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TRANSONIC FAN/COMPRESSOR ROTOR DESIGN STUDY

Volume IV

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Cincinnati, Ohio 45215

February 1982

Final Report for Period September 1980 - February 1982

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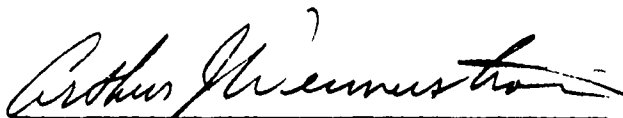
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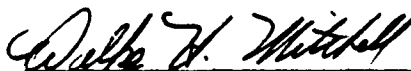
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This technical report has been reviewed and is approved for publication.



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→ This volume describes the aerodynamic design details of the Phase III rotor. The Phase III rotor was designed to have a steeper average suction surface angle in the supersonic region ahead of the shock than the baseline rotor. This results in a smaller cascade throat area in the outer 80% of the blade than the baseline rotor. The hub region was kept essentially the same as the baseline rotor. The location of maximum airfoil thickness is 70% of length at the tip and 56% at the hub which is the same as the baseline rotor.

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VOLUME IV

PHASE III ROTOR DESIGN

Foreword

This Final Technical Report was prepared by the Advanced Technology Programs Department, Aircraft Engine Business Group, General Electric Company, Evendale, Ohio for the United States Air Force Systems Command, Air Force Wright Aeronautical Laboratories Wright-Patterson Air Force Base, Ohio under Contract F33615-80-C-2059. The work was performed over a period of one year starting in September 1980. Effren Strain (Captain USAF) was the Air Force Project Engineer for this program.

This report describes the results of an effort to aerodynamically define five rotor designs, all parametrically related to a base line design which could be evaluated by future testing in order to define the sensitivity of transonic blade rows to several design variables.

For the General Electric Company Mr. D.E. Parker was the Technical Program Manager for this program. Mr. M.R. Simonson was the principal investigator. Mr. A.J. Bilhardt was the overall Program Manager.



VOLUME IV

TABLE OF CONTENTS

SECTION		PAGE
XIII.	DESIGN OF PHASE III ROTOR	1
	1. Introduction	1
	2. Design Procedure	2
XIV.	DETAILS OF PHASE III ROTOR DESIGN	13
	1. Circumferential Average Flow Solution	13
	2. Streamsurface Blade Coordinates	43
	3. Plane Section Blade Coordinates	63
XV.	REFERENCES	118

VOLUME IV

LIST OF ILLUSTRATIONS

FIGURE		PAGE
44.	Phase III Rotor Static Pressure Distribution	3
45.	Phase III Rotor Intrablade Work Distribution	4
46.	Phase III Rotor Throat Margin Compared with Data Match	6
47.	Phase III Rotor Incidence Angle Versus Fractional Immersion	7
48.	Phase III Rotor Deviation Angle Versus Fractional Immersion	7
49.	Phase III Rotor Deviation Angle Minus Reference Deviation Angle Compared with Data Match	8
50.	Phase III Rotor Intrablade Departure Angle Distribution	10
51.	Phase III Rotor Streamsurface Tip Section Compared with Baseline Design	11
52.	Phase III Stator Incidence Angle Compared with Data Match	12
53.	Compressor Flowpath with Calculation Stations	14
54.	Stacked Phase III Rotor Streamsurface Sections	44
55.	Stacked Phase III Rotor Plane Sections	64

LIST OF SYMBOLS AND ABBREVIATIONS

1. Used in Circumferential Average Flow Output Tables

STA	calculation station number	
WTF	total airflow	
PSIC	stream function (0 = tip (OD), 1 = hub (ID))	
Z	axial location	inches
R	radius	inches
PHI	streamline slope	degrees
CURV	streamline curvature  = neg.,  = pos.	1/inches
VM	meridional velocity	ft/sec
CU	absolute tangential velocity	ft/sec
ALPHAM	absolute flow angle on stream surface	degrees
MM	meridional Mach number	
SL	calculation streamline number	
BLDBLK	flow blockage factor	(free area - blocked area)/free area
PS	static pressure	psia
PT	total pressure	psia
TT	total temperature	degrees
BETAM	relative flow angle on stream surface	degrees
UREL	relative velocity	ft/sec
MREL	relative Mach number	
VABS	absolute velocity	ft/sec
MABS	absolute Mach number	
GAMMA	specific heat ratio	
PT-RAT	total pressure/inlet total pressure	
TT-RAT	total temperature/inlet total temperature	
RCU	radius x tangential velocity	in-ft/sec
CZ	axial velocity	ft/sec
PCT IMM	percent annulus immersion from tip (OD)	
RAD	average of leading and trailing edge streamline radii	inches
ACC PT RATIO	cumulative total pressure ratio	
ACC TT RATIO	cumulative total temperature ratio	

LIST OF SYMBOLS AND ABBREVIATIONS

1. Used in Circumferential Average Flow Output Tables (Cont'd)

AD.	adiabatic efficiency
POLY	polytropic efficiency
Axial VEL R	axial velocity ratio across blade row

2. Used in Stream Surface Blade Coordinate Tables

PT	point number	
PCT X	fraction of meridional distance from leading edge	
X	meridional coordinate on meanline	inches
Y	tangential coordinate on meanline	inches
B*M	meanline angle on stream surface	degrees
T(M)	thickness of blade perpendicular to meanline	inches
XS	meridional coordinate on suction surface	inches
YS	tangential coordinate on suction surface	inches
XP	meridional coordinate on pressure surface	inches
YP	tangential coordinate on pressure surface	inches

3. Used in Plane Section Coordinate Tables

Z	axial coordinate of stacking axis	inches
R	radius of coordinate system origin	inches
MU	tilt angle in axial direction	degrees
ETA	tilt angle in tangential direction	degrees
RHO	section height	inches
PT	point number	
ALPHA	axial coordinate	inches
ZETA*	meanline angle from axial	degrees
UPSILON	coordinate perpendicular to ALPHA and radius	inches
PCT AL	fraction of axial distance from leading edge	
T/C	local thickness/chord ratio	

SECTION XIII
DESIGN OF PHASE III ROTOR

1. INTRODUCTION

The efficiency of a transonic rotor is influenced by shock losses as well as losses due to cascade diffusion and secondary flow effects. The magnitude of the shock losses increases rapidly as the inlet Mach number increases. The average Mach number just ahead of the leading edge passage shock is influenced by the shape of the blade suction surface ahead of the shock. Increasing the average suction surface angle ahead of the shock reduces the average Mach number ahead of the shock and presumably reduces the shock losses. However, this results in a reduced cascade throat area. If the throat is too small, the cascade will not pass the design flow and may not achieve the attached shock pattern which is desired for minimum loss.

Also if the blade suction surface angle is made steep ahead of the cascade mouth, or covered portion, it may be necessary to have a rapid change in blade meanline angle at the cascade mouth to prevent the throat from becoming too small within the covered channel. A rapid change of suction surface angle increases the surface Mach number ahead of the shock and tends to worsen the shock-boundary layer interaction. This consideration may influence the optimum throat margin for best efficiency.

For cascades having an inlet Mach number greater than about 1.3, it is possible to achieve a net precompression of the flow ahead of the passage shock and still maintain a throat area sufficiently large to pass the flow.

The maximum flow that a transonic cascade can pass is set by the average suction surface angle in the flow induction region ahead of the first captured Mach wave, provided that the throat area is sufficient and not limiting. Hence any increase in suction surface angle must take place aft of the flow induction region or there will be a reduction of flow.

To get more definitive data on the effect of the suction surface shape ahead of the leading edge passage shock, and on the interrelation of the suction surface shape and the cascade throat area, the Phase III and the Phase IV blades were designed to have smaller throat areas in the outer 80% of the blade than the baseline rotor. While the throat areas of the Phase III and Phase IV rotors

were essentially the same, the Phase IV blade has some what less external compression and some what more internal compression. As a result, the Phase III blade has greater suction surface (and meanline) curvatures in the region of the cascade mouth than does either the Phase IV or the baseline rotors.

2. DESIGN PROCEDURE

The "data match" circumferential average flow solution and the Stream Surface Blade Sections (SBS) analysis of the baseline rotor previously described in Volume I were used as a starting point for the design of the Phase III rotor. However, a higher efficiency was assumed for the outer 80% of the flow since it was believed that the Phase III blade should have reduced shock losses and increased efficiency in this region. The rotor exit total pressure was maintained the same as the baseline rotor while the total temperature was reduced to reflect the assumed higher efficiency. The assumed chord-wise distribution of work was iteratively adjusted to obtain a calculated chord-wise distribution of static pressure which had a shape similar to that of the data match calculations of the base line rotor. However, the level of static pressure was higher in the outer portion at the rotor exit as a result of the assumed higher efficiency and consequent reduced energy input of the Phase III rotor. The resulting streamline static pressure distribution for the Phase III blade is compared with the data match of the baseline rotor on Figure 44.

The assumed streamline work input (as a fraction of the total streamline work) is plotted versus percent axial projection in Figure 45. The tip streamline is the one on the left. Each subsequent streamline is indexed to the right by the value of its stream function (fraction of the total flow from the tip). The dashed lines are lines of constant percent axial projection.

The blade meanline departure angles (the difference between the air angle and the meanline angle) were adjusted to achieve the desired suction surface contour in the forward part of the blade and yet maintain sufficient throat area to pass the desired flow.

After each modification to the chordwise work distribution and/or departure angles, revised blade annulus blockage and blade lean angles were calculated and input to the circumferential Average Flow Determination (CAFD) computer program

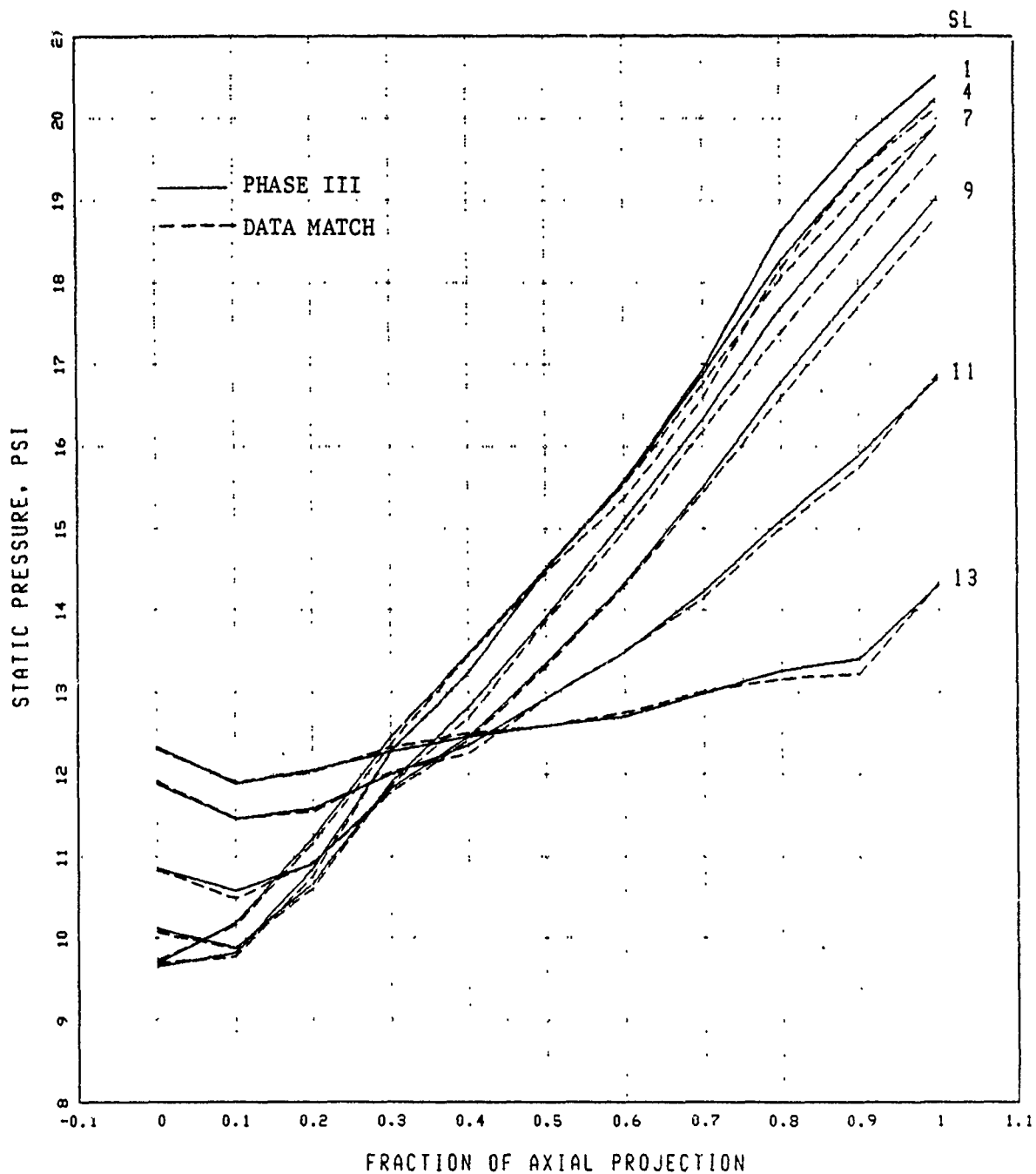


Figure 44 . Phase III Rotor Static Pressure Distribution

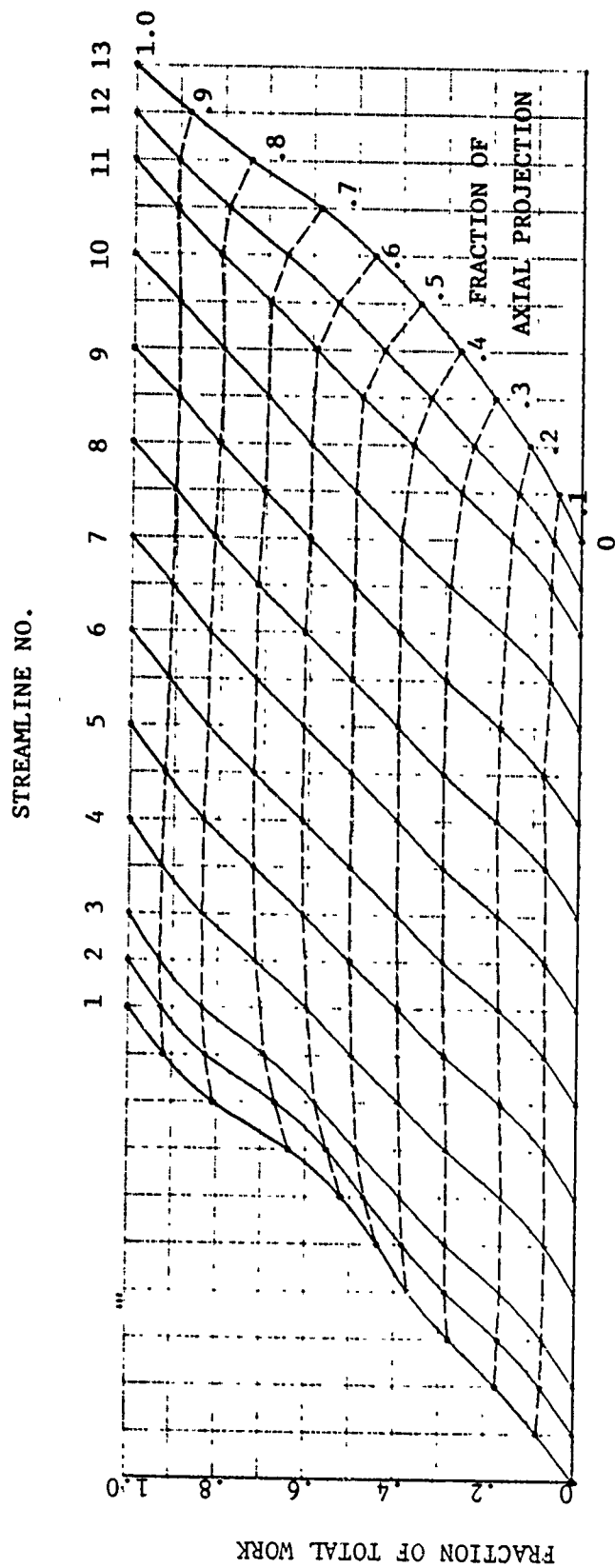


Figure 45. Phase III Rotor Intrablade Work Distribution

for the next iteration.

A method of characteristics computer program was used to analyze the flow in the cascade flow induction region for streamlines 3 and 6 to assure that the rotor would achieve the design flow. For other streamlines the differences between the suction surface angle and the "free-flow" streamline angle was compared with similar data from the data match calculations of the baseline rotor. This, then, was used as a guide in setting the suction surface angle in the flow induction region.

Figure 46 shows the radial distribution of the Phase III rotor throat margin compared with the data match case. It can be seen that the throat margin was set at essentially 5 percent in the outer 80 percent of the blade, except for locally at the tip where the margin is a little over 6 percent. The throat margin for a streamsurface blade section is defined here as the percent of excess throat area over and above the minimum theoretical area required to pass the streamtube flow at a throat Mach number of 1.0 and assuming a total pressure loss equivalent to a normal shock at the upstream Mach number. In a rotor the effect of radius change (between the leading edge and throat) on the relative total enthalpy and pressure is included.

The radial variation of incidence angle for the Phase III blade is shown on Figure 47. Since the blade thickness distribution and leading edge wedge angle are the same as the baseline rotor, the incidence angles were kept very close to the data match values of the base line rotor.

A modified version of Carter's Rule was used to calculate a reference deviation angle for the baseline rotor. This procedure converts the vector diagrams (from the data match calculations) to an equivalent two-dimensional set of vectors which would produce the same circulation as the actual blade taking into account the change in streamline radius and meridional velocity. The difference between the deviation angle implied by the data match calculations and the reference deviation angle was then added to the reference deviation angle calculated from the modified Carter's Rule for the Phase III blade.

The radial distribution of the Phase III rotor deviation angle is shown on Figure 48 and the deviation angle minus the reference deviation angle is compared with the data match values in Figure 49.

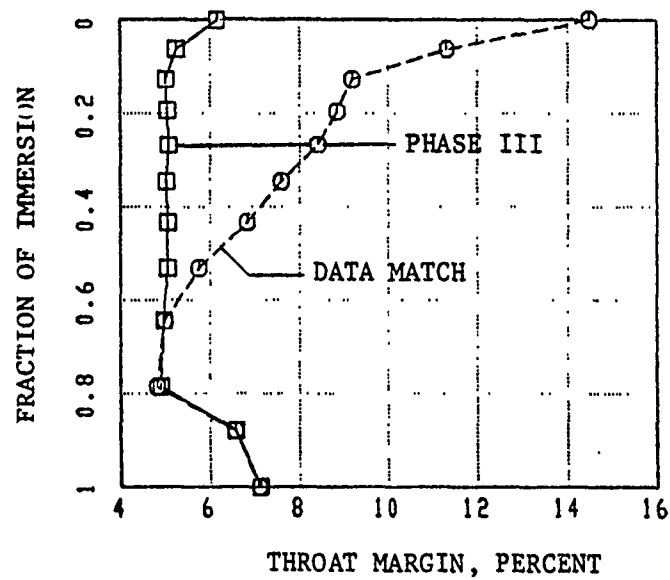


Figure 46. Phase III Rotor Throat Margin Compared With Data Match

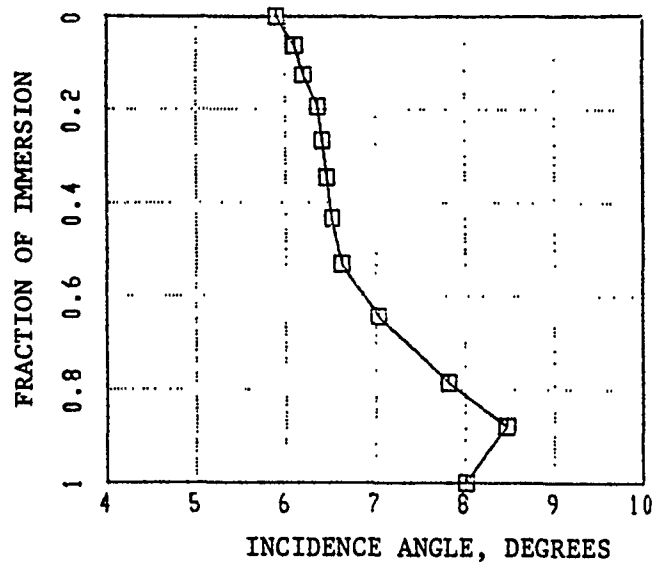


Figure 47. Phase III Rotor Incidence Angle Versus Fractional Immersion

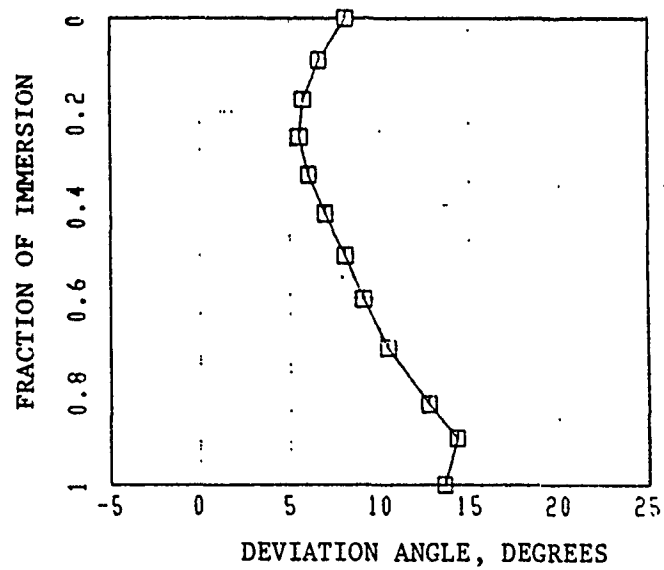


Figure 48. Phase III Rotor Deviation Angle Versus Fractional Immersion

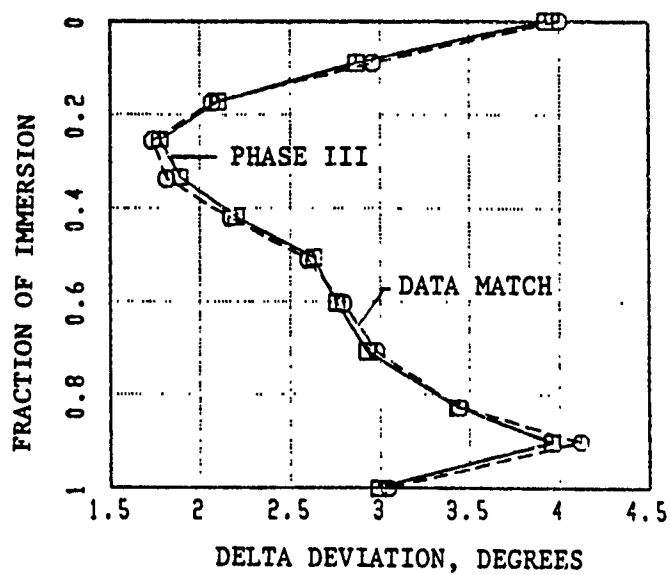


Figure 49. Phase III Rotor Deviation Angle Minus Reference Deviation Angle Compared With Data Match

A plot of departure angles for each streamsurface section is shown in Figure 50. Once the intralade work distribution was chosen these departure angles were required to satisfy the desired incidence angles, deviation angles, and passage area ratios. The resulting streamsurface tip section of the Phase III rotor is compared to that of the baseline rotor in Figure 51.

The radial distribution of the stator incidence angle for the Phase III rotor is compared with the data match of the base line rotor in Figure 52. The lower stator incidence angle in the outer 40 percent of span for the Phase III design is largely the result of the assumed higher efficiency in the outer portion of the rotor.

Details of the Phase III rotor design are given in Section XV.

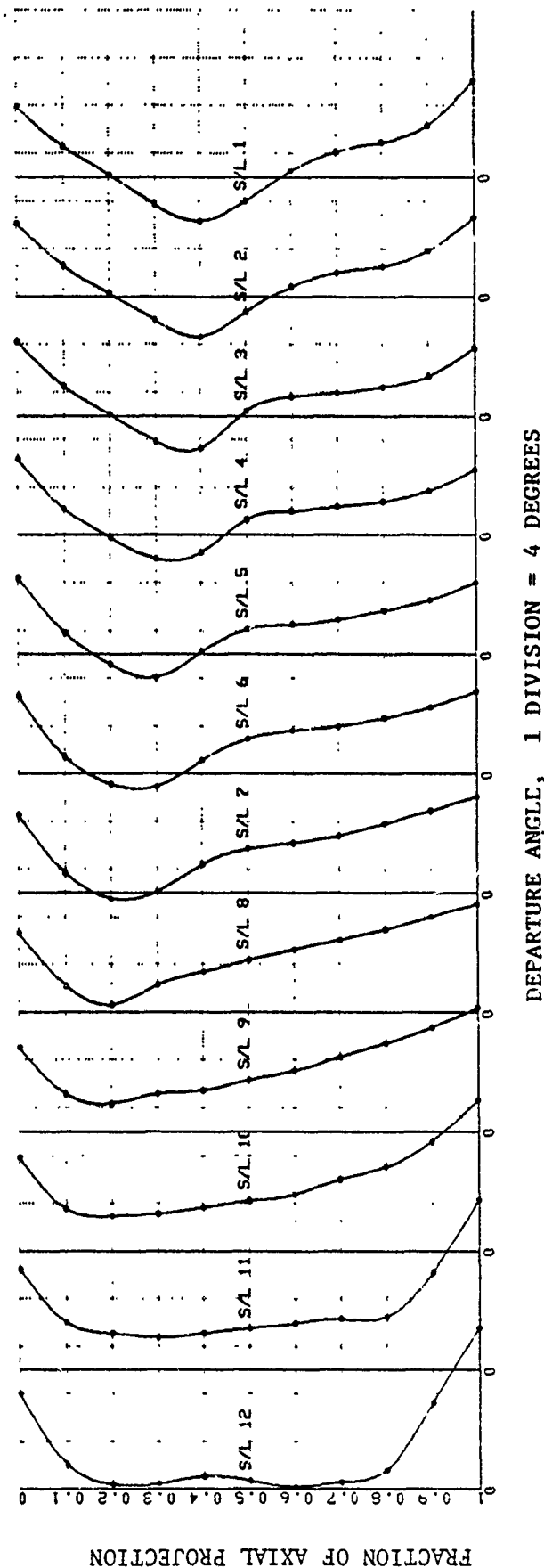


Figure 50 . Phase III Rotor Intrablade Departure Angle Distribution

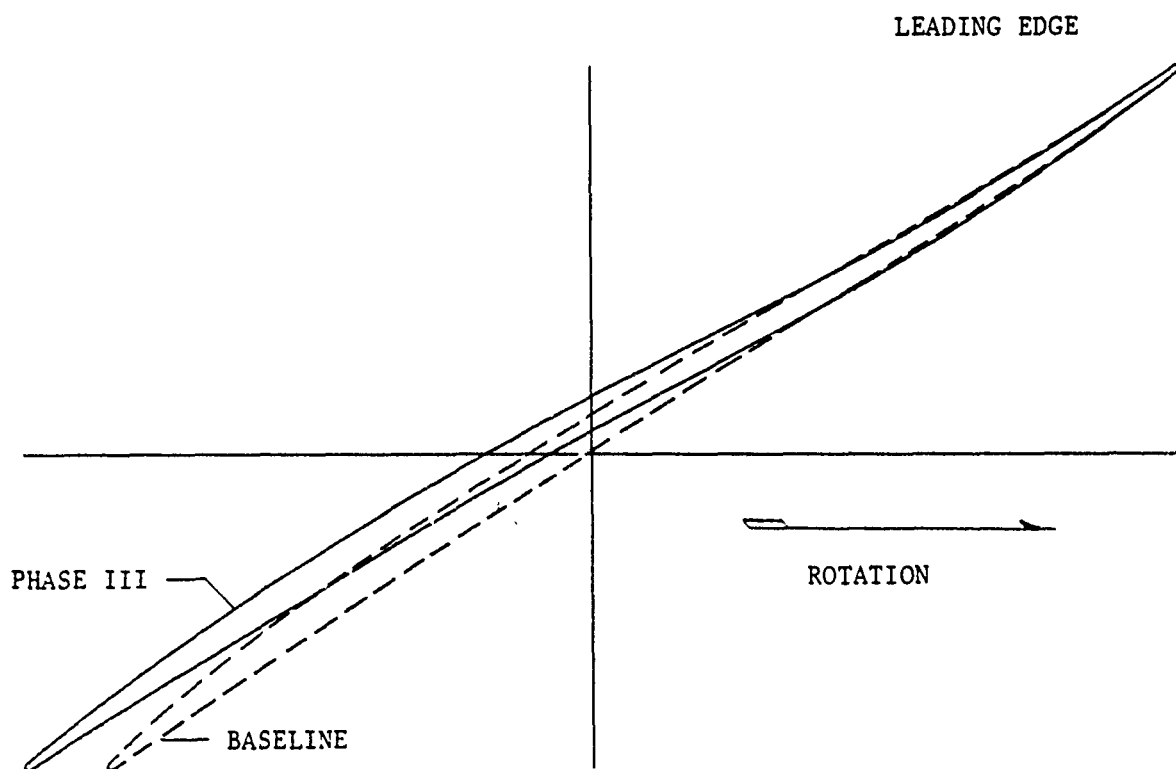


Figure 51 . Phase III Rotor Streamsurface Tip Section Compared with Baseline Design

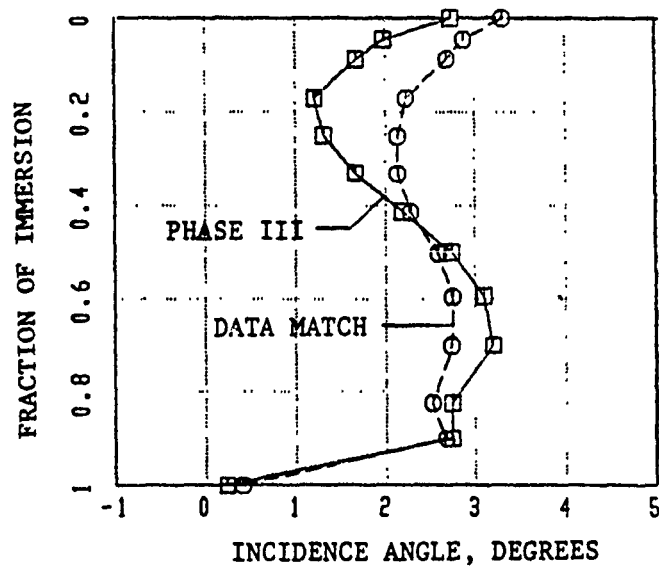


Figure 52. Phase III Stator Incidence Angle Compared With Data Match

SECTION XIV
DETAILS OF PHASE III ROTOR DESIGN

1. CIRCUMFERENTIAL AVERAGE FLOW SOLUTION

The following tabulation presents the detail results of the Phase III rotor circumferential average flow computation. Each page of the tabulation gives results for one calculation station. Figure 53 shows the calculation station locations within the gas flowpath. At each calculation station various aerodynamic parameters are given on each of thirteen calculation streamlines. Also given are several mass averaged station flow properties.

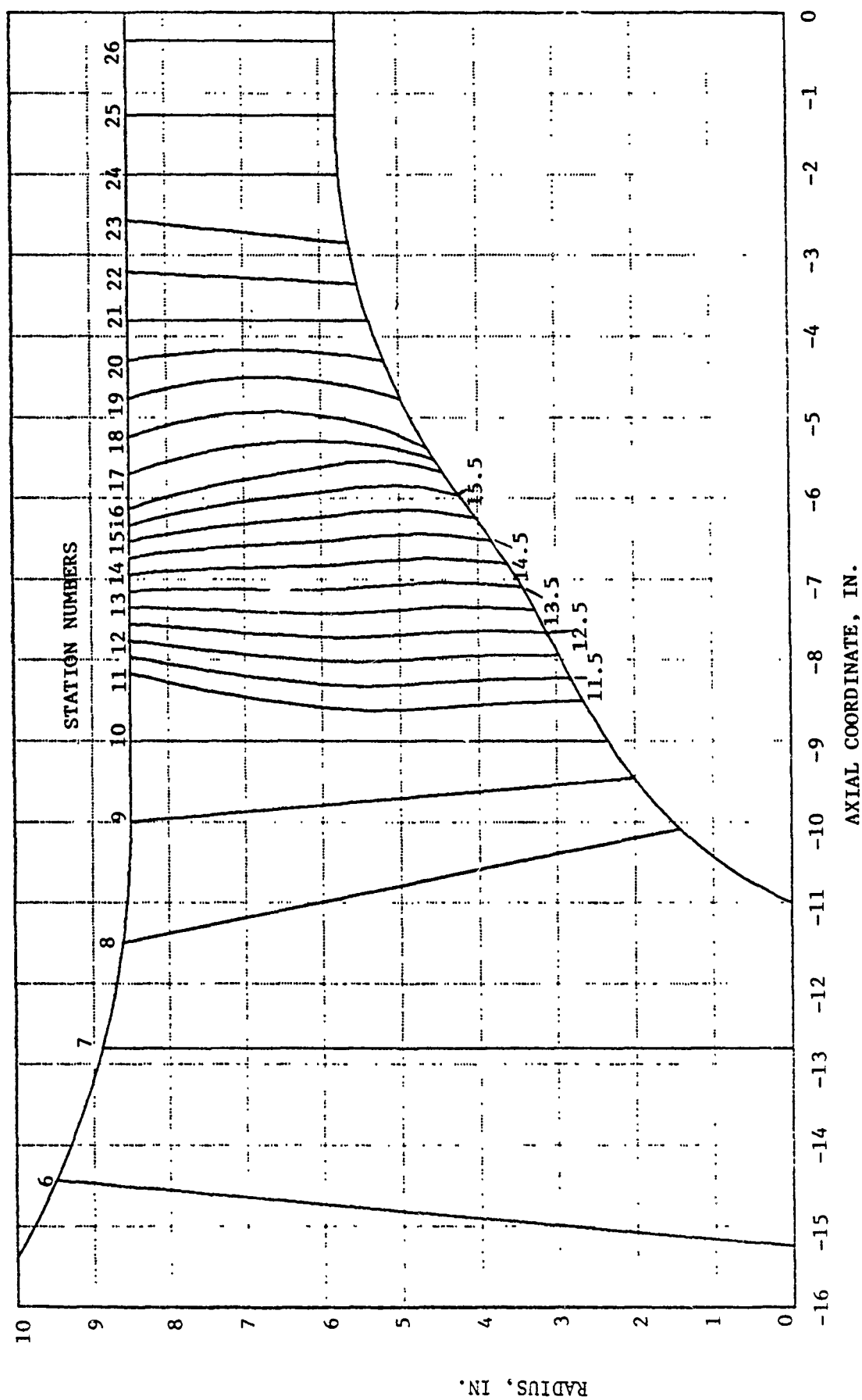


Figure 53. Compressor Flowpath With Calculation Stations

INLET STA= 5.000
 WIF= 61.365 I= 1 AFLOW= 478 13 D+C=0. FREE
 MTIP= 1 OPTI=FREE ITYPE=0 INNR=0 ABC=0. ARI=0
 PSIC Z R PHI CURV VM CU ALPHAM MM
 0. -18.800 13.207 -50.10 0.0831 150.4 0. 0. 0.135
 0.050 -18.800 12.564 -43.54 0. 181.0 0. 0. 0.163
 0.100 -18.800 12.020 -40.31 0. 195.9 0. 0. 0.176
 0.200 -18.800 11.027 -34.70 0. 218.6 0. 0. 0.196
 0.300 -18.800 10.099 -29.90 0. 237.1 0. 0. 0.213
 0.400 -18.800 9.193 -25.65 0. 252.4 0. 0. 0.227
 0.500 -18.800 8.277 -21.78 0. 265.1 0. 0. 0.239
 0.600 -18.800 7.319 -18.17 0. 275.9 0. 0. 0.248
 0.700 -18.800 6.277 -14.68 0. 284.9 0. 0. 0.257
 0.800 -18.800 5.083 -11.19 0. 292.5 0. 0. 0.264
 0.900 -18.800 3.569 -7.35 0. 298.9 0. 0. 0.270
 0.950 -18.800 2.516 -4.92 0. 301.6 0. 0. 0.272
 1.000 -18.800 0.000 0. 304.0 0. 0. 0.274

SL BLDLCK PS PT TT BETAM VREL MREL VABS MABS
 1 0.997 14.510 14.696 518.7 86.31 2335.4 2.095 150.4 0.135
 2 0.997 14.427 14.696 518.7 85.33 2224.5 1.997 181.0 0.163
 3 0.997 14.382 14.696 518.7 84.72 2130.2 1.913 195.9 0.176
 4 0.997 14.305 14.696 518.7 83.59 1958.1 1.760 218.6 0.196
 5 0.997 14.237 14.696 518.7 82.42 1797.9 1.617 237.1 0.213
 6 0.997 14.177 14.696 518.7 81.16 1641.9 1.477 252.4 0.227
 7 0.997 14.124 14.696 518.7 79.71 1484.6 1.337 265.1 0.239
 8 0.997 14.077 14.696 518.7 77.94 1320.6 1.190 275.9 0.248
 9 0.997 14.037 14.696 518.7 75.58 1143.7 1.031 284.9 0.257
 10 0.997 14.002 14.696 518.7 71.94 943.5 0.850 292.5 0.264
 11 0.997 13.972 14.696 518.7 64.61 697.2 0.629 298.9 0.270
 12 0.997 13.959 14.696 518.7 55.81 536.8 0.484 301.6 0.272
 13 0.997 13.947 14.696 518.7 0.00 304.0 0.274

STA 5.000 MASS AVERAGED PROPERTIES
 PT= 14.696 TT= 518.69 GAMMA=1.4015 PT-RAT= 1.000 TT-RAT= 1.000
 RCU= 0. VM= 255.3 CZ= 233.4 MM=0.230 MABS=0.230 MREL=1.300

INLET STA= 6.000
WTF= 61.365 I= 2 OPTV=FREE AFLOW= 277.56 D+C=0. D*H=0.
PSIC Z R PHI CURV VM INRR=0 ABC=0. ABH=0.
0. -14.431 9.481 -24.96 -0.0952 514.6 0. 0. 0. 0.471
0.050 -14.450 9.254 -24.10 -0.1028 507.6 0. 0. 0. 0.464
0.100 -14.470 9.020 -22.95 -0.0955 501.1 0. 0. 0. 0.452
0.200 -14.513 8.532 -20.65 -0.0825 489.4 0. 0. 0. 0.447
0.300 -14.558 8.010 -18.38 -0.0712 478.4 0. 0. 0. 0.436
0.400 -14.606 7.446 -16.13 -0.0614 467.8 0. 0. 0. 0.426
0.500 -14.660 6.829 -13.87 -0.0529 457.2 0. 0. 0. 0.416
0.600 -14.719 6.141 -11.59 -0.0455 446.4 0. 0. 0. 0.406
0.700 -14.787 5.352 -9.23 -0.0390 434.9 0. 0. 0. 0.395
0.800 -14.869 4.402 -6.73 -0.0330 422.1 0. 0. 0. 0.383
0.900 -14.978 3.142 -4.03 -0.0257 406.9 0. 0. 0. 0.369
0.950 -15.057 2.234 -2.57 -0.0190 398.1 0. 0. 0. 0.361
1.000 -15.250 0.000 0. 0. 387.5 0. 0. 0. 0.351

SL B/D/BLK PS PT TT BETAM VREL MREL VABS MABS
1 0.997 12.623 14.696 518.7 72.90 1750.4 1.601 514.6 0.471
2 0.997 12.677 14.696 518.7 72.73 1710.1 1.564 507.6 0.464
3 0.997 12.726 14.696 518.7 72.53 1668.8 1.525 501.1 0.458
4 0.997 12.812 14.696 518.7 71.99 1583.2 1.445 489.4 0.447
5 0.997 12.892 14.696 518.7 71.30 1492.2 1.361 478.4 0.436
6 0.997 12.968 14.696 518.7 70.41 1394.8 1.271 467.8 0.426
7 0.997 13.042 14.696 518.7 69.22 1288.9 1.174 457.2 0.416
8 0.997 13.116 14.696 518.7 67.61 1172.0 1.066 446.4 0.406
9 0.997 13.193 14.696 518.7 65.27 1039.7 0.945 434.9 0.395
10 0.997 13.277 14.696 518.7 61.48 884.2 0.803 422.1 0.383
11 0.997 13.374 14.696 518.7 53.72 687.7 0.624 406.9 0.369
12 0.997 13.429 14.696 518.7 44.72 560.3 0.508 398.1 0.361
13 0.997 13.493 14.696 518.7 0.00 387.5 0.351 387.5 0.351

STA 6.000 MASS AVERAGED PROPERTIES
PT= 14.696 TT= 518.69 GAMMA=1.4016 PT-RAT= 1.000 TT-RAT= 1.000
RCU= 0. VM= 455.5 CZ= 438.5 MM=0.415 MABS=0.415 MREL=1.120

INLET		I = 3		STA = 7.000		AFLOW = 244.35		D+C=O.		FREE	
WTF = 61.365		OP1X=DPP		MTIP = 27		ITYPE=O		INRR=O		D+H=O.	
PSIC		Z		PHI		CURV		VM		CU	
R		R		R		R		R		R	
0	-12.800	8.880	-15.47	-0.0952	625.2	Q.	Q.	Q.	Q.	Q.	Q.
0.050	-12.800	8.675	-14.65	-0.0872	617.8	Q.	Q.	Q.	Q.	Q.	Q.
0.100	-12.800	8.464	-13.90	-0.0849	610.4	Q.	Q.	Q.	Q.	Q.	Q.
0.200	-12.800	8.021	-12.40	-0.0753	595.1	Q.	Q.	Q.	Q.	Q.	Q.
0.300	-12.800	7.546	-10.86	-0.0736	579.6	Q.	Q.	Q.	Q.	Q.	Q.
0.400	-12.800	7.032	-9.28	-0.0680	563.9	Q.	Q.	Q.	Q.	Q.	Q.
0.500	-12.800	6.468	-7.60	-0.0629	547.6	Q.	Q.	Q.	Q.	Q.	Q.
0.600	-12.800	5.837	-5.79	-0.0587	530.4	Q.	Q.	Q.	Q.	Q.	Q.
0.700	-12.800	5.112	-3.79	-0.0560	511.3	Q.	Q.	Q.	Q.	Q.	Q.
0.800	-12.800	4.237	-1.46	-0.0558	488.4	Q.	Q.	Q.	Q.	Q.	Q.
0.900	-12.800	3.064	1.52	-0.0633	455.8	Q.	Q.	Q.	Q.	Q.	Q.
0.950	-12.800	2.206	3.55	-0.0759	428.6	Q.	Q.	Q.	Q.	Q.	Q.
1.000	-12.800	0.000	0.	0.	383.6	Q.	Q.	Q.	Q.	Q.	Q.

