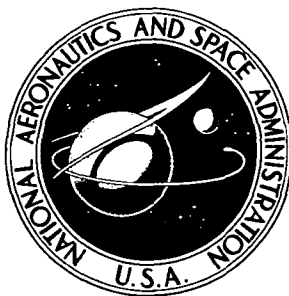


**NASA TECHNICAL
MEMORANDUM**



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**EFFECT OF DAMPER ON OVERALL AND
BLADE-ELEMENT PERFORMANCE OF
A COMPRESSOR ROTOR HAVING A TIP SPEED
OF 1151 FEET PER SECOND AND
AN ASPECT RATIO OF 3.6**

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Cleveland, Ohio 44135



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SUMMARY

The overall and blade-element performance of two configurations of a moderately high aspect ratio transonic compressor rotor are presented. The design tip speed is 1151 feet per second, the aspect ratio (ratio of average blade height to the hub radial projected chord) is 3.6, and the inlet hub-tip radius ratio is 0.40. The subject rotor was fabricated with conventional mechanical dampers located 27 percent of the blade height from the tip. The performance is compared with that of a rotor configuration using dual wire friction dampers at the 10-percent span location. Data for both rotors were obtained for a range of speeds from 50 to 100 percent of design speed.

At design speed the subject rotor achieved a pressure ratio of 1.52 and efficiency of 0.89 at a near design weight flow of 72.1 pounds per second ($40.0 \text{ (lb/sec)/ft}^2$ of annulus area). The rotor with wire dampers gave consistently higher pressure ratio at each speed, but efficiencies for the two rotors were about the same. Stall margin for the subject rotor was 20.4 percent, but for the wire damped rotor only 4.0 percent.

INTRODUCTION

The Lewis Research Center of the National Aeronautics and Space Administration is engaged in a research program on axial-flow fans and compressors for advanced air breathing engines. This program is directed primarily toward providing the technology to permit reducing the size and weight of fans and compressors while maintaining a high level of performance. One method of reducing the axial length and therefore the size and weight of compressors is to use high aspect ratio blading.

In support of this program two transonic rotors were designed and tested to investigate the effects of aspect ratio on compressor range and efficiency. One of these rotors

has blading of high aspect ratio (6.5), and the other rotor has a more moderate aspect ratio of 3.6. Both rotors were designed for a pressure ratio of 1.53, a rotor tip speed of 1120 feet per second, and a rotor tip solidity of 1.3. The variation in aspect ratio was based on a change in aerodynamic chord, and the solidity was kept the same by varying the number of blades. Overall and blade-element performance for the high aspect ratio rotor is presented in reference 1.

The original design configuration of the rotor with an aspect ratio of 3.6 had no blade vibration dampers. Initial testing of this configuration indicated high bending stresses with some blade failures. Continued testing was accomplished by installation of tandem-laced wire friction dampers near the blade tip as reported in reference 2. This configuration was designated rotor 1. The blade design was also fabricated with conventional blade dampers and this configuration is identified as rotor 1 - mod 1 and is the subject rotor of this report. The aerodynamic design and the overall and blade-element performance of this rotor over the stable operating flow range from 50 to 100 percent of design speed is presented. The overall and the radial distribution of the blade-element performance for rotor 1 - mod 1 is compared with that for rotor 1.

AERODYNAMIC DESIGN

The flow path for rotor 1 - mod 1 is shown in figure 1. The rotor tip diameter is 20 inches, and the design tip speed is 1151 feet per second. The rotor was designed for a pressure ratio of 1.53, an efficiency of 0.923, and a weight flow of 73.9 pounds per second ($40.33 \text{ (lb/sec)/ft}^2$ of annulus area). The aspect ratio (ratio of average blade height to axial projection of chord at hub) is 3.6. The design parameters for rotor 1 - mod 1 (and rotor 1) are presented in tables I to III. The velocity diagrams were calculated based on the equations of motion, energy, and continuity. Effects of streamline curvature, entropy, and enthalpy gradients were included in the calculation of the velocity diagrams.

The rotor inlet and exit blade angles (table III) were obtained in the following manner: Velocity diagram calculations were made at two axial stations approximating the rotor-blade leading- and trailing-edge locations. The streamline curvatures at the hub and tip for each of the two calculation stations were determined from the flow path and assumed to vary linearly with radius. Using these velocity diagrams and double-circular-arc airfoil geometry, incidence and deviation angles were determined, based on a correlation of low-speed two-dimensional cascade data from reference 3.

APPARATUS AND PROCEDURE

Test Facility

A schematic of the test facility is shown in figure 2. Air enters the test facility at an inlet located on the roof of the building. The air passes through a flow measuring station consisting of a thin-plate orifice, through an inlet throttle valve, and then into a plenum chamber. The air then passes through the test section and into a collector and is exhausted to the atmosphere. A 15 000-horsepower synchronous motor and gearbox are used to drive the research compressor rotor.

Test Rotor

This rotor design is tested with two types of blade dampers: two wires at the 10-percent streamline (fig. 3(a)) and integral blade-to-blade dampers at the 27-percent streamline (fig. 3(b)). The wire dampers are 0.063-inch-diameter 700 series Inconel, and each hoop is in three circumferential segments. The machined dampers are one fourth blade chord long and have a maximum thickness of 0.080 inch. It was calculated that the rotor blades without wires or mechanical dampers would untwist about 2.5° at design speed.

Instrumentation

The axial locations of survey instrumentation are shown in figure 1 and the circumferential locations are shown in figure 4. In the plenum chambers two pressure taps and two thermocouples, were installed to measure plenum pressure and temperature. At the rotor inlet (station 1) a wedge probe (fig. 5) was used to measure static pressure. At the rotor outlet (station 2) two combination probes (fig. 6) were used to measure total pressure, total temperature, and flow angle. Static pressure at station 2 was measured by two wedge probes. One inner-wall and one outer-wall static-pressure tap were provided at each of the survey planes. A hot film probe was located at the inlet survey plane for use in determining stall.

Strain gage transducers were used in measuring pressures. Iron/constantan thermocouples were used in conjunction with a constant temperature (610° R) oven to determine temperature. Flow through the compressor was determined from a thin-plate orifice measurement.

Compressor speed was indicated with the use of a magnetic pickup in conjunction with a gear mounted on the drive-motor shaft. All data were measured by an automatic

digital potentiometer and recorded on paper tape. The overall accuracy of the measurements is estimated to be

Inlet pressure, psi	±0.05
Outlet pressure, psi	±0.10
Temperature, °R	±1.0
Weight flow, lb/sec	±1.0
Speed, rpm	±50
Flow angle, deg	±2

An indication of the consistency of the data can be observed by comparing the integrated weight flow at each measuring station with the orifice weight flow in tables IV and V.

Test Procedure

Compressor test data were taken over a range of weight flows from maximum flow to stall conditions. For each weight flow measurements were recorded at 11 radial positions. Data were obtained at 50 to 100 percent of design speed.

All probes were inserted into the flow stream simultaneously in obtaining the data. The stall points were established by increasing the back pressure on the compressor until a rapid fluctuation was noted in the signal from a hot film gage located at the rotor inlet. Also fluctuations in compressor discharge pressure and blade stress were observed when stall was encountered. The flow at which this condition occurred was indicated on an X-Y plotter, which recorded the compressor discharge pressure as a function of weight flow. When the stalled conditions were noted, the discharge throttle was immediately opened. The weight flow was then set to within 1 pound of the weight flow at which stall occurred to obtain the blade-element performance near stall.

Calculation Procedure

Measured outlet total temperature and total pressures were corrected for Mach number and streamline slope. The stream static pressure was corrected for Mach number and streamline slope based on an average calibration of the probes used. The corrected static pressure in the hub region at the rotor exit differed significantly from the measured inner wall static pressure. This difference is attributed to the combination of high streamline slopes and high Mach numbers in the hub region. Consequently, the outlet static pressures in the hub region used for data calculations were obtained from fairing between the corrected static pressure at 70 percent of span and the measured inner wall static pressure.

. Overall total pressure and total temperature ratios were obtained from a mass average of the survey data at the rotor exit and the pressure and temperature measured in the inlet plenum.

The overall performance and the blade-element performance were calculated in accordance with the performance equations as defined in appendix A. The blade-element data are based on the calculated flow parameters at planes approximating the blade leading and trailing edges.

The translation of flow parameters from the measuring stations to the blade leading- and trailing-edge planes were made using the following assumptions: The actual radii and slopes of the streamlines were assumed to correspond to those of the design streamlines shown in table II. The total pressure, total temperature, and angular momentum of flow along any given streamline were assumed to be constant between the measuring station and the blade edge. The ratio of the weight flow per unit area (static density times axial velocity) at the measuring station to the weight flow per unit area at the blade edge along any given streamline was assumed to equal the value calculated from the flow parameters in design. The calculation of the flow parameters at the blade edges permits more accurate calculation of incidence angles, deviation angles, and such parameters as diffusion factor.

RESULTS AND DISCUSSION

The overall performance for the rotor is presented first. Radial distributions of several performance parameters are then presented for the rotor followed by the blade-element data. Finally, a brief comparison of both the overall performance and the radial distribution of several performance parameters for rotor 1 and for rotor 1 - mod 1 is given

All of the plotted data, together with some additional performance parameters for rotor 1 and rotor 1 - mod 1 are listed in tabular form. The overall performance data are presented in tables IV and V, and the blade-element data are presented in tables VI and VII, respectively. The abbreviations and units used for the tabular data are defined in appendix C.

Overall Performance

The overall performance for rotor 1 - mod 1 for 50 to 100 percent of design speed is presented in figure 7. At design speed the peak pressure ratio for this rotor is 1.52 and occurs at a weight flow of 72.1 pounds per second. The efficiency at this flow is 0.89.

These results compare favorably with the design pressure ratio of 1.53, a weight flow of 73.9 pounds per second, and an efficiency of 0.92. Stall margin at design speed was 20.4 percent based on the equivalent weight flow and pressure ratio at which peak efficiency occurred as compared with the values just before stall. A peak efficiency of about 0.90 was obtained for each speed less than design speed.

Radial Distributions

The radial distributions of selected flow and performance parameters for rotor 1 - mod 1 are shown in figure 8. The results are presented for three flow rates at design speed. The data shown represent the flow conditions at near stall, peak efficiency, and near choke. The design values are shown by solid symbols. Temperature-rise efficiency, temperature ratio, pressure ratio, suction-surface incidence angle, meridional velocity ratio, deviation angle, total-loss parameter, total-loss coefficient, and diffusion factor are presented as functions of percent span from the blade tip.

At peak efficiency weight flow the total pressure ratio is close to design values except in the region of the damper and the rotor tip. The energy input (temperature ratio) is higher than design at the 5- and 10-percent span positions and in the blade damper region. Correspondingly, the rotor efficiency is lower than design in these locations. The diffusion factor was less than design from 40 percent span to the rotor hub principally because of the increase in velocity ratio at these span locations. The near-stall curves will be discussed later when the results are compared with those for rotor 1.

Variations With Incidence Angle

The variations of selected blade-element parameters with suction-surface incidence angle for rotor 1 - mod 1 are presented in figure 9. The data are presented for 60, 80, and 100 percent of design speed for blade-element locations of 5, 10, 20, 30, 50, 70, and 90 percent span from the blade tip. Design values are shown by solid symbols.

For design speed, the incidence angle at which minimum loss occurred, was near the design incidence angle (0°) for all blade elements except at the 90-percent span location. At 90-percent span the minimum loss occurred at the minimum measured incidence angle of 2° which is also the choke flow test point. Based on the high value of meridional velocity ratio corresponding to this point, the flow is apparently displaced toward the hub as choking flow is approached, accounting for the reduced loss for this condition. The level of loss at design speed and zero incidence angle at the 5-, 10-, and 30-percent span locations is higher than design values but is comparable to design at all other span loca-

tions. The effect of the blade damper on losses is evident at the 30-percent span location where the level is high for all speeds. In general, the diffusion factor increases with increasing incidence, as expected. However, at design speed in the tip region (5.0 and 10.0 percent span) and also at 70-percent span, the loading (diffusion factor) peaks at high flow and gradually reduces with increasing incidence angle. This is probably the result of a redistribution of flow caused by losses and blockage in the damper region.

Comparison of Performance for Rotor 1 and Rotor 1 - mod 1

The overall performance and radial distributions of several performance parameters for rotor 1 and rotor 1 - mod 1 are compared. The overall performance for the two rotors is compared in figure 10 where both the total pressure ratio and the total temperature ratio for rotor 1 exceed those of rotor 1 - mod 1 over the range of weight flows for the three speeds shown. The peak efficiency at 90 and 100 percent of design speed was about the same for both rotor configurations but occurred at different weight flows. Both the maximum and the peak efficiency weight flow for rotor 1 is larger than that for rotor 1 - mod 1. The increased flow and increased temperature ratio for a given flow for rotor 1 is probably due largely to blade untwist. The data for rotor 1 mod 1 indicate that at design speed a change in flow of 2.5 pounds per second corresponds to a change in incidence angle of about 1° in the tip region. Thus the difference in choking weight flow of 1.0 pound per second between the two configurations could be caused by blade untwist of the rotor 1 blades of less than 1° . Rotor 1 stalled at a higher weight flow than rotor 1 - mod 1. Stall margin for rotor 1 at design speed is only 4 percent.

Comparison of Radial Variations of Performance Parameters

The radial distributions of selected flow and performance parameters at design speed for the two rotors are shown in figure 11. The data presented are for peak efficiency points and may be compared with design values (dashed lines). The peak efficiency points for this comparison are for differing flow rates: rotor 1 - mod 1, 72.1 pounds per second; rotor 1, 76.0 pounds per second; and design, 73.9 pounds per second. The effects of wire dampers (rotor 1) and conventional dampers (rotor 1 - mod 1) on the aerodynamic performance are indicated by the drop in total pressure and increase in temperature ratio in the region of the dampers. For rotor 1 the losses in the wire-damper region are particularly large. The higher energy level, pressure ratio, and efficiency for this rotor from the wire-damper region to the rotor hub result from the improved incidence and deviation angles obtained with the higher flow.

Rotor 1 - mod 1 exhibits a considerable decrease in flow rate before stall is encountered, whereas the stall flow rate for rotor 1 is only slightly below that for peak efficiency (fig. 10). The radial distributions of diffusion factor, total loss coefficient, and meridional velocity ratio for the near stall operation of these rotors at design speed are compared in figure 12. Equivalent values of weight flow for these plots are 58.5 pounds per second for rotor 1 - mod 1 and 74.3 pounds per second for rotor 1.

The near stall flow condition for rotor 1 - mod 1 is characterized by very high loading and losses in the region of the dampers. The meridional velocity ratio is very low in the damper region, but substantially increased in the tip region, indicating a considerable redistribution of flow. As a result the diffusion factor in the tip region is reduced to about 0.4. This rotor apparently stalls first in the region of the dampers. For rotor 1, the maximum diffusion factor occurs in the region of the wire dampers, but there is no appreciable displacement of the flow. Thus, even though the weight flow at stall is considerably higher, the diffusion factor in the tip region for rotor 1 is greater than that for rotor 1 - mod 1. Apparently the conventional midspan dampers of rotor 1 - mod 1 cause a flow displacement into the tip region that postpones the onset of stall as flow is decreased.

SUMMARY OF RESULTS

The overall and blade-element performances of an experimental compressor rotor having an aspect ratio of 3.6 has been presented. The subject rotor (rotor 1 - mod 1) had conventional blade dampers. Performance is compared with a similar rotor having wire dampers (rotor 1). The following principal results were obtained:

1. For rotor 1 - mod 1, at design speed and near-design weight flow of 72.1 pounds per second, the measured pressure ratio was 1.52 and a peak efficiency of 0.89 was obtained.

2. Radial surveys indicated that at the peak efficiency weight flow the design efficiency was obtained over the blade height except in the damper and tip regions.

3. For all speeds presented, a higher pressure ratio was obtained over the entire flow range with rotor 1 having wire dampers than that for rotor 1 - mod 1 with conventional dampers. Efficiencies for the two rotors were very nearly the same.

4. The stall margin for rotor 1 - mod 1 was 20.4 percent as compared with 4.0 percent for rotor 1. Apparently, the conventional dampers caused a redistribution of flow which reduced the diffusion factor in the tip region.

Lewis Research Center,

National Aeronautics and Space Administration,

Cleveland, Ohio, January 15, 1974,

501-24.

APPENDIX A

SYMBOLS

A_{an}	annulus area at rotor inlet, 1.833 ft ²
A_{fr}	frontal area at rotor inlet, 2.182 ft ²
C_p	specific heat at constant pressure, 0.24 Btu/(lb)(°R)
D	diffusion factor
g	acceleration of gravity, 32.18 ft/sec ²
i_{mc}	incidence angle, angle between inlet air direction and line tangent to blade mean camber line at leading edge, deg
i_{ss}	incidence angle, angle between inlet air direction and line tangent to blade suction surface at leading edge, deg
J	mechanical equivalent of heat, 778.16 ft-lb/Btu
N	rotor speed, rpm
P	total pressure, psia
p	static pressure, psia
R	gas constant, 53.35 ft-lb/(lb)(°R)
r	radius, in.
SM	stall margin
T	total temperature, °R
U	rotor speed, ft/sec
V	air velocity, ft/sec
W	weight flow, lb/sec
x-factor	ratio of suction-surface camber ahead of assumed shock location of multiple-circular-arc blade section to that of a double-circular-arc blade section
Z	displacement along compressor axis, in.
α_c	cone angle, deg
α_s	streamline slope, deg
β	air angle, angle between air direction and meridional plane, deg

β'_c	relative meridional air angle based on cone angle, $\arctan(\tan \beta'_m \cos \alpha_c / \cos \alpha_s)$, deg
γ	ratio of specific heats, 1.40 Btu/(lb)(^o R)
γ_b	blade setting angle, deg
δ	ratio of plenum total pressure to standard pressure of 14.69 psia
δ^o	deviation angle, angle between exit air direction and tangent to blade mean camber line at trailing edge, $(\beta'_c)_{TE} - (\kappa_{mc})_{LE}$, deg
η	efficiency
θ	ratio of plenum total temperature to standard temperature of 518.7 ^o R
κ_{mc}	angle between blade mean camber line at leading or trailing edge and meridional plane, deg
κ_{ss}	angle between blade suction-surface camber line at leading edge and meridional plane, deg
σ	solidity, ratio of chord to spacing
$\bar{\omega}$	total loss coefficient
$\bar{\omega}_p$	profile loss coefficient
$\bar{\omega}_s$	shock loss coefficient
Subscripts:	
ad	adiabatic (temperature, rise)
id	ideal
LE	leading edge
m	meridional direction
mom	momentum rise
TE	blade trailing edge
θ	tangential direction
Superscript:	
'	relative to rotor

APPENDIX B

PERFORMANCE PARAMETERS

The performance parameters referred to in the main text are defined as follows:

Incidence angle based on suction-surface blade angle:

$$i_{ss} = (\beta'_c)_{LE} - (\kappa_{ss})_{LE} \quad (B1)$$

Incidence angle based on mean blade angle:

$$i_{mc} = (\beta'_c)_{LE} - (\kappa_{mc})_{LE} \quad (B2)$$

Deviation:

$$\delta^0 = (\beta'_c)_{TE} - (\kappa_{mc})_{TE} \quad (B3)$$

Diffusion factor:

$$D = 1 - \frac{V'_{TE}}{V'_{LE}} + \left| \frac{(rV'_\theta)_{TE} - (rV'_\theta)_{LE}}{(r_{LE} + r_{TE})\sigma V'_{LE}} \right| \quad (B4)$$

Total loss coefficient:

$$\bar{\omega} = \frac{(P'_{id})_{TE} - p'_{TE}}{P'_{LE} - p_{LE}} \quad (B5)$$

Profile loss coefficient:

$$\bar{\omega}_p = \bar{\omega} - \bar{\omega}_s \quad (B6)$$

Total loss parameter:

$$\frac{\bar{\omega} \cos(\beta'_m)_{TE}}{2\sigma} \quad (B7)$$

Profile loss parameter:

$$\frac{(\omega - \omega_s) \cos(\beta'_m)_{TE}}{2\sigma} \quad (B8)$$

Adiabatic efficiency:

$$\eta_{ad} = \frac{\left(\frac{P_{TE}}{P_{LE}}\right)^{(\gamma-1)/\gamma} - 1}{\frac{T_{TE}}{T_{LE}} - 1} \quad (B9)$$

Stall margin:

$$SM = \left[\frac{\left(\frac{P_{TE}}{P_{LE}}\right)_{STALL} \times \left(\frac{W\sqrt{\theta}}{\delta}\right)_{REF}}{\left(\frac{P_{TE}}{P_{LE}}\right)_{REF} \times \left(\frac{W\sqrt{\theta}}{\delta}\right)_{STALL}} - 1 \right] \times 100 \quad (B10)$$

Momentum rise efficiency:

$$\eta_{mom} = \frac{\left(\frac{P_{TE}}{P_{LE}}\right)^{(\gamma-1)/\gamma} - 1}{\frac{(UV_\theta)_{TE} - (UV_\theta)_{LE}}{T_{LE} g_{JC} p}} \quad (B11)$$

Equivalent weight flow:

$$\frac{W\sqrt{\theta}}{\delta} \quad (B12)$$

Equivalent rotative speed:

$$\frac{N}{\sqrt{\theta}} \quad (\text{B13})$$

Equivalent weight flow per unit annulus area:

$$\frac{W\sqrt{\theta}}{A_{\text{an}}\delta} \quad (\text{B14})$$

Equivalent weight flow per unit frontal area:

$$\frac{W\sqrt{\theta}}{A_{\text{fr}}\delta} \quad (\text{B15})$$

APPENDIX C

DEFINITIONS AND UNITS USED IN TABLES

ABS	absolute
AERO CHORD	aerodynamic chord, in.
AREA RATIO	ratio of actual flow area to critical area (where local Mach number is 1)
BETAM	meridional air angle, deg
CONE ANGLE	angle between axial direction and conical surface representing blade element, deg
DELTA INC	difference between mean camber blade angle and suction-surface blade angle, deg
DEV	deviation angle (defined by eq. (B3)), deg
D-FACT	diffusion factor (defined by eq. (B4))
EFF	adiabatic efficiency (defined by eq. (B9))
IN	inlet (leading edge of blade)
INCIDENCE	incidence angle (suction surface defined by eq. (B1) and mean defined by eq. (B2))
KIC	angle between blade mean camber line and meridional plane at leading edge, deg
KOC	angle between blade mean camber line and meridional plane at trailing edge, deg
KTC	angle between blade mean camber line and meridional plane at transition point, deg
LOSS COEFF	loss coefficient (total defined by eq. (B5) and profile defined by eq. (B6))
LOSS PARAM	loss parameter (total defined by eq. (B7) and profile defined by eq. (B8))
MERID	meridional
MERID VEL R	meridional velocity ratio
OUT	outlet (trailing edge of blade)
PERCENT SPAN	percent of blade span from tip at rotor outlet

PHISS	suction-surface camber ahead of assumed shock locagion, deg
PRESS	pressure, psia
PROF	profile
RADII	radius, in.
REL	relative to blade
RI	inlet radius (leading edge plane), in.
RO	outlet radius (trailing edge plane), in.
RP	radial position
RPM	equivalent rotative speed, rpm
SETTING ANGLE	angle between aerodynamic chord and meridional plane, deg
SOLIDITY	ratio of aerodynamic chord to blade spacing
SPEED	speed, ft/sec
SS	suction surface
STREAMLINE SLOPE	slope of streamline, deg
TANG	tangential
TEMP	temperature, °R
TI	thickness of blade at leading edge, in.
TM	thickness of blade at maximum thickness, in.
TO	thickness of blade at trailing edge, in.
TOT	total
TOTAL CAMBER	difference between inlet and outlet blade mean camber line, deg
VEL	velocity, ft/sec
WT FLOW	equivalent weight flow, lbm/sec
X FACTOR	ratio of suction-surface camber ahead of assumed shock loca- tion of multiple-circular-arc blade section to that of double- circular-arc blade section
ZMC	axial distance to blade maximum thickness point from inlet, in.
ZOC	axial distance to blade trailing edge from inlet, in.
ZTC	axial distance to transition point from inlet, in.

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TABLE I. - DESIGN OVERALL PARAMETERS

FOR ROTOR 1 - MOD 1

TOTAL PRESSURE RATIO	1.530
TOTAL TEMPERATURE RATIO	1.140
EFFICIENCY	0.923
WT FLOW PER UNIT FRONTAL AREA	33.873
WT FLOW PER UNIT ANNULUS AREA	40.325
WT FLOW	73.900
RPM	13190.000
TIP SPEED	1151.045

TABLE II. - DESIGN BLADE ELEMENT PARAMETERS FOR

ROTOR 1 - MOD 1

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
TIP	10.000	9.900	0.	31.7	62.4	47.9	518.7	1.147	14.69	1.530
1	9.730	9.657	-0.	32.9	60.9	47.5	518.7	1.146	14.69	1.530
2	9.442	9.413	-0.	34.1	59.4	46.8	518.7	1.145	14.69	1.530
3	8.883	8.927	0.	36.2	56.8	44.5	518.7	1.143	14.69	1.530
4	8.740	8.810	0.	36.7	56.2	43.7	518.7	1.142	14.69	1.530
5	8.604	8.684	0.	37.1	55.6	42.8	518.7	1.142	14.69	1.530
6	8.460	8.560	0.	37.6	55.1	41.9	518.7	1.141	14.69	1.530
7	8.313	8.430	0.	38.1	54.5	40.9	518.7	1.141	14.69	1.530
8	8.160	8.300	0.	38.5	53.9	39.8	518.7	1.141	14.69	1.530
9	7.193	7.467	0.	41.4	50.3	30.8	518.7	1.139	14.69	1.530
10	5.991	6.494	0.	44.4	45.4	15.6	518.7	1.138	14.69	1.530
11	4.630	5.521	0.	45.0	39.2	-3.0	518.7	1.136	14.69	1.530
HUB	4.000	5.050	0.	43.5	37.4	-11.1	518.7	1.134	14.69	1.530

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TIP	600.6	776.2	1298.3	986.2	600.6	660.7	0.	407.4	1151.0	1139.5
1	622.6	761.5	1281.4	946.3	622.6	639.3	-0.	413.8	1120.0	1111.6
2	642.2	751.0	1262.4	908.5	642.2	621.8	-0.	421.1	1086.8	1083.5
3	669.1	742.5	1221.9	840.0	669.1	599.1	0.	438.7	1022.5	1027.5
4	673.6	743.0	1210.7	825.1	673.6	596.0	0.	443.6	1006.0	1014.1
5	677.0	744.4	1199.6	809.7	677.0	593.7	0.	449.0	990.4	999.6
6	679.9	745.7	1187.7	794.4	679.9	591.1	0.	454.5	973.8	985.3
7	682.6	747.2	1175.4	778.5	682.6	588.4	0.	460.6	956.9	970.3
8	684.6	749.3	1162.3	762.9	684.6	586.1	0.	466.9	939.3	955.4
9	686.5	775.3	1075.5	677.0	686.5	581.4	0.	512.8	827.9	859.5
10	680.9	831.5	969.1	616.4	680.9	593.8	0.	582.1	689.6	747.5
11	653.7	948.0	843.4	671.2	653.7	670.3	0.	670.4	532.9	635.5
HUB	602.5	1067.1	758.3	789.5	602.5	774.6	0.	733.9	466.4	581.3

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		STREAMLINE SLOPE		MERID PEAK SS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
TIP	0.554	0.678	1.198	0.862	0.554	0.577	-1.50	-1.50	1.100	1.513
1	0.576	0.665	1.185	0.826	0.576	0.558	-0.70	-0.70	1.027	1.507
2	0.595	0.655	1.170	0.793	0.595	0.542	0.25	0.10	0.968	1.499
3	0.622	0.648	1.136	0.733	0.622	0.523	1.80	1.80	0.895	1.491
4	0.627	0.648	1.126	0.720	0.627	0.520	2.40	2.30	0.885	1.489
5	0.630	0.650	1.116	0.707	0.630	0.518	2.70	2.65	0.877	1.491
6	0.633	0.651	1.106	0.694	0.633	0.516	3.30	3.10	0.869	1.487
7	0.636	0.653	1.095	0.680	0.636	0.514	3.85	3.70	0.862	1.489
8	0.638	0.655	1.083	0.667	0.638	0.512	4.40	4.20	0.856	1.491
9	0.640	0.680	1.002	0.594	0.640	0.510	8.85	8.30	0.847	1.502
10	0.634	0.735	0.902	0.545	0.634	0.525	16.15	15.85	0.872	1.319
11	0.607	0.853	0.783	0.604	0.607	0.603	27.00	28.80	1.025	1.099
HUB	0.556	0.980	0.700	0.725	0.556	0.711	29.00	37.10	1.286	0.937

RP	PERCENT SPAN	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
		MEAN	SS				TOT	PROF	TOT	PROF
TIP	0.	2.9	-0.3	1.5	0.360	0.881	0.088	0.034	0.023	0.009
1	5.01	3.2	-0.1	1.7	0.382	0.887	0.084	0.033	0.021	0.008
2	10.04	3.4	-0.0	1.8	0.402	0.894	0.080	0.033	0.020	0.008
3	20.06	3.8	0.1	2.2	0.437	0.906	0.074	0.032	0.018	0.008
4	22.47	3.8	0.1	2.2	0.443	0.908	0.072	0.032	0.018	0.008
5	25.07	3.9	0.2	2.4	0.451	0.911	0.071	0.032	0.017	0.008
6	27.63	3.9	0.1	2.9	0.458	0.914	0.070	0.032	0.017	0.008
7	30.31	4.0	0.1	3.1	0.465	0.917	0.068	0.032	0.017	0.008
8	32.99	4.1	0.2	3.4	0.474	0.919	0.067	0.032	0.017	0.008
9	50.16	4.5	0.2	4.4	0.508	0.932	0.063	0.035	0.015	0.008
10	70.23	5.4	0.3	5.5	0.515	0.938	0.066	0.062	0.015	0.014
11	90.29	5.1	-1.3	7.5	0.368	0.947	0.070	0.070	0.013	0.013
HUB	100.00	4.3	-2.8	10.7	0.149	0.963	0.058	0.058	0.010	0.010

TABLE III. - BLADE GEOMETRY FOR

ROTOR 1 - MOD 1

RP	PERCENT		RADII		BLADE ANGLES			DELTA INC
	SPAN	RI	RO	KIC	KTC	KOC		
TIP	0.	10.000	9.900	59.46	52.90	46.35	3.21	
1	5.	9.730	9.657	57.70	51.81	45.80	3.31	
2	10.	9.442	9.413	56.00	50.54	45.00	3.43	
3	20.	8.883	8.927	53.05	47.75	42.30	3.64	
4	22.	8.740	8.810	52.40	46.97	41.50	3.70	
5	25.	8.604	8.684	51.70	46.21	40.40	3.75	
6	28.	8.460	8.560	51.20	45.37	39.00	3.80	
7	30.	8.313	8.430	50.50	44.48	37.80	3.87	
8	33.	8.160	8.300	49.80	43.52	36.40	3.92	
9	50.	7.193	7.467	45.70	36.53	26.30	4.33	
10	70.	5.991	6.494	39.90	25.27	10.00	5.09	
11	90.	4.630	5.521	33.45	10.69	-10.50	6.38	
HUB	100.	4.000	5.050	30.78	4.42	-21.94	7.07	

RP	BLADE THICKNESSES			AXIAL DIMENSIONS			CONE ANGLE
	TI	TM	TO	ZMC	ZTC	ZOC	
TIP	0.020	0.073	0.020	0.501	0.501	1.084	-3.800
1	0.020	0.074	0.020	0.520	0.520	1.116	-2.100
2	0.020	0.075	0.020	0.540	0.540	1.149	-0.900
3	0.020	0.078	0.020	0.574	0.574	1.215	1.600
4	0.020	0.078	0.020	0.582	0.582	1.231	2.300
5	0.020	0.079	0.020	0.589	0.589	1.248	2.900
6	0.020	0.080	0.020	0.597	0.597	1.265	3.700
7	0.020	0.081	0.020	0.604	0.604	1.282	4.400
8	0.020	0.082	0.020	0.612	0.612	1.300	5.100
9	0.020	0.089	0.020	0.659	0.659	1.409	10.100
10	0.020	0.103	0.020	0.710	0.710	1.513	16.900
11	0.020	0.127	0.020	0.720	0.720	1.506	29.600
HUB	0.020	0.143	0.020	0.686	0.686	1.398	36.600

RP	AERO SETTING TOTAL			X		
	CHORD	ANGLE	CAMBER	SOLIDITY	FACTOR	PHISS
TIP	1.823	52.91	13.11	1.300	1.000	9.05
1	1.827	51.77	11.90	1.333	1.000	9.01
2	1.827	50.51	11.00	1.371	1.000	9.05
3	1.826	47.70	10.75	1.452	1.000	9.45
4	1.825	46.95	10.90	1.474	1.000	9.63
5	1.824	46.11	11.30	1.496	1.000	9.79
6	1.821	45.22	12.20	1.522	1.000	10.00
7	1.819	44.30	12.70	1.545	1.000	10.23
8	1.816	43.30	13.40	1.556	1.000	10.45
9	1.806	36.25	19.40	1.762	1.000	11.76
10	1.811	25.11	29.90	2.072	1.000	12.97
11	1.880	11.02	43.95	2.640	1.000	12.91
HUB	1.822	4.42	52.72	2.840	1.000	12.49

TABLE IV. - OVERALL PERFORMANCE FOR ROTOR 1

(a) 70 Percent of design speed

Parameter	Reading						
	153	154	155	156	157	158	159
TOTAL PRESSURE RATIO	1.247	1.256	1.224	1.205	1.181	1.150	1.127
TOTAL TEMPERATURE RATIO	1.072	1.067	1.064	1.060	1.058	1.050	1.042
TEMP RISE EFFICIENCY	0.908	0.926	0.921	0.914	0.887	0.859	0.822
MOMENTUM RISE EFFICIENCY	0.887	0.902	0.917	0.898	0.881	0.911	0.827
WT FLOW PER UNIT FRONTAL AREA	23.666	25.433	26.879	28.535	29.921	30.291	30.481
WT FLOW PER UNIT ANNULUS AREA	28.365	30.483	32.216	34.201	35.863	36.306	36.833
WT FLOW AT ORIFICE	81.116	84.932	88.056	91.632	94.627	95.425	95.835
WT FLOW AT INLET	81.041	84.937	88.192	91.762	94.347	95.118	95.828
WT FLOW AT OUTLET	80.798	84.727	88.059	91.447	94.450	95.322	95.644
RPM	9293.902	9246.969	9255.714	9246.828	9260.787	9249.538	9248.907
PERCENT OF DESIGN SPEED	70.188	70.186	70.172	70.185	70.210	70.128	70.121

(b) 90 Percent of design speed

Parameter	Reading						
	172	173	174	175	176	177	178
TOTAL PRESSURE RATIO	1.281	1.325	1.410	1.458	1.452	1.461	1.462
TOTAL TEMPERATURE RATIO	1.087	1.097	1.114	1.121	1.126	1.130	1.132
TEMP RISE EFFICIENCY	0.840	0.866	0.904	0.908	0.892	0.881	0.869
MOMENTUM RISE EFFICIENCY	0.802	0.841	0.890	0.902	0.906	0.884	0.879
WT FLOW PER UNIT FRONTAL AREA	35.856	35.787	33.016	31.628	30.451	29.160	28.270
WT FLOW PER UNIT ANNULUS AREA	40.580	40.496	39.573	37.908	36.498	34.951	33.883
WT FLOW AT ORIFICE	75.127	72.976	71.312	68.313	65.772	62.983	61.059
WT FLOW AT INLET	72.384	71.993	70.934	68.172	65.435	62.770	62.376
WT FLOW AT OUTLET	75.386	73.203	71.600	68.854	66.740	63.742	62.685
RPM	11884.427	11864.462	11882.724	11852.021	11862.405	11880.557	11885.333
PERCENT OF DESIGN SPEED	90.102	89.980	90.089	89.932	89.938	90.072	90.109

(c) 100 Percent of design speed

Parameter	Reading				
	179	180	181	183	184
TOTAL PRESSURE RATIO	1.300	1.365	1.397	1.561	1.585
TOTAL TEMPERATURE RATIO	1.096	1.114	1.121	1.153	1.160
TEMP RISE EFFICIENCY	0.808	0.813	0.829	0.886	0.877
MOMENTUM RISE EFFICIENCY	0.761	0.797	0.810	0.894	0.878
WT FLOW PER UNIT FRONTAL AREA	35.302	35.396	35.429	35.197	34.395
WT FLOW PER UNIT ANNULUS AREA	42.312	42.424	42.464	42.187	41.225
WT FLOW AT ORIFICE	76.248	76.451	76.522	76.025	74.289
WT FLOW AT INLET	77.560	77.673	77.751	76.084	74.283
WT FLOW AT OUTLET	76.917	76.635	76.451	76.086	73.593
RPM	13184.856	13193.196	13192.026	13202.036	13205.626
PERCENT OF DESIGN SPEED	99.961	100.024	100.015	100.091	100.118

