NASA TECHNICAL MEMORANDUM

NASA TM X-3083

AERODYNAMIC PERFORMANCE OF A 1.25-PRESSURE-RATIO AXIAL-FLOW FAN STAGE

by Royce D. Moore and Ronald J. Steinke

Lewis Research Center
Cleveland, Ohio 44135

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • WASHINGTON, D. C. • AUGUST 1974

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
NASA TM X-3083		

4. Title and Subtitle	5. Report Date
AERODYNAMIC PERFORMANCE OF A 1.25-PRESSURE-RATIO AXIAL-FLOW FAN STAGE	AUGUST 1974
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
Royce D. Moore and Ronald J. Steinke	E-7800
	10. Work Unit No.
9. Performing Organization Name and Address	501-24
Lewis Research Center National Aeronautics and Space Administration Cleveland, Ohio 44135	11. Contract or Grant No.
	13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address	Technical Memorandum
National Aeronautics and Space Administration Washington, D.C. 20546	14. Sponsoring Agency Code

15. Supplementary Notes

16 Abstract

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17. Key Words (Suggested by Author(s))	18. Distribution Statement
Axial-flow fan stage Compressor	Unclassified - unlimited Category 01

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price*
Unclassified	Unclassified	121	$4.50

* For sale by the National Technical Information Service, Springfield Virginia 22151

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SUMMARY

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INTRODUCTION

A research program on axial-flow fans and compressors for advanced airbreathing engines is currently being conducted at the NASA Lewis Research Center. This program is primarily directed towards providing technology to permit reducing the size and weight of fans and compressors while maintaining high levels of performance. In support of this program, experimental studies are being conducted on fan stages suitable for use in engines for quiet powered lift aircraft using the externally blown flap (refs. 1 and 2). The externally blown flap aircraft will require a large flow of low velocity air for effective lift and low noise during takeoff and landing (ref. 3).

To meet the low noise requirement, the fans will be required to have low tip speed and low pressure ratio. The pressure ratios of interest in the program range from 1.15 to 1.35. The performances of a 1.15- and a 1.20-pressure-ratio stage were presented in references 1 and 2, respectively. The fan stage presented herein has a pressure ratio of 1.25. Two other methods which have been effective in reducing noise has

been to increase the spacing between rotor and stator blades and increasing the number of stator blades (ref. 4). Thus the final fan design will depend on compromises between fan aerodynamic and acoustic performance.

The objective of this investigation is to present the aerodynamic performance of a fan stage suitable for application in engines for quiet powered lift aircraft. The stage was designed for a pressure ratio of 1.25, a tip speed of 257.7 meters per second, and a weight flow of 32.7 kilograms per second (194.4 kg/sec/m^2 of annulus area). In order to evaluate the effect of spacing between the rotor and stator, the stage was tested with the stators spaced 1, 2, and 4 rotor tip chords downstream of the rotor trailing edge. Data were obtained over the stable operating range of the stage for six rotative speeds from 70 to 120 percent of design speed. Blade-element survey data were obtained at nine radial positions. The stage presented in this report has been designated stage 52-52, with the rotor being rotor 52 and the stator being stator 52. The data presented in this report are in tabular form as well as in machine-plotted form. The symbols and equations are defined in appendixes A and B. The definitions and units used for the tabular data are defined in appendix C.

AERODYNAMIC DESIGN

Three different computer programs were used in the design of this fan stage. The first program calculates an aerodynamic design consisting of vector diagrams, blade geometry, and blade coordinates. The resulting aerodynamic design parameters are used as input in the other two programs to evaluate the mechanical and acoustic aspects of the fan design. Several iterations may be required to evolve a satisfactory final design that best meets the aerodynamic, acoustic, and mechanical requirements.

The aerodynamic design program calculates (1) the vector diagrams at several axial locations, (2) the blade geometry which will satisfy the vector diagrams, and (3) the Cartesian blade coordinates for fabrication of the blades. The program accounts for streamline curvatures, entropy gradients, and boundary layer blockage. Losses, calculated within the program, are based on a shock loss (as related to the particular blade shape) and a profile loss. The losses used for this stage are based on the loss-diffusion factor correlations that include the data presented in reference 5 for the rotor and in reference 6 for the stator. Weight flow, rotative speed, flow path geometry, and radial distributions of rotor total pressure and stator exit tangential velocity were inputs to the program.

The program for predicting noise was based on a model that includes a description of the rotor blade wakes and the response of the stator blade to these wakes (ref. 7). For fans, in general, the blade passing frequency noise, which appears to be the dominate noise, is caused by the interaction of the rotor wakes with the downstream stator

blades. Thus spacing the stator further downstream of the rotor will tend to reduce the noise level. The stator incidence angles were chosen to minimize the fluctuating lift experienced by the stator blades due to the rotor wake in order to obtain favorable noise conditions.

The mechanical design program calculates the natural frequency, stresses, and untwist of the design blade. And thus it will indicate problem areas which would require blade design changes.

Compromises in the aerodynamic and acoustic parameters similar to those discussed in reference 1 resulted in a final design which was 8 decibels quieter than the base fan of reference 8.

The overall design parameters for stage 52-52 are listed in table I, and the flow path is shown in figure 1. The stators are located 4 rotor chords downstream of the rotor in the figure. The stage was designed for an overall pressure ratio of 1.25 and an efficiency of 0.894 at a weight flow of 32.7 kilograms per second (194.4 kg/sec/m^2 of annulus area). The design tip speed was 257.7 meters per second. The blade-element design parameters for rotor 52 are presented in table II. This rotor was designed for a quadratic distribution in total pressure ratio which varied radially from about 1.30 at the tip to 1.17 at the hub. The stator blade-element design parameters are given in table III. The blade geometry is presented in tables IV and V for the rotor and stator, respectively. The rotor was designed for a tip solidity of 0.97 and the stator had a tip solidity of 1.14. This resulted in 30 rotor blades with an aspect ratio of 2.86 and 34 stator blades with an aspect ratio of 2.75. Both the rotor and stator used double-circular-arc blade profiles.

APPARATUS AND PROCEDURE

Compressor Test Facility

The compressor stage was tested in the Lewis single-stage compressor facility, which is described in detail in reference 9. A schematic diagram of the facility is shown in figure 2. Atmospheric air enters the test facility at an inlet located on the roof of the building and flows through the flow-measuring orifice and into the plenum chamber upstream of the test stage. The air then passes through the experimental compressor stage into the collector and is exhausted to the vacuum exhaust system.

Test Stage

A photograph of the rotor and stator are presented in figures 3 and 4, respectively.

The rotor blades were pin mounted in the hub. The nonrotating radial tip clearance of the rotor was a nominal 0.05 centimeter at ambient conditions. The stator blades were mounted in the outer casing and supported by a small retaining ring at the hub.

Instrumentation

The compressor weight flow was determined from measurements on a calibrated thin-plate orifice. The orifice air temperature was determined from an average of two Chromel constantan thermocouple readings.

Radial surveys of the flow were made upstream of the rotor, between the rotor and the stator, and downstream of the stator (fig. 1). The survey probes are shown in figure 5. Total pressure, total temperature, and flow angle were measured with the combination probe (fig. 5(a)), and static pressure was measured with an 8° C-shaped wedge probe (fig. 5(b)). Each probe was positioned with a null-balancing, stream-directional sensitive control system that automatically alined the probe to the direction of the flow. The probes were angularly prealined in an air tunnel. The probe thermocouple material was Chromel constantan. Two combination probes and two wedge static probes were used at each of the measuring stations. Temperatures at stations 2 and 3 were measured as a delta temperature referenced to the temperature at station 1.

Inner and outer wall static pressure taps were located at the same axial stations as the survey probes. The circumferential locations of both types of survey probes, along with inner and outer wall static pressure taps, are shown in figure 6. The combination probes downstream of the stator (station 3) were circumferentially traversed one stator blade passage (10.6°) counterclockwise from the nominal values shown. All pressures were obtained with calibrated strain-gage transducers.

An electronic speed counter, in conjunction with a magnetic pickup, was used to measure rotative speed (rpm).

The estimated errors of the data based on inherent accuracies of the instrumentation and recording system are as follows:

Weight flow, kg/sec	±0.3
Rotative speed, rpm	±30
Flow angle, deg	±1
Temperature, K	±0.6
Rotor-inlet total pressure, N/cm^2	±0.01
Rotor-outlet total pressure, N/cm^2	±0.10
Stator-outlet total pressure, N/cm^2	±0.10
Rotor-inlet static pressure, N/cm^2	±0.04
Rotor-outlet static pressure, N/cm^2	±0.07
Stator-outlet static pressure, N/cm^2	±0.07

An indication of the consistency of the data can be observed by comparing the integrated weight flow at each measuring station to the orifice weight flow in table VI.

Test Procedure

The stage survey data were taken over a range of weight flows from maximum flow to the near-stall conditions at speeds from 70 to 120 percent. For all speeds with the stator at the 2 chord position and for 80, 100, and 120 percent of design speed with the stator at 1 and 4 chords, radial surveys were taken at five weight flows. At 1 and 4 chords, radial surveys were taken for the near-stall weight flow only for 70, 90, and 110 percent of design speed. Data were recorded at 9 radial positions for each speed and weight flow.

At each radial position the two combination probes behind the stator were circumferentially traversed to nine different locations across the stator gap. The wedge probes were set at midgap because preliminary studies showed that the static pressure across the gap was constant. Values of pressure, temperature, and flow angle were recorded at each circumferential position at station 3. At the last circumferential position, values of pressure, temperature, and flow angle were also recorded at stations 1 and 2. All probes were then traversed to the next radial position and the circumferential traverse procedure repeated.

At each of the five rotative speeds the back-pressure on the stage was increased by closing the sleeve valve in the collector until a stalled condition was detected by a sudden drop in stage-outlet total pressure. This pressure was measured by a probe located at midpassage and was recorded on an X-Y plotter. Stall was corroborated by large increases in the measured blade stresses on both rotor and stator, along with a sudden increase in noise level.

Calculation Procedure

Measured total temperatures and total pressures were corrected for Mach number and streamline slope. These corrections were based on instrument probe calibrations given in reference 10. The stream static pressure was corrected for Mach number and streamline slope based on an average calibration for the type of probe used.

Because of the physical construction of the C-shaped static pressure wedges, it was not possible to obtain static pressure measurements at 5, 10, and 95 percent of span. The static pressure at 95 percent of span was obtained by assuming a linear variation in static pressure between the values at the inner wall and the probe measurement at

90 percent of span. A linear variation was also assumed between the static pressure measurements at the outer wall and the 15-percent span to obtain the static pressure at 5 and 10 percent of span.

At each radial position, averaged values of the nine circumferential measurements of pressure, temperature, and flow angle downstream of the stator (station 3) were obtained. The nine values of total temperature were mass averaged to obtain the stator-outlet total temperature presented. The nine values of total pressure were energy averaged. The measured values of pressure, temperature, and flow angle were used to calculate axial and tangential velocities at each circumferential position. The flow angles presented for each radial position were calculated based on these mass-averaged axial and tangential velocities. To obtain the overall performance, the radial values of total temperature were mass averaged and the values of total pressure were energy averaged. At each measuring station, the integrated weight flow was computed based on the radial survey data.

The data, measured at the three measuring stations, have been translated to the blade leading and trailing edges by the method presented in reference 4.

The weight flow at stall was obtained in the following manner: during operation at the near-stall condition, the downstream control valve was slowly closed in small increments. At each increment the weight flow was obtained. The weight flow obtained just before stall occurred is called the stall weight flow.

Orifice weight flows, total pressures, static pressures, and temperatures were all corrected to standard-day conditions based on the rotor-inlet conditions.

RESULTS AND DISCUSSION

The results from this investigation are presented in four main sections. The first three sections are the results obtained from the stage configuration with the stators at the 2 chord position. The overall performance for the rotor and the stage are presented first. Radial distributions of several performance parameters are then presented for both the rotor and the stator. Blade-element data are presented for both rotor and stator. Finally, the effect of stator spacing on the stage performance is presented. The data presented for the first three main sections are computer plotted, and occasionally a data point is omitted from the computer plotted figure because it falls outside the range of the parameters shown in the figure.

All the plotted data together with some additional performance parameters for the stage configuration with the stators at the 2 chord position are presented in tabular form. The overall performance data are presented in table VI. The blade-element data are presented first for the rotor in table VII and then for the stator in table VIII. The definitions and units used for the tabular data are presented in appendix C.

Overall Performance

The overall performance for rotor 52 and stage 52-52 are presented in figures 7 and 8, respectively, for the stage configuration with the stators at the 2 chord position. For both figures, data are presented for several weight flows between stall and choke for six rotative speeds from 70 to 120 percent of design speed. Design point is shown as a solid symbol on both figures. The stall line (dashed line) shown in figure 8 was determined using the method discussed in the section Calculation Procedure.

Rotor. - The peak measured efficiency for rotor 52 at design speed was 0.911. Peak efficiency was obtained at a weight flow of 34.92 kilograms per second. At the near design weight flow of 32.33 kilograms per second, the pressure ratio was 1.269 and the measured efficiency was 0.906. This compares to the design pressure ratio of 1.270 at a weight flow of 32.66 kilograms per second.

At 120 percent design speed, a rotor pressure ratio of as high as 1.41 was obtained with the corresponding efficiency being about 0.86.

Stage. - The peak measured efficiency for stage 52-52 at design speed was 0.872. As with the rotor, peak efficiency occurred at a weight flow of 34.92 kilograms per second. At the near design weight flow of 32.33 kilograms per second, the stage pressure ratio of 1.242 is just slightly less than the design pressure ratio of 1.251. The efficiency was 0.866.

The calculated stall margin for stage 52-52 at design speed is about 20 percent based on the weight flow and pressure ratio at stall and the peak efficiency point.

Radial Distributions

The radial distributions of several parameters are presented for design speed in figure 9 for rotor 52 and in figure 10 for stator 52. In each figure, data are presented for three weight flows; near-choke, near-design, and near stall. The design values are shown by the solid symbols. Temperature-rise efficiency, total temperature ratio, total 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.

Rotor. - At the near design weight flow of 32.33 kilograms per second, both the pressure ratio and temperature ratio are slightly greater than design from the tip to 30 percent span. For the rest of the blade span, pressure ratio was less than design while temperature ratio was approximately equal to design. The efficiency is significantly less than design across the entire blade span. The deviation angle was about 2° less than design from the tip to 30 percent span and approximately equal to design for the

rest of the blade span. Although the measured diffusion factor was equal to design, the measured losses are about twice the design losses.

Stator. - At the near-design weight flow of 32.33 kilograms per second, the stator incidence angles agree with design values within 1°. The stator deviation angles are significantly higher than design values in both hub and tip regions, but match design closely at midspan. In the tip and hub regions, not only are the stator losses much greater than design, the gradient of loss is much more severe than design. In the stator midspan the losses as well as the diffusion factor are less than design.

Variation with Incidence Angle

The variations of selected blade-element parameters with suction surface incidence angle are presented in figure 11 for rotor 52 and in figure 12 for stator 52. The data are presented for 80, 100, and 120 percent of design speed for blade-element locations of 5, 10, 30, 50, 70, 90, and 95 percent span from the rotor blade tip. Design values are shown as solid symbols. In addition to all of the parameters which were shown in the radial distribution plots, inlet relative Mach number is also presented. The incidence angle curves are presented primarily for future use in comparing the performance of these blades with other blade shapes. Thus only a few brief observations will be made from the curves at present.

Rotor. - At design speed, the minimum loss values were defined at each percent span location. At 5, 10, and 30 percent spans, minimum loss occurred at an incidence angle of approximately 3° less than design. At 50, 70, and 90 percent spans, the loss curves are relatively flat over a 4° range of incidence angles. At 95 percent span, minimum loss occurred at an incidence angle 1° greater than design. For all blade elements, the diffusion factor associated with minimum loss was less than design. Except at the 10 percent span location, the minimum loss values are greater than the design values.

Although design efficiency would not have been attained, the rotor efficiency at design weight flow would have been higher if the tip elements of the rotor blade had been set to give a negative incidence angle.

At 120 percent of design speed, the total losses are greater than for design speed for 5, 10, and 30 percent spans. This may be attributed to the much greater shock losses at the higher speed. The inlet relative Mach numbers were slightly greater than 1.1 in the tip region. The loss data for 120 percent design speed indicates that the rotor may have experienced a choking condition in the hub region.

Stator. - The minimum loss point was obtained at all blade elements at design speed. The minimum loss values were higher than design in the tip region (5 and 10 percent

spans) and in the hub region (90 and 95 percent spans). In the midspan region (30, 50, and 70 percent spans), the minimum losses were less than design values. With the exception of 70 and 95 percent spans, minimum loss occurred at incidence angles less than design. With the exception of 30 and 50 percent spans, the deviation angles associated with minimum loss were greater than the design values.

Effects of Stator Spacing on Performance

The effects of stator spacing on the performance of stage 52-52 is shown in figures 13 to 16. As can be observed in the overall performance plots (figs. 13 and 14), stator spacing had no appreciable effect on the overall performance of rotor 52 or stage 52-52.

The effects of stator spacing on the radial distribution of performance is presented in figure 15 for rotor 52 and in figure 16 for stator 52. For all three configurations, the near design weight flow is presented for design speed. Within the accuracy of the data, no effect of stator spacing was discerned on the radial distribution for rotor 52. However, in the stator hub region (fig. 16), the deviation angle increases with increasing stator spacing. Also at the stator hub, the meridional velocity ratio for the 2 chord configuration is lower and the diffusion factor is higher than that for either 1 or 4 chords. It should be noted that the instrumentation locations were the same for all three stator spacing tests. The changes in flow conditions between measuring stations 2 and 3 are attributed to the stator.

SUMMARY OF RESULTS

This report presents both the aerodynamic design parameters and the overall and blade-element performance of a 1.25 pressure ratio fan stage. Detailed radial surveys of the flow conditions in front of the rotor, between the rotor and stator, and behind the stator were made over the stable operating flow range of the stage at rotative speeds from 70 to 120 percent of design speed. Flow and performance parameters were calculated across nine blade elements. The following principal results were obtained from this investigation:

1. At design speed, the stage peak efficiency of 0.872 occurred at weight flow of 34.92 kilograms per second. Stage stall margin is about 20 percent based on the weight flow and pressure ratio at peak efficiency and stall.