SL	BLOBLK	PS	PT	TT	BETAM	VREL	MREL	VABS	MABS
1	0.998	11.714	14.696	518.7	68.25	1687.2	1.560	625.2	0.578
2	0.998	11.779	14.696	518.7	68.02	1650.8	1.525	617.8	0.571
3	0.998	11.843	14.696	518.7	67.77	1613.5	1.490	610.4	0.564
4	0.998	11.974	14.696	518.7	67.20	1535.5	1.415	595.1	0.549
5	0.998	12.105	14.696	518.7	66.48	1452.4	1.337	579.6	0.533
6	0.998	12.235	14.696	518.7	65.56	1363.1	1.253	563.9	0.518
7	0.998	12.366	14.696	518.7	64.37	1266.0	1.162	547.6	0.502
8	0.998	12.502	14.696	518.7	62.76	1158.6	1.061	530.4	0.486
9	0.998	12.649	14.696	518.7	60.46	1036.9	0.948	511.3	0.468
10	0.998	12.819	14.696	518.7	56.85	893.0	0.815	488.4	0.446
11	0.998	13.051	14.696	518.7	49.87	707.2	0.644	455.8	0.415
12	0.998	13.234	14.696	518.7	42.25	579.0	0.526	428.6	0.390
13	0.998	13.517	14.696	518.7	0.00	383.6	0.348	383.6	0.348

STA 7.000 MASS AVERAGED PROPERTIES
PT = 14.696 TT = 518.69 GAMMA = 1.4017 PT-RAT = 1.000 TT-RAT = 1.000
RCU = 0. VM = 539.1 CZ = 532.1 MM = 0.495 MABS = 0.495 MREL = 1.109

INLET STA= 8.000 AFLOW= 224.07 D+C=0. FREE D+H=0.0
 WTF= 61.365 OPTX=OPP R PHI ITYPE=0 INBR=0 ABC=0. ABH=0.0
 PSIC Z R CURV VM CU ALPHAM MM

0	-11.499	8.608	-8.21	-0.0953	712.0	0.	0.	0.665
0.050	-11.461	8.412	-7.49	-0.0964	703.2	0.	0.	0.656
0.100	-11.421	8.211	-6.86	-0.0909	693.2	0.	0.	0.647
0.200	-11.339	7.790	-5.58	-0.0816	675.7	0.	0.	0.628
0.300	-11.250	7.341	-4.24	-0.0744	658.7	0.	0.	0.611
0.400	-11.155	6.858	-2.77	-0.0695	642.1	0.	0.	0.595
0.500	-11.052	6.333	-1.09	-0.0668	625.0	0.	0.	0.578
0.600	-10.938	5.753	0.90	-0.0667	606.2	0.	0.	0.559
0.700	-10.809	5.096	3.37	-0.0695	583.8	0.	0.	0.538
0.800	-10.656	4.320	6.70	-0.0768	554.5	0.	0.	0.509
0.900	-10.459	3.318	12.11	-0.0934	510.5	0.	0.	0.467
0.950	-10.323	2.629	17.76	-0.1212	468.0	0.	0.	0.427
1.000	-10.086	1.421	47.99	0.1910	433.9	0.	0.	0.394

SL ELOBLK PS PT TT BETAM VREL MREL VABS MABS

1	0.997	10.919	14.696	518.7	64.89	1677.6	1.567	712.0	0.665
2	0.997	11.003	14.696	518.7	64.65	1642.6	1.533	703.2	0.656
3	0.997	11.092	14.696	518.7	64.41	1506.5	1.497	693.8	0.647
4	0.997	11.259	14.696	518.7	63.82	1531.8	1.425	675.7	0.628
5	0.997	11.415	14.696	518.7	63.05	1453.3	1.349	658.7	0.611
6	0.997	11.564	14.696	518.7	62.05	1370.1	1.269	642.1	0.595
7	0.997	11.716	14.696	518.7	60.78	1280.6	1.184	625.0	0.578
8	0.997	11.879	14.696	518.7	59.16	1182.5	1.091	606.2	0.559
9	0.997	12.070	14.696	518.7	57.01	1072.2	0.987	583.8	0.538
10	0.997	12.311	14.696	518.7	53.97	942.6	0.865	554.5	0.509
11	0.997	12.655	14.696	518.7	48.91	776.8	0.710	510.5	0.467
12	0.997	12.966	14.696	518.7	44.75	659.0	0.601	468.0	0.427
13	0.997	13.200	14.696	518.7	30.03	501.2	0.456	433.9	0.394

STA 8.000 MASS AVERAGED PROPERTIES
 PT= 14.696 TT= 518.69 GAMMA=1.4017 PT-RAT= 1.000 TT-RAT= 1.000
 RCU= 0. VM= 612.1 CZ= 604.7 MM=0.566 MABS=0.566 MREL=1.140

INLET STA= 9.000
 WTF= 61.365 I= 5 OPTX=DPP AFLOW= 211.87 D+C=0. FRFE
 PSIC Z R PHI CURV VM CU ALPHAM MM
 0 -9.999 8.500 0. -1.10 -0.0543 758.9 0 0. 0.713
 0 050 -9.984 8.315 -0.88 -0.0526 751.9 0 0. 0.706
 0 100 -9.968 8.125 -0.25 -0.0510 744.0 0 0. 0.698
 0 200 -9.935 7.728 -0.62 -0.0514 730.2 0 0. 0.684
 0 300 -9.900 7.305 1.78 -0.0535 716.0 0 0. 0.669
 0 400 -9.862 6.851 3.30 -0.0577 700.5 0 0. 0.653
 0 500 -9.821 6.359 5.23 -0.0633 682.6 0 0. 0.635
 0 600 -9.776 5.816 7.75 -0.0711 660.8 0 0. 0.613
 0 700 -9.725 5.201 11.16 -0.0788 633.0 0 0. 0.586
 0 800 -9.665 4.475 16.60 -0.0812 596.4 0 0. 0.550
 0 900 -9.587 3.542 21.65 -0.0410 546.2 0 0. 0.501
 0 950 -9.536 2.919 38.65 0.1881 515.3 0 0. 0.472
 1.000 -9.460 2.011 0.1881 511.4 0 0. 0.468

SL BLDBLK PS PT TT BETAM VREL MREL VABS MABS
 1 0.996 10.466 14.696 518.7 63.16 1681.0 1.580 758.9 0.713
 2 0.996 10.534 14.696 518.7 62.87 1648.8 1.548 751.9 0.706
 3 0.996 10.612 14.696 518.7 62.58 1615.3 1.515 744.0 0.698
 4 0.996 10.745 14.696 518.7 61.83 1546.9 1.448 730.2 0.684
 5 0.996 10.881 14.696 518.7 60.95 1474.6 1.378 716.0 0.669
 6 0.996 11.028 14.696 518.7 59.91 1397.4 1.303 700.5 0.653
 7 0.996 11.196 14.696 518.7 58.69 1313.5 1.223 682.6 0.635
 8 0.996 11.397 14.696 518.7 57.23 1220.7 1.133 660.8 0.613
 9 0.996 11.646 14.696 518.7 55.41 1115.0 1.032 633.0 0.586
 10 0.996 11.963 14.696 518.7 52.94 989.6 0.912 596.4 0.550
 11 0.996 12.377 14.696 518.7 48.85 830.1 0.762 546.2 0.501
 12 0.996 12.618 14.696 518.7 44.99 728.7 0.667 515.3 0.472
 13 0.996 12.648 14.696 518.7 34.75 622.4 0.569 511.4 0.468

STA 9.000 MASS AVERAGED PROPERTIES
 PT= 14.696 TT= 518.69 GAMMA=1.4018 PT-RAT= 1.000 TT-RAT= 1.000
 RCU= 0. VM= 663.8 CZ= 655.4 MM=0.617 MABS=0.617 MREL=1.178

INLET STA= 10.000 AFLOW= 204.13 D+C=O. FREE
 WIF= 61.365 MTIP= 66 OPTI=FREE ITYPE=O INBR=O ARC=O. ABH=O.
 PSIC Z OPTX=DDP R PHI CURV VM CU ALPHAM MM
 0. -9.000 8.500 0. 0. 774.8 0. 0. 0. 0.730
 0.050 -9.000 8.317 0.34 0.0031 775.1 0. 0. 0. 0.730
 0.100 -9.000 8.130 0.65 -0.0024 775.0 0. 0. 0. 0.730
 0.200 -9.000 7.743 1.46 -0.0129 772.3 0. 0. 0. 0.727
 0.300 -9.000 7.333 2.52 -0.0224 765.8 0. 0. 0. 0.720
 0.400 -9.000 6.897 3.91 -0.0326 754.8 0. 0. 0. 0.709
 0.500 -9.000 6.425 5.65 -0.0422 738.5 0. 0. 0. 0.692
 0.600 -9.000 5.906 7.94 -0.0578 714.6 0. 0. 0. 0.668
 0.700 -9.000 5.320 10.76 -0.0720 680.6 0. 0. 0. 0.633
 0.800 -9.000 4.625 14.37 -0.0853 634.6 0. 0. 0. 0.587
 0.900 -9.000 3.734 19.55 -0.0855 575.6 0. 0. 0. 0.530
 0.950 -9.000 3.141 23.74 -0.0851 535.8 0. 0. 0. 0.491
 1.000 -9.000 2.340 32.46 0.1922 543.6 0. 0. 0. 0.499

SL BLDLCK PS PT TT BETAM VREL MREL VABS MARS
 1 0.994 10.309 14.696 518.7 62.68 1688.3 1.590 774.8 0.730
 2 0.994 10.306 14.696 518.7 62.16 1659.8 1.563 775.1 0.730
 3 0.994 10.306 14.696 518.7 61.62 1630.7 1.536 775.0 0.730
 4 0.994 10.333 14.696 518.7 60.52 1569.5 1.478 772.3 0.727
 5 0.994 10.398 14.696 518.7 59.39 1503.7 1.414 765.8 0.720
 6 0.994 10.506 14.696 518.7 58.19 1432.1 1.345 754.8 0.709
 7 0.994 10.665 14.696 518.7 56.92 1353.2 1.268 738.5 0.692
 8 0.994 10.895 14.696 518.7 55.57 1263.7 1.181 714.6 0.668
 9 0.994 11.214 14.696 518.7 54.06 1159.5 1.079 680.6 0.633
 10 0.994 11.631 14.696 518.7 52.13 1033.9 0.957 634.6 0.587
 11 0.994 12.138 14.696 518.7 48.86 874.9 0.805 575.6 0.530
 12 0.994 12.459 14.696 518.7 45.97 771.0 0.707 535.8 0.491
 13 0.994 12.398 14.696 518.7 37.22 682.6 0.626 543.6 0.499

STA 10.000 MASS AVERAGED PROPERTIES
 PT= 14.696 TT= 518.69 GAMMA=1.4018 PT-RAT= 1.000 IT-RAT= 1.000
 RCU= 0. VM= 705.9 CZ= 694.5 MM=0.660 MABS=0.660 MREL=1.217

ROTOR1		STA= 11.000		AFLOW= 197.36		D+C=0.		LE ROTOR	
WTF= 61.365		I= 7		MTIP= 79		OPTV=FREE		ITYPE=4	
PSIC		Z		DPTX=DPP		PHI		CURV	
								VM	
								CU	
								ALPHAM	
								MM	
0	-8.166	8.500	0.	0.	0.	0.	0.	0.	0.794
0	-8.204	8.322	0.40	-0.0055	837.3	0.	0.	0.	0.796
0	-8.242	8.140	0.78	-0.0035	838.5	0.	0.	0.	0.797
0	-8.322	7.763	1.77	-0.0033	839.3	0.	0.	0.	0.798
0	-8.396	7.364	3.15	-0.0140	834.3	0.	0.	0.	0.792
0	-8.465	6.938	4.88	-0.0303	820.2	0.	0.	0.	0.777
0	-8.531	6.477	6.88	-0.0486	794.6	0.	0.	0.	0.750
0	-8.592	5.968	9.19	-0.0480	760.3	0.	0.	0.	0.715
0	-8.624	5.396	12.24	-0.0622	718.8	0.	0.	0.	0.672
0	-8.604	4.734	16.11	-0.0630	669.3	0.	0.	0.	0.622
0	-8.548	3.904	21.67	-0.0678	605.3	0.	0.	0.	0.559
0	-8.526	3.362	25.96	-0.0633	560.7	0.	0.	0.	0.515
1	-8.507	2.653	31.20	0.1471	551.6	0.	0.	0.	0.506

	SL	BLDBLK	PS	PT	TT	BETAM	VRFL	MREL	VABS	MABS
1	0	990	9.697	14.696	518.7	60.89	1716.9	1.631	835.4	0.794
2	0	990	9.677	14.696	518.7	60.31	1690.5	1.607	837.3	0.796
3	0	990	9.664	14.696	518.7	59.73	1663.3	1.581	838.5	0.799
4	0	990	9.657	14.696	518.7	58.51	1606.6	1.527	839.3	0.798
5	0	990	9.708	14.696	518.7	57.30	1544.2	1.467	834.3	0.792
6	0	990	9.852	14.696	518.7	56.18	1473.7	1.397	820.2	0.777
7	0	990	10.111	14.696	518.7	55.19	1392.0	1.315	794.6	0.750
8	0	990	10.452	14.696	518.7	54.17	1299.0	1.221	760.3	0.715
9	0	990	10.854	14.696	518.7	52.95	1193.1	1.115	718.8	0.672
10	0	990	11.319	14.696	518.7	51.30	1070.4	0.995	669.3	0.622
11	0	990	11.887	14.696	518.7	48.70	917.1	0.846	605.3	0.559
12	0	990	12.260	14.696	518.7	46.62	816.3	0.750	560.7	0.515
13	0	990	12.334	14.696	518.7	40.33	723.5	0.664	551.6	0.506

STA 11.000 MASS AVERAGED PROPERTIES
PT= 14.696 TT= 518.69 GAMMA=1.4018 PT-RAT= 1.000 TT-RAT= 1.000
RCU= 0. VM= 756.5 CZ= 742.2 MM=0.712 MABS=0.712 MREL=1.261

ROTOR1 STA= 11 500
 WTF= 61 365 I= 8 MTIP= 92 AFLOW= 180.99 D+C=O. D+H=O.
 PSIC Z OPTX=TT PHI OPTV=PT ITYPE=5 INBR=3 ABC=O. ABH=O.
 IN ROTOR
 0 -7.963 8.500 0 0 0 848 4 45 6 3 08 0.798
 0 050 -7.991 8.324 0 30 0 0205 851.7 41.3 2.77 0 803
 0 100 -8.020 8.143 0 68 0 0182 859.3 39.2 2 62 0 811
 0 200 -8.083 7.770 1.73 0 0098 875.2 37.6 2 46 0 829
 0 300 -8.143 7.378 3.29 -0 0050 887 0 39.6 2 56 0 842
 0 400 -8.198 6.962 5.22 -0 0149 886.2 42.0 2 71 0 841
 0 500 -3.251 6.512 7.38 -0 0134 874.7 44.9 2 94 0 828
 0 600 -8.301 6.017 9.83 -0 0279 846.7 47.5 3 21 0 799
 0 700 -8.324 5.464 12.83 -0 0052 813.8 56.0 3 94 0 764
 0 800 -8.299 4.824 16.59 0 0102 765.9 52.2 3 90 0 715
 0 900 -8.247 4.027 22.17 0 0134 714.1 61.7 4 93 0 662
 0 950 -8.231 3.508 25.98 0 0615 678.9 65.0 5 47 0 627
 1 000 -8.224 2.817 29.07 0 0800 654 0 68.9 6 01 0 603

SL BLDBLK PS PT TT BETAM VREL MREL VABS MABS
 1 0 955 10.182 15.513 530.1 59.75 1683.7 1.584 849.6 0.799
 2 0 955 10.102 15.460 528.8 59.18 1662.4 1.566 852.7 0.804
 3 0 954 10.003 15.440 528.1 58.42 1640.8 1.549 860.2 0.812
 4 0 952 9.820 15.432 527.3 56.72 1595.1 1.511 876.0 0.830
 5 0 948 9.718 15.474 527.3 54.91 1542.8 1.464 887.8 0.843
 6 0 942 9.745 15.506 527.3 53.25 1480.9 1.405 887.2 0.842
 7 0 934 9.881 15.525 527.3 51.62 1408.7 1.334 875.8 0.830
 8 0 925 10.175 15.518 527.1 50.15 1321.3 1.246 848.1 0.800
 9 0 914 10.573 15.587 527.7 48.14 1219.5 1.144 815.8 0.765
 10 0 899 10.954 15.430 526.1 46.22 1106.9 1.033 767.7 0.717
 11 0 881 11.459 15.419 526.0 42.26 964.9 0.895 716.8 0.665
 12 0 848 11.745 15.354 525.4 39.22 876.3 0.810 682.0 0.630
 13 0 810 11.888 15.248 524.4 33.22 781.7 0.721 657.6 0.607

STA 11.500 MASS AVERAGED PROPERTIES
 PT= 15.471 TT= 527.14 GAMMA=1.4018 PT-RAT= 1.053 TT-RAT= 1.016
 RCU= 287.0 VM= 827.0 CZ= 809.8 MM=0.779 MABS=0.780 MREL=1.274

ROTOR1 STA= 12.000
 WTF= 61.365 I= 9
 PSIC Z OPIX=TT
 O. -7.759 8.500
 O.050 -7.778 8.324
 O.100 -7.798 8.145
 O.200 -7.844 7.777
 O.300 -7.889 7.393
 O.400 -7.931 6.987
 O.500 -7.972 6.549
 O.600 -8.010 6.068
 O.700 -8.024 5.532
 O.800 -7.995 4.915
 O.900 -7.946 4.149
 O.950 -7.936 3.649
 1.000 -7.941 2.971

AFLOW= 170.36
 I TYPE=5 INBR=3
 CURV VM
 0 817.0
 0.0326 822.8
 0.0372 831.3
 0.0187 852.1
 0.141 871.3
 0.0057 882.0
 0.0023 881.4
 0.0103 875.1
 0.0098 856.3
 0.0006 820.5
 0.0209 771.3
 0.0211 736.4
 0.0136 688.0

IN ROTOR
 D+C=O. D*H=O.
 ABC=O. ABH=O.
 CU ALPHAM MM
 96.7 6.75 0.755
 94.3 6.54 0.762
 92.2 6.33 0.772
 92.2 6.18 0.794
 97.0 6.35 0.814
 103.1 6.67 0.826
 110.0 7.11 0.825
 118.7 7.73 0.819
 124.7 8.28 0.800
 131.4 9.10 0.763
 142.5 10.47 0.714
 147.2 11.30 0.680
 149.9 12.29 0.633

SL BLDLTK PS PT TT BETAM VREL MREL VABS MABS
 1 0.932 11.217 16.462 542.9 59.79 1623.8 1.501 822.7 0.761
 2 0.931 11.160 16.479 541.8 59.10 1602.1 1.484 826.2 0.767
 3 0.930 11.062 16.482 540.8 58.29 1581.3 1.468 836.4 0.776
 4 0.926 10.861 16.544 539.8 56.35 1537.9 1.433 857.1 0.799
 5 0.920 10.709 16.655 539.8 54.19 1489.2 1.392 876.7 0.820
 6 0.910 10.639 16.747 539.9 52.02 1433.3 1.342 888.0 0.831
 7 0.896 10.668 16.799 539.9 49.87 1367.6 1.281 888.3 0.832
 8 0.880 10.749 16.832 539.9 47.42 1293.2 1.210 883.1 0.826
 9 0.863 10.900 16.760 539.0 44.84 1207.7 1.128 865.4 0.808
 10 0.842 11.197 16.633 537.7 41.89 1102.2 1.026 830.9 0.773
 11 0.820 11.583 16.461 536.1 37.39 970.8 0.899 784.4 0.726
 12 0.774 11.801 16.281 534.5 34.00 888.3 0.820 751.0 0.693
 13 0.730 12.048 15.985 531.8 28.55 783.2 0.721 704.1 0.648

STA 12.000 MASS AVERAGED PROPERTIES
 PT= 16.616 TT= 539.05 GAMMA=1.4018 PT-RAT= 1.131 TT-RAT= 1.039
 RCU= 691.5 VM= 839.7 CZ= 821.8 MM=0.782 MABS=0.790 MREL=1.229

STA= 12 500
 MTIP=118
 OPTX=PT
 PHI=

PSIC	Z	I=10	OPTX=TT	R	PHI	CURV	VM	CU	ALPHAM	MM
0.	-7.556	8.500	0	0	26	0.0067	778.4	155.1	11.27	0.706
0.050	-7.565	8.323	-0.06	0.0240	796.2	159.8	11.35	0.725	11.43	0.717
0.100	-7.576	8.146	-0.06	0.0467	817.7	161.5	11.18	0.747	11.35	0.725
0.200	-7.606	7.783	1.09	0.0320	840.3	168.4	11.33	0.771	11.33	0.771
0.300	-7.636	7.407	2.89	0.0333	854.5	176.9	11.70	0.786	11.70	0.786
0.400	-7.664	7.011	4.99	0.0281	862.5	185.2	12.12	0.795	12.12	0.795
0.500	-7.692	6.585	7.30	0.0180	865.5	196.0	12.76	0.798	12.76	0.798
0.600	-7.720	6.119	9.74	0.0135	858.0	208.7	13.67	0.792	13.67	0.792
0.700	-7.725	5.600	12.59	0.0237	840.6	224.7	14.97	0.775	14.97	0.775
0.800	-7.690	5.005	16.27	0.0242	805.9	239.6	16.56	0.742	16.56	0.742
0.900	-7.646	4.268	21.44	0.0088	773.5	243.2	17.45	0.712	17.45	0.712
0.950	-7.641	3.786	24.93	-0.0461	712.6	236.1	18.33	0.654	18.33	0.654
1.000	-7.658	3.123	28.51							

AFLOW= 161.72
 INBR=3
 INR=5
 D+C=0
 ABC=0
 D+H=0
 ABH=0

STA= 12 500
 MASS AVERAGED PROPERTIES
 PT= 18.084
 TT= 553.54
 GAMMA=1.4017
 PT-RAT= 1.231
 TT-RAT= 1.067
 PCU= 1184.0
 VM= 829.5
 CZ= 811.7
 MM=0.762
 MABS=0.783
 MREL=1.160

ROTOR1 STA= 13 000
 WTF= 61 365 I=11 MIIP=131 AFLOW= 154.98 D+C=0. D+H=0.
 PSIC Z OPTX=TT R PHI PT TT CURV VM INBR=3 ABC=0. ABH=0.
 0. -7 352 8.500 0 0 0 0 748 8 205.9 15.38 0 670
 0 050 -7 352 8.322 -0 57 0.0450 767.9 212.8 15.49 0 688
 0 100 -7 354 8.145 -0 52 0.0480 783.4 215.7 15.40 0 704
 0 200 -7 367 7.786 0.58 0.0270 810.0 220.9 15.25 0 731
 0 300 -7 382 7.418 2.42 0.0323 830.6 227.2 15.30 0 753
 0 400 -7 397 7.033 4.57 0.0211 845.7 236.8 15.64 0 768
 0 500 -7 413 6.620 6.86 0.0261 853.1 245.9 16.08 0 777
 0 600 -7 429 6.168 9.38 0.0249 864.8 260.6 16.77 0 790
 0 700 -7 425 5.666 12.32 0.0169 868.7 277.7 17.73 0 796
 0 800 -7 386 5.092 15.96 0.0105 861.5 304.3 19.45 0 790
 0 900 -7 344 4.385 21.12 0.0098 833.0 327.8 21.48 0 764
 0 950 -7 346 3.923 24.99 -0.0155 804.2 328.3 22.21 0 738
 1.000 -7 375 3.281 29.92 -0.1052 736.3 319.0 23.42 0 674

IN ROTOR
 VABS MABS
 1 0.885 13.471 18.599 570.2 59.94 1495.1 1.337 776.6 0.694
 2 0.886 13.451 18.899 570.8 58.56 1472.0 1.319 796.8 0.714
 3 0.885 13.386 19.083 570.4 57.33 1451.2 1.303 812.6 0.730
 4 0.882 13.243 19.377 569.3 54.91 1409.2 1.272 839.6 0.758
 5 0.876 13.089 19.574 568.3 52.49 1364.0 1.236 861.1 0.780
 6 0.864 12.961 19.726 567.7 49.90 1313.0 1.193 878.2 0.798
 7 0.845 12.829 19.737 566.6 47.23 1256.4 1.145 887.8 0.809
 8 0.825 12.627 19.751 566.0 43.75 1197.2 1.094 903.2 0.825
 9 0.803 12.463 19.693 565.0 39.74 1129.7 1.035 912.0 0.835
 10 0.775 12.398 19.639 564.3 34.60 1046.6 0.959 913.7 0.838
 11 0.748 12.354 19.241 561.0 28.17 944.9 0.867 895.2 0.821
 12 0.700 12.296 18.696 556.6 24.36 882.8 0.810 868.6 0.797
 13 0.653 12.463 17.850 549.5 19.44 780.9 0.715 802.5 0.735

STA 13 000 MASS AVERAGED PROPERTIES
 PT= 19.412 TT= 565.94 GAMMA=1.4016 PT-RAT= 1.321 TT-RAT= 1.091
 RCU= 1605.3 VM= 830.4 CZ= 812.6 MM=0.755 MABS=0.792 MREL=1.114

ROTOR 1 STA= 13.500
 MTIP=144
 WTF= 61.365 I=12 AFLOW= 150.80 D+C=0. O+H=0.
 PSIC Z R OPTX=TT PHI OPTY=PT INBR=3 ABC=0. ABH=0.
 CURV VM CU ALPHAM MM
 0. -7.148 8.500 0. 701.6 243.5 19.14 0.619
 0.050 -7.138 8.319 -0.76 -0.0142 730.7 19.63 0.646
 0.100 -7.132 8.142 -0.79 -0.0052 749.1 19.86 0.663
 0.200 -7.128 7.788 0.29 0.0162 778.0 19.81 0.692
 0.300 -7.129 7.428 2.02 0.0227 802.5 19.82 0.717
 0.400 -7.130 7.054 4.08 0.0431 820.1 19.96 0.735
 0.500 -7.133 6.653 6.40 0.0319 833.1 20.26 0.750
 0.600 -7.138 6.215 8.99 0.0207 847.9 20.96 0.766
 0.700 -7.125 5.731 12.00 0.0193 856.8 21.91 0.777
 0.800 -7.081 5.179 15.88 -0.0015 857.8 23.63 0.780
 0.900 -7.043 4.501 21.16 -0.0143 838.1 26.40 0.764
 0.950 -7.051 4.062 25.40 -0.0281 814.3 27.01 0.743
 1.000 -7.092 3.450 31.86 -0.0937 762.8 27.84 0.697
 IN ROTOR
 SL BLDLCK PS PT TT BETAM VREL MREL VABS MABS
 1 0.877 14.512 19.371 579.6 60.82 1439.1 1.270 742.7 0.656
 2 0.879 14.551 19.934 582.5 58.82 1411.3 1.247 775.8 0.686
 3 0.880 14.575 20.312 583.5 57.29 1386.1 1.227 796.4 0.705
 4 0.878 14.507 20.785 582.9 54.58 1342.6 1.194 827.0 0.735
 5 0.871 14.351 21.082 581.9 51.85 1299.1 1.160 853.0 0.762
 6 0.857 14.156 21.213 580.5 49.11 1252.7 1.123 872.5 0.782
 7 0.837 13.915 21.204 578.9 46.12 1202.0 1.082 888.1 0.799
 8 0.816 13.635 21.218 578.1 42.32 1146.6 1.036 908.0 0.820
 9 0.793 13.348 21.137 576.8 37.89 1085.7 0.984 923.5 0.837
 10 0.766 13.109 21.063 575.9 32.12 1012.9 0.921 936.4 0.851
 11 0.737 12.925 20.793 573.8 24.29 919.5 0.838 935.7 0.852
 12 0.699 12.712 20.072 568.3 20.33 868.4 0.793 914.0 0.834
 13 0.649 12.589 18.981 559.6 15.11 790.1 0.722 862.5 0.788

STA 13.500 MASS AVERAGED PROPERTIES
 PT= 20.807 TT= 578.32 GAMMA=1.4015 PT-RAT= 1.416 TT-RAT= 1.115
 RCU= 2026.3 VM= 812.5 CZ= 794.5 MM=0.731 MABS=0.788 MREL=1.057

ROTOR 1
 WTR= 61.365 I=13 STA= 14.000
 PSIC Z OPTX=TT R PHI OPTV=PT AFLOW= 147.45 D=C=O. D*H=O.
 0. -6.945 8.500 0. 0. 0. 661.1 289.2 23.62 0.576
 0.050 -6.925 8.317 -0.60 -0.0117 695.9 307.4 23.83 0.607
 0.100 -6.910 8.139 -0.65 -0.0165 724.5 323.3 24.05 0.634
 0.200 -6.890 7.789 0.21 -0.0044 759.9 337.0 23.92 0.668
 0.300 -6.875 7.436 1.78 0.0097 785.7 348.8 23.94 0.694
 0.400 -6.863 7.071 3.68 0.0088 799.8 360.6 24.27 0.709
 0.500 -6.854 6.683 5.92 0.0270 808.1 372.4 24.74 0.718
 0.600 -6.847 6.260 8.58 0.0281 824.9 389.9 25.30 0.737
 0.700 -6.825 5.794 11.74 0.0100 835.9 409.5 26.10 0.750
 0.800 -6.777 5.266 15.94 -0.0045 843.5 444.1 27.77 0.760
 0.900 -6.742 4.619 21.61 -0.0344 835.4 490.9 30.44 0.756
 0.950 -6.756 4.204 26.15 -0.0524 818.8 494.8 31.15 0.744
 1.000 -6.809 3.632 33.48 -0.0749 788.5 490.3 31.88 0.720

IN ROTOR
 ABC=O. ABH=O.
 CU ALPHAM MM
 289.2 23.62 0.576
 307.4 23.83 0.607
 323.3 24.05 0.634
 337.0 23.92 0.668
 348.8 23.94 0.694
 360.6 24.27 0.709
 372.4 24.74 0.718
 389.9 25.30 0.737
 409.5 26.10 0.750
 444.1 27.77 0.760
 490.9 30.44 0.756
 494.8 31.15 0.744
 490.3 31.88 0.720

SL BLDLCK PS PT TT BETAM VREL MREL VABS MABS
 1 0.873 15.576 20.333 591.0 61.37 1379.6 1.202 721.6 0.629
 2 0.876 15.601 20.975 593.9 59.05 1353.0 1.181 760.8 0.664
 3 0.877 15.612 21.541 596.1 56.94 1328.0 1.161 793.4 0.694
 4 0.874 15.559 22.193 595.9 53.78 1286.0 1.130 831.2 0.731
 5 0.866 15.432 22.608 595.0 50.80 1243.2 1.098 859.6 0.759
 6 0.852 15.308 22.827 593.7 47.97 1194.6 1.058 877.3 0.777
 7 0.833 15.109 22.836 591.9 44.96 1142.0 1.015 889.8 0.791
 8 0.813 14.731 22.800 590.5 40.91 1091.5 0.975 912.4 0.815
 9 0.792 14.328 22.642 588.5 36.25 1036.5 0.930 930.9 0.835
 10 0.768 13.926 22.559 587.5 29.90 973.1 0.877 953.3 0.859
 11 0.737 13.490 22.274 585.4 21.21 896.1 0.811 969.0 0.877
 12 0.714 13.136 21.506 579.9 16.78 855.2 0.777 956.7 0.869
 13 0.662 12.705 20.328 571.1 10.81 802.8 0.733 928.6 0.847

STA 14.000 MASS AVERAGED PROPERTIES
 PT= 22.266 TT= 590.66 GAMMA=1.4014 PT-RAT= 1.515 TT-RAT= 1.139
 RCU= 2446.1 VM= 794.7 CZ= 776.3 MM=0.708 MABS=0.788 MREL=1.003

ROTOR1 STA= 14.500
 WTF= 61.365 I=14
 PSIC Z R
 0. -6.741 8.500
 0.050 -6.712 8.315
 0.100 -6.688 8.137
 0.200 -6.651 7.790
 0.300 -6.622 7.444
 0.400 -6.596 7.088
 0.500 -6.574 6.711
 0.600 -6.556 6.303
 0.700 -6.525 5.856
 0.800 -6.473 5.353
 0.900 -6.441 4.740
 0.950 -6.461 4.352
 1.000 -6.526 3.824

STA= 14.500
 MIIP=170
 OPTV=PT
 PHI
 C.
 0.
 -0.41
 -0.40
 0.31
 1.69
 3.50
 5.67
 8.31
 11.67
 16.17
 22.56
 27.47
 34.87

AFLOW= 145.80
 ITYPE=5
 CURV
 0.
 -0.0198
 -0.0238
 -0.0116
 0.0033
 0.0158
 0.0040
 0.0040
 -0.0019
 -0.0208
 -0.0678
 -0.0874
 -0.0668

VM
 616.6
 656.5
 686.2
 729.3
 754.9
 770.6
 778.9
 790.5
 799.1
 808.6
 817.0
 810.1
 799.2

IN ROTOR
 D-C-O.
 ABC-O.
 CU
 355.6
 372.6
 385.8
 401.6
 412.0
 423.1
 435.7
 454.2
 473.2
 506.2
 561.6
 580.4
 588.4

AL PHAM
 MM
 29.97
 29.58
 29.34
 28.84
 28.63
 28.77
 29.22
 29.88
 30.63
 32.05
 34.50
 35.62
 36.37

D-H-O.
 ARH-O.
 0.529
 0.565
 0.592
 0.632
 0.658
 0.675
 0.685
 0.698
 0.709
 0.721
 0.734
 0.731
 0.727

SL BLDLCK PS PT TT
 1 0.874 16.935 21.783 607.6
 2 0.877 16.936 22.483 609.8
 3 0.878 16.932 23.053 611.0
 4 0.875 16.868 23.871 610.7
 5 0.869 16.740 24.307 608.9
 6 0.857 16.570 24.524 606.9
 7 0.840 16.336 24.527 604.7
 8 0.824 15.969 24.463 602.9
 9 0.808 15.508 24.220 600.2
 10 0.790 14.965 24.032 598.4
 11 0.759 14.227 23.828 597.0
 12 0.750 13.725 23.210 593.0
 13 0.699 12.987 22.032 584.9

BETAM
 61.68
 59.05
 56.84
 53.15
 50.06
 47.05
 43.86
 39.78
 35.03
 28.47
 18.60
 13.04
 6.17

VREL
 1299.9
 1276.5
 1254.4
 1216.0
 1175.9
 1130.9
 1080.3
 1028.6
 975.9
 919.9
 862.0
 831.5
 803.8

MREL
 1.115
 1.098
 1.082
 1.054
 1.025
 0.990
 0.949
 0.908
 0.866
 0.820
 0.774
 0.751
 0.731

VABS
 711.9
 754.9
 787.2
 832.5
 860.0
 879.1
 892.5
 911.7
 928.7
 954.0
 991.4
 996.6
 992.4

MABS
 0.611
 0.649
 0.679
 0.722
 0.750
 0.770
 0.784
 0.805
 0.824
 0.851
 0.891
 0.900
 0.902

STA 14.500 MASS AVERAGED PROPERTIES
 PT= 23.883 TT= 603.82 GAMMA=1.4012 PT-RAT= 1.625 TT-RAT= 1.164
 RCU= 2894.4 VM= 764.6 CZ= 745.6 MM=0.673 MABS=0.783 MREL=0.939

ROTOR1		STA= 15.000		AFLOW=		IN ROTOR	
WTF= G1 365		MIIP=183		145 75		D+C=0.	
PSIC		OPTV=PT		CURV		ABC=0.	
Z	R	PHI	CURV	VM	CU	ALPHAM	MM
0.	-6.538	8.500	0.	569.6	451.1	38.37	0.479
0.050	-6.499	8.314	-0.35	614.2	460.4	36.85	0.519
0.100	-6.466	8.136	-0.33	0.0128	645.6	35.74	0.548
0.200	-6.412	7.791	0.37	0.0028	692.7	34.12	0.593
0.300	-6.368	7.451	1.68	-0.0011	719.3	33.45	0.619
0.400	-6.329	7.104	3.42	-0.0053	731.1	33.46	0.632
0.500	-6.295	6.738	5.66	-0.0031	738.3	33.93	0.641
0.600	-6.265	6.345	8.38	-0.0120	746.4	34.50	0.651
0.700	-6.235	5.918	11.90	-0.0244	754.0	35.39	0.661
0.800	-6.168	5.442	16.69	-0.0364	763.2	36.78	0.673
0.900	-6.139	4.869	23.83	-0.0666	788.5	38.87	0.702
0.950	-6.166	4.511	28.90	-0.0607	800.3	39.94	0.718
1.000	-6.243	4.026	36.12	-0.0570	807.1	41.35	0.731

