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AD B 0 6 9 4 0 3
**TRANSONIC FAN/COMPRESSOR
ROTOR DESIGN STUDY**

Volume III

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Cincinnati, Ohio 45215**

February 1982

Final Report for Period September 1980 - February 1982

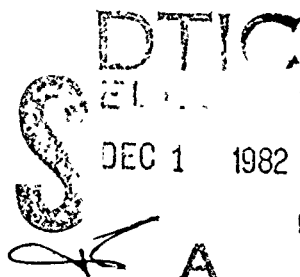
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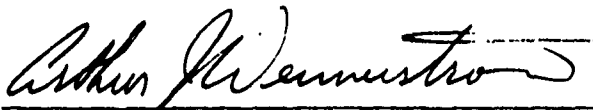


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This technical report has been reviewed and is approved for publication.



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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFWAL-TR-82-2017	2. GOVT ACCESSION NO. AD-B069403L	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Transonic Fan/Compressor Rotor Design Study Volume III		5. TYPE OF REPORT & PERIOD COVERED Final Technical Report September 1980 - July 1982
		6. PERFORMING ORG. REPORT NUMBER R82AEB328, Volume III
7. AUTHOR(s) D.E. Parker M.R. Simonson		8. CONTRACT OR GRANT NUMBER(s) F33615-80-C-2059
9. PERFORMING ORGANIZATION NAME AND ADDRESS General Electric Company Aircraft Engine Business Group Cincinnati, Ohio 45215		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Project 2307 Task S1 Work Unit 38
11. CONTROLLING OFFICE NAME AND ADDRESS Aero Propulsion Laboratory (AFWAL/POTX) Air Force Wright Aeronautical Laboratories Air Force System Command Wright-Patterson Air Force Base, Ohio 45433		12. REPORT DATE September 1982
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES 116
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Distribution limited to U.S. Government agencies only: Test and Evaluation, September 1982 Other requests for this document must be referred to Air Force Aero Propulsion Laboratory (AFWAL/POTX), Wright-Patterson AFB, OH 45433.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Fan Aircraft Engines Compressor Blade Thickness Rotor Camber Distribution Aerodesign Throat Margin Aerodynamics		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Volumes I through VI of this report describes the aerodynamic design of a series of five transonic rotors all parametrically related to a base- line design documented in Technical Report AFAPL-TR-79-2078. Each of the five designs deviate from the base line, in so far as practical, by a variation of one parameter only. The parametric variations are specified at the rotor tip. The original hub characteristics were preserved to the maximum extent practical. The varied parameter was adjusted along the span.		

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→ This volume describes the aerodynamic design details of the Phase II rotor. The Phase II rotor has the tip airfoil maximum thickness located at 55% of meanline length as compared with 70% for the baseline rotor. The location of maximum thickness varied linearly with stream function to 56% of meanline length at the hub, which is the same as the baseline rotor. ←

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VOLUME III

PHASE II 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 III

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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 X

DESIGN OF PHASE II ROTOR

1. INTRODUCTION

The specification of the chord-wise location of airfoil maximum thickness of transonic/compressor rotors has often been defined more on the basis of historical practice than on a knowledge of its aerodynamic effect. Research by NACA in the 1950's generally indicated that as relative inlet Mach numbers rose, it was desirable to move the location of maximum thickness aft on an airfoil.

The early work, however, was done with airfoils having significant positive camber. Today, many airfoils have little overall relative turning in the tip region, and frequently have S-shaped mean lines: negative camber followed by some positive camber. In some cases, a forward shift in maximum airfoil thickness may help achieve the desired airfoil suction surface shape, with a less S-shaped mean line. There is also incentive to move the maximum thickness forward to make the blade more capable of withstanding a bird strike without excessive damage.

To get more definitive aerodynamic data on the effect of the location of airfoil maximum thickness, the Phase I blade has been designed with the maximum thickness located at 40%; the Phase II blade with maximum thickness at 55%, to compare with the base line rotor which has its tip maximum thickness at 70% of mean line length.

2. DESIGN PROCEDURE

The "data match" circumferential average flow solution, which was previously described in Volume I, was used as a starting point for the design of the Phase II rotor. The annulus blockage used in the internal blade calculation stations was adjusted to be consistent with the forward shift of the airfoil maximum thickness. The assumed chord-wise distribution of work was iteratively adjusted to obtain a calculated chordwise distribution of static pressure similar to that of the data match calculations of the baseline rotor. Also the blade meanline departure angle (the difference between the air angle and the meanline angle) were adjusted to maintain the same throat area, and flow induction capacity as the baseline blade. To adjust for the increased blade blockage in the forward half of the blade, and to better match the data match status pressure distribution in the hub, the hub contour internally within the rotor was modified

slightly relative to the baseline rotor. The Phase II rotor hub is .012 inches lower in radius at the 60 percent chord location and is faired into the baseline contour near the edge locations.

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 for the next iteration.

The rotor exit radial distribution of total pressure and temperature was maintained the same as the data match of the baseline rotor.

The resulting streamline static pressure distribution for the Phase II blade is compared with the data match of the baseline rotor on Figure 32.

The assumed streamline work input (as a fraction of the total streamline work) is plotted versus percent axial projection in Figure 33. 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 dotted lines are lines of constant percent axial projection.

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 difference 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.

Somewhat larger incidence angles were used to help maintain the same flow induction capacity as the baseline rotor. Phase II blade incidence angles are shown on Figure 34.

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

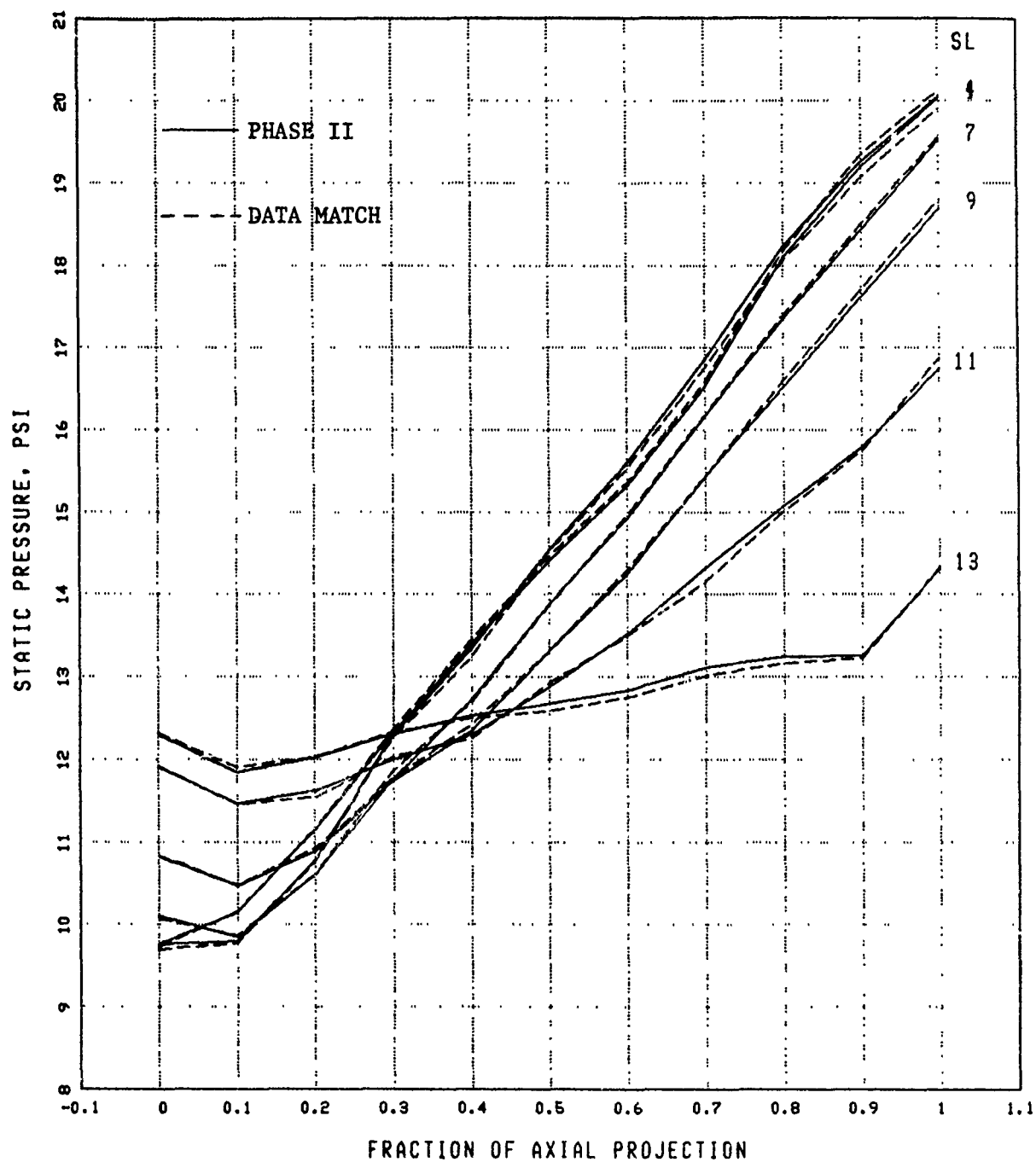


Figure 32 . Phase II Rotor Static Pressure Distribution

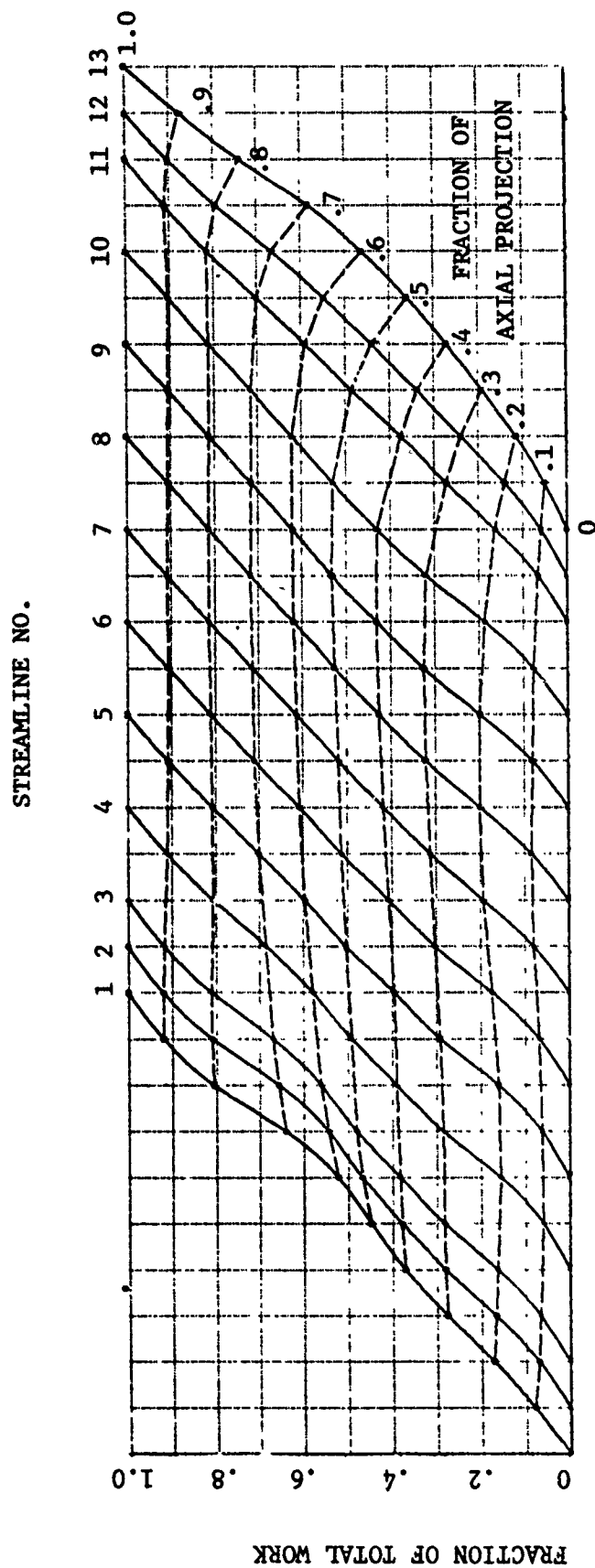


Figure 33. Phase II Rotor Intrablade Work Distribution

angle calculated from the modified Carter's Rule for the Phase II blade. Phase II Rotor deviation angles are shown on Figure 35. A plot of departure angles for each streamsurface section is shown in Figure 36. Once the intra-blade 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 II rotor is compared to that of the baseline rotor in Figure 37. The "deviation angle minus reference deviation angle" for the Phase II rotor was kept essentially the same as the data match analysis although there are some small differences. Figure 38 shows the "delta deviation" compared to the data match of the baseline design.

If the performance of a new rotor design is to be accurately evaluated by comparing overall stage performance with the baseline design then it is important that the stator have nearly the same entering conditions in both cases. Figure 39 shows a comparison of the Phase II stator incidence angles with the data match base. As can be seen the differences are small.

Figure 40 shows the radial distribution of Phase II rotor throat margin and compares it to the data match case. 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. As can be seen in Figure 40 the Phase II rotor throat margin is nearly identical to that of the data match of the baseline design.

Details of the Phase II rotor design are given in Section VIII.

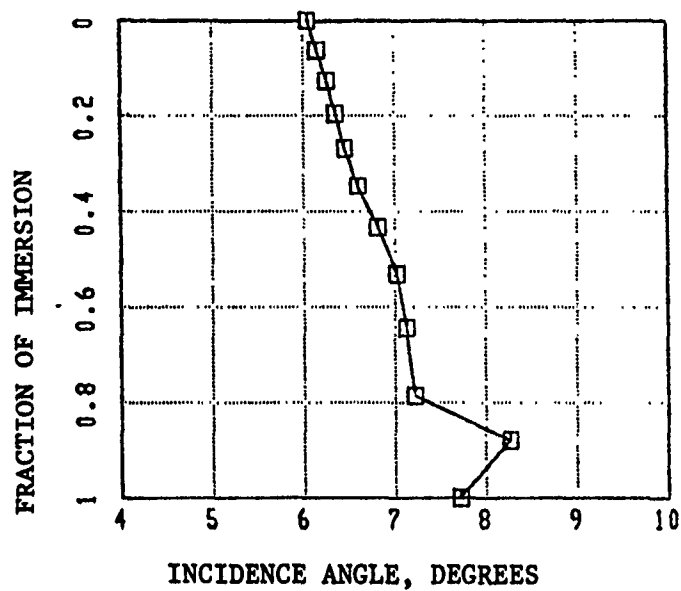


Figure 34. Phase II Rotor Incidence Angle Versus Fractional Immersion

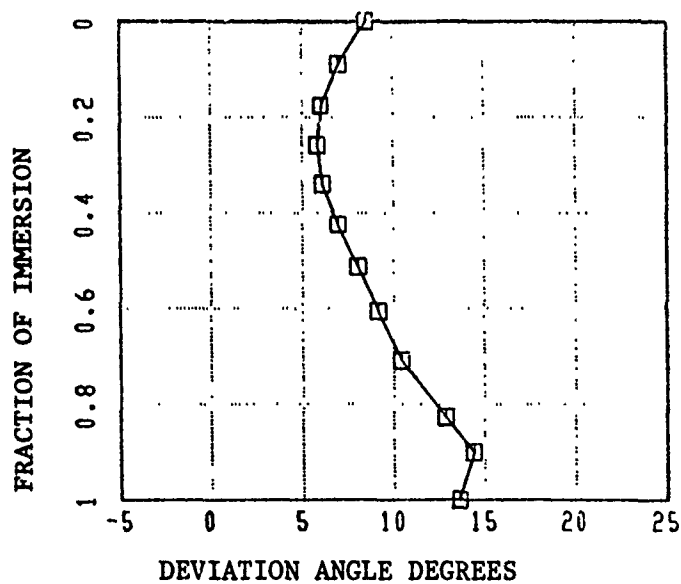
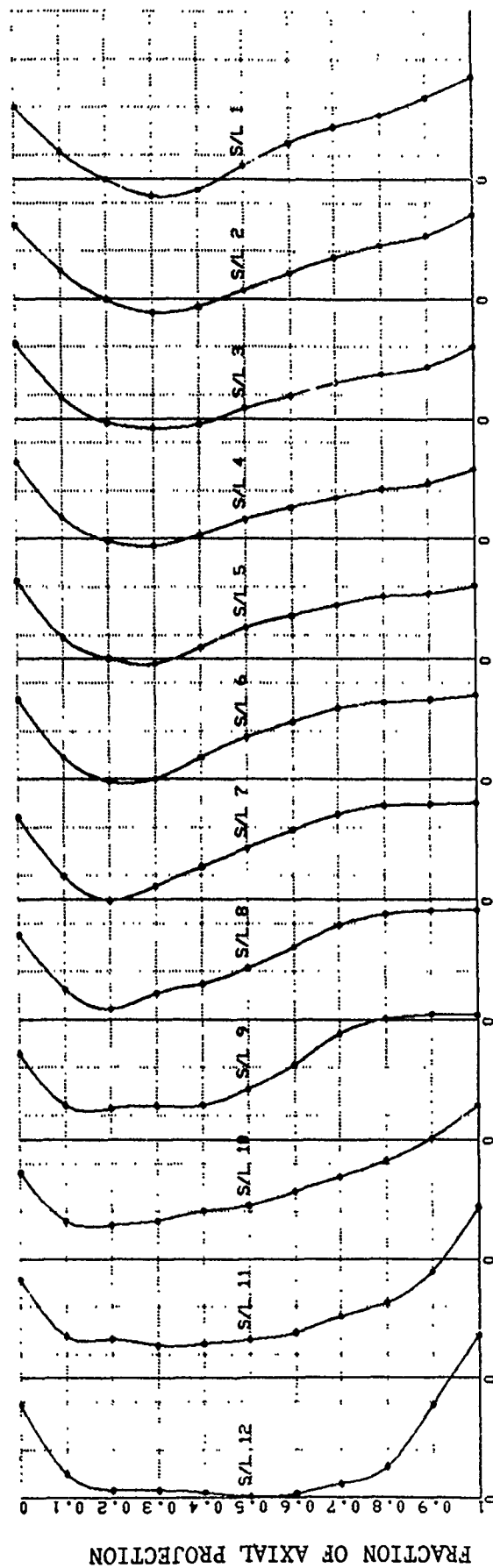


Figure 35. Phase II Rotor Deviation Angle Versus Fractional Immersion



DEPARTURE ANGLE, 1 DIVISION = 4 DEGREES

FIGURE 36. Phase II Rotor Intrablade Departure Angle Distribution

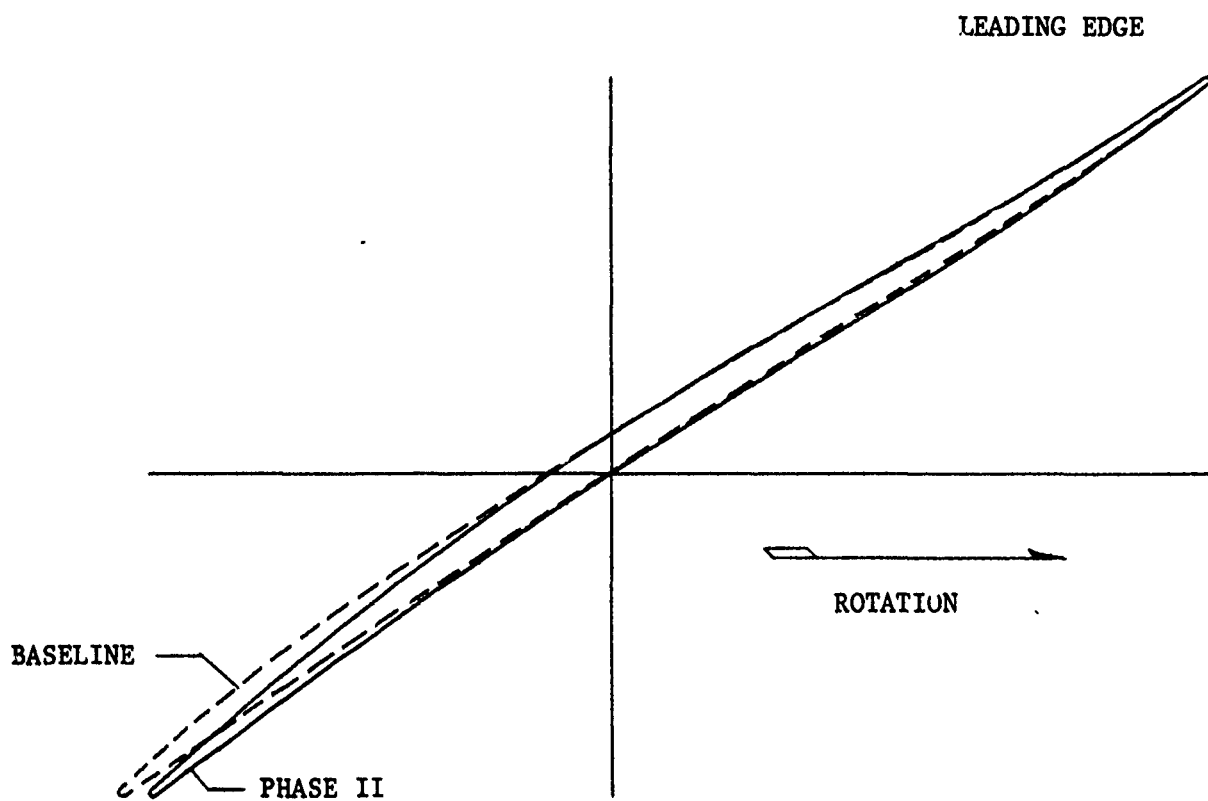


Figure 37. Phase II Rotor Streamsurface Tip Section Compared with Baseline Design

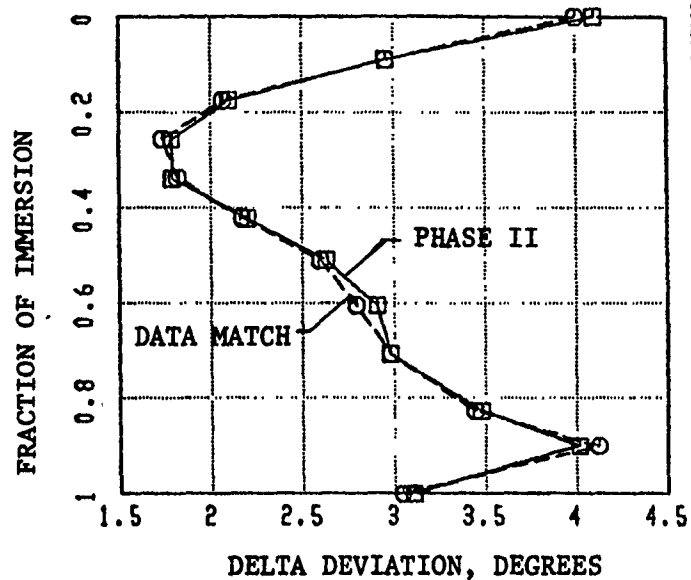


Figure 38. Phase II Rotor Deviation Angle Minus Reference Deviation Angle Compared With Data Match

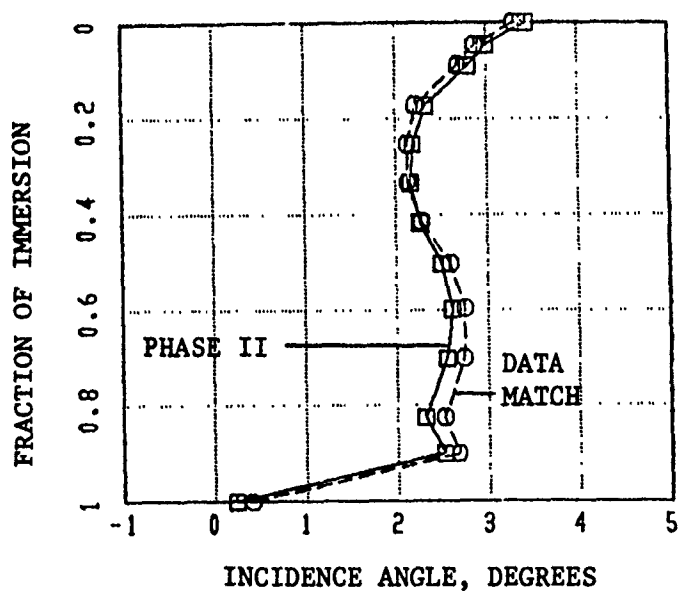


Figure 39. Phase II Stator Incidence Angle Compared With Data Match

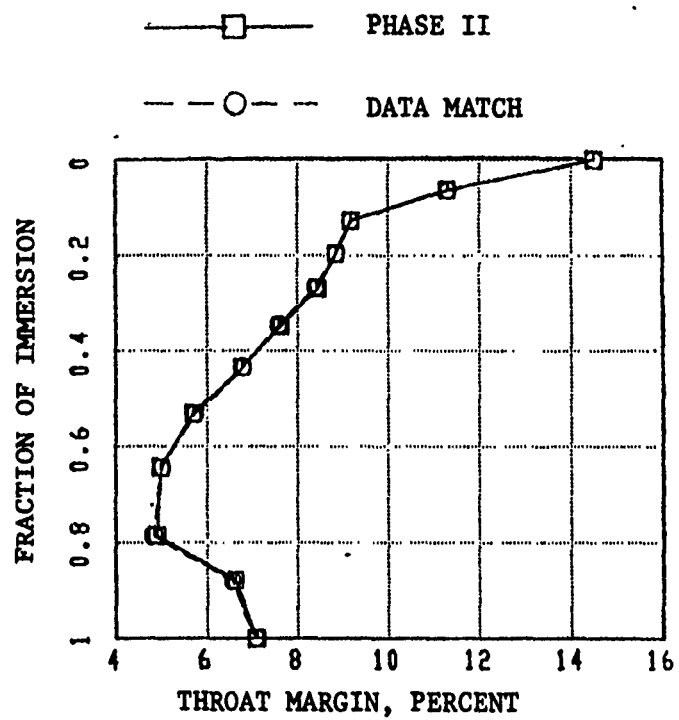


Figure 40. Phase II Rotor Throat Margin Compared With Data Match

SECTION XI
DETAILS OF PHASE II ROTOR DESIGN

1. CIRCUMFERENTIAL AVERAGE FLOW SOLUTION

The following tabulation presents the detail results of the Phase II Rotor circumferential average flow computation. Each page of the tabulation gives results for one calculation station. Figure 41 shows the calculation station locations within the 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. The Phase II rotor blade forces are included at the end of this tabulation.

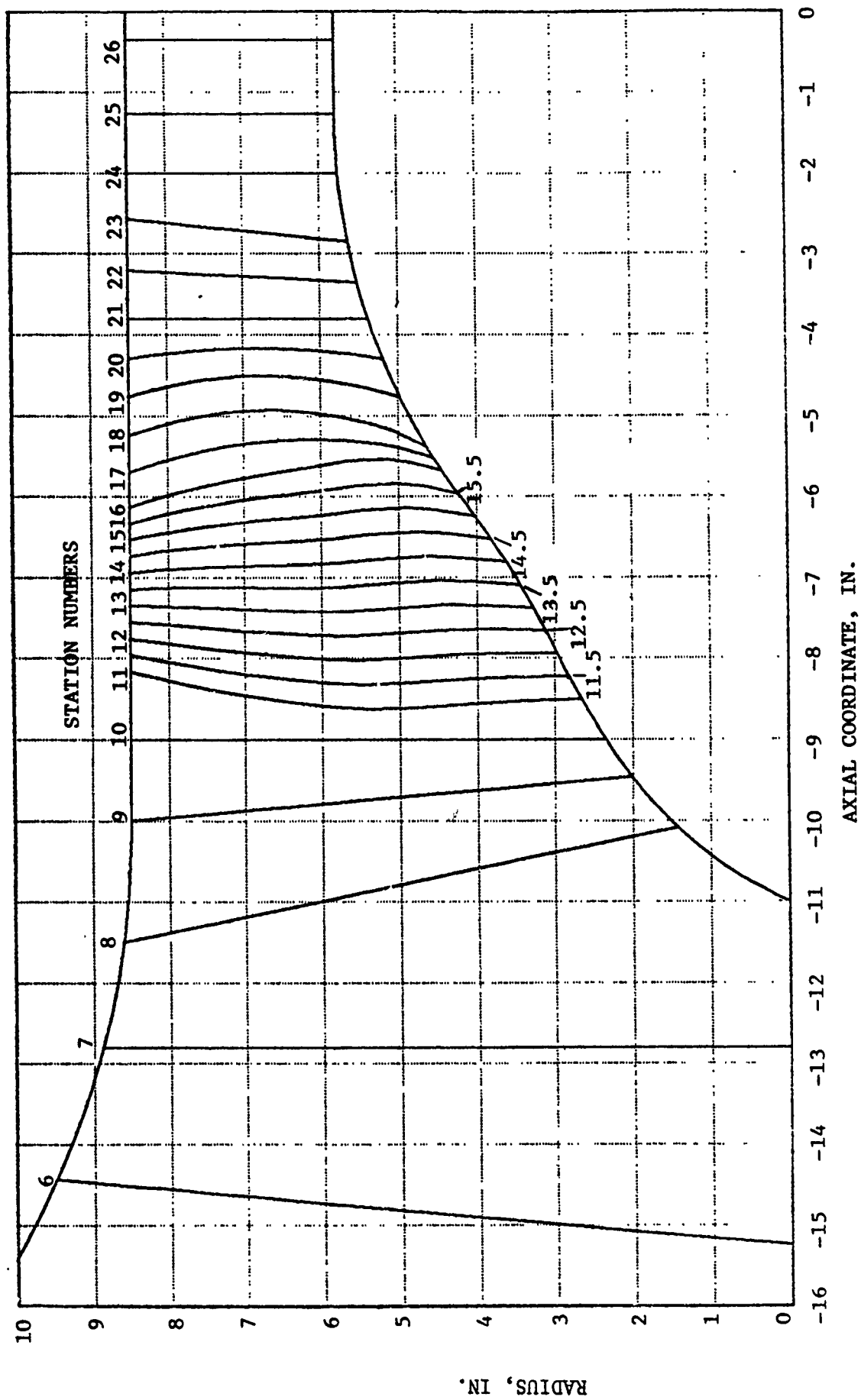


Figure 41. Compressor Flowpath With Calculation Stations

INLET STA= 5.000
 WTF= 61.365 I= 1 MTIP= 1 AFLOW= 478.12 D+C=O. D+H=O.
 PS1C Z OPTX=DPP OPTV=FREE I TYPE=O INBR=O ABC=O. ABH=O.
 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

13

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 MTIP= 14 AFLOW= 277.56 D=C=O. D*H=O.
 PSIC -14.431 9.481 -24.96 -0.0952 514.6 O. O. 0.471
 0.050 -14.450 9.254 -24.10 -0.1028 507.6 O. O. 0.464
 0.100 -14.470 9.020 -22.95 -0.0955 501.0 O. O. 0.458
 0.200 -14.513 8.532 -20.65 -0.0825 489.3 O. O. 0.447
 0.300 -14.558 8.010 -18.38 -0.0712 478.4 O. O. 0.436
 0.400 -14.606 7.446 -16.13 -0.0614 467.7 O. O. 0.426
 0.500 -14.660 6.829 -13.88 -0.0529 457.2 O. O. 0.416
 0.600 -14.719 6.141 -11.59 -0.0455 446.4 O. O. 0.406
 0.700 -14.787 5.351 -9.23 -0.0390 434.9 O. O. 0.395
 0.800 -14.869 4.402 -6.74 -0.0330 422.1 O. O. 0.383
 0.900 -14.978 3.142 -4.03 -0.0257 407.0 O. O. 0.369
 0.950 -15.057 2.234 -2.57 -0.0190 398.2 O. O. 0.361
 1.000 -15.250 0.000 O. O. 387.6 O. O. 0.351

FREE
 ABC=O. ABH=O.
 CU ALPHAM MM

SL BDBLK PS PT TT BETAM VREL MREL VABS MASS
 1 0.997 12.624 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 0.434
 3 0.997 12.726 14.696 518.7 72.53 1668.8 1.525 501.0 0.458
 4 0.997 12.812 14.696 518.7 72.00 1583.2 1.445 489.3 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 1394.7 1.271 467.7 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 61.48 884.1 0.803 422.1 0.383
 11 0.997 13.374 14.696 518.7 53.72 687.7 0.624 407.0 0.369
 12 0.997 13.428 14.696 518.7 44.72 560.3 0.508 398.2 0.361
 13 0.997 13.493 14.696 518.7 0.00 387.6 0.351 387.6 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= O. VM= 455.5 CZ= 438.5 MM=0.415 MABS=0.415 MREL=1.120

INLET STA= 7.000 FREE
 WTF= 61.365 I= 3 MTIP= 27 AFLOW= 244.35 D+C=O. D+H=O.
 PSIC Z OPTX=DPP PHI OPTY=FREE ITYPE=O INBR=O ABC=O. ABH=O.
 0. -12.800 8.880 -15.47 -0.0952 625.1 0. 0. 0. 0.578
 0.050 -12.800 8.675 -14.65 -0.0872 617.7 0. 0. 0. 0.571
 0.100 -12.800 8.464 -13.90 -0.0849 610.3 0. 0. 0. 0.563
 0.200 -12.800 8.021 -12.40 -0.0794 595.0 0. 0. 0. 0.549
 0.300 -12.800 7.546 -10.87 -0.0736 579.5 0. 0. 0. 0.533
 0.400 -12.800 7.032 -9.28 -0.0679 563.8 0. 0. 0. 0.518
 0.500 -12.800 6.468 -7.61 -0.0628 547.6 0. 0. 0. 0.502
 0.600 -12.800 5.837 -5.80 -0.0586 530.4 0. 0. 0. 0.486
 0.700 -12.800 5.112 -3.80 -0.0539 511.3 0. 0. 0. 0.468
 0.800 -12.800 4.236 -1.47 -0.0558 488.5 0. 0. 0. 0.446
 0.900 -12.800 3.064 1.51 -0.0633 455.9 0. 0. 0. 0.415
 0.950 -12.800 2.206 3.54 -0.0759 428.7 0. 0. 0. 0.390
 1.000 -12.800 0.000 0. 0. 383.7 0. 0. 0. 0.348

SL BLDLTK PS PT TT BETAM VREL MREL VABS MABS
 1 0.998 11.715 14.696 518.7 68.25 1687.2 1.560 625.1 0.578
 2 0.998 11.780 14.696 518.7 68.02 1650.8 1.525 617.7 0.571
 3 0.998 11.844 14.696 518.7 67.77 1613.5 1.490 610.3 0.563
 4 0.998 11.975 14.696 518.7 67.20 1535.4 1.415 595.0 0.549
 5 0.998 12.105 14.696 518.7 66.48 1452.3 1.337 579.5 0.533
 6 0.998 12.235 14.696 518.7 65.57 1363.0 1.253 563.8 0.518
 7 0.998 12.366 14.696 518.7 64.37 1265.9 1.162 547.6 0.502
 8 0.998 12.502 14.696 518.7 62.75 1158.6 1.061 530.4 0.486
 9 0.998 12.649 14.696 518.7 60.45 1036.9 0.948 511.3 0.468
 10 0.998 12.819 14.696 518.7 56.84 893.0 0.815 488.5 0.446
 11 0.998 13.050 14.696 518.7 49.86 707.2 0.644 455.9 0.415
 12 0.998 13.234 14.696 518.7 42.24 579.1 0.526 428.7 0.390
 13 0.998 13.516 14.696 518.7 0.00 383.7 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

INLFT STA= 8.000
 WTF= 61.365 I= 4 MTIP= 40 AFLOW= 224.06 D=C=O. D=H=O.
 PSIC Z OPTX=DPP PHI CURV VM CU ALPHAM MM ABH=O.
 0. -11.499 8.608 -8.21 -0.0953 711.8 0. 0. 0.665
 0.050 -11.461 8.412 -7.49 -0.0964 702.9 0. 0. 0.656
 0.100 -11.421 8.211 -6.86 -0.0909 693.5 0. 0. 0.646
 0.200 -11.339 7.790 -5.59 -0.0814 675.5 0. 0. 0.628
 0.300 -11.250 7.341 -4.26 -0.0742 658.5 0. 0. 0.611
 0.400 -11.155 6.858 -2.79 -0.0693 641.9 0. 0. 0.595
 0.500 -11.052 6.333 -1.12 -0.0666 624.9 0. 0. 0.578
 0.600 -10.938 5.753 0.87 -0.0664 606.2 0. 0. 0.559
 0.700 -10.808 5.095 3.34 -0.0693 583.9 0. 0. 0.538
 0.800 -10.656 4.319 6.67 -0.0766 554.7 0. 0. 0.509
 0.900 -10.459 3.317 12.09 -0.0933 510.9 0. 0. 0.467
 0.950 -10.323 2.629 17.75 -0.1212 468.4 0. 0. 0.427
 1.000 -10.086 1.421 47.99 0.1910 434.2 0. 0. 0.395

SL BLDLTK PS PT TT BETAM VREL MREL VABS MABS
 1 0.997 10.922 14.696 518.7 64.89 1677.5 1.567 711.8 0.665
 2 0.997 11.005 14.696 518.7 64.66 1642.4 1.532 702.9 0.656
 3 0.997 11.094 14.696 518.7 64.42 1606.3 1.497 693.5 0.646
 4 0.997 11.262 14.696 518.7 63.83 1531.6 1.424 675.5 0.628
 5 0.997 11.417 14.696 518.7 63.05 1453.2 1.349 658.5 0.611
 6 0.997 11.566 14.696 518.7 62.06 1369.9 1.269 641.9 0.595
 7 0.997 11.717 14.696 518.7 60.79 1280.4 1.184 624.9 0.578
 8 0.997 11.879 14.696 518.7 59.16 1182.4 1.091 606.2 0.559
 9 0.997 12.068 14.696 518.7 57.00 1072.2 0.987 583.9 0.538
 10 0.997 12.309 14.696 518.7 53.95 942.7 0.866 554.7 0.509
 11 0.997 12.652 14.696 518.7 48.89 776.9 0.711 510.9 0.467
 12 0.997 12.964 14.696 518.7 44.72 659.2 0.601 468.4 0.427
 13 0.997 13.198 14.696 518.7 30.01 501.4 0.456 434.2 0.395