TABLE V. - OVERALL PERFORMANCE FOR ROTOR 1 - MOD 1

(a) 50 Percent of design speed

Parameter	Reading				
	368	369	370	371	373
Total pressure ratio	1.118	1.113	1.103	1.086	1.026
Total temperature ratio	1.037	1.035	1.031	1.027	1.015
Temperature rise efficiency	0.868	0.894	0.904	0.871	0.481
Momentum rise efficiency	0.896	0.957	0.994	0.010	0.776
Weight flow per unit frontal area	14.898	16.842	18.913	21.335	26.449
Weight flow per unit annulus area	17.857	20.187	22.669	25.572	31.702
Weight flow at orifice	32.178	36.377	40.851	46.082	57.128
Weight flow at inlet	30.367	34.968	39.595	44.950	55.961
Weight flow at outlet	33.534	37.542	41.643	46.467	56.678
Speed, rpm	6 605.446	6 590.883	6 596.380	6 598.789	6 616.183
Percent of design speed	50.079	49.969	50.010	50.029	50.161

(b) 70 Percent of design speed

Parameter	Reading				
	377	379	380	382	383
Total pressure ratio	1.234	1.213	1.181	1.132	1.098
Total temperature ratio	0.847	1.064	1.055	1.045	1.035
Temperature rise efficiency	0.847	0.893	0.885	0.804	0.690
Momentum rise efficiency	0.878	0.959	0.966	0.914	0.851
Weight flow per unit frontal area	21.135	25.546	27.850	29.611	30.136
Weight flow per unit annulus area	25.332	30.619	33.380	35.491	36.121
Weight flow at orifice	45.650	55.177	60.152	63.956	65.092
Weight flow at inlet	44.566	54.327	59.267	63.187	64.216
Weight flow at outlet	47.007	55.954	60.427	63.727	64.337
Speed, rpm	9 209.929	9 222.785	9 212.885	9 209.239	9 198.689
Percent of design speed	69.825	69.923	69.847	69.820	69.740

(c) 80 Percent of design speed

Parameter	Reading				
	408	409	411	412	414
Total pressure ratio	1.118	1.301	1.306	1.288	1.220
Total temperature ratio	1.048	1.095	1.089	1.083	1.067
Temperature rise efficiency	0.674	0.825	0.893	0.906	0.871
Momentum rise efficiency	0.896	0.872	0.939	0.967	0.958
Weight flow per unit frontal area	31.828	23.375	26.545	28.352	31.124
Weight flow per unit annulus area	38.148	28.017	31.816	33.982	37.305
Weight flow at orifice	68.745	50.488	57.334	61.238	67.225
Weight flow at inlet	68.186	51.955	56.996	60.839	66.789
Weight flow at outlet	68.498	53.386	58.843	62.408	67.671
Speed, rpm	10 483.147	10 495.143	10 500.239	10 497.510	10 501.004
Percent of design speed	79.478	79.569	79.608	79.587	79.613

TABLE V. - Concluded. OVERALL PERFORMANCE FOR ROTOR 1 - MOD 1

(d) 90 Percent of design speed

Parameter	Reading				
	388	389	390	392	394
Total pressure ratio	1.178	1.397	1.402	1.389	1.336
Total temperature ratio	1.064	1.122	1.119	1.109	1.097
Temperature rise efficiency	0.749	0.823	0.855	0.905	0.891
Momentum rise efficiency	0.876	0.848	0.884	0.957	0.946
Weight flow per unit frontal area	33.631	25.464	27.402	31.591	33.041
Weight flow per unit annulus area	40.309	30.521	32.843	37.864	39.602
Weight flow at orifice	72.639	55.000	59.185	68.234	71.366
Weight flow at inlet	71.723	53.455	57.879	67.458	70.608
Weight flow at outlet	72.133	57.340	60.927	69.706	72.235
Speed, rpm	11 862.975	11 870.085	11 865.242	11 859.993	11 860.996
Percent of design speed	89.939	89.993	89.956	89.917	89.924

(e) 100 Percent of design speed

Parameter	Reading					
	399	401	402	403	404	407
Total pressure ratio	1.469	1.479	1.506	1.519	1.465	1.319
Total temperature ratio	1.151	1.145	1.147	1.143	1.132	1.101
Temperature rise efficiency	0.767	0.815	0.843	0.888	0.876	0.818
Momentum rise efficiency	0.816	8.830	0.870	0.925	0.923	0.897
Weight flow per unit frontal area	27.077	28.659	30.991	33.371	34.501	34.952
Weight flow per unit annulus area	32.454	34.350	37.145	39.998	41.352	41.893
Weight flow at orifice	58.484	61.901	66.937	72.078	74.519	75.494
Weight flow at inlet	58.100	61.010	66.838	71.801	74.235	75.084
Weight flow at outlet	60.502	63.164	69.969	74.014	76.083	76.128
Speed, rpm	13 125.599	13 114.529	13 133.208	13 146.535	13 158.078	13 161.098
Percent of design speed	99.512	99.428	99.569	99.670	99.758	99.781

TABLE VI. - BLADE-ELEMENT PERFORMANCE FOR ROTOR 1

(a) 70 Percent of design speed; reading 153

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	36.2	62.6	48.0	518.7	559.4	14.69	18.40
2	9.442	9.413	0.	40.8	61.7	47.9	518.7	558.2	14.69	18.21
3	9.302	9.292	0.	44.0	61.0	49.7	518.7	558.1	14.69	17.95
4	9.161	9.170	0.	44.4	60.7	48.5	518.7	558.0	14.69	17.94
5	9.022	9.049	0.	42.3	60.1	45.2	518.7	557.8	14.69	18.17
6	8.883	8.927	0.	36.7	59.5	44.3	518.7	555.5	14.69	18.30
7	8.604	8.684	0.	37.3	58.4	42.3	518.7	554.6	14.69	18.27
8	8.313	8.430	0.	38.0	57.2	39.8	518.7	554.2	14.69	18.27
9	7.193	7.467	0.	40.4	53.8	29.5	518.7	553.9	14.69	18.27
10	5.991	6.494	0.	42.5	50.6	12.8	518.7	553.2	14.69	18.36
11	4.630	5.521	0.	46.7	48.9	-6.3	518.7	550.1	14.69	18.60

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	406.8	523.9	884.4	632.5	406.8	423.0	0.	309.1	785.3	779.4
2	408.8	508.6	863.5	574.0	408.8	385.0	0.	332.4	760.6	758.2
3	416.0	486.5	858.7	541.0	416.0	350.0	0.	337.9	751.2	750.4
4	416.2	492.0	850.2	531.2	416.2	351.8	0.	344.0	741.3	742.0
5	418.4	514.7	839.3	540.4	418.4	380.8	0.	346.3	727.6	729.7
6	425.1	523.6	834.0	586.3	425.1	418.8	0.	315.0	718.7	722.3
7	427.6	527.6	815.8	567.1	427.6	419.7	0.	319.8	694.7	701.2
8	432.3	535.7	798.6	549.0	432.3	422.1	0.	329.9	671.5	681.0
9	425.1	567.5	719.6	491.6	425.1	432.0	0.	368.0	580.6	602.7
10	397.4	621.4	625.7	470.3	397.4	458.5	0.	419.5	483.3	523.9
11	527.0	685.4	497.2	473.3	527.0	470.5	0.	498.4	374.6	446.7

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.369	0.461	0.803	0.557	0.369	0.373	1.040	1.169	0.846
2	0.371	0.448	0.784	0.506	0.371	0.339	0.842	1.162	0.831
3	0.378	0.428	0.780	0.476	0.378	0.308	0.842	1.158	0.773
4	0.378	0.433	0.772	0.467	0.378	0.309	0.845	1.158	0.776
5	0.380	0.454	0.763	0.476	0.380	0.336	0.910	1.149	0.829
6	0.385	0.463	0.758	0.518	0.385	0.371	0.992	1.147	0.912
7	0.389	0.467	0.742	0.502	0.389	0.371	0.981	1.133	0.929
8	0.393	0.475	0.726	0.486	0.393	0.374	0.976	1.119	0.938
9	0.387	0.504	0.654	0.437	0.387	0.384	1.016	1.059	0.945
10	0.361	0.554	0.568	0.420	0.361	0.409	1.154	0.977	0.936
11	0.295	0.614	0.449	0.424	0.295	0.421	1.439	0.817	0.915

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	4.9	1.6	2.2	0.413	0.111	0.111	0.028	0.028
2	9.30	10.04	8.7	2.3	2.9	0.475	0.123	0.123	0.030	0.030
3	11.63	12.54	9.8	2.3	5.1	0.511	0.166	0.166	0.039	0.039
4	13.98	15.05	6.2	2.6	4.7	0.519	0.166	0.166	0.039	0.039
5	16.30	17.55	6.3	2.8	2.0	0.501	0.130	0.130	0.032	0.032
6	18.62	20.06	6.5	2.8	2.0	0.427	0.064	0.064	0.016	0.016
7	23.27	25.07	6.7	2.9	1.9	0.436	0.053	0.053	0.013	0.013
8	28.12	30.31	6.7	2.9	1.9	0.447	0.047	0.047	0.012	0.012
9	46.78	50.16	8.0	3.7	2.1	0.465	0.050	0.050	0.012	0.012
10	66.82	70.23	10.6	5.5	2.8	0.417	0.076	0.076	0.018	0.018
11	89.50	90.29	14.7	8.3	3.5	0.288	0.166	0.166	0.031	0.031

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(b) 70 Percent of design speed; reading 153

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	32.9	60.6	47.7	518.7	554.8	14.69	18.06
2	9.442	9.413	0.	34.8	59.4	47.9	518.7	554.2	14.69	17.81
3	9.302	9.292	0.	38.3	59.0	49.6	518.7	554.0	14.69	17.52
4	9.161	9.170	0.	38.3	58.4	47.7	518.7	554.1	14.69	17.60
5	9.022	9.049	0.	36.8	57.7	44.6	518.7	554.0	14.69	17.83
6	8.883	8.927	0.	33.0	57.4	43.6	518.7	551.0	14.69	17.98
7	8.604	8.684	0.	32.6	56.3	41.7	518.7	551.0	14.69	18.01
8	8.313	8.430	0.	32.6	55.1	39.6	518.7	551.8	14.69	18.03
9	7.193	7.467	0.	36.4	51.6	27.5	518.7	552.3	14.69	18.20
10	5.991	6.494	0.	39.0	47.8	12.8	518.7	554.1	14.69	18.33
11	4.630	5.521	0.	44.5	46.2	-6.2	518.7	558.4	14.69	18.66

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	443.5	532.8	903.0	664.9	443.5	447.6	0.	289.1	786.6	780.7
2	451.3	514.2	897.0	630.2	451.3	422.2	0.	293.5	763.6	761.3
3	451.0	486.6	875.6	588.8	451.0	381.9	0.	301.6	750.5	749.7
4	454.6	499.1	867.4	581.8	454.6	391.5	0.	309.5	738.8	739.5
5	457.7	523.8	857.0	588.8	457.7	419.6	0.	313.6	724.5	726.7
6	457.7	536.0	850.4	621.2	457.7	449.8	0.	291.7	716.6	720.2
7	463.8	543.9	835.2	613.3	463.8	458.1	0.	293.2	694.6	701.0
8	468.6	551.9	819.6	603.6	468.6	465.1	0.	297.1	672.4	681.9
9	459.9	593.9	739.8	538.8	459.9	477.9	0.	352.7	579.4	601.5
10	437.9	649.1	651.7	517.4	437.9	504.5	0.	408.4	482.6	523.2
11	359.2	717.3	518.9	515.1	359.2	512.0	0.	502.3	374.5	446.6

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.404	0.472	0.822	0.589	0.404	0.396	1.009	1.139	0.872
2	0.411	0.455	0.808	0.557	0.411	0.373	0.936	1.133	0.824
3	0.411	0.430	0.798	0.520	0.411	0.337	0.847	1.128	0.757
4	0.414	0.441	0.790	0.514	0.414	0.346	0.861	1.125	0.774
5	0.417	0.464	0.781	0.521	0.417	0.371	0.917	1.113	0.836
6	0.417	0.476	0.775	0.552	0.417	0.400	0.983	1.118	0.952
7	0.423	0.484	0.761	0.545	0.423	0.407	0.988	1.108	0.962
8	0.427	0.491	0.748	0.537	0.427	0.414	0.993	1.098	0.944
9	0.419	0.530	0.674	0.481	0.419	0.426	1.039	1.040	0.972
10	0.398	0.581	0.593	0.463	0.398	0.452	1.152	0.964	0.954
11	0.325	0.645	0.470	0.463	0.325	0.460	1.426	0.811	0.924

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	2.9	-0.4	1.9	0.383	0.080	0.080	0.020	0.020
2	9.30	10.04	3.4	-0.0	2.9	0.410	0.111	0.111	0.027	0.027
3	11.63	12.54	3.7	0.3	5.0	0.451	0.155	0.155	0.036	0.036
4	13.98	15.05	3.9	0.4	3.9	0.456	0.147	0.147	0.035	0.035
5	16.30	17.55	4.0	0.4	1.4	0.441	0.109	0.109	0.027	0.027
6	18.62	20.06	4.4	0.7	1.5	0.388	0.030	0.030	0.007	0.007
7	23.27	25.07	4.6	0.8	1.3	0.384	0.024	0.024	0.006	0.006
8	28.12	30.31	4.6	0.7	1.8	0.382	0.038	0.038	0.010	0.010
9	46.78	50.16	5.8	1.4	1.1	0.409	0.023	0.023	0.006	0.006
10	66.82	70.23	7.8	2.7	2.8	0.363	0.040	0.040	0.012	0.012
11	89.50	90.29	12.0	5.7	3.6	0.207	0.138	0.138	0.026	0.026

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(c) 70 Percent of design speed; reading 155

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	26.8	59.2	48.0	518.7	550.9	14.69	17.67
2	9.442	9.415	0.	30.2	57.9	48.0	518.7	549.9	14.69	17.41
3	9.302	9.292	0.	32.8	57.3	49.6	518.7	549.9	14.69	17.07
4	9.161	9.170	0.	35.0	56.7	48.4	518.7	550.3	14.69	17.11
5	9.022	9.049	0.	31.1	56.1	45.0	518.7	550.3	14.69	17.47
6	8.883	8.927	0.	28.9	55.7	45.6	518.7	549.7	14.69	17.63
7	8.604	8.684	0.	28.2	54.6	41.9	518.7	548.5	14.69	17.70
8	8.313	8.430	0.	28.4	53.4	39.2	518.7	549.3	14.69	17.78
9	7.193	7.467	0.	32.6	49.4	27.3	518.7	551.1	14.69	18.04
10	5.991	6.494	0.	36.8	45.8	11.9	518.7	554.5	14.69	18.31
11	4.630	5.521	0.	41.8	43.8	-5.5	518.7	559.0	14.69	18.75

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	468.6	540.7	914.8	721.4	468.6	482.8	0.	243.6	785.6	779.7
2	477.9	520.4	900.3	671.7	477.9	449.8	0.	261.8	763.0	760.6
3	482.8	490.5	892.7	635.8	482.8	412.1	0.	266.0	750.9	750.1
4	486.1	495.9	886.4	611.7	486.1	406.1	0.	284.5	741.2	741.9
5	490.2	532.6	878.4	645.3	490.2	456.2	0.	274.8	728.9	731.1
6	490.0	548.1	869.1	662.6	490.0	480.0	0.	264.6	717.9	721.4
7	494.8	556.2	853.8	658.2	494.8	490.1	0.	262.9	695.8	702.2
8	499.1	569.9	836.3	647.2	499.1	501.3	0.	271.1	671.0	680.5
9	497.9	618.4	764.5	586.6	497.9	521.2	0.	333.0	580.2	602.3
10	469.7	681.8	674.0	557.9	469.7	545.9	0.	408.5	483.3	523.9
11	390.1	748.3	540.4	560.0	390.1	557.4	0.	499.3	373.9	445.9

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.427	0.481	0.854	0.641	0.427	0.429	1.030	1.115	0.873
2	0.436	0.462	0.822	0.597	0.436	0.400	0.941	1.109	0.826
3	0.441	0.435	0.815	0.564	0.441	0.365	0.854	1.103	0.727
4	0.444	0.440	0.810	0.542	0.444	0.360	0.835	1.103	0.729
5	0.448	0.473	0.803	0.574	0.448	0.406	0.931	1.098	0.832
6	0.448	0.488	0.794	0.590	0.448	0.428	0.980	1.097	0.894
7	0.452	0.496	0.780	0.587	0.452	0.437	0.991	1.091	0.952
8	0.456	0.509	0.765	0.578	0.456	0.448	1.004	1.076	0.949
9	0.455	0.554	0.699	0.525	0.455	0.467	1.047	1.027	0.967
10	0.428	0.612	0.615	0.501	0.428	0.480	1.162	0.959	0.942
11	0.354	0.674	0.480	0.505	0.354	0.502	1.429	0.806	0.928

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	1.5	-1.9	2.2	0.311	0.070	0.070	0.018	0.018
2	9.30	10.04	1.9	-1.5	2.9	0.360	0.095	0.095	0.023	0.023
3	11.63	12.54	2.0	-1.5	5.0	0.395	0.150	0.150	0.035	0.035
4	13.98	15.05	2.2	-1.3	4.6	0.424	0.152	0.152	0.036	0.036
5	16.30	17.55	2.3	-1.3	1.8	0.375	0.097	0.097	0.024	0.024
6	18.62	20.06	2.6	-1.0	1.3	0.343	0.061	0.061	0.015	0.015
7	23.27	25.07	2.9	-0.9	1.5	0.332	0.028	0.028	0.007	0.007
8	28.12	30.31	2.8	-1.0	1.4	0.332	0.031	0.031	0.008	0.008
9	46.78	50.16	3.6	-0.8	0.9	0.359	0.025	0.025	0.006	0.006
10	66.82	70.23	5.8	0.7	1.9	0.324	0.059	0.059	0.014	0.014
11	89.50	90.29	9.6	3.3	4.3	0.154	0.123	0.123	0.023	0.023

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(d) 70 Percent of design speed; reading 156

RP	RADI		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.637	0.	22.2	57.3	48.4	518.7	544.5	14.69	16.99
2	9.442	9.413	0.	24.4	56.4	47.9	518.7	545.5	14.69	16.85
3	9.302	9.292	0.	27.1	55.5	49.9	518.7	544.4	14.69	16.39
4	9.161	9.170	0.	28.7	54.8	49.2	518.7	543.7	14.69	16.32
5	9.022	9.049	0.	26.8	54.5	45.6	518.7	545.5	14.69	16.78
6	8.883	8.927	0.	24.6	53.8	45.3	518.7	544.9	14.69	17.12
7	8.604	8.684	0.	23.2	52.5	41.5	518.7	544.4	14.69	17.27
8	8.313	8.430	0.	24.7	51.4	38.5	518.7	545.7	14.69	17.42
9	7.193	7.467	0.	29.2	47.2	25.8	518.7	549.5	14.69	17.87
10	5.991	6.494	0.	33.6	43.3	11.1	518.7	554.3	14.69	18.26
11	4.630	5.521	0.	40.1	41.6	-6.3	518.7	559.7	14.69	18.79

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	502.6	547.5	931.0	763.1	502.6	506.8	0.	207.3	783.7	777.8
2	507.2	536.0	916.6	727.9	507.2	488.2	0.	221.2	763.5	761.1
3	517.3	494.5	909.3	683.0	517.3	440.4	0.	225.0	747.8	747.0
4	519.7	492.4	900.8	661.0	519.7	432.0	0.	236.3	735.8	736.5
5	524.6	538.1	899.5	686.3	524.6	480.3	0.	242.6	730.7	732.9
6	526.6	566.9	890.9	708.7	526.6	515.6	0.	235.9	718.6	722.2
7	534.8	582.8	878.3	714.9	534.8	535.7	0.	229.8	696.7	703.2
8	536.9	597.5	860.6	693.6	536.9	542.7	0.	250.1	672.7	682.1
9	536.9	660.1	789.7	640.0	536.9	576.1	0.	322.3	579.1	601.2
10	512.3	730.6	704.2	620.4	512.3	608.7	0.	404.1	483.2	523.8
11	419.5	794.9	561.3	611.5	419.5	607.7	0.	512.4	373.0	444.8

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.460	0.490	0.851	0.683	0.460	0.454	1.008	1.079	0.850
2	0.464	0.479	0.839	0.650	0.464	0.436	0.963	1.086	0.770
3	0.474	0.441	0.833	0.609	0.474	0.392	0.831	1.069	0.639
4	0.476	0.439	0.825	0.589	0.476	0.385	0.831	1.066	0.629
5	0.481	0.481	0.824	0.613	0.481	0.429	0.916	1.076	0.748
6	0.483	0.508	0.817	0.635	0.483	0.462	0.979	1.073	0.884
7	0.490	0.523	0.805	0.642	0.490	0.481	1.002	1.066	0.953
8	0.492	0.537	0.789	0.623	0.492	0.487	1.011	1.057	0.955
9	0.493	0.594	0.724	0.576	0.493	0.519	1.073	1.009	0.968
10	0.469	0.660	0.645	0.561	0.469	0.550	1.188	0.951	0.935
11	0.381	0.720	0.510	0.554	0.381	0.551	1.449	0.892	0.919

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	-0.4	-3.7	2.6	0.264	0.065	0.065	0.016	0.016
2	9.30	10.04	0.4	-3.0	2.9	0.294	0.105	0.105	0.026	0.026
3	11.63	12.54	0.1	-3.4	3.2	0.338	0.160	0.160	0.037	0.037
4	13.98	15.05	0.2	-3.3	3.4	0.359	0.162	0.162	0.038	0.038
5	16.30	17.55	0.6	-3.0	2.4	0.331	0.119	0.119	0.029	0.029
6	18.62	20.06	0.7	-2.9	1.0	0.296	0.055	0.055	0.014	0.014
7	23.27	25.07	0.8	-3.0	1.1	0.274	0.023	0.023	0.006	0.006
8	28.12	30.31	0.9	-3.0	0.7	0.289	0.023	0.023	0.006	0.006
9	46.78	50.16	1.4	-3.0	-0.6	0.308	0.022	0.022	0.006	0.006
10	66.82	70.23	3.3	-1.8	1.1	0.263	0.061	0.061	0.014	0.014
11	89.50	90.29	7.5	1.1	3.5	0.099	0.131	0.131	0.025	0.025

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(e) 70 Percent of design speed; reading 157

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	16.3	56.4	49.2	518.7	538.2	14.69	16.15
2	9.442	9.413	0.	18.6	55.0	48.6	518.7	539.4	14.69	16.00
3	9.302	9.292	0.	22.4	54.2	50.4	518.7	539.3	14.69	15.49
4	9.161	9.170	0.	23.4	53.8	51.7	518.7	538.6	14.69	15.24
5	9.022	9.049	0.	22.9	53.1	47.4	518.7	538.5	14.69	15.69
6	8.883	8.927	0.	18.2	52.5	44.2	518.7	540.3	14.69	16.36
7	8.604	8.684	0.	17.6	51.4	41.5	518.7	539.3	14.69	16.69
8	8.313	8.430	0.	18.0	50.1	39.2	518.7	540.8	14.69	16.88
9	7.193	7.467	0.	24.6	48.8	29.9	518.7	547.9	14.69	17.59
10	5.991	6.494	0.	31.6	41.7	9.3	518.7	554.0	14.69	18.28
11	4.630	5.521	0.	38.4	39.9	-6.9	518.7	561.3	14.69	18.96

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	522.5	559.0	943.0	821.3	522.5	536.4	0.	157.2	785.1	779.2
2	534.3	545.7	931.1	782.0	534.3	517.3	0.	173.8	762.5	760.2
3	542.3	501.5	927.4	727.4	542.3	463.7	0.	191.0	752.3	751.5
4	542.1	475.8	918.7	705.1	542.1	436.7	0.	188.9	741.7	742.4
5	547.2	524.3	910.4	714.1	547.2	483.1	0.	203.8	727.5	729.7
6	550.4	583.9	905.1	773.8	550.4	554.6	0.	182.5	718.5	722.0
7	556.0	612.5	890.5	779.6	556.0	583.8	0.	185.4	695.6	702.1
8	562.6	629.2	876.8	772.0	562.6	598.4	0.	194.2	672.5	682.0
9	572.4	705.3	816.4	712.7	572.4	641.3	0.	293.4	582.0	604.2
10	543.2	791.1	727.3	682.7	543.2	673.8	0.	414.5	483.7	524.3
11	447.8	846.7	583.4	668.6	447.8	663.8	0.	525.6	373.9	445.9

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.479	0.504	0.864	0.740	0.479	0.484	1.027	1.063	0.730
2	0.490	0.491	0.854	0.703	0.490	0.465	0.968	1.060	0.616
3	0.498	0.449	0.851	0.652	0.498	0.416	0.855	1.057	0.380
4	0.497	0.426	0.843	0.631	0.497	0.391	0.806	1.060	0.274
5	0.502	0.471	0.836	0.642	0.502	0.434	0.883	1.052	0.497
6	0.506	0.526	0.831	0.698	0.506	0.500	1.008	1.055	0.749
7	0.511	0.554	0.818	0.706	0.511	0.528	1.050	1.049	0.932
8	0.517	0.570	0.806	0.699	0.517	0.542	1.064	1.041	0.948
9	0.527	0.639	0.751	0.646	0.527	0.581	1.120	1.002	0.936
10	0.499	0.720	0.668	0.622	0.499	0.614	1.241	0.947	0.946
11	0.408	0.771	0.531	0.609	0.408	0.605	1.482	0.803	0.918

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	-1.4	-4.7	3.4	0.191	0.087	0.087	0.021	0.021
2	9.30	10.04	-1.0	-4.5	3.6	0.228	0.133	0.133	0.032	0.032
3	11.63	12.54	-1.0	-4.5	5.8	0.290	0.213	0.213	0.049	0.049
4	13.98	15.05	-0.7	-4.2	7.9	0.305	0.244	0.244	0.054	0.054
5	16.30	17.55	-0.7	-4.3	4.2	0.294	0.173	0.173	0.041	0.041
6	18.62	20.06	-0.5	-4.1	1.9	0.215	0.095	0.095	0.024	0.024
7	23.27	25.07	-0.3	-4.1	1.1	0.195	0.026	0.026	0.006	0.006
8	28.12	30.31	-0.4	-4.3	1.3	0.192	0.021	0.021	0.005	0.005
9	46.78	50.16	-0.3	-4.7	-0.6	0.231	0.039	0.039	0.010	0.010
10	66.82	70.23	1.7	-3.4	-0.8	0.204	0.047	0.047	0.011	0.011
11	89.50	90.29	5.7	-0.7	3.0	0.040	0.127	0.127	0.024	0.024

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(f) 70 Percent of design speed; reading 158

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	10.5	56.3	50.7	518.7	533.0	14.69	15.46
2	9.442	9.413	0.	13.9	54.6	49.0	518.7	533.8	14.69	15.34
3	9.502	9.292	0.	17.5	54.0	51.2	518.7	534.9	14.69	14.77
4	9.161	9.170	0.	18.9	53.6	53.0	518.7	532.8	14.69	14.47
5	9.022	9.049	0.	17.5	52.8	48.7	518.7	534.5	14.69	15.00
6	8.883	8.927	0.	13.6	52.2	45.0	518.7	535.5	14.69	15.72
7	8.604	8.684	0.	13.9	51.1	42.4	518.7	534.5	14.69	16.08
8	8.313	8.430	0.	15.2	49.7	39.7	518.7	536.9	14.69	16.28
9	7.193	7.467	0.	22.5	45.1	25.9	518.7	545.1	14.69	17.28
10	5.891	6.494	0.	26.2	40.9	12.7	518.7	553.6	14.69	18.24
11	4.630	5.521	0.	31.4	38.9	0.7	518.7	561.7	14.69	19.00

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	523.5	563.9	942.6	875.5	523.5	554.8	0.	100.8	783.9	778.1
2	540.4	559.3	933.6	827.7	540.4	543.0	0.	134.2	761.3	758.9
3	546.5	505.3	928.8	769.8	546.5	482.5	0.	150.4	751.1	750.3
4	545.7	469.5	919.8	738.0	545.7	444.2	0.	151.8	740.4	741.2
5	552.4	527.6	914.1	763.8	552.4	503.9	0.	156.5	728.4	730.6
6	554.9	596.1	906.0	819.6	554.9	579.4	0.	140.0	716.1	719.7
7	560.2	620.7	891.7	816.2	560.2	602.4	0.	149.6	693.8	700.3
8	569.7	640.3	880.3	802.8	569.7	617.9	0.	168.0	671.1	680.5
9	580.2	730.5	822.2	751.2	580.2	675.9	0.	277.0	582.5	604.7
10	558.7	814.9	739.4	749.4	558.7	731.1	0.	360.3	484.4	525.1
11	461.7	837.2	593.6	714.5	461.7	714.4	0.	436.5	373.0	444.8

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.480	0.511	0.864	0.794	0.480	0.503	1.060	1.060	0.529
2	0.496	0.506	0.857	0.749	0.496	0.492	1.005	1.051	0.429
3	0.502	0.455	0.853	0.693	0.502	0.434	0.883	1.050	0.050
4	0.501	0.422	0.844	0.664	0.501	0.400	0.814	1.054	-0.158
5	0.507	0.476	0.840	0.689	0.507	0.455	0.912	1.049	0.192
6	0.510	0.541	0.832	0.743	0.510	0.526	1.044	1.046	0.603
7	0.515	0.565	0.820	0.743	0.515	0.548	1.075	1.043	0.856
8	0.524	0.583	0.810	0.730	0.524	0.562	1.085	1.033	0.844
9	0.534	0.666	0.757	0.685	0.534	0.616	1.165	1.000	0.934
10	0.513	0.745	0.680	0.685	0.513	0.668	1.309	0.947	0.946
11	0.421	0.761	0.541	0.650	0.421	0.650	1.547	0.801	0.919

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	-1.5	-4.8	4.8	0.111	0.113	0.113	0.027	0.027
2	9.30	10.04	-1.4	-4.8	4.0	0.166	0.145	0.145	0.035	0.035
3	11.63	12.54	-1.3	-4.8	6.6	0.229	0.257	0.257	0.058	0.058
4	13.98	15.05	-0.9	-4.5	9.2	0.256	0.278	0.278	0.059	0.059
5	16.30	17.55	-0.9	-4.5	5.5	0.224	0.220	0.220	0.051	0.051
6	18.62	20.06	-0.8	-4.5	2.7	0.149	0.118	0.118	0.029	0.029
7	23.27	25.07	-0.6	-4.4	2.0	0.141	0.042	0.042	0.010	0.010
8	28.12	30.31	-0.9	-4.7	1.8	0.150	0.053	0.053	0.013	0.013
9	46.78	50.16	-0.7	-5.0	-0.5	0.184	0.036	0.036	0.009	0.009
10	66.82	70.23	0.9	-4.2	2.6	0.109	0.045	0.045	0.011	0.011
11	89.50	90.29	4.8	-1.6	10.4	-0.052	0.123	0.123	0.023	0.023

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(g) 70 Percent of design speed; reading 159

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.637	0.	4.2	55.7	51.7	518.7	525.7	14.69	14.49
2	9.442	9.413	0.	5.7	54.8	50.2	518.7	526.9	14.69	14.56
3	9.302	9.292	0.	8.7	54.2	52.4	518.7	526.9	14.69	13.89
4	9.161	9.170	0.	9.3	53.3	54.6	518.7	525.1	14.69	13.49
5	9.022	9.049	0.	8.9	52.8	50.2	518.7	526.2	14.69	14.07
6	8.883	8.927	0.	7.6	52.2	46.3	518.7	528.5	14.69	14.86
7	8.604	8.684	0.	7.5	50.8	44.2	518.7	527.8	14.69	15.18
8	8.313	8.430	0.	10.1	49.6	41.3	518.7	530.0	14.69	15.45
9	7.193	7.467	0.	17.7	45.0	27.2	518.7	541.1	14.69	16.81
10	5.991	6.494	0.	28.2	40.6	8.9	518.7	552.2	14.69	18.11
11	4.630	5.521	0.	34.0	38.2	-3.8	518.7	562.3	14.69	19.21

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	536.3	582.7	950.7	938.4	536.3	581.1	0.	42.3	785.0	779.1
2	538.5	587.4	933.9	913.7	538.5	584.5	0.	58.3	763.0	760.6
3	543.3	524.6	928.1	849.4	543.3	518.6	0.	79.0	752.5	751.7
4	552.1	478.7	923.3	814.8	552.1	472.5	0.	77.0	740.1	740.8
5	552.8	544.6	913.4	839.6	552.8	537.9	0.	84.6	727.1	729.2
6	556.1	615.1	907.5	883.1	556.1	609.6	0.	81.9	717.2	720.8
7	564.6	637.7	893.7	882.5	564.6	632.2	0.	83.4	692.7	699.2
8	570.1	652.9	879.3	855.4	570.1	642.8	0.	114.6	669.6	679.1
9	580.9	760.8	821.7	815.0	580.9	725.0	0.	230.9	581.1	603.3
10	565.4	859.1	744.5	766.0	565.4	756.8	0.	406.8	484.3	524.9
11	473.6	882.4	603.1	733.0	473.6	731.4	0.	493.7	373.4	445.2

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.492	0.533	0.872	0.858	0.492	0.532	1.084	1.049	-0.298
2	0.494	0.537	0.857	0.835	0.494	0.534	1.085	1.057	-0.163
3	0.499	0.477	0.852	0.772	0.499	0.471	0.955	1.056	-1.015
4	0.507	0.434	0.848	0.739	0.507	0.429	0.856	1.049	-1.963
5	0.508	0.496	0.839	0.765	0.508	0.490	0.973	1.046	-0.851
6	0.511	0.563	0.834	0.808	0.511	0.558	1.096	1.048	0.170
7	0.519	0.585	0.822	0.810	0.519	0.580	1.120	1.037	0.533
8	0.525	0.599	0.809	0.785	0.525	0.590	1.127	1.030	0.659
9	0.535	0.699	0.757	0.749	0.535	0.666	1.248	0.996	0.909
10	0.520	0.791	0.685	0.705	0.520	0.697	1.358	0.945	0.953
11	0.432	0.807	0.550	0.670	0.432	0.669	1.544	0.802	0.948

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	-2.1	-5.4	5.9	0.030	0.150	0.150	0.035	0.035
2	9.30	10.04	-1.2	-4.7	5.2	0.044	0.163	0.163	0.038	0.038
3	11.63	12.54	-1.1	-4.6	7.8	0.115	0.279	0.279	0.061	0.061
4	13.98	15.05	-1.2	-4.7	10.8	0.147	0.321	0.321	0.066	0.066
5	16.30	17.55	-1.0	-4.6	7.0	0.113	0.241	0.241	0.054	0.054
6	18.62	20.06	-0.8	-4.5	4.0	0.058	0.145	0.145	0.034	0.034
7	23.27	25.07	-0.9	-4.6	3.8	0.044	0.078	0.078	0.019	0.019
8	28.12	30.31	-0.9	-4.8	3.4	0.070	0.073	0.073	0.018	0.018
9	46.78	50.16	-0.8	-5.1	0.8	0.089	0.042	0.042	0.011	0.011
10	66.82	70.23	0.6	-4.5	-1.2	0.108	0.038	0.038	0.009	0.009
11	89.50	90.29	4.1	-2.3	6.0	-0.047	0.078	0.078	0.015	0.015

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(h) 90 Percent of design speed; reading 172

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.637	0.	17.5	58.4	50.4	518.7	553.0	14.69	17.01
2	9.442	9.413	0.	21.2	57.1	50.4	518.7	553.7	14.69	16.47
3	9.302	9.292	0.	25.2	56.4	53.9	518.7	554.2	14.69	15.43
4	9.161	9.170	0.	28.9	55.8	53.9	518.7	553.5	14.69	15.35
5	9.022	9.049	0.	21.0	55.3	49.0	518.7	554.5	14.69	16.34
6	8.883	8.927	0.	18.0	54.8	45.8	518.7	554.1	14.69	17.31
7	8.604	8.684	0.	19.2	53.5	43.6	518.7	554.2	14.69	17.53
8	8.313	8.430	0.	21.0	52.4	41.1	518.7	555.2	14.69	17.68
9	7.193	7.467	0.	26.2	48.0	28.2	518.7	563.4	14.69	18.96
10	5.991	6.494	0.	34.2	44.0	10.7	518.7	573.8	14.69	20.56
11	4.630	5.321	0.	41.9	42.3	-7.4	518.7	583.7	14.69	21.98

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	620.5	689.1	1183.9	1030.3	620.5	657.2	0.	207.2	1008.3	1000.7
2	632.9	656.1	1166.3	959.3	632.9	611.6	0.	237.6	979.6	976.6
3	639.7	578.8	1157.4	888.0	639.7	523.8	0.	246.5	964.6	963.6
4	646.1	569.0	1149.3	869.2	646.1	511.7	0.	248.9	950.5	951.5
5	647.3	654.3	1136.2	930.1	647.3	610.6	0.	235.0	933.8	936.6
6	650.1	717.9	1126.9	979.8	650.1	682.7	0.	222.3	920.4	925.0
7	658.8	733.4	1108.8	956.1	658.8	682.6	0.	241.2	891.9	900.2
8	664.0	745.2	1087.7	923.4	664.0	695.9	0.	266.8	861.5	873.7
9	671.6	840.4	1004.5	855.1	671.6	753.8	0.	371.7	747.0	775.4
10	644.6	938.7	896.2	790.2	644.6	776.3	0.	527.8	622.6	674.9
11	527.6	1003.6	713.7	753.3	527.6	747.1	0.	670.2	480.6	573.1