2. At the design weight flow, the pressure ratio of 1.242 was slightly less than the design value of 1.251. Stage efficiency was 0.866. The overall peak rotor efficiency was 0.911.

3. The overall rotor and stage performance showed no significant change when the stators were positioned at 1, 2, and 4 chord spacings behind the rotor.

Lewis Research Center,
National Aeronautics and Space Administration,
Cleveland, Ohio, March 29, 1974,
501-24.

APPENDIX A

SYMBOLS

A_{an} annulus area at rotor leading edge, m^2

A_f frontal area at rotor leading edge, m^2

C_P specific heat at constant pressure, 1004 J/(kg)(K)

D diffusion factor

i_{mc} mean incidence angle, angle between inlet air direction and line tangent to blade mean camber line at leading edge, deg

i_{ss} suction-surface incidence angle, angle between inlet air direction and line tangent to blade suction at leading edge, deg

N rotative speed, rpm

P total pressure, N/cm^2

p static pressure, N/cm^2

r radius, cm

SM stall margin

T total temperature, K

U wheel speed, m/sec

V air velocity, m/sec

W weight flow, kg/sec

Z axial distance referenced from rotor blade hub leading edge, cm

α_c cone angle, deg

α_s slope of streamline, deg

β air angle, angle between air velocity and axial direction, deg

β'_c relative meridional air angle based on cone angle arctan (tan β'_m cos α_c/cos α_s), deg

γ ratio of specific heats (1.40)

δ ratio of rotor-inlet total pressure to standard pressure of 10.13 N/cm^2

δ^o deviation angle, angle between exit air direction and tangent to blade mean camber line at trailing edge, deg

θ ratio of rotor inlet total temperature to standard temperature of 288.2 K

η efficiency

κ_{mc} angle between the blade mean camber line and meridional plane, deg

κ_{ss} angle between the blade suction surface camber line at leading edge and meridional plane, deg

σ solidity, ratio of chord to spacing

$\overline{\omega}$ total loss coefficient

$\overline{\omega}_p$ profile loss coefficient

$\overline{\omega}_s$ shock loss coefficient

Subscripts:

ad adiabatic (temperature rise)

id ideal

LE blade leading edge

m meridional direction

mom momentum-rise

p polytropic

TE blade trailing edge

z axial direction

θ tangential direction

Superscript:

' relative to blade

APPENDIX B

EQUATIONS

Suction-surface incidence angle

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

Mean incidence angle

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

Deviation angle

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

Diffusion factor

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

Total loss coefficient

$$\overline{\omega} = \frac{(P'_{id})_{TE} - P'_{TE}}{P'_{LE} - p_{LE}} \tag{B5}$$

Profile loss coefficient

$$\overline{\omega}_p = \overline{\omega} - \omega_s \tag{B6}$$

Total loss parameter

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

Profile loss parameter

$$\frac{\overline{\omega}_p \cos (\beta'_m)_{TE}}{2\sigma} \tag{B8}$$

Adiabatic (temperature-rise) efficiency

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

Momentum-rise efficiency

$$\eta_{mom} = \frac{\left(\frac{P_{TE}}{P_{LE}}\right)^{(\gamma-1)/\gamma} - 1}{\frac{(UV_\theta)_{TE} - (UV_\theta)_{LE}}{T_{LE} C_p}} \tag{B10}$$

Equivalent weight flow

$$\frac{W\sqrt{\theta}}{\delta} \tag{B11}$$

Equivalent rotative speed

$$\frac{N}{\sqrt{\theta}} \tag{B12}$$

Weight flow per unit annulus area

$$\frac{\left(\frac{W\sqrt{\theta}}{\delta}\right)}{A_{an}} \tag{B13}$$

Weight flow per unit frontal area

$$\frac{\left(\frac{W\sqrt{\theta}}{\delta}\right)}{A_f} \tag{B14}$$

Head-rise coefficient

$$\frac{C_p T_{LE}}{U_{tip}^2}\left[\left(\frac{P_{TE}}{P_{LE}}\right)^{(\gamma-1)/\gamma} - 1\right] \tag{B15}$$

Flow coefficient

$$\left(\frac{\dot{V_z}}{U_{tip}}\right)_{LE} \tag{B16}$$

Stall margin

$$SM = \left[\frac{\left(\frac{P_{TE}}{P_{LE}}\right)_{stall}}{\left(\frac{P_{TE}}{P_{LE}}\right)_{ref}} \times \frac{\left(\frac{W\sqrt{\theta}}{\delta}\right)_{ref}}{\left(\frac{W\sqrt{\theta}}{\delta}\right)_{stall}} - 1\right] \times 100 \tag{B17}$$

Polytropic efficiency

$$\eta_p = \frac{\ln\left(\frac{P_{TE}}{P_{LE}}\right)^{(\gamma-1)/\gamma}}{\ln \frac{T_{TE}}{T_{LE}}} \tag{B18}$$

APPENDIX C

DEFINITIONS AND UNITS USED IN TABLES

ABS	absolute
AERO CHORD	aerodynamic chord, cm
BETAM	meridional air angle, deg
CHOKE MARGIN	ratio of actual flow area minus critical area to critical area (where local Mach number is one)
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 at leading edge, 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)), deg
KIC	angle between the blade mean camber line at leading edge and meridional plane, deg
KOC	angle between the blade mean camber line at trailing edge and meridional plane, deg
KTC	angle between blade mean camber line at transition point and meridional plane, 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 location, deg
PRESS	pressure, N/cm^2
PROF	profile
RADII	radius, cm
REL	relative to blade
RI	inlet radius (leading edge of blade), cm
RO	outlet radius (trailing edge of blade), cm
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, m/sec
SS	suction surface
STREAMLINE SLOPE	slope of streamline, deg
TANG	tangential
TEMP	temperature, K
TI	thickness of blade at leading edge, cm
TM	thickness of blade at maximum thickness, cm
TO	thickness of blade at trailing edge, cm
TOT	total
TOTAL CAMBER	difference between inlet and outlet blade mean camber lines, deg
VEL	velocity, m/sec
WT FLOW	equivalent weight flow, kg/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
ZIC	axial distance to blade leading edge from inlet, cm
ZMC	axial distance to blade maximum thickness point from inlet, cm

ZOC axial distance to blade trailing edge from inlet, cm

ZTC axial distance to transition point from inlet, cm

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TABLE I. - DESIGN OVERALL PARAMETERS

FOR STAGE 52-52

ROTOR TOTAL PRESSURE RATIO.....	1.270
STAGE TOTAL PRESSURE RATIO	1.251
ROTOR TOTAL TEMPERATURE RATIO.....	1.074
STAGE TOTAL TEMPERATURE RATIO	1.074
ROTOR ADIABATIC EFFICIENCY.....	0.957
STAGE ADIABATIC EFFICIENCY	0.894
ROTOR POLYTROPIC EFFICIENCY.....	0.958
STAGE POLYTROPIC EFFICIENCY	0.897
ROTOR HEAD RISE COEFFICIENT.....	0.308
STAGE HEAD RISE COEFFICIENT	0.288
FLOW COEFFICIENT.....	0.741
WT FLOW PER UNIT FRONTAL AREA	162.919
WT FLOW PER UNIT ANNULUS AREA.....	194.362
WT FLOW	32.659
RPM.....	9741.300
TIP SPEED	257.682

TABLE II. - DESIGN BLADE-ELEMENT PARAMETERS FOR ROTOR 52

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
TIP	25.260	24.473	0.	25.3	57.8	37.9	288.2	1.081	10.14	1.295
1	24.459	23.757	-0.	26.6	55.4	36.9	288.2	1.081	10.14	1.296
2	23.612	23.042	0.	27.7	53.3	35.4	288.2	1.081	10.14	1.297
3	22.790	22.326	0.	28.3	51.9	33.4	288.2	1.081	10.14	1.296
4	20.367	20.179	0.	30.7	47.4	27.2	288.2	1.078	10.14	1.290
5	17.271	17.316	0.	33.9	41.7	17.1	288.2	1.074	10.14	1.272
6	14.318	14.454	0.	36.6	36.1	5.4	288.2	1.067	10.14	1.241
7	12.198	12.307	0.	38.4	31.7	-4.1	288.2	1.060	10.14	1.210
8	11.509	11.591	0.	38.7	30.2	-7.0	288.2	1.057	10.14	1.199
9	10.830	10.876	0.	38.9	28.7	-9.9	288.2	1.054	10.14	1.186
HUB	10.160	10.160	-0.	39.2	27.2	-12.7	288.2	1.051	10.14	1.173

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TIP	162.3	220.9	304.5	253.0	162.3	199.7	0.	94.4	257.7	249.6
1	172.3	216.6	303.2	242.0	172.3	193.6	-0.	97.1	249.5	242.3
2	179.3	214.8	300.3	233.4	179.3	190.2	0.	99.8	240.9	235.0
3	182.4	215.7	295.5	227.5	182.4	189.8	0.	102.4	232.5	227.7
4	191.1	216.0	282.3	208.9	191.1	185.8	0.	110.3	207.8	205.8
5	197.6	217.0	264.8	186.4	197.6	180.1	0.	121.1	176.2	176.6
6	200.6	219.0	248.1	176.6	200.6	175.8	0.	130.7	146.1	147.4
7	201.4	222.1	236.7	174.6	201.4	174.2	0.	137.9	124.4	125.5
8	201.5	223.5	233.2	175.7	201.5	174.4	0.	139.8	117.4	118.2
9	201.6	225.0	229.9	177.6	201.6	175.0	0.	141.5	110.5	110.9
HUB	201.7	226.6	226.7	180.0	201.7	175.7	-0.	143.1	103.6	103.6

	ABS MACH NO		REL MACH NO		MERID MACH NO		STREAMLINE SLOPE		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
TIP	0.488	0.650	0.916	0.744	0.488	0.588	-8.65	-10.45	1.231	1.485
1	0.520	0.636	0.915	0.711	0.520	0.569	-7.84	-8.84	1.124	1.431
2	0.542	0.631	0.908	0.685	0.542	0.559	-6.88	-7.42	1.061	1.385
3	0.552	0.634	0.894	0.668	0.552	0.558	-5.86	-6.23	1.041	1.348
4	0.580	0.635	0.857	0.615	0.580	0.546	-3.49	-3.43	0.972	1.229
5	0.601	0.640	0.806	0.556	0.601	0.531	-1.42	-1.16	0.911	1.070
6	0.611	0.649	0.756	0.523	0.611	0.521	-0.27	-0.03	0.876	0.911
7	0.614	0.661	0.721	0.520	0.614	0.518	0.14	0.29	0.865	0.793
8	0.614	0.667	0.711	0.524	0.614	0.520	0.22	0.32	0.865	0.749
9	0.614	0.672	0.701	0.531	0.614	0.523	0.27	0.31	0.868	0.701
HUB	0.615	0.679	0.691	0.539	0.615	0.526	0.31	0.29	0.871	0.691

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
TIP	0.	3.4	-0.3	3.6	0.323	0.943	0.035	0.017	0.014	0.007
1	5.00	3.5	-0.2	4.1	0.356	0.947	0.033	0.021	0.013	0.008
2	10.00	3.7	-0.1	4.4	0.379	0.951	0.030	0.023	0.012	0.009
3	15.00	3.9	-0.0	4.7	0.388	0.956	0.028	0.025	0.011	0.009
4	30.00	4.6	0.0	5.2	0.421	0.964	0.024	0.023	0.009	0.009
5	50.00	5.7	0.0	5.6	0.450	0.963	0.025	0.025	0.009	0.009
6	70.00	6.6	-0.0	5.7	0.444	0.958	0.029	0.029	0.009	0.009
7	85.00	7.1	-0.0	5.5	0.409	0.938	0.042	0.042	0.010	0.010
8	90.00	7.1	0.0	5.4	0.389	0.930	0.046	0.046	0.011	0.011
9	95.00	7.2	0.0	5.3	0.364	0.921	0.051	0.051	0.011	0.011
HUB	100.00	7.2	-0.0	5.2	0.337	0.910	0.056	0.056	0.011	0.011

TABLE III. - DESIGN BLADE-ELEMENT PARAMETERS FOR STATOR 52

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
TIP	24.130	24.130	25.9	-0.	25.9	-0.	311.6	1.000	13.13	0.988
1	23.374	23.386	26.6	0.	26.6	0.	311.6	1.000	13.14	0.989
2	22.674	22.701	27.2	-0.	27.2	-0.	311.5	1.000	13.14	0.989
3	21.979	22.021	27.8	-0.	27.8	-0.	311.4	1.000	13.14	0.989
4	19.887	19.992	29.6	-0.	29.6	-0.	310.8	1.000	13.08	0.988
5	17.120	17.315	32.4	-0.	32.4	-0.	309.5	1.000	12.89	0.986
6	14.374	14.634	34.8	-0.	34.9	-0.	307.4	1.000	12.58	0.981
7	12.331	12.548	36.3	-0.	36.3	-0.	305.4	1.000	12.27	0.975
8	11.655	11.805	36.6	-0.	36.6	-0.	304.6	1.000	12.15	0.970
9	10.980	11.039	36.8	-0.	36.8	-0.	303.8	1.000	12.02	0.964
HUB	10.160	10.160	37.0	0.	37.0	0.	302.8	1.000	11.86	0.958

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
TIP	219.0	193.9	219.0	193.9	197.0	193.9	95.7	-0.	0.	0.
1	220.7	194.4	220.7	194.4	197.4	194.4	98.7	0.	0.	0.
2	222.1	194.6	222.1	194.6	197.6	194.6	101.4	-0.	0.	0.
3	223.4	194.5	223.4	194.5	197.7	194.5	104.0	-0.	0.	0.
4	226.3	192.5	226.3	192.5	196.7	192.5	111.9	-0.	0.	0.
5	228.9	185.5	228.9	185.5	193.3	185.5	122.5	-0.	0.	0.
6	230.5	172.9	230.5	172.9	189.3	172.9	131.5	-0.	0.	0.
7	232.2	156.6	232.2	156.6	187.1	156.6	137.6	-0.	0.	0.
8	233.0	148.6	233.0	148.6	187.0	148.6	139.0	-0.	0.	0.
9	234.0	139.0	234.0	139.0	187.4	139.0	140.1	-0.	0.	0.
HUB	235.1	127.9	235.1	127.9	187.8	127.9	141.4	0.	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		STREAMLINE SLOPE		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
TIP	0.644	0.565	0.644	0.565	0.579	0.565	0.01	-0.03	0.984	0.885
1	0.649	0.567	0.649	0.567	0.581	0.567	0.09	0.07	0.985	0.871
2	0.654	0.567	0.654	0.567	0.582	0.567	0.18	0.16	0.985	0.858
3	0.658	0.567	0.658	0.567	0.582	0.567	0.28	0.27	0.984	0.843
4	0.668	0.561	0.668	0.561	0.581	0.561	0.62	0.62	0.978	0.797
5	0.678	0.541	0.678	0.541	0.573	0.541	1.07	1.10	0.959	0.754
6	0.686	0.504	0.686	0.504	0.563	0.504	1.33	1.40	0.913	0.695
7	0.694	0.456	0.694	0.456	0.559	0.456	1.04	1.13	0.837	0.694
8	0.698	0.432	0.698	0.432	0.560	0.432	0.70	0.79	0.794	0.698
9	0.702	0.404	0.702	0.404	0.562	0.404	0.26	0.32	0.742	0.702
HUB	0.707	0.372	0.707	0.372	0.565	0.372	-0.29	-0.24	0.681	0.707

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
TIP	0.	12.6	5.2	3.5	0.306	0.	0.048	0.048	0.021	0.021
1	5.00	11.8	4.4	3.9	0.309	0.	0.046	0.046	0.020	0.020
2	10.00	11.0	3.7	4.2	0.312	0.	0.045	0.045	0.018	0.018
3	15.00	10.3	3.0	4.4	0.315	0.	0.045	0.045	0.018	0.018
4	30.00	8.3	1.0	5.1	0.328	0.	0.045	0.045	0.016	0.016
5	50.00	6.6	-0.7	5.7	0.356	0.	0.054	0.054	0.017	0.017
6	70.00	5.6	-1.6	5.9	0.399	0.	0.069	0.069	0.018	0.018
7	85.00	4.8	-2.4	5.9	0.458	0.	0.093	0.093	0.021	0.021
8	90.00	4.5	-2.6	5.8	0.489	0.	0.108	0.108	0.023	0.023
9	95.00	4.3	-2.9	5.7	0.525	0.	0.129	0.129	0.026	0.026
HUB	100.00	4.0	-3.2	5.6	0.567	0.	0.152	0.152	0.028	0.028

TABLE IV. - BLADE GEOMETRY FOR ROTOR 52

RP	PERCENT SPAN	RADII RI	RADII RO	BLADE ANGLES KIC	BLADE ANGLES KTC	BLADE ANGLES KOC	DELTA INC	CONE ANGLE
TIP	0.	25.260	24.473	54.14	44.04	34.07	3.66	-12.199
1	5.	24.459	23.757	51.68	42.18	32.67	3.70	-10.522
2	10.	23.612	23.042	49.54	40.22	30.91	3.78	-8.311
3	15.	22.790	22.326	47.96	38.34	28.72	3.92	-6.584
4	30.	20.367	20.179	42.81	32.41	22.01	4.58	-2.491
5	50.	17.271	17.316	36.05	23.78	11.51	5.67	0.551
6	70.	14.318	14.454	29.43	14.60	-0.23	6.63	1.574
7	85.	12.198	12.307	24.65	7.55	-9.55	7.06	1.229
8	90.	11.509	11.591	23.09	5.35	-12.40	7.13	0.920
9	95.	10.830	10.876	21.55	3.21	-15.14	7.16	0.512
HUB	100.	10.160	10.160	20.03	1.10	-17.86	7.20	0.057