ROTOR1		STA= 15.000		AFLOW=		IN ROTOR	
WTF= G1 365		MIIP=183		145 75		D+C=0.	
PSIC		OPTV=PT		CURV		ABC=0.	
Z	R	PHI	CURV	VM	CU	ALPHAM	MM
0.	-6.538	8.500	0.	569.6	451.1	38.37	0.479
0.050	-6.499	8.314	-0.35	614.2	460.4	36.85	0.519
0.100	-6.466	8.136	-0.33	0.0128	645.6	35.74	0.548
0.200	-6.412	7.791	0.37	0.0028	692.7	34.12	0.593
0.300	-6.368	7.451	1.68	-0.0011	719.3	33.45	0.619
0.400	-6.329	7.104	3.42	-0.0053	731.1	33.46	0.632
0.500	-6.295	6.738	5.66	-0.0031	738.3	33.93	0.641
0.600	-6.265	6.345	8.38	-0.0120	746.4	34.50	0.651
0.700	-6.235	5.918	11.90	-0.0244	754.0	35.39	0.661
0.800	-6.168	5.442	16.69	-0.0364	763.2	36.78	0.673
0.900	-6.139	4.869	23.83	-0.0666	788.5	38.87	0.702
0.950	-6.166	4.511	28.90	-0.0607	800.3	39.94	0.718
1.000	-6.243	4.026	36.12	-0.0570	807.1	41.35	0.731

ROTOR1		STA= 15.000		AFLOW=		IN ROTOR	
WTF= G1 365		MIIP=183		145 75		D+C=0.	
PSIC		OPTV=PT		CURV		ABC=0.	
Z	R	PHI	CURV	VM	CU	ALPHAM	MM
0.	-6.538	8.500	0.	569.6	451.1	38.37	0.479
0.050	-6.499	8.314	-0.35	614.2	460.4	36.85	0.519
0.100	-6.466	8.136	-0.33	0.0128	645.6	35.74	0.548
0.200	-6.412	7.791	0.37	0.0028	692.7	34.12	0.593
0.300	-6.368	7.451	1.68	-0.0011	719.3	33.45	0.619
0.400	-6.329	7.104	3.42	-0.0053	731.1	33.46	0.632
0.500	-6.295	6.738	5.66	-0.0031	738.3	33.93	0.641
0.600	-6.265	6.345	8.38	-0.0120	746.4	34.50	0.651
0.700	-6.235	5.918	11.90	-0.0244	754.0		

ROTOR1
 WTF= 61.365 I=16 STA= 15.500
 PSIC Z OPTX=TT R MTIP=196 AFLOW= 146.77 D+C=O. D*H=O.
 PHI CURV ITYPE=5 INBR=3 CU ALPHAM MM
 VM
 0. 334 8.500 0. 531.8 512.5 43.94 0.442
 0.050 -6.286 8.312 -0.39 -0.0016 578.0 515.8 41.75 0.483
 0.100 -6.244 8.134 -0.36 -0.0084 611.6 518.3 40.28 0.514
 0.200 -6.173 7.793 0.42 -0.0102 660.3 520.0 38.22 0.560
 0.300 -6.114 7.459 1.80 -0.0165 688.2 524.5 37.32 0.587
 0.400 -6.062 7.120 3.65 -0.0253 700.2 532.7 37.26 0.600
 0.500 -6.015 6.767 5.99 -0.0372 703.4 546.5 37.84 0.605
 0.600 -5.974 6.389 8.88 -0.0479 707.2 565.4 38.64 0.611
 0.700 -5.925 5.982 12.54 -0.0479 712.5 590.7 39.66 0.619
 0.800 -5.864 5.536 17.45 -0.0478 724.8 629.8 40.99 0.633
 0.900 -5.838 5.006 24.67 -0.0226 764.0 695.1 42.29 0.675
 0.950 -5.871 4.677 29.77 -0.0289 787.1 740.3 43.24 0.702
 .000 -5.960 4.235 36.53 0.0158 823.3 799.9 44.18 0.744

SL BLDLTK PS PT TT BETAM VREL MREL VABS MABS
 1 0.904 19.719 25.440 646.7 61.70 1121.6 0.933 738.5 0.614
 2 0.906 19.625 26.024 644.7 58.71 1112.8 0.931 774.7 0.648
 3 0.906 19.536 26.481 642.6 56.30 1102.3 0.926 801.7 0.674
 4 0.905 19.359 27.158 637.8 52.33 1080.5 0.916 840.5 0.712
 5 0.903 19.179 27.552 633.7 49.00 1049.0 0.895 865.3 0.738
 6 0.899 19.011 27.730 630.2 45.95 1007.1 0.863 879.8 0.754
 7 0.893 18.794 27.738 627.4 42.64 956.2 0.823 890.8 0.767
 8 0.887 18.428 27.621 624.9 38.48 903.4 0.781 905.5 0.783
 9 0.882 17.939 27.457 622.6 33.13 850.8 0.739 925.5 0.804
 10 0.876 17.229 27.332 621.2 25.59 803.6 0.702 960.2 0.839
 11 0.862 15.900 27.285 621.0 13.85 786.9 0.696 1032.9 0.913
 12 0.855 14.927 27.095 620.5 6.17 791.7 0.706 1080.6 0.963
 13 0.808 13.414 26.567 618.3 -3.65 824.9 0.746 1147.9 1.038

STA 15.500 MASS AVERAGED PROPERTIES
 PT= 27.244 TT= 629.44 GAMMA=1.4008 PT-RAT= 1.854 TT-RAT= 1.214
 RCU= 3767.1 VM= 695.0 CZ= 674.1 MM=0.600 MABS=0.781 MREL=0.817

ROTOR1 STA= 16.000 AFLOW= 148.33 D+C=0. D*H=0. D*H=0.
 WTP= 61.365 I=17 OPTX=TT OPTY=PT ITYPE=6 INBR=3 ABC=0. ABH=0.
 PSIC Z R PHI CURV VM CU ALPHAM MM
 0. -6.131 8.500 0. 0. 501.0 557.9 48.07 0.413
 0.050 -6.072 8.311 -0.13 -0.0402 551.2 557.8 45.34 0.458
 0.100 -6.022 8.133 0.10 -0.0624 584.8 557.8 43.65 0.488
 0.200 -5.935 7.795 1.08 -0.0862 634.0 561.9 41.55 0.533
 0.300 -5.861 7.468 2.57 -0.0890 658.3 569.6 40.87 0.557
 0.400 -5.795 7.139 4.45 -0.0788 668.6 582.0 41.04 0.568
 0.500 -5.735 6.798 6.79 -0.0625 669.8 598.6 41.79 0.572
 0.600 -5.683 6.437 9.64 -0.0419 671.7 621.1 42.76 0.576
 0.700 -5.626 6.051 13.11 -0.0172 678.4 650.5 43.80 0.584
 0.800 -5.560 5.633 17.60 0.0315 694.7 690.3 44.82 0.602
 0.900 -5.537 5.144 24.00 0.0933 728.0 746.6 45.72 0.638
 0.950 -5.576 4.845 28.35 0.1749 761.7 792.0 46.12 0.674
 1.000 -5.677 4.442 35.49 0.0883 780.9 870.1 48.09 0.699

SL BLDLTK PS PT TT BETAM' VREL MREL VABS MABS
 1 0.926 20.517 26.560 658.0 62.00 1067.1 0.881 749.8 0.619
 2 0.927 20.399 27.120 654.9 58.76 1062.9 0.882 784.2 0.651
 3 0.927 20.322 27.560 652.0 56.32 1054.5 0.880 808.2 0.674
 4 0.927 20.232 28.390 647.4 52.08 1031.6 0.868 847.1 0.713
 5 0.928 20.173 28.940 643.7 48.66 996.6 0.844 870.5 0.737
 6 0.928 20.088 29.280 640.8 45.39 952.1 0.809 886.4 0.754
 7 0.928 19.910 29.380 638.3 41.90 899.9 0.768 898.3 0.767
 8 0.928 19.559 29.350 636.2 37.47 846.3 0.725 914.9 0.784
 9 0.928 19.025 29.280 634.4 31.60 796.5 0.686 939.9 0.809
 10 0.928 18.193 29.160 633.0 23.62 758.2 0.657 979.4 0.849
 11 0.930 16.832 28.920 631.6 12.49 745.6 0.654 1042.8 0.914
 12 0.914 15.685 28.770 631.5 4.73 764.3 0.676 1098.9 0.972
 13 0.875 14.309 28.650 632.3 -6.31 785.7 0.704 1169.2 1.047

STA 16.000 MASS AVERAGED PROPERTIES
 PT= 28.783 TT= 640.23 GAMMA=1.4006 P1-RAT= 1.959 TT-RAT= 1.234
 RCU= 4135.2 VM= 663.7 CZ= 644.1 MM=0.568 MABS=0.783 MREL=0.768

AVERAGE BLADE SPEED ACC PT ACC TT EFFICIENCY AXIAL
 PCT IMM RAD IN OUT RATIO AD. POLY VEL R
 0. 8.500 1500.0 1.8073 1.2686 0.686 0.711 0.600
 3.7 8.316 1468.6 1.8454 1.2626 0.729 0.751 0.658
 7.3 8.137 1436.5 1.8753 1.2570 0.766 0.786 0.697
 14.6 7.779 1369.9 1.9318 1.2401 0.835 0.849 0.756
 21.9 7.416 1299.5 1.9692 1.2410 0.887 0.897 0.789
 29.5 7.038 1224.4 1.9924 1.2354 0.925 0.932 0.816
 37.6 6.637 1142.9 1.9992 1.2306 0.950 0.955 0.843
 45.4 6.202 1053.2 1.9971 1.2266 0.965 0.969 0.882
 56.1 5.724 952.3 1.9924 1.2231 0.977 0.979 0.941
 67.0 5.184 835.4 1.9842 1.2204 0.982 0.984 1.030
 80.3 4.524 689.0 1.9679 1.2177 0.981 0.983 1.182
 88.8 4.104 593.3 1.9577 1.2175 0.974 0.976 1.330
 100.0 3.547 468.2 1.9495 1.2190 0.960 0.964 1.348

FREE STA= 17.000
 MTIP=222 AFLOW= 146.21 D+C=O. FREE
 WTF= 61.365 OPTX=DPP PHI CURV VM CU ALPHAM MM
 PSIC Z R
 0 -5.700 8.500 0 0 498.6 557.9 48.21 0.411
 0.050 -5.639 8.314 0.83 -0.0377 551.5 557.6 45.32 0.458
 0.100 -5.587 8.140 1.56 -0.0551 587.3 557.4 43.50 0.490
 0.200 -5.500 7.811 2.94 -0.0627 642.9 560.7 41.10 0.541
 0.300 -5.430 7.495 4.34 -0.0540 673.1 567.5 40.14 0.570
 0.400 -5.375 7.178 5.87 -0.0389 690.3 578.8 39.98 0.588
 0.500 -5.333 6.850 7.70 -0.0156 697.0 594.1 40.44 0.596
 0.600 -5.305 6.503 9.96 0.0127 700.0 614.7 41.29 0.601
 0.700 -5.294 6.129 12.83 0.0453 704.8 642.3 42.34 0.608
 0.800 -5.302 5.713 16.72 0.0828 710.2 680.7 43.78 0.616
 0.900 -5.350 5.225 22.55 0.1554 725.5 735.1 45.37 0.635
 0.950 -5.405 4.934 26.21 0.2126 744.0 777.8 46.27 0.656
 1.000 -5.521 4.550 33.90 0.2101 732.4 849.4 49.23 0.650

SL BLDLTK PS PT TT BETAM VREL MREL VABS MABS
 1 0.940 20.520 26.533 658.0 62.11 1065.9 0.879 748.2 0.617
 2 0.940 20.378 27.093 654.9 58.77 1063.6 0.883 784.3 0.651
 3 0.940 20.278 27.532 652.0 56.25 1057.1 0.882 809.7 0.676
 4 0.940 20.132 28.390 647.4 51.83 1040.2 0.876 853.1 0.718
 5 0.940 19.997 28.940 643.7 48.28 1011.5 0.857 880.5 0.746
 6 0.940 19.828 29.280 640.8 44.89 974.4 0.830 900.9 0.767
 7 0.940 19.590 29.380 638.3 41.41 929.3 0.795 915.8 0.783
 8 0.940 19.249 29.350 636.2 37.28 879.8 0.756 931.7 0.800
 9 0.940 18.771 29.280 634.4 31.93 830.5 0.717 953.6 0.823
 10 0.940 18.111 29.160 633.0 24.76 782.0 0.679 983.7 0.853
 11 0.940 17.019 28.920 631.6 14.45 749.3 0.656 1032.8 0.904
 12 0.940 16.109 28.770 631.5 7.11 749.8 0.661 1076.4 0.949
 13 0.940 15.158 28.564 632.3 -3.64 733.9 0.652 1121.6 0.996

STA 17.000 MASS AVERAGED PROPERTIES
 PT= 28.777 TT= 640.23 GAMMA=1.4006 PT-RAT= 1.958 TT-RAT= 1.234
 RCU= 4135.2 VM= 675.8 CZ= 657.6 MM=0.579 MABS=0.788 MREL=0.782

STATOR STA= 18.000 LE STATOR
 WIF= 61.365 I=19 MTIP=235 AFLOW= 141.59 D+C=O. D+H=O.
 PSIC Z OPTX=OPP PHI CURV VM CU ALPHAM MM ABH=O.
 0 -5.250 8.500 0. 0. 538.2 557.9 46.03 0.445
 0.050 -5.192 8.323 1.45 -0.0105 581.3 557.0 43.78 0.484
 0.100 -5.143 8.157 2.47 -0.0165 612.4 556.2 42.25 0.512
 0.200 -5.064 7.839 3.97 -0.0199 665.2 558.7 40.03 0.561
 0.300 -5.004 7.532 5.20 -0.0164 697.0 564.8 39.02 0.592
 0.400 -4.963 7.223 6.47 -0.0121 717.5 575.2 38.72 0.613
 0.500 -4.938 6.905 7.98 -0.0086 728.2 589.4 38.98 0.625
 0.600 -4.933 6.568 9.89 -0.0057 735.0 608.7 39.63 0.633
 0.700 -4.952 6.204 12.40 -0.0018 742.7 634.4 40.50 0.643
 0.800 -5.003 5.800 15.88 0.0114 751.4 670.5 41.74 0.654
 0.900 -5.107 5.321 21.17 0.0299 762.0 721.8 43.45 0.669
 0.950 -5.201 5.029 24.68 0.0243 753.9 763.1 45.35 0.664
 1.000 -5.375 4.643 31.23 0.3271 803.7 832.3 46.00 0.718

SL BLDLCK PS PT TT BETAM VREL MREL VABS MABS
 1 0.940 20.121 26.533 658.0 60.26 1085.0 0.898 775.2 0.641
 2 0.940 20.054 27.093 654.9 57.48 1081.4 0.900 805.1 0.670
 3 0.940 19.993 27.532 652.0 55.26 1074.7 0.899 827.3 0.692
 4 0.940 19.864 28.390 647.4 51.11 1059.4 0.894 868.7 0.733
 5 0.940 19.702 28.940 643.7 47.64 1034.4 0.878 897.1 0.762
 6 0.940 19.486 29.280 640.8 44.27 1002.0 0.856 919.6 0.785
 7 0.940 19.201 29.380 638.3 40.82 962.3 0.825 936.9 0.804
 8 0.940 18.827 29.350 636.2 36.83 918.3 0.791 954.3 0.822
 9 0.940 18.336 29.280 634.4 31.80 873.9 0.756 976.8 0.846
 10 0.940 17.672 29.160 633.0 25.17 830.2 0.723 1007.0 0.877
 11 0.940 16.703 28.920 631.6 15.91 792.4 0.695 1049.6 0.921
 12 0.940 16.180 28.770 631.5 9.37 764.1 0.673 1072.7 0.945
 13 0.940 14.494 28.564 632.3 -0.92 803.8 0.718 1157.0 1.034

STA 18.000 MASS AVERAGED PROPERTIES
 PT= 28.777 TT= 640.23 GAMMA=1.4007 PT-RAT= 1.958 TT-RAT= 1.234
 RCU= 4135.2 VM= 707.1 CZ= 689.5 MM=0.607 MABS=0.806 MREL=0.811

STATOR STA = 20.000
 WTL= 61.365 I=21 MT/P=261 AFLOW= 118.87 D+C=0. D+H=0.
 PSIC Z R OPTX=DPP PHI OPTV=RETM CURV VM INBR=4 ABC=0. ABH=0.
 0 -4.300 8.500 0.0 0.0046 679.3 269.6 21.82 0.534
 1 0.050 -4.277 8.341 0.63 0.0092 701.6 276.2 21.49 0.582
 2 0.100 -4.258 8.188 1.26 0.0167 742.6 288.6 21.24 0.621
 3 0.200 -4.225 7.890 2.55 0.0211 769.3 295.8 21.03 0.648
 4 0.300 -4.201 7.598 3.89 0.0248 787.9 300.9 20.90 0.666
 5 0.400 -4.184 7.306 5.34 0.0309 798.5 304.3 20.86 0.678
 6 0.500 -4.174 7.007 6.96 0.0408 807.0 308.6 20.93 0.687
 7 0.600 -4.173 6.696 8.85 0.0540 818.7 316.7 21.15 0.699
 8 0.700 -4.180 6.368 11.08 0.0747 836.4 331.0 21.59 0.717
 9 0.800 -4.199 6.018 13.82 0.0874 860.2 351.1 22.20 0.741
 10 0.900 -4.232 5.632 17.32 0.1000 876.8 363.5 22.52 0.758
 11 0.950 -4.260 5.420 19.55 0.1259 897.8 379.5 22.91 0.778
 12 1.000 -4.300 5.188 22.50 0.1259 897.8 379.5 22.91 0.778

SL BLDLTK PS PT T1 RETAM VREL MREL VABS MABS
 1 0.849 21.212 26.533 658.0 62.34 1399.7 1.149 699.9 0.575
 2 0.851 21.184 27.093 654.9 60.53 1381.1 1.140 730.9 0.603
 3 0.852 21.152 27.532 652.0 59.02 1363.1 1.131 754.0 0.625
 4 0.855 21.075 28.390 647.4 56.07 1330.3 1.113 796.8 0.667
 5 0.857 20.978 28.940 643.7 53.64 1297.7 1.092 824.2 0.694
 6 0.859 20.856 29.280 640.8 51.44 1264.0 1.069 843.4 0.713
 7 0.860 20.700 29.380 638.3 49.42 1227.5 1.042 854.5 0.725
 8 0.860 20.484 29.350 636.2 47.25 1189.0 1.012 864.0 0.735
 9 0.858 20.164 29.280 634.4 44.59 1149.7 0.982 877.8 0.750
 10 0.855 19.671 29.160 633.0 41.15 1110.8 0.952 899.5 0.771
 11 0.847 18.953 28.920 631.6 36.77 1073.8 0.926 929.0 0.801
 12 0.840 18.485 28.770 631.5 34.07 1058.5 0.915 949.1 0.820
 13 0.828 17.897 28.564 632.3 30.84 1045.6 0.907 974.7 0.845

STA 20.000 MASS AVERAGED PROPERTIES
 P1= 28.777 TT= 640.23 GAMMA=1.4004 PT-RAT= 1.958 TT-RAT= 1.234
 RCU= 2126.4 VM= 789.7 CZ= 776.4 MM=0.670 MABS=0.719 MREL=1.035

STA 21.000 MASS AVERAGED PROPERTIES
PT= 28.776 TT= 640.23 GAMMA=1.4003 PT-RAT= 1.958 TT-RAT= 1.234
RCU= 1341.2 VM= 803.0 CZ= 792.9 MM=0.679 MABS=0.698 MREL=1.119

STATOR STA= 22.000
 WTF= 61.365 I=23 MTIP=287 AFLOW= 114.73 IN STATOR
 PSIC Z OPTX=OPP PHI CURV VM CU ALPHAM MM
 0 -3.204 8.500 0. 0. 656.8 82.8 7.19 0.537
 0.050 -3.211 8.351 0.54 -0.0034 588.4 85.5 7.08 0.566
 0.100 -3.218 8.207 1.04 -0.0020 711.2 87.0 6.97 0.588
 0.200 -3.232 7.928 1.99 0.0061 753.5 89.8 6.79 0.628
 0.300 -3.245 7.655 2.99 0.0149 780.2 91.1 6.66 0.654
 0.400 -3.259 7.382 4.09 0.0236 798.7 91.8 6.56 0.672
 0.500 -3.272 7.104 5.31 0.0320 808.9 91.9 6.48 0.683
 0.600 -3.286 6.817 6.69 0.0420 816.2 92.0 6.43 0.691
 0.700 -3.301 6.519 8.29 0.0540 825.2 92.9 6.43 0.701
 0.800 -3.316 6.205 10.32 0.0572 835.3 95.3 6.51 0.711
 0.900 -3.333 5.871 12.71 0.0638 842.8 98.3 6.65 0.719
 0.950 -3.341 5.696 13.98 0.0821 848.2 99.9 6.72 0.724
 1.000 -3.350 5.512 15.23 0.1249 857.7 101.8 6.77 0.733

SL BLDBLK PS PT TT BETAM VREL MREL VABS MABS
 1 0.880 21.735 26.533 658.0 65.14 1561.9 1.278 662.0 0.542
 2 0.880 21.725 27.093 654.9 63.63 1549.6 1.275 693.7 0.571
 3 0.881 21.718 27.532 652.0 62.41 1536.0 1.269 716.6 0.592
 4 0.882 21.690 28.390 647.4 60.08 1510.6 1.259 758.9 0.632
 5 0.883 21.633 28.940 643.7 58.23 1481.9 1.242 785.5 0.658
 6 0.883 21.542 29.280 640.8 56.59 1450.6 1.221 804.0 0.677
 7 0.884 21.412 29.380 638.3 55.15 1415.7 1.196 814.1 0.688
 8 0.885 21.240 29.350 636.2 53.70 1378.7 1.168 821.4 0.696
 9 0.886 21.011 29.280 634.4 52.03 1341.3 1.139 830.4 0.705
 10 0.886 20.727 29.160 633.0 50.12 1302.7 1.109 840.7 0.716
 11 0.886 20.403 28.920 631.6 48.06 1260.9 1.076 848.5 0.724
 12 0.887 20.199 28.770 631.5 46.86 1240.5 1.059 854.0 0.729
 13 0.887 19.894 28.564 632.3 45.44 1222.4 1.044 863.7 0.738

STA 22.000 MASS AVERAGED PROPERTIES
 PT= 28.776 TT= 640.23 GAMMA=1.4002 PT-RAT= 1.958 TT-RAT= 1.234
 RCU= 649.0 VM= 793.0 CZ= 786.0 MM=0.668 MABS=0.673 MREL=1.184

STATOR		STA= 23.000										TE STATOR			
WTF= 61.365		I=24		MTIP=300		AFLOW= 118.18		D+C=0.		D+H=0.		ABH=0.			
PSIC		OPTX=DPP		PHI		OP1Y=BE1M		ITYPE=3		INBR=4		ABC=0.			
		Z		R		CURV		VM		CU		ALPHAM		MM	
0.	-2.567	8.500	0.	0.	0.	0.	0.	651.5	0.	0.	0.	0.	0.	0.533	0.
0.050	-2.581	8.358	0.49	0.0062	678.4	0.	0.	678.4	0.	0.	0.	0.	0.	0.557	0.
0.100	-2.595	8.219	0.91	0.0089	696.0	0.	0.	696.0	0.	0.	0.	0.	0.	0.574	0.
0.200	-2.622	7.948	1.67	0.0121	738.2	0.	0.	738.2	0.	0.	0.	0.	0.	0.614	0.
0.300	-2.648	7.684	2.43	0.0178	764.1	0.	0.	764.1	0.	0.	0.	0.	0.	0.639	0.
0.400	-2.674	7.420	3.25	0.0261	782.7	0.	0.	782.7	0.	0.	0.	0.	0.	0.657	0.
0.500	-2.700	7.152	4.17	0.0372	792.7	0.	0.	792.7	0.	0.	0.	0.	0.	0.668	0.
0.600	-2.727	6.876	5.21	0.0498	798.8	0.	0.	798.8	0.	0.	0.	0.	0.	0.675	0.
0.700	-2.756	6.589	6.42	0.0648	807.7	0.	0.	807.7	0.	0.	0.	0.	0.	0.684	0.
0.800	-2.785	6.292	8.00	0.0932	827.7	0.	0.	827.7	0.	0.	0.	0.	0.	0.703	0.
0.900	-2.816	5.977	9.87	0.1246	827.4	0.	0.	827.4	0.	0.	0.	0.	0.	0.704	0.
0.950	-2.832	5.809	10.79	0.1318	827.3	0.	0.	827.3	0.	0.	0.	0.	0.	0.704	0.
1.000	-2.850	5.631	11.52	0.1267	815.2	0.	0.	815.2	0.	0.	0.	0.	0.	0.692	0.
SL		BLDBLK		PS		PT		TT		BEYAM		VREL		MREL	
1	0.940	21.526	26.109	658.0	66.52	1635.4	1.337	651.5	0.533	651.5	0.533	651.5	0.533	651.5	0.533
2	0.940	21.527	26.581	654.9	65.30	1623.4	1.334	678.4	0.557	678.4	0.557	678.4	0.557	678.4	0.557
3	0.940	21.523	26.910	652.0	64.36	1608.7	1.327	696.0	0.574	696.0	0.574	696.0	0.574	696.0	0.574
4	0.940	21.507	27.731	647.4	62.24	1585.0	1.318	738.2	0.614	738.2	0.614	738.2	0.614	738.2	0.614
5	0.940	21.478	28.269	643.7	60.60	1556.5	1.301	764.1	0.639	764.1	0.639	764.1	0.639	764.1	0.639
6	0.940	21.425	28.638	640.8	59.13	1525.5	1.281	782.7	0.657	782.7	0.657	782.7	0.657	782.7	0.657
7	0.940	21.337	28.780	638.3	57.87	1490.5	1.256	792.7	0.668	792.7	0.668	792.7	0.668	792.7	0.668
8	0.940	21.204	28.769	636.2	56.64	1452.8	1.227	798.8	0.675	798.8	0.675	798.8	0.675	798.8	0.675
9	0.940	21.019	28.749	634.4	55.22	1415.8	1.199	807.7	0.684	807.7	0.684	807.7	0.684	807.7	0.684
10	0.940	20.734	28.851	633.0	53.30	1384.9	1.177	827.7	0.703	827.7	0.703	827.7	0.703	827.7	0.703
11	0.940	20.293	28.252	631.6	51.89	1340.6	1.141	827.4	0.704	827.4	0.704	827.4	0.704	827.4	0.704
12	0.940	20.013	27.861	631.5	51.10	1317.3	1.121	827.3	0.704	827.3	0.704	827.3	0.704	827.3	0.704
13	0.940	19.713	27.159	632.3	50.64	1285.4	1.091	815.2	0.692	815.2	0.692	815.2	0.692	815.2	0.692

STA 23.000 MASS AVERAGED PROPERTIES

PT= 28.163 TT= 640.23 GAMMA=1.4002 PT-RAT= 1.916 TT-RAT= 1.234
 RCU= 0. VM= 777.4 CZ= 773.3 MM=0.654 MABS=0.654 MREL=1.244

AVERAGE		BLADE SPEED		ACC PT		ACC TT		EFFICIENCY		AXIAL	
PCT IMM RAD		IN OUT		RATIO		RATIO		AD.		POLY	
0.	8.500			1.7766	1.2686	0.665	0.691	1.210	1.210	0.691	1.210
4.7	8.340			1.8088	1.2626	0.703	0.727	1.167	1.167	0.727	1.167
9.3	8.188			1.8311	1.2570	0.734	0.756	1.137	1.137	0.756	1.137
18.0	7.893			1.8870	1.2481	0.802	0.819	1.112	1.112	0.819	1.112
26.5	7.608			1.9236	1.2410	0.853	0.866	1.100	1.100	0.866	1.100
35.0	7.322			1.9487	1.2354	0.893	0.902	1.096	1.096	0.902	1.096
43.8	7.028			1.9584	1.2306	0.919	0.926	1.096	1.096	0.926	1.096
52.9	6.722			1.9576	1.2266	0.935	0.941	1.099	1.099	0.941	1.099
62.5	6.397			1.9563	1.2231	0.948	0.953	1.106	1.106	0.953	1.106
73.0	6.046			1.9632	1.2204	0.965	0.968	1.134	1.134	0.968	1.134
84.8	5.649			1.9224	1.2177	0.944	0.949	1.147	1.147	0.949	1.147
91.6	5.419			1.8958	1.2175	0.923	0.929	1.186	1.186	0.929	1.186
100.0	5.137			1.8480	1.2190	0.876	0.887	1.162	1.162	0.887	1.162

EXIT STA= 24.000
 I=25
 WTF= 61.365 OPTX=DPP
 PSIC Z R
 0. -2.000 8.500
 0.050 -2.000 8.362
 0.100 -2.000 8.226
 0.200 -2.000 7.964
 0.300 -2.000 7.707
 0.400 -2.000 7.452
 0.500 -2.000 7.194
 0.600 -2.000 6.929
 0.700 -2.000 6.656
 0.800 -2.000 6.374
 0.900 -2.000 6.078
 0.950 -2.000 5.922
 1.000 -2.000 5.757

STA= 24.000
 MTIP=313
 OPTV=FREE
 PHI
 0. 0.0039
 0.32 0.0079
 0.63 0.0157
 1.18 0.0231
 1.67 0.0309
 2.15 0.0398
 2.63 0.0506
 3.12 0.0640
 3.62 0.0789
 4.11 0.0994
 4.59 0.1149
 5.28 0.1260

AFLOW= 116.57
 INBR=0
 VM
 668.7
 695.2
 712.5
 754.5
 781.5
 801.4
 812.9
 820.4
 830.7
 850.3
 846.8
 844.5
 831.2

D'C=0.
 ABC=0.
 CU
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.
 0. 0.

FREE
 D*H=0.
 ABH=0.
 MM
 0. 0.548
 0. 0.572
 0. 0.589
 0. 0.628
 0. 0.655
 0. 0.675
 0. 0.687
 0. 0.695
 0. 0.705
 0. 0.725
 0. 0.722
 0. 0.720
 0. 0.707

SL BLDLCK PS PT TT
 1 0.950 21.297 26.109 658.0
 2 0.950 21.294 26.581 654.9
 3 0.950 21.286 26.910 652.0
 4 0.950 21.254 27.731 647.4
 5 0.950 21.197 28.269 643.7
 6 0.950 21.113 28.638 640.8
 7 0.950 20.995 28.780 638.3
 8 0.950 20.837 28.769 636.2
 9 0.950 20.624 28.749 634.4
 10 0.950 20.339 28.851 633.0
 11 0.950 19.959 28.252 631.6
 12 0.950 19.722 27.861 631.5
 13 0.950 19.453 27.159 632.3

BETAM
 65.97
 64.77
 63.86
 61.77
 60.12
 58.64
 57.37
 56.14
 54.73
 52.91
 51.71
 51.06
 50.71

VREL
 1642.3
 1631.1
 1617.1
 1595.1
 1568.6
 1540.1
 1507.5
 1472.5
 1438.6
 1410.0
 1366.6
 1343.6
 1312.6

MREL
 1.345
 1.342
 1.336
 1.328
 1.314
 1.296
 1.273
 1.247
 1.222
 1.202
 1.165
 1.146
 1.117

VABS
 668.7
 695.2
 712.5
 754.5
 781.5
 801.4
 812.9
 820.4
 830.7
 850.3
 846.8
 844.5
 831.2

MABS
 0.548
 0.572
 0.589
 0.628
 0.655
 0.675
 0.687
 0.695
 0.705
 0.725
 0.722
 0.720
 0.707

STA 24.000 MASS AVERAGED PROPERTIES
 PT= 28 163 TT= 640.23 GAMMA=1.4002 PT-RAT= 1.916 TT-RAT= 1.234
 RCU= 0. VM= 796.6 CZ= 795.5 MM=0.671 MABS=0.671 MREL=1.262

FX1T STA= 25.000 AFLOW= 116 27 D+C=O. FRFE
 MTIP=326 OPTY=FREE ITYPE=O INBR=O ABC=O. D+H=O.
 WTF= 61.365 I=26 OPTX=DPP PHI CURV VM CU ALPHAM ARH=O.
 PSIC Z R
 0 -1.270 8.500 0. 0. 0.0025 711.4 0. 0. 0.562
 0.050 -1.270 8.365 0.19 0. 0.0048 728.0 0. 0. 0.586
 0.100 -1.270 8.232 0.36 0. 0.0091 768.2 0. 0. 0.602
 0.200 -1.270 7.975 0.66 0. 0.0135 793.2 0. 0. 0.641
 0.300 -1.270 7.723 0.91 0. 0.0179 810.9 0. 0. 0.665
 0.400 -1.270 7.472 1.13 0. 0.0227 819.5 0. 0. 0.683
 0.500 -1.270 7.218 1.32 0. 0.0279 823.0 0. 0. 0.693
 0.600 -1.270 6.956 1.48 0. 0.0334 827.8 0. 0. 0.697
 0.700 -1.270 6.686 1.58 0. 0.0397 839.6 0. 0. 0.703
 0.800 -1.270 6.407 1.62 0. 0.0463 824.5 0. 0. 0.715
 0.900 -1.270 6.112 1.54 0. 0.0493 814.0 0. 0. 0.701
 0.950 -1.270 5.956 1.42 0. 0.1263 794.2 0. 0. 0.691
 1.000 -1.270 5.790 0.00 0. 0. 0. 0. 0. 0.673

 SL BLDLTK PS PT TT RETAM VREL MREL VABS MABS
 1 0.956 21.067 26.109 658.0 65.43 1649.3 1.353 685.8 0.562
 2 0.956 21.065 26.581 654.9 64.27 1638.6 1.350 711.4 0.586
 3 0.956 21.060 26.910 652.0 63.38 1625.0 1.345 728.0 0.602
 4 0.956 21.040 27.731 647.4 61.37 1603.3 1.337 768.2 0.641
 5 0.956 21.005 28.269 643.7 59.80 1576.9 1.323 793.2 0.665
 6 0.956 20.954 28.638 640.8 58.41 1548.0 1.304 810.9 0.683
 7 0.956 20.884 28.780 638.3 57.24 1514.6 1.280 819.5 0.693
 8 0.956 20.792 28.769 636.2 56.16 1477.9 1.252 823.0 0.697
 9 0.956 20.674 28.749 634.4 54.95 1441.3 1.223 827.8 0.703
 10 0.956 20.526 28.851 633.0 53.40 1408.3 1.199 839.6 0.715
 11 0.956 20.342 28.252 631.6 52.61 1357.7 1.155 824.5 0.701
 12 0.956 20.235 27.861 631.5 52.25 1329.4 1.129 814.0 0.691
 13 0.956 20.052 27.159 632.3 52.15 1294.2 1.096 794.2 0.673

 STA 25.000 MASS AVERAGED PROPERTIES
 PT= 28.163 TT= 640.23 GAMMA=1.4002 PT-RAT= 1.916 TT-RAT= 1.234
 RCU= 0. VM= 797.9 CZ= 797.7 MM=0.672 MABS=0.672 MREL=1.264

EXIT STA= 26 000 AFLOW= 116.28 D+C=O. FREE D+H=O.
 WTF= 61.365 MTIP=339 OPTV=FREE ITYPE=O INBR=O ABC=O. ABH=O.
 PSIC Z R PHI CURV VM CU ALPHAM MM
 0. -0.350 8.500 0. 0. 703.4 0. 0. 0. 0.578
 0.050 -0.350 8.367 0.11 -0.0000 728.1 0 0. 0. 0.601
 0.100 -0.350 8.237 0.21 -0.0000 743.9 0 0. 0. 0.617
 0.200 -0.350 7.982 0.38 -0.0000 781.9 0 0. 0. 0.653
 0.300 -0.350 7.733 0.49 -0.0000 804.2 0 0. 0. 0.675
 0.400 -0.350 7.484 0.57 -0.0000 818.5 0. 0. 0. 0.690
 0.500 -0.350 7.231 0.62 -0.0000 822.9 0. 0. 0. 0.696
 0.600 -0.350 6.970 0.61 -0.0000 821.1 0. 0. 0. 0.695
 0.700 -0.350 6.700 0.55 -0.0000 819.1 0. 0. 0. 0.699
 0.800 -0.350 6.419 0.40 -0.0000 822.5 0. 0. 0. 0.675
 0.900 -0.350 6.121 0.12 -0.0000 796.0 0. 0. 0. 0.659
 0.950 -0.350 5.961 -0.10 -0.0000 778.3 0. 0. 0. 0.628
 1.000 -0.350 5.791 0. 0. 745.2 0. 0. 0. 0.

SL RDLBLK PS PT TT BETAM VREL MREL VABS MARS
 1 0.956 20.824 26.109 658.0 64.88 1656.7 1.361 703.4 0.578
 2 0.956 20.824 26.581 654.9 63.75 1646.3 1.359 728.1 0.601
 3 0.956 20.824 26.910 652.0 62.90 1632.8 1.353 743.9 0.617
 4 0.956 20.824 27.731 647.4 60.97 1611.1 1.346 781.9 0.653
 5 0.956 20.824 28.269 643.7 59.49 1584.0 1.330 804.2 0.675
 6 0.956 20.824 28.638 640.8 58.21 1553.8 1.310 818.5 0.690
 7 0.956 20.824 28.780 638.3 57.18 1518.4 1.284 822.9 0.696
 8 0.956 20.824 28.769 636.2 55.28 1478.9 1.252 821.1 0.695
 9 0.956 20.823 28.749 634.4 55.28 1438.4 1.220 819.1 0.695
 10 0.956 20.923 28.851 633.0 54.02 1399.9 1.189 822.5 0.699
 11 0.956 20.822 28.252 631.6 53.61 1341.8 1.137 796.0 0.675
 12 0.956 20.822 27.861 631.5 53.51 1308.6 1.107 778.3 0.659
 13 0.956 20.822 27.159 632.3 53.90 1264.7 1.066 745.2 0.623

SIA 26.000 MASS AVERAGED PROPERTIES
 PT= 28.163 TT= 640.23 GAMMA=1.4002 PT-RAT= 1.916 TT-RAT= 1.234
 RCU= 0. VM= 796.1 CZ= 796.0 MM=0.670 MABS=0.670 MREL=1.264

Phase III Potor

BLADE FORCES

THE FORCE CALCULATIONS ARE 'PER BLADE ROW'.
TO FIND THE FORCE ON A SINGLE BLADE, DIVIDE BY 'NB'.
THE FORCES ARE THAT OF THE AIR ON THE BLADES.
POSITIVE AXIAL IS AFT; POSITIVE TANGENTIAL IS IN ROTATION DIRECTION.
THE COLUMNS HEADED BY F-TAN*, F-AXL*, AND F-RAD* ARE THE TANGENTIAL,
AXIAL, AND RADIAL FORCES PER INCH OF CHANGE IN R-AVG.

SL	R-AVG (IN.)	H-AVG (IN.)	F-TAN* (LB/IN)	F-AXL* (LB/IN)	F-RAD* (LB/IN)
1	8.500	0.184	-288.3	-402.4	-36.8
2	8.316	0.184	-292.6	-403.9	-32.7
3	8.137	0.363	-297.6	-405.6	-27.0
4	7.779	0.721	-299.1	-401.5	-21.7
5	7.416	1.084	-296.7	-388.1	-10.9
6	7.038	1.462	-290.3	-367.9	-0.7
7	6.617	1.863	-281.0	-339.2	-6.6
8	6.202	2.298	-270.3	-301.8	-17.2
9	5.724	2.776	-260.1	-259.4	-26.4
10	5.184	3.316	-244.6	-206.9	-31.1
11	4.524	3.976	-214.5	-134.4	-29.1
12	4.104	4.396	-187.0	-82.6	-29.1
13	3.547	4.953	-165.3	-46.1	-28.8

NET TORQUE= -7884.4 IN-LB
NET TAN. FORCE= -1263.1 LB
NET AXIAL FORCE= -1311.3 LB
NET RADIAL FORCE= -109.2 LB

2. STREAMSURFACE BLADE COORDINATES

Figure 54 shows the stacked Phase III rotor streamsurface sections. Each page of the following tabulation gives the coordinates for one of these sections. The streamline designation for these sections corresponds to the calculation streamlines of the circumferential average flow calculation. Streamline 1 is at the casing and streamline 13 is at the hub. Also given in the tabulations are coordinates for the section meanline, the meanline angle, and the section thickness at each point. Streamsurface section chord, camber angle, and stagger angle are also given. All dimensions in this tabulation are in inches or degrees.