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= 604.6 MM=0.566 MABS=0.566 MREL=1.140

INLET STA= 9.000 FREE
 WTF= 61.365 OPTV=FREE ITYPE=O INBR=O ABC=O. D+C=O. D+H=O.
 PSIC Z OPTX=DPP R FHI CURV VM CU ALPHAM ABH=O. MM

0.	-9.999	8.500	0.	0.	757.7	0.	0.	0.712
0.050	-9.984	8.315	-1.11	-0.0542	750.8	0.	0.	0.705
0.100	-9.968	8.125	-0.89	-0.0524	742.8	0.	0.	0.697
0.200	-9.935	7.727	-0.29	-0.0504	729.1	0.	0.	0.683
0.300	-9.900	7.304	0.57	-0.0505	715.2	0.	0.	0.668
0.400	-9.862	6.850	1.72	-0.0525	700.0	0.	0.	0.653
0.500	-9.821	6.358	3.22	-0.0566	682.5	0.	0.	0.635
0.600	-9.776	5.815	5.17	-0.0627	661.0	0.	0.	0.614
0.700	-9.725	5.200	7.71	-0.0708	633.4	0.	0.	0.586
0.800	-9.665	4.473	11.13	-0.0788	596.9	0.	0.	0.550
0.900	-9.587	3.541	16.57	-0.0808	546.7	0.	0.	0.502
0.950	-9.536	2.919	21.62	-0.0405	516.0	0.	0.	0.472
1.000	-9.460	2.011	38.65	0.1881	512.0	0.	0.	0.468

SL BLOBLK PS PT TT BETAM VREL MREL VABS MABS

1	0.996	10.477	14.696	518.7	63.20	1680.5	1.579	757.7	0.712
2	0.996	10.545	14.696	518.7	62.90	1648.3	1.547	750.8	0.705
3	0.996	10.623	14.696	518.7	62.61	1614.8	1.514	742.8	0.697
4	0.996	10.755	14.696	518.7	61.87	1546.3	1.447	729.1	0.683
5	0.996	10.889	14.696	518.7	60.98	1474.0	1.377	715.2	0.668
6	0.996	11.033	14.696	518.7	59.93	1396.9	1.303	700.0	0.653
7	0.996	11.197	14.696	518.7	58.69	1313.2	1.222	682.5	0.635
8	0.996	11.394	14.696	518.7	57.21	1220.6	1.133	661.0	0.614
9	0.996	11.642	14.696	518.7	55.38	1115.0	1.032	633.4	0.586
10	0.996	11.959	14.696	518.7	52.91	989.7	0.912	596.9	0.550
11	0.996	12.373	14.696	518.7	48.81	830.3	0.762	546.7	0.502
12	0.996	12.613	14.696	518.7	44.95	729.0	0.667	516.0	0.472
13	0.996	12.644	14.696	518.7	34.73	622.9	0.570	512.0	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= 663.6 CZ= 655.2 MM=0.617 MABS=0.617 MREL=1.178

INLET		STA= 10.000										FREE	
WTF= 61.365		I= 6		AFLOW= 204.17		D=C=O.		D=H=O.		ABH=O.			
PSIC		Z		R		OPTX=DPP		OPTY=FREE		ITYPE=O		INBR=O	
						PHI		CURV		VM		CU	
												ALPHAM	
												MM	
0.	0.050	-9.000	8.500	0.	0.32	0.0033	0.	0.	0.	0.	0.	0.	0.726
0.	0.100	-9.000	8.130	0.61	-0.0019	771.9	0.	0.	0.	0.	0.	0.	0.727
0.	0.200	-9.000	7.741	1.38	-0.0119	771.9	0.	0.	0.	0.	0.	0.	0.724
0.	0.300	-9.000	7.331	2.39	-0.0202	769.5	0.	0.	0.	0.	0.	0.	0.718
0.	0.400	-9.000	6.894	3.74	-0.0292	763.5	0.	0.	0.	0.	0.	0.	0.708
0.	0.500	-9.000	6.422	5.49	-0.0394	753.7	0.	0.	0.	0.	0.	0.	0.692
0.	0.600	-9.000	5.904	7.79	-0.0546	738.6	0.	0.	0.	0.	0.	0.	0.669
0.	0.700	-9.000	5.317	10.71	-0.0721	715.8	0.	0.	0.	0.	0.	0.	0.635
0.	0.800	-9.000	4.623	14.38	-0.0874	682.2	0.	0.	0.	0.	0.	0.	0.588
0.	0.900	-9.000	3.732	19.50	-0.0848	635.3	0.	0.	0.	0.	0.	0.	0.530
0.	0.950	-9.000	3.140	23.67	-0.0826	575.8	0.	0.	0.	0.	0.	0.	0.492
1.	1.000	-9.000	2.340	32.46	0.1922	536.7	0.	0.	0.	0.	0.	0.	0.500
1.	1.000	-9.000	2.340	32.46	0.1922	544.7	0.	0.	0.	0.	0.	0.	0.500

STA 10.000 MASS AVERAGED PROPERTIES
PT= 14.696 TT= 518.69 GAMMA=1.4018 PT-RAT= 1.000 TT-RAT= 1.000
RCU= 0. VM= 705.3 CZ= 694.0 MM=0.659 MABS=0.659 MREL=1 216

ROTOR1 STA= 11.000 LE ROTOR
 WTF= 61.365 I= 7 AFLOW= 197.53 D+C=O. D+H=O.
 PSIC Z OPTX=DPP OPTV=FREE ITYPE=4 INBR=3 ABC=O. ABH=O.
 PHI CURV VM CU ALPHAM MM
 0. -8.166 8.500 0. 829.3 0. 0. 0.787
 0.050 -8.204 8.322 0.41 -0.0071 830.3 0. 0. 0.788
 0.100 -8.243 8.139 0.79 -0.0063 830.4 0. 0. 0.788
 0.200 -8.322 7.760 1.67 -0.0029 829.2 0. 0. 0.787
 0.300 -8.397 7.360 2.85 -0.0063 824.3 0. 0. 0.782
 0.400 -8.466 6.933 4.40 -0.0143 814.0 0. 0. 0.771
 0.500 -8.532 6.471 6.42 -0.0297 795.4 0. 0. 0.751
 0.600 -8.592 5.964 9.00 -0.0472 764.5 0. 0. 0.719
 0.700 -8.624 5.394 12.13 -0.0570 722.2 0. 0. 0.675
 0.800 -8.604 4.732 16.17 -0.0652 671.4 0. 0. 0.624
 0.900 -8.548 3.902 21.60 -0.0675 603.4 0. 0. 0.557
 0.950 -8.526 3.359 25.67 -0.0517 560.3 0. 0. 0.515
 1.000 -8.507 2.653 31.14 0.1541 556.2 0. 0. 0.511

SL BLDLKL PS PT TT BETAM VREL MREL VABS MABS
 1 0.990 9.759 14.696 518.7 61.06 1714.0 1.627 829.3 0.787
 2 0.990 9.749 14.696 518.7 60.52 1687.0 1.601 830.3 0.788
 3 0.990 9.748 14.696 518.7 59.97 1659.1 1.575 830.4 0.788
 4 0.990 9.761 14.696 518.7 58.81 1600.9 1.520 829.2 0.787
 5 0.990 9.810 14.696 518.7 57.60 1538.3 1.459 824.3 0.782
 6 0.990 9.914 14.696 518.7 56.36 1469.5 1.392 814.0 0.771
 7 0.990 10.103 14.696 518.7 55.14 1391.7 1.314 795.4 0.751
 8 0.990 10.411 14.696 518.7 54.01 1300.8 1.223 764.5 0.719
 9 0.990 10.822 14.696 518.7 52.81 1194.8 1.117 722.2 0.675
 10 0.990 11.300 14.696 518.7 51.20 1071.5 0.996 671.4 0.624
 11 0.990 11.903 14.696 518.7 48.77 915.6 0.845 603.4 0.557
 12 0.990 12.263 14.696 518.7 46.61 815.7 0.749 560.3 0.515
 13 0.990 12.297 14.696 518.7 40.09 727.0 0.563 556.2 0.511

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= 753.8 CZ= 739.8 MM=0.709 MABS=0.709 MREL=1.259

ROTOR1		STA= 11.500										IN ROTOR			
WTF= 61.365		I= 8		OPTX=TT		AFLOW= 180.37		D+C=O.		D+H=O.		D+H=O.		D+H=O.	
PSIC		Z		R		CURV		VM		CU		ALPHAM		ABH=O.	
O.		-7.963		8.500		O.		850.9		46.8		3.15		0.800	
0.050		-7.991		8.323		0.29		0.0273		852.3		41.3		2.77	
0.100		-8.020		8.142		0.65		0.0288		860.0		39.3		2.61	
0.200		-8.083		7.767		1.57		0.0171		872.7		35.5		2.33	
0.300		-8.143		7.372		2.83		0.0088		885.5		37.8		2.45	
0.400		-8.199		6.954		4.58		-0.0092		889.1		42.1		2.71	
0.500		-8.252		6.504		6.79		-0.0167		893.6		51.2		3.32	
0.600		-8.301		6.012		9.41		-0.0017		861.2		56.6		3.76	
0.700		-8.324		5.460		12.60		0.0038		825.3		58.5		4.06	
0.800		-8.299		4.823		16.67		0.0104		781.9		62.7		4.59	
0.900		-8.247		4.024		22.01		0.0234		714.5		63.4		5.07	
0.950		-8.231		3.503		25.61		0.0582		678.4		65.1		5.48	
1.000		-8.224		2.816		28.87		0.0887		658.0		68.9		5.98	

STA 11.500 MASS AVERAGED PROPERTIES
PT= 15.496 TT= 527.54 GAMMA=1.4018 PT-RAT= 1.054 TT-RAT= 1.017
RCU= 300.7 VM= 832.3 CZ= 815.5 MM=0.784 MABS=0.786 MREL=1.275

ROTOR1 STA= 12.000 AFLOW= 169.31 D+C=O. IN ROTOR
 WTF= 61.365 I= 9 MTIP=105 OPTV=PT ITYPE=5 INBR=3 ABC=O. ABH=O.
 PSIC Z R PHI CURV VM CU ALPHAM MM
 0. -7.759 8.500 0. 0. 823.4 100.3 6.95 0.761
 0.050 -7.778 8.323 -0.07 0.0311 828.1 98.0 6.75 0.767
 0.100 -7.798 8.144 0.19 0.0422 835.2 95.6 6.53 0.775
 0.200 -7.844 7.773 1.20 0.0365 854.4 92.2 6.16 0.797
 0.300 -7.889 7.385 2.75 0.0026 874.7 96.2 6.27 0.818
 0.400 -7.931 6.976 4.73 -0.0098 889.6 107.2 6.87 0.833
 0.500 -7.972 6.538 6.95 -0.0023 898.2 122.7 7.78 0.841
 0.600 -8.010 6.060 9.35 0.0084 891.6 133.5 8.51 0.834
 0.700 -8.024 5.527 12.41 0.0173 873.9 142.6 9.27 0.816
 0.800 -7.994 4.914 16.46 0.0133 838.7 148.0 10.01 0.781
 0.900 -7.946 4.145 21.69 0.0113 774.4 150.9 11.02 0.717
 0.950 -7.936 3.642 24.92 0.0156 730.6 148.4 11.48 0.674
 1.000 -7.941 2.968 27.83 0.0240 690.6 150.0 12.26 0.636

SL BLDLKC PS PT TT BETAM VREL MREL VABS MABS
 1 0.928 11.145 16.454 543.8 59.53 1623.9 1.501 829.5 0.767
 2 0.927 11.097 16.468 542.7 58.87 1601.6 1.483 833.8 0.772
 3 0.926 11.010 16.464 541.6 58.10 1580.3 1.466 840.6 0.780
 4 0.921 10.782 16.462 539.8 56.27 1538.5 1.434 859.3 0.801
 5 0.914 10.609 16.561 539.6 54.07 1490.6 1.394 880.0 0.823
 6 0.904 10.564 16.764 540.7 51.64 1433.3 1.343 896.0 0.839
 7 0.887 10.605 17.003 542.3 48.94 1367.5 1.281 906.6 0.849
 8 0.870 10.714 17.079 542.5 46.39 1292.7 1.210 901.6 0.844
 9 0.852 10.885 17.057 541.9 43.62 1207.1 1.127 885.4 0.827
 10 0.833 11.154 16.889 540.1 40.61 1104.8 1.029 851.6 0.793
 11 0.803 11.615 16.567 537.1 36.86 967.9 0.896 789.0 0.730
 12 0.779 11.867 16.292 534.6 34.08 882.1 0.814 745.6 0.688
 13 0.734 12.022 15.985 531.8 28.42 785.3 0.723 706.7 0.651

STA 12.000 MASS AVERAGED PROPERTIES
 PT= 16.706 TT= 540.35 GAMMA=1.4018 PT-RAT= 1.137 TT-RAT= 1.042
 RCU= 735.6 VM= 848.6 CZ= 831.3 MM=0.791 MABS=0.799 MREL=1.229

ROTOR1 STA= 12.500
 WTF= 61.365 I=10 AFLOW= 160.72 D=C=O. D*H=O.
 PSIC Z OPTX=TT PHI OPTY=PT ITYPE=5 INBR=3 ABC=O. ABH=O.
 CURV VM CU ALPHAM MM
 0. -7.556 8.500 0. 0. 789.4 161.1 11.54 0.716
 0.050 -7.565 8.323 -0.22 -0.0065 796.1 164.1 11.65 0.723
 0.100 -7.576 8.144 -0.12 -0.0067 801.0 165.7 11.69 0.728
 0.200 -7.605 7.777 0.83 0.0173 814.5 168.2 11.67 0.743
 0.300 -7.635 7.397 2.49 0.0328 835.7 174.6 11.80 0.765
 0.400 -7.664 6.998 4.51 0.0381 862.1 185.5 12.14 0.792
 0.500 -7.692 6.572 6.72 0.0301 882.0 197.5 12.62 0.813
 0.600 -7.719 6.108 9.19 0.0105 889.9 213.1 13.47 0.822
 0.700 -7.724 5.592 12.18 0.0092 882.0 230.3 14.63 0.815
 0.800 -7.690 5.003 16.10 0.0263 861.9 247.9 16.05 0.795
 0.900 -7.645 4.264 21.37 0.0231 808.8 245.5 16.88 0.745
 0.950 -7.641 3.778 24.81 -0.0038 768.9 242.8 17.53 0.707
 1.000 -7.658 3.117 28.01 -0.0442 709.9 236.5 18.43 0.651

IN ROTOR
 VABS MABS
 805.6 0.731
 812.9 0.738
 817.9 0.744
 831.7 0.759
 853.8 0.782
 881.9 0.811
 903.8 0.833
 915.0 0.845
 911.5 0.842
 896.8 0.828
 845.2 0.779
 806.3 0.742
 748.3 0.687

SL BLDLK PS PT TT BETAM VREL MREL VABS MABS
 1 0.903 12.314 17.575 559.0 59.48 1554.3 1.410 805.6 0.731
 2 0.903 12.340 17.733 558.9 58.61 1528.3 1.388 812.9 0.738
 3 0.902 12.352 17.842 558.4 57.79 1502.7 1.367 817.9 0.744
 4 0.897 12.300 18.018 557.2 55.93 1453.8 1.326 831.7 0.759
 5 0.888 12.152 18.199 556.7 53.53 1406.0 1.287 853.8 0.782
 6 0.876 11.945 18.409 556.9 50.60 1358.1 1.248 881.9 0.811
 7 0.856 11.759 18.549 556.9 47.49 1305.3 1.204 903.8 0.833
 8 0.837 11.685 18.656 557.0 44.18 1240.8 1.146 915.0 0.845
 9 0.817 11.743 18.684 556.6 40.63 1162.0 1.073 911.5 0.842
 10 0.794 11.844 18.570 555.2 36.38 1070.5 0.988 896.8 0.828
 11 0.759 12.000 17.919 549.5 32.08 954.5 0.879 845.2 0.779
 12 0.732 12.124 17.476 545.7 28.86 878.0 0.807 806.3 0.742
 13 0.683 12.305 16.873 540.4 23.83 776.1 0.712 748.3 0.687

STA 12.500 MASS AVERAGED PROPERTIES
 PT= 18.209 TT= 555.46 GAMMA=1.4017 PT-RAT= 1.239 TT-RAT= 1.071
 RCU= 1249.0 VM= 839.3 CZ= 822.0 MM=0.771 MABS=0.794 MREL=1.159

ROTOR1 STA= 13.000
 WTF= 61.365 I=11
 PSIC Z OPTX=TT
 0. -7.352 8.500
 0.050 -7.352 8.322
 0.100 -7.354 8.143
 0.200 -7.366 7.780
 0.300 -7.381 7.407
 0.400 -7.396 7.018
 0.500 -7.412 6.604
 0.600 -7.428 6.154
 0.700 -7.424 5.657
 0.800 -7.385 5.090
 0.900 -7.344 4.380
 0.950 -7.346 3.915
 1.000 -7.375 3.272

STA= 13.000
 MTIP=131
 OPTV=PT
 PHI
 0.
 -0.33
 -0.27
 0.52
 2.02
 4.00
 6.32
 8.89
 11.94
 15.74
 21.19
 25.08
 29.47

AFLOW= 154.30
 ITYPE=5
 CURV
 0.
 0.0240
 0.0176
 0.0282
 0.322
 0.0287
 0.0190
 0.0250
 0.0187
 0.0134
 -0.0028
 -0.0250
 -0.1136

IN ROTOR
 D=C=O.
 ABC=O.
 CU
 216.7
 220.9
 223.7
 230.2
 236.3
 248.4
 263.0
 281.1
 302.2
 328.5
 328.1
 331.6
 319.9

D=H=O.
 ABH=O.
 ALPHAM
 15.99
 16.05
 16.05
 16.05
 16.00
 16.27
 16.79
 17.58
 18.67
 20.32
 21.40
 22.45
 23.67

MM
 0.675
 0.687
 0.697
 0.720
 0.745
 0.773
 0.794
 0.811
 0.820
 0.814
 0.768
 0.736
 0.668

SL 6LDBLK PS PT TT BETAM VREL MREL VABS MABS
 1 0.885 13.403 18.637 572.9 59.49 1489.5 1.330 786.6 0.702
 2 0.885 13.416 18.863 572.8 58.39 1465.0 1.310 799.1 0.715
 3 0.884 13.410 19.033 572.3 57.34 1441.1 1.291 809.2 0.725
 4 0.879 13.335 19.356 571.4 55.00 1395.0 1.255 832.6 0.749
 5 0.871 13.155 19.566 570.2 52.42 1351.0 1.221 857.1 0.775
 6 0.958 12.933 19.817 570.0 49.31 1305.5 1.185 886.6 0.805
 7 0.837 12.727 19.995 569.8 45.99 1254.6 1.143 910.4 0.830
 8 0.817 12.521 20.107 569.6 42.22 1197.9 1.095 930.7 0.851
 9 0.795 12.349 20.140 569.0 37.89 1133.4 1.039 944.2 0.866
 10 0.769 12.273 20.073 567.9 32.71 1054.2 0.968 945.9 0.868
 11 0.734 12.300 19.241 561.0 27.98 948.2 0.870 899.4 0.825
 12 0.705 12.327 18.731 556.9 24.12 879.1 0.806 868.2 0.796
 13 0.652 12.529 17.850 549.5 19.43 773.9 0.708 796.8 0.729

STA 13.000 MASS AVERAGED PROPERTIES
 PT= 19.562 TT= 568.33 GAMMA=1.4016 PT-RAT= 1.331 TT-RAT= 1.096
 RCU= 1686.7 VM= 838.3 CZ= 820.8 MM=0.762 MABS=0.802 MREL=1.110

STA= 13.500
 MTIP=144
 AFLOW= 150.60
 D+C=O.
 D*H=O.
 ABH=O.
 WTF= 61.365
 OPTX=PT
 I TYPE=5
 INBR=3
 ABC=O.
 IN ROTOR
 PSIC Z R
 PHI
 CURV
 VM
 CU
 ALPHAM
 MM
 0. -7.148 8.500 0. 716.2 261.1 20.03 0.631
 0.050 -7.139 8.320 -0.37 -0.0169 734.5 273.3 20.41 0.648
 0.100 -7.132 8.142 -0.35 -0.0046 746.3 281.0 20.63 0.659
 0.200 -7.127 7.782 0.27 0.0082 767.7 289.6 20.67 0.681
 0.300 -7.127 7.415 1.63 0.0212 795.1 300.7 20.72 0.708
 0.400 -7.129 7.035 3.60 0.0237 821.2 312.1 20.81 0.735
 0.500 -7.132 6.634 5.91 0.0327 843.4 324.3 21.03 0.759
 0.600 -7.137 6.199 8.55 0.0161 863.5 343.3 21.68 0.780
 0.700 -7.124 5.719 11.69 0.0098 874.7 368.5 22.84 0.793
 0.800 -7.081 5.175 15.63 -0.0019 872.8 397.4 24.48 0.794
 0.900 -7.043 4.497 21.44 -0.0246 841.0 414.1 26.21 0.767
 0.950 -7.051 4.054 25.71 -0.0422 812.3 416.6 27.15 0.741
 1.000 -7.092 3.439 31.60 -0.1063 754.3 404.2 28.18 0.689

SL BLDLCK PS PT TT BETAM VREL MREL VABS MABS
 1 0.880 14.418 19.512 584.0 59.97 1431.0 1.261 762.3 0.672
 2 0.881 14.486 19.942 585.6 58.42 1402.6 1.237 783.7 0.691
 3 0.880 14.544 20.255 586.0 57.15 1375.7 1.215 797.4 0.704
 4 0.874 14.550 20.697 585.0 54.68 1328.0 1.177 820.5 0.727
 5 0.866 14.404 21.066 584.3 51.73 1283.6 1.143 850.1 0.757
 6 0.854 14.172 21.320 583.3 48.54 1240.2 1.110 878.5 0.786
 7 0.833 13.878 21.433 582.0 45.10 1194.9 1.075 903.7 0.813
 8 0.813 13.563 21.524 581.3 41.00 1144.1 1.034 929.2 0.839
 9 0.790 13.304 21.585 580.7 36.23 1084.4 0.983 949.2 0.861
 10 0.764 13.080 21.481 579.2 30.59 1013.8 0.922 959.0 0.872
 11 0.729 12.874 20.756 573.5 24.29 922.7 0.841 937.5 0.855
 12 0.700 12.735 20.084 568.4 20.20 865.6 0.790 912.9 0.833
 13 0.646 12.676 18.981 559.6 15.04 781.1 0.713 855.8 0.781

STA 13.500 MASS AVERAGED PROPERTIES
 PT= 20.943 TT= 580.83 GAMMA=1.4015 PT-RAT= 1.425 TT-RAT= 1.120
 RCU= 2111.9 VM= 817.0 CZ= 799.2 MM=0.734 MABS=0.795 MREL=1.049

ROTOR1 STA= 14.000
 WTF= 61.365 I=13 MTIP=157 AFLOW= 148.19 D=C=O. D*H=O.
 PSIC Z OPTX=TT PHI CURV VM CU ALPHAM MM
 0. -6.945 8.500 0. 0. 683.3 304.4 24.01 0.595
 0.050 -6.926 8.319 -0.13 -0.0218 702.1 317.9 24.36 0.612
 0.100 -6.910 8.140 -0.19 -0.0212 715.5 328.7 24.67 0.625
 0.200 -6.889 7.782 0.24 -0.0037 740.1 342.1 24.80 0.648
 0.300 -6.873 7.421 1.44 0.0047 770.2 356.4 24.83 0.678
 0.400 -6.861 7.051 3.27 0.0186 798.1 369.3 24.83 0.706
 0.500 -6.852 6.662 5.52 0.0153 819.5 382.2 25.00 0.729
 0.600 -6.846 6.242 8.31 0.0124 838.0 401.4 25.59 0.749
 0.700 -6.824 5.781 11.59 0.0016 849.0 425.2 26.60 0.762
 0.800 -6.776 5.260 15.80 -0.0171 851.6 459.5 28.35 0.768
 0.900 -6.742 4.617 22.06 -0.0424 833.0 491.0 30.52 0.754
 0.950 -6.756 4.199 26.68 -0.0608 813.4 501.0 31.63 0.738
 1.000 -6.809 3.620 33.50 -0.0911 775.9 492.0 32.38 0.707

IN ROTOR
 VABS MABS
 748.0 0.651
 770.7 0.672
 787.4 0.687
 815.3 0.714
 848.7 0.747
 879.4 0.778
 904.3 0.804
 929.2 0.830
 949.5 0.852
 967.5 0.872
 967.0 0.875
 955.3 0.867
 918.7 0.837

STA 14.000 MASS AVERAGED PROPERTIES
 PT= 22.269 TT= 592.27 GAMMA=1.4014 PT-RAT= 1.515 TT-RAT= 1.142
 RCU= 2501.1 VM= 795.1 CZ= 776.6 MM=0.708 MABS=0.791 MREL=0.996

STA= 14.500									
IN ROTOR									
WTF= 61.365 I=14 OPTX=TT AFLOW= 147.21 D+C=O. D+H=O.									
PSIC Z PHI OPTV=PT I TYPE=5 INBR=3 ABC=O. ABH=O.									
CURV VM CU ALPHAM MM									
0.	-6.741	8.500	0.	0.	649.1	373.3	29.90	0.557	
0.050	-6.712	8.319	-0.08	0.0136	663.4	383.0	30.00	0.570	
0.100	-6.688	8.140	-0.12	0.0108	676.5	391.5	30.06	0.582	
0.200	-6.650	7.784	0.30	-0.0050	704.3	403.3	29.79	0.609	
0.300	-6.619	7.428	1.46	-0.0075	737.4	417.5	29.52	0.641	
0.400	-6.594	7.066	3.16	-0.0037	765.9	430.7	29.35	0.670	
0.500	-6.572	6.688	5.47	-0.0086	783.5	442.8	29.47	0.689	
0.600	-6.555	6.284	8.23	-0.0028	798.6	462.1	30.06	0.705	
0.700	-6.524	5.842	11.64	-0.0083	807.9	484.8	30.97	0.717	
0.800	-6.472	5.348	16.18	-0.0245	813.7	519.4	32.55	0.726	
0.900	-6.441	4.742	22.90	-0.0480	811.6	567.1	34.95	0.728	
0.950	-6.461	4.351	27.94	-0.0717	802.7	586.0	36.13	0.724	
1.000	-6.526	3.813	35.16	-0.0779	787.7	590.2	36.84	0.715	

STA 14.500 MASS AVERAGED PROPERTIES									
PT= 23.808 TT= 605.13 GAMMA=1.4012 PT-RAT= 1.620 TT-RAT= 1.167									
RCU= 2939.0 VM= 762.0 CZ= 742.7 MM=0.670 MABS=0.784 MREL=0.931									
SL BLDLTK PS PT TT BETAM VREL MREL VABS MABS									
1	0.888	16.535	21.824	612.0	60.05	1300.3	1.115	748.8	0.642
2	0.888	16.686	22.319	612.4	58.56	1271.8	1.093	766.0	0.658
3	0.887	16.793	22.744	612.4	57.08	1244.9	1.071	781.6	0.673
4	0.882	16.857	23.424	611.0	54.03	1199.0	1.037	811.6	0.702
5	0.876	16.717	23.983	609.9	50.46	1158.3	1.007	847.4	0.737
6	0.866	16.466	24.341	608.2	46.82	1119.3	0.979	878.7	0.768
7	0.850	16.174	24.441	605.8	43.27	1076.0	0.946	900.0	0.791
8	0.834	15.823	24.484	604.1	39.01	1027.7	0.907	922.6	0.815
9	0.816	15.432	24.402	602.0	34.06	975.2	0.865	942.2	0.836
10	0.797	14.981	24.309	600.4	27.54	917.7	0.818	965.4	0.861
11	0.767	14.323	23.938	597.8	18.38	855.2	0.768	990.1	0.889
12	0.741	13.832	23.304	593.7	12.77	823.0	0.742	993.8	0.896
13	0.695	13.109	22.032	584.9	6.00	792.0	0.719	984.2	0.894

ROTOR1 STA= 15.000
 WTF= 61.365 I=15 MTIP=183 AFLOW= 146.82 D=C=O. D*H=O.
 PSIC Z OPTX=TT R PHI OPTY=PT ITYPE=5 INBR=3 ABC=O. ABH=O.
 CURV VM CU ALPHAM MM
 0. -6.538 8.500 0. 0. 604.5 469.5 37.84 0.509
 0.050 -6.499 8.318 -0.41 0.0401 620.0 473.2 37.35 0.523
 0.100 -6.466 8.139 -0.49 0.0461 634.0 474.4 36.81 0.537
 0.200 -6.411 7.785 0.18 0.0226 667.8 475.4 35.45 0.570
 0.300 -6.365 7.434 1.56 -0.0050 703.8 480.9 34.34 0.605
 0.400 -6.326 7.081 3.37 -0.0241 732.5 489.9 33.78 0.633
 0.500 -6.293 6.715 5.69 -0.0188 751.7 502.9 33.79 0.654
 0.600 -6.263 6.326 8.43 -0.0216 764.2 519.9 34.22 0.668
 0.700 -6.224 5.905 11.95 -0.0260 773.0 544.3 35.15 0.679
 0.800 -6.168 5.437 16.68 -0.0309 781.9 580.4 36.59 0.691
 0.900 -6.140 4.872 23.77 -0.0438 793.3 641.5 38.96 0.707
 0.950 -6.166 4.512 29.01 -0.0398 802.4 674.5 40.05 0.720
 1.000 -6.243 4.018 36.58 -0.0625 807.5 711.7 41.39 0.732

IN ROTOR
 VABS MABS
 765.4 0.644
 780.0 0.658
 791.8 0.671
 819.7 0.699
 852.4 0.732
 881.3 0.762
 904.4 0.786
 924.3 0.808
 945.4 0.831
 973.8 0.860
 1020.2 0.909
 1048.3 0.940
 1076.4 0.975

SL BLDLKLK PS PT TT BETAM VREL MREL VABS MABS
 1 0.899 18.098 23.926 636.0 59.60 1194.7 1.006 765.4 0.644
 2 0.899 18.231 24.392 634.4 58.06 1172.2 0.990 780.0 0.658
 3 0.898 18.292 24.729 632.2 56.61 1152.0 0.976 791.8 0.671
 4 0.894 18.226 25.270 627.5 53.38 1119.4 0.955 819.7 0.699
 5 0.889 17.968 25.674 623.8 49.74 1089.0 0.936 852.4 0.732
 6 0.882 17.668 25.962 620.7 46.04 1055.3 0.913 881.3 0.762
 7 0.869 17.342 26.091 618.0 42.22 1015.0 0.883 904.4 0.786
 8 0.857 16.952 26.052 615.4 37.97 969.5 0.847 924.3 0.808
 9 0.844 16.524 25.983 613.2 32.78 919.4 0.808 945.4 0.831
 10 0.830 15.963 25.891 611.5 25.86 869.0 0.768 973.8 0.860
 11 0.807 15.072 25.746 610.6 15.38 822.8 0.733 1020.2 0.909
 12 0.785 14.306 25.305 608.2 8.62 811.6 0.728 1048.3 0.940
 13 0.741 13.250 24.388 602.8 -0.19 807.5 0.732 1076.4 0.975

STA 15.000 MASS AVERAGED PROPERTIES
 PT= 25.566 TT= 619.32 GAMMA=1.4010 PT-RAT= 1.740 TT-RAT= 1.194
 RCU= 3422.3 VM= 731.0 CZ= 710.6 MM=0.636 MABS=0.787 MREL=0.868

ROTOR1 STA= 15.500
 WTF= 61.365 I=16 MTIP=196 AFLOW= 147.10 D=C=0. D*H=0.
 PSIC Z OPTX=TT PHI OPTV=PT ITYPE=5 INBR=3 ABC=0. ABH=0.
 0. -6.334 8.500 0. 0. 564.4 536.6 43.55 0.469
 0.050 -6.286 8.316 -0.85 0.0321 588.0 538.6 42.49 0.491
 0.100 -6.244 8.136 -0.92 0.0225 606.7 537.9 41.56 0.508
 0.200 -6.172 7.785 0.13 -0.0146 644.4 537.2 39.82 0.544
 0.300 -6.111 7.442 1.91 -0.0424 679.0 540.9 38.54 0.578
 0.400 -6.058 7.098 3.97 -0.0533 705.3 547.4 37.82 0.604
 0.500 -6.012 6.744 6.30 -0.0565 720.9 559.4 37.81 0.621
 0.600 -5.972 6.371 9.09 -0.0561 728.0 575.6 38.33 0.630
 0.700 -5.924 5.970 12.58 -0.0463 735.6 600.6 39.23 0.640
 0.800 -5.863 5.530 17.33 -0.0397 747.3 634.7 40.34 0.655
 0.900 -5.838 5.007 24.34 -0.0168 773.3 698.3 42.08 0.684
 0.950 -5.871 4.678 29.64 -0.0252 793.0 740.9 43.05 0.707
 1.000 -5.960 4.231 37.01 0.0200 834.6 800.7 43.81 0.756

SL	BLDBLK	PS	PT	TT	BETAM	VREL	MREL	VABS	MABS
1	0.913	19.207	25.455	652.7	59.64	1116.6	0.928	778.7	0.647
2	0.913	19.288	25.960	650.3	57.67	1099.4	0.918	797.4	0.666
3	0.912	19.317	26.313	647.3	55.96	1083.6	0.908	810.8	0.679
4	0.910	19.256	26.920	641.6	52.40	1056.0	0.892	838.9	0.709
5	0.907	19.030	27.352	637.0	48.68	1028.4	0.875	868.1	0.739
6	0.903	18.743	27.615	632.9	45.00	997.3	0.855	892.8	0.765
7	0.896	18.437	27.730	629.6	41.18	957.9	0.825	912.5	0.786
8	0.889	18.077	27.659	626.5	37.00	911.6	0.789	928.1	0.804
9	0.882	17.619	27.589	624.1	31.62	863.8	0.752	949.6	0.826
10	0.874	16.944	27.438	621.9	24.54	821.5	0.720	980.5	0.859
11	0.861	15.788	27.361	621.5	13.47	795.2	0.704	1042.0	0.922
12	0.842	14.853	27.110	620.6	6.10	797.5	0.711	1085.2	0.968
13	0.799	13.261	26.567	618.3	-3.71	836.3	0.757	1156.6	1.047

STA 15.500 MASS AVERAGED PROPERTIES
 PT= 27.206 TT= 631.84 GAMMA=1.4008 PT-RAT= 1.851 TT-RAT= 1.218
 RCU= 3849.2 VM= 703.6 CZ= 682.3 MM=0.607 MABS=0.793 MREL=0.815

[illegible]

	SL	BDBLK	PS	PT	TT	BETAM	VREL	MREL	VABS	MABS
	1	0.926	20.036	26.560	664.4	60.12	1056.9	0.871	786.0	0.648
	2	0.927	20.030	27.120	661.7	57.45	1045.5	0.866	812.1	0.673
	3	0.927	20.047	27.560	658.8	55.34	1031.8	0.858	829.5	0.690
	4	0.927	20.050	28.390	653.7	51.29	1004.7	0.842	862.0	0.723
	5	0.928	19.948	28.940	649.0	47.59	947.5	0.823	886.8	0.749
	6	0.928	19.765	29.280	644.7	43.95	942.1	0.800	907.1	0.771
	7	0.928	19.522	29.380	640.8	40.29	901.6	0.770	921.3	0.787
	8	0.928	19.181	29.350	637.7	35.96	855.1	0.734	936.4	0.804
	9	0.928	18.695	29.280	635.1	30.40	809.9	0.699	958.2	0.827
	10	0.928	17.937	29.160	633.0	22.95	774.2	0.673	992.9	0.863
	11	0.930	16.748	28.920	631.6	12.35	751.5	0.659	1047.2	0.919
	12	0.914	15.683	28.770	631.5	4.72	764.4	0.676	1099.0	0.972
	13	0.875	14.331	28.650	632.3	-6.35	785.2	0.703	1169.0	1.047

STA 16.000 MASS AVERAGED PROPERTIES
PT= 28.783 TT= 643.26 GAMMA=1.4006 PT-RAT= 1.959 TT-RAT= 1.240
RCU= 4238.7 VM= 673.5 CZ= 653.5 MM=0.576 MABS=0.797 NREL=0.764

PCT	AVERAGE		BLADE		SPEED	ACC PT RATIO	ACC TT RATIO	EFFICIENCY		AXIAL VEL R
	IMM	RAD	IN	OUT				AD.	POLY	
0.	8.500	1500.0	1500.0	1500.0	1.8073	1.2809	0.656	0.683	0.635	
3.7	8.317	1468.5	1466.9	1466.9	1.8454	1.2757	0.694	0.719	0.678	
7.4	8.136	1436.3	1435.2	1435.2	1.8753	1.2701	0.729	0.752	0.707	
14.7	7.773	1369.4	1374.1	1374.1	1.9318	1.2603	0.796	0.814	0.758	
22.1	7.406	1298.8	1315.0	1315.0	1.9692	1.2512	0.851	0.864	0.798	
29.8	7.026	1223.4	1256.2	1256.2	1.9924	1.2429	0.897	0.906	0.832	
37.9	6.624	1142.0	1196.0	1196.0	1.9992	1.2354	0.930	0.937	0.863	
46.6	6.192	1052.5	1132.9	1132.9	1.9971	1.2294	0.953	0.957	0.903	
56.2	5.716	951.8	1065.6	1065.6	1.9924	1.2244	0.971	0.973	0.963	
67.0	5.180	835.1	992.9	992.9	1.9842	1.2204	0.982	0.984	1.055	
80.3	4.523	688.6	907.6	907.6	1.9679	1.2177	0.981	0.983	1.198	
88.8	4.102	592.8	855.0	855.0	1.9577	1.2175	0.974	0.976	1.329	
100.0	3.547	468.2	783.6	783.6	1.9495	1.2190	0.960	0.964	1.330	