RP	BLADE THICKNESSES TI	TM	TO	AXIAL DIMENSIONS ZI	ZMC	ZTC	ZO
TIP	0.041	0.207	0.041	0.773	2.443	2.443	4.415
1	0.041	0.209	0.041	0.701	2.449	2.449	4.477
2	0.041	0.214	0.041	0.635	2.454	2.454	4.539
3	0.041	0.222	0.041	0.582	2.459	2.459	4.600
4	0.051	0.257	0.051	0.424	2.466	2.466	4.756
5	0.064	0.321	0.063	0.244	2.481	2.481	4.937
6	0.072	0.377	0.073	0.108	2.505	2.505	5.068
7	0.083	0.404	0.083	0.037	2.527	2.527	5.118
8	0.084	0.408	0.084	0.022	2.536	2.536	5.125
9	0.083	0.410	0.083	0.011	2.546	2.546	5.127
HUB	0.082	0.411	0.082	-0.	2.555	2.555	5.128

RP	AERO CHORD	SETTING ANGLE	TOTAL CAMBER	SOLIDITY	X FACTOR	PHISS	CHOKE MARGIN
TIP	5.166	44.02	20.07	0.992	1.000	15.80	0.142
1	5.164	42.13	19.00	1.023	1.000	14.00	0.116
2	5.151	40.19	18.63	1.054	1.000	12.73	0.103
3	5.143	38.30	19.24	1.089	1.000	12.17	0.107
4	5.126	32.39	20.81	1.207	1.000	9.94	0.104
5	5.124	23.77	24.54	1.415	1.000	6.93	0.101
6	5.126	14.63	29.67	1.701	1.000	3.69	0.090
7	5.126	7.57	34.20	1.997	1.000	1.32	0.066
8	5.125	5.36	35.49	2.119	1.000	0.54	0.052
9	5.124	3.22	36.69	2.254	1.000	-0.22	0.034
HUB	5.129	1.09	37.90	2.410	1.000	-0.98	0.017

TABLE V. - BLADE GEOMETRY FOR STATOR 52

RP	PERCENT SPAN	RADII RI	RADII RO	BLADE ANGLES KIC	BLADE ANGLES KTC	BLADE ANGLES KOC	DELTA INC	CONE ANGLE
TIP	0.	24.130	24.130	13.33	4.90	-3.54	7.37	0.057
1	5.	23.374	23.386	14.82	5.48	-3.87	7.35	0.138
2	10.	22.674	22.701	16.17	6.01	-4.16	7.34	0.307
3	15.	21.979	22.021	17.47	6.52	-4.42	7.33	0.472
4	30.	19.887	19.992	21.36	8.11	-5.14	7.28	1.191
5	50.	17.120	17.315	25.78	10.02	-5.75	7.23	2.228
6	70.	14.374	14.634	29.16	11.64	-5.90	7.18	2.991
7	85.	12.331	12.548	31.55	12.84	-5.89	7.16	3.499
8	90.	11.655	11.805	32.09	13.14	-5.81	7.16	3.735
9	95.	10.980	11.039	32.50	13.41	-5.69	7.16	3.980
HUB	100.	10.160	10.160	33.00	13.72	-5.55	7.16	4.357

RP	BLADE THICKNESSES TI	BLADE THICKNESSES TM	BLADE THICKNESSES TO	AXIAL DIMENSIONS ZI	AXIAL DIMENSIONS ZMC	AXIAL DIMENSIONS ZTC	AXIAL DIMENSIONS ZO
TIP	0.081	0.407	0.081	25.436	27.953	27.953	30.503
1	0.081	0.407	0.081	25.439	27.951	27.951	30.502
2	0.081	0.407	0.081	25.444	27.949	27.949	30.502
3	0.081	0.407	0.081	25.450	27.949	27.949	30.502
4	0.081	0.407	0.081	25.470	27.947	27.947	30.506
5	0.081	0.407	0.081	25.496	27.939	27.939	30.503
6	0.081	0.407	0.081	25.522	27.935	27.935	30.504
7	0.081	0.407	0.081	25.543	27.930	27.930	30.500
8	0.081	0.407	0.081	25.549	27.930	27.930	30.501
9	0.081	0.407	0.081	25.555	27.932	27.932	30.503
HUB	0.081	0.407	0.081	25.563	27.934	27.934	30.506

RP	AERO CHORD	SETTING ANGLE	TOTAL CAMBER	SOLIDITY	X FACTOR	PHISS	CHOKE MARGIN
TIP	5.085	4.89	16.87	1.140	1.000	3.05	0.131
1	5.085	5.48	18.69	1.177	1.000	2.93	0.128
2	5.085	6.01	20.33	1.213	1.000	2.82	0.124
3	5.085	6.53	21.89	1.251	1.000	2.70	0.120
4	5.088	8.12	26.50	1.381	1.000	2.40	0.111
5	5.088	10.05	31.53	1.599	1.000	2.23	0.105
6	5.093	11.68	35.06	1.900	1.000	1.66	0.100
7	5.089	12.89	37.44	2.214	1.000	0.71	0.092
8	5.086	13.18	37.90	2.346	1.000	0.20	0.079
9	5.085	13.42	38.19	2.499	1.000	-0.40	0.061
HUB	5.086	13.73	38.55	2.709	1.000	-1.14	0.040

TABLE VI. - OVERALL PERFORMANCE FOR STAGE 52-52

(a) 70 Percent design speed

Parameter	Reading			
	2221	2222	2224	2225
ROTOR TOTAL PRESSURE RATIO	1.101	1.114	1.121	1.121
STAGE TOTAL PRESSURE RATIO	1.088	1.102	1.109	1.106
ROTOR TOTAL TEMPERATURE RATIO	1.031	1.034	1.036	1.039
STAGE TOTAL TEMPERATURE RATIO	1.027	1.031	1.035	1.037
ROTOR TEMP. RISE EFFICIENCY	0.898	0.925	0.911	0.853
STAGE TEMP. RISE EFFICIENCY	0.902	0.898	0.863	0.784
ROTOR MOMENTUM RISE EFFICIENCY	0.946	0.948	0.928	0.874
ROTOR HEAD RISE COEFFICIENT	0.247	0.276	0.291	0.290
STAGE HEAD RISE COEFFICIENT	0.217	0.249	0.265	0.255
FLOW COEFFICIENT	0.844	0.758	0.658	0.579
WT FLOW PER UNIT FRONTAL AREA	140.89	125.97	114.27	101.70
WT FLOW PER UNIT ANNULUS AREA	168.08	150.27	136.32	121.32
WT FLOW AT ORIFICE	28.24	25.25	22.91	20.39
WT FLOW AT ROTOR INLET	28.01	25.15	22.84	20.41
WT FLOW AT ROTOR OUTLET	28.14	25.21	22.88	20.50
WT FLOW AT STATOR OUTLET	27.48	25.06	22.87	20.47
ROTATIVE SPEED	6827.1	6843.6	6857.9	6870.3
PERCENT OF DESIGN SPEED	70.1	70.3	70.4	70.5

(b) 80 Percent design speed

Parameter	Reading				
	2219	2220	2196	2195	2193
ROTOR TOTAL PRESSURE RATIO	1.125	1.142	1.153	1.159	1.164
STAGE TOTAL PRESSURE RATIO	1.103	1.126	1.137	1.143	1.144
ROTOR TOTAL TEMPERATURE RATIO	1.040	1.045	1.046	1.048	1.051
STAGE TOTAL TEMPERATURE RATIO	1.034	1.038	1.043	1.045	1.049
ROTOR TEMP. RISE EFFICIENCY	0.863	0.908	0.904	0.897	0.870
STAGE TEMP. RISE EFFICIENCY	0.826	0.903	0.868	0.860	0.798
ROTOR MOMENTUM RISE EFFICIENCY	0.932	0.946	0.936	0.929	0.891
ROTOR HEAD RISE COEFFICIENT	0.233	0.263	0.283	0.293	0.299
STAGE HEAD RISE COEFFICIENT	0.193	0.235	0.255	0.266	0.264
FLOW COEFFICIENT	0.901	0.806	0.74[illegible]	0.694	0.616
WT FLOW PER UNIT FRONTAL AREA	162.96	150.10	140.83	133.05	120.85
WT FLOW PER UNIT ANNULUS AREA	194.40	179.06	168.01	158.72	144.17
WT FLOW AT ORIFICE	32.67	30.09	28.23	26.67	24.23
WT FLOW AT ROTOR INLET	32.46	29.95	28.16	26.63	24.20
WT FLOW AT ROTOR OUTLET	32.63	30.06	28.19	26.71	24.37
WT FLOW AT STATOR OUTLET	32.37	29.89	27.97	26.68	24.35
ROTATIVE SPEED	7803.3	7792.8	7788.7	7790.8	7828.2
PERCENT OF DESIGN SPEED	80.1	80.0	80.0	80.0	80.4

(c) 90 Percent design speed

Parameter	Reading				
	2218	2190	2189	2188	2187
ROTOR TOTAL PRESSURE RATIO	1.175	1.192	1.200	1.208	1.208
STAGE TOTAL PRESSURE RATIO	1.147	1.170	1.181	1.188	1.183
ROTOR TOTAL TEMPERATURE RATIO	1.053	1.057	1.059	1.061	1.064
STAGE TOTAL TEMPERATURE RATIO	1.048	1.053	1.056	1.059	1.062
ROTOR TEMP. RISE EFFICIENCY	0.888	0.910	0.901	0.904	0.868
STAGE TEMP. RISE EFFICIENCY	0.827	0.869	0.873	0.861	0.797
ROTOR MOMENTUM RISE EFFICIENCY	0.932	0.944	0.937	0.931	0.892
ROTOR HEAD RISE COEFFICIENT	0.255	0.277	0.287	0.298	0.299
STAGE HEAD RISE COEFFICIENT	0.215	0.247	0.262	0.271	0.264
FLOW COEFFICIENT	0.859	0.802	0.757	0.704	0.631
WT FLOW PER UNIT FRONTAL AREA	170.50	162.41	155.86	147.83	135.67
WT FLOW PER UNIT ANNULUS AREA	203.40	193.75	185.94	176.35	161.84
WT FLOW AT ORIFICE	34.18	32.50	31.24	29.65	27.19
WT FLOW AT ROTOR INLET	33.93	32.49	31.20	29.57	27.11
WT FLOW AT ROTOR OUTLET	34.23	32.68	31.2[illegible]	29.65	27.3[illegible]
WT FLOW AT STATOR OUTLET	34.14	32.51	31.32	29.8[illegible]	27.39
ROTATIVE SPEED	8761.4	8777.1	8768.8	8774.2	8766.8
PERCENT OF DESIGN SPEED	89.9	90.1	90.0	90.1	90.0

TABLE VI. - Concluded. OVERALL PERFORMANCE FOR STAGE 52-52

(d) 100 Percent design speed

Parameter	Reading				
	2217	2185	2184	2200	2182
ROTOR TOTAL PRESSURE RATIO	1.256	1.254	1.263	1.269	1.276
STAGE TOTAL PRESSURE RATIO	1.200	1.225	1.235	1.242	1.246
ROTOR TOTAL TEMPERATURE RATIO	1.070	1.075	1.076	1.078	1.081
STAGE TOTAL TEMPERATURE RATIO	1.064	1.068	1.071	1.074	1.078
ROTOR TEMP. RISE EFFICIENCY	0.887	0.911	0.911	0.906	0.889
STAGE TEMP. RISE EFFICIENCY	0.830	0.872	0.872	0.866	0.831
ROTOR MOMENTUM RISE EFFICIENCY	0.925	0.940	0.946	0.937	0.916
ROTOR HEAD RISE COEFFICIENT	0.271	0.290	0.299	0.308	0.311
STAGE HEAD RISE COEFFICIENT	0.233	0.259	0.269	0.278	0.280
FLOW COEFFICIENT	0.826	0.805	0.778	0.713	0.679
WT FLOW PER UNIT FRONTAL AREA	177.32	174.21	170.80	161.60	156.00
WT FLOW PER UNIT ANNULUS AREA	211.53	207.83	203.75	192.43	186.11
WT FLOW AT ORIFICE	35.54	34.92	34.24	32.33	31.27
WT FLOW AT ROTOR INLET	35.38	34.86	34.16	32.19	31.21
WT FLOW AT ROTOR OUTLET	35.77	35.18	34.50	32.49	31.47
WT FLOW AT STATOR OUTLET	35.79	35.19	34.59	32.84	31.90
ROTATIVE SPEED	9750.4	9762.9	9764.0	9733.3	9789.3
PERCENT OF DESIGN SPEED	100.1	100.2	100.2	99.9	100.5

(e) 110 Percent design speed

Parameter	Reading				
	2205	2204	2203	2202	2201
ROTOR TOTAL PRESSURE RATIO	1.295	1.317	1.331	1.342	1.349
STAGE TOTAL PRESSURE RATIO	1.254	1.282	1.295	1.304	1.298
ROTOR TOTAL TEMPERATURE RATIO	1.088	1.092	1.095	1.099	1.102
STAGE TOTAL TEMPERATURE RATIO	1.081	1.086	1.088	1.094	1.097
ROTOR TEMP. RISE EFFICIENCY	0.870	0.891	0.900	0.884	0.875
STAGE TEMP. RISE EFFICIENCY	0.825	0.859	0.869	0.843	0.800
ROTOR MOMENTUM RISE EFFICIENCY	0.891	0.911	0.923	0.911	0.901
ROTOR HEAD RISE COEFFICIENT	0.275	0.295	0.307	0.313	0.319
STAGE HEAD RISE COEFFICIENT	0.240	0.265	0.276	0.281	0.276
FLOW COEFFICIENT	0.784	0.776	0.759	0.721	0.671
WT FLOW PER UNIT FRONTAL AREA	181.77	180.43	178.27	173.62	165.65
WT FLOW PER UNIT ANNULUS AREA	216.85	215.24	212.66	207.12	197.62
WT FLO. AT ORIFICE	36.44	36.17	35.73	34.80	33.21
WT FLOW AT ROTOR INLET	36.22	35.99	35.58	34.61	33.05
WT FLOW AT ROTOR OUTLET	36.77	36.43	36.11	34.94	33.47
WT FLOW AT STATOR OUTLET	36.81	36.81	36.57	35.71	34.07
ROTATIVE SPEED	10725.9	10711.6	10719.2	10774.0	10765.3
PERCENT OF DESIGN SPEED	110.1	110.0	110.0	110.6	110.5

(f) 120 Percent design speed

Parameter	Reading				
	2216	2215	2211	2208	2207
ROTOR TOTAL PRESSURE RATIO	1.335	1.356	1.373	1.391	1.413
STAGE TOTAL PRESSURE RATIO	1.276	1.308	1.325	1.342	1.348
ROTOR TOTAL TEMPERATURE RATIO	1.104	1.107	1.111	1.114	1.120
STAGE TOTAL TEMPERATURE RATIO	1.094	1.100	1.105	1.109	1.115
ROTOR TEMP. RISE EFFICIENCY	0.830	0.848	0.856	0.870	0.863
STAGE TEMP. RISE EFFICIENCY	0.764	0.795	0.802	0.806	0.777
ROTOR MOMENTUM RISE EFFICIENCY	0.847	0.861	0.863	0.871	0.875
ROTOR HEAD RISE COEFFICIENT	0.261	0.277	0.286	0.298	0.314
STAGE HEAD RISE COEFFICIENT	0.219	0.243	0.253	0.264	0.269
FLOW COEFFICIENT	0.747	0.745	0.739	0.730	0.693
WT FLOW PER UNIT FRONTAL AREA	185.38	184.86	185.27	183.38	177.91
WT FLOW PER UNIT ANNULUS AREA	221.15	220.52	221.02	218.77	212.24
WT FLOW AT ORIFICE	37.16	37.06	37.14	36.76	35.66
WT FLOW AT ROTOR INLET	36.90	36.80	36.75	36.55	35.52
WT FLOW AT ROTOR OUTLET	38.06	37.74	37.50	37.16	35.97
WT FLOW AT STATOR OUTLET	37.58	37.77	37.86	37.92	36.69
ROTATIVE SPEED	11678.5	11647.5	11703.2	11725.0	11706.2
PERCENT OF DESIGN SPEED	119.9	119.6	120.1	120.4	120.2

TABLE VII. - BLADE-ELEMENT DATA AT BLADE EDGES FOR ROTOR 52

(a) 70 Percent design speed; reading 2221

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	14.0	51.0	35.9	288.8	1.029	10.11	1.094
2	23.612	23.040	-0.0	14.6	48.5	35.0	288.7	1.030	10.13	1.094
3	22.789	22.327	-0.0	15.5	47.2	33.4	288.6	1.030	10.14	1.098
4	20.368	20.178	-0.0	19.8	42.7	26.6	288.0	1.031	10.13	1.104
5	17.272	17.315	-0.0	25.1	37.7	16.4	287.8	1.033	10.14	1.109
6	14.318	14.453	-0.0	29.3	32.8	5.0	287.8	1.032	10.13	1.105
7	12.197	12.306	-0.0	32.2	29.0	-4.2	287.8	1.031	10.13	1.097
8	11.509	11.590	-0.0	33.2	27.8	-7.1	287.8	1.030	10.13	1.093
9	10.831	10.876	-0.0	34.0	26.9	-8.8	287.8	1.028	10.09	1.075

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	142.3	180.7	225.9	216.3	142.3	175.3	-0.0	43.7	175.4	170.4
2	149.4	177.4	225.6	209.5	149.4	171.6	-0.0	44.8	169.1	165.0
3	151.0	176.9	222.1	204.2	151.0	170.4	-0.0	47.2	162.9	159.6
4	157.3	177.7	214.1	187.0	157.3	167.2	-0.0	60.2	145.2	143.8
5	159.8	178.9	201.8	168.9	159.8	162.0	-0.0	75.9	123.3	123.6
6	158.7	182.4	188.8	159.7	158.7	159.1	-0.0	89.2	102.2	103.2
7	156.8	186.4	179.2	158.2	156.8	157.8	-0.0	99.2	86.8	87.6
8	156.1	187.3	176.5	158.0	156.1	156.8	-0.0	102.4	82.3	82.9
9	153.0	180.9	171.5	151.8	153.0	150.0	-0.0	101.2	77.6	77.9

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.425	0.538	0.675	0.644	0.425	0.522	1.232	0.954
2	0.447	0.527	0.675	0.623	0.447	0.510	1.149	0.919
3	0.452	0.526	0.666	0.607	0.452	0.507	1.129	0.895
4	0.473	0.529	0.643	0.556	0.473	0.497	1.063	0.815
5	0.480	0.532	0.607	0.502	0.480	0.482	1.014	0.711
6	0.477	0.543	0.567	0.476	0.477	0.474	1.003	0.593
7	0.471	0.556	0.539	0.472	0.471	0.471	1.006	0.539
8	0.469	0.559	0.530	0.472	0.469	0.468	1.004	0.530
9	0.459	0.540	0.515	0.453	0.459	0.448	0.981	0.515

