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AFAPL-TR-76-59

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ADBO16386

DESIGN OF A 1500 FT/SEC, TRANSONIC, HIGH-THROUGH-FLOW, SINGLE-STAGE AXIAL-FLOW COMPRESSOR WITH LOW HUB/TIP RATIO

COMPONENTS BRANCH
TURBINE ENGINE DIVISION

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TECHNICAL REPORT AFAPL-TR-76-59
FINAL REPORT FOR PERIOD 1 APRIL 1971 - 31 JANUARY 1974

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

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1.91 and a stage isentropic efficiency of 0.83.

The techniques used in the preliminary and detail designs are described. The complete aerodynamic flow field pertaining to the design point is defined on twenty-one stream surfaces, and radial and meridional distributions of significant parameters are presented. Finally, the detailed flowpath geometry is defined and airfoil coordinates are included for both stream surfaces and cartesian manufacturing sections.

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FOREWORD

This report describes the aerodynamic design of a transonic axial-flow compressor inlet stage. The work was performed in the Aerospace Research Laboratories and transferred to the Turbine Engine Division of the Air Force Aero-Propulsion Laboratory, Air Force Systems Command, Wright-Patterson AFB, Ohio. In both laboratories, it was accomplished under Project 7065, Task 13, Work Unit 27. The effort was conducted by Dr. Arthur J. Wennerstrom and Capt George R. Frost (ARL/LF, subsequently AFAPL/TBC) during the period April 1971 to February 1974.

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SECTION I

INTRODUCTION

This report describes the aerodynamic design of a transonic axial-flow compressor inlet stage designed for a high flow rate per unit frontal area and relatively high aerodynamic loading. The performance objectives of this stage were derived from a preliminary design study of a multi-stage compressor for an advanced turbojet engine. In the course of this study it became apparent that the most serious aerodynamic design problems of the overall compressor were associated with the first stage. Specifically, it was necessary to design the first stage with relatively high diffusion factors and stator hub Mach number in addition to high flow per unit frontal area in order to keep loading levels in the remaining stages within reason while maintaining a combustor inlet Mach number less than 0.4. The design criteria finally chosen for the first stage were felt to represent the best compromise from the standpoint of the overall multi-stage compressor. This stage was chosen as the object of an independent research program because it presses the present state-of-the-art with respect to nearly all of its design parameters. Also, it appeared to be a suitable test vehicle on which to assess the usefulness of several vortex generator configurations which have recently proven successful on a more highly loaded supersonic compressor stage.

The preliminary design is discussed in the second section of this report. The third section fully describes the detailed aerodynamic design assumptions and procedures. The final aerodynamic design results are presented in the fourth section. This includes a complete aerodynamic description of the compressor stage in addition to specification of the geometry.

SECTION II
PRELIMINARY DESIGN

1. CRITERIA

All of the criteria defining the basic parameters of this compressor stage resulted from the design goals of a hypothetical turbojet engine of which this compressor comprised the first stage. A flow per unit frontal area of 39.7 lb/sec per square foot was established at the outset as a design goal. A corrected tip speed for the first stage of 1500 ft/sec was also established early in the design study as the maximum value consistent with turbine stress considerations for this particular application. Most of the rest of the compressor characteristics resulted from the overall objective of designing a compressor for a turbojet engine with the minimum number of stages consistent with an overall isentropic efficiency of 0.84, a specified pressure ratio, and a combustor inlet Mach number less than 0.4. Further details concerning design criteria for the complete multi-stage compressor have been deliberately omitted from this report to avoid restrictions imposed by security classification.

2. PROCEDURE

The preliminary design of the multi-stage compressor was accomplished with the computer program described in Reference 1. This computer program performs an axisymmetric, full radial equilibrium analysis of the compressor flow field using the streamline curvature solution technique. Through a series of iterations, it attempts to maximize the performance of each successive stage by driving the design toward one or more of a number of specified limits and with a number of specified constraints. The radial distribution of energy addition in each rotor is specified by the user as a non-dimensional total pressure distribution. The aerodynamic parameters for which limits must be supplied for each stage are:

- (1) Rotor tip diffusion factor
- (2) Stator hub diffusion factor
- (3) Stator hub Mach number
- (4) Rotor hub relative exit angle
- (5) Rotor tip exit whirl velocity

The first three of these limits were found most useful for this investigation. The fourth and fifth were simply set at values which would avoid constraining the results. The general procedure followed was to start by specifying relatively conservative values for these limits. This initially resulted in a design having insufficient pressure ratio and

higher efficiency than required within the maximum number of stages allowed. Subsequently, the controlling limits were gradually raised and some adjustments were made to the radial distributions of rotor work and mid-streamline axial velocity ratios until the desired overall pressure ratio was achieved at the objective efficiency and with what appeared to be a good balance of conditions throughout the compressor. In the first part of the preliminary design, the program option involving specified mid-streamline axial velocity ratios was employed and the annulus walls were allowed to float within limits. Final fine tuning of the preliminary design was accomplished with the annulus geometry frozen. A minor modification was made to the computer program for convenience in arriving at this design. This is described in Appendix A.

3. LOSS ASSUMPTIONS

The losses attributed to each blade element and expressed as a relative total pressure loss coefficient have been assumed to be equal to the sum of two components; one associated with diffusion occurring in the profile boundary layers and one related to the presence of shock waves in each blade passage. Shock losses were estimated according to the familiar Miller-Lewis-Hartmann model described in Reference 2. This consisted of assuming the shock-related portion of the relative total pressure loss coefficient to be that resulting from a normal shock, the upstream Mach number of which was equal to the arithmetic average of the relative inlet Mach number and the suction surface Mach number at the shock impingement point. This latter Mach number was assumed to differ from the relative inlet Mach number by a Prandtl-Meyer expansion through a specified number of degrees of turning. The previously mentioned modification (presented in Appendix I) to the computer program described in Reference 1 consisted of an option allowing the program user to specify the supersonic turning angle. This proved to be more convenient for this design exercise than other options available to accomplish the same purpose. The final version of the preliminary design assumed the supersonic turning angle to vary linearly from 12 degrees at the hub to 2 degrees at the tip for the rotor and assumed a constant 15 degrees for the stator. These assumptions were varied somewhat in the early stages of the preliminary design until the approximate blade geometry became evident. Where the Mach number relative to a blade element is less than one, the procedure was handled slightly differently in order to effect a smooth transition in the loss distribution. The suction surface Mach number was assumed to be that resulting from a Prandtl-Meyer expansion from Mach 1 through the given supersonic turning angle. Then, the upstream shock Mach number was assumed equal to

$$M_x = \frac{M_{1r}}{2} (1 + M_{ss})$$

instead of the previously used average value. Whenever M_x was less than or equal to 1.0, shock loss was assumed to be zero.

Losses resulting from diffusion were predicted in the Lieblein manner by a relative total pressure loss parameter versus diffusion factor relationship. The computer program of Reference 1 allows this relationship to be defined at 10, 50 and 90 percent span, independently for each blade row. Initially curves taken from Figures 33 and 34 of Reference 3 were employed as representing the latest published revision of the original correlation. However, as the preliminary design began to take shape, the objective pressure ratio was achieved within the desired number of stages, but with efficiencies bordering the incredible, several points above the best ever obtained under similar or easier circumstances. Even greatly increasing the supersonic expansion angles to clearly impossible values did not bring the predicted efficiencies within the realm of credibility. A closer examination of the loss parameter correlation of Reference 3 led to the conclusion that the prediction shown for rotor profile loss appeared extremely optimistic for diffusion factors less than 0.5, representing essentially the entire range of interest for this design. The floor level of the loss parameter curves had been shown as approximately 0.002. For this design, this was raised to 0.009 and new curves were created which passed through the values given by Reference 3 at a diffusion factor of 0.7, and were extrapolated to 1.0 for the rotor, and retaining the prediction of Reference 3 for the stator, reasonable results were achieved. The distributions used are reproduced in Figures 1a and 1b of this report.

4. DESIGN PHILOSOPHY

a. Velocity Triangles

The choice of velocity triangles throughout the multi-stage compressor was most strongly influenced by the desire to achieve the maximum pressure ratio per stage consistent with reasonable off-design performance and the design efficiency objective. Since all rotors were expected to operate at relatively high levels of diffusion, high rotor relative Mach numbers and the associated shock losses were viewed as an acceptable penalty for the resulting performance. Although variable inlet guide vanes (IGV) might be desirable to expand the part-speed operating envelope, they were not desired from the point of view of altering the relative inlet Mach number of the first rotor, nor could significantly cambered IGV be tolerated at design point operation because of the high flow rate and resultant danger of choking. Consequently, a design approach was adopted which employed no IGV, assumed that the first stage stator would be a rigid structure supporting the front bearing and transmitting services,

and assumed that satisfactory off-design performance could be obtained by variable stators in the second and later stages, and an articulated trailing edge in the first stator and/or bleeds if necessary. Furthermore, all stators were designed to turn the flow back to the axial direction.

b. Axial Velocity Ratio

Three factors guided the magnitude and distribution of axial velocity ratios selected for each blade row. First, the entire multi-stage compressor required an overall axial velocity ratio less than unity in order that the combustor inlet Mach number not exceed 0.40, one of the initial conditions. Rather than force just one or two stages to accept a particularly low axial velocity ratio, it was decided to allow the stage axial velocity ratios to gradually decline over the first few stages and then remain approximately constant over the balance of stages. A mid-streamline axial velocity ratio of approximately 0.98 was chosen for the first stage. The second two factors determined the distribution of axial velocity ratio between rotor and stator. Rotors have generally proven capable of operating at higher loading levels than stators having equal losses. This favored axial velocity ratios less than unity in rotors and greater than unity in stators. Also, as the axial velocity ratio across a rotor is reduced, the camber required to produce a given change in swirl velocity is also reduced. Consequently, since average rotor relative Mach numbers were much higher than average stator Mach numbers, low rotor axial velocity ratios tended to minimize supersonic turning angles, and consequently shock losses for a given level of solidity. The mid-streamline values ultimately arrived at for the first stage were 0.815 for the rotor and 1.206 for the stator.

c. Annulus Shape

The shape chosen for the compressor annulus represented a compromise between maintaining high enough blade speed to facilitate obtaining high pressure ratio per stage while at the same time not permitting the hub/tip radius ratio at the compressor exit to become too high. There were also mechanical considerations involved such as ease of maintaining tip clearance and stresses in the last rotor. The shape ultimately chosen incorporated a constant outer diameter over the first three blade rows. The outer diameter was then reduced somewhat across each stator starting with the second stage. All rotors downstream of the second maintained a cylindrical outer diameter for ease in controlling tip clearance, although these diameters were progressively reduced. This choice of contour produced an adverse aerodynamic condition with respect to the effects of streamline curvature on aerodynamic loading. However, this

aerodynamic effect had such small impact on loading levels and losses that it was considered a desirable trade-off against better control of tip clearance.

d. Aspect Ratio

The choice of aspect ratio was governed by four factors, not all of which were always important in any one stage. In the first stage, the most important factors were hub ramp angle, mechanical stresses, and aerodynamic stability. High aspect ratio tended to minimize stage weight and rotor root stresses but tended toward steep hub ramp angles, greater flutter sensitivity necessitating part-span dampers, and less stall margin. Lower aspect ratio improved these last three conditions at some sacrifice in the first two, but if carried too far, could lead to unacceptable rotor root stresses due to increasingly acute angles between rotor blade and hub near the trailing edge. Downstream of the first stage, ramp angle and blade stresses became progressively less important and a fourth factor, manufacturing cost, became more important. Lower cost favored lower aspect ratio in later stages. The computer program of Reference 1 employed an aspect ratio based upon the ratio of leading-edge span to the axial depth of a blade row. Using this definition, a value of 2.0 was selected for the first rotor, which resulted in an initial hub ramp angle of approximately 30 degrees and appeared to offer reasonable prospects of not requiring mid-span dampers. The aspect ratio of each of the next several blade rows was chosen strictly on the basis of adjusting the axial length of each blade row such that the hub ramp angle declined monotonically and smoothly from the inlet value to nearly zero. An aspect ratio of 1.0 was chosen for the last few blade rows as representative of the minimum value offering an acceptable ratio of blade span to circumferential spacing.

5. RESULTS

The final results of the preliminary design pertaining to the first compressor stage and its immediate environment are shown in the following pages of computer printout. The information presented is sufficiently complete that, with the aid of Reference 1 and the associated computer program (available from COSMIC), anyone so inclined should be able to duplicate the results.

One of the input requirements of this computer program was a nondimensional spanwise total pressure distribution in the exit plane of each rotor. For the first few design iterations, total pressure leaving each rotor was assumed constant as a matter of convenience. As soon as the design began to evolve, however, it became necessary to increase the total pressure leaving the hub of each of the first few rotors in order to compensate for stator hub losses and to obtain a reasonable

balance of conditions throughout the compressor.

The diffusion factor at the rotor tip proved to be the limiting parameter in the first stage. This reached the specified limit of 0.52. The resulting Mach number relative to the stator hub was barely supersonic at about 1.02 and dropped rapidly with increasing radius. The stator hub diffusion factor was somewhat high at about 0.55, but the predicted losses were acceptable and this appeared to be a necessary compromise for the benefit of subsequent stages downstream. The mid-streamline axial velocity ratio of 0.815 across the first rotor kept the relative turning angle across the rotor tip down to 2.4 degrees. This was thought to offer good prospects of minimizing rotor shock losses and deviation angles. The solidity variation in the first rotor assumed for the preliminary design (a linear variation from approximately 2.0 at the hub to 1.3 at the tip) proved eventually to be somewhat low. This solidity was increased during the detail design procedure discussed later in this report.

The performance predicted for the first stage was a total pressure ratio of 1.93 at an isentropic efficiency of about 84 percent. Reducing the aerodynamic loading would have led to slightly higher efficiency and substantially less design risk in this stage. However, it would have required higher loading in downstream stages and/or a higher discharge Mach number from the last stage, neither one of which was viewed as desirable from an engine design standpoint.

A matter of practical interest to users of the computer program associated with Reference 1 concerns the tolerances applied to portions of the iteration scheme. Most of the tolerances recommended in Reference 1 were found satisfactory. However, for this design, much less difficulty was experienced with the program when the loading limit tolerance was increased from the recommended 0.01 to 0.033.

***** ADVANCED MULTISTAGE AXIAL-FLOW COMPRESSOR ****

***** ANALYSIS AT DESIGN CONDITIONS ****

---INPUT DATA---

THE MACHINE IS TO HAVE NO MORE THAN STAGES A TOTAL PRESSURE RATIO OF IS DESIRED
CALCULATIONS ARE TO BE PERFORMED AT 11 STREAMLINES THE INLET TOTAL PRESSURE IS 14.70 LBS/SQ IN.
THE INLET MASS FLOW RATE IS 62.60 LB/SEC THE INLET TOTAL TEMPERATURE IS 518.69 DEG. R
MOLECULAR WEIGHT OF THE FLUID IS 28.97 THE TIP SPEED IS 1500.0 FT./SEC.
AXIAL VELOCITY TOLERANCE IS .0100 THE LOADING LIMIT TOLERANCE IS .0330
THE EFFICIENCY TOLERANCE IS .0100 THE CONTINUITY TOLERANCE IS .0005
THE FRACTION OF THE TOTAL MASS FLOW BETWEEN THE HUB AND THE J-TH STREAMLINE IS.

0 0.000 .120 .200 .300 .400 .500 .600 .700 .800 .900 1.000

THE INLET GUIDE VANE LOSS COEFFICIENTS FOR THE 11 STREAMLINES ARE (FROM HUB TO TIP)

0.3000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000

THE INLET GUIDE VANE EXIT TANGENTIAL VELOCITY IS SPECIFIED BY $U = 0.$ $E = 0.$
 $A = 0.$ $B = 0.$ $C = 0.$

THE SPECIFIC HEAT POLYNOMIAL IS IN THE FOLLOWING FORM

CP = .23747E+00 * .21962E-04*T + -.87791E-07*T**2 + .13991E-09*T**3 + -.76056E-13*T**4 + .15043E-16*T**5

THE RATIO OF THE AREAS OF THE LAST 3 STATIONS TO THE AREA OF THE LAST STATOR EXIT ARE 1.0000. 1.0000. 1.0000 .

-----FLOW PATH DESCRIPTION-----

STATION NO.	AXIAL COORDINATE (IN.)	HUB RADIUS (IN.)	HUB BLOCKAGE FACTOR	TIP RADIUS (IN.)	TIP BLOCKAGE FACTOR
1	-12.000	1.000	1.000	8.500	1.000
2	-9.000	1.000	1.000	8.500	1.000
3	-6.000	1.600	1.000	8.500	1.000
4	-3.000	2.300	1.000	8.500	1.000
5	0.000	3.000	.995	8.500	.995
6	2.750	4.571	.992	8.500	.992
7	5.215	5.736	.990	8.500	.990
8	7.057	6.258	.987	8.500	.987

..... LOSS DATA SET NUMBER 1

(OF BLADE HEIGHT FROM
THE GEOMETRIC HUB.)

AT 90 PERCENT

AT 50 PERCENT

AT 10 PERCENT

D-FACTOR

0.000	.0090	.0090	.0090
.100	.0090	.0090	.0090
.150	.0090	.0090	.0090
.200	.0090	.0090	.0090
.250	.0090	.0090	.0090
.300	.0090	.0090	.0093
.350	.0090	.0090	.0098
.400	.0090	.0090	.0110
.450	.0090	.0090	.0130
.500	.0093	.0093	.0160
.550	.0105	.0105	.0200
.600	.0120	.0120	.0270
.650	.0140	.0155	.0368
.700	.0180	.0199	.0480
.750	.0325	.0284	.0605
.800	.0430	.0360	.0745
.850	.0528	.0495	.0690
.900	.0630	.0610	.1045
.950	.0739	.0718	.1190
1.000	.0845	.0826	.1350
	.0960		

..... LOSS DATA SET NUMBER 2

D-FACTOR	AT 10 PERCENT	AT 50 PERCENT	AT 90 PERCENT	(OF BLADE HEIGHT FROM THE GEOMETRIC HUB,)
0.000	.0120	.0040	.0120	
.100	.0137	.0052	.0137	
.150	.0149	.0060	.0149	
.200	.0160	.0067	.0160	
.250	.0175	.0075	.0175	
.300	.0195	.0082	.0195	
.350	.0215	.0100	.0215	
.400	.0233	.0112	.0233	
.450	.0265	.0128	.0265	
.500	.0310	.0156	.0310	
.550	.0361	.0202	.0361	
.600	.0421	.0255	.0421	
.650	.0500	.0320	.0500	
.700	.0600	.0400	.0600	
.750	.0720	.0481	.0720	
.800	.0870	.0589	.0870	
.850	.1040	.0718	.1040	
.900	.1220	.0853	.1220	
.950	.1398	.1050	.1398	
1.000	.1565	.1155	.1565	

-----STATION NUMBER 1 -----

S.-L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	1.0000	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
2	2.8504	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
3	3.9051	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
4	4.7302	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
5	5.4314	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
6	6.0519	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
7	6.6144	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
8	7.1327	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
9	7.6158	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
10	8.0700	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
11	8.5000	.569	615.84	615.84	0.0000	0.00	0.00000	0.0

S.-L. STREAMLINE TOTAL PRES. TOTAL TEMP.
NO. RADIUS (IN.) (LB/SQ IN.) (DEGREES)

1	1.0000	14.70	510.69	510.69
2	2.8504	14.70	510.69	510.69
3	3.9051	14.70	510.69	510.69
4	4.7302	14.70	510.69	510.69
5	5.4314	14.70	510.69	510.69
6	6.0519	14.70	510.69	510.69
7	6.6144	14.70	510.69	510.69
8	7.1327	14.70	510.69	510.69
9	7.6158	14.70	510.69	510.69
10	8.0700	14.70	510.69	510.69
11	8.5000	14.70	510.69	510.69

-----STATION NUMBER 2 -----

S.-L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	1.0000	.524	569.58	569.75	56.6753	5.74	.06566	0.0
2	2.8879	.553	599.49	598.85	27.5286	2.63	.02226	0.0
3	4.0461	.563	609.27	608.93	20.1645	1.98	.01339	0.0
4	4.7657	.568	614.86	614.66	15.6371	1.46	.00907	0.0
5	5.4618	.572	621.49	618.37	12.2314	1.13	.00642	0.0
6	6.0768	.574	628.95	620.87	9.4452	.87	.00461	0.0
7	6.6337	.576	632.63	622.59	7.0666	.65	.00326	0.0
8	7.1467	.577	633.75	623.73	4.9866	.46	.00222	0.0
9	7.6247	.578	624.45	624.44	3.1409	.29	.00136	0.0
10	8.0743	.578	624.82	624.82	1.6883	.14	.00063	0.0
11	8.5000	.578	624.93	624.93	-.0000	-.00	-.00000	0.0

S.-L. STREAMLINE TOTAL PRES. TOTAL TEMP.
NO. RADIUS (IN.) (LB/SQ IN.) (DEGREES)

1	1.0000	14.70	510.69	510.69
2	2.8879	14.70	510.69	510.69
3	4.0461	14.70	510.69	510.69
4	4.7657	14.70	510.69	510.69
5	5.4618	14.70	510.69	510.69

6	6.0760	14.78	918.69
7	6.6237	14.78	918.69
8	7.1667	14.78	918.69
9	7.6247	14.78	918.69
10	8.0743	14.78	918.69
11	8.5880	14.78	918.69

----STATION NUMBER 3 ----

S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	1.6880	.555	682.84	548.19	127.4835	12.23	-.01037	0.0
2	3.1263	.575	621.55	618.15	64.9844	6.86	-.01680	0.0
3	4.1838	.584	611.08	629.37	66.4543	4.23	-.01370	0.0
4	5.0829	.598	636.95	635.97	35.3277	3.19	-.01104	0.0
5	5.9581	.596	648.85	648.27	27.2391	2.44	-.00800	0.0
6	6.1431	.596	643.51	643.18	28.7769	1.86	-.00606	0.0
7	6.1828	.598	645.31	645.13	15.4898	1.37	-.00516	0.0
8	7.1836	.598	646.48	646.39	10.8853	.96	-.00365	0.0
9	7.8488	.608	647.16	647.32	9.2796	.80	-.00231	0.0
10	8.8843	.608	647.88	647.45	8.2878	.29	-.00110	0.0
11	8.5880	.608	647.45	647.45	-1.0000	-.08	-.00800	0.0

S.L. STREAMLINE TOTAL PRES. (LB/SQ IN.)

1	1.6880	14.78	518.69
2	3.1263	14.78	518.69
3	4.1838	14.78	518.69
4	5.0829	14.78	518.69
5	5.9581	14.78	518.69
6	6.1431	14.78	518.69
7	6.1828	14.78	518.69
8	7.1836	14.78	518.69
9	7.8488	14.78	518.69
10	8.8843	14.78	518.69
11	8.5880	14.78	518.69

----STATION NUMBER 4 ----

S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	2.3888	.573	628.84	682.64	145.8631	13.61	-.00533	0.0
2	3.5166	.621	648.39	643.52	94.1580	8.35	-.01937	0.0
3	4.3378	.628	646.81	663.11	71.8898	6.12	-.00822	0.0
4	5.0559	.632	679.21	676.95	55.2985	4.67	-.00617	0.0
5	5.7177	.648	687.55	686.21	42.9874	3.58	-.00447	0.0
6	6.2754	.646	693.17	692.48	32.7876	2.71	-.00304	0.0
7	6.7777	.658	696.02	696.02	23.9839	1.97	-.01101	0.0
8	7.2478	.652	688.86	688.87	16.3110	1.34	-.00071	0.0
9	7.6878	.650	788.23	788.17	9.4854	.78	-.00020	0.0
10	8.1842	.654	788.05	788.04	3.3752	.28	-.00121	0.0
11	8.5880	.654	788.60	788.60	-2.1746	-.18	-.00207	0.0

S.L. STREAMLINE TOTAL PRES. (LB/SQ IN.)

1	2.3888	14.78	518.69
2	3.5166	14.78	518.69

-----STATION NUMBER 5 ----- (INLET GUIDE VANE EXIT)										
S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEG)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)		
3	4.3678	14.70	518.69	671.33	270.3106	21.93	.08818	0.0		
4	5.0999	14.70	518.69	722.50	206.7821	15.98	.07980	0.0		
5	5.7177	14.70	518.69	753.45	162.7750	12.20	.06551	0.0		
6	6.2714	14.70	518.69	773.94	127.4649	9.36	.05154	0.0		
7	6.7777	14.70	518.69	787.91	97.7901	7.08	.03895	0.0		
8	7.2475	14.70	518.69	797.44	72.4586	5.19	.02800	0.0		
9	7.6879	14.70	518.69	803.81	50.7927	3.61	.01877	0.0		
10	8.1042	14.70	518.69	807.87	32.4098	2.29	.01132	0.0		
11	8.5000	14.70	518.69	810.26	17.1496	1.21	.00574	0.0		
				811.45	5.0470	.35	.00226	0.0		
				811.83	-3.4173	-.24	.00145	0.0		

S.L. NO.	STREAMLINE RADIUS (IN.)	TOTAL PRES. (LB/SQ IN.)	TOTAL TEMP. (DEGREES)	REL. VEL. (FT/SEC)	WHIRL VEL. (FT/SEC)	RELATIVE MACH NO.	REL. FLOW ANG. (DEG)	WHEEL SPEED (FT/SEC)		
1	3.0523	14.70	518.69	902.15	0.00	.844	36.659	538.633		
2	4.0069	14.70	518.69	1031.67	0.00	.969	43.256	707.106		
3	4.7470	14.70	518.69	1136.40	0.00	1.072	47.381	837.714		
4	5.3738	14.70	518.69	1230.56	0.00	1.161	50.401	948.182		
5	5.9259	14.70	518.69	1312.99	0.00	1.240	52.793	1045.746		
6	6.4270	14.70	518.69	1388.36	0.00	1.313	54.776	1134.182		
7	6.8892	14.70	518.69	1458.33	0.00	1.360	56.476	1215.744		
8	7.3208	14.70	518.69	1524.04	0.00	1.442	57.960	1291.898		
9	7.7274	14.70	518.69	1586.31	0.00	1.502	59.276	1363.656		
10	8.1132	14.70	518.69	1645.71	0.00	1.558	60.457	1431.746		
11	8.4814	14.70	518.69	1702.71	0.00	1.612	61.524	1496.714		

ITERATION ON LOADING WAS TAKING PLACE

***** FINAL FLOW PARAMETERS FOR STAGE NUMBER 1 *****

*** STAGE INPUT PARAMETERS ***

ROTOR TIP D-FACTOR LIMIT .5200
 HUB RELATIVE FLOW ANGLE LIMIT AT THE ROTOR EXIT -10.0
 STATOR HUB MACH NUMBER LIMIT (IN) 1.0500
 STATOR HUB D-FACTOR LIMIT .6000
 MAXIMUM TIP TANGENTIAL VELOCITY 800.0

---ROTOR---

---STATOR---

ASPECT RATIO	GEOMETRIC HUB RADIUS (IN.)	GEOMETRIC HUB RAMP TIP RAD.(IN.)	HUB RAMP ANGLE (DEG)	TIP RAMP ANGLE (DEG)	AXIAL LENGTH (IN.)	MASS FLOW (LB/SEC)	MASS AVE. ADIABATIC EFF.
-ROTOR--	2.088	4.5705	8.5880	29.730	0.000	62.6000	.8753
-STATOR-	1.586	5.7361	6.5860	25.308	2.4650	62.6000	.8444

*** STAGE SCALER QUANTITIES ***

VEL. RATIO AT THE HUB	HUB BLOCKAGE FACTOR	TIP BLOCKAGE FACTOR	MASS AVE. PR. RATIO	TEMP. RATIO	CUMULATIVE MASS AVE. PR. RATIO	MASS AVE. TEMP. RATIO	CUMULATIVE MASS AVE. ADIABATIC EFF.
-ROTOR--	.815	.9928	1.9717	1.2443	1.9717	1.2443	.8753
-STATOR-	1.786	.9980	1.9291	1.2443	1.9291	1.2443	.8444

LOSS DATA SET USED

-ROTOR-- 1

-STATOR- 2

***** R O T O R E X I T *****

S.L. NO.	STREAMLINE RADIUS (IN.)	AXIAL VEL. (FT/SEC)	WHIRL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	ABS. VEL. (FT/SEC)	ARS. MACH NUMBER	ABS. FLOW ANGLE (DEG)	REL. FLOW ANGLE (DEG)
1	6.6152	635.235	696.97	331.09	1147.999	1.0164	51.388	-6.571
2	5.21648	654.875	793.79	263.87	1062.355	.9281	48.349	9.459
3	5.6310	663.838	725.30	211.58	1005.225	.8708	46.181	21.809
4	6.0476	664.237	675.99	168.38	962.630	.8286	44.686	29.720
5	6.4318	659.566	648.82	131.72	928.996	.7953	43.615	36.307
6	6.7938	658.285	615.81	108.29	901.192	.7674	43.184	41.548
7	7.1487	637.395	598.46	73.25	877.380	.7432	43.008	45.883
8	7.4774	628.757	587.92	49.98	856.437	.7214	43.351	49.597
9	7.8883	599.848	583.67	30.85	837.516	.7011	44.180	52.907
10	8.2394	573.451	585.98	13.25	819.993	.6815	45.611	55.999
11	8.6458	536.177	598.51	-.47	803.558	.6619	48.145	59.137

S.L. NO.	TOTAL TEMP. RATIO	TOTAL PRES. RATIO	ADIABATIC EFFICIENCY	DIFFUSION FACTOR	WHEEL SPEED (FT/SEC)	SOLIDITY	A/S	LOSS COEFF.
1	1.2343	2.8666	.9830	.8734	814.45	1.993	.7848	.0366
2	1.2320	2.8352	.9702	.8581	911.43	1.881	.7319	.0510
3	1.2311	2.8127	.9564	.8442	993.70	1.792	.6832	.0634
4	1.2313	1.9936	.9411	.8287	1067.23	1.714	.6388	.0758
5	1.2332	1.9775	.9216	.8228	1135.82	1.645	.5994	.0920
6	1.2367	1.9636	.8974	.8223	1198.91	1.581	.5643	.1115
7	1.2418	1.9516	.8698	.8229	1260.13	1.520	.5324	.1336
8	1.2487	1.9411	.8380	.8222	1319.58	1.463	.5035	.1591
9	1.2579	1.9318	.8019	.8222	1378.85	1.409	.4774	.1888
10	1.2694	1.9236	.7689	.8222	1436.36	1.355	.4533	.2239
11	1.2889	1.9164	.7189	.8222	1495.73	1.303	.4313	.2704

S.L. NO.	TOTAL TEMP. (DEGREES)	TOTAL PRES. (LB/SQ IN.)	STATIC TEMP. (DEGREES)	STATIC PRES. (LB/SQ IN.)	SLOPE (DEGREES)	CURVATURE 1/IN.	REL. VEL. (FT/SEC)	REL. MACH NUMBER
1	640.20	38.88	530.64	15.74	27.53	-.02668	721.8755	.6385
2	639.83	29.93	545.21	17.86	21.93	-.01170	715.7696	.6253
3	638.57	23.59	554.53	18.85	17.69	-.00170	745.9625	.6462
4	638.69	29.31	561.68	18.68	14.22	.00605	789.1521	.6793
5	639.67	29.87	567.96	19.16	11.30	.01208	834.6274	.7145
6	641.68	28.87	574.81	19.55	8.77	.01635	879.1716	.7487
7	644.11	28.69	588.17	19.88	6.56	.01859	921.6543	.7807
8	647.78	28.53	585.79	20.18	4.68	.01888	968.8131	.8093
9	652.43	28.40	584.28	20.46	2.87	.01654	995.8876	.8337
10	658.63	28.28	682.62	20.72	1.32	.01102	1825.7574	.8526
11	667.50	28.17	613.94	21.88	-.85	.00894	1845.2178	.8609

***** S T A T O R E X I T *****

S.L. NO.	STREAMLINE RADIUS (IN.)	AXIAL VEL. (FT/SEC)	WHIRL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	ABS. VEL. (FT/SEC)	ABS. MACH NUMBER	ABS. FLOW ANGLE (DEG)	REL. FLOW ANGLE (DEG)
1	5.7703	715.150	.17	279.55	770.640	.6469	.013	52.077
2	6.1084	775.504	.16	246.25	813.662	.6870	.012	52.950
3	6.4107	790.267	.15	207.28	816.978	.6903	.011	54.161
4	6.6950	791.913	.15	172.03	810.383	.6841	.010	55.550
5	6.9676	789.081	.14	141.20	801.614	.6755	.010	56.895
6	7.2315	784.213	.14	113.61	792.399	.6660	.010	58.160
7	7.4887	778.241	.13	88.33	783.238	.6562	.010	59.343
8	7.7407	771.635	.13	64.72	774.345	.6462	.010	60.450
9	7.9887	764.633	.13	42.23	765.882	.6360	.009	61.487
10	8.2337	757.543	.12	20.72	757.820	.6257	.009	62.454
11	8.4768	751.060	.12	.20	751.060	.6153	.009	63.338

S.L. NO.	TOTAL TEMP. RATIO	TOTAL PRES. RATIO	ADIABATIC EFFICIENCY	DIFFUSION FACTOR	WHEEL SPEED (FT/SEC)	SOLIDITY	A*/S	LOSS COEFF.
1	1.0000	.8024	.6313	.9450	1018.29	1.798	.6384	.2025
2	1.0000	.9559	.6326	.4450	1077.95	1.771	.6670	.1834
3	1.0000	.9758	.6336	.3935	1131.29	1.748	.6837	.0620
4	1.0000	.9845	.6346	.3613	1181.47	1.727	.6933	.0429
5	1.0000	.9885	.6352	.3398	1229.57	1.708	.6960	.0337
6	1.0000	.9900	.6358	.3229	1276.14	1.689	.6932	.0309
7	1.0000	.9899	.6353	.3113	1321.54	1.671	.6858	.0330
8	1.0000	.9885	.6349	.3034	1366.01	1.653	.6735	.0394
9	1.0000	.9861	.6332	.2985	1409.78	1.636	.6557	.0496
10	1.0000	.9831	.6322	.2965	1453.01	1.619	.6310	.0632
11	1.0000	.9796	.6362	.2979	1495.91	1.601	.5931	.0803

S.L. NO.	TOTAL TEMP. (DEGREES)	TOTAL PRES. (LB/SQ IN.)	STATIC TEMP. (DEGREES)	STATIC PRES. (LB/SQ IN.)	SLOPE (DEGREES)	CURVATURE 1/IN.	REL. VEL. (FT/SEC)	REL. MACH NUMBER
1	668.28	27.41	598.87	29.69	21.27	-.06970	1276.8681	1.0719
2	639.63	28.61	585.04	20.87	17.62	-.06130	1350.4360	1.1402
3	638.57	26.67	583.13	21.00	14.78	-.05310	1395.3235	1.1790
4	638.69	26.85	584.14	21.89	12.26	-.04590	1432.5621	1.2094
5	639.67	28.74	585.29	21.17	10.15	-.03971	1467.8760	1.2368
6	641.48	28.58	585.14	21.23	8.25	-.03430	1502.0275	1.2625
7	644.11	28.48	583.17	21.27	6.48	-.02937	1536.0904	1.2870
8	647.78	28.20	587.92	21.30	4.88	-.02449	1570.1102	1.3103
9	652.43	28.00	603.76	21.33	3.17	-.01899	1604.2342	1.3323
10	658.63	27.80	610.97	21.36	1.57	-.01181	1638.6572	1.3529
11	667.50	27.60	628.71	21.38	-.02	-.00874	1673.7638	1.3712

SECTION III

DETAILED AERODYNAMIC DESIGN

1. COMPUTATIONAL METHOD

The detailed aerodynamic design of the first compressor stage was accomplished with an early version of the computer program described in Reference 4, and employing the "streamline curvature" method of computation. Although conceptually similar to the method employed for the preliminary design, much greater precision was incorporated into the detail design by the addition of many more axially-distributed computing stations to define the flow path, including four stations within the interior of each blade row. The detail design program permitted the use of curvilinear computing stations, and these were adjusted periodically to insure a high degree of coincidence with blade-row edges. Twenty-one streamlines were employed for the detail design in contrast to the eleven employed for the preliminary design.

A solution was obtained through an iterative numerical procedure according to which the equations of momentum, continuity, and energy are simultaneously solved at each computing station in sequence throughout the compressor. After each "pass" through the compressor, the streamline geometry is updated and the procedure is repeated until the changes occurring from one pass to the next fall within a specified tolerance, whereupon the solution is considered to be "converged." The most significant assumptions are that the flow is axisymmetric and can be described by a series of concentric streamsurfaces across which no mass or momentum is transferred. Within this framework, the "full" radial equilibrium version of the momentum equation is satisfied at each streamsurface/computing-station intersection whereby effects of streamline curvature and entropy gradients are included. For the computations made within a blade row, blade force terms are included in the momentum equation in the form of a body-force field assumed to act in a direction everywhere normal to the three-dimensional surface formed by the stacked camber lines of each blade row. A correction for the meridional entropy gradient was included according to Reference 5.

An allowance for boundary layer blockage was incorporated to account for boundary layer development on both blades and annulus walls. The absolute value of blockage was estimated according to a simplified formula for a turbulent boundary layer on a flat plate, with meridional velocity and length substituted for absolute velocity and path length. The method used is substantially as described in Reference 6 and, although relatively crude, it has produced reliable results

under a variety of circumstances. The resulting total blockage calculated at each computing station is linearly distributed from hub to tip as a function of radius and is introduced as a factor in the continuity equation. Within the interior of blade rows, the additional blockage resulting from the finite thickness of the airfoils is also taken into account.

2. AIRFOIL SELECTION AND OPTIMIZATION

When a design is accomplished involving computing stations internal to a blade row, some optimization criteria must be specified according to which the most efficient airfoil geometry can be selected from among a variety of possible designs satisfying the same end conditions. The axial distribution of static pressure along each streamsurface, as computed by the axisymmetric flow analysis, was selected as the most appropriate parameter to optimize for this design. This was chosen on the basis of being the parameter most closely related to blade surface boundary layer behavior which could be calculated with some degree of accuracy. The minimum static pressure gradient along each streamsurface would obviously occur with a linear variation between leading and trailing edge. Since this condition could probably not be realized in practice, high deviation angles and losses would be the probable result. The "optimum" axial distribution of (circumferentially averaged) static pressure along each streamsurface has been defined as one which is approximately linear over the first three quarters of a blade row and then declines smoothly to nearly zero at the trailing edge in deference to the Kutta condition.

Two basic design approaches are feasible in conjunction with the optimization criteria described above. In the more traditional approach, one can assume the blade geometry, solving for the equilibrium flow field using specified relative flow angles as input to the aerodynamic program. In this design approach, the parameters defining the blade geometry are adjusted through a series of iterations until the optimization criteria are achieved over as much of the blade surface as possible. This technique has two shortcomings. First, one does not have infinite flexibility to adjust the shape of blades of a specific geometric family, so the optimization criteria can rarely, if ever, be achieved over the full span of a blade. Second, the use of specified relative flow angles as input to the streamline-curvature-type aerodynamic analysis program can lead to numerical instabilities and convergence difficulties in the calculation procedure at high subsonic through-flow Mach numbers. The design approach using arbitrary airfoils avoids both of these difficulties and was chosen for this design. Using this technique, the designer must assume the work distribution (total temperature or enthalpy) along streamlines through the

rotor and the swirl velocity (or preferably radius times swirl velocity) distribution along streamlines through the stator. The aerodynamic flow field analysis then produces a set of relative flow angles to which airfoils must be matched. The technique and computer program described in Reference 7 were developed for this purpose. This procedure is iteratively repeated until the optimization criteria are met over the full span, airfoil metal blockages used in the aerodynamic analysis are mutually consistent with those calculated by the blade generation program, and the computing stations used to represent blade leading and trailing edges are a close match to the envelope of the stacked airfoil. In pursuing such a design approach, it is absolutely essential to insure that the distributions of work through rotors and radius-times-swirl-velocity through stators vary smoothly both along streamlines as well as along computing stations. Any lack of smoothness in these distributions will be directly translated into peculiarly shaped airfoils having undesirable mechanical and probably undesirable aerodynamic properties. A point of practical interest to designers is that linear distributions of these variables along streamlines provide an excellent starting point for a design. The adjustments away from the linear distribution required to achieve the optimization criteria are usually not very large.

3: INTRA-BLADE AERODYNAMIC ASSUMPTIONS

In conjunction with a through-the-blade-row design technique such as described above, some assumption must be made for three critical meridional distributions within each blade row. These are deviation angle, blockage, and losses, listed in decreasing order of importance. At high relative flow angles such as encountered near the tip of a high-speed rotor, the performance is extremely sensitive to changes in relative flow angle. There is virtually no experimental data available to define a reliable correlation applicable to the interior region of a compressor blade row. Furthermore, few if any reliable analytical techniques are currently available to predict circumferential average relative flow angles through a transonic blade row. Consequently, distributions were assumed which met the following criteria:

- (1) Deviation at the leading edge must equal the incidence angle
- (2) Deviation at the trailing edge must equal the value predicted by conventional empirical deviation angle correlations
- (3) Deviation angles in the covered portion of the passage should be extremely small

(4) The rate of increase of deviation angle approaching the trailing edge must approximately equal the rate of change of camber in that region in order to approach a Kutta condition at the trailing edge.

The distributions chosen for this design are presented in Figure 2.

The absolute level of blockage at each computing station was calculated according to the crude boundary layer model mentioned earlier in Section III.1. Although the computation was originally conceived as an annulus wall blockage model, it was employed here as a wake blockage model and linearly distributed spanwise. The ratio of hub blockage to tip blockage within each blade row was set equal to the ratio of hub solidity to tip solidity. The distribution is shown in Figure 3.

The aerodynamic calculation was least sensitive to the meridional distribution of losses within each blade row. Also, viewed in the meridional plane, the rotor shock system covered most of the axial depth of the rotor. Consequently, total pressure losses were simply linearly distributed through each blade row.

4. ANNULUS SHAPE

When designing a compressor incorporating blades of a specified geometric family, e.g. multiple circular arc, etc., coupled with a through-the-blade-row design approach, it is usually found necessary to adjust the annulus wall contour within the blade passage in order to satisfy optimization criteria. This frequently results in locally undesirable pressure gradients due to streamline curvature effects near the walls. With arbitrary airfoils, such as employed for this design, this situation can be largely avoided since the airfoil can adjust to meet optimization objectives over its entire surface, independently of the wall contour. Consequently, a specific objective in laying out this design was to maximize the radii of curvature defining the hub flowpath. As a result, the spinner contour is a circular arc tangent to the rotor hub, the rotor hub was made conical, and the hub flowpath from the rotor trailing edge to the exit plane is a single circular arc tangent to the rotor hub and to a cylinder about half a stator chord length downstream of the stator exit plane. A reflex curvature in this contour was deliberately avoided. The tip flowpath consisted of a circular-arc bellmouth tangent to a cylinder which extended past the stage exit plane.

5. ROTOR ASPECT RATIO

Whereas the preliminary design employed only a single, radial computing station to represent both the trailing edge of one blade and the leading edge of the following blade, the detail design used individual curvilinear stations to represent each edge as well as intermediate locations. The axial depth of the rotor at the hub was selected as the more important axial dimension to preserve without change from the preliminary design, since it directly affected rotor hub ramp angle. During the course of detail design iterations, it was necessary to reduce the inlet hub/tip radius ratio from the preliminary design value of approximately 0.35 to 0.31 in order to eliminate choking problems. At the rotor trailing edge, the hub/tip radius ratio was similarly reduced from 0.54 to 0.52. These hub changes caused the final ramp angle to rise to 32.5 degrees, the axial depth having remained constant. Final rotor aspect ratio was 1.32 based upon mean rotor span and the average of the chord length of blade sections on streamlines 1, 11, and 21.

6. STATOR ASPECT RATIO

The stator aspect ratio was decreased somewhat from the preliminary design, primarily as a result of the choice of hub flowpath contour described in Section III.4. The stator exit-plane area was preserved from the preliminary design, fixing the hub radius at this location. This radius intersected the circular arc defining this contour about twenty percent farther downstream from the rotor than in the preliminary design. The resultant final stator aspect ratio was 1.255, based upon mean blade span and the average of the chord length of blade sections on streamlines 1, 11, and 21.

7. ROTOR SOLIDITY AND THICKNESS

Rotor solidity and thickness are discussed together because of their relationship from a structural standpoint. Maximum section thicknesses of 6.0 percent chord at the hub and 2.5 percent chord at the tip were selected as the minimum values likely to be acceptable structurally. This subsequently proved adequate. Preliminary centrifugal stress calculations also indicated that rotor airfoil cross-sectional area should increase by a factor of approximately two from tip to hub. Rotor hub chord was already established within narrow limits on the bases of flow area contraction ratio and ramp angle, as discussed in Section III.5. These constraints fixed the tip chord length at approximately 4.0 inches. Aerodynamic considerations dominated the choice of tip solidity, with no constraint placed upon maximum hub solidity. It was desired that the tip solidity be high enough so that a weak oblique passage shock extending from

the leading edge of one airfoil to the suction surface of another would be fully captured within the passage. This was felt to enhance aerodynamic stability. A tip solidity of approximately 1.5 was chosen so that such a shock would intersect the suction surface at about 90 percent chord. This tip solidity plus the chord length set the number of rotor blades at 20. An even number was chosen for convenience in balancing the rotor. The resultant hub solidity was approximately 3.2. Because of the high shock losses which were potentially possible near the tip and the danger of choking near the hub, leading edge wedge angles were minimized by locating the position of maximum airfoil thickness relatively far aft. A linear spanwise distribution was specified, varying from 56 percent chord at the hub to 70 percent chord at the tip. The airfoil leading edge radius was initially fixed at 0.005 inch, spanwise constant, in order to minimize shock losses. However, high leading edge stresses near the hub subsequently caused the leading edge radius to be flared to triple this value within the last fifty percent of span approaching the hub. This distribution is shown in Figure 4. During the first few iterations of the detail design, linear spanwise distributions of chord length and thickness were specified. However, the resultant solidity at about two-thirds span appeared to be dangerously low from an aerodynamic standpoint. The final configuration was achieved by specifying the solidity distribution shown in Figure 5, increasing the chord length and decreasing the thickness near two-thirds span to preserve the satisfactory, nearly linear area distribution. The final spanwise distributions of thickness-to-chord-ratio, and streamsurface-section and cartesian-section area are presented in Figures 6 through 8 respectively.

8. STATOR SOLIDITY AND LEADING-EDGE SWEEP

The stator solidity distribution was defined purely on the basis of aerodynamic considerations related to loading, operating range, and leading-edge sweep. Sweep was used at the hub to minimize shock losses and to maximize incidence range. The locally high hub solidity also reduced the diffusion factor at the hub relative to the preliminary design, which had shown an increase in that region. Chord length was approximately fixed according to the considerations related to aspect ratio and hub flowpath contour described in Section III.6. An odd number of blades having no common divisor with the 20 rotor blades was desired to minimize the chance of exciting any resonant frequencies in the rotor through rotor-stator interaction. A minimum solidity of approximately 1.6 was selected because of the high turning required of the stator (varying from 40 to 50 degrees) and the high average Mach number level varying from about 0.7 to 1.0. These conditions were satisfied by 31 stator blades.

Initially, the stator trailing edge was a radial line coincident with the stacking axis. However, this resulted in a tip solidity of about 1.48 which appeared risky in relation to the turning, Mach number, and incidence variation which this region would experience over the expected operating range. Tip solidity was increased to 1.62 by slanting the trailing edge linearly aft from hub to tip with respect to the stacking line. The leading edge at the hub was located as far forward as mechanical clearances permitted, resulting in a hub solidity of 2.8. The angle of sweep was chosen such that the component of Mach number normal to the leading edge was approximately 0.4, the Mach number below which no further increase in low-loss incidence range has generally been observed in cascade experiments. The sweep with respect to the approach flow was smoothly reduced to zero at a radius near mid-span where the Mach number had dropped to about 0.85. The leading edge then swept slightly forward toward the tip simply to maintain adequate solidity at the outer radii. The final chord length and solidity distributions are shown in Figures 9 and 10. Maximum thickness was located at fifty percent meridional chord and its absolute value varied approximately linearly from 4.0 percent chord at the hub to 6.0 percent chord at the tip. Leading and trailing edge radii were approximately constant at about 0.0055 inch.

9. INCIDENCE ANGLE

The use of arbitrary airfoils allows greater design freedom in choosing incidence angle than exists with airfoils of a specified geometric family. Using a through-the-blade-row design approach and arbitrary airfoils, any reasonable distribution of incidence can be assumed and an apparently satisfactory solution obtained. Particularly with supersonic sections, the adequacy of the initial assumption should be tested by analyzing several sections in the cascade plane.

The initial assumption made for this rotor was a constant 1.0 degree of incidence with respect to the suction surface. Because the relative inlet Mach number to the rotor is supersonic over most of the span, flow through the rotor is controlled primarily by the wave pattern propagated upstream. A cascade-plane analysis using an inviscid, time-dependent calculation technique showed the initial rotor design to be about four percent deficient in the flow at both hub and tip. This corresponded to approximately one degree of incidence with respect to the suction surface. The final design assumed a constant 2.0 degrees of incidence with respect to the suction surface. The corresponding spanwise distribution of incidence with respect to the camber line is shown in Figure 11.

The stator inlet Mach number varied from approximately sonic at the hub to 0.7 at the tip. Because of the sonic Mach number and high solidity at the hub conducive to choking and also the

incidence tolerance presumably offered by leading edge sweep, a positive incidence of 5.0 degrees with respect to the camber line was assumed for the hub. Zero degrees of incidence with respect to the camber line was assumed for the stator tip. This was selected on the basis of high cambered subsonic cascade sections favoring low to negative incidence angles and also the expectation of high incidence angles occurring here as the stage was throttled toward stall. The spanwise variation from hub to tip was made linear and is also shown in Figure 11. No subsequent checks or adjustments were made to this distribution.

10. DEVIATION ANGLE

Deviation angle was predicted for both rotor and stator according to the method developed by NACA and described in Reference 8, Equations 269 and 271. A shape correction factor of 1.0 was used for both blade rows. However, the values predicted for the rotor were increased by 2.0 degrees at all radii, based upon examination of a few examples of potentially relevant recent data. The design deviation angle distributions for both blade rows are presented in Figure 12.

11. AIRFOIL FILLET RADII

The treatment of fillet radii at the rotor hub and both hub and tip of the stator merits mention because the approach was unconventional. For decades great attention has been paid to the design of fillets at the juncture of an aircraft wing and fuselage. Poorly designed fillets, or no fillet at all, can lead to large interference drag penalties. Also, it is well known that in diffusing passages, boundary layer growth in corners is greater than on adjacent surfaces and boundary layer separation will generally occur first in a corner under an adverse pressure gradient. However, common practice in turbomachine design appears to favor the smallest possible fillets for aerodynamic reasons, mitigated only by manufacturing and structural desires for larger fillets. The fillet geometry chosen for this design is patterned after the aircraft wing-fuselage model, although somewhat simplified. A radius of 0.25 inch was employed over most of the chord length; a rather large value in relation to most significant dimensions of this 17.0 inch diameter stage. The fillet radius declines smoothly from 0.25 inch to 0.06 inch over a distance of 0.75 inch approaching the leading and trailing edges of the rotor and the leading edge of the stator, and over a distance of 0.5 inch approaching the trailing edge of the stator. Note that the stator is hub-shrouded and the fillet treatment applies to both platforms.

12. STRUCTURAL IMPACT ON AERODYNAMIC DESIGN

A stress analysis of the steady state centrifugal and gas bending loads was performed for the rotor as part of a mechanical

design and fabrication contract. Small adjustments to the section centroid locations with respect to the stacking axis were required and the leading and trailing edges approaching the hub platform were thickened before satisfactory stress levels were achieved. All of these adjustments were recycled through the aerodynamic design calculation so that the final aerodynamic design was fully consistent with the structural design. A peak combined stress level of about 68,000 psi was predicted to occur at the leading edge at a radius of 6.5 inches at 20,000 revolutions per minute operating speed. The predicted rotor untwist distribution is shown in Figure 13. Correction for untwist was made by restaggering the cartesian airfoil manufacturing sections an equal and opposite amount.

Vibratory tests of sample airfoils were also performed under the above mentioned contract in order to establish natural frequencies and mode shapes and to determine strain gage locations and dynamic stress operating limits. Three gage locations were chosen corresponding to points of maximum sensitivity for the three lowest order modes of vibration. These modes were 300 Hz (first bending) 1050 Hz (second bending), and 1400 Hz (first torsion). The first eight modes of vibration were mapped and stress ratios defined for the three gage locations. The eighth mode was a complex mode at 4900 Hz. An operating dynamic stress limit of $\pm 20,000$ psi was chosen.

SECTION IV

FINAL DESIGN RESULTS

1. STAGE DIMENSIONAL CHARACTERISTICS

Stage Outer Diameter (constant)	17.00 inches
Rotor Inlet Hub/Tip Radius Ratio	0.312
Number of Rotor Blades	20
Number of Stator Blades	31
Static Rotor Tip Clearance	0.027
Design Point Rotor Running Clearance	0.016
Rotor Aspect Ratio	1.320
Stator Aspect Ratio	1.255

2. DESIGN POINT SPECIFICATIONS

Flow Rate	62.60 lb/sec
Flow Per Unit Frontal Area	39.715 lb/sec/ft ²
Flow Per Unit Annulus Area	43.995 lb/sec/ft ²
Rotor Total Pressure Ratio	1.966
Stage Total Pressure Ratio	1.912
Rotor Tip Static Pressure Ratio	2.169
Rotor Isentropic Efficiency	0.869
Stage Isentropic Efficiency	0.830
Inlet Corrected Tip Speed	1500 ft/sec

3. AERODYNAMIC CHARACTERISTICS

The details of the aerodynamic flow field throughout the stage are presented in the following pages of printout from the aerodynamic design computer program. The numbers and arrangement of computing stations are presented in Figure 14. For convenience, the computing stations defining blade row edges are also defined below.

Rotor leading edge	-	Station No. 11
Rotor trailing edge	-	Station No. 16
Stator leading edge	-	Station No. 18
Stator trailing edge	-	Station No. 23

The final streamwise distributions of total temperature through the rotor and radius-times-swirl-velocity through the stator are presented in Figures 15 and 16 respectively. The resultant streamwise static pressure distributions within both blade rows are shown in Figure 17. Figures 18 through 23 present a variety of spanwise parameter distributions of common interest. Rotor and stator relative inlet Mach number, diffusion factor, and total-pressure loss coefficient distributions are presented in Figures 18 through 20 respectively. Distributions of rotor-exit and stage-exit total pressure ratio, meridional velocity,

and isentropic efficiency are presented in Figures 21 through 23 respectively. The manufacturing dimensions of the annulus are shown in Figure 24.

AXISYMMETRIC COMPRESSOR ANALYSIS PROGRAM CAI

TITLE = AT-YANG-FLOW AERODYNAMIC ANALYSIS (COMPRESSED INLET)

NUMBER OF STATIONS = 26
 NUMBER OF STREAMLINES = 21
 NUMBER OF INLET CONDITIONS DATA ADJII = 1
 IFSIMP = 1 12 -0.04E-02 -L.S.O. STREAMLINES, POINT = IFSIMP*2
 MAXIMUM NUMBER OF PASSES = 111
 IFR = 1 11 -BLOCKAGE HELD AT DATA VALUES 2 -ANNULUS WALL B.L. CALCULATED
 ITER = 2 11 -PRINT ALL VELOCITIES DURING ITERATIONS 2 -NORMAL OPTION
 CONTOURITY TOLERANCE = .0002
 FRACTION OF INLET BLOCKAGE ON HUD = .5100
 GAS CONSTANT = 28.7220
 SPECIFIC HEAT = .24010

STATION-TO-STATION CHARGES ARE DESCRIBED THUS

- STATION 2 FOLLOWS A BLADE-FREE SPACE
- STATION 3 FOLLOWS A BLADE-FREE SPACE
- STATION 4 FOLLOWS A BLADE-FREE SPACE
- STATION 5 FOLLOWS A BLADE-FREE SPACE
- STATION 6 FOLLOWS A BLADE-FREE SPACE
- STATION 7 FOLLOWS A BLADE-FREE SPACE
- STATION 8 FOLLOWS A BLADE-FREE SPACE
- STATION 9 FOLLOWS A BLADE-FREE SPACE
- STATION 10 FOLLOWS A BLADE-FREE SPACE
- STATION 11 FOLLOWS A BLADE-FREE SPACE

CURVED STATION DEFINITION (6 POINTS)

CAJIS	ERR
2.0514	-1.3133
2.0354	-2.5544
2.0237	-4.0131
2.0159	-5.5318
2.0111	-7.1115
2.0090	-8.7412

STATION 12 FOLLOWS A BLADE ROTATING AT 20222.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RAJIS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
1.1103	-15.909	-9.513	.1621
2.1127	-15.573	-6.832	.1460
3.1151	-17.500	-6.667	.1273

RAJIS	LOSS COEFF	DEVIATION	
1.0011	-14.104	-0.047	.1129
1.0712	-14.544	-1.023	.1016
1.0510	-14.721	-5.888	.0952
1.0423	-14.840	-3.371	.0889
1.0445	-14.825	-4.179	.0826
1.0455	-14.877	-2.732	.0764
1.0461	-14.768	-2.084	.0701
1.0469	-14.266	-1.320	.0638
1.0474	-13.754	-1.126	.0575
1.0479	-12.220	.827	.0511
1.0484	-12.684	1.842	.0448
1.0489	-12.246	2.376	.0385
1.0494	-12.882	2.381	.0322
1.0499	-13.571	2.284	.0259
1.0504	-14.112	2.243	.0196
1.0509	-14.744	2.090	.0133
1.0514	-15.409	1.809	.0070
1.0519	-16.120		

PERFORMANCE CHARACTERISTICS (7 POINTS)

RAJIS	LOSS COEFF	DEVIATION
1.0721	.03038	-6.888
1.0731	.03078	-6.838
1.0741	.03100	-6.820
1.0751	.03120	-6.800
1.0761	.03140	-6.780
1.0771	.03160	-6.760
1.0781	.03180	-6.740
1.0791	.03200	-6.720
1.0801	.03220	-6.700

TOTAL CHARACTERISTICS IS SPECIFIED AT THIS STATION AT 7 POINTS

RAJIS	TOTAL LOSS
1.0721	115.468
1.0731	115.468
1.0741	115.468
1.0751	115.468
1.0761	115.468
1.0771	115.468
1.0781	115.468
1.0791	115.468
1.0801	115.468

COVERED STATION DEFINITION (7 POINTS)

RAJIS	LOSS
1.0263	-7.4330
1.0273	-7.4330
1.0283	-7.4330
1.0293	-7.4330

STATION IS FOLLOWING A BLADE ROTATING AT 20222.8 RPM

RAJIS	BLADE SECTION ANGLE	NON IONIC DESCRIPTION	BLADE LEAN ANGLE	BLOCKAGE
1.0263	-20.283		-6.472	.1949
1.0273	-20.444		-6.246	.1807
1.0283	-20.914		-5.914	.1617
1.0293	-20.702		-6.472	.1587
1.0303	-19.744		-3.197	.1385
1.0313	-11.744		-6.472	.1323
1.0323	-10.744		-6.472	.1236

1.1248	-20.377	-1177	1129
2.1438	-34.950	-3726	1875
3.1703	-61.303	-4.425	1808
4.2132	-93.445	-5.224	8928
5.2729	-131.479	-3.311	8790
6.3488	-175.482	-1.835	8741
7.4416	-225.529	-0.854	8698
8.5521	-281.618	0.239	8560
9.6803	-343.734	0.821	8448
10.8264	-411.879	1.482	8374
12.0004	-486.055	2.218	8327
13.2024	-566.272	3.029	8283
14.4324	-652.529	3.912	8250
15.6904	-744.826		

PERFORMANCE DESCRIPTION (7 POINTS)

4A-125	LOSS COEFF	ADJUSTION	
1.0277	0.1200	-0.008	
2.1448	0.1700	-0.002	
3.2638	0.0000	-0.000	
4.3831	0.2700	-0.000	
5.5022	0.0000	-0.000	
6.6212	0.0000	-0.000	
7.7403	0.2750	-0.000	
8.8594	0.0000	-0.000	

TOTAL PERFORMANCE IS SPECIFIED BY THIS STATION AT 7 POINTS

4A-125 TOTAL FLOW

1.0277	525.0000
2.1448	500.0000
3.2638	500.0000
4.3831	525.0000
5.5022	500.0000
6.6212	500.0000
7.7403	500.0000
8.8594	500.0000

4A-125 STATION DEFINITION (4 POINTS)

4A-125 224

1.0277	-7.1036
2.1448	-7.1450
3.2638	-7.1450
4.3831	-7.1410

STATION IS FOLLOWING 2 BLAD. ROTATING AT 20222.0 RPM

GEOMETRIC DESCRIPTION (23 POINTS)

4B-125	BLADE LOCATION ANGLE	BLADE LEAN ANGLE	STOCKAGE
1.0277	-19.027	-4.100	1770
2.1448	-19.001	-2.239	1812
3.2638	-19.701	-1.815	1930
4.3831	-22.745	-2.242	1601
5.5022	-21.034	-1.150	1300
6.6212	-23.074	-0.500	1201
7.7403	-23.270	-0.404	1219
8.8594	-24.261	-0.427	1100
9.9784	-22.470	-1.100	1077
11.0974	-15.280	-0.203	1013
12.2164	-10.111	-2.020	1050

6.3739	-63.22	-4.20	.1893
6.5530	-43.284	-3.970	.0845
6.3452	-45.732	-3.364	.0798
7.2369	-48.195	-2.500	.0759
7.5362	-50.686	-1.927	.0728
7.8452	-53.212	-2.645	.3707
8.0038	-54.479	-3.297	.0692
8.1656	-55.741	-3.763	.0683
8.3310	-56.994	-3.924	.0677
8.5000	-58.249	-3.949	.0673

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
3.8333	.02216	-0.029
4.2225	.02520	-0.003
4.6170	.02950	-0.060
5.0077	.04310	-0.000
5.3719	.06770	-0.030
7.3406	.11436	-0.000
8.5000	.15400	-0.000

TOTAL TEMPERATURE VS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	TOTAL TEMP
3.8333	576.0000
4.2225	582.0000
4.6170	590.0000
5.0077	601.0000
5.3719	611.0000
7.3406	619.0000
8.5000	623.0000

CURVED STATION DEFINITION (4 POINTS)

RADIUS	3X2
3.7365	-5.3013
5.4900	-6.5010
6.5340	-5.6730
6.5000	-6.3000

STATION 15 FOLLOWS A BLADE ROTATING AT 20222.0 RPM

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
6.0884	1.442	5.112	.1226
6.1859	1.823	6.423	.1170
6.2857	-6.271	4.956	.1061
6.3831	-9.226	1.328	.1041
6.4820	-10.249	7.360	.1073
6.5827	-12.721	7.645	.0949
6.6837	-16.446	6.953	.0879
6.7841	-19.775	6.100	.0816
6.8841	-23.782	7.410	.0754
6.9836	-26.877	3.159	.0713
7.0823	-31.948	.017	.0694
7.1811	-36.338	-1.031	.0661
7.2804	-40.573	-2.150	.0657
7.3792	-44.577	-2.316	.0651
7.4720	-48.473	-2.983	.0633

6.7299	-47.400	-4.700	.0013
7.1229	-58.165	-4.361	.1600
8.0110	-51.001	-5.032	.0502
6.1931	-31.105	-6.037	.0601
6.3119	-54.743	-5.923	.0605
8.5000	-50.387	-8.253	.0611

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
6.2214	.02816	-0.008
6.5256	.03456	-0.000
6.5543	.04020	-0.000
6.7368	.05630	-0.000
6.7323	.08364	-0.000
7.0533	.15300	-0.000
6.5638	.21302	-0.000

TOTAL TEMPERATURE IS SPECIFIED AT THIS STATION AT 7 POINTS

TOTAL TEMP

6.0334	306.0000
6.4360	607.0000
6.0202	614.2500
5.7151	525.0000
6.7232	514.0000
7.0382	655.0000
6.5080	651.0000

CURVED STATION DEFINITION (6 POINTS)

RADIUS AXZ

6.8004	-5.7210
6.7000	-2.1900
6.7250	-3.3300
6.5090	-5.5690

STATION 10 FOLLOWS A BLADE JOINTING AT 20222.9 3PM

CYCLOC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
6.6017	1.0033	25.514	.0347
6.6309	32.691	74.417	.0350
6.7431	20.520	22.077	.0225
6.7240	17.107	10.393	.0124
6.1139	13.105	19.924	.0053
6.2000	0.000	23.200	.0090
6.0014	-3.287	16.507	.0001
6.0002	-0.002	17.772	.0000
6.0002	-15.000	14.903	.0000
6.0010	-20.582	14.200	.0001
6.0010	-25.000	10.000	.0000
6.0010	-10.171	7.750	.0000
6.0000	-17.000	5.500	.0000
7.0000	-1.000	0.000	.0000
7.0000	-10.000	-1.000	.0000
7.0000	-10.000	-1.000	.0000
6.0010	-10.000	-1.000	.0000
6.0010	-10.000	-1.000	.0000
6.0010	-10.000	-1.000	.0000

0.0000 -51.102 -3.672 .4807
 0.0000 -51.525 -10.255 .9877

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEFLECTION
4.6254	.33702	-6.000
4.8894	.04368	-8.000
5.1773	.05170	-6.000
5.4945	.07500	-6.000
6.8276	.11600	-8.000
7.9932	.20800	-8.000
8.3000	.27000	-8.000

TOTAL TEMPERATURE IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	TOTAL TEMP
4.6283	8.0.2000
4.8994	8.9.6000
5.1773	5.3.1000
5.4945	5.8.4000
6.8276	3.1.7000
7.9932	6.3.7000
8.3000	4.3.1000

CURVED STATION DEFINITION (9 POINTS)

RADIUS	RXA
4.6612	-1.0650
4.8800	-5.6500
5.3050	-5.6100
5.8888	-5.5190
5.1054	-5.5217
5.6532	-5.5955
6.7924	-5.7200
7.8661	-5.9516
8.5000	-6.1100

STATION 17 FOLLOWS A BLADE-FREE SPACE

CURVED STATION DEFINITION (4 POINTS)

RADIUS	RXA
4.8534	-1.5200
5.2000	-1.3500
5.8000	-5.3000
6.5038	-5.7800

STATION 18 FOLLOWS A BLADE-FREE SPACE

CURVED STATION DEFINITION (4 POINTS)

RADIUS	RXA
4.8435	-5.2750
5.2558	-5.1250
5.8200	-5.8000
6.3000	-5.2500

STATION 19 FOLLOWS A BLADE ROTATION AI 0.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
4.3751	35.762	-10.331	.1098
5.8356	34.524	-12.020	.1048
5.2044	32.850	-12.300	.0913
5.3213	32.443	-11.002	.0843
5.5558	31.708	-10.839	.0793
5.5853	31.059	-10.178	.0750
5.7677	30.459	-9.215	.0717
5.3413	29.311	-7.905	.0693
6.1248	28.410	-6.462	.0673
6.8176	28.971	-4.923	.0658
6.3133	28.615	-3.453	.0647
6.7297	28.329	-2.175	.0639
6.4493	28.153	-1.031	.0635
7.1766	28.046	-.166	.0633
7.4181	28.063	.546	.0633
7.5630	28.203	.542	.0633
7.3320	28.605	2.006	.0650
8.0685	28.908	2.376	.0655
8.2384	29.379	1.718	.0664
8.4521	28.885	1.541	.0675
8.5000	30.500	1.280	.0691

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.1810	.04250	-0.000
5.3986	.03550	-0.000
5.5306	.02790	-0.000
6.2171	.01120	-0.000
5.9889	.02672	-0.000
7.3426	.01800	-0.000
8.5000	.01650	-0.000

WHIRL VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS WHIRL VELD

4.9751	596.9708
5.2310	572.4900
5.4588	558.3600
6.1182	496.1660
6.3479	455.3780
7.9332	430.6600
8.5800	417.6000

CURVED STATION DEFINITION (4 POINTS)

RADIUS XYS

4.9751	-4.7700
5.5800	-4.6400
5.8200	-4.5800
8.5000	-4.1780

STATION 20 FOLLOWS A BLADE ROTATING AT 0.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
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RADIUS	LOSS COEFF	DEVIATION	DEVIATION
2.1338	41.872	-3.220	.1131
2.2378	25.113	-4.782	.1171
2.3605	22.251	-5.339	.1085
2.5015	22.224	-4.356	.1042
2.6596	21.794	-4.405	.1003
2.8327	21.456	-4.191	.0963
3.0193	21.171	-3.570	.0930
3.2191	20.871	-3.224	.0903
3.4314	20.574	-2.659	.1462
3.6442	20.352	-2.137	.0866
3.8563	20.182	-1.459	.0886
4.0653	20.053	-0.975	.0952
4.2711	19.993	-0.537	.0954
4.4734	20.101	-0.270	.0862
4.6727	20.693	-0.119	.0874
4.8693	20.102	-0.371	.0890
5.0623	20.154	.296	.0824
5.2517	20.324	.362	.0833
5.4367	21.415	-.262	.0953
5.6174	21.407	-.598	.0953
5.7938	20.350	-.360	.0965

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.9769	.8300	-0.001
6.2755	.86750	-0.000
6.7740	.8940	-0.000
7.3171	.82380	-0.000
7.9492	.81340	-0.000
8.6850	.82020	-0.000
9.5200	.83330	-0.000

WIND VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS WIND VELOCITY

5.1364	34.0300
5.3794	34.1000
5.6373	37.2300
6.2061	34.7600
6.9327	31.9680
7.8113	33.4300
8.8300	33.2000

CURVED STATION DEFINITION (6 POINTS)

RADIUS	Y	X
5.1148	-0.3000	
5.5588	-0.2380	
6.1300	-0.2300	
6.8300	-0.3300	

STATION 21 FOLLOWS A BLADE ROTATING AT 0.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
5.8756	13.641	2.350	.9940
6.4170	13.276	1.154	.9945
7.0383	12.682	.014	.9921
7.8284	12.793	.160	.0913

2.7312	12.593	-0.204	.3403
2.5526	12.413	-0.462	.0543
3.4830	12.219	-0.597	.8854
3.1326	12.024	-0.539	.0370
0.2910	11.894	-0.017	.3470
0.4620	11.711	-0.476	.3867
0.4415	11.571	-0.356	.0000
0.3327	11.657	-0.250	.8803
7.0332	11.275	-0.196	.8876
7.2340	11.705	-0.223	.3377
7.4403	11.734	-0.294	.3303
7.7133	11.752	-0.022	.3914
7.4977	11.807	-0.354	.0927
0.0956	11.699	-0.394	.9941
3.2244	11.955	-0.386	.3952
4.1528	12.015	-1.196	.9901
9.5302	12.077	-1.262	.3969

PERFORMANCE DESCRIPTION (7 POINTS)

CAJUS	LOSS COEFF	DEVIATION
4.7332	-11.011	-0.000
4.7292	-10.150	-0.000
5.5977	-0.118	-0.000
0.4072	-0.120	-0.000
7.1048	-0.210	-0.000
7.9248	-0.154	-0.000
0.5030	-0.490	-0.000

WHEEL VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

CAJUS 442L V-LU

5.3730	241.3200
5.3100	237.5000
5.7307	232.4700
6.2480	214.3300
7.3130	212.5500
7.9541	197.9500
8.3300	213.3000

STATION 22 FOLLOWS A BLADE ROTATING AT 6.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

CAJUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
3.5125	0.121	1.693	.3204
3.5217	0.151	.603	.3273
3.0054	0.145	.438	.3507
3.0796	0.274	.794	.3509
3.0591	0.243	.665	.3504
3.2030	0.174	.184	.3573
0.0023	0.107	.294	.3572
0.2008	0.107	.230	.3573
0.1111	0.009	-0.333	.8575
4.5431	1.944	-0.027	.8577
0.7159	3.310	.031	.3583
3.5395	3.310	-0.117	.3505
7.0442	1.929	-0.154	.3531
7.1042	1.902	-0.221	.8603
7.1176	3.350	-0.373	.3603
7.7055	3.404	-0.492	.8615
7.7306	3.402	-0.695	.9617

0.1189	1.917	-0.853	.8627
0.2380	3.907	-1.047	.8632
0.3577	5.842	-1.263	.8636
0.5000	7.733	-1.466	.8636

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.7104	.15846	-0.000
5.8568	.15030	-0.000
6.0000	.11060	-0.000
6.1435	.05500	-0.000
6.2871	.02500	-0.000
6.4307	.01820	-0.000
6.5744	.01550	-0.000

AXIAL VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	AXIAL VELO
0.5125	113.0000
5.0000	111.2000
5.0000	109.6300
5.0000	102.7000
7.0000	97.5000
7.0000	80.0000
8.0000	100.0000

STATION 23 FOLLOWS A BLADE ROTATING AT 9.0 RPM

GEOMETRIC DESCRIPTION (1 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
8.0000	0.000	-0.160	.0060

PERFORMANCE DESCRIPTION (6 POINTS)

RADIUS	LOSS COEFF	DEVIATION
6.7500	.20250	-0.000
6.8880	.30250	-0.000
7.0000	.03370	-0.000
7.2500	.03300	-0.000
8.0000	.00000	-0.000
8.0000	.00000	-0.000

AXIAL VELOCITY IS SPECIFIED AT THIS STATION AT 1 POINTS

RADIUS	AXIAL VELO
0.0000	0.0000

STATION 24 FOLLOWS A BLADE-FREE SPACE

STATION 25 FOLLOWS A BLADE-FREE SPACE

STATION 26 FOLLOWS A BLADE-FREE SPACE

ANNULUS GEOMETRY SPECIFICATION AND SOLUTION TYPE INDICATORS

STATION NUMBER	AXIAL LOCATION	HUB RADIUS	CASING RADIUS	LEAN ANGLE	BLOCK DIST
					BLOCK -AXE

1	-40.0000	0.0000	24.0000	0.000	1.3700	0.0000
2	-36.9000	0.0000	24.0000	0.000	1.3700	.0018
3	-31.0000	0.0000	22.2500	5.137	1.3700	.0045
4	-25.0000	0.0000	16.7000	8.520	1.3700	.0031
5	-16.8000	0.0000	13.3000	0.000	1.3700	.0027
6	-15.2500	0.0000	9.4800	4.940	1.3700	.0029
7	-11.0000	0.0000	8.9600	-13.808	1.3700	.0024
8	-9.9060	1.4211	8.5500	-11.130	1.3700	.0026
9	-9.2930	1.9843	8.5000	-7.750	1.3700	.0039
10	-9.0000	2.3337	8.5000	0.000	1.3700	.0055
11	-8.5100	2.6514	6.5000	3.540	1.3700	.0100
12	-7.3050	3.0363	8.5000	2.967	1.3700	.0300
13	-7.3500	3.3433	8.5000	.450	1.3700	.0505
14	-6.6010	3.7365	8.5000	-1.333	1.3700	.0580
15	-6.2510	4.0934	8.5000	-3.450	1.3700	.0600
16	-5.5650	4.4612	8.5000	-5.233	1.3700	.0600
17	-5.5200	4.5534	8.5000	-0.000	1.3700	.0600
18	-5.3750	4.5435	8.5000	0.000	1.3000	.0600
19	-4.7700	4.3751	8.5000	0.000	1.3000	.0600
20	-4.3000	5.1380	8.5000	-0.000	1.3000	.0600
21	-3.8000	5.3756	8.5000	-0.000	1.3000	.0600
22	-3.5193	5.5125	8.5000	2.800	1.3000	.0600
23	-3.4048	5.5314	8.5000	5.625	1.3000	.0600
24	-2.0000	5.7503	8.5000	-0.000	1.3000	.0149
25	-1.2700	5.7306	8.5000	0.000	1.3000	.0150
26	-.3550	5.7306	8.5000	-0.000	1.3000	.0150

FLOW = 45.00

FRACTIONS OF INLET BETWEEN HUB AND EACH STREAMLINE

5	0.0000	.1000	.2000	.3000	.4000	.5000
6	.2500	.5000	.7500	.8000	.9000	.9250
7	.3500	.6500	.7930	.8500	.9000	.9250
8	.3750	1.0000	.7500	.8000	.8500	.9250

INLET CONDITIONS

RADIUS	TOTAL TEMPERATURE	TOTAL PRESSURE	FLOW ANGLE
0.0000	514.69	1521.0	-0.00

OUTPUT FROM PASS 66

STATION 1

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	ABSOLUTE VELOCITY	D C I F I S	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTR.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	0.000	0.00	.0549	0.000
2	2.4000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-3.201	0.00	.0549	0.000
3	4.8000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-6.230	0.00	.0549	0.000
4	6.0000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-7.645	0.00	.0549	0.000
5	7.2000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-8.963	0.00	.0549	0.000
6	8.4000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-10.159	0.00	.0549	0.000
7	9.6000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-11.211	0.00	.0549	0.000
8	10.8000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-12.095	0.00	.0549	0.000
9	12.0000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-12.783	0.00	.0549	0.000
10	13.2000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-13.248	0.00	.0549	0.000
11	14.4000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-13.458	0.00	.0549	0.000
12	15.6000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-13.374	0.00	.0549	0.000
13	16.8000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-12.956	0.00	.0549	0.000
14	18.0000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-12.153	0.00	.0549	0.000
15	19.2000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-10.907	0.00	.0549	0.000
16	20.4000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-9.151	0.00	.0549	0.000
17	21.6000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-6.807	0.00	.0549	0.000
18	22.8000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-5.386	0.00	.0549	0.000
19	24.0000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-3.786	0.00	.0549	0.000
20	23.4000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	-1.994	0.00	.0549	0.000
21	24.0000	66.239	66.239	0.000	518.7	518.3	1521.00	1517.25	0.000	0.000	0.00	.0549	0.000

STATION 2

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY		ANGLE		TEMPERATURE		PRESSURE TOTAL	MACH NUMBER	WIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTR.	STATIC DENSITY	INCIDENCE DEVIATION
		ABSOLUTE	AERIAL	TANGENTL.	TANGENTL.	TOTAL	STATIC							
1	0.0003	40.321	83.921	0.300	518.7	518.1	1521.00	1512.41	0.0225	0.000	0.000	0.00	.0549	0.000
2	2.1733	48.733	88.703	0.300	518.7	518.1	1521.00	1515.44	0.0724	0.000	-3.141	2167.75	.0549	0.000
3	4.3633	48.010	88.313	0.000	518.7	518.2	1521.00	1515.54	0.0717	0.000	-6.199	+272.29	.0545	0.000
4	5.4631	79.970	79.970	0.000	518.7	518.2	1521.00	1515.61	0.0712	0.000	-7.058	*****	.0543	0.000
5	6.5631	74.800	74.800	0.300	518.7	518.2	1521.00	1515.70	0.0706	0.000	-9.049	-1597.00	.0549	0.000
6	7.6532	77.998	77.998	0.300	518.7	518.2	1521.00	1515.81	0.0699	0.000	-10.356	-710.92	.0549	0.000
7	8.6072	77.001	77.001	0.000	518.7	518.2	1521.00	1515.93	0.0691	0.000	-11.561	-405.00	.0549	0.000
8	9.9423	75.349	75.349	0.000	518.7	518.2	1521.00	1516.07	0.0681	0.000	-12.647	-260.16	.0549	0.000
9	11.0923	74.700	74.700	0.300	518.7	518.2	1521.00	1516.23	0.0670	0.000	-13.594	-179.89	.0549	0.000
10	12.2522	73.338	73.338	0.300	518.7	518.2	1521.00	1516.40	0.0658	0.000	-14.379	-130.37	.0549	0.000
11	13.4426	72.337	72.337	0.000	518.7	518.3	1521.00	1516.58	0.0645	0.000	-14.975	-98.85	.0549	0.000
12	14.6693	70.249	70.249	0.000	518.7	518.3	1521.00	1516.78	0.0630	0.000	-15.353	-76.85	.0545	0.000
13	15.8738	68.208	68.208	0.300	518.7	518.3	1521.00	1516.99	0.0614	0.000	-15.475	-61.16	.0549	0.000
14	17.1345	66.236	66.236	0.300	518.7	518.3	1521.00	1517.22	0.0597	0.000	-15.295	-43.61	.0549	0.000
15	18.4232	64.430	64.430	0.000	518.7	518.3	1521.00	1517.46	0.0578	0.000	-14.757	-40.91	.0549	0.000
16	19.7325	62.810	62.810	0.000	518.7	518.4	1521.00	1517.71	0.0557	0.000	-13.787	-34.25	.0549	0.000
17	21.1225	59.371	59.371	0.000	518.7	518.4	1521.00	1517.97	0.0534	0.000	-12.289	-29.15	.0549	0.000
18	22.4229	58.211	58.211	0.000	518.7	518.4	1521.00	1518.11	0.0522	0.000	-11.301	-27.07	.0549	0.000
19	22.5323	56.735	56.735	0.000	518.7	518.4	1521.00	1518.25	0.0509	0.000	-10.128	-25.28	.0549	0.000
20	23.2687	55.298	55.298	0.000	518.7	518.4	1521.00	1518.39	0.0496	0.000	-8.746	-23.76	.0549	0.000
21	24.0000	53.717	53.717	0.000	518.7	518.5	1521.00	1518.54	0.0481	0.000	-7.125	-22.52	.0549	0.000

STATION 3

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY		ANGLE		TEMPERATURE		PRESSURE TOTAL	MACH NUMBER	WIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTR.	STATIC DENSITY	INCIDENCE DEVIATION
		ABSOLUTE	AERIAL	TANGENTL.	TANGENTL.	TOTAL	STATIC							
1	0.0003	105.338	105.338	0.300	518.7	517.7	1521.00	1511.36	0.0953	0.000	0.000	0.00	.0547	0.000
2	1.8873	107.029	107.029	0.000	518.7	517.7	1521.00	1511.20	0.0960	0.000	-3.295	-754.13	.0547	0.000
3	3.7883	106.656	106.656	0.000	518.7	517.7	1521.00	1511.30	0.0957	0.000	-6.613	-370.58	.0547	0.000
4	4.7323	106.367	106.367	0.000	518.7	517.8	1521.00	1511.41	0.0951	0.000	-8.263	-283.15	.0547	0.000
5	5.6823	105.176	105.176	0.000	518.7	517.8	1521.00	1511.57	0.0943	0.000	-9.902	-222.03	.0548	0.000
6	6.6487	103.382	103.382	0.000	518.7	517.8	1521.00	1511.78	0.0933	0.000	-11.527	-177.32	.0548	0.000
7	7.6083	102.472	102.472	0.000	518.7	517.8	1521.00	1512.04	0.0919	0.000	-13.136	-143.48	.0548	0.000
8	8.5823	100.631	100.631	0.000	518.7	517.8	1521.00	1512.36	0.0902	0.000	-14.725	-117.29	.0548	0.000
9	9.5823	98.444	98.444	0.000	518.7	517.9	1521.00	1512.73	0.0883	0.000	-16.289	-96.67	.0548	0.000
10	10.6072	95.832	95.832	0.000	518.7	517.9	1521.00	1513.16	0.0860	0.000	-17.823	-80.23	.0548	0.000
11	11.6587	92.354	92.354	0.000	518.7	518.0	1521.00	1513.63	0.0833	0.000	-19.320	-66.37	.0548	0.000
12	12.7323	89.607	89.607	0.000	518.7	518.0	1521.00	1514.15	0.0803	0.000	-20.774	-56.16	.0548	0.000
13	13.8254	85.824	85.824	0.000	518.7	518.1	1521.00	1514.71	0.0769	0.000	-22.173	-47.00	.0548	0.000
14	15.0325	81.374	81.374	0.000	518.7	518.1	1521.00	1515.32	0.0731	0.000	-23.513	-39.91	.0548	0.000
15	16.2700	76.823	76.823	0.000	518.7	518.2	1521.00	1515.96	0.0689	0.000	-24.776	-33.73	.0549	0.000
16	17.5327	72.527	72.527	0.000	518.7	518.3	1521.00	1516.63	0.0641	0.000	-25.982	-28.50	.0549	0.000
17	19.0089	68.630	68.630	0.000	518.7	518.4	1521.00	1517.32	0.0586	0.000	-27.030	-24.02	.0549	0.000
18	19.7537	65.336	65.336	0.000	518.7	518.4	1521.00	1517.67	0.0560	0.000	-27.529	-22.00	.0549	0.000
19	20.5423	62.356	62.356	0.000	518.7	518.4	1521.00	1518.02	0.0529	0.000	-28.003	-20.11	.0549	0.000
20	21.3721	59.488	59.488	0.000	518.7	518.4	1521.00	1518.37	0.0497	0.000	-28.455	-18.34	.0549	0.000
21	22.2500	56.804	56.804	0.000	518.7	518.5	1521.00	1518.72	0.0463	0.000	-28.891	-16.66	.0549	0.000

STATION 4

GENERAL FLOW PARAMETERS

STATION	RADIUS	ABSOLUTE VELOCITY	VELOCITY	TEMPERATURES	TEMPERATURES	PRESSURES	YACH NUMBER	WHLR ANGLE	SLOPE ANGLE	RAD. OF CURVTR.	STATIC DENSITY	INCIDENCE DEVIATION
1	2	3	4	5	6	7	8	9	10	11	12	13
1	4.8603	123.47	103.47	5.930	515.7	516.5	1521.03	1.95.15	0.000	0.000	0.000	0.000
2	1.3525	138.715	103.715	6.300	515.7	516.4	1521.03	1.97.30	-3.166	+256.19	.0544	0.000
3	3.8231	158.155	103.155	6.300	515.7	516.3	1521.03	1.98.37	-0.933	1748.30	.0544	0.000
4	3.7753	160.373	103.373	6.300	515.7	516.3	1521.03	1.98.91	-6.733	1420.10	.0544	0.000
5	4.5217	158.236	103.236	6.300	515.7	516.3	1521.03	1.99.95	-10.333	1290.54	.0544	0.000
6	5.2644	157.723	103.723	6.300	515.7	516.3	1521.03	1.97.09	-12.304	1293.03	.0544	0.000
7	6.0174	158.508	103.508	6.300	515.7	516.3	1521.03	1.97.35	-14.233	1454.53	.0544	0.000
8	6.7721	158.452	103.452	6.300	515.7	516.4	1521.03	1.97.73	-16.145	1982.90	.0544	0.000
9	7.5271	158.009	103.009	6.300	515.7	516.5	1521.03	1.98.37	-18.107	+742.16	.0544	0.000
10	8.2821	158.350	103.350	6.300	515.7	516.5	1521.03	1.98.37	-20.124	-4840.02	.0544	0.000
11	9.0371	158.630	103.630	6.300	515.7	516.5	1521.03	1.99.05	-22.204	-1310.28	.0544	0.000
12	9.7921	158.992	103.992	6.300	515.7	516.5	1521.03	1.99.57	-24.353	-688.22	.0545	0.000
13	10.5471	159.374	103.374	6.300	515.7	516.5	1521.03	1.99.63	-26.570	-436.04	.0545	0.000
14	11.3021	159.000	103.000	6.300	515.7	516.5	1521.03	1.99.63	-28.800	-307.14	.0545	0.000
15	12.0571	158.516	103.516	6.300	515.7	517.0	1521.03	1.99.19	-31.280	-232.10	.0545	0.000
16	12.8121	158.238	103.238	6.300	515.7	517.2	1521.03	1.98.66	-33.761	-186.73	.0546	0.000
17	13.5671	157.245	127.245	6.300	515.7	517.3	1521.03	1.97.20	-36.323	-161.15	.0546	0.000
18	14.3221	156.543	123.543	6.300	515.7	517.4	1521.03	1.97.39	-38.829	-154.92	.0547	0.000
19	15.0771	155.314	119.314	6.300	515.7	517.5	1521.03	1.98.77	-41.344	-154.10	.0547	0.000
20	15.8321	154.611	115.611	6.300	515.7	517.5	1521.03	1.98.53	-43.859	-161.43	.0547	0.000
21	16.5871	153.276	112.276	6.300	515.7	517.5	1521.03	1.98.25	-46.374	-168.20	.0547	0.000

STATION 5

GENERAL FLOW PARAMETERS

STATION	RADIUS	ABSOLUTE VELOCITY	VELOCITY	TEMPERATURES	TEMPERATURES	PRESSURES	YACH NUMBER	WHLR ANGLE	SLOPE ANGLE	RAD. OF CURVTR.	STATIC DENSITY	INCIDENCE DEVIATION
1	2	3	4	5	6	7	8	9	10	11	12	13
1	2.8003	209.223	203.223	3.900	516.7	511.7	1521.03	1.50.56	0.000	0.000	.0532	0.000
2	1.1525	252.523	203.523	3.900	516.7	511.7	1521.03	1.50.56	-2.654	240.59	.0532	0.000
3	2.3177	238.309	203.309	3.900	516.7	511.7	1521.03	1.50.66	-5.802	120.39	.0532	0.000
4	2.5223	238.345	203.345	3.900	516.7	511.7	1521.03	1.50.82	-7.352	107.33	.0532	0.000
5	3.5061	238.513	203.513	3.900	516.7	511.8	1521.03	1.51.09	-8.952	93.02	.0532	0.000
6	4.0323	237.525	202.525	3.900	516.7	511.8	1521.03	1.51.51	-10.699	82.70	.0532	0.000
7	4.8853	236.247	200.247	3.900	516.7	511.9	1521.03	1.52.12	-12.531	74.95	.0532	0.000
8	5.6734	235.126	202.126	3.900	516.7	512.1	1521.03	1.52.96	-14.124	69.00	.0532	0.000
9	6.4875	234.121	203.121	3.900	516.7	512.1	1521.03	1.54.04	-15.949	64.37	.0533	0.000
10	7.3063	233.237	202.237	3.900	516.7	512.2	1521.03	1.55.45	-17.906	60.79	.0533	0.000
11	7.7400	232.320	201.320	3.900	516.7	512.4	1521.03	1.57.21	-20.030	58.12	.0533	0.000
12	8.3937	231.436	200.436	3.900	516.7	512.6	1521.03	1.59.40	-22.226	56.30	.0535	0.000
13	9.1725	230.537	200.537	3.900	516.7	513.2	1521.03	1.62.56	-24.548	55.38	.0536	0.000
14	9.7890	229.533	200.533	3.900	516.7	513.2	1521.03	1.65.56	-27.013	55.56	.0537	0.000
15	10.5433	228.513	200.513	3.900	516.7	513.6	1521.03	1.69.63	-29.692	57.23	.0537	0.000
16	11.3023	217.199	213.199	3.900	516.7	514.1	1521.03	1.74.51	-32.403	51.54	.0538	0.000
17	12.0573	216.077	213.077	3.900	516.7	514.7	1521.03	1.80.33	-35.054	71.00	.0539	0.000
18	12.8123	199.754	193.754	3.900	516.7	515.0	1521.03	1.83.62	-37.017	79.94	.0540	0.000
19	12.8633	198.159	193.159	3.900	516.7	515.4	1521.03	1.87.16	-38.610	95.28	.0541	0.000
20	12.8769	196.159	193.159	3.900	516.7	515.7	1521.03	1.90.96	-40.244	126.24	.0542	0.000
21	13.0033	178.371	178.371	3.900	516.7	516.1	1521.03	1.95.00	-41.886	216.77	.0543	0.000

STATION 6

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY ABSOLUTE	VELOCITY REGIONAL TANGENTIAL	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVITRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	334.079	334.079	518.7	506.4	1521.00	1396.12	3.490	0.000	0.000	0.000	0.0510	0.000
2	1.0241	330.436	590.436	518.7	506.0	1521.00	1394.62	3.543	0.000	0.000	33.21	0.0517	0.000
3	2.0290	493.573	483.973	518.7	505.1	1521.00	1386.10	3.667	0.000	-1.704	34.32	0.0515	0.000
4	3.0210	410.407	410.407	518.7	504.7	1521.00	1361.85	3.728	0.000	-2.944	32.69	0.0514	0.000
5	4.0071	417.037	417.037	518.7	504.2	1521.00	1377.44	3.791	0.000	-4.198	30.69	0.0512	0.000
6	5.0075	423.953	423.953	518.7	503.7	1521.00	1372.65	3.855	0.000	-5.466	28.60	0.0511	0.000
7	6.0022	431.021	431.021	518.7	503.2	1521.00	1368.06	3.921	0.000	-6.823	26.55	0.0510	0.000
8	7.0032	438.387	438.387	518.7	502.7	1521.00	1363.05	3.989	0.000	-8.217	24.68	0.0509	0.000
9	8.0073	445.826	445.826	518.7	502.1	1521.00	1357.80	4.060	0.000	-9.679	22.90	0.0507	0.000
10	9.0081	453.546	453.546	518.7	501.6	1521.00	1352.30	4.133	0.000	-11.217	20.90	0.0506	0.000
11	10.0055	461.640	461.640	518.7	501.0	1521.00	1346.53	4.209	0.000	-12.846	19.22	0.0504	0.000
12	11.0022	469.980	469.980	518.7	500.3	1521.00	1340.45	4.288	0.000	-14.582	17.66	0.0502	0.000
13	12.0031	478.635	478.635	518.7	499.6	1521.00	1334.05	4.370	0.000	-16.447	16.21	0.0501	0.000
14	13.0033	487.609	487.609	518.7	498.9	1521.00	1327.31	4.455	0.000	-18.469	14.87	0.0499	0.000
15	14.0021	496.872	496.872	518.7	498.1	1521.00	1320.25	4.543	0.000	-20.688	13.66	0.0497	0.000
16	15.0029	506.329	506.329	518.7	497.4	1521.00	1312.94	4.633	0.000	-23.156	12.59	0.0495	0.000
17	16.0016	515.758	515.758	518.7	496.5	1521.00	1305.54	4.723	0.000	-25.946	11.68	0.0493	0.000
18	17.0033	525.353	525.353	518.7	495.6	1521.00	1301.30	4.817	0.000	-27.493	11.29	0.0492	0.000
19	18.0052	535.752	535.752	518.7	495.0	1521.00	1294.34	4.914	0.000	-29.163	10.96	0.0491	0.000
20	19.0047	546.829	546.829	518.7	495.4	1521.00	1295.11	5.014	0.000	-30.978	10.69	0.0490	0.000
21	20.0008	558.407	558.407	518.7	495.1	1521.00	1292.22	5.118	0.000	-32.965	10.50	0.0490	0.000

STATION 7

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY ABSOLUTE	VELOCITY REGIONAL TANGENTIAL	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVITRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	0.000	0.000	518.7	518.7	1521.00	1521.00	0.000	0.000	37.849	3.37	0.0550	0.000
2	1.0051	417.754	417.754	518.7	504.2	1521.00	1377.80	3.797	0.000	13.425	6.19	0.0512	0.000
3	2.0123	457.058	457.058	518.7	501.3	1521.00	1349.82	4.166	0.000	8.200	10.22	0.0505	0.000
4	3.0237	474.922	474.922	518.7	499.9	1521.00	1336.80	4.335	0.000	6.195	11.34	0.0502	0.000
5	4.0393	491.193	491.193	518.7	498.6	1521.00	1324.59	4.529	0.000	4.420	12.42	0.0498	0.000
6	5.0593	505.923	505.923	518.7	497.5	1521.00	1313.24	4.740	0.000	2.800	13.40	0.0495	0.000
7	6.0832	519.314	519.314	518.7	496.2	1521.00	1302.72	4.977	0.000	1.284	14.24	0.0492	0.000
8	7.1111	531.487	531.487	518.7	495.2	1521.00	1292.92	5.231	0.000	-0.164	14.92	0.0490	0.000
9	8.1522	542.622	542.622	518.7	494.2	1521.00	1283.68	5.504	0.000	-1.568	15.41	0.0487	0.000
10	9.2065	552.874	552.874	518.7	493.2	1521.00	1275.40	5.800	0.000	-2.948	15.68	0.0485	0.000
11	10.2744	562.306	562.306	518.7	492.4	1521.00	1267.42	6.122	0.000	-4.322	15.75	0.0483	0.000
12	11.3563	571.293	571.293	518.7	491.5	1521.00	1259.86	6.479	0.000	-5.708	15.60	0.0481	0.000
13	12.4529	579.716	579.716	518.7	490.7	1521.00	1252.66	6.940	0.000	-7.124	15.26	0.0479	0.000
14	13.5654	587.707	587.707	518.7	489.9	1521.00	1245.66	7.490	0.000	-8.594	14.72	0.0477	0.000
15	14.6944	595.527	595.527	518.7	489.2	1521.00	1238.86	8.114	0.000	-10.147	14.00	0.0475	0.000
16	15.8398	603.088	603.088	518.7	488.4	1521.00	1232.19	8.814	0.000	-11.825	13.12	0.0473	0.000
17	17.0019	610.514	610.514	518.7	487.7	1521.00	1225.57	9.582	0.000	-13.583	12.06	0.0471	0.000
18	18.2809	617.298	617.298	518.7	487.3	1521.00	1220.26	10.414	0.000	-15.403	11.46	0.0470	0.000
19	19.6773	623.915	623.915	518.7	486.9	1521.00	1215.59	11.314	0.000	-17.200	10.81	0.0469	0.000
20	21.1915	629.977	629.977	518.7	486.5	1521.00	1211.17	12.286	0.000	-19.032	9.98	0.0468	0.000

STATION 6

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	ASSUMED VELOCITY	TEMP. TOTAL	TEMP. STATIC	PRESS. TOTAL	PRESS. STATIC	MACH NUMBER	WAKE ANGLE	SLOPE ANGLE	RAD. OF CURV. INCHES	STATIC DENSITY	INCIDENCE DEVIATION
1	1.4211	335.16	335.16	335.16	1521.00	1392.78	3.770	9.830	59.790	-4.85	.0516	0.000
2	1.7727	18.231	318.7	584.1	1521.00	1370.57	3.603	0.000	27.952	5.30	.0512	0.000
3	2.4333	47.251	318.7	500.1	1521.00	1359.19	3.437	0.000	19.072	7.31	.0502	0.000
4	2.8312	47.251	318.7	430.1	1521.00	1319.93	3.297	0.000	15.715	8.55	.0497	0.000
5	3.1773	519.251	318.7	386.2	1521.00	1302.78	3.173	0.000	12.927	9.73	.0492	0.000
6	3.7237	339.338	318.7	342.5	1521.00	1286.57	3.058	0.000	10.556	10.79	.0488	0.000
7	3.9380	575.156	318.7	312.2	1521.00	1271.20	2.952	0.000	8.482	11.71	.0484	0.000
8	4.3382	331.443	318.7	289.6	1521.00	1259.53	2.855	0.000	6.825	12.49	.0480	0.000
9	5.0224	636.378	318.7	269.9	1521.00	1242.45	2.765	0.000	5.432	13.13	.0476	0.000
10	5.6533	671.741	318.7	252.5	1521.00	1228.02	2.680	0.000	4.307	13.58	.0472	0.000
11	5.8497	646.333	318.7	237.4	1521.00	1215.47	2.600	0.000	3.387	13.82	.0469	0.000
12	5.8325	641.325	318.7	223.4	1521.00	1202.16	2.522	0.000	2.635	13.81	.0465	0.000
13	5.6121	631.227	318.7	210.7	1521.00	1188.55	2.447	0.000	2.022	13.52	.0461	0.000
14	7.0227	612.204	318.7	199.9	1521.00	1174.22	2.375	0.000	1.539	12.97	.0457	0.000
15	7.8232	736.236	318.7	190.8	1521.00	1159.24	2.305	0.000	1.165	12.19	.0453	0.000
16	7.7725	721.237	318.7	183.2	1521.00	1144.14	2.237	0.000	0.887	11.23	.0448	0.000
17	7.9201	732.232	318.7	176.9	1521.00	1129.07	2.171	0.000	0.670	10.15	.0442	0.000
18	8.1637	746.235	318.7	171.8	1521.00	1109.42	2.107	0.000	0.500	9.01	.0439	0.000
19	8.3871	755.235	318.7	167.5	1521.00	1095.26	2.045	0.000	0.380	8.00	.0435	0.000
20	8.5229	771.741	318.7	163.9	1521.00	1083.10	2.013	0.000	0.300	7.52	.0432	0.000
21						1067.91	1.922	0.000	-7.772	6.00	.0427	0.000

STATION 9

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	ASSUMED VELOCITY	TEMP. TOTAL	TEMP. STATIC	PRESS. TOTAL	PRESS. STATIC	MACH NUMBER	WAKE ANGLE	SLOPE ANGLE	RAD. OF CURV. INCHES	STATIC DENSITY	INCIDENCE DEVIATION
1	1.4211	335.16	318.7	335.16	1521.00	1323.04	3.958	0.000	39.320	-9.34	.0488	0.000
2	2.2211	318.231	318.7	297.8	1521.00	1316.90	3.865	0.000	33.166	-135.07	.0486	0.000
3	2.7641	320.133	318.7	265.7	1521.00	1297.20	3.722	0.000	24.222	15.25	.0491	0.000
4	3.0352	322.231	318.7	238.2	1521.00	1264.17	3.533	0.000	20.757	13.33	.0487	0.000
5	3.2422	326.231	318.7	215.7	1521.00	1269.06	3.413	0.000	17.862	12.54	.0483	0.000
6	3.7221	328.231	318.7	190.7	1521.00	1252.27	3.253	0.000	15.365	12.15	.0479	0.000
7	4.1221	331.231	318.7	168.5	1521.00	1235.27	3.093	0.000	13.208	12.29	.0474	0.000
8	4.5221	334.231	318.7	148.5	1521.00	1217.74	2.933	0.000	11.253	12.70	.0469	0.000
9	5.0221	338.231	318.7	130.5	1521.00	1200.42	2.773	0.000	9.472	13.48	.0464	0.000
10	5.5221	342.231	318.7	114.3	1521.00	1183.68	2.613	0.000	7.838	14.42	.0460	0.000
11	5.7231	346.231	318.7	99.3	1521.00	1167.78	2.453	0.000	6.338	15.57	.0455	0.000
12	5.9231	350.231	318.7	85.2	1521.00	1152.91	2.293	0.000	4.984	16.93	.0451	0.000
13	6.2731	354.231	318.7	72.0	1521.00	1134.19	2.133	0.000	3.717	18.33	.0447	0.000
14	6.6231	358.231	318.7	60.1	1521.00	1126.64	1.973	0.000	2.599	20.37	.0444	0.000
15	7.0731	362.231	318.7	49.7	1521.00	1115.24	1.813	0.000	1.660	22.53	.0441	0.000
16	7.3731	366.231	318.7	40.7	1521.00	1104.92	1.653	0.000	0.960	25.10	.0438	0.000
17	7.6731	370.231	318.7	33.1	1521.00	1095.58	1.493	0.000	0.48	28.23	.0435	0.000
18	7.9731	374.231	318.7	26.8	1521.00	1091.26	1.333	0.000	-2.257	30.85	.0434	0.000
19	8.2731	378.231	318.7	21.8	1521.00	1087.14	1.173	0.000	-7.762	32.10	.0432	0.000
20	8.5731	382.231	318.7	17.8	1521.00	1083.21	1.013	0.000	-13.442	34.42	.0430	0.000
21	8.8731	386.231	318.7	14.3	1521.00	1079.46	0.853	0.000	-19.92	37.06	.0427	0.000

STATION ID

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	ABSOLUTE VELOCITY	RELATIVE VELOCITY	TEMPERATURE TOTAL	STATIC	TOTAL PRESSURE	STATIC	MACH NUMBER	WAKE ANGLE	SLOPE ANGLE	RAD. OF CURVATURE	STATIC DENSITY	INCIDENCE DEVIATION
1	2.5337	565.724	369.707	518.7	432.5	121.00	1168.81	0.5156	9.000	35.228	-6.21	0.0493	0.000
2	2.5312	559.945	355.545	518.7	433.0	121.00	1275.19	0.5106	0.000	31.762	-12.08	0.0484	0.000
3	2.5115	551.756	351.777	518.7	432.0	121.00	1257.36	0.5100	0.000	25.625	31.50	0.0483	0.000
4	2.4810	545.296	345.330	518.7	431.1	121.00	1256.85	0.5098	0.000	23.163	16.78	0.0480	0.000
5	2.4223	538.533	338.743	518.7	430.4	121.00	1240.59	0.5076	0.000	20.705	13.32	0.0475	0.000
6	2.3533	531.310	331.913	518.7	429.2	121.00	1221.75	0.5034	0.000	18.330	12.38	0.0470	0.000
7	2.2807	523.422	323.541	518.7	428.3	121.00	1201.02	0.5009	0.000	16.309	12.88	0.0465	0.000
8	2.2039	514.947	314.981	518.7	427.8	121.00	1179.32	0.4941	0.000	14.322	13.29	0.0459	0.000
9	2.1227	505.947	305.981	518.7	427.2	121.00	1155.90	0.4895	0.000	12.891	15.53	0.0446	0.000
10	2.0371	496.486	296.513	518.7	426.4	121.00	1129.75	0.4800	0.000	9.833	17.04	0.0441	0.000
11	1.9474	486.582	286.582	518.7	425.3	121.00	1097.35	0.4693	0.000	7.479	20.60	0.0436	0.000
12	1.8538	476.234	276.234	518.7	424.5	121.00	1058.25	0.4577	0.000	6.033	24.32	0.0431	0.000
13	1.7564	465.452	265.452	518.7	423.9	121.00	1017.60	0.4454	0.000	4.782	31.44	0.0427	0.000
14	1.6552	454.234	254.234	518.7	423.5	121.00	977.17	0.4324	0.000	3.698	41.51	0.0424	0.000
15	1.5502	442.582	242.582	518.7	423.3	121.00	938.35	0.4180	0.000	2.745	59.79	0.0422	0.000
16	1.4422	430.492	230.492	518.7	423.2	121.00	902.16	0.4023	0.000	1.915	96.32	0.0420	0.000
17	1.3312	417.962	217.962	518.7	423.2	121.00	868.50	0.3854	0.000	1.182	135.34	0.0420	0.000
18	1.2172	404.992	204.992	518.7	423.2	121.00	837.35	0.3672	0.000	0.600	212.82	0.0420	0.000
19	1.1012	391.582	191.582	518.7	423.2	121.00	808.66	0.3478	0.000	0.315	446.45	0.0419	0.000
20	0.9832	377.734	177.734	518.7	423.2	121.00	782.47	0.3272	0.000	0.000	0.00	0.0419	0.000
21	0.8632	363.446	163.446	518.7	423.2	121.00	758.67	0.3054	0.000	0.000	0.00	0.0419	0.000