FREE		STA= 17.000		AFLOW= 146.22		D+C=O.		FREE	
WTF= 61.365		MTIP=222		ITYPE=O		INBR=O		ABC=O.	
PSIC		I=18		OPTX=DPP		PHI		CURV	
Z		R		VM		CU		ALPHAM	
O.		O.		O.		O.		O.	
0.	-5.700	8.500	0.69	-0.0570	508.2	583.6	48.95	0.418	MM
0.050	-5.639	8.312	0.69	-0.0570	557.9	585.7	46.39	0.462	MM
0.100	-5.586	8.136	1.47	-0.0770	591.6	586.2	44.73	0.492	MM
0.200	-5.498	7.803	3.14	-0.0752	646.0	588.9	42.35	0.542	MM
0.300	-5.428	7.482	4.82	-0.0545	678.6	592.7	41.13	0.574	MM
0.400	-5.373	7.162	6.49	-0.0347	700.5	598.7	40.52	0.596	MM
0.500	-5.331	6.834	8.31	-0.0140	712.0	608.0	40.49	0.609	MM
0.600	-5.304	6.489	10.43	0.0074	717.8	624.0	41.00	0.617	MM
0.700	-5.294	6.117	13.13	0.0343	723.5	647.4	41.82	0.625	MM
0.800	-5.304	5.706	16.80	0.0658	727.7	681.5	43.13	0.633	MM
0.900	-5.351	5.223	22.46	0.1364	735.0	735.4	45.01	0.644	MM
0.950	-5.405	4.933	26.15	0.2054	748.3	777.9	46.11	0.660	MM
1.000	-5.521	4.549	34.04	0.2237	733.7	849.5	49.18	0.651	MM

PT= 28.777 TT= 643.26 GAMMA=1.4006 PT-RAT= 1.958 TT-RAT= 1.240
RCU= 4238.7 VM= 686.5 CZ= 667.6 MM=0.588 MABS=0.803 MREL=0.779

STA 17.000 MASS AVERAGED PROPERTIES

PT= 28.777 TT= 643.26 GAMMA=1.4006 PT-RAT= 1.958 TT-RAT= 1.240
RCU= 4238.7 VM= 686.5 CZ= 667.6 MM=0.588 MABS=0.803 MREL=0.779

PT= 28.777 TT= 643.26 GAMMA=1.4006 PT-RAT= 1.958 TT-RAT= 1.240
RCU= 4238.7 VM= 686.5 CZ= 667.6 MM=0.588 MABS=0.803 MREL=0.779

STATOR STA= 18.000 AFLOW= 141.53 D+C=O. LE STATOR D+H=O.
 WTF= 61.365 MTIP=235 OPTV=FREE ITYPE=1 INBR=4 ABC=O. ABH=O.
 PSIC Z R PHI CURV VM CU ALPHAM MM
 0. -5.250 8.500 0. 0. 549.4 583.6 46.73 0.453
 0.050 -5.192 8.323 1.49 -0.0056 589.2 584.9 44.79 0.489
 0.100 -5.143 8.154 2.60 -0.0121 619.3 584.9 43.36 0.516
 0.200 -5.062 7.833 4.32 -0.0191 672.1 586.6 41.12 0.566
 0.300 -5.003 7.522 5.73 -0.0201 705.7 589.5 39.88 0.598
 0.400 -4.961 7.212 7.13 -0.0189 729.1 594.5 39.20 0.622
 0.500 -4.937 6.893 8.65 -0.0161 742.9 602.8 39.06 0.638
 0.600 -4.933 6.557 10.49 -0.0121 751.9 617.5 39.40 0.649
 0.700 -4.953 6.195 12.85 -0.0065 760.9 639.3 40.03 0.660
 0.800 -5.004 5.794 16.12 -0.0101 769.2 671.2 41.11 0.671
 0.900 -5.108 5.319 21.21 0.0303 773.7 722.1 43.03 0.680
 0.950 -5.202 5.028 24.67 0.0235 759.5 763.2 45.14 0.670
 1.000 -5.375 4.643 31.23 0.3397 803.8 832.3 46.00 0.718

SL BDBLK PS PT TT BETAM VREL MREL VABS MABS
 1 0.940 19.783 26.533 664.4 -59.06 1068.5 0.882 801.5 0.662
 2 0.940 19.725 27.093 661.7 56.31 1062.2 0.881 830.3 0.689
 3 0.940 19.666 27.532 658.8 54.05 1055.0 0.880 851.8 0.710
 4 0.940 19.534 28.390 653.7 49.81 1041.5 0.876 892.1 0.751
 5 0.940 19.368 28.940 649.0 46.28 1021.1 0.866 919.5 0.780
 6 0.940 19.150 29.280 644.7 42.93 995.7 0.850 940.8 0.803
 7 0.940 18.868 29.380 640.8 39.56 963.5 0.827 956.6 0.821
 8 0.940 18.500 29.350 637.7 35.67 925.5 0.798 972.9 0.839
 9 0.940 18.026 29.280 635.1 30.82 886.1 0.768 993.8 0.862
 10 0.940 17.409 29.160 633.0 24.54 845.6 0.738 1020.9 0.891
 11 0.940 16.538 28.920 631.6 15.64 803.4 0.706 1058.3 0.930
 12 0.940 16.104 28.770 631.5 9.29 769.5 0.678 1076.7 0.949
 13 0.940 14.493 28.564 632.3 -0.92 803.9 0.718 1157.1 1.034

STA 18.000 MASS AVERAGED PROPERTIES
 PT= 28.777 TT= 643.26 GAMMA=1.4007 PT-RAT= 1.958 TT-RAT= 1.240
 RCU= 4238.7 VM= 718.9 CZ= 700.4 MM=0.617 MABS=0.822 MREL=0.809

STATOR										IN STATOR																													
I=20					STA= 19.000					126.01					D=C=O.					D=H=O.																			
WTF= 61.365					MTIP=248					AFLOW=					INER=4					ABC=O.					ABH=O.														
PSIC					OPTX=DPP					PHI					CURV					VM					CU					ALPHAM					MM				
Z					R																																		
0.050	-4.770	8.500	0.	0.	0.0323	613.2	374.6	31.42	0.502																														
0.050	-4.723	8.335	1.13	0.0323	642.2	383.7	30.86	0.528																															
0.100	-4.683	8.175	2.08	0.0519	665.8	390.3	30.38	0.550																															
0.200	-4.616	7.867	3.67	0.0696	711.1	405.5	29.69	0.593																															
0.300	-4.566	7.566	5.09	0.0712	743.3	416.9	29.29	0.625																															
0.400	-4.531	7.266	6.53	0.0668	767.5	427.8	29.13	0.650																															
0.500	-4.512	6.958	8.13	0.0581	783.8	438.4	29.22	0.667																															
0.600	-4.508	6.635	10.02	0.0500	798.0	451.5	29.50	0.683																															
0.700	-4.524	6.292	12.32	0.0486	815.5	471.7	30.05	0.702																															
0.800	-4.565	5.918	15.30	0.0529	838.4	502.4	30.93	0.727																															
0.900	-4.641	5.494	19.49	0.0898	871.3	545.5	32.05	0.762																															
0.950	-4.696	5.253	22.43	0.1182	897.8	574.4	32.61	0.790																															
1.000	-4.770	4.975	26.23	0.1265	931.4	614.0	33.40	0.826																															

SL										BETAM										VREL										MREL										VABS										MABS									
BLDBLK										PT										TT																																							
1	0.875	20.999	26.533	664.4	61.42	1281.6	1.049	718.6	0.588																																																		
2	0.877	20.985	27.093	661.7	59.43	1262.6	1.039	748.1	0.615																																																		
3	0.878	20.939	27.532	658.8	57.68	1245.2	1.029	771.8	0.638																																																		
4	0.879	20.779	28.390	653.7	54.11	1213.1	1.012	818.6	0.683																																																		
5	0.880	20.554	28.940	649.0	51.01	1181.5	0.993	852.2	0.717																																																		
6	0.881	20.276	29.280	644.7	48.07	1148.5	0.972	878.7	0.744																																																		
7	0.880	19.946	29.380	640.8	45.20	1112.4	0.947	898.1	0.765																																																		
8	0.880	19.541	29.350	637.7	42.04	1074.4	0.920	916.9	0.785																																																		
9	0.878	18.994	29.280	635.1	38.07	1035.8	0.892	942.1	0.811																																																		
10	0.875	18.229	29.160	633.0	32.88	998.4	0.865	977.4	0.847																																																		
11	0.867	17.111	28.920	631.6	25.95	969.0	0.847	1028.0	0.899																																																		
12	0.857	16.309	28.770	631.5	21.44	964.5	0.849	1065.8	0.938																																																		
13	0.837	15.272	28.564	632.3	15.82	968.0	0.858	1115.6	0.989																																																		

STA 19.000 MASS AVERAGED PROPERTIES
PT= 28.777 TT= 643.26 GAMMA=1.4005 PT-RAT= 1.958 TT-RAT= 1.240
RCU= 3074.8 VM= 776.7 CZ= 759.2 MM=0.662 MABS=0.767 MREL=0.943

STATOR STA= 20.000 AFLOW= 118.85 D+C=0. IN STATOR D+H=0.
 WTF= 61.365 I=21 MTIP=261 DPTV=BETM I TYPE=2 INBR=4 ABC=0. ABH=0.
 PSIC Z OPTX=DPP PHI CURV VM CU ALPHAM MM
 0. -4.300 8.500 0. 653.9 261.9 21.82 0.535
 0.050 -4.277 8.341 0.66 683.9 271.4 21.64 0.562
 0.100 -4.257 8.186 1.32 706.3 278.0 21.49 0.583
 0.200 -4.225 7.887 2.67 747.7 290.6 21.24 0.623
 0.300 -4.200 7.595 4.07 774.5 297.8 21.03 0.649
 0.400 -4.184 7.302 5.55 793.4 303.0 20.90 0.669
 0.500 -4.174 7.003 7.20 804.5 306.6 20.86 0.682
 0.600 -4.173 6.692 9.07 814.1 311.3 20.93 0.693
 0.700 -4.180 6.364 11.26 827.1 319.9 21.15 0.707
 0.800 -4.199 6.014 13.92 846.0 334.8 21.59 0.726
 0.900 -4.233 5.630 17.34 871.4 355.7 22.20 0.752
 0.950 -4.261 5.419 19.54 889.0 368.6 22.52 0.770
 1.000 -4.300 5.188 22.50 911.2 385.1 22.91 0.792

SL BLDBLK PS PT TT BETAM VREL MREL VABS MABS
 1 0.849 21.198 26.533 664.4 62.16 1400.2 1.144 704.4 0.576
 2 0.851 21.168 27.093 661.7 60.33 1381.7 1.135 735.8 0.605
 3 0.852 21.134 27.532 658.8 58.81 1363.8 1.126 759.1 0.627
 4 0.855 21.050 28.390 653.7 55.83 1331.1 1.108 802.2 0.668
 5 0.857 20.940 28.940 649.0 53.39 1298.7 1.089 829.8 0.696
 6 0.859 20.798 29.280 644.7 51.17 1265.2 1.067 849.3 0.716
 7 0.860 20.615 29.380 640.8 49.11 1229.1 1.042 861.0 0.730
 8 0.860 20.366 29.350 637.7 46.89 1191.2 1.014 871.6 0.742
 9 0.858 20.010 29.280 635.1 44.16 1152.9 0.985 886.8 0.758
 10 0.855 19.485 29.160 633.0 40.66 1115.2 0.958 909.8 0.781
 11 0.847 18.729 28.920 631.6 36.21 1080.0 0.932 941.2 0.813
 12 0.840 18.242 28.770 631.5 33.47 1065.7 0.923 962.3 0.833
 13 0.828 17.629 28.564 632.3 30.20 1054.3 0.916 989.2 0.860

STA 20.000 MASS AVERAGED PROPERTIES
 PT= 28.777 TT= 643.26 GAMMA=1.4003 PT-RAT= 1.958 TT-RAT= 1.240
 RCU= 2144.2 VM= 796.8 CZ= 783.2 MM=0.675 MABS=0.725 MREL=1.035

STA= 21.000
 WTF= 61.365 I=22 OPTX=DPP R PHI CURV VM CU ALPHAM MM D=H=O. ABH=O.
 PSIC Z OPTX=DPP R PHI CURV VM CU ALPHAM MM D=H=O. ABH=O.
 IN STATOR
 AFLOW= 115.13 D=C=O. ABC=O.
 OPTV=BEYM TYPE=2 INBR=4
 0. -3.800 8.500 0. 0. 671.5 169.9 14.20 0.548
 0.050 -3.800 8.346 0.55 0.0031 702.6 175.4 14.02 0.577
 0.100 -3.800 8.196 1.12 0.0054 725.5 179.0 13.86 0.598
 0.200 -3.800 7.905 2.31 0.0107 767.4 185.6 13.59 0.638
 0.300 -3.800 7.621 3.57 0.0176 793.6 189.3 13.41 0.664
 0.400 -3.800 7.337 4.93 0.0256 811.4 191.6 13.29 0.683
 0.500 -3.800 7.047 6.41 0.0350 821.3 192.8 13.21 0.695
 0.600 -3.800 6.748 8.08 0.0458 829.1 193.8 13.16 0.704
 0.700 -3.800 6.436 9.99 0.0580 839.0 196.9 13.20 0.715
 0.800 -3.800 6.107 12.20 0.0722 851.7 203.6 13.44 0.728
 0.900 -3.800 5.756 14.98 0.0984 868.5 213.2 13.79 0.745
 0.950 -3.800 5.570 16.64 0.1118 881.3 218.1 13.90 0.758
 1.000 -3.800 5.376 18.63 0.1266 896.0 223.0 13.98 0.771

STA 21.000 MASS AVERAGED PROPERTIES
 PT= 28.777 TT= 643.26 GAMMA=1.4003 PT-RAT= 1.958 TT-RAT= 1.240
 RCU= 1351.3 VM= 809.3 CZ= 799.0 MM=0.683 MABS=0.703 MREL=1.119

STA= 22.000
 WTIP=287 AFLOW= 114.72 D+C=O. D+H=O.
 OPTV=BETM ITYPE=2 INBR=4 ABC=O. ABH=O.
 PSIC 1+23
 WTF= 61.365 OPTX=DPP R
 0. -3.204 8.500 0. 0. 663.2 83.7 7.19 0.540
 0.050 -3.211 8.351 0.55 -0.0031 695.0 86.3 7.08 0.569
 0.100 -3.218 8.207 1.05 -0.0015 717.9 87.8 6.97 0.591
 0.200 -3.232 7.927 2.02 0.0069 760.1 90.6 6.79 0.630
 0.300 -3.246 7.653 3.04 0.0159 786.4 91.8 6.66 0.657
 0.400 -3.259 7.380 4.15 0.0247 804.3 92.5 6.56 0.675
 0.500 -3.272 7.102 5.38 0.0333 813.9 92.5 6.48 0.686
 0.600 -3.287 6.815 6.76 0.0432 821.0 93.5 6.43 0.695
 0.700 -3.301 6.516 8.35 0.0550 829.9 95.8 6.51 0.715
 0.800 -3.316 6.203 10.37 0.0580 840.0 98.9 6.65 0.724
 0.900 -3.333 5.870 12.74 0.0644 848.0 100.5 6.72 0.729
 0.950 -3.341 5.695 13.99 0.0825 853.7 102.5 6.77 0.738
 1.000 -3.350 5.512 15.23 0.1249 863.6 102.5 6.77 0.738

SL	BLOBLK	PS	PT	TT	BETAM	VREL	MREL	VABS	MABS
1	0.880	21.691	26.533	664.4	64.91	1563.9	1.274	658.5	0.545
2	0.880	21.682	27.093	661.7	63.39	1551.8	1.271	700.4	0.573
3	0.881	21.674	27.532	658.8	62.18	1538.2	1.265	723.3	0.595
4	0.882	21.644	28.390	653.7	59.84	1513.1	1.255	765.5	0.635
5	0.883	21.583	28.940	649.0	58.00	1484.2	1.239	791.8	0.661
6	0.883	21.487	29.280	644.7	56.38	1452.8	1.220	809.6	0.680
7	0.884	21.352	29.380	640.8	54.96	1417.7	1.196	819.2	0.691
8	0.885	21.173	29.350	637.7	53.51	1380.7	1.168	826.2	0.699
9	0.886	20.936	29.280	635.1	51.85	1343.4	1.141	835.1	0.709
10	0.886	20.643	29.160	633.0	49.94	1305.1	1.111	845.4	0.720
11	0.886	20.310	28.920	631.6	47.86	1263.8	1.079	853.8	0.729
12	0.887	20.100	28.770	631.5	46.65	1243.7	1.062	859.6	0.734
13	0.887	19.789	28.564	632.3	45.22	1226.0	1.048	869.7	0.743

STA 22.000 MASS AVERAGED PROPERTIES
 PT= 28.777 TT= 643.26 GAMMA=1.4002 PT-RAT= 1.958 TT-RAT= 1.240
 RCU= 653.6 VM= 798.6 CZ= 791.5 MM=0.672 MABS=0.676 MREL=1.184

STA=23.000
 WTF= 61.365 I=24 OPTX=OPP STA=23.000 AFLOW= 118.17 D+C=O. D*H=O.
 PSIC Z R PHI CURV VM CU ALPHAM MM ABH=O.

0.	-2.567	8.500	0.	0.	658.1	0.	0.	0.536
0.050	-2.581	8.357	0.49	0.0063	685.3	0.	0.	0.560
0.100	-2.595	8.218	0.92	0.0091	702.8	0.	0.	0.577
0.200	-2.622	7.917	1.69	0.0124	744.8	0.	0.	0.616
0.300	-2.648	7.682	2.46	0.0183	770.2	0.	0.	0.642
0.400	-2.674	7.418	3.28	0.0267	788.1	0.	0.	0.660
0.500	-2.700	7.150	4.21	0.0378	797.4	0.	0.	0.671
0.600	-2.728	6.874	5.25	0.0505	803.1	0.	0.	0.678
0.700	-2.756	6.587	6.45	0.0655	811.7	0.	0.	0.687
0.800	-2.785	6.290	8.02	0.0938	831.4	0.	0.	0.707
0.900	-2.816	5.976	9.88	0.1248	831.4	0.	0.	0.708
0.950	-2.833	5.809	10.79	0.1318	831.5	0.	0.	0.708
1.000	-2.850	5.631	11.52	0.1267	819.9	0.	0.	0.697

TE STATOR

SL	BLDBLK	PS	PT	TT	BETAM	VREL	MREL	VABS	MABS
1	0.940	21.480	26.109	664.4	66.31	1638.0	1.333	658.1	0.536
2	0.940	21.482	26.581	661.7	65.08	1626.3	1.330	685.3	0.560
3	0.940	21.478	26.910	658.8	64.14	1611.6	1.323	702.8	0.577
4	0.940	21.461	27.731	653.7	62.03	1587.9	1.314	744.8	0.616
5	0.940	21.430	28.269	649.0	60.40	1559.2	1.299	770.2	0.642
6	0.940	21.375	28.639	644.7	58.95	1528.0	1.280	788.1	0.660
7	0.940	21.285	28.781	640.8	57.71	1492.6	1.256	797.4	0.671
8	0.940	21.148	28.769	637.7	56.49	1454.8	1.228	803.1	0.678
9	0.940	20.960	28.750	635.1	55.08	1417.8	1.200	811.7	0.687
10	0.940	20.669	28.851	633.0	53.17	1386.9	1.179	831.4	0.707
11	0.940	20.223	28.250	631.6	51.75	1342.9	1.143	831.4	0.708
12	0.940	19.940	27.860	631.5	50.95	1319.9	1.124	831.5	0.708
13	0.940	19.638	27.159	632.3	50.48	1288.3	1.094	819.9	0.697

STA 23.000 MASS AVERAGED PROPERTIES

PT= 28.163 TT= 643.26 GAMMA=1.4001 PT-RAT= 1.916 TT-RAT= 1.240
 RCU= 0. VM= 782.5 CZ= 778.3 MM=0.657 MABS=0.657 MREL=1.244

PCT	IMM	RAD	BLADE SPEED		ACC PT	ACC TT	EFFICIENCY		AXIAL	
			IN	OUT			AD.	POLY	VEL	R
0.	8.500				1.7766	1.2809	0.635	0.663	1.198	
4.8	8.340				1.8087	1.2757	0.669	0.696	1.163	
9.3	8.186				1.8311	1.2701	0.699	0.723	1.136	
18.1	7.890				1.8870	1.2603	0.765	0.785	1.111	
26.7	7.602				1.9236	1.2512	0.818	0.834	1.096	
35.2	7.315				1.9488	1.2429	0.865	0.877	1.088	
44.0	7.021				1.9584	1.2354	0.900	0.909	1.083	
53.1	6.715				1.9576	1.2294	0.923	0.930	1.082	
62.7	6.391				1.9563	1.2244	0.942	0.948	1.087	
73.1	6.042				1.9632	1.2204	0.965	0.968	1.114	
84.8	5.648				1.9223	1.2177	0.944	0.949	1.136	
91.6	5.419				1.8957	1.2175	0.923	0.929	1.184	
100.0	5.137				1.8480	1.2190	0.876	0.887	1.169	

EXIT		I=25		STA= 24.000		AFLOW= 116.57		D+C=O.		FREE	
WTF= 61.365		OPTX=OPP		MTIP=313		ITYPE=O		INBR=O		D+H=O.	
PSIC		Z		R		PHI		CURV		MM	
0.050	-2.000	8.500	0.32	0.0040	675.8	0.0	0.0	0.0	0.0	0.0	0.551
0.100	-2.000	8.226	0.63	0.0080	719.7	0.0	0.0	0.0	0.0	0.0	0.575
0.200	-2.000	7.963	1.18	0.0159	761.5	0.0	0.0	0.0	0.0	0.0	0.592
0.300	-2.000	7.706	1.68	0.0234	787.9	0.0	0.0	0.0	0.0	0.0	0.631
0.400	-2.000	7.450	2.16	0.0313	807.1	0.0	0.0	0.0	0.0	0.0	0.658
0.500	-2.000	7.192	2.64	0.0402	817.9	0.0	0.0	0.0	0.0	0.0	0.678
0.600	-2.000	6.927	3.13	0.0510	824.8	0.0	0.0	0.0	0.0	0.0	0.690
0.700	-2.000	6.654	3.63	0.0644	834.8	0.0	0.0	0.0	0.0	0.0	0.698
0.800	-2.000	6.373	4.11	0.0793	853.9	0.0	0.0	0.0	0.0	0.0	0.709
0.900	-2.000	6.077	4.60	0.0997	850.7	0.0	0.0	0.0	0.0	0.0	0.728
0.950	-2.000	5.921	4.85	0.1151	848.5	0.0	0.0	0.0	0.0	0.0	0.726
1.000	-2.000	5.757	5.28	0.1260	835.5	0.0	0.0	0.0	0.0	0.0	0.724

SL		BLDBLK		PS		PT		IT		BETAM		VREL		MREL		VABS		MABS	
1	0.950	21.247	26.109	664.4	65.75	1645.2	1.341	675.8	0.551	702.4	0.575	719.7	0.592	761.5	0.631	787.9	0.658	807.1	0.678
2	0.950	21.244	26.581	661.7	64.54	1634.2	1.338	702.4	0.575	719.7	0.592	761.5	0.631	787.9	0.658	807.1	0.678	817.9	0.690
3	0.950	21.236	26.910	658.8	63.63	1620.3	1.332	719.7	0.592	761.5	0.631	787.9	0.658	807.1	0.678	817.9	0.690	824.8	0.698
4	0.950	21.203	27.731	653.7	61.54	1598.3	1.325	761.5	0.631	787.9	0.658	807.1	0.678	817.9	0.690	824.8	0.698	834.8	0.709
5	0.950	21.144	28.269	649.0	59.91	1571.6	1.312	787.9	0.658	807.1	0.678	817.9	0.690	824.8	0.698	834.8	0.709	853.9	0.728
6	0.950	21.058	28.639	644.7	58.45	1542.7	1.295	807.1	0.678	817.9	0.690	824.8	0.698	834.8	0.709	853.9	0.728	850.7	0.726
7	0.950	20.939	28.781	640.8	57.20	1509.9	1.273	817.9	0.690	824.8	0.698	834.8	0.709	853.9	0.728	850.7	0.726	848.5	0.724
8	0.950	20.778	28.769	637.7	55.99	1474.6	1.248	824.8	0.698	834.8	0.709	853.9	0.728	850.7	0.726	848.5	0.724	835.5	0.711
9	0.950	20.562	28.750	635.1	54.59	1440.7	1.223	834.8	0.709	853.9	0.728	850.7	0.726	848.5	0.724	835.5	0.711		
10	0.950	20.274	28.851	633.0	52.79	1412.0	1.204	853.9	0.728	850.7	0.726	848.5	0.724	835.5	0.711				
11	0.950	19.892	28.250	631.6	51.58	1368.9	1.168	850.7	0.726	848.5	0.724	835.5	0.711						
12	0.950	19.653	27.860	631.5	50.92	1346.0	1.148	848.5	0.724	835.5	0.711								
13	0.950	19.382	27.159	632.3	50.57	1315.4	1.120	835.5	0.711										

STA 24.000 MASS AVERAGED PROPERTIES
PT= 28.163 TT= 643.26 GAMMA=1.4002 PT-RAT= 1.916 TT-RAT= 1.240
RCU= 0. VM= 801.9 CZ= 800.7 MM=0.674 MABS=0.674 MREL=1.261

EXIT STA= 25.000
 WTP= 61.365 I=26 OPTX=DPP AFLOW= 116.27 D+C=O. FREE
 PSIC Z R PHI OPTY=FREE ITYPE=O INBR=O CU ALPHAM MM D*H=O.
 0. -1.270 8.500 0.19 0.0025 718.9 0. 0. 0.566
 0.050 -1.270 8.365 0.36 0.0048 735.5 0. 0. 0.590
 0.100 -1.270 8.232 0.66 0.0092 775.4 0. 0. 0.606
 0.200 -1.270 7.974 0.91 0.0136 799.9 0. 0. 0.644
 0.300 -1.270 7.722 1.13 0.0181 816.7 0. 0. 0.668
 0.400 -1.270 7.470 1.32 0.0229 824.4 0. 0. 0.686
 0.500 -1.270 7.216 1.47 0.0280 827.3 0. 0. 0.696
 0.600 -1.270 6.954 1.58 0.0335 831.7 0. 0. 0.700
 0.700 -1.270 6.694 1.62 0.0398 843.0 0. 0. 0.706
 0.800 -1.270 6.436 1.54 0.0464 828.0 0. 0. 0.718
 0.900 -1.270 6.178 1.41 0.0493 817.6 0. 0. 0.705
 0.950 -1.270 5.956 1.41 0.0493 817.6 0. 0. 0.695
 1.000 -1.270 5.790 0.00 0.1263 798.1 0. 0. 0.676

SL	BLDBLK	PS	PT	TT	BETAM	VREL	MREL	VABS	MABS
1	0.956	21.014	26.109	664.4	65.20	1652.4	1.349	695.1	0.566
2	0.956	21.011	26.581	661.7	64.03	1641.8	1.347	718.9	0.590
3	0.956	21.006	26.910	658.8	63.15	1628.3	1.341	735.5	0.606
4	0.956	20.985	27.731	653.7	61.14	1606.7	1.334	775.4	0.644
5	0.956	20.950	28.269	649.0	59.59	1580.0	1.320	799.9	0.668
6	0.956	20.898	28.639	644.7	58.22	1550.7	1.303	816.7	0.686
7	0.956	20.827	28.781	640.8	57.08	1516.9	1.280	824.4	0.696
8	0.956	20.734	28.769	637.7	56.01	1480.1	1.253	827.3	0.700
9	0.956	20.615	28.750	635.1	54.81	1443.3	1.225	831.7	0.706
10	0.956	20.466	28.851	633.0	53.28	1410.2	1.201	843.0	0.718
11	0.956	20.281	28.250	631.6	52.49	1359.7	1.157	828.0	0.705
12	0.956	20.173	27.860	631.5	52.12	1331.6	1.132	817.6	0.695
13	0.956	19.989	27.159	632.3	52.01	1296.6	1.099	798.1	0.676

STA 25.000 MASS AVERAGED PROPERTIES
 PT= 28.163 TT= 643.26 GAMMA=1.4002 PT-RAT= 1.916 TT-RAT= 1.240
 RCU= 0. VM= 803.2 CZ= 803.0 MM=0.675 MABS=0.675 MREL=1.264

EXIT		I=27		STA= 26.000		AFLOW= 116.28		D+C=O.		FREE	
WTF= 61.365		OPTX=DDP		MTIP=339		ITYPE=O		INBR=O		D+H=O.	
PSIC	Z	R	PHI	CURV	VM	CU	ALPHAM	MM	ABH=O.	MM	MM
0.	-0.350	8.500	0.	0.	711.0	0.	0.	0.581			
0.050	-0.350	8.367	0.11	-0.0000	735.8	0.	0.	0.605			
0.100	-0.350	8.236	0.21	-0.0000	751.6	0.	0.	0.620			
0.200	-0.350	7.981	0.37	-0.0000	789.3	0.	0.	0.656			
0.300	-0.350	7.731	0.49	-0.0000	811.0	0.	0.	0.679			
0.400	-0.350	7.482	0.57	-0.0000	824.4	0.	0.	0.693			
0.500	-0.350	7.229	0.61	-0.0000	827.9	0.	0.	0.699			
0.600	-0.350	6.968	0.61	-0.0000	825.4	0.	0.	0.698			
0.700	-0.350	6.698	0.54	-0.0000	822.9	0.	0.	0.698			
0.800	-0.350	6.418	0.39	-0.0000	825.8	0.	0.	0.702			
0.900	-0.350	6.120	0.11	-0.0000	799.3	0.	0.	0.678			
0.950	-0.350	5.961	-0.10	-0.0000	781.7	0.	0.	0.662			
1.000	-0.350	5.791	0.	0.	748.9	0.	0.	0.631			

SL	BLDBLK	PS	PT	TT	BETAM	VREL	MREL	VABS	MABS
1	0.956	20.768	26.109	664.4	64.64	1660.0	1.358	711.0	0.581
2	0.956	20.768	26.581	661.7	63.51	1649.7	1.355	735.8	0.605
3	0.956	20.767	26.910	658.8	62.65	1636.3	1.350	751.6	0.620
4	0.956	20.767	27.731	653.7	60.73	1614.5	1.342	789.3	0.656
5	0.956	20.767	28.269	649.0	59.27	1587.2	1.328	811.0	0.679
6	0.956	20.768	28.639	644.7	58.02	1556.6	1.309	824.4	0.693
7	0.956	20.768	28.781	640.8	57.02	1520.8	1.284	827.9	0.699
8	0.956	20.767	28.769	637.7	56.13	1481.0	1.253	825.4	0.698
9	0.956	20.767	28.750	635.1	55.15	1440.3	1.221	825.8	0.702
10	0.956	20.766	28.851	633.0	53.90	1401.6	1.191	799.3	0.678
11	0.956	20.765	28.250	631.6	53.50	1343.6	1.139	781.7	0.662
12	0.956	20.765	27.860	631.5	53.38	1310.6	1.109	748.9	0.631
13	0.956	20.765	27.159	632.3	53.76	1266.9	1.068		

STA 26.000 MASS AVERAGED PROPERTIES
PT= 28.163 TT= 643.26 GAMMA=1.4002 PT-RAT= 1.916 TT-RAT= 1.240
RCU= 0. VM= 801.4 CZ= 801.3 MM=0.673 MABS=0.673 MREL=1.263

Phase II Rotor

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.	-303.8	-384.3	14.7
2	8.317	0.183	-306.3	-388.7	16.5
3	8.136	0.364	-309.3	-394.6	14.7
4	7.773	0.727	-309.7	-394.6	-10.5
5	7.406	1.094	-306.6	-380.9	-31.4
6	7.026	1.474	-299.2	-357.6	-29.5
7	6.624	1.876	-288.4	-328.7	-19.3
8	6.192	2.308	-275.8	-294.0	-13.3
9	5.716	2.784	-263.8	-254.2	-19.3
10	5.180	3.320	-246.3	-206.4	-20.5
11	4.523	3.977	-214.8	-138.7	-18.2
12	4.102	4.398	-187.2	-84.6	-25.6
13	3.547	4.953	-165.5	-44.5	-31.7

NET TORQUE= -8081.5 IN-LB
 NET TAN. FORCE= -1290.7 LB
 NET AXIAL FORCE= -1288.9 LB
 NET RADIAL FORCE= -86.0 LB

2. STREAMSURFACE BLADE COORDINATES

Figure 42 shows the stacked Phase II 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.