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.574	0.620	1.095	0.928	0.574	0.592	1.059	1.351	0.646
2	0.586	0.588	1.080	0.860	0.586	0.548	0.966	1.355	0.492
3	0.593	0.515	1.073	0.780	0.593	0.466	0.819	1.354	0.207
4	0.599	0.506	1.066	0.773	0.599	0.455	0.792	1.356	0.187
5	0.600	0.586	1.054	0.833	0.600	0.547	0.943	1.359	0.448
6	0.603	0.648	1.046	0.884	0.603	0.616	1.050	1.363	0.701
7	0.612	0.663	1.030	0.864	0.612	0.626	1.051	1.369	0.755
8	0.617	0.674	1.011	0.835	0.617	0.629	1.048	1.375	0.770
9	0.625	0.763	0.934	0.777	0.625	0.685	1.122	1.329	0.878
10	0.598	0.856	0.831	0.721	0.598	0.708	1.204	1.245	0.949
11	0.484	0.916	0.654	0.687	0.484	0.682	1.416	1.043	0.973

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	0.7	-2.7	4.5	0.195	0.140	0.122	0.034	0.029
2	9.30	10.04	1.1	-2.5	5.4	0.252	0.207	0.190	0.048	0.044
3	11.63	12.54	1.2	-2.3	9.2	0.309	0.323	0.307	0.069	0.065
4	15.98	15.05	1.3	-2.2	10.1	0.321	0.328	0.311	0.068	0.065
5	16.30	17.55	1.5	-2.1	5.8	0.254	0.237	0.221	0.054	0.051
6	18.62	20.06	1.7	-2.0	3.5	0.199	0.131	0.116	0.032	0.028
7	23.27	25.07	1.8	-1.9	3.2	0.211	0.111	0.096	0.027	0.023
8	28.12	30.31	1.8	-2.0	3.2	0.231	0.110	0.096	0.027	0.023
9	46.78	50.16	2.2	-2.1	1.7	0.256	0.080	0.074	0.020	0.019
10	66.82	70.23	4.0	-1.1	0.7	0.266	0.048	0.048	0.011	0.011
11	89.30	90.29	8.2	1.8	2.4	0.138	0.045	0.045	0.008	0.008

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(i) 90 Percent of design speed; reading 173

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	22.7	58.5	49.4	518.7	562.3	14.69	18.17
2	9.442	9.413	0.	24.9	57.1	50.3	518.7	562.7	14.69	17.48
3	9.302	9.292	0.	32.1	56.5	52.9	518.7	564.1	14.69	16.66
4	9.161	9.170	0.	32.6	55.7	53.4	518.7	562.3	14.69	16.39
5	9.022	9.049	0.	27.5	55.2	48.3	518.7	562.5	14.69	17.28
6	8.883	8.927	0.	23.7	54.8	45.6	518.7	562.5	14.69	18.07
7	8.604	8.684	0.	24.0	53.6	42.8	518.7	559.8	14.69	18.43
8	8.313	8.430	0.	25.6	52.5	40.0	518.7	562.4	14.69	18.66
9	7.193	7.467	0.	29.6	48.2	26.5	518.7	568.5	14.69	19.77
10	5.991	6.494	0.	34.1	44.4	12.0	518.7	574.6	14.69	20.76
11	4.630	5.521	0.	42.4	42.7	-7.3	518.7	584.1	14.69	21.87

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	616.2	684.4	1181.0	969.8	616.2	631.6	0.	263.9	1007.4	999.9
2	632.9	643.3	1164.0	913.4	632.9	583.4	0.	271.1	976.9	973.9
3	637.5	583.6	1155.9	818.9	637.5	494.4	0.	310.3	964.2	963.2
4	646.4	567.0	1147.6	801.7	646.4	477.8	0.	305.4	948.3	949.2
5	647.5	641.3	1134.3	855.1	647.5	569.2	0.	296.0	931.3	934.1
6	650.9	692.8	1128.6	906.4	650.9	634.2	0.	278.9	921.9	926.5
7	655.5	715.6	1104.5	891.9	655.5	654.0	0.	290.8	888.9	897.2
8	661.1	734.2	1085.6	864.6	661.1	662.2	0.	317.3	861.1	873.2
9	665.9	833.1	998.7	809.9	665.9	724.7	0.	411.1	744.3	772.7
10	634.0	913.1	887.9	772.7	634.0	755.7	0.	512.9	621.6	673.8
11	519.9	988.0	707.4	736.0	519.9	730.0	0.	665.8	479.6	571.9

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.570	0.610	1.092	0.865	0.570	0.563	1.025	1.355	0.744
2	0.586	0.571	1.078	0.811	0.586	0.518	0.922	1.351	0.599
3	0.591	0.514	1.071	0.722	0.591	0.436	0.776	1.356	0.418
4	0.599	0.500	1.064	0.707	0.599	0.421	0.739	1.353	0.376
5	0.601	0.569	1.052	0.759	0.601	0.505	0.879	1.355	0.563
6	0.604	0.618	1.047	0.809	0.604	0.566	0.974	1.364	0.722
7	0.609	0.642	1.025	0.800	0.609	0.587	0.998	1.369	0.842
8	0.614	0.658	1.008	0.775	0.614	0.594	1.002	1.378	0.838
9	0.619	0.752	0.928	0.731	0.619	0.654	1.088	1.325	0.922
10	0.587	0.829	0.822	0.701	0.587	0.686	1.192	1.244	0.863
11	0.476	0.899	0.648	0.670	0.476	0.664	1.404	1.041	0.954

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS TOT	COEFF PROF	LOSS PARAM	
	IN	OUT	MEAN	SS					TOT	PROF
1	4.50	5.01	0.8	-2.5	3.5	0.262	0.128	0.109	0.031	0.027
2	9.30	10.04	1.0	-2.4	5.3	0.300	0.203	0.186	0.047	0.043
3	11.63	12.54	1.3	-2.2	8.3	0.388	0.300	0.284	0.065	0.062
4	13.98	15.05	1.2	-2.3	9.6	0.396	0.312	0.297	0.066	0.063
5	16.30	17.55	1.4	-2.1	5.1	0.338	0.227	0.212	0.053	0.049
6	18.62	20.06	1.7	-2.0	3.5	0.282	0.148	0.132	0.036	0.032
7	23.27	25.07	1.9	-1.9	2.4	0.281	0.083	0.068	0.020	0.017
8	28.12	30.31	2.0	-1.9	2.2	0.299	0.092	0.078	0.023	0.019
9	46.78	50.16	2.4	-2.0	0.1	0.308	0.057	0.052	0.014	0.013
10	66.82	70.23	4.4	-0.7	1.9	0.275	0.036	0.036	0.009	0.009
11	89.50	90.29	8.8	2.2	2.5	0.153	0.076	0.076	0.014	0.014

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(j) 90 Percent of design speed; reading 174

RP	RADII		ABS BETAH		REL BETAH		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	32.4	58.7	47.2	518.7	581.9	14.69	20.52
2	9.442	9.413	0.	36.4	57.6	47.4	518.7	581.4	14.69	20.04
3	9.302	9.292	0.	41.3	56.9	49.7	518.7	580.8	14.69	19.32
4	9.161	9.170	0.	41.5	56.2	48.3	518.7	580.8	14.69	19.35
5	9.022	9.049	0.	36.3	55.8	44.5	518.7	582.9	14.69	19.98
6	8.883	8.927	0.	33.7	55.2	42.5	518.7	578.4	14.69	20.45
7	8.604	8.684	0.	32.7	54.1	40.3	518.7	575.3	14.69	20.58
8	8.313	8.450	0.	32.0	52.9	37.9	518.7	574.8	14.69	20.63
9	7.193	7.467	0.	35.7	49.0	26.1	518.7	575.8	14.69	20.82
10	5.991	6.494	0.	38.8	45.5	11.5	518.7	576.4	14.69	20.94
11	4.630	5.521	0.	43.8	43.2	-5.9	518.7	581.9	14.69	21.56

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	612.9	692.4	1180.8	859.9	612.9	584.6	0.	371.2	1009.3	1001.8
2	623.6	666.1	1162.5	791.6	623.6	536.0	0.	395.5	981.0	978.0
3	629.1	623.1	1152.1	723.8	629.1	467.8	0.	411.7	965.1	964.1
4	635.4	632.6	1143.3	712.6	635.4	473.8	0.	419.1	950.4	951.4
5	637.0	678.1	1132.6	767.0	637.0	546.7	0.	401.3	936.5	939.3
6	640.6	703.8	1123.1	794.6	640.6	585.8	0.	390.2	922.5	927.1
7	647.1	719.0	1102.3	793.0	647.1	605.2	0.	388.2	892.4	900.6
8	651.2	733.1	1079.6	788.0	651.2	621.6	0.	388.8	861.0	873.2
9	645.8	786.8	985.1	711.7	645.8	639.1	0.	459.2	743.9	772.2
10	609.1	855.8	869.3	680.9	609.1	667.1	0.	536.1	620.2	672.3
11	511.0	926.3	700.9	671.9	511.0	668.3	0.	641.4	479.8	572.2

RP	ABS MACH NO		REL MACH NO		MERID. MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.566	0.607	1.091	0.784	0.566	0.512	0.934	1.361	0.821
2	0.577	0.582	1.078	0.692	0.577	0.469	0.860	1.367	0.767
3	0.582	0.543	1.066	0.631	0.582	0.408	0.744	1.366	0.679
4	0.589	0.552	1.059	0.621	0.589	0.413	0.746	1.368	0.683
5	0.590	0.593	1.049	0.670	0.590	0.478	0.858	1.374	0.741
6	0.594	0.620	1.041	0.699	0.594	0.516	0.914	1.378	0.860
7	0.600	0.636	1.022	0.701	0.600	0.535	0.935	1.384	0.926
8	0.604	0.650	1.002	0.698	0.604	0.551	0.955	1.392	0.940
9	0.599	0.701	0.914	0.634	0.599	0.569	0.990	1.331	0.952
10	0.563	0.769	0.803	0.612	0.563	0.599	1.095	1.244	0.956
11	0.468	0.836	0.642	0.607	0.468	0.603	1.308	1.042	0.950

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	1.0	-2.3	1.3	0.389	0.125	0.106	0.032	0.027
2	9.30	10.04	1.5	-1.8	2.4	0.443	0.164	0.146	0.041	0.036
3	11.63	12.54	1.6	-1.8	5.1	0.500	0.225	0.207	0.052	0.048
4	13.98	15.05	1.7	-1.8	4.5	0.507	0.224	0.207	0.053	0.049
5	16.30	17.55	2.0	-1.6	1.3	0.447	0.192	0.176	0.048	0.044
6	18.62	20.06	2.2	-1.5	0.2	0.412	0.100	0.084	0.025	0.021
7	23.27	25.07	2.3	-1.4	-0.2	0.399	0.053	0.037	0.013	0.009
8	28.12	30.31	2.4	-1.3	0.1	0.388	0.043	0.029	0.011	0.007
9	46.78	50.16	3.2	-1.1	-0.3	0.412	0.041	0.036	0.010	0.009
10	66.82	70.23	5.8	0.4	1.5	0.372	0.043	0.043	0.011	0.011
11	89.50	90.29	9.1	2.7	3.9	0.230	0.082	0.082	0.016	0.016

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(k) 90 Percent of design speed; reading 175

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	36.4	60.0	47.0	518.7	587.6	14.69	21.26
2	9.442	9.413	0.	41.5	58.8	47.2	518.7	587.0	14.69	20.83
3	9.302	9.292	0.	45.0	58.2	48.1	518.7	588.7	14.69	20.46
4	9.161	9.170	0.	43.6	57.6	46.9	518.7	588.2	14.69	20.46
5	9.022	9.049	0.	39.1	57.2	44.2	518.7	587.2	14.69	20.93
6	8.885	8.927	0.	36.2	56.6	42.7	518.7	582.1	14.69	21.18
7	8.604	8.684	0.	36.3	55.6	40.3	518.7	580.9	14.69	21.27
8	8.313	8.430	0.	36.7	54.3	37.5	518.7	580.5	14.69	21.29
9	7.193	7.467	0.	38.1	50.7	27.1	518.7	578.4	14.69	21.11
10	5.991	6.494	0.	41.0	47.6	12.3	518.7	576.7	14.69	21.01
11	4.630	5.521	0.	46.5	44.2	-7.0	518.7	582.6	14.69	21.44

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	580.1	684.5	1160.7	808.9	580.1	551.3	0.	405.9	1005.4	997.8
2	591.6	661.7	1141.3	728.5	591.6	495.4	0.	458.7	975.9	972.9
3	598.4	644.5	1134.7	681.7	598.4	455.7	0.	455.9	964.0	963.0
4	601.3	648.7	1123.0	687.5	601.3	469.8	0.	447.4	948.5	949.4
5	603.9	677.8	1113.9	733.7	603.9	526.1	0.	427.4	936.1	938.9
6	607.3	692.4	1102.6	760.3	607.3	558.7	0.	409.1	920.3	924.8
7	613.1	707.3	1083.9	746.9	613.1	569.8	0.	419.2	893.9	902.2
8	613.9	720.1	1057.4	727.5	613.9	577.4	0.	430.4	861.0	873.1
9	609.8	757.9	962.3	669.7	609.8	596.2	0.	467.9	744.4	772.8
10	564.2	814.6	836.1	629.3	564.2	614.8	0.	534.4	617.0	668.8
11	492.0	891.2	686.9	617.7	492.0	613.0	0.	646.8	479.3	571.5

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.534	0.596	1.069	0.705	0.534	0.480	0.950	1.392	0.839
2	0.546	0.575	1.052	0.633	0.546	0.431	0.837	1.397	0.797
3	0.552	0.559	1.047	0.591	0.552	0.395	0.761	1.401	0.736
4	0.555	0.563	1.037	0.596	0.555	0.408	0.781	1.405	0.740
5	0.557	0.590	1.028	0.639	0.557	0.458	0.871	1.414	0.805
6	0.561	0.607	1.018	0.666	0.561	0.489	0.920	1.417	0.901
7	0.567	0.621	1.002	0.656	0.567	0.501	0.929	1.431	0.929
8	0.567	0.634	0.977	0.640	0.567	0.508	0.940	1.414	0.938
9	0.563	0.671	0.889	0.593	0.563	0.528	0.978	1.345	0.949
10	0.519	0.728	0.769	0.562	0.519	0.549	1.090	1.245	0.962
11	0.450	0.800	0.628	0.554	0.450	0.550	1.246	1.042	0.925

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	2.3	-1.0	1.2	0.454	0.125	0.105	0.032	0.027
2	9.30	10.04	2.8	-0.7	2.2	0.502	0.159	0.140	0.039	0.035
3	11.63	12.54	2.9	-0.6	3.5	0.544	0.211	0.192	0.051	0.046
4	13.98	15.03	3.1	-0.4	3.1	0.529	0.210	0.191	0.051	0.046
5	16.30	17.55	3.4	-0.2	1.0	0.476	0.159	0.139	0.040	0.035
6	18.62	20.06	3.5	-0.1	0.4	0.439	0.077	0.059	0.020	0.015
7	23.27	25.07	3.8	0.1	-0.1	0.441	0.056	0.037	0.014	0.009
8	28.12	30.31	4.0	0.1	-0.4	0.445	0.051	0.036	0.013	0.009
9	46.78	50.16	4.9	0.8	0.7	0.445	0.047	0.043	0.012	0.011
10	66.82	70.23	7.5	2.5	2.3	0.408	0.043	0.043	0.010	0.010
11	89.50	90.20	10.1	3.7	2.8	0.295	0.129	0.129	0.024	0.024

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(Z) 90 Percent of design speed; reading 176

RP	RADI		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.637	0.	39.0	61.2	47.7	518.7	593.0	14.69	21.59
2	9.442	9.413	0.	43.4	60.1	46.9	518.7	590.7	14.69	21.42
3	9.302	9.292	0.	47.6	59.3	47.7	518.7	591.5	14.69	20.97
4	9.161	9.170	0.	46.1	58.7	46.8	518.7	589.7	14.69	20.84
5	9.022	9.049	0.	41.5	58.3	44.0	518.7	589.3	14.69	21.25
6	8.885	8.927	0.	38.4	57.8	43.0	518.7	586.2	14.69	21.50
7	8.604	8.684	0.	38.3	57.0	40.3	518.7	585.1	14.69	21.58
8	8.313	8.430	0.	38.5	55.9	37.7	518.7	584.8	14.69	21.57
9	7.193	7.467	0.	40.4	52.5	27.6	518.7	581.0	14.69	21.28
10	5.991	6.494	0.	43.1	49.3	12.0	518.7	578.8	14.69	21.11
11	4.630	5.521	0.	47.0	46.4	-6.1	518.7	582.9	14.69	21.33

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	553.8	673.6	1149.3	778.0	553.8	523.5	0.	423.9	1007.0	999.5
2	563.0	667.1	1129.0	708.8	563.0	484.7	0.	458.4	978.6	975.6
3	571.4	650.2	1119.6	650.7	571.4	438.0	0.	480.5	962.8	961.8
4	575.3	647.5	1105.8	655.8	575.3	448.6	0.	466.9	944.4	945.4
5	576.3	674.7	1095.5	701.6	576.3	505.0	0.	447.5	931.7	934.5
6	579.6	684.1	1088.0	733.1	579.6	536.0	0.	425.2	920.8	925.4
7	580.0	701.2	1064.9	720.9	580.0	549.9	0.	435.1	893.0	901.3
8	584.3	713.1	1042.8	705.3	584.3	557.9	0.	444.3	863.7	875.9
9	573.7	741.8	942.1	636.9	573.7	564.6	0.	481.1	747.3	775.8
10	532.5	799.2	816.1	596.5	532.5	583.4	0.	546.2	618.4	670.3
11	455.8	865.3	660.5	593.3	455.8	589.9	0.	633.1	478.0	570.0

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.509	0.583	1.056	0.674	0.509	0.453	0.945	1.426	0.811
2	0.518	0.578	1.038	0.615	0.518	0.420	0.861	1.436	0.819
3	0.526	0.562	1.030	0.563	0.526	0.379	0.767	1.433	0.762
4	0.530	0.561	1.018	0.568	0.530	0.389	0.780	1.434	0.768
5	0.531	0.586	1.009	0.610	0.531	0.439	0.876	1.445	0.817
6	0.534	0.597	1.002	0.639	0.534	0.467	0.925	1.456	0.883
7	0.534	0.615	0.981	0.631	0.534	0.481	0.948	1.452	0.907
8	0.538	0.625	0.961	0.618	0.538	0.489	0.955	1.437	0.909
9	0.528	0.654	0.867	0.562	0.528	0.488	0.984	1.365	0.930
10	0.488	0.711	0.748	0.531	0.488	0.519	1.096	1.255	0.941
11	0.415	0.774	0.602	0.530	0.415	0.527	1.294	1.042	0.998

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	9.01	3.5	0.2	1.9	0.461	0.158	0.133	0.040	0.034
2	9.30	10.04	4.1	0.6	1.9	0.520	0.151	0.128	0.038	0.032
3	11.63	12.54	4.1	0.6	3.1	0.573	0.202	0.180	0.049	0.044
4	13.98	15.05	4.2	0.6	3.0	0.557	0.196	0.173	0.047	0.042
5	16.30	17.55	4.5	0.9	0.8	0.503	0.157	0.136	0.039	0.034
6	18.62	20.06	4.8	1.1	0.7	0.461	0.098	0.077	0.025	0.019
7	23.27	25.07	5.3	1.5	-0.1	0.460	0.080	0.060	0.020	0.015
8	28.12	30.31	5.4	1.5	-0.1	0.463	0.080	0.064	0.020	0.016
9	46.78	50.16	6.7	2.4	1.1	0.472	0.068	0.064	0.017	0.016
10	66.82	70.23	9.3	4.2	1.9	0.437	0.072	0.072	0.017	0.017
11	89.30	90.29	12.2	5.8	3.7	0.299	0.170	0.170	0.032	0.032

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(m) 90 Percent of design speed; reading 177

RP	RADII		ABS BETAH		REL BETAH		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.637	0.	43.7	62.6	47.9	918.7	999.2	14.69	21.84
2	9.442	9.413	0.	45.9	61.3	46.6	918.7	996.1	14.69	21.83
3	9.302	9.292	0.	49.2	60.9	47.1	918.7	996.0	14.69	21.90
4	9.161	9.170	0.	48.3	60.2	46.0	918.7	994.0	14.69	21.42
5	9.022	9.049	0.	42.8	59.7	44.1	918.7	993.0	14.69	21.63
6	8.883	8.927	0.	41.6	59.2	42.7	918.7	989.9	14.69	21.78
7	8.604	8.684	0.	40.7	58.5	40.3	918.7	986.6	14.69	21.77
8	8.313	8.430	0.	41.3	57.4	37.8	918.7	983.6	14.69	21.68
9	7.193	7.467	0.	43.4	54.1	29.1	918.7	980.9	14.69	21.20
10	5.991	6.494	0.	48.7	50.8	11.6	918.7	980.9	14.69	21.20
11	4.630	5.321	0.	48.0	47.8	-5.7	918.7	982.6	14.69	21.33

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	523.9	672.7	1137.9	725.3	523.9	486.5	0.	464.7	1010.2	1002.6
2	536.4	672.0	1117.2	680.8	536.4	467.9	0.	482.4	980.1	977.0
3	537.9	660.7	1105.1	634.4	537.9	432.1	0.	499.9	965.3	964.3
4	543.1	661.5	1093.6	633.7	543.1	440.0	0.	494.0	949.1	950.1
5	545.6	674.6	1082.3	688.9	545.6	495.0	0.	458.4	934.7	937.3
6	549.6	684.1	1073.4	693.9	549.6	511.3	0.	454.6	922.0	926.6
7	546.7	692.6	1046.6	691.3	546.7	525.4	0.	451.4	892.4	900.7
8	550.6	701.4	1021.2	667.3	550.6	527.0	0.	462.8	860.1	872.2
9	539.0	718.8	918.8	592.2	539.0	522.5	0.	493.6	744.1	772.5
10	507.4	784.8	802.5	559.9	507.4	548.5	0.	561.3	621.7	673.9
11	434.9	846.0	647.6	569.0	434.9	566.2	0.	628.6	479.9	572.2

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.480	0.579	1.043	0.624	0.480	0.419	0.929	1.467	0.773
2	0.492	0.580	1.028	0.588	0.492	0.404	0.872	1.472	0.802
3	0.493	0.570	1.014	0.547	0.493	0.373	0.803	1.481	0.771
4	0.499	0.572	1.004	0.548	0.499	0.380	0.810	1.483	0.783
5	0.501	0.584	0.994	0.597	0.501	0.429	0.907	1.484	0.815
6	0.505	0.595	0.986	0.605	0.505	0.444	0.930	1.481	0.866
7	0.502	0.604	0.961	0.603	0.502	0.458	0.961	1.472	0.908
8	0.506	0.613	0.938	0.583	0.506	0.461	0.957	1.449	0.911
9	0.495	0.632	0.843	0.521	0.495	0.460	0.969	1.373	0.920
10	0.464	0.696	0.734	0.496	0.464	0.486	1.081	1.269	0.921
11	0.396	0.755	0.589	0.308	0.396	0.505	1.302	1.050	0.913

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	4.9	1.5	2.1	0.515	0.205	0.178	0.052	0.045
2	9.30	10.04	5.3	1.9	1.6	0.548	0.178	0.192	0.045	0.038
3	11.63	12.54	5.6	2.1	2.5	0.588	0.209	0.182	0.051	0.045
4	13.98	15.05	5.7	2.2	2.2	0.581	0.197	0.171	0.048	0.042
5	16.30	17.55	6.0	2.4	0.9	0.512	0.169	0.144	0.042	0.036
6	18.62	20.06	6.2	2.9	0.4	0.498	0.120	0.097	0.030	0.024
7	23.27	23.07	6.8	3.0	0.1	0.484	0.083	0.063	0.021	0.016
8	28.12	30.31	6.8	3.0	0.0	0.484	0.082	0.067	0.021	0.017
9	46.78	50.16	8.3	4.0	1.7	0.511	0.081	0.078	0.020	0.019
10	66.82	70.23	10.8	8.7	1.8	0.478	0.100	0.108	0.024	0.024
11	88.80	88.20	13.7	7.3	4.1	0.321	0.166	0.166	0.031	0.031

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(n) 90 Percent of design speed; reading 178

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	46.3	63.2	48.0	518.7	603.0	14.69	21.91
2	9.442	9.413	0.	47.2	61.9	46.5	518.7	597.5	14.69	21.97
3	9.302	9.292	0.	50.2	61.4	47.1	518.7	597.7	14.69	21.59
4	9.161	9.170	0.	50.1	61.0	45.9	518.7	597.1	14.69	21.58
5	9.022	9.049	0.	45.4	60.5	43.9	518.7	594.5	14.69	21.76
6	8.883	8.927	0.	42.7	60.2	42.9	518.7	592.1	14.69	21.84
7	8.604	8.684	0.	42.5	59.1	41.0	518.7	588.8	14.69	21.75
8	8.313	8.430	0.	43.1	58.2	39.7	518.7	586.9	14.69	21.62
9	7.193	7.467	0.	43.5	53.8	29.9	518.7	581.5	14.69	21.25
10	5.991	6.494	0.	44.3	50.4	13.1	518.7	581.2	14.69	21.19
11	4.630	5.321	0.	48.5	47.7	-6.1	518.7	582.5	14.69	21.35

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	508.6	671.9	1129.9	694.2	508.6	464.5	0.	485.5	1009.0	1001.4
2	522.7	674.0	1110.4	665.5	522.7	458.4	0.	494.3	979.7	976.7
3	526.2	660.2	1097.9	620.9	526.2	422.4	0.	507.5	963.6	962.5
4	526.0	665.7	1085.8	613.8	526.0	427.4	0.	510.4	949.9	950.9
5	529.5	675.8	1074.7	658.5	529.5	474.4	0.	481.3	935.2	938.0
6	529.2	681.6	1063.4	683.3	529.2	500.9	0.	462.2	922.3	926.9
7	534.0	684.6	1040.2	659.0	534.0	505.0	0.	462.2	892.6	900.9
8	535.2	688.9	1014.6	645.3	535.2	503.4	0.	470.4	862.0	874.1
9	547.0	712.8	926.0	590.5	547.0	517.1	0.	490.6	747.2	775.7
10	513.6	777.9	805.3	571.8	513.6	557.0	0.	543.0	620.3	672.4
11	437.0	845.2	649.7	562.8	437.0	559.6	0.	633.4	480.7	573.2

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.465	0.576	1.034	0.596	0.465	0.399	0.913	1.486	0.744
2	0.479	0.581	1.017	0.574	0.479	0.395	0.877	1.491	0.801
3	0.482	0.568	1.006	0.555	0.482	0.364	0.803	1.496	0.763
4	0.482	0.574	0.995	0.529	0.482	0.368	0.813	1.503	0.768
5	0.485	0.584	0.985	0.570	0.485	0.410	0.896	1.497	0.812
6	0.485	0.591	0.975	0.593	0.485	0.434	0.947	1.496	0.847
7	0.490	0.596	0.954	0.582	0.490	0.439	0.946	1.481	0.878
8	0.491	0.601	0.931	0.563	0.491	0.439	0.941	1.462	0.887
9	0.502	0.626	0.850	0.519	0.502	0.454	0.945	1.376	0.916
10	0.470	0.689	0.737	0.506	0.470	0.493	1.084	1.264	0.915
11	0.398	0.754	0.591	0.502	0.398	0.499	1.281	1.051	0.916

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	5.3	2.2	2.2	0.546	0.241	0.212	0.061	0.053
2	9.30	10.04	5.9	2.5	1.5	0.563	0.183	0.155	0.046	0.039
3	11.63	12.54	6.1	2.6	2.5	0.601	0.221	0.194	0.054	0.047
4	13.98	15.05	6.3	3.0	2.1	0.601	0.219	0.192	0.054	0.047
5	16.30	17.55	6.7	3.2	0.7	0.544	0.176	0.151	0.044	0.038
6	18.62	20.06	7.1	3.5	0.6	0.507	0.142	0.118	0.036	0.030
7	23.27	25.07	7.4	3.7	0.6	0.506	0.114	0.093	0.029	0.024
8	28.12	30.31	7.6	3.8	0.9	0.515	0.107	0.091	0.027	0.023
9	46.78	50.16	8.0	3.7	2.4	0.516	0.085	0.081	0.021	0.020
10	66.82	70.23	10.4	5.3	3.0	0.459	0.108	0.108	0.025	0.025
11	89.50	90.29	13.6	7.2	3.7	0.333	0.160	0.160	0.030	0.030

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(o) 100 Percent of design speed; reading 179

RP	RADII		ABS BETAH		REL BETAH		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	12.2	58.5	52.0	518.7	547.5	14.69	16.01
2	9.442	9.413	0.	14.8	57.1	52.5	518.7	547.7	14.69	15.16
3	9.302	9.292	0.	14.7	56.7	55.6	518.7	546.5	14.69	14.12
4	9.161	9.170	0.	17.1	56.1	55.2	518.7	546.2	14.69	14.10
5	9.022	9.049	0.	16.8	55.5	49.5	518.7	553.0	14.69	15.40
6	8.885	8.927	0.	15.1	54.8	46.7	518.7	554.0	14.69	16.52
7	8.604	8.684	0.	16.0	53.6	43.9	518.7	554.5	14.69	17.25
8	8.313	8.430	0.	18.1	52.3	41.4	518.7	557.9	14.69	17.43
9	7.193	7.467	0.	24.8	47.9	30.1	518.7	567.4	14.69	19.10
10	5.991	6.494	0.	34.1	43.3	12.8	518.7	584.8	14.69	21.75
11	4.650	5.521	0.	45.3	41.0	-10.6	518.7	600.9	14.69	24.39

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	688.3	762.0	1315.9	1208.5	688.3	744.7	0.	161.4	1121.5	1113.1
2	702.4	714.3	1295.5	1134.4	702.4	690.5	0.	182.7	1086.2	1082.8
3	701.7	640.6	1278.5	1097.3	701.7	619.7	0.	162.1	1068.7	1067.5
4	709.4	631.9	1271.3	1059.3	709.4	604.1	0.	185.7	1054.9	1056.0
5	713.1	738.9	1259.2	1088.6	713.1	707.4	0.	213.5	1037.8	1040.9
6	719.8	798.4	1249.7	1125.0	719.8	771.0	0.	207.5	1021.6	1026.7
7	730.3	833.1	1230.6	1110.6	730.3	800.7	0.	230.0	990.5	999.7
8	738.3	845.2	1208.2	1070.8	738.3	803.5	0.	262.1	956.4	969.9
9	746.0	906.7	1113.3	951.1	746.0	822.8	0.	380.8	826.3	857.8
10	731.8	998.0	1005.8	847.8	731.8	826.6	0.	559.7	690.0	747.9
11	612.1	1097.4	811.4	785.8	612.1	772.4	0.	779.8	532.7	655.2

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.641	0.696	1.226	1.104	0.641	0.680	1.082	1.457	0.446
2	0.656	0.648	1.207	1.030	0.656	0.627	0.983	1.452	0.160
3	0.655	0.577	1.193	0.989	0.655	0.559	0.883	1.451	-0.213
4	0.663	0.569	1.188	0.954	0.663	0.544	0.851	1.454	-0.221
5	0.667	0.669	1.177	0.986	0.667	0.641	0.992	1.452	0.205
6	0.673	0.728	1.169	1.025	0.673	0.703	1.071	1.450	0.501
7	0.684	0.763	1.153	1.017	0.684	0.733	1.096	1.447	0.680
8	0.692	0.772	1.133	0.978	0.692	0.734	1.088	1.441	0.661
9	0.700	0.828	1.045	0.869	0.700	0.751	1.103	1.432	0.829
10	0.686	0.909	0.942	0.772	0.686	0.753	1.130	1.389	0.931
11	0.566	1.000	0.750	0.716	0.566	0.704	1.262	1.163	0.983

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	0.7	-2.6	6.1	0.127	0.162	0.115	0.037	0.026
2	9.30	10.04	1.1	-2.3	7.3	0.174	0.248	0.204	0.055	0.045
3	11.63	12.54	1.4	-2.0	11.0	0.187	0.342	0.300	0.069	0.061
4	13.98	15.05	1.6	-1.9	11.4	0.219	0.343	0.301	0.069	0.061
5	16.30	17.55	1.7	-1.8	6.3	0.195	0.284	0.243	0.064	0.055
6	18.62	20.06	1.8	-1.9	4.4	0.157	0.188	0.149	0.044	0.035
7	23.27	25.67	1.9	-1.9	3.5	0.160	0.126	0.090	0.030	0.022
8	28.12	30.31	1.8	-2.1	3.5	0.185	0.149	0.119	0.036	0.028
9	46.78	50.16	2.1	-2.3	3.7	0.245	0.104	0.081	0.026	0.020
10	66.82	70.23	3.3	-1.8	2.8	0.287	0.065	0.085	0.015	0.013
11	89.90	90.28	6.8	0.8	-0.8	0.230	0.028	0.028	0.003	0.003

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(p) 100 Percent of design speed; reading 180

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	19.8	58.2	51.6	518.7	568.5	14.69	17.74
2	9.442	9.413	0.	23.6	57.1	51.8	518.7	567.0	14.69	17.15
3	9.302	9.292	0.	28.0	56.6	54.4	518.7	568.4	14.69	16.29
4	9.161	9.170	0.	28.6	56.3	54.2	518.7	568.6	14.69	16.23
5	9.022	9.049	0.	26.4	55.5	48.9	518.7	570.4	14.69	17.34
6	8.883	8.927	0.	22.6	54.9	46.0	518.7	568.7	14.69	18.48
7	8.604	8.684	0.	24.2	53.7	43.6	518.7	569.6	14.69	18.72
8	8.313	8.430	0.	24.5	52.4	41.7	518.7	571.7	14.69	18.82
9	7.193	7.467	0.	28.3	47.8	39.0	518.7	576.3	14.69	20.12
10	5.991	6.494	0.	33.8	43.2	12.7	518.7	586.1	14.69	21.95
11	4.630	5.521	0.	44.3	41.0	-8.1	518.7	597.4	14.69	23.96

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	695.3	728.3	1318.7	1104.1	695.3	685.3	0.	246.4	1120.5	1112.1
2	704.4	692.6	1296.0	1026.2	704.4	634.5	0.	278.0	1087.9	1084.5
3	707.7	628.5	1284.2	953.7	707.7	555.1	0.	294.9	1071.6	1070.4
4	703.4	621.1	1267.2	923.1	703.4	540.3	0.	306.5	1054.0	1055.1
5	712.1	706.5	1258.7	963.2	712.1	632.6	0.	314.7	1037.9	1041.0
6	719.2	767.0	1250.7	1019.5	719.2	708.0	0.	294.8	1023.3	1028.3
7	728.3	782.5	1229.3	985.6	728.3	714.0	0.	320.1	990.3	999.5
8	758.3	792.4	1208.9	965.7	758.3	721.2	0.	328.6	957.2	970.7
9	750.8	874.1	1118.0	888.7	750.8	769.4	0.	415.1	828.4	860.0
10	733.1	972.5	1006.5	808.4	733.1	788.5	0.	569.4	689.6	747.5
11	612.9	1065.2	812.1	770.3	612.9	762.7	0.	743.7	532.8	635.3

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.648	0.649	1.230	0.984	0.648	0.611	0.986	1.450	0.576
2	0.658	0.615	1.210	0.912	0.658	0.564	0.901	1.433	0.485
3	0.661	0.554	1.200	0.841	0.661	0.489	0.784	1.431	0.312
4	0.657	0.547	1.183	0.813	0.657	0.476	0.769	1.437	0.299
5	0.666	0.627	1.176	0.855	0.666	0.561	0.888	1.433	0.486
6	0.673	0.686	1.170	0.912	0.673	0.634	0.985	1.433	0.702
7	0.682	0.701	1.151	0.883	0.682	0.640	0.980	1.448	0.729
8	0.692	0.709	1.134	0.864	0.692	0.646	0.977	1.442	0.717
9	0.705	0.787	1.050	0.801	0.705	0.693	1.025	1.431	0.845
10	0.687	0.881	0.943	0.732	0.687	0.714	1.076	1.388	0.935
11	0.566	0.969	0.750	0.701	0.566	0.694	1.244	1.163	0.989