STATION 11

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	ABSOLUTE VELOCITY	RELATIVE VELOCITY	TEMPERATURE TOTAL	STATIC	TOTAL PRESSURE	STATIC	MACH NUMBER	WAKE ANGLE	SLOPE ANGLE	RAD. OF CURVATURE	STATIC DENSITY	INCIDENCE DEVIATION
1	2.6512	518.124	328.124	518.7	431.1	121.00	1270.35	0.5032	0.000	32.662	*****	0.0485	0.000
2	2.6171	514.224	324.224	518.7	430.7	121.00	1270.36	0.5030	0.000	31.035	31.99	0.0484	0.000
3	2.5812	510.324	320.324	518.7	430.4	121.00	1253.01	0.5019	0.000	27.548	14.07	0.0479	0.000
4	2.5431	506.424	316.424	518.7	430.3	121.00	1232.14	0.5010	0.000	25.428	12.37	0.0473	0.000
5	2.5031	502.524	312.524	518.7	430.3	121.00	1211.10	0.5000	0.000	23.232	11.57	0.0467	0.000
6	2.4612	498.624	308.624	518.7	430.3	121.00	1190.29	0.5000	0.000	21.013	11.37	0.0461	0.000
7	2.4171	494.724	304.724	518.7	430.3	121.00	1169.70	0.5000	0.000	18.825	11.25	0.0457	0.000
8	2.3712	490.824	300.824	518.7	430.3	121.00	1149.35	0.5000	0.000	16.825	11.35	0.0457	0.000
9	2.3231	486.924	296.924	518.7	430.3	121.00	1129.25	0.5000	0.000	14.859	11.50	0.0440	0.000
10	2.2731	483.024	293.024	518.7	430.3	121.00	1109.35	0.5000	0.000	12.914	11.94	0.0432	0.000
11	2.2212	479.124	289.124	518.7	430.3	121.00	1089.66	0.5000	0.000	11.014	12.43	0.0425	0.000
12	2.1671	475.224	285.224	518.7	430.3	121.00	1070.17	0.5000	0.000	9.151	13.33	0.0417	0.000
13	2.1112	471.324	281.324	518.7	430.3	121.00	1050.88	0.5000	0.000	7.314	14.33	0.0410	0.000
14	2.0531	467.424	277.424	518.7	430.3	121.00	1031.79	0.5000	0.000	5.506	17.52	0.0404	0.000
15	1.9931	463.524	273.524	518.7	430.3	121.00	1012.90	0.5000	0.000	3.722	22.30	0.0396	0.000
16	1.9312	459.624	269.624	518.7	430.3	121.00	994.21	0.5000	0.000	2.954	29.30	0.0395	0.000
17	1.8671	455.724	265.724	518.7	430.3	121.00	975.72	0.5000	0.000	2.206	38.00	0.0395	0.000
18	1.8012	451.824	261.824	518.7	430.3	121.00	957.43	0.5000	0.000	1.477	51.00	0.0395	0.000
19	1.7331	447.924	257.924	518.7	430.3	121.00	939.34	0.5000	0.000	0.751	91.35	0.0395	0.000
20	1.6631	444.024	254.024	518.7	430.3	121.00	921.45	0.5000	0.000	0.031	174.93	0.0395	0.000
21	1.5912	440.124	250.124	518.7	430.3	121.00	903.76	0.5000	0.000	0.000	570.70	0.0396	0.000
22	1.5171	436.224	246.224	518.7	430.3	121.00	886.27	0.5000	0.000	0.000	0.00	0.0396	0.000

STATION 12

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY	TANGENTIAL	TEMPERATURES	PRESSURES	MACH	WIRL	SLOPE	RAD. OF	STATIC	INCIDENCE
	ABSOLUTE	AXIAL	ANGULAR	TOTAL	TOTAL	NUMBER	ANGLE	ANGLE	CURVATURE	DENSITY	DEVIATION
1	3.0363	637.445	12.745	535.3	501.4	1348.87	15.941	32.451	95355.88	.0505	0.000
2	3.1841	654.099	167.955	536.3	500.7	1341.30	15.703	31.304	-65.87	.0502	0.000
3	3.5642	689.403	662.317	538.7	499.2	1326.37	15.414	28.203	-34.96	.0498	0.000
4	3.8075	706.403	680.164	540.0	498.5	1319.37	15.665	26.240	-37.13	.0496	0.000
5	4.0727	721.354	695.245	541.3	498.0	1313.59	15.171	24.143	-43.86	.0495	0.000
6	4.3536	738.056	713.968	542.6	497.3	1306.20	14.679	22.017	-52.79	.0493	0.000
7	4.6444	754.170	730.953	544.0	496.7	1299.73	14.253	19.937	-64.78	.0491	0.000
8	4.9444	768.052	745.612	545.5	496.4	1293.49	13.887	17.909	-81.01	.0489	0.000
9	5.2444	781.286	759.644	546.8	496.0	1287.42	13.518	15.971	-114.75	.0488	0.000
10	5.5551	791.879	771.083	548.1	495.9	1281.66	13.158	14.127	-237.60	.0487	0.000
11	5.8659	799.231	779.311	549.2	496.1	1276.41	12.819	12.345	-3629.72	.0487	0.000
12	6.1862	804.645	785.601	550.3	496.4	1271.65	12.490	10.600	433.14	.0487	0.000
13	6.4977	807.628	789.626	551.2	496.9	1267.48	12.187	8.877	217.24	.0487	0.000
14	6.8162	807.093	789.653	552.9	497.9	1263.72	11.933	7.180	142.63	.0488	0.000
15	7.1423	802.894	786.117	553.7	499.3	1260.43	11.730	5.527	100.59	.0490	0.000
16	7.4727	794.960	778.772	554.5	501.1	1257.53	11.583	3.948	75.30	.0492	0.000
17	7.8095	784.038	768.346	554.5	503.3	1255.00	11.483	2.487	65.45	.0495	0.000
18	7.9793	777.690	762.218	554.9	504.5	1253.72	11.448	1.809	64.16	.0497	0.000
19	8.1598	755.375	752.673	555.2	505.8	1252.99	11.426	1.168	68.61	.0498	0.000
20	8.3245	762.322	747.211	555.6	507.3	1251.39	11.427	.568	93.35	.0500	0.000
21	8.5000	751.551	736.545	556.0	509.0	1250.21	11.469	0.000	0.00	.0502	0.003

STATION 12 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM	RELATIVE	RELATIVE	RELATIVE	RELATIVE	RELATIVE	LOSS	DE HALL	DIFFUS	DELTA P	BLADE	BLADE	STREAM
-LINE	OPT-IN.	VELOCITIES	VELOCITIES	VELOCITIES	MACH NO.'S	COEFF	NUMBER	FACTOR	UPON Q	INLET	OUTLET	-LINE
		INLET	OUTLET	INLET	OUTLET							
1	-40.176	725.270	703.130	.6665	.6400	.0067	.969	0.0000	.1685	467.9	535.8	1
2	-41.653	748.052	729.613	.6877	.6654	.0072	.975	0.0000	.1501	497.2	561.9	2
3	-44.698	817.058	793.851	.7529	.7251	.0085	.972	0.0000	.1339	572.7	629.0	3
4	-45.011	835.278	855.353	.7991	.7615	.0094	.963	0.0000	.1354	620.5	671.9	4
5	-47.006	873.277	918.724	.8504	.8002	.0104	.952	0.0000	.1399	672.0	718.7	5
6	-48.092	899.151	920.674	.9051	.8425	.0114	.944	0.0000	.1416	725.7	768.3	6
7	-49.079	929.942	967.677	.9623	.8861	.0125	.936	0.0000	.1436	781.1	819.8	7
8	-49.979	942.708	1014.682	1.0214	.9294	.0136	.928	0.0000	.1465	837.6	872.5	8
9	-50.803	944.388	1063.004	1.0821	.9740	.0148	.920	0.0000	.1476	895.0	926.2	9
10	-51.554	946.063	1111.289	1.1443	1.0134	.0162	.913	0.0000	.1486	953.3	980.5	10
11	-52.281	947.752	1159.103	1.2073	1.0620	.0179	.906	0.0000	.1495	1012.1	1035.3	11
12	-52.980	949.404	1207.278	1.2707	1.1108	.0198	.900	0.0000	.1490	1071.4	1090.7	12
13	-53.694	951.037	1255.408	1.3337	1.1492	.0222	.894	0.0000	.1473	1131.1	1146.7	13
14	-54.460	952.693	1302.868	1.3952	1.1915	.0251	.890	0.0000	.1447	1191.1	1203.2	14
15	-55.315	954.380	1349.774	1.4543	1.2327	.0287	.887	0.0000	.1410	1251.7	1268.5	15
16	-56.285	956.103	1396.372	1.5112	1.2729	.0334	.885	0.0000	.1359	1312.8	1338.7	16
17	-57.378	957.837	1443.350	1.5626	1.3129	.0393	.884	0.0000	.1291	1374.6	1408.0	17
18	-58.532	959.564	1491.123	1.6076	1.3529	.0467	.885	0.0000	.1251	1405.7	1468.4	18
19	-59.217	960.449	1538.230	1.6352	1.3727	.0508	.886	0.0000	.1208	1437.0	1499.0	19
20	-59.866	961.393	1585.621	1.6582	1.3914	.0550	.887	0.0000	.1166	1468.4	1499.0	20
21									.1130	1500.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

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STATION	RADIUS	ABSOLUTE VELOCITY	VELOCITY COEFFICIENT	TANGENTIAL VELOCITY	TEMPERATURE TOTAL	TEMPERATURE STATIC	TEMPERATURE TOTAL	TEMPERATURE STATIC	STATIC PRESSURE	STATIC PRESSURE	MACH NUMBER	WHEEL ANGLE	SLOPE ANGLE	RADIUS OF CURVATURE	STATIC DENSITY	INCIDENCE DEVIATION
1	3.1827	742.628	0.697	357.551	554.3	508.4	1912.75	1413.22	1413.22	67.21	26.761	32.461	0.00	0.00	0.00	0.00
2	3.5235	754.252	0.684	357.567	555.7	508.4	1923.13	1412.33	1412.33	66.27	25.299	31.936	-262.64	0.00	0.00	0.00
3	3.8733	774.657	0.652	353.565	559.5	506.8	1972.86	1415.30	1415.30	70.56	27.369	27.861	-67.65	0.00	0.00	0.00
4	4.2327	794.655	0.605	360.750	562.1	503.9	2003.49	1420.71	1420.71	71.84	25.939	25.322	-47.34	0.00	0.00	0.00
5	4.5921	817.976	0.555	363.164	565.0	511.9	2037.29	1429.43	1429.43	72.97	25.735	23.216	-36.93	0.00	0.00	0.00
6	4.9515	819.547	0.508	363.565	567.0	511.9	2059.92	1440.14	1440.14	73.90	25.337	21.066	-31.75	0.00	0.00	0.00
7	5.3109	822.730	0.461	361.657	570.4	513.3	2099.67	1452.01	1452.01	74.55	25.908	16.960	-27.20	0.00	0.00	0.00
8	5.6703	834.154	0.414	358.046	572.7	515.1	2126.22	1466.36	1466.36	74.84	25.476	15.103	-24.95	0.00	0.00	0.00
9	6.0297	844.475	0.367	347.359	576.9	518.9	2170.52	1498.17	1498.17	74.75	24.599	13.351	-24.70	0.00	0.00	0.00
10	6.3891	854.133	0.320	340.932	578.7	520.8	2188.23	1512.64	1512.64	74.60	24.123	11.650	-25.86	0.00	0.00	0.00
11	6.7485	862.334	0.273	334.689	580.4	522.7	2202.30	1526.68	1526.68	74.29	23.659	10.001	-25.32	0.00	0.00	0.00
12	7.1079	868.125	0.226	328.689	581.9	524.8	2212.07	1540.65	1540.65	73.79	23.220	8.501	-35.09	0.00	0.00	0.00
13	7.4673	871.944	0.179	319.111	582.8	527.0	2216.47	1554.67	1554.67	73.03	22.854	6.929	-42.27	0.00	0.00	0.00
14	7.8267	873.626	0.132	311.518	584.5	529.6	2217.34	1570.09	1570.09	72.00	22.561	5.361	-45.21	0.00	0.00	0.00
15	8.1861	873.256	0.085	304.158	585.8	532.6	2214.66	1587.10	1587.10	70.67	22.368	3.808	-42.30	0.00	0.00	0.00
16	8.5455	871.832	0.038	297.323	587.1	535.9	2213.34	1606.47	1606.47	69.09	22.292	2.320	-34.76	0.00	0.00	0.00
17	8.9049	869.354	0.000	291.175	587.3	537.7	2208.06	1616.75	1616.75	66.25	22.291	1.626	-32.52	0.00	0.00	0.00
18	9.2643	865.822	0.000	283.808	585.5	539.5	2205.74	1627.07	1627.07	62.40	22.308	0.996	-33.88	0.00	0.00	0.00
19	9.6237	861.252	0.000	278.608	589.2	541.3	2203.34	1636.67	1636.67	56.57	22.328	0.448	-46.21	0.00	0.00	0.00
20	9.9831	855.622	0.000	275.661	590.0	542.9	2200.78	1644.47	1644.47	45.89	22.310	0.000	0.00	0.00	0.00	0.00
21	10.3425	849.000	0.000	275.661	590.0	542.9	2200.78	1644.47	1644.47	45.89	22.310	0.000	0.00	0.00	0.00	0.00

STATION 13

GENERAL FLOW PARAMETERS

STATION 13 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES		RELATIVE VELOCITIES		RELATIVE MACH NO.'S		LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA F UPON Q	BLADE SPEEDS		STREAM -LINE
	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET					INLET	OUTLET	
1	-29.859	-20.280	703.121	593.939	.6408	.6281	.0136	.987	0.0000	.1500	535.6	598.1	1
2	-35.630	-21.704	729.597	714.794	.6654	.6469	.0144	.980	0.0000	.1532	561.9	621.8	2
3	-33.455	-25.117	793.837	764.937	.7251	.6921	.0167	.964	0.0000	.1601	629.0	683.2	3
4	-35.277	-27.078	833.157	795.218	.7615	.7189	.0181	.954	0.0000	.1641	671.9	722.7	4
5	-37.276	-29.151	876.977	826.671	.8082	.7464	.0198	.945	0.0000	.1687	718.7	765.7	5
6	-39.158	-31.157	920.661	859.983	.8425	.7757	.0217	.934	0.0000	.1735	768.3	811.1	6
7	-41.941	-33.711	967.663	895.045	.8851	.8062	.0239	.925	0.0000	.1759	819.8	858.4	7
8	-44.707	-36.146	1014.668	930.520	.9294	.8367	.0263	.917	0.0000	.1787	872.5	906.9	8
9	-47.367	-38.599	1062.991	966.984	.9740	.8679	.0289	.910	0.0000	.1770	926.2	956.4	9
10	-49.862	-40.991	1111.280	1005.202	1.0183	.9005	.0315	.905	0.0000	.1744	980.5	1006.7	10
11	-52.752	-43.273	1159.699	1045.652	1.0620	.9351	.0345	.902	0.0000	.1682	1035.3	1057.7	11
12	-54.404	-45.484	1207.260	1087.384	1.1058	.9706	.0384	.901	0.0000	.1608	1090.7	1109.4	12
13	-51.037	-47.650	1255.419	1129.915	1.1492	1.0066	.0434	.900	0.0000	.1525	1146.7	1161.8	13
14	-52.694	-49.798	1302.890	1172.957	1.1916	1.0426	.0501	.900	0.0000	.1431	1203.2	1215.0	14
15	-54.381	-51.944	1349.806	1216.358	1.2327	1.0786	.0584	.901	0.0000	.1332	1260.5	1269.3	15
16	-51.183	-54.089	1396.412	1260.174	1.2730	1.1143	.0678	.902	0.0000	.1235	1318.7	1324.9	16
17	-51.838	-56.226	1443.198	1304.593	1.3129	1.1500	.0781	.904	0.0000	.1148	1376.0	1381.8	17
18	-54.701	-57.273	1491.178	1347.278	1.3530	1.1861	.0894	.905	0.0000	.1108	1408.0	1410.6	18
19	-53.565	-58.291	1491.178	1350.465	1.3530	1.1855	.0889	.906	0.0000	.1068	1438.4	1440.2	19
20	-58.458	-59.281	1515.662	1374.394	1.3728	1.2055	.0944	.907	0.0000	.1024	1469.0	1469.9	20
21	-61.394	-60.179	1538.349	1399.657	1.3915	1.2259	.1000	.910	0.0000	.0966	1500.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS		INLET-TO-STATION-PARAMETERS		MEAN PARAMETERS		STATION-TO-STATION		INLET-TO-STATION	
	DELTA T ON T	ISENTHROPIC EFFICIENCY	DELTA T ON T	ISENTHROPIC EFFICIENCY	PRESSURE RATIO	DELTA T ON T	ISEN. EFFICY.	DELTA T ON T	ISEN. EFFICY.	
1	1.1283	.9355	.9669	.9866	1.2576	.6660	.9856	1.1817	.9057	
2	1.1307	.9362	.9856	.9856	1.2683	.6713	.9844	1.4241	.9062	
3	1.1305	.9385	.9823	.9823	1.2971	.6765	.9809			
4	1.1476	.9409	.9805	.9805	1.3172	.6837	.9785			
5	1.1581	.9438	.9784	.9784	1.3394	.6892	.9757			
6	1.1675	.9464	.9753	.9753	1.3609	.6946	.9723			
7	1.1745	.9484	.9711	.9711	1.3805	.6996	.9682			
8	1.1796	.9500	.9668	.9668	1.3979	.7042	.9635			
9	1.1835	.9513	.9604	.9604	1.4134	.7084	.9582			
10	1.1888	.9525	.9545	.9545	1.4270	.7122	.9525			
11	1.1896	.9536	.9477	.9477	1.4387	.7157	.9459			
12	1.1926	.9547	.9390	.9390	1.4473	.7189	.9376			
13	1.1923	.9556	.9286	.9286	1.4543	.7218	.9266			
14	1.1914	.9564	.9099	.9099	1.4575	.7244	.9128			
15	1.1893	.9571	.8891	.8891	1.4578	.7269	.8956			
16	1.1859	.9579	.8668	.8668	1.4561	.7293	.8758			
17	1.1852	.9588	.8459	.8459	1.4532	.7316	.8543			
18	1.1849	.9593	.8369	.8369	1.4517	.7332	.8432			
19	1.1849	.9599	.8298	.8298	1.4502	.7346	.8320			
20	1.1852	.9605	.8217	.8217	1.4486	.7360	.8207			
21	1.1856	.9612	.8148	.8148	1.4469	.7375	.8093			

STATION 14

GENERAL FLOW PARAMETERS

LOGA TION	RADIUS	ABSOLUTE	V E L O C I T I E S	TEMPERATURES	PRESSURES	MACH	WIRL	SLOPE	RAD. OF	STATIC	INCIDENCE
			REGIONL. TANGENTL.	TOTAL	TOTAL	NUMBER	ANGLE	ANGLE	CURVRE.	DENSITY	DEVIATION
1	1-7385	847.930	673.186	508.369	514.7	1473.76	35.888	32.461	0.00	.0537	0.000
2	3-8584	854.937	685.285	508.105	515.6	2185.81	35.515	30.805	-308.62	.0539	0.000
3	4-1649	867.809	702.592	509.327	518.3	2246.06	35.923	26.900	-90.76	.0545	0.000
4	4-3652	880.477	713.377	516.075	520.3	2296.36	35.883	24.613	-62.40	.0550	0.000
5	4-5849	894.697	724.469	525.303	522.8	2355.77	35.930	22.350	-51.25	.0555	0.000
6	4-8181	901.811	731.669	527.185	525.6	2406.37	35.774	20.132	-49.71	.0562	0.000
7	5-0612	901.354	734.793	522.033	528.7	2443.44	35.392	17.935	-49.20	.0569	0.000
8	5-3127	836.032	734.908	512.625	531.9	2470.57	34.897	15.867	-44.75	.0576	0.000
9	5-5712	889.837	733.711	502.158	535.1	2493.18	34.388	13.904	-36.86	.0582	0.000
10	5-8357	862.925	732.319	493.219	538.4	2516.82	33.961	12.054	-29.69	.0589	0.000
11	6-1056	877.137	730.455	485.688	541.8	2541.34	33.621	10.332	-24.49	.0595	0.000
12	6-3865	871.737	728.628	478.678	545.1	2564.54	33.383	8.741	-21.35	.0601	0.000
13	6-6684	865.489	725.879	471.350	548.6	2587.54	32.998	7.257	-20.26	.0606	0.000
14	6-9455	856.729	723.084	463.084	551.2	2603.58	32.720	5.841	-24.56	.0611	0.000
15	7-2372	845.366	713.082	454.077	555.7	2618.67	32.489	4.448	-24.56	.0615	0.000
16	7-5354	831.316	702.357	444.725	559.6	2600.44	32.342	3.059	-32.79	.0619	0.000
17	7-8423	814.723	688.622	435.399	563.8	2585.63	32.304	1.707	-54.36	.0620	0.000
18	8-0839	805.453	650.537	430.859	566.0	2572.99	32.335	1.087	-61.01	.0620	0.000
19	8-1657	795.837	671.723	426.412	568.3	2557.07	32.408	.555	-144.71	.0619	0.000
20	8-3310	785.233	652.191	422.049	570.7	2538.43	32.512	.166	-392.38	.0617	0.000
21	8-5003	774.335	651.972	417.764	573.1	2517.82	32.651	0.000	0.00	.0615	0.000

STATION 14 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM	RELATIVE	GAS	ANGLES	RELATIVE	VELOCITIES	RELATIVE	MACH	NO. S	LOSS	DE	HALL	BLADE	SPEEDS	STREAM
-LINE	OPT-IN.	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	COEFF	NUMBER	NUMBER	DELLTA P	INLET	OUTLET	-LINE
1	-20.294	-12.537	694.752	6280	.6249	1.001	0.000	.0209	1.001	598.1	.1406	598.1	659.7	1
2	-21.700	-14.106	707.624	6469	.6360	.990	0.000	.0223	.990	621.8	.1499	621.8	680.5	2
3	-23.114	-17.829	738.037	6920	.6615	.965	0.000	.0257	.965	683.2	.1704	683.2	735.0	3
4	-27.676	-19.618	795.201	7169	.6775	.952	0.000	.0274	.952	722.7	.1787	722.7	770.3	4
5	-29.149	-21.413	828.455	7464	.6946	.942	0.000	.0292	.942	765.7	.1845	765.7	809.1	5
6	-31.365	-23.624	859.968	799.821	.7119	.930	0.000	.0315	.930	811.1	.1911	811.1	850.2	6
7	-33.710	-26.797	895.031	823.139	.7306	.920	0.000	.0346	.920	858.4	.1951	858.4	893.1	7
8	-36.145	-30.036	930.569	8367	.7512	.912	0.000	.0383	.912	906.9	.1946	906.9	937.5	8
9	-38.598	-33.248	963.975	8679	.7748	.907	0.000	.0428	.907	956.4	.1904	956.4	983.1	9
10	-40.990	-36.233	1005.198	9005	.7965	.903	0.000	.0480	.903	1006.7	.1847	1006.7	1029.8	10
11	-43.273	-39.613	1045.665	9351	.8242	.899	0.000	.0538	.899	1057.7	.1797	1057.7	1077.5	11
12	-45.484	-41.617	1087.397	9706	.8518	.896	0.000	.0603	.896	1109.4	.1732	1109.4	1126.0	12
13	-47.651	-44.123	1129.339	1011.193	.8810	.895	0.000	.0674	.895	1161.8	.1659	1161.8	1175.4	13
14	-49.739	-46.614	1172.931	1049.322	.9113	.895	0.000	.0752	.895	1215.0	.1583	1215.0	1225.7	14
15	-51.945	-49.095	1216.400	1088.986	.9427	.895	0.000	.0848	.895	1269.3	.1496	1269.3	1277.1	15
16	-54.090	-51.570	1263.203	1129.933	.9748	.897	0.000	.1143	.897	1324.9	.1391	1324.9	1329.9	16
17	-56.227	-54.035	1304.636	1172.529	1.0077	.899	0.000	.1433	.899	1381.8	.1258	1381.8	1384.5	17
18	-58.274	-55.265	1327.334	1194.377	1.0245	.900	0.000	.1250	.900	1440.8	.1181	1440.8	1424.4	18
19	-59.297	-56.491	1350.523	1216.747	1.0416	.901	0.000	.1371	.901	1499.9	.1100	1499.9	1470.2	19
20	-59.282	-57.714	1374.445	1239.723	1.0590	.902	0.000	.1502	.902	1560.2	.1020	1560.2	1500.0	20
21	-59.151	-58.932	1399.721	1263.351	1.0770	.903	0.000	.1640	.903	1640.0	.0948	1640.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE
 STATION-TO-STATION-PARAMETERS
 PRESSURE RATIO
 DELTA T ON T
 ISENTROPIC EFFICIENCY
 INLET-TO-STATION PRESSURE RATIO
 DELTA T ON T
 ISENTROPIC EFFICIENCY
 MEAN PARAMETERS
 PRESSURE RATIO
 DELTA T ON T
 ISEN. EFFICY.
 STATION-TO-STATION INLET-TO-STATION
 1.1629
 .0434
 .6905
 1.6560
 .1725
 .6983

STATION	RADIUS	VELOCITY	ANGLE	WIRL ANGLE	SLOPE ANGLE	RAD. OF CURV. OF	STATIC DENSITY	INCIDENCE DEVIATION
1	4.889	991.534	676.949	58.2	1507.06	32.461	.0545	0.000
2	4.587	985.492	676.384	52.0	1528.81	31.009	.0551	0.000
3	4.349	986.615	674.660	52.0	1583.07	27.442	.0564	0.000
4	4.349	986.615	674.660	52.0	1583.07	27.442	.0564	0.000
5	4.386	986.279	673.704	52.7	1647.83	22.430	.0580	0.000
6	5.339	986.235	659.345	53.6	1687.43	20.106	.0590	0.000
7	5.258	978.212	659.345	54.0	1728.56	17.856	.0599	0.000
8	5.855	957.632	647.704	54.5	1769.39	15.660	.0610	0.000
9	5.793	955.449	647.704	54.4	1809.74	14.528	.0618	0.000
10	5.368	943.736	621.991	53.5	1846.83	13.470	.0626	0.000
11	6.203	933.404	619.417	53.3	1879.71	12.751	.0633	0.000
12	6.630	923.314	597.298	51.1	1910.16	12.309	.0638	0.000
13	6.729	912.936	585.783	50.0	1939.30	11.912	.0644	0.000
14	6.996	892.253	575.222	49.0	1967.23	11.581	.0648	0.000
15	7.272	880.593	565.820	47.8	1993.45	11.311	.0652	0.000
16	7.591	877.253	555.766	47.0	2016.45	11.090	.0654	0.000
17	7.851	864.180	547.234	46.5	2034.33	10.912	.0654	0.000
18	8.111	851.538	543.229	46.2	2040.73	10.766	.0653	0.000
19	8.492	840.751	539.362	45.9	2045.40	10.653	.0651	0.000
20	8.313	828.732	535.595	45.6	2048.71	10.589	.0648	0.000
21	8.588	815.469	531.993	45.5	2051.12	10.528	.0645	0.000

GENERAL FLOW PARAMETERS

STATION	TEMPERATURES	PRESSURES	MACH NUMBER	WIRL ANGLE	SLOPE ANGLE	RAD. OF CURV. OF	STATIC DENSITY	INCIDENCE DEVIATION
1	600.0	2583.66	1507.06	43.054	32.461	32.461	.0545	0.000
2	601.9	2544.55	1528.81	43.033	31.009	31.009	.0551	0.000
3	607.0	2615.01	1583.07	43.128	27.442	27.442	.0564	0.000
4	614.3	2663.53	1647.83	43.035	24.883	24.883	.0572	0.000
5	618.5	2759.69	1687.43	42.868	22.430	22.430	.0580	0.000
6	623.0	2795.12	1728.56	42.868	20.106	20.106	.0590	0.000
7	623.0	2825.07	1769.39	42.015	15.660	15.660	.0599	0.000
8	625.3	2848.33	1809.74	41.542	13.470	13.470	.0610	0.000
9	625.3	2868.02	1846.83	41.528	12.751	12.751	.0618	0.000
10	629.6	2894.63	1879.71	40.751	12.309	12.309	.0626	0.000
11	632.1	2898.25	1910.16	40.309	11.912	11.912	.0633	0.000
12	634.4	2903.86	1939.30	39.312	11.581	11.581	.0638	0.000
13	636.8	2915.90	1967.23	38.591	11.311	11.311	.0644	0.000
14	639.4	2919.56	1993.45	37.719	11.090	11.090	.0648	0.000
15	642.1	2913.37	2016.45	36.829	10.912	10.912	.0652	0.000
16	645.0	2913.37	2034.33	35.454	10.766	10.766	.0654	0.000
17	646.5	2876.15	2040.73	34.524	10.653	10.653	.0654	0.000
18	648.8	2854.25	2045.40	33.588	10.589	10.589	.0653	0.000
19	649.8	2828.25	2048.71	33.906	10.528	10.528	.0651	0.000
20	651.5	2793.02	2051.12	33.000	10.468	10.468	.0648	0.000
21	651.5	2793.02	2051.12	33.000	10.468	10.468	.0645	0.000

STATION 15

STATION 15 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES		RELATIVE VELOCITIES		RELATIVE MACH NO.'S		LOSS COEFF		DE HALL NUMBER		DIFFUS FACTOR		DELTA P UPON Q		BLADE SPEEDS		STREAM -LINE
	OPT.	INLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	
1	-12.534	-3.506	694.743	725.926	6.249	.6508	.0255	1.045	0.0000	.0751	659.7	721.5	1				
2	-14.184	-5.008	707.616	725.334	.6360	.6489	.0276	1.025	0.0000	.1030	680.5	739.3	2				
3	-17.828	-8.845	736.833	726.926	6.615	.6486	.0332	.988	0.0000	.1494	735.0	795.8	3				
4	-19.617	-11.191	757.334	735.838	6.775	.6537	.0363	.973	0.0000	.1620	770.7	817.9	4				
5	-21.412	-13.834	778.180	747.476	6.945	.6609	.0394	.961	0.0000	.1700	809.1	852.5	5				
6	-23.823	-16.948	799.816	758.100	7.119	.6678	.0430	.946	0.0000	.1784	854.2	889.4	6				
7	-26.796	-20.393	823.193	770.928	7.306	.6765	.0473	.937	0.0000	.1836	833.1	928.8	7				
8	-30.835	-24.818	848.899	787.115	7.512	.6880	.0522	.927	0.0000	.1850	937.5	968.8	8				
9	-33.247	-27.688	877.317	806.299	7.748	.7024	.0579	.919	0.0000	.1841	983.1	1089.4	9				
10	-36.232	-31.202	907.879	829.831	7.985	.7179	.0643	.914	0.0000	.1782	1029.8	1051.9	10				
11	-39.813	-34.516	940.086	858.047	8.242	.7317	.0717	.913	0.0000	.1670	1077.5	1095.6	11				
12	-41.617	-37.553	974.624	889.313	8.518	.7461	.0800	.912	0.0000	.1549	1126.0	1148.5	12				
13	-44.124	-40.637	1011.200	922.835	8.811	.7623	.0893	.913	0.0000	.1432	1175.4	1186.8	13				
14	-46.615	-43.808	1049.336	956.234	9.114	.7817	.1000	.913	0.0000	.1315	1225.7	1234.3	14				
15	-49.096	-46.219	1088.986	994.955	9.427	.8079	.1131	.914	0.0000	.1205	1277.1	1283.3	15				
16	-51.571	-48.905	1130.812	1032.619	9.748	.8479	.1301	.914	0.0000	.1100	1329.9	1334.8	16				
17	-54.836	-51.612	1172.569	1070.759	1.0078	.8948	.1528	.913	0.0000	.1005	1384.5	1388.5	17				
18	-59.266	-53.807	1194.423	1089.811	1.0245	.9186	.1670	.912	0.0000	.0962	1412.4	1413.7	18				
19	-56.493	-54.440	1216.799	1109.001	1.0416	.9323	.1830	.911	0.0000	.0922	1441.0	1441.6	19				
20	-57.716	-55.917	1239.782	1128.499	1.0591	.9460	.2004	.910	0.0000	.0884	1470.2	1478.3	20				
21	-58.934	-57.439	1263.445	1148.517	1.0770	.9599	.2190	.909	0.0000	.0849	1500.0	1500.0	21				

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OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS		INLET-TO-STATION-PARAMETERS		MEAN PARAMETERS		STATION-TO-STATION		INLET-TO-STATION	
	PRESSURE RATIO	DELTA T ON T	ISENTHROPIC EFFICIENCY	PRESSURE RATIO	DELTA T ON T	PRESSURE RATIO	DELTA T ON T	PRESSURE RATIO	DELTA T ON T	ISENTHROPIC EFFICIENCY
1	1.1828	.0442	.9947	1.6559	.1568	.9882	1.1305	1.6273	.8891	
2	1.1636	.0445	.9932	1.6729	.1604	.9868	.0410			
3	1.1463	.0449	.9903	1.7193	.1704	.9824	.0684			
4	1.1299	.0448	.9841	1.7512	.1771	.9795				
5	1.1154	.0422	.9787	1.7848	.1843	.9762				
6	1.1043	.0416	.9725	1.8164	.1907	.9722				
7	1.1033	.0485	.9688	1.8383	.1963	.9679				
8	1.1035	.0487	.9598	1.8574	.2012	.9613				
9	1.1024	.0488	.9511	1.8727	.2056	.9542				
10	1.1095	.0484	.9414	1.8856	.2099	.9458				
11	1.1291	.0397	.9298	1.8965	.2142	.9368				
12	1.1381	.0389	.9135	1.9055	.2186	.9248				
13	1.1258	.0385	.8947	1.9126	.2231	.9119				
14	1.1229	.0386	.8725	1.9178	.2278	.8972				
15	1.1214	.0393	.8468	1.9195	.2327	.8795				
16	1.1283	.0484	.8158	1.9154	.2379	.8572				
17	1.1198	.0419	.7779	1.9022	.2435	.8278				
18	1.1178	.0428	.7551	1.8918	.2485	.8095				
19	1.1162	.0437	.7295	1.8768	.2495	.7891				
20	1.1142	.0467	.7014	1.8595	.2527	.7668				
21	1.1117	.0457	.6718	1.8482	.2561	.7438				

STATION 16

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY	W G C I T I F S	TEMPERATURES	PRESSURES	MACH	W H I R L	SLOPE	RAD. OF	STATIC	INCIDENCE
		ABSO. UFE	MERIDNL. TANGENTL.	TOTAL	STATIC	NUMBER	ANGLE	ANGLE	CURVTR.	DENSITY	DEVIATION
1	4.4612	1172.697	713.689	930.519	8163.85	1.0433	52.513	32.461	*****	.0566	0.000
2	4.5379	1158.206	712.106	913.428	3158.05	1.0276	52.060	31.031	-51.15	.0573	0.000
3	4.7659	1116.292	704.604	865.518	3133.91	.9838	50.861	27.234	-13.18	.0591	0.000
4	5.9314	1091.433	703.660	836.320	3126.58	.9581	49.856	25.406	-366.99	.0602	0.000
5	5.1854	1071.038	707.798	803.831	3112.28	.9373	49.635	23.253	31.62	.0609	0.000
6	5.2811	1051.648	710.529	775.314	3095.99	.9177	47.497	20.789	36.15	.0616	0.000
7	5.4646	1031.302	710.228	747.769	3080.48	.8972	45.475	18.399	49.15	.0623	0.000
8	5.6573	1010.433	707.654	721.334	3063.20	.8764	45.549	16.113	49.72	.0629	0.000
9	5.8612	990.033	703.974	696.747	3045.69	.8561	44.582	13.944	42.48	.0635	0.000
10	6.0759	971.896	700.250	672.514	3028.59	.8372	43.875	11.917	30.38	.0641	0.000
11	6.3034	954.039	695.927	651.524	3012.03	.8201	43.072	10.024	24.21	.0644	0.000
12	6.5403	936.604	693.462	632.526	2995.60	.8045	42.369	8.272	21.56	.0647	0.000
13	6.7850	924.937	688.923	615.891	2979.60	.7896	41.797	6.570	21.01	.0649	0.000
14	7.0403	909.665	682.235	601.703	2963.43	.7746	41.411	5.223	22.41	.0650	0.000
15	7.3057	895.234	672.752	589.725	2942.27	.7595	41.286	3.943	26.00	.0651	0.000
16	7.5813	881.390	660.033	586.105	2926.19	.7442	41.508	2.827	34.31	.0651	0.000
17	7.8713	868.470	643.437	583.191	2914.19	.7291	42.186	1.839	56.38	.0650	0.000
18	8.0215	862.476	633.433	585.280	2910.17	.7217	42.735	1.377	85.53	.0649	0.000
19	8.1760	856.493	621.935	588.315	2906.72	.7069	43.430	.919	153.20	.0648	0.000
20	8.3353	850.074	604.734	593.355	2902.85	.7060	44.267	.456	399.95	.0647	0.000
21	8.5003	842.542	593.531	598.418	2897.64	.6970	45.235	0.000	0.00	.0645	0.000

STATION 16 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM	RELATIVE GAS ANGLES	RELATIVE VELOCITIES	RELATIVE MACH NO.'S	LOSS	DE HALL	DIFFUS	BLADE SPEEDS	STREAM	
-LINE	OPT.IN. INLET	OUTLET	INLET	COEFF	NUMBER	FACTOR	INLET	-LINE	
						UPON Q	OUTLET		
1	-3.517	11.341	725.335	.6476	.0329	1.003	.1637	787.3	1
2	-5.018	8.960	725.345	.6398	.0348	.994	.1722	739.3	2
3	-8.051	2.004	728.336	.6213	.0404	.967	.2079	786.8	3
4	-11.134	-2.929	736.847	.6185	.0447	.956	.2229	817.9	4
5	-13.835	-7.615	747.479	.6252	.0496	.956	.2112	852.5	5
6	-16.947	-12.431	756.096	.6349	.0547	.960	.1851	931.9	6
7	-20.391	-16.335	770.918	.6468	.0600	.963	.1588	928.0	7
8	-24.016	-21.375	787.101	.6591	.0658	.965	.1346	968.0	8
9	-27.678	-25.652	806.263	.6720	.0724	.969	.1096	1009.4	9
10	-31.290	-29.707	829.874	.6850	.0803	.971	.0877	1051.9	10
11	-34.814	-33.474	858.027	.6982	.0895	.974	.0687	1095.6	11
12	-37.651	-36.949	883.289	.7122	.1006	.976	.0511	1140.5	12
13	-40.635	-40.172	922.805	.7267	.1136	.977	.0352	1186.8	13
14	-43.477	-43.205	958.203	.7417	.1292	.977	.0219	1234.3	14
15	-46.216	-46.076	994.930	.7570	.1479	.975	.0121	1283.3	15
16	-48.984	-48.797	1032.611	.7726	.1704	.970	.0073	1334.0	16
17	-51.612	-51.392	1070.777	.7885	.1991	.963	.0083	1386.5	17
18	-53.808	-52.657	1069.847	.8048	.2157	.958	.0112	1413.7	18
19	-55.442	-53.934	1109.058	.8213	.2338	.953	.0154	1441.6	19
20	-57.920	-55.253	1128.575	.8376	.2534	.946	.0207	1470.3	20
21	-57.442	-56.542	1143.610	.8526	.2740	.940	.0263	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STATION-TO-STATION-PARAMETERS INLET-TO-STATION INLET-TO-STATION

STREAM DELTA T EFFICIENCY PRESSURE RATIO MASS FLOW RATE PRESSURE RATIO

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PLAN PARAMETERS STATION-TO-STATION INLET-TO-STATION

PRESSURE RATIO MASS FLOW RATE PRESSURE RATIO

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STATION	DELTA T	EFFICIENCY	PRESSURE RATIO	MASS FLOW RATE	PRESSURE RATIO	DELTA T	ON T	EFFICIENCY	PLAN	PRESSURE RATIO	MASS FLOW RATE	PRESSURE RATIO	DELTA T	ON T	EFFICIENCY
1	1.2562	.8677	2.6501	3373	2.6763	.2371	.9697	.9855	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
2	1.2411	.8608	2.6763	3373	2.6763	.2371	.9855	.9855	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
3	1.2747	.8321	2.8644	3313	2.8644	.2326	.9843	.9843	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
4	1.1773	.8074	2.8526	3373	2.8526	.2127	.9763	.9763	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
5	1.1463	.7803	2.8462	3373	2.8462	.2127	.9711	.9711	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
6	1.1222	.7185	2.8382	3313	2.8382	.2318	.9649	.9649	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
7	1.1817	.6293	2.8253	3313	2.8253	.2314	.9576	.9576	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
8	1.0843	.5249	2.8139	3373	2.8139	.2311	.9490	.9490	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
9	1.0553	.0211	2.8027	3313	2.8027	.2315	.9367	.9367	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
10	1.0553	.0211	1.9801	3313	1.9801	.2328	.9263	.9263	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
11	1.0442	.3151	1.9801	3313	1.9801	.2343	.9115	.9115	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
12	1.0336	.6129	1.9801	3313	1.9801	.2367	.8939	.8939	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
13	1.0227	.8111	1.9533	3313	1.9533	.2394	.8738	.8738	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
14	1.0164	.9309	1.9444	3313	1.9444	.2444	.8483	.8483	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
15	1.0203	.9395	1.9144	3313	1.9144	.2506	.8191	.8191	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
16	1.0044	.6144	1.9239	3313	1.9239	.2506	.8191	.8191	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
17	1.0072	.3132	1.9108	3313	1.9108	.2603	.7846	.7846	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
18	1.0114	.3136	1.9113	3313	1.9113	.2659	.7566	.7566	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
19	1.0134	.8121	1.9111	3313	1.9111	.2726	.7461	.7461	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
20	1.0234	.8218	1.9025	3313	1.9025	.2831	.7237	.7237	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694
21	1.0332	.8255	1.9021	3313	1.9021	.2861	.7015	.7015	1.0495	1.0199	31.998	1.0495	1.9859	.2449	.8694

STATION 17

GENERAL FLOW PARAMETERS

LOCAL	RADIUS	VELOCITY	TEMPERATURE	PRESSURES	MACH	SLOPE	RAD. OF	STATIC	INCIDENCE
FLOW		ANGLE	TOTAL	STATIC	NUMBER	ANGLE	CURVATURE	DENSITY	DEVIATION
1	4.5514	712.214	584.6	529.1	1519.43	1.9270	32.137	0.074	0.000
2	4.5412	712.226	584.6	511.7	1980.52	1.0114	30.535	0.081	0.000
3	4.5593	721.911	638.9	516.6	1895.81	.9815	29.552	0.088	0.000
4	5.0153	732.844	638.2	530.9	1718.98	.9658	29.103	0.098	0.000
5	5.1763	738.253	638.2	545.1	1749.37	.9453	29.123	0.104	0.000
6	5.3373	748.251	638.2	551.1	1775.21	.9273	29.749	0.111	0.000
7	5.5007	758.251	638.2	556.3	1800.99	.9084	29.071	0.117	0.000
8	5.6734	768.251	638.2	561.5	1826.73	.8893	29.292	0.123	0.000
9	5.8461	778.251	638.2	566.7	1852.43	.8702	29.513	0.129	0.000
10	6.0188	788.251	638.2	571.9	1878.13	.8511	29.734	0.135	0.000
11	6.1915	798.251	638.2	577.1	1903.83	.8320	29.955	0.141	0.000
12	6.3642	808.251	638.2	582.3	1929.53	.8129	30.176	0.147	0.000
13	6.5369	818.251	638.2	587.5	1955.23	.7938	30.397	0.153	0.000
14	6.7096	828.251	638.2	592.7	1980.93	.7747	30.618	0.159	0.000
15	6.8823	838.251	638.2	597.9	2006.63	.7556	30.839	0.165	0.000
16	7.0550	848.251	638.2	603.1	2032.33	.7365	31.060	0.171	0.000
17	7.2277	858.251	638.2	608.3	2058.03	.7174	31.281	0.177	0.000
18	7.4004	868.251	638.2	613.5	2083.73	.6983	31.502	0.183	0.000
19	7.5731	878.251	638.2	618.7	2109.43	.6792	31.723	0.189	0.000
20	7.7458	888.251	638.2	623.9	2135.13	.6601	31.944	0.195	0.000
21	7.9185	898.251	638.2	629.1	2160.83	.6410	32.165	0.201	0.000

STATION 18

GENERAL FLOW PARAMETERS

LOCATION	GEOMETRIC DATA	TEMPERATURES	PRESSURES	MACH	MAIRL	SLOPE	RAD. OF	STATIC	INCIDENCE
	RADIUS	TEMP. TOTAL	STATIC	NUMBER	ANGLE	ANGLE	CURVTR.	DENSITY	DEVIATION
1	4.6435	722.355	3163.65	1.0194	51.071	30.312	-7.99	.0578	0.000
2	4.7345	731.342	3159.85	1.0034	53.134	28.953	-8.96	.0582	0.000
3	4.9677	753.237	3139.71	.9892	47.803	25.743	-10.31	.0589	0.000
4	5.1157	763.963	3125.51	.9704	45.494	23.833	-10.87	.0593	0.000
5	5.2777	773.893	3112.23	.9519	42.298	21.761	-12.19	.0597	0.000
6	5.4584	775.301	3095.93	.9304	42.038	19.639	-14.27	.0602	0.000
7	5.6321	777.433	3083.98	.9066	42.021	17.672	-17.37	.0607	0.000
8	5.8222	777.513	3063.20	.8814	42.034	15.742	-22.42	.0612	0.000
9	6.0282	775.316	3045.69	.8553	42.144	13.934	-30.84	.0616	0.000
10	6.2523	772.351	3028.59	.8298	42.366	12.252	-42.20	.0620	0.000
11	6.4932	767.747	3012.03	.8048	42.605	10.684	-70.40	.0624	0.000
12	6.7503	761.222	2995.60	.7803	42.854	9.219	-147.56	.0627	0.000
13	7.0227	752.752	2979.60	.7564	43.110	7.847	-323.17	.0630	0.000
14	7.3177	742.337	2963.43	.7332	43.376	6.553	-72.55	.0632	0.000
15	7.6343	729.123	2942.27	.7107	43.646	5.316	-172.55	.0634	0.002
16	7.9743	713.740	2925.16	.6889	43.910	4.106	-51.34	.0635	0.000
17	8.3403	695.211	2914.19	.6674	44.164	2.875	-45.12	.0635	0.000
18	8.7433	674.213	2913.97	.6462	44.409	2.231	-46.58	.0634	0.000
19	9.1842	651.242	2916.72	.6254	44.649	1.546	-55.21	.0634	0.000
20	9.6642	626.435	2923.75	.6051	44.879	.811	-89.23	.0634	0.000
21	10.1842	600.753	2937.64	.5854	45.099	0.000	0.00	.0634	0.000

STATION 19

GENERAL FLOW PARAMETERS

LOCATION	GEOMETRIC DATA	TEMPERATURES	PRESSURES	MACH	MAIRL	SLOPE	RAD. OF	STATIC	INCIDENCE
	RADIUS	TEMP. TOTAL	STATIC	NUMBER	ANGLE	ANGLE	CURVTR.	DENSITY	DEVIATION
1	4.9751	935.337	3063.20	1.2596	33.354	26.589	-7.39	.0537	0.000
2	5.0359	903.323	3067.91	1.2596	34.51	25.639	-8.31	.0539	0.000
3	5.2044	892.713	3073.91	1.2596	32.673	23.180	-10.17	.0539	0.000
4	5.3213	884.073	3072.14	1.2596	35.427	21.857	-12.11	.0533	0.000
5	5.4035	873.935	3053.94	1.2596	32.147	20.029	-15.48	.0538	0.000
6	5.4535	863.227	3053.11	1.2596	31.796	18.360	-21.85	.0524	0.000
7	5.7372	827.349	3051.04	1.2596	31.379	16.599	-34.97	.0529	0.000
8	5.9819	800.282	3041.23	1.2596	30.320	15.069	-63.83	.0534	0.000
9	6.1251	777.347	3023.74	1.2596	30.462	13.478	-120.67	.0534	0.000
10	6.3174	753.377	3016.92	1.2596	31.057	11.931	-174.11	.0541	0.000
11	6.5194	729.442	3002.55	1.2596	31.722	10.440	-140.65	.0543	0.000
12	6.7213	705.545	2987.82	1.2596	32.466	9.020	-92.60	.0545	0.000
13	6.9435	681.615	2971.31	1.2596	33.289	7.680	-65.22	.0548	0.000
14	7.1747	657.645	2953.81	1.2596	34.195	6.424	-51.79	.0548	0.000
15	7.4243	633.645	2935.03	1.2596	35.185	5.235	-45.74	.0548	0.000
16	7.6943	609.615	2914.19	1.2596	36.254	4.087	-44.67	.0548	0.000
17	7.9842	585.565	2891.04	1.2596	37.401	2.964	-47.54	.0548	0.000
18	8.2942	561.445	2865.61	1.2596	38.629	1.877	-53.76	.0546	0.000
19	8.6242	537.266	2839.21	1.2596	40.040	0.811	-70.41	.0546	0.000
20	8.9742	513.045	2811.04	1.2596	41.641	0.000	-124.32	.0545	0.000
21	9.3442	488.785	2781.04	1.2596	43.431	0.000	0.00	.0544	0.000

STATION 19 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES INLET	RELATIVE GAS ANGLES OUTLET	RELATIVE VELOCITIES INLET	RELATIVE VELOCITIES OUTLET	RELATIVE MACH NO.S INLET	RELATIVE MACH NO.S OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE INLET SPEEDS	BLADE OUTLET SPEEDS	STREAM -LINE
1	51.071	33.354	1149.596	1085.726	1.0184	.9513	.0489	.944	0.0000	.0589	0.0	0.0	1
2	50.134	33.145	1140.941	1079.578	1.0094	.9451	.0470	.946	0.0000	.0573	0.0	0.0	2
3	47.803	32.573	1121.622	1060.532	.9892	.9260	.0448	.946	0.0300	.0614	0.0	0.0	3
4	46.434	32.427	1103.957	1047.341	.9764	.9129	.0381	.944	0.0000	.0656	0.0	0.0	4
5	45.258	32.147	1094.821	1033.505	.9619	.8991	.0335	.944	0.0000	.0693	0.0	0.0	5
6	44.038	31.796	1079.503	1019.234	.9464	.8849	.0279	.944	0.0000	.0727	0.0	0.0	6
7	43.021	31.379	1063.459	1004.343	.9300	.8708	.0233	.945	0.0000	.0751	0.0	0.0	7
8	42.034	30.920	1046.845	991.083	.9131	.8571	.0172	.947	0.0000	.0750	0.0	0.0	8
9	41.143	30.462	1030.230	977.847	.8953	.8440	.0129	.949	0.0000	.0730	0.0	0.0	9
10	40.366	30.057	1013.982	965.160	.8798	.8314	.0097	.952	0.0000	.0730	0.0	0.0	10
11	39.716	29.722	998.115	952.718	.8635	.8158	.0075	.955	0.0000	.0703	0.0	0.0	11
12	39.213	29.466	982.470	940.026	.8473	.8059	.0069	.957	0.0000	.0675	0.0	0.0	12
13	38.864	29.239	966.775	926.612	.8310	.7920	.0067	.958	0.0000	.0652	0.0	0.0	13
14	38.692	29.135	950.767	912.110	.8142	.7770	.0068	.959	0.0000	.0640	0.0	0.0	14
15	38.746	29.213	934.861	896.870	.7972	.7609	.0072	.959	0.0000	.0641	0.0	0.0	15
16	39.039	29.398	919.715	881.290	.7804	.7441	.0081	.950	0.0000	.0657	0.0	0.0	16
17	39.864	29.791	905.736	866.795	.7640	.7276	.0099	.957	0.0000	.0668	0.0	0.0	17
18	40.449	30.079	891.119	850.445	.7558	.7199	.0112	.957	0.0000	.0661	0.0	0.0	18
19	41.195	30.450	876.053	833.936	.7470	.7118	.0120	.957	0.0000	.0645	0.0	0.0	19
20	42.124	30.914	860.696	816.644	.7368	.7028	.0146	.958	0.0000	.0621	0.0	0.0	20
21	43.268	31.471	843.102	800.195	.7246	.6928	.0165	.960	0.0000	.0576	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION PRESSURE RATIO	STATION-TO-STATION ISENTROPIC EFFICIENCY	INLET-TO-STATION PRESSURE RATIO	INLET-TO-STATION ISENTROPIC EFFICIENCY	MEAN PARAMETERS PRESSURE RATIO	MEAN PARAMETERS DELTA T ON T	MEAN PARAMETERS ISEN. EFFICCY.	STATION-TO-STATION PRESSURE RATIO	STATION-TO-STATION ISENTROPIC EFFICIENCY	INLET-TO-STATION PRESSURE RATIO	INLET-TO-STATION ISENTROPIC EFFICIENCY
1	.9764	0.0000	2.0310	.2351	.9541	.9541	.9541	.9944	1.9548	1.9548	.8614
2	.9776	0.0000	2.0297	.2347	.9546	.9546	.9546	.9944	1.9548	1.9548	.8614
3	.9806	0.0000	2.0243	.2336	.9549	.9549	.9549	.9944	1.9548	1.9548	.8614
4	.9826	0.0000	2.0198	.2330	.9544	.9544	.9544	.9944	1.9548	1.9548	.8614
5	.9850	0.0000	2.0155	.2324	.9536	.9536	.9536	.9944	1.9548	1.9548	.8614
6	.9878	0.0000	2.0113	.2318	.9525	.9525	.9525	.9944	1.9548	1.9548	.8614
7	.9905	0.0000	2.0068	.2314	.9504	.9504	.9504	.9944	1.9548	1.9548	.8614
8	.9928	0.0000	1.9995	.2311	.9468	.9468	.9468	.9944	1.9548	1.9548	.8614
9	.9948	0.0000	1.9919	.2311	.9411	.9411	.9411	.9944	1.9548	1.9548	.8614
10	.9961	0.0000	1.9835	.2315	.9329	.9329	.9329	.9944	1.9548	1.9548	.8614
11	.9970	0.0000	1.9743	.2326	.9218	.9218	.9218	.9944	1.9548	1.9548	.8614
12	.9974	0.0000	1.9644	.2343	.9076	.9076	.9076	.9944	1.9548	1.9548	.8614
13	.9976	0.0000	1.9535	.2367	.8903	.8903	.8903	.9944	1.9548	1.9548	.8614
14	.9976	0.0000	1.9417	.2399	.8696	.8696	.8696	.9944	1.9548	1.9548	.8614
15	.9975	0.0000	1.9297	.2444	.8448	.8448	.8448	.9944	1.9548	1.9548	.8614
16	.9973	0.0000	1.9187	.2506	.8154	.8154	.8154	.9944	1.9548	1.9548	.8614
17	.9968	0.0000	1.9099	.2600	.7806	.7806	.7806	.9944	1.9548	1.9548	.8614
18	.9965	0.0000	1.9056	.2659	.7610	.7610	.7610	.9944	1.9548	1.9548	.8614
19	.9968	0.0000	1.9035	.2726	.7401	.7401	.7401	.9944	1.9548	1.9548	.8614
20	.9956	0.0000	1.9001	.2801	.7183	.7183	.7183	.9944	1.9548	1.9548	.8614
21	.9951	0.0000	1.8958	.2881	.6957	.6957	.6957	.9944	1.9548	1.9548	.8614

STATION 20

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY		ANGLE		TANGENTIAL		TEMPERATURE		PRESSURES		MACH NUMBER	WHLR ANGLE	SLOPE ANGLE	RAD. OF CURVATURE		STATIC DENSITY	INCIDENCE DEVIATION
		ABSOLUTE	RELATIVE	INLET	OUTLET	TOTAL	STATIC	TOTAL	STATIC	INLET	OUTLET							
1	5.1688	1036.255	955.450	104.030	646.6	550.9	3014.79	1777.37	.9027	22.901	22.491	-7.92	.0605	0.000				
2	5.2378	1033.201	952.400	103.549	640.4	551.6	3016.87	1788.24	.8976	22.810	21.864	-8.26	.0608	0.000				
3	5.3604	1017.749	939.670	100.939	639.9	553.7	3019.52	1819.12	.8827	22.589	20.217	-9.24	.0616	0.000				
4	5.4615	1007.242	930.873	100.705	639.5	555.1	3020.04	1839.35	.8724	22.454	19.154	-9.95	.0621	0.000				
5	5.5355	995.950	921.547	100.794	639.2	556.7	3020.58	1861.11	.8615	22.292	17.990	-10.84	.0627	0.000				
6	5.7326	983.788	911.537	100.054	638.9	558.4	3020.02	1883.99	.8496	22.036	16.755	-11.91	.0633	0.000				
7	5.8734	971.191	901.335	101.674	638.7	560.2	3013.44	1906.96	.8374	21.834	15.464	-13.15	.0638	0.000				
8	6.0383	958.546	891.164	103.039	638.6	562.1	3015.81	1929.40	.8251	21.611	14.124	-14.70	.0644	0.000				
9	6.2285	945.932	880.803	104.651	638.5	564.1	3011.32	1950.82	.8127	21.370	12.744	-16.87	.0649	0.000				
10	6.3893	933.100	870.113	106.113	638.3	566.3	3004.07	1970.61	.8002	21.173	11.341	-19.91	.0653	0.000				
11	6.5804	920.420	859.144	107.303	638.2	568.6	2993.54	1988.23	.7876	21.030	9.937	-24.20	.0656	0.000				
12	6.7815	907.933	847.971	108.482	640.2	571.6	2980.08	2003.76	.7750	20.940	8.562	-30.08	.0657	0.000				
13	6.9932	895.488	836.559	109.480	641.5	574.7	2964.18	2017.52	.7623	20.902	7.238	-37.57	.0658	0.000				
14	7.2155	883.030	824.856	110.206	643.1	578.2	2946.18	2030.03	.7494	20.914	5.980	-45.75	.0658	0.000				
15	7.4588	870.758	813.033	111.784	645.5	582.4	2927.72	2042.08	.7363	20.980	4.784	-52.64	.0658	0.000				
16	7.6937	858.905	801.267	113.336	648.8	587.4	2910.34	2054.71	.7232	21.110	3.629	-57.76	.0656	0.000				
17	7.9503	848.546	790.625	114.828	651.5	593.3	2895.58	2067.84	.7107	21.292	2.470	-61.16	.0653	0.000				
18	8.2332	840.309	785.110	116.241	656.6	597.6	2883.49	2073.95	.7050	21.398	1.884	-75.91	.0651	0.000				
19	8.5473	835.645	775.552	117.582	664.0	605.9	2877.17	2087.66	.6928	21.677	.666	-165.65	.0646	0.000				
20	8.8960	830.617	770.914	118.914	668.1	610.7	2869.44	2094.76	.6859	21.855	0.000	0.00	.0643	0.000				

STATION 20 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES		RELATIVE VELOCITIES		RELATIVE MACH NO.'S		LOSS COEFF	DE HALL NUMBER	DIFFUSION FACTOR	BLADE SPEEDS		DELTA P UPON Q	STREAM -LINE
	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET				INLET	OUTLET		
1	33.354	22.341	1045.726	1036.295	.9513	.9027	.0975	.956	0.0000	0.0	.0377	0.0	1
2	33.145	22.610	1079.578	1033.201	.9451	.8976	.0936	.957	0.0000	0.0	.0360	0.0	2
3	32.673	22.599	1060.332	1017.749	.9280	.8827	.0825	.960	0.0000	0.0	.0379	0.0	3
4	32.427	22.434	1047.381	1007.794	.9129	.8724	.0765	.962	0.0000	0.0	.0375	0.0	4
5	32.147	22.232	1033.505	995.950	.8991	.8615	.0658	.964	0.0000	0.0	.0372	0.0	5
6	31.736	22.036	1019.234	983.788	.8849	.8496	.0567	.965	0.0000	0.0	.0372	0.0	6
7	31.379	21.584	1004.943	971.191	.8708	.8374	.0471	.967	0.0000	0.0	.0382	0.0	7
8	30.920	21.511	991.063	958.546	.8571	.8251	.0374	.967	0.0000	0.0	.0406	0.0	8
9	30.462	21.370	977.347	945.932	.8440	.8127	.0278	.967	0.0000	0.0	.0441	0.0	9
10	30.056	21.173	965.160	933.100	.8314	.8002	.0205	.967	0.0000	0.0	.0461	0.0	10
11	29.721	21.030	952.718	920.420	.8188	.7876	.0159	.966	0.0000	0.0	.0513	0.0	11
12	29.466	20.940	940.026	907.933	.8059	.7750	.0138	.966	0.0000	0.0	.0528	0.0	12
13	29.289	20.902	926.612	895.488	.7920	.7623	.0134	.966	0.0000	0.0	.0523	0.0	13
14	29.195	20.914	912.113	883.030	.7770	.7494	.0136	.966	0.0000	0.0	.0496	0.0	14
15	29.213	20.950	896.870	870.758	.7639	.7363	.0145	.971	0.0000	0.0	.0447	0.0	15
16	29.348	21.110	881.290	858.935	.7441	.7232	.0164	.975	0.0000	0.0	.0378	0.0	16
17	29.731	21.292	866.795	848.546	.7276	.7107	.0199	.979	0.0000	0.0	.0290	0.0	17
18	30.079	21.396	860.445	840.309	.7139	.7050	.0225	.981	0.0000	0.0	.0241	0.0	18
19	30.450	21.524	853.936	833.152	.7118	.6991	.0257	.984	0.0000	0.0	.0183	0.0	19
20	30.914	21.677	846.645	825.645	.7028	.6928	.0292	.987	0.0000	0.0	.0114	0.0	20
21	31.471	21.855	835.195	818.607	.6928	.6859	.0330	.991	0.0000	0.0	.0031	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS			INLET-TO-STATION-PARAMETERS			STATION-TO-STATION			INLET-TO-STATION		
	RAIOUS	DELTA T	EFFICIENCY	RAIOUS	DELTA T	EFFICIENCY	RAIOUS	DELTA T	EFFICIENCY	RAIOUS	DELTA T	EFFICIENCY
1	0.753	3.0000	0.0000	1.9021	0.9179	0.2351	0.8647	13.934	16.771	-7.92	0.609	0.000
2	0.772	0.0000	0.0000	1.9035	0.2347	0.2263	0.8614	13.978	16.346	-8.21	0.611	0.000
3	0.807	0.0000	0.0000	1.9052	0.2335	0.2258	0.8510	13.943	17.183	-9.04	0.619	0.000
4	0.833	0.0000	0.0000	1.9056	0.2330	0.2268	0.8438	13.916	16.394	-9.60	0.623	0.000
5	0.851	0.0000	0.0000	1.9059	0.2324	0.2314	0.8350	13.862	15.501	-10.22	0.629	0.000
6	0.872	0.0000	0.0000	1.9055	0.2313	0.2332	0.8279	13.765	14.521	-10.93	0.634	0.000
7	0.893	0.0000	0.0000	1.9045	0.2314	0.2343	0.8192	13.628	13.470	-11.80	0.640	0.000
8	0.915	0.0000	0.0000	1.9029	0.2311	0.2342	0.8100	13.470	12.358	-12.88	0.646	0.000
9	0.939	0.0000	0.0000	1.9796	0.2311	0.2320	0.8001	13.323	11.201	-14.23	0.651	0.000
10	0.957	0.0000	0.0000	1.9751	0.2315	0.2265	0.7932	13.224	10.012	-15.98	0.655	0.000
11	0.969	0.0000	0.0000	1.9681	0.2320	0.2171	0.7773	13.183	8.812	-18.31	0.658	0.000
12	0.974	0.0000	0.0000	1.9593	0.2343	0.2038	0.7641	13.131	7.622	-21.45	0.660	0.000
13	0.976	0.0000	0.0000	1.9499	0.2307	0.1868	0.7515	13.231	6.459	-25.66	0.662	0.000
14	0.976	0.0000	0.0000	1.9370	0.2399	0.1661	0.7382	13.284	5.329	-31.24	0.662	0.000
15	0.975	0.0000	0.0000	1.9249	0.2444	0.1413	0.7252	13.356	4.233	-38.87	0.661	0.000
16	0.973	0.0000	0.0000	1.9134	0.2508	0.1117	0.7129	13.465	3.159	-50.49	0.660	0.000
17	0.953	0.0000	0.0000	1.9037	0.2560	0.0764	0.7022	13.634	2.071	-73.69	0.655	0.000
18	0.950	0.0000	0.0000	1.8997	0.2659	0.0564	0.6975	13.746	1.571	-96.30	0.652	0.000
19	0.935	0.0000	0.0000	1.8923	0.2720	0.0351	0.6931	13.882	1.050	-133.21	0.649	0.000
20	0.935	0.0000	0.0000	1.8916	0.2801	0.0128	0.6894	14.040	0.528	-265.49	0.645	0.000
21	0.9351	0.0000	0.0000	1.8963	0.2881	0.0099	0.6834	14.216	0.000	0.000	0.641	0.000

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GENERAL FLOW PARAMETERS

LOCAT TION	RADIUS		DELTA T		EFFICIENCY		TEMPERATURES		PRESSURES		MACH		SLOPE		RAD. OF		STATIC		INCIDENCE	
	ABSOLUTE	MERIDIANL.	TANGENTL.	TOTAL	STATIC	TOTAL	STATIC	DELTA T	EFFICIENCY	DELTA T	EFFICIENCY	NUMBER	ANGLE	WTRL	ANGLE	SLOPE	ANGLE	CURVITRE.	DENSITY	DEVIATION
1	5.3755	1090.319	370.629	241.304	546.6	547.3	2345.69	1909.42	0.8647	13.934	16.771	-7.92	0.609	0.000						
2	5.4170	995.870	907.351	240.791	640.4	557.7	2351.00	1818.33	0.8614	13.978	16.346	-8.21	0.611	0.000						
3	5.5383	985.371	953.921	237.573	639.9	559.0	2354.89	1743.85	0.8510	13.943	17.183	-9.04	0.619	0.000						
4	5.6254	978.320	947.605	235.287	639.5	559.9	2364.95	1668.84	0.8438	13.916	16.394	-9.60	0.623	0.000						
5	5.7312	970.221	941.464	232.449	639.2	560.9	2371.58	1679.93	0.8350	13.862	15.501	-10.22	0.629	0.000						
6	5.8514	961.782	934.084	228.319	638.9	562.0	2379.13	1600.50	0.8279	13.765	14.521	-10.93	0.634	0.000						
7	5.9856	952.650	925.839	224.459	638.7	563.2	2386.09	1521.76	0.8192	13.628	13.470	-11.80	0.640	0.000						
8	6.1327	943.855	917.124	219.871	638.6	564.5	2391.25	1443.05	0.8100	13.470	12.358	-12.88	0.646	0.000						
9	6.2917	932.321	907.717	214.352	638.4	566.1	2393.41	1363.80	0.8001	13.323	11.201	-14.23	0.651	0.000						
10	6.4620	921.752	897.320	210.460	638.3	568.1	2391.23	1283.52	0.7932	13.224	10.012	-15.98	0.655	0.000						
11	6.6434	909.736	885.813	207.460	639.3	570.4	2384.06	1201.80	0.7773	13.183	8.812	-18.31	0.658	0.000						
12	6.8357	897.147	873.475	204.727	640.2	573.2	2372.29	1118.41	0.7641	13.131	7.622	-21.45	0.660	0.000						
13	7.0392	884.139	863.671	202.357	641.5	576.4	2356.88	1033.27	0.7515	13.231	6.459	-25.66	0.662	0.000						
14	7.2540	871.119	857.440	200.169	643.1	580.0	2339.03	946.43	0.7382	13.284	5.329	-31.24	0.662	0.000						
15	7.4813	858.835	855.683	198.364	645.1	584.1	2320.37	858.03	0.7252	13.356	4.233	-38.87	0.661	0.000						
16	7.7233	847.839	854.533	197.423	646.6	589.0	2302.34	768.32	0.7129	13.465	3.159	-50.49	0.660	0.000						
17	7.9877	838.242	853.540	197.018	653.5	594.9	2286.26	675.92	0.7022	13.634	2.071	-73.69	0.655	0.000						
18	8.2835	830.157	852.207	196.691	656.6	598.4	2273.24	583.4	0.6975	13.746	1.571	-96.30	0.652	0.000						
19	8.6284	823.473	853.123	196.911	660.1	602.3	2272.25	493.64	0.6931	13.882	1.050	-133.21	0.649	0.000						
20	9.0228	818.734	853.975	201.569	664.8	606.5	2264.62	408.64	0.6894	14.040	0.528	-265.49	0.645	0.000						
21	9.4689	815.653	855.582	203.301	668.1	611.1	2255.77	328.32	0.6834	14.216	0.000	0.000	0.641	0.000						

STATION 21

STATION 21 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT-IM. INLET	RELATIVE GAS ANGLES OUTLET	RELATIVE VELOCITIES INLET	RELATIVE VELOCITIES OUTLET	RELATIVE MACH NO.S INLET	RELATIVE MACH NO.S OUTLET	LOSS COEFF	DE HALL NUMBER	JIFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	BLADE SPEEDS OUTLET	STREAM -LINE
1	22.980	13.994	1038.285	1000.319	.9027	.8647	.1421	.963	0.0000	.0259	0.0	0.0	1
2	22.610	13.973	1032.201	996.870	.8978	.8614	.1373	.965	0.0000	.0245	0.0	0.0	2
3	22.569	13.343	1017.740	985.971	.8627	.8510	.1233	.959	0.0300	.0205	0.0	0.0	3
4	22.454	13.916	1007.242	978.320	.8724	.8438	.1131	.971	0.0000	.0182	0.0	0.0	4
5	22.291	13.802	995.980	970.221	.8615	.8350	.1009	.974	0.0000	.0162	0.0	0.0	5
6	22.046	13.705	981.754	951.712	.8496	.8279	.0968	.970	0.0300	.0145	0.0	0.0	6
7	21.604	13.620	971.191	952.580	.8374	.8192	.0716	.961	0.0000	.0133	0.0	0.0	7
8	21.611	13.470	953.546	943.045	.8251	.8109	.0563	.984	0.0000	.0126	0.0	0.0	8
9	21.370	13.323	945.832	932.821	.8127	.8001	.0423	.986	0.0300	.0122	0.0	0.0	9
10	21.123	13.224	933.100	921.742	.8002	.7832	.0311	.988	0.0300	.0125	0.0	0.0	10
11	21.030	13.163	923.450	909.788	.7876	.7773	.0241	.988	0.0000	.0135	0.0	0.0	11
12	20.940	13.191	907.933	897.147	.7750	.7623	.0208	.986	0.0000	.0150	0.0	0.0	12
13	20.902	13.231	893.486	884.144	.7623	.7515	.0200	.987	0.0800	.0166	0.0	0.0	13
14	20.814	13.234	883.030	871.149	.7494	.7352	.0205	.987	0.0000	.0179	0.0	0.0	14
15	20.930	13.356	870.758	855.385	.7363	.7252	.0218	.986	0.0000	.0218	0.0	0.0	15
16	21.109	13.465	858.905	847.439	.7232	.7129	.0246	.967	0.0000	.0159	0.0	0.0	16
17	21.232	13.634	846.546	835.242	.7107	.7022	.0299	.989	0.0000	.0112	0.0	0.0	17
18	21.338	13.746	844.304	838.137	.7050	.6975	.0337	.990	0.0300	.0079	0.0	0.0	18
19	21.524	13.862	840.152	831.473	.6991	.6931	.0383	.992	0.0000	.0038	0.0	0.0	19
20	21.676	14.043	835.645	830.794	.6928	.6884	.0435	.994	0.0000	-.0013	0.0	0.0	20
21	21.854	14.215	830.607	827.853	.6859	.6834	.0490	.997	0.0000	-.0070	0.0	0.0	21

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OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION PRESSURE RATIO	STATION-TO-STATION DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION PRESSURE RATIO	INLET-TO-STATION DELTA T ON T	ISENTROPIC EFFICIENCY	MEAN PARAMETERS PRESSURE RATIO DELTA T ON T ISEN. EFFICY.	STATION-TO-STATION PRESSURE RATIO DELTA T ON T ISEN. EFFICY.	INLET-TO-STATION PRESSURE RATIO DELTA T ON T ISEN. EFFICY.	
1	.9774	0.0020	0.0000	1.9373	.2351	.6843	.9341	1.9320	.2448	.6448
2	.9782	0.0000	0.0000	1.9402	.2347	.6678	-.0000	1.9320	.2448	.6448
3	.9802	0.0030	0.0000	1.9460	.2336	.6963	*****	1.9320	.2448	.6448
4	.9813	0.0000	0.0000	1.9493	.2330	.9014	*****	1.9320	.2448	.6448
5	.9835	0.0000	0.0000	1.9537	.2324	.9070	*****	1.9320	.2448	.6448
6	.9865	0.0000	0.0000	1.9567	.2318	.9128	*****	1.9320	.2448	.6448
7	.9833	0.0000	0.0000	1.9632	.2314	.9161	*****	1.9320	.2448	.6448
8	.9919	0.0000	0.0000	1.9666	.2311	.9219	*****	1.9320	.2448	.6448
9	.9941	0.0000	0.0000	1.9681	.2311	.9230	*****	1.9320	.2448	.6448
10	.9957	0.0000	0.0000	1.9687	.2315	.9201	*****	1.9320	.2448	.6448
11	.9953	0.0000	0.0000	1.9619	.2326	.9124	*****	1.9320	.2448	.6448
12	.9974	0.0000	0.0000	1.9542	.2343	.9000	*****	1.9320	.2448	.6448
13	.9976	0.0000	0.0000	1.9440	.2367	.8852	*****	1.9320	.2448	.6448
14	.9976	0.0000	0.0000	1.9323	.2393	.8626	*****	1.9320	.2448	.6448
15	.9973	0.0000	0.0000	1.9200	.2444	.8378	*****	1.9320	.2448	.6448
16	.9973	0.0000	0.0000	1.9042	.2508	.8079	*****	1.9320	.2448	.6448
17	.9953	0.0000	0.0000	1.8976	.2580	.7721	*****	1.9320	.2448	.6448
18	.9965	0.0000	0.0000	1.8930	.2659	.7518	*****	1.9320	.2448	.6448
19	.9961	0.0000	0.0000	1.8864	.2726	.7301	*****	1.9320	.2448	.6448
20	.9950	0.0000	0.0000	1.8834	.2801	.7075	*****	1.9320	.2448	.6448
21	.9932	0.0000	0.0000	1.8776	.2861	.6842	*****	1.9320	.2448	.6448

STATION 22

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	W E L D C I T I E S	TEMPERATURES	PRESSURES	MACH	W H I R L	SLOPE	RAD. OF	STATIC	INCIDENCE
		ANISORUFE	TOTAL	TOTAL	NUMBER	ANGLE	ANGLE	CURVITRE.	DENSITY	DEVIATION
		REGIONL. TANGENTL.	STATIC	STATIC						
1	5.5125	956.393	648.6	2670.60	.8281	5.785	15.166	-7.89	.8609	0.000
2	5.5117	953.883	640.4	2679.68	.8257	5.775	14.883	-6.16	.8612	0.000
3	5.5113	951.373	632.2	2688.76	.8233	5.765	14.600	-5.44	.8615	0.000
4	5.5109	948.863	624.0	2697.84	.8209	5.755	14.317	-4.72	.8618	0.000
5	5.5105	946.353	615.8	2706.92	.8185	5.745	14.034	-4.00	.8621	0.000
6	5.5101	943.843	607.6	2716.00	.8161	5.735	13.751	-3.28	.8624	0.000
7	5.5097	941.333	599.4	2725.08	.8137	5.725	13.468	-2.56	.8627	0.000
8	5.5093	938.823	591.2	2734.16	.8113	5.715	13.185	-1.84	.8630	0.000
9	5.5089	936.313	583.0	2743.24	.8089	5.705	12.902	-1.12	.8633	0.000
10	5.5085	933.803	574.8	2752.32	.8065	5.695	12.619	-0.40	.8636	0.000
11	5.5081	931.293	566.6	2761.40	.8041	5.685	12.336	0.32	.8639	0.000
12	5.5077	928.783	558.4	2770.48	.8017	5.675	12.053	1.04	.8642	0.000
13	5.5073	926.273	550.2	2779.56	.7993	5.665	11.770	1.76	.8645	0.000
14	5.5069	923.763	542.0	2788.64	.7969	5.655	11.487	2.48	.8648	0.000
15	5.5065	921.253	533.8	2797.72	.7945	5.645	11.204	3.20	.8651	0.000
16	5.5061	918.743	525.6	2806.80	.7921	5.635	10.921	3.92	.8654	0.000
17	5.5057	916.233	517.4	2815.88	.7897	5.625	10.638	4.64	.8657	0.000
18	5.5053	913.723	509.2	2824.96	.7873	5.615	10.355	5.36	.8660	0.000
19	5.5049	911.213	501.0	2834.04	.7849	5.605	10.072	6.08	.8663	0.000
20	5.5045	908.703	492.8	2843.12	.7825	5.595	9.789	6.80	.8666	0.000
21	5.5041	906.193	484.6	2852.20	.7801	5.585	9.506	7.52	.8669	0.000

STATION 22 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM	RELATIVE	GAS	RELATIVE	VELOCITIES	MACH	DE	LOSS	DIFFUS	BLADE	BLADE	STREAK
-LINE	OPT. IN.	INLET	OUTLET	INLET	OUTLET	LOSS	COEFF	FACTOR	INLET	OUTLET	-LINE
1	13.894	6.785	1088.319	963.139	.8687	.6281	.1919	.963	0.0	0.0	1
2	13.878	6.775	956.870	860.591	.8614	.6257	.1853	.964	0.0	0.0	2
3	13.863	6.765	825.421	752.421	.8541	.6131	.1787	.966	0.0	0.0	3
4	13.847	6.755	693.971	644.735	.8468	.6010	.1721	.968	0.0	0.0	4
5	13.832	6.745	562.522	537.053	.8395	.5889	.1655	.970	0.0	0.0	5
6	13.816	6.735	431.073	430.369	.8322	.5768	.1589	.972	0.0	0.0	6
7	13.801	6.725	300.624	323.685	.8249	.5647	.1523	.974	0.0	0.0	7
8	13.785	6.715	170.175	217.001	.8176	.5526	.1457	.976	0.0	0.0	8
9	13.770	6.705	40.726	110.317	.8103	.5405	.1391	.978	0.0	0.0	9
10	13.754	6.695	10.277	4.633	.8030	.5284	.1325	.979	0.0	0.0	10
11	13.739	6.685	0.728	0.949	.7957	.5163	.1259	.980	0.0	0.0	11
12	13.723	6.675	0.179	0.265	.7884	.5042	.1193	.981	0.0	0.0	12
13	13.708	6.665	0.630	0.726	.7811	.4921	.1127	.982	0.0	0.0	13
14	13.692	6.655	1.081	1.187	.7738	.4800	.1061	.983	0.0	0.0	14
15	13.677	6.645	1.532	1.648	.7665	.4679	.0995	.984	0.0	0.0	15
16	13.661	6.635	1.983	2.109	.7592	.4558	.0929	.985	0.0	0.0	16
17	13.646	6.625	2.434	2.570	.7519	.4437	.0863	.986	0.0	0.0	17
18	13.630	6.615	2.885	3.031	.7446	.4316	.0797	.987	0.0	0.0	18
19	13.615	6.605	3.336	3.492	.7373	.4195	.0731	.988	0.0	0.0	19
20	13.600	6.595	3.787	3.953	.7300	.4074	.0665	.989	0.0	0.0	20
21	13.584	6.585	4.238	4.414	.7227	.3953	.0600	.990	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	INLET-TO-STATION-PARAMETERS DELTA T ISENTROPIC EFFICIENCY	MEAN PARAMETERS PRESSURE RATIO DELTA T ON T ISEN EFFICY.	STATION-T-J-STATION .9348 -.0000 *****	INLET-T-J-STATION 1.9204 .2449 .8354
1	.9742	0.0000	.8460		
2	.9755	0.0000	.8514		
3	.9793	0.0000	.8574		
4	.9814	0.0000	.8650		
5	.9839	0.0000	.8736		
6	.9854	0.0000	.8830		
7	.9890	0.0000	.8925		
8	.9915	0.0000	.9016		
9	.9941	0.0000	.9111		
10	.9970	0.0000	.9215		
11	.9975	0.0000	.9262		
12	.9975	0.0000	.9326		
13	.9975	0.0000	.9343		
14	.9975	0.0000	.9393		
15	.9975	0.0000	.9441		
16	.9973	0.0000	.9485		
17	.9959	0.0000	.9564		
18	.9955	0.0000	.9641		
19	.9951	0.0000	.9715		
20	.9925	0.0000	.9799		
21	.9931	0.0000	.9862		

STATION 23

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITY M/S	ANGLE DEG	INCIDENCE ANGLE DEG	STATIC PRESSURE TOTAL	STATIC PRESSURE TOTAL	MACH NUMBER	ANGLE DEG	RAD-OF- CURVTR.	DENSITY	INCIDENCE DEVIATION
1	5.6314	695.051	0.000	573.9	2805.64	1910.20	.7524	10.903	-7.93	.0624	0.000
2	5.6643	694.678	0.000	573.8	2813.49	1919.20	.7522	0.000	10.716	.0627	0.000
3	5.7753	691.316	0.300	573.7	2853.71	1944.65	.7599	0.000	10.159	.0636	0.000
4	5.8575	689.498	0.300	573.7	2870.91	1962.26	.7579	0.000	9.752	.0642	0.000
5	5.9554	686.939	0.000	573.9	2893.98	1982.25	.7529	0.000	9.262	.0648	0.000
6	6.0606	683.463	0.000	573.9	2917.76	2003.74	.7529	0.000	8.702	.0655	0.000
7	6.1815	679.756	0.000	574.3	2939.68	2025.93	.7492	0.000	8.075	.0662	0.000
8	6.3180	674.222	0.000	574.9	2957.44	2048.04	.7440	0.000	7.403	.0668	0.000
9	6.4577	666.715	0.000	576.0	2968.62	2069.42	.7369	0.000	6.704	.0674	0.000
10	6.6121	656.731	0.000	576.6	2971.39	2089.62	.7275	0.000	5.996	.0678	0.000
11	6.7773	644.437	0.300	579.9	2980.84	2108.33	.7160	0.000	5.291	.0682	0.000
12	6.9534	631.738	0.000	580.2	2980.49	2125.38	.7032	0.000	4.593	.0684	0.000
13	7.1404	618.468	0.000	581.5	2983.24	2140.60	.6902	0.000	3.899	.0685	0.000
14	7.3386	605.206	0.000	583.1	2977.51	2153.79	.6770	0.000	3.203	.0686	0.000
15	7.5480	592.237	0.000	585.2	2963.09	2164.77	.6638	0.000	2.509	.0684	0.000
16	7.7688	579.478	0.000	588.8	2950.60	2173.48	.6507	0.000	1.830	.0681	0.000
17	8.0013	565.239	0.000	594.3	2940.33	2180.08	.6386	0.000	1.188	.0678	0.000
18	8.2453	550.303	0.000	601.9	2928.74	2182.66	.6278	0.000	.878	.0673	0.000
19	8.5022	535.994	0.000	611.7	2916.16	2184.79	.6178	0.000	.575	.0670	0.000
20	8.7712	521.159	0.000	616.2	2903.00	2186.47	.6084	0.000	.282	.0665	0.000
21	9.0500	505.173	0.000	620.9	2887.61	2187.73	.6000	0.000	0.000	.0661	0.000

STATION 23 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLE'S OPT. INLET	RELATIVE VELOCITIES INLET	RELATIVE VELOCITIES OUTLET	RELATIVE MACH NO.S INLET	RELATIVE MACH NO.S OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUSION FACTOR	DELTA P UP3N Q	BLADE SPEEDS INLET	BLADE SPEEDS OUTLET	STREAM -LINE
1	6.745	0.000	945.133	395.051	.8251	.7624	.2330	.929	.0763	0.0	0.0	1
2	6.775	0.000	903.551	394.074	.8257	.7622	.2260	.931	.0756	0.0	0.0	2
3	6.750	0.000	952.423	393.315	.8151	.7535	.1961	.930	.0754	0.0	0.0	3
4	6.727	0.000	945.705	389.436	.8129	.7579	.1763	.939	.0759	0.0	0.0	4
5	6.691	0.000	943.963	386.939	.8075	.7556	.1560	.943	.0767	0.0	0.0	5
6	6.647	0.000	938.000	383.553	.8016	.7529	.1321	.940	.0777	0.0	0.0	6
7	6.594	0.000	927.932	379.756	.7952	.7492	.1068	.948	.0787	0.0	0.0	7
8	6.522	0.000	923.832	376.222	.7883	.7469	.0828	.950	.0795	0.0	0.0	8
9	6.435	0.000	912.213	366.715	.7802	.7369	.0523	.950	.0800	0.0	0.0	9
10	6.419	0.000	902.115	350.731	.7704	.7275	.0477	.950	.0803	0.0	0.0	10
11	6.435	0.000	899.199	344.537	.7587	.7100	.0391	.949	.0810	0.0	0.0	11
12	6.455	0.000	875.949	333.738	.7425	.7032	.0348	.949	.0822	0.0	0.0	12
13	6.432	0.000	862.334	318.438	.7315	.6902	.0326	.948	.0839	0.0	0.0	13
14	6.342	0.000	843.457	303.235	.7174	.6770	.0315	.949	.0857	0.0	0.0	14
15	6.306	0.000	833.504	292.237	.7037	.6638	.0310	.948	.0871	0.0	0.0	15
16	6.617	0.000	823.703	279.473	.6907	.6517	.0317	.947	.0877	0.0	0.0	16
17	6.615	0.000	814.634	269.239	.6791	.6386	.0310	.945	.0880	0.0	0.0	17
18	6.615	0.000	803.201	256.333	.6739	.6331	.0310	.944	.0878	0.0	0.0	18
19	6.905	0.000	800.512	243.338	.6689	.6278	.0340	.943	.0879	0.0	0.0	19
20	7.085	0.000	803.327	231.133	.6636	.6224	.0720	.942	.0881	0.0	0.0	20
21	7.134	0.000	803.124	223.173	.6580	.6168	.0617	.941	.0887	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-10-STATION-PARAMETERS PRESSURE RATIO	STATION-10-STATION-PARAMETERS DELTA T ON T	STATION-10-STATION-PARAMETERS ISENTROPIC EFFICIENCY	MEAN PARAMETERS PRESSURE RATIO	MEAN PARAMETERS DELTA T ON T	MEAN PARAMETERS ISEN. EFFICIENCY	STATION-10-STATION INLET-T0-STATION
1	.9775	0.0000	0.0000	1.8454	.2351	.8155	1.9123
2	.9770	0.0000	0.0000	1.8337	.2347	.8212	.8304
3	.9830	0.0000	0.0000	1.8742	.2330	.8410	
4	.9857	0.0000	0.0000	1.8875	.2330	.8536	
5	.9823	0.0000	0.0000	1.9027	.2327	.8676	
6	.9823	0.0000	0.0000	1.9133	.2313	.8819	
7	.9954	0.0000	0.0000	1.9327	.2314	.8947	
8	.9971	0.0000	0.0000	1.9444	.2311	.9049	
9	.9971	0.0000	0.0000	1.9518	.2311	.9105	
10	.9972	0.0000	0.0000	1.9536	.2310	.9161	
11	.9972	0.0000	0.0000	1.9595	.2310	.9037	
12	.9972	0.0000	0.0000	1.9633	.2343	.8921	
13	.9975	0.0000	0.0000	1.9651	.2367	.8765	
14	.9945	0.0000	0.0000	1.9247	.2399	.8569	
15	.9930	0.0000	0.0000	1.9125	.2444	.8323	
16	.9933	0.0000	0.0000	1.8992	.2503	.8015	
17	.9953	0.0000	0.0000	1.8859	.2500	.7639	
18	.9954	0.0000	0.0000	1.8742	.2659	.7420	
19	.9954	0.0000	0.0000	1.8732	.2726	.7200	
20	.9955	0.0000	0.0000	1.8655	.2601	.6955	
21	.9951	0.0000	0.0000	1.8592	.2881	.6726	

STATION 24

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	ASO-JFL	WALL THICKNESS	TEMPERATURES TOTAL	TEMPERATURES STATIC	TOTAL PRESSURES	STATIC PRESSURES	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTR.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.7569	612.720	512.720	3.305	565.6	2805.64	2050.10	.6853	0.000	5.237	-7.39	.0657	0.000
2	5.7312	616.550	614.433	3.300	565.2	2613.49	2355.31	.6870	0.030	5.475	-6.12	.0659	0.000
3	5.6932	617.251	615.233	3.300	564.3	2451.71	2073.71	.6899	0.030	5.244	-9.33	.0666	0.000
4	5.6572	618.533	615.631	0.320	563.7	2271.91	2085.03	.6914	0.000	5.136	-9.34	.0670	0.000
5	5.6232	620.332	620.332	0.320	563.2	2093.93	2113.03	.6933	0.000	4.954	-10.03	.0675	0.000
6	5.5932	621.430	621.430	0.320	562.7	2117.76	2113.76	.6948	0.000	4.736	-10.31	.0680	0.000
7	5.5632	622.156	622.300	0.320	562.4	2133.64	2126.15	.6954	0.000	4.487	-12.02	.0685	0.000
8	5.5332	622.773	622.773	0.320	562.4	2147.44	2142.95	.6944	0.000	4.209	-13.43	.0690	0.000
9	5.5032	623.179	623.179	0.320	562.4	2153.62	2157.93	.6912	0.000	3.905	-15.22	.0694	0.000
10	5.4732	623.541	623.541	0.320	562.0	2157.39	2170.29	.6853	3.000	3.580	-17.53	.0697	0.000
11	5.4432	623.830	623.830	0.320	561.7	2152.84	2182.24	.6772	0.000	3.235	-20.58	.0699	0.000
12	5.4132	624.119	624.119	0.320	561.4	2144.48	2192.97	.6675	1.000	2.872	-24.70	.0700	0.000
13	5.3832	624.327	624.327	0.320	561.2	2133.24	2202.94	.6574	0.000	2.493	-30.44	.0699	0.000
14	5.3532	624.422	624.422	0.320	561.1	2119.51	2209.50	.6470	0.000	2.094	-39.08	.0698	0.000
15	5.3232	624.355	624.355	0.320	561.0	2093.09	2215.35	.6362	0.000	1.692	-52.35	.0696	0.000
16	5.2932	624.129	624.129	0.320	561.0	2033.68	2219.64	.6253	0.000	1.275	-77.46	.0692	0.000
17	5.2632	623.755	623.754	0.320	561.0	2004.38	2222.57	.6149	0.000	.852	-130.55	.0686	0.000
18	5.2332	623.232	623.232	0.320	561.1	2053.74	2223.56	.6042	0.000	.436	-186.79	.0682	0.000
19	5.2032	622.551	622.551	0.320	561.3	2093.13	2223.99	.5950	0.000	.025	-305.32	.0678	0.000
20	5.1732	621.755	621.755	0.320	561.6	2133.00	2224.33	.5809	0.000	.212	-661.82	.0674	0.000
21	5.1432	620.841	620.841	0.320	562.0	2171.61	2224.43	.5650	0.000	0.000	0.00	.0669	0.000

STATION 25

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	ASO-JFL	WALL THICKNESS	TEMPERATURES TOTAL	TEMPERATURES STATIC	TOTAL PRESSURES	STATIC PRESSURES	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTR.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.7569	751.723	751.723	0.300	563.5	2303.65	2097.97	.6548	0.000	1.323	-17.37	.0667	0.000
2	5.7312	751.342	751.342	0.300	563.8	2113.49	2133.22	.6526	0.030	1.371	-18.20	.0669	0.000
3	5.7032	750.850	750.850	0.300	564.2	2053.71	2107.54	.6514	0.030	1.465	-19.19	.0673	0.000
4	5.6732	750.250	750.250	0.300	564.9	2075.91	2112.72	.6507	0.000	1.547	-19.96	.0676	0.000
5	5.6432	749.512	749.512	0.300	565.4	2033.94	2115.71	.6500	0.000	1.601	-20.35	.0680	0.000
6	5.6132	748.639	748.639	0.300	565.7	2017.75	2125.24	.6484	0.000	1.644	-22.13	.0683	0.000
7	5.5832	747.631	747.631	0.300	565.8	2013.64	2132.41	.6461	0.000	1.662	-23.63	.0686	0.000
8	5.5532	746.435	746.435	0.300	565.2	2003.62	2137.09	.6438	0.000	1.638	-25.71	.0689	0.000
9	5.5232	745.110	745.110	0.300	564.8	2001.39	2144.30	.6417	0.000	1.591	-30.54	.0693	0.000
10	5.4932	743.666	743.666	0.300	564.3	2005.68	2151.19	.6405	0.000	1.515	-34.16	.0694	0.000
11	5.4632	742.106	742.106	0.300	564.2	2003.48	2167.59	.6383	0.000	1.425	-38.37	.0694	0.000
12	5.4332	740.430	740.430	0.300	564.3	2003.24	2173.38	.6370	0.000	1.327	-45.24	.0693	0.000
13	5.4032	738.646	738.646	0.300	564.1	2007.51	2178.44	.6358	0.000	1.145	-54.25	.0691	0.000
14	5.3732	736.753	736.753	0.300	564.6	2003.03	2182.71	.6341	0.000	.866	-67.81	.0688	0.000
15	5.3432	734.750	734.750	0.300	564.8	2003.66	2186.10	.6330	0.000	.436	-90.33	.0684	0.000
16	5.3132	732.632	732.632	0.300	565.0	2003.30	2188.57	.6319	0.000	.025	-135.25	.0678	0.000
17	5.2832	730.402	730.402	0.300	565.4	2003.74	2193.96	.6293	0.000	.004	-173.74	.0671	0.000
18	5.2532	728.063	728.063	0.300	566.0	2004.16	2199.00	.6244	0.000	.274	-267.98	.0661	0.000
19	5.2232	725.623	725.623	0.300	566.6	2004.6	2203.96	.6232	0.000	.040	-530.64	.0660	0.000
20	5.1932	723.081	723.081	0.300	567.1	2007.81	2209.61	.6152	0.000	0.000	0.00	.0661	0.000

STATION 26

GENERAL FLOW PARAMETERS

LOCATI TION	RADIUS	WEL VELOCITY	ANGLE	TANGENT	TEMPERATURES	PRESSURES	MACH	WIRL	SLOPE	RAD. OF	STATIC	INCIDENCE	
					TOTAL	STATIC	NUMBER	ANGLE	ANGLE	CURVIRE	DENSITY	DEVIATION	
1	5.7906	746.601	749.801	4.905	646.5	595.0	2005.09	2166.59	.0137	0.000	0.00	.0663	0.000
2	5.8263	746.039	745.033	0.300	646.4	594.6	2013.49	2166.59	.6252	0.000	0.00	.0664	0.000
3	5.9313	751.232	751.232	0.300	639.9	591.6	2032.71	2166.59	.6347	3.060	0.00	.0687	0.000
4	6.0873	778.355	778.355	0.000	633.5	590.1	2078.91	2166.59	.6471	0.000	0.00	.0689	0.000
5	6.0973	738.615	788.615	0.906	639.2	598.5	2033.98	2166.59	.6567	0.000	0.00	.0690	0.000
6	6.2080	736.351	798.351	0.300	638.3	586.9	2037.68	2166.59	.6663	0.000	0.00	.0692	0.000
7	6.2140	696.251	800.251	0.300	638.7	585.4	2033.68	2166.59	.6750	1.000	0.00	.0694	0.000
8	6.4385	607.684	607.684	0.000	636.6	584.3	2057.44	2166.59	.6819	0.000	0.00	.0695	0.000
9	6.5735	612.367	612.367	0.000	638.5	583.5	2065.62	2166.59	.6862	0.000	0.00	.0696	0.000
10	6.7185	613.644	613.644	0.000	638.8	583.7	2071.33	2166.59	.6873	0.000	0.00	.0696	0.000
11	6.8736	612.034	612.034	0.000	639.3	584.4	2056.68	2166.59	.6855	0.000	0.00	.0695	0.000
12	7.0330	608.323	608.323	0.000	648.2	585.0	2056.48	2166.59	.6815	0.000	0.00	.0694	0.000
13	7.2148	603.566	603.566	0.000	641.5	587.7	2043.24	2166.59	.6764	0.000	0.00	.0691	0.000
14	7.4013	597.736	597.736	0.000	643.1	590.2	2027.51	2166.59	.6702	0.000	0.00	.0689	0.000
15	7.5983	731.155	791.155	0.000	645.3	593.4	2009.89	2166.59	.6628	0.000	0.00	.0685	0.000
16	7.8039	708.040	708.040	0.000	646.8	597.6	2009.88	2166.59	.6545	0.000	0.00	.0680	0.000
17	8.0267	777.550	777.550	0.000	653.5	603.2	2064.30	2166.59	.6461	0.000	0.00	.0674	0.000
18	8.2633	774.381	774.381	0.000	656.6	606.6	2059.74	2166.59	.6420	0.000	0.00	.0670	0.000
19	8.5173	772.433	772.433	0.000	660.1	610.4	2049.16	2166.59	.6380	0.000	0.00	.0666	0.000
20	8.7873	765.316	765.316	0.000	664.0	614.6	2039.06	2166.59	.6337	0.000	0.00	.0661	0.000
21	8.8000	766.750	766.750	0.000	668.1	619.2	2027.91	2166.59	.6280	0.000	0.00	.0656	0.000

OVERALL PERFORMANCE PARAMETERS

STREAM	STATION-TO- STATION- PRESSURE RATIO	STATION-TO- STATION- DELTA T	ISENTROPIC EFFICIENCY	INLET-TO- STATION- PRESSURE RATIO	INLET-TO- STATION- DELTA T	ISENTROPIC EFFICIENCY	MEAN PARAMETERS	STATION-TO- STATION- PRESSURE RATIO	STATION-TO- STATION- DELTA T	ISENTROPIC EFFICIENCY	INLET-TO- STATION- PRESSURE RATIO	INLET-TO- STATION- DELTA T	ISENTROPIC EFFICIENCY
1	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
2	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
3	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
4	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
5	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
6	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
7	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
8	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
9	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
10	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
11	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
12	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
13	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
14	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
15	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
16	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
17	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
18	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
19	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
20	1.0000	0.0000	0.0000	1.0454	.2351	.6135							
21	1.0000	0.0000	0.0000	1.0454	.2351	.6135							

4. ROTOR GEOMETRY

Rotor airfoils were defined on all streamsurfaces and stacked close to the centroids of the manufacturing sections on cartesian planes. The manufacturing sections were determined by mathematically passing a spline through common points on all streamsurface sections and determining the intersections of these splines with cartesian planes normal to the stacking axis. The computer program used to accomplish this was that described in Reference 7, previously cited. However, the interpolation technique and calculation of mechanical properties were taken from Reference 9 which discusses this subject more fully. The computer printout on the following pages presents detailed data on all streamsurface and manufacturing sections. Except for the normalized data defining the streamsurface blade sections, all dimensions are in inches. On the first few pages appear sundry constants and a definition of the 21 streamsurfaces. The streamsurfaces are defined at eight axial locations which coincide with eight of the computing stations used for the aerodynamic design calculations. The origin for the axial locations of the stations is the same as was used for the aerodynamic analyses. The input data printout is completed with a table defining the geometry of each section. Next are shown details of the 21 streamsurface sections. Only the "normalized" data have been reproduced; the equivalent dimensional data would be derived by scaling the nondimensional quantities by the meridional chord of the section. Finally, details of 13 manufacturing sections through the blade are shown. These plane sections, perpendicular to the stack axis, are spaced 0.50 inch apart, and extend slightly beyond the blade in both directions. The "Z" coordinate is measured along the stack axis from the machine axis. The origin for the section coordinates is the stack axis. The "X" direction is parallel to the machine axis, and "X" increases in the direction of flow. The "Y" direction is perpendicular to the "X" direction, and the "Y" coordinate decreases in the direction of rotation. "XS" and "YS" define the suction surface of the section, and "XP" and "YP" define the pressure surface. "XSEMI" and "YSEMI" define the leading edge radius. The trailing edge is a straight line joining the pressure and suction surfaces. The manufacturing coordinates shown in this report have not been corrected for blade untwist and represent the blade as it should exist when running at design speed. The actual machining was accomplished with these coordinates rotated about the stacking axis an amount equal and opposite to the predicted angle of untwist as described in Section III.12. No corrections were made for any changes in camber-line shape. Figure 25 shows superimposed plots of developed streamsurface sections. Figure 26 shows a similar view of the manufacturing sections. The larger change of section visible in Figure 26 is due to extrapolation of the airfoil beneath the hub ramp.