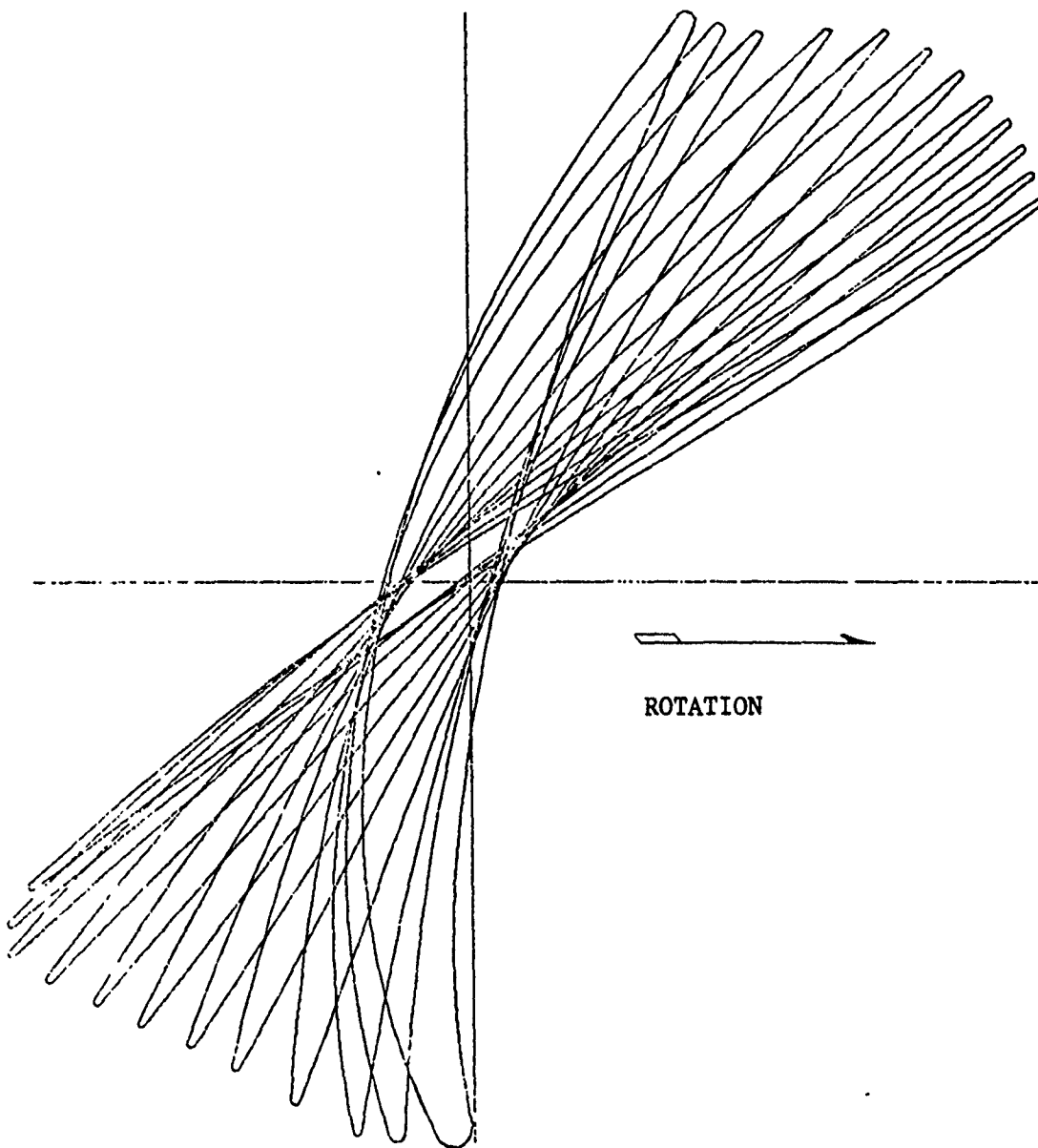


FIGURE 42. Stacked Phase II Rotor Streamsurface Sections

PHASE II 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	-1.12970	8.50000	0.21035	-55.012	0.01870	0.	-1.12970	-55.012	0.01870
2	-1.07880	8.50000	0.20170	-55.600	0.02368	0.	-1.07880	-55.600	0.02368
3	-0.97700	8.50000	0.18383	-56.762	0.03380	0.	-0.97700	-56.762	0.03380
4	-0.87530	8.50000	0.16514	-57.952	0.04401	0.	-0.87530	-57.952	0.04401
5	-0.77350	8.50000	0.14557	-59.111	0.05411	0.	-0.77350	-59.111	0.05411
6	-0.66150	8.50000	0.12305	-60.178	0.06481	0.	-0.66150	-60.178	0.06481
7	-0.53940	8.50000	0.09757	-60.877	0.07547	0.	-0.53940	-60.877	0.07547
8	-0.41730	8.50000	0.07172	-60.886	0.08442	0.	-0.41730	-60.886	0.08442
9	-0.29510	8.50000	0.04617	-60.315	0.09107	0.	-0.29510	-60.315	0.09107
10	-0.17300	8.50000	0.02142	-59.386	0.09504	0.	-0.17300	-59.386	0.09504
11	-0.05090	8.50000	-0.00237	-58.354	0.09615	0.	-0.05090	-58.354	0.09615
12	0.07120	8.50000	-0.02524	-57.364	0.09439	0.	0.07120	-57.364	0.09439
13	0.19340	8.50000	-0.04727	-56.414	0.08995	0.	0.19340	-56.414	0.08995
14	0.31550	8.50000	-0.06854	-55.508	0.08302	0.	0.31550	-55.508	0.08302
15	0.43760	8.50000	-0.08912	-54.640	0.07378	0.	0.43760	-54.640	0.07378
16	0.55980	8.50000	-0.10904	-53.762	0.06239	0.	0.55980	-53.762	0.06239
17	0.68190	8.50000	-0.12835	-52.952	0.04896	0.	0.68190	-52.952	0.04896
18	0.80400	8.50000	-0.14718	-52.397	0.03356	0.	0.80400	-52.397	0.03356
19	0.90580	8.50000	-0.16263	-52.074	0.01923	0.	0.90580	-52.074	0.01923

MEANLINE INPUT DATA - STREAMLINE 3

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.20600	8.13900	0.21629	-53.818	0.01934	0.789	-1.20603	-53.815	0.01934
2	-1.15050	8.13980	0.20687	-54.369	0.02460	0.774	-1.15053	-54.366	0.02460
3	-1.03940	8.14130	0.18745	-55.472	0.03525	0.710	-1.03942	-55.470	0.03525
4	-0.92840	8.14260	0.16719	-56.638	0.04597	0.550	-0.92841	-56.636	0.04597
5	-0.81730	8.14350	0.14602	-57.747	0.05653	0.311	-0.81731	-57.746	0.05653
6	-0.69520	8.14390	0.12181	-58.605	0.06764	0.075	-0.69521	-58.605	0.06764
7	-0.56190	8.14370	0.09476	-58.947	0.07855	-0.096	-0.56191	-58.947	0.07855
8	-0.42870	8.14340	0.06769	-58.650	0.08759	-0.203	-0.42871	-58.650	0.08759
9	-0.29540	8.14280	0.04119	-57.897	0.09426	-0.286	-0.29540	-57.897	0.09426
10	-0.16210	8.14200	0.01557	-56.940	0.09824	-0.352	-0.16210	-56.939	0.09824
11	-0.02890	8.14110	-0.00912	-55.987	0.09937	-0.324	-0.02890	-55.986	0.09937
12	0.10440	8.14050	-0.03299	-55.130	0.09761	-0.210	0.10440	-55.130	0.09761
13	0.23760	8.14020	-0.05613	-54.321	0.09309	-0.116	0.23760	-54.321	0.09309
14	0.37090	8.14000	-0.07859	-53.490	0.08598	-0.140	0.37090	-53.490	0.08598
15	0.50420	8.13960	-0.10035	-52.602	0.07644	-0.335	0.50420	-52.601	0.07644
16	0.63740	8.13840	-0.12143	-51.739	0.06462	-0.660	0.63741	-51.737	0.06462
17	0.77070	8.13650	-0.14188	-50.867	0.05055	-0.912	0.77072	-50.863	0.05065
18	0.90390	8.13440	-0.16166	-49.823	0.03468	-0.811	0.90394	-49.820	0.03468
19	1.01500	8.13250	-0.17755	-48.832	0.01998	-0.534	1.01505	-48.831	0.01998

PHASE II ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 4

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.28580	7.76020	0.22314	-52.567	0.01994	1.667	-1.28603	-52.556	0.01995
2	-1.22610	7.76190	0.21296	-53.238	0.02594	1.659	-1.22630	-53.226	0.02595
3	-1.10660	7.76540	0.19187	-54.482	0.03812	1.617	-1.10676	-54.471	0.03813
4	-0.98710	7.76870	0.16388	-55.546	0.05034	1.497	-0.98721	-55.537	0.05035
5	-0.86760	7.77170	0.14710	-56.350	0.06230	1.305	-0.86768	-56.343	0.06231
6	-0.73620	7.77450	0.12144	-56.818	0.07471	1.083	-0.73625	-56.813	0.07472
7	-0.59280	7.77680	0.09321	-56.788	0.08675	0.867	-0.59283	-56.785	0.08676
8	-0.44950	7.77880	0.06530	-56.236	0.09662	0.674	-0.44951	-56.234	0.09662
9	-0.30610	7.78030	0.03818	-55.337	0.10384	0.492	-0.30611	-55.336	0.10384
10	-0.16270	7.78120	0.01203	-54.321	0.10814	0.330	-0.16270	-54.321	0.10814
11	-0.01930	7.78180	-0.01319	-53.388	0.10935	0.240	-0.01930	-53.388	0.10935
12	0.12400	7.78240	-0.03761	-52.571	0.10740	0.237	0.12400	-52.570	0.10740
13	0.26740	7.78300	-0.06133	-51.733	0.10241	0.280	0.26740	-51.733	0.10241
14	0.41080	7.78380	-0.08433	-50.888	0.09453	0.300	0.41080	-50.888	0.09453
15	0.55410	7.78460	-0.10666	-50.083	0.08391	0.239	0.55411	-50.083	0.08391
16	0.69750	7.78500	-0.12836	-49.255	0.07071	0.115	0.69751	-49.255	0.07071
17	0.84090	7.78510	-0.14939	-48.286	0.05505	0.097	0.84091	-48.286	0.05505
18	0.98430	7.78570	-0.16962	-47.040	0.03714	0.443	0.98431	-47.039	0.03714
19	1.10370	7.78660	-0.18576	-45.828	0.02064	0.925	1.10372	-45.825	0.02064

MEANLINE INPUT DATA - STREAMLINE 5

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.36080	7.35960	0.22867	-51.279	0.02020	2.850	-1.36205	-51.244	0.02022
2	-1.29730	7.36280	0.21780	-51.830	0.02752	2.847	-1.29847	-51.796	0.02754
3	-1.17030	7.36920	0.19546	-52.831	0.04230	2.839	-1.17131	-52.797	0.04233
4	-1.04330	7.37550	0.17240	-53.608	0.05701	2.820	-1.04416	-53.575	0.05705
5	-0.91630	7.38170	0.14880	-54.129	0.07126	2.781	-0.91700	-54.097	0.07132
6	-0.77660	7.38840	0.12248	-54.429	0.08591	2.696	-0.77714	-54.399	0.08597
7	-0.62430	7.39550	0.09368	-54.262	0.10000	2.529	-0.62468	-54.235	0.10006
8	-0.47190	7.40190	0.06550	-53.292	0.11140	2.264	-0.47215	-53.271	0.11146
9	-0.31950	7.40750	0.03857	-51.917	0.11961	1.971	-0.31965	-51.901	0.11965
10	-0.16710	7.41240	0.01291	-50.690	0.12441	1.726	-0.16717	-50.678	0.12444
11	-0.01470	7.41670	-0.01171	-49.608	0.12565	1.549	-0.01471	-49.597	0.12568
12	0.13770	7.42060	-0.03543	-48.624	0.12326	1.448	0.13775	-48.615	0.12328
13	0.29010	7.42440	-0.05838	-47.750	0.11739	1.433	0.29019	-47.741	0.11741
14	0.44240	7.42820	-0.08064	-46.929	0.10818	1.468	0.44254	-46.920	0.10820
15	0.59480	7.43220	-0.10226	-46.087	0.09576	1.521	0.59499	-46.077	0.09578
16	0.74720	7.43620	-0.12323	-45.202	0.08028	1.612	0.74745	-45.190	0.08030
17	0.89960	7.44070	-0.14353	-44.258	0.06185	1.846	0.89992	-44.243	0.06187
18	1.05200	7.44640	-0.16314	-43.245	0.04061	2.362	1.05242	-43.221	0.04063
19	1.17900	7.45180	-0.17893	-42.356	0.02087	2.935	1.17956	-42.318	0.02088

PHASE II ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 6

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.42970	6.93260	0.23286	-49.989	0.02029	4.404	-1.43381	-49.905	0.02033
2	-1.36280	6.93790	0.22128	-50.432	0.02955	4.446	-1.36671	-50.348	0.02960
3	-1.22900	6.94840	0.19763	-51.192	0.04817	4.536	-1.23250	-51.104	0.04826
4	-1.09520	6.95910	0.17349	-51.627	0.06652	4.636	-1.09827	-51.536	0.06665
5	-0.96150	6.97000	0.14917	-51.740	0.08409	4.717	-0.96412	-51.646	0.08427
6	-0.81430	6.98230	0.12244	-51.686	0.10192	4.711	-0.81642	-51.592	0.10213
7	-0.65380	6.99550	0.09355	-51.237	0.11889	4.554	-0.65539	-51.148	0.11912
8	-0.49330	7.00790	0.06559	-49.910	0.13251	4.264	-0.49441	-49.831	0.13272
9	-0.33280	7.01940	0.03923	-48.148	0.14223	3.952	-0.33350	-48.080	0.14242
10	-0.17230	7.03070	0.01441	-46.642	0.14783	3.706	-0.17264	-46.582	0.14799
11	-0.01180	7.04020	-0.00922	-45.382	0.14917	3.490	-0.01182	-45.329	0.14931
12	0.14880	7.04970	-0.03186	-44.256	0.14619	3.299	0.14906	-44.208	0.14631
13	0.30930	7.05870	-0.05362	-43.195	0.13904	3.179	0.30982	-43.151	0.13914
14	0.46980	7.06750	-0.07458	-42.202	0.12791	3.165	0.47056	-42.158	0.12800
15	0.63030	7.07640	-0.09484	-41.303	0.11291	3.273	0.63131	-41.257	0.11299
16	0.79080	7.08570	-0.11447	-40.503	0.09414	3.503	0.79209	-40.451	0.09421
17	0.95130	7.09590	-0.13356	-39.780	0.07167	3.884	0.95292	-39.716	0.07174
18	1.11190	7.10780	-0.15215	-39.087	0.04554	4.463	1.11395	-39.002	0.04559
19	1.24560	7.11850	-0.16727	-38.512	0.02102	5.038	1.24811	-38.404	0.02105

MEANLINE INPUT DATA - STREAMLINE 7

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.49500	6.47130	0.23569	-48.713	0.01988	6.418	-1.50486	-48.534	0.01995
2	-1.42500	6.47940	0.22332	-48.967	0.03215	6.520	-1.43441	-48.782	0.03227
3	-1.28500	6.49570	0.19833	-49.395	0.05668	6.711	-1.29348	-49.200	0.05690
4	-1.14510	6.51230	0.17311	-49.602	0.08068	6.861	-1.15259	-49.398	0.08102
5	-1.00510	6.52930	0.14791	-49.511	0.10350	6.942	-1.01156	-49.302	0.10394
6	-0.85110	6.54810	0.12052	-49.036	0.12646	6.914	-0.85643	-48.829	0.12699
7	-0.68310	6.56850	0.09152	-47.942	0.14805	6.756	-0.68722	-47.744	0.14862
8	-0.51520	6.58800	0.06406	-46.098	0.16518	6.530	-0.51818	-45.911	0.16574
9	-0.34720	6.60680	0.03855	-44.051	0.17733	6.283	-0.34913	-43.878	0.17785
10	-0.17920	6.62500	0.01469	-42.450	0.18432	6.035	-0.18015	-42.292	0.18479
11	-0.01120	6.64240	-0.00791	-41.048	0.18594	5.747	-0.01126	-40.904	0.18635
12	0.15670	6.65890	-0.02937	-39.670	0.18210	5.546	0.15746	-39.538	0.18245
13	0.32470	6.67500	-0.04980	-38.416	0.17298	5.451	0.32624	-38.290	0.17328
14	0.49270	6.69090	-0.06934	-37.324	0.15878	5.476	0.49500	-37.198	0.15905
15	0.66070	6.70720	-0.08813	-36.387	0.13962	5.588	0.66379	-36.256	0.13985
16	0.82860	6.72370	-0.10628	-35.554	0.11558	5.822	0.83252	-35.414	0.11578
17	0.99660	6.74120	-0.12387	-34.853	0.08670	6.213	1.00144	-34.695	0.08687
18	1.16460	6.76060	-0.14103	-34.369	0.05296	6.777	1.17053	-34.182	0.05308
19	1.30460	6.77760	-0.15509	-34.072	0.02110	7.324	1.31159	-33.854	0.02115

PHASE II ROTOR

NE 20

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - SIREAMLINE 8

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.55440	5.96420	0.23732	-47.543	0.01889	9.000	-1.57422	-47.190	0.01902
2	-1.48170	5.97610	0.22397	-47.652	0.03411	9.131	-1.50060	-47.288	0.03435
3	-1.33620	6.00000	0.19723	-47.806	0.06434	9.349	-1.35319	-47.424	0.06481
4	-1.19070	6.02400	0.17053	-47.766	0.09373	9.433	-1.20571	-47.377	0.09443
5	-1.04510	6.04820	0.14414	-47.325	0.12146	9.391	-1.05812	-46.940	0.12234
6	-0.89510	6.07460	0.11605	-46.037	0.14906	9.310	-0.89596	-45.657	0.15008
7	-0.71055	6.10310	0.08739	-43.824	0.17460	9.214	-0.71905	-43.453	0.17568
8	-0.53580	6.13120	0.06108	-41.545	0.19472	9.059	-0.54211	-41.188	0.19579
9	-0.36120	6.15880	0.03679	-39.536	0.20908	8.857	-0.36535	-39.199	0.21009
10	-0.18660	6.18560	0.01416	-37.818	0.21742	8.645	-0.18869	-37.501	0.21835
11	-0.01200	6.21190	-0.00708	-36.192	0.21942	8.461	-0.01213	-35.894	0.22025
12	0.16260	6.23760	-0.02701	-34.611	0.21493	8.325	-0.16436	-34.328	0.21566
13	0.33720	6.26290	-0.04578	-33.219	0.20416	8.243	0.34080	-32.947	0.20479
14	0.51180	6.28810	-0.06357	-31.991	0.18727	8.232	0.51721	-31.725	0.18781
15	0.68640	6.31350	-0.08051	-30.888	0.16439	8.328	0.69365	-30.621	0.16485
16	0.86110	6.33920	-0.09673	-30.039	0.13554	8.589	0.87026	-29.759	0.13592
17	1.03570	6.36600	-0.11243	-29.472	0.10072	9.010	1.04694	-29.169	0.10102
18	1.21030	6.39470	-0.12777	-29.081	0.05983	9.522	1.22384	-28.745	0.06002
19	1.35580	6.41970	-0.14033	-28.816	0.02109	9.979	1.37148	-28.449	0.02116

MEANLINE INPUT DATA - SIREAMLINE 9

P1	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.59200	5.39270	0.23565	-46.431	0.01837	12.123	-1.62875	-45.785	0.01859
2	-1.51700	5.40930	0.22106	-46.362	0.03630	12.281	-1.55202	-45.700	0.03674
3	-1.36690	5.44270	0.19216	-46.103	0.07176	12.535	-1.39833	-45.413	0.07265
4	-1.21680	5.47610	0.16386	-45.478	0.10594	12.603	-1.24453	-44.779	0.10725
5	-1.06670	5.50960	0.13659	-44.311	0.13794	12.494	-1.09075	-43.625	0.13954
6	-0.90160	5.54600	0.10837	-42.301	0.16954	12.338	-0.92170	-41.635	0.17132
7	-0.72150	5.58510	0.08028	-39.571	0.19866	12.206	-0.73739	-38.929	0.20049
8	-0.54140	5.62390	0.05487	-37.173	0.22168	12.069	-0.55317	-36.558	0.22347
9	-0.36130	5.66220	0.03153	-35.226	0.23829	11.913	-0.36905	-34.641	0.24000
10	-0.18120	5.69990	0.00988	-33.428	0.24812	11.755	-0.18504	-32.872	0.24970
11	-0.00110	5.73710	-0.01022	-31.634	0.25069	11.640	-0.00112	-31.105	0.25211
12	0.17900	5.77410	-0.02882	-29.816	0.24576	11.590	0.18274	-29.310	0.24700
13	0.35910	5.81090	-0.04600	-28.057	0.23351	11.593	0.36659	-27.570	0.23456
14	0.53920	5.84790	-0.06191	-26.445	0.21413	11.659	0.55045	-25.972	0.21500
15	0.71940	5.88520	-0.07671	-25.062	0.18772	11.813	0.73449	-24.594	0.18843
16	0.89950	5.92320	-0.09060	-23.963	0.15431	12.107	0.91858	-23.498	0.15487
17	1.07960	5.96240	-0.10380	-23.163	0.11386	12.507	1.10292	-22.669	0.11428
18	1.25970	6.00320	-0.11651	-22.623	0.06625	12.901	1.28754	-22.108	0.06650
19	1.40980	6.03810	-0.12681	-22.282	0.02103	13.210	1.44162	-21.748	0.02111

PHASE II ROTOR

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 10

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.56670	4.73250	0.22884	-45.229	0.02055	16.174	-1.63125	-44.072	0.02096
2	-1.49060	4.75520	0.21273	-44.988	0.04056	16.341	-1.55198	-43.807	0.04139
3	-1.33830	4.80070	0.18124	-44.251	0.07999	16.607	-1.39315	-43.032	0.08163
4	-1.18600	4.84620	0.15119	-42.750	0.11777	16.674	-1.23418	-41.525	0.12007
5	-1.03380	4.89160	0.12337	-40.452	0.15282	16.548	-1.07534	-39.264	0.15550
6	-0.86630	4.94110	0.09570	-37.734	0.18724	16.348	-0.90059	-36.596	0.19008
7	-0.68360	4.99450	0.06860	-35.046	0.21919	16.133	-0.71040	-33.971	0.22203
8	-0.50090	5.04680	0.04421	-32.649	0.24482	15.901	-0.52032	-31.642	0.24754
9	-0.31810	5.09850	0.02210	-30.453	0.26356	15.711	-0.33034	-29.508	0.26608
10	-0.13540	5.14960	0.00201	-28.321	0.27488	15.631	-0.14060	-27.429	0.27715
11	0.04730	5.20070	-0.01616	-26.119	0.27825	15.656	0.04912	-25.273	0.28023
12	0.23000	5.25200	-0.03244	-23.775	0.27336	15.775	0.23891	-22.974	0.27502
13	0.41270	5.30390	-0.04682	-21.328	0.26029	15.976	0.42885	-20.575	0.26160
14	0.59540	5.35660	-0.05940	-19.034	0.23916	16.224	0.61900	-18.328	0.24016
15	0.77810	5.41020	-0.07048	-17.178	0.20995	16.508	0.80941	-16.509	0.21069
16	0.96080	5.46490	-0.08041	-15.828	0.17252	16.892	1.00015	-15.178	0.17312
17	1.14360	5.52100	-0.08953	-14.890	0.12691	17.282	1.19141	-14.246	0.12728
18	1.32630	5.57850	-0.09805	-14.146	0.07274	17.457	1.38286	-13.519	0.07294
19	1.47850	5.62700	-0.10475	-13.576	0.02103	17.480	1.54242	-12.971	0.02108

MEANLINE INPUT DATA - STREAMLINE 11

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.51000	3.90290	0.22127	-43.630	0.02498	21.609	-1.62361	-41.550	0.02583
2	-1.43470	3.93350	0.20310	-43.150	0.04603	21.757	-1.54258	-41.044	0.04758
3	-1.28400	3.99450	0.16818	-41.936	0.08752	21.978	-1.38018	-39.797	0.09039
4	-1.13340	4.05530	0.13558	-40.014	0.12735	21.985	-1.21775	-37.900	0.13121
5	-0.98280	4.11570	0.10600	-37.372	0.16457	21.798	-1.05544	-35.343	0.16892
6	-0.81710	4.18160	0.07716	-34.300	0.20147	21.576	-0.87712	-32.389	0.20594
7	-0.63630	4.25290	0.04962	-31.124	0.23609	21.398	-0.68782	-29.344	0.24040
8	-0.45560	4.32330	0.02573	-27.944	0.26425	21.242	-0.48885	-26.308	0.26814
9	-0.27490	4.39320	0.00511	-24.962	0.28528	21.189	-0.29503	-23.462	0.28866
10	-0.09410	4.46340	-0.01277	-22.379	0.29854	21.319	-0.10105	-20.985	0.30144
11	0.08660	4.53420	-0.02829	-19.818	0.30351	21.598	0.09309	-18.525	0.30590
12	0.26740	4.60640	-0.04151	-17.144	0.29971	21.992	0.28780	-15.962	0.30155
13	0.44810	4.68020	-0.05256	-14.559	0.28687	22.477	0.48301	-13.495	0.28820
14	0.62890	4.75590	-0.06160	-11.933	0.26485	23.000	0.67904	-11.003	0.26572
15	0.80960	4.83360	-0.06862	-9.146	0.23346	23.517	0.87573	-8.398	0.23393
16	0.99040	4.91350	-0.07370	-6.497	0.19240	24.027	1.07330	-5.939	0.19260
17	1.17110	4.99480	-0.07707	-4.081	0.14140	24.335	1.27143	-3.719	0.14146
18	1.35190	5.07640	-0.07889	-1.715	0.08033	24.136	1.46977	-1.565	0.08034
19	1.50250	5.14450	-0.07926	0.283	0.02159	23.714	1.63454	0.259	0.02159

PHASE 11 ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY

MEANLINE INPUT DATA - STREAMLINE 12

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.49020	3.35910	0.22137	-41.273	0.03344	25.674	-1.64725	-38.346	0.03490
2	-1.41650	3.39530	0.20238	-40.745	0.05388	25.706	-1.56546	-37.820	0.05618
3	-1.26900	3.46710	0.16516	-39.426	0.09436	25.696	-1.40175	-36.534	0.09815
4	-1.12160	3.53770	0.13268	-37.411	0.13355	25.465	-1.23830	-34.628	0.13835
5	-0.97420	3.60690	0.10257	-34.728	0.17052	25.084	-1.07530	-32.120	0.17572
6	-0.81200	3.68220	0.07341	-31.778	0.20756	24.816	-0.89643	-29.349	0.21282
7	-0.63510	3.76390	0.04560	-28.877	0.24279	24.801	-0.70158	-26.594	0.24793
8	-0.45810	3.84560	0.02152	-25.805	0.27209	24.909	-0.50652	-23.679	0.27678
9	-0.28120	3.92800	0.00101	-22.737	0.29469	25.126	-0.31132	-20.777	0.29874
10	-0.10430	4.01150	-0.01643	-20.029	0.30973	25.482	-0.11567	-18.215	0.31315
11	0.07260	4.09660	-0.03123	-17.408	0.31658	25.958	0.08067	-15.743	0.31933
12	0.24960	4.18380	-0.04351	-14.592	0.31459	26.559	0.27802	-13.108	0.31661
13	0.42650	4.27350	-0.05322	-11.457	0.30344	27.302	0.47643	-10.209	0.30471
14	0.60340	4.36620	-0.06027	-8.024	0.28293	28.050	0.67619	-7.092	0.28354
15	0.78030	4.46210	-0.06465	-4.434	0.25272	28.692	0.87725	-3.892	0.25289
16	0.95720	4.56060	-0.06649	-0.948	0.21254	29.324	1.07954	-0.826	0.21255
17	1.13420	4.66060	-0.06596	2.611	0.16222	29.664	1.28300	2.269	0.16226
18	1.31110	4.76070	-0.06291	6.813	0.10169	29.136	1.48619	5.958	0.10186
19	1.45850	4.84410	-0.05819	10.698	0.04321	28.232	1.65425	9.450	0.04338

MEANLINE INPUT DATA - STREAMLINE 13

PT	Z	R	THETA	B*	T(Z)	PHI	X	B*M	T(M)
1	-1.47050	2.65330	0.23827	-36.526	0.05039	31.139	-1.68416	-32.373	0.05296
2	-1.39980	2.69460	0.21882	-36.125	0.06917	30.509	-1.60183	-32.163	0.07249
3	-1.25830	2.77620	0.18170	-35.141	0.10671	29.348	-1.43859	-31.531	0.11123
4	-1.11680	2.85490	0.14718	-33.745	0.14340	28.479	-1.27698	-30.422	0.14871
5	-0.97530	2.93070	0.11560	-31.862	0.17838	27.969	-1.11643	-28.764	0.18411
6	-0.81970	3.01270	0.08457	-29.340	0.21417	27.754	-0.94047	-26.447	0.21997
7	-0.64990	3.10230	0.05521	-26.361	0.24915	27.933	-0.74851	-23.645	0.25472
8	-0.48010	3.19340	0.03009	-23.624	0.27896	28.599	-0.55579	-21.008	0.28424
9	-0.31040	3.28790	0.00851	-21.156	0.30296	29.667	-0.36156	-18.586	0.30791
10	-0.14060	3.38720	-0.00996	-18.710	0.32048	30.955	-0.16488	-16.195	0.32493
11	0.02920	3.49170	-0.02544	-16.015	0.33069	32.210	0.03447	-13.650	0.33432
12	0.19900	3.60090	-0.03784	-12.931	0.33250	33.325	0.23643	-10.860	0.33504
13	0.36880	3.71480	-0.04706	-9.438	0.32520	34.348	0.44088	-7.814	0.32660
14	0.53850	3.83300	-0.05289	-5.115	0.30871	35.318	0.64763	-4.177	0.30912
15	0.70830	3.95520	-0.05478	0.379	0.28281	36.212	0.85693	0.306	0.28281
16	0.87810	4.08130	-0.05223	6.606	0.24708	36.868	1.06835	5.293	0.24767
17	1.04790	4.20930	-0.04512	13.141	0.20175	37.049	1.28100	10.555	0.20367
18	1.21760	4.33580	-0.03339	19.749	0.14773	36.538	1.49305	16.090	0.15081
19	1.35910	4.44020	-0.02005	25.139	0.09622	35.780	1.66835	20.841	0.09933

PHASE II ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 1

MEANLINE DATA						SURFACE COORDINATES				
PT	PCT X	X	Y	B-M	T(M)	PT	XS	YS	XP	YP
1	0.	-1.12970	1.78798	-55.012	0.01870	1	-1.12970	1.78798	-1.12970	1.78798
2	0.02500	-1.07881	1.71447	-55.600	0.02368	2	-1.13371	1.78145	-1.12203	1.78947
3	0.05000	-1.02792	1.63933	-56.179	0.02871	3	-1.13223	1.77482	-1.11647	1.78582
4	0.07500	-0.97704	1.56254	-56.761	0.03380	4	-1.08858	1.70778	-1.06904	1.72116
5	0.10000	-0.92615	1.48401	-57.354	0.03891	5	-1.03985	1.63134	-1.01600	1.64733
6	0.12500	-0.87526	1.40365	-57.952	0.04401	6	-0.99117	1.55328	-0.96290	1.57180
7	0.15000	-0.82438	1.32142	-58.545	0.04909	7	-0.94253	1.47351	-0.90977	1.49450
8	0.17500	-0.77329	1.23729	-59.112	0.05411	8	-0.89392	1.39198	-0.85661	1.41533
9	0.20000	-0.72260	1.15132	-59.634	0.05905	9	-0.84531	1.30861	-0.80344	1.33423
10	0.23000	-0.66154	1.04591	-60.178	0.06481	10	-0.79671	1.22340	-0.75027	1.25118
11	0.26000	-0.60047	0.93840	-60.605	0.07031	11	-0.74807	1.13639	-0.69713	1.16624
12	0.29000	-0.53941	0.82934	-60.876	0.07547	12	-0.68965	1.02979	-0.63342	1.06202
13	0.32000	-0.47834	0.71946	-60.966	0.08020	13	-0.63110	0.92115	-0.56984	0.95566
14	0.35000	-0.41727	0.60958	-60.886	0.08442	14	-0.57237	0.81097	-0.50644	0.84770
15	0.38000	-0.35621	0.50038	-60.660	0.08806	15	-0.51340	0.70000	-0.44328	0.73893
16	0.41000	-0.29514	0.39246	-60.315	0.09107	16	-0.45415	0.58904	-0.38040	0.63011
17	0.44000	-0.23408	0.28625	-59.879	0.09340	17	-0.39459	0.47881	-0.31783	0.52196
18	0.47000	-0.17301	0.18202	-59.386	0.09504	18	-0.33470	0.36991	-0.25559	0.41501
19	0.50000	-0.11195	0.07987	-58.870	0.09596	19	-0.27448	0.26282	-0.19368	0.30969
20	0.53000	-0.05088	-0.02022	-58.354	0.09615	20	-0.21391	0.15782	-0.13212	0.20622
21	0.56000	0.01018	-0.11833	-57.852	0.09562	21	-0.15302	0.05506	-0.07088	0.10467
22	0.59000	0.07125	-0.21458	-57.364	0.09439	22	-0.09181	-0.04544	-0.00996	0.00501
23	0.62000	0.13231	-0.30906	-56.884	0.09249	23	-0.03030	-0.14377	0.05066	-0.09289
24	0.65000	0.19338	-0.40184	-56.414	0.08995	24	0.03150	-0.24003	0.11099	-0.18913
25	0.68000	0.25444	-0.49300	-55.955	0.08679	25	0.09358	-0.33432	0.17104	-0.28379
26	0.71000	0.31551	-0.58262	-55.508	0.08302	26	0.15591	-0.42672	0.23084	-0.37696
27	0.74000	0.37657	-0.67078	-55.072	0.07867	27	0.21841	-0.51730	0.29040	-0.46871
28	0.77000	0.43764	-0.75752	-54.639	0.07378	28	0.28129	-0.60613	0.34972	-0.55912
29	0.80000	0.49870	-0.84289	-54.201	0.06835	29	0.34432	-0.69330	0.40882	-0.64826
30	0.83000	0.55977	-0.92688	-53.763	0.06239	30	0.40755	-0.77887	0.46772	-0.73618
31	0.86000	0.62083	-1.00955	-53.336	0.05592	31	0.47098	-0.86288	0.52642	-0.82290
32	0.89000	0.68190	-1.09099	-52.952	0.04896	32	0.53460	-0.94532	0.58493	-0.90844
33	0.92000	0.74296	-1.17142	-52.642	0.04152	33	0.59840	-1.02624	0.64326	-0.99285
34	0.95000	0.80403	-1.25104	-52.397	0.03356	34	0.66236	-1.10574	0.70143	-1.07624
35	0.97500	0.85491	-1.31691	-52.228	0.02650	35	0.72646	-1.18402	0.75946	-1.15882
36	1.00000	0.90580	-1.38239	-52.074	0.01923	36	0.79073	-1.26128	0.81732	-1.24080
						37	0.84444	-1.32502	0.86539	-1.30879
						38	0.89198	-1.38098	0.90782	-1.36865
						39	0.89801	-1.38438	0.90963	-1.37537
						40	0.90580	-1.38239	0.90580	-1.38239

CHORD 3.76756 CAMBER 2.938 STAGGER -57.298

PHASE II ROTOR

NR 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.	-1.20603	1.76118	-53.815	0.01934	1	-1.20603	1.76118	-1.20603	1.76118	
2	0.02500	-1.15051	1.68450	-54.366	0.02460	2	-1.21004	1.75433	-1.19814	1.76289	
3	0.05000	-1.09498	1.60625	-54.913	0.02991	3	-1.20836	1.74752	-1.19231	1.75924	
4	0.07500	-1.03945	1.52638	-55.470	0.03525	4	-1.16050	1.67733	-1.14051	1.69166	
5	0.10000	-0.98392	1.44481	-56.048	0.04062	5	-1.10721	1.59765	-1.08274	1.61484	
6	0.12500	-0.92840	1.36141	-56.637	0.04597	6	-1.05397	1.51639	-1.02493	1.53637	
7	0.15000	-0.87287	1.27614	-57.215	0.05128	7	-1.00077	1.43346	-0.96708	1.45615	
8	0.17500	-0.81734	1.18902	-57.746	0.05653	8	-0.94760	1.34877	-0.90920	1.37405	
9	0.20000	-0.76182	1.10024	-58.195	0.06167	9	-0.89443	1.26225	-0.85131	1.29002	
10	0.23000	-0.69518	0.99187	-58.605	0.06764	10	-0.84125	1.17394	-0.79344	1.20411	
11	0.26000	-0.62855	0.88209	-58.858	0.07329	11	-0.78802	1.08398	-0.73561	1.11649	
12	0.29000	-0.56192	0.77156	-58.947	0.07855	12	-0.72405	0.97425	-0.66631	1.00949	
13	0.32000	-0.49529	0.66101	-58.870	0.08334	13	-0.65992	0.86313	-0.59719	0.90104	
14	0.35000	-0.42866	0.55111	-58.650	0.08759	14	-0.59557	0.75130	-0.52827	0.79182	
15	0.38000	-0.36202	0.44242	-58.315	0.09125	15	-0.53096	0.63946	-0.45962	0.68255	
16	0.41000	-0.29539	0.33532	-57.897	0.09426	16	-0.46606	0.52832	-0.39125	0.57390	
17	0.44000	-0.22876	0.23005	-57.429	0.09660	17	-0.40085	0.41845	-0.32320	0.46638	
18	0.47000	-0.16213	0.12672	-56.940	0.09824	18	-0.33531	0.31027	-0.25547	0.36037	
19	0.50000	-0.09549	0.02529	-56.454	0.09917	19	-0.26946	0.20405	-0.18805	0.25605	
20	0.53000	-0.02886	-0.07431	-55.986	0.09937	20	-0.20329	0.09992	-0.12096	0.15351	
21	0.56000	0.03777	-0.17223	-55.547	0.09885	21	-0.13682	-0.00211	-0.05417	0.05269	
22	0.59000	0.10440	-0.26859	-55.130	0.09761	22	-0.07005	-0.10210	0.01232	-0.04651	
23	0.62000	0.17104	-0.36349	-54.724	0.09568	23	-0.00298	-0.20019	0.07853	-0.14427	
24	0.65000	0.23767	-0.45698	-54.321	0.09309	24	0.06436	-0.29649	0.14445	-0.24069	
25	0.68000	0.30430	-0.54909	-53.912	0.08985	25	0.13198	-0.39112	0.21009	-0.33586	
26	0.71000	0.37093	-0.63981	-53.490	0.08598	26	0.19986	-0.48413	0.27548	-0.42984	
27	0.74000	0.43757	-0.72911	-53.048	0.08150	27	0.26800	-0.57555	0.34060	-0.52263	
28	0.77000	0.50420	-0.81697	-52.601	0.07644	28	0.33638	-0.66539	0.40549	-0.61423	
29	0.80000	0.57083	-0.90344	-52.164	0.07081	29	0.40500	-0.75361	0.47013	-0.70461	
30	0.83000	0.63746	-0.98857	-51.737	0.06462	30	0.47383	-0.84019	0.53456	-0.79376	
31	0.86000	0.70409	-1.07242	-51.312	0.05789	31	0.54287	-0.92516	0.59879	-0.88173	
32	0.89000	0.77073	-1.15497	-50.863	0.05065	32	0.61209	-1.00858	0.66283	-0.96857	
33	0.92000	0.83736	-1.23614	-50.365	0.04292	33	0.68150	-1.09051	0.72669	-1.05432	
34	0.95000	0.90399	-1.31583	-49.820	0.03468	34	0.75108	-1.17096	0.79037	-1.13898	
35	0.97500	0.95952	-1.38102	-49.335	0.02742	35	0.82083	-1.24983	0.85389	-1.22246	
36	1.00000	1.01505	-1.44509	-48.831	0.01998	36	0.89075	-1.32701	0.91724	-1.30464	
						37	0.94912	-1.38996	0.96992	-1.37209	
						38	1.00062	-1.44444	1.01634	-1.43072	
						39	1.00702	-1.44761	1.01861	-1.43764	
						40	1.01505	-1.44509	1.01505	-1.44509	

CHORD 3.90043 CAMBER 4.985 STAGGER -55.289

PHASE II ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 4

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	R+M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1.28603	1.73468	-52.556	0.01995	1	-1.28603	1.73468	-1.28603	1.73468									
2	0.02500	-1.22629	1.65570	-53.227	0.02595	2	-1.29001	1.72754	-1.27791	1.73662									
3	0.05000	-1.16654	1.57481	-53.867	0.03201	3	-1.28814	1.72053	-1.27182	1.73300									
4	0.07500	-1.10680	1.49206	-54.470	0.03813	4	-1.23668	1.64793	-1.21589	1.66347									
5	0.10000	-1.04706	.40751	-55.030	0.04425	5	-1.17947	1.56538	-1.15361	1.58425									
6	0.12500	-0.98731	1.32127	-55.536	0.05034	6	-1.12231	1.48098	-1.09129	1.50314									
7	0.15000	-0.92757	1.23348	-55.978	0.05637	7	-1.06518	1.39483	-1.02893	1.42019									
8	0.17500	-0.86782	1.14434	-56.342	0.06230	8	-1.00806	1.30702	-0.96656	1.33551									
9	0.20000	-0.80808	1.05413	-56.614	0.06806	9	-0.95093	1.21771	-0.90421	1.24925									
10	0.23000	-0.73639	0.94488	-56.813	0.07471	10	-0.89375	1.12708	-0.84190	1.16160									
11	0.26000	-0.66470	0.83510	-56.869	0.08096	11	-0.83650	1.03540	-0.77966	1.07285									
12	0.29000	-0.59300	0.72538	-56.786	0.08674	12	-0.76765	0.92443	-0.70513	0.96533									
13	0.32000	-0.52131	0.61629	-56.567	0.09199	13	-0.69859	0.81298	-0.63080	0.85723									
14	0.35000	-0.44962	0.50835	-56.235	0.09662	14	-0.62929	0.70162	-0.55672	0.74914									
15	0.38000	-0.37793	0.40193	-55.815	0.10058	15	-0.55969	0.59095	-0.48293	0.64163									
16	0.41000	-0.30623	0.29731	-55.337	0.10384	16	-0.48978	0.48150	-0.40946	0.53520									
17	0.44000	-0.23454	0.19460	-54.830	0.10636	17	-0.41953	0.37368	-0.33632	0.43019									
18	0.47000	-0.16285	0.09381	-54.322	0.10814	18	-0.34894	0.26778	-0.26353	0.32684									
19	0.50000	-0.09116	-0.00515	-53.838	0.10914	19	-0.27801	0.16396	-0.19107	0.22523									
20	0.53000	-0.01946	-0.10243	-53.389	0.10935	20	-0.20677	0.06227	-0.11893	0.12534									
21	0.56000	0.05223	-0.19819	-52.974	0.10877	21	-0.13521	-0.03735	-0.04710	0.02705									
22	0.59000	0.12392	-0.29255	-52.571	0.10740	22	-0.06335	-0.13504	0.02442	-0.06982									
23	0.62000	0.19561	-0.38553	-52.157	0.10528	23	0.00881	-0.23094	0.09565	-0.16544									
24	0.65000	0.26731	-0.47711	-51.733	0.10242	24	0.08128	-0.32519	0.16657	-0.25991									
25	0.68000	0.33900	-0.56731	-51.307	0.09883	25	0.15404	-0.41782	0.23718	-0.35323									
26	0.71000	0.41069	-0.65615	-50.888	0.09454	26	0.22710	-0.50882	0.30751	-0.44540									
27	0.74000	0.48238	-0.74369	-50.483	0.08956	27	0.30043	-0.59820	0.37757	-0.53642									
28	0.77000	0.55408	-0.82999	-50.083	0.08391	28	0.37401	-0.68597	0.44737	-0.62633									
29	0.80000	0.62577	-0.91507	-49.678	0.07763	29	0.44784	-0.77219	0.51693	-0.71520									
30	0.83000	0.69746	-0.99892	-49.255	0.07071	30	0.52190	-0.85692	0.58625	-0.80307									
31	0.86000	0.76915	-1.08149	-48.799	0.06318	31	0.59617	-0.94019	0.65536	-0.88996									
32	0.89000	0.84085	-1.16266	-48.286	0.05506	32	0.67067	-1.02200	0.72425	-0.97585									
33	0.92000	0.91254	-1.24228	-47.699	0.04639	33	0.74539	-1.10229	0.79292	-1.06068									
34	0.95000	0.98423	-1.32018	-47.040	0.03715	34	0.82030	-1.18098	0.86139	-1.14434									
35	0.97500	1.04397	-1.38368	-46.446	0.02901	35	0.89538	-1.25789	0.92969	-1.22667									
36	1.00000	1.10372	-1.44584	-45.825	0.02064	36	0.97064	-1.33284	0.99782	-1.30752									
						37	1.03346	-1.39367	1.05448	-1.37368									
						38	1.08877	-1.44598	1.10431	-1.43092									
						39	1.09554	-1.44889	1.10700	-1.43797									
						40	1.10372	-1.44584	1.10372	-1.44584									