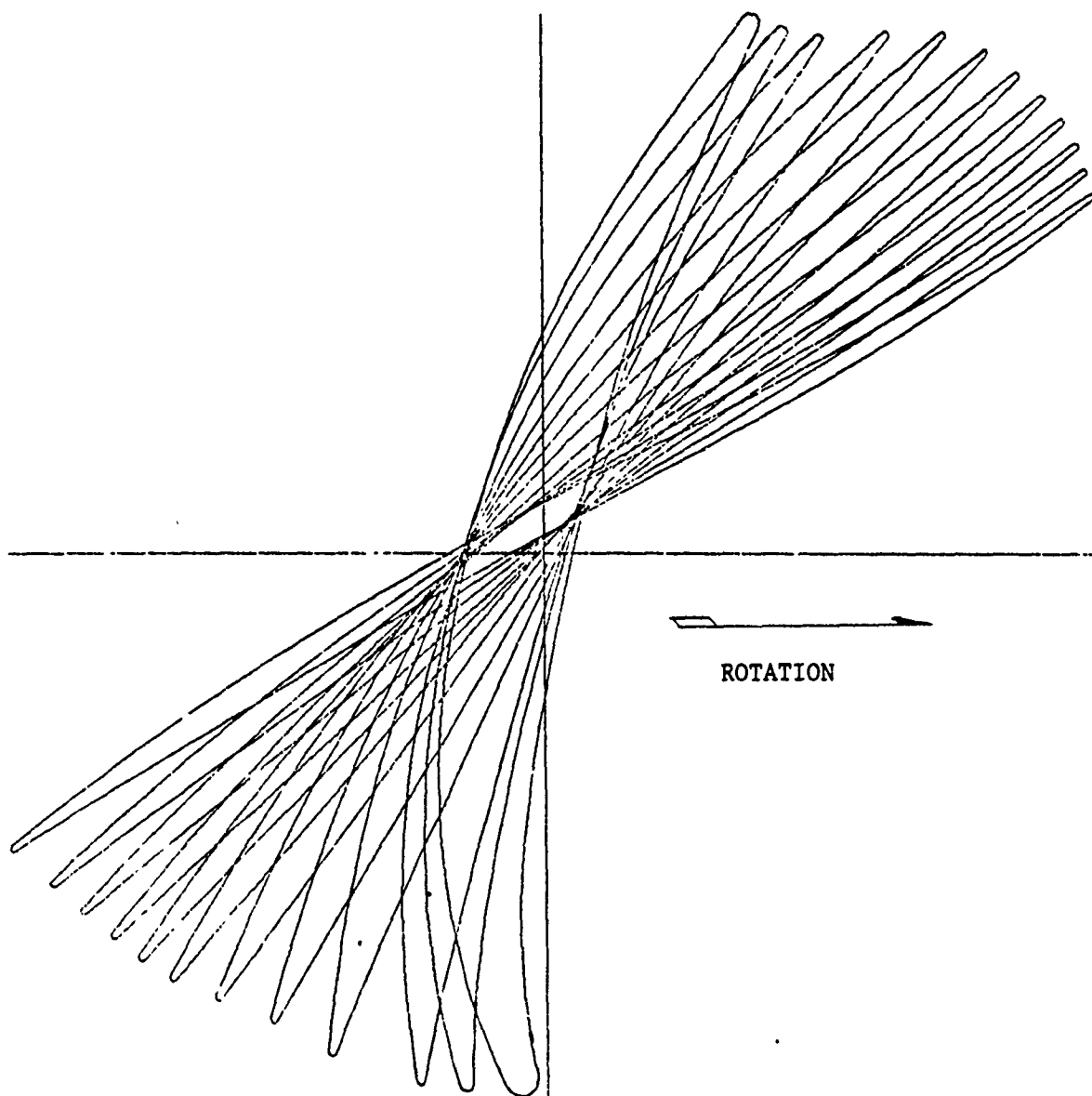


Figure 54. Stacked Phase III Rotor Streamsurface Sections

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 1

PT	Z	R	THETA	B*	T(Z)	PHI	X	B'M	T(M)
1	-1.11520	8.50000	0.21035	-54.985	0.01884	0.	-1.11520	-54.985	0.01884
2	-1.06430	8.50000	0.20172	-55.546	0.02331	0.	-1.06430	-55.546	0.02331
3	-0.96250	8.50000	0.18390	-56.645	0.03219	0.	-0.96250	-56.645	0.03219
4	-0.86080	8.50000	0.16532	-57.755	0.04090	0.	-0.86080	-57.755	0.04090
5	-0.75900	8.50000	0.14590	-58.943	0.04930	0.	-0.75900	-58.943	0.04930
6	0.64700	8.50000	0.12339	60.414	0.05808	0.	-0.64700	60.414	0.05808
7	-0.52490	8.50000	0.09722	-62.004	0.06692	0.	-0.52490	-62.004	0.06692
8	-0.40280	8.50000	0.06944	-63.192	0.07484	0.	-0.40280	-63.192	0.07484
9	-0.28060	8.50000	0.04062	-63.660	0.08168	0.	-0.28060	-63.660	0.08168
10	-0.15850	8.50000	0.01177	-63.265	0.08732	0.	-0.15850	-63.265	0.08732
11	-0.03640	8.50000	-0.01619	-62.262	0.09163	0.	-0.03640	-62.262	0.09163
12	0.08570	8.50000	-0.04283	-61.050	0.09454	0.	0.08570	-61.050	0.09454
13	0.20790	8.50000	-0.06828	-60.131	0.09600	0.	0.20790	-60.131	0.09600
14	0.33000	8.50000	-0.09297	-59.478	0.09529	0.	0.33000	-59.478	0.09529
15	0.45210	8.50000	-0.11705	-58.874	0.08866	0.	0.45210	-58.874	0.08866
16	0.57430	8.50000	-0.14058	-58.332	0.07609	0.	0.57430	-58.332	0.07609
17	0.69640	8.50000	-0.16358	-57.586	0.05867	0.	0.69640	-57.586	0.05867
18	0.81850	8.50000	-0.18563	-56.089	0.03796	0.	0.81850	-56.089	0.03796
19	0.92030	8.50000	-0.20289	-54.322	0.01923	0.	0.92030	-54.322	0.01923

MEANLINE INPUT DATA - STREAMLINE 3

PT	Z	R	THETA	B*	T(Z)	PHI	X	B'M	T(M)
1	-1.19130	8.14010	0.21626	-53.628	0.01946	0.775	-1.19136	-53.626	0.01946
2	-1.13570	8.14090	0.20690	-54.205	0.02421	0.768	1.13575	-54.202	0.02421
3	-1.02470	8.14240	0.18759	-55.324	0.03365	0.727	-1.02474	55.322	0.03365
4	-0.91370	8.14370	0.16748	-56.417	0.04289	0.612	0.91373	-56.415	0.04289
5	-0.80270	8.14480	0.14652	-57.498	0.05180	0.428	-0.80273	-57.497	0.05180
6	-0.68050	8.14550	0.12243	-58.678	0.06106	0.215	-0.68053	-58.677	0.06106
7	-0.54730	8.14570	0.09490	-59.850	0.07035	-0.018	0.54733	-59.850	0.07035
8	-0.41410	8.14540	0.06621	-60.678	0.07861	0.291	-0.41413	-60.678	0.07861
9	-0.28080	8.14440	0.03700	-60.631	0.08567	-0.561	-0.28082	-60.630	0.08567
10	-0.14760	8.14270	0.00854	-59.418	0.09138	-0.751	-0.14761	-59.416	0.09138
11	-0.01440	8.14080	-0.01826	-57.769	0.09563	-0.788	-0.01440	-57.766	0.09563
12	0.11890	8.13910	-0.04349	-56.335	0.09833	-0.679	0.11891	-56.333	0.09833
13	0.25210	8.13760	-0.06759	-55.371	0.09943	0.517	0.25212	-55.369	0.09943
14	0.38530	8.13660	-0.09102	-54.746	0.09739	-379	0.38532	-54.745	0.09739
15	0.51860	8.13590	-0.11395	-54.187	0.08948	-0.321	0.51862	-54.187	0.08948
16	0.65180	8.13520	-0.13639	-53.547	0.07625	-0.355	0.65183	-53.546	0.07625
17	0.78500	8.13420	-0.15823	-52.679	0.05871	0.371	0.78503	-52.678	0.05871
18	0.91830	8.13360	-0.17927	-51.445	0.03820	-0.180	0.91833	-51.445	0.03820
19	1.02930	8.13320	0.19603	-50.196	0.01997	0.095	1.02933	-50.196	0.01997

PHASE III ROTOR

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 4

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.27080	7.76280	0.22306	-52.318	0.02006	1.773	1.27111	-52.305	0.02007
2	-1.21110	7.76470	0.21302	-52.825	0.02541	1.768	-1.21138	-52.812	0.02542
3	-1.09170	7.76840	0.19239	-53.807	0.03603	1.748	-1.09192	-53.794	0.03604
4	-0.97240	7.77200	0.17102	-54.758	0.04642	1.700	0.97257	-54.746	0.04643
5	-0.85310	7.77550	0.14890	-55.734	0.05643	1.605	-0.85322	-55.724	0.05645
6	-0.72180	7.77900	0.12357	-56.927	0.06683	1.422	-0.72187	-56.919	0.06684
7	-0.57860	7.78230	0.09464	-58.029	0.07724	1.138	-0.57864	-58.024	0.07725
8	-0.43520	7.78470	0.05491	-58.295	0.08646	0.821	-0.43532	-58.293	0.08647
9	-0.29210	7.78640	0.03553	-57.363	0.09430	0.541	-0.29211	-57.362	0.09430
10	-0.14890	7.78740	0.00787	-55.272	0.10060	0.351	-0.14890	-55.272	0.10060
11	-0.00570	7.78810	-0.01766	-53.334	0.10522	0.239	-0.00570	-53.334	0.10522
12	0.13750	7.78860	-0.04185	-52.258	0.10808	0.203	0.13750	-52.298	0.10808
13	0.28070	7.78910	-0.06537	-51.693	0.10911	0.249	0.28070	-51.692	0.10911
14	0.42400	7.78980	-0.08842	-50.512	0.10620	0.327	0.42400	-50.511	0.10620
15	0.56720	7.79080	-0.11100	-49.884	0.09702	0.374	0.56721	-49.883	0.09702
16	0.71040	7.79160	-0.13305	-49.177	0.08223	0.359	0.71041	-49.177	0.08223
17	0.85360	7.79260	-0.15461	-48.082	0.06292	0.396	0.85361	-48.080	0.06292
18	0.99680	7.79380	-0.17551	-46.919	0.04050	0.693	0.99682	-46.914	0.04050
19	1.11620	7.79520	-0.19223	-43.715	0.02062	1.083	1.11623	-43.686	0.02062

MEANLINE INPUT DATA - STREAMLINE 5

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.34560	7.76390	0.22853	-50.990	0.02034	3.152	-1.34730	-50.948	0.02036
2	-1.28220	7.76740	0.21782	-51.445	0.02670	3.196	-1.28380	-51.401	0.02673
3	-1.15540	7.77460	0.19590	-52.326	0.03931	3.268	-1.15680	-52.281	0.03935
4	-1.02860	7.78170	0.17330	-53.170	0.05165	3.299	-1.02979	-53.125	0.05170
5	-0.90180	7.78920	0.15003	-54.003	0.06352	3.267	-0.90278	-53.959	0.06359
6	-0.76240	7.79710	0.12360	-54.945	0.07582	3.149	-0.76316	-54.904	0.07590
7	-0.61020	7.80530	0.09388	-55.594	0.08809	2.932	-0.61074	-55.559	0.08817
8	-0.45810	7.81280	0.06403	-55.155	0.09891	2.659	-0.45845	-55.126	0.09898
9	-0.30600	7.81940	0.03529	-53.649	0.10804	2.376	-0.30621	-53.626	0.10810
10	-0.15380	7.82540	0.00846	-51.537	0.11528	2.126	-0.15390	-51.518	0.11533
11	-0.00170	7.83070	-0.01649	-49.841	0.12049	1.932	-0.00170	-49.825	0.12053
12	0.15040	7.83560	-0.04032	-48.936	0.12355	1.801	0.15048	-48.922	0.12358
13	0.30260	7.84020	-0.06351	-48.233	0.12435	1.723	0.30275	-48.220	0.12438
14	0.45470	7.84480	-0.08613	-47.569	0.11988	1.687	0.45492	-47.556	0.11991
15	0.60680	7.84920	-0.10824	-46.953	0.10857	1.678	0.60708	-46.940	0.10859
16	0.75900	7.85360	-0.12985	-46.273	0.09121	1.673	0.75935	-46.260	0.09123
17	0.91110	7.85810	-0.15089	-45.465	0.06898	1.764	0.91152	-45.451	0.06900
18	1.06330	7.86330	-0.17129	-44.543	0.04143	2.126	1.06380	-44.524	0.04144
19	1.19000	7.86790	-0.18776	-43.715	0.02086	2.570	1.19061	-43.686	0.02087

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 6

PT	Z	R	THETA	R*	T(7)	PHI	X	B*M	T(M)
1	-1.41430	6.93800	0.21267	-49.878	0.02048	4.875	-1.41947	-49.775	0.02052
2	-1.34760	6.94390	0.22117	-50.314	0.02849	4.974	-1.35253	-50.208	0.02855
3	-1.21400	6.95570	0.19766	-51.158	0.04438	5.152	-1.21840	-51.044	0.04445
4	-1.08050	6.96790	0.17350	-51.948	0.05990	5.275	-1.08435	-51.830	0.06006
5	-0.94700	6.98040	0.14871	-52.667	0.07480	5.313	-0.95027	-52.548	0.07500
6	-0.80010	6.99410	0.12080	-53.327	0.09021	5.232	-0.80375	-53.212	0.09045
7	-0.63980	7.00860	0.08994	-53.336	0.10550	5.031	-0.64180	-53.230	0.10576
8	-0.47960	7.02230	0.05998	-51.757	0.11888	4.793	-0.48101	-51.659	0.11914
9	-0.31940	7.03530	0.03223	-49.428	0.13005	4.527	-0.32027	-49.340	0.13028
10	-0.15910	7.04780	0.00650	-47.707	0.13876	4.229	-0.15951	-47.629	0.13897
11	0.00110	7.05920	-0.01794	-46.547	0.14480	3.943	0.00110	-46.479	0.14498
12	0.16140	7.06970	-0.04151	-45.663	0.14806	3.714	0.16176	-45.603	0.14822
13	0.32160	7.07990	-0.06436	-44.854	0.14809	3.571	0.32228	-44.798	0.14823
14	0.48180	7.08980	-0.08656	-44.071	0.14106	3.483	0.48279	-44.018	0.14119
15	0.64210	7.09940	-0.10814	-43.307	0.12637	3.422	0.64338	-43.256	0.12648
16	0.80230	7.10880	-0.12910	-42.486	0.10496	3.434	0.80386	-42.435	0.10505
17	0.96260	7.11860	-0.14942	-41.604	0.07819	3.599	0.96446	-41.547	0.07826
18	1.12280	7.12930	-0.16908	-40.732	0.04776	4.000	1.12501	-40.663	0.04781
19	1.25630	7.13860	-0.18500	-40.014	0.02102	4.448	1.25888	-39.929	0.02105

MEANLINE INPUT DATA - STREAMLINE 7

PT	Z	R	THETA	R*	T(7)	PHI	X	R*M	T(M)
1	-1.47980	6.47660	0.23549	-48.937	0.02013	6.882	-1.49130	-48.731	0.02021
2	-1.40990	6.48540	0.22302	-49.363	0.03045	7.027	-1.42088	-49.150	0.03058
3	-1.27010	6.50300	0.19759	-50.135	0.05092	7.284	-1.27998	-49.906	0.05116
4	-1.13040	6.52110	0.17160	-50.703	0.07090	7.453	-1.13912	-50.465	0.07126
5	-0.99060	6.53950	0.14529	-50.991	0.09004	7.514	-0.99811	-50.749	0.09051
6	-0.83680	6.55980	0.11630	-50.915	0.10978	7.478	-0.84299	-50.675	0.11034
7	-0.66910	6.58180	0.08523	-50.123	0.12928	7.335	-0.67387	-49.891	0.12990
8	-0.50130	6.60310	0.05566	-48.268	0.14622	7.096	-0.50473	-48.049	0.14685
9	-0.33360	6.62350	0.02835	-45.972	0.16021	6.817	-0.33578	-45.769	0.16080
10	-0.16580	6.64320	0.00305	-44.135	0.17092	6.539	-0.16684	-43.948	0.17146
11	0.00190	6.66200	-0.02081	-42.754	0.17810	6.245	0.00191	-42.584	0.17859
12	0.16960	6.67990	-0.04360	-41.671	0.18157	5.961	0.17057	-41.517	0.18200
13	0.33740	6.69700	-0.06556	-40.756	0.18027	5.763	0.33925	-40.613	0.18066
14	0.50510	6.71370	-0.08680	-39.911	0.16999	5.660	0.50778	-39.773	0.17033
15	0.67290	6.73030	-0.10737	-39.071	0.15083	5.641	0.67640	-38.935	0.15112
16	0.84060	6.74680	-0.12728	-38.233	0.12392	5.717	0.84492	-38.094	0.12416
17	1.00840	6.76370	-0.14655	-37.385	0.09089	5.935	1.01353	-37.236	0.09107
18	1.17610	6.78190	-0.16517	-36.502	0.05368	6.353	1.18225	-36.374	0.05380
19	1.31590	6.79770	-0.18020	-35.740	0.02110	6.795	1.32298	-35.549	0.02115

PHASE III ROTOR

NR 20

MEANLINE INPUT DATA - STREAMLINE

MEANLINE INPUT DATA - STREAMLINE

PT	Z	R	THETA	R*	T(7)	Phi	X	B*M	T(M)
1	-1.53950	5.96840	0.23715	-48.024	0.01915	9.193	-1.56132	-47.655	0.01929
2	-1.46680	5.98050	0.22356	-48.299	0.03197	9.378	-1.48765	-47.916	0.03221
3	-1.32140	6.00490	0.19510	-48.744	0.05739	9.707	1.34021	48.334	0.05786
4	-1.17610	6.03010	0.16846	-48.891	0.08216	9.919	-1.19275	-48.463	0.08286
5	-1.03070	6.05580	0.14098	-48.635	0.10586	9.989	-1.04512	-48.200	0.10677
6	-0.87080	6.08400	0.11143	-47.837	0.13021	9.934	-0.88277	-47.406	0.13129
7	-0.69630	6.11440	0.08063	-46.248	0.15414	9.771	-0.70565	-45.830	0.15531
8	-0.52190	6.14410	0.05206	-43.840	0.17476	9.561	-0.52874	-43.440	0.17593
9	-0.34740	6.17320	0.02605	-41.350	0.19158	9.338	-0.35184	-40.972	0.19269
10	-0.17300	6.20150	0.00203	-39.623	0.20417	9.110	-0.17515	-39.266	0.20522
11	0.00150	6.22910	-0.02058	-38.348	0.21221	8.865	-0.00152	-38.014	0.21319
12	0.17590	6.25600	-0.04233	-37.208	0.21553	8.617	0.17797	-36.895	0.21642
13	0.35040	6.28200	-0.06305	-36.130	0.21207	8.414	0.35441	-35.836	0.21286
14	0.52480	6.30740	-0.08290	-35.101	0.19808	8.299	0.53068	-34.818	0.19877
15	0.69930	6.33280	-0.10195	-34.109	0.17424	8.312	0.70702	-33.828	0.17482
16	0.87370	6.35840	-0.12022	-33.101	0.14188	8.488	0.88331	-32.812	0.14234
17	1.04620	6.38470	-0.13772	-32.078	0.10280	8.818	1.05981	-31.772	0.10314
18	1.22260	6.41270	-0.15448	-31.094	0.05917	9.247	1.23640	-30.764	0.05937
19	1.36800	6.43680	-0.16791	-30.289	0.02109	9.642	1.38380	-29.936	0.02117

MEANLINE INPUT DATA - STREAMLINE

PT	Z	R	THETA	R*	T(7)	Phi	X	B*M	T(M)
1	-1.57750	5.39540	0.23554	-46.985	0.01860	12.228	-1.61594	-46.328	0.01883
2	-1.50250	5.41220	0.22067	-46.948	0.03390	12.414	-1.53917	-46.271	0.03433
3	-1.35250	5.44590	0.19116	-46.805	0.06423	12.729	-1.38548	-46.093	0.06508
4	1.20250	5.48000	0.16207	-46.452	0.09374	12.873	-1.23165	-45.724	0.09499
5	-1.05250	5.51430	0.13371	-45.665	0.12191	12.841	-1.07778	-44.939	0.12348
6	-0.88760	5.55180	0.10401	-43.906	0.15074	12.735	-0.90869	-43.193	0.15253
7	-0.70760	5.59230	0.07434	-41.162	0.17891	12.611	-0.72419	-40.470	0.18079
8	-0.52760	5.63230	0.04754	-38.694	0.20297	12.465	-0.53979	-38.029	0.20484
9	-0.34760	5.67190	0.02294	-36.727	0.22227	12.291	-0.35551	-36.092	0.22409
10	-0.16760	5.71080	0.00010	-34.972	0.23633	12.099	-0.17135	-34.370	0.23805
11	0.01240	5.74900	-0.02121	-33.320	0.24479	11.913	0.01267	-32.750	0.24638
12	0.19240	5.78670	-0.04112	-31.790	0.24743	11.764	0.19658	-31.248	0.24887
13	0.37240	5.82400	-0.05984	-30.484	0.24096	11.680	0.38041	-29.963	0.24224
14	0.55230	5.86110	-0.07755	-29.326	0.22309	11.677	0.56411	-28.817	0.22419
15	0.73230	5.89830	-0.09435	-28.182	0.19475	11.782	0.74794	-27.677	0.19566
16	0.91230	5.93610	-0.11026	-27.042	0.15740	12.060	0.93190	-26.528	0.15812
17	1.09230	5.97510	-0.12531	-25.885	0.11299	12.463	1.11610	-25.352	0.11349
18	1.27230	6.01570	-0.13949	-24.657	0.06381	12.832	1.30058	-24.112	0.06409
19	1.45230	6.05050	-0.15062	-23.580	0.02102	13.104	1.45451	-23.030	0.02111

PHASE III ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 10

PT	Z	R	THETA	R*	T(Z)	PHI	X	B*M	T(M)
1	-1.55230	4.73400	0.22877	-45.415	0.02077	16.114	-1.61706	-44.267	0.02119
2	-1.47620	4.75660	0.21254	45.263	0.03828	16.269	-1.53781	-44.092	0.03906
3	-1.32400	4.80180	0.18064	-44.756	0.07298	16.522	-1.37915	43.549	0.07449
4	-1.17170	4.84710	0.14988	-43.647	0.10670	16.613	-1.22024	42.428	0.10884
5	-1.01950	4.89230	0.12094	-41.830	0.13880	16.549	-1.06143	-40.629	0.14137
6	-0.85210	4.94190	0.09174	-39.326	0.17153	16.434	-0.88685	-38.160	0.17436
7	-0.66940	4.99580	0.06313	-36.459	0.20329	16.302	-0.69643	-35.342	0.20618
8	-0.48680	5.04880	0.03749	-33.966	0.23012	16.110	-0.50627	-32.911	0.23294
9	-0.30410	5.10120	0.01422	-31.808	0.25127	15.943	-0.31619	30.810	0.25395
10	-0.12140	5.15320	-0.00699	-29.732	0.26619	15.885	-0.12622	-28.781	0.26868
11	0.06120	5.20510	-0.02633	-27.767	0.27446	15.886	0.06363	-26.857	0.27672
12	0.24390	5.25710	-0.04401	-25.962	0.27563	15.925	0.25360	-25.090	0.27764
13	0.42660	5.30930	-0.06023	-24.326	0.26584	16.025	0.44363	-23.484	0.26758
14	0.60920	5.36200	-0.07516	-22.787	0.24421	16.202	0.63369	-21.970	0.24565
15	0.79190	5.41540	-0.08887	-21.253	0.21179	16.486	0.82407	-20.453	0.21292
16	0.97460	5.47020	-0.10140	-19.668	0.17015	16.932	1.01482	-18.877	0.17097
17	1.15720	5.52650	-0.11273	-17.956	0.12130	17.399	1.20595	-17.184	0.12182
18	1.33990	5.58440	-0.12279	-16.027	0.06760	17.596	1.39753	-15.313	0.06784
19	1.49210	5.63350	-0.13014	-14.281	0.02102	17.603	1.55721	-13.638	0.02108

MEANLINE INPUT DATA - SURFAMLINE 11

PT	Z	R	THETA	R*	T(Z)	PHI	X	B*M	T(M)
1	-1.49560	3.90490	0.22116	-42.968	0.02535	21.672	-1.60872	-40.880	0.02619
2	-1.42020	3.93560	0.20338	-42.581	0.04322	21.849	-1.52754	-40.462	0.04466
3	-1.26960	3.99690	0.16904	-41.589	0.07865	22.120	-1.36511	-39.427	0.08123
4	-1.11900	4.05820	0.13669	-39.987	0.11319	22.156	-1.20250	-37.839	0.11667
5	-0.96830	4.11920	0.10696	-37.712	0.14624	21.971	-1.03988	35.643	0.15023
6	-0.80270	4.18570	0.07764	-34.858	0.18022	21.715	-0.86147	32.906	0.18439
7	-0.62190	4.25730	0.04953	-31.675	0.21366	21.471	-0.66703	-29.864	0.21772
8	-0.44110	4.32790	0.02511	-28.538	0.24252	21.247	-0.47290	-26.878	0.24624
9	-0.26040	4.39780	0.00398	-25.509	0.26611	21.105	-0.27912	23.997	0.26937
10	-0.07960	4.46740	-0.01424	-22.669	0.28384	21.109	-0.08534	-21.288	0.28661
11	0.10110	4.53730	-0.02998	-20.202	0.29530	21.254	0.10844	-18.929	0.29764
12	0.28190	4.60800	-0.04367	-17.989	0.30020	21.553	0.30261	-16.805	0.30215
13	0.46270	4.68000	-0.05545	-15.625	0.29575	22.041	0.49731	-14.533	0.29727
14	0.64340	4.75420	-0.06529	-13.181	0.27610	22.696	0.69270	-12.192	0.27717
15	0.82420	4.83120	-0.07330	-10.811	0.24210	23.455	0.88922	-9.936	0.24278
16	1.00490	4.91130	-0.07938	-8.326	0.19567	24.203	1.08677	-7.603	0.19602
17	1.18570	4.99370	-0.08405	-5.604	0.13943	24.657	1.28542	-5.096	0.13955
18	1.36650	5.07670	-0.08666	-2.666	0.07654	24.468	1.48429	-2.427	0.07655
19	1.51710	5.14590	-0.08737	-0.092	0.02162	23.990	1.64946	-0.084	0.02162

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 12

PT	Z	R	THETA	R'	T(Z)	PHI	X	B'M	T(M)
1	-1.47580	3.36160	0.22120	-41.143	0.03326	25.961	-1.63314	-38.150	0.03473
2	-1.40200	3.39840	0.20236	40.501	0.05440	26.022	-1.55103	-37.507	0.05675
3	-1.25460	3.47150	0.15660	-39.029	0.09624	26.054	-1.38696	-36.064	0.10015
4	-1.10720	3.54320	0.13360	-37.132	0.13669	25.825	-1.22301	-34.277	0.14169
5	-0.95970	3.61350	0.10366	-34.788	0.17483	25.399	-1.05943	-32.111	0.18031
6	-0.79750	3.68970	0.07438	-31.968	0.21313	25.053	-0.88016	-29.483	0.21870
7	-0.62060	3.77210	0.04653	-28.845	0.24978	24.934	-0.68501	-26.539	0.25470
8	-0.44370	3.85420	0.02257	-25.764	0.27874	24.923	-0.48095	-23.639	0.28354
9	-0.26670	3.93640	0.00209	-22.765	0.30026	25.014	-0.29472	-20.821	0.30436
10	-0.08980	4.01930	-0.01527	-19.884	0.31326	25.242	-0.09934	-18.115	0.31661
11	0.08710	4.10320	-0.02988	-17.229	0.31732	25.572	-0.09649	-15.628	0.31995
12	0.26400	4.18860	-0.04210	-14.718	0.31134	26.046	0.29296	-13.279	0.31330
13	0.44100	4.27610	-0.05208	-12.077	0.29474	26.761	0.49054	-10.816	0.29606
14	0.61790	4.36670	-0.05985	-9.416	0.26819	27.611	0.68941	-8.360	0.26896
15	0.79480	4.46120	-0.06556	-6.724	0.23274	28.463	0.88983	5.917	0.23310
16	0.97180	4.55920	-0.06903	3.165	0.18978	29.304	1.09200	-2.761	0.18985
17	1.14870	4.65960	-0.06965	1.438	0.14102	29.776	1.29545	1.248	0.14103
18	1.32560	4.76030	-0.06709	6.393	0.08838	29.280	1.49892	5.582	0.08851
19	1.47310	4.84420	-0.06251	10.587	0.04306	28.357	1.65731	9.341	0.04322

MEANLINE INPUT DATA - STREAMLINE 13

PT	Z	R	THETA	R'	T(Z)	PHI	X	B'M	T(M)
1	-1.45600	2.65330	0.23827	-36.479	0.05041	31.199	-1.67260	-32.312	0.05299
2	-1.38530	2.69470	0.21884	-36.105	0.06966	30.603	-1.59021	-32.119	0.07302
3	-1.24380	2.77680	0.18170	-35.204	0.10782	29.513	-1.42675	-31.549	0.11245
4	-1.10230	2.85610	0.14701	-33.975	0.14492	28.724	-1.26482	-30.581	0.15045
5	-0.96080	2.93290	0.11503	-32.310	0.18023	28.302	-1.10383	-29.110	0.18631
6	-0.80510	3.01620	0.08337	-29.910	0.21622	28.181	-0.92714	-26.888	0.22248
7	-0.63530	3.10760	0.05341	-26.755	0.25119	28.431	-0.73434	-23.910	0.25717
8	-0.46550	3.20060	0.02816	-23.484	0.28074	29.100	-0.54070	-20.788	0.28617
9	-0.29570	3.29700	0.00708	-20.497	0.30408	30.104	0.34545	-17.921	0.30888
10	-0.12590	3.39790	-0.01061	-17.993	0.32058	31.281	-0.14799	-15.514	0.32479
11	0.04390	3.50340	-0.03551	-15.680	0.32978	32.389	0.05191	13.335	0.33329
12	0.21370	3.61310	-0.03782	-13.161	0.33130	33.335	0.25409	11.054	0.33392
13	0.38350	3.72660	-0.04739	-10.054	0.32241	34.186	0.45835	-8.344	0.32397
14	0.55330	3.84380	-0.05382	-6.069	0.30253	35.003	0.66462	-4.977	0.30309
15	0.72310	3.96430	-0.05659	-0.993	0.27265	35.786	0.87294	-0.805	0.27266
16	0.89290	4.08930	-0.05510	5.240	0.23419	36.379	1.08311	4.223	0.23453
17	1.06270	4.21400	-0.04884	12.253	0.18905	36.561	1.29439	9.896	0.19058
18	1.23250	4.33860	-0.03760	19.299	0.13944	36.136	1.50533	15.791	0.14217
19	1.37400	4.44150	-0.02448	24.952	0.09632	35.488	1.67085	20.750	0.09935

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 1

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	R·M	T(M)	PT	X S	Y S	XP	YP									
1	0.	-1.11520	1.78797	-54.985	0.01884	1	-1.11520	1.78797	-1.11520	1.78797									
2	0.02500	-1.06431	1.71457	55.545	0.02331	2	-1.11923	1.78139	-1.10749	1.78946									
3	0.05000	-1.01343	1.63963	56.097	0.02776	3	-1.11772	1.77472	-1.10189	1.78578									
4	0.07500	-0.96254	1.56312	56.645	0.03219	4	-1.07392	1.70797	-1.05470	1.72116									
5	0.10000	-0.91165	1.48500	-57.196	0.03658	5	-1.02495	1.63188	-1.00190	1.64737									
6	0.12500	-0.86076	1.41520	-57.756	0.04090	6	-0.97598	1.55427	-0.94910	1.57197									
7	0.15000	-0.80988	1.32362	-58.333	0.04515	7	-0.92702	1.47509	-0.89628	1.49490									
8	0.17500	-0.75899	1.24014	58.943	0.04930	8	-0.87806	1.39428	-0.84347	1.41611									
9	0.20000	-0.70810	1.15455	-59.596	0.05336	9	-0.82909	1.31177	-0.79066	1.33547									
10	0.23000	-0.64704	1.04876	-60.414	0.05808	10	0.78010	1.22742	-0.73787	1.25286									
11	0.26000	-0.58597	0.93937	-61.235	0.06260	11	0.73111	1.14104	-0.68509	1.16805									
12	0.29000	-0.52491	0.82630	-62.004	0.06692	12	-0.67229	1.03442	-0.62178	1.06310									
13	0.32000	-0.46384	0.70975	-62.671	0.07101	13	-0.61341	0.92431	-0.55853	0.95443									
14	0.35000	-0.40278	0.59018	-63.192	0.07484	14	-0.55445	0.81060	-0.49536	0.84201									
15	0.38000	-0.34171	0.46835	-63.531	0.07840	15	-0.49538	0.69345	-0.43230	0.72605									
16	0.41000	-0.28065	0.34526	-63.660	0.08168	16	-0.43617	0.57331	-0.36938	0.60706									
17	0.44000	-0.21958	0.22209	-63.560	0.08466	17	0.37680	0.45088	-0.30662	0.48583									
18	0.47000	-0.15852	0.10001	-63.265	0.08732	18	-0.31724	0.32714	-0.24405	0.36338									
19	0.50000	-0.09745	-0.02012	-62.819	0.08965	19	-0.25748	0.20325	-0.18168	0.24094									
20	0.53000	-0.03639	-0.13766	-62.262	0.09163	20	-0.19751	0.08037	-0.11952	0.11965									
21	0.56000	0.02468	-0.25231	-61.647	0.09327	21	-0.13732	-0.04059	-0.05758	0.00036									
22	0.59000	0.08574	-0.36405	-61.049	0.09454	22	-0.07694	-0.15899	0.00417	-0.11634									
23	0.62000	0.14681	-0.47326	-60.544	0.09544	23	-0.01636	-0.27445	0.06572	-0.23016									
24	0.65000	0.20787	-0.58045	-60.131	0.09600	24	0.04438	-0.38693	0.12711	-0.34117									
25	0.68000	0.26894	-0.68603	-59.788	0.09616	25	0.10526	-0.49672	0.18836	-0.44979									
26	0.71000	0.33000	-0.79025	-59.478	0.09529	26	0.16625	-0.60436	0.24950	-0.55655									
27	0.74000	0.39107	-0.89319	-59.170	0.09279	27	0.22739	-0.71022	0.31049	-0.66184									
28	0.77000	0.45213	-0.99490	-58.874	0.08866	28	0.28896	-0.81444	0.37105	-0.76605									
29	0.80000	0.51320	-1.09548	-58.602	0.08305	29	0.35123	-0.91697	0.43091	-0.86942									
30	0.83000	0.57426	-1.19501	-58.332	0.07609	30	0.41419	-1.01782	0.49008	-0.97199									
31	0.86000	0.63533	-1.29344	-58.023	0.06791	31	0.47775	-1.11712	0.54865	-1.07385									
32	0.89000	0.69639	-1.39048	-57.586	0.05867	32	0.54188	-1.21498	0.60665	-1.17503									
33	0.92000	0.75746	-1.48553	-56.940	0.04858	33	0.60653	-1.31142	0.66413	-1.27545									
34	0.95000	0.81853	-1.57790	-56.089	0.03786	34	0.67163	-1.40620	0.72116	-1.37476									
35	0.97500	0.86941	-1.65244	-55.248	0.02861	35	0.73710	-1.49878	0.77782	-1.47228									
36	1.00000	0.92030	-1.72456	-54.322	0.01923	36	0.80282	-1.58846	0.83423	-1.56734									
37						37	0.85766	-1.66060	0.88117	-1.64429									
38						38	0.90647	-1.72265	0.92295	-1.71086									
39						39	0.91229	-1.72624	0.92443	-1.71778									
40						40	0.92030	-1.72456	0.92030	-1.72456									

CHORD 4 05969 CAMBER 0.663 STAGGER 59 908

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 3

MEANLINE DATA						SURFACE COORDINATES					
PT	PCT X	X	Y	B·M	T (M)	PT	XS	YS	XP	YP	
1	0	-1 19136	1 76137	-53 626	0 01946	1	-1 19136	1 76137	1 19136	1 76137	
2	0 02500	-1 13584	1 68519	-54 201	0 02420	2	-1 19536	1 75447	1 18343	1 76310	
3	0 05000	-1 08032	1 60740	-54 766	0 02894	3	-1 19363	1 74763	-1 17756	1 75944	
4	0 07500	-1 02481	1 52798	-55 321	0 03365	4	-1 14566	1 67811	-1 12602	1 69227	
5	0 10000	-0 96929	1 44691	-55 870	0 03830	5	-1 09214	1 59905	-1 06850	1 61575	
6	0 12500	-0 91377	1 36416	-56 415	0 04289	6	-1 03864	1 51841	-1 01097	1 53756	
7	0 15000	-0 85825	1 27969	-56 956	0 04740	7	-0 98514	1 43617	-0 95344	1 45766	
8	0 17500	-0 80274	1 19345	-57 497	0 05180	8	-0 93164	1 35230	-0 89591	1 37602	
9	0 20000	-0 74722	1 10540	-58 038	0 05609	9	-0 87812	1 26676	-0 83839	1 29261	
10	0 23000	-0 68060	0 99728	-58 677	0 06106	10	-0 82458	1 17953	0 78089	1 20737	
11	0 26000	-0 61398	0 88646	-59 286	0 06582	11	-0 77101	1 09055	-0 72343	1 12024	
12	0 29000	-0 54736	0 77303	-59 849	0 07035	12	-0 70668	0 98141	-0 65452	1 01315	
13	0 32000	-0 48074	0 65716	-60 337	0 07462	13	-0 64227	0 86966	-0 58569	0 90327	
14	0 35000	-0 41412	0 53930	-60 678	0 07861	14	-0 57777	0 75536	-0 51694	0 79070	
15	0 38000	-0 34750	0 42030	-60 797	0 08230	15	-0 51316	0 63870	-0 44832	0 67563	
16	0 41000	-0 28087	0 30138	-60 631	0 08567	16	-0 44839	0 52005	0 37985	0 55855	
17	0 44000	-0 21425	0 18407	-60 137	0 08870	17	-0 38342	0 40027	0 31158	0 44038	
18	0 47000	-0 14763	0 06964	-59 416	0 09139	18	-0 31820	0 28038	-0 24354	0 32239	
19	0 50000	-0 08101	-0 04129	-58 597	0 09370	19	-0 25272	0 16198	0 17579	0 20615	
20	0 53000	-0 01439	-0 14865	-57 766	0 09564	20	-0 18697	0 04639	-0 10830	0 09289	
21	0 56000	0 05223	0 25273	-56 998	0 09717	21	-0 12100	-0 06570	-0 04102	0 01687	
22	0 59000	0 11885	-0 35398	-56 333	0 09833	22	-0 05484	-0 17416	0 02606	-0 12315	
23	0 62000	0 18547	-0 45295	-55 794	0 09913	23	0 01148	-0 27919	0 09297	-0 22627	
24	0 65000	0 25209	-0 55015	-55 370	0 09943	24	0 07793	-0 38124	0 15977	-0 32673	
25	0 68000	0 31871	-0 64599	-55 032	0 09901	25	0 14448	-0 48082	0 22646	-0 42509	
26	0 71000	0 38533	-0 74074	-54 745	0 09739	26	0 21118	-0 57841	0 29300	-0 52190	
27	0 74000	0 45195	-0 83450	-54 469	0 09419	27	0 27814	-0 67436	0 35928	-0 61762	
28	0 77000	0 51857	-0 92732	-54 187	0 08949	28	0 34557	-0 76884	0 42510	-0 71263	
29	0 80000	0 58519	-1 01914	-53 885	0 08347	29	0 41363	-0 86187	0 49028	-0 80714	
30	0 83000	0 65181	-1 10990	-53 546	0 07625	30	0 48229	0 95350	0 55486	-0 90114	
31	0 86000	0 71843	-1 19946	-53 152	0 06794	31	0 55148	-1 04374	0 61891	-0 99454	
32	0 89000	0 78506	1 28762	-52 678	0 05871	32	0 62115	-1 13256	0 68248	-1 08725	
33	0 92000	0 85168	-1 37413	-52 107	0 04873	33	0 69125	-1 21983	0 74562	-1 17909	
34	0 95000	0 91830	1 45874	-51 446	0 03821	34	0 76171	-1 30542	0 80840	-1 26982	
35	0 97500	0 97381	-1 52766	-50 839	0 02915	35	0 83245	-1 38910	0 87090	-1 35917	
36	1 00000	1 02933	1 59506	-50 196	0 01997	36	0 90336	-1 47065	0 93324	-1 44684	
						37	0 96251	1 53696	0 99511	-1 51846	
						38	1 01487	-1 59112	1 03103	-1 58068	
						39	1 02120	-1 59740	1 03309	-1 58770	
						40	1 02933	1 59506	1 02933	-1 59506	