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	0.4	-2.9	5.8	0.233	0.204	0.157	0.047	0.037
2	9.30	10.04	1.1	-2.3	6.8	0.286	0.244	0.200	0.055	0.045
3	11.63	12.54	1.3	-2.2	9.8	0.340	0.332	0.289	0.069	0.060
4	13.98	15.05	1.8	-1.7	10.4	0.357	0.345	0.303	0.072	0.063
5	16.30	17.55	1.8	-1.8	5.7	0.322	0.268	0.228	0.062	0.052
6	18.62	20.06	1.8	-1.8	3.7	0.266	0.156	0.116	0.037	0.028
7	23.27	25.07	1.9	-1.8	3.2	0.286	0.148	0.111	0.036	0.027
8	28.12	30.31	1.8	-2.0	3.8	0.290	0.164	0.130	0.040	0.031
9	46.78	50.16	2.0	-2.4	3.6	0.312	0.109	0.086	0.027	0.021
10	66.82	70.23	3.2	-1.9	2.7	0.339	0.062	0.052	0.015	0.012
11	89.50	90.29	6.9	0.5	1.7	0.240	0.018	0.018	0.003	0.003

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(q) 100 Percent of design speed; reading 181

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	24.0	58.1	50.1	518.7	576.1	14.69	18.88
2	9.442	9.413	0.	27.5	57.0	51.6	518.7	576.1	14.69	17.97
3	9.302	9.282	0.	33.9	56.5	54.4	518.7	575.0	14.69	17.01
4	9.161	9.170	0.	35.5	56.0	55.0	518.7	574.5	14.69	16.74
5	9.022	9.049	0.	28.8	55.6	49.2	518.7	577.0	14.69	17.94
6	8.883	8.927	0.	24.6	54.9	46.3	518.7	575.2	14.69	19.01
7	8.604	8.684	0.	26.2	53.7	43.6	518.7	572.2	14.69	19.33
8	8.313	8.430	0.	26.9	52.4	41.3	518.7	575.4	14.69	19.49
9	7.193	7.467	0.	31.1	47.8	29.1	518.7	579.7	14.69	20.58
10	5.991	6.494	0.	36.6	43.3	12.7	518.7	587.1	14.69	22.22
11	4.630	5.521	0.	43.9	40.9	-7.0	518.7	597.9	14.69	23.79

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	697.4	740.1	1317.9	1054.7	697.4	676.3	0.	300.6	1118.3	1109.9
2	707.1	686.1	1297.1	979.4	707.1	608.7	0.	316.8	1087.5	1084.1
3	709.2	622.1	1283.9	887.5	709.2	516.3	0.	347.3	1070.3	1069.1
4	710.7	604.7	1271.4	859.3	710.7	492.5	0.	351.0	1054.2	1055.3
5	709.5	694.2	1256.6	931.5	709.5	608.2	0.	334.7	1037.1	1040.2
6	719.7	751.5	1250.4	988.1	719.7	683.0	0.	313.7	1022.6	1027.6
7	728.7	771.9	1230.8	956.3	728.7	692.4	0.	341.6	991.9	1001.1
8	738.3	786.3	1209.1	933.2	738.3	701.4	0.	355.6	957.5	971.0
9	751.4	865.2	1118.2	847.6	751.4	740.6	0.	447.4	828.1	859.7
10	732.8	963.5	1006.7	793.1	732.8	773.8	0.	574.5	690.3	748.3
11	616.8	1051.2	815.5	762.6	616.8	756.8	0.	729.5	533.4	636.1

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.651	0.656	1.250	0.934	0.651	0.599	0.970	1.446	0.671
2	0.660	0.604	1.212	0.862	0.660	0.536	0.861	1.450	0.535
3	0.663	0.545	1.200	0.777	0.663	0.452	0.728	1.448	0.395
4	0.664	0.529	1.188	0.752	0.664	0.431	0.693	1.452	0.333
5	0.663	0.611	1.174	0.820	0.663	0.536	0.857	1.453	0.522
6	0.673	0.668	1.170	0.879	0.673	0.607	0.949	1.451	0.728
7	0.683	0.689	1.153	0.853	0.683	0.619	0.950	1.450	0.789
8	0.692	0.701	1.134	0.832	0.692	0.625	0.950	1.442	0.768
9	0.706	0.776	1.050	0.760	0.706	0.664	0.986	1.430	0.859
10	0.687	0.871	0.943	0.717	0.687	0.699	1.056	1.389	0.931
11	0.570	0.853	0.754	0.692	0.570	0.686	1.227	1.165	0.866

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.30	5.01	0.3	-3.0	4.3	0.285	0.181	0.135	0.644	0.033
2	9.30	10.04	1.0	-2.5	6.6	0.334	0.257	0.212	0.058	0.048
3	11.63	12.54	1.2	-2.3	9.8	0.406	0.328	0.285	0.069	0.060
4	13.98	15.05	1.5	-2.0	11.2	0.422	0.350	0.309	0.071	0.063
5	16.30	17.55	1.9	-1.7	6.0	0.352	0.278	0.238	0.064	0.054
6	18.62	20.06	1.8	-1.8	3.9	0.266	0.154	0.115	0.037	0.027
7	23.27	25.07	2.0	-1.8	3.2	0.316	0.121	0.084	0.029	0.020
8	28.12	30.31	1.8	-2.0	3.4	0.324	0.143	0.109	0.033	0.027
9	46.78	50.16	1.9	-2.4	2.7	0.358	0.104	0.081	0.026	0.020
10	66.82	70.23	3.2	-1.9	2.6	0.355	0.048	0.058	0.011	0.009
11	88.50	90.29	6.7	0.3	2.8	0.249	0.033	0.033	0.010	0.010

TABLE VI. - Continued. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(r) 100 Percent of design speed; reading 183

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	38.5	58.4	47.0	518.7	606.6	14.69	22.97
2	9.442	9.413	0.	40.4	57.6	47.9	518.7	606.6	14.69	22.48
3	9.302	9.292	0.	43.1	57.3	48.6	518.7	608.7	14.69	22.05
4	9.161	9.170	0.	44.3	56.7	47.2	518.7	609.4	14.69	22.00
5	9.022	9.049	0.	42.9	56.3	45.2	518.7	610.9	14.69	22.28
6	8.883	8.927	0.	40.5	55.6	43.2	518.7	605.9	14.69	22.70
7	8.604	8.684	0.	39.1	54.3	40.7	518.7	597.7	14.69	22.86
8	8.313	8.450	0.	38.2	53.1	38.4	518.7	595.7	14.69	22.93
9	7.193	7.467	0.	39.8	48.6	25.1	518.7	596.2	14.69	23.30
10	5.991	6.494	0.	40.9	45.0	12.9	518.7	592.1	14.69	22.90
11	4.630	5.521	0.	43.8	43.0	-1.6	518.7	594.8	14.69	23.17

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	688.7	759.1	1313.9	872.0	688.7	594.3	0.	472.4	1118.9	1110.5
2	690.8	726.3	1288.2	825.6	690.8	553.0	0.	471.0	1087.4	1084.0
3	687.5	707.1	1272.4	781.4	687.5	516.5	0.	483.1	1070.6	1069.5
4	692.3	716.5	1261.0	755.6	692.3	513.1	0.	500.2	1055.9	1054.9
5	694.3	735.3	1251.2	765.1	694.3	538.7	0.	500.6	1040.9	1044.0
6	700.7	755.2	1240.8	787.3	700.7	574.2	0.	490.7	1024.2	1029.3
7	711.6	770.1	1220.4	789.4	711.6	598.0	0.	485.4	991.4	1000.7
8	720.4	782.8	1199.6	785.1	720.4	614.9	0.	484.5	959.1	972.6
9	730.6	860.8	1104.9	730.3	730.6	661.4	0.	550.9	828.9	860.5
10	691.4	904.4	977.3	700.8	691.4	683.2	0.	592.6	690.7	748.7
11	571.6	947.1	781.8	684.0	571.6	683.8	0.	655.3	533.4	636.0

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.642	0.655	1.224	0.753	0.642	0.513	0.863	1.453	0.803
2	0.644	0.625	1.201	0.710	0.644	0.476	0.801	1.462	0.762
3	0.641	0.606	1.186	0.669	0.641	0.442	0.751	1.465	0.709
4	0.646	0.614	1.176	0.648	0.646	0.440	0.741	1.465	0.699
5	0.646	0.651	1.167	0.656	0.648	0.462	0.776	1.471	0.710
6	0.654	0.652	1.158	0.680	0.654	0.496	0.820	1.468	0.787
7	0.665	0.671	1.141	0.688	0.665	0.521	0.840	1.463	0.884
8	0.674	0.684	1.122	0.686	0.674	0.538	0.854	1.459	0.913
9	0.684	0.760	1.035	0.644	0.684	0.584	0.905	1.451	0.943
10	0.645	0.806	0.911	0.625	0.645	0.609	0.988	1.394	0.955
11	0.526	0.847	0.719	0.612	0.526	0.612	1.196	1.164	0.948

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	0.7	-2.7	1.2	0.471	0.159	0.113	0.041	0.029
2	9.30	10.04	1.6	-1.9	2.9	0.492	0.196	0.151	0.048	0.037
3	11.63	12.54	2.0	-1.5	4.0	0.522	0.246	0.202	0.058	0.048
4	13.98	15.05	2.2	-1.3	3.4	0.541	0.259	0.216	0.062	0.052
5	16.30	17.55	2.5	-1.1	2.0	0.529	0.255	0.213	0.063	0.052
6	18.62	20.06	2.6	-1.1	0.9	0.502	0.184	0.143	0.046	0.036
7	23.27	25.07	2.6	-1.1	0.3	0.487	0.096	0.058	0.024	0.015
8	28.12	30.31	2.6	-1.3	0.6	0.477	0.072	0.037	0.018	0.009
9	46.78	50.16	2.8	-1.6	-1.3	0.483	0.054	0.029	0.014	0.007
10	66.82	70.23	4.9	-0.2	2.8	0.435	0.049	0.040	0.011	0.009
11	89.50	90.29	8.9	2.5	8.1	0.298	0.085	0.085	0.016	0.016

TABLE VI. - Concluded. BLADE-ELEMENT PERFORMANCE

FOR ROTOR 1

(s) 100 Percent of design speed; reading 184

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.750	9.657	0.	42.4	60.2	47.2	518.7	619.2	14.69	23.58
2	9.442	9.415	0.	44.5	58.7	46.6	518.7	614.1	14.69	23.38
3	9.302	9.292	0.	46.0	58.1	46.8	518.7	616.0	14.69	23.08
4	9.161	9.170	0.	47.5	57.7	46.3	518.7	614.9	14.69	22.74
5	9.022	9.049	0.	45.1	57.1	44.5	518.7	615.5	14.69	22.95
6	8.883	8.927	0.	41.2	56.7	42.9	518.7	611.5	14.69	23.29
7	8.604	8.684	0.	41.7	55.2	40.0	518.7	601.3	14.69	23.49
8	8.313	8.430	0.	41.7	54.1	37.1	518.7	600.4	14.69	23.51
9	7.193	7.467	0.	42.1	49.9	25.0	518.7	597.4	14.69	23.44
10	5.991	6.494	0.	43.7	46.1	11.7	518.7	594.4	14.69	23.05
11	4.630	5.521	0.	46.2	43.5	-3.2	518.7	593.7	14.69	23.01

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	641.2	756.0	1291.3	821.9	641.2	558.6	0.	509.6	1120.9	1112.5
2	662.0	745.2	1275.4	774.0	662.0	531.9	0.	522.1	1087.7	1084.4
3	667.3	734.6	1264.4	746.5	667.3	510.6	0.	528.3	1074.0	1072.8
4	667.8	731.2	1248.3	717.3	667.8	495.8	0.	537.4	1054.7	1055.7
5	672.8	745.2	1237.6	735.5	672.8	526.1	0.	527.8	1038.7	1041.8
6	673.5	758.0	1225.3	777.9	673.5	570.2	0.	499.6	1023.6	1028.7
7	687.8	774.5	1206.4	754.4	687.8	578.0	0.	515.5	991.1	1000.3
8	694.0	790.5	1183.3	739.6	694.0	590.1	0.	526.1	958.4	971.9
9	697.2	845.3	1082.2	692.7	697.2	627.7	0.	566.2	827.7	859.2
10	664.3	891.5	958.9	658.2	664.3	644.5	0.	615.9	691.5	749.6
11	561.9	932.3	775.1	646.4	561.9	645.4	0.	672.8	533.9	636.7

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.594	0.645	1.197	0.701	0.594	0.477	0.871	1.492	0.747
2	0.615	0.638	1.183	0.663	0.615	0.455	0.803	1.483	0.771
3	0.620	0.627	1.175	0.637	0.620	0.436	0.765	1.486	0.734
4	0.621	0.625	1.161	0.613	0.621	0.424	0.743	1.486	0.716
5	0.626	0.637	1.151	0.629	0.626	0.450	0.782	1.485	0.728
6	0.627	0.651	1.140	0.668	0.627	0.490	0.847	1.490	0.786
7	0.641	0.673	1.124	0.655	0.641	0.502	0.840	1.482	0.901
8	0.647	0.689	1.104	0.644	0.647	0.514	0.850	1.481	0.912
9	0.650	0.743	1.010	0.609	0.650	0.552	0.900	1.487	0.941
10	0.617	0.791	0.891	0.584	0.617	0.572	0.970	1.400	0.939
11	0.517	0.833	0.713	0.578	0.517	0.577	1.149	1.166	0.945

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	2.5	-0.8	1.4	0.511	0.231	0.181	0.059	0.046
2	9.30	10.04	2.6	-0.8	1.6	0.541	0.205	0.159	0.051	0.040
3	11.63	12.54	2.9	-0.6	2.2	0.560	0.243	0.197	0.060	0.048
4	13.98	15.05	3.2	-0.4	2.5	0.578	0.260	0.216	0.064	0.053
5	16.30	17.55	3.3	-0.3	1.1	0.555	0.254	0.211	0.064	0.053
6	18.62	20.06	3.6	-0.0	0.6	0.506	0.198	0.156	0.050	0.039
7	23.27	25.07	3.5	-0.2	-0.4	0.518	0.087	0.048	0.022	0.012
8	28.12	30.31	3.6	-0.3	-0.8	0.520	0.078	0.042	0.020	0.011
9	46.78	50.16	4.1	-0.3	-1.4	0.511	0.058	0.032	0.015	0.008
10	66.82	70.23	6.1	1.0	-1.7	0.473	0.070	0.062	0.016	0.019
11	89.50	90.20	8.4	3.0	6.6	0.345	0.089	0.089	0.017	0.017

TABLE VII. - BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(a) 50 Percent of design speed; reading 368

RP	RADI I		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	47.9	67.9	50.0	518.7	543.6	14.69	16.47
2	9.442	9.413	0.	38.3	67.3	48.0	518.7	540.2	14.69	16.52
3	8.885	8.927	0.	34.3	65.1	45.3	518.7	537.6	14.69	16.50
4	8.740	8.810	0.	34.7	65.0	45.1	518.7	537.4	14.69	16.48
5	8.604	8.684	0.	37.7	64.5	45.3	518.7	537.2	14.69	16.40
6	8.460	8.560	0.	40.6	64.0	45.3	518.7	537.5	14.69	16.34
7	8.313	8.430	0.	48.7	63.6	46.0	518.7	538.1	14.69	16.24
8	8.160	8.300	0.	50.6	63.3	44.5	518.7	538.3	14.69	16.22
9	7.193	7.467	0.	39.8	59.7	32.2	518.7	536.8	14.69	16.39
10	5.991	6.494	0.	41.7	56.1	17.4	518.7	537.2	14.69	16.44
11	4.630	5.521	0.	43.9	53.6	-1.5	518.7	537.3	14.69	16.52

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	228.2	361.6	606.4	377.6	228.2	242.5	0.	268.2	561.9	557.7
2	227.8	363.3	589.1	426.3	227.8	285.3	0.	224.9	543.3	541.6
3	236.7	366.4	562.2	430.3	236.7	302.7	0.	206.6	509.9	512.4
4	235.4	364.5	556.5	424.4	235.4	299.6	0.	207.7	504.3	508.3
5	236.2	355.1	549.4	399.1	236.2	281.0	0.	217.2	496.0	500.6
6	236.9	347.2	541.1	374.5	236.9	263.4	0.	226.1	486.5	492.2
7	238.7	339.3	536.0	322.0	238.7	223.8	0.	255.1	479.9	486.7
8	236.9	343.3	527.7	305.9	236.9	218.1	0.	265.1	471.5	479.6
9	242.5	383.4	480.8	347.8	242.5	294.4	0.	245.7	415.1	430.9
10	232.0	416.0	415.8	325.4	232.0	310.5	0.	276.9	345.1	374.1
11	196.9	472.3	331.9	340.4	196.9	340.3	0.	327.5	267.2	318.6

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.205	0.320	0.546	0.334	0.205	0.214	1.063	0.892	0.691
2	0.205	0.322	0.530	0.378	0.205	0.253	1.253	0.884	0.818
3	0.213	0.326	0.506	0.383	0.213	0.269	1.279	0.861	0.923
4	0.212	0.324	0.501	0.377	0.212	0.266	1.273	0.863	0.924
5	0.213	0.316	0.494	0.355	0.213	0.250	1.189	0.858	0.891
6	0.213	0.308	0.487	0.333	0.213	0.234	1.112	0.848	0.851
7	0.215	0.301	0.482	0.286	0.215	0.199	0.937	0.846	0.774
8	0.213	0.305	0.475	0.272	0.213	0.194	0.921	0.843	0.759
9	0.218	0.342	0.433	0.310	0.218	0.262	1.214	0.788	0.912
10	0.209	0.371	0.374	0.290	0.209	0.277	1.338	0.716	0.914
11	0.177	0.423	0.298	0.305	0.177	0.305	1.729	0.593	0.949

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	10.2	6.9	4.2	0.543	0.265	0.265	0.064	0.064
2	9.30	10.04	11.3	7.8	3.0	0.415	0.144	0.144	0.035	0.035
3	18.62	20.06	12.0	8.4	3.0	0.361	0.059	0.059	0.014	0.014
4	21.00	22.47	12.6	8.9	3.6	0.364	0.059	0.059	0.014	0.014
5	23.27	25.07	12.8	9.1	4.8	0.406	0.085	0.085	0.020	0.020
6	25.67	27.63	12.8	9.0	6.3	0.446	0.121	0.121	0.028	0.028
7	28.12	30.31	13.0	9.2	8.2	0.554	0.192	0.192	0.043	0.043
8	30.67	32.99	13.5	9.6	8.1	0.583	0.213	0.213	0.049	0.049
9	46.78	50.16	13.9	9.6	5.8	0.424	0.086	0.086	0.021	0.021
10	66.82	70.23	16.1	11.0	7.3	0.385	0.114	0.114	0.026	0.026
11	89.50	90.29	19.5	13.1	9.0	0.178	0.105	0.105	0.020	0.020

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(b) 50 Percent of design speed; reading 369

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	32.6	64.5	49.2	518.7	538.9	14.69	16.38
2	9.442	9.413	0.	30.6	64.0	48.4	518.7	536.6	14.69	16.38
3	8.883	8.927	0.	31.2	61.7	45.4	518.7	536.0	14.69	16.36
4	8.740	8.810	0.	31.1	61.6	44.9	518.7	536.0	14.69	16.37
5	8.604	8.684	0.	31.9	60.9	43.8	518.7	535.5	14.69	16.35
6	8.460	8.560	0.	34.4	60.5	43.4	518.7	536.5	14.69	16.31
7	8.313	8.430	0.	40.4	60.1	44.4	518.7	536.7	14.69	16.14
8	8.160	8.300	0.	36.5	59.3	43.1	518.7	535.9	14.69	16.14
9	7.193	7.467	0.	35.2	55.9	31.8	518.7	535.9	14.69	16.31
10	5.991	6.494	0.	38.0	51.9	17.4	518.7	536.5	14.69	16.38
11	4.630	5.521	0.	41.1	49.9	-0.4	518.7	538.0	14.69	16.52

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	267.3	367.0	620.2	472.8	267.3	309.1	0.	197.8	559.7	555.5
2	265.3	366.2	604.8	475.2	265.3	315.2	0.	186.3	543.5	541.9
3	274.1	369.4	578.6	450.3	274.1	316.0	0.	191.3	509.5	512.1
4	273.1	370.7	573.3	448.3	273.1	317.4	0.	191.5	504.1	508.1
5	275.3	371.6	565.5	436.8	275.3	315.5	0.	196.5	494.0	498.6
6	275.6	366.8	559.7	416.5	275.6	302.8	0.	207.0	487.1	492.9
7	275.9	349.1	553.5	372.0	275.9	265.9	0.	226.4	479.8	486.6
8	278.9	354.6	545.8	389.8	278.9	284.9	0.	211.1	469.2	477.2
9	279.6	395.5	498.8	380.2	279.6	323.0	0.	228.2	413.0	428.8
10	269.4	431.8	436.7	356.6	269.4	340.3	0.	265.9	343.7	372.5
11	224.6	487.4	348.6	367.5	224.6	367.5	0.	320.2	266.5	317.8

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.241	0.326	0.559	0.420	0.241	0.275	1.157	0.849	0.808
2	0.239	0.326	0.545	0.423	0.239	0.281	1.188	0.849	0.911
3	0.247	0.329	0.521	0.401	0.247	0.282	1.153	0.828	0.930
4	0.246	0.330	0.517	0.399	0.246	0.283	1.162	0.831	0.940
5	0.248	0.331	0.510	0.389	0.248	0.281	1.146	0.821	0.955
6	0.248	0.327	0.504	0.371	0.248	0.270	1.099	0.818	0.881
7	0.249	0.310	0.499	0.331	0.249	0.236	0.964	0.816	0.782
8	0.251	0.316	0.492	0.347	0.251	0.254	1.021	0.806	0.823
9	0.252	0.353	0.450	0.339	0.252	0.288	1.155	0.760	0.912
10	0.243	0.386	0.393	0.319	0.243	0.304	1.263	0.695	0.918
11	0.202	0.437	0.314	0.329	0.202	0.329	1.636	0.581	0.913

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	6.8	3.5	3.4	0.357	0.131	0.131	0.032	0.032
2	9.30	10.04	8.0	4.5	3.4	0.327	0.056	0.056	0.014	0.014
3	18.62	20.06	8.7	5.0	3.1	0.336	0.047	0.047	0.011	0.011
4	21.00	22.47	9.2	5.5	3.4	0.332	0.041	0.041	0.010	0.010
5	23.27	25.07	9.1	5.4	3.3	0.344	0.030	0.030	0.007	0.007
6	25.67	27.63	9.3	5.5	4.3	0.378	0.087	0.087	0.021	0.021
7	28.12	30.31	9.6	5.7	6.5	0.461	0.163	0.163	0.038	0.038
8	30.67	32.99	9.4	5.5	6.6	0.411	0.130	0.130	0.030	0.030
9	46.78	50.16	10.1	5.8	5.4	0.370	0.077	0.077	0.018	0.018
10	66.82	70.23	11.9	6.8	7.3	0.336	0.095	0.095	0.022	0.022
11	89.50	90.29	15.7	9.3	10.1	0.135	0.169	0.169	0.032	0.032

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(c) 50 Percent of design speed; reading 370

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	23.8	61.4	49.1	518.7	535.1	14.69	16.14
2	9.442	9.413	0.	23.5	60.9	48.4	518.7	533.7	14.69	16.12
3	8.883	8.927	0.	24.7	58.6	46.3	518.7	533.2	14.69	16.07
4	8.740	8.810	0.	24.8	58.4	45.7	518.7	532.9	14.69	16.09
5	8.604	8.684	0.	25.7	57.7	44.4	518.7	533.3	14.69	16.08
6	8.460	8.560	0.	27.8	57.2	43.7	518.7	533.8	14.69	16.04
7	8.313	8.430	0.	32.8	56.5	44.0	518.7	534.4	14.69	15.87
8	8.160	8.300	0.	28.5	55.8	42.4	518.7	534.0	14.69	15.96
9	7.193	7.467	0.	28.9	52.5	31.6	518.7	534.3	14.69	16.21
10	5.991	6.494	0.	32.7	48.3	17.6	518.7	535.8	14.69	16.34
11	4.630	5.521	0.	38.1	45.6	-0.5	518.7	538.7	14.69	16.53

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	304.6	379.8	636.0	530.3	304.6	347.4	0.	153.6	558.4	554.2
2	302.7	377.6	621.7	522.0	302.7	346.3	0.	150.7	543.0	541.3
3	312.2	376.1	599.9	494.9	312.2	341.9	0.	156.9	512.2	514.8
4	310.6	376.8	592.6	489.9	310.6	342.1	0.	158.0	504.7	508.7
5	312.7	379.0	585.2	478.5	312.7	341.6	0.	164.2	494.6	499.2
6	313.1	375.1	578.0	458.7	313.1	331.8	0.	174.9	485.9	491.6
7	316.3	358.4	573.4	418.9	316.3	301.3	0.	194.0	478.3	485.0
8	317.8	372.2	566.1	442.9	317.8	327.0	0.	177.8	468.4	476.5
9	318.2	421.2	522.7	432.8	318.2	368.6	0.	203.8	414.7	430.5
10	307.9	464.7	463.3	410.5	307.9	391.2	0.	250.8	346.1	375.2
11	261.2	520.6	373.4	409.7	261.2	409.6	0.	321.3	266.8	318.1

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.275	0.339	0.574	0.473	0.275	0.310	1.141	0.811	0.861
2	0.273	0.337	0.561	0.466	0.273	0.309	1.144	0.814	0.928
3	0.282	0.336	0.542	0.442	0.282	0.305	1.095	0.803	0.926
4	0.280	0.337	0.535	0.438	0.280	0.306	1.101	0.803	0.959
5	0.282	0.339	0.528	0.428	0.282	0.305	1.093	0.795	0.924
6	0.283	0.335	0.522	0.410	0.283	0.296	1.060	0.788	0.872
7	0.286	0.320	0.518	0.373	0.286	0.269	0.953	0.785	0.736
8	0.287	0.332	0.511	0.395	0.287	0.292	1.029	0.778	0.808
9	0.287	0.377	0.472	0.387	0.287	0.330	1.158	0.744	0.950
10	0.278	0.417	0.418	0.368	0.278	0.351	1.271	0.688	0.934
11	0.235	0.468	0.336	0.368	0.235	0.368	1.568	0.573	0.888

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS TOT	COEFF PROF	LOSS TOT	PARAM PROF
	IN	OUT	MEAN	SS						
1	4.50	5.01	3.7	0.4	3.3	0.257	0.074	0.074	0.018	0.018
2	9.30	10.04	4.9	1.4	3.4	0.249	0.037	0.037	0.009	0.009
3	18.62	20.06	5.6	1.9	4.0	0.265	0.039	0.039	0.009	0.009
4	21.00	22.47	6.0	2.3	4.2	0.264	0.021	0.021	0.005	0.005
5	23.27	25.07	6.0	2.2	4.0	0.277	0.042	0.042	0.010	0.010
6	25.67	27.63	6.0	2.2	4.7	0.306	0.075	0.075	0.018	0.018
7	28.12	30.31	6.0	2.1	6.2	0.380	0.162	0.162	0.038	0.038
8	30.67	32.99	6.0	2.1	6.0	0.319	0.117	0.117	0.028	0.028
9	46.78	50.16	6.7	2.4	5.2	0.285	0.036	0.036	0.009	0.009
10	66.82	70.23	8.3	3.2	7.5	0.250	0.065	0.065	0.015	0.015
11	89.50	90.29	11.4	5.1	10.0	0.080	0.196	0.196	0.037	0.037

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(d) 50 Percent of design speed; reading 371

RP	RADI I		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	14.8	58.3	49.7	518.7	530.5	14.69	15.68
2	9.442	9.413	0.	14.3	57.3	49.0	518.7	530.1	14.69	15.66
3	8.883	8.927	0.	15.1	55.2	46.8	518.7	528.8	14.69	15.66
4	8.740	8.810	0.	15.7	54.6	45.9	518.7	529.1	14.69	15.67
5	8.604	8.684	0.	16.7	54.3	45.4	518.7	529.3	14.69	15.66
6	8.460	8.560	0.	19.3	53.7	44.6	518.7	530.2	14.69	15.60
7	8.313	8.430	0.	24.6	53.0	43.9	518.7	531.4	14.69	15.43
8	8.160	8.300	0.	21.1	52.5	42.6	518.7	530.7	14.69	15.57
9	7.193	7.467	0.	21.5	48.4	31.1	518.7	532.3	14.69	15.99
10	5.991	6.494	0.	27.1	44.1	16.9	518.7	535.5	14.69	16.27
11	4.630	5.521	0.	34.3	41.2	-1.1	518.7	539.5	14.69	16.56

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	346.6	399.4	659.9	597.3	346.6	386.2	0.	101.7	561.6	557.4
2	348.6	397.4	645.6	587.3	348.6	385.0	0.	98.2	543.4	541.8
3	355.7	398.7	623.3	562.7	355.7	385.0	0.	103.9	511.8	514.3
4	357.3	400.7	616.8	554.4	357.3	385.7	0.	108.6	502.7	506.7
5	357.8	398.2	612.5	543.8	357.8	381.5	0.	114.2	497.1	501.7
6	358.6	392.0	605.5	519.1	358.6	369.9	0.	129.5	487.9	493.7
7	360.6	375.1	598.8	473.6	360.6	341.0	0.	156.1	478.0	484.7
8	361.6	393.1	593.4	498.3	361.6	366.8	0.	141.3	470.5	478.5
9	366.9	461.5	552.3	501.5	366.9	429.3	0.	169.3	412.8	428.6
10	356.1	515.6	496.0	479.8	356.1	459.1	0.	234.8	345.3	374.3
11	303.3	577.7	403.3	477.0	303.3	477.0	0.	325.9	265.8	316.9

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.314	0.358	0.597	0.536	0.314	0.346	1.114	0.779	0.821
2	0.315	0.357	0.584	0.527	0.315	0.345	1.105	0.776	0.833
3	0.322	0.358	0.564	0.506	0.322	0.346	1.082	0.770	0.942
4	0.323	0.360	0.558	0.498	0.323	0.347	1.079	0.765	0.921
5	0.324	0.358	0.554	0.488	0.324	0.343	1.066	0.768	0.906
6	0.325	0.352	0.548	0.466	0.325	0.332	1.032	0.761	0.774
7	0.327	0.336	0.542	0.424	0.327	0.305	0.945	0.755	0.576
8	0.327	0.352	0.537	0.447	0.327	0.329	1.014	0.755	0.722
9	0.332	0.415	0.500	0.451	0.332	0.386	1.170	0.718	0.933
10	0.322	0.464	0.449	0.432	0.322	0.413	1.289	0.675	0.916
11	0.274	0.521	0.364	0.430	0.274	0.430	1.573	0.567	0.866

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS TOT	COEFF PROF	LOSS TOT	PARAM PROF
	IN	OUT	MEAN	SS						
1	4.50	5.01	0.6	-2.7	3.9	0.152	0.065	0.065	0.016	0.016
2	9.30	10.04	1.3	-2.1	4.0	0.146	0.061	0.061	0.015	0.015
3	18.62	20.06	2.1	-1.5	4.5	0.155	0.020	0.020	0.005	0.005
4	21.00	22.47	2.2	-1.5	4.4	0.161	0.029	0.029	0.007	0.007
5	23.27	25.07	2.5	-1.2	5.0	0.175	0.035	0.035	0.008	0.008
6	25.67	27.63	2.5	-1.3	5.5	0.213	0.093	0.093	0.022	0.022
7	28.12	30.31	2.4	-1.4	6.1	0.294	0.194	0.194	0.045	0.045
8	30.67	32.99	2.6	-1.3	6.2	0.237	0.123	0.123	0.029	0.029
9	46.78	50.16	2.6	-1.8	4.7	0.181	0.038	0.038	0.009	0.009
10	66.82	70.23	4.1	-1.0	6.8	0.151	0.072	0.072	0.017	0.017
11	89.50	90.29	7.1	0.7	9.4	-0.017	0.209	0.209	0.040	0.040

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(e) 50 Percent of design speed; reading 373

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	-7.1	52.1	52.1	518.7	515.7	14.69	13.91
2	9.442	9.413	0.	-6.7	51.4	50.6	518.7	516.3	14.69	14.02
3	8.883	8.927	0.	-7.6	48.9	49.1	518.7	515.7	14.69	14.16
4	8.740	8.810	0.	-7.6	48.2	48.8	518.7	515.9	14.69	14.18
5	8.604	8.684	0.	-6.6	47.6	48.6	518.7	516.5	14.69	14.05
6	8.460	8.560	0.	-4.9	46.9	48.8	518.7	517.0	14.69	13.84
7	8.313	8.430	0.	-0.9	46.3	46.8	518.7	519.1	14.69	13.76
8	8.160	8.300	0.	1.1	45.5	44.8	518.7	519.8	14.69	13.82
9	7.193	7.467	0.	7.1	41.1	29.9	518.7	527.4	14.69	15.21
10	5.991	6.494	0.	16.7	36.5	14.5	518.7	534.8	14.69	16.04
11	4.630	5.521	0.	28.2	33.5	-3.2	518.7	542.6	14.69	16.78

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	438.7	486.1	713.8	784.7	438.7	482.4	0.	-60.0	563.1	558.8
2	436.5	497.4	699.1	779.0	436.5	494.0	0.	-57.9	546.1	544.4
3	447.6	510.2	681.1	772.0	447.6	505.8	0.	-67.4	513.4	515.9
4	453.0	510.6	679.4	768.0	453.0	506.1	0.	-67.3	506.3	510.4
5	453.8	494.5	672.8	743.5	453.8	491.2	0.	-56.7	496.7	501.3
6	457.4	470.7	669.7	711.6	457.4	468.9	0.	-40.2	489.2	495.0
7	458.0	463.5	663.3	677.0	458.0	463.4	0.	-7.0	479.8	486.5
8	462.7	473.3	659.8	666.7	462.7	473.2	0.	8.9	470.4	478.4
9	475.0	617.9	630.0	707.7	475.0	613.2	0.	76.3	413.8	429.6
10	466.3	697.5	579.8	690.1	466.3	668.1	0.	200.4	344.5	373.5
11	403.9	752.9	484.3	664.7	403.9	663.7	0.	355.4	267.2	318.7

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.399	0.445	0.650	0.719	0.399	0.442	1.100	0.653	2.653
2	0.397	0.456	0.636	0.714	0.397	0.453	1.132	0.686	2.900
3	0.408	0.468	0.620	0.709	0.408	0.464	1.130	0.692	1.785
4	0.413	0.469	0.619	0.705	0.413	0.465	1.117	0.692	1.861
5	0.413	0.453	0.613	0.681	0.413	0.450	1.082	0.692	2.938
6	0.417	0.430	0.610	0.650	0.417	0.429	1.025	0.688	5.134
7	0.417	0.422	0.604	0.617	0.417	0.422	1.012	0.689	-23.338
8	0.422	0.431	0.601	0.608	0.422	0.431	1.023	0.686	-8.535
9	0.433	0.566	0.575	0.649	0.433	0.562	1.291	0.669	0.596
10	0.425	0.640	0.529	0.633	0.425	0.613	1.433	0.651	0.818
11	0.367	0.690	0.440	0.609	0.367	0.608	1.643	0.568	0.839

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	-5.6	-8.9	6.2	-0.068	0.135	0.135	0.031	0.031
2	9.30	10.04	-4.6	-8.1	5.6	-0.084	0.127	0.127	0.029	0.029
3	18.62	20.06	-4.1	-7.8	6.8	-0.099	0.070	0.070	0.016	0.016
4	21.00	22.47	-4.2	-7.9	7.3	-0.097	0.073	0.073	0.016	0.016
5	23.27	25.07	-4.1	-7.9	8.2	-0.077	0.130	0.130	0.029	0.029
6	25.67	27.63	-4.3	-8.1	9.8	-0.043	0.214	0.214	0.046	0.046
7	28.12	30.31	-4.2	-8.1	9.0	-0.017	0.303	0.303	0.067	0.067
8	30.67	32.99	-4.4	-8.3	8.3	-0.006	0.307	0.307	0.070	0.070
9	46.78	50.16	-4.7	-9.1	3.5	-0.088	0.116	0.116	0.029	0.029
10	66.82	70.23	-3.5	-8.6	4.4	-0.104	0.111	0.111	0.026	0.026
11	89.50	90.29	-0.6	-7.0	7.4	-0.221	0.202	0.202	0.038	0.038

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(f) 70 Percent of design speed; reading 377

RP	RADI		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	47.4	66.3	50.3	518.7	567.6	14.69	18.16
2	9.442	9.413	0.	38.7	65.5	48.3	518.7	560.6	14.69	18.27
3	8.883	8.927	0.	34.9	63.6	45.6	518.7	555.0	14.69	18.27
4	8.740	8.810	0.	35.2	63.0	45.1	518.7	555.4	14.69	18.23
5	8.604	8.684	0.	37.9	62.9	45.7	518.7	554.0	14.69	18.04
6	8.460	8.560	0.	41.6	62.3	45.8	518.7	554.9	14.69	17.89
7	8.313	8.430	0.	49.0	61.9	46.5	518.7	556.3	14.69	17.68
8	8.160	8.300	0.	51.1	61.5	44.9	518.7	556.7	14.69	17.64
9	7.193	7.467	0.	39.8	57.9	31.6	518.7	554.6	14.69	18.08
10	5.991	6.494	0.	41.9	53.9	16.8	518.7	554.1	14.69	18.20
11	4.630	5.521	0.	44.2	50.9	-0.9	518.7	556.7	14.69	18.36