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	-0.9	-4.6	3.0	0.136	0.885	0.043	0.043	0.017	0.017
2	10.00	-1.1	-4.9	4.0	0.165	0.874	0.047	0.047	0.018	0.018
3	15.00	-0.8	-4.8	4.7	0.178	0.901	0.039	0.039	0.015	0.015
4	30.00	-0.1	-4.7	4.6	0.242	0.923	0.034	0.034	0.012	0.012
5	50.00	1.6	-4.0	4.9	0.296	0.917	0.042	0.042	0.014	0.014
6	70.00	3.3	-3.3	5.2	0.293	0.901	0.055	0.055	0.016	0.016
7	85.00	4.3	-2.7	5.3	0.256	0.866	0.078	0.078	0.020	0.020
8	90.00	4.7	-2.4	5.3	0.242	0.851	0.087	0.087	0.020	0.020
9	95.00	5.3	-1.8	6.3	0.246	0.751	0.141	0.141	0.031	0.031

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(b) 70 Percent design speed; reading 2222

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	24.458	23.757	-0.0	20.8	53.4	36.0	288.8	1.036	10.11	1.119
2	23.612	23.040	-0.0	20.6	51.7	35.2	288.6	1.036	10.13	1.121
3	22.789	22.327	-0.0	21.5	51.0	33.8	288.5	1.036	10.13	1.122
4	20.368	20.178	-0.0	25.5	46.8	27.4	288.0	1.036	10.13	1.122
5	17.272	17.315	0.0	30.0	41.7	17.7	287.9	1.033	10.14	1.114
6	14.318	14.453	-0.0	33.5	36.7	5.9	287.9	1.032	10.14	1.107
7	12.197	12.306	-0.0	35.9	32.8	-3.6	287.8	1.029	10.13	1.094
8	11.509	11.590	-0.0	36.6	31.5	-6.5	288.0	1.029	10.13	1.088
9	10.831	10.876	-0.0	37.5	30.5	-9.0	288.0	1.027	10.10	1.077

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	130.1	164.7	218.3	190.3	130.1	154.0	-0.0	58.4	175.3	170.3
2	133.4	162.9	215.3	186.6	133.4	152.4	-0.0	57.4	169.0	164.9
3	132.2	161.3	209.8	180.7	132.2	150.1	-0.0	59.0	162.9	159.6
4	137.5	161.3	200.8	164.0	137.5	145.6	-0.0	69.4	146.3	144.9
5	138.6	159.4	185.6	144.9	138.6	138.0	0.0	79.6	123.5	123.8
6	137.4	162.2	171.4	136.0	137.4	135.3	-0.0	89.5	102.5	103.4
7	135.6	164.5	161.3	133.4	135.6	133.2	-0.0	96.5	87.4	88.2
8	135.1	165.0	158.4	133.3	135.1	132.4	-0.0	98.4	82.7	83.3
9	132.0	161.4	153.2	129.5	132.0	128.0	-0.0	98.3	77.8	78.1

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.388	0.486	0.650	0.562	0.388	0.455	1.184	0.974
2	0.398	0.481	0.642	0.550	0.398	0.450	1.142	0.944
3	0.394	0.476	0.626	0.533	0.394	0.443	1.136	0.924
4	0.411	0.476	0.600	0.484	0.411	0.430	1.058	0.848
5	0.414	0.471	0.555	0.428	0.414	0.408	0.996	0.737
6	0.411	0.480	0.512	0.403	0.411	0.400	0.984	0.631
7	0.405	0.486	0.482	0.396	0.405	0.395	0.982	0.556
8	0.404	0.489	0.473	0.395	0.404	0.393	0.980	0.531
9	0.394	0.479	0.457	0.384	0.394	0.380	0.969	0.509

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	1.5	-2.2	3.2	0.257	0.901	0.048	0.048	0.019	0.019
2	10.00	2.1	-1.7	4.2	0.258	0.919	0.040	0.040	0.016	0.016
3	15.00	3.0	-1.0	5.1	0.266	0.939	0.032	0.032	0.012	0.012
4	30.00	4.0	-0.6	5.4	0.326	0.934	0.036	0.036	0.013	0.013
5	50.00	5.7	-0.0	6.2	0.371	0.946	0.032	0.032	0.011	0.011
6	70.00	7.3	0.6	6.1	0.361	0.931	0.045	0.045	0.013	0.013
7	85.00	8.2	1.1	6.0	0.323	0.905	0.063	0.063	0.016	0.016
8	90.00	8.4	1.3	5.9	0.306	0.850	0.103	0.103	0.024	0.024
9	95.00	9.0	1.8	6.2	0.297	0.802	0.135	0.135	0.030	0.030

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(c) 70 Percent design speed; reading 2224

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	26.6	56.3	36.8	288.7	1.042	10.11	1.131
2	23.612	23.040	-0.0	25.7	54.8	35.8	288.5	1.041	10.13	1.136
3	22.789	22.327	-0.0	26.7	54.1	34.4	288.4	1.040	10.13	1.134
4	20.368	20.178	-0.0	30.4	50.1	28.2	288.0	1.039	10.13	1.131
5	17.272	17.315	-0.0	34.3	45.1	18.4	288.0	1.036	10.13	1.120
6	14.318	14.453	-0.0	37.2	40.0	6.1	288.0	1.032	10.14	1.108
7	12.197	12.306	0.0	38.9	35.9	-3.5	287.8	1.029	10.13	1.095
8	11.509	11.590	-0.0	39.3	34.4	-6.5	287.9	1.028	10.13	1.088
9	10.831	10.876	-0.0	40.3	33.3	-9.1	287.9	1.026	10.11	1.077

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	116.8	152.4	210.5	170.2	116.8	136.3	-0.0	68.2	175.1	170.1
2	119.4	152.4	207.2	169.3	119.4	137.3	-0.0	66.1	169.3	165.2
3	118.0	150.7	201.4	163.2	118.0	134.6	-0.0	67.6	163.2	159.9
4	122.6	150.2	191.2	146.9	122.6	129.5	-0.0	76.0	146.7	145.4
5	123.7	148.5	175.4	129.3	123.7	122.7	-0.0	83.7	124.3	124.6
6	122.6	150.4	160.0	120.5	122.6	119.8	-0.0	90.9	102.8	103.7
7	121.1	152.5	149.6	119.0	121.1	118.7	0.0	95.8	87.8	88.6
8	120.8	152.5	146.3	118.8	120.8	118.0	-0.0	96.6	82.6	83.2
9	118.5	148.9	141.8	115.0	118.5	113.6	-0.0	96.3	77.9	78.2

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.347	0.447	0.625	0.499	0.347	0.400	1.167	0.998
2	0.355	0.447	0.616	0.497	0.355	0.403	1.150	0.971
3	0.351	0.442	0.599	0.479	0.351	0.395	1.141	0.949
4	0.365	0.442	0.570	0.432	0.365	0.381	1.056	0.870
5	0.369	0.437	0.522	0.381	0.369	0.361	0.992	0.756
6	0.365	0.444	0.477	0.355	0.365	0.353	0.977	0.644
7	0.361	0.451	0.445	0.352	0.361	0.351	0.981	0.569
8	0.360	0.451	0.436	0.351	0.360	0.349	0.977	0.542
9	0.353	0.441	0.422	0.340	0.353	0.336	0.959	0.520

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	4.4	0.7	4.0	0.347	0.862	0.082	0.082	0.032	0.032
2	10.00	5.2	1.4	4.8	0.332	0.904	0.058	0.058	0.022	0.022
3	15.00	6.1	2.2	5.7	0.342	0.922	0.048	0.048	0.018	0.018
4	30.00	7.3	2.7	6.2	0.396	0.926	0.049	0.049	0.018	0.018
5	50.00	9.1	3.4	6.9	0.432	0.926	0.052	0.052	0.018	0.018
6	70.00	10.5	3.9	6.3	0.415	0.912	0.067	0.067	0.020	0.020
7	85.00	11.3	4.2	6.1	0.366	0.910	0.070	0.070	0.017	0.017
8	90.00	11.3	4.2	5.9	0.345	0.881	0.091	0.091	0.021	0.021
9	95.00	11.8	4.6	6.1	0.340	0.812	0.145	0.145	0.032	0.032

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGFS

FOR ROTOR 52

(d) 70 Percent design speed; reading 2225

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	34.5	59.4	38.7	288.7	1.048	10.12	1.129
2	23.612	23.040	-0.0	31.6	58.4	37.2	288.5	1.046	10.13	1.136
3	22.789	22.327	-0.0	32.0	57.9	35.4	288.3	1.044	10.13	1.139
4	20.368	20.178	-0.0	35.2	53.8	29.1	288.1	1.042	10.13	1.132
5	17.272	17.315	-0.0	38.3	48.8	19.4	287.9	1.037	10.14	1.120
6	14.318	14.453	-0.0	40.3	43.4	6.9	288.0	1.033	10.13	1.106
7	12.197	12.306	-0.0	41.6	39.1	-3.2	287.9	1.029	10.13	1.091
8	11.589	11.590	-0.0	42.0	37.8	-6.6	287.8	1.028	10.13	1.068
9	10.831	10.876	-0.0	42.9	36.6	-9.8	288.0	1.026	10.11	1.079

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	103.8	139.2	204.1	146.9	103.8	114.7	-0.0	78.9	175.8	170.7
2	104.5	141.4	199.3	151.2	104.5	120.4	-0.0	74.1	169.7	165.6
3	102.8	141.7	193.4	147.4	102.8	120.2	-0.0	75.1	163.8	160.5
4	107.1	140.7	181.4	131.6	107.1	115.0	-0.0	81.1	146.4	145.0
5	109.1	139.4	165.6	115.9	109.1	109.3	-0.0	86.5	124.6	124.9
6	109.0	140.7	149.9	108.2	109.0	107.4	-0.0	90.9	102.9	103.9
7	107.8	142.1	139.0	106.4	107.8	106.2	-0.0	94.4	87.7	88.5
8	107.0	143.3	135.5	107.2	107.0	106.5	-0.0	96.0	83.1	83.7
9	105.0	141.1	130.7	104.8	105.0	103.3	-0.0	96.0	77.9	78.2

	ABS MACH NO		REL MACH NO		MERID MACH NO			
RP	IN	OUT	IN	OUT	IN	OUT	MERID VEL R	PEAK SS MACH NO
1	0.308	0.406	0.605	0.428	0.308	0.334	1.105	1.030
2	0.310	0.413	0.591	0.442	0.310	0.352	1.151	1.003
3	0.305	0.414	0.573	0.431	0.305	0.351	1.169	0.981
4	0.318	0.412	0.539	0.385	0.318	0.337	1.073	0.889
5	0.324	0.409	0.492	0.340	0.324	0.321	1.002	0.773
6	0.324	0.414	0.445	0.318	0.324	0.316	0.985	0.654
7	0.320	0.419	0.413	0.314	0.320	0.313	0.986	0.574
8	0.318	0.423	0.402	0.316	0.318	0.314	0.995	0.552
9	0.312	0.416	0.388	0.310	0.312	0.305	0.984	0.525

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	7.6	3.9	5.9	0.466	0.731	0.193	0.193	0.074	0.074
2	10.00	8.7	5.0	6.3	0.416	0.815	0.132	0.132	0.050	0.050
3	15.00	9.9	6.0	6.6	0.414	0.861	0.101	0.101	0.038	0.038
4	30.00	11.0	6.4	7.1	0.459	0.868	0.103	0.103	0.037	0.037
5	50.00	12.7	7.1	7.8	0.485	0.879	0.100	0.100	0.033	0.033
6	70.00	13.9	7.3	7.1	0.458	0.899	0.087	0.087	0.026	0.026
7	85.00	14.5	7.4	6.4	0.405	0.875	0.110	0.110	0.028	0.028
8	90.00	14.7	7.6	5.8	0.377	0.874	0.113	0.113	0.026	0.026
9	95.00	15.0	7.9	5.4	0.361	0.845	0.140	0.140	0.031	0.031

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(e) 80 Percent design speed; reading 2219

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	11.2	49.0	35.8	288.9	1.033	10.10	1.094
2	23.612	23.040	0.0	11.9	46.6	34.6	288.8	1.035	10.13	1.111
3	22.789	22.327	-0.0	12.6	45.3	33.1	288.7	1.036	10.14	1.116
4	20.368	20.178	-0.0	17.7	40.8	26.0	288.1	1.040	10.14	1.130
5	17.272	17.315	-0.0	23.5	35.8	15.7	287.8	1.043	10.14	1.139
6	14.318	14.453	-0.0	28.1	31.0	4.3	287.7	1.043	10.14	1.138
7	12.197	12.306	-0.0	31.2	27.5	-4.9	287.6	1.044	10.14	1.129
8	11.509	11.590	-0.0	32.1	26.2	-7.6	287.6	1.042	10.13	1.121
9	10.831	10.876	-0.0	32.7	25.3	-8.9	287.6	1.038	10.09	1.091

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	174.0	215.5	265.1	260.6	174.0	211.4	-0.0	41.9	199.9	194.2
2	182.7	214.4	265.9	254.7	182.7	209.8	0.0	44.1	193.2	188.6
3	183.9	213.3	261.4	248.5	183.9	208.2	-0.0	46.5	185.8	182.0
4	192.7	214.1	254.5	227.0	192.7	204.0	-0.0	65.2	166.3	164.7
5	196.1	215.8	241.6	205.5	196.1	197.9	-0.0	86.1	141.2	141.5
6	194.3	219.9	226.7	194.5	194.3	193.9	-0.0	103.6	116.9	118.0
7	191.8	225.6	216.2	193.6	191.8	192.9	-0.0	117.0	99.7	100.6
8	191.1	226.6	213.0	193.7	191.1	192.0	-0.0	120.3	94.0	94.7
9	187.4	217.5	207.3	185.2	187.4	183.0	-0.0	117.5	88.6	89.0

	ABS MACH NO		REL MACH NO		MERID MACH NO			
RP	IN	OUT	IN	OUT	IN	OUT	MERID PEAK SS VEL R	MACH NO
1	0.525	0.648	0.799	0.783	0.525	0.636	1.215	1.073
2	0.552	0.644	0.804	0.765	0.552	0.630	1.149	1.038
3	0.556	0.640	0.791	0.746	0.556	0.625	1.132	1.010
4	0.585	0.642	0.773	0.681	0.585	0.612	1.058	0.922
5	0.597	0.647	0.735	0.616	0.597	0.593	1.009	0.795
6	0.591	0.660	0.690	0.584	0.591	0.582	0.998	0.690
7	0.583	0.679	0.657	0.583	0.583	0.581	1.006	0.657
8	0.581	0.683	0.647	0.584	0.581	0.579	1.005	0.647
9	0.569	0.654	0.629	0.557	0.569	0.551	0.977	0.629

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	-2.9	-6.6	3.0	0.093	0.789	0.067	0.067	0.027	0.027
2	10.00	-3.0	-6.8	3.6	0.120	0.873	0.042	0.042	0.017	0.017
3	15.00	-2.7	-6.6	4.3	0.130	0.895	0.037	0.037	0.014	0.014
4	30.00	-2.0	-6.6	4.0	0.214	0.895	0.043	0.043	0.016	0.016
5	50.00	-0.3	-6.0	4.2	0.276	0.882	0.056	0.056	0.019	0.019
6	70.00	1.6	-5.0	4.5	0.277	0.873	0.067	0.067	0.020	0.020
7	85.00	2.8	-4.2	4.7	0.241	0.808	0.111	0.111	0.028	0.028
8	90.00	3.1	-4.0	4.8	0.224	0.788	0.121	0.121	0.028	0.028
9	95.00	3.8	-3.4	6.3	0.232	0.668	0.178	0.178	0.039	0.039

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(f) 80 Percent design speed; reading 2220

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	24.458	23.757	-0.0	17.1	51.1	35.5	289.0	1.043	10.10	1.142
2	23.612	23.040	-0.0	17.7	49.3	34.6	288.8	1.043	10.13	1.147
3	22.789	22.327	0.0	18.6	48.5	33.5	288.7	1.043	10.13	1.144
4	20.368	20.178	-0.0	22.8	44.1	26.6	288.0	1.044	10.14	1.151
5	17.272	17.315	-0.0	27.4	39.1	16.9	287.8	1.043	10.14	1.147
6	14.318	14.453	-0.0	31.1	34.3	5.7	287.8	1.041	10.14	1.138
7	12.197	12.306	-0.0	34.0	30.5	-4.2	287.7	1.040	10.14	1.127
8	11.509	11.590	-0.0	34.7	29.1	-7.1	287.7	1.039	10.13	1.121
9	10.851	10.876	0.0	35.7	28.2	-9.0	287.8	1.037	10.09	1.096

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	160.8	198.4	256.2	233.0	160.8	189.6	-0.0	58.4	199.4	193.7
2	165.8	195.8	254.4	226.7	165.8	186.5	-0.0	59.4	193.0	188.3
3	164.6	192.8	248.6	219.2	164.6	182.8	0.0	61.5	186.3	182.5
4	171.6	194.1	238.9	200.1	171.6	179.0	-0.0	75.2	166.3	164.7
5	173.5	193.5	223.6	179.6	173.5	171.8	-0.0	88.9	140.9	141.3
6	171.6	196.1	207.7	168.8	171.6	167.9	-0.0	101.2	116.9	118.0
7	169.1	201.0	196.2	167.1	169.1	166.6	-0.0	112.5	99.4	100.3
8	168.3	202.3	192.7	167.6	168.3	166.3	-0.0	115.3	93.8	94.5
9	164.9	194.8	187.0	160.2	164.9	158.2	0.0	113.7	88.3	88.7