CHORD 4 02455 CAMBER 3 429 STAGGER -56 510

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 4

MEANLINE DATA						SURFACE COORDINATES				
PT	PCT X	X	Y	B.M	T(M)	PT	XS	YS	XP	YP
1	0	-1 27111	1 73523	-52 305	0 02007	1	-1 27111	1 73523	-1 27111	1 73523
2	0 02500	-1 21143	1 65728	-52 811	0 02541	2	-1 27508	1 72801	-1 26298	1 73721
3	0 05000	-1 15174	1 57790	-53 307	0 03074	3	-1 27314	1 72100	-1 25682	1 73358
4	0 07500	-1 09206	1 49709	-53 793	0 03603	4	-1 22155	1 64960	-1 20130	1 66496
5	0 10000	-1 03237	1 41485	-54 271	0 04126	5	-1 16407	1 56872	-1 13942	1 58709
6	0 12500	-0 97269	1 33115	-54 745	0 04642	6	-1 10659	1 48645	-1 07752	1 50774
7	0 15000	-0 91301	1 24596	-55 222	0 05149	7	-1 04912	1 40280	-1 01563	1 42689
8	0 17500	-0 85332	1 15922	-55 723	0 05644	8	-0 99165	1 31775	-0 95374	1 34454
9	0 20000	-0 79364	1 07077	-56 259	0 06125	9	-0 93415	1 23128	-0 89186	1 26065
10	0 23000	-0 72202	0 96219	-56 918	0 06683	10	-0 87664	1 14333	-0 83001	1 17511
11	0 26000	-0 65040	0 85091	-57 537	0 07217	11	-0 81911	1 05376	-0 76817	1 08778
12	0 29000	-0 57878	0 73720	-58 023	0 07724	12	-0 75002	0 94395	-0 69402	0 98044
13	0 32000	-0 50716	0 62179	-58 290	0 08201	13	-0 68085	0 83154	-0 61995	0 87028
14	0 35000	-0 43554	0 50575	-58 993	0 08645	14	-0 61154	0 71674	-0 54602	0 75765
15	0 38000	-0 36392	0 39038	-57 995	0 09056	15	-0 54204	0 60023	-0 47228	0 64334
16	0 41000	-0 29230	0 27704	-57 364	0 09429	16	-0 47231	0 48304	-0 39876	0 52847
17	0 44000	-0 22068	0 16715	-56 401	0 09764	17	-0 40231	0 36638	-0 32552	0 41437
18	0 47000	-0 14906	0 06159	-55 274	0 10060	18	-0 33200	0 25162	-0 25260	0 30247
19	0 50000	-0 07744	-0 03969	-54 210	0 10313	19	-0 26134	0 14013	-0 18001	0 19416
20	0 53000	-0 00582	-0 13738	-53 335	0 10522	20	-0 19040	0 03293	-0 10772	0 09024
21	0 56000	0 06580	-0 23245	-52 720	0 10685	21	-0 11927	-0 06985	-0 03561	-0 00953
22	0 59000	0 13742	-0 32578	-52 298	0 10808	22	-0 04802	-0 16880	0 03638	-0 10597
23	0 62000	0 20904	-0 41788	-51 971	0 10892	23	0 02329	-0 26481	0 10831	-0 20009
24	0 65000	0 28066	-0 50899	-51 692	0 10911	24	0 09467	-0 35883	0 18018	-0 29274
25	0 68000	0 35228	-0 59923	-51 430	0 10834	25	0 16615	-0 45143	0 25194	-0 38433
26	0 71000	0 42390	-0 68861	-51 152	0 10621	26	0 23785	-0 54281	0 32347	-0 47517
27	0 74000	0 49552	0 77704	-50 839	0 10240	27	0 30993	-0 63300	0 39464	-0 56546
28	0 77000	0 56714	-0 86447	-50 511	0 09703	28	0 38255	-0 72191	0 46526	-0 65530
29	0 80000	0 63876	-0 95090	-50 194	0 09026	29	0 45582	-0 80938	0 53522	-0 74471
30	0 83000	0 71038	-1 03637	-49 883	0 08223	30	0 52970	-0 89532	0 60458	-0 83362
31	0 86000	0 78201	-1 12089	-49 561	0 07306	31	0 60409	-0 97979	0 67344	-0 92200
32	0 89000	0 85363	-1 20439	-49 177	0 06292	32	0 67894	-1 06286	0 74183	-1 00987
33	0 92000	0 92525	-1 28660	-48 681	0 05199	33	0 75420	-1 14459	0 80981	-1 09972
34	0 95000	0 99687	-1 36724	-48 079	0 04049	34	0 82982	-1 22495	0 87743	-1 18382
35	0 97500	1 05655	-1 43306	-47 515	0 03062	35	0 90572	-1 30376	0 94477	-1 26944
36	1 00000	1 11623	1 49755	-46 914	0 02062	36	0 98180	-1 38076	1 01193	-1 35371
						37	1 04526	-1 44340	1 05784	-1 42272
						38	1 10124	-1 49747	1 11717	-1 48260
						39	1 10799	1 50947	1 11969	-1 48972
						40	1 11623	-1 49755	1 11623	-1 49755

CHORD 4 01874 CAMBER 5.391 STAGGER 53 555

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 5

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	B+M	ITM	PT	XS	YS	XP	YP									
1	0	-1.34730	1.69080	-50.948	0.02036	1	-1.34730	1.69080	1.34730	1.69080									
2	0.02500	1.28385	1.61195	-51.401	0.02672	2	-1.35116	1.68336	-1.33909	1.69302									
3	0.05000	-1.22040	1.53183	-51.845	0.03305	3	-1.34905	1.67629	-1.33273	1.68950									
4	0.07500	-1.15695	1.45044	-52.280	0.03933	4	-1.29429	1.60362	-1.27341	1.62029									
5	0.10000	-1.09350	1.36777	-52.706	0.04555	5	-1.23340	1.52162	-1.20741	1.54204									
6	0.12500	-1.03006	1.28383	-53.123	0.05168	6	-1.17251	1.43841	-1.14140	1.46247									
7	0.15000	-0.96661	1.19862	-53.535	0.05769	7	-1.11162	1.35397	-1.07539	1.38157									
8	0.17500	-0.90316	1.11210	-53.956	0.06355	8	-1.05073	1.26832	-1.00939	1.29934									
9	0.20000	-0.83971	1.02421	-54.393	0.06926	9	-0.98981	1.18147	-0.94341	1.21576									
10	0.23000	-0.76358	0.91687	-54.902	0.07586	10	-0.92886	1.09340	-0.87747	1.13080									
11	0.26000	-0.68744	0.80762	-55.328	0.08216	11	-0.86787	1.00405	-0.81156	1.04437									
12	0.29000	-0.61130	0.69699	-55.558	0.08813	12	-0.79461	0.89506	-0.73254	0.93868									
13	0.32000	-0.53517	0.58600	-55.491	0.09373	13	-0.72123	0.78426	-0.65366	0.83099									
14	0.35000	0.45903	0.47590	-55.130	0.09894	14	-0.64764	0.67207	-0.57496	0.72191									
15	0.38000	-0.38289	0.36783	-54.497	0.10373	15	-0.57379	0.55945	-0.49655	0.61255									
16	0.41000	-0.30675	0.26272	-53.633	0.10807	16	-0.49962	0.44762	-0.41844	0.50419									
17	0.44000	-0.23062	0.16121	-52.597	0.11193	17	-0.42512	0.33771	-0.34067	0.39795									
18	0.47000	-0.15448	0.06355	-51.526	0.11530	18	-0.35027	0.23067	-0.26324	0.29476									
19	0.50000	-0.07834	-0.03060	-50.577	0.11818	19	-0.27508	0.12722	-0.18616	0.19521									
20	0.53000	-0.00221	-0.12194	-49.829	0.12052	20	-0.19962	0.02768	0.09335	0.09942									
21	0.56000	0.07393	-0.21125	-49.308	0.12228	21	0.12399	0.06813	-0.03270	0.00692									
22	0.59000	0.15007	-0.29917	-48.924	0.12358	22	-0.04825	-0.16081	0.04384	-0.08306									
23	0.62000	0.22620	-0.38598	-48.570	0.12442	23	0.02757	-0.25111	0.12029	-0.17138									
24	0.65000	0.30234	0.47172	-48.222	0.12438	24	0.10349	-0.33977	0.19665	-0.25857									
25	0.68000	0.37848	-0.55614	-47.883	0.12297	25	0.17956	-0.42715	0.27285	-0.34481									
26	0.71000	0.45462	-0.64016	-47.558	0.11992	26	0.25596	-0.51316	0.34872	-0.43023									
27	0.74000	0.53075	-0.72297	-47.249	0.11510	27	0.33287	-0.59767	0.42409	-0.51520									
28	0.77000	0.60689	0.80489	-46.941	0.10861	28	0.41037	-0.68063	0.49887	-0.59970									
29	0.80000	0.68303	-0.88591	-46.615	0.10062	29	0.48849	-0.76204	0.57301	-0.68390									
30	0.83000	0.75916	-0.96598	-46.261	0.09125	30	0.56721	-0.84197	0.64657	-0.76781									
31	0.86000	0.83530	-1.04502	-45.873	0.08065	31	0.64646	-0.92047	0.71959	-0.85136									
32	0.89000	0.91144	-1.12294	-45.452	0.06901	32	0.72620	-0.99753	0.79213	-0.93444									
33	0.92000	0.98758	-1.19969	-45.001	0.05654	33	0.80636	-1.07309	0.86425	-1.01694									
34	0.95000	1.06371	-1.27521	-44.524	0.04346	34	0.88685	-1.14715	0.93603	-1.09874									
35	0.97500	1.12716	1.33716	-44.110	0.03224	35	0.96758	-1.21968	1.00757	-1.17970									
36	1.00000	1.19061	-1.39822	-43.686	0.02087	36	1.04848	-1.29070	1.07895	-1.25971									
						37	1.11594	-1.34873	1.13838	-1.32559									
						38	1.17540	-1.39905	1.19076	-1.38300									
						39	1.18245	-1.40166	1.19368	-1.39005									
						40	1.19061	-1.39822	1.19061	-1.39822									

CHORD 3.99787 CAMPER 7.262 STAGGER -50.594

PHASE III ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 6

MEANLINE DATA										SURFACE COORDINATES			
PT	PCT X	X	Y	B-M	T(M)	PT	XS	YS	XP	YP			
1	0	-1.41947	1.62753	-49.775	0.02052	1	-1.41947	1.62753	-1.41947	1.62753			
2	0.03500	-1.35251	1.54776	50.208	0.02856	2	-1.42324	1.61994	-1.41123	1.62997			
3	0.05000	-1.28555	1.46676	-50.631	0.03654	3	-1.42100	1.61283	1.40471	1.62658			
4	0.07500	-1.21860	1.38455	-51.043	0.04447	4	-1.36348	1.53862	1.34154	1.55689			
5	0.10000	-1.15164	1.30113	-51.444	0.05230	5	-1.29968	1.45517	-1.27143	1.47835			
6	0.12500	-1.08468	1.21654	-51.828	0.06002	6	-1.23588	1.37057	-1.20131	1.39853			
7	0.15000	-1.01772	1.13080	-52.194	0.06758	7	-1.17209	1.28483	-1.13119	1.31743			
8	0.17500	-0.95076	1.04394	-52.546	0.07495	8	-1.10827	1.19793	-1.06109	1.23509			
9	0.20000	-0.88380	0.95599	-52.879	0.08211	9	-1.04442	1.11008	-0.99102	1.15151			
10	0.23000	-0.80345	0.84916	-53.210	0.09038	10	-0.98051	1.02115	-0.92101	1.06673			
11	0.26000	-0.72310	0.74130	-53.381	0.09825	11	-0.91654	0.93122	-0.85107	0.98077			
12	0.29000	-0.64275	0.63334	-53.234	0.10568	12	-0.83964	0.82209	-0.76726	0.87622			
13	0.32000	-0.56240	0.52682	-52.635	0.11263	13	-0.76253	0.71200	-0.68367	0.77060			
14	0.35000	-0.48205	0.42331	-51.673	0.11906	14	-0.68508	0.60171	-0.60042	0.66496			
15	0.38000	-0.40170	0.32372	-50.511	0.12493	15	-0.60716	0.49264	-0.51764	0.56100			
16	0.41000	-0.32135	0.22821	-49.354	0.13022	16	-0.52875	0.38639	-0.43535	0.46022			
17	0.44000	-0.24100	0.13624	-48.398	0.13489	17	-0.44991	0.28399	-0.35349	0.36344			
18	0.47000	-0.16065	0.04698	-47.639	0.13891	18	-0.37075	0.18580	-0.27195	0.27062			
19	0.50000	-0.08030	-0.04014	-47.013	0.14228	19	-0.29143	0.09146	-0.19057	0.18102			
20	0.53000	0.00005	-0.12553	-46.485	0.14495	20	0.21197	0.00018	-0.10933	0.09377			
21	0.56000	0.08040	-0.20948	-46.027	0.14689	21	-0.13234	-0.08865	-0.02826	0.00836			
22	0.59000	0.16075	-0.29215	-45.608	0.14821	22	-0.05251	-0.17544	0.05261	0.07563			
23	0.62000	0.24110	-0.37364	-45.202	0.14886	23	0.02755	-0.26047	0.13326	-0.15848			
24	0.65000	0.32145	-0.45400	-44.802	0.14825	24	0.10780	-0.34399	0.21371	-0.24031			
25	0.68000	0.40180	-0.53325	-44.408	0.14573	25	0.18829	-0.42609	0.29392	-0.32120			
26	0.71000	0.48216	-0.61142	-44.021	0.14123	26	0.26922	-0.50659	0.37369	-0.40140			
27	0.74000	0.56251	-0.68856	-43.642	0.13479	27	0.35081	-0.58530	0.45279	-0.48119			
28	0.77000	0.64286	-0.76458	-43.258	0.12654	28	0.43308	-0.66220	0.53123	-0.56065			
29	0.80000	0.72321	-0.83977	-42.857	0.11658	29	0.51599	-0.73733	0.60902	-0.63979			
30	0.83000	0.80356	-0.91378	-42.436	0.10509	30	0.59950	-0.81076	0.68621	-0.71860			
31	0.86000	0.88391	-0.98668	-41.996	0.09226	31	0.68356	-0.88249	0.76285	-0.79704			
32	0.89000	0.96426	-1.05845	-41.549	0.07829	32	0.76810	-0.95256	0.83901	-0.87500			
33	0.92000	1.04461	-1.12911	-41.104	0.06340	33	0.85304	-1.02037	0.91477	-0.95240			
34	0.95000	1.12496	-1.19867	-40.664	0.04782	34	0.93829	-1.08775	0.99022	-1.02916			
35	0.97500	1.19192	-1.25582	-40.297	0.03451	35	1.02377	-1.15299	1.06545	-1.10522			
36	1.00000	1.25888	-1.31223	-39.929	0.02105	36	1.10938	-1.21681	1.14054	-1.18053			
						37	1.18076	-1.26898	1.20308	-1.24266			
						38	1.24355	-1.31418	1.25811	-1.29682			
						39	1.25087	-1.31628	1.26147	-1.30377			
						40	1.25888	-1.31223	1.25888	-1.31223			

CU

CHORD 3.97691 CAMBER 9.846 STAGGER -47.664

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 7

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	B.M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1 49130	1 54450	-48.731	0.02021	1	-1 49130	1 54450	-1 49130	1 54450									
2	0 02500	-1 42094	1 46373	-49 149	0 03057	2	-1 49491	1 53692	-1 48320	1 54707									
3	0 05000	-1 35059	1 38178	-49 545	0 04089	3	-1 43262	1 52992	-1 47668	1 54389									
4	0 07500	-1 28023	1 29874	-49 905	0 05113	4	-1 43251	1 45373	-1 40938	1 47372									
5	0 10000	-1 20987	1 21470	-50 214	0 06125	5	-1 36614	1 36852	1 33503	1 39505									
6	0 12500	-1 13952	1 12982	-50 463	0 07120	6	-1 29979	1 28227	-1 26067	1 31520									
7	0 15000	-1 06916	1 04429	-50 643	0 08094	7	-1 23341	1 19510	-1 18634	1 23429									
8	0 17500	-0 99880	0 95832	-50 748	0 09042	8	-1 16697	1 10715	-1 11206	1 15248									
9	0 20000	-0 92845	0 87215	-50 773	0 09961	9	-1 10045	1 01862	-1 03787	1 06995									
10	0 23000	-0 84402	0 76886	-50 677	0 11022	10	-1 03381	0 92972	-0 96379	0 98693									
11	0 26000	-0 75959	0 66623	-50 409	0 12029	11	-0 96703	0 84066	-0 88986	0 90765									
12	0 29000	-0 67516	0 56497	-49 901	0 12977	12	-0 88665	0 73394	-0 80139	0 80379									
13	0 32000	-0 59073	0 46603	-49 099	0 13858	13	-0 80594	0 62790	-0 71324	0 70456									
14	0 35000	-0 50630	0 37026	-48 069	0 14670	14	-0 72479	0 52318	-0 62553	0 60676									
15	0 38000	-0 42188	0 27812	-46 921	0 15408	15	-0 64311	0 42066	-0 53836	0 51140									
16	0 41000	-0 33745	0 18962	-45 790	0 16067	16	-0 56087	0 32125	-0 45173	0 41928									
17	0 44000	-0 25302	0 10434	-44 804	0 16645	17	-0 47815	0 22550	-0 36560	0 33074									
18	0 47000	-0 16859	0 02174	-43 964	0 17137	18	-0 39503	0 13360	-0 27986	0 24563									
19	0 50000	-0 08416	-0 05864	-43 235	0 17541	19	-0 31166	0 04530	-0 19437	0 16339									
20	0 53000	0 00027	-0 13712	-42 596	0 17854	20	-0 22807	-0 03993	0 10911	0 08341									
21	0 56000	0 08470	-0 21397	-42 032	0 18073	21	-0 14424	-0 12254	-0 02409	0 00526									
22	0 59000	0 16912	-0 28939	-41 525	0 18199	22	0 06015	-0 20283	0 06069	-0 07141									
23	0 62000	0 25355	-0 36353	-41 059	0 18222	23	0 02419	-0 28109	0 14520	-0 14685									
24	0 65000	0 33798	-0 43651	-40 619	0 18070	24	0 10880	-0 35751	0 22945	-0 22126									
25	0 68000	0 42241	-0 50838	-40 195	0 17676	25	0 19371	-0 43223	0 31339	-0 29483									
26	0 71000	0 50684	-0 57919	-39 778	0 17041	26	0 27916	-0 50509	0 39680	-0 36793									
27	0 74000	0 59127	-0 64895	-39 359	0 16186	27	0 36537	-0 57588	0 47945	-0 44087									
28	0 77000	0 67569	-0 71769	-38 939	0 15122	28	0 45232	-0 61467	0 56135	-0 51370									
29	0 80000	0 76012	-0 78540	-38 518	0 13860	29	0 53994	-0 71153	0 64259	-0 58638									
30	0 83000	0 84455	-0 85209	-38 096	0 12422	30	0 62817	-0 77650	0 72321	-0 65888									
31	0 86000	0 92898	-0 91778	-37 670	0 10832	31	0 71696	-0 83962	0 80328	-0 73118									
32	0 89000	1 01341	-0 98246	-37 237	0 09111	32	0 80523	-0 90097	0 88287	-0 80321									
33	0 92000	1 09784	-1 04612	-36 791	0 07284	33	0 89588	-0 96065	0 96208	-0 87491									
34	0 95000	1 18226	-1 10874	-36 334	0 05379	34	0 98584	-1 01873	1 04097	-0 94619									
35	0 97500	1 25262	-1 16012	-35 944	0 03755	35	1 07602	-1 07528	1 11965	-1 01695									
36	1 00000	1 32298	-1 21076	-35 549	0 02115	36	1 16633	-1 13040	1 19820	-1 08707									
						37	1 24160	-1 17532	1 26364	-1 14491									
						38	1 30768	-1 21405	1 32115	-1 19523									
						39	1 31521	-1 21550	1 32497	-1 20202									
						40	1 32298	-1 21076	1 32298	-1 21076									

C110RD 3 93848 CAMBER 13.183 STAGGER -44 393

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 8

MEANLINE DATA										SURFACE COORDINATES									
PT	PC1	X	Y	B-M	T(M)	PT	XS	YS	XP	YP									
1	0.	1.56132	1.44158	-47.655	0.01929	1	1.56132	1.44158	-1.56132	1.44158									
2	0.02500	-1.48769	1.36041	-47.916	0.03220	2	-1.56466	1.43423	-1.55362	1.44421									
3	0.05000	1.41406	1.27854	-48.150	0.04506	3	-1.56238	1.42758	-1.54728	1.44134									
4	0.07500	1.34043	1.19605	-48.333	0.05782	4	-1.49964	1.34962	-1.47574	1.37120									
5	0.10000	1.26681	1.11314	-48.443	0.07041	5	-1.43085	1.26350	-1.39728	1.29357									
6	0.12500	-1.19318	1.03003	-48.464	0.08279	6	-1.36203	1.17683	-1.31884	1.21527									
7	0.15000	-1.11955	0.94701	-48.385	0.09488	7	-1.29315	1.08978	-1.24046	1.13649									
8	0.17500	-1.04592	0.86436	-48.203	0.10664	8	-1.22416	1.00259	-1.16219	1.05748									
9	0.20000	-0.97229	0.78240	-47.913	0.11803	9	-1.15502	0.91550	-1.08408	0.97851									
10	0.23000	-0.88394	0.68537	-47.414	0.13112	10	-1.08567	0.82882	-1.00617	0.89990									
11	0.26000	-0.79559	0.59032	-46.736	0.14350	11	-1.01609	0.74284	-0.92850	0.82195									
12	0.29000	-0.70723	0.49782	-45.848	0.15511	12	-0.93221	0.64101	-0.83567	0.72974									
13	0.32000	-0.61898	0.40851	-44.731	0.16588	13	-0.84788	0.54114	-0.74334	0.63949									
14	0.35000	-0.53053	0.32287	-43.466	0.17574	14	-0.76288	0.44380	-0.65159	0.55184									
15	0.38000	-0.44217	0.24100	-42.175	0.18463	15	-0.67725	0.34959	-0.56051	0.46743									
16	0.41000	-0.35382	0.16263	-40.996	0.19252	16	-0.59098	0.25909	-0.47008	0.38664									
17	0.44000	-0.26547	0.08716	-40.044	0.19937	17	-0.50416	0.17258	-0.38019	0.30941									
18	0.47000	-0.17711	0.01394	-39.281	0.20510	18	-0.41697	0.08997	-0.29067	0.23528									
19	0.50000	-0.08876	-0.05747	-38.624	0.20968	19	-0.32960	0.01085	-0.20133	0.16348									
20	0.53000	-0.00041	-0.12731	-38.027	0.21312	20	-0.24204	-0.06544	-0.11219	0.09332									
21	0.56000	0.08795	-0.19569	-37.457	0.21543	21	-0.15420	-0.13938	-0.02332	0.02443									
22	0.59000	0.17630	-0.26271	-36.905	0.21642	22	-0.06605	-0.21125	0.06524	-0.04337									
23	0.62000	0.26465	-0.32841	-36.369	0.21580	23	0.02244	-0.28120	0.15345	-0.11019									
24	0.65000	0.35301	-0.39285	-35.844	0.21293	24	0.11132	-0.34924	0.24128	-0.17618									
25	0.68000	0.44136	-0.45608	-35.329	0.20725	25	0.20067	-0.41529	0.32863	-0.24153									
26	0.71000	0.52971	-0.51812	-34.824	0.19887	26	0.29066	-0.47916	0.41535	-0.30655									
27	0.74000	0.61807	-0.57901	-34.327	0.18804	27	0.38144	-0.54062	0.50128	-0.37153									
28	0.77000	0.70642	-0.63879	-33.832	0.17491	28	0.47293	-0.59974	0.58650	-0.43649									
29	0.80000	0.79477	-0.69744	-33.327	0.15961	29	0.56505	-0.65666	0.67109	-0.50137									
30	0.83000	0.88313	-0.75498	-32.813	0.14238	30	0.65773	-0.71143	0.75511	-0.56614									
31	0.86000	0.97148	-0.81138	-32.292	0.12347	31	0.75092	-0.76413	0.83862	-0.63076									
32	0.89000	1.05983	-0.86666	-31.772	0.10314	32	0.84455	-0.81481	0.92170	-0.69515									
33	0.92000	1.14819	-0.92084	-31.263	0.08165	33	0.93850	-0.86357	1.00446	-0.75920									
34	0.95000	1.23654	-0.97395	-30.763	0.05934	34	1.03268	-0.91050	1.08699	-0.82282									
35	0.97500	1.31017	-1.01742	-30.349	0.04034	35	1.12700	0.95574	1.16937	-0.88594									
36	1.00000	1.38380	-1.06017	-29.936	0.02117	36	1.22136	-0.99945	1.25171	-0.94846									
						37	1.29998	-1.03483	1.32036	-1.00001									
						38	1.36880	-1.06512	1.38057	-1.04473									
						39	1.43649	-1.09573	1.43498	-1.08121									
						40	1.50380	-1.126017	1.48380	-1.116017									

CHORD 3.86425 CAMBER 17.720 STAGGER 40.347

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 9

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	R+M	T(M)	PT	XS	YS	XP	YP									
1	0	-1.61594	1.30460	-46.328	0.01883	1	-1.61594	1.30460	1.61594	1.30460									
2	0.02500	-1.53918	1.22427	-46.271	0.03432	2	-1.61906	1.29728	-1.60850	1.30738									
3	0.05000	-1.46242	1.14412	-46.197	0.04975	3	-1.61674	1.29085	-1.60217	1.30476									
4	0.07500	-1.38566	1.06422	-46.093	0.06504	4	-1.55158	1.21241	-1.52678	1.23613									
5	0.10000	-1.30889	0.98467	-45.943	0.08011	5	-1.48037	1.12690	-1.44446	1.16134									
6	0.12500	-1.23213	0.90562	-45.725	0.09489	6	-1.40909	1.04167	-1.36222	1.08678									
7	0.15000	-1.15537	0.82730	-45.411	0.10932	7	-1.33768	0.95682	-1.28011	1.01253									
8	0.17500	-1.07861	0.75002	-44.946	0.12333	8	-1.26611	0.87250	1.19816	0.93875									
9	0.20000	-1.00185	0.67424	-44.277	0.13686	9	-1.19430	0.78892	-1.11644	0.86567									
10	0.23000	-0.90974	0.58601	-43.207	0.15236	10	-1.12217	0.70637	-1.03505	0.79366									
11	0.26000	-0.81762	0.50141	-41.889	0.16697	11	-1.04962	0.62525	-0.95408	0.72323									
12	0.29000	-0.72551	0.42080	-40.489	0.18060	12	-0.96189	0.53048	-0.85758	0.64154									
13	0.32000	-0.63340	0.34397	-39.195	0.19319	13	-0.87336	0.43926	-0.76188	0.56356									
14	0.35000	-0.54128	0.27041	-38.046	0.20467	14	-0.78414	0.35212	-0.66688	0.48947									
15	0.38000	-0.44917	0.19965	-37.031	0.21494	15	-0.69444	0.26910	-0.57235	0.41883									
16	0.41000	-0.35706	0.13133	-36.107	0.22395	16	-0.60435	0.18982	0.47822	0.35100									
17	0.44000	-0.26494	0.06522	-35.230	0.23165	17	-0.51389	0.11385	-0.38445	0.28544									
18	0.47000	-0.17283	0.00119	-34.383	0.23796	18	-0.42304	0.04086	0.29107	0.22180									
19	0.50000	-0.08072	-0.06088	-33.561	0.24283	19	-0.33176	-0.02939	-0.19813	0.15983									
20	0.53000	0.01140	-0.12106	-32.761	0.24634	20	-0.24002	-0.09701	-0.10564	0.09938									
21	0.56000	0.10351	0.17945	-31.986	0.24850	21	-0.14784	-0.16205	-0.01360	0.04030									
22	0.59000	0.19562	-0.23616	-31.255	0.24888	22	-0.05526	-0.22464	0.07805	-0.01748									
23	0.62000	0.28774	-0.29132	-30.585	0.24693	23	0.07769	-0.28484	0.16933	-0.07407									
24	0.65000	0.37985	-0.34509	-29.967	0.24228	24	0.13106	-0.32454	0.26019	-0.12978									
25	0.68000	0.47196	-0.39757	-29.384	0.23466	25	0.22492	-0.39761	0.35056	-0.18503									
26	0.71000	0.56408	-0.44884	-28.817	0.22420	26	0.31934	-0.45003	0.44036	-0.24014									
27	0.74000	0.65619	-0.49892	-28.247	0.21112	27	0.41439	-0.49981	0.52953	-0.29534									
28	0.77000	0.74830	-0.54782	-27.675	0.19560	28	0.51004	-0.54706	0.61811	-0.35062									
29	0.80000	0.84042	-0.59554	-27.100	0.17780	29	0.60623	-0.59191	0.70615	-0.40593									
30	0.83000	0.93253	-0.64210	-26.524	0.15797	30	0.70288	-0.63443	0.79773	-0.46121									
31	0.86000	1.02464	-0.68749	-25.941	0.13639	31	0.79992	-0.67468	0.88091	-0.51641									
32	0.89000	1.11676	-0.73172	-25.348	0.11333	32	0.89726	-0.71277	0.96780	-0.57143									
33	0.92000	1.20887	-0.77476	-24.737	0.08908	33	0.99481	-0.74881	1.05448	-0.62617									
34	0.95000	1.30098	-0.81659	-24.109	0.06397	34	1.09250	-0.78292	1.14101	-0.68051									
35	0.97500	1.37774	-0.85051	-23.574	0.04263	35	1.19023	-0.81521	1.22751	-0.73430									
36	1.00000	1.45451	-0.88358	-23.030	0.02111	36	1.28792	-0.84578	1.31405	-0.78739									
						37	1.36922	-0.87005	1.38627	-0.83097									
						38	1.44020	-0.89043	1.44955	-0.86852									
						39	1.44789	-0.89003	1.45465	-0.87451									
						40	1.45451	0.88358	1.45451	0.88358									

CHORD 3.77037 CAMBER 23.298 STAGGER 35.476

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STPEAMI INF 10

MEANLINE DATA										SURFACE COORDINATES			
PT	PCT X	X	Y	B-M	T(M)	PI	XS	YS	XP	YP			
1	0	-1.61706	1.12360	-44.267	0.02119	1	-1.61706	1.12360	-1.61706	1.12360			
2	0.02500	-1.53770	1.04648	-44.092	0.03909	2	-1.62031	1.11518	-1.60880	1.12707			
3	0.05000	-1.45834	0.96988	-43.870	0.05690	3	-1.61748	1.10303	-1.60151	1.12443			
4	0.07500	-1.37899	0.89399	-43.548	0.07453	4	-1.55130	1.03244	-1.52410	1.06051			
5	0.10000	-1.29963	0.81914	-43.075	0.09187	5	-1.47806	0.94937	-1.43863	0.99039			
6	0.12500	-1.22027	0.74574	-42.428	0.10883	6	-1.40466	0.86698	-1.35331	0.92100			
7	0.15000	-1.14092	0.67421	-41.603	0.12535	7	-1.33100	0.78559	-1.26826	0.85269			
8	0.17500	-1.06156	0.60491	-40.630	0.14135	8	-1.25699	0.70557	-1.18356	0.78591			
9	0.20000	-0.98220	0.53809	-39.550	0.15675	9	-1.18253	0.62734	-1.09930	0.72108			
10	0.23000	-0.88697	0.46135	-38.162	0.17433	10	-1.10758	0.55128	-1.01554	0.65855			
11	0.26000	-0.79175	0.38841	-36.732	0.19083	11	-1.03211	0.47766	-0.93230	0.59852			
12	0.29000	-0.69652	0.31914	-35.343	0.20616	12	-0.94083	0.39281	-0.83312	0.52989			
13	0.32000	-0.60129	0.25321	-34.069	0.22024	13	-0.84881	0.31194	-0.73468	0.46488			
14	0.35000	-0.50606	0.19022	-32.908	0.23296	14	-0.75615	0.23506	-0.63589	0.40322			
15	0.38000	-0.41083	0.12987	-31.834	0.24424	15	-0.66298	0.16199	-0.53960	0.34443			
16	0.41000	-0.31561	0.07193	-30.804	0.25400	16	-0.56935	0.09243	-0.44278	0.28801			
17	0.44000	-0.22038	0.01629	-29.781	0.26220	17	-0.47525	0.02612	-0.34642	0.23362			
18	0.47000	-0.12515	-0.03709	-28.770	0.26874	18	-0.38054	-0.03716	-0.25057	0.18101			
19	0.50000	-0.02992	-0.08831	-27.787	0.27356	19	-0.28549	-0.09749	-0.15526	0.13008			
20	0.53000	0.06531	-0.13749	-26.841	0.27676	20	-0.18982	-0.15487	0.06048	0.08069			
21	0.56000	0.16053	-0.18473	-25.935	0.27831	21	-0.09369	-0.20942	0.03344	0.03269			
22	0.59000	0.25576	-0.23015	-25.071	0.27759	22	0.00283	-0.26096	0.12779	0.01402			
23	0.62000	0.35099	-0.27386	-24.250	0.27399	23	0.09688	-0.30987	0.22139	-0.05959			
24	0.65000	0.44622	-0.31597	-23.463	0.26736	24	0.19595	-0.35587	0.31458	0.10443			
25	0.68000	0.54145	-0.35655	-22.700	0.25772	25	0.29472	-0.39877	0.40726	-0.14896			
26	0.71000	0.63667	-0.39565	-21.946	0.24522	26	0.39299	-0.43860	0.49944	-0.19335			
27	0.74000	0.73190	-0.43330	-21.191	0.23001	27	0.49172	-0.47543	0.59117	-0.23768			
28	0.77000	0.82713	-0.46949	-20.428	0.21231	28	0.59085	-0.50938	0.68250	-0.28193			
29	0.80000	0.92236	-0.50423	-19.651	0.19233	29	0.69033	-0.54053	0.77348	-0.32607			
30	0.83000	1.01759	-0.53749	-18.853	0.17031	30	0.79008	-0.56897	0.86418	-0.37001			
31	0.86000	1.11282	-0.56925	-18.027	0.14651	31	0.89002	-0.59479	0.95470	-0.41367			
32	0.89000	1.20804	-0.59946	-17.164	0.12125	32	0.99007	-0.61808	1.04510	-0.45691			
33	0.92000	1.30327	-0.62805	-16.256	0.09483	33	1.09014	-0.63891	1.13549	-0.49959			
34	0.95000	1.39850	-0.65497	-15.303	0.06756	34	1.19015	-0.65738	1.22593	-0.54154			
35	0.97500	1.47786	-0.67608	-14.480	0.04441	35	1.29000	-0.67357	1.31654	-0.58254			
36	1.00000	1.55721	0.69595	-13.638	0.02108	36	1.38958	-0.68755	1.40741	-0.62239			
						37	1.47230	-0.69758	1.48341	-0.65458			
						38	1.54421	-0.70517	1.54994	-0.68180			
						39	1.55169	0.70348	1.55592	-0.68699			
						40	1.55721	-0.69595	1.55721	0.69595			

CHORD 3.65879 CAMBER 30.629 STAGGER -29.822

PHASE III ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY STREAMLINE 11

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	B-M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1.60872	0.91169	-40.880	0.02619	1	-1.60872	0.91169	-1.60872	0.91169									
2	0.02500	-1.52727	0.84170	-40.460	0.04472	2	-1.61214	0.90100	-1.59882	0.91660									
3	0.05000	-1.44581	0.77279	-39.990	0.06315	3	-1.60815	0.89240	-1.58957	0.91391									
4	0.07500	-1.36436	0.70512	-39.421	0.08140	4	-1.54178	0.82468	-1.51276	0.85871									
5	0.10000	-1.28291	0.63898	-38.705	0.09934	5	-1.46611	0.74859	-1.42552	0.79598									
6	0.12500	-1.20145	0.57463	-37.827	0.11689	6	-1.39020	0.67368	-1.33852	0.73656									
7	0.15000	-1.12000	0.51260	-36.785	0.13396	7	-1.31396	0.60022	-1.25185	0.67774									
8	0.17500	-1.03854	0.45296	-35.623	0.15049	8	-1.23729	0.52853	-1.16561	0.62086									
9	0.20000	-0.95709	0.39589	-34.394	0.16646	9	-1.16010	0.45896	-1.07989	0.56624									
10	0.23000	-0.85934	0.33086	-32.873	0.18478	10	-1.08237	0.39179	-0.99471	0.51412									
11	0.26000	-0.76160	0.26952	-31.341	0.20206	11	-1.00410	0.32721	-0.91007	0.46457									
12	0.29000	-0.66385	0.21176	-29.815	0.21823	12	-0.90949	0.25326	-0.80920	0.40845									
13	0.32000	-0.56611	0.15745	-28.302	0.23318	13	-0.81415	0.18323	-0.70905	0.35581									
14	0.35000	-0.46836	0.10645	-26.809	0.24684	14	-0.71810	0.11709	-0.60960	0.30643									
15	0.38000	-0.37061	0.05861	-25.342	0.25915	15	-0.62138	0.05480	-0.51083	0.26010									
16	0.41000	-0.27287	0.01381	-23.906	0.27002	16	-0.52403	-0.00371	-0.41269	0.21660									
17	0.44000	-0.17512	-0.02809	-22.509	0.27938	17	-0.42608	-0.05849	-0.31515	0.17572									
18	0.47000	-0.07738	-0.06726	-21.184	0.28719	18	-0.32758	-0.10961	-0.21816	0.13724									
19	0.50000	0.02037	-0.10393	-19.956	0.29340	19	-0.22860	-0.15714	-0.12165	0.10096									
20	0.53000	0.11811	-0.13832	-18.820	0.29803	20	-0.12927	-0.20115	-0.02549	0.06663									
21	0.56000	0.21586	-0.17061	-17.752	0.30103	21	-0.02970	-0.24182	0.07044	0.03396									
22	0.59000	0.31360	-0.20091	-16.682	0.30218	22	0.07004	-0.27936	0.16618	0.00273									
23	0.62000	0.41135	-0.22916	-15.557	0.30102	23	0.16997	-0.31396	0.26175	-0.02726									
24	0.65000	0.50909	-0.25531	-14.391	0.29652	24	0.27023	0.34564	0.35697	-0.05618									
25	0.68000	0.60684	-0.27933	-13.213	0.28791	25	0.37098	-0.37416	0.45171	-0.08417									
26	0.71000	0.70458	-0.30123	-12.053	0.27547	26	0.47225	-0.39892	0.54594	-0.11171									
27	0.74000	0.80233	-0.32110	-10.929	0.25960	27	0.57394	-0.41947	0.63974	-0.13918									
28	0.77000	0.90008	-0.33898	-9.812	0.24050	28	0.67582	-0.43593	0.73335	-0.16653									
29	0.80000	0.99782	-0.35489	-8.671	0.21842	29	0.77772	-0.44854	0.82694	-0.19365									
30	0.83000	1.09557	0.36878	-7.496	0.19369	30	0.87958	0.45748	0.92057	-0.22049									
31	0.86000	1.19331	-0.38059	-6.279	0.16672	31	0.98136	-0.46285	1.01429	-0.24693									
32	0.89000	1.29106	-0.39027	-5.023	0.13784	32	1.08293	-0.46480	1.10820	-0.27276									
33	0.92000	1.38880	-0.39776	-3.731	0.10741	33	1.18420	0.46345	1.20243	-0.29774									
34	0.95000	1.48655	-0.40300	-2.396	0.07581	34	1.28502	-0.45892	1.29709	-0.32162									
35	0.97500	1.56800	-0.40559	-1.249	0.04886	35	1.38531	-0.45135	1.39230	-0.34417									
36	1.00000	1.64946	-0.40654	-0.084	0.02162	36	1.48496	-0.44087	1.48813	-0.36512									
						37	1.56747	0.43001	1.56853	-0.38117									
						38	1.63874	-0.41911	1.63885	-0.39392									
						39	1.64572	-0.41553	1.64607	-0.39784									
						40	1.64946	-0.40654	1.64946	-0.40654									