CHORD 3.97827 CAMBER 6.731 STAGGER -53.080

PHASE II ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY - STIRFLAME 5

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	B.M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1.36205	1.68972	-51.244	0.02022	1	-1.36205	1.68972	-1.36205	1.68972									
2	0.02500	-1.29851	1.60978	-51.795	0.02754	2	-1.36594	1.68236	-1.35386	1.69190									
3	0.05000	-1.23497	1.52827	-52.318	0.03491	3	-1.36390	1.67530	-1.34756	1.68839									
4	0.07500	-1.17143	1.44528	-52.796	0.04232	4	-1.30933	1.60126	-1.28769	1.61829									
5	0.10000	-1.10789	1.36092	-53.217	0.04971	5	-1.24878	1.51760	-1.22115	1.53895									
6	0.12500	-1.04435	1.27536	-53.574	0.05703	6	-1.18828	1.43249	-1.15457	1.45808									
7	0.15000	-0.98081	1.18879	-53.865	0.06424	7	-1.12779	1.34604	-1.08798	1.37581									
8	0.17500	-0.91727	1.10138	-54.096	0.07129	8	-1.06729	1.25843	-1.02140	1.29230									
9	0.20000	-0.85373	1.01331	-54.272	0.07811	9	-1.00675	1.16984	-0.95486	1.20773									
10	0.23000	-0.77748	0.90703	-54.399	0.08594	10	-0.94514	1.08048	-0.88840	1.12228									
11	0.26000	-0.70123	0.80047	-54.406	0.09328	11	-0.88543	0.99051	-0.82202	1.03612									
12	0.29000	-0.62498	0.69421	-54.236	0.10004	12	-0.81242	0.88202	-0.74254	0.93204									
13	0.32000	-0.54873	0.58904	-53.844	0.10611	13	-0.73916	0.77332	-0.66330	0.82762									
14	0.35000	-0.47249	0.48573	-53.274	0.11143	14	-0.66557	0.66498	-0.58439	0.72344									
15	0.38000	-0.39624	0.38475	-52.599	0.11595	15	-0.59157	0.55774	-0.50590	0.62034									
16	0.41000	-0.31999	0.28628	-51.904	0.11964	16	-0.51714	0.45241	-0.42783	0.51905									
17	0.44000	-0.24374	0.19015	-51.265	0.12247	17	-0.44229	0.34954	-0.35018	0.41997									
18	0.47000	-0.16749	0.09609	-50.680	0.12444	18	-0.36707	0.24937	-0.27291	0.32319									
19	0.50000	-0.09125	0.00391	-50.127	0.12551	19	-0.29151	0.15183	-0.19597	0.22846									
20	0.53000	-0.01500	-0.08651	-49.599	0.12568	20	-0.21563	0.05666	-0.11936	0.13551									
21	0.56000	0.06125	-0.17530	-49.094	0.12493	21	-0.13941	-0.03632	-0.04308	0.04415									
22	0.59000	0.13750	-0.26256	-48.616	0.12329	22	-0.06285	-0.21620	0.03286	-0.04578									
23	0.62000	0.21375	-0.34841	-48.168	0.12078	23	0.01404	-0.30331	0.10846	-0.13440									
24	0.65000	0.29000	-0.43295	-47.742	0.11742	24	0.09125	-0.38869	0.18375	-0.22181									
25	0.68000	0.36624	-0.51627	-47.330	0.11322	25	0.16875	-0.47243	0.25874	-0.30813									
26	0.71000	0.44249	-0.59839	-46.920	0.10820	26	0.24654	-0.55464	0.33345	-0.39347									
27	0.74000	0.51874	-0.67934	-46.503	0.10238	27	0.32462	-0.63535	0.40787	-0.47790									
28	0.77000	0.59499	-0.75911	-46.077	0.09578	28	0.40298	-0.71458	0.48201	-0.56144									
29	0.80000	0.67124	-0.83768	-45.640	0.08841	29	0.48161	-0.79233	0.55587	-0.64411									
30	0.83000	0.74748	-0.91504	-45.190	0.08029	30	0.56049	-0.86859	0.62948	-0.72589									
31	0.86000	0.82373	-0.99118	-44.725	0.07143	31	0.63963	-0.94334	0.70284	-0.80677									
32	0.89000	0.89998	-1.06608	-44.243	0.06186	32	0.71900	-1.01656	0.77597	-0.88675									
33	0.92000	0.97623	-1.13969	-43.741	0.05161	33	0.79860	-1.08823	0.84886	-0.96581									
34	0.95000	1.05248	-1.21201	-43.221	0.04062	34	0.87840	-1.15833	0.92156	-1.04392									
35	0.97500	1.11602	-1.27125	-42.774	0.03089	35	0.95839	-1.22681	0.99407	-1.12105									
36	1.00000	1.17956	-1.32958	-42.318	0.02088	36	1.03857	-1.22681	1.06638	-1.19721									
						37	1.10553	-1.28259	1.12651	-1.25992									
						38	1.16441	-1.33072	1.17930	-1.31440									
						39	1.17149	-1.33319	1.18242	-1.32136									
						40	1.17956	-1.32958	1.18242	-1.32958									

CHORD 3.94663 CAMBER 8.926 STAGGER -49.910

PHASE 11 ROTOR

NR 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 6

MEANLINE DATA										SURFACE COORDINATE'S									
PT	PCT X	X	Y	B+M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1.43381	1.62645	-49.905	0.02033	1	-1.43381	1.62645	-1.43381	1.62645									
2	0.02500	-1.36676	1.54618	-50.347	0.02960	2	-1.43758	1.61892	-1.42562	1.62886									
3	0.05000	-1.29971	1.46468	-50.756	0.03892	3	-1.43540	1.61195	-1.41915	1.63551									
4	0.07500	-1.23266	1.38207	-51.104	0.04824	4	-1.37815	1.53674	-1.35537	1.55563									
5	0.10000	-1.16562	1.29856	-51.365	0.05749	5	-1.31478	1.45237	-1.28464	1.47699									
6	0.12500	-1.09857	1.21440	-51.535	0.06661	6	-1.25144	1.36693	-1.21389	1.39722									
7	0.15000	-1.03152	1.12985	-51.619	0.07555	7	-1.18807	1.28061	-1.14316	1.31651									
8	0.17500	-0.96447	1.04515	-51.646	0.08422	8	-1.12465	1.19368	-1.07249	1.23511									
9	0.20000	-0.89742	0.96042	-51.642	0.09257	9	-1.06113	1.10640	-1.00191	1.15331									
10	0.23000	-0.81697	0.85882	-51.592	0.10207	10	-0.99749	1.01902	-0.93145	1.07128									
11	0.26000	-0.73651	0.75755	-51.458	0.11093	11	-0.93372	0.93170	-0.86113	0.98914									
12	0.29000	-0.65605	0.65703	-51.152	0.11905	12	-0.85696	0.82712	-0.77698	0.89053									
13	0.32000	-0.57559	0.55805	-50.596	0.12633	13	-0.77989	0.72299	-0.69313	0.79211									
14	0.35000	-0.49514	0.46137	-49.839	0.13267	14	-0.70241	0.61970	-0.60969	0.69437									
15	0.38000	-0.41468	0.36747	-48.967	0.13803	15	-0.62440	0.51796	-0.52679	0.59815									
16	0.41000	-0.33422	0.27645	-48.087	0.14238	16	-0.54583	0.41859	-0.44444	0.50416									
17	0.44000	-0.25376	0.18808	-47.295	0.14571	17	-0.46674	0.32216	-0.36262	0.41278									
18	0.47000	-0.17331	0.10199	-46.588	0.14798	18	-0.38720	0.22890	-0.28124	0.32401									
19	0.50000	-0.09285	0.01792	-45.939	0.14919	19	-0.30730	0.13867	-0.20023	0.23749									
20	0.53000	-0.01239	-0.06434	-45.333	0.14931	20	-0.22706	0.05114	-0.11956	0.15284									
21	0.56000	0.06807	-0.14493	-44.761	0.14835	21	-0.14645	-0.03396	-0.03925	0.06979									
22	0.59000	0.14852	-0.22395	-44.212	0.14633	22	-0.06549	-0.11682	0.04070	-0.01186									
23	0.62000	0.22898	-0.30150	-43.676	0.14325	23	0.01583	0.19759	0.12030	-0.09226									
24	0.65000	0.30944	-0.37762	-43.153	0.13916	24	0.09751	-0.27639	0.19954	-0.17151									
25	0.68000	0.38990	-0.45238	-42.646	0.13408	25	0.17952	-0.35330	0.27844	-0.24969									
26	0.71000	0.47035	-0.52585	-42.159	0.12801	26	0.26185	-0.42838	0.35703	-0.32686									
27	0.74000	0.55081	-0.59811	-41.696	0.12098	27	0.34448	-0.50169	0.43531	-0.40307									
28	0.77000	0.63127	-0.66923	-41.257	0.11299	28	0.42739	-0.57330	0.51331	-0.47840									
29	0.80000	0.71173	-0.73928	-40.842	0.10407	29	0.51057	-0.64327	0.59105	-0.55294									
30	0.83000	0.79218	-0.80835	-40.450	0.09420	30	0.59401	-0.71170	0.66852	-0.62675									
31	0.86000	0.87264	-0.87650	-40.077	0.08340	31	0.67770	-0.77865	0.74576	-0.69992									
32	0.89000	0.95310	-0.94376	-39.715	0.07171	32	0.76162	-0.84420	0.82274	-0.77251									
33	0.92000	1.03356	-1.01017	-39.358	0.05914	33	0.84579	-0.90841	0.89949	-0.84459									
34	0.95000	1.11401	-1.07574	-39.002	0.04558	34	0.93019	-0.97134	0.97601	-0.91618									
35	0.97500	1.18106	-1.12975	-38.704	0.03351	35	1.01480	-1.03303	1.05231	-0.98730									
36	1.00000	1.24811	-1.18319	-38.404	0.02105	36	1.09967	-1.09345	1.12836	-1.10580									
						37	1.17058	-1.14283	1.19154	-1.11667									
						38	1.23286	-1.18551	1.24691	-1.16782									
						39	1.24023	-1.18743	1.25046	-1.17465									
						40	1.24811	-1.18319	1.24811	-1.18319									

CHORD 3.88416 CAMBER 11.501 STAGGER -46.332

PHASE II 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.	-1.50486	1.54402	-48.534	0.01995	1	-1.50486	1.54402	-1.50486	1.54402
2	0.02500	-1.43445	1.46399	-48.782	0.03226	2	-1.50843	1.53648	-1.49687	1.54662
3	0.05000	-1.36404	1.38328	-49.010	0.04459	3	-1.50618	1.52957	-1.49036	1.54354
4	0.07500	-1.29363	1.30197	-49.200	0.05688	4	-1.44659	1.45336	-1.42232	1.47462
5	0.10000	-1.22322	1.22019	-49.333	0.06904	5	-1.38087	1.36865	-1.34721	1.39790
6	0.12500	-1.15281	1.13812	-49.398	0.08098	6	-1.31516	1.28338	-1.27210	1.32055
7	0.15000	-1.08239	1.05597	-49.389	0.09262	7	-1.24940	1.19769	-1.19704	1.24268
8	0.17500	-1.01198	0.97396	-49.303	0.10387	8	-1.18355	1.11177	-1.12206	1.16447
9	0.20000	-0.94157	0.89230	-49.140	0.11467	9	-1.11755	1.02583	-1.04724	1.08611
10	0.23000	-0.85708	0.79512	-48.831	0.12689	10	-1.05136	0.94009	-0.97261	1.00782
11	0.26000	-0.77258	0.69921	-48.382	0.13822	11	-0.98493	0.85480	-0.89821	0.92981
12	0.29000	-0.68809	0.60509	-47.751	0.14852	12	-0.90484	0.75335	-0.80932	0.83688
13	0.32000	-0.60360	0.51337	-46.911	0.15769	13	-0.82425	0.65331	-0.72092	0.74511
14	0.35000	-0.51910	0.42456	-45.922	0.16566	14	-0.74306	0.55516	-0.63312	0.65502
15	0.38000	-0.43461	0.33887	-44.879	0.17236	15	-0.66118	0.45951	-0.54602	0.56723
16	0.41000	-0.35012	0.25620	-43.889	0.17779	16	-0.57861	0.36694	-0.45960	0.48218
17	0.44000	-0.26562	0.17614	-43.041	0.18193	17	-0.49542	0.27780	-0.37380	0.39994
18	0.47000	-0.18113	0.09827	-42.300	0.18476	18	-0.41174	0.19213	-0.28849	0.32026
19	0.50000	-0.09663	0.02233	-41.600	0.18624	19	-0.32771	0.10966	-0.20354	0.24263
20	0.53000	-0.01214	-0.05179	-40.911	0.18635	20	-0.24330	0.02994	-0.11896	0.16660
21	0.56000	0.07235	-0.12412	-40.221	0.18509	21	-0.15846	-0.04731	-0.03481	0.09196
22	0.59000	0.15685	-0.19472	-39.543	0.18247	22	-0.07316	-0.12220	0.04888	0.01863
23	0.62000	0.24134	-0.26367	-38.899	0.17854	23	0.01259	-0.19478	0.13211	-0.05346
24	0.65000	0.32583	-0.33111	-38.292	0.17331	24	0.09876	-0.26507	0.21493	-0.12436
25	0.68000	0.41033	-0.39714	-37.726	0.16681	25	0.18528	-0.33315	0.29740	-0.19420
26	0.71000	0.49482	-0.46187	-37.199	0.15906	26	0.27214	-0.39912	0.37953	-0.26310
27	0.74000	0.57931	-0.52544	-36.712	0.15007	27	0.35929	-0.46311	0.46136	-0.33116
28	0.77000	0.66381	-0.58792	-36.256	0.13985	28	0.44674	-0.52522	0.54290	-0.39852
29	0.80000	0.74830	-0.64939	-35.823	0.12840	29	0.53446	-0.58559	0.62417	-0.46528
30	0.83000	0.83280	-0.70992	-35.413	0.11574	30	0.62245	-0.64430	0.70516	-0.53153
31	0.86000	0.91729	-0.76956	-35.031	0.10186	31	0.71073	-0.70145	0.78588	-0.59733
32	0.89000	1.00178	-0.82842	-34.694	0.08680	32	0.79926	-0.75708	0.86633	-0.66276
33	0.92000	1.08628	-0.88659	-34.413	0.07058	33	0.88805	-0.81127	0.94652	-0.72786
34	0.95000	1.17077	-0.94422	-34.181	0.05303	34	0.97708	-0.86410	1.02649	-0.79273
35	0.97500	1.24118	-0.99188	-34.012	0.03735	35	1.06633	-0.91571	1.10622	-0.85748
36	1.00000	1.31159	-1.03925	-33.854	0.02115	36	1.15588	-0.96615	1.18567	-0.92228
						37	1.23073	-1.00736	1.25163	-0.97640
						38	1.29639	-1.04301	1.30931	-1.02377
						39	1.30401	-1.04422	1.31333	-1.03041
						40	1.31159	-1.03925	1.31159	-1.03925

CHORD 3.82174 CAMBER 14.680 STAGGER -42.527

PHASE II ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 8

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	B+M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1.57422	1.44185	-47.190	0.01902	1	-1.57422	1.44185	-1.57422	1.44185									
2	0.02500	-1.50058	1.36221	-47.288	0.03435	2	-1.57749	1.43452	-1.56665	1.44555									
3	0.05000	-1.42694	1.28232	-47.371	0.04963	3	-1.57525	1.42797	-1.56031	1.44181									
4	0.07500	-1.35330	1.20223	-47.424	0.06479	4	-1.51320	1.35056	-1.48796	1.37386									
5	0.10000	-1.27965	1.12205	-47.433	0.07974	5	-1.44520	1.26551	-1.40868	1.29913									
6	0.12500	-1.20601	1.04193	-47.378	0.09437	6	-1.37715	1.18031	-1.32944	1.22415									
7	0.15000	-1.13237	0.96209	-47.230	0.10856	7	-1.30902	1.09508	-1.25029	1.14902									
8	0.17500	-1.05873	0.88284	-46.943	0.12223	8	-1.24073	1.00998	-1.17129	1.07389									
9	0.20000	-0.98508	0.80463	-46.472	0.13528	9	-1.17222	0.92523	-1.09252	0.99895									
10	0.23000	-0.89671	0.71283	-45.665	0.14996	10	-1.10338	0.84112	-1.01407	0.92457									
11	0.26000	-0.80834	0.62395	-44.626	0.16342	11	-1.03413	0.75804	-0.93604	0.85121									
12	0.29000	-0.71997	0.53846	-43.465	0.17556	12	-0.95034	0.66043	-0.84308	0.76523									
13	0.32000	-0.63160	0.45638	-42.305	0.18633	13	-0.86574	0.56580	-0.75094	0.68210									
14	0.35000	-0.54323	0.37750	-41.202	0.19568	14	-0.78036	0.47475	-0.65959	0.60217									
15	0.38000	-0.45486	0.30155	-40.166	0.20359	15	-0.69431	0.38748	-0.56889	0.52528									
16	0.41000	-0.36649	0.22823	-39.211	0.21002	16	-0.60768	0.30389	-0.47878	0.45112									
17	0.44000	-0.27812	0.15726	-38.335	0.21494	17	-0.52052	0.22376	-0.38920	0.37934									
18	0.47000	-0.18975	0.08841	-37.511	0.21832	18	-0.43287	0.14686	-0.30010	0.30959									
19	0.50000	-0.10137	0.02156	-36.704	0.22010	19	-0.34478	0.07296	-0.21146	0.24156									
20	0.53000	-0.01300	-0.04336	-35.902	0.22026	20	-0.25621	0.00182	-0.12328	0.17500									
21	0.56000	0.07537	-0.10641	-35.104	0.21878	21	-0.16715	-0.06667	-0.03560	0.10979									
22	0.59000	0.16374	-0.16763	-34.333	0.21569	22	-0.07758	-0.13257	0.05158	0.04584									
23	0.62000	0.25211	-0.22717	-33.616	0.21103	23	0.01246	-0.19590	0.13827	-0.01691									
24	0.65000	0.34048	-0.28518	-32.949	0.20482	24	0.10291	-0.25669	0.22456	-0.07858									
25	0.68000	0.42885	-0.34176	-32.323	0.19707	25	0.19369	-0.31504	0.31052	-0.13930									
26	0.71000	0.51722	-0.39703	-31.725	0.18781	26	0.28478	-0.37111	0.39618	-0.19924									
27	0.74000	0.60559	-0.45105	-31.151	0.17705	27	0.37617	-0.42503	0.48154	-0.25850									
28	0.77000	0.69396	-0.50390	-30.619	0.16480	28	0.46784	-0.47691	0.56660	-0.31716									
29	0.80000	0.78234	-0.55570	-30.152	0.15107	29	0.55980	-0.52621	0.65139	-0.37529									
30	0.83000	0.87071	-0.60662	-29.758	0.13584	30	0.65200	-0.57481	0.73593	-0.43299									
31	0.86000	0.95908	-0.65680	-29.434	0.11911	31	0.74439	-0.62102	0.82028	-0.49039									
32	0.89000	1.04745	-0.70639	-29.167	0.10091	32	0.83700	-0.66558	0.90442	-0.54766									
33	0.92000	1.13582	-0.75548	-28.941	0.08125	33	0.92981	-0.70867	0.98834	-0.60494									
34	0.95000	1.22419	-0.80414	-28.744	0.05994	34	1.02286	-0.75044	1.07204	-0.66233									
35	0.97500	1.29783	-0.84440	-28.593	0.04088	35	1.11616	-0.79103	1.15548	-0.71992									
36	1.00000	1.37148	-0.88442	-28.449	0.02116	36	1.20978	-0.83042	1.23860	-0.77786									
						37	1.28805	-0.86235	1.30761	-0.82646									
						38	1.35660	-0.88981	1.36787	-0.86902									
						39	1.36435	-0.89018	1.37242	-0.87537									
						40	1.37148	-0.88442	1.37148	-0.88442									

CHORD 3.75349 CAMBER 18.741 STAGGER -38.299

PHASE II ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 9

MEANLINE DATA						SURFACE COORDINATES					
PT	PCT X	X	Y	B+M	T(M)	PT	XS	YS	XP	YP	
1	0.	-1.62875	1.30554	-45.785	0.01859	1	-1.62875	1.30554	-1.62875	1.30554	
2	0.02500	-1.55200	1.22676	-45.700	0.03674	2	-1.63181	1.29824	-1.62141	1.30839	
3	0.05000	-1.47524	1.14825	-45.586	0.05479	3	-1.62950	1.29189	-1.61509	1.30591	
4	0.07500	-1.39848	1.07012	-45.413	0.07262	4	-1.56514	1.21393	-1.53885	1.23959	
5	0.10000	-1.32172	0.99258	-45.152	0.09011	5	-1.49481	1.12908	-1.45567	1.16742	
6	0.12500	-1.24496	0.91588	-44.781	0.10715	6	-1.42434	1.04163	-1.37262	1.09561	
7	0.15000	-1.16820	0.84034	-44.281	0.12362	7	-1.35366	0.96080	-1.28977	1.02435	
8	0.17500	-1.09144	0.76629	-43.632	0.13940	8	-1.28270	0.87785	-1.20722	0.95391	
9	0.20000	-1.01468	0.69411	-42.819	0.15439	9	-1.21135	0.79608	-1.12504	0.88459	
10	0.23000	-0.92257	0.61043	-41.647	0.17117	10	-1.13953	0.71584	-1.04334	0.81674	
11	0.26000	-0.83046	0.53039	-40.310	0.18651	11	-1.06715	0.63748	-0.96221	0.75073	
12	0.29000	-0.73835	0.45412	-38.943	0.20035	12	-0.97944	0.54648	-0.86569	0.67439	
13	0.32000	-0.64623	0.38136	-37.687	0.21265	13	-0.89079	0.45928	-0.77013	0.60150	
14	0.35000	-0.55412	0.31166	-36.569	0.22337	14	-0.80131	0.37621	-0.67528	0.53204	
15	0.38000	-0.46201	0.24458	-35.570	0.23248	15	-0.71124	0.29722	-0.58123	0.46551	
16	0.41000	-0.36990	0.17983	-34.649	0.23994	16	-0.62066	0.22196	-0.48758	0.40135	
17	0.44000	-0.27779	0.11722	-33.758	0.24569	17	-0.52963	0.15003	-0.39439	0.33913	
18	0.47000	-0.18568	0.05657	-32.878	0.24968	18	-0.43811	0.08114	-0.30169	0.27852	
19	0.50000	-0.09357	-0.00187	-31.997	0.25183	19	-0.34605	0.01509	-0.20953	0.21935	
20	0.53000	-0.00145	-0.05844	-31.108	0.25211	20	-0.25345	-0.04817	-0.11791	0.16152	
21	0.56000	0.09066	-0.11304	-30.208	0.25049	21	-0.16029	-0.10865	-0.02685	0.10492	
22	0.59000	0.18277	-0.16570	-29.309	0.24699	22	-0.06658	-0.16636	0.06367	0.04949	
23	0.62000	0.27488	-0.21648	-28.425	0.24166	23	0.02764	-0.22127	0.15367	-0.00480	
24	0.65000	0.36699	-0.26544	-27.566	0.23452	24	0.12231	-0.27339	0.24322	-0.05802	
25	0.68000	0.45910	-0.31269	-26.743	0.22560	25	0.21736	-0.32275	0.33240	-0.11022	
26	0.71000	0.55121	-0.35831	-25.966	0.21491	26	0.31272	-0.36940	0.42126	-0.16149	
27	0.74000	0.64332	-0.40245	-25.245	0.20246	27	0.40834	-0.41342	0.50986	-0.21195	
28	0.77000	0.73544	-0.44522	-24.588	0.18828	28	0.50417	-0.45492	0.59826	-0.26170	
29	0.80000	0.82755	-0.48679	-23.999	0.17234	29	0.60015	-0.49401	0.68650	-0.31088	
30	0.83000	0.91966	-0.52729	-23.482	0.15466	30	0.69627	-0.53083	0.77461	-0.35962	
31	0.86000	1.01177	-0.56688	-22.938	0.13521	31	0.79250	-0.56551	0.86260	-0.40807	
32	0.89000	1.10388	-0.60568	-22.666	0.11405	32	0.88885	-0.59822	0.95047	-0.45637	
33	0.92000	1.19599	-0.64385	-22.360	0.09117	33	0.98531	-0.62909	1.03823	-0.50466	
34	0.95000	1.28810	-0.68150	-22.106	0.06634	34	1.08191	-0.65830	1.12585	-0.55306	
35	0.97500	1.36486	-0.71253	-21.921	0.04411	35	1.17865	-0.68601	1.21333	-0.60169	
36	1.00000	1.44162	-0.74328	-21.748	0.02111	36	1.27562	-0.71223	1.30059	-0.65077	
37						37	1.35663	-0.73299	1.37310	-0.69207	
38						38	1.42746	-0.75057	1.43637	-0.72825	
39						39	1.43520	-0.74991	1.44155	-0.73412	
40						40	1.44162	-0.74328	1.44162	-0.74328	

CHORD 3.69119 CAMBER 24.038 STAGGER -33.715

PHASE II ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 10

MEANLINE DATA										SURFACE COORDINATES									
PT	PCT X	X	Y	B+M	T(M)	PT	XS	YS	XP	YP									
1	0.	-1.63125	1.12563	-44.072	0.02096	1	-1.63125	1.12563	-1.63125	1.12563									
2	0.02500	-1.55191	1.04917	-43.807	0.04141	2	-1.63448	1.11724	-1.62307	1.12913									
3	0.05000	-1.47257	0.97347	-43.483	0.06167	3	-1.63171	1.11014	-1.61580	1.12660									
4	0.07500	-1.39323	0.89878	-43.032	0.08161	4	-1.56624	1.03422	-1.53758	1.06411									
5	0.10000	-1.31388	0.82549	-42.385	0.10110	5	-1.49379	0.95110	-1.45135	0.99584									
6	0.12500	-1.23454	0.75410	-41.530	0.11998	6	-1.42107	0.86895	-1.36538	0.92860									
7	0.15000	-1.15520	0.68510	-40.465	0.13812	7	-1.34796	0.78815	-1.27981	0.86283									
8	0.17500	-1.07586	0.61882	-39.272	0.15539	8	-1.27432	0.70919	-1.19477	0.79902									
9	0.20000	-0.99652	0.55534	-38.047	0.17171	9	-1.20002	0.63256	-1.11038	0.73764									
10	0.23000	-0.90131	0.48275	-36.605	0.18997	10	-1.12504	0.55867	-1.02668	0.67896									
11	0.26000	-0.80610	0.41378	-35.248	0.20674	11	-1.04943	0.48773	-0.94361	0.62295									
12	0.29000	-0.71089	0.34808	-33.978	0.22196	12	-0.95795	0.40650	-0.84467	0.55900									
13	0.32000	-0.61568	0.28536	-32.780	0.23558	13	-0.86575	0.32936	-0.74644	0.49819									
14	0.35000	-0.52047	0.22538	-31.644	0.24752	14	-0.77291	0.25605	-0.64886	0.44011									
15	0.38000	-0.42526	0.16795	-30.559	0.25772	15	-0.67945	0.18633	-0.55190	0.38439									
16	0.41000	-0.33005	0.11291	-29.505	0.26610	16	-0.58540	0.12002	-0.45554	0.33074									
17	0.44000	-0.23484	0.06017	-28.464	0.27262	17	-0.49077	0.05699	-0.35974	0.27891									
18	0.47000	-0.13963	0.00966	-27.418	0.27719	18	-0.39558	-0.00288	-0.26452	0.22871									
19	0.50000	-0.04442	-0.03861	-26.351	0.27974	19	-0.29980	-0.05966	-0.16987	0.18000									
20	0.53000	0.05079	-0.08465	-25.253	0.28023	20	-0.20345	-0.11336	-0.07581	0.13269									
21	0.56000	0.14600	-0.12842	-24.118	0.27861	21	-0.10650	-0.16395	0.01767	0.08673									
22	0.59000	0.24121	-0.16989	-22.945	0.27490	22	-0.00898	-0.21137	0.11057	0.04207									
23	0.62000	0.33642	-0.20903	-21.742	0.26914	23	0.08908	-0.25556	0.20293	-0.00128									
24	0.65000	0.43163	-0.24584	-20.540	0.26135	24	0.18763	-0.29647	0.29480	-0.04331									
25	0.68000	0.52684	-0.28041	-19.377	0.25155	25	0.28657	-0.33403	0.38627	-0.08403									
26	0.71000	0.62205	-0.31288	-18.295	0.23975	26	0.38579	-0.36821	0.47748	-0.12342									
27	0.74000	0.71726	-0.34345	-17.327	0.22595	27	0.48511	-0.39906	0.56857	-0.16176									
28	0.77000	0.81247	-0.37237	-16.484	0.21015	28	0.58442	-0.42669	0.65968	-0.19906									
29	0.80000	0.90768	-0.39987	-15.765	0.19235	29	0.68362	-0.45130	0.75091	-0.23560									
30	0.83000	1.00289	-0.42619	-15.162	0.17253	30	0.78266	-0.47312	0.84229	-0.27161									
31	0.86000	1.09810	-0.45154	-14.662	0.15066	31	0.88155	-0.49243	0.93381	-0.30731									
32	0.89000	1.19331	-0.47606	-14.238	0.12678	32	0.98033	-0.50945	1.02546	-0.34293									
33	0.92000	1.28852	-0.49988	-13.861	0.10088	33	1.07904	-0.52441	1.11717	-0.37866									
34	0.95000	1.38373	-0.52307	-13.516	0.07266	34	1.17772	-0.53751	1.20891	-0.41462									
35	0.97500	1.46308	-0.54194	-13.241	0.04733	35	1.27644	-0.54885	1.30061	-0.45091									
36	1.00000	1.54242	-0.56041	-12.971	0.02108	36	1.37524	-0.55839	1.39223	-0.48774									
						37	1.45766	-0.56497	1.46850	-0.51890									
						38	1.52952	-0.56999	1.53503	-0.54615									
						39	1.53706	-0.56803	1.54100	-0.55129									
						40	1.54242	-0.56041	1.54242	-0.56041									

CHORD 3.59373 CAMBER 31.101 STAGGER -27.980

PHASE II 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.	-1.62361	0.91123	-41.550	0.02583	1	-1.62361	0.91123	-1.62361	0.91123									
2	0.02500	-1.54216	0.83968	-41.041	0.04770	2	-1.62716	0.90065	-1.61375	0.91602									
3	0.05000	-1.46071	0.76945	-40.474	0.06935	3	-1.62340	0.89207	-1.60458	0.91336									
4	0.07500	-1.37925	0.70075	-39.788	0.09063	4	-1.55782	0.82169	-1.52650	0.85766									
5	0.10000	-1.29780	0.63391	-38.929	0.11142	5	-1.48321	0.74308	-1.43820	0.79583									
6	0.12500	-1.21634	0.56930	-37.880	0.13155	6	-1.40825	0.66593	-1.35025	0.73558									
7	0.15000	-1.13489	0.50729	-36.649	0.15090	7	-1.33280	0.59057	-1.26279	0.67724									
8	0.17500	-1.05344	0.44814	-35.309	0.16936	8	-1.25673	0.51738	-1.17596	0.62121									
9	0.20000	-0.97198	0.39189	-33.948	0.18685	9	-1.17993	0.44676	-1.08986	0.56782									
10	0.23000	-0.87424	0.32806	-32.343	0.20650	10	-1.10238	0.37904	-1.00449	0.51724									
11	0.26000	-0.77649	0.26800	-30.799	0.22459	11	-1.02416	0.31439	-0.91981	0.46939									
12	0.29000	-0.67875	0.21148	-29.281	0.24106	12	-0.92947	0.24083	-0.81900	0.41529									
13	0.32000	-0.58100	0.15837	-27.747	0.25583	13	-0.83399	0.17155	-0.71900	0.36446									
14	0.35000	-0.48326	0.10860	-26.222	0.26884	14	-0.73770	0.10635	-0.61980	0.31660									
15	0.38000	-0.38552	0.06202	-24.747	0.28001	15	-0.64056	0.04516	-0.52145	0.27157									
16	0.41000	-0.28777	0.01841	-23.364	0.28928	16	-0.54265	-0.01199	-0.42387	0.22919									
17	0.44000	-0.19003	-0.02253	-22.092	0.29658	17	-0.44412	-0.06513	-0.32691	0.18917									
18	0.47000	-0.09228	-0.06100	-20.876	0.30183	18	-0.34513	-0.11438	-0.23041	0.15119									
19	0.50000	0.00546	-0.09709	-19.650	0.30496	19	-0.24580	-0.15993	-0.13426	0.11488									
20	0.53000	0.10321	-0.13079	-18.393	0.30590	20	-0.14606	-0.20200	-0.03850	0.08001									
21	0.56000	0.20095	-0.16208	-17.103	0.30460	21	-0.04581	-0.24068	0.05674	0.04651									
22	0.59000	0.29870	-0.19096	-15.821	0.30104	22	0.05495	-0.27593	0.15147	0.01434									
23	0.62000	0.39644	-0.21751	-14.577	0.29523	23	0.15616	-0.30764	0.24574	-0.01652									
24	0.65000	0.49419	-0.24182	-13.356	0.28717	24	0.25766	-0.33578	0.33973	-0.04614									
25	0.68000	0.59193	-0.26393	-12.129	0.27684	25	0.35929	-0.36038	0.43359	-0.07464									
26	0.71000	0.68967	-0.28382	-10.870	0.26424	26	0.46102	-0.38152	0.52735	-0.10212									
27	0.74000	0.78742	-0.30144	-9.570	0.24935	27	0.56285	-0.39926	0.62101	-0.12860									
28	0.77000	0.88516	-0.31678	-8.274	0.23217	28	0.66476	-0.41357	0.71459	-0.15407									
29	0.80000	0.98291	-0.32991	-7.031	0.21271	29	0.76669	-0.42438	0.80814	-0.17851									
30	0.83000	1.08065	-0.34094	-5.852	0.19088	30	0.86846	-0.43166	0.90187	-0.20191									
31	0.86000	1.17840	-0.34999	-4.740	0.16666	31	0.96989	-0.43546	0.99593	-0.22436									
32	0.89000	1.27614	-0.35717	-3.668	0.14013	32	1.07092	-0.43588	1.09038	-0.24599									
33	0.92000	1.37389	-0.36253	-2.609	0.11128	33	1.17151	-0.43303	1.18528	-0.26694									
34	0.95000	1.47163	-0.36608	-1.545	0.07971	34	1.27166	-0.42709	1.28062	-0.28725									
35	0.97500	1.55308	-0.36763	-0.646	0.05120	35	1.37135	-0.41811	1.37642	-0.30695									
36	1.00000	1.63454	-0.36791	0.259	0.02159	36	1.47056	-0.40591	1.47270	-0.32624									
						37	1.55280	-0.39323	1.55337	-0.34204									
						38	1.62394	-0.38069	1.62389	-0.35521									
						39	1.63091	-0.37695	1.63108	-0.35915									
						40	1.63454	-0.36791	1.63454	-0.36791									