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	342.8	499.2	852.6	529.3	342.8	338.0	0.	367.5	780.7	774.8
2	345.4	503.8	833.9	591.0	345.4	393.0	0.	315.3	759.0	756.7
3	354.4	508.1	795.9	595.2	354.4	416.6	0.	291.0	712.7	716.2
4	357.4	506.7	788.2	587.0	357.4	414.1	0.	292.1	702.5	708.2
5	354.5	491.4	777.8	554.7	354.5	387.7	0.	302.1	692.3	698.7
6	357.2	480.2	767.8	514.9	357.2	359.1	0.	318.7	679.6	687.7
7	356.2	468.7	757.2	446.7	356.2	307.6	0.	353.7	668.2	677.6
8	356.5	475.1	746.8	421.1	356.5	298.0	0.	370.0	656.2	667.5
9	362.2	539.1	681.9	486.0	362.2	414.0	0.	345.2	577.8	599.8
10	351.5	585.8	596.5	455.4	351.5	436.1	0.	391.1	482.0	522.5
11	303.3	648.5	480.4	465.2	303.3	465.2	0.	451.9	372.6	444.3

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.310	0.436	0.771	0.462	0.310	0.295	0.986	1.219	0.662
2	0.312	0.443	0.754	0.519	0.312	0.345	1.138	1.214	0.795
3	0.321	0.449	0.720	0.526	0.321	0.368	1.175	1.188	0.917
4	0.323	0.447	0.713	0.518	0.323	0.366	1.159	1.183	0.898
5	0.321	0.434	0.704	0.490	0.321	0.342	1.094	1.183	0.887
6	0.323	0.423	0.695	0.454	0.323	0.317	1.005	1.169	0.828
7	0.322	0.412	0.685	0.393	0.322	0.271	0.864	1.164	0.750
8	0.323	0.418	0.676	0.370	0.323	0.262	0.836	1.158	0.732
9	0.328	0.478	0.617	0.431	0.328	0.367	1.143	1.087	0.882
10	0.318	0.521	0.540	0.405	0.318	0.388	1.241	0.991	0.924
11	0.274	0.579	0.434	0.416	0.274	0.416	1.534	0.818	0.896

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS TOT	COEFF PROF	LOSS TOT	PARAM PROF
	IN	OUT	MEAN	SS						
1	4.50	5.01	8.6	5.3	4.5	0.540	0.301	0.301	0.072	0.072
2	9.30	10.04	9.5	6.1	3.3	0.429	0.167	0.167	0.040	0.040
3	18.62	20.06	10.5	6.9	3.3	0.378	0.064	0.064	0.016	0.016
4	21.00	22.47	10.6	6.9	3.6	0.381	0.081	0.081	0.019	0.019
5	23.27	25.07	11.2	7.4	5.2	0.417	0.089	0.089	0.021	0.021
6	25.67	27.63	11.1	7.3	6.8	0.467	0.141	0.141	0.032	0.032
7	28.12	30.31	11.4	7.5	8.6	0.562	0.216	0.216	0.048	0.048
8	30.67	32.99	11.7	7.7	8.5	0.597	0.239	0.239	0.054	0.054
9	46.78	50.16	12.1	7.8	5.2	0.434	0.119	0.119	0.029	0.029
10	66.82	70.23	13.9	8.8	6.7	0.401	0.096	0.096	0.022	0.022
11	89.50	90.29	16.7	10.3	9.6	0.225	0.209	0.209	0.040	0.040

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(g) 70 Percent of design speed; reading 379

RP	RAD II		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	26.3	60.7	49.1	518.7	551.7	14.69	17.79
2	9.442	9.413	0.	26.7	60.0	48.3	518.7	550.0	14.69	17.73
3	8.883	8.927	0.	27.2	58.0	46.4	518.7	548.6	14.69	17.60
4	8.740	8.810	0.	27.4	57.5	45.7	518.7	548.3	14.69	17.62
5	8.604	8.684	0.	28.7	57.0	45.0	518.7	548.4	14.69	17.56
6	8.460	8.560	0.	31.2	56.5	44.2	518.7	549.8	14.69	17.45
7	8.313	8.430	0.	35.3	56.0	44.3	518.7	550.4	14.69	17.21
8	8.160	8.300	0.	31.2	55.6	42.9	518.7	548.9	14.69	17.34
9	7.193	7.467	0.	31.4	51.9	31.3	518.7	550.7	14.69	17.83
10	5.991	6.494	0.	35.1	47.8	16.5	518.7	553.3	14.69	18.05
11	4.630	5.521	0.	39.8	45.0	-1.0	518.7	557.9	14.69	18.39

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	439.4	526.7	899.1	721.4	439.4	472.3	0.	233.1	784.4	778.5
2	437.9	521.8	876.9	700.3	437.9	466.1	0.	234.6	759.7	757.4
3	446.1	515.4	841.4	664.6	446.1	458.4	0.	235.7	713.4	716.9
4	448.4	518.7	835.0	658.9	448.4	460.5	0.	238.7	704.3	710.0
5	449.5	515.3	826.3	639.3	449.5	452.0	0.	247.7	693.4	699.8
6	449.5	509.0	814.9	608.1	449.5	435.6	0.	263.4	679.7	687.8
7	450.6	493.3	806.1	562.4	450.6	402.6	0.	285.1	668.4	677.8
8	450.1	509.4	796.5	594.7	450.1	435.8	0.	263.7	657.1	668.4
9	454.3	579.1	736.7	578.0	454.3	494.1	0.	302.1	579.9	602.0
10	435.8	637.9	649.3	544.2	435.8	521.7	0.	367.0	481.4	521.8
11	372.6	709.5	527.1	545.0	372.6	544.9	0.	454.3	372.8	444.6

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.400	0.467	0.818	0.640	0.400	0.419	1.075	1.138	0.883
2	0.399	0.464	0.798	0.622	0.399	0.414	1.064	1.135	0.913
3	0.406	0.458	0.766	0.591	0.406	0.408	1.028	1.119	0.919
4	0.408	0.461	0.760	0.586	0.408	0.410	1.027	1.118	0.932
5	0.409	0.458	0.753	0.569	0.409	0.402	1.006	1.115	0.913
6	0.409	0.452	0.742	0.540	0.409	0.387	0.969	1.103	0.841
7	0.410	0.437	0.734	0.498	0.410	0.357	0.893	1.100	0.755
8	0.410	0.453	0.725	0.528	0.410	0.387	0.968	1.098	0.831
9	0.414	0.517	0.671	0.516	0.414	0.441	1.087	1.044	0.922
10	0.396	0.571	0.591	0.487	0.396	0.467	1.197	0.962	0.908
11	0.338	0.637	0.478	0.489	0.338	0.489	1.462	0.805	0.877

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	3.0	-0.3	3.3	0.294	0.068	0.068	0.017	0.017
2	9.30	10.04	4.0	0.6	3.3	0.299	0.050	0.050	0.012	0.012
3	18.62	20.06	4.9	1.3	4.1	0.307	0.048	0.048	0.011	0.011
4	21.00	22.47	5.1	1.4	4.2	0.308	0.040	0.040	0.010	0.010
5	23.27	25.07	5.3	1.6	4.6	0.327	0.053	0.053	0.012	0.012
6	25.67	27.63	5.3	1.5	5.2	0.361	0.102	0.102	0.024	0.024
7	28.12	30.31	5.5	1.6	6.5	0.418	0.162	0.162	0.038	0.038
8	30.67	32.99	5.8	1.8	6.4	0.361	0.110	0.110	0.026	0.026
9	46.78	50.16	6.1	1.8	4.8	0.334	0.062	0.062	0.015	0.015
10	66.82	70.23	7.8	2.7	6.4	0.304	0.097	0.097	0.023	0.023
11	89.50	90.29	10.9	4.5	9.5	0.144	0.214	0.214	0.041	0.041

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(h) 70 Percent of design speed; reading 380

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	18.4	58.2	49.6	518.7	543.7	14.69	16.97
2	9.442	9.413	0.	17.9	57.6	49.0	518.7	542.6	14.69	16.91
3	8.883	8.927	0.	18.5	55.4	47.1	518.7	541.1	14.69	16.83
4	8.740	8.810	0.	18.5	54.8	46.8	518.7	541.4	14.69	16.81
5	8.604	8.684	0.	20.7	54.3	46.4	518.7	541.4	14.69	16.70
6	8.460	8.560	0.	24.1	53.8	45.8	518.7	543.1	14.69	16.54
7	8.313	8.430	0.	26.8	53.2	44.8	518.7	544.0	14.69	16.41
8	8.160	8.300	0.	24.6	52.7	43.1	518.7	544.1	14.69	16.60
9	7.193	7.467	0.	24.8	48.8	30.8	518.7	546.7	14.69	17.45
10	5.991	6.494	0.	30.2	44.5	15.9	518.7	551.6	14.69	17.89
11	4.630	5.521	0.	36.5	41.8	-1.2	518.7	557.1	14.69	18.46

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	485.8	543.4	922.2	796.1	485.8	515.7	0.	171.5	783.9	778.0
2	481.3	539.9	898.9	782.8	481.3	513.7	0.	166.3	759.2	756.9
3	491.9	536.1	866.5	746.4	491.9	508.3	0.	170.3	713.3	716.9
4	496.2	534.3	860.9	740.2	496.2	506.6	0.	169.6	703.5	709.1
5	497.3	523.7	852.4	710.0	497.3	490.0	0.	184.9	692.3	698.7
6	498.1	511.4	843.3	669.7	498.1	466.9	0.	208.5	680.5	688.5
7	499.9	507.0	834.9	637.9	499.9	452.6	0.	228.5	668.7	678.2
8	500.2	526.1	825.0	655.5	500.2	478.3	0.	219.1	656.1	667.3
9	505.4	623.6	767.2	659.0	505.4	566.0	J.	261.8	577.3	599.3
10	489.2	695.1	686.0	624.5	489.2	600.5	0.	350.0	480.9	521.3
11	416.5	766.9	558.4	616.7	416.5	616.6	0.	455.9	371.9	443.5

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.444	0.487	0.842	0.713	0.444	0.462	1.062	1.096	0.872
2	0.439	0.484	0.821	0.701	0.439	0.460	1.067	1.099	0.891
3	0.449	0.481	0.792	0.670	0.449	0.456	1.033	1.086	0.915
4	0.454	0.479	0.787	0.664	0.454	0.454	1.021	1.084	0.894
5	0.455	0.469	0.779	0.636	0.455	0.439	0.985	1.082	0.849
6	0.455	0.457	0.771	0.598	0.455	0.417	0.937	1.074	0.732
7	0.457	0.452	0.763	0.569	0.457	0.404	0.905	1.070	0.657
8	0.457	0.470	0.754	0.586	0.457	0.427	0.956	1.066	0.723
9	0.462	0.561	0.702	0.593	0.462	0.509	1.120	1.017	0.932
10	0.447	0.627	0.627	0.563	0.447	0.542	1.228	0.950	0.913
11	0.378	0.694	0.507	0.558	0.378	0.558	1.481	0.800	0.909

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	0.5	-2.8	3.8	0.206	0.055	0.055	0.013	0.013
2	9.30	10.04	1.6	-1.8	4.0	0.197	0.046	0.046	0.011	0.011
3	18.62	20.06	2.4	-1.3	4.8	0.206	0.036	0.036	0.009	0.009
4	21.00	22.47	2.4	-1.3	5.3	0.207	0.046	0.046	0.011	0.011
5	23.27	25.07	2.6	-1.1	5.9	0.240	0.067	0.067	0.015	0.015
6	25.67	27.63	2.6	-1.2	6.8	0.288	0.128	0.128	0.029	0.029
7	28.12	30.31	2.7	-1.2	7.0	0.325	0.172	0.172	0.039	0.039
8	30.67	32.99	2.8	-1.1	6.7	0.292	0.143	0.143	0.034	0.034
9	46.78	50.16	3.0	-1.3	4.4	0.240	0.044	0.044	0.011	0.011
10	66.82	70.23	4.5	-0.6	5.8	0.218	0.079	0.079	0.018	0.018
11	89.50	90.29	7.6	1.2	9.4	0.064	0.140	0.140	0.027	0.027

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(i) 70 Percent of design speed; reading 382

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	8.7	56.7	50.5	518.7	533.3	14.69	15.68
2	9.442	9.413	0.	7.5	55.8	50.0	518.7	532.8	14.69	15.74
3	8.883	8.927	0.	7.3	53.3	49.0	518.7	530.5	14.69	15.58
4	8.740	8.810	0.	7.3	52.8	49.0	518.7	530.0	14.69	15.53
5	8.604	8.684	0.	9.6	52.1	49.8	518.7	530.8	14.69	15.15
6	8.460	8.560	0.	12.1	51.9	49.3	518.7	531.6	14.69	15.00
7	8.313	8.430	0.	15.1	51.2	46.6	518.7	535.3	14.69	15.12
8	8.160	8.300	0.	17.8	50.4	44.4	518.7	535.9	14.69	15.19
9	7.193	7.467	0.	17.9	46.2	30.3	518.7	542.6	14.69	16.87
10	5.991	6.494	0.	25.0	41.9	15.5	518.7	551.5	14.69	17.70
11	4.630	5.521	0.	34.9	39.1	-2.9	518.7	556.7	14.69	18.56

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	514.1	575.9	936.7	894.6	514.1	569.3	0.	87.0	783.0	777.1
2	515.1	576.9	917.3	889.7	515.1	572.0	0.	75.2	759.0	756.6
3	531.5	566.3	890.5	855.9	531.5	561.7	0.	72.1	714.4	718.0
4	535.0	559.0	884.0	845.9	535.0	554.6	0.	70.7	703.8	709.4
5	537.4	523.1	875.6	799.0	537.4	515.7	0.	87.4	691.3	697.8
6	533.5	510.6	863.8	765.4	533.5	499.2	0.	107.2	679.4	687.4
7	538.4	528.7	858.5	743.3	538.4	510.4	0.	137.7	668.6	678.0
8	542.1	539.0	850.9	718.4	542.1	513.3	0.	164.5	655.8	667.1
9	552.4	693.6	798.8	764.4	552.4	660.0	0.	213.3	577.0	599.0
10	535.4	773.8	719.5	727.8	535.4	701.4	0.	326.8	480.6	520.9
11	458.4	838.1	590.3	688.7	458.4	687.8	0.	478.9	371.9	443.5

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.471	0.523	0.857	0.812	0.471	0.517	1.107	1.067	0.667
2	0.472	0.524	0.840	0.808	0.472	0.519	1.110	1.069	0.728
3	0.487	0.515	0.816	0.778	0.487	0.511	1.057	1.059	0.747
4	0.491	0.508	0.811	0.769	0.491	0.504	1.037	1.058	0.730
5	0.493	0.473	0.803	0.723	0.493	0.467	0.960	1.053	0.379
6	0.489	0.461	0.792	0.692	0.489	0.451	0.936	1.049	0.235
7	0.494	0.477	0.788	0.670	0.494	0.460	0.948	1.047	0.254
8	0.498	0.486	0.781	0.648	0.498	0.463	0.947	1.042	0.289
9	0.507	0.631	0.734	0.696	0.507	0.601	1.195	0.999	0.873
10	0.491	0.705	0.660	0.663	0.491	0.639	1.310	0.942	0.864
11	0.418	0.766	0.538	0.629	0.418	0.629	1.500	0.799	0.941

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	-1.0	-4.3	4.6	0.080	0.082	0.082	0.020	0.020
2	9.30	10.04	-0.2	-3.6	5.0	0.060	0.067	0.067	0.016	0.016
3	18.62	20.06	0.3	-3.3	6.7	0.067	0.055	0.055	0.012	0.012
4	21.00	22.47	0.4	-3.3	7.5	0.070	0.057	0.057	0.013	0.013
5	23.27	25.07	0.4	-3.3	9.4	0.121	0.141	0.141	0.031	0.031
6	25.67	27.63	0.6	-3.2	10.3	0.155	0.188	0.188	0.040	0.040
7	28.12	30.31	0.6	-3.3	8.8	0.186	0.236	0.236	0.052	0.052
8	30.67	32.99	0.6	-3.3	8.0	0.218	0.236	0.236	0.054	0.054
9	46.78	50.16	0.4	-3.9	3.9	0.120	0.066	0.066	0.016	0.016
10	66.82	70.23	1.9	-3.2	5.4	0.102	0.113	0.113	0.026	0.026
11	89.50	90.29	4.9	-1.5	7.6	0.001	0.081	0.081	0.015	0.015

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(j) 70 Percent of design speed; reading 383

RP	RADI		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	-0.4	56.3	52.1	518.7	523.9	14.69	14.54
2	9.442	9.413	0.	-0.5	55.3	51.1	518.7	523.2	14.69	14.63
3	8.883	8.927	0.	-1.7	53.1	50.7	518.7	521.1	14.69	14.42
4	8.740	8.810	0.	-2.2	52.4	50.7	518.7	520.6	14.69	14.39
5	8.604	8.684	0.	-1.4	51.9	51.6	518.7	519.9	14.69	14.01
6	8.460	8.560	0.	0.3	51.2	52.2	518.7	521.2	14.69	13.68
7	8.313	8.430	0.	4.8	50.6	51.3	518.7	523.9	14.69	13.44
8	8.160	8.300	0.	9.9	50.0	48.5	518.7	525.3	14.69	13.40
9	7.193	7.467	0.	13.3	45.7	29.8	518.7	539.3	14.69	16.35
10	5.991	6.494	0.	22.1	40.9	15.9	518.7	549.6	14.69	17.57
11	4.630	5.521	0.	33.4	38.0	-2.6	518.7	558.1	14.69	18.66

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	521.2	609.2	940.6	991.1	521.2	609.2	0.	-4.6	783.0	777.1
2	526.8	616.8	925.1	981.6	526.8	616.8	0.	-5.5	760.4	758.1
3	536.7	601.2	893.1	949.5	536.7	600.9	0.	-17.7	713.8	717.3
4	540.4	598.5	885.8	944.1	540.4	598.0	0.	-23.1	701.9	707.5
5	541.4	563.4	877.7	907.2	541.4	563.3	0.	-13.9	690.9	697.3
6	546.1	532.1	871.9	867.5	546.1	532.1	0.	2.6	679.8	687.8
7	546.8	509.3	861.6	811.3	546.8	507.5	0.	42.3	665.9	675.2
8	548.8	518.0	853.7	769.4	548.8	510.2	0.	89.3	653.9	665.1
9	562.6	760.1	806.0	852.4	562.6	739.6	0.	175.5	577.2	599.2
10	553.2	811.6	732.1	781.8	553.2	751.9	0.	305.6	479.5	519.8
11	474.8	864.6	602.7	722.8	474.8	722.0	0.	475.6	371.2	442.7

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS EFF	
	IN	OUT	IN	OUT	IN	OUT		MACH NO	
1	0.477	0.560	0.862	0.911	0.477	0.560	1.169	1.060	-0.298
2	0.483	0.568	0.848	0.903	0.483	0.568	1.171	1.062	-0.135
3	0.492	0.554	0.819	0.874	0.492	0.553	1.120	1.054	-1.165
4	0.496	0.551	0.813	0.869	0.496	0.551	1.107	1.050	-1.659
5	0.497	0.517	0.805	0.833	0.497	0.517	1.040	1.049	-5.665
6	0.501	0.487	0.800	0.793	0.501	0.487	0.974	1.042	-4.149
7	0.502	0.464	0.791	0.739	0.502	0.462	0.928	1.036	-2.540
8	0.504	0.471	0.784	0.700	0.504	0.464	0.930	1.034	-2.034
9	0.517	0.700	0.741	0.785	0.517	0.681	1.315	0.995	0.779
10	0.508	0.744	0.673	0.717	0.508	0.690	1.359	0.937	0.882
11	0.433	0.792	0.550	0.662	0.433	0.661	1.521	0.797	0.930

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	-1.4	-4.7	6.2	-0.052	0.116	0.116	0.027	0.027
2	9.30	10.04	-0.7	-4.2	6.0	-0.059	0.089	0.089	0.020	0.020
3	18.62	20.06	0.0	-3.6	8.4	-0.056	0.095	0.095	0.021	0.021
4	21.00	22.47	0.0	-3.7	9.2	-0.057	0.095	0.095	0.020	0.020
5	23.27	25.07	0.2	-3.5	11.2	-0.028	0.159	0.159	0.033	0.033
6	25.67	27.63	0.0	-3.8	13.1	0.006	0.247	0.247	0.050	0.050
7	28.12	30.31	0.1	-3.8	13.5	0.074	0.347	0.347	0.070	0.070
8	30.67	32.99	0.2	-3.8	12.0	0.133	0.387	0.387	0.082	0.082
9	46.78	50.16	-0.1	-4.4	3.4	0.005	0.097	0.097	0.024	0.024
10	66.82	70.23	0.9	-4.2	5.8	0.037	0.090	0.090	0.021	0.021
11	89.50	90.29	3.9	-2.5	7.9	-0.037	0.096	0.096	0.018	0.018

TABLE VII. - Continued. - BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(k) 80 Percent of design speed; reading 408

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	0.2	57.3	51.7	518.7	526.9	14.69	14.74
2	9.442	9.413	0.	-0.1	56.5	51.3	518.7	526.3	14.69	14.69
3	8.883	8.927	0.	-1.3	54.3	50.7	518.7	527.6	14.69	14.38
4	8.740	8.810	0.	-1.3	53.8	50.4	518.7	526.7	14.69	14.37
5	8.604	8.684	0.	-0.9	53.2	50.7	518.7	527.3	14.69	14.23
6	8.460	8.560	0.	0.2	52.6	51.3	518.7	527.5	14.69	13.68
7	8.313	8.430	0.	3.6	52.0	52.6	518.7	527.6	14.69	13.05
8	8.160	8.300	0.	8.7	51.4	49.9	518.7	529.2	14.69	13.05
9	7.193	7.467	0.	13.6	47.3	31.4	518.7	546.3	14.69	16.77
10	5.991	6.494	0.	23.6	42.5	17.3	518.7	558.2	14.69	18.50
11	4.630	5.521	0.	34.5	39.4	-0.5	518.7	568.4	14.69	19.96

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	570.7	694.5	1057.3	1121.4	570.7	694.5	0.	2.9	890.1	883.4
2	572.3	690.4	1035.9	1103.9	572.3	690.4	0.	-0.6	863.4	860.8
3	584.4	681.0	1000.3	1074.2	584.4	680.8	0.	-15.1	811.8	815.8
4	583.5	678.5	988.9	1064.0	583.5	678.3	0.	-14.9	798.4	804.8
5	589.8	660.6	984.1	1041.8	589.8	660.5	0.	-10.5	787.8	795.2
6	591.4	626.2	974.7	1001.7	591.4	626.2	0.	2.1	774.8	784.0
7	593.1	564.6	964.3	926.7	593.1	563.5	0.	35.3	760.3	771.0
8	595.2	573.2	955.1	879.4	595.2	566.5	0.	87.2	746.9	759.7
9	607.5	825.6	895.4	939.9	607.5	802.6	0.	193.6	657.8	682.8
10	598.9	867.3	811.9	832.2	598.9	794.7	0.	347.3	548.1	594.1
11	515.8	902.1	667.7	743.2	515.8	743.2	0.	511.5	423.9	505.5

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.525	0.642	0.973	1.037	0.525	0.642	1.217	1.234	0.053
2	0.527	0.639	0.953	1.021	0.527	0.639	1.206	1.236	-0.008
3	0.538	0.628	0.922	0.991	0.538	0.628	1.165	1.226	-0.363
4	0.538	0.626	0.911	0.982	0.538	0.626	1.163	1.224	-0.419
5	0.544	0.608	0.907	0.959	0.544	0.608	1.120	1.223	-0.551
6	0.545	0.574	0.899	0.919	0.545	0.574	1.059	1.215	-1.190
7	0.547	0.515	0.889	0.845	0.547	0.514	0.950	1.210	-1.936
8	0.549	0.522	0.881	0.801	0.549	0.516	0.952	1.208	-1.650
9	0.561	0.761	0.827	0.867	0.561	0.740	1.321	1.155	0.722
10	0.553	0.795	0.749	0.763	0.553	0.728	1.327	1.083	0.893
11	0.472	0.822	0.611	0.678	0.472	0.678	1.441	0.915	0.954

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
	IN	OUT	MEAN	SS						
1	4.50	5.01	-0.4	-3.7	5.9	-0.060	0.111	0.108	0.026	0.025
2	9.30	10.04	0.4	-3.0	6.3	-0.065	0.112	0.110	0.026	0.025
3	18.62	20.06	1.2	-2.4	8.4	-0.069	0.186	0.185	0.041	0.040
4	21.00	22.47	1.4	-2.3	8.9	-0.071	0.177	0.176	0.038	0.038
5	23.27	25.07	1.5	-2.3	10.2	-0.055	0.210	0.209	0.044	0.044
6	25.67	27.63	1.4	-2.4	12.3	-0.027	0.301	0.301	0.062	0.062
7	28.12	30.31	1.5	-2.4	14.7	0.051	0.409	0.409	0.080	0.080
8	30.67	32.99	1.6	-2.3	13.5	0.109	0.437	0.437	0.091	0.090
9	46.78	50.16	1.5	-2.9	4.9	0.013	0.136	0.136	0.033	0.033
10	66.82	70.23	2.4	-2.6	7.2	0.082	0.087	0.087	0.020	0.020
11	89.50	90.29	5.3	-1.1	10.0	0.045	0.066	0.066	0.012	0.012

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(Z) 80 Percent of design speed; reading 409

RP	RADI		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	40.9	65.7	50.2	518.7	576.6	14.69	19.33
2	9.442	9.413	0.	37.2	65.2	48.8	518.7	570.7	14.69	19.43
3	8.883	8.927	0.	35.9	63.5	46.7	518.7	565.6	14.69	19.26
4	8.740	8.810	0.	36.1	63.2	46.4	518.7	565.7	14.69	19.19
5	8.604	8.684	0.	40.9	63.0	47.5	518.7	565.9	14.69	18.90
6	8.460	8.560	0.	44.4	62.6	48.6	518.7	566.5	14.69	18.69
7	8.313	8.430	0.	53.2	62.2	52.0	518.7	567.0	14.69	18.38
8	8.160	8.300	0.	58.8	61.8	53.7	518.7	568.2	14.69	18.28
9	7.193	7.467	0.	40.7	57.1	31.9	518.7	566.0	14.69	19.21
10	5.991	6.494	0.	39.1	50.3	16.5	518.7	565.7	14.69	18.79
11	4.630	5.521	0.	41.3	48.1	-0.8	518.7	568.1	14.69	19.57

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	401.6	565.6	977.2	668.7	401.6	427.7	0.	370.1	890.9	884.2
2	399.7	568.8	952.0	687.3	399.7	452.8	0.	344.2	864.0	861.3
3	406.7	565.6	910.0	668.3	406.7	458.2	0.	331.6	814.1	818.1
4	404.5	562.3	897.8	658.0	404.5	454.1	0.	331.7	801.5	807.9
5	403.4	539.5	887.3	603.2	403.4	407.9	0.	353.3	790.3	797.6
6	401.5	519.3	872.7	560.9	401.5	371.0	0.	363.3	774.8	784.0
7	400.8	492.2	860.1	478.8	400.8	294.7	0.	394.3	761.0	771.7
8	400.0	485.7	846.1	425.4	400.0	251.7	0.	415.4	745.5	758.3
9	424.8	606.9	782.6	542.5	424.8	460.4	0.	395.4	657.3	682.4
10	456.3	691.9	713.9	559.9	456.3	536.9	0.	436.5	549.1	595.2
11	381.1	779.7	570.5	586.0	381.1	585.9	0.	514.5	424.4	506.1

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.365	0.492	0.887	0.582	0.365	0.372	1.065	1.385	0.731
2	0.363	0.498	0.864	0.601	0.363	0.396	1.133	1.380	0.829
3	0.369	0.497	0.826	0.587	0.369	0.403	1.127	1.360	0.889
4	0.367	0.494	0.815	0.578	0.367	0.399	1.123	1.356	0.875
5	0.366	0.473	0.805	0.529	0.366	0.358	1.011	1.355	0.820
6	0.364	0.454	0.792	0.491	0.364	0.325	0.924	1.341	0.772
7	0.364	0.429	0.781	0.418	0.364	0.257	0.735	1.334	0.709
8	0.363	0.423	0.768	0.371	0.363	0.219	0.629	1.323	0.674
9	0.386	0.535	0.712	0.478	0.386	0.406	1.084	1.233	0.871
10	0.416	0.616	0.651	0.498	0.416	0.478	1.177	1.113	0.804
11	0.346	0.699	0.517	0.526	0.346	0.525	1.537	0.926	0.897

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS TOT	COEFF PROF	LOSS TOT	PARAM PROF
	IN	OUT	MEAN	SS						
1	4.50	5.01	8.0	4.7	4.4	0.457	0.227	0.221	0.055	0.053
2	9.30	10.04	9.2	5.7	3.8	0.410	0.138	0.134	0.033	0.032
3	18.62	20.06	10.4	6.8	4.4	0.391	0.088	0.086	0.021	0.020
4	21.00	22.47	10.8	7.1	4.9	0.393	0.102	0.100	0.024	0.023
5	23.27	25.07	11.3	7.5	7.0	0.454	0.150	0.148	0.034	0.033
6	25.67	27.63	11.4	7.6	9.6	0.495	0.196	0.195	0.043	0.042
7	28.12	30.31	11.7	7.8	14.2	0.593	0.256	0.255	0.051	0.051
8	30.67	32.99	12.0	8.0	17.3	0.656	0.300	0.299	0.057	0.057
9	46.78	50.16	11.3	7.0	5.5	0.453	0.132	0.132	0.032	0.032
10	66.82	70.23	10.3	5.2	6.4	0.369	0.232	0.232	0.054	0.054
11	89.50	90.29	13.9	7.5	9.7	0.159	0.194	0.194	0.037	0.037

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(m) 80 Percent of design speed; reading 411

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	33.0	62.2	48.9	518.7	569.9	14.69	19.49
2	9.442	9.413	0.	32.3	61.7	48.2	518.7	566.2	14.69	19.43
3	8.883	8.927	0.	33.3	59.6	46.2	518.7	563.7	14.69	19.22
4	8.740	8.810	0.	32.9	59.2	45.7	518.7	562.9	14.69	19.18
5	8.604	8.684	0.	34.9	58.8	45.3	518.7	563.1	14.69	19.01
6	8.460	8.560	0.	37.7	58.2	44.8	518.7	563.6	14.69	18.86
7	8.313	8.430	0.	43.0	57.8	45.5	518.7	565.1	14.69	18.53
8	8.160	8.300	0.	39.4	57.3	43.3	518.7	563.3	14.69	18.61
9	7.193	7.467	0.	37.1	54.0	31.8	518.7	562.6	14.69	19.09
10	5.991	6.494	0.	39.8	50.2	16.7	518.7	563.9	14.69	19.25
11	4.630	5.521	0.	41.8	47.2	1.0	518.7	566.8	14.69	19.52

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	469.3	588.1	1007.5	749.5	469.3	493.1	0.	320.4	891.5	884.8
2	466.9	583.6	983.9	740.3	466.9	493.5	0.	311.6	866.1	863.4
3	477.3	576.5	944.3	695.6	477.3	481.6	0.	316.9	814.8	818.8
4	477.1	575.8	932.8	691.8	477.1	483.3	0.	313.0	801.5	808.0
5	477.4	567.4	921.7	662.2	477.4	465.4	0.	324.7	788.5	795.8
6	479.4	560.4	910.9	625.6	479.4	443.5	0.	342.6	774.6	783.7
7	479.3	541.7	900.1	565.4	479.3	396.3	0.	369.3	761.9	772.7
8	479.6	557.2	886.8	591.4	479.6	430.7	0.	353.5	745.9	758.7
9	478.7	624.3	815.0	585.9	478.7	498.2	0.	376.3	659.6	684.7
10	457.3	682.4	713.9	547.8	457.3	524.6	0.	436.4	548.2	594.3
11	392.7	744.4	578.3	554.9	392.7	554.8	0.	496.3	424.5	506.2

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.428	0.516	0.919	0.657	0.428	0.433	1.051	1.326	0.852
2	0.426	0.513	0.897	0.651	0.426	0.434	1.057	1.327	0.906
3	0.436	0.508	0.862	0.613	0.436	0.424	1.009	1.307	0.919
4	0.435	0.508	0.851	0.610	0.435	0.426	1.013	1.302	0.928
5	0.436	0.500	0.841	0.583	0.436	0.410	0.975	1.297	0.892
6	0.438	0.493	0.832	0.551	0.438	0.390	0.925	1.285	0.852
7	0.437	0.475	0.822	0.496	0.437	0.348	0.827	1.281	0.765
8	0.438	0.490	0.810	0.520	0.438	0.379	0.898	1.271	0.811
9	0.437	0.553	0.744	0.519	0.437	0.441	1.041	1.210	0.917
10	0.417	0.608	0.651	0.488	0.417	0.467	1.147	1.111	0.921
11	0.356	0.666	0.525	0.496	0.356	0.496	1.413	0.924	0.912

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	4.5	1.2	3.0	0.375	0.108	0.103	0.027	0.026
2	9.30	10.04	5.7	2.2	3.2	0.363	0.067	0.064	0.016	0.015
3	18.62	20.06	6.6	2.9	3.9	0.379	0.059	0.057	0.014	0.014
4	21.00	22.47	6.8	3.1	4.2	0.373	0.052	0.051	0.012	0.012
5	23.27	25.07	7.1	3.4	4.9	0.400	0.080	0.079	0.019	0.018
6	25.67	27.63	7.0	3.2	5.8	0.438	0.112	0.112	0.026	0.026
7	28.12	30.31	7.3	3.4	7.7	0.506	0.186	0.185	0.042	0.042
8	30.67	32.99	7.4	3.5	6.8	0.462	0.148	0.148	0.035	0.035
9	46.78	50.16	8.2	3.9	5.3	0.415	0.074	0.074	0.018	0.018
10	66.82	70.23	10.2	5.1	6.7	0.386	0.092	0.092	0.021	0.021
11	89.50	90.29	13.1	6.7	11.5	0.217	0.158	0.158	0.030	0.030

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(n) 80 Percent of design speed; reading 412

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	28.6	60.4	48.8	518.7	565.0	14.69	19.07
2	9.442	9.413	0.	28.3	59.7	48.4	518.7	561.0	14.69	19.00
3	8.883	8.927	0.	28.8	57.7	46.5	518.7	559.5	14.69	18.78
4	8.740	8.810	0.	29.0	57.1	45.9	518.7	558.9	14.69	18.72
5	8.604	8.684	0.	31.0	56.7	45.5	518.7	559.4	14.69	18.57
6	8.460	8.560	0.	33.1	56.2	45.2	518.7	559.5	14.69	18.41
7	8.313	8.430	0.	36.7	55.7	44.7	518.7	561.1	14.69	18.19
8	8.160	8.300	0.	32.7	55.2	43.1	518.7	559.7	14.69	18.37
9	7.193	7.467	0.	32.2	51.8	32.3	518.7	559.1	14.69	18.84
10	5.991	6.494	0.	36.0	47.8	17.4	518.7	563.1	14.69	19.14
11	4.630	5.521	0.	40.0	44.8	0.7	518.7	566.0	14.69	19.52

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	506.4	597.0	1025.6	796.1	506.4	524.1	0.	285.9	891.9	885.2
2	505.9	589.3	1002.6	780.8	505.9	518.8	0.	279.4	865.6	863.0
3	515.0	582.5	962.9	741.2	515.0	510.6	0.	280.3	813.5	817.6
4	516.9	581.3	952.4	730.5	516.9	508.5	0.	281.8	799.9	806.3
5	516.8	572.7	942.0	700.7	516.8	491.0	0.	295.0	787.6	794.9
6	518.1	563.2	931.6	669.8	518.1	471.7	0.	307.8	774.3	783.4
7	519.4	555.7	922.0	626.9	519.4	445.8	0.	331.7	761.8	772.5
8	520.6	572.7	911.5	660.9	520.6	482.1	0.	309.1	748.2	761.1
9	518.8	640.1	838.1	640.3	518.8	541.4	0.	341.5	658.3	683.3
10	498.0	708.1	741.5	600.3	498.0	572.9	0.	416.2	549.4	595.5
11	426.6	774.6	601.7	593.1	426.6	593.0	0.	498.4	424.3	505.9

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.463	0.526	0.938	0.702	0.463	0.462	1.035	1.294	0.866
2	0.463	0.521	0.917	0.691	0.463	0.459	1.025	1.294	0.936
3	0.472	0.516	0.882	0.656	0.472	0.452	0.991	1.278	0.923
4	0.473	0.515	0.872	0.647	0.473	0.450	0.984	1.271	0.923
5	0.473	0.507	0.863	0.620	0.473	0.434	0.950	1.269	0.882
6	0.474	0.498	0.853	0.592	0.474	0.417	0.910	1.259	0.846
7	0.476	0.490	0.844	0.553	0.476	0.393	0.858	1.256	0.768
8	0.477	0.506	0.835	0.584	0.477	0.426	0.926	1.252	0.833
9	0.475	0.570	0.768	0.570	0.475	0.482	1.044	1.190	0.944
10	0.455	0.633	0.678	0.536	0.455	0.512	1.150	1.103	0.916
11	0.388	0.696	0.547	0.533	0.388	0.533	1.390	0.919	0.928

