor and stage, respectively. As shown in figure 39, the larger data sample resulted in 0.006 and 0.012 losses in design speed rotor pressure ratio at near stall and midpoint flowrates. Corresponding efficiency losses were 1.37 and 1.68 percentage points. There was no change in the 90% design speed near stall rotor pressure ratio, but a 1.0% efficiency loss was calculated. The values calculated for stage pressure ratio at design speed using the larger data sample (figure 40) were essentially unchanged, but efficiency increases of 0.86 and 1.60% were obtained for the near stall and midpoint flowrates, respectively. The 90% design speed near stall pressure ratio and efficiency remained essentially unchanged. This comparison of the two calculation procedures indicates fair agreement; however, additional data samples should be obtained in future test programs if a more accurate assessment of rotor and stator performance with circumferential distortion of the inlet flow is desired.

Flow Distribution Data

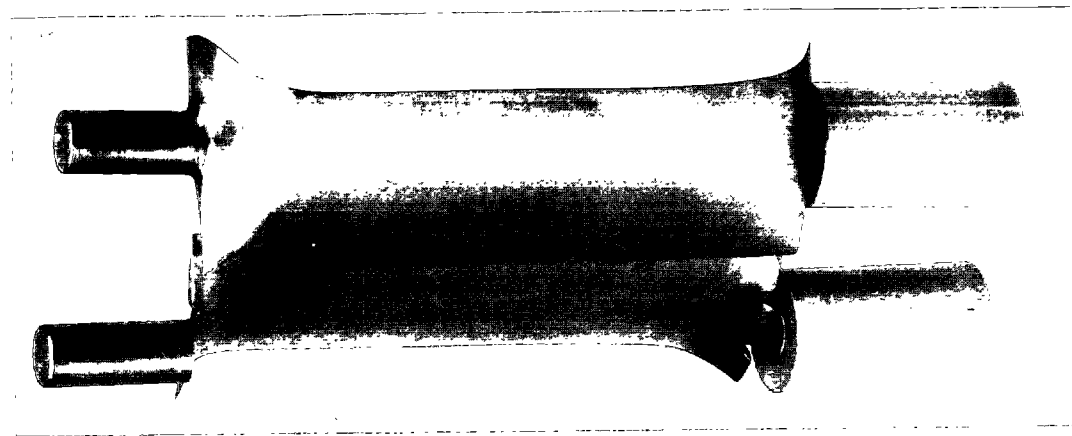
Table A-8 of Appendix A presents flow distribution data at the instrumentation stations for circumferential increments of 30 deg around the compressor annulus. Circumferential distributions of total pressure, static pressure, total temperature, air angle, and axial velocity for each instrumentation station at the nine design streamline locations are shown in figures 41 through 43. Figures 41 and 42 present the values for the two data points at design equivalent rotor speed, and figure 43 presents the data for the one point at 90% design equivalent rotor speed. The measured variables (pressure, temperature, and air angle) are plotted at the circumferential locations of the measuring instrument relative to the distortion screen, and the axial velocity is plotted at circumferential locations corresponding to the locations of the 20-deg wedge probes relative to the distortion screen. A comparison of the circumferential distributions of total pressure and axial velocity at the rotor inlet with the corresponding values at the stage exit indicates very little attenuation of the inlet distortion by either the hub or the tip sections of the compressor. This result is consistent with the results obtained with radial distortion of the inlet flow.

Summary Remarks

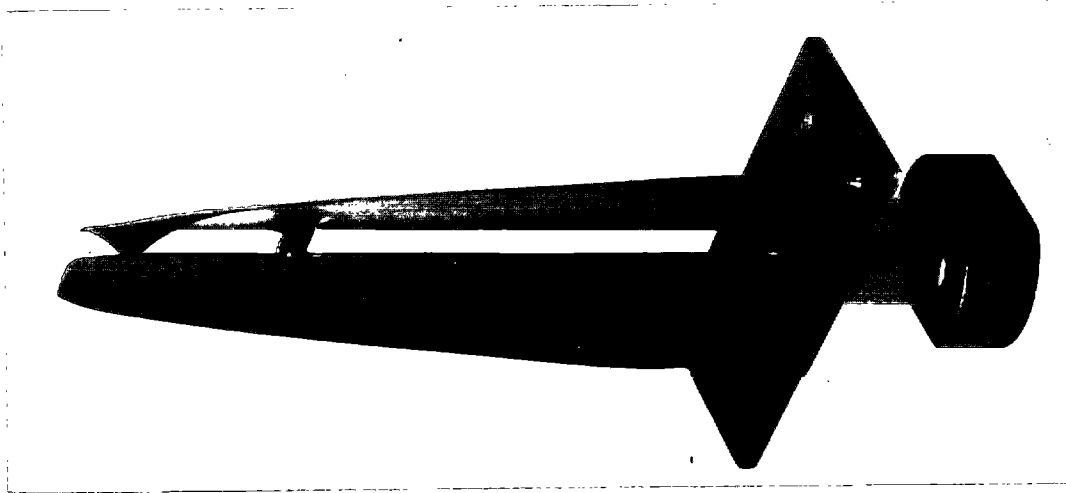
Stage E, composed of Rotor E and Stator E, was tested with uniform inlet flow and with hub radial, tip radial, and 90-deg one-per-revolution circumferential distortion of the inlet flow. The results of these tests provide performance data for: (1) evaluating the potential of tandem blading for extending the loading limit and stable operating range of compressor, (2) evaluating the effectiveness of accounting for the inlet boundary layer, axial velocity ratio and secondary flows in compressor design, and (3) evaluating the effects of inlet flow distortion on the stage performance.

With uniform inlet flow at design equivalent rotor speed and flow, the rotor achieved an adiabatic efficiency of 89.7% at a pressure ratio of 1.291 compared with respective design values of 89.9% and 1.28. At the same flow and rotor speed, the stage achieved an adiabatic efficiency of 83.9% at a pressure ratio of 1.275. At design equivalent rotor speed, maximum rotor and stage adiabatic efficiencies of 89.9 and 83.9%, respectively, were reached at approximately 98 and 100% design equivalent flow.

With tip radial distortion of the inlet flow, significant decreases in stage surge pressure ratio occurred, i. e., at design equivalent rotor speed, the surge pressure ratio decreased by 7.0%. The surge pressure ratio at design speed with hub radial and circumferential distortion of the inlet flow showed only a small change from the uniform inlet test results, i. e., respective stage surge pressure ratio decreases of 2.5 and 2.5% occurred at design equivalent rotor speed. Peak adiabatic efficiency for the stage with inlet flow distortion was affected as follows: hub radial distortion - respective decreases of 5.8, 4.2, and 3.5% from uniform inlet flow results at 70, 90, and 100% design equivalent rotor speed; tip radial distortion - decrease of approximately 3.8% at all three design rotor speed conditions; circumferential distortion - decreases of 3.8, 3.6, and 5.3%, at 70, 90, and 100% design rotor speed. For both radial and circumferential distortion of the inlet flow, the hub and tip regions of the compressor produced very little attenuation of the inlet distortion.



TANDEM STATOR E



TANDEM ROTOR E

Figure 1. Stage E Airfoils

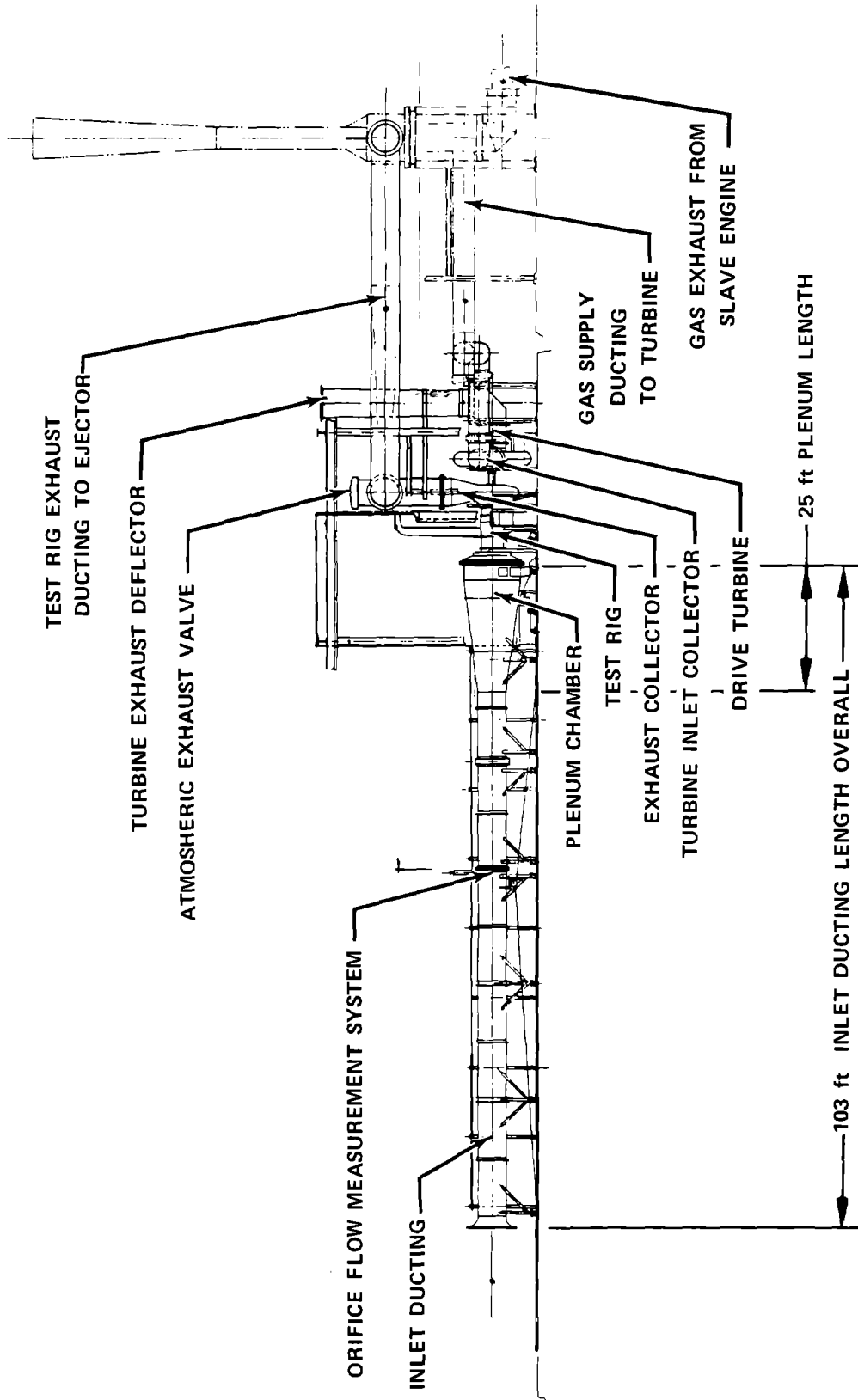
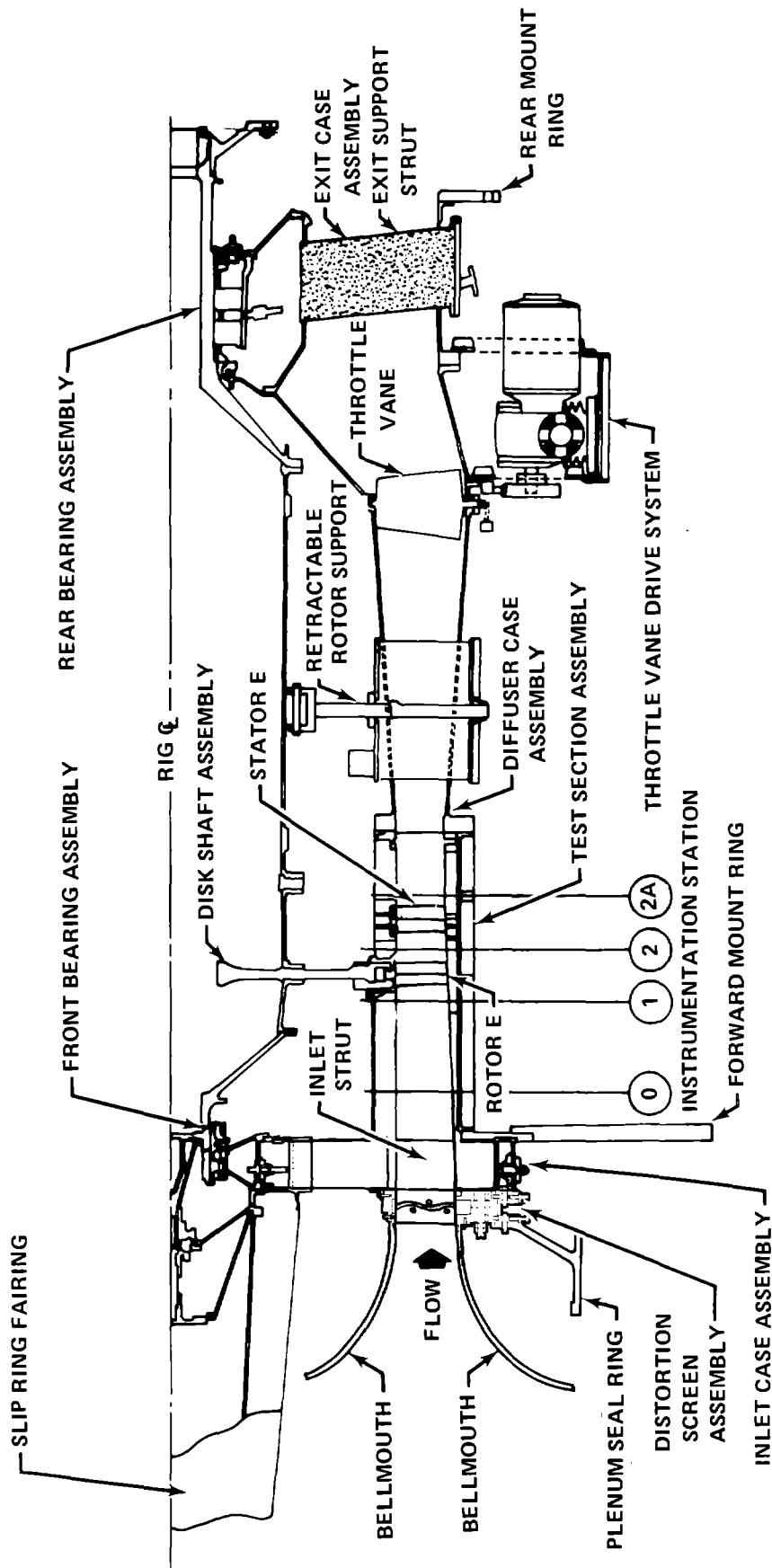
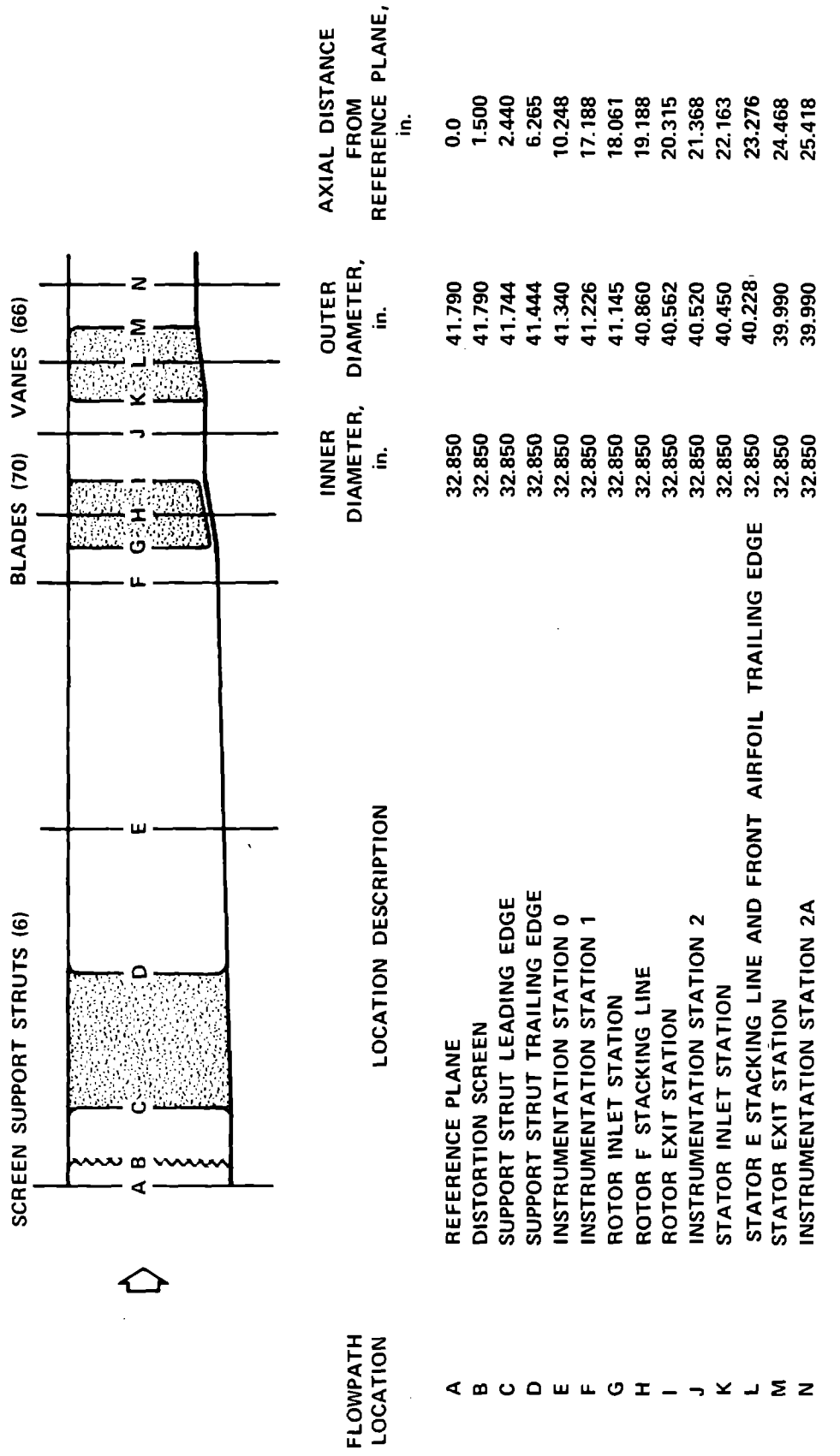


Figure 2. Compressor Research Facility



FD 75492

Figure 3. Single-Stage Compressor Rig



NOTE: ALL DIMENSIONS ARE IN INCHES.

Figure 4. Flowpath Dimensions

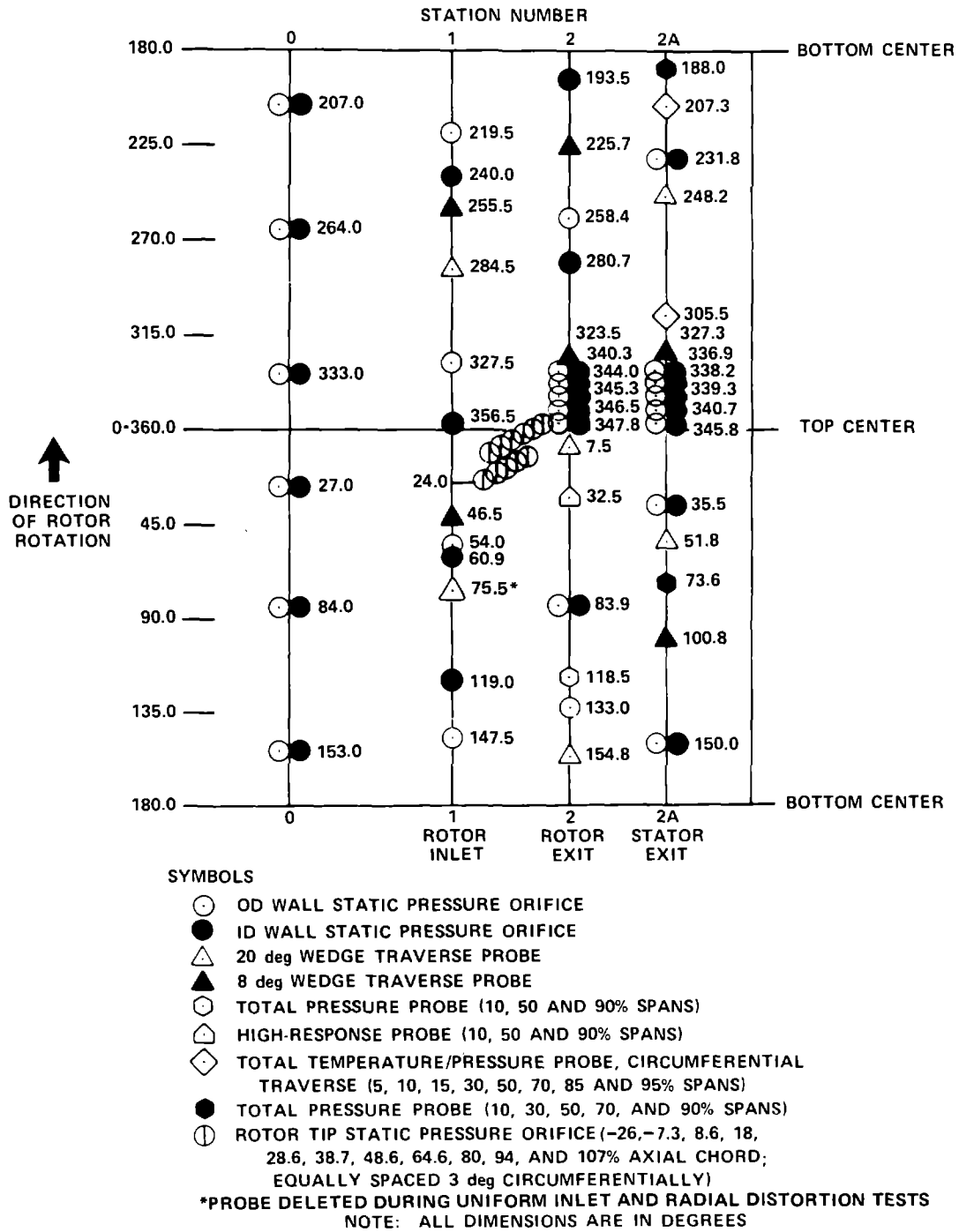
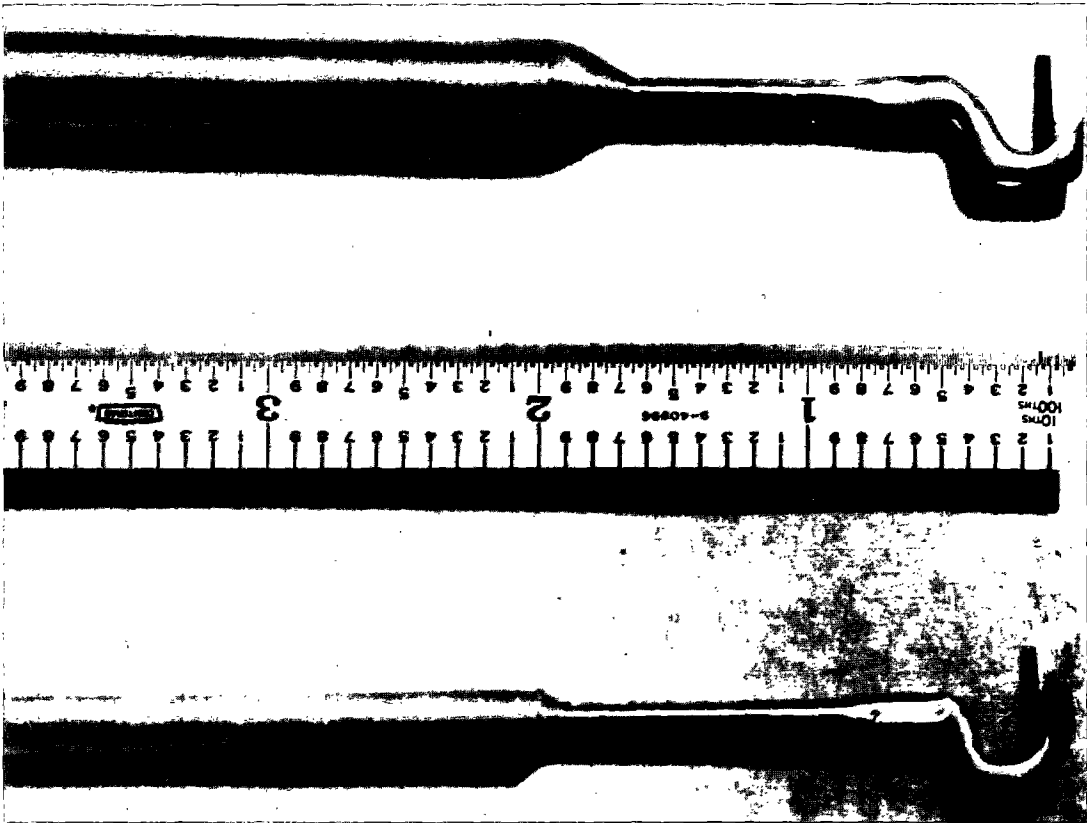
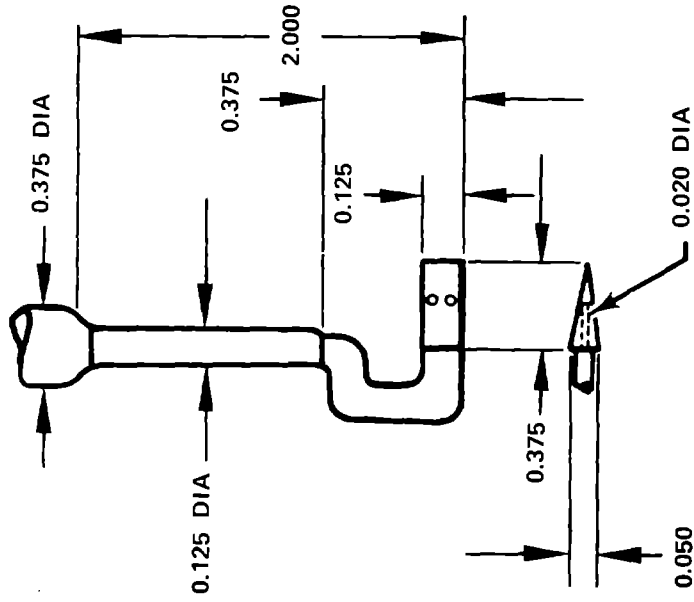


Figure 5. Instrumentation Layout

FD 58981A



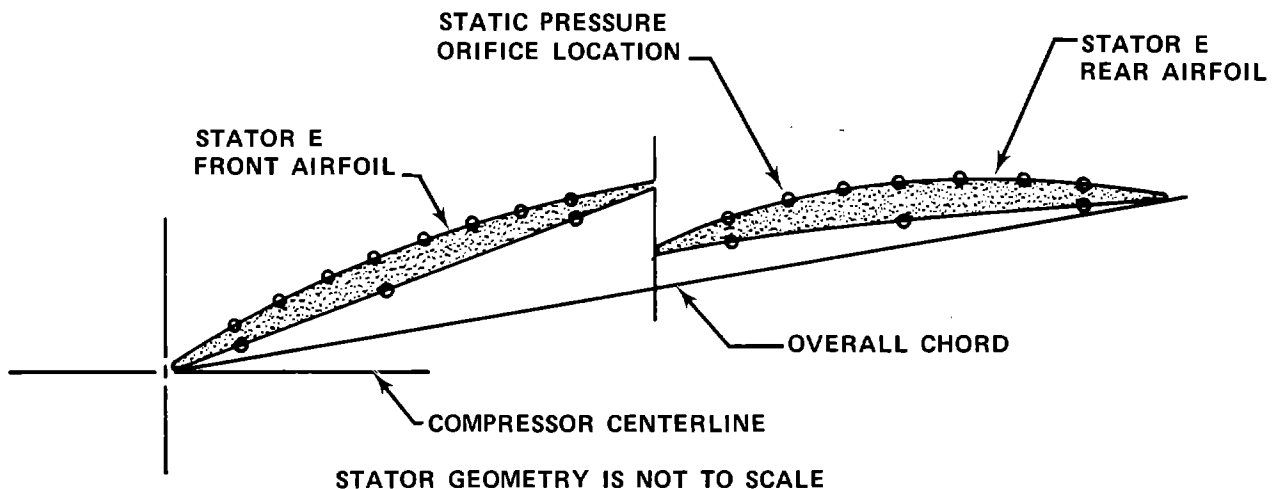
FD 47069



NOTE: ALL DIMENSIONS ARE IN INCHES

Figure 6. Eight-Degree Wedge Traverse Probe

FD 58983



PERCENT OVERALL CHORD LOCATION

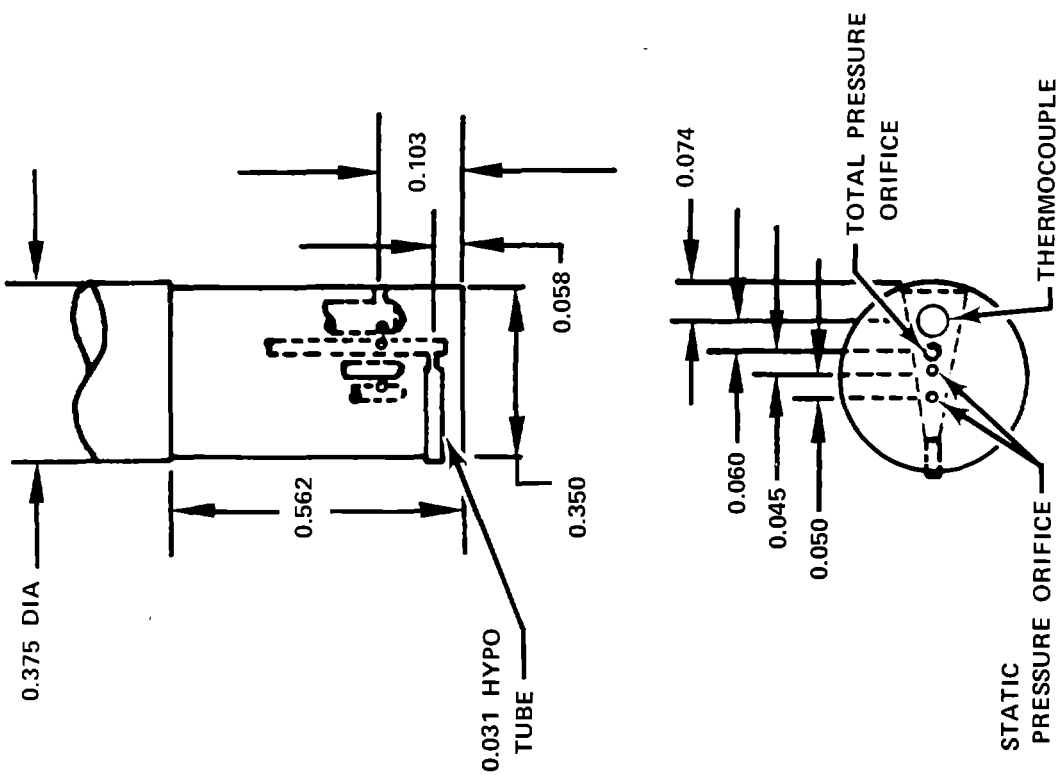
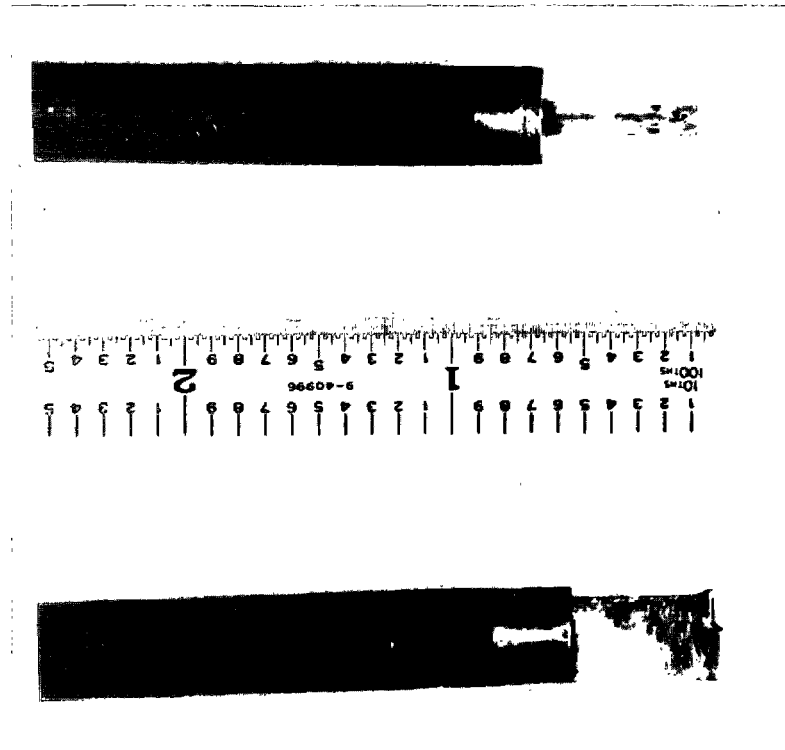
FRONT BODY 90% SPAN FROM TIP		REAR BODY 90% SPAN FROM TIP	
SUCTION SURFACE (16° 24')	PRESSURE SURFACE (32° 42')	SUCTION SURFACE (5° 24')	PRESSURE SURFACE (332° 30')
6.7	7.5	56.5	56.1
11.4	24.9	61.9	74.4
16.2	42.6	67.3	92.2
21.0		72.6	
26.1		77.7	
31.2		82.8	
36.5		87.8	
41.8		92.7	

10% SPAN FROM TIP		10% SPAN FROM TIP	
SUCTION SURFACE (343°30')	PRESSURE SURFACE (32°42')	SUCTION SURFACE (354°30')	PRESSURE SURFACE (332°30')
6.9	7.6	57.0	* 56.5
* 11.6	25.2	62.3	74.5
* 16.5	42.8	67.5	92.4
21.4		72.7	
26.5		77.8	
31.6		82.9	
36.9		87.4	
42.1		92.8	

- NOTES: 1. NUMBERS IN PARENTHESIS INDICATE THE CIRCUMFERENTIAL POSITION OF THE INSTRUMENTATED AIRFOIL IN THE STATOR ASSEMBLY. ZERO DEGREES IS TOP CENTER; THE ANGLE INCREASES CLOCKWISE LOOKING AFT.
 2. ASTERISK INDICATES ORIFICE WHICH WAS INOPERATIVE DURING TEST.

Figure 7. Stator E Static Pressure Orifice Locations

FD 77157

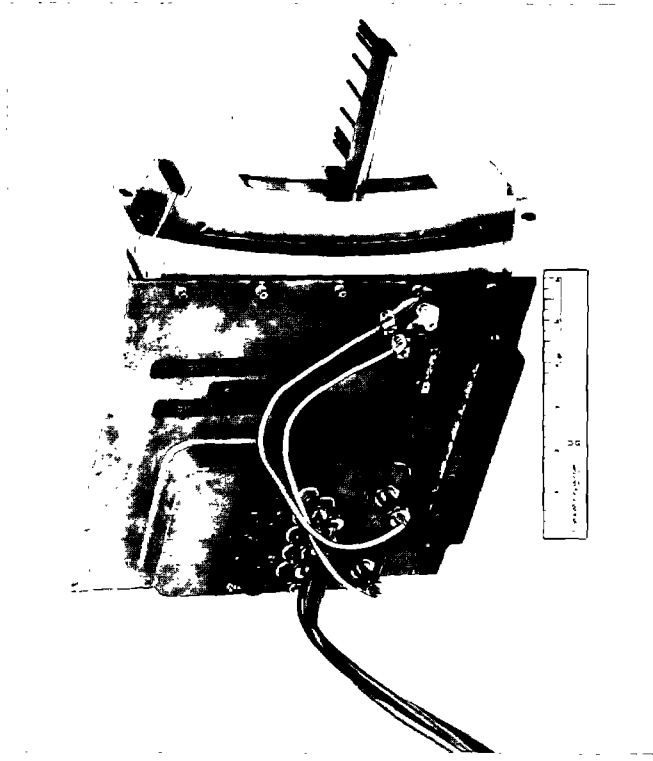


FD 47069

NOTE: ALL DIMENSIONS ARE IN INCHES

FD 58982

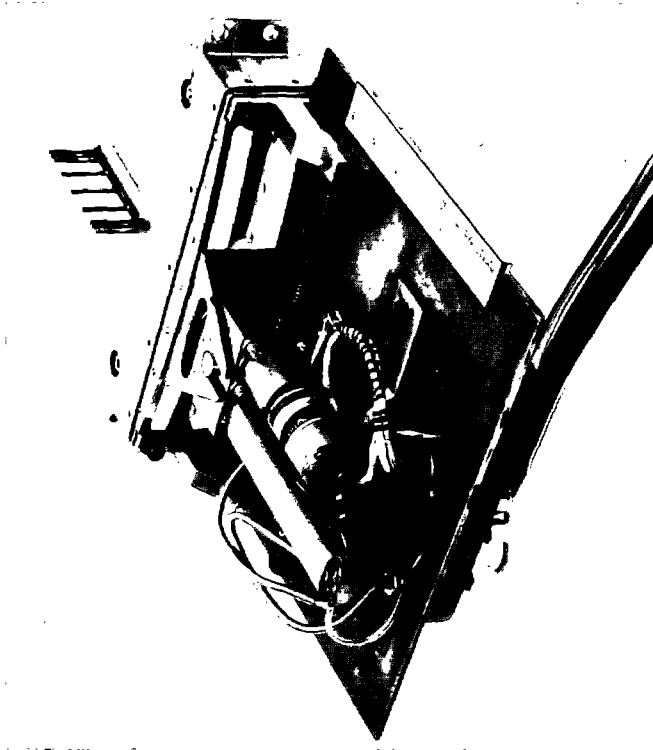
Figure 8. Twenty-Degree Wedge Traverse Probe



FE 97405

REAR VIEW

FD 47068



FE 97404

FRONT VIEW WITH COVER REMOVED

Figure 9. Total Pressure/Total Temperature Circumferential Traverse Unit

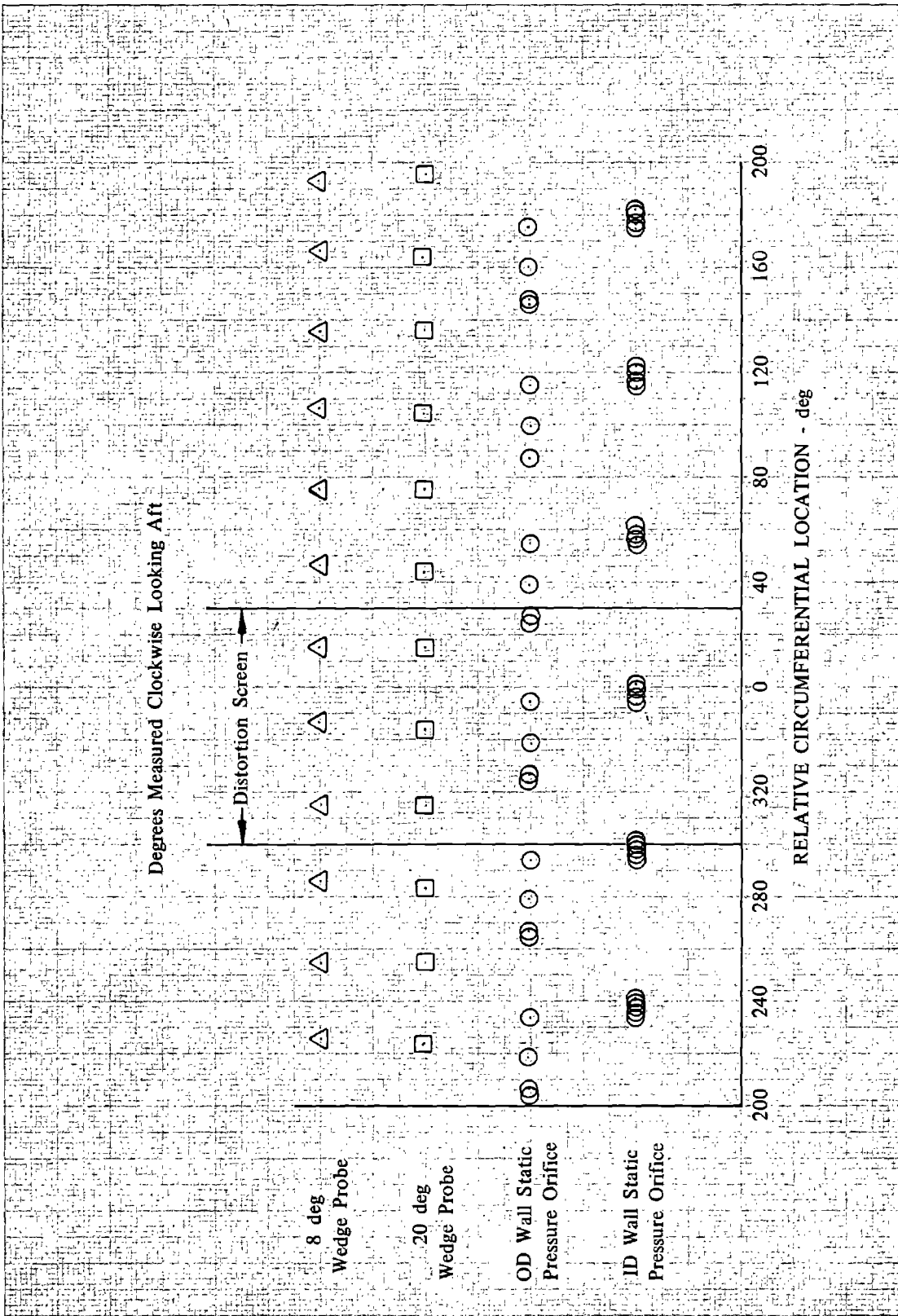


Figure 10a. Composition of Station 1 Instrumentation Relative to the Circumferential Distortion Screen for Six Screen Positions

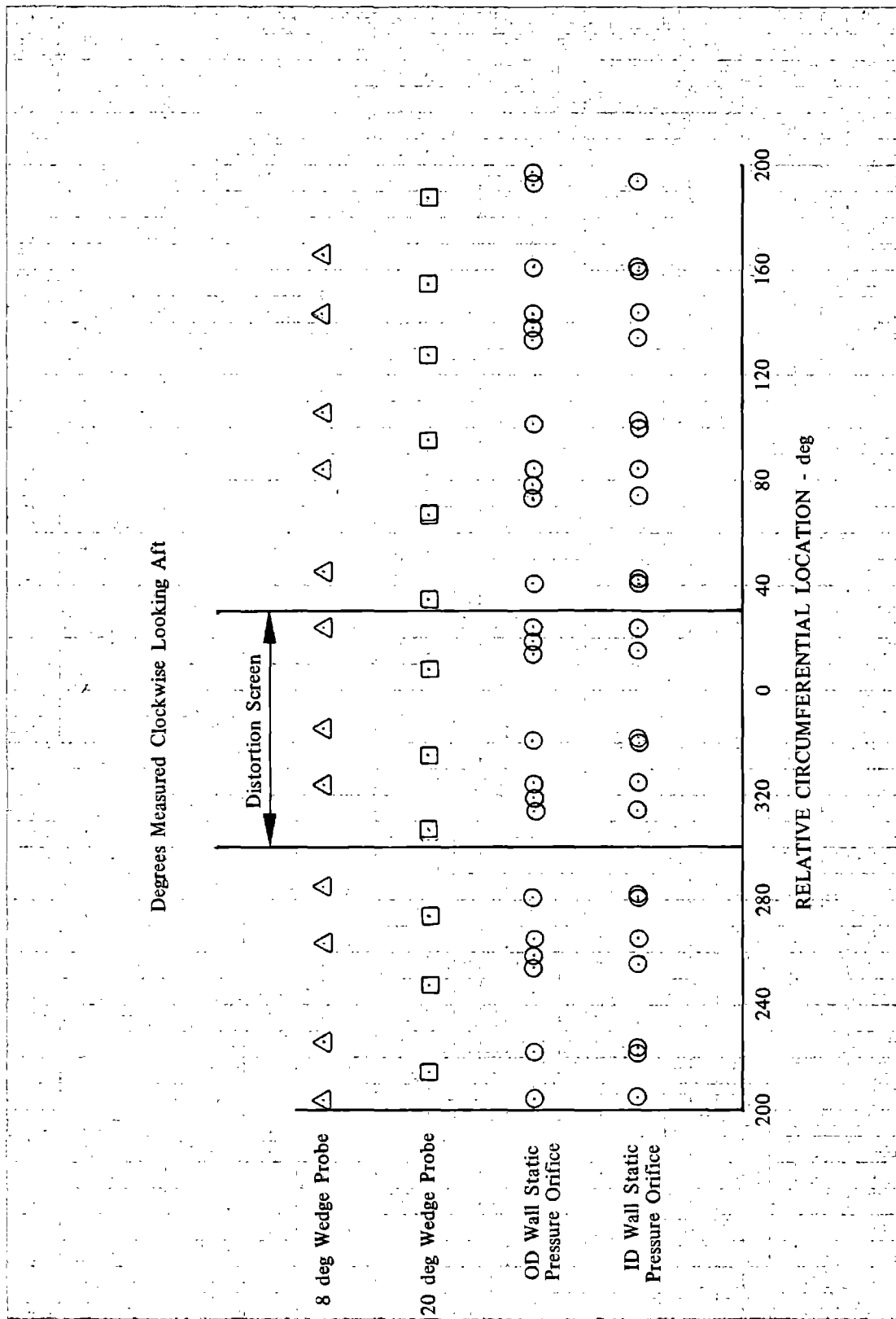


Figure 10b. Composition of Station 2 Instrumentation Relative to the Circumferential Distortion Screen for Six Screen Positions

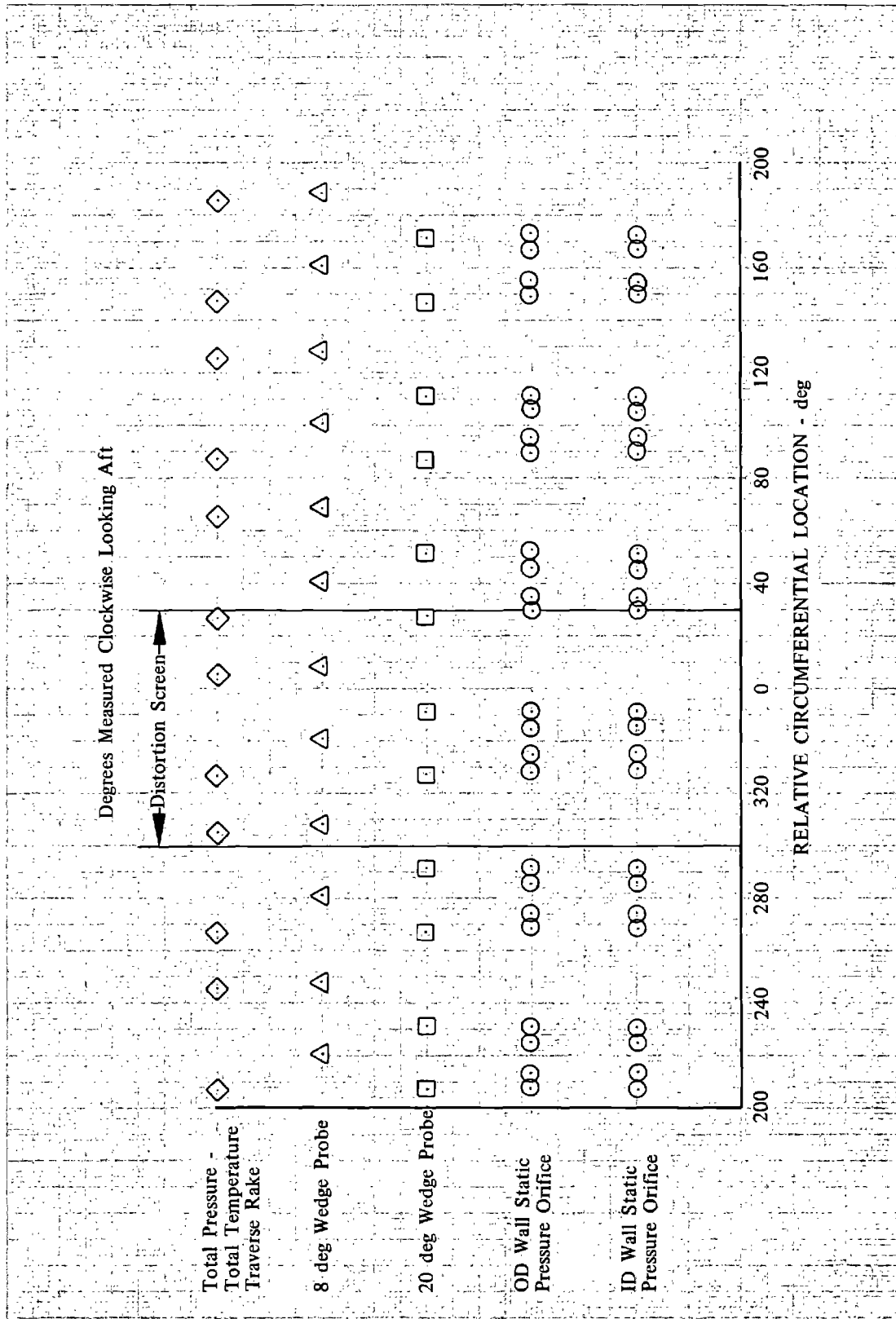
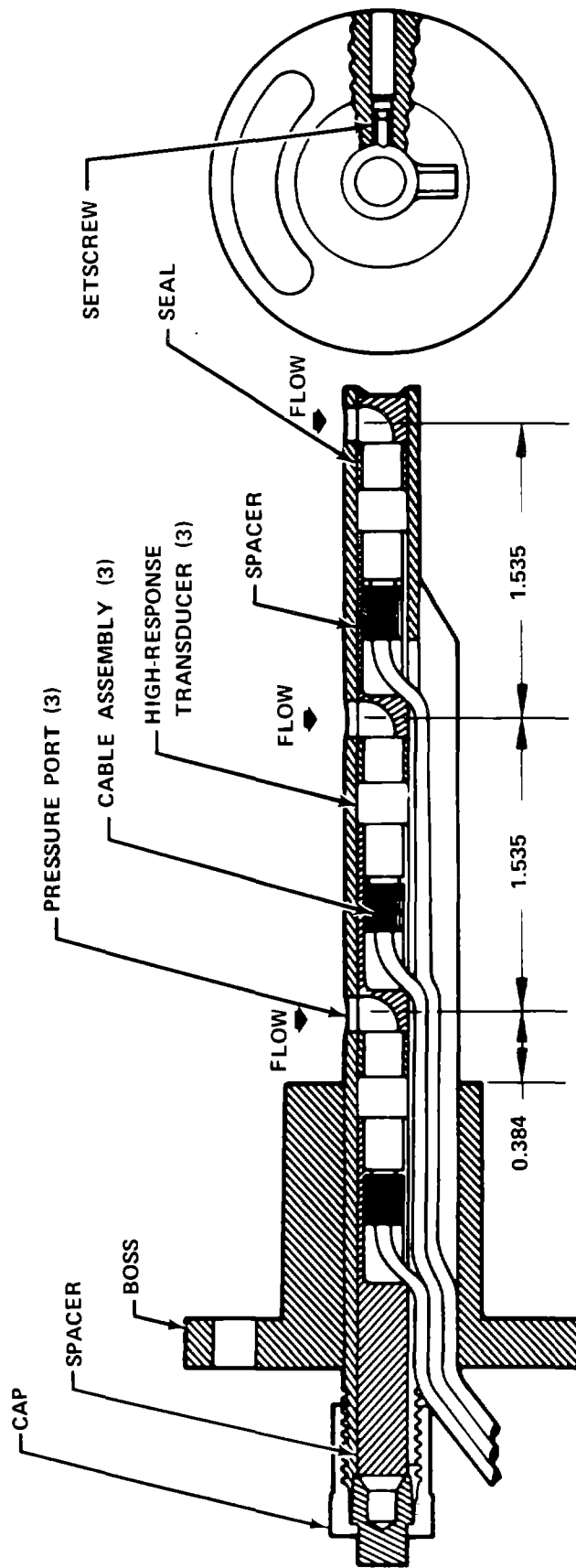


Figure 10c. Composition of Station 2A Instrumentation Relative to the Circumferential Distortion Screen for Six Screen Positions



NOTE: ALL DIMENSIONS ARE IN INCHES

Figure 11. High-Response Probe

FD 58984B

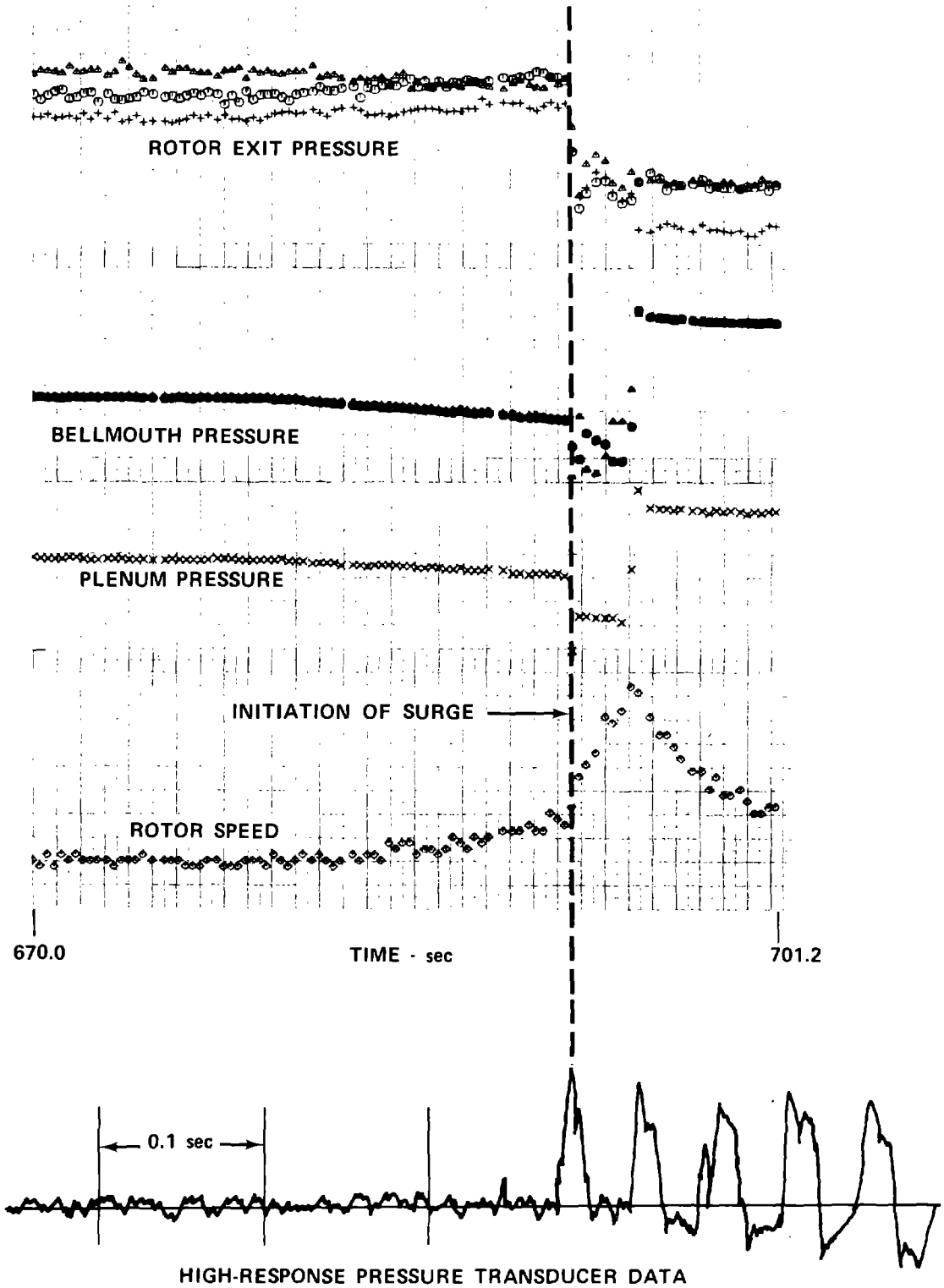


Figure 12. Typical Plot of Transient Data

FD 75494

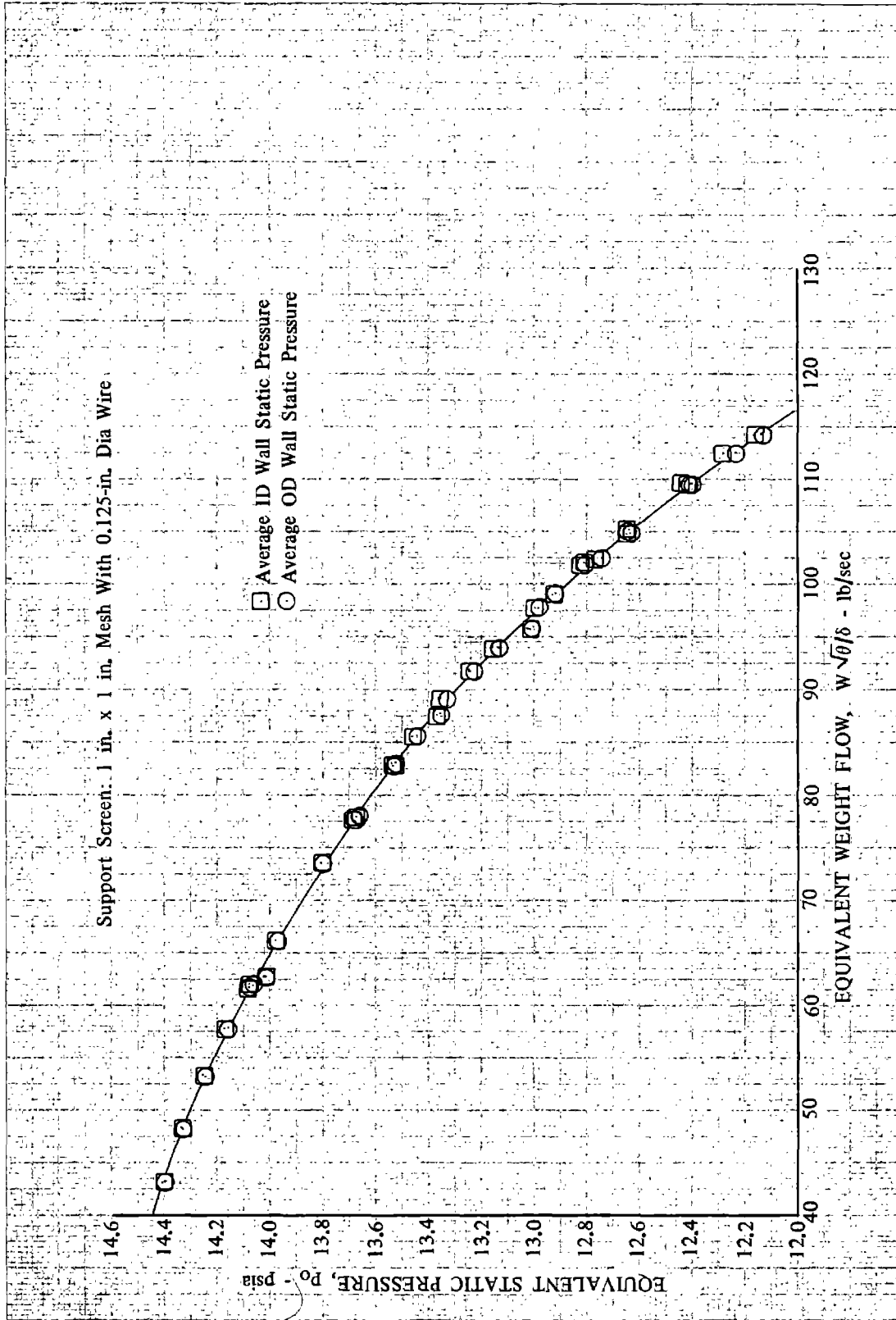


Figure 13. Station 0 Equivalent Static Pressure vs Equivalent Weight Flow for Stage E Flowpath with Support Screen

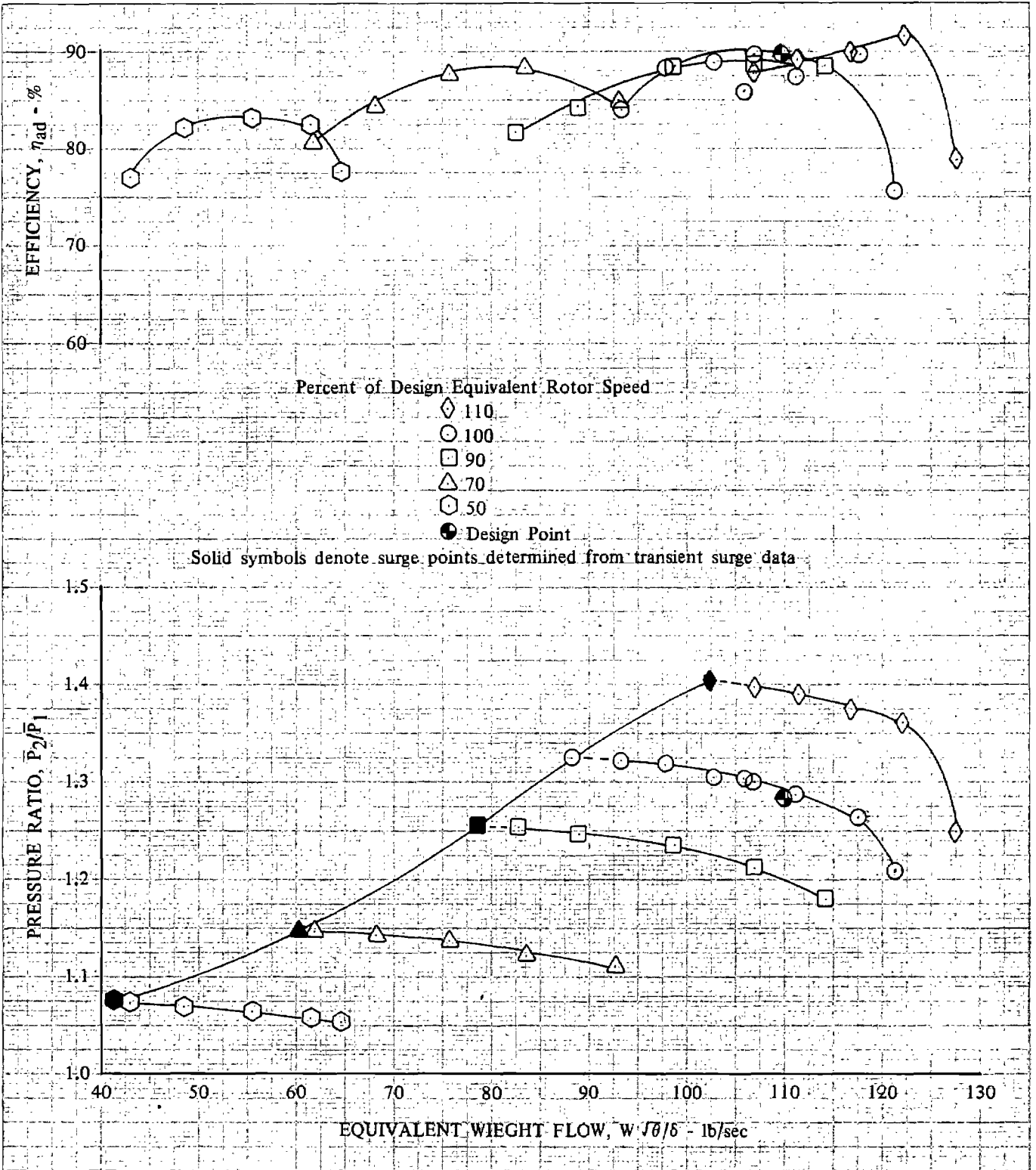


Figure 14. Overall Performance of Rotor E; Uniform Inlet Flow DF 98209

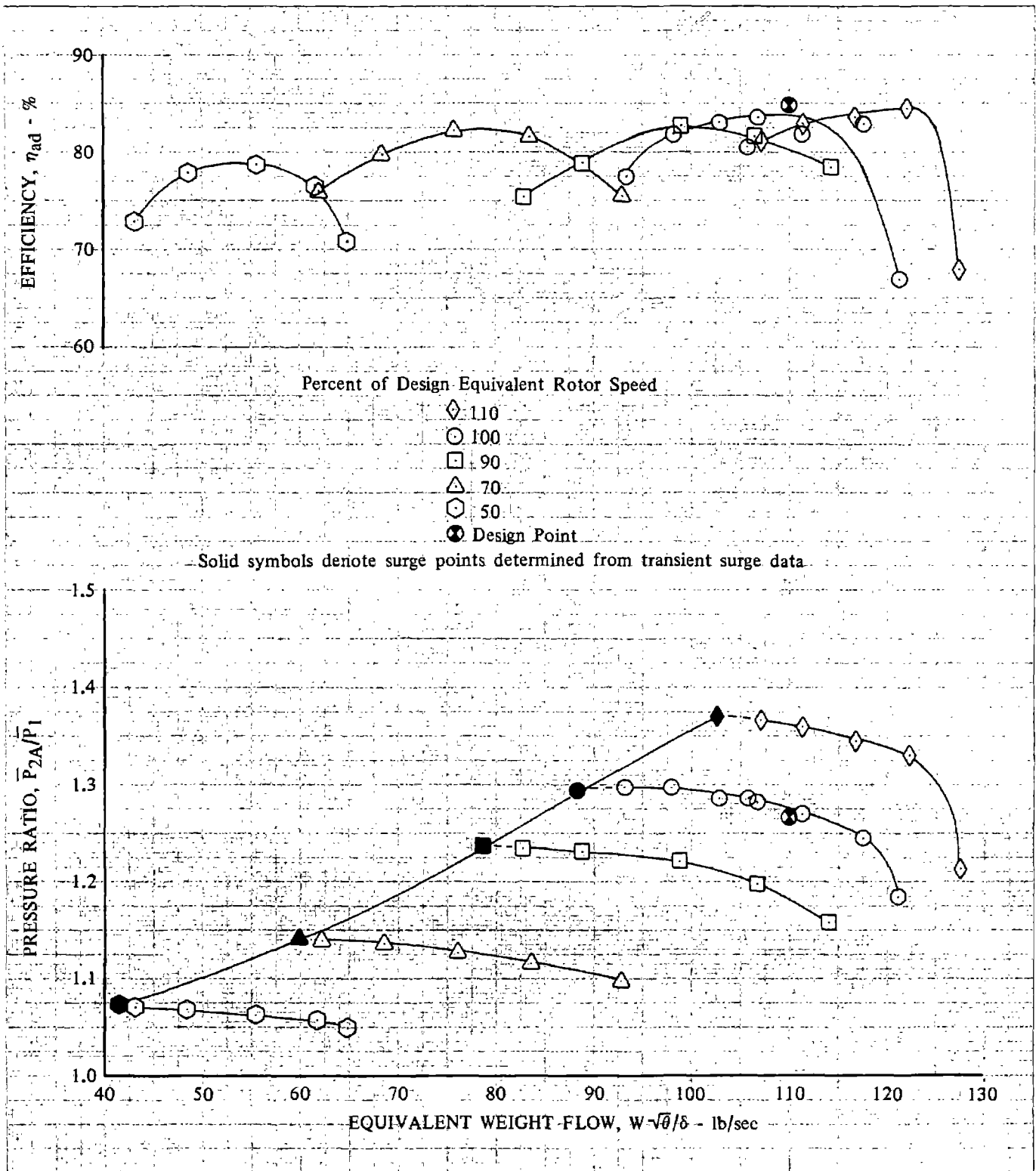


Figure 15. Overall Performance of Stage E; Uniform Inlet Flow DF 98210

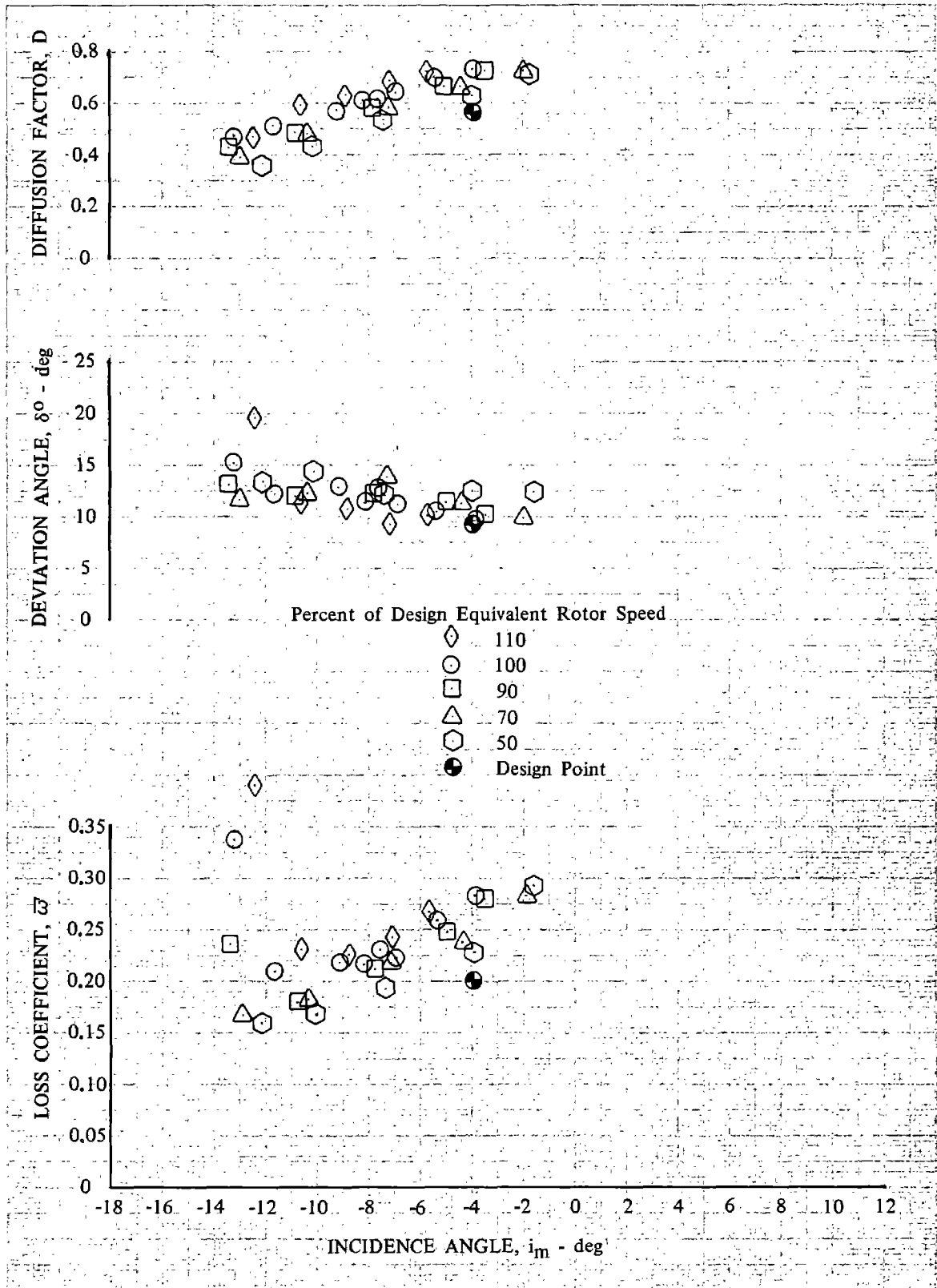


Figure 16a. Rotor E Blade Element Performance;
5% Span from Tip; Uniform Inlet Flow

DF 98075

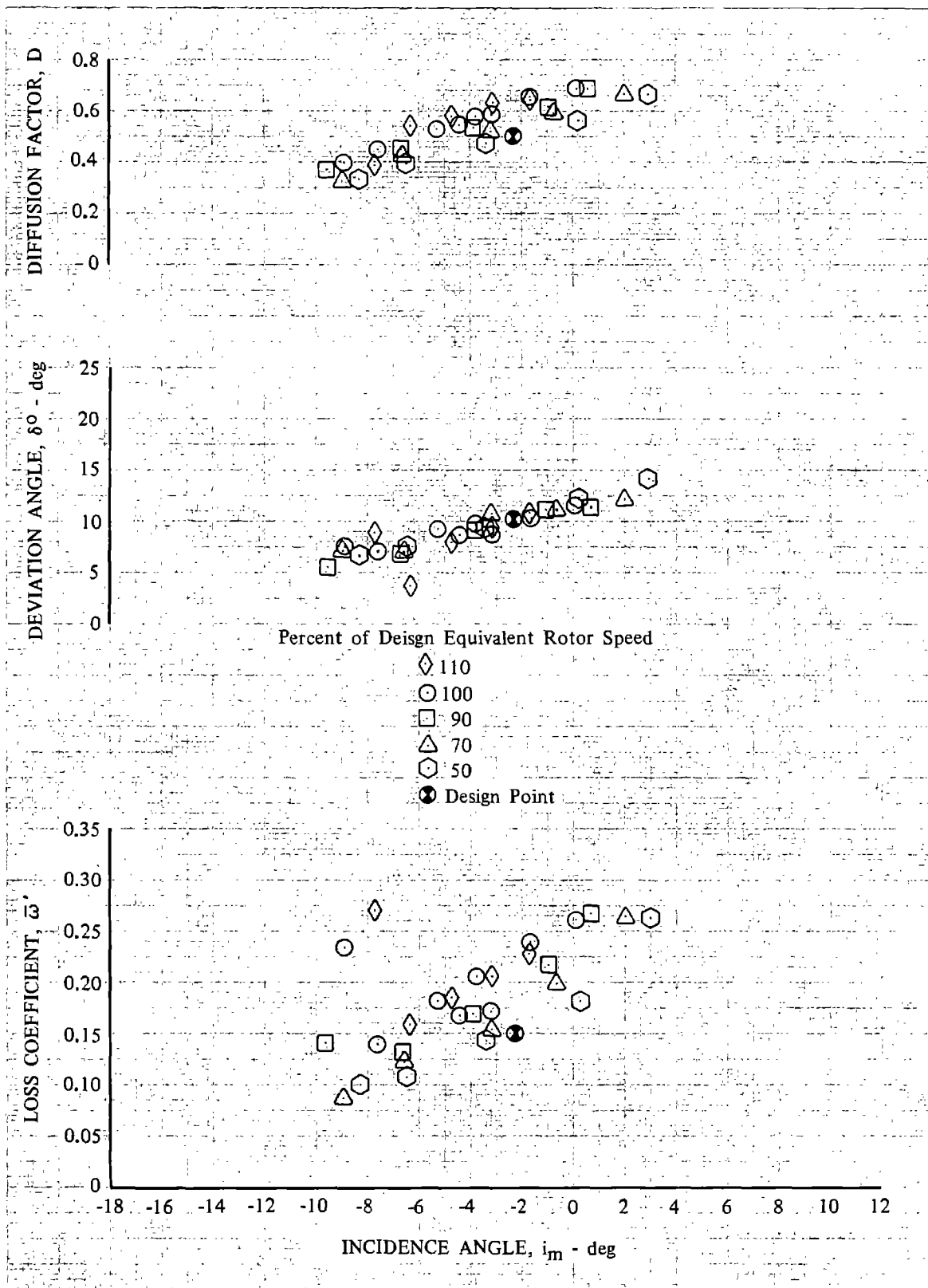


Figure 16b. Rotor E Blade Element Performance;
10% Span from Tip; Uniform Inlet Flow

DF 98076

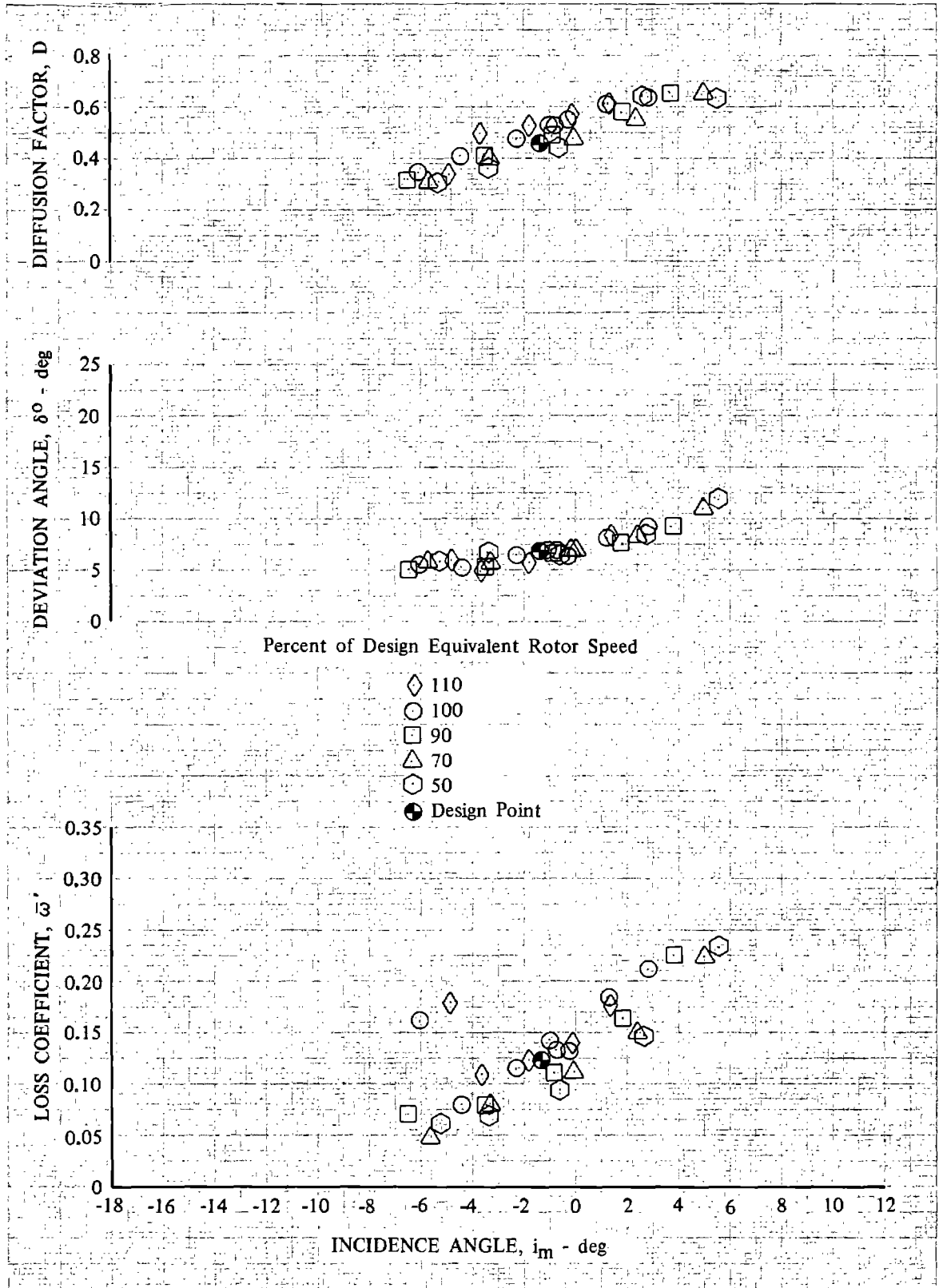


Figure 16c. Rotor E Blade Element Performance;
15% Span From Tip; Uniform Inlet Flow

DF 98077

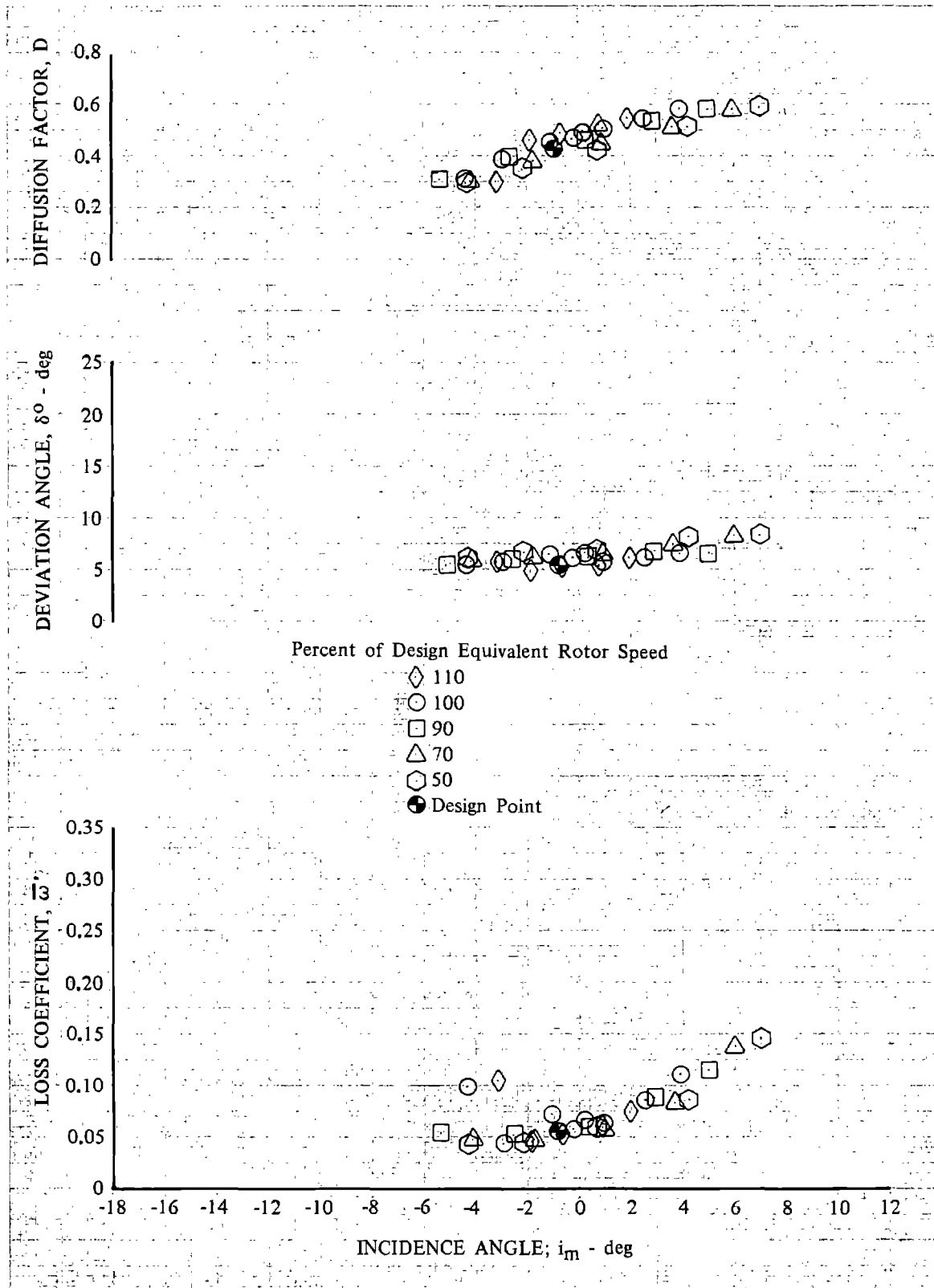


Figure 16d. Rotor E Blade Element Performance;
30% Span From Tip; Uniform Inlet Flow

DF 98078

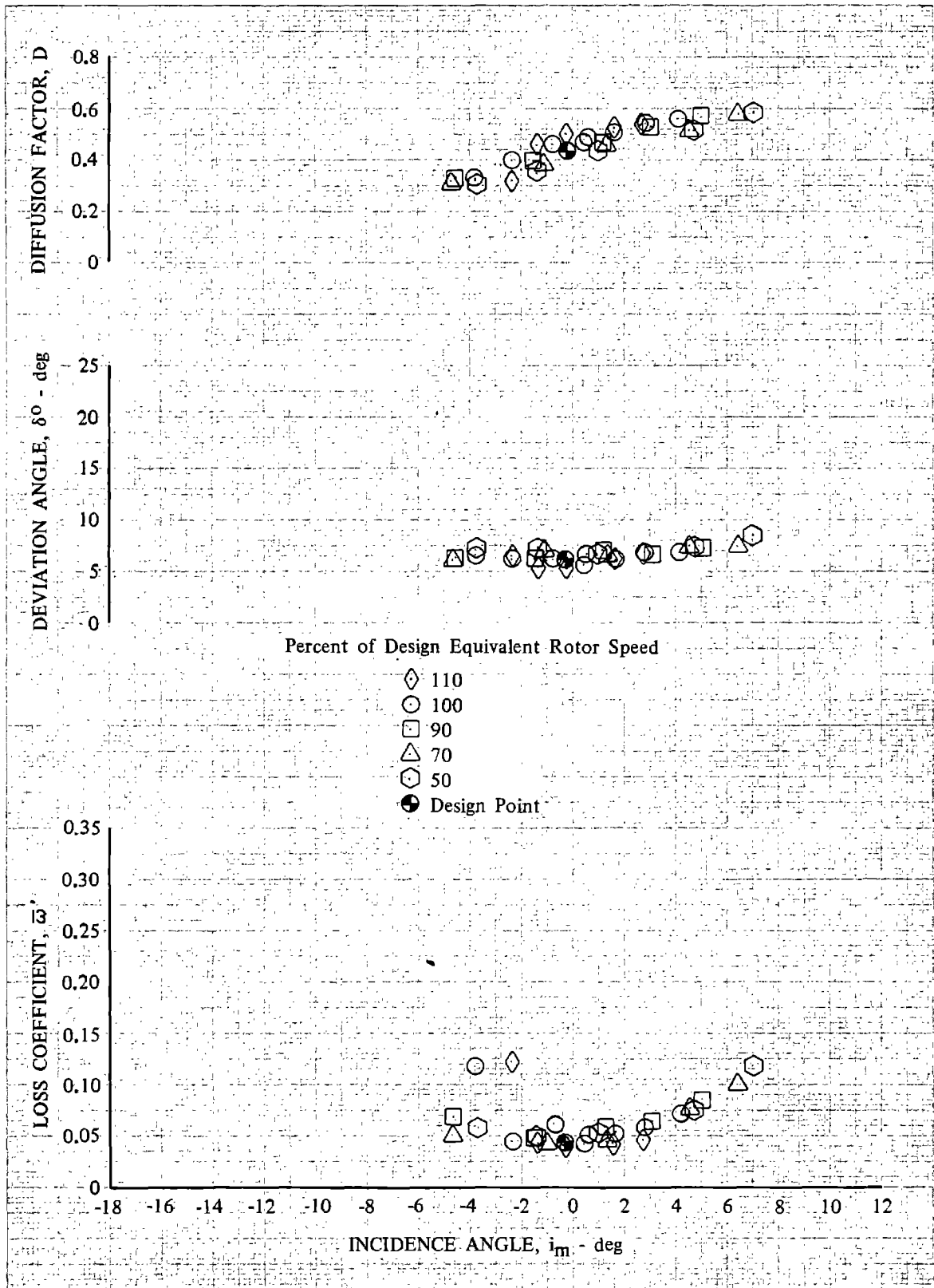


Figure 16e. Rotor E Blade Element Performance;
50% Span; Uniform Inlet Flow

DF 98079

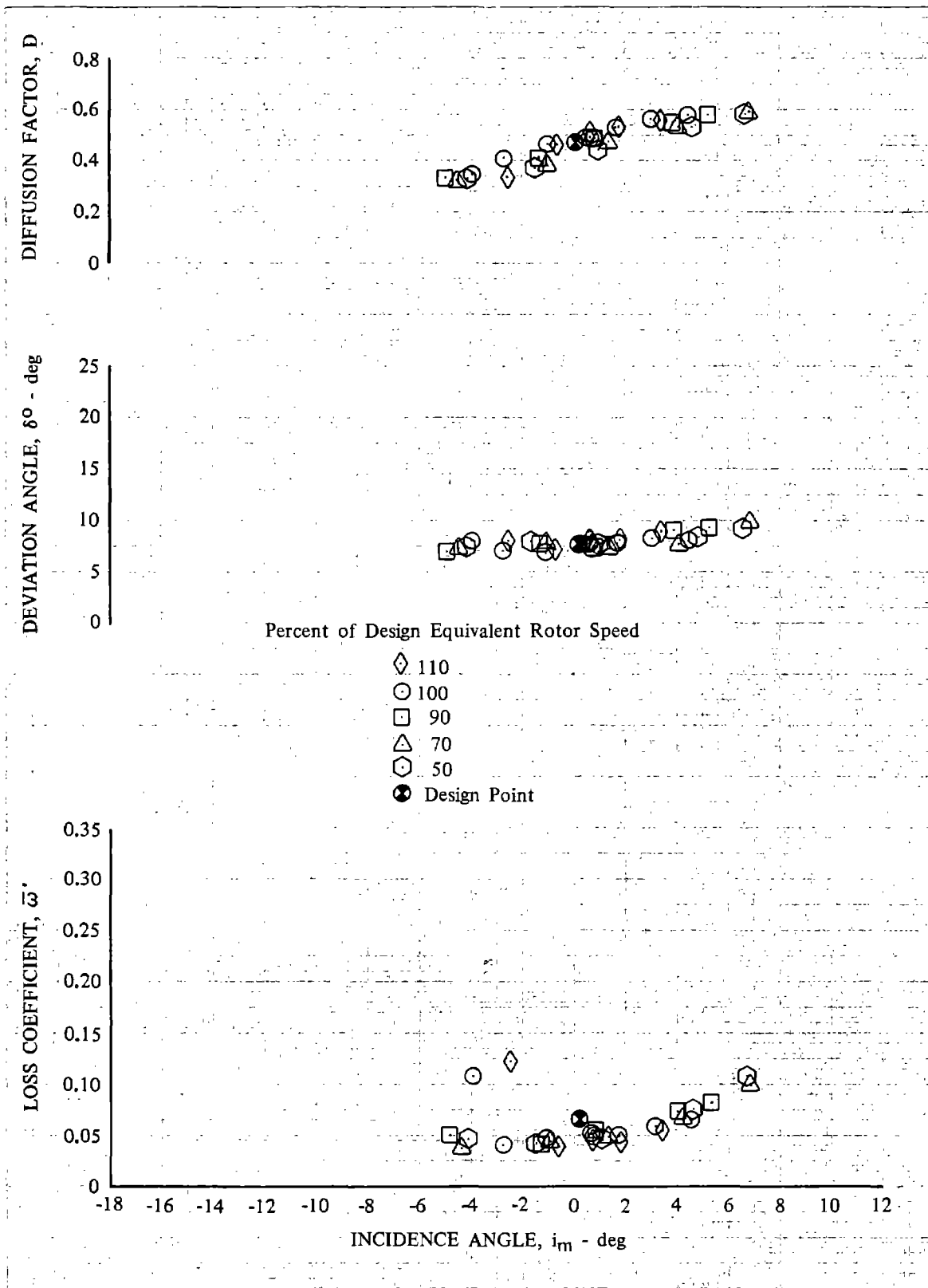
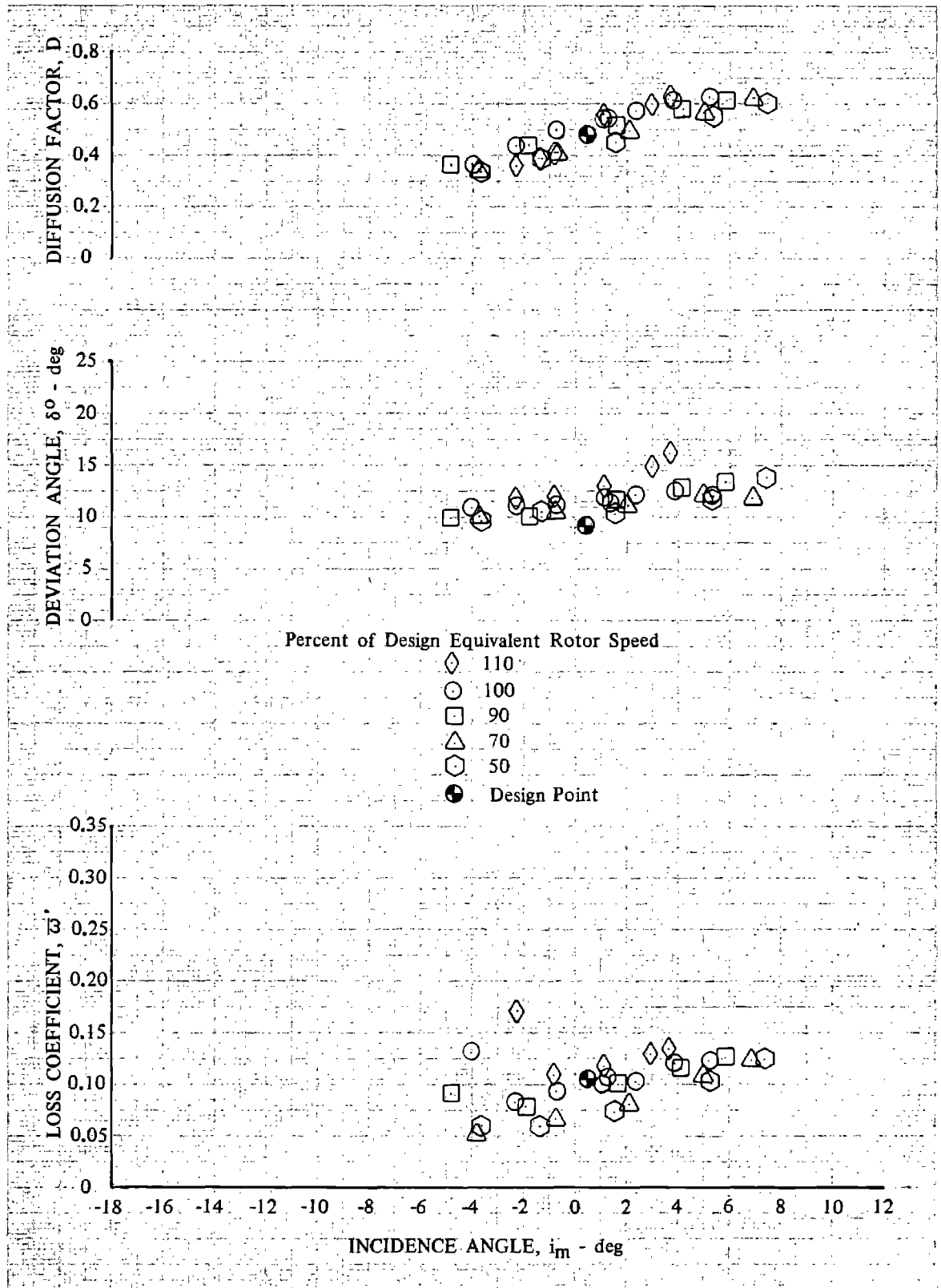


Figure 16f. Rotor E Blade Element Performance; DF 98080
70% Span From Tip; Uniform Inlet Flow



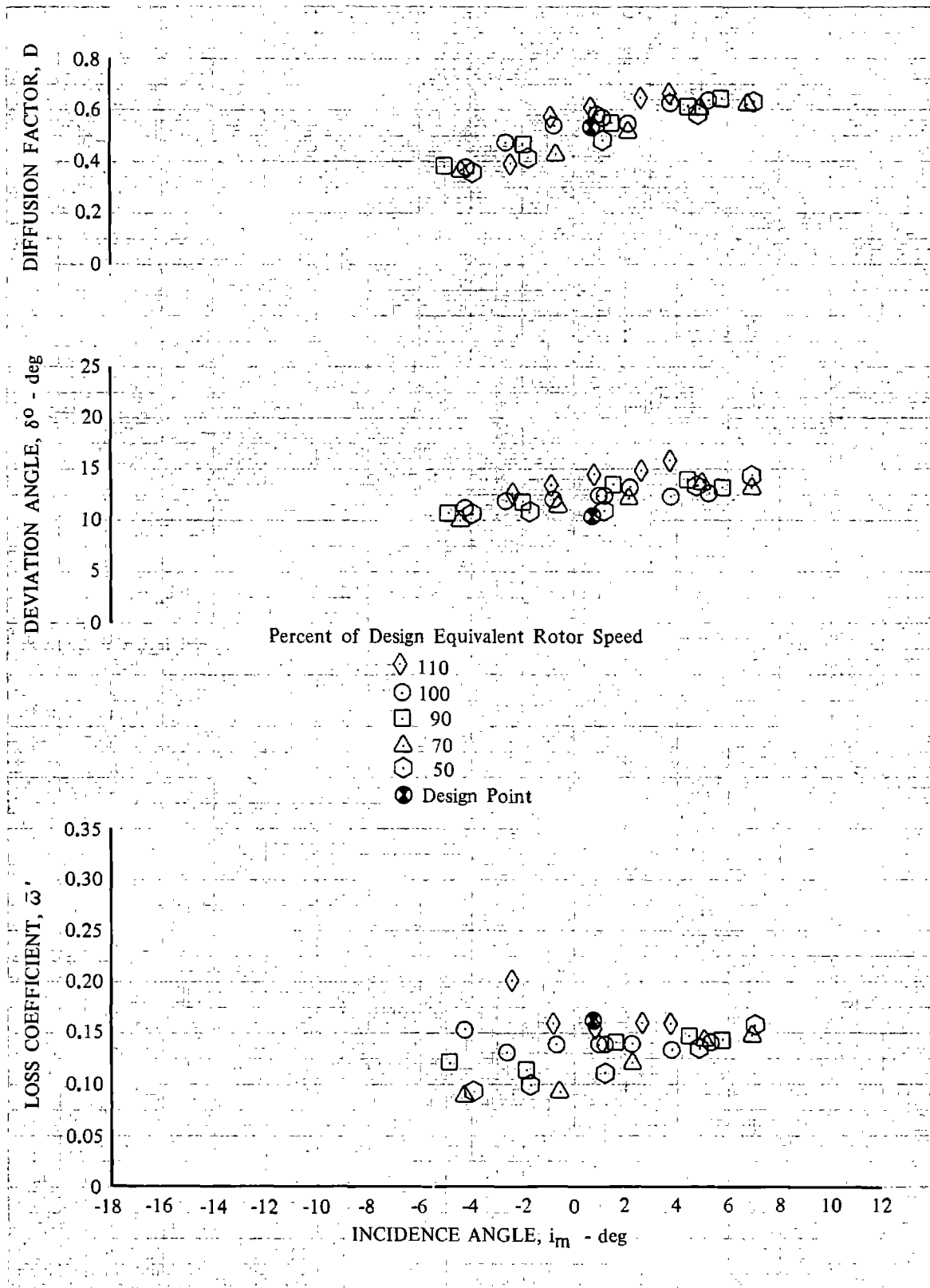


Figure 16h. Rotor E Blade Element Performance;
90% Span From Tip; Uniform Inlet Flow

DF 98082

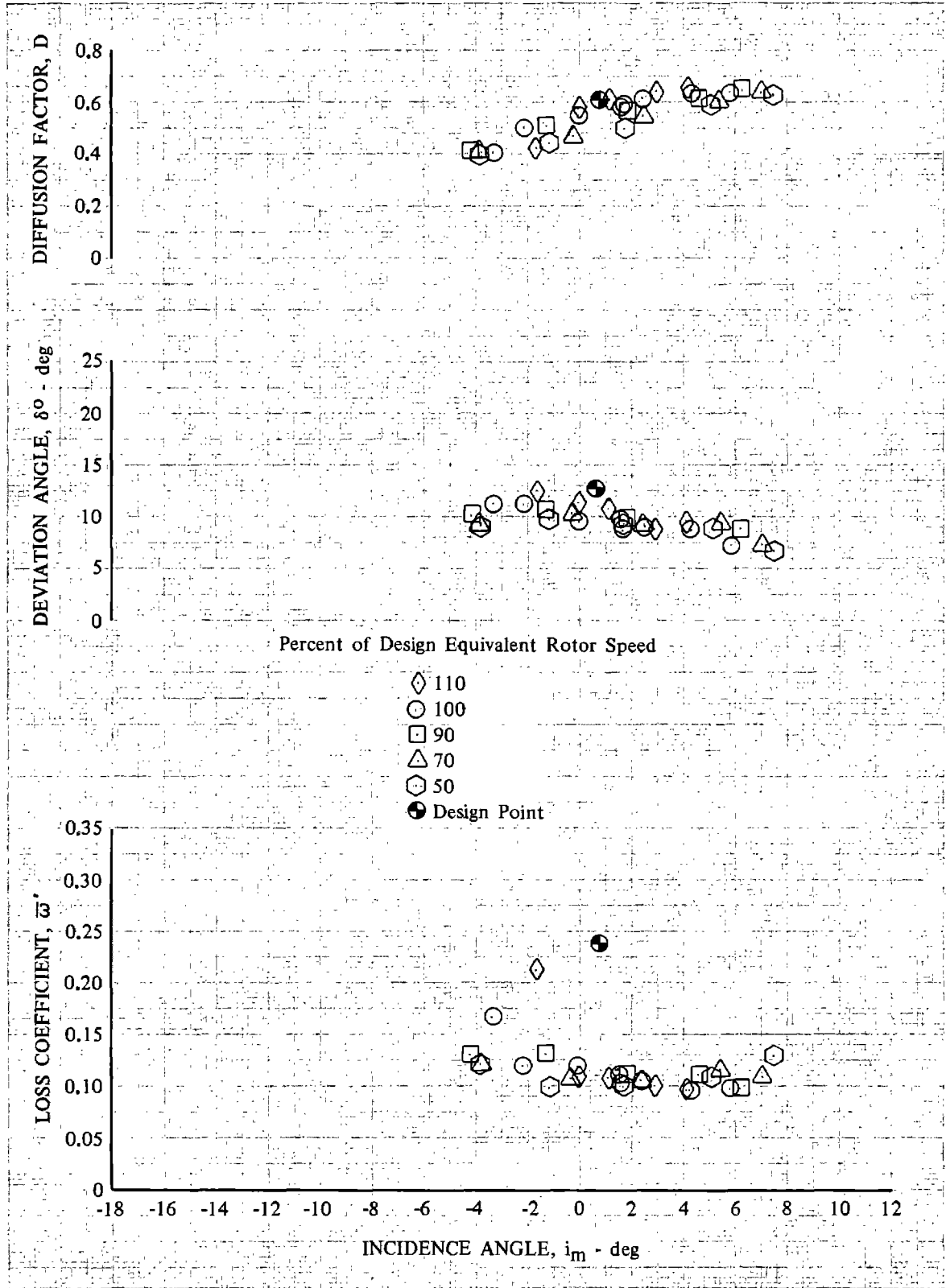


Figure 16i. Rotor E Blade Element Performance; 95% Span From Tip; Uniform Inlet Flow

DF 98083

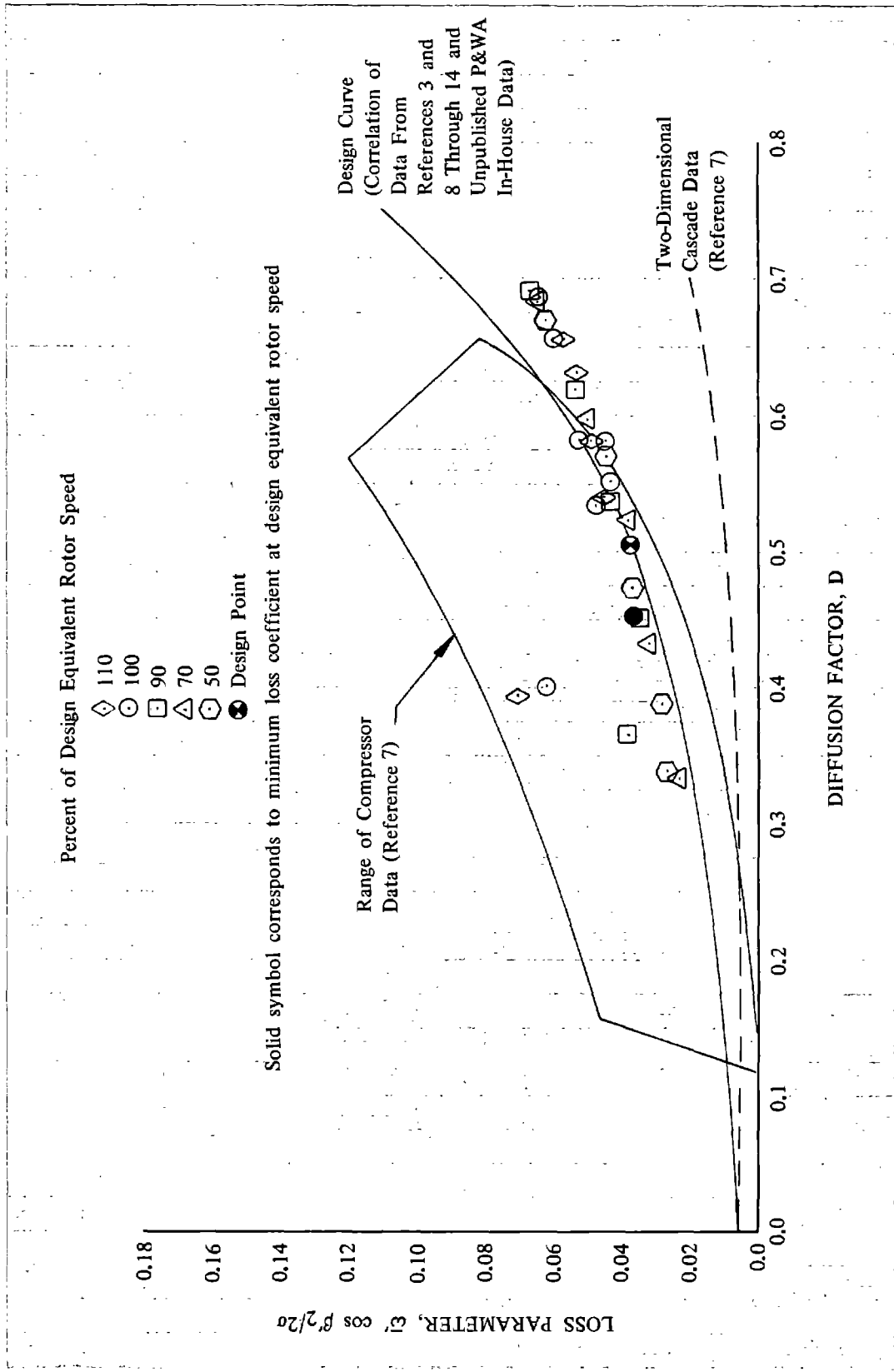


Figure 17a. Rotor E Loss Parameter vs Diffusion Factor; 10% Span From Tip; Uniform Inlet Flow

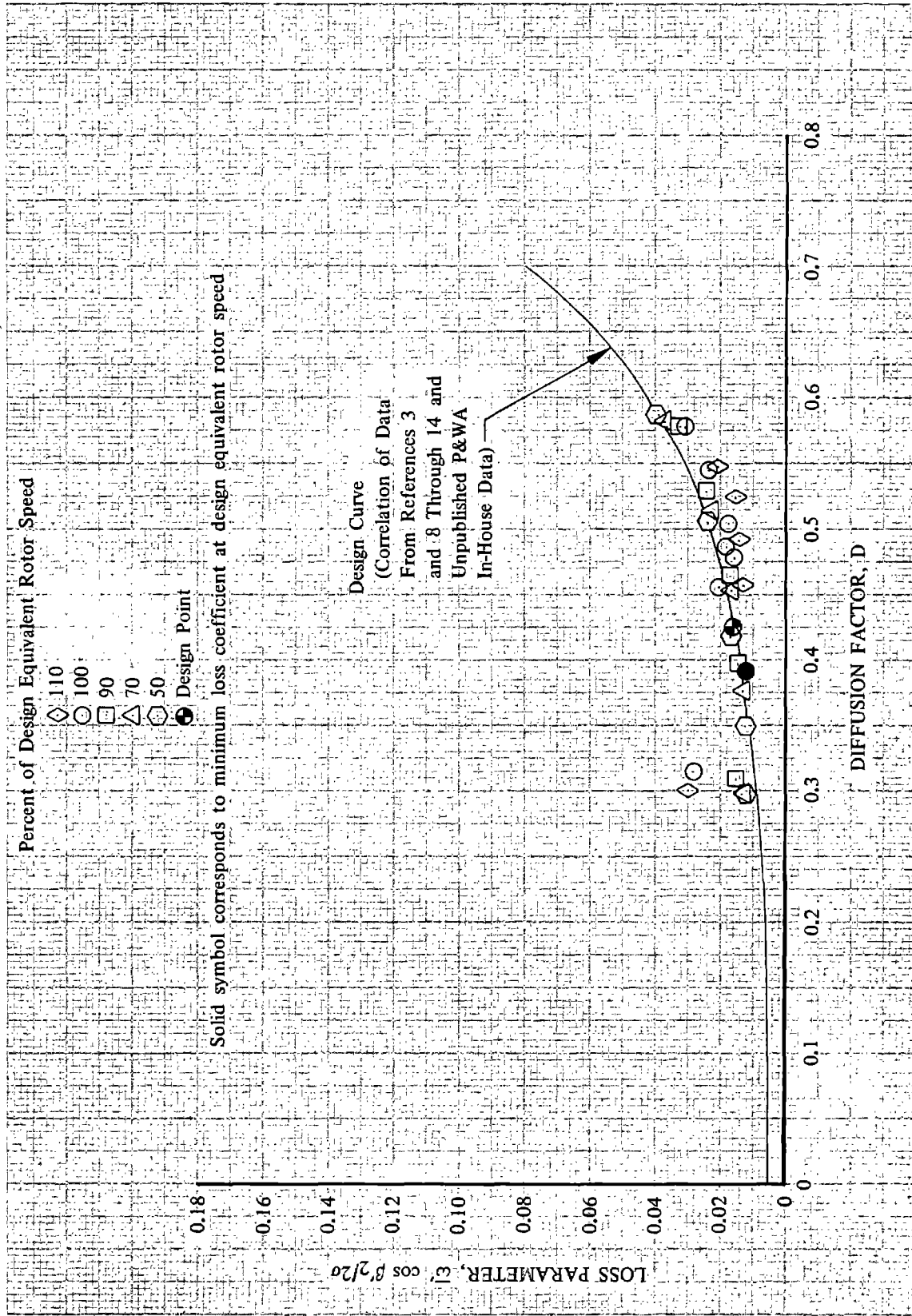


Figure 17b. Rotor E Loss Parameter vs Diffusion Factor; 30% Span From Tip; Uniform Inlet Flow

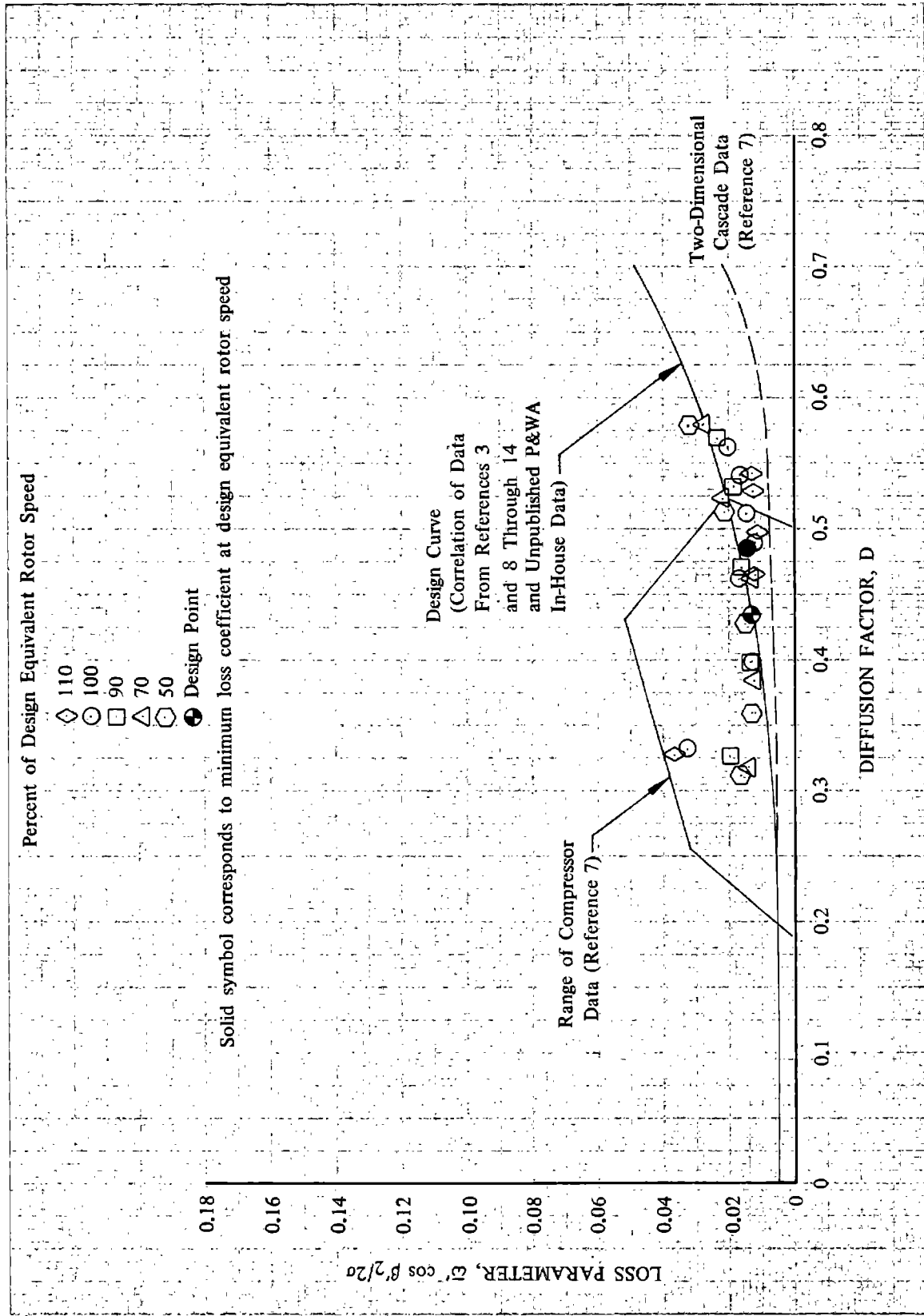


Figure 17c. Rotor E Loss Parameter vs Diffusion Factor; 50% Span; Uniform Inlet Flow

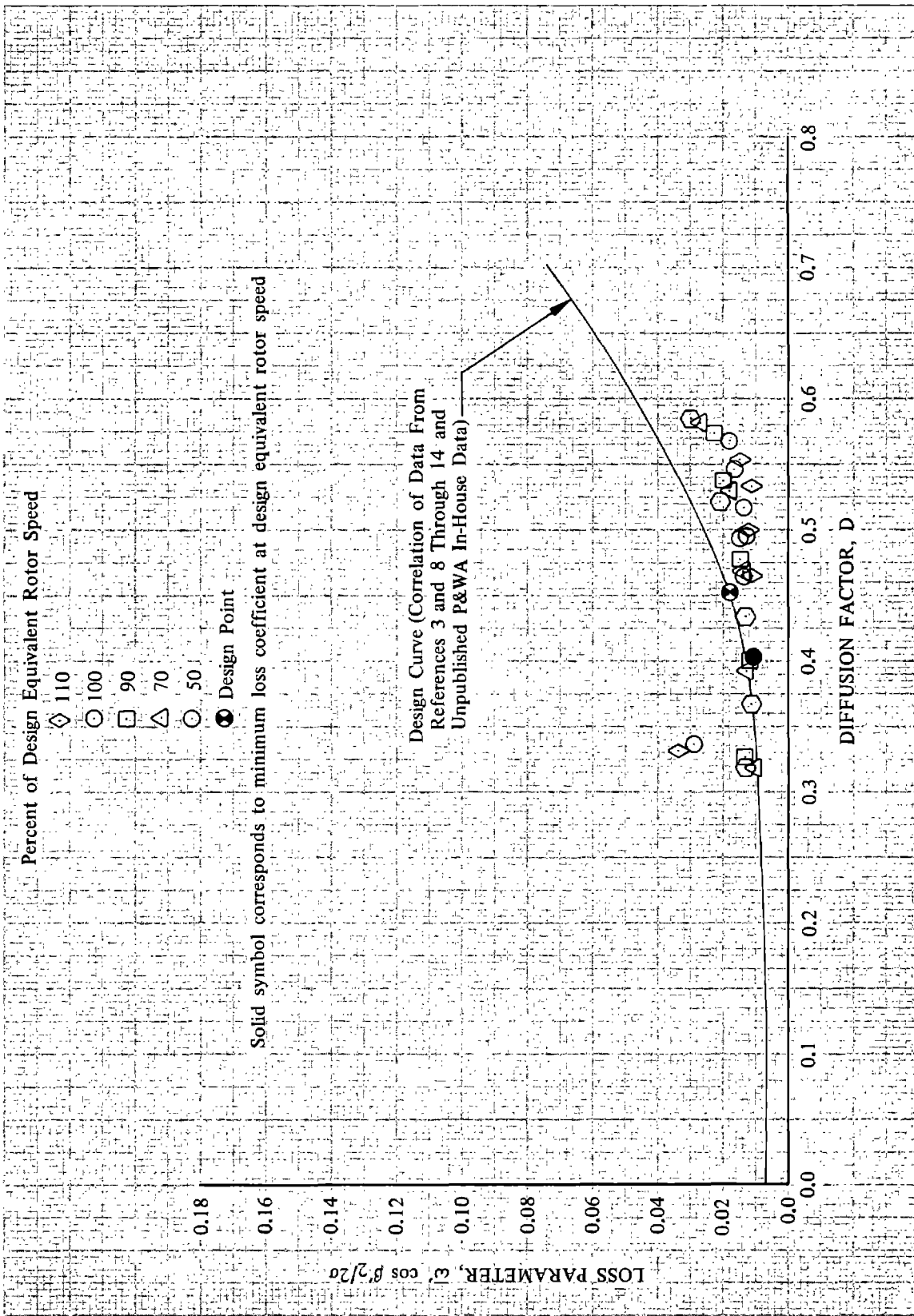


Figure 17d. Rotor E Loss Parameter vs Diffusion Factor; 70% Span From Tip; Uniform Inlet Flow

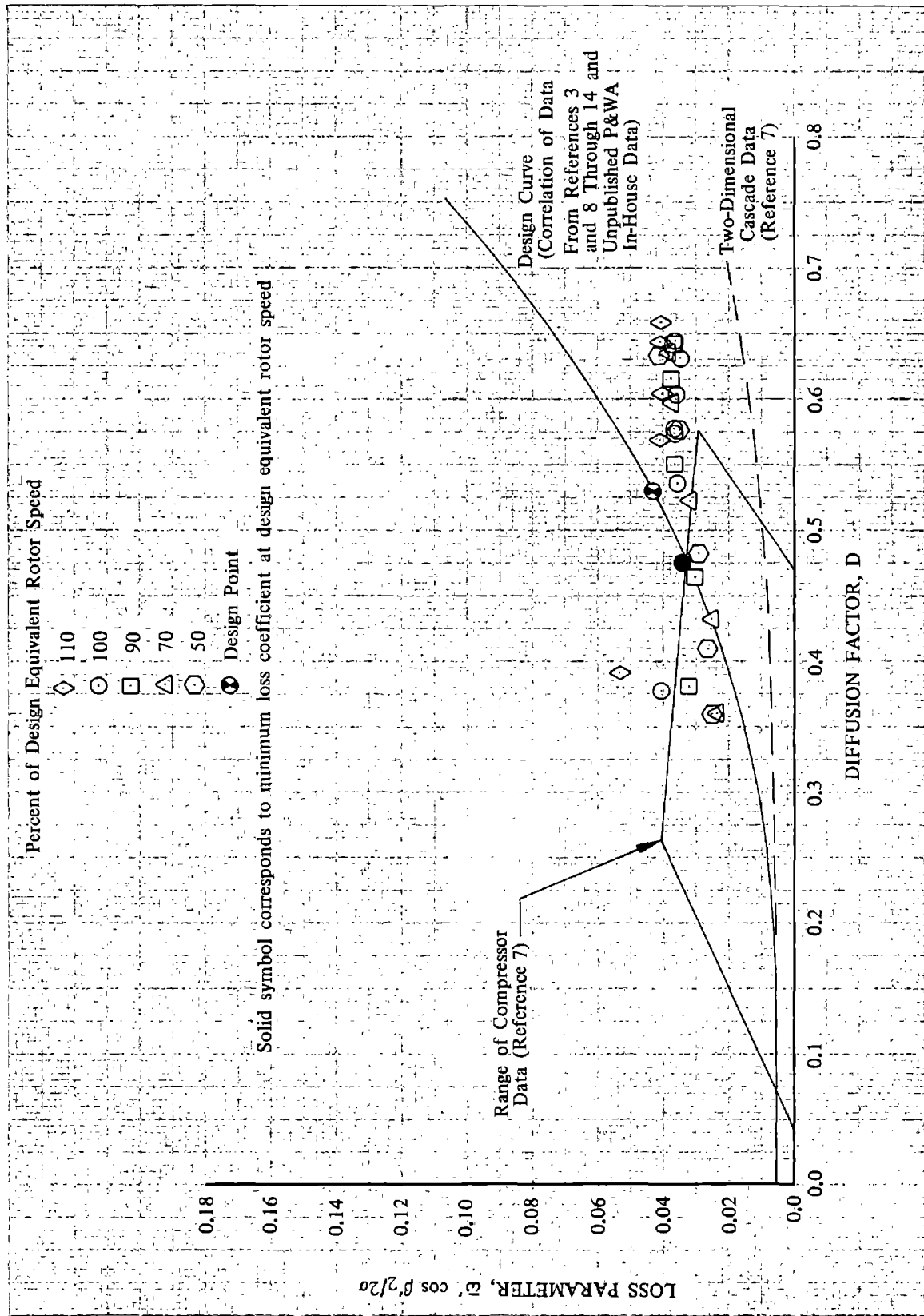


Figure 17e. Rotor E Loss Parameter vs Diffusion Factor; 90% Span From Tip; Uniform Inlet Flow

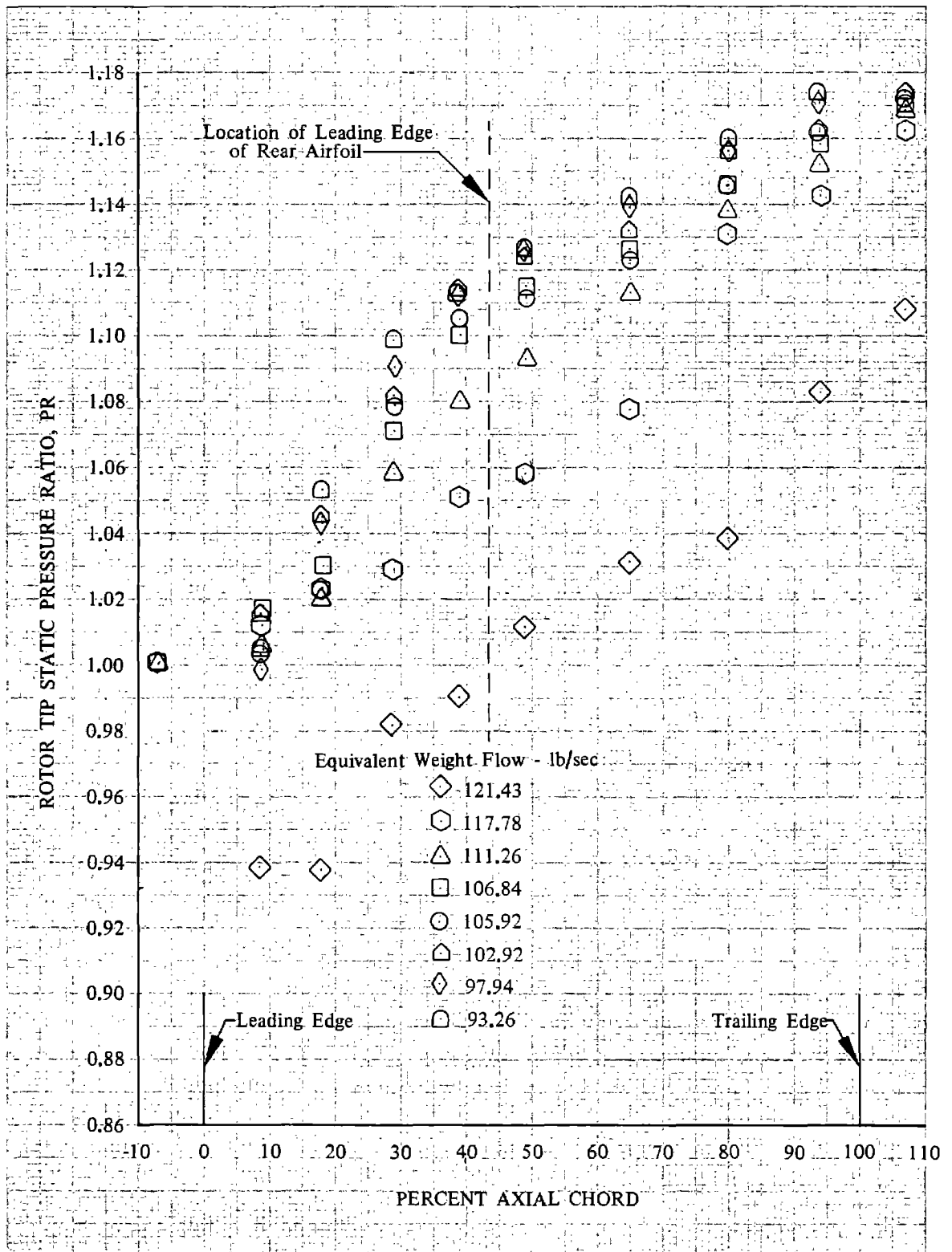


Figure 18. Rotor E Tip Static Pressure Ratio vs Percent Axial Chord; 100% Design Equivalent Rotor Speed; Uniform Inlet Flow DF 98089

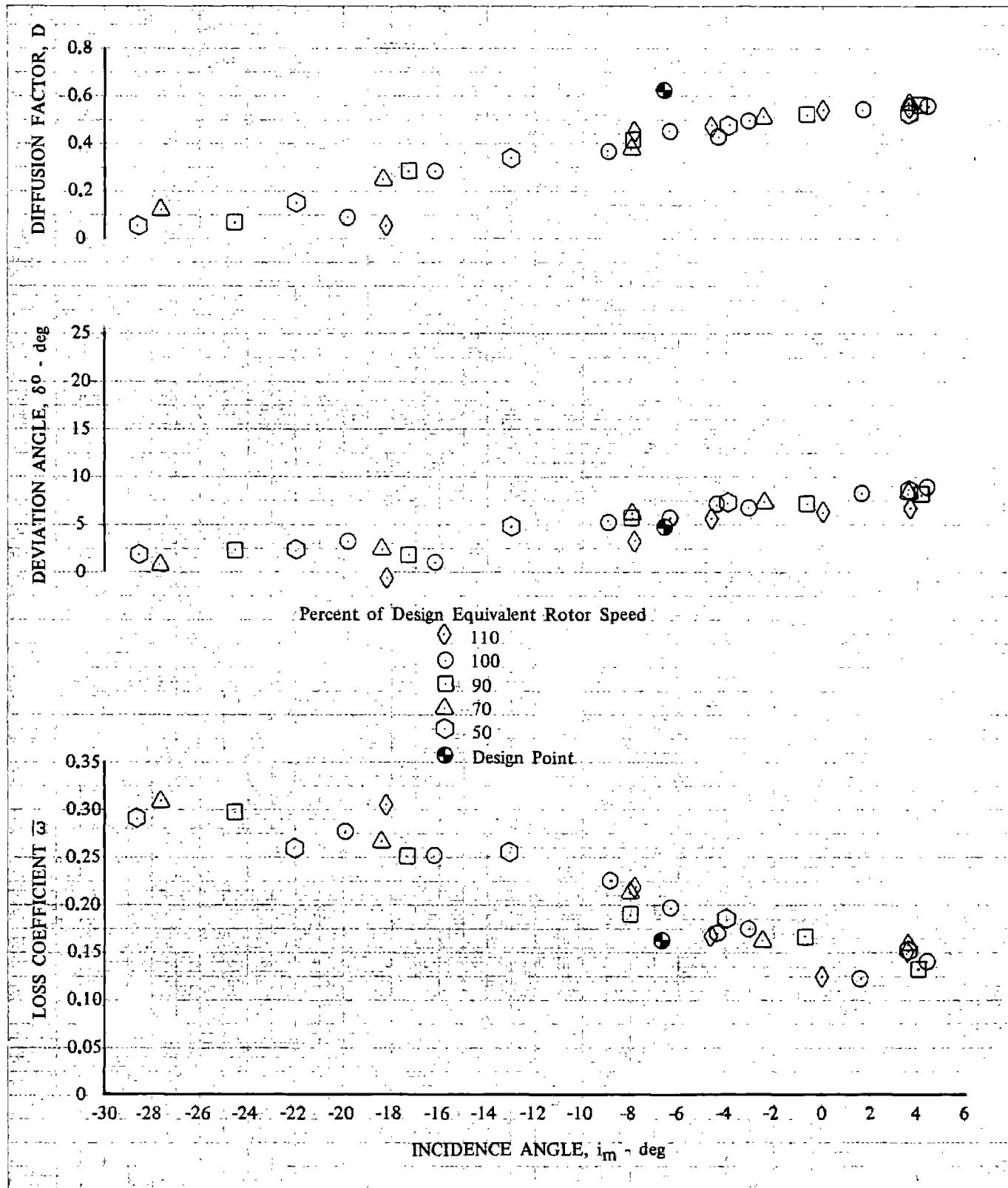


Figure 19a. Stator E Blade Element Performance;
5% Span From Tip; Uniform Inlet Flow

DF 98090

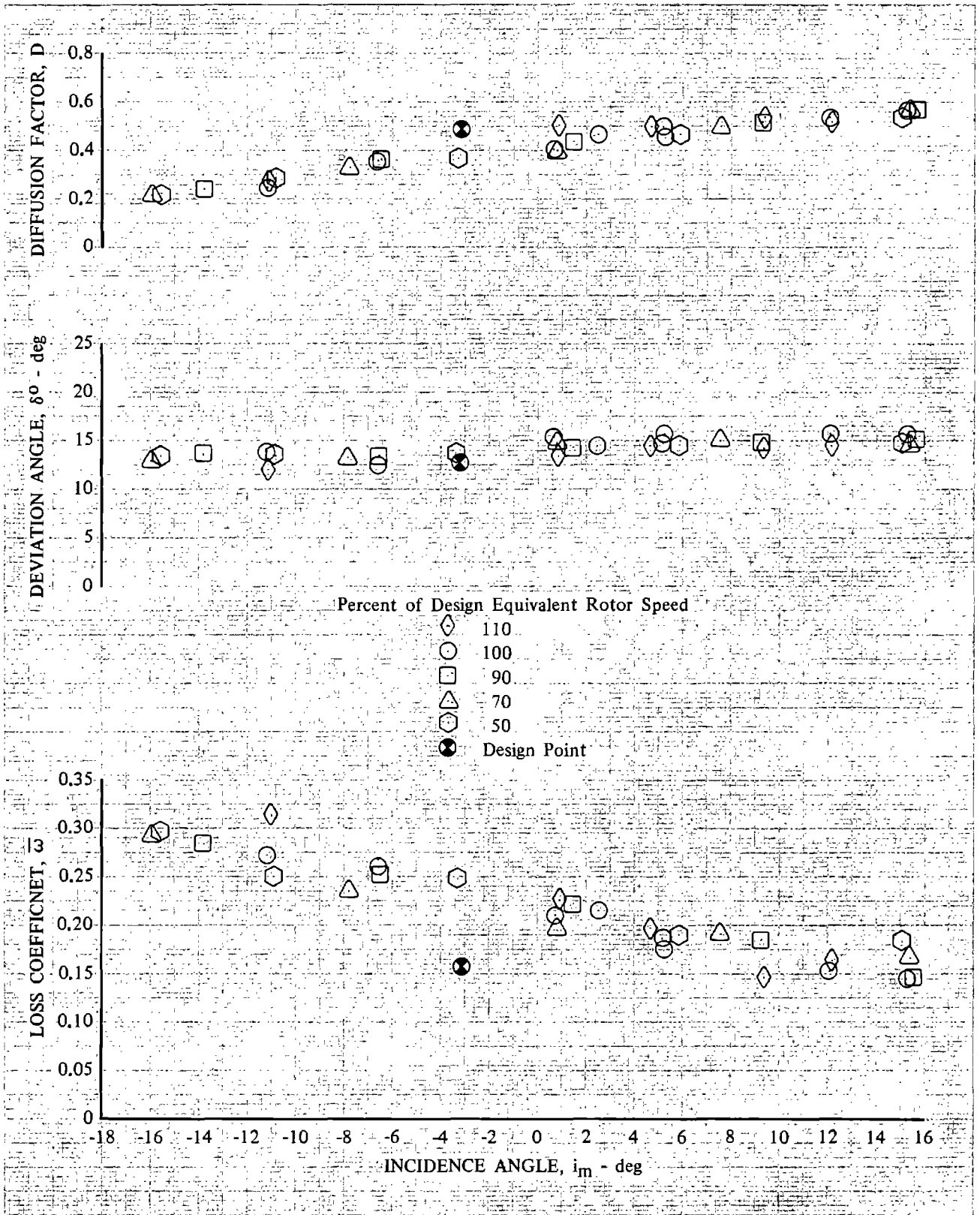


Figure 19b. Stator E Blade Element Performance;
10% Span From Tip; Uniform Inlet Flow

DF 98091

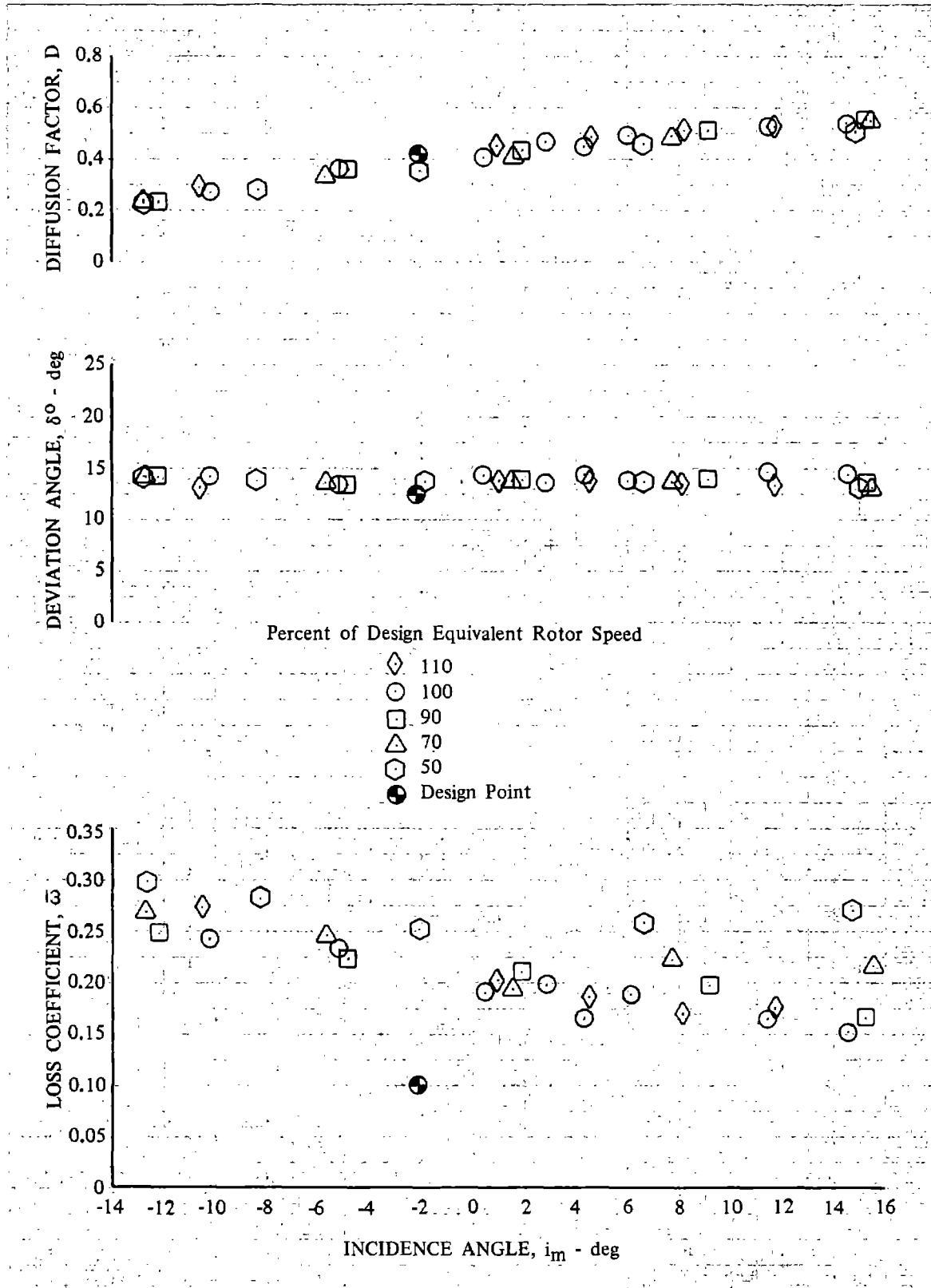


Figure 19c. Stator E Blade Element Performance;
15% Span From Tip; Uniform Inlet Flow

DF 98092

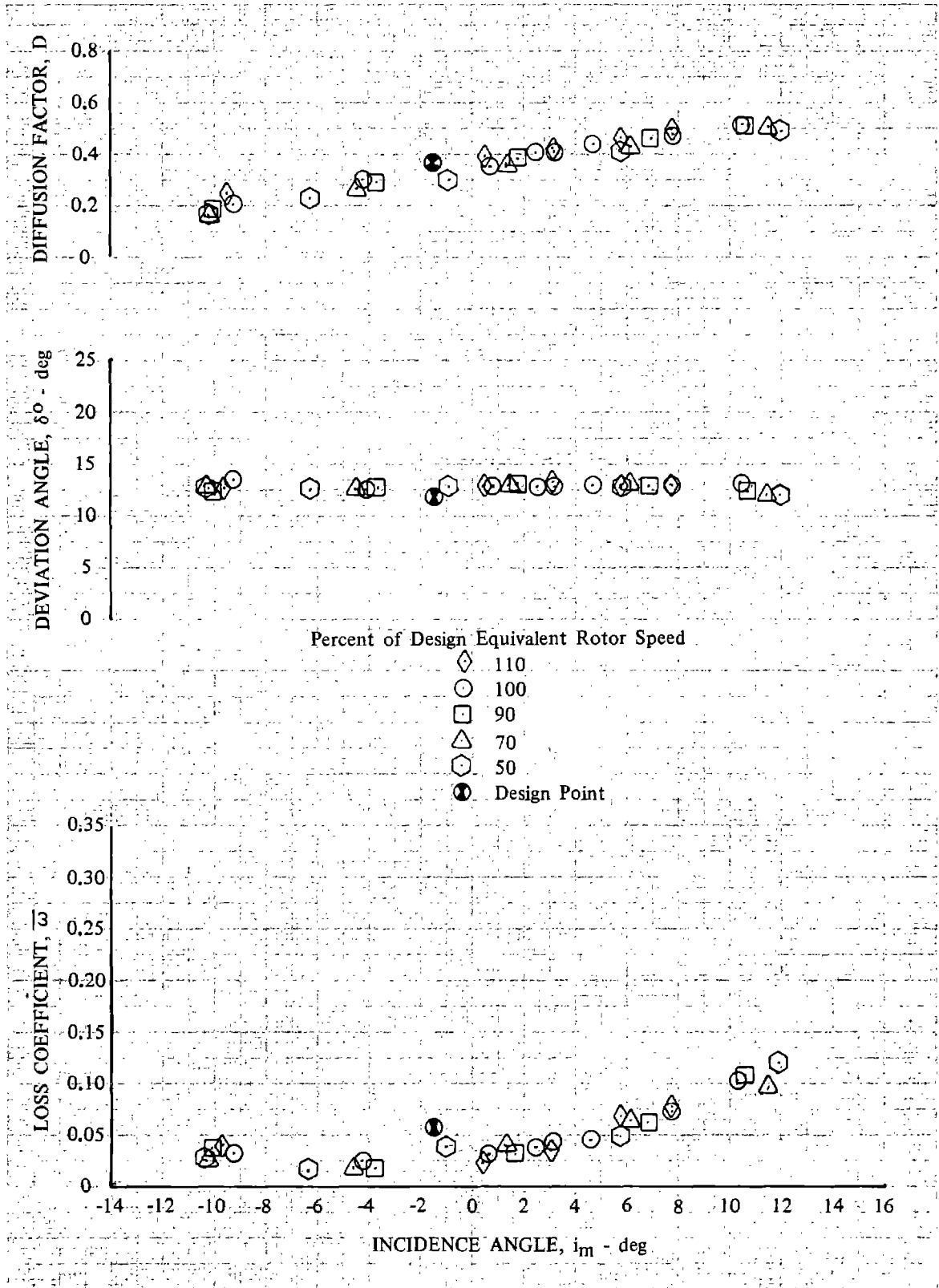


Figure 19d. Stator E Blade Element Performance;
30% Span From Tip; Uniform Inlet Flow