CHORD 3.50025 CAMBER 41.810 STAGGER -21.435

PHASE 11 ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 12

MEANLINE DATA										SURFACE COORDINATES				
PT	PCT X	X	Y	B*M	T(M)	PT	XS	YS	XP	YP				
1	0.	-1.64725	0.79648	-38.346	0.03490	1	-1.64725	0.79648	-1.64725	0.79648				
2	0.02500	-1.56471	0.73180	-37.815	0.05637	2	-1.65123	0.78193	-1.63431	0.80370				
3	0.05000	-1.48217	0.66841	-37.223	0.07768	3	-1.64552	0.77063	-1.62173	0.80083				
4	0.07500	-1.39963	0.60648	-36.514	0.09869	4	-1.58199	0.70954	-1.54743	0.75407				
5	0.10000	-1.31710	0.54632	-35.636	0.11926	5	-1.50567	0.63748	-1.45868	0.69934				
6	0.12500	-1.23456	0.48826	-34.575	0.13925	6	-1.42900	0.56682	-1.37027	0.64614				
7	0.15000	-1.15202	0.43264	-33.343	0.15852	7	-1.35184	0.49785	-1.28236	0.59478				
8	0.17500	-1.06949	0.37968	-32.027	0.17700	8	-1.27407	0.43093	-1.19505	0.54558				
9	0.20000	-0.98695	0.32935	-30.721	0.19459	9	-1.19559	0.36643	-1.10846	0.49886				
10	0.23000	-0.88790	0.27225	-29.224	0.21448	10	-1.11642	0.30465	-1.02255	0.45471				
11	0.26000	-0.78886	0.21843	-27.821	0.23294	11	-1.03665	0.24571	-0.93724	0.41300				
12	0.29000	-0.68981	0.16768	-26.425	0.24985	12	-0.94026	0.17866	-0.83555	0.36584				
13	0.32000	-0.59077	0.12002	-24.961	0.26513	13	-0.84322	0.11542	-0.73450	0.32143				
14	0.35000	-0.49172	0.07548	-23.453	0.27870	14	-0.74541	0.05581	-0.63422	0.27956				
15	0.38000	-0.39268	0.03404	-21.956	0.29047	15	-0.64671	-0.00017	-0.53483	0.24020				
16	0.41000	-0.29363	-0.00444	-20.531	0.30037	16	-0.54719	-0.05235	-0.43626	0.20332				
17	0.44000	-0.19459	-0.04023	-19.215	0.30829	17	-0.44698	-0.10066	-0.33838	0.16875				
18	0.47000	-0.09555	-0.07354	-17.963	0.31417	18	-0.34631	-0.14509	-0.24096	0.13620				
19	0.50000	0.00350	-0.10447	-16.722	0.31793	19	-0.24532	-0.18579	-0.14386	0.10533				
20	0.53000	0.10254	-0.13305	-15.461	0.31948	20	-0.14399	-0.22297	-0.04710	0.07589				
21	0.56000	0.20159	-0.15924	-14.156	0.31874	21	-0.04224	-0.25671	0.04924	0.04777				
22	0.59000	0.30063	-0.18298	-12.791	0.31571	22	0.05996	-0.28701	0.14513	0.02091				
23	0.62000	0.39968	-0.20418	-11.359	0.31039	23	0.16261	-0.31377	0.24056	-0.00471				
24	0.65000	0.49872	-0.22275	-9.869	0.30280	24	0.26569	-0.33692	0.33558	-0.02905				
25	0.68000	0.59777	-0.23863	-8.333	0.29295	25	0.36911	-0.35634	0.43025	-0.05203				
26	0.71000	0.69681	-0.25176	-6.763	0.28083	26	0.47277	-0.37191	0.52467	-0.07359				
27	0.74000	0.79586	-0.26211	-5.178	0.26643	27	0.57654	-0.38356	0.61900	-0.09370				
28	0.77000	0.89490	-0.26972	-3.617	0.24976	28	0.68028	-0.39119	0.71335	-0.11232				
29	0.80000	0.99395	-0.27467	-2.103	0.23080	29	0.78383	-0.39479	0.80788	-0.12944				
30	0.83000	1.09299	-0.27702	-0.628	0.20952	30	0.88703	-0.39435	0.90278	-0.14510				
31	0.86000	1.19204	-0.27684	0.844	0.18592	31	0.98971	-0.38999	0.99818	-0.15935				
32	0.89000	1.29108	-0.27405	2.402	0.16007	32	1.09184	-0.38178	1.09414	-0.17227				
33	0.92000	1.39013	-0.26843	4.124	0.13189	33	1.19341	-0.36979	1.19067	-0.18389				
34	0.95000	1.48917	-0.25967	6.017	0.10088	34	1.29444	-0.35402	1.28773	-0.19409				
35	0.97500	1.57171	-0.24974	7.710	0.07271	35	1.39487	-0.33421	1.38538	-0.20266				
36	1.00000	1.65425	-0.23729	9.450	0.04338	36	1.49446	-0.30983	1.48388	-0.20951				
						37	1.57659	-0.28577	1.56683	-0.21371				
						38	1.63711	-0.26588	1.62921	-0.21557				
						39	1.64968	-0.25656	1.64486	-0.22122				
						40	1.61425	-0.23729	1.65425	-0.23729				

CHORD 3.45956 CAMBER 47.795 STAGGER -17.387

PHASE II ROTOR

NB 20

MERIDIONAL AIRFOIL GEOMETRY - STREAMLINE 13

MEANLINE DATA						SURFACE COORDINATES					
PT	PCT X	X	Y	B*M	T(M)	PT	XS	YS	XP	YP	
1	0.	-1.68416	0.69934	-32.373	0.05296	1	-1.68416	0.69934	-1.68416	0.69934	
2	0.02500	-1.60035	0.64642	-32.158	0.07285	2	-1.68790	0.67688	-1.66566	0.71228	
3	0.05000	-1.51654	0.59399	-31.881	0.09277	3	-1.67747	0.66054	-1.64634	0.70985	
4	0.07500	-1.43273	0.54222	-31.500	0.11261	4	-1.61974	0.61558	-1.58097	0.67725	
5	0.10000	-1.34891	0.49136	-30.984	0.13220	5	-1.54104	0.55460	-1.49204	0.63338	
6	0.12500	-1.26510	0.44166	-30.318	0.15140	6	-1.46215	0.49422	-1.40331	0.59023	
7	0.15000	-1.18129	0.39343	-29.496	0.17008	7	-1.38294	0.43463	-1.31488	0.54803	
8	0.17500	-1.09748	0.34692	-28.536	0.18813	8	-1.30331	0.37531	-1.22689	0.50701	
9	0.20000	-1.01356	0.30234	-27.460	0.20548	9	-1.22316	0.31941	-1.13942	0.46745	
10	0.23000	-0.91309	0.25161	-26.054	0.22523	10	-1.14241	0.26428	-1.05254	0.42956	
11	0.26000	-0.81251	0.20402	-24.580	0.24369	11	-1.06104	0.21118	-0.96629	0.39351	
12	0.29000	-0.71194	0.15957	-23.123	0.26076	12	-0.96255	0.15044	-0.86363	0.35278	
13	0.32000	-0.61136	0.11806	-21.740	0.27631	13	-0.86319	0.09322	-0.76183	0.31483	
14	0.35000	-0.51079	0.07929	-20.431	0.29029	14	-0.76314	0.03966	-0.66074	0.27947	
15	0.38000	-0.41021	0.04307	-19.179	0.30259	15	-0.66253	-0.01027	-0.56019	0.24639	
16	0.41000	-0.30964	0.00929	-17.957	0.31311	16	-0.56145	-0.05673	-0.46012	0.21530	
17	0.44000	-0.20906	-0.02213	-16.737	0.32175	17	-0.45991	-0.09983	-0.36051	0.18597	
18	0.47000	-0.10848	-0.05119	-15.494	0.32843	18	-0.35790	-0.13964	-0.26137	0.15822	
19	0.50000	-0.00791	-0.07787	-14.208	0.33303	19	-0.25539	-0.17619	-0.16273	0.13193	
20	0.53000	0.09267	-0.10210	-12.867	0.33546	20	-0.15235	-0.20944	-0.06462	0.10705	
21	0.56000	0.19324	-0.12379	-11.472	0.33565	21	-0.04878	-0.23929	0.03296	0.08355	
22	0.59000	0.29382	-0.14290	-10.037	0.33359	22	0.05532	-0.26561	0.13002	0.06142	
23	0.62000	0.39439	-0.15937	-8.540	0.32931	23	0.15986	-0.28827	0.22662	0.04068	
24	0.65000	0.49497	-0.17305	-6.933	0.32287	24	0.26475	-0.30715	0.32289	0.02134	
25	0.68000	0.59554	-0.18374	-5.168	0.31434	25	0.36994	-0.32220	0.41884	0.00346	
26	0.71000	0.69612	-0.19113	-3.204	0.30378	26	0.47548	-0.33331	0.51445	-0.01280	
27	0.74000	0.79669	-0.19489	-1.050	0.29125	27	0.58139	-0.34027	0.60970	-0.02721	
28	0.77000	0.89727	-0.19474	1.233	0.27677	28	0.68763	-0.34279	0.70461	-0.03948	
29	0.80000	0.99784	-0.19051	3.599	0.26035	29	0.79403	-0.34049	0.79936	-0.04929	
30	0.83000	1.09842	-0.18205	6.023	0.24197	30	0.90025	-0.33310	0.89429	-0.05639	
31	0.86000	1.19899	-0.16925	8.496	0.22163	31	1.00601	-0.32043	0.98967	-0.06059	
32	0.89000	1.29957	-0.15195	11.027	0.19943	32	1.11111	-0.30237	1.08572	-0.06174	
33	0.92000	1.40014	-0.12998	13.624	0.17529	33	1.21537	-0.27884	1.18262	-0.05965	
34	0.95000	1.50072	-0.10311	16.297	0.14869	34	1.31864	-0.24982	1.28050	-0.05407	
35	0.97500	1.58453	-0.07679	18.574	0.12451	35	1.42079	-0.21516	1.37950	-0.04480	
36	1.00000	1.66835	-0.04676	20.841	0.09933	36	1.52158	-0.17447	1.47986	-0.03176	
37						37	1.60436	-0.13580	1.56470	-0.01778	
38						38	1.64101	-0.11721	1.60340	-0.01037	
39						39	1.66592	-0.09179	1.64079	-0.01558	
40						40	1.66835	-0.04676	1.66835	-0.04676	

STAGGER -12.547

53.214

CAMBER

3.43453

CHORD

3. PLANE SECTION BLADE COORDINATES

Figure 43 shows the stacked Phase I 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 baseline 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.

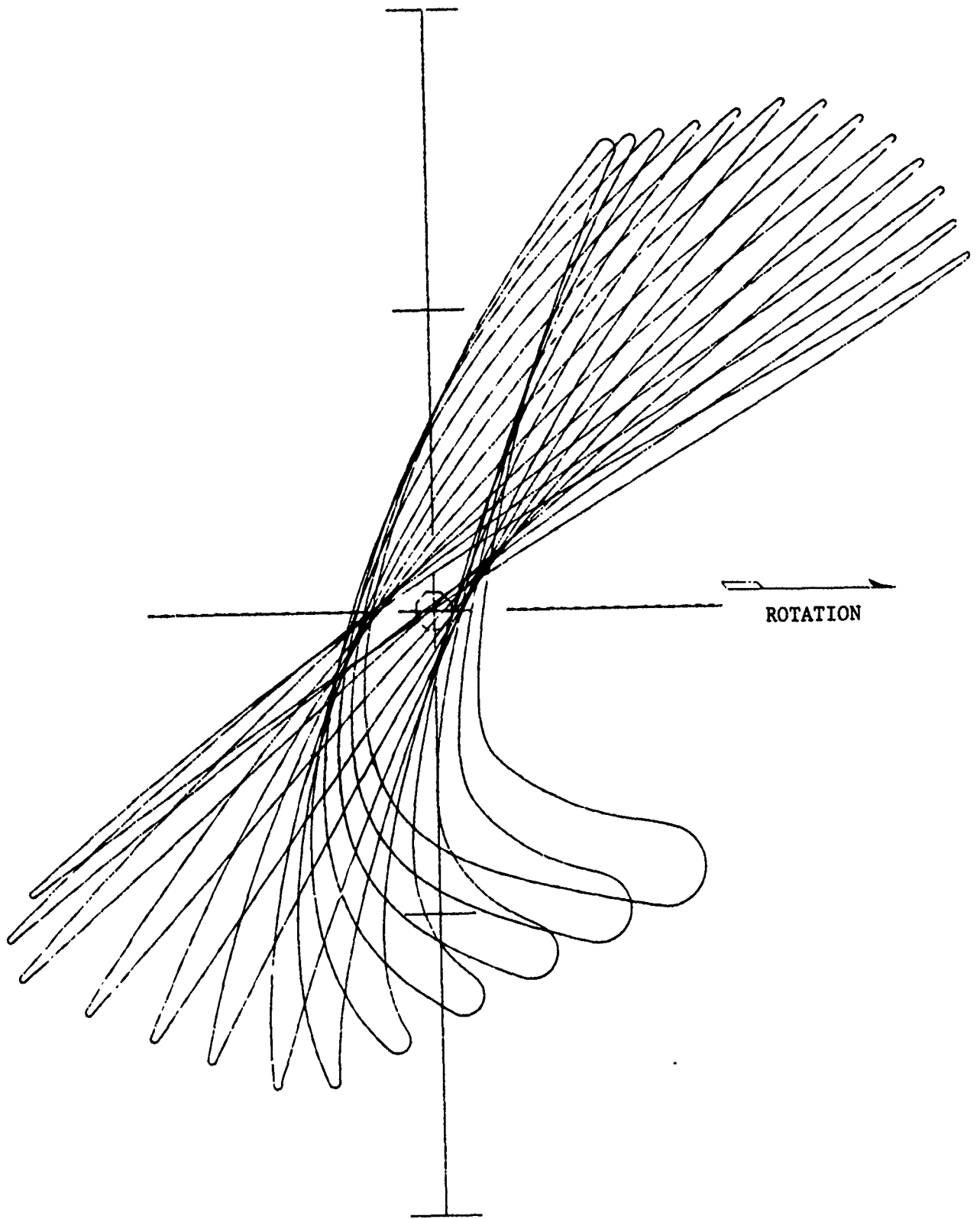


Figure 43 . Stacked Phase II rotor Plane Sections

•ZPC•

PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. EIA O.
 STAGE 2. ROTOR NB 20
 SECTION NO 1 SECTION AA RHO 8.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.09061	57.161	0.01872	1.78982
2	-1.04493	57.678	0.02370	1.71814
3	-0.95244	58.625	0.03383	1.56883
4	0.85845	59.540	0.04406	1.41134
5	0.76279	60.419	0.05419	1.24541
6	0.65574	61.215	0.06492	1.05332
7	-0.53714	61.619	0.07561	0.83487
8	0.41684	61.341	0.08455	0.61288
9	0.29526	60.532	0.09116	0.39384
10	0.17317	59.449	0.09508	0.18238
11	-0.05100	58.351	0.09615	-0.02014
12	0.07083	57.366	0.09436	-0.21408
13	0.19206	56.471	0.08991	-0.40008
14	0.31218	55.658	0.08297	0.57872
15	0.43105	54.925	0.07373	-0.75054
16	0.54865	54.209	0.06235	-0.91583
17	0.66459	53.600	0.04894	-1.07506
18	0.77891	53.408	0.03356	-1.22967
19	0.87281	53.585	0.01918	-1.35679

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PC1 AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00505	-1.09061	1.78982	57.389
2	0.0250	0.00649	-1.04153	1.71276	57.725
3	0.0500	0.00794	-0.99244	1.63414	58.303
4	0.0750	0.00939	-0.94336	1.55385	58.808
5	0.1000	0.01083	-0.89427	1.47202	59.277
6	0.1250	0.01226	-0.84518	1.38867	59.728
7	0.1500	0.01367	-0.79610	1.30383	60.164
8	0.1750	0.01505	-0.74701	1.21751	60.583
9	0.2000	0.01639	-0.69793	1.12977	60.961
10	0.2300	0.01793	-0.63903	1.02279	61.346
11	0.2600	0.01939	-0.58012	0.91441	61.579
12	0.2900	0.02074	-0.52122	0.80538	61.635
13	0.3200	0.02196	-0.46232	0.69646	61.531
14	0.3500	0.02303	-0.40341	0.58836	61.270
15	0.3800	0.02394	-0.34451	0.48169	60.902
16	0.4100	0.02469	-0.28561	0.37680	60.446
17	0.4400	0.02527	0.22671	0.27397	59.938

PHASE II ROTOR

ZPC

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
STAGE 2. ROTOR NR 20

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	0.02566	-0.16780	0.17329	59.399
19	0.5000	0.02588	-0.10890	0.07476	58.862
20	0.5300	0.02592	-0.05000	-0.02177	58.356
21	0.5600	0.02578	0.00890	-0.11644	57.868
22	0.5900	0.02546	0.06781	-0.20536	57.389
23	0.6200	0.02498	0.12671	-0.30061	56.931
24	0.6500	0.02432	0.18561	-0.39034	56.513
25	0.6800	0.02351	0.24451	-0.47873	56.126
26	0.7100	0.02253	0.30342	-0.56585	55.753
27	0.7400	0.02140	0.36232	-0.65178	55.384
28	0.7700	0.02011	0.42122	-0.73651	55.001
29	0.8000	0.01867	0.48012	-0.82004	54.622
30	0.8300	0.01708	0.53903	-0.90246	54.283
31	0.8600	0.01534	0.59793	-0.98392	53.978
32	0.8900	0.01345	0.65683	-1.06451	53.696
33	0.9200	0.01142	0.71573	-1.14435	53.499
34	0.9500	0.00922	0.77464	-1.22389	53.490
35	0.9750	0.00723	0.82372	-1.29029	53.554
36	1.0000	0.00517	0.87281	-1.35679	53.576

CHORD 3.7089 STAGGER 58.037 CAMBER 3.814

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPSILON	UPPER ALPHA	LOWER ALPHA	UPSILON
1	0.00505	-1.09061	1.78982	-1.09061	-1.09061	1.78982
2	0.00505	-1.09489	1.78343	-1.09489	-1.08289	1.79101
3	0.00505	-1.09366	1.77674	-1.09366	-1.07745	1.78715
4	0.00649	-1.05170	1.70634	-1.05170	-1.03135	1.71919
5	0.00794	-1.00497	1.62641	-1.00497	-0.97991	1.64188
6	0.00939	-0.95825	1.54483	-0.95825	-0.92846	1.56287
7	0.01083	-0.91154	1.46175	-0.91154	-0.87700	1.48228
8	0.01226	-0.86483	1.37721	-0.86483	-0.82554	1.40014
9	0.01367	-0.81809	1.29122	-0.81809	-0.77411	1.31644
10	0.01505	-0.77132	1.20380	-0.77132	-0.72270	1.23122
11	0.01639	-0.72450	1.11501	-0.72450	-0.67135	1.14452
12	0.01793	-0.66821	1.00684	-0.66821	-0.60984	1.03874
13	0.01939	-0.61175	0.89729	-0.61175	-0.54850	0.93153
14	0.02074	-0.55506	0.78710	-0.55506	-0.48738	0.82365

PHASE II ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.03630 R 0. MU 0. ETA 0.
SECTION NO 1 SECTION AA RH0 8.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0.02196	-0.49811	0.67705	-0.42652	0.71586
16	0.02303	-0.44086	0.56783	-0.36597	0.60889
17	0.02394	-0.38331	0.46010	-0.30572	0.50328
18	0.02469	-0.32544	0.35422	-0.24578	0.39939
19	0.02527	-0.26726	0.25050	-0.18616	0.29744
20	0.02566	-0.20877	0.14906	-0.12684	0.19752
21	0.02588	-0.14999	0.04994	-0.06782	0.09958
22	0.02592	-0.09092	-0.04699	-0.00907	0.00345
23	0.02578	-0.03158	-0.14187	0.04939	-0.09102
24	0.02546	0.02803	-0.23481	0.10758	-0.18391
25	0.02498	0.08789	-0.32588	0.16552	-0.27534
26	0.02432	0.14799	-0.41523	0.22323	-0.36546
27	0.02351	0.20832	-0.50303	0.28071	-0.45443
28	0.02253	0.26888	-0.58937	0.33795	-0.54234
29	0.02140	0.32966	-0.67432	0.39497	-0.62924
30	0.02011	0.39067	-0.75790	0.45177	-0.71512
31	0.01867	0.45189	-0.84009	0.50836	-0.79999
32	0.01708	0.51330	-0.92096	0.56475	-0.88397
33	0.01534	0.57492	-1.00065	0.62094	-0.96719
34	0.01345	0.63672	-1.07928	0.67694	-1.04973
35	0.01142	0.69871	-1.15695	0.73276	-1.13175
36	0.00922	0.76090	-1.23406	0.78837	-1.21372
37	0.00723	0.81293	-1.29825	0.83451	-1.28232
38	0.00517	0.85905	-1.35504	0.87520	-1.34313
39	0.00517	0.86501	-1.35858	0.87682	-1.34985
40	0.00517	0.87281	-1.35679	0.87281	-1.35679
LE RAD	0.00964	CENTER AT ALPHA	-1.08540	UPSILON	1.78171
TE RAD	0.01005	CENTER AT ALPHA	0.86684	UPSILON	-1.34870

•ZPC•

PHASE II ROTOR

COORD SYSTEM ORIGIN	Z	-7.03630	R	O.	MU	O.	ETA	O.
STAGE	2.	ROTOR		NB		20		
SECTION NO	1	SECTION AA		RH0		8.5000		
CHORD	3.7089	STAGGER		CAMBER				
		58.037		3.814				
AREA	0.256045	SURFACE ARC LENGTH		7.44936				
SECTION C.G.		ALPHA		UPSILON				
STREAMSURFACE	SECTION C.G.	-0.11669		0.13422				
BLADE AXIS		-0.11484		0.12907				
STACKING AXIS (RADIAL)		-0.11484		0.12907				
		-0.00010		0.				

•ZPC•

PHASE 11 ROTOR

COORD SYSIFM ORIGIN Z -7.03630 R O. MU O. ETA O. N8 20

SECTION NO 2 SECTION BB RH0 8.0000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.19539	55.551	0.01960	1.75040
2	-1.14383	55.976	0.02492	1.67461
3	-1.03927	56.841	0.03576	1.51729
4	-0.93303	57.762	0.04679	1.35171
5	0.82496	58.572	0.05777	1.17746
6	-0.70430	59.014	0.06940	0.97764
7	-0.57050	58.862	0.08082	0.75498
8	-0.43516	58.149	0.09027	0.53340
9	0.29854	57.110	0.09720	0.31762
10	-0.16127	56.000	0.10129	0.10974
11	0.02394	55.029	0.10238	-0.09020
12	0.11314	54.249	0.10045	-0.28332
13	0.24954	53.549	0.09564	-0.47036
14	0.38507	52.874	0.08814	-0.65139
15	0.51926	52.202	0.07814	-0.82624
16	0.65171	51.571	0.06581	-0.99483
17	0.78228	50.916	0.05137	-1.15717
18	0.91070	50.085	0.03505	-1.31282
19	1.01615	49.332	0.02015	-1.43692

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00505	-1.19539	1.75040	55.551
2	0.0250	0.00652	-1.14011	1.66908	56.001
3	0.0500	0.00800	-1.08482	1.58646	56.432
4	0.0750	0.00948	-1.02953	1.50237	56.927
5	0.1000	0.01096	-0.97424	1.41665	57.422
6	0.1250	0.01244	0.91895	1.32933	57.887
7	0.1500	0.01389	-0.86366	1.24049	58.313
8	0.1750	0.01532	-0.80837	1.15024	58.693
9	0.2000	0.01671	-0.75309	1.05884	58.942
10	0.2300	0.01830	-0.68674	0.94838	59.042
11	0.2600	0.01979	-0.62039	0.83783	58.996
12	0.2900	0.02116	-0.55405	0.72775	58.828
13	0.3200	0.02240	-0.48770	0.61868	58.525
14	0.3500	0.02348	-0.42135	0.51120	58.079
15	0.3800	0.02440	-0.35501	0.40574	57.568
16	0.4100	0.02516	-0.28866	0.30238	57.033
17	0.4400	0.02573	-0.22232	0.20112	56.498

•7PC•

PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.

SECTION NO 2 SECTION B8 RHO 8.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.02613	-0.15597	0.10188	55.971
19	0.5000	0.02635	-0.08962	0.00451	55.487
20	0.5300	0.02639	-0.02328	-0.09116	55.038
21	0.5600	0.02624	0.04307	-0.18532	54.631
22	0.5900	0.02592	0.10942	-0.27815	54.268
23	0.6200	0.02541	0.17576	-0.36980	53.926
24	0.6500	0.02474	0.24211	-0.46029	53.575
25	0.6800	0.02390	0.30845	-0.54962	53.223
26	0.7100	0.02289	0.37480	-0.63782	52.881
27	0.7400	0.02172	0.44115	-0.72496	52.549
28	0.7700	0.02039	0.50749	-0.81107	52.224
29	0.8000	0.01891	0.57384	-0.89619	51.902
30	0.8300	0.01727	0.64019	-0.98031	51.574
31	0.8600	0.01547	0.70653	-1.06345	51.241
32	0.8900	0.01353	0.77288	-1.14560	50.910
33	0.9200	0.01145	0.83922	-1.22675	50.540
34	0.9500	0.00921	0.90557	-1.30670	50.061
35	0.9750	0.00723	0.96086	-1.37223	49.646
36	1.0000	0.00519	1.01615	-1.43692	49.332

CHORD 3 8794 STAGGER 55.245 CAMBER 6.219

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00505	-1.19539	1.75040	-1.19539	1.75040
2	0.00505	-1.19967	1.74357	-1.18736	1.75189
3	0.00505	-1.19819	1.73662	-1.18154	1.74801
4	0.00652	-1.15059	1.66201	-1.12962	1.67616
5	0.00800	-1.09774	1.57788	-1.07189	1.59503
6	0.00948	-1.04494	1.49233	-1.01412	1.51240
7	0.01096	-0.99216	1.40520	-0.95632	1.42810
8	0.01244	-0.93938	1.31651	-0.89852	1.34216
9	0.01389	-0.88659	1.22634	-0.84074	1.25465
10	0.01532	-0.83376	1.13480	-0.78299	1.16568
11	0.01671	-0.78085	1.04212	-0.72532	1.07556
12	0.01830	-0.71718	0.93012	-0.65630	0.96664
13	0.01979	-0.65330	0.81806	-0.58749	0.85761
14	0.02116	-0.58917	0.70651	-0.51893	0.74900

PHASE 1: ROTOR

7PC

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 SECTION NO 2 SECTION BB RHO 8.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PF	I/C	UPPER		LOWER		UPSILON
		ALPHA	UPSILON	ALPHA	UPSILON	
15	0 02240	-0.52475	0.59600	-0.45065	0.64137	0.64137
16	0 02348	-0.46001	0.48712	-0.38269	0.53528	0.53528
17	0 02440	-0.39496	0.38035	-0.31506	0.43112	0.43112
18	0 02516	-0.32960	0.27583	-0.24772	0.32893	0.32893
19	0 02573	-0.26394	0.17357	-0.18069	0.22868	0.22868
20	0 02613	-0.19799	0.07352	-0.11395	0.13024	0.13024
21	0 02635	-0.13174	-0.02445	-0.04750	0.03348	0.03348
22	0 02639	-0.06523	-0.12049	0.01867	-0.06182	-0.06182
23	0 02624	0.00156	-0.21478	0.08458	-0.15585	-0.15585
24	0 02592	0.06861	-0.30751	0.15022	-0.24879	-0.24879
25	0 02541	0.13592	-0.39882	0.21560	-0.34077	-0.34077
26	0 02474	0.20350	-0.48878	0.28072	-0.43179	-0.43179
27	0 02390	0.27133	-0.57737	0.34558	0.52186	0.52186
28	0 02289	0.33940	-0.66462	0.41020	-0.61103	-0.61103
29	0 02172	0.40770	-0.75058	0.47460	-0.69934	-0.69934
30	0 02039	0.47623	-0.83530	0.53876	-0.78684	-0.78684
31	0 01891	0.54498	-0.91881	0.60270	-0.87356	-0.87356
32	0 01727	0.61395	-1.00113	0.66642	-0.95950	-0.95950
33	0 01547	0.68313	-1.08223	0.72193	-1.04466	-1.04466
34	0 01353	0.75251	-1.16214	0.79325	-1.12905	-1.12905
35	0 01145	0.82208	-1.24087	0.85637	-1.21264	-1.21264
36	0.00921	0.89187	-1.31817	0.91927	-1.29523	-1.29523
37	0 00723	0.95017	-1.38132	0.97155	-1.36314	-1.36314
38	0.00519	1.00158	-1.43616	1.01759	-1.42241	-1.42241
39	0 00519	1.00805	-1.43940	1.01982	-1.42940	-1.42940
40	0 00519	1.01615	-1.43692	1.01615	-1.43692	-1.43692
LE RAD	0 01009	CENTER AT ALPHA	-1.18970	UPSILON	1.74207	1.74207
TE RAD	0 01056	CENTER AT ALPHA	1.00927	UPSILON	-1.42891	-1.42891

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	R	O.	MU	O.	ETA	O
STAGE	2	ROTOR				NB	20
SECTION NO	2	SECTION BB				RHO	8.0000
CHORD	7 8794	STAGGER				CAMBER	
		55.245				6.219	
AREA	O 283628	SURFACE ARC LENGTH				7.79324	
SECTION C.G.		ALPHA				UPSILON	
SURFAMSURFACE	SECTION C.G.	-O 09951				0.06421	
BLADE AXIS		-O.09706				0.06025	
STACKING AXIS (RADIAL)		-O.09706				0.06025	
		-O.00010				O.	

PHASE II ROTOR

ZRC

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 STAGE 2. ROTOR NB 20
 SECTION NO 3 SECTION CC RHO 7.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	1.29938	53.992	0.02038	1.71046
2	-1.24256	54.533	0.02671	1.63139
3	1.12753	55.457	0.03986	1.46696
4	-1.01070	56.080	0.05339	1.29521
5	0.89210	56.348	0.06688	1.11791
6	-0.75977	56.250	0.08111	0.91953
7	-0.61347	55.670	0.09510	0.70267
8	-0.46544	54.460	0.10664	0.49045
9	-0.31614	52.941	0.11508	0.28729
10	-0.16609	51.611	0.12012	0.09354
11	-0.01568	50.540	0.12162	-0.09254
12	0.13467	49.698	0.11951	-0.27239
13	0.28475	49.063	0.11399	-0.44735
14	0.43414	48.583	0.10519	-0.61823
15	0.58274	48.208	0.09325	-0.78571
16	0.73022	47.884	0.07836	-0.95008
17	0.87633	47.514	0.06067	-1.11110
18	1.02096	46.955	0.04046	-1.26813
19	1.14019	46.316	0.02182	-1.39525

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
1	0.	0.00516	1.29938	1.71046	53.992
2	0.0250	0.00688	-1.23839	1.62553	54.606
3	0.0500	0.00864	-1.17740	1.53889	55.092
4	0.0750	0.01042	-1.11641	1.45079	55.512
5	0.1000	0.01221	-1.05542	1.36141	55.855
6	0.1250	0.01399	-0.99443	1.27101	56.117
7	0.1500	0.01576	-0.93344	1.17989	56.273
8	0.1750	0.01749	-0.87245	1.08843	56.319
9	0.2000	0.01917	-0.81146	0.99694	56.294
10	0.2300	0.02103	-0.73828	0.88742	56.183
11	0.2600	0.02290	-0.66509	0.77863	55.931
12	0.2900	0.02455	-0.59190	0.67119	55.515
13	0.3200	0.02604	-0.51872	0.56571	54.951
14	0.3500	0.02734	-0.44553	0.46270	54.240
15	0.3800	0.02843	-0.37234	0.36246	53.495
16	0.4100	0.02933	-0.29916	0.26487	52.767
17	0.4400	0.03001	-0.22597	0.16975	52.093

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
STAGE 2. ROTOR NB 20

SECTION NO 3 SECTION CC RH0 7.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA•
18	0 4700	0.03049	-0.15278	0.07678	51.497
19	0 5000	0.03075	-0.07960	-0.01433	50.962
20	0 5300	0.03079	-0.00641	-0.10380	50.481
21	0 5600	0.03061	0.06678	-0.19184	50.053
22	0 5900	0.03023	0.13996	-0.27863	49.679
23	0 6200	0.02964	0.21315	-0.36436	49.354
24	0 6500	0.02884	0.28634	-0.44918	49.077
25	0 6800	0.02785	0.35953	-0.53324	48.834
26	0 7100	0.02666	0.43271	-0.61661	48.614
27	0 7400	0.02527	0.50590	-0.69937	48.420
28	0 7700	0.02370	0.57909	-0.78162	48.254
29	0 8000	0.02193	0.65227	-0.86341	48.106
30	0 8300	0.01997	0.72546	-0.94480	47.964
31	0 8600	0.01783	0.79865	-1.02576	47.802
32	0 8900	0.01551	0.87183	-1.10619	47.585
33	0 9200	0.01302	0.94502	-1.18596	47.355
34	0 9500	0.01035	1.01821	-1.26516	47.166
35	0 9750	0.00797	1.07920	-1.33068	46.893
36	1.0000	0.00552	1.14019	-1.39525	46.316

CHORD 3.9493 STAGGER 51.850 CAMBER 7.676

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0 00516	-1.29938	1.71046	-1.29938	1.71046
2	0 00516	-1.30364	1.70325	-1.29104	1.71224
3	0 00516	-1.30192	1.69605	-1.28429	1.70838
4	0 00688	-1.24947	1.61766	-1.22731	1.63340
5	0 00864	-1.15139	1.52913	-1.16341	1.54866
6	0 01042	-1.13337	1.43914	-1.09945	1.46244
7	0 01221	-1.07537	1.34788	-1.03547	1.37494
8	0 01399	-1.01737	1.25561	-0.97149	1.28642
9	0 01576	-0.95932	1.16262	-0.90756	1.19717
10	0 01749	-0.90119	1.06928	-0.84372	1.10758
11	0 01917	-0.84295	0.97594	-0.77998	1.01794
12	0 02109	-0.77288	0.86424	-0.70368	0.91060
13	0 02290	-0.70254	0.75330	-0.62764	0.80396
14	0 02455	-0.63187	0.64374	-0.55194	0.69864

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. NB O. ETA O.
SECTION NO 3 SECTION CC RHO 7.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

P1	T/C	UPPER		LOWER	
		ALPHA	UPSILON	ALPHA	UPSILON
15	0.02604	-0.56081	0.53618	-0.47663	0.59524
16	0.02734	-0.48933	0.43116	-0.40173	0.49425
17	0.02843	-0.41747	0.32905	-0.32721	0.39586
18	0.02933	-0.34526	0.22983	-0.25305	0.29991
19	0.03001	-0.27273	0.13334	-0.17921	0.20616
20	0.03049	-0.19989	0.03931	-0.10567	0.11426
21	0.03075	-0.12675	-0.05256	-0.03244	0.02391
22	0.03079	-0.05331	0.14248	0.04049	-0.06511
23	0.03061	0.02043	-0.23065	0.11312	-0.15302
24	0.03023	0.09446	-0.31725	0.18547	-0.24001
25	0.02964	0.16875	-0.40248	0.25755	-0.32624
26	0.02884	0.24330	-0.48649	0.32937	-0.41187
27	0.02785	0.31813	-0.56944	0.40093	-0.49704
28	0.02666	0.39322	-0.65141	0.47221	-0.58180
29	0.02527	0.46857	-0.73250	0.54323	-0.66625
30	0.02410	0.54417	-0.81277	0.61400	-0.75046
31	0.02193	0.62004	-0.89233	0.68451	-0.83450
32	0.01997	0.69617	-0.97121	0.75476	-0.91839
33	0.01783	0.77256	-1.04941	0.82473	-1.00211
34	0.01551	0.84922	-1.12685	0.89445	-1.08553
35	0.01302	0.92611	-1.20338	0.96394	-1.16854
36	0.01035	1.00322	-1.27905	1.03319	-1.25126
37	0.00797	1.06770	-1.34144	1.09069	-1.31992
38	0.00552	1.12432	-1.39528	1.14032	-1.37862
39	0.00552	1.13153	-1.39840	1.14377	-1.38640
40	0.00552	1.14019	-1.39525	1.14019	-1.39525
LE RAD	0.01052	CENTER AT ALPHA	-1.29320	UPSILON	1.70194
TE RAD	0.01155	CENTER AT ALPHA	1.13223	UPSILON	-1.38687

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	R	O	MU	O.	NR	20	ETA	O.
SECTION NO	3	SECTION	CC	RHO	7.5000				
CHORD	3 9493	STAGGER	51.850	CAMBER	7.676				
ARFA	O.337014	SURFACE ARC LENGTH	7.93903						
SECTION C.G		ALPHA	UPSILON						
STREAMSURFACE SECTION C.G		-O 08937	O.04631						
BLADE AXIS		-O 10151	O 05711						
STACKING AXIS (RADIAL)		-O 10151	O 05711						
		-O.00010	O						

PHASE II ROTOR

ZPC

COORD SYSTEM ORIGIN Z -7.03630 P O. MU O. ETA O.
 STAGE 2 ROTOR NB 20
 SECTION NO 4 SECTION DD RHD 7.0000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.38939	52.546	0.02064	1.64284
2	-1.32788	52.904	0.02884	1.56207
3	-1.20360	53.450	0.04585	1.39503
4	-1.07763	53.634	0.06331	1.22530
5	-0.95014	53.445	0.08067	1.05245
6	0.80810	52.946	0.09895	0.86233
7	-0.65139	52.081	0.11701	0.65733
8	-0.49302	50.303	0.13204	0.45987
9	-0.33338	48.148	0.14324	0.27474
10	-0.17285	46.344	0.15019	0.10130
11	-0.01172	44.887	0.15269	-0.06327
12	0.14984	43.656	0.15060	-0.22068
13	0.31144	42.579	0.14405	-0.37198
14	0.47298	41.666	0.13323	-0.51802
15	0.63431	40.943	0.11826	-0.65982
16	0.79530	40.392	0.09918	-0.79816
17	0.95590	39.965	0.07601	-0.93386
18	1.11622	39.577	0.04864	-1.06721
19	1.24928	39.254	0.02249	-1.17683

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PC1 AL	T/C	ALPHA	UPSILON	ZETA*
1	0.	0.00535	-1.38939	1.64284	52.546
2	0.0250	0.00762	-1.32342	1.55617	52.907
3	0.0500	0.00995	-1.25745	1.46839	53.231
4	0.0750	0.01231	-1.19149	1.37969	53.477
5	0.1000	0.01468	-1.12552	1.29035	53.620
6	0.1250	0.01704	-1.05955	1.20073	53.647
7	0.1500	0.01938	-0.99359	1.11121	53.568
8	0.1750	0.02166	-0.92762	1.02210	53.392
9	0.2000	0.02388	-0.86165	0.93364	53.182
10	0.2300	0.02643	-0.78249	0.82841	52.903
11	0.2600	0.02883	-0.70333	0.72448	52.469
12	0.2900	0.03103	-0.62417	0.62255	51.829
13	0.3200	0.03302	-0.54501	0.52330	50.984
14	0.3500	0.03476	-0.46585	0.42736	49.933
15	0.3800	0.03624	-0.38669	0.33502	48.859
16	0.4100	0.03746	-0.30753	0.24604	47.833
17	0.4400	0.03840	-0.22837	0.16006	46.912

PHASE II ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.