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.483	0.590	0.769	0.692	0.483	0.564	1.179	1.091
2	0.499	0.581	0.765	0.673	0.499	0.554	1.125	1.062
3	0.495	0.572	0.748	0.651	0.495	0.542	1.110	1.041
4	0.518	0.577	0.721	0.594	0.518	0.532	1.043	0.950
5	0.524	0.575	0.675	0.534	0.524	0.511	0.990	0.830
6	0.518	0.584	0.627	0.503	0.518	0.500	0.978	0.707
7	0.510	0.600	0.592	0.499	0.510	0.498	0.985	0.599
8	0.508	0.605	0.581	0.501	0.508	0.497	0.988	0.581
9	0.497	0.581	0.563	0.478	0.497	0.472	0.960	0.563

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	-0.8	-4.5	2.7	0.201	0.903	0.042	0.042	0.017	0.017
2	10.00	-0.3	-4.1	3.7	0.218	0.925	0.034	0.034	0.013	0.013
3	15.00	0.5	-3.4	4.8	0.230	0.907	0.043	0.043	0.017	0.017
4	30.00	1.3	-3.3	4.6	0.292	0.925	0.038	0.038	0.014	0.014
5	50.00	3.0	-2.6	5.4	0.337	0.919	0.044	0.044	0.015	0.015
6	70.00	4.8	-1.8	5.9	0.331	0.918	0.048	0.048	0.014	0.014
7	85.00	5.8	-1.3	5.4	0.293	0.868	0.084	0.084	0.021	0.021
8	90.00	6.0	-1.1	5.3	0.272	0.843	0.101	0.101	0.024	0.024
9	95.00	6.6	-0.5	6.1	0.279	0.728	0.172	0.172	0.038	0.038

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(g) 80 Percent design speed; reading 2196

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	22.1	53.8	35.8	288.8	1.051	10.11	1.159
2	23.612	23.040	-0.0	22.4	52.0	35.1	288.9	1.050	10.11	1.160
3	22.789	22.327	-0.0	22.4	50.6	33.1	288.8	1.049	10.14	1.167
4	20.368	20.178	-0.0	26.9	46.3	26.5	288.0	1.048	10.14	1.164
5	17.272	17.315	-0.0	30.8	41.3	17.0	287.8	1.045	10.14	1.153
6	14.318	14.453	-0.0	34.2	36.4	5.4	287.7	1.043	10.14	1.141
7	12.197	12.306	-0.0	36.2	32.4	-4.5	287.7	1.040	10.14	1.132
8	11.509	11.590	-0.0	37.0	31.1	-7.4	287.7	1.038	10.13	1.121
9	10.831	10.876	-0.0	37.5	30.0	-9.3	287.8	1.035	10.09	1.108

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	146.3	185.6	247.7	212.1	146.3	171.9	-0.0	69.9	199.8	194.1
2	150.8	182.3	244.8	206.0	150.8	168.5	-0.1	69.6	192.7	188.0
3	152.5	184.7	240.2	203.8	152.5	170.7	-0.0	70.4	185.6	181.8
4	158.5	183.4	229.6	182.7	158.5	163.5	-0.1	83.1	166.1	164.5
5	160.4	182.1	213.5	163.6	160.4	156.4	-0.0	93.3	140.8	141.2
6	158.5	184.3	197.0	153.0	158.5	152.4	-0.1	103.6	117.0	118.1
7	156.5	190.3	185.4	154.1	156.5	153.6	-0.0	112.4	99.3	100.2
8	156.0	190.0	182.1	153.0	156.0	151.8	-0.0	114.3	93.9	94.6
9	152.9	185.5	176.6	149.2	152.9	147.3	-0.0	112.8	88.3	88.7

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.438	0.547	0.741	0.625	0.438	0.507	1.175	1.119
2	0.452	0.537	0.733	0.607	0.452	0.496	1.117	1.084
3	0.457	0.545	0.720	0.601	0.457	0.504	1.120	1.054
4	0.476	0.542	0.690	0.540	0.476	0.483	1.032	0.965
5	0.482	0.539	0.642	0.484	0.482	0.463	0.976	0.843
6	0.477	0.546	0.593	0.454	0.477	0.452	0.961	0.723
7	0.470	0.566	0.557	0.458	0.470	0.457	0.981	0.631
8	0.469	0.566	0.547	0.456	0.469	0.452	0.973	0.603
9	0.459	0.552	0.530	0.444	0.459	0.438	0.963	0.576

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	1.9	-1.8	3.0	0.279	0.852	0.080	0.080	0.032	0.032
2	10.00	2.3	-1.5	4.1	0.292	0.874	0.069	0.069	0.027	0.027
3	15.00	2.6	-1.3	4.4	0.285	0.923	0.042	0.042	0.016	0.016
4	30.00	3.6	-1.0	4.5	0.354	0.927	0.043	0.043	0.016	0.016
5	50.00	5.3	-0.4	5.5	0.388	0.919	0.051	0.051	0.017	0.017
6	70.00	7.0	0.4	5.6	0.379	0.903	0.065	0.065	0.019	0.019
7	85.00	7.8	0.7	5.0	0.321	0.892	0.076	0.076	0.019	0.019
8	90.00	8.0	0.8	5.0	0.308	0.877	0.085	0.085	0.020	0.020
9	95.00	8.5	1.3	5.8	0.297	0.838	0.111	0.111	0.024	0.024

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(h) 80 Percent design speed; reading 2195

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	25.6	55.7	36.4	288.8	1.055	10.11	1.168
2	23.612	23.040	-0.0	24.9	53.6	34.8	288.7	1.054	10.13	1.178
3	22.789	22.327	-0.0	25.8	52.6	33.4	288.6	1.052	10.14	1.179
4	20.368	20.178	-0.0	29.5	48.3	27.1	288.0	1.050	10.14	1.171
5	17.272	17.315	-0.0	33.3	43.4	17.4	287.8	1.047	10.13	1.158
6	14.318	14.453	-0.0	36.4	38.3	5.4	287.8	1.043	10.14	1.141
7	12.197	12.306	-0.0	38.3	34.3	-4.6	287.8	1.039	10.13	1.128
8	11.509	11.590	-0.0	38.7	32.9	-7.4	287.8	1.038	10.13	1.120
9	10.831	10.876	-0.0	39.2	31.7	-9.6	287.9	1.036	10.10	1.107

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	136.2	176.6	241.7	198.0	136.2	159.3	-0.0	76.3	199.6	193.9
2	141.6	178.4	238.9	197.0	141.6	161.7	-0.0	75.2	192.3	187.7
3	142.2	177.4	234.3	191.2	142.2	159.7	-0.0	77.3	186.2	182.4
4	147.7	175.5	222.3	171.5	147.7	152.7	-0.0	86.4	166.0	164.5
5	149.2	174.3	205.4	152.6	149.2	145.6	-0.0	95.8	141.2	141.6
6	147.7	175.7	188.2	142.0	147.7	141.4	-0.0	104.3	116.6	117.7
7	145.6	180.2	176.3	141.9	145.6	141.4	-0.0	111.7	99.3	100.2
8	145.5	180.8	173.3	142.4	145.5	141.2	-0.0	113.0	94.0	94.7
9	143.4	177.2	168.5	139.3	143.4	137.4	-0.0	112.0	88.4	88.8

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.406	0.518	0.721	0.581	0.406	0.467	1.170	1.136
2	0.423	0.524	0.714	0.579	0.423	0.475	1.142	1.096
3	0.425	0.522	0.700	0.562	0.425	0.470	1.124	1.074
4	0.443	0.517	0.666	0.505	0.443	0.450	1.034	0.976
5	0.447	0.514	0.616	0.450	0.447	0.429	0.976	0.855
6	0.443	0.519	0.564	0.420	0.443	0.418	0.957	0.728
7	0.436	0.535	0.528	0.421	0.436	0.420	0.971	0.641
8	0.436	0.537	0.519	0.423	0.436	0.419	0.970	0.615
9	0.429	0.526	0.504	0.414	0.429	0.408	0.958	0.588

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	3.8	0.1	3.6	0.333	0.829	0.104	0.104	0.041	0.041
2	10.00	4.0	0.2	3.8	0.323	0.896	0.063	0.063	0.025	0.025
3	15.00	4.6	0.7	4.6	0.334	0.918	0.050	0.050	0.019	0.019
4	30.00	5.6	1.0	5.1	0.389	0.917	0.053	0.053	0.020	0.020
5	50.00	7.4	1.7	5.9	0.422	0.906	0.065	0.065	0.022	0.022
6	70.00	8.9	2.2	5.6	0.409	0.895	0.078	0.078	0.023	0.023
7	85.00	9.7	2.6	4.9	0.355	0.902	0.074	0.074	0.018	0.018
8	90.00	9.8	2.6	5.0	0.333	0.871	0.098	0.098	0.023	0.023
9	95.00	10.1	3.0	5.6	0.321	0.828	0.129	0.129	0.028	0.028

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(i) 80 Percent design speed; reading 2193

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	32.5	58.9	38.0	288.9	1.063	10.11	1.174
2	23.612	23.040	-0.0	30.4	57.0	36.0	288.7	1.058	10.13	1.186
3	22.789	22.327	-0.0	30.7	56.0	34.2	288.5	1.057	10.13	1.186
4	20.368	20.178	-0.0	34.0	51.8	27.9	288.0	1.054	10.13	1.177
5	17.272	17.315	-0.0	37.5	46.8	17.6	287.9	1.049	10.14	1.163
6	14.318	14.453	-0.0	39.7	41.6	5.3	287.8	1.044	10.14	1.145
7	12.197	12.306	-0.0	41.1	37.3	-4.6	287.8	1.040	10.13	1.127
8	11.509	11.590	-0.0	41.3	35.8	-7.6	287.7	1.038	10.13	1.118
9	10.831	10.876	-0.0	42.0	34.8	-10.5	287.8	1.035	10.10	1.111

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	121.4	163.2	234.8	174.6	121.4	137.6	-0.0	87.8	201.0	195.2
2	126.0	167.1	231.3	178.2	126.0	144.1	-0.0	84.5	193.9	189.2
3	126.3	167.3	225.5	173.9	126.3	143.9	-0.0	85.3	186.8	183.0
4	131.3	165.4	212.3	155.1	131.3	137.1	-0.0	92.6	166.7	165.2
5	132.9	165.1	194.2	137.3	132.9	130.9	-0.0	100.5	141.6	141.9
6	132.2	166.7	176.8	128.9	132.2	128.3	-0.0	106.5	117.4	118.5
7	131.1	169.1	164.8	127.9	131.1	127.5	-0.0	111.1	99.9	100.8
8	130.6	169.5	161.0	128.4	130.6	127.3	-0.0	111.9	94.2	94.8
9	127.9	167.8	155.7	126.9	127.9	124.8	-0.0	112.2	88.8	89.2

	ABS MACH NO		REL MACH NO		MERID MACH NO			
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.361	0.475	0.698	0.508	0.361	0.400	1.133	1.175
2	0.375	0.488	0.689	0.520	0.375	0.421	1.144	1.135
3	0.376	0.489	0.672	0.509	0.376	0.421	1.140	1.105
4	0.392	0.485	0.633	0.454	0.392	0.402	1.044	1.003
5	0.397	0.485	0.580	0.403	0.397	0.385	0.985	0.873
6	0.395	0.491	0.528	0.380	0.395	0.378	0.971	0.743
7	0.391	0.500	0.492	0.378	0.391	0.377	0.973	0.653
8	0.390	0.501	0.481	0.380	0.390	0.377	0.975	0.624
9	0.382	0.497	0.465	0.376	0.382	0.370	0.976	0.598

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	7.0	3.3	5.2	0.437	0.747	0.182	0.182	0.070	0.070
2	10.00	7.4	3.6	5.0	0.401	0.855	0.101	0.101	0.039	0.039
3	15.00	8.0	4.0	5.4	0.401	0.882	0.083	0.083	0.032	0.032
4	30.00	9.0	4.4	5.9	0.449	0.882	0.088	0.088	0.032	0.032
5	50.00	10.8	5.1	6.0	0.476	0.901	0.079	0.079	0.026	0.026
6	70.00	12.2	5.5	5.6	0.449	0.904	0.081	0.081	0.024	0.024
7	85.00	12.7	5.6	4.9	0.394	0.876	0.108	0.108	0.027	0.027
8	90.00	12.7	5.6	4.8	0.367	0.859	0.122	0.122	0.029	0.029
9	95.00	13.2	6.1	4.7	0.345	0.867	0.114	0.114	0.025	0.025

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(j) 90 Percent design speed; reading 2218

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	15.4	50.2	35.0	289.0	1.049	10.09	1.159
2	23.612	23.040	-0.0	15.5	47.8	34.2	288.9	1.051	10.13	1.173
3	22.789	22.327	-0.0	16.5	46.5	32.7	288.7	1.053	10.13	1.176
4	20.368	20.178	-0.0	21.2	42.0	25.5	288.1	1.056	10.14	1.190
5	17.272	17.315	-0.0	26.4	37.1	15.4	287.8	1.057	10.14	1.194
6	14.318	14.453	-0.0	29.9	32.3	5.0	287.7	1.053	10.14	1.171
7	12.197	12.306	-0.0	32.5	28.8	-3.8	287.6	1.049	10.14	1.152
8	11.509	11.590	-0.0	33.6	27.6	-7.0	287.6	1.050	10.14	1.145
9	10.831	10.876	-0.0	34.7	26.7	-8.8	287.6	1.046	10.08	1.111

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	187.0	231.6	292.1	272.7	187.0	223.3	-0.0	61.4	224.3	217.9
2	196.8	229.5	292.7	267.3	196.8	221.1	-0.0	61.3	216.7	211.4
3	198.2	227.5	288.0	259.1	198.2	218.1	-0.0	64.8	208.9	204.6
4	207.3	229.1	279.0	236.8	207.3	213.7	-0.0	82.7	186.6	184.9
5	210.1	230.6	263.5	214.3	210.1	206.6	-0.0	102.4	159.0	159.4
6	206.8	230.6	244.8	200.7	206.8	200.0	-0.0	114.8	130.9	132.2
7	203.7	234.1	232.4	197.8	203.7	197.4	-0.0	125.9	111.9	112.9
8	202.7	236.1	228.7	198.1	202.7	196.6	-0.0	130.7	105.8	106.6
9	198.0	226.3	221.5	188.4	198.0	186.2	-0.0	128.7	99.4	99.8

	ABS MACH NO		REL MACH NO		MERID MACH NO			
RP	IN	OUT	IN	OUT	IN	OUT	MERID VEL R	PEAK SS MACH NO
1	0.566	0.695	0.884	0.618	0.566	0.670	1.194	1.226
2	0.598	0.687	0.889	0.800	0.598	0.662	1.124	1.185
3	0.603	0.681	0.876	0.775	0.603	0.652	1.100	1.157
4	0.633	0.686	0.852	0.709	0.633	0.639	1.031	1.057
5	0.643	0.690	0.806	0.642	0.643	0.618	0.983	0.926
6	0.632	0.692	0.748	0.602	0.632	0.600	0.967	0.748
7	0.622	0.705	0.710	0.596	0.622	0.594	0.969	0.710
8	0.619	0.711	0.698	0.597	0.619	0.592	0.970	0.698
9	0.603	0.680	0.675	0.566	0.603	0.560	0.940	0.675

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	-1.7	-5.4	2.2	0.168	0.875	0.050	0.050	0.020	0.020
2	10.00	-1.9	-5.7	3.2	0.185	0.907	0.039	0.039	0.015	0.015
3	15.00	-1.5	-5.4	3.9	0.203	0.901	0.043	0.043	0.017	0.017
4	30.00	-0.8	-5.4	3.6	0.273	0.914	0.042	0.042	0.016	0.016
5	50.00	1.1	-4.6	3.9	0.324	0.916	0.045	0.045	0.015	0.015
6	70.00	2.9	-3.7	5.2	0.319	0.866	0.076	0.076	0.022	0.022
7	85.00	4.1	-2.9	5.8	0.285	0.838	0.092	0.092	0.023	0.023
8	90.00	4.5	-2.6	5.4	0.269	0.795	0.121	0.121	0.028	0.028
9	95.00	5.1	-2.1	6.3	0.279	0.660	0.197	0.197	0.043	0.043

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(k) 90 Percent design speed; reading 2190

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	24.458	23.757	-0.0	19.6	51.8	35.0	289.2	1.059	10.09	1.199
2	23.612	23.040	-0.0	19.9	49.6	34.1	289.0	1.056	10.13	1.205
3	22.789	22.327	-0.0	20.7	48.5	32.5	288.7	1.059	10.13	1.207
4	20.368	20.178	-0.0	24.5	44.0	26.2	288.1	1.059	10.14	1.204
5	17.272	17.315	-0.0	29.0	39.2	16.5	287.7	1.057	10.14	1.195
6	14.318	14.453	-0.0	32.4	34.3	5.2	287.6	1.055	10.14	1.179
7	12.197	12.306	-0.0	34.9	30.6	-4.5	287.5	1.052	10.14	1.168
8	11.509	11.590	-0.0	35.1	29.2	-7.0	287.5	1.050	10.14	1.157
9	10.831	10.876	-0.0	35.9	28.3	-8.6	287.6	1.046	10.08	1.131

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	176.9	219.2	285.9	252.2	176.9	206.5	-0.1	73.4	224.6	218.1
2	184.6	216.8	284.8	246.1	184.6	203.9	-0.0	73.7	216.8	211.6
3	185.6	216.4	280.1	240.1	185.6	202.4	-0.1	76.4	209.8	205.5
4	193.8	215.0	269.5	218.0	193.8	195.6	-0.0	89.2	187.2	185.4
5	195.2	214.1	251.8	195.3	195.2	187.3	-0.0	103.8	158.9	159.3
6	192.4	216.3	233.0	183.4	192.4	182.6	-0.0	116.0	131.4	132.6
7	189.8	223.3	220.5	183.6	189.8	183.2	-0.1	127.7	112.3	113.3
8	189.0	224.0	216.6	184.7	189.0	183.3	-0.1	128.8	105.6	106.4
9	185.2	215.8	210.4	176.8	185.2	174.8	-0.0	126.5	99.7	100.1