DF 98093

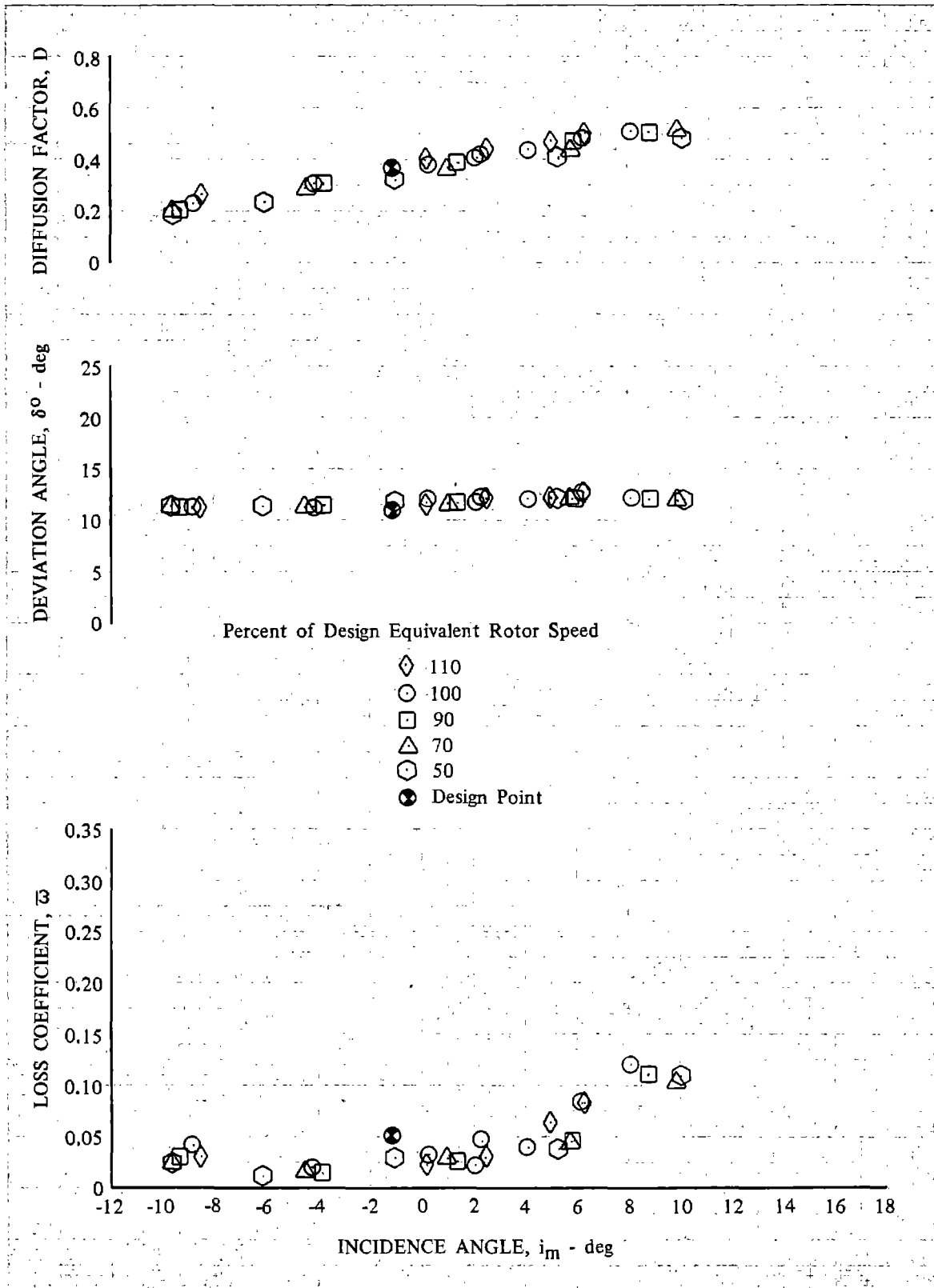


Figure 19e. Stator E Blade Element Performance;
50% Span; Uniform Inlet Flow

DF 98094

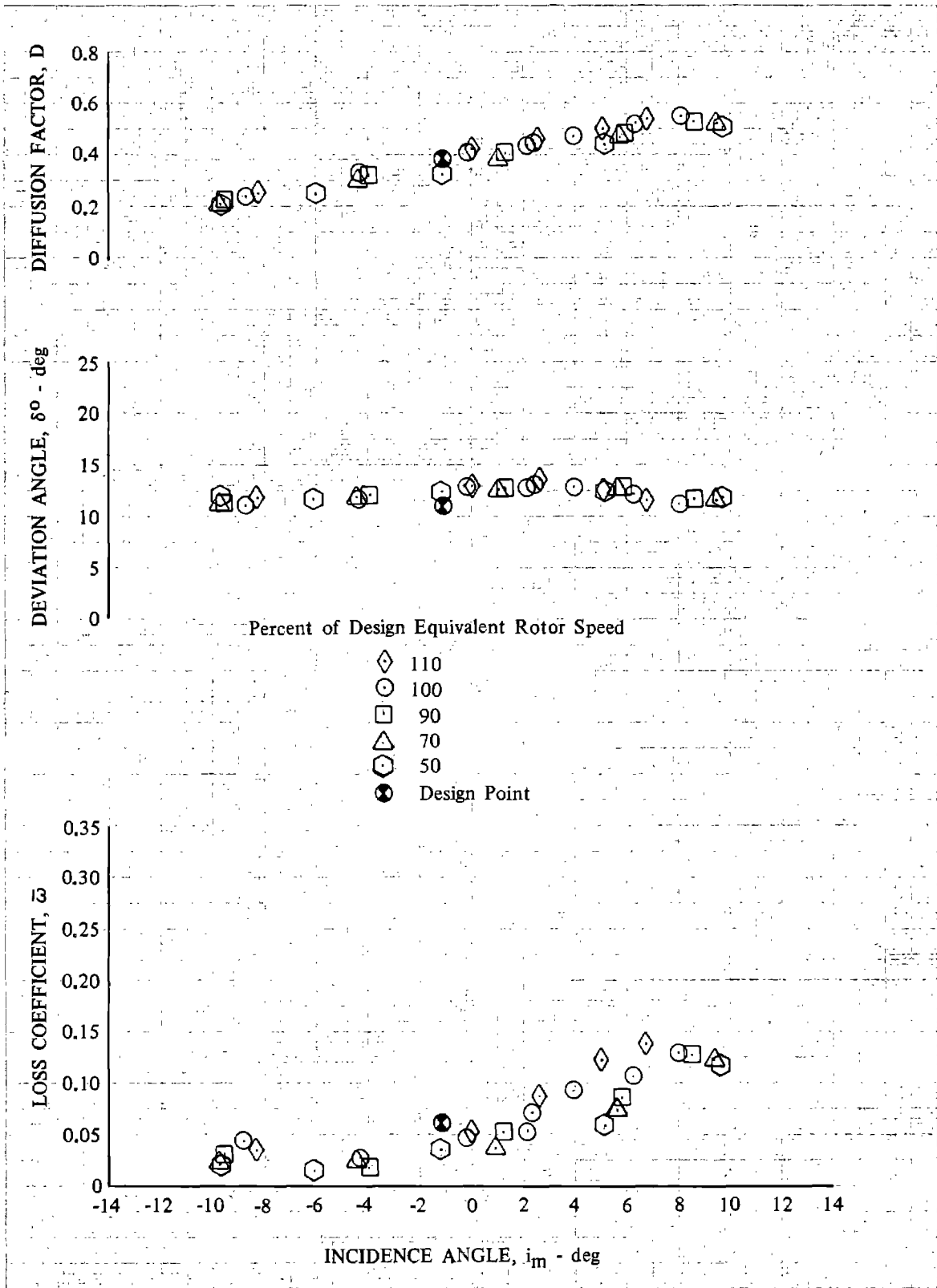


Figure 19f. Stator E Blade Element Performance; DF 98095
70% Span From Tip; Uniform Inlet Flow

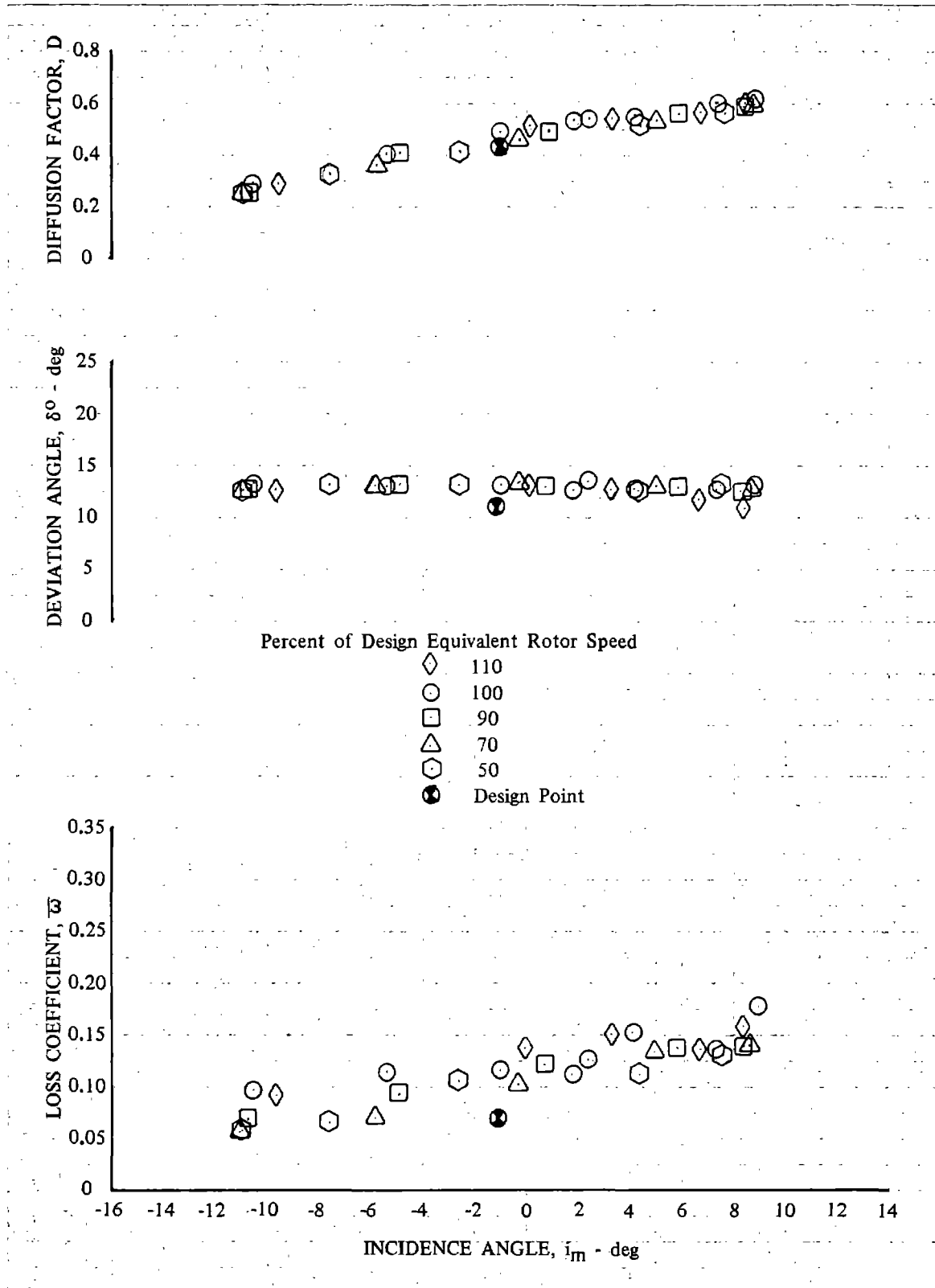


Figure 19g. Stator E Blade Element Performance;
85% Span From Tip; Uniform Inlet Flow

DF 98096

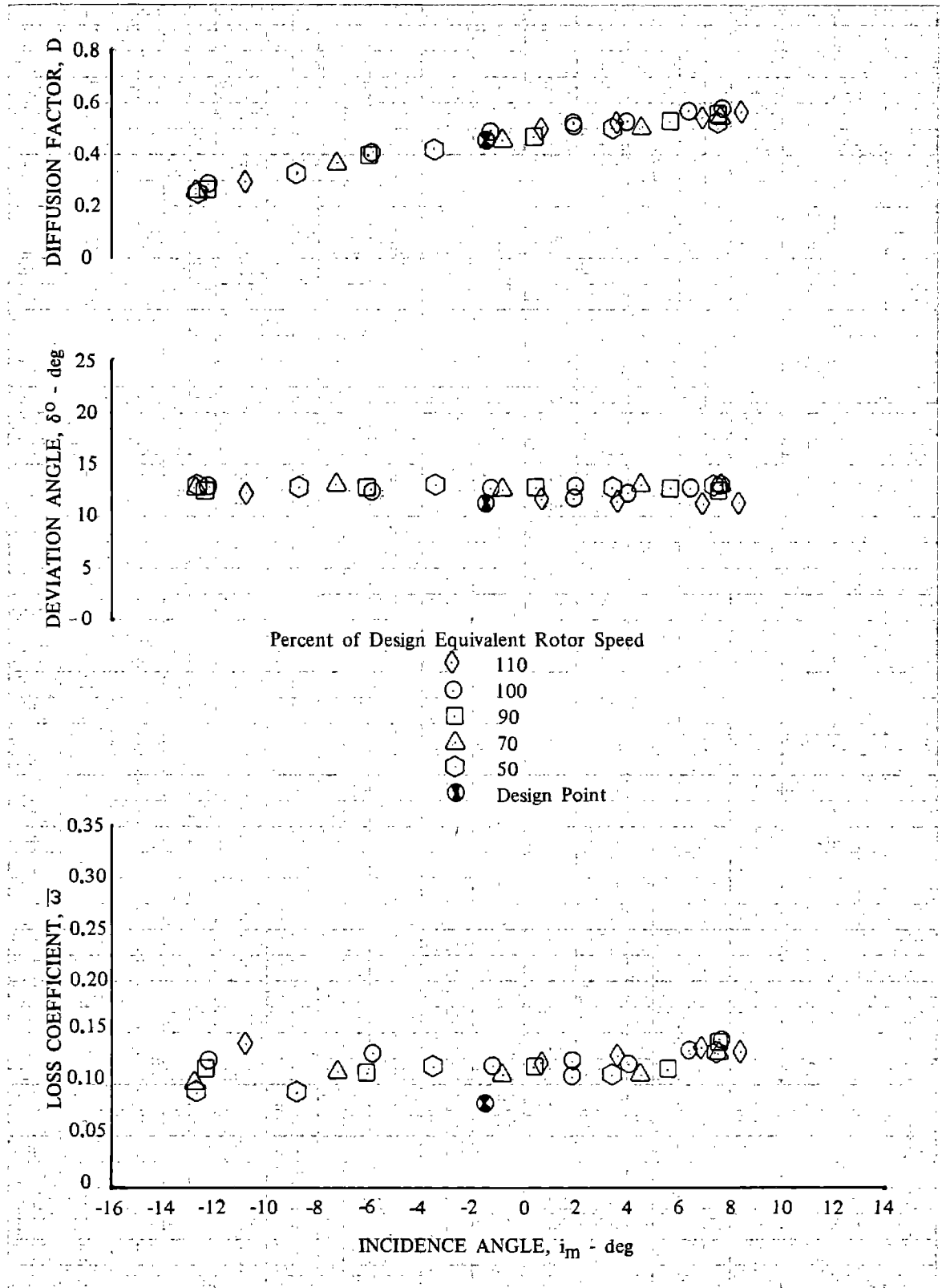


Figure 19h. Stator E Blade Element Performance;
90% Span From Tip; Uniform Inlet Flow

DF 98097

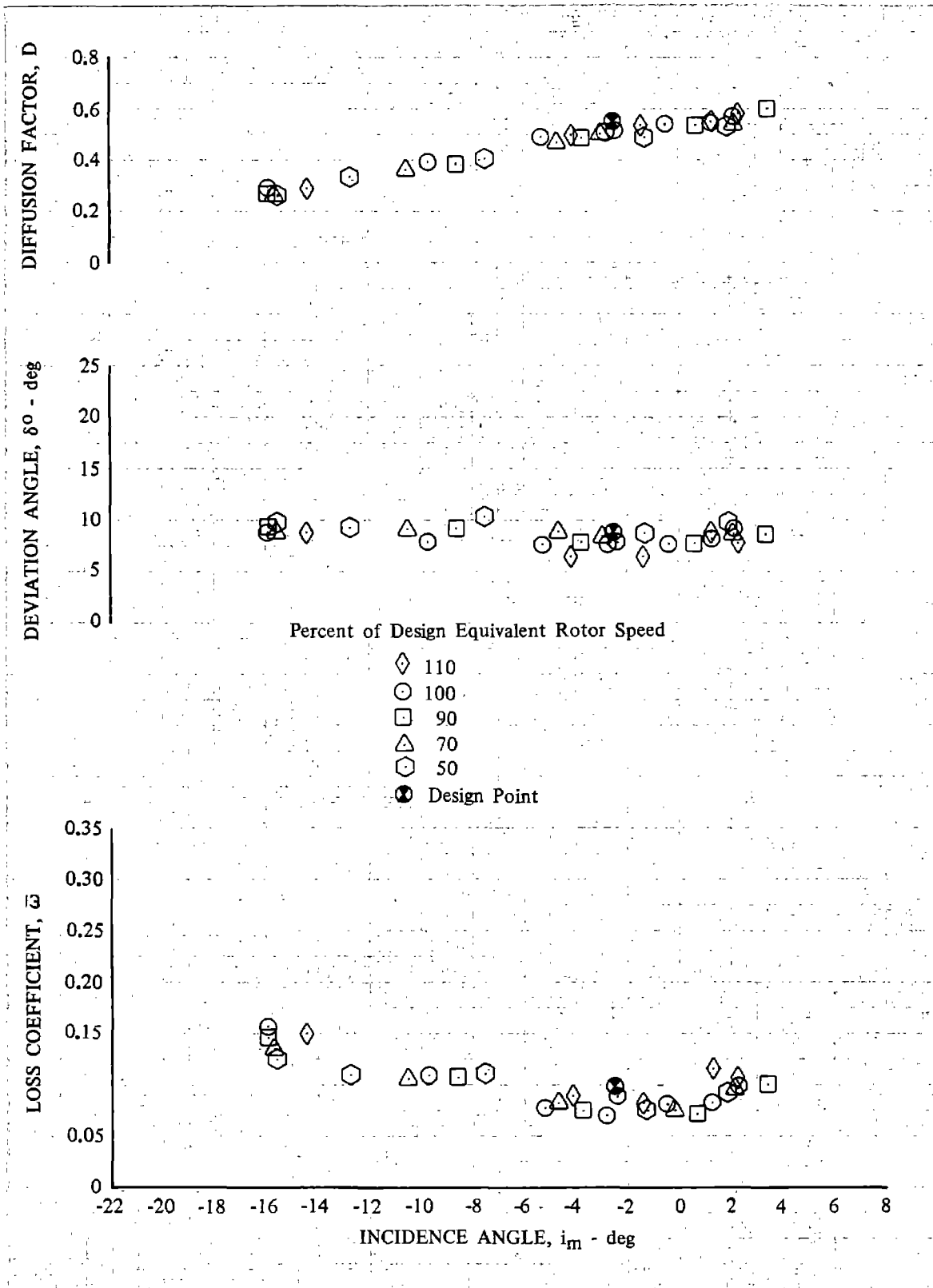


Figure 19i. Stator E. Blade Element Performance;
95% Span From Tip; Uniform Inlet Flow

DF 98098

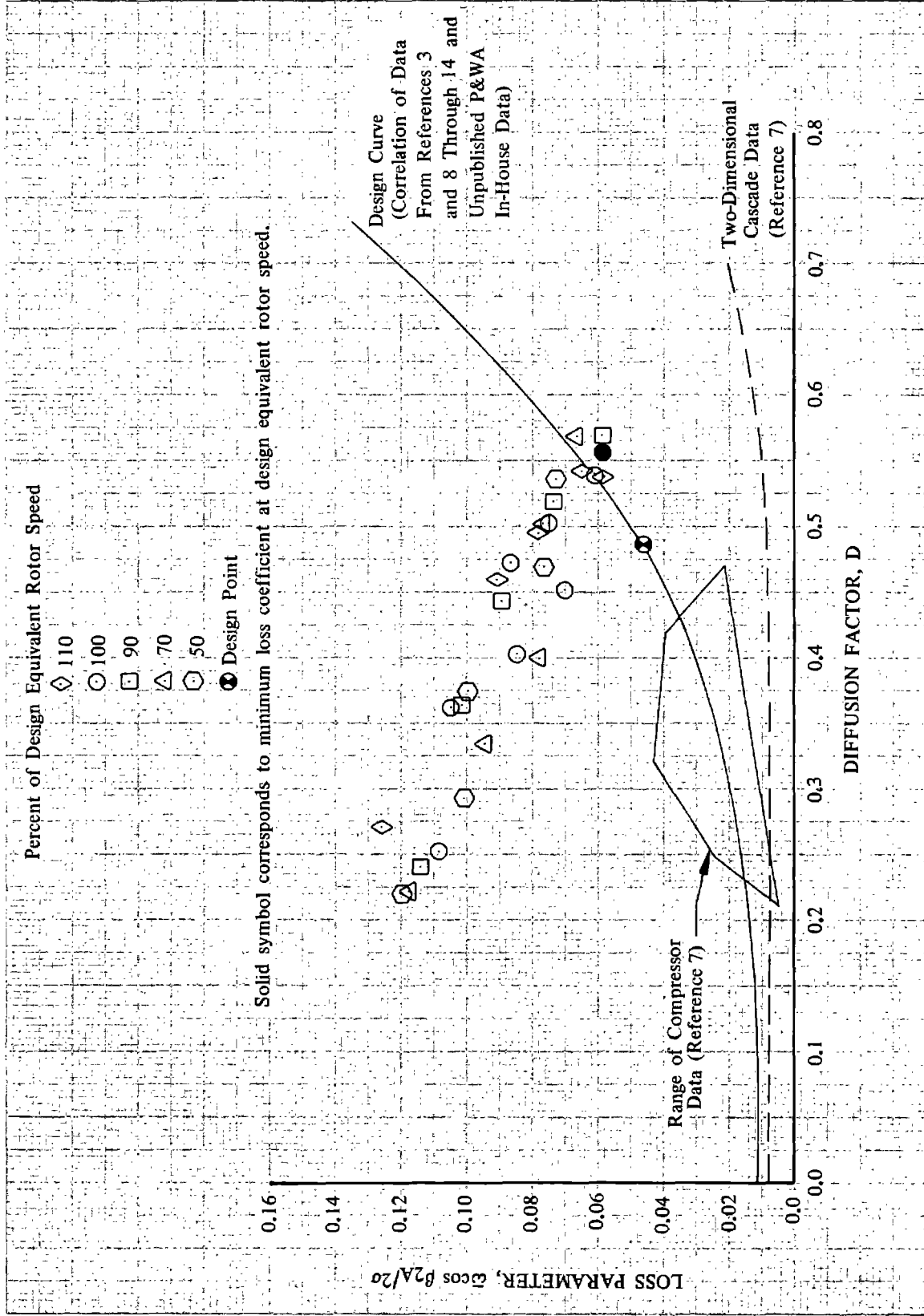


Figure 20a. Stator E Loss Parameter vs Diffusion Factor; 10% Span From Tip; Uniform Inlet Flow DF 98099

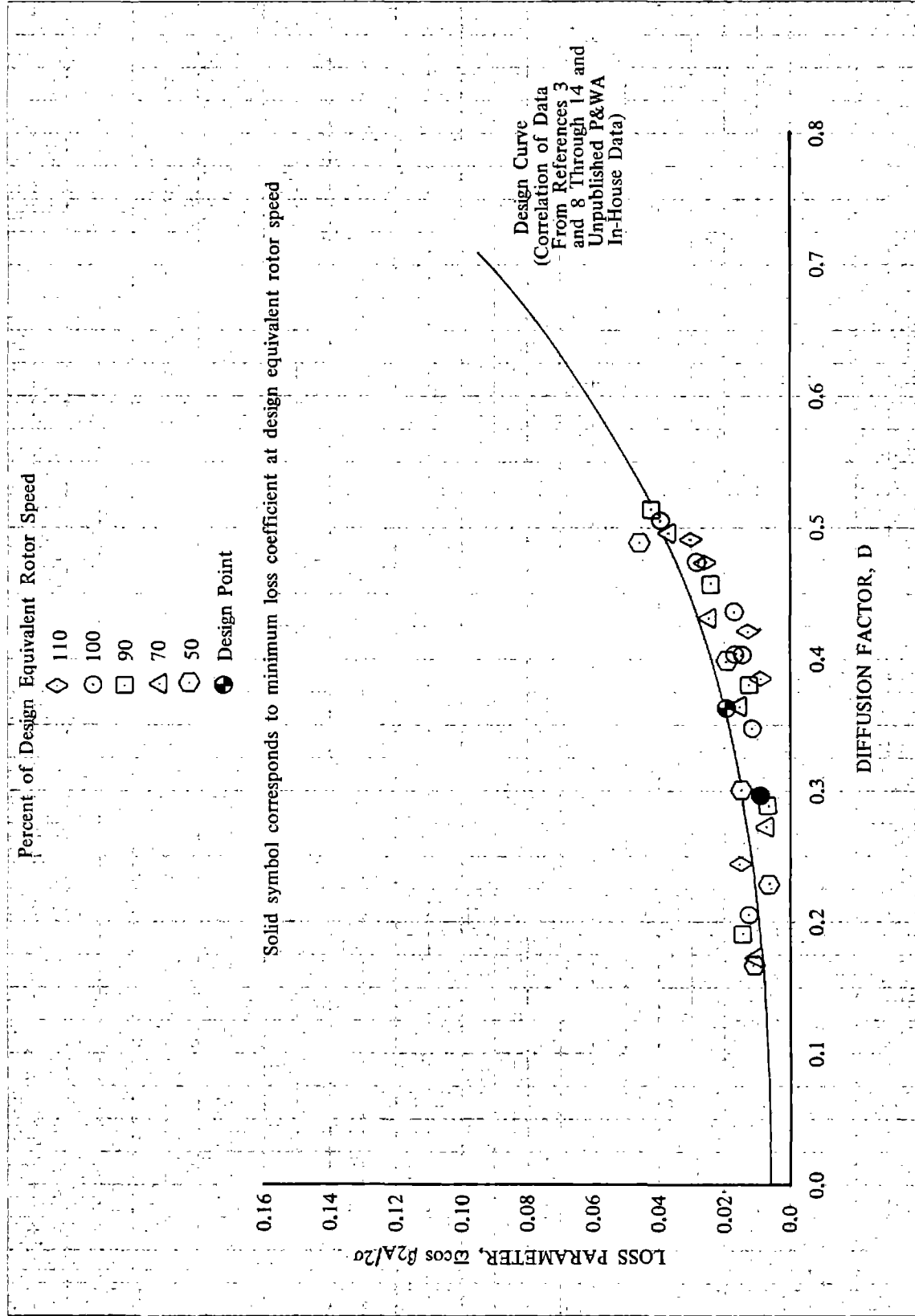


Figure 20b. Stator E Loss Parameter vs Diffusion Factor; 30% Span From Tip; Uniform Inlet Flow

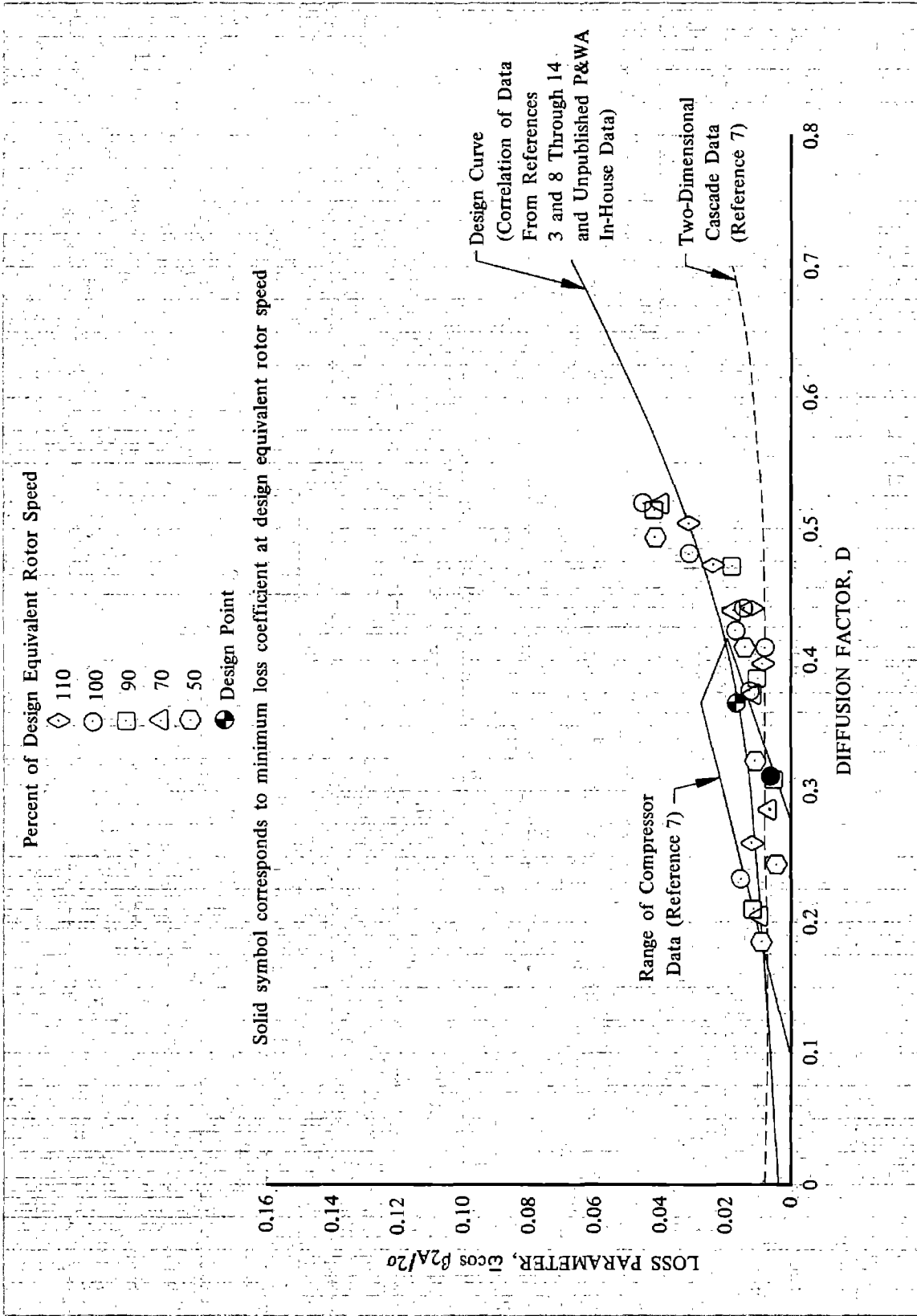


Figure 20c. Stator E Loss Parameter vs Diffusion Factor; 50% Span; Uniform Inlet Flow

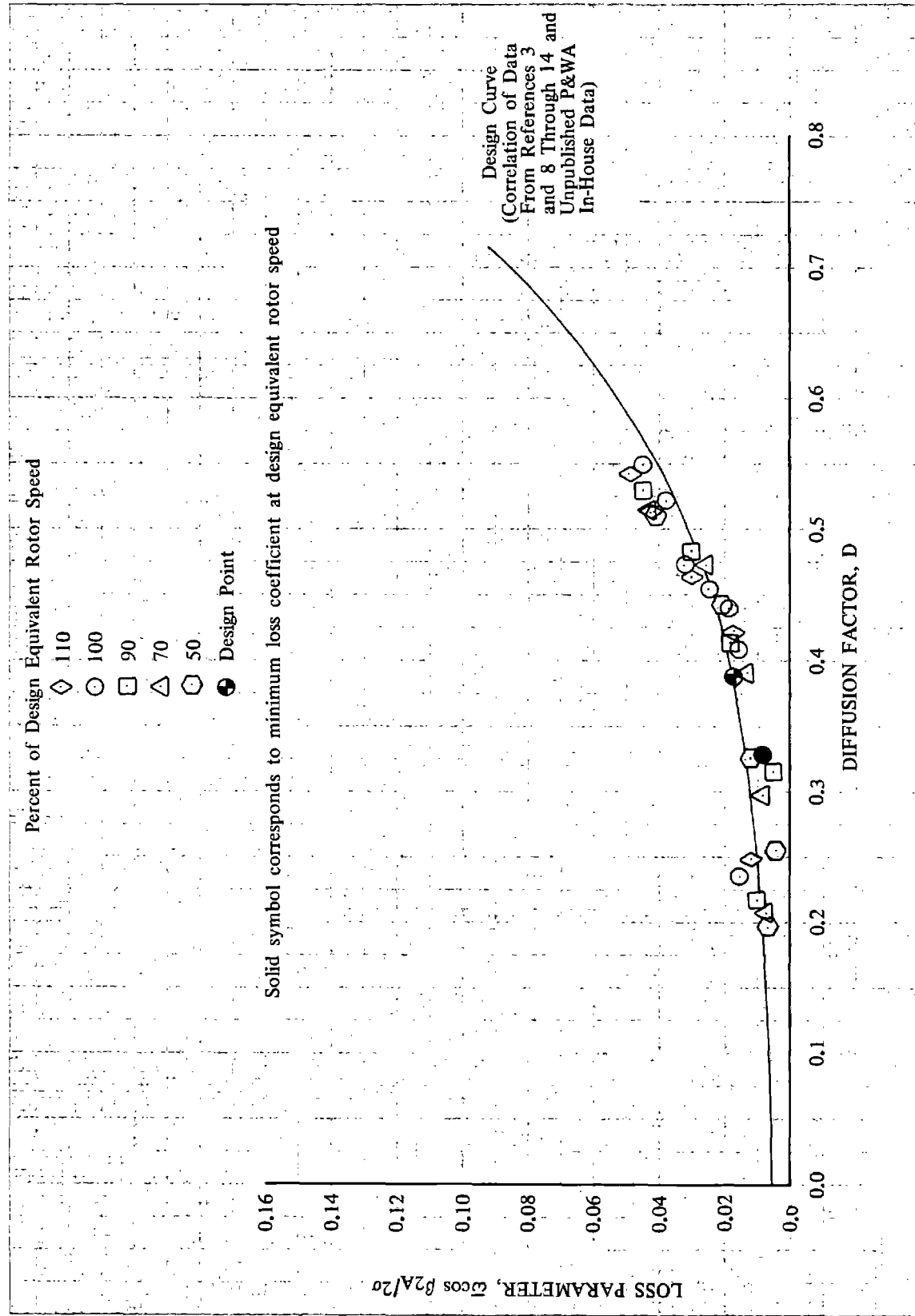


Figure 20d. Stator E Loss Parameter vs Diffusion Factor; 70% Span From Tip; Uniform Inlet Flow

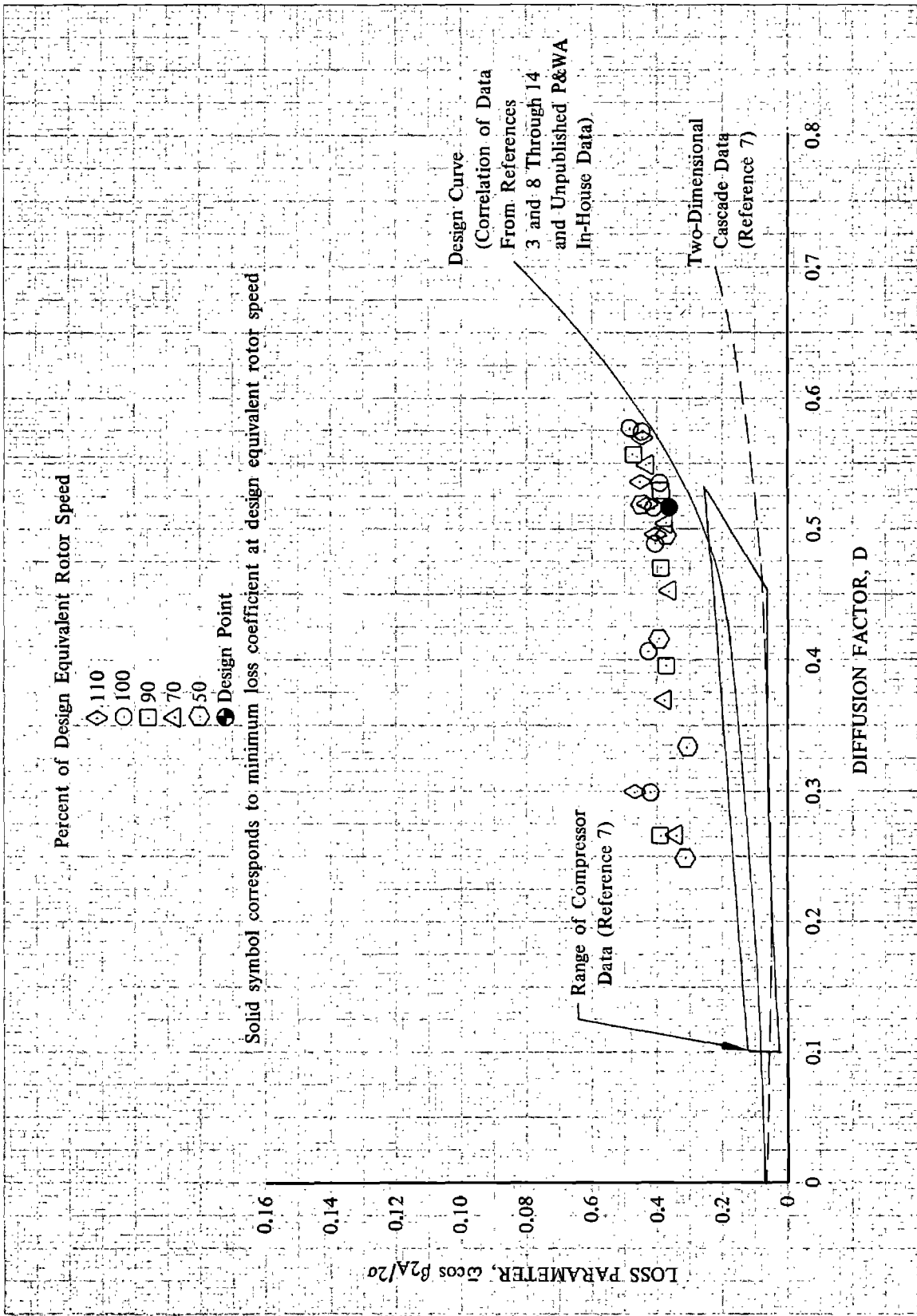


Figure 20e. Stator E Loss Parameter vs Diffusion Factor; 90% Span From Tip; Uniform Inlet Flow

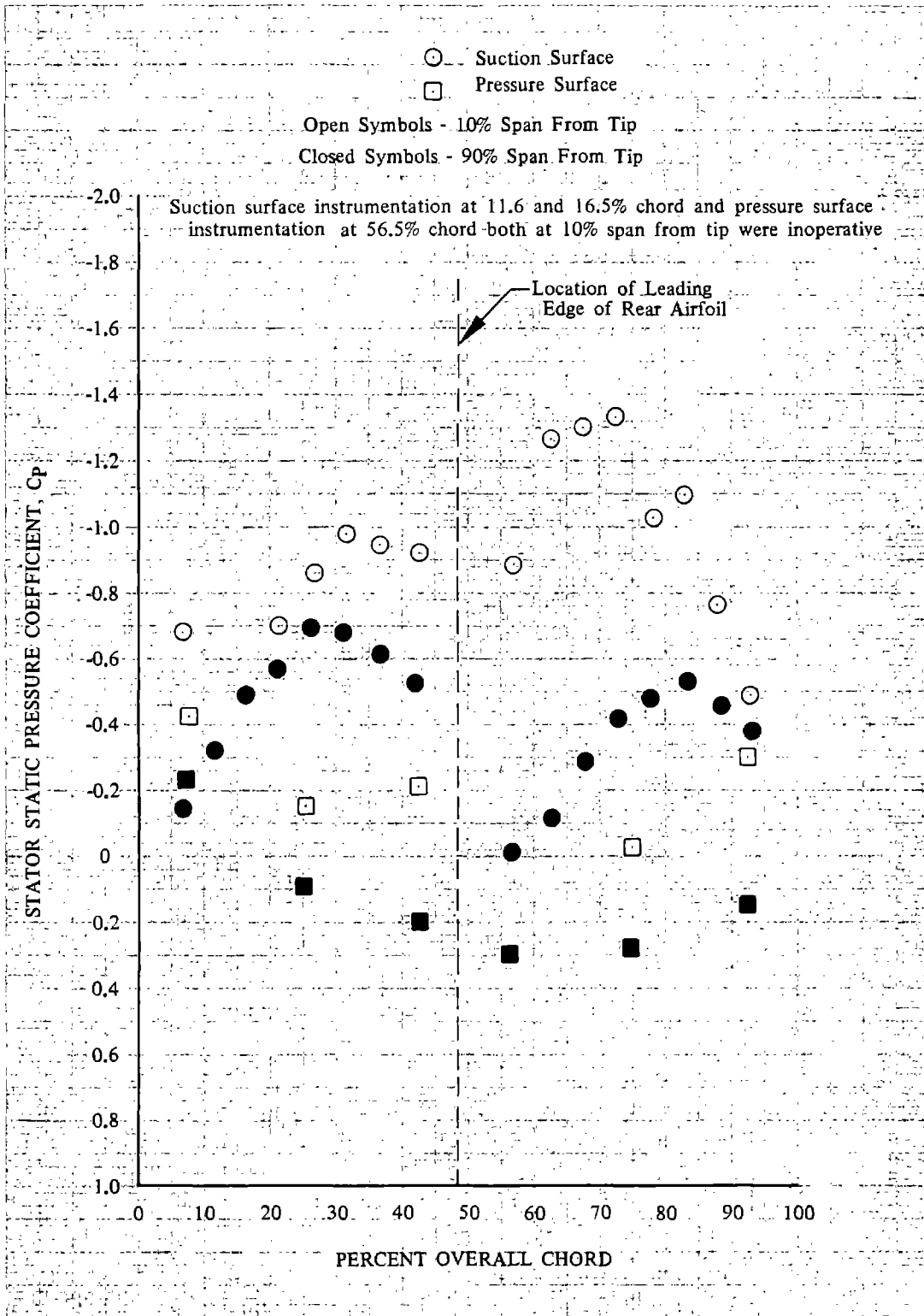


Figure 21a. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 121.43 lb/sec; Uniform Inlet Flow

DF 98211

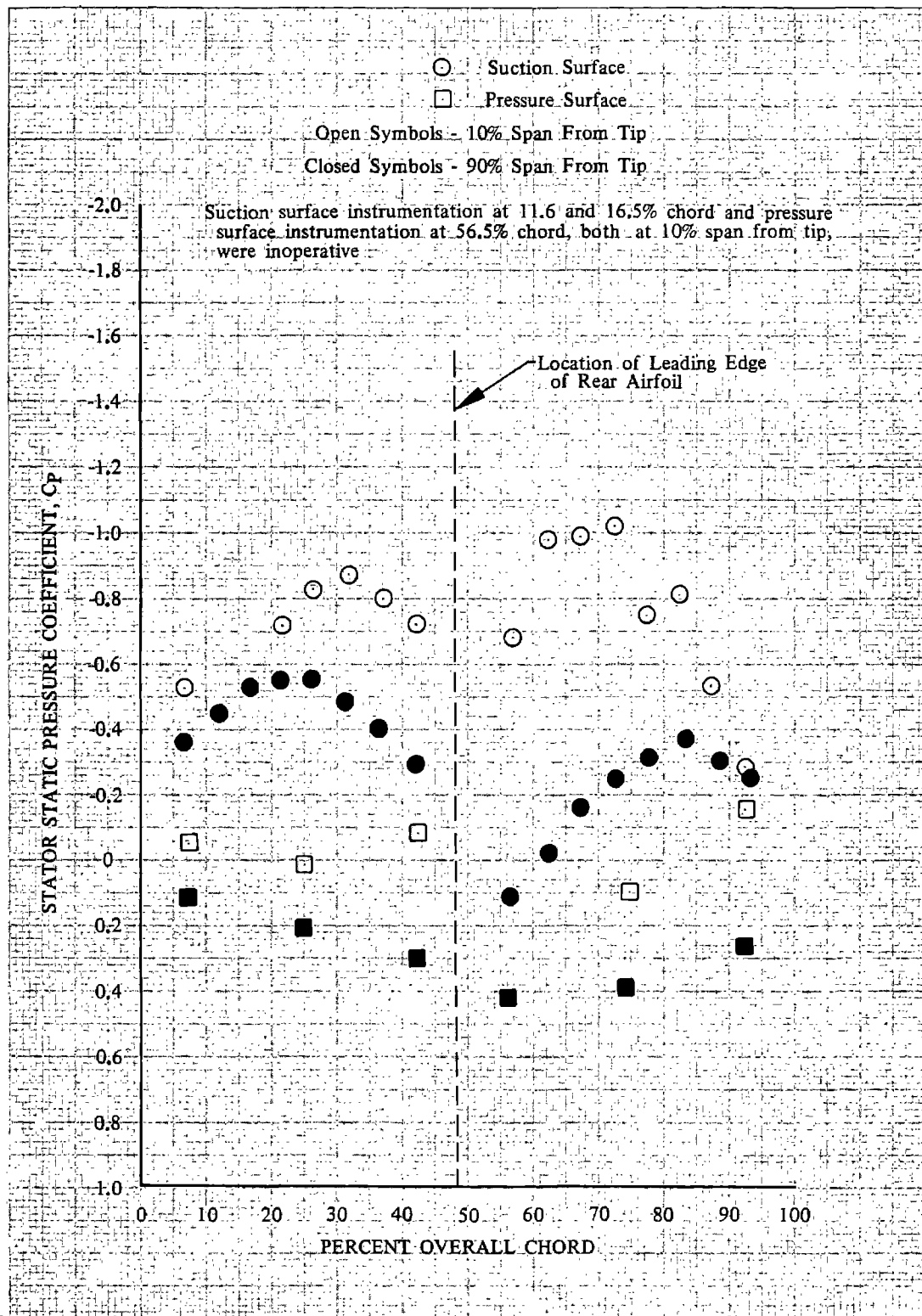


Figure 21b. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 117.78 lb/sec; Uniform Inlet Flow

DF 98212

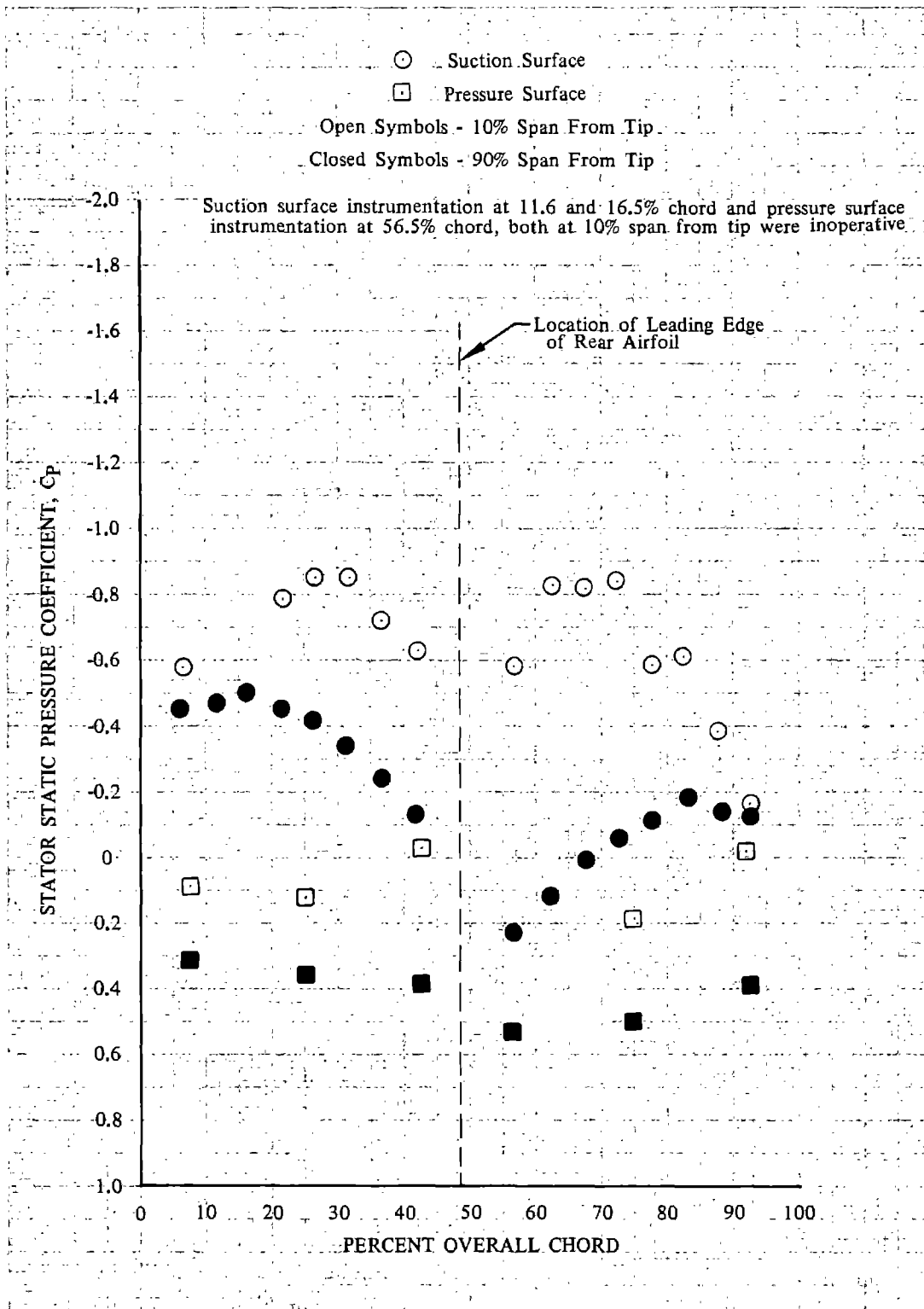


Figure 21c. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 111.27 lb/sec; Uniform Inlet Flow

DF 98213

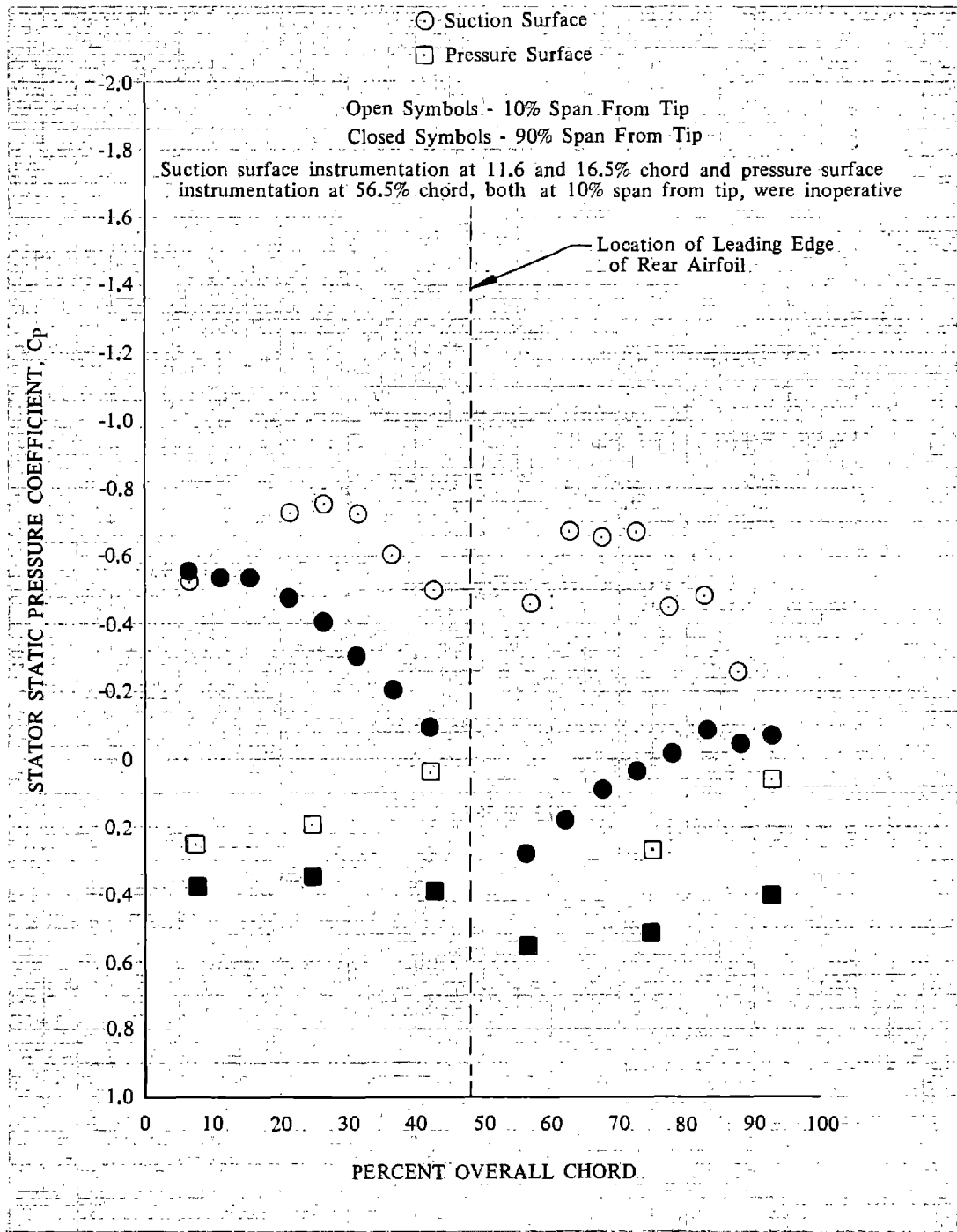


Figure 21d. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 106.84 lb/sec; Uniform Inlet Flow

DF 98214

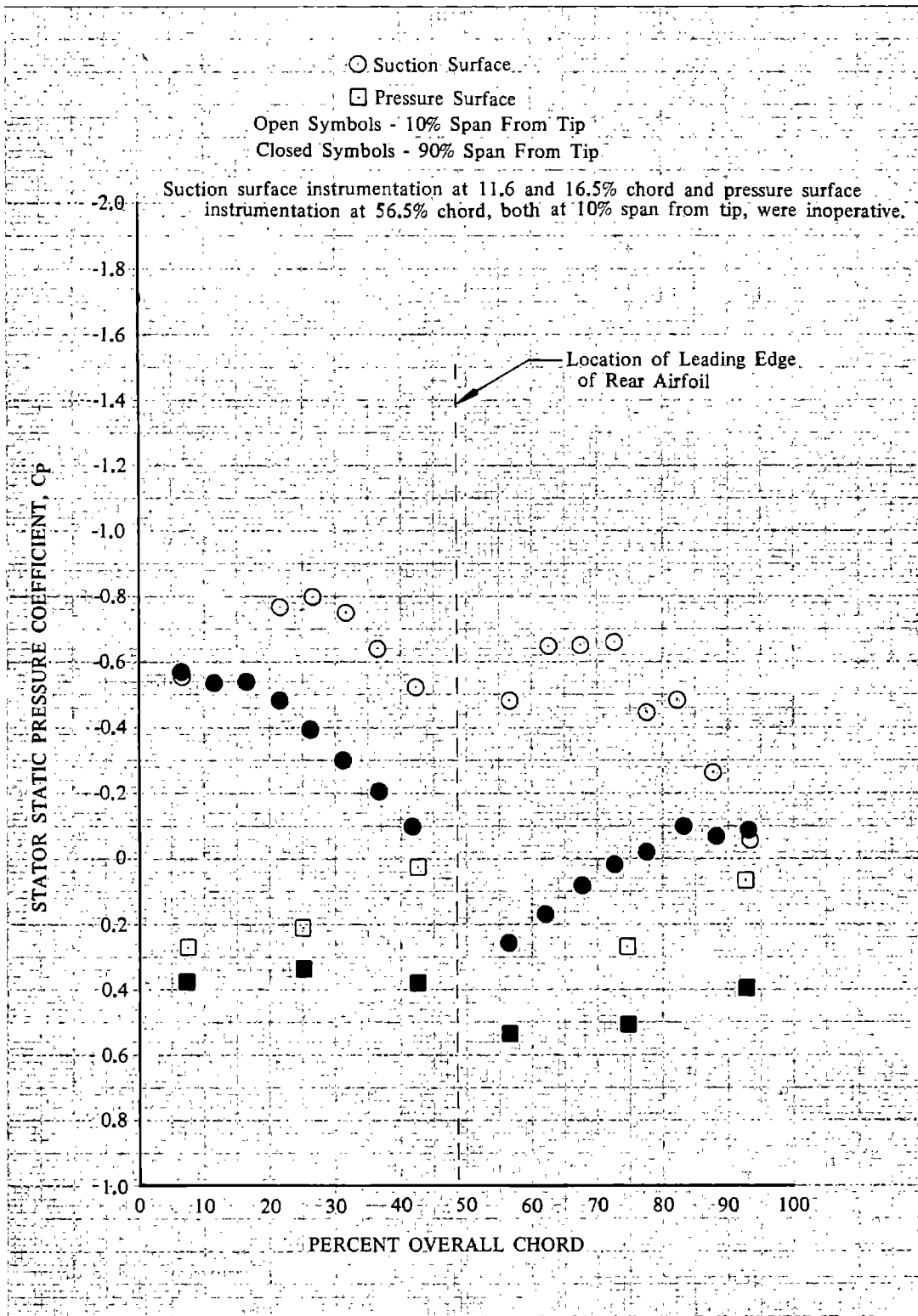


Figure 21e. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 105.92 lb/sec; Uniform Inlet Flow

DF 98215

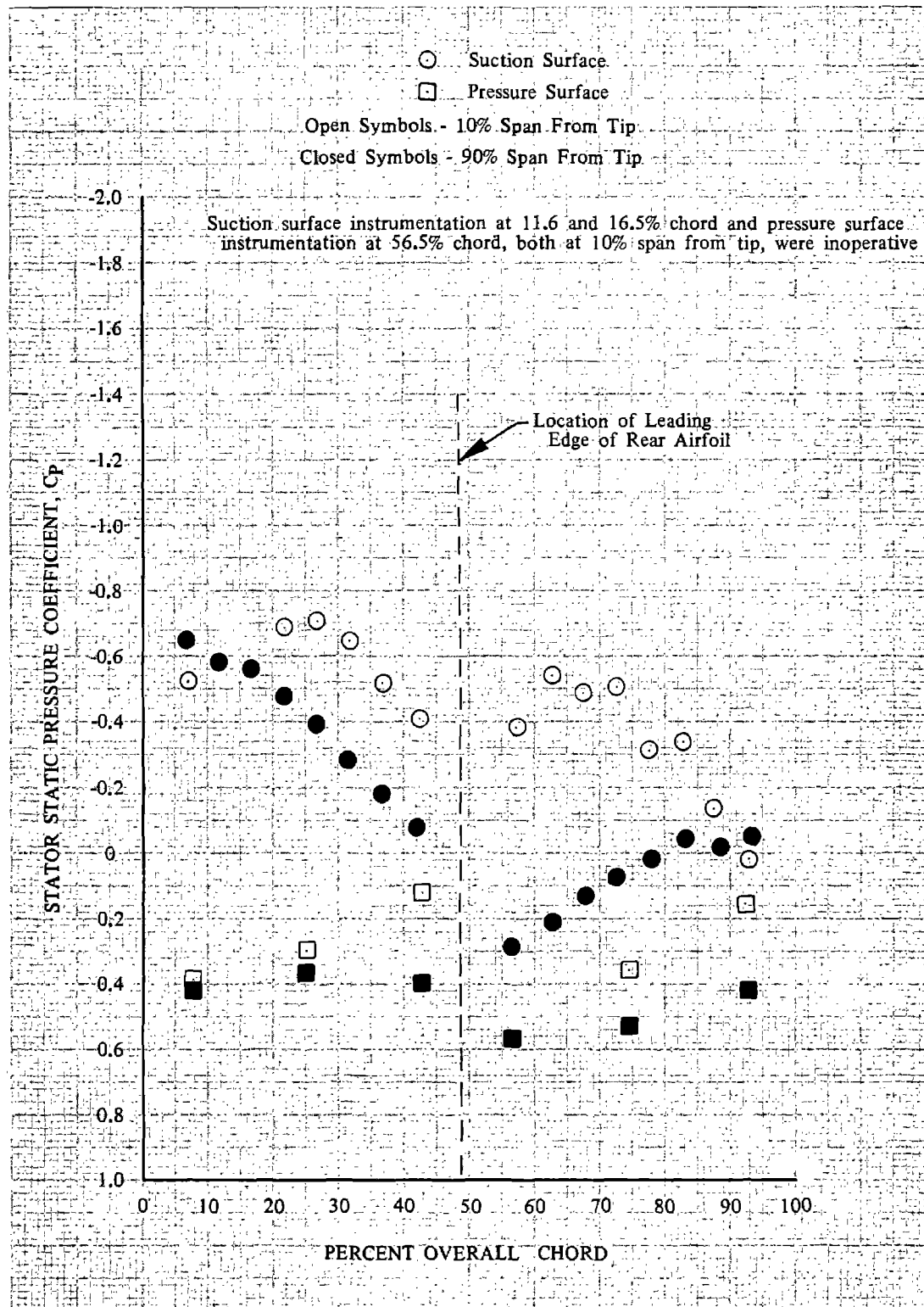


Figure 21f. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 102.92 lb/sec; Uniform Inlet Flow

DF 98216

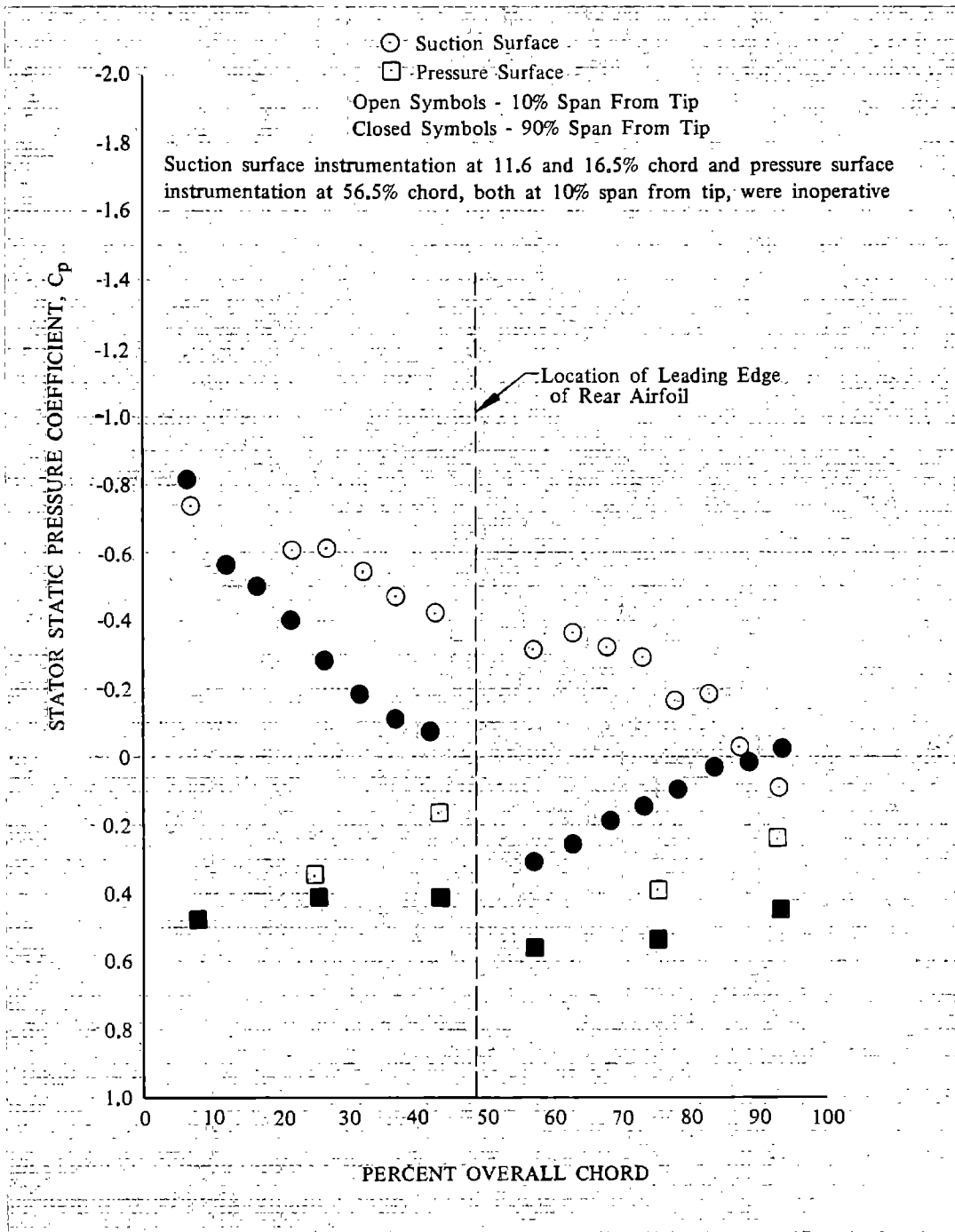


Figure 21g. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 97.95 lb/sec; Uniform Inlet Flow DF 98217

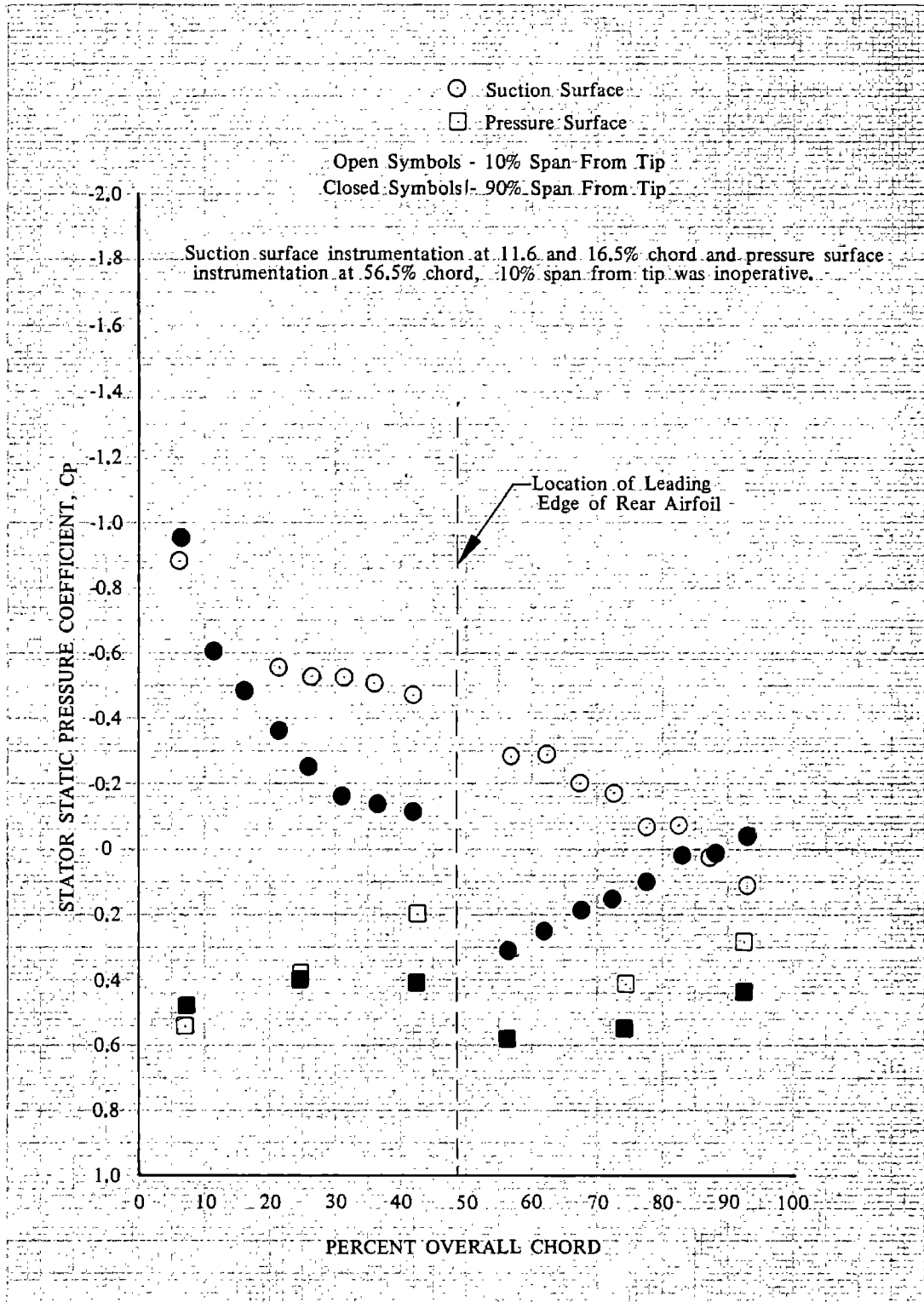


Figure 21h. Stator E Static Pressure Coefficient vs Percent Overall Chord; 100% Design Equivalent Rotor Speed, Equivalent Weight Flow = 93.27 lb/sec; Uniform Inlet Flow

DF 98218

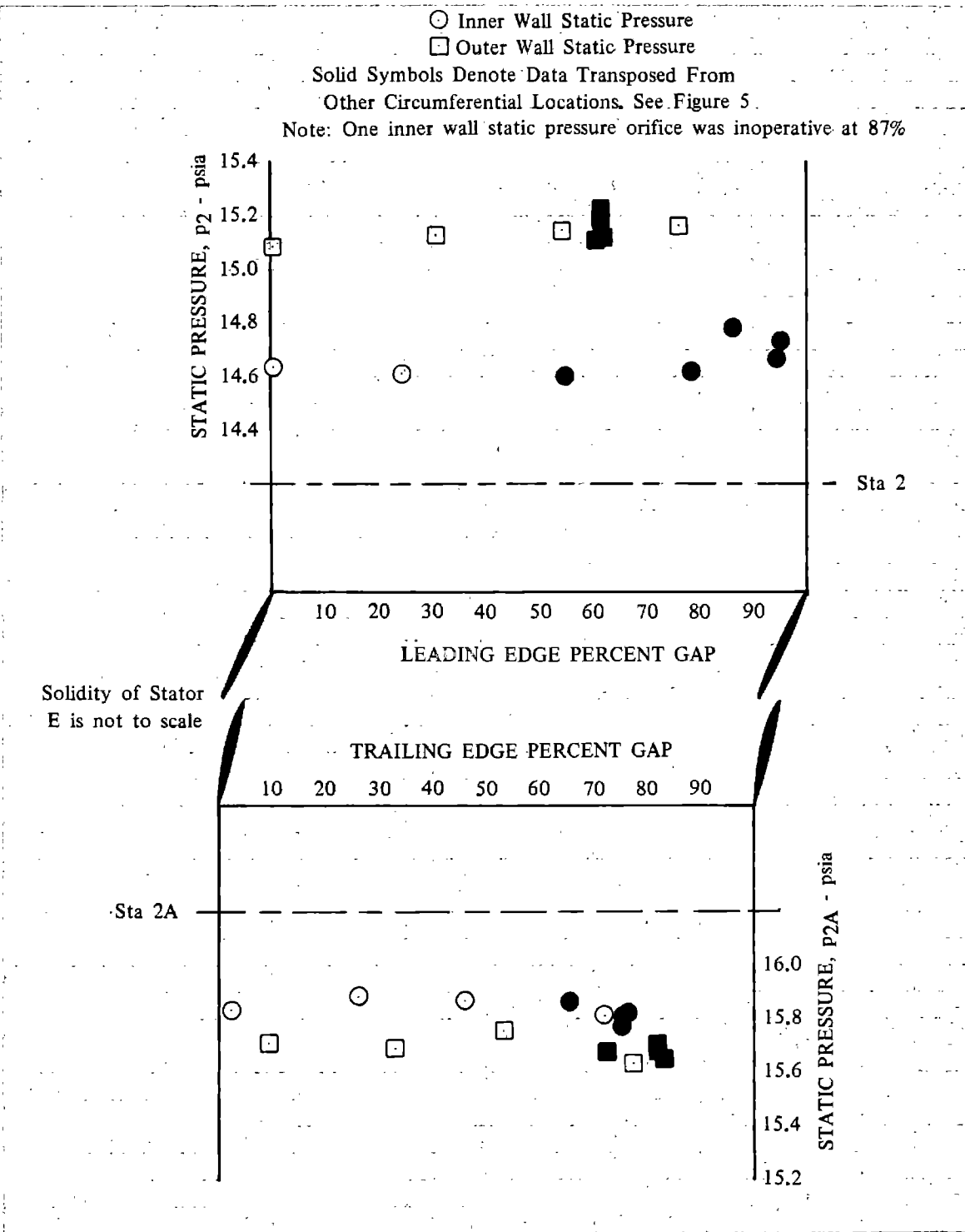


Figure 22a. Wall Static Pressure Distributions Up-
 stream and Downstream of Stator E; 100%
 Design Equivalent Rotor Speed; Equivalent
 Weight Flow = 111.27 lb/sec; Uniform Inlet
 Flow

DF 98219

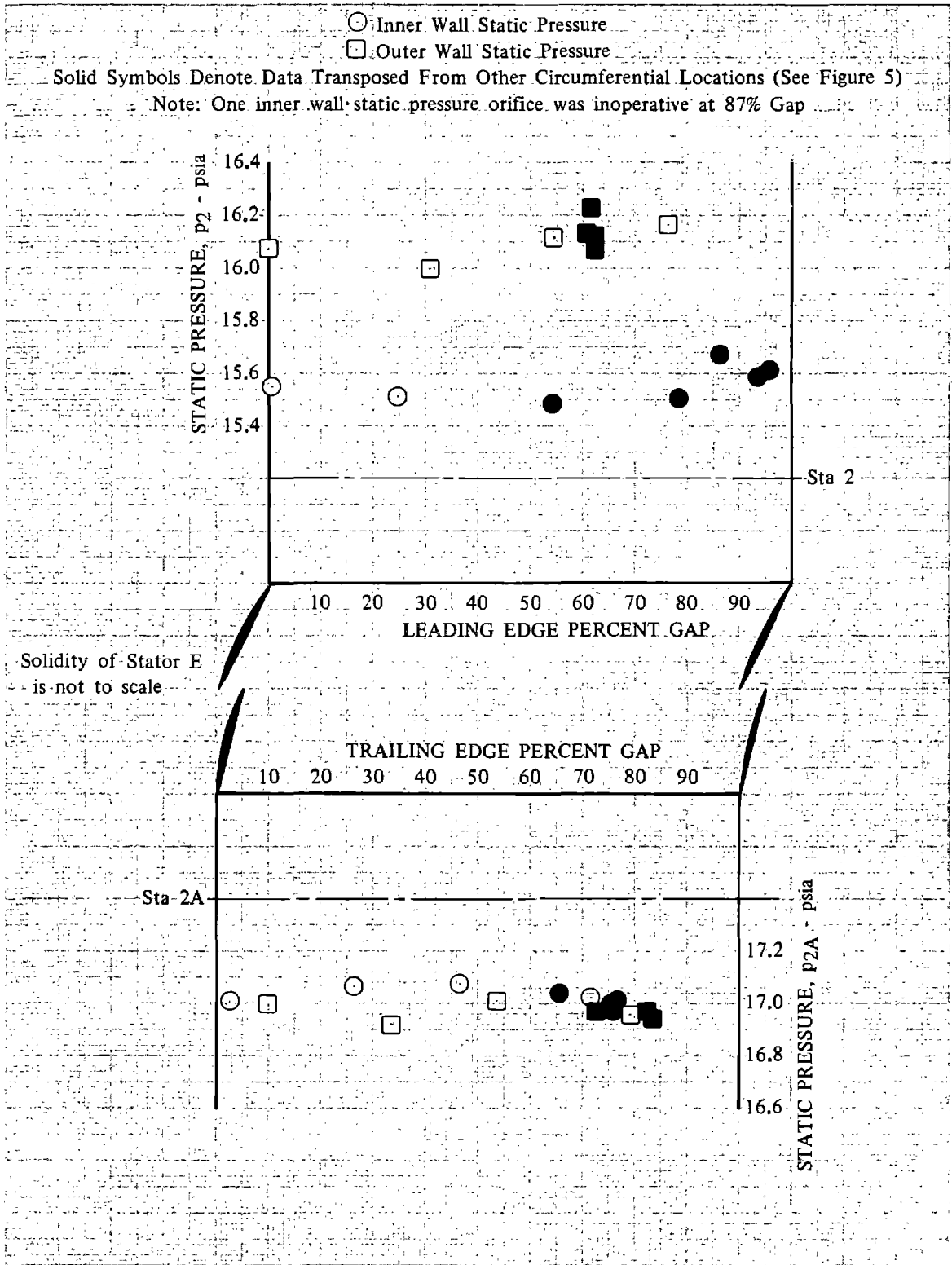


Figure 22b. Wall Static Pressure Distributions Upstream and Downstream of Stator E; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 93.27 lb/sec; Uniform Inlet Flow

DF 98220

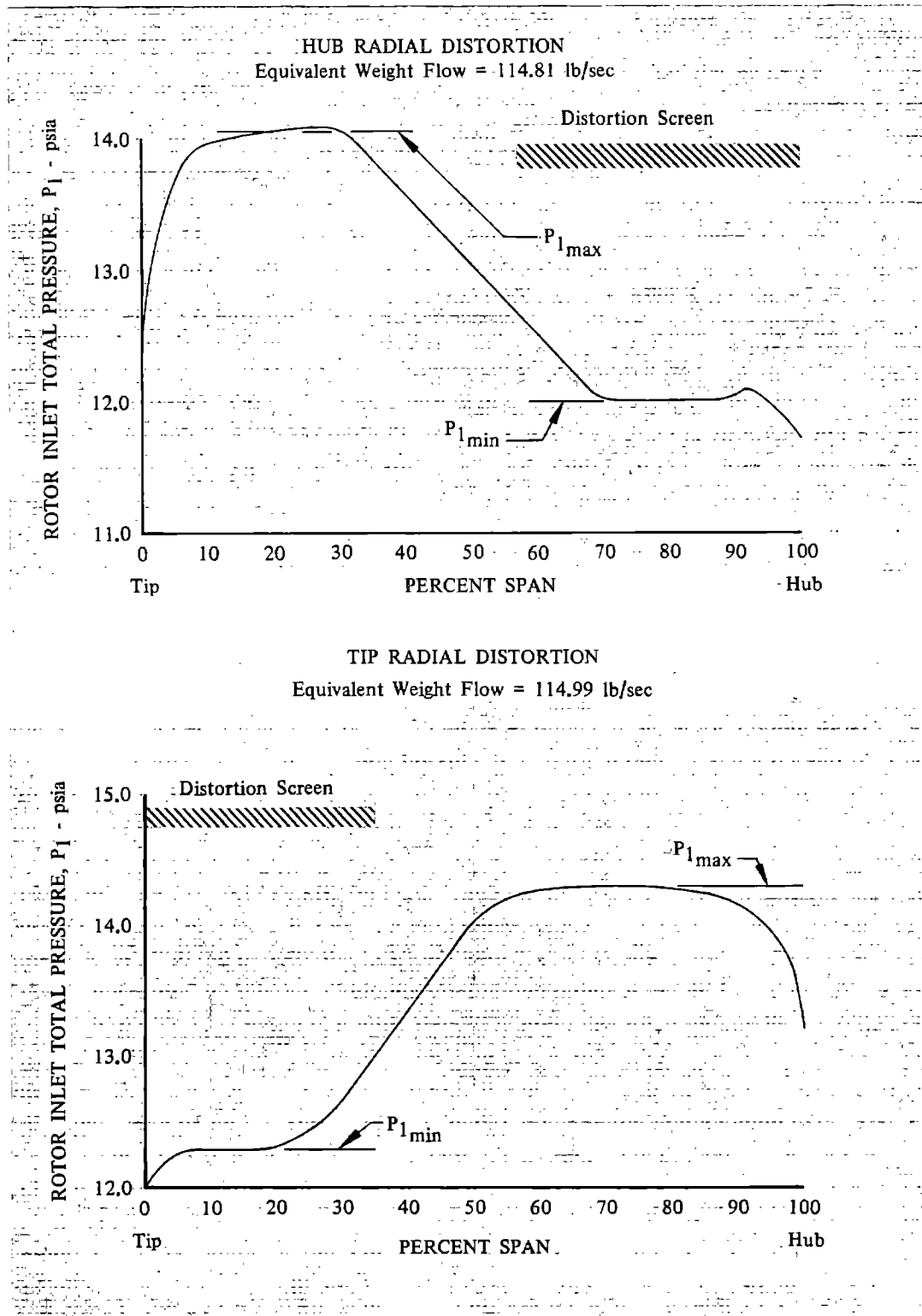


Figure 23. Typical Rotor Inlet Total Pressure Profiles DF 98221
With Hub and Tip Radial Distortion; 100%
Design Equivalent Rotor Speed

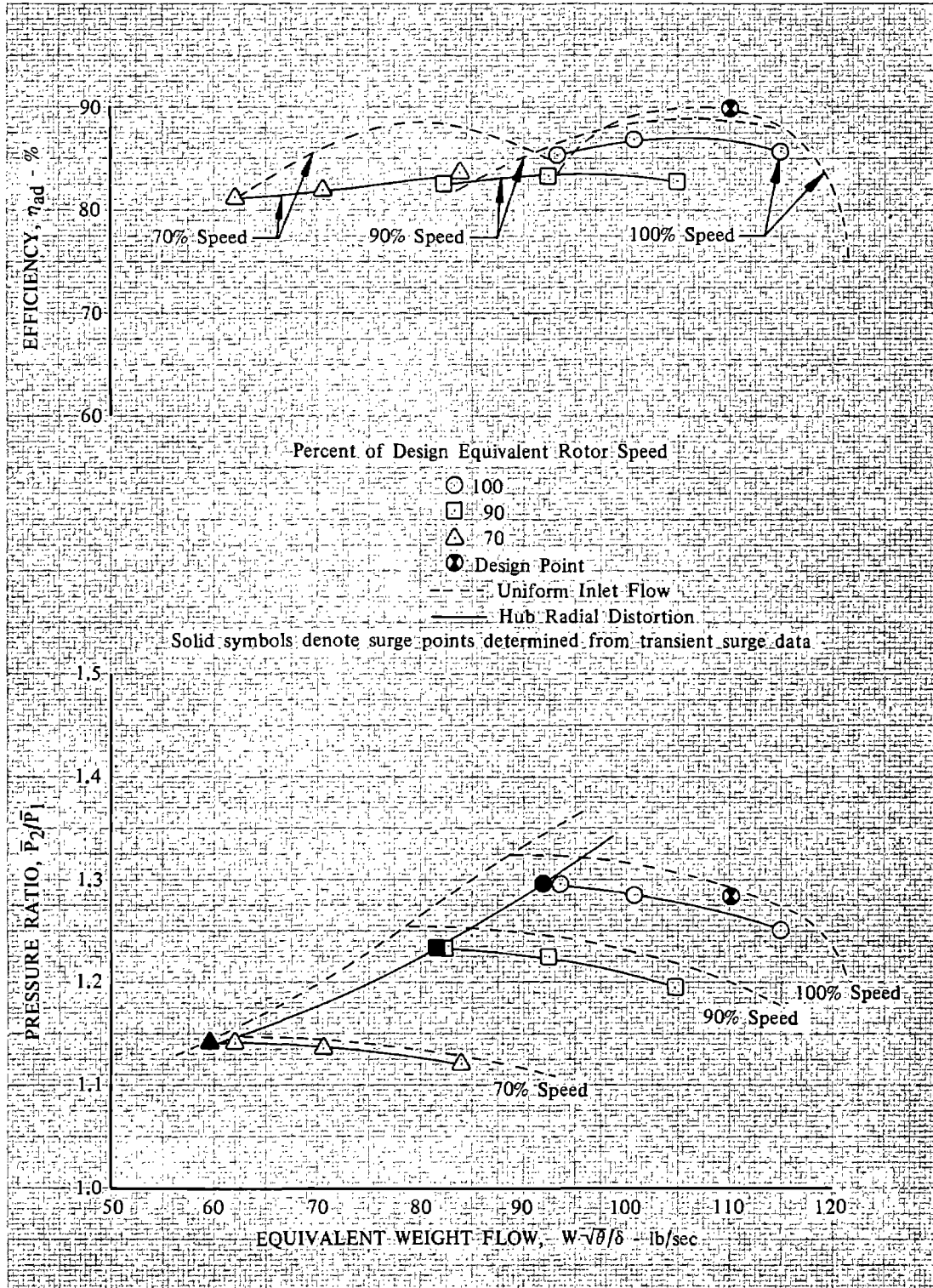


Figure 24. Overall Performance of Rotor E; Hub Radial DF 98222 Distortion Compared With Uniform Inlet Flow

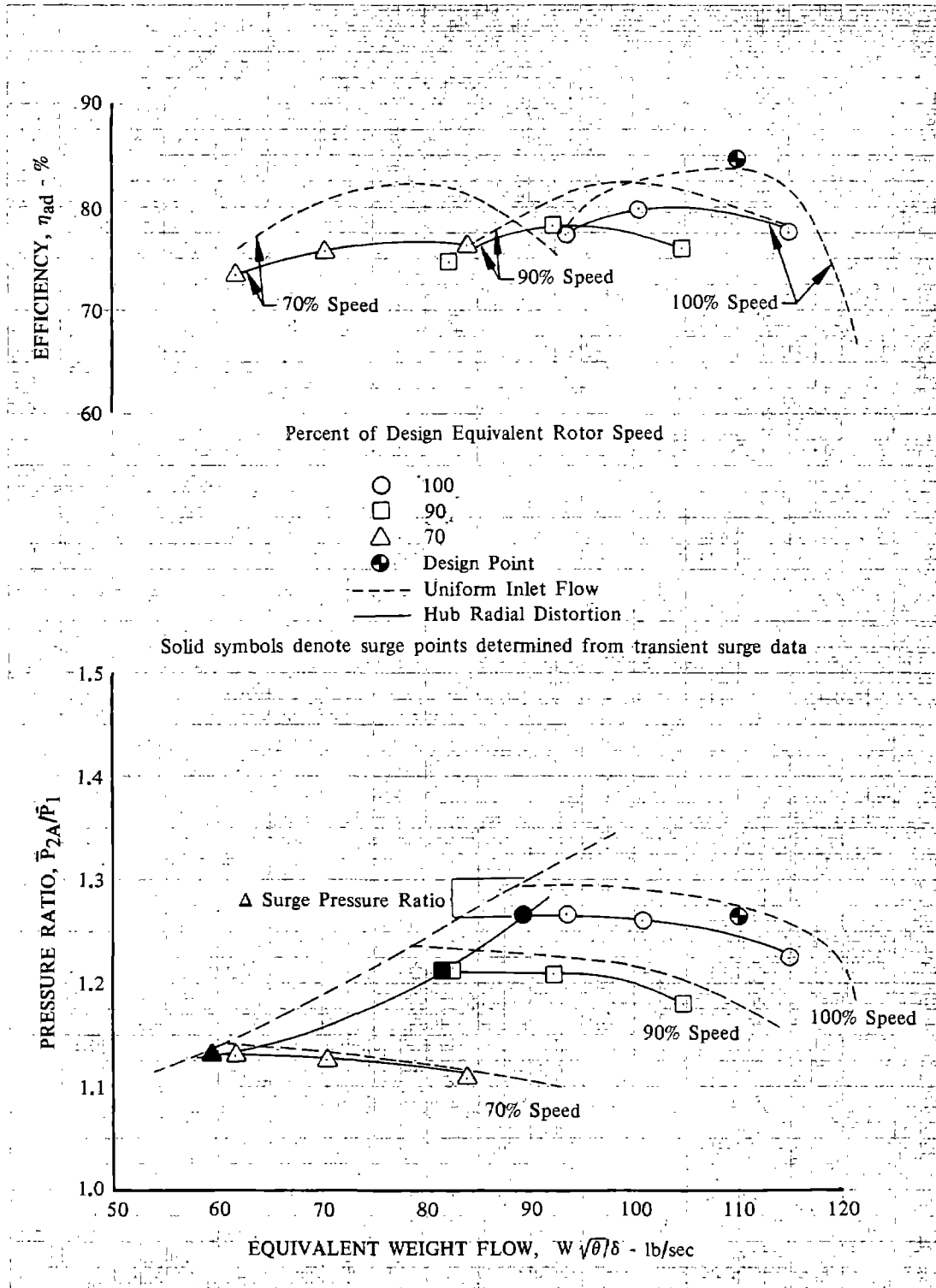


Figure 25. Overall Performance of Stage E; Hub Radial Distortion Compared with Uniform Inlet Flow

DF 98223

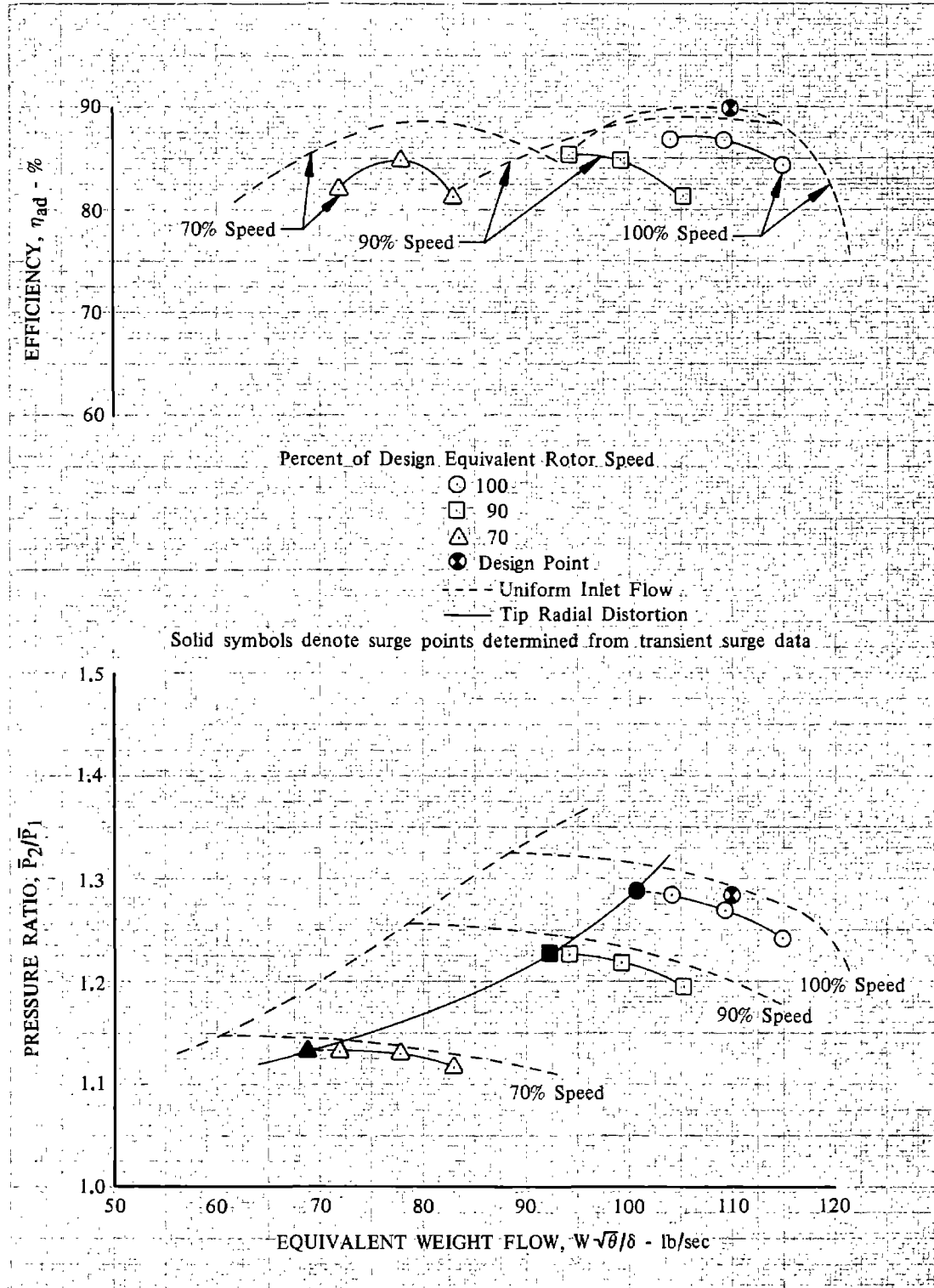


Figure 26. Overall Performance of Rotor E; Tip Radial Distortion Compared With Uniform Inlet Flow

DF 98224

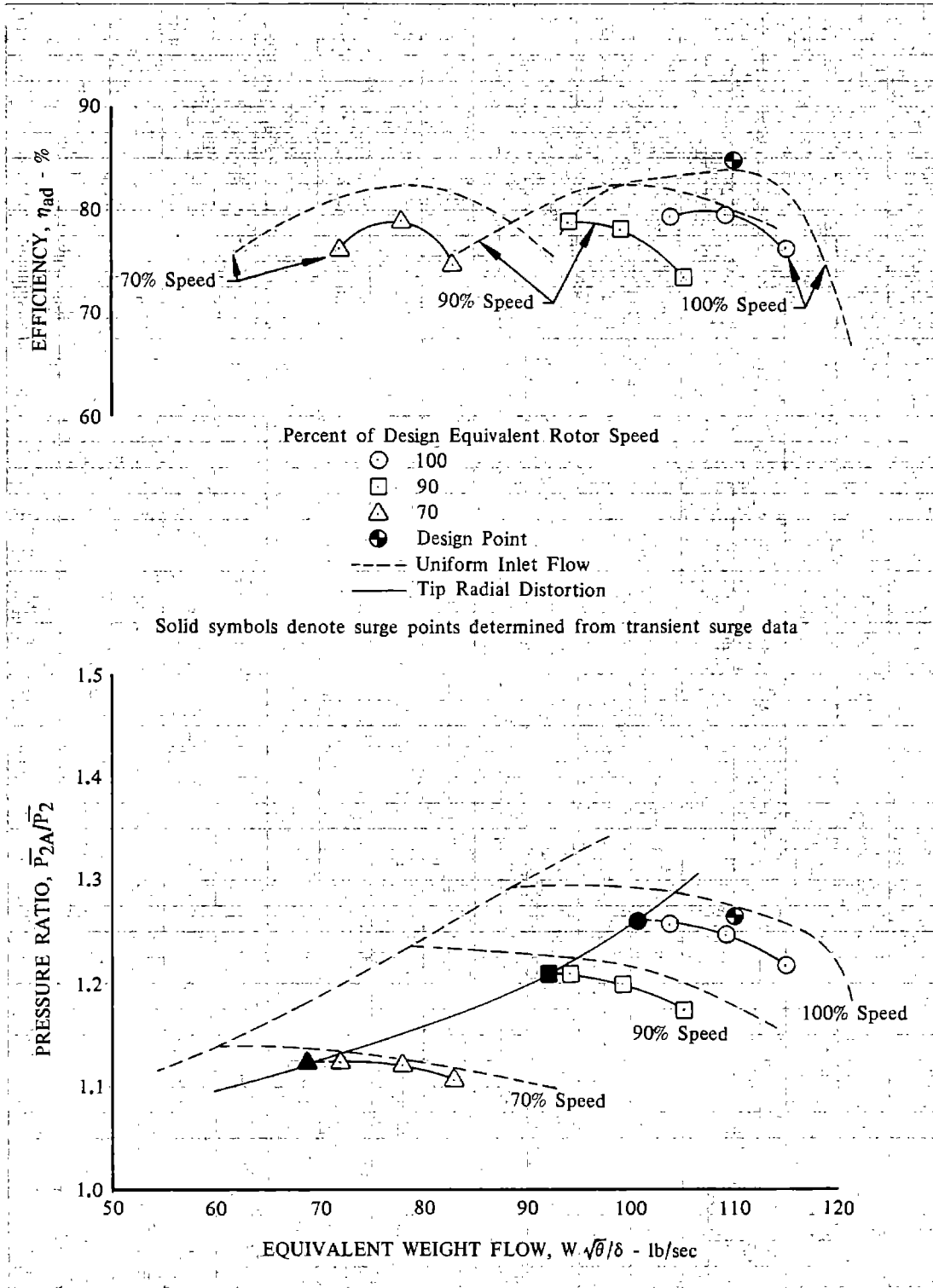


Figure 27. Overall Performance of Stage E; Tip Radial Distortion Compared With Uniform Inlet Flow

DF 98225

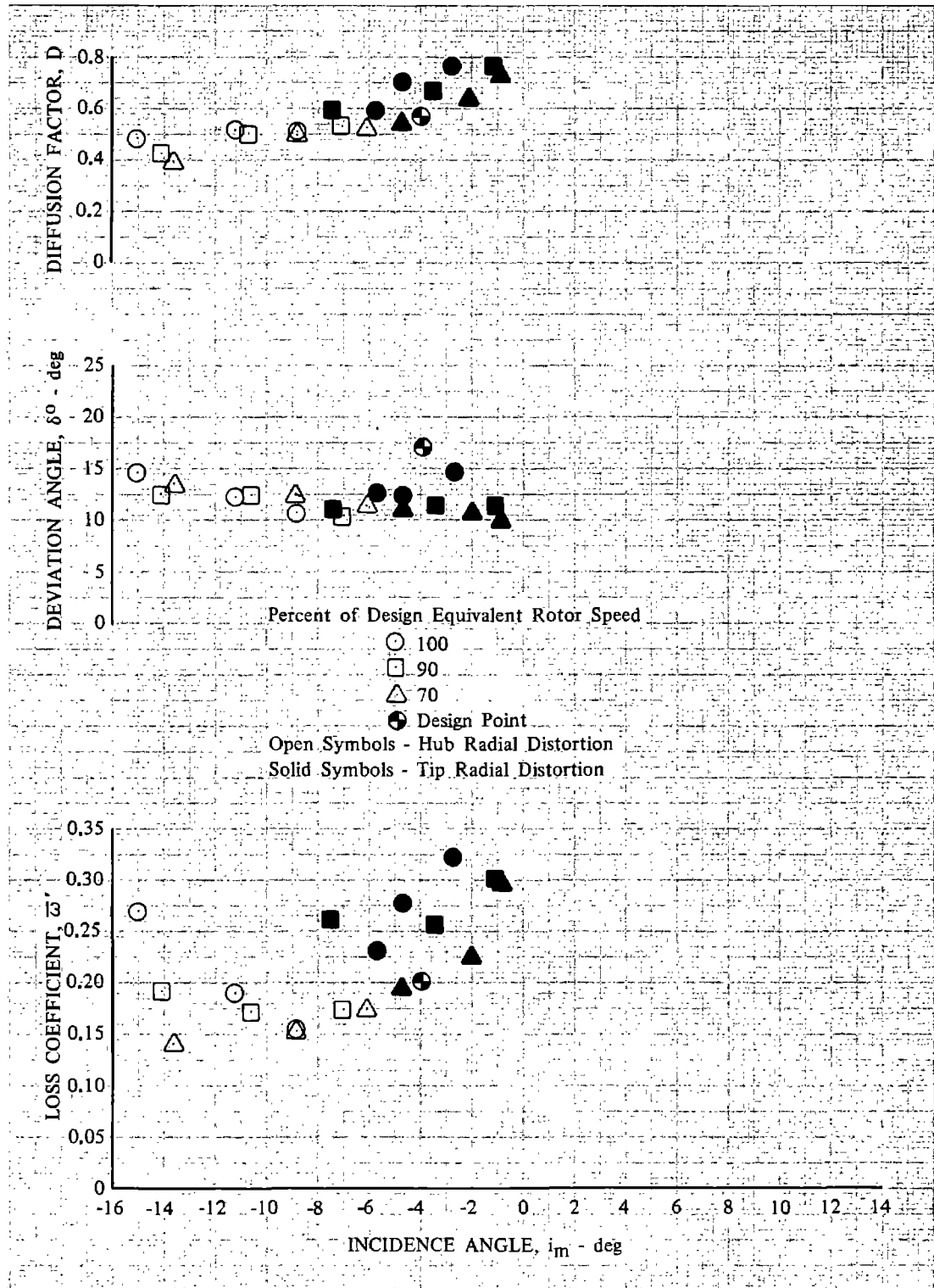


Figure 28a. Rotor E Blade Element Performance;
 5% Span From Tip; Hub and Tip Radial
 Distortion

DF 98104

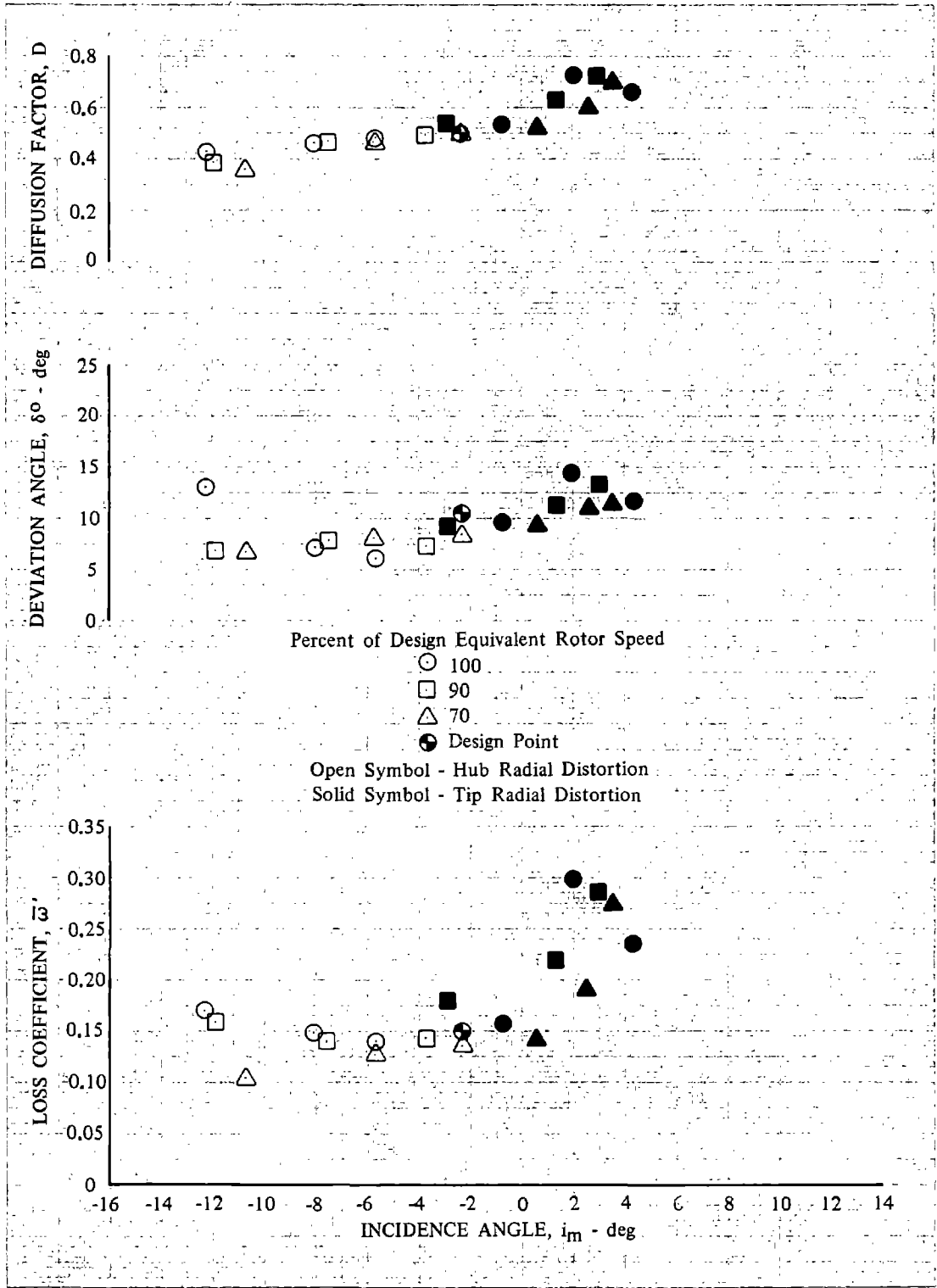


Figure 28b. Rotor E Blade Element Performance;
 10% Span From Tip; Hub and Tip Radial
 Distortion

DF 98105

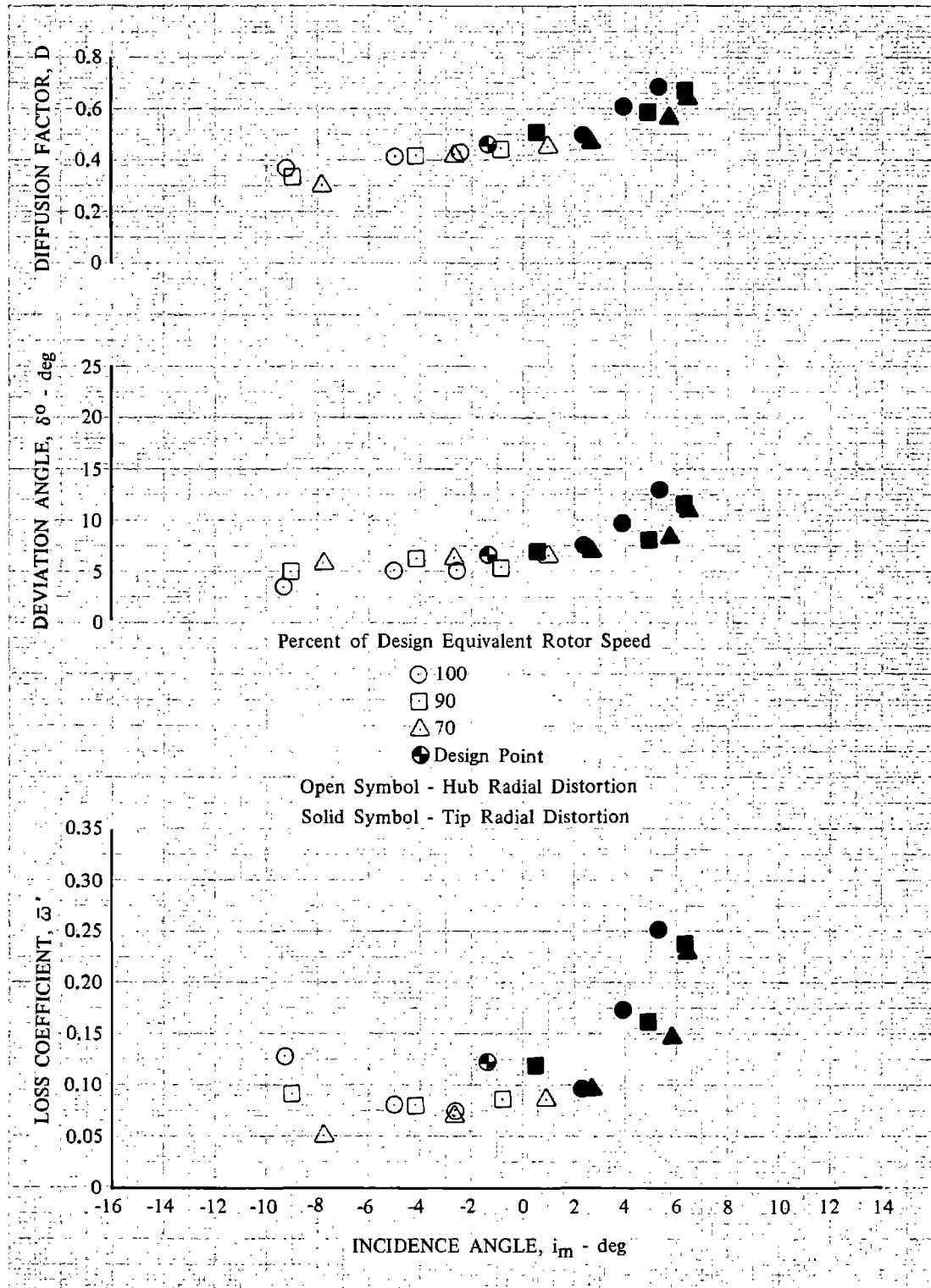


Figure 28c. Rotor E Blade Element Performance;
15% Span From Tip; Hub and Tip Radial
Distortion

DF 98106

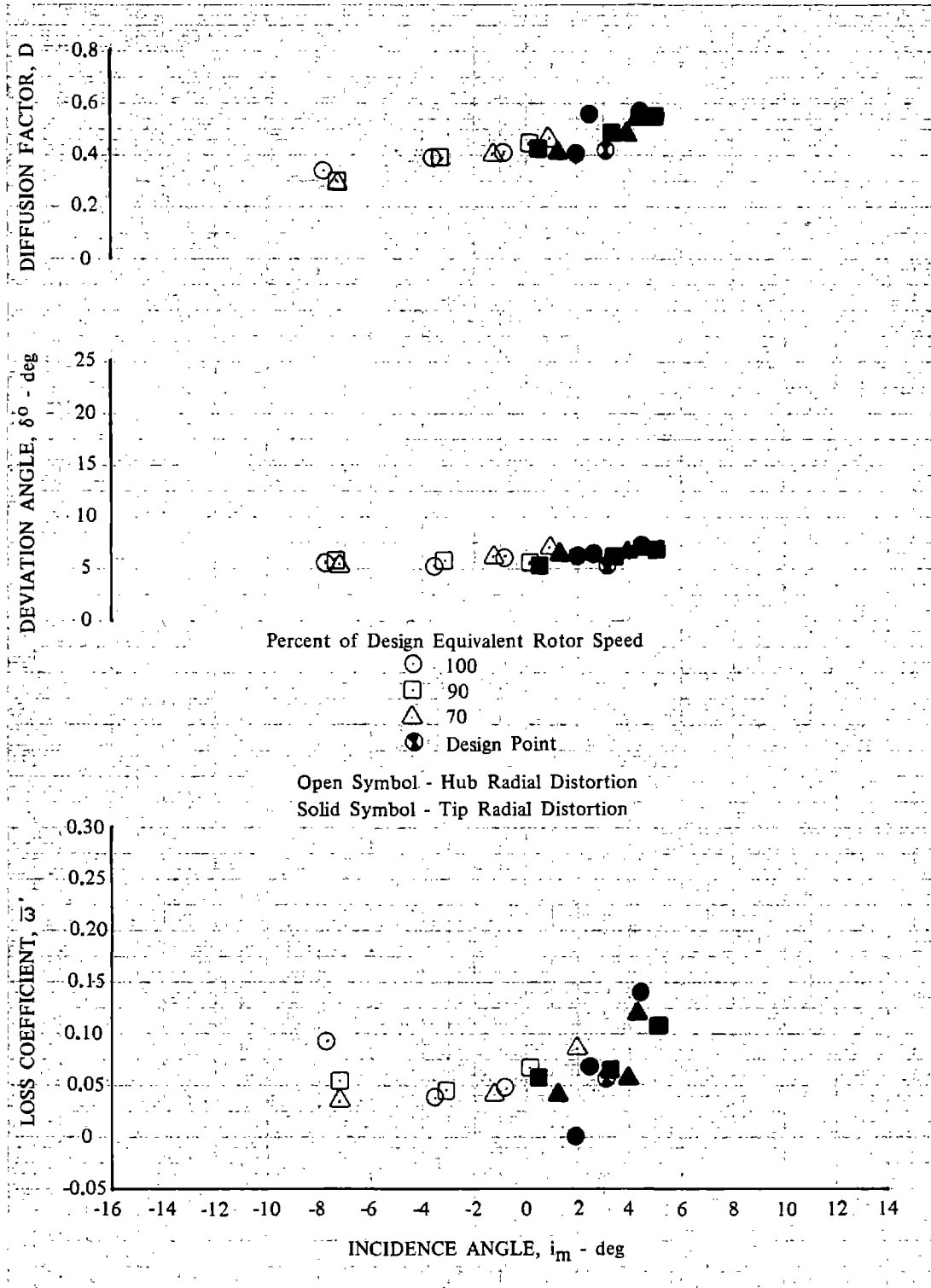


Figure 28d. Rotor E Blade Element Performance;
 30% Span From Tip; Hub and Tip Radial
 Distortion

DF 98107

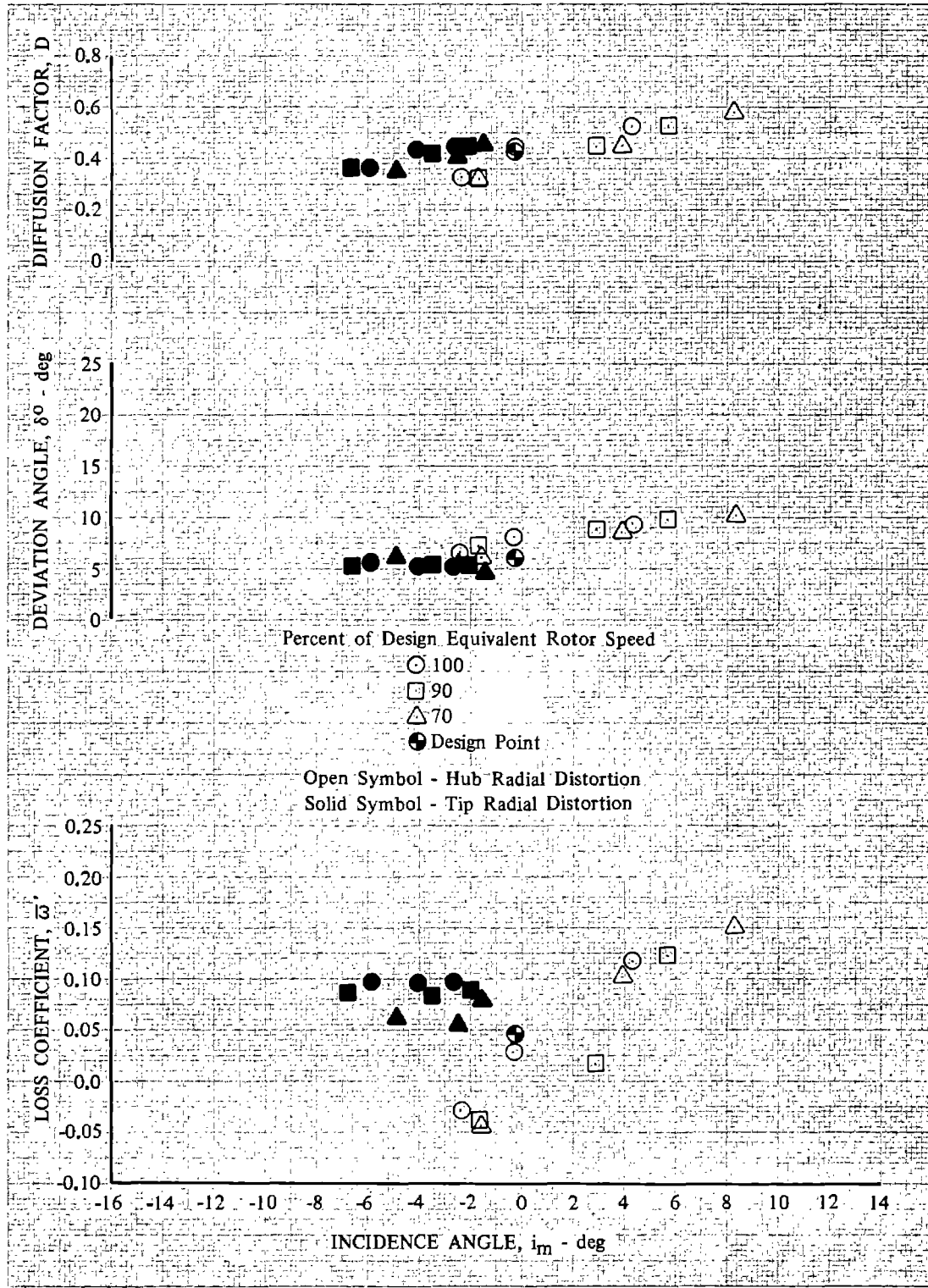


Figure 28e. Rotor E Blade Element Performance; 50% Span; Hub and Tip Radial Distortion

DF 98108

C-2

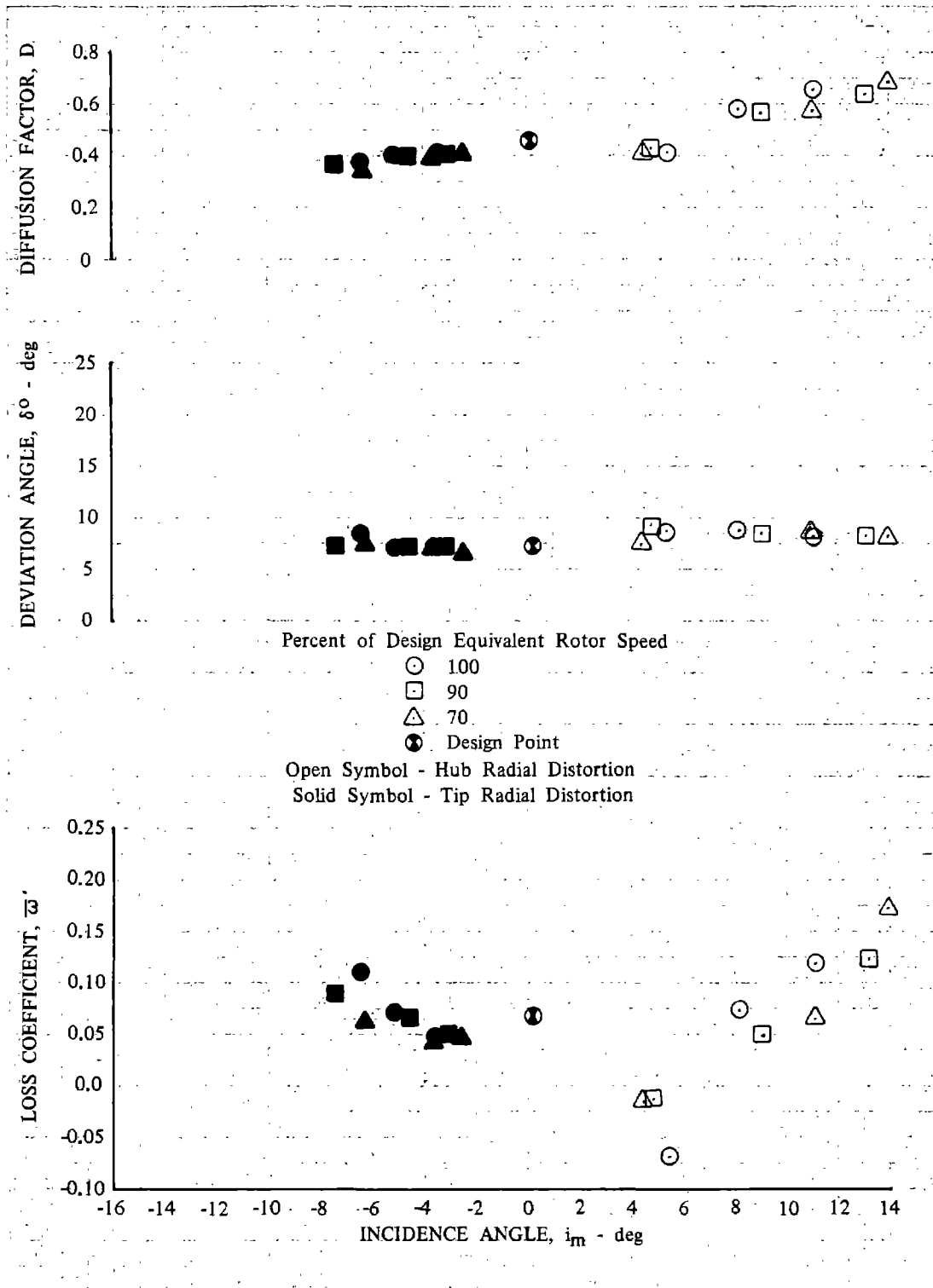


Figure 28f. Rotor E Blade Element Performance;
 70% Span From Tip; Hub and Tip Radial
 Distortion

DF 98109

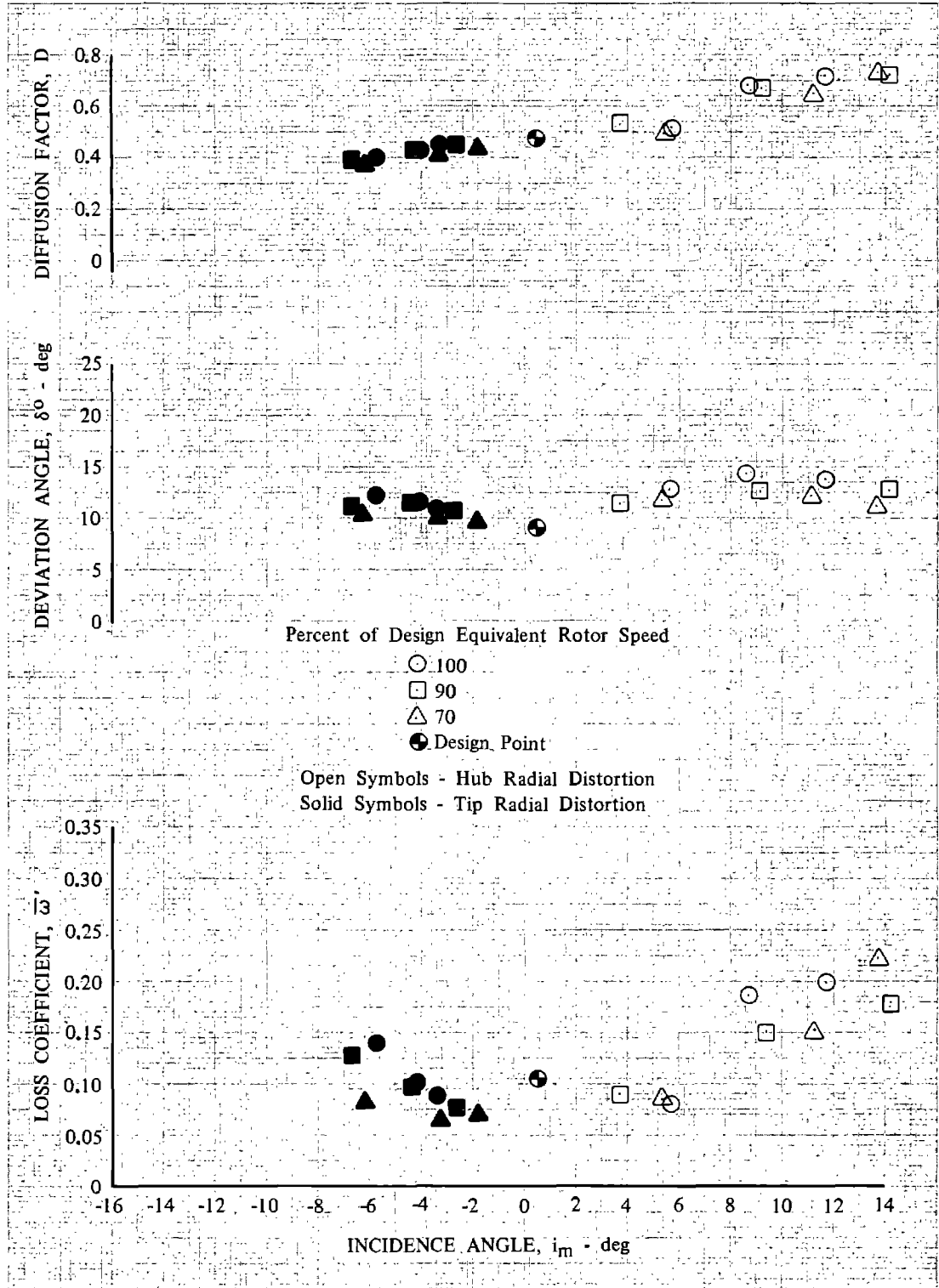


Figure 28g. Rotor E Blade Element Performance;
 85% Span From Tip; Hub and Tip Radial
 Distortion

DF 98110

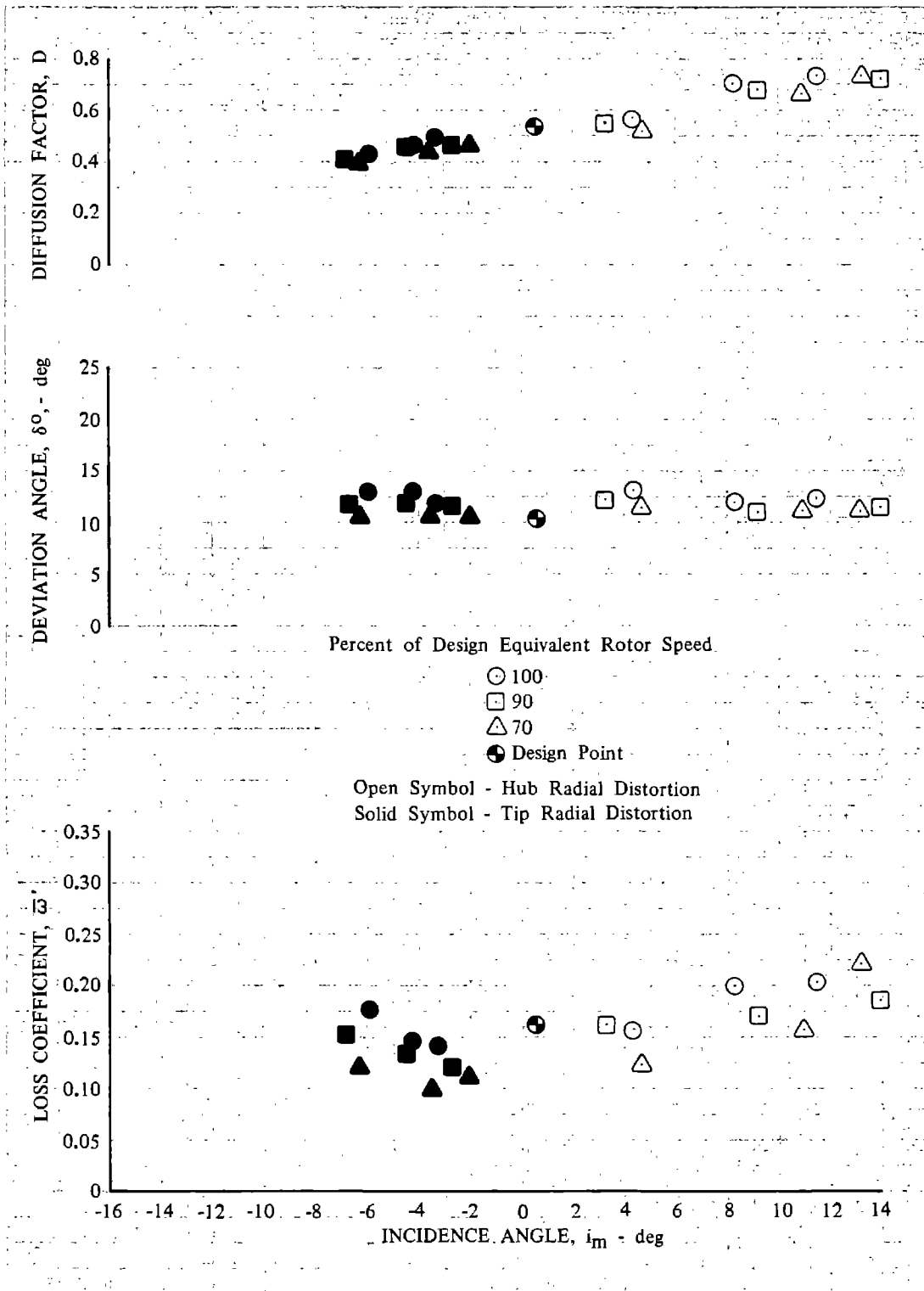


Figure 28h. Rotor E Blade Element Performance;
90% Span From Tip; Hub and Tip Radial
Distortion

DF 98111

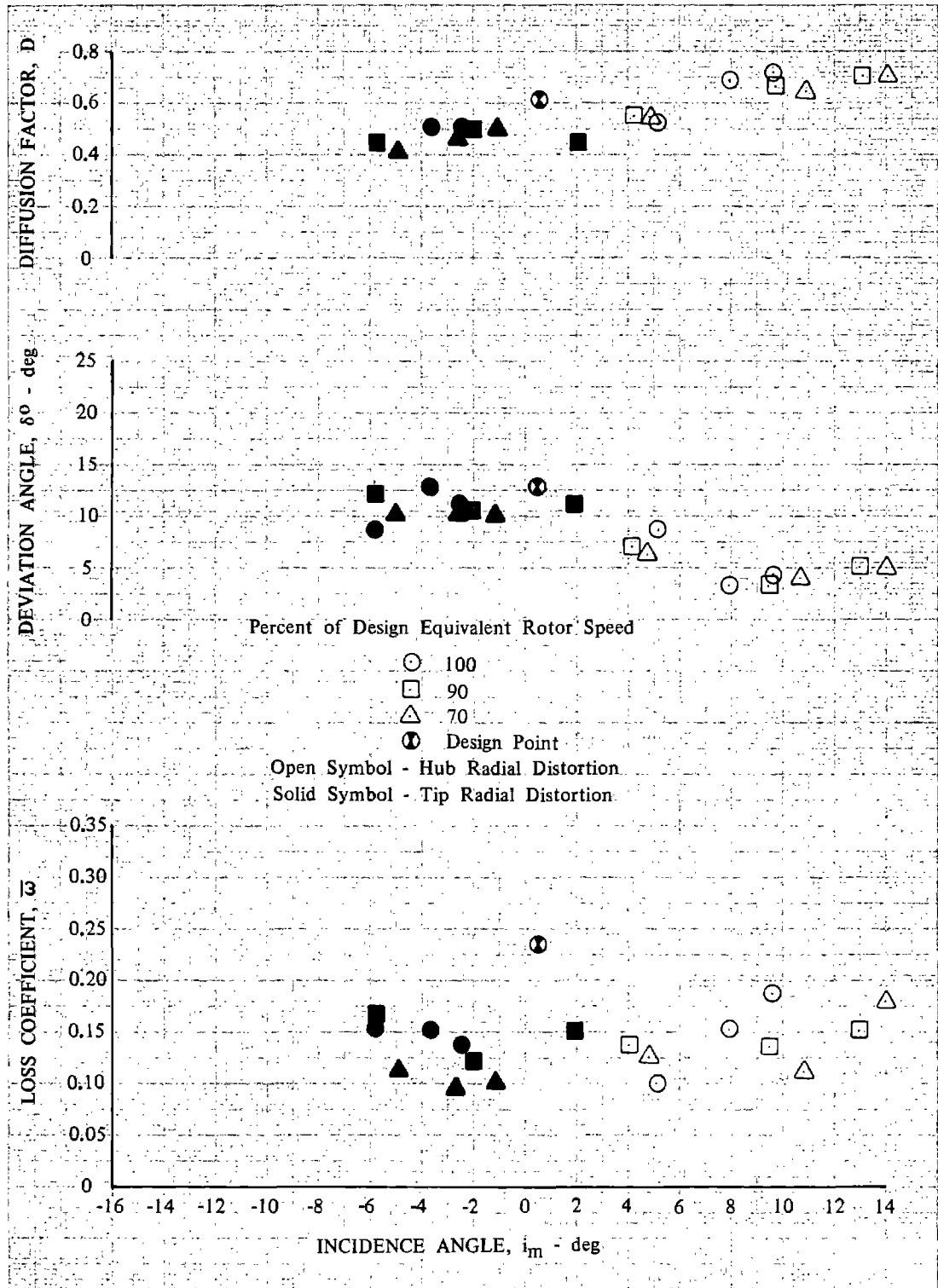


Figure 28i. Rotor E Blade Element Performance;
 95% Span From Tip; Hub and Tip Radial
 Distortion

DF 98112

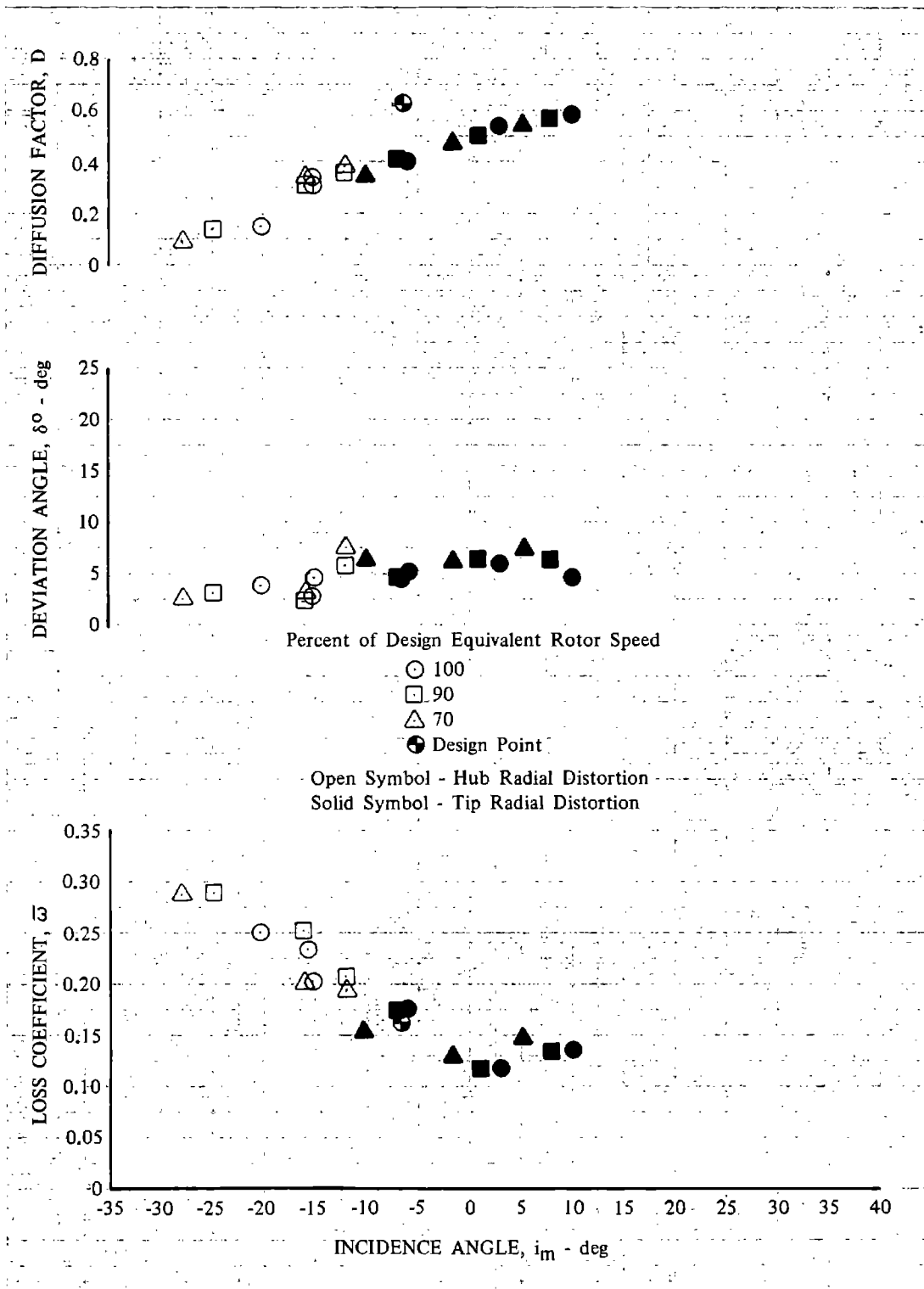


Figure 29a. Stator E Blade Element Performance;
5% Span From Tip; Hub and Tip Radial
Distortion

DF 98113

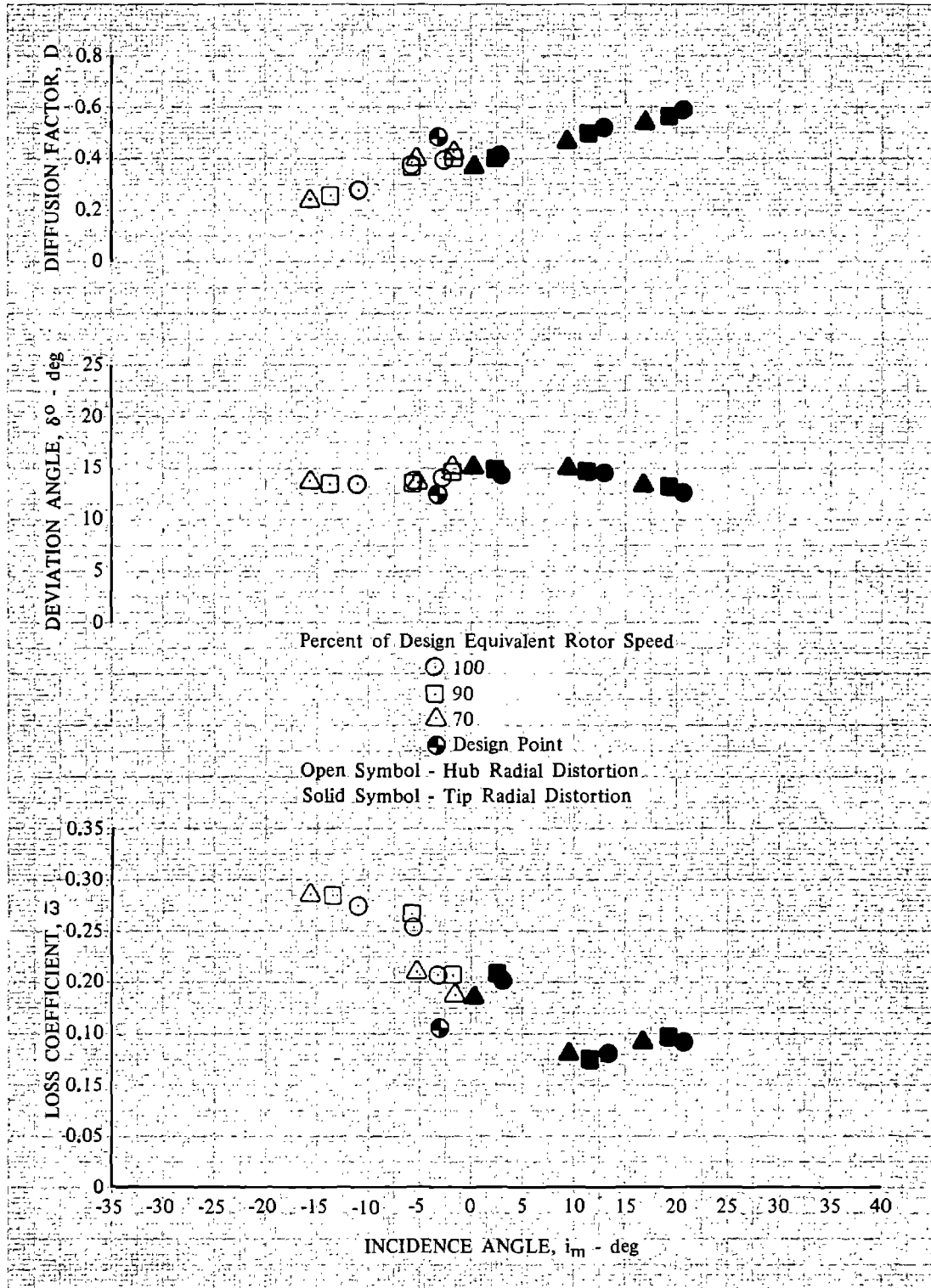


Figure 29b. Stator E Blade Element Performance;
 10% Span From Tip; Hub and Tip Radial
 Distortion