USAF - AR(LF) ARBITRARY CAMBER LINE PROGRAM

***** ROTOR, FINAL DESIGN, 28 DECEMBER 1973 *****

TITLE = ROTOR, FINAL DESIGN, 28 DECEMBER 1973
 NUMBER OF STREAMSURFACES = 21
 NUMBER OF STATIONS = 6
 NUMBER OF CONSTANT-Z PLANES = 13
 NUMBER OF BLADE DATA POINTS = 12
 NUMBER OF POINTS PER SEGMENT = 17
 NUMBER OF BLADES IN BLADE ROW = 20
 ISTAR = 2
 IPUNCH = 6
 IPLOT = 3
 IPRINT = 0
 ZIMMER = 2.5310
 ZOUTER = 6.5330
 SCALE = 2.5010
 STACKX = -7.3510
 PLTZE = 11.0310

LEADING EDGE STATION NUMBER = 2
 TRAILING EDGE STATION NUMBER = 7
 RADIUS SPECIFYING DEVIATION = 1
 RADIUS SPECIFYING INCIDENCE = 6
 SENSE OF ROTATION INDICATOR = -1
 DEVIATION CALCULATION INDEX = 2
 NUMBER OF INITIAL S/R TRIALS = 3

SHAPE FACTOR = 1.3310
 SOLIDITY TOLERANCE = .335

DEVIATION CURVE 1 NUMBER OF POINTS = 6 RADIUS = 3.333

POINT	NORMALIZED MERIDIONAL CHORD	NORMALIZED DEVIATION DISTRIBUTION
1	1.0333	.1700
2	.2333	.1153
3	.4333	.1530
4	.6333	.2210
5	.8333	.3833
6	1.0333	1.0333

INCIDENCE AND EXTRA DEVIATION DISTRIBUTION

INLET RADIUS	INCIDENCE	EXTRA DEVIATION
2.6500	6.370	2.333
2.8400	5.873	2.333
3.2900	4.833	2.333
6.4200	4.233	2.333
7.7900	3.920	2.333
6.5700	3.693	2.333

STREAMSURFACE GEOMETRY SPECIFICATION

COMPUTING STATION 1 NUMBER OF DESCRIBING POINTS= 2 IF ANGS (1)= 0

DESCRIPTION X	COMPUTING STATION Y	SIZE M	STATION NUMBER	RADIUS	AIR ANGLE
-9.7803	2.3337		1	2.3397	-1.0000
-9.7800	3.3397		2	2.5313	-1.0000
			3	3.0129	-1.0000
			4	3.3793	-1.0000
			5	3.6281	-1.0000
			6	3.9584	-1.0000
			7	4.2351	-1.0000
			8	4.6349	-1.0000
			9	4.9762	-1.0000
			10	5.3186	-1.0000
			11	6.0164	-1.0000
			12	6.6619	-1.0000
			13	6.3526	-1.0000
			14	6.7213	-1.0000
			15	7.3532	-1.0000
			16	7.4733	-1.0000
			17	7.7685	-1.0000
			18	7.9537	-1.0000
			19	8.2324	-1.0000
			20	8.3158	-1.0000
			21	8.5383	-1.0000

COMPUTING STATION 2 NUMBER OF DESCRIBING POINTS= 6 IF ANGS (2)= 1

DESCRIPTION X	COMPUTING STATION Y	STATION NUMBER	RADIUS	AIR ANGLE
-8.5105	2.4514	1	2.6514	-43.1755
-8.5545	3.8058	2	2.8173	-41.6534
-8.6103	5.0697	3	3.2451	-44.4984
-8.7318	6.3219	4	3.5161	-45.8139
-8.8315	7.7861	5	3.8079	-47.0055
-8.8164	8.5030	6	4.1126	-48.0923
		7	4.4261	-49.0793
		8	4.7463	-49.9789
		9	5.0713	-51.0034
		10	5.4019	-51.5638
		11	5.7352	-52.2837
		12	6.0711	-52.9802
		13	6.4793	-53.6940
		14	3.7498	-54.4682
		15	7.8931	-55.3150
		16	7.4395	-56.2847
		17	7.7894	-57.3776
		18	7.9657	-57.9674
		19	8.1633	-58.5821
		20	8.3214	-53.2171
		21	8.5033	-59.8664

IFANGS (3) = 1

COMPUTING STATION 3 NUMBER OF DESCRIBING POINTS = 4

DESCRIPTION X	R	STREAMLINE NUMBER	RADIUS	AIR ANGLE
-7.9050	3.0363	1	3.0363	-29.8616
-6.8800	5.0710	2	3.2861	-30.0318
-7.9808	6.4888	3	3.5642	-33.4561
-7.7250	8.5030	4	3.8075	-35.2700
		5	4.0727	-37.2768
		6	4.3536	-39.1511
		7	4.6454	-40.9622
		8	4.9468	-42.7077
		9	5.2484	-44.3879
		10	5.5561	-46.0028
		11	5.8669	-47.7521
		12	6.1888	-49.4850
		13	6.4977	-51.0369
		14	6.8182	-52.6928
		15	7.1428	-54.3800
		16	7.4727	-56.1024
		17	7.8086	-57.8366
		18	7.9789	-58.6997
		19	8.1508	-59.5636
		20	8.3245	-60.4484
		21	8.5003	-61.3924

IFANGS (4) = 1

COMPUTING STATION 4 NUMBER OF DESCRIBING POINTS = 4

DESCRIPTION X	R	STREAMLINE NUMBER	RADIUS	AIR ANGLE
-7.3580	3.2033	1	3.2033	-20.2884
-7.3950	5.2650	2	3.5238	-21.7042
-7.5150	6.9450	3	3.8717	-25.1172
-7.3210	8.5830	4	4.0923	-27.8783
		5	4.2367	-29.1599
		6	4.3963	-31.3668
		7	4.6442	-33.7418
		8	5.1393	-36.1462
		9	5.6295	-38.5986
		10	5.7347	-40.9907
		11	5.9337	-43.2729
		12	6.2865	-45.4836
		13	6.5834	-47.5497
		14	6.8852	-49.7901
		15	7.1929	-51.8436
		16	7.4875	-54.0887
		17	7.6382	-56.2254
		18	7.9946	-57.2725
		19	8.1811	-58.2957
		20	8.3297	-59.2803
		21	8.5888	-60.1792

COMPUTING STATION 5 IF ANG (5) = 1

DESCRIPTION X
 STREAMLINE NUMBER
 NUMBER OF DESCRIBING POINTS = 4
 AIR ANGLE

DESCRIPTION X	STREAMLINE NUMBER	RADIUS	AIR ANGLE
-6.8818	1	3.7385	-12.5374
-6.8818	2	3.8564	-14.1064
-6.8788	3	4.1649	-17.8291
-6.9488	4	4.3652	-19.6178
	5	4.5849	-21.4131
	6	4.8181	-23.2248
	7	5.0612	-26.7973
	8	5.3127	-31.0368
	9	5.5712	-33.2481
	10	5.8357	-36.2338
	11	6.1056	-39.0127
	12	6.3885	-41.6171
	13	6.6634	-44.1232
	14	6.9456	-46.6148
	15	7.2372	-49.0950
	16	7.5364	-51.5696
	17	7.8453	-54.0346
	18	8.1639	-55.2649
	19	8.4957	-56.4912
	20	8.8317	-57.7141
	21	9.1800	-58.9321

COMPUTING STATION 6 IF ANG (6) = 1

DESCRIPTION X
 STREAMLINE NUMBER
 NUMBER OF DESCRIBING POINTS = 4
 AIR ANGLE

DESCRIPTION X	STREAMLINE NUMBER	RADIUS	AIR ANGLE
-6.2518	1	4.8884	-3.5861
-6.1888	2	4.1897	-5.0882
-6.3888	3	6.4587	-8.8458
-6.5888	4	4.6349	-11.1985
	5	4.8386	-13.8343
	6	5.8399	-16.9475
	7	5.2584	-20.3933
	8	5.4656	-24.0184
	9	5.7199	-27.6881
	10	5.9687	-31.2026
	11	6.2083	-34.5161
	12	6.4530	-37.6532
	13	6.7244	-40.6269
	14	6.9846	-43.4794
	15	7.2723	-46.2193
	16	7.5591	-48.9044
	17	7.8571	-51.6116
	18	8.1111	-53.8873
	19	8.4692	-56.6482
	20	8.8319	-58.9178
	21	9.1883	-61.0391

COMPUTING STATION 7 NUMBER OF DESCRIBING POINTS= 9 IF ANGS (7) = 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-5.0650	4.4612	1	4.4612	9.1000
-5.0560	4.6870	2	4.5363	7.6509
-5.0489	4.8038	3	4.7659	2.0044
-5.0392	5.0070	4	4.9334	-2.9292
-5.0217	5.1064	5	5.1054	-7.6153
-5.0085	5.0532	6	5.2811	-12.4312
-5.7200	6.7945	7	5.4646	-16.9548
-5.9516	7.8661	8	5.6373	-21.3747
-6.1349	8.5030	9	5.8612	-25.6514
		10	6.0769	-29.7064
		11	6.3736	-33.4738
		12	6.5473	-36.9488
		13	6.7861	-41.1715
		14	7.0479	-43.2049
		15	7.3357	-46.0755
		16	7.5819	-48.7966
		17	7.8713	-51.3921
		18	8.0213	-52.6579
		19	8.1761	-53.9333
		20	8.3353	-55.2527
		21	8.5033	-56.6421

COMPUTING STATION 8 NUMBER OF DESCRIBING POINTS= 4 IF ANGS (8) = 0

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-5.5200	4.5534	1	4.5534	-1.0000
-5.5000	5.2030	2	4.8411	-1.0000
-5.5083	5.8000	3	4.8677	-1.0000
-5.7300	6.5030	4	5.0155	-1.0000
		5	5.1785	-1.0000
		6	5.3533	-1.0000
		7	5.5332	-1.0000
		8	5.7326	-1.0000
		9	5.9359	-1.0000
		10	6.1478	-1.0000
		11	6.3680	-1.0000
		12	6.5966	-1.0000
		13	6.8319	-1.0000
		14	7.0803	-1.0000
		15	7.3369	-1.0000
		16	7.6352	-1.0000
		17	7.8666	-1.0000
		18	8.0331	-1.0000
		19	8.1635	-1.0000
		20	8.3389	-1.0000
		21	8.5089	-1.0000

SECTION GEOMETRY SPECIFICATION

STREAMLINE NUMBER	S/D CL PT	IN. DEL S/R	CONSID LE RD CRV INFL. PTS	NO. ALD	LE RADIUS /CHORD	MAX THICK /CHORD	TE THICK /2*CHORD	POINT OF START OF S/R MAX THICK	VAL OF S/R	X STACK OFFSET	Y STACK OFFSET
1.00	0.003	0.40	0.0001	0.0000	0.0431	0.6000	0.0718	.5600	-.2000	.013000	.040000
2.00	0.003	0.40	0.0000	0.0000	0.0392	0.5000	0.0721	.5600	-.1870	.006000	.037500
3.00	0.003	0.40	0.0000	0.0000	0.0303	0.5600	0.0433	.5760	-.1740	.014000	.035000
4.00	0.003	0.40	0.0000	0.0000	0.0254	0.5400	0.0175	.5900	-.1620	.005000	.035000
5.00	0.000	0.40	0.0000	0.0000	0.0212	0.5250	0.0149	.5990	-.1500	.020000	.040000
6.00	0.000	0.40	0.0000	1.0000	0.0195	0.5000	0.0147	.6020	-.2000	.010000	.030000
7.00	0.000	0.40	0.0000	1.0000	0.0177	0.4750	0.0146	.6060	-.2500	.004000	.020000
8.00	0.000	0.40	0.0000	1.0000	0.0143	0.4250	0.0143	.6200	-.3000	.035000	-0.000000
9.00	0.000	0.40	0.0000	1.0000	0.0137	0.3250	0.0137	.6500	-.6000	.020000	-0.000000
13.00	0.000	0.40	0.0000	1.0000	0.0131	0.2550	0.0131	.6800	-1.5000	.018000	-0.000000
17.00	0.003	0.40	0.0000	1.0000	0.0128	0.2550	0.0128	.6900	-1.7000	.005000	-0.000000
19.00	0.003	0.40	0.0000	1.0000	0.0125	0.2500	0.0125	.7000	-1.7000	-.001000	-0.300000
21.00	0.003	0.40	0.0000	1.0000	0.0125	0.2500	0.0125	.7000	-1.7000	-.001000	-0.300000

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 1

BETA1 = 33.785 (BLADE INLET ANGLE.)
 BETA2 = 17.272 (BLADE OUTLET ANGLE.)
 YZERO = .03431 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = .86000 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YTWO = .07718 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 YTHREE = .56000 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 YFOUR = 3.3719 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0315
 STAGGER ANGLE = 14.648
 CAMBER ANGLE = 5.157
 SECTION AREA = .84653

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .53876
 YBAR = -.22290

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03124
 IY = .00272
 IXY = -.00172

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -15.135

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .70034 (AT -15.135 WITH 'X' AXIS)
 IPY = .00391 (AT -15.135 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A				SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS		XS	YS	XP	YP
1	.00445	9.31386	35.785	.00289	.00692	.00369	.00197	-.00369
2	.01765	-.03882	33.696	.01101	.02070	-.03424	.01459	-.01340
3	.03285	-.11761	33.581	.01313	.03448	-.01214	.02722	-.02307
4	.04475	-.22633	33.438	.01524	.04825	-.01999	.03986	-.03271
5	.05726	-.33504	33.269	.01731	.06201	-.02779	.05250	-.04229
6	.07046	-.04367	33.172	.01941	.07576	-.03554	.06516	-.05100
7	.08366	-.35223	32.847	.02147	.08949	-.04321	.07784	-.06125
8	.09687	-.06071	32.594	.02351	.10320	-.05081	.09053	-.07062
9	.11007	-.26911	32.312	.02552	.11689	-.05833	.10325	-.07989
10	.12327	-.07741	32.001	.02753	.13056	-.06575	.11599	-.08907
11	.13648	-.09561	31.683	.02944	.14420	-.07318	.12875	-.09814
12	.14968	-.39369	31.229	.03135	.15782	-.08030	.14154	-.10709
13	.16288	-.13165	30.855	.03323	.17141	-.08740	.15435	-.11591

POINT NUMBER X Y Z ANGLE THICKNESS SURFACE COORDINATE DATA XP YP

14	17018	-1.1948	-31.452	0.2536	16797	-0.9437	16720	-1.12459
15	18229	-1.1718	-29.986	0.36584	19843	-1.1122	18008	-1.13313
16	21243	-1.2473	-29.486	0.73658	21198	-1.1793	19303	-1.14151
17	21569	-1.3213	-28.951	0.4177	22545	-1.1449	20595	-1.14972
18	22727	-1.3973	-28.439	0.64177	23775	-1.2137	21786	-1.15713
19	23321	-1.4722	-27.913	0.6323	25003	-1.2612	22980	-1.16432
21	25213	-1.5156	-27.374	0.64664	26229	-1.3174	24176	-1.17139
21	26414	-1.5776	-26.821	0.6631	27452	-1.3723	25376	-1.17829
22	27635	-1.6381	-26.254	0.6732	28671	-1.4259	26578	-1.18503
23	28835	-1.6971	-25.673	0.6859	29888	-1.4781	27783	-1.19160
24	30147	-1.7545	-25.078	0.6983	31102	-1.5290	28991	-1.19801
25	31258	-1.8124	-24.465	0.7196	32313	-1.5785	30203	-1.20423
26	32469	-1.8697	-23.844	0.8207	33522	-1.6266	31417	-1.21029
27	33681	-1.9275	-23.214	0.8312	34727	-1.6733	32634	-1.21616
28	34891	-1.9846	-22.589	0.8412	35929	-1.7197	33854	-1.22185
29	36112	-2.0403	-21.979	0.8518	37128	-1.7626	35076	-1.22735
31	37313	-2.0958	-21.393	0.8595	38325	-1.8050	36302	-1.23265
32	38515	-2.1519	-20.893	0.8677	39514	-1.8450	37531	-1.23778
33	39716	-2.2083	-20.375	0.8754	40709	-1.8856	38762	-1.24271
34	40917	-2.2650	-19.843	0.8825	41897	-1.9237	39996	-1.24743
35	42118	-2.3220	-19.322	0.8889	43077	-1.9600	41219	-1.25190
36	43319	-2.3793	-18.781	0.8947	44243	-1.9950	42442	-1.25618
37	44520	-2.4367	-18.231	0.8999	45419	-2.0290	43666	-1.26026
38	45721	-2.4942	-17.683	0.9045	46587	-2.0614	44890	-1.26415
39	46922	-2.5517	-17.134	0.9085	47759	-2.0929	46114	-1.26787
40	48123	-2.6092	-16.584	0.9118	48931	-2.1234	47338	-1.27141
41	49324	-2.6667	-16.034	0.9145	50103	-2.1530	48562	-1.27478
42	50525	-2.7242	-15.484	0.9165	51276	-2.1817	49786	-1.27800
43	51726	-2.7817	-14.934	0.9181	52449	-2.2096	51009	-1.28106
44	52927	-2.8392	-14.384	0.9188	53622	-2.2368	52231	-1.28397
45	54128	-2.8967	-13.834	0.9188	54797	-2.2634	53453	-1.28674
46	55329	-2.9542	-13.284	0.9182	55972	-2.2893	54674	-1.28936
47	56530	-3.0117	-12.734	0.9170	57148	-2.3148	55894	-1.29189
48	57731	-3.0692	-12.184	0.9151	58325	-2.3399	57113	-1.29428
49	58932	-3.1267	-11.634	0.9124	59503	-2.3645	58331	-1.29656
50	60133	-3.1842	-11.084	0.9092	60682	-2.3888	59547	-1.29874
51	61334	-3.2417	-10.534	0.9053	61863	-2.4129	60767	-1.30082
52	62535	-3.2992	-9.984	0.9007	63041	-2.4365	61990	-1.30280
53	63736	-3.3567	-9.434	0.8959	64219	-2.4597	63215	-1.30467
54	64937	-3.4142	-8.884	0.8906	65390	-2.4822	64442	-1.30642
55	66138	-3.4717	-8.334	0.8848	66561	-2.5041	65672	-1.30806
56	67339	-3.5292	-7.784	0.8782	67733	-2.5252	66903	-1.30953
57	68540	-3.5867	-7.234	0.8709	68906	-2.5454	68137	-1.31086
58	69741	-3.6442	-6.684	0.8631	70081	-2.5647	69373	-1.31204
59	70942	-3.7017	-6.134	0.8549	71254	-2.5830	70610	-1.31305
60	72143	-3.7592	-5.584	0.8463	72428	-2.6001	71849	-1.31388
61	73344	-3.8167	-5.034	0.8371	73603	-2.6161	73089	-1.31452
62	74545	-3.8742	-4.484	0.8273	74778	-2.6307	74330	-1.31495
63	75746	-3.9317	-3.934	0.8168	75953	-2.6440	75572	-1.31528
64	76947	-3.9892	-3.384	0.8058	77128	-2.6558	76814	-1.31521
65	78148	-4.0467	-2.834	0.7943	78303	-2.6660	78057	-1.31500
66	79349	-4.1042	-2.284	0.7823	79478	-2.6746	79299	-1.31455
67	80550	-4.1617	-1.734	0.7698	80653	-2.6819	80541	-1.31381
68	81751	-4.2192	-1.184	0.7568	81828	-2.6872	81784	-1.31278
69	82952	-4.2767	-0.634	0.7433	83003	-2.6905	83027	-1.31146
70	84153	-4.3342	-0.084	0.7293	84178	-2.6918	84271	-1.30985

POINT NUMBER	A E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.65713	-.28853	4.954	.65545	-.26910	.85882	-.31797
71	.66992	-.28730	6.364	.66795	-.26881	.87188	-.33580
72	.68271	-.29582	7.179	.68050	-.26830	.98491	-.33333
73	.69550	-.29408	8.298	.69309	-.26759	.69790	-.30057
74	.90828	-.29279	9.419	.90572	-.26665	.91084	-.29752
75	.92117	-.27984	10.543	.91840	-.26550	.92374	-.29418
76	.93396	-.27733	11.667	.93113	-.26412	.93659	-.29054
77	.94665	-.27455	12.792	.94391	-.26251	.94938	-.28660
78	.95944	-.27152	13.916	.95675	-.26167	.96212	-.28237
79	.97222	-.26822	15.038	.96964	-.25860	.97481	-.27784
80	.98511	-.26465	16.157	.98259	-.25629	.98744	-.27301
81	.99789	-.26081	17.272	.99560	-.25373	1.00000	-.26788

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 2

BETA1 = -35.332 (BLADE INLET ANGLE.)
 BETA2 = 16.145 (BLADE OUTLET ANGLE.)
 YZERO = 0.392 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = 0.9500 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 0.1721 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.5680 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORO = 3.3313 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0335
 STAGGER ANGLE = -16.032
 CAMBER ANGLE = -51.527
 SECTION AREA = 0.34555

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.51374
 YBAR = -0.23664

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0027
 IY = 0.0266
 IXY = -0.0178

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -16.491

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0334 (AT -16.490 WITH 'X' AXIS)
 IPY = 0.02209 (AT -16.490 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A		A N G L E T H I C K N E S S		S U R F A C E C O O R D I N A T E D A T A			
	X	Y	YS	YX	YS	YX	YP	YX
1	0.0477	0.0100	-35.382	0.0814	0.0643	0.0332	0.0171	-0.00332
2	0.1720	0.0928	-35.162	0.1021	0.2314	-0.09511	0.1426	-0.01346
3	0.3032	0.1849	-34.926	0.1227	0.0383	-0.1346	0.2681	-0.02352
4	0.4345	0.2761	-34.676	0.1432	0.0752	-0.2172	0.3937	-0.03350
5	0.5657	0.3665	-34.411	0.1635	0.0619	-0.2990	0.5195	-0.04339
6	0.6970	0.4559	-34.128	0.1837	0.0765	-0.3799	0.6454	-0.05319
7	0.8282	0.5444	-33.829	0.2037	0.0849	-0.4588	0.7715	-0.06290
8	0.9594	0.6318	-33.515	0.2234	0.10211	-0.5387	0.8978	-0.07249
9	1.0917	0.7182	-33.184	0.2428	0.11571	-0.6166	1.0242	-0.08198
10	1.2219	0.8035	-32.835	0.2620	0.12930	-0.6934	1.1509	-0.09135
11	1.3532	0.8876	-32.469	0.2808	0.14286	-0.7691	1.2778	-0.10060
12	1.4844	0.9705	-32.086	0.2993	0.15639	-0.8437	1.4053	-0.10973
13	1.6157	1.0521	-31.684	0.3174	0.16991	-0.9171	1.5323	-0.11872

POINT NUMBER	M E A N I N E D A T A		SURFACE COORDINATE DATA					
	X	Y	XS	YS	XP	YP		
14	.17469	-.11325	-31.264	.03351	.15339	-.09892	.16600	-.12757
15	.16782	-.12115	-30.824	.23524	.19685	-.19602	.17679	-.13628
16	.20394	-.12091	-30.365	.13693	.21028	-.11298	.19161	-.14484
17	.21417	-.15653	-29.687	.03857	.23368	-.11981	.20446	-.15325
18	.22631	-.14350	-29.423	.04066	.23815	-.12635	.21647	-.16394
19	.23855	-.15033	-28.944	.04150	.24859	-.13217	.22651	-.16849
20	.25379	-.15704	-28.449	.04293	.26101	-.13818	.24057	-.17593
21	.26313	-.16360	-27.937	.04425	.27343	-.14435	.25267	-.18315
22	.27527	-.17022	-27.439	.04556	.28576	-.15080	.26479	-.19224
23	.28752	-.17629	-26.864	.04681	.29809	-.15591	.27694	-.19717
24	.29976	-.18242	-26.301	.04802	.31043	-.16109	.28912	-.20394
25	.31201	-.18839	-25.721	.04917	.32267	-.16624	.30133	-.21054
26	.32424	-.19421	-25.123	.05028	.33491	-.17145	.31357	-.21697
27	.33648	-.19987	-24.517	.05133	.34713	-.17652	.32584	-.22322
28	.34872	-.20537	-23.872	.05232	.35931	-.18145	.33814	-.22929
29	.36396	-.21070	-23.218	.05326	.37146	-.18623	.35046	-.23518
30	.37320	-.21587	-22.545	.05415	.38358	-.19107	.36282	-.24088
31	.38545	-.22087	-21.852	.05497	.39568	-.19536	.37522	-.24638
32	.39769	-.22569	-21.143	.05574	.40774	-.19969	.38764	-.25168
33	.40993	-.23033	-20.417	.05645	.41977	-.20398	.40009	-.25679
34	.42198	-.23473	-19.688	.05717	.43160	-.20785	.41236	-.26161
35	.43433	-.23896	-18.994	.05768	.44341	-.21169	.42464	-.26623
36	.44618	-.24303	-18.324	.05821	.45523	-.21540	.43693	-.27065
37	.45812	-.24694	-17.681	.05867	.46703	-.21899	.44921	-.27489
38	.47017	-.25071	-17.065	.05908	.47884	-.22247	.46151	-.27895
39	.48222	-.25434	-16.476	.05943	.49065	-.22585	.47380	-.28283
40	.49427	-.25784	-15.916	.05971	.50246	-.22913	.48608	-.28655
41	.50632	-.26121	-15.384	.05994	.51427	-.23232	.49837	-.28911
42	.51837	-.26447	-14.882	.06017	.52609	-.23543	.51065	-.29351
43	.53042	-.26762	-14.411	.06020	.53791	-.23847	.52293	-.29677
44	.54247	-.27067	-13.968	.06023	.54974	-.24144	.53521	-.29989
45	.55452	-.27362	-13.558	.06021	.56157	-.24436	.54746	-.30288
46	.56656	-.27648	-13.179	.06011	.57342	-.24722	.55971	-.30574
47	.57851	-.27926	-12.831	.05994	.58527	-.25004	.57196	-.30848
48	.59056	-.28197	-12.515	.05971	.59713	-.25282	.58419	-.31112
49	.60271	-.28461	-12.231	.05942	.60901	-.25558	.59642	-.31365
50	.61482	-.28721	-11.947	.05907	.62093	-.25831	.60871	-.31610
51	.62692	-.28973	-11.692	.05865	.63282	-.26101	.62102	-.31845
52	.63913	-.29217	-11.417	.05816	.64468	-.26365	.63337	-.32170
53	.65113	-.29453	-11.1705	.05761	.65652	-.26623	.64574	-.32482
54	.66324	-.29678	-10.936	.05707	.66833	-.26874	.65814	-.32882
55	.67534	-.29893	-9.779	.05632	.68012	-.27117	.67056	-.33266
56	.68745	-.30095	-9.204	.05558	.69189	-.27352	.68303	-.33639
57	.69955	-.30285	-8.583	.05478	.70364	-.27576	.69546	-.33993
58	.71165	-.30461	-7.908	.05392	.71536	-.27790	.70795	-.34330
59	.72376	-.30621	-7.188	.05299	.72707	-.27992	.72045	-.34649
60	.73586	-.30765	-6.415	.05200	.73877	-.28181	.73296	-.34949
61	.74797	-.30892	-5.595	.05095	.75045	-.28357	.74549	-.35248
62	.76007	-.31002	-4.725	.04984	.76213	-.28518	.75802	-.35546
63	.77218	-.31092	-3.805	.04867	.77379	-.28664	.77056	-.35820
64	.78428	-.31162	-2.836	.04744	.78546	-.28793	.78311	-.36086
65	.79639	-.31212	-1.827	.04614	.79712	-.28916	.79566	-.36351
66	.80848	-.31240	-.727	.04473	.80927	-.29030	.80871	-.36616
67	.82158	-.31244	.371	.04325	.82144	-.29139	.82172	-.36880
68	.83468	-.31223	1.477	.04171	.83364	-.29139	.83471	-.37145
69	.84677	-.31179	2.591	.04019	.84589	-.29176	.84768	-.37410

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.85937	-.31109	3.709	.85937	-.29193	.86061	-.33026
71	.87196	-.31015	4.833	.87196	-.29189	.87351	-.32841
72	.88456	-.30896	5.961	.88456	-.29164	.88637	-.32628
73	.89715	-.30752	7.093	.89715	-.29118	.89919	-.32386
74	.90975	-.30583	8.226	.90975	-.29051	.91196	-.32115
75	.92234	-.30388	9.361	.92234	-.28962	.92470	-.31814
76	.93494	-.30167	10.497	.93494	-.28850	.93738	-.31484
77	.94754	-.29921	11.632	.94754	-.28717	.95001	-.31125
78	.96013	-.29649	12.765	.96013	-.28561	.96260	-.30737
79	.97273	-.29350	13.895	.97273	-.28382	.97512	-.30318
80	.98532	-.29026	15.022	.98532	-.28180	.98759	-.29871
81	.99792	-.28674	16.145	.99792	-.27955	1.00000	-.29393

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 3

BETA1 = -36.531 (BLADE INLET ANGLE.)
 BETA2 = 10.913 (BLADE OUTLET ANGLE.)
 YZERO = .00373 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = .05600 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 Z = .0433 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5760 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 3.2754 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0612
 STAGGER ANGLE = -19.519
 CAMBER ANGLE = -9.444
 SECTION AREA = .04473

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .50532
 YBAR = -.26926

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00137
 IY = .00252
 IXY = -.00091

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -20.062

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00134 (AT -20.062 WITH 'X' AXIS)
 IPY = .00285 (AT -20.382 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.09321	0.07030	-36.531	.09521	.00251	.03121	-.00251
2	.01599	-.11011	-38.244	.01661	-.00678	.01336	-.01345
3	.02876	-.02011	-37.889	.03199	-.01595	.02552	-.02427
4	.04153	-.02999	-37.556	.04536	-.02501	.03770	-.03498
5	.05430	-.03975	-37.216	.05972	-.03394	.04989	-.03557
6	.06708	-.04939	-36.868	.07206	-.04275	.06210	-.05603
7	.07985	-.05891	-36.512	.08538	-.05145	.07432	-.06638
8	.09262	-.06840	-36.148	.09868	-.06032	.08657	-.07659
9	.10540	-.07754	-35.775	.11196	-.06946	.09883	-.08668
10	.11817	-.08671	-35.394	.12522	-.07879	.11112	-.09664
11	.13094	-.09572	-35.004	.13846	-.08838	.12342	-.10646
12	.14371	-.10460	-34.605	.15168	-.09836	.13575	-.11614
13	.15649	-.11335	-34.197	.16487	-.10810	.14810	-.12589

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	.16926	-.12196	-33.783	.17604	-.13083	.15068	-.13509
15	.19203	-.13043	-33.353	.19119	-.11652	.17287	-.14435
16	.19461	-.13777	-32.917	.20431	-.12439	.18530	-.15346
17	.20758	-.14697	-32.471	.21741	-.13152	.19775	-.16242
18	.22033	-.15467	-32.126	.23015	-.13855	.20991	-.17100
19	.23248	-.16259	-31.568	.24286	-.14555	.22213	-.17944
20	.24493	-.17013	-31.099	.25555	-.15252	.23431	-.18773
21	.25738	-.17757	-30.637	.26821	-.15927	.24655	-.19587
22	.26984	-.18486	-30.122	.28085	-.16586	.25882	-.20385
23	.28229	-.19201	-29.614	.29345	-.17237	.27112	-.21166
24	.29474	-.19902	-29.093	.30603	-.17872	.28345	-.21932
25	.30719	-.20587	-28.559	.31858	-.18494	.29580	-.22680
26	.31954	-.21257	-28.009	.33110	-.19102	.30818	-.23412
27	.33239	-.21912	-27.447	.34360	-.19697	.32059	-.24126
28	.34455	-.22551	-26.878	.35606	-.20278	.33303	-.24823
29	.35700	-.23173	-26.279	.36850	-.20845	.34550	-.25502
30	.36945	-.23780	-25.674	.38090	-.21398	.35800	-.26162
31	.38193	-.24370	-25.153	.39328	-.21937	.37053	-.26804
32	.39435	-.24944	-24.417	.40563	-.22461	.38308	-.27427
33	.40680	-.25501	-23.766	.41795	-.22971	.39566	-.28031
34	.41893	-.26027	-23.132	.42992	-.23454	.40794	-.28600
35	.43136	-.26537	-22.515	.44189	-.23924	.42022	-.29150
36	.44318	-.27032	-21.914	.45384	-.24382	.43252	-.29682
37	.45531	-.27513	-21.331	.46579	-.24829	.44483	-.30197
38	.46743	-.27979	-20.764	.47772	-.25265	.45714	-.30694
39	.47956	-.28433	-20.217	.48965	-.25691	.46946	-.31174
40	.49168	-.28873	-19.689	.50158	-.26107	.48179	-.31638
41	.50361	-.29331	-19.183	.51350	-.26515	.49412	-.32086
42	.51594	-.29717	-18.692	.52542	-.26914	.50645	-.32519
43	.52846	-.30121	-18.224	.53733	-.27305	.51879	-.32938
44	.54119	-.30515	-17.777	.54925	-.27689	.53112	-.33342
45	.55231	-.30899	-17.351	.56116	-.28066	.54346	-.33732
46	.56444	-.31273	-16.947	.57308	-.28437	.55580	-.34109
47	.57658	-.31630	-16.565	.58500	-.28803	.56813	-.34473
48	.58869	-.31995	-16.206	.59692	-.29164	.58046	-.34825
49	.60081	-.32343	-15.869	.60884	-.29521	.59279	-.35166
50	.61281	-.32680	-15.527	.62093	-.29876	.60529	-.35499
51	.62536	-.33025	-15.134	.63294	-.30229	.61782	-.35821
52	.63786	-.33352	-14.709	.64495	-.30574	.63037	-.36131
53	.64994	-.33670	-14.245	.65694	-.30912	.64294	-.36427
54	.66222	-.33976	-13.742	.66891	-.31243	.65554	-.36708
55	.67451	-.34270	-13.198	.68085	-.31565	.66816	-.36975
56	.68679	-.34551	-12.616	.69277	-.31878	.68080	-.37225
57	.69917	-.34819	-11.992	.70468	-.32180	.69346	-.37459
58	.71135	-.35073	-11.328	.71656	-.32472	.70614	-.37674
59	.72363	-.35311	-10.622	.72843	-.32753	.71883	-.37870
60	.73591	-.35533	-9.875	.74029	-.33021	.73154	-.38046
61	.74821	-.35738	-9.086	.75213	-.33276	.74426	-.38201
62	.76048	-.35926	-8.254	.76397	-.33518	.75698	-.38334
63	.77276	-.36095	-7.380	.77580	-.33745	.76972	-.38444
64	.78504	-.36244	-6.463	.78763	-.33957	.78245	-.38530
65	.79732	-.36373	-5.504	.79946	-.34153	.79518	-.38592
66	.80994	-.36483	-4.495	.81162	-.34336	.80825	-.38628
67	.82255	-.36571	-3.461	.82361	-.34504	.82129	-.38637
68	.83516	-.36636	-2.461	.83591	-.34654	.83431	-.38619
69	.84777	-.36679	-1.437	.84825	-.34785	.84730	-.38573

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.86039	-.35700	-.410	.86052	-.34899	.86026	-.38500
71	.87300	-.36697	.619	.87282	-.34996	.87318	-.38399
72	.88561	-.36672	1.651	.88515	-.35174	.88607	-.38270
73	.89823	-.36625	2.683	.89753	-.35135	.89893	-.38114
74	.91984	-.36554	3.717	.90995	-.35177	.91173	-.37931
75	.92345	-.36461	4.750	.92241	-.35202	.92450	-.37719
76	.93607	-.36344	5.783	.93492	-.35209	.93722	-.37480
77	.94868	-.36205	6.815	.94747	-.35197	.94988	-.37213
78	.96129	-.36043	7.844	.96009	-.35167	.96250	-.36919
79	.97390	-.35858	8.871	.97275	-.35119	.97506	-.36596
80	.98652	-.35649	9.894	.98548	-.35052	.98756	-.36245
91	.99913	-.35418	10.913	.99826	-.34967	1.00000	-.35868

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 4

BETA1 = 40.029 (BLADE INLET ANGLE.)
 BETA2 = 5.762 (BLADE OUTLET ANGLE.)
 YZERO = .07254 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = .05403 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .00175 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5900 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 3.2970 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0751
 STAGGER ANGLE = -21.546
 CAMBER ANGLE = -45.811
 SECTION AREA = .04357

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .50351
 YBAR = -.26679

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00942
 IY = .00238
 IXY = -.00395

ANGLE OF INCLINATION OF (OME) PRINCIPAL AXIS TO 'X' AXIS = -21.969

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00033 (AT -21.989 WITH 'X' AXIS)
 IPY = .00277 (AT -21.989 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.00273	0.33000	-40.029	.00546	.00000	.00000	.00000
2	.01514	-.01037	-39.769	-.00742	.00000	.00000	.00000
3	.02754	-.02065	-39.497	-.00930	.00000	.00000	.00000
4	.03995	-.03082	-39.213	-.01132	.00000	.00000	.00000
5	.05235	-.04089	-38.917	-.01326	.00000	.00000	.00000
6	.06476	-.05105	-38.689	-.01515	.00000	.00000	.00000
7	.07716	-.06070	-38.268	-.01704	.00000	.00000	.00000
8	.08957	-.07043	-37.954	-.01893	.00000	.00000	.00000
9	.10197	-.08005	-37.607	-.02074	.00000	.00000	.00000
10	.11438	-.08955	-37.247	-.02256	.00000	.00000	.00000
11	.12678	-.09891	-36.873	-.02434	.00000	.00000	.00000
12	.13919	-.10815	-36.485	-.02617	.00000	.00000	.00000
13	.15159	-.11726	-36.082	-.02782	.00000	.00000	.00000

SURFACE COORDINATE DATA

M E A M L I N E D A T A

ANGLE THICKNESS

POINT NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
14	.16421	-.12623	35.665	.2951	.17263	-.11425	.15539	-.112822
15	.17647	-.13506	35.233	.63116	.16539	-.12234	.16741	-.14779
16	.18631	-.14375	34.785	.63277	.19015	-.13130	.17946	-.15721
17	.20121	-.15230	34.324	.63435	.21389	-.14011	.19153	-.16640
18	.21559	-.16067	33.846	.63508	.22358	-.14878	.20263	-.17557
19	.22597	-.16890	33.364	.63736	.23624	-.15730	.21569	-.18450
20	.23835	-.17697	32.874	.63803	.24888	-.16568	.22782	-.19327
21	.25072	-.18490	32.377	.64023	.26149	-.17392	.23986	-.20188
22	.26319	-.19267	31.871	.64156	.27407	-.18203	.25213	-.21032
23	.27564	-.20029	31.358	.64286	.28663	-.19019	.26433	-.21859
24	.28786	-.20776	30.837	.64412	.29917	-.19842	.27655	-.22670
25	.30024	-.21507	30.310	.64533	.31168	-.20650	.28880	-.23464
26	.31252	-.22223	29.771	.64659	.32416	-.21440	.30108	-.24240
27	.32500	-.22923	29.226	.64759	.33661	-.22206	.31338	-.25000
28	.33717	-.23608	28.672	.64855	.34904	-.22974	.32573	-.25742
29	.34975	-.24277	28.113	.64965	.36145	-.23787	.33805	-.26467
30	.36213	-.24930	27.540	.65063	.37383	-.24667	.35043	-.27174
31	.37451	-.25566	26.961	.65150	.38618	-.25623	.36283	-.27863
32	.38689	-.26190	26.374	.65234	.39851	-.26645	.37526	-.28534
33	.39927	-.26795	25.778	.65313	.41082	-.27733	.38771	-.29188
34	.41126	-.27387	25.180	.65384	.42272	-.28887	.39980	-.29803
35	.42325	-.27964	24.531	.65453	.43461	-.29947	.41193	-.30401
36	.43524	-.28527	24.070	.65510	.44648	-.31022	.42401	-.30982
37	.44724	-.29085	23.518	.65565	.45834	-.32114	.43614	-.31547
38	.45923	-.29631	22.976	.65614	.47019	-.33212	.44827	-.32095
39	.47122	-.30163	22.443	.65658	.48202	-.34318	.46042	-.32628
40	.48322	-.30682	21.921	.65696	.49385	-.35430	.47256	-.33144
41	.49521	-.31194	21.409	.65729	.50566	-.36548	.48475	-.33645
42	.50723	-.31692	20.907	.65756	.51747	-.37674	.49693	-.34131
43	.51919	-.32185	20.417	.65777	.52927	-.38808	.50912	-.34602
44	.53119	-.32675	19.939	.65792	.54106	-.40013	.52131	-.35058
45	.54318	-.33165	19.472	.65802	.55285	-.41230	.53351	-.35500
46	.55517	-.33654	19.017	.65806	.56463	-.42463	.54571	-.35928
47	.56717	-.34144	18.575	.65803	.57641	-.43714	.55792	-.36342
48	.57916	-.34634	18.145	.65795	.58818	-.45014	.57014	-.36743
49	.59115	-.35124	17.720	.65780	.60015	-.46325	.58235	-.37130
50	.60315	-.35614	17.299	.65758	.61192	-.47648	.59480	-.37512
51	.61517	-.36104	16.848	.65729	.62388	-.48974	.60727	-.37880
52	.62719	-.36594	16.375	.65693	.63581	-.50314	.61976	-.38234
53	.64003	-.37084	15.880	.65650	.64773	-.51663	.63227	-.38573
54	.65221	-.37574	15.362	.65600	.65963	-.53024	.64479	-.38897
55	.66442	-.38064	14.821	.65542	.67151	-.54398	.65733	-.39205
56	.67663	-.38554	14.256	.65476	.68337	-.55774	.66989	-.39497
57	.68884	-.39044	13.668	.65403	.69523	-.57163	.68246	-.39772
58	.70105	-.39534	13.057	.65321	.70706	-.58564	.69504	-.40025
59	.71326	-.40024	12.421	.65232	.71889	-.59979	.70764	-.40268
60	.72548	-.40514	11.762	.65137	.73071	-.61408	.72024	-.40488
61	.73769	-.41004	11.078	.65037	.74252	-.62852	.73286	-.40688
62	.74990	-.41494	10.370	.64932	.75432	-.64317	.74546	-.40869
63	.76211	-.41984	9.638	.64822	.76612	-.65794	.75810	-.41029
64	.77432	-.42474	8.881	.64707	.77791	-.67283	.77073	-.41167
65	.78653	-.42964	8.099	.64586	.78971	-.68783	.78335	-.41284
66	.79874	-.43454	7.232	.64461	.80150	-.70294	.79597	-.41386
67	.81095	-.43944	6.362	.64332	.81329	-.71814	.80860	-.41461
68	.82316	-.44434	5.492	.64207	.82508	-.73344	.82123	-.41509
69	.83537	-.44924	4.622	.64076	.83687	-.74874	.83386	-.41530

POINT NUMBER	M E A N L I N E O A T A				S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
70	.85318	-.39742	-3.747	.03573	.85435	-.37959	.85201	-.41525
71	.86651	-.33819	-2.874	.03349	.86735	-.38147	.86567	-.41492
72	.87984	-.39876	-2.001	.03113	.88038	-.38320	.87930	-.41431
73	.89317	-.39912	-1.129	.02864	.89345	-.38480	.89289	-.41344
74	.90650	-.39928	-.258	.02602	.90656	-.38627	.90644	-.41229
75	.91983	-.39924	.612	.02327	.91971	-.38761	.91996	-.41088
76	.93316	-.39980	1.481	.02038	.93293	-.38881	.93342	-.40918
77	.94649	-.39855	2.347	.01735	.94614	-.38989	.94685	-.40722
78	.95982	-.39791	3.219	.01418	.95942	-.39083	.96022	-.40498
79	.97315	-.39706	4.071	.01086	.97277	-.39164	.97354	-.40247
80	.98648	-.39681	4.928	.00739	.98616	-.39233	.98680	-.39969
81	.99981	-.39476	5.782	.00376	.99962	-.39289	1.00003	-.39663

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 5

BETA1 = -1.415 (BLADE INLET ANGLE.)
 BETA2 = .664 (BLADE OUTLET ANGLE.)
 YZERO = .70212 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y1 = -.35253 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .83149 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5997 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 1.2991 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0335
 STAGGER ANGLE = -23.843
 CAMBER ANGLE = -2.379
 SECTION AREA = .04352

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .53450
 YBAR = -.31169

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03749
 IY = .03237
 IXY = -.00134

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -23.956

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .30302 (AT -23.956 WITH 'X' AXIS)
 IPY = .00283 (AT -23.956 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.70232	0.71070	-41.415	.70464	.00074	.70078	-.0174
2	.31453	-.71071	-41.243	.50655	-.00824	.71234	-.01317
3	.32669	-.72133	-40.979	.70856	-.02945	.02391	-.02453
4	.13487	-.73187	-40.741	.01436	-.04225	.03549	-.03588
5	.05115	-.74232	-40.491	.1224	.05513	-.03767	-.04708
6	.06324	-.75266	-40.227	.1121	.06779	-.04729	.05868
7	.07542	-.76293	-39.949	.1595	.08054	-.05681	.07029
8	.08760	-.77308	-39.658	.01729	.09328	-.06624	.08193
9	.09979	-.78313	-39.352	.71963	.10601	-.07555	.09371
10	.11197	-.79306	-39.031	.02138	.11873	-.08476	.10524
11	.12415	-.80288	-38.696	.02344	.13139	-.09395	.11692
12	.13634	-.81258	-38.345	.02486	.14405	-.10303	.12863
13	.14852	-.82216	-37.979	.02556	.15669	-.11169	.14035
							-.13262

POINT NUMBER	M E A S U R E M E N T S		M E A S U R E M E N T S		S U R F A C E C O O R D I N A T E D A T A		
	K	Y	ANGLE THICKNESS	DAY A	XS	YS	KP
14	.16373	-.13160	-37.596	.02822	.16931	-.12742	.15211
15	.17289	-.17923	-37.197	.02985	.18191	-.12913	.16386
16	.18517	-.15009	-36.791	.03144	.19466	-.13750	.16269
17	.19726	-.15913	-36.348	.03300	.20703	-.14584	.16748
18	.20951	-.16815	-35.895	.03453	.21974	-.15416	.19949
19	.22197	-.17732	-35.433	.03603	.23242	-.16234	.21153
20	.23433	-.18674	-34.961	.03749	.24507	-.17037	.22359
21	.24669	-.19630	-34.483	.03889	.25773	-.17827	.23568
22	.25905	-.20591	-34.003	.04026	.27033	-.18612	.24780
23	.27141	-.21567	-33.518	.04159	.28288	-.19393	.25994
24	.28377	-.22557	-33.027	.04288	.29543	-.20169	.27211
25	.29613	-.23561	-32.531	.04417	.30795	-.20941	.28430
26	.30849	-.24579	-32.029	.04544	.32045	-.21709	.29652
27	.32085	-.25611	-31.521	.04667	.33292	-.22481	.30877
28	.33320	-.26656	-31.008	.04784	.34536	-.23250	.32105
29	.34556	-.27716	-30.494	.04896	.35774	-.24023	.33335
30	.35792	-.28791	-29.979	.04993	.37016	-.24798	.34568
31	.37028	-.29881	-29.463	.05086	.38252	-.25575	.35804
32	.38264	-.30986	-28.946	.05174	.39486	-.26355	.37042
33	.39503	-.32107	-28.428	.05258	.40717	-.27139	.38283
34	.40743	-.33244	-27.909	.05338	.41943	-.27928	.39528
35	.41987	-.34397	-27.389	.05414	.43165	-.28718	.40776
36	.43234	-.35567	-26.868	.05486	.44383	-.29511	.42028
37	.44484	-.36753	-26.346	.05554	.45597	-.30307	.43285
38	.45738	-.37955	-25.823	.05618	.46807	-.31107	.44548
39	.46997	-.39173	-25.299	.05678	.48013	-.31910	.45817
40	.48261	-.40407	-24.774	.05734	.49215	-.32717	.47092
41	.49530	-.41657	-24.248	.05786	.50413	-.33528	.48372
42	.50804	-.42923	-23.721	.05834	.51607	-.34343	.49657
43	.52083	-.44205	-23.194	.05878	.52797	-.35163	.50947
44	.53367	-.45503	-22.666	.05918	.53983	-.35988	.52242
45	.54656	-.46817	-22.137	.05954	.55165	-.36818	.53542
46	.55950	-.48147	-21.607	.05986	.56343	-.37653	.54847
47	.57249	-.49493	-21.076	.06014	.57517	-.38493	.56157
48	.58553	-.50855	-20.544	.06038	.58687	-.39338	.57472
49	.59862	-.52233	-20.011	.06058	.59853	-.40188	.58792
50	.61176	-.53627	-19.478	.06074	.61015	-.41043	.60117
51	.62495	-.55037	-18.944	.06086	.62173	-.41903	.61447
52	.63819	-.56462	-18.409	.06094	.63327	-.42768	.62782
53	.65148	-.57902	-17.874	.06098	.64477	-.43638	.64122
54	.66482	-.59357	-17.338	.06098	.65623	-.44513	.65467
55	.67821	-.60827	-16.801	.06094	.66765	-.45393	.66817
56	.69165	-.62312	-16.264	.06086	.67903	-.46278	.68172
57	.70514	-.63812	-15.726	.06074	.69037	-.47168	.69532
58	.71868	-.65327	-15.188	.06058	.70167	-.48063	.70897
59	.73227	-.66857	-14.649	.06038	.71293	-.48963	.72267
60	.74591	-.68402	-14.109	.06014	.72415	-.49868	.73642
61	.75960	-.69962	-13.568	.06000	.73533	-.50778	.75017
62	.77334	-.71537	-13.026	.05986	.74647	-.51693	.76392
63	.78713	-.73127	-12.483	.05974	.75757	-.52613	.77767
64	.80097	-.74732	-11.939	.05962	.76863	-.53538	.79142
65	.81486	-.76352	-11.394	.05954	.77965	-.54468	.80517
66	.82880	-.77987	-10.848	.05950	.79063	-.55403	.81892
67	.84279	-.79637	-10.301	.05950	.80157	-.56343	.83267
68	.85683	-.81302	-9.754	.05954	.81247	-.57288	.84642
69	.87092	-.82982	-9.206	.05962	.82333	-.58238	.86017
70	.88506	-.84677	-8.658	.05974	.83415	-.59193	.87392
71	.89925	-.86387	-8.109	.05986	.84493	-.60153	.88767
72	.91349	-.88112	-7.560	.05998	.85567	-.61118	.90142
73	.92778	-.89852	-7.011	.06014	.86637	-.62088	.91517
74	.94212	-.91607	-6.462	.06038	.87703	-.63063	.92892
75	.95651	-.93377	-5.913	.06062	.88765	-.64043	.94267
76	.97095	-.95162	-5.364	.06086	.89823	-.65028	.95642
77	.98544	-.96962	-4.814	.06110	.90877	-.66018	.97017
78	.99998	-.98777	-4.264	.06134	.91927	-.67013	.98392
79	1.01457	-.10007	-3.714	.06158	.92973	-.68013	.99767
80	1.02921	-.11252	-3.164	.06182	.94015	-.69018	1.01142
81	1.04390	-.12512	-2.613	.06206	.95053	-.70028	1.02517
82	1.05864	-.13787	-2.062	.06230	.96087	-.71043	1.03892
83	1.07343	-.15077	-1.511	.06254	.97117	-.72063	1.05267
84	1.08827	-.16382	-0.960	.06278	.98143	-.73088	1.06642
85	1.10316	-.17702	-0.409	.06302	.99165	-.74118	1.08017
86	1.11810	-.19037	0.142	.06326	1.00183	-.75153	1.09392
87	1.13309	-.20387	0.593	.06350	1.01197	-.76193	1.10767
88	1.14813	-.21752	1.044	.06374	1.02207	-.77238	1.12142
89	1.16322	-.23132	1.495	.06398	1.03213	-.78288	1.13517
90	1.17836	-.24527	1.946	.06422	1.04215	-.79343	1.14892
91	1.19355	-.25937	2.397	.06446	1.05213	-.80403	1.16267
92	1.20879	-.27362	2.848	.06470	1.06207	-.81468	1.17642
93	1.22408	-.28802	3.299	.06494	1.07197	-.82538	1.19017
94	1.23942	-.30257	3.750	.06518	1.08183	-.83613	1.20392
95	1.25481	-.31727	4.201	.06542	1.09165	-.84693	1.21767
96	1.27025	-.33212	4.652	.06566	1.10143	-.85778	1.23142
97	1.28574	-.34712	5.103	.06590	1.11117	-.86868	1.24517
98	1.30128	-.36227	5.554	.06614	1.12087	-.87963	1.25892
99	1.31687	-.37757	6.005	.06638	1.13053	-.89063	1.27267
100	1.33251	-.39302	6.456	.06662	1.14015	-.90168	1.28642

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.84987	-.43333	-7.256	.85217	-.41534	.84758	-.45133
71	.86352	-.43498	-6.529	.86545	-.41809	.86159	-.45188
72	.87717	-.43646	-5.802	.87876	-.42174	.87557	-.45218
73	.89081	-.43775	-5.376	.89210	-.42328	.88953	-.45222
74	.90446	-.43888	-4.352	.90546	-.42574	.90346	-.45202
75	.91810	-.43983	-3.629	.91885	-.42809	.91736	-.45157
76	.93175	-.44061	-2.908	.93227	-.43135	.93123	-.45087
77	.94540	-.44122	-2.189	.94573	-.43252	.94506	-.44991
78	.95904	-.44165	-1.472	.95922	-.43460	.95886	-.44871
79	.97269	-.44192	-.757	.97276	-.43659	.97262	-.44725
80	.98634	-.44202	-.045	.98634	-.43850	.98633	-.44554
81	.99998	-.44194	.664	.99996	-.44031	1.00000	-.444357

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 6

DELTA1 = 42.649 (BLADE INLET ANGLE.)
 DELTA2 = 4.217 (BLADE OUTLET ANGLE.)
 YCORD = 0.195 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 TOME = 9.147 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.120 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 COG0 = 3.2696 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.1173
 STAGGER ANGLE = -26.483
 CAMBER ANGLE = -38.672
 SECTION AREA = 0.9433

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.5374
 YBAR = -0.3714

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.3316
 IY = 0.2754
 IXY = -0.2815

ANGLE OF INCLINATION OF ONEI PRINCIPAL AXIS TO 'X' AXIS = -26.482

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.2913 (AT -26.482 WITH 'X' AXIS)
 IPY = 0.2891 (AT -26.482 WITH 'Y' AXIS)

POINT NUMBER	X	Y	M E A N L I N E O A I A ANGLE THICKNESS	SURFACE COORDINATE DATA		
				XS	YS	XP
1	0.0218	3.1402	42.689	0.1366	-0.3158	10.070
2	0.1236	1.121	42.527	0.1447	-0.0092	11.226
3	0.2655	1.2235	42.351	0.2927	-0.1937	12.383
4	0.3874	1.342	42.161	0.4287	-0.2974	13.543
5	0.5092	1.4642	41.956	0.5485	-0.4174	14.699
6	0.6311	1.5533	41.737	0.6763	-0.5726	15.858
7	0.7529	1.6516	41.592	0.8039	-0.6759	17.019
8	0.8748	1.7489	41.252	0.9314	-0.743	18.181
9	0.9966	1.8753	40.987	1.0580	-0.8138	19.345
10	1.1182	1.9937	40.735	1.1850	-0.8723	20.513
11	1.2401	2.1150	40.497	1.3133	-0.9097	21.677
12	1.3622	2.1881	40.192	1.4398	-1.0396	22.846
13	1.4841	2.2931	39.763	1.5664	-1.1911	24.017

POINT NUMBER X Y Z SURFACE COORDINATE DATA VP

MEANLEY ANGLE THICKNESS XS YS ZS

14	16374	-1.1309	-39.411	52738	16928	-1.1251	15103	-1.14966
15	17276	-1.1493	-39.743	52897	15190	-1.1779	16085	-1.16729
16	18496	-1.1485	-39.657	53053	19460	-1.1693	17540	-1.17077
17	19715	-1.1453	-38.251	53205	20707	-1.15595	18723	-1.18111
18	20957	-1.1825	-37.823	5356	21986	-1.16380	19929	-1.19150
19	22201	-1.1752	-37.386	53533	23266	-1.17371	21137	-1.20174
20	23443	-1.1724	-36.939	53646	24538	-1.18267	22347	-1.21181
21	24685	-1.1651	-36.481	53784	25811	-1.19158	23551	-1.22177
22	25928	-1.1562	-36.014	53918	27080	-1.19977	24776	-1.23167
23	27171	-1.1457	-35.537	54047	28347	-1.20811	25995	-1.24184
24	28413	-1.1337	-35.054	54172	29611	-1.21629	27216	-1.25045
25	29656	-1.1211	-34.553	54292	30873	-1.22433	28439	-1.25968
26	30899	-1.1078	-34.049	54407	32132	-1.23223	29655	-1.26874
27	32141	-1.0938	-33.539	54517	33388	-1.23997	30894	-1.27762
28	33384	-1.0793	-33.024	54622	34642	-1.24756	32126	-1.28633
29	34627	-1.0643	-32.493	54721	35893	-1.25501	33360	-1.29485
30	35869	-1.0488	-31.947	54816	37141	-1.26230	34597	-1.30319
31	37112	-1.0329	-31.383	54905	38380	-1.26944	35837	-1.31134
32	38355	-1.0167	-30.804	54990	39630	-1.27642	37080	-1.31931
33	39597	-1.0002	-30.214	55068	40873	-1.28326	38325	-1.32708
34	40840	-0.9835	-29.615	55143	42063	-1.28970	39527	-1.33499
35	42083	-0.9667	-29.008	55205	43255	-1.29631	40731	-1.34153
36	43326	-0.9498	-28.394	55265	44445	-1.30218	41937	-1.34848
37	44569	-0.9328	-27.775	55323	45636	-1.30823	43144	-1.35526
38	45812	-0.9157	-27.155	55377	46826	-1.31416	44353	-1.36187
39	47055	-0.8985	-26.531	55427	48016	-1.31997	45562	-1.36831
40	48298	-0.8813	-25.906	55477	49206	-1.32567	46774	-1.37459
41	49541	-0.8641	-25.281	55524	50396	-1.33126	47986	-1.38071
42	50784	-0.8468	-24.656	55569	51586	-1.33674	49199	-1.38666
43	52027	-0.8295	-24.031	55615	52776	-1.34213	50414	-1.39247
44	53270	-0.8122	-23.406	55663	53966	-1.34741	51629	-1.39812
45	54513	-0.7949	-22.781	55711	55156	-1.35261	52845	-1.40362
46	55756	-0.7776	-22.156	55757	56346	-1.35771	54062	-1.40898
47	57000	-0.7603	-21.531	55804	57536	-1.36273	55280	-1.41419
48	58243	-0.7430	-20.906	55853	58726	-1.36768	56508	-1.41927
49	59486	-0.7257	-20.281	55901	59916	-1.37254	57717	-1.42411
50	60729	-0.7084	-19.656	55950	61106	-1.37749	58927	-1.42891
51	61972	-0.6911	-19.031	56000	62296	-1.38236	60136	-1.43368
52	63215	-0.6738	-18.406	56050	63486	-1.38715	61346	-1.43846
53	64458	-0.6565	-17.781	56100	64676	-1.39186	62556	-1.44318
54	65701	-0.6392	-17.156	56150	65866	-1.39658	63766	-1.44786
55	66944	-0.6219	-16.531	56200	67056	-1.40129	64976	-1.45254
56	68187	-0.6046	-15.906	56250	68246	-1.40593	66186	-1.45722
57	69430	-0.5873	-15.281	56300	69436	-1.41058	67396	-1.46191
58	70673	-0.5700	-14.656	56350	70626	-1.41523	68606	-1.46659
59	71916	-0.5527	-14.031	56400	71816	-1.41988	69816	-1.47127
60	73159	-0.5354	-13.406	56450	73006	-1.42453	71026	-1.47595
61	74402	-0.5181	-12.781	56500	74196	-1.42918	72236	-1.48063
62	75645	-0.5008	-12.156	56550	75386	-1.43383	73446	-1.48531
63	76888	-0.4835	-11.531	56600	76576	-1.43848	74656	-1.49000
64	78131	-0.4662	-10.906	56650	77766	-1.44313	75866	-1.49468
65	79374	-0.4489	-10.281	56700	78956	-1.44778	77076	-1.49936
66	80617	-0.4316	-9.656	56750	80146	-1.45243	78286	-1.50404
67	81860	-0.4143	-9.031	56800	81336	-1.45708	79496	-1.50872
68	83103	-0.3970	-8.406	56850	82526	-1.46173	80706	-1.51340
69	84346	-0.3797	-7.781	56900	83716	-1.46638	81916	-1.51808
70	85589	-0.3624	-7.156	56950	84906	-1.47103	83126	-1.52276
71	86832	-0.3451	-6.531	57000	86096	-1.47568	84336	-1.52744
72	88075	-0.3278	-5.906	57050	87286	-1.48033	85546	-1.53212
73	89318	-0.3105	-5.281	57100	88476	-1.48498	86756	-1.53680
74	90561	-0.2932	-4.656	57150	89666	-1.48963	87966	-1.54148
75	91804	-0.2759	-4.031	57200	90856	-1.49428	89176	-1.54616
76	93047	-0.2586	-3.406	57250	92046	-1.49893	90386	-1.55084
77	94290	-0.2413	-2.781	57300	93236	-1.50358	91596	-1.55552
78	95533	-0.2240	-2.156	57350	94426	-1.50823	92806	-1.56020
79	96776	-0.2067	-1.531	57400	95616	-1.51288	94016	-1.56488
80	98019	-0.1894	-0.906	57450	96806	-1.51753	95226	-1.56956
81	99262	-0.1721	-0.281	57500	97996	-1.52218	96436	-1.57424
82	100505	-0.1548	0.344	57550	99186	-1.52683	97646	-1.57892
83	101748	-0.1375	0.969	57600	100376	-1.53148	98856	-1.58360
84	102991	-0.1202	1.594	57650	101566	-1.53613	100066	-1.58828
85	104234	-0.1029	2.219	57700	102756	-1.54078	101276	-1.59296
86	105477	-0.0856	2.844	57750	103946	-1.54543	102486	-1.59764
87	106720	-0.0683	3.469	57800	105136	-1.55008	103696	-1.60232
88	107963	-0.0510	4.094	57850	106326	-1.55473	104906	-1.60700
89	109206	-0.0337	4.719	57900	107516	-1.55938	106116	-1.61168
90	110449	-0.0164	5.344	57950	108706	-1.56403	107326	-1.61636
91	111692	0.0009	5.969	58000	109896	-1.56868	108536	-1.62104
92	112935	0.0182	6.594	58050	111086	-1.57333	109746	-1.62572
93	114178	0.0355	7.219	58100	112276	-1.57798	110956	-1.63040
94	115421	0.0528	7.844	58150	113466	-1.58263	112166	-1.63508
95	116664	0.0701	8.469	58200	114656	-1.58728	113376	-1.63976
96	117907	0.0874	9.094	58250	115846	-1.59193	114586	-1.64444
97	119150	0.1047	9.719	58300	117036	-1.59658	115796	-1.64912
98	120393	0.1220	10.344	58350	118226	-1.60123	117006	-1.65380
99	121636	0.1393	10.969	58400	119416	-1.60588	118216	-1.65848
100	122879	0.1566	11.594	58450	120606	-1.61053	119426	-1.66316

POINT NUMBER	M E A N L I N E D A T A		SURFACE COORDINATE DATA				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.85246	-.47852	-10.954	.85579	-.46137	.84914	-.49567
71	.86586	-.43134	-10.336	.86883	-.46494	.86293	-.49714
72	.87927	-.48341	-9.719	.88183	-.46842	.87670	-.49840
73	.89267	-.44563	-9.132	.89488	-.47183	.89046	-.49943
74	.90607	-.43773	-8.487	.90794	-.47516	.90420	-.50025
75	.91947	-.48963	-7.872	.92102	-.47841	.91792	-.50185
76	.93287	-.44141	-7.259	.93412	-.48150	.93162	-.50322
77	.94627	-.49304	-6.647	.94724	-.48471	.94530	-.50438
78	.95967	-.43453	-6.037	.96039	-.48776	.95896	-.50531
79	.97308	-.49588	-5.428	.97356	-.49174	.97259	-.50602
80	.98648	-.43718	-4.822	.98677	-.49365	.98619	-.50651
81	.99988	-.49814	-4.217	1.00000	-.49650	.99976	-.49978

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 7

BEY1 = -41.955 (BLADE INLET ANGLE.)
 BEY2 = -9.169 (BLADE OUTLET ANGLE.)
 YZERO = 9.177 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = 3.750 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 3.146 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 5.6 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 1.2279 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.1473
 STAGGER ANGLE = -29.333
 CAMBER ANGLE = -34.789
 SECTION AREA = 3.3333

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 53.410
 YBAR = -36.614

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0375
 IY = 0.2333
 IXY = -0.0329

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -29.331

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0373 (AT -29.331 WITH 'X' AXIS)
 IPY = 0.0315 (AT -29.331 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XF	YP
1	0.01000	-43.859	0.0406	0.0344	-0.3146	0.0062	-0.1446
2	0.11635	-41.182	-43.774	0.01639	-0.03969	0.1231	-0.03395
3	0.2867	-32.160	-43.671	0.00771	-0.2001	0.2400	-0.02639
4	0.3894	-19.534	-43.549	0.00953	-0.4227	0.3108	-0.03879
5	0.3513	-14.702	-43.429	0.1133	0.0523	0.4741	-0.05114
6	0.06362	-15.864	-43.297	0.1313	0.06412	0.5513	-0.06342
7	0.7524	-17.018	-43.166	0.1497	0.08103	0.6065	-0.07563
8	0.8826	-14.168	-42.866	0.1666	0.09303	0.67566	-0.08777
9	0.8359	-19.935	-42.645	0.1847	0.10661	0.7434	-0.09982
10	0.11293	-11.435	-42.442	0.2012	0.11966	0.8111	-0.11178
11	0.12522	-14.555	-42.159	0.2161	0.13255	0.8790	-0.12364
12	0.33753	-12.664	-41.853	0.2347	0.14536	0.9470	-0.13538
13	0.14985	-13.762	-41.546	0.2511	0.15818	1.0153	-0.14701

MEANLINE DATA

SURFACE COORDINATE DATA

POINT NUMBER	X	Y	ANGLE	WIDTH	MS	YS	XP	YP
14	16217	-14847	41.215	0.2671	17397	-13842	15337	-115852
15	17449	-15919	40.863	0.2829	18374	-14850	16524	-116989
16	18681	-16978	40.481	0.2981	19649	-15644	17713	-118112
17	19913	-18022	43.777	0.3131	20921	-16824	18905	-119220
18	21145	-19066	39.651	0.3279	22211	-17894	20117	-120329
19	22377	-20109	39.219	0.3423	23496	-18769	21332	-121421
20	23609	-21152	38.781	0.3563	24781	-19719	22549	-122497
21	24841	-22195	38.337	0.3698	26063	-20655	23769	-123555
22	26073	-23238	37.888	0.3829	27342	-21575	24991	-124597
23	27305	-24281	37.432	0.3955	28620	-22481	26215	-125622
24	28537	-25324	36.971	0.4077	29894	-23372	27442	-126633
25	29769	-26367	36.502	0.4194	31166	-24249	28672	-127620
26	31001	-27410	36.028	0.4306	32436	-25111	29903	-128594
27	32233	-28453	35.548	0.4414	33704	-25959	31138	-129550
28	33465	-29496	35.062	0.4515	34968	-26792	32374	-130488
29	34697	-30539	34.569	0.4613	36231	-27610	33613	-131409
30	35929	-31582	34.069	0.4705	37491	-28415	34855	-132313
31	37161	-32625	33.561	0.4793	38749	-29205	36099	-133198
32	38393	-33668	33.051	0.4874	40004	-29981	37345	-134066
33	39625	-34711	32.533	0.4953	41257	-30742	38594	-134916
34	40857	-35754	32.011	0.5023	42506	-31483	39800	-135719
35	42089	-36797	31.484	0.5084	43756	-32217	41007	-136504
36	43321	-37840	30.949	0.5142	45007	-32957	42216	-137273
37	44553	-38883	30.409	0.5196	46257	-33691	43427	-138026
38	45785	-39926	29.863	0.5245	47506	-34424	44639	-138763
39	47017	-40969	29.312	0.5288	48756	-35155	45853	-139484
40	48249	-42012	28.756	0.5327	50007	-35885	47068	-140189
41	49481	-43055	28.196	0.5363	51257	-36614	48285	-140879
42	50713	-44098	27.631	0.5398	52506	-37342	49503	-141553
43	51945	-45141	27.061	0.5431	53756	-38071	50722	-142213
44	53177	-46184	26.484	0.5458	55007	-38792	51942	-142857
45	54409	-47227	25.902	0.5484	56257	-39517	53164	-143487
46	55641	-48270	25.312	0.5509	57506	-40242	54387	-144103
47	56873	-49313	24.716	0.5534	58756	-40967	55610	-144704
48	58105	-50356	24.114	0.5554	60007	-41691	56835	-145292
49	59337	-51399	23.506	0.5574	61257	-42415	58061	-145865
50	60569	-52442	22.891	0.5593	62506	-43140	59285	-146447
51	61801	-53485	22.269	0.5613	63756	-43864	60512	-147014
52	63033	-54528	21.641	0.5633	65007	-44589	61739	-147566
53	64265	-55571	21.006	0.5653	66257	-45313	62968	-148113
54	65497	-56614	20.366	0.5673	67506	-46038	64197	-148660
55	66729	-57657	19.721	0.5693	68756	-46762	65427	-149202
56	67961	-58700	19.071	0.5713	70007	-47487	66657	-149749
57	69193	-59743	18.416	0.5733	71257	-48211	67887	-150292
58	70425	-60786	17.756	0.5753	72506	-48936	69117	-150835
59	71657	-61829	17.091	0.5773	73756	-49660	70347	-151378
60	72889	-62872	16.421	0.5793	75007	-50385	71577	-151921
61	74121	-63915	15.746	0.5813	76257	-51109	72807	-152464
62	75353	-64958	15.066	0.5833	77506	-51834	74037	-153007
63	76585	-65999	14.381	0.5853	78756	-52558	75267	-153550
64	77817	-67042	13.691	0.5873	80007	-53283	76497	-154093
65	79049	-68085	13.001	0.5893	81257	-54007	77727	-154636
66	80281	-69128	12.306	0.5913	82506	-54732	78957	-155179
67	81513	-70171	11.606	0.5933	83756	-55456	80187	-155722
68	82745	-71214	10.901	0.5953	85007	-56181	81417	-156265
69	83977	-72257	10.196	0.5973	86257	-56905	82647	-156808
70	85209	-73300	9.491	0.5993	87506	-57630	83877	-157351

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.65733	-.53153	-14.854	.86159	-.51535	.85300	-.54772
71	.87025	-.53490	-14.324	.87413	-.51971	.86636	-.55010
72	.85319	-.53815	-13.795	.88667	-.52430	.87972	-.55230
73	.89614	-.54126	-13.265	.89922	-.52823	.89307	-.55430
74	.90909	-.54425	-12.737	.91177	-.53240	.90641	-.55611
75	.92214	-.54712	-12.213	.92434	-.53651	.91975	-.55773
76	.93499	-.54986	-11.683	.93691	-.54056	.93307	-.55915
77	.94794	-.55247	-11.158	.94950	-.54456	.94638	-.56038
78	.96089	-.55497	-10.634	.96210	-.54851	.95968	-.56142
79	.97384	-.55734	-10.111	.97472	-.55241	.97296	-.56226
80	.98679	-.55958	-9.589	.98735	-.55626	.98622	-.56291
81	.99974	-.56171	-9.069	1.00000	-.56006	.99947	-.56337

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 0

DELTA1 (BLADE INLET ANGLE.)
 DELTA2 (BLADE OUTLET ANGLE.)
 YZERO (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y1 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Y2 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 YCORD (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO A BLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.1820
 STAGGER ANGLE = -32.235
 CAMBER ANGLE = -31.053
 SECTION AREA = .94313

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .52606
 YBAR = -.39933

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .0394
 IY = .0232
 IXY = -.07145

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -32.233

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .3002 (AT -32.233 WITH 'X' AXIS)
 IPY = .3324 (AT -32.233 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	X	Y	XP	YP
1	.30287	0.01200	44.937	.00316	-.03132	.02055	-.0132
2	.24439	-.11249	44.926	.01633	-.01853	.01243	-.01444
3	.12693	-.07498	44.992	.02947	-.02238	.02832	-.02755
4	.33841	-.13742	44.634	.04261	-.03420	.03621	-.04064
5	.05893	-.14985	44.753	.05575	-.04630	.04811	-.05370
6	.16445	-.16224	44.651	.06888	-.05775	.06002	-.06872
7	.37546	-.17458	44.525	.08199	-.06946	.07193	-.07969
8	.08948	-.19086	44.375	.09511	-.08111	.0806	-.09263
9	.10310	-.19907	44.291	.10823	-.09269	.09579	-.10544
10	.11451	-.1120	44.703	.12128	-.10419	.10774	-.11820
11	.12713	-.17324	43.773	.13434	-.11568	.11971	-.13087
12	.13954	-.13518	43.531	.14739	-.12692	.13173	-.14344
13	.15216	-.14731	43.256	.16042	-.13813	.14370	-.15591

SURFACE COORDINATE DATA

POINT NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
14	16.52	1.5873	42.955	0.2597	17362	-14.323	15573	-16623
15	17.79	1.7032	42.626	0.2752	18641	-16.320	16770	-18044
16	18.90	1.8177	42.269	0.2943	19937	-17.133	17965	-19251
17	20.21	1.9307	41.892	0.3053	21251	-18.171	19194	-20442
18	21.67	2.0426	41.478	0.3194	22520	-19.230	20412	-21623
19	22.28	2.1533	41.171	0.3334	23823	-21.273	21632	-22787
20	23.85	2.2618	40.659	0.3470	25116	-21.332	22855	-23934
21	25.23	2.3693	40.244	0.3602	26406	-22.316	24079	-25065
22	26.50	2.4747	39.826	0.3733	27695	-23.115	25306	-26179
23	27.58	2.5788	39.404	0.3853	28981	-24.299	26535	-27276
24	29.15	2.6813	38.967	0.3971	30264	-25.270	27766	-28357
25	30.27	2.7823	38.552	0.4085	31546	-26.226	29000	-29428
26	31.59	2.8817	38.121	0.4195	32825	-27.167	30236	-30467
27	32.88	2.9797	37.687	0.4299	34102	-28.195	31474	-31498
28	34.25	3.0763	37.249	0.4399	35377	-29.110	32714	-32511
29	35.33	3.1739	36.809	0.4494	36649	-29.910	33957	-33508
30	36.96	3.2693	36.365	0.4584	37921	-30.797	35202	-34488
31	37.81	3.3631	35.919	0.4669	39188	-31.670	36449	-35452
32	38.75	3.4546	35.463	0.4749	40453	-32.531	37698	-36398
33	40.33	3.5433	35.016	0.4824	41717	-33.378	38949	-37328
34	41.58	3.6297	34.579	0.4891	42936	-34.164	40163	-38211
35	42.76	3.7128	34.143	0.4954	44153	-34.978	41373	-39078
36	43.74	3.7945	33.710	0.5012	45369	-35.761	42587	-39930
37	45.19	3.8749	33.279	0.5064	46583	-36.532	43804	-40766
38	46.48	3.9529	32.852	0.5112	47795	-37.293	45021	-41588
39	47.82	4.0288	32.427	0.5155	49005	-38.043	46241	-42394
40	48.83	4.0984	32.016	0.5193	50214	-38.782	47462	-43186
41	50.23	4.1737	31.588	0.5225	51422	-39.512	48684	-43963
42	51.28	4.2478	31.174	0.5253	52628	-40.231	49908	-44726
43	52.83	4.3208	30.764	0.5275	53832	-40.941	51134	-45474
44	53.98	4.3925	30.359	0.5292	55035	-41.642	52361	-46208
45	54.91	4.4631	29.956	0.5304	56237	-42.333	53589	-46929
46	56.28	4.5325	29.558	0.5311	57438	-43.016	54818	-47635
47	57.34	4.6009	29.165	0.5312	58637	-43.690	56048	-48328
48	58.59	4.6682	28.776	0.5308	59835	-44.355	57280	-49008
49	59.73	4.7344	28.393	0.5298	61033	-45.013	58513	-49674
50	61.43	4.7982	27.992	0.5282	62232	-45.692	59743	-50356
51	62.82	4.8693	27.594	0.5259	63433	-46.353	61095	-51024
52	63.93	4.9351	27.171	0.5228	64676	-47.025	62388	-51676
53	64.52	4.9972	26.743	0.5190	65820	-47.679	63684	-52314
54	66.12	5.0512	26.321	0.5145	66962	-48.325	64981	-52937
55	67.31	5.1253	25.867	0.5092	68103	-48.962	66280	-53543
56	68.61	5.1863	25.445	0.5031	69246	-49.592	67583	-54134
57	69.33	5.2451	24.997	0.4961	70392	-50.213	68882	-54709
58	71.23	5.3147	24.542	0.4883	71544	-50.826	70186	-55268
59	72.73	5.3821	24.183	0.4796	72648	-51.431	71491	-55810
60	73.71	5.4482	23.611	0.4703	73751	-52.028	72798	-56335
61	75.19	5.5121	23.135	0.4605	74851	-52.610	74107	-56843
62	76.27	5.5747	22.651	0.4481	75912	-53.199	75416	-57334
63	77.54	5.6362	22.161	0.4356	76973	-53.773	76727	-57808
64	78.81	5.6951	21.663	0.4222	78034	-54.339	78039	-58263
65	80.08	5.7599	21.157	0.4079	79098	-54.897	79352	-58700
66	81.31	5.8213	20.662	0.3927	80223	-55.436	80637	-59111
67	82.72	5.8776	20.171	0.3766	81321	-55.968	81923	-59503
68	83.14	5.9185	19.695	0.3594	82419	-56.494	83209	-59878
69	85.156	5.9624	19.234	0.3413	83517	-57.013	84495	-60236

POINT NUMBER	M E A N L I N E A N G L E		D I S T A N C E		S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	Y P	XS	YS	XP	YP
70	.86298	-.59051	-16.727	.03220	.86815	-.57526	.85781	-.60576
71	.87543	-.59466	-16.257	.03017	.88012	-.58134	.87067	-.60899
72	.88782	-.59871	-17.791	.02802	.89210	-.58536	.88353	-.61205
73	.91323	-.61264	-17.332	.02577	.90407	-.59334	.89640	-.61493
74	.91265	-.61646	-16.878	.02340	.91605	-.59526	.90926	-.61765
75	.92597	-.61017	-16.430	.02091	.92803	-.60114	.92212	-.62020
76	.93749	-.61378	-15.989	.01831	.94001	-.60498	.93497	-.62258
77	.94931	-.61729	-15.553	.01558	.95203	-.61979	.94782	-.62479
78	.96233	-.62079	-15.125	.01273	.96399	-.61455	.96067	-.62684
79	.97475	-.62400	-14.702	.00976	.97599	-.61928	.97351	-.62872
80	.98717	-.62721	-14.287	.00666	.98799	-.62399	.98635	-.63044
81	.99959	-.63033	-13.878	.00343	1.00000	-.62866	.99918	-.63200

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 9

BETA = 45.943 (BLADE INLET ANGLE.)
 BETA2 = 18.592 (BLADE OUTLET ANGLE.)
 YZERO = .40143 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = .84230 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 Z = .83143 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .6220 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 Z = 3.1230 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.2276
 STAGGER ANGLE = -35.810
 CAMBER ANGLE = -27.353
 SECTION AREA = .84314

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .52987
 YBAR = -.63148

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .86116
 IY = .86232
 IXY = -.89161

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -35.092

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .60892 (AT -35.092 WITH 'X' AXIS)
 IPY = .89345 (AT -35.092 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A					SURFACE COORDINATE DATA					
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP	XS	YS	XP	YP
1	-.00175	6.80380	45.943	.00249	-.03303	-.00121	.00049	-.00121	.00049	-.00121	.00049
2	.01444	-.81124	45.933	.00272	-.01532	-.01131	.01257	-.01486	.01257	-.01486	.01257
3	.02714	-.32824	45.936	.00694	-.02984	-.02382	.02465	-.02885	.02465	-.02885	.02465
4	.03984	.01933	45.881	.00886	-.04295	-.03632	.03674	-.04235	.03674	-.04235	.03674
5	.05254	-.05241	45.799	.01837	-.05625	-.04879	.04883	-.05602	.04883	-.05602	.04883
6	.06524	-.06545	45.719	.01887	-.06956	-.06124	.06092	-.06966	.06092	-.06966	.06092
7	.07794	-.07845	45.621	.01379	-.08285	-.07354	.07382	-.08326	.07382	-.08326	.07382
8	.09064	-.09148	45.505	.01943	-.09614	-.08589	.08514	-.09581	.08514	-.09581	.08514
9	.10334	-.10425	45.372	.01788	-.10942	-.09829	.09726	-.10830	.09726	-.10830	.09726
10	.11604	-.11713	45.219	.01978	-.12268	-.11053	.10939	-.12372	.10939	-.12372	.10939
11	.12874	-.12985	45.044	.02133	-.13593	-.12278	.12154	-.13707	.12154	-.13707	.12154
12	.14144	-.14256	44.858	.02192	-.14917	-.13479	.13370	-.14833	.13370	-.14833	.13370
13	.15413	-.15518	44.669	.02349	-.16239	-.14680	.14588	-.16351	.14588	-.16351	.14588

POINT NUMBER

W E A T H E R I M E D A T A

SURFACE COORDINATE DATA YP

POINT NUMBER	W	E	A	T	H	E	R	I	M	E	D	A	T	A	IS	YS	IP	YP
	X	Y	ANGLE	THICKNESS														
14	15643	-1765	42	0.2522	17559	-15871				15808	-17659							
15	17951	-1834	44	1.7255	18877	-1743				17329	-18955							
16	19223	-1923	43	0.2807	23194	-1822				18252	-20241							
17	20495	-2048	43	0.2944	21508	-1936				19478	-21514							
18	21753	-2164	43	1.3083	22610	-2050				20695	-22763							
19	23012	-2282	42	0.981	24109	-2164				21915	-23999							
20	24272	-2399	42	0.683	25407	-2275				23136	-25222							
21	25531	-2544	42	3.38	26733	-2385				24363	-26439							
22	26791	-2628	41	0.985	27996	-2494				25586	-27624							
23	28051	-2742	41	0.643	29287	-2612				26814	-28803							
24	29311	-2855	41	2.81	30576	-2731				28044	-29867							
25	31573	-2964	40	0.909	31863	-2843				29277	-31116							
26	31829	-3178	40	0.527	33147	-2957				30512	-32249							
27	33189	-3377	40	1.13	34429	-3088				31749	-33366							
28	34348	-3582	39	0.255	35708	-3219				32989	-34468							
29	35608	-3871	39	1.12	36985	-3349				34231	-35552							
30	36868	-4074	38	0.44	38263	-3478				35476	-36621							
31	38127	-4280	38	0.44	39532	-3607				36723	-37672							
32	39387	-4484	37	0.92	40802	-3736				37972	-38706							
33	40647	-4687	37	0.670	42069	-3865				39224	-39722							
34	41869	-4880	37	1.74	43297	-3994				40442	-40691							
35	43092	-5071	36	0.631	44524	-4123				41661	-41643							
36	44315	-5260	35	1.98	45749	-4252				42881	-42579							
37	45538	-5448	35	0.775	46974	-4381				44103	-43499							
38	46761	-5632	35	3.64	48199	-4510				45327	-44403							
39	47984	-5814	34	0.64	49416	-4639				46552	-45292							
40	49207	-6001	34	0.76	50636	-4768				47778	-46166							
41	50430	-6180	34	0.208	51855	-4897				49005	-47026							
42	51653	-6359	33	0.38	53074	-5026				50233	-47872							
43	52876	-6537	33	0.48	54293	-5155				51463	-48705							
44	54099	-6716	33	1.53	55512	-5284				52693	-49525							
45	55321	-6894	32	0.31	56731	-5413				53925	-50332							
46	56544	-7072	32	0.524	57950	-5542				55157	-51127							
47	57767	-7250	32	2.31	59169	-5671				56390	-51911							
48	58990	-7428	31	0.93	60388	-5800				57624	-52693							
49	60213	-7606	31	0.91	61607	-5929				58859	-53445							
50	61436	-7784	31	0.415	62826	-6058				60157	-54234							
51	62659	-7962	31	1.23	64045	-6187				61457	-55011							
52	63882	-8140	30	0.88	65264	-6316				62759	-55776							
53	65105	-8318	30	0.78	66483	-6445				64064	-56528							
54	66328	-8496	30	1.25	67702	-6574				65372	-57267							
55	67551	-8674	29	0.755	68921	-6703				66682	-57992							
56	68774	-8852	29	0.683	70140	-6832				67995	-58703							
57	70000	-9030	28	0.935	71359	-6961				69310	-59397							
58	71223	-9208	28	0.524	72578	-7090				70627	-60076							
59	72446	-9386	28	0.372	73797	-7219				71947	-60738							
60	73669	-9564	27	0.518	75016	-7348				73270	-61388							
61	74892	-9742	27	1.62	76235	-7477				74595	-62088							
62	76115	-9920	26	0.84	77454	-7606				75922	-62615							
63	77338	-10098	26	0.63	78673	-7735				77251	-63202							
64	78561	-10276	25	0.479	79892	-7864				78582	-63770							
65	80000	-10454	25	0.890	81111	-7993				79915	-64316							
66	81439	-10632	24	1.18	82330	-8122				81249	-64807							
67	82878	-10810	23	0.84	83549	-8251				82582	-65279							
68	84317	-10988	23	0.93	84768	-8380				83915	-65732							
69	85756	-11166	22	0.796	85987	-8509				85248	-66167							

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.86745	-.65144	-22.122	.87337	-.63733	.86153	-.66585
71	.87945	-.65631	-21.869	.88489	-.64276	.87401	-.66986
72	.89145	-.65108	-21.438	.89641	-.64844	.88649	-.67371
73	.90345	-.65574	-21.028	.91793	-.65438	.89897	-.67739
74	.91545	-.67233	-20.641	.91945	-.65969	.91145	-.68092
75	.92745	-.67478	-20.277	.93097	-.66526	.92393	-.68430
76	.93945	-.67917	-19.936	.94248	-.67181	.93641	-.68754
77	.95145	-.68349	-19.619	.95399	-.67634	.94890	-.69063
78	.96345	-.68773	-19.325	.96551	-.68186	.96139	-.69363
79	.97544	-.69190	-19.056	.97701	-.68738	.97388	-.69643
80	.98744	-.69602	-18.811	.98951	-.69290	.98638	-.69914
91	.99944	-.70008	-18.593	1.00000	-.69843	.99889	-.70174

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 10

BETA1 = -46.889 (BLADE INLET ANGLE.)
 BETA2 = -21.137 (BLADE OUTLET ANGLE.)
 YZENC = 0.93136 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = 0.39997 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YOME = 0.97141 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.6275 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 3.9519 (MERIDIONAL CHORD OF SECTION.)

NON-FLISHED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.2618
 STAGGER ANGLE = -37.677
 CAMBER ANGLE = -23.762
 SECTION AREA = .34321

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .51215
 YBAR = -.46536

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .0314C
 IY = .09232
 IXY = -.01178

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -37.760

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .09722 (AT -37.760 WITH 'X' AXIS)
 IPY = .33373 (AT -37.760 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.03271	2.17203	-46.889	.92342	.03298	.00117	.19046
2	.01453	-.11366	-46.883	.08586	.01634	-.01193	.01265
3	.02729	-.12731	-46.863	.08673	.02973	-.02502	.02484
4	.04037	-.14095	-46.836	.08933	.04311	-.03810	.03703
5	.05385	-.15458	-46.796	.09096	.05649	-.05117	.04923
6	.06865	-.16828	-46.741	.09158	.06986	-.06421	.06143
7	.07844	-.18175	-46.675	.09179	.08323	-.07723	.07384
8	.09122	-.09538	-46.598	.09178	.09659	-.09122	.08585
9	.10411	-.11488	-46.508	.09136	.10995	-.10316	.09007
10	.11803	-.12225	-46.406	.09193	.12329	-.11637	.11031
11	.12957	-.13568	-46.292	.09247	.13662	-.12693	.12255
12	.14027	-.14900	-46.166	.09283	.14995	-.14173	.13480
13	.15116	-.16229	-46.325	.09253	.16325	-.15448	.14787
							.17010

POINT NUMBER	X	Y	M E R L I N C O A T A	ANGLE THICKNESS	NS	SURFACE COORDINATE DATA	XP	YP
14	.16795	-.17551	-45.872	.42197	.17655	-.16716	.15934	-.16385
15	.18074	-.18465	-45.716	.82542	.18983	-.17978	.17184	-.19753
16	.19152	-.19732	-45.526	.72604	.20313	-.19212	.18395	-.21112
17	.20451	-.21470	-45.333	.62833	.21635	-.20474	.19627	-.22462
18	.21855	-.22734	-45.133	.52956	.22932	-.21691	.20837	-.23777
19	.23119	-.23965	-44.911	.42806	.24228	-.22896	.22049	-.25082
20	.24392	-.25234	-44.676	.32213	.25522	-.24091	.23263	-.26376
21	.25466	-.26464	-44.425	.21316	.26814	-.25277	.24479	-.27659
22	.26908	-.27691	-44.157	.09355	.28103	-.26452	.25696	-.28931
23	.28154	-.28903	-43.871	.03571	.29391	-.27615	.26916	-.30190
24	.29407	-.31102	-43.571	.03683	.30677	-.28768	.28138	-.31436
25	.30641	-.31238	-43.252	.03791	.31963	-.29937	.29363	-.32668
26	.31915	-.32461	-42.914	.03894	.33241	-.31115	.30589	-.33886
27	.33159	-.33619	-42.557	.03994	.34519	-.32298	.31818	-.35090
28	.34423	-.34763	-42.181	.04089	.35795	-.33468	.33053	-.36278
29	.35676	-.35891	-41.785	.04179	.37069	-.34633	.34284	-.37449
30	.36910	-.37015	-41.368	.04265	.38339	-.35803	.35521	-.38604
31	.38184	-.38139	-40.931	.04347	.39608	-.36967	.36760	-.39741
32	.39438	-.39178	-40.471	.04424	.40873	-.38135	.38002	-.40860
33	.40691	-.40231	-39.988	.04496	.42136	-.39316	.39247	-.41951
34	.41917	-.41258	-39.513	.04562	.43369	-.40498	.40466	-.43018
35	.43143	-.42261	-39.054	.04623	.44603	-.41666	.41667	-.44056
36	.44389	-.43268	-38.612	.04681	.45830	-.42819	.42909	-.45076
37	.45595	-.44268	-38.189	.04733	.47059	-.43959	.44132	-.46079
38	.46821	-.45277	-37.784	.04781	.48286	-.45087	.45357	-.47066
39	.48048	-.46286	-37.383	.04824	.49511	-.46214	.46582	-.48037
40	.49274	-.47292	-37.006	.04863	.50738	-.47341	.47809	-.48993
41	.50502	-.48297	-36.642	.04897	.51963	-.48467	.49036	-.49934
42	.51726	-.49297	-36.271	.04927	.53186	-.49595	.50255	-.50863
43	.52952	-.50297	-35.922	.04952	.54409	-.50724	.51494	-.51778
44	.54178	-.51295	-35.576	.04972	.55632	-.51849	.52723	-.52682
45	.55404	-.52295	-35.243	.04988	.56855	-.52956	.53954	-.53575
46	.56630	-.53291	-34.916	.04999	.58074	-.54078	.55185	-.54457
47	.57856	-.54283	-34.600	.05004	.59295	-.55196	.56417	-.55330
48	.59082	-.55274	-34.293	.05005	.60515	-.56318	.57649	-.56194
49	.60308	-.56264	-34.000	.05001	.61734	-.57442	.58881	-.57050
50	.61534	-.57254	-33.713	.04991	.62954	-.58566	.60119	-.57942
51	.62760	-.58244	-33.440	.04975	.64173	-.59692	.61479	-.58826
52	.64174	-.59234	-33.174	.04952	.65392	-.60818	.62782	-.59701
53	.65398	-.60224	-32.920	.04921	.66611	-.61945	.64088	-.60567
54	.66624	-.61214	-32.677	.04883	.67830	-.63072	.65397	-.61421
55	.67850	-.62204	-32.440	.04837	.69049	-.64200	.66709	-.62262
56	.69076	-.63194	-32.210	.04782	.70268	-.65328	.68025	-.63091
57	.70302	-.64184	-31.980	.04719	.71487	-.66456	.69343	-.63905
58	.71528	-.65174	-31.750	.04646	.72706	-.67584	.70655	-.64704
59	.72754	-.66164	-31.520	.04566	.73925	-.68722	.71960	-.65486
60	.73980	-.67154	-31.290	.04477	.75144	-.69860	.73316	-.66250
61	.75206	-.68144	-31.060	.04381	.76363	-.71008	.74649	-.66991
62	.76432	-.69134	-30.830	.04281	.77582	-.72156	.75983	-.67721
63	.77658	-.70124	-30.600	.04177	.78801	-.73304	.77320	-.68426
64	.78884	-.71114	-30.370	.04068	.80020	-.74452	.78650	-.69109
65	.80110	-.72104	-30.140	.03955	.81239	-.75600	.80002	-.69768
66	.81336	-.73094	-29.910	.03838	.82458	-.76748	.81240	-.70354
67	.82562	-.74084	-29.680	.03717	.83677	-.77896	.82479	-.70919
68	.83788	-.75074	-29.450	.03592	.84896	-.79044	.83718	-.71464
69	.85014	-.76064	-29.220	.03464	.86115	-.80192	.84956	-.71998

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.85865	-.71120	-25.913	.87535	-.69742	.86195	-.72498
71	.84053	-.71691	-25.479	.88671	-.73394	.87434	-.72989
72	.83241	-.72252	-25.178	.89807	-.71741	.88674	-.73463
73	.90428	-.72803	-24.712	.90943	-.71685	.89913	-.73922
74	.91616	-.73346	-24.382	.92079	-.72325	.91153	-.74366
75	.92804	-.73880	-24.088	.93213	-.72964	.92394	-.74797
76	.93991	-.74408	-23.831	.94348	-.73602	.93515	-.75214
77	.95179	-.74930	-23.613	.95481	-.74240	.94878	-.75620
78	.96367	-.75447	-23.427	.96613	-.74879	.96121	-.76014
79	.97555	-.75963	-23.282	.97744	-.75520	.97366	-.76399
80	.98742	-.76469	-23.175	.98873	-.76165	.98612	-.76774
81	.99930	-.76977	-23.107	1.00000	-.76813	.99860	-.77140

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 11

BETA1 (BLADE INLET ANGLE.)
 BETA2 (BLADE OUTLET ANGLE.)
 YZERO (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Y2 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 YCOR (MERIDIONAL CHORD OF SECTION.)

UNREALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD R = 1.3253
 STAGGER ANGLE S = -43.159
 CAMBER ANGLE F = 27.662
 SECTION AREA A = 0.337

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .5147
 YBAR = -.57129

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .21168
 IY = .30235
 IXY = -.23197

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -60.234

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .7002 (AT -60.234 WITH 'X' AXIS)
 IPY = .3941 (AT -60.234 WITH 'Y' AXIS)

POINT NUMBER	X	Y	M E A N L I N E A T A ANGLE THICKNESS	SURFACE COORDINATE DATA		
				XS	YS	XP
1	.01175	0.31400	-47.766	.03305	.03118	.09945
2	.31554	.11415	-46.308	.01641	-.01247	.01266
3	.02733	.12851	-49.194	.02979	-.02621	.02487
4	.16312	.14275	-48.343	.03316	-.04194	.03707
5	.05291	.15715	-48.457	.05653	-.05394	.04928
6	.05569	.17161	-48.536	.06991	-.06749	.06148
7	.07408	.18609	-48.583	.08327	-.08137	.07369
8	.09127	.17059	-48.589	.09664	-.09586	.08591
9	.13216	.11573	-48.584	.11999	-.11395	.09813
10	.11645	.12966	-48.504	.13334	-.12302	.11036
11	.12364	.14408	-48.499	.13667	-.13775	.12263
12	.14233	.15837	-48.279	.14999	-.15153	.13486
13	.15522	.17268	-48.113	.16339	-.16543	.14713

POINT NUMBER	NAME			ANGLE THICKNESS			SURFACE COORDINATE DATA			
	X	Y	Z	YS	XS	YS	XP	YP	XP	
14	16831	-18689	-47.913	22314	17859	-17913	15942	-19464	15942	-19464
15	18079	-21099	-47.673	02453	18986	-19273	17172	-20925	17172	-20925
16	19355	-21496	-47.392	52593	24311	-20620	13405	-22373	13405	-22373
17	20637	-22879	-47.374	02723	21634	-21952	19640	-23006	19640	-23006
18	21874	-24236	-46.748	52849	22916	-23230	21841	-25182	21841	-25182
19	23119	-25588	-46.425	52971	24196	-24494	22843	-26542	22843	-26542
20	24361	-26815	-46.104	03391	25474	-25744	23267	-27687	23267	-27687
21	25622	-28098	-45.783	33207	26751	-26988	24453	-29216	24453	-29216
22	26843	-29367	-45.475	03320	28026	-28293	25660	-30531	25660	-30531
23	28046	-30622	-45.167	03429	29300	-29413	26868	-31831	26868	-31831
24	29326	-31864	-44.862	03535	30572	-30611	28079	-33117	28079	-33117
25	30587	-33093	-44.562	03637	31843	-31793	29291	-34388	29291	-34388
26	31818	-34309	-44.267	03735	33111	-32972	30505	-35646	30505	-35646
27	33049	-35513	-43.976	03829	34379	-34135	31720	-36890	31720	-36890
28	34293	-36744	-43.691	03924	35644	-35287	32936	-38122	32936	-38122
29	35532	-37984	-43.413	04007	36909	-36429	34155	-39340	34155	-39340
30	36773	-39253	-43.136	04093	38171	-37560	35375	-40545	35375	-40545
31	38014	-40542	-42.866	04169	39432	-36682	36596	-41738	36596	-41738
32	39255	-41857	-42.603	04244	40692	-39795	37819	-42919	37819	-42919
33	40496	-43193	-42.345	04315	41950	-40893	39043	-44188	39043	-44188
34	41721	-44504	-42.092	04381	43189	-41978	40252	-45229	40252	-45229
35	42945	-45795	-41.834	04443	44426	-43449	41463	-46360	41463	-46360
36	44169	-47075	-41.571	04501	45662	-44112	42675	-47479	42675	-47479
37	45393	-48376	-41.303	04555	46896	-44565	43890	-48587	43890	-48587
38	46617	-49686	-41.033	04604	48128	-46210	45106	-49683	45106	-49683
39	47841	-50986	-40.751	04649	49358	-47245	46323	-50767	46323	-50767
40	49065	-52286	-40.468	04690	50587	-48272	47543	-51840	47543	-51840
41	50289	-53586	-40.179	04726	51813	-49283	48764	-52900	48764	-52900
42	51513	-54886	-39.884	04759	53038	-50297	49987	-53948	49987	-53948
43	52737	-56186	-39.586	04786	54262	-51295	51212	-54984	51212	-54984
44	53961	-57486	-39.279	04809	55483	-52286	52439	-56008	52439	-56008
45	55185	-58786	-38.967	04827	56703	-53266	53667	-57019	53667	-57019
46	56409	-60086	-38.652	04841	57921	-54237	54897	-58037	54897	-58037
47	57633	-61386	-38.327	04851	59137	-55198	56129	-59053	56129	-59053
48	58857	-62686	-38.000	04855	60352	-56149	57363	-60075	57363	-60075
49	60081	-63986	-37.663	04855	61565	-57091	58598	-61093	58598	-61093
50	61305	-65286	-37.316	04851	62778	-58030	59837	-62128	59837	-62128
51	62529	-66586	-36.963	04839	63991	-58977	61080	-63177	61080	-63177
52	63753	-67886	-36.601	04822	65204	-59927	62329	-64236	62329	-64236
53	64977	-69186	-36.234	04798	66417	-60887	63593	-65305	63593	-65305
54	66201	-70486	-35.867	04765	67630	-61847	64868	-66374	64868	-66374
55	67425	-71786	-35.494	04726	68843	-62807	66153	-67443	66153	-67443
56	68649	-73086	-35.121	04683	70056	-63767	67448	-68512	67448	-68512
57	69873	-74386	-34.748	04629	71269	-64732	68753	-69581	68753	-69581
58	71097	-75686	-34.375	04565	72482	-65697	70068	-70650	70068	-70650
59	72321	-76986	-34.002	04495	73695	-66662	71383	-71719	71383	-71719
60	73545	-78286	-33.629	04414	74908	-67627	72698	-72788	72698	-72788
61	74769	-79586	-33.256	04323	76121	-68592	74013	-73857	74013	-73857
62	75993	-80886	-32.883	04222	77334	-69557	75328	-74926	75328	-74926
63	77217	-82186	-32.510	04112	78547	-70522	76643	-75995	76643	-75995
64	78441	-83486	-32.137	03991	79760	-71487	77958	-77064	77958	-77064
65	79665	-84786	-31.764	03858	80973	-72452	79273	-78133	79273	-78133
66	80889	-86086	-31.391	03724	82186	-73417	80588	-79202	80588	-79202
67	82113	-87386	-31.018	03579	83400	-74382	81903	-80271	81903	-80271
68	83337	-88686	-30.645	03425	84613	-75347	83218	-81340	83218	-81340
69	84561	-89986	-30.272	03261	85826	-76312	84533	-82409	84533	-82409

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.86671	-.77020	-30.555	.87455	-.75593	.85887	-.78348
71	.87875	-.77727	-31.251	.88605	-.76476	.87146	-.78978
72	.89079	-.78425	-29.949	.89753	-.77256	.88406	-.79594
73	.90283	-.79114	-29.650	.90899	-.78033	.89668	-.80196
74	.91487	-.79796	-29.353	.92043	-.78808	.90932	-.80783
75	.92692	-.80469	-29.058	.93185	-.79580	.92198	-.81357
76	.93896	-.81134	-28.765	.94326	-.80351	.93466	-.81917
77	.95101	-.81751	-28.476	.95464	-.81119	.94736	-.82462
78	.96304	-.82440	-28.189	.96601	-.81886	.96007	-.82994
79	.97528	-.83082	-27.904	.97736	-.82652	.97280	-.83511
80	.98712	-.83715	-27.623	.98869	-.83416	.98555	-.84015
81	.99916	-.84342	-27.344	1.00000	-.84180	.99832	-.84504

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 12

BETA1 = 99.647 (BLADE INLET ANGLE.)
 BETA2 = 31.272 (BLADE OUTLET ANGLE.)
 YZRD = 0.135 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = 0.3472 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 0.1138 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.623 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.9167 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.3554
 STAGGER ANGLE = 2.693
 CAMBER ANGLE = 17.375
 SECTION AREA = 0.34372

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.1754
 YBAR = -0.53713

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.1206
 IY = 0.0237
 IXY = -0.02216

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -42.553

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.1331 (AT -42.553 WITH 'X' AXIS)
 IPY = 0.33436 (AT -42.553 WITH 'Y' AXIS)

POINT NUMBER	M E A N I N E D A T A		SURFACE COORDINATE DATA			
	X	Y	XS	YS	XP	YP
1	0.143	0.0733	0.067	0.0367	0.0321	0.1121
2	0.158	0.1555	0.0932	0.0511	0.1650	-0.1287
3	0.2732	0.2924	0.178	0.0655	0.2903	-0.2710
4	0.4066	0.4405	0.386	0.0603	0.4313	-0.4144
5	0.5203	0.5895	0.566	0.0945	0.5643	-0.5509
6	0.6555	0.7394	0.689	0.1693	0.6973	-0.7341
7	0.7823	0.8899	0.785	0.2235	0.8303	-0.8500
8	0.9113	1.0458	0.847	0.3379	0.9633	-0.9963
9	1.0377	1.1919	0.972	0.4522	1.0959	-1.1426
10	1.1652	1.3432	0.862	0.4664	1.2288	-1.2894
11	1.2925	1.4942	0.817	0.4804	1.3615	-1.4359
12	1.4203	1.6447	0.735	0.3943	1.4941	-1.5819
13	1.5474	1.7949	0.618	0.2263	1.6266	-1.7275

POINT NUMBER	X Y		ANGLE THICKNESS		SURFACE COORDINATE DATA				
	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP	
14	.16749	-.13443	-49.465	.12214	.17593	-.18724	.15907	-.21163	
15	.18023	-.21928	-49.274	.02347	.18912	-.20153	.17134	-.21694	
16	.19297	-.22403	-49.145	.02476	.20232	-.21591	.18362	-.22214	
17	.20571	-.23864	-48.777	.02603	.21550	-.23116	.19592	-.24722	
18	.21797	-.25256	-48.501	.02722	.22816	-.24354	.20777	-.26158	
19	.23222	-.26634	-48.226	.02839	.24083	-.25608	.21963	-.27579	
20	.24247	-.27989	-47.954	.02952	.25343	-.27110	.23151	-.28987	
21	.25472	-.29351	-47.683	.03063	.26634	-.28320	.24340	-.30382	
22	.26697	-.30690	-47.414	.03170	.27864	-.29617	.25533	-.31762	
23	.27922	-.32117	-47.148	.03274	.29122	-.30933	.26722	-.33130	
24	.29147	-.33331	-46.884	.03375	.30379	-.32178	.27915	-.34485	
25	.30372	-.34634	-46.622	.03473	.31634	-.33441	.29110	-.35826	
26	.31597	-.35924	-46.363	.03567	.32888	-.34694	.30307	-.37155	
27	.32823	-.37203	-46.107	.03658	.34141	-.35935	.31504	-.38472	
28	.34048	-.38471	-45.853	.03746	.35392	-.37167	.32704	-.39776	
29	.35273	-.39728	-45.602	.03830	.36641	-.38388	.33904	-.41068	
30	.36498	-.40974	-45.354	.03911	.37889	-.39599	.35107	-.42348	
31	.37723	-.42209	-45.113	.03988	.39136	-.40802	.36310	-.43616	
32	.38948	-.43433	-44.868	.04061	.40381	-.41994	.37516	-.44872	
33	.40173	-.44648	-44.630	.04131	.41624	-.43178	.38722	-.46118	
34	.41398	-.45845	-44.394	.04197	.42859	-.44345	.39923	-.47344	
35	.42624	-.47032	-44.153	.04258	.44091	-.45504	.41125	-.48559	
36	.43849	-.48209	-43.909	.04316	.45323	-.46654	.42329	-.49764	
37	.45074	-.49376	-43.662	.04371	.46552	-.47795	.43535	-.50957	
38	.46299	-.50533	-43.410	.04421	.47783	-.48927	.44742	-.52138	
39	.47524	-.51679	-43.155	.04467	.49006	-.50050	.45951	-.53309	
40	.48749	-.52816	-42.896	.04509	.50231	-.51164	.47161	-.54467	
41	.49974	-.53942	-42.632	.04548	.51453	-.52259	.48373	-.55614	
42	.51199	-.55057	-42.365	.04582	.52675	-.53354	.49587	-.56750	
43	.52424	-.56162	-42.093	.04612	.53894	-.54451	.50802	-.57873	
44	.53649	-.57257	-41.818	.04638	.55112	-.55529	.52020	-.58985	
45	.54874	-.58341	-41.538	.04660	.56326	-.56597	.53238	-.60085	
46	.56099	-.59414	-41.254	.04677	.57543	-.57656	.54459	-.61172	
47	.57324	-.60476	-40.965	.04691	.58756	-.58705	.55681	-.62247	
48	.58549	-.61528	-40.672	.04700	.59967	-.59746	.56904	-.63310	
49	.59774	-.62569	-40.374	.04705	.61177	-.60777	.58130	-.64361	
50	.60999	-.63608	-40.061	.04705	.62383	-.61847	.59345	-.65448	
51	.62224	-.64644	-39.747	.04700	.63588	-.62907	.60551	-.66521	
52	.63449	-.65679	-39.435	.04693	.64791	-.63958	.61756	-.67581	
53	.64674	-.66713	-39.124	.04674	.66000	-.65000	.63000	-.68626	
54	.65899	-.67745	-38.813	.04652	.67200	-.66032	.64200	-.69657	
55	.67124	-.68775	-38.504	.04623	.68400	-.67057	.65400	-.70674	
56	.68349	-.69805	-38.195	.04586	.69600	-.68072	.66600	-.71677	
57	.69574	-.70833	-37.888	.04542	.70800	-.69080	.67800	-.72665	
58	.70799	-.71861	-37.582	.04490	.72000	-.70081	.69000	-.73639	
59	.72024	-.72887	-37.278	.04429	.73200	-.71074	.70200	-.74599	
60	.73249	-.73912	-36.975	.04368	.74400	-.72061	.71400	-.75544	
61	.74474	-.74936	-36.673	.04301	.75600	-.73041	.72600	-.76474	
62	.75699	-.75959	-36.373	.04228	.76800	-.74014	.73800	-.77390	
63	.76924	-.76981	-36.075	.04151	.78000	-.74982	.75000	-.78291	
64	.78149	-.77995	-35.779	.04068	.79200	-.75945	.76200	-.79178	
65	.79374	-.78995	-35.486	.03981	.80400	-.76902	.77400	-.80052	
66	.80599	-.79995	-35.200	.03886	.81600	-.77857	.78600	-.80922	
67	.81824	-.80995	-34.918	.03791	.82800	-.78810	.79800	-.81781	
68	.83049	-.81995	-34.639	.03692	.84000	-.79766	.81000	-.82630	
69	.84274	-.82995	-34.362	.03592	.85200	-.80722	.82200	-.83477	

POINT NUMBER	M E A S U R E M E N T A N G L E T H I C K N E S S			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
70	.86264	-.82781	-34.988	.03121	.87139	-.81489	.85393	-.84074
71	.87514	-.83616	-33.817	.02937	.88321	-.82396	.86687	-.84836
72	.88744	-.84443	-33.548	.02740	.89501	-.83301	.87987	-.85585
73	.89984	-.85261	-33.283	.02532	.90679	-.84232	.89289	-.86319
74	.91224	-.86070	-33.120	.02313	.91853	-.85102	.90594	-.87039
75	.92464	-.86872	-32.760	.02075	.93025	-.85999	.91902	-.87745
76	.93703	-.87666	-32.504	.01827	.94194	-.86896	.93213	-.88437
77	.94943	-.88452	-32.251	.01565	.95361	-.87790	.94526	-.89114
78	.96183	-.89231	-32.031	.01289	.96525	-.88684	.95842	-.89777
79	.97423	-.90002	-31.754	.00999	.97686	-.89577	.97160	-.90427
80	.98663	-.90766	-31.511	.00694	.98844	-.90469	.98481	-.91062
81	.99903	-.91522	-31.272	.00375	1.00000	-.91362	.99805	-.91682

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 13

BEZ11 Z = 49.491 (BLADE INLET ANGLE.)
 BEZ12 Z = 34.930 (BLADE OUTLET ANGLE.)
 YZERO Z = .31137 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y Z = .23250 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE Z = .03137 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z Z = .6503 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD Z = 2.8361 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.4066
 STAGGER ANGLE = -44.730
 CAMBER ANGLE = -14.560
 SECTION AREA = .04417

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .52053
 YBAR = -.57496

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00238
 IY = .00241
 IXY = -.00238

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = -44.045

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .80931 (CAT -44.845 WITH 'X' AXIS)
 IPY = .30672 (CAT -44.845 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.00133	0.	0.0000-49.491	.00339	.03125	.13046	-.00125
2	.01462	-.11495	-49.819	-.01661	-.01327	.01264	-.01663
3	.02732	-.23306	-50.108	.02983	-.02796	.02481	-.03216
4	.04002	-.34532	-50.359	.04306	-.04280	.03697	-.04784
5	.05271	-.46071	-50.573	.05629	-.05777	.04914	-.06365
6	.06541	-.57620	-50.751	.06952	-.07284	.06130	-.07956
7	.07811	-.69178	-50.894	.08275	-.08830	.07366	-.09586
8	.09080	-.80743	-51.003	.09598	-.10324	.08562	-.11183
9	.10350	-.92314	-51.377	.10921	-.11653	.09779	-.12775
10	.11620	-1.03887	-51.118	.12243	-.13385	.13996	-.14390
11	.12889	-1.15462	-51.126	.13564	-.14914	.12214	-.16006
12	.14159	-1.27038	-51.100	.14885	-.16451	.13433	-.17622
13	.15429	-1.38600	-51.040	.16204	-.17981	.13653	-.19236

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP	
14	.16698	-.2176	-50.947	.02123	.17522	-.19507	.15874	-.20845
15	.17968	-.21738	-50.819	.02248	.18039	-.21227	.17097	-.22448
16	.19238	-.21291	-50.656	.02372	.20155	-.22539	.18328	-.24343
17	.20507	-.20835	-50.458	.02493	.21469	-.24141	.13546	-.25628
18	.21717	-.20295	-50.251	.02606	.22719	-.25481	.20715	-.27128
19	.22927	-.20774	-50.362	.02717	.23966	-.26871	.21886	-.28616
20	.24136	-.20182	-49.831	.02825	.25246	-.28271	.23057	-.30093
21	.25346	-.31610	-49.617	.02930	.26462	-.29681	.24237	-.31559
22	.26556	-.32027	-49.491	.03033	.27707	-.31140	.25435	-.33034
23	.27766	-.33433	-49.183	.03132	.28951	-.32609	.26580	-.34457
24	.28975	-.34828	-48.962	.03229	.30193	-.34068	.27757	-.35888
25	.30185	-.36212	-48.739	.03323	.31434	-.35517	.28936	-.37308
26	.31395	-.37586	-48.514	.03415	.32674	-.36955	.30116	-.38717
27	.32605	-.38948	-48.286	.03503	.33912	-.38378	.31297	-.40114
28	.33814	-.40300	-48.056	.03587	.35148	-.39801	.32480	-.41499
29	.35024	-.41641	-47.823	.03669	.36384	-.41219	.33664	-.42873
30	.36234	-.42971	-47.588	.03748	.37617	-.42617	.34853	-.44234
31	.37443	-.44289	-47.350	.03823	.38849	-.44034	.36038	-.45584
32	.38653	-.45597	-47.110	.03895	.40080	-.45427	.37226	-.46923
33	.39863	-.46894	-46.867	.03963	.41309	-.46799	.38417	-.48249
34	.41071	-.48177	-46.623	.04028	.42534	-.48174	.39607	-.49561
35	.42278	-.49458	-46.379	.04090	.43758	-.49539	.40798	-.50861
36	.43486	-.50712	-46.135	.04148	.44981	-.50875	.41991	-.52149
37	.44693	-.51953	-45.891	.04202	.46202	-.52150	.43185	-.53425
38	.45901	-.53183	-45.647	.04253	.47421	-.53417	.44381	-.54690
39	.47109	-.54413	-45.403	.04303	.48640	-.54684	.45578	-.55943
40	.48316	-.55633	-45.160	.04354	.49856	-.55952	.46776	-.57184
41	.49524	-.56852	-44.917	.04403	.51071	-.57219	.47976	-.58414
42	.50731	-.58061	-44.674	.04449	.52285	-.58490	.49178	-.59633
43	.51939	-.59250	-44.431	.04492	.53497	-.59761	.50381	-.60840
44	.53147	-.60429	-44.189	.04530	.54708	-.61033	.51585	-.62035
45	.54354	-.61598	-43.947	.04565	.55918	-.62291	.52791	-.63220
46	.55562	-.62757	-43.705	.04596	.57125	-.63542	.53998	-.64393
47	.56770	-.63906	-43.464	.04633	.58332	-.64788	.55207	-.65555
48	.57977	-.65046	-43.224	.04666	.59537	-.66036	.56417	-.66706
49	.59185	-.66176	-42.983	.04695	.60741	-.67287	.57629	-.67846
50	.60392	-.67307	-42.742	.04723	.61947	-.68539	.58836	-.68986
51	.61598	-.68428	-42.501	.04751	.63152	-.69792	.60045	-.70123
52	.62805	-.69549	-42.260	.04778	.64357	-.71045	.61252	-.71259
53	.64012	-.70670	-42.019	.04805	.65562	-.72298	.62459	-.72392
54	.65219	-.71791	-41.778	.04832	.66767	-.73551	.63666	-.73525
55	.66426	-.72912	-41.537	.04859	.67972	-.74804	.64873	-.74658
56	.67633	-.74033	-41.296	.04886	.69177	-.76057	.66080	-.75791
57	.68840	-.75154	-41.055	.04913	.70382	-.77310	.67287	-.76924
58	.70047	-.76275	-40.814	.04940	.71587	-.78563	.68494	-.78057
59	.71254	-.77396	-40.573	.04967	.72792	-.79816	.69701	-.79190
60	.72461	-.78517	-40.332	.04994	.74000	-.81069	.70908	-.80323
61	.73668	-.79638	-40.091	.05021	.75205	-.82322	.72115	-.81456
62	.74875	-.80759	-39.850	.05048	.76410	-.83575	.73322	-.82589
63	.76082	-.81880	-39.609	.05075	.77615	-.84828	.74529	-.83722
64	.77289	-.83001	-39.368	.05102	.78820	-.86081	.75736	-.84855
65	.78496	-.84122	-39.127	.05129	.80025	-.87334	.76943	-.85988
66	.79703	-.85243	-38.886	.05156	.81230	-.88587	.78150	-.87121
67	.80910	-.86364	-38.645	.05183	.82435	-.89840	.79357	-.88254
68	.82117	-.87485	-38.404	.05210	.83640	-.91093	.80564	-.89387
69	.83324	-.88606	-38.163	.05237	.84845	-.92346	.81771	-.90520

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.85794	-.83681	37.330	.86746	-.87420	.84823	-.89942
71	.87066	-.83655	37.075	.87968	-.88461	.86165	-.90848
72	.88349	-.91619	36.826	.89167	-.89530	.87510	-.91739
73	.89631	-.91575	36.585	.90403	-.90536	.88859	-.92615
74	.90913	-.92523	36.352	.91615	-.91570	.90212	-.93476
75	.92196	-.93463	36.125	.92824	-.92632	.91567	-.94323
76	.93478	-.94395	35.906	.94029	-.93634	.92927	-.95156
77	.94761	-.95320	35.695	.95231	-.94665	.94290	-.95975
78	.96043	-.96238	35.492	.96429	-.95696	.95656	-.96779
79	.97325	-.97149	35.297	.97623	-.96728	.97027	-.97570
80	.98617	-.98553	35.109	.98814	-.97760	.98401	-.98347
81	.99899	-.98952	34.930	1.00000	-.98794	.99779	-.99110

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 14

BETA1 = 50.346 (BLADE INLET ANGLE.)
 BETA2 = 36.382 (BLADE OUTLET ANGLE.)
 YZERO = 0.137 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = 0.3353 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 0.9136 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.658 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CHORD = 2.7413 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.4633

STAGGER ANGLE = 66.934

CAMBER ANGLE = 11.965

SECTION AREA = 74439

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 52365
 YBAR = 66163

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 30285
 IY = 20246
 IXY = -80284

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 42.854

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 70535 (AT 42.858 WITH 'X' AXIS)
 IPY = 80001 (AT 42.858 WITH 'Y' AXIS)

POINT NUMBER	M E A N L Y M E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	03231	30103	52.346	03355	03128	03046	-0.128
2	01470	11542	52.735	01674	-0.1375	01266	-0.1709
3	02740	11103	51.026	02995	02287	02406	-0.3309
4	04313	10681	51.312	04315	-0.4436	03705	-0.4925
5	05281	06274	51.564	05637	-0.5931	04924	-0.6657
6	06557	07885	51.782	06952	-0.7559	06142	-0.8202
7	07820	09492	51.963	08279	-0.9139	07363	-0.9858
8	09093	11127	52.123	09561	-1.1329	08579	-1.1525
9	10363	12763	52.267	10922	-1.3328	09797	-1.3199
10	11633	14406	52.341	12243	-1.5333	11016	-1.4860
11	12899	16056	52.400	13563	-1.7542	12235	-1.6565
12	14169	17704	52.433	14883	-1.9755	13455	-1.8253
13	15439	19356	52.442	16202	-2.1879	14676	-1.9942

POINT NUMBER	NAME		LINE DATA		ANGLE THICKNESS		SURFACE COORDINATE DATA					
	X	Y	X	Y	XS	YS	XP	YP	XS	YS	XP	YP
14	16719	-21806	-52.416	22047	17520	-23382	15898	-21631	17520	-23382	15898	-21631
15	17979	-22855	-52.361	02168	18837	-21993	17121	-23317	18837	-21993	17121	-23317
16	19249	-24299	-52.276	02287	21553	-23580	18344	-24999	21553	-23580	18344	-24999
17	21519	-25938	-52.163	02403	21968	-25200	19571	-26675	21968	-25200	19571	-26675
18	22718	-27476	-52.133	02512	22704	-26705	20726	-28251	22704	-26705	20726	-28251
19	22917	-28111	-51.893	02618	23947	-28293	21887	-29819	23947	-28293	21887	-29819
20	24117	-31537	-51.754	02721	25195	-29694	23048	-31379	25195	-29694	23048	-31379
21	25316	-33054	-51.603	02823	26422	-31177	24210	-32931	26422	-31177	24210	-32931
22	26515	-34563	-51.463	02922	27658	-32652	25373	-34474	27658	-32652	25373	-34474
23	27714	-35163	-51.275	03019	28892	-34119	26537	-36007	28892	-34119	26537	-36007
24	28914	-36554	-51.198	03113	30125	-35577	27703	-37531	30125	-35577	27703	-37531
25	30113	-37945	-51.091	03204	31357	-37125	28871	-39145	31357	-37125	28871	-39145
26	31312	-39337	-50.717	03293	32587	-38584	30038	-40749	32587	-38584	30038	-40749
27	32512	-40727	-50.513	03379	33815	-39993	31208	-42162	33815	-39993	31208	-42162
28	33711	-42117	-50.299	03461	35043	-41432	32379	-43523	35043	-41432	32379	-43523
29	34911	-43506	-50.176	03541	36268	-42727	33552	-44993	36268	-42727	33552	-44993
30	36110	-44894	-49.842	03618	37492	-44117	34727	-46454	37492	-44117	34727	-46454
31	37309	-46283	-49.593	03692	38715	-45592	35903	-47895	38715	-45592	35903	-47895
32	38508	-47672	-49.345	03763	39935	-46976	37081	-49327	39935	-46976	37081	-49327
33	39707	-49061	-49.085	03833	41154	-48237	38260	-50746	41154	-48237	38260	-50746
34	40906	-50450	-48.813	03904	42369	-49503	39438	-52147	42369	-49503	39438	-52147
35	42105	-51839	-48.532	03955	43582	-50716	40617	-53534	43582	-50716	40617	-53534
36	43304	-53228	-48.246	04013	44793	-51939	41797	-54908	44793	-51939	41797	-54908
37	44503	-54617	-47.966	04067	46003	-53150	42979	-56269	46003	-53150	42979	-56269
38	45702	-56006	-47.682	04118	47212	-54351	44162	-57617	47212	-54351	44162	-57617
39	46901	-57395	-47.397	04166	48423	-55542	45346	-58953	48423	-55542	45346	-58953
40	48100	-58784	-47.112	04211	49633	-56733	46531	-60287	49633	-56733	46531	-60287
41	49300	-60173	-46.827	04251	50843	-57924	47718	-61620	50843	-57924	47718	-61620
42	50500	-61562	-46.542	04288	52053	-59115	48908	-62954	52053	-59115	48908	-62954
43	51700	-62951	-46.257	04322	53263	-60306	50093	-64287	53263	-60306	50093	-64287
44	52900	-64340	-45.972	04352	54473	-61497	51278	-65620	54473	-61497	51278	-65620
45	54100	-65729	-45.687	04379	55683	-62688	52463	-66953	55683	-62688	52463	-66953
46	55300	-67118	-45.402	04403	56893	-63879	53648	-68286	56893	-63879	53648	-68286
47	56500	-68507	-45.117	04423	58103	-65070	54833	-69619	58103	-65070	54833	-69619
48	57700	-69896	-44.832	04443	59313	-66261	56018	-70952	59313	-66261	56018	-70952
49	58900	-71285	-44.547	04452	60523	-67452	57203	-72285	60523	-67452	57203	-72285
50	60100	-72674	-44.262	04461	61733	-68643	58388	-73618	61733	-68643	58388	-73618
51	61300	-74063	-43.977	04466	62943	-69834	59573	-74951	62943	-69834	59573	-74951
52	62500	-75452	-43.692	04467	64153	-71025	60758	-76284	64153	-71025	60758	-76284
53	63700	-76841	-43.407	04467	65363	-72216	61943	-77617	65363	-72216	61943	-77617
54	64900	-78230	-43.122	04457	66573	-73407	63128	-78950	66573	-73407	63128	-78950
55	66100	-79619	-42.837	04443	67783	-74598	64313	-80283	67783	-74598	64313	-80283
56	67300	-81008	-42.552	04424	68993	-75789	65498	-81616	68993	-75789	65498	-81616
57	68500	-82397	-42.267	04399	70203	-76980	66683	-82949	70203	-76980	66683	-82949
58	69700	-83786	-41.982	04366	71413	-78171	67868	-84282	71413	-78171	67868	-84282
59	70900	-85175	-41.697	04326	72623	-79362	69053	-85615	72623	-79362	69053	-85615
60	72100	-86564	-41.412	04278	73833	-80553	70238	-86948	73833	-80553	70238	-86948
61	73300	-87953	-41.127	04222	75043	-81744	71423	-88281	75043	-81744	71423	-88281
62	74500	-89342	-40.842	04157	76253	-82935	72608	-89614	76253	-82935	72608	-89614
63	75700	-90731	-40.557	04083	77463	-84126	73793	-90947	77463	-84126	73793	-90947
64	76900	-92120	-40.272	03998	78673	-85317	74978	-92280	78673	-85317	74978	-92280
65	78100	-93509	-40.000	03904	79883	-86508	76163	-93613	79883	-86508	76163	-93613
66	79300	-94898	-39.715	03793	81093	-87699	77348	-94946	81093	-87699	77348	-94946
67	80500	-96287	-39.430	03677	82303	-88890	78533	-96279	82303	-88890	78533	-96279
68	81700	-97676	-39.145	03554	83513	-90081	79718	-97612	83513	-90081	79718	-97612
69	82900	-99065	-38.860	03426	84723	-91272	80903	-98945	84723	-91272	80903	-98945
70	84100	-100454	-38.575	03285	85933	-92463	82088	-100278	85933	-92463	82088	-100278

POINT NUMBER	MEANLINE DATA			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.95380	-.95660	40.245	.86420	-.93830	.84339	-.96290
71	.86698	-.96170	39.990	.87676	-.95114	.85719	-.97337
72	.88316	-.97271	39.751	.88928	-.96174	.87103	-.98368
73	.89333	-.98363	39.529	.91176	-.97342	.88491	-.99384
74	.90651	-.99446	39.323	.91420	-.98518	.89883	-1.00385
75	.91969	-1.01522	39.135	.92660	-.99674	.91279	-1.01371
76	.93287	-1.11591	38.964	.93895	-1.00840	.92679	-1.02343
77	.94615	-1.22654	38.811	.95126	-1.02017	.94084	-1.03302
78	.95923	-1.33712	38.676	.96352	-1.03176	.95494	-1.04248
79	.97241	-1.44764	38.560	.97573	-1.04347	.96909	-1.05182
80	.98559	-1.55813	38.461	.98789	-1.05523	.98328	-1.06103
81	.99877	-1.66858	38.382	1.00000	-1.06703	.99754	-1.07014

SEVEN SURFACE GEOMETRY ON STREAMLINE NUMBER 15

BETA1 = -51.265 (BLADE INLET ANGLE.)
 BETA2 = -41.544 (BLADE OUTLET ANGLE.)
 YZERO = 0.1136 (BLADE LEADING EDGE ANGLE AS A FRACTION OF CHORD.)
 Y1 = 0.7295 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 0.1114 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.668 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 ZORD = 2.6175 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO AIRLIDE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.5275
 STAGGER ANGLE = -9.151
 CAMBER ANGLE = -9.671
 SECTION AREA = 1.1467

XBAR = 0.2481
 YBAR = 0.6261

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0168
 IY = 0.2234
 IXY = -0.0295

ANGLE OF INCLINATION OF (CENT) PRINCIPAL AXIS TO 'X' AXIS = 40.55

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0559 (AT 41.550 WITH 'X' AXIS)
 IPY = 0.0071 (AT 42.553 WITH 'Y' AXIS)

POINT NUMBER	M C A H L E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	0.0207	0.0100	51.265	0.0359	0.0130	0.0046	-0.0130
2	0.1482	-0.1682	51.671	0.1692	-0.1436	0.1273	-0.1767
3	0.2752	-0.1220	52.344	0.3316	-0.3124	0.2499	-0.3427
4	0.4033	-0.1487	52.378	0.4841	-0.4453	0.3725	-0.5108
5	0.5313	-0.1653	52.678	0.6266	-0.6252	0.4953	-0.6807
6	0.6593	-0.1815	52.944	0.7697	-0.7597	0.6175	-0.8524
7	0.7873	-0.1971	53.178	0.9117	-0.9056	0.7399	-1.0255
8	0.9153	-0.2121	53.381	1.0543	-1.0423	0.8624	-1.2000
9	1.0433	-0.2271	53.553	1.1969	-1.1829	0.9849	-1.3756
10	1.1713	-0.2421	53.695	1.3395	-1.3245	1.1073	-1.5523
11	1.2993	-0.2571	53.838	1.4821	-1.4625	1.2299	-1.7297
12	1.4273	-0.2721	53.982	1.6247	-1.5041	1.3524	-1.9077
13	1.5553	-0.2871	54.126	1.7673	-1.5457	1.4750	-2.0862

POINT NUMBER	M E A N L I N E D A T A		SURFACE COORDINATE DATA				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	.16785	-.22062	53.976	.17593	-.21475	.15977	-.22650
15	.19068	-.23816	53.975	.17205	-.23194	.17205	-.24438
16	.19335	-.25569	53.947	.21111	-.24913	.18434	-.26225
17	.20611	-.27319	53.890	.22551	-.26629	.19664	-.28010
18	.21876	-.28956	53.818	.22795	-.28333	.20818	-.29679
19	.23032	-.31588	53.735	.24031	-.29833	.21973	-.31343
20	.24197	-.32215	53.641	.25266	-.31118	.23129	-.33001
21	.25393	-.33836	53.535	.26500	-.32408	.24286	-.34654
22	.26588	-.35450	53.417	.27732	-.33691	.25444	-.36289
23	.27784	-.37057	53.288	.28964	-.34977	.26604	-.37937
24	.28979	-.38656	53.146	.30194	-.36266	.27765	-.39587
25	.30175	-.41247	52.992	.31423	-.37551	.28927	-.41187
26	.31370	-.41828	52.826	.32650	-.40857	.30090	-.42799
27	.32566	-.43399	52.646	.33876	-.42339	.31255	-.44400
28	.33761	-.44960	52.454	.35101	-.43831	.32422	-.45990
29	.34957	-.46518	52.248	.36324	-.45324	.33590	-.47589
30	.36152	-.48048	52.029	.37545	-.46811	.34759	-.49135
31	.37348	-.49573	51.795	.38765	-.48293	.35930	-.50689
32	.38543	-.51086	51.547	.39983	-.49782	.37103	-.52220
33	.39739	-.52584	51.283	.41200	-.51270	.38278	-.53735
34	.40922	-.54053	51.019	.42420	-.52756	.39442	-.55251
35	.42106	-.55509	50.762	.43604	-.54246	.40608	-.56732
36	.43289	-.56952	50.513	.44804	-.55704	.41775	-.58200
37	.44473	-.58382	50.273	.46003	-.57110	.42942	-.59654
38	.45656	-.59800	50.041	.47201	-.58506	.44112	-.61094
39	.46840	-.61207	49.818	.48397	-.59891	.45282	-.62523
40	.48023	-.62603	49.604	.49593	-.61267	.46453	-.63939
41	.49207	-.63989	49.403	.50788	-.62634	.47628	-.65344
42	.50390	-.65365	49.206	.51981	-.63992	.48799	-.66738
43	.51574	-.66732	49.021	.53173	-.65342	.49974	-.68121
44	.52757	-.68090	48.847	.54364	-.66685	.51150	-.69495
45	.53940	-.69440	48.684	.55555	-.68021	.52326	-.70859
46	.55124	-.70783	48.531	.56744	-.69351	.53504	-.72214
47	.56307	-.72118	48.389	.57932	-.70676	.54683	-.73561
48	.57491	-.73448	48.258	.59119	-.71995	.55863	-.74901
49	.58674	-.74771	48.138	.60305	-.73310	.57043	-.76233
50	.59858	-.76083	48.014	.61488	-.74624	.58224	-.77561
51	.61041	-.77388	47.899	.62670	-.75932	.59406	-.78884
52	.62225	-.78687	47.732	.63853	-.77239	.60589	-.80208
53	.63408	-.79982	47.573	.65035	-.78542	.61775	-.81532
54	.64591	-.81273	47.422	.66216	-.79842	.62962	-.82852
55	.65774	-.82560	47.279	.67397	-.81139	.64151	-.84171
56	.66957	-.83843	47.146	.68578	-.82432	.65342	-.85488
57	.68140	-.85122	47.014	.69759	-.83722	.66534	-.86804
58	.69323	-.86400	46.889	.70940	-.85009	.67726	-.88121
59	.70506	-.87677	46.762	.72121	-.86292	.68919	-.89438
60	.71689	-.88952	46.641	.73302	-.87572	.70112	-.90754
61	.72872	-.90227	46.526	.74483	-.88849	.71303	-.92071
62	.74055	-.91500	46.417	.75664	-.90122	.72494	-.93388
63	.75238	-.92773	46.314	.76845	-.91392	.73685	-.94704
64	.76421	-.94046	46.218	.78026	-.92659	.74876	-.96021
65	.77604	-.95319	46.129	.79207	-.93922	.76067	-.97338
66	.78787	-.96592	46.046	.80388	-.95182	.77258	-.98654
67	.79970	-.97865	45.969	.81569	-.96439	.78449	-.1.00000
68	.81153	-.99138	45.898	.82750	-.97692	.79640	-.1.01316
69	.82336	-.1.00411	45.833	.83931	-.98942	.80831	-.1.02632

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.65794	-1.02128	-43.107	.86215	-1.00931	.83973	-1.03326
71	.86437	-1.13379	-42.858	.87493	-1.02241	.35380	-1.04518
72	.87779	-1.04620	-42.631	.88767	-1.03547	.86791	-1.05694
73	.89122	-1.35852	-42.427	.90037	-1.04851	.88207	-1.06853
74	.90465	-1.07375	-42.245	.91392	-1.06154	.89628	-1.07997
75	.91808	-1.38291	-42.087	.92561	-1.07456	.91034	-1.09126
76	.93153	-1.19591	-41.952	.93816	-1.08760	.92484	-1.10242
77	.94493	-1.1705	-41.842	.95065	-1.10066	.93921	-1.11344
78	.95836	-1.11906	-41.756	.96308	-1.11376	.95363	-1.12435
79	.97178	-1.13103	-41.694	.97546	-1.12691	.96811	-1.13515
80	.98521	-1.14298	-41.656	.98776	-1.14012	.98266	-1.14585
81	.99864	-1.15492	-41.644	1.00000	-1.15339	.99728	-1.15646

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 16

BETA1 = -52.292 (BLADE INLET ANGLE.)
 BETA2 = -44.715 (BLADE OUTLET ANGLE.)
 YZERO = 0.133 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = 0.32749 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YOMF = 0.133 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.6735 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.5.3 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.6314
 STAGGER ANGLE = -51.443
 CAMBER ANGLE = -7.573
 SECTION AREA = 0.94864

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.52994
 YBAR = -0.71439

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0426
 IY = 0.0266
 IXY = -0.0236

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 38.233

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0693 (AT 39.230 WITH 'X' AXIS)
 IPY = 0.0001 (AT 38.230 WITH 'Y' AXIS)

POINT NUMBER	X	Y	M E A N L I N E D A T A	ANGLE THICKNESS	SURFACE COORDINATE DATA			
					XS	YS	XP	YP
1	0.0213	0.0	0.09-52.292	0.0427	0.7362	0.0131	0.0045	-0.131
2	0.1693	-0.1677	52.703	0.0544	0.1715	-0.01513	0.1282	-0.04842
3	0.2784	-0.3384	53.229	0.0662	0.3049	-0.03195	0.2519	-0.03502
4	0.3469	-0.3516	53.632	0.0783	0.4303	-0.04885	0.3755	-0.03448
5	0.35354	-0.36873	53.995	0.0909	0.5718	-0.06639	0.4991	-0.0138
6	0.3653	-0.3853	54.319	0.1021	0.7054	-0.08355	0.6225	-0.09950
7	0.3724	-0.1452	54.605	0.1141	0.8391	-0.1122	0.7459	-0.19783
8	0.38213	-0.12273	54.856	0.1262	0.9726	-0.14906	0.8694	-0.12633
9	0.39495	-0.103	55.072	0.1383	1.1062	-0.13737	0.9928	-0.14499
10	0.1783	-0.1590	55.255	0.1504	1.2398	-0.15521	1.1162	-0.16378
11	0.1365	-0.1788	55.405	0.1624	1.3734	-0.17347	1.2397	-0.18269
12	0.14353	-0.13675	55.523	0.1743	1.5069	-0.19182	1.3632	-0.2169
13	0.15636	-0.21550	55.613	0.1862	1.6404	-0.21124	1.4867	-0.22076

POINT NUMBER	M E A N L I N E D A T A		SURFACE COORDINATE DATA			
	X	Y	XS	YS	XP	YP
14	.16921	-.23430	-.55.666	.51980	.17730	-.22872
15	.18206	-.25313	-.55.692	.02896	.19072	-.24722
16	.19491	-.27196	-.55.687	.02211	.20404	-.26573
17	.20776	-.29078	-.55.651	.02324	.21736	-.28423
18	.21976	-.31034	-.55.598	.02427	.22977	-.30146
19	.23175	-.32981	-.55.535	.02529	.24218	-.31865
20	.24374	-.34926	-.55.462	.02630	.25457	-.33580
21	.25573	-.36865	-.55.378	.02728	.26696	-.35291
22	.26773	-.38799	-.55.283	.02824	.27933	-.36995
23	.27972	-.40727	-.55.177	.02918	.29170	-.38694
24	.29171	-.42647	-.55.061	.03009	.30405	-.40385
25	.30370	-.44560	-.54.933	.03099	.31639	-.42070
26	.31571	-.46464	-.54.794	.03186	.32871	-.43746
27	.32769	-.48359	-.54.643	.03270	.34102	-.45413
28	.33968	-.50244	-.54.480	.03351	.35332	-.47071
29	.35167	-.52119	-.54.305	.03430	.36560	-.48718
30	.36367	-.53982	-.54.110	.03507	.37787	-.50355
31	.37566	-.55834	-.53.918	.03580	.39013	-.51980
32	.38765	-.57674	-.53.705	.03650	.40236	-.53593
33	.39964	-.59500	-.53.478	.03718	.41458	-.55194
34	.41163	-.61314	-.53.253	.03781	.42680	-.56783
35	.42362	-.63117	-.53.024	.03841	.43900	-.58359
36	.43561	-.64910	-.52.791	.03898	.45120	-.59924
37	.44760	-.66693	-.52.554	.03952	.46340	-.61478
38	.45959	-.68466	-.52.317	.04003	.47560	-.63021
39	.47158	-.70229	-.52.080	.04051	.48780	-.64554
40	.48357	-.71982	-.51.843	.04097	.49999	-.66077
41	.49556	-.73725	-.51.606	.04139	.51218	-.67590
42	.50755	-.75468	-.51.369	.04178	.52437	-.69093
43	.51954	-.77211	-.51.132	.04214	.53656	-.70586
44	.53153	-.78954	-.50.895	.04247	.54875	-.72069
45	.54352	-.80697	-.50.658	.04277	.56094	-.73552
46	.55551	-.82440	-.50.421	.04304	.57313	-.75025
47	.56750	-.84183	-.50.184	.04328	.58532	-.76488
48	.57949	-.85926	-.50.000	.04348	.59751	-.77951
49	.59148	-.87669	-.49.815	.04366	.60970	-.79404
50	.60347	-.89412	-.49.630	.04380	.62189	-.80857
51	.61546	-.91155	-.49.445	.04391	.63408	-.82310
52	.62745	-.92898	-.49.260	.04398	.64627	-.83763
53	.63944	-.94641	-.49.075	.04402	.65846	-.85216
54	.65143	-.96384	-.48.890	.04402	.67065	-.86669
55	.66342	-.98127	-.48.705	.04398	.68284	-.88122
56	.67541	-.99870	-.48.520	.04379	.69503	-.89575
57	.68740	-.1.01613	-.48.335	.04355	.70722	-.91028
58	.69939	-.1.03356	-.48.150	.04328	.71941	-.92481
59	.71138	-.1.05099	-.47.965	.04295	.73160	-.93934
60	.72337	-.1.06842	-.47.780	.04253	.74379	-.95387
61	.73536	-.1.08585	-.47.595	.04203	.75598	-.96840
62	.74735	-.1.10328	-.47.410	.04144	.76817	-.98293
63	.75934	-.1.12071	-.47.225	.04100	.78036	-.99746
64	.77133	-.1.13814	-.47.040	.04076	.79255	-.1.01199
65	.78332	-.1.15557	-.46.855	.04039	.80474	-.1.02652
66	.79531	-.1.17300	-.46.670	.03998	.81693	-.1.04105
67	.80730	-.1.19043	-.46.485	.03952	.82912	-.1.05558
68	.81929	-.1.20786	-.46.300	.03903	.84131	-.1.07011
69	.83128	-.1.22529	-.46.115	.03851	.85350	-.1.08464
70	.84327	-.1.24272	-.45.930	.03800	.86569	-.1.09917

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP	
70	.84949	-1.17091	-46.063	.03361	.66150	-1.08925	.83730	-1.11257
71	.86295	-1.11492	-45.835	.03186	.67439	-1.10381	.85152	-1.12602
72	.67551	-1.12382	-45.627	.02998	.68723	-1.11834	.86579	-1.13931
73	.89097	-1.14263	-45.440	.02791	.90001	-1.13284	.88012	-1.15242
74	.90362	-1.15636	-45.273	.02566	.91274	-1.14733	.89450	-1.16539
75	.91718	-1.17001	-45.128	.02322	.92540	-1.16181	.90895	-1.17820
76	.93073	-1.18359	-45.004	.02059	.93801	-1.17631	.92345	-1.19087
77	.94429	-1.19712	-44.902	.01776	.95055	-1.19083	.93802	-1.20341
78	.95784	-1.21061	-44.823	.01471	.96303	-1.20539	.95266	-1.21583
79	.97140	-1.22407	-44.765	.01145	.97543	-1.22000	.96736	-1.22814
80	.98495	-1.23751	-44.730	.00797	.98775	-1.23458	.98215	-1.24033
81	.99851	-1.25093	-44.718	.00425	1.00003	-1.24942	.99701	-1.25244

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 17

BETA1 = -53.457 (BLADE INLET ANGLE.)
 BETA2 = -47.621 (BLADE OUTLET ANGLE.)
 YZERO = .00131 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = .82658 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .00131 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .6880 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.3593 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.6855
 STAGGER ANGLE = -53.656
 CAMBER ANGLE = -5.837
 SECTION AREA = .05197

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .53307
 YBAR = -.77215

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .09541
 IY = .00284
 IXY = -.00390

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 35.894

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .80823 (AT 35.894 WITH 'X' AXIS)
 IPY = .08801 (AT 35.894 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.00221	0.00000	53.457	.00442	.00398	.00131	-.00131
2	.01528	-.31778	54.800	.08957	.01745	-.01606	.04294
3	.02818	-.03574	54.474	.08674	.03093	-.03379	.02544
4	.04117	-.05419	54.941	.08792	.04441	-.05183	.03793
5	.05416	-.07275	55.346	.08912	.05791	-.07016	.05041
6	.06715	-.09157	55.710	.09032	.07141	-.08877	.06288
7	.08013	-.11094	56.034	.09152	.08491	-.10762	.07536
8	.09312	-.13022	56.321	.09273	.09842	-.12669	.08783
9	.10611	-.14981	56.573	.09394	.11193	-.14597	.10029
10	.11910	-.16957	56.799	.09515	.12543	-.16542	.11276
11	.13208	-.18948	56.974	.09635	.13894	-.18502	.12523
12	.14507	-.20952	57.125	.09756	.15245	-.20475	.13770
13	.15806	-.22966	57.245	.09875	.16595	-.22459	.15018

POINT NUMBER	M E A N I M E D A Y A		SURFACE COORDINATE DATA			
	X	Y	XS	YS	XP	YP
14	.1715	-.24989-57.334	.17944	-.24451	.16266	-.25527
15	.18474	-.27017-57.392	.19293	-.26448	.17514	-.27586
16	.13712	-.29048-57.420	.20641	-.28449	.18764	-.29648
17	.21031	-.31081-57.418	.21987	-.30451	.20015	-.31711
18	.22131	-.32977-57.397	.23244	-.32316	.21183	-.33636
19	.23625	-.34871-57.364	.24499	-.34183	.22352	-.35558
20	.24638	-.36762-57.320	.25753	-.36146	.23522	-.37478
21	.25951	-.38650-57.265	.27007	-.37916	.24693	-.39394
22	.27362	-.40533-57.198	.28259	-.39761	.25865	-.41305
23	.28274	-.42411-57.123	.29513	-.41612	.27038	-.43210
24	.29486	-.44283-57.029	.30760	-.43456	.28212	-.45110
25	.30698	-.46148-56.927	.32009	-.45294	.29388	-.47012
26	.31911	-.48036-56.813	.33257	-.47125	.30564	-.48886
27	.33123	-.49894-56.687	.34503	-.48947	.31743	-.50762
28	.34335	-.51694-56.548	.35748	-.50761	.32922	-.52627
29	.35547	-.53524-56.397	.36991	-.52564	.34103	-.54483
30	.36759	-.55342-56.232	.38233	-.54357	.35286	-.56327
31	.37971	-.57149-56.154	.39473	-.56136	.36470	-.58160
32	.39183	-.58943-55.962	.40711	-.57908	.37656	-.59979
33	.40396	-.60724-55.656	.41948	-.59654	.38843	-.61785
34	.41554	-.62414-55.455	.43129	-.61330	.39980	-.63496
35	.42713	-.64091-55.259	.44309	-.62984	.41117	-.65198
36	.43872	-.65756-55.173	.45488	-.64626	.42256	-.66885
37	.45031	-.67410-54.866	.46665	-.66260	.43396	-.68559
38	.46191	-.69052-54.708	.47842	-.67883	.44538	-.70222
39	.47358	-.70684-54.537	.49017	-.69496	.45681	-.71873
40	.48527	-.72306-54.373	.50191	-.71139	.46823	-.73513
41	.49696	-.73918-54.215	.51364	-.72764	.47968	-.75142
42	.50825	-.75521-54.165	.52536	-.74281	.49114	-.76761
43	.51984	-.77116-53.921	.53706	-.75861	.50261	-.78371
44	.53142	-.78702-53.785	.54875	-.77433	.51409	-.79972
45	.54311	-.80281-53.656	.56044	-.78998	.52558	-.81563
46	.55460	-.81852-53.534	.57212	-.80558	.53708	-.83147
47	.56619	-.83417-53.421	.58378	-.82111	.54861	-.84722
48	.57778	-.84975-53.315	.59543	-.83660	.56012	-.86291
49	.58936	-.86528-53.217	.60707	-.85214	.57166	-.87852
50	.60133	-.88081-53.115	.61873	-.86767	.58323	-.89404
51	.61341	-.89630-53.003	.63038	-.88321	.59483	-.90956
52	.62549	-.91172-52.881	.64203	-.89876	.60643	-.92507
53	.63743	-.92706-52.750	.65368	-.91431	.61803	-.94058
54	.64944	-.94242-52.607	.66528	-.92986	.62963	-.95609
55	.66146	-.95776-52.455	.67688	-.94541	.64123	-.97160
56	.67347	-.97306-52.291	.68848	-.96096	.65283	-.98711
57	.68543	-.98831-52.117	.70008	-.97651	.66443	-.10000
58	.69750	-.10000-51.931	.71168	-.99206	.67603	-.10289
59	.70952	-.10289-51.734	.72328	-.10381	.68763	-.10578
60	.72154	-.10578-51.526	.73488	-.10578	.69923	-.10867
61	.73355	-.10867-51.305	.74648	-.10773	.71083	-.11156
62	.74557	-.11156-51.072	.75808	-.10968	.72243	-.11445
63	.75758	-.11445-50.827	.76968	-.11163	.73403	-.11734
64	.76961	-.11734-50.568	.78128	-.11358	.74563	-.12023
65	.78161	-.12023-50.296	.79288	-.11553	.75723	-.12312
66	.79361	-.12312-49.990	.80448	-.11748	.76883	-.12601
67	.80561	-.12601-49.700	.81608	-.11943	.78043	-.12890
68	.81761	-.12890-49.426	.82768	-.12138	.79203	-.13179
69	.82961	-.13179-49.170	.83928	-.12333	.80363	-.13468

POINT NUMBER	M E A N L I N E D A T A		A N G L E T H I C K N E S S		S U R F A C E C O O R D I N A T E D A T A			
	X	Y	X	Y	XS	YS	XP	YP
70	.84935	-1.19100	-48.931	.03464	.86241	-1.17962	.83629	-1.20238
71	.86293	-1.21649	-48.711	.03289	.87526	-1.19564	.85054	-1.21734
72	.87644	-1.22186	-48.513	.03097	.88804	-1.21160	.86484	-1.23212
73	.88999	-1.23713	-48.329	.02886	.90077	-1.22753	.87921	-1.24672
74	.90354	-1.25230	-48.167	.02656	.91343	-1.24345	.89364	-1.26116
75	.91709	-1.26740	-48.026	.02406	.92603	-1.25935	.90814	-1.27545
76	.93063	-1.28243	-47.905	.02136	.93856	-1.27527	.92271	-1.28958
77	.94418	-1.29739	-47.806	.01844	.95101	-1.29120	.93735	-1.30359
78	.95773	-1.31232	-47.727	.01529	.96338	-1.30717	.95207	-1.31746
79	.97127	-1.32720	-47.670	.01191	.97568	-1.32319	.96687	-1.33121
80	.98482	-1.34207	-47.635	.00829	.98788	-1.33927	.98176	-1.34486
81	.99837	-1.35691	-47.621	.00442	1.00000	-1.35543	.99674	-1.35840

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 10

BETA1 = -54.96 (BLADE INLET ANGLE.)
 BETA2 = -49.333 (BLADE OUTLET ANGLE.)
 YZERO = .01129 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = .92508 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YOME = .01129 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .6853 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.2813 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.7321
 STAGGER ANGLE = -54.794
 CAMBER ANGLE = -5.063
 SECTION AREA = .95363

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .53528
 YBAR = -.80422

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03638
 IY = .00292
 IXY = -.00420

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 34.724

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00999 (AT 34.724 WITH 'X' AXIS)
 IPY = .00031 (AT 34.724 WITH 'Y' AXIS)

POINT NUMBER	X	Y	Z	ANGLE THICKNESS	XS	YS	XP	YP
1	.00224	0.	0.1000	-54.096	.00448	.00406	.00131	.00043
2	.01531	-.01823	-54.646	.00563	.01760	-.01661	.01301	-.01986
3	.02837	-.03683	-55.148	.00678	.03116	-.03489	.02559	-.03877
4	.04144	-.05575	-55.605	.00795	.04472	-.05351	.03816	-.05800
5	.05451	-.07499	-56.019	.00913	.05829	-.07244	.05072	-.07754
6	.06757	-.09452	-56.393	.01032	.07187	-.09166	.06327	-.09737
7	.08064	-.11431	-56.730	.01152	.08545	-.11115	.07582	-.11747
8	.09373	-.13434	-57.030	.01272	.09904	-.13388	.08837	-.13760
9	.10677	-.15458	-57.295	.01392	.11263	-.15382	.10091	-.15835
10	.11984	-.17503	-57.527	.01512	.12622	-.17397	.11346	-.17909
11	.13290	-.19564	-57.727	.01632	.13980	-.19428	.12600	-.20000
12	.14597	-.21640	-57.896	.01752	.15339	-.21475	.13855	-.22106
13	.15904	-.23728	-58.035	.01871	.16697	-.23323	.15110	-.24224

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	.17210	-.25827	-56.143	.16955	-.25302	.16366	-.26352
15	.18517	-.27933	-58.223	.19412	-.27379	.17622	-.28488
16	.19824	-.30045	-58.274	.20768	-.29461	.18879	-.30629
17	.21130	-.32159	-58.297	.22124	-.31546	.20136	-.32773
18	.22353	-.34139	-58.299	.23391	-.33497	.21314	-.34780
19	.23575	-.36118	-58.288	.24658	-.35449	.22493	-.36787
20	.24798	-.38096	-58.264	.25924	-.37400	.23672	-.38792
21	.26021	-.40071	-58.227	.27189	-.39348	.24853	-.40795
22	.27243	-.42043	-58.177	.28452	-.41293	.26034	-.42794
23	.28466	-.44011	-58.114	.29715	-.43234	.27217	-.44788
24	.29688	-.45978	-58.038	.30976	-.45170	.28401	-.46777
25	.30911	-.47938	-57.949	.32237	-.47100	.29586	-.48760
26	.32134	-.49879	-57.846	.33495	-.49023	.30772	-.50735
27	.33356	-.51819	-57.729	.34753	-.50937	.31960	-.52701
28	.34579	-.53751	-57.598	.36009	-.52843	.33149	-.54658
29	.35802	-.55672	-57.453	.37264	-.54733	.34340	-.56605
30	.37024	-.57582	-57.293	.38517	-.56623	.35532	-.58540
31	.38247	-.59479	-57.118	.39768	-.58496	.36726	-.60463
32	.39469	-.61364	-56.928	.41018	-.60355	.37921	-.62372
33	.40692	-.63234	-56.722	.42266	-.62201	.39118	-.64267
34	.41914	-.65085	-56.523	.43517	-.64042	.40311	-.66161
35	.43136	-.66922	-56.331	.44768	-.65865	.41501	-.68050
36	.44358	-.68744	-56.146	.46019	-.67684	.42691	-.69947
37	.45580	-.70552	-55.968	.47269	-.69492	.43881	-.71842
38	.46802	-.72344	-55.798	.48519	-.71295	.45071	-.73733
39	.48024	-.74122	-55.635	.49768	-.73098	.46261	-.75620
40	.49246	-.75894	-55.477	.51017	-.74891	.47451	-.77503
41	.50468	-.77656	-55.324	.52266	-.76684	.48641	-.79386
42	.51690	-.79408	-55.176	.53515	-.78477	.49831	-.81269
43	.52912	-.81150	-55.033	.54764	-.80270	.51021	-.83152
44	.54134	-.82882	-54.895	.56013	-.82063	.52211	-.85035
45	.55356	-.84604	-54.762	.57262	-.83856	.53401	-.86918
46	.56578	-.86316	-54.633	.58511	-.85649	.54591	-.88801
47	.57800	-.88018	-54.509	.59760	-.87442	.55781	-.90684
48	.59022	-.89710	-54.390	.61009	-.89235	.56971	-.92567
49	.60244	-.91392	-54.274	.62258	-.91028	.58161	-.94450
50	.61466	-.93064	-54.161	.63507	-.92821	.59351	-.96333
51	.62688	-.94726	-54.051	.64756	-.94614	.60541	-.98216
52	.63910	-.96378	-53.943	.66005	-.96407	.61731	-.10100
53	.65132	-.98020	-53.838	.67254	-.98200	.62921	-.10084
54	.66354	-.99652	-53.736	.68503	-.10093	.64111	-.10068
55	.67576	-.10075	-53.637	.69752	-.10081	.65301	-.10052
56	.68798	-.10058	-53.541	.71001	-.10065	.66491	-.10036
57	.70020	-.10041	-53.447	.72250	-.10049	.67681	-.10020
58	.71242	-.10024	-53.354	.73499	-.10033	.68871	-.10004
59	.72464	-.10007	-53.262	.74748	-.10017	.70061	-.99888
60	.73686	-.99990	-53.171	.75997	-.10001	.71251	-.99872
61	.74908	-.99973	-53.081	.77246	-.99985	.72441	-.99856
62	.76130	-.99956	-53.092	.78495	-.99969	.73631	-.99840
63	.77352	-.99939	-53.003	.79744	-.99953	.74821	-.99824
64	.78574	-.99922	-52.914	.80993	-.99937	.76011	-.99808
65	.79796	-.99905	-52.825	.82242	-.99921	.77201	-.99792
66	.81018	-.99888	-52.736	.83491	-.99905	.78391	-.99776
67	.82240	-.99871	-52.647	.84740	-.99889	.79581	-.99760
68	.83462	-.99854	-52.558	.85989	-.99873	.80771	-.99744
69	.84684	-.99837	-52.469	.87238	-.99857	.81961	-.99728
70	.85906	-.99820	-52.380	.88487	-.99841	.83151	-.99712

POINT NUMBER	M E A N L I N E O A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.84995	-1.24073	-50.352	.86346	-1.22953	.83643	-1.25193
71	.86343	-1.25694	-50.128	.87623	-1.24625	.85063	-1.26763
72	.87692	-1.27333	-49.925	.88894	-1.26291	.86490	-1.28315
73	.89041	-1.28901	-49.741	.90159	-1.27954	.87923	-1.29848
74	.90390	-1.31489	-49.577	.91417	-1.29614	.89362	-1.31364
75	.91738	-1.32068	-49.434	.92667	-1.31273	.90809	-1.32864
76	.93087	-1.33640	-49.313	.93911	-1.32932	.92263	-1.34348
77	.94436	-1.35206	-49.213	.95146	-1.34593	.93726	-1.35819
78	.95784	-1.36767	-49.135	.96373	-1.36258	.95196	-1.37276
79	.97133	-1.38324	-49.078	.97591	-1.37927	.96675	-1.38721
80	.98482	-1.39879	-49.044	.98800	-1.39603	.98163	-1.40156
81	.99831	-1.41433	-49.033	1.00000	-1.41286	.99661	-1.41580

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 19

BETA1 = 54.757 (BLADE INLET ANGLE.)
 BETA2 = 50.456 (BLADE OUTLET ANGLE.)
 YZERO = 0.0226 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = 0.02550 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.0126 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 ZORD = 0.693 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CHORD = 2.1985 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.7825
 STAGGER ANGLE = -55.923
 CAMBER ANGLE = -4.312
 SECTION AREA = 0.15593

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.53760
 YBAR = -0.35333

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0531
 IY = 0.0375
 IXY = -0.0358

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 33.553

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0995 (AT 33.553 WITH 'X' AXIS)
 IPY = 0.0201 (AT 33.553 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	0.9228	0.3120	54.767	0.0615	-0.7132	0.0042	-0.1132
2	0.1546	-0.1882	55.322	0.1778	-0.1720	0.1309	-0.2045
3	0.3269	-0.1802	55.833	0.3143	-0.3360	0.2575	-0.3995
4	0.4175	-0.1757	56.294	0.4509	-0.5534	0.3640	-0.5980
5	0.5691	-0.1745	56.717	0.5876	-0.7492	0.5104	-0.7998
6	0.6835	-0.1764	57.103	0.7243	-0.9441	0.6368	-1.0047
7	0.8121	-0.1811	57.446	0.8611	-1.1499	0.7631	-1.2124
8	0.9436	-0.1884	57.757	0.9979	-1.3542	0.8894	-1.4226
9	1.1752	-0.1981	58.135	1.1347	-1.5610	1.0157	-1.6353
10	1.2367	-0.1810	58.283	1.2716	-1.7699	1.1419	-1.8500
11	0.1383	-0.2137	58.494	1.4084	-1.9837	1.2682	-2.0667
12	0.14698	-0.2291	58.679	1.5452	-2.1932	1.3944	-2.2859
13	0.16314	-0.24560	58.833	1.6820	-2.4077	1.5207	-2.5048

POINT NUMBER X Y ANGLE THICKNESS

SURFACE COORDINATE DATA
XS YS XP YP

POINT NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
14	17329	-26740	-50.963	0.2095	16160	-26223	16470	-27257
15	18645	-28931	-59.063	0.2123	19555	-28385	17734	-29476
16	19961	-31128	-59.132	0.2283	20921	-30754	18999	-31703
17	21276	-33334	-59.177	0.2356	22287	-32728	20264	-33935
18	22592	-35548	-59.199	0.2453	23569	-34773	21544	-36034
19	23907	-37760	-59.208	0.2568	24851	-36820	22844	-38135
20	25222	-39975	-59.222	0.2672	26133	-38867	24136	-40235
21	26537	-42189	-59.191	0.2774	27411	-40913	25428	-42335
22	27852	-44403	-59.147	0.2875	28689	-42957	26721	-44432
23	29167	-46617	-59.134	0.2973	29967	-44998	28016	-46525
24	30482	-48831	-59.134	0.3069	31243	-47035	29312	-48613
25	31797	-51045	-59.955	0.3162	32518	-49065	30609	-50696
26	33112	-53259	-50.862	0.3253	33791	-51089	31907	-52771
27	34427	-55473	-50.753	0.3342	35064	-53105	33207	-54838
28	35742	-57687	-50.629	0.3427	36334	-55112	34508	-56896
29	37057	-59901	-50.499	0.3513	37603	-57118	35811	-58963
30	38372	-62115	-50.333	0.3591	38871	-59093	37115	-60978
31	39687	-64329	-50.160	0.3668	40137	-61065	38421	-63001
32	41002	-66543	-50.079	0.3742	41401	-63023	39729	-65008
33	42317	-68757	-50.763	0.3813	42664	-64967	41038	-67001
34	43632	-70971	-50.566	0.3876	43928	-66758	42353	-68837
35	44947	-73185	-50.377	0.3937	45192	-68537	43671	-70663
36	46262	-75399	-50.197	0.3995	46456	-70314	45017	-72468
37	47577	-77613	-50.025	0.4050	47720	-72090	46362	-74264
38	48892	-79827	-50.063	0.4102	48984	-73866	47707	-76048
39	50207	-82041	-50.739	0.4151	50248	-75641	49054	-77820
40	51522	-84255	-50.555	0.4198	51512	-77416	50401	-79581
41	52837	-86469	-50.331	0.4242	52776	-79191	51748	-81332
42	54152	-88683	-50.377	0.4283	54040	-80966	53095	-83074
43	55467	-90897	-50.193	0.4321	55304	-82741	54442	-84807
44	56782	-93111	-50.089	0.4355	56568	-84516	55789	-86532
45	58097	-95325	-50.996	0.4389	57832	-86291	57136	-88262
46	59412	-97539	-50.842	0.4418	59096	-88066	58483	-89960
47	60727	-99753	-50.781	0.4448	60360	-89841	59830	-91664
48	62042	-101967	-50.732	0.4468	61624	-91616	61177	-93363
49	63357	-104181	-50.680	0.4486	62888	-93391	62524	-95058
50	64672	-106395	-50.625	0.4506	64152	-95166	63871	-96753
51	65987	-108609	-50.615	0.4521	65416	-96941	65218	-98448
52	67302	-110823	-50.537	0.4531	66680	-98716	66565	-100143
53	68617	-113037	-50.465	0.4543	67944	-100491	67912	-101838
54	69932	-115251	-50.349	0.4544	69208	-102266	69259	-103533
55	71247	-117465	-50.222	0.4545	70472	-104041	70606	-105228
56	72562	-119679	-50.349	0.4542	71736	-105816	71953	-106923
57	73877	-121893	-50.942	0.4535	73000	-107591	73300	-108618
58	75192	-124107	-50.781	0.4522	74264	-109366	74647	-110313
59	76507	-126321	-50.625	0.4506	75528	-111141	75994	-112008
60	77822	-128535	-50.615	0.4486	76792	-112916	77341	-113703
61	79137	-130749	-50.543	0.4476	78056	-114691	78688	-115398
62	80452	-132963	-50.286	0.4462	79320	-116466	80035	-117093
63	81767	-135177	-50.983	0.4447	80584	-118241	81382	-118788
64	83082	-137391	-50.746	0.4434	81848	-120016	82729	-120483
65	84397	-139605	-50.625	0.4424	83112	-121791	84076	-122178
66	85712	-141819	-50.213	0.4419	84376	-123566	85423	-123873
67	87027	-144033	-50.903	0.4410	85640	-125341	86770	-125568
68	88342	-146247	-50.644	0.4401	86904	-127116	88117	-127263
69	89657	-148461	-50.324	0.4385	88168	-128891	89464	-128958
70	90972	-150675	-50.061	0.4374	89432	-130666	90811	-130653
71	92287	-152889	-50.061	0.4364	90696	-132441	92158	-132348
72	93602	-155103	-50.061	0.4354	91960	-134216	93505	-134043
73	94917	-157317	-50.061	0.4344	93224	-135991	94852	-135738
74	96232	-159531	-50.061	0.4334	94488	-137766	96199	-137433
75	97547	-161745	-50.061	0.4324	95752	-139541	97546	-139128
76	98862	-163959	-50.061	0.4314	97016	-141316	98893	-140823
77	100177	-166173	-50.061	0.4304	98280	-143091	100240	-142518
78	101492	-168387	-50.061	0.4294	99544	-144866	101587	-144213
79	102807	-170601	-50.061	0.4284	100808	-146641	102934	-145908
80	104122	-172815	-50.061	0.4274	102072	-148416	104281	-147603
81	105437	-175029	-50.061	0.4264	103336	-150191	105628	-149298
82	106752	-177243	-50.061	0.4254	104600	-151966	106975	-150993
83	108067	-179457	-50.061	0.4244	105864	-153741	108322	-152688
84	109382	-181671	-50.061	0.4234	107128	-155516	109669	-154383
85	110697	-183885	-50.061	0.4224	108392	-157291	111016	-156078
86	112012	-186099	-50.061	0.4214	109656	-159066	112363	-157773
87	113327	-188313	-50.061	0.4204	110920	-160841	113710	-159468
88	114642	-190527	-50.061	0.4194	112184	-162616	115057	-161163
89	115957	-192741	-50.061	0.4184	113448	-164391	116404	-162858
90	117272	-194955	-50.061	0.4174	114712	-166166	117751	-164553
91	118587	-197169	-50.061	0.4164	115976	-167941	119098	-166248
92	119902	-199383	-50.061	0.4154	117240	-169716	120445	-167943
93	121217	-201597	-50.061	0.4144	118504	-171491	121792	-169638
94	122532	-203811	-50.061	0.4134	119768	-173266	123139	-171333
95	123847	-206025	-50.061	0.4124	121032	-175041	124486	-173028
96	125162	-208239	-50.061	0.4114	122296	-176816	125833	-174723
97	126477	-210453	-50.061	0.4104	123560	-178591	127180	-176418
98	127792	-212667	-50.061	0.4094	124824	-180366	128527	-178113
99	129107	-214881	-50.061	0.4084	126088	-182141	129874	-179808
100	130422	-217095	-50.061	0.4074	127352	-183916	131221	-181503

POINT NUMBER	W E A V E L I N E J A T A		ANGLE THICKNESS	SURFACE COORDINATE DATA				
	X	Y		XS	YS	XP	YP	
70	.85796	-1.23413	-51.816	.03585	.86506	-1.28395	.83667	-1.33521
71	.85435	-1.31108	-51.597	.03408	.87771	-1.30250	.85100	-1.32167
72	.87774	-1.32791	-51.382	.03213	.89029	-1.31788	.85519	-1.33793
73	.89113	-1.34461	-51.195	.02997	.90281	-1.33522	.87945	-1.35400
74	.90452	-1.36121	-51.128	.02761	.91525	-1.35253	.89379	-1.36989
75	.91791	-1.37771	-50.881	.02503	.92762	-1.36982	.90823	-1.38561
76	.93131	-1.39414	-50.755	.02224	.93991	-1.38711	.92269	-1.40117
77	.94463	-1.41050	-50.651	.01921	.95211	-1.40441	.93726	-1.41659
78	.95817	-1.42680	-50.569	.01593	.96423	-1.42174	.95192	-1.43186
79	.97146	-1.44307	-50.509	.01241	.97625	-1.43912	.96668	-1.44701
80	.98485	-1.45931	-50.471	.00862	.98818	-1.45656	.98153	-1.46205
81	.99824	-1.47552	-50.454	.00466	1.00000	-1.47417	.99648	-1.47697

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 20

BETA1 = 55.463 (BLADE INLET ANGLE.)
 BETA2 = 51.933 (BLADE OUTLET ANGLE.)
 YZERO = .99127 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = .32523 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .91127 (BLADE TRAILING EDGE HALF THICKNESS AS A FRACTION OF CHORD.)
 Z = .6948 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.1145 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.8373
 STAGGER ANGLE = -57.971
 CAMBER ANGLE = -3.533
 SECTION AREA = .05677

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .54020
 YBAR = -.07518

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00794
 IY = .00320
 IXY = -.00533

ANGLE OF INCLINATION OF ONE PRINCIPAL AXIS TO 'X' AXIS = 22.377

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .01113 (AT 32.377 WITH 'X' AXIS)
 IPY = .00331 (AT 32.377 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.01233	0.1009	55.463	.0465	.0465	.13041	-.01132
2	.01559	-.11947	-56.024	.00581	.01799	.01318	-.02110
3	.02084	-.01934	-56.539	.00698	.03175	-.03742	.02593
4	3.211	-.35959	-57.011	.00816	.04552	-.05737	.03858
5	.05536	-.18019	-57.442	.00936	.05931	-.07767	.05142
6	.06962	-.11112	-57.834	.01056	.07309	-.09630	.06415
7	.08195	-.12235	-58.191	.01177	.08688	-.11925	.07688
8	.09514	-.14386	-58.513	.01299	.10068	-.14447	.08962
9	.10847	-.16564	-58.802	.01422	.11448	-.16155	.10232
10	.12166	-.18785	-59.161	.01544	.12828	-.18368	.11504
11	.13492	-.21987	-59.288	.01667	.14208	-.21561	.12776
12	.14818	-.23228	-59.487	.01789	.15588	-.22774	.14047
13	.16144	-.25486	-59.658	.01911	.16968	-.25133	.15319

POINT NUMBER	M E A N X Y A N G L E T H I C K N E S S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE	XS	YS	XP	YP
14	17471	-27756	59.403	62132	16348	-27247	16592
15	18796	-31342	59.923	62152	19727	-29503	17865
16	21122	-32336	60.112	62771	21105	-31768	19138
17	21448	-34637	60.079	62363	22403	-34341	21412
18	22731	-35614	60.121	62499	23763	-36192	22616
19	23952	-38995	60.158	62637	25082	-38346	23821
20	25274	-41177	60.158	62714	26381	-40512	25027
21	26456	-43359	60.152	62819	27678	-42658	26234
22	27738	-45541	60.130	62921	28975	-44813	26442
23	29021	-47719	60.192	63022	30271	-46966	27651
24	30304	-49894	60.337	63121	31564	-49115	28861
25	31585	-52063	59.965	63217	32857	-51258	30072
26	32867	-54225	59.874	63311	34148	-53394	31285
27	34148	-56379	59.774	63401	35438	-55532	32499
28	35421	-58523	59.652	63489	36726	-57641	33715
29	36693	-60655	59.512	63575	38013	-59748	34933
30	37965	-62775	59.354	63657	39298	-61843	36152
31	39237	-64882	59.178	63735	40582	-63924	37373
32	40509	-66972	58.942	63812	41863	-65990	38596
33	41781	-69046	58.767	63886	43143	-68139	39820
34	43052	-71124	58.576	63949	44423	-70285	41043
35	44324	-73197	58.376	64013	45703	-72427	42266
36	45595	-75269	58.197	64074	46983	-74563	43489
37	46867	-77341	58.129	64129	48263	-76693	44711
38	48138	-79413	57.872	64177	49543	-78823	45933
39	49409	-81485	57.727	64227	50823	-80953	47155
40	50681	-83557	57.595	64274	52103	-83083	48377
41	51952	-85629	57.474	64319	53383	-85213	49600
42	53224	-87701	57.367	64361	54663	-87343	50822
43	54495	-89773	57.272	64399	55943	-89473	52044
44	55767	-91845	57.191	64436	57223	-91603	53266
45	57038	-93917	57.123	64469	58503	-93733	54489
46	58310	-95989	57.069	64499	59783	-95863	55711
47	59581	-98061	57.027	64526	61063	-97993	56933
48	60853	-100133	57.000	64551	62343	-100123	58155
49	62124	-102205	56.986	64572	63623	-102253	59377
50	63396	-104277	56.981	64591	64903	-104383	60600
51	64667	-106349	56.984	64601	66183	-106513	61822
52	65939	-108421	56.991	64611	67463	-108643	63044
53	67210	-110493	56.991	64621	68743	-110773	64266
54	68482	-112565	56.993	64631	70023	-112903	65489
55	69753	-114637	56.996	64635	71303	-115033	66711
56	71025	-116709	56.997	64633	72583	-117163	67933
57	72296	-118781	56.998	64627	73863	-119293	69155
58	73568	-120853	56.998	64616	75143	-121423	70377
59	74839	-122925	56.997	64601	76423	-123553	71600
60	76111	-124997	56.995	64591	77703	-125683	72822
61	77382	-127069	56.993	64572	78983	-127813	74044
62	78654	-129141	56.991	64551	80263	-129943	75266
63	79925	-131213	56.988	64526	81543	-132073	76489
64	81197	-133285	56.984	64501	82823	-134203	77711
65	82468	-135357	56.979	64474	84103	-136333	78933
66	83740	-137429	56.972	64449	85383	-138463	80155
67	85011	-139501	56.965	64421	86663	-140593	81377
68	86283	-141573	56.958	64391	87943	-142723	82600
69	87554	-143645	56.951	64361	89223	-144853	83822

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.85241	-1.35196	-53.305	.86715	-1.34197	.83765	-1.36295
71	.86565	-1.35986	-53.374	.87964	-1.35915	.85167	-1.38017
72	.87891	-1.39723	-52.862	.89205	-1.37727	.86575	-1.39719
73	.89215	-1.41467	-52.671	.90440	-1.39533	.87992	-1.41400
74	.90541	-1.42199	-52.501	.91666	-1.41335	.89415	-1.43062
75	.91865	-1.43921	-52.353	.92885	-1.43135	.91847	-1.44707
76	.93191	-1.45635	-52.226	.94095	-1.44935	.92288	-1.46335
77	.94516	-1.47342	-52.122	.95295	-1.46736	.93737	-1.47948
78	.95841	-1.49043	-52.041	.96487	-1.48539	.95196	-1.49546
79	.97167	-1.50739	-51.981	.97669	-1.50307	.96665	-1.51132
80	.98492	-1.52433	-51.946	.98640	-1.52161	.98144	-1.52705
81	.99817	-1.54125	-51.933	1.00000	-1.53982	.99634	-1.54269

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 21

BETA1 = -56.176 (BLADE INLET ANGLE.)
 BETA2 = -53.529 (BLADE OUTLET ANGLE.)
 YZERO = .01125 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = .02500 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .01125 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .7038 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORO = 2.0273 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.8993
 STAGGER ANGLE = -58.277
 CAMBER ANGLE = -2.667
 SECTION AREA = .06228

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

MBAR = .54388
 YBAR = -.91645

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .09922
 IY = .80339
 IXY = -.00558

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 31.213

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .01263 (AT 31.213 WITH 'X' AXIS)
 IPY = .00001 (AT 31.213 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.00237	0.00000	-56.176	.00475	.00435	.0132	.0040
2	.01576	-.02023	-56.822	.00592	.01824	-.01851	.01326
3	.02915	-.04094	-57.409	.00711	.03214	-.03302	.02615
4	.04253	-.06209	-57.939	.00831	.04605	-.05389	.03981
5	.05592	-.08367	-58.418	.00953	.05998	-.08117	.05186
6	.06930	-.10563	-58.849	.01077	.07391	-.10285	.06470
7	.08269	-.12795	-59.235	.01201	.08785	-.12488	.07753
8	.09608	-.15059	-59.579	.01326	.10179	-.14724	.09036
9	.10946	-.17353	-59.882	.01451	.11574	-.16989	.10319
10	.12285	-.19673	-60.167	.01577	.12968	-.19281	.11601
11	.13623	-.22017	-60.375	.01703	.14363	-.21596	.12883
12	.14962	-.24388	-60.569	.01828	.15758	-.23931	.14166
13	.16301	-.26761	-60.726	.01953	.17152	-.26283	.15449

POINT NUMBER	M E A N L I N E A N G L E T H I C K N E S S		S U R F A C E C O O R D I N A T E D A T A			
	X	Y	XS	YS	XP	YP
14	.17639	-.23155	-60.854	.92078	.18546	-.28649
15	.18978	-.31561	-60.949	.32201	.19940	-.31326
16	.20316	-.39974	-61.011	.02323	.21332	-.33411
17	.21655	-.48392	-61.043	.02444	.22724	-.35600
18	.22925	-.56809	-61.052	.02557	.24045	-.38071
19	.24197	-.65227	-61.048	.02660	.25364	-.40341
20	.25468	-.73644	-61.033	.02778	.26683	-.42612
21	.26739	-.82061	-61.006	.02885	.28001	-.44880
22	.28011	-.90478	-61.067	.02991	.29318	-.47145
23	.29281	-.98895	-61.016	.03094	.30633	-.49407
24	.30552	-1.07312	-61.052	.03195	.31947	-.51663
25	.31823	-1.15729	-61.076	.03293	.33260	-.53913
26	.33094	-1.24146	-61.067	.03389	.34572	-.56155
27	.34365	-1.32563	-61.055	.03482	.35882	-.58389
28	.35636	-1.40980	-61.071	.03573	.37191	-.60613
29	.36907	-1.49397	-61.042	.03660	.38498	-.62826
30	.38178	-1.57814	-61.021	.03745	.39803	-.65027
31	.39449	-1.66231	-61.045	.03826	.41107	-.67214
32	.40720	-1.74648	-61.075	.03904	.42409	-.69386
33	.41991	-1.83065	-61.053	.03979	.43709	-.71546
34	.43262	-1.91482	-61.022	.04043	.44973	-.73667
35	.44533	-2.00000	-61.033	.04105	.46236	-.75755
36	.45804	-2.08517	-61.071	.04154	.47497	-.77804
37	.47075	-2.17034	-61.045	.04221	.48758	-.79828
38	.48346	-2.25551	-61.065	.04274	.49998	-.81829
39	.49617	-2.34068	-61.025	.04325	.51238	-.83806
40	.50888	-2.42585	-61.045	.04373	.52478	-.85764
41	.52159	-2.51102	-61.065	.04418	.53718	-.87704
42	.53430	-2.59619	-61.025	.04461	.54958	-.89628
43	.54701	-2.68136	-61.045	.04501	.56198	-.91542
44	.55972	-2.76653	-61.065	.04536	.57438	-.93443
45	.57243	-2.85170	-61.025	.04572	.58678	-.95333
46	.58514	-2.93687	-61.045	.04603	.59918	-.97214
47	.59785	-3.02204	-61.065	.04631	.61158	-.99086
48	.61056	-3.10721	-61.025	.04657	.62398	-.10199
49	.62327	-3.19238	-61.045	.04679	.63638	-.11312
50	.63598	-3.27755	-61.065	.04699	.64878	-.12425
51	.64869	-3.36272	-61.025	.04716	.66118	-.13538
52	.66140	-3.44789	-61.045	.04729	.67358	-.14651
53	.67411	-3.53306	-61.065	.04739	.68598	-.15764
54	.68682	-3.61823	-61.025	.04745	.69838	-.16877
55	.69953	-3.70340	-61.045	.04746	.71078	-.17990
56	.71224	-3.78857	-61.065	.04747	.72318	-.19103
57	.72495	-3.87374	-61.025	.04743	.73558	-.20216
58	.73766	-3.95891	-61.045	.04733	.74798	-.21329
59	.75037	-4.04408	-61.065	.04717	.76038	-.22442
60	.76308	-4.12925	-61.025	.04693	.77278	-.23555
61	.77579	-4.21442	-61.045	.04662	.78518	-.24668
62	.78850	-4.29959	-61.065	.04622	.79758	-.25781
63	.80121	-4.38476	-61.025	.04572	.80998	-.26894
64	.81392	-4.46993	-61.045	.04512	.82238	-.28007
65	.82663	-4.55510	-61.065	.04443	.83478	-.29120
66	.83934	-4.64027	-61.025	.04345	.84718	-.30233
67	.85205	-4.72544	-61.045	.04235	.85958	-.31346
68	.86476	-4.81061	-61.065	.04107	.87198	-.32459
69	.87747	-4.89578	-61.025	.03961	.88438	-.33572
70	.89018	-4.98095	-61.045	.03791	.89678	-.34685
71	.90289	-5.06612	-61.065	.03601	.90918	-.35798
72	.91560	-5.15129	-61.025	.03391	.92158	-.36911
73	.92831	-5.23646	-61.045	.03171	.93398	-.38024
74	.94102	-5.32163	-61.065	.02941	.94638	-.39137
75	.95373	-5.40680	-61.025	.02701	.95878	-.40250
76	.96644	-5.49197	-61.045	.02451	.97118	-.41363
77	.97915	-5.57714	-61.065	.02191	.98358	-.42476
78	.99186	-5.66231	-61.025	.01921	.99598	-.43589
79	1.00457	-5.74748	-61.045	.01641	1.00838	-.44702
80	1.01728	-5.83265	-61.065	.01351	1.02078	-.45815
81	1.02999	-5.91782	-61.025	.01051	1.03318	-.46928
82	1.04270	-6.00299	-61.045	.00741	1.04558	-.48041
83	1.05541	-6.08816	-61.065	.00421	1.05798	-.49154
84	1.06812	-6.17333	-61.025	.00091	1.07038	-.50267
85	1.08083	-6.25850	-61.045	.00000	1.08278	-.51380
86	1.09354	-6.34367	-61.065	.00000	1.09518	-.52493
87	1.10625	-6.42884	-61.025	.00000	1.10758	-.53606
88	1.11896	-6.51401	-61.045	.00000	1.11998	-.54719
89	1.13167	-6.59918	-61.065	.00000	1.13238	-.55832
90	1.14438	-6.68435	-61.025	.00000	1.14478	-.56945
91	1.15709	-6.76952	-61.045	.00000	1.15718	-.58058
92	1.16980	-6.85469	-61.065	.00000	1.16958	-.59171
93	1.18251	-6.93986	-61.025	.00000	1.18198	-.60284
94	1.19522	-7.02503	-61.045	.00000	1.19438	-.61397
95	1.20793	-7.11020	-61.065	.00000	1.20678	-.62510
96	1.22064	-7.19537	-61.025	.00000	1.21918	-.63623
97	1.23335	-7.28054	-61.045	.00000	1.23158	-.64736
98	1.24606	-7.36571	-61.065	.00000	1.24398	-.65849
99	1.25877	-7.45088	-61.025	.00000	1.25638	-.66962
100	1.27148	-7.53605	-61.045	.00000	1.26878	-.68075

POINT NUMBER	M E A N L I N E O A T A			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP	
70	.85422	-1.41571	-55.336	.03797	.86978	-1.40483	.83867	-1.42659
71	.86733	-1.43434	-54.820	.03612	.88207	-1.42333	.85254	-1.44475
72	.88039	-1.45282	-54.619	.03408	.89427	-1.44296	.86649	-1.46269
73	.89346	-1.47118	-54.432	.03181	.90640	-1.46192	.88052	-1.48043
74	.90654	-1.48941	-54.260	.02932	.91844	-1.48085	.89464	-1.49797
75	.91962	-1.50753	-54.104	.02659	.93039	-1.49973	.90885	-1.51533
76	.93270	-1.52555	-53.964	.02362	.94225	-1.51860	.92315	-1.53250
77	.94578	-1.54349	-53.839	.02040	.95401	-1.53747	.93754	-1.54951
78	.95885	-1.56135	-53.732	.01691	.96567	-1.55635	.95204	-1.56635
79	.97193	-1.57914	-53.640	.01314	.97723	-1.57525	.96064	-1.58304
80	.98501	-1.59688	-53.566	.00909	.98867	-1.59418	.98135	-1.59958
81	.99809	-1.61458	-53.509	.00475	1.00000	-1.61317	.99618	-1.61599

BLADE SURFACE GEOMETRY IN CARTESIAN COORDINATES AT SPECIFIED VALUES OF 'Z'

SECTION NUMBER 1 'Z' = 2.5000

SECTION PROPERTIES

SECTION AREA = 5.8568E-01

LOCATION OF CENTROID
RELATIVE TO STACK AXIS XBAR = 2.0291E-02
YBAR = 1.3603E-02

SECOND MOMENTS OF AREA
ABOUT CENTROID IX = 2.5256E-02
IY = 2.4836E-01
IXY = -1.1407E-02

PRINCIPAL SECOND MOMENTS
OF AREA ABOUT CENTROID IPX = 2.4674E-02 (AT -2.92 DEGREES TO 'X' AXIS)
IPY = 2.4894E-01 (AT -2.92 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 1.0203E-02

SECTION COORDINATES

POINT NO	XC	YC	XP	YP
1	-1.43619E+00	6.33176E-01	-1.45084E+00	6.05986E-01
2	-1.39618E+00	6.06838E-01	-1.41441E+00	5.72801E-01
3	-1.35589E+00	5.80751E-01	-1.37731E+00	5.39758E-01
4	-1.31500E+00	5.54808E-01	-1.34040E+00	5.06795E-01
5	-1.27510E+00	5.29000E-01	-1.30339E+00	4.73919E-01
6	-1.23440E+00	5.03292E-01	-1.26624E+00	4.41069E-01
7	-1.19368E+00	4.77633E-01	-1.22898E+00	4.08239E-01
8	-1.15288E+00	4.52074E-01	-1.19152E+00	3.75433E-01
9	-1.11198E+00	4.26587E-01	-1.15381E+00	3.42662E-01
10	-1.07100E+00	4.01163E-01	-1.11613E+00	3.09956E-01
11	-1.02998E+00	3.75920E-01	-1.07814E+00	2.77321E-01
12	-9.88922E-01	3.50859E-01	-1.03996E+00	2.44794E-01
13	-9.47867E-01	3.25971E-01	-1.00156E+00	2.12561E-01
14	-9.06850E-01	3.01452E-01	-9.62930E-01	1.80512E-01
15	-8.65904E-01	2.77379E-01	-9.24061E-01	1.48712E-01
16	-8.25072E-01	2.53782E-01	-8.84941E-01	1.17475E-01
17	-7.84398E-01	2.30726E-01	-8.45544E-01	8.67772E-02
18	-7.43957E-01	2.11685E-01	-8.11339E-01	6.07192E-02
19	-7.03664E-01	1.93410E-01	-7.77174E-01	3.53477E-02
20	-6.63498E-01	1.75843E-01	-7.43062E-01	1.08250E-02
21	-6.23468E-01	1.58898E-01	-7.09006E-01	-1.28371E-02
22	-5.83474E-01	1.42725E-01	-6.75007E-01	-3.58378E-02
23	-5.43519E-01	1.27366E-01	-6.41077E-01	-5.81747E-02
24	-5.03604E-01	1.12727E-01	-6.07220E-01	-7.95938E-02
25	-4.63728E-01	9.88267E-02	-5.73441E-01	-1.00138E-01
26	-4.23891E-01	8.56370E-02	-5.39748E-01	-1.19833E-01
27	-3.84097E-01	7.32275E-02	-5.06146E-01	-1.38747E-01
28	-3.44346E-01	6.15315E-02	-4.72646E-01	-1.56037E-01
29	-3.04644E-01	5.05329E-02	-4.39254E-01	-1.71997E-01
30	-2.65000E-01	4.02423E-02	-4.05980E-01	-1.90339E-01
31	-2.25468E-01	3.08210E-02	-3.72833E-01	-2.05771E-01
32	-1.86019E-01	2.19482E-02	-3.39826E-01	-2.20311E-01
33	-1.46583E-01	1.36692E-02	-3.06964E-01	-2.33879E-01
34	-1.07241E-01	5.62320E-03	-2.73434E-01	-2.47168E-01

POINT NO	KS	YS	XP	YP
35	-2.03508E-01	-1.69691E-03	-2.40009E-01	-2.59636E-01
36	-1.73153E-01	-8.23010E-03	-2.06698E-01	-2.71176E-01
37	-1.42095E-01	-1.44099E-02	-1.73511E-01	-2.81670E-01
38	-1.12015E-01	-2.03272E-02	-1.40454E-01	-2.91298E-01
39	-8.29120E-02	-2.57521E-02	-1.07537E-01	-3.00198E-01
40	-5.31839E-02	-2.94111E-02	-7.47684E-02	-3.08243E-01
41	-2.36317E-02	-3.29182E-02	-4.421563E-02	-3.15311E-01
42	5.74735E-03	-3.61523E-02	-9.70873E-03	-3.21239E-01
43	3.49513E-02	-3.89152E-02	2.25668E-02	-3.26292E-01
44	6.39790E-02	-4.13541E-02	5.46622E-02	-3.30575E-01
45	9.28312E-02	-4.25437E-02	8.65603E-02	-3.33939E-01
46	1.21510E-01	-4.31604E-02	1.18276E-01	-3.36246E-01
47	1.52019E-01	-4.33574E-02	1.49779E-01	-3.37330E-01
48	1.78333E-01	-4.31147E-02	1.81067E-01	-3.37512E-01
49	2.06477E-01	-4.22010E-02	2.12134E-01	-3.36857E-01
50	2.33519E-01	-4.02949E-02	2.42086E-01	-3.34897E-01
51	2.60245E-01	-3.73845E-02	2.71833E-01	-3.31772E-01
52	2.86680E-01	-3.38939E-02	3.01256E-01	-3.27205E-01
53	3.12810E-01	-2.99724E-02	3.30410E-01	-3.21695E-01
54	3.38629E-01	-2.54154E-02	3.59256E-01	-3.15307E-01
55	3.64124E-01	-1.99778E-02	3.87736E-01	-3.07651E-01
56	3.89298E-01	-1.33914E-02	4.15820E-01	-2.98543E-01
57	4.14130E-01	-5.43460E-03	4.43468E-01	-2.87450E-01
58	4.38618E-01	2.31157E-03	4.70642E-01	-2.75783E-01
59	4.62747E-01	1.06581E-02	4.97298E-01	-2.63133E-01
60	4.86512E-01	2.02848E-02	5.23388E-01	-2.49123E-01
61	5.09860E-01	3.16314E-02	5.48858E-01	-2.33895E-01
62	5.32615E-01	4.42979E-02	5.73655E-01	-2.14642E-01
63	5.55326E-01	5.63283E-02	5.97743E-01	-1.96381E-01
64	5.77395E-01	6.92119E-02	6.21059E-01	-1.77802E-01
65	5.98964E-01	8.37527E-02	6.43546E-01	-1.56248E-01
66	6.20359E-01	1.01290E-01	6.60325E-01	-1.28742E-01
67	6.40937E-01	1.23909E-01	7.16955E-01	-9.90842E-02
68	7.04282E-01	1.44182E-01	7.53498E-01	-6.82216E-02
69	7.39960E-01	1.63426E-01	7.90004E-01	-3.38110E-02
70	7.76049E-01	1.90839E-01	8.26530E-01	6.71605E-03
71	8.12681E-01	2.19151E-01	8.63204E-01	4.74639E-02
72	8.49965E-01	2.49190E-01	9.00095E-01	9.16709E-02
73	8.88315E-01	2.82662E-01	9.37011E-01	1.40210E-01
74	9.26960E-01	3.21022E-01	9.74937E-01	1.94236E-01
75	9.66989E-01	3.61100E-01	1.01314E+00	2.49683E-01
76	1.01024E+00	4.04098E-01	1.05203E+00	3.09413E-01
77	1.05091E+00	4.51122E-01	1.09175E+00	3.73779E-01
78	1.09519E+00	5.02850E-01	1.13247E+00	4.42531E-01
79	1.14131E+00	5.57525E-01	1.17433E+00	5.14448E-01
80	1.18951E+00	6.16159E-01	1.21750E+00	5.90684E-01
81	1.24004E+00	6.79330E-01	1.26215E+00	6.71369E-01

POINT NO XSEMI YSFMT

1	-1.45084E+00	6.05986E-01
2	-1.45198E+00	6.06986E-01
3	-1.45302E+00	6.08122E-01
4	-1.45396E+00	6.09302E-01
5	-1.45479E+00	6.10753E-01
6	-1.45549E+00	6.12219E-01
7	-1.45616E+00	6.13764E-01

POINT NO	XSE+YI	YSEMI
8	-1.45658E+00	6.15372E-01
9	-1.45679E+00	6.17025E-01
10	-1.45694E+00	6.18704E-01
11	-1.45709E+00	6.20393E-01
12	-1.45724E+00	6.22072E-01
13	-1.45739E+00	6.23724E-01
14	-1.45754E+00	6.25330E-01
15	-1.45769E+00	6.26873E-01
16	-1.45784E+00	6.28337E-01
17	-1.45799E+00	6.29705E-01
18	-1.45814E+00	6.30963E-01
19	-1.45829E+00	6.32097E-01
20	-1.45844E+00	6.33095E-01
21	-1.45859E+00	6.33946E-01
22	-1.45874E+00	6.34640E-01
23	-1.45889E+00	6.35170E-01
24	-1.45904E+00	6.35530E-01
25	-1.45919E+00	6.35715E-01
26	-1.45934E+00	6.35724E-01
27	-1.45949E+00	6.35556E-01
28	-1.45964E+00	6.35213E-01
29	-1.45979E+00	6.34696E-01
30	-1.45994E+00	6.34017E-01
31	-1.46009E+00	6.33176E-01

SECTION NUMBER 2 'Z' = 3.0000

SECTION PROPERTIES	SECTION AREA	LOCATION OF CENTROID RELATIVE TO STACK AXIS	SECTION AREA	XBAR	YBAR	IX	IY	IXY	IPX	IPY	TORSIONAL CONSTANT
				= 5.1729E-01	= 2.9006E-02	= 2.3097E-02	= 2.2744E-01	= -3.7173E-02	= 1.6545E-02 (AT -10.0) DEGREES TO 'X' AXIS)	= 2.3399E-01 (AT -10.0) DEGREES TO 'Y' AXIS)	= 6.9939E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.45279E+00	7.47523E-01	-1.46520E+00	7.28663E-01
2	-1.41270E+00	7.17303E-01	-1.42873E+00	6.92452E-01
3	-1.37269E+00	6.87699E-01	-1.39222E+00	6.56819E-01
4	-1.33275E+00	6.58598E-01	-1.35568E+00	6.21680E-01
5	-1.29286E+00	6.29909E-01	-1.31904E+00	5.86987E-01
6	-1.25313E+00	6.01608E-01	-1.28235E+00	5.52730E-01
7	-1.21322E+00	5.73878E-01	-1.24555E+00	5.18810E-01
8	-1.17343E+00	5.46395E-01	-1.20873E+00	4.85270E-01
9	-1.13363E+00	5.19265E-01	-1.17178E+00	4.52017E-01

POINT NO	XS	YS	XP	YP
10	-1.09332E+00	4.92452E-01	-1.13474E+00	4.19049E-01
11	-1.05337E+00	4.65890E-01	-1.09759E+00	3.86331E-01
12	-1.01441E+00	4.39624E-01	-1.06032E+00	3.53790E-01
13	-9.74102E-01	4.13675E-01	-1.02292E+00	3.21505E-01
14	-9.34241E-01	3.89009E-01	-9.85360E-01	2.89500E-01
15	-8.94290E-01	3.62703E-01	-9.47623E-01	2.57754E-01
16	-8.54347E-01	3.37830E-01	-9.09692E-01	2.26323E-01
17	-8.14430E-01	3.13300E-01	-8.71549E-01	1.95350E-01
18	-7.74515E-01	2.91503E-01	-8.36531E-01	1.67479E-01
19	-7.42115E-01	2.71303E-01	-8.01522E-01	1.40130E-01
20	-7.06327E-01	2.49803E-01	-7.66525E-01	1.13423E-01
21	-6.70796E-01	2.29826E-01	-7.31543E-01	8.73933E-02
22	-6.35534E-01	2.13470E-01	-6.96579E-01	6.20230E-02
23	-6.00535E-01	1.91797E-01	-6.61637E-01	3.72893E-02
24	-5.65813E-01	1.73805E-01	-6.26722E-01	1.32703E-02
25	-5.31367E-01	1.56509E-01	-5.91840E-01	-9.99239E-03
26	-4.97199E-01	1.39802E-01	-5.56996E-01	-3.26740E-02
27	-4.63314E-01	1.23952E-01	-5.22194E-01	-5.41910E-02
28	-4.29734E-01	1.08729E-01	-4.87446E-01	-7.51570E-02
29	-3.96374E-01	9.42154E-02	-4.52750E-01	-9.53032E-02
30	-3.63324E-01	8.04200E-02	-4.18122E-01	-1.14620E-01
31	-3.30543E-01	6.7375E-02	-3.83567E-01	-1.33039E-01
32	-2.98034E-01	5.49742E-02	-3.49094E-01	-1.50706E-01
33	-2.65791E-01	4.32457E-02	-3.14714E-01	-1.67444E-01
34	-2.33597E-01	3.23936E-02	-2.80293E-01	-1.83463E-01
35	-2.01542E-01	2.16291E-02	-2.45954E-01	-1.96650E-01
36	-1.69654E-01	1.18464E-02	-2.11705E-01	-2.12957E-01
37	-1.37924E-01	2.53391E-03	-1.77552E-01	-2.26353E-01
38	-1.06344E-01	-6.29523E-03	-1.43505E-01	-2.36947E-01
39	-7.49133E-02	-1.43672E-02	-1.09574E-01	-2.50790E-01
40	-4.36357E-02	-2.19239E-02	-7.57592E-02	-2.61019E-01
41	-1.25280E-02	-2.87948E-02	-4.20764E-02	-2.71976E-01
42	1.84733E-02	-3.57023E-02	-8.53073E-03	-2.81190E-01
43	4.92989E-02	-4.13367E-02	2.40707E-02	-2.89642E-01
44	7.99777E-02	-4.66100E-02	5.81203E-02	-2.97293E-01
45	1.10506E-01	-5.17422E-02	9.12103E-02	-3.04146E-01
46	1.40889E-01	-5.59910E-02	1.24133E-01	-3.10102E-01
47	1.71131E-01	-5.98224E-02	1.56880E-01	-3.15071E-01
48	2.01109E-01	-6.32309E-02	1.89465E-01	-3.19247E-01
49	2.31114E-01	-6.61990E-02	2.21823E-01	-3.22663E-01
50	2.60316E-01	-6.82077E-02	2.53524E-01	-3.25041E-01
51	2.89240E-01	-6.95293E-02	2.85852E-01	-3.26460E-01
52	3.17802E-01	-7.03131E-02	3.16387E-01	-3.26713E-01
53	3.46240E-01	-7.06362E-02	3.47504E-01	-3.26097E-01
54	3.74398E-01	-7.03511E-02	3.78300E-01	-3.24627E-01
55	4.02066E-01	-6.92082E-02	4.08980E-01	-3.22034E-01
56	4.29564E-01	-6.70654E-02	4.39293E-01	-3.18182E-01
57	4.56737E-01	-6.41123E-02	4.69260E-01	-3.12709E-01
58	4.83694E-01	-6.06208E-02	4.98879E-01	-3.05514E-01
59	5.10153E-01	-5.68315E-02	5.28091E-01	-2.99312E-01
60	5.36375E-01	-5.19529E-02	5.56863E-01	-2.90830E-01
61	5.62255E-01	-4.55207E-02	5.85153E-01	-2.80616E-01
62	5.87782E-01	-3.79190E-02	6.12914E-01	-2.68370E-01
63	6.12944E-01	-3.04743E-02	6.40114E-01	-2.55069E-01
64	6.37733E-01	-2.21535E-02	6.66701E-01	-2.42104E-01
65	6.62110E-01	-1.28750E-02	6.92625E-01	-2.27134E-01
66	6.86211E-01	-2.42985E-04	7.28923E-01	-2.06916E-01

POINT NO	XS	YS	XP	YP
67	7.37480E-01	1.36987E-02	7.65109E-01	-1.64711E-01
68	7.64977E-01	2.81999E-02	8.01223E-01	-1.61160E-01
69	7.99752E-01	4.49627E-02	8.37296E-01	-1.34597E-01
70	8.34866E-01	6.55017E-02	8.73367E-01	-1.03195E-01
71	8.70416E-01	8.79507E-02	9.09526E-01	-7.11192E-02
72	9.05490E-01	1.13228E-01	9.45822E-01	-3.60381E-02
73	9.43171E-01	1.36283E-01	9.82327E-01	2.70774E-03
74	9.83554E-01	1.66276E-01	1.01313E+01	4.59493E-02
75	1.01891E+00	1.97929E-01	1.05632E+00	9.07751E-02
76	1.05813E+00	2.32154E-01	1.09401E+00	1.39297E-01
77	1.09837E+00	2.69792E-01	1.13230E+00	1.91730E-01
78	1.13999E+00	3.11337E-01	1.17131E+00	2.48061E-01
79	1.18318E+00	3.55530E-01	1.21117E+00	3.07255E-01
80	1.22781E+00	4.03173E-01	1.25201E+00	3.70251E-01
81	1.27441E+00	4.54719E-01	1.29397E+00	4.37194E-01

POINT NO	XSEMI	YSEMI
1	-1.46520E+00	7.28663E-01
2	-1.46613E+00	7.29474E-01
3	-1.46678E+00	7.31378E-01
4	-1.46744E+00	7.31366E-01
5	-1.46811E+00	7.32427E-01
6	-1.46849E+00	7.33549E-01
7	-1.46886E+00	7.34720E-01
8	-1.46912E+00	7.35928E-01
9	-1.46927E+00	7.37159E-01
10	-1.46931E+00	7.38399E-01
11	-1.46923E+00	7.39636E-01
12	-1.46914E+00	7.40856E-01
13	-1.46875E+00	7.42045E-01
14	-1.46834E+00	7.43191E-01
15	-1.46784E+00	7.44282E-01
16	-1.46724E+00	7.45305E-01
17	-1.46654E+00	7.46249E-01
18	-1.46577E+00	7.47104E-01
19	-1.46492E+00	7.47861E-01
20	-1.46411E+00	7.48511E-01
21	-1.46334E+00	7.49047E-01
22	-1.46253E+00	7.49464E-01
23	-1.46168E+00	7.49757E-01
24	-1.46079E+00	7.49922E-01
25	-1.45983E+00	7.49958E-01
26	-1.45876E+00	7.49863E-01
27	-1.45769E+00	7.49640E-01
28	-1.45655E+00	7.49290E-01
29	-1.45546E+00	7.48816E-01
30	-1.45436E+00	7.48225E-01
31	-1.45327E+00	7.47523E-01

SECTION NUMBER 3 'Z' = 3.5000

SECTION PROPERTIES

SECTION AREA	=	4.6328E-01
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR =	2.4739E-02
	YBAR =	4.4525E-04
SECOND MOMENTS OF AREA ABOUT CENTROID	IX =	2.8468E-02
	IY =	2.1601E-01
	IXY =	-6.0195E-02
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX =	1.0810E-02 (AT -16.35 DEGREES TO 'X' AXIS)
	IPY =	2.3357E-01 (AT -16.35 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT	=	4.7219E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.47862E+00	6.75928E-01	-1.48876E+00	6.62572E-01
2	-1.43840E+00	6.42611E-01	-1.45238E+00	6.23967E-01
3	-1.39829E+00	6.09637E-01	-1.41601E+00	7.85694E-01
4	-1.35827E+00	7.77020E-01	-1.37966E+00	7.47712E-01
5	-1.31834E+00	7.44719E-01	-1.34330E+00	7.10031E-01
6	-1.27852E+00	7.12730E-01	-1.30693E+00	6.72651E-01
7	-1.23873E+00	6.81192E-01	-1.27052E+00	6.35625E-01
8	-1.19915E+00	6.51125E-01	-1.23408E+00	5.99028E-01
9	-1.15969E+00	6.19529E-01	-1.19756E+00	5.62880E-01
10	-1.12039E+00	5.89438E-01	-1.16102E+00	5.27219E-01
11	-1.08119E+00	5.59943E-01	-1.12436E+00	4.92067E-01
12	-1.04209E+00	5.31966E-01	-1.08765E+00	4.57491E-01
13	-1.00309E+00	5.02600E-01	-1.05081E+00	4.23503E-01
14	-9.62235E-01	4.74807E-01	-1.01385E+00	3.90080E-01
15	-9.22933E-01	4.47611E-01	-9.76760E-01	3.57297E-01
16	-8.83663E-01	4.23940E-01	-9.39538E-01	3.25190E-01
17	-8.44410E-01	3.94807E-01	-9.02151E-01	2.93695E-01
18	-8.05252E-01	3.73098E-01	-8.65806E-01	2.63764E-01
19	-7.66970E-01	3.45987E-01	-8.29481E-01	2.34500E-01
20	-7.28488E-01	3.22434E-01	-7.93160E-01	2.06072E-01
21	-6.90297E-01	2.93477E-01	-7.56865E-01	1.78270E-01
22	-6.57334E-01	2.77138E-01	-7.20575E-01	1.51123E-01
23	-5.20672E-01	2.55347E-01	-6.84296E-01	1.24661E-01
24	-5.04134E-01	2.34161E-01	-6.48029E-01	9.88795E-02
25	-5.47844E-01	2.13598E-01	-6.11773E-01	7.37957E-02
26	-5.11822E-01	1.93663E-01	-5.75532E-01	4.93725E-02
27	-4.76043E-01	1.74356E-01	-5.39399E-01	2.56667E-02
28	-4.40519E-01	1.55704E-01	-5.03107E-01	2.64294E-03
29	-4.05222E-01	1.37734E-01	-4.66931E-01	-1.96021E-02
30	-3.70184E-01	1.23482E-01	-4.30767E-01	-4.12967E-02
31	-3.35396E-01	1.03869E-01	-3.94683E-01	-6.21606E-02
32	-3.00859E-01	8.79629E-02	-3.58627E-01	-8.22947E-02
33	-2.66575E-01	7.27997E-02	-3.22629E-01	-1.01762E-01
34	-2.32967E-01	5.85522E-02	-2.87252E-01	-1.20210E-01
35	-1.99495E-01	4.49525E-02	-2.51952E-01	-1.37893E-01

POINT NO	XS	YS	MP	VP
36	-1.66156E-01	3.19221E-02	-2.16733E-01	-1.54834E-01
37	-1.32947E-01	1.96777E-02	-1.81600E-01	-1.71064E-01
38	-9.89673E-02	7.61674E-03	-1.46557E-01	-1.86598E-01
39	-6.69165E-02	-3.49227E-03	-1.11606E-01	-2.01182E-01
40	-3.40875E-02	-1.44368E-03	-7.67500E-02	-2.15395E-01
41	-1.18537E-03	-2.44714E-02	-4.19966E-02	-2.28642E-01
42	3.11926E-02	-3.44524E-02	-7.35274E-03	-2.41140E-01
43	6.16456E-02	-4.37561E-02	2.71746E-03	-2.52322E-01
44	9.29764E-02	-5.25835E-02	6.15785E-02	-2.64810E-01
45	1.23132E-01	-6.09408E-02	9.58523E-02	-2.74354E-01
46	1.60262E-01	-7.88136E-02	1.29389E-01	-2.83958E-01
47	1.92218E-01	-7.62874E-02	1.63982E-01	-2.92813E-01
48	2.24646E-01	-6.33831E-02	1.97825E-01	-3.00382E-01
49	2.55746E-01	-4.99370E-02	2.31512E-01	-3.08468E-01
50	2.87123E-01	-9.61205E-02	2.64962E-01	-3.15194E-01
51	3.19236E-01	-1.01674E-01	2.96302E-01	-3.21147E-01
52	3.49385E-01	-1.86732E-01	3.31517E-01	-3.26220E-01
53	3.79674E-01	-1.11300E-01	3.64590E-01	-3.30438E-01
54	4.09996E-01	-1.13257E-01	3.97503E-01	-3.33946E-01
55	4.40044E-01	-1.18595E-01	4.30236E-01	-3.36417E-01
56	4.69829E-01	-1.21041E-01	4.62766E-01	-3.37821E-01
57	4.99342E-01	-1.22780E-01	4.95068E-01	-3.37968E-01
58	5.28592E-01	-1.24037E-01	5.27117E-01	-3.37248E-01
59	5.57578E-01	-1.24820E-01	5.58884E-01	-3.35490E-01
60	5.86248E-01	-1.24190E-01	5.90339E-01	-3.32536E-01
61	6.14505E-01	-1.22673E-01	6.21448E-01	-3.28137E-01
62	6.42395E-01	-1.21368E-01	6.52173E-01	-3.22133E-01
63	6.70772E-01	-1.17277E-01	6.82685E-01	-3.15357E-01
64	7.00765E-01	-1.13519E-01	7.12343E-01	-3.07366E-01
65	7.25257E-01	-1.03604E-01	7.41704E-01	-2.98021E-01
66	7.55644E-01	-1.01765E-01	7.77215E-01	-2.85891E-01
67	7.92022E-01	-9.35117E-02	8.13264E-01	-2.70338E-01
68	8.25671E-01	-8.44234E-02	8.48946E-01	-2.54898E-01
69	8.59545E-01	-7.35802E-02	8.84589E-01	-2.35384E-01
70	8.93644E-01	-5.93531E-02	9.20205E-01	-2.13107E-01
71	9.28154E-01	-4.53498E-02	9.55849E-01	-1.89708E-01
72	9.63014E-01	-2.87327E-02	9.91550E-01	-1.63747E-01
73	9.98288E-01	-1.03954E-02	1.02735E+01	-1.34795E-01
74	1.03417E+00	1.12299E-02	1.06332E+00	-1.02337E-01
75	1.07364E+00	3.47583E-02	1.09950E+00	-6.81327E-02
76	1.11783E+00	6.02128E-02	1.13599E+00	-3.08169E-02
77	1.14554E+00	8.84613E-02	1.17044E+00	9.08014E-03
78	1.18955E+00	1.19825E-01	1.21015E+00	5.35897E-02
79	1.22644E+00	1.53352E-01	1.24801E+00	1.80862E-01
80	1.26612E+00	1.91176E-01	1.28652E+00	1.49819E-01
81	1.31878E+00	2.33109E-01	1.32576E+00	2.03019E-01

POINT NO	NSEMI	YSEMI
1	-1.40876E+00	9.62572E-01
2	-1.48938E+00	8.63212E-01
3	-1.48933E+00	8.63919E-01
4	-1.49241E+00	8.64633E-01
5	-1.49381E+00	8.65497E-01
6	-1.49114E+00	8.66352E-01
7	-1.49139E+00	8.67238E-01
8	-1.49155E+00	8.68148E-01

POINT NO	XSEMI	YSEMI
9	-1.69163E+00	6.64066E-01
10	-1.69162E+00	6.64088E-01
11	-1.69153E+00	6.71921E-01
12	-1.69134E+00	6.71798E-01
13	-1.69118E+00	6.72666E-01
14	-1.69103E+00	6.73493E-01
15	-1.69088E+00	6.74277E-01
16	-1.69073E+00	6.75016E-01
17	-1.69058E+00	6.75673E-01
18	-1.69043E+00	6.76267E-01
19	-1.69028E+00	6.76786E-01
20	-1.69013E+00	6.77222E-01
21	-1.68998E+00	6.77572E-01
22	-1.68983E+00	6.77830E-01
23	-1.68968E+00	6.77995E-01
24	-1.68953E+00	6.78064E-01
25	-1.68938E+00	6.78136E-01
26	-1.68923E+00	6.78192E-01
27	-1.68908E+00	6.78233E-01
28	-1.68893E+00	6.78261E-01
29	-1.68878E+00	6.78276E-01
30	-1.68863E+00	6.78284E-01
31	-1.68848E+00	6.78282E-01

SECTION NUMBER '12' = 4.0000

SECTION PROPERTIES	SECTION AREA	LOCATION OF CENTROID RELATIVE TO STACK AXIS	SECTION NUMBER '12' = 4.0000
SECTION AREA	4.3507E-01		
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR = 1.5621E-03 YBAR = 4.3085E-03		
SECOND MOMENTS OF AREA ABOUT CENTROID	IX = 4.0225E-02 IY = 2.1104E-01 IXY = -8.1977E-02		
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX = 7.3590E-03 (AT -21.85 DEGREES TO 'X' AXIS) IPY = 2.4670E-01 (AT -21.85 DEGREES TO 'Y' AXIS)		
TORSIONAL CONSTANT	J = 3.5964E-03		

SECTION COORDINATES	POINT NO	XS	YS	XP	YP
	1	-1.50934E+00	1.01434E+00	-1.51430E+00	1.00362E+00
	2	-1.46944E+00	9.7778E-02	-1.46822E+00	9.62369E-02
	3	-1.42347E+00	9.41561E-01	-1.444613E+00	9.23478E-01
	4	-1.38057E+00	9.05695E-01	-1.40996E+00	8.8092E-01
	5	-1.34074E+00	8.7221E-01	-1.37377E+00	8.40869E-01
	6	-1.30389E+00	8.35134E-01	-1.33754E+00	8.03876E-01
	7	-1.27113E+00	8.07450E-01	-1.30128E+00	7.61392E-01
	8	-1.23342E+00	7.66275E-01	-1.26489E+00	7.22394E-01
	9	-1.19179E+00	7.32598E-01	-1.22867E+00	6.85882E-01
	10	-1.15122E+00	6.99648E-01	-1.19231E+00	6.45879E-01