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	2.7	-0.6	3.0	0.328	0.087	0.083	0.022	0.021
2	9.30	10.04	3.7	0.3	3.3	0.323	0.040	0.037	0.010	0.009
3	18.62	20.06	4.6	1.0	4.2	0.331	0.050	0.048	0.012	0.011
4	21.00	22.47	4.7	1.0	4.4	0.334	0.050	0.049	0.012	0.011
5	23.27	25.07	5.0	1.3	5.1	0.361	0.078	0.077	0.018	0.018
6	25.67	27.63	5.0	1.2	6.2	0.390	0.103	0.103	0.024	0.024
7	28.12	30.31	5.2	1.3	6.9	0.437	0.162	0.162	0.037	0.037
8	30.67	32.99	5.3	1.4	6.7	0.385	0.116	0.116	0.027	0.027
9	46.78	50.16	6.0	1.6	5.8	0.354	0.044	0.044	0.011	0.011
10	66.82	70.23	7.8	2.7	7.3	0.331	0.090	0.090	0.021	0.021
11	89.50	90.29	10.7	4.3	11.2	0.185	0.118	0.118	0.022	0.022

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(o) 80 Percent of design speed; reading 414

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	15.6	57.8	50.1	518.7	549.1	14.69	17.35
2	9.442	9.413	0.	15.5	57.1	49.5	518.7	546.6	14.69	17.34
3	8.883	8.927	0.	15.4	54.7	48.7	518.7	544.2	14.69	17.02
4	8.740	8.810	0.	15.6	54.2	48.7	518.7	544.1	14.69	16.90
5	8.604	8.684	0.	18.5	53.8	49.8	518.7	543.7	14.69	16.41
6	8.460	8.560	0.	20.6	53.1	49.2	518.7	544.7	14.69	16.28
7	8.313	8.430	0.	23.1	52.6	46.4	518.7	547.8	14.69	16.46
8	8.160	8.300	0.	24.4	52.0	44.4	518.7	548.6	14.69	16.54
9	7.193	7.467	0.	22.8	48.0	31.3	518.7	553.2	14.69	18.13
10	5.991	6.494	0.	29.1	43.7	16.5	518.7	560.3	14.69	18.83
11	4.630	5.521	0.	36.5	41.1	-0.6	518.7	567.6	14.69	19.72

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	562.5	623.0	1054.6	935.2	562.5	600.0	0.	168.0	892.1	885.4
2	559.9	618.3	1030.4	916.9	559.9	595.8	0.	165.4	865.0	862.4
3	575.7	600.5	997.3	876.9	575.7	578.9	0.	159.8	814.3	818.4
4	576.6	590.5	986.6	862.4	576.6	568.7	0.	158.8	800.6	807.0
5	578.4	553.2	978.3	812.8	578.4	524.7	0.	175.6	789.0	796.3
6	581.8	546.0	969.4	782.2	581.8	511.0	0.	192.4	775.4	784.6
7	582.8	569.3	958.9	758.9	582.8	523.8	0.	223.0	761.5	772.2
8	582.3	581.6	946.4	741.4	582.3	529.7	0.	240.1	746.1	758.9
9	592.7	722.7	886.4	779.7	592.7	666.3	0.	279.4	659.1	684.2
10	574.4	799.0	794.6	727.7	574.4	697.9	0.	389.1	549.1	595.2
11	487.3	863.4	646.5	693.8	487.3	693.8	0.	513.9	424.9	506.7

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.517	0.559	0.970	0.839	0.517	0.538	1.067	1.245	0.830
2	0.515	0.556	0.947	0.825	0.515	0.536	1.064	1.249	0.900
3	0.530	0.540	0.918	0.789	0.530	0.521	1.006	1.237	0.873
4	0.531	0.531	0.908	0.775	0.531	0.511	0.986	1.233	0.834
5	0.533	0.496	0.901	0.728	0.533	0.470	0.907	1.233	0.664
6	0.536	0.489	0.893	0.700	0.536	0.457	0.878	1.223	0.595
7	0.537	0.509	0.883	0.678	0.537	0.468	0.899	1.218	0.589
8	0.536	0.520	0.872	0.663	0.536	0.474	0.910	1.213	0.598
9	0.547	0.653	0.817	0.705	0.547	0.602	1.124	1.163	0.930
10	0.529	0.724	0.731	0.659	0.529	0.632	1.215	1.089	0.917
11	0.445	0.783	0.591	0.630	0.445	0.630	1.424	0.917	0.930

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	0.0	-3.3	4.2	0.173	0.071	0.068	0.017	0.016
2	9.30	10.04	1.1	-2.4	4.4	0.169	0.040	0.038	0.010	0.009
3	18.62	20.06	1.7	-2.0	6.4	0.176	0.049	0.048	0.011	0.011
4	21.00	22.47	1.8	-1.9	7.2	0.181	0.065	0.064	0.015	0.014
5	23.27	25.07	2.0	-1.7	9.4	0.229	0.130	0.130	0.028	0.028
6	25.67	27.63	1.9	-1.9	10.2	0.259	0.164	0.164	0.035	0.035
7	28.12	30.31	2.0	-1.8	8.5	0.284	0.188	0.188	0.042	0.042
8	30.67	32.99	2.2	-1.7	8.0	0.299	0.193	0.192	0.044	0.044
9	46.78	50.16	2.2	-2.1	4.9	0.212	0.044	0.044	0.011	0.011
10	66.82	70.23	3.7	-1.4	6.4	0.207	0.074	0.074	0.017	0.017
11	89.50	90.29	6.9	0.6	9.9	0.091	0.103	0.103	0.020	0.020

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(p) 90 Percent of design speed; reading 388

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	4.6	58.4	51.7	518.7	535.6	14.69	15.35
2	9.442	9.413	0.	3.3	57.7	51.5	518.7	531.9	14.69	15.36
3	8.883	8.927	0.	2.8	55.4	51.0	518.7	531.1	14.69	14.97
4	8.740	8.810	0.	3.1	54.9	50.6	518.7	531.4	14.69	14.99
5	8.604	8.684	0.	3.1	54.3	50.2	518.7	532.7	14.69	14.99
6	8.460	8.560	0.	4.7	53.8	50.4	518.7	533.8	14.69	14.56
7	8.313	8.430	0.	8.6	53.1	51.9	518.7	534.7	14.69	13.63
8	8.160	8.300	0.	12.8	52.5	50.0	518.7	536.1	14.69	13.58
9	7.193	7.467	0.	16.8	48.6	32.9	518.7	554.6	14.69	17.49
10	5.991	6.494	0.	27.4	44.2	17.7	518.7	570.2	14.69	19.84
11	4.630	5.521	0.	37.9	41.4	-1.0	518.7	579.9	14.69	21.50

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	618.4	745.0	1181.0	1196.9	618.4	742.6	0.	60.0	1006.2	998.6
2	617.2	743.3	1156.2	1190.8	617.2	742.1	0.	43.4	977.7	974.7
3	635.0	720.0	1117.3	1143.0	635.0	719.1	0.	35.5	919.3	923.9
4	636.6	719.0	1106.8	1130.4	636.6	717.9	0.	39.5	905.4	912.7
5	640.3	717.0	1096.5	1118.7	640.3	715.9	0.	38.9	890.2	898.5
6	641.8	688.6	1086.6	1077.7	641.8	686.3	0.	56.1	876.7	887.1
7	645.4	618.9	1075.9	991.5	645.4	611.9	0.	92.8	860.8	872.9
8	647.5	620.1	1064.0	941.4	647.5	604.7	0.	137.2	844.3	858.7
9	656.1	850.5	993.1	969.9	656.1	814.0	0.	246.5	745.5	773.9
10	637.9	904.4	889.2	843.0	637.9	803.2	0.	415.6	619.5	671.5
11	543.2	952.0	724.6	751.8	543.2	751.7	0.	584.2	479.5	571.7

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.572	0.687	1.092	1.104	0.572	0.685	1.201	1.351	0.383
2	0.571	0.688	1.069	1.102	0.571	0.687	1.202	1.370	0.499
3	0.588	0.665	1.035	1.056	0.588	0.664	1.132	1.380	0.227
4	0.590	0.664	1.025	1.044	0.590	0.663	1.128	1.386	0.229
5	0.593	0.661	1.016	1.031	0.593	0.660	1.118	1.390	0.212
6	0.595	0.632	1.007	0.989	0.595	0.630	1.069	1.393	-0.091
7	0.599	0.563	0.998	0.902	0.599	0.557	0.948	1.397	-0.691
8	0.601	0.563	0.987	0.855	0.601	0.550	0.934	1.389	-0.661
9	0.609	0.780	0.922	0.890	0.609	0.747	1.241	1.332	0.737
10	0.591	0.823	0.824	0.767	0.591	0.731	1.259	1.239	0.902
11	0.499	0.865	0.665	0.683	0.499	0.683	1.384	1.041	0.974

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS TOT	COEFF PROF	LOSS TOT	PARAM PROF
	IN	OUT	MEAN	SS						
1	4.50	5.01	0.7	-2.6	5.8	0.006	0.125	0.107	0.029	0.025
2	9.30	10.04	1.7	-1.7	6.4	-0.016	0.083	0.065	0.019	0.015
3	18.62	20.06	2.3	-1.3	8.7	-0.012	0.125	0.109	0.027	0.024
4	21.00	22.47	2.5	-1.2	9.1	-0.009	0.130	0.114	0.028	0.025
5	23.27	25.07	2.6	-1.2	9.8	-0.008	0.147	0.132	0.032	0.028
6	25.67	27.63	2.6	-1.2	11.4	0.025	0.220	0.204	0.046	0.043
7	28.12	30.31	2.6	-1.3	14.1	0.107	0.356	0.342	0.071	0.068
8	30.67	32.99	2.7	-1.2	13.6	0.157	0.386	0.372	0.080	0.077
9	46.78	50.16	2.8	-1.5	6.5	0.095	0.141	0.136	0.034	0.032
10	66.82	70.23	4.1	-1.0	7.6	0.169	0.088	0.088	0.020	0.020
11	89.50	90.29	7.3	0.9	9.6	0.129	0.039	0.039	0.007	0.007

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(q) 90 Percent of design speed; reading 389

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	38.1	66.5	49.1	518.7	591.3	14.69	20.92
2	9.442	9.413	0.	37.0	66.1	49.0	518.7	583.6	14.69	20.77
3	8.883	8.927	0.	38.0	64.7	47.6	518.7	578.5	14.69	20.34
4	8.740	8.810	0.	39.1	64.2	47.1	518.7	579.3	14.69	20.22
5	8.604	8.684	0.	44.1	64.2	47.6	518.7	580.0	14.69	19.93
6	8.460	8.560	0.	48.5	64.0	47.9	518.7	582.5	14.69	19.72
7	8.313	8.430	0.	59.0	63.8	51.9	518.7	584.3	14.69	19.25
8	8.160	8.300	0.	67.6	63.4	56.7	518.7	584.7	14.69	18.98
9	7.193	7.467	0.	45.5	60.0	29.7	518.7	583.0	14.69	20.29
10	5.991	6.494	0.	41.6	54.6	16.4	518.7	577.4	14.69	20.82
11	4.630	5.521	0.	43.9	51.2	0.2	518.7	579.9	14.69	21.08

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	438.1	655.5	1099.5	788.0	438.1	515.6	0.	404.9	1008.4	1000.8
2	434.1	641.2	1069.5	779.8	434.1	511.9	0.	386.1	977.4	974.4
3	435.8	625.9	1018.0	731.2	435.8	493.5	0.	385.0	920.0	924.5
4	437.3	621.6	1004.7	709.0	437.3	482.4	0.	392.1	904.6	911.8
5	432.5	608.2	992.0	647.3	432.5	436.8	0.	423.3	892.7	901.0
6	428.7	598.8	976.9	592.5	428.7	397.0	0.	448.3	877.8	888.2
7	424.0	577.8	960.7	481.4	424.0	297.4	0.	495.5	862.1	874.2
8	423.9	571.9	945.4	395.8	423.9	217.6	0.	528.8	845.0	859.5
9	430.6	694.5	860.7	560.2	430.6	486.5	0.	495.7	745.2	773.6
10	441.6	760.6	761.6	592.7	441.6	568.5	0.	505.2	620.6	672.7
11	384.6	818.7	613.7	589.8	384.6	589.8	0.	567.8	478.2	570.2

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.399	0.567	1.000	0.682	0.399	0.446	1.177	1.588	0.758
2	0.395	0.558	0.973	0.679	0.395	0.446	1.179	1.583	0.831
3	0.396	0.547	0.926	0.638	0.396	0.431	1.132	1.562	0.844
4	0.398	0.542	0.914	0.618	0.398	0.421	1.103	1.552	0.817
5	0.393	0.530	0.902	0.564	0.393	0.380	1.010	1.555	0.770
6	0.390	0.520	0.888	0.514	0.390	0.345	0.926	1.545	0.713
7	0.385	0.500	0.873	0.416	0.385	0.257	0.701	1.539	0.635
8	0.385	0.494	0.859	0.342	0.385	0.188	0.513	1.527	0.596
9	0.392	0.608	0.783	0.491	0.392	0.426	1.130	1.433	0.779
10	0.402	0.674	0.693	0.526	0.402	0.504	1.287	1.289	0.925
11	0.349	0.730	0.556	0.526	0.349	0.526	1.533	1.057	0.920

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	8.8	5.5	3.3	0.421	0.210	0.169	0.052	0.041
2	9.30	10.04	10.0	6.6	4.0	0.402	0.141	0.104	0.034	0.025
3	18.62	20.06	11.6	8.0	5.2	0.412	0.131	0.102	0.030	0.024
4	21.00	22.47	11.8	8.1	5.6	0.427	0.158	0.132	0.036	0.030
5	23.27	25.07	12.4	8.7	7.1	0.491	0.202	0.177	0.046	0.040
6	25.67	27.63	12.8	9.0	8.9	0.545	0.266	0.244	0.059	0.054
7	28.12	30.31	13.3	9.4	14.0	0.667	0.352	0.332	0.070	0.066
8	30.67	32.99	13.5	9.6	20.2	0.763	0.398	0.381	0.070	0.067
9	46.78	50.16	14.2	9.9	3.3	0.516	0.254	0.250	0.063	0.062
10	66.82	70.23	14.6	9.5	6.3	0.388	0.099	0.099	0.023	0.023
11	89.50	90.29	17.1	10.7	10.7	0.230	0.162	0.162	0.031	0.031

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(r) 90 Percent of design speed; reading 390

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	36.7	64.4	48.4	518.7	589.4	14.69	21.17
2	9.442	9.413	0.	34.8	63.7	48.2	518.7	583.2	14.69	21.02
3	8.883	8.927	0.	35.3	62.1	47.1	518.7	577.0	14.69	20.54
4	8.740	8.810	0.	36.4	61.7	46.6	518.7	577.3	14.69	20.45
5	8.604	8.684	0.	41.5	61.5	47.0	518.7	578.8	14.69	20.05
6	8.460	8.560	0.	45.1	61.3	47.2	518.7	580.3	14.69	19.83
7	8.313	8.430	0.	53.4	61.0	49.3	518.7	581.5	14.69	19.41
8	8.160	8.300	0.	58.3	60.6	49.3	518.7	582.8	14.69	19.29
9	7.193	7.467	0.	41.7	57.2	31.9	518.7	578.7	14.69	20.36
10	5.991	6.494	0.	41.3	52.6	16.6	518.7	577.2	14.69	20.80
11	4.630	5.521	0.	43.5	49.6	0.5	518.7	579.1	14.69	21.06

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	482.0	666.7	1116.8	804.9	482.0	534.7	0.	398.3	1007.4	999.9
2	482.3	653.2	1088.9	805.0	482.3	536.3	0.	372.9	976.3	973.3
3	486.1	634.5	1039.8	761.0	486.1	518.1	0.	366.4	919.2	923.8
4	486.4	630.9	1026.3	738.7	486.4	507.8	0.	374.5	903.7	911.0
5	483.1	613.7	1013.4	673.3	483.1	459.5	0.	407.0	890.9	899.2
6	480.8	603.7	1000.5	627.0	480.8	426.0	0.	427.8	877.4	887.8
7	478.1	584.1	985.0	533.5	478.1	348.1	0.	469.0	861.2	873.3
8	477.8	589.5	972.1	474.4	477.8	309.6	0.	501.7	846.6	861.2
9	479.0	684.2	885.2	601.4	479.0	510.8	0.	455.2	744.4	772.8
10	474.0	761.1	781.0	597.0	474.0	572.0	0.	502.0	620.8	672.9
11	407.9	822.1	629.1	596.4	407.9	596.3	0.	565.9	479.0	571.2

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.440	0.579	1.020	0.699	0.440	0.464	1.109	1.522	0.807
2	0.440	0.569	0.994	0.702	0.440	0.468	1.112	1.539	0.866
3	0.444	0.555	0.950	0.666	0.444	0.453	1.066	1.520	0.894
4	0.444	0.552	0.937	0.646	0.444	0.444	1.044	1.512	0.877
5	0.441	0.535	0.925	0.587	0.441	0.401	0.951	1.512	0.802
6	0.439	0.525	0.913	0.545	0.439	0.371	0.886	1.505	0.753
7	0.436	0.507	0.899	0.463	0.436	0.302	0.728	1.497	0.683
8	0.436	0.511	0.887	0.411	0.436	0.268	0.648	1.492	0.655
9	0.437	0.601	0.808	0.528	0.437	0.449	1.066	1.403	0.844
10	0.432	0.675	0.713	0.530	0.432	0.507	1.207	1.277	0.927
11	0.370	0.733	0.571	0.532	0.370	0.532	1.462	1.053	0.930

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	6.7	3.4	2.5	0.413	0.161	0.128	0.040	0.032
2	9.30	10.04	7.7	4.3	3.2	0.385	0.108	0.075	0.026	0.018
3	18.62	20.06	9.1	5.4	4.8	0.390	0.084	0.059	0.020	0.014
4	21.00	22.47	9.3	5.6	5.1	0.404	0.100	0.078	0.023	0.018
5	23.27	25.07	9.8	6.1	6.6	0.471	0.166	0.145	0.038	0.033
6	25.67	27.63	10.1	6.3	8.2	0.515	0.215	0.196	0.048	0.044
7	28.12	30.31	10.4	6.6	11.4	0.614	0.284	0.267	0.060	0.056
8	30.67	32.99	10.7	6.8	12.8	0.679	0.320	0.305	0.067	0.064
9	46.78	50.16	11.4	7.1	5.4	0.469	0.162	0.159	0.039	0.038
10	66.82	70.23	12.6	7.5	6.5	0.397	0.093	0.093	0.021	0.021
11	89.50	90.29	15.4	9.1	11.0	0.237	0.135	0.135	0.026	0.026

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(s) 90 Percent of design speed; reading 392

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	31.8	60.2	48.5	518.7	582.3	14.69	20.67
2	9.442	9.413	0.	30.6	59.4	48.1	518.7	576.8	14.69	20.61
3	8.883	8.927	0.	29.6	57.2	46.4	518.7	571.8	14.69	20.34
4	8.740	8.810	0.	30.5	56.7	45.8	518.7	571.5	14.69	20.27
5	8.604	8.684	0.	33.1	56.1	45.9	518.7	572.6	14.69	19.89
6	8.460	8.560	0.	36.1	55.6	45.5	518.7	573.1	14.69	19.71
7	8.313	8.430	0.	38.3	55.2	44.0	518.7	575.0	14.69	19.57
8	8.160	8.300	0.	34.3	54.6	42.2	518.7	573.1	14.69	19.83
9	7.193	7.467	0.	33.5	51.1	31.9	518.7	572.4	14.69	20.30
10	5.991	6.494	0.	37.2	47.4	17.6	518.7	575.2	14.69	20.54
11	4.630	5.521	0.	41.4	44.8	0.2	518.7	578.9	14.69	21.07

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	576.2	671.9	1160.1	861.1	576.2	570.8	0.	354.6	1006.9	999.3
2	576.5	663.3	1134.2	854.4	576.5	570.8	0.	338.1	976.8	973.8
3	591.6	656.2	1093.5	827.5	591.6	570.4	0.	324.7	919.7	924.2
4	593.8	654.5	1082.8	809.3	593.8	563.9	0.	332.2	905.4	912.7
5	597.7	636.2	1072.5	766.1	597.7	532.7	0.	348.1	890.5	898.7
6	599.2	628.1	1061.0	723.4	599.2	507.3	0.	370.3	875.6	885.9
7	598.3	632.9	1047.8	690.3	598.3	496.4	0.	392.7	860.2	872.3
8	599.0	653.9	1034.9	729.6	599.0	540.4	0.	368.2	843.9	858.4
9	599.2	720.2	954.3	706.8	599.2	600.3	0.	397.9	742.7	771.0
10	570.8	786.2	843.6	657.1	570.8	626.5	0.	475.0	621.2	673.4
11	483.1	860.4	680.7	645.2	483.1	645.2	0.	569.3	479.6	571.8

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.530	0.587	1.068	0.753	0.530	0.499	0.991	1.399	0.834
2	0.531	0.582	1.044	0.750	0.531	0.501	0.990	1.416	0.906
3	0.545	0.578	1.008	0.729	0.545	0.503	0.964	1.436	0.952
4	0.548	0.577	0.999	0.713	0.548	0.497	0.950	1.442	0.946
5	0.551	0.559	0.990	0.673	0.551	0.468	0.891	1.436	0.869
6	0.553	0.551	0.979	0.635	0.553	0.445	0.847	1.425	0.833
7	0.552	0.555	0.967	0.605	0.552	0.435	0.830	1.420	0.786
8	0.553	0.575	0.955	0.642	0.553	0.476	0.902	1.414	0.853
9	0.553	0.639	0.881	0.627	0.553	0.532	1.002	1.346	0.934
10	0.525	0.701	0.776	0.586	0.525	0.558	1.098	1.253	0.922
11	0.441	0.772	0.622	0.579	0.441	0.579	1.336	1.043	0.936

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS TOT	PARAM PROF
	IN	OUT	MEAN	SS			TOT	PROF		
1	4.50	5.01	2.5	-0.8	2.7	0.372	0.120	0.099	0.030	0.025
2	9.30	10.04	3.4	0.0	3.1	0.355	0.065	0.044	0.016	0.011
3	18.62	20.06	4.2	0.6	4.1	0.346	0.032	0.012	0.008	0.003
4	21.00	22.47	4.3	0.6	4.3	0.357	0.037	0.017	0.009	0.004
5	23.27	25.07	4.4	0.7	5.5	0.395	0.092	0.074	0.021	0.017
6	25.67	27.63	4.4	0.6	6.4	0.434	0.120	0.103	0.028	0.024
7	28.12	30.31	4.6	0.8	6.2	0.463	0.160	0.145	0.037	0.034
8	30.67	32.99	4.8	0.9	5.8	0.410	0.110	0.097	0.026	0.023
9	46.78	50.16	5.3	1.0	5.4	0.380	0.055	0.051	0.013	0.012
10	66.82	70.23	7.4	2.3	7.5	0.362	0.083	0.083	0.019	0.019
11	89.50	90.29	10.6	4.3	10.7	0.224	0.106	0.106	0.020	0.020

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(t) 90 Percent of design speed; reading 394

RP	RAD II		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	24.9	58.9	49.1	518.7	570.3	14.69	19.38
2	9.442	9.413	0.	23.0	58.1	48.9	518.7	566.3	14.69	19.31
3	8.883	8.927	0.	22.9	55.7	48.1	518.7	561.4	14.69	18.92
4	8.740	8.810	0.	23.1	55.2	48.2	518.7	560.7	14.69	18.72
5	8.604	8.684	0.	26.7	54.6	49.4	518.7	560.8	14.69	18.08
6	8.460	8.560	0.	28.9	54.3	49.0	518.7	560.5	14.69	17.93
7	8.313	8.430	0.	30.9	53.5	46.1	518.7	564.4	14.69	18.13
8	8.160	8.300	0.	31.1	53.0	43.4	518.7	566.2	14.69	18.40
9	7.193	7.467	0.	28.2	49.3	31.4	518.7	568.0	14.69	19.86
10	5.991	6.494	0.	33.1	45.1	17.0	518.7	572.2	14.69	20.32
11	4.630	5.521	0.	39.2	42.7	-0.3	518.7	579.3	14.69	21.19

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	606.8	679.5	1175.2	942.3	606.8	616.4	0.	286.2	1006.4	998.9
2	606.7	672.3	1148.8	941.4	606.7	618.8	0.	263.1	975.6	972.6
3	625.9	652.7	1112.0	900.3	625.9	601.4	0.	253.8	919.2	923.7
4	628.0	642.0	1100.9	885.0	628.0	590.4	0.	252.2	904.2	911.5
5	632.7	601.1	1091.1	825.5	632.7	537.0	0.	270.3	889.0	897.2
6	629.7	594.5	1078.4	793.1	629.7	520.5	0.	287.4	875.5	885.8
7	635.9	620.8	1069.5	768.2	635.9	532.8	0.	318.7	860.0	872.1
8	638.1	648.8	1059.0	764.3	638.1	555.7	0.	335.0	845.2	859.7
9	643.0	768.9	986.8	793.6	643.0	677.5	0.	363.6	748.5	777.0
10	617.9	838.3	875.4	734.5	617.9	702.4	0.	457.6	620.1	672.1
11	520.0	909.1	707.1	704.3	520.0	704.3	0.	574.8	479.2	571.4

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.560	0.601	1.085	0.834	0.560	0.545	1.016	1.364	0.827
2	0.560	0.597	1.061	0.835	0.560	0.549	1.020	1.379	0.885
3	0.579	0.581	1.029	0.801	0.579	0.535	0.961	1.391	0.911
4	0.581	0.571	1.019	0.787	0.581	0.525	0.940	1.396	0.884
5	0.586	0.532	1.010	0.731	0.586	0.476	0.849	1.398	0.752
6	0.583	0.526	0.998	0.702	0.583	0.461	0.827	1.407	0.726
7	0.589	0.549	0.991	0.679	0.589	0.471	0.838	1.400	0.702
8	0.591	0.574	0.981	0.677	0.591	0.492	0.871	1.396	0.725
9	0.596	0.689	0.915	0.711	0.596	0.607	1.054	1.343	0.945
10	0.571	0.755	0.809	0.661	0.571	0.632	1.137	1.243	0.941
11	0.476	0.821	0.648	0.636	0.476	0.636	1.355	1.040	0.944

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	1.2	-2.1	3.3	0.289	0.102	0.083	0.025	0.020
2	9.30	10.04	2.1	-1.3	3.9	0.264	0.065	0.047	0.016	0.011
3	18.62	20.06	2.7	-1.0	5.8	0.269	0.048	0.031	0.011	0.007
4	21.00	22.47	2.8	-0.9	6.6	0.274	0.063	0.046	0.014	0.010
5	23.27	25.07	2.9	-0.9	9.0	0.327	0.134	0.118	0.029	0.026
6	25.67	27.63	3.0	-0.8	10.0	0.353	0.150	0.134	0.032	0.029
7	28.12	30.31	3.0	-0.9	8.3	0.379	0.178	0.163	0.040	0.037
8	30.67	32.99	3.1	-0.8	6.9	0.381	0.173	0.159	0.040	0.037
9	46.78	50.16	3.5	-0.8	5.0	0.302	0.041	0.036	0.010	0.009
10	66.82	70.23	5.1	-0.0	6.9	0.292	0.056	0.056	0.013	0.013
11	89.50	90.29	8.5	2.1	10.2	0.171	0.087	0.087	0.016	0.016

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(u) 100 Percent of design speed; reading 399

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	37.0	68.1	49.3	518.7	609.5	14.69	22.09
2	9.442	9.413	0.	34.6	67.5	49.9	518.7	599.5	14.69	21.77
3	8.883	8.927	0.	39.2	66.3	48.3	518.7	594.5	14.69	21.17
4	8.740	8.810	0.	40.4	66.0	47.9	518.7	594.3	14.69	21.04
5	8.604	8.684	0.	46.3	65.8	47.9	518.7	598.4	14.69	20.72
6	8.460	8.560	0.	50.7	65.7	48.4	518.7	599.9	14.69	20.47
7	8.313	8.430	0.	63.0	65.6	54.8	518.7	601.7	14.69	19.84
8	8.160	8.300	0.	72.8	65.4	63.4	518.7	601.2	14.69	19.43
9	7.193	7.467	0.	50.1	61.8	29.8	518.7	601.8	14.69	20.75
10	5.991	6.494	0.	40.3	49.8	18.5	518.7	591.2	14.69	22.25
11	4.630	5.521	0.	42.8	46.8	3.0	518.7	590.6	14.69	22.52

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	449.1	722.2	1201.6	885.2	449.1	576.8	0.	434.8	1114.6	1106.2
2	449.5	699.1	1172.9	893.0	449.5	575.5	0.	397.1	1083.3	1080.0
3	447.6	680.8	1111.8	793.8	447.6	528.0	0.	430.0	1017.7	1022.7
4	445.3	676.4	1095.0	767.8	445.3	514.8	0.	438.8	1000.4	1008.4
5	442.6	668.1	1079.7	688.5	442.6	461.6	0.	483.1	984.8	993.9
6	436.4	658.6	1061.7	628.5	436.4	417.4	0.	509.4	967.8	979.3
7	432.1	629.8	1046.1	496.1	432.1	286.3	0.	560.9	952.7	966.1
8	429.0	615.4	1028.8	406.2	429.0	181.9	0.	587.9	935.1	951.1
9	441.7	754.1	934.7	557.2	441.7	483.7	0.	578.6	823.8	855.2
10	578.5	824.3	897.2	662.8	578.5	628.6	0.	533.3	685.8	743.3
11	498.5	881.4	728.1	647.5	498.5	646.6	0.	599.0	530.7	632.8

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.409	0.619	1.094	0.759	0.409	0.495	1.284	1.682	0.706
2	0.409	0.603	1.068	0.771	0.409	0.497	1.280	1.701	0.763
3	0.408	0.589	1.012	0.687	0.408	0.457	1.179	1.743	0.753
4	0.405	0.585	0.997	0.664	0.405	0.445	1.156	1.754	0.741
5	0.403	0.575	0.983	0.593	0.403	0.397	1.043	1.749	0.671
6	0.397	0.566	0.966	0.540	0.397	0.359	0.956	1.739	0.635
7	0.393	0.539	0.952	0.424	0.393	0.245	0.663	1.736	0.560
8	0.390	0.526	0.936	0.347	0.390	0.156	0.424	1.727	0.522
9	0.402	0.653	0.851	0.483	0.402	0.419	1.095	1.612	0.647
10	0.533	0.727	0.826	0.585	0.533	0.555	1.087	1.402	0.900
11	0.456	0.784	0.666	0.576	0.456	0.575	1.297	1.163	0.937

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	10.3	7.0	3.5	0.399	0.272	0.199	0.067	0.049
2	9.30	10.04	11.5	8.0	4.9	0.362	0.208	0.134	0.049	0.032
3	18.62	20.06	13.2	9.6	6.0	0.420	0.222	0.146	0.051	0.033
4	21.00	22.47	13.6	9.9	6.4	0.435	0.237	0.161	0.054	0.037
5	23.27	25.07	14.1	10.3	7.5	0.513	0.318	0.245	0.071	0.055
6	25.67	27.63	14.5	10.7	9.4	0.567	0.364	0.296	0.080	0.065
7	28.12	30.31	15.1	11.2	16.9	0.701	0.451	0.386	0.084	0.072
8	30.67	32.99	15.5	11.6	27.0	0.790	0.497	0.436	0.072	0.063
9	46.78	50.16	16.0	11.7	3.3	0.583	0.437	0.409	0.108	0.101
10	66.82	70.23	9.8	4.7	8.4	0.410	0.122	0.117	0.028	0.027
11	89.50	90.29	12.6	6.3	13.5	0.280	0.111	0.111	0.021	0.021

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(v) 100 Percent of design speed; reading 401

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	35.8	65.3	48.0	518.7	604.2	14.69	22.49
2	9.442	9.413	0.	34.0	64.7	48.8	518.7	595.1	14.69	22.09
3	8.883	8.927	0.	36.2	63.2	48.3	518.7	589.6	14.69	21.21
4	8.740	8.810	0.	37.9	62.7	47.8	518.7	589.2	14.69	21.07
5	8.604	8.684	0.	44.0	62.4	48.3	518.7	592.6	14.69	20.64
6	8.460	8.560	0.	48.1	62.3	49.2	518.7	593.4	14.69	20.29
7	8.313	8.430	0.	59.8	62.1	54.7	518.7	595.6	14.69	19.59
8	8.160	8.300	0.	68.8	62.0	59.9	518.7	597.0	14.69	19.33
9	7.193	7.467	0.	48.4	58.4	29.3	518.7	595.0	14.69	21.16
10	5.991	6.494	0.	40.9	52.9	16.5	518.7	590.4	14.69	22.21
11	4.630	5.521	0.	43.6	49.8	0.3	518.7	592.6	14.69	22.83

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	512.9	744.7	1226.6	902.7	512.9	604.3	0.	435.4	1114.2	1105.8
2	510.5	715.5	1194.9	899.5	510.5	593.0	0.	400.6	1080.3	1077.0
3	512.3	682.0	1138.0	828.0	512.3	550.4	0.	402.7	1016.2	1021.2
4	514.6	678.1	1123.4	796.5	514.6	535.0	0.	416.6	998.7	1006.7
5	514.3	661.7	1111.2	715.3	514.3	475.8	0.	460.0	985.0	994.1
6	509.3	645.2	1094.4	659.6	509.3	430.6	0.	480.5	968.7	980.1
7	503.4	612.6	1076.0	533.3	503.4	308.4	0.	529.3	951.0	964.4
8	496.5	610.8	1057.7	439.7	496.5	220.4	0.	569.5	934.0	950.0
9	507.5	763.0	967.7	581.4	507.5	506.8	0.	570.4	823.9	855.3
10	517.7	844.7	858.8	665.6	517.7	638.1	0.	553.5	685.2	742.8
11	448.7	912.5	694.8	660.6	448.7	660.6	0.	629.6	530.4	632.5

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.469	0.643	1.123	0.780	0.469	0.522	1.178	1.607	0.784
2	0.467	0.621	1.094	0.781	0.467	0.515	1.162	1.623	0.838
3	0.469	0.593	1.042	0.720	0.469	0.478	1.075	1.651	0.809
4	0.471	0.589	1.029	0.692	0.471	0.465	1.040	1.655	0.798
5	0.471	0.572	1.017	0.619	0.471	0.412	0.925	1.668	0.715
6	0.466	0.557	1.001	0.569	0.466	0.372	0.845	1.681	0.671
7	0.460	0.526	0.984	0.458	0.460	0.265	0.613	1.677	0.577
8	0.454	0.524	0.967	0.377	0.454	0.189	0.444	1.673	0.540
9	0.464	0.666	0.885	0.507	0.464	0.442	0.999	1.572	0.747
10	0.474	0.748	0.786	0.589	0.474	0.565	1.233	1.418	0.906
11	0.409	0.814	0.633	0.589	0.409	0.589	1.472	1.170	0.942

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	7.6	4.3	2.1	0.397	0.187	0.126	0.047	0.032
2	9.30	10.04	8.7	5.3	3.7	0.369	0.134	0.073	0.032	0.018
3	18.62	20.06	10.2	6.6	6.0	0.395	0.158	0.099	0.036	0.023
4	21.00	22.47	10.3	6.6	6.3	0.417	0.169	0.110	0.038	0.025
5	23.27	25.07	10.7	7.0	7.9	0.495	0.249	0.189	0.055	0.042
6	25.67	27.63	11.1	7.3	10.2	0.542	0.294	0.234	0.063	0.050
7	28.12	30.31	11.6	7.7	16.8	0.665	0.391	0.334	0.073	0.062
8	30.67	32.99	12.2	8.3	23.5	0.759	0.441	0.387	0.071	0.062
9	46.78	50.16	12.6	8.2	2.9	0.570	0.281	0.255	0.069	0.063
10	66.82	70.23	12.9	7.8	6.4	0.387	0.122	0.119	0.028	0.028
11	89.50	90.29	15.6	9.2	10.8	0.236	0.113	0.113	0.021	0.021

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(w) 100 Percent of design speed; reading 402

RP	RAD II		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	38.3	62.8	47.7	518.7	609.3	14.69	22.97
2	9.442	9.413	0.	36.6	62.2	47.5	518.7	600.6	14.69	22.80
3	8.883	8.927	0.	35.9	60.2	46.0	518.7	593.3	14.69	22.27
4	8.740	8.810	0.	36.6	59.8	45.6	518.7	592.8	14.69	22.11
5	8.604	8.684	0.	40.7	59.3	45.7	518.7	593.7	14.69	21.68
6	8.460	8.560	0.	44.2	58.9	45.8	518.7	594.8	14.69	21.33
7	8.313	8.430	0.	49.0	58.6	45.7	518.7	596.3	14.69	20.91
8	8.160	8.300	0.	46.9	58.0	44.1	518.7	595.3	14.69	20.89
9	7.193	7.467	0.	40.8	54.7	31.2	518.7	592.2	14.69	21.76
10	5.991	6.494	0.	42.2	50.4	16.2	518.7	590.9	14.69	22.25
11	4.630	5.521	0.	44.3	47.5	0.1	518.7	592.1	14.69	22.61