DF 98114

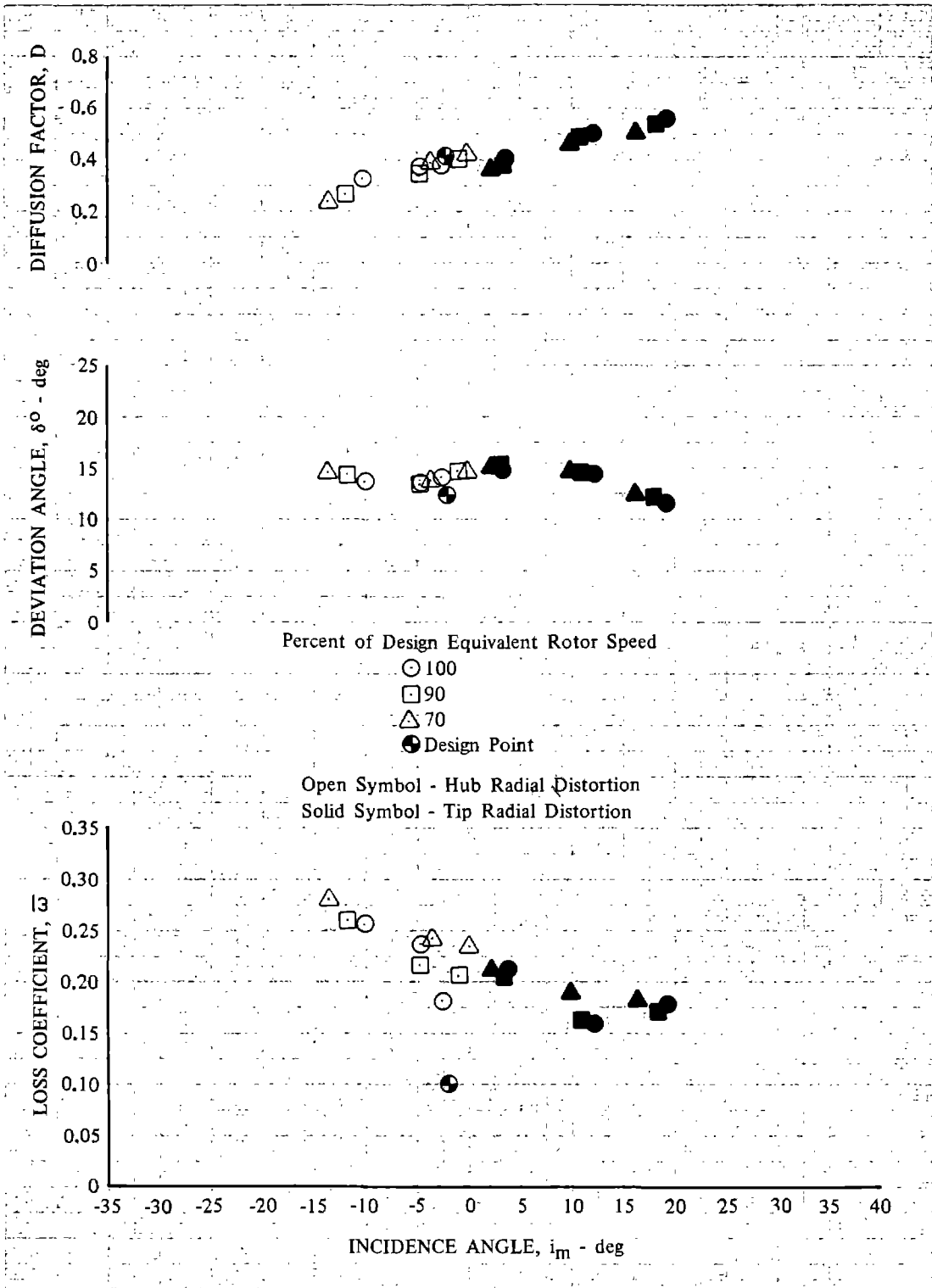


Figure 29c. Stator E Blade Element Performance;
 15% Span From Tip; Hub and Tip Radial
 Distortion

DF 98115

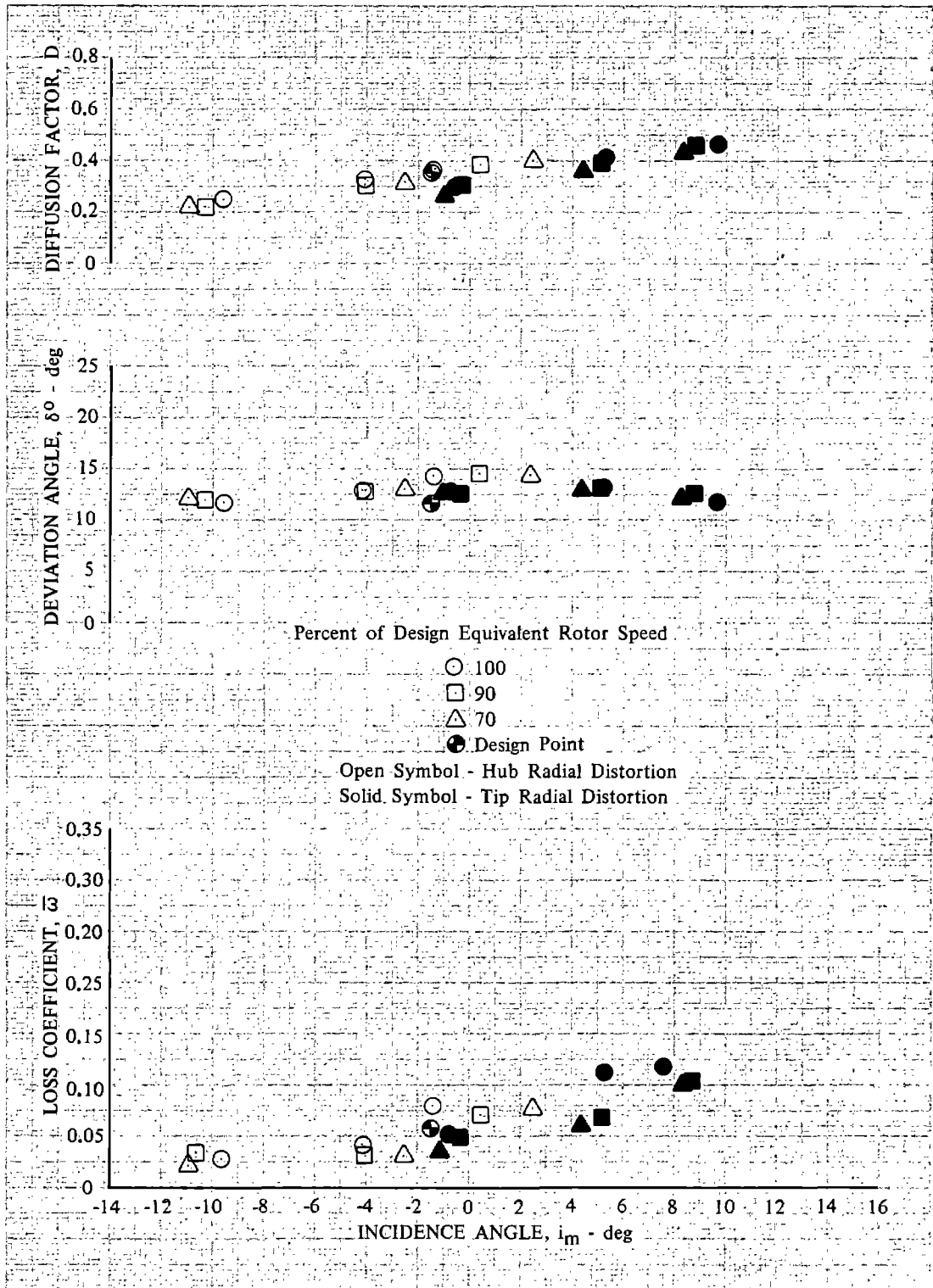


Figure 29d. Stator E Blade Element Performance;
 30% Span From Tip; Hub and Tip Radial
 Distortion

DF 98116

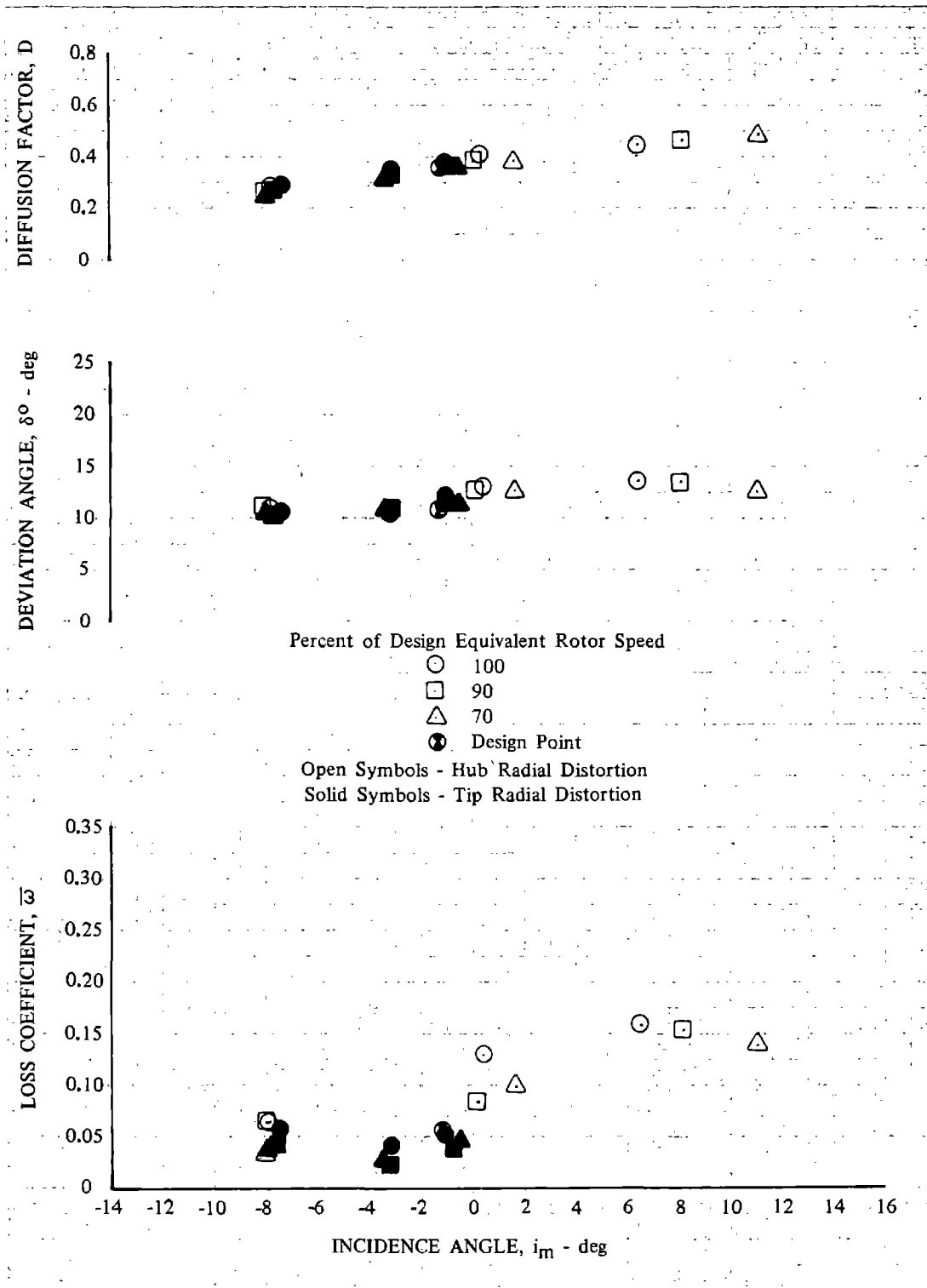


Figure 29e. Stator E Blade Element Performance;
 50% Span; Hub and Tip Radial Distortion

DF 98117

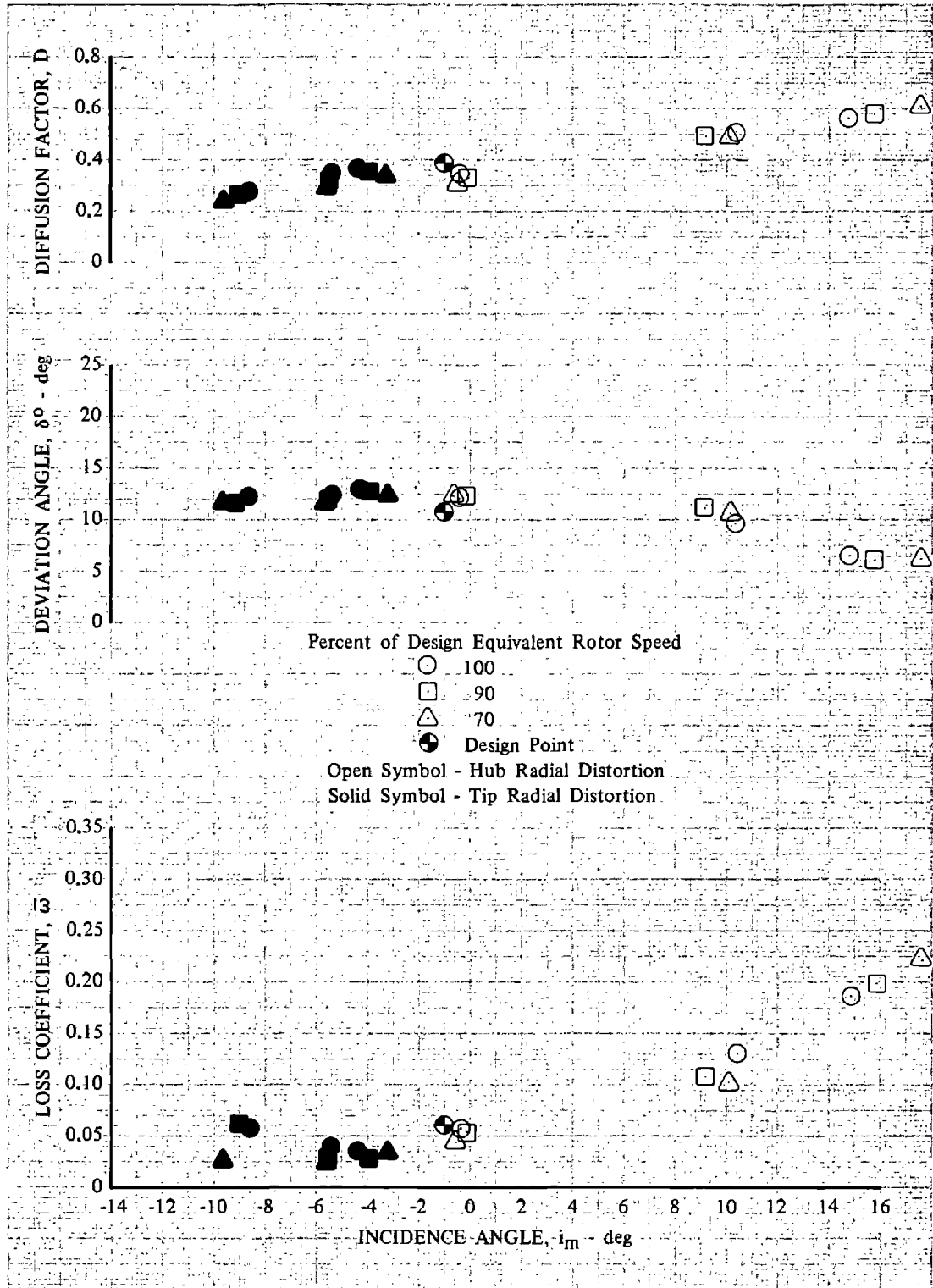


Figure 29f. Stator E Blade Element Performance;
70% Span From Tip; Hub and Tip Radial
Distortion

DF 98118

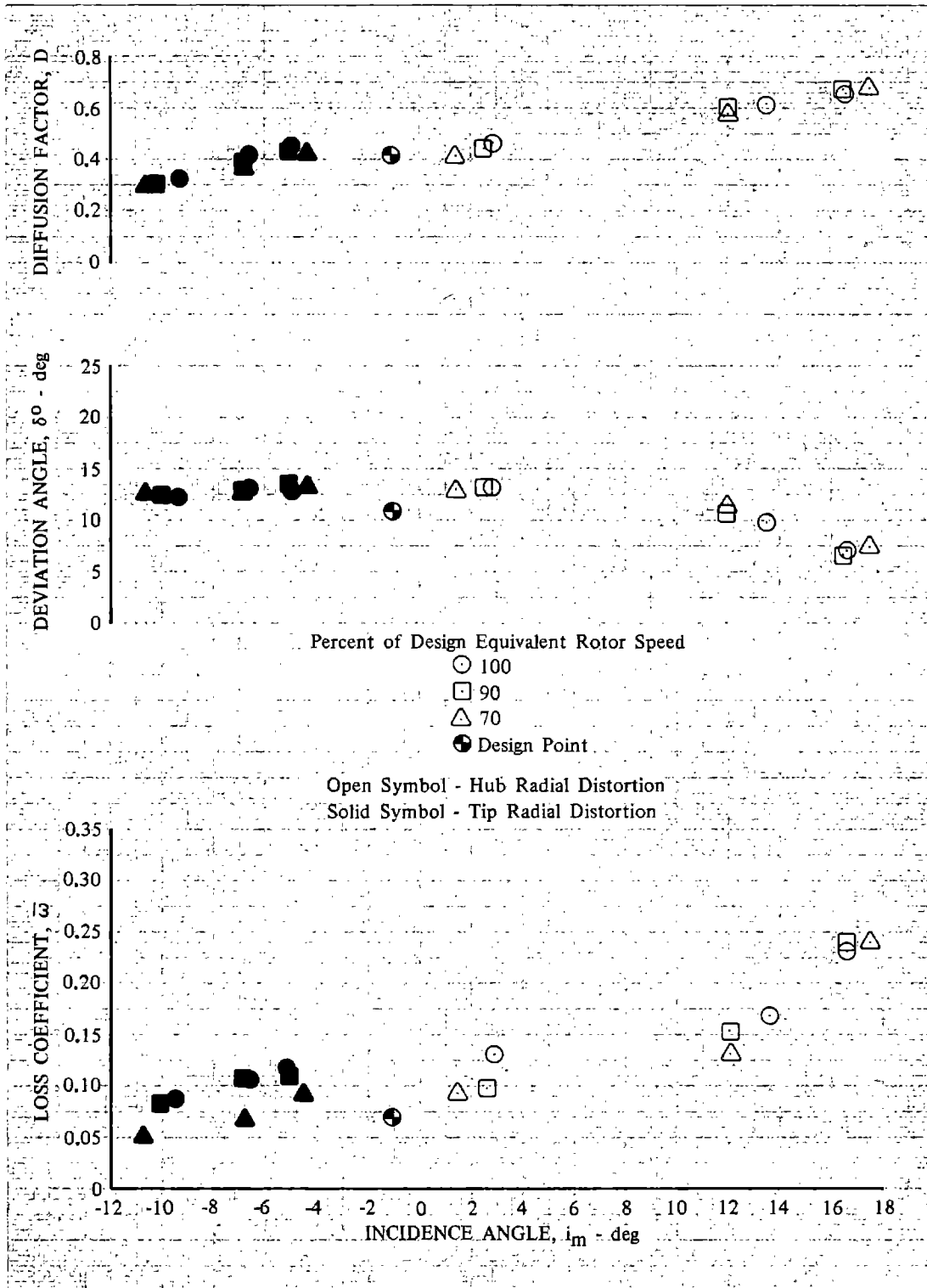


Figure 29g. Stator E Blade Element Performance;
85% Span From Tip; Hub and Tip Radial
Distortion

DF 98119

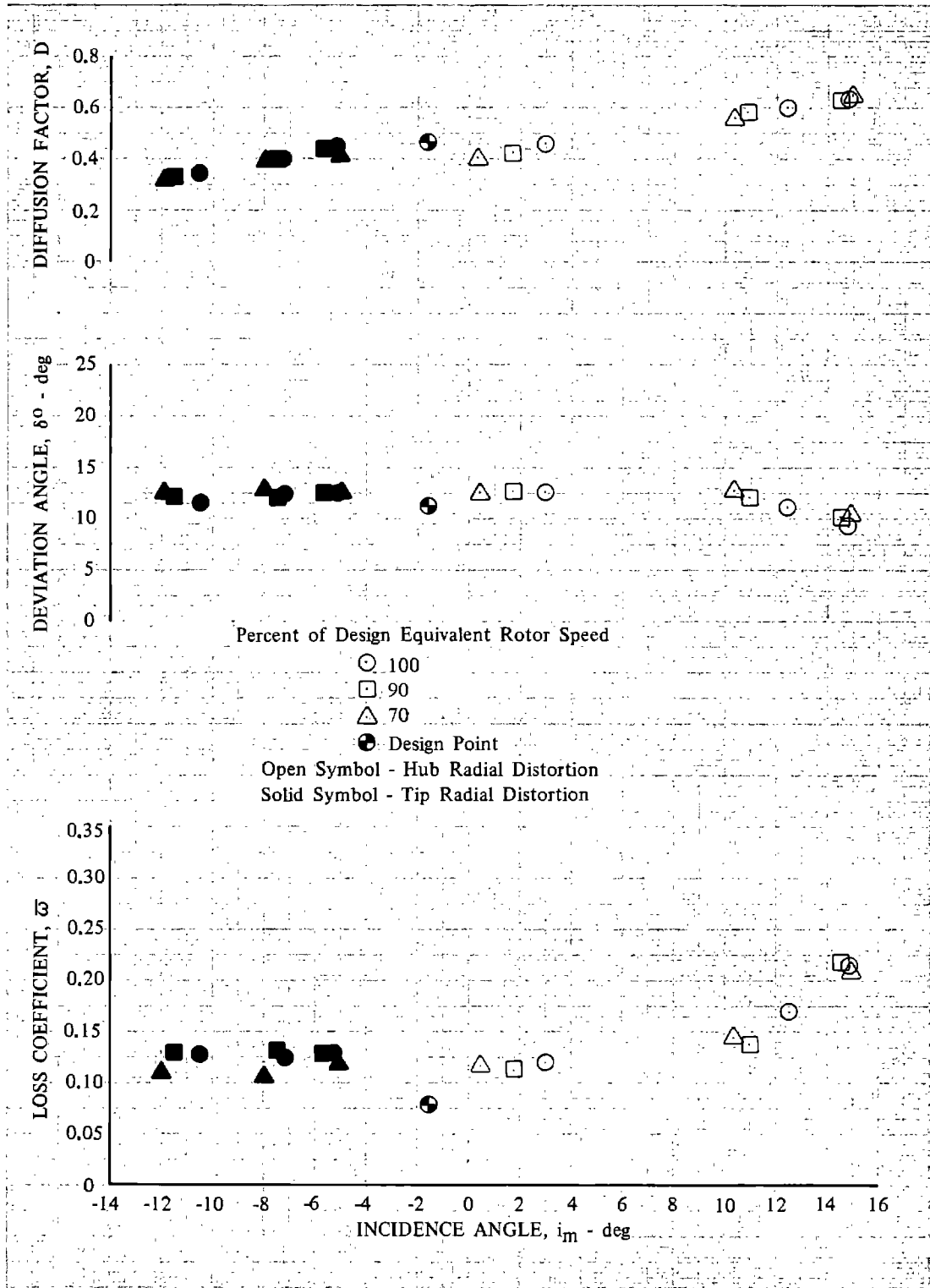


Figure 29h. Stator E Blade Element Performance;
90% Span From Tip; Hub and Tip Radial
Distortion

DF 98120

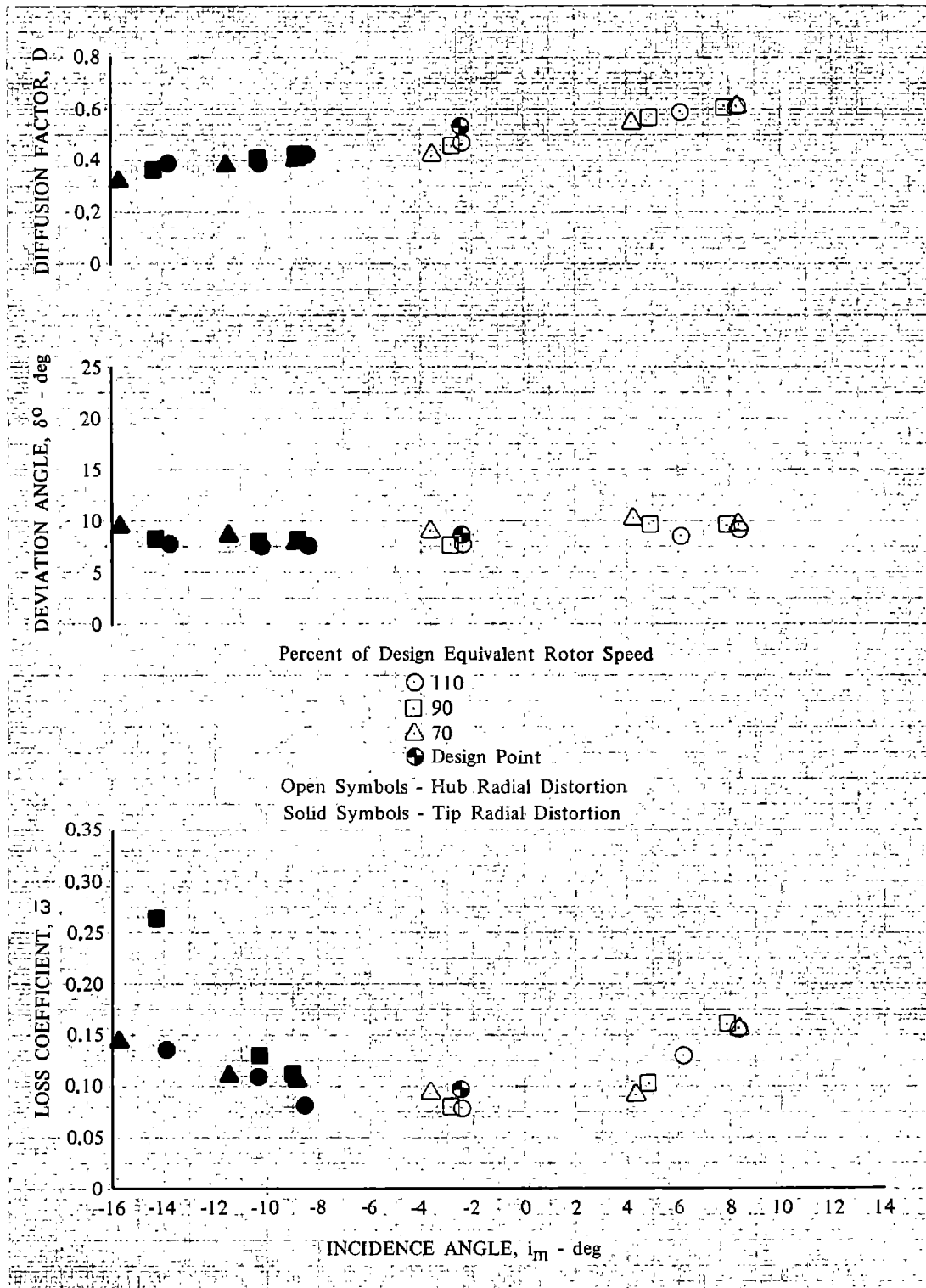


Figure 29i. Stator E Blade Element Performance; 95% Span From Tip; Hub and Tip Radial Distortion

DF 98121

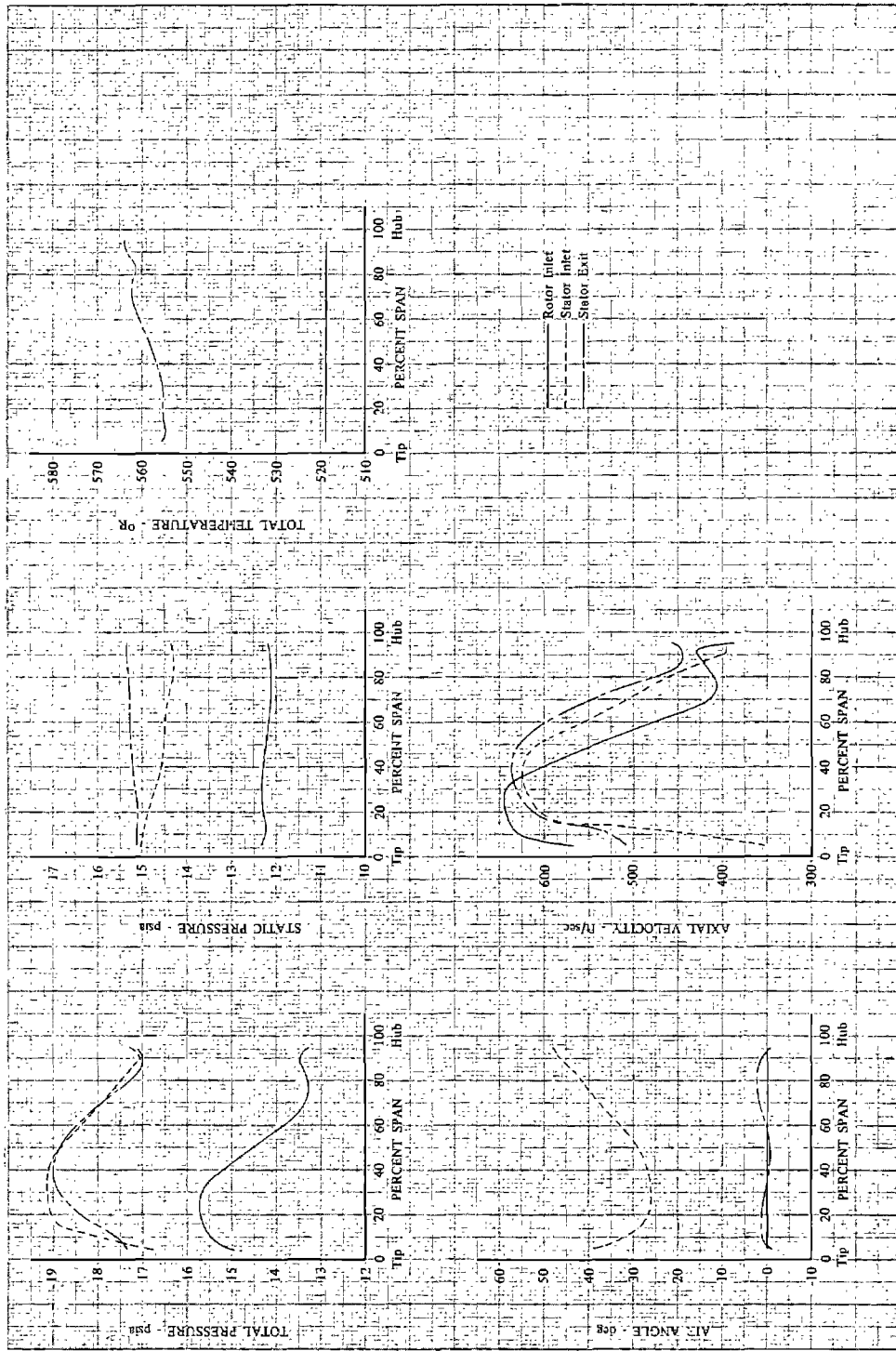


Figure 30a. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 114.81 lb/sec; Hub Radial Distortion

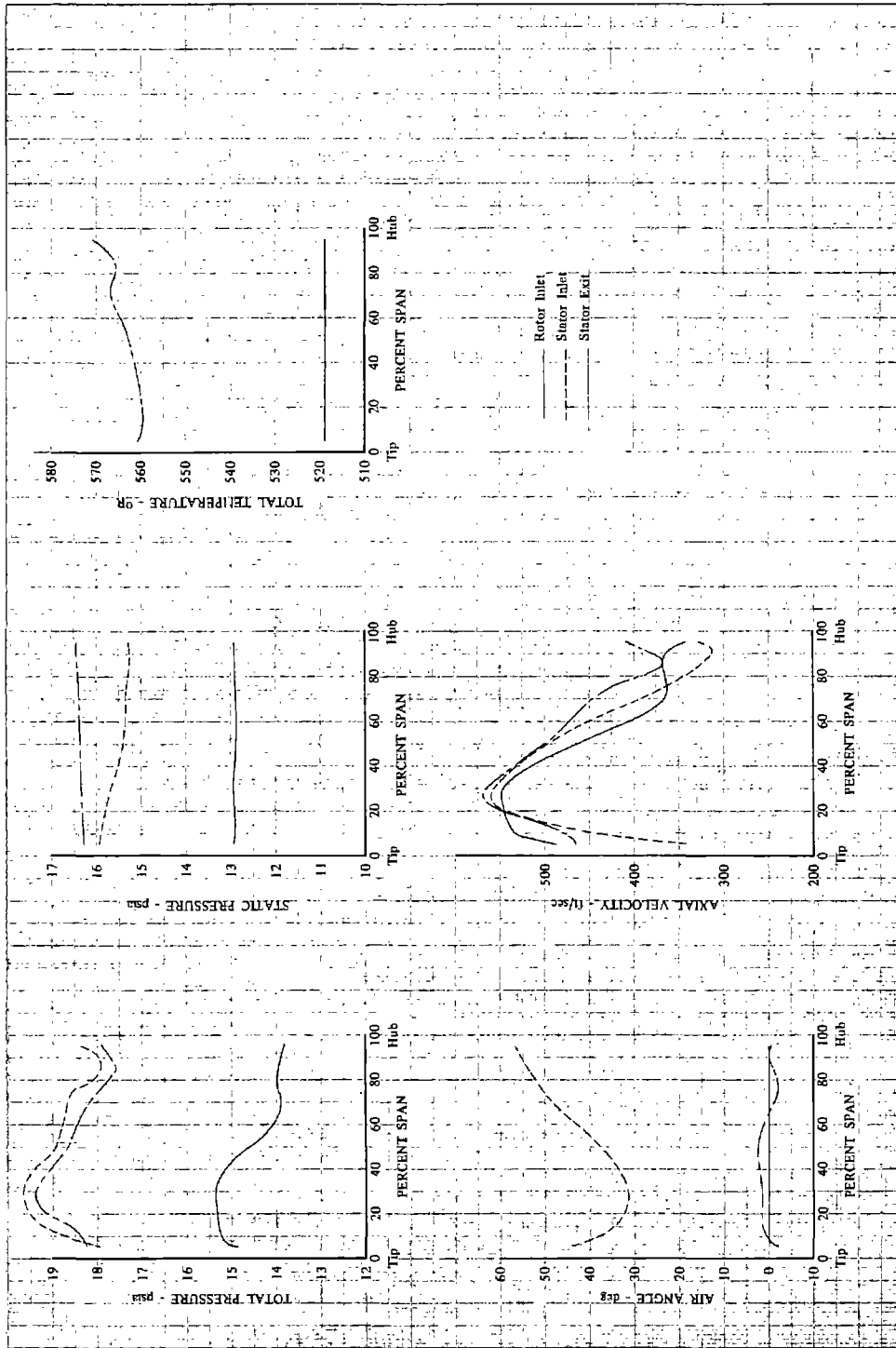
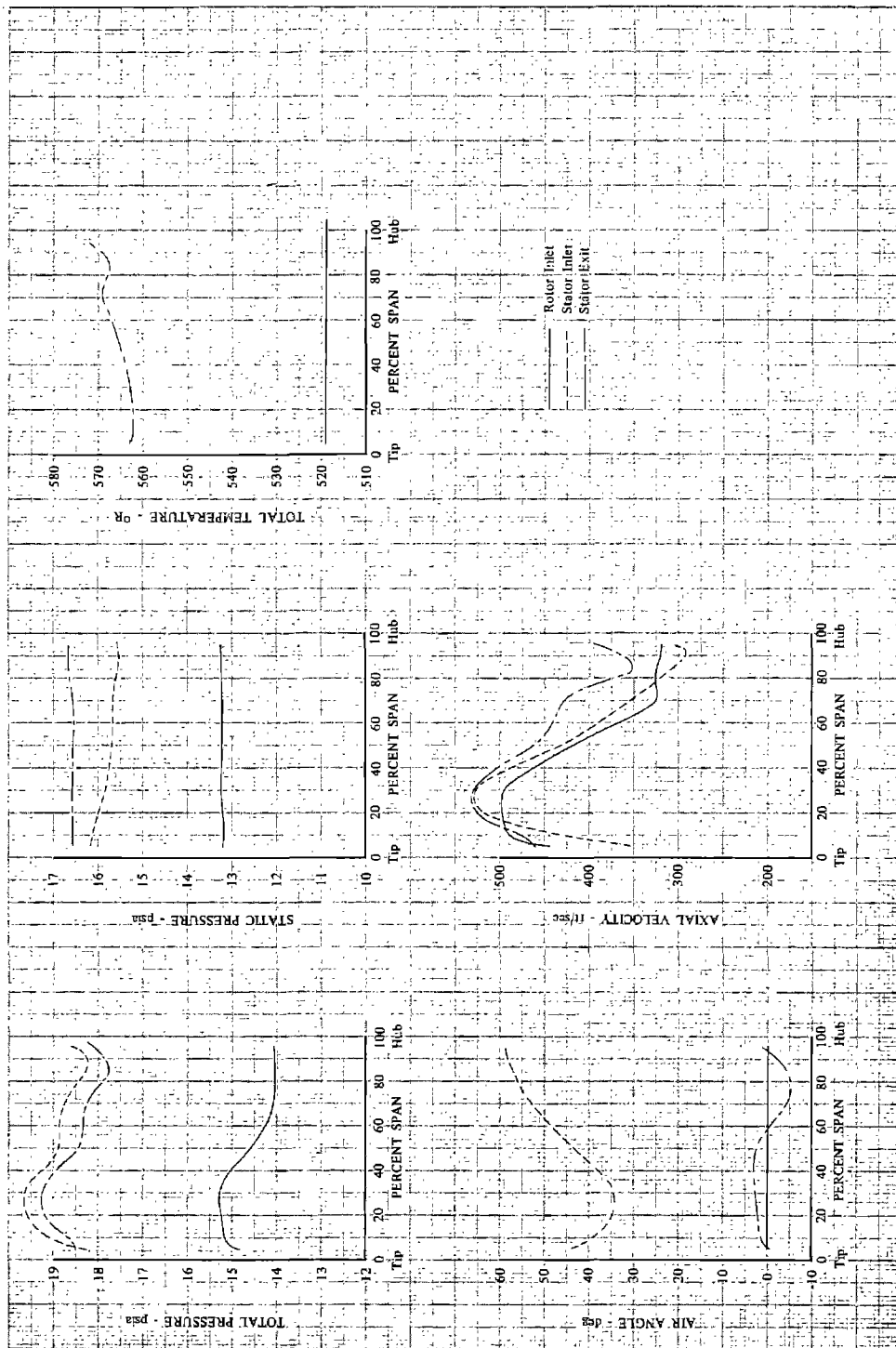


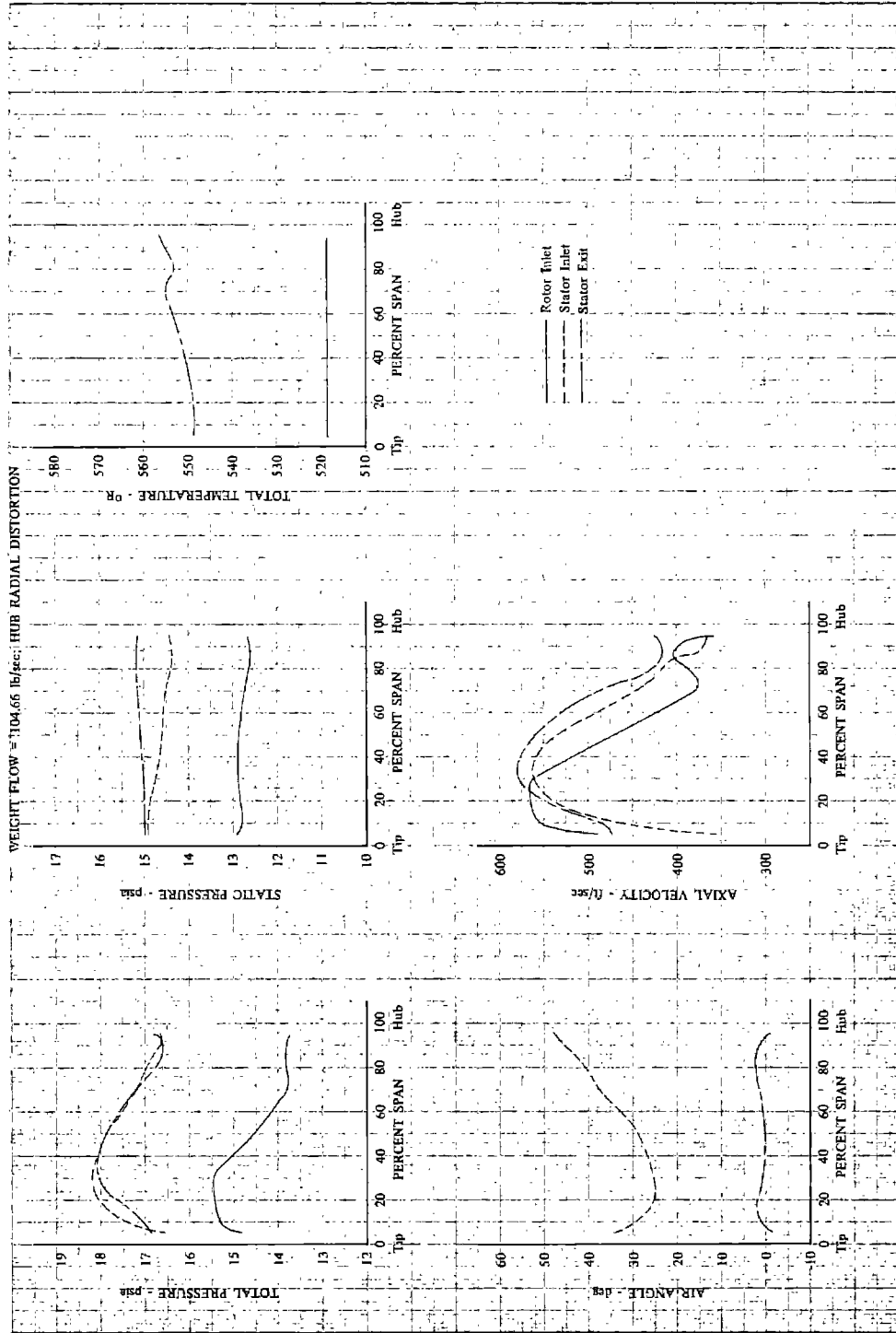
Figure 30b. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 100.63 lb/sec; Hub Radial Distortion

DF 98123



DF 98124

Figure 30c. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 93.49 lb/sec; Hub Radial Distortion



DF 98125

Figure 31a. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 104.66 lb/sec; Hub Radial Distortion

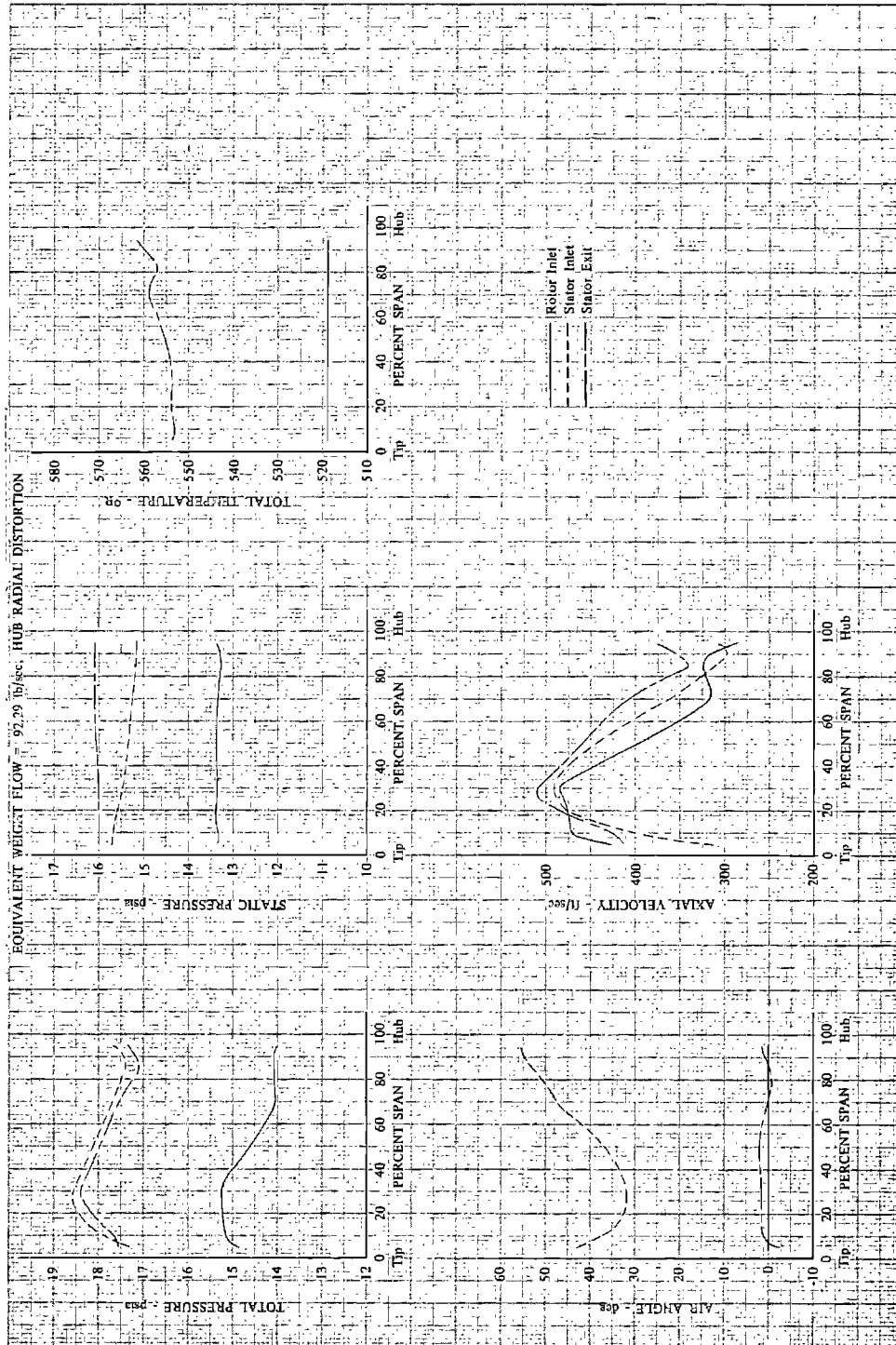


Figure 31b. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.29 lb/sec; Hub Radial Distortion

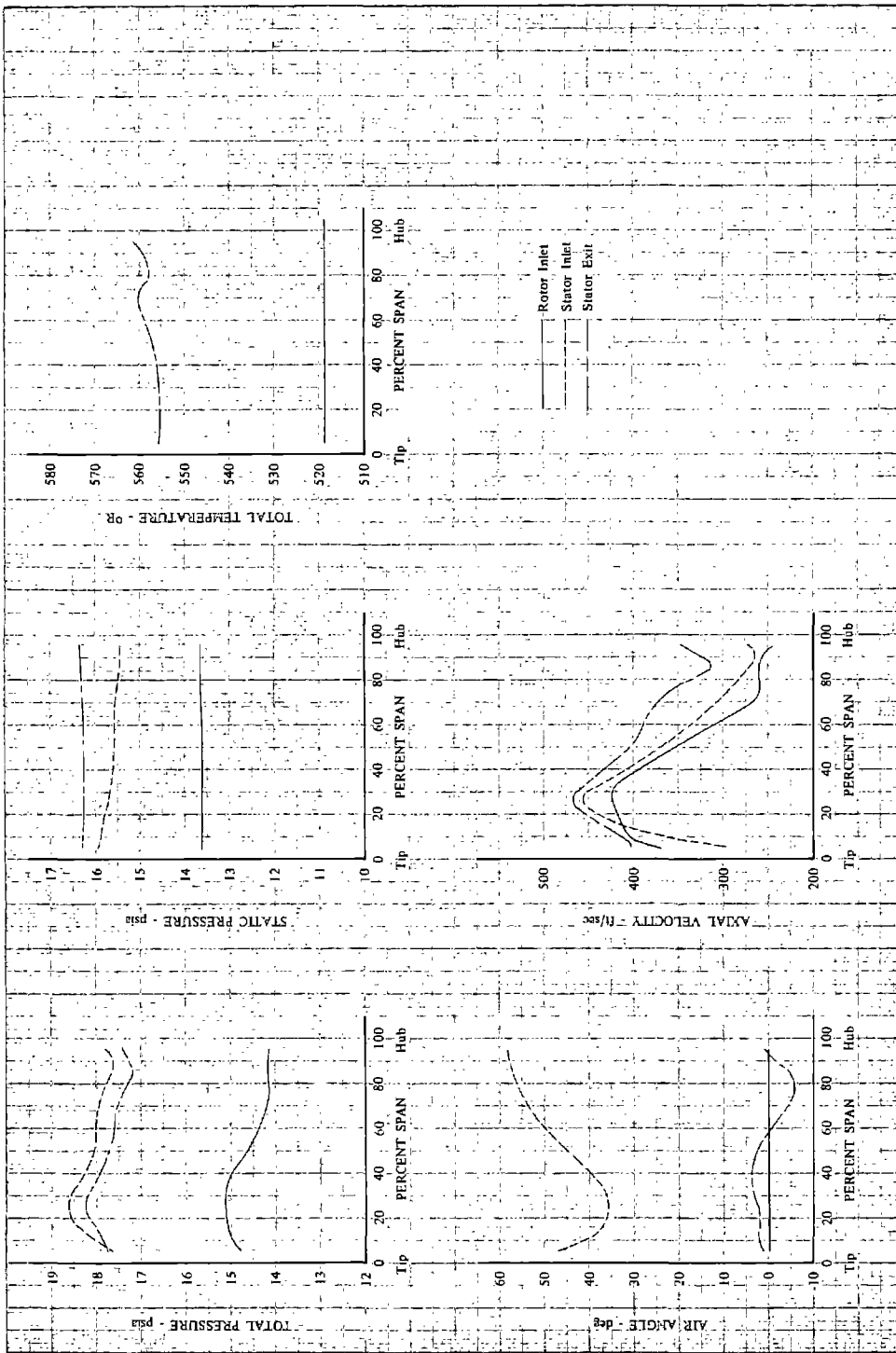


Figure 31c. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 82.24 lb/sec; Hub Radial Distortion

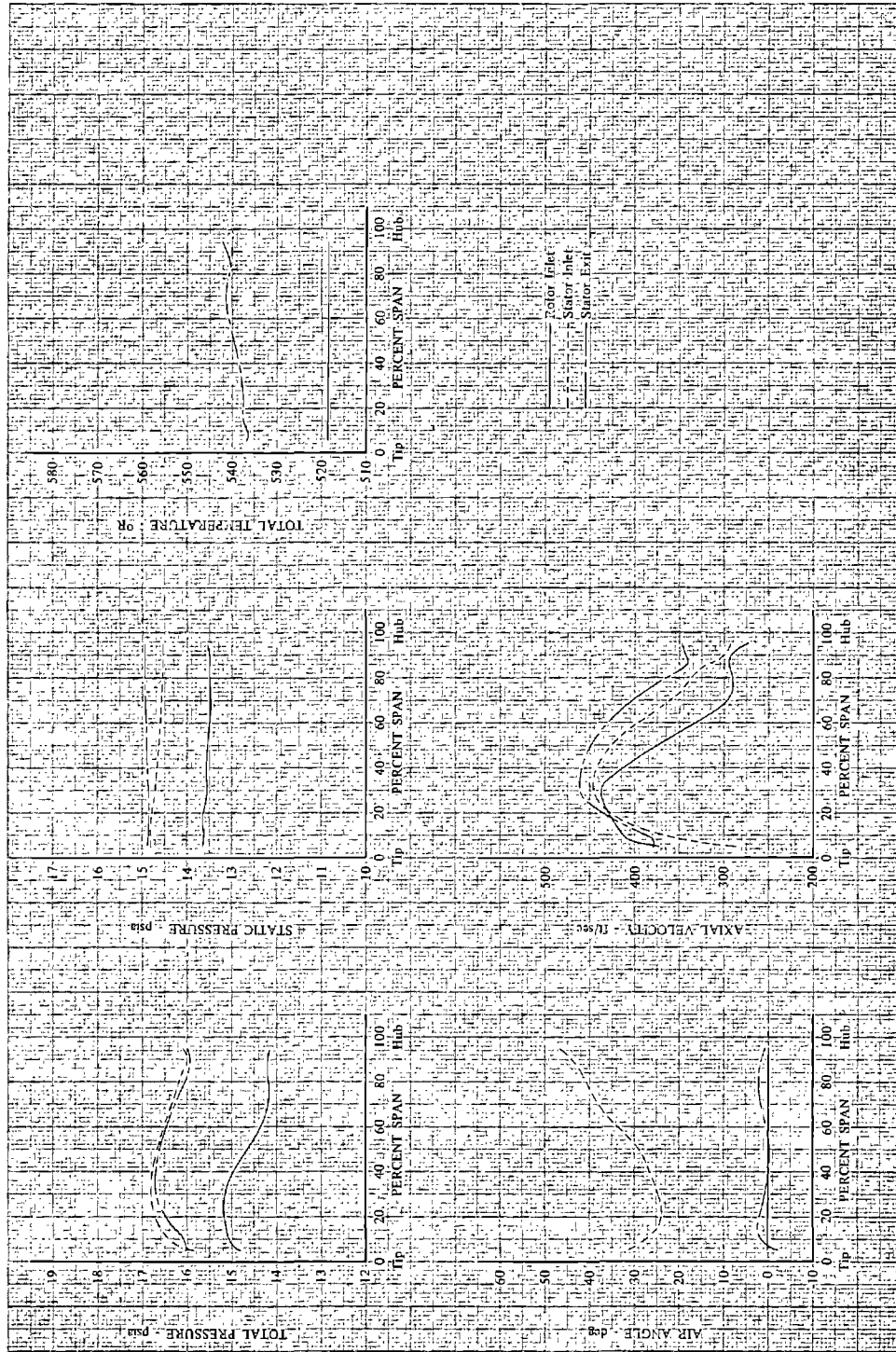


Figure 32a. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 70% Design Equivalent Rotor Speed; Equivalent Weight Flow = 83.81 lb/sec; Hub Radial Distortion

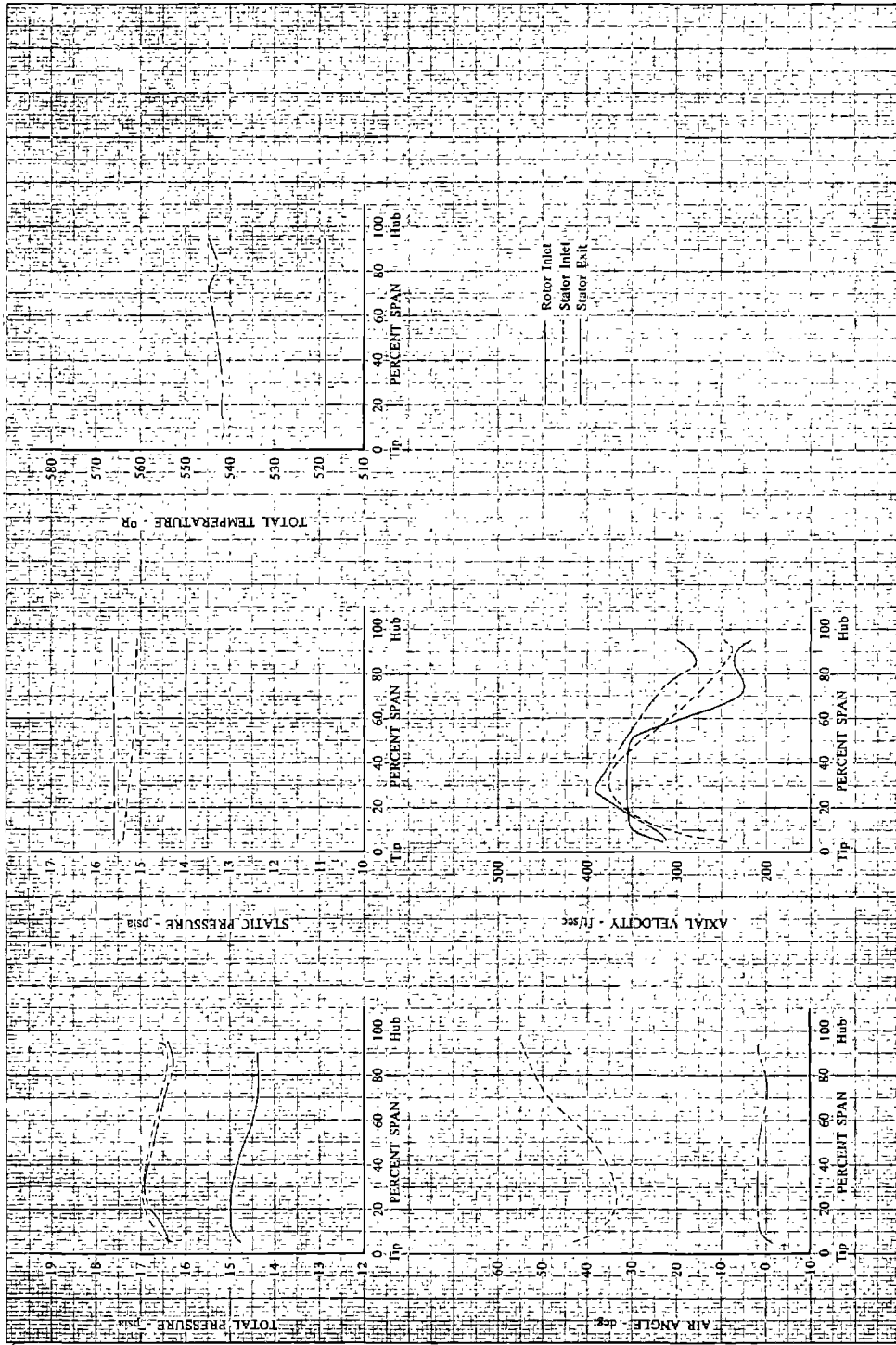


Figure 32b. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 70% Design Equivalent Rotor Speed; Equivalent Weight Flow = 70.40 lb/sec; Hub Radial Distortion

DF 98129

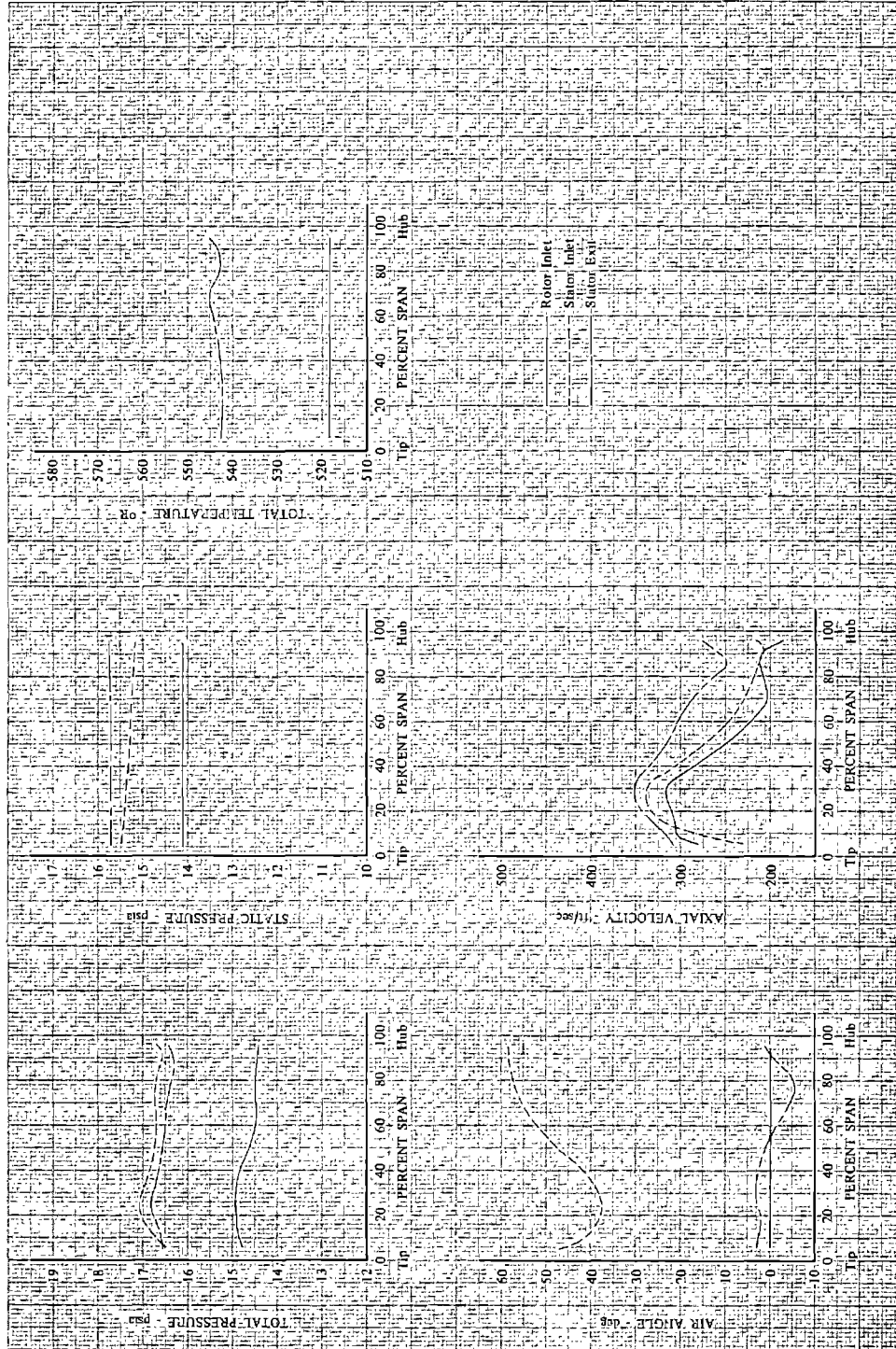
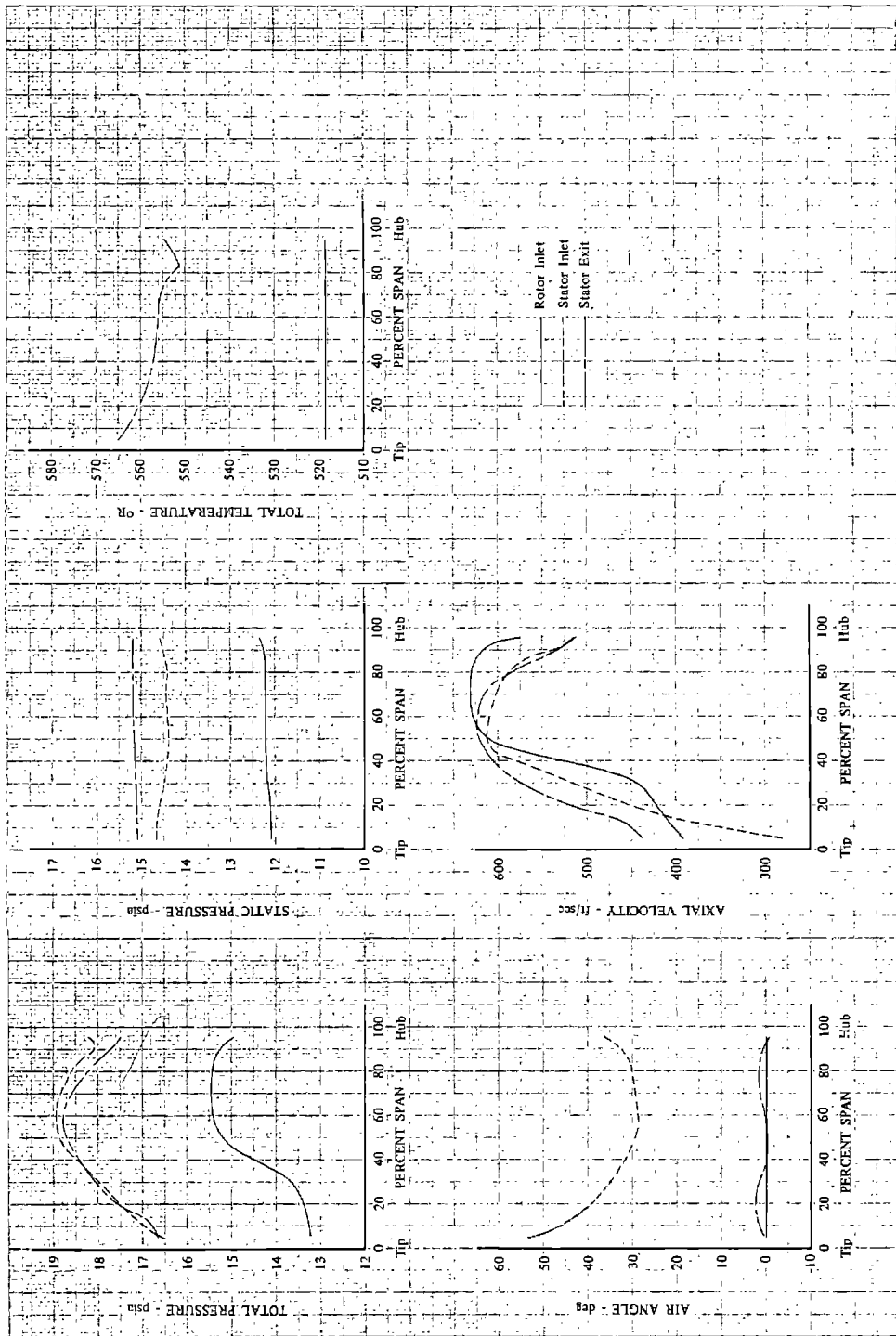


Figure 32c. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 70% Design Equivalent Rotor Speed; Equivalent Weight Flow = 61.83 lb/sec; Hub Radial Distortion



DF 98131

Figure 33a. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 114.99 lb/sec; Tip Radial Distortion

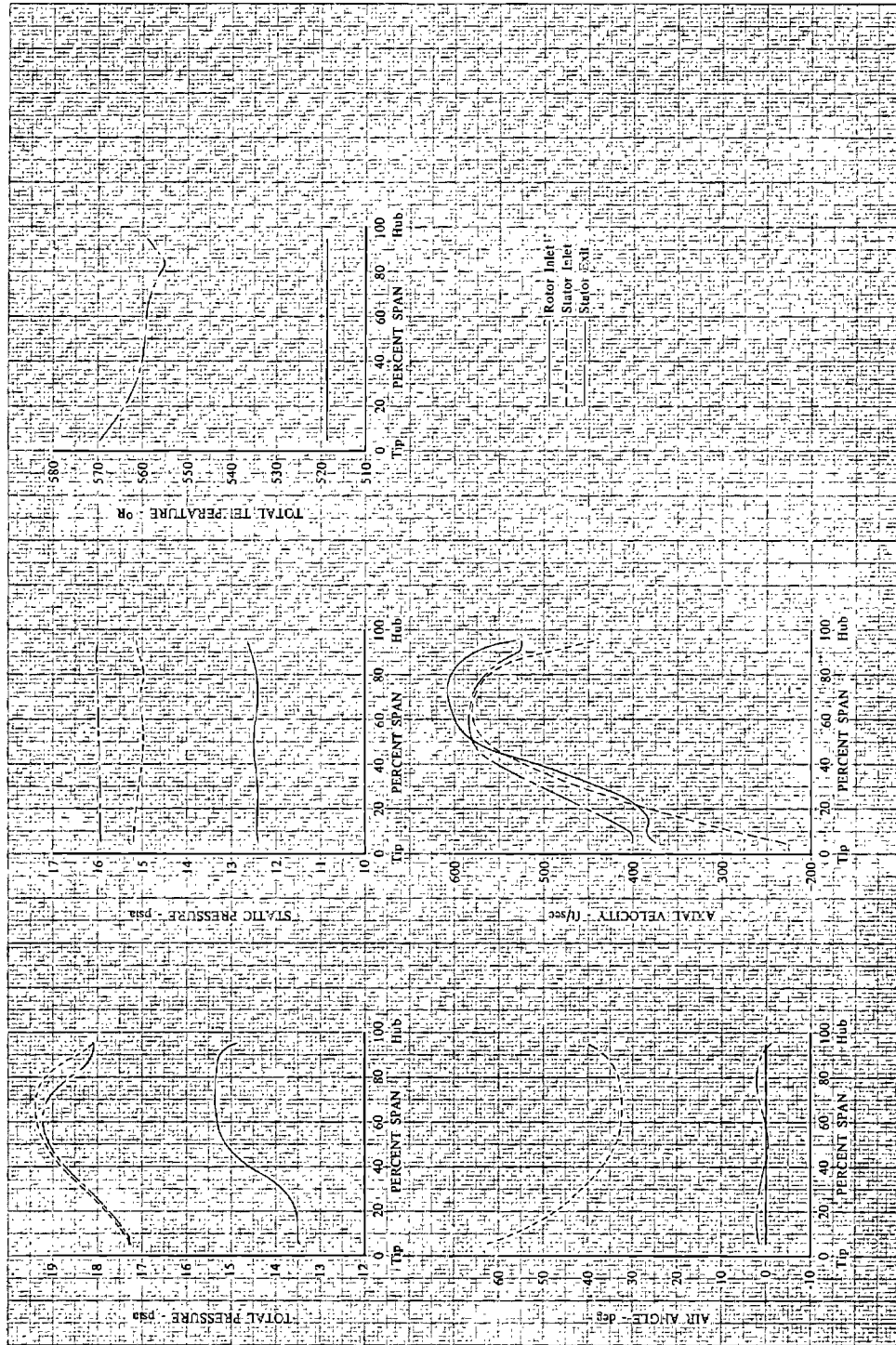


Figure 33b. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 109.16 lb/sec; Tip Radial Distortion

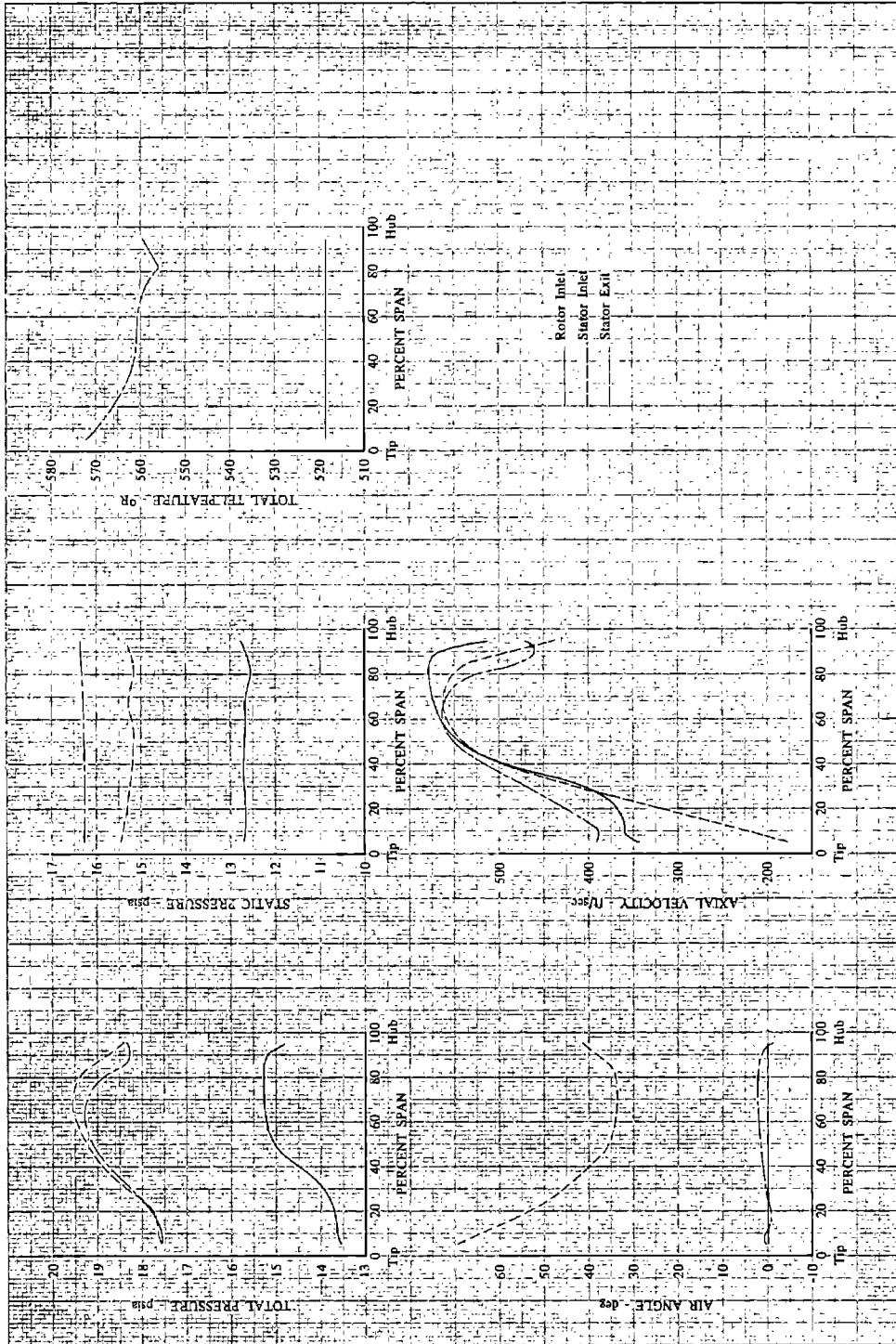
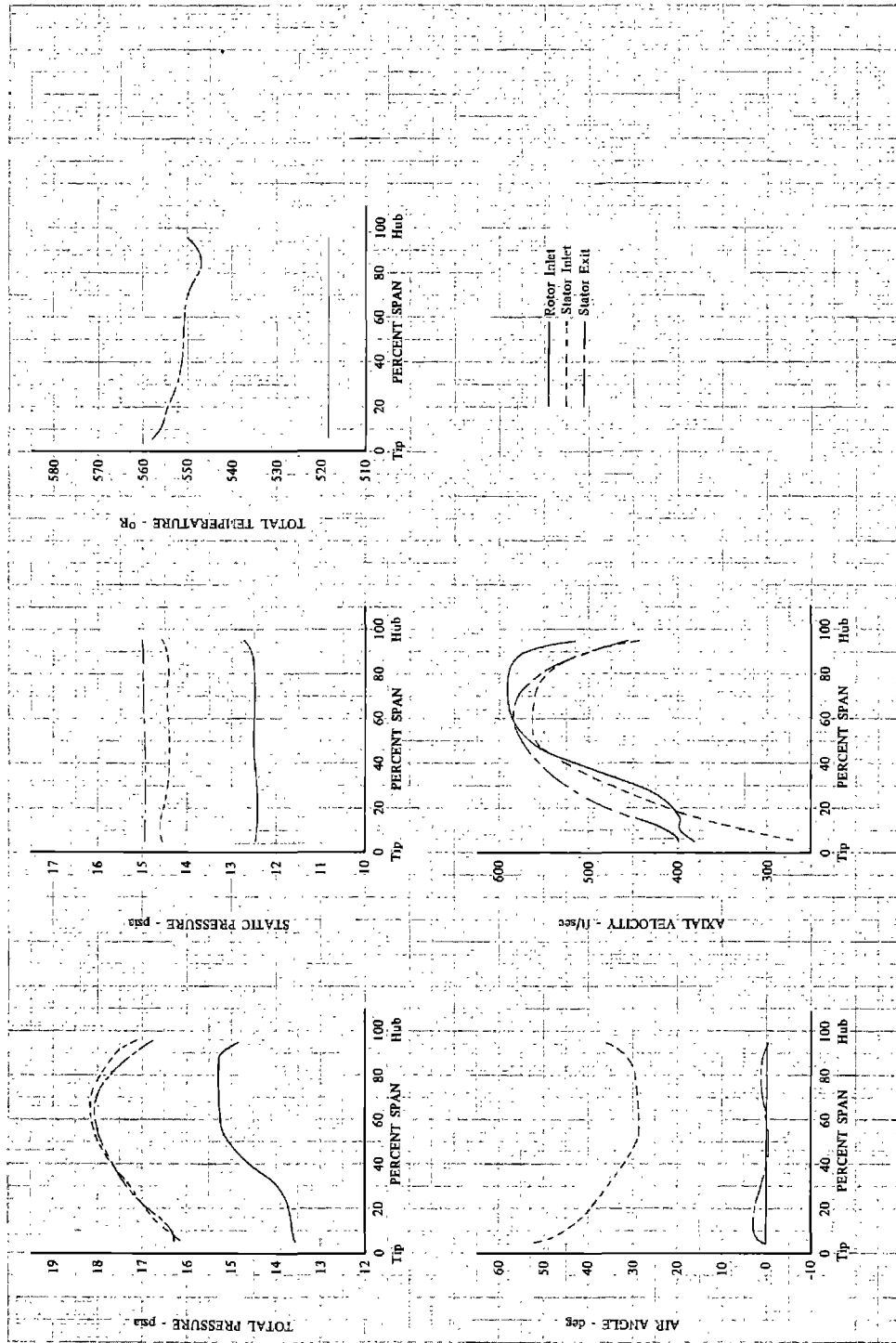


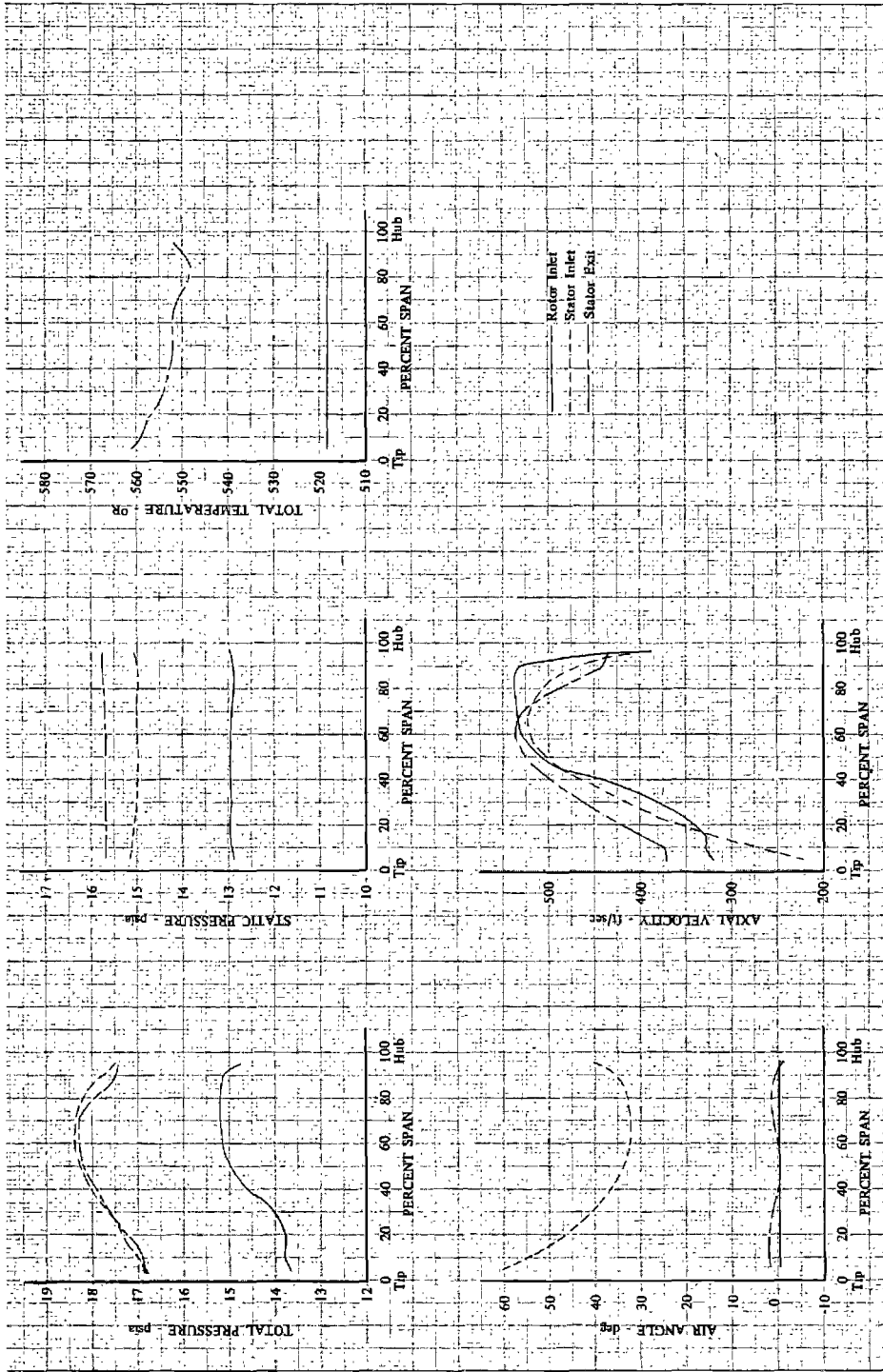
Figure 33c. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.95 lb/sec; Tip Radial Distortion

DF 98133



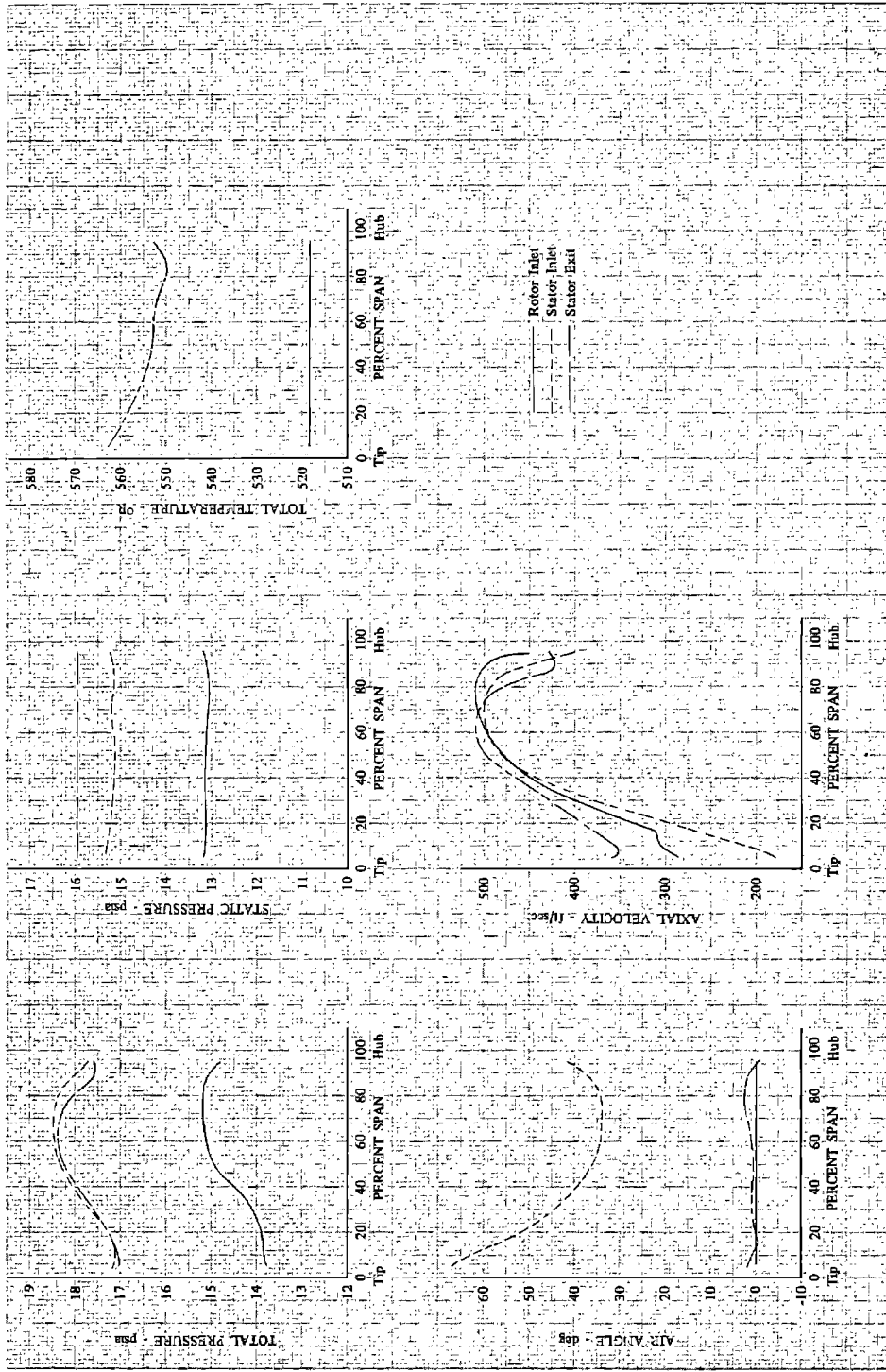
DF 98134

Figure 34a. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 105.22 lb/sec; Tip Radial Distortion



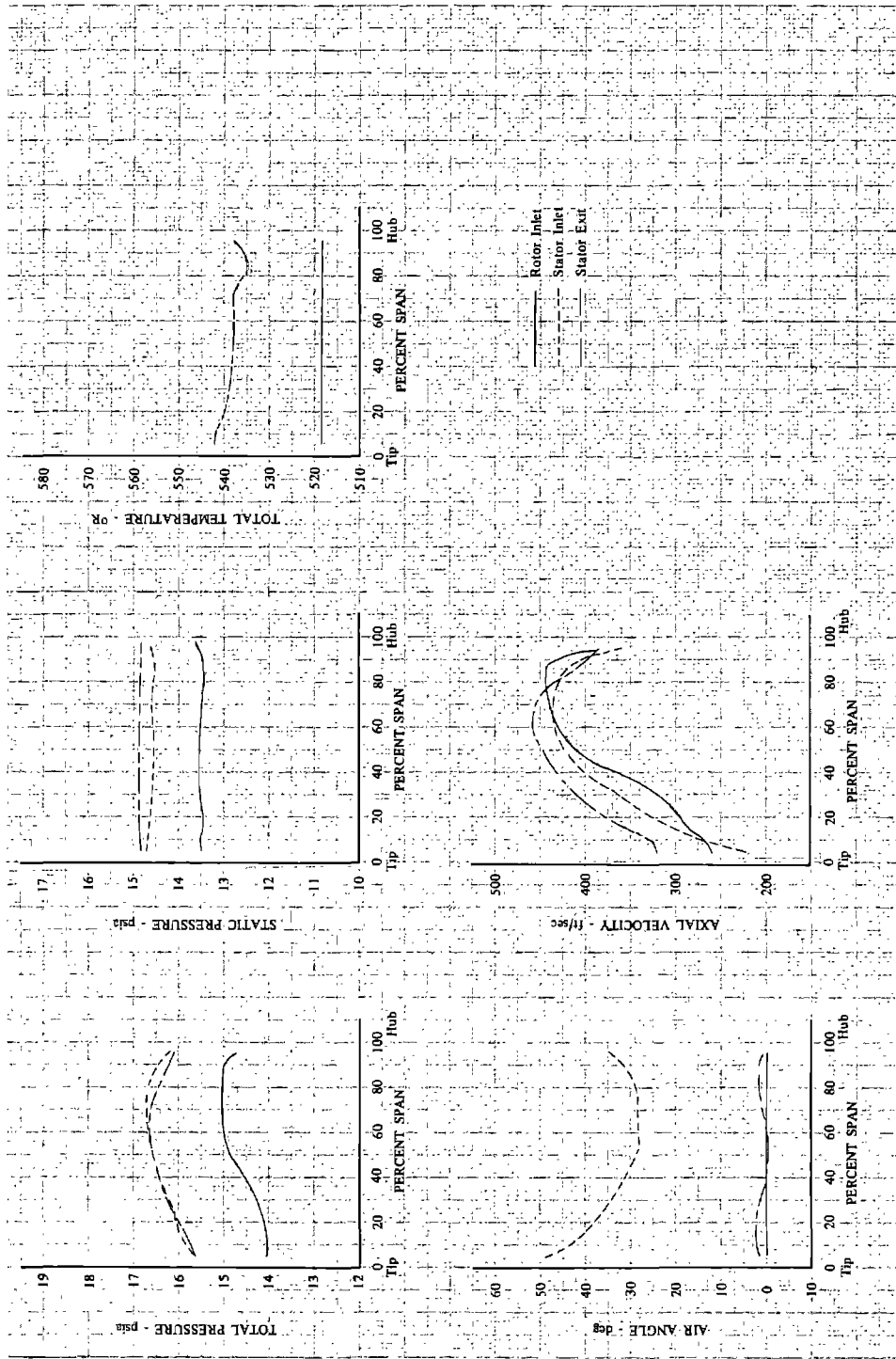
DF 98135

Figure 34b. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 99.16 lb/sec; Tip Radial Distortion



DF 98136

Figure 34c. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 94.04 lb/sec; Tip Radial Distortion



DF 98137

Figure 35a. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 70% Design Equivalent Rotor Speed; Equivalent Weight Flow = 82.97 lb/sec; Tip Radial Distortion

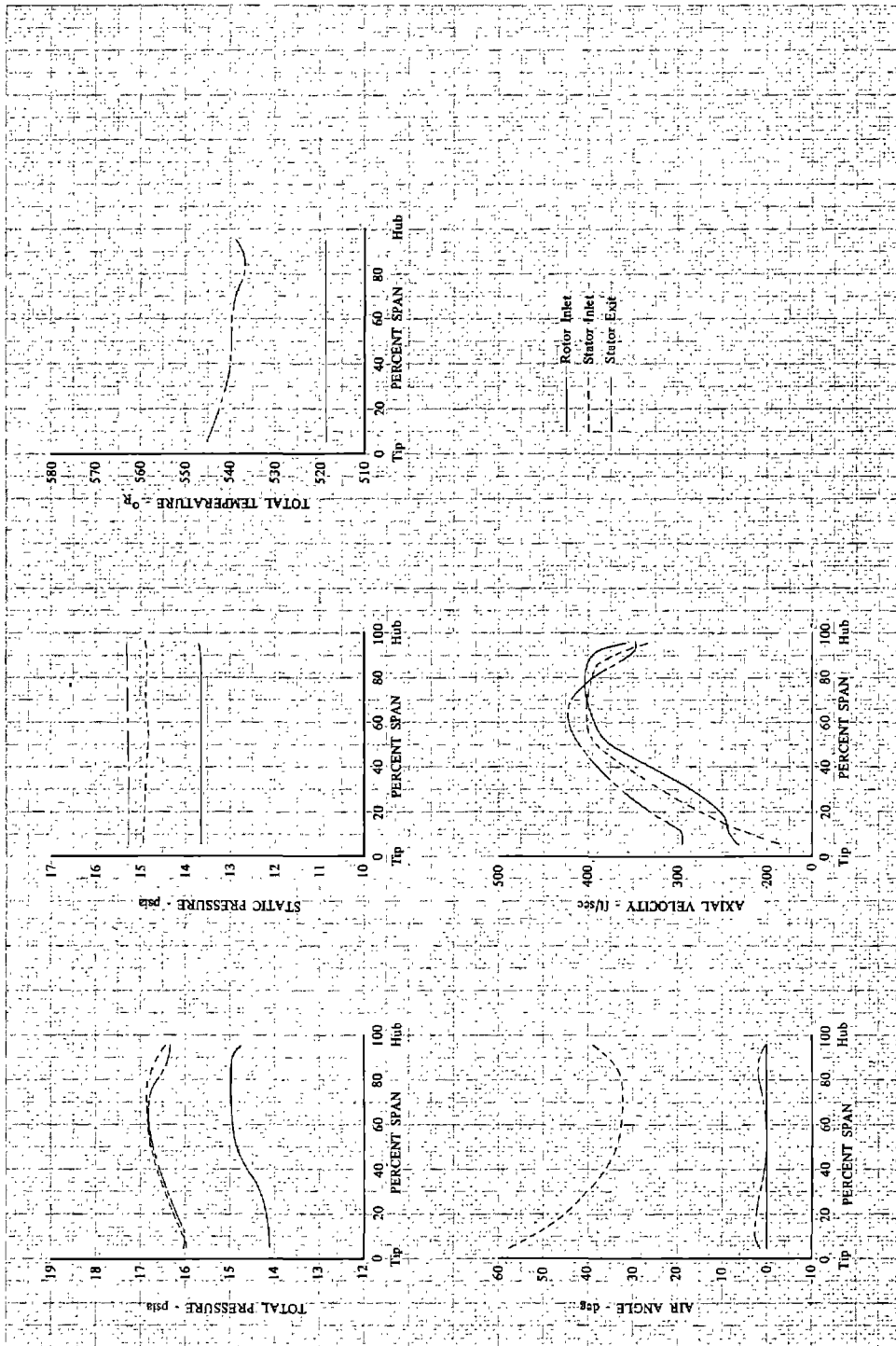
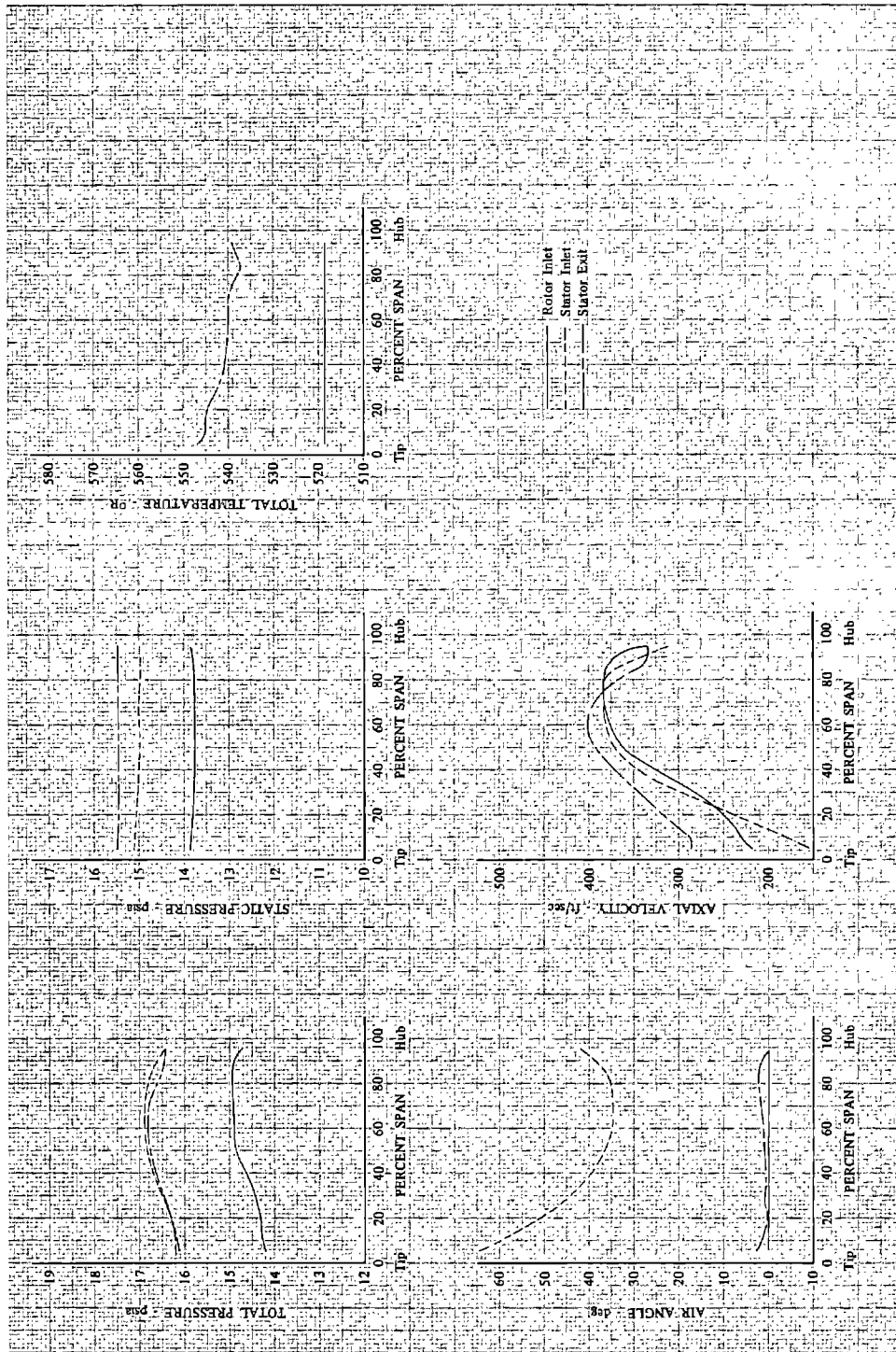


Figure 35b. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 70% Design Equivalent Rotor Speed; Equivalent Weight Flow = 77.98 lb/sec; Tip Radial Distortion



DF 98139

Figure 35c. Total and Static Pressure, Total Temperature, Air Angle and Axial Velocity vs Span at Rotor Inlet, Stator Inlet and Stator Exit; 70% Design Equivalent Rotor Speed; Equivalent Weight Flow = 71.91 lb/sec; Tip Radial Distortion

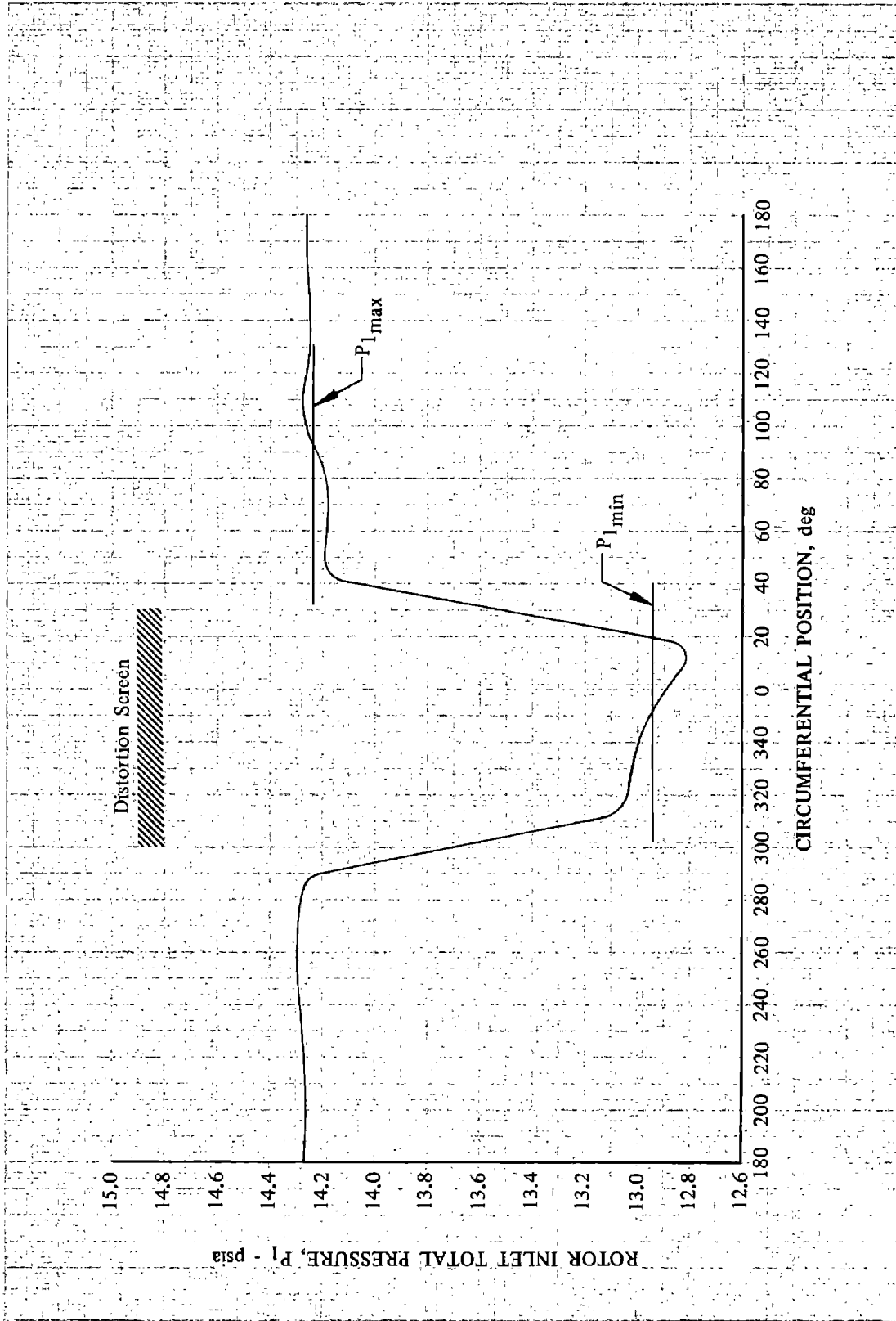


Figure 36. Typical Rotor Inlet Total Pressure Distribution with Circumferential Distortion; 100% Design Equivalent Rotor Speed; 94.0% Design Equivalent Flow (103.40 lb/sec); 50% Span

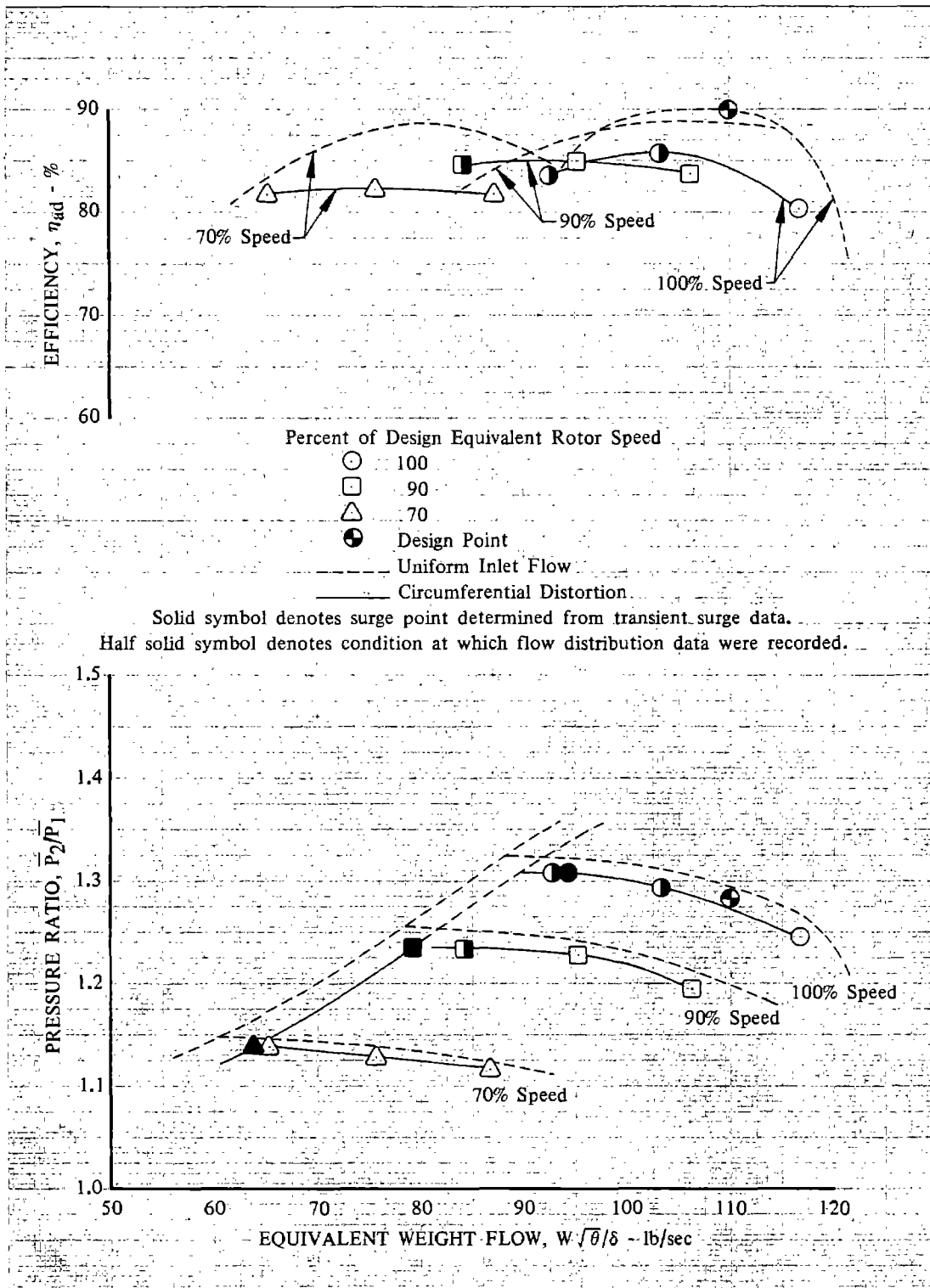


Figure 37. Overall Performance of Rotor E; Circumferential Distortion Compared With Uniform Inlet Flow DF 98227

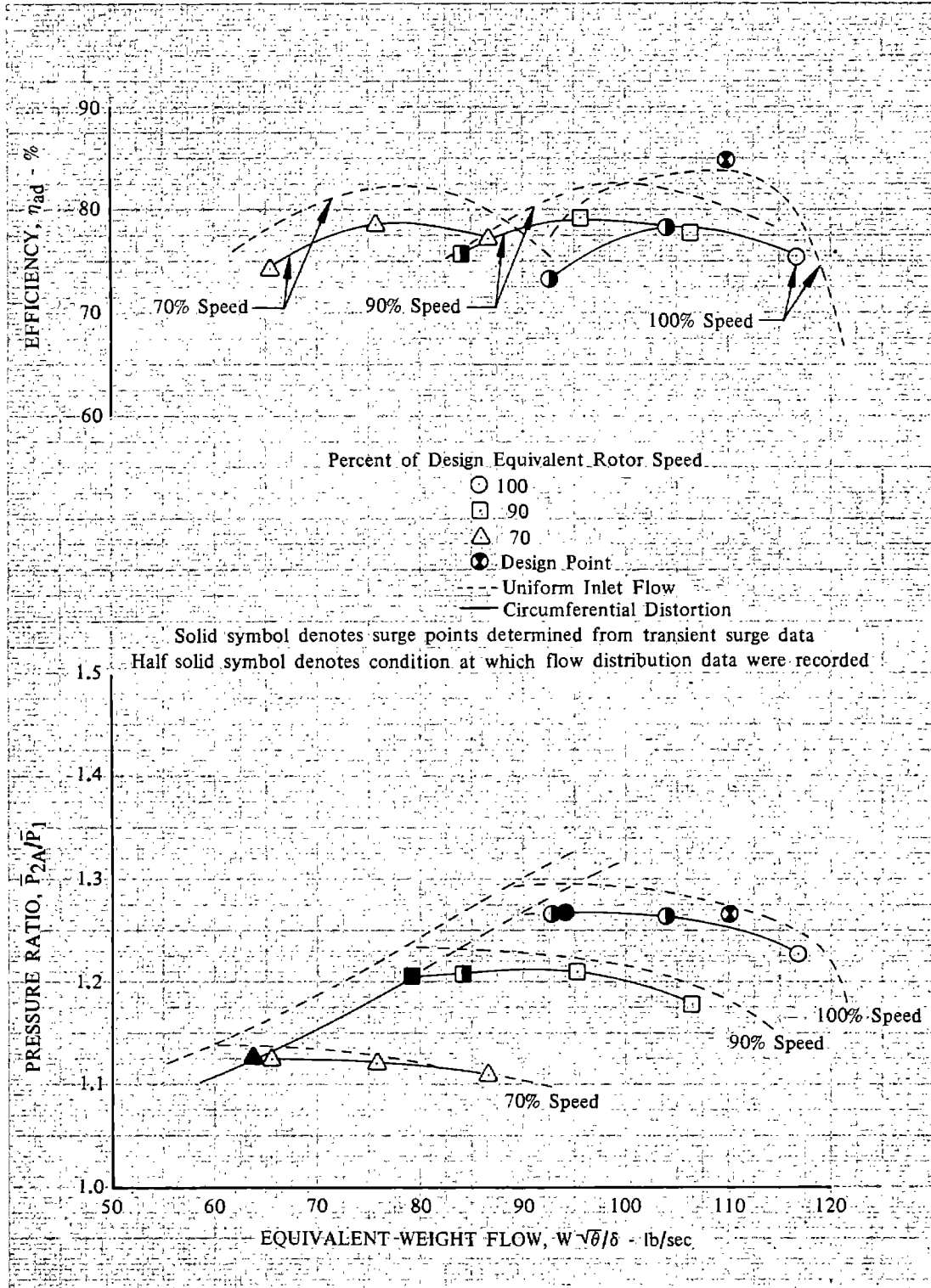


Figure 38. Overall Performance of Stage E; Circumferential Distortion Compared With Uniform Inlet Flow DF 98228

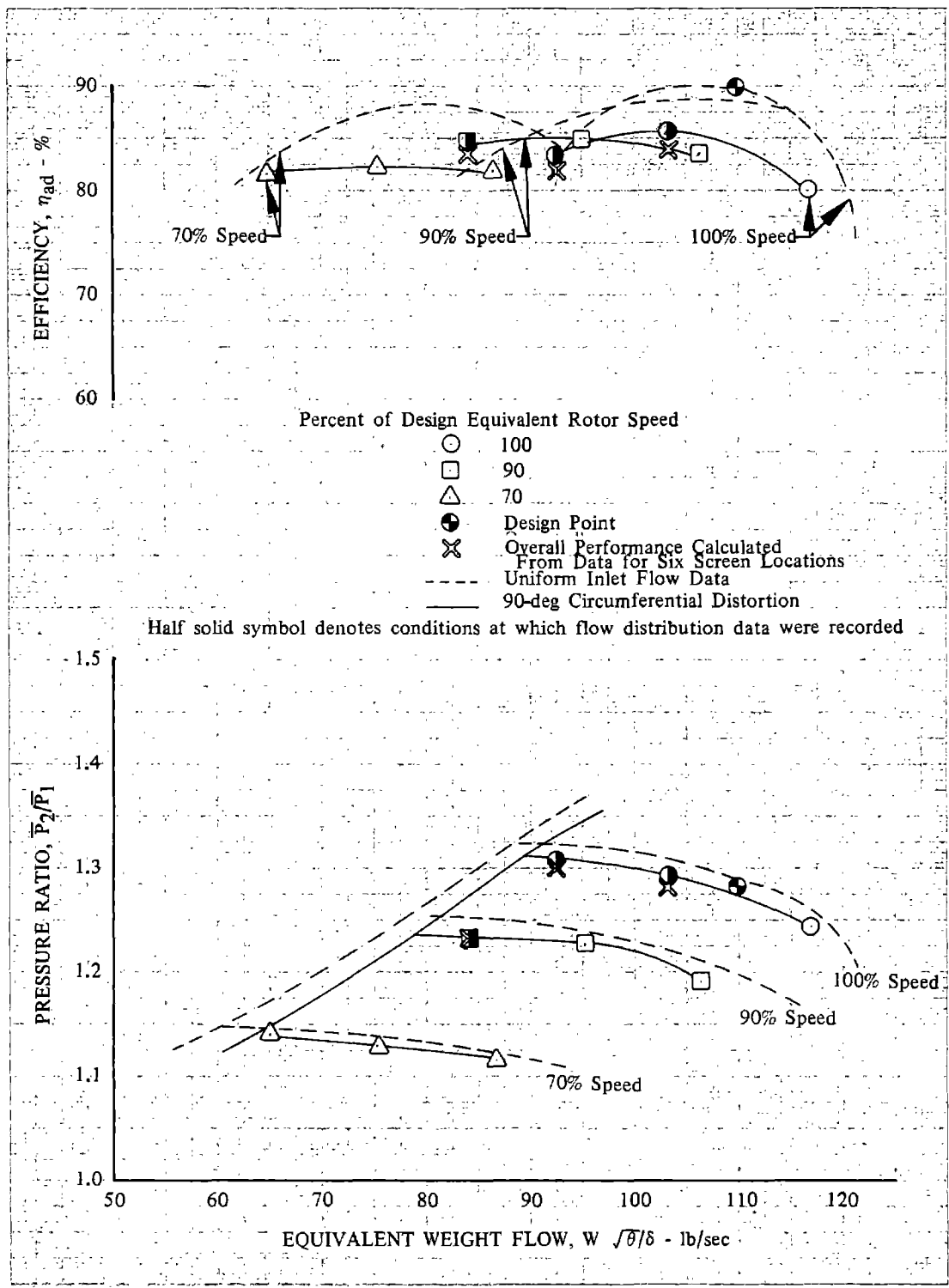


Figure 39. Overall Performance of Rotor E With Circumferential Distortion DF 98229

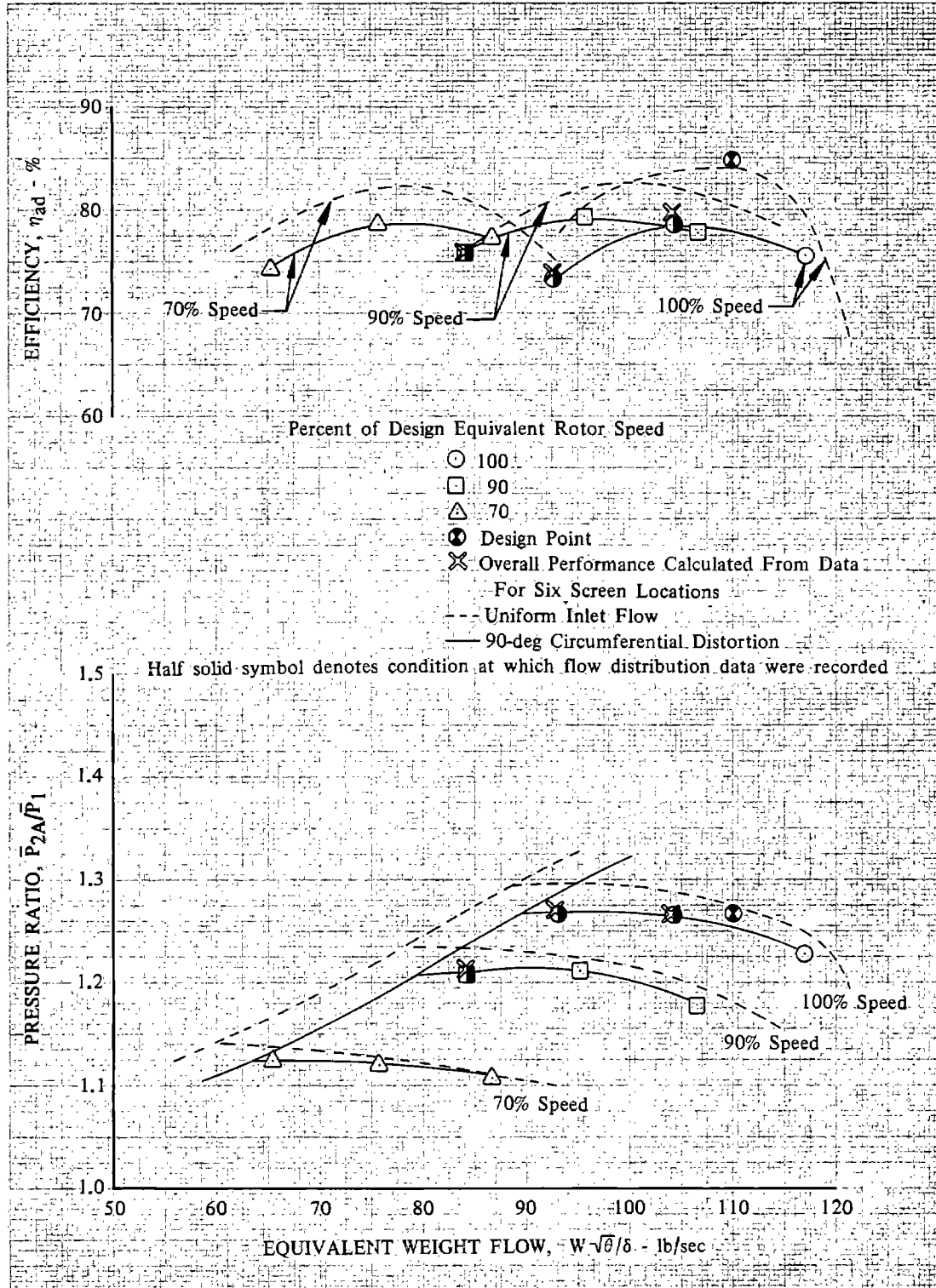
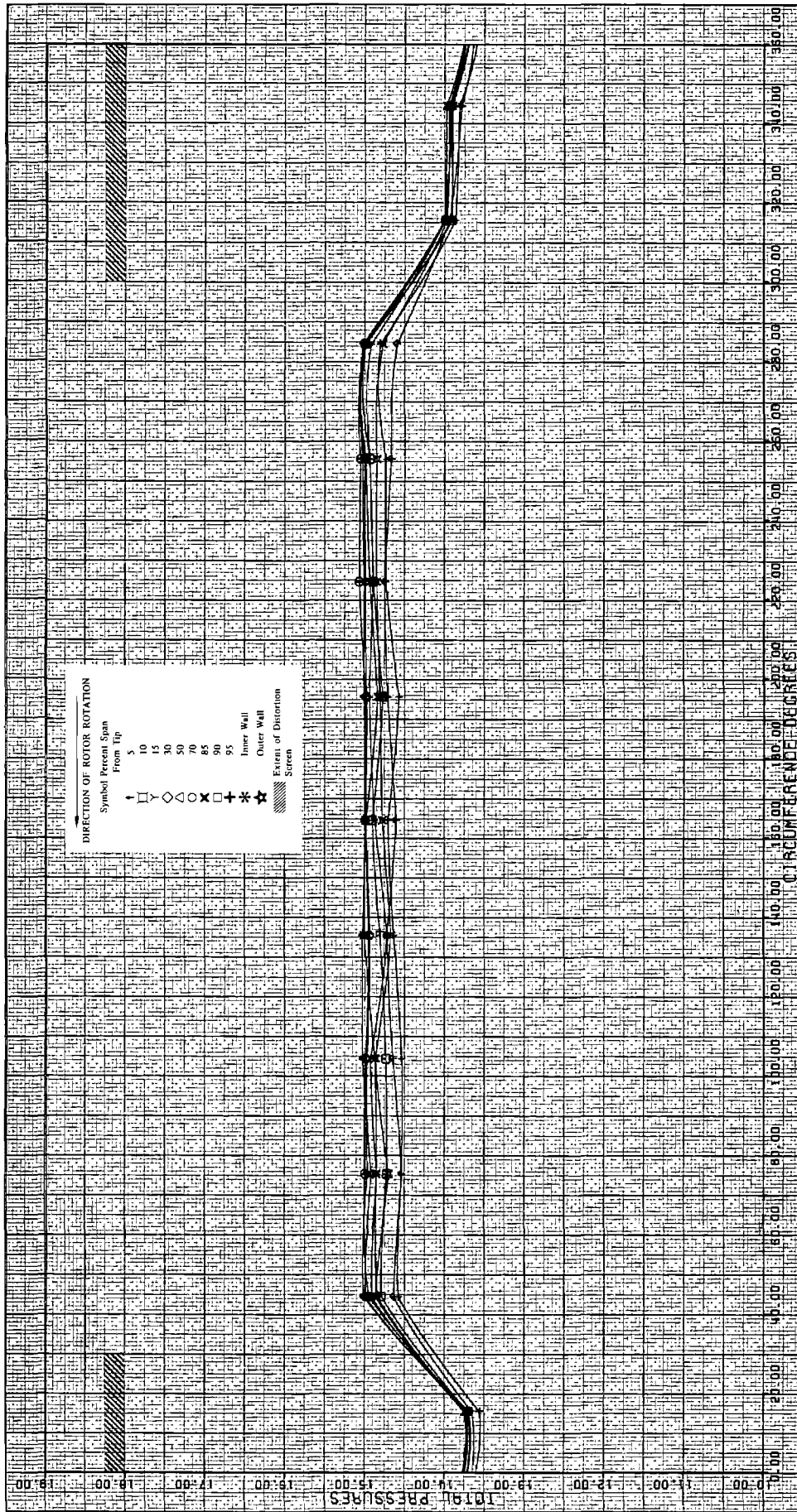


Figure 40. Overall Performance of Stage E With Circumferential Distortion - DF 98230



DF 98153

Figure 41a. Rotor Inlet Total Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

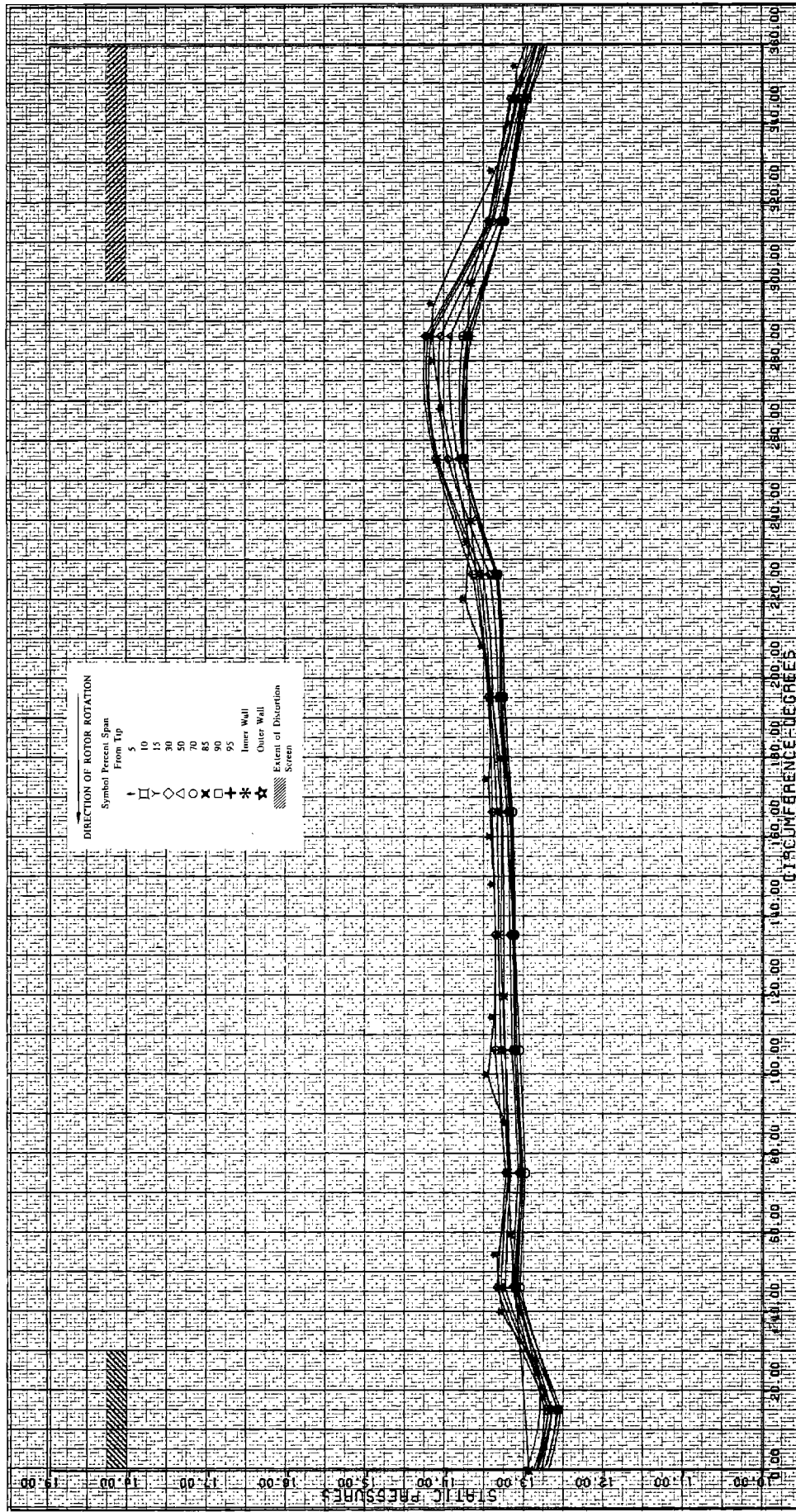
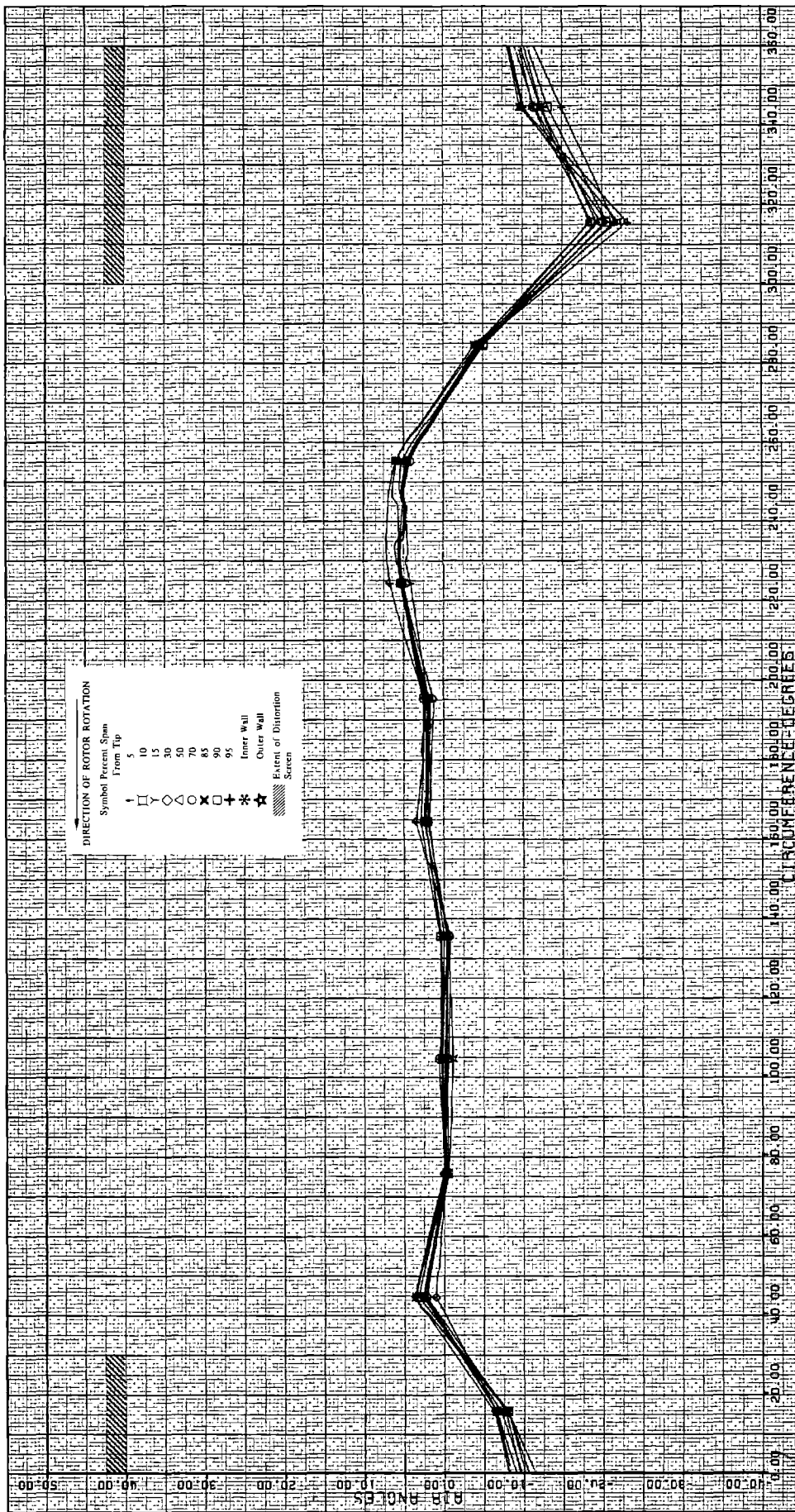


Figure 41b. Rotor Inlet Static Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion



DF 98155

Figure 41c. Rotor Inlet Air Angle vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

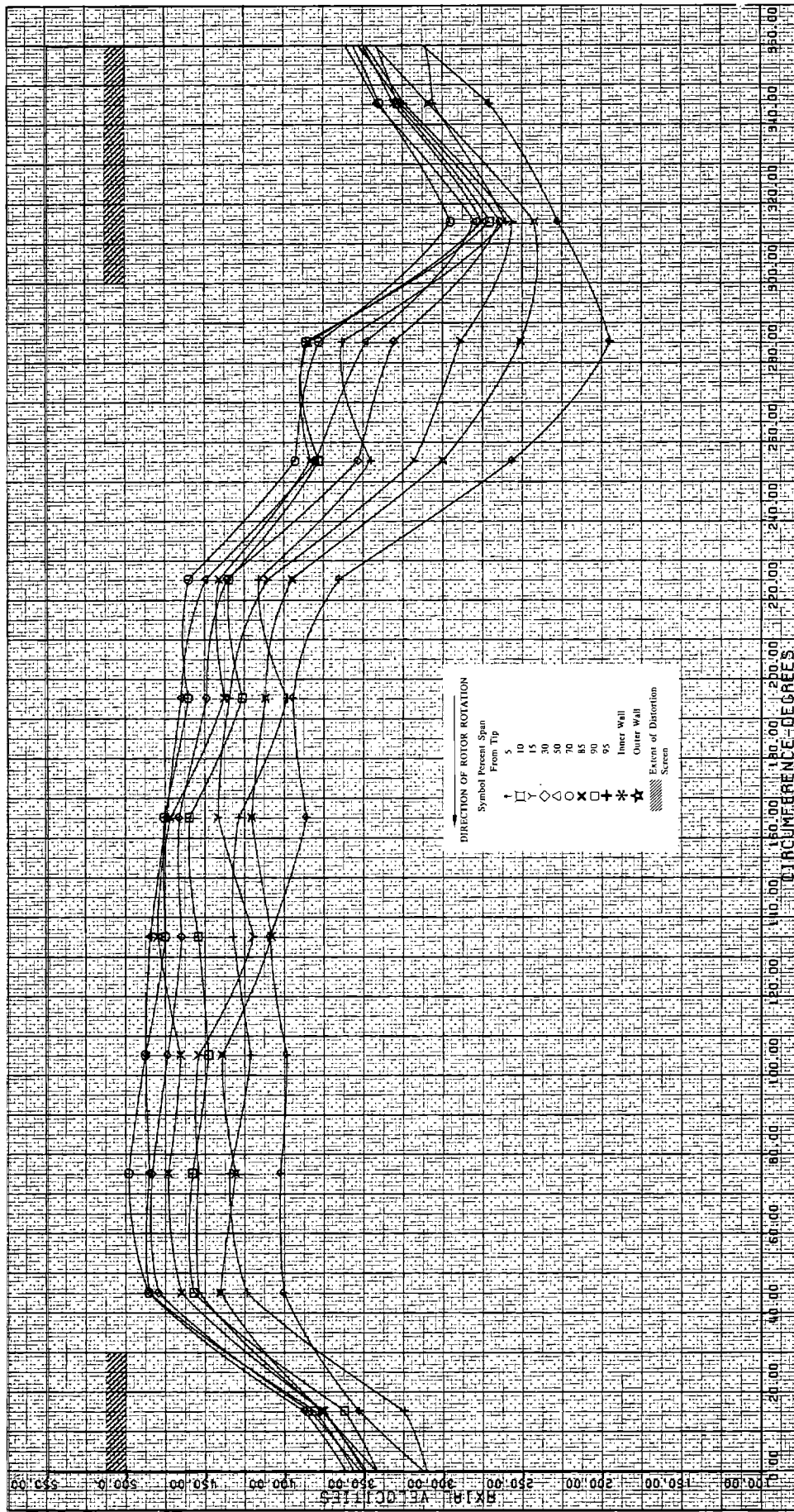


Figure 41d. Rotor Inlet Axial Velocity vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

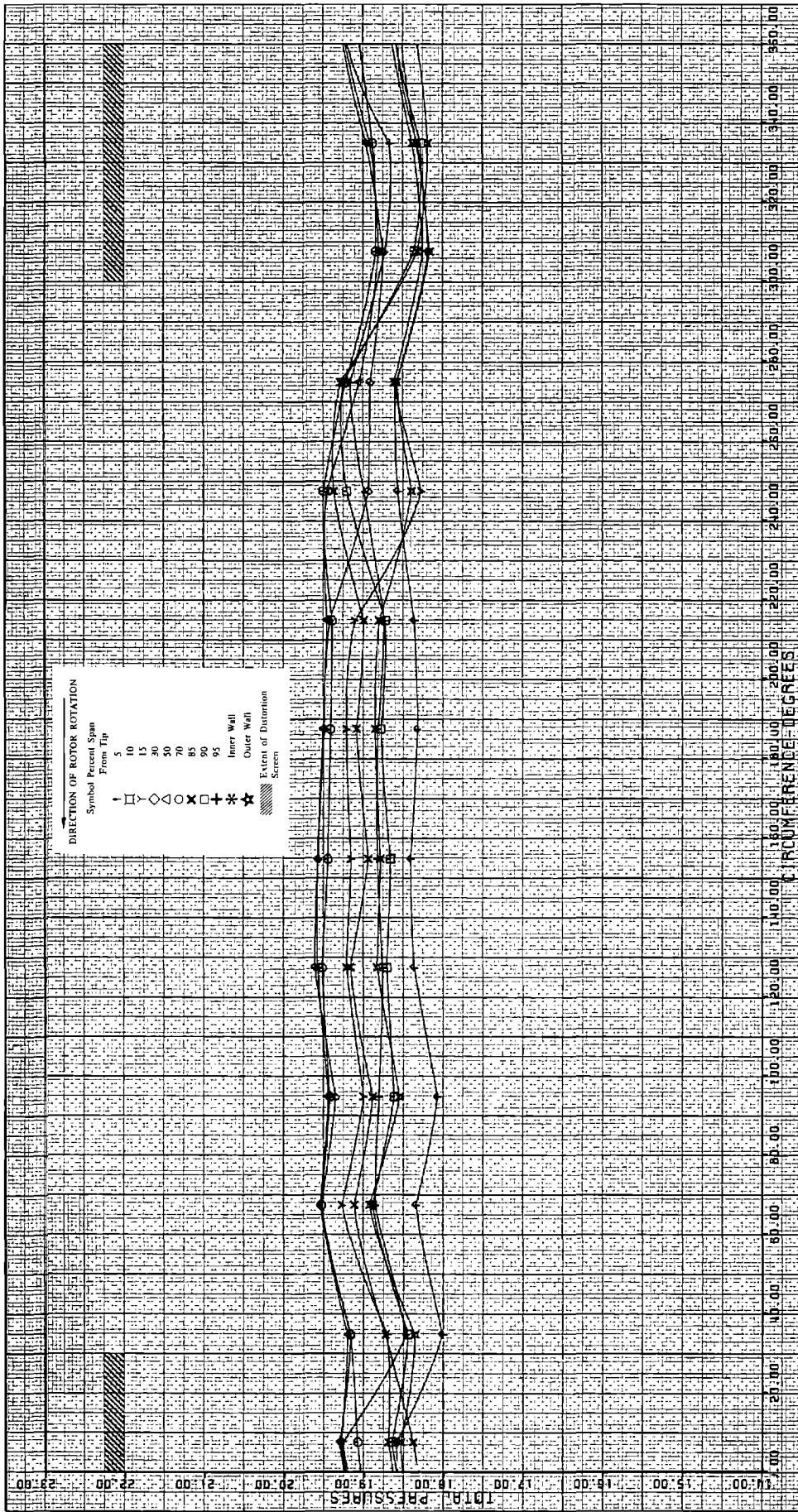


Figure 41e. Stator Inlet Total Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