SECTION NO 4 SECTION DD RHO 7.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.03906	-0.14921	0.07662	46.119
19	0.5000	0.03944	-0.07005	-0.00465	45.395
20	0.5300	0.03954	0.00911	-0.08396	44.718
21	0.5600	0.03934	0.08827	-0.16148	44.097
22	0.5900	0.03887	0.16743	-0.23743	43.535
23	0.6200	0.03812	0.24659	-0.31194	43.005
24	0.6500	0.03710	0.32575	-0.38511	42.496
25	0.6800	0.03581	0.40491	-0.45704	42.032
26	0.7100	0.03427	0.48407	-0.52788	41.629
27	0.7400	0.03246	0.56323	-0.59778	41.266
28	0.7700	0.03040	0.64239	-0.66683	40.931
29	0.8000	0.02808	0.72155	-0.73511	40.642
30	0.8300	0.02550	0.80071	-0.80277	40.409
31	0.8500	0.02265	0.87987	-0.86990	40.186
32	0.8900	0.01955	0.95903	-0.93648	39.939
33	0.9200	0.01620	1.03819	-1.00250	39.732
34	0.9500	0.01254	1.11735	-1.06814	39.622
35	0.9750	0.00924	1.18332	-1.12267	39.504
36	1.0000	0.00582	1.24928	-1.17683	39.254

CHORD 1 8618 STAGGER 46.899 CAMBER 13.292

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	I/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00535	-1.38939	1.64284	-1.38939	1.64284
2	0.00535	-1.39354	1.63538	-1.38099	1.64489
3	0.00535	-1.39164	1.62813	-1.37460	1.64118
4	0.00762	-1.33516	1.54729	-1.31168	1.56505
5	0.00995	-1.27284	1.45689	-1.24207	1.47989
6	0.01231	-1.21058	1.36555	-1.17239	1.39383
7	0.01468	-1.14834	1.27354	-1.10270	1.30716
8	0.01704	-1.08605	1.18123	-1.03305	1.22024
9	0.01938	-1.02369	1.08899	-0.96348	1.13343
10	0.02166	-0.96120	0.99715	-0.89404	1.04705
11	0.02388	-0.89857	0.90600	-0.82473	0.96127
12	0.02643	-0.82320	0.79762	-0.74178	0.85919
13	0.02883	-0.74747	0.69057	-0.65919	0.75839
14	0.03103	-0.67128	0.58552	-0.57706	0.65958

PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 SECTION NO 4 SECTION DD RHO 7.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	UPPER ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0.03302	-0.59455	0.48316	-0.49547	0.56343
16	0.03476	-0.51722	0.38415	-0.41448	0.47056
17	0.03624	-0.43939	0.28897	-0.33399	0.38106
18	0.03746	-0.36114	0.19748	-0.25392	0.29459
19	0.03840	-0.28252	0.10941	-0.17422	0.21071
20	0.03906	-0.20357	0.02434	-0.09485	0.12890
21	0.03944	-0.12427	-0.05813	-0.01583	0.04883
22	0.03954	-0.04461	-0.13820	0.06282	-0.02971
23	0.03934	0.03541	-0.21604	0.14113	-0.10593
24	0.03887	0.11574	-0.29183	0.21912	-0.18302
25	0.03812	0.19639	-0.36576	0.29679	-0.25812
26	0.03710	0.27736	-0.43793	0.37414	-0.33230
27	0.03581	0.35861	-0.50840	0.45121	-0.40568
28	0.03427	0.44011	-0.57734	0.52803	-0.47842
29	0.03246	0.52189	-0.64490	0.60457	-0.55066
30	0.03040	0.60393	-0.71118	0.68085	-0.62248
31	0.02808	0.68623	-0.77626	0.75687	-0.69397
32	0.02550	0.76880	-0.84026	0.83263	-0.76528
33	0.02265	0.85165	-0.90332	0.90810	-0.83649
34	0.01955	0.93479	-0.96543	0.98327	-0.90753
35	0.01620	1.01320	-1.02655	1.05818	-0.97844
36	0.01254	1.10191	-1.08679	1.13279	-1.04949
37	0.00924	1.17190	-1.13644	1.19467	-1.10889
38	0.00582	1.23293	-1.17911	1.24829	-1.16036
39	0.00582	1.24081	-1.18126	1.25195	-1.16771
40	0.00582	1.24928	-1.17683	1.24928	-1.17683
LF RAD	0.01074	CENTER AT ALPHA	-1.38286	UPSILON	1.63431
TE RAD	0.01216	CENTER AT ALPHA	1.23987	UPSILON	-1.16914

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	R O.	MU	O.	ETA	O.
STAGE	2.	ROTOR			NB	20
SECTION NO	4	SECTION DD			RHO	7.0000
CHORD	3 8618	STAGGER			CAMBER	
		46.899			13.292	
AREA	0 406486	SURFACE ARC LENGTH			7.78701	
SECTION C.G.		ALPHA			UPSILON	
STREAMSURFACE SECTION C.G.		-0.08627			0.07392	
BLADE AXIS		-0.11097			0.08868	
STACKING AXIS (RADIAL)		-0.11097			0.08868	
		-0.00010			0.	

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 SECTION NO 5 SECTION EE RHO 6.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.46628	51.183	0.02050	1.55327
2	-1.40102	51.385	0.03163	1.47176
3	1.26926	51.598	0.05480	1.30597
4	-1.13602	51.478	0.07858	1.13794
5	1.00121	51.027	0.10213	0.96985
6	-0.85125	50.125	0.12672	0.78717
7	-0.68590	48.404	0.15068	0.59466
8	-0.51903	45.882	0.17039	0.41447
9	0.35082	43.287	0.18508	0.24897
10	0.18163	41.228	0.19444	0.09558
11	0.01166	39.401	0.19813	-0.04843
12	0.15881	37.640	0.19593	-0.18392
13	0.32987	36.081	0.18798	-0.31184
14	0.50131	34.734	0.17434	-0.43336
15	0.67311	33.541	0.15498	-0.54945
16	0.84521	32.512	0.12973	-0.66093
17	1.01769	31.665	0.09830	-0.76857
18	1.19064	30.979	0.06012	-0.87319
19	1.33512	30.457	0.02261	-0.95861

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT	AI	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00545	0.00545	-1.46628	1.55327	51.183
2	0	0.0250	0.00862	-1.39624	1.46578	51.428
3	0	0.0500	0.01188	-1.32621	1.37776	51.546
4	0	0.0750	0.01519	-1.25617	1.28944	51.618
5	0	0.1000	0.01851	-1.18614	1.20104	51.588
6	0	0.1250	0.02182	-1.11610	1.11293	51.428
7	0	0.1500	0.02509	-1.04607	1.02546	51.196
8	0	0.1750	0.02828	-0.97603	0.93880	50.906
9	0	0.2000	0.03136	-0.90600	0.85317	50.514
10	0	0.2300	0.03488	-0.82196	0.75225	49.882
11	0	0.2600	0.03816	0.73791	0.65392	49.037
12	0	0.2900	0.04115	-0.65387	0.55887	47.960
13	0	0.3200	0.04383	-0.56983	0.46763	46.711
14	0	0.3500	0.04617	-0.48579	0.38053	45.316
15	0	0.3800	0.04816	-0.40175	0.29752	43.997
16	0	0.4100	0.04979	-0.31770	0.21804	42.826
17	0	0.4400	0.05107	-0.23366	0.14159	41.776

PHASE II ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
STAGE 2. ROTOR NB 20
SECTION NO 5 SECTION EE RH0 6.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA•
18	0.4700	0.05198	-0.14962	0.06775	40.841
19	0.5000	0.05251	-0.06558	-0.00375	39.937
20	0.5300	0.05267	0.01846	-0.07301	39.044
21	0.5600	0.05244	0.10251	-0.14011	38.171
22	0.5900	0.05183	0.18655	-0.20517	37.324
23	0.6200	0.05086	0.27059	-0.26833	36.535
24	0.6500	0.04953	0.35463	-0.32977	35.816
25	0.6800	0.04783	0.43867	-0.38967	35.140
26	0.7100	0.04576	0.52272	-0.44811	34.501
27	0.7400	0.04336	0.60676	-0.50523	33.903
28	0.7700	0.04057	0.69080	-0.56111	33.350
29	0.8000	0.03742	0.77484	-0.61588	32.833
30	0.8300	0.03388	0.85888	-0.66960	32.347
31	0.8600	0.02995	0.94293	-0.72236	31.902
32	0.8900	0.02563	1.02697	-0.77426	31.505
33	0.9200	0.02091	1.11101	-0.82540	31.138
34	0.9500	0.01569	1.19505	-0.87582	30.789
35	0.9750	0.01095	1.26509	-0.91735	30.567
36	1.0000	0.00601	1.33512	-0.95861	30.457

CHORD 3.7626
STAGGER 41.881
CAMBER 20.727

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00545	-1.46628	1.55327	-1.46628	1.55327
2	0.00545	-1.47028	1.54570	-1.45797	1.55554
3	0.00545	-1.46828	1.53854	-1.45146	1.55205
4	0.00862	-1.40893	1.45566	-1.38356	1.47589
5	0.01188	-1.34371	1.36387	-1.30871	1.39166
6	0.01519	-1.27857	1.27170	-1.23378	1.30718
7	0.01851	-1.21343	1.17940	-1.15885	1.22267
8	0.02182	-1.14820	1.08734	-1.10840	1.13853
9	0.02509	-1.08285	0.99589	-1.00929	1.05504
10	0.02828	-1.01732	0.90525	-0.93474	0.97235
11	0.03136	-0.95153	0.81566	-0.86046	0.89069
12	0.03488	-0.87214	0.70997	-0.77178	0.79454
13	0.03816	-0.79212	0.60686	-0.68371	0.70098
14	0.04115	-0.71137	0.50703	-0.59638	0.61071

PHASE II ROTOR

ZPC

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.

SECTION NO 5 SECTION EE RHO 6.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0 04383	-0.62985	0.41109	-0.50981	0.52416
16	0 04617	-0.54754	0.31945	-0.42403	0.44161
17	0 04816	-0.46468	0.23234	-0.33882	0.36269
18	0 04979	-0.38138	0.14933	-0.25403	0.28674
19	0 05107	-0.29767	0.06993	-0.16965	0.21324
20	0 05198	-0.21357	-0.00623	-0.08567	0.14173
21	0 05251	-0.12900	-0.07950	-0.00216	0.07200
22	0 05267	-0.04395	-0.14996	0.08088	0.00395
23	0 05244	0.04154	-0.21767	0.16347	-0.06256
24	0 05183	0.12742	-0.28272	0.24567	-0.12763
25	0 05086	0.21362	-0.34522	0.32756	-0.19144
26	0 04953	0.30010	-0.40533	0.40916	-0.25421
27	0 04783	0.38688	-0.46325	0.49047	-0.31608
28	0 04578	0.47394	-0.51909	0.57149	-0.37714
29	0 04336	0.56126	-0.57293	0.65226	-0.43752
30	0 04057	0.64884	-0.62487	0.73276	-0.49735
31	0 03747	0.73668	-0.67502	0.81301	-0.55673
32	0 03388	0.82478	-0.72344	0.89298	-0.61575
33	0 02995	0.91315	-0.77019	0.97270	-0.67453
34	0 02563	1.00177	-0.81537	1.05216	-0.73315
35	0 02091	1.09067	-0.85906	1.13135	-0.79174
36	0 01569	1.17994	-0.90118	1.21016	-0.85047
37	0 01095	1.25461	-0.93509	1.27556	-0.89962
38	0 00601	1.31905	-0.96378	1.33183	-0.94206
39	0 00601	1.32730	-0.96448	1.33646	-0.94899
40	0 00601	1.33512	-0.95861	1.33512	-0.95861
LE RAD	0 01081	CENTER AT ALPHA	-1.45951	UPSILON	1.54485
TF RAD	0 01268	CENTER AT ALPHA	1.32419	UPSILON	-0.95219

•ZPC•

PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R 0 MU 0.0. ETA 0.0.

SECTION NO 5 SECTION EE RHO 6.5000

CHORD 3.7626 STAGGER 41.881 CAMBER 20.727

AREA 0.508640 SURFACE ARC LENGTH 7.62824

SECTION C.G.	ALPHA	UPSILON
STREAMSURFACE SECTION C.G.	-0.08790	0.08773
BLADE AXIS	-0.12000	0.09731
STACKING AXIS (RADIAL)	-0.12000	0.09731
	-0.00010	0.

PHASE II ROTOR

COORD SYS1FM ORIGIN Z -7.03630 R 0. MU 0. EYA 0.
 STAGE 2. ROTOR NB 20
 SECTION NO 6 SECTION FF RHO 6.0000

MEANLINE INPUT DATA

P1	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.53198	49.999	0.01964	1.44860
2	-1.46348	50.044	0.03399	1.36691
3	-1.32524	50.007	0.06328	1.20210
4	-1.18548	49.700	0.09269	1.03633
5	-1.04414	48.905	0.12123	0.87184
6	-0.88725	47.071	0.15041	0.69693
7	0.71439	44.081	0.17822	0.52005
8	-0.53996	41.091	0.20093	0.35978
9	0.36446	38.553	0.21804	0.21323
10	-0.18792	36.326	0.22912	0.07776
11	0.01050	34.187	0.23370	-0.04818
12	0.16773	32.085	0.23146	-0.16501
13	0.34668	30.091	0.22245	-0.27343
14	0.52636	28.157	0.20669	-0.37422
15	0.70688	26.266	0.18401	-0.46777
16	0.88821	24.496	0.15401	-0.55458
17	1.07049	22.822	0.11607	-0.63527
18	1.25400	21.157	0.06924	-0.71010
19	1.40796	19.665	0.02250	-0.76778

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00533	-1.53198	1.44860	49.999
2	0.0250	0.00952	-1.45848	1.36094	50.027
3	0.0500	0.01374	-1.38498	1.27329	50.009
4	0.0750	0.01798	-1.31148	1.18572	49.969
5	0.1000	0.02220	-1.23798	1.09839	49.843
6	0.1250	0.02635	-1.16448	1.01163	49.594
7	0.1500	0.03041	-1.09099	0.92584	49.212
8	0.1750	0.03433	-1.01749	0.84140	48.678
9	0.2000	0.03809	-0.94399	0.75888	47.897
10	0.2300	0.04233	-0.85579	0.66338	46.589
11	0.2600	0.04623	-0.76759	0.57252	45.085
12	0.2900	0.04976	-0.67940	0.48651	43.462
13	0.3200	0.05292	-0.59120	0.40515	41.938
14	0.3500	0.05569	-0.50300	0.32781	40.580
15	0.3800	0.05805	-0.41480	0.25395	39.314
16	0.4100	0.06001	-0.32660	0.18325	38.129
17	0.4400	0.06155	-0.23840	0.11540	37.016

PHASE II ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.

SECTION NO 6 SECTION FF RHO 6.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.06265	-0.15021	0.05016	35.970
19	0.5000	0.06330	-0.06201	-0.01263	34.921
20	0.5300	0.06350	0.02619	-0.07300	33.858
21	0.5600	0.06324	0.11439	-0.13101	32.817
22	0.5900	0.06253	0.20259	-0.18679	31.808
23	0.6200	0.06138	0.29078	-0.24046	30.835
24	0.6500	0.05978	0.37898	-0.29213	29.895
25	0.6800	0.05775	0.46718	-0.34189	28.962
26	0.7100	0.05528	0.55538	-0.38976	28.028
27	0.7400	0.05235	0.64358	-0.43581	27.112
28	0.7700	0.04898	0.73177	-0.48010	26.218
29	0.8000	0.04514	0.81997	-0.52271	25.357
30	0.8300	0.04081	0.90817	-0.56373	24.533
31	0.8600	0.03597	0.99637	-0.60323	23.718
32	0.8900	0.03064	1.08457	-0.64123	22.904
33	0.9200	0.02478	1.17276	-0.67776	22.086
34	0.9500	0.01826	1.26096	-0.71281	21.264
35	0.9750	0.01232	1.33446	-0.74088	20.516
36	1.0000	0.00611	1.40796	-0.76778	19.665

CHORD 3.6818 STAGGER 37.012 CAMBER 30.334

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPSILON	UPPER ALPHA	LOWER ALPHA	UPSILON
1	0.00533	-1.53198	1.44860	-1.53198	-1.53198	1.44860
2	0.00533	-1.53571	1.44120	-1.53571	-1.52405	1.45099
3	0.00533	-1.53371	1.43436	-1.53371	-1.51765	1.44782
4	0.00952	-1.47191	1.34969	-1.47191	-1.44505	1.37220
5	0.01374	-1.40436	1.25703	-1.40436	-1.36560	1.28955
6	0.01798	-1.33683	1.16443	-1.33683	-1.28613	1.20701
7	0.02220	-1.26922	1.07204	-1.26922	-1.20675	1.12474
8	0.02635	-1.20143	0.98019	-1.20143	-1.12754	1.04308
9	0.03041	-1.13337	0.88927	-1.13337	-1.04860	0.96241
10	0.03433	-1.06495	0.79967	-1.06495	-0.97002	0.88313
11	0.03809	-0.99601	0.71187	-0.99601	-0.89197	0.80589
12	0.04233	-0.91239	0.60983	-0.91239	-0.79919	0.71693
13	0.04623	-0.82786	0.51244	-0.82786	-0.70733	0.63261
14	0.04976	-0.74241	0.42002	-0.74241	-0.61638	0.55300

PHASE II ROTOR

ZPC

COORD SYSIFM ORIGIN Z -7.03630 R O. MU O. NB O. ETA O.

SECTION NO 6 SECTION FF RHO 6.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

P1	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0 05292	-0.65630	0.33269	-0.52609	0.47762
16	0 05569	-0.56968	0.24995	-0.43631	0.40566
17	0 05805	-0.48251	0.17127	-0.34709	0.33663
18	0 06001	-0.35448	0.09635	-0.25839	0.27015
19	0 06155	-0.30662	0.02494	-0.17019	0.20587
20	0 06265	-0.21794	-0.04317	-0.08247	0.14350
21	0 06370	-0.12872	-0.10818	0.00470	0.08292
22	0 06350	-0.03894	-0.17008	0.09132	0.02408
23	0 06324	0.05129	-0.22886	0.17748	-0.03317
24	0 06253	0.14191	-0.28462	0.26326	-0.08896
25	0 06138	0.23287	-0.33748	0.34870	-0.14344
26	0 05978	0.32413	-0.38754	0.43384	-0.19672
27	0 05775	0.41570	-0.43490	0.51866	-0.24887
28	0 05528	0.50756	-0.47959	0.60319	-0.29994
29	0 05235	0.59965	-0.52160	0.68750	-0.35002
30	0 04898	0.69194	-0.56099	0.77161	-0.39921
31	0 04514	0.78439	-0.59779	0.85556	-0.44762
32	0 04081	0.87698	-0.63207	0.93936	-0.49539
33	0 03597	0.96973	-0.66386	1.02301	-0.54260
34	0 03064	1.06261	-0.69320	1.10652	-0.58927
35	0 02478	1.15561	-0.72003	1.18992	-0.63549
36	0 01826	1.24877	-0.74415	1.27316	-0.68148
37	0 01232	1.32652	-0.76211	1.34241	-0.71964
38	0 00611	1.39311	-0.77615	1.40185	-0.75189
39	0 00611	1.40125	-0.77516	1.40761	-0.75809
40	0 00611	1.40796	-0.76776	1.40796	-0.76778
LE RAD	0 01050	CENTER AT ALPHA	-1.52523	UPSILON	1.44055
TE RAD	0 01303	CENTER AT ALPHA	1.39569	UPSILON	-0.76337

•ZPC•

PHASE II ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	R O.	MU	O.	ETA	O.
STAGE	2	ROTOR			NB	20
SECTION NO	6	SECTION FF			RHO	6.0000
CHORD	3.6818	STAGGER			CAMBER	30.334
AREA	0.587748	SURFACE ARC LENGTH				7.51741
SECTION C.G.		ALPHA			UPSILON	
STREAMSURFACE SECTION C.G.		-0.09042			0.08617	
BLADE AXIS		-0.12484			0.08909	
STACKING AXIS (RADIAL)		-0.00010			0.	

PHASE 11 ROTOR

7PC

CUORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 STAGE 2. ROTOR NB 20
 SECTION NO 7 SECTION GG RH0 5.5000

MEANLINE INPUT DATA				
PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.58083	48.7417	0.01862	1.32840
2	-1.50877	48.638	0.03567	1.24608
3	-1.36315	48.242	0.07011	1.08132
4	-1.21579	47.397	0.10419	0.91819
5	-1.06685	45.834	0.13685	0.76011
6	-0.90150	43.184	0.16983	0.59705
7	-0.71964	39.783	0.20092	0.43631
8	-0.53663	36.830	0.22625	0.29226
9	-0.35266	34.240	0.24543	0.16118
10	-0.16796	31.944	0.25800	0.04105
11	0.01741	29.449	0.26337	-0.06847
12	0.20333	26.742	0.26119	-0.16722
13	0.39000	23.767	0.25147	-0.25461
14	0.57729	20.680	0.23412	-0.33033
15	0.76529	17.720	0.20876	-0.39489
16	0.95394	14.874	0.17480	-0.44919
17	1.14335	11.967	0.13120	-0.49392
18	1.33309	8.690	0.07643	-0.52871
19	1.49117	5.425	0.02110	-0.54873

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PC1 AL	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00517	-1.58083	1.32840	48.747
2	0.0250	0.01022	-1.50403	1.21068	48.755
3	0.0500	0.01527	-1.42723	1.15147	48.503
4	0.0750	0.02030	-1.35043	1.06706	48.229
5	0.1000	0.02527	-1.27363	0.98163	47.837
6	0.1250	0.03013	-1.19683	0.89761	47.269
7	0.1500	0.03485	-1.12003	0.81553	46.502
8	0.1750	0.03939	-1.04323	0.73592	45.519
9	0.2000	0.04371	-0.96643	0.65926	44.337
10	0.2300	0.04857	-0.87427	0.57174	42.658
11	0.2600	0.05302	-0.78211	0.48936	40.920
12	0.2900	0.05707	-0.68995	0.41183	39.229
13	0.3200	0.06068	-0.59779	0.33868	37.675
14	0.3500	0.06387	-0.50563	0.26930	36.301
15	0.3800	0.06661	-0.41347	0.20317	35.027
16	0.4100	0.06890	-0.32131	0.14001	33.827
17	0.4400	0.07072	-0.22915	0.07963	32.629

PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
STAGE 2 ROTOR NR 20

SECTION NO 7 SECTION GG RH0 5.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCI AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.07206	-0.13699	0.02199	31.410
19	0.5000	0.07289	-0.04483	-0.03292	30.163
20	0.5700	0.07320	0.04733	-0.08512	28.882
21	0.5600	0.07299	0.13949	-0.13458	27.541
22	0.5900	0.07227	0.23165	-0.18122	26.130
23	0.6200	0.07105	0.32381	-0.22498	24.658
24	0.6500	0.06931	0.41597	-0.26582	23.132
25	0.6800	0.06706	0.50813	-0.30374	21.599
26	0.7100	0.06429	0.60029	-0.33882	20.083
27	0.7400	0.06099	0.69245	-0.37117	18.604
28	0.7700	0.05713	0.78461	-0.40092	17.176
29	0.8000	0.05272	0.87677	-0.42818	15.792
30	0.8300	0.04769	0.96893	-0.45308	14.451
31	0.8600	0.04204	1.06109	-0.47569	13.108
32	0.8900	0.03573	1.15325	-0.49599	11.738
33	0.9200	0.02872	1.24541	-0.51395	10.290
34	0.9500	0.02082	1.33757	-0.52940	8.725
35	0.9750	0.01352	1.41437	-0.54019	7.219
36	1.0000	0.00586	1.49117	-0.54873	5.425

CHORD 3.6001 STAGGER 31.427 CAMBER 43.322

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00517	-1.58083	1.32840	-1.58083	1.32840
2	0.00517	-1.58426	1.32127	-1.57335	1.33084
3	0.00517	-1.58227	1.31481	-1.56717	1.32801
4	0.01022	-1.51786	1.22855	-1.49020	1.25280
5	0.01527	-1.44782	1.13525	-1.40664	1.17169
6	0.02030	-1.37769	1.04272	-1.32317	1.09141
7	0.02527	-1.30734	0.95109	-1.23991	1.01216
8	0.03013	-1.23667	0.86081	-1.15699	0.93441
9	0.03485	-1.16553	0.77235	-1.07453	0.85871
10	0.03939	-1.09381	0.68624	-0.99264	0.78559
11	0.04371	-1.02142	0.60298	-0.91144	0.71553
12	0.04857	-0.93351	0.50744	-0.81503	0.63603
13	0.05302	-0.84463	0.41724	-0.71959	0.56148
14	0.05707	-0.75491	0.33226	-0.62499	0.49141

PHASE II ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.

SECTION NO 7 SECTION GG RHO 5.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	UPPER ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0 06068	-0.66455	0.25223	-0.53103	0.42514
16	0 06387	-0.57369	0.17664	-0.43757	0.36195
17	0 06661	-0.48229	0.10498	-0.34465	0.30136
18	0 06890	-0.39035	0.03698	-0.25227	0.24304
19	0 07072	-0.29779	-0.02758	-0.16051	0.18685
20	0 07206	-0.20459	-0.08871	-0.06939	0.13269
21	0 07289	-0.11075	-0.14636	0.02109	0.08051
22	0 07320	-0.01631	-0.20050	0.11097	0.03025
23	0 07299	0.07873	-0.25108	0.20024	-0.01807
24	0 07227	0.17435	-0.29802	0.28895	-0.06442
25	0 07105	0.27045	-0.34121	0.37716	-0.10875
26	0 06931	0.36696	-0.38055	0.46498	-0.15109
27	0 06706	0.46369	-0.41598	0.55256	-0.19150
28	0 06429	0.56055	-0.44752	0.64003	-0.23013
29	0 06099	0.65743	-0.47521	0.72747	-0.26713
30	0 05713	0.75424	-0.49917	0.81498	-0.30266
31	0 05272	0.85094	-0.51949	0.90259	-0.33687
32	0 04769	0.94750	-0.53622	0.99035	-0.36994
33	0 04204	1.04393	-0.54939	1.07825	-0.40198
34	0 03573	1.14016	-0.55897	1.16633	-0.43302
35	0 02872	1.23617	-0.56481	1.25464	-0.46308
36	0 02082	1.33188	-0.56645	1.34325	-0.49235
37	0 01352	1.41131	-0.56433	1.41743	-0.51604
38	0 00586	1.47934	-0.56011	1.47834	-0.53429
39	0 00586	1.48656	-0.55718	1.48769	-0.53830
40	0 00586	1.49117	-0.54873	1.49117	-0.54873
LE RAD	0.01006	CENTER AT ALPHA	-1.57421	UPSILON	1.32082
TE RAD	0.01293	CENTER AT ALPHA	1.47833	UPSILON	-0.54722

•ZPC•

PHASE II ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	K	O.	MU	O.	ETA	O.
STAGE	2.	ROTOR				NB	20
SECTION NO	7	SECTION	GG			RHO	5.5000
CHORD	3.6001	STAGGER				CAMBER	
			31.427				43.322
AREA	0.652761	SURFACE ARC LENGTH					7.43904
SECTION C.G.		ALPHA				UPSILON	
SURFACE SECTION C.G.		-0.07133				0.07206	
BLADE AXIS		-0.10174				0.05906	
STACKING AXIS (RADIAL)		-0.10174				0.05906	
		-0.00010				0.	

PHASE II ROTOR

ZPC

COORD SYSTEM ORIGIN Z -7.03600 R 0.0 MU 0.0 ETA 0.0
 STAGE 2. ROTOR NB 20
 SECTION NO 2 SECTION HI RHO 5.0000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.58945	47.036	0.01924	1.18885
2	-1.51240	46.789	0.03853	1.10657
3	-1.35737	46.051	0.07708	0.94369
4	1.20150	44.584	0.11458	0.78586
5	-1.04524	42.215	0.14984	0.63789
6	-0.87305	39.164	0.18486	0.49008
7	-0.68516	36.041	0.21777	0.34567
8	-0.49737	33.221	0.24471	0.21605
9	-0.30963	30.491	0.26521	0.09930
10	-0.12218	27.728	0.27873	-0.00544
11	0.06503	24.784	0.28475	-0.09829
12	0.25196	21.564	0.28288	-0.17887
13	0.43845	18.220	0.27288	-0.24687
14	0.62433	14.798	0.25447	-0.30262
15	0.80904	11.023	0.22721	-0.34593
16	0.99201	6.654	0.19027	-0.37543
17	1.17186	1.232	0.14278	-0.38874
18	1.34713	-6.337	0.08449	-0.38165
19	1.48814	-15.381	0.02862	-0.35455

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AI	T/C	ALPHA	UPSILON	ZETA*
1	0.	0.00559	-1.58945	1.18885	47.036
2	0.0250	0.01118	-1.51251	1.10668	46.740
3	0.0500	0.01677	-1.43557	1.02533	46.434
4	0.0750	0.02230	-1.35863	0.94500	46.012
5	0.1000	0.02774	-1.28169	0.86606	45.418
6	0.1250	0.03306	-1.20475	0.78906	44.588
7	0.1500	0.03821	-1.12781	0.71455	43.534
8	0.1750	0.04317	-1.05087	0.64300	42.272
9	0.2000	0.04789	-0.97393	0.57473	40.890
10	0.2300	0.05322	-0.88160	0.49705	39.261
11	0.2600	0.05816	-0.78927	0.42369	37.688
12	0.2900	0.06270	-0.69695	0.35427	36.199
13	0.3200	0.06683	-0.60462	0.28843	34.789
14	0.3500	0.07052	-0.51229	0.22590	33.431
15	0.3800	0.07377	-0.41996	0.16646	32.112
16	0.4100	0.07654	-0.32764	0.10998	30.798
17	0.4400	0.07884	-0.23531	0.05637	29.477

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PHASE 11 ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
STAGE 2. ROTOR NB 20

SECTION NO 8 SECTION HH RH0 5.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.08063	-0.14298	0.00561	28.174
19	0.5000	0.08189	-0.05065	-0.04232	26.729
20	0.5300	0.08261	0.04168	-0.08736	25.269
21	0.5600	0.08278	0.13400	-0.12946	23.740
22	0.5900	0.08238	0.22633	-0.16856	22.146
23	0.6200	0.08140	0.31866	-0.20461	20.502
24	0.6500	0.07984	0.41099	-0.23763	18.854
25	0.6800	0.07768	0.50331	-0.26768	17.201
26	0.7100	0.07490	0.59564	-0.29479	15.522
27	0.7400	0.07149	0.68797	-0.31895	13.787
28	0.7700	0.06741	0.78030	-0.34003	11.906
29	0.8000	0.06261	0.87263	-0.35781	9.854
30	0.8300	0.05705	0.96495	-0.37200	7.576
31	0.8600	0.05065	1.05728	-0.38225	5.032
32	0.8900	0.04336	1.14961	-0.38806	2.116
33	0.9200	0.03516	1.24194	-0.38879	-1.375
34	0.9500	0.02592	1.33426	-0.38306	-5.898
35	0.9750	0.01735	1.41120	-0.37211	-10.385
36	1.0000	0.00831	1.48814	-0.35455	-15.381

CHORD STAGGER CAMBER
3.4429 26.634 62.417

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00559	-1.58945	1.18885	-1.58945	1.18885
2	0.00559	-1.59278	1.18133	-1.58181	1.19165
3	0.00559	-1.59054	1.17471	-1.57528	1.18896
4	0.01118	-1.52653	1.09349	-1.49849	1.11988
5	0.01677	-1.45648	1.00544	-1.41466	1.04522
6	0.02230	-1.38625	0.91834	-1.33101	0.97166
7	0.02774	-1.31570	0.83254	-1.24768	0.89359
8	0.03306	-1.24470	0.74853	-1.16480	0.82959
9	0.03821	-1.17312	0.66586	-1.08250	0.76224
10	0.04317	-1.10086	0.58801	-1.00088	0.69799
11	0.04789	-1.02789	0.51241	-0.91996	0.63705
12	0.05322	-0.93958	0.42612	-0.82362	0.56799
13	0.05816	-0.85049	0.34445	-0.72806	0.50292
14	0.06270	-0.76070	0.26717	-0.63320	0.44137

PHASE II ROTOR

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COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. FIA O.
SECTION NO 8 SECTION HH RHO 5.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER	UPSILON	LOWER	ALPHA	UPSILON
15	0.06683	-0.67026	0.19395	-0.53898	0.38291	0.38291	0.38291
16	0.07052	-0.57918	0.12459	0.44541	0.32722	0.32722	0.32722
17	0.07377	-0.48747	0.05891	-0.35240	0.27402	0.27402	0.27402
18	0.07654	-0.39510	-0.00320	-0.26017	0.22317	0.22317	0.22317
19	0.07884	-0.30209	-0.06178	-0.16853	0.17452	0.17452	0.17452
20	0.08063	-0.20841	-0.11680	-0.07755	0.12801	0.12801	0.12801
21	0.08189	-0.11406	-0.16823	0.01275	0.08359	0.08359	0.08359
22	0.08261	-0.01903	-0.21597	0.10238	0.04124	0.04124	0.04124
23	0.08278	0.07663	-0.25990	0.19137	0.00098	0.00098	0.00098
24	0.08238	0.17287	-0.29991	0.27979	-0.03721	-0.03721	-0.03721
25	0.08140	0.26958	-0.33586	0.36774	-0.07335	-0.07335	-0.07335
26	0.07984	0.36657	-0.36769	0.45540	-0.10756	-0.10756	-0.10756
27	0.07768	0.46377	-0.39542	0.54286	-0.13994	-0.13994	-0.13994
28	0.07490	0.56114	-0.41903	0.63015	-0.17055	-0.17055	-0.17055
29	0.07149	0.65864	-0.43848	0.71730	-0.19943	-0.19943	-0.19943
30	0.06741	0.75636	-0.45357	0.80424	-0.22649	-0.22649	-0.22649
31	0.06261	0.85418	-0.46401	0.89107	-0.25161	-0.25161	-0.25161
32	0.05705	0.95200	-0.46935	0.97790	-0.27464	-0.27464	-0.27464
33	0.05065	1.04963	-0.46910	1.06493	-0.29540	-0.29540	-0.29540
34	0.04336	1.14685	-0.46266	1.15236	-0.31347	-0.31347	-0.31347
35	0.03516	1.24339	-0.44930	1.24048	0.32828	0.32828	0.32828
36	0.02592	1.33885	-0.42744	1.32968	-0.33867	-0.33867	-0.33867
37	0.01735	1.41659	-0.40149	1.40582	-0.34273	-0.34273	-0.34273
38	0.00831	1.47880	-0.37474	1.47038	-0.34164	-0.34164	-0.34164
39	0.00831	1.48601	-0.36835	1.48148	-0.34489	-0.34489	-0.34489
40	0.00831	1.48814	-0.35455	1.48814	-0.35455	-0.35455	-0.35455
LF RAD	0.01047	CENTER AT ALPHA	-1.58230	UPSILON	1.8118	1.8118	1.8118
TE RAD	0.01741	CENTER AT ALPHA	1.47132	UPSILON	-0.35902	-0.35902	-0.35902

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	R O.	MU	O.	NR	20	ETA	O.
SECTION NO	8	SECTION H#			RHO	5.0000		
CHORD	3.4429	STAGGER			CAMBER			
		26.634			62.417			
AREA	0.685861	SURFACE ARC LENGTH	7.22076					
SECTION C G.		ALPHA			UPSILON			
SURFAMSURFACE SECTION C.G.		-0.04751			0.04915			
PLADF AXIS		-0.05316			0.02316			
STACKING AXIS (RADIAL)		-0.05316			0.02316			
		-0.00010			O.			