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	573.7	747.2	1254.9	870.8	573.7	586.1	0.	463.7	1116.0	1107.7
2	571.1	732.7	1223.5	870.7	571.1	588.3	0.	436.9	1082.0	1078.7
3	583.3	718.3	1174.2	837.8	583.3	581.8	0.	421.3	1019.0	1024.1
4	582.5	712.8	1158.8	817.6	582.5	572.0	0.	425.5	1001.7	1009.7
5	585.4	696.5	1146.6	756.2	585.4	528.3	0.	454.1	985.9	995.1
6	583.8	683.9	1131.7	703.3	583.8	490.3	0.	476.8	969.5	980.9
7	581.3	675.1	1114.3	634.9	581.3	443.1	0.	509.3	950.6	964.0
8	583.3	683.2	1101.6	650.0	583.3	467.1	0.	498.6	934.5	950.5
9	584.3	769.2	1010.6	680.8	584.3	582.1	0.	502.8	824.5	856.0
10	568.4	839.9	891.8	647.8	568.4	622.1	0.	564.3	687.2	744.9
11	487.3	904.7	720.7	647.0	487.3	647.0	0.	632.4	530.9	633.1

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.528	0.643	1.155	0.749	0.528	0.504	1.022	1.546	0.779
2	0.526	0.634	1.126	0.753	0.526	0.509	1.030	1.559	0.847
3	0.537	0.625	1.082	0.729	0.537	0.506	0.997	1.570	0.878
4	0.537	0.620	1.068	0.711	0.537	0.497	0.982	1.574	0.866
5	0.539	0.604	1.057	0.656	0.539	0.458	0.903	1.578	0.813
6	0.538	0.592	1.043	0.609	0.538	0.424	0.840	1.582	0.766
7	0.535	0.583	1.026	0.548	0.535	0.383	0.762	1.590	0.709
8	0.537	0.591	1.015	0.562	0.537	0.404	0.801	1.598	0.717
9	0.538	0.673	0.931	0.596	0.538	0.510	0.996	1.535	0.837
10	0.523	0.743	0.820	0.573	0.523	0.550	1.094	1.408	0.904
11	0.445	0.806	0.658	0.577	0.445	0.577	1.328	1.165	0.926

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	5.1	1.8	1.9	0.444	0.194	0.140	0.049	0.035
2	9.30	10.04	6.2	2.7	2.5	0.418	0.130	0.077	0.032	0.019
3	18.62	20.06	7.2	3.5	3.7	0.410	0.102	0.053	0.024	0.013
4	21.00	22.47	7.4	3.7	4.1	0.419	0.113	0.065	0.027	0.015
5	23.27	25.07	7.6	3.8	5.3	0.474	0.160	0.113	0.037	0.026
6	25.67	27.63	7.7	3.9	6.8	0.518	0.205	0.159	0.047	0.036
7	28.12	30.31	8.0	4.1	7.9	0.579	0.262	0.217	0.059	0.049
8	30.67	32.99	8.2	4.3	7.6	0.557	0.257	0.212	0.059	0.049
9	46.78	50.16	8.9	4.5	4.8	0.470	0.165	0.140	0.040	0.034
10	66.82	70.23	10.4	5.3	6.1	0.432	0.118	0.113	0.027	0.026
11	89.50	90.29	13.3	6.9	10.6	0.285	0.133	0.133	0.025	0.025

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(x) 100 Percent of design speed; reading 403

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	37.4	60.5	47.9	518.7	606.4	14.69	23.12
2	9.442	9.413	0.	35.7	59.8	47.6	518.7	601.2	14.69	22.95
3	8.883	8.927	0.	35.0	57.6	45.9	518.7	591.1	14.69	22.54
4	8.740	8.810	0.	34.8	57.0	45.4	518.7	591.5	14.69	22.43
5	8.604	8.684	0.	38.1	56.5	45.8	518.7	592.0	14.69	21.93
6	8.460	8.560	0.	41.4	56.0	45.4	518.7	593.1	14.69	21.63
7	8.313	8.430	0.	43.7	55.4	44.4	518.7	593.6	14.69	21.41
8	8.160	8.300	0.	38.7	55.0	41.7	518.7	592.1	14.69	21.84
9	7.193	7.467	0.	37.6	51.5	31.6	518.7	588.4	14.69	22.14
10	5.991	6.494	0.	40.5	47.7	17.6	518.7	588.4	14.69	22.03
11	4.630	5.521	0.	44.0	45.3	-0.5	518.7	591.4	14.69	22.64

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	633.0	745.1	1284.1	883.9	633.0	592.1	0.	452.6	1117.2	1108.8
2	631.0	732.9	1253.1	882.7	631.0	595.4	0.	427.6	1082.6	1079.3
3	647.2	722.5	1207.5	849.6	647.2	591.7	0.	414.8	1019.4	1024.5
4	650.3	719.7	1195.5	842.4	650.3	591.0	0.	410.9	1003.1	1011.2
5	653.0	698.0	1183.6	788.8	653.0	549.7	0.	430.5	987.2	996.3
6	654.1	690.8	1170.6	738.1	654.1	518.3	0.	456.7	970.8	982.2
7	656.7	690.6	1157.6	698.9	656.7	499.0	0.	477.4	953.3	966.7
8	655.7	720.3	1142.2	752.7	655.7	562.0	0.	450.6	935.3	951.3
9	656.8	781.2	1055.4	727.3	656.8	619.3	0.	476.2	826.1	857.6
10	624.7	835.5	928.6	666.6	624.7	635.3	0.	542.7	687.0	744.7
11	526.3	920.5	747.6	662.6	526.3	662.6	0.	638.9	530.9	633.1

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.586	0.642	1.189	0.762	0.586	0.510	0.935	1.494	0.818
2	0.584	0.634	1.160	0.763	0.584	0.515	0.944	1.502	0.854
3	0.600	0.630	1.120	0.741	0.600	0.516	0.914	1.506	0.932
4	0.603	0.627	1.109	0.734	0.603	0.515	0.909	1.506	0.915
5	0.606	0.606	1.099	0.685	0.606	0.478	0.842	1.508	0.857
6	0.607	0.599	1.087	0.640	0.607	0.449	0.792	1.506	0.814
7	0.610	0.599	1.075	0.606	0.610	0.433	0.760	1.509	0.786
8	0.609	0.627	1.060	0.655	0.609	0.489	0.857	1.514	0.847
9	0.610	0.687	0.980	0.640	0.610	0.545	0.943	1.511	0.925
10	0.578	0.740	0.859	0.591	0.578	0.563	1.017	1.395	0.912
11	0.482	0.823	0.685	0.592	0.482	0.592	1.259	1.160	0.938

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	2.7	-0.6	2.1	0.443	0.152	0.103	0.038	0.026
2	9.30	10.04	3.7	0.3	2.6	0.420	0.121	0.074	0.030	0.018
3	18.62	20.06	4.5	0.9	3.5	0.415	0.053	0.011	0.013	0.003
4	21.00	22.47	4.6	0.9	3.9	0.412	0.068	0.027	0.016	0.006
5	23.27	25.07	4.8	1.1	5.4	0.456	0.115	0.075	0.027	0.018
6	25.67	27.63	4.8	1.0	6.4	0.498	0.153	0.115	0.035	0.027
7	28.12	30.31	4.9	1.0	6.6	0.531	0.179	0.142	0.041	0.033
8	30.67	32.99	5.1	1.2	5.3	0.469	0.130	0.093	0.031	0.022
9	46.78	50.16	5.7	1.4	5.2	0.441	0.068	0.042	0.017	0.010
10	66.82	70.23	7.7	2.6	7.6	0.429	0.098	0.093	0.023	0.021
11	89.50	90.29	11.1	4.7	10.0	0.290	0.105	0.105	0.020	0.020

TABLE VII. - Continued. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(y) 100 Percent of design speed; reading 404

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	31.9	59.5	49.0	518.7	596.2	14.69	21.66
2	9.442	9.413	0.	29.7	58.8	48.4	518.7	588.9	14.69	21.70
3	8.883	8.927	0.	29.3	56.5	48.0	518.7	580.4	14.69	20.97
4	8.740	8.810	0.	29.9	55.8	48.1	518.7	581.2	14.69	20.71
5	8.604	8.684	0.	34.1	55.5	49.4	518.7	579.6	14.69	20.04
6	8.460	8.560	0.	36.6	55.0	49.1	518.7	581.2	14.69	19.80
7	8.313	8.430	0.	37.3	54.3	46.7	518.7	583.1	14.69	19.91
8	8.160	8.300	0.	36.3	53.7	43.5	518.7	585.1	14.69	20.36
9	7.193	7.467	0.	33.0	49.9	30.9	518.7	585.1	14.69	21.77
10	5.991	6.494	0.	36.6	45.9	17.6	518.7	586.8	14.69	21.86
11	4.630	5.521	0.	41.6	43.5	-0.1	518.7	592.3	14.69	22.80

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	658.0	736.8	1297.5	953.5	658.0	625.2	0.	390.1	1118.3	1109.9
2	657.9	733.0	1268.3	959.4	657.9	636.7	0.	363.4	1084.3	1081.0
3	675.6	702.8	1223.2	916.5	675.6	613.2	0.	343.7	1019.7	1024.8
4	682.0	691.3	1213.3	896.4	682.0	599.2	0.	344.8	1003.5	1011.6
5	679.5	654.2	1199.8	831.9	679.5	541.8	0.	366.8	988.8	998.0
6	681.6	646.7	1187.9	793.1	681.6	519.5	0.	385.2	972.9	984.4
7	684.9	667.1	1174.8	774.0	684.9	530.5	0.	404.4	954.5	968.0
8	687.9	702.0	1162.7	780.1	687.9	565.4	0.	416.1	937.4	953.4
9	695.8	819.3	1079.7	800.5	695.8	687.1	0.	446.3	825.6	857.0
10	665.9	875.5	956.9	737.8	665.9	703.2	0.	521.6	687.2	744.9
11	559.0	955.4	770.7	714.3	559.0	714.3	0.	634.5	530.6	632.7

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.611	0.640	1.205	0.829	0.611	0.543	0.950	1.475	0.785
2	0.611	0.641	1.178	0.839	0.611	0.557	0.968	1.482	0.871
3	0.629	0.617	1.138	0.805	0.629	0.539	0.908	1.481	0.898
4	0.635	0.606	1.130	0.786	0.635	0.525	0.879	1.478	0.855
5	0.633	0.572	1.117	0.728	0.633	0.474	0.797	1.486	0.789
6	0.635	0.564	1.106	0.692	0.635	0.453	0.762	1.483	0.738
7	0.638	0.582	1.094	0.676	0.638	0.463	0.775	1.483	0.731
8	0.641	0.614	1.083	0.682	0.641	0.495	0.822	1.485	0.763
9	0.649	0.727	1.007	0.710	0.649	0.609	0.987	1.487	0.929
10	0.619	0.781	0.889	0.658	0.619	0.627	1.056	1.390	0.915
11	0.514	0.858	0.708	0.641	0.514	0.641	1.278	1.158	0.943

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS TOT	COEFF PROF	LOSS TOT	PARAM PROF
	IN	OUT	MEAN	SS						
1	4.50	5.01	1.8	-1.5	3.2	0.378	0.159	0.111	0.039	0.027
2	9.30	10.04	2.7	-0.7	3.4	0.348	0.091	0.046	0.022	0.011
3	18.62	20.06	3.4	-0.2	5.7	0.348	0.068	0.028	0.016	0.006
4	21.00	22.47	3.4	-0.3	6.5	0.358	0.099	0.060	0.022	0.014
5	23.27	25.07	3.8	0.0	8.9	0.409	0.141	0.102	0.031	0.022
6	25.67	27.63	3.8	-0.0	10.1	0.440	0.180	0.143	0.039	0.031
7	28.12	30.31	3.8	-0.1	8.9	0.453	0.192	0.156	0.043	0.035
8	30.67	32.99	3.9	-0.0	7.1	0.445	0.177	0.143	0.041	0.033
9	46.78	50.16	4.1	-0.3	4.4	0.378	0.060	0.034	0.015	0.008
10	66.82	70.23	5.9	0.8	7.5	0.366	0.089	0.082	0.020	0.019
11	89.50	90.29	9.4	3.0	10.4	0.243	0.092	0.092	0.017	0.017

TABLE VII. - Concluded. BLADE-ELEMENT PERFORMANCE FOR

ROTOR 1 - MOD 1

(z) 100 Percent of design speed; reading 407

RP	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	9.730	9.657	0.	16.1	59.2	51.1	518.7	565.3	14.69	18.24
2	9.442	9.413	0.	15.3	58.5	50.7	518.7	561.1	14.69	18.20
3	8.883	8.927	0.	13.9	56.3	50.9	518.7	554.3	14.69	17.47
4	8.740	8.810	0.	13.6	55.6	50.8	518.7	554.2	14.69	17.33
5	8.604	8.684	0.	17.0	55.1	52.2	518.7	553.1	14.69	16.46
6	8.460	8.560	0.	19.2	54.6	53.6	518.7	552.7	14.69	15.86
7	8.313	8.430	0.	21.9	54.1	54.2	518.7	553.4	14.69	15.42
8	8.160	8.300	0.	25.0	53.4	50.5	518.7	557.6	14.69	15.75
9	7.193	7.467	0.	23.2	49.5	33.0	518.7	571.4	14.69	19.54
10	5.991	6.494	0.	31.3	45.1	18.1	518.7	583.6	14.69	21.48
11	4.630	5.521	0.	39.7	42.5	0.3	518.7	592.1	14.69	23.16

RP	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	665.5	755.7	1300.6	1155.7	665.5	726.0	0.	209.8	1117.4	1109.0
2	663.2	750.2	1271.0	1141.6	663.2	723.6	0.	198.0	1084.3	1081.0
3	681.9	715.2	1227.9	1101.0	681.9	694.3	0.	171.6	1021.1	1026.2
4	686.8	709.1	1215.5	1090.0	686.8	689.4	0.	166.6	1002.9	1010.9
5	687.5	654.1	1202.9	1019.4	687.5	625.5	0.	191.3	987.1	996.3
6	689.8	610.1	1191.4	971.5	689.8	576.2	0.	200.7	971.4	982.9
7	691.9	583.8	1179.3	925.6	691.9	541.6	0.	217.8	955.0	968.5
8	695.6	626.1	1166.7	892.3	695.6	567.6	0.	264.2	936.6	952.7
9	705.8	865.7	1087.0	949.2	705.8	795.9	0.	341.1	826.8	858.3
10	686.3	934.4	972.0	840.0	686.3	798.5	0.	485.3	688.4	746.2
11	581.2	987.0	788.0	759.6	581.2	759.6	0.	630.3	532.1	634.5

RP	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID VEL R	PEAK SS MACH NO	EFF
	IN	OUT	IN	OUT	IN	OUT			
1	0.619	0.677	1.209	1.036	0.619	0.651	1.091	1.468	0.709
2	0.616	0.675	1.181	1.027	0.616	0.651	1.091	1.477	0.770
3	0.635	0.645	1.143	0.993	0.635	0.626	1.018	1.477	0.738
4	0.640	0.639	1.133	0.982	0.640	0.621	1.004	1.473	0.705
5	0.641	0.587	1.121	0.914	0.641	0.561	0.910	1.477	0.497
6	0.643	0.545	1.111	0.868	0.643	0.515	0.835	1.474	0.335
7	0.645	0.520	1.100	0.824	0.645	0.482	0.783	1.478	0.209
8	0.649	0.558	1.088	0.795	0.649	0.505	0.816	1.476	0.268
9	0.659	0.783	1.015	0.858	0.659	0.720	1.128	1.476	0.835
10	0.639	0.843	0.906	0.758	0.639	0.721	1.163	1.390	0.916
11	0.535	0.891	0.726	0.685	0.535	0.685	1.307	1.161	0.981

RP	PERCENT SPAN		INCIDENCE		DEV	D-FACT	LOSS COEFF		LOSS PARAM	
	IN	OUT	MEAN	SS			TOT	PROF	TOT	PROF
1	4.50	5.01	1.5	-1.8	5.3	0.172	0.136	0.089	0.032	0.021
2	9.30	10.04	2.5	-0.9	5.7	0.159	0.103	0.058	0.024	0.013
3	18.62	20.06	3.2	-0.4	8.6	0.152	0.104	0.064	0.023	0.014
4	21.00	22.47	3.2	-0.5	9.2	0.150	0.119	0.080	0.025	0.017
5	23.27	25.07	3.4	-0.3	11.7	0.206	0.195	0.157	0.040	0.032
6	25.67	27.63	3.4	-0.4	14.6	0.240	0.256	0.220	0.050	0.043
7	28.12	30.31	3.6	-0.3	16.4	0.275	0.311	0.276	0.059	0.052
8	30.67	32.99	3.6	-0.4	14.1	0.309	0.324	0.290	0.066	0.059
9	46.78	50.16	3.7	-0.6	6.5	0.218	0.111	0.086	0.027	0.020
10	66.82	70.23	5.1	-0.0	8.0	0.261	0.081	0.074	0.019	0.017
11	89.50	90.29	8.3	1.9	10.8	0.201	0.030	0.030	0.006	0.006

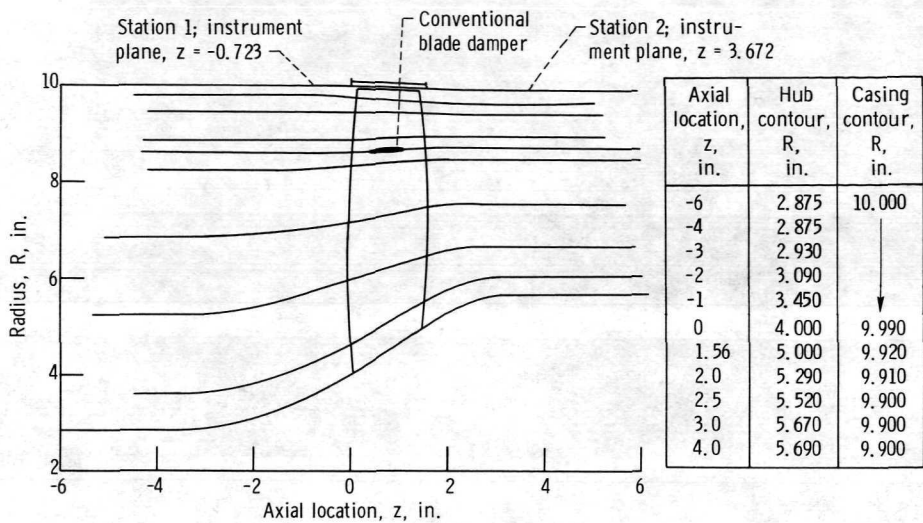


Figure 1. - Compressor flow path for rotor 1 - mod 1.

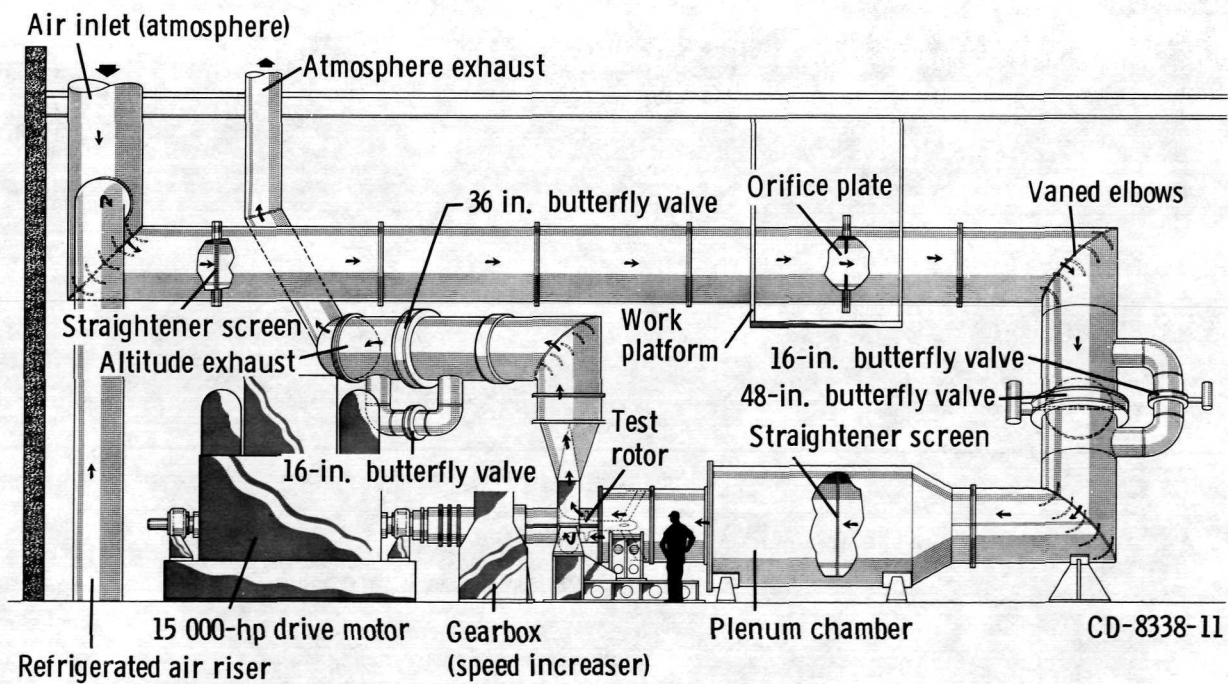
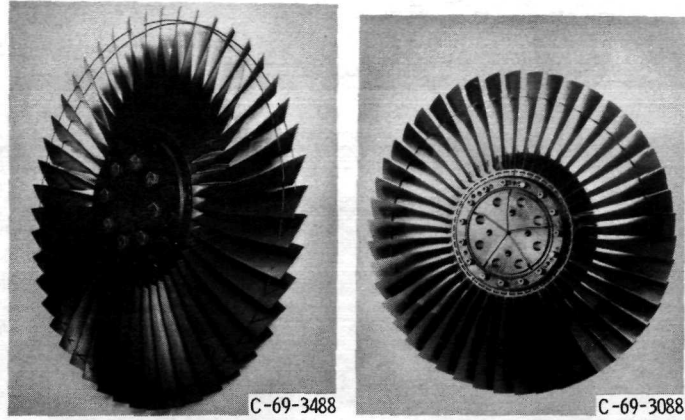


Figure 2. - Compressor test facility.



(a) Rotor 1.

(b) Rotor I - mod I.

Figure 3. - Axial-flow compressor test rotors.

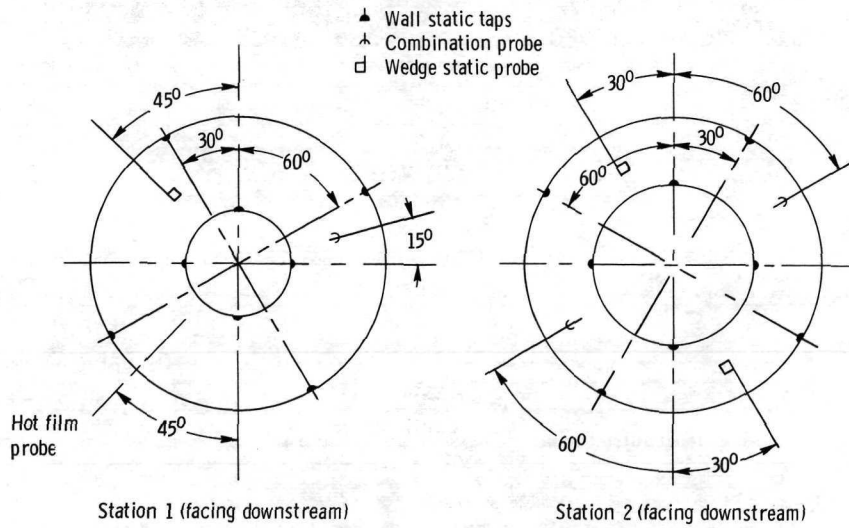
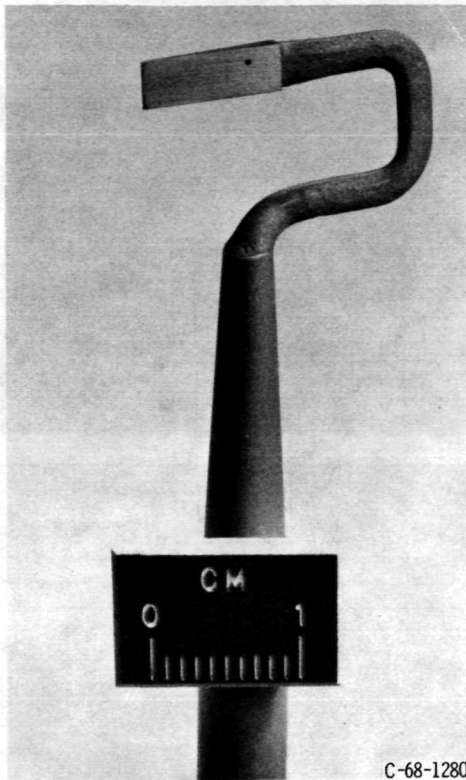
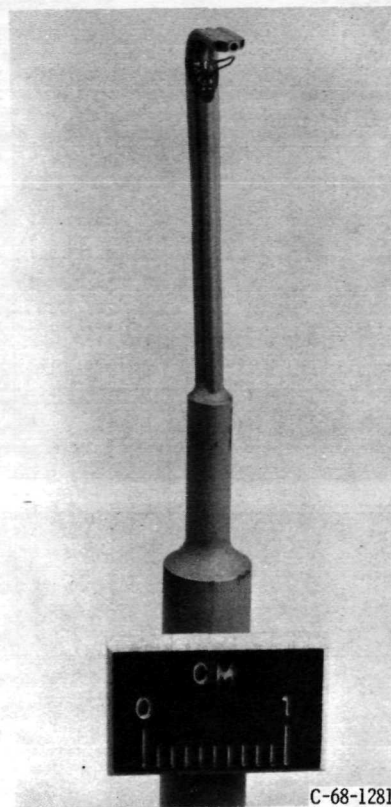


Figure 4. - Circumferential location of measurements.



C-68-1280

Figure 5. - Static-pressure probe; 80° C-shaped wedge.



C-68-1281

Figure 6. - Combination total pressure, total temperature, and flow angle probe.

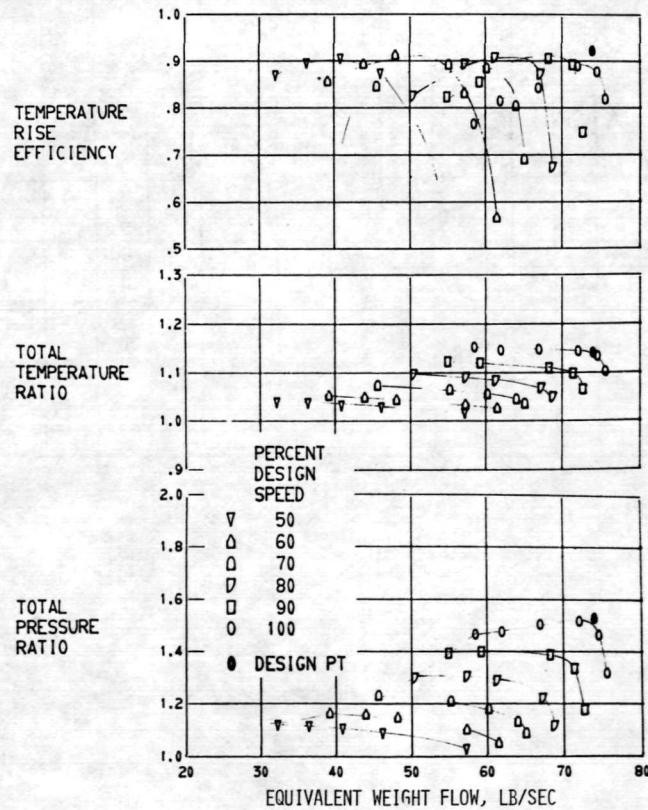
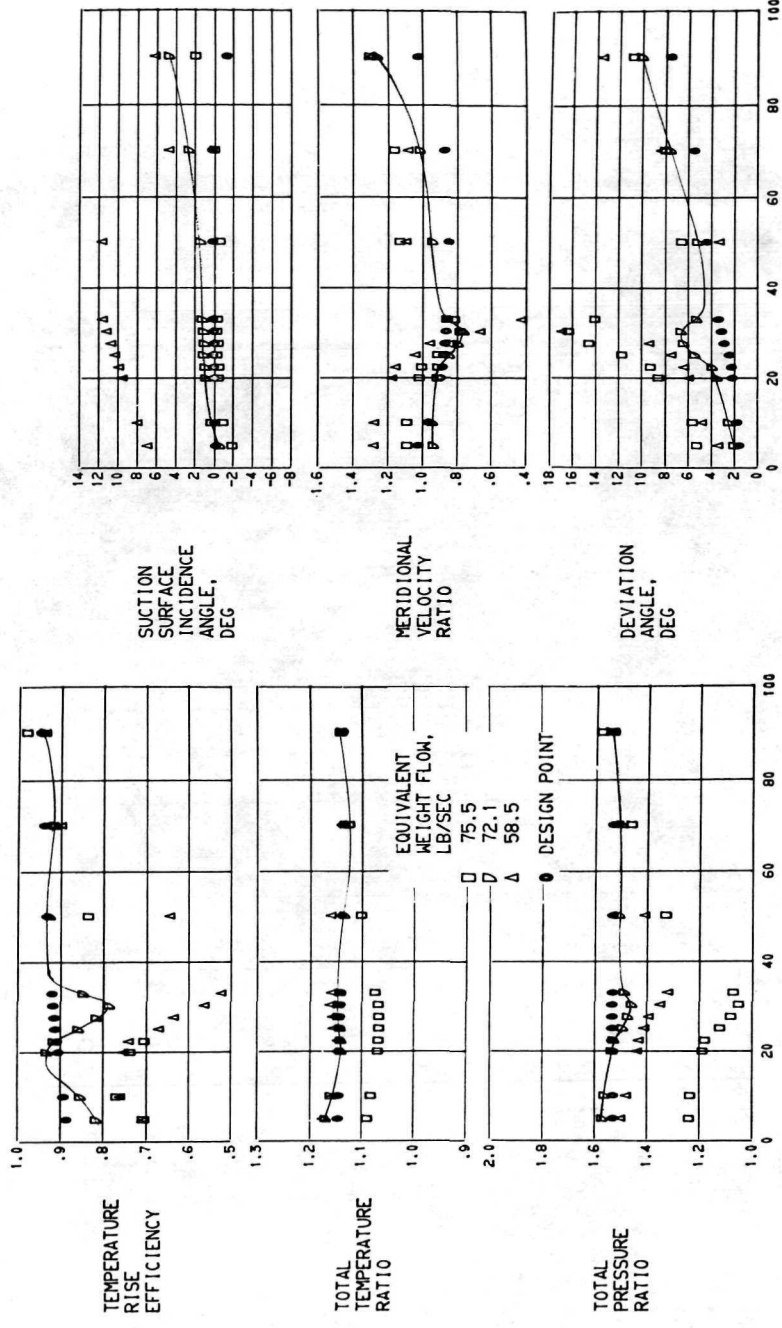


FIGURE 7. - OVERALL PERFORMANCE FOR ROTOR 1 - MOD 1.



TEMPERATURE RISE EFFICIENCY

TOTAL TEMPERATURE RATIO

TOTAL PRESSURE RATIO

SUCTION SURFACE INCIDENCE ANGLE, DEG

MERIDIONAL VELOCITY RATIO

DEVIATION ANGLE, DEG

EQUIVALENT WEIGHT FLOW, LB/SEC
 □ 75.5
 △ 72.1
 ● DESIGN POINT

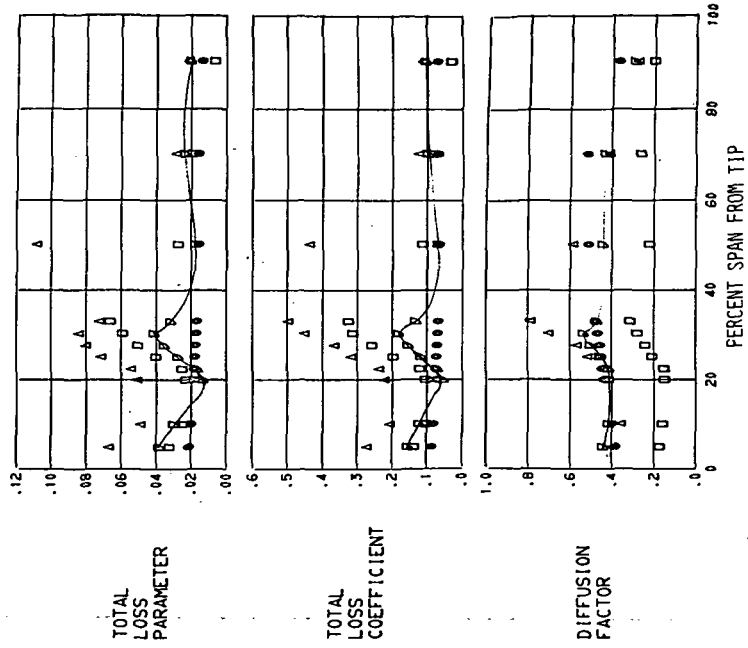
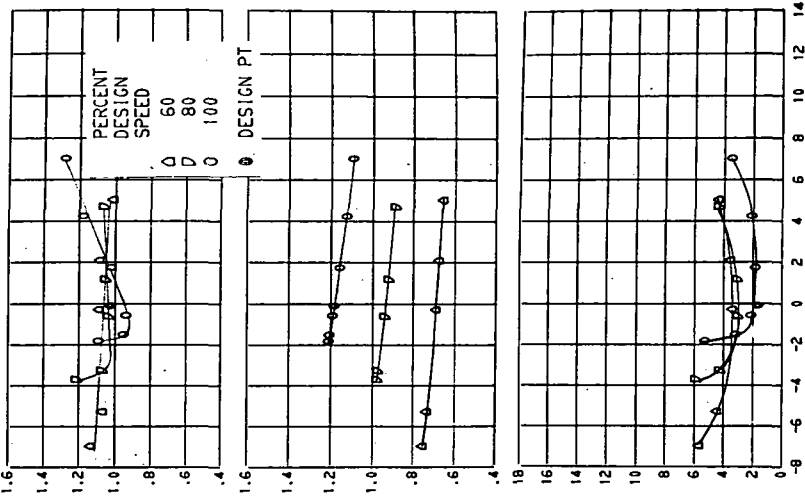


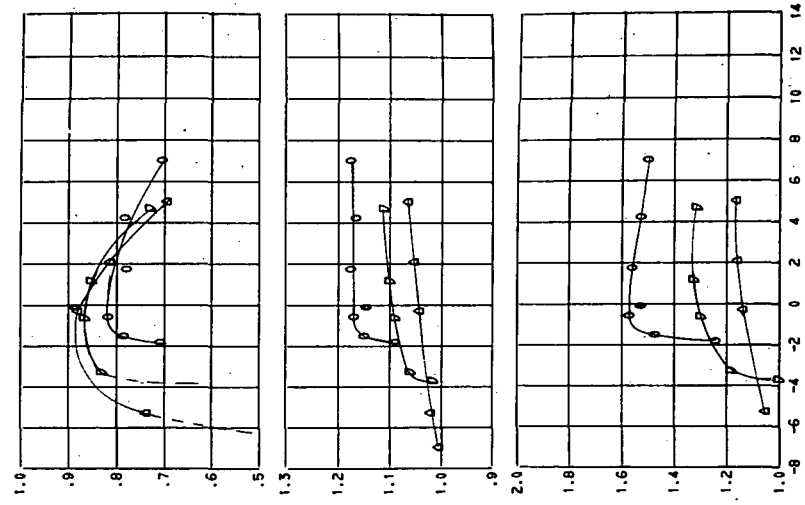
FIGURE 8. - RADIAL DISTRIBUTION OF PERFORMANCE FOR ROTOR 1 - MOD 1, 100 PERCENT OF DESIGN SPEED.