DF 98157

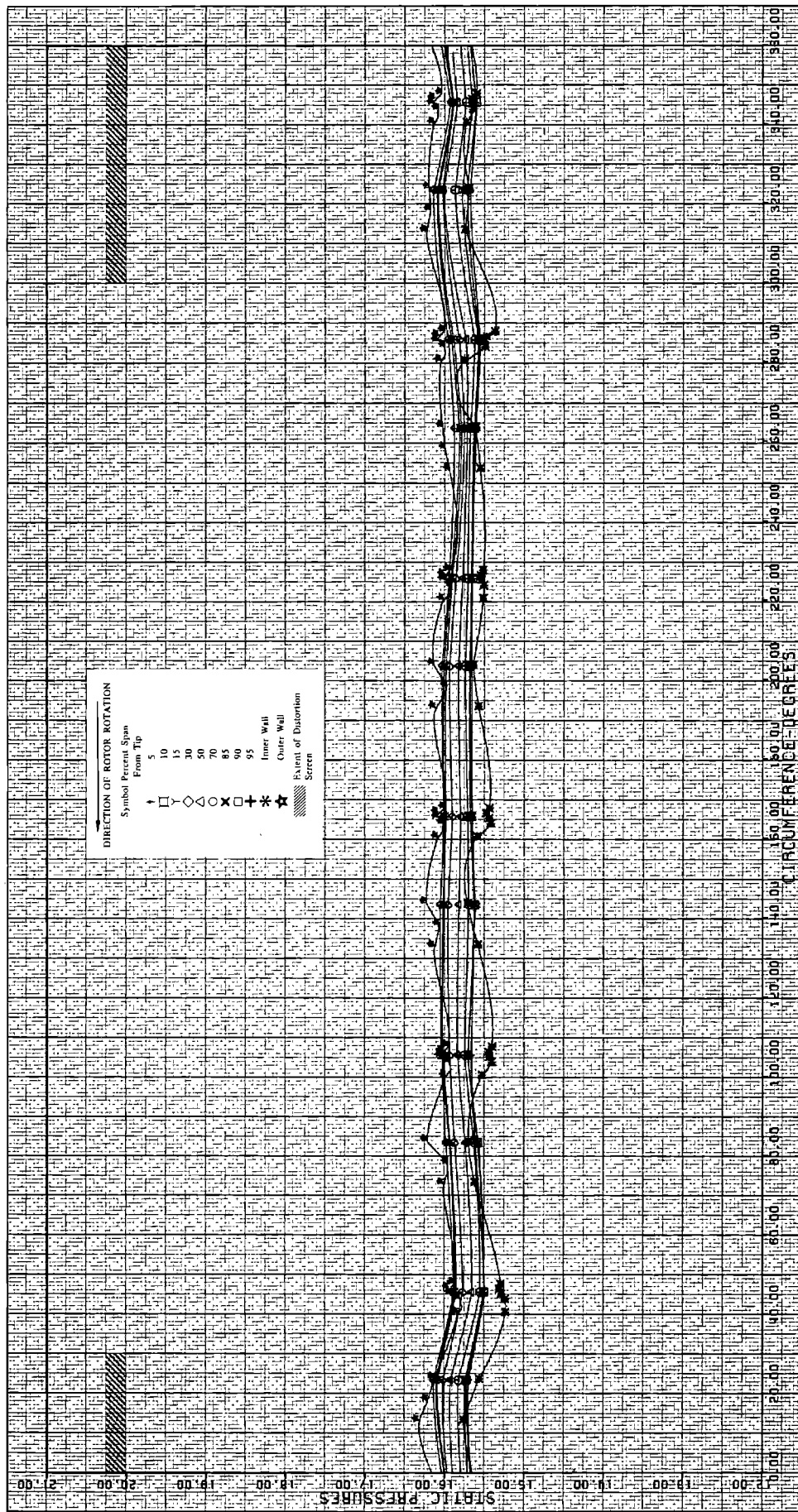
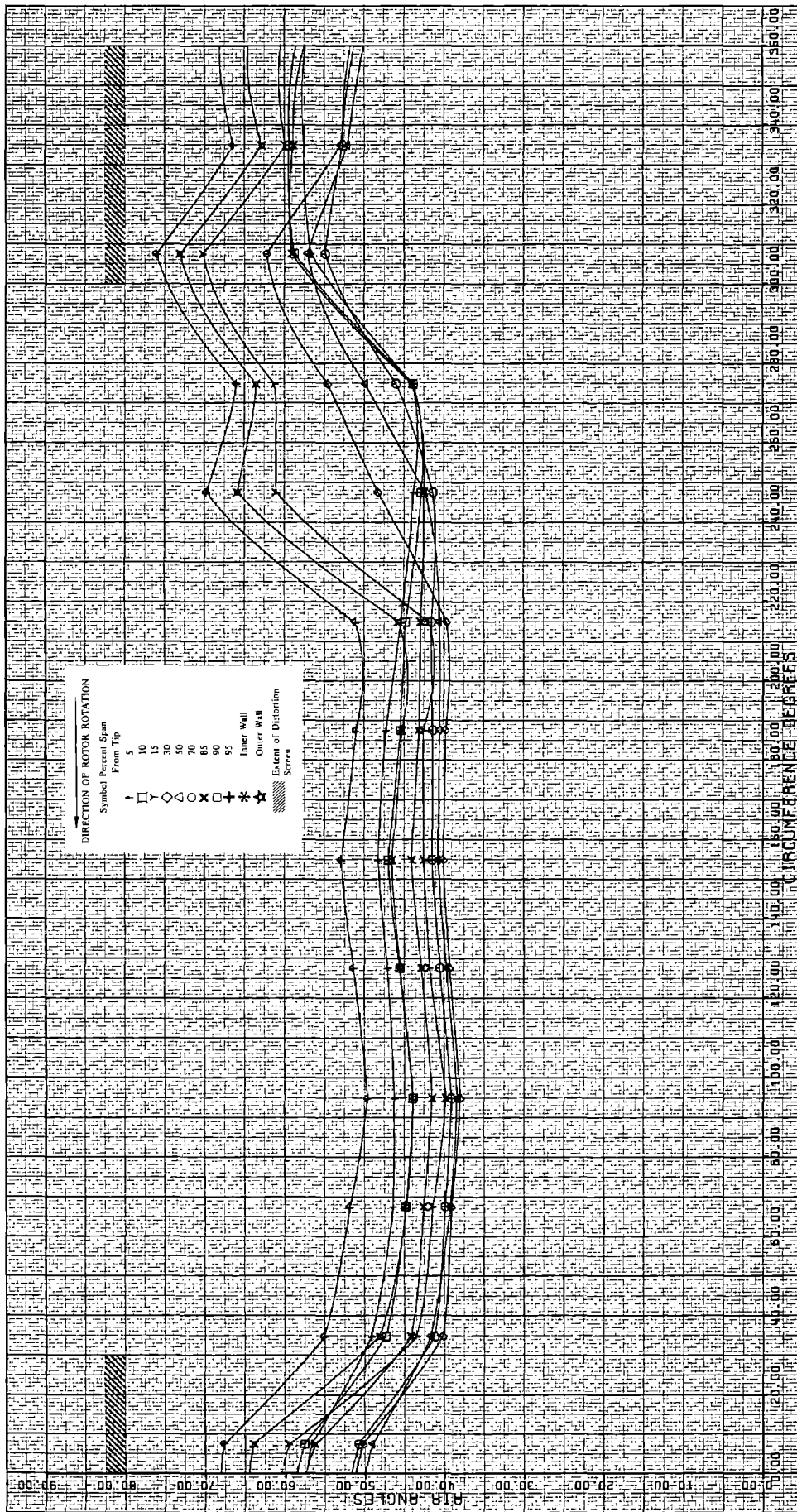


Figure 41f. Stator Inlet Static Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion



DF 98159

Figure 41g. Stator Inlet Air Angle vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

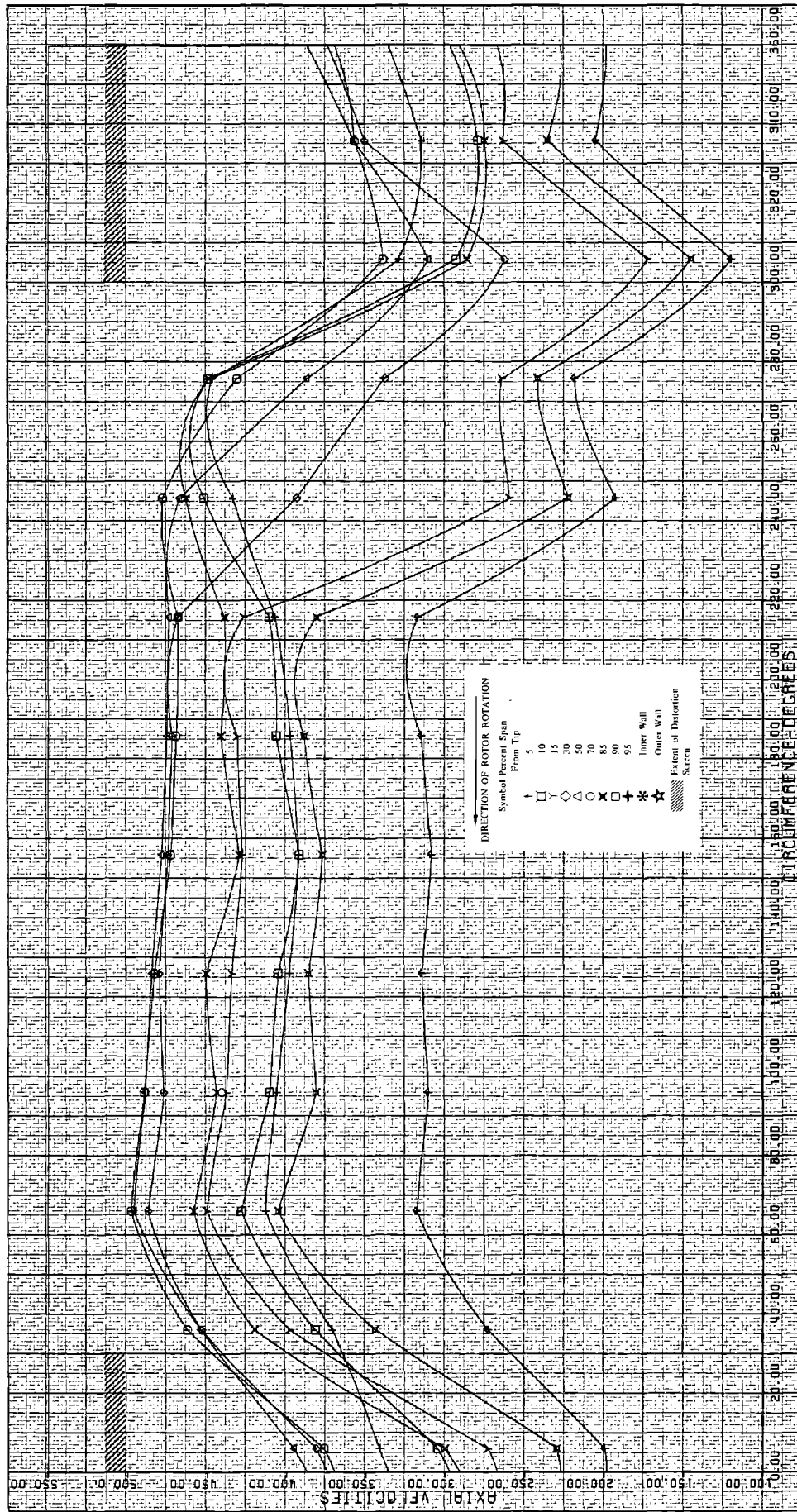


Figure 41h. Stator Inlet Axial Velocity vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

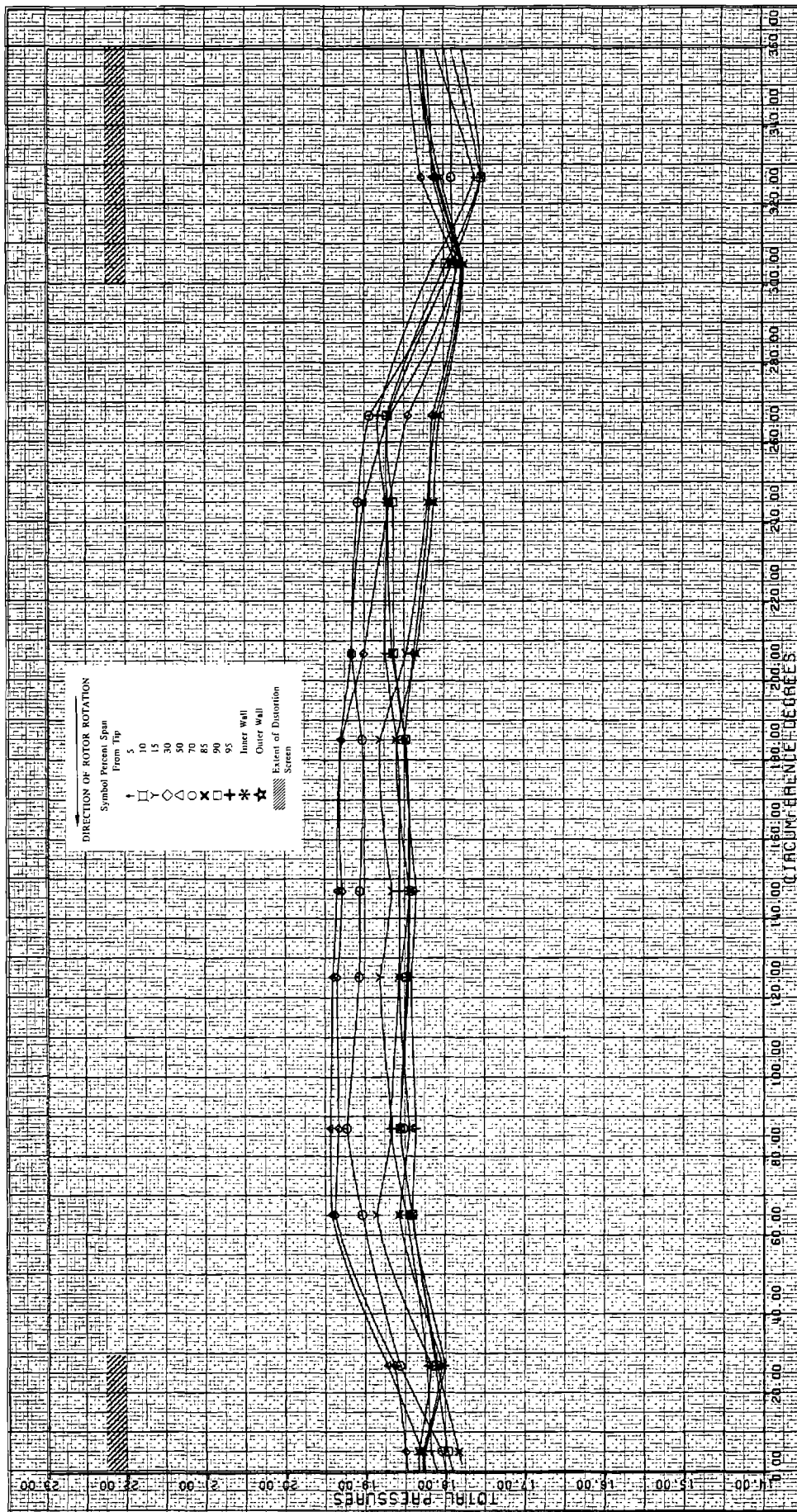
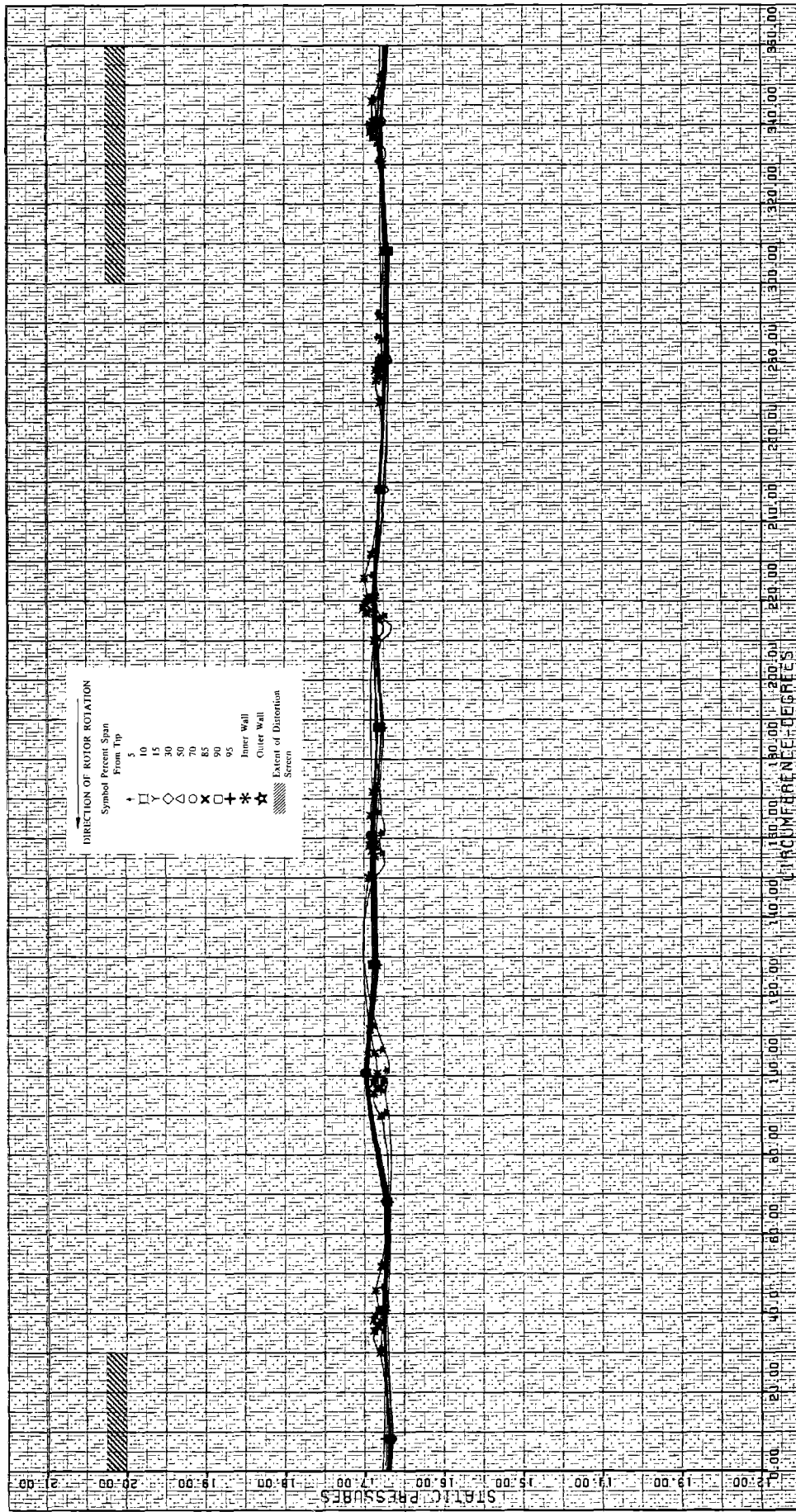


Figure 41i. Stator Exit Total Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

DF 98161



DF 98162

Figure 41j. Stator Exit Static Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

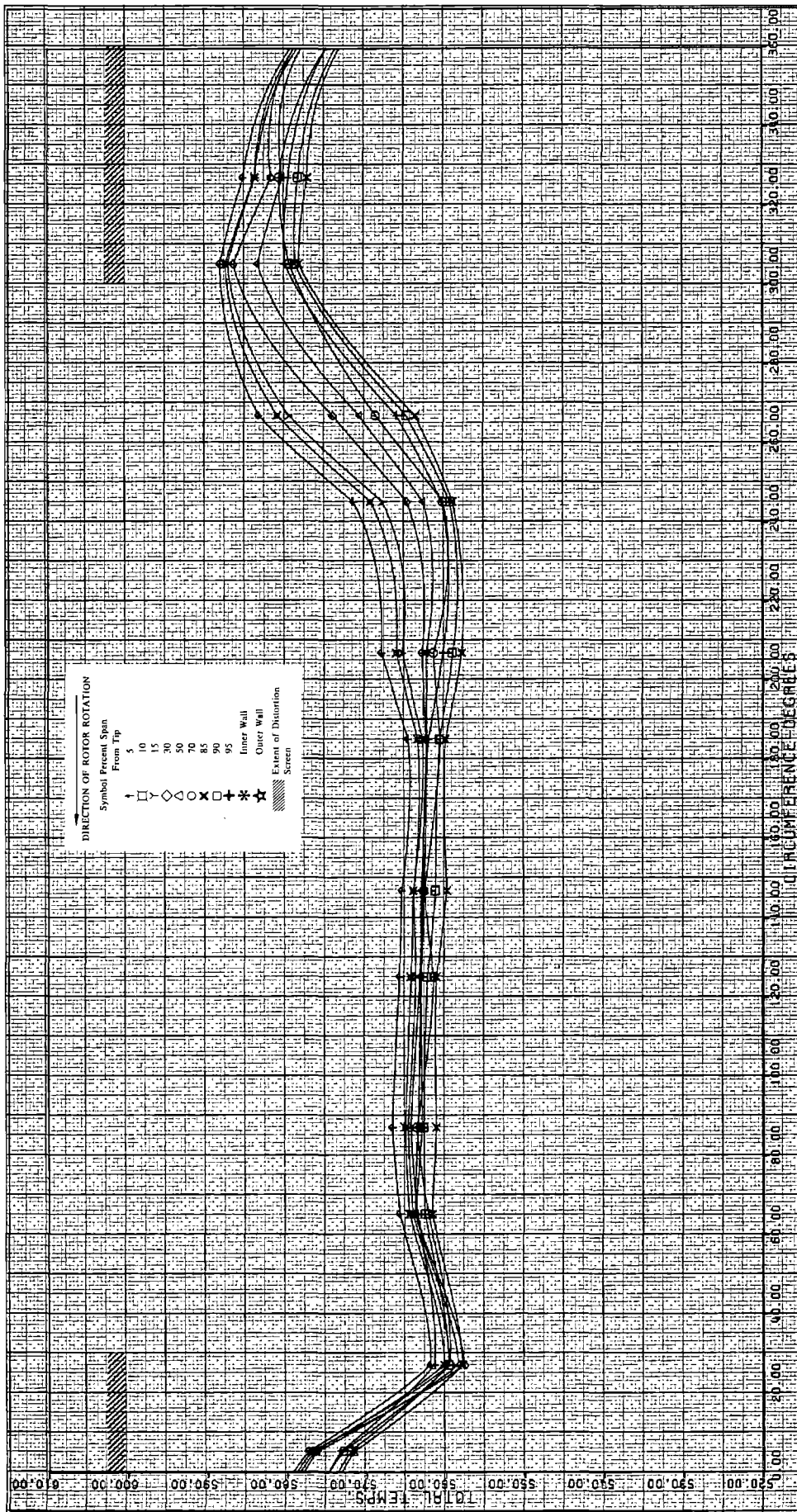


Figure 41k. Stator Exit Total Temperature vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

DF 98163

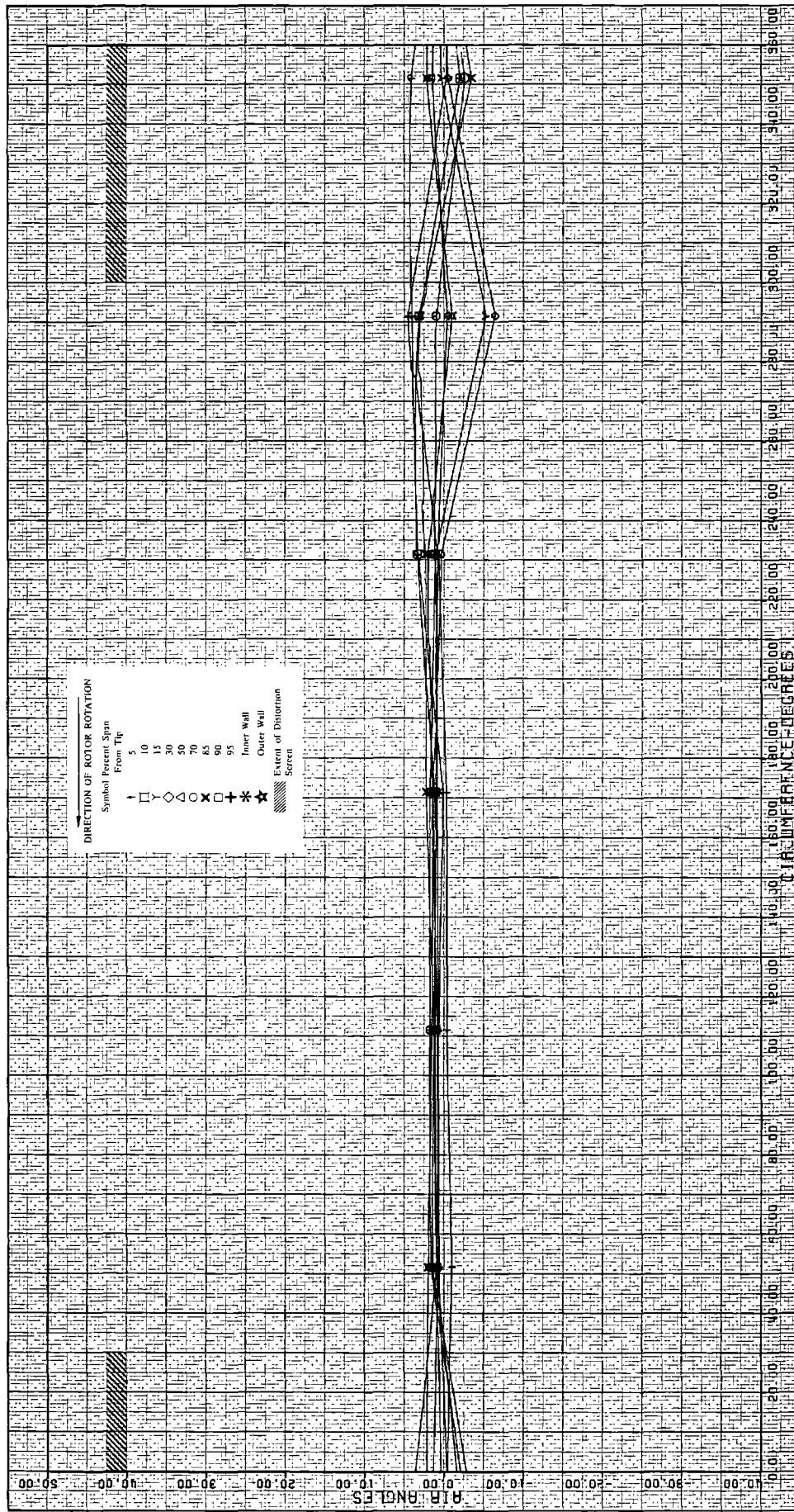


Figure 411. Stator Exit Air Angle vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

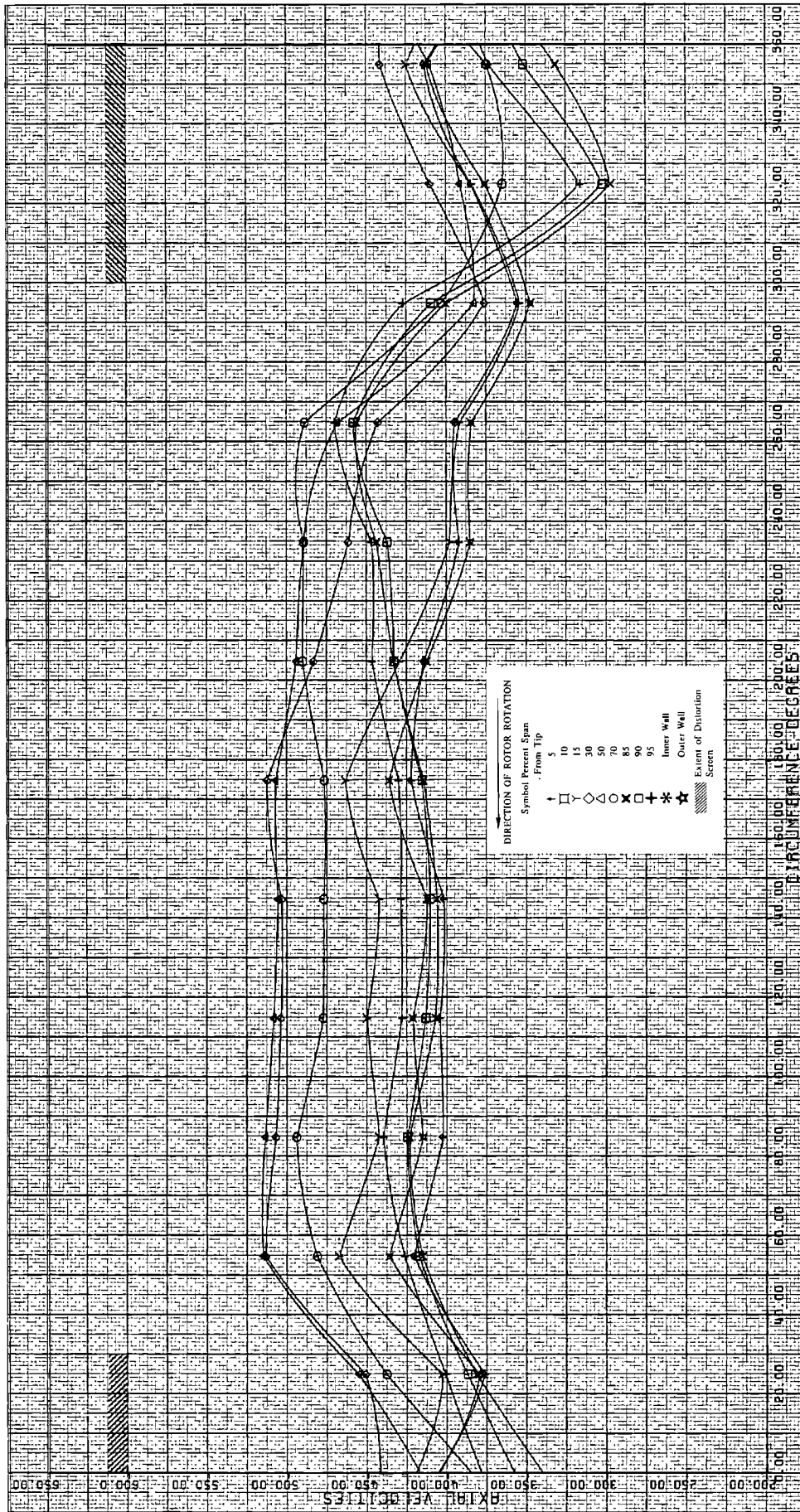


Figure 41m. Stator Exit Axial Velocity vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 103.40 lb/sec; Circumferential Distortion

DF 98165

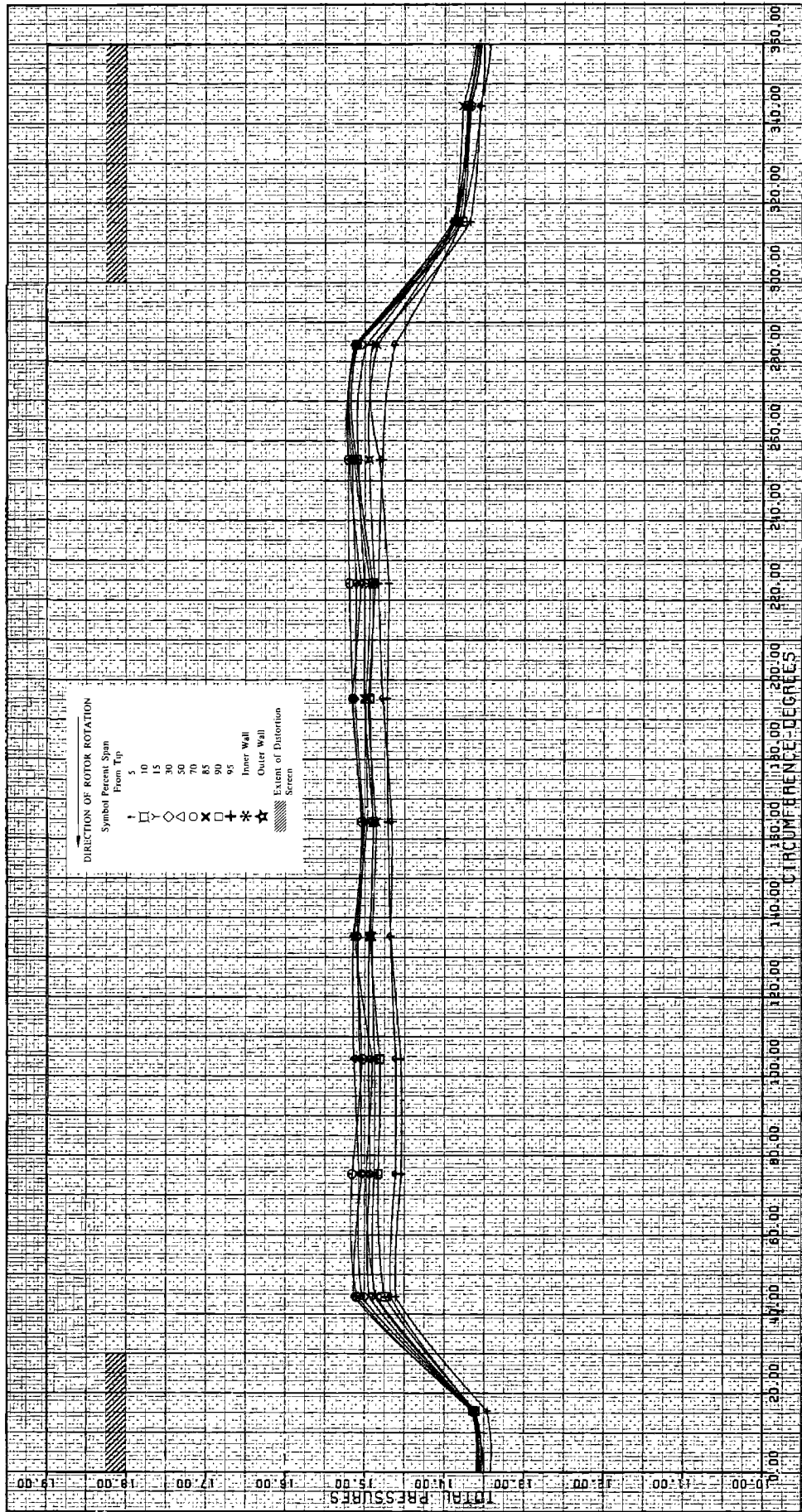


Figure 42a. Rotor Inlet Total Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

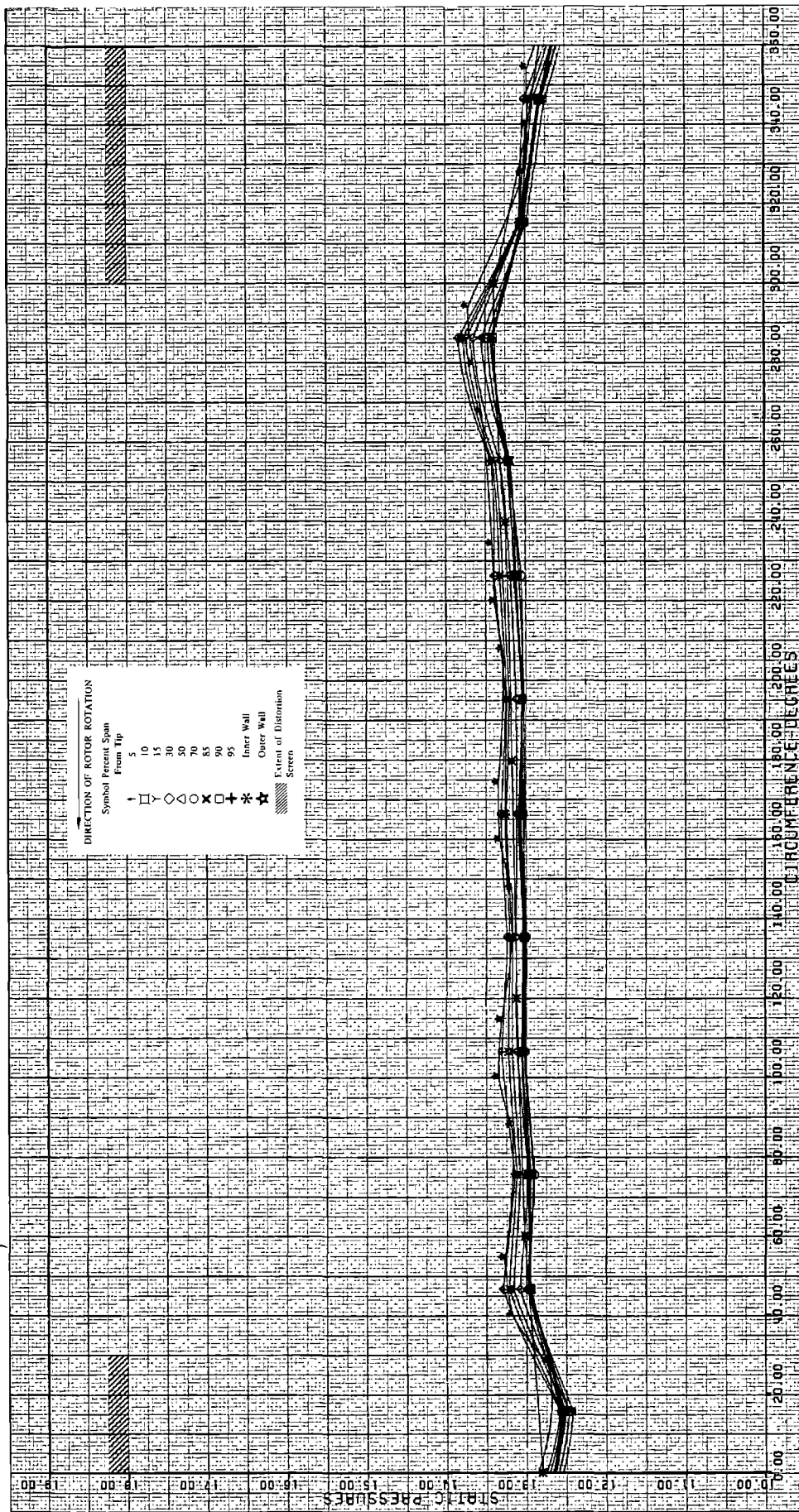


Figure 42b. Rotor Inlet Static Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

DF 98141

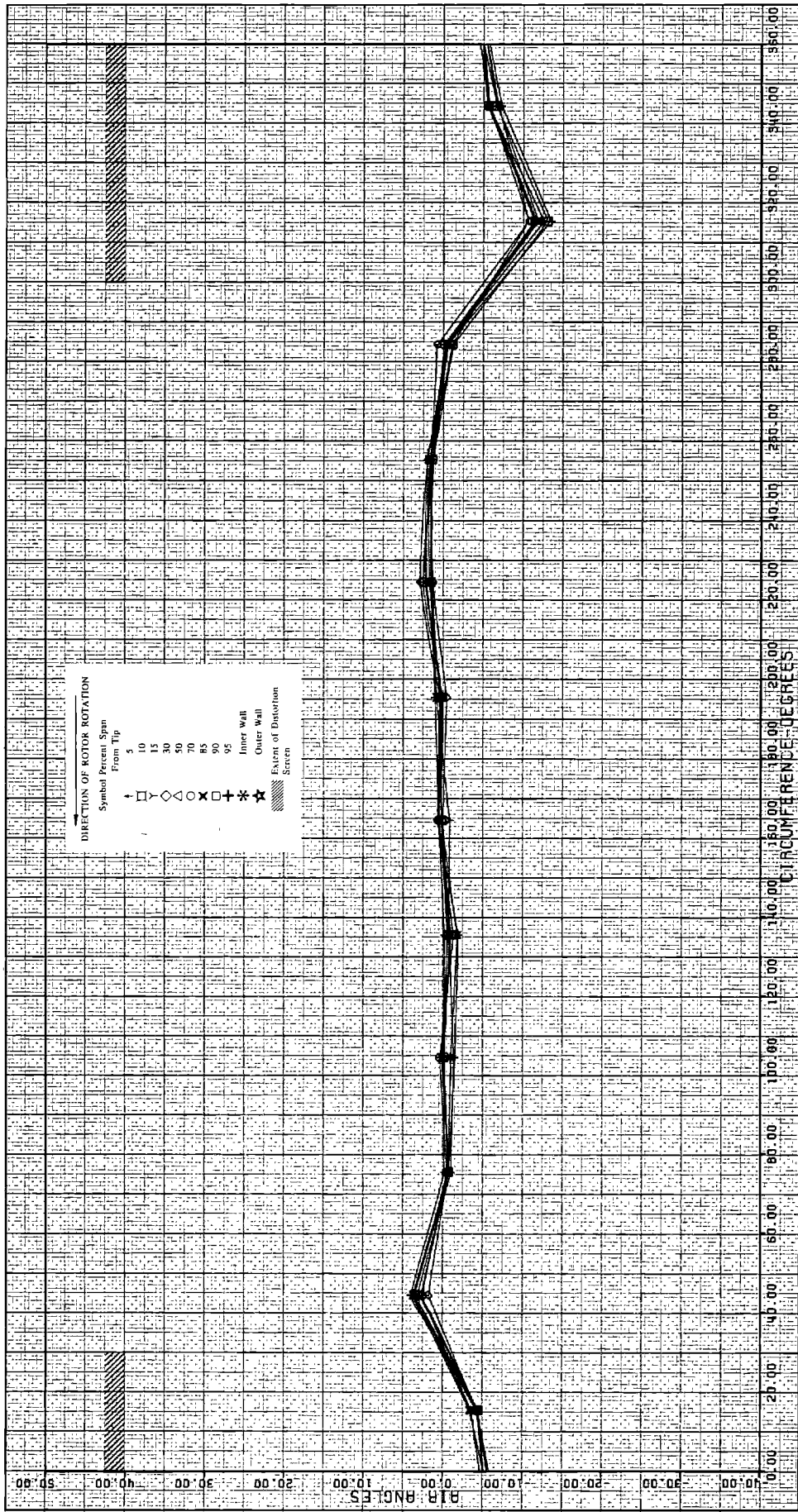


Figure 42c. Rotor Inlet Air Angle vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion DF 98142

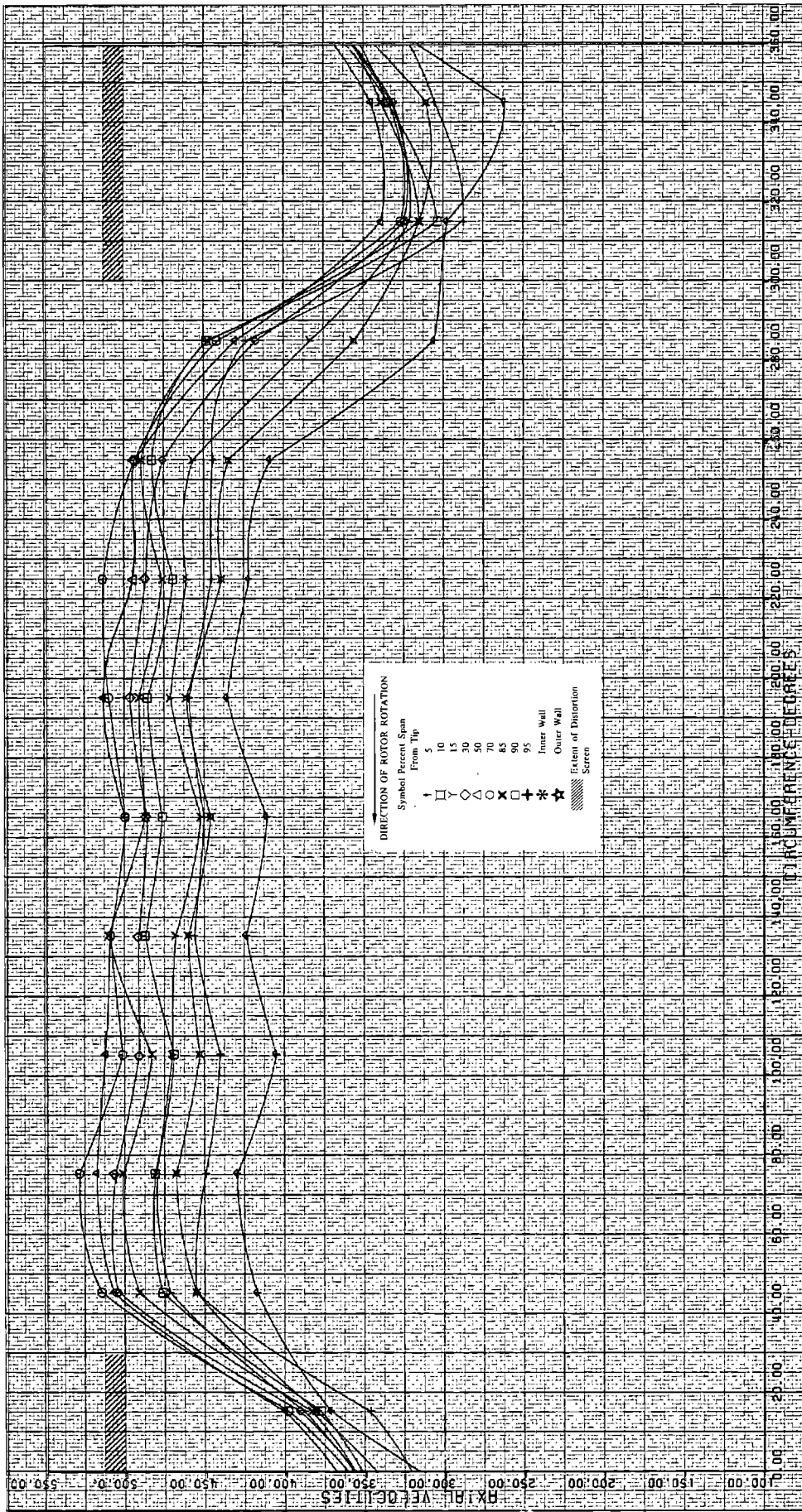


Figure 42d. Rotor Inlet Axial Velocity vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

DF 98143

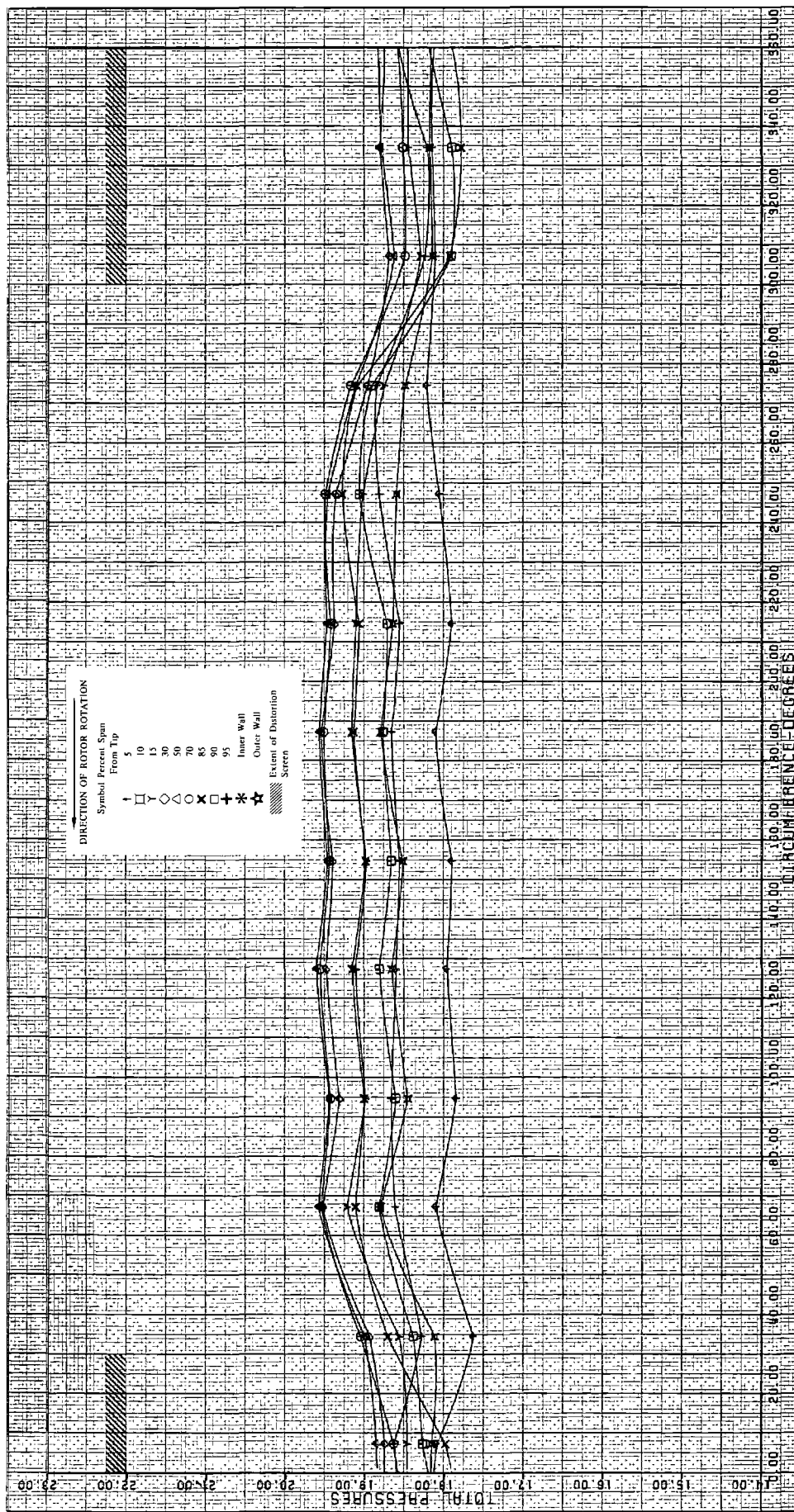
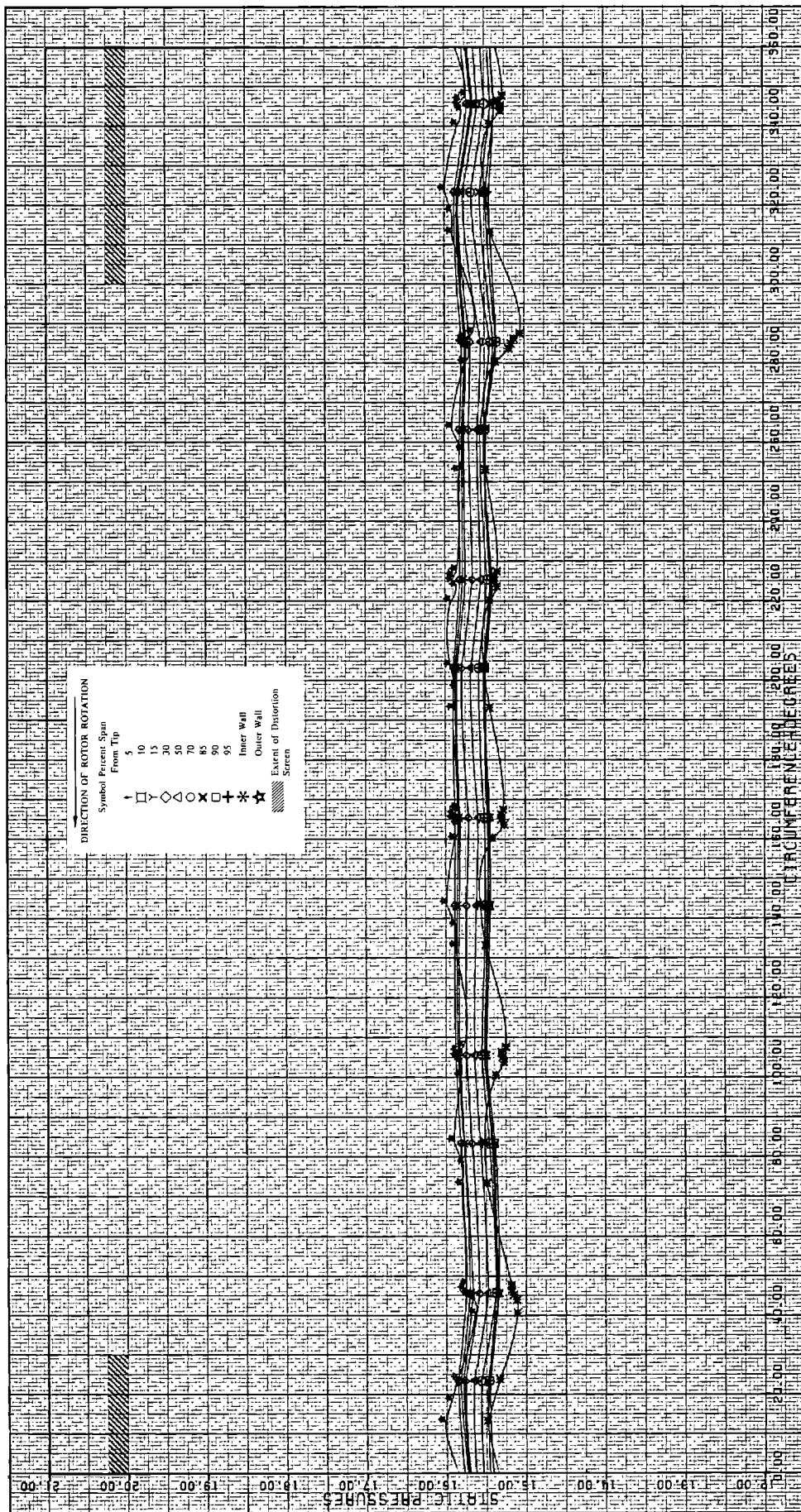


Figure 42e. Stator Inlet Total Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion



DF 98145

Figure 42f. Stator Inlet Static Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

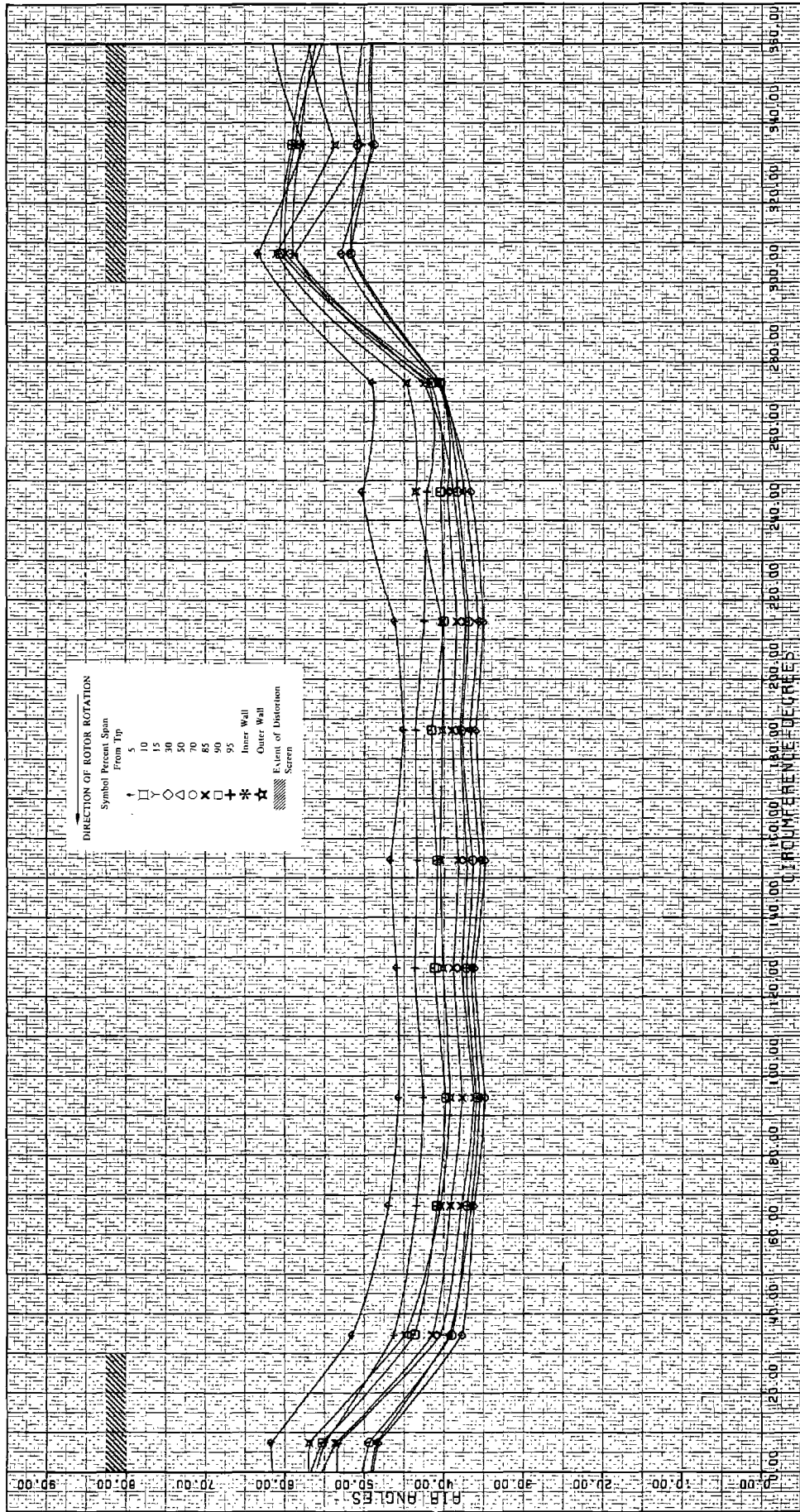
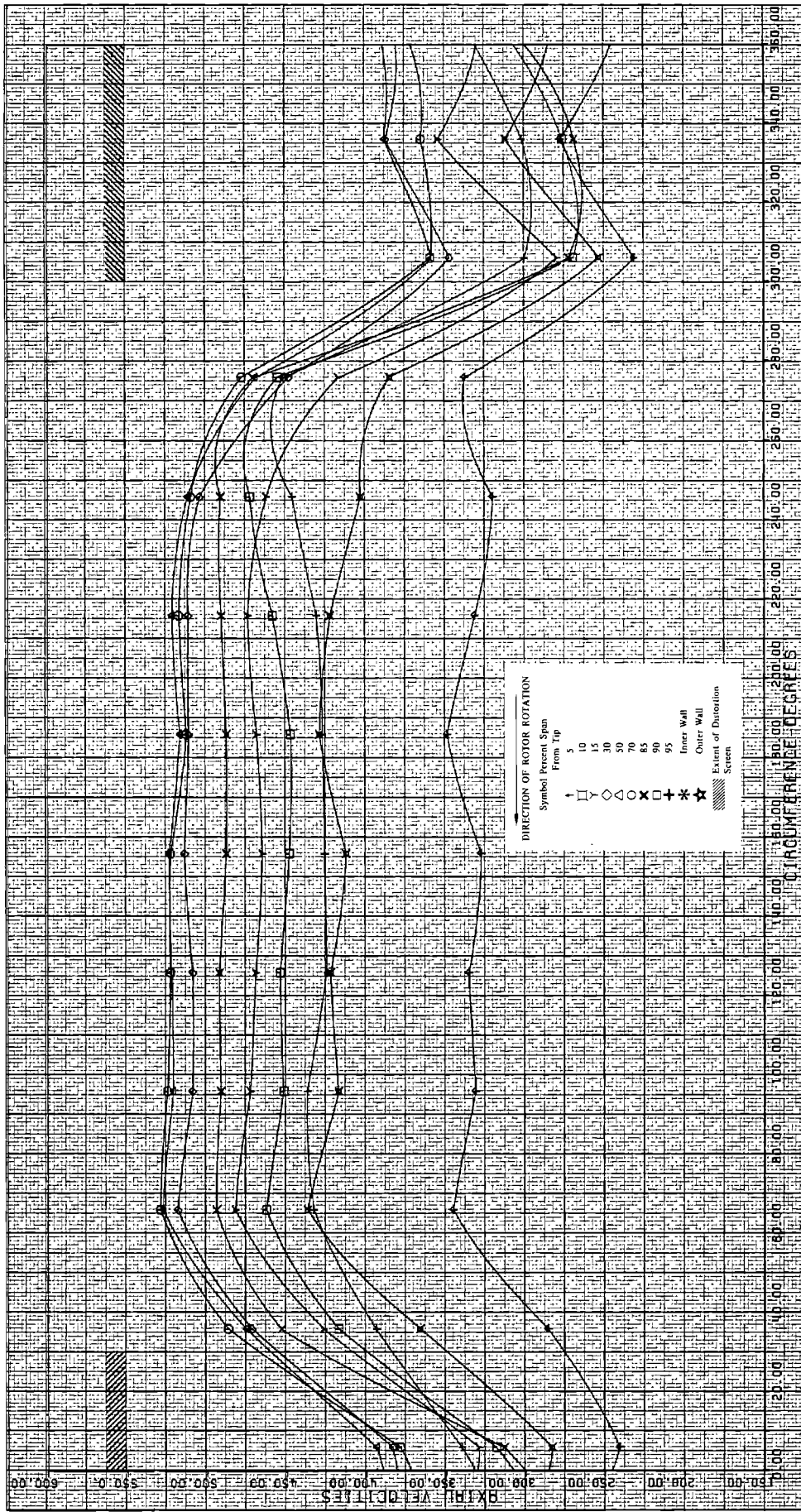


Figure 42g. Stator Inlet Air Angle vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion DF 98146



DF 98147

Figure 42h. Stator Inlet Axial Velocity vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

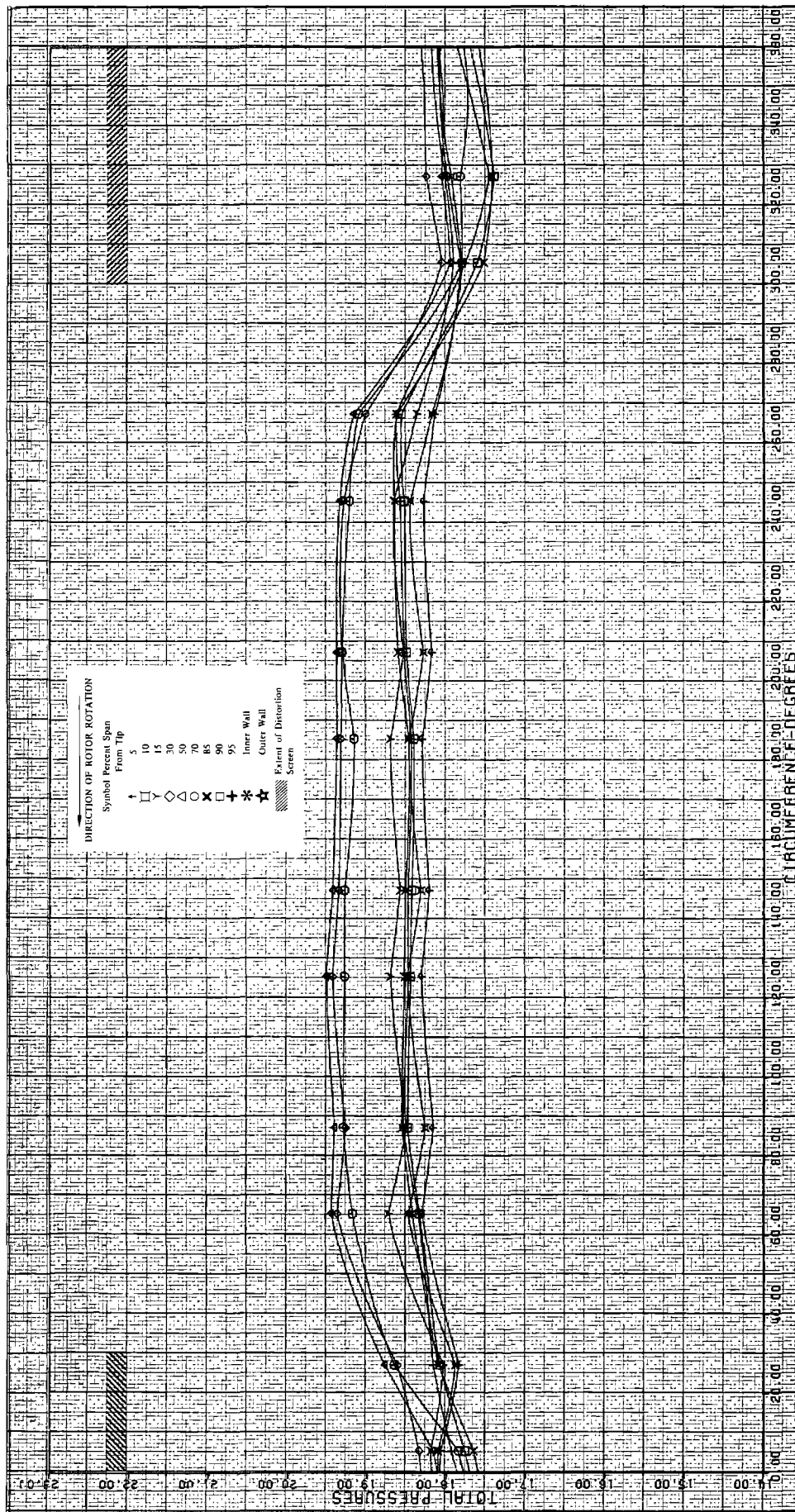


Figure 42i. Stator Exit Total Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

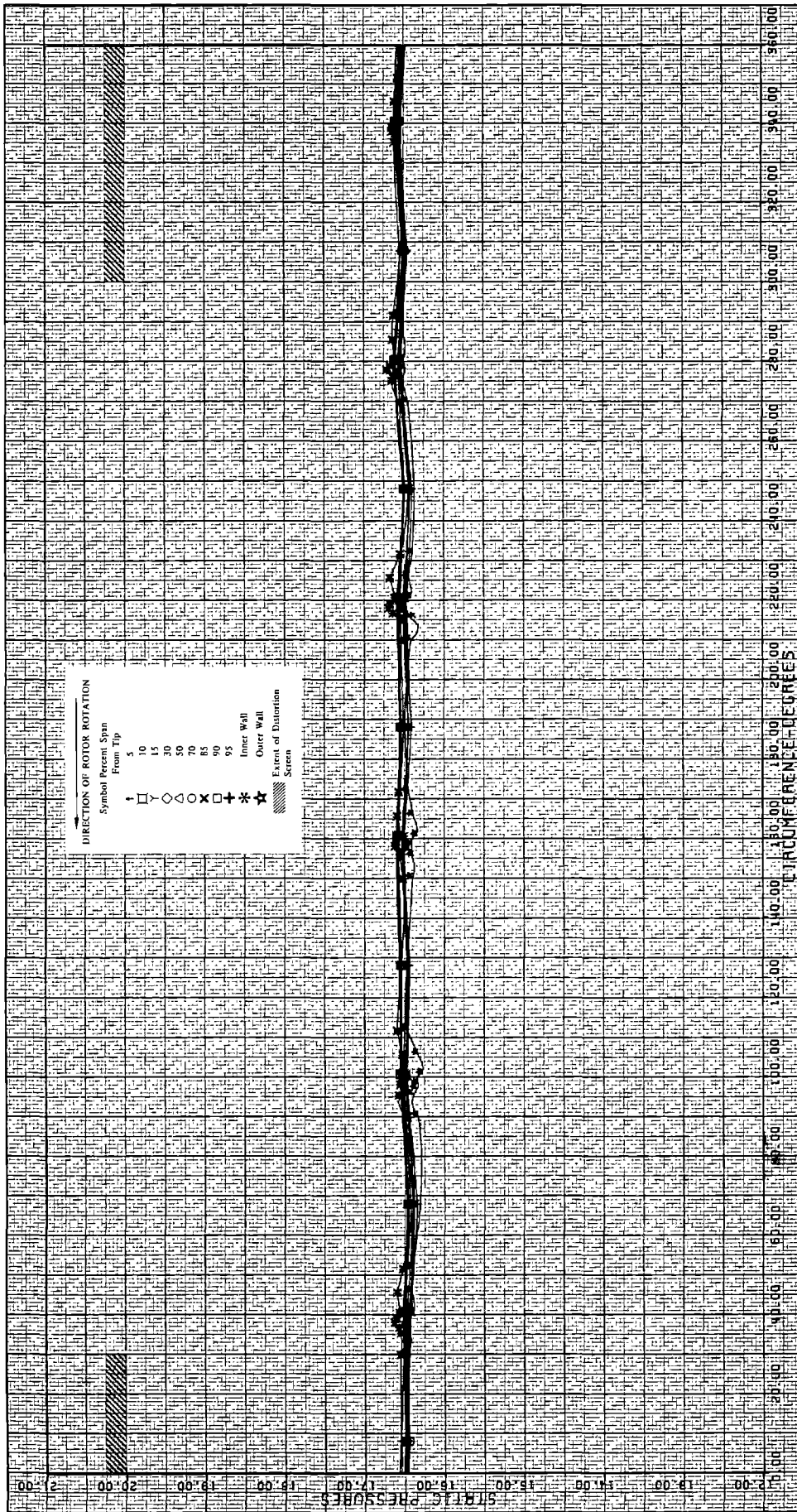


Figure 42j. Stator Exit Static Pressure vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

DF 98149

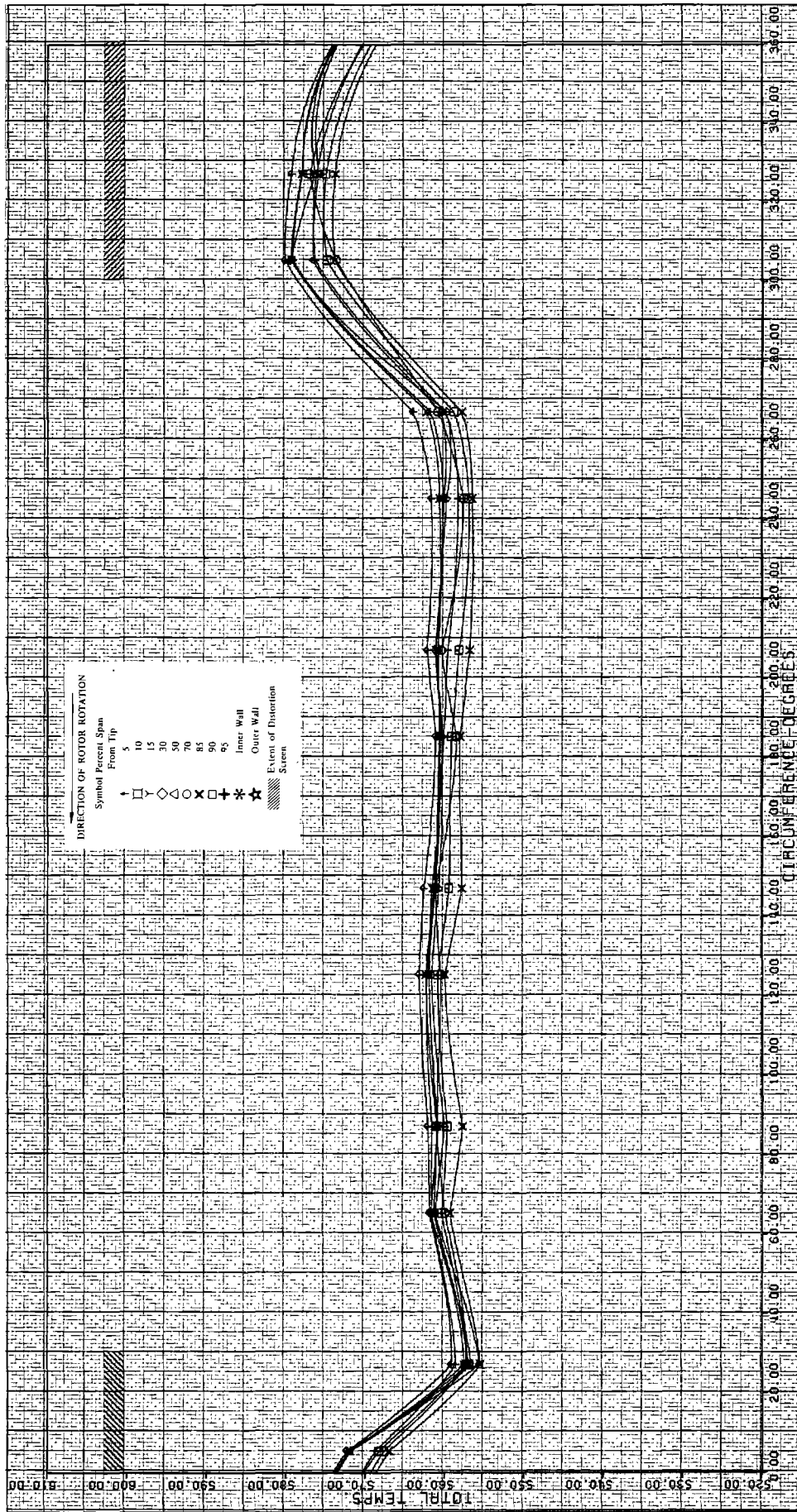


Figure 42k. Stator Exit Total Temperature vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion DF 98150

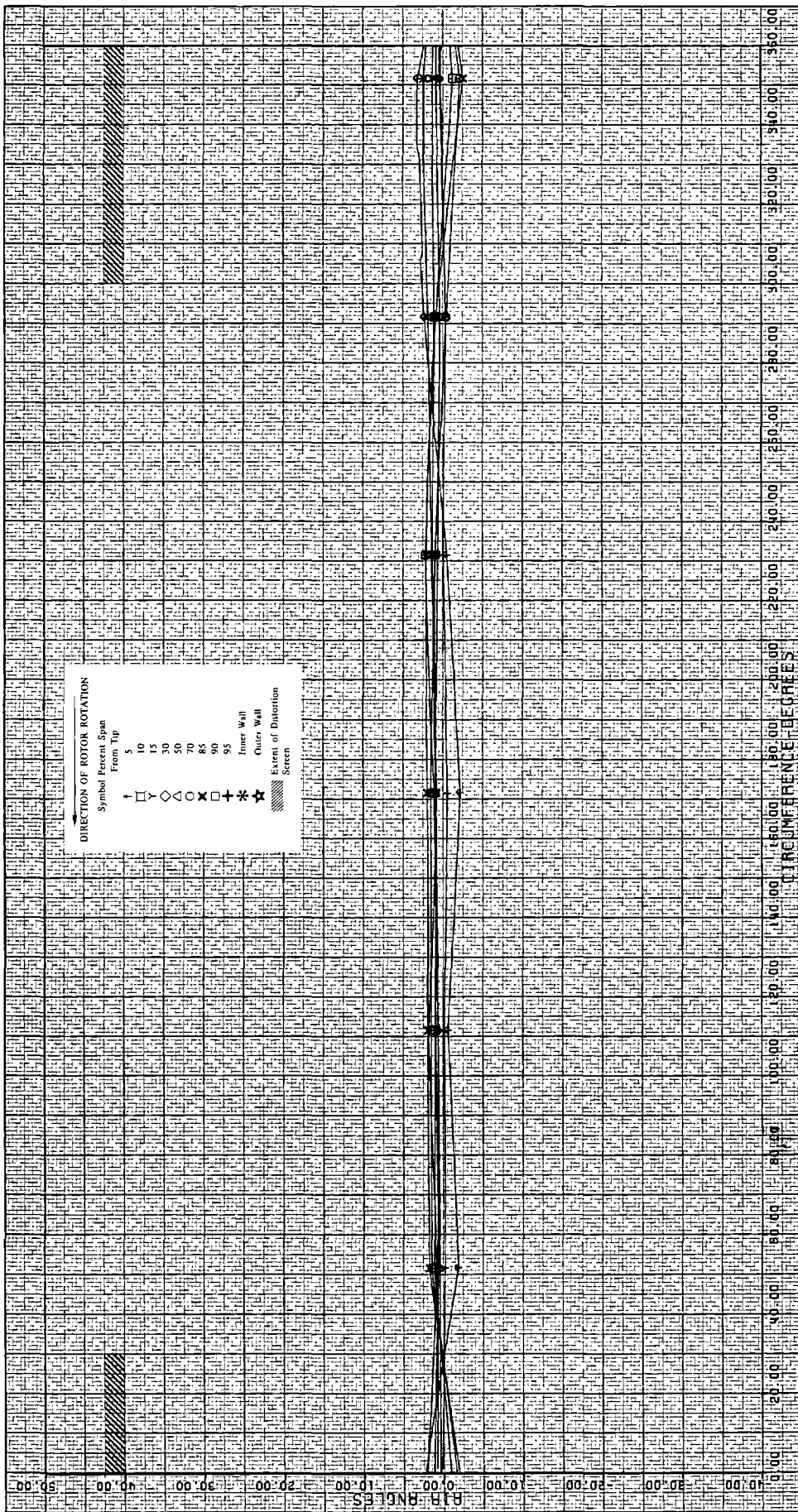


Figure 42L. Stator Exit Air Angle vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion

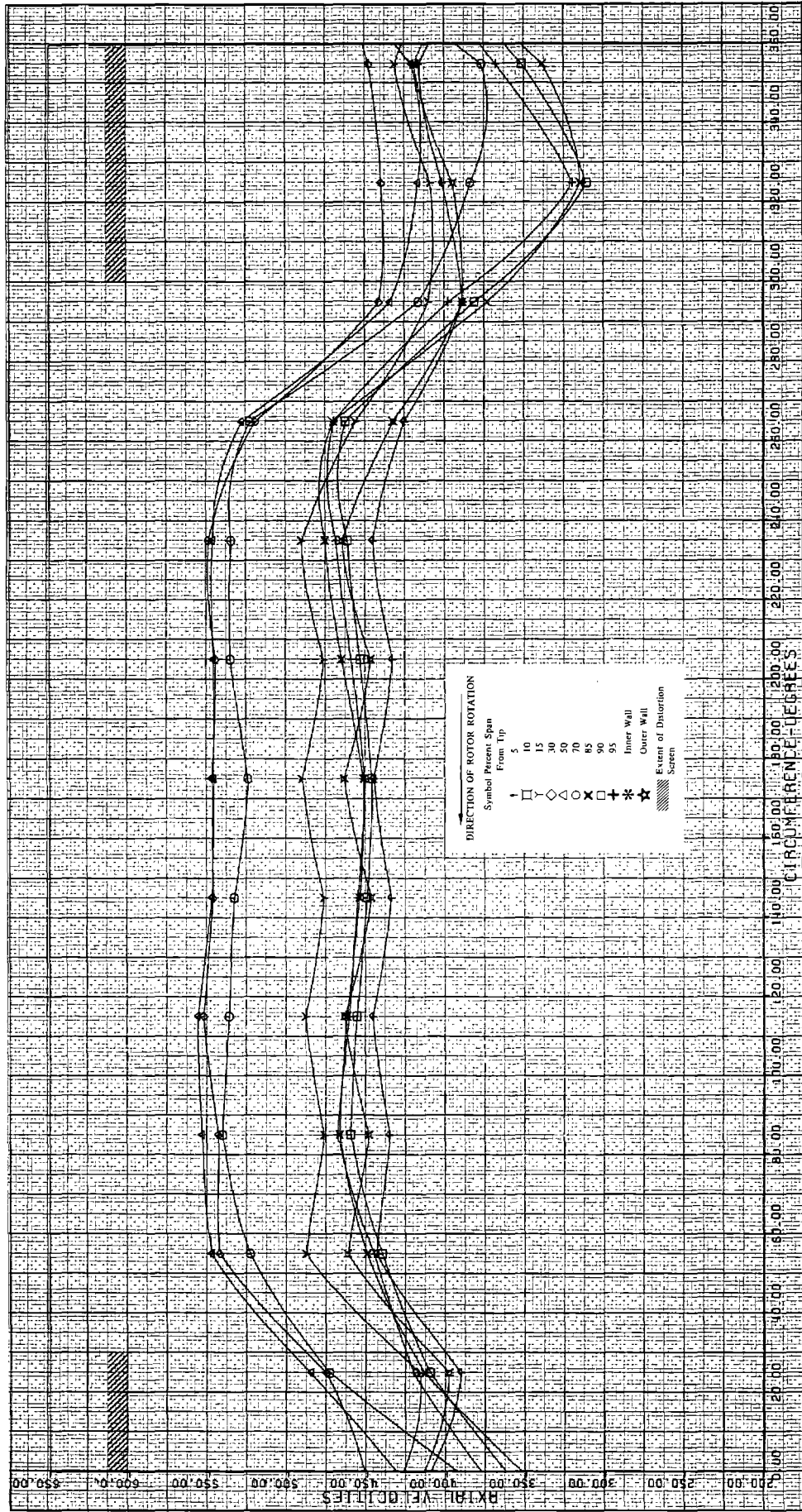
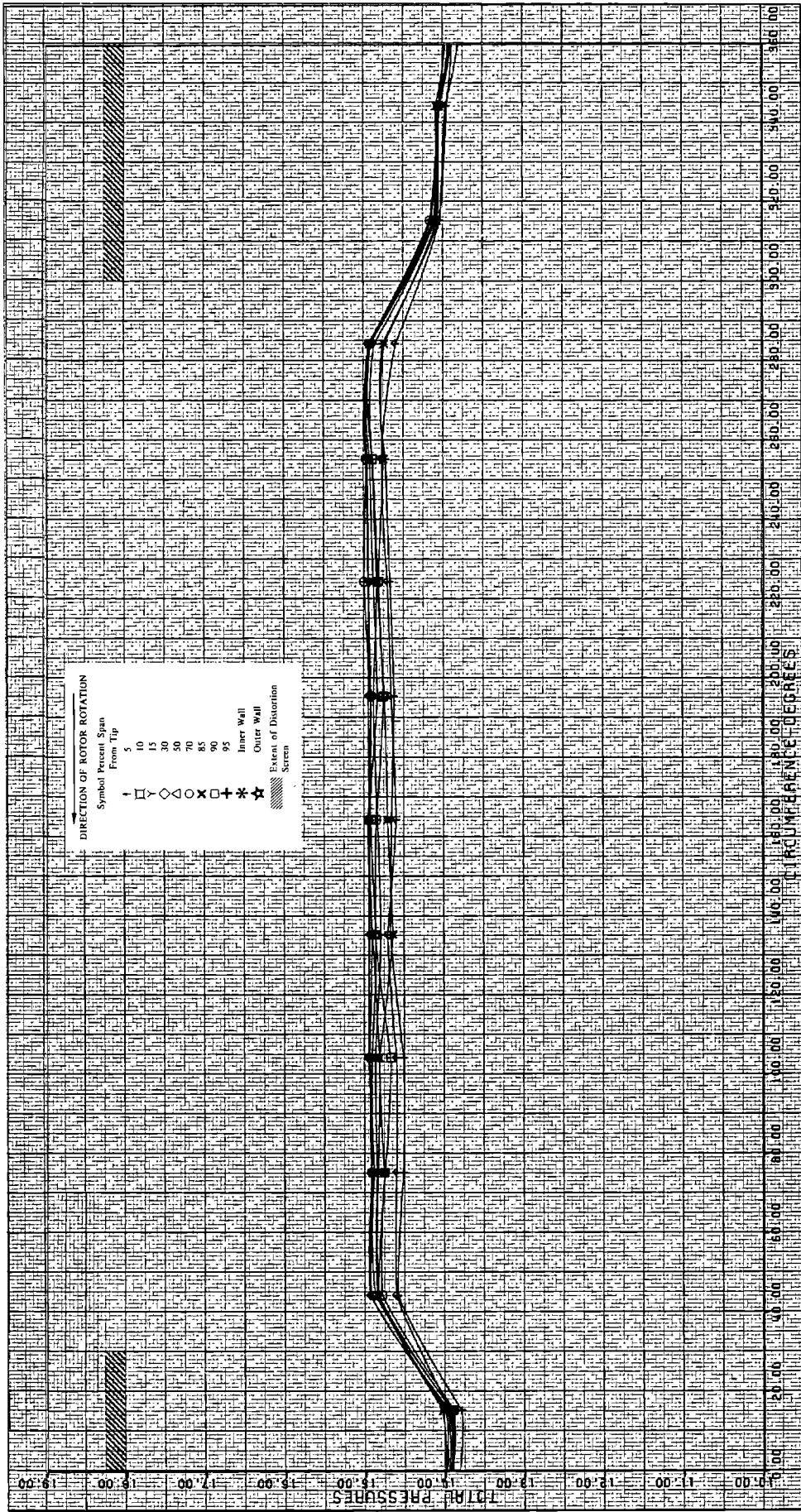


Figure 42m. Stator Exit Axial Velocity vs Circumferential Location; 100% Design Equivalent Rotor Speed; Equivalent Weight Flow = 92.60 lb/sec; Circumferential Distortion



DF 98166

Figure 43a. Rotor Inlet Total Pressure vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

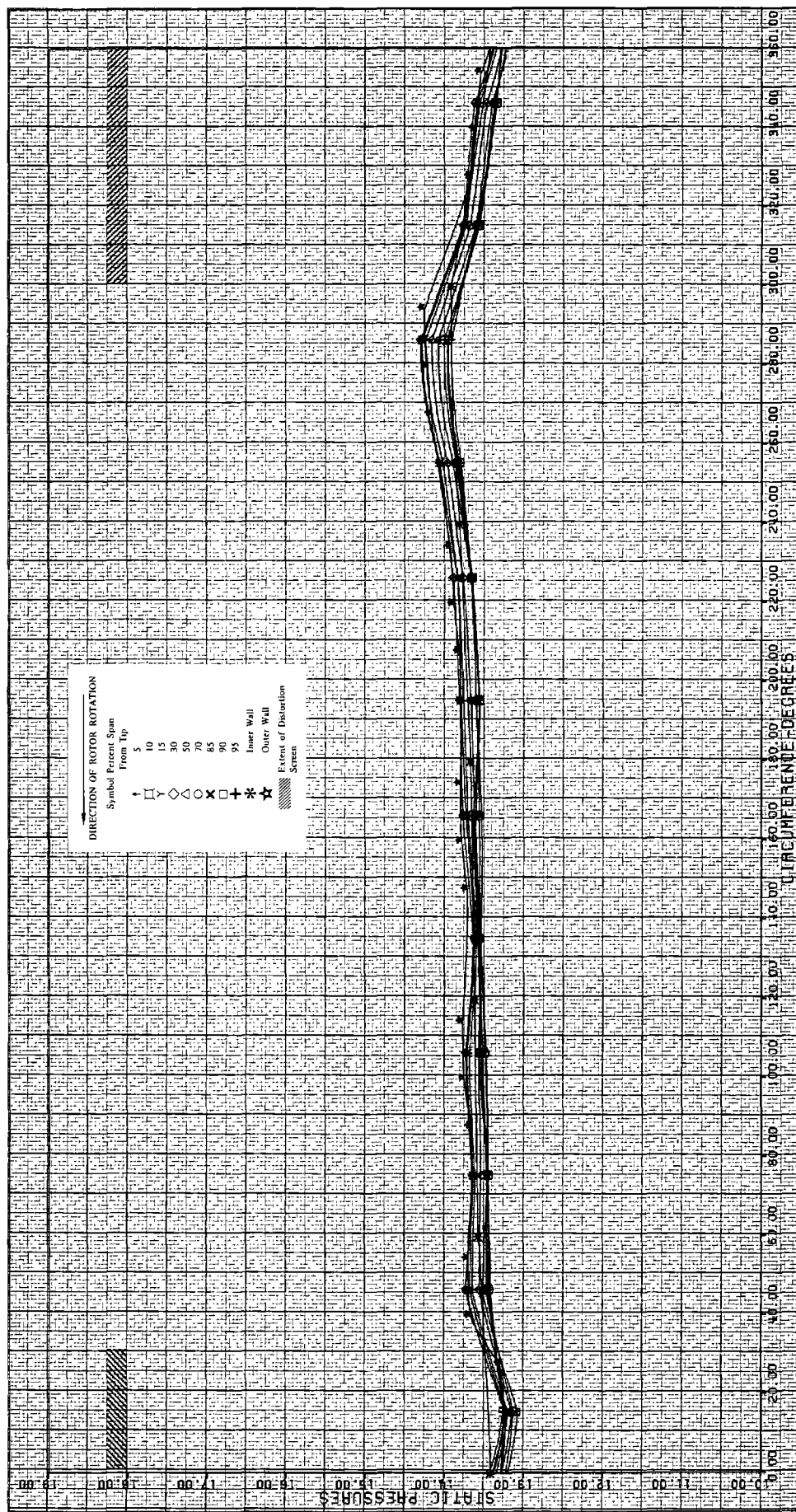


Figure 43b. Rotor Inlet Static Pressure vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

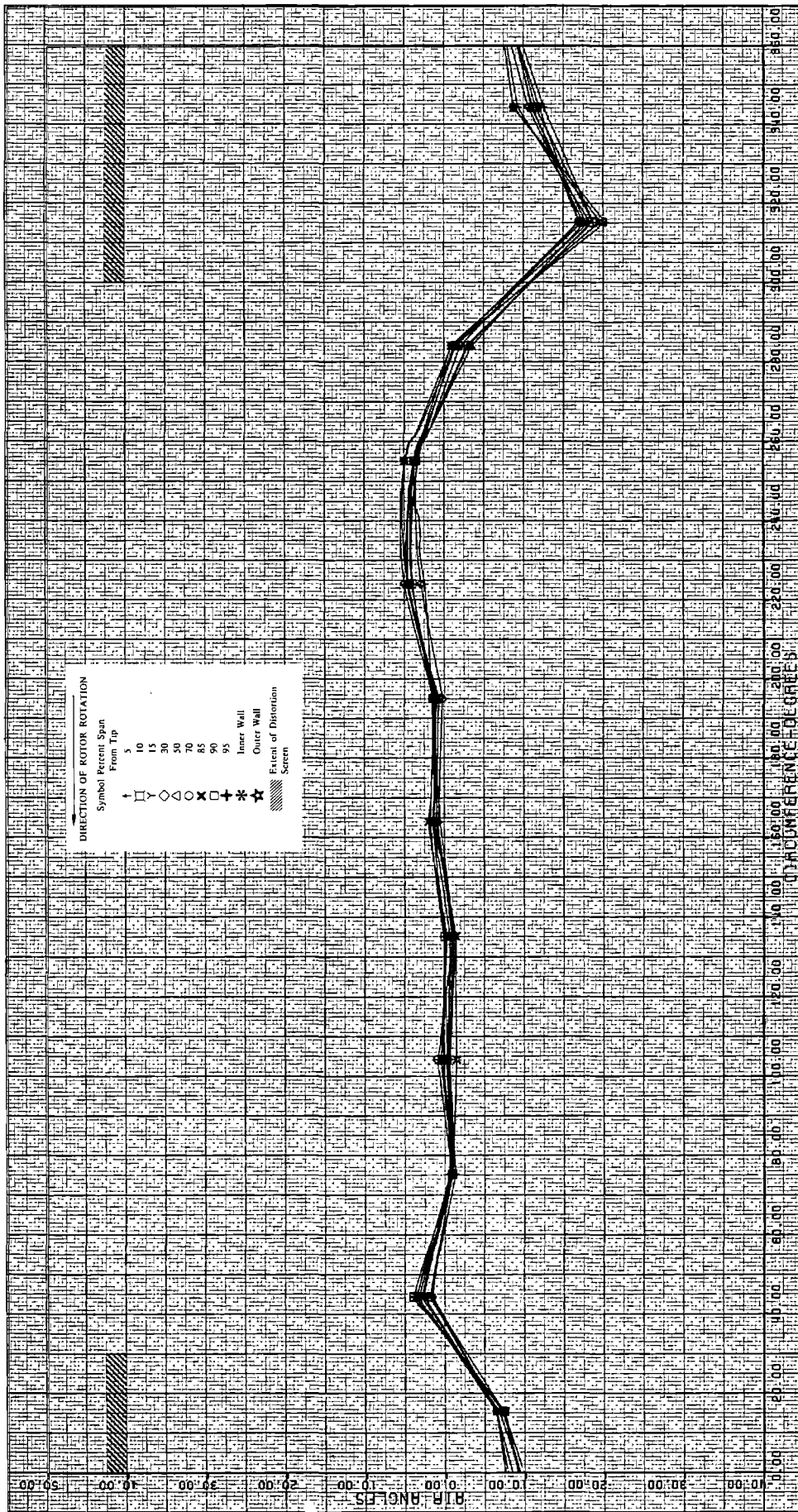


Figure 43c. Rotor Inlet Air Angle vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

DF 98168

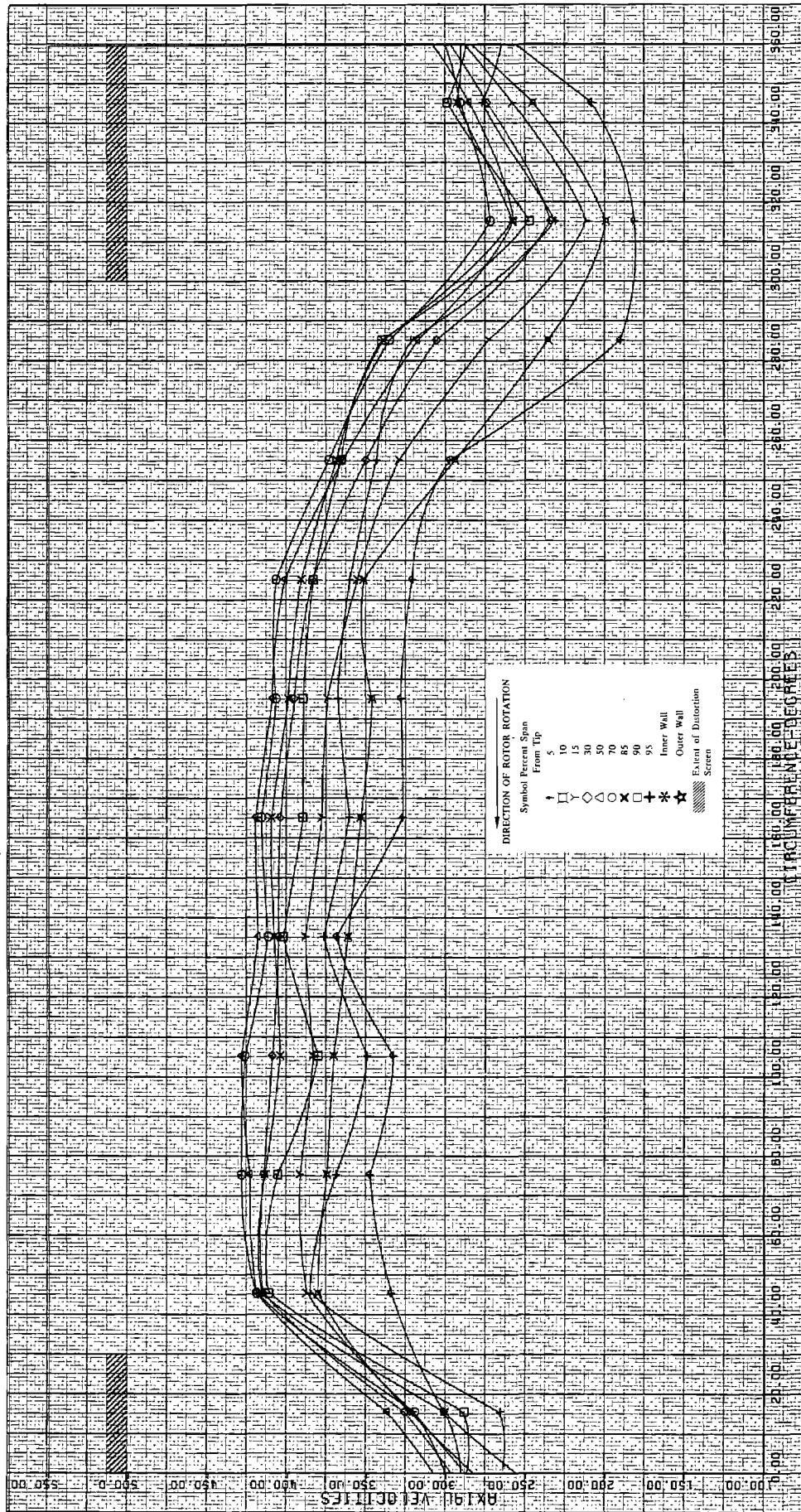


Figure 43d. Rotor Inlet Axial Velocity vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion DF 98169

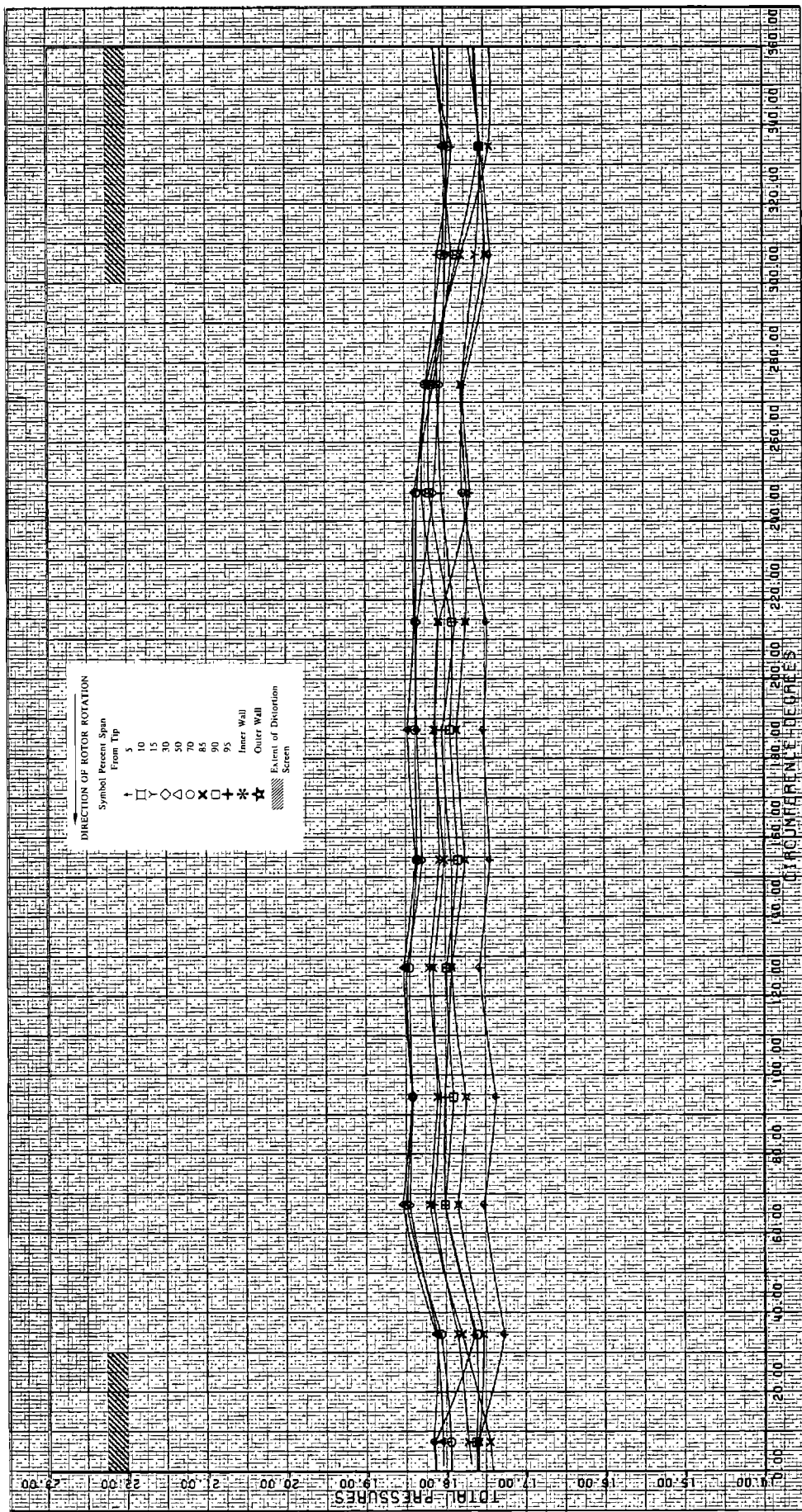


Figure 43e. Stator Inlet Total Pressure vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

DF 98170

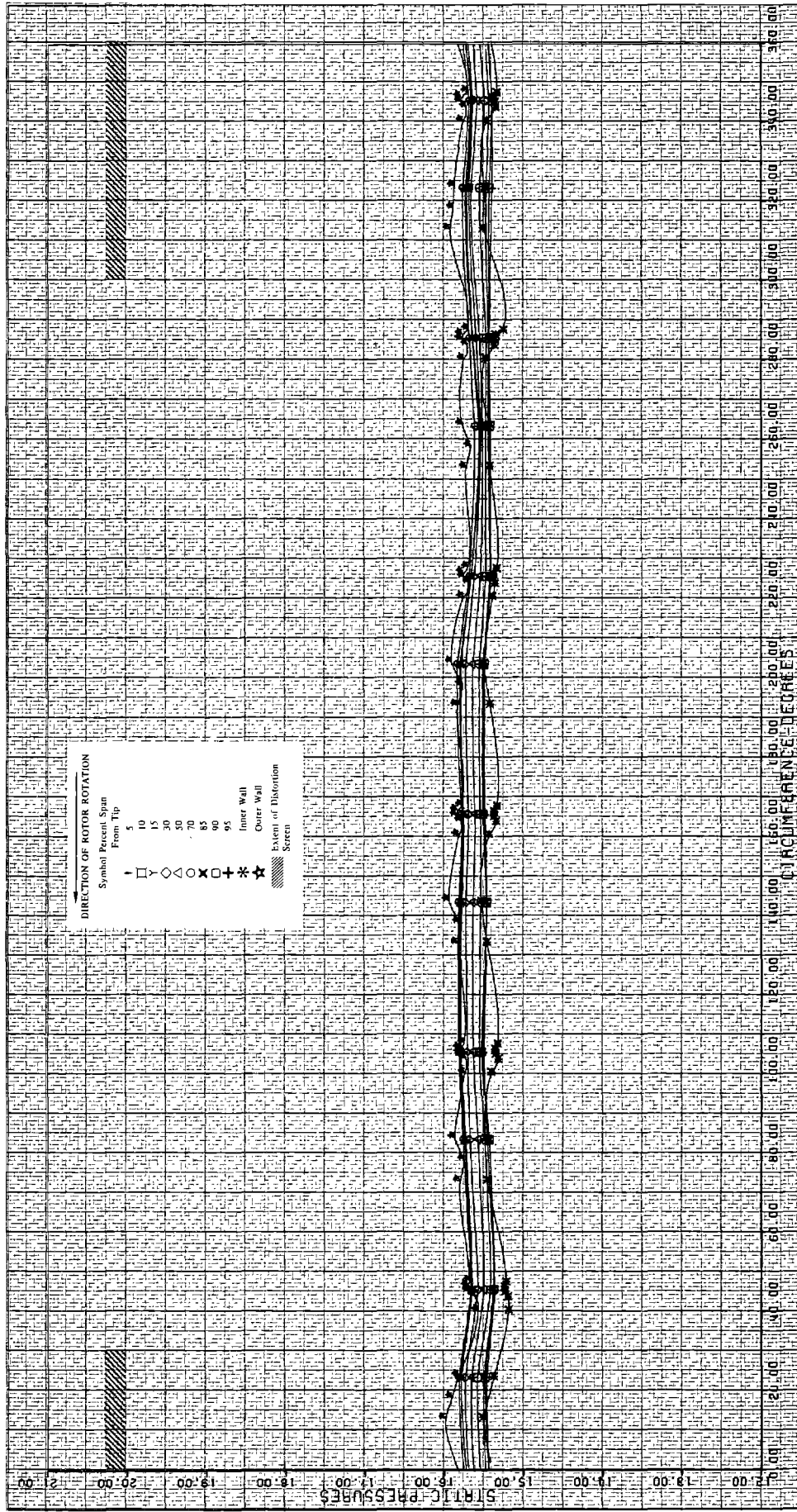


Figure 43f. Stator Inlet Static Pressure vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

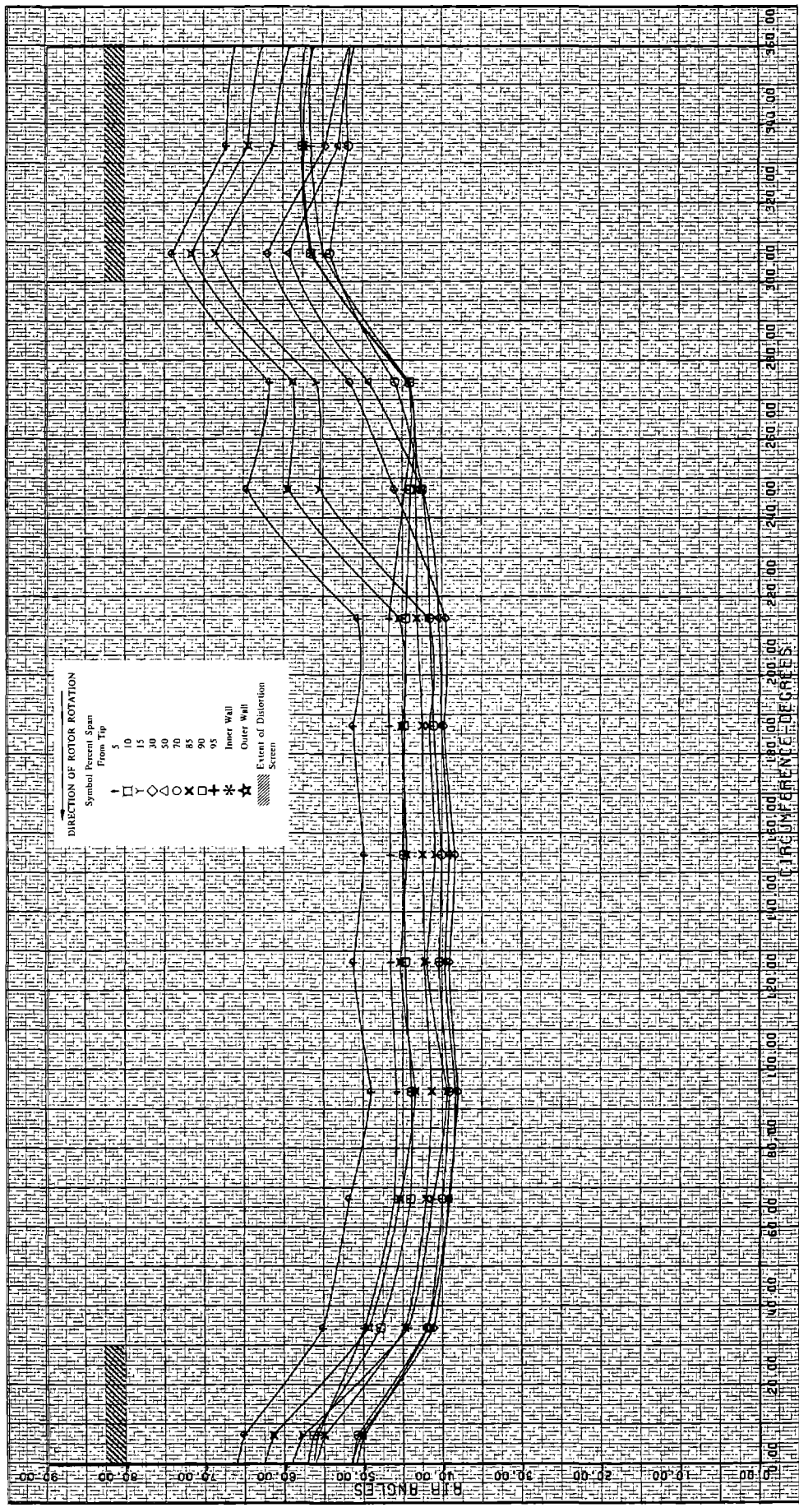


Figure 43g. Stator Inlet Air Angle vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

DF 98172

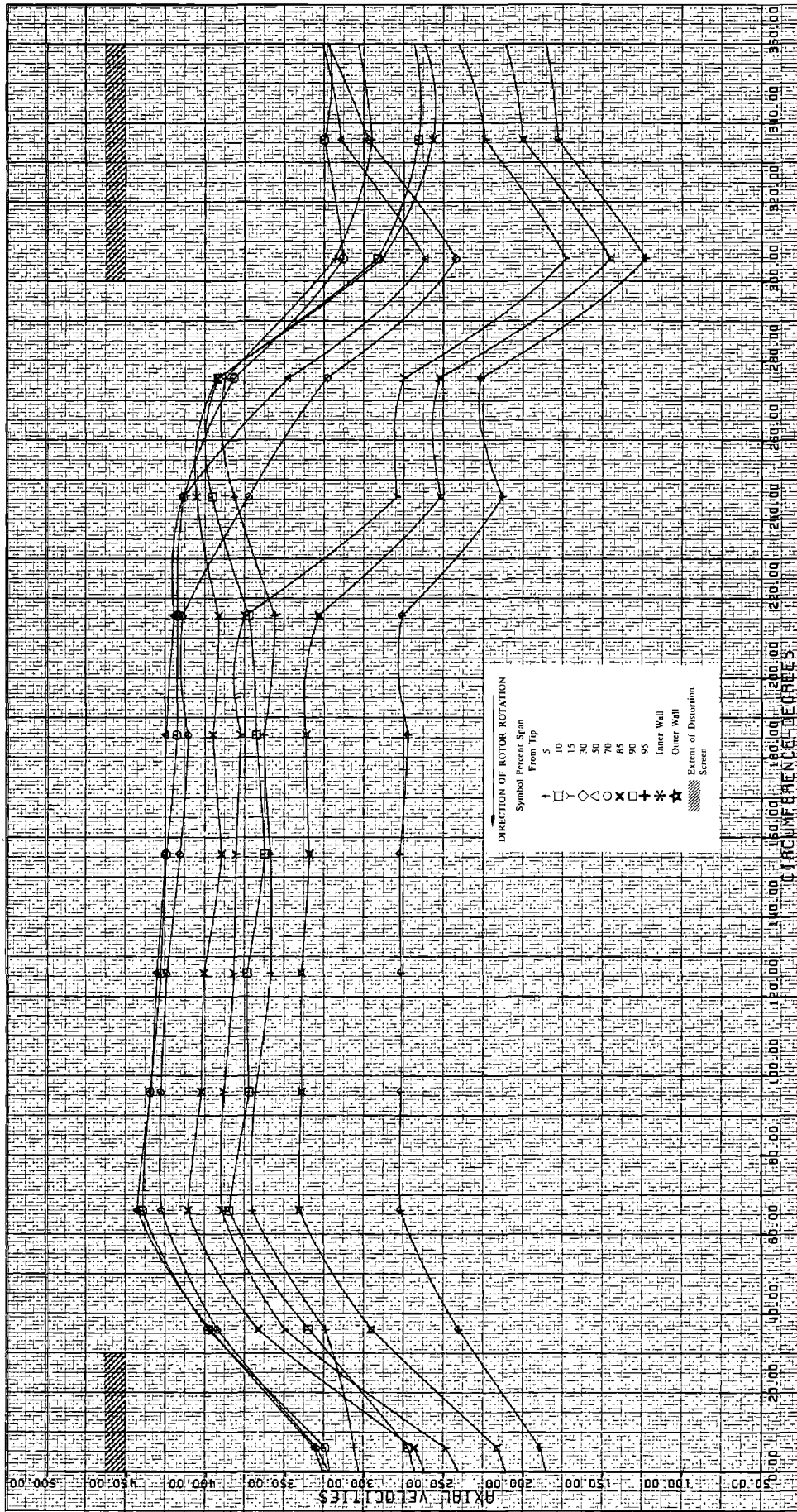
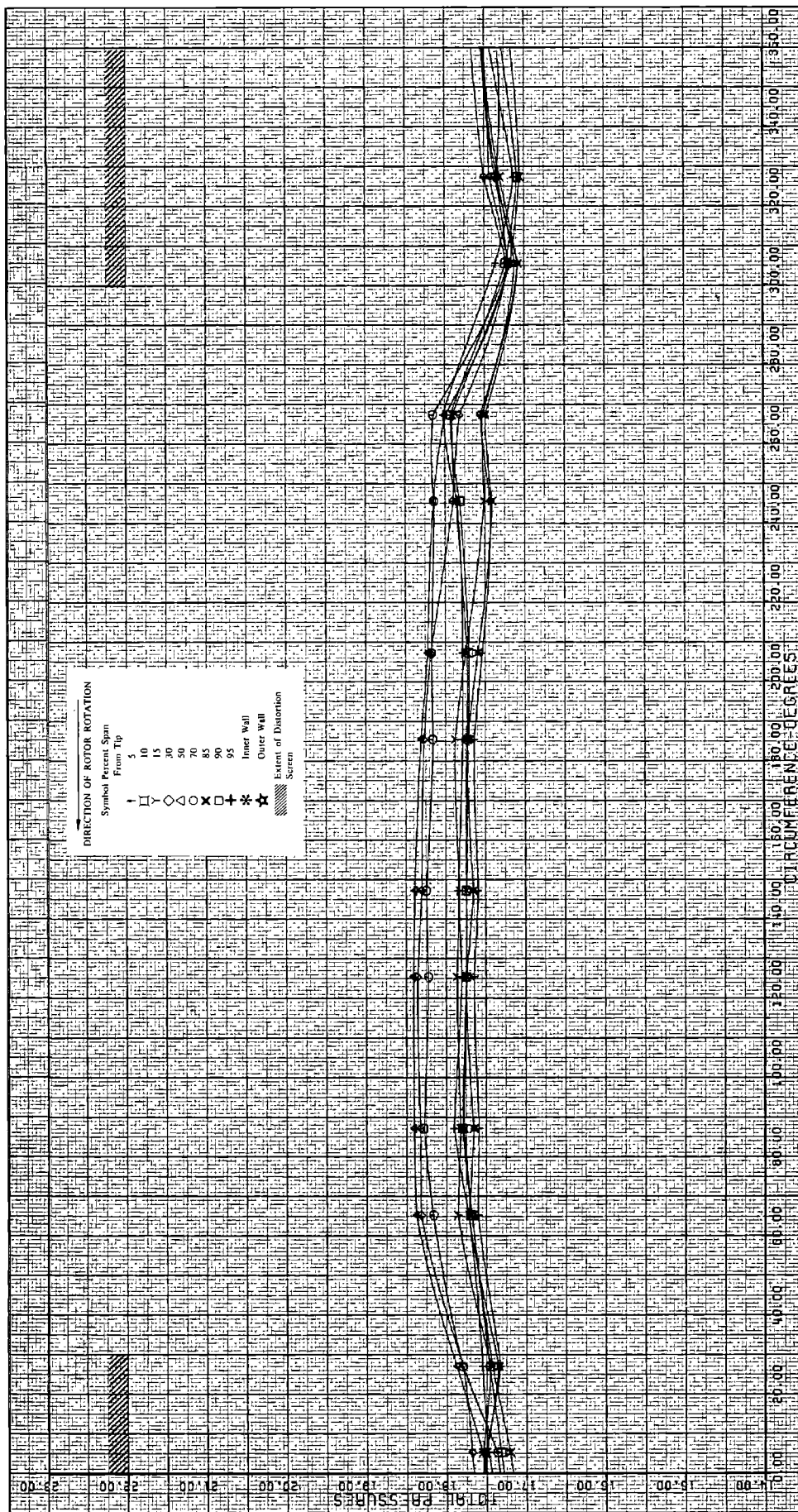


Figure 43h. Stator Inlet Axial Velocity vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion



DF 98174

Figure 43i. Stator Exit Total Pressure vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

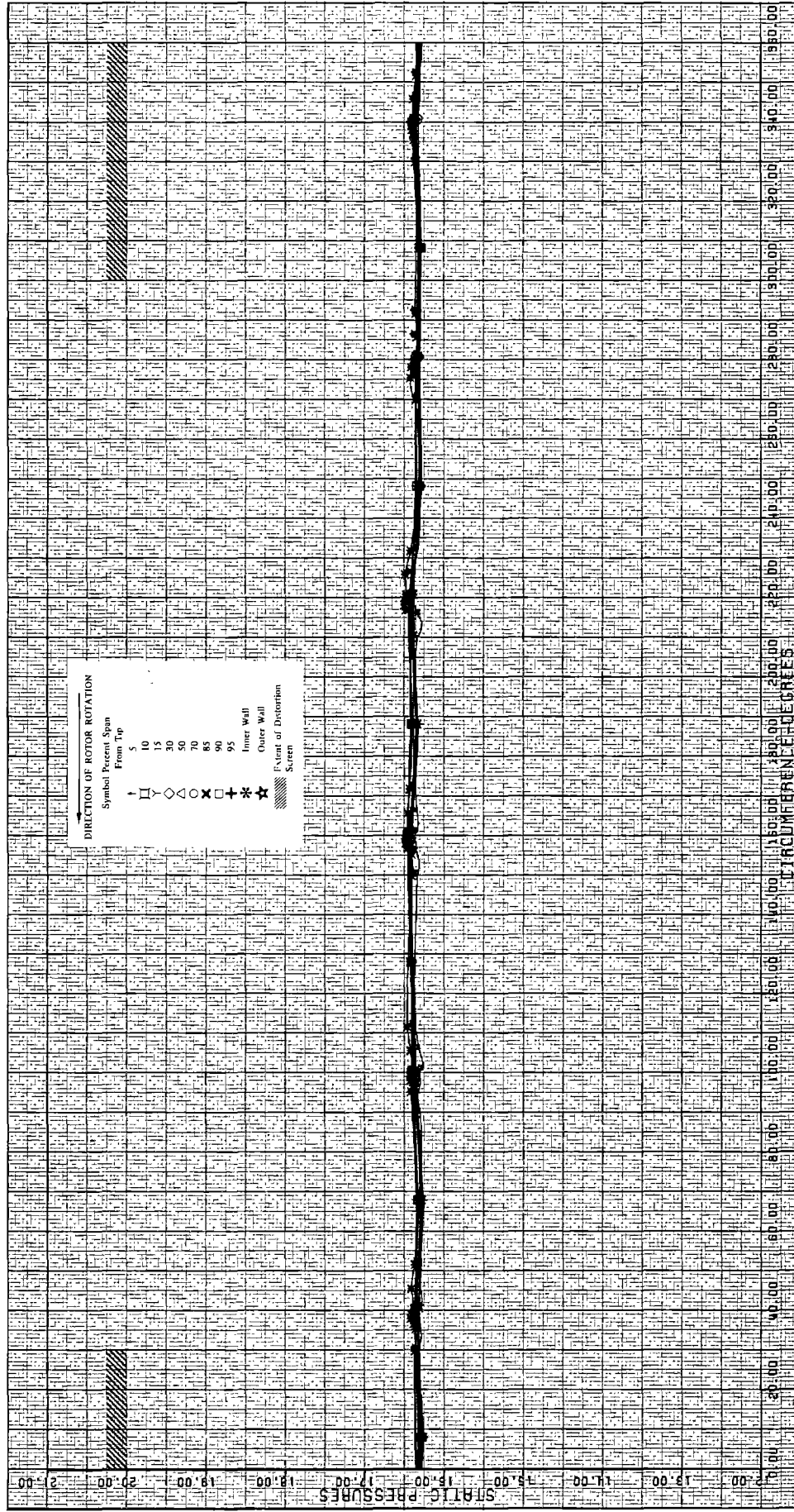
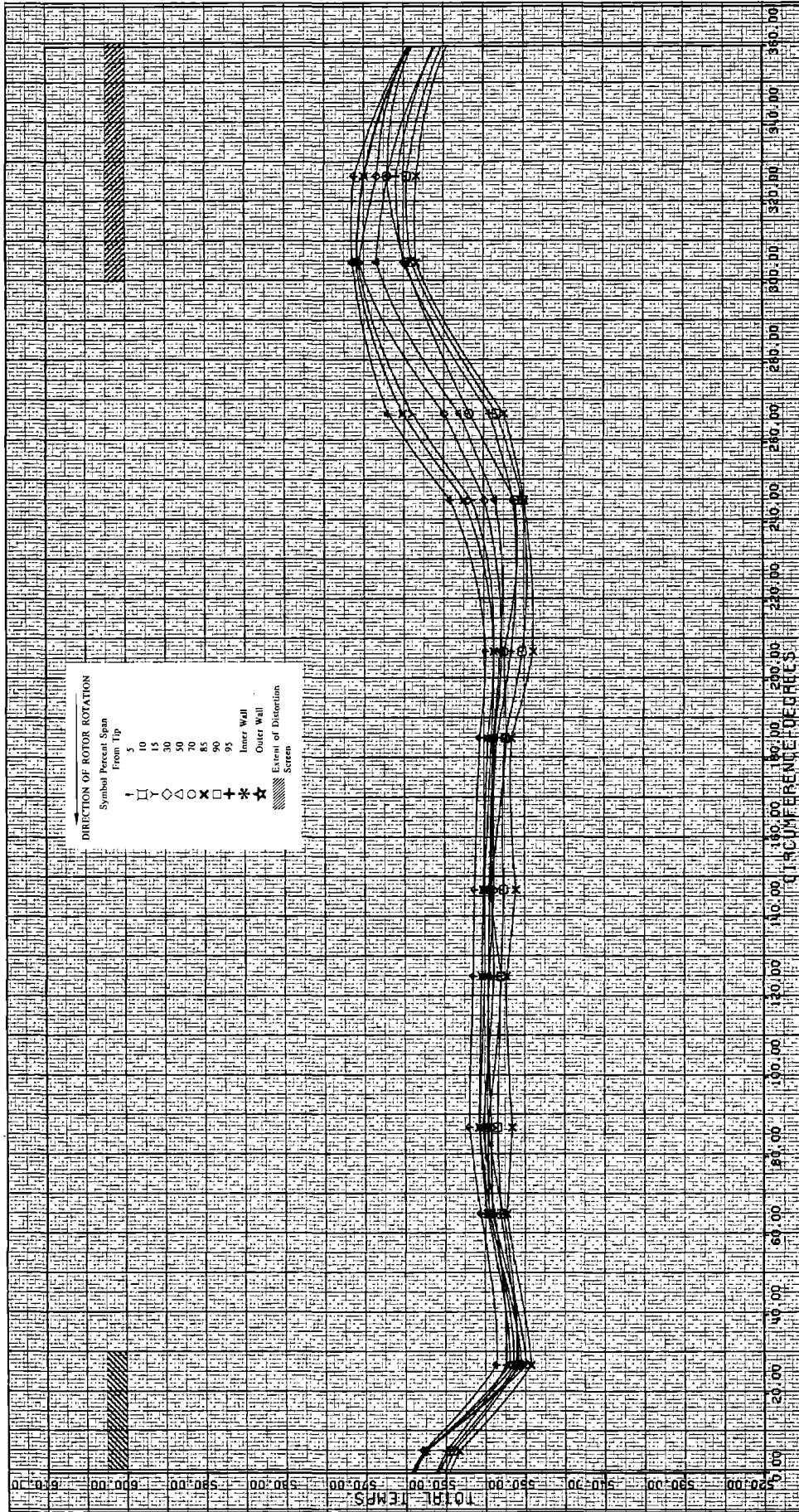
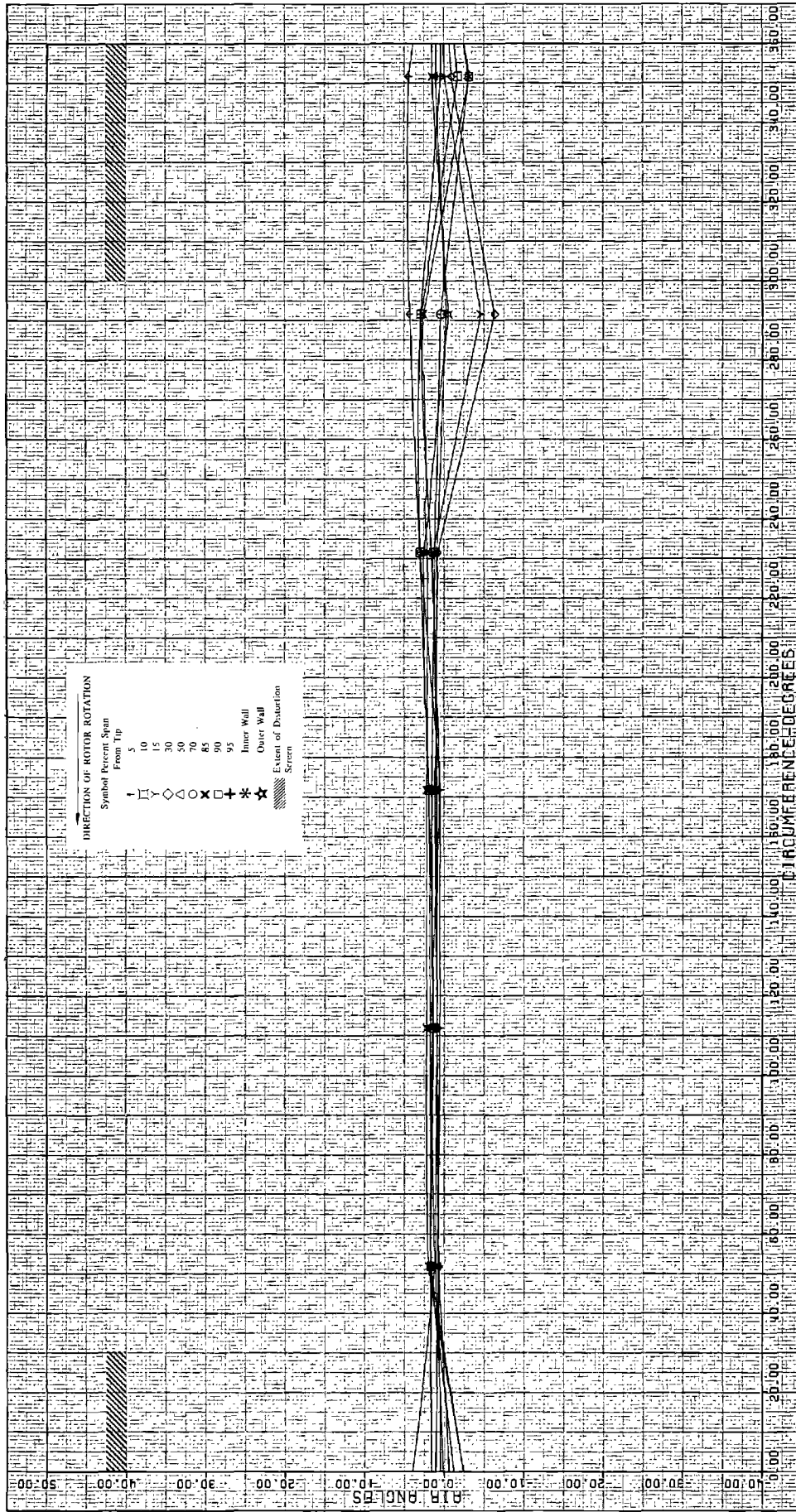


Figure 43j. Stator Exit Static Pressure vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion



DF 98176

Figure 43k. Stator Exit Total Temperature vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion



DF 98177

Figure 431. Stator Exit Air Angle vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

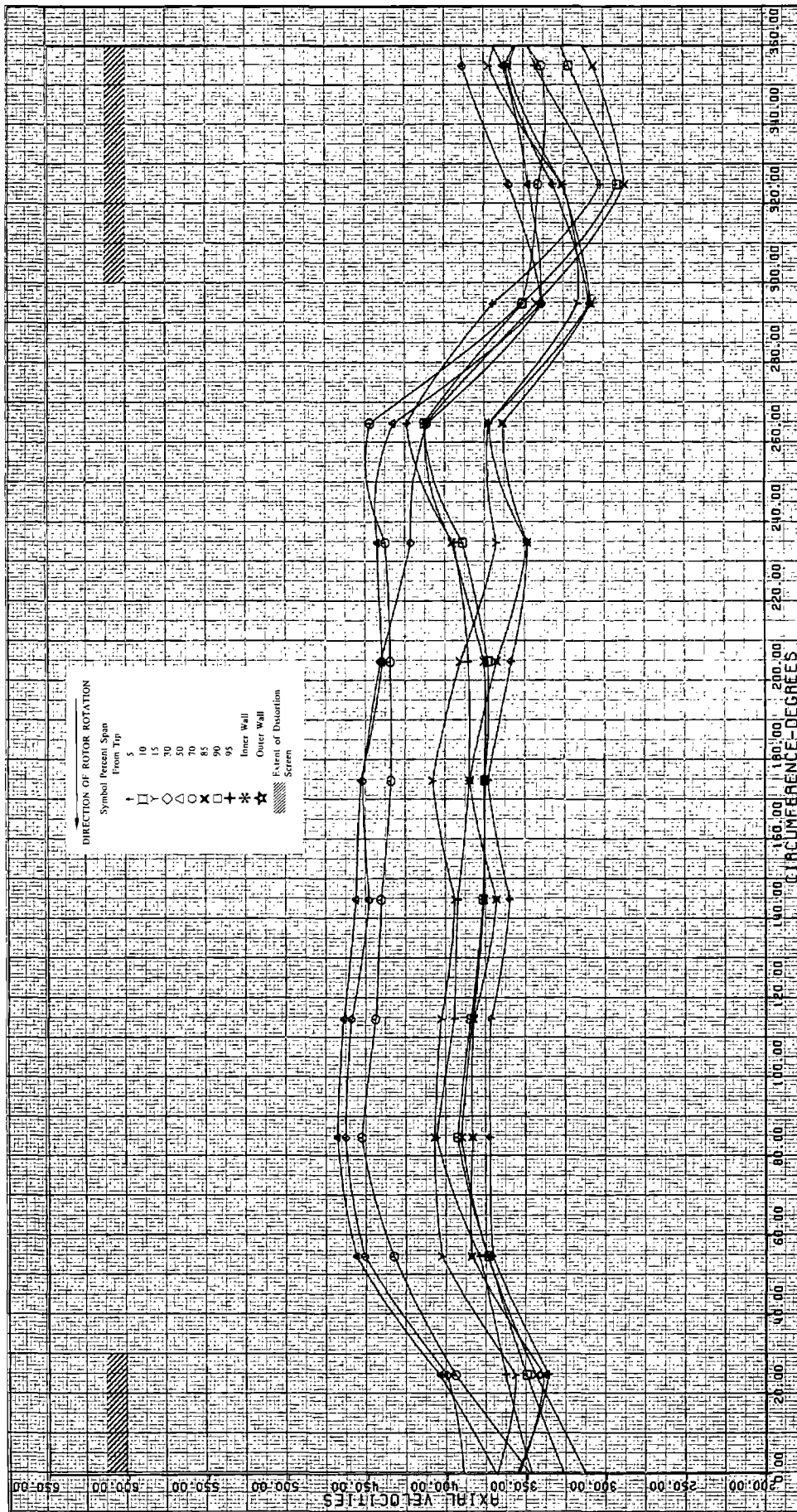


Figure 43m. Stator Exit Axial Velocity vs Circumferential Location; 90% Design Equivalent Rotor Speed; Equivalent Weight Flow = 84.27 lb/sec; Circumferential Distortion

DF 98178

APPENDIX A
TABULATED OVERALL AND BLADE ELEMENT PERFORMANCE
AND FLOW DISTRIBUTION DATA

Rotor E and Stage E overall performance with a uniform inlet, hub radial distortion, tip radial distortion, and circumferential distortion of the inlet flow is tabulated in tables A-1, A-4, and A-7, respectively. Rotor E and Stator E blade element performance and flow distribution data for uniform inlet, hub radial distortion of the inlet flow, and tip radial distortion of the inlet flow are presented in tables A-3, A-5, and A-6, respectively. The flow distribution data with circumferential distortion of the inlet flow are given in table A-8 for circumferential increments of 30 deg around the compressor annulus. Table A-2 is presented to illustrate the small differences at the near design point between values calculated from the data at the instrumentation stations, and the values calculated from the data that have been translated to the blade row leading and trailing edges.

The blade element performance and flow distribution data with uniform inlet flow and radial distortion of the inlet flow are arranged in order of decreasing rotor speed and decreasing flow at each rotor speed. The flow distribution data with circumferential distortion of the inlet flow are given at the instrumentation station planes and are arranged for a given equivalent rotor speed and flow combination in order of increasing circumferential position. The circumferential positions of the data at each instrumentation station are noted at the top of each data sheet. These positions were selected so that they would correspond as close as possible to the locations of the 20-deg wedge probes relative to the distortion screen and provide data at increments of 30 deg around the compressor annulus.

NOMENCLATURE USED FOR OVERALL PERFORMANCE TABULATION

Mass-Averaged Rotor Inlet Total Pressure	\bar{P}_1
Mass-Averaged Stator Inlet Total Pressure	\bar{P}_2
Mass-Averaged Stator Exit Total Pressure	\bar{P}_{2A}
Adiabatic Efficiency*	η_{ad}
Polytropic Efficiency*	η_p

NOMENCLATURE USED FOR BLADE ELEMENT AND
DISTORTION DATA TABULATION

Exit Percent Span from Tip	PCT SPAN
Exit Diameter	DIA
Absolute Flow Angle	BETA
Relative Flow Angle	BETA (PR)
Absolute Velocity	V
Axial Velocity	VZ
Absolute Tangential Velocity	V-THETA
Relative Tangential Velocity	V-THETA PR
Rotor Speed	U
Absolute Mach Number	M
Relative Mach Number	M (PR)
Relative Turning Angle	TURN (PR)
Loss Coefficient ($\bar{\omega}$)**	UUBAR
Loss Parameter**	LOSS PARA
Diffusion Factor**	DFAC
Polytropic Efficiency**	EFFP
Adiabatic Efficiency**	EFF
Incidence**	INCID
Deviation**	DEVM
Total Pressure	P
Total Temperature	T
Stator Exit Average Freestream Total Pressure from Wake Rakes	P2 FS
Loss Coefficient Based on P2FS ($\bar{\omega}_{fs}$)	UUBAR FS
Loss Parameter Based on UUBAR FS	LOSS PARA FS

*Efficiencies calculated from mass-averaged values of total pressure and total temperature.

**Denotes variables excluded from circumferential distortion data.

Where applicable the appropriate instrumentation station is noted.