CHORD 3.51475 CAMBER 40.796 STAGGER 22.028

PHASE III ROTOR

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 12

N8 20

MEANLINE DATA										SURFACE COORDINATES				
PT	PCT X	X	Y	B.M	T(M)	PI	XS	YS	XP	YP				
1	0.	-1.63314	0.79810	-38.150	0.03473	1	-1.63314	0.79810	-1.63314	0.79810				
2	0.02500	-1.55063	0.73402	-37.504	0.05686	2	-1.63706	0.78354	-1.62030	0.80534				
3	0.05000	-1.46811	0.67148	-3.12	0.07884	3	-1.63137	0.77233	-1.60772	0.80256				
4	0.07500	-1.38560	0.61056	-36.050	0.10050	4	-1.56793	0.71147	-1.53332	0.75658				
5	0.10000	-1.30309	0.55141	-35.199	0.12169	5	-1.49173	0.63992	-1.44450	0.70304				
6	0.12500	-1.22058	0.49421	-34.247	0.14227	6	-1.41518	0.56993	-1.35603	0.65119				
7	0.15000	-1.13807	0.43912	-33.192	0.16213	7	-1.33816	0.50169	-1.26802	0.60113				
8	0.17500	-1.05556	0.38629	-32.056	0.18119	8	-1.26061	0.43541	-1.18055	0.55301				
9	0.20000	-0.97305	0.33580	-30.864	0.19938	9	-1.18245	0.37128	-1.09369	0.50696				
10	0.23000	-0.87404	0.27833	-29.391	0.21993	10	-1.10364	0.30951	-1.00748	0.46307				
11	0.26000	-0.77502	0.22424	-27.898	0.23892	11	-1.02419	0.25023	-0.92191	0.42137				
12	0.29000	-0.67601	0.17346	-26.404	0.25670	12	-0.93092	0.18866	-0.82007	0.37414				
13	0.32000	-0.57700	0.12589	-24.924	0.27162	13	-0.83052	0.11866	-0.71913	0.32982				
14	0.35000	-0.47796	0.08140	-23.464	0.28505	14	-0.73297	0.05872	-0.61904	0.28820				
15	0.38000	-0.37897	0.03989	-22.026	0.29640	15	-0.63423	0.00273	-0.51975	0.24904				
16	0.41000	-0.27996	0.00125	-20.611	0.30559	16	-0.53473	-0.04934	-0.42123	0.21214				
17	0.44000	-0.18094	-0.03462	-19.223	0.31255	17	-0.43455	-0.09749	-0.32339	0.17728				
18	0.47000	-0.08193	-0.06784	-17.884	0.31728	18	-0.33374	-0.14176	-0.22617	0.14427				
19	0.50000	0.01708	-0.09857	-16.608	0.31973	19	-0.23240	-0.18218	-0.12949	0.11294				
20	0.53000	0.11610	-0.12696	-15.391	0.31975	20	-0.13065	-0.21882	-0.03321	0.08313				
21	0.56000	0.21511	-0.15312	-14.211	0.31718	21	-0.02861	-0.25177	0.06278	0.05462				
22	0.59000	0.31412	-0.17711	-13.021	0.31195	22	0.07367	-0.28110	0.15853	0.02718				
23	0.62000	0.41314	-0.19889	-11.791	0.30403	23	0.17618	-0.30686	0.25404	0.00062				
24	0.65000	0.51215	-0.21844	-10.544	0.29356	24	0.27898	-0.32907	0.34927	-0.02514				
25	0.68000	0.61116	-0.23576	-9.309	0.28071	25	0.38208	-0.34770	0.44420	-0.05008				
26	0.71000	0.71018	-0.25093	-8.114	0.26562	26	0.48529	-0.36274	0.53901	-0.07413				
27	0.74000	0.80919	-0.26401	-6.940	0.24847	27	0.58846	-0.37427	0.63387	-0.09726				
28	0.77000	0.90820	-0.27498	-5.668	0.22944	28	0.69143	-0.38241	0.72892	-0.11945				
29	0.80000	1.00722	-0.28355	-4.197	0.20873	29	0.79418	-0.38734	0.82420	-0.14069				
30	0.83000	1.10623	-0.28938	-2.503	0.18659	30	0.89687	-0.38914	0.91953	-0.16082				
31	0.86000	1.20524	-0.29209	0.599	0.16322	31	0.99958	-0.38764	1.01486	-0.17947				
32	0.89000	1.30426	-0.29138	1.431	0.13883	32	1.10216	-0.38259	1.11030	-0.19618				
33	0.92000	1.40327	-0.28711	3.514	0.11359	33	1.20439	-0.37370	1.20610	-0.21049				
34	0.95000	1.50228	-0.27918	5.656	0.08762	34	1.30599	-0.36077	1.30252	-0.22199				
35	0.97500	1.58479	-0.26968	7.490	0.06553	35	1.40675	-0.34380	1.39979	-0.23043				
36	1.00000	1.66731	-0.25747	9.341	0.04322	36	1.50660	-0.32278	1.49797	-0.23559				
						37	1.58907	-0.30216	1.58052	-0.23719				
						38	1.64990	-0.28505	1.64241	-0.23668				
						39	1.66258	-0.27630	1.65803	-0.24183				
						40	1.66731	-0.25747	1.66731	-0.25747				

CHORD 3.46513 CAMBER 47.491 STAGGER -17.736

PHASE III ROTOR

NB 20

MEANLINE AIRFOIL GEOMETRY - STREAMLINE 13

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	B.M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1.67260	0.69954	-32.312	0.05299	1	-1.67260	0.69954	-1.67260	0.69954									
2	0.02500	-1.58879	0.64673	-32.115	0.07337	2	-1.67634	0.67705	-1.65408	0.71254									
3	0.05000	-1.50498	0.59437	-31.863	0.09366	3	-1.66591	0.66077	-1.63474	0.71016									
4	0.07500	-1.42117	0.54260	-31.524	0.11378	4	-1.60829	0.61566	-1.56929	0.67780									
5	0.10000	-1.33736	0.49162	-31.073	0.13361	5	-1.52970	0.55459	-1.48026	0.63414									
6	0.12500	-1.25355	0.44167	-30.495	0.15303	6	-1.45091	0.49410	-1.39142	0.59109									
7	0.15000	-1.16974	0.39299	-29.777	0.17192	7	-1.37184	0.43440	-1.30288	0.54884									
8	0.17500	-1.08592	0.34585	-28.913	0.19014	8	-1.29238	0.37574	-1.21472	0.50760									
9	0.20000	-1.00211	0.30049	-27.904	0.20760	9	-1.21243	0.31838	-1.12705	0.46760									
10	0.23000	-0.90154	0.24874	-26.518	0.22739	10	-1.13189	0.26262	-1.03996	0.42907									
11	0.26000	-0.80097	0.20021	-24.979	0.24580	11	-1.05069	0.20876	-0.95354	0.39222									
12	0.29000	-0.70039	0.15506	-23.359	0.26269	12	-0.95230	0.14701	-0.85078	0.35047									
13	0.32000	-0.59982	0.11331	-21.729	0.27797	13	-0.85286	0.08881	-0.74907	0.31161									
14	0.35000	-0.49924	0.07485	-20.145	0.29155	14	-0.75247	0.03448	-0.64831	0.27565									
15	0.38000	-0.39867	0.03944	-18.656	0.30336	15	-0.65127	-0.01580	-0.54836	0.24243									
16	0.41000	-0.29810	0.00683	-17.302	0.31336	16	-0.54945	-0.06201	-0.44904	0.21170									
17	0.44000	-0.19752	-0.02331	-16.080	0.32149	17	-0.44719	-0.10427	-0.35015	0.18315									
18	0.47000	-0.09695	-0.05122	-14.946	0.32767	18	-0.34470	-0.14276	-0.25150	0.15642									
19	0.50000	0.00362	-0.07704	-13.855	0.33191	19	-0.24205	-0.17777	-0.15300	0.13115									
20	0.53000	0.10420	-0.10084	-12.766	0.33431	20	-0.13921	-0.20951	-0.05470	0.10708									
21	0.56000	0.20477	-0.12260	-11.636	0.33465	21	-0.03612	-0.23817	0.04337	0.08409									
22	0.59000	0.30534	-0.14222	-10.423	0.33248	22	0.06726	-0.26386	0.14113	0.06218									
23	0.62000	0.40592	-0.15953	-9.092	0.32759	23	0.17102	-0.28648	0.23852	0.04129									
24	0.65000	0.50649	-0.17433	-7.621	0.32002	24	0.27527	-0.30571	0.33542	0.02128									
25	0.68000	0.60707	-0.18635	-5.989	0.30992	25	0.38003	-0.32127	0.43180	0.00220									
26	0.71000	0.70764	-0.19533	-4.182	0.29751	26	0.48527	-0.33293	0.52771	-0.01573									
27	0.74000	0.80821	-0.20096	-2.190	0.28300	27	0.59090	-0.34047	0.62323	-0.03224									
28	0.77000	0.90879	-0.20291	0.004	0.26663	28	0.69679	0.34369	0.71849	-0.04697									
29	0.80000	1.00936	-0.20086	2.372	0.24864	29	0.80281	0.34236	0.81362	-0.05956									
30	0.83000	1.10993	-0.19448	4.917	0.22924	30	0.90978	-0.33623	0.90879	-0.06960									
31	0.86000	1.21051	-0.18346	7.598	0.20862	31	1.01450	-0.32507	1.00422	-0.07665									
32	0.89000	1.31108	-0.16758	10.356	0.18691	32	1.11976	-0.30867	1.10011	-0.08028									
33	0.92000	1.41165	-0.14666	13.150	0.16420	33	1.22430	-0.28685	1.19671	-0.08007									
34	0.95000	1.51223	-0.12052	15.987	0.14051	34	1.32788	-0.25951	1.29428	-0.07555									
35	0.97500	1.59604	-0.09460	18.380	0.12009	35	1.43033	-0.22660	1.39298	-0.06671									
36	1.00000	1.67985	-0.06480	20.750	0.09935	36	1.53158	-0.18806	1.49288	-0.05298									
						37	1.61497	-0.15158	1.57711	-0.03761									
						38	1.65183	-0.13408	1.61525	-0.02946									
						39	1.67707	-0.10938	1.65254	-0.03408									
						40	1.67985	-0.06480	1.67985	0.06480									

STAGGER -12.844

CAMBER 53.062

CHORD 3.43848

3.0 PLANE SECTION BLADE COORDINATES

Figure 55 shows the stacked Phase III rotor plane sections. The following tabulation gives the coordinates for these sections. These sections are spaced one half inch apart, beginning at the tip height of 8.5 inches and progressing inward to 2.5 inches. These are the same section locations as given for the base line rotor in Reference 1. Also included in the tabulation are coordinates for the section meanline, the meanline angle, and the section percent thickness at each point. Plane section chord, camber angle, and stagger angle are also given. These coordinates are intended to represent the blade under hot running conditions and do not include any corrections for blade untwist, meanline deformation, centrifugal growth or thermal growth.

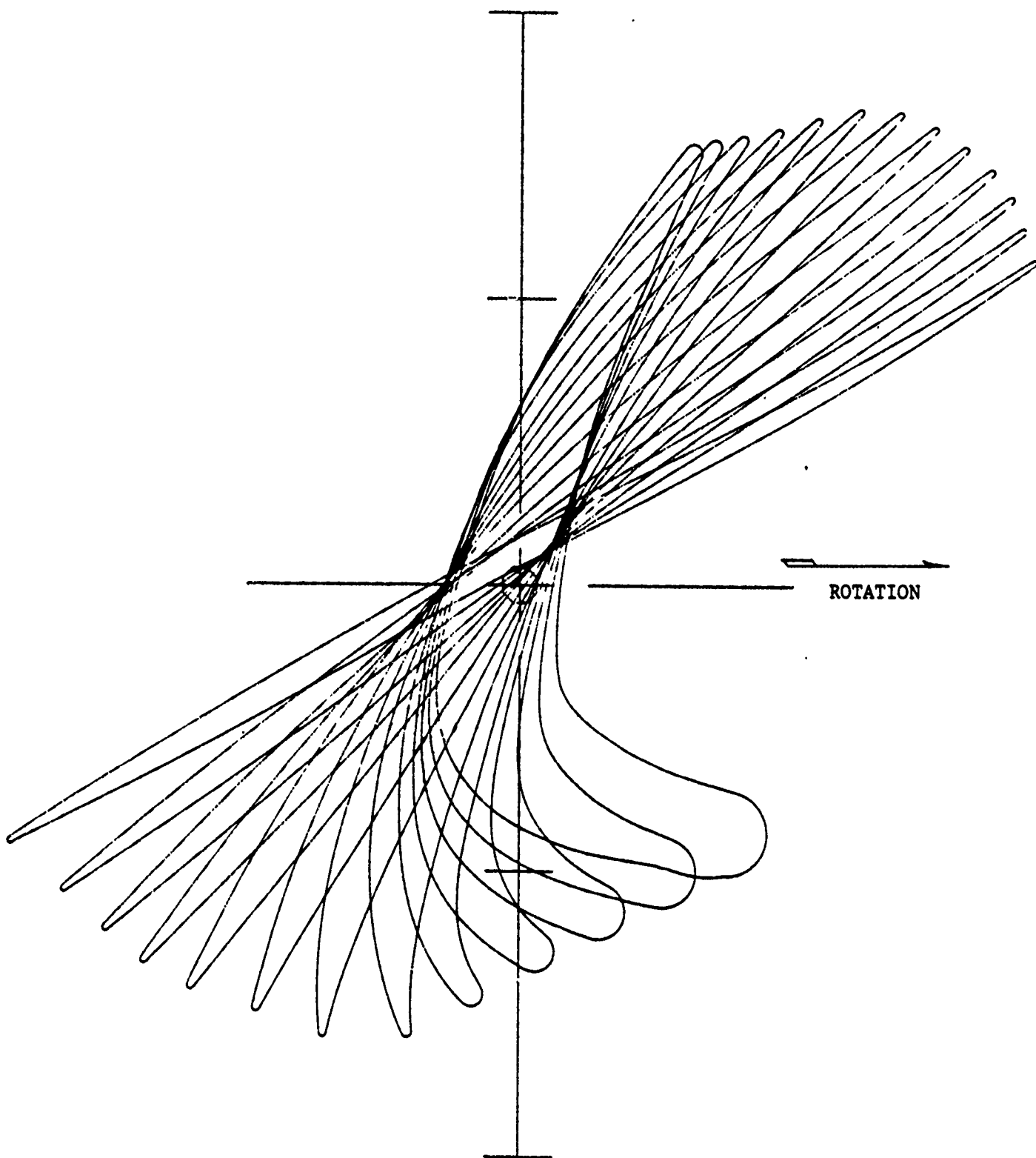


Figure 55. Stacked Phase III Rotor Plane Sections

PHASE III ROTOR

7DC

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. EIA O.

STAGE 3 ROTOR NR. 20 RIM 8.5000

SECTION NO 1 SECTION AA

MEANLINE INPUT DATA

PI	ALPHA	ZEIA	THICKNESS	UPSILON
1	-1.07809	57.235	0.01888	1.78986
2	1.03248	57.651	0.02332	1.71825
3	0.93993	58.482	0.03216	1.56349
4	0.84594	59.336	0.04087	1.41322
5	0.75024	60.296	0.04927	1.24869
6	0.64325	61.519	0.05807	1.05649
7	0.52468	62.775	0.06692	0.83168
8	0.40438	63.611	0.07485	0.59296
9	0.28275	63.811	0.08169	0.34613
10	0.16062	63.276	0.08732	0.10110
11	0.03958	62.305	0.09165	-0.13756
12	0.08281	61.326	0.09466	-0.36406
13	0.20319	60.835	0.09634	-0.58141
14	0.32191	60.792	0.09608	-0.79403
15	0.43863	60.961	0.09007	1.00373
16	0.55311	61.383	0.07801	-1.21153
17	0.66472	61.820	0.06075	-1.41859
18	0.77327	61.539	0.03947	-1.62104
19	0.86174	60.630	0.01983	-1.78123

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	XC.I AI	T/C	ALPHA	UPSILON	ZEIA
1	0	0.00464	-1.07809	1.78986	57.434
2	0.0250	0.00581	-1.02959	1.71368	57.688
3	0.0500	0.00695	-0.98109	1.63630	58.159
4	0.0750	0.00808	-0.93260	1.55749	58.620
5	0.1000	0.00920	-0.88410	1.47729	59.056
6	0.1250	0.01029	-0.83561	1.39573	59.464
7	0.1500	0.01134	-0.78711	1.31281	59.908
8	0.1750	0.01237	-0.73862	1.22827	60.414
9	0.2000	0.01336	0.69012	1.14191	60.962
10	0.2300	0.01451	0.63193	1.03557	61.660
11	0.2600	0.01560	0.57373	0.92615	62.311
12	0.2900	0.01662	0.51554	0.81386	62.878
13	0.3200	0.01759	-0.45734	0.69908	63.326
14	0.3500	0.01850	0.39915	0.58240	63.639
15	0.3800	0.01933	-0.34095	0.46448	63.801
16	0.4100	0.02010	-0.28276	0.34614	63.799
17	0.4400	0.02080	-0.22456	0.22822	63.640

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R O. MJ O. EIA O.
 SECTION NO 1 SECTION AA RHO 8.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA
18	0.4700	0.02143	0.16637	0.11152	63.323
19	0.5000	0.02198	-0.10817	-0.00324	62.891
20	0.5300	0.02247	0.04998	-0.11579	62.413
21	0.5600	0.02288	0.00822	-0.22599	61.915
22	0.5900	0.02321	0.06641	-0.33399	61.456
23	0.6200	0.02347	0.12461	-0.44007	61.074
24	0.6500	0.02365	0.18280	-0.54487	60.866
25	0.6800	0.02378	0.24100	-0.64914	60.816
26	0.7100	0.02374	0.29919	-0.75333	60.822
27	0.7400	0.02336	0.35739	-0.85765	60.870
28	0.7700	0.02258	0.41558	-0.96222	60.942
29	0.8000	0.02141	0.47378	-1.06717	61.055
30	0.8300	0.01985	0.53197	-1.17285	61.286
31	0.8600	0.01793	0.59017	-1.27978	61.599
32	0.8900	0.01565	0.64836	-1.38799	61.842
33	0.9200	0.01305	0.70656	-1.49701	61.908
34	0.9500	0.01016	0.76475	-1.60536	61.533
35	0.9750	0.00756	0.81325	-1.69387	61.071
36	1.0000	0.00488	0.86174	-1.78123	60.911

CHIRI 4 0639 STAGGER 61.489 CAMBER -3.477

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER	UPSILON	LOWER	UPSILON
1	0.00464	-1.07809	1.78986	-1.07809	1.78986	1.78986
2	0.00464	-1.08240	1.78341	-1.07032	1.79105	1.79105
3	0.00464	-1.08116	1.77669	-1.06484	1.78714	1.78714
4	0.00581	-1.03956	1.70737	-1.01962	1.71999	1.71999
5	0.00695	-0.99310	1.62884	-0.96909	1.64375	1.64375
6	0.00808	-0.94662	1.54894	-0.91857	1.56605	1.56605
7	0.00920	-0.90013	1.46768	-0.86807	1.48690	1.48690
8	0.01029	-0.85361	1.38512	-0.81761	1.40635	1.40635
9	0.01134	-0.80705	1.30125	-0.76717	1.32436	1.32436
10	0.01237	-0.76047	1.21587	-0.71676	1.24068	1.24068
11	0.01336	-0.71386	1.12873	-0.66638	1.15509	1.15509
12	0.01451	-0.65787	1.02157	-0.60598	1.04956	1.04956
13	0.01560	-0.60179	0.91142	-0.54567	0.94087	0.94087
14	0.01662	-0.54560	0.79846	-0.48547	0.82926	0.82926

PHASE III ROTOR

• 7100 •

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. ETA O.

SECTION NO 1 SECTION AA RH0 8.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	UPPER ALPHA	UPPER UPSILON	LOWER ALPHA	LOWER UPSILON
15	0 01759	-0.48928	0.68304	-0.42540	0.71513
16	0 01850	-0.43282	0.56571	-0.36547	0.59908
17	0 01943	-0.37620	0.44713	-0.30571	0.48182
18	0 02040	-0.31940	0.32811	-0.24611	0.36417
19	0 02140	-0.26243	0.20946	-0.18669	0.24699
20	0 02143	-0.20527	0.09178	-0.12746	0.13107
21	0 02198	-0.14793	-0.02360	-0.06841	0.01711
22	0 02247	-0.09044	-0.13693	-0.00952	0.09465
23	0 02288	-0.03279	-0.24787	0.04923	-0.20411
24	0 02321	0.02498	-0.35653	0.10784	-0.31145
25	0 02347	0.08287	-0.46314	0.16634	-0.41701
26	0 02365	0.14082	-0.56826	0.22478	-0.52147
27	0 02378	0.19881	-0.67270	0.28318	-0.62558
28	0 02374	0.25707	-0.77685	0.34131	-0.72981
29	0 02336	0.31592	-0.88076	0.39886	-0.83453
30	0 02258	0.37547	-0.98451	0.45569	-0.93993
31	0 02141	0.43571	-1.08822	0.51184	-1.04611
32	0 01985	0.49659	-1.19223	0.56735	-1.15347
33	0 01793	0.55812	-1.29711	0.62271	-1.26246
34	0 01565	0.62033	-1.40299	0.67640	-1.37298
35	0 01305	0.68317	-1.50949	0.72994	-1.48452
36	0 01016	0.74661	-1.61520	0.78290	-1.59552
37	0 00756	0.79979	-1.70131	0.82670	-1.68644
38	0 00488	0.84777	-1.77766	0.86562	-1.76660
39	0 00188	0.89342	-1.82704	0.89691	-1.83742
40	0 00088	0.93614	-1.86123	0.92174	-1.88123
LE RAD	0 00969	CENTER AT ALPHA	-1.07286	UPSILON	1.78170
TF RAD	0.01050	CENTER AT ALPHA	0.85665	UPSILON	-1.77206

•7PL•

PHASE III ROTOR

COORD SYSTEM ORIGIN	Z	-7.04880	R	0	MU	0.	NR	20	ETA	0.
SECTION NO	1	SECTION AA				RND	8.5000			
CHORD	4	0639	STAGGER	61.489	CAMBER		-3.477			
AREA	0	284298	SURFACE ARC LENGTH		8.15448					
SECTION C.G.			ALPHA		UPSILON					
SURFACE SURFACE SECTION C.G.			-0.03327		-0.12177					
BLADE AXIS			-0.03869		-0.10763					
STACKING AXIS (RADIAL)			0.00210		0.					

PHASE III ROTOR

COORD SYSTEM ORIGIN 2 -7.04880 R O. MJ O. E1A O.
 STAGE 3. ROTOR NR 20
 SECTION NO 2 SECTION RR RND 8.0000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.18293	55.367	0.01973	1.75033
2	1.13124	55.814	0.02453	1.67495
3	1.02672	56.653	0.03413	1.51853
4	-0.92044	57.438	0.04362	1.35458
5	0.81248	58.183	0.05287	1.18301
6	0.69176	58.995	0.06257	0.98539
7	0.55821	59.771	0.07238	0.75935
8	0.42287	60.099	0.08112	0.52484
9	0.28624	59.468	0.08854	0.28915
10	0.14902	57.744	0.09443	0.06356
11	0.01175	55.983	0.09873	-0.14649
12	0.12520	54.887	0.10141	-0.34492
13	0.26124	54.389	0.10245	-0.53653
14	0.39620	54.257	0.10013	-0.72448
15	0.52969	54.272	0.09190	-0.90987
16	0.66115	54.368	0.07835	-1.09292
17	0.79029	54.384	0.06047	-1.27324
18	0.91705	54.094	0.03956	-1.44934
19	1.02058	53.629	0.02081	-1.59154

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AI	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00493	-1.18293	1.75033	55.367
2	0.0250	0.00621	-1.12784	1.66996	55.815
3	0.0500	0.00748	-1.07275	1.58806	56.313
4	0.0750	0.00873	-1.01767	1.50475	56.727
5	0.1000	0.00997	-0.96258	1.42017	57.127
6	0.1250	0.01118	-0.90749	1.33428	57.531
7	0.1500	0.01237	-0.85240	1.24704	57.920
8	0.1750	0.01352	-0.79732	1.15853	58.277
9	0.2000	0.01464	-0.74223	1.06878	58.643
10	0.2250	0.01593	-0.67612	0.95931	59.106
11	0.2500	0.01716	-0.61002	0.84789	59.522
12	0.2750	0.01833	-0.54391	0.73477	59.861
13	0.3000	0.01942	-0.47781	0.62038	60.065
14	0.3250	0.02043	0.41170	0.50541	60.110
15	0.3500	0.02136	0.34560	0.39076	59.933
16	0.3750	0.02220	-0.27949	0.27772	59.399
17	0.4000	0.02295	-0.21339	0.16751	58.663

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R 0.0 MU 0.0 EIA 0.0
SECTION NO 2 SECTION BB RND 8.00000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA
18	0.4700	0.02361	-0.14728	0.06079	57.747
19	0.5000	0.02417	-0.08118	-0.04205	56.809
20	0.5300	0.02464	0.01507	-0.14156	56.024
21	0.5600	0.02502	0.05103	-0.23847	55.402
22	0.5900	0.02531	0.11714	-0.33344	54.948
23	0.6200	0.02551	0.18324	-0.42710	54.642
24	0.6500	0.02559	0.24935	-0.51989	54.442
25	0.6800	0.02551	0.31545	-0.61217	54.330
26	0.7100	0.02514	0.38156	-0.70413	54.262
27	0.7400	0.02440	0.44766	-0.79595	54.238
28	0.7700	0.02328	0.51377	-0.88775	54.253
29	0.8000	0.02181	0.57987	-0.97966	54.289
30	0.8300	0.02003	0.64598	-1.07175	54.360
31	0.8600	0.01793	0.71209	-1.16405	54.405
32	0.8900	0.01557	0.77819	-1.25636	54.368
33	0.9200	0.01297	0.84430	-1.34843	54.271
34	0.9500	0.01017	0.91040	-1.44014	54.159
35	0.9750	0.00772	0.96549	-1.51620	53.987
36	1.0000	0.00520	1.02058	-1.59154	53.629

CHORD 4.0129 STAGGER 56.601 CAMBER 1.738

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00493	-1.18293	1.75033	-1.18293	1.75033
2	0.00493	-1.18719	1.74345	-1.17485	1.75185
3	0.00493	-1.18565	1.73646	-1.16900	1.74797
4	0.00621	-1.13812	1.66298	-1.11757	1.67693
5	0.00748	-1.08520	1.57976	-1.06030	1.59636
6	0.00873	-1.03228	1.49516	-1.00306	1.51434
7	0.00997	-0.97933	1.40934	-0.94583	1.43100
8	0.01118	-0.92637	1.32226	-0.88861	1.34629
9	0.01237	-0.87338	1.23389	-0.83143	1.26018
10	0.01352	-0.82034	1.14430	-0.77430	1.17276
11	0.01464	0.76725	1.05354	-0.71721	-1.08403
12	0.01573	-0.70348	0.94294	-0.64876	0.97569
13	0.01616	-0.63962	0.83047	-0.58042	0.86531
14	0.01833	-0.57563	0.71635	-0.51219	0.75319

PHASE III ROTOR

7100

COORD SYSTEM ORIGIN Z -7.04880 R 0. MJ 0. FIA 0.

SECTION NO 2 SECTION RP RHO 8.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	I/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0.01942	-0.51149	0.60099	-0.44413	0.63977
16	0.02043	-0.44715	0.48504	-0.37625	0.52579
17	0.02136	-0.38259	0.36932	-0.30861	0.41219
18	0.02220	-0.31774	0.25511	-0.24125	0.30034
19	0.02295	-0.25262	0.14362	-0.17416	0.19139
20	0.02361	-0.18724	0.03558	-0.10732	0.08601
21	0.02417	-0.12166	-0.06853	-0.04069	-0.01556
22	0.02464	0.05597	-0.16913	0.02583	-0.11400
23	0.02502	0.00982	-0.26690	0.09225	-0.21004
24	0.02531	0.07568	-0.36253	0.15860	-0.30435
25	0.02551	0.14161	-0.45665	0.22488	-0.39756
26	0.02559	0.20767	-0.54968	0.29102	-0.49010
27	0.02551	0.27398	-0.64193	0.35692	-0.58240
28	0.02514	0.34071	-0.73353	0.42241	-0.67474
29	0.02440	0.40803	-0.82449	0.48730	-0.76741
30	0.02328	0.47595	-0.91497	0.55155	-0.86053
31	0.02181	0.54442	-1.00514	0.61533	-0.95418
32	0.02003	0.61341	-1.09511	0.67855	-1.04839
33	0.01793	0.68290	-1.18494	0.74127	-1.14315
34	0.01557	0.75287	-1.27451	0.80351	-1.23821
35	0.01297	0.82322	-1.36358	0.86537	-1.33327
36	0.01017	0.89389	-1.45206	0.92691	-1.42821
37	0.00772	0.95299	-1.52528	0.97798	-1.50712
38	0.00520	1.00558	-1.58966	1.02326	-1.57668
39	0.00320	1.01203	1.59348	1.02497	-1.58405
40	0.00150	1.02058	-1.59154	1.02058	-1.59154
IF RAD	0.01013	CENTER AT ALPHA	-1.17717	UPSILON	1.74200
IF RAD	0.01099	CENTER AT ALPHA	1.01407	UPSILON	-1.58269

PHASE III ROTOR

•ZPC•

COORD SYSTEM ORIGIN	7	-7.04880	R	O.	MU	O.	ETA	O
STAGE	3.	ROTOR			NP	20		
SECTION NO	2	SECTION RR			RND	8.0000		
CMBR	4	0.029	STAGGER	56.601	CAMBER	1.738		
AREA	O	292919	SURFACE ARC LENGTH		8.03668			
SECTION C.G.			ALPHA		UPSILON			
SURFACE SURFACE SECTION C.G.			-0.03382		-0.06230			
BLADE AXIS			-0.03811		-0.05345			
JACKING AXIS (RADIAL)			-0.03811		-0.05345			
			-0.00210		O.			

PHASE III ROTOR

•7DC•

STAGE 3. ROTOR MR 20
 COORD SYSTEM ORIGIN Z -7.04880 R 0. MU 0. FTA 0.
 SECTION NO 3 SECTION CC RMD 7.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.28692	53.725	0.02050	1.71011
2	1.23010	54.079	0.02612	1.63218
3	1.11510	54.726	0.03748	1.47150
4	-0.99843	55.307	0.04886	1.30456
5	-0.88005	55.887	0.06006	1.13165
6	0.74805	56.600	0.07196	0.93406
7	0.60198	57.036	0.08410	0.71034
8	-0.45414	56.422	0.09500	0.48440
9	0.30497	54.692	0.10428	0.26627
10	0.15487	52.303	0.11167	0.06337
11	0.00448	50.467	0.11700	0.12437
12	0.14591	49.625	0.12015	0.30355
13	0.29610	49.136	0.12106	-0.47851
14	0.44561	48.788	0.11701	-0.65023
15	0.59419	48.560	0.10625	-0.81929
16	0.74166	48.415	0.08957	-0.98595
17	0.88757	48.284	0.06815	-1.15027
18	1.03189	47.954	0.04351	-1.31164
19	1.15068	47.482	0.02171	-1.44288

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00514	1.28692	1.71011	53.725
2	0.0250	0.00666	-1.22598	1.62650	54.095
3	0.0500	0.00817	1.16504	1.54177	54.452
4	0.0750	0.00968	-1.10410	1.45593	54.806
5	0.1000	0.01117	-1.04316	1.36899	55.125
6	0.1250	0.01265	0.98222	1.28110	55.399
7	0.1500	0.01410	-0.92128	1.19230	55.686
8	0.1750	0.01553	0.86034	1.10248	56.006
9	0.2000	0.01692	-0.79940	1.01155	56.331
10	0.2250	0.01853	-0.72627	0.90097	56.708
11	0.2500	0.02007	0.65314	0.78905	56.940
12	0.2750	0.02153	-0.58002	0.67553	56.981
13	0.3000	0.02291	-0.50689	0.56438	56.756
14	0.3250	0.02418	-0.43376	0.45382	56.230
15	0.3500	0.02535	0.36063	0.34598	55.444
16	0.3750	0.02641	0.28750	0.24176	54.398
17	0.4000	0.02735	-0.21438	0.14173	53.255

PLATE III ROTOR

COORD SYSTEM ORIGIN 2 7.04880 R O. MU O. EIA O.
STAGE 3. ROTOR NR 20

SECTION NO 3 SECTION CC RIK 7.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PT AL	T/C	ALPHA	UPSILON	ZETA
18	0.4700	0.02816	-0.14125	0.04581	52.097
19	0.5000	0.02886	0.06812	-0.04639	51.108
20	0.5300	0.02942	0.00501	-0.13585	50.409
21	0.5600	0.02985	0.07814	-0.22347	49.921
22	0.5900	0.03017	0.15127	-0.30984	49.591
23	0.6200	0.03037	0.22439	-0.39536	49.346
24	0.6500	0.03037	0.29752	0.48018	49.125
25	0.6800	0.03007	0.37065	-0.56439	48.942
26	0.7100	0.02938	0.44378	0.64813	48.807
27	0.7400	0.02827	0.51691	-0.73152	48.696
28	0.7700	0.02676	0.59004	0.81459	48.584
29	0.8000	0.02487	0.66316	-0.89734	48.492
30	0.8300	0.02265	0.73629	0.97900	48.448
31	0.8600	0.02011	0.80942	-1.06236	48.409
32	0.8900	0.01730	0.88255	-1.14463	48.318
33	0.9200	0.01427	0.95568	-1.22659	48.199
34	0.9500	0.01106	1.02880	-1.30821	48.082
35	0.9700	0.00828	1.08974	1.37590	47.890
36	1.0000	0.00545	1.15068	-1.44288	47.482

CHORD 3 0.854
STAGGER 52.292
CAMBER 6.243

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPSILON	LOWER ALPHA	UPSILON
1	0.00514	1.28692	1.71011	-1.28692	1.71011
2	0.00514	-1.29117	1.70281	-1.27858	1.71194
3	0.00514	-1.28937	1.69561	-1.27236	1.70808
4	0.00656	-1.23673	1.61872	-1.21524	1.63428
5	0.00817	-1.17829	1.53231	-1.15180	1.55124
6	0.00968	-1.11986	1.44482	-1.08835	1.46704
7	0.01117	-1.06143	1.35626	-1.02490	1.38172
8	0.01265	-1.00297	1.26678	-0.96147	1.29541
9	0.01410	-0.94449	1.17645	-0.89807	1.20814
10	0.01553	-0.88600	1.08518	-0.83469	1.11978
11	0.01692	-0.82746	0.99286	-0.77135	1.03024
12	0.01853	0.75714	0.88070	-0.69541	0.92124
13	0.02007	0.68666	0.76723	-0.61962	0.81086
14	0.02153	0.61600	0.65315	-0.54404	0.69991

PHASE III ROTOR

•7PC•

COORD SYSTEM ORIGIN 7 -7.04880 R 0 MU 0. FTA 0.
 SECTION NO 3 SECTION CC RWD 7.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

P I	T/C	UPPER		LOWER	
		ALPHA	UPSILON	ALPHA	UPSILON
15	0 02291	-0.54506	0.53336	-0.46871	0.58941
16	0 02418	-0.47382	0.42704	-0.39370	0.48061
17	0 02535	-0.40224	0.31732	-0.31903	0.37463
18	0 02641	-0.33029	0.21113	-0.24472	0.27239
19	0 02735	-0.25804	0.10913	-0.17071	0.17433
20	0 02816	-0.18553	0.01133	-0.09696	0.08029
21	0 02886	-0.11288	-0.08250	-0.02336	0.01029
22	0 02942	-0.04017	-0.17322	0.05019	-0.09849
23	0 02985	0.03262	-0.26177	0.12365	-0.18518
24	0 03017	0.10549	-0.34880	0.19704	-0.27087
25	0 03037	0.17848	-0.43479	0.27031	-0.35532
26	0 03037	0.25176	0.51978	0.34329	-0.44057
27	0 03037	0.32547	-0.60374	0.41583	-0.52504
28	0 03038	0.39972	-0.68669	0.48784	-0.60957
29	0 03027	0.47459	-0.76871	0.55923	-0.69433
30	0 02676	0.55005	-0.84986	0.63002	-0.77931
31	0 02487	0.62604	-0.93019	0.70028	-0.86449
32	0 02265	0.70251	-1.00984	0.77007	-0.94996
33	0 02011	0.77945	-1.08896	0.83939	-1.03576
34	0 01730	0.85680	-1.16756	0.90830	-1.12171
35	0 01427	0.93448	-1.24554	0.97687	-1.20764
36	0 01105	1.01241	-1.32293	1.04520	-1.29349
37	0 00828	1.07751	-1.38696	1.10198	-1.36484
38	0 00545	1.13486	-1.44268	1.15188	-1.42712
39	0 00345	1.14201	-1.44588	1.15443	-1.43461
40	0 00145	1.15068	-1.44288	1.15068	-1.44288
IF RAD 0 01055		CENTER AT ALPHA	-1.28068	UPSILON	1.70160
IF RAD 0 01155		CENTER AT ALPHA	1.14288	UPSILON	1.43436

PHASE III ROTOR

•ZINC•

COORD SYSTEM ORIGIN	7	-7.04880	R	O.	MU	O.	NR	20	ETA	O.
SECTION NO	3	SECTION	CC				RHO	7	5000	
(HORN)		STAGGER					CAMBER			
1 0854		52.242					6.243			
AREA	0	335802	SURFACE	ARC LENGTH	8.01178					
SECTION C.G.			ALPHA		UPSTILON					
SURFACE			-0.03082		0.03288					
SECTION C.G.			-0.04129		-0.02354					
BLADE AXIS			-0.04129		-0.02354					
STACKING AXIS (RADIAL)			-0.00210		0.					