MERIDIONAL VELOCITY RATIO

INLET RELATIVE MACH NUMBER

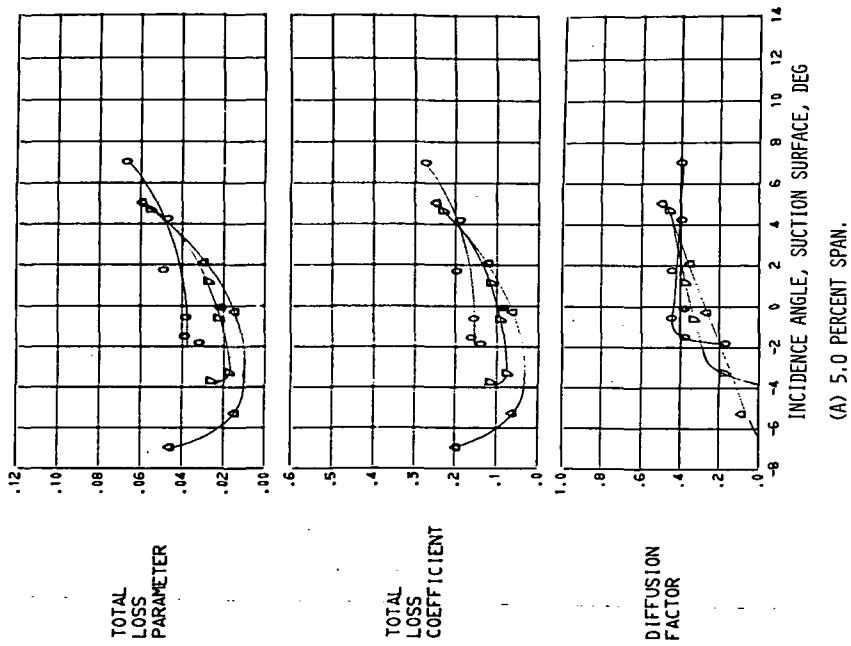
DEVIATION ANGLE, DEG



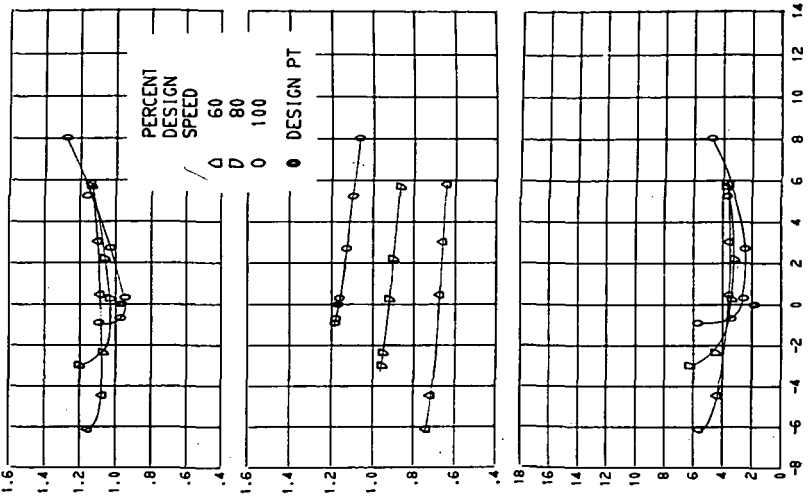
TEMPERATURE RISE EFFICIENCY

TOTAL TEMPERATURE RATIO

TOTAL PRESSURE RATIO



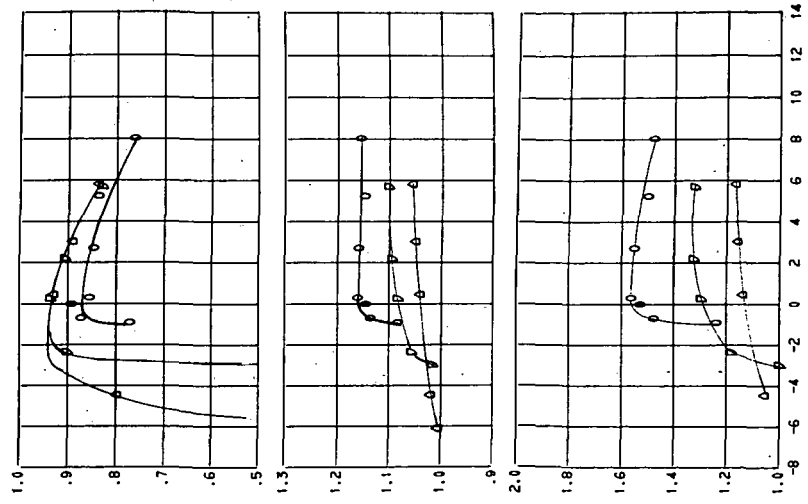
(A) 5.0 PERCENT SPAN.
 FIGURE 9. - BLADE-ELEMENT PERFORMANCE FOR ROTOR 1 - MOD 1.



MERIDIONAL VELOCITY RATIO

INLET RELATIVE MACH NUMBER

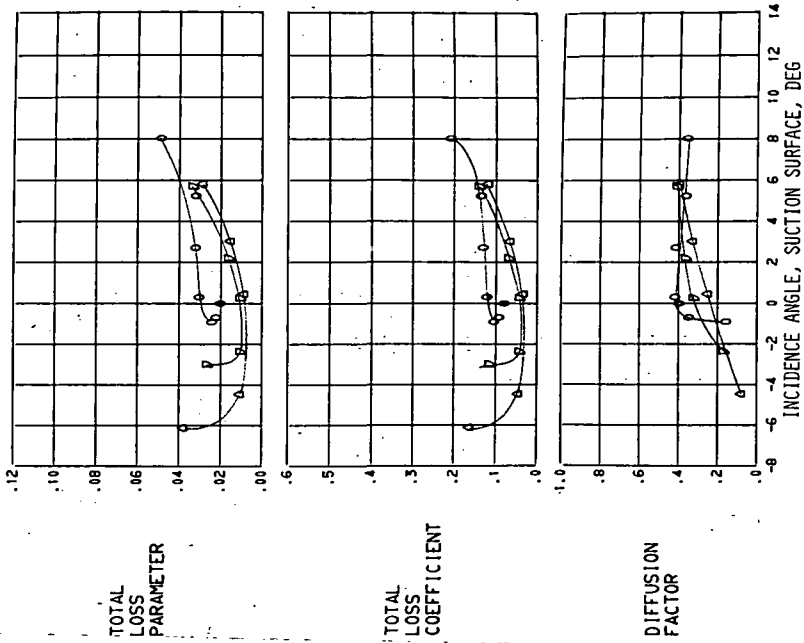
DEVIATION ANGLE, DEG



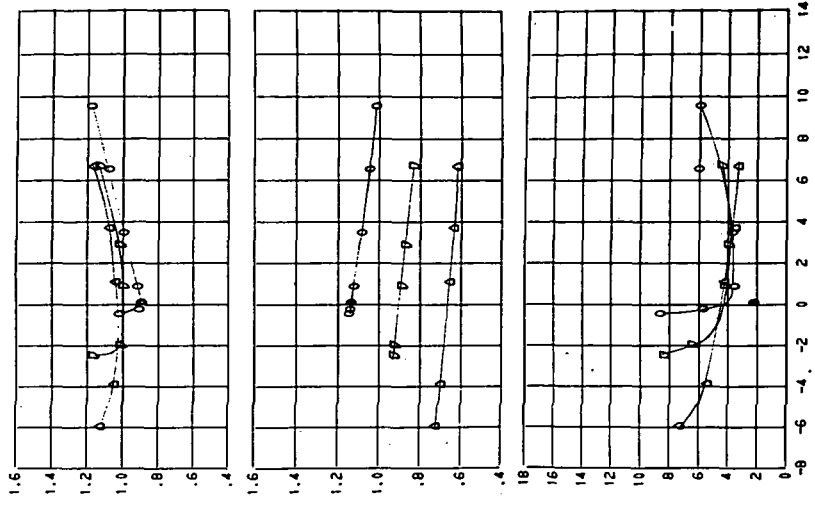
TEMPERATURE RISE EFFICIENCY

TOTAL TEMPERATURE RATIO

TOTAL PRESSURE RATIO



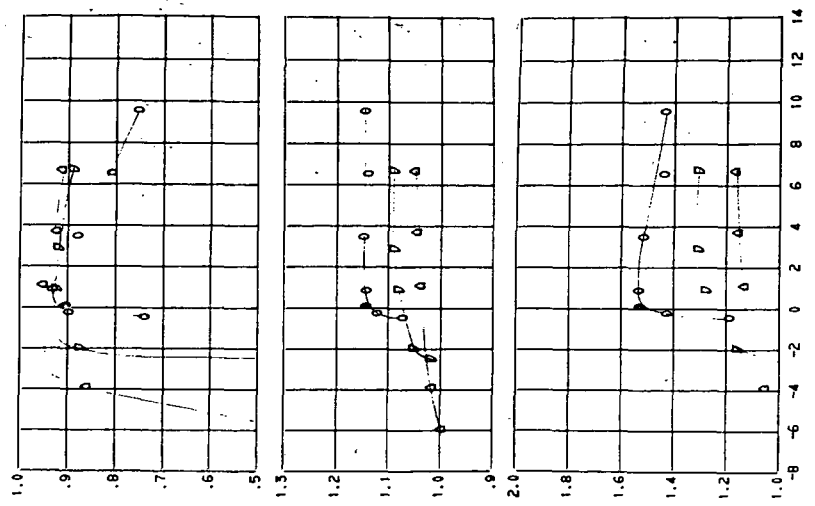
(B) 10.0 PERCENT SPAN.
 FIGURE 9. - CONTINUED.



MERIDIONAL VELOCITY RATIO

INLET RELATIVE MACH NUMBER

DEVIATION ANGLE, DEG



TEMPERATURE RISE EFFICIENCY

TOTAL TEMPERATURE RATIO

TOTAL PRESSURE RATIO

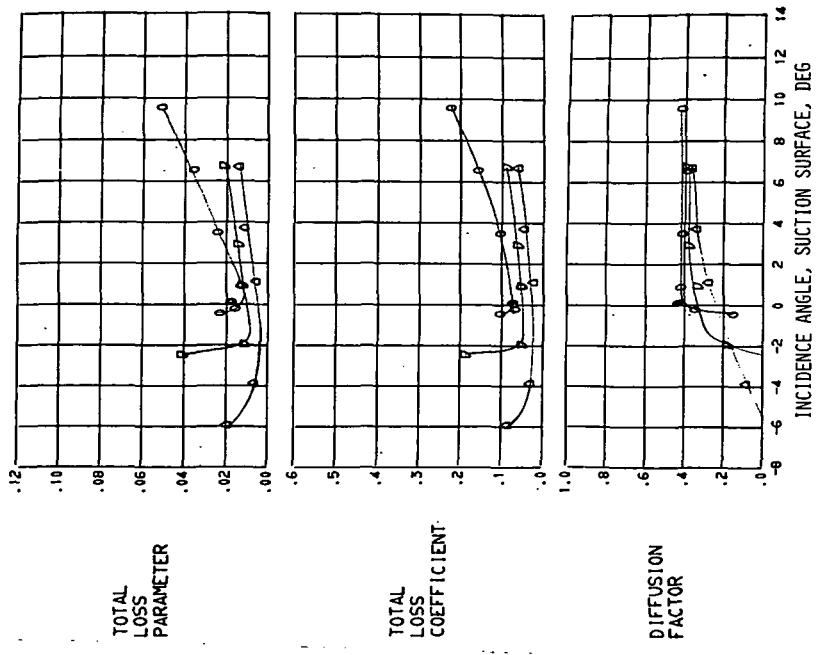
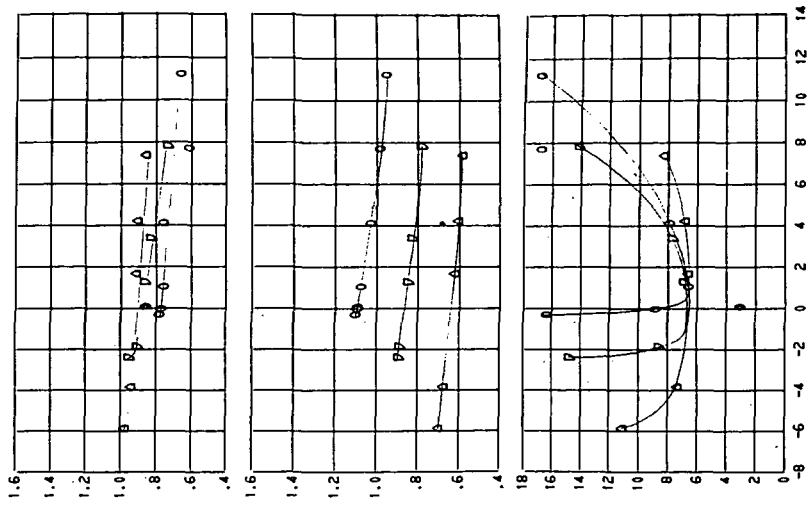


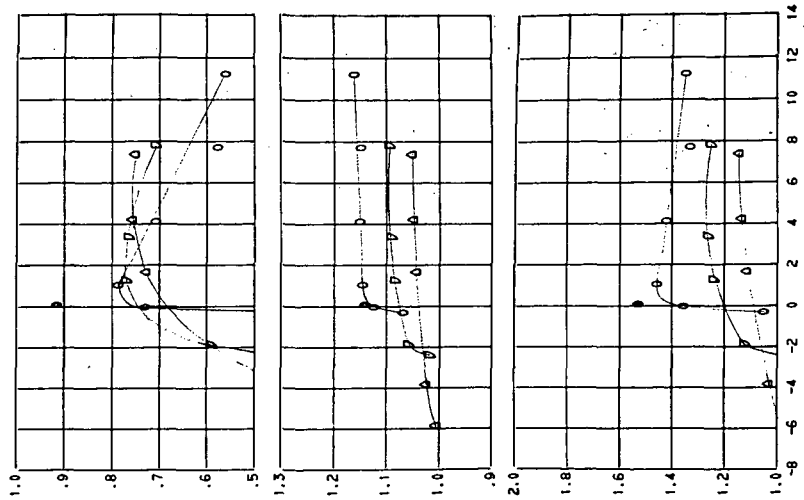
FIGURE 9. - CONTINUED.



MERIDIONAL VELOCITY RATIO

INLET RELATIVE MACH NUMBER

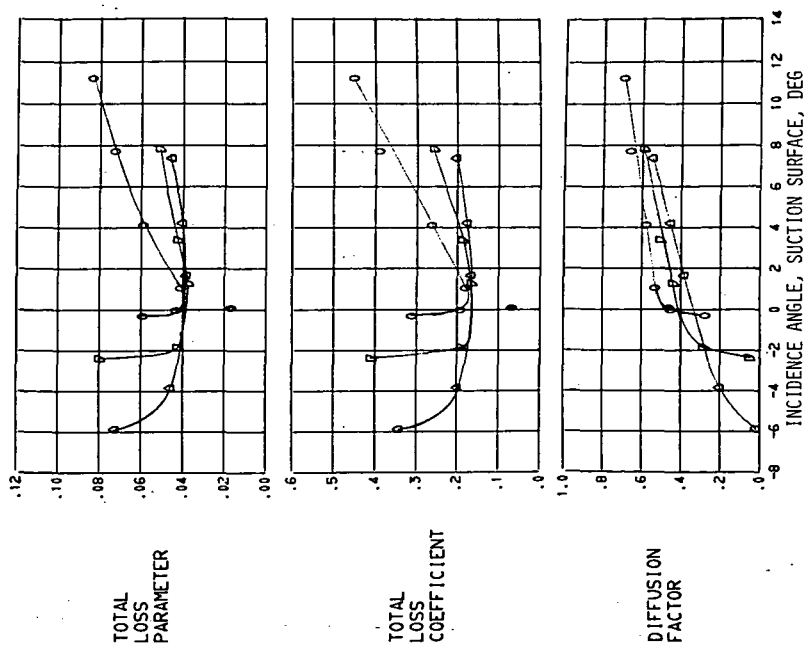
DEVIATION ANGLE, DEG



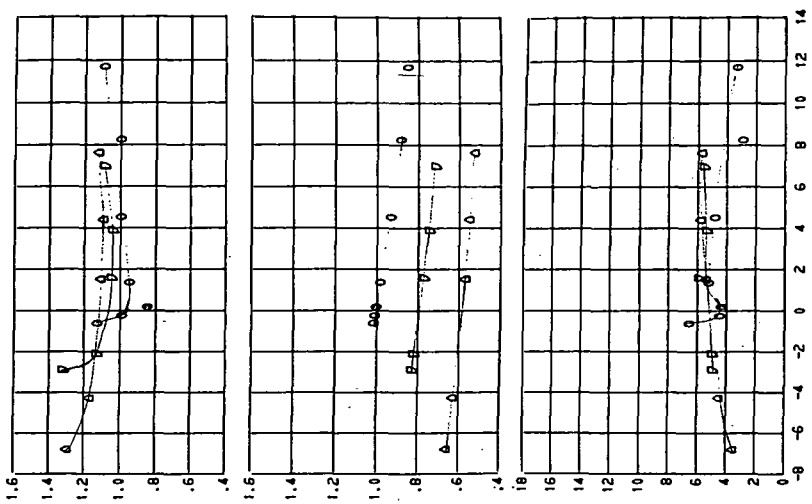
TEMPERATURE RISE EFFICIENCY

TOTAL TEMPERATURE RATIO

TOTAL PRESSURE RATIO



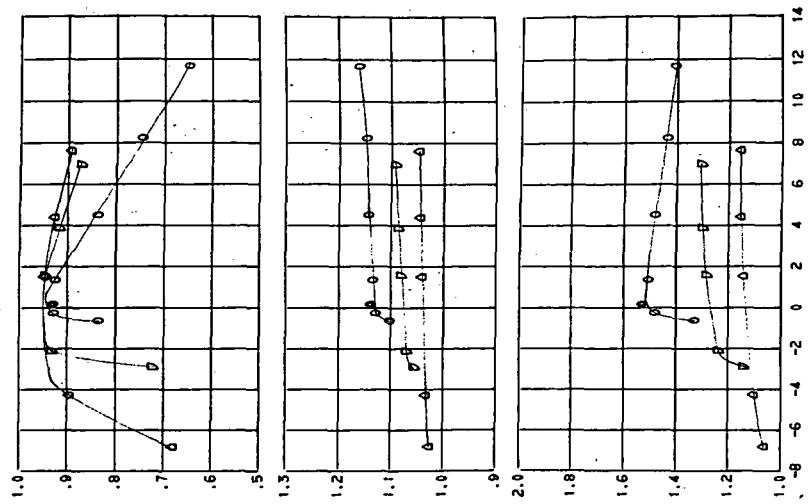
(D) 30.3 PERCENT SPAN.
 FIGURE 9. - CONTINUED.



MERIDIONAL VELOCITY RATIO

INLET RELATIVE MACH NUMBER

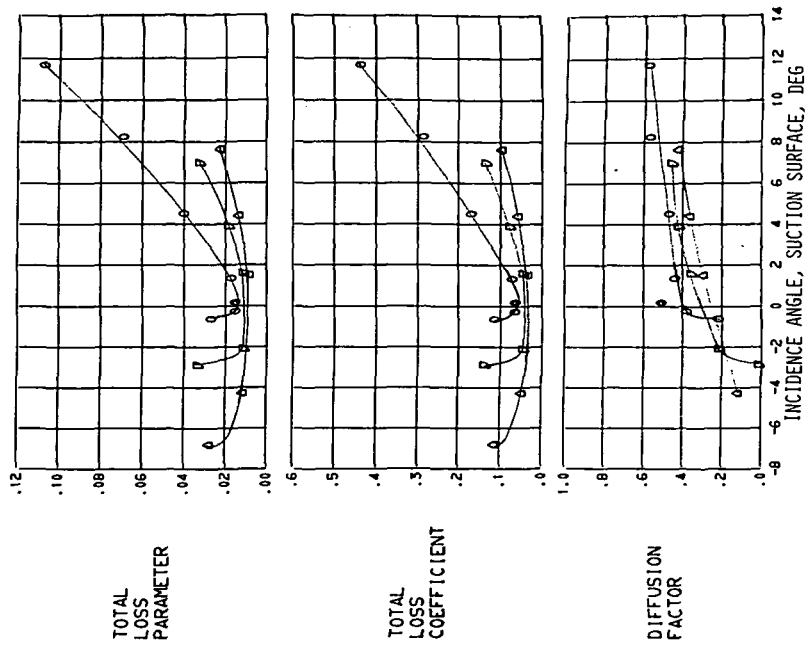
DEVIATION ANGLE, DEG



TEMPERATURE RISE EFFICIENCY

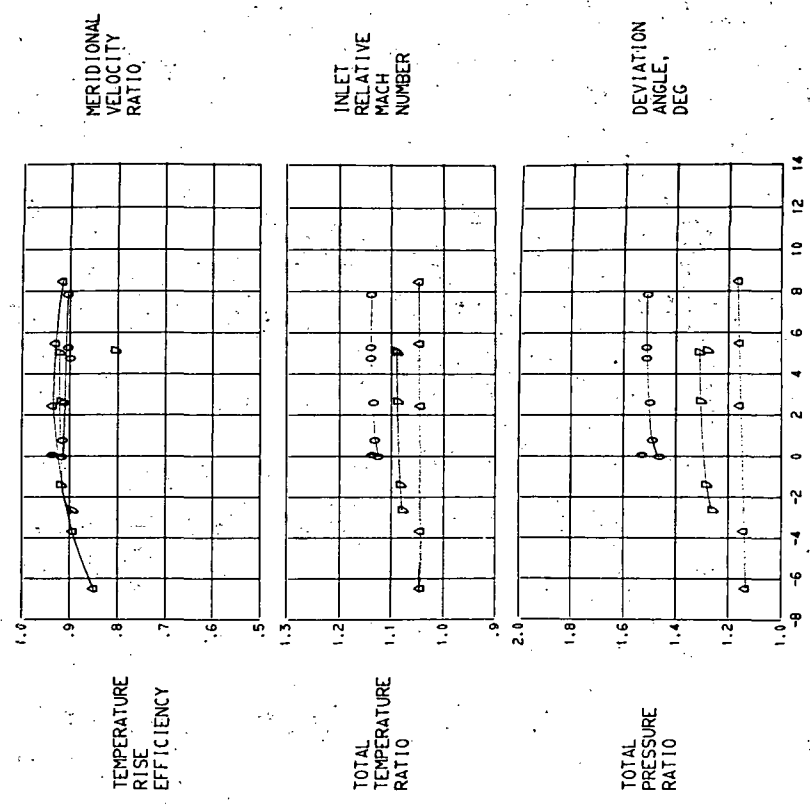
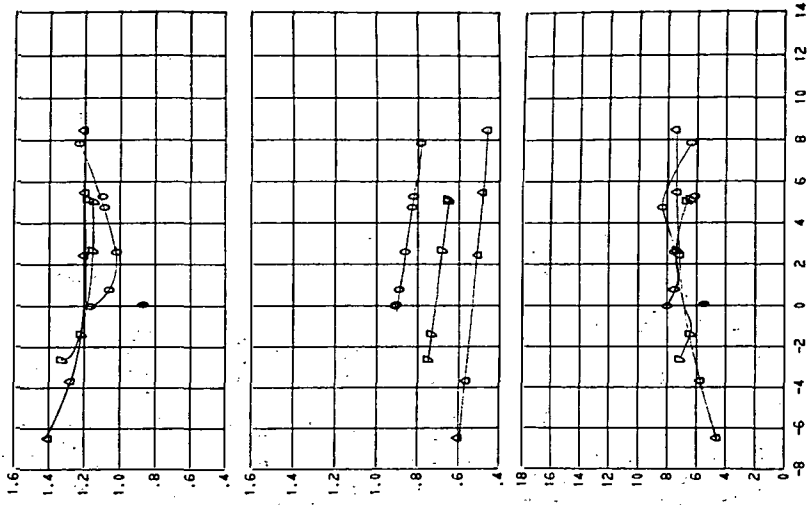
TOTAL TEMPERATURE RATIO

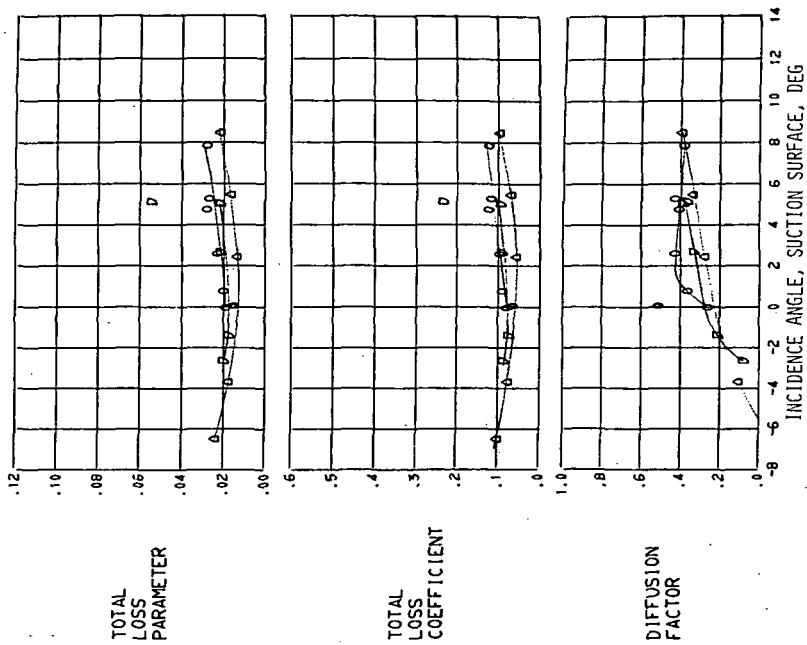
TOTAL PRESSURE RATIO



(E) 50.2 PERCENT SPAN.

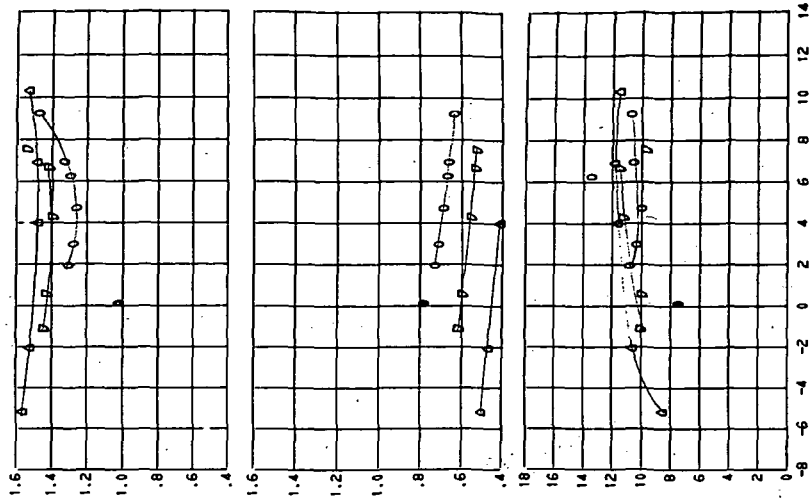
FIGURE 9. - CONTINUED.





(F) 70.2 PERCENT SPAN.

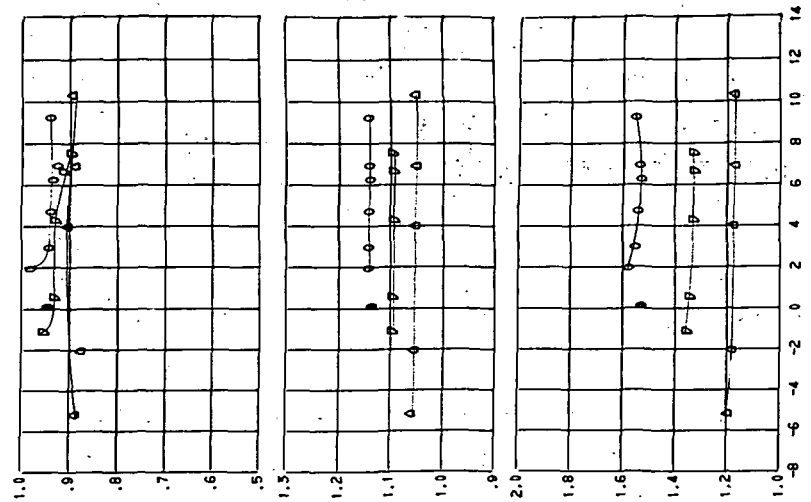
FIGURE 9. - CONTINUED.



MERIDIONAL VELOCITY RATIO

INLET RELATIVE MACH NUMBER

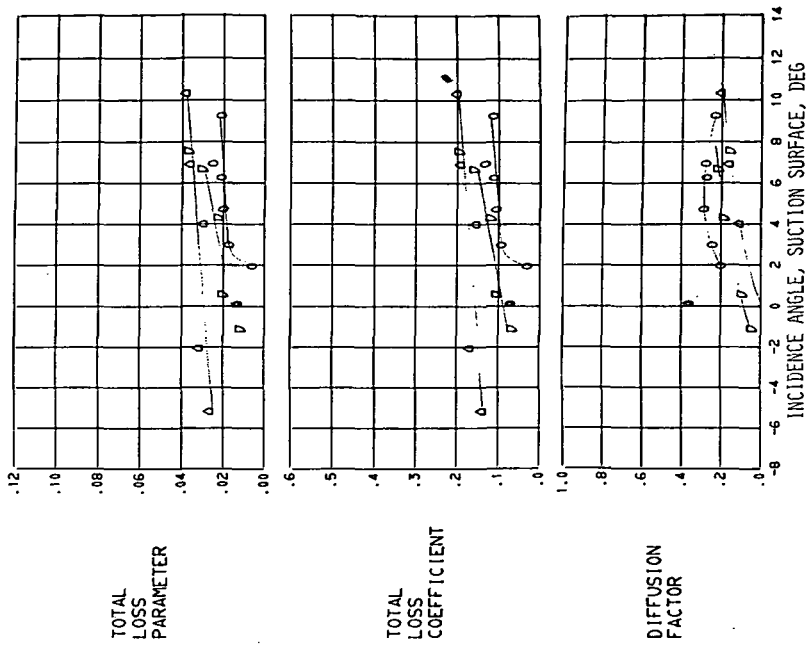
DEVIATION ANGLE, DEG



TEMPERATURE RISE EFFICIENCY

TOTAL TEMPERATURE RATIO

TOTAL PRESSURE RATIO



(6) 90.3 PERCENT SPAN.

FIGURE 9. - CONCLUDED.

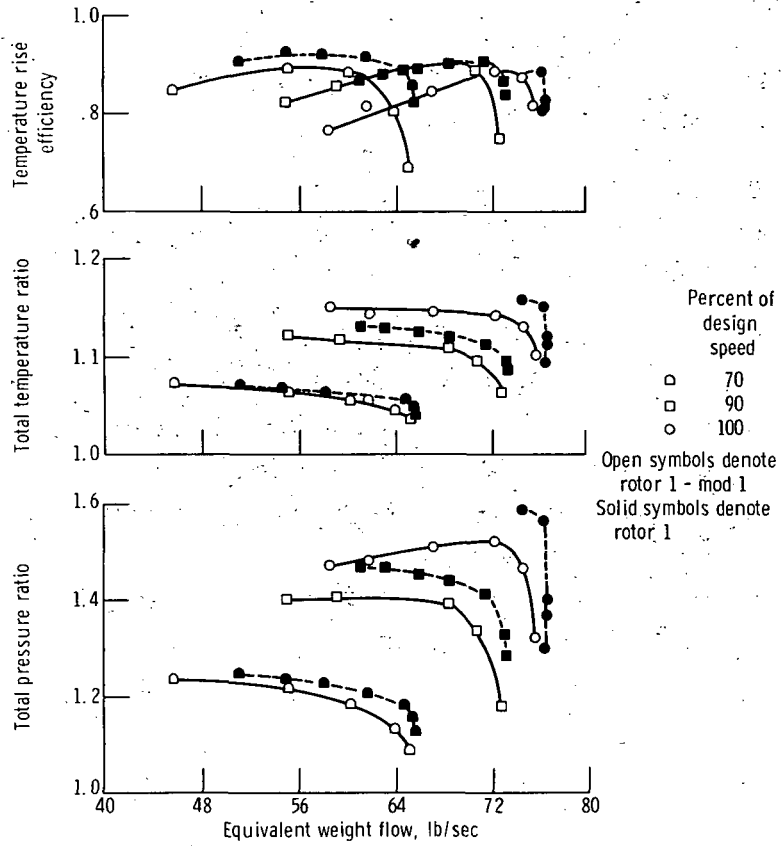


Figure 10. - Comparison of overall performance of rotor having conventional dampers with that of rotor having wire friction damping.

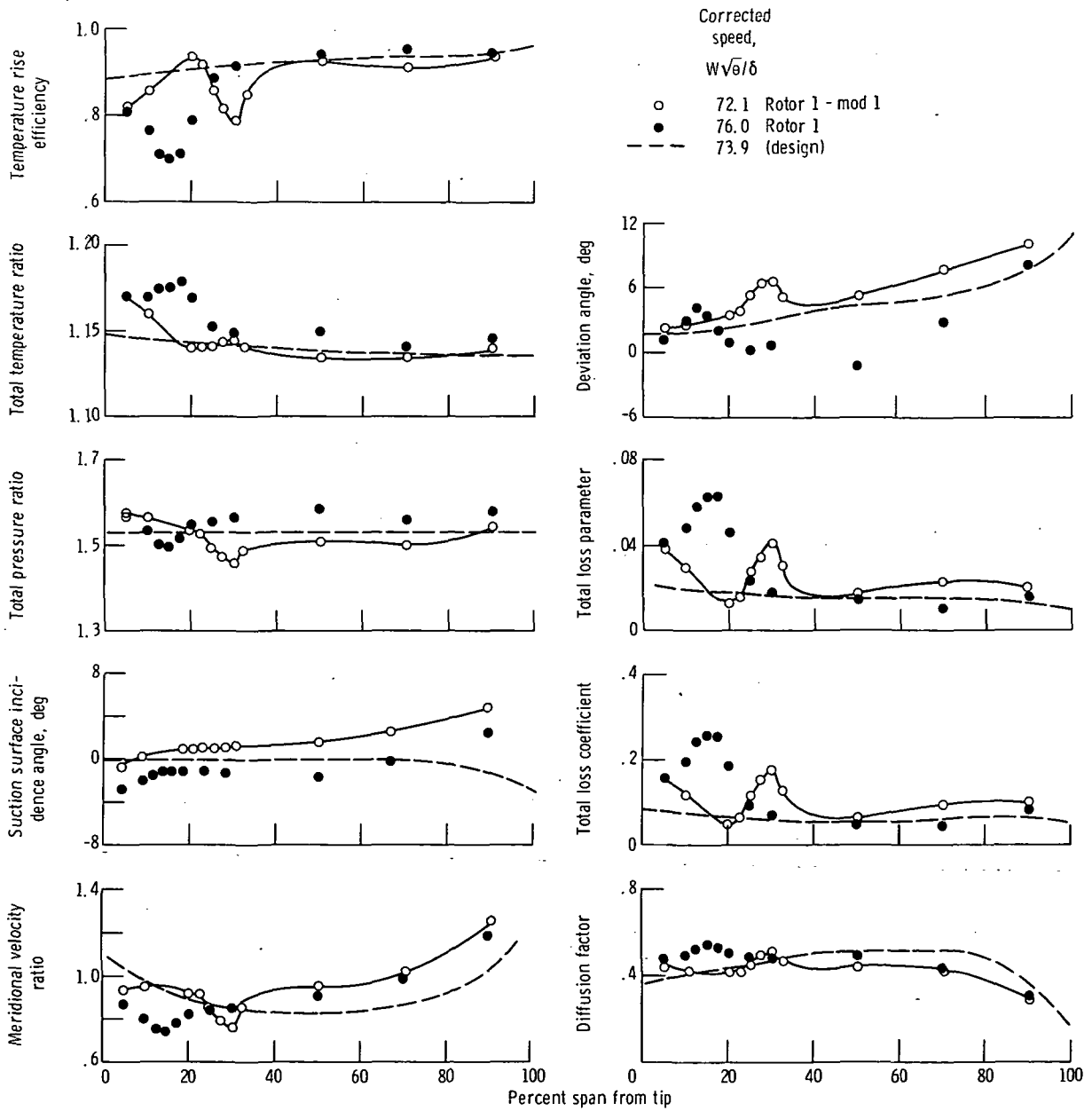


Figure 11. - Comparison of radial distribution of performance at design speed and peak efficiency for rotor with conventional dampers with that for rotor having wire friction blade dampers.

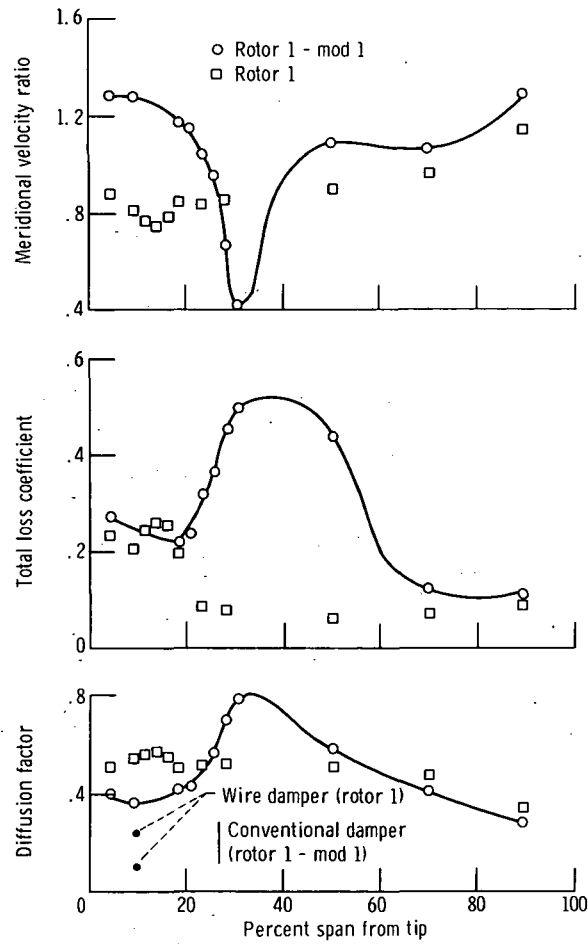


Figure 12. - Comparison of rotor performance near stall at design speed.



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