Table A-1. Overall Performance - Stage E
Uniform Inlet

Equivalent Weight Flow, lb/sec	Rotor			Stage		
	\bar{P}_2/\bar{P}_1	η_{ad}	η_p	\bar{P}_{2A}/\bar{P}_1	η_{ad}	η_p
110% Design Equivalent Rotor Speed						
127.64	1.2478	0.7886	0.7951	1.2106	0.6771	0.6858
122.36	1.3607	0.9148	0.9184	1.3302	0.8437	0.8499
116.81	1.3736	0.8995	0.9039	1.3440	0.8343	0.8411
111.46	1.3882	0.8895	0.8945	1.3593	0.8291	0.8364
107.01	1.3973	0.8763	0.8820	1.3645	0.8104	0.8185
100% Design Equivalent Rotor Speed						
121.43	1.2064	0.7558	0.7622	1.1811	0.6676	0.6754
117.78	1.2638	0.8984	0.9018	1.2420	0.8288	0.8339
111.27	1.2862	0.8717	0.8762	1.2666	0.8159	0.8219
106.84	1.2993	0.8953	0.8992	1.2774	0.8343	0.8399
105.92	1.3028	0.8556	0.8609	1.2823	0.8018	0.8086
102.92	1.3054	0.8884	0.8926	1.2827	0.8270	0.8330
97.95	1.3183	0.8799	0.8845	1.2939	0.8175	0.8240
93.27	1.3217	0.8389	0.8452	1.2948	0.7741	0.7822
90% Design Equivalent Rotor Speed						
114.30	1.1779	0.8849	0.8875	1.1564	0.7824	0.7868
106.88	1.2126	0.8834	0.8866	1.1945	0.8121	0.8168
98.57	1.2348	0.8844	0.8878	1.2185	0.8262	0.8310
88.91	1.2464	0.8445	0.8493	1.2289	0.7878	0.7939
82.57	1.2546	0.8179	0.8237	1.2332	0.7534	0.7606
70% Design Equivalent Rotor Speed						
92.73	1.1102	0.8467	0.8490	1.0976	0.7525	0.7558
83.59	1.1229	0.8828	0.8847	1.1133	0.8153	0.8181
75.87	1.1368	0.8781	0.8803	1.1275	0.8200	0.8230
68.30	1.1434	0.8448	0.8478	1.1348	0.7955	0.7991
61.93	1.1469	0.8091	0.8128	1.1372	0.7573	0.7617
50% Design Equivalent Rotor Speed						
64.65	1.0530	0.7769	0.7785	1.0481	0.7055	0.7075
61.51	1.0587	0.8226	0.8240	1.0543	0.7617	0.7635
55.53	1.0637	0.8323	0.8338	1.0601	0.7852	0.7870
48.51	1.0684	0.8228	0.8244	1.0646	0.7773	0.7793
42.99	1.0720	0.7720	0.7742	1.0677	0.7264	0.7290

Table A-2. Blade Element Performance
 Stage E, Rotor E - Stator E
 Calculations Using Untranslated Values
 Percent Equivalent Rotor Speed = 100.28 Equivalent Rotor Speed = 4221.89 Equivalent Weight Flow = 111.27
 Uniform Inlet

INLET											
	PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
STATION 0	DIA	33.118	33.520	33.947	35.279	37.080	38.872	40.221	40.631	40.975	DIA
	BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
STATION 1	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	V 0	443.00	443.00	443.00	443.00	443.00	443.00	443.00	443.00	443.00	V 0
	V 1	462.57	505.23	514.73	517.90	510.22	495.72	467.87	456.43	421.37	V 1
	VZ 0	443.00	443.00	443.00	442.99	442.97	442.93	442.90	442.89	442.88	VZ 0
	VZ 1	462.56	505.22	514.73	517.89	510.19	495.66	467.79	456.35	421.33	VZ 1
	V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	M 0	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	M 0
	M 1	0.4216	0.4621	0.4712	0.4742	0.4668	0.4530	0.4266	0.4158	0.3829	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.4811	0.3148	0.2852	0.2827	0.2839	0.2878	0.3520	0.3861	0.5390	UUBAR
	DFAC	-0.044	-0.140	-0.162	-0.169	-0.152	-0.119	-0.056	-0.030	0.049	DFAC
	EFFP	0.1643	0.5034	0.5663	0.5800	0.5501	0.4820	0.2572	0.1437	-0.2257	EFFP
	INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
	DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
	P 0	15.216	15.216	15.216	15.216	15.216	15.216	15.216	15.216	15.216	P 0
	P 1	14.441	14.709	14.756	14.761	14.759	14.752	14.649	14.594	14.347	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E											
	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA
STATION 2	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	BETA 2	44.500	42.250	39.800	37.900	37.400	36.860	38.800	43.200	49.000	BETA 2
	BETA(PR) 1	52.831	50.710	50.542	51.449	53.244	53.310	57.734	58.629	60.830	BETA(PR) 1
	BETA(PR) 2	24.552	25.889	25.400	25.516	29.054	34.060	38.436	42.959	49.986	BETA(PR) 2
	V 1	462.57	505.23	514.73	517.90	510.22	495.72	467.87	456.43	421.37	V 1
	V 2	596.28	600.30	623.29	653.49	644.69	618.24	583.72	538.25	482.14	V 2
	VZ 1	462.56	505.22	514.73	517.89	510.19	495.66	467.79	456.35	421.33	VZ 1
	VZ 2	425.29	444.35	478.86	515.63	511.92	494.38	453.96	391.57	315.78	VZ 2
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	V-THETA 2	417.93	403.61	398.97	401.41	391.39	369.84	365.00	367.70	363.26	V-THETA 2
	V(PR) 1	765.6	797.8	809.9	831.0	852.6	870.9	876.3	876.7	864.5	V(PR) 1
	V(PR) 2	467.6	493.9	530.1	571.4	585.9	597.6	580.8	536.1	491.9	V(PR) 2
	VTHETA PR1	-610.1	-617.5	-625.4	-649.9	-683.1	-716.1	-740.9	-748.5	-754.8	VTHETA PR1
	VTHETA PR2	-194.3	-215.7	-227.4	-246.1	-284.4	-334.2	-360.3	-364.6	-376.1	VTHETA PR2
	U 1	610.08	617.49	625.35	649.89	683.07	716.08	740.93	748.48	754.82	U 1
	U 2	612.22	619.27	626.35	647.53	675.79	704.05	725.27	732.33	739.40	U 2
	M 1	0.4216	0.4621	0.4712	0.4742	0.4668	0.4530	0.4266	0.4158	0.3829	M 1
	M 2	0.5265	0.5308	0.5529	0.5805	0.5720	0.5475	0.5151	0.4730	0.4214	M 2
	M(PR) 1	0.6978	0.7297	0.7414	0.7609	0.7801	0.7959	0.7990	0.7987	0.7856	M(PR) 1
	M(PR) 2	0.4129	0.4368	0.4702	0.5076	0.5199	0.5292	0.5125	0.4711	0.4299	M(PR) 2
	TURN(PR)	28.279	24.821	25.142	25.934	24.205	21.303	19.389	15.775	10.953	TURN(PR)
	UUBAR	0.1170	0.1378	0.0938	0.0492	0.0609	0.0748	0.1159	0.1089	0.2258	UUBAR
	LOSS PARA	0.0308	0.0364	0.0252	0.0137	0.0171	0.0208	0.0315	0.0485	0.0914	LOSS PARA
	DFAC	0.5477	0.5295	0.4919	0.4608	0.4598	0.4554	0.4803	0.5339	0.5783	DFAC
	EFFP	0.8415	0.8095	0.8734	0.9238	0.9192	0.8976	0.8575	0.7750	0.7166	EFFP
	EFF	0.8359	0.8033	0.8690	0.9209	0.9161	0.8939	0.8525	0.7678	0.7050	EFF
	INCID	0.404	-0.200	-0.033	-0.592	-0.727	-0.581	-0.790	-3.504	-7.172	INCID
	DEVM	9.404	11.731	10.767	6.875	5.841	6.495	6.807	9.014	14.000	DEVM
	P 1	14.441	14.709	14.756	14.761	14.759	14.752	14.649	14.594	14.347	P 1
	P 2	18.412	18.474	18.774	19.230	19.230	19.033	18.702	18.226	17.697	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	563.303	562.149	561.214	562.916	563.172	562.518	562.681	562.985	564.095	T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	44.500	42.250	39.800	37.900	37.400	36.800	38.800	43.200	49.000	BETA 2
	BETA 2A	-1.350	1.250	1.950	1.950	1.150	0.880	1.940	2.500	0.500	BETA 2A
	V 2	596.28	600.30	623.29	653.49	644.69	618.24	583.72	538.25	482.14	V 2
	V 2A	450.79	442.36	448.28	522.95	548.41	545.42	483.63	458.05	442.61	V 2A
	VZ 2	425.29	444.35	478.86	515.63	511.92	494.38	453.96	391.57	315.78	VZ 2
	VZ 2A	450.66	442.24	448.01	522.59	548.17	545.15	483.11	457.35	442.07	VZ 2A
	V-THETA 2	417.93	403.61	398.97	401.41	391.39	369.84	365.00	367.70	363.26	V-THETA 2
	V-THETA 2A	-10.62	9.65	15.25	17.79	11.00	8.37	16.36	19.97	3.86	V-THETA 2A
	M 2	0.5265	0.5308	0.5529	0.5805	0.5720	0.5475	0.5151	0.4730	0.4214	M 2
	M 2A	0.3934	0.3862	0.3919	0.4590	0.4822	0.4798	0.4233	0.4001	0.3856	M 2A
	TURN(PR)	45.849	40.999	37.850	35.948	36.230	35.862	36.764	40.592	46.389	TURN(PR)
	UUBAR	0.0657	0.1030	0.1629	0.0821	0.0217	-0.0100	0.1007	0.0256	-0.1522	UUBAR
	LOSS PARA	0.0221	0.0351	0.0561	0.0291	0.0080	-0.0039	0.0399	0.0102	-0.0614	LOSS PARA
	DFAC	0.4862	0.4867	0.4930	0.4089	0.3687	0.3442	0.4097	0.4092	0.3851	DFAC
	EFFP	0.8617	0.7960	0.6951	0.7985	0.9313	1.0400	0.7090	0.9152	1.0853	EFFP
	INCID	-5.668	-1.138	-0.489	-0.126	0.693	0.909	0.045	-0.028	-10.256	INCID
	DEVM	7.482	12.562	13.260	12.925	12.162	12.546	14.380	15.179	5.354	DEVM
	P 2	18.412	18.474	18.774	19.230	19.230	19.033	18.702	18.226	17.697	P 2
	P 2A	18.204	18.142	18.201	18.908	19.147	19.068	18.390	18.159	18.007	P 2A
	T 2	563.303	562.149	561.214	562.916	563.172	562.518	562.681	562.985	564.095	T 2
	T 2A	563.303	562.149	561.214	562.916	563.172	562.518	562.681	562.985	564.095	T 2A
	UUBAR FS	0.0800	0.1220	0.1236	0.0489	0.0375	0.0337	0.1884	0.2086	0.2227	UUBAR FS
	P2 FS	18.461	18.544	18.616	19.093	19.292	19.191	19.036	18.824	18.679	P2 FS
	LOSS PARA FS	0.269	0.0416	0.0425	0.0173	0.0138	0.0131	0.0749	0.0831	0.0898	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 110.70 Equivalent Rotor Speed = 4660.48 Equivalent Weight Flow = 127.64
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V C	511.45	511.45	511.45	511.45	511.45	511.45	511.45	511.45	511.45	V C
V 1	549.50	565.86	561.15	556.48	550.87	552.86	549.24	536.03	516.95	V 1
VZ 0	511.45	511.45	511.45	511.44	511.41	511.36	511.32	511.31	511.31	VZ 0
VZ 1	549.50	565.86	561.15	556.48	550.83	552.77	549.10	535.88	516.82	VZ 1
V-THETA U	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	M 0
M 1	0.5046	0.5204	0.5158	0.5113	0.5059	0.5078	0.5043	0.4916	0.4733	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.5714	0.3951	0.3624	0.3682	0.3609	0.3609	0.3902	0.4576	0.5411	UUBAR
DFAC	-0.074	-0.106	-0.097	-0.088	-0.077	-0.081	-0.074	-0.048	-0.011	DFAC
EFFP	0.2225	0.3788	0.3772	0.3495	0.3231	0.3344	0.2966	0.1866	0.0406	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.546	15.546	15.546	15.546	15.546	15.546	15.546	15.546	15.546	P 0
P 1	14.309	14.690	14.761	14.749	14.765	14.765	14.701	14.555	14.374	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.465	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	35.499	32.769	31.411	29.787	28.707	26.509	27.491	31.031	39.256	BETA 2
BETA(PR) 1	50.716	48.414	48.238	49.503	51.572	52.842	53.778	54.659	55.796	BETA(PR) 1
BETA(PR) 2	27.523	26.623	26.337	26.217	30.164	33.297	37.537	41.989	55.362	BETA(PR) 2
V 1	550.98	604.91	616.28	612.28	598.32	600.63	602.00	589.01	568.98	V 1
V 2	672.58	710.20	732.84	773.77	754.25	753.32	702.73	630.50	466.88	V 2
VZ 1	550.87	604.77	616.21	612.25	597.58	598.20	598.04	584.82	565.27	VZ 1
VZ 2	547.55	597.14	625.42	671.52	661.24	673.07	621.79	538.84	380.74	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	390.54	384.37	381.93	384.38	362.12	335.71	323.55	324.17	294.80	V-THETA 2
V(PR) 1	870.1	911.2	925.2	942.8	961.9	991.8	1014.4	1013.5	1007.6	V(PR) 1
V(PR) 2	617.5	668.0	697.9	748.5	765.1	806.4	785.7	726.4	635.4	V(PR) 2
VTHETA PR1	-673.4	-681.5	-690.1	-716.9	-753.2	-789.3	-816.4	-824.7	-831.6	VTHETA PR1
VTHETA PK2	-235.3	-299.3	-309.6	-330.7	-384.3	-442.1	-477.8	-485.0	-522.2	VTHETA PK2
U 1	673.41	661.50	690.11	716.93	753.19	789.29	816.45	824.71	831.63	U 1
U 2	675.85	683.69	691.53	715.06	746.42	777.79	801.31	809.15	816.99	U 2
M 1	0.5080	0.5585	0.5696	0.5657	0.5520	0.5543	0.5556	0.5429	0.5234	M 1
M 2	0.5987	0.6356	0.6582	0.6960	0.6774	0.6782	0.6299	0.5611	0.4094	M 2
M(PR) 1	0.7990	0.8413	0.8552	0.8711	0.8874	0.9153	0.9362	0.9341	0.9269	M(PR) 1
M(PR) 2	0.5496	0.5979	0.6268	0.6733	0.6872	0.7259	0.7043	0.6464	0.5573	M(PR) 2
TURN(PR)	23.189	21.767	21.898	23.285	21.388	19.484	16.150	12.579	0.354	TURN(PR)
UUBAR	0.2135	0.2014	0.1705	0.1215	0.1304	0.1053	0.1785	0.2710	0.3909	UUBAR
LOSS PARA	0.0549	0.0528	0.0454	0.0335	0.0363	0.0296	0.0491	0.0706	0.0787	LOSS PARA
DFAC	0.4206	0.3908	0.3684	0.3313	0.3252	0.3000	0.3351	0.3393	0.4721	DFAC
EFFP	0.7290	0.7430	0.8035	0.8398	0.8230	0.8668	0.7549	0.6049	0.2892	EFFP
EFF	0.7290	0.7354	0.7973	0.8341	0.8169	0.8623	0.7479	0.5960	0.2815	EFF
INCID	-1.716	-2.502	-2.340	-2.540	-2.432	-3.157	-4.922	-7.663	-12.379	INCID
DEVM	12.373	12.463	11.703	7.576	6.954	5.738	5.914	8.850	19.392	DEVM
P 1	14.309	14.690	14.761	14.749	14.765	14.765	14.701	14.555	14.374	P 1
P 2	17.626	18.050	18.356	18.885	18.716	18.695	17.923	17.023	15.510	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	562.874	561.443	560.504	564.219	563.216	560.667	559.095	558.535	559.195	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	35.776	32.552	30.728	29.824	28.187	26.375	28.143	32.083	40.983	BETA 2
BETA 2A	-0.200	1.100	1.400	0.800	-0.100	0.800	0.650	-0.800	-5.002	BETA 2A
V 2	668.11	714.60	747.64	773.77	768.21	758.02	688.57	612.68	451.23	V 2
V 2A	610.92	627.80	653.77	715.09	703.19	698.97	615.26	580.88	562.12	V 2A
VZ 2	542.02	602.33	642.57	671.17	676.76	678.43	606.34	518.42	340.23	VZ 2
VZ 2A	610.91	627.66	653.54	714.92	702.95	698.49	614.72	580.31	559.39	VZ 2A
V-THETA 2	390.61	384.50	382.11	384.75	362.68	336.40	324.34	324.99	295.56	V-THETA 2
V-THETA 2A	-2.13	12.05	15.97	9.98	-1.23	9.76	6.98	-0.11	-48.96	V-THETA 2A
M 2	0.5944	0.6399	0.6727	0.6960	0.6911	0.6828	0.6162	0.5443	0.3953	M 2
M 2A	0.5404	0.5570	0.5821	0.6387	0.6278	0.6253	0.5464	0.5145	0.4967	M 2A
TURN(PR)	35.978	31.452	29.337	29.018	28.271	25.546	27.451	32.835	45.920	TURN(PR)
UUBAR	0.0768	0.1196	0.1073	0.0498	0.0550	0.0815	0.1954	0.0886	-0.6440	UUBAR
LOSS PARA	0.0259	0.0408	0.0369	0.0177	0.0204	0.0314	0.0774	0.0354	-0.2588	LOSS PARA
DFAC	0.2837	0.2991	0.2943	0.2483	0.2606	0.2446	0.2901	0.2705	0.0635	DFAC
EFFP	0.5916	0.5485	0.6141	0.7175	0.7184	0.5449	0.1507	0.2209	-0.0459	EFFP
INCID	-14.389	-10.835	-9.552	-8.206	-8.516	-9.487	-10.557	-11.084	-18.221	INCID
DEVM	8.632	12.412	12.710	11.775	10.912	12.466	13.091	11.880	-6.142	DEVM
P 2	17.626	18.050	18.356	18.885	18.716	18.695	17.923	17.023	15.510	P 2
P 2A	17.339	17.529	17.841	18.625	18.435	18.287	17.131	16.748	16.530	P 2A
T 2	562.874	561.443	560.504	564.219	563.216	560.667	559.095	558.535	559.195	T 2
T 2A	562.874	561.443	560.504	564.219	563.216	560.667	559.095	558.535	559.195	T 2A
UUBAR FS	0.1487	0.1386	0.0923	0.0346	0.0308	0.0408	0.2732	0.3140	0.3062	UUBAR FS
P2 FS	17.943	14.144	18.276	18.803	18.589	18.483	18.356	18.044	17.679	P2 FS
LOSS PARA FS	0.0511	0.0472	0.0317	0.0123	0.0114	0.0157	0.0182	0.1254	0.1230	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
Stage E, Rotor E - Stator E

Calculations Using Translated Values
Percent Equivalent Rotor Speed = 109.62 Equivalent Rotor Speed = 4614.80 Equivalent Weight Flow = 122.36
Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	490.72	490.72	490.72	490.72	490.72	490.72	490.72	490.72	490.72	V 0
V 1	512.41	531.49	528.61	517.35	526.49	524.08	522.57	507.29	480.19	V 1
VZ 0	490.72	490.72	490.72	490.71	490.68	490.64	490.59	490.59	490.59	VZ 0
VZ 1	512.40	531.49	528.61	517.34	526.45	523.99	522.44	507.15	480.06	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.4483	0.4483	0.4483	0.4483	0.4483	0.4483	0.4483	0.4483	0.4483	M 0
M 1	0.4689	0.4872	0.4845	0.4737	0.4824	0.4801	0.4787	0.4641	0.4383	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UJBAR	0.5447	0.3603	0.3228	0.3212	0.3196	0.3254	0.3782	0.4332	0.5383	UJBAR
DFAC	-0.044	-0.083	-0.077	-0.054	-0.073	-0.068	-0.065	-0.034	-0.021	DFAC
EFFP	0.1489	0.3395	0.3477	0.2711	0.3365	0.3165	0.2745	0.1441	-0.0506	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.406	15.406	15.406	15.406	15.406	15.406	15.406	15.406	15.406	P 0
P 1	14.325	14.691	14.766	14.769	14.772	14.760	14.656	14.547	14.336	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	45.600	44.290	41.155	37.984	37.533	36.578	36.721	42.461	48.728	BETA 2
BETA(PR) 1	52.394	50.003	49.780	51.425	52.635	54.130	54.956	55.973	57.592	BETA(PR) 1
BETA(PR) 2	26.414	27.458	26.525	25.795	28.623	32.376	36.646	40.717	47.035	BETA(PR) 2
V 1	513.72	566.32	577.96	566.23	570.19	567.43	570.77	555.38	526.20	V 1
V 2	630.18	632.58	662.32	710.64	709.58	697.81	659.27	612.81	555.02	V 2
VZ 1	513.62	566.19	577.89	566.20	569.49	565.13	567.01	551.43	522.77	VZ 1
VZ 2	446.90	452.79	498.67	560.10	562.49	559.67	513.35	451.21	365.55	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	450.23	441.70	435.86	437.35	432.13	415.32	411.58	412.89	416.50	V-THETA 2
V(PR) 1	841.7	881.0	895.0	908.1	938.8	965.8	989.6	987.6	977.2	V(PR) 1
V(PR) 2	492.3	510.3	557.4	622.1	641.1	663.6	641.1	596.5	537.2	V(PR) 2
VTHETA PR1	-666.8	-674.8	-683.3	-709.9	-745.8	-781.6	-808.4	-816.6	-823.5	VTHETA PR1
VTHETA PR2	-219.0	-235.3	-248.9	-270.7	-307.0	-356.8	-381.9	-388.3	-392.5	VTHETA PR2
U 1	666.81	674.82	683.34	709.90	745.01	781.55	808.44	816.63	823.48	U 1
U 2	669.23	676.99	684.76	708.05	739.11	770.16	793.45	801.22	808.98	U 2
M 1	0.4702	0.5208	0.5321	0.5207	0.5246	0.5219	0.5251	0.5102	0.4821	M 1
M 2	0.5544	0.5373	0.5859	0.6308	0.6296	0.6187	0.5793	0.5377	0.4838	M 2
M(PR) 1	0.7704	0.8102	0.8240	0.8351	0.8637	0.8883	0.9105	0.9073	0.8954	M(PR) 1
M(PR) 2	0.4331	0.4496	0.4930	0.5523	0.5688	0.5884	0.5639	0.5234	0.4683	M(PR) 2
TURN(PR)	25.976	22.540	23.252	25.629	23.992	21.694	18.221	15.166	10.488	TURN(PR)
UJBAR	0.1092	0.1565	0.1071	0.0381	0.0425	0.0461	0.1070	0.1694	0.2323	UJBAR
LOSS PARA	0.0283	0.0407	0.0285	0.0106	0.0120	0.0131	0.0298	0.0450	0.0561	LOSS PARA
DFAC	0.5703	0.5680	0.5220	0.4629	0.4647	0.4565	0.4952	0.5412	0.5999	DFAC
EFFP	0.8575	0.8102	0.8788	0.9604	0.9750	0.9815	0.8511	0.8187	0.7386	EFFP
EFF	0.8516	0.8030	0.8738	0.9585	0.9738	0.9806	0.8445	0.8114	0.7289	EFF
INCID	-0.037	-0.914	-0.799	-0.618	-1.368	-1.868	-3.741	-8.348	-10.578	INCID
DEVM	11.265	13.298	11.891	7.154	5.413	4.817	5.024	7.579	11.058	DEVM
P 1	14.325	14.691	14.766	14.769	14.772	14.760	14.656	14.547	14.338	P 1
P 2	19.082	19.135	19.554	20.288	20.445	20.393	19.837	19.240	18.579	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	576.701	569.359	568.299	570.086	570.534	569.876	574.189	571.864	573.387	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	45.972	44.011	40.332	38.033	36.892	36.417	39.663	44.037	51.383	BETA 2
BETA 2A	-2.400	0.300	1.550	2.000	0.850	1.108	1.201	0.750	-1.751	BETA 2A
V 2	626.29	635.96	673.79	710.64	721.26	701.61	647.07	596.06	534.91	V 2
V 2A	476.86	470.44	476.86	559.71	591.92	586.67	517.84	484.99	469.52	V 2A
VZ 2	435.27	457.38	513.62	559.66	576.60	564.14	497.60	428.08	333.57	VZ 2
VZ 2A	476.44	470.42	476.66	559.30	591.65	586.21	517.31	484.31	468.81	VZ 2A
V-THETA 2	450.30	441.85	436.07	437.76	432.79	416.17	412.58	413.94	417.60	V-THETA 2
V-THETA 2A	-19.97	2.46	12.90	19.53	8.78	11.26	10.84	6.34	-14.33	V-THETA 2A
M 2	0.5508	0.5605	0.5968	0.6308	0.6408	0.6223	0.5684	0.5221	0.4655	M 2
M 2A	0.4141	0.4088	0.4150	0.4895	0.5190	0.5144	0.4509	0.4210	0.4065	M 2A
TURN(PR)	48.372	43.710	38.780	36.026	36.023	35.283	38.414	43.236	53.074	TURN(PR)
UJBAR	0.0271	0.0579	0.1383	0.0921	0.0419	0.0530	0.1378	0.0813	-0.0900	UJBAR
LOSS PARA	0.0091	0.0197	0.0476	0.0327	0.0155	0.0204	0.0546	0.0325	-0.0363	LOSS PARA
DFAC	0.4916	0.4957	0.5087	0.4220	0.3977	0.3871	0.4471	0.4464	0.4497	DFAC
EFFP	0.9425	0.8861	0.7542	0.7899	0.8903	0.8479	0.8507	0.7828	1.3562	EFFP
INCID	-4.195	0.623	0.041	0.002	0.186	0.549	0.956	0.865	-7.820	INCID
DEVM	6.432	11.612	12.860	12.975	11.862	12.766	13.641	13.430	3.105	DEVM
P 2	19.082	19.135	19.554	20.288	20.445	20.393	19.837	19.240	18.579	P 2
P 2A	18.986	18.922	18.975	19.849	20.239	20.144	19.299	18.974	18.810	P 2A
T 2	576.701	569.359	568.299	570.086	570.534	569.876	574.189	571.864	573.387	T 2
T 2A	570.701	569.359	568.299	570.086	570.534	569.876	571.189	571.864	573.387	T 2A
UJBAR FS	0.4680	0.1186	0.1376	0.0505	0.0233	0.0229	0.2033	0.2260	0.2141	UJBAR FS
P2 FS	19.319	19.387	19.550	20.079	20.352	20.248	19.849	19.849	19.571	P2 FS
LOSS PARA FS	0.0295	0.0403	0.0473	0.0179	0.0086	0.0088	0.0805	0.0903	0.0863	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 109.38 Equivalent Rotor Speed = 4605.05 Equivalent Weight Flow = 116.81
 Uniform Inlet

INLET											
	PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA		33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0		467.18	467.18	467.18	467.18	467.18	467.18	467.18	467.18	467.18	V 0
V 1		490.01	502.32	494.31	494.46	505.92	501.72	486.57	477.52	449.15	V 1
VZ 0		467.18	467.18	467.18	467.17	467.15	467.10	467.06	467.05	467.06	VZ 0
VZ 1		490.01	502.31	494.31	494.45	505.88	501.64	486.45	477.39	449.03	VZ 1
V-THETA 0		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0		0.4260	0.4260	0.4260	0.4260	0.4260	0.4260	0.4260	0.4260	0.4260	M 0
M 1		0.4476	0.4593	0.4517	0.4518	0.4627	0.4587	0.4443	0.4353	0.4090	M 1
TURN		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR		0.5054	0.3301	0.3005	0.3000	0.2980	0.3040	0.3632	0.4027	0.5332	UUBAR
DFAC		-0.049	-0.075	-0.058	-0.058	-0.083	-0.074	-0.042	-0.622	0.039	DFAC
EFFP		0.1725	0.3348	0.2977	0.2992	0.3815	0.3497	0.1984	0.1051	-0.1747	EFFP
INCLD		-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0		15.300	15.300	15.300	15.300	15.300	15.300	15.300	15.300	15.300	P 0
P 1		14.394	14.708	14.761	14.762	14.764	14.755	14.649	14.578	14.344	P 1
T 0		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2		48.399	47.294	44.474	40.582	39.839	39.170	42.166	46.062	51.586	BETA 2
BETA(PR) 1		53.568	51.593	51.714	52.698	53.734	55.308	56.901	57.588	59.330	BETA(PR) 1
BETA(PR) 2		25.978	28.530	27.674	26.471	28.737	32.855	37.212	41.342	46.857	BETA(PR) 2
V 1		491.23	533.99	538.33	539.73	546.69	542.06	529.37	521.10	490.53	V 1
V 2		623.39	612.19	635.76	686.85	694.95	679.53	642.71	601.93	558.85	V 2
VZ 1		491.16	533.87	538.27	539.70	546.02	539.86	525.88	517.39	487.33	VZ 1
VZ 2		413.88	415.20	453.63	521.64	533.43	526.21	475.53	416.94	346.76	VZ 2
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2		466.14	449.85	445.41	446.81	445.05	428.70	430.67	432.69	437.28	V-THETA 2
V(PR) 1		827.1	859.4	868.8	860.6	923.4	949.8	946.9	967.3	957.0	V(PR) 1
V(PR) 2		460.4	472.6	512.2	582.7	608.6	627.3	598.3	556.5	507.9	V(PR) 2
VTHETA PR1		-665.4	-673.4	-681.9	-708.4	-744.2	-779.9	-806.7	-814.9	-821.7	VTHETA PR1
VTHETA PR2		-201.7	-225.7	-237.9	-259.7	-292.5	-339.8	-361.1	-366.8	-370.0	VTHETA PR2
U 1		665.40	673.40	681.90	708.40	744.23	779.90	806.74	814.90	821.74	U 1
U 2		667.81	675.56	683.31	706.55	737.54	768.53	791.70	799.53	807.27	U 2
M 1		0.4488	0.4896	0.4938	0.4951	0.5018	0.4974	0.4852	0.4773	0.4481	M 1
M 2		0.5466	0.5368	0.5595	0.6071	0.6145	0.6000	0.5645	0.5261	0.4857	M 2
M(PR) 1		0.7556	0.7880	0.7969	0.8170	0.8477	0.8715	0.8844	0.8859	0.8742	M(PR) 1
M(PR) 2		0.4037	0.4144	0.4508	0.5150	0.5382	0.5539	0.5255	0.4864	0.4415	M(PR) 2
TURN(PR)		27.586	23.058	24.037	26.226	24.977	22.395	19.605	16.162	12.410	TURN(PR)
UUBAR		0.1073	0.1561	0.1161	0.0441	0.0400	0.0511	0.1219	0.1854	0.2255	UUBAR
LOSS PARA		0.0279	0.0402	0.0305	0.0121	0.0113	0.0144	0.0337	0.0488	0.0546	LOSS PARA
DFAC		0.6069	0.6039	0.5628	0.4998	0.4954	0.4903	0.5334	0.5801	0.6297	DFAC
EFFP		0.8478	0.7877	0.8489	0.9605	0.9733	0.9656	0.8850	0.8067	0.7577	EFFP
EFF		0.8412	0.7794	0.8426	0.9378	0.9720	0.9640	0.8798	0.7986	0.7478	EFF
INCLD		1.137	0.676	1.135	0.655	-0.269	-0.687	-1.791	-4.726	-8.835	INCLD
DEVM		10.829	14.370	13.040	7.830	5.527	5.296	5.590	8.204	10.880	DEVM
P 1		14.394	14.708	14.761	14.762	14.764	14.755	14.649	14.578	14.344	P 1
P 2		19.399	19.295	19.638	20.367	20.648	20.555	20.034	19.493	19.014	P 2
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2		573.565	572.369	571.017	571.978	572.375	572.159	573.871	574.919	576.867	T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2		48.805	46.994	43.598	40.634	39.166	39.003	43.204	47.835	54.556	BETA 2
BETA 2A		-2.360	0.150	1.250	2.580	1.170	1.310	1.240	1.701	1.000	BETA 2A
V 2		619.59	615.36	646.24	686.85	706.03	683.09	631.19	585.73	538.55	V 2
VZ 2A		460.05	448.61	448.08	519.12	557.11	556.22	493.06	464.51	453.62	VZ 2A
VZ 2		408.07	419.72	467.99	521.16	547.18	530.44	459.66	392.85	312.09	VZ 2
VZ 2A		459.68	448.60	447.95	518.52	556.80	555.74	492.54	463.90	453.07	VZ 2A
V-THETA 2		466.22	450.00	445.63	447.23	445.73	429.58	431.71	433.79	438.44	V-THETA 2
V-THETA 2A		-18.46	1.17	9.77	23.37	11.37	12.71	10.66	13.77	7.91	V-THETA 2A
M 2		0.5431	0.5398	0.5693	0.6071	0.6251	0.6034	0.5537	0.5112	0.4673	M 2
M 2A		0.3980	0.3882	0.3882	0.4517	0.4861	0.4854	0.4275	0.4015	0.3911	M 2A
TURN(PR)		51.105	46.843	42.346	38.048	37.977	37.658	41.915	46.083	53.500	TURN(PR)
UUBAR		0.0275	0.0312	0.1166	0.1060	0.0575	0.0564	0.1249	0.0648	-0.0599	UUBAR
LOSS PARA		0.0092	0.0106	0.0401	0.0376	0.0213	0.0217	0.0495	0.0259	-0.0242	LOSS PARA
DFAC		0.5211	0.5195	0.5390	0.4640	0.4395	0.4219	0.4846	0.4955	0.4820	DFAC
EFFP		0.9452	0.9403	0.7991	0.7829	0.8683	0.8540	0.7124	0.8418	1.1878	EFFP
INCLD		-1.362	3.606	3.307	2.604	2.460	3.135	4.496	4.663	-4.646	INCLD
DEVM		6.532	11.462	12.560	13.555	12.182	12.976	13.680	14.379	5.853	DEVM
P 2		19.399	19.295	19.638	20.367	20.648	20.555	20.034	19.493	19.014	P 2
P 2A		19.302	19.184	19.184	19.891	20.374	20.302	19.563	19.284	19.172	P 2A
T 2		573.565	572.369	571.017	571.978	572.375	572.159	573.871	574.919	576.867	T 2
T 2A		573.565	572.369	571.017	571.978	572.375	572.159	573.871	574.919	576.867	T 2A
UUBAR FS		0.0314	0.1259	0.1509	0.0859	0.0309	0.0339	0.1868	0.1952	0.1679	UUBAR FS
P2 FS		19.602	19.674	19.794	20.268	20.518	20.450	20.320	20.008	19.757	P2 FS
LOSS PARA FS		0.0259	0.0431	0.0519	0.0304	0.0114	0.0130	0.0740	0.0780	0.0678	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 109.36 Equivalent Rotor Speed = 4604.26 Equivalent Weight Flow = 111.46
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	444.45	444.45	444.45	444.45	444.45	444.45	444.45	444.45	444.45	V 0
V 1	459.31	469.24	463.49	474.75	473.64	475.51	458.92	451.89	419.52	V 1
VZ 0	444.45	444.45	444.45	444.44	444.42	444.38	444.34	444.33	444.34	VZ 0
VZ 1	459.31	469.24	463.49	474.74	473.61	475.43	458.80	451.77	419.41	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.4046	0.4046	0.4046	0.4046	0.4046	0.4046	0.4046	0.4046	0.4046	M 0
M 1	0.4185	0.4279	0.4225	0.4331	0.4321	0.4336	0.4182	0.4116	0.3812	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4807	0.3141	0.2847	0.2828	0.2815	0.2873	0.3524	0.3881	0.5350	UUBAR
DFAC	-0.033	-0.056	-0.043	-0.046	-0.066	-0.070	-0.033	-0.017	0.056	DFAC
EFFP	0.1291	0.2786	0.2457	0.3459	0.3382	0.3481	0.1653	0.0838	-0.2696	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVH
P 0	15.215	15.215	15.215	15.215	15.215	15.215	15.215	15.215	15.215	P 0
P 1	14.435	14.706	14.753	14.756	14.758	14.749	14.643	14.585	14.347	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	50.999	50.603	47.895	43.080	42.445	41.859	45.696	50.516	55.712	BETA 2
BETA (PR) 1	55.319	53.537	53.574	53.870	55.590	56.796	58.483	59.064	61.074	BETA (PR) 1
BETA (PR) 2	23.839	28.884	29.394	26.470	29.518	33.077	38.403	42.423	45.103	BETA (PR) 2
V 1	460.42	497.64	503.19	517.08	510.33	512.42	497.89	491.83	457.01	V 1
V 2	632.78	601.54	610.21	674.92	675.09	667.52	624.67	591.74	580.67	V 2
VZ 1	460.43	497.52	503.13	517.05	509.70	510.34	494.61	488.33	454.03	VZ 1
VZ 2	398.22	381.78	409.13	492.96	498.00	496.62	435.60	375.72	326.75	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	491.75	464.83	452.72	460.97	455.46	444.95	446.35	456.04	479.21	V-THETA 2
V (PR) 1	809.1	837.2	847.4	876.9	902.3	933.1	947.9	951.7	940.1	V (PR) 1
V (PR) 2	435.4	436.0	469.6	550.7	572.5	593.5	557.0	510.0	463.8	V (PR) 2
VTHETA PR1	-665.3	-673.3	-681.8	-708.3	-744.1	-779.8	-806.6	-814.8	-821.6	VTHETA PR1
VTHETA PR2	-176.0	-210.6	-230.5	-245.5	-282.0	-323.5	-345.3	-343.4	-327.9	VTHETA PR2
U 1	665.28	673.28	681.78	708.28	744.11	779.77	806.60	814.76	821.60	U 1
U 2	667.70	675.45	683.19	706.43	737.42	768.40	791.64	799.39	807.14	U 2
M 1	0.4196	0.4549	0.4601	0.4734	0.4670	0.4690	0.4551	0.4493	0.4164	M 1
M 2	0.5531	0.5254	0.5346	0.5950	0.5950	0.5877	0.5464	0.5158	0.5042	M 2
M (PR) 1	0.7373	0.7653	0.7749	0.8029	0.8256	0.8539	0.8664	0.8695	0.8566	M (PR) 1
M (PR) 2	0.3806	0.3809	0.4114	0.4855	0.5046	0.5225	0.4872	0.4445	0.4026	M (PR) 2
TURN (PR)	31.477	24.649	24.178	27.399	26.054	23.664	20.002	16.562	15.915	TURN (PR)
UUBAR	0.0999	0.1599	0.1286	0.0413	0.0441	0.0540	0.1385	0.2068	0.2443	UUBAR
LOSS PARA	0.0265	0.0411	0.0333	0.0114	0.0124	0.0158	0.0377	0.0535	0.0611	LOSS PARA
DFAC	0.6382	0.6423	0.6046	0.5335	0.5273	0.5232	0.5743	0.6306	0.6857	DFAC
EFFP	0.8427	0.7763	0.8249	0.9505	0.9706	0.9694	0.8671	0.8133	0.7943	EFFP
EFF	0.8354	0.7672	0.8176	0.9482	0.9691	0.9679	0.8610	0.8052	0.7850	EFF
INCLD	2.888	2.621	2.996	1.828	1.588	0.803	-0.205	-3.246	-7.085	INCLD
DEVH	8.689	14.724	14.760	7.830	6.307	5.517	6.779	9.285	9.126	DEVH
P 1	14.435	14.706	14.753	14.756	14.758	14.749	14.643	14.585	14.347	P 1
P 2	19.860	19.508	19.674	20.595	20.782	20.782	20.171	19.736	19.581	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	577.955	575.553	573.074	573.373	573.684	573.858	576.425	576.837	580.092	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	51.450	50.272	46.945	43.137	41.738	41.683	46.852	52.590	59.297	BETA 2
BETA 2A	-2.350	-0.100	0.750	1.650	1.300	1.250	0.930	1.420	1.621	BETA 2A
V 2	628.89	604.61	619.89	674.92	685.45	670.94	613.77	575.99	559.12	V 2
VZ 2A	461.89	439.81	426.56	487.83	525.82	520.40	472.51	445.59	441.91	VZ 2A
VZ 2	391.92	386.43	423.18	492.64	511.29	500.73	419.41	349.68	285.32	VZ 2
VZ 2A	461.49	439.80	426.50	487.56	525.51	519.97	472.06	445.05	441.27	VZ 2A
V-THETA 2	491.83	464.99	452.96	461.41	456.16	445.87	447.43	457.19	480.48	V-THETA 2
V-THETA 2A	-18.96	-0.77	5.58	14.04	11.93	11.35	7.66	11.04	12.48	V-THETA 2A
M 2	0.5495	0.5282	0.5436	0.5950	0.6048	0.5910	0.5363	0.5014	0.4845	M 2
M 2A	0.3981	0.3793	0.3684	0.4230	0.4971	0.4521	0.4081	0.3840	0.3796	M 2A
TURN (PR)	53.800	50.371	46.194	41.480	40.420	40.398	45.872	51.119	57.626	TURN (PR)
UUBAR	0.0250	-0.0080	0.0763	0.1339	0.0756	0.0895	0.1002	0.0492	0.0078	UUBAR
LOSS PARA	0.0084	-0.0027	0.0263	0.0476	0.0280	0.0345	0.0397	0.0197	0.0032	LOSS PARA
DFAC	0.5392	0.5350	0.5606	0.5133	0.4737	0.4749	0.5156	0.5380	0.5493	DFAC
EFFP	0.9516	1.0152	0.8695	0.7515	0.8393	0.8021	0.7783	0.8886	0.9810	EFFP
INCLD	1.283	6.884	6.655	5.106	5.033	5.814	8.144	9.419	0.100	INCLD
DEVH	6.482	11.212	12.060	12.625	12.312	12.916	13.371	14.099	6.473	DEVH
P 2	19.860	19.508	19.674	20.595	20.782	20.782	20.171	19.736	19.581	P 2
P 2A	19.768	19.535	19.404	20.008	20.438	20.390	19.811	19.583	19.558	P 2A
T 2	577.955	575.553	573.074	573.373	573.684	573.858	576.425	576.837	580.092	T 2
T 2A	577.955	575.553	573.074	573.373	573.684	573.858	576.425	576.837	580.092	T 2A
UUBAR FS	0.1148	0.1344	0.1366	0.1227	0.0688	0.0688	0.1690	0.1251	0.0921	UUBAR FS
P2 FS	20.234	20.063	19.923	20.539	20.731	20.684	20.467	20.089	19.970	P2 FS
LOSS PARA FS	0.0385	0.0453	0.0471	0.0436	0.0241	0.0265	0.0669	0.0584	0.0513	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 110.30 Equivalent Rotor Speed = 4643.61 Equivalent Weight Flow = 107.01
 Uniform Inlet

INLET												
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN		
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA		
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0		
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1		
V 0	425.36	425.36	425.36	425.36	425.36	425.36	425.36	425.36	425.36	V 0		
V 1	462.78	455.17	455.81	453.22	458.24	460.46	436.95	430.03	399.49	V 1		
VZ 0	425.35	425.36	425.36	425.35	425.32	425.29	425.25	425.24	425.24	VZ 0		
VZ 1	442.78	455.17	455.81	453.22	458.21	460.38	436.84	429.91	399.38	VZ 1		
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0		
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1		
M 0	0.3866	0.3866	0.3866	0.3866	0.3866	0.3866	0.3866	0.3866	0.3866	M 0		
M 1	0.4030	0.4146	0.4152	0.4128	0.4175	0.4196	0.3975	0.3910	0.3625	M 1		
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN		
UUBAR	0.4682	0.3049	0.2737	0.2709	0.2702	0.2695	0.3397	0.3758	0.5224	UUBAR		
DFAC	-0.041	-0.070	-0.072	-0.066	-0.077	-0.083	-0.027	-0.011	0.061	DFAC		
EFFP	0.1572	0.3340	0.3640	0.3453	0.3856	0.4026	0.1460	0.0580	-0.3063	EFFP		
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID		
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM		
P 0	15.153	15.153	15.153	15.153	15.153	15.153	15.153	15.153	15.153	P 0		
P 1	14.458	14.700	14.747	14.751	14.752	14.753	14.649	14.595	14.378	P 1		
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0		
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1		
ROTOR E												
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN		
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA		
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1		
BETA 2	51.999	52.107	49.709	44.778	43.751	43.850	49.121	53.120	58.783	BETA 2		
BETA (PR) 1	56.521	54.623	54.282	55.410	56.726	57.888	59.978	60.556	62.480	BETA (PR) 1		
BETA (PR) 2	24.362	29.911	30.854	27.340	29.894	33.570	39.966	44.092	45.977	BETA (PR) 2		
V 1	443.64	482.26	494.49	492.64	493.08	495.56	473.20	467.18	434.55	V 1		
V 2	631.26	596.27	599.65	665.02	672.17	662.27	612.85	584.43	585.58	V 2		
VZ 1	443.75	482.15	494.43	492.61	492.47	493.56	470.08	463.86	431.72	VZ 1		
VZ 2	388.64	366.21	387.77	472.05	485.40	477.11	400.53	350.28	303.20	VZ 2		
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1		
V-THETA 2	497.42	470.54	457.39	468.41	464.68	458.34	462.73	466.88	500.31	V-THETA 2		
V (PR) 1	804.5	832.9	847.0	867.7	898.0	929.5	941.1	945.2	935.7	V (PR) 1		
V (PR) 2	426.7	422.5	451.7	531.4	560.1	573.4	523.6	488.6	437.1	V (PR) 2		
VTHETA PR1	-671.0	-679.0	-687.6	-714.3	-750.5	-786.4	-813.5	-821.7	-828.6	VTHETA PR1		
VTHETA PR2	-176.0	-210.7	-231.6	-244.1	-279.0	-316.6	-335.7	-339.3	-313.7	VTHETA PR2		
U 1	670.97	679.04	687.61	714.33	750.47	786.43	813.49	821.73	828.62	U 1		
U 2	673.41	681.22	689.03	712.47	743.72	774.97	798.41	806.22	814.03	U 2		
M 1	0.4040	0.4403	0.4519	0.4501	0.4505	0.4529	0.4317	0.4260	0.3953	M 1		
M 2	0.5513	0.5202	0.5243	0.5844	0.5909	0.5814	0.5341	0.5076	0.5078	M 2		
M (PR) 1	0.7322	0.7603	0.7739	0.7928	0.8205	0.8495	0.8585	0.8619	0.8516	M (PR) 1		
M (PR) 2	0.3726	0.3686	0.3949	0.4670	0.4924	0.5034	0.4563	0.4244	0.3790	M (PR) 2		
TURN (PR)	32.156	24.708	23.426	28.089	26.815	24.265	19.940	16.391	16.451	TURN (PR)		
UUBAR	0.0960	0.1580	0.1338	0.0931	0.0460	0.0740	0.1768	0.2275	0.2679	UUBAR		
LOSS PARA	0.0253	0.0402	0.0341	0.0145	0.0126	0.0207	0.0470	0.0573	0.0660	LOSS PARA		
DFAC	0.6491	0.6587	0.6272	0.5534	0.5421	0.5478	0.6127	0.6546	0.7206	DFAC		
EFFP	0.8542	0.7871	0.8187	0.9267	0.9581	0.9458	0.8339	0.7838	0.8009	EFFP		
EFF	0.8473	0.7762	0.8111	0.9231	0.9559	0.9430	0.8262	0.7742	0.7916	EFF		
INCID	0.090	3.707	3.703	3.367	2.725	1.896	1.295	-1.749	-5.674	INCID		
DEVM	9.212	15.751	16.219	8.699	6.683	6.010	8.341	10.953	10.000	DEVM		
P 1	14.458	14.700	14.747	14.751	14.752	14.753	14.649	14.595	14.378	P 1		
P 2	20.058	19.656	19.748	20.677	20.965	20.924	20.202	19.831	19.852	P 2		
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1		
T 2	578.721	576.383	574.353	575.615	576.021	576.451	579.085	580.026	581.967	T 2		
STATOR E												
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN		
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA		
BETA 2	52.465	51.761	48.714	44.839	43.017	43.666	50.410	55.384	62.900	BETA 2		
BETA 2A	-1.160	0.050	-0.100	0.600	1.480	1.070	0.840	1.500	1.881	BETA 2A		
V 2	627.39	599.29	609.01	665.02	682.41	665.63	602.34	569.08	563.75	V 2		
V 2A	443.05	419.05	405.08	469.57	506.69	513.22	464.63	444.09	440.54	V 2A		
VZ 2	382.23	370.92	401.83	471.51	498.76	481.18	383.59	323.08	256.70	VZ 2		
VZ 2A	442.96	419.04	405.06	469.47	506.35	512.82	464.20	443.54	439.84	VZ 2A		
V-THETA 2	497.51	470.70	457.61	468.86	465.39	459.28	463.85	468.06	501.64	V-THETA 2		
V-THETA 2A	-8.97	0.37	-0.71	4.92	13.09	9.58	6.81	11.62	14.46	V-THETA 2A		
M 2	0.5477	0.5230	0.5329	0.5844	0.6006	0.5845	0.5245	0.4936	0.4879	M 2		
M 2A	0.3811	0.3607	0.3490	0.4058	0.4389	0.4446	0.4001	0.3816	0.3778	M 2A		
TURN (PR)	53.625	51.710	48.812	44.232	41.518	42.560	49.521	53.835	60.973	TURN (PR)		
UUBAR	0.0602	0.0164	0.0802	0.1563	0.1207	0.1036	0.0714	0.0210	0.0360	UUBAR		
LOSS PARA	0.0203	0.0056	0.0276	0.0555	0.0447	0.0399	0.0283	0.0084	0.0145	LOSS PARA		
DFAC	0.5658	0.5681	0.5942	0.5423	0.5038	0.4904	0.5309	0.5423	0.5692	DFAC		
EFFP	0.8923	0.9711	0.8699	0.7217	0.7626	0.7740	0.8408	0.9512	0.9158	EFFP		
INCID	2.298	8.373	8.423	6.808	6.311	7.797	11.703	12.215	3.707	INCID		
DEVM	7.672	11.362	11.210	11.575	12.492	12.736	13.281	14.179	6.733	DEVM		
P 2	20.058	19.656	19.748	20.677	20.965	20.924	20.202	19.831	19.852	P 2		
P 2A	19.835	19.601	19.470	20.009	20.418	20.477	19.956	19.767	19.744	P 2A		
T 2	578.721	576.383	574.353	575.615	576.021	576.451	579.085	580.026	581.967	T 2		
T 2A	578.721	576.383	574.353	575.615	576.021	576.451	579.085	580.026	581.967	T 2A		
UUBAR FS	0.1039	0.1304	0.1578	0.1403	0.0842	0.0781	0.1753	0.1629	0.1519	UUBAR FS		
P2 FS	20.238	20.094	20.068	20.596	20.784	20.805	20.638	20.346	20.259	P2 FS		
LOSS PARA FS	0.0350	0.0445	0.0543	0.0498	0.0311	0.0301	0.0695	0.0651	0.0612	LOSS PARA FS		

Table A-3. Blade Element Performance
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 100.54 Equivalent Rotor Speed = 4232.66 Equivalent Weight Flow = 121.43
 Uniform Inlet

INLET										
PCT SPAN	96.60	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	486.04	486.04	486.04	486.04	486.04	486.04	486.04	486.04	486.04	V 0
V 1	529.16	548.99	542.37	531.35	526.94	527.29	522.34	510.97	486.50	V 1
VZ 0	486.04	486.04	486.04	486.03	486.00	485.96	485.91	485.91	485.91	VZ 0
VZ 1	529.16	548.99	542.37	531.34	526.90	527.20	522.21	510.83	486.37	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.4438	0.4438	0.4438	0.4438	0.4438	0.4438	0.4438	0.4438	0.4438	M 0
M 1	0.4850	0.5041	0.4977	0.4871	0.4829	0.4832	0.4784	0.4676	0.4443	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.5418	0.3535	0.3212	0.3239	0.3164	0.3266	0.3788	0.4347	0.5402	UUBAR
DFAC	-0.069	-0.130	-0.116	-0.093	-0.084	-0.085	-0.075	-0.051	-0.001	DFAC
EFFP	0.2654	0.4553	0.4503	0.3924	0.3727	0.3672	0.3039	0.2045	0.0037	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.392	15.392	15.392	15.392	15.392	15.392	15.392	15.392	15.392	P 0
P 1	14.337	14.704	14.767	14.762	14.776	14.756	14.655	14.546	14.341	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.766	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	34.601	31.359	30.381	29.238	28.341	26.717	27.924	30.960	37.700	BETA 2
BETA(PR) 1	49.065	46.577	46.540	48.183	50.196	51.569	52.609	53.429	54.942	BETA(PR) 1
BETA(PR) 2	26.394	25.514	25.545	26.495	29.925	33.081	37.116	40.773	51.041	BETA(PR) 2
V 1	530.54	585.90	594.00	582.55	570.71	571.11	570.50	559.66	533.47	V 1
V 2	632.41	669.17	684.13	703.30	691.11	685.91	641.74	587.61	467.70	V 2
VZ 1	530.44	585.77	593.93	582.52	570.70	568.80	566.74	555.67	529.99	VZ 1
VZ 2	524.25	571.39	590.17	613.68	608.00	611.73	565.58	502.56	369.23	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	353.63	348.22	345.99	343.51	327.93	307.90	299.76	301.49	285.37	V-THETA 2
V(PR) 1	809.6	852.3	863.5	873.7	890.9	916.5	935.6	935.0	924.7	V(PR) 1
V(PR) 2	585.3	633.2	654.1	685.7	701.8	731.1	710.7	665.0	588.1	V(PR) 2
VTHETA PR1	-611.6	-618.9	-626.8	-651.1	-684.1	-716.8	-741.5	-749.0	-755.3	VTHETA PR1
VTHETA PR2	-260.2	-272.7	-282.1	-305.9	-350.0	-398.5	-428.0	-433.4	-456.6	VTHETA PR2
U 1	611.59	618.94	626.76	651.11	684.05	716.84	741.50	749.01	755.29	U 1
U 2	613.81	620.93	628.05	649.42	677.90	706.39	727.75	734.87	741.99	U 2
M 1	0.4863	0.5399	0.5478	0.5366	0.5251	0.5255	0.5249	0.5144	0.4891	M 1
M 2	0.5630	0.5989	0.6141	0.6313	0.6197	0.6156	0.5739	0.5228	0.4118	M 2
M(PR) 1	0.7421	0.7853	0.7963	0.8048	0.8196	0.8433	0.8608	0.8593	0.8478	M(PR) 1
M(PR) 2	0.5211	0.5667	0.5872	0.6155	0.6293	0.6561	0.6357	0.5917	0.5178	M(PR) 2
TURN(PR)	22.666	21.059	20.993	21.686	20.251	18.426	15.400	12.562	3.825	TURN(PR)
UUBAR	0.1664	0.1519	0.1310	0.1057	0.1172	0.1001	0.1598	0.2340	0.3360	UUBAR
LOSS PARA	0.0432	0.0402	0.0351	0.0291	0.0327	0.0282	0.0442	0.0621	0.0748	LOSS PARA
DFAC	0.4038	0.3771	0.3616	0.3360	0.3302	0.3145	0.3505	0.4008	0.4724	DFAC
EFFP	0.7121	0.7363	0.7941	0.8059	0.7877	0.8185	0.7397	0.6246	0.3974	EFFP
EFF	0.7045	0.7293	0.7884	0.8002	0.7816	0.8133	0.7332	0.6168	0.3893	EFF
INCID	-3.367	-4.339	-4.038	-3.860	-3.807	-4.432	-6.093	-8.896	-13.234	INCID
DEVM	11.245	11.354	10.911	7.855	6.715	5.522	5.493	7.635	15.066	DEVM
P 1	14.337	14.704	14.767	14.762	14.776	14.756	14.655	14.546	14.341	P 1
P 2	17.221	17.651	17.860	18.112	18.017	17.986	17.420	16.823	15.755	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	558.279	556.801	555.439	557.705	557.387	555.802	554.516	554.383	554.986	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	34.250	31.170	29.796	29.274	27.899	26.605	28.526	31.955	39.333	BETA 2
BETA 2A	-0.250	1.600	1.800	0.150	0.300	1.800	1.801	1.000	-1.701	BETA 2A
V 2	628.45	673.03	696.66	703.30	702.26	689.62	630.07	571.87	451.99	V 2
V 2A	566.94	585.36	608.60	659.41	659.63	659.63	576.98	546.61	531.27	V 2A
VZ 2	519.47	575.86	604.53	613.36	620.31	625.98	552.83	484.56	349.17	VZ 2
VZ 2A	566.93	585.12	608.27	659.32	659.40	658.91	576.23	546.04	530.68	VZ 2A
V-THETA 2	353.69	348.34	346.16	343.84	328.43	308.53	300.49	302.26	286.13	V-THETA 2
V-THETA 2A	-2.47	16.34	19.12	1.73	3.45	20.71	18.11	9.53	-15.75	V-THETA 2A
M 2	0.5593	0.6026	0.6262	0.6313	0.6304	0.6192	0.5628	0.5081	0.3975	M 2
M 2A	0.5016	0.5195	0.5420	0.5890	0.5894	0.5903	0.5128	0.4844	0.4701	M 2A
TURN(PR)	34.500	29.569	27.994	29.118	27.584	24.777	26.685	30.908	40.973	TURN(PR)
UUBAR	0.0912	0.1364	0.1124	0.0300	0.0163	0.0327	0.1744	0.1118	-0.3544	UUBAR
LOSS PARA	0.0407	0.0464	0.0387	0.0107	0.0061	0.0126	0.0691	0.0447	-0.1429	LOSS PARA
DFAC	0.2888	0.2983	0.2882	0.2356	0.2326	0.2050	0.2629	0.2501	0.0954	DFAC
EFFP	0.5655	0.5092	0.5894	0.7890	0.8820	0.6712	0.0364	-0.1698	0.1543	EFFP
INCID	-15.917	-12.218	-10.495	-8.756	-8.803	-9.256	-10.174	-11.212	-19.870	INCID
DEVM	8.582	12.912	13.110	11.125	11.312	13.465	14.240	13.679	3.155	DEVM
P 2	17.221	17.651	17.860	18.112	18.017	17.986	17.420	16.823	15.755	P 2
P 2A	10.921	17.127	17.394	17.984	17.948	17.852	16.833	16.519	16.331	P 2A
T 2	558.279	556.801	555.439	557.705	557.387	555.802	554.516	554.383	554.986	T 2
T 2A	558.279	556.801	555.439	557.705	557.387	555.802	554.516	554.383	554.986	T 2A
UUBAR FS	0.1561	0.1250	0.0970	0.0458	0.0419	0.0333	0.2423	0.2724	0.2775	UUBAR FS
P2 FS	17.475	17.601	17.789	18.182	18.130	17.988	17.721	17.422	17.176	P2 FS
LOSS PARA FS	0.0425	0.0445	0.0334	0.0163	0.0157	0.0128	0.0960	0.1089	0.1119	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 99.65 Equivalent Rotor Speed = 4195.46 Equivalent Weight Flow = 117.78
 Uniform Inlet

INLET										
PCT SPAN	96.60	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	471.36	471.36	471.38	471.38	471.38	471.38	471.38	471.38	471.38	V 0
V 1	503.44	515.60	508.54	506.86	498.93	497.93	490.41	483.56	456.53	V 1
VZ 0	471.37	471.38	471.38	471.37	471.34	471.30	471.26	471.25	471.25	VZ 0
VZ 1	503.48	515.60	508.54	506.85	498.90	497.85	490.28	483.43	456.41	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.4299	0.4299	0.4299	0.4299	0.4299	0.4299	0.4299	0.4299	0.4299	M 0
M 1	0.4604	0.4720	0.4653	0.4636	0.4561	0.4480	0.4415	0.4159	0.4159	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.5128	0.3342	0.3029	0.3040	0.3029	0.3063	0.3679	0.4067	0.5350	UUBAR
DFAC	-0.0666	-0.094	-0.079	-0.075	-0.058	-0.056	-0.040	-0.026	0.032	DFAC
EFFP	0.2245	0.3853	0.3662	0.3543	0.2977	0.2875	0.1921	0.1199	-0.1383	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DLVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DLVM
P 0	15.318	15.318	15.318	15.318	15.318	15.318	15.318	15.318	15.318	P 0
P 1	14.380	14.707	14.764	14.762	14.764	14.758	14.645	14.574	14.340	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.621	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	40.146	37.720	35.508	33.735	33.001	31.803	32.756	35.371	41.079	BETA 2
BETA (PR) 1	50.225	48.200	48.243	49.358	51.560	52.994	54.193	54.771	56.491	BETA (PR) 1
BETA (PR) 2	26.137	25.912	25.604	25.581	29.458	33.257	36.902	40.166	47.989	BETA (PR) 2
V 1	504.76	548.66	554.68	554.03	538.84	537.71	533.74	528.04	498.95	V 1
V 2	506.60	617.92	641.20	675.14	660.12	646.63	616.62	576.30	493.30	V 2
VZ 1	504.67	548.54	554.61	554.00	538.18	535.54	530.23	524.28	495.70	VZ 1
VZ 2	456.01	488.76	521.95	561.44	553.39	548.77	517.37	468.60	371.10	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	364.66	378.02	372.41	374.94	359.39	340.29	332.88	332.80	323.49	V-THETA 2
V (PR) 1	788.8	823.1	822.8	850.6	866.1	891.1	908.3	911.1	699.7	V (PR) 1
V (PR) 2	506.0	543.4	578.8	622.5	635.8	657.2	648.3	614.7	555.4	V (PR) 2
VTHETA PR1	-606.2	-613.5	-621.2	-645.4	-678.0	-710.5	-735.0	-742.4	-748.6	VTHETA PR1
VTHETA PR2	-225.6	-237.5	-250.1	-268.8	-312.6	-359.9	-388.5	-395.6	-412.0	VTHETA PR2
U 1	606.21	613.50	621.25	645.39	678.04	710.54	734.98	742.42	748.65	U 1
U 2	608.42	615.47	622.53	643.71	671.94	700.18	721.35	728.42	735.47	U 2
M 1	0.4616	0.5037	0.5096	0.5089	0.4943	0.4932	0.4894	0.4839	0.4561	M 1
M 2	0.5205	0.5496	0.5723	0.6035	0.5891	0.5767	0.5483	0.5105	0.4336	M 2
M (PR) 1	0.7215	0.7557	0.7651	0.7813	0.7945	0.8173	0.8328	0.8349	0.8224	M (PR) 1
M (PR) 2	0.4500	0.4833	0.5166	0.5565	0.5675	0.5861	0.5765	0.5445	0.4881	M (PR) 2
TURN (PR)	24.062	22.284	22.636	23.776	22.082	19.677	17.201	14.519	8.431	TURN (PR)
UUBAR	0.1175	0.1297	0.0834	0.0837	0.0447	0.0429	0.0769	0.1369	0.2074	UUBAR
LOSS PARA	0.0306	0.0342	0.0223	0.0107	0.0125	0.0121	0.0213	0.0367	0.0492	LOSS PARA
DFAC	0.4475	0.4747	0.4379	0.4036	0.3989	0.3900	0.4123	0.4522	0.5090	DFAC
EFFP	0.8155	0.8256	0.9071	0.9556	0.9454	0.9468	0.9047	0.8213	0.6866	EFFP
EFF	0.8047	0.8204	0.9041	0.9540	0.9435	0.9470	0.9015	0.8159	0.6786	EFF
INCLD	-2.206	-2.716	-2.335	-2.685	-2.443	-3.004	-4.506	-7.551	-11.682	INCLD
DEVM	10.967	11.752	10.971	6.941	6.247	5.698	5.280	7.023	12.012	DEVM
P 1	14.380	14.707	14.764	14.762	14.764	14.758	14.645	14.574	14.340	P 1
P 2	17.888	18.149	18.472	18.920	18.878	18.806	18.451	17.982	17.158	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	559.922	557.856	556.628	558.655	558.704	557.975	557.959	558.036	558.916	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.846	38.919	39.276	39.633	DIA
BETA 2	40.444	37.500	34.847	33.777	32.504	31.680	33.467	36.537	42.971	BETA 2
BETA 2A	-1.100	1.000	1.650	0.600	0.300	0.580	0.900	-0.300	-3.901	BETA 2A
V 2	593.06	621.18	652.12	675.14	670.14	649.88	605.83	561.11	476.36	V 2
V 2A	495.78	495.35	513.89	584.75	592.07	586.91	521.45	493.15	480.78	V 2A
VZ 2	451.34	492.61	535.16	561.09	564.90	552.54	504.77	450.29	348.18	VZ 2
VZ 2A	495.68	495.26	513.65	564.63	591.86	586.53	520.96	492.70	479.16	VZ 2A
V-THETA 2	364.72	378.15	374.59	375.29	359.54	340.99	333.68	333.65	324.35	V-THETA 2
V-THETA 2A	-9.52	8.64	14.80	6.12	3.10	5.94	8.19	-2.58	-32.68	V-THETA 2A
M 2	0.5252	0.5527	0.5827	0.6035	0.5987	0.5798	0.5381	0.4963	0.4182	M 2
M 2A	0.4354	0.4359	0.4534	0.5160	0.5249	0.5204	0.4597	0.4338	0.4222	M 2A
TURN (PR)	41.544	36.500	33.195	33.171	32.187	31.068	32.522	36.786	46.809	TURN (PR)
UUBAR	0.0305	0.1011	0.1266	0.0439	0.0156	0.0308	0.1614	0.1182	-0.1811	UUBAR
LOSS PARA	0.0112	0.0344	0.0436	0.0156	0.0056	0.0118	0.0640	0.0473	-0.0729	LOSS PARA
DFAC	0.3680	0.4052	0.4010	0.3286	0.3143	0.2964	0.3533	0.3621	0.2945	DFAC
EFFP	0.9049	0.7514	0.7036	0.8474	0.9383	0.8543	0.4381	0.5262	-7.9547	EFFP
INCLD	-9.723	-5.887	-5.444	-4.253	-4.200	-4.185	-5.237	-6.633	-16.233	INCLD
DEVM	7.732	12.312	12.960	11.575	11.312	12.246	13.341	12.380	0.957	DEVM
P 2	17.888	18.149	18.472	18.920	18.878	18.806	18.451	17.982	17.158	P 2
P 2A	17.755	17.805	17.991	18.739	18.815	18.688	17.918	17.653	17.511	P 2A
T 2	559.922	557.856	556.628	558.655	558.704	557.975	557.959	558.036	558.916	T 2
UUBAR FS	0.1085	0.1272	0.1139	0.0260	0.0175	0.0233	0.2324	0.2000	0.2498	UUBAR FS
P2 FS	18.156	18.250	18.417	18.844	18.886	18.776	18.755	18.516	18.276	P2 FS
LOSS PARA FS	0.3365	0.4432	0.0392	0.0092	0.0055	0.0089	0.0921	0.1040	0.1005	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 100.28 Equivalent Rotor Speed = 4221.89 Equivalent Weight Flow = 111.27
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	443.01	443.01	443.01	443.01	443.01	443.01	443.01	443.01	443.01	V 0
V 1	469.16	466.59	483.72	481.42	473.54	469.35	455.75	449.43	419.05	V 1
VZ 0	443.01	443.01	443.01	443.01	442.98	442.94	442.90	442.89	442.90	VZ 0
VZ 1	469.15	486.59	483.72	481.42	473.50	469.27	455.64	449.30	418.94	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	0.4032	M 0
M 1	0.4278	0.4444	0.4416	0.4395	0.4320	0.4280	0.4152	0.4092	0.3807	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4811	0.3148	0.2852	0.2826	0.2839	0.2870	0.3520	0.3861	0.5389	UUBAR
DFAC	-0.059	-0.098	-0.092	-0.087	-0.069	-0.059	-0.029	-0.014	0.054	DFAC
EFFP	0.2093	0.4100	0.4169	0.4045	0.3474	0.3107	0.1488	0.0736	-0.2553	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.216	15.216	15.216	15.216	15.216	15.216	15.216	15.216	15.216	P 0
P 1	14.441	14.709	14.756	14.761	14.759	14.752	14.649	14.594	14.347	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	44.498	42.328	40.031	37.883	37.520	36.689	38.276	42.420	47.838	BETA 2
BETA(PRI) 1	52.375	50.081	49.913	51.061	53.246	54.849	56.419	56.980	58.953	BETA(PRI) 1
BETA(PRI) 2	24.558	25.967	25.605	25.545	29.226	34.038	38.013	42.287	48.938	BETA(PRI) 2
V 1	470.30	516.67	526.25	524.81	510.21	505.51	494.31	489.03	456.48	V 1
V 2	596.28	599.34	620.18	653.49	642.52	619.32	589.87	545.65	490.37	V 2
VZ 1	470.21	516.55	526.19	524.78	509.58	503.47	491.05	485.55	453.50	VZ 1
VZ 2	425.30	443.08	474.86	515.77	509.42	496.00	462.14	402.02	328.62	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	417.91	403.56	398.90	401.26	391.17	369.56	364.66	367.35	362.90	V-THETA 2
V(PRI) 1	770.3	805.0	817.2	835.0	852.0	875.9	889.6	892.9	880.9	V(PRI) 1
V(PRI) 2	467.6	492.9	526.6	571.7	584.0	599.4	587.8	544.5	501.0	V(PRI) 2
VTHETA PRI	-610.0	-617.4	-625.2	-649.5	-682.3	-715.0	-739.6	-747.1	-753.4	VTHETA PRI
VTHETA PR2	-194.3	-215.8	-227.6	-246.5	-285.0	-335.0	-361.2	-365.6	-377.2	VTHETA PR2
U 1	610.03	617.37	625.16	649.44	682.31	715.01	739.61	747.10	753.37	U 1
U 2	612.25	619.35	626.45	647.76	676.18	704.59	725.90	733.00	740.11	U 2
M 1	0.4289	0.4730	0.4822	0.4808	0.4668	0.4624	0.4517	0.4467	0.4159	M 1
M 2	0.5265	0.5299	0.5500	0.5805	0.5700	0.5485	0.5208	0.4798	0.4288	M 2
M(PRI) 1	0.7025	0.7370	0.7488	0.7650	0.7796	0.8009	0.8129	0.8156	0.8025	M(PRI) 1
M(PRI) 2	0.4129	0.4358	0.4670	0.5078	0.5181	0.5308	0.5190	0.4788	0.4382	M(PRI) 2
TURN(PRI)	27.813	24.109	24.306	25.515	24.001	20.754	18.321	14.608	9.951	TURN(PRI)
UUBAR	0.1157	0.1357	0.0923	0.0488	0.0610	0.0741	0.1131	0.1833	0.2189	UUBAR
LOSS PARA	0.0305	0.0358	0.0247	0.0135	0.0171	0.0207	0.0309	0.0476	0.0509	LOSS PARA
DFAC	0.5504	0.5350	0.5007	0.4630	0.4617	0.4564	0.4803	0.5331	0.5758	DFAC
EFFP	0.8415	0.8095	0.8734	0.9238	0.9192	0.8976	0.8575	0.7750	0.7146	EFFP
EFF	0.8359	0.8033	0.8690	0.9209	0.9161	0.8939	0.8525	0.7678	0.7060	EFF
INCID	-0.056	-0.835	-0.665	-0.982	-0.757	-1.147	-2.275	-5.337	-9.212	INCID
DEVM	9.409	11.807	10.971	6.904	6.016	6.478	6.390	9.149	12.962	DEVM
P 1	14.441	14.709	14.756	14.761	14.759	14.752	14.649	14.594	14.347	P 1
P 2	18.412	18.474	18.774	19.230	19.230	19.033	18.702	18.226	17.697	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	563.303	562.149	561.214	562.916	563.172	562.518	562.681	562.985	564.095	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	44.842	42.078	39.290	37.931	36.950	36.554	39.123	43.884	50.256	BETA 2
BETA 2A	-1.350	1.250	1.950	1.950	1.150	0.880	1.941	2.501	0.500	BETA 2A
V 2	592.75	602.42	630.26	653.49	652.01	622.28	579.93	531.80	473.62	V 2
V 2A	450.81	442.38	448.30	522.93	548.41	545.42	483.64	458.06	442.43	V 2A
VZ 2	420.49	447.13	487.77	515.36	520.84	499.47	449.43	382.92	302.56	VZ 2
VZ 2A	450.68	442.27	448.02	522.56	548.12	545.03	482.97	457.22	441.95	VZ 2A
V-THETA 2	417.98	403.70	399.09	401.65	391.77	370.32	365.55	368.29	363.86	V-THETA 2
V-THETA 2A	-11.62	9.65	15.25	17.79	11.00	8.37	16.36	19.97	3.86	V-THETA 2A
M 2	0.5232	0.5328	0.5594	0.5805	0.5789	0.5512	0.5116	0.4671	0.4137	M 2
M 2A	0.3934	0.3863	0.3919	0.4590	0.4823	0.4798	0.4233	0.4001	0.3856	M 2A
TURN(PRI)	46.192	40.827	37.338	35.975	35.782	35.640	37.135	41.332	49.697	TURN(PRI)
UUBAR	0.2664	0.1024	0.1596	0.0821	0.0212	-0.0099	0.1019	0.0262	-0.1574	UUBAR
LOSS PARA	0.0224	0.0348	0.0549	0.0291	0.0079	-0.0038	0.0404	0.0105	-0.0635	LOSS PARA
DFAC	0.4831	0.4885	0.4986	0.4090	0.3759	0.3486	0.4060	0.4022	0.3742	DFAC
EFFP	0.8577	0.7991	0.7089	0.7985	0.9365	1.0377	0.6964	0.9070	2.1390	EFFP
INCID	-5.325	-1.310	-1.001	-0.100	0.245	0.686	0.416	0.712	-8.948	INCID
DEVM	7.482	12.562	13.260	12.925	12.162	12.546	14.380	15.179	5.354	DEVM
P 2	18.412	18.474	18.774	19.230	19.230	19.033	18.702	18.226	17.697	P 2
P 2A	18.204	18.142	18.201	18.908	19.147	19.068	18.390	18.159	18.007	P 2A
T 2	563.303	562.149	561.214	562.916	563.172	562.518	562.681	562.985	564.095	T 2
T 2A	563.303	562.149	561.214	562.916	563.172	562.518	562.681	562.985	564.095	T 2A
UUBAR FS	0.1809	0.1213	0.1210	0.0489	0.0367	0.0334	0.1905	0.2125	0.2279	UUBAR FS
P2 FS	18.461	18.544	18.616	19.093	19.292	19.191	19.036	18.824	18.679	P2 FS
LOSS PARA FS	0.0772	0.0412	0.0416	0.0173	0.0136	0.0128	0.0755	0.0851	0.0919	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 99.97 Equivalent Rotor Speed = 4208.84 Equivalent Weight Flow 106.84
 Uniform Inlet

INLET											
	PCT SPAN	96.20	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
	DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
	BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	V 0	424.58	424.58	424.58	424.58	424.58	424.58	424.58	424.58	424.58	V 0
	V 1	442.41	456.39	454.39	455.31	450.16	452.92	440.54	433.64	401.10	V 1
	VZ 0	424.58	424.58	424.58	424.57	424.55	424.51	424.47	424.46	424.47	VZ 0
	VZ 1	442.41	456.39	454.39	455.30	450.12	452.84	440.43	433.52	400.99	VZ 1
	V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	M 0	0.3859	0.3859	0.3859	0.3859	0.3859	0.3859	0.3859	0.3859	0.3859	M 0
	M 1	0.4126	0.4156	0.4139	0.4148	0.4099	0.4125	0.4009	0.3944	0.3640	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.4670	0.3053	0.2747	0.2691	0.2705	0.2733	0.3388	0.3757	0.5284	UUBAR
	DFAC	-0.042	-0.075	-0.070	-0.072	-0.060	-0.067	-0.036	-0.021	0.055	DFAC
	EFFP	0.1507	0.3492	0.3583	0.3706	0.3263	0.3477	0.1920	0.1074	-0.2680	EFFP
	INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
	DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
	P 0	15.153	15.153	15.153	15.153	15.153	15.153	15.153	15.153	15.153	P 0
	P 1	14.461	14.702	14.747	14.755	14.753	14.749	14.652	14.597	14.372	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	BETA 2	46.997	45.584	42.845	40.185	39.421	38.482	40.632	44.073	50.227	BETA 2
	BETA1PR) 1	53.906	51.648	51.665	52.602	54.596	55.759	57.260	57.862	60.006	BETA1PR) 1
	BETA1PR) 2	24.998	26.672	26.446	26.088	29.744	33.595	37.355	41.774	47.372	BETA1PR) 2
	V 1	443.47	483.59	492.88	495.00	484.06	487.14	477.22	471.25	436.35	V 1
	V 2	581.68	579.31	597.80	633.54	626.45	615.66	589.21	547.42	504.84	V 2
	VZ 1	443.38	483.48	492.82	494.97	483.46	485.17	474.08	467.89	433.50	VZ 1
	VZ 2	396.71	405.42	438.29	483.99	483.76	481.37	446.32	392.57	322.50	VZ 2
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	V-THETA 2	425.58	413.78	406.51	408.79	397.67	382.65	382.97	380.06	387.45	V-THETA 2
	V1PR) 1	752.7	782.7	794.6	815.6	834.9	863.4	878.3	881.4	868.6	V1PR) 1
	V1PR) 2	453.7	453.7	484.5	538.9	557.4	578.7	562.6	527.4	477.0	V1PR) 2
	VTHETA PR1	-60.81	-615.5	-623.2	-647.5	-680.2	-712.8	-737.3	-744.8	-751.0	VTHETA PR1
	VTHETA PR2	-203.7	-203.7	-218.0	-237.0	-276.4	-319.8	-350.7	-350.4	-350.4	VTHETA PR2
	U 1	608.15	615.46	623.23	647.45	680.20	712.80	737.33	744.79	751.04	U 1
	U 2	610.36	617.44	624.52	645.76	674.09	702.41	723.66	730.74	737.82	U 2
	M 1	0.4436	0.4415	0.4503	0.4524	0.4420	0.4449	0.4355	0.4298	0.3969	M 1
	M 2	0.5127	0.5110	0.5288	0.5618	0.5549	0.5449	0.5194	0.4806	0.4411	M 2
	M1PR) 1	0.6051	0.7146	0.7260	0.7448	0.7622	0.7885	0.8015	0.8039	0.7902	M1PR) 1
	M1PR) 2	0.3658	0.4002	0.4330	0.4778	0.4938	0.5122	0.4962	0.4630	0.4168	M1PR) 2
	TURN1PR)	28.903	25.171	25.216	26.514	24.834	22.107	19.822	16.005	12.573	TURN1PR)
	UUBAR	0.1044	0.1395	0.0986	0.0509	0.0526	0.0565	0.1057	0.1668	0.2163	UUBAR
	LOSS PARA	0.0274	0.0366	0.0262	0.0141	0.0147	0.0158	0.0292	0.0436	0.0519	LOSS PARA
	DFAC	0.5624	0.5756	0.5360	0.4929	0.4850	0.4777	0.5093	0.5513	0.6075	DFAC
	EFFP	0.8813	0.8211	0.8790	0.9434	0.9478	0.9461	0.8896	0.7995	0.7506	EFFP
	EFF	0.0562	0.8150	0.8747	0.9412	0.9457	0.9440	0.8855	0.7926	0.7423	EFF
	INCLD	1.474	0.932	1.086	0.560	0.594	-0.236	-1.431	-4.451	-8.156	INCLD
	DEVM	9.849	12.513	11.813	7.447	6.533	6.036	5.732	8.636	11.395	DEVM
	P 1	14.461	14.702	14.747	14.755	14.753	14.749	14.652	14.597	14.372	P 1
	P 2	18.594	18.588	18.831	19.305	19.362	19.326	19.016	18.532	18.099	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	563.042	562.816	561.599	562.690	562.997	562.811	564.001	564.674	566.265	T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.267	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
	BETA 2	47.366	45.312	42.054	40.237	38.835	38.340	41.555	45.631	52.898	BETA 2
	BETA 2A	-1.300	0.250	1.300	1.850	0.800	0.900	1.200	1.550	1.050	BETA 2A
	V 2	578.30	582.21	607.20	633.54	635.38	618.60	579.31	533.51	487.44	V 2
	V 2A	453.29	421.72	424.64	495.08	520.11	514.67	457.62	430.00	418.72	V 2A
	VZ 2	391.69	409.43	450.84	483.56	494.73	484.82	433.08	372.73	293.82	VZ 2
	VZ 2A	433.17	421.71	424.51	494.75	519.89	514.30	457.15	429.46	418.20	VZ 2A
	V-THETA 2	425.45	413.91	406.71	409.18	398.27	383.43	383.90	381.03	388.47	V-THETA 2
	V-THETA 2A	-9.883	1.84	9.463	15.98	7.26	8.08	9.58	11.62	7.67	V-THETA 2A
	M 2	0.5096	0.5137	0.5376	0.5618	0.5633	0.5476	0.5104	0.4678	0.4253	M 2
	M 2A	0.3775	0.3875	0.3705	0.4337	0.4564	0.4515	0.3993	0.3742	0.3637	M 2A
	TURN1PR)	46.066	45.061	40.753	38.380	38.017	37.405	40.306	44.028	51.792	TURN1PR)
	UUBAR	0.0505	0.0795	0.1365	0.0812	0.0275	0.0446	0.1392	0.0719	-0.0648	UUBAR
	LOSS PARA	0.0170	0.0271	0.0470	0.0288	0.0102	0.0172	0.0552	0.0288	-0.0261	LOSS PARA
	DFAC	0.5044	0.5168	0.5260	0.4396	0.4100	0.4028	0.4675	0.4726	0.4580	DFAC
	EFFP	0.8955	0.8460	0.7578	0.8143	0.9264	0.8711	0.6623	0.8110	1.2286	EFFP
	INCLD	-2.001	1.924	1.763	2.206	2.130	2.472	2.847	2.458	-6.304	INCLD
	DEVM	7.532	11.562	12.610	12.825	11.812	12.566	13.640	14.229	5.903	DEVM
	P 2	18.594	18.588	18.831	19.305	19.362	19.326	19.016	18.532	18.099	P 2
	P 2A	18.444	18.345	18.372	19.003	19.259	19.167	18.585	18.346	18.236	P 2A
	T 2	563.042	562.816	561.599	562.690	562.997	562.811	564.001	564.874	566.285	T 2
	T 2A	563.042	562.816	561.599	562.690	562.997	562.811	564.001	564.874	566.285	T 2A
	UUBAR FS	0.0881	0.1066	0.1120	0.0537	0.0221	0.0376	0.1981	0.2148	0.1958	UUBAR FS
	P2 FS	18.650	18.681	18.738	19.197	19.341	19.300	19.243	19.001	18.784	P2 FS
	LOSS PARA FS	0.0229	0.0369	0.0385	0.0190	0.0082	0.0145	0.0785	0.0860	0.0788	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 100.15 Equivalent Rotor Speed = 4216.49 Equivalent Weight Flow = 105.92
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA C	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA C
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	420.29	420.29	420.29	420.29	420.29	420.29	420.29	420.29	420.29	V 0
V 1	440.85	454.32	451.33	453.65	454.18	447.29	430.83	423.39	392.66	V 1
VZ 0	420.29	420.29	420.29	420.29	420.29	420.22	420.19	420.18	420.18	VZ 0
VZ 1	440.85	454.32	451.33	453.64	454.15	447.22	430.72	423.27	392.56	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M C	0.3819	0.3819	0.3819	0.3819	0.3819	0.3819	0.3819	0.3819	0.3819	M C
M 1	0.4012	0.4138	0.4110	0.4132	0.4137	0.4072	0.3918	0.3848	0.3561	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4649	0.3050	0.2715	0.2680	0.2694	0.2708	0.3369	0.3753	0.5324	UUBAR
DFAC	-0.049	-0.081	-0.074	-0.079	-0.081	-0.064	-0.025	-0.007	0.066	DFAC
EFFP	0.1837	0.3678	0.3729	0.3937	0.3965	0.3405	0.1365	0.0395	-0.3294	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	-0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.144	15.144	15.144	15.144	15.144	15.144	15.144	15.144	15.144	P 0
P 1	14.702	14.702	14.751	14.756	14.754	14.752	14.656	14.600	14.372	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	47.397	45.584	43.451	40.385	39.625	39.179	42.013	46.802	52.043	BETA 2
BETA(PR) 1	54.051	52.029	51.911	52.758	54.395	56.152	57.905	58.544	60.590	BETA(PR) 1
BETA(PR) 2	24.995	26.526	26.074	25.906	29.005	33.544	38.479	43.045	48.782	BETA(PR) 2
V 1	441.90	481.33	489.43	493.11	488.55	480.87	466.34	459.72	426.91	V 1
V 2	568.65	581.59	599.89	635.58	634.44	614.93	576.48	535.91	496.55	V 2
VZ 1	441.81	481.22	489.37	493.09	487.95	478.92	463.27	456.45	424.13	VZ 1
VZ 2	398.45	407.01	435.49	484.12	488.50	476.12	427.55	366.22	305.00	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	433.27	415.40	412.56	411.80	404.48	388.02	385.14	390.02	390.99	V-THETA 2
V(PR) 1	752.6	782.2	793.3	814.8	838.5	860.9	873.6	876.4	865.1	V(PR) 1
V(PR) 2	436.5	454.9	484.8	538.2	558.8	572.0	547.2	502.1	463.6	V(PR) 2
VTHETA PR1	-609.3	-616.6	-624.4	-648.6	-681.4	-714.1	-738.7	-746.1	-752.4	VTHETA PR1
VTHETA PR2	-203.2	-203.2	-213.1	-235.1	-270.8	-315.7	-339.8	-346.2	-348.2	VTHETA PR2
U 1	609.25	616.58	624.36	648.63	681.44	714.10	738.67	746.15	752.40	U 1
U 2	611.47	618.56	625.65	646.94	675.31	703.69	724.97	732.07	739.16	U 2
M 1	0.4022	0.4394	0.4471	0.4506	0.4462	0.4389	0.4252	0.4189	0.3881	M 1
M 2	0.5177	0.5117	0.5292	0.5622	0.5609	0.5429	0.5068	0.4692	0.4328	M 2
M(PR) 1	0.6849	0.7140	0.7246	0.7445	0.7658	0.7858	0.7965	0.7986	0.7864	M(PR) 1
M(PR) 2	0.3839	0.4003	0.4277	0.4760	0.4941	0.5051	0.4811	0.4396	0.4041	M(PR) 2
TURN(PR)	29.952	25.498	25.835	26.851	25.371	22.551	19.347	15.419	11.749	TURN(PR)
UUBAR	0.1115	0.1374	0.1045	0.0465	0.0430	0.0662	0.1329	0.2056	0.2314	UUBAR
LOSS PARA	0.0295	0.0361	0.0279	0.0129	0.0121	0.0185	0.0361	0.0527	0.0540	LOSS PARA
DFAC	0.5671	0.5744	0.5434	0.4947	0.4882	0.4860	0.5252	0.5817	0.6228	DFAC
EFFP	0.8197	0.7792	0.8303	0.8998	0.9198	0.9018	0.8284	0.7510	0.7174	EFFP
EFF	0.6131	0.7717	0.8242	0.8958	0.9165	0.8979	0.8221	0.7427	0.7081	EFF
INCID	1.626	1.113	1.333	0.715	0.393	0.157	-0.784	-3.767	-7.570	INCID
DEVM	8.946	12.366	11.440	7.265	5.795	5.985	6.855	9.906	12.805	DEVM
P 1	14.470	14.702	14.751	14.756	14.754	14.752	14.656	14.600	14.372	P 1
P 2	18.065	18.624	18.882	19.376	19.521	19.350	18.882	18.428	18.067	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	566.824	565.679	564.696	565.567	565.830	565.269	566.061	566.743	568.187	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	47.774	45.312	42.643	40.437	39.028	39.034	42.965	48.505	54.893	BETA 2
BETA 2A	-1.000	1.500	2.350	2.050	1.460	0.880	1.951	2.751	2.251	BETA 2A
V 2	585.21	584.50	609.33	635.58	643.57	617.85	567.00	522.46	479.53	V 2
V 2A	433.77	420.83	419.08	487.09	517.13	515.83	460.58	435.43	424.10	V 2A
VZ 2	393.29	411.04	448.20	483.69	499.75	479.56	414.53	345.88	275.59	VZ 2
VZ 2A	433.70	420.68	418.71	486.71	516.79	515.47	459.94	434.54	423.32	VZ 2A
V-THETA 2	-33.34	415.54	412.76	412.19	405.10	388.82	386.07	391.01	392.02	V-THETA 2
V-THETA 2A	-7.57	11.01	17.18	17.42	13.17	7.92	15.66	20.88	16.64	V-THETA 2A
M 2	0.5145	0.5144	0.5380	0.5622	0.5695	0.5457	0.4981	0.4589	0.4175	M 2
M 2A	0.3769	0.3657	0.3645	0.4253	0.4525	0.4515	0.4012	0.3784	0.3678	M 2A
TURN(PR)	48.774	43.811	40.291	38.381	37.550	38.119	40.966	45.703	52.589	TURN(PR)
UUBAR	0.0638	0.0667	0.1417	0.0984	0.0511	0.0224	0.0700	-0.0117	-0.1383	UUBAR
LOSS PARA	0.0147	0.0227	0.0487	0.0349	0.0189	0.0086	0.0277	-0.0047	-0.0558	LOSS PARA
DFAC	0.5126	0.5158	0.5359	0.4548	0.4227	0.4036	0.4480	0.4517	0.4333	DFAC
EFFP	0.9120	0.8743	0.7561	0.7873	0.8726	0.9344	0.8126	1.0353	1.5859	EFFP
INCID	-2.593	1.924	2.352	2.406	2.323	3.166	4.257	5.332	-4.308	INCID
DEVM	7.832	12.812	13.660	13.025	12.472	12.546	14.390	15.428	7.102	DEVM
P 2	18.065	18.624	18.882	19.376	19.521	19.350	18.882	18.428	18.067	P 2
P 2A	18.530	18.419	18.403	19.008	19.324	19.271	18.675	18.457	18.350	P 2A
T 2	566.824	565.679	564.696	565.567	565.830	565.269	566.061	566.743	568.187	T 2
T 2A	566.824	565.679	564.696	565.567	565.830	565.269	566.061	566.743	568.187	T 2A
UUBAR FS	0.099	0.1287	0.1287	0.0732	0.0494	0.0463	0.1641	0.1767	0.1714	UUBAR FS
P2 FS	15.927	18.820	18.831	19.274	19.514	19.439	19.212	18.991	18.831	P2 FS
LOSS PARA FS	0.31	0.417	0.442	0.0259	0.0182	0.0177	0.0649	0.0710	0.0691	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage E, Rotor E - Stator E

Calculations Using Translated Values

Percent Equivalent Rotor Speed = 99.24 Equivalent Rotor Speed = 4177.81 Equivalent Weight Flow = 102.92
Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	407.80	407.80	407.80	407.80	407.80	407.80	407.80	407.80	407.80	V 0
V 1	421.71	434.89	430.37	433.53	431.43	431.00	418.89	409.96	379.18	V 1
VZ 0	407.79	407.79	407.79	407.79	407.77	407.73	407.69	407.69	407.69	VZ 0
VZ 1	421.71	434.89	430.37	433.52	431.40	430.92	418.79	409.85	379.08	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3702	0.3702	0.3702	0.3702	0.3702	0.3702	0.3702	0.3702	0.3702	M 0
M 1	0.3832	0.3956	0.3913	0.3943	0.3923	0.3919	0.3866	0.3722	0.3435	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4597	0.2992	0.2683	0.2630	0.2645	0.2675	0.3293	0.3670	0.5207	UUBAR
DFAC	-0.034	-0.066	-0.055	-0.063	-0.058	-0.057	-0.027	-0.005	0.070	DFAC
EFFP	0.1359	0.3252	0.3083	0.3424	0.3216	0.3150	0.2492	0.0293	-0.3684	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.106	15.106	15.106	15.106	15.106	15.106	15.106	15.106	15.106	P 0
P 1	14.479	14.698	14.740	14.747	14.745	14.741	14.657	14.606	14.396	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	49.297	47.689	45.260	41.982	41.377	40.673	43.727	46.700	53.178	BETA 2
BETA(PR) 1	55.005	53.011	53.018	53.796	55.574	56.915	58.414	59.155	61.238	BETA(PR) 1
BETA(PR) 2	24.001	27.278	26.865	26.306	29.487	33.292	37.743	41.885	47.049	BETA(PR) 2
V 1	422.70	460.29	485.93	470.46	463.34	462.86	453.00	444.67	411.89	V 1
V 2	577.87	564.05	581.07	618.52	616.72	607.08	579.35	541.79	507.73	V 2
VZ 1	422.62	460.19	465.88	470.43	462.76	460.98	450.02	441.51	409.26	VZ 1
VZ 2	376.84	379.69	409.00	459.77	462.62	459.92	415.06	370.94	303.91	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	438.07	417.10	412.73	413.71	407.52	395.21	397.02	393.63	405.92	V-THETA 2
V(PR) 1	736.9	764.9	774.5	796.5	818.9	845.5	860.7	862.7	851.7	V(PR) 1
V(PR) 2	412.5	427.2	458.5	512.9	531.7	551.0	526.0	498.6	446.8	V(PR) 2
VTHETA PR1	-603.7	-610.9	-618.6	-642.7	-675.2	-707.5	-731.9	-739.3	-745.5	VTHETA PR1
VTHETA PR2	-167.8	-195.8	-207.2	-227.3	-261.6	-302.0	-321.3	-331.7	-326.5	VTHETA PR2
U 1	603.66	610.92	618.63	642.68	675.19	707.55	731.89	759.30	749.50	U 1
U 2	605.86	612.88	619.91	641.00	669.23	697.23	710.32	725.35	732.38	U 2
M 1	0.3842	0.4195	0.4248	0.4223	0.4219	0.4126	0.4048	0.3741	M 1	
M 2	0.5066	0.4963	0.5127	0.5472	0.5453	0.5364	0.5060	0.4749	0.4431	M 2
M(PR) 1	0.6697	0.6971	0.7061	0.7264	0.7464	0.7707	0.7840	0.7853	0.7735	M(PR) 1
M(PR) 2	0.3631	0.3759	0.4045	0.4537	0.4701	0.4868	0.4626	0.4370	0.3899	M(PR) 2
TURN(PR) 1	31.000	25.728	26.151	27.490	26.068	23.568	20.591	17.271	14.132	TURN(PR) 1
TURN(PR) 2	0.1654	0.1369	0.1021	0.0466	0.0516	0.0628	0.1289	0.1731	0.2216	TURN(PR) 2
LOSS PARA	0.0279	0.0357	0.0271	0.0134	0.0145	0.0176	0.0354	0.0452	0.0535	LOSS PARA
DFAC	0.6127	0.6017	0.5664	0.5157	0.5102	0.5044	0.5476	0.5805	0.6428	DFAC
EFFP	0.8613	0.8092	0.8668	0.9334	0.9490	0.9459	0.8666	0.8055	0.7683	EFFP
EFF	0.8561	0.8027	0.8621	0.9308	0.9470	0.9437	0.8615	0.7986	0.7602	EFF
INCID	2.573	2.094	2.439	1.754	1.572	0.921	-0.274	-3.155	-6.921	INCID
DEVM	8.851	13.118	12.231	7.665	6.276	5.733	6.120	6.667	11.072	DEVM
P 1	14.479	14.698	14.740	14.747	14.745	14.741	14.657	14.606	14.396	P 1
P 2	18.741	18.628	18.865	19.343	19.461	19.424	19.050	18.690	18.356	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	565.053	563.967	562.644	563.605	563.895	563.775	565.525	566.110	567.761	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	49.695	47.399	44.421	42.037	40.759	40.524	44.739	48.406	56.183	BETA 2
BETA 2A	-1.230	0.800	1.600	1.900	1.100	1.100	1.400	1.951	1.701	BETA 2A
V 2	574.53	566.85	590.00	618.52	625.38	609.93	565.92	528.11	490.19	V 2
V 2A	417.75	404.11	404.68	468.27	498.42	493.39	437.73	415.59	405.48	V 2A
VZ 2	371.64	383.69	421.38	459.32	473.52	463.30	401.63	350.30	272.64	VZ 2
VZ 2A	417.65	404.06	404.50	467.95	498.17	493.01	437.25	414.98	404.87	VZ 2A
V-THETA 2	438.14	417.24	412.94	414.11	408.14	396.02	397.98	394.63	407.00	V-THETA 2
V-THETA 2A	-9.11	5.64	11.30	15.52	9.57	9.47	10.69	14.13	12.02	V-THETA 2A
M 2	0.5055	0.4989	0.5210	0.5472	0.5534	0.5390	0.4973	0.4624	0.4273	M 2
M 2A	0.3632	0.3514	0.3523	0.4090	0.4362	0.4317	0.3809	0.3609	0.3514	M 2A
TURN(PR) 1	50.945	46.598	42.819	40.130	39.640	39.388	43.289	46.403	54.429	TURN(PR) 1
LOSS PARA	0.0186	0.0203	0.0448	0.0352	0.0178	0.0223	0.0491	0.0300	-0.0111	LOSS PARA
DFAC	0.5352	0.5345	0.5487	0.4724	0.4398	0.4363	0.4998	0.5029	0.4998	DFAC
EFFP	0.8935	0.8893	0.7756	0.7917	0.8827	0.8502	0.7175	0.6180	1.0808	EFFP
INCID	-0.472	4.011	4.130	4.006	4.053	4.655	6.031	5.233	-3.017	INCID
DEVM	7.582	12.112	12.910	12.875	12.112	12.766	13.840	14.629	6.553	DEVM
P 2	18.741	18.628	18.865	19.343	19.461	19.424	19.050	18.690	18.356	P 2
P 2A	18.576	18.455	18.450	18.990	19.285	19.223	18.683	18.499	18.416	P 2A
T 2	565.053	563.967	562.644	563.605	563.895	563.775	565.525	566.110	567.761	T 2
T 2A	565.053	563.967	562.644	563.605	563.895	563.775	565.525	566.110	567.761	T 2A
UUBAR FS	0.0785	0.1188	0.1517	0.0909	0.0397	0.0450	0.1896	0.1862	0.1738	UUBAR FS
P2 FS	18.817	18.817	18.946	19.310	19.429	19.377	19.290	19.038	18.884	P2 FS
LOSS PARA FS	0.0264	0.0397	0.0521	0.0323	0.0147	0.0173	0.0751	0.0744	0.0701	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 100.28 Equivalent Rotor Speed = 4221.92 Equivalent Weight Flow = 97.95
 Uniform Inlet

INLET											
	PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
	DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
	BETA C	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA C
	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	V 0	386.41	386.41	386.41	386.41	386.41	386.41	386.41	386.41	386.41	V 0
	V 1	401.21	414.24	413.50	417.49	416.42	409.65	400.37	390.90	386.16	V 1
	VZ 0	386.41	386.41	386.41	386.40	386.38	386.34	386.31	386.30	386.31	VZ 0
	VZ 1	401.21	414.24	413.50	417.49	416.38	409.58	400.27	390.80	360.06	VZ 1
	V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	M 0	0.3503	0.3503	0.3503	0.3503	0.3503	0.3503	0.3503	0.3503	0.3503	M 0
	M 1	0.3641	0.3762	0.3756	0.3793	0.3783	0.3720	0.3633	0.3545	0.3260	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.4533	0.2936	0.2618	0.2517	0.2568	0.2794	0.3220	0.3622	0.5094	UUBAR
	DFAC	-0.038	-0.072	-0.070	-0.080	-0.078	-0.060	-0.036	-0.012	0.068	DFAC
	EFFP	0.1516	0.3469	0.3671	0.4104	0.3967	0.3167	0.1924	0.0629	-0.3623	EFFP
	INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
	DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
	P C	15.060	15.060	15.060	15.060	15.060	15.060	15.060	15.060	15.060	P C
	P 1	14.505	14.701	14.740	14.752	14.746	14.718	14.666	14.617	14.436	P 1
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 2
ROTOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.236	33.621	34.007	35.184	36.706	38.248	39.405	39.791	40.176	DIA
	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	BETA 2	56.997	50.104	48.589	44.279	43.585	43.859	48.868	53.076	57.301	BETA 2
	BETA (PR) 1	56.612	54.655	54.433	55.136	56.817	58.537	59.850	60.629	62.741	BETA (PR) 1
	BETA (PR) 2	23.815	26.306	27.152	26.846	30.153	33.788	39.680	43.495	46.394	BETA (PR) 2
	V 1	402.14	437.95	447.09	452.48	446.76	439.30	432.45	423.48	390.71	V 1
	V 2	580.41	571.23	575.15	610.81	609.24	600.08	559.64	535.96	525.93	V 2
	VZ 1	402.06	437.85	447.04	452.46	446.21	437.53	429.61	420.47	388.16	VZ 1
	VZ 2	365.28	366.37	380.43	437.30	441.17	432.25	367.61	321.56	283.83	VZ 2
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	V-THETA 2	451.03	438.24	431.35	426.43	419.90	415.36	420.93	427.91	442.12	V-THETA 2
	V (PR) 1	730.7	756.9	768.6	791.5	815.6	839.2	856.8	858.8	848.7	V (PR) 1
	V (PR) 2	399.3	408.7	427.6	490.1	510.4	520.8	476.6	444.1	412.2	V (PR) 2
	VTHETA PR1	-610.0	-617.4	-625.2	-649.5	-682.3	-715.0	-739.6	-747.1	-753.4	VTHETA PR1
	VTHETA PR2	-161.2	-195.1	-221.3	-221.3	-256.3	-289.2	-305.0	-305.1	-298.0	VTHETA PR2
	U 1	610.64	617.37	625.17	649.46	682.32	715.02	739.62	747.11	753.37	U 1
	U 2	612.25	619.36	626.46	647.77	676.18	704.59	725.90	733.01	740.11	U 2
	M 1	0.3650	0.3984	0.4070	0.4121	0.4067	0.3997	0.3933	0.3849	0.3543	M 1
	M 2	0.5098	0.5018	0.5061	0.5387	0.5373	0.5288	0.4906	0.4685	0.4587	M 2
	M (PR) 1	0.6631	0.6887	0.6997	0.7209	0.7425	0.7636	0.7792	0.7805	0.7696	M (PR) 1
	M (PR) 2	0.3507	0.3590	0.3762	0.4323	0.4502	0.4589	0.4195	0.3882	0.3596	M (PR) 2
	TURN (PR)	32.794	28.345	27.279	28.290	26.646	24.697	20.097	17.062	16.296	TURN (PR)
	UUBAR	0.0945	0.1315	0.1187	0.0586	0.0602	0.0856	0.1832	0.2370	0.2618	UUBAR
	LOSS PARA	0.0251	0.0346	0.0314	0.0161	0.0168	0.0239	0.0489	0.0603	0.0640	LOSS PARA
	DFAC	0.6326	0.6301	0.6105	0.5463	0.5392	0.5447	0.6104	0.6559	0.6972	DFAC
	EFFP	0.6675	0.8300	0.8603	0.9157	0.9412	0.9392	0.8390	0.7890	0.7886	EFFP
	EFF	0.8623	0.8238	0.8552	0.9123	0.9388	0.9367	0.8329	0.7813	0.7866	EFF
	INCID	4.181	3.739	3.854	3.094	2.816	2.547	1.166	-1.675	-5.412	INCID
	DEVM	8.665	12.146	12.518	8.205	6.943	6.228	8.056	10.356	10.417	DEVM
	P 1	14.505	14.701	14.740	14.752	14.746	14.718	14.666	14.617	14.436	P 1
	P 2	19.043	18.982	19.064	19.515	19.638	19.597	19.105	18.828	18.726	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	567.356	566.402	564.962	566.020	565.831	565.901	567.573	568.505	569.969	T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
	BETA 2	51.420	49.783	47.656	44.339	42.926	43.697	50.078	55.237	60.942	BETA 2
	BETA 2A	-0.400	1.350	1.600	1.500	1.720	1.250	2.101	3.001	3.251	BETA 2A
	V 2	577.06	574.10	583.91	610.81	617.70	602.87	550.58	522.52	507.38	V 2
	V 2A	411.00	390.74	380.12	440.54	472.02	474.39	420.42	405.58	401.75	V 2A
	VZ 2	359.85	370.68	393.29	436.81	452.14	435.59	353.08	297.75	246.31	VZ 2
	VZ 2A	410.99	390.62	379.95	440.33	471.65	474.00	419.80	404.66	400.68	VZ 2A
	V-THETA 2	451.11	438.38	431.56	426.84	420.54	416.22	421.94	429.00	443.29	V-THETA 2
	V-THETA 2A	-2.67	9.21	10.61	11.53	14.16	10.34	15.40	21.21	22.76	V-THETA 2A
	M 2	0.5067	0.5045	0.5142	0.5387	0.5452	0.5314	0.4823	0.4563	0.4419	M 2
	M 2A	0.3564	0.3387	0.3298	0.3832	0.4116	0.4137	0.3647	0.3512	0.3474	M 2A
	TURN (PK)	51.820	48.432	46.055	42.832	41.188	42.412	47.929	52.188	57.644	TURN (PK)
	UUBAR	0.0680	0.1012	0.1486	0.1266	0.0804	0.0691	0.0864	0.0360	0.0118	UUBAR
	LOSS PARA	0.0229	0.0345	0.0511	0.0450	0.0298	0.0266	0.0342	0.0144	0.0047	LOSS PARA
	DFAC	0.5528	0.5741	0.5974	0.5209	0.4803	0.4736	0.5306	0.5379	0.5446	DFAC
	EFFP	0.8744	0.8275	0.7637	0.7613	0.8266	0.8368	0.8097	0.9164	0.9708	EFFP
	INCID	1.253	6.395	7.366	6.308	6.220	7.828	11.370	12.068	1.746	INCID
	DEVM	8.432	12.662	12.910	12.475	12.732	12.916	14.540	15.678	8.102	DEVM
	P 2	19.043	18.982	19.064	19.515	19.638	19.597	19.105	18.828	18.726	P 2
	P 2A	18.835	18.675	18.596	19.072	19.349	19.360	18.862	18.738	18.698	P 2A
	T 2	567.356	566.402	564.962	566.020	565.831	565.901	567.573	568.505	569.969	T 2
	T 2A	567.356	566.402	564.962	566.020	565.831	565.901	567.573	568.505	569.969	T 2A
	UUBAR FS	0.1337	0.1392	0.1120	0.1113	0.0871	0.0763	0.1644	0.1540	0.1264	UUBAR FS
	P2 FS	19.095	19.120	19.029	19.454	19.664	19.623	19.367	19.177	19.034	P2 FS
	LOSS PARA FS	0.0281	0.0461	0.0478	0.0395	0.0323	0.0293	0.0650	0.0616	0.0503	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage E, Rotor E - Stator E

Calculations Using Translated Values

Percent Equivalent Rotor Speed = 99.98 Equivalent Rotor Speed = 4209.37 Equivalent Weight Flow = 93.27

INLET											
	PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA		33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0		366.74	366.74	366.74	366.74	366.74	366.74	366.74	366.74	366.74	V 0
V 1		375.68	391.11	390.79	395.48	393.67	387.02	374.42	362.97	336.72	V 1
VZ 0		366.74	366.74	366.74	366.74	366.74	366.68	366.65	366.64	366.65	VZ 0
VZ 1		375.67	391.11	390.79	395.47	393.64	386.96	374.33	362.87	336.64	VZ 1
V-THETA 0		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0		0.3321	0.3321	0.3321	0.3321	0.3321	0.3321	0.3321	0.3321	0.3321	M 0
M 1		0.3404	0.3547	0.3544	0.3588	0.3571	0.3509	0.3392	0.3286	0.3044	M 1
TURK		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURK
UUBAR		0.4508	0.2907	0.2555	0.2518	0.2536	0.2555	0.3166	0.3601	0.4989	UUBAR
DFAC		-0.024	-0.066	-0.066	-0.078	-0.073	-0.055	-0.021	0.010	0.082	DFAC
EFFP		0.1015	0.3295	0.3556	0.4026	0.3846	0.3165	0.1217	-0.0627	-0.4789	EFFP
INCLD		-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	DEVM
P 0		15.016	15.016	15.016	15.016	15.016	15.016	15.016	15.016	15.016	P 0
P 1		14.518	14.695	14.734	14.738	14.736	14.734	14.666	14.618	14.465	P 1
T 0		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2		51.896	51.350	50.104	46.078	45.492	46.447	51.847	56.055	59.615	BETA 2
BETA(PK) 1		58.245	56.139	55.908	56.538	58.231	59.923	61.456	62.382	64.243	BETA(PK) 1
BETA(PK) 2		22.517	26.656	26.612	26.812	30.100	34.036	40.892	44.695	45.619	BETA(PK) 2
V 1		376.52	413.11	421.93	428.00	421.81	414.54	403.78	392.51	364.79	V 1
V 2		565.45	564.22	573.79	603.11	602.38	590.83	548.42	529.40	535.40	V 2
VZ 1		376.45	413.02	421.88	427.97	412.29	412.86	401.13	389.71	362.41	VZ 1
VZ 2		361.26	352.38	368.02	418.36	422.16	406.72	338.37	295.28	270.56	VZ 2
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2		400.67	440.63	440.21	434.40	429.46	427.80	430.72	438.68	461.44	V-THETA 2
V(PK) 1		715.3	741.3	752.7	776.2	800.4	824.7	840.7	842.0	835.0	V(PK) 1
V(PK) 2		391.1	394.3	411.6	468.8	488.2	491.5	448.4	416.1	387.5	V(PK) 2
VTHETA PK1		-608.2	-615.5	-623.3	-647.5	-680.3	-712.9	-737.4	-744.9	-751.1	VTHETA PK1
VTHETA PK2		-149.8	-176.9	-184.4	-211.4	-244.7	-272.7	-293.6	-292.2	-276.5	VTHETA PK2
U 1		608.22	615.54	623.31	647.53	680.29	712.89	737.42	744.89	751.13	U 1
U 2		610.43	617.51	624.60	645.84	674.17	702.50	723.75	730.83	737.91	U 2
M 1		0.3412	0.3752	0.3834	0.3891	0.3833	0.3765	0.3665	0.3560	0.3303	M 1
M 2		0.5130	0.4945	0.5040	0.5307	0.5299	0.5189	0.4787	0.4610	0.4658	M 2
M(PK) 1		0.6461	0.6733	0.6840	0.7057	0.724	0.7490	0.7631	0.7636	0.7560	M(PK) 1
M(PK) 2		0.3427	0.3456	0.3616	0.4125	0.4294	0.4316	0.3915	0.3624	0.3372	M(PK) 2
TURK(PK) 1		35.725	29.479	29.293	29.725	28.114	25.839	20.497	17.622	18.580	TURK(PK) 1
TURK(PK) 2		0.0969	0.1396	0.1224	0.0643	0.0728	0.1124	0.2110	0.2595	0.2828	TURK(PK) 2
UUBAR		0.0265	0.0366	0.0325	0.0177	0.0203	0.0313	0.0554	0.0647	0.0701	UUBAR
LOSS PARA		0.6401	0.6427	0.6269	0.5680	0.5621	0.5773	0.6428	0.6867	0.7299	LOSS PARA
DFAC		0.8322	0.8009	0.8451	0.8941	0.9100	0.8921	0.7800	0.7431	0.7639	DFAC
EFFP		0.8255	0.7936	0.8392	0.8897	0.9063	0.8876	0.7716	0.7337	0.7548	EFFP
EFF		5.214	5.223	4.496	4.496	4.230	3.936	2.778	0.085	-3.904	EFF
INCLD		7.367	12.496	11.978	8.172	6.889	6.476	9.267	11.556	9.642	INCLD
DEVM		14.518	14.695	14.734	14.738	14.736	14.734	14.666	14.618	14.465	DEVM
P 1		19.150	18.966	19.150	19.559	19.671	19.620	19.079	18.864	18.926	P 1
P 2		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	P 2
T 1		570.435	568.131	566.778	567.802	567.947	568.536	571.163	572.129	573.554	T 1
T 2											T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2		52.336	51.017	49.124	46.141	44.797	46.276	53.184	58.471	63.684	BETA 2
BETA 2A		0.300	1.900	1.850	0.250	1.220	1.300	2.151	3.061	4.151	BETA 2A
V 2		582.04	567.04	582.49	603.11	610.65	593.53	539.66	516.23	516.37	V 2
V 2A		409.33	385.79	370.66	425.83	450.05	455.72	413.79	397.78	397.95	V 2A
VZ 2		355.64	356.72	381.19	417.84	433.18	409.99	323.19	269.81	228.82	VZ 2
VZ 2A		409.32	385.57	370.45	425.77	449.80	455.33	413.16	396.86	396.49	VZ 2A
V-THETA 2		460.75	440.77	440.43	434.82	430.12	428.68	431.76	439.79	462.67	V-THETA 2
V-THETA 2A		2.14	12.79	11.96	1.86	9.58	10.33	15.52	21.22	28.78	V-THETA 2A
M 2		0.5099	0.4971	0.5120	0.5307	0.5376	0.5214	0.4707	0.4491	0.4486	M 2
M 2A		0.3340	0.3338	0.3209	0.3695	0.3911	0.3959	0.3577	0.3432	0.3429	M 2A
TURK(PK)		52.036	49.116	47.272	45.884	43.558	44.941	50.987	55.365	59.490	TURK(PK)
UUBAR		0.0752	0.0798	0.1662	0.1458	0.1149	0.1004	0.0566	0.0256	0.0694	UUBAR
LOSS PARA		0.0253	0.0271	0.0572	0.0518	0.0425	0.0387	0.0232	0.0102	0.0199	LOSS PARA
DFAC		0.5622	0.5768	0.6171	0.5496	0.5188	0.5049	0.5406	0.5557	0.5704	DFAC
EFFP		0.8646	0.8640	0.7434	0.7356	0.7727	0.7783	0.8693	0.9418	0.8874	EFFP
INCLD		2.169	7.629	8.833	8.110	8.091	10.407	14.478	15.304	4.492	INCLD
DEVM		9.132	13.212	13.160	11.225	12.232	12.966	14.590	15.738	9.001	DEVM
P 2		19.150	18.966	19.150	19.559	19.671	19.620	19.079	18.864	18.926	P 2
P 2A		18.916	18.731	18.629	19.061	19.268	19.287	18.921	18.802	18.805	P 2A
T 2		570.435	568.131	566.778	567.802	567.947	568.536	571.163	572.129	573.554	T 2
T 2A		570.435	568.131	566.778	567.802	567.947	568.536	571.163	572.129	573.554	T 2A
UUBAR FS		0.045	0.1428	0.1774	0.1294	0.1217	0.1033	0.1513	0.1460	0.1416	UUBAR FS
P2 FS		1.122	14.192	19.193	19.494	19.699	19.627	19.372	19.208	19.188	P2 FS
LOSS PARA FS		0.324	0.0485	0.0510	0.0460	0.0450	0.0394	0.0599	0.0561	0.0570	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 89.61 Equivalent Rotor Speed = 3772.62 Equivalent Weight Flow = 114.30
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.700	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	456.03	456.03	456.03	456.03	456.03	456.03	456.03	456.03	456.03	V 0
V 1	486.28	502.22	499.11	494.07	485.10	487.69	475.55	468.85	437.59	V 1
VZ 0	456.03	456.03	456.03	456.02	456.00	455.96	455.92	455.91	455.91	VZ 0
VZ 1	486.28	502.22	499.11	494.06	485.06	487.61	475.43	468.72	437.47	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.4155	0.4155	0.4155	0.4155	0.4155	0.4155	0.4155	0.4155	0.4155	M 0
M 1	0.4441	0.4592	0.4563	0.4515	0.4429	0.4454	0.4339	0.4275	0.3981	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4910	0.3214	0.2935	0.2929	0.2923	0.2971	0.3591	0.3913	0.5341	UUBAR
DFAC	-0.066	-0.101	-0.094	-0.083	-0.064	-0.069	-0.043	-0.028	0.040	DFAC
EFFP	0.2268	0.4131	0.4178	0.3870	0.3236	0.3395	0.2048	0.1332	-0.1835	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.261	15.261	15.261	15.261	15.261	15.261	15.261	15.261	15.261	P 0
P 1	14.422	14.712	14.760	14.761	14.762	14.753	14.647	14.592	14.368	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	33.998	31.254	30.165	28.488	27.779	25.927	25.974	28.526	33.331	BETA 2
BETA(PR) 1	48.200	45.945	45.772	47.102	49.398	50.642	52.165	52.759	54.833	BETA(PR) 1
BETA(PR) 2	25.308	24.908	24.556	25.529	29.549	33.106	36.754	38.770	49.063	BETA(PR) 2
V 1	487.49	533.89	543.86	539.29	523.26	526.17	516.69	511.14	477.43	V 1
V 2	575.19	604.37	623.73	645.50	624.73	616.05	586.24	555.12	438.27	V 2
VZ 1	487.40	533.77	543.79	539.26	522.61	524.04	513.29	507.50	474.31	VZ 1
VZ 2	476.84	516.63	539.25	567.33	552.47	553.18	525.65	486.37	365.27	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	321.62	313.55	313.41	307.88	291.03	268.92	256.08	264.36	240.22	V-THETA 2
V(PR) 1	731.3	767.7	779.6	792.2	803.5	827.7	838.9	840.8	825.3	V(PR) 1
V(PR) 2	527.5	569.6	592.9	628.7	635.4	661.3	657.4	625.2	558.3	V(PR) 2
VTHETA PR1	-545.1	-551.7	-558.6	-580.3	-609.7	-638.9	-666.9	-667.6	-673.2	VTHETA PR1
VTHETA PR2	-225.5	-239.9	-246.4	-271.0	-313.2	-360.7	-392.6	-390.6	-421.1	VTHETA PR2
U 1	545.12	551.67	558.64	580.35	609.70	638.93	660.91	667.60	673.20	U 1
U 2	547.10	553.44	559.79	578.83	604.22	629.61	648.65	655.00	661.35	U 2
M 1	0.4452	0.4895	0.4991	0.4947	0.4793	0.4821	0.4730	0.4677	0.4357	M 1
M 2	0.5147	0.5430	0.5621	0.5811	0.5615	0.5538	0.5259	0.4967	0.3884	M 2
M(PR) 1	0.6679	0.7039	0.7155	0.7268	0.7360	0.7584	0.7680	0.7694	0.7531	M(PR) 1
M(PR) 2	0.4720	0.5118	0.5343	0.5660	0.5710	0.5945	0.5898	0.5594	0.4947	M(PR) 2
TURN(PR)	22.888	21.033	21.213	21.571	19.829	17.473	15.317	13.891	5.694	TURN(PR)
UUBAR	0.1312	0.1214	0.0877	0.0480	0.0696	0.0540	0.0713	0.1396	0.2353	UUBAR
LOSS PARA	0.0344	0.0323	0.0237	0.0133	0.0195	0.0152	0.0198	0.0382	0.0546	LOSS PARA
DFAC	0.4063	0.3760	0.3590	0.3258	0.3253	0.3095	0.3213	0.3656	0.4257	DFAC
EFFP	0.8424	0.8681	0.8695	0.9330	0.8986	0.9193	0.8910	0.8106	0.5402	EFFP
EFF	0.8389	0.8652	0.8687	0.9313	0.8962	0.9173	0.8885	0.8067	0.5338	EFF
INCID	-4.232	-4.971	-4.807	-4.941	-4.606	-5.359	-6.537	-9.568	-13.344	INCID
DEVM	10.156	10.748	9.922	6.889	6.339	5.547	5.132	5.634	13.087	DEVM
P 1	14.422	14.712	14.760	14.761	14.762	14.753	14.647	14.592	14.368	P 1
P 2	16.988	17.179	17.428	17.677	17.511	17.449	17.158	16.825	15.808	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	547.221	545.849	544.735	548.144	547.644	546.468	545.690	545.397	545.963	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	34.230	31.083	29.641	28.523	27.398	25.834	26.490	29.395	34.684	BETA 2
BETA 2A	0.150	1.350	1.650	0.300	0.110	0.450	1.701	0.800	-2.601	BETA 2A
V 2	571.84	607.53	634.06	645.50	633.73	619.02	576.30	540.74	423.86	V 2
V 2A	527.07	548.60	574.17	614.03	608.73	602.95	540.23	514.16	504.31	V 2A
VZ 2	472.79	520.29	551.06	567.05	562.35	556.59	515.07	476.45	348.05	VZ 2
VZ 2A	527.06	548.44	573.91	613.93	608.53	602.58	539.56	513.65	503.25	VZ 2A
V-THETA 2	321.67	313.65	313.56	308.17	291.47	269.48	256.70	265.04	240.86	V-THETA 2
V-THETA 2A	1.38	12.92	16.53	3.21	1.17	4.73	16.02	7.17	-22.86	V-THETA 2A
M 2	0.5115	0.5460	0.5720	0.5811	0.5701	0.5567	0.5165	0.4832	0.3752	M 2
M 2A	0.4697	0.4904	0.5150	0.5510	0.5462	0.5414	0.4826	0.4585	0.4491	M 2A
TURN(PR)	34.080	29.733	27.989	28.217	27.273	25.356	24.751	28.550	37.226	TURN(PR)
UUBAR	0.0918	0.1077	0.0952	0.0374	0.0129	0.0376	0.1943	0.1915	-0.1781	UUBAR
LOSS PARA	0.0309	0.0367	0.0328	0.0133	0.0048	0.0145	0.0770	0.0766	-0.1121	LOSS PARA
DFAC	0.2670	0.2657	0.2559	0.2170	0.2096	0.1914	0.2291	0.2410	0.0624	DFAC
EFFP	0.4493	0.4789	0.5331	0.6580	0.8545	0.3541	-0.4557	-0.8336	0.3827	EFFP
INCID	-15.937	-12.304	-10.650	-9.507	-9.304	-10.027	-12.207	-13.769	-24.517	INCID
DEVM	6.962	12.662	12.960	11.275	11.122	12.116	14.140	13.480	2.256	DEVM
P 2	16.888	17.179	17.428	17.677	17.511	17.449	17.158	16.825	15.808	P 2
P 2A	16.634	16.839	17.098	17.542	17.466	17.324	16.603	16.350	16.215	P 2A
T 2	547.221	545.849	544.735	548.144	547.644	546.468	545.690	545.397	545.963	T 2
T 2A	547.221	545.849	544.735	548.144	547.644	546.468	545.690	545.397	545.963	T 2A
UUBAR FS	0.1193	0.1139	0.0999	0.0294	0.0306	0.0368	0.2481	0.2044	0.2964	UUBAR FS
P2 FS	17.600	17.260	17.330	17.647	17.574	17.445	17.361	17.148	17.003	P2 FS
LOSS PARA FS	0.0489	0.0388	0.0237	0.0104	0.0114	0.0142	0.0983	0.1137	0.1194	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage E, Rotor E - Stator E

Calculations Using Translated Values

Percent Equivalent Rotor Speed = 89.99 Equivalent Rotor Speed = 3788.37 Equivalent Weight Flow = 106.88
Uniform Inlet

INLET

PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.124	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	424.78	424.78	424.78	424.78	424.78	424.78	424.78	424.78	424.78	V 0
V 1	440.45	455.72	453.77	439.00	437.91	445.38	428.97	425.71	400.14	V 1
VZ 0	424.77	424.78	424.78	424.77	424.74	424.71	424.67	424.66	424.66	VZ 0
VZ 1	440.45	455.72	453.77	439.00	437.88	445.31	428.87	425.60	400.03	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3861	0.3861	0.3861	0.3861	0.3861	0.3861	0.3861	0.3861	0.3861	M 0
M 1	0.4008	0.4152	0.4133	0.3994	0.3984	0.4054	0.3900	0.3870	0.3631	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4659	0.3058	0.2758	0.2702	0.2702	0.2695	0.3399	0.3754	0.5224	UUBAR
DFAC	-0.037	-0.073	-0.068	-0.033	-0.031	-0.049	-0.010	-0.002	0.058	DFAC
EFFP	0.1441	0.3423	0.3507	0.2100	0.1968	0.2800	0.0578	0.0121	-0.2886	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.151	15.151	15.151	15.151	15.151	15.151	15.151	15.151	15.151	P 0
P 1	14.461	14.698	14.743	14.751	14.751	14.752	14.648	14.595	14.378	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1

ROTOR E
ROTOR -L.L.
ROTOR -T.L.

PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	41.242	37.459	35.991	34.135	33.371	32.307	33.179	35.602	40.140	BETA 2
BETA(PR) 1	51.118	48.930	48.740	50.724	52.492	53.378	55.203	55.599	57.393	BETA(PR) 1
BETA(PR) 2	25.054	25.836	24.574	26.232	29.488	33.540	36.876	40.011	47.950	BETA(PR) 2
V 1	441.50	482.86	492.19	476.62	470.51	478.80	464.26	462.33	435.27	V 1
V 2	538.43	559.95	587.00	599.86	593.74	578.34	555.56	521.33	445.99	V 2
VZ 1	441.51	482.87	492.13	476.59	469.63	476.86	461.21	459.04	432.44	VZ 1
VZ 2	404.85	441.19	474.93	498.50	495.65	488.13	463.92	422.87	340.23	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	354.94	340.55	344.95	336.60	326.46	308.67	303.34	302.77	286.91	V-THETA 2
V(PR) 1	703.2	734.9	746.3	752.9	772.2	800.6	809.9	814.4	806.0	V(PR) 1
V(PR) 2	449.1	493.9	522.3	553.5	569.7	586.4	581.2	553.3	508.8	V(PR) 2
VTHETA PR1	-547.4	-554.0	-561.0	-582.8	-612.2	-641.6	-663.7	-670.4	-676.0	VTHETA PR1
VTHETA PR2	-194.4	-215.2	-217.2	-244.6	-280.3	-323.6	-348.0	-355.0	-377.2	VTHETA PR2
U 1	547.39	553.98	560.97	582.77	612.25	641.59	663.67	670.39	676.01	U 1
U 2	549.38	555.75	562.13	581.25	606.75	632.24	651.36	664.11	664.11	U 2
M 1	0.4018	0.4408	0.4497	0.4349	0.4291	0.4370	0.4232	0.4214	0.3959	M 1
M 2	0.4778	0.4984	0.5245	0.5425	0.5297	0.5155	0.4943	0.4624	0.3931	M 2
M(PR) 1	0.6600	0.6709	0.6816	0.6870	0.7042	0.7306	0.7383	0.7422	0.7314	M(PR) 1
M(PR) 2	0.3506	0.4396	0.4667	0.4940	0.5082	0.5228	0.5170	0.4907	0.4484	M(PR) 2
TURN(PR)	25.460	23.089	24.164	24.491	22.984	19.779	18.239	15.498	9.375	TURN(PR)
UUBAR	0.1300	0.1143	0.0769	0.0424	0.0457	0.0519	0.0772	0.1310	0.1786	UUBAR
LUSS PARA	0.0339	0.0302	0.0208	0.0117	0.0128	0.0146	0.0214	0.0352	0.0424	LUSS PARA
DFAC	0.5078	0.4641	0.4376	0.4022	0.3978	0.3962	0.4113	0.4497	0.4925	DFAC
EFFP	0.8164	0.8258	0.9341	0.9164	0.9254	0.9167	0.8934	0.8146	0.6950	EFFP
EFF	0.8116	0.8214	0.9322	0.9140	0.9232	0.9143	0.8905	0.8099	0.6883	EFF
INCLD	-1.314	-1.986	-1.838	-1.319	-1.511	-2.620	-3.493	-6.721	-10.777	INCLD
DEVM	10.505	11.677	9.940	7.591	6.278	5.980	5.254	6.874	11.973	DEVM
P 1	14.461	14.698	14.743	14.751	14.751	14.752	14.648	14.595	14.378	P 1
P 2	17.323	17.529	17.838	18.044	18.065	17.962	17.735	17.395	16.745	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	552.531	551.286	549.838	552.335	552.194	551.526	551.413	551.627	552.243	T 2

STATOR E
STATOR -L.F.
STATOR -T.L.

PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2A	41.534	37.264	35.374	34.178	32.920	32.199	33.853	36.715	41.898	BETA 2A
BETA 2A	0.200	1.400	2.000	1.000	0.350	0.900	0.950	0.490	-3.001	BETA 2A
V 2	535.39	562.64	596.17	599.86	601.89	580.98	546.52	508.34	431.26	V 2
V 2A	450.43	452.48	468.99	527.08	534.59	529.44	470.11	443.41	432.86	V 2A
VZ 2	400.77	447.77	486.09	496.18	505.01	491.18	453.33	407.01	320.63	VZ 2
VZ 2A	450.43	452.33	468.69	526.93	534.40	529.06	469.66	443.00	431.81	VZ 2A
V-THETA 2	355.00	340.66	345.12	336.92	326.96	309.30	304.08	303.53	287.67	V-THETA 2
V-THETA 2A	1.57	11.05	16.37	9.20	3.26	8.31	7.79	3.79	-22.64	V-THETA 2A
M 2	0.4750	0.5009	0.5332	0.5354	0.5374	0.5180	0.4859	0.4504	0.3797	M 2
M 2A	0.3970	0.3993	0.4150	0.4674	0.4744	0.4699	0.4154	0.3910	0.3812	M 2A
TURN(PR)	41.334	35.863	33.373	33.171	32.593	31.267	32.857	36.173	44.637	TURN(PR)
UUBAR	0.0574	0.1005	0.1393	0.0364	0.0253	0.0258	0.1731	0.1432	-0.1430	UUBAR
LUSS PARA	0.0126	0.0342	0.0479	0.0129	0.0094	0.0099	0.0686	0.0573	-0.0576	LUSS PARA
DFAC	0.3811	0.3954	0.4034	0.3159	0.3116	0.2892	0.3558	0.3649	0.2879	DFAC
EFFP	0.8829	0.7407	0.6693	0.8574	0.8935	0.8639	0.3877	0.4440	-16.9031	EFFP
INCLD	-8.633	-6.124	-4.916	-3.853	-3.784	-3.667	-4.852	-6.456	-17.306	INCLD
DEVM	9.032	12.712	13.310	11.975	11.362	12.566	13.391	13.170	1.856	DEVM
P 2	17.323	17.529	17.838	18.044	18.065	17.962	17.735	17.395	16.745	P 2
P 2A	17.230	17.251	17.401	17.928	17.984	17.885	17.277	17.071	16.972	P 2A
T 2	552.531	551.286	549.838	552.335	552.194	551.526	551.413	551.627	552.243	T 2
T 2A	552.531	551.286	549.838	552.335	552.194	551.526	551.413	551.627	552.243	T 2A
UUBAR FS	0.1172	0.1100	0.0940	0.0167	0.0151	0.0182	0.2226	0.2518	0.2507	UUBAR FS
P2 FS	17.516	17.557	17.681	17.980	18.032	17.939	17.903	17.722	17.578	P2 FS
LUSS PARA FS	0.361	0.374	0.0322	0.0359	0.0056	0.0070	0.0882	0.1007	0.1009	LUSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 90.61 Equivalent Rotor Speed = 3814.89 Equivalent Weight Flow = 98.57
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	389.23	389.23	389.23	389.23	389.23	389.23	389.23	389.23	389.23	V 0
V 1	396.32	406.50	404.36	411.03	400.95	403.72	393.03	386.53	359.38	V 1
VZ 0	389.23	389.23	389.23	389.23	389.20	389.17	389.14	389.13	389.13	VZ 0
VZ 1	396.32	406.50	404.36	411.03	400.92	403.65	392.93	386.43	359.28	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3529	0.3529	0.3529	0.3529	0.3529	0.3529	0.3529	0.3529	0.3529	M 0
M 1	0.3595	0.3690	0.3670	0.3733	0.3638	0.3664	0.3565	0.3504	0.3253	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4544	0.2928	0.2655	0.2565	0.2598	0.2606	0.3233	0.3628	0.5105	UUBAR
DFAC	-0.018	-0.044	-0.039	-0.056	-0.030	-0.037	-0.010	0.007	0.077	DFAC
EFFP	0.0773	0.2446	0.2378	0.3197	0.1973	0.2333	0.0594	-0.0413	-0.4253	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVW	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	DEVW
P 0	15.063	15.063	15.063	15.063	15.063	15.063	15.063	15.063	15.063	P 0
P 1	14.498	14.699	14.733	14.744	14.740	14.739	14.661	14.612	14.428	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	45.998	44.076	41.822	39.282	38.610	37.788	39.733	43.235	48.832	BETA 2
BETA(PRI) 1	54.228	52.406	52.283	52.812	55.153	56.291	57.759	58.379	60.363	BETA(PRI) 1
BETA(PRI) 2	25.069	27.564	26.229	26.284	30.279	33.716	38.251	42.225	48.396	BETA(PRI) 2
V 1	397.23	429.61	436.93	445.27	429.79	432.78	424.32	418.63	389.84	V 1
V 2	529.79	522.75	547.47	576.45	565.81	559.11	527.65	492.96	448.30	V 2
VZ 1	397.15	429.51	436.87	445.24	429.26	431.03	421.53	415.65	387.30	VZ 1
VZ 2	368.03	375.54	407.98	446.18	441.97	441.31	405.00	358.46	294.64	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	381.07	363.62	365.06	364.96	352.94	342.17	336.64	337.03	336.95	V-THETA 2
V(PRI) 1	679.4	704.1	714.2	736.7	751.6	777.6	791.6	794.3	784.5	V(PRI) 1
V(PRI) 2	406.3	423.6	454.8	497.6	512.0	531.3	516.8	485.0	444.4	V(PRI) 2
VTHETA PRI	-551.2	-557.9	-564.9	-586.8	-616.5	-646.1	-668.3	-675.1	-680.7	VTHETA PRI
VTHETA PR2	-172.2	-196.0	-201.0	-220.4	-294.5	-319.3	-325.3	-331.6	-331.6	VTHETA PR2
U 1	551.23	557.85	564.90	586.85	616.53	646.08	668.31	675.08	680.74	U 1
U 2	553.23	559.64	566.06	585.32	610.99	636.67	655.92	662.34	668.76	U 2
M 1	0.3604	0.3966	0.3975	0.4053	0.3906	0.3936	0.3857	0.3803	0.3535	M 1
M 2	0.4695	0.4625	0.4860	0.5120	0.5020	0.4959	0.4663	0.4343	0.3933	M 2
M(PRI) 1	0.6164	0.6402	0.6497	0.6706	0.6834	0.7072	0.7195	0.7217	0.7114	M(PRI) 1
M(PRI) 2	0.3601	0.3748	0.4037	0.4420	0.4543	0.4712	0.4567	0.4273	0.3899	M(PRI) 2
TURN(PRI)	29.155	24.838	26.051	26.528	24.855	22.519	19.428	16.074	11.907	TURN(PRI)
UUBAR	0.1110	0.1407	0.0999	0.0526	0.0578	0.0604	0.1102	0.1684	0.2131	UUBAR
LOSS PARA	0.0791	0.0366	0.0266	0.0145	0.0161	0.0169	0.0301	0.0437	0.0501	LOSS PARA
DFAC	0.5647	0.5500	0.5151	0.4767	0.4693	0.4637	0.4935	0.5368	0.5842	DFAC
EFFP	0.9020	0.8040	0.8887	0.9191	0.9168	0.9246	0.8522	0.7785	0.7193	EFFP
EFF	0.8992	0.7987	0.8855	0.9165	0.9142	0.9222	0.8478	0.7724	0.7123	EFF
INCID	1.797	1.490	1.704	0.770	1.151	0.297	-0.931	-3.933	-7.799	INCID
DEVW	9.919	13.404	11.595	7.643	7.068	6.156	6.628	9.066	12.419	DEVW
P 1	14.498	14.699	14.733	14.744	14.740	14.739	14.661	14.612	14.428	P 1
P 2	17.775	17.718	17.990	18.339	18.339	18.349	18.026	17.688	17.288	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	553.287	554.302	553.108	555.105	555.245	555.036	555.911	556.380	557.332	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	46.335	43.834	41.104	39.332	38.083	37.660	40.573	44.671	51.259	BETA 2
BETA 2A	-1.000	1.250	1.880	1.750	0.800	1.200	1.310	1.501	1.050	BETA 2A
V 2	526.88	525.21	555.58	576.45	573.33	561.63	519.34	481.06	433.49	V 2
V 2A	404.63	398.90	403.55	463.03	480.88	476.68	425.37	399.45	386.42	V 2A
VZ 2	363.78	378.85	418.62	445.81	451.10	444.26	394.08	341.78	271.06	VZ 2
VZ 2A	464.56	398.80	403.32	462.75	480.67	476.29	424.91	398.95	385.94	VZ 2A
V-THETA 2	381.14	363.74	365.24	365.31	353.48	342.87	337.45	337.88	337.84	V-THETA 2
V-THETA 2A	-7.06	8.70	13.24	14.14	6.71	9.98	9.72	10.45	7.08	V-THETA 2A
M 2	0.4666	0.4648	0.4935	0.5120	0.5090	0.4982	0.4587	0.4234	0.3799	M 2
M 2A	0.3553	0.3498	0.3544	0.4075	0.4237	0.4200	0.3731	0.3497	0.3377	M 2A
TURN(PRI)	47.335	42.583	39.222	37.576	37.264	36.426	39.215	43.119	50.152	TURN(PRI)
UUBAR	0.0507	0.0500	0.0278	0.0696	0.0203	0.0444	0.1168	0.0669	-0.1001	UUBAR
LOSS PARA	0.0171	0.0170	0.0440	0.0247	0.0075	0.0171	0.0463	0.0268	-0.0404	LOSS PARA
DFAC	0.4803	0.4708	0.4920	0.4137	0.3860	0.3806	0.4324	0.4435	0.4182	DFAC
EFFP	0.8862	0.8911	0.7514	0.8222	0.9381	0.9560	0.6714	0.7989	1.4564	EFFP
INCID	-3.832	0.446	0.813	1.302	1.377	1.793	1.866	1.499	-7.944	INCID
DEVW	7.832	12.562	13.190	12.725	11.812	12.866	13.750	14.179	5.903	DEVW
P 2	17.775	17.718	17.990	18.339	18.339	18.349	18.026	17.688	17.288	P 2
P 2A	17.650	17.596	17.638	18.130	18.278	18.222	17.743	17.551	17.452	P 2A
T 2	553.287	554.302	553.108	555.105	555.245	555.036	555.911	556.380	557.332	T 2
T 2A	553.287	554.302	553.108	555.105	555.245	555.036	555.911	556.380	557.332	T 2A
UUBAR FS	0.1148	0.1148	0.1236	0.0515	0.0274	0.0317	0.2100	0.2216	0.1904	UUBAR FS
P2 FS	17.440	17.496	17.968	18.281	18.360	18.311	18.311	18.096	17.875	P2 FS
LOSS PARA FS	0.0390	0.0390	0.0415	0.0182	0.0101	0.0122	0.0932	0.0880	0.0768	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 90.25 Equivalent Rotor Speed = 3799.69 Equivalent Weight Flow = 88.91
 Uniform Inlet

INLET		96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA		33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.065	DIA
BETA 0		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0		348.78	348.78	348.78	348.78	348.78	348.78	348.78	348.78	348.78	V 0
V 1		354.91	365.24	368.38	365.01	371.90	364.61	351.73	342.68	319.60	V 1
VZ 0		348.78	348.78	348.78	348.77	348.75	348.72	348.69	348.68	348.69	VZ 0
VZ 1		354.90	365.24	368.38	365.01	371.87	364.55	351.64	342.59	319.52	VZ 1
V-THETA 0		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0		0.3155	0.3155	0.3155	0.3155	0.3155	0.3155	0.3155	0.3155	0.3155	M 0
M 1		0.33211	0.3307	0.3336	0.3305	0.3369	0.3301	0.3182	0.3099	0.2886	M 1
TURN		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR		0.4431	0.2879	0.2481	0.2491	0.2491	0.2491	0.3114	0.3542	0.4876	UUBAR
DFAC		-0.0018	-0.047	-0.056	-0.047	-0.066	-0.045	-0.008	0.017	0.084	DFAC
EFFP		0.6762	0.2580	0.3260	0.2840	0.3633	0.2789	0.0533	-0.1123	-0.5103	EFFP
INCID		-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0		14.978	14.978	14.978	14.978	14.978	14.978	14.978	14.978	14.978	P 0
P 1		14.536	14.691	14.731	14.730	14.730	14.730	14.667	14.625	14.492	P 1
T 0		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E		95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2		50.378	49.223	46.979	43.918	43.241	42.870	46.757	50.623	55.400	BETA 2
BETA(PRI) 1		57.067	55.265	54.785	56.002	57.085	58.883	60.521	61.341	63.121	BETA(PRI) 1
BETA(PRI) 2		23.867	27.968	27.396	27.578	29.946	34.281	39.208	44.193	47.389	BETA(PRI) 2
V 1		355.63	385.33	397.18	394.24	397.98	390.04	378.78	370.14	345.93	V 1
V 2		523.58	504.89	519.79	544.93	551.03	537.99	508.25	475.37	462.96	V 2
VZ 1		355.63	385.24	397.13	394.22	397.49	388.46	376.29	367.50	343.67	VZ 1
VZ 2		333.89	329.74	354.63	392.52	401.29	393.88	347.67	301.14	262.59	VZ 2
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2		403.29	382.32	380.02	377.97	377.37	365.63	369.67	366.92	380.64	V-THETA 2
V(PRI) 1		654.2	676.2	688.7	705.0	731.8	752.5	765.9	767.5	761.2	V(PRI) 1
V(PRI) 2		365.1	373.4	399.4	442.8	463.3	477.3	449.6	420.8	388.5	V(PRI) 2
VTHETA PRI		-549.0	-555.6	-562.6	-584.5	-614.1	-643.5	-665.6	-672.4	-678.0	VTHETA PRI
VTHETA PR2		-147.7	-175.1	-183.8	-205.0	-231.2	-268.5	-283.6	-292.8	-285.5	VTHETA PR2
U 1		549.03	555.63	562.64	584.51	614.08	643.51	665.65	672.39	678.03	U 1
U 2		551.02	557.41	563.81	582.99	608.56	634.13	653.31	659.70	666.09	U 2
M 1		0.3219	0.3493	0.3603	0.3576	0.3611	0.3537	0.3432	0.3352	0.3129	M 1
M 2		0.4618	0.4449	0.4593	0.4816	0.4871	0.4749	0.4470	0.4168	0.4050	M 2
M(PRI) 1		0.5920	0.6130	0.6248	0.6395	0.6639	0.6824	0.6940	0.6952	0.6884	M(PRI) 1
M(PRI) 2		0.3220	0.3290	0.3529	0.3914	0.4096	0.4214	0.3953	0.3689	0.3399	M(PRI) 2
TURN(PRI)		33.196	27.292	27.386	28.424	27.121	24.551	21.241	17.078	15.682	TURN(PRI)
UUBAR		0.1105	0.1454	0.1151	0.0724	0.0655	0.0870	0.1628	0.2139	0.2468	UUBAR
LOSS PARA		0.6293	0.0377	0.0304	0.0198	0.0183	0.0242	0.0438	0.0538	0.0592	LOSS PARA
DFAC		0.6207	0.6139	0.5840	0.5366	0.5322	0.5279	0.5790	0.6178	0.6652	DFAC
EFFP		0.8547	0.7928	0.8580	0.8774	0.9112	0.8879	0.8093	0.7434	0.7341	EFFP
EFF		0.8501	0.7869	0.8515	0.8735	0.9082	0.8843	0.8034	0.7360	0.7263	EFF
INCID		4.636	4.349	4.206	3.960	3.084	2.891	1.839	-0.961	-5.030	INCID
DEVM		8.718	13.808	12.762	8.937	6.736	6.721	7.584	11.054	11.412	DEVM
P 1		14.536	14.691	14.731	14.730	14.730	14.730	14.667	14.625	14.492	P 1
P 2		18.063	17.910	18.093	18.379	18.573	18.491	18.185	17.869	17.767	P 2
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2		557.771	557.092	555.559	557.468	557.809	558.082	559.599	560.225	561.508	T 2
STATOR E		95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.207	33.584	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2		50.769	48.940	46.149	43.977	42.640	42.725	47.826	52.484	58.574	BETA 2
BETA 2A		-1.000	1.400	1.800	1.950	1.280	1.250	1.561	2.201	2.451	BETA 2A
V 2		520.73	507.22	527.25	544.93	558.15	540.37	500.41	464.09	447.51	V 2
V 2A		381.27	366.06	359.43	411.77	431.91	431.53	384.53	365.29	359.80	V 2A
VZ 2		329.33	333.16	365.26	392.09	410.44	396.70	335.70	282.43	233.20	VZ 2
VZ 2A		381.21	365.94	359.23	411.48	431.66	431.17	384.08	364.70	359.09	VZ 2A
V-THETA 2		403.36	382.45	380.21	378.34	377.95	366.38	370.57	367.85	381.65	V-THETA 2
V-THETA 2A		-6.65	8.94	11.29	14.01	9.65	9.41	10.46	14.01	15.37	V-THETA 2A
M 2		0.4592	0.4471	0.4661	0.4816	0.4937	0.4771	0.4398	0.4065	0.3911	M 2
M 2A		0.3330	0.3196	0.3141	0.3604	0.3784	0.3779	0.3353	0.3180	0.3128	M 2A
TURN(PRI)		51.769	47.539	44.347	42.020	41.341	41.439	46.217	50.233	56.073	TURN(PRI)
UUBAR		0.0570	0.0417	0.0259	0.0858	0.0751	0.0672	0.1190	0.0419	0.0057	UUBAR
LOSS PARA		0.3192	0.0142	0.0433	0.0305	0.0278	0.0259	0.0471	0.0167	0.0023	LOSS PARA
DFAC		0.5331	0.5292	0.5594	0.4825	0.4713	0.4570	0.5183	0.5197	0.5282	DFAC
EFFP		0.8864	0.9192	0.7818	0.8163	0.8290	0.8298	0.7289	0.8967	0.9849	EFFP
INCID		0.602	5.552	5.858	5.946	5.934	6.856	9.118	9.313	-0.624	INCID
DEVM		7.832	12.712	13.110	12.925	12.292	12.916	14.000	14.879	17.302	DEVM
P 2		18.063	17.910	18.093	18.379	18.573	18.491	18.185	17.869	17.767	P 2
P 2A		17.924	17.814	17.776	18.147	18.359	18.312	17.916	17.789	17.757	P 2A
T 2		557.771	557.092	555.559	557.468	557.809	558.082	559.599	560.225	561.508	T 2
T 2A		557.771	557.092	555.559	557.468	557.809	558.082	559.599	560.225	561.508	T 2A
UUBAR FS		0.712	0.1141	0.1387	0.0895	0.0472	0.0630	0.1972	0.1674	0.1674	UUBAR FS
P2 FS		18.099	18.097	18.130	18.377	18.489	18.479	18.405	18.204	18.112	P2 FS
LOSS PARA FS		0.240	0.0388	0.0477	0.0304	0.0174	0.0243	0.0780	0.0733	0.0675	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 90.27 Equivalent Rotor Speed = 3800.22 Equivalent Weight Flow = 82.57
 Uniform Inlet

INLET		PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
	DIA		33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
	BETA 0		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
	BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	V 0		322.57	322.57	322.57	322.57	322.57	322.57	322.57	322.57	322.57	V 0
	V 1		334.18	346.85	346.14	347.26	345.57	336.27	325.92	320.34	297.25	V 1
	VZ 0		322.56	322.56	322.57	322.56	322.54	322.51	322.48	322.48	322.48	VZ 0
	VZ 1		334.18	346.85	346.14	347.26	345.54	336.21	325.84	320.25	297.17	VZ 1
	V-THETA 0		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
	V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	M 0		0.2914	0.2914	0.2914	0.2914	0.2914	0.2914	0.2914	0.2914	0.2914	M 0
	M 1		0.3120	0.3137	0.3131	0.3141	0.3125	0.3040	0.2944	0.2893	0.2682	M 1
	TURN		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUEAR		0.4361	0.2819	0.2415	0.2415	0.2403	0.2474	0.3045	0.3378	0.4722	UUEAR
	DFAC		-0.036	-0.075	-0.073	-0.077	-0.071	-0.042	-0.010	0.007	0.078	DFAC
	EFFP		0.1477	0.3639	0.3933	0.4047	0.3884	0.2657	0.0661	-0.0437	-0.4853	EFFP
	INCID		-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
	DEVM		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
	P 0		14.932	14.932	14.932	14.932	14.932	14.932	14.932	14.932	14.932	P 0
	P 1		14.561	14.691	14.725	14.725	14.726	14.720	14.672	14.643	14.528	P 1
	T 0		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E		PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA		33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
	BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	BETA 2		53.148	51.301	49.623	46.605	46.131	46.703	52.612	56.388	59.510	BETA 2
	BETA(PR) 1		58.625	56.660	56.484	57.344	59.011	60.930	62.388	62.966	64.784	BETA(PR) 1
	BETA(PR) 2		16.024	27.455	28.024	27.715	31.488	34.040	40.798	44.552	46.111	BETA(PR) 2
	V 1		334.91	365.67	372.74	374.69	369.32	359.23	350.53	345.60	321.43	V 1
	V 2		566.73	504.40	509.58	536.13	539.28	532.97	496.11	479.41	480.00	V 2
	VZ 1		334.85	365.59	372.69	374.67	368.87	357.78	348.22	343.14	319.33	VZ 1
	VZ 2		339.89	315.36	330.10	368.33	373.62	365.16	300.88	265.09	243.32	VZ 2
	V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	V-THETA 2		453.48	393.64	388.19	389.56	388.67	387.54	393.70	398.81	413.24	V-THETA 2
	V(PR) 1		643.2	665.2	675.0	694.4	716.7	737.1	752.4	756.1	750.4	V(PR) 1
	V(PR) 2		353.6	355.4	374.0	418.1	433.8	441.3	398.2	372.7	351.6	V(PR) 2
	VTHETA PR1		-549.1	-555.7	-562.7	-584.6	-614.2	-643.6	-665.7	-672.5	-678.1	VTHETA PR1
	VTHETA PR2		-179.6	-163.9	-175.7	-193.5	-220.0	-246.9	-259.7	-261.0	-252.9	VTHETA PR2
	U 1		549.11	555.71	562.72	584.59	614.16	643.60	665.74	672.48	678.12	U 1
	U 2		551.10	557.49	563.89	583.07	608.64	634.22	653.40	659.79	666.19	U 2
	M 1		0.3027	0.3311	0.3376	0.3395	0.3345	0.3251	0.3171	0.3126	0.2903	M 1
	M 2		0.5006	0.4438	0.4492	0.4727	0.4754	0.4691	0.4345	0.4192	0.4192	M 2
	M(PR) 1		0.5813	0.6623	0.6114	0.6291	0.6490	0.6671	0.6806	0.6838	0.6778	M(PR) 1
	M(PR) 2		0.5124	0.5127	0.5297	0.5668	0.5824	0.5884	0.5488	0.5325	0.5071	M(PR) 2
	TURN(PR)		42.597	29.200	28.457	29.628	28.506	26.844	21.526	18.351	18.631	TURN(PR)
	UUBAR		0.0968	0.1424	0.1254	0.0810	0.0861	0.1168	0.2255	0.2672	0.2838	UUBAR
	LOSS PARA		0.0270	0.0371	0.0329	0.0221	0.0239	0.0326	0.0593	0.0668	0.0697	LOSS PARA
	DFAC		0.6548	0.6396	0.6169	0.5732	0.5686	0.5769	0.6507	0.6903	0.7248	DFAC
	EFFP		0.9318	0.7930	0.8361	0.8606	0.8789	0.8598	0.7501	0.7190	0.7318	EFFP
	EFF		0.9293	0.7869	0.8311	0.8561	0.8748	0.8551	0.7424	0.7106	0.7234	EFF
	INCID		6.194	5.744	5.905	5.301	5.011	4.945	3.713	0.671	-3.361	INCID
	DEVM		0.875	13.296	13.390	9.074	7.278	6.480	9.173	11.413	10.134	DEVM
	P 1		14.561	14.691	14.725	14.725	14.726	14.720	14.672	14.643	14.528	P 1
	P 2		18.698	18.057	18.149	18.474	18.616	18.616	18.190	18.037	18.057	P 2
	T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2		560.336	558.730	557.109	559.261	559.768	560.793	562.952	563.495	564.661	T 2
STATOR E		PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
	BETA 2A		53.591	50.996	48.723	46.668	45.478	46.548	53.926	58.730	63.355	BETA 2A
	BETA 2B		-0.120	1.230	1.140	0.860	1.110	0.680	1.150	2.711	3.501	BETA 2B
	V 2		563.57	506.72	516.80	536.13	546.14	535.26	488.58	468.01	463.77	V 2
	V 2A		377.10	355.65	343.37	388.90	407.09	408.11	372.71	356.75	358.33	V 2A
	VZ 2		334.51	318.91	340.92	367.86	382.81	367.91	287.51	242.81	207.89	VZ 2
	VZ 2A		377.09	355.56	343.29	388.80	406.88	407.84	372.33	356.03	357.28	VZ 2A
	V-THETA 2		453.56	393.77	388.38	389.94	389.26	388.34	394.66	399.83	414.34	V-THETA 2
	V-THETA 2A		-0.79	7.63	6.83	5.84	7.88	4.84	7.48	16.86	21.86	V-THETA 2A
	M 2		0.4977	0.4459	0.4558	0.4727	0.4817	0.4712	0.4277	0.4089	0.4046	M 2
	M 2A		0.3285	0.3099	0.2994	0.3393	0.3554	0.3560	0.3238	0.3095	0.3106	M 2A
	TURN(PR)		53.711	49.765	47.581	45.801	44.349	45.832	52.729	55.974	59.610	TURN(PR)
	UUBAR		0.2098	0.0573	0.1248	0.1229	0.1149	0.1176	0.0799	0.0606	0.0681	UUBAR
	LOSS PARA		0.0707	0.0195	0.0429	0.0437	0.0425	0.0453	0.0317	0.0242	0.0274	LOSS PARA
	DFAC		0.6025	0.5578	0.5900	0.5297	0.5140	0.5147	0.5529	0.5670	0.5709	DFAC
	EFFP		0.6485	0.8950	0.7919	0.7601	0.7619	0.7405	0.8215	0.8642	0.8412	EFFP
	INCID		3.424	7.608	8.432	8.637	8.772	10.679	15.221	15.564	4.162	INCID
	DEVM		8.712	12.542	12.450	11.835	12.122	12.346	13.590	15.388	8.351	DEVM
	P 2		18.698	18.057	18.149	18.474	18.616	18.616	18.190	18.037	18.057	P 2
	P 2A		18.087	17.925	17.848	18.152	18.302	18.307	18.018	17.918	17.926	P 2A
	T 2		560.336	558.730	557.109	559.261	559.768	560.793	562.952	563.495	564.661	T 2
	T 2A		560.336	558.730	557.109	559.261	559.768	560.793	562.952	563.495	564.661	T 2A
	UUBAR FS		0.0984	0.1397	0.1358	0.1268	0.1123	0.1087	0.1671	0.1346	0.1342	UUBAR FS
	P2 FS		18.348	18.277	18.190	18.486	18.608	18.589	18.414	18.232	18.204	P2 FS
	LOSS PARA FS		0.0332	0.0475	0.0480	0.0451	0.0415	0.0418	0.0663	0.0561	0.0540	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 70.56 Equivalent Rotor Speed = 2970.64 Equivalent Weight Flow = 92.73
 Uniform Inlet

INLET		96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA		33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0		364.35	364.35	364.35	364.35	364.35	364.35	364.35	364.35	364.35	V 0
V 1		377.38	390.26	381.98	385.70	385.46	371.16	366.46	364.08	342.68	V 1
VZ 0		364.35	364.35	364.35	364.35	364.33	364.29	364.26	364.25	364.26	VZ 0
VZ 1		377.38	390.26	381.98	385.69	385.44	371.10	366.37	363.98	342.59	VZ 1
V-THETA 0		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0		0.3299	0.3299	0.3299	0.3299	0.3299	0.3299	0.3299	0.3299	0.3299	M 0
M 1		0.3419	0.3539	0.3462	0.3497	0.3494	0.3362	0.3318	0.3296	0.3099	M 1
TURN		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR		0.4491	0.2897	0.2944	0.2522	0.2513	0.2541	0.3160	0.3563	0.4913	UUBAR
DFAC		-0.036	-0.071	-0.048	-0.059	-0.058	-0.019	-0.006	0.001	0.059	DFAC
EFFP		0.1433	0.3458	0.2591	0.3324	0.3307	0.1337	0.0367	-0.0045	-0.3192	EFFP
INCLD		-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVW		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVW
P 0		15.014	15.014	15.014	15.014	15.014	15.014	15.014	15.014	15.014	P 0
P 1		14.524	14.698	14.693	14.739	14.740	14.737	14.669	14.625	14.478	P 1
T 0		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E		95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2		34.298	30.725	29.708	28.289	27.384	25.783	25.517	26.412	30.432	BETA 2
BETA(PR) 1		46.620	46.509	46.864	47.610	49.343	51.823	52.985	53.364	55.162	BETA(PR) 1
BETA(PR) 2		24.350	24.400	24.422	25.659	29.270	33.446	37.318	40.415	47.624	BETA(PR) 2
V 1		378.23	412.19	412.21	417.15	412.84	397.18	394.98	393.73	371.36	V 1
V 2		459.60	483.78	495.30	508.18	497.07	482.21	457.77	428.38	359.70	V 2
VZ 1		378.16	412.10	412.16	417.13	412.33	395.57	392.38	390.93	368.94	VZ 1
VZ 2		379.67	415.85	430.18	447.47	441.16	433.52	412.03	382.56	309.33	VZ 2
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2		258.97	247.15	245.45	240.83	228.52	209.41	196.68	190.00	181.71	V-THETA 2
V(PR) 1		572.1	598.8	602.8	618.7	633.2	641.0	653.3	656.8	647.2	V(PR) 1
V(PR) 2		416.8	456.7	472.5	496.4	506.0	520.3	519.2	503.5	459.7	V(PR) 2
VTHETA PR1		-429.2	-434.4	-439.9	-457.0	-480.1	-503.1	-520.4	-525.7	-530.1	VTHETA PR1
VTHETA PR2		-171.8	-186.6	-195.3	-215.0	-247.3	-286.4	-314.1	-325.8	-339.0	VTHETA PR2
U 1		429.24	434.40	439.88	456.98	480.09	503.10	520.41	525.68	530.09	U 1
U 2		430.80	435.79	440.79	455.79	475.78	495.77	510.76	515.76	520.76	U 2
M 1		0.3427	0.3743	0.3743	0.3790	0.3749	0.3603	0.3583	0.3571	0.3364	M 1
M 2		0.4109	0.4340	0.4452	0.4561	0.4459	0.4323	0.4100	0.3829	0.3201	M 2
M(PR) 1		0.5184	0.5438	0.5475	0.5621	0.5751	0.5815	0.5926	0.5957	0.5862	M(PR) 1
M(PR) 2		0.3726	0.4096	0.4247	0.4455	0.4539	0.4664	0.4650	0.4501	0.4090	M(PR) 2
TURN(PR)		24.266	22.104	22.439	21.951	20.052	18.315	15.574	12.854	7.464	TURN(PR)
UUBAR		0.1214	0.0887	0.0486	0.0359	0.0507	0.0472	0.0481	0.0887	0.1665	UUBAR
LOSS PARA		0.0320	0.0237	0.0131	0.0100	0.0142	0.0132	0.0133	0.0237	0.0397	LOSS PARA
DFAC		0.4029	0.3587	0.3373	0.3173	0.3166	0.2974	0.3089	0.3338	0.3883	DFAC
EFFP		0.7902	0.8626	0.9886	0.8871	0.8711	0.8564	0.8667	0.7716	0.5933	EFFP
EFF		0.7871	0.8606	0.9884	0.8852	0.8691	0.8542	0.8648	0.7687	0.5893	EFF
INCLD		-3.811	-4.407	-3.715	-4.432	-4.661	-4.177	-5.716	-8.962	-13.014	INCLD
DEVW		9.200	10.241	9.788	7.018	6.059	5.887	5.695	7.278	11.648	DEVW
P 1		14.524	14.698	14.693	14.739	14.740	14.737	14.669	14.625	14.478	P 1
P 2		16.093	16.287	16.409	16.522	16.450	16.368	16.225	15.990	15.520	P 2
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2		538.292	536.638	535.531	538.133	537.718	537.195	536.230	536.124	536.357	T 2
STATOR E		95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2A		34.566	30.581	29.271	28.324	27.070	25.711	25.962	27.116	31.576	BETA 2A
BETA 2A		-0.100	1.450	1.500	0.350	0.250	0.800	1.650	0.150	-4.001	BETA 2A
V 2		457.23	485.98	502.29	508.18	503.19	484.20	450.99	418.54	348.47	V 2
VZ 2A		420.87	437.47	457.62	487.52	485.31	479.05	422.90	402.09	392.91	VZ 2A
VZ 2		376.79	418.37	438.13	447.26	447.82	435.82	404.91	371.98	296.43	VZ 2
VZ 2A		420.86	437.32	457.44	487.44	485.14	476.73	422.38	401.73	391.54	VZ 2A
V-THETA 2		259.02	247.24	245.57	241.06	228.87	209.84	197.15	190.48	182.20	V-THETA 2
V-THETA 2A		-0.73	11.07	11.98	2.98	2.12	6.69	12.17	1.05	-27.39	V-THETA 2A
M 2		0.4087	0.4360	0.4517	0.4561	0.4516	0.4341	0.4037	0.3739	0.3099	M 2
M 2A		0.3752	0.3911	0.4101	0.4368	0.4349	0.4293	0.3778	0.3588	0.3503	M 2A
TURN(PR)		34.605	29.130	27.769	27.968	26.805	24.883	24.274	26.923	35.520	TURN(PR)
UUBAR		0.0912	0.1138	0.0877	0.0284	0.0205	0.0195	0.0210	0.1806	-0.1278	UUBAR
LOSS PARA		0.0307	0.0387	0.0302	0.0101	0.0076	0.0075	0.0796	0.0723	-0.0514	LOSS PARA
DFAC		0.2709	0.2654	0.2492	0.2075	0.2029	0.1730	0.2258	0.2213	0.1161	DFAC
EFFP		0.4412	0.4423	0.5236	0.6737	0.7312	0.1482	-0.5703	-1.2248	0.5517	EFFP
INCLD		-15.662	-12.807	-11.020	-9.706	-9.632	-10.151	-12.735	-16.046	-27.622	INCLD
DEVW		8.732	12.762	12.810	11.325	11.262	12.466	14.090	12.830	0.857	DEVW
P 2		16.093	16.287	16.409	16.522	16.450	16.368	16.225	15.990	15.520	P 2
P 2A		15.933	16.060	16.221	16.459	16.406	16.330	15.879	15.725	15.648	P 2A
T 2		538.292	536.638	535.531	538.133	537.718	537.195	536.230	536.124	536.357	T 2
T 2A		536.292	536.638	535.531	538.133	537.718	537.195	536.230	536.124	536.357	T 2A
UUBAR FS		0.1237	0.1005	0.0558	0.0212	0.0247	0.0267	0.0292	0.0391	0.0391	UUBAR FS
P2 FS		16.178	16.257	16.336	16.505	16.459	16.382	16.382	16.224	16.152	P2 FS
LOSS PARA FS		0.0451	0.0341	0.0192	0.0075	0.0091	0.0101	0.1060	0.1171	0.1243	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 70.20 Equivalent Rotor Speed = 2955.62 Equivalent Weight Flow = 75.87
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	295.26	295.26	295.26	295.26	295.26	295.26	295.26	295.26	295.26	V 0
V 1	300.85	309.00	310.33	313.59	309.75	306.66	296.61	292.32	272.70	V 1
VZ 0	295.26	295.26	295.26	295.26	295.24	295.22	295.19	295.18	295.19	VZ 0
VZ 1	300.65	309.00	310.33	313.59	309.73	306.61	296.54	292.24	272.63	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2663	0.2663	0.2663	0.2663	0.2663	0.2663	0.2663	0.2663	0.2663	M 0
M 1	0.2714	0.2789	0.2801	0.2831	0.2796	0.2768	0.2676	0.2636	0.2457	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4258	0.2674	0.2320	0.2320	0.2362	0.2362	0.2985	0.3268	0.4640	UUBAR
DFAC	-0.019	-0.047	-0.051	-0.062	-0.049	-0.039	-0.005	0.010	0.076	DFAC
EFFP	0.0837	0.2673	0.3163	0.3617	0.3040	0.2547	0.0304	-0.0665	-0.4773	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	DEVM
P 0	14.887	14.887	14.887	14.887	14.887	14.887	14.887	14.887	14.887	P 0
P 1	14.582	14.696	14.721	14.721	14.718	14.718	14.673	14.653	14.555	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	45.142	42.659	40.587	39.021	38.186	37.376	39.433	42.710	49.050	BETA 2
BETA(PR) 1	54.784	53.032	52.685	53.392	55.348	56.932	58.561	59.120	60.977	BETA(PR) 1
BETA(PR) 2	24.290	26.399	25.845	25.902	29.861	34.034	38.200	43.705	49.830	BETA(PR) 2
V 1	301.50	325.38	333.62	337.79	330.57	327.24	318.64	315.02	294.55	V 1
V 2	417.29	415.86	430.63	450.39	442.78	431.80	409.64	372.42	338.80	V 2
VZ 1	301.44	325.31	333.58	337.77	330.16	325.91	316.54	312.78	292.63	VZ 1
VZ 2	294.33	305.81	327.02	349.91	347.90	342.72	315.78	273.12	221.71	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	295.79	281.79	280.16	283.56	273.63	261.80	259.69	252.11	255.49	V-THETA 2
V(PR) 1	522.8	541.0	550.3	566.4	580.9	598.0	608.0	610.6	604.1	V(PR) 1
V(PR) 2	322.9	341.4	363.4	389.0	401.3	414.1	402.6	378.5	344.2	V(PR) 2
VTHETA PR1	-427.1	-432.2	-437.7	-454.7	-477.7	-500.6	-517.8	-523.0	-527.4	VTHETA PR1
VTHETA PR2	-132.8	-151.8	-158.4	-169.9	-199.7	-231.5	-248.5	-261.0	-262.6	VTHETA PR2
U 1	427.07	432.20	437.66	454.67	477.67	500.56	517.78	523.02	527.41	U 1
U 2	428.62	433.59	438.56	453.48	473.37	493.26	508.18	513.16	518.13	U 2
M 1	0.2720	0.2940	0.3015	0.3054	0.2987	0.2957	0.2878	0.2844	0.2657	M 1
M 2	0.3713	0.3702	0.3841	0.4015	0.3944	0.3843	0.3640	0.3300	0.2996	M 2
M(PR) 1	0.4717	0.4887	0.4974	0.5120	0.5249	0.5403	0.5490	0.5513	0.5449	M(PR) 1
M(PR) 2	0.2874	0.3040	0.3241	0.3467	0.3575	0.3686	0.3577	0.3354	0.3043	M(PR) 2
TURN(PR) 1	30.490	26.629	26.838	27.489	25.468	22.844	20.283	15.337	11.088	TURN(PR) 1
UUBAR	0.1063	0.1199	0.0798	0.0487	0.0467	0.0595	0.1109	0.1521	0.2155	UUBAR
LOSS PARA	0.0281	0.0315	0.0213	0.0135	0.0130	0.0166	0.0302	0.0386	0.0492	LOSS PARA
DFAC	0.5465	0.5219	0.4910	0.4671	0.4601	0.4537	0.4846	0.5235	0.5787	DFAC
EFFP	0.8816	0.8463	0.9338	0.9202	0.9264	0.8969	0.8400	0.7548	0.6886	EFFP
EFF	0.8795	0.8438	0.9326	0.9186	0.9188	0.8950	0.8372	0.7508	0.6839	EFF
INCID	2.353	2.116	2.107	1.349	1.346	0.939	-0.127	-3.190	-7.183	INCID
DEVM	9.140	12.239	11.211	7.261	6.651	6.474	6.576	10.566	13.854	DEVM
P 1	14.582	14.696	14.721	14.721	14.718	14.718	14.673	14.653	14.555	P 1
P 2	16.514	16.509	16.646	16.823	16.837	16.783	16.616	16.413	16.170	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	540.644	539.482	538.576	540.651	540.812	540.852	541.100	541.455	541.848	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	45.438	42.452	39.974	39.071	37.740	37.275	40.189	44.001	51.333	BETA 2
BETA 2A	-0.104	1.300	2.000	1.550	0.820	1.280	1.250	2.001	1.200	BETA 2A
V 2	415.21	417.64	436.32	450.39	447.93	433.50	403.81	364.20	328.36	V 2
V 2A	325.61	322.45	328.21	371.97	380.36	377.26	336.73	315.82	304.87	V 2A
VZ 2	291.35	308.15	334.35	349.62	354.08	344.67	308.17	261.73	204.99	VZ 2
VZ 2A	325.81	322.36	327.99	371.79	380.19	376.94	336.38	315.34	304.49	VZ 2A
V-THETA 2	295.64	281.89	280.30	283.83	274.05	262.34	260.32	252.75	256.17	V-THETA 2
V-THETA 2A	-0.57	7.31	11.45	10.06	5.44	8.42	7.34	11.02	6.38	V-THETA 2A
M 2	0.3694	0.3718	0.3893	0.4015	0.3991	0.3859	0.3587	0.3226	0.2902	M 2
M 2A	0.2884	0.2855	0.2909	0.3299	0.3374	0.3346	0.2979	0.2790	0.2691	M 2A
TURN(PR) 1	45.538	41.151	37.973	37.514	36.901	35.961	38.890	41.948	50.075	TURN(PR) 1
UUBAR	0.0511	0.0667	0.1221	0.0567	0.0324	0.0278	0.1111	0.0630	-0.1258	UUBAR
LOSS PARA	0.0172	0.0227	0.0420	0.0262	0.0120	0.0107	0.0440	0.0252	-0.0507	LOSS PARA
DFAC	0.4558	0.4519	0.4601	0.3906	0.3736	0.3564	0.4157	0.3999	0.3802	DFAC
EFFP	0.8737	0.8433	0.7337	0.8324	0.8910	0.8920	0.6525	0.7563	1.8766	EFFP
INCID	-4.729	-0.936	-0.316	1.040	1.034	1.408	1.481	0.828	-7.870	INCID
DEVM	8.732	12.612	13.310	12.525	11.832	12.946	13.690	14.679	6.053	DEVM
P 2	16.514	16.509	16.646	16.823	16.837	16.783	16.616	16.413	16.170	P 2
P 2A	16.436	16.469	16.444	16.723	16.780	16.737	16.459	16.341	16.285	P 2A
T 2	540.644	539.482	538.576	540.651	540.812	540.852	541.100	541.455	541.848	T 2
T 2A	540.044	539.482	538.576	540.651	540.812	540.852	541.100	541.455	541.848	T 2A
UUBAR FS	0.0411	0.1073	0.1016	0.0374	0.0309	0.0398	0.1932	0.1937	0.2117	UUBAR FS
P2 FS	16.552	16.577	16.608	16.787	16.832	16.803	16.760	16.597	16.562	P2 FS
LOSS PARA FS	0.0273	0.0365	0.0349	0.0133	0.0111	0.0153	0.0765	0.0774	0.0853	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 70.39 Equivalent Rotor Speed = 2963.23 Equivalent Weight Flow = 68.30
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	264.81	264.81	264.81	264.81	264.81	264.81	264.81	264.81	264.81	V 0
V 1	266.75	279.72	280.58	284.15	275.69	277.39	270.17	265.10	243.12	V 1
VZ 0	264.80	264.80	264.81	264.80	264.79	264.76	264.74	264.73	264.74	VZ 0
VZ 1	268.74	279.72	280.58	284.15	275.67	277.34	270.10	265.03	243.06	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2385	0.2385	0.2385	0.2385	0.2385	0.2385	0.2385	0.2385	0.2385	M 0
M 1	0.2421	0.2521	0.2529	0.2562	0.2484	0.2500	0.2434	0.2388	0.2188	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	3.4207	3.2559	0.2261	0.2279	0.2279	0.2261	0.2945	0.3225	0.4662	UUBAR
DFAC	-0.015	-0.056	-0.060	-0.073	-0.041	-0.048	-0.020	-0.001	0.082	DFAC
EFFP	0.0675	0.3157	0.3565	0.4043	0.2729	0.3051	0.1240	0.0066	-0.5205	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	14.846	14.846	14.846	14.846	14.846	14.846	14.846	14.846	14.846	P 0
P 1	14.664	14.699	14.716	14.715	14.715	14.716	14.677	14.660	14.578	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	49.546	48.176	46.025	43.626	43.029	42.176	45.431	49.137	54.018	BETA 2
BETA (PR) 1	57.835	55.824	55.531	56.154	58.500	59.597	60.979	61.618	63.764	BETA (PR) 1
BETA (PR) 2	24.468	27.678	26.916	26.284	30.636	35.121	40.015	44.276	47.124	BETA (PR) 2
V 1	269.32	294.26	301.26	305.70	293.83	295.67	289.91	285.35	262.31	V 1
V 2	406.87	397.02	410.11	434.07	425.66	415.09	392.07	369.58	360.69	V 2
VZ 1	269.26	294.22	301.22	305.68	293.47	294.47	288.00	283.32	260.60	VZ 1
VZ 2	263.99	264.74	284.75	314.20	311.07	307.29	274.70	241.43	211.65	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	309.59	295.85	295.13	299.48	290.37	278.40	278.86	279.08	291.51	V-THETA 2
V (PR) 1	505.6	523.8	532.2	548.9	561.9	582.5	594.6	597.0	590.3	V (PR) 1
V (PR) 2	290.1	299.0	319.4	350.4	361.7	376.2	359.4	337.8	311.6	V (PR) 2
VTHETA PR1	-428.2	-433.3	-438.8	-455.8	-478.9	-501.8	-519.1	-524.4	-528.8	VTHETA PR1
VTHETA PR2	-120.1	-138.9	-144.6	-155.2	-184.2	-216.1	-230.6	-235.4	-228.0	VTHETA PR2
U 1	428.17	433.32	438.78	455.84	478.90	501.85	519.11	524.37	528.77	U 1
U 2	429.72	434.71	439.69	454.65	474.59	494.53	509.49	514.48	519.46	U 2
M 1	0.2426	0.2654	0.2718	0.2759	0.2650	0.2667	0.2614	0.2573	0.2363	M 1
M 2	0.3612	0.3525	0.3647	0.3860	0.3782	0.3684	0.3472	0.3267	0.3184	M 2
M (PR) 1	0.4557	0.4725	0.4802	0.4953	0.5068	0.5234	0.5362	0.5382	0.5316	M (PR) 1
M (PR) 2	0.2575	0.2654	0.2840	0.3116	0.3213	0.3339	0.3182	0.2986	0.2751	M (PR) 2
TURN (PR)	33.303	28.142	28.612	29.870	27.847	24.427	20.895	17.274	16.594	TURN (PR)
UUBAR	0.1173	0.1428	0.1084	0.0850	0.0787	0.0836	0.1479	0.2003	0.2366	UUBAR
LOSS PARA	0.0309	0.0371	0.0287	0.0179	0.0218	0.0230	0.0393	0.0503	0.0570	LOSS PARA
DFAC	0.6042	0.5952	0.5648	0.5292	0.5219	0.5137	0.5569	0.5965	0.6455	DFAC
EFFP	0.8582	0.8185	0.8943	0.9073	0.8903	0.8682	0.7897	0.7238	0.7224	EFFP
EFF	0.8556	0.8154	0.8924	0.9054	0.8881	0.8656	0.7858	0.7190	0.7175	EFF
INCID	5.404	4.908	4.953	4.112	4.499	3.608	2.299	-0.683	-4.385	INCID
DEVM	9.319	13.518	12.282	7.643	7.425	7.560	8.390	11.137	11.147	DEVM
P 1	14.664	14.699	14.716	14.715	14.715	14.716	14.677	14.660	14.578	P 1
P 2	16.641	16.590	16.706	16.919	16.903	16.873	16.701	16.545	16.494	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	541.744	541.066	540.155	542.003	542.301	542.584	543.530	544.060	544.670	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.237	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	49.896	47.928	45.292	43.684	42.509	42.063	46.364	50.773	56.820	BETA 2
BETA 2A	-0.300	1.650	2.000	1.880	1.260	1.140	1.200	2.301	2.351	BETA 2A
V 2	404.87	398.69	415.48	434.07	430.54	416.70	386.57	361.45	349.44	V 2
VZ 2	307.19	295.93	293.37	331.37	347.81	342.30	307.29	287.67	283.20	VZ 2
VZ 2A	260.84	267.14	292.28	313.86	317.27	309.15	266.54	228.41	191.12	VZ 2A
V-THETA 2	307.18	295.80	293.18	331.14	347.61	342.03	306.98	287.18	282.66	V-THETA 2
V-THETA 2A	309.64	295.94	295.27	299.76	290.81	278.97	279.54	279.78	292.28	V-THETA 2A
M 2	-1.61	8.52	10.24	10.87	7.65	6.81	6.43	11.54	11.60	M 2
M 2A	0.3594	0.3540	0.3696	0.3860	0.3826	0.3699	0.3422	0.3193	0.3083	M 2A
M Z	0.2712	0.2613	0.2592	0.2928	0.3075	0.3025	0.2708	0.2532	0.2491	M Z
TURN (PK)	50.190	46.277	43.290	41.797	41.230	40.887	45.114	48.421	54.417	TURN (PK)
UUBAR	0.0235	0.0345	0.01149	0.0991	0.0392	0.0432	0.0863	0.0430	0.0135	UUBAR
LOSS PARA	0.0079	0.0117	0.0395	0.0352	0.0145	0.0166	0.0342	0.0172	0.0054	LOSS PARA
DFAC	0.5003	0.5034	0.5303	0.4736	0.4365	0.4312	0.4866	0.5027	0.5155	DFAC
EFFP	0.9475	0.9269	0.7817	0.7752	0.8935	0.8742	0.7757	0.8874	0.9623	EFFP
INCID	-0.277	4.540	5.001	5.653	5.803	6.194	7.656	7.601	-2.379	INCID
DEVM	6.532	12.962	13.310	12.855	12.272	12.806	13.641	14.979	7.202	DEVM
P 2	16.641	16.590	16.706	16.919	16.903	16.873	16.701	16.545	16.494	P 2
P 2A	16.667	16.543	16.534	16.755	16.840	16.807	16.589	16.496	16.480	P 2A
T 2	541.744	541.066	540.155	542.003	542.301	542.584	543.530	544.060	544.670	T 2
T 2A	541.744	541.086	540.155	542.003	542.301	542.584	543.530	544.060	544.670	T 2A
UUBAR FS	0.0737	0.1028	0.1343	0.0731	0.0470	0.0630	0.2210	0.1903	0.1616	UUBAR FS
PZ FS	16.717	16.705	16.740	16.872	16.916	16.904	16.926	16.749	16.680	PZ FS
LOSS PARA FS	0.0248	0.0369	0.0461	0.0259	0.0173	0.0242	0.0876	0.0761	0.0646	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
Stage E, Rotor E - Stator E

Calculations Using Translated Values
Percent Equivalent Rotor Speed = 70.37 Equivalent Rotor Speed = 2962.57 Equivalent Weight Flow = 61.93
Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	239.44	239.44	239.44	239.44	239.44	239.44	239.44	239.44	239.44	V 0
V 1	252.41	259.99	260.34	256.04	255.75	251.76	242.00	236.02	218.73	V 1
VZ 0	239.43	239.44	239.44	239.43	239.42	239.40	239.38	239.37	239.37	VZ 0
VZ 1	252.41	259.99	260.34	256.04	255.73	251.72	241.94	235.95	218.67	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2155	0.2155	0.2195	0.2155	0.2155	0.2155	0.2155	0.2155	0.2155	M 0
M 1	0.2272	0.2341	0.2345	0.2306	0.2303	0.2267	0.2178	0.2124	0.1967	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4149	0.2502	0.2288	0.2267	0.2246	0.2288	0.2866	0.3251	0.4683	UUBAR
DFAC	-0.054	-0.086	-0.087	-0.069	-0.068	-0.051	-0.011	0.014	0.086	DFAC
EFFP	0.2141	0.4213	0.4477	0.3921	0.3899	0.3196	0.0711	-0.0970	-0.5569	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	14.618	14.818	14.818	14.818	14.818	14.818	14.818	14.818	14.818	P 0
P 1	14.622	14.700	14.710	14.711	14.712	14.710	14.683	14.665	14.597	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	51.888	51.234	49.805	47.469	47.162	47.458	52.914	56.422	59.345	BETA 2
BETA(PR) 1	59.427	57.751	57.518	58.878	60.392	61.976	63.591	64.328	66.100	BETA(PR) 1
BETA(PR) 2	22.407	27.274	26.496	28.332	30.789	35.918	42.596	45.398	45.631	BETA(PR) 2
V 1	252.94	273.40	279.32	275.17	272.41	268.13	259.44	253.79	235.60	V 1
V 2	412.60	394.21	404.95	412.71	416.91	403.46	377.16	369.40	376.29	V 2
VZ 1	252.89	273.33	279.28	275.16	272.08	267.04	257.73	251.99	234.26	VZ 1
VZ 2	254.65	246.82	261.34	278.98	283.39	272.55	227.16	204.08	191.68	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	324.63	307.36	309.32	304.13	305.63	297.00	300.52	307.42	323.40	V-THETA 2
V(IPR) 1	497.2	512.3	520.1	532.4	550.9	568.9	580.2	582.5	578.9	V(IPR) 1
V(IPR) 2	275.5	277.7	292.0	317.0	330.0	337.0	309.1	291.2	274.6	V(IPR) 2
VTHETA PR1	-428.1	-433.2	-438.7	-455.7	-478.8	-501.7	-519.0	-524.3	-528.6	VTHETA PR1
VTHETA PR2	-105.0	-127.3	-130.3	-150.4	-168.9	-197.4	-208.9	-206.9	-195.9	VTHETA PR2
U 1	428.07	433.22	438.69	455.74	478.79	501.74	519.00	524.25	528.65	U 1
U 2	429.63	434.61	439.59	454.55	474.49	494.42	509.38	514.36	519.34	U 2
M 1	0.2277	0.2464	0.2518	0.2480	0.2455	0.2416	0.2336	0.2285	0.2122	M 1
M 2	0.3660	0.3495	0.3597	0.3660	0.3697	0.3572	0.3330	0.3259	0.3319	M 2
M(IPR) 1	0.4477	0.4616	0.4688	0.4798	0.4964	0.5125	0.5225	0.5244	0.5208	M(IPR) 1
M(IPR) 2	0.2443	0.2462	0.2594	0.2811	0.2927	0.2983	0.2730	0.2569	0.2422	M(IPR) 2
TURN(PR) 1	37.017	30.473	31.019	30.545	29.588	26.015	20.937	18.873	20.432	TURN(PR) 1
TURN(PR) 2	0.1103	0.1466	0.1222	0.0988	0.1001	0.1371	0.2231	0.2645	0.2821	TURN(PR) 2
UUBAR	0.0295	0.0382	0.0325	0.0268	0.0277	0.0373	0.0570	0.0651	0.0699	UUBAR
LOSS PARA	0.6354	0.6341	0.6153	0.5802	0.5787	0.5820	0.6453	0.6834	0.7218	LOSS PARA
DFAC	0.8637	0.8161	0.8935	0.8495	0.8722	0.8144	0.7304	0.7047	0.7333	DFAC
EFFP	0.8610	0.8128	0.8914	0.8465	0.8695	0.8107	0.7254	0.6994	0.7282	EFFP
EFF	6.996	6.835	6.940	6.835	6.393	5.993	4.921	2.039	-2.039	EFF
INCLD	7.257	13.114	11.862	9.691	7.578	8.357	10.970	12.259	9.654	INCLD
DEVM	14.622	14.700	14.710	14.711	14.712	14.710	14.683	14.665	14.597	DEVM
P 1	16.800	16.685	16.790	16.876	16.982	16.891	16.704	16.645	16.702	P 1
P 2	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	P 2
T 1	543.082	542.225	541.112	543.216	543.664	544.483	545.535	546.036	546.646	T 1
T 2										T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	52.272	50.959	48.980	47.535	46.567	47.328	54.141	58.598	62.890	BETA 2
BETA 2A	-0.00	1.900	1.630	0.630	0.940	0.020	0.830	1.851	3.651	BETA 2A
V 2	410.52	395.86	410.19	412.71	421.65	405.01	371.92	361.28	364.44	V 2
V 2A	298.19	280.47	268.47	307.00	314.40	319.33	287.34	275.87	276.60	V 2A
VZ 2	251.20	249.34	269.21	278.61	289.80	274.36	217.74	188.14	166.61	VZ 2
VZ 2A	298.19	280.30	268.35	306.94	314.25	319.14	287.07	275.40	275.75	VZ 2A
V-THETA 2	324.69	307.46	309.47	304.42	306.09	297.61	301.25	308.21	324.26	V-THETA 2
V-THETA 2A	-0.00	9.30	7.64	3.38	5.16	0.11	4.16	8.90	17.60	V-THETA 2A
M 2	0.3641	0.3510	0.3645	0.3660	0.3740	0.3586	0.3283	0.3186	0.3212	M 2
M 2A	0.2628	0.2472	0.2368	0.2707	0.2772	0.2814	0.2526	0.2422	0.2428	M 2A
TURN(PR) 1	52.271	49.058	47.348	46.898	45.608	47.272	53.264	56.701	59.194	TURN(PR) 1
UUBAR	0.0604	0.0481	0.1459	0.0899	0.1135	0.0646	0.0545	0.0553	0.0971	UUBAR
LOSS PARA	0.0233	0.0164	0.0502	0.0319	0.0420	0.0249	0.0216	0.0221	0.0391	LOSS PARA
DFAC	0.5401	0.5481	0.5990	0.5159	0.5195	0.4957	0.5457	0.5697	0.5826	DFAC
EFFP	0.8784	0.9079	0.7559	0.8084	0.7569	0.8375	0.8702	0.8725	0.7794	EFFP
EFF	2.104	7.571	8.689	9.504	9.861	11.459	15.435	15.431	3.696	EFF
INCLD	8.832	13.212	12.940	11.605	11.952	11.686	13.271	14.529	8.502	INCLD
DEVM	16.800	16.685	16.790	16.876	16.982	16.891	16.704	16.645	16.702	DEVM
P 2	16.712	16.620	16.576	16.742	16.804	16.798	16.638	16.583	16.590	P 2
T 2	543.082	542.225	541.112	543.216	543.664	544.483	545.535	546.036	546.646	T 2
T 2A	543.082	542.225	541.112	543.216	543.664	544.483	545.535	546.036	546.646	T 2A
UUBAR FS	0.945	0.1279	0.1386	0.1227	0.1039	0.0967	0.2199	0.1663	0.1583	UUBAR FS
P2 FS	16.896	16.810	16.778	16.931	16.964	16.941	16.958	16.796	16.785	P2 FS
LOSS PARA FS	0.317	0.436	0.0477	0.0435	0.0384	0.0373	0.0871	0.0664	0.0637	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 49.99 Equivalent Rotor Speed = 2104.67 Equivalent Weight Flow = 64.65
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-5.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-6.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	250.19	250.19	250.19	250.19	250.19	250.19	250.19	250.19	250.19	V 0
V 1	267.29	274.01	271.46	271.22	265.35	265.51	256.76	252.86	235.59	V 1
VZ 0	250.19	250.19	250.19	250.18	250.17	250.15	250.12	250.12	250.12	VZ 0
VZ 1	267.29	274.01	271.46	271.22	265.33	265.46	256.70	252.79	235.53	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2252	0.2252	0.2252	0.2252	0.2252	0.2252	0.2252	0.2252	0.2252	M 0
M 1	0.2408	0.2469	0.2446	0.2444	0.2390	0.2392	0.2312	0.2277	0.2120	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4176	0.2549	0.2294	0.2235	0.2255	0.2313	0.2902	0.3235	0.4686	UUBAR
DFAC	-0.068	-0.095	-0.085	-0.084	-0.061	-0.061	-0.026	-0.011	0.058	DFAC
EFFP	0.2558	0.4437	0.4405	0.4443	0.3607	0.3572	0.1572	0.0631	-0.3248	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVN
P 0	14.830	14.830	14.830	14.830	14.830	14.830	14.830	14.830	14.830	P 0
P 1	14.615	14.698	14.712	14.715	14.714	14.711	14.680	14.663	14.588	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	34.375	30.788	29.718	28.387	27.331	25.636	25.538	26.942	29.532	BETA 2
BETA(PR) 1	48.633	46.883	46.930	47.989	50.302	51.676	53.425	54.048	56.090	BETA(PR) 1
BETA(PR) 2	24.117	24.806	24.354	26.035	30.204	33.706	37.463	39.812	49.335	BETA(PR) 2
V 1	267.85	288.24	291.37	291.65	282.72	282.89	275.39	272.06	254.12	V 1
V 2	326.76	339.71	351.36	356.76	345.45	340.22	323.22	306.37	245.70	V 2
VZ 1	267.80	288.17	291.33	291.63	282.37	281.74	275.58	270.12	252.47	VZ 1
VZ 2	269.68	291.62	305.14	313.86	306.74	306.24	290.87	272.34	213.20	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	184.49	173.88	174.18	169.61	158.53	146.96	138.98	138.42	120.78	V-THETA 2
VIPR) 1	405.3	421.7	426.6	435.8	442.3	455.1	460.2	461.2	453.5	VIPR) 1
VIPR) 2	295.5	321.5	335.0	349.3	355.1	368.6	367.2	355.3	327.7	VIPR) 2
VTHETA PR1	-304.1	-307.8	-311.7	-323.8	-340.1	-356.4	-368.7	-372.4	-375.6	VTHETA PR1
VTHETA PR2	-120.7	-134.9	-138.1	-153.3	-178.6	-204.3	-222.9	-227.0	-248.2	VTHETA PR2
U 1	304.11	307.77	311.65	323.76	340.14	356.44	368.71	372.44	375.56	U 1
U 2	305.21	308.76	312.30	322.92	337.08	351.25	361.87	365.41	368.95	U 2
M 1	0.2413	0.2599	0.2628	0.2630	0.2549	0.2550	0.2482	0.2451	0.2288	M 1
M 2	0.2923	0.3045	0.3154	0.3196	0.3093	0.3046	0.2892	0.2739	0.2191	M 2
M(PR) 1	0.3651	0.3802	0.3848	0.3930	0.3987	0.4102	0.4147	0.4156	0.4083	M(PR) 1
M(PR) 2	0.2643	0.2882	0.3007	0.3129	0.3180	0.3300	0.3286	0.3177	0.2922	M(PR) 2
TURM(PR)	24.512	22.072	22.574	21.954	20.078	17.908	15.870	14.142	6.882	TURM(PR)
UUBAR	0.1234	0.0928	0.0581	0.0458	0.0579	0.0438	0.0609	0.0995	0.1594	UUBAR
LOSS PARA	0.0326	0.0247	0.0157	0.0126	0.0161	0.0123	0.0168	0.0268	0.0368	LOSS PARA
DFAC	0.4029	0.3587	0.3362	0.3180	0.3121	0.2978	0.3059	0.3339	0.3709	DFAC
EFFP	0.7592	0.8722	1.0446	0.8100	0.7873	0.7843	0.7631	0.6978	0.4940	EFFP
EFF	0.7574	0.8713	1.0450	0.8085	0.7857	0.7827	0.7614	0.6959	0.4917	EFF
INCID	-3.799	-4.033	-3.648	-4.053	-3.702	-4.324	-5.275	-8.276	-12.084	INCID
DEVN	8.967	10.647	9.720	7.394	6.993	6.147	5.840	6.675	13.359	DEVN
P 1	14.615	14.698	14.712	14.715	14.714	14.711	14.680	14.663	14.588	P 1
P 2	15.391	15.466	15.542	15.567	15.522	15.507	15.421	15.340	15.068	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	528.900	527.427	526.551	529.111	528.866	528.757	528.350	528.378	528.491	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	34.565	30.660	29.332	28.421	27.060	25.576	25.946	27.612	30.576	BETA 2
BETA 2A	0.750	1.700	1.310	0.740	0.400	0.800	1.601	0.750	-3.001	BETA 2A
V 2	325.23	341.09	355.75	356.76	349.19	341.47	318.86	299.84	238.44	V 2
V 2A	299.09	312.43	325.94	345.47	342.30	339.52	305.22	288.24	281.87	V 2A
VZ 2	267.82	293.40	310.13	313.70	310.80	307.70	286.32	265.30	204.97	VZ 2
VZ 2A	299.06	312.29	325.84	345.40	342.17	339.29	304.86	287.96	281.19	VZ 2A
V-THETA 2	184.52	173.93	174.26	169.77	158.77	147.27	139.31	138.77	121.10	V-THETA 2
V-THETA 2A	3.91	9.27	7.45	4.46	2.39	4.74	8.52	3.77	-14.74	V-THETA 2A
M 2	0.2909	0.3056	0.3195	0.3196	0.3128	0.3057	0.2853	0.2680	0.2125	M 2
M 2A	0.2672	0.2797	0.2922	0.3093	0.3065	0.3040	0.2729	0.2575	0.2517	M 2A
TURM(PR)	33.815	28.959	28.021	27.675	26.644	24.748	24.307	26.818	33.521	TURM(PR)
UUBAR	0.0770	0.0862	0.0647	0.0133	-0.0040	0.0125	0.1549	0.1770	-0.2183	UUBAR
LOSS PARA	0.0259	0.0294	0.0291	0.0047	-0.0015	0.0048	0.0614	0.0708	-0.0879	LOSS PARA
DFAC	0.2675	0.2485	0.2454	0.1966	0.1861	0.1672	0.2063	0.2198	0.0487	DFAC
EFFP	0.5179	0.4840	0.4939	0.7956	1.0981	-0.0506	-0.7920	-1.2693	0.4645	EFFP
INCID	-15.602	-12.728	-10.958	-9.609	-9.643	-10.285	-12.751	-15.551	-28.621	INCID
DEVN	9.582	13.012	12.620	11.715	11.412	12.466	14.040	13.430	1.856	DEVN
P 2	15.391	15.466	15.542	15.567	15.522	15.507	15.421	15.340	15.068	P 2
P 2A	15.323	15.383	15.452	15.553	15.526	15.495	15.290	15.208	15.170	P 2A
T 2	528.900	527.427	526.551	529.111	528.866	528.757	528.350	528.378	528.491	T 2
T 2A	528.900	527.427	526.551	529.111	528.866	528.757	528.350	528.378	528.491	T 2A
UUBAR FS	0.1240	0.0934	0.0585	0.0195	0.0240	0.0287	0.2979	0.2971	0.2900	UUBAR FS
P2 FS	15.437	15.474	15.512	15.573	15.551	15.523	15.594	15.467	15.402	P2 FS
LOSS PARA FS	0.417	0.0318	0.0200	0.0069	0.0090	0.0110	0.1181	0.1188	0.1167	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 50.22 Equivalent Rotor Speed = 2114.26 Equivalent Weight Flow = 61.51
 Uniform Inlet

INLLT										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	237.72	237.72	237.72	237.72	237.72	237.72	237.72	237.72	237.72	V 0
V 1	245.12	254.26	251.31	248.81	245.42	246.74	241.22	237.80	219.84	V 1
VZ 0	237.72	237.72	237.72	237.72	237.71	237.68	237.66	237.66	237.66	VZ 0
VZ 1	245.12	254.26	251.31	248.80	245.40	246.69	241.16	237.74	219.78	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2139	0.2139	0.2139	0.2139	0.2139	0.2139	0.2139	0.2139	0.2139	M 0
M 1	0.2206	0.2289	0.2262	0.2240	0.2209	0.2221	0.2171	0.2140	0.1977	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4164	0.2473	0.2299	0.2256	0.2212	0.2299	0.2819	0.3253	0.4685	UUBAR
DFAC	-0.031	-0.070	-0.057	-0.047	-0.032	-0.038	-0.015	-0.000	0.075	DFAC
EFFP	0.1332	0.3718	0.3420	0.3005	0.2321	0.2545	0.0964	0.0016	-0.4559	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	14.815	14.815	14.815	14.815	14.815	14.815	14.815	14.815	14.815	P 0
P 1	14.621	14.700	14.708	14.710	14.712	14.708	14.684	14.663	14.597	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	37.294	34.693	33.133	31.984	30.958	29.604	29.841	31.461	35.843	BETA 2
BETA (PR) 1	51.204	49.158	49.275	50.583	52.625	53.840	55.256	55.838	58.031	BETA (PR) 1
BETA (PR) 2	24.805	24.831	24.903	26.559	30.578	34.187	38.245	40.557	50.184	BETA (PR) 2
V 1	245.64	267.33	269.55	267.33	261.33	262.74	258.59	255.73	237.00	V 1
V 2	314.94	376.63	335.41	340.16	331.77	325.81	308.49	293.99	238.46	V 2
VZ 1	245.64	267.27	269.52	267.31	261.00	261.68	256.89	253.91	235.46	VZ 1
VZ 2	250.54	268.55	280.87	288.52	284.38	282.86	266.93	250.11	192.85	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	190.82	185.90	183.33	180.17	170.59	160.71	153.13	153.03	139.30	V-THETA 2
V (PR) 1	392.0	408.7	413.1	421.0	430.2	444.1	451.7	453.2	445.5	V (PR) 1
V (PR) 2	276.0	295.9	309.7	322.6	330.5	342.4	340.6	329.9	301.6	V (PR) 2
VTHETA PR1	-305.5	-309.2	-313.1	-325.2	-341.7	-358.1	-370.4	-374.1	-377.3	VTHETA PR1
VTHETA PR2	-115.8	-124.3	-130.4	-144.2	-168.0	-192.1	-210.4	-214.0	-231.3	VTHETA PR2
U 1	305.50	309.17	313.07	325.24	341.69	358.07	370.39	374.14	377.27	U 1
U 2	306.60	310.16	313.72	324.39	338.62	352.85	363.52	367.08	370.63	U 2
M 1	0.2211	0.2408	0.2429	0.2408	0.2354	0.2366	0.2329	0.2303	0.2132	M 1
M 2	0.2617	0.2926	0.3008	0.3043	0.2967	0.2913	0.2756	0.2625	0.2124	M 2
M (PR) 1	0.3528	0.3682	0.3722	0.3793	0.3874	0.4000	0.4068	0.4081	0.4009	M (PR) 1
M (PR) 2	0.2469	0.2651	0.2777	0.2886	0.2955	0.3061	0.3043	0.2945	0.2686	M (PR) 2
TURN (PR)	26.395	24.322	24.369	24.023	22.028	19.595	16.924	15.192	7.779	TURN (PR)
UUBAR	0.1000	0.0983	0.0583	0.0409	0.0482	0.0453	0.0690	0.1058	0.1664	UUBAR
LOSS PARA	0.0263	0.0262	0.0157	0.0113	0.0134	0.0126	0.0188	0.0282	0.0378	LOSS PARA
DFAC	0.4371	0.4096	0.3823	0.3653	0.3589	0.3499	0.3627	0.3894	0.4328	DFAC
EFFP	0.8813	0.9422	1.0765	0.8509	0.8305	0.8110	0.7796	0.7226	0.5584	EFFP
EFF	0.8803	0.9418	1.0771	0.8495	0.8290	0.8094	0.7779	0.7206	0.5559	EFF
INCLD	-1.228	-1.759	-1.303	-1.459	-1.376	-2.157	-3.441	-6.482	-10.137	INCLD
DEVM	9.655	10.671	10.270	7.918	7.367	6.627	6.622	7.419	14.209	DEVM
P 1	14.621	14.700	14.708	14.710	14.712	14.708	14.684	14.663	14.597	P 1
P 2	15.476	15.537	15.597	15.637	15.614	15.592	15.506	15.431	15.192	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	526.345	527.482	526.845	529.461	529.432	529.479	529.167	529.266	529.409	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	37.509	34.546	32.696	32.023	30.646	29.536	30.331	32.267	37.179	BETA 2
BETA 2A	0.250	1.560	1.890	0.660	0.420	0.800	1.200	0.700	-2.551	BETA 2A
V 2	313.44	327.95	339.56	340.16	335.33	327.00	304.36	287.77	231.43	V 2
V 2A	273.43	279.34	292.26	316.66	315.98	312.83	280.19	263.95	258.60	V 2A
VZ 2	248.64	270.12	285.74	288.35	288.36	284.23	262.36	243.00	184.15	VZ 2
VZ 2A	273.42	279.23	292.08	316.59	315.87	312.62	279.90	263.70	258.07	VZ 2A
V-THETA 2	190.85	185.96	183.42	180.34	170.85	161.04	153.50	153.42	139.67	V-THETA 2
V-THETA 2A	1.19	7.70	9.64	3.65	2.32	4.37	5.86	3.22	-11.50	V-THETA 2A
M 2	0.2003	0.2938	0.3046	0.3043	0.3000	0.2924	0.2719	0.2568	0.2061	M 2
M 2A	0.2441	0.2497	0.2615	0.2803	0.2824	0.2795	0.2500	0.2353	0.2305	M 2A
TURN (PR)	37.258	32.965	30.804	31.357	30.210	28.705	29.088	31.519	39.670	TURN (PR)
UUBAR	0.0736	0.1027	0.0965	0.10145	0.0011	-0.0157	0.1363	0.1501	-0.2390	UUBAR
LOSS PARA	0.0248	0.0349	0.0332	0.0052	0.0004	0.0061	0.0540	0.0600	-0.0963	LOSS PARA
DFAC	0.3315	0.3334	0.3157	0.2541	0.2444	0.2287	0.2727	0.2927	0.1474	DFAC
EFFP	0.7017	0.6381	0.6410	0.8956	0.9908	0.8214	0.1311	0.0776	0.0612	EFFP
INCLD	-12.659	-8.842	-7.594	-6.007	-6.007	-6.328	-8.371	-10.901	-22.023	INCLD
DEVM	9.082	12.892	13.200	11.635	11.432	12.466	13.641	13.380	2.306	DEVM
P 2	15.476	15.537	15.597	15.637	15.614	15.592	15.506	15.431	15.192	P 2
P 2A	15.410	15.444	15.503	15.623	15.613	15.578	15.400	15.327	15.298	P 2A
T 2	528.345	527.482	526.845	529.461	529.432	529.479	529.167	529.266	529.409	T 2
T 2A	528.345	527.482	526.845	529.461	529.432	529.479	529.167	529.266	529.409	T 2A
UUBAR FS	0.178	0.0915	0.0669	0.0139	0.0115	0.0169	0.2819	0.2902	0.2594	UUBAR FS
P2 FS	15.508	15.529	15.566	15.636	15.623	15.593	15.663	15.523	15.490	P2 FS
LOSS PARA FS	0.0263	0.0211	0.0230	0.0050	0.0041	0.0065	0.1117	0.1000	0.1045	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 49.65 Equivalent Rotor Speed = 2090.12 Equivalent Weight Flow = 55.53
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	213.95	213.95	213.95	213.95	213.95	213.95	213.95	213.95	213.95	V 0
V 1	218.22	226.79	223.97	225.40	222.77	219.30	215.44	209.06	194.78	V 1
VZ 0	213.94	213.94	213.94	213.94	213.93	213.91	213.89	213.89	213.89	VZ 0
VZ 1	218.22	226.79	223.97	225.40	222.76	219.27	215.38	209.01	194.73	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.1923	0.1923	0.1923	0.1923	0.1923	0.1923	0.1923	0.1923	0.1923	M 0
M 1	0.1962	0.2040	0.2014	0.2027	0.2003	0.1972	0.1937	0.1879	0.1750	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4195	0.2432	0.2245	0.2218	0.2218	0.2272	0.2672	0.3286	0.4676	UUBAR
DFAC	-0.020	-0.060	-0.047	-0.054	-0.041	-0.025	-0.007	0.023	0.090	DFAC
EFFP	0.0684	0.3399	0.3021	0.3343	0.2778	0.1839	0.0501	-0.1617	-0.5866	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	14.791	14.791	14.791	14.791	14.791	14.791	14.791	14.791	14.791	P 0
P 1	14.633	14.700	14.707	14.708	14.708	14.706	14.696	14.667	14.615	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	42.398	40.055	38.257	36.879	36.068	35.061	35.963	38.779	44.408	BETA 2
BETA(PR) 1	54.499	52.063	52.269	53.033	54.971	56.712	57.948	58.910	60.797	BETA(PR) 1
BETA(PR) 2	24.573	25.012	25.078	26.304	30.006	34.277	38.035	42.335	48.098	BETA(PR) 2
V 1	218.67	238.31	240.63	242.01	237.07	233.36	230.78	224.63	209.84	V 1
V 2	299.53	306.44	314.34	322.13	317.26	308.46	295.09	272.11	245.39	V 2
VZ 1	218.63	238.25	240.60	241.99	236.78	232.41	229.24	223.03	208.47	VZ 1
VZ 2	221.19	234.55	246.83	257.67	256.35	252.15	238.34	211.66	174.98	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	201.96	197.19	194.63	193.32	186.71	176.96	172.93	170.05	171.40	V-THETA 2
V(PR) 1	372.9	387.6	391.7	402.4	412.7	424.0	432.8	432.7	427.9	V(PR) 1
V(PR) 2	243.2	258.8	272.5	287.4	296.2	305.6	303.2	286.9	262.4	V(PR) 2
VTHETA PR1	-302.0	-305.6	-309.5	-321.5	-337.8	-354.0	-366.2	-369.9	-373.0	VTHETA PR1
VTHETA PK2	-101.1	-109.4	-115.5	-127.4	-148.0	-171.9	-192.4	-192.8	-195.0	VTHETA PR2
U 1	302.01	305.64	309.50	321.53	337.79	353.98	366.16	369.87	372.97	U 1
U 2	303.10	306.62	310.14	320.69	334.75	348.82	359.37	362.89	366.40	U 2
M 1	0.1966	0.2144	0.2160	0.2178	0.2133	0.2099	0.2076	0.2020	0.1886	M 1
M 2	0.2676	0.2740	0.2814	0.2878	0.2833	0.2753	0.2632	0.2424	0.2184	M 2
M(PR) 1	0.3353	0.3487	0.3524	0.3622	0.3713	0.3814	0.3893	0.3892	0.3847	M(PR) 1
M(PR) 2	0.2473	0.2315	0.2440	0.2568	0.2645	0.2727	0.2705	0.2556	0.2335	M(PR) 2
TURNT(PK)	29.522	27.046	27.128	26.728	24.946	22.380	19.834	16.496	12.641	TURNT(PK)
UUBAR	0.3999	0.1089	0.0733	0.0469	0.0537	0.0603	0.0922	0.1426	0.1943	UUBAR
LOSS PARA	0.0263	0.0290	0.0197	0.0129	0.0150	0.0167	0.0252	0.0370	0.0460	LOSS PARA
DFAC	0.5048	0.4816	0.4519	0.4334	0.4274	0.4187	0.4368	0.4735	0.5274	DFAC
EFFP	0.9008	0.9218	1.0360	0.8589	0.8486	0.8173	0.7775	0.6902	0.6452	EFFP
EFF	0.8999	0.9212	1.0363	0.8576	0.8472	0.8156	0.7756	0.6878	0.6427	EFF
INCLD	1.667	1.147	1.630	0.991	0.969	0.718	-0.741	-3.400	-7.363	INCLD
DEVM	9.424	10.852	10.444	7.663	6.796	6.717	6.411	9.196	12.121	DEVM
P 1	14.633	14.700	14.707	14.708	14.708	14.706	14.690	14.667	14.615	P 1
P 2	15.547	15.584	15.634	15.693	15.685	15.660	15.597	15.487	15.376	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	528.765	528.183	527.519	530.012	530.105	530.227	530.246	530.504	530.490	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	42.648	39.879	37.736	36.926	35.694	34.980	36.585	39.840	46.250	BETA 2
BETA 2A	1.500	1.650	2.000	1.500	0.680	1.280	1.180	1.110	-0.100	BETA 2A
V 2	296.15	307.66	318.18	322.13	320.64	309.57	291.17	266.41	238.14	V 2
V 2A	246.07	244.75	251.61	281.60	284.95	282.46	257.55	233.42	226.75	V 2A
VZ 2	219.30	236.10	251.62	257.48	260.29	253.43	233.54	204.33	164.52	VZ 2
VZ 2A	245.99	244.65	251.45	281.47	284.84	282.22	257.29	233.17	226.51	VZ 2A
V-THETA 2	201.99	197.26	194.73	193.50	187.00	177.32	173.35	170.49	171.85	V-THETA 2
V-THETA 2A	6.44	7.05	8.78	7.37	3.38	6.31	5.30	4.52	-0.40	V-THETA 2A
M 2	0.2664	0.2751	0.2849	0.2878	0.2864	0.2763	0.2597	0.2373	0.2119	M 2
M 2A	0.2193	0.2183	0.2246	0.2511	0.2541	0.2518	0.2294	0.2076	0.2016	M 2A
TURNT(PR)	41.146	38.228	35.734	35.420	34.996	33.666	35.357	38.678	46.290	TURNT(PR)
UUBAR	0.0457	0.0958	0.1093	0.0252	0.0104	0.0075	0.0916	0.0778	-0.0808	UUBAR
LOSS PARA	0.0154	0.0326	0.0376	0.0090	0.0039	0.0029	0.0363	0.0311	-0.0326	LOSS PARA
DFAC	0.3957	0.4151	0.4106	0.3316	0.3241	0.3013	0.3454	0.3745	0.3412	DFAC
EFFP	0.8665	0.7464	0.7171	0.8968	0.9522	0.9567	0.9502	0.6730	1.8479	EFFP
INCLD	-7.519	-3.509	-2.555	-1.104	-1.011	-0.887	-2.121	-3.332	-12.955	INCLD
DEVM	10.332	12.962	13.310	12.475	11.692	12.946	13.621	13.789	4.754	DEVM
P 2	15.547	15.584	15.634	15.693	15.689	15.660	15.597	15.487	15.376	P 2
P 2A	15.513	15.508	15.540	15.671	15.680	15.654	15.532	15.440	15.414	P 2A
T 2	528.765	528.183	527.519	530.012	530.105	530.227	530.246	530.504	530.490	T 2
T 2A	528.765	528.183	527.519	530.012	530.105	530.227	530.246	530.504	530.490	T 2A
UUBAR FS	0.1179	0.1162	0.1067	0.0346	0.0301	0.0389	0.2521	0.2482	0.2541	UUBAR FS
P2 FS	15.599	15.602	15.631	15.701	15.706	15.686	15.750	15.621	15.588	P2 FS
LOSS PARA FS	0.0363	0.0395	0.0387	0.0123	0.0112	0.0150	0.0999	0.0992	0.1025	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 49.70 Equivalent Rotor Speed = 2092.57 Equivalent Weight Flow = 48.51
 Uniform Inlet

INLET										
PCT SPAN	96.60	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	186.49	186.49	186.49	186.49	186.49	186.49	186.49	186.49	186.49	V 0
V 1	192.15	199.00	196.17	197.78	193.22	192.00	189.18	180.68	168.81	V 1
VZ 0	186.49	186.49	186.49	186.48	186.47	186.46	186.44	186.44	186.44	VZ 0
VZ 1	192.15	199.00	196.17	197.78	193.20	191.97	189.14	180.63	168.77	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.1675	0.1675	0.1675	0.1675	0.1675	0.1675	0.1675	0.1675	0.1675	M 0
M 1	0.1726	0.1788	0.1763	0.1777	0.1736	0.1725	0.1699	0.1623	0.1515	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.4240	0.2366	0.2211	0.2176	0.2211	0.2281	0.2491	0.3298	0.4562	UUBAR
DFAC	-0.030	-0.067	-0.052	-0.061	-0.036	-0.030	-0.014	0.031	0.095	DFAC
EFFP	0.1303	0.3698	0.3270	0.3668	0.2512	0.2095	0.1054	-0.2314	-0.6642	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	DEVM
P 0	14.765	14.765	14.765	14.765	14.765	14.765	14.765	14.765	14.765	P 0
P 1	14.647	14.697	14.702	14.703	14.702	14.700	14.694	14.671	14.635	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	516.700	516.700	516.700	516.700	516.700	516.700	516.700	516.700	516.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.736	38.248	39.465	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	48.597	46.968	45.304	43.179	42.491	41.788	44.481	47.627	52.796	BETA 2
BETA(PR) 1	57.515	55.674	55.867	56.609	58.749	60.153	61.241	62.518	64.193	BETA(PR) 1
BETA(PR) 2	24.067	27.476	26.446	27.082	31.157	35.667	40.182	45.533	48.466	BETA(PR) 2
V 1	192.55	208.99	210.08	212.19	205.48	206.17	202.52	194.00	181.75	V 1
V 2	290.28	282.72	292.74	303.71	298.99	290.97	276.53	255.31	248.33	V 2
VZ 1	192.51	208.94	210.05	212.18	205.22	203.35	201.19	192.62	180.56	VZ 1
VZ 2	191.97	192.92	205.89	221.47	270.40	216.72	196.97	171.78	149.96	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	217.72	206.66	208.09	207.82	201.89	193.69	193.44	188.31	197.54	V-THETA 2
V(PR) 1	358.5	370.6	374.4	385.5	395.7	409.0	418.8	418.0	415.3	V(PR) 1
V(PR) 2	210.3	217.5	230.0	248.7	257.7	267.1	258.3	245.7	226.5	V(PR) 2
VTHETA PR1	-302.4	-306.0	-309.9	-321.9	-338.2	-354.4	-366.6	-370.3	-373.4	VTHETA PR1
VTHETA PR2	-85.7	-100.3	-102.4	-113.2	-133.3	-155.5	-175.0	-169.3	-169.3	VTHETA PR2
U 1	302.36	306.00	309.86	321.90	338.19	354.39	366.59	370.30	373.46	U 1
U 2	303.46	306.98	310.50	321.06	335.15	349.23	359.79	363.31	366.83	U 2
M 1	0.1730	0.1879	0.1888	0.1907	0.1847	0.1835	0.1820	0.1743	0.1632	M 1
M 2	0.2591	0.2524	0.2616	0.2709	0.2666	0.2593	0.2462	0.2270	0.2202	M 2
M(PR) 1	0.3220	0.3331	0.3365	0.3466	0.3556	0.3676	0.3764	0.3756	0.3730	M(PR) 1
M(PR) 2	0.1877	0.1941	0.2055	0.2219	0.2298	0.2380	0.2299	0.2184	0.2013	M(PR) 2
TURN(PR)	35.445	28.194	29.416	29.527	27.576	24.439	20.991	16.921	15.661	TURN(PR)
UUBAR	0.1074	0.1337	0.1022	0.0738	0.0780	0.0857	0.1465	0.1828	0.2256	UUBAR
LOSS PARA	0.0284	0.0348	0.0272	0.0202	0.0215	0.0234	0.0388	0.0449	0.0530	LOSS PARA
DFAC	0.5897	0.5770	0.5509	0.5205	0.5124	0.5051	0.5421	0.5688	0.6216	DFAC
EFFP	0.9221	0.8899	0.9955	0.8569	0.8561	0.8222	0.7416	0.6759	0.6692	EFFP
EFF	0.9214	0.8889	0.9955	0.8555	0.8547	0.8205	0.7393	0.6732	0.6664	EFF
INCID	5.064	4.758	5.289	4.567	4.749	4.166	2.562	0.221	-3.954	INCID
DEVM	4.917	13.316	11.812	8.441	7.946	8.106	8.558	12.394	12.490	DEVM
P 1	14.647	14.697	14.702	14.703	14.702	14.700	14.694	14.671	14.635	P 1
P 2	15.645	15.615	15.676	15.741	15.746	15.726	15.657	15.560	15.532	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	524.412	528.894	528.335	530.634	530.713	531.004	531.550	531.766	532.048	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	48.907	46.747	44.646	43.237	42.026	41.691	45.331	49.090	55.327	BETA 2
BETA 2A	0.150	1.480	1.560	1.650	1.150	1.100	1.300	1.841	2.461	BETA 2A
V 2	288.94	283.83	296.27	303.71	302.15	292.02	272.89	250.00	240.99	V 2
V 2A	219.78	211.88	210.93	240.95	251.34	248.69	222.96	205.81	202.42	V 2A
VZ 2	189.91	194.49	210.78	221.24	224.37	217.91	191.68	163.59	137.01	VZ 2
VZ 2A	219.77	211.80	210.84	240.82	251.21	248.50	222.74	205.52	202.02	VZ 2A
V-THETA 2	217.76	206.72	208.19	208.52	202.20	194.09	193.91	188.78	198.06	V-THETA 2
V-THETA 2A	-0.58	5.47	5.74	6.94	5.04	4.77	5.06	6.60	8.68	V-THETA 2A
M 2	0.2579	0.2534	0.2648	0.2709	0.2695	0.2603	0.2429	0.2222	0.2141	M 2
M 2A	0.1956	0.1866	0.1879	0.2144	0.2237	0.2212	0.1981	0.1827	0.1796	M 2A
TURN(PR)	49.057	45.266	43.084	41.580	40.857	40.555	43.982	47.198	52.813	TURN(PR)
UUBAR	0.0483	0.0516	0.1307	0.0655	0.0246	0.0236	0.0862	0.0287	-0.0041	UUBAR
LOSS PARA	0.0183	0.0176	0.0450	0.0233	0.0091	0.0341	0.0341	0.0115	-0.0017	LOSS PARA
DFAC	0.4940	0.4951	0.5235	0.4424	0.4106	0.3992	0.4586	0.4699	0.4790	DFAC
EFFP	0.8882	0.8864	0.7414	0.8283	0.9224	0.9166	0.7466	0.9128	1.0139	EFFP
INCID	-1.260	3.360	4.355	5.206	5.320	5.822	6.623	5.918	-3.874	INCID
DEVM	8.682	12.792	12.870	12.625	12.162	12.766	13.740	14.519	7.312	DEVM
P 2	15.645	15.615	15.676	15.741	15.746	15.726	15.657	15.560	15.532	P 2
P 2A	15.611	15.580	15.578	15.690	15.727	15.709	15.603	15.545	15.534	P 2A
T 2	529.412	528.894	528.335	530.634	530.713	531.004	531.550	531.766	532.048	T 2
T 2A	524.412	528.894	528.335	530.634	530.713	531.004	531.550	531.766	532.048	T 2A
UUBAR FS	0.748	0.1128	0.0588	0.0388	0.0386	0.0495	0.2598	0.1864	0.1864	UUBAR FS
P2 FS	15.645	15.659	15.660	15.735	15.757	15.745	15.805	15.664	15.646	P2 FS
LOSS PARA FS	0.252	0.0372	0.0388	0.0209	0.0142	0.0191	0.1027	0.0751	0.0772	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 50.51 Equivalent Rotor Speed = 2186.35 Equivalent Weight Flow = 42.99
 Uniform Inlet

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	164.90	164.90	164.90	164.90	164.90	164.90	164.90	164.90	164.90	V 0
V 1	177.57	186.23	184.05	185.12	179.70	173.43	169.68	162.36	153.83	V 1
VZ 0	164.90	164.90	164.90	164.90	164.69	164.87	164.86	164.86	164.86	VZ 0
VZ 1	177.57	186.23	184.05	185.12	179.69	173.40	169.64	162.32	153.79	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.1480	0.1460	0.1480	0.1480	0.1480	0.1480	0.1480	0.1480	0.1480	M 0
M 1	0.1594	0.1673	0.1653	0.1663	0.1614	0.1557	0.1523	0.1457	0.1381	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.3943	0.2286	0.2062	0.2151	0.2151	0.2241	0.2336	0.3271	0.4212	UUBAR
DFAC	-0.077	-0.129	-0.116	-0.123	-0.090	-0.052	-0.029	0.015	0.067	DFAC
EFFP	0.2890	0.5483	0.5455	0.5498	0.4678	0.3227	0.2620	-0.1038	-0.4500	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	14.748	14.748	14.748	14.748	14.748	14.748	14.748	14.748	14.748	P 0
P 1	14.659	14.696	14.701	14.699	14.699	14.697	14.695	14.674	14.653	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	51.696	51.179	48.668	47.696	47.307	48.022	52.319	56.194	59.530	BETA 2
BETA(PRI) 1	59.929	57.841	57.965	58.744	60.958	62.984	64.163	65.307	66.562	BETA(PRI) 1
BETA(PRI) 2	21.620	28.403	28.184	27.671	31.798	35.983	43.365	47.281	48.397	BETA(PRI) 2
V 1	177.93	195.54	197.04	198.54	191.05	184.36	181.57	174.26	165.57	V 1
V 2	299.27	278.99	285.60	298.62	294.84	288.98	267.43	257.83	266.36	V 2
VZ 1	177.90	195.50	197.02	198.53	190.81	183.62	180.37	173.02	164.49	VZ 1
VZ 2	165.49	174.89	188.61	200.99	199.86	193.12	163.27	143.29	131.91	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	234.84	217.36	214.45	220.85	216.65	214.64	211.39	214.00	224.20	V-THETA 2
V(PRI) 1	355.4	367.3	371.4	382.6	393.2	404.6	414.4	414.7	414.0	V(PRI) 1
V(PRI) 2	199.5	198.8	214.0	227.0	235.3	239.0	225.0	211.6	199.0	V(PRI) 2
VTHETA PRI	-507.2	-310.9	-314.9	-327.1	-343.6	-360.1	-372.5	-376.3	-379.4	VTHETA PRI
VTHETA PR2	-73.5	-94.6	-101.1	-105.4	-123.9	-140.2	-154.2	-148.6	-148.6	VTHETA PR2
U 1	307.24	310.94	314.86	327.10	343.65	360.12	372.51	376.28	379.43	U 1
U 2	308.36	311.94	315.51	326.25	340.56	354.87	365.60	369.18	372.75	U 2
M 1	0.1598	0.1757	0.1770	0.1784	0.1716	0.1656	0.1631	0.1565	0.1486	M 1
M 2	0.2669	0.2487	0.2548	0.2660	0.2626	0.2571	0.2376	0.2289	0.2311	M 2
M(PRI) 1	0.3188	0.3300	0.3337	0.3436	0.3532	0.3634	0.3722	0.3723	0.3716	M(PRI) 1
M(PRI) 2	0.1780	0.1773	0.1909	0.2022	0.2095	0.2126	0.1999	0.1878	0.1766	M(PRI) 2
TURN(PRI)	38.305	29.434	29.778	31.072	29.146	26.959	20.743	17.973	18.129	TURN(PRI)
UUBAR	0.1292	0.1584	0.1237	0.1085	0.1182	0.1458	0.2319	0.2625	0.2920	UUBAR
LOSS PARA	0.0348	0.0409	0.0324	0.0296	0.0324	0.0397	0.0585	0.0624	0.0687	LOSS PARA
DFAC	0.6299	0.6325	0.5955	0.5842	0.5783	0.5865	0.6326	0.6690	0.7095	DFAC
EFFP	0.9002	0.8384	0.9182	0.8180	0.8130	0.7708	0.6644	0.6460	0.6555	EFFP
EFF	0.8992	0.8369	0.9174	0.8161	0.8111	0.7685	0.6613	0.6428	0.6523	EFF
INCLD	7.498	6.925	7.386	6.702	6.959	7.003	5.495	3.022	-1.575	INCLD
DEVM	6.471	14.243	13.550	9.030	8.586	8.422	11.739	14.142	12.420	DEVM
P 1	14.659	14.696	14.701	14.699	14.699	14.697	14.695	14.674	14.653	P 1
P 2	15.747	15.664	15.704	15.787	15.797	15.789	15.671	15.633	15.647	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	530.621	530.094	529.459	531.800	531.999	532.664	533.238	533.420	533.748	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	52.045	50.923	47.932	47.762	46.759	47.906	53.457	58.236	62.898	BETA 2
BETA 2A	0.940	1.700	2.000	0.960	1.050	0.300	0.770	2.021	4.001	BETA 2A
V 2	297.89	280.09	289.03	298.62	297.94	290.82	263.92	252.47	252.63	V 2
VZ 2A	218.25	206.71	199.42	223.72	229.88	230.83	214.04	200.82	201.44	VZ 2A
VZ 2	183.21	176.56	193.65	200.72	204.05	194.30	157.05	132.84	115.04	VZ 2
V-THETA 2	218.22	206.61	199.29	223.65	229.77	230.69	213.85	200.52	200.74	V-THETA 2
V-THETA 2A	234.88	217.43	214.56	221.06	216.98	215.09	211.91	214.54	224.80	V-THETA 2A
M 2	3.58	6.13	6.96	3.75	4.21	1.21	2.87	7.07	14.04	M 2
M 2A	0.2057	0.2497	0.2579	0.2660	0.2654	0.2580	0.2344	0.2241	0.2242	M 2A
M 2A	0.1940	0.1838	0.1773	0.1987	0.2042	0.2049	0.1896	0.1779	0.1784	M 2A
TURN(PRI)	51.105	49.223	45.930	46.795	45.690	47.570	52.639	56.169	58.852	TURN(PRI)
UUBAR	0.0745	0.0272	0.1089	0.0993	0.0811	0.0815	0.0222	0.0299	0.0466	UUBAR
LOSS PARA	0.0251	0.0093	0.0374	0.0353	0.0300	0.0314	0.0088	0.0119	0.0188	LOSS PARA
DFAC	0.5290	0.5190	0.5576	0.5100	0.4937	0.4894	0.5045	0.5352	0.5413	DFAC
EFFP	0.6433	0.9419	0.7972	0.7795	0.8048	0.7834	0.9367	0.9203	0.8746	EFFP
INCLD	1.878	7.536	7.641	9.731	10.053	12.037	14.751	15.069	3.705	INCLD
DEVM	9.772	13.012	13.310	11.935	12.062	11.966	13.211	14.699	8.851	DEVM
P 2	15.747	15.664	15.704	15.767	15.797	15.789	15.671	15.633	15.647	P 2
P 2A	15.691	15.646	15.627	15.712	15.736	15.731	15.658	15.617	15.622	P 2A
T 2	530.621	530.094	529.459	531.800	531.999	532.664	533.238	533.420	533.748	T 2
T 2A	530.621	530.094	529.459	531.800	531.999	532.664	533.238	533.420	533.748	T 2A
UUBAR FS	0.0932	0.1312	0.1312	0.1170	0.1114	0.1200	0.2700	0.1828	0.1542	UUBAR FS
P2 FS	15.747	15.743	15.722	15.802	15.823	15.820	15.870	15.733	15.715	P2 FS
LOSS PARA FS	0.314	0.0448	0.0450	0.0415	0.0412	0.0462	0.1070	0.0727	0.0622	LOSS PARA FS

Table A-4. Overall Performance - Stage E,
Radial Distortion

Equivalent Weight Flow, lb/sec	ROTOR			STAGE		
	\bar{P}_2/\bar{P}_1	η_{ad}	η_p	\bar{P}_{2A}/\bar{P}_1	η_{ad}	η_p
<u>Hub Radial Distortion</u>						
100% Design Equivalent Rotor Speed						
114.81	1.2498	0.8559	0.8604	1.2249	0.7755	0.7819
100.63	1.2843	0.8670	0.8717	1.2599	0.7976	0.8041
93.49	1.2940	0.8509	0.8562	1.2654	0.7737	0.7811
90% Design Equivalent Rotor Speed						
104.66	1.1949	0.8266	0.8309	1.1786	0.7605	0.7660
92.29	1.2244	0.8345	0.8392	1.2089	0.7800	0.7858
82.24	1.2326	0.8244	0.8295	1.2092	0.7462	0.7529
70% Design Equivalent Rotor Speed						
83.81	1.1200	0.8356	0.8382	1.1093	0.7627	0.7662
70.40	1.1360	0.8191	0.8223	1.1252	0.7561	0.7601
61.83	1.1421	0.8108	0.8143	1.1282	0.7343	0.7388
<u>Tip Radial Distortion</u>						
100% Design Equivalent Rotor Speed						
114.99	1.2400	0.8442	0.8489	1.2155	0.7629	0.7693
109.16	1.2699	0.8665	0.8710	1.2463	0.7954	0.8017
103.95	1.2827	0.8684	0.8729	1.2564	0.7930	0.7996
90% Design Equivalent Rotor Speed						
105.22	1.1940	0.8121	0.8168	1.1743	0.7334	0.7394
99.16	1.2170	0.8465	0.8502	1.1988	0.7791	0.7847
94.04	1.2257	0.8524	0.8566	1.2072	0.7861	0.7918
70% Design Equivalent Rotor Speed						
82.97	1.1153	0.8141	0.8170	1.1053	0.7454	0.7490
77.98	1.1299	0.8486	0.8512	1.1203	0.7876	0.7910
71.91	1.1324	0.8196	0.8227	1.1228	0.7618	0.7657

Table A-5. Blade Element Performance
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 100.80 Equivalent Rotor Speed = 4243.76 Equivalent Weight Flow = 114.81
 Hub Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	421.40	421.40	421.40	421.40	421.40	421.40	421.40	421.40	421.40	V 0
V 1	366.74	406.28	367.29	383.76	503.69	590.13	583.76	572.15	519.82	V 1
VZ 0	421.40	421.40	421.40	421.39	421.37	421.33	421.29	421.29	421.29	VZ 0
VZ 1	386.74	406.28	387.28	383.76	503.65	590.03	583.61	571.99	519.68	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	M 0
M 1	0.3506	0.3688	0.3511	0.3479	0.4606	0.5440	0.5378	0.5265	0.4760	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	1.9797	1.8488	1.8983	1.9089	1.1840	0.4413	0.4965	0.5899	0.9251	UUBAR
DFAC	0.082	0.036	0.081	0.089	-0.195	-0.400	-0.385	-0.358	-0.234	DFAC
EFFP	-0.0627	-0.0383	-0.0856	-0.0942	0.2680	0.6975	0.6614	0.6001	0.3666	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVN
P 0	16.387	16.387	16.387	16.387	16.387	16.387	16.387	16.387	16.387	P 0
P 1	13.266	13.472	13.394	13.377	14.520	15.691	15.604	15.457	14.928	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	47.347	46.687	43.951	37.587	29.393	26.318	27.807	31.159	37.210	BETA 2
BETA(PR) 1	57.707	55.327	56.368	57.557	51.602	48.227	49.313	50.106	53.102	BETA(PR) 1
BETA(PR) 2	24.108	27.647	27.644	27.396	29.910	33.097	35.417	41.147	50.641	BETA(PR) 2
V 1	387.62	429.37	418.06	415.00	544.24	644.61	643.40	632.28	572.26	V 1
V 2	592.53	572.78	587.90	637.97	685.47	690.30	667.76	583.92	473.19	V 2
VZ 1	367.55	429.27	418.01	414.98	543.56	642.00	639.17	627.78	568.53	VZ 1
VZ 2	401.46	392.91	423.24	505.53	596.96	617.78	589.15	498.37	376.00	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	435.77	416.75	408.02	389.13	336.27	305.57	310.72	301.33	285.51	V-THETA 2
V(PR) 1	725.4	754.6	754.8	773.6	875.5	965.4	983.2	981.7	949.2	V(PR) 1
V(PR) 2	439.8	443.6	477.8	569.4	689.0	738.4	724.5	663.2	593.8	V(PR) 2
VTHETA PR1	-613.2	-620.6	-628.4	-652.8	-685.8	-718.7	-743.4	-751.0	-757.3	VTHETA PR1
VTHETA PR2	-179.6	-205.8	-221.7	-262.0	-343.4	-402.7	-418.9	-435.5	-458.4	VTHETA PR2
U 1	613.19	620.57	628.40	652.82	685.84	718.72	743.44	750.97	757.27	U 1
U 2	615.42	622.56	629.70	651.12	679.68	708.24	729.66	736.80	743.94	U 2
M 1	0.3515	0.3904	0.3798	0.3770	0.4995	0.5854	0.5964	0.5854	0.5266	M 1
M 2	0.5227	0.5048	0.5195	0.5661	0.6135	0.6199	0.5984	0.5191	0.4165	M 2
M(PR) 1	0.6577	0.6861	0.6857	0.7027	0.8035	0.8951	0.9114	0.9089	0.8734	M(PR) 1
M(PR) 2	0.3880	0.3909	0.4222	0.5052	0.6167	0.6631	0.6492	0.5896	0.5226	M(PR) 2
TURN(PR) 1	33.595	27.676	28.722	30.161	21.672	15.066	13.797	8.859	2.381	TURN(PR) 1
TURN(PR) 2	0.0997	0.1576	0.0836	-0.0734	-0.0379	0.0905	0.1289	0.2211	0.2719	TURN(PR) 2
LOSS PARA	0.0264	0.0409	0.0220	-0.0200	-0.0106	0.0255	0.0365	0.0584	0.0611	LOSS PARA
DFAC	0.5680	0.5744	0.5276	0.4185	0.3362	0.3408	0.3718	0.4311	0.4801	DFAC
EFFP	0.8994	0.8217	0.9110	1.0369	1.0066	0.8192	0.7965	0.6078	0.4849	EFFP
EFF	0.8956	0.8156	0.9077	1.0385	1.0068	0.8140	0.7909	0.5998	0.4763	EFF
INCID	5.276	4.411	5.790	5.515	-2.402	-7.776	-9.393	-12.225	-15.078	INCID
DEVN	8.959	13.487	13.010	8.755	6.699	5.537	3.796	8.009	14.666	DEVN
P 1	13.266	13.472	13.394	13.377	14.520	15.691	15.604	15.457	14.928	P 1
P 2	17.264	17.063	17.275	17.947	18.847	19.115	18.870	17.844	16.784	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	563.973	563.121	561.790	562.451	558.559	555.665	555.287	554.916	555.774	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	47.726	46.407	43.141	37.635	28.939	26.207	28.432	32.157	38.821	BETA 2
BETA 2A	-0.800	1.440	2.150	1.380	-0.200	0.200	1.230	1.000	-1.000	BETA 2A
V 2	589.04	575.62	597.02	637.97	696.38	694.06	655.07	568.35	457.23	V 2
V 2A	457.11	445.31	450.55	546.18	629.62	632.07	561.04	524.54	508.21	V 2A
VZ 2	396.23	396.90	435.62	505.14	609.12	622.08	575.27	480.52	355.78	VZ 2
VZ 2A	457.07	445.16	450.21	545.95	629.41	631.70	560.46	524.00	507.59	VZ 2A
V-THETA 2	435.85	416.89	408.22	389.50	336.79	306.20	311.47	302.09	286.27	V-THETA 2
V-THETA 2A	-6.38	11.19	16.90	13.15	-2.20	2.21	12.04	9.15	-8.86	V-THETA 2A
M 2	0.5194	0.5074	0.5280	0.5661	0.6240	0.6235	0.5862	0.5046	0.4020	M 2
M 2A	0.3989	0.3885	0.3937	0.4805	0.5603	0.5641	0.4976	0.4439	0.4485	M 2A
TURN(PR) 1	48.526	44.966	40.989	36.248	29.123	25.978	27.161	31.109	39.762	TURN(PR) 1
TURN(PR) 2	0.0561	0.0191	0.0769	0.0134	-0.0028	0.0660	0.2460	0.1093	-0.3229	TURN(PR) 2
LOSS PARA	0.0189	0.0065	0.0265	0.0047	-0.0010	0.0254	0.0975	0.0437	-0.1303	LOSS PARA
DFAC	0.4769	0.4665	0.4712	0.3540	0.2767	0.2587	0.3257	0.2845	0.1502	DFAC
EFFP	0.8725	0.9570	0.8387	0.9560	1.0132	0.6674	0.1749	0.3315	-0.2515	EFFP
INCID	-2.441	3.019	2.850	-0.396	-7.764	-9.655	-10.268	-11.011	-20.382	INCID
DEVN	8.032	12.752	13.460	12.355	10.812	11.866	13.670	13.680	3.855	DEVN
P 2	17.264	17.063	17.275	17.947	18.847	19.115	18.870	17.844	16.784	P 2
P 2A	17.101	17.010	17.045	17.900	18.860	18.824	17.906	17.532	17.355	P 2A
T 2	563.973	563.121	561.790	562.451	558.559	555.665	555.287	554.916	555.774	T 2
T 2A	563.973	563.121	561.790	562.451	558.559	555.665	555.287	554.916	555.774	T 2A
UUBAR FS	0.0780	0.1198	0.1310	0.0566	0.0623	0.0282	0.2559	0.2735	0.2501	UUBAR FS
P2 FS	17.332	17.377	17.460	18.107	19.150	18.943	18.921	18.486	18.135	P2 FS
LOSS PARA FS	0.0262	0.0407	0.0451	0.0198	0.0222	0.0108	0.1014	0.1093	0.1009	LOSS PARA FS

Table A-5. Blade Element Performance (Continued)

Stage E, Rotor E - Stator E

Calculations Using Translated Values

Percent Equivalent Rotor Speed = 99.60 Equivalent Rotor Speed = 4193.36 Equivalent Weight Flow = 100.63
Hub Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	376.25	376.25	376.25	376.25	376.25	376.25	376.25	376.25	376.25	V 0
V 1	341.74	345.39	341.86	338.91	430.21	506.89	498.77	491.94	448.38	V 1
VZ 0	376.25	376.25	376.25	376.24	376.22	376.19	376.15	376.15	376.15	VZ 0
VZ 1	341.74	345.39	341.86	338.90	430.18	506.81	498.64	491.81	448.24	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3409	0.3409	0.3409	0.3409	0.3409	0.3409	0.3409	0.3409	0.3409	M 0
M 1	0.3090	0.3124	0.3091	0.3064	0.3912	0.4637	0.4559	0.4494	0.4082	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	1.6638	1.5802	1.5661	1.5846	1.0517	0.3911	0.4475	0.4985	0.8095	UUBAR
DFAC	0.092	0.082	0.091	0.099	-0.143	-0.347	-0.326	-0.307	-0.192	DFAC
EFFP	-0.1152	-0.1087	-0.1233	-0.1328	0.2285	0.6857	0.6385	0.5970	0.3472	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.838	15.838	15.838	15.838	15.838	15.838	15.838	15.838	15.838	P 0
P 1	13.802	13.905	13.922	13.899	14.551	15.360	15.291	15.228	14.848	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	55.846	56.266	55.000	48.376	37.710	31.802	33.054	36.351	41.855	BETA 2
BETA(PRI) 1	60.527	59.304	59.347	60.464	55.751	52.465	53.693	54.269	56.972	BETA(PRI) 1
BETA(PRI) 2	18.590	26.198	29.094	27.349	31.424	32.808	36.991	40.234	46.076	BETA(PRI) 2
V 1	342.49	364.11	368.04	365.52	461.99	547.85	543.33	537.66	489.65	V 1
V 2	598.34	556.79	546.62	589.69	613.55	652.01	614.06	572.73	492.13	V 2
VZ 1	342.43	364.03	368.00	365.50	461.42	545.64	539.76	533.83	486.46	VZ 1
VZ 2	335.91	309.18	313.52	391.69	485.21	553.34	513.50	460.20	365.83	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	495.13	463.04	447.76	440.79	375.15	343.12	334.17	338.69	327.73	V-THETA 2
V(IPR) 1	696.0	713.2	721.8	741.4	820.2	896.9	913.7	916.4	894.2	V(IPR) 1
V(IPR) 2	354.4	344.6	358.8	441.0	568.9	659.3	644.2	604.1	548.4	V(IPR) 2
VTHETA PRI	-605.9	-613.2	-620.9	-645.1	-677.7	-710.2	-734.6	-742.1	-748.3	VTHETA PRI
VTHETA PR2	-113.0	-152.1	-174.5	-202.6	-296.5	-356.7	-386.8	-389.4	-407.4	VTHETA PR2
U 1	605.91	613.20	620.94	645.07	677.70	710.18	734.61	742.05	748.27	U 1
U 2	608.11	615.17	622.22	643.39	671.61	699.83	720.99	728.05	735.10	U 2
M 1	0.3097	0.3297	0.3333	0.3310	0.4211	0.5030	0.4986	0.4931	0.4473	M 1
M 2	0.5248	0.4878	0.4794	0.5189	0.5430	0.5807	0.5451	0.5065	0.4319	M 2
M(IPR) 1	0.6294	0.6457	0.6537	0.6713	0.7475	0.8235	0.8385	0.8405	0.8168	M(IPR) 1
M(IPR) 2	0.3109	0.3019	0.3147	0.3881	0.5035	0.5871	0.5718	0.5342	0.4813	M(IPR) 2
TURN(PRI)	41.934	33.102	30.251	33.114	24.309	19.596	16.611	13.942	8.826	TURN(PRI)
UUBAR	0.1541	0.2022	0.1882	0.0778	0.0291	0.0386	0.0817	0.1482	0.1908	UUBAR
LOSS PARA	0.0423	0.0532	0.0488	0.0213	0.0080	0.0109	0.0227	0.0397	0.0452	LOSS PARA
DFAC	0.6972	0.7075	0.6873	0.5879	0.4531	0.3927	0.4207	0.4691	0.5154	DFAC
EFFP	0.8550	0.8018	0.8253	0.9249	0.9258	0.9163	0.8657	0.7921	0.7005	EFFP
EFF	0.8490	0.7945	0.8190	0.9218	0.9230	0.9134	0.8613	0.7858	0.6923	EFF
INCID	8.097	8.388	8.769	8.422	1.749	-3.535	-5.006	-6.054	-11.199	INCID
DEVM	3.440	12.038	14.460	8.709	8.213	5.249	5.369	7.096	12.099	DEVM
P 1	13.802	13.905	13.922	13.899	14.551	15.360	15.291	15.228	14.848	P 1
P 2	18.367	17.947	17.903	18.469	18.927	19.639	19.240	18.777	17.952	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	570.666	568.079	565.894	566.311	562.546	560.010	559.558	559.410	560.465	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	56.364	55.884	53.872	48.443	37.170	31.679	33.769	37.556	43.799	BETA 2
BETA 2A	-0.150	-0.000	-1.330	-1.300	2.400	1.370	1.331	0.950	-1.901	BETA 2A
V 2	594.80	559.49	554.65	589.69	622.14	653.31	603.36	557.72	475.28	V 2
V 2A	408.05	380.73	366.20	446.84	498.10	565.89	504.39	477.83	465.94	V 2A
VZ 2	329.47	313.80	327.01	391.14	495.55	557.16	500.96	441.61	342.67	VZ 2
VZ 2A	408.05	380.72	366.09	446.67	497.50	565.40	503.84	477.34	465.19	VZ 2A
V-THETA 2	495.22	463.20	447.98	441.21	375.73	343.82	334.97	339.55	328.60	V-THETA 2
V-THETA 2A	-1.07	-0.00	-8.50	-10.14	20.85	13.52	11.70	7.92	-15.44	V-THETA 2A
M 2	0.5216	0.4902	0.4868	0.5189	0.5511	0.5838	0.5350	0.4926	0.4166	M 2
M 2A	0.3528	0.3294	0.3172	0.3888	0.4365	0.4999	0.4434	0.4193	0.4081	M 2A
TURN(PRI)	56.514	55.883	55.201	49.736	34.752	30.277	32.394	36.554	45.638	TURN(PRI)
UUBAR	0.1505	0.0876	0.1107	0.0950	0.0855	0.0690	0.1721	0.1371	-0.1494	UUBAR
LOSS PARA	0.0507	0.0298	0.0381	0.0337	0.0316	0.0266	0.0682	0.0549	-0.0602	LOSS PARA
DFAC	0.5951	0.6016	0.6233	0.5148	0.4113	0.3315	0.3775	0.3824	0.3131	DFAC
EFFP	0.7404	0.8502	0.8192	0.7976	0.7871	0.7620	0.4827	0.5282	0.5327	EFFP
INCID	6.197	12.496	13.582	10.412	0.464	-4.187	-4.935	-5.615	-15.406	INCID
DEVM	8.682	11.312	9.980	9.675	13.412	13.036	13.771	13.630	2.953	DEVM
P 2	18.367	17.947	17.903	18.469	18.927	19.639	19.240	18.777	17.952	P 2
P 2A	17.899	17.708	17.607	18.175	18.626	19.360	18.654	18.383	18.254	P 2A
T 2	570.666	568.079	565.894	566.311	562.546	560.010	559.558	559.410	560.465	T 2
T 2A	570.666	568.079	565.894	566.311	562.546	560.010	559.558	559.410	560.465	T 2A
UUBAR FS	0.1300	0.1691	0.1697	0.1304	0.1297	0.0413	0.2365	0.2528	0.2335	UUBAR FS
P2 FS	18.293	18.212	18.094	18.595	19.107	19.522	19.527	19.220	18.962	P2 FS
LOSS PARA FS	0.0437	0.0575	0.0584	0.0462	0.0479	0.0159	0.0937	0.1012	0.0941	LOSS PARA FS

Table A-5. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 99.65 Equivalent Rotor Speed = 4195.38 Equivalent Weight Flow = 93.49
 Hub Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	351.53	351.53	351.53	351.53	351.53	351.53	351.53	351.53	351.53	V 0
V 1	318.88	304.44	303.33	303.18	390.44	462.05	459.13	452.12	411.01	V 1
VZ C	351.53	351.53	351.53	351.53	351.51	351.47	351.44	351.44	351.44	VZ 0
VZ 1	318.87	304.44	303.33	303.18	390.41	461.97	459.02	452.00	410.90	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3180	0.3180	0.3180	0.3180	0.3180	0.3180	0.3180	0.3180	0.3180	M 0
M 1	0.2880	0.2747	0.2737	0.2736	0.3541	0.4211	0.4184	0.4118	0.3732	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	1.5271	1.5301	1.5090	1.5271	0.9923	0.3760	0.4243	0.4836	0.7761	UUBAR
DFAC	0.093	0.134	0.137	0.138	-0.111	-0.314	-0.306	-0.286	-0.169	DFAC
EFFP	-0.1296	-0.1925	-0.2011	-0.1987	0.1925	0.6681	0.6333	0.5835	0.3252	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.636	15.636	15.636	15.636	15.636	15.636	15.636	15.636	15.636	P 0
P 1	14.619	14.016	14.039	14.019	14.585	15.238	15.187	15.124	14.812	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	57.995	58.628	56.195	52.772	43.929	34.597	35.220	38.544	41.751	BETA 2
BETA(PR) 1	62.208	62.419	62.313	63.169	58.361	55.118	56.048	56.650	59.300	BETA(PR) 1
BETA(PR) 2	19.634	26.473	28.557	26.650	32.656	33.017	36.727	39.207	46.503	BETA(PR) 2
V 1	319.57	320.55	326.01	326.47	418.28	497.34	498.13	492.09	447.43	V 1
V 2	566.66	552.96	547.68	585.27	581.77	635.79	609.41	578.84	507.47	V 2
VZ 1	319.51	320.47	325.97	326.45	417.76	495.33	494.85	488.59	444.51	VZ 1
VZ 2	310.92	287.86	288.64	354.08	418.86	522.67	496.77	451.73	377.84	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	497.48	472.11	465.44	466.00	403.49	360.52	350.70	359.89	337.25	V-THETA 2
V(PR) 1	685.3	692.2	701.6	723.3	796.7	867.3	887.9	890.7	872.2	V(PR) 1
V(PR) 2	330.1	321.6	328.6	396.2	497.7	584.2	621.1	584.2	549.9	V(PR) 2
VTHETA PR1	-606.2	-613.5	-621.2	-645.4	-678.0	-710.5	-735.0	-742.4	-748.6	VTHETA PR1
VTHETA PR2	-110.9	-143.3	-157.1	-177.7	-268.4	-339.6	-370.6	-398.2	-466.2	VTHETA PR2
U 1	606.20	613.49	621.24	645.38	678.03	710.52	734.97	742.41	748.64	U 1
U 2	608.40	615.46	622.52	643.70	671.93	700.17	721.34	728.40	735.46	U 2
M 1	0.2886	0.2895	0.2945	0.2949	0.3800	0.4546	0.4553	0.4496	0.4074	M 1
M 2	0.5136	0.4840	0.4798	0.5136	0.5122	0.5639	0.5393	0.5109	0.4449	M 2
M(PR) 1	0.6189	0.6252	0.6338	0.6534	0.7238	0.7927	0.8116	0.8138	0.7940	M(PR) 1
M(PR) 2	0.2890	0.2815	0.2879	0.3476	0.4382	0.5536	0.5497	0.5157	0.4821	M(PR) 2
TURN(PR)	42.570	35.942	33.755	36.518	25.689	22.044	19.235	17.356	12.734	TURN(PR)
UUBAR	0.1893	0.2043	0.2001	0.1197	0.1166	0.0478	0.0759	0.1400	0.1538	UUBAR
LOSS PARA	0.0516	0.0536	0.0522	0.0329	0.0316	0.0135	0.0211	0.0380	0.0375	LOSS PARA
DFAC	0.7289	0.7358	0.7288	0.6502	0.5376	0.4191	0.4363	0.4844	0.5053	DFAC
EFFP	0.8221	0.8186	0.8407	0.9000	0.8565	0.8985	0.8718	0.8248	0.7475	EFFP
EFF	0.8149	0.8117	0.8346	0.8958	0.8512	0.8948	0.8672	0.8189	0.7398	EFF
INCID	9.777	11.503	11.735	11.126	4.360	-0.878	-2.647	-5.667	-8.865	INCID
DEVM	4.485	12.313	13.923	8.010	9.444	5.458	5.105	6.070	10.526	DEVM
P 1	14.019	14.016	14.039	14.019	14.585	15.238	15.187	15.124	14.812	P 1
P 2	18.547	18.238	18.254	18.760	18.856	19.686	19.420	19.063	18.345	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	571.689	568.633	567.122	568.949	565.089	562.711	562.226	562.008	562.889	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	56.550	58.210	56.926	52.849	43.290	34.466	35.992	39.860	43.708	BETA 2
BETA 2A	6.320	-2.000	-4.130	-4.550	2.700	2.851	1.791	1.821	-0.200	BETA 2A
V 2	583.25	555.63	555.72	585.27	589.55	638.91	598.88	563.57	489.90	V 2
V 2A	394.23	364.50	353.19	429.04	461.14	536.64	505.04	475.00	460.54	V 2A
VZ 2	304.32	292.70	303.27	353.42	428.97	526.30	484.00	432.13	353.75	VZ 2
VZ 2A	394.22	364.27	352.25	427.63	460.47	529.67	504.38	474.34	460.05	VZ 2A
V-THETA 2	497.57	472.27	465.66	466.44	404.10	361.26	351.55	360.80	338.15	V-THETA 2
V-THETA 2A	2.20	-12.72	-25.43	-34.03	21.72	26.37	15.77	15.08	-1.61	V-THETA 2A
M 2	0.5104	0.4864	0.4872	0.5136	0.5194	0.5668	0.5295	0.4968	0.4289	M 2
M 2A	0.3402	0.3149	0.3053	0.3720	0.4021	0.4661	0.4429	0.4157	0.4023	M 2A
TURN(PR)	58.229	60.209	61.654	57.392	40.572	31.584	34.156	37.988	43.849	TURN(PR)
UUBAR	0.1631	0.1433	0.1747	0.1629	0.1162	0.1181	0.1438	0.1443	-0.0733	UUBAR
LOSS PARA	0.0549	0.0488	0.0600	0.0577	0.0430	0.0454	0.0569	0.0577	-0.0296	LOSS PARA
DFAC	0.6102	0.6414	0.6689	0.5713	0.4588	0.3724	0.3801	0.4040	0.3412	DFAC
EFFP	0.7244	0.7675	0.7285	0.6777	0.7282	0.6612	0.5500	0.5443	1.5803	EFFP
INCID	8.382	14.822	16.635	14.819	6.584	-1.400	-2.713	-3.312	-15.496	INCID
DEVM	9.152	9.312	7.180	6.426	13.711	14.515	14.230	14.499	4.654	DEVM
P 2	18.547	18.238	18.254	18.760	18.856	19.686	19.420	19.063	18.345	P 2
P 2A	18.054	17.848	17.777	18.257	18.487	19.230	18.934	18.636	18.505	P 2A
T 2	571.689	568.633	567.122	568.949	565.089	562.711	562.226	562.008	562.889	T 2
T 2A	571.689	568.633	567.122	568.949	565.089	562.711	562.226	562.008	562.889	T 2A
UUBAR FS	0.1613	0.2148	0.2323	0.1861	0.1583	0.0810	0.1821	0.2080	0.2039	UUBAR FS
P2 FS	18.540	18.486	18.460	18.848	19.013	19.529	19.577	19.300	19.104	P2 FS
LOSS PARA FS	0.0543	0.0731	0.0797	0.0659	0.0586	0.0311	0.0720	0.0831	0.0823	LOSS PARA

Table A-5. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 89.63 Equivalent Rotor Speed = 3773.22 Equivalent Weight Flow = 104.66
 Hub Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-6.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	389.75	389.75	389.75	389.75	389.75	389.75	389.75	389.75	389.75	V 0
V 1	357.97	376.40	371.70	349.99	436.31	520.74	516.95	508.64	450.96	V 1
VZ 0	389.75	389.75	389.75	389.74	389.72	389.68	389.65	389.64	389.65	VZ 0
VZ 1	357.97	376.40	371.70	349.98	436.27	520.65	516.82	508.50	450.84	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3534	0.3534	0.3534	0.3534	0.3534	0.3534	0.3534	0.3534	0.3534	M 0
M 1	0.3240	0.3410	0.3367	0.3166	0.3969	0.4769	0.4733	0.4653	0.4107	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	1.7060	1.6278	1.6402	1.6361	1.0767	0.4006	0.4540	0.5067	0.8653	UUBAR
DFAC	0.082	0.034	0.046	0.102	-0.119	-0.336	-0.326	-0.305	-0.157	DFAC
EFFP	-0.0985	-0.0424	-0.0573	-0.1314	0.1922	0.6729	0.6364	0.5915	0.2859	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVN
P 0	15.969	15.969	15.969	15.969	15.969	15.969	15.969	15.969	15.969	P 0
P 1	13.715	13.819	13.802	13.808	14.547	15.440	15.369	15.300	14.826	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	46.997	45.380	43.635	37.829	29.178	25.329	26.221	28.633	32.841	BETA 2
BETA(PR) 1	56.658	54.251	54.348	56.949	52.486	48.706	49.700	50.369	53.989	BETA(PR) 1
BETA(PR) 2	22.228	26.544	26.169	27.887	30.630	33.287	36.779	40.059	48.500	BETA(PR) 2
V 1	358.77	397.28	400.83	377.69	468.74	563.56	564.30	556.95	492.59	V 1
V 2	541.77	520.91	535.42	561.38	601.88	617.60	584.72	539.70	444.46	V 2
VZ 1	358.70	397.19	400.78	377.67	468.16	561.28	560.59	552.98	489.38	VZ 1
VZ 2	369.49	365.88	387.50	443.39	525.27	557.34	523.18	472.39	372.49	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	396.19	370.76	369.46	344.29	293.30	263.79	257.68	257.90	240.43	V-THETA 2
V(IPR) 1	652.7	679.9	687.6	692.5	769.1	852.0	869.1	869.5	834.3	V(IPR) 1
V(IPR) 2	399.2	409.0	431.8	501.7	610.7	667.6	654.6	618.5	563.0	V(IPR) 2
VTHETA PR1	-545.2	-551.8	-558.7	-580.4	-609.8	-639.0	-661.0	-667.7	-673.3	VTHETA PR1
VTHETA PR2	-151.0	-182.8	-190.4	-234.6	-311.0	-365.9	-391.1	-397.2	-421.0	VTHETA PR2
U 1	545.20	551.76	558.72	580.44	609.80	639.03	661.01	667.70	673.30	U 1
U 2	547.18	553.53	559.88	578.93	604.32	629.71	648.76	655.11	661.45	U 2
M 1	0.3247	0.3604	0.3637	0.3422	0.4274	0.5182	0.5189	0.5117	0.4501	M 1
M 2	0.4793	0.4604	0.4745	0.4980	0.5377	0.5538	0.5230	0.4810	0.3931	M 2
M(IPR) 1	0.5907	0.6168	0.6240	0.6275	0.7014	0.7834	0.7991	0.7989	0.7622	M(IPR) 1
M(IPR) 2	0.3531	0.3615	0.3826	0.4450	0.5456	0.5986	0.5855	0.5512	0.4979	M(IPR) 2
TURN(IPR)	34.427	27.703	28.176	29.061	21.836	15.355	12.824	10.211	5.412	TURN(IPR)
UUBAR	0.1391	0.1645	0.1152	-0.0106	-0.0427	0.0529	0.0940	0.1598	0.1939	UUBAR
LOSS PARA	0.0373	0.0432	0.0307	-0.0029	-0.0118	0.0149	0.0261	0.0429	0.0455	LOSS PARA
DFAC	0.5645	0.5586	0.5318	0.4283	0.3282	0.3198	0.3488	0.3917	0.4263	DFAC
EFFP	0.8431	0.7744	0.8636	0.9242	0.9544	0.8162	0.7648	0.6630	0.5627	EFFP
EFF	0.8385	0.7684	0.8597	0.9218	0.9530	0.8119	0.7598	0.6568	0.5558	EFF
INCLD	4.227	3.335	3.769	4.907	-1.517	-7.296	-9.006	-11.961	-14.189	INCLD
DEVN	7.078	12.384	11.536	9.247	7.419	5.727	5.156	6.921	12.524	DEVN
P 1	13.715	13.819	13.802	13.808	14.547	15.440	15.369	15.300	14.826	P 1
P 2	16.845	16.628	16.824	17.193	17.867	18.193	17.856	17.389	16.552	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	556.119	555.356	553.806	555.081	551.627	549.361	548.587	548.112	548.525	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	47.346	45.127	42.880	37.877	28.791	25.238	26.742	29.490	34.173	BETA 2
BETA 2A	-0.900	1.500	2.250	1.500	0.200	0.600	2.001	1.250	-1.701	BETA 2A
V 2	538.79	523.35	543.25	561.38	610.24	620.58	574.84	525.98	429.79	V 2
V 2A	424.58	417.40	417.86	489.86	560.71	579.91	517.01	487.32	472.79	V 2A
VZ 2	365.06	369.24	398.07	443.05	534.53	560.76	512.64	457.18	355.08	VZ 2
VZ 2A	424.52	417.25	417.52	489.62	560.52	579.54	516.29	486.78	472.08	VZ 2A
V-THETA 2	396.26	370.88	369.65	344.61	293.75	264.33	258.30	258.56	241.07	V-THETA 2
V-THETA 2A	-6.67	10.92	16.40	12.82	1.96	6.07	18.03	10.62	-14.02	V-THETA 2A
M 2	0.4765	0.4626	0.4817	0.4980	0.5456	0.5566	0.5137	0.4682	0.3797	M 2
M 2A	0.3723	0.3661	0.3671	0.4320	0.4990	0.5181	0.4597	0.4325	0.4190	M 2A
TURN(IPR)	48.246	43.627	40.628	36.370	28.575	24.611	24.703	28.195	35.817	TURN(IPR)
UUBAR	0.0766	0.0153	0.0911	0.0004	-0.0040	0.0485	0.1925	0.1560	-0.2045	UUBAR
LOSS PARA	0.0258	0.0052	0.0313	0.0001	-0.0015	0.0187	0.0762	0.0624	-0.0825	LOSS PARA
DFAC	0.4639	0.4368	0.4549	0.3379	0.2588	0.2265	0.2672	0.2632	0.1406	DFAC
EFFP	0.8143	0.9613	0.7951	0.9985	1.0226	0.6625	0.6823	-0.0152	0.0980	EFFP
INCLD	-2.821	1.740	2.589	-0.154	-7.912	-10.622	-11.956	-13.674	-25.027	INCLD
DEVN	7.932	12.812	13.560	12.475	11.212	12.266	14.440	13.929	3.155	DEVN
P 2	16.845	16.628	16.824	17.193	17.867	18.193	17.856	17.389	16.552	P 2
P 2A	16.859	16.593	16.599	17.192	17.880	18.026	17.290	17.010	16.872	P 2A
T 2	556.119	555.356	553.806	555.081	551.627	549.361	548.587	548.112	548.525	T 2
T 2A	556.119	555.356	553.806	555.081	551.627	549.361	548.587	548.112	548.525	T 2A
UUBAR FS	0.0800	0.1123	0.0980	0.0533	0.0623	0.0341	0.2602	0.2853	0.2882	UUBAR FS
P2 FS	16.853	16.875	16.843	17.343	18.098	18.142	18.125	17.826	17.636	P2 FS
LOSS PARA FS	0.0269	0.0381	0.0336	0.0133	0.0233	0.0131	0.1030	0.1141	0.1163	LOSS PARA FS

Table A-5. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 89.44 Equivalent Rotor Speed = 3765.60 Equivalent Weight Flow = 92.29
 Hub Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	347.22	347.22	347.22	347.22	347.22	347.22	347.22	347.22	347.22	V 0
V 1	287.42	300.45	301.64	295.70	371.16	450.62	438.21	435.24	395.63	V 1
VZ 0	347.22	347.22	347.22	347.21	347.19	347.16	347.13	347.12	347.13	VZ 0
VZ 1	287.42	300.45	301.64	295.69	371.16	450.54	438.10	435.12	395.53	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3141	0.3141	0.3141	0.3141	0.3141	0.3141	0.3141	0.3141	0.3141	M 0
M 1	0.2592	0.2711	0.2722	0.2667	0.3362	0.4104	0.3987	0.3959	0.3589	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	1.5798	1.5201	1.5057	1.5181	0.9846	0.3749	0.4243	0.4830	0.7765	UUBAR
DFAC	0.172	0.135	0.131	0.148	-0.069	-0.298	-0.262	-0.254	-0.139	DFAC
EFFP	-0.2445	-0.1954	-0.1921	-0.2179	0.1279	0.6547	0.5914	0.5501	0.2816	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.609	15.609	15.609	15.609	15.609	15.609	15.609	15.609	15.609	P 0
P 1	13.979	14.041	14.056	14.043	14.593	15.222	15.171	15.111	14.808	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	54.594	54.713	53.323	47.177	37.397	31.909	33.088	36.102	41.113	BETA 2
BETA(PR) 1	62.109	60.131	59.830	61.213	56.902	52.883	54.444	54.822	57.539	BETA(PR) 1
BETA(PR) 2	18.675	25.248	27.275	27.091	31.860	33.450	38.013	41.117	48.444	BETA(PR) 2
V 1	288.03	316.31	324.17	318.31	397.18	484.57	474.60	473.05	430.23	V 1
V 2	540.21	507.42	503.39	534.40	547.95	577.70	540.41	506.24	438.78	V 2
VZ 1	287.98	316.23	324.13	318.29	396.69	482.61	471.48	469.69	427.63	VZ 1
VZ 2	312.98	293.12	300.68	363.24	435.15	489.71	451.74	408.07	329.90	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	440.30	414.18	403.72	391.95	332.66	304.92	294.35	297.59	287.94	V-THETA 2
V(PR) 1	615.6	635.0	645.0	661.0	726.7	800.9	812.7	817.2	797.9	V(PR) 1
V(PR) 2	330.4	324.1	338.3	408.0	512.6	587.7	574.5	542.8	490.1	V(PR) 2
VTHETA PR1	-544.1	-550.6	-557.6	-579.3	-608.6	-637.7	-659.7	-666.4	-671.9	VTHETA PR1
VTHETA PR2	-105.8	-138.2	-155.0	-185.8	-270.4	-323.5	-353.1	-356.2	-372.2	VTHETA PR2
U 1	544.10	550.65	557.60	579.27	608.57	637.74	659.68	666.36	671.94	U 1
U 2	546.08	552.41	558.75	577.76	603.10	628.44	647.45	653.78	660.12	U 2
M 1	0.2597	0.2856	0.2928	0.2875	0.3603	0.4424	0.4330	0.4315	0.3912	M 1
M 2	0.4756	0.4462	0.4432	0.4714	0.4854	0.5141	0.4793	0.4479	0.3861	M 2
M(PR) 1	0.5551	0.5734	0.5826	0.5969	0.6593	0.7313	0.7414	0.7455	0.7255	M(PR) 1
M(PR) 2	0.2909	0.2850	0.2979	0.3599	0.4540	0.5230	0.5096	0.4802	0.4383	M(PR) 2
TURN(PR)	43.431	34.880	32.553	34.121	25.025	19.373	16.345	13.613	9.025	TURN(PR)
UUBAR	0.1374	0.1704	0.1515	0.0466	0.0175	0.0420	0.0833	0.1396	0.1737	UUBAR
LOSS PARA	0.0377	0.0452	0.0460	0.0128	0.0048	0.0118	0.0228	0.0369	0.0408	LOSS PARA
DFAC	0.6709	0.6812	0.6615	0.5649	0.4414	0.3933	0.4176	0.4623	0.5024	DFAC
EFFP	0.8462	0.8013	0.8356	0.9057	0.8961	0.8678	0.7476	0.7476	0.6784	EFFP
EFF	0.8410	0.7952	0.8305	0.9025	0.8928	0.8640	0.7996	0.7416	0.6713	EFF
INCLD	9.678	9.216	9.252	9.170	2.901	-3.116	-4.252	-7.500	-10.631	INCLD
DEVM	3.525	11.088	12.642	8.450	8.649	5.890	6.389	7.979	12.469	DEVM
P 1	13.979	14.041	14.056	14.043	14.593	15.222	15.171	15.111	14.808	P 1
P 2	17.655	17.373	17.389	17.767	18.072	18.521	18.196	17.867	17.278	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	561.235	559.622	557.853	558.655	555.296	553.311	553.292	553.002	553.514	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2A	55.069	54.368	52.305	47.242	36.910	31.802	33.748	37.214	42.926	BETA 2A
BETA 2A	1.000	0.800	-0.500	0.300	1.900	1.400	1.200	0.900	-2.651	BETA 2A
V 2	537.14	509.77	510.48	534.40	555.01	580.33	531.77	493.88	424.38	V 2
V 2A	376.72	353.28	340.46	407.82	458.60	510.07	456.67	426.39	414.80	V 2A
VZ 2	307.56	296.97	312.13	362.76	443.59	492.76	441.63	392.85	310.40	VZ 2
VZ 2A	376.66	353.24	340.44	407.75	458.19	509.62	456.20	425.96	413.92	VZ 2A
V-THETA 2	440.37	414.32	403.92	392.32	333.17	305.55	295.06	298.34	288.70	V-THETA 2
V-THETA 2A	6.57	4.93	-2.97	2.14	15.20	12.46	9.56	6.69	-19.16	V-THETA 2A
M 2	0.4727	0.4483	0.4497	0.4714	0.4919	0.5165	0.4713	0.4365	0.3731	M 2
M 2A	0.3279	0.3075	0.2966	0.3564	0.4034	0.4513	0.4024	0.3750	0.3644	M 2A
TURN(PR)	54.069	53.567	52.803	46.935	34.992	30.370	32.502	36.263	45.515	TURN(PR)
UUBAR	0.1314	0.0897	0.1311	0.0962	0.0547	0.0421	0.1257	0.1110	-0.1590	UUBAR
LOSS PARA	0.0443	0.0305	0.0451	0.0342	0.0203	0.0162	0.0498	0.0444	-0.0625	LOSS PARA
DFAC	0.5708	0.5806	0.6077	0.4969	0.3866	0.3165	0.3552	0.3742	0.3166	DFAC
EFFP	0.7605	0.8394	0.7797	0.7877	0.8428	0.8337	0.5588	0.5944	4.2472	EFFP
INCLD	4.902	10.980	12.014	9.211	0.204	-4.063	-4.957	-5.957	-16.278	INCLD
DEVM	9.832	12.112	10.810	11.275	12.912	13.066	13.640	13.579	2.206	DEVM
P 2	17.655	17.373	17.389	17.767	18.072	18.521	18.196	17.867	17.278	P 2
P 2A	17.325	17.172	17.094	17.526	17.921	18.392	17.874	17.624	17.523	P 2A
T 2	561.235	559.622	557.853	558.655	555.296	553.311	553.292	553.002	553.514	T 2
T 2A	561.235	559.622	557.853	558.655	555.296	553.311	553.292	553.002	553.514	T 2A
UUBAR FS	0.1034	0.1373	0.1333	0.1093	0.0824	0.0319	0.2179	0.2659	0.2520	UUBAR FS
P2 FS	17.576	17.496	17.448	17.804	18.154	18.489	18.500	18.330	18.138	P2 FS
LOSS PARA FS	0.0348	0.0467	0.0527	0.0388	0.0305	0.0122	0.0863	0.1063	0.1016	LOSS PARA FS

Table A-5. Blade Element Performance (Continued)

Stage E, Rotor E - Stator E

Calculations Using Translated Values

Percent Equivalent Rotor Speed = 89.02 Equivalent Rotor Speed = 3747.66 Equivalent Weight Flow = 82.24
Hub Radial Distortion

INLET											
	PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
	DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
	BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	V 0	310.84	310.84	310.84	310.84	310.84	310.84	310.84	310.84	310.84	V 0
	V 1	245.30	245.30	244.55	247.59	330.99	397.38	385.14	376.81	342.14	V 1
	VZ 0	310.84	310.84	310.84	310.84	310.82	310.79	310.77	310.76	310.76	VZ 0
	VZ 1	245.29	245.30	244.55	247.59	330.97	397.32	385.04	376.70	342.05	VZ 1
	V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	M 0	0.2806	0.2806	0.2806	0.2806	0.2806	0.2806	0.2806	0.2806	0.2806	M 0
	M 1	0.2208	0.2208	0.2201	0.2201	0.2291	0.3605	0.3491	0.3414	0.3094	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	1.5269	1.4732	1.4630	1.4502	0.9450	0.3274	0.3964	0.4693	0.7532	UUBAR
	DFAC	0.211	0.211	0.213	0.203	-0.065	-0.278	-0.239	-0.212	-0.101	DFAC
	EFFP	-0.3238	-0.3403	-0.3483	-0.3336	0.1251	0.6665	0.5814	0.5066	0.2220	EFFP
	INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
	DEVW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVW
	P 0	15.378	15.378	15.378	15.378	15.378	15.378	15.378	15.378	15.378	P 0
	P 1	14.129	14.173	14.181	14.191	14.605	15.110	15.054	14.994	14.762	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	BETA 2	57.598	58.320	58.072	53.774	45.528	36.394	36.633	39.917	44.081	BETA 2
	BETA(PR) 1	65.589	64.807	64.710	65.232	59.760	56.246	57.836	58.591	61.154	BETA(PR) 1
	BETA(PR) 2	20.282	25.724	27.592	26.903	32.935	33.144	37.156	40.353	46.548	BETA(PR) 2
	V 1	245.81	257.86	262.24	266.01	353.51	425.88	415.66	407.85	370.77	V 1
	V 2	521.41	497.99	494.26	519.64	514.30	559.66	535.40	504.16	452.78	V 2
	VZ 1	245.76	257.80	262.21	266.00	353.07	424.16	412.86	404.95	368.35	VZ 1
	VZ 2	279.39	261.53	261.39	307.09	360.20	449.93	427.63	385.86	320.26	VZ 2
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	V-THETA 2	440.23	423.78	419.48	419.19	366.89	331.64	320.29	322.82	318.92	V-THETA 2
	V(PR) 1	594.7	605.4	613.8	634.9	701.3	764.3	777.0	778.6	764.6	V(PR) 1
	V(PR) 2	297.9	290.3	294.9	344.4	429.3	538.1	537.7	507.4	466.4	V(PR) 2
	VTHETA PR1	-541.5	-548.0	-554.9	-576.5	-605.7	-634.7	-656.5	-663.2	-668.7	VTHETA PR1
	VTHETA PR2	-103.3	-126.0	-136.6	-155.8	-233.3	-293.8	-324.1	-327.8	-338.0	VTHETA PR2
	U 1	541.51	548.02	554.94	576.51	605.67	634.70	656.53	663.18	668.74	U 1
	U 2	543.48	549.78	556.09	575.00	600.23	625.45	644.36	650.67	656.97	U 2
	M 1	0.2212	0.2322	0.2362	0.2396	0.3199	0.3871	0.3775	0.3703	0.3358	M 1
	M 2	0.4583	0.4376	0.4347	0.4570	0.4534	0.4961	0.4737	0.4450	0.3980	M 2
	M(PR) 1	0.5353	0.5454	0.5528	0.5719	0.6345	0.6948	0.7058	0.7068	0.6926	M(PR) 1
	M(PR) 2	0.2618	0.2551	0.2594	0.3029	0.3785	0.4770	0.4757	0.4479	0.4100	M(PR) 2
	TURN(PR)	45.305	39.079	37.116	38.328	26.809	23.046	20.599	18.157	14.549	TURN(PR)
	UUBAR	0.1554	0.1863	0.1784	0.1243	0.1219	0.0668	0.0864	0.1441	0.1762	UUBAR
	LOSS PARA	0.0422	0.0492	0.0469	0.0341	0.0329	0.0188	0.0239	0.0385	0.0429	LOSS PARA
	DFAC	0.7139	0.7262	0.7226	0.6605	0.5555	0.4409	0.4498	0.4923	0.5364	DFAC
	EFFP	0.8332	0.8189	0.8506	0.8677	0.8297	0.8590	0.8319	0.7804	0.7367	EFFP
	EFF	0.8276	0.8132	0.8459	0.8632	0.8246	0.8548	0.8270	0.7747	0.7300	EFF
	INCID	13.159	13.892	14.132	13.189	5.760	0.252	-0.854	-3.720	-7.005	INCID
	DEVW	5.133	11.565	12.958	8.262	9.724	5.585	5.533	7.215	10.571	DEVW
	P 1	14.129	14.173	14.181	14.191	14.605	15.110	15.054	14.994	14.762	P 1
	P 2	17.792	17.614	17.645	17.959	18.006	18.582	18.378	18.064	17.635	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	561.368	559.570	558.212	560.514	557.475	555.635	555.489	555.294	555.735	T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
	BETA 2	58.109	57.941	56.885	53.854	44.906	36.272	37.588	41.196	46.984	BETA 2
	BETA 2A	0.930	-1.100	-4.450	-4.780	2.600	3.001	2.201	2.101	1.100	BETA 2A
	V 2	518.58	500.21	501.09	519.64	520.68	562.18	526.93	491.90	437.77	V 2
	V 2A	347.93	326.49	315.40	374.92	404.72	461.05	437.35	414.98	402.90	V 2A
	VZ 2	273.97	265.50	273.75	306.48	368.66	452.87	417.09	369.74	298.36	VZ 2
	VZ 2A	347.88	326.42	314.43	373.56	404.17	460.14	436.68	414.33	402.40	VZ 2A
	V-THETA 2	440.30	423.92	419.69	419.59	367.45	332.32	321.07	323.64	319.77	V-THETA 2
	V-THETA 2A	5.65	-6.27	-24.47	-31.24	18.35	24.12	16.78	15.20	7.73	V-THETA 2A
	M 2	0.4557	0.4396	0.4410	0.4570	0.4592	0.4985	0.4659	0.4338	0.3844	M 2
	M 2A	0.3023	0.2838	0.2744	0.3265	0.3540	0.4055	0.3841	0.3640	0.3530	M 2A
	TURN(PR)	57.179	59.040	61.333	58.627	42.287	33.236	35.341	39.044	45.825	TURN(PR)
	UUBAR	0.1658	0.1616	0.2059	0.1847	0.1200	0.1313	0.1488	0.1065	-0.0619	UUBAR
	LOSS PARA	0.0558	0.0550	0.0707	0.0654	0.0444	0.0505	0.0589	0.0426	-0.0249	LOSS PARA
	DFAC	0.6115	0.6403	0.6760	0.5873	0.4718	0.3921	0.4002	0.4087	0.3689	DFAC
	EFFP	0.7185	0.7358	0.6790	0.6404	0.7189	0.6333	0.5576	0.6557	1.3789	EFFP
	INCID	7.942	14.553	16.595	15.824	8.200	0.404	-1.118	-1.976	-12.220	INCID
	DEVW	9.762	10.212	6.860	6.196	13.611	14.665	14.640	14.779	5.953	DEVW
	P 2	17.792	17.614	17.645	17.959	18.006	18.582	18.378	18.064	17.635	P 2
	P 2A	17.400	17.260	17.191	17.516	17.715	18.201	18.000	17.830	17.740	P 2A
	T 2	561.368	559.570	558.212	560.514	557.475	555.635	555.489	555.294	555.735	T 2
	T 2A	561.368	559.570	558.212	560.514	557.475	555.635	555.489	555.294	555.735	T 2A
	UUBAR FS	0.1628	0.2183	0.2407	0.1996	0.1537	0.0717	0.2066	0.2078	0.2084	UUBAR FS
	P2 FS	17.783	17.772	17.746	18.003	18.102	18.395	18.563	18.343	18.217	P2 FS
	LOSS PARA FS	0.0548	0.0743	0.0826	0.0706	0.0569	0.0275	0.0818	0.0831	0.0838	LOSS PARA FS

Table A-5. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 69.99 Equivalent Rotor Speed = 2946.55 Equivalent Weight Flow = 83.81
 Hub Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	316.30	316.30	316.30	316.30	316.30	316.30	316.30	316.30	316.30	V 0
V 1	271.90	279.32	274.05	278.18	345.04	407.94	391.78	384.69	347.40	V 1
VZ 0	316.30	316.30	316.30	316.30	316.28	316.25	316.22	316.22	316.22	VZ 0
VZ 1	271.90	279.32	274.05	278.18	345.02	407.87	391.68	384.58	347.31	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2856	0.2856	0.2856	0.2856	0.2856	0.2856	0.2856	0.2856	0.2856	M 0
M 1	0.2450	0.2318	0.2470	0.2507	0.3120	0.3704	0.3553	0.3487	0.3142	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	1.5374	1.4756	1.4732	1.4596	0.9442	0.3535	0.4020	0.4484	0.7586	UUBAR
DFAC	0.140	0.117	0.134	0.121	-0.091	-0.290	-0.229	-0.216	-0.098	DFAC
EFFP	-0.2022	-0.1738	-0.2019	-0.1822	0.1698	0.6595	0.5772	0.5125	0.2165	EFFP
INCD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.425	15.425	15.425	15.425	15.425	15.425	15.425	15.425	15.425	P 0
P 1	14.119	14.171	14.173	14.185	14.623	15.124	15.082	15.027	14.780	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	46.193	44.062	42.398	37.032	29.064	24.939	24.530	26.605	29.947	BETA 2
BETA(PR) 1	37.307	55.712	56.014	56.372	52.221	48.879	50.856	51.577	54.566	BETA(PR) 1
BETA(PR) 2	21.853	25.751	25.395	26.268	29.680	32.844	37.473	39.865	48.993	BETA(PR) 2
V 1	272.48	293.86	294.17	299.21	368.75	437.43	422.94	416.58	376.58	V 1
V 2	427.62	414.83	427.02	452.23	479.04	469.12	458.80	428.86	344.27	V 2
VZ 1	272.42	293.80	294.14	299.19	368.30	435.66	420.14	413.62	374.13	VZ 1
VZ 2	296.00	298.00	315.34	359.10	419.23	442.80	414.27	381.60	299.23	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	308.59	288.48	287.92	274.87	233.00	205.90	189.05	192.84	172.39	V-THETA 2
V(PR) 1	505.5	521.5	526.2	543.1	602.3	663.6	667.4	646.7	646.7	V(PR) 1
V(PR) 2	318.9	331.0	348.9	400.5	482.7	527.8	523.1	499.3	456.7	V(PR) 2
VTHETA PR1	-425.8	-430.9	-436.3	-453.3	-478.2	-499.0	-516.2	-521.4	-525.8	VTHETA PR1
VTHETA PR2	-118.7	-143.8	-149.3	-177.2	-238.9	-289.8	-317.6	-318.7	-344.1	VTHETA PR2
U 1	425.76	430.88	436.31	453.27	478.20	499.82	516.19	521.42	525.78	U 1
U 2	427.30	432.26	437.22	452.09	471.92	491.75	506.62	511.58	516.54	U 2
M 1	0.2455	0.2651	0.2653	0.2699	0.3340	0.3980	0.3844	0.3784	0.3612	M 1
M 2	0.3800	0.3685	0.3801	0.4026	0.4292	0.4384	0.4085	0.3831	0.3077	M 2
M(PR) 1	0.4555	0.4704	0.4746	0.4900	0.5454	0.6037	0.6065	0.6063	0.5860	M(PR) 1
M(PR) 2	0.2834	0.2940	0.3106	0.3587	0.4318	0.4731	0.4880	0.4452	0.4059	M(PR) 2
TURN(PR)	35.530	29.957	30.677	30.304	22.582	15.970	13.288	11.613	5.497	TURN(PR)
UUBAR	0.1250	0.1240	0.0851	-0.0177	-0.0483	0.0342	0.0560	0.1039	0.1432	UUBAR
LOSS PARA	0.0336	0.0328	0.0228	-0.0049	-0.0135	0.0097	0.0138	0.0280	0.0333	LOSS PARA
DFAC	0.5462	0.5279	0.4996	0.4182	0.3225	0.3083	0.3136	0.3537	0.3874	DFAC
EFFP	0.8277	0.7840	0.8829	0.9279	0.9561	0.8236	0.7725	0.7210	0.5665	EFFP
EFF	0.8245	0.7803	0.8807	0.9264	0.9393	0.8210	0.7694	0.7175	0.5623	EFF
INCD	4.956	4.796	5.436	4.530	-1.722	-7.124	-7.848	-10.752	-13.611	INCD
DEVM	6.704	11.591	10.702	7.627	6.469	5.285	5.850	6.728	13.017	DEVM
P 1	14.119	14.171	14.173	14.185	14.623	15.124	15.082	15.027	14.780	P 1
P 2	16.050	15.971	16.082	16.307	16.656	16.790	16.586	16.376	15.830	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	542.174	541.808	540.344	541.458	539.279	537.847	537.250	536.674	536.964	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	46.503	43.844	41.748	37.479	28.736	24.868	24.954	27.522	31.059	BETA 2
BETA 2A	0.300	1.400	1.900	1.350	0.230	0.900	2.130	1.220	-2.401	BETA 2A
V 2	425.48	416.60	432.64	452.23	485.63	491.15	449.84	419.00	335.55	V 2
V 2A	347.12	343.07	344.70	403.05	448.88	461.35	418.20	389.18	379.28	V 2A
VZ 2	292.86	300.46	322.77	358.82	425.60	445.15	407.26	371.04	287.00	VZ 2
VZ 2A	347.11	342.96	344.49	402.88	468.73	481.06	410.58	388.75	378.55	VZ 2A
V-THETA 2	308.64	288.57	288.06	275.13	233.35	206.33	189.51	193.33	172.85	V-THETA 2
V-THETA 2A	1.82	8.38	11.43	9.49	1.80	4.02	15.27	8.28	-15.87	V-THETA 2A
M 2	0.3780	0.3701	0.3853	0.4028	0.4346	0.4403	0.4023	0.3741	0.2980	M 2
M 2A	0.3070	0.3034	0.3053	0.3578	0.4006	0.4127	0.3667	0.3468	0.3377	M 2A
TURN(PR)	46.203	42.443	39.846	36.123	28.489	24.340	22.787	26.259	33.405	TURN(PR)
UUBAR	0.0668	0.0364	0.0852	0.0128	0.0135	0.0456	0.1920	0.1852	-0.1998	UUBAR
LOSS PARA	0.0225	0.0124	0.0293	0.0045	0.0050	0.0176	0.0761	0.0741	-0.0805	LOSS PARA
DFAC	0.4271	0.4057	0.4236	0.3179	0.2528	0.2200	0.2403	0.2489	0.0976	DFAC
EFFP	0.8108	0.8929	0.7794	0.9420	0.9147	0.6419	-0.1015	-0.2814	0.3144	EFFP
INCD	-3.664	0.456	1.457	-0.551	-7.968	-10.993	-13.742	-15.641	-28.138	INCD
DEVM	9.132	12.712	13.210	12.325	11.242	12.166	14.570	13.899	2.456	DEVM
P 2	16.050	15.971	16.082	16.307	16.656	16.790	16.586	16.376	15.830	P 2
P 2A	15.949	15.919	15.948	16.285	16.629	16.695	16.250	16.096	16.019	P 2A
T 2	542.174	541.808	540.344	541.458	539.279	537.847	537.250	536.674	536.964	T 2
T 2A	542.174	541.808	540.344	541.458	539.279	537.847	537.250	536.674	536.964	T 2A
UUBAR FS	0.0949	0.1162	0.0939	0.0416	0.0319	0.0230	0.2819	0.2868	0.2887	UUBAR FS
P2 FS	16.096	16.101	16.096	16.359	16.694	16.742	16.805	16.590	16.479	P2 FS
LOSS PARA FS	0.0319	0.0395	0.0323	0.0146	0.0118	0.0089	0.1117	0.1147	0.1163	LOSS PARA FS

Table A-5. Blade Element Performance (Continued)