PHASE III ROTOR

•710•

COORD SYSTEM ORIGIN Z -7.04880 R O. MF O. ETA O.
 STAGE 3. ROTOR MC 20
 SECTION NO 4 SECTION DD RHO 7.0000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.37691	52.302	0.02080	1.64201
2	1.31555	52.631	0.02793	1.56218
3	1.19150	53.255	0.04253	1.39807
4	-1.06587	53.832	0.05737	1.22813
5	0.93870	54.337	0.07218	1.05251
6	0.79704	54.720	0.08808	0.85352
7	0.64047	54.326	0.10444	0.63293
8	0.48222	52.256	0.11922	0.41956
9	0.32259	49.469	0.13184	0.22340
10	0.16192	47.440	0.14192	0.04257
11	-0.00073	46.093	0.14906	-0.12872
12	0.16090	45.089	0.15313	-0.29360
13	0.32253	44.254	0.15360	-0.45335
14	0.48404	43.538	0.14650	-0.60878
15	0.64532	42.919	0.13138	-0.76033
16	0.80597	42.342	0.10922	-0.90826
17	0.96608	41.780	0.08146	-1.05272
18	1.12538	41.260	0.04984	-1.19371
19	1.25746	40.862	0.02193	-1.30895

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AT	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00526	-1.37691	1.64201	52.302
2	0.0250	0.00719	-1.31105	1.55629	52.630
3	0.0500	0.00915	-1.24519	1.46955	52.954
4	0.0750	0.01111	-1.17933	1.38177	53.282
5	0.1000	0.01308	-1.11347	1.29296	53.601
6	0.1250	0.01505	-1.04761	1.20312	53.904
7	0.1500	0.01699	-0.98175	1.11233	54.177
8	0.1750	0.01891	-0.91590	1.02058	54.416
9	0.2000	0.02079	-0.85004	0.92829	54.608
10	0.2300	0.02298	-0.77101	0.81670	54.756
11	0.2600	0.02508	-0.69197	0.70504	54.600
12	0.2900	0.02709	-0.61294	0.59479	54.067
13	0.3200	0.02897	-0.53391	0.48746	53.127
14	0.3500	0.03073	-0.45488	0.38454	51.770
15	0.3800	0.03233	0.37585	0.28671	50.375
16	0.4100	0.03378	0.29682	0.19344	49.092
17	0.4400	0.03507	-0.21779	0.10399	48.023

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. EIA O.
SECTION NO 4 SECTION DD RND 7.0000

MEAN INF COORDINATES WITH ORIGIN AT SECTION AXIS

PT	I/C	AI	T/C	ALPHA	UPSTILON	ZETA
18	0	4700	0.03618	0.13876	0.01744	47.218
19	0	5000	0.03711	-0.05973	-0.06694	46.546
20	0	5300	0.03785	0.01930	-0.14949	45.961
21	0	5600	0.03840	0.09834	-0.23047	45.445
22	0	5900	0.03878	0.17737	-0.31010	44.994
23	0	6200	0.03896	0.25640	-0.38854	44.584
24	0	6500	0.03876	0.33543	-0.46592	44.206
25	0	6800	0.03807	0.41446	-0.54230	43.847
26	0	7100	0.03686	0.49349	-0.61776	43.501
27	0	7400	0.03518	0.57252	-0.69233	43.181
28	0	7700	0.03303	0.65155	-0.76612	42.898
29	0	8000	0.03044	0.73058	-0.83921	42.625
30	0	8300	0.02746	0.80961	-0.91158	42.338
31	0	8600	0.02414	0.88865	-0.98323	42.047
32	0	8900	0.02052	0.96768	-1.05414	41.758
33	0	9200	0.01665	1.04671	-1.12437	41.499
34	0	9500	0.01258	1.12574	-1.19403	41.297
35	0	9750	0.00909	1.19160	-1.25171	41.116
36	0	10000	0.00554	1.25746	-1.30895	40.862

CHORD 3 9558 STAGGER 48.244 CAMBER 11.440

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	I/C	ALPHA	UPPER	UPSTILON	LOWER	ALPHA	UPSTILON
1	0	00526	-1.37691	1.64201	-1.37691	1.64201	
2	0	00526	-1.38105	1.63448	-1.36848	1.64410	
3	0	00526	-1.37908	1.62721	-1.36204	1.64037	
4	0	00719	-1.32236	1.54765	-1.29974	1.56492	
5	0	00915	-1.25963	1.45865	-1.23075	1.48045	
6	0	01111	-1.19695	1.36863	-1.16171	1.39492	
7	0	01308	-1.13430	1.27760	-1.09264	1.30831	
8	0	01505	-1.07166	1.18559	-1.02357	1.22066	
9	0	01699	-1.00900	1.09266	-0.95451	1.13200	
10	0	01891	0.94631	0.99892	-0.88548	1.04244	
11	0	02079	-0.88355	0.90448	-0.81652	0.95210	
12	0	02298	-0.80812	0.79047	-0.73389	0.84292	
13	0	02509	0.73242	0.67630	-0.65153	0.73378	
14	0	02709	-0.65632	0.56334	-0.56956	0.62623	

• 308 •

SECTION NO	SECTION DO	RHD	7.0000
4	4		

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

79

• 288 •

80

PHASE III ROTOR

700.

COORD SYSTEM ORIGIN Z -7 04880 R O. MU O. EIA O.
 SECTION NO 5 SECTION EE RMD 6.5000

MEANLINE INPUT DATA

PI	ALPHA	ZETA	THICKNESS	UPSILON
1	1.45376	51.274	0.02071	1.55213
2	1.38873	51.624	0.03018	1.47038
3	1.25732	52.244	0.04963	1.30241
4	1.12445	52.631	0.06946	1.12922
5	-0.98991	52.627	0.08924	0.95278
6	0.84015	52.052	0.11042	0.75831
7	0.67497	50.547	0.13217	0.55146
8	0.50800	48.013	0.15175	0.35692
9	0.33977	45.176	0.16846	0.17915
10	-0.17048	42.905	0.18175	0.01586
11	0.00045	41.181	0.19124	-0.13718
12	0.17012	39.813	0.19665	-0.28265
13	0.34127	38.652	0.19641	-0.42228
14	0.51260	37.606	0.18622	-0.55679
15	0.68425	36.627	0.16631	-0.68671
16	0.85594	35.660	0.13767	-0.81225
17	1.02784	34.682	0.10174	-0.93352
18	1.19987	33.660	0.06023	1.05039
19	1.34343	32.767	0.02276	1.14459

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	P/C	AI	1/C	ALPHA	UPSILON	ZETA
1	0	0	0.00533	-1.45376	1.55213	51.274
2	0	0.0250	0.00795	-1.38383	1.46418	51.694
3	0	0.0500	0.01061	-1.31390	1.37517	51.998
4	0	0.0750	0.01329	-1.24397	1.28514	52.328
5	0	0.1000	0.01598	-1.17405	1.19414	52.572
6	0	0.1250	0.01865	-1.10412	1.10255	52.679
7	0	0.1500	0.02131	-1.03419	1.01080	52.678
8	0	0.1750	0.02392	-0.96426	0.91922	52.577
9	0	0.2000	0.02648	-0.89433	0.82817	52.342
10	0	0.2250	0.02946	-0.81041	0.72030	51.861
11	0	0.2500	0.03233	-0.72649	0.61473	51.127
12	0	0.2750	0.03505	-0.64258	0.51241	50.116
13	0	0.3000	0.03760	-0.55865	0.41409	48.877
14	0	0.3250	0.03997	-0.47475	0.32034	47.430
15	0	0.3500	0.04214	-0.39083	0.23126	46.000
16	0	0.3750	0.04409	-0.30691	0.14638	44.669
17	0	0.4000	0.04582	-0.22300	0.06514	43.503

PHASE III ROTOR

796.

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. ETA O.
SECTION NO 5 SECTION FE WIND 6.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	PCT AT	T/C	ALPHA	UPSILON	7FIA
18	0.4700	0.04730	-0.13908	-0.01312	42.528
19	0.5000	0.04855	-0.05517	-0.08892	41.670
20	0.5300	0.04954	0.02875	-0.16260	40.911
21	0.5600	0.05027	0.11266	-0.23443	40.224
22	0.5900	0.05072	0.19658	-0.30462	39.603
23	0.6200	0.05082	0.28050	-0.37334	39.034
24	0.6500	0.05036	0.36441	-0.44074	38.513
25	0.6800	0.04922	0.44833	-0.50691	38.006
26	0.7100	0.04746	0.53224	0.57190	37.501
27	0.7400	0.04512	0.61616	-0.63572	37.016
28	0.7700	0.04221	0.70008	-0.69847	36.557
29	0.8000	0.03877	0.78399	-0.76017	36.099
30	0.8300	0.03484	0.86791	-0.82084	35.628
31	0.8600	0.03047	0.95182	-0.88045	35.143
32	0.8900	0.02572	1.03574	-0.93898	34.643
33	0.9200	0.02063	1.11965	-0.99643	34.154
34	0.9500	0.01526	1.20357	-1.05286	33.693
35	0.9700	0.01060	1.27350	-1.09913	33.273
36	1.0000	0.00586	1.34343	-1.14459	32.767

STAGGER 43.952
CAMBER 18.508

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00533	-1.45376	1.55213	-1.45376	1.55213
2	0.00533	-1.45780	1.54453	-1.44537	1.55437
3	0.00533	-1.45576	1.53729	-1.43885	1.55080
4	0.00705	-1.39596	1.45460	-1.37171	1.47376
5	0.01061	-1.33014	1.36249	-1.29767	1.38786
6	0.01329	-1.26441	1.26937	-1.22354	1.30092
7	0.01598	-1.19869	1.17527	-1.14940	1.21300
8	0.01865	-1.13294	1.08058	-1.07529	1.12453
9	0.02131	-1.06710	0.98571	-1.00127	1.03540
10	0.02392	-1.00116	0.89098	-0.92735	0.94746
11	0.02648	0.93505	0.79674	-0.85360	0.85960
12	0.02904	0.85543	0.68415	-0.76839	0.75565
13	0.03233	-0.77539	0.57532	-0.67760	0.65415
14	0.03505	-0.69482	0.46875	-0.59033	0.55607

PHASE III ROTOR

770.

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. ETA O.

SECTION NO 5 SECTION EE RHO 6.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

P1	T/C	ALPHA	UPPER	UPSTION	LOWER	UPSTION
					ALPHA	
15	0 03760	-0.61369	0.36605	0.50363	0.46214	0.37288
16	0 03997	-0.53193	0.26781	-0.41756	0.37288	0.28813
17	0 04214	-0.44972	0.17439	-0.33194	0.28813	0.20730
18	0 04409	-0.36714	0.08546	-0.24669	0.20730	0.12970
19	0 04582	-0.28427	0.00058	-0.16172	0.12970	0.05461
20	0 04730	-0.20120	-0.08084	-0.07696	0.05461	0.01847
21	0 04855	-0.11787	0.15937	0.00753	0.01847	-0.08987
22	0 04954	-0.03428	-0.23533	0.09177	-0.08987	-0.15987
23	0 05027	0.04960	-0.30900	0.17573	-0.15987	-0.22869
24	0 05072	0.13376	-0.38054	0.25940	-0.22869	-0.29665
25	0 05082	0.21832	0.45003	0.34267	-0.29665	-0.36419
26	0 05036	0.30350	0.51729	0.42533	-0.36419	-0.43156
27	0 04922	0.38945	-0.58226	0.50721	-0.43156	-0.49874
28	0 04746	0.47611	-0.64505	0.58838	-0.49874	-0.56573
29	0 04512	0.56339	-0.70571	0.66893	-0.56573	-0.63259
30	0 04221	0.65123	-0.76434	0.74892	-0.63259	-0.69931
31	0 03877	0.73961	-0.82104	0.82837	-0.69931	-0.76582
32	0 03484	0.82848	0.87586	0.90734	-0.76582	-0.83204
33	0 03047	0.91774	-0.92886	0.98590	-0.83204	-0.89787
34	0 02572	1.00733	-0.98009	1.06414	-0.89787	-0.96325
35	0 02063	1.09715	-1.02960	1.14216	-0.96325	-1.02820
36	0 01526	1.18713	-1.07753	1.22001	-1.02820	-1.08191
37	0 01060	1.26220	-1.11635	1.28480	-1.08191	-1.12784
38	0 00586	1.32707	-1.14908	1.34078	-1.12784	-1.13503
39	0 00086	1.33528	-1.15016	1.34518	-1.13503	-1.14459
40	0 00586	1.34343	-1.14459	1.34343	-1.14459	-1.14459
IF RAD	0 01083	CENTER AT ALPHA	-1.44700	UPSTION	1.54366	
IE RAD	0 01272	CENTER AT ALPHA	1.33274	UPSTION	-1.13770	

4700.

PHASE III ROTOR

COORD SYSTEM ORIGIN Z	7.04880	R O.	MU O	ETA O
STAGE	3	ROTOR	NR	20
SECTION NO	5	SECTION EE	RND	6.5000
CHORD	3.8854	STAGGER	CAMBER	
		43.952	18.508	
AREA	0.506647	SURFACE ARC LENGTH	7.86397	
SECTION C.G.		ALPHA	UPSILON	
SURFACE SECTION C.G.		-0.03211	-0.03877	
BLADE AXIS		-0.06264	-0.02788	
TRACKING AXIS (RADIAL)		0.06264	0.02788	
		-0.00210	0.	

PIA-3 111 ROTOR

•ZPC•

COORD SYSTEM ORIGIN 7 -7.04880 R 0.0 MJ 0.0 FYA 0.0
 SECTION NO 6 SECTION FF RHO 6.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT	AI	T/C	ALPHA	UPSILON	ZETA
18	0	4700	0.05841	-0.13928	-0.01852	37.346
19	0	5000	0.05989	-0.05117	-0.04463	36.427
20	0	5300	0.06106	0.03693	-0.14858	35.526
21	0	5600	0.06190	0.12503	-0.21046	34.643
22	0	5900	0.06231	0.21313	0.27036	33.781
23	0	6200	0.06215	0.30123	-0.32837	32.949
24	0	6500	0.06128	0.38933	-0.38460	32.150
25	0	6800	0.05963	0.47743	-0.43913	31.362
26	0	7100	0.05726	0.56553	0.49201	30.580
27	0	7400	0.05421	0.65363	0.54326	29.792
28	0	7700	0.05051	0.74173	-0.59289	28.992
29	0	8000	0.04619	0.82983	-0.64089	28.169
30	0	8300	0.04132	0.91793	-0.68723	27.317
31	0	8600	0.03595	1.00603	-0.73188	26.430
32	0	8900	0.03013	1.09413	-0.77480	25.503
33	0	9200	0.02394	1.18224	-0.81590	24.494
34	0	9500	0.01741	1.27034	-0.85502	23.377
35	0	9750	0.01177	1.34375	0.88604	22.440
36	1	0000	0.00602	1.41717	-0.91570	21.562

CHORD 1 76.95
 STAGGER 38.824
 CAMBER 28.851

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPSILON	UPPER ALPHA	LOWER ALPHA	UPSILON
1	0	00528	-1.51952	1.44751	-1.51952	1.44751
2	0	00528	-1.52331	1.44011	-1.51148	1.44984
3	0	00528	-1.52128	1.43317	-1.50510	1.44655
4	0	00871	-1.45879	1.34800	-1.43342	1.36881
5	0	01217	-1.39047	1.25405	-1.35490	1.28300
6	0	01564	1.32217	1.15953	-1.27636	1.19665
7	0	01911	-1.25382	1.06480	-1.19788	1.11017
8	0	02255	1.18535	0.97036	1.11952	1.02412
9	0	02594	-1.11670	0.87669	-1.04133	0.93898
10	0	02927	-1.04783	0.78421	-0.96337	0.85516
11	0	03261	0.97866	0.69329	0.88570	0.77317
12	0	03627	-0.89517	0.58689	-0.79299	0.67776
13	0	03987	0.81104	0.48417	0.70092	0.58644
14	0	04327	0.72617	0.38579	-0.61959	0.49988

PIA-111 RUTOR

COORD SYSTEM ORIGIN 7 -7.04880 R 0.00000
 SECTION NO 6 SECTION FF RHO 6.00000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCI	AI	T/C	ALPHA	UPSILON	ZETA
18	0	4700	0.05841	-0.13928	-0.01852	37.346
19	0	5000	0.05989	-0.05117	-0.04463	36.427
20	0	5300	0.06106	0.03693	-0.14858	35.526
21	0	5600	0.06190	0.12503	-0.21046	34.643
22	0	5900	0.06231	0.21313	-0.27036	33.781
23	0	6200	0.06215	0.30123	-0.32837	32.949
24	0	6500	0.06128	0.38933	-0.38460	32.150
25	0	6800	0.05963	0.47743	-0.43913	31.362
26	0	7100	0.05726	0.56553	-0.49201	30.580
27	0	7400	0.05421	0.65363	-0.54326	29.792
28	0	7700	0.05051	0.74173	-0.59289	28.992
29	0	8000	0.04619	0.82983	-0.64089	28.169
30	0	8300	0.04132	0.91793	-0.68723	27.317
31	0	8600	0.03595	1.00603	-0.73188	26.430
32	0	8900	0.03013	1.09413	-0.77480	25.503
33	0	9200	0.02394	1.18224	-0.81590	24.494
34	0	9500	0.01741	1.27034	-0.85502	23.377
35	0	9750	0.01177	1.34375	-0.88604	22.440
36	1	10000	0.00602	1.41717	-0.91570	21.562

CHORD 1 76.96
 STAGGER 38.824
 CAMBER 28.851

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER ALPHA	UPSILON	LOWER ALPHA	UPSILON
1	0.00528	-1.51952		1.44751	-1.51952	1.44751
2	0.00528	-1.52331		1.44011	-1.51148	1.44984
3	0.00528	-1.52128		1.43317	-1.50510	1.44655
4	0.00871	-1.45879		1.34800	-1.43342	1.36881
5	0.01217	-1.39047		1.25405	-1.35490	1.28300
6	0.01564	1.32217		1.15953	-1.27636	1.19665
7	0.01911	-1.25382		1.06480	-1.19788	1.11017
8	0.02255	1.18535		0.97036	-1.11952	1.02412
9	0.02594	-1.11670		0.87669	-1.04133	0.93898
10	0.02927	-1.04783		0.78421	-0.96337	0.85516
11	0.03261	0.97866		0.69329	-0.88570	0.77313
12	0.03627	-0.89517		0.58689	-0.79299	0.67776
13	0.03987	0.81104		0.48417	-0.70092	0.58644
14	0.04327	0.72617		0.38579	-0.61059	0.49988

PHASE III ROTOR

• 2PC •

COORD SYSTEM ORIGIN Z -7.04880 R 0. MU 0. ETA 0.
STAGE 3. ROTOR NR 20
SECTION NO 6 SECTION FF RND 5.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

P1	I/C	ALPHA	UPPER	UPSILON	LOWER	UPSILON
15	0 04647	-0.64060		0.29229	-0.51896	0.41833
16	0 04942	-0.55432		0.20386	-0.42904	0.34171
17	0 05211	-0.46764		0.12048	-0.33951	0.26334
18	0 05451	-0.38073		0.04147	-0.25023	0.20020
19	0 05662	-0.29353		0.03388	-0.16122	0.13361
20	0 05841	-0.20606		-0.10604	-0.07249	0.06901
21	0 05989	-0.11820		-0.17545	0.01585	0.00618
22	0 06106	-0.02994		-0.24224	0.10380	-0.05493
23	0 06190	0.05871		-0.30645	0.19135	-0.11448
24	0 06231	0.14783		-0.36797	0.27842	-0.17275
25	0 06215	0.23752		-0.42667	0.36494	-0.23007
26	0 06128	0.32787		-0.48239	0.45079	-0.28681
27	0 05963	0.41893		-0.53511	0.53593	-0.34316
28	0 05726	0.51063		-0.58492	0.62043	-0.39910
29	0 05421	0.60287		-0.63192	0.70439	-0.45460
30	0 05051	0.69560		-0.67615	0.78787	-0.50963
31	0 04519	0.78873		-0.71764	0.87093	-0.56414
32	0 04132	0.88219		-0.75643	0.95367	-0.61804
33	0 03595	0.97588		-0.79255	1.03619	-0.67122
34	0 03013	1.06968		-0.82606	1.11859	-0.72354
35	0 02394	1.16353		-0.85696	1.20094	-0.77484
36	0 01741	1.25731		-0.88515	1.28336	-0.82490
37	0 01177	1.33529		-0.90654	1.35222	-0.86554
38	0 00602	1.40195		-0.92354	1.41148	-0.89957
39	0 00002	1.45015		0.92288	1.41712	0.90598
40	0 00002	1.41717		-0.91570	1.41717	-0.91570
IF RAD	0 01051	CENTER AT ALPHA		-1.51282	UPSILON	1.43941
IF RAD	0 01302	CENTER AT ALPHA		1.40507	UPSILON	-0.91090

PHASE III ROTOR

COORD SYSTEM ORIGIN	Z	7.0480	R	0	MJ	0.	F1A	0.
STAGE	3.	ROTOR			NR	20		
SECTION NO	6	SECTION FF			RND	6.0000		
CURVD	3.5695	STAGGER			CAMBER	28.851		
		38.824						
AREA	0.580286	SURFACE ARC LENGTH			7.68397			
SECTION C.G.		ALPHA			UPSILON			
SURFACESURFACE	SECTION C.G.		-0.03927		-0.01718			
BLADE AXIS			-0.07125		-0.01790			
STACKING AXIS (RADIAL)			-0.07125		-0.01790			
			0.00210		0			

PHASE III ROTOR

•71°C•

COORD SYSTEM ORIGIN Z -7.04880 R 0 MU 0. ETA 0.
 SECTION NO 7 SECTION GG PKD 5.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.56840	49.293	0.01886	1.32753
2	1.49634	49.264	0.03326	1.24356
3	1.35082	48.979	0.06249	1.07497
4	1.20357	48.313	0.09183	0.90726
5	1.05466	47.083	0.12074	0.74321
6	0.88936	44.678	0.15132	0.57199
7	0.70743	41.121	0.18225	0.40284
8	0.52434	38.011	0.20952	0.25199
9	0.34035	35.568	0.23205	0.11456
10	0.15562	33.209	0.24910	0.01186
11	0.02968	30.817	0.26013	-0.12785
12	0.21560	28.477	0.26456	-0.23385
13	0.40208	26.271	0.25837	0.33078
14	0.58902	24.019	0.24067	-0.41923
15	0.77666	21.452	0.21240	-0.49878
16	0.96502	18.332	0.17454	-0.56805
17	1.15395	14.373	0.12792	-0.62462
18	1.34358	9.329	0.07312	-0.66460
19	1.50177	4.166	0.02184	-0.68205

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	P.C.T AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00514	1.56840	1.32753	49.293
2	0 0250	0.00932	1.49165	1.23809	49.358
3	0 0400	0.01352	1.41489	1.14893	49.186
4	0 0750	0.01772	1.33814	1.06037	48.972
5	0 1000	0.02190	1.26138	0.97262	48.659
6	0 1250	0.02604	1.18463	0.88603	48.211
7	0 1500	0.03012	1.10787	0.80100	47.610
8	0 1750	0.03412	1.03112	0.71800	46.834
9	0 2000	0.03802	-0.95437	0.63757	45.794
10	0 2300	0.04255	-0.86226	0.54545	44.143
11	0 2600	0.04687	-0.77016	0.45879	42.350
12	0 2900	0.05094	-0.67805	0.37745	40.550
13	0 3200	0.05474	0.58595	0.30092	38.932
14	0 3500	0.05821	-0.49384	0.22834	37.576
15	0 3800	0.06135	-0.40174	0.15906	36.334
16	0 4100	0.06412	-0.30963	0.09277	35.158
17	0 4400	0.06651	0.21753	0.02928	33.996

PHASE III ROTOR

47PC

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. EIA O.

SECTION NO 7 SECTION RG RHO 5.5000

MEAN LINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCI AT	I/C	ALPHA	UPSILON	7FIA
18	0.4700	0.06849	-0.12542	-0.03149	32.834
19	0.5000	0.07005	-0.03332	-0.08960	31.662
20	0.5300	0.07122	0.05879	-0.14511	30.481
21	0.5600	0.07195	0.15089	-0.19807	29.329
22	0.5900	0.07205	0.24300	-0.24865	28.223
23	0.6200	0.07138	0.33510	-0.29698	27.154
24	0.6500	0.06994	0.42721	0.34317	26.117
25	0.6800	0.06774	0.51931	0.38728	25.047
26	0.7100	0.06482	0.61142	0.42923	23.917
27	0.7400	0.06121	0.70352	-0.46893	22.705
28	0.7700	0.05696	0.79563	-0.50626	21.397
29	0.8000	0.05210	0.88773	-0.54103	19.939
30	0.8300	0.04665	0.97984	-0.57299	18.299
31	0.8600	0.04065	1.07194	0.60184	16.437
32	0.8900	0.03412	1.16405	-0.62722	14.325
33	0.9200	0.02709	1.25615	-0.64865	11.773
34	0.9500	0.01953	1.34826	0.66532	8.645
35	0.9750	0.01284	1.42501	0.67520	6.123
36	1.0000	0.00595	1.50177	-0.68205	4.166

CHORD 3.6594 STAGGER 33.207 CAMBER 45.126

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	I/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00514	-1.56840	1.32753	-1.56840	1.32753
2	0.00514	-1.57190	1.32038	-1.56083	1.32990
3	0.00514	-1.56989	1.31385	-1.55465	1.32692
4	0.00932	-1.50462	1.22695	-1.47867	1.24922
5	0.01352	-1.43367	1.13271	-1.39612	1.16514
6	0.01772	-1.36267	1.03903	-1.31361	1.08172
7	0.02190	-1.29155	0.94607	-1.23121	0.99916
8	0.02604	-1.22025	0.85419	-1.14901	0.91786
9	0.03012	-1.14869	0.76375	-1.06706	0.83826
10	0.03412	-1.07678	0.67518	-0.98546	0.76083
11	0.03802	-1.00438	0.58893	-0.90436	0.68621
12	0.04255	-0.91663	0.48943	-0.80789	0.60147
13	0.04687	0.82808	0.39525	-0.71223	0.52234
14	0.05094	0.73881	0.30643	-0.61729	0.44846

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R 0. MU 0. NR 20. ETA 0.

SECTION NO 7 SECTION GG RHD 5 5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	I/C	UPPER		LOWER		UPSILON
		ALPHA	UPSILGN	ALPHA	UPSILGN	
15	0 05474	-0.64905	0.22280	-0.52284	0.37904	0.37904
16	0 05821	-0.55897	0.14369	-0.42871	0.31299	0.31299
17	0 06135	-0.46843	0.06839	-0.33505	0.24973	0.24973
18	0 06412	-0.37737	-0.00341	-0.24189	0.18995	0.18995
19	0 06651	-0.28575	-0.07188	-0.14930	0.13045	0.13045
20	0 06849	-0.19355	-0.13707	-0.05729	0.07409	0.07409
21	0 07095	-0.10078	-0.19899	0.03414	0.01978	0.01978
22	0 07122	-0.00750	0.25772	0.12507	-0.03249	-0.03249
23	0 07195	0.08623	-0.31317	0.21556	-0.09298	-0.09298
24	0 07205	0.18048	-0.36513	0.30551	-0.13218	-0.13218
25	0 07138	0.27533	0.41351	0.39487	-0.18745	-0.18745
26	0 06794	0.37072	-0.45839	0.48369	-0.22796	-0.22796
27	0 06774	0.46670	-0.49987	0.57193	-0.27469	-0.27469
28	0 06482	0.56321	0.53794	0.65963	-0.32053	-0.32053
29	0 06121	0.66018	-0.57253	0.74687	-0.36534	-0.36534
30	0 05696	0.75750	0.60356	0.83375	-0.40896	-0.40896
31	0 05210	0.85514	-0.63089	0.92033	-0.45118	-0.45118
32	0 04665	0.95296	-0.65426	1.00671	-0.49173	-0.49173
33	0 04065	1.05084	0.67337	1.09305	0.53031	0.53031
34	0 03412	1.14856	-0.68787	1.17954	-0.56656	-0.56656
35	0 02709	1.24601	-0.69731	1.26629	-0.59999	-0.59999
36	0 01953	1.34287	-0.70074	1.35364	-0.62990	-0.62990
37	0 01284	1.42250	-0.69862	1.42752	-0.65179	-0.65179
38	0 00595	1.49004	0.69392	1.49199	-0.66860	-0.66860
39	0 00595	1.49718	0.69098	1.49910	-0.67321	-0.67321
40	0 00595	1.50177	-0.68205	1.50177	0.68205	0.68205
LE RAD	0 01006	CENTER AT ALPHA	-1.56185	UPSILON	1.31989	1.31989
TF RAD	0 01287	CENTER AT ALPHA	1.48893	UPSILON	-0.68110	-0.68110

PHASE III ROTOR

COORD SYSTEM ORIGIN	Z	-7.04880	R	0	MJ	0.	MB	20	EIA	0
SECTION NO	7	SECTION		GG	RHO		5.5000			
CHORD	3 6694	STAGGER		33 207	CAMBER		45.126			
AREA	0 640526	SURFACE ARC LENGTH		7 56495						

SECTION C.G.	ALPHA	UPSILON
SURFACE SECTION C.G.	-0.02894	-0 01024
BLADE AXIS	-0.06138	-0.02051
STACKING AXIS (RADIAL)	0.06138	-0 02051
	-0.00210	0

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R 0. MU 0. ETA 0.

SECTION NO 8 STAGE 3 ROTOR NR 20 RHO 5.0000

MEANLINE INPUT DATA

PI	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.57695	47.508	0.01945	1.18826
2	1.49990	47.249	0.03628	1.10464
3	1.74494	46.574	0.07029	0.93898
4	1.18906	45.397	0.10399	0.71735
5	1.03278	43.433	0.13651	0.62380
6	-0.86065	40.502	0.16993	0.46865
7	0.67270	37.121	0.20247	0.31756
8	0.48496	34.145	0.23004	0.18305
9	0.29729	31.318	0.25231	0.06238
10	0.10981	28.387	0.26927	-0.04517
11	0.07733	25.442	0.28102	-0.14000
12	0.26428	22.490	0.28776	-0.22276
13	0.45078	19.249	0.28627	-0.29343
14	0.63654	15.477	0.27192	-0.35093
15	0.82139	11.111	0.24329	-0.39764
16	1.00439	5.998	0.19996	-0.41793
17	1.18459	-0.376	0.14758	0.42768
18	1.36003	-8.710	0.07962	-0.41423
19	1.50109	-17.691	0.02843	0.38218

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	PC1	AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00563	-1.57695	1.18826	47.508	
2	0.0250	0.01049	-1.50000	1.10475	47.200	
3	0.01500	0.01538	1.42305	1.02202	46.929	
4	0.0750	0.02027	-1.34610	0.94020	46.567	
5	0.1000	0.02512	-1.26915	0.85957	46.079	
6	0.1250	0.02990	-1.19220	0.78053	45.424	
7	0.1500	0.03460	-1.11525	0.70353	44.581	
8	0.1750	0.03918	1.03830	0.62903	43.524	
9	0.2000	0.04362	-0.96134	0.55747	42.290	
10	0.2300	0.04873	0.86900	0.47580	40.654	
11	0.2600	0.05355	-0.77666	0.39888	38.945	
12	0.2900	0.05805	-0.68432	0.32639	37.328	
13	0.3200	0.06221	-0.59198	0.25790	35.807	
14	0.3500	0.06600	-0.49964	0.19305	34.369	
15	0.3800	0.06943	0.40730	0.13151	32.982	
16	0.4100	0.07248	0.31496	0.07318	31.571	
17	0.4400	0.07516	-0.22262	0.01801	30.138	

PHASE 111 ROTOR

•7PC•

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. ETA O.
SECTION NO 8 SECTION 1#1 RWD 5 0000

MEAN LINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AT	T/C	ALPHA	UPSILON	ZETA*
18	0 4700	0 07746	-0.13027	0 03405	28.6R2
19	0 5000	0 07940	0 03793	-0.08305	27.212
20	0 5300	0 08098	0 05441	-0.12904	25.740
21	0 5600	0 08225	0 14675	0 17211	24.263
22	0 5900	0 08312	0 23909	-0.21229	22.764
23	0 6200	0 08347	0 33143	-0.24961	21.222
24	0 6500	0 08311	0 42377	-0.28396	19.570
25	0 6800	0 08185	0 51611	-0.31521	17.789
26	0 7100	0 07958	0 60845	-0.34313	15.832
27	0 7400	0 07630	0 70080	-0.36750	13.704
28	0 7700	0 07195	0 79314	-0.38811	11.431
29	0 8000	0 06650	0 88548	-0.40478	8.989
30	0 8300	0 05995	0 97782	-0.41720	6.288
31	0 8600	0 05234	1 07016	-0.42500	3.325
32	0 8900	0 04374	1 16250	-0.42780	0.103
33	0 9200	0 03428	1 25484	0 42514	-3.509
34	0 9500	0 02441	1 34718	0 41607	-7.823
35	0 9750	0 01627	1 42413	-0 40261	-12.197
36	1 0000	0 00823	1 50109	-0.38218	-17.691

CHORD 3 4555
STAGGER 27.031
CAMBER 65.199

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0 00563	-1.57695	1.18826	1.57695	1.18826
2	0 00563	-1.58034	1 18072	-1.56924	1.19099
3	0 00563	-1.57808	1.17405	-1.56271	1 18817
4	0 01049	-1.51330	1.09243	1.48670	1.11706
5	0 01538	-1.44246	1 00387	-1.40364	1.04017
6	0 02027	-1 37152	0.91613	-1.32067	0.96427
7	0 02512	-1 30041	0.82947	-1.23789	0.88967
8	0 02990	-1.22^00	0.74427	-1.15540	0.81679
9	0 03460	-1 15720	0.66095	-1 07329	0.74610
10	0 03918	-1.08491	0.57994	-0.99168	0.67811
11	0 04362	-1 01206	0.50172	-0.91063	0.61323
12	0 04873	-0.92385	0.41193	-0.81415	0.53968
13	0 05355	-0.83482	0.32692	-0.71851	0.47083
14	0 05805	-0.74514	0.24664	-0.62350	0.40614

PHASE III ROTOR

•7PC•

COORD SYSTEM ORIGIN 7 -7.04880 R O. MU O. FIA O.

SECTION NO 8 SECTION INI RIM 5.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	I/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0 06221	-0.65486	0.17074	-0.52910	0.34507
16	0 06600	-0.56401	0.09892	-0.43526	0.28717
17	0 06943	-0.47260	0.03089	-0.34200	0.23213
18	0 07248	-0.38052	-0.03350	0.24940	0.17987
19	0 07516	-0.28781	0.09429	-0.15742	0.13031
20	0 07746	-0.19451	-0.15147	-0.06604	0.08336
21	0 07940	-0.10066	-0.20504	0.02490	0.03895
22	0 08098	-0.00636	-0.25507	0.11517	-0.00301
23	0 08225	0.08836	-0.30166	0.20514	-0.04256
24	0 08312	0.18352	-0.34472	0.29466	-0.07987
25	0 08347	0.27923	0.38404	0.38363	-0.11517
26	0 08311	0.37567	-0.41926	0.47187	-0.14866
27	0 08185	0.47291	-0.44985	0.55932	-0.18056
28	0 07958	0.57094	0.47542	0.64597	-0.21085
29	0 07630	0.66957	-0.49557	0.73202	-0.23943
30	0 07195	0.76850	-0.50996	0.81778	-0.26625
31	0 06650	0.86753	-0.51826	0.90343	-0.29129
32	0 05995	0.96647	-0.52015	0.98916	-0.31424
33	0 05234	1.06492	-0.51528	1.07540	-0.33472
34	0 04374	1.16237	-0.50338	1.16264	-0.35222
35	0 03428	1.25847	0.48427	1.25122	-0.36602
36	0 02441	1.35292	-0.45785	1.34144	-0.37428
37	0 01627	1.43007	-0.43008	1.41820	-0.37514
38	0 00823	1.49241	-0.40224	1.48302	-0.37039
39	0 00823	1.49941	-0.39582	1.49414	-0.37299
40	0 00823	1.50109	-0.38218	1.50109	-0.38218
IF RAD	0 01046	CENTER AT ALPHA	-1.56988	UPSILON	1.18055
TF RAD	0 01685	CENTER AT ALPHA	1.48498	UPSILON	-0.38712

7PC.

PLATE III ROTOR

COORD SYSTEM ORIGIN Z	-7.04880	R O.	MU O	FIA O.
STAGE	3	ROTOR	NR	20
SECTION NO	8	SECTION H#	RND	5 0000
CHORD	3.4555	STAGGER	CAMBER	
		27.031	65.199	
AREA	0.678450	SURFACE ARC LENGTH	7.27927	
SECTION C.G.		ALPHA	UPSILON	
SURFACE SECTION C.G.		-0.00510	-0.00283	
BLADE AXIS		-0.01169	-0.03865	
STACKING AXIS (RADIAL)		-0.01169	0.03865	
		-0.00210	0.	