POINT NO	XS	YS	XP	YP
11	-1.11175E+00	6.66795E-01	-1.15591E+00	5.38410E-01
12	-1.07236E+00	6.34728E-01	-1.11947E+00	5.71468E-01
13	-1.03316E+00	6.03271E-01	-1.08297E+00	5.35090E-01
14	-9.93857E-01	5.72454E-01	-1.04642E+00	4.99338E-01
15	-9.54757E-01	5.42251E-01	-1.00980E+00	4.64251E-01
16	-9.15754E-01	5.12689E-01	-9.73108E-01	4.29821E-01
17	-8.76843E-01	4.83811E-01	-9.36330E-01	3.96026E-01
18	-8.37618E-01	4.55286E-01	-8.99374E-01	3.62536E-01
19	-7.98543E-01	4.27491E-01	-8.61713E-01	3.29833E-01
20	-7.59648E-01	4.00369E-01	-8.24368E-01	2.97858E-01
21	-7.20923E-01	3.74010E-01	-7.86997E-01	2.66708E-01
22	-6.82360E-01	3.48326E-01	-7.49605E-01	2.36258E-01
23	-6.43982E-01	3.23280E-01	-7.12393E-01	2.06583E-01
24	-6.05784E-01	2.98863E-01	-6.74761E-01	1.77629E-01
25	-5.67744E-01	2.75136E-01	-6.37315E-01	1.49363E-01
26	-5.29831E-01	2.52013E-01	-5.99856E-01	1.21804E-01
27	-4.92115E-01	2.29407E-01	-5.62388E-01	9.49485E-02
28	-4.54571E-01	2.07364E-01	-5.24912E-01	6.87793E-02
29	-4.17213E-01	1.85971E-01	-4.87432E-01	4.31932E-02
30	-3.80119E-01	1.65021E-01	-4.49950E-01	1.82595E-02
31	-3.43127E-01	1.44695E-01	-4.12464E-01	-5.99270E-03
32	-3.06237E-01	1.24344E-01	-3.74973E-01	-2.95386E-02
33	-2.69658E-01	1.04781E-01	-3.37478E-01	-5.24007E-02
34	-2.34314E-01	8.7737E-02	-3.01084E-01	-7.39084E-02
35	-1.99119E-01	7.03458E-02	-2.64690E-01	-9.47020E-02
36	-1.64773E-01	5.34905E-02	-2.28300E-01	-1.14754E-01
37	-1.29171E-01	3.71775E-02	-1.91524E-01	-1.34037E-01
38	-9.44188E-02	2.14394E-02	-1.55566E-01	-1.52550E-01
39	-5.97868E-02	6.27313E-03	-1.19243E-01	-1.70311E-01
40	-2.52933E-02	-8.29594E-03	-8.29573E-02	-1.87269E-01
41	9.37534E-03	-2.22930E-02	-4.67217E-02	-2.03390E-01
42	4.33286E-02	-3.57779E-02	-1.05473E-02	-2.18663E-01
43	7.74689E-02	-4.87338E-02	2.55537E-02	-2.33127E-01
44	1.11512E-01	-6.11704E-02	6.15669E-02	-2.46836E-01
45	1.45431E-01	-7.31922E-02	9.74803E-02	-2.59773E-01
46	1.79259E-01	-8.45863E-02	1.33280E-01	-2.71964E-01
47	2.12946E-01	-9.56374E-02	1.68953E-01	-2.83449E-01
48	2.46613E-01	-1.05257E-01	2.04485E-01	-2.94283E-01
49	2.80138E-01	-1.15467E-01	2.39865E-01	-3.04491E-01
50	3.13734E-01	-1.26346E-01	2.75428E-01	-3.14186E-01
51	3.47115E-01	-1.35797E-01	3.10883E-01	-3.23276E-01
52	3.80224E-01	-1.44786E-01	3.46221E-01	-3.31771E-01
53	4.13167E-01	-1.51268E-01	3.81833E-01	-3.39642E-01
54	4.45659E-01	-1.61189E-01	4.16510E-01	-3.46834E-01
55	4.78103E-01	-1.68569E-01	4.51447E-01	-3.53322E-01
56	5.10386E-01	-1.75416E-01	4.86237E-01	-3.59098E-01
57	5.41954E-01	-1.81613E-01	5.20879E-01	-3.64174E-01
58	5.73759E-01	-1.87308E-01	5.55364E-01	-3.68463E-01
59	6.04964E-01	-1.92241E-01	5.89683E-01	-3.71869E-01
60	6.35120E-01	-1.96431E-01	6.23817E-01	-3.74298E-01
61	6.67045E-01	-1.99825E-01	6.57422E-01	-3.75664E-01
62	6.97737E-01	-2.02353E-01	6.91432E-01	-3.75848E-01
63	7.28159E-01	-2.04079E-01	7.24857E-01	-3.74845E-01
64	7.58419E-01	-2.04844E-01	7.57984E-01	-3.72549E-01
65	7.88473E-01	-2.04733E-01	7.90782E-01	-3.68907E-01
66	8.20916E-01	-2.03309E-01	8.26119E-01	-3.63265E-01
67	8.53555E-01	-2.00722E-01	8.61418E-01	-3.55964E-01

POINT NO	XS	YS	XP	YP
69	9.06366E-01	-1.97047E-01	0.96674E-01	-3.47036E-01
69	9.19334E-01	-1.91963E-01	9.31861E-01	-3.36170E-01
70	9.52512E-01	-1.85172E-01	9.67043E-01	-3.23018E-01
71	9.85891E-01	-1.77150E-01	1.00217E+00	-3.08297E-01
72	1.01954E+00	-1.67594E-01	1.03723E+00	-2.91456E-01
73	1.05348E+00	-1.56474E-01	1.07230E+00	-2.72297E-01
74	1.08777E+00	-1.43216E-01	1.10750E+00	-2.50624E-01
75	1.12246E+00	-1.28413E-01	1.14269E+00	-2.27041E-01
76	1.15762E+00	-1.11729E-01	1.17796E+00	-2.00935E-01
77	1.19330E+00	-9.28691E-02	1.21338E+00	-1.72188E-01
78	1.22950E+00	-7.16875E-02	1.24899E+00	-1.40661E-01
79	1.26661E+00	-4.84599E-02	1.28485E+00	-1.07132E-01
80	1.30442E+00	-2.29289E-02	1.32103E+00	-7.06140E-02
81	1.34315E+00	5.49782E-03	1.35760E+00	-3.11560E-02

YSEMI

XSEMI

POINT NO	XSEMI	YSEMI
1	-1.51838E+00	1.03362E+00
2	-1.51808E+00	1.00410E+00
3	-1.51932E+00	1.03480E+00
4	-1.51970E+00	1.00546E+00
5	-1.52032E+00	1.00616E+00
6	-1.52027E+00	1.00689E+00
7	-1.52043E+00	1.00765E+00
8	-1.52059E+00	1.00842E+00
9	-1.52059E+00	1.00919E+00
10	-1.52059E+00	1.00997E+00
11	-1.52044E+00	1.01073E+00
12	-1.52025E+00	1.01147E+00
13	-1.52000E+00	1.01219E+00
14	-1.51966E+00	1.01287E+00
15	-1.51929E+00	1.01351E+00
16	-1.51885E+00	1.01409E+00
17	-1.51835E+00	1.01463E+00
18	-1.51780E+00	1.01510E+00
19	-1.51721E+00	1.01550E+00
20	-1.51658E+00	1.01583E+00
21	-1.51592E+00	1.01609E+00
22	-1.51524E+00	1.01627E+00
23	-1.51454E+00	1.01637E+00
24	-1.51384E+00	1.01639E+00
25	-1.51314E+00	1.01633E+00
26	-1.51244E+00	1.01618E+00
27	-1.51176E+00	1.01598E+00
28	-1.51111E+00	1.01566E+00
29	-1.51048E+00	1.01529E+00
30	-1.50989E+00	1.01489E+00
31	-1.50934E+00	1.01434E+00

SECTION NUMBER 5 '2' = 4.5000

SECTION PROPERTIES

SECTION AREA = 4.3104E-01

LOCATION OF CENTROID
 RELATIVE TO STACK AXIS
 XBAR = -6.9821E-03
 YBAR = 4.2225E-03

SECOND MOMENTS OF AREA
 ABOUT CENTROID
 IX = 5.9258E-02
 IY = 2.1181E-01
 IXY = -1.0537E-01

PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID
 IPX = 5.4513E-03 (AT -27.05 DEGREES TO 'X' AXIS)
 IPY = 2.6562E-01 (AT -27.05 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 3.3032E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.524 9E+00	1.165 2E+00	-1.53620E+00	1.15604E+00
2	-1.48710E+00	1.12557E+00	-1.49917E+00	1.11231E+00
3	-1.44624E+00	1.08629E+00	-1.46218E+00	1.06875E+00
4	-1.40554E+00	1.04725E+00	-1.42531E+00	1.02540E+00
5	-1.36513E+00	1.00841E+00	-1.38856E+00	9.82332E-01
6	-1.32484E+00	9.71077E-01	-1.35191E+00	9.39580E-01
7	-1.28462E+00	9.32028E-01	-1.31537E+00	8.97191E-01
8	-1.24449E+00	8.94436E-01	-1.27894E+00	8.55232E-01
9	-1.20442E+00	8.57325E-01	-1.24261E+00	8.13741E-01
10	-1.16441E+00	8.21696E-01	-1.20639E+00	7.72759E-01
11	-1.12447E+00	7.86598E-01	-1.17026E+00	7.32294E-01
12	-1.08467E+00	7.49091E-01	-1.13422E+00	6.92371E-01
13	-1.04497E+00	7.14186E-01	-1.09825E+00	6.53040E-01
14	-1.00537E+00	6.73677E-01	-1.06232E+00	6.14336E-01
15	-9.71686E-01	6.46154E-01	-1.02642E+00	5.76268E-01
16	-9.32835E-01	6.13060E-01	-9.90518E-01	5.38799E-01
17	-8.93999E-01	5.86207E-01	-9.54599E-01	5.01961E-01
18	-8.55139E-01	5.49246E-01	-9.17990E-01	4.65125E-01
19	-8.16413E-01	5.15469E-01	-8.81320E-01	4.28979E-01
20	-7.77726E-01	4.85294E-01	-8.44576E-01	3.93502E-01
21	-7.39121E-01	4.57522E-01	-8.07750E-01	3.58655E-01
22	-7.00582E-01	4.24466E-01	-7.70836E-01	3.24447E-01
23	-6.6213E-01	3.95859E-01	-7.33825E-01	2.90917E-01
24	-6.23681E-01	3.68844E-01	-6.96710E-01	2.58071E-01
25	-5.85313E-01	3.38753E-01	-6.59463E-01	2.25901E-01
26	-5.46985E-01	3.11307E-01	-6.22138E-01	1.94357E-01
27	-5.08713E-01	2.84510E-01	-5.84668E-01	1.63501E-01
28	-4.70468E-01	2.58338E-01	-5.47067E-01	1.33354E-01
29	-4.32232E-01	2.32787E-01	-5.09334E-01	1.03938E-01
30	-3.94191E-01	2.09417E-01	-4.71472E-01	7.52132E-02
31	-3.56132E-01	1.63162E-01	-4.33487E-01	4.71900E-02
32	-3.18181E-01	1.63162E-01	-3.95384E-01	1.99365E-02
33	-2.80117E-01	1.37137E-01	-3.57168E-01	-6.50582E-03
34	-2.43848E-01	1.16132E-01	-3.20221E-01	-3.12490E-03
35	-2.07446E-01	9.54187E-02	-2.83190E-01	-5.53096E-04

POINT NO	XS	YS	XP	YP
36	-1.71114E-01	7.53464E-02	-2.46107E-01	-7.86350E-02
37	-1.34824E-01	5.8649E-02	-2.08958E-01	-1.01213E-01
38	-9.85334E-02	3.69784E-02	-1.71758E-01	-1.23033E-01
39	-6.24419E-02	1.86194E-02	-1.34516E-01	-1.44115E-01
40	-2.63867E-02	6.25617E-04	-9.72416E-02	-1.64512E-01
41	9.61931E-03	-1.64013E-02	-5.99430E-02	-1.84216E-01
42	6.55467E-02	-3.33922E-02	-2.26296E-02	-2.03198E-01
43	8.13937E-02	-6.92515E-02	1.46893E-02	-2.21454E-01
44	1.17159E-01	-6.49797E-02	5.20042E-02	-2.39995E-01
45	1.52841E-01	-8.02237E-02	8.93355E-02	-2.59835E-01
46	1.88440E-01	-9.51143E-02	1.26564E-01	-2.72026E-01
47	2.23956E-01	-1.09385E-01	1.63834E-01	-2.87536E-01
48	2.59385E-01	-1.23354E-01	2.01048E-01	-3.02363E-01
49	2.94730E-01	-1.36962E-01	2.38221E-01	-3.16587E-01
50	3.30718E-01	-1.50502E-01	2.76194E-01	-3.30458E-01
51	3.66355E-01	-1.63659E-01	3.14117E-01	-3.43687E-01
52	4.02144E-01	-1.76463E-01	3.51984E-01	-3.56246E-01
53	4.37663E-01	-1.88965E-01	3.89792E-01	-3.68145E-01
54	4.72988E-01	-2.01973E-01	4.27535E-01	-3.79361E-01
55	5.08398E-01	-2.12681E-01	4.65208E-01	-3.89885E-01
56	5.43951E-01	-2.24039E-01	5.02805E-01	-3.99701E-01
57	5.77823E-01	-2.35871E-01	5.40320E-01	-4.08803E-01
58	6.12439E-01	-2.45731E-01	5.77742E-01	-4.17212E-01
59	6.46831E-01	-2.55952E-01	6.15062E-01	-4.24883E-01
60	6.80977E-01	-2.65687E-01	6.52265E-01	-4.31752E-01
61	7.14956E-01	-2.74921E-01	6.89332E-01	-4.37758E-01
62	7.48636E-01	-2.83682E-01	7.26237E-01	-4.42907E-01
63	7.82132E-01	-2.91983E-01	7.62952E-01	-4.47111E-01
64	8.15435E-01	-2.99746E-01	7.99442E-01	-4.50187E-01
65	8.48477E-01	-3.06996E-01	8.35672E-01	-4.52060E-01
66	8.82282E-01	-3.1383E-01	8.71069E-01	-4.52704E-01
67	9.15566E-01	-3.19700E-01	9.05892E-01	-4.51900E-01
68	9.48342E-01	-3.24522E-01	9.45320E-01	-4.49502E-01
69	9.80777E-01	-3.28388E-01	9.80468E-01	-4.45465E-01
70	1.01299E+00	-3.31311E-01	1.01592E+00	-4.39920E-01
71	1.04511E+00	-3.3324E-01	1.04929E+00	-4.32770E-01
72	1.07724E+00	-3.34269E-01	1.08336E+00	-4.23955E-01
73	1.10948E+00	-3.34413E-01	1.11732E+00	-4.13453E-01
74	1.14191E+00	-3.33686E-01	1.15128E+00	-4.01480E-01
75	1.17461E+00	-3.32033E-01	1.18527E+00	-3.87755E-01
76	1.20768E+00	-2.87968E-01	1.21931E+00	-3.72208E-01
77	1.24391E+00	-2.77422E-01	1.25340E+00	-3.54836E-01
78	1.27455E+00	-2.65482E-01	1.28749E+00	-3.35684E-01
79	1.30853E+00	-2.51764E-01	1.32155E+00	-3.14463E-01
80	1.34286E+00	-2.36445E-01	1.35552E+00	-2.91038E-01
81	1.37759E+00	-2.19328E-01	1.38943E+00	-2.65340E-01

POINT NO	XSEMI	YSEMI
1	-1.53628E+00	1.15604E+00
2	-1.53671E+00	1.15654E+00
3	-1.53748E+00	1.15709E+00
4	-1.53741E+00	1.15767E+00
5	-1.53767E+00	1.15828E+00
6	-1.53758E+00	1.15892E+00
7	-1.5382E+00	1.15958E+00
8	-1.53810E+00	1.16024E+00

POINT NO	XSEMI	YSEMI
9	-1.53811E+00	1.16091E+00
10	-1.53816E+00	1.16158E+00
11	-1.53794E+00	1.16223E+00
12	-1.53777E+00	1.16287E+00
13	-1.53753E+00	1.16348E+00
14	-1.53723E+00	1.16406E+00
15	-1.53687E+00	1.16459E+00
16	-1.53647E+00	1.16509E+00
17	-1.53612E+00	1.16553E+00
18	-1.53553E+00	1.16592E+00
19	-1.53513E+00	1.16625E+00
20	-1.53463E+00	1.16652E+00
21	-1.53385E+00	1.16672E+00
22	-1.53324E+00	1.16686E+00
23	-1.53263E+00	1.16692E+00
24	-1.53211E+00	1.16692E+00
25	-1.53139E+00	1.16684E+00
26	-1.53078E+00	1.16673E+00
27	-1.52999E+00	1.16649E+00
28	-1.52952E+00	1.16621E+00
29	-1.52917E+00	1.16587E+00
30	-1.52856E+00	1.16547E+00
31	-1.52819E+00	1.16502E+00

SECTION NUMBER 6 'Z' = 5.0000

SECTION PROPERTIES	SECTION AREA	LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	YBAR	IX	IY	IXY	IPX	IPY
			= 4.3221E-01	= 1.5261E-02	= 8.4456E-02	= 2.2484E-01	= -1.3333E-01	= 4.1485E-03 (AT -31.10 DEGREES TO 'X' AXIS)	= 3.0516E-01 (AT -31.10 DEGREES TO 'Y' AXIS)
		SEC'ND MOMENTS OF AREA ABOUT CENTROID							
		PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID							
		TORSIONAL CONSTANT							

SECTION COORDINATES	POINT NO	XS	YS	XP	YP
	1	-1.55321E+00	1.31097E+00	-1.56064E+00	1.30332E+00
	2	-1.51238E+00	1.27833E+00	-1.52410E+00	1.25838E+00
	3	-1.47258E+00	1.22971E+00	-1.48741E+00	1.21444E+00
	4	-1.43274E+00	1.18915E+00	-1.45060E+00	1.17039E+00
	5	-1.39243E+00	1.14864E+00	-1.41369E+00	1.12567E+00
	6	-1.35179E+00	1.10819E+00	-1.37674E+00	1.08137E+00
	7	-1.31082E+00	1.06787E+00	-1.33977E+00	1.03718E+00
	8	-1.26952E+00	1.02771E+00	-1.30280E+00	9.93133E-01
	9	-1.22914E+00	9.87721E-01	-1.26585E+00	9.49283E-01
	10	-1.18872E+00	9.47980E-01	-1.22891E+00	9.05661E-01

POINT NO	XS	YS	XP	YP
11	-1.16839E+00	9.08567E-01	-1.19196E+00	8.62325E-01
12	-1.10612E+00	8.69518E-01	-1.15500E+00	8.19355E-01
13	-1.36732E+00	8.30859E-01	-1.11801E+00	7.76810E-01
14	-1.8279E+00	7.92665E-01	-1.68098E+00	7.34689E-01
15	-9.87730E-01	7.55814E-01	-1.04390E+00	6.93064E-01
16	-9.47743E-01	7.17949E-01	-1.00675E+00	6.52001E-01
17	-9.07838E-01	6.81479E-01	-9.69522E-01	6.11565E-01
18	-8.67952E-01	6.45582E-01	-9.32178E-01	5.71747E-01
19	-8.28110E-01	6.11322E-01	-8.94719E-01	5.32522E-01
20	-7.88292E-01	5.75697E-01	-8.57153E-01	4.93924E-01
21	-7.48539E-01	5.41677E-01	-8.19488E-01	4.56093E-01
22	-7.08849E-01	5.08246E-01	-7.81729E-01	4.18759E-01
23	-6.69210E-01	4.75453E-01	-7.43881E-01	3.82157E-01
24	-6.29685E-01	4.43301E-01	-7.05951E-01	3.46191E-01
25	-5.90219E-01	4.11750E-01	-6.67942E-01	3.10907E-01
26	-5.50836E-01	3.80782E-01	-6.29856E-01	2.76315E-01
27	-5.11538E-01	3.50423E-01	-5.91695E-01	2.42382E-01
28	-4.72328E-01	3.20692E-01	-5.53462E-01	2.09092E-01
29	-4.33217E-01	2.91559E-01	-5.15157E-01	1.76472E-01
30	-3.94179E-01	2.63008E-01	-4.76782E-01	1.44548E-01
31	-3.55247E-01	2.35043E-01	-4.38337E-01	1.13302E-01
32	-3.16412E-01	2.07695E-01	-3.99823E-01	8.27153E-02
33	-2.77677E-01	1.80954E-01	-3.61242E-01	5.28007E-02
34	-2.40117E-01	1.54724E-01	-3.23968E-01	2.46107E-02
35	-2.03257E-01	1.30064E-01	-2.86648E-01	-2.91140E-02
36	-1.66136E-01	1.06922E-01	-2.49285E-01	-5.60141E-02
37	-1.29245E-01	8.3435E-02	-2.11883E-01	-8.15159E-02
38	-9.2333E-02	6.02199E-02	-1.74446E-01	-1.06552E-01
39	-5.56294E-02	3.74413E-02	-1.36978E-01	-1.30622E-01
40	-1.89765E-02	1.53103E-02	-9.94831E-02	-1.54436E-01
41	1.75739E-02	-5.5746E-03	-6.19670E-02	-1.77382E-01
42	5.40221E-02	-2.64667E-02	-2.44344E-02	-1.93721E-01
43	9.03684E-02	-4.68994E-02	1.31886E-02	-2.21407E-01
44	1.26615E-01	-6.57422E-02	5.06559E-02	-2.42434E-01
45	1.62769E-01	-8.61207E-02	8.25010E-02	-2.62806E-01
46	1.9834E-01	-1.08094E-01	1.25738E-01	-2.82527E-01
47	2.34016E-01	-1.23918E-01	1.63263E-01	-3.01654E-01
48	2.70721E-01	-1.41514E-01	2.00774E-01	-3.20151E-01
49	3.06553E-01	-1.59868E-01	2.38270E-01	-3.38661E-01
50	3.43823E-01	-1.78789E-01	2.77172E-01	-3.56518E-01
51	3.80578E-01	-1.94079E-01	3.16049E-01	-3.73669E-01
52	4.17423E-01	-2.10877E-01	3.54902E-01	-3.90159E-01
53	4.54352E-01	-2.27224E-01	3.93729E-01	-4.05937E-01
54	4.91379E-01	-2.43099E-01	4.32529E-01	-4.21014E-01
55	5.27513E-01	-2.58533E-01	4.71302E-01	-4.35375E-01
56	5.63713E-01	-2.73986E-01	5.10045E-01	-4.49028E-01
57	6.00064E-01	-2.8946E-01	5.46756E-01	-4.61932E-01
58	6.36311E-01	-3.0493E-01	5.87442E-01	-4.74116E-01
59	6.72777E-01	-3.2053E-01	6.26095E-01	-4.85558E-01
60	7.08569E-01	-3.28768E-01	6.64718E-01	-4.96205E-01
61	7.44594E-01	-3.43454E-01	7.03311E-01	-5.06059E-01
62	7.80561E-01	-3.52604E-01	7.41877E-01	-5.15151E-01
63	8.16451E-01	-3.65334E-01	7.80415E-01	-5.23458E-01
64	8.52356E-01	-3.76554E-01	8.18930E-01	-5.30892E-01
65	8.88187E-01	-3.87259E-01	8.57422E-01	-5.37999E-01
66	9.27317E-01	-3.98389E-01	8.99263E-01	-5.44138E-01
67	9.66634E-01	-4.08958E-01	9.41326E-01	-5.494138E-01

POINT NO	XS	YS	XP	YP
68	1.00674E+00	-4.18905E-01	9.83531E-01	-5.49197E-01
69	1.04561E+00	-4.28208E-01	1.02587E+00	-5.53082E-01
70	1.08533E+00	-4.36880E-01	1.06831E+00	-5.55811E-01
71	1.12509E+00	-4.44851E-01	1.11079E+00	-5.57290E-01
72	1.16494E+00	-4.52031E-01	1.15327E+00	-5.57362E-01
73	1.20482E+00	-4.58458E-01	1.19566E+00	-5.56029E-01
74	1.24467E+00	-4.64044E-01	1.23787E+00	-5.53206E-01
75	1.28449E+00	-4.68846E-01	1.27980E+00	-5.48683E-01
76	1.32416E+00	-4.72308E-01	1.32131E+00	-5.42477E-01
77	1.36364E+00	-4.74876E-01	1.36223E+00	-5.34434E-01
78	1.40294E+00	-4.76195E-01	1.40240E+00	-5.28395E-01
79	1.44209E+00	-4.76340E-01	1.44163E+00	-5.12710E-01
80	1.47883E+00	-4.75066E-01	1.47976E+00	-4.9816E-01
81	1.51611E+00	-4.72223E-01	1.51660E+00	-4.82739E-01

POINT NO	XSEMI	YSEMI
1	-1.56364E+00	1.30332E+00
2	-1.56199E+00	1.30376E+00
3	-1.56130E+00	1.30423E+00
4	-1.56156E+00	1.30474E+00
5	-1.56178E+00	1.30527E+00
6	-1.56193E+00	1.30583E+00
7	-1.56214E+00	1.30639E+00
8	-1.56229E+00	1.30697E+00
9	-1.56238E+00	1.30755E+00
10	-1.56241E+00	1.30812E+00
11	-1.56189E+00	1.30869E+00
12	-1.56171E+00	1.30923E+00
13	-1.56149E+00	1.30975E+00
14	-1.56121E+00	1.31025E+00
15	-1.56088E+00	1.31071E+00
16	-1.56052E+00	1.31113E+00
17	-1.56011E+00	1.31151E+00
18	-1.55967E+00	1.31184E+00
19	-1.55919E+00	1.31212E+00
20	-1.55870E+00	1.31234E+00
21	-1.55818E+00	1.31251E+00
22	-1.55765E+00	1.31262E+00
23	-1.55711E+00	1.31267E+00
24	-1.55657E+00	1.31266E+00
25	-1.55603E+00	1.31258E+00
26	-1.55551E+00	1.31245E+00
27	-1.55500E+00	1.31226E+00
28	-1.55451E+00	1.31202E+00
29	-1.55414E+00	1.31172E+00
30	-1.55361E+00	1.31137E+00
31	-1.55321E+00	1.31097E+00

SECTION NUMBER 7 'Z' F 5.5000

SECTION PROPERTIES

SECTION AREA = 4.1420E-01
 LOCATION OF CENTROID
 RELATIVE TO STACK AXIS XBAR = 9.4696E-13
 YBAR = -1.9512E-03
 SECOND MOMENTS OF AREA
 ABOUT CENTROID IX = 1.0976E-01
 IY = 2.0981E-01
 IXY = -1.4671E-01
 PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID IPX = 2.0963E-03 (AT -35.71 DEGREES TO 'X' AXIS)
 IPY = 3.1669E-01 (AT -35.71 DEGREES TO 'Y' AXIS)
 TORSIONAL CONSTANT = 2.4295E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.5232E+00	1.4434E+00	-1.5371E+00	1.4362E+00
2	-1.4495E+00	1.4013E+00	-1.5011E+00	1.3909E+00
3	-1.4571E+00	1.3591E+00	-1.4654E+00	1.3454E+00
4	-1.4123E+00	1.3167E+00	-1.4296E+00	1.2998E+00
5	-1.3729E+00	1.2742E+00	-1.3948E+00	1.2540E+00
6	-1.3349E+00	1.2317E+00	-1.3598E+00	1.2083E+00
7	-1.2976E+00	1.1893E+00	-1.3254E+00	1.1626E+00
8	-1.2635E+00	1.1471E+00	-1.2915E+00	1.1170E+00
9	-1.2276E+00	1.1052E+00	-1.2577E+00	1.0718E+00
10	-1.1859E+00	1.0636E+00	-1.2238E+00	1.0268E+00
11	-1.1438E+00	1.0224E+00	-1.1898E+00	9.8215E-01
12	-1.1103E+00	9.8167E-01	-1.1555E+00	9.3790E-01
13	-1.0739E+00	9.4247E-01	-1.1208E+00	8.9402E-01
14	-1.0357E+00	9.0298E-01	-1.0858E+00	8.5052E-01
15	-9.9717E-01	8.6357E-01	-1.0504E+00	8.0740E-01
16	-9.5836E-01	8.2417E-01	-1.0147E+00	7.6468E-01
17	-9.1942E-01	7.8315E-01	-9.7867E-01	7.2231E-01
18	-8.8199E-01	7.4518E-01	-9.4300E-01	6.8188E-01
19	-8.4267E-01	7.0723E-01	-9.0730E-01	6.4014E-01
20	-8.0421E-01	6.7147E-01	-8.7133E-01	5.9578E-01
21	-7.6572E-01	6.3312E-01	-8.3520E-01	5.5938E-01
22	-7.2723E-01	5.9651E-01	-7.9893E-01	5.1955E-01
23	-6.8974E-01	5.6335E-01	-7.6252E-01	4.8016E-01
24	-6.5325E-01	5.2465E-01	-7.2598E-01	4.4126E-01
25	-6.1177E-01	4.8353E-01	-6.8931E-01	4.0289E-01
26	-5.7329E-01	4.5466E-01	-6.5249E-01	3.6501E-01
27	-5.3481E-01	4.2057E-01	-6.1553E-01	3.2771E-01
28	-4.9633E-01	3.8696E-01	-5.7842E-01	2.9104E-01
29	-4.5785E-01	3.5388E-01	-5.4116E-01	2.5503E-01
30	-4.1937E-01	3.2165E-01	-5.0374E-01	2.1969E-01
31	-3.8190E-01	2.8996E-01	-4.6616E-01	1.8468E-01
32	-3.4242E-01	2.5884E-01	-4.2843E-01	1.5082E-01
33	-3.0395E-01	2.2834E-01	-3.9054E-01	1.1750E-01
34	-2.6547E-01	1.9930E-01	-3.5356E-01	8.5728E-02
35	-2.2913E-01	1.7182E-01	-3.1648E-01	5.4613E-02

POINT NO	XS	YS	XP	YP
36	-1.91732E-01	1.42843E-01	-2.79319E-01	2.41651E-02
37	-1.54328E-01	1.15290E-01	-2.42769E-01	-5.65232E-03
38	-1.16910E-01	8.82110E-02	-2.04737E-01	-3.44769E-02
39	-7.95325E-02	6.15787E-02	-1.67327E-01	-6.35947E-02
40	-4.21568E-02	3.53719E-02	-1.29342E-01	-9.17562E-02
41	-4.78463E-03	9.53983E-03	-9.22822E-02	-1.19375E-01
42	3.25753E-02	-1.53268E-02	-5.46501E-02	-1.46469E-01
43	6.99212E-02	-4.1135E-02	-1.69465E-02	-1.73075E-01
44	1.07252E-01	-6.57221E-02	2.88273E-02	-1.99216E-01
45	1.44569E-01	-9.07664E-02	5.86703E-02	-2.28863E-01
46	1.81859E-01	-1.14079E-01	9.65816E-02	-2.50821E-01
47	2.19132E-01	-1.37744E-01	1.34560E-01	-2.74695E-01
48	2.56344E-01	-1.61065E-01	1.72606E-01	-2.98912E-01
49	2.93613E-01	-1.84041E-01	2.10719E-01	-3.22655E-01
50	3.32582E-01	-2.07754E-01	2.50774E-01	-3.47040E-01
51	3.71490E-01	-2.31063E-01	2.90928E-01	-3.70873E-01
52	4.11374E-01	-2.53955E-01	3.31177E-01	-3.94129E-01
53	4.59252E-01	-2.76414E-01	3.71519E-01	-4.16787E-01
54	4.87725E-01	-2.99450E-01	4.11950E-01	-4.38816E-01
55	5.26324E-01	-3.23021E-01	4.52465E-01	-4.60182E-01
56	5.64849E-01	-3.41155E-01	4.93059E-01	-4.80886E-01
57	6.03372E-01	-3.61829E-01	5.33728E-01	-5.00872E-01
58	6.41694E-01	-3.82063E-01	5.74464E-01	-5.20154E-01
59	6.79998E-01	-4.01801E-01	6.15262E-01	-5.38693E-01
60	7.18265E-01	-4.21194E-01	6.56115E-01	-5.56484E-01
61	7.56429E-01	-4.39945E-01	6.97044E-01	-5.73478E-01
62	7.94551E-01	-4.58319E-01	7.37951E-01	-5.89710E-01
63	8.32614E-01	-4.76200E-01	7.78918E-01	-6.05142E-01
64	8.70620E-01	-4.93646E-01	8.19905E-01	-6.19732E-01
65	9.08572E-01	-5.13639E-01	8.60902E-01	-6.33495E-01
66	9.45473E-01	-5.26722E-01	9.00576E-01	-6.46039E-01
67	9.82488E-01	-5.42421E-01	9.40396E-01	-6.57632E-01
68	1.01952E+00	-5.57781E-01	9.80365E-01	-6.68041E-01
69	1.05688E+00	-5.72812E-01	1.02349E+00	-6.79142E-01
70	1.09428E+00	-5.87471E-01	1.06976E+00	-6.88638E-01
71	1.13181E+00	-6.01759E-01	1.10120E+00	-6.97347E-01
72	1.16949E+00	-6.15674E-01	1.14181E+00	-7.05225E-01
73	1.20733E+00	-6.29247E-01	1.18285E+00	-7.12279E-01
74	1.24534E+00	-6.42441E-01	1.22352E+00	-7.18492E-01
75	1.28352E+00	-6.55250E-01	1.26462E+00	-7.23883E-01
76	1.32199E+00	-6.67634E-01	1.30590E+00	-7.28158E-01
77	1.36075E+00	-6.79595E-01	1.34733E+00	-7.31530E-01
78	1.39923E+00	-6.91156E-01	1.38893E+00	-7.33921E-01
79	1.43822E+00	-7.02247E-01	1.43068E+00	-7.35239E-01
80	1.47755E+00	-7.12836E-01	1.47257E+00	-7.35414E-01
81	1.51693E+00	-7.22889E-01	1.51459E+00	-7.34377E-01

POINT NO	ASEMI	YSEMI
1	-1.53719E+00	1.43622E+00
2	-1.53754E+00	1.43665E+00
3	-1.53784E+00	1.43713E+00
4	-1.53818E+00	1.43763E+00
5	-1.53827E+00	1.43815E+00
6	-1.53841E+00	1.43870E+00
7	-1.53848E+00	1.43925E+00
8	-1.53853E+00	1.43982E+00

POINT NO	XS	YS	XP	YP
11	-1.12488E+00	1.12025E+00	-1.16919E+00	1.08511E+00
12	-1.33170E+00	1.07693E+00	-1.13434E+00	1.03894E+00
13	-1.15254E+00	1.03378E+00	-1.09888E+00	9.92950E-01
14	-1.01474E+00	9.99902E-01	-1.06376E+00	9.47185E-01
15	-9.77222E-01	9.49359E-01	-1.02870E+00	9.01724E-01
16	-9.39494E-01	9.06153E-01	-9.93720E-01	8.56649E-01
17	-9.02135E-01	8.64473E-01	-9.58790E-01	8.11997E-01
18	-8.66179E-01	8.24654E-01	-9.25120E-01	7.69322E-01
19	-8.32466E-01	7.82838E-01	-8.91432E-01	7.27116E-01
20	-7.99290E-01	7.43386E-01	-8.57681E-01	6.85394E-01
21	-7.68272E-01	7.07952E-01	-8.23826E-01	6.44167E-01
22	-7.22160E-01	6.70099E-01	-7.89831E-01	6.03377E-01
23	-6.85929E-01	6.32544E-01	-7.55666E-01	5.63080E-01
24	-6.49567E-01	5.95541E-01	-7.21307E-01	5.23297E-01
25	-6.13774E-01	5.58954E-01	-6.86742E-01	4.84026E-01
26	-5.78453E-01	5.22816E-01	-6.51967E-01	4.45223E-01
27	-5.43717E-01	4.87109E-01	-6.16985E-01	4.06882E-01
28	-5.08833E-01	4.51870E-01	-5.81804E-01	3.68025E-01
29	-4.74899E-01	4.15811E-01	-5.46375E-01	3.31640E-01
30	-4.42937E-01	3.82192E-01	-5.10899E-01	2.94694E-01
31	-4.11919E-01	3.47921E-01	-4.75208E-01	2.58142E-01
32	-3.81962E-01	3.13968E-01	-4.39381E-01	2.22005E-01
33	-3.52962E-01	2.80285E-01	-4.03434E-01	1.86277E-01
34	-3.24962E-01	2.47381E-01	-3.67866E-01	1.51441E-01
35	-2.96962E-01	2.16825E-01	-3.32213E-01	1.16901E-01
36	-2.68962E-01	1.82635E-01	-2.96480E-01	8.27838E-02
37	-2.40962E-01	1.51788E-01	-2.60669E-01	4.90879E-02
38	-2.12962E-01	1.19311E-01	-2.24779E-01	1.58295E-02
39	-1.84962E-01	8.82430E-02	-1.88810E-01	-1.89975E-02
40	-1.56962E-01	5.75924E-02	-1.52761E-01	-4.93946E-02
41	-1.28962E-01	2.73441E-02	-1.16631E-01	-8.13110E-02
42	-1.00962E-01	-2.53042E-03	-8.04191E-02	-1.12736E-01
43	-7.8958E-02	-3.19990E-02	-4.41254E-02	-1.43672E-01
44	-5.8093E-02	-6.13580E-02	-7.74981E-03	-1.74151E-01
45	-3.8353E-01	-8.97270E-02	-2.87071E-02	-2.04154E-01
46	-1.8432E-01	-1.18053E-01	6.52445E-02	-2.33660E-01
47	1.90561E-01	-1.48061E-01	1.01861E-01	-2.82682E-01
48	2.26829E-01	-1.73743E-01	1.30555E-01	-2.91249E-01
49	2.63111E-01	-2.01115E-01	1.75323E-01	-3.19405E-01
50	3.01240E-01	-2.29504E-01	2.16047E-01	-3.49524E-01
51	3.39353E-01	-2.57853E-01	2.52874E-01	-3.77169E-01
52	3.77442E-01	-2.85813E-01	2.81806E-01	-4.05357E-01
53	4.15497E-01	-3.13505E-01	3.00845E-01	-4.33140E-01
54	4.53511E-01	-3.41974E-01	3.69993E-01	-4.60453E-01
55	4.91476E-01	-3.68193E-01	4.09252E-01	-4.87289E-01
56	5.29316E-01	-3.95128E-01	4.48623E-01	-5.13682E-01
57	5.67236E-01	-4.21816E-01	4.88108E-01	-5.39607E-01
58	6.05211E-01	-4.48252E-01	5.27709E-01	-5.65007E-01
59	6.42388E-01	-4.73805E-01	5.67424E-01	-5.89302E-01
60	6.80383E-01	-5.01177E-01	6.07265E-01	-6.14280E-01
61	7.17955E-01	-5.25768E-01	6.47222E-01	-6.38071E-01
62	7.55454E-01	-5.53880E-01	6.87298E-01	-6.61247E-01
63	7.92831E-01	-5.75653E-01	7.27495E-01	-6.83834E-01
64	8.30385E-01	-6.03038E-01	7.67811E-01	-7.05743E-01
65	8.67924E-01	-6.28032E-01	8.08246E-01	-7.26909E-01
66	9.01912E-01	-6.45794E-01	8.45691E-01	-7.45818E-01
67	9.36282E-01	-6.67192E-01	8.83177E-01	-7.64067E-01

POINT NO	XS	YS	XP	YP
68	9.75639E-01	-6.88244E-01	9.20702E-01	-7.81640E-01
69	1.80499E+00	-7.08981E-01	9.58265E-01	-7.98533E-01
70	1.03933E+00	-7.23449E-01	9.95864E-01	-8.14755E-01
71	1.07367E+00	-7.49653E-01	1.03350E+00	-8.30343E-01
72	1.10810E+00	-7.69501E-01	1.07116E+00	-8.45304E-01
73	1.14234E+00	-7.89321E-01	1.10886E+00	-8.59625E-01
74	1.17667E+00	-8.08841E-01	1.14660E+00	-8.73315E-01
75	1.21138E+00	-8.28198E-01	1.18438E+00	-8.86393E-01
76	1.24532E+00	-8.47433E-01	1.22220E+00	-8.98896E-01
77	1.27964E+00	-8.66565E-01	1.26007E+00	-9.10847E-01
78	1.31334E+00	-8.85621E-01	1.29799E+00	-9.22249E-01
79	1.34823E+00	-9.04635E-01	1.33598E+00	-9.33125E-01
80	1.38248E+00	-9.23643E-01	1.37404E+00	-9.43502E-01
81	1.41671E+00	-9.42677E-01	1.41219E+00	-9.53405E-01

POINT NO	XSEMI	YSEMI
1	-1.49846E+00	1.54036E+00
2	-1.49875E+00	1.54061E+00
3	-1.49900E+00	1.54129E+00
4	-1.49920E+00	1.54180E+00
5	-1.49936E+00	1.54233E+00
6	-1.49946E+00	1.54289E+00
7	-1.49952E+00	1.54346E+00
8	-1.49953E+00	1.54403E+00
9	-1.49948E+00	1.54461E+00
10	-1.49938E+00	1.54518E+00
11	-1.49923E+00	1.54574E+00
12	-1.49914E+00	1.54628E+00
13	-1.49880E+00	1.54680E+00
14	-1.49851E+00	1.54728E+00
15	-1.49819E+00	1.54774E+00
16	-1.49782E+00	1.54815E+00
17	-1.49743E+00	1.54852E+00
18	-1.49701E+00	1.54883E+00
19	-1.49656E+00	1.54910E+00
20	-1.49618E+00	1.54931E+00
21	-1.49559E+00	1.54947E+00
22	-1.49519E+00	1.54957E+00
23	-1.49459E+00	1.54960E+00
24	-1.49419E+00	1.54958E+00
25	-1.49350E+00	1.54949E+00
26	-1.49312E+00	1.54935E+00
27	-1.49267E+00	1.54915E+00
28	-1.49223E+00	1.54889E+00
29	-1.49182E+00	1.54858E+00
30	-1.49145E+00	1.54823E+00
31	-1.49111E+00	1.54782E+00

SECTION NUMBER 9 'Z' = 6.5030

SECTION PROPERTIES SECTION AREA = 3.5816E-01
 LOCATION OF CENTROID XBAR = 1.8416E-03
 RELATIVE TO STACK AXIS YBAR = -9.6987E-03
 SECOND MOMENTS OF AREA IX = 1.4996E-01
 ABOUT CENTROID IY = 1.5472E-01
 IXY = -1.5132E-01
 PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID IPX = 9.3916E-04 (AT -44.55 DEGREES TO 'X' AXIS)
 IPY = 3.3369E-01 (AT -44.55 DEGREES TO 'Y' AXIS)
 TORSIONAL CONSTANT = 1.4366E-03

SECTION COORDINATES

POINT NO	X	Y	XP	YP
1	-1.4334E+00	1.6463E+00	-1.4429E+00	1.6391E+00
2	-1.2993E+00	1.6750E+00	-1.4311E+00	1.5955E+00
3	-1.3651E+00	1.5637E+00	-1.3792E+00	1.5513E+00
4	-1.3333E+00	1.5205E+00	-1.3472E+00	1.5065E+00
5	-1.2954E+00	1.6775E+00	-1.3151E+00	1.4613E+00
6	-1.2634E+00	1.6421E+00	-1.2830E+00	1.4157E+00
7	-1.2254E+00	1.3905E+00	-1.2509E+00	1.3697E+00
8	-1.1934E+00	1.3465E+00	-1.2187E+00	1.3234E+00
9	-1.1554E+00	1.3128E+00	-1.1865E+00	1.2769E+00
10	-1.1202E+00	1.2791E+00	-1.1542E+00	1.2303E+00
11	-1.0815E+00	1.2437E+00	-1.1219E+00	1.1834E+00
12	-1.0402E+00	1.1982E+00	-1.0896E+00	1.1365E+00
13	-1.0147E+00	1.1645E+00	-1.0571E+00	1.0897E+00
14	-0.7944E+00	1.0808E+00	-1.0248E+00	1.0430E+00
15	-0.4434E+00	1.0159E+00	-0.9107E+00	0.9642E+00
16	-0.0857E+00	0.9195E+00	-0.5901E+00	0.5167E+00
17	-0.7296E-01	0.4832E-01	-0.2597E-01	0.0401E-01
18	-0.3978E-01	0.8716E-01	-0.9438E-01	0.6393E-01
19	-0.5493E-01	0.6634E-01	-0.6261E-01	0.3737E-01
20	-0.7371E-01	0.2386E-01	-0.3065E-01	0.7457E-01
21	-0.3641E-01	0.8270E-01	-0.8532E-01	0.3214E-01
22	-0.0234E-01	0.4387E-01	-0.7662E-01	0.9008E-01
23	-0.6761E-01	0.6490E-01	-0.3383E-01	0.4837E-01
24	-0.3312E-01	0.6728E-01	-0.8121E-01	0.0703E-01
25	-0.9458E-01	0.2072E-01	-0.6450E-01	0.5607E-01
26	-0.4117E-01	0.5186E-01	-0.3567E-01	0.2551E-01
27	-0.2942E-01	0.5194E-01	-0.6272E-01	0.8533E-01
28	-0.9483E-01	0.1482E-01	-0.5697E-01	0.4454E-01
29	-0.6116E-01	0.7674E-01	-0.3651E-01	0.0602E-01
30	-0.2551E-01	0.3380E-01	-0.0326E-01	0.5695E-01
31	-0.8221E-01	0.0289E-01	-0.6931E-01	0.2825E-01
32	-0.5611E-01	0.6454E-01	-0.4366E-01	0.0994E-01
33	-0.2134E-01	0.3366E-01	-0.0291E-01	0.5198E-01
34	-0.8665E-01	0.4469E-01	-0.6933E-01	0.1449E-01
35	-0.5197E-01	0.1355E-01	-0.3566E-01	0.1774E-01

POINT NO	ES	YS	XP	YP
36	-2.17243E-01	2.24313E-01	-3.01874E-01	1.40711E-01
37	-1.02408E-01	1.03611E-01	-2.67983E-01	1.04387E-01
38	-1.47714E-01	1.52522E-01	-2.33986E-01	6.84315E-02
39	-1.12924E-01	1.22103E-01	-1.99887E-01	1.28622E-02
40	-7.61217E-02	8.76326E-02	-1.65686E-01	-2.29795E-03
41	-5.3342E-02	5.3723E-02	-1.31307E-01	-3.70846E-02
42	-8.49167E-03	2.0444E-02	-9.69999E-02	-7.14916E-02
43	2.63234E-02	-1.13836E-02	-6.25022E-02	-1.05335E-01
44	6.11448E-02	-6.63229E-02	-2.79257E-02	-1.39193E-01
45	9.59547E-02	-7.67671E-02	6.73050E-03	-1.72455E-01
46	1.33754E-01	-1.03726E-01	4.14035E-02	-2.05357E-01
47	1.69541E-01	-1.41374E-01	7.63075E-02	-2.37883E-01
48	2.03117E-01	-1.71741E-01	1.11256E-01	-2.70046E-01
49	2.35361E-01	-2.02836E-01	1.46178E-01	-3.01827E-01
50	2.71416E-01	-2.35075E-01	1.82845E-01	-3.34674E-01
51	1.47733E-01	-2.64992E-01	2.19565E-01	-3.67144E-01
52	1.44131E-01	-2.98627E-01	2.56402E-01	-3.99201E-01
53	1.83276E-01	-3.29993E-01	2.93295E-01	-4.30862E-01
54	4.16522E-01	-3.01673E-01	1.30267E-01	-4.62065E-01
55	4.9273E-01	-3.91648E-01	1.67319E-01	-4.92891E-01
56	4.88647E-01	-4.2240E-01	4.84453E-01	-5.23283E-01
57	5.24922E-01	-4.52735E-01	6.41671E-01	-5.53246E-01
58	5.61777E-01	-4.82753E-01	6.78973E-01	-5.82795E-01
59	5.96942E-01	-5.12565E-01	5.46365E-01	-6.11917E-01
60	6.3241E-01	-5.42190E-01	5.53237E-01	-6.40538E-01
61	6.68632E-01	-5.71591E-01	5.91421E-01	-6.68821E-01
62	7.0444E-01	-6.01777E-01	6.29352E-01	-6.96647E-01
63	7.40139E-01	-6.27775E-01	6.66793E-01	-7.24014E-01
64	7.75695E-01	-6.54631E-01	7.04623E-01	-7.50923E-01
65	8.1121E-01	-6.8224E-01	7.42542E-01	-7.77395E-01
66	8.46370E-01	-7.10335E-01	7.80352E-01	-8.03922E-01
67	8.80855E-01	-7.38753E-01	8.17575E-01	-8.28322E-01
68	9.15495E-01	-7.77931E-01	8.56194E-01	-8.53092E-01
69	9.50132E-01	-8.14569E-01	8.92807E-01	-8.77431E-01
70	9.84975E-01	-8.2689E-01	9.30647E-01	-9.01350E-01
71	1.01889E+00	-8.53523E-01	9.68484E-01	-9.24826E-01
72	1.05149E+00	-8.80161E-01	1.00640E+00	-9.47860E-01
73	1.08734E+00	-9.08166E-01	1.04442E+00	-9.70447E-01
74	1.12172E+00	-9.35448E-01	1.08247E+00	-9.92613E-01
75	1.15377E+00	-9.62993E-01	1.12063E+00	-1.01434E+00
76	1.18918E+00	-9.89702E-01	1.15887E+00	-1.03562E+00
77	1.22318E+00	-1.01816E+00	1.19719E+00	-1.05643E+00
78	1.25698E+00	-1.04461E+00	1.23560E+00	-1.07681E+00
79	1.29352E+00	-1.07114E+00	1.27419E+00	-1.09674E+00
80	1.32471E+00	-1.09826E+00	1.31260E+00	-1.11618E+00
81	1.35742E+00	-1.12519E+00	1.35134E+00	-1.13512E+00

POINT NO	XSEMI	YSEMI
1	-1.44238E+00	1.63913E+00
2	-1.44131E+00	1.63959E+00
3	-1.44158E+00	1.64009E+00
4	-1.44177E+00	1.64051E+00
5	-1.44188E+00	1.64084E+00
6	-1.44194E+00	1.64118E+00
7	-1.44197E+00	1.64173E+00
8	-1.44198E+00	1.64231E+00

POINT NO	XSEMI	YSEMI
9	-1.44434E+00	1.64347E+00
10	-1.44332E+00	1.64405E+00
11	-1.44373E+00	1.64461E+00
12	-1.44349E+00	1.64515E+00
13	-1.44320E+00	1.64566E+00
14	-1.44266E+00	1.64614E+00
15	-1.44247E+00	1.64658E+00
16	-1.44214E+00	1.64699E+00
17	-1.44158E+00	1.64734E+00
18	-1.44118E+00	1.64765E+00
19	-1.44102E+00	1.64790E+00
20	-1.43946E+00	1.64823E+00
21	-1.43890E+00	1.64831E+00
22	-1.43833E+00	1.64832E+00
23	-1.43777E+00	1.64828E+00
24	-1.43722E+00	1.64817E+00
25	-1.43668E+00	1.64809E+00
26	-1.43617E+00	1.64798E+00
27	-1.43564E+00	1.64751E+00
28	-1.43523E+00	1.64718E+00
29	-1.43432E+00	1.64680E+00
30	-1.43344E+00	1.64638E+00
31	-1.43245E+00	1.64638E+00

SECTION NUMBER 1J 'Z' = 7.0000

SECTION PROPERTIES

SECTION AREA = 3.3118E-01

LOCATION OF CENTROID
 RELATIVE TO STACK AXIS XBAR = 6.1180E-03
 YBAR = -1.2476E-02

SECOND MOMENTS OF AREA
 ABOUT CENTROID IX = 1.6245E-01
 IY = 1.2883E-01
 IXY = -1.4404E-01

PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID IPX = 2.3066E-01 (AT 41.67 DEGREES TO 'X' AXIS)
 IPY = 6.1773E-04 (AT 41.67 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 1.1011E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.3637E+00	1.73072E+00	-1.37171E+00	1.72382E+00
2	-1.33170E+00	1.69966E+00	-1.34183E+00	1.68069E+00
3	-1.29822E+00	1.64780E+00	-1.31191E+00	1.63717E+00
4	-1.26565E+00	1.61529E+00	-1.28191E+00	1.59278E+00
5	-1.23297E+00	1.58229E+00	-1.25184E+00	1.54782E+00
6	-1.20149E+00	1.51873E+00	-1.22170E+00	1.50240E+00
7	-1.16731E+00	1.47474E+00	-1.19146E+00	1.45653E+00
8	-1.13432E+00	1.43037E+00	-1.16113E+00	1.41025E+00
9	-1.10122E+00	1.38570E+00	-1.13070E+00	1.36365E+00
10	-1.06812E+00	1.34076E+00	-1.10016E+00	1.31679E+00

POINT NO	K5	Y5	XP	YP
11	-1.33472E+00	1.29559E+00	-1.06950E+00	1.26972E+00
12	-1.00111E+00	1.25020E+00	-1.03872E+00	1.22247E+00
13	-3.67814E-01	1.21488E+00	-1.00782E+00	1.17513E+00
14	-9.36271E-01	1.15943E+00	-9.78786E-01	1.12774E+00
15	-3.03518E-01	1.11399E+00	-9.45622E-01	1.08035E+00
16	-8.66751E-01	1.06862E+00	-9.14323E-01	1.03303E+00
17	-3.32877E-01	1.02335E+00	-8.82889E-01	9.85822E-01
18	-8.01122E-01	9.8119E-01	-8.51252E-01	9.48636E-01
19	-7.69546E-01	9.38834E-01	-9.23491E-01	9.97619E-01
20	-7.37199E-01	8.96833E-01	-7.91808E-01	9.53770E-01
21	-7.0512E-01	8.55083E-01	-7.63695E-01	9.10134E-01
22	-6.72928E-01	8.13389E-01	-7.35482E-01	7.66737E-01
23	-6.40751E-01	7.72014E-01	-7.07243E-01	7.23563E-01
24	-6.08545E-01	7.30979E-01	-6.72888E-01	6.80653E-01
25	-5.76294E-01	6.91068E-01	-6.42418E-01	6.38032E-01
26	-5.43942E-01	6.4954E-01	-6.14836E-01	5.95720E-01
27	-5.11643E-01	6.09234E-01	-5.81148E-01	5.53738E-01
28	-4.79271E-01	5.69292E-01	-5.50333E-01	5.12078E-01
29	-4.46693E-01	5.29694E-01	-5.19416E-01	4.70757E-01
30	-4.14045E-01	4.91462E-01	-4.88389E-01	4.29811E-01
31	-3.81344E-01	4.54588E-01	-4.57255E-01	3.89256E-01
32	-3.49518E-01	4.19048E-01	-4.26314E-01	3.49111E-01
33	-3.17119E-01	3.7913E-01	-3.94666E-01	3.09381E-01
34	-2.84353E-01	3.3734E-01	-3.63375E-01	2.70235E-01
35	-2.52278E-01	3.00179E-01	-3.3298E-01	2.3159E-01
36	-2.19957E-01	2.63329E-01	-3.03510E-01	1.93184E-01
37	-1.87472E-01	2.26774E-01	-2.76945E-01	1.55259E-01
38	-1.54975E-01	1.93544E-01	-2.52295E-01	1.17727E-01
39	-1.22515E-01	1.54613E-01	-2.29564E-01	8.05234E-02
40	-9.0131E-02	1.19978E-01	-1.73757E-01	4.36581E-02
41	-5.75191E-02	8.35148E-02	-1.41876E-01	7.13962E-03
42	-2.5111E-02	4.84895E-02	-1.0925E-01	-2.90470E-02
43	7.51257E-03	1.35899E-02	-7.9176E-02	-5.49085E-02
44	4.11210E-02	-2.1734E-02	-4.58267E-02	-1.03476E-01
45	7.25398E-02	-5.52126E-02	-1.36858E-02	-1.89775E-01
46	1.25345E-01	-8.9745E-02	1.85118E-02	-1.70795E-01
47	1.37564E-01	-1.23792E-01	5.07628E-02	-2.05540E-01
48	1.70365E-01	-1.57631E-01	8.30642E-02	-2.40019E-01
49	2.0256E-01	-1.9141E-01	1.15413E-01	-2.74253E-01
50	2.35372E-01	-2.26355E-01	1.49175E-01	-3.09701E-01
51	2.71194E-01	-2.61113E-01	1.82996E-01	-3.44918E-01
52	3.0380E-01	-2.93745E-01	2.16874E-01	-3.79644E-01
53	3.3764E-01	-3.3094E-01	2.50506E-01	-4.14496E-01
54	3.71359E-01	-3.64268E-01	2.84792E-01	-4.48885E-01
55	4.04975E-01	-3.9325E-01	3.18835E-01	-4.82991E-01
56	4.38574E-01	-4.31968E-01	3.52937E-01	-5.15773E-01
57	4.7138E-01	-4.65524E-01	3.87098E-01	-5.50211E-01
58	5.05376E-01	-4.98851E-01	4.21321E-01	-5.83324E-01
59	5.38693E-01	-5.31947E-01	4.55686E-01	-6.16105E-01
60	5.71898E-01	-5.64846E-01	4.89555E-01	-6.48507E-01
61	6.0507E-01	-5.97542E-01	5.24369E-01	-6.81509E-01
62	6.37913E-01	-6.31014E-01	5.68848E-01	-7.12127E-01
63	6.71872E-01	-6.62274E-01	5.93393E-01	-7.43362E-01
64	7.03634E-01	-6.94227E-01	6.28004E-01	-7.74165E-01
65	7.36263E-01	-7.26039E-01	6.62683E-01	-8.04513E-01
66	7.73412E-01	-7.59584E-01	6.99658E-01	-8.35323E-01
67	8.05211E-01	-7.92910E-01	7.36698E-01	-8.67668E-01

POINT NO	XS	YS	XP	YP
68	8.3956E+01	-8.26089E-01	7.73039E-01	-8.96508E-01
69	8.73728E+01	-8.59130E-01	8.10992E-01	-9.28060E-01
70	9.07750E+01	-8.92033E-01	8.46251E-01	-9.59613E-01
71	9.41698E+01	-9.24668E-01	8.85594E-01	-9.88326E-01
72	9.75650E+01	-9.57669E-01	9.23025E-01	-1.01741E+00
73	1.00912E+00	-9.91420E-01	9.60549E-01	-1.04612E+00
74	1.04261E+00	-1.02319E+00	9.98174E-01	-1.07447E+00
75	1.07535E+00	-1.05631E+00	1.03591E+00	-1.10244E+00
76	1.10913E+00	-1.08899E+00	1.07375E+00	-1.13009E+00
77	1.14214E+00	-1.12185E+00	1.11172E+00	-1.15743E+00
78	1.17498E+00	-1.15495E+00	1.14903E+00	-1.18446E+00
79	1.20763E+00	-1.18822E+00	1.18608E+00	-1.21122E+00
80	1.24109E+00	-1.22167E+00	1.22648E+00	-1.23771E+00
81	1.27234E+00	-1.25534E+00	1.26504E+00	-1.26394E+00

POINT NO	XSEMI	YSEMI
1	-1.37171E+00	1.72382E+00
2	-1.37211E+00	1.72420E+00
3	-1.37227E+00	1.72477E+00
4	-1.37247E+00	1.72529E+00
5	-1.37262E+00	1.72564E+00
6	-1.37271E+00	1.72639E+00
7	-1.37274E+00	1.72696E+00
8	-1.37271E+00	1.72753E+00
9	-1.37263E+00	1.72810E+00
10	-1.37246E+00	1.72866E+00
11	-1.37228E+00	1.72920E+00
12	-1.37213E+00	1.72973E+00
13	-1.37173E+00	1.73022E+00
14	-1.37138E+00	1.73069E+00
15	-1.37098E+00	1.73111E+00
16	-1.37055E+00	1.73150E+00
17	-1.37008E+00	1.73183E+00
18	-1.36958E+00	1.73212E+00
19	-1.36905E+00	1.73236E+00
20	-1.36852E+00	1.73254E+00
21	-1.36796E+00	1.73266E+00
22	-1.36741E+00	1.73272E+00
23	-1.36685E+00	1.73272E+00
24	-1.36629E+00	1.73266E+00
25	-1.36575E+00	1.73255E+00
26	-1.36523E+00	1.73237E+00
27	-1.36473E+00	1.73214E+00
28	-1.36426E+00	1.73186E+00
29	-1.36382E+00	1.73153E+00
30	-1.36343E+00	1.73115E+00
31	-1.36307E+00	1.73072E+00

SECTION NUMBER 11 17' E 7.510J

SECTION PROPERTIES

SECTION AREA = 3.3416E-01
 LOCATION OF CENTROID
 RELATIVE TO STACK AXIS XBAR = 6.9938E-04
 YBAR = -9.3229E-03
 SECOND MOMENTS OF AREA
 ABOUT CENTROID IX = 1.6673E-01
 IY = 1.0130E-01
 IXY = -1.2958E-01
 PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID IPX = 2.9765E-01 (AT 37.91 DEGREES TO 'X' AXIS)
 IPY = 3.7215E-04 (AT 37.91 DEGREES TO 'Y' AXIS)
 TORSIONAL CONSTANT = 6.5302E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.27311E+00	1.73426E+00	-1.28174E+00	1.78785E+00
2	-1.26317E+00	1.75381E+00	-1.25434E+00	1.74589E+00
3	-1.21292E+00	1.71234E+00	-1.22627E+00	1.70285E+00
4	-1.18265E+00	1.67014E+00	-1.19843E+00	1.65902E+00
5	-1.15226E+00	1.62722E+00	-1.17050E+00	1.61446E+00
6	-1.12174E+00	1.58364E+00	-1.14247E+00	1.56930E+00
7	-1.09111E+00	1.53942E+00	-1.11434E+00	1.52351E+00
8	-1.06036E+00	1.49469E+00	-1.08611E+00	1.47716E+00
9	-1.02949E+00	1.44952E+00	-1.05776E+00	1.43037E+00
10	-9.98511E-01	1.40392E+00	-1.02930E+00	1.38319E+00
11	-9.67419E-01	1.35797E+00	-1.00071E+00	1.33563E+00
12	-9.3221E-01	1.31177E+00	-9.72005E-01	1.23740E+00
13	-9.04319E-01	1.26535E+00	-9.43169E-01	1.23976E+00
14	-8.73519E-01	1.21878E+00	-9.14203E-01	1.19157E+00
15	-8.42027E-01	1.17212E+00	-8.85106E-01	1.14329E+00
16	-8.10447E-01	1.12544E+00	-8.55875E-01	1.09496E+00
17	-7.78749E-01	1.07880E+00	-8.26510E-01	1.04658E+00
18	-7.49184E-01	1.03538E+00	-7.99384E-01	1.00172E+00
19	-7.19512E-01	9.92063E-01	-7.71384E-01	9.56868E-01
20	-6.89775E-01	9.49847E-01	-7.43651E-01	9.12142E-01
21	-6.59976E-01	9.05767E-01	-7.15806E-01	8.67568E-01
22	-6.30116E-01	8.62844E-01	-6.87849E-01	8.23129E-01
23	-6.00211E-01	8.21095E-01	-6.59782E-01	7.78880E-01
24	-5.70234E-01	7.77536E-01	-6.31605E-01	7.34835E-01
25	-5.40219E-01	7.35163E-01	-6.03319E-01	6.9102E-01
26	-5.10156E-01	6.93012E-01	-5.74926E-01	6.47428E-01
27	-4.80068E-01	6.51118E-01	-5.46427E-01	6.04079E-01
28	-4.49924E-01	6.09478E-01	-5.17824E-01	5.60987E-01
29	-4.19756E-01	5.68114E-01	-4.89118E-01	5.18212E-01
30	-3.89546E-01	5.27028E-01	-4.60342E-01	4.75739E-01
31	-3.59341E-01	4.86231E-01	-4.31456E-01	4.33597E-01
32	-3.29122E-01	4.45778E-01	-4.02402E-01	3.91783E-01
33	-2.98848E-01	4.05674E-01	-3.73304E-01	3.50310E-01
34	-2.68292E-01	3.65816E-01	-3.44011E-01	3.10191E-01

POINT NO	XS	YS	XP	YP
36	-2.47795E-01	2.91955E-01	-2.07569E-01	2.31022E-01
37	-1.80473E-01	2.52128E-01	-2.50828E-01	1.91912E-01
38	-1.51824E-01	2.14437E-01	-2.30012E-01	1.53118E-01
39	-1.21164E-01	1.77095E-01	-2.01127E-01	1.14620E-01
40	-9.14939E-02	1.39834E-01	-1.72177E-01	7.64246E-02
41	-6.18173E-02	1.02844E-01	-1.43167E-01	3.05218E-02
42	-3.21176E-02	6.61316E-02	-1.14099E-01	9.30691E-04
43	-2.58111E-03	2.95959E-02	-8.49773E-02	-3.64539E-02
44	2.72174E-02	-6.74834E-03	-5.58067E-02	-7.35610E-02
45	5.68467E-02	-4.23065E-02	-2.65909E-02	-1.10443E-01
46	4.65458E-02	-7.83930E-02	2.66649E-03	-1.47094E-01
47	1.16131E-01	-1.14729E-01	3.19617E-02	-1.83521E-01
48	1.45827E-01	-1.51438E-01	6.12912E-02	-2.19738E-01
49	1.75428E-01	-1.88021E-01	9.06517E-02	-2.55758E-01
50	2.06168E-01	-2.22866E-01	1.21200E-01	-2.93078E-01
51	2.36467E-01	-2.53544E-01	1.51765E-01	-3.30078E-01
52	2.67528E-01	-2.80033E-01	1.82435E-01	-3.66941E-01
53	2.95122E-01	-3.02465E-01	2.13955E-01	-4.03580E-01
54	3.29659E-01	-3.21664E-01	2.43732E-01	-4.39981E-01
55	3.59154E-01	-3.37668E-01	2.74436E-01	-4.76150E-01
56	3.89576E-01	-3.43864E-01	3.05170E-01	-5.12074E-01
57	4.19888E-01	-3.47609E-01	3.35936E-01	-5.47715E-01
58	4.50138E-01	-3.41494E-01	3.66736E-01	-5.83033E-01
59	4.80279E-01	-3.26711E-01	3.97573E-01	-6.18071E-01
60	5.10311E-01	-3.04678E-01	4.28448E-01	-6.52786E-01
61	5.40228E-01	-2.76622E-01	4.59364E-01	-6.87170E-01
62	5.70021E-01	-2.43944E-01	4.90322E-01	-7.21182E-01
63	5.99694E-01	-2.08278E-01	5.21324E-01	-7.54806E-01
64	6.29211E-01	-1.71355E-01	5.52376E-01	-7.88037E-01
65	6.59548E-01	-1.33163E-01	5.83462E-01	-8.20995E-01
66	6.91144E-01	-9.79536E-01	6.18131E-01	-8.55982E-01
67	7.23511E-01	-6.27691E-01	6.52852E-01	-8.92536E-01
68	7.55724E-01	-2.66314E-01	6.87827E-01	-9.27610E-01
69	7.87611E-01	-9.31390E-01	7.22482E-01	-9.62247E-01
70	8.19616E-01	-6.35052E-01	7.57369E-01	-9.96410E-01
71	8.51233E-01	-2.7595E-01	7.92326E-01	-1.03018E+00
72	8.82759E-01	-1.01149E+00	8.27267E-01	-1.06356E+00
73	9.1419E-01	-1.04758E+00	8.62487E-01	-1.09635E+00
74	9.45722E-01	-1.0346E+00	8.97694E-01	-1.12922E+00
75	9.75855E-01	-1.2658E+00	9.32996E-01	-1.16156E+00
76	1.01344E+00	-1.15720E+00	9.68399E-01	-1.19350E+00
77	1.03676E+00	-1.1391E+00	1.00391E+00	-1.22535E+00
78	1.08631E+00	-1.23077E+00	1.03955E+00	-1.25685E+00
79	1.09648E+00	-1.26741E+00	1.07532E+00	-1.28812E+00
80	1.12516E+00	-1.33505E+00	1.11222E+00	-1.31918E+00
81	1.15522E+00	-1.34252E+00	1.14729E+00	-1.35035E+00

POINT NO	XSEMI	YSEMI
1	-1.28174E+00	1.74705E+00
2	-1.28272E+00	1.73837E+00
3	-1.28255E+00	1.78878E+00
4	-1.28233E+00	1.75929E+00
5	-1.20255E+00	1.78981E+00
6	-1.28262E+00	1.73035E+00
7	-1.28263E+00	1.73089E+00
8	-1.28259E+00	1.79144E+00

POINT NO	XS	YS	XP	YP
11	-8.02517E-01	1.34835E+03	-9.11995E-01	1.37927E+00
12	-8.5343E-01	1.35197E+03	-8.67629E-01	1.33152E+00
13	-8.25353E-01	1.3521E+03	-8.61184E-01	1.28344E+00
14	-7.96167E-01	1.25618E+03	-8.34613E-01	1.23595E+00
15	-7.67177E-01	1.21993E+03	-8.07943E-01	1.18642E+00
16	-7.38991E-01	1.18588E+03	-7.81082E-01	1.13764E+00
17	-7.08512E-01	1.15986E+03	-7.54116E-01	1.08874E+00
18	-6.81671E-01	1.07134E+03	-7.28718E-01	1.04233E+00
19	-6.53961E-01	1.02571E+03	-7.03212E-01	9.96934E-01
20	-6.26384E-01	9.8211E-01	-6.77598E-01	9.51061E-01
21	-5.98744E-01	9.37565E-01	-6.51879E-01	9.05244E-01
22	-5.71564E-01	8.93088E-01	-6.26952E-01	8.59508E-01
23	-5.43287E-01	8.48704E-01	-6.00118E-01	8.13881E-01
24	-5.1577E-01	8.0451E-01	-5.74078E-01	7.68383E-01
25	-4.87617E-01	7.61354E-01	-5.47933E-01	7.23034E-01
26	-4.59711E-01	7.1827E-01	-5.21683E-01	6.77869E-01
27	-4.31763E-01	6.72698E-01	-4.95338E-01	6.32915E-01
28	-4.03774E-01	6.23451E-01	-4.68875E-01	5.88191E-01
29	-3.75768E-01	5.8037E-01	-4.42319E-01	5.43704E-01
30	-3.47711E-01	5.42871E-01	-4.15666E-01	4.99481E-01
31	-3.19634E-01	5.03145E-01	-3.88915E-01	4.55533E-01
32	-2.91565E-01	4.67738E-01	-3.62069E-01	4.11974E-01
33	-2.63415E-01	4.35595E-01	-3.35138E-01	3.68727E-01
34	-2.35912E-01	4.06238E-01	-3.08685E-01	3.28274E-01
35	-2.08612E-01	3.77137E-01	-2.84151E-01	2.86125E-01
36	-1.8151E-01	3.4832E-01	-2.58504E-01	2.46276E-01
37	-1.57237E-01	3.20973E-01	-2.32818E-01	2.09715E-01
38	-1.3872E-01	2.91317E-01	-2.07088E-01	1.69429E-01
39	-1.24122E-01	2.63147E-01	-1.81268E-01	1.30406E-01
40	-1.12412E-01	2.37137E-01	-1.55897E-01	9.16239E-02
41	-1.0251E-02	1.07416E-01	-1.29484E-01	5.30744E-02
42	-2.43346E-02	6.48284E-02	-1.03526E-01	1.47464E-02
43	2.24891E-03	3.24871E-02	-7.75278E-02	-2.33629E-02
44	2.88213E-02	-6.07961E-03	-5.14925E-02	-6.12652E-02
45	5.5373E-02	-6.2139E-02	-2.54244E-02	-9.09738E-02
46	6.19198E-02	-7.9216E-02	6.72655E-04	-1.35502E-01
47	1.08637E-01	-1.15951E-01	2.67947E-02	-1.73869E-01
48	1.36931E-01	-1.52762E-01	5.29381E-02	-2.11093E-01
49	1.61386E-01	-1.89483E-01	7.90993E-02	-2.48175E-01
50	1.82753E-01	-2.27413E-01	1.06201E-01	-2.86428E-01
51	2.11662E-01	-2.65253E-01	1.33325E-01	-3.24542E-01
52	2.43318E-01	-3.02978E-01	1.60488E-01	-3.62497E-01
53	2.79512E-01	-3.41946E-01	1.87627E-01	-4.00288E-01
54	3.27647E-01	-3.77968E-01	2.14797E-01	-4.37948E-01
55	3.74748E-01	-4.1228E-01	2.41976E-01	-4.75329E-01
56	3.91712E-01	-4.52313E-01	2.69185E-01	-5.12529E-01
57	3.78644E-01	-4.89227E-01	2.96367E-01	-5.49487E-01
58	4.05442E-01	-5.25939E-01	3.23586E-01	-5.86188E-01
59	4.32458E-01	-5.62435E-01	3.50825E-01	-6.22638E-01
60	4.58793E-01	-5.98708E-01	3.78089E-01	-6.58782E-01
61	4.85246E-01	-6.34772E-01	4.05379E-01	-6.94699E-01
62	5.11598E-01	-6.71622E-01	4.32701E-01	-7.30088E-01
63	5.37817E-01	-7.08248E-01	4.59156E-01	-7.65285E-01
64	5.63891E-01	-7.44554E-01	4.87448E-01	-7.99987E-01
65	5.89816E-01	-7.76559E-01	5.14878E-01	-8.34344E-01
66	6.1892E-01	-8.15931E-01	5.45988E-01	-8.67265E-01
67	6.47848E-01	-8.54951E-01	5.76975E-01	-9.10415E-01

POINT NO	XS	YS	XP	YP
68	6.76559E-01	-8.93687E-01	6.08385E-01	-9.47691E-01
69	7.85267E-01	-9.32246E-01	6.39242E-01	-9.84475E-01
70	7.33358E-01	-9.70598E-01	6.73448E-01	-1.02076E+00
71	7.61623E-01	-1.031677E+00	7.01708E-01	-1.05664E+00
72	7.89239E-01	-1.04686E+00	7.33029E-01	-1.09208E+00
73	8.16819E-01	-1.09484E+00	7.64412E-01	-1.12739E+00
74	8.44113E-01	-1.12275E+00	7.95864E-01	-1.16177E+00
75	8.71138E-01	-1.16965E+00	8.27393E-01	-1.19606E+00
76	8.97873E-01	-1.19855E+00	8.59802E-01	-1.23002E+00
77	9.24306E-01	-1.23648E+00	8.90699E-01	-1.26368E+00
78	9.50412E-01	-1.27446E+00	9.22494E-01	-1.29704E+00
79	9.76165E-01	-1.31257E+00	9.54389E-01	-1.33013E+00
80	1.00157E+00	-1.35079E+00	9.86387E-01	-1.36298E+00
81	1.02659E+00	-1.38915E+00	1.01653E+00	-1.39561E+00

POINT NO	XSEMI	YSEMI
1	-1.17140E+00	1.82498E+00
2	-1.17165E+00	1.82542E+00
3	-1.17185E+00	1.82587E+00
4	-1.17205E+00	1.82635E+00
5	-1.17210E+00	1.82665E+00
6	-1.17215E+00	1.82736E+00
7	-1.17214E+00	1.82787E+00
8	-1.17216E+00	1.82839E+00
9	-1.17196E+00	1.82889E+00
10	-1.17179E+00	1.82939E+00
11	-1.17157E+00	1.82987E+00
12	-1.17130E+00	1.83033E+00
13	-1.17198E+00	1.83076E+00
14	-1.17163E+00	1.83116E+00
15	-1.17123E+00	1.83152E+00
16	-1.16931E+00	1.83184E+00
17	-1.16935E+00	1.83212E+00
18	-1.16887E+00	1.83235E+00
19	-1.16837E+00	1.83254E+00
20	-1.16786E+00	1.83267E+00
21	-1.16734E+00	1.83275E+00
22	-1.16682E+00	1.83277E+00
23	-1.16630E+00	1.83275E+00
24	-1.16579E+00	1.83286E+00
25	-1.16530E+00	1.83253E+00
26	-1.16481E+00	1.83235E+00
27	-1.16436E+00	1.83211E+00
28	-1.16397E+00	1.83183E+00
29	-1.16359E+00	1.83151E+00
30	-1.16324E+00	1.83114E+00
31	-1.16294E+00	1.83074E+00

SECTION NUMBER 13 '2' = 0.5000

SECTION PROPERTIES

SECTION AREA = 2.5364E-01

LOCATION OF CENTROID
 RELATIVE TO STACK AXIS XBAR = 2.8855E-03
 YBAR = -1.8550E-03

SECOND MOMENTS OF AREA
 ABOUT CENTROID IX = 1.5277E-01
 IY = 5.6245E-02
 IXY = -9.9906E-02

PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID IPX = 2.1649E-01 (AT 33.77 DEGREES TO 'X' AXIS)
 IPY = 1.1587E-01 (AT 33.77 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 5.3863E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.04113E+00	1.85374E+00	-1.04948E+00	1.84822E+00
2	-1.81616E+00	1.81436E+00	-1.82640E+00	1.80899E+00
3	-9.90313E-01	1.77356E+00	-1.00320E+00	1.76622E+00
4	-9.65638E-01	1.73168E+00	-9.80130E-01	1.72316E+00
5	-9.43168E-01	1.68890E+00	-9.56980E-01	1.67926E+00
6	-9.14632E-01	1.64511E+00	-9.33609E-01	1.63443E+00
7	-8.88984E-01	1.60057E+00	-9.10225E-01	1.58872E+00
8	-8.63218E-01	1.55516E+00	-8.86742E-01	1.54238E+00
9	-8.37344E-01	1.50948E+00	-8.63166E-01	1.49540E+00
10	-8.11356E-01	1.46332E+00	-8.39475E-01	1.44781E+00
11	-7.85256E-01	1.41659E+00	-8.15671E-01	1.39979E+00
12	-7.59049E-01	1.36848E+00	-7.91745E-01	1.35140E+00
13	-7.32733E-01	1.32124E+00	-7.67696E-01	1.30263E+00
14	-7.06312E-01	1.27341E+00	-7.43522E-01	1.25362E+00
15	-6.79793E-01	1.22536E+00	-7.19216E-01	1.20444E+00
16	-6.53178E-01	1.17721E+00	-6.94783E-01	1.15511E+00
17	-6.26472E-01	1.12909E+00	-6.70240E-01	1.10571E+00
18	-6.01975E-01	1.08312E+00	-6.46722E-01	1.05871E+00
19	-5.75411E-01	1.03727E+00	-6.23122E-01	1.01173E+00
20	-5.49731E-01	9.91449E-01	-5.99439E-01	9.64794E-01
21	-5.26395E-01	9.45643E-01	-5.75615E-01	9.17917E-01
22	-5.03357E-01	8.99882E-01	-5.51711E-01	8.71108E-01
23	-4.72565E-01	8.54363E-01	-5.27799E-01	8.24389E-01
24	-4.46728E-01	8.08838E-01	-5.03699E-01	7.77839E-01
25	-4.20944E-01	7.63431E-01	-4.79413E-01	7.31296E-01
26	-3.94929E-01	7.18177E-01	-4.55123E-01	6.84944E-01
27	-3.68762E-01	6.73952E-01	-4.30740E-01	6.38722E-01
28	-3.42994E-01	6.28146E-01	-4.06266E-01	5.92830E-01
29	-3.16986E-01	5.83166E-01	-3.81701E-01	5.47023E-01
30	-2.90959E-01	5.38922E-01	-3.57049E-01	5.01471E-01
31	-2.64914E-01	4.94650E-01	-3.32311E-01	4.56198E-01
32	-2.38848E-01	4.50568E-01	-3.07488E-01	4.11229E-01
33	-2.12778E-01	4.07020E-01	-2.82582E-01	3.66536E-01
34	-1.86429E-01	3.68198E-01	-2.60216E-01	3.26789E-01
35	-1.66443E-01	3.29592E-01	-2.37789E-01	2.87319E-01

POINT NO	XS	YS	XP	YP
16	-1.42642E+01	2.91176E+01	-2.15344E+01	2.44089E+01
17	-1.19235E+01	2.52952E+01	-1.92765E+01	2.93092E+01
18	-9.59988E+02	2.14966E+01	-1.73174E+01	1.7039E+01
19	-7.28565E+02	1.72025E+01	-1.47545E+01	1.34717E+01
20	-4.93811E+02	1.32944E+01	-1.24871E+01	9.33063E+02
21	-2.56774E+02	1.16886E+01	-1.02159E+01	5.50736E+02
22	-2.27471E+03	6.4942E+02	-7.94135E+02	1.69955E+02
23	4.4917E+02	-1.04337E+02	-1.38369E+02	-2.99357E+02
24	6.7356E+02	-4.7747E+02	-1.10385E+02	-5.87391E+02
25	9.12316E+02	-8.51153E+02	1.18383E+02	-9.64315E+02
26	1.14927E+01	-1.22275E+01	3.47123E+02	-1.34032E+01
27	1.17427E+01	-1.53383E+01	5.75855E+02	-2.99027E+01
28	1.61111E+01	-1.96565E+01	8.04699E+02	-2.48447E+01
29	1.84997E+01	-2.34654E+01	1.03926E+03	-2.84741E+01
30	2.08844E+01	-2.72728E+01	1.27397E+01	-3.22996E+01
31	2.32366E+01	-3.11759E+01	1.50880E+01	-3.61190E+01
32	2.55740E+01	-3.49724E+01	1.74372E+01	-3.99330E+01
33	2.79514E+01	-3.86599E+01	1.97869E+01	-4.37310E+01
34	3.03346E+01	-4.23364E+01	2.21369E+01	-4.75195E+01
35	3.26931E+01	-4.6203E+01	2.44869E+01	-5.12929E+01
36	3.49368E+01	-4.99512E+01	2.68370E+01	-5.50486E+01
37	3.7117E+01	-5.36859E+01	2.91877E+01	-5.87840E+01
38	3.92622E+01	-5.74019E+01	3.15396E+01	-6.24966E+01
39	4.13111E+01	-6.11980E+01	3.38931E+01	-6.61857E+01
40	4.3252E+01	-6.47728E+01	3.62487E+01	-6.98482E+01
41	4.50736E+01	-6.8257E+01	3.86169E+01	-7.34796E+01
42	4.6773E+01	-7.1581E+01	4.09880E+01	-7.70778E+01
43	4.8467E+01	-7.56677E+01	4.33326E+01	-8.06407E+01
44	5.0111E+01	-7.92482E+01	4.57008E+01	-8.41661E+01
45	5.1719E+01	-8.32260E+01	4.81564E+01	-8.80701E+01
46	5.3295E+01	-8.71786E+01	5.11566E+01	-9.19263E+01
47	5.4839E+01	-9.11052E+01	5.36789E+01	-9.57294E+01
48	5.6344E+01	-9.51068E+01	5.63465E+01	-9.94865E+01
49	5.7817E+01	-9.90665E+01	5.90490E+01	-1.03233E+02
50	5.9252E+01	-1.02755E+02	6.16971E+01	-1.06874E+02
51	6.06274E+01	-1.0565E+02	6.4367E+01	-1.10591E+02
52	6.2031E+01	-1.1442E+02	6.70796E+01	-1.14094E+02
53	6.3464E+01	-1.14272E+02	6.97679E+01	-1.17646E+02
54	6.4939E+01	-1.1894E+02	7.24723E+01	-1.21159E+02
55	6.6456E+01	-1.21910E+02	7.51946E+01	-1.24639E+02
56	6.7942E+01	-1.25723E+02	7.79056E+01	-1.28083E+02
57	6.9463E+01	-1.29535E+02	8.06359E+01	-1.31492E+02
58	7.1011E+01	-1.33448E+02	8.33759E+01	-1.34869E+02
59	7.2577E+01	-1.37162E+02	8.61265E+01	-1.38213E+02
60	7.4164E+01	-1.40876E+02	8.8887E+01	-1.41523E+02
61	-1.04948E+02	1.04652E+02		
62	-1.17497E+02	1.04894E+02		
63	-1.05982E+02	1.04984E+02		
64	-1.05919E+02	1.05031E+02		
65	-1.05311E+02	1.05079E+02		
66	-1.05319E+02	1.05128E+02		
67	-1.05319E+02	1.05176E+02		

POINT NO	XSEMI	YSEMI
1	-1.04948E+02	1.04652E+02
2	-1.17497E+02	1.04894E+02
3	-1.05982E+02	1.04984E+02
4	-1.05919E+02	1.04984E+02
5	-1.05311E+02	1.05031E+02
6	-1.05311E+02	1.05079E+02
7	-1.05319E+02	1.05128E+02
8	-1.05319E+02	1.05176E+02

POINT NO	XSEMI	YSEMI
9	-1.04988E+00	1.85224E+00
10	-1.04971E+00	1.85270E+00
11	-1.04948E+00	1.85315E+00
12	-1.04921E+00	1.85357E+00
13	-1.04890E+00	1.85397E+00
14	-1.04855E+00	1.85434E+00
15	-1.04817E+00	1.85467E+00
16	-1.04776E+00	1.85497E+00
17	-1.04732E+00	1.85522E+00
18	-1.04685E+00	1.85542E+00
19	-1.04638E+00	1.85558E+00
20	-1.04589E+00	1.85569E+00
21	-1.04540E+00	1.85576E+00
22	-1.04490E+00	1.85577E+00
23	-1.04442E+00	1.85573E+00
24	-1.04394E+00	1.85563E+00
25	-1.04348E+00	1.85549E+00
26	-1.04304E+00	1.85531E+00
27	-1.04263E+00	1.85507E+00
28	-1.04224E+00	1.85480E+00
29	-1.04189E+00	1.85448E+00
30	-1.04158E+00	1.85412E+00
31	-1.04131E+00	1.85374E+00

5. STATOR GEOMETRY

The technique and computer program used to define stator airfoils were the same as used for the rotor. The only significant differences were the stacking axis location and the number and spacing of manufacturing planes. The stator stacking axis was located near the trailing edge in order to minimize acute wall intersection angles in the aft portion of the passage. However, the stator twist turned out to be so slight that this is not a critical choice. Because of the reduced span (relative to the rotor) and the more complex leading edge shape, 11 manufacturing sections were employed spaced 0.375 inch apart. The computer printout on the following pages fully defines the stator airfoils and is identical in content and format to that shown for the rotor. Superimposed plots of the stacked streamsurface sections are shown in Figure 27 and of the manufacturing sections in Figure 28. Every other manufacturing section has been eliminated from the plot to improve the clarity of the figure.

USAF - ARRLP) ARBITRARY CURSER LINE PROGRAM

STATION: ZI STREAMLINES, FINAL DESIGN, 21 JUNE 1973

TITLE * 21
 NUMBER OF STREAMSURFACES * 1
 NUMBER OF STATIONS * 1
 NUMBER OF CONSTANT-Z PLANES * 11
 NUMBER OF BLADE DATA POINTS * 6
 NUMBER OF POINTS PER SEGMENT * 17
 NUMBER OF BLADES IN BLADE ROW * 11
 ISSAK * 1
 LUNCK * 1
 EPLGJ * 1
 IPRIN * 1
 ZIMMER * 0.7510
 ZOUTER * 0.5210
 SCALE * 2.5510
 STACK * -2.5510
 PLYSZE * 17.0010

LEADING EDGE STATION NUMBER * 2
 TRAILING EDGE STATION NUMBER * 2
 RADIUS SPECIFYING DEVIATION * 2
 RADIUS SPECIFYING INCIDENCE * 2
 SENSE OF ROTATION INDICATOR * 1
 DEVIATION CALCULATION INDEX * 2
 NUMBER OF INITIAL 1/4 TURNS * 10

SHAPE FACTOR * 1.0000
 SOLIDITY TOLERANCE * 0.0001

DEVIATION CURVE 1 NUMBER OF POINTS * 6 RADIUS * 0.1110

POINT NORMALIZED MERIDIONAL CHORD NORMALIZED DEVIATION DISTRIBUTION

1	1.3937	0.1527
2	0.2331	0.2330
3	0.4177	0.1570
4	0.3107	0.2100
5	0.3331	0.1820
6	1.0337	1.0330

DEVIATION CURVE 2 NUMBER OF POINTS * 6 RADIUS * 0.5190

POINT NORMALIZED MERIDIONAL CHORD NORMALIZED DEVIATION DISTRIBUTION

1	1.1827	0.1030
2	0.2370	0.1130
3	0.3120	0.1510
4	0.3111	0.2210
5	0.3021	0.3020
6	1.3170	1.3030

INCIDENCE AND EXTRA DEVIATION DISTRIBUTION

INLET RADIUS INCIDENCE EXTRA DEVIATION

0.6610 0.000 0.000

0.9800 0.003 0.007

STREAM SURFACE GEOMETRY SPECIFICATION

COMPUTING STATION 1 NUMBER OF DESCRIBING POINTS 4 IF ANG(S 1) = 0

DESCRIPTION X	COMPUTING STATION 1	STREAMLINE NUMBER	RADIUS	AIR ANGLE
-5.9203	4.5514	1	4.5514	-3.0074
-5.9203	5.2032	2	6.6411	-1.4002
-5.9200	6.0870	3	4.6673	-3.7003
-5.9203	6.5070	4	5.0167	-2.7003
		5	5.1791	-2.0000
		6	5.3541	-2.0000
		7	5.5411	-1.0000
		8	5.7335	-1.0000
		9	5.9431	-1.0000
		10	6.1496	-1.0000
		11	6.3726	-1.0000
		12	6.5927	-1.0000
		13	6.8392	-1.0000
		14	7.0813	-1.0000
		15	7.3406	-1.0000
		16	7.6251	-1.0000
		17	7.8470	-1.0000
		18	8.0321	-1.0000
		19	8.1848	-1.0000
		20	8.3383	-1.0000
		21	8.5331	-1.0000

COMPUTING STATION 2 NUMBER OF DESCRIBING POINTS 4 IF ANG(S 2) = 5

DESCRIPTION X	COMPUTING STATION 2	STREAMLINE NUMBER	RADIUS	AIR ANGLE
-5.9750	4.6435	1	4.6435	51.7601
-5.9750	5.2530	2	4.7343	43.9562
-5.9750	6.0230	3	4.9463	47.7839
		4	5.1154	44.5125
		5	5.2777	41.2580
		6	5.4535	38.0012
		7	5.6222	34.9995
		8	5.8222	32.1544
		9	6.0222	31.1300
		10	6.2227	31.3680
		11	6.4334	30.7156
		12	6.6630	33.2157
		13	6.8832	34.8718
		14	7.1223	34.7709
		15	7.3724	34.7609
		16	7.6346	34.1155
		17	7.9005	33.0815
		18	8.0801	43.6651
		19	8.1937	41.2111
		20	8.3441	42.1412
		21	8.5921	43.2863

COMPUTING STATION 3 NUMBER OF DESCRIBING POINTS= 4 IF ANG (3) = 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-4.7700	4.9751	1	4.9751	33.3150
-4.6400	5.5039	2	5.0356	33.1223
-4.5800	5.8230	3	5.2346	32.6662
-4.7700	6.5010	4	5.3215	32.4131
		5	5.4561	32.1299
		6	5.6057	31.7800
		7	5.7681	31.3643
		8	5.9416	31.9069
		9	6.1251	31.4507
		10	6.3179	31.0468
		11	6.5194	29.7140
		12	6.7298	29.4607
		13	6.9494	29.2871
		14	7.1786	29.1955
		15	7.4181	29.2164
		16	7.6693	29.4047
		17	7.9322	29.8314
		18	8.0685	30.0983
		19	8.2084	30.4630
		20	8.3521	30.9288
		21	8.5003	31.4865

COMPUTING STATION 4 NUMBER OF DESCRIBING POINTS= 4 IF ANG (4) = 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-4.3000	5.1680	1	5.168	22.9016
-4.2300	5.6530	2	9.2378	22.6171
-4.2000	6.0030	3	5.3895	22.5972
-4.3000	8.5000	4	5.4817	22.4547
		5	5.5998	22.2882
		6	5.7329	22.0913
		7	5.8795	21.8593
		8	6.0384	21.6068
		9	6.2086	21.3659
		10	6.3893	21.1694
		11	6.5804	21.0267
		12	6.7816	21.9379
		13	6.9932	21.9012
		14	7.2154	21.9143
		15	7.4488	20.9819
		16	7.6936	21.1131
		17	7.9503	21.2972
		18	8.0831	21.4033
		19	8.2193	21.5297
		20	8.3579	21.6825
		21	8.5003	21.6604

COMPUTING STATION 5 NUMBER OF DESCRIBING POINTS= 2 IFANGS (5) = 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-3.800	5.3756	1	5.3756	14.0010
-3.800	6.3756	2	5.4170	13.9069
		3	5304	13.9500
		4	6265	13.9101
		5	5.7314	13.8614
		6	5.0515	13.7635
		7	5.9857	13.6265
		8	6.1328	13.4607
		9	6.2916	13.3215
		10	6.4621	13.2230
		11	6.6435	13.1625
		12	6.8358	13.1908
		13	7.0353	13.2310
		14	7.2541	13.2845
		15	7.4804	13.3566
		16	7.7183	13.4467
		17	7.9677	13.5354
		18	8.0966	13.7404
		19	8.2284	13.8041
		20	8.3629	14.0017
		21	8.5003	14.2173

COMPUTING STATION 6 NUMBER OF DESCRIBING POINTS= 2 IFANGS (6) = 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-3.3500	5.5125	1	5.5125	6.7008
-3.2038	6.5030	2	5.5517	6.7815
		3	5.6664	6.7539
		4	5.7499	6.7204
		5	5.8492	6.6910
		6	5.9632	6.6424
		7	6.0905	6.5841
		8	6.2302	6.5223
		9	6.3813	6.4694
		10	6.5432	6.4309
		11	6.7163	6.4351
		12	6.8996	6.4549
		13	7.0943	6.4927
		14	7.3002	6.5421
		15	7.5176	6.6065
		16	7.7465	6.6949
		17	7.9867	6.8177
		18	8.1109	6.8956
		19	8.2380	6.9854
		20	8.3677	7.0655
		21	8.5003	7.1541

COMPUTING STATION 7 NUMBER OF DESCRIBING POINTS= 2 IF ANGS (7)= 1

DESCRIPTION X R

STREAMLINE NUMBER

RADIUS

AIR ANGLE

-2.0500	5.0314	1	5.6314	0.0000
-2.5675	0.5000	2	5.6689	0.0000
		3	5.7785	0.0000
		4	5.8581	0.0000
		5	5.9526	0.0000
		6	6.0608	0.0000
		7	6.1817	0.0000
		8	6.3142	0.0000
		9	6.4578	0.0000
		10	6.6122	0.0000
		11	6.7774	0.0000
		12	6.9535	0.0000
		13	7.1406	0.0000
		14	7.3387	0.0000
		15	7.5481	0.0000
		16	7.7689	0.0000
		17	8.0014	0.0000
		18	8.2419	0.0000
		19	8.4952	0.0000
		20	8.7713	0.0000
		21	9.0707	0.0000

COMPUTING STATION 8 NUMBER OF DESCRIBING POINTS= 2 IF ANGS (8)= 0

DESCRIPTION X R

STREAMLINE NUMBER

RADIUS

AIR ANGLE

-2.0000	5.7569	1	5.7569	-0.0000
-2.0000	6.7569	2	5.7917	-0.0000
		3	5.8931	-0.0000
		4	5.9673	-0.0000
		5	6.0549	-0.0000
		6	6.1563	-0.0000
		7	6.2691	-0.0000
		8	6.3939	-0.0000
		9	6.5291	-0.0000
		10	6.6753	-0.0000
		11	6.8323	-0.0000
		12	7.0002	-0.0000
		13	7.1794	-0.0000
		14	7.3699	-0.0000
		15	7.5721	-0.0000
		16	7.7861	-0.0000
		17	8.0121	-0.0000
		18	8.2502	-0.0000
		19	8.5000	-0.0000
		20	8.7737	-0.0000
		21	9.0700	-0.0000

SECTION GEOMETRY SPECIFICATION

STREAMLINE NUMBER	SLD CL PT	IN. DEL S/R0	CONSID LE RD CRV	NO. ALD INFL. PYS	LE RADIUS /CHORD	MAX THICK /CHORD	TE THICK /2*CHORD	POINT OF START MAX THICK OF S/R	X STACK OFFSET	Y STACK OFFSET
1.00	0.000	-1.00	7.0001	0.0000	.00169	.04000	.03169	.5000	-.0000000	-0.0000000
5.00	0.000	-1.00	0.0000	0.0000	.00215	.04330	.00215	.5000	-.031600	-0.0000000
9.00	0.000	-1.00	0.0000	0.0000	.00226	.04740	.02226	.5000	-.061400	-0.0000000
13.00	0.000	-1.00	0.0011	0.0000	.00229	.05210	.02229	.5000	-.146700	-0.0000000
17.00	0.000	-1.00	0.0013	0.0000	.00228	.05716	.02228	.5000	-.233400	-0.0000000
21.00	0.000	-1.00	0.0011	0.0000	.00228	.06000	.02228	.5000	-.282500	-0.0000000

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 1

BETA1 = 45.765 (BLADE INLET ANGLE.)
 BETA2 = -7.857 (BLADE OUTLET ANGLE.)
 WZERO = .01189 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = .24376 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .01189 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5337 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.7248 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0693
 STAGGER ANGLE = 23.642
 CAMBER ANGLE = 53.622
 SECTION AREA = .03131

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .46579
 YBAR = .28431

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .20326
 IY = .03168
 IXY = -.03364

ANGLE OF IMPLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 21.154

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .08913 (AT 21.154 WITH 'X' AXIS)
 IPY = .00193 (AT 21.154 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.08212	0.31830	45.765	.00257	.09441	.10347	-.01141
2	.01752	.31630	44.995	.01555	.01827	.02008	.01374
3	.03351	.31158	44.215	.03057	.03471	.03665	.02846
4	.04941	.34674	43.423	.04562	.05373	.05318	.04275
5	.06519	.36248	42.621	.06172	.06634	.06957	.05662
6	.08099	.37591	41.808	.07586	.08154	.08612	.07107
7	.09678	.38373	40.986	.09495	.09633	.10252	.08313
8	.11257	.37325	40.153	.11256	.11172	.11087	.09579
9	.12837	.34638	39.312	.12156	.12470	.13518	.10806
10	.14416	.2912	38.462	.13588	.13828	.15144	.11986
11	.15995	.14147	37.613	.15226	.15146	.16765	.13148
12	.17575	.15345	36.737	.16768	.16225	.18381	.14264
13	.19154	.15575	35.864	.18315	.17655	.19993	.15345

POINT NUMBER	M E A N L I N E A N G L E T H I C K N E S S			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
14	22733	17628	34.984	0.3122	19857	18856	21599	16391
15	22813	18715	34.799	0.3171	22124	22929	23282	17402
16	23092	19767	33.208	0.3312	22995	21152	24799	18361
17	25471	21703	32.312	0.3444	24551	22239	26392	19320
18	26652	21521	31.640	0.3537	25725	23726	27580	20015
19	27333	22239	30.967	0.3624	26901	22392	28665	20685
20	29714	22938	30.292	0.3706	28079	24538	29949	21338
21	30195	23619	29.616	0.3784	29260	25253	31130	21974
22	31376	24201	28.940	0.3855	30463	25958	32309	22584
23	32557	24925	28.264	0.3922	31629	26652	33486	23198
24	33738	25551	27.588	0.3982	32816	27316	34663	23786
25	34919	26159	26.913	0.4038	34006	27959	35833	24359
26	36101	26750	26.238	0.4088	35197	28583	37004	24917
27	37281	27323	25.565	0.4132	36390	29187	38173	25460
28	38462	27880	24.894	0.4170	37585	29771	39340	25988
29	39643	28420	24.225	0.4203	38781	30336	40506	26503
30	40824	28943	23.553	0.4231	39979	30981	41670	27004
31	42005	29449	22.893	0.4251	41178	31438	42832	27491
32	43186	29960	22.232	0.4267	42379	31915	43994	27965
33	44367	30415	21.575	0.4276	43581	32403	45154	28427
34	45549	30890	20.901	0.4279	44785	32899	46353	28891
35	46812	31349	20.237	0.4276	46073	33355	47552	29343
36	48035	31791	19.582	0.4267	47319	33802	48751	29781
37	49257	32219	18.936	0.4252	48567	34229	49947	30208
38	50479	32630	18.376	0.4231	49815	34639	51144	30622
39	51702	33027	17.804	0.4204	51063	35030	52340	31025
40	52924	33410	17.275	0.4172	52312	35404	53536	31416
41	54146	33779	16.770	0.4134	53560	35761	54733	31796
42	55369	34133	16.294	0.4092	54808	36101	55929	32166
43	56591	34475	15.823	0.4044	56057	36425	57125	32524
44	57813	34803	15.365	0.3993	57305	36734	58322	32873
45	59036	35119	14.921	0.3936	58552	37027	59519	33212
46	60258	35423	14.491	0.3875	59800	37305	60717	33540
47	61481	35715	14.076	0.3810	61046	37570	61915	33860
48	62703	35995	13.676	0.3741	62292	37820	63113	34171
49	63925	36265	13.290	0.3668	63538	38058	64313	34472
50	65148	36533	12.922	0.3591	64785	38286	65513	34763
51	66370	36793	12.566	0.3509	66032	38504	66709	35044
52	67592	37043	12.222	0.3422	67279	38712	67902	35325
53	68814	37283	11.889	0.3330	68526	38910	69095	35606
54	69996	37513	11.566	0.3234	69773	39100	70288	35887
55	71178	37733	11.254	0.3133	71020	39281	71481	36168
56	72360	37943	10.952	0.3028	72267	39453	72674	36449
57	73542	38143	10.660	0.2919	73514	39617	73867	36730
58	74724	38333	10.378	0.2806	74761	39773	75060	37011
59	75906	38513	10.106	0.2689	76008	39920	76253	37292
60	77088	38683	9.844	0.2568	77255	40059	77446	37573
61	78270	38843	9.592	0.2443	78502	40189	78639	37854
62	79452	38993	9.350	0.2314	79749	40310	79832	38135
63	80634	39133	9.118	0.2181	81000	40421	81025	38416
64	81816	39263	8.896	0.2044	82247	40522	82218	38697
65	83000	39383	8.684	0.1903	83494	40613	83411	38978
66	84182	39493	8.482	0.1758	84741	40694	84604	39259
67	85364	39593	8.290	0.1609	86000	40765	85797	39540
68	86546	39683	8.108	0.1456	87247	40826	86990	39821

POINT NUMBER	M E A N L I N E A N G L E			D A T A			S U R F A C E C O O R D I N A T E			
	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP		
70	.87032	.38945	.048	.01742	.87032	.39816	.87033	.38974		
71	.88239	.38939	-.670	.01625	.88218	.39751	.88199	.38126		
72	.89385	.38917	-1.390	.01506	.89403	.39670	.89367	.38165		
73	.90561	.38882	-2.109	.01387	.90587	.39574	.90536	.38189		
74	.91738	.38831	-2.829	.01266	.91769	.39463	.91707	.38198		
75	.92914	.38765	-3.549	.01145	.92953	.39337	.92879	.38194		
76	.94091	.38685	-4.269	.01023	.94129	.39195	.94052	.38175		
77	.95267	.38590	-4.989	.00900	.95306	.39038	.95228	.38141		
78	.96443	.38480	-5.707	.00777	.96482	.38866	.96405	.38093		
79	.97621	.38354	-6.425	.00653	.97656	.38679	.97583	.38030		
80	.98796	.38215	-7.142	.00529	.98829	.38477	.98763	.37952		
81	.99972	.38060	-7.857	.00404	1.00000	.38260	.99945	.37859		

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 2

BETA1 = 45.36 (BLADE INLET ANGLE.)
 BETA2 = -7.044 (BLADE OUTLET ANGLE.)
 YZERD = .0196 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = .34378 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .01196 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5330 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 ZORD = 2.6687 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0659
 STAGGER ANGLE = 20.284
 CAMBER ANGLE = 52.880
 SECTION AREA = .03168

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XGAR = .46739
 YBAR = .27673

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00326
 IY = .00176
 IXY = .00363

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 20.561

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00333 (AT 20.561 WITH 'X' AXIS)
 IPY = .00194 (AT 20.561 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.00209	0.17300	45.736	.03061	.07348	.10357	-.01146
2	.01736	.11549	44.269	.01510	.01740	.01962	.01277
3	.13263	.02977	43.493	.02962	.03294	.03564	.02660
4	.04791	-.06442	42.709	.04419	.04808	.05161	.04004
5	.06317	.05796	41.918	.05878	.06284	.06755	.05308
6	.07844	.07148	41.121	.07343	.07722	.08344	.06574
7	.09373	.08462	-0.517	.08811	.09121	.09930	.07803
8	.10907	.09739	39.507	.10283	.10484	.11511	.08995
9	.12424	.11480	38.693	.11763	.11809	.13088	.10151
10	.13951	.12185	37.674	.13242	.13397	.14663	.11273
11	.15478	.13355	37.051	.14727	.14369	.16228	.12361
12	.17015	.14491	36.225	.16217	.14369	.15565	.13416
13	.18531	.15593	35.397	.17712	.16746	.19351	.14439

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	KS	YS	XP	YP
14	.29758	.16661	34.568	.12988	.17891	.20806	.15431
15	.21555	.17697	33.738	.13139	.19002	.22457	.16392
16	.23112	.19701	32.903	.13281	.20078	.24083	.17323
17	.24633	.19673	32.378	.13415	.21120	.25546	.18228
18	.25818	.20493	31.637	.13513	.21982	.26734	.18905
19	.26998	.21115	30.792	.13606	.22664	.27921	.19566
20	.28177	.21809	30.143	.13694	.23406	.29105	.20212
21	.29357	.22485	29.492	.13776	.24129	.30286	.20842
22	.30536	.23143	28.837	.13853	.24831	.31466	.21456
23	.31716	.23784	28.181	.13925	.25514	.32643	.22054
24	.32895	.24407	27.521	.13992	.26177	.33818	.22637
25	.34075	.25011	26.863	.14052	.26821	.34991	.23206
26	.35255	.25632	26.196	.14118	.27445	.36161	.23759
27	.36434	.26174	25.531	.14158	.28058	.37330	.24298
28	.37614	.26729	24.865	.14202	.28635	.38497	.24823
29	.38793	.27257	24.197	.14243	.29204	.39662	.25334
30	.39973	.27789	23.529	.14273	.29748	.40826	.25830
31	.41152	.28295	22.851	.14299	.30276	.41987	.26314
32	.42332	.28784	22.191	.14320	.30784	.43148	.26784
33	.43511	.29257	21.521	.14335	.31273	.44307	.27240
34	.44734	.29731	20.833	.14344	.31761	.45507	.27700
35	.45957	.30188	20.156	.14347	.32228	.46706	.28147
36	.47181	.30628	19.492	.14343	.32675	.47904	.28581
37	.48402	.31053	18.841	.14333	.33131	.49102	.29003
38	.49625	.31463	18.203	.14316	.33513	.50299	.29413
39	.50848	.31858	17.579	.14294	.33905	.51496	.29811
40	.52071	.32238	16.969	.14266	.34278	.52693	.30196
41	.53294	.32604	16.374	.14233	.34635	.53874	.30574
42	.54516	.32957	15.795	.14194	.34974	.55067	.30939
43	.55739	.33296	15.231	.14150	.35298	.56284	.31294
44	.56962	.33623	14.683	.14101	.35642	.57482	.31639
45	.58185	.33937	14.152	.14048	.35999	.58678	.31975
46	.59407	.34239	13.637	.13989	.36378	.59878	.32301
47	.60631	.34530	13.143	.13927	.36742	.61076	.32618
48	.61853	.34811	12.661	.13861	.37094	.62276	.32927
49	.63076	.35080	12.199	.13789	.37432	.63476	.33228
50	.64298	.35344	11.783	.13722	.37758	.64676	.33528
51	.65521	.35604	11.352	.13651	.38074	.65876	.33828
52	.66743	.35856	10.905	.13579	.38381	.67076	.34128
53	.67965	.36104	10.444	.13501	.38681	.68276	.34424
54	.69187	.36351	9.957	.13422	.38974	.69476	.34718
55	.70409	.36593	9.464	.13343	.39261	.70676	.35011
56	.71631	.36830	8.957	.13256	.39542	.71876	.35301
57	.72853	.37065	8.444	.13169	.39818	.73076	.35591
58	.74075	.37297	7.933	.13080	.40089	.74276	.35881
59	.75297	.37524	7.421	.12985	.40354	.75476	.36171
60	.76519	.37746	6.909	.12895	.40614	.76676	.36461
61	.77741	.37963	6.393	.12801	.40869	.77876	.36751
62	.78963	.38174	5.874	.12702	.41119	.79076	.37041
63	.80185	.38381	5.351	.12603	.41364	.80276	.37331
64	.81407	.38583	4.824	.12502	.41604	.81476	.37621
65	.82629	.38780	4.293	.12399	.41839	.82676	.37911
66	.83851	.38972	3.755	.12285	.42069	.83876	.38201
67	.85073	.39159	3.215	.12169	.42294	.85076	.38491
68	.86295	.39341	2.675	.12051	.42514	.86276	.38781
69	.87517	.39518	2.134	.11932	.42729	.87476	.39071

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.86726	.37849	.091	.06725	.38755	.06728	.36943
71	.87931	.37843	-.632	.87940	.38688	.87921	.36998
72	.89135	.37822	-1.355	.09153	.38605	.89116	.37039
73	.90339	.37786	-2.079	.90365	.38507	.90313	.37065
74	.91543	.37735	-2.802	.91575	.38393	.91511	.37077
75	.92747	.37668	-3.525	.92784	.38267	.92710	.37074
76	.93951	.37586	-4.248	.93990	.38117	.93112	.37056
77	.95155	.37489	-4.969	.95196	.379	.94115	.37023
78	.96359	.37377	-5.690	.96399	.377	.9319	.36976
79	.97563	.37249	-6.413	.97601	.375	.92525	.36913
80	.98767	.37107	-7.128	.98801	.373	.91833	.36835
81	.99971	.36948	-7.844	1.01000	.371	.91143	.36741

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 3

BETA1 = 43.207 (BLADE INLET ANGLE.)
 BETA2 = -7.810 (BLADE OUTLET ANGLE.)
 YZERO = -0.0203 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = 8.158 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YGME = -0.0203 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = -0.5030 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORC = 2.5575 (MERIDIONAL CHORD OF SECTION.)