Stage E, Rotor E - Stator E

Calculations Using Translated Values

Percent Equivalent Rotor Speed = 70.19 Equivalent Rotor Speed = 2955.05 Equivalent Weight Flow = 70.10
Hub Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	267.00	267.00	267.00	267.00	267.00	267.00	267.00	267.00	267.00	V 0
V 1	214.32	219.64	218.48	214.13	281.17	332.68	327.62	322.36	291.11	V 1
VZ 0	267.00	267.00	267.00	267.00	266.98	266.96	266.93	266.93	266.93	VZ 0
VZ 1	214.32	219.64	218.48	214.13	281.15	332.63	327.54	322.27	291.04	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2405	0.2405	0.2405	0.2405	0.2405	0.2405	0.2405	0.2405	0.2405	M 0
M 1	0.1927	0.1975	0.1964	0.1925	0.2535	0.3007	0.2960	0.2912	0.2625	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	1.4986	1.4038	1.3951	1.3969	0.8726	0.3415	0.3880	0.4415	0.7105	UUBAR
DFAC	0.197	0.177	0.182	0.198	-0.053	-0.246	-0.227	-0.207	-0.090	DFAC
EFFP	-0.3085	-0.2975	-0.3086	-0.3410	0.1118	0.6233	0.5710	0.5139	0.2120	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.179	15.179	15.179	15.179	15.179	15.179	15.179	15.179	15.179	P 0
P 1	14.281	14.338	14.343	14.342	14.656	14.974	14.946	14.914	14.753	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	53.989	53.993	53.287	48.069	38.885	33.410	34.257	36.812	41.262	BETA 2
BETA(PR) 1	63.303	61.902	61.856	63.181	57.919	54.734	55.932	56.559	59.335	BETA(PR) 1
BETA(PR) 2	19.354	25.649	26.907	27.206	31.931	33.722	38.172	41.246	48.861	BETA(PR) 2
V 1	214.76	230.76	234.10	229.83	299.73	355.34	352.39	347.82	314.71	V 1
V 2	422.04	397.27	396.81	416.93	425.43	445.79	419.92	395.21	341.50	V 2
VZ 1	214.72	230.71	234.08	229.82	299.36	353.91	350.07	345.34	312.66	VZ 1
VZ 2	248.13	233.54	237.22	278.60	331.04	371.62	346.30	315.67	256.19	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	341.38	321.36	318.10	310.17	266.97	245.13	235.85	236.26	224.76	V-THETA 2
V(PR) 1	478.0	489.9	496.3	509.4	563.8	613.8	626.2	628.0	614.1	V(PR) 1
V(PR) 2	263.0	259.1	268.0	313.3	390.2	447.4	441.4	420.7	390.0	V(PR) 2
VTHETA PR1	-427.0	-432.1	-437.6	-454.6	-477.6	-500.5	-517.7	-522.9	-527.3	VTHETA PR1
VTHETA PR2	-87.2	-112.1	-120.4	-143.2	-206.3	-248.0	-272.2	-276.8	-295.3	VTHETA PR2
U 1	426.98	432.12	437.57	454.58	477.57	500.46	517.68	522.92	527.31	U 1
U 2	428.53	433.51	438.48	453.39	473.28	493.17	508.08	513.06	518.03	U 2
M 1	0.1931	0.2076	0.2106	0.2067	0.2704	0.3216	0.3188	0.3146	0.2841	M 1
M 2	0.3742	0.3519	0.3518	0.3696	0.3780	0.3970	0.3733	0.3509	0.3022	M 2
M(PR) 1	0.4297	0.4407	0.4465	0.4582	0.5087	0.5554	0.5666	0.5681	0.5545	M(PR) 1
M(PR) 2	0.2332	0.2295	0.2359	0.2777	0.3467	0.3984	0.3924	0.3735	0.3451	M(PR) 2
TURN(PR)	43.946	36.249	34.947	35.974	25.971	20.954	17.675	15.227	10.411	TURN(PR)
UUBAR	0.1144	0.1588	0.1508	0.0663	0.0376	0.0431	0.0784	0.1263	0.1555	UUBAR
LOSS PARA	0.0313	0.0420	0.0399	0.0181	0.0103	0.0121	0.0214	0.0333	0.0362	LOSS PARA
DFAC	0.6570	0.6638	0.6545	0.5721	0.4597	0.4044	0.4247	0.4468	0.4934	DFAC
EFFP	0.8749	0.8103	0.8534	0.8683	0.8557	0.8413	0.7878	0.7399	0.6654	EFFP
EFF	0.8723	0.8066	0.8506	0.8656	0.8529	0.8385	0.7842	0.7359	0.6607	EFF
INCID	10.873	10.987	11.278	11.138	3.918	-1.263	-2.762	-5.758	-8.830	INCID
DEVM	4.205	11.490	12.273	8.565	8.720	6.162	6.548	8.108	12.884	DEVM
P 1	14.281	14.338	14.343	14.342	14.656	14.974	14.946	14.914	14.753	P 1
P 2	16.538	16.376	16.396	16.587	16.740	16.968	16.794	16.621	16.282	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	544.160	543.588	542.453	544.121	542.240	541.192	541.102	540.859	541.131	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	54.397	53.689	52.360	48.136	38.435	33.320	34.880	37.864	42.976	BETA 2
BETA 2A	1.300	1.360	0.200	-0.300	1.800	1.600	1.430	1.060	-1.400	BETA 2A
V 2	419.94	398.94	401.91	416.93	430.31	447.56	413.90	386.35	330.96	V 2
V 2A	299.01	282.45	276.54	320.55	356.63	388.44	342.36	323.12	310.72	V 2A
VZ 2	244.47	236.24	245.44	278.22	336.93	373.66	339.14	304.66	241.87	VZ 2
VZ 2A	298.93	282.36	276.52	320.50	356.33	388.06	341.97	322.78	310.30	VZ 2A
V-THETA 2	341.44	321.47	318.25	310.47	267.38	245.63	236.42	236.86	225.36	V-THETA 2
V-THETA 2A	6.78	6.70	0.97	-1.68	11.20	10.84	8.54	5.97	-7.59	V-THETA 2A
M 2	0.3723	0.3534	0.3565	0.3696	0.3824	0.3986	0.3679	0.3428	0.2927	M 2
M 2A	0.2633	0.2487	0.2436	0.2826	0.3155	0.3446	0.3030	0.2857	0.2745	M 2A
TURN(PR)	53.097	52.328	52.158	48.429	36.617	31.687	33.404	36.752	44.315	TURN(PR)
UUBAR	0.1198	0.0801	0.1161	0.0886	0.0514	0.0575	0.1655	0.1377	-0.1066	UUBAR
LOSS PARA	0.0403	0.0273	0.0400	0.0315	0.0190	0.0221	0.0656	0.0551	-0.0430	LOSS PARA
DFAC	0.5565	0.5608	0.5840	0.4977	0.3924	0.3351	0.3922	0.4041	0.3466	DFAC
EFFP	0.7687	0.8467	0.7891	0.7941	0.8450	0.7811	0.5008	0.5612	1.8642	EFFP
INCID	4.230	10.301	12.069	10.105	1.730	-2.546	-3.824	-5.307	-16.229	INCID
DEVM	10.132	12.672	11.510	10.675	12.812	13.265	13.870	13.739	3.455	DEVM
P 2	16.538	16.376	16.396	16.587	16.740	16.968	16.794	16.621	16.282	P 2
P 2A	16.357	16.267	16.235	16.454	16.657	16.867	16.546	16.442	16.382	P 2A
T 2	544.160	543.588	542.453	544.121	542.240	541.192	541.102	540.859	541.131	T 2
T 2A	544.160	543.588	542.453	544.121	542.240	541.192	541.102	540.859	541.131	T 2A
UUBAR FS	0.11921	0.1438	0.1315	0.1032	0.0979	0.0312	0.2424	0.2101	0.2029	UUBAR FS
P2 FS	16.491	16.476	16.419	16.610	16.822	16.920	16.946	16.739	16.646	P2 FS
LOSS PARA FS	0.0310	0.0490	0.0453	0.0367	0.0362	0.0120	0.0961	0.0841	0.0818	LOSS PARA FS

Table A-5. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 70.87 Equivalent Rotor Speed = 2983.57 Equivalent Weight Flow = 61.83
 Hub Radial Distortion

INLET											
	PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA		33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0		234.88	234.88	234.88	234.88	234.88	234.88	234.88	234.88	234.88	V 0
V 1		186.44	201.13	198.03	190.22	238.05	297.14	287.72	285.46	262.47	V 1
VZ 0		234.88	234.88	234.88	234.88	234.87	234.84	234.82	234.82	234.82	VZ 0
VZ 1		186.44	201.13	198.03	190.22	238.03	297.09	287.65	285.39	262.40	VZ 1
V-THETA 0		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0		0.2113	0.2113	0.2113	0.2113	0.2113	0.2113	0.2113	0.2113	0.2113	M 0
M 1		0.1675	0.1707	0.1779	0.1709	0.2142	0.2680	0.2594	0.2574	0.2364	M 1
TURN		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR		1.4304	1.2971	1.2971	1.3304	0.9462	0.3309	0.3820	0.4175	0.6530	UUBAR
DFAC		0.206	0.144	0.157	0.190	-0.013	-0.265	-0.225	-0.215	-0.117	DFAC
EFFP		-0.3470	-0.2585	-0.2864	-0.3479	0.0279	0.6486	0.5710	0.5370	0.2780	EFFP
INCID		-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0		15.062	15.062	15.062	15.062	15.062	15.062	15.062	15.062	15.062	P 0
P 1		14.402	14.464	14.464	14.448	14.626	14.910	14.886	14.870	14.761	P 1
T 0		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1		-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2		58.065	58.681	58.955	55.618	48.472	38.442	37.852	40.357	45.135	BETA 2
BETA(PR) 1		66.574	64.170	64.360	66.033	62.304	58.005	59.579	59.959	62.129	BETA(PR) 1
BETA(PR) 2		20.317	25.385	26.082	26.963	33.321	34.565	38.179	41.571	47.709	BETA(PR) 2
V 1		186.83	211.24	212.08	204.04	253.43	316.96	308.95	307.51	283.39	V 1
V 2		414.25	397.57	399.13	411.46	403.53	429.27	416.38	392.24	353.00	V 2
VZ 1		186.79	211.19	212.06	204.03	253.11	315.68	306.91	305.32	281.54	VZ 1
VZ 2		219.12	206.65	205.83	232.35	267.47	335.82	328.11	298.27	248.58	VZ 2
V-THETA 1		-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2		351.54	339.63	341.95	339.57	302.02	266.56	254.99	253.46	249.75	V-THETA 2
V(PR) 1		469.8	484.7	490.1	502.3	544.7	596.5	607.2	611.0	603.1	V(PR) 1
V(PR) 2		233.7	228.8	229.2	260.7	320.2	408.3	418.2	399.5	370.0	V(PR) 2
VTHETA PR1		-431.1	-436.3	-441.8	-459.0	-482.2	-505.3	-522.7	-528.0	-532.4	VTHETA PR1
VTHETA PR2		-81.1	-98.1	-100.8	-118.2	-175.8	-231.4	-258.0	-264.5	-273.3	VTHETA PR2
U 1		431.11	436.29	441.80	458.97	482.18	505.29	522.68	527.97	532.40	U 1
U 2		432.67	437.69	442.71	457.77	477.85	497.93	512.99	518.01	523.03	U 2
M 1		0.1678	0.1899	0.1906	0.1834	0.2282	0.2862	0.2789	0.2775	0.2555	M 1
M 2		0.3668	0.3520	0.3538	0.3641	0.3576	0.3814	0.3696	0.3477	0.3122	M 2
M(PR) 1		0.4220	0.4357	0.4405	0.4514	0.4904	0.5386	0.5480	0.5515	0.5437	M(PR) 1
M(PR) 2		0.2069	0.2026	0.2031	0.2307	0.2838	0.3628	0.3713	0.3542	0.3272	M(PR) 2
TURN(PR)		46.255	38.782	38.276	39.069	28.969	23.388	21.324	18.313	14.367	TURN(PR)
UUBAR		0.1811	0.2236	0.2214	0.1794	0.1525	0.0851	0.0867	0.1368	0.1762	UUBAR
LOSS PARA		0.0492	0.0592	0.0590	0.0492	0.0410	0.0236	0.0237	0.0359	0.0420	LOSS PARA
DFAC		0.7198	0.7339	0.7397	0.6887	0.5899	0.4646	0.4556	0.4902	0.5319	DFAC
EFFP		0.8397	0.8150	0.8628	0.8273	0.8250	0.8306	0.8119	0.7614	0.7070	EFFP
EFF		0.8363	0.8114	0.8601	0.8237	0.8216	0.8274	0.8085	0.7573	0.7024	EFF
INCID		14.144	13.255	13.782	13.991	8.306	2.014	0.894	-2.347	-6.026	INCID
DEVM		5.167	11.226	11.448	8.323	10.109	7.005	6.556	8.433	11.733	DEVM
P 1		14.402	14.464	14.464	14.448	14.626	14.910	14.886	14.870	14.761	P 1
P 2		16.659	16.560	16.606	16.729	16.739	16.988	16.914	16.739	16.493	P 2
T 1		518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2		545.044	543.906	542.977	545.632	543.524	542.520	542.540	542.275	542.490	T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2		58.549	58.318	57.811	55.704	47.855	38.338	38.572	41.556	47.124	BETA 2
BETA 2A		1.050	-0.650	-3.350	-4.530	1.650	3.001	2.001	2.801	2.851	BETA 2A
V 2		412.15	399.24	404.27	411.46	408.08	430.95	410.39	383.47	342.04	V 2
VZ 2A		274.39	256.93	251.07	288.34	316.09	353.44	333.82	317.14	310.52	VZ 2A
VZ 2		215.05	209.68	215.35	231.83	273.74	337.76	320.51	286.65	232.50	VZ 2
VZ 2A		274.34	256.91	250.63	287.40	315.85	352.75	333.35	316.48	309.81	VZ 2A
V-THETA 2		351.60	339.74	342.12	339.89	302.48	267.11	255.60	254.10	250.42	V-THETA 2
V-THETA 2A		5.03	-2.91	-14.67	-22.77	9.10	18.49	11.64	15.48	15.43	V-THETA 2A
M 2		0.3649	0.3536	0.3584	0.3641	0.3617	0.3829	0.3642	0.3398	0.3023	M 2
M 2A		0.2411	0.2259	0.2209	0.2534	0.2787	0.3126	0.2949	0.2800	0.2740	M 2A
TURN(PR)		57.499	58.967	61.159	60.227	46.186	35.304	36.524	38.704	44.217	TURN(PR)
UUBAR		0.1694	0.1705	0.2230	0.1919	0.1160	0.1160	0.1558	0.1108	-0.0648	UUBAR
LOSS PARA		0.0571	0.0580	0.0766	0.0680	0.0441	0.0446	0.0617	0.0443	-0.0261	LOSS PARA
DFAC		0.6176	0.6489	0.6830	0.6130	0.4925	0.4032	0.4235	0.4234	0.3710	DFAC
EFFP		0.7088	0.7207	0.6510	0.6390	0.7163	0.6643	0.5609	0.6642	1.3535	EFFP
INCID		8.382	14.930	17.521	17.673	11.149	2.470	-0.135	-1.617	-12.080	INCID
DEVM		9.882	10.662	7.960	6.445	12.662	14.665	14.440	15.478	7.702	DEVM
P 2		16.659	16.560	16.606	16.729	16.739	16.988	16.914	16.739	16.493	P 2
P 2A		16.411	16.326	16.291	16.448	16.567	16.799	16.683	16.597	16.559	P 2A
T 2		545.044	543.906	542.977	545.632	543.524	542.520	542.540	542.275	542.490	T 2
T 2A		545.044	543.906	542.977	545.632	543.524	542.520	542.540	542.275	542.490	T 2A
UUBAR FS		0.1559	0.2184	0.2420	0.2213	0.1397	0.0788	0.2346	0.1877	0.1949	UUBAR FS
P2 FS		16.635	16.625	16.640	16.784	16.774	16.922	17.066	16.861	16.820	P2 FS
LOSS PARA FS		0.0575	0.0709	0.0831	0.0784	0.0517	0.0303	0.0929	0.0750	0.0785	LOSS PARA FS

Table A-6. Blade Element Performance
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 99.94 Equivalent Rotor Speed = 4207.34 Equivalent Weight Flow = 114.99
 Tip Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	53.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	430.35	430.35	430.35	430.35	430.35	430.35	430.35	430.35	430.35	V 0
V 1	571.71	577.34	569.83	571.95	562.67	415.67	381.28	374.57	363.49	V 1
VZ 0	430.35	430.35	430.35	430.35	430.32	430.28	430.24	430.24	430.24	VZ 0
VZ 1	571.71	577.34	569.83	571.94	562.63	415.60	381.19	374.47	363.40	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3913	0.3913	0.3913	0.3913	0.3913	0.3913	0.3913	0.3913	0.3913	M 0
M 1	0.5261	0.5315	0.5242	0.5263	0.5173	0.3776	0.3456	0.3393	0.3291	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.7369	0.5087	0.4644	0.4211	0.5760	1.5513	1.7482	1.7652	1.8026	UUBAR
DFAC	-0.328	-0.342	-0.324	-0.329	-0.307	0.034	0.114	0.130	0.155	DFAC
EFFP	0.5196	0.6239	0.6315	0.6585	0.5640	-0.0444	-0.1355	-0.1534	-0.1814	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	16.118	16.118	16.118	16.118	16.118	16.118	16.118	16.118	16.118	P 0
P 1	14.928	15.297	15.368	15.438	15.188	13.613	13.295	13.268	13.207	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	30.064	33.063	31.379	29.888	29.797	35.294	41.335	44.664	50.519	BETA 2
BETA (PR) 1	46.666	44.882	44.832	45.731	48.044	58.065	60.995	61.604	62.439	BETA (PR) 1
BETA (PR) 2	24.016	27.185	26.852	27.096	28.808	33.705	39.275	42.857	48.831	BETA (PR) 2
V 1	573.29	617.92	626.75	630.94	612.06	445.93	411.35	405.38	394.41	V 1
V 2	643.44	632.43	655.16	689.31	692.04	626.51	568.64	536.98	492.77	V 2
VZ 1	573.18	617.78	626.68	630.91	611.30	444.13	408.64	402.49	391.84	VZ 1
VZ 2	520.50	530.00	559.32	600.59	600.28	510.69	428.19	381.21	312.86	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	378.22	345.01	341.13	338.25	343.74	361.51	374.87	376.77	379.79	V-THETA 2
V (PR) 1	835.6	872.0	883.7	903.9	914.9	840.6	844.1	847.7	848.1	V (PR) 1
V (PR) 2	569.9	595.9	626.9	674.7	685.4	614.7	551.6	521.0	476.0	V (PR) 2
VTHETA PR1	-607.9	-615.2	-623.0	-647.2	-680.0	-712.5	-737.1	-744.5	-750.8	VTHETA PR1
VTHETA PR2	-231.9	-272.2	-283.2	-307.3	-330.1	-340.7	-348.5	-353.7	-357.8	VTHETA PR2
U 1	607.93	615.24	623.01	647.22	679.96	712.55	737.06	744.53	750.77	U 1
U 2	610.14	617.22	624.30	645.53	673.85	702.16	723.40	730.48	737.56	U 2
M 1	0.5276	0.5712	0.5800	0.5841	0.5655	0.4059	0.3735	0.3680	0.3578	M 1
M 2	0.5754	0.5660	0.5884	0.6191	0.6210	0.5575	0.5016	0.4718	0.4307	M 2
M (PR) 1	0.7690	0.8061	0.8177	0.8368	0.8452	0.7652	0.7665	0.7695	0.7693	M (PR) 1
M (PR) 2	0.5096	0.5333	0.5631	0.6060	0.6150	0.5470	0.4866	0.4578	0.4160	M (PR) 2
TURN (PR)	22.666	17.692	17.977	18.635	19.215	24.307	21.651	18.678	13.556	TURN (PR)
UUBAR	0.1555	0.1794	0.1401	0.1063	0.0967	0.0007	0.0968	0.1587	0.2315	UUBAR
LOSS PARA	0.0411	0.0466	0.0371	0.0291	0.0273	0.0002	0.0260	0.0408	0.0540	LOSS PARA
DFAC	0.4494	0.4329	0.4053	0.3686	0.3713	0.4123	0.4992	0.5397	0.5959	DFAC
EFFP	0.8445	0.7483	0.8392	0.8244	0.8661	1.0640	0.9321	0.8455	0.7445	EFFP
EFF	0.6400	0.7423	0.8350	0.8194	0.8619	1.0666	0.9296	0.8401	0.7363	EFF
INCLD	-5.746	-6.034	-5.747	-6.311	-5.961	2.074	2.316	-0.696	-5.715	INCLD
DEVM	8.666	13.026	12.218	8.455	5.597	6.145	7.651	9.718	12.855	DEVM
P 1	14.928	15.297	15.368	15.438	15.188	13.613	13.295	13.268	13.207	P 1
P 2	18.209	18.078	18.407	18.862	18.813	17.902	17.244	16.915	16.498	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	554.763	552.855	551.561	555.367	556.643	558.285	561.743	563.066	564.931	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.237	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	36.277	32.873	30.800	29.424	29.327	35.162	42.257	46.241	53.200	BETA 2
BETA 2A	-0.700	0.400	1.100	1.200	-0.350	1.400	2.401	1.851	0.400	BETA 2A
V 2	639.34	635.86	666.56	689.31	703.23	629.55	559.36	523.45	475.91	V 2
V 2A	514.37	530.87	555.80	613.64	621.99	574.26	477.17	448.35	437.64	V 2A
VZ 2	515.41	534.03	572.52	600.29	612.79	514.24	413.60	361.70	284.87	VZ 2
VZ 2A	514.33	530.84	555.68	613.42	621.77	573.75	478.37	447.71	437.17	VZ 2A
V-THETA 2	376.29	345.12	341.30	338.57	344.26	362.25	375.78	377.73	380.79	V-THETA 2
V-THETA 2A	-6.28	3.71	10.67	12.85	-3.80	14.03	19.97	14.46	3.05	V-THETA 2A
M 2	0.5715	0.5693	0.5994	0.6191	0.6318	0.5603	0.4930	0.4594	0.4154	M 2
M 2A	0.4546	0.4707	0.4944	0.5468	0.5541	0.5084	0.4178	0.3913	0.3810	M 2A
TURN (PR)	36.977	32.472	29.699	28.218	29.661	33.729	39.808	44.339	52.743	TURN (PR)
UUBAR	0.1977	0.1138	0.1164	0.0492	0.0349	-0.0361	0.0848	0.0660	-0.0843	UUBAR
LOSS PARA	0.0666	0.0387	0.0400	0.0175	0.0129	-0.0139	0.0336	0.0264	-0.0340	LOSS PARA
DFAC	0.3981	0.3480	0.3371	0.2781	0.2994	0.3019	0.4005	0.4227	0.4024	DFAC
EFFP	0.4975	0.6664	0.6648	0.7961	0.8632	1.1879	0.7162	0.7719	1.5053	EFFP
INCLD	-13.890	-10.515	-9.490	-8.606	-7.376	-0.704	3.549	3.069	-6.002	INCLD
DEVM	8.132	11.712	12.410	12.175	10.662	13.066	14.840	14.529	5.254	DEVM
P 2	18.209	18.078	18.407	18.802	18.813	17.902	17.244	16.915	16.498	P 2
P 2A	17.494	17.672	17.945	18.591	18.658	18.026	17.020	16.765	16.654	P 2A
T 2	554.763	552.855	551.561	555.367	556.643	558.285	561.743	563.066	564.931	T 2
T 2A	554.763	552.855	551.561	555.367	556.643	558.285	561.743	563.066	564.931	T 2A
UUBAR FS	0.1363	0.1273	0.0875	0.0584	0.0560	0.0519	0.2127	0.2017	0.1763	UUBAR FS
P2 FS	17.452	18.133	18.281	18.843	18.912	18.221	17.672	17.302	17.089	P2 FS
LOSS PARA FS	0.0459	0.0433	0.0300	0.0207	0.0207	0.0200	0.0842	0.0806	0.0711	LOSS PARA FS

Table A-6. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 100.05 Equivalent Rotor Speed = 4211.98 Equivalent Weight Flow = 109.16
 Tip Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
JIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA C	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	412.31	412.31	412.31	412.31	412.31	412.31	412.31	412.31	412.31	V 0
V 1	530.91	545.24	542.60	551.90	529.75	407.53	357.23	357.79	348.31	V 1
VZ 0	412.30	412.30	412.31	412.30	412.28	412.24	412.20	412.19	412.20	VZ 0
VZ 1	530.91	545.24	542.60	551.89	529.71	407.48	357.14	357.69	348.22	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M C	0.3744	0.3744	0.3744	0.3744	0.3744	0.3744	0.3744	0.3744	0.3744	M 0
M 1	0.4867	0.5004	0.4979	0.5069	0.4855	0.3700	0.3233	0.3238	0.3151	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.7038	0.4345	0.3865	0.3666	0.5341	1.3972	1.6207	1.6244	1.6701	UUBAR
DFAC	-0.288	-0.322	-0.316	-0.339	-0.285	0.012	0.134	0.132	0.155	DFAC
EFFP	0.4927	0.6448	0.6665	0.6955	0.5606	-0.0167	-0.1773	-0.1748	-0.2009	EFFP
INCLD	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCLD
DEVH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVH
P 0	15.870	15.870	15.870	15.870	15.870	15.870	15.870	15.870	15.870	P 0
P 1	14.839	15.234	15.304	15.333	15.088	13.824	13.497	13.492	13.425	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	39.598	36.366	34.300	32.586	34.107	41.370	49.653	54.338	58.542	BETA 2
BETA(PR) 1	48.831	46.643	46.387	46.878	49.899	58.612	62.612	62.741	63.476	BETA(PR) 1
BETA(PR) 2	28.205	27.304	26.316	25.700	28.609	33.825	41.405	45.037	48.535	BETA(PR) 2
V 1	532.30	581.71	594.28	606.83	573.93	436.98	384.82	386.78	377.59	V 1
V 2	581.40	612.64	642.95	684.55	666.63	604.68	544.02	524.40	511.97	V 2
VZ 1	532.20	581.58	594.21	606.80	573.22	435.21	382.29	384.03	375.13	VZ 1
VZ 2	447.97	493.30	531.12	576.77	551.74	453.29	351.73	305.35	266.92	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	370.57	363.24	362.31	368.67	373.66	399.20	414.05	425.53	436.29	V-THETA 2
V(PR) 1	808.5	847.2	861.5	887.7	890.4	836.5	832.2	839.7	841.1	V(PR) 1
V(PR) 2	568.4	555.2	592.5	640.1	628.8	546.4	469.8	432.9	403.7	V(PR) 2
VTHETA PR1	-608.6	-615.9	-623.7	-647.9	-680.7	-713.3	-737.9	-745.3	-751.6	VTHETA PR1
VTHETA PR2	-240.2	-254.7	-262.7	-277.6	-300.9	-303.7	-310.1	-305.8	-302.1	VTHETA PR2
U 1	608.60	615.92	623.69	647.93	680.71	713.33	737.88	745.35	751.60	U 1
U 2	610.81	617.90	624.98	646.24	674.59	702.94	724.20	731.28	738.37	U 2
M 1	0.4880	0.5358	0.5480	0.5603	0.5282	0.3975	0.3489	0.3507	0.3421	M 1
M 2	0.5151	0.5453	0.5748	0.6129	0.5951	0.5393	0.4771	0.4585	0.4463	M 2
M(PR) 1	0.7413	0.7803	0.7945	0.8197	0.8194	0.7610	0.7544	0.7613	0.7613	M(PR) 1
M(PR) 2	0.4503	0.4942	0.5298	0.5732	0.5613	0.4837	0.4120	0.3785	0.3519	M(PR) 2
TURN(PR) 1	20.623	19.334	20.069	21.177	21.270	24.736	21.144	17.639	14.892	TURN(PR) 1
UUBAR	0.1547	0.1499	0.1046	0.0683	0.0948	0.0681	0.1727	0.2377	0.2781	UUBAR
LOSS PARA	0.0395	0.0391	0.0278	0.0189	0.0268	0.0190	0.0450	0.0589	0.0652	LOSS PARA
DFAC	0.5043	0.4706	0.4372	0.4065	0.4284	0.5062	0.6066	0.6605	0.7021	DFAC
EFFP	0.7632	0.7822	0.8837	0.9114	0.9044	1.0091	0.8736	0.8089	0.7667	EFFP
EFF	0.7565	0.7762	0.8802	0.9084	0.9011	1.0094	0.8687	0.8019	0.7583	EFF
INCLD	-3.600	-4.274	-4.192	-5.165	-4.104	2.622	3.938	0.445	-4.674	INCLD
DEVH	13.055	13.145	11.682	7.059	5.399	6.265	9.780	11.898	12.559	DEVH
P 1	14.839	15.234	15.304	15.333	15.088	13.824	13.497	13.492	13.425	P 1
P 2	18.069	18.468	18.868	19.359	19.138	18.290	17.599	17.388	17.248	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	558.379	556.493	555.025	558.034	559.167	561.488	565.731	567.334	569.475	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	39.883	36.158	33.664	32.627	33.582	41.218	50.887	56.585	62.318	BETA 2
BETA 2A	-1.100	1.150	1.850	1.500	-0.100	1.621	1.951	1.901	1.401	BETA 2A
V 2	578.01	615.86	653.95	684.55	676.87	607.51	535.30	511.39	494.22	V 2
V 2A	475.21	477.78	497.12	577.54	578.34	505.21	426.41	402.66	400.67	V 2A
VZ 2	443.54	497.23	544.26	576.43	563.63	456.65	337.46	281.46	229.49	VZ 2
VZ 2A	475.12	477.67	496.84	577.26	578.14	504.72	425.81	402.08	400.13	VZ 2A
V-THETA 2	370.63	363.36	362.49	369.02	374.23	400.02	415.05	426.61	437.45	V-THETA 2
V-THETA 2A	-9.12	9.59	16.05	15.12	-1.01	14.28	14.50	13.34	9.78	V-THETA 2A
M 2	0.5119	0.5483	0.5853	0.6129	0.6049	0.5379	0.4691	0.4466	0.4302	M 2
M 2A	0.4173	0.4204	0.4387	0.5116	0.5118	0.4434	0.3707	0.3490	0.3466	M 2A
TURN(PR) 1	40.983	35.007	31.813	31.120	33.665	39.563	48.889	54.637	60.870	TURN(PR) 1
UUBAR	0.0139	0.1174	0.1570	0.0620	0.0160	0.0205	0.0386	0.0291	-0.0173	UUBAR
LOSS PARA	0.0047	0.0400	0.0540	0.0220	0.0059	0.0079	0.0153	0.0116	-0.0070	LOSS PARA
DFAC	0.3992	0.4199	0.4224	0.3404	0.3515	0.4141	0.5016	0.5377	0.5404	DFAC
EFFP	0.9614	0.7351	0.6688	0.8135	0.9489	0.9408	0.9030	0.9291	1.0468	EFFP
INCLD	-10.284	-7.230	-6.626	-5.404	-3.122	5.349	12.180	13.417	3.124	INCLD
DEVH	7.732	12.462	13.160	12.475	10.912	13.286	14.390	14.579	6.253	DEVH
P 2	18.069	18.468	18.868	19.359	19.138	18.290	17.599	17.388	17.248	P 2
P 2A	18.026	18.068	18.254	19.090	19.071	18.223	17.504	17.323	17.283	P 2A
T 2	558.379	556.493	555.025	558.034	559.167	561.488	565.731	567.334	569.475	T 2
T 2A	558.379	556.493	555.025	558.034	559.167	561.488	565.731	567.334	569.475	T 2A
UUBAR FS	0.1095	0.1241	0.1077	0.0405	0.0381	0.1127	0.1600	0.1305	0.1170	UUBAR FS
P2 FS	18.386	18.494	18.651	19.261	19.234	18.629	17.954	17.647	17.560	P2 FS
LOSS PARA FS	0.0370	0.0422	0.0370	0.0143	0.0140	0.0434	0.0634	0.0520	0.0473	LOSS PARA FS

Table A-6. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 100.29 Equivalent Rotor Speed = 4222.38 Equivalent Weight Flow = 103.95
 Tip Radial Distortion

INLET											
	PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
	DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
	BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
	V 0	394.21	394.21	394.21	394.21	394.21	394.21	394.21	394.21	394.21	V 0
	V 1	510.50	530.28	528.12	524.32	505.17	378.94	337.82	335.08	319.04	V 1
	VZ 0	394.21	394.21	394.21	394.21	394.18	394.15	394.11	394.11	394.11	VZ 0
	VZ 1	510.50	530.28	528.12	524.31	505.13	378.88	337.74	334.99	318.96	VZ 1
	V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	M 0	0.3576	0.3576	0.3576	0.3576	0.3576	0.3576	0.3576	0.3576	0.3576	M 0
	M 1	0.4671	0.4861	0.4840	0.4803	0.4620	0.3434	0.3054	0.3029	0.2881	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.6927	0.4039	0.3460	0.3444	0.5238	1.3429	1.5601	1.5762	1.6246	UUBAR
	DFAC	-0.295	-0.345	-0.340	-0.330	-0.281	0.039	0.143	0.150	0.191	DFAC
	EFFP	0.5031	0.6781	0.7076	0.7016	0.5612	-0.0597	-0.2011	-0.2091	-0.2626	EFFP
	INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
	DEVN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVN
	P 0	15.713	15.713	15.713	15.713	15.713	15.713	15.713	15.713	15.713	P 0
	P 1	14.793	15.177	15.254	15.256	15.017	13.929	13.640	13.618	13.554	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
ROTOR -L.E.	BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
ROTOR -T.E.	BETA 2	41.396	38.371	35.812	33.635	36.213	45.751	56.372	60.992	64.322	BETA 2
	BETA(PR) 1	50.013	47.547	47.282	48.518	51.377	60.531	63.977	64.324	65.520	BETA(PR) 1
	BETA(PR) 2	26.405	26.237	25.619	25.815	28.427	34.795	44.682	47.663	50.920	BETA(PR) 2
	V 1	511.81	564.97	577.38	574.32	545.86	405.71	383.54	361.78	345.31	V 1
	V 2	592.36	615.05	643.28	677.21	658.39	587.20	526.47	521.55	516.22	V 2
	VZ 1	511.71	564.84	577.31	574.29	545.19	404.07	381.15	359.21	343.06	VZ 1
	VZ 2	444.33	482.19	521.65	563.82	531.60	409.35	291.27	252.70	223.54	VZ 2
	V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
	V-THETA 2	391.70	381.77	376.38	375.10	388.83	420.22	437.93	455.73	464.93	V-THETA 2
	V(PR) 1	796.4	836.9	851.1	867.0	873.9	822.2	824.2	830.2	828.8	V(PR) 1
	V(PR) 2	496.1	537.6	578.5	626.3	604.1	499.1	410.3	375.8	355.1	V(PR) 2
	VTHETA PR1	-610.1	-617.4	-625.2	-649.5	-682.4	-715.1	-739.7	-747.2	-753.5	VTHETA PR1
	VTHETA PR2	-220.6	-237.6	-250.1	-272.7	-287.4	-284.5	-288.1	-277.4	-275.3	VTHETA PR2
	U 1	610.10	617.44	625.23	649.53	682.39	715.09	739.70	747.19	753.45	U 1
	U 2	612.32	619.42	626.53	647.84	676.26	704.67	725.98	733.09	740.19	U 2
	M 1	0.4684	0.5195	0.5316	0.5286	0.5010	0.3683	0.3291	0.3275	0.3123	M 1
	M 2	0.5247	0.5468	0.5743	0.6051	0.5863	0.5181	0.4601	0.4549	0.4491	M 2
	M(PR) 1	0.7288	0.7696	0.7835	0.7980	0.8021	0.7463	0.7462	0.7515	0.7496	M(PR) 1
	M(PR) 2	0.4394	0.4779	0.5165	0.5596	0.5380	0.4404	0.3586	0.3278	0.3089	M(PR) 2
	TURN(PR)	23.603	21.306	21.660	22.703	22.930	25.689	19.238	16.604	14.558	TURN(PR)
	UUBAR	0.1370	0.1437	0.0905	0.0462	0.0979	0.1370	0.2514	0.3009	0.3264	UUBAR
	LOSS PARA	0.0355	0.0378	0.0242	0.0128	0.0277	0.0378	0.0621	0.0711	0.0729	LOSS PARA
	DFAC	0.5198	0.4916	0.4516	0.4105	0.4514	0.5636	0.6849	0.7380	0.7685	DFAC
	EFFP	0.8203	0.8144	0.9111	0.9322	0.9130	0.9535	0.8144	0.7833	0.7561	EFFP
	EFF	0.8147	0.8089	0.9082	0.9297	0.9098	0.9516	0.8074	0.7752	0.7470	EFF
	INCID	-2.419	-3.369	-3.296	-3.524	-2.626	4.545	5.308	2.035	-2.622	INCID
	DEVN	11.256	12.077	10.985	7.174	5.217	7.235	13.056	14.524	14.945	DEVN
	P 1	14.793	15.177	15.254	15.256	15.017	13.929	13.640	13.618	13.554	P 1
	P 2	18.393	18.693	19.099	19.527	19.265	18.329	17.666	17.613	17.559	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	559.589	558.039	556.590	559.466	560.751	563.178	567.971	569.718	572.007	T 2
STATOR E											
	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATOR-L.E.	BETA 2	41.706	38.147	35.140	33.677	35.657	45.584	57.941	63.969	69.361	BETA 2
STATOR-T.E.	BETA 2A	-1.100	1.230	2.000	2.200	1.530	0.290	-0.900	0.150	0.050	BETA 2A
	V 2	588.86	618.29	654.28	677.21	668.33	589.89	518.24	508.66	498.26	V 2
	V 2A	476.57	461.09	476.20	558.56	550.59	470.87	404.71	388.23	392.14	V 2A
	VZ 2	439.62	486.23	535.01	563.46	542.80	412.59	274.94	223.15	175.58	VZ 2
	VZ 2A	470.49	460.97	475.89	558.07	550.21	470.59	404.33	387.88	391.73	VZ 2A
	V-THETA 2	391.77	381.90	376.57	375.46	389.42	421.08	438.99	456.89	466.16	V-THETA 2
	V-THETA 2A	-9.03	9.90	16.62	21.44	14.70	2.38	-6.35	1.02	0.34	V-THETA 2A
	M 2	0.5214	0.5498	0.5848	0.6051	0.5958	0.5206	0.4526	0.4432	0.4829	M 2
	M 2A	0.4127	0.4046	0.4189	0.4933	0.4854	0.4116	0.3507	0.3355	0.3383	M 2A
	TURN(PR)	42.805	36.916	33.138	31.471	34.109	45.258	58.795	63.776	69.271	TURN(PR)
	UUBAR	0.0196	0.1275	0.1769	0.0670	0.0348	0.0232	-0.0078	0.0231	-0.0050	UUBAR
	LOSS PARA	0.0066	0.0434	0.0609	0.0238	0.0129	0.0089	-0.0031	0.0092	-0.0020	LOSS PARA
	DFAC	0.4302	0.4592	0.4618	0.3614	0.3845	0.4763	0.5613	0.5972	0.5922	DFAC
	EFFP	0.9512	0.7414	0.6638	0.8174	0.9055	0.9425	1.0185	0.9488	1.0123	EFFP
	INCID	-8.462	-5.240	-5.151	-4.353	-1.048	9.715	19.238	20.807	10.177	INCID
	DEVN	7.732	13.310	13.175	13.175	12.542	11.956	11.541	12.830	4.904	DEVN
	P 2	18.393	18.693	19.099	19.527	19.265	18.329	17.666	17.613	17.559	P 2
	P 2A	18.332	18.250	18.401	19.240	19.121	18.257	17.684	17.561	17.570	P 2A
	T 2	559.589	558.039	556.590	559.466	560.751	563.178	567.971	569.718	572.007	T 2
	T 2A	559.589	558.039	556.590	559.466	560.751	563.178	567.971	569.718	572.007	T 2A
	UUBAR FS	0.0824	0.1285	0.1179	0.0341	0.0506	0.1175	0.1778	0.1425	0.1360	UUBAR FS
	P2 FS	18.605	18.696	18.835	19.380	19.332	18.659	18.189	17.921	17.905	P2 FS
	LOSS PARA FS	0.0277	0.0437	0.0406	0.0121	0.0187	0.0451	0.0706	0.0567	0.0544	LOSS PARA FS

Table A-6. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 90.09 Equivalent Rotor Speed = 3792.92 Equivalent Weight Flow = 99.16
 Tip Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	376.75	376.75	376.75	376.75	376.75	376.75	376.75	376.75	376.75	V 0
V 1	474.96	496.76	493.35	490.75	471.16	356.30	309.20	309.46	297.71	V 1
VZ 0	376.75	376.75	376.75	376.75	376.73	376.69	376.66	376.65	376.65	VZ 0
VZ 1	474.96	496.76	493.35	490.75	471.13	356.24	309.13	309.38	297.63	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.3414	0.3414	0.3414	0.3414	0.3414	0.3414	0.3414	0.3414	0.3414	M 0
M 1	0.4333	0.4540	0.4508	0.4483	0.4297	0.3824	0.2791	0.2793	0.2686	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.6800	0.3857	0.3294	0.3286	0.5131	1.3125	1.5198	1.5339	1.5971	UUBAR
DFAC	-0.261	-0.319	-0.309	-0.303	-0.251	0.054	0.179	0.179	0.210	DFAC
EFFP	0.4721	0.6670	0.6945	0.6897	0.5331	-0.0873	-0.2686	-0.2642	-0.3003	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.596	15.596	15.596	15.596	15.596	15.596	15.596	15.596	15.596	P 0
P 1	14.774	15.130	15.198	15.199	14.976	14.010	13.760	13.743	13.666	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	39.598	36.060	33.976	32.487	34.095	41.176	48.522	52.746	56.815	BETA 2
BETA(PR) 1	49.022	46.423	46.276	47.457	50.410	59.430	63.579	63.725	64.707	BETA(PR) 1
BETA(PR) 2	26.247	26.494	26.223	25.977	28.533	33.943	39.096	44.415	47.649	BETA(PR) 2
V 1	476.13	527.88	537.23	535.49	507.54	380.98	332.33	333.73	321.93	V 1
V 2	540.70	561.18	581.84	613.82	601.23	543.96	500.48	474.70	463.09	V 2
VZ 1	476.04	527.76	537.17	535.46	506.92	379.44	330.15	331.36	319.83	VZ 1
VZ 2	416.61	453.63	482.49	517.75	497.68	408.98	331.01	286.98	253.20	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	344.62	330.31	325.15	329.68	336.89	357.73	374.43	377.34	387.15	V-THETA 2
V(PR) 1	726.0	765.7	777.2	792.0	795.8	746.8	742.9	749.6	749.5	V(PR) 1
V(PR) 2	464.5	506.9	537.9	576.0	566.7	493.7	432.9	402.5	376.5	V(PR) 2
VTHETA PR1	-546.1	-554.6	-561.6	-583.5	-613.0	-642.4	-664.5	-671.2	-676.8	VTHETA PR1
VTHETA PR2	-205.4	-226.1	-237.7	-252.3	-270.6	-275.3	-277.7	-281.2	-277.8	VTHETA PR2
U 1	548.05	554.64	561.64	583.47	612.98	642.36	664.46	671.19	676.82	U 1
U 2	550.04	556.42	562.80	581.95	607.47	633.00	652.14	658.53	664.91	U 2
M 1	0.4344	0.4838	0.4927	0.4911	0.4643	0.3453	0.3003	0.3016	0.2908	M 1
M 2	0.4803	0.5001	0.5202	0.5490	0.5366	0.4821	0.4404	0.4165	0.4052	M 2
M(PR) 1	0.6624	0.7017	0.7128	0.7262	0.7280	0.6769	0.6714	0.6775	0.6770	M(PR) 1
M(PR) 2	0.4126	0.4518	0.4808	0.5152	0.5058	0.4375	0.3810	0.3531	0.3294	M(PR) 2
TURN(PR) 1	22.772	19.924	20.051	21.479	21.857	25.437	23.523	19.250	17.015	TURN(PR) 1
UUBAR	0.1316	0.1354	0.0966	0.0631	0.0815	0.0657	0.1628	0.2205	0.2581	UUBAR
LOSS PARA	0.0342	0.0355	0.0257	0.0175	0.0231	0.0183	0.0433	0.0552	0.0616	LOSS PARA
DFAC	0.4979	0.4647	0.4323	0.4007	0.4236	0.4989	0.5906	0.6379	0.6791	DFAC
EFFP	0.7965	0.7872	0.8682	0.8866	0.8978	0.9772	0.8589	0.7862	0.7486	EFFP
EFF	0.7915	0.7823	0.8650	0.8835	0.8949	0.9764	0.8544	0.7798	0.7412	EFF
INCID	-3.409	-4.494	-4.302	-4.586	-3.593	3.441	4.909	1.433	-3.438	INCID
DEVM	11.097	12.334	11.589	7.337	5.323	6.383	8.372	11.276	11.672	DEVM
P 1	14.774	15.130	15.198	15.199	14.976	14.010	13.760	13.743	13.666	P 1
P 2	17.555	17.789	18.043	18.383	18.256	17.598	17.152	16.918	16.802	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	551.800	550.090	548.839	551.488	552.438	554.455	558.150	559.406	561.241	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	39.865	35.868	33.407	32.527	33.626	41.041	49.647	54.764	60.183	BETA 2
BETA 2A	-0.900	1.000	1.900	1.100	-0.000	1.600	2.081	2.151	1.901	BETA 2A
V 2	537.74	563.94	590.87	613.82	609.56	546.33	492.89	463.45	447.63	V 2
V 2A	436.57	441.89	462.48	527.43	525.17	463.42	393.31	373.71	372.74	V 2A
VZ 2	412.75	456.99	493.23	517.44	507.33	411.77	318.91	267.21	222.46	VZ 2
VZ 2A	436.52	441.81	462.21	527.26	525.00	462.97	392.73	373.11	372.14	VZ 2A
V-THETA 2	344.68	330.42	325.31	329.99	337.40	358.46	375.34	378.30	388.17	V-THETA 2
V-THETA 2A	-6.66	7.71	15.33	10.12	-0.00	12.93	14.27	14.01	12.35	V-THETA 2A
M 2	0.4775	0.5027	0.5287	0.5490	0.5445	0.4843	0.4335	0.4063	0.3913	M 2
M 2A	0.3847	0.3901	0.4094	0.4681	0.4656	0.4081	0.3436	0.3257	0.3243	M 2A
TURN(PR) 1	46.765	34.867	31.505	31.421	33.609	39.406	47.518	52.565	58.233	TURN(PR) 1
UUBAR	0.0507	0.1201	0.1334	0.0452	0.0213	0.0130	0.0807	0.0356	-0.0151	UUBAR
LOSS PARA	0.0204	0.0409	0.0459	0.0161	0.0079	0.0050	0.0320	0.0142	-0.0061	LOSS PARA
DFAC	0.4084	0.4114	0.3981	0.3263	0.3441	0.3965	0.4939	0.5099	0.5080	DFAC
EFFP	0.8369	0.7159	0.6880	0.8466	0.9265	0.9578	0.7931	0.9046	1.0464	EFFP
INCID	-0.302	-7.520	-6.883	-5.503	-3.078	5.173	10.939	11.595	0.987	INCID
DEVM	7.952	12.312	13.210	12.075	-0.102	13.265	14.520	14.829	6.753	DEVM
P 2	17.555	17.789	18.043	18.383	18.256	17.598	17.152	16.918	16.802	P 2
P 2A	17.401	17.450	17.626	18.229	18.185	17.564	16.984	16.854	16.827	P 2A
T 2	551.800	550.090	548.839	551.488	552.438	554.455	558.150	559.406	561.241	T 2
T 2A	551.800	550.090	548.839	551.488	552.438	554.455	558.150	559.406	561.241	T 2A
UUBAR FS	0.1296	0.1312	0.1089	0.0282	0.0208	0.0675	0.1617	0.1244	0.1155	UUBAR FS
P2 FS	17.755	17.824	17.957	18.323	18.254	17.750	17.352	17.103	17.050	P2 FS
LOSS PARA FS	0.0435	0.0447	0.0374	0.0100	0.0077	0.0259	0.0641	0.0496	0.0466	LOSS PARA FS

Table A-6. Blade Element Performance (Continued)
 Stage E; Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 89.78 Equivalent Rotor Speed = 3779.77 Equivalent Weight Flow = 94.04
 Tip Radial Distortion

INLET											
PCT SPAN	96.60	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN	
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA	
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0	
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1	
V 0	357.56	357.56	357.56	357.56	357.56	357.56	357.56	357.56	357.56	V 0	
V 1	450.23	466.52	465.13	464.91	444.47	330.84	289.44	285.22	265.69	V 1	
VZ 0	357.56	357.56	357.56	357.55	357.53	357.50	357.47	357.46	357.46	VZ 0	
VZ 1	450.23	466.52	465.13	464.90	444.43	330.78	289.36	285.14	265.62	VZ 1	
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0	
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1	
M 0	0.3236	0.3236	0.3236	0.3236	0.3236	0.3236	0.3236	0.3236	0.3236	M 0	
M 1	0.4100	0.4254	0.4240	0.4238	0.4046	0.2990	0.2610	0.2571	0.2393	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.6263	0.3764	0.3216	0.3219	0.5087	1.2867	1.4968	1.5065	1.5795	UUBAR	
DFAC	-0.259	-0.305	-0.301	-0.300	-0.243	0.075	0.191	0.202	0.257	DFAC	
EFFP	0.4907	0.6602	0.6923	0.6911	0.5258	-0.1256	-0.2947	-0.3131	-0.3869	EFFP	
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID	
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM	
P 0	15.484	15.484	15.484	15.484	15.484	15.484	15.484	15.484	15.484	P 0	
P 1	14.865	15.076	15.136	15.135	14.933	14.090	13.862	13.852	13.773	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR E											
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN	
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA	
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1	
BETA 2	40.995	37.863	35.787	34.085	36.501	44.862	55.630	59.818	62.744	BETA 2	
BETA(PR) 1	50.437	48.179	47.942	48.976	52.003	61.200	64.998	65.483	67.091	BETA(PR) 1	
BETA(PR) 2	25.795	25.981	25.480	25.796	28.516	34.535	43.499	46.557	47.684	BETA(PR) 2	
V 1	451.31	494.67	505.05	505.91	477.79	353.34	310.84	307.24	286.90	V 1	
V 2	537.00	555.35	577.42	603.66	587.06	529.19	477.96	470.76	476.37	V 2	
VZ 1	451.22	494.55	504.99	505.88	477.20	351.91	308.80	305.06	285.03	VZ 1	
VZ 2	405.29	438.42	468.39	499.94	471.73	374.73	269.54	236.46	218.00	VZ 2	
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1	
V-THETA 2	352.25	340.84	337.65	338.30	349.07	372.92	394.10	406.57	423.16	V-THETA 2	
VIPR) 1	708.5	741.7	753.9	770.7	775.5	731.2	731.5	736.1	733.0	VIPR) 1	
VIPR) 2	450.2	487.7	518.9	555.3	537.1	455.5	372.2	344.5	324.3	VIPR) 2	
VTHETA PR1	-546.2	-552.7	-559.7	-581.4	-610.9	-640.1	-662.2	-668.9	-674.5	VTHETA PR1	
VTHETA PR2	-195.9	-213.6	-223.2	-241.6	-256.3	-257.9	-255.8	-249.7	-239.4	VTHETA PR2	
U 1	546.15	552.72	559.69	581.45	610.86	640.14	662.16	668.86	674.47	U 1	
U 2	548.13	554.49	560.85	579.93	605.37	630.80	649.88	656.24	662.60	U 2	
M 1	0.4110	0.4520	0.4619	0.4627	0.4360	0.3197	0.2806	0.2773	0.2587	M 1	
M 2	0.4764	0.4943	0.5155	0.5390	0.5229	0.4679	0.4193	0.4123	0.4167	M 2	
M(PR) 1	0.6452	0.6778	0.6895	0.7050	0.7077	0.6616	0.6603	0.6643	0.6609	M(PR) 1	
M(PR) 2	0.3994	0.4341	0.4632	0.4958	0.4784	0.4028	0.3265	0.3017	0.2837	M(PR) 2	
TURN(PR)	24.638	22.194	22.459	23.179	23.468	26.619	21.446	18.875	19.375	TURN(PR)	
UUBAR	0.1248	0.1205	0.0788	0.0466	0.0905	0.1093	0.2380	0.2864	0.3093	UUBAR	
LOSS PARA	0.0325	0.0318	0.0211	0.0129	0.0256	0.0303	0.0599	0.0691	0.0738	LOSS PARA	
DFAC	0.5089	0.4774	0.4449	0.4144	0.4517	0.5473	0.6764	0.7239	0.7602	DFAC	
EFFP	0.8084	0.8229	0.9065	0.9128	0.9031	0.9428	0.8015	0.7685	0.7683	EFFP	
EFF	0.8034	0.8185	0.9040	0.9103	0.9003	0.9409	0.7954	0.7614	0.7610	EFF	
INCID	-1.994	-2.738	-2.637	-3.067	-2.000	5.215	6.334	3.199	-1.043	INCID	
DEVM	10.646	11.821	10.846	7.155	5.306	6.975	11.873	13.418	11.707	DEVM	
P 1	14.805	15.076	15.136	15.135	14.933	14.090	13.862	13.852	13.773	P 1	
P 2	17.714	17.935	18.209	18.493	18.304	17.671	17.166	17.102	17.150	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	552.046	550.933	549.813	552.279	553.201	555.555	559.769	560.993	562.776	T 2	
STATOR E											
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN	
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA	
BETA 2	41.286	37.660	35.183	34.128	36.000	44.715	57.090	62.515	67.228	BETA 2	
BETA 2A	-0.600	1.250	2.200	2.000	0.750	1.000	-0.250	0.850	1.751	BETA 2A	
V 2	533.95	558.07	586.32	603.66	595.04	531.46	470.81	459.65	460.30	V 2	
V 2A	422.40	422.18	437.55	504.85	498.90	428.24	374.23	355.47	360.23	V 2A	
VZ 2	401.22	441.78	479.19	499.61	481.18	377.42	255.67	212.05	178.11	VZ 2	
VZ 2A	422.37	422.07	437.21	504.47	498.69	427.93	373.93	355.11	359.68	VZ 2A	
V-THETA 2	352.31	340.96	337.82	338.62	349.61	373.69	395.06	407.60	424.29	V-THETA 2	
V-THETA 2A	-4.42	9.21	16.79	17.62	6.53	7.47	-1.63	5.27	10.99	V-THETA 2A	
M 2	0.4736	0.4968	0.5239	0.5390	0.5304	0.4700	0.4128	0.4022	0.4022	M 2	
M 2A	0.3716	0.3720	0.3863	0.4469	0.4410	0.3758	0.3261	0.3091	0.3128	M 2A	
TURN(PR)	41.886	36.409	32.981	32.121	35.232	43.680	57.295	61.621	65.436	TURN(PR)	
UUBAR	0.0468	0.1223	0.1561	0.0508	0.0195	0.0352	-0.0033	0.0280	0.0449	UUBAR	
LOSS PARA	0.0158	0.0416	0.0537	0.0180	0.0072	0.0136	-0.0013	0.0112	0.0181	LOSS PARA	
DFAC	0.4340	0.4460	0.4424	0.3531	0.3758	0.4408	0.5407	0.5787	0.5817	DFAC	
EFFP	0.8853	0.7380	0.6792	0.8489	0.9413	0.9078	1.0084	0.9345	0.8913	EFFP	
INCID	-8.681	-5.728	-5.108	-3.902	-0.705	8.846	18.387	19.352	8.040	INCID	
DEVM	8.232	12.562	13.510	12.975	11.762	12.666	12.191	13.530	6.603	DEVM	
P 2	17.714	17.935	18.209	18.493	18.304	17.671	17.166	17.102	17.150	P 2	
P 2A	17.596	17.594	17.724	18.325	18.241	17.584	17.172	17.052	17.069	P 2A	
T 2	552.646	550.933	549.813	552.279	553.201	555.555	559.769	560.993	562.776	T 2	
T 2A	552.646	550.933	549.813	552.279	553.201	555.555	559.769	560.993	562.776	T 2A	
UUBAR FS	0.1121	0.1279	0.1097	0.0272	0.0368	0.1051	0.1728	0.1469	0.1348	UUBAR FS	
P2 FS	17.999	17.952	18.047	18.413	18.360	17.865	17.570	17.354	17.338	P2 FS	
LOSS PARA FS	0.0378	0.0435	0.0377	0.0096	0.0136	0.0406	0.0680	0.0587	0.0543	LOSS PARA FS	

Table A-6. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 69.77 Equivalent Rotor Speed = 2937.39 Equivalent Weight Flow 77.98
 Tip Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.089	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	297.47	297.47	297.47	297.47	297.47	297.47	297.47	297.47	297.47	V 0
V 1	357.55	375.39	373.26	371.33	354.38	270.44	231.43	228.08	216.52	V 1
VZ 0	297.47	297.47	297.47	297.44	297.45	297.42	297.39	297.39	297.39	VZ 0
VZ 1	357.54	375.39	373.26	371.33	354.36	270.41	231.37	228.02	216.46	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2684	0.2684	0.2684	0.2684	0.2684	0.2684	0.2684	0.2684	0.2684	M 0
M 1	0.3236	0.3401	0.3381	0.3363	0.3207	0.2437	0.2082	0.2051	0.1947	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.6232	0.3402	0.2942	0.2942	0.4796	1.1767	1.3997	1.4207	1.4834	UUBAR
DFAC	-0.202	-0.262	-0.255	-0.248	-0.191	0.091	0.222	0.233	0.272	DFAC
EFFP	0.4213	0.6418	0.6679	0.6614	0.4722	-0.1731	-0.3895	-0.4049	-0.4582	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.199	15.199	15.199	15.199	15.199	15.199	15.199	15.199	15.199	P 0
P 1	14.737	14.947	14.981	14.981	14.844	14.326	14.161	14.145	14.099	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	38.395	35.551	33.853	32.386	33.656	40.384	47.588	50.883	54.543	BETA 2
BETA(PRI) 1	49.832	47.318	47.220	48.399	51.439	60.015	64.414	64.904	66.136	BETA(PRI) 1
BETA(PRI) 2	25.349	25.003	24.999	25.857	28.741	34.077	40.101	44.502	46.951	BETA(PRI) 2
V 1	358.34	396.20	402.55	401.22	378.90	288.21	248.03	245.20	233.40	V 1
V 2	429.26	448.49	461.58	476.99	465.67	421.93	387.20	365.88	359.13	V 2
VZ 1	358.27	396.11	402.50	401.20	378.43	287.04	246.39	243.45	231.88	VZ 1
VZ 2	336.42	364.87	383.32	402.79	387.46	321.03	260.77	230.50	208.08	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	266.60	260.75	257.12	255.47	257.97	273.06	285.45	283.46	292.18	V-THETA 2
V(PRI) 1	555.5	584.4	592.6	604.3	607.4	607.4	571.2	574.7	573.8	V(PRI) 1
V(PRI) 2	372.3	402.6	423.0	447.6	442.1	388.1	341.6	323.8	305.3	V(PRI) 2
VTHETA PR1	-424.4	-429.5	-435.0	-451.9	-474.7	-497.5	-514.6	-519.8	-524.2	VTHETA PR1
VTHETA PR2	-159.4	-170.2	-178.7	-195.2	-212.5	-217.2	-219.6	-226.5	-222.8	VTHETA PR2
U 1	424.43	429.54	434.96	451.86	474.72	497.47	514.59	519.80	524.16	U 1
U 2	425.97	430.92	435.86	450.68	470.45	490.22	505.05	509.99	514.93	U 2
M 1	0.3243	0.3594	0.3653	0.3641	0.3434	0.2599	0.2233	0.2207	0.2100	M 1
M 2	0.3828	0.4010	0.4135	0.4267	0.4160	0.3752	0.3429	0.3233	0.3170	M 2
M(PRI) 1	0.5027	0.5301	0.5379	0.5484	0.5504	0.5184	0.5142	0.5173	0.5162	M(PRI) 1
M(PRI) 2	0.3320	0.3600	0.3789	0.4004	0.3949	0.3452	0.3024	0.2861	0.2695	M(PRI) 2
TURN(PRI)	24.478	22.310	22.218	22.541	22.678	25.890	24.257	20.348	19.148	TURN(PRI)
UUBAR	0.0930	0.0999	0.0649	0.0539	0.0562	0.0562	0.1457	0.1922	0.2291	UUBAR
LOSS PARA	0.0243	0.0265	0.0175	0.0115	0.0152	0.0157	0.0387	0.0481	0.0534	LOSS PARA
DFAC	0.4691	0.4421	0.4153	0.3892	0.4083	0.4635	0.5739	0.6080	0.6466	DFAC
EFFP	0.8416	0.8659	0.9615	0.8909	0.8941	0.9374	0.8275	0.7564	0.7285	EFFP
EFF	0.8391	0.8638	0.9609	0.8909	0.8922	0.9362	0.8242	0.7520	0.7236	EFF
INCID	-2.600	-3.598	-3.359	-3.644	-2.564	4.027	9.748	2.617	-2.003	INCID
DEVM	10.200	10.844	10.365	7.216	5.531	6.517	8.477	11.363	10.974	DEVM
P 1	14.737	14.947	14.981	14.981	14.844	14.326	14.161	14.145	14.099	P 1
P 2	16.457	16.626	16.757	16.878	16.796	16.442	16.188	16.043	15.992	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	538.510	537.243	536.260	538.918	539.597	540.936	543.225	543.968	544.972	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	38.631	35.384	33.358	32.426	33.268	40.275	48.596	52.627	57.402	BETA 2
BETA 2A	0.200	1.800	2.020	0.890	-0.000	1.640	2.381	2.431	1.701	BETA 2A
V 2	427.11	450.46	467.86	476.99	471.21	423.57	381.78	357.84	347.94	V 2
V 2A	348.33	354.48	371.84	419.24	412.99	368.04	313.50	295.97	295.91	V 2A
VZ 2	333.65	367.25	390.76	402.55	393.80	322.92	252.31	217.06	187.34	VZ 2
VZ 2A	348.33	354.30	371.59	419.13	412.85	367.67	312.98	295.44	295.47	VZ 2A
V-THETA 2	266.64	260.83	257.25	255.72	258.36	273.62	286.14	284.18	292.95	V-THETA 2
V-THETA 2A	1.22	11.13	13.11	6.51	-0.00	10.33	13.01	12.54	8.77	V-THETA 2A
M 2	0.3809	0.4028	0.4193	0.4267	0.4211	0.3767	0.3379	0.3161	0.3069	M 2
M 2A	0.3091	0.3151	0.3311	0.3735	0.3675	0.3262	0.2765	0.2606	0.2603	M 2A
TURN(PRI)	38.430	33.583	31.336	31.529	33.251	38.600	46.167	50.147	55.649	TURN(PRI)
UUBAR	0.0706	0.1382	0.1360	0.0229	0.0139	0.0040	0.0715	0.0299	-0.0102	UUBAR
LOSS PARA	0.0238	0.0470	0.0468	0.0081	0.0052	0.0016	0.0283	0.0119	-0.0041	LOSS PARA
DFAC	0.3938	0.4019	0.3851	0.3071	0.3272	0.3715	0.4639	0.4784	0.4810	DFAC
EFFP	0.8006	0.8574	0.8533	0.9065	0.9441	0.9843	0.7901	0.9093	1.0355	EFFP
INCID	-11.536	-8.004	-6.933	-5.605	-3.436	4.407	9.888	9.457	-1.797	INCID
DEVM	9.032	13.112	13.330	11.865	11.012	13.305	14.820	15.109	6.553	DEVM
P 2	16.457	16.626	16.757	16.878	16.796	16.442	16.188	16.043	15.992	P 2
P 2A	16.346	16.383	16.497	16.833	16.770	16.435	16.100	16.011	16.002	P 2A
T 2	538.510	537.243	536.260	538.918	539.597	540.936	543.225	543.968	544.972	T 2
T 2A	538.510	537.243	536.260	538.918	539.597	540.936	543.225	543.968	544.972	T 2A
UUBAR FS	0.1085	0.1048	0.0675	-0.0211	0.0233	0.0606	0.1901	0.1318	0.1299	UUBAR FS
P2 FS	16.523	16.560	16.616	16.874	16.815	16.533	16.368	16.169	16.153	P2 FS
LOSS PARA FS	0.0365	0.0356	0.0232	0.0074	0.0087	0.0242	0.0752	0.0524	0.0519	LOSS PARA FS

Table A-6, Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Calculations Using Translated Values
 Percent Equivalent Rotor Speed = 69.28 Equivalent Rotor Speed = 2916.79 Equivalent Weight Flow = 71.91
 Tip Radial Distortion

INLET										
PCT SPAN	96.80	92.00	86.90	71.00	49.50	28.10	12.00	7.10	3.00	PCT SPAN
DIA	33.122	33.529	33.962	35.312	37.137	38.954	40.321	40.737	41.085	DIA
BETA 0	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 0
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
V 0	274.46	274.48	274.48	274.48	274.48	274.48	274.48	274.48	274.48	V 0
V 1	335.70	352.86	352.45	353.93	339.10	264.45	222.72	216.26	203.30	V 1
VZ 0	274.48	274.48	274.48	274.48	274.46	274.44	274.41	274.41	274.41	VZ 0
VZ 1	335.70	352.86	352.45	353.92	339.07	264.40	222.67	216.20	203.24	VZ 1
V-THETA 0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 0
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
M 0	0.2474	0.2474	0.2474	0.2474	0.2474	0.2474	0.2474	0.2474	0.2474	M 0
M 1	0.3034	0.3193	0.3189	0.3202	0.3066	0.2382	0.2003	0.1944	0.1827	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.5863	0.3168	0.2760	0.2809	0.4524	1.1171	1.3457	1.3784	1.4437	UUBAR
DFAC	-0.223	-0.286	-0.284	-0.289	-0.235	0.037	0.189	0.212	0.259	DFAC
EFFP	0.4626	0.6786	0.7069	0.7076	0.5430	-0.0688	-0.3386	-0.3773	-0.4508	EFFP
INCID	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	INCID
DEVM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVM
P 0	15.105	15.105	15.105	15.105	15.105	15.105	15.105	15.105	15.105	P 0
P 1	14.736	14.906	14.932	14.929	14.821	14.402	14.258	14.238	14.197	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.236	33.621	34.007	35.164	36.706	38.248	39.405	39.791	40.176	DIA
BETA 1	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	BETA 1
BETA 2	41.093	38.505	36.365	34.764	36.683	44.366	53.694	57.810	60.657	BETA 2
BETA(PR) 1	51.406	48.906	48.687	49.590	52.489	60.401	65.112	65.913	67.308	BETA(PR) 1
BETA(PR) 2	25.239	24.775	24.559	25.269	28.197	33.455	42.108	44.802	45.983	BETA(PR) 2
V 1	336.44	372.09	379.66	382.03	362.30	281.75	238.63	232.40	219.07	V 1
V 2	417.76	434.98	450.42	467.17	454.90	415.90	374.40	368.59	371.15	V 2
VZ 1	336.37	372.61	379.61	382.00	361.85	280.61	237.06	230.75	217.64	VZ 1
VZ 2	314.83	340.38	362.69	383.77	364.67	297.02	221.43	196.16	181.72	VZ 2
V-THETA 1	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	V-THETA 1
V-THETA 2	274.58	270.79	267.06	266.37	271.65	290.52	301.37	311.61	323.25	V-THETA 2
V(PR) 1	539.3	566.0	575.1	589.3	594.5	568.7	544.0	566.1	564.7	V(PR) 1
V(PR) 2	348.1	374.9	398.8	424.4	414.0	356.5	299.0	277.0	262.0	V(PR) 2
VTHETA PR1	-421.5	-426.5	-431.9	-448.7	-417.4	-494.0	-511.0	-516.2	-520.5	VTHETA PR1
VTHETA PR2	-148.4	-157.1	-165.7	-181.2	-195.5	-196.3	-200.1	-194.8	-188.1	VTHETA PR2
U 1	421.46	426.52	431.91	448.69	471.39	493.98	510.98	516.15	520.48	U 1
U 2	422.99	427.89	432.80	447.52	467.15	486.78	501.50	506.41	511.32	U 2
M 1	0.3041	0.3370	0.3441	0.3463	0.3280	0.2540	0.2147	0.2091	0.1970	M 1
M 2	0.3720	0.3882	0.4028	0.4173	0.4057	0.3693	0.3308	0.3253	0.3273	M 2
M(PR) 1	0.4875	0.5127	0.5211	0.5341	0.5382	0.5126	0.5075	0.5092	0.5078	M(PR) 1
M(PR) 2	0.3099	0.3346	0.3566	0.3791	0.3692	0.3165	0.2642	0.2445	0.2310	M(PR) 2
TURN(PR)	26.163	24.126	24.125	24.320	24.272	26.897	22.952	21.061	21.293	TURN(PR)
UUBAR	0.1095	0.1181	0.0718	0.0446	0.0792	0.1185	0.2300	0.2766	0.3002	UUBAR
LOSS PARA	0.0287	0.0315	0.0194	0.0124	0.0225	0.0333	0.0592	0.0688	0.0739	LOSS PARA
DFAC	0.5023	0.4782	0.4446	0.4187	0.4502	0.5437	0.6536	0.7019	0.7371	DFAC
EFFP	0.8148	0.8392	0.9330	0.8852	0.8704	0.8756	0.7461	0.7196	0.7124	EFFP
EFF	0.8119	0.8367	0.9319	0.8832	0.8681	0.8732	0.7415	0.7145	0.7070	EFF
INCID	-1.025	-2.011	-1.891	-2.453	-1.514	4.414	6.448	3.631	-0.826	INCID
DEVM	10.089	10.616	9.925	6.628	4.987	5.896	10.482	11.663	10.006	DEVM
P 1	14.736	14.906	14.932	14.929	14.821	14.402	14.258	14.238	14.197	P 1
P 2	16.474	16.609	16.756	16.890	16.800	16.494	16.201	16.161	16.183	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	539.371	538.165	537.340	539.784	540.495	542.171	544.705	545.465	546.667	T 2
STATOR E										
PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	41.350	38.322	35.828	34.807	36.255	44.245	54.956	60.115	64.409	BETA 2
BETA 2A	-0.200	1.540	2.200	1.530	0.640	0.830	0.340	1.120	2.711	BETA 2A
V 2	415.69	436.87	456.48	467.17	460.25	417.50	369.21	360.48	359.51	V 2
V 2A	334.85	335.00	346.20	395.68	390.31	342.39	301.69	285.42	286.51	V 2A
VZ 2	312.05	342.73	370.09	383.51	370.98	298.89	211.88	179.53	155.23	VZ 2
VZ 2A	334.84	334.87	345.93	395.49	390.16	342.15	301.44	285.12	285.88	VZ 2A
V-THETA 2	274.62	270.88	267.19	266.62	272.06	291.12	302.10	312.40	324.11	V-THETA 2
V-THETA 2A	-1.17	9.00	13.29	10.56	4.36	4.96	1.79	5.58	13.54	V-THETA 2A
M 2	0.3701	0.3900	0.4084	0.4173	0.4106	0.3708	0.3261	0.3180	0.3168	M 2
M 2A	0.2967	0.2972	0.3075	0.3517	0.3446	0.3027	0.2653	0.2509	0.2515	M 2A
TURN(PR)	41.550	36.781	33.427	33.271	35.597	43.380	54.569	58.949	61.655	TURN(PR)
UUBAR	0.0401	0.1169	0.1482	0.0377	0.0134	0.0330	-0.0027	0.0301	0.0416	UUBAR
LOSS PARA	0.0135	0.0398	0.0510	0.0134	0.0050	0.0127	-0.0011	0.0120	0.0168	LOSS PARA
DFAC	0.4180	0.4374	0.4333	0.3482	0.3680	0.4451	0.5069	0.5306	0.5537	DFAC
EFFP	0.8918	0.7315	0.6709	0.8754	0.9555	0.9045	1.0078	0.9226	0.8905	EFFP
INCID	-8.617	-5.066	-4.462	-3.223	-0.450	8.376	16.231	16.949	5.218	INCID
DEVM	6.632	12.852	13.510	12.505	11.652	12.496	12.781	13.799	7.562	DEVM
P 2	16.474	16.609	16.756	16.890	16.800	16.494	16.201	16.161	16.183	P 2
P 2A	16.414	16.416	16.487	16.818	16.776	16.445	16.204	16.128	16.137	P 2A
T 2	539.371	538.165	537.340	539.784	540.495	542.171	544.705	545.465	546.667	T 2
T 2A	539.371	538.165	537.340	539.784	540.495	542.171	544.705	545.465	546.667	T 2A
UUBAR FS	0.1051	0.1171	0.0916	0.0325	0.0437	0.1009	0.1842	0.1423	0.1473	UUBAR FS
P2 FS	16.581	16.609	16.643	16.879	16.859	16.607	16.464	16.304	16.316	P2 FS
LOSS PARA FS	0.0353	0.0398	0.0315	0.0115	0.0163	0.0388	0.0750	0.0567	0.0594	LOSS PARA FS

Table A-7. Overall Performance - Stage E
Circumferential Distortion

Equivalent Weight Flow, lb/sec	Rotor			Stage		
	\bar{P}_2/\bar{P}_1	η_{ad}	η_p	\bar{P}_{2A}/\bar{P}_1	η_{ad}	η_p
100% Design Equivalent Rotor Speed						
116.75	1.2430	0.8042	0.8084	1.2272	0.7555	0.7608
*103.40	1.2934	0.8568	0.8630	1.2657	0.7823	0.7904
* 92.60	1.3081	0.8352	0.8380	1.2668	0.7320	0.7379
90% Design Equivalent Rotor Speed						
106.41	1.1928	0.8377	0.8382	1.1778	0.7761	0.7781
95.23	1.2272	0.8492	0.8537	1.2105	0.7908	0.7965
* 84.27	1.2334	0.8452	0.8515	1.2072	0.7563	0.7643
70% Design Equivalent Rotor Speed						
86.61	1.1167	0.8187	0.8251	1.1098	0.7721	0.7788
75.67	1.1279	0.8229	0.8176	1.1219	0.7858	0.7814
65.42	1.1381	0.8166	0.8226	1.1249	0.7417	0.7485

*Data taken at multiple screen positions.

Table A-8. Blade Element Performance
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 1192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (16°) - Station 2 (6°) - Station 2A (355°)

ROTOR E	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
DIA	33.234	33.617	34.001	35.151	36.685	36.219	39.371	39.754	40.138	DIA
BETA 1	-4.249	-4.590	-4.420	-4.396	-4.285	-4.119	-3.489	-3.375	-3.557	BETA 1
BETA 2	55.318	55.672	54.023	49.624	48.708	48.453	53.433	57.036	61.828	BETA 2
BETA(PR) 1	61.187	59.483	59.441	59.454	60.466	62.089	62.885	63.514	64.277	BETA(PR) 1
BETA(PR) 2	18.863	24.960	31.189	27.523	29.481	34.732	39.952	45.619	49.711	BETA(PR) 2
V 1	348.43	379.73	385.39	400.16	402.52	393.15	389.74	382.33	373.66	V 1
V 2	598.02	565.13	534.01	584.99	597.08	579.26	553.81	521.96	510.95	V 2
VZ 1	347.47	378.61	384.24	398.99	401.38	392.04	388.95	381.61	372.30	VZ 1
VZ 2	346.28	318.69	313.71	376.95	393.89	383.83	329.53	283.68	241.02	VZ 2
V-THETA 1	-25.82	-29.07	-29.70	-30.67	-30.06	-28.92	-23.71	-22.50	-23.14	V-THETA 1
V-THETA 2	491.76	466.69	432.15	445.64	448.48	433.12	444.25	437.43	450.02	V-THETA 2
V(IPR) 1	721.0	745.6	755.7	785.1	814.3	837.5	853.4	855.7	857.8	V(IPR) 1
V(IPR) 2	359.6	351.5	366.7	427.3	452.7	467.7	430.8	406.3	373.3	V(IPR) 2
VTHETA PR1	-631.7	-642.3	-650.8	-676.1	-706.4	-740.1	-759.6	-765.9	-772.8	VTHETA PR1
VTHETA PR2	-116.3	-148.3	-189.9	-197.5	-222.7	-266.1	-276.0	-289.9	-284.3	VTHETA PR2
U 1	605.90	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 1
U 2	668.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
M 1	0.3152	0.3441	0.3494	0.3631	0.3653	0.3566	0.3534	0.3465	0.3379	M 1
M 2	0.5256	0.4957	0.4675	0.5138	0.5232	0.5067	0.4834	0.4545	0.4443	M 2
M(IPR) 1	0.6522	0.6757	0.6851	0.7124	0.7390	0.7597	0.7739	0.7756	0.7771	M(IPR) 1
M(IPR) 2	0.3160	0.3084	0.3210	0.3753	0.3967	0.4091	0.3760	0.3538	0.3247	M(IPR) 2
TURN(PR)	43.324	34.523	28.251	31.903	27.410	23.025	18.001	14.674	14.674	TURN(PR)
P 1	13.468	13.621	13.630	13.661	13.827	13.618	13.645	13.655	13.623	P 1
P 2	18.632	18.263	17.971	18.631	18.860	18.754	18.475	18.169	18.165	P 2
T 1	518.699	516.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
T 2	568.539	567.369	566.708	568.009	571.527	571.846	571.650	571.515	571.978	T 2

STATOR E	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	55.318	55.672	54.023	49.624	48.768	48.453	53.433	57.036	61.828	BETA 2
BETA 2A	0.273	-1.136	-2.312	-1.972	0.864	0.372	1.294	2.305	2.880	BETA 2A
V 2	598.02	565.13	534.01	584.99	597.08	579.26	553.81	521.96	510.95	V 2
VZ 2	368.65	352.44	339.78	377.90	421.79	448.90	432.73	420.72	417.82	VZ 2
VZ 2A	340.28	318.69	313.71	378.95	393.89	383.83	329.53	263.68	241.02	VZ 2A
V-THETA 2	366.64	352.36	339.50	377.64	421.65	448.72	432.40	420.14	416.99	V-THETA 2
V-THETA 2A	491.76	466.69	432.15	445.64	448.48	433.12	444.25	437.43	450.02	V-THETA 2A
M 2	1.76	-6.99	-13.71	-13.00	6.36	2.91	9.77	16.91	20.98	M 2
M 2A	0.5256	0.4957	0.4675	0.5138	0.5232	0.5067	0.4834	0.4545	0.4443	M 2A
TURN(PR)	0.3177	0.3038	0.2928	0.3258	0.3637	0.3675	0.3266	0.3599	0.3599	TURN(PR)
P 2	55.044	56.807	56.335	51.593	47.824	48.021	52.045	54.632	58.856	P 2
P 2A	18.632	18.263	17.971	18.631	18.860	18.754	18.475	18.169	18.165	P 2A
T 2A	17.798	17.644	17.551	17.751	18.077	18.300	18.180	18.103	18.089	T 2A
T 2	568.539	567.369	566.708	568.009	571.527	571.846	571.650	571.515	571.978	T 2
T 2A	571.667	570.552	569.892	571.647	574.605	575.084	575.082	574.924	575.425	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (46°) - Station 2 (36°) - Station 2A (25°)

KOTUR E	94.99	90.00	84.99	70.00	50.00	30.00	14.96	9.99	4.98	PCT SPAN
STATION 1	33.434	35.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA
STATION 2	3.057	3.384	3.567	2.522	2.579	1.744	3.049	3.562	2.487	BETA 1
	46.183	43.514	41.299	38.893	39.148	37.633	40.256	44.614	51.329	BETA 2
	51.567	50.757	50.182	50.353	52.210	54.000	56.351	57.443	60.223	BETA(PR) 1
	26.592	27.622	26.250	27.188	30.861	35.375	40.632	44.947	52.803	BETA(PR) 2
	457.42	478.68	493.16	516.51	508.81	505.81	473.80	457.43	418.95	V 1
	569.24	575.87	603.66	625.81	613.34	596.94	560.67	515.77	458.51	V 2
	456.38	477.84	492.20	516.00	508.27	505.51	473.04	456.47	418.52	VZ 1
	394.11	417.62	453.51	487.06	475.45	472.12	427.02	366.44	286.06	VZ 2
	30.77	28.25	30.68	22.73	22.89	15.39	25.20	28.41	18.18	V-THETA 1
	416.73	396.50	398.41	392.91	387.05	364.01	361.58	361.54	357.43	V-THETA 2
	73.2	755.4	768.6	808.7	829.5	860.1	853.7	848.3	842.8	V(PR) 1
	440.7	471.3	505.7	547.6	554.2	579.8	558.8	518.7	473.8	V(PR) 2
	-575.1	-585.0	-590.4	-622.7	-655.5	-695.8	-710.7	-714.9	-731.5	VTHETA PR1
	-197.3	-216.5	-220.6	-230.2	-284.1	-335.2	-358.7	-365.8	-376.9	VTHETA PR2
	605.96	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 1
	608.02	615.03	622.65	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	0.4168	0.4369	0.4506	0.4729	0.4655	0.4626	0.4322	0.4168	0.3807	M 1
	0.5035	0.5103	0.5370	0.5573	0.5455	0.5306	0.4961	0.4545	0.4018	M 2
	0.6690	0.6894	0.7023	0.7404	0.7589	0.7867	0.7768	0.7729	0.7657	M(PR) 1
	0.3898	0.4177	0.4498	0.4876	0.4929	0.5153	0.4945	0.4572	0.4153	M(PR) 2
	24.975	23.136	23.932	23.167	21.366	18.679	16.411	12.601	7.527	TURN(PR)
	14.616	14.759	14.868	15.109	15.045	15.136	14.953	14.880	14.580	P 1
	18.306	18.418	18.742	19.066	19.040	18.976	18.602	18.157	17.659	P 2
	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	558.939	557.495	556.136	557.406	557.404	556.446	557.643	557.935	559.255	T 2
STATOR E	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	46.183	43.514	41.299	38.893	39.148	37.633	40.256	44.614	51.329	BETA 2
	0.009	0.009	-0.045	-0.044	0.778	0.424	0.960	1.423	0.115	BETA 2A
	569.24	575.87	603.66	625.81	613.34	596.94	560.67	515.77	458.51	V 2
	420.92	410.60	416.60	473.99	485.87	476.28	417.05	399.18	391.29	V ZA
	394.11	417.62	453.51	487.06	475.45	472.12	427.02	366.44	286.06	VZ 2
	420.92	410.59	413.99	473.95	485.72	476.09	416.78	398.83	391.01	VZ 2A
	410.73	396.50	398.41	392.91	387.05	364.01	361.58	361.54	357.43	V-THETA 2
	0.07	0.90	-0.33	-0.36	6.60	3.52	6.98	9.91	0.78	V-THETA 2A
	0.5035	0.5103	0.5370	0.5573	0.5455	0.5306	0.4961	0.4545	0.4018	M 2
	0.3679	0.3592	0.3627	0.4163	0.4272	0.4188	0.3648	0.3487	0.3411	M ZA
	46.173	43.388	41.344	38.935	38.350	37.151	39.199	43.082	51.104	TURN(PR)
	18.506	18.418	18.742	19.086	19.040	18.976	18.602	18.157	17.659	P 2
	16.151	16.059	16.058	16.581	16.715	16.586	16.047	17.902	17.861	P ZA
	558.939	557.495	556.136	557.406	557.404	556.446	557.643	557.935	559.255	T 2
	559.426	557.917	556.451	557.407	557.404	556.496	557.643	558.736	560.244	T ZA

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (76°) - Station 2 (66°) - Station 2A (55°)

ROTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	33.564	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA
STATION 2	BETA 1	-0.175	-0.716	-0.798	-0.469	-0.704	-0.622	-1.004	-0.630	-0.728	BETA 1
	BETA 2	43.560	40.976	39.269	37.176	36.661	36.297	37.921	40.604	47.116	BETA 2
	BETA(PR) 1	53.430	52.080	51.341	50.807	52.843	54.725	57.108	57.927	60.289	BETA(PR) 1
	BETA(PR) 2	24.365	24.709	23.788	24.535	27.819	31.548	35.537	38.883	46.361	BETA(PR) 2
	V 1	450.52	482.48	502.49	529.82	519.01	507.05	481.52	469.16	430.99	V 1
	V 2	597.69	613.11	638.52	664.41	658.07	644.26	612.76	577.10	508.63	V 2
	VZ 1	450.51	482.44	502.44	529.80	518.95	506.96	481.36	469.06	430.91	VZ 1
	VZ 2	433.11	462.88	494.33	529.37	527.65	518.54	482.34	437.18	345.50	VZ 2
	V-THETA 1	-1.38	-0.03	-7.00	-4.34	-6.38	-5.50	-8.44	-5.16	-5.48	V-THETA 1
	V-THETA 2	411.87	402.04	404.16	401.46	392.74	380.86	375.77	374.76	372.01	V-THETA 2
	V(PR) 1	756.1	785.0	804.3	838.4	859.2	877.9	886.4	883.4	869.4	V(PR) 1
	V(PR) 2	475.5	509.5	540.2	581.9	596.9	609.4	594.1	562.9	501.6	V(PR) 2
	VTHETA PR1	-607.3	-619.3	-628.1	-649.8	-684.8	-716.7	-744.3	-748.5	-755.1	VTHETA PR1
	VTHETA PR2	-196.2	-213.0	-217.9	-241.6	-278.4	-318.4	-344.5	-352.5	-362.3	VTHETA PR2
	U 1	605.90	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 1
	U 2	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	M 1	0.4103	0.4405	0.4595	0.4856	0.4753	0.4638	0.4396	0.4278	0.3919	M 1
	M 2	0.5287	0.5438	0.5683	0.5925	0.5855	0.5727	0.5429	0.5096	0.4464	M 2
	M(PR) 1	0.6886	0.7167	0.7355	0.7684	0.7868	0.8031	0.8092	0.8056	0.7906	M(PR) 1
	M(PR) 2	0.4206	0.4519	0.4806	0.5190	0.5311	0.5417	0.5264	0.4971	0.4402	M(PR) 2
	TURN(PR)	29.065	27.371	27.553	26.275	25.040	23.227	21.859	19.147	14.037	TURN(PR)
	P 1	14.543	14.836	14.987	15.164	15.075	13.043	14.935	14.886	14.619	P 1
	P 2	18.612	18.808	19.112	19.539	19.572	19.519	19.209	18.790	18.096	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	561.648	560.313	559.276	559.982	561.661	561.167	561.290	561.324	561.870	T 2
STATOR E	PCT SPAN	95.60	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	43.560	40.976	39.269	37.176	36.661	36.297	37.921	40.604	47.116	BETA 2
	BETA 2A	-0.192	1.136	1.816	1.489	0.693	0.473	0.741	0.906	-1.794	BETA 2A
	V 2	597.69	613.11	638.52	664.41	658.07	644.26	612.76	577.10	508.63	V 2
	V 2A	445.97	440.86	450.60	524.59	548.65	543.70	489.20	463.01	444.90	V 2A
	VZ 2	433.11	462.88	494.33	529.37	527.65	518.54	482.34	437.18	345.50	VZ 2
	VZ 2A	445.97	440.76	450.36	524.36	548.49	543.48	488.91	462.69	444.37	VZ 2A
	V-THETA 2	411.87	402.04	404.16	401.46	392.74	380.86	375.77	374.76	372.01	V-THETA 2
	V-THETA 2A	-1.49	8.74	14.28	13.63	6.63	4.49	6.32	7.32	-13.92	V-THETA 2A
	M 2	0.5287	0.5438	0.5683	0.5925	0.5855	0.5727	0.5429	0.5096	0.4464	M 2
	M 2A	0.3900	0.3959	0.3950	0.4622	0.4638	0.4795	0.4294	0.4056	0.3890	M 2A
	TURN(PR)	43.751	39.839	37.453	35.685	35.948	35.766	37.084	39.590	48.796	TURN(PR)
	P 2	16.612	18.808	19.112	19.539	19.572	19.519	19.209	18.790	18.096	P 2
	P 2A	18.612	18.808	19.112	19.539	19.572	19.519	18.598	18.368	16.216	P 2A
	T 2	561.848	560.313	559.276	559.982	561.661	561.167	561.290	561.324	561.870	T 2
	T 2A	560.663	559.356	558.311	558.894	560.664	559.604	559.973	560.101	560.833	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (106°) - Station 2 (96°) - Station 2A (85°)

ROTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	46.138	DIA
STATION 2	BETA 1	-0.206	-0.135	0.121	0.309	-0.015	-0.119	-1.369	-1.044	-1.572	BETA 1
	BETA 2	42.653	39.809	37.746	35.961	35.546	34.858	36.249	39.214	45.689	BETA 2
	BETA(PRI) 1	54.000	52.567	52.026	51.988	52.897	55.350	57.764	58.852	61.900	BETA(PRI) 1
	BETA(PRI) 2	25.155	27.798	26.191	26.542	29.836	34.686	38.324	42.607	49.989	BETA(PRI) 2
	V 1	441.37	470.29	483.98	502.38	513.24	492.29	471.37	454.41	406.43	V 1
	V 2	594.39	588.44	621.38	648.61	640.71	621.41	587.52	540.04	475.37	V 2
	VZ 1	441.56	470.28	483.98	502.36	513.22	492.22	471.14	454.26	406.23	VZ 1
	VZ 2	437.15	452.02	491.34	524.97	521.07	509.19	472.75	417.46	331.43	VZ 2
	V-THETA 1	-1.59	-1.11	1.02	2.71	-0.13	-1.02	-11.26	-8.28	-11.15	V-THETA 1
	V-THETA 2	402.73	376.73	380.38	380.87	372.31	354.66	346.62	340.64	339.50	V-THETA 2
	V(PRI) 1	750.9	773.7	786.6	815.8	850.8	865.8	883.3	878.3	862.5	V(PRI) 1
	V(PRI) 2	483.0	511.0	547.6	586.9	601.0	615.7	603.9	570.2	516.3	V(PRI) 2
	VTHETA PRI	-607.5	-614.4	-620.0	-642.7	-678.5	-712.2	-747.1	-751.6	-760.8	VTHETA PRI
	VTHETA PR2	-205.3	-238.3	-241.7	-262.2	-298.9	-344.6	-373.7	-386.7	-394.8	VTHETA PR2
	U 1	605.90	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 1
	U 2	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	M 1	0.4017	0.4289	0.4419	0.4594	0.4697	0.4498	0.4299	0.4139	0.3690	M 1
	M 2	0.5255	0.5208	0.5252	0.5770	0.5693	0.5515	0.5193	0.4753	0.4159	M 2
	M(PRI) 1	0.6833	0.7056	0.7181	0.7459	0.7787	0.7910	0.8057	0.8000	0.7830	M(PRI) 1
	M(PRI) 2	0.4270	0.4522	0.4869	0.5220	0.5340	0.5464	0.5338	0.5019	0.4517	M(PRI) 2
	TURN(PRI)	28.845	24.769	25.835	25.447	23.077	21.317	19.531	16.150	12.019	TURN(PRI)
	P 1	14.551	14.818	14.918	15.040	15.140	15.066	14.959	14.879	14.618	P 1
	P 2	18.676	18.628	19.021	19.449	19.460	19.335	19.004	18.476	17.865	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	561.875	560.093	558.457	560.922	561.197	560.515	561.285	561.421	562.454	T 2

STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	42.653	39.809	37.746	35.961	35.546	34.858	36.249	39.214	45.689	BETA 2
	BETA 2A	-0.125	1.107	1.958	1.567	0.673	0.581	0.870	1.473	-1.092	BETA 2A
	V 2A	594.39	588.44	621.38	648.61	640.71	621.41	587.52	540.04	475.37	V 2A
	VZ 2A	468.82	460.60	467.80	541.68	554.42	544.17	477.47	449.46	436.22	VZ 2A
	VZ 2	437.15	452.02	491.34	524.97	521.07	509.19	472.75	417.46	331.43	VZ 2
	V-THETA 2	402.73	376.73	380.38	380.87	372.31	354.66	346.62	340.64	339.50	V-THETA 2
	V-THETA 2A	-1.02	8.90	15.98	14.81	6.51	5.52	7.25	11.55	-8.31	V-THETA 2A
	M 2A	0.5255	0.5208	0.5252	0.5770	0.5693	0.5515	0.5193	0.4753	0.4159	M 2A
	M 2	0.4103	0.4036	0.4108	0.4770	0.4688	0.4797	0.4184	0.3930	0.3807	M 2
	TURN(PRI)	42.777	38.701	35.786	34.392	34.854	34.320	35.285	37.634	45.668	TURN(PRI)
	P 2A	18.676	18.628	19.021	19.449	19.460	19.335	19.004	18.476	17.865	P 2A
	T 2A	561.875	560.093	558.457	560.922	561.197	560.515	561.285	561.421	562.454	T 2A
	T 2	561.614	559.733	557.674	560.999	560.942	560.134	561.627	560.998	562.686	T 2

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.10
 Circumferential Distortion
 Station 1 (136°) - Station 2 (126°) - Station 2A (115°)

MOTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	35.654	33.564	34.001	35.151	36.485	38.219	39.371	39.754	40.136	DIA
STATION 2	BETA 1	-0.196	41.157	-0.661	-1.283	-1.026	-0.840	-0.756	-1.800	-1.920	BETA 1
	BETA 2	43.049	41.157	36.779	37.171	36.551	36.113	37.723	40.047	45.915	BETA 2
	BETA(PR) 1	53.026	51.680	50.812	52.183	53.481	55.567	57.692	58.674	60.914	BETA(PR) 1
	BETA(PR) 2	25.480	25.635	24.702	25.250	26.534	32.769	37.272	41.374	49.154	BETA(PR) 2
	V 1	457.34	488.18	511.16	509.96	509.20	492.61	469.37	461.56	425.21	V 1
	V 2	587.44	603.32	631.59	656.25	650.45	631.15	594.71	553.20	483.08	V 2
	VZ 1	457.33	488.15	511.12	509.83	509.09	492.49	469.24	461.25	424.93	VZ 1
	VZ 2	425.05	454.24	492.36	522.89	522.28	509.17	469.39	422.53	335.45	VZ 2
	V-THETA 1	-1.56	-4.40	-5.90	-11.42	-9.14	-7.22	-6.19	-14.50	-14.25	V-THETA 1
	V-THETA 2	405.47	397.05	395.57	396.48	367.19	371.47	363.09	355.14	346.34	V-THETA 2
	V(PR) 1	760.4	787.3	808.9	831.5	855.5	871.0	878.0	887.2	874.1	V(PR) 1
	V(PR) 2	470.9	503.6	542.0	578.2	594.8	606.4	591.1	564.3	513.8	V(PR) 2
	VTHETA PR1	-607.5	-617.7	-627.0	-656.9	-687.5	-718.4	-742.0	-757.8	-763.9	VTHETA PR1
	VTHETA PR2	-202.6	-218.0	-226.5	-246.6	-284.0	-327.7	-357.2	-372.2	-388.0	VTHETA PR2
	U 1	605.90	613.25	621.07	645.43	678.36	711.17	735.85	743.35	749.64	U 1
	U 2	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	M 1	0.4167	0.4459	0.4678	0.4666	0.4659	0.4501	0.4280	0.4207	0.3865	M 1
	M 2	0.5188	0.5343	0.5614	0.5844	0.5781	0.5600	0.5257	0.4870	0.4226	M 2
	M(PR) 1	0.6928	0.7190	0.7402	0.7608	0.7827	0.7958	0.8007	0.8086	0.7946	M(PR) 1
	M(PR) 2	0.4159	0.4462	0.4817	0.5149	0.5287	0.5381	0.5226	0.4968	0.4494	M(PR) 2
	TURN(PR)	27.546	26.045	26.110	26.934	24.963	22.850	20.511	17.405	11.869	TURN(PR)
	P 1	14.678	14.933	15.128	15.103	15.146	15.088	14.946	14.914	14.679	P 1
	P 2	18.621	18.819	19.164	19.573	19.616	19.493	19.125	18.663	17.970	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	562.227	560.861	559.944	560.522	561.983	561.691	561.994	562.385	563.180	T 2
STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	43.049	41.157	38.779	37.171	36.551	36.113	37.723	40.047	45.915	BETA 2
	BETA 2A	-0.129	1.016	1.945	1.532	0.713	0.697	0.982	1.786	-0.075	BETA 2A
	V 2A	587.44	603.32	631.59	656.25	650.45	631.15	594.71	553.20	483.08	V 2A
	VZ 2A	461.34	456.69	462.99	537.59	557.27	553.67	489.37	464.73	446.83	VZ 2A
	VZ 2	425.05	454.24	492.36	522.89	522.28	509.17	469.39	422.53	335.45	VZ 2
	V-THETA 2	461.34	456.61	462.71	537.34	557.10	553.43	489.05	464.24	446.48	V-THETA 2
	V-THETA 2A	405.47	397.05	395.57	396.48	367.19	371.47	363.09	355.14	346.34	V-THETA 2A
	M 2	-1.04	8.10	15.71	14.37	6.93	6.73	8.38	14.48	-5.26	M 2
	M 2A	0.5188	0.5343	0.5614	0.5844	0.5781	0.5600	0.5257	0.4870	0.4226	M 2A
	M 2A	0.4033	0.3996	0.4057	0.4734	0.4910	0.4879	0.4288	0.4064	0.3099	M 2A
	TURN(PR)	43.777	40.140	36.834	35.637	35.816	35.359	36.666	38.154	46.477	TURN(PR)
	P 2	18.621	18.819	19.164	19.573	19.618	19.493	19.125	18.663	17.970	P 2
	P 2A	18.504	18.473	18.545	19.297	19.502	19.409	18.672	18.461	18.293	P 2A
	T 2	562.227	560.861	559.944	560.522	561.983	561.691	561.994	562.385	563.180	T 2
	T 2A	562.227	560.772	559.705	560.583	561.816	561.415	561.620	562.201	563.028	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.10
 Circumferential Distortion
 Station 1 (166°) - Station 2 (156°) - Station 2A (145°)

ROTOR E	PCT SPAN	94.99	50.00	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	33.617	35.151	36.685	38.219	39.371	39.754	40.136	DIA
STATION 2	BETA 1	0.516	0.177	0.194	0.665	0.604	-0.790	0.219	0.685	BETA 1
	BETA 2	43.385	40.909	38.219	35.516	34.885	37.160	40.500	46.669	BETA 2
	BETA(PR) 1	53.150	52.039	51.776	53.390	55.600	58.594	58.920	61.061	BETA(PR) 1
	BETA(PR) 2	25.684	26.797	26.187	29.595	33.517	38.326	42.247	49.728	BETA(PR) 2
	V 1	451.69	477.32	500.48	500.12	487.00	453.21	447.11	411.84	V 1
	V 2	586.67	593.35	621.04	649.97	627.87	584.98	543.94	478.54	V 2
	VZ 1	451.66	477.31	487.86	500.67	486.93	453.08	447.04	411.77	VZ 1
	VZ 2	426.36	448.41	487.92	522.96	514.31	465.18	412.70	327.78	VZ 2
	V-THETA 1	4.06	1.47	4.35	5.28	0.03	-6.25	1.71	4.92	V-THETA 1
	V-THETA 2	402.97	388.55	384.22	373.74	358.59	352.58	352.48	347.45	V-THETA 2
	V(PR) 1	752.1	776.0	813.3	838.5	861.9	869.5	866.6	851.0	V(PR) 1
	V(PR) 2	473.1	502.4	582.8	602.5	617.8	594.2	558.7	507.9	V(PR) 2
	VTHETA PR1	-601.8	-611.8	-619.4	-673.1	-711.1	-742.1	-741.6	-744.7	VTHETA PR1
	VTHETA PR2	-205.0	-226.5	-237.8	-297.4	-340.6	-367.7	-374.8	-386.9	VTHETA PR2
	U 1	605.90	613.25	621.07	678.38	711.17	735.85	743.35	749.64	U 1
	U 2	608.02	615.03	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	M 1	0.4108	0.4356	0.4576	0.4572	0.4447	0.4128	0.4071	0.3740	M 1
	M 2	0.5188	0.5257	0.5786	0.5722	0.5575	0.5171	0.4791	0.4189	M 2
	M(PR) 1	0.6849	0.7081	0.7201	0.7436	0.7666	0.7920	0.7884	0.7728	M(PR) 1
	M(PR) 2	0.4183	0.4451	0.4829	0.5357	0.5486	0.5252	0.4921	0.4446	M(PR) 2
	TURN(PR)	27.465	25.242	25.789	23.811	22.135	20.360	16.778	11.442	TURN(PR)
	P 1	14.712	14.900	14.968	15.027	15.019	14.897	14.865	14.665	P 1
	P 2	18.580	18.680	19.460	19.484	19.422	18.995	18.545	17.926	P 2
	T 1	516.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	560.873	559.428	557.919	561.027	560.565	561.133	561.071	562.091	T 2

STATOR E	PCT SPAN	95.00	90.00	85.00	80.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	39.633	DIA
STATION 2A	BETA 2	43.385	40.909	38.219	36.425	35.516	34.865	37.160	40.500	46.669	46.669	BETA 2
	BETA 2A	-0.368	1.017	1.986	1.598	0.883	0.820	0.966	1.233	-1.592	-1.592	BETA 2A
	V 2	586.67	593.35	621.04	649.97	643.65	627.87	584.98	543.94	478.54	478.54	V 2
	VZ 2	456.04	450.27	455.25	534.36	548.29	547.73	477.68	447.80	435.32	435.32	VZ 2
	VZ 2A	426.36	448.41	487.92	522.96	523.66	514.31	465.18	412.70	327.78	327.78	VZ 2A
	V-THETA 2	456.03	450.19	454.96	534.10	548.10	547.47	477.37	447.44	434.84	434.84	V-THETA 2
	V-THETA 2A	-2.93	7.99	15.78	14.90	8.45	7.84	8.05	352.58	352.48	-12.09	V-THETA 2A
	M 2	0.5188	0.5257	0.5786	0.5722	0.5575	0.5171	0.4791	0.4189	0.4189	0.4189	M 2
	M 2A	0.3989	0.3943	0.3993	0.4702	0.4830	0.4626	0.4183	0.3797	0.3797	0.3797	M 2A
	TURN(PR)	43.752	39.891	36.233	34.825	34.614	34.029	36.099	48.148	48.148	48.148	TURN(PR)
	P 2A	18.580	16.680	19.006	19.460	19.484	19.422	16.995	17.926	17.926	17.926	P 2A
	T 2	560.873	559.428	557.919	561.027	561.027	561.027	561.027	561.027	561.027	561.027	T 2
	T 2A	561.248	559.620	558.037	561.148	561.287	560.898	561.629	561.468	561.468	561.468	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (196°) - Station 2 (186°) - Station 2A (175°)

ROTOR E	PCT SPAN	94.99	9C.60	84.99	7C.00	50.00	3C.60	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	33.617	34.001	35.151	36.685	36.219	39.371	29.754	40.138	DIA
STATION 2	BETA 1	1.002	0.409	0.575	0.133	0.209	0.410	0.831	0.311	0.414	BETA 1
	BETA 2	43.574	41.574	38.998	37.765	36.762	35.957	37.960	40.254	45.170	BETA 2
	BETA (PR) 1	52.395	51.409	51.590	51.590	52.756	55.146	57.055	58.032	59.680	BETA (PR) 1
	BETA (PR) 2	25.220	25.990	24.960	25.617	28.868	32.678	37.109	40.256	47.642	BETA (PR) 2
	V 1	460.57	486.64	491.91	510.80	514.35	497.82	472.56	462.44	436.62	V 1
	V 2	596.03	598.11	627.68	648.66	645.54	632.86	595.78	564.01	496.33	V 2
	VZ 1	466.49	486.62	491.91	510.80	514.32	472.42	462.36	429.49	349.23	VZ 1
	VZ 2	427.46	447.44	487.81	512.76	511.56	472.42	468.73	429.49	349.23	VZ 2
	V-THETA 1	8.05	3.47	0.64	1.19	1.88	-3.56	6.85	2.51	3.15	V-THETA 1
	V-THETA 2	406.69	396.89	394.99	397.24	386.17	371.09	365.68	363.64	351.31	V-THETA 2
	V (PR) 1	754.6	780.2	791.8	822.2	849.8	871.0	868.7	873.3	864.8	V (PR) 1
	V (PR) 2	472.5	497.8	538.1	568.7	590.6	608.7	589.1	564.0	519.3	V (PR) 2
	VTHETA PR1	-597.8	-609.8	-620.4	-644.2	-676.5	-714.7	-729.0	-740.8	-746.5	VTHETA PR1
	VTHETA PR2	-201.3	-218.1	-227.1	-245.9	-285.0	-328.1	-354.6	-363.7	-383.0	VTHETA PR2
	U 1	605.90	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 1
	U 2	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	M 1	0.4197	0.4444	0.4494	0.4674	0.4708	0.4650	0.4311	0.4215	0.3972	M 1
	M 2	0.5223	0.5303	0.5587	0.5783	0.5742	0.5624	0.5276	0.4979	0.4354	M 2
	M (PR) 1	0.6877	0.7124	0.7234	0.7523	0.7779	0.7961	0.7924	0.7960	0.7867	M (PR) 1
	M (PR) 2	0.4183	0.4414	0.4789	0.5070	0.5253	0.5409	0.5216	0.4979	0.4556	M (PR) 2
	TURN (PR)	27.175	25.419	26.630	25.976	23.904	22.520	20.036	17.879	12.147	TURN (PR)
	P 1	14.724	14.939	14.969	15.155	15.162	15.126	15.011	14.961	14.775	P 1
	P 2	18.678	18.784	19.151	19.533	19.590	19.561	19.172	18.806	18.119	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	560.083	559.121	558.024	558.551	560.666	560.329	560.247	560.523	561.128	T 2
STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.648	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	43.574	41.574	38.998	37.765	36.762	35.957	37.960	40.254	45.170	BETA 2
	BETA 2A	-0.468	1.212	2.042	1.573	0.971	0.943	1.008	0.869	-2.091	BETA 2A
	V 2	590.03	598.11	627.68	648.66	645.54	632.86	595.78	564.01	496.33	V 2
	VZ 2	451.59	447.44	452.46	525.51	547.10	548.23	491.46	464.83	446.45	VZ 2
	VZ 2A	451.57	446.94	452.16	525.26	546.90	547.95	491.13	464.51	445.83	VZ 2A
	V-THETA 2	406.69	396.89	394.99	397.24	386.17	371.09	365.68	363.64	351.31	V-THETA 2
	V-THETA 2A	-3.69	9.46	16.12	14.42	9.27	8.64	7.05	7.05	-16.28	V-THETA 2A
	M 2	0.5223	0.5303	0.5587	0.5783	0.5742	0.5624	0.5276	0.4979	0.4354	M 2
	M 2A	0.3952	0.3915	0.3968	0.4631	0.4821	0.4834	0.4313	0.4071	0.3902	M 2A
	TURN (PR)	44.041	40.361	36.956	36.190	35.771	34.957	36.857	39.277	47.147	TURN (PR)
	P 2	18.678	18.784	19.151	19.533	19.590	19.561	19.172	18.806	18.119	P 2
	P 2A	18.646	18.413	18.472	19.178	19.395	19.341	18.697	18.463	18.301	P 2A
	T 2	560.083	559.121	558.024	558.551	560.666	560.329	560.247	560.523	561.128	T 2
	T 2A	560.360	559.292	558.091	558.890	560.750	560.290	560.412	560.632	561.291	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (226°) - Station 2 (216°) - Station 2A (205°)

ROTOR E	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA
STATION 2	1.505	1.510	2.257	2.521	2.115	1.320	1.300	1.703	2.879	BETA 1
	42.564	40.052	38.472	36.957	35.795	35.147	37.354	40.455	46.426	BETA 2
	53.084	51.954	51.623	50.442	53.102	55.144	57.518	58.933	59.880	BETA(PR) 1
	26.162	26.559	25.285	26.109	29.464	33.499	37.067	40.941	49.312	BETA(PR) 2
	446.53	470.39	477.34	514.94	495.93	487.68	461.99	440.22	423.15	V 1
	585.65	599.38	627.09	647.76	643.71	626.95	597.98	556.88	482.05	V 2
	446.37	470.22	476.96	514.44	495.57	487.49	461.78	439.95	422.58	VZ 1
	431.33	458.80	490.96	517.59	521.88	511.92	474.29	422.80	331.65	VZ 2
	11.73	12.39	18.80	22.65	18.30	11.23	10.48	13.08	21.25	V-THETA 1
	396.13	385.69	390.13	389.42	376.32	360.41	362.02	360.53	348.58	V-THETA 2
	743.2	763.0	768.3	807.8	825.4	853.0	859.9	852.6	842.1	V(PR) 1
	480.6	512.9	543.0	576.4	599.7	614.8	595.7	560.9	509.6	V(PR) 2
	-594.2	-600.9	-602.3	-622.8	-660.1	-699.9	-725.4	-730.3	-728.4	VTHETA PR1
	-211.9	-229.3	-231.9	-253.7	-294.8	-338.8	-358.3	-366.8	-385.7	VTHETA PR2
	605.90	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 1
	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	0.4065	0.4290	0.4356	0.4714	0.4532	0.4454	0.4211	0.4006	0.3846	M 1
	0.5187	0.5322	0.5589	0.5769	0.5725	0.5565	0.5294	0.4912	0.4222	M 2
	0.6766	0.6959	0.7011	0.7394	0.7544	0.7790	0.7838	0.7758	0.7654	M(PR) 1
	0.4256	0.4555	0.4839	0.5134	0.5334	0.5457	0.5274	0.4948	0.4463	M(PR) 2
	26.922	25.395	26.337	24.335	23.654	21.697	20.542	18.097	10.676	TURN(PR)
	14.704	14.911	14.943	15.197	15.058	15.113	15.007	14.879	14.828	P 1
	18.584	18.743	19.094	19.444	19.492	19.394	19.118	18.658	17.920	P 2
	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	559.063	557.656	556.580	559.478	560.565	560.851	560.743	560.674	561.870	T 2

STATOR E	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2A	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
	42.564	40.052	38.472	36.957	35.795	35.147	37.354	40.455	46.426	BETA 2
	-0.188	2.159	1.865	1.344	0.841	1.086	1.220	1.145	-1.350	BETA 2A
	585.65	599.38	627.09	647.76	643.71	626.95	597.98	556.88	482.05	V 2
	460.07	454.68	466.36	536.46	547.05	545.91	477.55	448.07	434.34	V 2A
	431.33	458.80	490.96	517.59	521.88	511.92	474.29	422.80	331.65	VZ 2
	460.06	454.43	466.01	536.26	546.87	545.61	477.20	447.72	433.91	VZ 2A
	396.13	385.69	390.13	389.42	376.32	360.41	362.02	360.53	348.58	V-THETA 2
	-1.51	14.80	17.57	12.58	8.03	10.34	10.16	8.95	-10.23	V-THETA 2A
	0.5187	0.5322	0.5589	0.5769	0.5725	0.5565	0.5294	0.4912	0.4222	M 2
	0.4031	0.3987	0.4098	0.4725	0.4821	0.4809	0.4184	0.3918	0.3791	M 2A
	42.751	38.186	36.313	35.611	34.004	34.004	36.039	39.202	47.663	TURN(PR)
	18.584	18.743	19.094	19.444	19.492	19.394	19.118	18.658	17.920	P 2
	18.528	18.699	18.601	19.303	19.385	19.320	18.555	18.307	18.196	P 2A
	559.063	557.656	556.580	559.478	560.565	560.851	560.743	560.674	561.870	T 2
	559.063	558.286	556.936	560.268	560.755	561.095	561.006	560.831	562.070	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (256°) - Station 2 (246°) - Station 2A (235°)

ROTOR L	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA
STATION 2	42.208	40.484	39.641	38.268	37.477	36.563	36.831	43.460	50.225	BETA 1
BETA (PR) 1	53.258	51.220	51.004	52.056	53.376	55.657	57.692	59.191	60.921	BETA 2
BETA (PR) 2	24.480	24.084	23.634	25.257	28.563	32.796	36.967	40.525	47.508	BETA (PR) 1
V 1	445.39	483.81	490.53	494.75	494.35	477.08	458.12	436.06	409.59	BETA (PR) 2
V 2	602.56	621.75	638.04	649.79	645.35	628.95	594.90	557.03	501.39	V 1
VZ 1	445.28	463.67	490.28	494.62	494.14	476.83	457.88	435.80	409.32	V 2
VZ 2	446.32	472.89	491.33	510.14	511.92	504.49	462.46	403.51	320.26	VZ 1
V-THETA 1	9.42	11.26	15.53	11.08	13.61	13.29	11.78	12.53	13.62	V-THETA 2
V-THETA 2	404.81	403.65	407.05	402.42	392.48	374.16	372.24	382.38	384.73	V-THETA 1
V(PR) 1	744.4	772.2	779.1	804.4	828.3	845.3	856.7	850.9	842.2	V(PR) 2
V(PR) 2	490.4	518.0	536.3	564.1	583.2	601.0	580.1	532.0	475.0	V(THETA) PR1
V(THETA) PR1	-596.5	-602.0	-605.5	-634.4	-664.8	-697.9	-724.1	-730.8	-736.0	V(THETA) PR2
V(THETA) PR2	-203.2	-211.4	-215.0	-240.7	-278.7	-325.1	-348.1	-344.9	-349.6	U 1
U 1	605.90	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 2
U 2	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	M 1
M 1	0.4054	0.4417	0.4481	0.4521	0.4517	0.4353	0.4174	0.3967	0.3719	M 2
M 2	0.5349	0.5537	0.5693	0.5799	0.5769	0.5590	0.5268	0.4914	0.4398	M(PR) 1
M(PR) 1	0.6776	0.7050	0.7117	0.7351	0.7569	0.7713	0.7806	0.7741	0.7647	M(PR) 2
M(PR) 2	0.4353	0.4613	0.4786	0.5034	0.5190	0.5342	0.5136	0.4693	0.4167	TURN(PR) 1
TURN(PR) 1	28.778	27.136	27.370	26.801	24.829	22.913	20.815	18.771	13.522	TURN(PR) 2
TURN(PR) 2	14.817	15.106	15.136	15.208	15.199	15.167	15.082	14.946	14.775	P 1
P 1	18.825	19.071	19.293	19.515	19.486	19.390	19.045	18.619	18.070	P 2
P 2	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
T 1	558.279	556.942	556.524	557.650	560.070	559.757	560.193	560.629	561.677	T 2

STATOR E	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	42.208	40.484	39.641	38.268	37.477	36.563	36.831	43.460	50.225	BETA 2
BETA 2A	-0.025	2.174	2.094	0.955	0.673	0.949	1.345	1.451	-0.292	BETA 2A
V 2	602.56	621.75	638.04	649.79	645.35	628.95	594.90	557.03	501.39	V 2
V 2A	469.58	462.69	476.85	535.89	547.47	550.49	491.78	466.20	446.64	V 2A
VZ 2	446.32	472.89	491.33	510.14	511.92	504.49	462.46	403.51	320.26	VZ 2
VZ 2A	469.58	462.35	476.51	535.76	547.31	550.21	491.39	465.78	446.31	VZ 2A
V-THETA 2	404.81	403.65	407.05	402.42	392.48	374.16	372.24	382.38	384.73	V-THETA 2
V-THETA 2A	-0.20	17.55	17.42	8.93	6.43	9.11	11.54	11.80	-2.27	V-THETA 2A
M 2	0.5349	0.5537	0.5693	0.5799	0.5769	0.5590	0.5268	0.4914	0.4398	M 2
M 2A	0.4122	0.4065	0.4196	0.4731	0.4827	0.4855	0.4317	0.4083	0.3903	M 2A
TURN(PR)	42.232	38.309	37.547	37.311	36.784	35.556	37.390	41.900	50.406	TURN(PR)
P 2	18.825	19.071	19.293	19.515	19.486	19.390	19.045	18.619	18.070	P 2
P 2A	16.576	18.530	18.657	19.265	19.375	19.337	18.668	18.454	18.283	P 2A
T 2	558.279	556.942	556.524	557.650	560.070	559.757	560.193	560.629	561.677	T 2
T 2A	558.365	556.960	556.404	557.899	560.212	560.138	560.229	560.502	561.528	T 2A

Table A-8. Blade Element Performance (Continued)
 Percent Equivalent Rotor Speed = 99.59 Stage E, Rotor E - Stator E
 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (286°) - Station 2 (276°) - Station 2A (265°)

PER:

ROTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	33.617	34.001	35.151	36.665	38.219	39.371	39.754	40.138	DIA
STATION 2	BETA 1	-1.150	-1.723	-1.070	-0.587	-1.594	0.296	-0.911	-0.838	-0.966	BETA 1
	BETA 2	42.621	42.453	41.457	40.904	40.885	41.339	43.305	45.506	49.644	BETA 2
	BETA(PR) 1	55.349	54.360	54.520	55.738	58.001	59.448	62.622	64.522	67.930	BETA(PR) 1
	BETA(PR) 2	22.990	23.530	23.618	25.564	29.432	34.159	38.055	41.024	44.890	BETA(PR) 2
	V 1	424.76	449.60	448.73	442.77	431.57	418.57	384.36	356.79	306.10	V 1
	V 2	614.58	617.35	628.49	632.79	621.67	598.35	574.74	550.75	522.74	V 2
	VZ 1	424.67	449.39	448.65	442.74	431.38	418.51	384.24	356.69	306.03	VZ 1
	VZ 2	452.23	455.49	471.02	476.25	469.35	448.72	417.48	385.26	337.93	VZ 2
	V-THETA 1	-8.52	-13.52	-8.38	-4.54	-12.00	2.16	-6.11	-5.22	-5.16	V-THETA 1
	V-THETA 2	416.15	416.70	416.09	414.33	406.35	394.75	393.48	392.12	397.69	V-THETA 2
	V(PR) 1	746.9	771.2	773.0	786.4	814.1	823.3	835.6	829.2	814.5	V(PR) 1
	V(PR) 2	491.3	496.8	514.1	530.2	539.2	543.1	531.3	511.8	477.9	V(PR) 2
	VTHETA PR1	-614.4	-626.8	-629.4	-650.0	-690.4	-709.0	-742.0	-748.6	-754.8	VTHETA PR1
	VTHETA PR2	-191.9	-198.3	-206.0	-228.8	-264.8	-304.5	-326.8	-335.2	-336.6	VTHETA PR2
	U 1	605.90	613.25	621.07	645.43	678.30	711.17	735.85	743.35	749.64	U 1
	U 2	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	M 1	0.3861	0.4094	0.4086	0.4030	0.3925	0.3803	0.3484	0.3229	0.2763	M 1
	M 2	0.5432	0.5464	0.5574	0.5604	0.5490	0.5276	0.5051	0.4828	0.4566	M 2
	M(PR) 1	0.7023	0.7038	0.7038	0.7158	0.7403	0.7480	0.7575	0.7504	0.7351	M(PR) 1
	M(PR) 2	0.4342	0.4397	0.4559	0.4695	0.4767	0.4788	0.4669	0.4486	0.4174	M(PR) 2
	TURN(PR)	32.359	30.830	30.902	30.176	28.586	25.342	24.658	23.603	23.151	TURN(PR)
	P 1	14.861	15.049	15.066	15.066	15.067	15.066	14.942	14.813	14.595	P 1
	P 2	16.835	18.861	19.062	19.155	19.101	18.961	18.741	18.489	18.225	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	564.683	562.948	561.942	563.920	564.596	565.013	566.343	566.734	568.217	T 2

STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	42.621	42.453	41.457	40.904	40.885	41.339	43.305	45.506	49.644	BETA 2
	BETA 2A	-0.239	1.600	1.637	0.260	0.465	0.145	1.226	1.667	1.199	BETA 2A
	V 2	614.58	617.35	628.49	632.79	621.07	598.35	574.74	550.75	522.74	V 2
	VZ 2	470.80	463.81	471.46	524.05	529.19	520.72	457.56	433.90	426.88	VZ 2
	VZ 2A	452.23	455.49	471.02	478.25	469.35	448.72	417.48	385.26	337.93	VZ 2A
	V-THETA 2	470.79	463.62	471.25	523.99	529.05	520.52	457.22	433.47	426.48	V-THETA 2
	V-THETA 2A	416.15	416.70	416.09	414.33	406.35	394.75	393.48	392.12	397.69	V-THETA 2A
	M 2	-1.96	12.95	13.47	2.38	4.29	1.32	9.79	12.62	8.93	M 2
	M 2A	0.5432	0.5464	0.5574	0.5604	0.5490	0.5276	0.5051	0.4828	0.4566	M 2A
	TURN(PR)	0.4129	0.4070	0.4143	0.4611	0.4659	0.4584	0.4002	0.3787	0.3719	TURN(PR)
	P 2	42.859	40.852	39.820	40.642	40.400	41.134	41.981	43.730	48.335	P 2
	P 2A	16.635	18.861	19.062	19.155	19.101	18.961	18.741	18.489	18.225	P 2A
	T 2	564.683	562.948	561.942	563.920	564.596	565.013	566.343	566.734	568.217	T 2
	T 2A	559.451	558.431	557.492	560.374	560.167	559.487	561.385	561.837	563.530	T 2A

Table A-8. Blade Element Performance (Continued)

ROTOR E		Station 1 (316°) - Station 2 (306°) - Station 2A (295°)										PCT SPAN	
STATION 2		94.99	90.06	84.99	76.00	66.00	56.00	46.00	36.00	26.00	16.98	9.99	4.96
STATION 2A		35.234	33.617	34.001	35.151	36.685	38.219	39.754	41.288	42.822	44.356	45.890	47.424
STATION 2A		-13.476	-13.110	-11.713	-11.456	-10.705	-10.705	-11.498	-11.498	-11.498	-11.498	-11.498	-11.498
STATION 2A		58.449	60.009	59.346	51.371	51.496	52.652	58.428	58.428	58.428	58.428	58.428	58.428
STATION 2A		66.910	66.034	65.316	65.298	65.298	65.298	65.298	65.298	65.298	65.298	65.298	65.298
STATION 2A		21.569	21.569	30.735	28.237	31.584	35.047	43.433	43.433	43.433	43.433	43.433	43.433
STATION 2A		295.94	312.22	322.60	334.68	346.60	358.55	370.49	382.43	394.37	406.31	418.25	430.19
STATION 2A		574.14	539.60	504.06	468.52	432.98	397.44	361.90	326.36	290.82	255.28	219.74	184.20
STATION 2A		287.76	304.06	315.49	327.42	339.35	351.28	363.21	375.14	387.07	398.99	410.92	422.85
STATION 2A		360.42	269.73	272.66	359.59	356.55	327.42	279.84	232.26	184.68	137.10	89.52	41.94
STATION 2A		-69.07	-70.82	-65.41	-60.00	-54.59	-49.18	-43.77	-38.36	-32.95	-27.54	-22.13	-16.72
STATION 2A		489.26	467.35	449.58	430.72	411.86	393.00	374.14	355.28	336.42	317.56	298.70	279.84
STATION 2A		733.8	748.6	755.5	783.5	816.5	854.5	892.5	930.5	968.5	1006.5	1044.5	1082.5
STATION 2A		323.1	307.5	317.2	408.2	421.1	425.1	429.1	433.1	437.1	441.1	445.1	449.1
STATION 2A		-675.0	-684.1	-686.5	-711.8	-742.6	-772.7	-801.3	-829.9	-858.5	-887.1	-915.7	-944.3
STATION 2A		-116.8	-147.7	-162.1	-193.1	-220.4	-243.8	-264.9	-284.0	-303.1	-322.2	-341.3	-360.4
STATION 2A		605.90	613.25	621.07	645.43	678.38	711.17	735.85	760.52	785.19	809.86	834.53	859.20
STATION 2A		606.02	615.03	622.05	643.09	671.16	699.22	727.31	755.40	783.49	811.58	839.67	867.76
STATION 2A		0.2670	0.2819	0.2910	0.3019	0.3126	0.2994	0.2966	0.2938	0.2910	0.2882	0.2854	0.2826
STATION 2A		0.4999	0.4691	0.4651	0.5028	0.5016	0.4978	0.4940	0.4902	0.4864	0.4826	0.4788	0.4750
STATION 2A		0.6619	0.6758	0.6624	0.7081	0.7385	0.7577	0.7769	0.7961	0.8153	0.8345	0.8537	0.8729
STATION 2A		0.2813	0.2673	0.2759	0.3563	0.3666	0.3691	0.3716	0.3741	0.3766	0.3791	0.3816	0.3841
STATION 2A		45.341	37.333	34.583	37.063	33.860	32.165	24.795	24.795	24.795	24.795	24.795	24.795
STATION 2A		13.682	13.782	13.815	13.858	13.896	13.893	13.879	13.864	13.849	13.834	13.819	13.804
STATION 2A		18.275	17.957	17.979	18.528	18.650	18.712	18.774	18.836	18.898	18.960	19.022	19.084
STATION 2A		518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699
STATION 2A		576.312	574.823	573.807	573.715	576.552	579.297	582.042	584.787	587.532	590.277	593.022	595.767
STATOR E		95.00	90.00	85.00	76.00	66.00	56.00	46.00	36.00	26.00	16.00	6.00	
STATION 2		33.207	33.564	33.921	34.992	36.420	37.848	39.276	40.704	42.132	43.560	44.988	
STATION 2A		58.449	60.009	59.340	51.371	51.498	52.652	58.428	58.428	58.428	58.428	58.428	
STATION 2A		-0.308	0.749	0.676	-0.577	0.397	-0.353	1.161	1.161	1.161	1.161	1.161	
STATION 2A		574.14	539.60	534.68	576.03	576.10	573.35	534.99	534.99	534.99	534.99	534.99	
STATION 2A		398.71	382.32	374.20	417.59	435.05	442.45	411.18	411.18	411.18	411.18	411.18	
STATION 2A		300.42	269.73	272.66	359.59	358.55	347.55	279.84	279.84	279.84	279.84	279.84	
STATION 2A		398.70	382.28	374.16	417.52	434.94	442.28	410.89	410.89	410.89	410.89	410.89	
STATION 2A		489.26	467.35	459.94	449.58	450.72	455.44	455.37	455.37	455.37	455.37	455.37	
STATION 2A		-2.14	5.06	4.41	-4.20	3.01	-2.73	8.33	8.33	8.33	8.33	8.33	
STATION 2A		0.4999	0.4691	0.4651	0.5028	0.5016	0.4978	0.4940	0.4902	0.4864	0.4826	0.4788	
STATION 2A		0.3439	0.3298	0.3230	0.3613	0.3759	0.3817	0.3840	0.3863	0.3886	0.3909	0.3932	
STATION 2A		58.756	59.259	58.664	51.946	51.946	52.947	57.179	57.179	57.179	57.179	57.179	
STATION 2A		18.275	17.957	17.979	18.528	18.650	18.712	18.774	18.836	18.898	18.960	19.022	
STATION 2A		17.998	17.155	17.792	18.092	18.206	18.246	17.992	17.992	17.992	17.992	17.992	
STATION 2A		576.312	574.823	573.807	573.715	576.552	579.297	582.042	584.787	587.532	590.277	593.022	
STATION 2A		572.655	571.246	570.244	570.436	573.021	575.315	577.609	580.003	582.397	584.791	587.185	

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 99.59 Equivalent Rotor Speed = 4192.94 Equivalent Weight Flow = 103.40
 Circumferential Distortion
 Station 1 (346°) - Station 2 (336°) - Station 2A (325°)

ROTOR E	PCT SPAN	94.99	96.00	84.99	70.00	50.00	50.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	32.234	33.617	34.001	35.151	36.085	36.219	39.371	39.754	40.138	DIA
STATION 2	BETA 1	-7.292	-6.895	-5.824	-5.609	-5.763	-6.930	-5.799	-6.761	-5.665	BETA 1
	BETA 2	58.057	59.099	58.728	50.920	49.138	48.790	50.529	53.943	57.917	BETA 2
	BETA(PR) 1	64.619	62.788	62.603	63.718	64.127	66.166	66.606	68.253	71.352	BETA(PR) 1
	BETA(PR) 2	22.265	28.866	33.561	27.850	29.764	33.473	39.225	43.667	46.369	BETA(PR) 2
	V 1	308.53	337.90	341.61	336.60	347.79	334.48	334.74	313.47	263.05	V 1
	V 2	570.82	538.95	518.77	579.72	593.90	589.15	558.78	531.33	523.45	V 2
	VZ 1	306.03	335.59	339.85	334.99	346.01	331.99	332.96	311.24	261.74	VZ 1
	VZ 2	302.00	276.78	269.29	365.45	388.43	387.79	354.71	312.32	277.72	VZ 2
	V-THETA 1	-39.16	-39.39	-34.66	-32.90	-35.04	-40.35	-33.82	-36.90	-25.96	V-THETA 1
	V-THETA 2	484.38	462.45	443.40	450.00	449.02	442.81	430.74	428.98	443.01	V-THETA 2
	V(IPR) 1	714.0	733.9	738.6	756.5	792.9	821.6	838.6	840.1	818.6	V(IPR) 1
	V(IPR) 2	326.3	316.1	323.2	413.3	447.7	465.6	458.8	432.8	403.2	V(IPR) 2
	VTHETA PR1	-645.1	-652.6	-655.7	-678.3	-713.4	-751.5	-769.7	-780.2	-775.6	VTHETA PR1
	VTHETA PR2	-123.6	-152.6	-178.7	-193.1	-222.1	-256.4	-289.6	-298.3	-291.3	VTHETA PR2
	U 1	605.90	613.25	621.07	645.43	678.38	711.17	735.85	743.35	749.64	U 1
	U 2	608.02	615.03	622.05	643.09	671.16	699.22	720.30	727.31	734.33	U 2
	M 1	0.2785	0.3055	0.3069	0.3043	0.3146	0.3023	0.3026	0.2830	0.2369	M 1
	M 2	0.4974	0.4689	0.4510	0.5052	0.5181	0.5135	0.4853	0.4604	0.4529	M 2
	M(IPR) 1	0.6444	0.6634	0.6678	0.6839	0.7172	0.7426	0.7586	0.7584	0.7373	M(IPR) 1
	M(IPR) 2	0.2844	0.2749	0.2809	0.3602	0.3905	0.4058	0.3985	0.3750	0.3489	M(IPR) 2
	TURN(PR)	42.355	33.922	29.042	35.870	34.379	32.746	27.474	24.672	25.094	TURN(PR)
	P 1	15.539	13.689	13.699	13.656	13.661	13.670	13.753	13.695	13.536	P 1
	P 2	18.237	17.922	17.792	18.531	18.808	18.816	18.461	18.192	18.163	P 2
	T 1	518.699	516.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	575.192	574.051	573.070	575.678	576.214	576.672	577.687	577.666	578.651	T 2
STATOR E	PCT SPAN	95.00	96.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	58.057	59.099	58.728	50.920	49.138	46.790	50.529	53.943	57.917	BETA 2
	BETA 2A	0.062	-0.563	-1.434	-1.726	0.672	0.025	1.259	2.294	3.223	BETA 2A
	V 2	570.82	538.95	518.77	579.72	593.90	589.15	558.78	531.33	523.45	V 2
	VZ 2	320.41	311.64	315.57	385.08	417.85	440.94	410.17	396.42	403.25	VZ 2
	VZ 2A	302.00	276.78	269.29	365.45	388.43	387.79	354.71	312.32	277.72	VZ 2A
	V-THETA 2	320.41	311.62	315.46	384.86	417.73	446.77	409.85	395.88	402.32	V-THETA 2
	V-THETA 2A	0.35	-3.06	-7.90	-11.60	4.90	0.19	9.22	15.86	22.66	V-THETA 2A
	M 2	0.4974	0.4689	0.4510	0.5052	0.5181	0.5135	0.4853	0.4604	0.4529	M 2
	M 2A	0.2743	0.2670	0.2707	0.3306	0.3592	0.3799	0.3523	0.3402	0.3458	M 2A
	TURN(PR)	57.994	59.661	60.162	52.644	48.446	48.705	49.143	51.546	54.595	TURN(PR)
	P 2	18.237	17.922	17.792	18.531	18.808	16.816	18.461	18.192	18.163	P 2
	P 2A	17.407	17.416	17.430	17.832	18.055	16.241	18.006	17.929	17.983	P 2A
	T 2	575.192	574.051	573.070	575.678	576.214	576.672	577.687	577.666	578.651	T 2
	T 2A	576.290	575.064	573.876	576.793	576.017	576.684	578.105	578.198	579.456	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (16°) - Station 2 (6°) - Station 2A (355°)

ROTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	LIA	33.424	33.417	34.001	35.151	36.645	38.219	39.371	39.754	40.138	DIA
STATION 2	BETA 1	-7.879	-7.862	-7.879	-7.596	-7.000	-6.431	-6.474	-6.414	-6.156	BETA 1
	BETA 2	56.940	57.874	56.590	51.051	49.343	50.502	59.852	64.189	67.900	BETA 2
	BETA(PR) 1	63.586	61.453	60.957	61.394	62.000	63.101	64.316	64.486	65.945	BETA(PR) 1
	BETA(PR) 2	14.353	23.684	29.616	25.818	26.612	32.257	43.017	48.126	51.093	BETA(PR) 2
	V 1	328.47	366.75	379.83	385.69	391.73	387.69	379.49	380.01	356.15	V 1
	V 2	626.34	573.46	545.84	598.71	606.35	600.83	544.55	528.84	531.34	V 2
	VZ 1	325.38	303.29	376.24	362.51	348.76	385.40	377.00	377.57	354.06	VZ 1
	VZ 2	341.68	304.96	300.45	376.35	345.32	381.83	273.25	230.11	199.79	VZ 2
	V-THETA 1	-4.664	-50.17	-52.07	-50.98	-47.94	-43.43	-42.81	-42.45	-38.19	V-THETA 1
	V-THETA 2	524.93	485.65	455.68	465.60	460.30	463.23	470.49	475.78	492.03	V-THETA 2
	V(PR) 1	731.4	760.2	775.0	798.5	828.1	851.9	869.9	876.6	868.6	V(PR) 1
	V(PR) 2	351.7	333.1	345.6	418.1	450.6	452.2	374.4	345.5	318.6	V(PR) 2
	VTHETA PR1	-655.1	-667.6	-677.6	-701.0	-731.2	-759.7	-783.9	-791.1	-793.2	VTHETA PR1
	VTHETA PR2	-87.4	-133.8	-170.8	-182.1	-215.0	-241.0	-255.0	-256.7	-247.5	VTHETA PR2
	U 1	610.22	617.63	625.50	650.64	683.23	716.24	741.10	748.66	754.99	U 1
	U 2	612.36	619.42	626.49	647.68	675.95	704.21	725.44	732.50	739.57	U 2
	M 1	0.2968	0.3321	0.3442	0.3497	0.3593	0.3517	0.3439	0.3444	0.3223	M 1
	M 2	0.5496	0.5014	0.4765	0.5242	0.5303	0.5243	0.4729	0.4589	0.4607	M 2
	M(PR) 1	0.6604	0.6884	0.7024	0.7239	0.7511	0.7724	0.7883	0.7944	0.7861	M(PR) 1
	M(PR) 2	0.3095	0.2912	0.3016	0.3661	0.3926	0.3946	0.3251	0.2996	0.2763	M(PR) 2
	TURN(PR)	49.232	37.769	31.341	35.578	33.404	30.895	21.394	16.463	14.960	TURN(PR)
	P 1	13.567	13.790	13.756	13.714	13.708	13.717	13.753	13.756	13.663	P 1
	P 2	19.266	18.645	18.375	19.080	19.284	19.299	18.669	18.541	18.599	P 2
	T 1	510.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	573.526	571.767	571.296	572.650	575.626	576.454	576.478	576.099	576.980	T 2
STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	LIA	33.427	33.504	33.921	34.992	36.420	37.646	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	56.940	57.874	56.598	51.051	49.343	50.502	59.853	64.189	67.900	BETA 2
	BETA 2A	-0.269	-1.848	-3.223	-2.398	1.439	0.406	0.406	2.210	3.965	BETA 2A
	V 2	626.34	573.46	565.84	598.71	606.95	606.83	544.55	528.89	531.34	V 2
	V 2A	373.89	352.21	332.40	375.46	411.17	442.19	425.91	413.41	415.51	V 2A
	VZ 2	341.68	304.96	300.49	376.35	395.32	381.83	273.25	230.11	199.79	VZ 2
	VZ 2A	373.88	352.07	331.86	375.09	410.95	442.02	425.66	412.87	414.22	VZ 2A
	V-THETA 2	524.93	485.65	455.68	465.60	460.30	463.23	470.49	475.78	492.03	V-THETA 2
	V-THETA 2A	-2.44	-11.36	-18.69	-15.71	10.32	-2.99	3.02	15.93	28.71	V-THETA 2A
	M 2	0.5496	0.5014	0.4763	0.5242	0.5303	0.5243	0.4729	0.4589	0.4607	M 2
	M 2A	0.3210	0.3024	0.2852	0.3223	0.3528	0.3799	0.3654	0.3546	0.3561	M 2A
	TURN(PR)	57.208	59.721	59.821	53.447	47.884	50.629	59.361	61.894	63.859	TURN(PR)
	P 2	19.266	18.645	18.375	19.080	19.284	19.299	18.669	18.541	18.599	P 2
	P 2A	18.447	17.856	17.735	17.968	18.238	16.464	16.326	18.284	18.283	P 2A
	T 2	573.526	571.767	571.296	572.650	575.626	576.454	576.478	576.099	576.980	T 2
	T 2A	576.134	574.968	574.503	576.379	579.233	580.188	580.422	579.989	580.898	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (46°) - Station 2 (36°) - Station 2A (25°)

ROTOR E	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA
STATION 2	3.676	3.210	3.577	2.296	2.527	1.121	2.210	2.636	3.579	BETA 1
	49.133	47.273	44.175	41.204	41.674	40.154	43.450	47.996	55.021	BETA 2
	53.909	52.234	51.981	52.326	53.670	55.779	57.827	58.773	61.178	BETA(PR) 1
	26.284	25.285	27.431	27.651	30.901	35.283	41.184	45.475	51.915	BETA(PR) 2
	425.82	459.29	467.16	487.26	487.13	480.91	455.58	442.11	402.44	V 1
	567.33	563.27	586.00	615.15	608.14	594.67	549.37	515.47	477.49	V 2
	424.93	458.56	466.24	486.87	486.64	480.75	455.16	441.57	401.62	VZ 1
	371.20	382.18	420.29	462.80	454.07	453.95	398.10	344.35	273.38	VZ 2
	27.30	25.72	29.15	21.48	21.48	9.41	17.57	20.33	25.12	V-THETA 1
	429.03	413.77	408.35	405.21	404.19	383.00	377.13	382.38	390.73	V-THETA 2
	721.4	748.8	757.0	796.6	821.4	854.9	854.8	851.8	833.1	V(PR) 1
	414.0	434.0	473.5	522.5	529.5	556.9	530.0	492.0	443.9	V(PR) 2
	-582.9	-591.9	-596.4	-630.5	-661.7	-706.8	-723.5	-728.3	-729.9	VTHETA PRI
	-183.3	-205.7	-218.1	-242.5	-271.8	-321.2	-348.3	-350.1	-348.8	VTHETA PR2
	610.22	617.63	625.50	650.04	663.23	716.24	741.10	748.66	754.99	U 1
	612.36	619.42	626.49	647.68	675.95	704.21	725.44	732.50	739.57	U 2
	0.3871	0.4185	0.4260	0.4450	0.4449	0.4390	0.4150	0.4024	0.3652	M 1
	0.5005	0.4974	0.5193	0.5461	0.5397	0.5274	0.4845	0.4531	0.4179	M 2
	0.6557	0.6823	0.6902	0.7275	0.7502	0.7803	0.7788	0.7752	0.7561	M(PR) 1
	0.3653	0.3833	0.4197	0.4638	0.4699	0.4939	0.4675	0.4325	0.3885	M(PR) 2
	27.625	23.950	24.550	24.676	22.786	20.549	16.737	13.403	9.370	TURN(PR)
	14.585	14.796	14.849	14.961	14.993	15.020	14.915	14.868	14.638	P 1
	18.490	18.472	18.757	19.191	19.224	19.188	18.738	18.392	18.033	P 2
	518.699	518.699	518.699	516.699	518.699	518.699	518.699	518.699	518.699	T 1
	561.463	559.943	558.395	559.576	559.163	558.566	560.048	560.658	562.246	T 2
STATOR E	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	-0.792	-0.316	-0.602	-0.139	1.162	0.359	0.816	2.224	2.311	BETA 2
	567.33	563.27	566.00	615.15	608.14	594.67	549.37	515.47	477.49	V 2
	401.67	387.78	382.09	438.67	456.19	451.97	403.70	380.69	377.54	VZ 2
	371.20	382.18	420.29	462.80	454.07	453.95	398.10	344.35	273.38	VZ 2
	401.63	387.77	382.05	438.62	456.00	451.79	403.45	380.19	376.97	VZ 2A
	429.03	413.77	408.35	405.21	404.19	383.00	377.13	382.38	390.73	V-THETA 2
	-5.55	-2.14	-4.01	-1.06	8.77	2.83	5.75	14.76	15.21	V-THETA 2A
	0.5005	0.4974	0.5193	0.5461	0.5397	0.5274	0.4845	0.4531	0.4179	M 2
	0.3497	0.3378	0.3833	0.3833	0.3995	0.3519	0.3313	0.3280	0.3280	M 2A
	49.924	47.588	44.777	41.341	40.552	39.735	42.536	45.664	52.606	TURN(PR)
	18.490	18.472	18.757	19.191	19.224	19.188	18.738	18.392	18.033	P 2
	18.740	18.122	18.088	18.534	18.693	18.631	18.198	16.037	16.037	P 2A
	561.463	559.943	558.395	559.576	559.163	558.566	560.048	560.658	562.246	T 2
	562.498	560.760	559.097	560.716	559.966	559.333	561.111	561.630	563.276	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Station 1 (76°) - Station 2 (66°) - Station 2A (55°)