PHASE II ROTOR

COORD SYSTFM ORIGIN Z -7.03630 R O. MU O. ETA O.
 STAGE 2. ROTOR NB 20
 SECTION NO 9 SECTION JJ RHO 4.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.55866	45.475	0.02123	1.04206
2	-1.47949	45.199	0.04191	0.96197
3	-1.32124	44.308	0.08282	0.80502
4	1.16345	42.533	0.12214	0.65547
5	1.00636	39.886	0.15178	0.51780
6	0.83429	36.770	0.19510	0.38184
7	0.64756	33.559	0.22936	0.24998
8	-0.46205	30.300	0.25761	0.13394
9	0.27774	27.042	0.27942	0.03286
10	0.09472	23.964	0.29430	-0.05457
11	0.08653	20.783	0.30183	-0.12935
12	0.26585	17.355	0.30158	-0.19140
13	0.44258	13.632	0.29332	-0.24063
14	0.61619	9.065	0.27699	-0.27590
15	0.78564	3.224	0.25209	-0.29452
16	0.94986	-4.288	0.21766	-0.29370
17	1.10760	-14.950	0.17224	-0.26842
18	1.25731	-29.464	0.11713	-0.20772
19	1.37538	-42.294	0.07093	-0.11926

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCI AI	T/C	ALPHA	UPSILON	ZETA*
1	0	0.00673	-1.55866	1.04206	45.475
2	0.0250	0.01280	-1.48531	0.96782	45.206
3	0.0500	0.01885	-1.41196	0.89438	44.850
4	0.0750	0.02484	-1.33861	0.82198	44.378
5	0.1000	0.03074	-1.26525	0.75094	43.753
6	0.1250	0.03651	-1.19190	0.68171	42.888
7	0.1500	0.04212	-1.11855	0.61484	41.792
8	0.1750	0.04754	-1.04520	0.55065	40.563
9	0.2000	0.05274	-0.97185	0.48932	39.223
10	0.2300	0.05866	-0.88383	0.41947	37.648
11	0.2600	0.06421	-0.79581	0.35339	36.148
12	0.2900	0.06938	-0.70779	0.29083	34.655
13	0.3200	0.07415	-0.61977	0.23166	33.154
14	0.3500	0.07850	-0.53174	0.17582	31.621
15	0.3800	0.08242	-0.44372	0.12326	30.048
16	0.4100	0.08588	-0.35570	0.07394	28.475
17	0.4400	0.08887	-0.26768	0.02773	26.925

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PHASE II ROTOR

COORD SYSTEM ORIGIN 7 -7.03630 R O. MU O. EIA O.
 SECTION NO 9 SECTION JJ RHO 4.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.09135	-0.17466	-0.01551	25.408
19	0.5000	0.09333	-0.05164	-0.05594	23.930
20	0.5300	0.09476	-0.03362	-0.09364	22.423
21	0.5600	0.09564	0.08440	-0.12854	20.821
22	0.5900	0.09593	0.17243	-0.16056	19.156
23	0.6200	0.09561	0.26045	-0.18970	17.468
24	0.6500	0.09467	0.34847	-0.21594	15.705
25	0.6800	0.09309	0.43649	-0.23914	13.799
26	0.7100	0.09085	0.52451	-0.25907	11.662
27	0.7400	0.08792	0.61253	-0.27531	9.177
28	0.7700	0.08423	0.70055	-0.28735	6.335
29	0.8000	0.07973	0.78857	-0.29469	3.135
30	0.8300	0.07430	0.87660	-0.29672	-0.596
31	0.8600	0.06781	0.96462	-0.29251	-5.001
32	0.8900	0.06011	1.05264	-0.28066	-10.542
33	0.9200	0.05098	1.14066	-0.25893	-17.463
34	0.9500	0.04063	1.22868	-0.22332	-26.864
35	0.9750	0.03160	1.30203	-0.17875	-35.399
36	1.0000	0.02248	1.37538	-0.11926	-42.294

CHORD 3.1555 STAGGER 21.594 CAMBER 87.769

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.00673	-1.55866	1.04206	-1.55866	1.04206
2	0.00673	-1.56213	1.03365	-1.55030	1.04540
3	0.00673	-1.55950	1.02640	-1.54300	1.04266
4	0.01280	-1.49964	0.95359	-1.47097	0.98205
5	0.01885	-1.43293	0.87329	-1.39098	0.91546
6	0.02484	-1.36602	0.79397	-1.31119	0.84999
7	0.03074	-1.29879	0.71591	-1.23172	0.78597
8	0.03651	-1.23111	0.63951	-1.15270	0.72392
9	0.04212	-1.16284	0.56529	-1.07427	0.66438
10	0.04754	-1.09397	0.49367	-0.99643	0.60762
11	0.05274	-1.02446	0.42486	-0.91924	0.55377
12	0.05866	-0.94036	0.34620	-0.82730	0.49275
13	0.06421	-0.85557	0.27159	-0.73605	0.43520
14	0.06938	-0.77003	0.20079	-0.64554	0.38087

PHASE 11 ROTOR

ZPC

COORD SYSTEM ORIGIN 7 -7.03630 R O. MU O. ETA O.

SECTION NO 9 SECTION JJ RHO 4.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER	UPSILON	LOWER	UPSILON
			ALPHA		ALPHA	
15	0.07415	-0.68374		0.13372	-0.55579	0.32960
16	0.07850	-0.59668		0.07035	-0.46681	0.28128
17	0.08242	-0.50883		0.01071	-0.37861	0.23582
18	0.08588	-0.42030		-0.04516	-0.29110	0.19305
19	0.08887	-0.33117		-0.09728	-0.20419	0.15274
20	0.09135	-0.24150		-0.14571	-0.11782	0.11468
21	0.09333	-0.15136		-0.19052	-0.03191	0.07861
22	0.09476	-0.06065		-0.23184	0.05341	0.04457
23	0.09564	0.03077		-0.26958	0.13804	0.01250
24	0.09593	0.12276		-0.30353	0.22209	-0.01760
25	0.09561	0.21517		-0.33360	0.30573	-0.04580
26	0.09467	0.30804		-0.35973	0.38890	-0.07215
27	0.09309	0.40146		-0.38177	0.47152	-0.09651
28	0.09085	0.49554		-0.39946	0.55349	-0.11869
29	0.08792	0.59041		-0.41225	0.63465	-0.13837
30	0.08423	0.68589		-0.41944	0.71522	-0.15526
31	0.07973	0.78170		-0.42028	0.79545	-0.16909
32	0.07430	0.87782		-0.41394	0.87538	-0.17951
33	0.06781	0.97394		-0.39909	0.95529	-0.18593
34	0.06011	1.06999		-0.37390	1.03529	-0.18743
35	0.05098	1.16480		-0.33566	1.11652	-0.18220
36	0.04063	1.25764		-0.28050	1.19972	-0.16614
37	0.03160	1.33091		-0.21938	1.27315	-0.13811
38	0.02248	1.37506		-0.17369	1.32367	-0.11084
39	0.02248	1.38488		-0.15355	1.35185	-0.10588
40	0.02248	1.37538		-0.11926	1.37538	-0.11926
LE RAD	0.01163	CENTER AT ALPHA	-1.55050	UPSILON		1.03377
TE RAD	0.04109	CENTER AT ALPHA	1.34444	UPSILON		-0.14629

PHASE II ROTOR

+ZPC+

COORD SYSTEM ORIGIN Z	-7.03630	R	O.	MU	O.	ETA	O.
STAGE	2.	ROTOR					
SECTION NO	9	SECTION JJ			RHO	4.5000	
CHORD	3.1555	STAGGER			CAMBER	87.769	
		21.594					
AREA	0.697579	SURFACE ARC LENGTH			6.86662		
				ALPHA	UPSILON		
SECTION C.G.				-0.02725	0.01943		
SURFACESURFACE SECTION C.G.				-0.01871	-0.01956		
BLADE AXIS				-0.01871	-0.01956		
STACKING AXIS (RADIAL)				-0.00010	0.		

PHASE II ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. FTA O.
 STAGE 2. ROTOR NR 20
 SECTION NO 10 SECTION KK RHO 4.0000

MEANLINE INPUT DATA

PI	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.52161	44.524	0.02360	0.90540
2	-1.44316	44.060	0.04515	0.82930
3	-1.28718	42.745	0.08746	0.68224
4	-1.13275	40.581	0.12790	0.54463
5	-0.97981	37.597	0.16566	0.42006
6	-0.81316	34.113	0.20327	0.29940
7	-0.63318	30.555	0.23898	0.18522
8	-0.45508	26.939	0.26891	0.08719
9	-0.27895	23.401	0.29260	0.00421
10	-0.10491	20.257	0.30942	-0.06569
11	0.06674	17.174	0.31900	0.12395
12	0.23556	13.736	0.32103	-0.17061
13	0.40065	9.515	0.31553	-0.20446
14	0.56112	4.038	0.30244	-0.22346
15	0.71606	-3.831	0.28098	-0.22400
16	0.86434	-15.612	0.24860	-0.19849
17	1.00480	-31.445	0.20287	-0.13479
18	1.13688	-47.350	0.15125	-0.01822
19	1.24022	-57.879	0.11714	0.13001

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	Y/C	ALPHA	UPSILON	ZETA*
1	0	0.00823	-1.52161	0.90540	44.524
2	0.0250	0.01484	-1.45256	0.83834	43.880
3	0.0500	0.02142	-1.38352	0.77238	43.477
4	0.0750	0.02794	-1.31447	0.70751	42.921
5	0.1000	0.03436	-1.24543	0.64408	42.194
6	0.1250	0.04067	-1.17638	0.58246	41.265
7	0.1500	0.04683	-1.10734	0.52305	40.121
8	0.1750	0.05283	-1.03829	0.46615	38.832
9	0.2000	0.05862	-0.96924	0.41194	37.413
10	0.2300	0.06527	-0.88639	0.35054	35.675
11	0.2600	0.07157	-0.80354	0.29289	33.986
12	0.2900	0.07749	-0.72068	0.23876	32.327
13	0.3200	0.08301	-0.63783	0.18797	30.689
14	0.3500	0.08813	-0.55497	0.14038	29.044
15	0.3800	0.09283	-0.47212	0.09594	27.354
16	0.4100	0.09708	-0.38926	0.05463	25.653
17	0.4400	0.10086	-0.30641	0.01629	24.016

PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O FTA O.
STAGE 2. ROTOR NB 20

SECTION NO 10 SECTION KK RND 4.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	-T/C	ALPHA	UPSILON	ZETA*
18	0 4700	0.10412	-0.22355	-0.01927	22.449
19	0 5000	0.10685	-0.14070	-0.05222	20.934
20	0 5300	0.10903	-0.05784	-0.08270	19.457
21	0 5600	0.11063	0.02501	-0.11075	17.938
22	0 5900	0.11162	0.10787	-0.13633	16.354
23	0 6200	0.11198	0.19072	-0.15932	14.630
24	0 6500	0.11170	0.27358	-0.17952	12.739
25	0 6800	0.11077	0.35643	-0.19667	10.606
26	0 7100	0.10915	0.43929	-0.21643	8.191
27	0 7400	0.10681	0.52214	-0.22032	5.343
28	0 7700	0.10366	0.60500	-0.22570	1.962
29	0 8000	0.09959	0.68785	-0.22556	-2.322
30	0 8300	0.09436	0.77070	-0.21842	-7.834
31	0 8600	0.08766	0.85356	-0.20158	-15.430
32	0 8900	0.07915	0.93641	-0.17158	-24.410
33	0 9200	0.06878	1.01927	-0.12544	-33.734
34	0 9500	0.05731	1.10212	-0.05696	-45.464
35	0 9750	0.04855	1.17117	0.02683	-54.418
36	1 0000	0.04084	1.24022	0.13001	-57.046

CHORD 8686 STAGGER 15.682 CAMBER 101.570

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0 00823	-1.52161	0.90540	-1.52161	0.90540
2	0 00823	-1.52532	0.89592	-1.51239	0.90931
3	0 00823	-1.52227	0.88792	-1.50416	0.90645
4	0 01484	-1.46732	0.82300	-1.43781	0.85368
5	0 02142	-1.40466	0.75009	-1.36238	0.79467
6	0 02794	-1.34176	0.67817	-1.28719	0.73685
7	0 03436	-1.27853	0.60757	-1.21233	0.68059
8	0 04067	-1.21485	0.53861	-1.13791	0.62631
9	0 04683	-1.15062	0.47168	-1.06405	0.57442
10	0 05283	-1.08580	0.40713	-0.99078	0.52518
11	0 05862	-1.02033	0.34516	-0.91816	0.47873
12	0 06527	-0.94099	0.27448	-0.83179	0.42659
13	0 07157	-0.86092	0.20777	-0.74615	0.37801
14	0 07749	-0.78011	0.14484	-0.66125	0.33267

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SECTION NO	10	SECTION	KK	RHO	4.0000
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SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

P/I	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSTILON
15	0.08301	-0.69859	0.08558	-0.57706	0.29035
16	0.08813	-0.61634	0.02986	-0.49360	0.25089
17	0.09283	-0.53329	-0.02232	-0.41094	0.21420
18	0.09708	-0.44954	0.07089	-0.32898	0.18015
19	0.10086	-0.36528	-0.11585	-0.24753	0.14843
20	0.10412	-0.28058	-0.15730	-0.16652	0.11876
21	0.10685	-0.19546	-0.19537	-0.08594	0.09092
22	0.10903	-0.10993	-0.23016	-0.00575	0.06475
23	0.11063	-0.02386	-0.26171	0.07388	0.04021
24	0.11162	0.06279	-0.28995	0.15295	0.01729
25	0.11198	0.15015	-0.31472	0.23129	-0.00391
26	0.11170	0.23825	-0.33579	0.30891	-0.02325
27	0.11077	0.32719	-0.35283	0.38567	-0.04051
28	0.10915	0.41698	-0.36539	0.46159	-0.05547
29	0.10681	0.50788	-0.37285	0.53641	-0.06780
30	0.10366	0.59990	-0.37430	0.61009	-0.07710
31	0.09959	0.69364	-0.36828	0.68206	-0.08283
32	0.09436	0.78915	-0.35250	0.75226	-0.08434
33	0.08766	0.88701	-0.32279	0.82011	-0.08038
34	0.07915	0.98333	-0.27496	0.88950	-0.06821
35	0.06878	1.07406	-0.20748	0.96448	-0.04339
36	0.05731	1.16072	-0.11461	1.04353	0.00069
37	0.04855	1.22781	-0.01369	1.11453	0.06735
38	0.04084	1.26135	0.04574	1.15844	0.12049
39	0.04084	1.26878	0.08330	1.19762	0.14010
40	0.04084	1.24022	0.13001	1.24022	0.13001
LF RAD	0.01302	CENTER AT ALPHA	-1.51230	UPSILON	0.89629
TE RAD	0.06414	CENTER AT ALPHA	1.20501	UPSILON	0.07639

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	R	O.	MU	O.	EIA	O.
STAGE	2.	ROTOR		NB	20		
SECTION NO	10	SECTION KK		RHO	4.0000		
CHORD	2.8686	STAGGER		CAMBER	101.570		
		15.682					
AREA	.0.707968	SURFACE ARC LENGTH		6.58000			
SECTION C.G.		ALPHA		UPSILON			
SIREAMSURFACE SECTION C.G.		-0.01084		0.01549			
BLADE AXIS		-0.00448		-0.03053			
STACKING AXIS (RADIAL)		-0.00448		-0.03053			
		-0.00010		0.			

PIA5F 11 ROTOR

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COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. EIA O.
 STAGE 2. ROTOR NB 20
 SECTION NO 11 SECTION LI. RHO 3.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.49717	42.238	0.02978	0.78390
2	-1.42129	41.440	0.05164	0.71535
3	-1.27064	39.527	0.09434	0.58563
4	-1.12163	36.910	0.13505	0.46726
5	-0.97408	33.735	0.17300	0.36234
6	-0.81336	30.420	0.21078	0.26187
7	-0.64003	27.190	0.24685	0.16690
8	-0.46870	23.921	0.27738	0.08551
9	-0.29979	20.875	0.30194	0.01673
10	-0.13345	18.128	0.32023	-0.04133
11	0.02984	15.178	0.33219	-0.08957
12	0.18955	11.546	0.33753	-0.12719
13	0.34490	7.050	0.33587	-0.15248
14	0.49485	0.684	0.32698	0.16277
15	0.63852	-9.897	0.30967	-0.15060
16	0.77417	-25.764	0.27943	-0.10227
17	0.89994	-43.801	0.23335	-0.00048
18	1.01597	-58.112	0.18537	0.17153
19	1.10502	-66.281	0.16336	0.37529

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
1	0.	0.01131	-1.49717	0.78390	42.238
2	0.0250	0.01843	-1.43212	0.72508	41.881
3	0.0500	0.02550	-1.36706	0.66760	41.027
4	0.0750	0.03249	-1.30201	0.61187	40.133
5	0.1000	0.03938	-1.23695	0.55792	39.187
6	0.1250	0.04615	-1.17190	0.50591	38.057
7	0.1500	0.05277	-1.10684	0.45617	36.714
8	0.1750	0.05921	-1.04179	0.40890	35.277
9	0.2000	0.06544	-0.97673	0.36411	33.804
10	0.2300	0.07261	-0.89867	0.31355	32.077
11	0.2600	0.07943	-0.82060	0.26612	30.499
12	0.2900	0.08586	-0.74254	0.22149	29.015
13	0.3200	0.09192	-0.66447	0.17951	27.523
14	0.3500	0.09758	-0.58640	0.14011	26.024
15	0.3800	0.10283	-0.50834	0.10326	24.510
16	0.4100	0.10764	-0.43027	0.06891	22.995
17	0.4400	0.11200	-0.35221	0.03694	21.553

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PHASE 11 ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 SECTION NO 11 SECTION LL RHO 3.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.11588	-0.27414	0.00718	20.200
19	0.5000	0.11926	-0.19608	-0.02053	18.891
20	0.5300	0.12213	-0.11801	-0.04627	17.610
21	0.5600	0.12449	-0.03994	-0.07006	16.261
22	0.5900	0.12631	0.03812	-0.09177	14.795
23	0.6200	0.12755	0.11619	-0.11122	13.145
24	0.6500	0.12819	0.19425	-0.12813	11.264
25	0.6800	0.12817	0.27232	-0.14221	9.137
26	0.7100	0.12747	0.35038	-0.15314	6.751
27	0.7400	0.12602	0.42845	-0.16038	3.691
28	0.7700	0.12378	0.50652	-0.16276	-0.375
29	0.8000	0.12057	0.58458	-0.15861	-6.029
30	0.8300	0.11602	0.66265	-0.14537	-13.558
31	0.8600	0.10960	0.74071	-0.11906	-24.056
32	0.8900	0.10065	0.81878	-0.07362	-36.074
33	0.9200	0.08912	0.89684	-0.00382	-46.919
34	0.9500	0.07621	0.97491	0.09799	-57.900
35	0.9750	0.06768	1.03996	0.22252	-65.886
36	1.0000	0.06203	1.10502	0.37929	-68.180

CHORD 2 6.335 STAGGER 8.838 CAMBER 110.418

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.01131	-1.49717	0.78390	-1.49717	0.78390
2	0.01131	-1.50146	0.77171	-1.48573	0.78929
3	0.01131	-1.49731	0.76175	-1.47514	0.78611
4	0.01843	-1.44831	0.70701	-1.41592	0.74314
5	0.02550	-1.38910	0.64227	-1.34502	0.69293
6	0.03249	-1.32958	0.57917	-1.27443	0.64458
7	0.03938	-1.26971	0.51773	-1.20419	0.59811
8	0.04615	-1.20936	0.45806	-1.13444	0.55376
9	0.05277	-1.14838	0.40046	-1.06530	0.51187
10	0.05921	-1.08681	0.34525	-0.99676	0.47255
11	0.06544	-1.02467	0.29251	-0.92879	0.43571
12	0.07261	-0.94944	0.23253	-0.84789	0.39456
13	0.07943	-0.87368	0.17601	-0.76752	0.35623
14	0.08586	-0.79737	0.12262	-0.68770	0.32036

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SECTION NO	11	SECTION	LL	RHO	3.5000
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SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0.09192	-0.72040	0.07217	-0.60854	0.28684
16	0.09758	-0.64278	0.02465	-0.53003	0.25557
17	0.10283	-0.56451	-0.01993	-0.45217	0.22646
18	0.10754	-0.48564	-0.06156	-0.37490	0.19938
19	0.11200	-0.40638	-0.10022	-0.29803	0.17411
20	0.11588	-0.32683	-0.13601	-0.22146	0.15037
21	0.11926	-0.24691	-0.16910	-0.14524	0.12804
22	0.12213	-0.16666	-0.19955	-0.06936	0.10700
23	0.12449	-0.08584	-0.22742	0.00596	0.08730
24	0.12631	-0.00435	-0.25257	0.08059	0.06903
25	0.12755	0.07799	-0.27477	0.15438	0.05234
26	0.12819	0.16128	-0.29367	0.22722	0.03741
27	0.12817	0.24552	-0.30884	0.29912	0.02442
28	0.12747	0.33065	-0.31981	0.37012	0.01354
29	0.12602	0.41777	0.32598	0.43913	0.00521
30	0.12378	0.50758	-0.32574	0.50545	0.00021
31	0.12057	0.60126	-0.31648	0.56791	-0.00073
32	0.11602	0.69846	-0.29387	0.62684	0.00314
33	0.10960	0.79954	-0.25084	0.68188	0.01273
34	0.10065	0.89682	-0.18075	0.74074	0.03350
35	0.08912	0.98255	-0.08396	0.81114	0.07633
36	0.07621	1.05992	0.04466	0.88990	0.15132
37	0.06768	1.12130	0.18611	0.95863	0.25893
38	0.06203	1.15280	0.27110	1.00019	0.34643
39	0.06203	1.15415	0.32518	1.04570	0.38158
40	0.06203	1.10502	0.37929	1.10502	0.37929
LE RAD	0.01656	CENTER AT ALPHA	-1.48493	UPSILON	0.77275
RE RAD	0.08563	CENTER AT ALPHA	1.07225	UPSILON	0.30017

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PHASE II ROTOR

COORD SYSTEM ORIGIN	Z	-7.03630	R	O.	MU	O.	ETA	O.
STAGE	2.	ROTOR				NR	20	
SECTION NO	11	SECTION LL				RHO	3.5000	
CHORD	2.6335	STAGGER				CAMBER		
		8.838				110.418		
AREA	0.730463	SURFACE ARC LENGTH				6.40285		
SECTION C.G.		ALPHA				UPSILON		
STREAMSURFACE SECTION C.G.		0.00506				0.04711		
BLADE AXIS		-0.00010				-0.00588		
STACKING AXIS (RADIAL)		-0.00010				-0.00588		
		-0.00010				0		

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.

SECTION NO 12 SECTION MM RHO 3.0000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.48236	38.327	0.04070	0.68887
2	-1.40857	37.416	0.06208	0.63195
3	1.26226	35.453	0.10372	0.52518
4	1.11781	33.153	0.14326	0.42796
5	-0.97503	30.660	0.18002	0.34036
6	0.81983	27.881	0.21683	0.25447
7	-0.65255	24.606	0.25257	0.17287
8	0.48756	21.565	0.28339	0.10342
9	-0.32520	19.080	0.30900	0.04379
10	0.16560	16.607	0.32937	-0.00750
11	0.00961	13.537	0.34442	-0.04988
12	0.14198	9.515	0.35363	-0.08123
13	0.28843	4.663	0.35609	-0.09961
14	0.42839	-2.644	0.35151	-0.10194
15	0.56098	-15.747	0.33837	-0.07719
16	0.68401	-34.445	0.31027	-0.00605
17	0.79508	-52.571	0.26384	0.13382
18	0.89506	-64.840	0.21949	0.36129
19	0.96982	-71.328	0.20957	0.62857

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AI	T/C	ALPHA	UPSILON	ZETA*
1	0	0.01659	-1.48236	0.68887	38.327
2	0	0.02384	-1.42106	0.64142	37.234
3	0	0.0500	-1.35975	0.59547	36.461
4	0	0.0750	-1.29845	0.55085	35.619
5	0	0.1000	-1.23714	0.50767	34.696
6	0	0.1250	-1.17584	0.46599	33.717
7	0	0.1500	-1.11453	0.42586	32.690
8	0	0.1750	-1.05323	0.38730	31.640
9	0	0.2000	-0.99193	0.35029	30.594
10	0	0.2300	-0.91836	0.30788	29.330
11	0	0.2600	-0.84479	0.26763	28.025
12	0	0.2900	-0.77123	0.22957	26.674
13	0	0.3200	-0.69766	0.19373	25.263
14	0	0.3500	-0.62410	0.16015	23.806
15	0	0.3800	-0.55053	0.12875	22.446
16	0	0.4100	-0.47697	0.09929	21.231
17	0	0.4400	-0.40340	0.07154	20.106

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PHASE II ROTOR

COORD SYSTEM ORIGIN Z -7.03670 R O. MU O. ETA O.

SECTION NO 12 SECTION MM RHO 3.0000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.12570	-0.32983	0.04539	19.042
19	0.5000	0.12980	-0.25627	0.02074	17.987
20	0.5300	0.13348	-0.18270	-0.00236	16.872
21	0.5600	0.13674	-0.10914	-0.02384	15.645
22	0.5900	0.13954	-0.03557	-0.04346	14.180
23	0.6200	0.14185	0.03799	-0.06091	12.460
24	0.6500	0.14362	0.11156	-0.07586	10.466
25	0.6800	0.14475	0.18512	-0.08798	8.195
26	0.7100	0.14520	0.25869	-0.09695	5.664
27	0.7400	0.14490	0.33226	-0.10241	2.632
28	0.7700	0.14381	0.40582	-0.10303	-1.927
29	0.8000	0.14180	0.47939	-0.09665	-8.439
30	0.8300	0.13842	0.55295	-0.07984	-17.643
31	0.8600	0.13294	0.62652	-0.04770	-30.086
32	0.8900	0.12426	0.70008	0.00896	-44.550
33	0.9200	0.11179	0.77365	0.09983	-56.353
34	0.9500	0.09697	0.84721	0.23482	-66.094
35	0.9750	0.08817	0.90852	0.40441	-73.245
36	1.0000	0.08544	0.96982	0.62857	-75.345

CHORD 2 4529 STAGGER 1.408 CAMBER 113.672

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	I/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.01659	-1.48236	0.68887	-1.48236	0.68887
2	0.01659	-1.48700	0.67169	-1.46735	0.69742
3	0.01659	-1.48038	0.65852	-1.45253	0.69427
4	0.02384	-1.43875	0.61814	-1.40337	0.66469
5	0.03103	-1.38237	0.56487	-1.33714	0.62608
6	0.03813	-1.32569	0.51284	-1.27121	0.58887
7	0.04514	-1.26866	0.46215	-1.20563	0.55319
8	0.05203	-1.21126	0.41291	-1.14042	0.51906
9	0.05876	-1.15346	0.36520	-1.07561	0.48651
10	0.06531	-1.09525	0.31910	-1.01121	0.45550
11	0.07167	-1.03666	0.27463	-0.94719	0.42596
12	0.07903	-0.96584	0.22338	-0.87088	0.39238
13	0.08608	-0.89440	0.17444	-0.79519	0.36083
14	0.09281	-0.82233	0.12786	-0.72013	0.33129

ZPC

PHASE 11 ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. FTA O.

NB 20

STAGE 2. ROTOR

SECTION NO 12

SECTION MM

RHO 3.0000

SECTION NO 12

SECTION MM

RHO 3.0000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	UPPER ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0.09921	-0.74959	0.08369	-0.64573	0.30377
16	0.10527	-0.67621	0.04203	-0.57198	0.27828
17	0.11036	-0.60249	0.00297	-0.49857	0.25453
18	0.11627	-0.52861	-0.03364	-0.42532	0.23221
19	0.12119	-0.45450	0.06204	-0.35231	0.21112
20	0.12670	-0.38013	-0.10034	-0.27954	0.19112
21	0.12980	-0.30543	-0.13067	-0.20711	0.17216
22	0.13348	-0.23022	-0.15902	-0.13519	0.15430
23	0.13674	-0.15436	-0.18533	-0.06331	0.13765
24	0.13954	-0.07750	-0.20938	0.00635	0.12247
25	0.14185	0.00046	-0.23079	0.07553	0.10897
26	0.14362	0.07956	-0.24907	0.14356	0.09735
27	0.14475	0.15982	-0.26370	0.21043	0.08774
28	0.14520	0.24111	-0.27416	0.27627	0.08026
29	0.14490	0.32409	-0.27994	0.34042	0.07513
30	0.14381	0.41175	-0.27931	0.39989	0.07324
31	0.14180	0.50491	-0.26868	0.45386	0.07539
32	0.13842	0.60441	0.24162	0.50150	0.08195
33	0.13294	0.70825	-0.18878	0.54478	0.09338
34	0.12426	0.80699	-0.09964	0.59317	0.11757
35	0.11179	0.88779	0.02386	0.65951	0.17580
36	0.09697	0.95594	0.18662	0.73849	0.28301
37	0.08817	1.01207	0.37324	0.80497	0.43559
38	0.08544	1.04460	0.49965	0.84504	0.57157
39	0.08544	1.03864	0.56932	0.89505	0.62188
40	0.08544	0.96982	0.62857	0.96982	0.62857
LE RAD	0.02281	CENTER AT ALPHA	-1.46441	UPSILON	0.67480
TE RAD	0.10656	CENTER AT ALPHA	0.94132	UPSILON	0.52590

PHASE II ROTOR

ZPC

COORD SYSTEM ORIGIN	Z	-7.03630	R	O.	MU	O.	ETA	O.
STAGE	2.	ROTOR			NB	20		
SECTION NO	12	SECTION MM			RHO	3.0000		
CHORD	2.4529	STAGGER			CAMBER			
		1.408			113.672			
AREA	0.768532	SURFACE ARC LENGTH			6.33389			
SECTION C.G.		ALPHA			UPSILON			
SURFACE SECTION C.G.		0.01879			0.10637			
BLADE AXIS		0.00278			0.02560			
STACKING AXIS (RADIAL)		-0.00010			0.			

PHASE II ROTOR

•ZPC•

COORD SYSTEM ORIGIN Z -7.03630 R 0. MU 0. ETA 0.
 SECTION NO 13 SECTION NN RHO 2.5000

MEANLINE INPUT DATA

PT	ALPHA	ZETA*	THICKNESS	UPSILON
1	-1.46843	33.576	0.05417	0.61508
2	-1.39687	32.727	0.07447	0.56903
3	-1.25515	31.035	0.11408	0.48226
4	1.11527	29.391	0.15176	0.40201
5	-0.97712	27.818	0.18692	0.32740
6	0.82718	25.528	0.22261	0.25224
7	-0.66564	22.033	0.25805	0.18149
8	-0.50675	19.183	0.28926	0.12255
9	-0.35073	17.269	0.31599	0.07126
10	-0.19777	15.065	0.33850	0.02639
11	-0.04906	11.873	0.35666	-0.01020
12	0.09441	7.460	0.36974	-0.03527
13	0.23195	2.261	0.37632	-0.04675
14	0.36193	-5.955	0.37603	-0.04111
15	0.48344	-21.279	0.36706	-0.00379
16	0.59384	-41.640	0.34110	0.09017
17	0.69021	-58.845	0.29433	0.26813
18	0.77414	-69.331	0.25361	0.55105
19	0.83463	-74.648	0.25579	0.87786

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AI	T/C	ALPHA	UPSILON	ZETA*
1	0	0.02337	-1.46843	0.61508	32.938
2	0.0250	0.03042	-1.41085	0.57794	32.605
3	0.0560	0.03743	-1.35328	0.54166	31.814
4	0.0750	0.04437	-1.29570	0.50646	31.076
5	0.1000	0.05123	-1.23812	0.47222	30.415
6	0.1250	0.05798	-1.18055	0.43885	29.786
7	0.1500	0.06460	-1.12297	0.40630	29.173
8	0.1750	0.07106	-1.06539	0.37455	28.571
9	0.2000	0.07735	-1.00782	0.34359	27.968
10	0.2300	0.08469	-0.93872	0.30747	27.198
11	0.2600	0.09179	-0.86963	0.27272	26.151
12	0.2900	0.09865	-0.80054	0.23977	24.802
13	0.3200	0.10527	-0.73145	0.20890	23.335
14	0.3500	0.11162	-0.66236	0.18018	21.799
15	0.3800	0.11767	-0.59327	0.15355	20.401
16	0.4100	0.12339	-0.52417	0.12863	19.325
17	0.4400	0.12879	-0.45508	0.10496	18.498

•7PC•

PHASE 11 ROTOR

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 STAGE 2 ROTOR NB 20

SECTION NO 13 SECTION NN RHO 2.5000

MEANLINE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	PCT AL	T/C	ALPHA	UPSILON	ZETA*
18	0.4700	0.1386	-0.38599	0.08238	17.706
19	0.5000	0.13860	-0.31690	0.06084	16.919
20	0.5300	0.14303	-0.24781	0.04040	16.012
21	0.5600	0.14713	-0.17872	0.02124	14.951
22	0.5900	0.15088	-0.10962	0.00363	13.587
23	0.6200	0.15426	-0.04053	-0.01200	11.857
24	0.6500	0.15721	0.02856	-0.02524	9.780
25	0.6800	0.15961	0.09765	-0.03570	7.368
26	0.7100	0.16135	0.16674	-0.04300	4.660
27	0.7400	0.16238	0.23583	-0.04687	1.692
28	0.7700	0.16264	0.30493	-0.04647	-2.759
29	0.8000	0.16205	0.37402	-0.03921	-9.632
30	0.8300	0.16028	0.44311	-0.02134	-19.892
31	0.8600	0.15642	0.51220	0.01289	-33.185
32	0.8900	0.14903	0.58129	0.07464	-49.647
33	0.9200	0.13645	0.65038	0.18101	-62.649
34	0.9500	0.11944	0.71948	0.34697	-71.442
35	0.9750	0.10919	0.77705	0.56468	-78.090
36	1.0000	0.11035	0.83463	0.87786	-80.199

CHORD 2.3180 STAGGER -6.509 CAMBER 113.137

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
1	0.02337	-1.46843	0.61508	-1.46843	0.61508
2	0.02337	-1.47261	0.59183	-1.44940	0.62827
3	0.02337	-1.46231	0.57500	-1.42943	0.62588
4	0.03042	-1.42985	0.54824	-1.39185	0.60764
5	0.03743	-1.37614	0.50480	-1.33041	0.57853
6	0.04437	-1.32225	0.46242	-1.26915	0.55051
7	0.05123	-1.26818	0.42102	-1.20806	0.52343
8	0.05798	-1.21393	0.38052	-1.14716	0.49717
9	0.06460	-1.15947	0.34093	-1.08647	0.47167
10	0.07106	-1.10478	0.30223	-1.02601	0.44688
11	0.07735	-1.04986	0.26441	-0.96577	0.42277
12	0.08469	-0.98359	0.22018	-0.89386	0.39477
13	0.09179	-0.91652	0.17723	-0.82275	0.36822
14	0.09865	-0.84850	0.13598	-0.75258	0.34356

PHASE II ROTOR

ZPC

COORD SYSTEM ORIGIN Z -7.03630 R O. MU O. ETA O.
 STAGE 2. ROTOR NB 20
 SECTION NO 13 SECTION NN RHO 2.5000

SURFACE COORDINATES WITH ORIGIN AT SECTION AXIS

PT	T/C	UPPER ALPHA	UPPER UPSILON	LOWER ALPHA	UPSILON
15	0 10527	-0.77978	0.09687	-0.68312	0.32093
16	0 11162	-0.71040	0.06006	-0.61432	0.30029
17	0 11767	-0.64080	0.02573	-0.54573	0.28137
18	0 12339	-0.57150	-0.00633	-0.47685	0.26358
19	0 12879	-0.50244	-0.03659	-0.40772	0.24652
20	0 13386	-0.43317	-0.06541	-0.33881	0.23017
21	0 13860	-0.36365	-0.09285	-0.27015	0.21453
22	0 14303	-0.29353	-0.11894	-0.20208	0.19974
23	0 14713	-0.22271	-0.14350	-0.13472	0.18599
24	0 15088	-0.15071	-0.16635	-0.06854	0.17361
25	0 15426	-0.07727	-0.18698	-0.00380	0.16297
26	0 15721	-0.00239	-0.20480	0.05951	0.15431
27	0 15961	0.07393	-0.21915	0.12137	0.14776
28	0 16135	0.15155	-0.22939	0.18193	0.14338
29	0 16238	0.23028	-0.23499	0.24139	0.14125
30	0 16264	0.31400	-0.23476	0.29585	0.14182
31	0 16205	0.40544	-0.22438	0.34259	0.14596
32	0 16028	0.50632	-0.19602	0.37990	0.15335
33	0 15642	0.61143	-0.13883	0.41297	0.16461
34	0 14903	0.71292	-0.03720	0.44967	0.18648
35	0 13645	0.79085	0.10835	0.50992	0.25367
36	0 11944	0.85071	0.30291	0.58824	0.39103
37	0 10919	0.90087	0.53856	0.65323	0.59079
38	0 11035	0.93569	0.72982	0.69175	0.79743
39	0 11035	0.92211	0.81429	0.74546	0.86203
40	0 11035	0.83463	0.87786	0.83463	0.87786
LE RAD	0 03050	CENTER AT ALPHA	-1.44284	UPSILON	0.59848
TE RAD	0 12704	CENTER AT ALPHA	0.81079	UPSILON	0.75307

•ZPC•

PHASE 11 ROTOR

COORD SYSTEM ORIGIN Z	-7.03630	R O.	MU	NR	20	ETA	0.
STAGE	2.	ROTOR					
SECTION NO 13		SECTION NN		RHO	2.5000		
CHORD	2.3180	STAGGER		CAMBER			
		-6.509		113.137			
AREA	0.820570	SURFACE ARC LENGTH	6.34504				
SECTION C.G.		ALPHA		UPSILON			
STRENGTH SURFACE SECTION C.G.		0.02779		0.18549			
BLADE AXIS		0.00565		0.05708			
STACKING AXIS (RADIAL)		0.00565		0.05708			
		-0.00010		0.			

ZPC

PHASE 11 ROTOR

SECT	NO	STAGE		2. ROTOR		NB/C	NB	20	ZETA1*	ZETA2*
		RHD	CHORD	STAGGER	CAMBER					
AA	1	8.50000	3.7089	58.04	3.81	0.02592	57.39	53.58		
BB	2	8.00000	3.8794	55.24	6.22	0.02639	55.55	49.33		
CC	3	7.50000	3.9493	51.85	7.68	0.03079	53.99	46.32		
DD	4	7.00000	3.8618	46.90	13.29	0.03954	52.55	39.25		
EE	5	6.50000	3.7626	41.88	20.73	0.05267	51.18	30.46		
FF	6	6.00000	3.6818	37.01	30.33	0.06350	50.00	19.67		
GG	7	5.50000	3.6001	31.43	43.32	0.07320	48.75	5.43		
HH	8	5.00000	3.4429	26.63	62.42	0.08278	47.04	-15.38		
JJ	9	4.50000	3.1555	21.59	87.77	0.09593	45.48	-42.29		
KK	10	4.00000	2.8686	15.68	101.57	0.11198	44.52	-57.05		
LL	11	3.50000	2.6335	8.84	110.42	0.12819	42.24	-68.18		
MM	12	3.00000	2.4529	1.41	113.67	0.14520	38.33	-75.35		
NN	13	2.50000	2.3180	-6.51	113.14	0.16264	32.94	-80.20		

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

SECTION XII

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.