NON-VALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.3574
 STAGGER ANGLE = 18.996
 CAMBER ANGLE = 51.217
 SECTION AREA = 0.8372

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.7087
 YBAR = -0.26218

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0023
 IY = 0.0170
 IXY = -0.0358

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 19.230

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0833 (AT 19.230 WITH 'X' AXIS)
 IPY = 0.0131 (AT 19.230 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	0.0215	0.0780	63.207	0.0068	0.0157	0.0362	-0.0157
2	0.1623	0.1305	62.461	0.1487	0.1641	0.1838	-0.1069
3	0.3033	0.2576	61.713	0.2749	0.2892	0.3321	0.2261
4	0.4438	0.3815	60.963	0.4094	0.4210	0.4781	0.3619
5	0.5843	0.5021	60.214	0.5442	0.5497	0.6248	0.4944
6	0.7253	0.6195	59.464	0.6794	0.6732	0.7711	0.5638
7	0.8667	0.7338	58.716	0.8149	0.7975	0.9171	0.6701
8	1.0088	0.8452	57.973	0.9508	0.9169	1.0671	0.7736
9	1.1575	0.9536	57.227	1.0870	1.0333	1.2401	0.8739
10	1.2883	1.0581	56.488	1.2235	1.1466	1.4331	0.9715
11	1.4291	1.1618	55.754	1.3604	1.2571	1.6477	1.0655
12	1.5698	1.2618	55.026	1.4977	1.3667	1.8823	1.1569
13	1.7136	1.3591	54.304	1.6352	1.4696	2.1359	1.2487

POINT NUMBER	X R E A N I M E O A T A		SURFACE COORDINATE DATA	
	ANGLE THICKNESS	YS	XP	YP
14	.18513	1.539	33.593	.2227
15	.19221	1.561	32.885	.22974
16	.21374	1.6354	32.189	.33116
17	.22736	1.7234	31.503	.43253
18	.23915	1.7942	30.934	.53357
19	.25075	1.8635	30.387	.63459
21	.26245	1.9313	29.771	.73556
21	.27414	1.9974	29.177	.83649
22	.28584	2.0619	28.574	.93736
23	.29754	2.1248	27.962	1.03813
24	.30921	2.1861	27.343	1.13895
25	.32193	2.2457	26.714	1.23967
26	.33263	2.3024	26.077	1.34049
27	.34432	2.3562	25.432	1.44125
28	.35602	2.4072	24.778	1.54201
29	.36772	2.4562	24.115	1.64276
30	.37941	2.5037	23.443	1.74351
31	.39111	2.5494	22.763	1.84425
32	.40282	2.5939	22.076	1.94501
33	.41451	2.6365	21.378	2.04576
34	.42624	2.6771	20.668	2.14651
35	.43793	2.7158	19.955	2.24726
36	.44963	2.7521	19.233	2.34801
37	.46132	2.7861	18.502	2.44876
38	.47302	2.8179	17.764	2.54951
39	.48471	2.8476	17.018	2.65026
40	.49641	2.8754	16.264	2.75101
41	.50811	2.9013	15.502	2.85176
42	.51981	2.9254	14.733	2.95251
43	.53151	2.9476	13.957	3.05326
44	.54321	2.9679	13.174	3.15401
45	.55491	2.9863	12.384	3.25476
46	.56661	2.9928	11.587	3.35551
47	.57831	2.9974	10.784	3.45626
48	.59001	2.9999	9.974	3.55701
49	.60171	2.9999	9.157	3.65776
50	.61341	2.9974	8.334	3.75851
51	.62511	2.9928	7.507	3.85926
52	.63681	2.9863	6.674	3.95999
53	.64851	2.9778	5.837	4.06074
54	.66021	2.9674	4.994	4.16149
55	.67191	2.9551	4.147	4.26224
56	.68361	2.9408	3.297	4.36299
57	.69531	2.9246	2.444	4.46374
58	.70701	2.9066	1.589	4.56449
59	.71871	2.8868	0.734	4.66524
60	.73041	2.8652	-0.121	4.76599
61	.74211	2.8418	-0.876	4.86674
62	.75381	2.8166	-1.631	4.96749
63	.76551	2.7896	-2.386	5.06824
64	.77721	2.7608	-3.141	5.16899
65	.78891	2.7302	-3.896	5.26974
66	.80061	2.6978	-4.651	5.37049
67	.81231	2.6636	-5.406	5.47124
68	.82401	2.6276	-6.161	5.57199
69	.83571	2.5908	-6.916	5.67274

POINT NUMBER	M E A N L I N E D A T A				S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
70	.85936	.35353	.203	.01932	.85932	.36320	.85939	.34387
71	.87212	.35350	-.533	.91832	.87220	.36250	.87203	.34449
72	.88488	.35330	-1.265	.31863	.88506	.36164	.88469	.34495
73	.89764	.35293	-1.997	.01536	.89790	.36061	.89737	.34526
74	.91039	.35241	-2.728	.91401	.91073	.35940	.91006	.34541
75	.92315	.35172	-3.458	.01264	.92354	.35803	.92277	.34541
76	.93591	.35086	-4.188	.01127	.93632	.35649	.93550	.34524
77	.94867	.34985	-4.916	.00989	.94913	.35478	.94825	.34492
78	.96143	.34867	-5.642	.00853	.96185	.35290	.96101	.34444
79	.97419	.34733	-6.367	.00713	.97458	.35186	.97380	.34380
80	.98695	.34582	-7.089	.00573	.98730	.34965	.98660	.34299
81	.99971	.34415	-7.810	.00433	1.00000	.34628	.99942	.34202

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 4

BETA1 = 12.129 (BLADE INLET ANGLE.)
 BETA2 = 7.319 (BLADE OUTLET ANGLE.)
 YZERO = 0.7210 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = 1.241 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 1.1210 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.300 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CHORD = 2.5595 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0531
 STAGGER ANGLE = 18.106
 CAMBER ANGLE = 69.867
 SECTION AREA = .83236

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XCAR = .67261
 YCAR = .25169

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .98821
 IY = .36172
 IXY = .03157

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 18.661

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .80313 (AT 18.661 WITH 'X' AXIS)
 IPY = .20192 (AT 18.661 WITH 'Y' AXIS)

POINT NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
1	.10221	0.01330	62.128	.70462	.30073	-.03154	.03369	-.01164
2	.31567	.11203	61.619	.70662	.31355	-.01664	.01780	-.04962
3	.48914	.23776	60.708	.60841	.02660	-.02695	.01108	-.02097
4	.64261	.31520	59.999	.61036	.03927	-.03917	.04594	-.03123
5	.85677	.34636	59.291	.61228	.05214	-.05111	.05996	-.04161
6	.88954	.35724	58.584	.61417	.06512	-.06278	.07385	-.05170
7	.88303	.36785	57.881	.61602	.07809	-.07617	.08782	-.06153
8	.95607	.37619	57.181	.61802	.09108	-.08930	.10186	-.07199
9	.11936	.38024	56.483	.61959	.10411	-.09616	.11576	-.08241
10	.12161	.38211	55.784	.62131	.11717	-.10776	.12963	-.09247
11	.13687	.38211	55.115	.62298	.13026	-.11710	.14360	-.09830
12	.15333	.38211	54.432	.62463	.14338	-.12720	.15729	-.10691
13	.16381	.38211	53.762	.62618	.15553	-.13705	.17107	-.11529

POINT NUMBER X M E A N L I N E D A Y A ANGLE THICKNESS SURFACE COORDINATE DATA XP YP

14	.1727	.1352	33.103	.12769	.16973	.14656	.18483	.12346
15	.19273	.14373	32.448	.12916	.18291	.15604	.19858	.13142
16	.20423	.15210	31.805	.13057	.19614	.16517	.21225	.13919
17	.21766	.16043	31.174	.13192	.20943	.17449	.22592	.14678
18	.22924	.16735	30.631	.13303	.22082	.18157	.23765	.15315
19	.24041	.17414	30.179	.13411	.23227	.18889	.24936	.15938
20	.25239	.18077	29.816	.13512	.24374	.19655	.26184	.16549
21	.26396	.18725	29.444	.13617	.25523	.20394	.27273	.17145
22	.27554	.19357	29.162	.13703	.26675	.21086	.28424	.17728
23	.28712	.19974	27.773	.13791	.27829	.21651	.29592	.18297
24	.29859	.20576	27.169	.13873	.28985	.22239	.30753	.18853
25	.31027	.21162	26.595	.13951	.30143	.22730	.31910	.19395
26	.32184	.21733	26.032	.14024	.31304	.23243	.33064	.19924
27	.33342	.22288	25.299	.14091	.32468	.24336	.34216	.20439
28	.34499	.22827	24.555	.14153	.33633	.24715	.35366	.20940
29	.35657	.23351	24.301	.14213	.34801	.25274	.36513	.21428
30	.36814	.23853	23.335	.14261	.35973	.25814	.37658	.21902
31	.37972	.24350	22.563	.14307	.37142	.26337	.38802	.22362
32	.39130	.24825	21.473	.14347	.38316	.26846	.39943	.22809
33	.40287	.25289	21.276	.14381	.39492	.27325	.41082	.23242
34	.41445	.25743	20.555	.14411	.40671	.27838	.42263	.23678
35	.42603	.26185	19.852	.14434	.41851	.28314	.43443	.24100
36	.43762	.26611	19.156	.14451	.43036	.28773	.44623	.24508
37	.44920	.27021	18.503	.14462	.44227	.29227	.45802	.24905
38	.46079	.27415	17.854	.14466	.45411	.29661	.46980	.25289
39	.47237	.27795	17.228	.14464	.46601	.30077	.48157	.25663
40	.48395	.28160	16.623	.14456	.47791	.30481	.49335	.26026
41	.49553	.28513	16.040	.14441	.48977	.30874	.50514	.26378
42	.50711	.28852	15.479	.14427	.50162	.31257	.51692	.26722
43	.51869	.29178	14.940	.14414	.51347	.31631	.52873	.27056
44	.53027	.29493	14.425	.14402	.52522	.31995	.54049	.27381
45	.54185	.29797	13.933	.14392	.53701	.32347	.55223	.27698
46	.55343	.30091	13.466	.14382	.54877	.32682	.56407	.28007
47	.56501	.30372	13.022	.14376	.56051	.33006	.57587	.28310
48	.57659	.30646	12.603	.14374	.57225	.33321	.58768	.28605
49	.58817	.30910	12.209	.14374	.58399	.33625	.59953	.28894
50	.59975	.31167	11.819	.14376	.60571	.33919	.61138	.29179
51	.61133	.31415	11.413	.14376	.61743	.34204	.62326	.29457
52	.62291	.31655	10.985	.14375	.62915	.34481	.63513	.29728
53	.63449	.31884	10.544	.14369	.64087	.34747	.64699	.29992
54	.64607	.32104	10.185	.14373	.65261	.35004	.65886	.30248
55	.65765	.32314	9.811	.14367	.66435	.35251	.67072	.30496
56	.66923	.32513	9.419	.14361	.67609	.35489	.68257	.30736
57	.68081	.32702	8.813	.14351	.68783	.35718	.69443	.30967
58	.69239	.32879	8.385	.14347	.70957	.35931	.70629	.31188
59	.70397	.33045	7.842	.14320	.72131	.36132	.71815	.31399
60	.71555	.33199	6.982	.14320	.73305	.36321	.73001	.31601
61	.72713	.33341	6.485	.14317	.74479	.36504	.74188	.31792
62	.73871	.33473	5.811	.14312	.75653	.36681	.75375	.31972
63	.75029	.33597	5.203	.14306	.76827	.36853	.76562	.32141
64	.76187	.33710	4.571	.14303	.78001	.37021	.77750	.32298
65	.77345	.33810	3.926	.14303	.79175	.37181	.78939	.32443
66	.78503	.33892	3.217	.14303	.80349	.37337	.80129	.32588
67	.79661	.33958	2.491	.14303	.81523	.37481	.81317	.32717
68	.80819	.34017	1.768	.14303	.82697	.37613	.82503	.32831
69	.81977	.34010	1.142	.14303	.83871	.37735	.83687	.32930

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.85448	.34025	.313	.85443	.3538	.85454	.33013
71	.86768	.34024	-4.18	.86775	.34958	.86761	.33080
72	.88089	.34006	-1.151	.88106	.34880	.88071	.33132
73	.89419	.33971	-1.887	.89435	.34774	.89382	.33168
74	.90729	.33919	-2.625	.90762	.34651	.90695	.33187
75	.92049	.33850	-3.364	.92088	.34510	.92010	.33191
76	.93369	.33764	-4.105	.93411	.34351	.93327	.33177
77	.94689	.33660	-4.846	.94733	.34174	.94646	.33146
78	.96009	.33545	-5.589	.96053	.33980	.95966	.33099
79	.97333	.33402	-6.332	.97370	.33769	.97289	.33035
80	.98650	.33247	-7.175	.98686	.33539	.98613	.32954
81	.99970	.33074	-7.819	1.00000	.33293	.99940	.32855

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 5

BETA1 = 61.185 (BLADE INLET ANGLE.)
 BETA2 = 7.553 (BLADE OUTLET ANGLE.)
 YERO = 0.1215 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = 0.1215 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.1215 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.5330 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORO = 2.3995 (MERIDIONAL CHORD OF SECTION.)

NONVALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.3493
 STAGGER ANGLE = 17.666
 CAMBER ANGLE = 49.919
 SECTION AREA = 0.33267

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

YEAR = 0.7439
 YEAB = 0.2157

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.13127
 IY = 0.32174
 IXY = 0.0354

ANGLE OF INCLINATION OF (ONC) PRINCIPAL AXIS TO 'X' AXIS = 17.754

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.3073 (AT 17.754 WITH 'X' AXIS)
 IPY = 0.3192 (AT 17.754 WITH 'Y' AXIS)

POINT NUMBER	X	Y	ANGLE THICKNESS	SURFACE COORDINATE DATA		
				XS	YS	YP
1	0.226	0.1739	61.765	0.0651	0.0077	0.1170
2	0.1523	0.1116	63.627	0.0646	0.1314	0.1732
3	0.2821	0.2211	39.763	0.0638	0.2552	0.2533
4	0.4113	0.3278	39.199	0.1128	0.3793	0.3577
5	0.5413	0.4320	36.652	0.1215	0.5037	0.4796
6	0.6711	0.5338	37.795	0.1399	0.6284	0.5991
7	0.8013	0.6333	37.140	0.1503	0.7533	0.7141
8	0.9317	0.7324	36.688	0.1757	0.8785	0.8487
9	1.0615	0.8252	35.838	0.1933	1.0040	0.9334
10	1.1912	0.9178	35.193	0.2299	1.1297	1.0136
11	1.3210	1.0092	34.551	0.2264	1.2558	1.1194
12	1.4507	1.0965	33.914	0.2424	1.3821	1.1971
13	1.5794	1.1827	33.283	0.2587	1.5087	1.2995
						1.0374
						0.1732
						0.1088
						0.2679
						0.3844
						0.4785
						0.5703
						0.6597
						0.7470
						0.8320
						0.9150
						0.9959
						1.0749

POINT NUMBER	X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA				
					XS	YS	XP	YP	XP
14	.1732	.1266	32.658	.62731	.16355	.13818	.17829	.11519	
15	.1389	.1390	32.739	.62877	.17626	.14710	.19152	.12271	
16	.19667	.14292	31.427	.63018	.18903	.15980	.20473	.13005	
17	.20384	.15076	30.824	.63153	.20176	.16310	.21792	.13722	
18	.22121	.15748	30.293	.63288	.21297	.17158	.22945	.14337	
19	.23259	.16405	29.753	.63378	.22421	.17871	.24097	.14939	
20	.24396	.17048	29.204	.63484	.23547	.18568	.25246	.15527	
21	.25534	.17677	28.645	.63585	.24675	.19250	.26393	.16103	
22	.26672	.18291	28.176	.63682	.25805	.19915	.27534	.16666	
23	.27813	.18890	27.697	.63774	.26938	.20564	.28683	.17216	
24	.28947	.19475	27.208	.63861	.28073	.21196	.29827	.17753	
25	.30104	.20045	26.719	.63943	.29213	.21812	.30958	.18277	
26	.31222	.20600	26.231	.64021	.30353	.22411	.32093	.18788	
27	.32359	.21139	25.741	.64093	.31492	.22993	.33227	.19286	
28	.33497	.21664	25.251	.64163	.32636	.23558	.34358	.19771	
29	.34634	.22174	24.761	.64222	.33782	.24105	.35486	.20242	
30	.35772	.22668	24.262	.64279	.34937	.24635	.36613	.20701	
31	.36919	.23147	23.768	.64339	.36081	.25147	.37738	.21147	
32	.38147	.23610	23.277	.64376	.37233	.25642	.38863	.21579	
33	.39184	.24058	22.784	.64417	.38387	.26118	.39981	.21998	
34	.40318	.24498	22.287	.64453	.39540	.26594	.41145	.22421	
35	.41452	.24940	21.786	.64484	.40794	.27051	.42309	.22831	
36	.42735	.25358	21.272	.64508	.42048	.27488	.43472	.23227	
37	.43919	.25759	20.747	.64526	.43204	.27916	.44634	.23612	
38	.45113	.26146	20.211	.64538	.44413	.28337	.45796	.23986	
39	.46287	.26519	19.664	.64543	.45615	.28759	.46957	.24348	
40	.47470	.26877	19.107	.64542	.46823	.29154	.48118	.24701	
41	.48654	.27223	18.542	.64535	.48037	.29533	.49279	.25044	
42	.49838	.27556	17.965	.64521	.49236	.29933	.50440	.25377	
43	.51022	.27877	17.378	.64502	.50443	.30332	.51601	.25702	
44	.52216	.28186	16.780	.64476	.51649	.30734	.52762	.26018	
45	.53389	.28485	16.171	.64446	.52855	.31142	.53923	.26327	
46	.54573	.28772	15.544	.64413	.54061	.31548	.55085	.26628	
47	.55761	.29050	14.901	.64368	.55266	.31949	.56248	.26922	
48	.56944	.29319	14.244	.64322	.56470	.32348	.57411	.27210	
49	.58124	.29578	13.575	.64273	.57674	.32744	.58575	.27491	
50	.59314	.29844	12.893	.64211	.58945	.33135	.59804	.27782	
51	.60525	.30099	12.198	.64146	.60217	.32532	.61032	.28066	
52	.61745	.30345	11.491	.64077	.61489	.32926	.62260	.28343	
53	.63125	.30580	10.771	.64003	.62762	.32549	.63488	.28612	
54	.64375	.30806	9.992	.63924	.64035	.32338	.64715	.28873	
55	.65625	.31020	9.153	.63841	.65308	.32114	.65942	.29126	
56	.66875	.31224	8.311	.63754	.66581	.31878	.67169	.29370	
57	.68125	.31417	7.455	.63662	.67854	.31626	.68396	.29606	
58	.69375	.31598	6.586	.63562	.69127	.31354	.69623	.29832	
59	.70625	.31767	5.703	.63468	.70403	.31067	.70850	.30048	
60	.71875	.31925	4.807	.63368	.71673	.30765	.72076	.30254	
61	.73125	.32079	3.897	.63263	.72945	.30450	.73305	.30450	
62	.74375	.32223	2.973	.63151	.74217	.30127	.74534	.30636	
63	.75625	.32353	2.036	.63038	.75488	.30000	.75763	.30810	
64	.76875	.32473	1.086	.62923	.76759	.30000	.76992	.30973	
65	.78125	.32523	0.122	.62806	.78028	.30000	.78223	.31124	
66	.79375	.32510	0.293	.62674	.79144	.30000	.79454	.31275	
67	.80625	.32480	0.593	.62540	.80298	.30000	.80684	.31412	
68	.82221	.32434	1.001	.62402	.81481	.30000	.81914	.31533	
69	.83586	.32371	1.493	.62263	.82663	.30000	.83143	.31640	

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.84352	.32791	.478	.84943	.33851	.84961	.31730
71	.86317	.32793	-.246	.86321	.33781	.86313	.31805
72	.87682	.32779	-.976	.87698	.33694	.87667	.31864
73	.89047	.32747	-1.715	.89073	.33587	.89022	.31906
74	.90413	.32697	-2.463	.90445	.33462	.90380	.31932
75	.91778	.32629	-3.213	.91817	.33319	.91739	.31943
76	.93143	.32544	-3.971	.93186	.33156	.93101	.31931
77	.94518	.32440	-4.736	.94553	.32975	.94464	.31904
78	.95874	.32317	-5.508	.95918	.32775	.95829	.31863
79	.97239	.32176	-6.284	.97281	.32556	.97197	.31797
80	.98604	.32017	-7.066	.98641	.32318	.98567	.31715
81	.99969	.31838	-7.853	1.00000	.32061	.99938	.31614

POINT NUMBER	M E A S U R E M E N T S		SURFACE COORDINATE DATA		Y P	
	X	ANGLE THICKNESS	MS	VS		XP
14	16886	12039	32.174	15962	17411	10888
15	17952	12826	31.587	17232	14747	11605
16	19213	13596	31.007	19443	14545	12307
17	20484	14348	30.432	19688	15734	12992
18	21752	14993	29.928	20779	16486	13579
19	22711	15624	29.412	20872	17193	14155
20	23649	16242	28.885	20968	17756	14718
21	24497	16847	28.347	20966	18224	15273
22	25255	17435	27.798	20966	18766	15809
23	25933	17995	27.238	20966	19297	16336
24	26541	18578	26.666	20966	19809	16851
25	27089	19128	26.082	20966	20318	17353
26	27577	19643	25.487	20966	20818	17843
27	28005	20124	24.879	20966	21300	18321
28	28374	20571	24.259	20966	21766	18786
29	28687	20983	23.627	20966	22218	19238
30	28943	21361	22.983	20966	22653	19678
31	29146	21713	22.326	20966	23072	20105
32	29294	22041	21.656	20966	23476	20520
33	29387	22344	20.974	20966	23866	20921
34	29425	22623	20.283	20966	24241	21329
35	29408	22887	19.585	20966	24601	21724
36	29337	23137	18.880	20966	24946	22106
37	29211	23373	18.171	20966	25276	22477
38	29041	23596	17.459	20966	25591	22836
39	28827	23807	16.743	20966	25891	23185
40	28570	24007	16.023	20966	26176	23523
41	28271	24196	15.304	20966	26446	23853
42	27931	24373	14.584	20966	26701	24173
43	27551	24548	13.854	20966	26941	24486
44	27131	24711	13.123	20966	27166	24790
45	26671	24861	12.391	20966	27376	25087
46	26181	24996	11.646	20966	27571	25377
47	25651	25116	10.897	20966	27751	25661
48	25081	25221	10.143	20966	27916	25938
49	24481	25311	9.384	20966	28066	26210
50	23851	25386	8.619	20966	28201	26476
51	23181	25446	7.849	20966	28321	26735
52	22481	25491	7.074	20966	28426	27077
53	21751	25521	6.294	20966	28516	27467
54	20981	25536	5.509	20966	28591	27817
55	20181	25536	4.719	20966	28651	28125
56	19351	25521	3.924	20966	28696	28391
57	18481	25491	3.124	20966	28726	28616
58	17581	25446	2.319	20966	28741	28796
59	16651	25386	1.509	20966	28741	28936
60	15681	25311	0.694	20966	28726	29036
61	14681	25221	0.000	20966	28701	29106
62	13651	25116	-0.691	20966	28666	29146
63	12581	25007	-1.376	20966	28621	29166
64	11481	24891	-2.054	20966	28566	29166
65	10351	24766	-2.724	20966	28501	29146
66	9181	24631	-3.386	20966	28426	29106
67	8081	24486	-4.041	20966	28341	29046
68	6951	24331	-4.689	20966	28246	28966
69	5781	24166	-5.330	20966	28141	28866

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.84488	.31670	.533	.84478	.32778	.84499	.30562
71	.85896	.31674	-.189	.85899	.32706	.85892	.30642
72	.87393	.31668	-.921	.87318	.32616	.87288	.30705
73	.88710	.31629	-1.663	.88736	.32536	.88685	.30752
74	.90118	.31579	-2.414	.90151	.32377	.90084	.30781
75	.91525	.31510	-3.174	.91565	.32226	.91485	.30792
76	.92932	.31422	-3.943	.92976	.32060	.92888	.30785
77	.94339	.31316	-4.723	.94385	.31872	.94293	.30760
78	.95747	.31198	-5.506	.95792	.31664	.95701	.30716
79	.97154	.31044	-6.299	.97197	.31436	.97111	.30653
80	.98561	.30879	-7.109	.98600	.31189	.98523	.30570
81	.99968	.30694	-7.909	1.00000	.30921	.99937	.30467

POINT NUMBER W E S T A N G L E I N C R E D I A T A

SURFACE COORDINATE DATA

XP YS XP YP

POINT NUMBER	W	E	S	T	A	XP	YS	XP	YP
14	16874	11612	31.723	52737	15754	12776	17193	10449	
15	17223	12374	31.147	02885	16977	13611	10469	11142	
16	18972	13123	30.573	13229	18202	14427	13743	11819	
17	20222	13852	30.392	33188	19630	15224	22103	12481	
18	21274	14465	29.528	93283	27485	15894	22103	13.37	
19	22366	15066	29.033	03195	21543	16551	23169	13582	
20	23419	15654	28.684	03582	22603	17193	24274	14115	
21	24511	16230	27.982	13636	23665	17822	25356	14637	
22	25583	16793	27.425	33706	24730	18437	26436	15148	
23	26552	17343	26.877	33801	25795	19.30	27515	15648	
24	27724	17880	26.315	03882	26865	19624	28593	16135	
25	28333	18403	25.743	03979	27936	20195	29684	16612	
26	29872	18914	25.166	64361	29009	20752	30736	17076	
27	30945	19411	24.572	04333	30084	21293	31805	17529	
28	32317	19894	23.967	04212	31161	21819	32872	17974	
29	33889	20364	23.352	04283	32241	22329	33937	18399	
30	34491	20823	22.721	04344	33322	22824	35003	18817	
31	35234	21262	22.087	04403	34406	23322	36061	19222	
32	36036	21690	21.426	04453	35492	23755	37120	19615	
33	37374	22104	20.761	34597	36580	24211	38177	19987	
34	38521	22528	20.154	04554	37739	24657	39301	20389	
35	39864	22937	19.365	04595	38899	25135	40423	20771	
36	40833	23371	18.596	34631	40063	25524	41545	21138	
37	41944	23719	18.046	04681	41222	25946	42666	21494	
38	43286	24075	17.415	74884	42385	26372	43787	21843	
39	44527	24426	16.807	24702	43547	26847	44907	22176	
40	45358	24765	16.219	04714	44713	27333	46027	22501	
41	46313	25093	15.654	34720	45873	27853	47147	22818	
42	47351	25405	15.110	04719	47036	28363	48266	23126	
43	48493	25707	14.540	04713	48199	28898	49386	23427	
44	49814	25999	13.993	04709	49362	29428	50506	23720	
45	51376	26281	13.623	04682	50524	29956	51627	24005	
46	52217	26552	13.171	04658	51686	30482	52748	24285	
47	53359	26815	12.747	04623	52848	30972	53869	24558	
48	54793	27069	12.347	04594	54009	31433	54991	24825	
49	56461	27315	11.972	04554	55169	31894	56114	25088	
50	58267	27591	11.547	04531	56356	32362	57237	25386	
51	59272	27856	11.112	04482	57584	32822	58361	25677	
52	60943	28111	10.667	04376	58823	33282	59483	25961	
53	62289	28356	10.212	04385	60062	33744	60603	26237	
54	63584	28589	9.747	04328	61311	34207	61727	26506	
55	64923	28811	9.273	04165	62563	34672	62848	26766	
56	66323	29022	8.789	04056	63810	35136	63968	27017	
57	67845	29221	8.293	33953	65059	35602	65083	27260	
58	69471	29408	7.789	03865	66309	36067	66193	27493	
59	70222	29583	7.274	03762	67558	36522	67303	27710	
60	71547	29746	6.749	03654	68807	36977	68414	27932	
61	72873	29897	6.215	03542	70056	37432	69524	28136	
62	74398	30035	5.678	03426	71305	37887	70634	28330	
63	75823	30162	5.116	03306	72554	38342	71744	28513	
64	76449	30271	4.552	03183	73803	38797	72854	28686	
65	78094	30363	3.978	03055	75052	39252	73964	28847	
66	79739	30443	3.363	02913	76301	39707	75074	29009	
67	81484	30519	2.686	02767	77550	40162	76184	29150	
68	82223	30589	2.117	02618	78800	40617	77294	29291	
69	82663	30641	1.332	02465	80049	41072	78404	29409	

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.84374	.31666	.633	.64061	.31820	.84086	.29511
71	.85519	.31673	-.182	.85520	.31748	.85517	.29598
72	.86963	.31662	-.817	.86978	.31656	.86949	.29667
73	.88408	.31632	-1.553	.88433	.31545	.88384	.29719
74	.89853	.31583	-2.311	.89867	.31413	.89820	.29753
75	.91298	.31515	-3.082	.91338	.31261	.91258	.29769
76	.92743	.31428	-3.866	.92788	.31108	.92699	.29767
77	.94188	.31320	-4.664	.94235	.30895	.94141	.29744
78	.95633	.31192	-5.474	.95681	.30681	.95586	.29702
79	.97078	.31043	-6.295	.97122	.30446	.97034	.29640
80	.98523	.29873	-7.131	.98562	.30189	.98483	.29557
81	.99968	.29681	-7.976	1.00000	.29911	.99936	.29452

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 8

BETA1 = 14.537 (BLADE INLET ANGLE.)
 BETA2 = 8.155 (BLADE OUTLET ANGLE.)
 YZERO = .37224 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = .84632 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .37224 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .512 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORO = 2.2739 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.8433
 STAGGER ANGLE = 16.545
 CAMBER ANGLE = 46.632
 SECTION AREA = .93403

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47740
 YBAR = .22439

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03317
 IY = .00182
 IXY = .07051

ANGLY OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'Y' AXIS = 15.924

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPI = .85932 (AT 15.928 WITH 'X' AXIS)
 IPI = .92716 (AT 15.928 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.9223	0.1129	19.547	.0267	.03153	.30379	-.00263
2	.71474	.11979	37.995	.24661	.01271	.01239	.1677
3	.72715	.11938	37.442	.24871	.02456	.02276	.02374
4	.73955	.22879	36.685	.33141	.03643	.03295	.34268
5	.35176	.13431	26.327	.21228	.04832	.04295	.05560
6	.46437	.14794	35.747	.05113	.06724	.05277	.06853
7	.97678	.15583	35.276	.01594	.07218	.05239	.04130
8	.38718	.16454	36.642	.13773	.08424	.07104	.09422
9	.10159	.17303	34.178	.01948	.09613	.08139	.13705
10	.11623	.24133	33.513	.02124	.13814	.09117	.11985
11	.12463	.14964	32.946	.27288	.12018	.09916	.13262
12	.13881	.13741	32.383	.02892	.13225	.13777	.14537
13	.15122	.11928	31.813	.02912	.14633	.11029	.15813

POINT NUMBER	M E A S U R E M E N T		A N G L E		T H I C K N E S S		S U R F A C E C O O R D I N A T E D A T A			
	X	Y	1	2	1	2	XS	YS	XP	YP
14	.16362	.11261	31.245	.62767			.15645	.12464	.17080	.10098
15	.17613	.12825	30.678	.62918			.16859	.13280	.16348	.10770
16	.18844	.14046	29.545	.63206			.18075	.14578	.15613	.11427
17	.20084	.15267	28.367	.63521			.19294	.15920	.14859	.12169
18	.21321	.16486	27.142	.63863			.20515	.17262	.14140	.12928
19	.22558	.17705	25.878	.64232			.21738	.18614	.13421	.13709
20	.23795	.18924	24.578	.64633			.22962	.19966	.12702	.14515
21	.25032	.20143	23.246	.65064			.24186	.21318	.12000	.15327
22	.26269	.21362	21.888	.65528			.25410	.22670	.11313	.16165
23	.27506	.22581	20.501	.66025			.26634	.24022	.10636	.17027
24	.28743	.23800	19.084	.66546			.27858	.25374	.10000	.17914
25	.30000	.25019	17.638	.67091			.29082	.26726	.09421	.18822
26	.31237	.26238	16.162	.67659			.30306	.28078	.08896	.19751
27	.32474	.27457	14.657	.68250			.31530	.29430	.08421	.20711
28	.33711	.28676	13.121	.68863			.32754	.30782	.07996	.21702
29	.34948	.29895	11.556	.69498			.33978	.32134	.07621	.22724
30	.36185	.31114	9.971	.70165			.35202	.33486	.07296	.23787
31	.37422	.32333	8.376	.70864			.36426	.34838	.07021	.24891
32	.38659	.33552	6.771	.71594			.37650	.36190	.06796	.26035
33	.39896	.34771	5.146	.72355			.38874	.37542	.06621	.27219
34	.41133	.35990	3.501	.73146			.40098	.38894	.06496	.28443
35	.42370	.37209	1.826	.73967			.41322	.40246	.06421	.29707
36	.43607	.38428	0.131	.74818			.42546	.41598	.06396	.31011
37	.44844	.39647		.75699			.43770	.42950	.06421	.32355
38	.46081	.40866		.76600			.44994	.44302	.06496	.33739
39	.47318	.42085		.77521			.46218	.45654	.06621	.35163
40	.48555	.43304		.78462			.47442	.47006	.06796	.36637
41	.49792	.44523		.79423			.48666	.48358	.07021	.38161
42	.51029	.45742		.80404			.49890	.49710	.07296	.39735
43	.52266	.46961		.81405			.51114	.51062	.07621	.41359
44	.53503	.48180		.82426			.52338	.52414	.08096	.43033
45	.54740	.49399		.83467			.53562	.53766	.08621	.44757
46	.55977	.50618		.84528			.54786	.55118	.09196	.46531
47	.57214	.51837		.85609			.56010	.56470	.09821	.48355
48	.58451	.53056		.86700			.57234	.57822	.10496	.50229
49	.59688	.54275		.87801			.58458	.59174	.11221	.52153
50	.60925	.55494		.88912			.59682	.60526	.11996	.54127
51	.62162	.56713		.90033			.60906	.61878	.12821	.56151
52	.63399	.57932		.91164			.62130	.63230	.13696	.58225
53	.64636	.59151		.92305			.63354	.64582	.14621	.60349
54	.65873	.60370		.93456			.64578	.65934	.15596	.62523
55	.67110	.61589		.94617			.65792	.67286	.16621	.64747
56	.68347	.62808		.95788			.67016	.68638	.17696	.67021
57	.69584	.64027		.96969			.68240	.70000	.18821	.69345
58	.70821	.65246		.98160			.69464	.71352	.20045	.71719
59	.72058	.66465		.99361			.70688	.72704	.21269	.74143
60	.73295	.67684		1.00572			.71912	.74056	.22543	.76617
61	.74532	.68903		1.01793			.73136	.75408	.23817	.79141
62	.75769	.70122		1.03024			.74360	.76760	.25091	.81715
63	.77006	.71341		1.04265			.75584	.78112	.26365	.84339
64	.78243	.72560		1.05516			.76808	.79464	.27639	.87013
65	.79480	.73779		1.06777			.78032	.80816	.28913	.89737
66	.80717	.75000		1.08038			.79256	.82168	.30187	.92511
67	.81954	.76219		1.09309			.80480	.83520	.31461	.95335
68	.83191	.77438		1.10590			.81704	.84872	.32735	.98209
69	.84428	.78657		1.11871			.82928	.86224	.34009	1.01133

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.83715	.23754	.671	.83701	.30954	.83729	.28555
71	.85193	.23763	-.339	.85154	.33879	.85192	.28646
72	.86670	.23752	-.767	.86684	.33785	.86656	.28720
73	.88148	.23723	-1.512	.88173	.33670	.88123	.28776
74	.89623	.23674	-2.274	.89659	.33534	.89591	.28814
75	.91113	.23605	-3.052	.91144	.33378	.91061	.28833
76	.92580	.23516	-3.847	.92626	.33230	.92534	.28833
77	.94058	.23407	-4.659	.94106	.33000	.94009	.28813
78	.95535	.23275	-5.486	.95583	.29779	.95487	.28772
79	.97012	.23123	-6.328	.97058	.29536	.96967	.28710
80	.98499	.23948	-7.184	.98533	.29270	.98449	.28626
81	.99967	.28750	-8.055	1.00000	.28981	.99935	.28519

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 9

BETA1 = 37.918 (BLADE INLET ANGLE.)
 BETA2 = -8.163 (BLADE OUTLET ANGLE.)
 YZERO = 0.1226 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = 0.7474 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 YONE = 0.1226 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.5937 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 Z = 2.2547 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0331
 STAGGER ANGLE = 15.617
 CAMBER ANGLE = 66.157
 SECTION AREA = 0.33459

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.7828
 YBAR = 0.2193

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.1116
 IY = 0.0185
 IXY = 0.00752

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.434

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.3302 (AT 15.434 WITH 'X' AXIS)
 IPY = 0.0199 (AT 15.434 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	0.3235	0.1703	37.918	0.0097	0.1285	0.10379	-0.00185
2	0.2169	0.1952	37.368	0.1267	0.1216	0.1671	0.00688
3	0.0273	0.1887	36.955	0.2446	0.2230	0.2961	0.1543
4	0.3338	0.2803	36.319	0.3326	0.3226	0.4249	0.2380
5	0.3572	0.3701	35.779	0.4609	0.4234	0.5534	0.3198
6	0.3646	0.4582	35.226	0.5994	0.5155	0.6818	0.3999
7	0.3763	0.5445	34.691	0.7182	0.6108	0.8059	0.4783
8	0.3875	0.6291	34.162	0.8372	0.733	0.9378	0.5549
9	0.3919	0.7119	33.593	0.9564	0.7940	1.0654	0.6298
10	0.3943	0.7930	33.036	1.0759	0.8830	1.1928	0.7031
11	0.3958	0.8725	32.481	1.1956	0.9792	1.3203	0.7746
12	0.3962	0.9502	31.921	1.3156	1.0556	1.4468	0.8448
13	0.3966	1.0263	31.369	1.4356	1.1392	1.5735	0.9133

POINT NUMBER	K	M E A S U R E M E N T A		SURFACE COORDINATE DATA		XP	YP
		ANGLE	THICKNESS	XS	YS		
14	.16281	110.6	30.797	.1563	.12211	.15999	.09602
15	.17515	1.734	30.232	.16773	.13112	.19263	.1.456
16	.18749	1.745	29.665	.17943	.13795	.19510	.11895
17	.19984	1.160	29.197	.19193	.14561	.20774	.11719
18	.21218	1.1695	28.627	.20443	.15312	.22044	.12118
19	.22452	1.170	28.148	.21693	.16062	.23315	.12707
20	.23686	1.1713	27.653	.22943	.16812	.24586	.13186
21	.24920	1.1725	27.157	.24193	.17562	.25857	.13665
22	.26154	1.1736	26.661	.25443	.18312	.27128	.14144
23	.27388	1.1747	26.165	.26693	.19062	.28400	.14623
24	.28622	1.1758	25.669	.27943	.19812	.29671	.15101
25	.29856	1.1769	25.173	.29193	.20562	.30942	.15580
26	.31090	1.1780	24.677	.30443	.21312	.32213	.16059
27	.32324	1.1791	24.181	.31693	.22062	.33484	.16538
28	.33558	1.1802	23.685	.32943	.22812	.34755	.17017
29	.34792	1.1813	23.189	.34193	.23562	.36026	.17496
30	.36026	1.1824	22.693	.35443	.24312	.37297	.17975
31	.37260	1.1835	22.197	.36693	.25062	.38568	.18454
32	.38494	1.1846	21.701	.37943	.25812	.39839	.18933
33	.39728	1.1857	21.205	.39193	.26562	.41110	.19412
34	.40962	1.1868	20.709	.40443	.27312	.42381	.19891
35	.42196	1.1879	20.213	.41693	.28062	.43652	.20370
36	.43430	1.1890	19.717	.42943	.28812	.44923	.20849
37	.44664	1.1901	19.221	.44193	.29562	.46194	.21328
38	.45898	1.1912	18.725	.45443	.30312	.47465	.21807
39	.47132	1.1923	18.229	.46693	.31062	.48736	.22286
40	.48366	1.1934	17.733	.47943	.31812	.50007	.22765
41	.49600	1.1945	17.237	.49193	.32562	.51278	.23244
42	.50834	1.1956	16.741	.50443	.33312	.52549	.23723
43	.52068	1.1967	16.245	.51693	.34062	.53820	.24202
44	.53302	1.1978	15.749	.52943	.34812	.55091	.24681
45	.54536	1.1989	15.253	.54193	.35562	.56362	.25160
46	.55770	1.1999	14.757	.55443	.36312	.57633	.25639
47	.57004	1.2010	14.261	.56693	.37062	.58904	.26118
48	.58238	1.2021	13.765	.57943	.37812	.60175	.26597
49	.59472	1.2032	13.269	.59193	.38562	.61446	.27076
50	.60706	1.2043	12.773	.60443	.39312	.62717	.27555
51	.61940	1.2054	12.277	.61693	.40062	.63988	.28034
52	.63174	1.2065	11.781	.62943	.40812	.65259	.28513
53	.64408	1.2076	11.285	.64193	.41562	.66530	.28992
54	.65642	1.2087	10.789	.65443	.42312	.67801	.29471
55	.66876	1.2098	10.293	.66693	.43062	.69072	.30000
56	.68110	1.2109	9.797	.67943	.43812	.70343	.30519
57	.69344	1.2120	9.301	.69193	.44562	.71614	.31038
58	.70578	1.2131	8.805	.70443	.45312	.72885	.31557
59	.71812	1.2142	8.309	.71693	.46062	.74156	.32076
60	.73046	1.2153	7.813	.72943	.46812	.75427	.32595
61	.74280	1.2164	7.317	.74193	.47562	.76698	.33114
62	.75514	1.2175	6.821	.75443	.48312	.77969	.33633
63	.76748	1.2186	6.325	.76693	.49062	.79240	.34152
64	.77982	1.2197	5.829	.77943	.49812	.80511	.34671
65	.79216	1.2208	5.333	.79193	.50562	.81782	.35190
66	.80450	1.2219	4.837	.80443	.51312	.83053	.35709
67	.81684	1.2230	4.341	.81693	.52062	.84324	.36228
68	.82918	1.2241	3.845	.82943	.52812	.85595	.36747
69	.84152	1.2252	3.349	.84193	.53562	.86866	.37266

POINT NUMBER	M E A N L I N E D A T A			A N G L E T H I C K N E S S			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	Z	ANGLE	THICKNESS	XS	YS	XP	YP	ZP	
70	.83414	.28954	.749	.02485	.83398	.30136	.83430	.27711			
71	.84919	.28964	.748	.02313	.84918	.31121	.84920	.27808			
72	.86424	.29956	-.676	.02138	.86436	.30125	.86411	.27887			
73	.87328	.29928	-1.422	.01963	.87953	.29308	.87904	.27949			
74	.89433	.28881	-2.193	.71787	.89467	.29770	.89399	.27992			
75	.90938	.29813	-2.979	.01597	.90979	.29611	.90896	.28016			
76	.92443	.29724	-3.789	.01413	.92489	.29429	.92396	.28020			
77	.93948	.29614	-4.622	.01226	.93997	.29225	.93898	.28003			
78	.95452	.28481	-5.471	.01039	.95502	.28998	.95403	.27964			
79	.96957	.28325	-6.342	.00852	.97004	.28747	.96910	.27903			
80	.98462	.29146	-7.232	.00660	.98504	.29473	.98420	.27819			
81	.99967	.27943	-8.143	.00469	1.00000	.28175	.99934	.27711			

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 10

BETA1 = 37.412 (BLADE INLET ANGLE.)
 BETA2 = -0.231 (BLADE OUTLET ANGLE.)
 TZERO = 0.227 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = 0.851 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 0.1227 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = -0.030 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.2479 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0353
 STAGGER ANGLE = 15.255
 CAMBER ANGLE = 45.643
 SECTION AREA = .9322

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47897
 YBAR = .21531

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00116
 IY = .01180
 IXY = .00350

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.341

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .0032 (AT 15.041 WITH 'X' AXIS)
 IPY = .03231 (AT 15.041 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.80235	0.11000	37.412	.90471	.00092	.00197	-.07187
2	.31484	.11930	36.883	.08669	.01263	.01198	.01664
3	.92692	.16433	36.352	.00866	.02435	.02192	.02948
4	.03923	.22738	35.818	.01063	.03610	.03168	.04230
5	.05148	.01616	35.281	.01253	.04786	.04127	.05510
6	.36376	.04476	34.742	.01443	.05965	.05369	.06788
7	.37635	.35320	34.201	.01631	.07147	.05394	.08063
8	.38833	.36146	33.658	.01814	.08330	.06931	.09335
9	.10961	.26955	33.113	.01995	.09516	.07791	.10606
10	.11289	.37748	32.566	.02172	.10705	.08653	.11874
11	.12517	.08524	32.018	.02346	.11896	.09519	.13139
12	.13746	.08284	31.468	.02515	.13089	.10357	.14402
13	.14974	.13028	30.917	.02681	.14285	.11178	.15662

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	.152.2	.1755	30.365	.02842	.15483	.11981	.16923
15	.17437	.11467	29.812	.02989	.15685	.12768	.18176
16	.18658	.12163	29.258	.03151	.17888	.13537	.19428
17	.19886	.12643	28.704	.03299	.19094	.14290	.20679
18	.20871	.13377	28.254	.03414	.20863	.14880	.21679
19	.21856	.13921	27.793	.03525	.21034	.15450	.22677
20	.22841	.14415	27.321	.03633	.22007	.16129	.23674
21	.23825	.14918	26.837	.03737	.22981	.16866	.24669
22	.24811	.15411	26.342	.03838	.23958	.17131	.25661
23	.25794	.15893	25.835	.03935	.24937	.17654	.26652
24	.26773	.16365	25.317	.04029	.25917	.18186	.27640
25	.27753	.16825	24.786	.04119	.26901	.18895	.28627
26	.28748	.17274	24.243	.04204	.27885	.19191	.29611
27	.29733	.17712	23.687	.04286	.28872	.19674	.30594
28	.30717	.18138	23.119	.04364	.29861	.20145	.31574
29	.31702	.18552	22.538	.04438	.30851	.20632	.32553
30	.32687	.18955	21.944	.04508	.31844	.21146	.33529
31	.33671	.19346	21.338	.04574	.32839	.21476	.34503
32	.34656	.19724	20.718	.04635	.33836	.21892	.35476
33	.35641	.20090	20.085	.04692	.34835	.22294	.36446
34	.36628	.20441	19.437	.04753	.35843	.22721	.37517
35	.37616	.20786	18.779	.04803	.36860	.23131	.38587
36	.38604	.21123	18.1051	.04851	.37887	.23524	.39656
37	.39592	.21566	17.414	.04892	.38924	.23930	.40724
38	.40581	.21900	16.708	.04929	.40036	.24260	.41792
39	.41568	.22223	16.204	.04963	.41147	.24634	.42863
40	.42556	.22533	15.633	.04985	.42258	.24933	.43928
41	.43544	.22832	15.185	.05014	.43371	.25247	.44995
42	.44532	.23120	14.561	.05047	.44483	.25548	.46063
43	.45520	.23397	14.161	.05075	.45593	.25834	.47130
44	.46508	.23665	13.585	.05106	.46703	.26118	.48198
45	.47496	.23923	13.135	.05122	.47815	.26358	.49266
46	.48484	.24173	12.709	.05131	.48923	.26617	.50335
47	.49472	.24416	12.309	.05135	.50033	.26884	.51404
48	.50460	.24648	11.935	.04973	.51144	.27181	.52474
49	.51448	.24874	11.588	.04946	.52251	.27297	.53544
50	.52436	.25157	11.152	.04903	.53379	.27552	.54628
51	.53424	.25428	10.711	.04852	.54503	.27812	.55710
52	.54412	.25689	10.263	.04792	.55636	.28146	.56792
53	.55400	.25937	9.809	.04725	.56769	.28265	.57873
54	.56388	.26175	9.349	.04649	.57909	.28459	.58954
55	.57376	.26403	8.883	.04567	.59051	.28656	.60035
56	.58364	.26614	8.413	.04477	.60193	.28829	.61116
57	.59352	.26816	7.932	.04381	.61336	.28985	.62197
58	.60340	.27006	7.444	.04278	.62479	.29127	.63278
59	.61328	.27183	6.958	.04169	.63624	.29253	.64359
60	.62316	.27349	6.462	.04054	.64769	.29363	.65440
61	.63304	.27502	5.960	.03934	.65914	.29458	.66521
62	.64292	.27642	5.452	.03808	.67059	.29538	.67602
63	.65280	.27770	4.938	.03676	.68204	.29602	.68683
64	.66268	.27885	4.418	.03541	.69349	.29650	.69764
65	.67256	.27987	3.893	.03393	.70494	.29683	.70845
66	.68244	.28084	3.369	.03242	.71639	.29702	.71926
67	.69232	.28164	2.845	.03080	.72784	.29732	.73007
68	.70220	.28227	2.366	.02913	.73929	.29683	.74088
69	.71208	.28274	1.849	.02742	.75074	.29644	.75169

POINT NUMBER	H E A N L I N E O A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.83174	.29302	.729	.83158	.29585	.83190	.27019
71	.84701	.29312	.125	.84700	.29506	.84701	.27118
72	.86227	.28303	-.732	.86241	.29406	.86214	.27200
73	.87754	.28275	-1.451	.87779	.29285	.87728	.27264
74	.89280	.28226	-2.224	.89316	.29142	.89245	.27309
75	.90807	.28156	-3.019	.91853	.28977	.90764	.27335
76	.92333	.28064	-3.836	.92382	.28789	.92285	.27340
77	.93860	.27951	-4.674	.93911	.28578	.93809	.27324
78	.95387	.27815	-5.533	.95438	.28344	.95335	.27285
79	.96913	.27655	-6.413	.96962	.28186	.96865	.27224
80	.98440	.27471	-7.312	.98482	.27833	.98397	.27139
81	.99966	.27263	-8.231	1.00000	.27496	.99933	.27030

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 11

BETA1 = 37.746 (BLADE INLET ANGLE.)
 BETA2 = -8.330 (BLADE OUTLET ANGLE.)
 YZERO = .03228 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = .34865 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 Z = .33228 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5003 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.2527 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0350
 STAGGER ANGLE = 14.989
 CAMBER ANGLE = 65.376
 SECTION AREA = .83593

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .67954
 YBAR = .21177

IX = .00116
 IY = .00391
 IXY = .00050

SECOND MOMENTS OF AREA ABOUT CENTROID

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.753

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00002 (AT 14.753 WITH 'X' AXIS)
 IPY = .00214 (AT 14.753 WITH 'Y' AXIS)

POINT NUMBER	X	Y	M	E	L	I	N	E	D	A	T	A	SURFACE COORDINATE DATA			
													XS	YS	XP	YP
1	.00236	3.00000	37.346	.00472									.30094	.00188	.10376	-.00108
2	.31487	.33913	36.517	.00674									.31257	.01184	.31658	.01642
3	.02679	.31809	35.987	.00873									.02422	.02152	.02335	.01455
4	.33938	.72687	35.453	.01371									.03590	.03123	.04211	.02251
5	.75122	.93548	34.918	.01266									.04759	.04167	.05484	.03029
6	.06343	.71392	34.381	.01459									.05931	.04994	.06755	.03790
7	.07564	.75219	33.841	.01649									.07105	.05935	.08024	.04534
8	.08786	.76830	33.303	.01837									.08281	.06738	.09293	.05263
9	.10007	.76824	32.758	.02020									.09460	.07674	.10554	.05975
10	.11228	.87602	32.214	.02201									.10642	.08533	.11815	.06671
11	.12453	.93363	31.669	.02378									.11825	.09375	.13074	.07351
12	.13671	.09109	31.123	.02559									.13012	.10200	.14330	.08017
13	.14892	.09038	30.577	.02719									.14201	.11109	.15584	.08668

POINT NUMBER	M E A S U R E M E N T S		SURFACE COORDINATE DATA		
	X	Y	XS	YS	XP
14	16114	17552	33.129	02884	15392
15	17335	11250	29.461	03344	16566
16	18556	14933	28.933	03199	17783
17	19778	12631	28.365	03349	18982
18	20743	13120	27.984	03465	19936
19	21719	13630	27.491	03578	20892
20	22688	14130	27.033	03687	21853
21	23658	14619	26.566	03793	22810
22	24629	15099	26.071	03896	23772
23	25598	15569	25.574	03995	24736
24	26565	16028	25.065	04091	25702
25	27538	16476	24.545	04182	26670
26	28518	16913	24.012	04269	27639
27	29478	17340	23.467	04353	28611
28	30449	17756	22.911	04433	29585
29	31418	18160	22.341	04509	30561
30	32385	18553	21.759	04581	31539
31	33359	18934	21.164	04649	32519
32	34328	19304	20.555	04712	33501
33	35298	19662	19.935	04772	34485
34	36276	20045	19.297	04833	35473
35	37253	20414	18.579	04888	36474
36	38233	20769	17.933	04939	37477
37	39217	21111	17.302	04983	38486
38	40204	21441	16.695	05023	39501
39	41192	21758	16.109	05056	40534
40	42183	22063	15.546	05084	41586
41	43176	22357	15.005	05107	42657
42	44171	22641	14.487	05123	43745
43	45167	22914	13.993	05133	44850
44	46164	23178	13.523	05138	45972
45	47162	23432	13.077	05136	47112
46	48161	23678	12.656	05129	48270
47	49161	23916	12.260	05115	49446
48	50161	24147	11.889	05096	50639
49	51161	24370	11.544	05072	51850
50	52161	24585	11.222	05031	53079
51	53161	24798	10.922	04981	54326
52	54161	25008	10.644	04922	55591
53	55161	25214	9.747	04855	56864
54	56161	25416	9.286	04781	58154
55	57161	25615	8.813	04697	59461
56	58161	25811	8.347	04607	60784
57	59161	26004	7.873	04509	62124
58	60161	26193	7.399	04404	63481
59	61161	26378	6.912	04293	64854
60	62161	26559	6.411	04175	66244
61	63161	26736	5.915	04052	67650
62	64161	26910	5.414	03922	69072
63	65161	27081	4.909	03786	70511
64	66161	27248	4.399	03646	71966
65	67161	27412	3.884	03503	73437
66	68161	27572	3.311	03343	74924
67	69161	27728	2.711	03173	76427
68	70161	27881	2.095	03000	77946
69	71161	28030	1.433	02824	79481

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
71	.83011	.27819	.756	.82984	.29141	.83019	.26498
72	.84544	.27830	.952	.84543	.29059	.84545	.26601
73	.86086	.27822	-.677	.86099	.28957	.86072	.26687
74	.87628	.27794	-1.431	.87654	.28833	.87602	.26754
75	.89171	.27745	-2.211	.89207	.28686	.89134	.26803
76	.90713	.27674	-3.115	.90757	.28517	.90668	.26831
77	.92255	.27582	-3.843	.92305	.28325	.92205	.26839
78	.93797	.27467	-4.695	.93850	.28109	.93744	.26824
79	.95339	.27328	-5.571	.95392	.27869	.95286	.26788
80	.96881	.27166	-6.469	.96931	.27604	.96832	.26727
81	.98424	.26978	-7.388	.98467	.27314	.98380	.26642
	.99955	.26766	-8.331	1.00000	.26999	.99932	.26532

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 12

BETA1 = 36.832 (BLADE INLET ANGLE.)
 BETA2 = 8.639 (BLADE OUTLET ANGLE.)
 YZERO = .03229 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = .05384 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .03229 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .530 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.2593 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0363
 STAGGER ANGLE = 14.795
 CAMBER ANGLE = 45.271
 SECTION AREA = .03665

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .67999
 YBAR = .27963

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00015
 IY = .00184
 IXY = .00750

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.571

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .06332 (AT 14.570 WITH 'X' AXIS)
 IPY = .00207 (AT 14.570 WITH 'Y' AXIS)

POINT NUMBER	X	Y	M	E	A	L	I	M	E	C	A	T	A	SURFACE COORDINATE DATA			
														XS	YS	XP	YP
1	.93237	3.31290	26.632	.09473										.03095	.03189	.00378	.00189
2	.04453	.31900	36.284	.08678										.03249	.01173	.01650	.00626
3	.32663	.91781	35.734	.09081										.02496	.02139	.02923	.01424
4	.28876	.72645	35.185	.01082										.33564	.03187	.04180	.02203
5	.35389	.33692	34.636	.01281										.04725	.04119	.03453	.02965
6	.36332	.34322	34.087	.01477										.35889	.04933	.06716	.03713
7	.07516	.05134	33.539	.01670										.07054	.05830	.07977	.04438
8	.08729	.35930	32.991	.01867										.06222	.06710	.09235	.05150
9	.09942	.06789	32.445	.02047										.09393	.07573	.10491	.05846
10	.11155	.07673	31.900	.02231										.10566	.08449	.11744	.06526
11	.12368	.08520	31.357	.02413										.11741	.09249	.12995	.07191
12	.13581	.09381	30.816	.02586										.12919	.10152	.14244	.07841
13	.14795	.09667	30.276	.02758										.14099	.11058	.15491	.08476

POINT NUMBER	M E A S U R E M E N T S		A N G L E T H I C K N E S S		M E A S U R E M E N T S		A N G L E T H I C K N E S S		S U R F A C E C O O R D I N A T E D A T A		
	X	Y	X	Y	X	Y	X	Y	MS	YS	KP
14	167.8	1.368	29.740	92826	15282	11638	16733	09898			
15	1722.1	11.053	29.286	93089	16467	12431	17975	09705			
16	1843.4	11.724	28.675	93287	17655	13149	19213	19300			
17	1964.7	12.381	28.148	93491	18845	13880	20451	18841			
18	2086.1	12.991	27.724	93709	19792	14449	21430	18334			
19	2157.4	13.393	27.289	93935	20741	15100	22408	17778			
20	2259.8	13.826	26.861	93747	21692	15557	23384	12214			
21	2357.2	14.368	26.381	93955	22645	16195	24358	12641			
22	24465	14.841	25.993	93962	23611	16622	25330	13062			
23	25429	15.334	25.424	94062	24557	17139	26303	13471			
24	26392	15.757	24.926	94159	25516	17643	27269	13871			
25	27356	16.200	24.415	94254	26477	18136	28235	14263			
26	28319	16.632	23.891	94344	27443	18618	29199	14646			
27	29283	17.053	23.353	94431	28405	19161	30161	15020			
28	30246	17.464	22.832	94512	29372	19644	31121	15384			
29	31213	17.864	22.316	94591	30341	19998	32078	15739			
30	32173	18.252	21.657	94665	31313	20420	33034	16084			
31	33137	18.629	21.164	94735	32286	20838	33988	16419			
32	34100	18.994	20.656	94801	33261	21243	34939	16765			
33	35064	19.347	19.834	94863	34239	21635	35889	17063			
34	36028	19.685	18.977	94927	35228	22054	36843	17399			
35	37217	20.011	18.077	94985	36417	22456	37997	17727			
36	38228	20.443	17.624	95038	37507	22841	39049	18045			
37	39351	20.781	17.197	95085	38598	23210	40102	18352			
38	40481	21.126	16.591	95127	39689	23563	41153	18689			
39	41619	21.419	16.119	95163	40781	23911	42205	18938			
40	42564	21.721	15.649	95193	41873	24224	43256	19218			
41	43616	22.022	14.914	95218	42964	24533	44307	19491			
42	44737	22.282	14.033	95236	44056	24828	45359	19756			
43	45779	22.562	13.317	95249	45148	25110	46411	20015			
44	46851	22.823	13.456	95256	46239	25379	47462	20268			
45	47922	23.175	13.121	95258	47330	25636	48514	20515			
46	48993	23.319	12.612	95251	48421	25881	49567	20757			
47	50165	23.555	12.229	95239	49511	26115	50621	20995			
48	51136	23.784	11.872	95221	50599	26338	51673	21229			
49	52214	24.056	11.542	95198	51689	26552	52720	21459			
50	53341	24.293	11.115	95159	52774	26764	53814	21682			
51	54534	24.569	10.662	95109	53861	26979	54914	21896			
52	55717	24.833	10.242	95051	54959	27191	56016	22108			
53	56911	25.087	9.734	94984	56059	27392	57114	22317			
54	58324	25.328	9.141	94908	57156	27580	58214	22517			
55	59937	25.558	8.478	94824	58254	27750	59314	22715			
56	62241	25.776	7.734	94732	59354	27911	60414	22915			
57	63574	25.982	7.014	94632	60454	28066	61514	23115			
58	65117	26.175	7.452	94525	61554	28216	62614	23315			
59	66524	26.357	6.963	94411	62654	28366	63714	23515			
60	67971	26.525	6.467	94291	63754	28516	64814	23715			
61	69416	26.681	5.964	94164	64854	28666	65914	23915			
62	70842	26.825	5.455	94031	65954	28816	67014	24115			
63	72271	26.955	4.938	93893	67054	28966	68114	24315			
64	73706	27.072	4.415	93749	68154	29116	69214	24515			
65	75113	27.176	3.886	93599	69254	29266	70314	24715			
66	76491	27.274	3.296	93432	70354	29416	71414	24915			
67	77843	27.355	2.642	93268	71454	29566	72514	25115			
68	79234	27.419	2.342	93082	72554	29716	73614	25315			
69	81346	27.465	1.378	92907	73654	29866	74714	25515			

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.82897	.27493	.689	.82861	.28850	.82914	.26136
71	.84449	.27502	-.325	.84450	.28764	.84448	.26241
72	.86071	.27492	-.763	.86016	.28657	.85985	.26327
73	.87552	.27461	-1.525	.87581	.28527	.87524	.26395
74	.89134	.27409	-2.311	.89143	.28374	.89065	.26444
75	.90656	.27336	-3.119	.90703	.28199	.91608	.26472
76	.92217	.27249	-3.952	.92260	.28110	.92155	.26480
77	.93759	.27121	-4.806	.93814	.27777	.93704	.26465
78	.95311	.26979	-5.683	.95365	.27530	.95256	.26427
79	.96862	.26812	-6.581	.96913	.27257	.96811	.26366
80	.98414	.26620	-7.501	.98458	.26960	.98369	.26281
81	.99965	.26403	-8.439	1.00000	.26637	.99931	.26169

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 13

BETA1 = 36.785 (BLADE INLET ANGLE.)
 BETA2 = -8.562 (BLADE OUTLET ANGLE.)
 YZERO = .03229 (BLADE LEADING EDGE RAD. AS A FRACTION OF CHORD.)
 Y = .05218 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .03229 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5000 (LOCATION OF MAX. THICKNESS AS A FRACTION OF MEAN LINE.)
 CORO = 2.2974 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0335
 STAGGER ANGLE = 14.690
 CAMBER ANGLE = 45.348
 SECTION AREA = .03747

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .48325
 YBAR = .20810

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .09016
 IY = .03198
 IXY = .00351

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.472

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .0013 (AT 14.472 WITH 'X' AXIS)
 IPY = .00211 (AT 14.472 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A		ANGLE THICKNESS		SURFACE COORDINATE DATA	
	X	Y	XS	YS	XP	YP
1	.03237	0.33000	36.765	.00473	.0095	.03190
2	.01443	.03890	36.216	.00682	.01239	.01165
3	.02643	.01762	35.647	.00888	.02384	.02123
4	.03847	.02616	35.080	.01093	.03532	.03364
5	.05153	.03453	34.515	.01295	.04683	.03986
6	.06253	.04271	33.951	.01495	.05836	.04891
7	.07456	.05073	33.390	.01692	.06991	.05779
8	.08763	.05858	32.832	.01885	.08149	.06650
9	.09863	.06626	32.277	.02075	.09309	.07503
10	.11066	.07378	31.726	.02262	.10471	.08340
11	.12273	.08114	31.178	.02446	.11637	.09160
12	.13473	.08834	30.634	.02625	.12804	.09963
13	.14676	.09539	30.095	.02800	.13974	.10750

POINT NUMBER	M E A N L I N E O A T A		SURFACE COORDINATE DATA	
	X	Y	MS	YP
14	.15879	.11229	.29.561	.2971
15	.17083	.13934	.29.833	.33137
16	.18286	.11565	.28.509	.33299
17	.19489	.12212	.27.992	.34566
18	.20654	.12720	.27.574	.35773
19	.21419	.13219	.27.144	.36997
20	.22384	.13709	.26.701	.38133
21	.23349	.14190	.26.247	.39255
22	.24314	.14661	.25.781	.40333
23	.25279	.15122	.25.332	.41388
24	.26243	.15573	.24.813	.42339
25	.27208	.16014	.24.305	.43337
26	.28173	.16444	.23.787	.44340
27	.29138	.16864	.23.256	.45223
28	.30103	.17274	.22.711	.46095
29	.31068	.17672	.22.153	.46866
30	.32033	.18059	.21.581	.47633
31	.32998	.18435	.20.994	.48386
32	.33963	.18800	.20.394	.49105
33	.34927	.19153	.19.783	.49669
34	.35892	.19531	.19.099	.50135
35	.36857	.19895	.18.437	.50596
36	.37821	.20245	.17.797	.51051
37	.38786	.20583	.17.177	.51501
38	.39750	.20908	.16.579	.51944
39	.40715	.21221	.15.902	.52382
40	.41679	.21522	.15.249	.52815
41	.42644	.21813	.14.619	.53241
42	.43608	.22093	.14.013	.53661
43	.44573	.22364	.13.431	.54075
44	.45537	.22625	.13.873	.54483
45	.46502	.22877	.13.041	.54884
46	.47466	.23121	.12.633	.55280
47	.48430	.23358	.12.251	.55669
48	.49394	.23587	.11.895	.56052
49	.50358	.23809	.11.565	.56429
50	.51322	.24020	.11.136	.56803
51	.52286	.24276	.10.703	.57173
52	.53250	.24482	.10.257	.57538
53	.54214	.24686	.9.808	.57898
54	.55178	.24879	.9.351	.58253
55	.56142	.25070	.8.888	.58603
56	.57106	.25258	.8.418	.58948
57	.58070	.25444	.7.942	.59288
58	.59034	.25627	.7.459	.59623
59	.60000	.25809	.6.969	.60000
60	.60964	.25999	.6.472	.60402
61	.61928	.26186	.5.969	.60822
62	.62892	.26370	.5.459	.61253
63	.63856	.26551	.4.943	.61693
64	.64820	.26729	.4.423	.62144
65	.65784	.26902	.3.891	.62603
66	.66748	.27074	.3.342	.63069
67	.67712	.27240	.2.786	.63542
68	.68676	.27400	.2.224	.64021
69	.69640	.27556	.1.657	.64505
70	.70604	.27708	.1.085	.64994
71	.71568	.27856	.0.508	.65488
72	.72532	.28000	.0.000	.65987
73	.73496	.28140	.0.000	.66491
74	.74460	.28276	.0.000	.66999
75	.75424	.28409	.0.000	.67511
76	.76388	.28538	.0.000	.68027
77	.77352	.28663	.0.000	.68547
78	.78316	.28784	.0.000	.69071
79	.79280	.28901	.0.000	.69599
80	.80244	.29014	.0.000	.70131
81	.81208	.29123	.0.000	.70667
82	.82172	.29229	.0.000	.71207
83	.83136	.29331	.0.000	.71751
84	.84100	.29430	.0.000	.72299
85	.85064	.29526	.0.000	.72851
86	.86028	.29619	.0.000	.73407
87	.86992	.29709	.0.000	.73967
88	.87956	.29796	.0.000	.74531
89	.88920	.29880	.0.000	.75099
90	.89884	.29961	.0.000	.75671
91	.90848	.30039	.0.000	.76247
92	.91812	.30113	.0.000	.76827
93	.92776	.30183	.0.000	.77411
94	.93740	.30250	.0.000	.78000
95	.94704	.30314	.0.000	.78594
96	.95668	.30374	.0.000	.79193
97	.96632	.30430	.0.000	.79797
98	.97596	.30483	.0.000	.80407
99	.98560	.30533	.0.000	.81023
100	.99524	.30580	.0.000	.81645

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.52961	.27314	.686	.82645	.28734	.82878	.25924
71	.84416	.27323	-.932	.84417	.28615	.84415	.26031
72	.85971	.27312	-.777	.85987	.28505	.85955	.26120
73	.87526	.27281	-1.546	.87555	.28371	.87496	.26190
74	.89081	.27228	-2.341	.89121	.28215	.89040	.26241
75	.90636	.27153	-3.160	.90684	.28035	.90587	.26271
76	.92191	.27056	-4.003	.92245	.27832	.92136	.26280
77	.93745	.26936	-4.870	.93802	.27634	.93688	.26267
78	.95300	.25791	-5.760	.95357	.27351	.95244	.26230
79	.96855	.26622	-6.673	.96908	.27174	.96802	.26170
80	.98410	.25427	-7.607	.98456	.26770	.98364	.26084
81	.99965	.26206	-8.562	1.00000	.26440	.99930	.25972

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 14

BETA1 = 36.926 (BLADE INLET ANGLE.)
 BETA2 = -8.710 (BLADE OUTLET ANGLE.)
 YZERO = .81229 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = .05343 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .91229 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5135 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.3356 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0333
 STAGGER ANGLE = 14.644
 CAMBER ANGLE = 45.636
 SECTION AREA = .03836

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .48338
 YBAR = .20760

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00316
 IY = .00232
 IXY = .00352

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.451

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00033 (AT 14.451 WITH 'X' AXIS)
 IPY = .00216 (AT 14.451 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.09237	0.31000	36.926	.0473	.03094	.03169	-.03169
2	.01428	.31886	36.315	.00686	.01225	.01152	.03609
3	.02623	.01752	35.797	.00996	.02358	.02115	.01308
4	.03811	.32598	35.104	.01104	.03493	.03050	.02147
5	.05032	.33427	34.505	.01310	.04631	.03967	.02887
6	.06194	.04237	33.913	.01514	.05772	.04855	.03609
7	.07385	.35029	33.326	.01714	.06915	.05745	.04313
8	.08577	.05834	32.747	.01911	.08060	.06607	.05000
9	.09768	.36562	32.174	.02105	.09208	.07452	.05671
10	.10960	.07303	31.613	.02295	.10358	.08288	.06326
11	.12151	.38028	31.054	.02481	.11511	.09091	.06965
12	.13343	.08738	30.506	.02664	.12667	.09886	.07590
13	.14534	.39432	29.968	.02842	.13824	.10664	.08201

POINT NUMBER	M E A N I N E O A T A		SURFACE COORDINATE DATA				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	15726	19112	29.643	14964	11426	16467	08799
15	16917	11778	28.922	15147	12472	17608	09363
16	18109	11429	28.415	17311	12393	18906	09955
17	19333	12067	27.928	18478	13618	20122	10515
18	21274	12578	27.514	19433	14192	21114	10965
19	21247	13081	27.794	20393	14756	22104	11406
20	22221	13575	28.662	21349	15310	23092	11839
21	23194	14059	28.217	22311	15853	24078	12264
22	24168	14533	28.758	23274	16366	25062	12681
23	25141	14998	29.286	24243	16907	26043	13089
24	26115	15453	28.501	25207	17418	27023	13488
25	27088	15896	28.303	26177	17916	28000	13879
26	28062	16332	28.786	27149	18473	28975	14261
27	29036	16756	28.257	28123	18978	29948	14633
28	30019	17169	28.713	29100	19341	30918	14997
29	30983	17571	28.155	30079	19791	31887	15351
30	31956	17961	28.582	31063	20228	32853	15695
31	32930	18341	28.993	32043	20652	33817	16030
32	33903	18709	28.389	33028	21062	34776	16355
33	34877	19064	28.769	34016	21459	35737	16670
34	35853	19444	28.185	35011	21851	36797	17007
35	36833	19818	28.421	36005	22286	37855	17333
36	37817	20161	28.778	37001	22675	38912	17648
37	39183	20580	28.157	38097	23047	39969	17954
38	40263	20926	28.558	39194	23433	41026	18250
39	41337	21241	28.983	40291	23743	42082	18538
40	42413	21543	28.430	41388	24059	43138	18817
41	43493	21835	28.902	42486	24361	44194	19089
42	44566	22117	28.398	43583	24678	45250	19355
43	45643	22388	28.729	44677	24983	46306	19613
44	46723	22650	28.466	45772	25234	47362	19867
45	47796	22894	28.339	46873	25493	48419	20115
46	48873	23049	28.637	47970	25748	49476	20358
47	49949	23287	28.262	49065	25976	50534	20597
48	51026	23517	28.913	50160	26202	51592	20833
49	52103	23741	28.591	51254	26417	52652	21065
50	53182	23951	28.175	52348	26691	53711	21291
51	54261	24150	28.750	53443	26948	54769	21511
52	55340	24341	28.315	54537	27190	55827	21731
53	56419	24524	28.874	55631	27415	56885	21955
54	57498	24698	28.423	56725	27623	57943	22175
55	58577	24863	28.963	57819	27816	59001	22393
56	59656	25028	28.494	58913	28002	60059	22606
57	60735	25193	28.917	60007	28192	61117	22812
58	61814	25358	28.332	61101	28382	62175	23017
59	62893	25523	28.863	62205	28572	63233	23222
60	63972	25688	28.394	63309	28762	64291	23427
61	65051	25853	28.925	64413	28952	65349	23632
62	66130	26018	28.456	65517	29142	66407	23837
63	67209	26183	28.987	66621	29332	67465	24042
64	68288	26348	28.518	67725	29522	68523	24247
65	69367	26513	28.949	68829	29712	69581	24452
66	70446	26678	28.480	69933	29902	70639	24657
67	71525	26843	28.911	71037	30092	71697	24862
68	72604	27008	28.442	72141	30282	72755	25067
69	73683	27173	28.973	73245	30472	73813	25272
70	74762	27338	28.504	74349	30662	74871	25477
71	75841	27503	28.935	75453	30852	75929	25682
72	76920	27668	28.466	76557	31042	76987	25887
73	78000	27833	28.997	77661	31232	78045	26092
74	79079	28000	28.528	78765	31422	79103	26297
75	80158	28165	28.959	79869	31612	80161	26502
76	81237	28330	28.490	80973	31802	81219	26707
77	82316	28495	28.921	82077	32002	82277	26912
78	83395	28660	28.452	83181	32192	83335	27117
79	84474	28825	28.983	84285	32382	84393	27322
80	85553	29000	28.514	85389	32572	85451	27527
81	86632	29165	28.945	86493	32762	86509	27732
82	87711	29330	28.476	87597	32952	87567	27937
83	88790	29495	28.907	88701	33142	88625	28142
84	89869	29660	28.438	89805	33332	89683	28347
85	90948	29825	28.969	90909	33522	90741	28552
86	92027	30000	28.500	92013	33712	91799	28757
87	93106	30165	28.931	93117	33902	92857	28962
88	94185	30330	28.462	94221	34092	93915	29167
89	95264	30495	28.993	95325	34282	94973	29372
90	96343	30660	28.524	96429	34472	96031	29577
91	97422	30825	28.955	97533	34662	97089	29782
92	98501	30990	28.486	98637	34852	98147	29987
93	99580	31155	28.917	99741	35042	99205	30192
94	100659	31320	28.448	100845	35232	100263	30397
95	101738	31485	28.979	101949	35422	101321	30602
96	102817	31650	28.510	103053	35612	102379	30807
97	103896	31815	28.941	104157	35802	103437	31012
98	104975	31980	28.472	105261	36002	104495	31217
99	106054	32145	28.903	106365	36192	105553	31422
100	107133	32310	28.434	107469	36382	106611	31627

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.82839	.27263	.610	.82874	.28684	.82904	.25843
71	.84441	.27273	-.121	.84444	.28590	.84438	.25950
72	.85933	.27257	-.876	.86012	.28474	.85975	.26339
73	.87546	.27222	-1.655	.87578	.28336	.87513	.26109
74	.89398	.27167	-2.459	.89141	.28174	.89055	.26160
75	.90653	.27089	-3.286	.90702	.27988	.90599	.26193
76	.92273	.26988	-4.135	.92263	.27778	.92145	.26198
77	.93755	.26864	-5.008	.93814	.27544	.93695	.26184
78	.95337	.26716	-5.902	.95366	.27285	.95248	.26147
79	.96863	.26543	-6.818	.96914	.27001	.96805	.26186
80	.98412	.26345	-7.754	.98459	.26690	.98365	.25999
81	.99964	.26120	-8.713	1.00000	.26354	.39928	.25886

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 15

BETA1 = 37.334 (BLADE INLET ANGLE.)
 BETA2 = -6.899 (BLADE OUTLET ANGLE.)
 YZERO = .91229 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = .05477 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .00229 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5373 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.3866 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.3334
 STAGGER ANGLE = 14.671
 CAMBER ANGLE = 46.213
 SECTION AREA = .33929

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .40331
 YBAR = .20817

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .90116
 IY = .90207
 IXY = .09753

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.509

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .99033 (AT 14.519 WITH 'X' AXIS)
 IPY = .80221 (AT 14.509 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.01236	0.01600	37.334	.00093	.00188	.09381	-.00188
2	.01414	.37687	36.635	.01208	.01163	.01620	.00610
3	.02592	.11752	35.974	.02326	.02118	.02857	.01386
4	.03770	.12597	35.320	.03447	.03052	.04092	.02141
5	.04948	.13421	34.676	.04570	.03966	.05325	.02876
6	.06125	.14226	34.042	.05696	.04861	.06554	.03591
7	.07303	.15013	33.419	.06825	.05738	.07781	.04288
8	.08481	.15781	32.808	.07956	.06595	.09006	.04967
9	.09659	.16532	32.209	.09090	.07434	.10227	.05629
10	.10837	.17265	31.623	.10226	.08296	.11447	.06274
11	.12014	.17982	31.052	.11365	.09160	.12664	.06904
12	.13192	.18684	30.496	.12506	.09848	.13876	.07519
13	.14371	.19370	29.955	.13650	.10619	.15090	.08120

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP	
14	15548	11041	29.439	03062	14796	11375	16300	08708
15	16726	11699	28.923	03234	15943	12114	17508	09283
16	17913	11343	28.433	03403	17093	12839	18713	09847
17	19031	11975	27.962	03566	18245	13550	19917	10400
18	20173	12495	27.568	03700	19214	14135	20926	10855
19	21159	13007	27.159	03833	20184	14711	21933	11303
20	22147	13509	26.736	03956	21157	15276	22937	11743
21	23336	14003	26.298	04079	22132	15831	23939	12174
22	24725	14487	25.845	04197	23111	16375	24939	12596
23	25213	14960	25.377	04312	24089	16918	25937	13112
24	26012	15424	24.893	04423	25071	17430	26933	13418
25	26991	15878	24.394	04529	26055	17940	27926	13816
26	27979	16321	23.879	04631	27042	18438	28917	14204
27	28958	16753	23.347	04729	28031	18924	29905	14582
28	29957	17174	22.811	04822	29022	19397	30891	14952
29	31945	17584	22.235	04911	30016	19857	31874	15312
30	31934	17983	21.654	04995	31012	20304	32855	15662
31	32922	18369	21.155	05074	32011	20737	33834	16002
32	33911	18744	20.439	05149	33012	21156	34810	16331
33	34900	19106	19.805	05219	34016	21561	35784	16651
34	35987	19490	19.173	05290	35021	21989	36853	16991
35	37374	19859	18.434	05355	36227	22430	37921	17319
36	38161	20215	17.783	05414	37334	22793	38988	17637
37	39248	20557	17.154	05467	38442	23169	40054	17945
38	40335	20886	16.549	05514	39550	23529	41121	18244
39	41422	21203	15.969	05554	40658	23873	42186	18533
40	42510	21509	15.414	05588	41767	24202	43252	18815
41	43597	21803	14.864	05616	42875	24517	44318	19089
42	44684	22087	14.381	05637	44014	24817	45384	19356
43	45771	22361	13.904	05651	45192	25103	46450	19618
44	46858	22625	13.454	05659	46201	25377	47516	19873
45	47945	22881	13.032	05660	47307	25638	48583	20124
46	49032	23128	12.637	05654	48414	25887	49651	20370
47	50119	23369	12.271	05641	49520	26125	50719	20613
48	51216	23602	11.933	05621	50625	26352	51787	20852
49	52293	23828	11.623	05596	51730	26569	52857	21088
50	53378	24048	11.228	05552	52833	26774	53904	21395
51	54463	24260	10.821	05499	53936	26968	54951	21697
52	55548	24467	10.402	05435	55039	27150	55997	21994
53	56633	24667	9.972	05361	56142	27322	57043	22284
54	57718	24860	9.533	05279	57245	27484	58089	22568
55	58803	25047	9.087	05187	58348	27637	59136	22845
56	59888	25229	8.610	05086	59451	27781	60183	23115
57	60973	25406	8.132	04978	60554	27916	61230	23377
58	62058	25579	7.643	04861	61657	28042	62277	23630
59	63143	25747	7.141	04737	62760	28159	63324	23875
60	64228	25910	6.626	04606	63873	28267	64371	24111
61	65313	26069	6.103	04468	64986	28366	65418	24338
62	66398	26224	5.566	04323	66100	28457	66465	24554
63	67483	26375	5.017	04172	67214	28540	67512	24760
64	68568	26522	4.456	04015	68328	28616	68559	24956
65	69653	26665	3.884	03853	69442	28685	69606	25140
66	70738	26805	3.250	03672	70556	28748	70653	25325
67	71823	26942	2.592	03485	71670	28805	71700	25496
68	72908	27076	1.912	03294	72784	28857	72747	25652
69	73993	27206	1.209	03097	73898	28904	73794	25792

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.92973	.27363	.484	.82961	.28810	.82985	.25915
71	.84518	.27366	-.264	.84524	.28711	.84511	.26021
72	.86162	.27348	-1.034	.86085	.28588	.86040	.26109
73	.97637	.27310	-1.827	.87643	.28443	.87571	.26177
74	.93151	.27250	-2.640	.89199	.28274	.89104	.26226
75	.93696	.27167	-3.475	.90751	.28081	.90640	.26254
76	.92241	.27062	-4.331	.92301	.27864	.92180	.26260
77	.93785	.26933	-5.206	.93848	.27623	.93722	.26244
78	.95330	.26780	-6.102	.95391	.27356	.95268	.26204
79	.96874	.26603	-7.016	.96931	.27055	.96817	.26141
80	.98419	.26400	-7.949	.98467	.26748	.98370	.26052
81	.99963	.26171	-8.899	1.00000	.26405	.99927	.25938

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 16

BETA1 = 37.995 (BLADE INLET ANGLE.)
 BETA2 = -9.156 (BLADE OUTLET ANGLE.)
 YZERO = .01228 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = .05634 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .01228 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5039 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.4459 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0341
 STAGGER ANGLE = 14.798
 CAMBER ANGLE = 47.151
 SECTION AREA = .04022

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47934
 YBAR = .21321

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00117
 IY = .00212
 IXY = .00355

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.659

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00013 (AT 14.659 WITH 'X' AXIS)
 IPY = .00226 (AT 14.659 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E D A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	.39236	0.11080	37.995	.00091	-.01106	.00360	-.01186
2	.21399	.01696	37.261	.01169	.01172	.1608	.01622
3	.02561	.11769	36.538	.02290	.02135	.02833	.01403
4	.93724	.12619	35.927	.03394	.03177	.04354	.02162
5	.74896	.03448	35.120	.04590	.03996	.05272	.02899
6	.76049	.04255	34.444	.05610	.04685	.06486	.03615
7	.77211	.05043	33.775	.06722	.05774	.07700	.04312
8	.78374	.05811	33.122	.07838	.06633	.08910	.04989
9	.09537	.16560	32.407	.08956	.07472	.13117	.05648
10	.19699	.17291	31.871	.10076	.08293	.11322	.06290
11	.11562	.19006	31.275	.11199	.09136	.12524	.06915
12	.13024	.08704	30.709	.12325	.09882	.13724	.07526
13	.14137	.09387	30.147	.13452	.10651	.14921	.08122

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	.15349	.11155	29.617	.14582	.11404	.15117	.08705
15	.16512	.10709	29.110	.15714	.12142	.17310	.09276
16	.17674	.11350	28.629	.16848	.12855	.18501	.09835
17	.18837	.11978	28.173	.17983	.13573	.19691	.10383
18	.19846	.12514	27.781	.18970	.14177	.20722	.10852
19	.20856	.13042	27.404	.19963	.14771	.21751	.11312
20	.21855	.13559	26.951	.20952	.15355	.22778	.11764
21	.22874	.14068	26.511	.21946	.15928	.23802	.12208
22	.23883	.14566	26.056	.22943	.16490	.24824	.12643
23	.24893	.15055	25.584	.23942	.17140	.25843	.13069
24	.25912	.15533	25.096	.24944	.17779	.26860	.13486
25	.26911	.16000	24.593	.25948	.18415	.27875	.13895
26	.27920	.16456	24.067	.26954	.18619	.28886	.14293
27	.28933	.16901	23.526	.27964	.19120	.29896	.14683
28	.29939	.17335	22.967	.28976	.19618	.30902	.15062
29	.30948	.17757	22.393	.29990	.20182	.31906	.15431
30	.31958	.18166	21.794	.31007	.20542	.32908	.15790
31	.32967	.18564	21.180	.32027	.20908	.33906	.16139
32	.33976	.18948	20.546	.33050	.21420	.34902	.16477
33	.34985	.19320	19.893	.34075	.21836	.35896	.16804
34	.36037	.19711	19.181	.35196	.22273	.36878	.17153
35	.37189	.20187	18.492	.36319	.22691	.37863	.17483
36	.38231	.20649	17.827	.37442	.23091	.38841	.17806
37	.39393	.21196	17.187	.38565	.23474	.40222	.18119
38	.40496	.21730	16.573	.39689	.23839	.41302	.18422
39	.41598	.22452	15.985	.40814	.24189	.42382	.18716
40	.42701	.23162	15.425	.41938	.24523	.43461	.19001
41	.43822	.23861	14.891	.43062	.24841	.44541	.19283
42	.44974	.24548	14.397	.44186	.25145	.45621	.19551
43	.46036	.25226	13.913	.45310	.25435	.46701	.19817
44	.47108	.25894	13.463	.46433	.25712	.47782	.20077
45	.48210	.26554	13.045	.47556	.25976	.48864	.20322
46	.49312	.27205	12.657	.48678	.26227	.49946	.20563
47	.50414	.27849	12.303	.49799	.26468	.51028	.20831
48	.51516	.28486	11.972	.50920	.26697	.52112	.21075
49	.52618	.29117	11.676	.52039	.26917	.53197	.21317
50	.53720	.29740	11.404	.53158	.27188	.54281	.21526
51	.54821	.30357	11.151	.54277	.27443	.55363	.21731
52	.55922	.30967	10.916	.55392	.27684	.56444	.21930
53	.57023	.31569	10.698	.56504	.27909	.57524	.22124
54	.58124	.32162	10.496	.57615	.28118	.58604	.22312
55	.59225	.32746	10.309	.58726	.28312	.59684	.22495
56	.60326	.33321	10.136	.59837	.28499	.60764	.22672
57	.61427	.33886	9.977	.60948	.28676	.61844	.22844
58	.62528	.34441	9.831	.62059	.28844	.62924	.22999
59	.63629	.34986	9.698	.63170	.28999	.64004	.23144
60	.64730	.35521	9.577	.64281	.29144	.65084	.23279
61	.65831	.36046	9.467	.65392	.29279	.66164	.23404
62	.66932	.36561	9.367	.66503	.29404	.67244	.23519
63	.68033	.37066	9.277	.67614	.29519	.68324	.23624
64	.69134	.37561	9.196	.68725	.29624	.69404	.23719
65	.70235	.38046	9.125	.69836	.29719	.70484	.23804
66	.71336	.38521	9.064	.70947	.29804	.71564	.23879
67	.72437	.38986	9.013	.72058	.29879	.72644	.23944
68	.73538	.39441	8.972	.73169	.29944	.73724	.24009
69	.74639	.39886	8.941	.74280	.29999	.74804	.24064
70	.75740	.40321	8.920	.75391	.30044	.75884	.24109
71	.76841	.40746	8.909	.76502	.30079	.76964	.24144
72	.77942	.41161	8.908	.77613	.30104	.78044	.24169
73	.79043	.41566	8.917	.78724	.30119	.79124	.24184
74	.80144	.41961	8.936	.79835	.30124	.80204	.24189
75	.81245	.42346	8.965	.80946	.30119	.81284	.24184
76	.82346	.42721	8.994	.82057	.30104	.82364	.24169
77	.83447	.43086	9.033	.83168	.30079	.83444	.24144
78	.84548	.43441	9.082	.84279	.30044	.84524	.24109
79	.85649	.43786	9.141	.85390	.30009	.85604	.24064
80	.86750	.44121	9.210	.86501	.29974	.86684	.24009
81	.87851	.44446	9.289	.87612	.29929	.87764	.23944
82	.88952	.44761	9.378	.88723	.29874	.88844	.23869
83	.90053	.45066	9.477	.89834	.29809	.89924	.23784
84	.91154	.45361	9.586	.90945	.29734	.91004	.23689
85	.92255	.45646	9.705	.92056	.29649	.92084	.23584
86	.93356	.45921	9.834	.93167	.29554	.93164	.23469
87	.94457	.46186	9.973	.94278	.29449	.94244	.23344
88	.95558	.46441	10.122	.95389	.29334	.95324	.23209
89	.96659	.46686	10.281	.96500	.29209	.96404	.23074
90	.97760	.46921	10.450	.97611	.29074	.97484	.22929
91	.98861	.47146	10.629	.98722	.28929	.98564	.22774
92	.99962	.47361	10.818	.99833	.28774	.99644	.22609
93	1.01063	.47566	11.017	1.00944	.28609	1.00724	.22434
94	1.02164	.47761	11.226	1.02055	.28434	1.01804	.22249
95	1.03265	.47946	11.445	1.03166	.28249	1.02884	.22054
96	1.04366	.48121	11.674	1.04277	.28054	1.03964	.21849
97	1.05467	.48286	11.913	1.05388	.27849	1.05044	.21634
98	1.06568	.48441	12.162	1.06500	.27634	1.06124	.21409
99	1.07669	.48586	12.421	1.07611	.27409	1.07204	.21174
100	1.08770	.48721	12.690	1.08722	.27174	1.08284	.20929

POINT NUMBER	M E A N L I N E O A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.83116	.27659	.323	.83097	.29128	.83114	.26191
71	.84638	.27658	-.448	.84649	.29022	.84627	.26294
72	.86170	.27635	-1.237	.86198	.28892	.86143	.26378
73	.87733	.27591	-2.146	.87744	.28739	.87662	.26443
74	.89235	.27526	-3.874	.89287	.28563	.89183	.26488
75	.90769	.27437	-3.723	.90828	.28352	.90708	.26512
76	.92307	.27326	-4.585	.92365	.28138	.92235	.26515
77	.93833	.27191	-5.466	.93899	.27888	.93766	.26495
78	.95365	.27033	-6.365	.95430	.27614	.95300	.26451
79	.96898	.26849	-7.280	.96957	.27315	.96838	.26384
80	.98430	.25641	-8.211	.98480	.26990	.98380	.26292
81	.99962	.25407	-9.156	1.00000	.26640	.99925	.26174

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 17

BETA1 = 19.112 (BLADE INLET ANGLE.)
 BETA2 = -9.524 (BLADE OUTLET ANGLE.)
 YZERO = .01228 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 Y = .05716 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .03228 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Y = .5350 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 Y = 2.5158 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0352
 STAGGER ANGLE = 15.045
 CAMBER ANGLE = 46.535
 SECTION AREA = .04112

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .67913
 YBAR = .21412

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00118
 IY = .02216
 IXY = .00157

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.906

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00073 (AT 14.976 WITH 'X' AXIS)
 IPY = .00231 (AT 14.906 WITH 'Y' AXIS)

POINT NUMBER	X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA			
					XS	YS	XP	YP
1	.07235	8.33300	39.112	.03472	.07087	.09183	.70305	-.03183
2	.01382	.01919	38.712	.00698	.01166	.01193	.01599	.00645
3	.02529	.01812	37.524	.00921	.02248	.02177	.02809	.01446
4	.03575	.02680	36.753	.01141	.03334	.03137	.04016	.02223
5	.04821	.03526	35.993	.01355	.04422	.04374	.05220	.02974
6	.05968	.04345	35.247	.01572	.05514	.04987	.06421	.03703
7	.07114	.05144	34.522	.01783	.06609	.05975	.07619	.04410
8	.08261	.05922	33.816	.01993	.07707	.06749	.08814	.05096
9	.09417	.06688	33.132	.02193	.08807	.07537	.10036	.05762
10	.10553	.07419	32.471	.02392	.09911	.08428	.11195	.06410
11	.11699	.08140	31.834	.02587	.11017	.09239	.12381	.07041
12	.12845	.08842	31.222	.02778	.12126	.10131	.13566	.07655
13	.13992	.09533	30.637	.02965	.13236	.10835	.14747	.08254

POINT NUMBER	R C A M L I M E O A T A		SURFACE COORDINATE DATA					
	R	Y	XS	YS	XP	YP		
14	.15134	.11201	20.181	.92167	.14369	.11553	.15927	.08039
15	.16284	.11856	20.354	.43226	.15464	.12304	.17105	.03412
16	.17431	.11501	20.257	.13499	.16581	.11311	.18281	.09572
17	.18577	.12132	23.592	.03668	.17699	.11742	.19455	.10522
18	.19611	.12691	28.179	.73816	.18717	.14373	.20512	.11309
19	.20645	.13240	27.752	.03960	.19724	.14992	.21567	.11488
20	.21680	.13779	27.109	.04101	.20739	.15611	.22622	.11958
21	.22714	.14328	28.951	.54235	.21757	.16197	.23673	.12419
22	.23748	.14876	28.375	.04366	.22778	.16782	.24718	.12870
23	.24782	.15423	28.584	.04493	.23802	.17354	.25763	.13313
24	.25816	.15971	28.377	.04614	.24828	.17914	.26805	.13745
25	.26852	.16514	28.552	.04731	.25856	.18461	.27845	.14168
26	.27885	.17058	28.111	.04843	.26886	.18994	.28882	.14581
27	.28919	.17603	23.752	.04955	.27922	.19514	.29916	.14983
28	.29953	.18148	23.175	.05052	.28959	.20030	.30947	.15376
29	.30987	.18693	22.581	.05146	.29999	.20511	.31976	.15757
30	.32021	.19238	21.968	.05239	.31041	.20997	.33011	.16128
31	.33055	.19783	21.337	.05325	.32087	.21448	.34024	.16488
32	.34089	.20328	20.687	.05405	.33135	.21894	.35044	.16837
33	.35124	.20873	20.117	.05480	.34186	.22324	.36062	.17175
34	.36158	.21418	19.296	.05555	.35237	.22771	.37082	.17528
35	.37192	.21963	18.595	.05623	.36288	.23198	.38106	.17869
36	.38226	.22508	17.921	.05684	.37339	.23617	.39135	.18200
37	.39260	.23053	17.273	.05738	.38390	.23998	.40157	.18519
38	.40294	.23598	16.652	.05785	.39441	.24372	.41155	.18829
39	.41328	.24143	15.958	.05825	.40492	.24728	.42152	.19130
40	.42362	.24688	15.283	.05858	.41543	.25078	.43149	.19423
41	.43396	.25233	14.656	.05884	.42594	.25393	.44146	.19708
42	.44430	.25778	14.049	.05903	.43645	.25712	.45144	.19987
43	.45464	.26323	13.372	.05914	.44696	.25998	.46142	.20259
44	.46498	.26868	12.650	.05918	.45747	.26279	.47140	.20526
45	.47532	.27413	11.913	.05913	.46798	.26547	.48139	.20788
46	.48566	.27958	11.234	.05901	.47849	.26812	.49139	.21046
47	.49600	.28503	10.534	.05882	.48900	.27078	.50139	.21301
48	.50634	.29048	9.850	.05856	.50000	.27349	.51139	.21553
49	.51668	.29593	9.151	.05823	.51051	.27593	.52139	.21802
50	.52702	.30138	8.452	.05771	.52102	.27771	.53139	.22114
51	.53736	.30683	7.753	.05711	.53153	.28225	.54139	.22421
52	.54770	.31228	7.054	.05638	.54204	.28265	.55139	.22724
53	.55804	.31773	6.355	.05557	.55255	.28265	.56139	.23021
54	.56838	.32318	5.656	.05466	.56306	.28265	.57139	.23312
55	.57872	.32863	4.957	.05366	.57357	.28265	.58139	.23596
56	.58906	.33408	4.258	.05259	.58408	.28265	.59139	.23874
57	.59940	.33953	3.559	.05143	.59459	.28265	.60139	.24143
58	.60974	.34498	2.860	.05018	.60510	.28265	.61139	.24404
59	.62008	.35043	2.161	.04886	.61561	.28265	.62139	.24657
60	.63042	.35588	1.462	.04747	.62612	.28265	.63139	.24899
61	.64076	.36133	0.763	.04602	.63663	.28265	.64139	.25132
62	.65110	.36678	0.064	.04457	.64714	.28265	.65139	.25354
63	.66144	.37223	-0.635	.04312	.65765	.28265	.66139	.25564
64	.67178	.37768	-1.336	.04167	.66816	.28265	.67139	.25763
65	.68212	.38313	-2.037	.04022	.67867	.28265	.68139	.25949
66	.69246	.38858	-2.738	.03877	.68918	.28265	.69139	.26134
67	.70280	.39403	-3.439	.03732	.70000	.28265	.70139	.26323
68	.71314	.39948	-4.140	.03587	.71051	.28265	.71139	.26515
69	.72348	.40493	-4.841	.03442	.72102	.28265	.72139	.26700
70	.73382	.41038	-5.542	.03297	.73153	.28265	.73139	.26888

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A				
	Y	ANGLE	THICKNESS	XS	YS	XF	YP	
70	.83276	.28194	.150	.33272	.29677	.83279	.26710	
71	.84792	.28187	-.647	.84808	.29554	.84777	.26810	
72	.86319	.28159	-1.461	.86342	.29428	.85277	.26891	
73	.87826	.28109	-2.293	.87873	.29268	.87780	.26951	
74	.89343	.28038	-3.142	.89400	.29084	.89286	.26991	
75	.90861	.27943	-4.007	.90925	.28875	.90795	.27010	
76	.92377	.27825	-4.890	.92447	.28642	.92307	.27007	
77	.93894	.27683	-5.788	.93965	.28385	.93822	.26981	
78	.95410	.27517	-6.701	.95479	.28102	.95342	.26932	
79	.96927	.27327	-7.628	.96997	.27794	.96865	.26859	
80	.98444	.27111	-8.570	.98497	.27461	.98391	.26760	
81	.99961	.26869	-9.524	1.00000	.27102	.99922	.26636	

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 10

BETA1 = 39.89° (BLADE INLET ANGLE.)
 BETA2 = -9.776 (BLADE OUTLET ANGLE.)
 YZERO = .0228 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 YONE = .95827 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .37228 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 ZONE = .533 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 CORD = 2.5551 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0361
 STAGGER ANGLE = 15.279
 CAMBER ANGLE = 49.656
 SECTION AREA = .34194

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47854
 YBAR = .21697

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03119
 IY = .02223
 IXY = .00754

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.367

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .90073 (AT 15.367 WITH 'X' AXIS)
 IPY = .02236 (AT 15.367 WITH 'Y' AXIS)

POINT NUMBER	X	M	E	A	M	L	I	M	E	D	A	T	A	SURFACE COORDINATE DATA			
														XS	YS	XP	YP
1	.9235	0.	.1130	39.881	.09472									.0385	-.0161	.10387	-.01181
2	.9137	.2797	39.337	.08702										.0153	.01210	.01595	.03664
3	.72512	.11846	38.236	.06937										.02225	-.02211	.02803	.01481
4	.33651	.42729	37.389	.04154										.03300	.03187	.04001	.02270
5	.74788	.31586	36.589	.71375										.04379	.04138	.05198	.03034
6	.35925	.94419	35.886	.61593										.03461	.05165	.06392	.03773
7	.37065	.35228	35.043	.04806										.06546	.07583	.04489	
8	.98213	.66815	34.372	.72016										.07634	.06848	.18771	.05183
9	.39341	.76781	33.585	.82223										.08726	.07737	.09955	.05856
10	.18679	.17527	32.892	.82424										.09821	.08545	.11137	.06509
11	.11517	.14254	32.227	.82622										.10918	.09363	.12316	.07145
12	.12755	.38962	31.591	.82816										.12147	.10452	.13493	.07753
13	.13493	.74654	30.995	.83005										.13320	.10942	.14667	.08366