ROTOR E		94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1		33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA
STATION 2		0.627	-0.195	-0.201	-0.006	-0.266	-0.216	-0.433	-0.488	0.145	BETA 1
BETA 2		46.597	45.010	42.728	46.032	39.422	39.221	41.569	44.956	52.056	BETA 2
BETA(PR) 1		54.451	53.432	52.892	52.470	54.640	55.987	58.548	60.134	61.837	BETA(PR) 1
BETA(PR) 2		23.021	24.025	23.866	24.757	28.404	32.183	35.888	38.963	46.214	BETA(PR) 2
V 1		435.92	459.33	474.47	499.38	486.46	484.65	455.51	432.10	403.69	V 1
V 2		601.25	605.88	624.30	650.11	642.33	629.64	603.22	573.88	517.91	V 2
VZ 1		435.91	459.32	474.46	499.38	486.43	484.59	455.41	432.02	403.65	VZ 1
VZ 2		413.13	428.34	458.60	497.75	495.98	487.17	450.29	405.31	317.99	VZ 2
V-THETA 1		0.21	-1.56	-1.66	-0.05	-2.26	-1.84	-3.44	-3.68	1.02	V-THETA 1
V-THETA 2		426.82	428.49	423.60	418.14	407.72	397.62	399.63	404.72	407.82	V-THETA 2
V(PR) 1		749.8	771.0	786.4	819.8	840.6	866.3	872.8	867.6	855.2	V(PR) 1
V(PR) 2		448.9	469.0	501.5	548.2	564.2	576.5	557.1	522.5	460.4	V(PR) 2
VTHETA PRI		-610.0	-619.2	-627.2	-650.1	-685.5	-718.1	-744.5	-752.3	-754.0	VTHETA PRI
VTHETA PR2		-175.5	-190.9	-202.9	-229.5	-268.2	-306.6	-327.8	-327.8	-331.7	VTHETA PR2
U 1		610.22	617.63	625.50	650.04	683.23	716.24	741.10	748.66	754.99	U 1
U 2		612.36	619.42	626.49	647.68	675.95	704.21	725.44	732.50	739.57	U 2
M 1		0.3965	0.4186	0.4329	0.4565	0.4442	0.4425	0.4150	0.3930	0.3664	M 1
M 2		0.5310	0.5358	0.5536	0.5776	0.5694	0.5575	0.5325	0.5051	0.4532	M 2
M(PR) 1		0.6820	0.7625	0.7175	0.7494	0.7676	0.7910	0.7951	0.7890	0.7763	M(PR) 1
M(PR) 2		0.3964	0.4147	0.4447	0.4871	0.5001	0.5104	0.4918	0.4598	0.4028	M(PR) 2
TURN(PR)		31.430	29.407	29.026	27.714	26.251	23.855	22.749	21.274	15.734	TURN(PR)
P 1		14.543	14.729	14.856	15.001	14.925	14.973	14.854	14.708	14.538	P 1
P 2		18.849	18.882	19.118	19.529	19.543	19.533	19.265	18.919	18.341	P 2
T 1		518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
T 2		563.630	562.673	561.731	562.292	563.933	563.851	564.226	564.652	565.874	T 2
STATION 2		95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2A		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2		46.597	45.010	42.728	46.032	39.422	39.221	41.589	44.958	52.056	BETA 2
BETA 2A		-0.868	1.045	1.553	1.725	0.789	0.764	1.019	2.066	1.010	BETA 2A
V 2		601.25	605.88	624.30	650.11	642.33	629.64	603.22	573.88	517.91	V 2
V 2A		427.28	418.14	416.34	482.34	516.01	514.73	468.84	437.39	421.65	V 2A
VZ 2		413.13	428.34	458.60	497.75	495.98	487.17	450.29	405.31	317.99	VZ 2
VZ 2A		427.23	418.06	416.17	482.08	515.85	514.50	468.53	436.86	421.29	VZ 2A
V-THETA 2		436.82	428.49	423.60	418.14	407.72	397.62	399.63	404.72	407.82	V-THETA 2
V-THETA 2A		-6.47	7.63	11.28	14.52	7.10	6.86	8.33	15.76	7.43	V-THETA 2A
M 2		0.5310	0.5358	0.5536	0.5776	0.5694	0.5575	0.5325	0.5051	0.4532	M 2
M 2A		0.3725	0.3647	0.3634	0.4228	0.4519	0.4519	0.4099	0.3814	0.3669	M 2A
TURN(PR)		47.464	43.964	41.175	38.305	38.613	38.393	40.472	42.783	50.937	TURN(PR)
P 2		18.849	18.882	19.118	19.529	19.543	19.533	19.265	18.919	18.341	P 2
P 2A		18.421	18.350	18.350	18.946	19.297	19.244	18.745	18.486	18.343	P 2A
T 2		563.630	562.673	561.731	562.292	563.933	563.851	564.226	564.652	565.874	T 2
T 2A		562.683	561.624	560.554	561.087	562.241	562.025	562.611	563.116	564.420	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (106°) - Station 2 (96°) - Station 2A (85°)

ROTOR E		94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN	
STATION 1		33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.136	DIA	
STATION 2		0.384	0.262	0.242	0.588	0.257	-0.111	-0.305	-1.105	-0.572	BETA 1	
		46.401	44.088	41.656	39.232	38.475	36.117	39.935	44.014	49.789	BETA 2	
		55.185	53.884	53.183	52.842	54.339	56.484	58.515	59.812	62.233	BETA(PR) 1	
		24.581	28.392	27.542	26.869	30.472	34.636	39.341	43.691	50.156	BETA(PR) 2	
		422.41	449.16	466.75	488.88	488.69	475.03	455.45	440.62	399.66	V 1	
		589.02	571.49	594.24	631.97	624.53	607.49	572.18	531.13	481.86	V 2	
		422.39	449.15	466.75	488.86	488.66	474.96	455.36	440.46	399.60	VZ 1	
		406.19	410.62	443.98	489.50	488.72	477.32	437.84	381.22	310.58	VZ 2	
		2.83	2.05	1.97	5.02	2.19	-0.92	-2.42	-8.50	-3.99	V-THETA 1	
		426.55	397.47	394.96	399.68	388.39	374.50	366.55	368.32	367.38	V-THETA 2	
		739.8	762.0	778.9	809.3	838.2	860.2	871.9	876.0	857.8	V(PR) 1	
		446.7	466.8	500.7	548.8	567.3	581.0	567.3	528.3	485.5	V(PR) 2	
		-607.4	-615.6	-623.5	-645.0	-681.0	-717.2	-743.5	-757.2	-759.0	VTHETA PR1	
		-185.8	-221.9	-231.5	-287.6	-248.0	-329.7	-358.9	-372.2	-372.2	VTHETA PR2	
		610.22	617.63	625.50	650.04	683.23	716.24	741.10	748.66	754.99	U 1	
		612.36	619.42	626.49	647.68	675.95	704.21	725.44	732.50	739.57	U 2	
		0.3839	0.4090	0.4256	0.4456	0.4464	0.4334	0.4149	0.4010	0.3627	M 1	
		0.5193	0.5037	0.5256	0.5601	0.5529	0.5371	0.5036	0.4656	0.4202	M 2	
		0.6724	0.6939	0.7102	0.7392	0.7656	0.7848	0.7943	0.7971	0.7783	M(PR) 1	
		0.3938	0.4114	0.4429	0.4863	0.5023	0.5137	0.4993	0.4631	0.4234	M(PR) 2	
		30.604	25.493	25.641	25.975	23.884	21.902	19.267	16.227	12.186	TURN(PR)	
		14.543	14.740	14.882	14.989	15.033	14.979	14.923	14.865	14.654	P 1	
		18.813	18.627	18.904	19.435	19.452	19.370	19.013	18.564	16.669	P 2	
		518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1	
		564.184	562.784	561.271	563.068	563.381	563.653	564.504	565.001	566.566	T 2	
STATOR E		95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN	
STATION 2		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA	
STATION 2A		46.401	44.068	41.656	39.232	38.475	38.117	39.935	44.014	49.789	BETA 2	
		-0.554	1.191	1.448	1.876	C.779	0.832	1.245	1.834	0.852	BETA 2A	
		589.02	571.49	594.24	631.97	624.53	607.49	572.18	531.13	481.86	V 2	
		440.57	425.54	424.44	495.30	514.76	508.27	443.46	416.03	403.28	V 2A	
		406.19	410.62	443.98	489.50	488.72	477.32	437.84	381.22	310.58	VZ 2	
		440.55	425.44	424.28	494.99	514.60	508.03	443.13	415.56	402.95	VZ 2A	
		426.55	397.47	394.96	399.68	388.39	374.50	366.55	368.32	367.38	V-THETA 2	
		-4.26	8.84	10.73	16.21	7.00	7.38	9.65	13.31	5.99	V-THETA 2A	
		0.5193	0.5037	0.5256	0.5601	0.5529	0.5371	0.5036	0.4656	0.4202	M 2	
		0.3838	0.3709	0.3705	0.4335	0.4513	0.4455	0.3863	0.3616	0.3498	M 2A	
		46.954	42.876	40.208	37.254	37.676	37.227	38.593	42.071	48.827	TURN(PR)	
		18.813	18.627	18.904	19.435	19.452	19.370	18.564	18.013	18.089	P 2	
		18.691	18.571	18.568	19.235	19.452	19.355	18.693	18.472	18.364	P 2A	
		564.184	562.784	561.271	563.068	563.381	563.653	564.504	565.001	566.566	T 2	
		564.383	562.812	561.248	563.583	563.557	563.112	564.750	565.116	566.682	T 2A	

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (136°) - Station 2 (126°) - Station 2A (115°)

ROTOR E		STATION 1 (136°) - STATION 2 (126°)										STATION 2A (115°)										
PCT SPAN		94.99	96.00	84.99	76.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN		STATION 2 (126°)									
DIA		33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	4.98	DIA		STATION 2 (126°)									
BETA 1		0.516	0.518	0.336	0.518	0.026	-0.314	-0.442	-0.427	4C.138	BETA 1		STATION 2 (126°)									
BETA 2		47.118	45.578	42.846	40.533	39.729	39.302	41.610	45.525	51.376	BETA 2		STATION 2 (126°)									
BETA (PR) 1		54.442	53.415	52.321	53.958	54.581	57.045	60.543	61.632	61.652	BETA (PR) 1		STATION 2 (126°)									
BETA (PR) 2		24.727	26.894	24.789	25.851	29.378	32.918	37.764	41.288	47.631	BETA (PR) 2		STATION 2 (126°)									
V 1		433.43	455.41	480.91	476.16	485.75	466.07	420.49	409.37	410.17	V 1		STATION 2 (126°)									
V 2		585.36	579.34	615.03	636.18	630.75	621.59	584.24	552.30	505.40	V 2		STATION 2 (126°)									
VZ 1		433.41	455.38	480.89	476.14	485.73	466.00	420.40	409.29	410.10	VZ 1		STATION 2 (126°)									
VZ 2		398.33	405.49	450.93	483.49	484.89	480.39	434.63	386.21	314.99	VZ 2		STATION 2 (126°)									
V-THETA 1		3.90	4.12	2.82	-4.30	0.22	-2.55	-3.24	-3.05	-5.11	V-THETA 1		STATION 2 (126°)									
V-THETA 2		428.92	413.76	418.24	413.42	402.97	393.22	388.74	393.35	394.24	V-THETA 2		STATION 2 (126°)									
V(PR) 1		745.3	764.1	766.8	809.2	838.1	856.7	854.9	855.9	663.7	V(PR) 1		STATION 2 (126°)									
V(PR) 2		438.5	454.7	496.7	537.3	556.7	573.1	551.0	515.1	468.2	V(PR) 2		STATION 2 (126°)									
VTHETA PR1		-606.3	-613.5	-622.7	-654.3	-683.0	-718.8	-744.3	-751.7	-760.1	VTHETA PR1		STATION 2 (126°)									
VTHETA PR2		-183.4	-205.7	-208.3	-234.3	-273.0	-311.0	-336.7	-339.1	-345.3	VTHETA PR2		STATION 2 (126°)									
U 1		610.22	617.63	625.50	650.04	683.23	716.24	741.10	748.66	754.99	U 1		STATION 2 (126°)									
U 2		612.36	619.42	626.49	647.68	675.95	704.21	725.44	732.50	739.57	U 2		STATION 2 (126°)									
M 1		0.3942	0.4149	0.4390	0.4345	0.4436	0.4249	0.3821	0.3717	0.3724	M 1		STATION 2 (126°)									
M 2		0.5164	0.5112	0.5452	0.5649	0.5589	0.5503	0.5151	0.4853	0.4418	M 2		STATION 2 (126°)									
M(PR) 1		0.6779	0.6960	0.7181	0.7384	0.7653	0.7810	0.7768	0.7772	0.7843	M(PR) 1		STATION 2 (126°)									
M(PR) 2		0.3869	0.4012	0.4403	0.4771	0.4933	0.5074	0.4858	0.4526	0.4093	M(PR) 2		STATION 2 (126°)									
TURN(PR)		29.715	26.522	27.532	28.109	25.219	24.179	22.870	20.250	14.131	TURN(PR)		STATION 2 (126°)									
P 1		14.642	14.813	15.011	14.954	15.033	14.942	14.726	14.680	14.728	P 1		STATION 2 (126°)									
P 2		18.769	18.712	19.167	19.526	19.582	19.609	19.215	18.628	18.361	P 2		STATION 2 (126°)									
T 1		518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1		STATION 2 (126°)									
T 2		563.172	562.300	561.109	561.533	563.088	563.135	563.742	564.393	565.804	T 2		STATION 2 (126°)									
PCT SPAN		95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN		STATION 2 (126°)									
DIA		33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA		STATION 2 (126°)									
BETA 2		47.118	45.578	42.846	40.533	39.729	39.302	41.810	45.525	51.376	BETA 2		STATION 2 (126°)									
BETA 2A		-0.309	1.178	1.368	1.861	0.802	0.938	1.333	1.622	0.685	BETA 2A		STATION 2 (126°)									
V 2		585.36	579.34	615.03	636.18	630.75	621.59	584.24	552.30	505.40	V 2		STATION 2 (126°)									
VZ 2		428.91	414.10	407.80	478.54	509.44	505.14	451.11	422.48	405.29	VZ 2		STATION 2 (126°)									
VZ 2A		398.33	405.49	450.93	483.49	464.89	480.39	434.63	386.21	314.99	VZ 2A		STATION 2 (126°)									
V-THETA 2		428.92	413.76	418.24	413.42	402.97	393.22	388.74	393.35	394.24	V-THETA 2		STATION 2 (126°)									
V-THETA 2A		-2.51	8.51	9.74	15.54	7.13	6.27	10.49	11.95	4.84	V-THETA 2A		STATION 2 (126°)									
M 2		0.5164	0.5112	0.5452	0.5649	0.5589	0.5503	0.5151	0.4853	0.4418	M 2		STATION 2 (126°)									
M 2A		0.3757	0.3608	0.3555	0.4190	0.4466	0.4427	0.3935	0.3676	0.3518	M 2A		STATION 2 (126°)									
TURN (PR)		47.426	44.399	41.478	34.670	38.907	38.305	40.379	43.794	50.582	TURN (PR)		STATION 2 (126°)									
P 2		16.769	18.712	19.167	19.526	19.582	19.609	19.215	18.628	18.361	P 2		STATION 2 (126°)									
P 2A		10.670	10.521	10.501	10.526	10.533	10.533	10.533	10.533	10.533	P 2A		STATION 2 (126°)									
T 2		563.172	562.300	561.109	561.533	563.088	563.135	563.742	564.393	565.804	T 2		STATION 2 (126°)									
T 2A		563.532	562.556	561.269	561.882	563.174	563.138	563.945	564.618	565.080	T 2A		STATION 2 (126°)									

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (166°) - Station 2 (156°) - Station 2A (145°)

ROTOR E												STATOR E	
STATION 1												STATION 2	
STATION 2												STATION 2A	
PCT SPAN	94.99	90.00	84.99	70.00	50.00	36.00	14.98	9.99	4.96	PCT SPAN			
DIA	33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138	DIA	5.00		
BETA 1	2.673	2.244	2.274	2.445	1.828	1.687	1.629	1.611	1.600	BETA 2	39.276		
BETA 2	48.344	47.032	44.151	41.580	40.838	40.171	42.645	46.613	52.924	BETA ZA	52.924		
BETA(PRI) 1	53.857	52.445	52.066	52.846	54.576	56.265	58.497	60.110	62.138	BETA ZA	0.165		
BETA(PRI) 2	23.568	26.840	25.936	25.704	26.707	32.568	37.743	41.408	46.965	V 2	513.06		
V 1	430.47	461.34	473.27	477.56	475.55	467.98	443.19	422.14	367.59	V ZA	402.68		
V 2	590.47	575.34	599.20	632.70	633.02	622.23	582.91	550.71	513.06	VZ 2	402.39		
VZ 1	429.93	460.98	472.90	477.12	475.29	467.67	442.71	421.81	386.86	V-THETA 2	408.75		
VZ 2	392.46	392.14	429.93	473.25	478.72	474.88	427.97	377.61	308.87	V-THETA 2A	1.16		
V-THETA 1	21.58	18.06	16.78	20.37	15.17	15.41	18.76	14.81	23.17	M 2	0.4491		
V-THETA 2	441.17	420.99	417.37	419.88	413.78	400.89	394.16	399.49	408.75	M ZA	0.3496		
V(PRI) 1	726.9	756.3	769.2	790.0	819.9	842.6	847.3	846.5	827.6	V(PRI) 1	0.7506		
V(PRI) 2	428.2	439.5	476.1	525.3	546.1	564.3	542.4	504.6	453.4	V(PRI) 2	0.4491		
VTHETA PRI	-588.6	-599.6	-606.7	-629.7	-668.1	-700.8	-722.3	-733.6	-731.8	VTHETA PRI	0.3969		
VTHETA PR2	-171.2	-198.4	-209.1	-227.2	-262.2	-303.3	-331.3	-333.0	-330.8	VTHETA PR2	15.283		
U 1	610.22	617.63	625.50	650.04	683.23	716.24	741.10	748.66	754.99	U 1	14.619		
U 2	612.36	619.42	626.49	647.68	675.95	704.21	725.44	732.50	739.57	U 2	18.409		
M 1	0.3914	0.4205	0.4317	0.4358	0.4358	0.4239	0.4034	0.3836	0.3514	M 1	0.4491		
M 2	0.5214	0.5060	0.5309	0.5612	0.5612	0.5512	0.5140	0.4841	0.4491	M 2	0.7506		
M(PRI) 1	0.6628	0.6893	0.7017	0.7209	0.7461	0.7663	0.7711	0.7693	0.7506	M(PRI) 1	0.3969		
M(PRI) 2	0.3781	0.3661	0.4236	0.4659	0.4841	0.4999	0.4782	0.4436	0.3969	M(PRI) 2	14.619		
TURN(PRI)	30.290	25.605	26.128	27.145	25.879	23.768	20.845	18.807	15.283	TURN(PRI)	18.409		
P 1	14.711	14.908	14.969	14.999	14.999	14.994	14.887	14.788	14.619	P 1	518.699		
P 2	18.831	18.672	18.951	19.451	19.580	19.578	19.163	18.794	18.409	P 2	564.973		
T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1	564.973		
T 2	562.756	561.281	560.008	562.151	562.845	562.611	563.514	563.678	564.973	T 2	564.973		
STATION 2												STATION 2A	
PCT SPAN	95.00	90.00	85.00	70.00	50.00	36.00	15.00	10.00	5.00	PCT SPAN	5.00		
DIA	33.207	33.564	33.921	34.992	36.420	37.846	38.919	39.276	39.633	DIA	39.633		
BETA 2	48.344	47.032	44.151	41.580	40.838	40.171	42.645	46.613	52.924	BETA 2	52.924		
BETA ZA	-0.354	1.046	1.881	1.885	1.261	1.261	1.124	1.482	0.165	BETA ZA	0.165		
V 2	590.47	575.34	599.20	632.70	633.02	622.23	582.91	550.71	513.06	V 2	513.06		
V ZA	429.44	411.04	406.97	478.01	506.62	504.45	443.24	413.07	402.68	V ZA	402.68		
VZ 2	392.46	392.14	429.93	473.25	478.72	474.88	427.97	377.61	308.87	VZ 2	402.39		
VZ 2A	429.43	410.97	406.74	477.70	506.45	504.14	442.93	412.69	402.39	VZ 2A	402.39		
V-THETA 2	441.17	420.99	417.37	419.88	413.78	400.89	394.16	399.49	408.75	V-THETA 2	408.75		
V-THETA ZA	-2.65	7.50	13.36	15.72	11.10	10.68	10.68	10.68	1.16	V-THETA 2A	1.16		
M 2	0.5214	0.5080	0.5309	0.5612	0.5612	0.5512	0.5140	0.4841	0.4491	M 2	0.4491		
M ZA	0.3744	0.3564	0.3552	0.4182	0.4440	0.4422	0.3864	0.3593	0.3496	M ZA	0.3496		
TURN(PRI)	48.697	45.985	42.270	39.693	39.980	38.851	41.423	45.022	52.651	TURN(PRI)	52.651		
P 2	18.831	18.672	18.951	19.451	19.580	19.578	19.163	18.794	18.409	P 2	18.409		
P ZA	18.587	18.469	18.456	19.087	19.374	19.366	18.688	16.465	16.376	P ZA	16.376		
T 2	562.756	561.281	560.008	562.151	562.845	562.611	563.514	563.678	564.973	T 2	564.973		
T 2A	562.837	561.421	559.967	562.640	563.046	562.796	564.034	564.125	565.550	T 2A	565.550		

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (196°) - Station 2 (186°) - Station 2A (175°)

ROTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.96	9.99	4.96	PCT SPAN
STATION 1	DIA	33.254	33.017	34.001	35.151	36.085	38.219	39.371	39.754	40.150	DIA
STATION 2	BETA 1	2.504	2.504	2.504	2.511	2.511	2.571	2.537	2.268	2.445	BETA 1
	BETA 2	47.439	45.611	45.274	41.502	40.657	39.883	42.697	45.420	51.205	BETA 2
	BETA(PK) 1	55.992	54.481	54.277	53.874	55.105	57.472	59.656	60.595	61.843	BETA(PK) 1
	BETA(PK) 2	24.254	26.631	25.506	26.287	29.292	33.263	37.250	40.991	47.774	BETA(PK) 2
	V 1	399.61	427.91	438.99	461.60	466.12	450.10	435.73	413.11	395.59	V 1
	V 2	588.08	581.42	606.54	627.28	646.80	616.03	587.56	555.03	503.98	V 2
	VZ 1	399.16	427.49	438.72	461.48	465.84	449.92	435.37	412.72	395.21	VZ 1
	VZ 2	397.76	406.71	441.56	469.77	475.31	472.13	431.02	388.84	315.27	VZ 2
	V-THETA 1	18.62	16.73	15.48	17.82	15.33	16.77	15.49	16.35	16.60	V-THETA 1
	V-THETA 2	433.15	415.48	415.81	415.64	408.21	394.52	397.69	394.59	392.19	V-THETA 2
	V(PK) 1	713.7	735.6	751.4	782.7	814.3	836.6	846.3	840.6	837.5	V(PK) 1
	V(PK) 2	436.3	455.0	489.3	524.0	545.8	565.5	542.7	516.3	470.0	V(PK) 2
	VTHETA PK1	-591.6	-598.9	-610.0	-632.2	-667.9	-705.5	-725.6	-732.3	-738.4	VTHETA PK1
	VTHETA PK2	-179.2	-203.9	-210.7	-232.0	-267.7	-309.7	-327.7	-337.9	-347.4	VTHETA PK2
	U 1	610.22	617.63	625.53	650.64	683.23	716.24	741.10	748.66	754.99	U 1
	U 2	612.36	619.42	626.44	647.68	675.95	704.21	725.44	732.50	739.57	U 2
	M 1	0.23626	0.23890	0.23994	0.24289	0.24250	0.24099	0.23964	0.23752	0.23589	M 1
	M 2	0.5195	0.5140	0.5378	0.5569	0.5556	0.5454	0.5186	0.4482	0.4410	M 2
	M(PK) 1	0.6476	0.6690	0.6837	0.7134	0.7424	0.7620	0.7696	0.7635	0.7598	M(PK) 1
	M(PK) 2	0.23654	0.24022	0.24330	0.24652	0.24838	0.25007	0.24790	0.24541	0.24112	M(PK) 2
	TURN(PK)	31.738	27.851	28.771	27.589	25.729	24.262	21.877	19.709	14.179	TURN(PK)
	P 1	14.586	14.786	14.856	14.998	15.020	14.987	14.953	14.820	14.727	P 1
	P 2	18.527	18.784	19.091	19.422	19.515	19.506	19.216	18.856	18.326	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	562.618	560.667	559.886	561.624	562.334	562.447	562.679	563.542	564.716	T 2
STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.254	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	47.439	45.611	43.279	41.502	40.657	39.883	42.697	45.420	51.205	BETA 2
	BETA 2A	-0.281	1.299	2.286	1.792	6.871	1.411	1.040	1.525	0.282	BETA 2A
	V 2	588.08	561.42	606.54	627.28	626.80	616.03	587.56	555.03	503.98	V 2
	V 2A	430.74	416.17	415.55	477.55	507.67	513.66	464.46	437.13	423.21	V 2A
	VZ 2	397.76	406.71	441.56	469.77	475.31	472.13	431.02	388.84	315.27	VZ 2
	VZ 2A	430.74	416.06	415.20	477.27	507.70	513.31	464.15	436.72	422.90	VZ 2A
	V-THETA 2	433.15	415.48	415.81	415.64	408.21	394.52	397.69	394.59	392.19	V-THETA 2
	V-THETA 2A	-2.11	9.43	16.57	14.93	7.72	12.64	8.43	11.63	2.08	V-THETA 2A
	M 2	0.5195	0.5140	0.5376	0.5569	0.5556	0.5454	0.5186	0.4482	0.4410	M 2
	M 2A	0.3757	0.3631	0.3629	0.4184	0.4454	0.4507	0.4507	0.3681	0.3683	M 2A
	TURN(PK)	47.719	44.311	40.993	39.758	35.766	38.413	41.559	43.786	50.813	TURN(PK)
	P 2	18.527	18.764	19.091	19.422	19.515	19.506	19.216	18.856	18.326	P 2
	P 2A	18.527	18.475	18.475	19.041	19.347	19.347	18.829	18.611	18.493	P 2A
	T 2	562.618	560.667	559.886	561.624	562.334	562.447	562.679	563.542	564.716	T 2
	T 2A	562.629	560.629	560.625	561.600	562.474	562.433	562.746	563.266	564.424	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (226°) - Station 2 (216°) - Station 2A (205°)

ADICK E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.96	PCT SPAN
STATION 1	DIA	33.224	33.017	34.001	35.121	36.062	36.219	39.371	34.754	40.136	DIA
STATION 2	BETA 1	5.354	5.379	5.544	5.475	5.256	5.263	4.320	5.498	6.894	BETA 1
	BETA 2	45.424	44.814	42.964	41.624	40.666	40.009	42.705	46.847	51.591	BETA 2
	BETA(PK) 1	53.654	52.912	52.805	52.716	54.934	57.113	59.922	60.678	62.753	BETA(PK) 1
	BETA(PK) 2	26.631	27.176	26.361	26.283	29.576	33.576	37.808	40.797	46.438	BETA(PK) 2
	V 1	418.99	437.82	444.20	463.35	452.40	439.00	412.48	397.74	368.70	V 1
	V 2	580.39	579.45	599.99	626.77	624.90	612.41	582.18	556.08	516.00	V 2
	VZ 1	417.15	435.89	442.14	461.23	450.48	437.10	411.23	395.85	366.00	VZ 1
	VZ 2	417.34	411.08	439.06	468.50	473.61	466.49	427.02	381.05	317.27	VZ 2
	V-THETA 1	39.13	41.04	42.91	44.24	41.46	40.26	31.06	38.10	44.25	V-THETA 1
	V-THETA 2	413.41	408.42	408.92	416.31	407.05	393.24	394.11	403.61	465.96	V-THETA 2
	V(IPR) 1	707.2	722.8	731.4	761.4	784.1	805.0	820.6	813.4	799.5	V(IPR) 1
	V(IPR) 2	453.3	462.1	490.0	522.6	545.1	563.1	541.7	504.5	461.3	V(IPR) 2
	VTHETA PR1	-571.1	-576.6	-582.6	-605.8	-641.6	-676.0	-710.0	-710.6	-710.7	VTHETA PR1
	VTHETA PR2	-198.9	-211.0	-217.6	-231.4	-268.9	-311.0	-331.3	-328.9	-333.6	VTHETA PR2
	U 1	610.22	617.63	625.50	650.04	683.23	716.24	741.10	748.66	754.99	U 1
	U 2	612.36	619.42	626.45	647.68	675.95	704.21	725.44	732.50	739.57	U 2
	M 1	0.3807	0.3983	0.4043	0.4224	0.4120	0.3994	0.3746	0.3609	0.3339	M 1
	M 2	0.5135	0.5132	0.5328	0.5565	0.5541	0.5419	0.5126	0.4880	0.4506	M 2
	M(IPR) 1	0.6426	0.6576	0.6657	0.6940	0.7141	0.7325	0.7452	0.7380	0.7240	M(IPR) 1
	M(IPR) 2	0.4011	0.4092	0.4351	0.4690	0.4833	0.4983	0.4769	0.4427	0.4027	M(IPR) 2
	TURN(IPR)	27.823	25.742	26.445	26.435	23.374	23.590	22.205	20.185	16.426	TURN(IPR)
	P 1	14.751	14.907	14.949	15.083	15.022	15.010	14.909	14.665	14.757	P 1
	P 2	16.746	16.746	19.016	19.402	19.463	19.409	19.073	18.785	18.374	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	559.722	558.599	557.683	560.482	561.780	562.627	565.070	566.051	567.695	T 2

STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	45.424	44.814	42.964	41.624	40.666	40.009	42.705	46.647	51.991	BETA 2
	BETA 2A	6.085	2.499	599.99	626.77	624.90	612.41	582.18	556.08	516.00	BETA 2A
	V 2A	447.28	433.99	434.53	491.01	495.03	484.22	430.33	413.61	415.23	V 2A
	VZ 2	407.34	411.08	439.06	468.50	473.81	466.49	427.02	381.05	317.27	VZ 2
	VZ 2A	447.27	433.56	434.16	490.81	494.86	483.94	429.98	413.12	414.69	VZ 2A
	V-THETA 2	413.41	436.42	408.92	416.31	407.65	393.24	394.11	403.61	465.96	V-THETA 2
	V-THETA 2A	0.66	18.92	17.51	12.31	7.81	16.14	10.57	14.56	14.08	V-THETA 2A
	M 2A	0.5135	0.5132	0.5328	0.5565	0.5541	0.5419	0.5126	0.4880	0.4506	M 2A
	M 2	0.3913	0.3797	0.3806	0.4305	0.4338	0.4237	0.3744	0.3592	0.3661	M 2
	TURN(IPR)	45.338	42.314	40.654	40.185	39.742	38.750	41.199	44.520	49.938	TURN(IPR)
	P 2A	18.746	18.746	19.016	19.402	19.463	19.409	19.073	18.785	18.374	P 2A
	P 2	18.753	18.642	18.659	19.172	19.199	19.062	18.530	16.461	18.416	P 2
	T 2	559.722	550.599	557.683	560.482	561.780	562.627	565.070	566.051	567.695	T 2
	T 2A	560.437	559.435	556.073	561.473	562.405	562.913	565.153	565.914	567.695	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (256°) - Station 2 (246°) - Station 2A (235°)

ROTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.96	9.99	4.98	PCT SPAN
STATION 1	DIA	33.224	33.617	34.001	35.151	36.002	36.214	39.371	39.754	40.136	DIA
STATION 2	BETA 1	4.671	4.566	4.534	4.267	4.032	4.671	5.273	5.986	6.072	BETA 1
	BETA 2	43.551	42.985	42.610	41.363	42.284	47.979	60.459	65.329	69.309	BETA 2
	BETA (PR) 1	59.277	57.165	57.154	57.601	59.834	62.735	67.244	70.540	70.540	BETA (PR) 1
	BETA (PK) 2	24.122	23.649	23.367	25.379	26.254	34.206	45.848	47.648	49.917	BETA (PR) 2
	V 1	347.02	300.16	305.35	394.97	381.47	355.44	319.96	302.50	258.57	V 1
	V 2	602.48	618.10	625.65	636.97	631.75	588.42	526.94	536.35	545.94	V 2
	VZ 1	345.86	378.96	384.14	395.87	380.36	354.22	318.57	300.80	257.10	VZ 1
	VZ 2	433.74	452.15	463.41	478.05	467.20	393.52	259.59	223.75	192.80	VZ 2
	V-THETA 1	28.26	30.40	30.46	29.39	28.81	26.94	29.40	31.54	27.35	V-THETA 1
	V-THETA 2	418.14	421.42	426.27	420.91	424.88	436.72	458.05	487.07	510.48	V-THETA 2
	VIPR) 1	677.0	698.9	708.3	735.1	756.9	773.2	779.6	777.7	771.7	VIPR) 1
	VIPR) 2	475.3	493.6	504.8	529.1	530.7	476.5	373.5	332.7	299.9	VIPR) 2
	VTHETA PR1	-582.0	-587.2	-595.0	-620.7	-654.4	-687.3	-711.7	-711.7	-727.6	VTHETA PR1
	VTHETA PR2	-194.2	-196.0	-200.2	-226.8	-251.1	-267.5	-267.4	-245.4	-229.1	VTHETA PR2
	U 1	610.22	617.63	625.50	650.04	663.23	716.24	741.10	748.66	754.99	U 1
	U 2	612.36	619.42	620.49	647.68	675.95	704.21	725.44	732.50	739.57	U 2
	M 1	0.3139	0.3445	0.3493	0.3583	0.3457	0.3216	0.2890	0.2730	0.2329	M 1
	M 2	0.5337	0.5489	0.5600	0.5662	0.5599	0.5184	0.4604	0.4684	0.4762	M 2
	M(PR) 1	0.6123	0.6334	0.6421	0.6628	0.6686	0.6997	0.7042	0.7017	0.6950	M(PR) 1
	M(PR) 2	0.4210	0.4363	0.4490	0.4704	0.4760	0.4198	0.3262	0.2905	0.2616	M(PR) 2
	TURN(PR)	35.155	33.516	33.787	32.224	31.596	28.582	20.133	19.701	20.732	TURN(PR)
	P 1	14.753	14.952	15.004	15.068	15.036	15.016	14.948	14.865	14.882	P 1
	P 2	18.983	19.194	19.365	19.510	19.470	18.957	18.295	18.411	18.504	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	560.509	559.495	559.125	560.438	562.923	565.013	568.102	569.646	571.757	T 2
STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	43.951	42.985	42.610	41.363	42.284	47.979	60.459	65.329	69.309	BETA 2
	BETA 2A	1.040	3.450	2.493	1.192	0.717	-0.127	0.622	1.874	3.361	BETA 2A
	V 2	602.48	618.10	629.65	636.97	631.75	588.42	526.94	536.35	545.94	V 2
	VZ 2	447.49	438.25	444.67	490.12	490.06	462.26	398.55	385.85	393.38	VZ 2
	VZ 2A	433.74	452.15	463.41	478.05	467.20	393.52	259.59	223.75	192.80	VZ 2A
	V-THETA 2	447.41	437.45	444.43	489.97	469.91	462.09	398.32	385.43	392.42	V-THETA 2
	V-THETA 2A	418.14	421.42	426.27	420.91	424.88	436.72	458.05	487.07	510.48	V-THETA 2A
	M 2	8.12	26.37	19.35	10.19	6.13	-1.02	4.32	12.61	23.05	M 2
	M 2A	0.5337	0.5489	0.5600	0.5662	0.5599	0.5184	0.4604	0.4684	0.4762	M 2A
	TURN(PR)	42.910	39.534	40.117	40.169	41.547	48.046	59.752	63.373	65.876	TURN(PR)
	P 2	16.903	16.194	16.365	16.510	15.470	18.957	18.411	18.564	18.564	P 2
	P 2A	10.842	10.852	10.720	10.147	10.004	16.801	16.286	18.196	18.241	P 2A
	T 2	560.509	559.495	559.125	560.438	562.923	565.013	568.102	569.646	571.757	T 2
	T 2A	554.641	550.612	556.160	559.552	561.722	563.301	565.954	567.331	569.375	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 422.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (286°) - Station 2 (276°) - Station 2A (265°)

ROTOR E		STATION 1		STATION 2		STATION 2A		PCT SPAN	
DIA	94.99	96.00	14.99	76.00	50.00	30.00	14.98	9.99	4.98
BETA 1	33.234	33.617	34.001	35.151	36.685	38.219	39.371	39.754	40.138
BETA 2	-5.224	-5.706	-5.448	-4.840	-5.218	-5.086	-5.269	-4.688	-4.994
BETA (PR) 1	44.513	44.521	44.694	46.477	50.365	55.105	61.799	64.123	66.602
BETA (PR) 2	60.405	59.460	59.709	60.962	63.992	66.036	69.340	71.883	75.819
V 1	21.164	21.567	22.103	24.206	28.339	33.037	41.275	44.012	47.051
V 2	362.84	368.83	387.36	380.88	350.37	332.82	290.81	252.58	195.84
VZ 1	626.64	630.15	631.54	626.00	606.87	591.08	568.15	554.75	550.46
VZ 2	364.21	386.69	385.62	378.72	348.90	331.47	289.52	251.70	195.08
V-THETA 1	446.68	449.28	448.94	431.06	387.01	337.91	264.50	241.94	218.46
V-THETA 2	-33.31	-38.66	-36.78	-32.11	-31.86	-29.50	-26.70	-20.64	-17.05
V-THETA (PR) 1	439.35	441.83	444.17	453.90	467.23	484.47	493.28	498.76	504.88
V-THETA (PR) 2	739.5	761.8	766.4	780.2	795.7	816.1	820.6	809.4	796.3
U 1	479.2	483.1	484.6	472.7	439.5	403.7	352.6	337.1	321.2
U 2	-843.5	-656.3	-662.3	-682.1	-715.1	-745.7	-767.8	-769.3	-772.0
M 1	-173.0	-177.6	-182.5	-193.6	-208.7	-219.7	-232.2	-233.7	-234.7
M 2	610.22	617.63	625.50	650.04	683.23	716.24	741.10	748.66	754.99
M (PR) 1	612.36	619.42	626.49	647.68	675.95	704.21	725.44	732.50	739.57
M (PR) 2	0.3313	0.3526	0.3512	0.3545	0.3170	0.3008	0.2623	0.2274	0.1760
TURN (PR) 1	0.5515	0.5554	0.5572	0.5500	0.5146	0.4865	0.4791	0.4744	0.4744
TURN (PR) 2	0.6696	0.6906	0.6948	0.7071	0.7198	0.7376	0.7460	0.7287	0.7155
P 1	39.321	42.258	42.475	44.153	46.384	48.354	50.2911	50.2911	50.2911
P 2	14.782	14.961	14.967	14.972	14.961	14.992	14.897	14.756	14.583
T 1	19.150	19.216	19.253	19.207	19.041	18.907	18.601	18.564	18.572
T 2	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699
T 2A	569.939	568.746	567.780	571.756	574.658	578.122	582.362	583.590	585.391

STATOR E		STATION 2		STATION 2A		PCT SPAN			
DIA	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00
BETA 2	33.207	33.504	33.921	34.992	36.420	37.848	38.919	39.276	39.633
BETA 2A	44.513	44.521	44.694	46.477	50.365	55.105	61.799	64.123	66.602
V 2	3.372	3.668	3.229	1.312	-0.007	-4.058	-3.052	0.082	3.827
V 2A	626.69	630.15	631.54	626.00	606.87	591.08	560.15	554.75	550.46
VZ 2	471.46	459.85	457.65	489.66	468.75	444.69	393.00	385.06	396.48
VZ 2A	446.80	449.28	448.94	431.08	387.01	337.91	264.50	241.94	218.46
V-THETA 2	470.04	458.50	456.91	489.49	468.65	443.41	392.24	384.84	395.31
V-THETA 2A	439.35	441.83	444.17	453.90	467.23	484.47	493.28	498.76	504.88
M 2	27.73	29.42	25.78	11.21	-0.06	-31.46	-20.91	0.55	26.44
M 2A	0.5515	0.5554	0.5572	0.5500	0.5146	0.4865	0.4791	0.4744	0.4744
TURN (PR)	0.4113	0.4012	0.3996	0.4267	0.4071	0.3845	0.3371	0.3297	0.3390
P 2	41.140	40.852	41.465	45.163	50.352	59.105	64.767	63.955	62.696
P 2A	19.150	19.216	19.253	19.207	19.041	18.907	18.601	18.564	18.572
T 2	18.353	18.742	18.731	18.965	18.742	18.564	18.129	18.091	18.169
T 2A	569.939	568.746	567.780	571.756	574.658	578.122	582.362	583.590	585.391
T 2A	565.596	564.252	563.160	567.866	569.883	573.141	578.454	579.996	582.276

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (316°) - Station 2 (306°) - Station 2A (295°)

ROTOR E	PCT SPAN	54.99	50.00	64.94	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	35.617	34.001	35.131	36.888	38.219	39.571	39.754	40.138	DIA
STATION 2	BETA 1	-21.484	-20.468	-19.253	-18.513	-16.325	-19.622	-20.547	-21.850	-23.065	BETA 1
	BETA 2	56.292	58.293	54.632	54.718	57.085	62.194	70.159	72.993	75.943	BETA 2
	BETA(PR) 1	69.896	69.345	69.085	68.451	70.136	71.917	72.971	73.975	75.016	BETA(PR) 1
	BETA(PR) 2	19.630	26.248	28.750	26.409	32.296	38.144	55.205	60.594	65.374	BETA(PR) 2
	V 1	280.44	289.21	292.20	311.96	295.39	261.04	273.90	261.87	248.01	V 1
	V 2	593.38	558.08	549.95	587.13	571.53	563.23	507.83	496.69	493.18	V 2
	VZ 1	260.95	270.95	275.86	295.81	280.40	264.69	256.43	243.02	228.17	VZ 1
	VZ 2	329.30	293.31	266.27	339.12	310.50	262.62	172.30	145.23	119.76	VZ 2
	V-THETA 1	-102.71	-101.13	-96.35	-99.05	-92.87	-94.36	-96.12	-97.45	-97.16	V-THETA 1
	V-THETA 2	453.61	474.78	465.57	479.27	479.69	497.97	477.50	474.82	478.30	V-THETA 2
	V(PR) 1	759.2	768.1	772.8	805.4	825.7	852.7	875.6	880.3	882.2	V(PR) 1
	V(PR) 2	350.1	327.0	326.5	378.7	367.5	334.4	302.3	296.1	287.6	V(PR) 2
	VTHETA PRI	-712.9	-718.0	-721.8	-749.1	-776.1	-810.6	-837.2	-846.1	-852.2	VTHETA PRI
	VTHETA PR2	-118.8	-144.6	-156.9	-168.4	-196.3	-206.2	-247.9	-257.7	-261.3	VTHETA PR2
	U 1	610.22	617.63	625.50	650.04	663.23	716.24	761.10	748.66	754.99	U 1
	U 2	612.36	619.42	626.49	647.68	675.95	734.21	725.44	732.50	739.57	U 2
	M 1	0.2528	0.2608	0.2635	0.2816	0.2816	0.2533	0.2468	0.2359	0.2232	M 1
	M 2	0.5158	0.4841	0.4770	0.5103	0.4943	0.4855	0.4355	0.4255	0.4222	M 2
	M(PR) 1	0.6843	0.6927	0.6969	0.7271	0.7444	0.7687	0.7891	0.7929	0.7941	M(PR) 1
	M(PR) 2	0.3043	0.2837	0.2831	0.3291	0.3179	0.2882	0.2592	0.2536	0.2462	M(PR) 2
	TURN(PR)	50.066	43.098	40.355	42.044	37.857	33.829	17.856	13.472	9.720	TURN(PR)
	P 1	13.883	13.927	13.937	14.013	14.012	14.016	14.013	13.989	13.949	P 1
	P 2	18.750	18.399	18.364	18.658	18.819	18.757	18.268	18.183	18.197	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	580.117	576.670	578.338	579.608	585.479	586.479	587.232	587.508	588.194	T 2
STATOR E	PCT SPAN	95.00	90.00	65.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	56.292	58.293	58.632	54.718	57.085	62.194	70.159	72.993	75.943	BETA 2
	BETA 2A	4.338	2.890	2.669	0.783	-0.256	-6.090	-4.965	-0.795	4.129	BETA 2A
	V 2	593.38	558.08	549.95	587.13	571.53	563.23	507.83	496.69	493.18	V 2
	V 2A	428.85	410.67	401.44	403.68	382.82	378.74	355.56	348.00	356.79	V 2A
	VZ 2A	329.30	293.31	280.27	339.12	310.50	262.62	172.30	145.23	119.76	VZ 2A
	VZ 2	427.62	410.14	400.99	403.60	382.74	376.47	354.05	347.77	355.61	VZ 2
	V-THETA 2	493.61	474.78	469.57	479.27	479.69	497.97	477.50	474.82	478.30	V-THETA 2
	V-THETA 2A	32.44	20.71	18.69	5.52	-1.71	-40.17	-30.76	-4.83	25.67	V-THETA 2A
	M 2	0.5158	0.4841	0.4770	0.5103	0.4943	0.4855	0.4355	0.4255	0.4222	M 2
	M 2A	0.3691	0.3534	0.3455	0.3468	0.3274	0.3228	0.3023	0.2956	0.3029	M 2A
	TURN(PR)	51.953	55.402	55.963	53.933	57.322	68.232	75.056	73.726	71.764	TURN(PR)
	P 2	16.750	16.349	16.304	16.856	16.819	16.757	16.266	16.183	18.197	P 2
	P 2A	16.573	16.214	16.158	18.144	17.985	17.942	17.815	17.799	17.843	P 2A
	T 2	580.117	576.670	578.338	579.608	585.479	586.479	587.232	587.508	588.194	T 2
	T 2A	577.189	575.949	575.348	577.237	581.290	584.634	586.334	586.923	587.863	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 100.31 Equivalent Rotor Speed = 4222.87 Equivalent Weight Flow = 92.60
 Circumferential Distortion
 Station 1 (346°) - Station 2 (336°) - Station 2A (325°)

MOTOR E		STATION 1		STATION 2		STATION 2A		PCT SPAN		PCT SPAN	
LIA	94.99	90.00	70.00	50.00	30.00	14.98	9.99	4.98			
BETA 1	33.424	33.617	35.151	36.685	36.219	39.371	39.754	46.136			
BETA 2	14.720	15.161	11.271	11.143	11.351	10.036	9.584	9.892			
BETA(PR) 1	68.046	59.491	58.993	52.066	52.969	60.051	63.113	66.648			
BETA(PR) 2	19.908	27.425	31.506	31.344	34.319	45.500	48.708	52.273			
V 1	317.32	337.91	339.45	347.34	349.98	333.85	314.21	275.52			
V 2	569.53	550.61	534.16	581.30	562.72	528.24	521.08	517.34			
VZ 1	306.90	329.17	331.70	340.64	342.13	327.26	309.77	271.40			
VZ 2	315.10	279.53	275.17	357.04	350.67	263.49	235.47	204.94			
V-THETA 1	-80.63	-76.36	-72.12	-67.69	-65.70	-57.51	-52.31	-47.33			
V-THETA 2	498.25	474.37	457.83	469.62	464.83	457.31	464.39	474.67			
VIPR) 1	756.0	768.1	772.5	794.6	836.6	847.7	862.2	847.0			
VIPR) 2	335.1	314.9	322.7	339.0	418.5	425.2	376.6	335.4			
VTHETA PR1	-690.9	-694.6	-697.6	-717.9	-756.8	-781.9	-801.0	-802.3			
VTHETA PR2	-114.1	-145.0	-168.7	-178.1	-217.6	-239.4	-268.1	-264.9			
U 1	610.22	617.63	625.50	650.04	663.23	716.24	741.10	754.99			
U 2	612.56	619.42	626.49	647.68	675.95	704.21	725.44	739.57			
M 1	0.2865	0.3055	0.3069	0.3142	0.3166	0.3017	0.2982	0.2483			
M 2	0.5127	0.4778	0.4633	0.5126	0.5044	0.5051	0.4489	0.4451			
M(PR) 1	0.6826	0.6944	0.6984	0.7187	0.7514	0.7682	0.7791	0.7633			
M(PR) 2	0.2915	0.2733	0.2799	0.3467	0.3632	0.3686	0.3079	0.2686			
TURN(PR)	46.140	37.200	33.063	38.112	34.348	33.023	22.455	19.146			
P 1	13.799	13.920	13.696	13.903	13.912	13.911	13.964	13.776			
P 2	16.765	16.295	16.192	18.869	18.930	16.942	18.399	16.337			
T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699			
T 2	579.053	577.902	576.699	580.066	580.600	582.092	583.463	584.530			
STATOR E		STATION 2		STATION 2A		PCT SPAN		PCT SPAN		PCT SPAN	
LIA	95.00	90.00	70.00	50.00	30.00	15.00	10.00	5.00			
BETA 1	33.4207	33.564	33.921	36.420	37.848	38.919	39.276	39.633			
BETA 2	57.690	59.491	58.993	52.066	52.969	60.051	63.113	66.648			
BETA 2A	1.794	-0.074	-1.121	1.416	0.747	-2.086	4.332	4.332			
V 2	589.53	550.61	534.16	589.95	561.30	528.24	521.08	517.34			
V 2A	316.58	302.42	297.38	365.26	391.97	411.46	376.29	386.17			
VZ 2	315.10	279.53	275.17	357.04	350.67	263.49	235.47	204.94			
VZ 2A	316.43	302.41	297.31	365.11	391.65	410.72	376.04	384.79			
V-THETA 2	498.25	474.37	457.83	469.62	464.83	457.31	464.39	474.67			
V-THETA 2A	9.91	-0.59	-5.82	9.63	5.11	-14.01	29.15	29.15			
M 2	0.5127	0.4778	0.4633	0.5126	0.5044	0.5051	0.4489	0.4451			
M 2A	0.2702	0.2582	0.2541	0.3122	0.3355	0.3521	0.3208	0.3290			
TURN(PR)	55.495	59.564	60.114	54.169	55.996	62.150	62.162	62.237			
P 2	17.705	18.295	16.192	18.889	18.930	16.343	18.337	16.087			
P 2A	17.660	17.574	17.556	17.917	18.124	16.066	16.025	16.087			
T 2	579.053	577.902	576.699	580.066	580.600	582.092	583.463	584.530			
T 2A	579.759	578.567	577.431	580.602	580.719	582.295	584.212	585.646			

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 81.27
 Circumferential Distortion
 Station 1 (16°) - Station 2 (6°) - Station 2A (355°)

ROTOR E	PCT SPAN	94.99	95.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.207	33.517	34.001	35.151	36.681	38.211	39.271	39.754	40.136	DIA
STATION 2	BETA 1	-7.109	-7.157	-7.205	-7.136	-6.965	-5.224	-6.300	-6.300	-6.275	BETA 1
	BETA 2	56.174	56.742	55.441	51.143	50.426	50.820	56.257	61.654	65.565	BETA 2
	BETA(PR) 1	65.0P4	63.057	63.061	62.523	62.300	64.500	65.101	65.188	66.732	BETA(PR) 1
	BETA(PR) 2	15.343	25.687	31.399	27.580	30.658	33.347	42.892	48.269	51.385	BETA(PR) 2
	V 1	268.43	291.21	303.45	322.60	339.63	328.58	323.00	324.88	303.50	V 1
	V 2	591.19	467.41	474.09	516.21	523.90	523.90	473.85	460.08	458.66	V 2
	VZ 1	266.36	288.94	300.99	320.10	337.33	326.60	320.99	322.87	301.65	VZ 1
	VZ 2	306.63	272.78	268.93	325.10	331.91	336.70	249.05	216.81	189.60	VZ 2
	V-THETA 1	-33.22	-36.28	-38.57	-40.07	-39.35	-35.65	-35.44	-35.64	-33.17	V-THETA 1
	V-THETA 2	457.89	415.94	390.44	403.52	401.61	405.76	405.34	405.34	417.30	V-THETA 2
	V(PR) 1	632.5	650.7	664.4	693.8	727.1	745.1	762.4	769.4	763.6	V(PR) 1
	V(PR) 2	318.2	303.2	315.1	366.8	386.5	396.5	346.2	326.3	304.3	V(PR) 2
	VTHETA PR1	-573.4	-583.0	-592.3	-615.5	-644.1	-669.7	-691.5	-698.4	-701.5	VTHETA PR1
	VTHETA PR2	-84.2	-132.4	-164.1	-169.8	-196.7	-217.6	-239.6	-243.1	-237.4	VTHETA PR2
	U 1	540.18	546.74	553.70	575.43	604.80	634.08	656.04	662.72	668.33	U 1
	U 2	542.07	548.32	554.58	572.34	598.36	623.38	642.17	648.42	654.66	U 2
	M 1	0.2418	0.2626	0.2738	0.2914	0.3071	0.2969	0.2918	0.2935	0.2739	M 1
	M 2	0.4863	0.4374	0.4164	0.4562	0.4576	0.4601	0.4146	0.4021	0.4008	M 2
	M(PR) 1	0.5096	0.5868	0.5995	0.6267	0.6574	0.6752	0.6687	0.6951	0.6891	M(PR) 1
	M(PR) 2	0.2607	0.2666	0.2767	0.3329	0.3390	0.3482	0.3029	0.2852	0.2659	M(PR) 2
	TURN(PR)	49.741	37.750	31.662	34.944	31.719	30.707	21.302	17.024	15.455	TURN(PR)
	P 1	13.607	13.909	13.932	13.933	13.559	13.983	14.008	14.046	13.948	P 1
	P 2	18.100	17.641	17.462	17.962	18.069	16.180	17.735	17.631	17.631	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	559.801	556.781	558.120	559.279	562.292	562.462	562.245	562.266	562.594	T 2

STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2A	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
	BETA 2	56.174	56.742	55.461	51.143	50.428	50.820	58.257	61.859	65.565	BETA 2
	BETA 2A	0.516	-1.500	-2.859	-2.800	1.122	-0.727	0.132	1.574	4.301	BETA 2A
	V 2	551.19	497.41	474.09	516.21	523.90	523.90	473.83	460.08	458.66	V 2
	V 2A	343.59	322.25	267.30	339.86	363.75	389.28	372.83	360.61	363.32	V 2A
	VZ 2	306.53	272.78	268.93	325.10	331.91	330.70	249.05	216.81	189.60	VZ 2
	VZ 2A	343.37	322.13	306.91	339.42	363.60	369.11	372.64	360.27	362.03	VZ 2A
	V-THETA 2	457.69	415.94	390.44	403.52	401.61	405.76	405.34	405.34	417.30	V-THETA 2
	V-THETA 2A	3.03	-8.44	-15.33	-16.60	7.12	-4.94	0.86	9.90	27.23	V-THETA 2A
	M 2	0.4863	0.4374	0.4164	0.4562	0.4576	0.4601	0.4146	0.4021	0.4008	M 2
	M 2A	0.2980	0.2796	0.2666	0.2949	0.3153	0.3377	0.3231	0.3124	0.3147	M 2A
	TURN(PR)	55.607	58.241	50.300	53.940	49.286	51.487	58.036	60.194	61.182	TURN(PR)
	P 2A	18.169	17.641	17.462	17.962	18.069	16.180	17.735	17.631	17.631	P 2A
	P 2	17.385	17.242	17.141	17.315	17.453	17.637	17.534	17.488	17.511	P 2
	T 2	559.801	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 2
	T 2A	562.262	561.254	560.565	562.262	562.292	562.462	562.245	562.266	562.594	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (46°) - Station 2 (36°) - Station 2A (25°)

NU/LR L	PCT SPAN	90.00	84.99	70.00	50.00	14.9P	4.9P	4.9B	PCT SPAN
STATION 1	DIA	33.017	34.001	35.111	36.085	38.219	39.754	40.156	DIA
STATION 2	BETA 1	3.160	3.577	1.564	2.941	1.500	2.718	3.242	BETA 1
	BETA 2	49.941	44.765	41.969	41.913	44.330	49.306	55.114	BETA 2
	BETA(PR) 1	53.209	51.514	51.707	54.249	56.255	59.411	62.725	BETA(PR) 1
	BETA(PR) 2	25.618	27.961	28.217	31.268	40.525	45.778	52.030	BETA(PR) 2
	V 1	386.75	413.11	420.17	420.46	415.79	381.56	335.38	V 1
	V 2	504.81	499.67	537.07	534.51	523.37	434.76	422.06	V 2
	VZ 1	386.00	412.13	419.93	419.86	368.10	381.06	334.81	VZ 1
	VZ 2	325.06	335.62	399.26	397.61	350.58	296.02	241.09	VZ 2
	V-THETA 1	24.03	28.37	14.00	21.57	11.98	18.09	18.96	V-THETA 1
	V-THETA 2	386.19	364.54	359.11	356.91	344.19	344.25	345.77	V-THETA 2
	V(PR) 1	644.5	672.3	701.1	718.7	748.1	748.9	730.6	V(PR) 1
	V(PR) 2	360.5	413.8	453.1	465.4	462.1	425.2	392.4	V(PR) 2
	VTHETA PR1	-516.1	-527.7	-561.4	-583.2	-622.1	-644.6	-649.4	VTHETA PR1
	VTHETA PR2	-155.9	-190.0	-214.2	-241.4	-279.2	-304.2	-308.9	VTHETA PR2
	U 1	546.18	546.74	575.43	604.80	634.03	682.72	668.33	U 1
	U 2	542.07	548.32	573.54	598.36	623.38	648.42	654.68	U 2
	M 1	0.3556	0.3752	0.3818	0.3777	0.3522	0.3458	0.3031	M 1
	M 2	0.4468	0.4427	0.4772	0.4749	0.4648	0.4611	0.3709	M 2
	M(PR) 1	0.5843	0.6108	0.6371	0.6530	0.6796	0.6811	0.6604	M(PR) 1
	M(PR) 2	0.3191	0.3676	0.4027	0.4135	0.4291	0.4375	0.3445	M(PR) 2
	TURN(PR)	27.591	24.366	24.990	22.997	20.948	13.739	10.802	TURN(PR)
	P 1	14.605	14.804	14.891	14.947	14.952	14.850	14.626	P 1
	P 2	17.676	17.653	18.105	18.170	18.145	17.889	17.298	P 2
	T 1	545.659	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	552.509	549.676	551.012	550.965	550.392	552.081	553.573	T 2
STATOR E	PCT SPAN	95.00	85.00	70.00	50.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	34.992	36.420	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	49.911	44.763	41.969	41.913	44.330	49.308	55.114	BETA 2
	BETA 2A	0.641	0.279	-0.270	0.936	0.797	1.688	2.522	BETA 2A
	V 2	504.61	499.67	537.07	534.51	490.97	454.76	422.06	V 2
	V 2A	363.71	350.42	395.11	400.47	357.32	339.94	337.24	V 2A
	VZ 2	325.08	335.62	399.26	393.44	350.58	296.02	241.09	VZ 2
	VZ 2A	363.68	350.41	395.16	400.73	357.10	339.60	336.67	VZ 2A
	V-THETA 2	386.19	370.16	359.11	344.19	342.46	344.25	345.77	V-THETA 2
	M 2	4.07	1.71	-1.66	6.61	6.97	10.01	14.83	M 2
	M 2A	0.4468	0.4427	0.4772	0.4749	0.4344	0.4011	0.3709	M 2A
	M 2A(PR)	49.269	47.522	44.429	40.957	43.434	47.512	52.488	M 2A(PR)
	P 2	17.676	17.653	18.105	18.170	17.689	17.562	17.298	P 2
	P 2A	17.676	17.445	17.57	17.438	17.450	17.353	17.338	P 2A
	T 2	553.009	550.900	551.012	550.965	551.596	552.081	553.575	T 2
	T 2A	553.009	549.677	551.839	551.475	552.350	552.802	554.362	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (76°) - Station 2 (66°) - Station 2A (55°)

ROTOR E	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.99	4.98	PCT SPAN
DIA	DIA	33.204	33.017	24.001	25.191	26.685	38.214	39.571	39.754	4.136	DIA
BETA 1	BETA 1	-0.423	-0.692	-0.801	-0.739	-0.802	-0.590	-1.124	-0.801	-0.780	BETA 1
BETA 2	BETA 2	46.454	44.384	42.383	40.299	39.589	39.516	41.551	45.767	52.152	BETA 2
BETA(PR) 1	BETA(PR) 1	55.767	53.630	53.461	53.542	55.170	56.965	59.424	60.679	62.659	BETA(PR) 1
BETA(PR) 2	BETA(PR) 2	22.199	23.685	23.459	24.448	27.646	32.224	37.197	41.104	46.955	BETA(PR) 2
V 1	V 1	369.43	406.29	414.36	429.09	423.97	415.16	392.31	375.27	348.07	V 1
V 2	V 2	538.87	539.73	557.55	577.11	574.02	556.03	522.57	490.24	453.24	V 2
VZ 1	VZ 1	369.41	406.26	414.32	429.06	423.92	415.08	392.16	375.16	368.01	VZ 1
V-THETA 1	V-THETA 1	371.24	365.74	411.80	440.13	443.45	428.41	390.31	341.34	277.68	V-THETA 1
V-THETA 2	V-THETA 2	-2.73	-4.91	-5.82	-5.31	-4.45	-4.27	-7.65	-5.25	-4.74	V-THETA 2
V(PR) 1	V(PR) 1	390.58	377.50	375.68	373.24	364.11	353.35	345.94	350.61	357.37	V(PR) 1
V(PR) 2	V(PR) 2	656.7	685.1	696.2	722.0	742.2	701.4	771.0	766.1	757.7	V(PR) 2
V-THETA PR1	V-THETA PR1	401.0	421.9	448.9	483.5	501.6	507.2	491.1	454.0	407.6	V-THETA PR1
V-THETA PR2	V-THETA PR2	-542.9	-551.6	-559.5	-580.7	-609.3	-638.3	-663.7	-668.0	-673.1	V-THETA PR2
U 1	U 1	540.18	546.74	553.70	575.43	604.80	634.03	656.04	662.72	668.33	U 1
U 2	U 2	542.07	548.32	554.58	573.34	598.36	623.38	642.17	648.42	654.68	U 2
M 1	M 1	0.3346	0.3688	0.3764	0.3901	0.3853	0.3771	0.3558	0.3400	0.3146	M 1
M 2	M 2	0.4776	0.4788	0.4957	0.5138	0.5101	0.4935	0.4623	0.4325	0.3984	M 2
M(PR) 1	M(PR) 1	0.5947	0.6219	0.6324	0.6565	0.6746	0.6501	0.6192	0.6941	0.6854	M(PR) 1
M(PR) 2	M(PR) 2	0.3554	0.3743	0.3991	0.4305	0.4459	0.4501	0.4344	0.4005	0.3583	M(PR) 2
TURN(PR)	TURN(PR)	33.568	29.745	30.022	29.096	27.340	24.792	22.317	19.680	15.814	TURN(PR)
P 1	P 1	14.535	14.767	14.851	14.935	14.902	14.930	14.862	14.770	14.618	P 1
P 2	P 2	18.019	18.017	18.212	16.501	16.552	18.465	18.164	17.856	17.531	P 2
T 1	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
T 2	T 2	553.880	553.018	552.245	552.754	554.463	554.063	554.414	554.702	555.568	T 2

STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	DIA	33.217	33.564	33.921	34.992	36.420	37.846	38.919	39.276	39.633	DIA
BETA 2	BETA 2	46.454	44.382	42.389	40.299	39.589	39.516	41.551	45.767	52.152	BETA 2
BETA 2A	BETA 2A	0.789	1.715	2.099	1.723	0.778	0.730	1.128	1.718	1.263	BETA 2A
V 2	V 2	538.87	539.73	557.55	577.11	574.02	556.03	522.57	490.24	453.24	V 2
VZ 2	VZ 2	380.07	374.63	375.25	434.14	457.37	452.43	403.89	385.34	372.05	VZ 2
VZ 2A	VZ 2A	371.24	385.74	411.80	440.13	443.45	428.41	390.31	341.34	277.68	VZ 2A
V-THETA 2	V-THETA 2	380.03	374.46	374.96	433.90	457.22	452.23	463.61	384.95	371.69	V-THETA 2
V-THETA 2A	V-THETA 2A	390.58	377.50	375.88	373.24	364.11	353.35	345.94	350.61	357.37	V-THETA 2A
M 2	M 2	5.23	11.21	13.74	13.05	6.21	7.95	8.19	11.55	0.3984	M 2
M 2A	M 2A	0.4776	0.4788	0.4957	0.5138	0.4935	0.4623	0.4325	0.3984	0.3984	M 2A
M 2A	M 2A	0.3333	0.3287	0.3295	0.3825	0.4031	0.3988	0.3547	0.3379	0.3257	M 2A
TURN(PR)	TURN(PR)	45.664	42.666	40.250	38.574	38.591	38.727	40.325	43.940	50.781	TURN(PR)
P 2	P 2	18.019	18.017	18.212	16.501	16.552	18.465	18.164	17.856	17.531	P 2
P 2A	P 2A	17.664	17.620	17.624	16.663	16.271	18.206	17.767	17.635	17.540	P 2A
T 2	T 2	553.880	553.018	552.245	552.754	554.463	554.063	554.414	554.702	555.568	T 2
T 2A	T 2A	553.124	552.223	551.393	551.870	553.198	552.741	553.232	553.617	554.656	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (106°) - Station 2 (96°) - Station 2A (85°)

ROTOR E	PCT SPAN	94.95	50.00	64.99	70.00	50.00	30.00	14.99	9.99	4.98	PCT SPAN
STATION 1	DIA	33.234	55.017	54.001	35.151	36.685	38.219	39.374	39.754	40.136	DIA
STATION 2	BETA 1	-0.195	0.318	0.577	0.947	-0.570	-0.157	-0.407	-1.366	-0.504	BETA 1
	BETA 2	46.000	44.098	41.560	39.386	36.545	38.246	39.660	43.667	49.301	BETA 2
	BETA(PR) 1	57.130	55.041	53.628	53.085	54.749	57.171	59.766	61.083	63.591	BETA(PR) 1
	BETA(PR) 2	23.372	26.535	26.032	26.329	30.063	33.623	39.359	43.595	50.151	BETA(PR) 2
	V 1	349.63	360.77	404.82	427.07	429.44	409.75	384.01	371.15	333.40	V 1
	V 2	531.69	519.99	539.03	563.78	556.43	546.93	506.82	471.06	425.99	V 2
	VZ 1	349.82	380.76	404.80	427.01	429.41	409.70	383.93	370.98	333.35	VZ 1
	VZ 2	369.34	373.43	403.33	435.71	435.00	428.97	389.37	340.06	277.32	VZ 2
	V-THETA 1	-1.119	2.111	4.08	7.06	-2.77	-0.98	-2.73	-6.85	-2.93	V-THETA 1
	V-THETA 2	362.46	361.85	357.59	357.72	346.57	336.15	322.81	324.62	322.42	V-THETA 2
	V(PR) 1	644.6	664.5	682.6	710.9	744.0	755.7	762.5	767.3	749.5	V(PR) 1
	V(PR) 2	402.4	417.4	448.9	486.2	502.9	515.9	504.6	470.5	433.5	V(PR) 2
	VTHETA PR1	-541.4	-544.6	-549.6	-568.4	-607.6	-635.0	-656.8	-671.6	-671.3	VTHETA PR1
	VTHETA PR2	-159.6	-186.5	-197.0	-215.6	-231.8	-285.3	-319.4	-323.8	-332.3	VTHETA PR2
	U 1	540.18	546.74	553.70	575.43	604.80	634.03	656.04	662.72	668.33	U 1
	U 2	542.07	546.32	554.58	573.34	598.36	623.38	642.17	648.42	654.68	U 2
	M 1	0.3165	0.3451	0.3675	0.3882	0.3905	0.3721	0.3481	0.3362	0.3013	M 1
	M 2	0.4705	0.4604	0.4787	0.5006	0.4936	0.4849	0.4473	0.4146	0.3733	M 2
	M(PR) 1	0.5831	0.6023	0.6196	0.6463	0.6765	0.6862	0.6912	0.6949	0.6774	M(PR) 1
	M(PR) 2	0.3561	0.3696	0.3986	0.4317	0.4461	0.4574	0.4454	0.4141	0.3799	M(PR) 2
	TURN(PR)	33.758	28.507	27.597	26.755	24.702	23.600	20.500	17.594	13.549	TURN(PR)
	P 1	14.537	14.699	14.836	14.956	14.964	14.926	14.885	14.829	14.627	P 1
	P 2	16.027	17.926	18.125	18.441	18.444	18.442	18.093	17.770	17.395	P 2
	T 1	510.695	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	554.893	553.337	551.827	554.164	554.638	554.329	555.541	555.694	556.869	T 2

STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2A	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
	BETA 2	46.000	44.098	41.560	39.386	36.545	38.246	39.660	43.667	49.301	BETA 2
	BETA 2A	0.666	1.542	2.278	1.639	0.860	0.842	1.024	1.741	1.571	BETA 2A
	V 2	531.69	519.99	539.03	563.78	556.43	546.93	506.82	471.06	425.99	V 2
	V 2A	406.78	393.69	391.47	454.09	449.22	464.23	408.31	384.69	373.49	V 2A
	VZ 2	369.34	373.43	403.33	435.71	435.00	428.97	389.37	340.08	277.32	VZ 2
	VZ 2A	406.75	393.54	391.14	453.86	465.06	464.01	408.03	384.30	373.08	VZ 2A
	V-THETA 2	362.46	361.85	357.59	357.72	346.57	336.15	322.81	324.62	322.42	V-THETA 2
	V-THETA 2A	4.487	10.259	15.256	12.99	7.54	6.82	7.29	11.66	10.23	V-THETA 2A
	M 2	0.4705	0.4604	0.4787	0.5006	0.4936	0.4849	0.4473	0.4146	0.3733	M 2
	M 2A	0.3566	0.3454	0.3440	0.3996	0.4133	0.4090	0.3579	0.3367	0.3263	M 2A
	TURN(PR)	45.313	42.555	39.282	37.745	37.665	37.545	38.539	41.817	47.620	TURN(PR)
	P 2	18.027	17.926	18.125	18.441	18.444	18.444	18.093	17.770	17.395	P 2
	P 2A	17.089	17.786	18.273	18.406	18.244	18.244	17.823	17.660	17.591	P 2A
	T 2	554.893	553.337	551.827	554.164	554.638	554.329	555.541	555.694	556.869	T 2
	T 2A	555.123	553.373	551.629	554.510	554.659	554.182	555.583	555.644	556.812	T 2A

Table A-8. Blade Element Performance (Continued)

Percent Equivalent Rotor Speed = 88.79 Stage F, Rotor E - Stator E
 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion

Station 1 (136°) - Station 2 (126°) - Station 2A (115°)

ROTOR E	94.99	90.00	84.59	70.69	55.00	36.00	14.98	9.99	4.98	PCT SPAN
STATION 1	33.207	33.564	34.001	35.111	36.685	38.215	39.371	39.754	40.136	DIA
STATION 2	46.698	44.853	42.417	40.577	39.477	39.295	42.126	45.471	51.386	BETA 1
BETA (PR) 1	54.975	53.559	53.605	54.685	55.470	57.609	59.608	61.645	61.363	BETA (PR) 1
BETA (PR) 2	24.066	25.119	25.646	25.646	28.906	32.544	37.723	41.643	47.954	BETA (PR) 2
V 1	377.17	402.66	408.40	412.33	418.57	405.62	388.76	361.92	369.07	V 1
V 2	524.23	526.42	544.62	564.82	562.14	549.99	517.61	488.10	445.03	V 2
VZ 1	377.15	402.65	408.39	412.28	418.53	405.53	388.63	361.78	368.95	VZ 1
VZ 2	359.53	374.61	401.69	428.58	431.25	425.69	382.72	340.24	277.30	VZ 2
V-THETA 1	2.04	1.41	-0.33	-6.53	-3.48	-5.20	-6.57	-7.63	-7.68	V-THETA 1
V-THETA 2	381.50	372.69	366.88	367.58	360.25	347.87	346.13	345.88	347.20	V-THETA 2
V (PR) 1	657.1	677.9	686.3	713.2	738.4	757.0	768.2	761.0	770.3	V (PR) 1
V (PR) 2	393.8	413.7	443.4	475.9	492.9	507.3	484.9	456.3	414.8	V (PR) 2
VTHETA PR1	-538.1	-545.3	-554.0	-582.0	-608.3	-659.2	-662.6	-670.4	-676.2	VTHETA PR1
VTHETA PR2	-160.6	-175.6	-187.7	-206.0	-238.1	-275.5	-296.0	-302.5	-307.5	VTHETA PR2
U 1	546.18	546.74	553.70	575.43	604.80	634.03	656.04	662.72	668.33	U 1
U 2	542.07	548.32	554.58	573.34	598.36	623.38	642.17	648.42	654.68	U 2
M 1	0.3417	0.3654	0.3768	0.3745	0.3803	0.3682	0.3525	0.3276	0.3342	M 1
M 2	0.4641	0.4664	0.4831	0.5022	0.4989	0.4877	0.4569	0.4284	0.3907	M 2
M (PR) 1	0.5954	0.6152	0.6249	0.6477	0.6709	0.6872	0.6966	0.6896	0.6976	M (PR) 1
M (PR) 2	0.3486	0.3667	0.3938	0.4231	0.4498	0.4498	0.4286	0.4021	0.3641	M (PR) 2
TURN (PR)	30.910	28.441	28.559	29.040	26.580	24.713	21.976	20.107	13.538	TURN (PR)
P 1	14.653	14.685	14.918	14.926	14.958	14.873	14.811	14.662	14.727	P 1
P 2	17.946	18.007	18.175	18.476	18.547	18.509	18.227	17.941	17.564	P 2
T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
T 2	553.826	552.963	552.240	552.937	554.528	554.483	554.955	555.359	556.414	T 2

STATOR E	95.00	90.00	85.00	70.00	50.00	36.00	15.00	10.00	5.00	PCT SPAN
STATION 2	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	46.698	44.853	42.417	40.577	39.477	39.295	42.126	45.471	51.386	BETA 2
BETA 2A	54.975	53.559	53.605	54.685	55.470	57.609	59.608	61.645	61.363	BETA 2A
V 2A	395.45	365.27	384.62	445.20	465.10	460.36	403.94	383.92	372.70	V 2A
VZ 2	359.53	374.61	401.69	428.96	431.23	425.69	382.72	340.24	277.30	VZ 2
VZ 2A	395.42	385.15	383.71	445.01	464.93	460.13	403.68	383.52	372.27	VZ 2A
V-THETA 2	381.50	372.69	366.88	367.56	360.25	347.87	346.13	345.88	347.20	V-THETA 2
V-THETA 2A	4.05	9.27	15.09	11.25	7.65	7.41	6.47	11.86	10.87	V-THETA 2A
M 2	0.4641	0.4684	0.4831	0.5022	0.4989	0.4877	0.4569	0.4284	0.3907	M 2
M 2A	0.3408	0.3380	0.3371	0.3520	0.4053	0.3541	0.3360	0.3257	0.3257	M 2A
TURN (PK)	46.110	43.474	40.155	39.122	36.912	36.313	41.110	43.591	49.605	TURN (PK)
P 2	17.946	18.007	18.175	18.476	18.547	18.509	18.227	17.941	17.564	P 2
P 2A	17.025	17.763	17.751	18.237	18.414	18.360	17.860	17.642	17.642	P 2A
T 2	553.826	552.963	552.240	552.937	554.528	554.483	554.955	555.359	556.414	T 2
T 2A	554.134	553.120	552.234	553.184	554.584	554.510	555.140	555.497	556.592	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 81.27
 Circumferential Distortion
 Station 1 (166°) - Station 2 (156°) - Station 2A (145°)

ROTOR E	PCT SPAN	94.99	95.00	95.01	95.02	95.03	95.04	95.05	95.06	95.07	95.08	95.09	95.10	95.11	95.12	95.13	95.14	95.15	95.16	95.17	95.18	95.19	95.20	95.21	95.22	95.23	95.24	95.25	95.26	95.27	95.28	95.29	95.30	95.31	95.32	95.33	95.34	95.35	95.36	95.37	95.38	95.39	95.40	95.41	95.42	95.43	95.44	95.45	95.46	95.47	95.48	95.49	95.50	95.51	95.52	95.53	95.54	95.55	95.56	95.57	95.58	95.59	95.60	95.61	95.62	95.63	95.64	95.65	95.66	95.67	95.68	95.69	95.70	95.71	95.72	95.73	95.74	95.75	95.76	95.77	95.78	95.79	95.80	95.81	95.82	95.83	95.84	95.85	95.86	95.87	95.88	95.89	95.90	95.91	95.92	95.93	95.94	95.95	95.96	95.97	95.98	95.99	96.00	96.01	96.02	96.03	96.04	96.05	96.06	96.07	96.08	96.09	96.10	96.11	96.12	96.13	96.14	96.15	96.16	96.17	96.18	96.19	96.20	96.21	96.22	96.23	96.24	96.25	96.26	96.27	96.28	96.29	96.30	96.31	96.32	96.33	96.34	96.35	96.36	96.37	96.38	96.39	96.40	96.41	96.42	96.43	96.44	96.45	96.46	96.47	96.48	96.49	96.50	96.51	96.52	96.53	96.54	96.55	96.56	96.57	96.58	96.59	96.60	96.61	96.62	96.63	96.64	96.65	96.66	96.67	96.68	96.69	96.70	96.71	96.72	96.73	96.74	96.75	96.76	96.77	96.78	96.79	96.80	96.81	96.82	96.83	96.84	96.85	96.86	96.87	96.88	96.89	96.90	96.91	96.92	96.93	96.94	96.95	96.96	96.97	96.98	96.99	97.00	97.01	97.02	97.03	97.04	97.05	97.06	97.07	97.08	97.09	97.10	97.11	97.12	97.13	97.14	97.15	97.16	97.17	97.18	97.19	97.20	97.21	97.22	97.23	97.24	97.25	97.26	97.27	97.28	97.29	97.30	97.31	97.32	97.33	97.34	97.35	97.36	97.37	97.38	97.39	97.40	97.41	97.42	97.43	97.44	97.45	97.46	97.47	97.48	97.49	97.50	97.51	97.52	97.53	97.54	97.55	97.56	97.57	97.58	97.59	97.60	97.61	97.62	97.63	97.64	97.65	97.66	97.67	97.68	97.69	97.70	97.71	97.72	97.73	97.74	97.75	97.76	97.77	97.78	97.79	97.80	97.81	97.82	97.83	97.84	97.85	97.86	97.87	97.88	97.89	97.90	97.91	97.92	97.93	97.94	97.95	97.96	97.97	97.98	97.99	98.00	98.01	98.02	98.03	98.04	98.05	98.06	98.07	98.08	98.09	98.10	98.11	98.12	98.13	98.14	98.15	98.16	98.17	98.18	98.19	98.20	98.21	98.22	98.23	98.24	98.25	98.26	98.27	98.28	98.29	98.30	98.31	98.32	98.33	98.34	98.35	98.36	98.37	98.38	98.39	98.40	98.41	98.42	98.43	98.44	98.45	98.46	98.47	98.48	98.49	98.50	98.51	98.52	98.53	98.54	98.55	98.56	98.57	98.58	98.59	98.60	98.61	98.62	98.63	98.64	98.65	98.66	98.67	98.68	98.69	98.70	98.71	98.72	98.73	98.74	98.75	98.76	98.77	98.78	98.79	98.80	98.81	98.82	98.83	98.84	98.85	98.86	98.87	98.88	98.89	98.90	98.91	98.92	98.93	98.94	98.95	98.96	98.97	98.98	98.99	99.00	99.01	99.02	99.03	99.04	99.05	99.06	99.07	99.08	99.09	99.10	99.11	99.12	99.13	99.14	99.15	99.16	99.17	99.18	99.19	99.20	99.21	99.22	99.23	99.24	99.25	99.26	99.27	99.28	99.29	99.30	99.31	99.32	99.33	99.34	99.35	99.36	99.37	99.38	99.39	99.40	99.41	99.42	99.43	99.44	99.45	99.46	99.47	99.48	99.49	99.50	99.51	99.52	99.53	99.54	99.55	99.56	99.57	99.58	99.59	99.60	99.61	99.62	99.63	99.64	99.65	99.66	99.67	99.68	99.69	99.70	99.71	99.72	99.73	99.74	99.75	99.76	99.77	99.78	99.79	99.80	99.81	99.82	99.83	99.84	99.85	99.86	99.87	99.88	99.89	99.90	99.91	99.92	99.93	99.94	99.95	99.96	99.97	99.98	99.99	100.00																																															
STATION 1	DIA	35.227	35.228	35.229	35.230	35.231	35.232	35.233	35.234	35.235	35.236	35.237	35.238	35.239	35.240	35.241	35.242	35.243	35.244	35.245	35.246	35.247	35.248	35.249	35.250	35.251	35.252	35.253	35.254	35.255	35.256	35.257	35.258	35.259	35.260	35.261	35.262	35.263	35.264	35.265	35.266	35.267	35.268	35.269	35.270	35.271	35.272	35.273	35.274	35.275	35.276	35.277	35.278	35.279	35.280	35.281	35.282	35.283	35.284	35.285	35.286	35.287	35.288	35.289	35.290	35.291	35.292	35.293	35.294	35.295	35.296	35.297	35.298	35.299	35.300	35.301	35.302	35.303	35.304	35.305	35.306	35.307	35.308	35.309	35.310	35.311	35.312	35.313	35.314	35.315	35.316	35.317	35.318	35.319	35.320	35.321	35.322	35.323	35.324	35.325	35.326	35.327	35.328	35.329	35.330	35.331	35.332	35.333	35.334	35.335	35.336	35.337	35.338	35.339	35.340	35.341	35.342	35.343	35.344	35.345	35.346	35.347	35.348	35.349	35.350	35.351	35.352	35.353	35.354	35.355	35.356	35.357	35.358	35.359	35.360	35.361	35.362	35.363	35.364	35.365	35.366	35.367	35.368	35.369	35.370	35.371	35.372	35.373	35.374	35.375	35.376	35.377	35.378	35.379	35.380	35.381	35.382	35.383	35.384	35.385	35.386	35.387	35.388	35.389	35.390	35.391	35.392	35.393	35.394	35.395	35.396	35.397	35.398	35.399	35.400	35.401	35.402	35.403	35.404	35.405	35.406	35.407	35.408	35.409	35.410	35.411	35.412	35.413	35.414	35.415	35.416	35.417	35.418	35.419	35.420	35.421	35.422	35.423	35.424	35.425	35.426	35.427	35.428	35.429	35.430	35.431	35.432	35.433	35.434	35.435	35.436	35.437	35.438	35.439	35.440	35.441	35.442	35.443	35.444	35.445	35.446	35.447	35.448	35.449	35.450	35.451	35.452	35.453	35.454	35.455	35.456	35.457	35.458	35.459	35.460	35.461	35.462	35.463	35.464	35.465	35.466	35.467	35.468	35.469	35.470	35.471	35.472	35.473	35.474	35.475	35.476	35.477	35.478	35.479	35.480	35.481	35.482	35.483	35.484	35.485	35.486	35.487	35.488	35.489	35.490	35.491	35.492	35.493	35.494	35.495	35.496	35.497	35.498	35.499	35.500	35.501	35.502	35.503	35.504	35.505	35.506	35.507	35.508	35.509	35.510	35.511	35.512	35.513	35.514	35.515	35.516	35.517	35.518	35.519	35.520	35.521	35.522	35.523	35.524	35.525	35.526	35.527	35.528	35.529	35.530	35.531	35.532	35.533	35.534	35.535	35.536	35.537	35.538	35.539	35.540	35.541	35.542	35.543	35.544	35.545	35.546	35.547	35.548	35.549	35.550	35.551	35.552	35.553	35.554	35.555	35.556	35.557	35.558	35.559	35.560	35.561	35.562	35.563	35.564	35.565	35.566	35.567	35.568	35.569	35.570	35.571	35.572	35.573	35.574	35.575	35.576	35.577	35.578	35.579	35.580	35.581	35.582	35.583	35.584	35.585	35.586	35.587	35.588	35.589	35.590	35.591	35.592	35.593	35.594	35.595	35.596	35.597	35.598	35.599	35.600	35.601	35.602	35.603	35.604	35.605	35.606	35.607	35.608	35.609	35.610	35.611	35.612	35.613	35.614	35.615	35.616	35.617	35.618	35.619	35.620	35.621	35.622	35.623	35.624	35.625	35.626	35.627	35.628	35.629	35.630	35.631	35.632	35.633	35.634	35.635	35.636	35.637	35.638	35.639	35.640	35.641	35.642	35.643	35.644	35.645	35.646	35.647	35.648	35.649	35.650	35.651	35.652	35.653	35.654	35.655	35.656	35.657	35.658	35.659	35.660	35.661	35.662	35.663	35.664	35.665	35.666	35.667	35.668	35.669	35.670	35.671	35.672	35.673	35.674	35.675	35.676	35.677	35.678	35.679	35.680	35.681	35.682	35.683	35.684	35.685	35.686	35.687	35.688	35.689	35.690	35.691	35.692	35.693	35.694	35.695	35.696	35.697	35.698	35.699	35.700	35.701	35.702	35.703	35.704	35.705	35.706	35.707	35.708	35.709	35.710	35.711	35.712	35.713	35.714	35.715	35.716	35.717	35.718	35.719	35.720	35.721	35.722	35.723	35.724	35.725	35.726	35.727	35.728	35.729	35.730	35.731	35.732	35.733	35.734	35.735	35.736	35.737	35.738	35.739	35.740	35.741	35.742	35.743	35.744	35.745	35.746	35.747	35.748	35.749	35.750	35.751	35.752	35.753	35.754	35.755	35.756	35.757	35.758	35.759	35.760	35.761	35.762	35.763	35.764	35.765	35.766	35.767	35.768	35.769	35.770	35.771	35.772	35.773	35.774	

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (196°) - Station 2 (186°) - Station 2A (175°)

ROTOR E	PCT SPAN	94.95	40.00	84.69	76.00	50.00	30.00	14.96	9.99	4.96	PCT SPAN
STATION 1	DIA	33.207	33.000	34.001	35.151	36.054	38.214	39.371	39.754	40.156	DIA
STATION 2	BETA 1	46.857	1.962	1.140	0.909	0.474	0.474	1.735	1.333	1.067	BETA 1
	BETA 2	0.646	1.962	42.623	41.166	40.197	39.879	41.764	45.223	51.378	BETA 2
	BETA 2A	532.34	520.72	53.764	54.407	55.493	57.915	55.835	62.094	63.526	BETA (PR) 1
	V 2	364.02	368.71	25.659	26.313	29.287	34.149	38.780	42.444	46.904	BETA (PR) 2
	VZ 1	368.33	390.22	399.62	407.29	409.81	395.82	374.93	346.86	328.79	V 1
	VZ 2	532.24	520.72	538.26	556.34	577.46	537.25	508.48	479.80	436.03	V 2
	VZ 1	368.17	390.07	399.54	407.24	429.65	395.75	374.66	346.70	328.65	VZ 1
	VZ 2	364.02	368.71	396.66	418.78	425.62	411.80	376.55	337.31	272.99	VZ 2
	V-THETA 1	10.74	10.56	7.85	6.46	8.87	11.35	11.35	8.07	8.43	V-THETA 1
	V-THETA 2	368.42	367.69	364.49	366.20	359.64	344.06	338.03	339.94	341.70	V-THETA 2
	V(PRI) 1	644.9	663.1	676.5	699.7	723.2	745.1	745.7	740.8	737.2	V(PRI) 1
	V(PRI) 2	395.1	410.6	439.3	467.2	488.5	498.3	486.6	458.0	416.0	V(PRI) 2
	VTHETA PRI	-529.4	-536.2	-545.6	-569.5	-595.9	-631.2	-644.7	-654.7	-659.9	VTHETA PRI
	VTHETA PRZ	-153.7	-180.6	-190.1	-207.1	-238.7	-279.3	-304.1	-308.5	-313.0	VTHETA PRZ
	U 1	540.18	546.74	553.70	575.43	604.80	634.05	656.04	662.72	666.33	U 1
	U 2	542.07	548.32	554.58	572.34	598.36	623.38	642.17	648.42	654.68	U 2
	M 1	0.3356	0.3359	0.3626	0.3698	0.3721	0.3591	0.3397	0.3137	0.2971	M 1
	M 2	0.4718	0.4615	0.4761	0.4947	0.4945	0.4762	0.4495	0.4230	0.3847	M 2
	M(PRI) 1	0.5840	0.6013	0.6138	0.6352	0.6567	0.6759	0.6756	0.6700	0.6661	M(PRI) 1
	M(PRI) 2	0.3502	0.3639	0.3903	0.4154	0.4335	0.4417	0.4302	0.4038	0.3654	M(PRI) 2
	TURN(PRI)	32.301	27.864	28.158	28.091	28.222	23.819	21.147	19.756	14.731	TURN(PRI)
	P 1	14.642	14.774	14.854	14.939	14.967	14.937	14.901	14.765	14.661	P 1
	P 2	16.054	17.953	18.155	18.398	18.494	18.373	18.141	17.874	17.534	P 2
	T 1	510.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	553.308	552.283	551.449	552.158	553.769	553.659	554.017	554.489	555.471	T 2
STATOR E	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.000	34.001	35.151	36.054	38.214	39.371	39.754	40.156	DIA
STATION 2A	BETA 2	46.857	44.921	42.623	41.166	40.197	39.879	41.764	45.223	51.378	BETA 2
	BETA 2A	0.646	1.962	1.140	0.909	0.474	0.474	1.082	1.995	0.624	BETA 2A
	V 2	532.34	520.72	538.26	556.34	577.46	537.25	508.48	479.80	436.03	V 2
	VZ 2	364.02	368.71	396.66	418.78	425.62	411.80	378.55	337.31	272.99	VZ 2
	VZ 1	368.33	390.22	399.62	407.29	409.81	395.82	374.93	346.86	328.79	VZ 1
	V-THETA 2	385.45	375.09	376.36	434.93	453.54	452.80	408.61	385.54	373.90	V-THETA 2
	V-THETA 2A	386.42	367.69	364.45	366.20	359.64	344.06	338.03	339.94	341.70	V-THETA 2A
	M 2	4.35	12.68	14.60	11.88	7.87	9.62	7.72	13.43	4.07	M 2
	M 2A	0.4718	0.4615	0.4761	0.4947	0.4945	0.4762	0.4495	0.4230	0.3847	M 2A
	TURN(PRI)	0.3360	0.3360	0.3360	0.3360	0.3360	0.3360	0.3360	0.3360	0.3360	TURN(PRI)
	P 2	46.210	42.958	40.402	39.601	39.183	38.603	46.564	43.119	50.645	P 2
	T 2	18.034	17.953	18.155	18.398	18.494	18.373	18.141	17.874	17.534	T 2
	T 2A	17.196	17.725	18.176	18.176	18.292	17.680	17.721	17.639	17.639	T 2A
	T 2A	553.308	552.283	551.449	552.158	553.769	553.659	554.017	554.489	555.471	T 2A
	T 2A	553.791	552.643	551.710	552.650	554.009	553.815	554.295	554.750	555.752	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (226°) - Station 2 (216°) - Station 2A (205°)

ROTOR E	45.00	64.99	70.00	50.00	30.00	14.98	9.59	4.98	PCT SPAN
STATION 1	35.617	35.001	35.151	36.685	38.219	39.371	39.754	40.136	DIA
STATION 2	44.244	43.911	41.753	40.646	39.940	42.447	46.181	51.461	BETA 1
	53.460	53.046	53.065	55.037	57.910	60.903	60.924	65.262	BETA 2
	25.4542	25.102	25.590	29.454	33.594	38.493	42.894	48.052	BETA (PR) 1
	384.90	392.70	408.55	402.81	364.82	356.12	353.19	322.77	BETA (PR) 2
	525.53	535.78	560.37	554.34	542.15	509.93	475.98	444.40	V 1
	363.81	391.25	407.14	401.64	384.18	355.65	351.86	321.35	V 2
	28.80	33.62	33.86	30.42	21.35	16.98	29.92	29.89	VZ 1
	369.96	370.83	373.15	360.94	347.62	343.51	342.60	347.07	VZ 2
	627.4	644.7	677.5	700.9	723.2	731.4	724.1	714.8	V-THETA 1
	391.9	413.7	463.5	483.1	499.1	480.9	449.9	414.3	V-THETA 2
	-513.4	-517.9	-520.1	-574.4	-612.7	-639.1	-632.8	-638.4	VIPR) 1
	-161.6	-178.4	-200.2	-237.4	-275.8	-298.7	-307.6	-307.6	VIPR) 2
	540.18	553.70	575.43	604.80	634.03	656.04	662.72	668.33	VTHETA PR1
	542.07	554.56	573.34	598.36	623.36	642.17	646.42	654.68	VTHETA PR2
	0.3274	0.3489	0.3709	0.3656	0.3489	0.3223	0.2915	0.2915	U 1
	0.4630	0.4671	0.4608	0.4925	0.4811	0.4509	0.4197	0.3906	U 2
	0.5680	0.5644	0.5903	0.6361	0.6556	0.6819	0.6551	0.6456	M 1
	0.3477	0.3677	0.3858	0.4252	0.4430	0.4252	0.3968	0.3641	M 2
	30.567	27.919	27.477	25.599	24.369	22.502	18.136	15.340	MIPR) 1
	14.699	14.845	15.022	14.968	14.960	14.861	14.845	14.733	MIPR) 2
	17.894	17.540	18.109	18.386	18.361	18.076	17.751	17.499	TURN (PR)
	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	P 1
	551.158	549.783	551.622	552.670	552.793	553.766	553.978	555.141	P 2
									T 1
									T 2
STATOR E	95.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	33.207	33.564	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	46.823	44.748	43.393	40.646	39.940	42.447	46.181	51.461	BETA 2
	1.130	2.568	1.395	1.016	1.419	1.615	2.510	1.913	BETA 2A
	521.78	525.53	560.37	534.34	542.15	509.93	475.98	444.40	V 2
	366.41	374.37	435.50	440.39	441.96	391.72	369.25	359.55	V 2A
	357.03	373.23	418.03	420.43	415.16	375.57	328.96	276.46	VZ 2
	386.33	373.99	435.33	440.22	441.66	391.36	368.68	359.09	VZ 2A
	380.50	369.96	370.83	360.94	347.62	343.51	342.60	347.07	V-THETA 2
	7.62	16.77	14.06	7.82	10.94	11.03	16.16	11.99	V-THETA 2A
	0.4630	0.4671	0.4987	0.4925	0.4811	0.4509	0.4197	0.3906	M 2
	0.3394	0.3290	0.3835	0.3877	0.3892	0.3436	0.3234	0.3145	M 2A
	45.692	42.179	41.255	39.606	38.462	40.734	43.563	49.440	TURN (PR)
	17.894	17.940	18.109	18.386	18.361	18.076	17.751	17.499	P 2
	17.894	17.762	18.175	18.227	18.199	17.766	17.609	17.546	P 2A
	551.158	549.783	551.622	552.670	552.793	553.766	553.978	555.141	T 2
	551.739	549.034	552.461	553.618	552.801	553.745	553.978	554.763	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (256°) - Station 2 (246°) - Station 2A (235°)

ROTOR E	PCT SPAN	94.95	90.00	84.99	76.00	50.00	30.00	14.95	9.99	4.98	PCT SPAN
STATION 1	DIA	33.227	33.617	34.001	35.111	36.681	39.219	39.371	39.754	40.238	DIA
STATION 2	BETA 1	3.706	3.812	3.970	3.983	3.403	3.641	3.976	5.167	5.144	BETA 1
	BETA 2	44.964	44.185	43.491	42.509	42.427	45.899	55.142	59.146	64.352	BETA 2
	BETA (PR) 1	56.387	54.935	55.066	55.764	57.926	60.177	62.486	65.161	65.081	BETA (PR) 1
	BETA (PK) 2	22.684	22.339	22.575	27.636	27.636	32.482	40.644	41.458	44.526	BETA (PR) 2
	V 1	344.71	367.27	369.77	374.77	365.85	351.42	330.63	295.61	299.27	V 1
	V 2	540.78	552.95	566.27	562.45	562.37	537.41	490.31	492.49	493.64	V 2
	VZ 1	343.95	366.43	368.88	373.66	365.17	350.67	329.78	294.59	298.03	VZ 1
	VZ 2	382.62	396.55	406.46	414.60	414.94	373.61	279.92	252.32	213.51	VZ 2
	V-THETA 1	22.76	24.67	25.60	26.04	22.10	22.31	22.92	26.33	26.83	V-THETA 1
	V-THETA 2	382.14	365.38	385.60	360.03	379.25	385.53	401.88	422.36	444.68	V-THETA 2
	V (PR) 1	621.3	637.8	644.2	664.5	687.7	705.1	713.9	761.3	707.4	V (PR) 1
	V (PR) 2	414.7	428.7	440.2	457.5	469.5	443.6	369.6	339.5	300.1	V (PR) 2
	VTHETA PR1	-517.4	-522.1	-528.1	-549.4	-582.7	-611.7	-633.1	-636.4	-641.5	VTHETA PR1
	VTHETA PR2	-159.9	-162.9	-169.0	-193.3	-219.1	-237.9	-240.3	-226.1	-216.0	VTHETA PR2
	U 1	540.18	546.74	553.70	575.43	604.80	634.03	656.04	662.72	668.33	U 1
	U 2	542.07	546.32	554.58	573.54	598.36	642.17	648.42	654.68	654.68	U 2
	M 1	0.3117	0.3326	0.3349	0.3395	0.3313	0.3179	0.2968	0.2666	0.2700	M 1
	M 2	0.4805	0.4994	0.4994	0.5008	0.4996	0.4758	0.4316	0.4333	0.4337	M 2
	M (PR) 1	0.5619	0.5776	0.5834	0.6020	0.6227	0.6379	0.6451	0.6326	0.6382	M (PR) 1
	M (PR) 2	0.3685	0.3816	0.3923	0.4075	0.4171	0.3927	0.3255	0.2987	0.2637	M (PR) 2
	TURN (PR)	33.763	32.597	32.491	30.769	30.105	27.746	21.935	23.408	20.666	TURN (PR)
	P 1	14.754	14.910	14.950	14.998	14.994	14.975	14.918	14.776	14.799	P 1
	P 2	18.055	18.201	18.301	18.371	18.407	18.168	17.705	17.732	17.789	P 2
	T 1	516.699	516.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	551.339	550.163	549.965	551.224	553.672	555.007	556.666	557.673	559.361	T 2
STATOR E	PCT SPAN	95.00	90.00	85.00	76.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.227	33.617	34.001	35.111	36.681	39.219	39.371	39.754	40.238	DIA
STATION 2A	BETA 2	44.964	44.185	43.491	42.509	42.427	45.899	55.142	59.146	64.352	BETA 2
	BETA 2A	1.747	3.062	2.824	1.186	0.837	0.352	1.004	2.378	3.147	BETA 2A
	V 2	540.78	552.95	566.27	562.45	562.37	537.41	490.31	492.49	493.64	V 2
	VZ 2	395.69	390.12	396.70	436.23	443.22	422.44	368.34	349.47	349.69	VZ 2
	VZ 2A	382.62	396.55	406.46	414.60	414.94	373.61	279.92	252.32	213.51	VZ 2A
	V-THETA 2	395.31	389.56	396.38	438.09	443.08	422.27	368.10	348.97	348.92	V-THETA 2
	V-THETA 2A	382.14	365.38	385.60	360.03	379.25	385.53	401.88	422.36	444.68	V-THETA 2A
	M 2	0.4805	0.4994	0.4994	0.5008	0.4996	0.4758	0.4316	0.4333	0.4337	M 2
	M 2A	0.3479	0.3434	0.3495	0.3866	0.3903	0.3712	0.3223	0.3052	0.3050	M 2A
	TURN (PR)	43.216	41.124	41.257	41.321	41.570	45.487	54.046	56.673	61.119	TURN (PR)
	P 2	18.055	18.201	18.301	18.371	18.407	18.168	17.705	17.732	17.789	P 2
	P 2A	17.841	17.772	18.147	18.171	18.171	17.972	17.552	17.435	17.428	P 2A
	T 2	551.339	550.163	549.965	551.224	553.672	555.007	556.666	557.673	559.361	T 2
	T 2A	550.940	549.666	549.288	550.224	552.877	554.780	556.977	557.711	559.225	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (286°) - Station 2 (276°) - Station 2A (265°)

NOTCH	PCT SPAN	94.99	90.00	84.99	70.00	50.00	30.00	14.98	9.59	4.56	PCT SPAN
STATION 1	DIA	33.654	33.617	34.001	35.151	36.085	38.219	39.371	39.754	40.136	DIA
STATION 2	BETA 1	-3.569	-3.536	-3.511	-1.503	-2.464	-1.444	-1.444	-2.046	-1.604	BETA 1
	BETA 2	4.6769	4.6742	4.6984	4.6505	4.9920	52.341	56.623	59.580	62.492	BETA 2
	BETA(PRI) 1	60.655	59.648	59.512	60.226	62.832	64.552	67.590	70.635	74.240	BETA(PRI) 1
	BETA(PRI) 2	22.635	22.589	22.373	23.993	27.950	32.215	39.192	40.759	44.003	BETA(PRI) 2
	V 1	322.67	341.17	340.46	335.77	318.13	306.20	273.51	236.08	190.21	V 1
	V 2	546.68	552.66	555.67	555.70	540.80	530.22	506.81	499.75	491.54	V 2
	VZ 1	322.11	340.51	339.67	335.58	317.82	306.03	273.37	235.89	190.12	VZ 1
	VZ 2	368.11	392.54	393.63	382.47	348.09	323.69	275.23	252.79	226.84	VZ 2
	V-THETA 1	-18.96	-21.05	-23.22	-11.15	-13.68	-9.07	-6.89	-8.44	-5.32	V-THETA 1
	V-THETA 2	364.99	389.02	392.81	403.11	413.67	419.42	417.77	430.53	435.60	V-THETA 2
	V(PRI) 1	645.3	662.1	669.5	675.8	695.4	712.2	717.1	711.4	700.0	V(PRI) 1
	V(PRI) 2	418.7	423.6	425.0	418.7	394.3	383.2	355.9	334.5	316.0	V(PRI) 2
	V(THETA PRI)	-559.1	-567.8	-576.9	-586.6	-618.5	-643.1	-662.9	-671.2	-673.7	V(THETA PRI)
	V(THETA PR2)	-157.1	-159.3	-161.8	-170.2	-184.7	-204.0	-224.4	-217.9	-219.1	V(THETA PR2)
	U 1	540.18	546.74	553.70	575.43	604.80	634.03	656.04	662.72	668.33	U 1
	U 2	542.07	548.32	554.58	573.34	598.36	623.36	642.17	648.42	654.68	U 2
	M 1	0.2915	0.3065	0.3078	0.3035	0.2873	0.2764	0.2465	0.2124	0.1709	M 1
	M 2	0.4634	0.4893	0.4925	0.4939	0.4762	0.4656	0.4375	0.4362	0.4262	M 2
	M(PRI) 1	0.5829	0.5906	0.6553	0.6109	0.6280	0.6426	0.6462	0.6401	0.6288	M(PRI) 1
	M(PRI) 2	0.3702	0.3751	0.3767	0.3699	0.3472	0.3364	0.3109	0.2753	0.2753	M(PRI) 2
	TURN(PRI)	38.020	36.960	37.139	36.234	34.868	32.369	28.492	29.981	30.347	TURN(PRI)
	P 1	14.760	14.908	14.919	14.914	14.914	14.931	14.859	14.741	14.601	P 1
	P 2	18.109	18.162	18.230	18.247	18.145	18.069	17.792	17.792	17.759	P 2
	T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
	T 2	557.092	558.199	555.411	558.883	561.050	563.135	566.105	567.096	566.488	T 2

NOTCH	PCT SPAN	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
STATION 2	DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
STATION 2A	BETA 2	4.4769	4.4742	4.4984	4.6505	4.9920	52.341	56.623	59.580	62.492	BETA 2
	BETA 2A	2.624	3.301	2.837	0.979	0.155	-3.778	-2.457	0.624	3.889	BETA 2A
	V 2	546.68	552.66	555.67	555.70	540.80	530.22	500.81	499.75	491.54	V 2
	V 2A	425.25	414.38	413.28	448.01	433.27	412.81	373.52	364.60	374.08	V 2A
	VZ 2	388.11	392.54	393.63	382.47	348.09	323.69	275.23	252.79	226.84	VZ 2
	VZ 2A	424.80	413.68	412.76	447.90	433.17	411.76	372.99	366.37	372.95	VZ 2A
	V-THETA 2	384.99	389.02	392.81	403.11	413.67	419.42	417.77	430.53	435.60	V-THETA 2
	V-THETA 2A	19.47	23.86	20.45	7.65	1.17	-27.19	-15.87	3.97	25.35	V-THETA 2A
	M 2	0.4434	0.4893	0.4925	0.4909	0.4762	0.4656	0.4375	0.4362	0.4282	M 2
	M 2A	0.3737	0.3642	0.3635	0.3935	0.3797	0.3606	0.3244	0.3162	0.3240	M 2A
	TURN(PRI)	42.144	41.440	42.147	45.524	49.745	56.059	58.968	58.660	58.513	TURN(PRI)
	P 2	18.109	18.162	18.230	18.247	18.145	18.069	17.792	17.792	17.759	P 2
	P 2A	18.010	17.959	17.911	18.163	18.116	17.831	17.536	17.490	17.546	P 2A
	T 2	557.092	558.199	555.411	558.883	561.050	563.135	566.105	567.096	566.488	T 2
	T 2A	553.898	552.968	552.125	556.254	557.558	559.424	563.235	564.444	566.264	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (316°) - Station 2 (306°) - Station 2A (295°)

ROTOR E	94.99	90.00	84.99	70.00	50.00	14.9E	9.99	4.5B	PCT SPAN
DIA	33.234	33.617	34.001	35.151	36.685	39.371	39.754	40.138	DIA
BETA 1	-18.489	-18.389	-17.943	-16.721	-16.789	-18.065	-19.519	-20.002	BETA 1
BETA 2	54.748	56.241	56.090	54.054	54.235	68.428	71.406	75.888	BETA 2
BETA(PR) 1	69.462	66.503	67.885	67.495	69.327	73.734	74.772	76.118	BETA(PR) 1
BETA(PR) 2	15.947	20.864	23.269	24.145	24.281	34.775	36.133	61.673	BETA(PR) 2
V 1	243.96	261.11	276.76	284.27	286.54	245.21	222.55	195.17	V 1
V 2	552.27	525.63	516.35	534.49	511.50	515.80	471.87	443.82	V 2
VZ 1	231.36	247.78	258.16	272.25	277.49	234.24	211.55	199.44	VZ 1
VZ 2	318.75	292.09	289.20	313.75	261.59	282.68	173.41	145.29	VZ 2
V-THETA 1	-77.36	-82.37	-81.61	-81.79	-77.59	-72.42	-69.00	-66.07	V-THETA 1
V-THETA 2	450.99	436.99	430.22	432.70	439.43	454.88	438.61	426.26	V-THETA 2
V(PR) 1	659.5	676.1	665.8	711.4	729.4	744.3	755.3	756.5	V(PR) 1
V(PR) 2	331.5	312.6	314.8	343.9	306.2	295.9	267.8	261.0	V(PR) 2
VTHETA PRI	-617.5	-629.1	-635.5	-657.2	-682.4	-706.5	-725.0	-734.4	VTHETA PRI
VTHETA PR2	-91.1	-111.3	-124.4	-140.6	-158.9	-168.5	-203.6	-216.5	VTHETA PR2
U 1	540.16	546.74	553.70	575.43	604.80	634.03	656.04	662.72	U 1
U 2	542.07	548.32	554.58	573.34	598.36	623.38	642.17	648.42	U 2
M 1	0.2196	0.2352	0.2440	0.2563	0.2423	0.2207	0.2001	0.1900	M 1
M 2	0.4849	0.4610	0.4546	0.4463	0.4409	0.4493	0.4509	0.3843	M 2
M(PR) 1	0.5935	0.6094	0.6179	0.6413	0.6571	0.6699	0.6792	0.6796	M(PR) 1
M(PR) 2	0.2911	0.2741	0.2761	0.3015	0.2672	0.2577	0.2325	0.2263	M(PR) 2
TURN(PR)	53.514	47.639	44.617	43.355	38.003	36.936	24.256	18.739	TURN(PR)
P 1	14.067	14.113	14.135	14.190	14.170	14.143	14.121	14.096	P 1
P 2	16.110	17.863	17.827	18.056	17.928	17.996	17.624	17.505	P 2
T 1	518.699	518.699	510.699	518.699	518.699	518.699	518.699	518.699	T 1
T 2	565.093	564.089	563.493	564.881	568.418	570.588	571.012	571.459	T 2

STATOR E	95.00	90.00	85.00	70.00	50.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.633	DIA
BETA 2	54.748	56.241	56.090	54.054	54.235	61.920	68.428	73.888	BETA 2
BETA 2A	2.856	2.661	2.303	0.209	-0.141	-6.055	-4.346	4.432	BETA 2A
V 2	552.27	525.63	518.39	534.49	511.50	515.80	471.87	443.82	V 2
V 2A	370.27	351.77	343.04	351.85	339.69	341.14	317.63	310.36	V 2A
VZ 2	318.75	292.09	289.20	313.75	261.59	242.68	173.41	145.29	VZ 2
VZ 2A	376.24	351.39	342.75	351.81	339.62	339.11	316.56	309.21	VZ 2A
V-THETA 2	450.99	436.99	430.22	432.70	439.43	454.88	438.61	426.26	V-THETA 2
V-THETA 2A	18.47	16.33	13.78	1.26	-0.84	-35.97	-24.06	23.97	V-THETA 2A
M 2	0.4649	0.4610	0.4546	0.4463	0.4409	0.4493	0.4509	0.3842	M 2
M 2A	0.3221	0.3056	0.2980	0.3053	0.2937	0.2943	0.2735	0.2656	M 2A
TURN(PR)	51.691	53.579	53.787	53.843	59.238	67.923	72.704	69.399	TURN(PR)
P 2	16.110	17.863	17.827	18.056	17.928	17.996	17.624	17.505	P 2
P 2A	17.539	17.411	17.349	17.390	17.332	17.309	17.177	17.144	P 2A
T 2	565.093	564.089	563.493	564.881	568.418	570.588	571.012	571.459	T 2
T 2A	564.627	561.693	561.155	562.907	566.427	566.667	569.592	570.068	T 2A

Table A-8. Blade Element Performance (Continued)
 Stage E, Rotor E - Stator E
 Percent Equivalent Rotor Speed = 88.79 Equivalent Rotor Speed = 3738.16 Equivalent Weight Flow = 84.27
 Circumferential Distortion
 Station 1 (346°) - Station 2 (336°) - Station 2A (325°)

ROTOR C	94.99	90.00	84.99	70.00	50.00	30.00	14.9E	9.99	4.98	PCT SPAN
DIA	33.254	33.017	34.001	25.151	36.685	38.219	39.371	39.754	40.136	DIA
BETA 1	-12.521	-11.269	-10.791	-10.503	51.965	54.742	-9.067	-8.549	-8.500	BETA 1
BETA 2	56.712	57.820	57.615	51.965	53.147	54.742	61.337	64.548	67.303	BETA 2
BETA(PR) 1	65.227	63.732	64.327	65.252	66.751	68.152	69.678	70.663	73.407	BETA(PR) 1
BETA(PR) 2	17.388	25.264	30.170	25.813	29.581	34.252	46.056	48.627	52.052	BETA(PR) 2
V 1	263.65	305.15	298.27	296.46	291.26	278.76	261.54	246.32	210.77	V 1
V 2	537.89	499.51	479.62	528.12	524.72	515.71	467.36	466.53	462.17	V 2
VZ 1	277.14	299.26	293.00	291.10	285.20	274.24	258.22	245.52	208.44	VZ 1
VZ 2	295.22	266.03	256.99	325.39	314.63	297.49	224.00	200.35	178.23	VZ 2
V-THETA 1	-60.53	-59.63	-55.84	-56.07	-59.06	-49.94	-41.21	-36.91	-31.15	V-THETA 1
V-THETA 2	449.63	422.77	405.19	415.95	419.76	420.81	409.76	420.95	426.13	V-THETA 2
V(PR) 1	661.4	676.2	676.3	695.4	722.5	736.9	743.5	741.5	729.9	V(PR) 1
V(PR) 2	304.4	294.2	297.3	361.5	362.0	360.4	323.3	303.6	290.3	V(PR) 2
VTHETA PR1	-600.5	-606.4	-609.5	-631.5	-663.9	-684.0	-697.2	-699.6	-699.5	VTHETA PR1
VTHETA PR2	-92.4	-125.5	-149.4	-157.4	-178.6	-202.6	-232.4	-227.5	-228.6	VTHETA PR2
U 1	540.18	546.74	553.70	575.43	664.80	634.03	656.04	662.72	668.33	U 1
U 2	542.07	548.32	554.58	573.34	598.36	623.38	642.17	648.42	654.68	U 2
M 1	0.2557	0.2754	0.2691	0.2674	0.2627	0.2513	0.2356	0.2235	0.1895	M 1
M 2	0.4717	0.4372	0.4198	0.4624	0.4589	0.4503	0.4062	0.4055	0.4013	M 2
M(PR) 1	0.5963	0.6102	0.6101	0.6273	0.6516	0.6642	0.6697	0.6674	0.6561	M(PR) 1
M(PR) 2	0.2715	0.2575	0.2601	0.3165	0.3166	0.3147	0.2810	0.2639	0.2520	M(PR) 2
TURN(PR)	47.839	38.468	34.158	39.441	37.187	33.954	23.717	22.142	21.462	TURN(PR)
P 1	13.974	14.063	14.051	14.050	14.060	14.070	14.095	14.069	13.966	P 1
P 2	17.930	17.571	17.441	17.966	18.045	17.997	17.561	17.570	17.561	P 2
T 1	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	518.699	T 1
T 2	565.140	563.967	562.904	566.003	566.890	568.011	509.059	568.969	569.860	T 2

STATOR E	95.00	90.00	85.00	70.00	50.00	30.00	15.00	10.00	5.00	PCT SPAN
DIA	33.207	33.564	33.921	34.992	36.420	37.848	38.919	39.276	39.633	DIA
BETA 2	56.712	57.820	57.615	51.965	53.147	54.742	61.337	64.548	67.303	BETA 2
BETA 2A	1.519	-0.013	-1.088	-1.948	0.590	-3.299	-2.012	0.650	4.682	BETA 2A
V 2A	537.89	499.51	479.62	528.12	524.72	515.71	467.36	466.53	462.17	V 2A
VZ 2	302.62	292.07	287.42	341.84	348.15	360.98	326.45	326.89	333.72	VZ 2
VZ 2A	295.22	266.03	256.99	325.39	314.63	297.49	224.00	200.35	178.23	VZ 2A
V-THETA 2	302.51	292.06	287.56	341.60	348.06	360.25	326.05	326.68	332.37	V-THETA 2
V-THETA 2A	449.63	422.77	405.19	415.95	419.76	420.81	409.76	420.95	426.13	V-THETA 2A
M 2	8.02	-0.07	-5.46	-11.62	3.58	-20.77	-11.46	3.71	27.22	M 2
M 2A	0.4717	0.4372	0.4198	0.4624	0.4589	0.4503	0.4062	0.4055	0.4013	M 2A
TURN(PR)	0.2613	0.2523	0.2485	0.2954	0.3009	0.3118	0.2811	0.2815	0.2872	TURN(PR)
P 2	55.192	57.832	58.703	53.911	52.537	57.985	63.265	62.544	62.544	P 2
P 2A	17.930	17.571	17.441	17.966	18.045	17.997	17.561	17.570	17.561	P 2A
T 2	17.140	17.093	17.061	17.331	17.408	17.470	17.266	17.277	17.332	T 2
T 2A	565.140	563.967	562.904	566.003	566.890	568.011	509.059	568.969	569.860	T 2A
T 2A	565.945	564.666	563.457	567.000	567.172	568.647	570.170	571.299	571.299	T 2A

APPENDIX B
STATOR E SUCTION SURFACE STATIC
PRESSURE COEFFICIENTS AT 10% SPAN FROM TIP

$$C_p = \frac{P_{\text{surface}} - P_{2fs}}{(\rho v^2/2)}_{2fs}$$

Percent Design Equivalent Rotor Speed	Equivalent Weight Flow (lb/sec)	Percent Overall Chord															
		Front Airfoil								Rear Airfoil							
		6.9	11.6	16.5	21.4	26.5	31.6	36.9	42.1	57.0	62.3	67.5	72.7	77.8	82.9	87.4	92.8
110	127.63	-0.77	*	*	-0.72	-0.88	-0.99	-0.91	-0.88	-0.80	-1.13	-1.18	-1.23	-0.95	-1.01	-0.75	-0.52
110	122.36	-0.67	*	*	-0.89	-0.93	-0.92	-0.81	-0.71	-0.69	-0.93	-0.93	-0.95	-0.71	-0.75	-0.51	-0.29
110	116.81	-0.50	*	*	-0.69	-0.71	-0.66	-0.54	-0.43	-0.42	-0.42	-0.60	-0.61	-0.38	-0.42	-0.21	-0.01
110	111.46	-0.58	*	*	-0.61	-0.61	-0.57	-0.45	-0.42	-0.33	-0.41	-0.36	-0.33	-0.18	-0.18	-0.04	0.09
110	107.00	-0.77	*	*	-0.59	-0.57	-0.55	-0.54	-0.52	-0.34	-0.34	-0.27	-0.22	-0.11	-0.10	-0.02	0.07
100	121.43	-0.68	*	*	-0.70	-0.86	-0.98	-0.95	-0.92	-0.89	-1.27	-1.30	-1.34	-1.03	-1.10	-0.77	-0.49
100	117.78	-0.53	*	*	-0.72	-0.83	-0.87	-0.80	-0.72	-0.68	-0.98	-0.99	-1.02	-0.75	-0.81	-0.53	-0.28
100	111.26	-0.58	*	*	-0.79	-0.85	-0.85	-0.72	-0.63	-0.58	-0.83	-0.82	-0.84	-0.59	-0.62	-0.39	-0.16
100	106.84	-0.52	*	*	-0.72	-0.75	-0.72	-0.60	-0.50	-0.46	-0.87	-0.65	-0.67	-0.45	-0.48	-0.26	-0.06
100	105.92	-0.57	*	*	-0.77	-0.80	-0.75	-0.64	-0.52	-0.48	-0.65	-0.65	-0.66	-0.44	-0.48	-0.26	-0.06
100	102.92	-0.52	*	*	-0.69	-0.71	-0.65	-0.52	-0.41	-0.38	-0.54	-0.49	-0.51	-0.31	-0.34	-0.14	0.02
100	97.94	-0.73	*	*	-0.60	-0.61	-0.54	-0.47	-0.42	-0.31	-0.36	-0.32	-0.29	-0.16	-0.18	-0.03	0.09
100	93.26	-0.88	*	*	-0.55	-0.52	-0.52	-0.50	-0.47	-0.28	-0.29	-0.20	-0.17	-0.07	-0.07	0.02	0.11
90	114.30	-0.60	*	*	-0.62	-0.80	-0.93	-0.90	-0.89	-0.79	-1.12	-1.17	-1.22	-0.97	-1.02	-0.74	-0.46
90	106.88	-0.51	*	*	-0.67	-0.77	-0.83	-0.76	-0.66	-0.63	-0.92	-0.94	-0.97	-0.72	-0.78	-0.51	-0.26
90	98.57	-0.55	*	*	-0.74	-0.78	-0.77	-0.67	-0.57	-0.52	-0.76	-0.76	-0.76	-0.54	-0.59	-0.35	-0.13
90	88.90	-0.63	*	*	-0.68	-0.70	-0.64	-0.52	-0.41	-0.38	-0.50	-0.47	-0.46	-0.29	-0.31	-0.14	0.02
90	82.57	-0.81	*	*	-0.56	-0.54	-0.48	-0.44	-0.42	-0.27	-0.29	-0.21	-0.17	-0.05	-0.06	0.02	0.11
70	92.73	-0.61	*	*	-0.66	-0.84	-0.97	-0.96	-0.92	-0.86	-1.27	-1.29	-1.31	-1.06	-1.15	-0.84	-0.54
70	83.58	-0.51	*	*	-0.63	-0.75	-0.81	-0.73	-0.68	-0.66	-0.97	-0.98	-1.00	-0.77	-0.82	-0.54	-0.27
70	75.87	-0.62	*	*	-0.77	-0.82	-0.84	-0.73	-0.63	-0.60	-0.85	-0.85	-0.86	-0.64	-0.68	-0.43	-0.17
70	68.29	-0.61	*	*	-0.71	-0.73	-0.68	-0.57	-0.45	-0.42	-0.57	-0.54	-0.54	-0.37	-0.39	-0.22	-0.02
70	61.93	-0.82	*	*	-0.58	-0.55	-0.54	-0.54	-0.50	-0.32	-0.31	-0.26	-0.20	-0.07	-0.07	0.00	0.08
50	64.65	-0.62	*	*	-0.66	-0.81	-0.93	-0.93	-0.89	-0.87	-1.22	-1.28	-1.31	-1.07	-1.14	-0.84	-0.56
50	61.51	-0.56	*	*	-0.67	-0.80	-0.87	-0.83	-0.79	-0.77	-1.08	-1.07	-1.07	-0.87	-0.94	-0.66	-0.37
50	55.53	-0.64	*	*	-0.78	-0.85	-0.88	-0.80	-0.71	-0.68	-0.93	-0.95	-0.94	-0.73	-0.77	-0.52	-0.28
50	48.51	-0.62	*	*	-0.77	-0.77	-0.72	-0.62	-0.51	-0.49	-0.66	-0.65	-0.65	-0.45	-0.47	-0.27	-0.07
50	42.99	-0.88	*	*	-0.63	-0.62	-0.60	-0.60	-0.56	-0.37	-0.38	-0.32	-0.29	-0.19	-0.14	-0.06	0.04

*Asterisk indicates orifice which was inoperative during test.

APPENDIX B
STATOR E SUCTION SURFACE STATIC PRESSURE
COEFFICIENTS AT 90% SPAN FROM TIP

$$C_p = \frac{P_{\text{surface}} - P_o}{(\rho V^2/2) b_{fs}}$$

Percent Design Rotor Speed	Equivalent Weight Flow (lb/sec)	Percent Overall Chord															
		Front Airfoil										Rear Airfoil					
		6.7	11.4	16.2	21.0	26.1	31.2	36.5	41.8	56.5	61.9	67.3	72.6	77.7	82.8	87.8	92.7
110	127.63	-0.22	-0.41	-0.61	-0.71	-0.81	-0.78	-0.72	-0.60	-0.05	-0.19	-0.33	-0.46	-0.52	-0.58	-0.49	-0.39
110	122.36	-0.55	-0.55	-0.59	-0.54	-0.47	-0.37	-0.27	-0.16	0.23	0.14	0.05	-0.01	-0.06	-0.13	-0.10	-0.11
110	116.81	-0.71	-0.64	-0.63	-0.56	-0.45	-0.35	-0.24	-0.14	0.25	0.17	0.10	0.05	0.00	-0.07	-0.05	-0.08
110	111.46	-0.95	-0.72	-0.65	-0.54	-0.41	-0.30	-0.22	-0.17	0.24	0.18	0.13	0.08	0.03	-0.04	-0.03	-0.09
110	107.00	-1.11	-0.76	-0.61	-0.47	-0.33	-0.24	-0.21	-0.19	0.28	0.23	0.17	0.12	0.07	0.00	-0.01	-0.08
100	121.43	-0.14	-0.32	-0.49	-0.57	-0.69	-0.68	-0.61	-0.53	-0.01	-0.12	-0.29	-0.42	-0.48	-0.53	-0.46	-0.38
100	117.78	-0.36	-0.45	-0.54	-0.55	-0.55	-0.48	-0.40	-0.29	0.11	-0.02	-0.16	-0.25	-0.31	-0.37	-0.30	-0.25
100	111.26	-0.45	-0.47	-0.50	-0.45	-0.42	-0.34	-0.24	-0.13	-0.23	0.12	0.01	-0.06	-0.11	-0.18	-0.14	-0.13
100	106.84	-0.55	-0.53	-0.53	-0.47	-0.40	-0.30	-0.20	-0.09	0.28	0.18	0.09	0.03	-0.01	-0.09	-0.05	-0.07
100	105.92	-0.57	-0.54	-0.54	-0.48	-0.40	-0.30	-0.20	-0.10	0.26	0.17	0.08	0.02	-0.02	-0.10	-0.07	-0.09
100	102.92	-0.65	-0.58	-0.56	-0.48	-0.39	-0.28	-0.18	-0.08	0.29	0.21	0.13	0.07	0.02	-0.04	-0.02	-0.05
100	97.94	-0.81	-0.56	-0.50	-0.40	-0.28	-0.18	-0.11	-0.07	0.31	0.26	0.19	0.15	0.10	0.03	0.02	-0.02
100	93.26	-0.95	-0.60	-0.48	-0.36	-0.25	-0.16	-0.14	-0.11	0.31	0.25	0.19	0.15	0.10	0.02	0.01	-0.04
90	114.30	-0.18	-0.36	-0.58	-0.65	-0.72	-0.71	-0.67	-0.58	-0.05	-0.18	-0.37	-0.49	-0.55	-0.60	-0.50	-0.41
90	106.88	-0.35	-0.44	-0.57	-0.55	-0.54	-0.48	-0.41	-0.29	0.12	-0.02	-0.16	-0.26	-0.31	-0.38	-0.30	-0.23
90	98.57	-0.58	-0.57	-0.61	-0.55	-0.48	-0.39	-0.31	-0.18	0.21	0.10	0.00	-0.08	-0.13	-0.20	-0.16	-0.15
90	88.90	-0.74	-0.61	-0.59	-0.49	-0.38	-0.27	-0.17	-0.08	0.27	0.19	0.11	0.06	0.01	-0.05	-0.04	-0.06
90	82.57	-0.89	-0.62	-0.53	-0.41	-0.28	-0.07	-0.15	-0.14	0.27	0.20	0.13	0.08	0.03	-0.05	-0.05	-0.08
70	92.73	-0.17	-0.35	-0.53	-0.59	-0.58	-0.62	-0.62	-0.52	-0.04	-0.20	-0.37	-0.48	-0.54	-0.60	-0.50	-0.37
70	83.58	-0.34	-0.42	-0.53	-0.54	-0.53	-0.49	-0.42	-0.32	0.08	-0.06	-0.20	-0.29	-0.36	-0.40	-0.33	-0.26
70	75.87	-0.51	-0.53	-0.58	-0.54	-0.49	-0.40	-0.31	-0.20	0.19	0.06	-0.03	-0.11	-0.17	-0.24	-0.19	-0.16
70	68.29	-0.67	-0.61	-0.61	-0.53	-0.43	-0.32	-0.22	-0.14	0.24	0.14	0.05	0.00	-0.04	-0.12	-0.10	-0.09
70	61.93	-0.87	-0.61	-0.55	-0.43	-0.30	-0.21	-0.15	-0.12	0.27	0.19	0.11	0.06	0.02	-0.06	-0.06	-0.08
50	64.65	-0.21	-0.38	-0.53	-0.60	-0.66	-0.65	-0.61	-0.54	-0.07	-0.23	-0.39	-0.49	-0.54	-0.59	-0.51	-0.43
50	61.51	-0.28	-0.41	-0.52	-0.55	-0.57	-0.54	-0.48	-0.39	0.02	-0.13	-0.26	-0.35	-0.41	-0.46	-0.39	-0.32
50	55.53	-0.42	-0.48	-0.55	-0.50	-0.43	-0.43	-0.36	-0.26	0.12	0.00	-0.12	-0.20	-0.25	-0.31	-0.26	-0.20
50	48.51	-0.62	-0.58	-0.58	-0.52	-0.44	-0.34	-0.24	-0.13	0.23	0.12	0.04	-0.03	-0.07	-0.14	-0.11	-0.10
50	42.99	-0.84	-0.63	-0.57	-0.48	-0.35	-0.26	-0.17	-0.12	0.22	0.15	0.08	0.01	-0.02	-0.10	-0.09	-0.11

APPENDIX B
STATOR E PRESSURE SURFACE STATIC PRESSURE COEFFICIENTS

$$C_p = \frac{P_{\text{surface}} - P_2}{(\rho V^2 / 2)} \frac{I_s}{I_s}$$

Percent Design Rotor Speed	Equivalent Weight Flow, lb/sec	Percent Overall Chord											
		Front Airfoil						Rear Airfoil					
		10% Span From Tip		90% Span From Tip		10% Span From Tip		90% Span From Tip		10% Span From Tip		90% Span From Tip	
110	127.63	7.6	25.2	42.8	7.5	24.9	42.6	56.5	74.5	92.4	56.1	74.4	92.2
110	122.36	-0.42	-0.21	-0.25	-0.34	0.02	0.16	*	-0.12	-0.34	0.26	0.24	0.12
110	116.81	0.31	0.26	0.12	0.35	0.31	0.35	*	0.33	0.13	0.52	0.48	0.38
110	111.46	0.49	0.37	0.20	0.37	0.32	0.34	*	0.42	0.24	0.51	0.47	0.36
110	107.00	0.48	0.34	0.17	0.45	0.37	0.38	*	0.40	0.22	0.55	0.52	0.42
100	121.43	-0.42	-0.15	-0.21	-0.23	0.09	0.20	*	-0.03	-0.30	0.30	0.28	0.15
100	117.78	-0.05	0.01	-0.08	0.12	0.21	0.30	*	0.10	-0.15	0.42	0.39	0.27
100	111.26	0.09	0.12	-0.03	0.31	0.35	0.38	*	0.19	-0.02	0.54	0.50	0.39
100	106.84	0.26	0.20	0.04	0.38	0.35	0.39	*	0.27	0.06	0.55	0.51	0.40
100	105.92	0.27	0.21	0.03	0.38	0.34	0.38	*	0.27	0.07	0.54	0.51	0.40
100	102.92	0.39	0.30	0.12	0.42	0.37	0.40	*	0.36	0.16	0.57	0.53	0.42
100	97.94	0.49	0.35	0.17	0.47	0.41	0.42	*	0.40	0.24	0.57	0.54	0.45
100	93.26	0.54	0.39	0.20	0.48	0.40	0.41	*	0.41	0.28	0.58	0.55	0.44
90	114.30	-0.36	-0.15	-0.20	-0.25	0.03	0.17	*	-0.03	-0.28	0.28	0.25	0.10
90	106.88	-0.02	0.05	-0.07	0.14	0.23	0.32	*	0.13	-0.11	0.44	0.41	0.29
90	98.57	0.19	0.15	-0.01	0.30	0.29	0.33	*	0.22	0.00	0.50	0.46	0.35
90	88.90	0.45	0.30	0.09	0.43	0.37	0.38	*	0.35	0.16	0.55	0.52	0.40
90	82.57	0.57	0.41	0.22	0.45	0.37	0.36	*	0.45	0.26	0.56	0.51	0.40
70	92.73	-0.38	-0.17	-0.22	-0.11	0.10	0.18	*	-0.07	-0.33	0.32	0.28	0.13
70	83.58	-0.01	0.05	-0.07	0.14	0.21	0.29	*	0.13	-0.10	0.42	0.38	0.26
70	75.87	0.21	0.15	-0.04	0.32	0.30	0.34	*	0.22	0.00	0.51	0.46	0.34
70	68.29	0.44	0.27	0.05	0.43	0.36	0.36	*	0.34	0.13	0.53	0.50	0.39
70	61.93	0.58	0.37	0.18	0.46	0.38	0.37	*	0.41	0.25	0.55	0.52	0.40
50	64.65	-0.33	-0.18	-0.27	-0.09	0.05	0.14	*	-0.08	-0.33	0.29	0.25	0.11
50	61.51	-0.13	-0.01	-0.15	0.08	0.17	0.24	*	0.00	-0.17	0.39	0.35	0.22
50	55.53	0.05	0.06	-0.12	0.26	0.27	0.31	*	0.13	-0.10	0.46	0.42	0.31
50	48.51	0.40	0.25	0.00	0.42	0.34	0.34	*	0.30	0.09	0.55	0.50	0.39
50	42.99	0.56	0.35	0.13	0.47	0.36	0.34	*	0.43	0.23	0.54	0.50	0.40

*Asterisk indicates orifice which was inoperative during test.

APPENDIX C
DEFINITIONS

Definitions of Symbols

a_o	Inlet relative stagnation velocity of sound, ft/sec
c	Chord length, inches
C_p	Static pressure coefficient
d	Diameter, inches
D	Diffusion factor
g_c	Gravitational acceleration, 32.174 lb _m - ft/lb _f -sec ²
l_m	Incidence angle, degree from axial direction
M	Mach number
m	Mass flow, lb _m /sec
N	Rotor speed, rpm
P	Total pressure, psia
PR	Rotor tip static pressure ratio (ratio of local static pressure to static pressure at -7.0% axial chord)
p	Static pressure, psia
R	Gas constant for air, 53.34 ft-lb _f /lb _m - °R
r	Radius, inches
S	Blade passage gap (leading edge), inches
t	Blade maximum thickness, inches
T	Total temperature, °R
T_s	Static temperature, °R
U	Rotor speed, ft/sec
V	Velocity, ft/sec
W	Actual flowrate, lb _m /sec
α	Cone angle (angle of plane tangent to conic surface that approximates the design streamline of revolution), deg
β	Air angle, degrees from axial direction

Definitions of Symbols (Continued)

γ	Ratio of specific heats
γ°	Blade-chord angle, degree from axial direction
δ	Ratio of total pressure to NASA standard sea level pressure of 14.694 psia
δ°	Deviation angle, degree
η	Efficiency
θ	Ratio of total temperature to NASA standard sea level temperature of 518.7 °R
κ	Blade metal angle, degree from axial direction
ρ	Density, $\text{lb}_f/\text{sec}^2/\text{ft}^4$
σ	Solidity, chord divided by blade spacing (c/S)
ϕ	Blade camber angle, $\kappa_1 - \kappa_2$, degree
$\bar{\omega}$	Loss coefficient
$\bar{\omega} \cos \beta/2\sigma$	Loss parameter

Subscripts

0	Compressor inlet (bellmouth)
1	Rotor inlet
2	Rotor exit/stator inlet
2A	Stator exit
ad	Adiabatic
f	Force
fs	Freestream value
id	Isentropic condition
L	Local
m	Mean or mass
max	Maximum
min	Minimum

Definition of Symbols (Continued)

Subscripts (Continued)

le	Leading edge
p	Polytropic
te	Trailing edge
s	Static condition
z	Axial component
θ	Tangential component

Superscripts:

'	Related to rotor blade
-	Mass average value

Definitions of Overall Performance Variables

Pressure ratio:

$$\text{Rotor: } \frac{\bar{P}_2}{\bar{P}_1} \qquad \text{Stage: } \frac{\bar{P}_{2A}}{\bar{P}_1}$$

Equivalent flow:

$$\frac{W\sqrt{\theta}}{\delta}$$

Equivalent rotor speed:

$$N/\sqrt{\theta}$$

Adiabatic efficiency:

$$\text{Rotor: } \eta_{ad} = \frac{\left(\frac{\bar{P}_2}{\bar{P}_1}\right)^{\frac{\gamma-1}{\gamma}} - 1}{\bar{T}_{2A}/518.7 - 1} \qquad \text{Stage: } \eta_{ad} = \frac{\left(\frac{\bar{P}_{2A}}{\bar{P}_1}\right)^{\frac{\gamma-1}{\gamma}} - 1}{\bar{T}_{2A}/518.7 - 1}$$

Definitions of Overall Performance Variables (Concluded)

Polytropic efficiency:

$$\text{Rotor: } \eta_p = \frac{\frac{\gamma-1}{\gamma} \ln(\bar{P}_2/\bar{P}_1)}{\ln(\bar{T}_2/518.7)} \quad \text{Stator: } \eta_p = \frac{\frac{\gamma-1}{\gamma} \ln(\bar{p}_{2A}/\bar{p}_2)}{\ln(\bar{T}_{s2A}/\bar{T}_{s2})}$$

Change in surge pressure ratio:

$$\Delta \text{ Surge Pressure Ratio} = \left[1.0 - \frac{(\bar{P}_{2A}/\bar{P}_1)_{\text{Distorted}}}{(\bar{P}_{2A}/\bar{P}_1)_{\text{Uniform Inlet}}} \right] N/\sqrt{\theta} = \text{constant}$$

Values of pressure ratio for each condition are at constant value of flow, which corresponds to the flow at surge with distortion.

Average pressures and temperatures for circumferential distortion tests:

$$\bar{P}_1 = \frac{(3) (\bar{P}_1 \text{ Undistorted}) + (1) (\bar{P}_1 \text{ Distorted})}{4}$$

$$\bar{P}_2 = \frac{(3) (\bar{P}_2 \text{ Undistorted}) + (1) (\bar{P}_2 \text{ Distorted})}{4}$$

$$\bar{P}_{2A} = \frac{(3) (\bar{P}_{2A} \text{ Undistorted}) + (1) (\bar{P}_{2A} \text{ Distorted})}{4}$$

$$T_1 = \text{Plenum Conditions (corrected to standard day)}$$

$$\bar{T}_2 = \text{Set equal to } \bar{T}_{2A}$$

$$\bar{T}_{2A} = \frac{(3) (\bar{T}_{2A} \text{ Undistorted}) + (1) (\bar{T}_{2A} \text{ Distorted})}{4}$$

Definitions of Blade Element Performance Variables

Incidence angle:

$$\text{Rotor: } i_m = \beta_1' - \kappa_{1e}$$

$$\text{Stator: } i_m = \beta_2 - \kappa_{1e}$$

Diffusion factor:

$$\text{Rotor: } D = 1 - \frac{V_2'}{V_1'} + \frac{d_2 V_{\theta 2} - d_1 V_{\theta 1}}{(d_1 + d_2) V_1' \sigma}$$

Definitions of Blade Element Performance Variables (Continued)

Diffusion factor:

$$\text{Stator: } D = 1 - \frac{V_{2A}}{V_2} - \frac{d_2 V_{\theta 2} - d_{2A} V_{\theta 2A}}{(d_2 + d_{2A}) V_2 \sigma}$$

Deviation angle:

$$\text{Rotor: } \delta^\circ = \beta'_2 - \kappa_{te} \quad \text{Stator: } \delta^\circ = \beta_{2A} - \kappa_{te}$$

Loss coefficient:

$$\text{Rotor: } \bar{\omega}' = \frac{(\bar{P}'_2)_{id} - P'_2}{\bar{P}'_1 - p_1}$$

where:

$$(P'_2)_{id} = P'_1 \left\{ 1 + \frac{\gamma - 1}{2} \left(\frac{U_2^2}{a_{o1}^2} \right) \left[1 - \left(\frac{d_1}{d_2} \right)^2 \right] \right\}^{\frac{\gamma}{\gamma-1}}$$

$$P' \text{ is found from } p/P' = \left[1 + \frac{\gamma - 1}{2} M'^2 \right]^{\frac{\gamma}{1-\gamma}}$$

and M' is calculated using trigonometric functions and the measurements of U , β , P , and p .

$$\text{Stator: } \bar{\omega} = \frac{P_2 - \bar{P}_{2A}}{P_2 - p_2} \quad \bar{\omega}_{fs} = \frac{P_{2A_{fs}} - \bar{P}_{2A}}{P_{2A_{fs}} - p_2}$$

where:

$P_{2A_{fs}}$ = stator exit average freestream total pressure from wake rakes

P_2 = stator inlet total pressure from 20-deg wedge probes

Definitions of Blade Element Performance Variables (Concluded)

Rotor tip static pressure ratio:

$$PR = \frac{p_L}{p \text{ at } -7.0\% \text{ axial chord}}$$

Stator static pressure coefficient:

$$C_p = \frac{p_{\text{surface}} - p_{2fs}}{(\rho V^2 / 2)_{2fs}}$$

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