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.534	0.651	0.862	0.749	0.534	0.613	1.167	1.243
2	0.558	0.644	0.861	0.731	0.558	0.606	1.105	1.204
3	0.562	0.642	0.848	0.713	0.562	0.601	1.091	1.181
4	0.589	0.639	0.819	0.648	0.589	0.581	1.009	1.077
5	0.594	0.637	0.766	0.581	0.594	0.557	0.959	0.944
6	0.585	0.645	0.708	0.546	0.585	0.544	0.949	0.801
7	0.577	0.669	0.670	0.550	0.577	0.549	0.965	0.690
8	0.574	0.672	0.658	0.554	0.574	0.550	0.970	0.658
9	0.562	0.646	0.638	0.529	0.562	0.523	0.944	0.638

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	-0.1	-3.8	2.2	0.242	0.900	0.050	0.049	0.020	0.020
2	10.00	-0.0	-3.8	3.1	0.257	0.968	0.016	0.015	0.006	0.006
3	15.00	0.5	-3.4	3.8	0.267	0.938	0.032	0.032	0.012	0.012
4	30.00	1.2	-3.4	4.2	0.328	0.926	0.040	0.040	0.015	0.015
5	50.00	3.1	-2.6	5.0	0.370	0.912	0.052	0.052	0.018	0.018
6	70.00	4.9	-1.7	5.4	0.360	0.876	0.079	0.079	0.023	0.023
7	85.00	6.0	-1.1	5.0	0.312	0.872	0.084	0.084	0.021	0.021
8	90.00	6.1	-1.0	5.4	0.288	0.859	0.092	0.092	0.021	0.021
9	95.00	6.7	-0.4	6.5	0.293	0.781	0.139	0.139	0.031	0.031

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(*l*) 90 Percent design speed; reading 2189

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	23.2	53.3	35.6	289.1	1.065	10.10	1.208
2	23.612	23.040	-0.0	22.9	51.2	34.4	288.9	1.064	10.13	1.219
3	22.789	22.327	-0.0	23.5	50.1	32.8	288.8	1.063	10.14	1.221
4	20.368	20.178	-0.0	27.1	45.7	26.4	288.0	1.063	10.14	1.218
5	17.272	17.315	-0.0	31.3	40.8	17.0	287.8	1.059	10.14	1.197
6	14.318	14.453	-0.0	34.4	35.9	5.4	287.7	1.055	10.14	1.181
7	12.197	12.306	-0.0	36.7	32.2	-4.5	287.6	1.050	10.14	1.164
8	11.509	11.590	-0.0	37.1	30.7	-7.3	287.6	1.048	10.13	1.153
9	10.831	10.876	-0.0	37.7	29.7	-9.1	287.5	1.044	10.08	1.130

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	167.7	207.4	280.3	234.5	167.7	190.7	-0.0	81.7	224.6	218.1
2	174.3	207.5	278.2	231.8	174.3	191.2	-0.0	80.6	216.9	211.6
3	175.1	207.5	273.1	226.3	175.1	190.3	-0.0	82.8	209.6	205.3
4	182.8	207.1	261.9	205.9	182.8	184.4	-0.0	94.3	187.6	185.8
5	184.0	203.9	243.1	182.3	184.0	174.3	-0.1	105.8	158.8	159.2
6	181.4	206.0	223.9	170.8	181.4	170.1	-0.0	116.3	131.3	132.5
7	178.3	211.6	210.5	170.1	178.3	169.6	-0.0	126.5	112.0	113.0
8	177.6	212.2	206.6	170.7	177.6	169.3	-0.0	127.8	105.5	106.3
9	174.1	205.0	200.4	164.2	174.1	162.1	-0.0	125.5	99.2	99.6

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.504	0.611	0.843	0.691	0.504	0.562	1.137	1.258
2	0.525	0.612	0.839	0.684	0.525	0.564	1.097	1.219
3	0.528	0.613	0.824	0.668	0.528	0.562	1.087	1.193
4	0.554	0.612	0.793	0.609	0.554	0.545	1.009	1.092
5	0.558	0.604	0.737	0.540	0.558	0.516	0.947	0.954
6	0.549	0.612	0.678	0.507	0.549	0.505	0.938	0.813
7	0.539	0.631	0.637	0.507	0.539	0.536	0.952	0.714
8	0.537	0.634	0.625	0.510	0.537	0.506	0.953	0.678
9	0.526	0.612	0.606	0.490	0.526	0.484	0.931	0.646

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	1.4	-2.3	2.8	0.304	0.853	0.082	0.082	0.033	0.033
2	10.00	1.5	-2.2	3.4	0.303	0.907	0.052	0.052	0.021	0.020
3	15.00	2.1	-1.8	4.0	0.309	0.927	0.042	0.042	0.016	0.016
4	30.00	3.0	-1.6	4.4	0.303	0.926	0.044	0.044	0.016	0.016
5	50.00	4.8	-0.9	5.5	0.404	0.902	0.062	0.062	0.021	0.021
6	70.00	6.5	-0.2	5.7	0.391	0.892	0.074	0.074	0.022	0.022
7	85.00	7.5	0.4	5.0	0.343	0.882	0.083	0.083	0.021	0.021
8	90.00	7.6	0.5	5.1	0.320	0.857	0.099	0.099	0.023	0.023
9	95.00	8.1	1.0	6.1	0.320	0.806	0.130	0.130	0.028	0.028

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(m) 90 Percent design speed; reading 2188

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	26.1	55.2	35.3	289.1	1.071	10.11	1.227
2	23.612	23.040	-0.0	26.0	53.1	34.5	288.9	1.069	10.13	1.234
3	22.789	22.327	-0.0	26.5	52.1	32.8	288.6	1.067	10.13	1.241
4	20.368	20.178	-0.0	30.1	47.9	26.8	287.9	1.065	10.13	1.225
5	17.272	17.315	-0.0	34.0	42.9	17.4	287.8	1.060	10.14	1.202
6	14.318	14.453	-0.0	36.9	38.1	5.5	287.7	1.054	10.14	1.182
7	12.197	12.306	-0.0	38.5	34.1	-4.4	287.8	1.050	10.14	1.165
8	11.509	11.590	-0.0	38.8	32.6	-7.2	287.8	1.047	10.14	1.150
9	10.831	10.876	-0.0	39.8	31.5	-9.5	287.8	1.044	10.09	1.131

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	155.8	200.0	272.8	221.4	155.8	179.7	-0.1	88.0	223.8	217.4
2	162.4	200.0	270.8	218.1	162.4	179.7	-0.0	87.8	216.6	211.4
3	163.0	200.6	265.6	213.6	163.0	179.5	-0.0	89.6	209.6	205.3
4	169.3	197.4	252.4	191.4	169.3	170.8	-0.0	99.0	187.2	185.4
5	170.8	194.2	233.2	168.7	170.8	160.9	-0.0	108.7	158.8	159.2
6	168.4	196.7	214.0	158.0	168.4	157.3	-0.0	118.0	132.0	133.2
7	165.9	201.5	200.3	158.1	165.9	157.6	-0.0	125.5	112.3	113.3
8	165.4	200.9	196.3	157.7	165.4	156.5	-0.1	126.0	105.6	106.3
9	162.4	195.6	190.5	152.5	162.4	150.4	-0.0	125.1	99.5	99.9

	ABS MACH NO		REL MACH NO		MERID MACH NO				MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT			VEL R	MACH NO
1	0.467	0.586	0.818	0.649	0.467	0.527			1.153	1.273
2	0.488	0.587	0.813	0.640	0.488	0.528			1.106	1.236
3	0.490	0.590	0.798	0.628	0.490	0.528			1.101	1.210
4	0.511	0.581	0.761	0.563	0.511	0.503			1.008	1.104
5	0.515	0.573	0.704	0.497	0.515	0.474			0.942	0.965
6	0.508	0.582	0.645	0.468	0.508	0.466			0.934	0.828
7	0.500	0.598	0.604	0.469	0.500	0.468			0.950	0.728
8	0.498	0.598	0.591	0.469	0.498	0.465			0.946	0.693
9	0.489	0.582	0.573	0.453	0.489	0.447			0.926	0.664

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	3.3	-0.4	3.0	0.344	0.846	0.098	0.097	0.039	0.039
2	10.00	3.5	-0.3	3.6	0.346	0.901	0.062	0.062	0.024	0.024
3	15.00	4.1	0.2	4.1	0.349	0.944	0.036	0.036	0.014	0.014
4	30.00	5.1	0.5	4.8	0.404	0.925	0.050	0.050	0.018	0.018
5	50.00	6.9	1.2	5.9	0.442	0.904	0.067	0.067	0.023	0.023
6	70.00	8.6	2.0	5.7	0.424	0.901	0.073	0.073	0.021	0.021
7	85.00	9.4	2.4	5.1	0.369	0.884	0.089	0.089	0.022	0.022
8	90.00	9.5	2.3	5.2	0.348	0.856	0.108	0.108	0.025	0.025
9	95.00	10.0	2.8	5.6	0.346	0.814	0.136	0.136	0.030	0.030

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(n) 90 Percent design speed; reading 2187

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	32.2	58.2	37.7	288.9	1.077	10.11	1.221
2	23.612	23.040	-0.0	29.7	56.3	35.7	288.7	1.075	10.13	1.241
3	22.789	22.327	-0.0	30.5	55.2	34.0	288.5	1.072	10.13	1.239
4	20.368	20.178	-0.0	34.1	51.1	27.7	288.0	1.068	10.14	1.225
5	17.272	17.315	-0.0	37.4	46.1	17.6	287.8	1.061	10.13	1.206
6	14.318	14.453	-0.0	39.6	40.9	5.3	287.9	1.056	10.14	1.184
7	12.197	12.306	-0.0	40.8	36.8	-4.6	287.9	1.049	10.14	1.162
8	11.509	11.590	-0.0	41.3	35.3	-7.8	287.8	1.047	10.13	1.152
9	10.831	10.876	-0.0	41.8	34.2	-10.4	287.8	1.045	10.09	1.139

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	139.0	183.6	264.2	196.4	139.0	155.3	-0.0	97.9	224.6	218.2
2	144.6	189.2	260.8	202.4	144.6	164.4	-0.0	93.6	217.0	211.7
3	145.2	188.3	254.7	195.7	145.2	162.2	-0.0	95.5	209.2	205.0
4	150.8	185.8	240.1	173.9	150.8	154.0	-0.0	104.1	186.8	185.0
5	152.7	184.8	220.1	154.0	152.7	146.8	-0.0	112.3	158.5	158.9
6	151.4	187.1	200.4	144.7	151.4	144.1	-0.0	119.3	131.3	132.5
7	149.5	190.5	186.7	144.6	149.5	144.1	-0.0	124.5	111.8	112.8
8	149.4	191.4	183.1	145.3	149.4	143.9	-0.0	126.2	105.8	106.5
9	146.6	188.3	177.2	142.6	146.6	140.2	-0.0	125.6	99.6	100.0

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.415	0.534	0.789	0.571	0.415	0.452	1.117	1.310
2	0.432	0.552	0.780	0.591	0.432	0.480	1.137	1.269
3	0.434	0.550	0.762	0.572	0.434	0.474	1.117	1.236
4	0.452	0.544	0.720	0.509	0.452	0.451	1.021	1.123
5	0.456	0.543	0.661	0.452	0.458	0.431	0.961	0.977
6	0.454	0.551	0.601	0.427	0.454	0.425	0.952	0.833
7	0.448	0.564	0.560	0.428	0.448	0.427	0.964	0.733
8	0.448	0.568	0.549	0.431	0.448	0.427	0.963	0.703
9	0.439	0.558	0.531	0.423	0.439	0.416	0.957	0.673

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	6.4	2.7	4.9	0.435	0.766	0.167	0.167	0.065	0.064
2	10.00	6.7	2.9	4.7	0.392	0.851	0.107	0.106	0.041	0.041
3	15.00	7.3	3.3	5.3	0.402	0.876	0.090	0.090	0.034	0.034
4	30.00	8.3	3.7	5.7	0.454	0.882	0.089	0.088	0.032	0.032
5	50.00	10.0	4.4	6.1	0.481	0.893	0.085	0.085	0.028	0.028
6	70.00	11.5	4.9	5.5	0.454	0.890	0.093	0.093	0.027	0.027
7	85.00	12.1	5.1	4.9	0.393	0.894	0.091	0.091	0.023	0.023
8	90.00	12.2	5.1	4.6	0.370	0.871	0.109	0.109	0.026	0.026
9	95.00	12.6	5.5	4.8	0.353	0.845	0.133	0.133	0.029	0.029

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(o) 100 Percent design speed; reading 2217

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	18.5	50.6	35.1	289.1	1.073	10.10	1.234
2	23.612	23.040	-0.0	19.3	48.4	33.8	288.9	1.073	10.13	1.248
3	22.789	22.327	-0.0	20.0	47.6	32.4	288.6	1.073	10.13	1.254
4	20.368	20.178	-0.0	24.5	43.1	25.6	288.0	1.074	10.14	1.256
5	17.272	17.315	-0.0	29.0	38.1	15.6	287.8	1.071	10.14	1.244
6	14.318	14.453	-0.0	32.1	33.4	4.8	287.8	1.067	10.14	1.222
7	12.197	12.306	-0.0	34.5	29.9	-4.1	287.7	1.062	10.14	1.193
8	11.509	11.590	0.0	35.3	28.6	-6.9	287.6	1.059	10.13	1.176
9	10.831	10.876	-0.0	36.3	27.8	-8.7	287.6	1.056	10.08	1.142

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	205.7	247.2	323.7	286.4	205.7	234.4	-0.0	78.4	250.0	242.8
2	213.7	244.2	322.2	277.5	213.7	230.5	-0.0	80.6	241.0	235.2
3	212.1	242.8	314.8	270.1	212.1	228.1	-0.0	83.1	232.5	227.8
4	222.1	242.5	304.4	244.7	222.1	220.7	-0.0	100.4	208.1	206.2
5	224.9	242.2	285.6	219.8	224.9	211.8	-0.0	117.5	176.0	176.5
6	221.3	244.6	265.2	207.9	221.3	207.2	-0.0	130.0	146.1	147.4
7	217.2	247.5	250.4	204.4	217.2	203.9	-0.0	140.3	124.7	125.8
8	215.5	246.6	245.4	202.7	215.5	201.2	0.0	142.5	117.4	118.3
9	209.8	237.1	237.2	193.4	209.8	191.2	-0.0	140.3	110.7	111.1

	ABS MACH NO		REL MACH NO		MERID MACH NO			
RP	IN	OUT	IN	OUT	IN	OUT	MERID PEAK SS VEL R	MACH NO
1	0.627	0.737	0.986	0.854	0.627	0.699	1.140	1.380
2	0.654	0.728	0.985	0.827	0.654	0.687	1.078	1.337
3	0.649	0.723	0.963	0.805	0.649	0.680	1.075	1.310
4	0.683	0.723	0.936	0.730	0.683	0.658	0.994	1.201
5	0.692	0.723	0.879	0.656	0.692	0.632	0.942	1.045
6	0.680	0.733	0.815	0.623	0.680	0.621	0.936	0.884
7	0.666	0.744	0.769	0.615	0.666	0.613	0.939	0.769
8	0.661	0.743	0.753	0.610	0.661	0.606	0.934	0.753
9	0.642	0.712	0.726	0.581	0.642	0.574	0.911	0.726

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	-1.3	-5.0	2.2	0.232	0.845	0.077	0.065	0.031	0.026
2	10.00	-1.2	-5.0	2.9	0.256	0.897	0.051	0.043	0.020	0.017
3	15.00	-0.4	-4.3	3.7	0.262	0.918	0.043	0.037	0.016	0.014
4	30.00	0.4	-4.2	3.6	0.332	0.908	0.051	0.050	0.019	0.019
5	50.00	2.0	-3.7	4.1	0.376	0.905	0.055	0.055	0.019	0.019
6	70.00	4.0	-2.6	5.0	0.361	0.884	0.072	0.072	0.021	0.021
7	85.00	5.2	-1.8	5.5	0.325	0.833	0.105	0.105	0.026	0.026
8	90.00	5.5	-1.6	5.5	0.312	0.804	0.120	0.120	0.028	0.028
9	95.00	6.3	-0.9	6.5	0.316	0.690	0.191	0.191	0.042	0.042

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(p) 100 Percent design speed; reading 2185

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	22.1	51.6	34.7	289.2	1.077	10.09	1.261
2	23.612	23.040	-0.0	21.7	49.3	33.6	289.0	1.078	10.14	1.276
3	22.789	22.327	-0.0	22.6	48.3	31.9	288.6	1.078	10.14	1.283
4	20.368	20.178	-0.0	26.6	43.8	25.5	288.0	1.077	10.14	1.274
5	17.272	17.315	-0.0	30.8	38.9	15.6	287.8	1.074	10.14	1.255
6	14.318	14.453	-0.0	33.6	34.3	4.7	287.7	1.068	10.14	1.233
7	12.197	12.306	-0.0	35.4	30.5	-4.3	287.5	1.064	10.14	1.208
8	11.509	11.590	-0.0	36.0	29.3	-7.1	287.7	1.062	10.14	1.194
9	10.831	10.876	-0.0	37.0	28.2	-8.9	287.5	1.058	10.08	1.161

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	198.5	239.0	319.5	269.1	198.5	221.4	-0.1	90.0	250.3	243.1
2	207.6	238.3	318.1	265.9	207.6	221.5	-0.1	88.0	241.0	235.2
3	207.7	238.0	312.1	258.8	207.7	219.7	-0.0	91.4	232.9	228.2
4	217.2	236.3	300.9	234.0	217.2	211.3	-0.0	105.7	208.3	206.3
5	219.0	235.5	281.4	210.0	219.0	202.3	-0.1	120.5	176.6	177.1
6	215.0	237.8	260.2	198.7	215.0	198.0	-0.0	131.6	146.5	147.9
7	211.3	243.1	245.3	198.8	211.3	198.2	-0.0	140.7	124.6	125.7
8	210.2	242.9	241.0	197.8	210.2	196.4	-0.0	142.9	117.8	118.6
9	206.1	233.5	234.0	188.8	206.1	186.6	-0.0	140.4	110.7	111.2