POINT NUMBER	M E A N L I N E O A T A		SURFACE COORDINATE DATA			
	X	Y	XS	YS	XP	YP
14	.15331	.17320	.03193	.11705	.15639	.08954
15	.16169	.13980	.29.069	.12452	.17009	.09529
16	.17377	.11637	.29.362	.13183	.18177	.13992
17	.18445	.12271	.29.893	.13899	.19344	.10641
18	.19493	.12845	.29.465	.14546	.20416	.11143
19	.20541	.13407	.28.325	.15182	.21486	.11633
20	.21589	.13960	.27.569	.15805	.22553	.12144
21	.22637	.14522	.27.398	.16417	.23617	.12586
22	.23685	.15032	.26.609	.17017	.24679	.13048
23	.24733	.15551	.26.135	.17633	.25738	.13500
24	.25781	.16059	.25.583	.18176	.26794	.13942
25	.26829	.16555	.25.345	.18736	.27848	.14374
26	.27876	.17038	.24.469	.19282	.28898	.14795
27	.28924	.17509	.23.915	.19813	.29946	.15206
28	.29972	.17967	.23.323	.20330	.30991	.15605
29	.31020	.18413	.22.713	.20831	.32032	.15994
30	.32068	.18845	.22.084	.21317	.33071	.16372
31	.33116	.19263	.21.437	.21788	.34107	.16738
32	.34164	.19667	.20.770	.22242	.35140	.17093
33	.35212	.20058	.20.084	.22679	.36170	.17436
34	.36260	.20437	.19.345	.23102	.37209	.17793
35	.37308	.20804	.18.558	.23515	.38247	.18138
36	.38356	.21159	.17.722	.23918	.39284	.18472
37	.39404	.21504	.17.292	.24311	.40321	.18795
38	.40452	.21839	.16.447	.24694	.41358	.19108
39	.41500	.22164	.15.561	.25067	.42394	.19412
40	.42548	.22479	.14.644	.25430	.43429	.19708
41	.43596	.22784	.13.700	.25783	.44464	.20004
42	.44644	.23079	.12.744	.26126	.45499	.20299
43	.45692	.23364	.11.777	.26459	.46534	.20594
44	.46740	.23639	.10.800	.26782	.47569	.20889
45	.47788	.23904	.9.813	.27095	.48604	.21184
46	.48836	.24159	.8.817	.27398	.49639	.21479
47	.49884	.24404	.7.811	.27691	.50674	.21774
48	.50932	.24639	.6.794	.27974	.51709	.22069
49	.51980	.24864	.5.767	.28257	.52744	.22364
50	.53028	.25079	.4.730	.28530	.53779	.22659
51	.54076	.25284	.3.683	.28793	.54814	.22954
52	.55124	.25479	.2.626	.29046	.55849	.23249
53	.56172	.25664	.1.569	.29289	.56884	.23544
54	.57220	.25839	.0.512	.29522	.57919	.23839
55	.58268	.26004	.0.455	.29745	.58954	.24134
56	.59316	.26159	.0.398	.29958	.59989	.24429
57	.60364	.26304	.0.341	.30161	.61024	.24724
58	.61412	.26439	.0.284	.30354	.62059	.25019
59	.62460	.26564	.0.227	.30537	.63094	.25314
60	.63508	.26679	.0.170	.30710	.64129	.25609
61	.64556	.26784	.0.113	.30873	.65164	.25904
62	.65604	.26879	.0.056	.31026	.66199	.26199
63	.66652	.26964	.0.000	.31169	.67234	.26494
64	.67700	.27039	.0.000	.31302	.68269	.26789
65	.68748	.27104	.0.000	.31425	.69304	.27084
66	.69796	.27159	.0.000	.31538	.70339	.27379
67	.70844	.27204	.0.000	.31641	.71374	.27674
68	.71892	.27239	.0.000	.31734	.72409	.27969
69	.72940	.27264	.0.000	.31817	.73444	.28264
70	.73988	.27279	.0.000	.31890	.74479	.28559
71	.75036	.27284	.0.000	.31953	.75514	.28854
72	.76084	.27279	.0.000	.32006	.76549	.29149
73	.77132	.27264	.0.000	.32049	.77584	.29444
74	.78180	.27239	.0.000	.32082	.78619	.29739
75	.79228	.27204	.0.000	.32105	.79654	.30034
76	.80276	.27159	.0.000	.32118	.80689	.30329
77	.81324	.27104	.0.000	.32121	.81724	.30624
78	.82372	.27039	.0.000	.32114	.82759	.30919
79	.83420	.26964	.0.000	.32097	.83794	.31214
80	.84468	.26879	.0.000	.32070	.84829	.31509
81	.85516	.26784	.0.000	.32033	.85864	.31804
82	.86564	.26679	.0.000	.31986	.86899	.32099
83	.87612	.26564	.0.000	.31929	.87934	.32394
84	.88660	.26439	.0.000	.31862	.88969	.32689
85	.89708	.26304	.0.000	.31785	.90004	.32984
86	.90756	.26159	.0.000	.31698	.91039	.33279
87	.91804	.26004	.0.000	.31601	.92074	.33574
88	.92852	.25839	.0.000	.31494	.93109	.33869
89	.93900	.25664	.0.000	.31377	.94144	.34164
90	.94948	.25479	.0.000	.31250	.95179	.34459
91	.95996	.25284	.0.000	.31113	.96214	.34754
92	.97044	.25079	.0.000	.30966	.97249	.35049
93	.98092	.24864	.0.000	.30809	.98284	.35344
94	.99140	.24639	.0.000	.30642	.99319	.35639
95	.10000	.24404	.0.000	.30465	.10000	.35934

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP	
70	.83372	.29562	-.118	.02995	.83372	.30059	.83371	.27064
71	.84883	.28551	-.835	.02780	.84300	.29940	.84860	.27161
72	.86398	.28518	-1.659	.02561	.86425	.29798	.86351	.27238
73	.87896	.29463	-2.517	.02339	.87347	.29631	.87845	.27294
74	.89414	.28385	-3.379	.02114	.89466	.29440	.89342	.27330
75	.90912	.28284	-4.256	.01885	.90982	.29224	.91842	.27344
76	.92420	.28150	-5.145	.01654	.92494	.28984	.92346	.27337
77	.93928	.28013	-6.148	.01421	.94003	.28719	.93853	.27306
78	.95436	.27841	-6.963	.01186	.95508	.28429	.95364	.27252
79	.96944	.27644	-7.890	.00949	.97003	.28114	.96879	.27174
80	.98452	.27423	-8.828	.00711	.98506	.27774	.98397	.27071
81	.99960	.27176	-9.776	.00472	1.00000	.27408	.99920	.26943

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 19

BETA1 = 40.814 (BLADE INLET ANGLE.)
 BETA2 = 10.381 (BLADE OUTLET ANGLE.)
 YZERO = 0.37228 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = 0.5681 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = 0.2228 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.5330 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORO = 2.5956 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0377
 STAGGER ANGLE = 15.418
 CAMBER ANGLE = 59.895
 SECTION AREA = 0.4248

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.7776
 YBAR = 0.2235

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0125
 IY = 0.0224
 IXY = 0.0150

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.262

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0013 (AT 15.262 WITH 'X' AXIS)
 IPY = 0.0243 (AT 15.262 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	0.0236	0.1300	40.814	0.0472	0.0082	0.0179	0.00179
2	0.1366	0.1961	39.929	0.0707	0.1139	0.1232	0.0690
3	0.2496	0.1892	38.155	0.0939	0.2201	0.2256	0.1528
4	0.3626	0.2795	38.196	0.1167	0.3266	0.3253	0.2336
5	0.4756	0.3671	37.352	0.1391	0.4334	0.4224	0.3118
6	0.5885	0.4520	36.528	0.1612	0.5407	0.5168	0.3873
7	0.7016	0.5345	35.724	0.1829	0.6482	0.6167	0.4603
8	0.8146	0.6168	34.943	0.2042	0.7562	0.6983	0.5309
9	0.9276	0.6925	34.187	0.2251	0.8644	0.7655	0.5994
10	1.0406	0.7682	33.458	0.2455	0.9730	0.8796	0.6657
11	1.1536	0.8418	32.759	0.2655	1.0818	0.9535	0.7302
12	1.2666	0.9156	32.090	0.2851	1.1909	1.0344	0.7929
13	1.3797	0.9886	31.454	0.3042	1.3003	1.1134	0.8538

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	14927	11519	36.853	14098	11995	15755	09133
15	16757	11186	33.286	15196	12659	16917	09714
16	17187	11839	29.760	16296	13337	18777	11282
17	18317	12479	29.272	17397	14120	19236	10838
18	19379	13069	28.824	18434	14786	20324	11352
19	20441	13648	28.362	19474	15440	21408	11876
20	21513	14216	27.884	20516	16182	22490	12350
21	22565	14772	27.391	21561	16910	23569	12834
22	23627	15316	26.892	22609	17325	24646	13308
23	24693	15849	26.357	23663	17927	25719	13771
24	25752	16369	25.816	24714	18514	26793	14223
25	26814	16876	25.258	25771	19088	27857	14665
26	27875	17371	24.683	26830	19646	28922	15196
27	28938	17853	24.091	27893	20190	29983	15515
28	30000	18321	23.482	28959	20718	31042	15924
29	31063	18775	22.854	30028	21230	32097	16320
30	32125	19216	22.209	31101	21727	33151	16705
31	33187	19643	21.545	32175	22206	34199	17079
32	34249	20055	20.863	33253	22669	35246	17440
33	35311	20452	20.162	34334	23115	36289	17789
34	36452	20833	19.413	35497	23574	37408	18151
35	37593	21257	18.690	36661	24012	38525	18501
36	38734	21635	17.995	37826	24431	39642	18839
37	39875	21998	17.331	38991	24830	40758	19166
38	41016	22347	16.695	40156	25211	41875	19483
39	42156	22683	16.091	41322	25574	42991	19791
40	43297	23005	15.519	42488	25920	44107	20090
41	44435	23316	14.979	43653	26250	45223	20382
42	45579	23616	14.472	44818	26565	46341	20668
43	46720	23906	13.998	45982	26864	47457	20947
44	47861	24185	13.558	47146	27149	48575	21222
45	49011	24456	13.153	48309	27420	49694	21492
46	50142	24719	12.783	49470	27680	50814	21758
47	51283	24974	12.443	50631	27927	51935	22021
48	52424	25223	12.148	51791	28164	53057	22282
49	53565	25465	11.885	52949	28390	54180	22540
50	54706	25756	11.571	54372	28656	55300	22856
51	55847	26039	11.232	55797	28909	56437	23168
52	56988	26312	10.869	57223	29148	57582	23477
53	58129	26577	10.479	58652	29373	58866	23780
54	59270	26831	10.165	60081	29584	60159	24077
55	60411	27074	9.825	61512	29779	61430	24369
56	61552	27306	9.460	62944	29958	62680	24653
57	62693	27525	9.069	64377	30121	63969	24929
58	63834	27733	8.653	65811	30268	65307	25197
59	64975	27927	8.211	67245	30337	66705	25456
60	66116	28107	7.742	68680	30519	68173	25704
61	67257	28273	7.247	70114	30683	69641	25942
62	68398	28423	6.726	71545	30678	72009	26168
63	69539	28558	6.179	72982	30735	74377	26382
64	70680	28677	5.616	74415	30771	76746	26583
65	71821	28779	5.037	75848	30788	79115	26770
66	72962	28869	4.437	77279	30783	81482	26954
67	74103	28938	3.823	78707	30755	83850	27121
68	75244	28986	3.184	80134	30703	86217	27277
69	76385	29014	2.541	81561	30627	88584	27401

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.83474	.23020	-1.186	.83479	.30527	.83469	.27513
71	.84973	.29004	-1.027	.84998	.30402	.84948	.27606
72	.86472	.28966	-1.880	.86514	.30254	.86429	.27678
73	.87971	.28905	-2.747	.88026	.30081	.87914	.27730
74	.89469	.28822	-3.626	.89536	.29863	.89491	.27761
75	.90967	.28715	-4.517	.91042	.29660	.90893	.27770
76	.92466	.28585	-5.419	.92544	.29413	.92387	.27757
77	.93964	.28431	-6.332	.94043	.29141	.93886	.27721
78	.95463	.28252	-7.256	.95538	.28843	.95388	.27661
79	.96962	.28049	-8.189	.97029	.28521	.96894	.27578
80	.98460	.27821	-9.131	.98517	.28173	.98403	.27469
81	.99959	.27567	-10.081	1.00000	.27800	.99917	.27335

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 20

BETA1 = 41.339 (BLADE INLET ANGLE.)
 BETA2 = 10.451 (BLADE OUTLET ANGLE.)
 YZERO = 0.1228 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = 0.5943 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YORE = 0.3228 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = 0.5339 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.6389 (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0383
 STAGGER ANGLE = 15.674
 CARBER ANGLE = 52.399
 SECTION AREA = 0.4308

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = 0.47675
 YBAR = 0.22466

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = 0.0221
 IY = 0.0227
 IXY = 0.00362

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.492

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = 0.0073 (AT 15.492 WITH 'X' AXIS)
 IPY = 0.06244 (AT 15.492 WITH 'Y' AXIS)

POINT NUMBER	M E A N L I N E O A T A			SURFACE COORDINATE DATA			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
1	0.0237	0.1100	41.939	0.0473	0.0076	0.0395	-0.0176
2	0.1359	0.3992	41.308	0.0713	0.1125	0.1593	0.0723
3	0.3241	0.1952	40.088	0.0948	0.2176	0.2315	0.1589
4	0.93603	0.2882	39.182	0.1181	0.3231	0.3339	0.2424
5	0.94726	0.3782	38.292	0.1409	0.4289	0.4375	0.3229
6	0.5548	0.4654	37.420	0.1633	0.5352	0.5303	0.4006
7	0.6971	0.5500	36.569	0.1853	0.6418	0.6204	0.4756
8	0.8093	0.6320	35.742	0.2069	0.7488	0.7159	0.5480
9	0.9215	0.7116	34.942	0.2289	0.8562	0.8050	0.6181
10	0.1037	0.7889	34.169	0.2487	0.9639	0.8917	0.6860
11	0.1159	0.8640	33.428	0.2689	1.0713	0.9762	0.7518
12	0.1282	0.9371	32.721	0.2887	1.1801	1.0585	0.8156
13	0.13714	0.1082	32.147	0.3080	1.2687	1.1380	0.8777

POINT NUMBER M E A N I N E D A T A SURFACE COORDINATE DATA

POINT NUMBER	M E A N I N E D A T A		SURFACE COORDINATE DATA				
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	14.626	11776	31.411	13975	12171	15678	09381
15	15949	11453	33.814	15064	12936	16833	09971
16	17371	12115	38.258	16156	13684	17986	10547
17	18193	12763	29.745	17249	14415	19137	11111
18	19270	13373	29.267	18301	15103	20240	11642
19	20347	13970	28.775	19354	15778	21340	12162
20	21424	14555	28.268	20411	16439	22437	12672
21	22511	15128	27.747	21471	17087	23531	13170
22	23578	15688	27.211	22533	17720	24622	13657
23	24655	16236	26.659	23599	18338	25710	14133
24	25732	16773	26.193	24668	18941	26795	14598
25	26818	17290	25.513	25743	19530	27877	15051
26	27895	17797	24.912	26815	20102	28956	15492
27	28962	18291	24.298	27893	20659	30032	15922
28	30039	18773	23.667	28974	21200	31104	16343
29	31116	19234	23.019	30059	21723	32174	16745
30	32193	19685	22.355	31146	22230	33240	17139
31	33271	20120	21.673	32237	22720	34303	17520
32	34347	20541	20.974	33330	23192	35363	17889
33	35424	20946	20.258	34427	23646	36421	18245
34	36501	21362	19.496	35502	24111	37479	18612
35	37578	21761	18.763	36577	24555	38536	18967
36	38654	22144	18.019	37654	24979	39592	19310
37	39729	22512	17.286	38730	25383	40648	19642
38	40804	22866	16.745	39807	25768	41704	19963
39	41879	23205	16.135	40884	26135	42760	20276
40	42954	23532	15.559	41961	26485	43816	20580
41	44029	23847	15.017	43038	26818	44872	20876
42	45104	24150	14.509	44115	27134	45928	21166
43	46179	24443	14.036	45192	27436	46984	21450
44	47254	24726	13.598	46269	27723	48040	21729
45	48329	25000	13.197	47346	27997	49096	22003
46	49404	25266	12.832	48423	28258	50152	22274
47	50479	25525	12.504	49500	28508	51208	22542
48	51554	25777	12.214	50577	28746	52264	22808
49	52629	26024	11.960	51654	28975	53320	23072
50	53704	26266	11.732	52731	29195	54376	23336
51	54779	26500	11.522	53808	29402	55432	23600
52	55854	26726	11.324	54885	29598	56488	23864
53	56929	26947	11.136	55962	29785	57544	24128
54	58004	27159	10.951	57039	29962	58600	24392
55	59079	27366	10.775	58116	30130	59656	24656
56	60154	27566	10.606	59193	30292	60712	24920
57	61229	27759	10.441	60270	30445	61768	25184
58	62304	27947	10.280	61347	30589	62824	25448
59	63379	28130	10.122	62424	30724	63880	25712
60	64454	28304	9.966	63501	30850	64936	25976
61	65529	28473	9.814	64578	30967	66000	26240
62	66604	28638	9.664	65655	31075	67064	26504
63	67679	28800	9.516	66732	31174	68128	26768
64	68754	28959	9.370	67809	31264	69192	27032
65	69829	29114	9.226	68886	31345	70256	27296
66	70904	29266	9.084	69963	31417	71320	27560
67	71979	29415	8.944	71040	31481	72384	27824
68	73054	29561	8.806	72117	31537	73448	28088
69	74129	29704	8.670	73194	31585	74512	28352
70	75204	29844	8.536	74271	31625	75576	28616
71	76279	29981	8.404	75348	31657	76640	28880
72	77354	30115	8.274	76425	31681	77704	29144
73	78429	30246	8.146	77502	31697	78768	29408
74	79504	30373	8.020	78579	31705	79832	29672
75	80579	30497	7.896	79656	31705	80896	29936
76	81654	30618	7.774	80733	31697	81960	30200
77	82729	30736	7.654	81810	31681	83024	30464
78	83804	30851	7.536	82887	31657	84088	30728
79	84879	30963	7.420	83964	31625	85152	30992
80	85954	31072	7.306	85041	31585	86216	31256
81	87029	31178	7.194	86118	31537	87280	31520
82	88104	31281	7.084	87195	31481	88344	31784
83	89179	31381	6.976	88272	31417	89408	32048
84	90254	31478	6.870	89349	31345	90472	32312
85	91329	31573	6.766	90426	31264	91536	32576
86	92404	31666	6.664	91503	31174	92600	32840
87	93479	31757	6.564	92580	31075	93664	33104
88	94554	31845	6.466	93657	30967	94728	33368
89	95629	31930	6.370	94734	30850	95792	33632
90	96704	32013	6.276	95811	30724	96856	33896
91	97779	32093	6.184	96888	30598	97920	34160
92	98854	32170	6.094	97965	30471	98984	34424
93	99929	32245	6.006	99042	30345	100048	34688
94	101004	32318	5.920	100125	30217	101112	34952
95	102079	32388	5.836	101202	30091	102176	35216
96	103154	32456	5.754	102279	29962	103240	35480
97	104229	32522	5.674	103356	29836	104304	35744
98	105304	32586	5.596	104433	29711	105368	36008
99	106379	32648	5.520	105510	29585	106432	36272
100	107454	32709	5.446	106587	29460	107496	36536

POINT NUMBER	M E A N L I N E O A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.83582	.29577	-1.377	.83592	.31090	.83572	.28765
71	.85070	.29556	-1.243	.85101	.30960	.85040	.28153
72	.86559	.29513	-2.120	.86697	.30805	.86511	.28220
73	.88048	.29446	-3.009	.88110	.30625	.87986	.28267
74	.89536	.29356	-3.908	.89609	.30420	.89464	.28292
75	.91025	.29243	-4.817	.91105	.30191	.90945	.28295
76	.92514	.29105	-5.736	.92597	.29935	.92430	.28275
77	.94002	.28943	-6.663	.94086	.29655	.93919	.28232
78	.95491	.28757	-7.599	.95570	.29350	.95412	.28165
79	.96980	.28546	-8.543	.97051	.29119	.96909	.28073
80	.98468	.28310	-9.493	.98527	.28652	.98409	.27957
81	.99957	.28048	-10.451	1.00000	.28281	.99914	.27815

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 21

BETA1 = 43.286 (BLADE INLET ANGLE.)
 BETA2 = 17.934 (BLADE OUTLET ANGLE.)
 YZERO = .31228 (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
 T = .16363 (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
 YONE = .9.228 (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
 Z = .5131 (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
 CORD = 2.6825 (MERIDIONAL CHORD OF SECTION.)

HORIZONTALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0399
 STAGGER ANGLE = 15.979
 CAMBER ANGLE = 54.130
 SECTION AREA = .14368

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .67548
 YBAR = .22988

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .39.22
 IY = .71231
 IXY = .93364

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.756

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .10313 (AT 15.756 WITH 'X' AXIS)
 IPY = .30249 (AT 15.756 WITH 'Y' AXIS)

POINT NUMBER	X	Y	W	E	A	L	I	N	E	O	A	T	A	SURFACE COORDINATE DATA			
														XS	YS	XP	YP
1	.89237	0.	.11030	43.286	.00474	.00075	.63173	.33400	-.03173	.01110	.61298	.01594	.00767	.01110	.61298	.01594	.00767
2	.81352	.16333	42.386	.00719	.02153	.02391	.02785	.03195	.03491	.03424	.04479	.05152	.03315	.03424	.04479	.05152	.03315
3	.72467	.32030	41.336	.00969	.04297	.05431	.06429	.06829	.07329	.07527	.08447	.09037	.07403	.07527	.08447	.09037	.07403
4	.62583	.42995	40.375	.01197	.06498	.07829	.08829	.09329	.09829	.09855	.09644	.09671	.09506	.09855	.09644	.09671	.09506
5	.51698	.53927	39.431	.01429	.08698	.10129	.11129	.11629	.12129	.12155	.11844	.11871	.11706	.12155	.11844	.11871	.11706
6	.40813	.64829	38.535	.01657	.10898	.12429	.13429	.13929	.14429	.14455	.14144	.14171	.14006	.14455	.14144	.14171	.14006
7	.30928	.75792	37.599	.01881	.13098	.14729	.15729	.16229	.16729	.16755	.16444	.16471	.16306	.16755	.16444	.16471	.16306
8	.21043	.86744	36.718	.02100	.15298	.17029	.18029	.18529	.19029	.19055	.18744	.18771	.18606	.19055	.18744	.18771	.18606
9	.11158	.97696	35.863	.02314	.17498	.19329	.20329	.20829	.21329	.21355	.21044	.21071	.20906	.21355	.21044	.21071	.20906
10	.01273	.98648	35.030	.02524	.19698	.21629	.22629	.23129	.23629	.23655	.23344	.23371	.23206	.23655	.23344	.23371	.23206
11	.01389	.99599	34.245	.02728	.21898	.23929	.25029	.25529	.26029	.26055	.25744	.25771	.25606	.26055	.25744	.25771	.25606
12	.01504	.99679	33.467	.02926	.24098	.26229	.27329	.27829	.28329	.28355	.28044	.28071	.27906	.28355	.28044	.28071	.27906
13	.01621	.99747	32.767	.03123	.26298	.28429	.29529	.30029	.30529	.30555	.30244	.30271	.30106	.30555	.30244	.30271	.30106

POINT NUMBER	M E A S U R E M E N T S			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
14	.16735	.11115	32.387	.13313	.12519	.15615	.09712
15	.15857	.11806	31.449	.03498	.13298	.16763	.13314
16	.16905	.12480	30.856	.03679	.14359	.17909	.15901
17	.18353	.13139	30.303	.03854	.14808	.19053	.11475
18	.19172	.13770	29.791	.04021	.15174	.20171	.12.26
19	.20264	.14389	29.259	.04182	.15242	.21266	.12565
20	.21356	.14994	28.715	.04339	.15314	.22399	.13091
21	.22448	.15585	28.158	.04493	.15389	.23508	.13638
22	.23540	.16163	27.587	.04635	.22467	.24614	.14109
23	.24632	.16726	27.003	.04775	.23548	.25716	.14599
24	.25724	.17276	26.405	.04909	.24633	.26816	.15077
25	.26816	.17811	25.792	.05038	.25720	.27912	.15543
26	.27909	.18331	25.166	.05163	.26811	.29005	.15996
27	.29010	.18837	24.525	.05276	.27905	.30095	.16437
28	.30192	.19327	23.869	.05387	.29002	.31182	.16865
29	.31384	.19803	23.199	.05493	.30103	.32265	.17280
30	.32576	.20263	22.514	.05588	.31206	.33346	.17682
31	.33768	.20708	21.813	.05679	.32313	.34423	.18072
32	.34960	.21137	21.097	.05763	.33423	.35497	.18449
33	.36152	.21551	20.366	.05841	.34536	.36568	.18813
34	.37344	.21973	19.594	.05917	.35628	.37706	.19186
35	.38536	.22378	18.852	.05984	.36708	.38842	.19546
36	.39728	.22767	18.141	.06044	.37778	.39978	.19895
37	.40920	.23140	17.459	.06097	.38847	.41113	.20232
38	.42112	.23498	16.711	.06144	.40000	.42248	.20558
39	.43304	.23842	15.997	.06187	.41248	.43383	.20876
40	.44496	.24173	15.216	.06225	.42591	.44519	.21185
41	.45688	.24491	14.371	.06255	.43936	.45655	.21486
42	.46880	.24799	14.561	.06283	.45283	.46791	.21781
43	.48072	.25095	14.788	.06309	.46630	.47928	.22070
44	.49264	.25382	13.951	.06333	.47979	.49066	.22354
45	.50456	.25662	13.252	.06357	.49326	.50205	.22633
46	.51648	.25929	12.691	.06379	.50673	.51345	.22909
47	.52840	.26192	12.267	.06398	.52020	.52486	.23183
48	.54032	.26449	12.202	.06416	.53367	.53629	.23454
49	.55224	.26698	12.335	.06433	.54714	.54773	.23723
50	.56416	.26938	11.753	.06449	.56061	.55937	.24043
51	.57608	.27174	11.434	.06465	.57408	.57100	.24360
52	.58800	.27405	11.707	.06482	.58755	.58263	.24673
53	.60000	.27626	10.739	.06499	.60102	.59426	.24982
54	.61200	.27837	10.307	.06516	.61449	.60589	.25285
55	.62400	.28037	9.961	.06533	.62796	.61752	.25582
56	.63600	.28224	8.807	.06549	.64143	.62915	.25872
57	.64800	.28398	8.352	.06565	.65488	.64078	.26153
58	.66000	.28561	7.785	.06581	.66833	.65241	.26426
59	.67200	.28714	7.187	.06597	.68178	.66404	.26688
60	.68400	.28857	6.556	.06613	.69523	.67567	.26940
61	.69600	.28990	5.893	.06629	.70868	.68730	.27181
62	.70800	.29114	5.209	.06645	.72213	.69893	.27409
63	.72000	.29228	4.463	.06661	.73558	.71056	.27624
64	.73200	.29332	3.739	.06677	.74903	.72219	.27824
65	.74400	.29427	3.015	.06693	.76248	.73382	.28010
66	.75600	.29512	2.291	.06709	.77593	.74545	.28191
67	.76800	.29587	1.567	.06725	.78938	.75708	.28353
68	.78000	.29652	1.167	.06741	.80283	.76871	.28496
69	.82215	.295	.295	.06757	.82207	.82222	.28619

POINT NUMBER	M E A N L I N E D A T A			S U R F A C E C O O R D I N A T E D A T A			
	X	Y	ANGLE THICKNESS	XS	YS	XP	YP
70	.83693	.31240	-.587	.83709	.31757	.83678	.28723
71	.85172	.31213	-1.461	.85208	.31620	.85135	.28806
72	.86651	.31163	-2.385	.86704	.31459	.86596	.28868
73	.88128	.31090	-3.299	.88197	.31272	.88060	.28908
74	.89617	.29993	-4.223	.89685	.31159	.89528	.28926
75	.91105	.29871	-5.155	.91171	.30821	.90999	.28922
76	.92593	.29726	-6.196	.92652	.30558	.92475	.28894
77	.94142	.29556	-7.045	.94130	.30269	.93954	.28843
78	.95521	.29369	-8.100	.95604	.29954	.95437	.28767
79	.96998	.29140	-8.963	.97073	.29613	.96924	.28667
80	.98477	.28894	-9.931	.98539	.29247	.98415	.28541
81	.99955	.28622	-10.904	1.00000	.28955	.99910	.28389

PLATE SURFACE GEOMETRY IN CARTESIAN COORDINATES AT SPECIFIED VALUES OF 'X'

SECTION NUMBER 1 'Z' = 4.7500

SECTION PROPERTIES SECTION AREA = 1.0661E-01
 LOCATION OF CENTROID XBAR = -1.5069E+00
 RELATIVE TO STACK AXIS YBAR = -2.6846E-01
 SECOND MOMENTS OF AREA IX = 9.4748E-03
 ABOUT CENTROID IY = 4.6203E-02
 IXY = 1.9892E-02
 PRINCIPAL SECOND MOMENTS IPX = 7.7885E-04 (AT 23.61 DEGREES TO 'X' AXIS)
 GP AREA ABOUT CENTROID IPY = 5.979E-02 (AT 23.61 DEGREES TO 'Y' AXIS)
 TORSIONAL CONSTANT = 5.7669E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.43762E+00	-8.79762E-01	-2.43165E+00	-4.03026E-01
2	-2.41461E+00	-8.52955E-01	-2.43579E+00	-8.67249E-01
3	-2.31605E+00	-8.26316E-01	-2.37358E+00	-8.45730E-01
4	-2.35325E+00	-7.99536E-01	-2.35330E+00	-8.24111E-01
5	-2.24411E+00	-7.72694E-01	-2.32633E+00	-8.02530E-01
6	-2.31944E+00	-7.45608E-01	-2.29368E+00	-7.80648E-01
7	-2.23518E+00	-7.18599E-01	-2.27250E+00	-7.59095E-01
8	-2.26494E+00	-6.91328E-01	-2.24435E+00	-7.36992E-01
9	-2.24411E+00	-6.63736E-01	-2.21602E+00	-7.14730E-01
10	-2.21748E+00	-6.35997E-01	-2.18700E+00	-6.92057E-01
11	-2.18937E+00	-6.07869E-01	-2.15721E+00	-6.69285E-01
12	-2.16125E+00	-5.79713E-01	-2.12662E+00	-6.45979E-01
13	-2.13216E+00	-5.51066E-01	-2.09512E+00	-6.22643E-01
14	-2.10355E+00	-5.22575E-01	-2.06266E+00	-5.98797E-01
15	-2.07450E+00	-4.93544E-01	-2.02914E+00	-5.74025E-01
16	-2.04516E+00	-4.64072E-01	-1.99451E+00	-5.50613E-01
17	-2.01574E+00	-4.34378E-01	-1.95863E+00	-5.28264E-01
18	-1.98751E+00	-4.04539E-01	-1.93395E+00	-5.06635E-01
19	-1.95945E+00	-3.74631E-01	-1.90956E+00	-4.85263E-01
20	-1.93165E+00	-3.44742E-01	-1.88539E+00	-4.64092E-01
21	-1.90274E+00	-3.14878E-01	-1.86143E+00	-4.43131E-01
22	-1.87774E+00	-2.85126E-01	-1.83768E+00	-4.22364E-01
23	-1.85111E+00	-2.55474E-01	-1.81414E+00	-4.01805E-01
24	-1.82556E+00	-2.25944E-01	-1.79081E+00	-3.81450E-01
25	-1.79771E+00	-1.96525E-01	-1.76768E+00	-3.61295E-01
26	-1.77351E+00	-1.67226E-01	-1.74485E+00	-3.41340E-01
27	-1.74758E+00	-1.38047E-01	-1.72232E+00	-3.21585E-01
28	-1.72495E+00	-1.09088E-01	-1.70009E+00	-3.02030E-01
29	-1.70465E+00	-8.03499E-02	-1.67816E+00	-2.82675E-01
30	-1.68665E+00	-5.10730E-02	-1.65653E+00	-2.63520E-01
31	-1.67095E+00	-2.22681E-02	-1.63520E+00	-2.44565E-01
32	-1.65745E+00	6.71472E-03	-1.61427E+00	-2.25810E-01
33	-1.64615E+00	1.37723E-02	-1.59364E+00	-2.07255E-01
34	-1.63705E+00	2.22224E-02	-1.57437E+00	-1.88900E-01

POINT NO	XS	YS	XP	YP
35	-1.5159E+00	-1.44257E-01	-1.47180E+00	-2.56833E-01
36	-1.47354E+00	-1.31319E-01	-1.44039E+00	-2.42640E-01
37	-1.44133E+00	-1.18616E-01	-1.40878E+00	-2.28649E-01
38	-1.40917E+00	-1.06380E-01	-1.37706E+00	-2.15092E-01
39	-1.37468E+00	-9.43211E-02	-1.34502E+00	-2.03360E-01
40	-1.34184E+00	-8.32428E-02	-1.31247E+00	-1.92510E-01
41	-1.30685E+00	-7.19222E-02	-1.27941E+00	-1.82677E-01
42	-1.27151E+00	-6.09146E-02	-1.24587E+00	-1.73632E-01
43	-1.2362E+00	-5.05417E-02	-1.21865E+00	-1.67772E-01
44	-1.20130E+00	-4.06696E-02	-1.17736E+00	-1.64733E-01
45	-1.16343E+00	-3.07458E-02	-1.14237E+00	-1.62810E-01
46	-1.12699E+00	-2.12136E-02	-1.10994E+00	-1.61594E-01
47	-1.08866E+00	-1.21471E-02	-1.07094E+00	-9.71261E-02
48	-1.05199E+00	-4.05336E-03	-1.03433E+00	-9.55673E-02
49	-1.01145E+00	3.87995E-03	-9.97115E-01	-7.39068E-02
50	-9.66212E-01	8.74963E-03	-9.73026E-01	-6.59406E-02
51	-9.60842E-01	1.33348E-02	-9.48943E-01	-5.94824E-02
52	-9.3554E-01	1.73586E-02	-9.24996E-01	-5.27187E-02
53	-9.10134E-01	2.14784E-02	-9.00793E-01	-4.62568E-02
54	-8.85139E-01	2.53946E-02	-8.76560E-01	-4.00860E-02
55	-8.59838E-01	2.86527E-02	-8.52297E-01	-3.42424E-02
56	-8.34583E-01	3.13590E-02	-8.28122E-01	-2.89557E-02
57	-8.09315E-01	3.36348E-02	-8.03945E-01	-2.41962E-02
58	-7.84037E-01	3.5582E-02	-7.79443E-01	-1.97776E-02
59	-7.58922E-01	3.72300E-02	-7.55007E-01	-1.56893E-02
60	-7.33925E-01	3.85565E-02	-7.30540E-01	-1.18602E-02
61	-7.09173E-01	3.94805E-02	-7.06203E-01	-8.07243E-03
62	-6.84633E-01	4.11549E-02	-6.81647E-01	-4.64170E-03
63	-6.59535E-01	4.21740E-02	-6.57040E-01	-1.09478E-03
64	-6.34699E-01	4.29526E-02	-6.32414E-01	1.97556E-03
65	-6.08577E-01	4.35342E-02	-6.07804E-01	4.82979E-03
66	-5.81271E-01	4.37597E-02	-5.83954E-01	7.34756E-03
67	-5.53989E-01	4.27274E-02	-5.53990E-01	8.70739E-03
68	-5.26734E-01	4.14430E-02	-5.27034E-01	9.75092E-03
69	-4.99478E-01	3.98276E-02	-4.99993E-01	1.04136E-02
70	-4.72246E-01	3.95285E-02	-4.72962E-01	1.23151E-02
71	-4.45039E-01	3.87486E-02	-4.45910E-01	1.36641E-02
72	-4.17825E-01	3.62444E-02	-4.18352E-01	1.32705E-02
73	-3.90645E-01	3.34551E-02	-3.91787E-01	1.29165E-02
74	-3.63492E-01	3.05267E-02	-3.64664E-01	1.15542E-02
75	-3.36246E-01	2.74381E-02	-3.37505E-01	1.03609E-02
76	-3.09138E-01	2.53965E-02	-3.1320E-01	1.02026E-02
77	-2.81912E-01	2.14375E-02	-2.83109E-01	8.95398E-03
78	-2.54719E-01	1.73017E-02	-2.55870E-01	5.71268E-03
79	-2.27524E-01	1.29250E-02	-2.28600E-01	3.35051E-03
80	-2.00320E-01	8.27335E-03	-2.01294E-01	7.75820E-03
81	-1.7318E-01	3.34931E-03	-1.73956E-01	-3.21827E-03

POINT NO	XSEMI	YSEMI
1	-2.43165E+00	-8.03026E-01
2	-2.43193E+00	-8.89264E-01
3	-2.43224E+00	-8.89448E-01
4	-2.43257E+00	-8.89576E-01
5	-2.43292E+00	-8.89648E-01
6	-2.43330E+00	-8.89663E-01
7	-2.43366E+00	-8.89620E-01

POINT NO	KSEMI	YSEMI
8	-2.4348E+00	-8.83519E-01
9	-2.4349E+00	-8.83362E-01
10	-2.4349E+00	-8.83151E-01
11	-2.4353E+00	-8.82808E-01
12	-2.4359E+00	-8.82575E-01
13	-2.43618E+00	-8.82217E-01
14	-2.43645E+00	-8.81817E-01
15	-2.4368E+00	-8.81379E-01
16	-2.43712E+00	-8.80909E-01
17	-2.43742E+00	-8.80414E-01
18	-2.43759E+00	-8.80015E-01
19	-2.43792E+00	-8.79555E-01
20	-2.43817E+00	-8.79038E-01
21	-2.43828E+00	-8.78425E-01
22	-2.43840E+00	-8.77766E-01
23	-2.43852E+00	-8.77064E-01
24	-2.43855E+00	-8.76358E-01
25	-2.43855E+00	-8.75640E-01
26	-2.43846E+00	-8.74905E-01
27	-2.43837E+00	-8.74165E-01
28	-2.43824E+00	-8.73465E-01
29	-2.43807E+00	-8.72765E-01
30	-2.43786E+00	-8.72051E-01
31	-2.43762E+00	-8.71362E-01

SECTION NUMBER 2 'Z' = 5.1250

SECTION PROPERTIES	SECTION AREA	LOCATION OF CENTROID RELATIVE TO STACK AXIS	SECTION NUMBER 2 'Z' = 5.1250
	XBAR =	YBAR =	1.7467E-11
	IX =	IY =	-1.3309E+00
	IXY =		-2.0842E-01
	IPX =	IPY =	6.4246E-03
			4.2648E-02
			1.5684E-02
			5.7772E-04 (AT 20.45 DEGREES TO 'X' AXIS)
			4.8495E-02 (AT 20.45 DEGREES TO 'Y' AXIS)
			4.9641E-04

SECTION COORDINATES	POINT NO	XS	YS	XP	YP
	1	-2.29737E+00	-7.57210E-01	-2.29127E+00	-7.56033E-01
	2	-2.27456E+00	-7.32962E-01	-2.26506E+00	-7.45849E-01
	3	-2.25154E+00	-7.09049E-01	-2.24029E+00	-7.26050E-01
	4	-2.22826E+00	-6.85409E-01	-2.21457E+00	-7.06529E-01
	5	-2.20477E+00	-6.61994E-01	-2.18870E+00	-6.87168E-01
	6	-2.18110E+00	-6.38637E-01	-2.16269E+00	-6.68127E-01
	7	-2.15734E+00	-6.15614E-01	-2.13639E+00	-6.49265E-01
	8	-2.13255E+00	-5.92729E-01	-2.10989E+00	-6.30596E-01
	9	-2.10740E+00	-5.70056E-01	-2.08309E+00	-6.12150E-01

POINT NO	XS	YS	XP	YP
10	-2.09264E+00	-5.47565E-01	-2.05996E+00	-5.93665E-01
11	-2.05712E+00	-5.25230E-01	-2.02844E+00	-5.75734E-01
12	-2.03704E+00	-5.03036E-01	-2.00940E+00	-5.57722E-01
13	-2.00420E+00	-4.80963E-01	-1.97201E+00	-5.39881E-01
14	-1.97688E+00	-4.59019E-01	-1.94297E+00	-5.22089E-01
15	-1.94933E+00	-4.37149E-01	-1.91336E+00	-5.04414E-01
16	-1.92222E+00	-4.15335E-01	-1.88315E+00	-4.86777E-01
17	-1.89342E+00	-3.93673E-01	-1.85234E+00	-4.69159E-01
18	-1.86551E+00	-3.75154E-01	-1.82121E+00	-4.54997E-01
19	-1.84196E+00	-3.59300E-01	-1.80102E+00	-4.41014E-01
20	-1.81723E+00	-3.41921E-01	-1.77646E+00	-4.27213E-01
21	-1.79230E+00	-3.25244E-01	-1.75108E+00	-4.13550E-01
22	-1.76719E+00	-3.09869E-01	-1.72568E+00	-4.00044E-01
23	-1.74111E+00	-2.92781E-01	-1.70031E+00	-3.86723E-01
24	-1.71654E+00	-2.77936E-01	-1.67498E+00	-3.73578E-01
25	-1.69145E+00	-2.61666E-01	-1.64971E+00	-3.60603E-01
26	-1.65545E+00	-2.44563E-01	-1.62446E+00	-3.47739E-01
27	-1.63922E+00	-2.32092E-01	-1.59914E+00	-3.35159E-01
28	-1.61335E+00	-2.17697E-01	-1.57368E+00	-3.22675E-01
29	-1.58764E+00	-2.04079E-01	-1.54803E+00	-3.10352E-01
30	-1.56118E+00	-1.91617E-01	-1.52217E+00	-2.98205E-01
31	-1.53443E+00	-1.77532E-01	-1.49508E+00	-2.86227E-01
32	-1.50733E+00	-1.64831E-01	-1.46976E+00	-2.74406E-01
33	-1.47931E+00	-1.52521E-01	-1.44319E+00	-2.62790E-01
34	-1.45127E+00	-1.41245E-01	-1.41548E+00	-2.50836E-01
35	-1.42319E+00	-1.28360E-01	-1.38750E+00	-2.39030E-01
36	-1.39311E+00	-1.16794E-01	-1.35925E+00	-2.27344E-01
37	-1.36319E+00	-1.05588E-01	-1.33372E+00	-2.15817E-01
38	-1.33344E+00	-9.47652E-02	-1.30109E+00	-2.04513E-01
39	-1.30315E+00	-8.44227E-02	-1.27279E+00	-1.93215E-01
40	-1.27258E+00	-7.43226E-02	-1.24385E+00	-1.81955E-01
41	-1.24159E+00	-6.44814E-02	-1.21356E+00	-1.70912E-01
42	-1.21176E+00	-5.57053E-02	-1.18343E+00	-1.60053E-01
43	-1.17942E+00	-4.59533E-02	-1.15295E+00	-1.49388E-01
44	-1.14679E+00	-3.72793E-02	-1.12211E+00	-1.38729E-01
45	-1.11376E+00	-2.87733E-02	-1.09091E+00	-1.28184E-01
46	-1.08194E+00	-2.05062E-02	-1.05935E+00	-1.17623E-01
47	-1.04750E+00	-1.28027E-02	-1.02739E+00	-1.07773E-01
48	-1.01376E+00	-5.55533E-03	-9.94995E-01	-9.79722E-02
49	-9.79677E-01	1.46740E-03	-9.62165E-01	-8.81994E-02
50	-9.53103E-01	6.63782E-03	-9.36708E-01	-8.08521E-02
51	-9.26374E-01	1.15462E-02	-9.11253E-01	-7.37415E-02
52	-8.99757E-01	1.61278E-02	-8.85873E-01	-6.68698E-02
53	-8.73162E-01	2.04113E-02	-8.60391E-01	-6.02471E-02
54	-8.46632E-01	2.43933E-02	-8.34907E-01	-5.38735E-02
55	-8.20119E-01	2.81906E-02	-8.09419E-01	-4.77772E-02
56	-7.93754E-01	3.14120E-02	-7.83973E-01	-4.20638E-02
57	-7.67318E-01	3.42833E-02	-7.58492E-01	-3.67322E-02
58	-7.40537E-01	3.66807E-02	-7.32950E-01	-3.17041E-02
59	-7.14387E-01	3.83922E-02	-7.07393E-01	-2.69801E-02
60	-6.87696E-01	4.03705E-02	-6.81820E-01	-2.25392E-02
61	-6.61256E-01	4.25724E-02	-6.56370E-01	-1.82444E-02
62	-6.35848E-01	4.43664E-02	-6.30678E-01	-1.41858E-02
63	-6.09499E-01	4.52614E-02	-6.04027E-01	-1.04211E-02
64	-5.82121E-01	4.61599E-02	-5.79356E-01	-6.95051E-03
65	-5.55877E-01	4.67839E-02	-5.53646E-01	-3.74471E-03
66	-5.27164E-01	4.71572E-02	-5.25644E-01	-7.30630E-04

POINT NO	XS	YS	XP	YP
67	-4.98435E-01	4.64654E-02	-4.97528E-01	1.48657E-03
68	-4.69337E-01	4.55244E-02	-4.69384E-01	3.33646E-03
69	-4.41220E-01	4.41961E-02	-4.41211E-01	4.78552E-03
70	-4.12633E-01	4.33904E-02	-4.13010E-01	6.72553E-03
71	-3.84368E-01	4.21373E-02	-3.84779E-01	8.19715E-03
72	-3.55533E-01	3.97592E-02	-3.56518E-01	8.51847E-03
73	-3.27328E-01	3.73322E-02	-3.28253E-01	8.45832E-03
74	-2.98554E-01	3.43284E-02	-2.9924E-01	6.08940E-03
75	-2.73772E-01	3.07483E-02	-2.71556E-01	7.40076E-03
76	-2.41577E-01	2.78999E-02	-2.43151E-01	7.12707E-03
77	-2.13157E-01	2.37731E-02	-2.14711E-01	5.56408E-03
78	-1.84723E-01	1.94826E-02	-1.86233E-01	3.69076E-03
79	-1.56293E-01	1.46986E-02	-1.57714E-01	1.45251E-03
80	-1.27873E-01	9.65418E-03	-1.29153E-01	-1.15047E-03
81	-9.94572E-02	4.28866E-03	-1.00548E-01	-4.12825E-03

YSEMI

POINT NO XSEMI

1	-2.29127E+00	-7.66033E-01
2	-2.29150E+00	-7.65303E-01
3	-2.29197E+00	-7.65522E-01
4	-2.29235E+00	-7.6587E-01
5	-2.29276E+00	-7.65796E-01
6	-2.29319E+00	-7.66848E-01
7	-2.29363E+00	-7.66844E-01
8	-2.29418E+00	-7.66782E-01
9	-2.29453E+00	-7.66664E-01
10	-2.294937E+00	-7.65490E-01
11	-2.29541E+00	-7.66263E-01
12	-2.29584E+00	-7.65985E-01
13	-2.29625E+00	-7.65659E-01
14	-2.29664E+00	-7.65290E-01
15	-2.29711E+00	-7.64879E-01
16	-2.29734E+00	-7.64434E-01
17	-2.29765E+00	-7.63957E-01
18	-2.297931E+00	-7.63455E-01
19	-2.29814E+00	-7.62932E-01
20	-2.29832E+00	-7.62396E-01
21	-2.29846E+00	-7.61851E-01
22	-2.29856E+00	-7.61303E-01
23	-2.29861E+00	-7.60759E-01
24	-2.29865E+00	-7.60224E-01
25	-2.2987E+00	-7.59705E-01
26	-2.29874E+00	-7.59207E-01
27	-2.298734E+00	-7.58735E-01
28	-2.29816E+00	-7.58295E-01
29	-2.29793E+00	-7.57891E-01
30	-2.29767E+00	-7.57528E-01
31	-2.29737E+00	-7.57210E-01

SECTION NUMBER 3 'Z' = 5.5100

SECTION PROPERTIES

SECTION AREA = 1.6857E-01

LOCATION OF CENTROID
 RELATIVE TO STACK AXIS

YBAR = -1.1649E+00
 XBAR = -1.6656E-01

SECOND MOMENTS OF AREA
 ABOUT CENTROID

IX = 4.6360E-03
 IY = 4.1960E-02
 IXY = 1.3408E-02

PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID

IPX = 4.9976E-04 (AT 17.92 DEGREES TO 'X' AXIS)
 IPY = 4.6298E-02 (AT 17.92 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 4.4294E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.19574E+00	-6.76153E-01	-2.18981E+00	-6.84747E-01
2	-2.17219E+00	-6.53486E-01	-2.16340E+00	-6.65767E-01
3	-2.14827E+00	-6.31229E-01	-2.13716E+00	-6.47202E-01
4	-2.12425E+00	-6.09322E-01	-2.11084E+00	-6.29016E-01
5	-2.10114E+00	-5.87764E-01	-2.08453E+00	-6.11146E-01
6	-2.07993E+00	-5.66485E-01	-2.05821E+00	-5.9357E-01
7	-2.05861E+00	-5.45531E-01	-2.03188E+00	-5.76316E-01
8	-2.02718E+00	-5.24927E-01	-2.00553E+00	-5.59418E-01
9	-2.00262E+00	-5.04664E-01	-1.97917E+00	-5.42783E-01
10	-1.97794E+00	-4.84678E-01	-1.95278E+00	-5.26428E-01
11	-1.95313E+00	-4.65012E-01	-1.92637E+00	-5.10390E-01
12	-1.92817E+00	-4.45686E-01	-1.89991E+00	-4.94618E-01
13	-1.90317E+00	-4.26650E-01	-1.87342E+00	-4.79085E-01
14	-1.87822E+00	-4.07919E-01	-1.84687E+00	-4.63824E-01
15	-1.85241E+00	-3.89494E-01	-1.82026E+00	-4.48795E-01
16	-1.82682E+00	-3.71366E-01	-1.79357E+00	-4.33995E-01
17	-1.80116E+00	-3.53511E-01	-1.76680E+00	-4.19420E-01
18	-1.77526E+00	-3.35978E-01	-1.74021E+00	-4.05091E-01
19	-1.74930E+00	-3.22868E-01	-1.71355E+00	-3.90937E-01
20	-1.72318E+00	-3.07894E-01	-1.68681E+00	-3.82034E-01
21	-1.69688E+00	-2.93158E-01	-1.67199E+00	-3.69910E-01
22	-1.66541E+00	-2.78552E-01	-1.64810E+00	-3.57945E-01
23	-1.66176E+00	-2.64403E-01	-1.62412E+00	-3.46180E-01
24	-1.63793E+00	-2.50423E-01	-1.60004E+00	-3.34539E-01
25	-1.61391E+00	-2.36718E-01	-1.57586E+00	-3.23208E-01
26	-1.58971E+00	-2.23300E-01	-1.55162E+00	-3.12013E-01
27	-1.55530E+00	-2.11180E-01	-1.52728E+00	-3.01013E-01
28	-1.54069E+00	-1.97369E-01	-1.50284E+00	-2.90175E-01
29	-1.51590E+00	-1.84855E-01	-1.47829E+00	-2.79534E-01
30	-1.49090E+00	-1.72838E-01	-1.45366E+00	-2.69102E-01
31	-1.46570E+00	-1.61757E-01	-1.42892E+00	-2.58886E-01
32	-1.44029E+00	-1.49228E-01	-1.40409E+00	-2.48892E-01
33	-1.41467E+00	-1.38067E-01	-1.37914E+00	-2.39131E-01
34	-1.38787E+00	-1.26886E-01	-1.35312E+00	-2.29207E-01
35	-1.36188E+00	-1.16114E-01	-1.32697E+00	-2.19483E-01

POINT NO	XS	YS	XP	YP
15	-1.33359E+00	-1.05711E-01	-1.39067E+00	-2.09907E-01
17	-1.34631E+00	-9.57139E-02	-1.27422E+00	-2.30706E-01
18	-1.27472E+00	-8.61292E-02	-1.24757E+00	-1.91624E-01
19	-1.25131E+00	-7.69359E-02	-1.22073E+00	-1.82695E-01
40	-1.22257E+00	-6.81876E-02	-1.19366E+00	-1.73916E-01
41	-1.19458E+00	-5.95694E-02	-1.16355E+00	-1.65310E-01
42	-1.16613E+00	-5.13904E-02	-1.13078E+00	-1.56070E-01
43	-1.13726E+00	-4.35629E-02	-1.10945E+00	-1.48564E-01
44	-1.10877E+00	-3.61126E-02	-1.08273E+00	-1.40359E-01
45	-1.07863E+00	-2.87213E-02	-1.05422E+00	-1.32283E-01
46	-1.04846E+00	-2.17004E-02	-1.02537E+00	-1.24336E-01
47	-1.01875E+00	-1.53678E-02	-9.96181E-01	-1.16498E-01
48	-9.88319E-01	-8.47934E-03	-9.66681E-01	-1.08732E-01
49	-9.57595E-01	-2.21719E-03	-9.36685E-01	-1.01030E-01
50	-9.28451E-01	3.46127E-03	-9.08750E-01	-9.39179E-02
51	-8.99337E-01	8.84566E-03	-8.80681E-01	-8.69504E-02
52	-8.70273E-01	1.39400E-02	-8.52684E-01	-8.01682E-02
53	-8.41266E-01	1.87341E-02	-8.24791E-01	-7.35540E-02
54	-8.12341E-01	2.32166E-02	-7.97010E-01	-6.71378E-02
55	-7.83519E-01	2.73847E-02	-7.69356E-01	-6.09144E-02
56	-7.54629E-01	3.12265E-02	-7.41832E-01	-5.48965E-02
57	-7.25697E-01	3.47427E-02	-7.14455E-01	-4.90952E-02
58	-6.97913E-01	3.79107E-02	-6.87240E-01	-4.35328E-02
59	-6.69723E-01	4.07193E-02	-6.60192E-01	-3.82220E-02
60	-6.41718E-01	4.31637E-02	-6.33285E-01	-3.31777E-02
61	-6.13839E-01	4.52478E-02	-6.06476E-01	-2.84096E-02
62	-5.86192E-01	4.69760E-02	-5.79730E-01	-2.39287E-02
63	-5.58414E-01	4.83488E-02	-5.53015E-01	-1.97475E-02
64	-5.30773E-01	4.93672E-02	-5.26290E-01	-1.58766E-02
65	-5.03177E-01	5.01336E-02	-4.99567E-01	-1.23192E-02
66	-4.73956E-01	5.03547E-02	-4.70335E-01	-8.80076E-03
67	-4.42911E-01	5.02033E-02	-4.41066E-01	-5.73426E-03
68	-4.12950E-01	4.95057E-02	-4.11764E-01	-3.07610E-03
69	-3.85961E-01	4.85646E-02	-3.82429E-01	-0.42575E-04
70	-3.53014E-01	4.72523E-02	-3.53058E-01	1.13593E-03
71	-3.23170E-01	4.55261E-02	-3.23649E-01	2.71020E-03
72	-2.93240E-01	4.32769E-02	-2.94202E-01	3.76645E-03
73	-2.63410E-01	4.06854E-02	-2.64716E-01	4.40019E-03
74	-2.33616E-01	3.75301E-02	-2.35184E-01	4.82459E-03
75	-2.03848E-01	3.43585E-02	-2.05606E-01	4.44066E-03
76	-1.74111E-01	3.09135E-02	-1.75903E-01	4.05153E-03
77	-1.44432E-01	2.61387E-02	-1.46313E-01	3.06418E-03
78	-1.14720E-01	2.15935E-02	-1.16596E-01	1.66883E-03
79	-8.53623E-02	1.64723E-02	-8.68292E-02	-1.45511E-04
80	-5.54252E-02	1.1490E-02	-5.70112E-02	-2.37851E-03
81	-2.58366E-02	5.22790E-03	-2.71408E-02	-5.03823E-03

POINT NO	MSEMI	YSEMI
1	-2.18381E+00	-6.84747E-01
2	-2.19320E+00	-6.85034E-01
3	-2.19061E+00	-6.85270E-01
4	-2.19116E+00	-6.85454E-01
5	-2.19152E+00	-6.85583E-01
6	-2.19210E+00	-6.85658E-01
7	-2.19249E+00	-6.85671E-01
8	-2.19290E+00	-6.85630E-01

POINT NO	XSEMI	YSEMI
9	-2.19137E+00	-6.05532E-01
11	-2.19336E+00	-6.05377E-01
12	-2.19443E+00	-6.05169E-01
13	-2.19489E+00	-6.04910E-01
14	-2.19533E+00	-6.04601E-01
15	-2.19574E+00	-6.04247E-01
16	-2.19612E+00	-6.03851E-01
17	-2.19647E+00	-6.03410E-01
18	-2.19677E+00	-6.02933E-01
19	-2.19704E+00	-6.02460E-01
20	-2.19726E+00	-6.01945E-01
21	-2.19743E+00	-6.01414E-01
22	-2.19755E+00	-6.00872E-01
23	-2.19762E+00	-6.00325E-01
24	-2.19764E+00	-6.00797E-01
25	-2.19765E+00	-6.00243E-01
26	-2.19769E+00	-6.00781E-01
27	-2.19771E+00	-6.00212E-01
28	-2.19773E+00	-6.00777E-01
29	-2.19671E+00	-6.00728E-01
30	-2.19619E+00	-6.00664E-01
31	-2.19614E+00	-6.00586E-01
31	-2.19614E+00	-6.0053E-01

SECTION NUMBER 4 '2' = 5.0753

SECTION PROPERTIES

SECTION AREA = 1.6494E-01

LOCATION OF CENTROID RELATIVE TO STACK AXIS
 XBAR = -1.1193E+00
 YBAR = -1.4565E-01

SECOND MOMENTS OF AREA ABOUT CENTROID
 IX = 3.9954E-03
 IY = 4.1170E-02
 IXY = 1.2000E-02

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID
 IPX = 4.5026E-04 (AT 16.42 DEGREES TO 'X' AXIS)
 IPY = 4.4707E-02 (AT 16.42 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 4.2005E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.1351E+00	-6.25136E-01	-2.13176E+00	-5.33596E-01
2	-2.11322E+00	-6.03098E-01	-2.10447E+00	-6.45215E-01
3	-2.08135E+00	-5.01496E-01	-2.07721E+00	-5.97238E-01
4	-2.06365E+00	-5.61247E-01	-2.05300E+00	-5.79630E-01
5	-2.03849E+00	-5.39353E-01	-2.02282E+00	-5.62362E-01
6	-2.01347E+00	-5.18703E-01	-1.99569E+00	-5.45390E-01
7	-1.98199E+00	-4.95533E-01	-1.96059E+00	-5.28747E-01
8	-1.96325E+00	-4.78640E-01	-1.94155E+00	-5.12457E-01
9	-1.93815E+00	-4.59113E-01	-1.91454E+00	-4.96498E-01
10	-1.91278E+00	-4.39938E-01	-1.88756E+00	-4.80622E-01

POINT NO	XS	YS	XP	YP
11	-1.09745E+00	-6.21364E-01	-1.06307E+00	-4.65453E-01
12	-1.86276E+00	-6.02580E-01	-1.81300E+00	-4.50415E-01
13	-1.63651E+00	-3.86448E-01	-1.60699E+00	-4.35639E-01
14	-1.8119E+00	-3.66686E-01	-1.78023E+00	-4.21245E-01
15	-1.7552E+00	-3.49254E-01	-1.75352E+00	-4.07072E-01
16	-1.7599E+00	-3.32154E-01	-1.72666E+00	-3.93211E-01
17	-1.7342E+00	-3.15428E-01	-1.70326E+00	-3.79639E-01
18	-1.7124E+00	-3.01611E-01	-1.67763E+00	-3.68388E-01
19	-1.6975E+00	-2.89073E-01	-1.65540E+00	-3.57306E-01
20	-1.66876E+00	-2.76632E-01	-1.63294E+00	-3.46393E-01
21	-1.64874E+00	-2.64485E-01	-1.61347E+00	-3.35658E-01
22	-1.62462E+00	-2.48975E-01	-1.58798E+00	-3.25133E-01
23	-1.6238E+00	-2.35910E-01	-1.56546E+00	-3.14733E-01
24	-1.58314E+00	-2.2349E-01	-1.54291E+00	-3.04549E-01
25	-1.5579E+00	-2.11347E-01	-1.52334E+00	-2.94555E-01
26	-1.53448E+00	-1.99462E-01	-1.49773E+00	-2.84757E-01
27	-1.51227E+00	-1.87951E-01	-1.47549E+00	-2.75155E-01
28	-1.4893E+00	-1.76522E-01	-1.45241E+00	-2.65750E-01
29	-1.46646E+00	-1.65478E-01	-1.42969E+00	-2.56547E-01
30	-1.44316E+00	-1.54729E-01	-1.40692E+00	-2.47550E-01
31	-1.42312E+00	-1.44241E-01	-1.38410E+00	-2.38761E-01
32	-1.39574E+00	-1.34142E-01	-1.36124E+00	-2.31183E-01
33	-1.37322E+00	-1.24319E-01	-1.33832E+00	-2.24827E-01
34	-1.34875E+00	-1.14831E-01	-1.31368E+00	-2.19154E-01
35	-1.32279E+00	-1.05211E-01	-1.28939E+00	-2.14071E-01
36	-1.29742E+00	-9.51807E-02	-1.26484E+00	-2.09507E-01
37	-1.27136E+00	-8.61874E-02	-1.24023E+00	-2.0522E-01
38	-1.24640E+00	-7.77722E-02	-1.21554E+00	-2.01148E-01
39	-1.22075E+00	-6.93161E-02	-1.19079E+00	-1.97165E-01
40	-1.19511E+00	-6.14985E-02	-1.16595E+00	-1.93170E-01
41	-1.16917E+00	-5.38445E-02	-1.1413E+00	-1.8917E-01
42	-1.14324E+00	-4.65828E-02	-1.11603E+00	-1.85144E-01
43	-1.11721E+00	-3.96556E-02	-1.09093E+00	-1.8107E-01
44	-1.09111E+00	-3.31043E-02	-1.06574E+00	-1.77671E-01
45	-1.06503E+00	-2.66451E-02	-1.04044E+00	-1.73905E-01
46	-1.03863E+00	-2.05632E-02	-1.01504E+00	-1.70418E-01
47	-1.01221E+00	-1.47466E-02	-9.89525E-01	-1.67962E-01
48	-9.85735E-01	-9.18040E-03	-9.63898E-01	-1.11590E-01
49	-9.59164E-01	-3.83036E-03	-9.38148E-01	-1.05286E-01
50	-9.29361E-01	1.92687E-03	-9.09313E-01	-3.83547E-02
51	-9.99567E-01	7.32844E-03	-8.80520E-01	-9.35923E-02
52	-9.69755E-01	1.29315E-02	-8.51765E-01	-9.69797E-02
53	-8.40317E-01	1.72636E-02	-8.23146E-01	-7.85090E-02
54	-8.1126E-01	2.17850E-02	-7.94360E-01	-7.22286E-02
55	-7.80529E-01	2.59758E-02	-7.65701E-01	-6.81516E-02
56	-7.50112E-01	2.98533E-02	-7.37367E-01	-6.02479E-02
57	-7.21115E-01	3.34544E-02	-7.08455E-01	-5.45434E-02
58	-6.91441E-01	3.66775E-02	-6.79861E-01	-4.98702E-02
59	-6.61791E-01	3.95703E-02	-6.51263E-01	-4.58336E-02
60	-6.32166E-01	4.21549E-02	-6.22717E-01	-3.88045E-02
61	-6.02568E-01	4.44133E-02	-5.94161E-01	-3.49170E-02
62	-5.7299E-01	4.63140E-02	-5.65611E-01	-2.94997E-02
63	-5.43466E-01	4.78552E-02	-5.37063E-01	-2.52512E-02
64	-5.13951E-01	4.91653E-02	-5.08513E-01	-2.12519E-02
65	-4.84441E-01	4.99505E-02	-4.79960E-01	-1.75134E-02
66	-4.54931E-01	5.04735E-02	-4.48774E-01	-1.37957E-02
67	-4.25422E-01	5.05480E-02	-4.17572E-01	-1.04437E-02

POINT NO	XS	YS	XP	YP
68	-3.86189E-01	5.02580E-02	-3.86350E-01	-7.39433E-03
69	-3.56180E-01	4.94884E-02	-3.55103E-01	-4.76193E-03
70	-3.24218E-01	4.82686E-02	-3.23831E-01	-2.51990E-03
71	-2.92316E-01	4.66504E-02	-2.92531E-01	-6.28352E-04
72	-2.61445E-01	4.45417E-02	-2.61201E-01	8.17738E-04
73	-2.26639E-01	4.23100E-02	-2.29839E-01	1.87644E-03
74	-1.96887E-01	3.91243E-02	-1.98445E-01	2.51723E-03
75	-1.65193E-01	3.55557E-02	-1.67016E-01	2.69654E-03
76	-1.33556E-01	3.16873E-02	-1.35552E-01	2.49481E-03
77	-1.01978E-01	2.73421E-02	-1.04051E-01	1.83291E-03
78	-7.04567E-02	2.25170E-02	-7.25110E-02	6.92339E-04
79	-3.89316E-02	1.73196E-02	-4.09329E-02	-8.16769E-04
80	-7.51250E-03	1.18451E-02	-9.31621E-03	-2.80716E-03
81	2.37722E-02	5.48900E-03	2.23399E-02	-5.29192E-03

POINT NO	XSEMI	YSEMI
1	-2.13176E+00	-6.33596E-01
2	-2.13218E+00	-6.33899E-01
3	-2.13263E+00	-6.34133E-01
4	-2.13310E+00	-6.34324E-01
5	-2.13360E+00	-6.34460E-01
6	-2.13411E+00	-6.34541E-01
7	-2.13463E+00	-6.34564E-01
8	-2.13515E+00	-6.34531E-01
9	-2.13568E+00	-6.34441E-01
10	-2.13617E+00	-6.34295E-01
11	-2.13667E+00	-6.34095E-01
12	-2.13714E+00	-6.33843E-01
13	-2.13759E+00	-6.33541E-01
14	-2.13812E+00	-6.33194E-01
15	-2.13860E+00	-6.32805E-01
16	-2.13915E+00	-6.32377E-01
17	-2.13968E+00	-6.31917E-01
18	-2.13931E+00	-6.31426E-01
19	-2.13953E+00	-6.30917E-01
20	-2.13969E+00	-6.30389E-01
21	-2.13979E+00	-6.29849E-01
22	-2.13985E+00	-6.29304E-01
23	-2.13985E+00	-6.28759E-01
24	-2.13979E+00	-6.28221E-01
25	-2.13968E+00	-6.27695E-01
26	-2.13952E+00	-6.27187E-01
27	-2.13931E+00	-6.26703E-01
28	-2.13915E+00	-6.26249E-01
29	-2.13874E+00	-6.25828E-01
30	-2.13840E+00	-6.25445E-01
31	-2.13811E+00	-6.25106E-01

SECTION NUMBER 5 'Z' F 6.2533

SECTION PROPERTIES

SECTION AREA = 1.6007E-01

LOCATION OF CENTROID
 RELATIVE TO STACK AXIS

YBAR = -1.0801E+00
 XBAR = -1.3255E-01

SECOND MOMENTS OF AREA
 ABOUT CENTROID

IX = 3.6772E-13
 IY = 4.2618E-02
 IXY = 1.1659E-02

PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID

IPX = 4.5312E-04 (AT 15.46 DEGREES TO 'X' AXIS)
 IPY = 4.5842E-02 (AT 97.10 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 4.5009E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.11474E+00	-5.98729E-01	-2.10777E+00	-6.05227E-01
2	-2.08852E+00	-5.74890E-01	-2.07972E+00	-5.87076E-01
3	-2.24296E+00	-5.53471E-01	-2.05171E+00	-5.69343E-01
4	-2.03736E+00	-5.32417E-01	-2.02375E+00	-5.51989E-01
5	-2.01172E+00	-5.11731E-01	-1.99585E+00	-5.34994E-01
6	-1.98674E+00	-4.91392E-01	-1.96793E+00	-5.18316E-01
7	-1.96190E+00	-4.71374E-01	-1.94012E+00	-5.01963E-01
8	-1.93722E+00	-4.51723E-01	-1.91249E+00	-4.85961E-01
9	-1.91268E+00	-4.32437E-01	-1.88481E+00	-4.70308E-01
10	-1.88829E+00	-4.13520E-01	-1.85720E+00	-4.54959E-01
11	-1.86407E+00	-3.94940E-01	-1.82965E+00	-4.39915E-01
12	-1.83995E+00	-3.76696E-01	-1.80216E+00	-4.25172E-01
13	-1.81594E+00	-3.58823E-01	-1.77473E+00	-4.10768E-01
14	-1.79204E+00	-3.41323E-01	-1.74737E+00	-3.96668E-01
15	-1.76824E+00	-3.24182E-01	-1.72007E+00	-3.82833E-01
16	-1.74454E+00	-3.07385E-01	-1.69283E+00	-3.69294E-01
17	-1.72094E+00	-2.90941E-01	-1.66567E+00	-3.56078E-01
18	-1.69744E+00	-2.74952E-01	-1.63858E+00	-3.43230E-01
19	-1.67404E+00	-2.59328E-01	-1.61156E+00	-3.30791E-01
20	-1.65064E+00	-2.44072E-01	-1.58461E+00	-3.18701E-01
21	-1.62724E+00	-2.29282E-01	-1.55772E+00	-3.06911E-01
22	-1.60384E+00	-2.14958E-01	-1.53089E+00	-2.95461E-01
23	-1.58044E+00	-2.01092E-01	-1.50412E+00	-2.84301E-01
24	-1.55704E+00	-1.87685E-01	-1.47741E+00	-2.73461E-01
25	-1.53364E+00	-1.74738E-01	-1.45076E+00	-2.62981E-01
26	-1.51024E+00	-1.62252E-01	-1.42417E+00	-2.52811E-01
27	-1.48684E+00	-1.50228E-01	-1.39764E+00	-2.42981E-01
28	-1.46344E+00	-1.38656E-01	-1.37117E+00	-2.33441E-01
29	-1.44004E+00	-1.27538E-01	-1.34476E+00	-2.24141E-01
30	-1.41664E+00	-1.16876E-01	-1.31841E+00	-2.15121E-01
31	-1.39324E+00	-1.06672E-01	-1.29211E+00	-2.06321E-01
32	-1.36984E+00	-9.6928E-02	-1.26586E+00	-1.97781E-01
33	-1.34644E+00	-8.7644E-02	-1.24066E+00	-1.89441E-01
34	-1.32304E+00	-7.8816E-02	-1.21551E+00	-1.81241E-01
35	-1.29964E+00	-7.0444E-02	-1.19041E+00	-1.73141E-01

POINT NO	XS	YS	XP	YP
35	-1.23164E+00	-8.61676E-02	-1.24784E+00	-1.08594E-01
37	-1.25512E+00	-7.75051E-02	-1.22416E+00	-1.01318E-01
39	-1.23156E+00	-6.95741E-02	-1.20046E+00	-1.74241E-01
40	-1.23698E+00	-6.15311E-02	-1.17875E+00	-1.07361E-01
41	-1.15233E+00	-5.44134E-02	-1.15301E+00	-1.60668E-01
42	-1.15765E+00	-6.73333E-02	-1.12924E+00	-1.54149E-01
43	-1.13296E+00	-6.05566E-02	-1.10544E+00	-1.47791E-01
44	-1.13423E+00	-5.43875E-02	-1.08161E+00	-1.41582E-01
45	-1.05868E+00	-2.73128E-02	-1.05775E+00	-1.35511E-01
46	-1.03337E+00	-2.21244E-02	-1.03394E+00	-1.29568E-01
47	-1.03913E+00	-1.63970E-02	-1.00990E+00	-1.23743E-01
48	-8.6474E-01	-1.1249E-02	-9.65918E-01	-1.18025E-01
49	-8.59239E-01	-5.91849E-03	-9.61869E-01	-1.12397E-01
50	-8.28314E-01	-4.83312E-03	-9.37781E-01	-1.06845E-01
51	-8.9731E-01	1.22976E-02	-9.07816E-01	-1.00073E-01
52	-8.6641E-01	1.54217E-02	-8.77898E-01	-9.34753E-02
53	-8.35467E-01	2.02445E-02	-8.47998E-01	-8.70136E-02
54	-8.04536E-01	2.46972E-02	-8.18138E-01	-8.07167E-02
55	-7.73653E-01	2.88404E-02	-7.88305E-01	-7.46191E-02
56	-7.4276E-01	3.2683E-02	-7.58499E-01	-6.85490E-02
57	-7.11822E-01	3.61344E-02	-7.28715E-01	-6.28797E-02
58	-6.81193E-01	3.92890E-02	-6.98952E-01	-5.73876E-02
59	-6.50249E-01	4.21164E-02	-6.69206E-01	-5.19121E-02
60	-6.19513E-01	4.45986E-02	-6.39476E-01	-4.67256E-02
61	-5.88768E-01	4.67498E-02	-6.09757E-01	-4.17552E-02
62	-5.58194E-01	4.85793E-02	-5.80348E-01	-3.69894E-02
63	-5.27365E-01	5.01513E-02	-5.50345E-01	-3.24473E-02
64	-4.96716E-01	5.14899E-02	-5.20646E-01	-2.81550E-02
65	-4.6611E-01	5.24817E-02	-4.90948E-01	-2.40046E-02
66	-4.35817E-01	5.28417E-02	-4.61249E-01	-2.02563E-02
67	-4.05736E-01	5.25347E-02	-4.28918E-01	-1.64320E-02
68	-3.76655E-01	5.21311E-02	-3.96580E-01	-1.29587E-02
69	-3.48235E-01	5.13526E-02	-3.64232E-01	-9.69445E-03
70	-3.20393E-01	5.03784E-02	-3.31864E-01	-6.81454E-03
71	-2.9322E-01	4.94019E-02	-2.99487E-01	-4.35937E-03
72	-2.6731E-01	4.82249E-02	-2.67082E-01	-2.23697E-03
73	-2.41957E-01	4.6835E-02	-2.34650E-01	-5.52225E-04
74	-2.18168E-01	4.5235E-02	-2.02188E-01	7.58839E-04
75	-1.95328E-01	4.34922E-02	-1.69692E-01	1.62273E-03
76	-1.72546E-01	4.16375E-02	-1.37158E-01	2.45843E-03
77	-1.50240E-01	3.96241E-02	-1.04582E-01	2.96926E-03
78	-1.28240E-01	3.7421E-02	-7.19632E-02	1.58665E-03
79	-1.06359E-01	3.50214E-02	-3.92968E-02	6.69811E-04
80	-8.45635E-02	3.24214E-02	-6.58032E-03	7.89068E-04
81	-6.27955E-02	2.96214E-02	2.61891E-02	-2.6703E-03
82	4.04627E-02	2.66214E-02	5.93137E-02	-5.16277E-03

POINT NO	XSEMI	YSEMI
1	-2.10777E+00	-6.05227E-01
2	-2.10222E+00	-6.05526E-01
3	-2.10369E+00	-6.03776E-01
4	-2.10919E+00	-6.03973E-01
5	-2.12971E+00	-6.04116E-01
6	-2.1324E+00	-6.06232E-01
7	-2.1178E+00	-6.06210E-01
8	-2.1132E+00	-6.06202E-01

POINT NO	XSEMI	YSEMI
9	-2.11135E+00	-6.06116E-01
10	-2.11231E+00	-6.05973E-01
11	-2.11259E+00	-6.05776E-01
12	-2.11337E+00	-6.05527E-01
13	-2.11393E+00	-6.05227E-01
14	-2.11426E+00	-6.04891E-01
15	-2.11465E+00	-6.04493E-01
16	-2.11519E+00	-6.04065E-01
17	-2.11571E+00	-6.03606E-01
18	-2.11577E+00	-6.03116E-01
19	-2.11577E+00	-6.02601E-01
20	-2.11592E+00	-6.02070E-01
21	-2.11612E+00	-6.01527E-01
22	-2.11616E+00	-6.01078E-01
23	-2.11616E+00	-6.01429E-01
24	-2.11598E+00	-5.99886E-01
25	-2.11585E+00	-5.99355E-01
26	-2.11567E+00	-5.98842E-01
27	-2.11544E+00	-5.98352E-01
28	-2.11516E+00	-5.97891E-01
29	-2.11483E+00	-5.97464E-01
30	-2.11445E+00	-5.97075E-01
31	-2.11401E+00	-5.96729E-01

SECTION NUMBER 6 '2' = 6.6250

SECTION PROPERTIES	SECTION AREA	LOCATION OF CENTROID RELATIVE TO STACK AXIS	SECOND MOMENTS OF AREA ABOUT CENTROID	PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	TORSIONAL CONSTANT
	KBAR =	KBAR =	KBAR =	KBAR =	KBAR =
	1.7912E-31	-1.0597E+00	-1.2679E-01	IX =	2.7669E-03
				IY =	4.6795E-02
				IXY =	1.2334E-02
				IPX =	4.0193E-04 (AT 14.91 DEGREES TO 'X' AXIS)
				IPY =	5.0086E-02 (AT 14.91 DEGREES TO 'Y' AXIS)
					5.2165E-04

SECTION COORDINATES

POINT NO	X	Y	XP	YP
1	-2.11824E+00	-5.00902E-01	-2.11168E+00	-5.97543E-01
2	-2.09213E+00	-5.00944E-01	-2.08315E+00	-5.79378E-01
3	-2.06599E+00	-5.05372E-01	-2.05447E+00	-5.61627E-01
4	-2.03992E+00	-5.24190E-01	-2.02586E+00	-5.44203E-01
5	-2.01361E+00	-5.33431E-01	-1.99732E+00	-5.27331E-01
6	-1.98734E+00	-4.82995E-01	-1.96884E+00	-5.10727E-01
7	-1.96104E+00	-4.62931E-01	-1.94044E+00	-4.94490E-01
8	-1.93473E+00	-4.43234E-01	-1.91218E+00	-4.78518E-01
9	-1.90846E+00	-4.23920E-01	-1.88382E+00	-4.63005E-01
10	-1.88214E+00	-4.04968E-01	-1.85562E+00	-4.47739E-01

POINT NO	K5	Y5	KP	YP
11	-1.85547E+00	-1.84422E-01	-1.82748E+00	-1.82890E-01
12	-1.85977E+00	-1.85198E-01	-1.79941E+00	-1.80292E-01
13	-1.87224E+00	-1.87133E-01	-1.77141E+00	-1.80238E-01
14	-1.77551E+00	-1.32838E-01	-1.74347E+00	-1.96073E-01
15	-1.78442E+00	-1.15721E-01	-1.71560E+00	-1.76412E-01
16	-1.72244E+00	-2.98965E-01	-1.68779E+00	-1.63016E-01
17	-1.89574E+00	-2.82543E-01	-1.66305E+00	-1.89977E-01
18	-1.67449E+00	-2.69777E-01	-1.63810E+00	-1.89742E-01
19	-1.66321E+00	-2.51244E-01	-1.61619E+00	-1.23738E-01
20	-1.65118E+00	-2.44842E-01	-1.59433E+00	-1.19918E-01
21	-1.61941E+00	-2.32878E-01	-1.57252E+00	-1.12875E-01
22	-1.58444E+00	-2.21058E-01	-1.55075E+00	-1.10046E-01
23	-1.56756E+00	-2.03472E-01	-1.52904E+00	-2.91596E-01
24	-1.56617E+00	-1.94169E-01	-1.50732E+00	-2.82541E-01
25	-1.52464E+00	-1.87113E-01	-1.48575E+00	-2.73685E-01
26	-1.50372E+00	-1.76314E-01	-1.46418E+00	-2.65031E-01
27	-1.48155E+00	-1.63797E-01	-1.44266E+00	-2.56580E-01
28	-1.45974E+00	-1.53541E-01	-1.42118E+00	-2.49332E-01
29	-1.43149E+00	-1.45572E-01	-1.39976E+00	-2.40292E-01
30	-1.41644E+00	-1.35886E-01	-1.37838E+00	-2.32463E-01
31	-1.36455E+00	-1.26490E-01	-1.35704E+00	-2.24649E-01
32	-1.34271E+00	-1.17394E-01	-1.33575E+00	-2.17498E-01
33	-1.31944E+00	-1.08594E-01	-1.31450E+00	-2.10277E-01
34	-1.28649E+00	-9.91828E-02	-1.29333E+00	-2.02566E-01
35	-1.26213E+00	-9.01658E-02	-1.27236E+00	-1.95139E-01
36	-1.27776E+00	-8.15221E-02	-1.25384E+00	-1.87665E-01
37	-1.25337E+00	-7.32322E-02	-1.23532E+00	-1.80851E-01
38	-1.22898E+00	-6.52872E-02	-1.19681E+00	-1.74048E-01
39	-1.21458E+00	-5.75824E-02	-1.17331E+00	-1.67445E-01
40	-1.18717E+00	-5.04097E-02	-1.14981E+00	-1.61031E-01
41	-1.15576E+00	-4.35465E-02	-1.12632E+00	-1.54792E-01
42	-1.13135E+00	-3.68192E-02	-1.10282E+00	-1.48747E-01
43	-1.10644E+00	-3.04812E-02	-1.07931E+00	-1.42793E-01
44	-1.88253E+00	-2.44934E-02	-1.05580E+00	-1.37037E-01
45	-1.85912E+00	-1.86678E-02	-1.03228E+00	-1.31347E-01
46	-1.83372E+00	-1.31677E-02	-1.00875E+00	-1.25891E-01
47	-1.80913E+00	-7.91060E-03	-9.85199E-01	-1.20362E-01
48	-9.84967E+00	-2.91310E-03	-9.61635E-01	-1.15018E-01
49	-9.62577E-01	1.85900E-03	-9.38350E-01	-1.09751E-01
50	-2.28454E-01	7.86464E-03	-9.05974E-01	-1.02931E-01
51	-8.96319E-01	1.84901E-02	-8.75937E-01	-9.82091E-02
52	-9.60231E-01	1.87418E-02	-8.44933E-01	-8.97421E-02
53	-8.32114E-01	2.36541E-02	-8.13961E-01	-8.24510E-02
54	-8.00311E-01	2.81921E-02	-7.83916E-01	-7.73073E-02
55	-7.67944E-01	3.21918E-02	-7.52955E-01	-7.13123E-02
56	-7.35915E-01	3.52262E-02	-7.21194E-01	-5.95151E-02
57	-7.03917E-01	3.91184E-02	-6.90311E-01	-5.98658E-02
58	-6.71911E-01	4.29538E-02	-6.59422E-01	-5.44673E-02
59	-6.39921E-01	4.58352E-02	-6.28594E-01	-4.92339E-02
60	-6.07932E-01	4.87914E-02	-5.97733E-01	-4.41939E-02
61	-5.76475E-01	5.01708E-02	-5.66989E-01	-3.93898E-02
62	-5.44564E-01	5.19348E-02	-5.35166E-01	-3.47663E-02
63	-5.12345E-01	5.32171E-02	-5.03204E-01	-3.04007E-02
64	-4.80468E-01	5.41811E-02	-4.71359E-01	-2.62339E-02
65	-4.48478E-01	5.51093E-02	-4.43508E-01	-2.22984E-02
66	-4.24217E-01	5.54720E-02	-4.10327E-01	-1.83230E-02
67	-3.79748E-01	5.55855E-02	-3.76542E-01	-1.46264E-02

POINT NO	XS	YS	XP	YP
66	-3.45336E-01	5.49855E-02	-3.43304E-01	-1.12672E-02
69	-3.11145E-01	5.61939E-02	-3.09539E-01	-6.23851E-03
70	-2.76738E-01	5.27437E-02	-2.76312E-01	-5.56919E-03
71	-2.42443E-01	5.09298E-02	-2.42462E-01	-3.28379E-03
72	-2.08274E-01	4.86613E-02	-2.08684E-01	-1.37798E-03
73	-1.74122E-01	4.58831E-02	-1.75273E-01	9.02696E-05
74	-1.40030E-01	4.26548E-02	-1.41625E-01	1.16034E-03
75	-1.05948E-01	3.89762E-02	-1.07935E-01	1.73864E-03
76	-7.20312E-02	3.46494E-02	-7.42309E-02	1.91024E-03
77	-3.81334E-02	2.98330E-02	-4.04174E-02	1.51539E-03
78	-6.29817E-03	2.45712E-02	-6.58100E-03	6.97766E-04
79	2.94638E-02	1.86824E-02	2.73115E-02	-7.22833E-04
80	6.31539E-02	1.23532E-02	6.12634E-02	-2.59123E-03
81	9.62714E-02	5.34380E-03	9.52775E-02	-5.13120E-03

POINT NO	XSEMI	YSEMI
1	-2.11188E+00	-5.97583E-01
2	-2.11235E+00	-5.97892E-01
3	-2.11244E+00	-5.98149E-01
4	-2.11336E+00	-5.98354E-01
5	-2.11392E+00	-5.98513E-01
6	-2.11445E+00	-5.98594E-01
7	-2.11510E+00	-5.98626E-01
8	-2.11556E+00	-5.98632E-01
9	-2.11611E+00	-5.98519E-01
10	-2.11665E+00	-5.98378E-01
11	-2.11710E+00	-5.98181E-01
12	-2.11768E+00	-5.97931E-01
13	-2.11815E+00	-5.97630E-01
14	-2.11852E+00	-5.97281E-01
15	-2.11898E+00	-5.96880E-01
16	-2.11914E+00	-5.96456E-01
17	-2.11955E+00	-5.95989E-01
18	-2.11991E+00	-5.95492E-01
19	-2.12011E+00	-5.94971E-01
20	-2.12128E+00	-5.94432E-01
21	-2.12136E+00	-5.93879E-01
22	-2.12139E+00	-5.93321E-01
23	-2.12037E+00	-5.92762E-01
24	-2.12029E+00	-5.92209E-01
25	-2.12115E+00	-5.91667E-01
26	-2.11935E+00	-5.91113E-01
27	-2.11911E+00	-5.90643E-01
28	-2.11941E+00	-5.90172E-01
29	-2.11916E+00	-5.89734E-01
30	-2.11867E+00	-5.89336E-01
31	-2.11824E+00	-5.88960E-01

SECTION NUMBER 7 'Z' = 7.000

SECTION PROPERTIES

SECTION AREA = 1.9536E-01

LOCATION OF CENTROID
 RELATIVE TO STACK AXIS
 XBAR = -1.3527E+00
 YBAR = -1.2660E-01

SECOND MOMENTS OF AREA
 ABOUT CENTROID
 IX = 4.2113E-03
 IY = 5.3819E-02
 IXY = 1.3985E-02

PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID
 IPX = 5.4050E-04 (AT 14.71 DEGREES TO 'X' AXIS)
 IPY = 5.7490E-02 (AT 14.71 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT = 6.4374E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.14425E+00	-5.97204E-01	-2.13772E+00	-6.06569E-01
2	-2.11763E+00	-5.75206E-01	-2.10332E+00	-5.88032E-01
3	-2.09097E+00	-5.53127E-01	-2.07900E+00	-5.69947E-01
4	-2.06428E+00	-5.31488E-01	-2.05475E+00	-5.52346E-01
5	-2.03755E+00	-5.12683E-01	-2.02058E+00	-5.35186E-01
6	-2.01179E+00	-4.89515E-01	-1.99149E+00	-5.18426E-01
7	-1.98398E+00	-4.69117E-01	-1.96240E+00	-5.02029E-01
8	-1.95714E+00	-4.43112E-01	-1.93354E+00	-4.86014E-01
9	-1.93026E+00	-4.23512E-01	-1.90468E+00	-4.70365E-01
10	-1.90333E+00	-4.13316E-01	-1.87589E+00	-4.55127E-01
11	-1.87637E+00	-3.91517E-01	-1.84717E+00	-4.40210E-01
12	-1.84936E+00	-3.73098E-01	-1.81853E+00	-4.25595E-01
13	-1.82231E+00	-3.53032E-01	-1.78996E+00	-4.11303E-01
14	-1.79521E+00	-3.37332E-01	-1.76146E+00	-3.97336E-01
15	-1.76806E+00	-3.20145E-01	-1.73302E+00	-3.83681E-01
16	-1.74195E+00	-3.03079E-01	-1.70465E+00	-3.70214E-01
17	-1.71595E+00	-2.86488E-01	-1.67634E+00	-3.57218E-01
18	-1.69144E+00	-2.73392E-01	-1.65351E+00	-3.44877E-01
19	-1.66776E+00	-2.61929E-01	-1.63095E+00	-3.36720E-01
20	-1.64776E+00	-2.47917E-01	-1.60834E+00	-3.25748E-01
21	-1.62573E+00	-2.35527E-01	-1.58580E+00	-3.15967E-01
22	-1.60356E+00	-2.23995E-01	-1.56332E+00	-3.07382E-01
23	-1.58157E+00	-2.11519E-01	-1.54091E+00	-2.97996E-01
24	-1.55944E+00	-1.99035E-01	-1.51856E+00	-2.88913E-01
25	-1.53727E+00	-1.89563E-01	-1.49627E+00	-2.79833E-01
26	-1.51517E+00	-1.77489E-01	-1.47435E+00	-2.71061E-01
27	-1.49294E+00	-1.66698E-01	-1.45189E+00	-2.62439E-01
28	-1.47075E+00	-1.55189E-01	-1.42979E+00	-2.54149E-01
29	-1.44827E+00	-1.45971E-01	-1.40775E+00	-2.46015E-01
30	-1.42543E+00	-1.36049E-01	-1.38570E+00	-2.38633E-01
31	-1.40356E+00	-1.26429E-01	-1.36367E+00	-2.30404E-01
32	-1.38115E+00	-1.17115E-01	-1.34202E+00	-2.22929E-01
33	-1.35671E+00	-1.03114E-01	-1.32024E+00	-2.15678E-01
34	-1.33378E+00	-9.84916E-02	-1.29810E+00	-2.07692E-01
35	-1.31053E+00	-8.92656E-02	-1.27200E+00	-2.00365E-01

POINT NO	XS	YS	XP	YP
29	-1.25319E+00	-8.7265E-02	-1.24794E+00	-1.93082E-01
37	-1.25394E+00	-7.19628E-02	-1.22389E+00	-1.86029E-01
38	-1.23617E+00	-6.39628E-02	-1.19987E+00	-1.79193E-01
39	-1.20916E+00	-5.61154E-02	-1.17507E+00	-1.72564E-01
42	-1.18414E+00	-4.87095E-02	-1.15149E+00	-1.66119E-01
41	-1.15922E+00	-4.15330E-02	-1.12792E+00	-1.59852E-01
42	-1.13411E+00	-3.45735E-02	-1.10397E+00	-1.53748E-01
43	-1.10945E+00	-2.81146E-02	-1.08002E+00	-1.47776E-01
44	-1.08455E+00	-2.22464E-02	-1.05607E+00	-1.41950E-01
45	-1.05970E+00	-1.63631E-02	-1.03213E+00	-1.36249E-01
46	-1.03472E+00	-1.07528E-02	-1.00819E+00	-1.30662E-01
47	-1.01013E+00	-5.43142E-03	-9.84245E-01	-1.25178E-01
49	-9.85276E-01	-2.94496E-04	-9.63296E-01	-1.19705E-01
49	-9.69519E-01	4.56283E-03	-9.35344E-01	-1.14468E-01
50	-9.27249E-01	1.07947E-03	-9.04195E-01	-1.07472E-01
51	-8.94156E-01	1.63444E-02	-8.72385E-01	-1.00594E-01
52	-8.60525E-01	2.21055E-02	-8.40310E-01	-9.38976E-02
53	-8.27596E-01	2.71866E-02	-8.07967E-01	-8.73383E-02
54	-7.94172E-01	3.13244E-01	-7.75951E-01	-8.09537E-02
55	-7.61166E-01	3.62543E-02	-7.43960E-01	-7.47508E-02
56	-7.27939E-01	4.02540E-02	-7.11990E-01	-6.87009E-02
57	-6.94746E-01	4.39526E-02	-6.80386E-01	-6.28726E-02
58	-6.61622E-01	4.71079E-02	-6.48397E-01	-5.72042E-02
59	-6.28479E-01	4.93766E-02	-6.16167E-01	-5.17546E-02
60	-5.95359E-01	5.24691E-02	-5.84244E-01	-4.65031E-02
61	-5.62259E-01	5.46280E-02	-5.52325E-01	-4.14616E-02
62	-5.29199E-01	5.63623E-02	-5.20405E-01	-3.66653E-02
63	-4.96164E-01	5.77464E-02	-4.88483E-01	-3.20564E-02
64	-4.63161E-01	5.83202E-02	-4.56566E-01	-2.77245E-02
65	-4.30194E-01	5.94795E-02	-4.24619E-01	-2.35904E-02
66	-3.97564E-01	5.97736E-02	-3.93035E-01	-1.94432E-02
67	-3.58975E-01	5.96520E-02	-3.55502E-01	-1.55643E-02
68	-3.23414E-01	5.91139E-02	-3.20926E-01	-1.20747E-02
69	-2.87914E-01	5.81568E-02	-2.86331E-01	-8.86165E-03
71	-2.52419E-01	5.64531E-02	-2.51712E-01	-5.09419E-03
72	-2.17171E-01	5.44811E-02	-2.17064E-01	-3.63771E-03
73	-1.81652E-01	5.19498E-02	-1.82382E-01	-2.65642E-03
74	-1.46316E-01	4.83633E-02	-1.47661E-01	-1.80450E-03
75	-1.11111E-01	4.54274E-02	-1.12897E-01	-1.07134E-03
76	-7.59244E-02	4.13873E-02	-7.80860E-02	-1.74848E-03
77	-5.77810E-02	3.63033E-02	-4.32196E-02	1.93126E-03
78	-2.91833E-02	3.15513E-02	-8.29667E-03	1.59617E-03
79	6.41935E-02	2.59889E-02	2.66859E-02	7.64313E-04
83	9.88734E-02	1.96992E-02	6.17327E-02	-8.64903E-04
81	1.33671E-01	5.43513E-03	9.68473E-02	-2.58930E-03
			1.32032E-01	-5.20754E-03

YSEMI

XSEMI

POINT NO

1	-2.13772E+00	-6.06569E-01
2	-2.13820E+00	-6.06690E-01
3	-2.11872E+00	-6.07159E-01
4	-2.13425E+00	-6.07373E-01
5	-2.13931E+00	-6.07531E-01
6	-2.14137E+00	-6.07631E-01
7	-2.14135E+00	-6.07670E-01
8	-2.14143E+00	-6.07650E-01

POINT NO	XS	YS	XP	YP
11	-1.91577E+00	-4.05430E-01	-1.80501E+00	-4.57805E-01
12	-1.83422E+00	-3.87597E-01	-1.85573E+00	-4.43053E-01
13	-1.85538E+00	-3.69165E-01	-1.82653E+00	-4.28610E-01
14	-1.83310E+00	-3.51189E-01	-1.79739E+00	-4.14480E-01
15	-1.81533E+00	-3.33366E-01	-1.76832E+00	-4.00664E-01
16	-1.77763E+00	-3.16066E-01	-1.73932E+00	-3.87144E-01
17	-1.74942E+00	-2.99109E-01	-1.71030E+00	-3.73899E-01
18	-1.72571E+00	-2.85190E-01	-1.68626E+00	-3.60066E-01
19	-1.73498E+00	-2.71531E-01	-1.66221E+00	-3.52316E-01
20	-1.69124E+00	-2.59113E-01	-1.63824E+00	-3.41823E-01
21	-1.65648E+00	-2.44953E-01	-1.61435E+00	-3.31530E-01
22	-1.63358E+00	-2.32057E-01	-1.59038E+00	-3.21442E-01
23	-1.61031E+00	-2.13433E-01	-1.56678E+00	-3.11582E-01
24	-1.58594E+00	-2.07077E-01	-1.54312E+00	-3.01894E-01
25	-1.56354E+00	-1.95025E-01	-1.51953E+00	-2.92443E-01
26	-1.54018E+00	-1.83255E-01	-1.49501E+00	-2.83211E-01
27	-1.51682E+00	-1.71783E-01	-1.47257E+00	-2.74203E-01
28	-1.49310E+00	-1.69616E-01	-1.44921E+00	-2.65422E-01
29	-1.46955E+00	-1.49761E-01	-1.42592E+00	-2.56872E-01
30	-1.44586E+00	-1.33225E-01	-1.40271E+00	-2.48556E-01
31	-1.42233E+00	-1.24014E-01	-1.37957E+00	-2.40478E-01
32	-1.39867E+00	-1.13136E-01	-1.35650E+00	-2.32637E-01
33	-1.37496E+00	-1.03598E-01	-1.33351E+00	-2.25049E-01
34	-1.34923E+00	-9.9481E-02	-1.31024E+00	-2.16951E-01
35	-1.32268E+00	-8.9003E-02	-1.28701E+00	-2.09137E-01
36	-1.29582E+00	-8.05333E-02	-1.25762E+00	-2.01579E-01
37	-1.27042E+00	-7.16654E-02	-1.23266E+00	-1.94263E-01
38	-1.24472E+00	-6.31056E-02	-1.20752E+00	-1.87176E-01
39	-1.21815E+00	-5.50824E-02	-1.18241E+00	-1.80301E-01
40	-1.19252E+00	-4.73433E-02	-1.15732E+00	-1.73617E-01
41	-1.16596E+00	-3.93517E-02	-1.13224E+00	-1.67107E-01
42	-1.13989E+00	-3.28092E-02	-1.10710E+00	-1.60759E-01
43	-1.11348E+00	-2.61455E-02	-1.08213E+00	-1.54562E-01
44	-1.08741E+00	-1.97115E-02	-1.05708E+00	-1.48546E-01
45	-1.06191E+00	-1.35775E-02	-1.03204E+00	-1.42573E-01
46	-1.03584E+00	-7.72951E-03	-1.00701E+00	-1.36746E-01
47	-1.00991E+00	-2.15140E-03	-9.81977E-01	-1.31021E-01
48	-9.81991E-01	3.17211E-03	-9.56942E-01	-1.25383E-01
49	-9.58114E-01	8.25795E-03	-9.31944E-01	-1.19621E-01
50	-9.23748E-01	1.46608E-02	-8.98654E-01	-1.12546E-01
51	-8.89398E-01	2.07101E-02	-8.65445E-01	-1.05390E-01
52	-8.54942E-01	2.63755E-02	-8.32275E-01	-9.84029E-02
53	-8.20540E-01	3.16543E-02	-7.99136E-01	-9.15382E-02
54	-7.86191E-01	3.65637E-02	-7.66031E-01	-8.48605E-02
55	-7.51747E-01	4.13624E-02	-7.32950E-01	-7.83422E-02
56	-7.17618E-01	4.52102E-02	-6.99090E-01	-7.19966E-02
57	-6.83027E-01	4.89338E-02	-6.65648E-01	-6.58669E-02
58	-6.48559E-01	5.25023E-02	-6.33019E-01	-5.98985E-02
59	-6.14318E-01	5.57601E-02	-6.00800E-01	-5.41732E-02
60	-5.79372E-01	5.78296E-02	-5.67877E-01	-4.86330E-02
61	-5.45660E-01	6.00197E-02	-5.34775E-01	-4.33317E-02
62	-5.11372E-01	6.17821E-02	-5.01162E-01	-3.82707E-02
63	-4.77113E-01	6.31946E-02	-4.68743E-01	-3.34256E-02
64	-4.42894E-01	6.41624E-02	-4.35714E-01	-2.88721E-02
65	-4.08631E-01	6.47824E-02	-4.0273E-01	-2.45229E-02
66	-3.74464E-01	6.49552E-02	-3.67041E-01	-2.031951E-02
67	-3.35373E-01	6.47078E-02	-3.31393E-01	-1.61343E-02

POINT NO	XS	YS	XP	YP
65	-2.99322E-01	6.39111E-02	-2.95725E-01	-1.24923E-02
69	-2.61616E-01	6.27010E-02	-2.60030E-01	-9.14091E-03
70	-2.24959E-01	6.09121E-02	-2.24305E-01	-6.25041E-03
71	-1.89356E-01	5.86826E-02	-1.88543E-01	-3.69737E-03
72	-1.51811E-01	5.56724E-02	-1.52739E-01	-1.62927E-03
73	-1.15329E-01	5.25716E-02	-1.16888E-01	3.91793E-05
74	-7.89147E-02	4.87029E-02	-8.09861E-02	1.20884E-03
75	-4.25710E-02	4.42886E-02	-4.50279E-02	1.90917E-03
76	-6.30213E-03	3.93222E-02	-9.00944E-03	2.10089E-03
77	2.98887E-02	3.37534E-02	2.70751E-02	1.74791E-03
78	6.59931E-02	2.76511E-02	6.32283E-02	8.81098E-04
79	1.02323E-01	2.08885E-02	9.94544E-02	-6.11479E-04
80	1.37962E-01	1.36123E-02	1.35757E-01	-2.61907E-03
81	1.73912E-01	5.60344E-03	1.72139E-01	-5.35242E-03

POINT NO	XSEMI	YSEMI
1	-2.18225E+00	-6.28412E-01
2	-2.18275E+00	-6.28751E-01
3	-2.18327E+00	-6.29037E-01
4	-2.18383E+00	-6.29267E-01
5	-2.18440E+00	-6.29439E-01
6	-2.18499E+00	-6.29550E-01
7	-2.18559E+00	-6.29600E-01
8	-2.18618E+00	-6.29588E-01
9	-2.18677E+00	-6.29513E-01
10	-2.18735E+00	-6.29378E-01
11	-2.18791E+00	-6.29183E-01
12	-2.18845E+00	-6.28931E-01
13	-2.18895E+00	-6.28623E-01
14	-2.18942E+00	-6.28265E-01
15	-2.18985E+00	-6.27859E-01
16	-2.19023E+00	-6.27410E-01
17	-2.19056E+00	-6.26923E-01
18	-2.19084E+00	-6.26403E-01
19	-2.19106E+00	-6.25856E-01
20	-2.19122E+00	-6.25288E-01
21	-2.19132E+00	-6.24705E-01
22	-2.19136E+00	-6.24114E-01
23	-2.19133E+00	-6.23520E-01
24	-2.19125E+00	-6.22932E-01
25	-2.19110E+00	-6.22354E-01
26	-2.19089E+00	-6.21794E-01
27	-2.19063E+00	-6.21257E-01
28	-2.19031E+00	-6.20749E-01
29	-2.18994E+00	-6.20277E-01
30	-2.18952E+00	-6.19844E-01
31	-2.18916E+00	-6.19456E-01

SECTION NUMBER 9 '2' = 7.7509

SECTION PROPERTIES

SECTION AREA = 2.4532E-01

LOCATION OF CENTROID
 RELATIVE TO STACK AXIS

XBAR = -1.3705E+00
 YBAR = -1.3573E-01

SECOND MOMENTS OF AREA
 ABOUT CENTROID

IX = 6.2059E-03
 IY = 7.6823E-02
 IXY = 2.3705E-02

PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID

IPX = 7.9183E-04 (AT 14.66 DEGREES TO 'X' AXIS)
 IPY = 8.4317E-12 (AT 14.66 DEGREES TO 'Y' AXIS)

TORSIONAL CONSTANT

= 1.3860E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.2583E+00	-6.5549E-11	-2.24761E+11	-6.64627E-01
2	-2.22712E+00	-6.33304E-01	-2.21667E+11	-6.43953E-01
3	-2.19355E+00	-6.35860E-01	-2.18583E+11	-6.24017E-11
4	-2.17154E+00	-5.62938E-01	-2.15509E+11	-6.04727E-11
5	-2.14368E+00	-5.54817E-01	-2.12446E+11	-5.85054E-11
6	-2.11576E+00	-5.36177E-01	-2.09392E+11	-5.67962E-11
7	-2.08733E+00	-5.18096E-01	-2.06349E+11	-5.52414E-11
8	-2.05979E+00	-4.92547E-01	-2.03314E+11	-5.33349E-11
9	-2.03133E+00	-4.71465E-01	-2.00289E+11	-5.16749E-11
10	-2.00236E+00	-4.51934E-01	-1.97272E+11	-5.00615E-11
11	-1.97549E+00	-4.3187E-11	-1.94264E+11	-4.84921E-11
12	-1.94731E+00	-4.1175E-01	-1.91264E+11	-4.69637E-11
13	-1.91933E+00	-3.91989E-01	-1.88272E+11	-4.54738E-11
14	-1.89386E+00	-3.7323E-01	-1.85287E+11	-4.40169E-11
15	-1.86259E+00	-3.54872E-01	-1.82309E+11	-4.25936E-11
16	-1.83398E+00	-3.36879E-01	-1.79336E+11	-4.11940E-11
17	-1.80538E+00	-3.19245E-01	-1.76372E+11	-3.98257E-11
18	-1.7816E+00	-3.04808E-01	-1.73772E+11	-3.86438E-11
19	-1.75612E+00	-2.89110E-11	-1.71400E+11	-3.76831E-11
20	-1.73135E+00	-2.7455E-11	-1.68597E+11	-3.63439E-11
21	-1.70615E+00	-2.61883E-11	-1.66322E+11	-3.52269E-11
22	-1.6812E+00	-2.4603E-11	-1.63457E+11	-3.4322E-11
23	-1.6565E+00	-2.3222E-11	-1.60900E+11	-3.38605E-11
24	-1.63395E+00	-2.1947E-11	-1.58351E+11	-3.28122E-11
25	-1.60582E+00	-2.05587E-11	-1.55812E+11	-3.09677E-11
26	-1.58362E+00	-1.92749E-11	-1.53281E+11	-2.93874E-11
27	-1.55579E+00	-1.81241E-11	-1.50758E+11	-2.90118E-11
28	-1.5311E+00	-1.69072E-11	-1.48245E+11	-2.86613E-11
29	-1.50799E+00	-1.56249E-11	-1.45740E+11	-2.71365E-11
30	-1.47943E+00	-1.44742E-11	-1.43243E+11	-2.62376E-11
31	-1.45442E+00	-1.33678E-11	-1.40755E+11	-2.53652E-11
32	-1.42866E+00	-1.22946E-11	-1.38276E+11	-2.45193E-11
33	-1.40335E+00	-1.12594E-11	-1.35805E+11	-2.37013E-11
34	-1.37521E+00	-1.01752E-11	-1.33318E+11	-2.28401E-11
35	-1.34737E+00	-9.13836E-12	-1.30845E+11	-2.20094E-11