PHASE III ROTOR

• 790 •

COORD SYSTEM ORIGIN Z -7.04880 R 0. MJ 0. EIA 0.
 STAGE 3. ROTOR NB 20
 SECTION NO 9 SECTION JJ RIO 4.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.54614	45.513	0.02150	1.04166
2	-1.46696	45.250	0.03934	0.96146
3	1.30880	44.474	0.07431	0.80407
4	1.15098	42.932	0.10784	0.65334
5	0.99380	40.525	0.13959	0.51341
6	0.82178	37.430	0.17225	0.37452
7	0.63500	33.979	0.20490	0.24053
8	-0.44941	30.491	0.23424	0.12362
9	0.26514	26.940	0.25993	0.02272
10	-0.08216	23.398	0.28118	-0.06312
11	0.09902	20.053	0.30376	-0.19515
12	0.27828	16.779	0.30726	-0.24283
13	0.45512	13.141	0.27289	-0.27762
14	0.62877	9.249	0.23570	-0.29941
15	0.79835	4.959	0.19328	-0.30511
16	0.96269	-1.869	0.14981	-0.28472
17	1.12018	-13.461	0.10590	-0.22589
18	1.26985	-28.736	0.07153	-0.13853
19	1.38806	-41.867		

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AI	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00680	-1.54614	1.04166	45.513
2	0.0250	0.01203	-1.47279	0.96733	45.244
3	0.0500	0.01720	-1.39943	0.89371	44.941
4	0.0750	0.02231	-1.32608	0.82102	44.515
5	0.1000	0.02732	-1.25272	0.74958	43.940
6	0.1250	0.03223	-1.17937	0.67980	43.164
7	0.1500	0.03703	-1.10601	0.61213	42.190
8	0.1750	0.04171	-1.03266	0.54690	41.074
9	0.2000	0.04627	-0.95930	0.48434	39.824
10	0.2300	0.05157	-0.87128	0.41293	38.261
11	0.2600	0.05667	-0.78325	0.34547	36.653
12	0.2900	0.06156	-0.69522	0.28188	35.032
13	0.3200	0.06624	-0.60720	0.22201	33.407
14	0.3500	0.07070	-0.51917	0.16573	31.767
15	0.3800	0.07492	-0.43115	0.11296	30.112
16	0.4100	0.07890	-0.34312	0.06361	28.427
17	0.4400	0.08259	-0.25509	0.01765	26.707

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O ETA O
 SECTION NO 9 SECTION JJ RHO 4.5000

MEAN LINE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	PCI	AI	T/C	ALPHA	UPSILON	7F1A
18	0	4700	0.08598	0.16707	0.02500	24.992
19	0	5000	0.08901	-0.07904	-0.06447	23.313
20	0	5300	0.09162	0.00898	-0.10092	21.682
21	0	5600	0.09375	0.09701	0.13452	20.109
22	0	5900	0.09529	0.18504	-0.16540	18.544
23	0	6200	0.09603	0.27306	-0.19357	16.931
24	0	6500	0.09575	0.36109	-0.21896	15.227
25	0	6800	0.09415	0.44912	-0.24142	13.376
26	0	7100	0.09103	0.53714	-0.26079	11.430
27	0	7400	0.08650	0.62517	-0.27702	9.463
28	0	7700	0.08082	0.71319	-0.29008	7.369
29	0	8000	0.07430	0.80122	-0.29967	5.020
30	0	8300	0.06725	0.88925	-0.30510	1.805
31	0	8600	0.05987	0.97727	-0.30451	-2.812
32	0	8900	0.05227	1.06530	0.29562	-8.972
33	0	9200	0.04434	1.15333	0.27580	16.660
34	0	9500	0.03614	1.24135	-0.24118	-26.472
35	0	9700	0.02934	1.31471	-0.19722	-35.053
36	0	0000	0.02262	1.38806	-0.13853	-41.867

CHORD 4.1627 STAGGER 21.911 CAMBER 87.380

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00680	-1.54614	1.04166	-1.54614	1.04166
2	0.00680	-1.54962	1.03318	-1.53771	1.04490
3	0.00680	-1.54690	1.02588	-1.53037	1.04215
4	0.01203	-1.48629	0.95394	-1.45929	0.98072
5	0.01720	-1.41865	0.87446	-1.38022	0.91297
6	0.02231	-1.35081	0.79587	-1.30135	0.84618
7	0.02732	-1.28270	0.71847	-1.22275	0.78069
8	0.03223	-1.21473	0.64263	-1.14450	0.71697
9	0.03703	-1.14534	0.56875	-1.06669	0.65551
10	0.04171	-1.07599	0.49718	-0.98932	0.59662
11	0.04627	-1.00616	0.42814	-0.91245	0.54053
12	0.05157	-0.92177	0.34890	-0.82078	0.47696
13	0.05667	-0.83675	0.27358	-0.72975	0.41737
14	0.06156	-0.75111	0.20217	-0.63934	0.36150

PHASE III ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O FTA O.
 SECTION NO 9 SECTION JJ RHO 4.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	T/C	UPPER		LOWER	
		ALPHA	UPSILON	ALPHA	UPSILON
15	0 06624	-0.66487	0.13457	-0.54953	0.30945
16	0 07070	-0.57803	0.07069	-0.46032	0.26078
17	0 07432	0.49058	0.01047	-0.37171	0.21545
18	0 07890	-0.40251	-0.04611	-0.28373	0.17333
19	0 08259	-0.31379	0.09903	-0.19640	0.13432
20	0 08598	-0.22451	-0.14823	-0.10963	0.09823
21	0 08901	-0.13474	-0.19372	-0.02334	0.06479
22	0 09162	-0.04455	0.23556	0.06251	0.03372
23	0 09375	0.04604	-0.27374	0.14798	0.00470
24	0 09529	0.13712	-0.30826	0.23296	-0.02254
25	0 09603	0.22884	-0.33884	0.31729	-0.04829
26	0 09575	0.32132	-0.36505	0.40086	-0.07287
27	0 09415	0.41467	-0.38627	0.48356	-0.09657
28	0 09103	0.50862	-0.40188	0.56567	-0.11970
29	0 08650	0.60268	-0.41194	0.64766	-0.14210
30	0 08082	0.69680	0.41682	0.72959	0.16334
31	0 07430	0.79094	-0.41672	0.81150	-0.18262
32	0 06725	0.88590	0.41140	0.89260	-0.19880
33	0 05987	0.98192	-0.39907	0.97263	-0.20994
34	0 05227	1.07819	0.37726	1.05241	0.21397
35	0 04434	1.17343	-0.34296	1.13322	-0.20863
36	0 03614	1.26683	-0.29233	1.21588	-0.19002
37	0 02934	1.34135	-0.23520	1.28806	-0.15924
38	0 02262	1.38628	0.19254	1.33925	-0.12901
39	0 02262	1.35886	0.17260	1.36597	-0.12541
40	0 02262	1.38806	-0.13853	1.38806	-0.13853
LF RAD	0 01163	CENTER AT ALPHA	-1.53799	UPSILON	1.03336
TF RAD	0 04003	CENTER AT ALPHA	1.35765	UPSILON	-0.16456

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7 04880 R 0 MJ 0. FIA 0

SECTION NO 9 SECTION JJ PINO 4 5000

CHORD STAGER CAMBER
3 1627 21 911 87 380

AREA 0 653040 SURFACE ARC LENGTH 6.86723

SECTION C.G.	ALPHA	UPSTION
SURFACE	-0 00262	0.00462
BLADE AXIS	0.02762	-0 04430
STACKING AXIS (RADIAL)	0 02762	0 04430
	0.00210	0

PHASE III ROTOR

7000

COORD SYSTEM ORIGIN Z -7.04880 R 0. MU 0. ETA 0.
 SECTION NO 10 SECTION KK RHO 4.00000

MEANLINE INPUT DATA

PT	ALPHA	ZETA	THICKNESS	UPSILON
1	1.50909	43.941	0.02406	0.90496
2	-1.43057	43.561	0.04193	0.83029
3	-1.27469	42.412	0.07788	0.68549
4	1.12025	40.431	0.11430	0.54916
5	0.96721	37.671	0.15107	0.42467
6	0.80066	34.266	0.19097	0.30325
7	0.62075	30.512	0.23193	0.18860
8	0.44277	26.847	0.26772	0.09087
9	0.26670	23.311	0.29578	0.00820
10	0.09278	19.951	0.31389	-0.06091
11	0.07877	16.862	0.32114	-0.11793
12	0.24739	13.859	0.31758	-0.16414
13	0.41247	10.450	0.30532	-0.19969
14	0.57286	5.935	0.28880	-0.22310
15	0.72762	-1.538	0.26919	-0.22984
16	0.87574	-14.246	0.24258	-0.20952
17	1.01635	-30.971	0.20365	-0.14875
18	1.14898	-47.068	0.15642	-0.03466
19	1.25280	-57.710	0.11964	0.11070

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PC	AI	T/C	ALPHA	UPSILON	ZETA
1	0	0.00837	-1.50909	0.90496	43.941	
2	0.0250	0.01384	1.44004	0.83922	43.338	
3	0.0500	0.01934	-1.37099	0.77438	43.038	
4	0.0750	0.02489	-1.30195	0.71041	42.558	
5	0.1000	0.03050	-1.23290	0.64772	41.886	
6	0.1250	0.03616	-1.16385	0.58669	41.033	
7	0.1500	0.04189	1.09480	0.52765	39.994	
8	0.1750	0.04766	-1.02576	0.47090	38.825	
9	0.2000	0.05345	-0.95671	0.41658	37.534	
10	0.2300	0.06039	-0.87385	0.35477	35.890	
11	0.2600	0.06724	-0.79100	0.29666	34.179	
12	0.2900	0.07393	-0.70814	0.24221	32.440	
13	0.3200	0.08036	0.62528	0.19128	30.705	
14	0.3500	0.08644	0.54243	0.14375	28.980	
15	0.3800	0.09208	0.45957	0.09946	27.270	
16	0.4100	0.09717	0.37671	0.05828	25.580	
17	0.4400	0.10162	0.29386	0.02009	23.914	

PHASE 111 ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R 0 MU 0 EIA 0.

SECTION NO 10 SECTION KK RIM 4 (XXX)

MEAN LINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.10533	-0.21100	-0.01524	22.273
19	0.5100	0.10824	-0.12814	0.04782	20.660
20	0.5300	0.11030	-0.04528	-0.07776	19.081
21	0.5600	0.11149	0.03757	-0.10519	17.559
22	0.5900	0.11178	0.12043	-0.13024	16.090
23	0.6200	0.11118	0.20329	-0.15298	14.596
24	0.6500	0.10973	0.28614	0.17338	13.051
25	0.6800	0.10758	0.36900	-0.19133	11.760
26	0.7100	0.10494	0.45186	-0.20660	9.467
27	0.7400	0.10196	0.53471	0.21875	7.131
28	0.7700	0.09869	0.61757	-0.22707	4.179
29	0.8000	0.09501	0.70043	-0.23024	-0.021
30	0.8300	0.09065	0.78328	-0.22627	-5.836
31	0.8600	0.08515	0.86614	-0.21202	-14.022
32	0.8900	0.07799	0.94900	-0.18379	-23.566
33	0.9200	0.06906	1.03185	-0.13899	-33.094
34	0.9500	0.05878	1.11471	-0.07200	-44.856
35	0.9700	0.05009	1.18376	0.00996	-53.785
36	1.0000	0.04163	1.25280	0.11070	-56.409

CHORD 2 8.738 STAGGER 16.044 CAMBER 100.350

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPSILON	UPPER ALPHA	LOWER ALPHA	UPSILON
1	0.00837	-1.50909	0.90496	0.90496	-1.50409	0.90496
2	0.00837	-1.51270	0.89533	0.89533	-1.49978	0.90898
3	0.00837	-1.50943	0.88726	0.88726	-1.49145	0.90607
4	0.01384	-1.45369	0.82476	0.82476	-1.42639	0.85369
5	0.01934	-1.38996	0.75407	0.75407	-1.35203	0.79469
6	0.02489	-1.32614	0.68406	0.68406	-1.27776	0.73676
7	0.03050	-1.26216	0.61509	0.61509	-1.20364	0.68035
8	0.03616	-1.19797	0.54749	0.54749	-1.12974	0.62589
9	0.04189	-1.13349	0.48154	0.48154	-1.05612	0.57376
10	0.04766	-1.06869	0.41755	0.41755	-0.98283	0.52424
11	0.05345	-1.00350	0.35567	0.35567	-0.90992	0.47748
12	0.06039	-0.92472	0.28447	0.28447	-0.82298	0.42507
13	0.06724	-0.84528	0.21572	0.21572	-0.73671	0.37660
14	0.07393	-0.76512	0.15255	0.15255	-0.65115	0.33186

PLATE III ROTOR

7PC

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. EIA O.

SECTION NO 10 SECTION KK RHO 4.0000

STAGE 3 ROTOR NK 20

PT	I/C	UPPER		LOWER		UPSILON
		ALPHA	UPSILON	ALPHA	UPSILON	
15	0 08036	-0.68424	0.09200	-0.56632	0.29057	0.29057
16	0 08644	-0.60261	0.03509	-0.48225	0.25241	0.25241
17	0 09208	-0.52019	0.01815	-0.39895	0.21707	0.21707
18	0 09717	-0.43700	0.06766	-0.31642	0.18422	0.18422
19	0 10162	-0.35305	-0.11339	-0.23467	0.15358	0.15358
20	0 10533	-0.26836	-0.15530	-0.15363	0.12482	0.12482
21	0 10824	-0.18301	0.19335	-0.07327	0.09771	0.09771
22	0 11030	0.09710	0.22755	0.00653	0.07203	0.07203
23	0 11149	0.01076	0.25792	0.08590	0.04755	0.04755
24	0 11178	0.07591	-0.28456	0.16494	0.02408	0.02408
25	0 11118	0.16303	0.30758	0.24354	0.00161	0.00161
26	0 10973	0.25054	-0.32699	0.32175	-0.01978	-0.01978
27	0 10758	0.33855	-0.34288	0.39945	-0.03978	-0.03978
28	0 10494	0.42705	-0.35533	0.47666	-0.05786	-0.05786
29	0 10196	0.51652	-0.36413	0.55290	-0.07337	-0.07337
30	0 09869	0.60723	-0.36850	0.62790	-0.08564	-0.08564
31	0 09501	0.70048	-0.36676	0.70038	-0.09372	-0.09372
32	0 09065	0.79653	-0.35585	0.77004	-0.09669	-0.09669
33	0 08515	0.89579	-0.33072	0.83649	-0.09331	-0.09331
34	0 07799	0.99380	0.28650	0.90419	-0.08107	-0.08107
35	0 06906	1.08604	-0.22713	0.97767	-0.05586	-0.05586
36	0 05878	1.17428	-0.13187	1.05514	-0.01213	-0.01213
37	0 05009	1.24183	-0.03257	1.12569	0.05248	0.05248
38	0 04163	1.27402	0.02398	1.16781	0.10118	0.10118
39	0 04163	1.28179	0.06240	1.20866	0.12152	0.12152
40	0 04163	1.25280	0.11070	1.25280	0.11070	0.11070
CENTER AT ALPHA -1.49967 UPSILON 0.89593						
IF RAD 0 06620 CENTER AT ALPHA 1.21593 UPSILON 0.05572						

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PLATE III ROTOR

STAGE 3 ROTOR
 COMPT SYSTEM ORIGIN Z -7 04880 P 0 MU 0. FIA 0
 SECTION NO 10 SECTION KK PIN 4 XXXX
 CHORD STAGGER CAMTER
 2 8/38 16.044 100.150
 AREA 0 690003 SURFACE ARC LENGTH 6 56279
 SECTION C.G. ALPHA UPSILON
 0.01407 0.01066
 SURFACE SECTION C.G. 0 02644 -0.01869
 PLATE AXIS -0.02644 0.01869
 PLACING AXIS (RADIAL) -0.00210 0.

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.0480 R 0 MJ 0 FTA 0
 SECTION NO 11 SECTION LI RND 3.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.48469	41.825	0.02987	0.78336
2	1.40871	41.056	0.05116	0.71579
3	1.25816	39.143	0.09492	0.58764
4	1.10917	36.700	0.13849	0.47057
5	0.96156	33.924	0.17967	0.36579
6	0.80088	30.818	0.22031	0.26422
7	0.62764	27.458	0.25759	0.16807
8	0.45653	24.094	0.28678	0.08592
9	0.28763	20.826	0.30795	0.01670
10	0.12146	17.909	0.32197	-0.04108
11	0.04167	15.329	0.33055	-0.08922
12	0.20104	12.617	0.33634	-0.12866
13	0.35597	8.898	0.33914	-0.15804
14	0.50556	2.492	0.33719	-0.17276
15	0.64884	-9.251	0.32794	-0.16303
16	0.73400	-26.414	0.30457	-0.11434
17	0.91046	-44.165	0.26127	-0.01241
18	1.02766	-58.058	0.20737	0.15672
19	1.11752	-66.214	0.16776	0.35993

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.01133	1.48469	0.78336	41.825
2	0.0250	0.01823	-1.41964	0.72542	41.459
3	0.0500	0.02530	-1.35458	0.66870	40.693
4	0.0750	0.03250	-1.28953	0.61359	39.825
5	0.1000	0.03977	-1.22447	0.56025	38.852
6	0.1250	0.04700	-1.15941	0.50884	37.755
7	0.1500	0.05414	-1.09436	0.45955	36.527
8	0.1750	0.06112	-1.02930	0.41247	35.244
9	0.2000	0.06788	-0.96425	0.36760	33.943
10	0.2300	0.07562	-0.88618	0.31659	32.382
11	0.2600	0.08291	-0.80812	0.26853	30.850
12	0.2900	0.08968	-0.73005	0.22329	29.333
13	0.3200	0.09589	0.65198	0.18077	27.806
14	0.3500	0.10150	-0.57392	0.14093	26.269
15	0.3800	0.10650	0.49585	0.10370	24.719
16	0.4100	0.11087	0.41778	0.06903	23.166
17	0.4400	0.11463	0.33972	0.03685	21.647

PHASE III ROTOR

COORD SYSTEM ORIGIN 7 -7 04880 R O. MU O FIA O

SECTION NO 11 SECTION 11 RMO 3 5000

MEAN INF COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AT	I/C	ALPHA	UPSILON	ZETA
18	0 4700	0 11780	0 26165	0 00703	20 177
19	0 5000	0 12041	0 18358	-0 02058	18 785
20	0 5300	0 12251	-0 10552	0 04614	17 482
21	0 5600	0 12417	0 02745	-0 06979	16 242
22	0 5900	0 12552	0 05061	-0 09165	15 051
23	0 6200	0 12669	0 12868	0 11175	13 792
24	0 6500	0 12764	0 20675	0 12992	12 386
25	0 6800	0 12833	0 28481	-0 14588	10 654
26	0 7100	0 12865	0 36288	-0 15908	8 449
27	0 7400	0 12848	0 44095	-0 16865	5 325
28	0 7700	0 12772	0 51901	-0 17308	0 938
29	0 8000	0 12614	0 59708	-0 17030	-5 382
30	0 8300	0 12322	0 67515	-0 15731	-13 856
31	0 8600	0 11825	0 75321	-0 13011	-24 767
32	0 8900	0 11034	0 83128	-0 08357	-36 479
33	0 9200	0 09928	0 90934	-0 01360	-46 668
34	0 9500	0 08580	0 98741	0 08652	-57 325
35	0 9750	0 07440	1 05247	0 20789	-65 262
36	1 0000	0 06363	1 11752	0 35993	-67 552

CHORD 2 6364 STAGGER 9 242 CAMBER 109 377

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	I/C	ALPHA	UPSILON	LOWER ALPHA	UPSILON
1	0 01133	-1 48469	0 78336	-1 48469	0 78336
2	0 01133	-1 48986	0 77113	-1 47326	0 78884
3	0 01133	-1 48462	0 76118	-1 46265	0 78571
4	0 01823	1 43555	0 70741	-1 40372	0 74344
5	0 02530	1 37632	0 64341	-1 33284	0 69398
6	0 03250	-1 31697	0 58068	-1 26208	0 64649
7	0 03977	-1 25735	0 51942	-1 19159	0 60107
8	0 04700	-1 19735	0 45985	-1 12148	0 55783
9	0 05414	-1 13684	0 40219	-1 05188	0 51690
10	0 06112	-1 07580	0 34657	-0 98281	0 47827
11	0 06788	-0 01421	0 29337	-0 91429	0 44183
12	0 07462	-0 93957	0 23240	-0 84279	0 40077
13	0 08291	-0 86416	0 17470	-0 75207	0 36237
14	0 08968	0 78796	0 12023	0 67213	0 32635

PHASE III ROTOR

•7PC•

COORD SYSTEM ORIGIN Z -7.04830 R O.									
SECTION NO 11 SECTION 1L									
SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS									
PT	I/C	UPPER		LOWER		UPPER		LOWER	
		ALPHA	UPSILON	ALPHA	UPSILON	ALPHA	UPSILON	ALPHA	UPSILON
15	0 09589	-0.71095	0.06897	-0.59302	0.29258	-0.59302	0.29258	-0.59302	0.29258
16	0 10150	-0.63313	0.02095	-0.51470	0.26091	-0.51470	0.26091	-0.51470	0.26091
17	0 10650	-0.55456	0.02382	-0.43714	0.23122	-0.43714	0.23122	-0.43714	0.23122
18	0 11087	-0.47528	-0.06533	-0.36029	0.20340	-0.36029	0.20340	-0.36029	0.20340
19	0 11463	-0.39546	-0.10359	-0.28398	0.17730	-0.28398	0.17730	-0.28398	0.17730
20	0 11780	-0.31521	-0.13872	-0.20809	0.15278	-0.20809	0.15278	-0.20809	0.15278
21	0 12041	-0.23470	-0.17085	-0.13247	0.12969	-0.13247	0.12969	-0.13247	0.12969
22	0 12251	-0.15403	-0.20017	-0.05700	0.10790	-0.05700	0.10790	-0.05700	0.10790
23	0 12417	-0.07323	0.22694	0.01833	0.08736	0.01833	0.08736	0.01833	0.08736
24	0 12552	0.00765	-0.25144	0.09358	0.06814	0.09358	0.06814	0.09358	0.06814
25	0 12669	0.08887	-0.27393	0.16849	0.05044	0.16849	0.05044	0.16849	0.05044
26	0 12764	0.17066	-0.29425	0.24284	0.03442	0.24284	0.03442	0.24284	0.03442
27	0 12833	0.25354	-0.31213	0.31609	0.02036	0.31609	0.02036	0.31609	0.02036
28	0 12865	0.33796	-0.32682	0.38780	0.00867	0.38780	0.00867	0.38780	0.00867
29	0 12848	0.42523	-0.33728	0.45666	-0.00002	0.45666	-0.00002	0.45666	-0.00002
30	0 12772	0.51626	-0.34141	0.52177	-0.00474	0.52177	-0.00474	0.52177	-0.00474
31	0 12614	0.61268	-0.33584	0.58148	-0.00476	0.58148	-0.00476	0.58148	-0.00476
32	0 12322	0.71404	-0.31501	0.63625	0.00040	0.63625	0.00040	0.63625	0.00040
33	0 11825	0.81852	-0.27166	0.68791	0.01143	0.68791	0.01143	0.68791	0.01143
34	0 11034	0.91775	0.20053	0.74480	0.03338	0.74480	0.03338	0.74480	0.03338
35	0 09928	1.00454	-0.10340	0.81415	0.07621	0.81415	0.07621	0.81415	0.07621
36	0 08580	1.08261	0.02546	0.89221	0.14758	0.89221	0.14758	0.89221	0.14758
37	0 07440	1.14154	0.16685	0.96339	0.24893	0.96339	0.24893	0.96339	0.24893
38	0 06363	1.16898	0.24711	1.00345	0.32232	1.00345	0.32232	1.00345	0.32232
39	0 05363	1.16935	0.30300	1.05281	0.36227	1.05281	0.36227	1.05281	0.36227
40	0 06363	1.11752	0.35993	1.11752	0.35993	1.11752	0.35993	1.11752	0.35993
LF RAD	0 01655	CENTER AT ALPHA		-1.47236	UPSILON	UPSILON		0.77231	
IF RAD	0 09146	CENTER AT ALPHA		1.08208	UPSILON	UPSILON		0.27562	

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PHASE III ROTOR

COORD SYSTEM ORIGIN	7	7 0480	R 0	NR	0	FTA	0
SECTION NO	11	SECTION 11		RHO	3.5000		
CHORD	2 6364	STAGGER	9.242	CAMBER	109.377		
AREA	0 756786	SURFACE ARC LENGTH		6.39540			
SECTION C.G.		ALPHA	UPSILON				
STREAMSURFACE SECTION C.G.		0.02810	0.04281				
PIADT AXIS		-0.00222	-0.00722				
STACKING AXIS (RADIAL)		-0.00222	0.00722				
		-0.00210	0.				

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R 0. MU 0 FIA 0
 SECTION NO 12 SECTION MM RIM 3 0000

MEANLINE INPUT DATA

PT	ALPHA	ZETA	THICKNESS	UPSILON
1	1.46988	38.315	0.04052	0.68852
2	1.39601	37.331	0.06329	0.63176
3	1.24977	35.338	0.10706	0.52561
4	-1.10532	33.313	0.14741	0.42853
5	-0.96254	31.238	0.18362	0.33970
6	0.80728	28.752	0.21844	0.25107
7	0.64008	25.568	0.25072	0.16584
8	-0.47513	22.079	0.27763	0.09339
9	0.31283	18.779	0.30004	0.03336
10	-0.15351	16.208	0.31908	-0.01642
11	0.00208	14.074	0.33633	-0.05836
12	0.15324	11.543	0.35572	0.09265
13	0.29881	7.390	0.37441	0.11645
14	0.43810	-0.971	0.38608	-0.12247
15	0.57006	-16.643	0.38670	-0.09622
16	0.69226	-36.484	0.36656	-0.01917
17	0.80458	-53.316	0.31889	0.12393
18	0.90634	-64.882	0.25833	0.34811
19	0.98224	-71.305	0.21587	0.60917

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AI	T/C	ALPHA	UPSILON	ZETA
1	0	0.01651	-1.46988	0.68852	38.315
2	0.0250	0.02422	-1.40858	0.64123	37.089
3	0.0500	0.03184	1.34727	0.59554	36.309
4	0.0750	0.03931	-1.28597	0.55116	35.475
5	0.1000	0.04659	-1.22467	0.50819	34.577
6	0.1250	0.05364	-1.16336	0.46664	33.689
7	0.1500	0.06044	-1.10206	0.42643	32.834
8	0.1750	0.06695	-1.04076	0.38751	31.985
9	0.2000	0.07318	-0.97946	0.34986	31.122
10	0.2100	0.08025	0.90589	0.30637	30.050
11	0.2600	0.08688	0.83233	0.26478	28.899
12	0.2900	0.09307	0.75877	0.22519	27.659
13	0.3200	0.09885	-0.68520	0.18772	26.304
14	0.3500	0.10422	-0.61164	0.15251	24.833
15	0.3800	0.10920	0.53807	0.11964	23.305
16	0.4100	0.11380	-0.46451	0.08913	21.736
17	0.4400	0.11808	0.39095	0.06094	20.211

PIA'1 111 ROTOR

COORD SYSTEM ORIGIN 7 -7 04880 R O. MU O. EIA O.
 STAGE 3. ROTOR NR 20
 SECTION NO 12 SECTION MM RND 3.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PT	AL	I/C	ALPHA	UPSILON	7FIA*
18	0	4700	0	12206	0.31738	18.783
19	0	5000	0	12579	-0.24382	17.488
20	0	5300	0	12929	-0.17026	16.368
21	0	5600	0	13259	0.09669	15.370
22	0	5900	0	13590	-0.02313	14.363
23	0	6200	0	13949	0.05043	13.288
24	0	6500	0	14339	0.12400	11.957
25	0	6800	0	14743	0.19756	10.261
26	0	7100	0	15129	0.27112	7.821
27	0	7400	0	15453	0.34469	4.328
28	0	7700	0	15689	0.41825	-1.169
29	0	8000	0	15819	0.49181	-9.118
30	0	8300	0	15773	0.56538	20.073
31	0	8600	0	15443	0.63894	-33.179
32	0	8900	0	14679	0.71251	46.310
33	0	9200	0	13396	0.78607	-56.587
34	0	9500	0	11682	0.85963	-65.634
35	0	9700	0	10184	0.92094	72.703
36	1	0000	0	08799	0.98224	-74.791

CHOPD 2 4534
 STAGGER 1.853
 CAMBER 113.106

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PT	I/C	ALPHA	UPSILON	UPPER	ALPHA	UPSILON	LOWER	ALPHA	UPSILON
1	0	01651	1.46988	0.68852	0.68852	-1.46988	0.68852	-1.46988	0.68852	0.68852
2	0	01651	1.47452	0.67134	0.67134	-1.45493	0.69710	-1.45493	0.69710	0.69710
3	0	01651	1.46798	0.65820	0.65820	-1.44011	0.69406	-1.44011	0.69406	0.69406
4	0	02422	-1.42650	0.61752	0.61752	-1.39056	0.66493	-1.39056	0.66493	0.66493
5	0	03184	-1.37040	0.56406	0.56406	-1.32414	0.62701	-1.32414	0.62701	0.62701
6	0	03931	-1.31396	0.51189	0.51189	-1.25798	0.59044	-1.25798	0.59044	0.59044
7	0	04659	-1.25710	0.46113	0.46113	-1.19223	0.55525	-1.19223	0.55525	0.55525
8	0	05364	1.19986	0.41189	0.41189	-1.12687	0.52139	-1.12687	0.52139	0.52139
9	0	06044	-1.14226	0.36414	0.36414	-1.06186	0.48873	-1.06186	0.48873	0.48873
10	0	06695	-1.08426	0.31785	0.31785	-0.99725	0.45717	-0.99725	0.45717	0.45717
11	0	07318	-1.02585	0.27301	0.27301	-0.93306	0.42671	-0.93306	0.42671	0.42671
12	0	08025	0.95519	0.22116	0.22116	-0.85660	0.39158	-0.85660	0.39158	0.39158
13	0	08688	0.88383	0.17148	0.17148	-0.78083	0.35808	-0.78083	0.35808	0.35808
14	0	09307	0.81177	0.12406	0.12406	-0.70577	0.32631	-0.70577	0.32631	0.32631

PHASE III ROTOR

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COORD SYSTEM ORIGIN Z -7.04880 R O. MU O. FIA O.

SECTION NO 12 SECTION MM RND 3.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	I/C	UPPER		LOWER	
		ALPHA	UPSILON	ALPHA	UPSILON
15	0 07885	-0.73894	0.07901	-0.63147	0.29642
16	0 10422	-0.66533	0.03648	-0.55795	0.26853
17	0 10920	-0.59107	0.00338	0.48508	0.24266
18	0 11380	-0.51621	-0.04055	-0.41281	0.21881
19	0 11808	-0.44099	0.07438	-0.34091	0.19687
20	0 12206	-0.36560	-0.10685	-0.26917	0.17666
21	0 12579	-0.29019	-0.13635	-0.19745	0.15801
22	0 12929	-0.21495	-0.16371	-0.12556	0.14064
23	0 13259	-0.13980	-0.18928	-0.05358	0.12438
24	0 13590	-0.06448	-0.21348	0.01822	0.10952
25	0 13949	0.01110	-0.23664	0.08976	0.09642
26	0 14339	0.08755	-0.25869	0.16044	0.08547
27	0 14743	0.16534	-0.27909	0.22978	0.07684
28	0 15129	0.24587	0.29679	0.29638	0.07095
29	0 15453	0.33038	-0.30996	0.35899	0.06809
30	0 15819	0.42218	-0.31561	0.41432	0.06924
31	0 15819	0.52257	0.30851	0.46106	0.07470
32	0 15773	0.63178	-0.27970	0.49897	0.08377
33	0 15443	0.74261	-0.21967	0.53527	0.09743
34	0 14679	0.84271	-0.12355	0.58230	0.12521
35	0 13396	0.92324	0.00420	0.64890	0.18518
36	0 11682	0.99017	0.16923	0.72909	0.28747
37	0 10184	1.04021	0.35608	0.80166	0.43037
38	0 08799	1.06507	0.47434	0.84351	0.54098
39	0 08799	1.05637	0.54648	0.89843	0.60076
40	0 08799	0.98224	0.60917	0.98224	0.60917
IF RAD 0 02288 CENTER AT ALPHA -1.45186 UPSILON 0.67443					
TF RAD 0 11619 CENTER AT ALPHA 0.95114 UPSILON 0.49721					

PHASE III ROTOR

COORD SYSTEM ORIGIN	7	-7.04880	R	O.	MJ	0	ETA	0
STAGE	3.	ROTOR					NB	20
SECTION NO	12	SECTION MM					RND	3.0000
GROUP	2	STAGGER					CAMBER	
	4574	1 853					113.106	
APIA	0 811752	SURFACE ARC LENGTH					6.34665	
SECTION C. G.		ALPHA					Upsilon	
SURFACE		0.06690					0.09445	
SECTION C. G.		0.04555					-0.00062	
BLADE AXIS		0.04555					-0.00062	
STACKING AXIS (RADIAL)		-0.00210					0	

PHASE III ROTOR

•7PC•

COORD SYSTEM ORIGIN Z -7.04880 R O. MU O FIA O.
 STAGE 3 ROTOR NR 20
 SECTION NO 13 SECTION NW RND 2 5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.45592	33.474	0.05425	0.61515
2	1.38439	32.690	0.07465	0.56921
3	1.24263	31.311	0.11306	0.48203
4	1.10273	30.107	0.14808	0.39988
5	0.96463	28.859	0.17953	0.32208
6	0.81455	26.924	0.21045	0.24238
7	0.65305	23.770	0.24014	0.16557
8	0.49401	20.058	0.26676	0.10159
9	-0.33815	16.695	0.29162	0.05024
10	0.18558	14.479	0.31615	0.00826
11	0.03746	12.805	0.34211	-0.02749
12	0.10545	10.461	0.37510	-0.05664
13	0.24165	5.873	0.40967	-0.07486
14	0.37064	-4.427	0.43497	0.07218
15	0.49128	23.508	0.44546	-0.02941
16	0.60052	-44.490	0.42855	0.07601
17	0.69870	-59.732	0.37651	0.26027
18	0.78502	-69.451	0.30928	0.53949
19	0.84695	-74.644	0.26399	0.85840

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PC1 AI	T/C	ALPHA	UPSILON	ZETA*
1	0.	0.02343	-1.45592	0.61515	32.866
2	0.0250	0.03053	-1.39835	0.57810	32.560
3	0.0500	0.03748	-1.34078	0.54184	31.852
4	0.0750	0.04421	-1.28321	0.50650	31.259
5	0.1000	0.05073	-1.22564	0.47188	30.804
6	0.1250	0.05704	-1.16806	0.43783	30.389
7	0.1500	0.06314	-1.11049	0.40435	29.979
8	0.1750	0.06901	1.05292	0.37142	29.556
9	0.2000	0.07466	-0.99535	0.33907	29.089
10	0.2300	0.08112	-0.92626	0.30112	28.442
11	0.2600	0.08725	-0.85718	0.26434	27.578
12	0.2900	0.09308	0.78809	0.22907	26.476
13	0.3200	0.09863	0.71900	0.19561	25.179
14	0.3500	0.10394	0.64992	0.16419	23.692
15	0.3800	0.10903	-0.58083	0.13501	22.087
16	0.4100	0.11396	0.51174	0.10813	20.434
17	0.4400	0.11876	-0.44266	0.08352	18.788

PHASE III ROTOR

COORD SYSTEM ORIGIN 7 -7.04880 R O. NI O. EIA O.

SECTION NO 13 SECTION NW RND 2.5000

MEAN LINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AT	T/C	ALPHA	UPSILON	ZETA
18	0 4700	0 12350	0 37357	0 06103	17.302
19	0 5000	0 12825	0 30448	0 04039	16 003
20	0 5300	0 13305	0 23540	0 02129	14.959
21	0 5600	0 13788	0 16631	0 00335	14 177
22	0 5900	0 14290	0 09723	0 01362	13.417
23	0 6200	0 14855	0 02814	-0 02958	12.584
24	0 6500	0 15514	0 04095	-0 04434	11 470
25	0 6800	0 16249	0 11003	-0 05745	9.940
26	0 7100	0 17021	0 17912	0 06821	7.572
27	0 7400	0 17757	0 24821	-0 07535	4.013
28	0 7700	0 18386	0 31729	-0 07694	-1.905
29	0 8000	0 18885	0 38638	-0 06948	-10.905
30	0 8300	0 19196	0 45547	-0 04818	-23.820
31	0 8600	0 19173	0 52455	0 00600	38.753
32	0 8900	0 18603	0 59364	0 06665	53.051
33	0 9200	0 17262	0 66272	0 18117	-63.482
34	0 9500	0 15181	0 73181	0 33760	-71.139
35	0 9750	0 13211	0 78938	0 55911	77.649
36	1 0000	0 11400	0 84695	0 85840	-79.722

CHORD 2 3157 STAGGER -6.030 CAMBER 112.588

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0 02343	-1.45592	0 61515	-1 45592	0 61515
2	0 02343	-1.46010	0 59187	-1 43685	0 62840
3	0 02343	-1.44977	0 57498	-1 41686	0 62604
4	0 03053	-1.41738	0 54831	-1 37933	0 60790
5	0 03748	-1.36368	0 50498	-1 31788	0 57870
6	0 04421	1 30977	0 46275	-1 25665	0 55025
7	0 05073	-1.25571	0 42143	-1 19556	0 52232
8	0 05704	-1.20147	0 38086	-1 13465	0 47481
9	0 06314	1 14702	0 34102	-1 07396	0 46767
10	0 06901	-1 09234	0 30191	-1 01350	0 44092
11	0 07466	1 03737	0 26354	-0 95332	0 41461
12	0 08112	-0 97093	0 21854	-0 88153	0 38371
13	0 08725	-0 90394	0 17480	-0 81041	0 35388
14	0 09308	-0 83614	0 13260	-0 74004	0 32554

PHASE III ROTOR

COORD SYSTEM ORIGIN 2 -7.04880 R 0.0 MJ 0.0 ETA 0.0

SECTION NO 13 SECTION NW RIW 2.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PI	I/C	UPPER		LOWER	
		ALPHA	UPSILON	ALPHA	UPSILON
15	0.00863	-0.76759	0.09226	0.67042	0.29896
16	0.10394	0.69827	0.05399	0.60156	0.27439
17	0.10903	0.62830	0.01804	-0.53336	0.25199
18	0.11306	-0.55781	-0.01552	-0.46568	0.23177
19	0.11876	-0.48694	0.04665	-0.39837	0.21370
20	0.12350	-0.41610	-0.07549	-0.33104	0.19756
21	0.12825	0.34542	-0.10235	-0.26355	0.18314
22	0.13305	-0.27516	-0.12754	-0.19563	0.17011
23	0.13788	-0.20541	-0.15142	0.12721	0.15813
24	0.14290	-0.13562	-0.17456	-0.05884	0.14732
25	0.14855	-0.06561	-0.19745	0.00933	0.13829
26	0.15514	0.00523	-0.22038	0.07667	0.13170
27	0.16249	0.07756	-0.24276	0.14251	0.12786
28	0.17021	0.15315	-0.26357	0.20509	0.12715
29	0.17757	0.23382	-0.28044	0.26259	0.12975
30	0.18386	0.32437	-0.28970	0.31022	0.13583
31	0.18885	0.42774	-0.28419	0.34501	0.14522
32	0.19196	0.54523	-0.25151	0.36570	0.15515
33	0.19173	0.66351	0.17912	0.38559	0.16713
34	0.18603	0.76578	-0.06283	0.42150	0.19613
35	0.17562	0.84157	0.09193	0.48388	0.27041
36	0.15181	0.89815	0.29077	0.56548	0.40442
37	0.12111	0.93881	0.52639	0.63996	0.59183
38	0.11400	0.96084	0.70379	0.68654	0.75972
39	0.11400	0.94262	0.79117	0.74555	0.83855
40	0.11400	0.84695	0.85840	0.84695	0.85840
LF RAD 0.03059 CENTER AT ALPHA -1.43024 UPSILON 0.59853					
TF RAD 0.14045 CENTER AT ALPHA 0.82135 UPSILON 0.72030					

780.

PHASE III ROTOR

COORD SYSTEM ORIGIN Z -7.04880 R O. MJ O. MS 20 ETA O.

SECTION NO 13 SECTION NW RHO 2.5000

CHORD 2.3157 STAGGER -6.030 CAMBER 112.588

AREA 0.881509 SURFACE ARC LENGTH 6.38549

SECTION C G.	ALPHA	UPSILON
SURFACE SECTION C G	0.10295	0.16952
BLADE AXIS	0.09331	0.00598
STACKING AXIS (RADIAL)	0.09331	0.44508
	-0.00210	0.

PLATE III ROTOR

•/PC•

STC	NO	RHO	STAGE	3.	ROTOR	NR	20	7FIA1	ZEIA2
AA	1	8 50000	4.0639	61.49	-3.48	0.02378	57.43	60.91	
BB	2	8 00000	4.0029	56.60	1.74	0.02559	55.37	53.63	
CC	3	7 50000	3.9854	52.29	6.24	0.03037	53.72	47.48	
DD	4	7 00000	3.9558	48.24	11.44	0.03896	52.30	40.86	
EE	5	6 50000	3.8854	43.95	18.51	0.05082	51.27	32.77	
FF	6	6 00000	3.7695	38.82	28.85	0.06231	50.41	21.56	
GG	7	5 50000	3.6694	33.21	45.13	0.07205	49.29	4.17	
HH	8	5 00000	3.4555	27.03	65.20	0.08347	47.51	-17.69	
IJ	9	4 50000	3.1627	21.91	87.38	0.09603	45.51	41.87	
KK	10	4 00000	2.8738	16.04	100.35	0.11178	43.94	56.41	
LL	11	3 50000	2.6364	9.24	109.38	0.12865	41.82	67.55	
MM	12	3 00000	2.4534	1.85	113.11	0.15819	38.32	-74.79	
NN	13	2 50000	2.3157	-6.03	112.59	0.19196	32.87	-74.72	

THE COORDINATES FOR THIS BLADE WERE PUT ON TAPE
IN THE SAME ORDER AS PRINTED ABOVE

SECTION XV

REFERENCES

1. A.J. Wennerstrom, and W.A. Buzzell, Redesign of a Rotor for a 1500 ft/sec Transonic, High-Through-Flow, Single-Stage Axial-Flow Compressor with Low Hub/Tip Ratio, Air Force Aero Propulsion Laboratory, Wright-Patterson AFB, Ohio 45433, AFAPL-TR-2078, September 1979.
2. George R. Frost, Richard M. Hearsey, Arthur J. Wennerstrom, A Computer Program for the Specification of Axial Compressor Airfoils, Aerospace Research Laboratories, Wright-Patterson Air Force Base, Ohio 45433, ARL 72-0171,
3. Richard M. Hearsey, A Revised Computer Program for Axial Compressor Design Volume I, Aerospace Research Laboratories, Wright-Patterson Air Force Base, Ohio 45433, ARL TF 75-0001, January 1975.
4. Arthur J. Wennerstrom, Personal Communication to L.H. Smith of General Electric Company, September 12, 1980.