	ABS MACH NO		REL MACH NO		MERID MACH NO				MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT			VEL R	MACH NO
1	0.603	0.709	0.971	0.798	0.603	0.656			1.115	1.393
2	0.633	0.706	0.970	0.788	0.633	0.656			1.067	1.345
3	0.634	0.706	0.953	0.768	0.634	0.652			1.058	1.318
4	0.666	0.701	0.923	0.695	0.666	0.627			0.973	1.207
5	0.673	0.700	0.864	0.625	0.673	0.602			0.923	1.056
6	0.659	0.710	0.798	0.593	0.659	0.591			0.921	0.900
7	0.647	0.729	0.751	0.596	0.647	0.595			0.938	0.768
8	0.643	0.729	0.738	0.594	0.643	0.590			0.934	0.738
9	0.630	0.700	0.715	0.566	0.630	0.559			0.905	0.715

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	-0.3	-4.0	1.9	0.293	0.886	0.061	0.049	0.025	0.020
2	10.00	-0.4	-4.1	2.6	0.294	0.925	0.041	0.033	0.016	0.013
3	15.00	0.3	-3.6	3.2	0.304	0.943	0.032	0.027	0.013	0.010
4	30.00	1.0	-3.6	3.5	0.367	0.931	0.040	0.039	0.015	0.015
5	50.00	2.9	-2.8	4.1	0.405	0.911	0.055	0.055	0.019	0.019
6	70.00	4.8	-1.8	4.9	0.386	0.913	0.056	0.056	0.017	0.017
7	85.00	5.9	-1.2	5.2	0.334	0.864	0.091	0.091	0.023	0.023
8	90.00	6.2	-1.0	5.3	0.319	0.839	0.107	0.107	0.025	0.025
9	95.00	6.7	-0.5	6.2	0.326	0.754	0.160	0.160	0.035	0.035

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(q) 100 Percent design speed; reading 2184

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	23.7	52.5	34.7	289.2	1.081	10.10	1.279
2	23.612	23.040	-0.0	23.2	50.3	33.7	288.9	1.081	10.13	1.295
3	22.789	22.327	-0.0	24.3	49.2	32.0	288.7	1.082	10.14	1.295
4	20.368	20.178	-0.0	28.2	44.8	25.4	288.0	1.081	10.14	1.287
5	17.272	17.315	-0.0	31.8	39.9	15.8	287.8	1.075	10.14	1.263
6	14.318	14.453	-0.0	34.8	35.2	4.7	287.8	1.069	10.14	1.232
7	12.197	12.306	-0.0	36.4	31.5	-4.2	287.6	1.064	10.14	1.207
8	11.509	11.590	-0.0	37.5	30.1	-7.6	287.7	1.060	10.13	1.189
9	10.831	10.876	-0.0	37.6	29.2	-8.8	287.7	1.056	10.05	1.165

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	191.9	233.9	314.8	260.5	191.9	214.2	-0.0	94.2	249.6	242.4
2	200.3	233.9	313.6	258.2	200.3	214.9	-0.1	92.3	241.2	235.4
3	201.3	232.7	308.1	250.1	201.3	212.0	-0.1	95.9	233.2	228.5
4	210.1	231.8	296.1	226.1	210.1	204.3	-0.1	109.6	208.6	206.6
5	211.9	230.7	276.0	203.8	211.9	196.0	-0.0	121.6	176.8	177.2
6	207.4	231.2	253.8	190.4	207.4	189.8	-0.0	132.0	146.4	147.7
7	203.7	236.0	238.9	190.5	203.7	190.0	-0.1	140.0	124.8	125.9
8	202.7	235.3	234.4	188.3	202.7	186.7	-0.0	143.3	117.7	118.5
9	197.7	227.5	226.6	182.3	197.7	180.2	-0.1	138.9	110.6	111.1

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.582	0.691	0.954	0.769	0.582	0.632	1.116	1.398
2	0.609	0.691	0.954	0.763	0.609	0.635	1.073	1.356
3	0.613	0.687	0.938	0.738	0.613	0.626	1.053	1.328
4	0.643	0.686	0.906	0.669	0.643	0.604	0.972	1.217
5	0.649	0.684	0.845	0.604	0.649	0.581	0.925	1.064
6	0.634	0.688	0.776	0.567	0.634	0.565	0.915	0.908
7	0.622	0.706	0.729	0.570	0.622	0.568	0.933	0.794
8	0.619	0.705	0.715	0.564	0.619	0.559	0.921	0.750
9	0.602	0.681	0.690	0.545	0.602	0.539	0.911	0.716

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	0.6	-3.1	1.9	0.317	0.895	0.060	0.049	0.024	0.020
2	10.00	0.7	-3.1	2.7	0.315	0.945	0.032	0.024	0.013	0.009
3	15.00	1.2	-2.7	3.3	0.330	0.935	0.039	0.033	0.015	0.013
4	30.00	2.0	-2.6	3.4	0.389	0.925	0.047	0.046	0.018	0.017
5	50.00	3.8	-1.9	4.3	0.418	0.917	0.054	0.054	0.018	0.018
6	70.00	5.8	-0.8	5.0	0.403	0.892	0.074	0.074	0.022	0.022
7	85.00	6.9	-0.2	5.3	0.350	0.860	0.098	0.098	0.025	0.025
8	90.00	7.1	-0.1	4.8	0.341	0.842	0.108	0.108	0.025	0.025
9	95.00	7.7	0.5	6.4	0.332	0.790	0.141	0.141	0.031	0.031

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(r) 100 Percent design speed; reading 2200

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	27.1	54.4	35.3	289.3	1.089	10.10	1.300
2	23.612	23.040	-0.0	26.9	52.5	34.0	289.0	1.088	10.13	1.312
3	22.789	22.327	-0.0	27.7	51.7	32.5	288.6	1.087	10.14	1.311
4	20.368	20.178	-0.0	31.2	47.4	25.9	287.9	1.084	10.13	1.297
5	17.272	17.315	-0.0	34.7	42.6	16.9	287.7	1.075	10.14	1.262
6	14.318	14.453	-0.0	37.4	37.8	5.5	287.7	1.067	10.14	1.227
7	12.197	12.306	-0.0	38.9	33.9	-4.3	287.7	1.061	10.14	1.200
8	11.509	11.590	-0.0	39.4	32.5	-7.3	287.7	1.059	10.13	1.186
9	10.831	10.876	-0.0	40.0	31.2	-9.2	287.8	1.055	10.09	1.161

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	178.2	223.0	306.3	243.1	178.2	198.5	-0.0	101.6	249.1	241.9
2	184.6	222.6	303.4	239.5	184.6	198.5	-0.0	100.9	240.7	234.9
3	183.5	220.9	295.9	231.8	183.5	195.5	-0.0	102.8	232.1	227.4
4	190.5	220.1	281.7	209.2	190.5	188.2	-0.0	114.2	207.5	205.6
5	191.9	215.8	260.5	185.4	191.9	177.4	-0.0	122.8	176.2	176.6
6	188.4	215.8	238.4	172.2	188.4	171.4	-0.0	131.1	146.1	147.4
7	185.2	220.5	223.1	172.2	185.2	171.7	-0.0	138.4	124.3	125.4
8	184.3	220.6	218.5	171.9	184.3	170.5	-0.0	139.9	117.3	118.2
9	182.5	214.1	213.3	166.2	182.5	164.1	-0.0	137.5	110.4	110.9

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.538	0.653	0.924	0.712	0.538	0.581	1.114	1.415
2	0.558	0.652	0.918	0.702	0.558	0.582	1.075	1.374
3	0.555	0.648	0.895	0.680	0.555	0.573	1.065	1.344
4	0.579	0.647	0.855	0.615	0.579	0.553	0.988	1.228
5	0.583	0.636	0.792	0.547	0.583	0.523	0.925	1.075
6	0.572	0.639	0.724	0.510	0.572	0.508	0.910	0.920
7	0.562	0.656	0.676	0.512	0.562	0.511	0.927	0.810
8	0.559	0.657	0.662	0.512	0.559	0.508	0.925	0.774
9	0.553	0.637	0.646	0.495	0.553	0.489	0.899	0.739

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	2.5	-1.2	2.5	0.366	0.878	0.079	0.069	0.032	0.027
2	10.00	2.9	-0.9	3.1	0.366	0.911	0.059	0.052	0.023	0.020
3	15.00	3.7	-0.2	3.8	0.374	0.923	0.052	0.048	0.020	0.019
4	30.00	4.7	0.1	3.9	0.425	0.921	0.055	0.055	0.021	0.021
5	50.00	6.5	0.8	5.4	0.455	0.914	0.062	0.062	0.021	0.021
6	70.00	8.3	1.7	5.7	0.440	0.904	0.071	0.071	0.021	0.021
7	85.00	9.2	2.2	5.2	0.384	0.872	0.097	0.097	0.024	0.024
8	90.00	9.4	2.3	5.1	0.365	0.853	0.111	0.111	0.026	0.026
9	95.00	9.6	2.5	5.9	0.364	0.798	0.147	0.147	0.032	0.032

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(s) 100 Percent design speed; reading 2182

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	29.5	56.2	36.1	289.3	1.093	10.10	1.308
2	23.612	23.040	-0.0	30.5	54.1	34.0	288.9	1.095	10.13	1.321
3	22.789	22.327	-0.0	30.2	53.0	32.3	288.7	1.091	10.14	1.324
4	20.368	20.178	-0.0	33.4	48.8	25.8	287.9	1.087	10.14	1.307
5	17.272	17.315	-0.0	36.6	43.8	16.7	287.7	1.078	10.14	1.266
6	14.318	14.453	-0.0	38.6	39.2	5.7	287.7	1.070	10.14	1.231
7	12.197	12.306	-0.0	40.5	35.0	-5.0	287.6	1.062	10.13	1.202
8	11.509	11.590	-0.0	40.7	33.7	-7.6	287.7	1.059	10.13	1.188
9	10.831	10.376	-0.0	41.6	32.7	-10.1	287.7	1.056	10.08	1.165

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	167.6	215.5	301.1	232.0	167.6	187.5	-0.0	106.3	250.1	242.9
2	175.6	217.6	299.5	226.1	175.6	187.5	-0.0	110.4	242.6	236.7
3	175.8	217.9	292.3	222.9	175.8	188.3	-0.1	109.6	233.5	228.8
4	182.6	216.6	277.1	200.9	182.6	180.9	-0.0	119.1	208.4	206.4
5	184.3	211.7	255.5	177.5	184.3	170.0	-0.1	126.2	176.9	177.3
6	180.6	211.6	233.0	166.2	180.6	165.4	-0.0	132.0	147.1	148.5
7	178.2	216.0	217.7	164.8	178.2	164.2	-0.0	140.3	124.9	126.1
8	176.8	215.9	212.7	165.2	176.8	163.7	-0.0	140.8	118.1	118.9
9	173.3	210.0	205.9	159.4	173.3	156.9	-0.0	139.5	111.2	111.6

	ABS MACH NO		REL MACH NO		MERID MACH NO			MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT		VEL R	MACH NO
1	0.504	0.628	0.905	0.676	0.504	0.546		1.119	1.440
2	0.530	0.635	0.903	0.659	0.530	0.547		1.068	1.401
3	0.530	0.637	0.882	0.651	0.530	0.550		1.072	1.365
4	0.553	0.635	0.839	0.589	0.553	0.530		0.991	1.243
5	0.559	0.623	0.775	0.522	0.559	0.500		0.922	1.086
6	0.547	0.625	0.705	0.491	0.547	0.488		0.916	0.933
7	0.539	0.641	0.659	0.489	0.539	0.488		0.922	0.819
8	0.535	0.642	0.643	0.491	0.535	0.487		0.926	0.785
9	0.523	0.624	0.622	0.473	0.523	0.466		0.906	0.751

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	4.3	0.6	3.3	0.400	0.852	0.103	0.092	0.041	0.036
2	10.00	4.5	0.7	3.0	0.418	0.874	0.090	0.082	0.035	0.032
3	15.00	5.0	1.1	3.6	0.408	0.913	0.063	0.058	0.024	0.023
4	30.00	6.0	1.4	3.8	0.452	0.917	0.062	0.062	0.023	0.023
5	50.00	7.8	2.1	5.2	0.480	0.896	0.079	0.079	0.027	0.027
6	70.00	9.7	3.1	5.9	0.454	0.872	0.103	0.103	0.030	0.030
7	85.00	10.4	3.3	4.6	0.405	0.867	0.107	0.107	0.027	0.027
8	90.00	10.7	3.5	4.8	0.380	0.854	0.116	0.116	0.027	0.027
9	95.00	11.1	4.0	5.1	0.377	0.792	0.167	0.167	0.037	0.037

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(t) 110 Percent design speed; reading 2205

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	22.0	52.6	35.9	288.9	1.093	10.09	1.300
2	23.612	23.040	-0.0	22.1	50.2	34.9	288.6	1.093	10.13	1.317
3	22.789	22.327	-0.0	23.5	49.0	33.2	288.5	1.094	10.13	1.313
4	20.368	20.178	0.	27.9	44.5	26.1	288.1	1.094	10.14	1.313
5	17.272	17.315	-0.0	31.7	39.5	15.7	287.9	1.089	10.14	1.309
6	14.318	14.453	-0.0	34.6	34.7	4.3	287.9	1.081	10.14	1.281
7	12.197	12.306	-0.0	36.6	31.0	-4.8	287.8	1.075	10.14	1.245
8	11.509	11.590	-0.0	36.9	29.6	-6.9	287.8	1.072	10.14	1.217
9	10.831	10.876	-0.0	37.4	28.3	-7.7	287.8	1.065	10.08	1.164

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	210.6	255.4	346.4	292.2	210.6	236.8	-0.0	95.8	275.0	267.1
2	221.3	253.1	345.3	285.7	221.3	234.4	-0.0	95.4	265.1	258.7
3	222.0	251.0	338.6	275.0	222.0	230.2	-0.0	100.0	255.7	250.5
4	233.0	251.3	326.5	247.2	233.0	222.0	0.	117.7	228.7	226.6
5	235.5	254.6	305.2	225.1	235.5	216.7	-0.0	133.7	194.1	194.6
6	232.0	257.9	282.4	212.8	232.0	212.2	-0.0	146.5	160.9	162.4
7	228.5	261.5	266.4	210.7	228.5	210.0	-0.0	155.8	137.0	138.3
8	227.8	258.3	262.0	208.0	227.8	206.5	-0.0	155.1	129.3	130.2
9	225.5	244.1	256.1	195.7	225.5	193.9	-0.0	148.3	121.5	122.0

	ABS MACH NO		REL MACH NO		MERID MACH NO			
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.643	0.757	1.058	0.866	0.643	0.702	1.124	1.489
2	0.679	0.750	1.060	0.846	0.679	0.694	1.059	1.438
3	0.682	0.743	1.040	0.814	0.682	0.681	1.037	1.423
4	0.719	0.744	1.008	0.732	0.719	0.658	0.953	1.333
5	0.728	0.758	0.944	0.670	0.728	0.645	0.920	1.176
6	0.716	0.772	0.872	0.637	0.716	0.635	0.915	1.002
7	0.704	0.786	0.821	0.633	0.704	0.631	0.919	0.867
8	0.702	0.777	0.807	0.625	0.702	0.621	0.907	0.807
9	0.694	0.732	0.789	0.587	0.694	0.582	0.860	0.789

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	0.7	-3.0	3.1	0.290	0.840	0.090	0.058	0.036	0.023
2	10.00	0.5	-3.3	3.9	0.302	0.880	0.068	0.043	0.027	0.017
3	15.00	1.0	-2.9	4.4	0.322	0.862	0.081	0.060	0.031	0.023
4	30.00	1.7	-2.9	4.1	0.391	0.863	0.085	0.075	0.032	0.028
5	50.00	3.5	-2.2	4.2	0.417	0.901	0.064	0.064	0.022	0.022
6	70.00	5.3	-1.3	4.5	0.400	0.909	0.061	0.061	0.018	0.018
7	85.00	6.3	-0.8	4.8	0.356	0.857	0.097	0.097	0.024	0.024
8	90.00	6.5	-0.6	5.5	0.346	0.805	0.129	0.129	0.030	0.030
9	95.00	6.8	-0.4	7.4	0.365	0.684	0.195	0.195	0.043	0.043

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(u) 110 Percent design speed; reading 2204

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	24.458	23.757	-0.0	24.6	52.8	34.9	289.0	1.102	10.09	1.344
2	23.612	23.040	-0.0	24.8	50.4	34.0	288.7	1.101	10.13	1.354
3	22.789	22.327	-0.0	25.8	49.3	32.3	288.4	1.101	10.13	1.355
4	20.368	20.178	-0.0	29.9	44.9	25.5	288.0	1.099	10.14	1.343
5	17.272	17.315	-0.0	33.3	39.8	15.3	287.9	1.090	10.14	1.322
6	14.318	14.453	-0.0	35.7	35.0	4.2	287.8	1.081	10.14	1.285
7	12.197	12.306	-0.0	37.6	31.4	-4.8	287.8	1.076	10.14	1.243
8	11.509	11.590	-0.0	37.6	30.0	-7.0	287.9	1.071	10.14	1.221
9	10.831	10.876	-0.0	38.2	28.7	-8.1	287.7	1.064	10.08	1.173

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	208.4	253.4	344.3	281.0	208.4	230.5	-0.0	105.4	274.0	266.2
2	219.3	250.4	343.9	274.4	219.3	227.4	-0.0	104.9	264.9	258.5
3	219.4	249.1	336.7	265.2	219.4	224.2	-0.0	108.5	255.4	250.2
4	230.0	248.7	324.5	238.8	230.0	215.6	-0.0	124.0	228.9	226.8
5	232.7	249.7	303.0	216.4	232.7	208.6	-0.0	137.2	194.0	194.5
6	228.9	251.9	279.6	205.1	228.9	204.6	-0.0	147.0	160.5	162.0
7	225.0	254.8	263.4	202.7	225.0	202.0	-0.0	155.3	137.1	138.3
8	223.8	253.5	258.3	202.3	223.8	200.8	-0.0	154.6	129.1	130.0
9	221.3	240.3	252.3	190.8	221.3	188.9	-0.0	148.5	121.3	121.8

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.636	0.747	1.050	0.828	0.636	0.679	1.106	1.491
2	0.672	0.738	1.054	0.809	0.672	0.670	1.037	1.444
3	0.673	0.734	1.033	0.782	0.673	0.661	1.022	1.430
4	0.709	0.734	1.001	0.705	0.709	0.636	0.937	1.346
5	0.719	0.741	0.936	0.642	0.719	0.619	0.896	1.177
6	0.706	0.752	0.862	0.612	0.706	0.610	0.894	1.002
7	0.693	0.763	0.811	0.607	0.693	0.605	0.898	0.876
8	0.688	0.761	0.795	0.607	0.688	0.603	0.897	0.823
9	0.680	0.720	0.776	0.571	0.680	0.566	0.854	0.776