POINT NO	KS	YS	XP	YP
36	-1.3193E+00	-6.1745E-12	-1.2775E+00	-2.1206E-01
37	-1.2919E+00	-7.2108E-12	-1.2517E+00	-2.3420E-01
38	-1.2616E+00	-6.2364E-02	-1.2243E+00	-1.9674E-01
39	-1.2361E+00	-5.4325E-02	-1.1973E+00	-1.8942E-01
40	-1.2182E+00	-4.6371E-12	-1.1736E+00	-1.8235E-01
41	-1.1814E+00	-3.8192E-12	-1.1439E+00	-1.7538E-01
42	-1.1528E+00	-3.0897E-12	-1.1172E+00	-1.6863E-01
43	-1.1249E+00	-2.3532E-12	-1.0916E+00	-1.6204E-01
44	-1.0973E+00	-1.6717E-12	-1.0639E+00	-1.5563E-01
45	-1.0691E+00	-1.0228E-12	-1.0373E+00	-1.4927E-01
46	-1.0416E+00	-4.0427E-13	-1.0106E+00	-1.4309E-01
47	-1.0143E+00	1.8582E-03	-9.8397E-01	-1.3693E-11
48	-9.8661E-11	7.4914E-03	-9.5735E-01	-1.3089E-11
49	-9.5919E-01	1.2975E-12	-9.3061E-01	-1.2490E-11
50	-9.2591E-01	1.9514E-02	-9.0619E-01	-1.1727E-01
51	-8.8798E-01	2.5765E-12	-8.8182E-01	-1.0977E-11
52	-8.5237E-01	3.1643E-02	-8.5749E-01	-1.0233E-01
53	-8.1875E-01	3.7184E-12	-8.3199E-01	-9.5155E-02
54	-7.8113E-01	4.2252E-02	-8.0890E-01	-8.8069E-02
55	-7.4551E-01	4.6997E-02	-7.8471E-01	-8.1144E-02
56	-7.0986E-01	5.1317E-12	-7.6305E-01	-7.4423E-02
57	-6.7423E-01	5.5256E-02	-7.4327E-01	-6.7862E-02
58	-6.3857E-01	5.8787E-02	-7.2216E-01	-6.1536E-02
59	-6.0295E-01	6.1893E-02	-7.0081E-01	-5.5409E-02
60	-5.6731E-01	6.4607E-02	-6.8013E-01	-4.9513E-02
61	-5.3173E-01	6.6855E-02	-6.5972E-01	-4.3893E-02
62	-4.9614E-01	6.8739E-02	-6.4057E-01	-3.8469E-02
63	-4.6051E-01	7.0199E-02	-6.2162E-01	-3.3369E-02
64	-4.2535E-01	7.1125E-12	-6.0326E-01	-2.8509E-02
65	-3.8956E-01	7.1674E-02	-5.8393E-01	-2.3957E-02
66	-3.5438E-01	7.1755E-02	-5.6463E-01	-1.9410E-02
67	-3.1879E-01	7.1386E-02	-5.4537E-01	-1.5225E-02
68	-2.8367E-01	7.0321E-12	-5.2781E-01	-1.1437E-02
69	-2.4747E-01	6.8817E-02	-5.1093E-01	-8.0494E-03
70	-2.1199E-01	6.6750E-02	-4.9511E-01	-5.0821E-03
71	-1.7664E-01	6.4128E-02	-4.8021E-01	-2.5623E-03
72	-1.4138E-01	6.0961E-02	-4.6521E-01	-4.8507E-04
73	-1.0618E-01	5.7197E-02	-4.6104E-02	1.3940E-03
74	-8.5569E-02	5.2961E-12	-4.5109E-02	2.2114E-03
75	-1.1805E-02	4.7362E-02	-4.3935E-02	2.7762E-03
76	2.6467E-02	4.2695E-12	-4.3295E-02	2.8595E-03
77	6.3863E-02	3.6358E-12	-4.2605E-02	2.3332E-03
78	1.0113E-01	2.9703E-02	-4.1937E-02	1.3109E-03
79	1.3837E-01	2.2384E-02	-4.1344E-01	-3.8442E-04
80	1.7545E-01	1.4463E-12	-4.0829E-01	-2.5804E-03
81	2.1245E-01	5.8298E-03	-4.0393E-01	-5.5445E-03

POINT NO	XSEMI	YSEMI
1	-2.24761E+00	-6.64627E-01
2	-2.24312E+00	-6.64992E-01
3	-2.24069E+00	-6.65302E-01
4	-2.23924E+00	-6.65596E-01
5	-2.23931E+00	-6.65749E-01
6	-2.25144E+00	-6.65880E-01
7	-2.25116E+00	-6.65946E-01
8	-2.25166E+00	-6.65949E-01

POINT NO	MS	VS	MP	VP
11	-2.83918E+00	-4.62457E-01	-2.00376E+00	-5.19917E-01
12	-2.81111E+00	-4.41533E-01	-1.97316E+00	-5.33666E-01
13	-1.94236E+00	-4.21126E-01	-1.94268E+00	-4.07862E-01
14	-1.95192E+00	-4.51258E-01	-1.91227E+00	-4.72469E-01
15	-1.92525E+00	-3.61759E-01	-1.86193E+00	-4.57445E-01
16	-1.69659E+00	-3.62736E-01	-1.85164E+00	-4.42753E-01
17	-1.65774E+00	-3.44128E-01	-1.82142E+00	-4.20150E-01
18	-1.84477E+00	-3.27162E-01	-1.79395E+00	-4.15202E-01
19	-1.81417E+00	-3.11513E-01	-1.76566E+00	-4.02338E-01
20	-1.73733E+00	-2.94166E-01	-1.73761E+00	-3.89673E-01
21	-1.75344E+00	-2.79194E-01	-1.70987E+00	-3.77310E-01
22	-1.73351E+00	-2.52544E-01	-1.68221E+00	-3.65192E-01
23	-1.73653E+00	-2.47245E-01	-1.65466E+00	-3.53394E-01
24	-1.67348E+00	-2.37333E-01	-1.62719E+00	-3.41789E-01
25	-1.65244E+00	-2.17728E-01	-1.59982E+00	-3.30501E-01
26	-1.62527E+00	-2.03527E-01	-1.57255E+00	-3.19495E-01
27	-1.59917E+00	-1.83705E-01	-1.54536E+00	-3.08775E-01
28	-1.57331E+00	-1.76283E-01	-1.51826E+00	-2.98344E-01
29	-1.54357E+00	-1.63256E-01	-1.49126E+00	-2.88206E-01
30	-1.51612E+00	-1.51639E-01	-1.46438E+00	-2.78356E-01
31	-1.48858E+00	-1.38443E-01	-1.43756E+00	-2.68820E-01
32	-1.46118E+00	-1.25666E-01	-1.41084E+00	-2.59532E-01
33	-1.43362E+00	-1.15332E-01	-1.38420E+00	-2.50679E-01
34	-1.40349E+00	-9.24661E-02	-1.35756E+00	-2.42144E-01
35	-1.37414E+00	-8.24661E-02	-1.33092E+00	-2.33448E-01
36	-1.34439E+00	-6.17665E-02	-1.29844E+00	-2.23777E-01
37	-1.31454E+00	-7.15536E-02	-1.26915E+00	-2.15395E-01
38	-1.28499E+00	-6.15124E-02	-1.24139E+00	-2.07277E-01
39	-1.25514E+00	-5.25365E-02	-1.21290E+00	-1.99404E-01
40	-1.22542E+00	-4.36908E-02	-1.18441E+00	-1.91754E-01
41	-1.19572E+00	-3.52728E-02	-1.15592E+00	-1.84306E-01
42	-1.16619E+00	-2.72618E-02	-1.12744E+00	-1.77032E-01
43	-1.13632E+00	-1.96330E-02	-1.09895E+00	-1.69979E-01
44	-1.10648E+00	-1.25628E-02	-1.07046E+00	-1.62911E-01
45	-1.07742E+00	-5.42588E-03	-1.04195E+00	-1.56035E-01
46	-1.04748E+00	1.18752E-03	-1.01344E+00	-1.49266E-01
47	-1.01732E+00	7.49423E-03	-9.84906E-01	-1.42588E-01
48	-9.88468E-01	1.35171E-02	-9.56355E-01	-1.35933E-01
49	-9.54935E-01	1.92790E-02	-9.27783E-01	-1.29434E-01
50	-9.22321E-01	2.61088E-02	-8.92314E-01	-1.23138E-01
51	-8.85671E-01	3.26058E-02	-8.56997E-01	-1.17033E-01
52	-8.46931E-01	3.87184E-02	-8.21529E-01	-1.1105536E-01
53	-8.02257E-01	4.44642E-02	-7.86285E-01	-9.77945E-02
54	-7.55512E-01	4.98428E-02	-7.50920E-01	-8.42289E-02
55	-7.08737E-01	5.47908E-02	-7.15670E-01	-7.08145E-02
56	-6.65132E-01	5.93855E-02	-6.80449E-01	-5.75576E-02
57	-6.05132E-01	6.35265E-02	-6.45252E-01	-4.45689E-02
58	-5.28312E-01	6.72568E-02	-6.10175E-01	-3.17437E-02
59	-4.51487E-01	7.05571E-02	-5.74912E-01	-1.91617E-02
60	-3.56662E-01	7.33753E-02	-5.39757E-01	-6.68744E-02
61	-2.51782E-01	7.57842E-02	-5.04695E-01	-4.28092E-02
62	-1.48113E-01	7.76908E-02	-4.69451E-01	-1.73782E-02
63	-4.44246E-01	7.91375E-02	-4.34286E-01	-3.15087E-02
64	-4.07468E-01	8.03997E-02	-3.99112E-01	-2.64066E-02
65	-3.70724E-01	8.05184E-02	-3.63916E-01	-2.17150E-02
66	-3.34423E-01	8.04057E-02	-3.28201E-01	-1.69512E-02
67	-2.92171E-01	7.97739E-02	-2.88442E-01	-1.26040E-02

POINT NO	XS	YS	XP	YP
66	-2.52978E-01	7.85636E-02	-2.50633E-01	-8.77875E-03
69	-2.13845E-01	7.65583E-02	-2.12771E-01	-5.41461E-03
70	-1.74777E-01	7.42536E-02	-1.74869E-01	-2.42642E-03
71	-1.35750E-01	7.11339E-02	-1.36862E-01	-2.63145E-05
72	-9.65574E-02	6.75131E-02	-9.88062E-02	1.98223E-03
73	-5.80144E-02	6.31649E-02	-6.06773E-02	3.36146E-03
74	-1.92555E-02	5.83365E-02	-2.24709E-02	4.32122E-03
75	1.94156E-02	5.27141E-02	1.58169E-02	4.61576E-03
76	5.60317E-02	4.65049E-02	5.41898E-02	4.46023E-03
77	9.64916E-02	3.97467E-02	9.26506E-02	3.61430E-03
78	1.34836E-01	3.23692E-02	1.31203E-01	2.26739E-03
79	1.73133E-01	2.42296E-02	1.69849E-01	1.92669E-04
80	2.11333E-01	1.55698E-02	2.08591E-01	-2.39171E-03
91	2.49477E-01	6.11375E-03	2.47431E-01	-5.77015E-03

POINT NO	XSEMI	YSEMI
1	-2.31528E+00	-7.14841E-01
2	-2.31530E+00	-7.15282E-01
3	-2.31615E+00	-7.15628E-01
4	-2.31533E+00	-7.15915E-01
5	-2.31754E+00	-7.16140E-01
6	-2.31817E+00	-7.16307E-01
7	-2.31831E+00	-7.16396E-01
8	-2.31945E+00	-7.16421E-01
9	-2.32195E+00	-7.16381E-01
10	-2.32172E+00	-7.16273E-01
11	-2.32134E+00	-7.16099E-01
12	-2.32133E+00	-7.15661E-01
13	-2.32249E+00	-7.15562E-01
14	-2.32311E+00	-7.15235E-01
15	-2.32349E+00	-7.14793E-01
16	-2.32333E+00	-7.14332E-01
17	-2.32411E+00	-7.13826E-01
18	-2.32464E+00	-7.13281E-01
19	-2.32490E+00	-7.12733E-01
20	-2.32511E+00	-7.12190E-01
21	-2.32525E+00	-7.11473E-01
22	-2.32532E+00	-7.10836E-01
23	-2.32533E+00	-7.10192E-01
24	-2.32527E+00	-7.09545E-01
25	-2.32514E+00	-7.08909E-01
26	-2.32494E+00	-7.08286E-01
27	-2.32469E+00	-7.07688E-01
28	-2.32437E+00	-7.07116E-01
29	-2.32413E+00	-7.06570E-01
30	-2.32357E+00	-7.06041E-01
31	-2.32310E+00	-7.05630E-01

SECTION NUMBER 11 'Z' = 0.5000

SECTION AREA = 3.1536E-01
 LOCATION OF CENTROID
 RELATIVE TO STACK AXIS
 XBAR = -1.1269E+00
 YBAR = -1.5239E-01
 SECOND MOMENTS OF AREA
 ABOUT CENTROID
 IX = 1.1069E-02
 IY = 1.2109E-01
 IXY = 3.3996E-02
 PRINCIPAL SECOND MOMENTS
 OF AREA ABOUT CENTROID
 IPX = 1.4093E-03 (AT 15.06 DEGREES TO 'X' AXIS)
 IPY = 1.3071E-01 (AT 15.06 DEGREES TO 'Y' AXIS)
 TORSIONAL CONSTANT
 = 1.9164E-03

SECTION COORDINATES

POINT NO	XS	YS	KP	YP
1	-2.41591E+00	-7.72349E-01	-2.39729E+00	-7.81579E-01
2	-2.37748E+00	-7.4393E-01	-2.36464E+00	-7.55345E-01
3	-2.3494E+00	-7.1383E-01	-2.33217E+00	-7.30298E-01
4	-2.3231E+00	-6.8164E-01	-2.29986E+00	-7.06260E-01
5	-2.2978E+00	-6.4738E-01	-2.26775E+00	-6.83201E-01
6	-2.2733E+00	-6.1117E-01	-2.23570E+00	-6.61041E-01
7	-2.2496E+00	-5.7309E-01	-2.20384E+00	-6.39734E-01
8	-2.2267E+00	-5.3327E-01	-2.17212E+00	-6.19226E-01
9	-2.2046E+00	-4.9174E-01	-2.14053E+00	-5.99467E-01
10	-2.1833E+00	-4.4851E-01	-2.10905E+00	-5.80379E-01
11	-2.1627E+00	-4.0369E-01	-2.07769E+00	-5.61904E-01
12	-2.1428E+00	-3.5732E-01	-2.04644E+00	-5.44027E-01
13	-2.1235E+00	-3.0949E-01	-2.01527E+00	-5.26708E-01
14	-2.1048E+00	-2.6034E-01	-1.98419E+00	-5.09898E-01
15	-2.0867E+00	-2.0991E-01	-1.95310E+00	-4.93551E-01
16	-2.0692E+00	-1.5824E-01	-1.92204E+00	-4.77620E-01
17	-2.0523E+00	-1.0538E-01	-1.89102E+00	-4.62054E-01
18	-2.0360E+00	-5.1361E-01	-1.86004E+00	-4.46710E-01
19	-2.0203E+00	-0.6017E-01	-1.82910E+00	-4.31517E-01
20	-2.0052E+00	0.9309E-01	-1.79820E+00	-4.16477E-01
21	-1.9907E+00	1.4249E-01	-1.76734E+00	-4.01590E-01
22	-1.9768E+00	1.8841E-01	-1.73652E+00	-3.86856E-01
23	-1.9635E+00	2.3080E-01	-1.70574E+00	-3.72274E-01
24	-1.9508E+00	2.6971E-01	-1.67500E+00	-3.57844E-01
25	-1.9387E+00	3.0519E-01	-1.64430E+00	-3.43566E-01
26	-1.9272E+00	3.3729E-01	-1.61364E+00	-3.29440E-01
27	-1.9163E+00	3.6606E-01	-1.58306E+00	-3.15466E-01
28	-1.9060E+00	3.9156E-01	-1.55256E+00	-3.01644E-01
29	-1.8963E+00	4.1384E-01	-1.52214E+00	-2.87974E-01
30	-1.8872E+00	4.3296E-01	-1.49180E+00	-2.74456E-01
31	-1.8787E+00	4.4898E-01	-1.46154E+00	-2.61090E-01
32	-1.8708E+00	4.6196E-01	-1.43136E+00	-2.47874E-01
33	-1.8635E+00	4.7196E-01	-1.40126E+00	-2.34808E-01
34	-1.8568E+00	4.7904E-01	-1.37124E+00	-2.21892E-01
35	-1.8507E+00	4.8328E-01	-1.34130E+00	-2.09126E-01

POINT NO	VS	XP	YP
16	-1.37811E+00	-1.32785E+01	-2.34270E-01
17	-1.34621E+00	-1.29739E+01	-2.25191E-01
18	-1.31431E+00	-1.26691E+01	-2.16111E-01
19	-1.28241E+00	-1.23643E+01	-2.07031E-01
20	-1.25051E+00	-1.20594E+01	-1.97949E-01
21	-1.21874E+00	-1.17545E+01	-1.88868E-01
22	-1.18694E+00	-1.14496E+01	-1.79787E-01
23	-1.15514E+00	-1.11447E+01	-1.70706E-01
24	-1.12334E+00	-1.08398E+01	-1.61625E-01
25	-1.09154E+00	-1.05349E+01	-1.52544E-01
26	-1.05974E+00	-1.02299E+01	-1.43463E-01
27	-1.02794E+00	-9.9250E+00	-1.34382E-01
28	-9.9617E-01	-9.6171E+00	-1.25301E-01
29	-9.6435E-01	-9.3092E+00	-1.16220E-01
30	-9.3253E-01	-9.0013E+00	-1.07139E-01
31	-9.0071E-01	-8.6934E+00	-1.00058E-01
32	-8.6889E-01	-8.3855E+00	-9.2977E-02
33	-8.3707E-01	-8.0776E+00	-8.5948E-02
34	-8.0525E-01	-7.7697E+00	-7.8919E-02
35	-7.7343E-01	-7.4618E+00	-7.1890E-02
36	-7.4161E-01	-7.1539E+00	-6.4861E-02
37	-7.0979E-01	-6.8460E+00	-5.7832E-02
38	-6.7797E-01	-6.5381E+00	-5.0803E-02
39	-6.4615E-01	-6.2302E+00	-4.3774E-02
40	-6.1433E-01	-5.9223E+00	-3.6745E-02
41	-5.8251E-01	-5.6144E+00	-2.9716E-02
42	-5.5069E-01	-5.3065E+00	-2.2687E-02
43	-5.1887E-01	-5.0000E+00	-1.5658E-02
44	-4.8705E-01	-4.6935E+00	-8.629E-03
45	-4.5523E-01	-4.3870E+00	-1.611E-03
46	-4.2341E-01	-4.0805E+00	1.343E-04
47	-3.9159E-01	-3.7740E+00	1.076E-05
48	-3.5977E-01	-3.4675E+00	8.10E-07
49	-3.2795E-01	-3.1610E+00	5.44E-09
50	-2.9613E-01	-2.8545E+00	2.78E-11
51	-2.6431E-01	-2.5480E+00	1.52E-13
52	-2.3249E-01	-2.2415E+00	7.6E-16
53	-2.0067E-01	-1.9350E+00	3.9E-19
54	-1.6885E-01	-1.6285E+00	1.9E-22
55	-1.3703E-01	-1.3220E+00	9.5E-26
56	-1.0521E-01	-1.0155E+00	4.8E-30
57	-7.3399E-02	-7.0000E+00	2.4E-34
58	-4.1277E-02	-3.7777E+00	1.2E-38
59	-9.0155E-03	-1.5555E+00	6.1E-43
60	-1.9093E-03	-5.3333E-01	3.0E-48
61	-3.8186E-04	-1.6667E-01	1.5E-53
62	-7.6372E-05	-5.0000E-02	7.5E-59
63	-1.5274E-05	-1.5000E-02	3.7E-64
64	-3.0548E-06	-4.5000E-03	1.9E-70
65	-6.1096E-07	-1.3500E-03	9.5E-76
66	-1.2219E-07	-4.0500E-04	4.7E-82
67	-2.4438E-08	-1.2150E-04	2.4E-88
68	-4.8876E-09	-3.6450E-05	1.2E-94
69	-9.7752E-10	-1.0935E-05	6.1E-101
70	-1.9550E-10	-3.2805E-06	3.0E-107
71	-3.9100E-11	-9.8415E-07	1.5E-113
72	-7.8200E-12	-2.9525E-07	7.5E-120
73	-1.5640E-12	-8.8575E-08	3.7E-126
74	-3.1280E-13	-2.6565E-08	1.9E-132
75	-6.2560E-14	-7.9695E-09	9.5E-139
76	-1.2512E-14	-2.3905E-09	4.7E-145
77	-2.5024E-15	-7.1715E-10	2.4E-151
78	-5.0048E-16	-2.1515E-10	1.2E-157
79	-1.00096E-16	-6.4545E-11	6.1E-164
80	-2.00192E-17	-1.93635E-11	3.0E-170
81	-4.00384E-18	-5.80905E-12	1.5E-176
82	-8.00768E-19	-1.74271E-12	7.5E-183
83	-1.601536E-19	-5.22813E-13	3.7E-189
84	-3.203072E-20	-1.56844E-13	1.9E-195
85	-6.406144E-21	-4.70532E-14	9.5E-202
86	-1.2812288E-21	-1.41159E-14	4.7E-208
87	-2.5624576E-22	-4.23477E-15	2.4E-214
88	-5.1249152E-23	-1.27043E-15	1.2E-220
89	-1.02498304E-23	-3.81129E-16	6.1E-227
90	-2.04996608E-24	-1.14338E-16	3.0E-233
91	-4.09993216E-25	-3.43014E-17	1.5E-239
92	-8.19986432E-26	-1.02904E-17	7.5E-245
93	-1.639972864E-26	-3.08712E-18	3.7E-251
94	-3.279945728E-27	-9.26136E-19	1.9E-257
95	-6.559891456E-28	-2.77841E-19	9.5E-264
96	-1.311978312E-28	-8.33523E-20	4.7E-270
97	-2.623956624E-29	-2.50057E-20	2.4E-276
98	-5.247913248E-30	-7.50171E-21	1.2E-282
99	-1.0495826496E-30	-2.25051E-21	6.1E-288
100	-2.0991652992E-31	-6.75153E-22	3.0E-294

POINT NO	VS	XP	YP
1	-2.39729E+00	-7.61578E-01	
2	-2.39729E+00	-7.61578E-01	
3	-2.39729E+00	-7.61578E-01	
4	-2.39729E+00	-7.61578E-01	
5	-2.39729E+00	-7.61578E-01	
6	-2.39729E+00	-7.61578E-01	
7	-2.39729E+00	-7.61578E-01	
8	-2.39729E+00	-7.61578E-01	

POINT NO	XSEMI	YSEMI
9	-2.40222E+00	-7.83420E-01
10	-2.40298E+00	-7.83343E-01
11	-2.40353E+00	-7.83196E-01
12	-2.40416E+00	-7.82981E-01
13	-2.40475E+00	-7.82699E-01
14	-2.40532E+00	-7.82355E-01
15	-2.40594E+00	-7.81952E-01
16	-2.40631E+00	-7.81494E-01
17	-2.40674E+00	-7.80986E-01
18	-2.40711E+00	-7.80434E-01
19	-2.40741E+00	-7.79844E-01
20	-2.40766E+00	-7.79223E-01
21	-2.40784E+00	-7.78576E-01
22	-2.40795E+00	-7.77912E-01
23	-2.40799E+00	-7.77238E-01
24	-2.40796E+00	-7.76560E-01
25	-2.40786E+00	-7.75887E-01
26	-2.40769E+00	-7.75226E-01
27	-2.40745E+00	-7.74583E-01
28	-2.40715E+00	-7.73967E-01
29	-2.40679E+00	-7.73384E-01
30	-2.40638E+00	-7.72839E-01
31	-2.40591E+00	-7.72340E-01

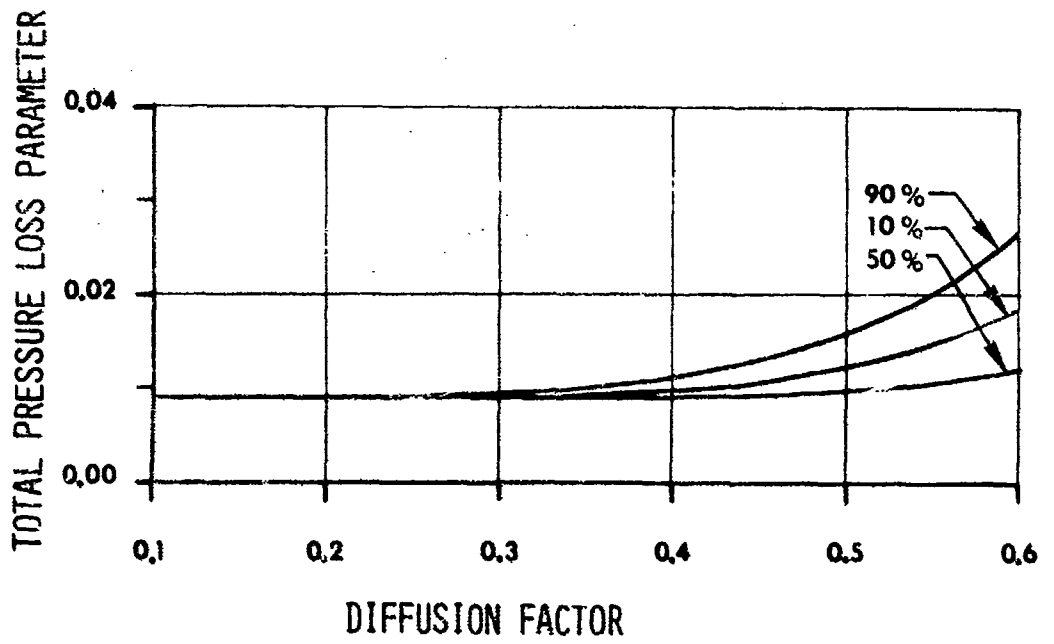


FIGURE 1A. ROTOR LOSS PARAMETER VS DIFFUSION FACTOR

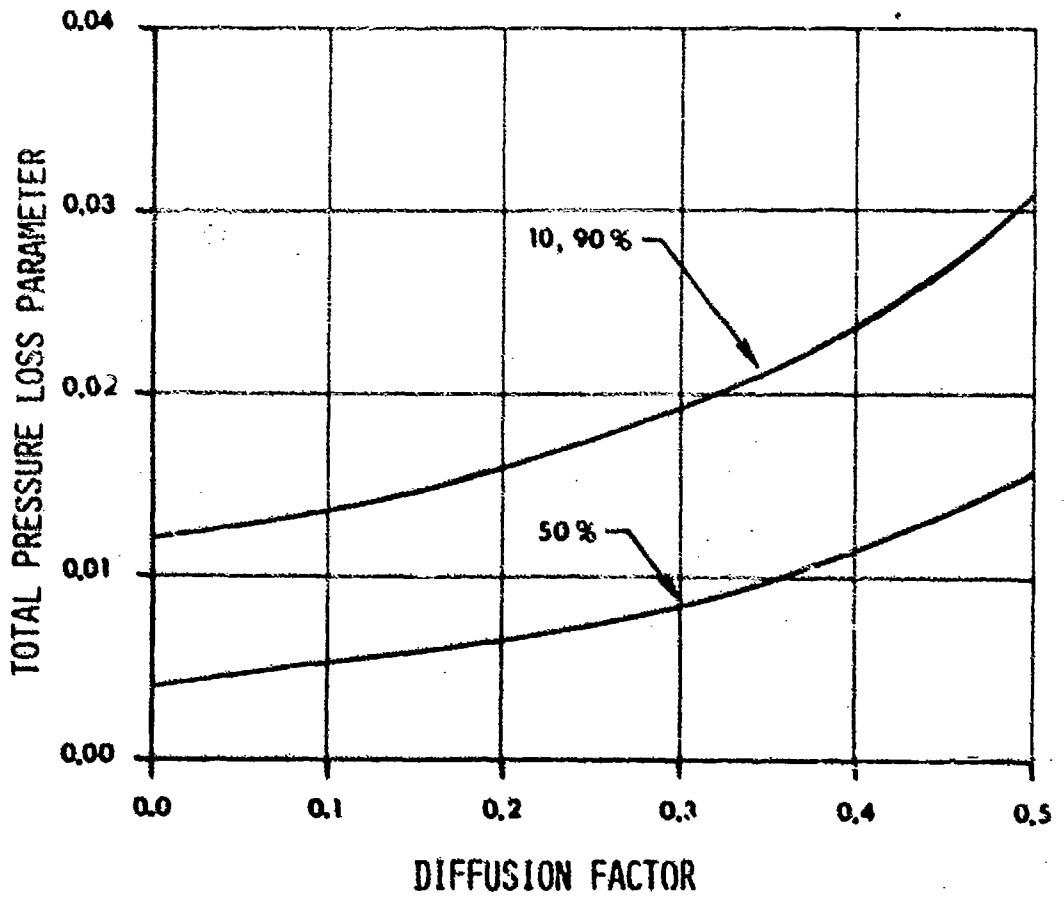


FIGURE 1B. STATOR LOSS PARAMETER VS DIFFUSION FACTOR

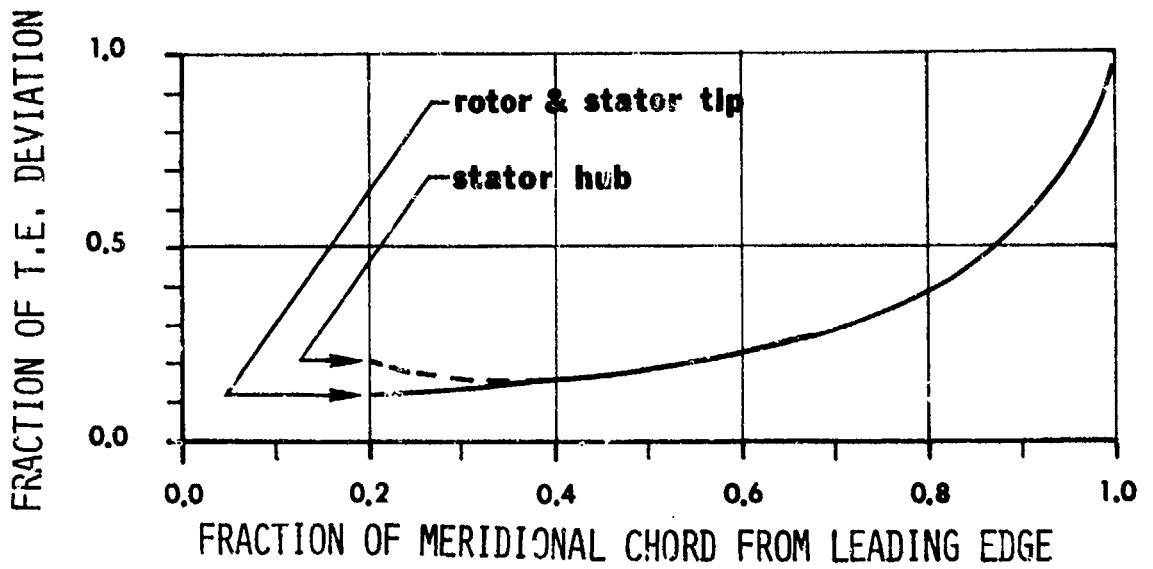


FIGURE 2. DESIGN DISTRIBUTIONS FOR INTRA-BLADE DEVIATION ANGLE

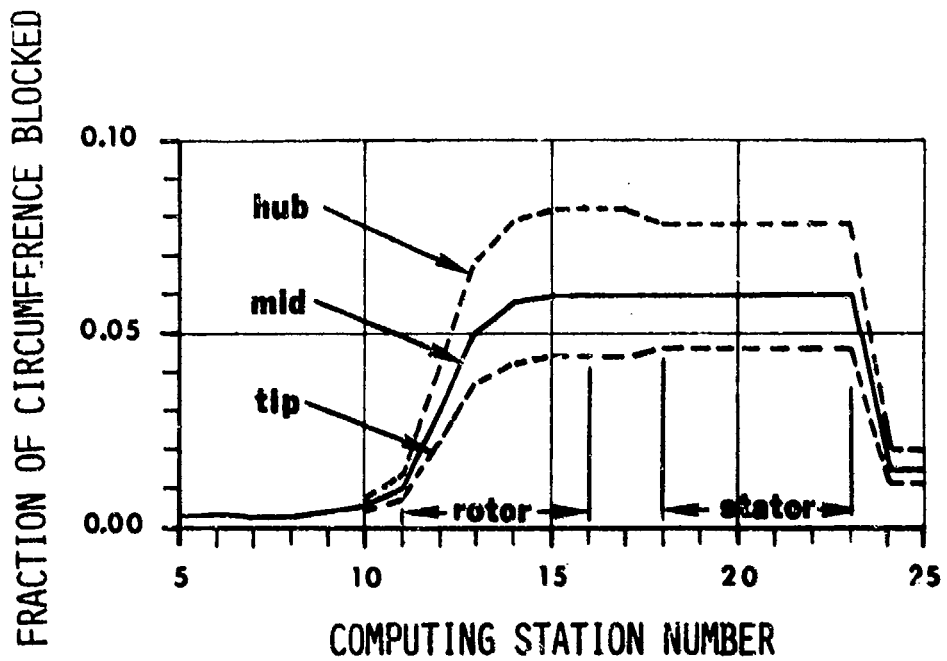


FIGURE 3. MERIDIONAL DISTRIBUTION OF BOUNDARY-LAYER AND WAKE BLOCKAGE

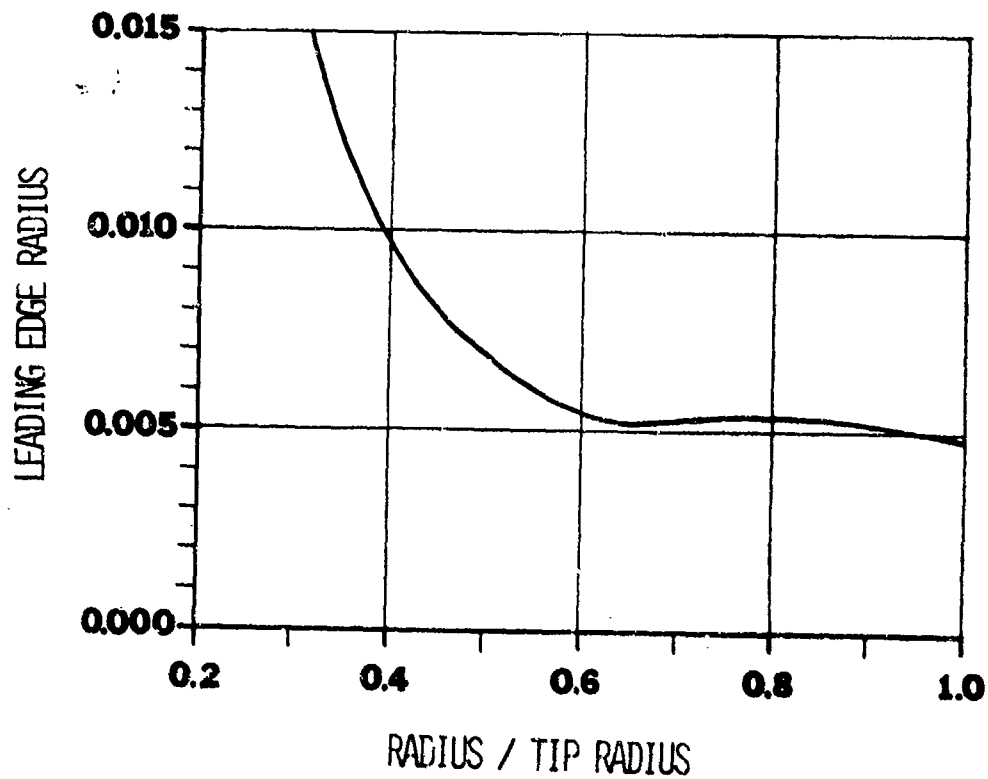


FIGURE 4. ROTOR LEADING EDGE THICKNESS DISTRIBUTION

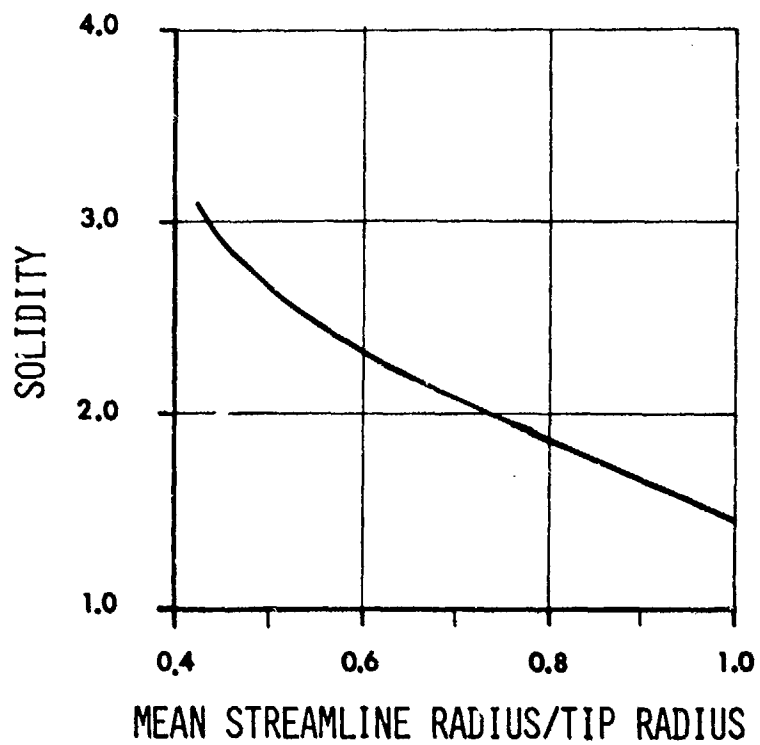


FIGURE 5. ROTOR SOLIDITY DISTRIBUTION

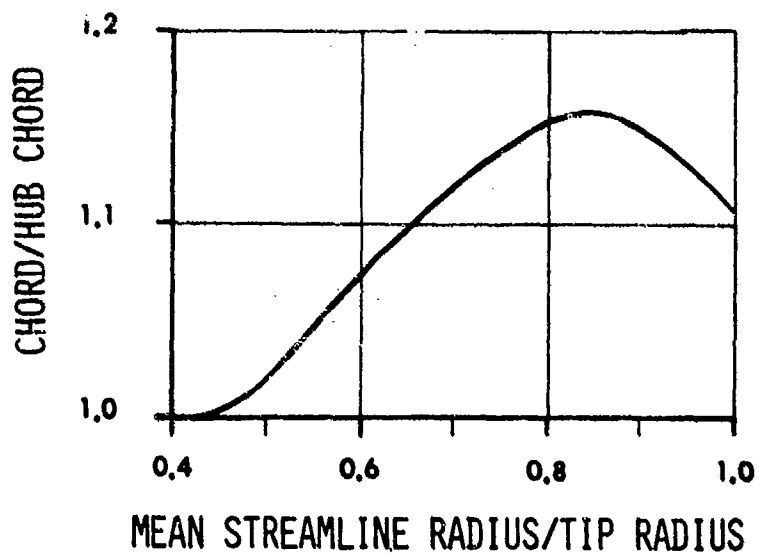


FIGURE 6. ROTOR CHORD LENGTH DISTRIBUTION

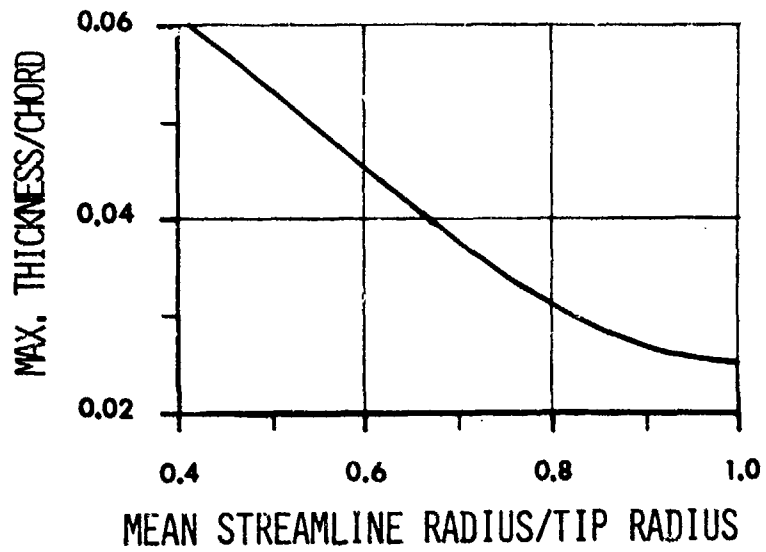


FIGURE 7. ROTOR THICKNESS-TO-CHORD RATIO

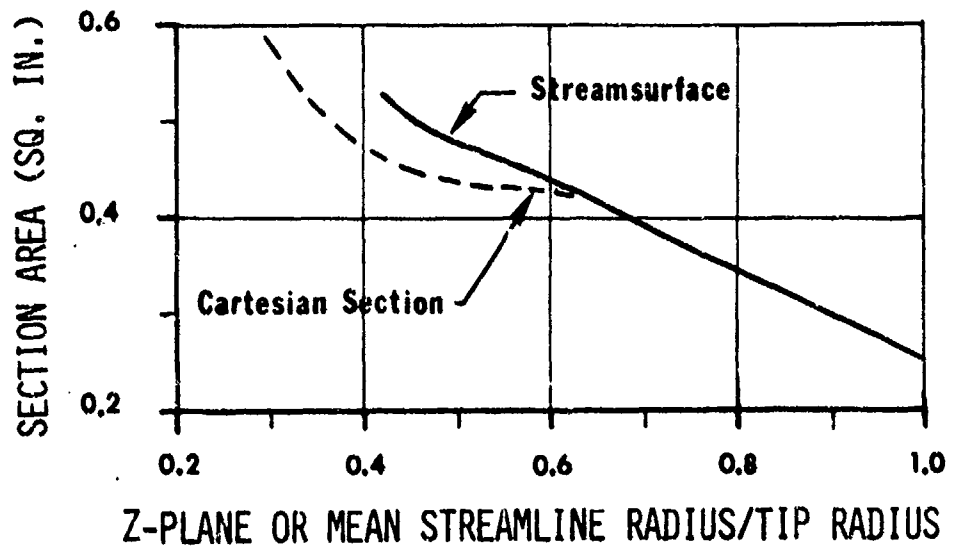


FIGURE 8. ROTOR STREAM SURFACE AND CARTESIAN SECTION AREA DISTRIBUTIONS

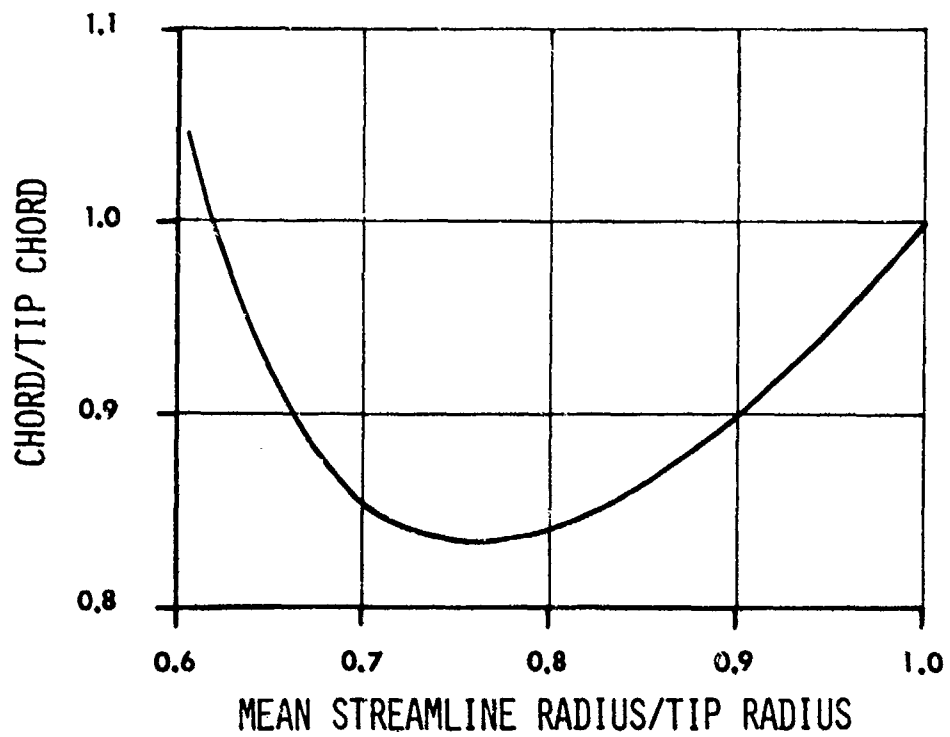


FIGURE 9. STATOR CHORD LENGTH DISTRIBUTION

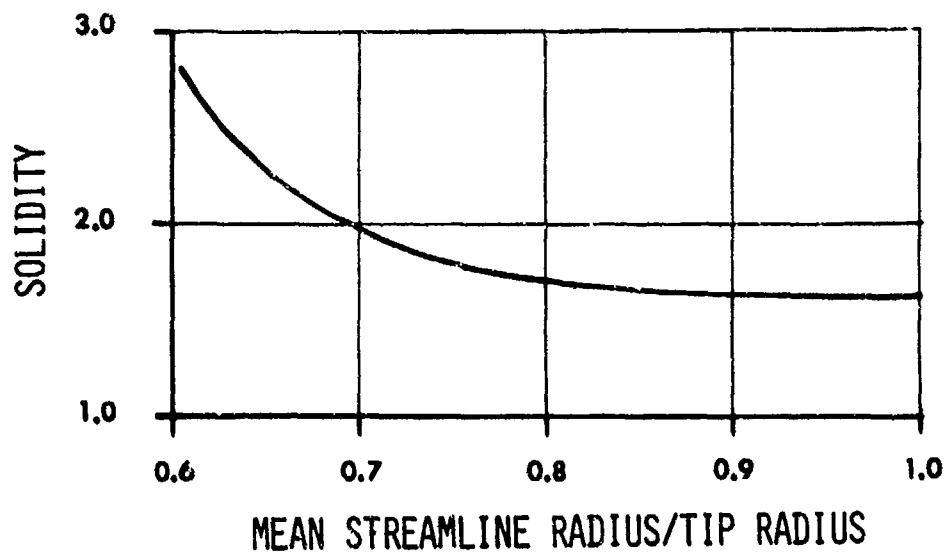


FIGURE 10. STATOR SOLIDITY DISTRIBUTION

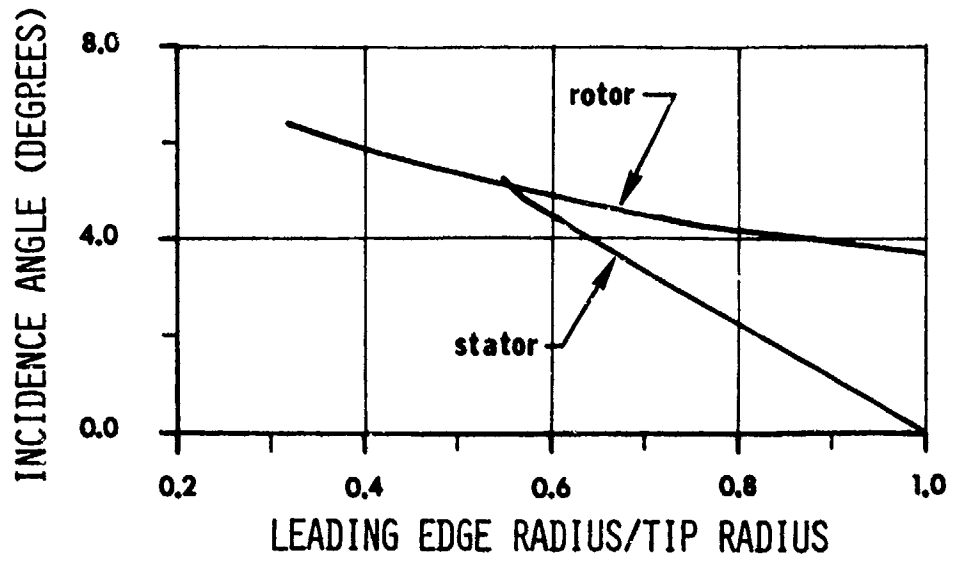


FIGURE 11. ROTOR AND STATOR INCIDENCE DISTRIBUTIONS

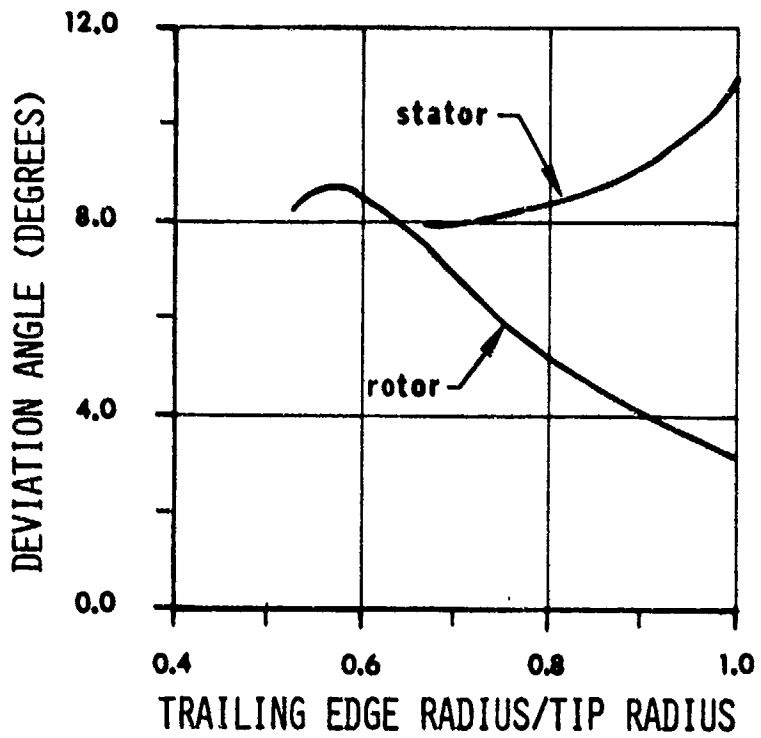


FIGURE 12. ROTOR AND STATOR DEVIATION DISTRIBUTIONS

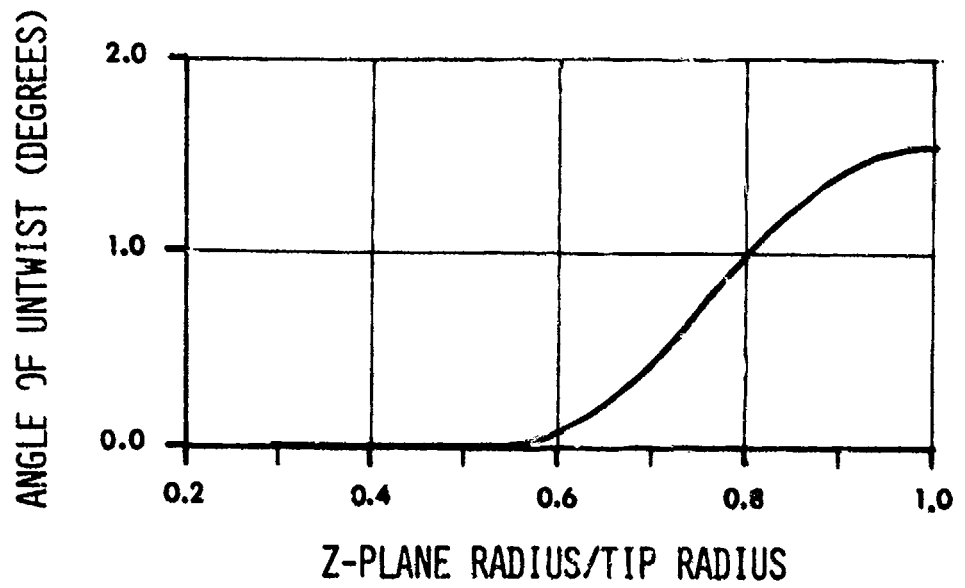
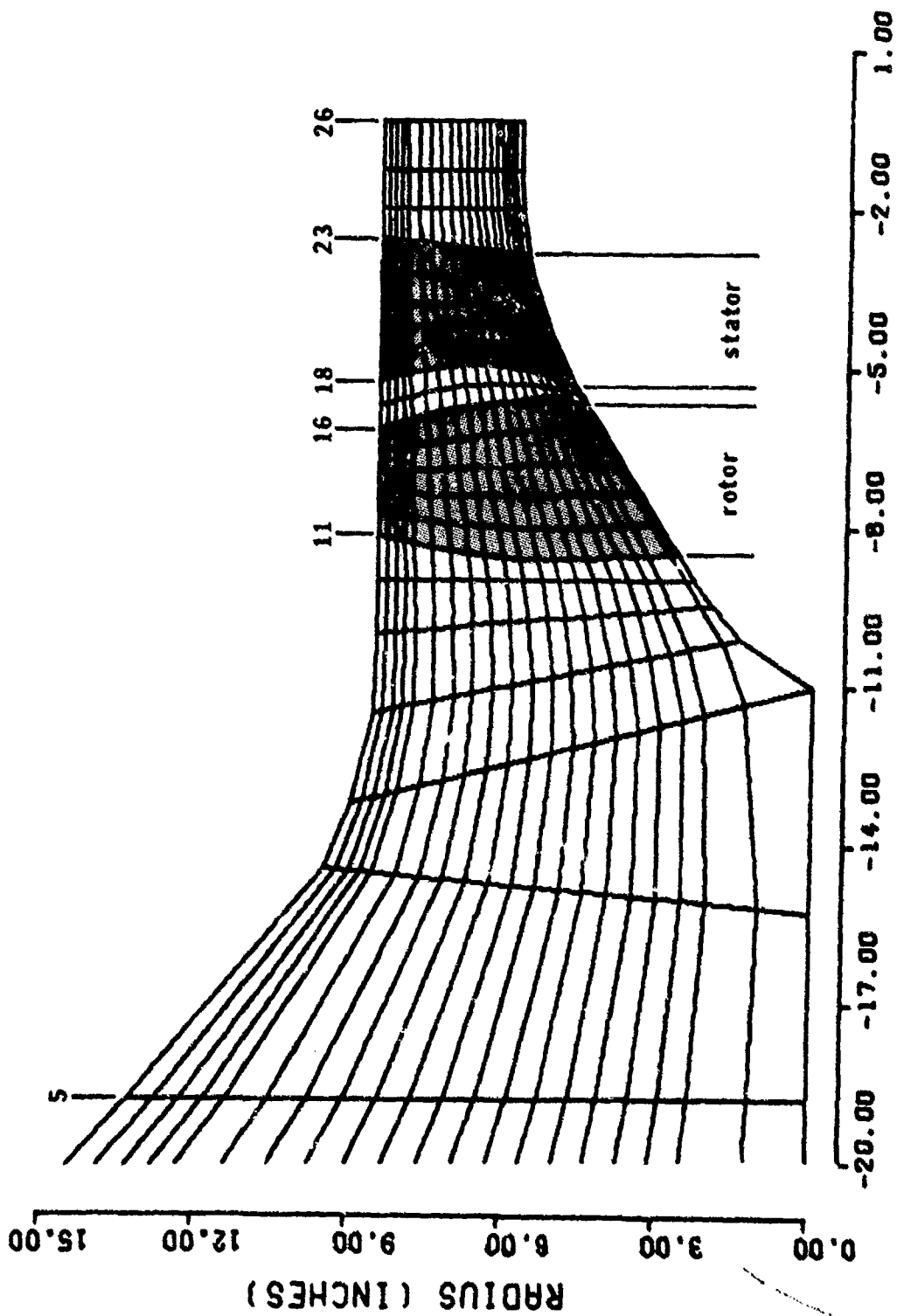


FIGURE 13. ROTOR UNTWIST DISTRIBUTION



AXIAL COORDINATE (INCHES)

FIGURE 14. MERIDIONAL DISTRIBUTION OF COMPUTING STATIONS

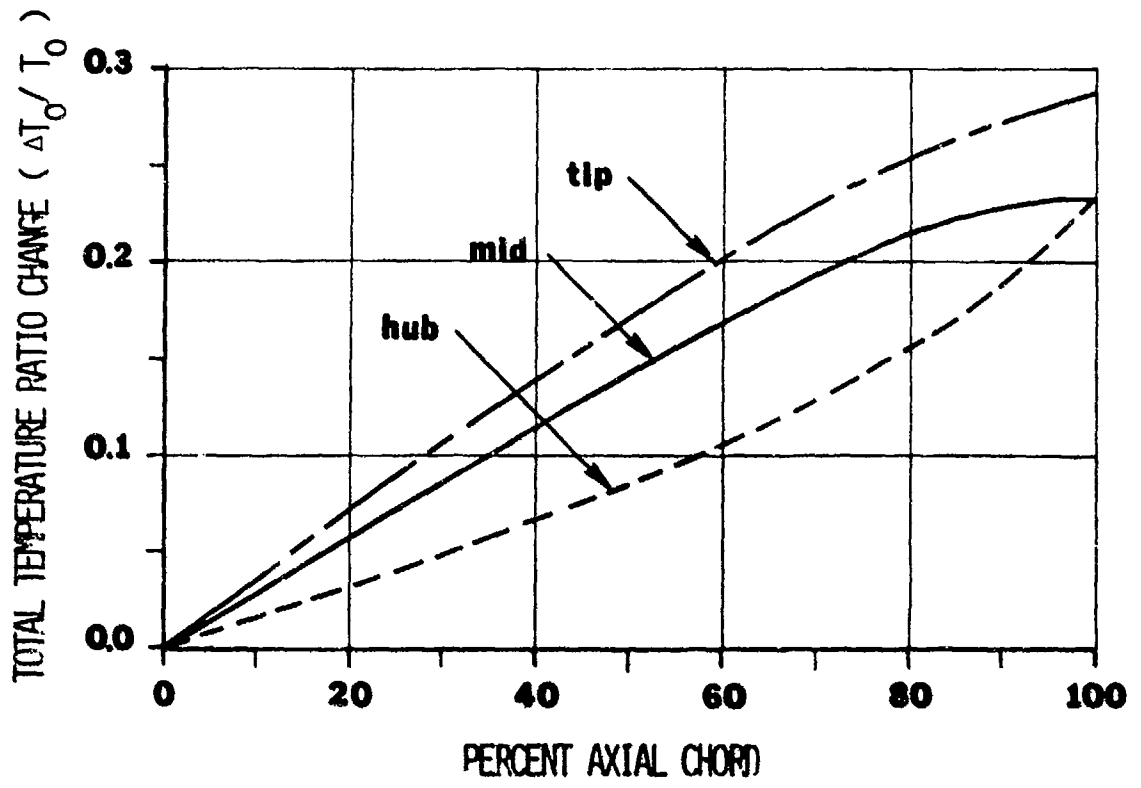


FIGURE 15A. AXIAL DISTRIBUTION OF TOTAL TEMPERATURE THROUGH ROTOR

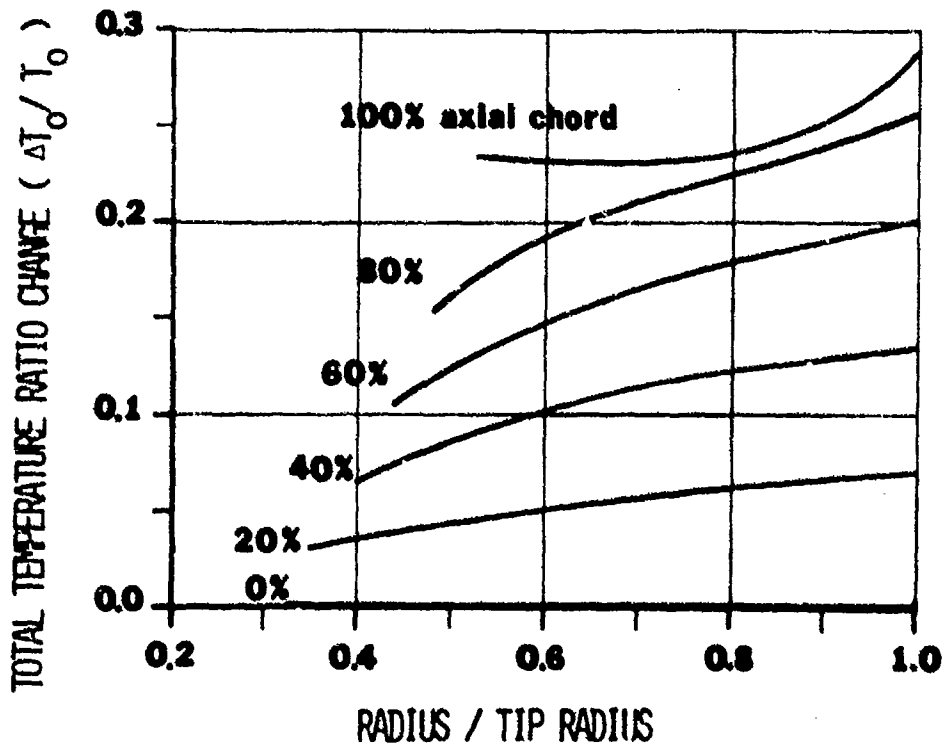


FIGURE 15B. SPANWISE DISTRIBUTION OF TOTAL TEMPERATURE THROUGH ROTOR

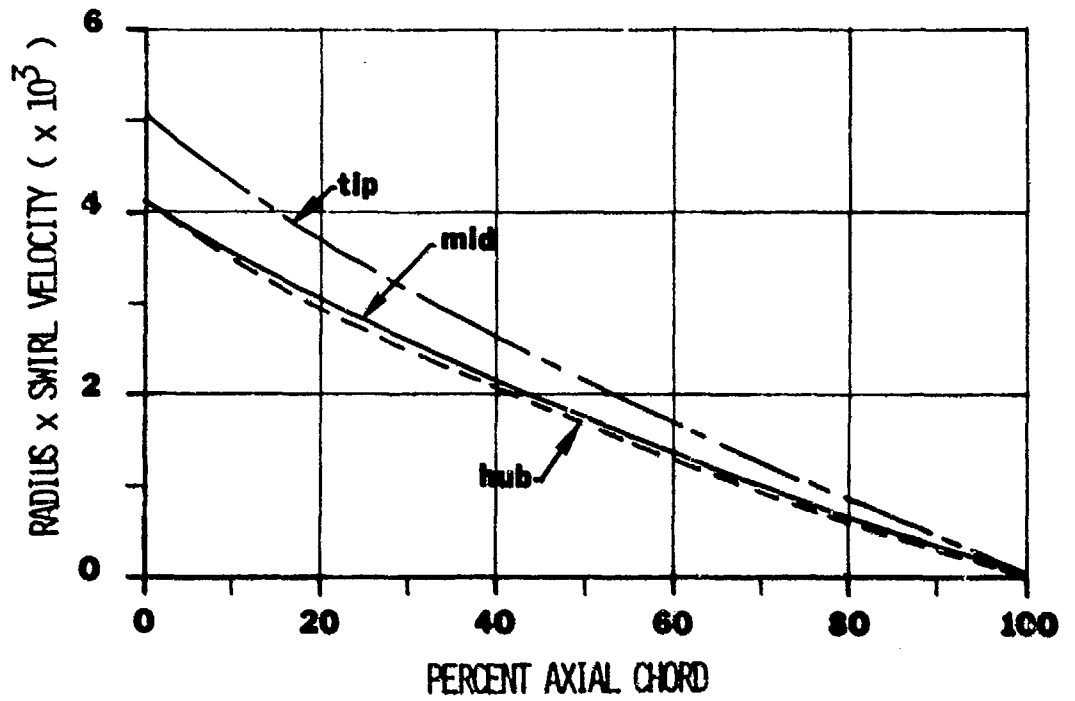


FIGURE 16A. AXIAL DISTRIBUTION OF RADIUS X SWIRL VELOCITY THROUGH STATOR

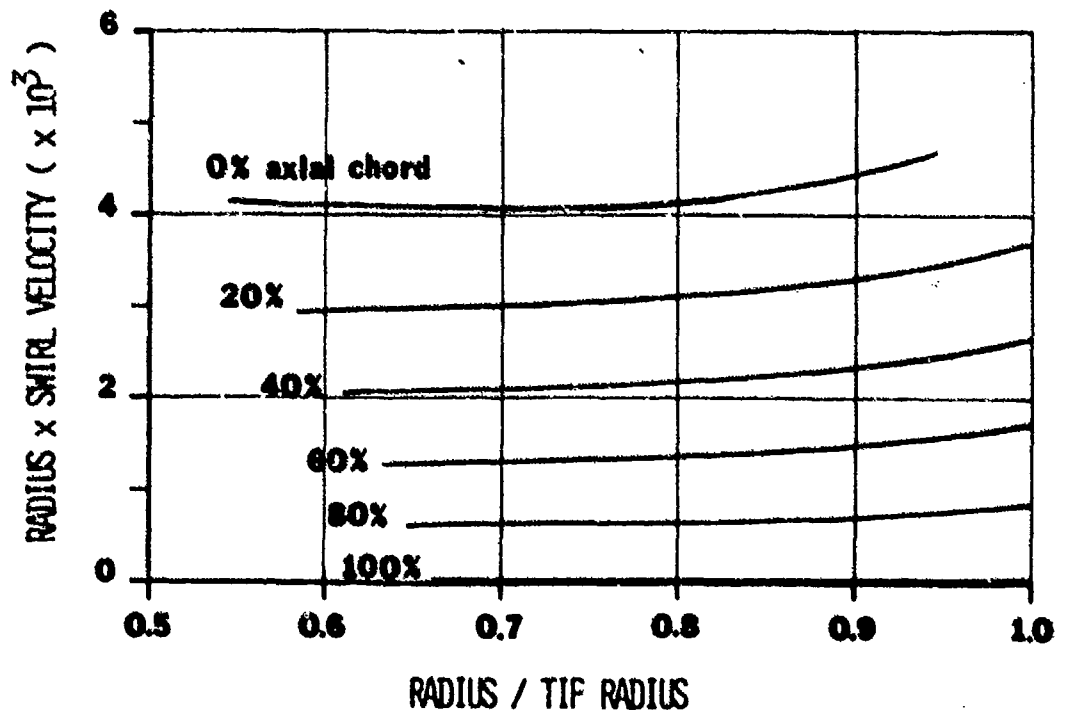


FIGURE 16B. SPANWISE DISTRIBUTION OF RADIUS X SWIRL VELOCITY THROUGH STATOR

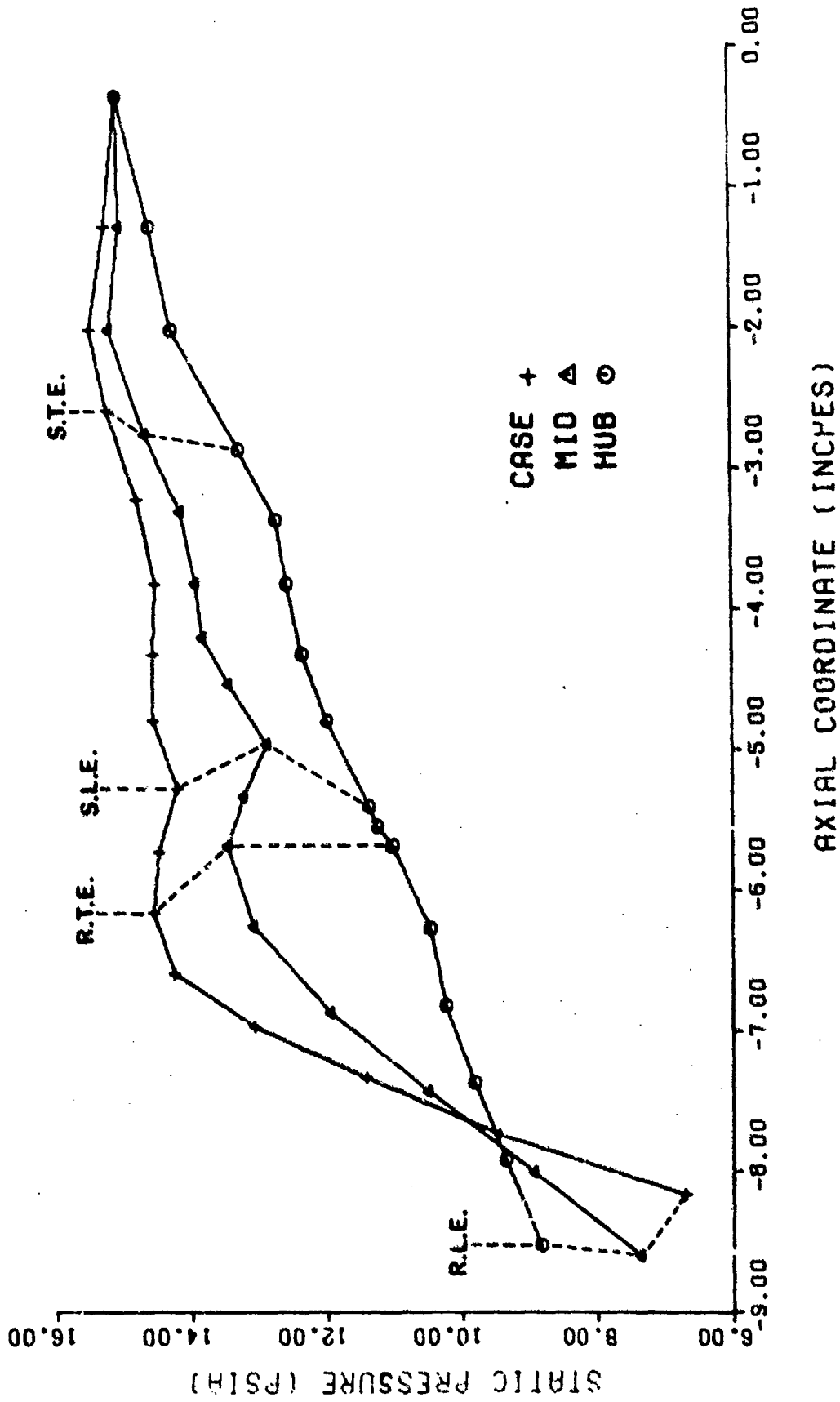


FIGURE 17. MERIDIONAL STATIC PRESSURE DISTRIBUTIONS THROUGH STAGE

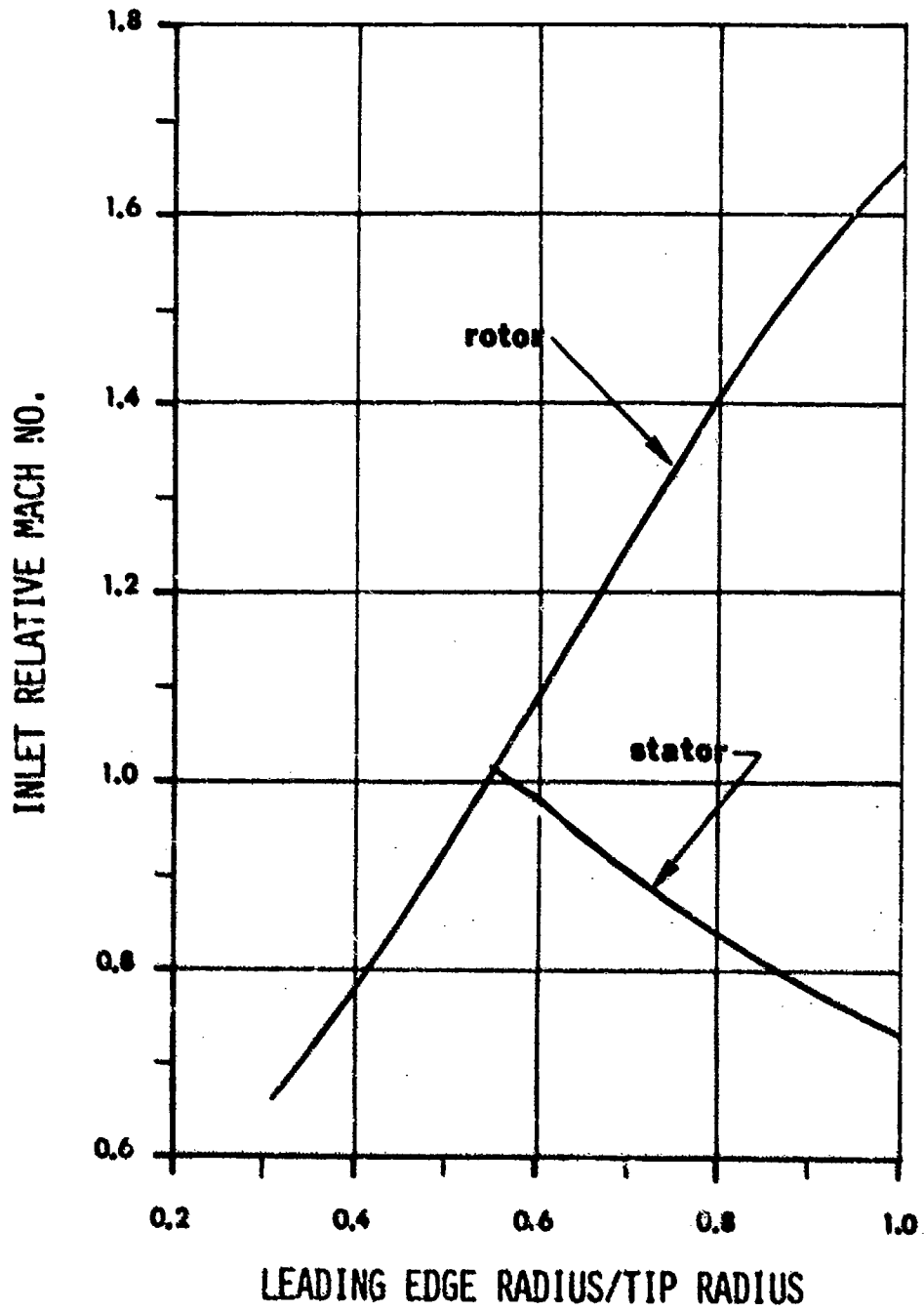


FIGURE 18. ROTOR AND STATOR RELATIVE INLET MACH NUMBER DISTRIBUTIONS

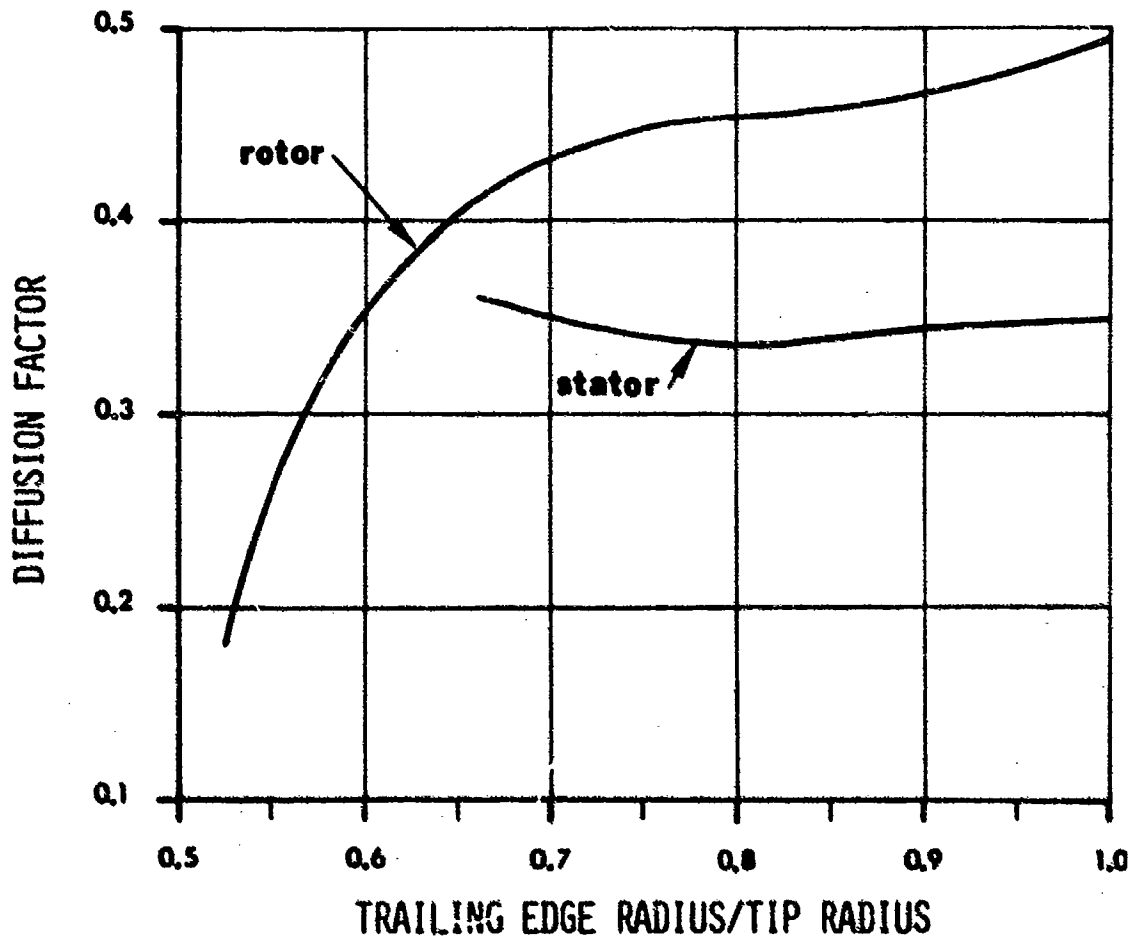


FIGURE 19. ROTOR AND STATOR DIFFUSION FACTOR DISTRIBUTIONS

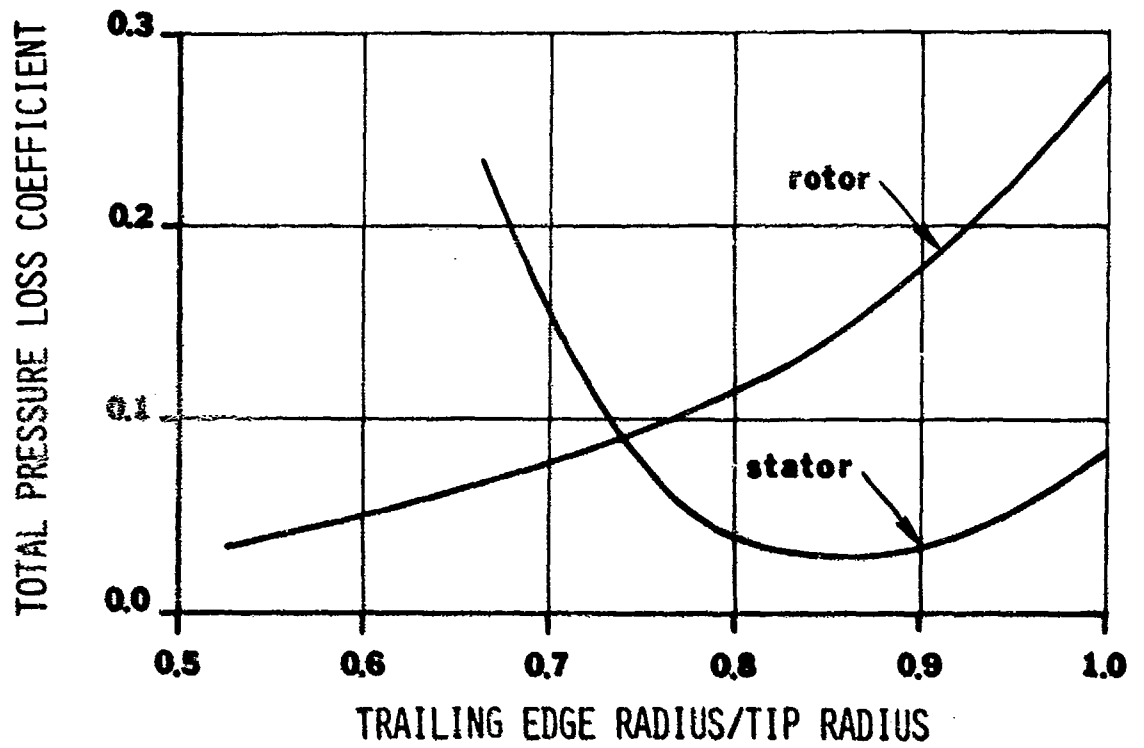


FIGURE 20. ROTOR AND STATOR TOTAL PRESSURE LOSS COEFFICIENT DISTRIBUTIONS

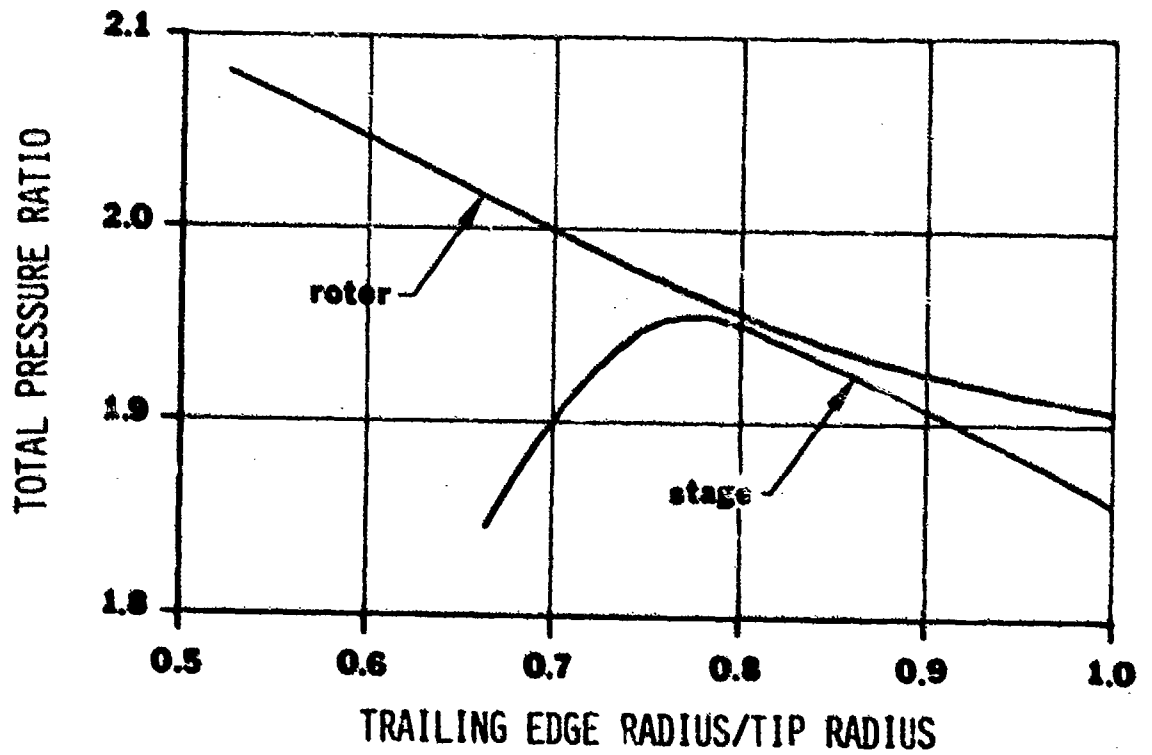


FIGURE 21. ROTOR AND STAGE EXIT TOTAL PRESSURE RATIO DISTRIBUTIONS

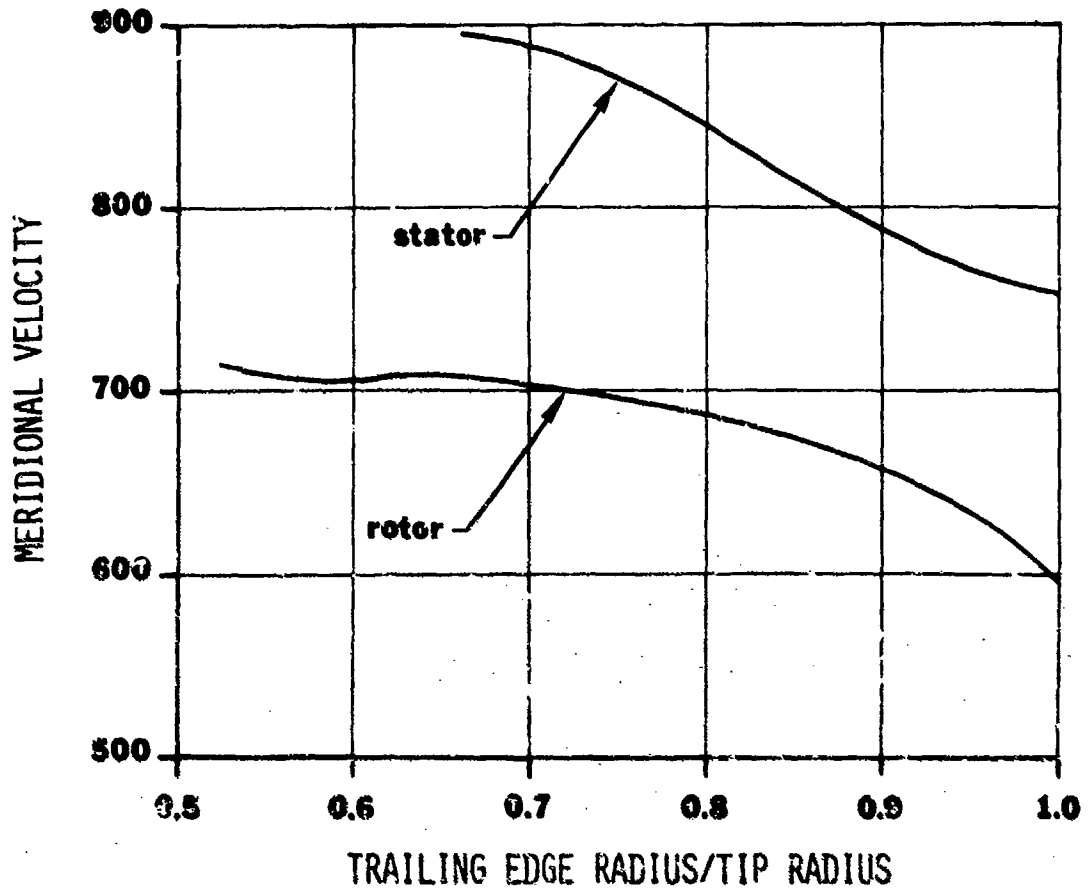


FIGURE 22. ROTOR AND STAGE EXIT MERIDIONAL VELOCITY DISTRIBUTIONS

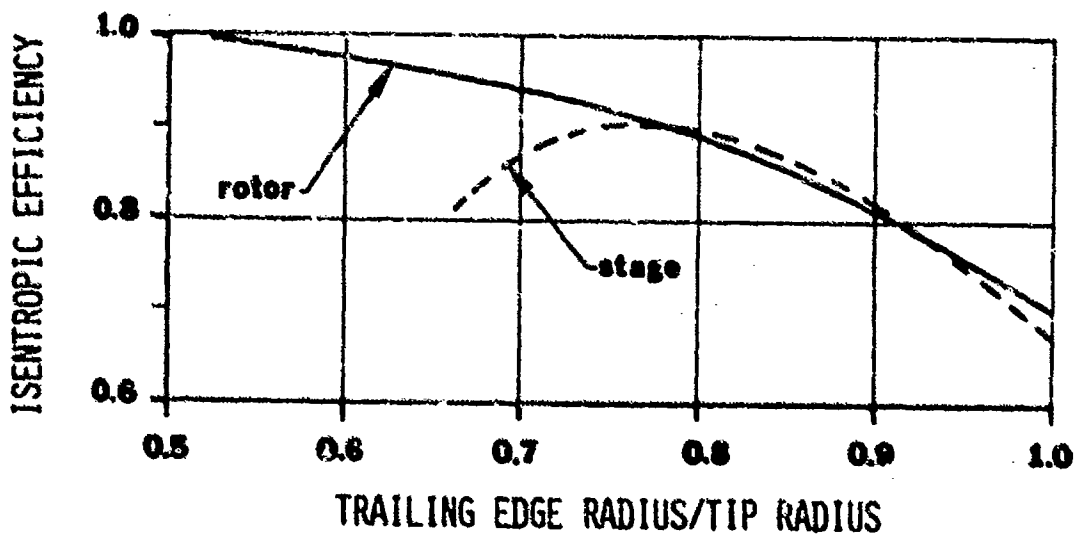


FIGURE 23. ROTOR AND STAGE EXIT ISENTROPIC EFFICIENCY DISTRIBUTIONS

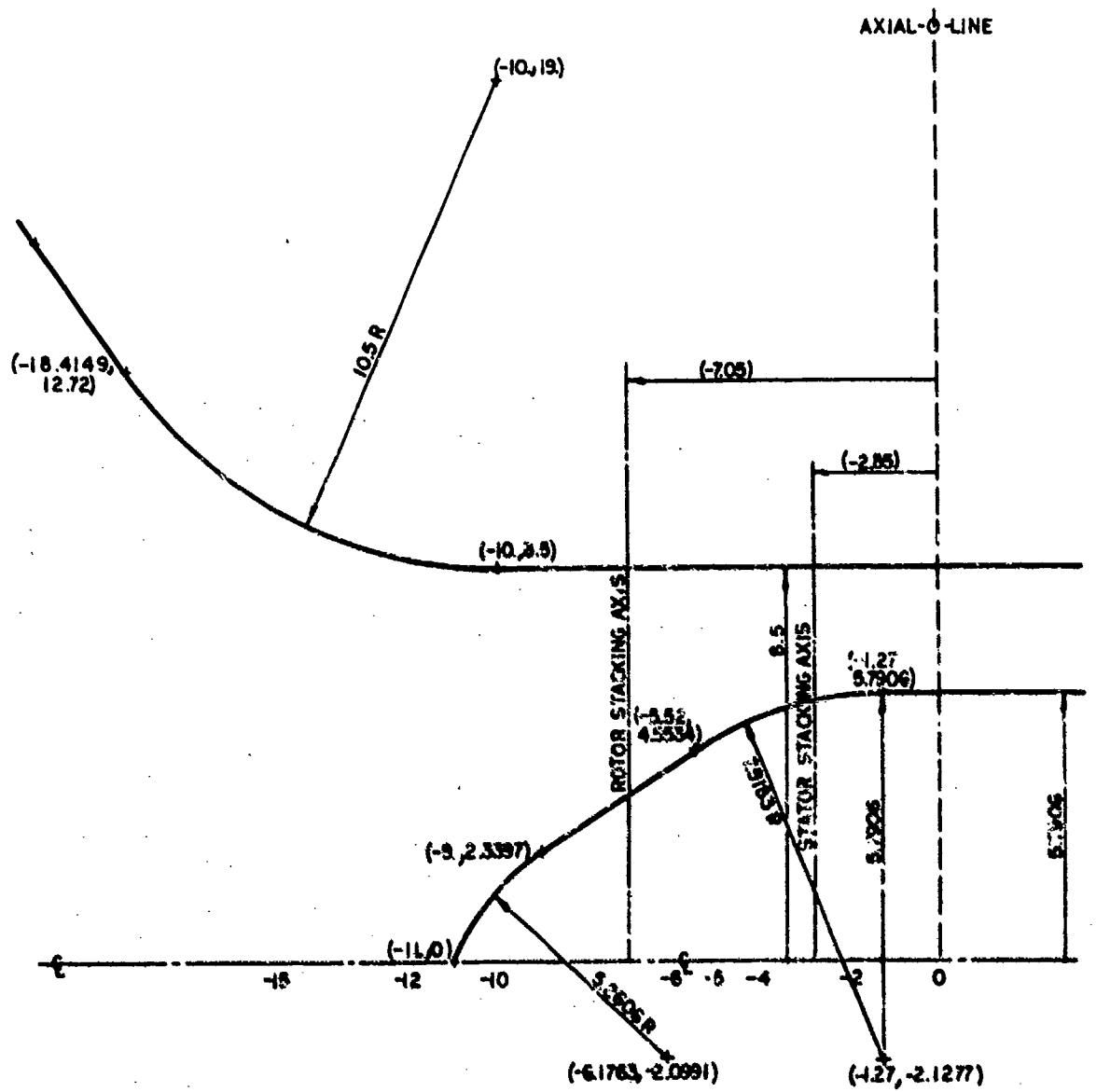


FIGURE 24. STAGE ANNULUS GEOMETRY

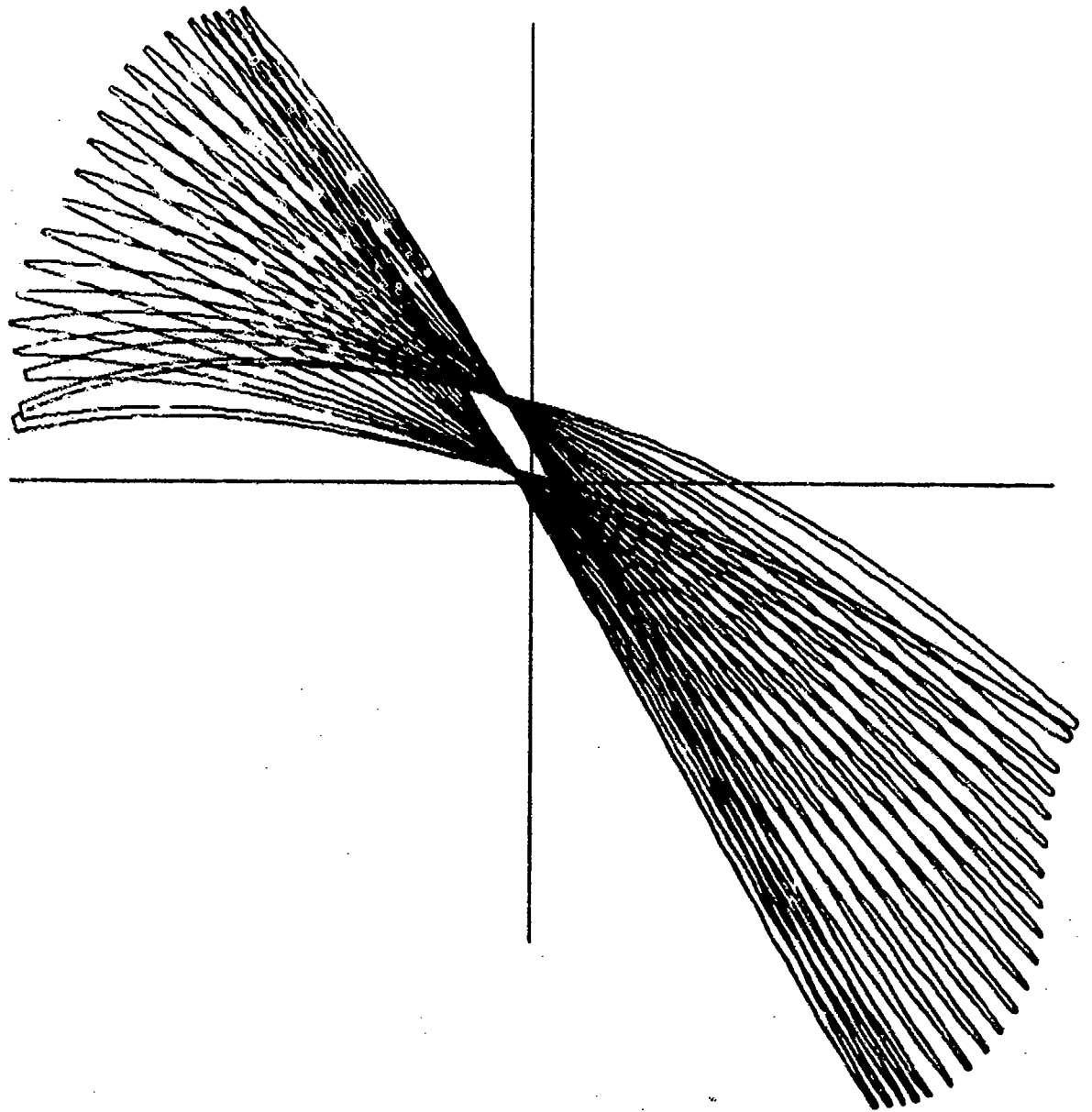


FIGURE 25. STACKED ROTOR STREAMSURFACE SECTIONS

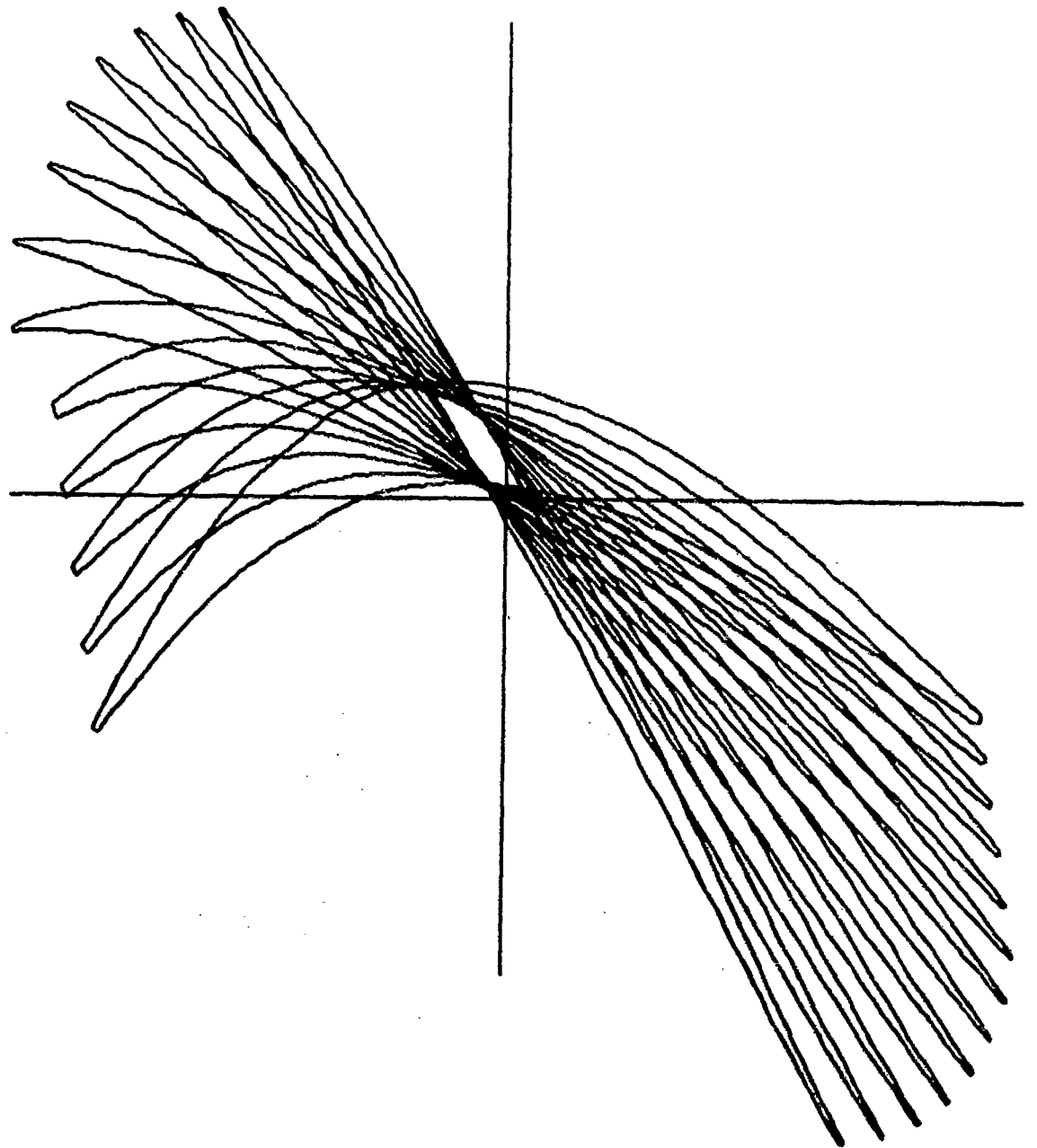


FIGURE 26. STACKED ROTOR CARTESIAN SECTIONS

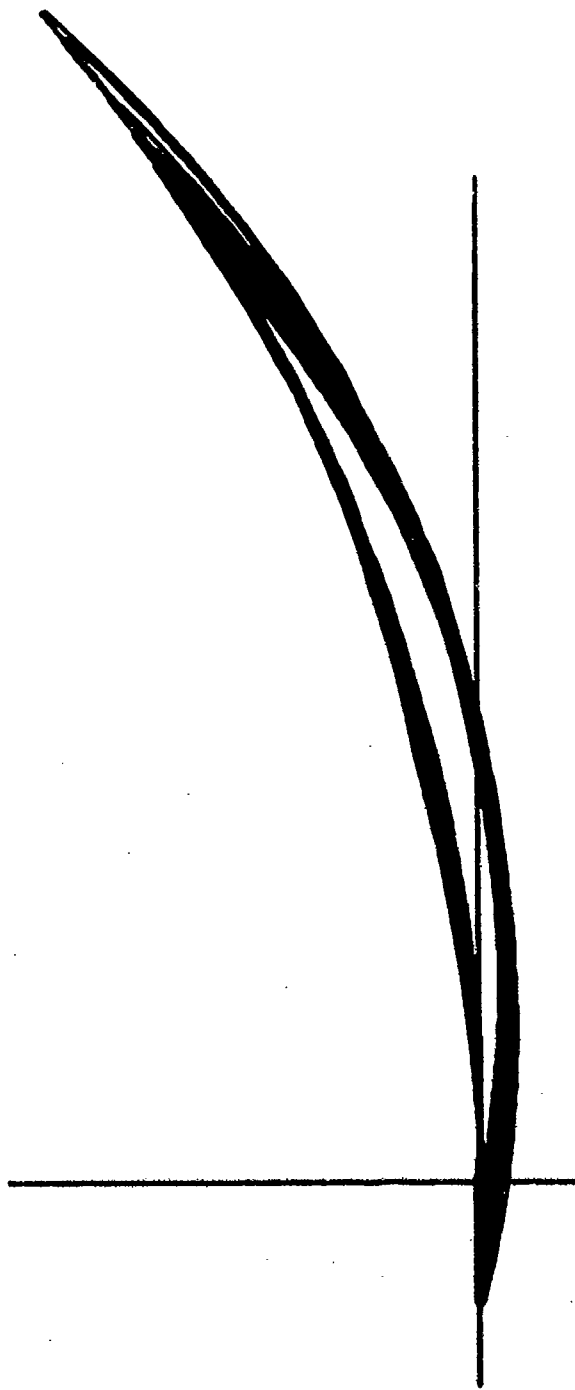


FIGURE 27. STACKED STATOR STREAMSURFACE SECTIONS



FIGURE 28. STACKED STATOR CARTESIAN SECTIONS

REFERENCES

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3. Monsarrat, N.T., Keenan, M.J., and Tramm, P.C. "Design Report, Single-Stage Evaluation of Highly-Loaded, High-Mach-Number Compressor Stages," NASA CR-72562, National Aeronautics and Space Administration, Lewis Research Center, July 1969.
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APPENDIX A

COMPUTER PROGRAM MODIFICATION FOR SUPERSONIC EXPANSION ANGLE

One modification was incorporated into the computer program described in Reference 1. This modification allowed the user to specify the supersonic expansion angle directly, in lieu of specifying the relative flow angle at the shock. This option proved much easier to employ than the original options when neither the relative flow angles nor the cambers were known to within three or four degrees.

The following card replacements are required:

Change 1: Subprogram LOSS, Card LOSE 2223

Replacement:

25 FRDEL(L,J) = AA/RADIAN

Change 2: Subprogram LOSS, Card LOSE 2224

Replacement:

FRDEL(L+1,J) = BB/RADIAN

Change 3: Subprogram OUTPUT, Three continuation cards in format statement 51 (after .JT. 2987)

Replacement:

X 8HPRESSURE 3X 16H DELTA B, IN - 3X 8H SOLIDITY 23X
5H WHIRL 5X

X16H DELTA B, IN - 3X 8HSOLIDITY/11X 7PROFILE 4X

X16H LET TO SHOCK 33X 8HVELOCITY 3X 16H LET TO SHOCK//)

This option is triggered by the integer 4 in columns 21-25 of Data Card number 5. Suitable descriptive corrections concerning this option should be entered on pages D-3 (under heading "Col. 21-25") and D-10 (under "Card Type 20").