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	0.9	-2.8	2.1	0.331	0.865	0.083	0.052	0.033	0.021
2	10.00	0.8	-3.0	3.1	0.345	0.897	0.063	0.038	0.025	0.015
3	15.00	1.3	-2.6	3.6	0.359	0.898	0.065	0.043	0.025	0.017
4	30.00	2.1	-2.5	3.5	0.422	0.889	0.072	0.062	0.027	0.023
5	50.00	3.8	-1.9	3.8	0.446	0.918	0.055	0.054	0.019	0.018
6	70.00	5.6	-1.0	4.4	0.422	0.918	0.056	0.056	0.016	0.016
7	85.00	6.7	-0.4	4.7	0.379	0.849	0.104	0.104	0.026	0.026
8	90.00	6.9	-0.2	5.4	0.359	0.831	0.113	0.113	0.026	0.026
9	95.00	7.2	0.0	7.1	0.375	0.726	0.172	0.172	0.038	0.038

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(v) 110 Percent design speed; reading 2203

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	26.2	53.3	34.3	288.7	1.107	10.12	1.377
2	23.612	23.040	-0.0	26.5	51.1	33.5	288.7	1.107	10.12	1.382
3	22.789	22.327	-0.0	27.5	49.9	32.1	288.5	1.106	10.13	1.373
4	20.368	20.178	-0.0	31.3	45.4	25.3	288.1	1.100	10.13	1.357
5	17.272	17.315	-0.0	[illegible].2	40.4	15.2	287.9	1.092	10.14	1.333
6	14.318	14.453	-0.0	36.6	35.7	4.2	287.8	1.084	10.14	1.288
7	12.197	12.306	-0.0	38.1	32.0	-4.8	287.8	1.075	10.14	1.246
8	11.509	11.590	0.0	38.4	30.6	-7.0	287.8	1.071	10.13	1.220
9	10.831	10.876	0.	38.9	29.4	-8.3	287.7	1.066	10.07	1.181

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	204.6	253.0	342.2	274.9	204.6	227.1	-0.0	111.6	274.3	266.4
2	213.5	248.7	340.2	267.0	213.5	222.6	-0.0	110.9	264.9	258.4
3	215.5	246.4	334.7	258.1	215.5	218.6	-0.0	113.6	256.1	250.9
4	225.2	245.3	320.8	231.9	225.2	209.7	-0.0	127.3	228.5	226.3
5	227.7	246.8	299.1	211.5	227.7	204.1	-0.0	138.8	193.9	194.4
6	223.7	247.7	275.5	199.5	223.7	199.0	-0.0	147.5	160.8	162.3
7	219.2	250.4	258.4	197.8	219.2	197.1	-0.0	154.4	136.8	138.0
8	218.2	248.0	253.6	195.8	218.2	194.3	0.0	154.1	129.2	130.1
9	216.3	237.2	248.2	186.5	216.3	184.6	0.	149.0	121.7	122.2

	ABS MACH NO		REL MACH NO		MERID MACH NO				MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT			VEL R	MACH NO
1	0.623	0.744	1.043	0.809	0.623	0.668			1.110	1.506
2	0.653	0.730	1.041	0.784	0.653	0.654			1.042	1.463
3	0.660	0.723	1.025	0.757	0.660	0.641			1.014	1.447
4	0.693	0.722	0.987	0.683	0.693	0.617			0.931	1.348
5	0.701	0.730	0.922	0.626	0.701	0.604			0.897	1.180
6	0.688	0.737	0.847	0.593	0.688	0.592			0.890	1.009
7	0.673	0.749	0.794	0.592	0.673	0.590			0.899	0.883
8	0.670	0.743	0.779	0.586	0.670	0.582			0.890	0.840
9	0.663	0.709	0.761	0.557	0.663	0.552			0.854	0.797

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	1.4	-2.3	1.5	0.354	0.897	0.067	0.034	0.027	0.014
2	10.00	1.5	-2.3	2.6	0.368	0.908	0.060	0.034	0.024	0.013
3	15.00	1.9	-2.0	3.4	0.383	0.892	0.073	0.050	0.028	0.019
4	30.00	2.6	-1.9	3.3	0.441	0.908	0.063	0.053	0.023	0.020
5	50.00	4.4	-1.3	3.7	0.457	0.929	0.049	0.049	0.017	0.017
6	70.00	6.3	-0.4	4.5	0.434	0.897	0.073	0.073	0.022	0.022
7	85.00	7.3	0.3	4.8	0.385	0.869	0.093	0.093	0.023	0.023
8	90.00	7.5	0.4	5.4	0.372	0.829	0.118	0.118	0.028	0.028
9	95.00	7.8	0.7	6.9	0.382	0.741	0.172	0.172	0.038	0.038

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(w) 110 Percent design speed; reading 2202

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	29.7	54.8	35.1	289.1	1.117	10.10	1.383
2	23.612	23.040	-0.0	28.9	52.6	33.7	288.8	1.114	10.13	1.403
3	22.789	22.327	-0.0	30.5	51.4	32.0	288.5	1.113	10.13	1.396
4	20.368	20.178	-0.0	33.3	47.0	25.4	288.0	1.106	10.14	1.377
5	17.272	17.315	-0.0	36.3	42.0	15.4	287.9	1.096	10.14	1.339
6	14.318	14.453	-0.0	38.1	37.2	4.6	287.7	1.084	10.14	1.288
7	12.197	12.306	-0.0	39.6	33.4	-4.7	287.7	1.077	10.14	1.245
8	11.509	11.590	-0.0	39.8	32.0	-7.3	287.7	1.072	10.14	1.224
9	10.831	10.876	-0.0	40.3	30.6	-9.1	287.8	1.068	10.08	1.193

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	194.5	242.0	337.4	257.0	194.5	210.2	-0.0	119.8	275.7	267.8
2	203.7	242.9	335.0	255.6	203.7	212.5	-0.0	117.5	265.9	259.5
3	205.3	240.9	329.1	244.9	205.3	207.7	-0.0	122.1	257.2	251.9
4	214.7	240.9	314.6	222.7	214.7	201.3	-0.0	132.3	229.9	227.7
5	216.6	240.0	291.5	200.7	216.6	193.5	-0.0	142.0	195.0	195.4
6	212.7	239.3	267.1	188.8	212.7	188.2	-0.0	147.8	161.4	163.0
7	209.1	241.9	250.4	187.0	209.1	186.3	-0.0	154.3	137.7	139.0
8	208.1	241.5	245.4	187.0	208.1	185.5	-0.0	154.7	130.1	131.0
9	206.3	233.8	239.7	180.6	206.3	178.3	-0.0	151.2	122.2	122.7

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.590	0.704	1.024	0.748	0.590	0.612	1.081	1.550
2	0.620	0.709	1.020	0.746	0.620	0.620	1.044	1.503
3	0.626	0.703	1.004	0.715	0.626	0.606	1.012	1.492
4	0.658	0.706	0.964	0.653	0.658	0.590	0.938	1.368
5	0.665	0.707	0.894	0.591	0.665	0.570	0.893	1.196
6	0.652	0.709	0.818	0.560	0.652	0.558	0.885	1.022
7	0.639	0.720	0.766	0.557	0.639	0.555	0.891	0.901
8	0.636	0.721	0.750	0.558	0.636	0.554	0.891	0.861
9	0.630	0.697	0.732	0.538	0.630	0.531	0.864	0.820

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	2.9	-0.8	2.3	0.409	0.832	0.121	0.083	0.048	0.033
2	10.00	2.9	-0.9	2.8	0.401	0.891	0.078	0.048	0.031	0.019
3	15.00	3.4	-0.5	3.3	0.424	0.883	0.085	0.059	0.033	0.023
4	30.00	4.2	-0.4	3.4	0.465	0.906	0.069	0.059	0.026	0.022
5	50.00	5.9	0.3	3.9	0.484	0.909	0.068	0.068	0.023	0.023
6	70.00	7.8	1.1	4.8	0.456	0.892	0.082	0.082	0.024	0.024
7	85.00	8.7	1.7	4.8	0.408	0.843	0.120	0.120	0.030	0.030
8	90.00	8.9	1.8	5.1	0.387	0.831	0.126	0.126	0.029	0.029
9	95.00	9.1	1.9	6.0	0.387	0.764	0.172	0.172	0.038	0.038

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(x) 110 Percent design speed; reading 2201

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	32.9	56.4	36.0	289.2	1.122	10.10	1.393
2	23.612	23.040	-0.0	32.2	54.4	33.9	288.9	1.120	10.13	1.414
3	22.789	22.327	-0.0	33.2	53.5	31.9	288.5	1.119	10.13	1.416
4	20.368	20.178	-0.0	35.7	49.1	25.5	288.0	1.109	10.14	1.387
5	17.272	17.315	-0.0	38.3	44.2	16.1	287.8	1.097	10.14	1.339
6	14.318	14.453	-0.0	39.8	39.3	5.4	287.7	1.085	10.14	1.284
7	12.197	12.306	-0.0	41.4	35.4	-5.1	287.7	1.076	10.14	1.246
8	11.509	11.590	-0.0	41.6	33.9	8.0	287.7	1.072	10.14	1.230
9	10.831	10.876	-0.0	42.3	32.6	-10.3	287.7	1.068	10.09	1.202

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	183.3	232.8	331.6	241.6	183.3	195.4	-0.0	126.5	276.3	268.4
2	190.6	235.9	327.7	240.6	190.6	199.6	-0.0	125.8	266.5	260.1
3	190.0	235.6	319.4	232.2	190.0	197.2	-0.0	128.9	256.7	251.5
4	198.7	234.2	303.5	210.7	198.7	190.2	-0.0	136.6	229.4	227.3
5	200.4	230.8	279.6	188.5	200.4	181.1	-0.0	143.1	194.9	195.4
6	197.2	228.8	255.0	176.4	197.2	175.7	-0.0	146.5	161.6	163.1
7	193.4	233.0	237.2	175.5	193.4	174.8	-0.0	154.0	137.3	138.5
8	192.6	233.9	232.2	176.6	192.6	174.9	-0.0	155.2	129.6	130.5
9	190.7	227.4	226.4	170.9	190.7	168.1	-0.0	153.1	122.0	122.5

	ABS MACH NO		REL MACH NO		MERID MACH NO			MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT		VEL R	MACH NO
1	0.554	0.673	1.002	0.699	0.554	0.565		1.066	1.600
2	0.578	0.684	0.993	0.698	0.578	0.579		1.047	1.552
3	0.576	0.684	0.969	0.674	0.576	0.573		1.038	1.514
4	0.605	0.683	0.924	0.615	0.605	0.555		0.958	1.380
5	0.611	0.677	0.852	0.553	0.611	0.531		0.904	1.206
6	0.601	0.675	0.776	0.521	0.601	0.518		0.891	1.031
7	0.588	0.692	0.721	0.521	0.588	0.519		0.904	0.906
8	0.586	0.696	0.706	0.526	0.586	0.520		0.908	0.867
9	0.579	0.676	0.688	0.508	0.579	0.500		0.882	0.829

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	4.6	0.9	3.2	0.455	0.814	0.143	0.099	0.056	0.039
2	10.00	4.8	1.0	3.0	0.446	0.869	0.101	0.066	0.040	0.026
3	15.00	5.5	1.6	3.1	0.456	0.875	0.100	0.074	0.039	0.029
4	30.00	6.3	1.8	3.5	0.491	0.897	0.082	0.074	0.031	0.028
5	50.00	8.2	2.5	4.6	0.507	0.901	0.080	0.080	0.027	0.027
6	70.00	9.9	3.3	5.6	0.478	0.875	0.103	0.103	0.030	0.030
7	85.00	10.7	3.7	4.5	0.423	0.856	0.120	0.120	0.030	0.030
8	90.00	10.8	3.7	4.4	0.397	0.848	0.125	0.125	0.029	0.029
9	95.00	11.0	3.9	4.8	0.395	0.799	0.162	0.162	0.035	0.035

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(y) 120 Percent design speed; reading 2216

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	22.3	53.8	35.9	288.8	1.111	10.10	1.358
2	23.612	23.040	-0.0	22.8	51.4	35.4	288.6	1.112	10.13	1.366
3	22.789	22.327	-0.0	24.1	50.3	33.8	288.3	1.110	10.13	1.361
4	20.368	20.178	-0.0	28.6	45.7	27.9	288.0	1.106	10.14	1.330
5	17.272	17.315	-0.0	32.4	40.8	16.6	288.0	1.104	10.14	1.349
6	14.318	14.453	-0.0	35.7	36.0	4.0	287.9	1.098	10.14	1.334
7	12.197	12.306	0.0	38.1	32.3	-5.6	287.7	1.091	10.14	1.287
8	11.509	11.590	-0.0	38.8	30.9	-8.4	287.7	1.087	10.14	1.256
9	10.831	10.876	0.0	40.0	30.0	-10.1	287.9	1.080	10.08	1.195

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	217.9	276.0	369.4	315.2	217.9	255.3	-0.0	104.9	298.2	289.7
2	230.3	269.8	369.0	305.1	230.3	248.7	-0.0	104.6	288.4	281.4
3	231.5	267.4	362.2	293.9	231.5	244.1	-0.0	109.2	278.6	272.9
4	243.0	261.9	348.1	260.1	243.0	230.0	-0.0	125.4	249.2	246.9
5	245.1	268.8	323.6	236.9	245.1	226.9	-0.0	144.1	211.4	211.9
6	240.7	275.7	297.6	224.4	240.7	223.8	-0.0	160.9	175.1	176.7
7	236.3	279.4	279.6	220.9	236.3	219.8	0.0	172.4	149.5	150.8
8	235.2	277.1	274.1	218.3	235.2	216.0	-0.0	173.6	140.8	141.8
9	229.5	263.0	265.0	204.6	229.5	201.5	0.0	169.1	132.6	133.2

	ABS MACH NO		REL MACH NO		MERID MACH NO				MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT			VEL R	MACH NO
1	0.668	0.819	1.132	0.935	0.668	0.757			1.172	1.579
2	0.709	0.798	1.137	0.902	0.709	0.735			1.080	1.530
3	0.714	0.791	1.117	0.869	0.714	0.722			1.054	1.510
4	0.754	0.775	1.080	0.769	0.754	0.680			0.946	1.410
5	0.761	0.799	1.005	0.704	0.761	0.674			0.926	1.294
6	0.746	0.824	0.922	0.671	0.746	0.669			0.930	1.111
7	0.731	0.840	0.865	0.664	0.731	0.661			0.930	0.977
8	0.727	0.835	0.848	0.658	0.727	0.650			0.918	0.928
9	0.708	0.789	0.817	0.614	0.708	0.604			0.878	0.888

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	2.0	-1.7	3.1	0.283	0.823	0.107	0.050	0.043	0.020
2	10.00	1.8	-2.0	4.4	0.306	0.835	0.100	0.052	0.039	0.020
3	15.00	2.3	-1.6	5.1	0.326	0.835	0.102	0.060	0.039	0.023
4	30.00	2.9	-1.6	5.9	0.401	0.798	0.127	0.103	0.047	0.038
5	50.00	4.7	-0.9	5.1	0.426	0.860	0.095	0.088	0.032	0.030
6	70.00	6.6	-0.0	4.3	0.406	0.875	0.092	0.092	0.027	0.027
7	85.00	7.7	0.6	3.9	0.365	0.816	0.137	0.137	0.034	0.034
8	90.00	7.8	0.7	4.0	0.354	0.777	0.162	0.162	0.038	0.038
9	95.00	8.5	1.3	5.0	0.370	0.655	0.243	0.243	0.053	0.053

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(z) 120 Percent design speed; reading 2215

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	24.458	23.757	-0.0	24.8	53.9	35.4	298.9	1.117	10.10	1.394
2	23.612	23.040	0.0	25.3	51.5	34.8	288.7	1.117	10.13	1.401
3	22.789	22.327	0.0	26.5	50.3	33.4	288.3	1.117	10.13	1.387
4	20.368	20.178	0.0	30.6	45.8	27.0	288.1	1.114	10.14	1.364
5	17.272	17.315	-0.0	33.9	40.9	16.2	288.0	1.106	10.14	1.368
6	14.318	14.453	-0.0	36.5	36.1	4.0	287.9	1.098	10.14	1.335
7	12.197	12.306	0.0	38.8	32.3	-5.7	287.8	1.088	10.14	1.286
8	11.509	11.590	-0.0	39.3	31.0	-8.1	287.7	1.083	10.13	1.255
9	10.831	10.876	0.0	39.7	30.2	-9.0	287.5	1.076	10.07	1.201

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	217.2	271.4	368.6	302.5	217.2	246.4	-0.0	113.8	297.8	289.2
2	229.3	266.3	368.4	293.3	229.3	240.7	0.0	113.9	288.4	281.4
3	230.2	262.6	360.5	281.4	230.2	235.1	0.0	117.0	277.4	271.3
4	241.5	259.8	346.5	251.0	241.5	223.6	0.0	132.3	248.5	246.2
5	243.6	264.6	322.3	228.6	243.6	219.5	-0.0	147.7	210.9	211.5
6	239.2	270.4	296.1	218.0	239.2	217.4	-0.0	160.8	174.6	176.2
7	235.1	273.8	278.3	214.5	235.1	213.5	0.0	171.4	148.9	150.2
8	233.6	270.5	272.7	211.4	233.6	209.3	-0.0	171.3	140.5	141.5
9	227.0	256.3	262.6	199.6	227.0	197.1	0.0	163.8	132.0	132.6

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.665	0.801	1.129	0.892	0.665	0.727	1.135	1.578
2	0.706	0.784	1.134	0.863	0.706	0.709	1.050	1.533
3	0.710	0.772	1.111	0.828	0.710	0.692	1.021	1.507
4	0.749	0.765	1.074	0.739	0.749	0.658	0.926	1.409
5	0.756	0.784	1.000	0.677	0.756	0.650	0.901	1.298
6	0.741	0.807	0.917	0.650	0.741	0.648	0.909	1.108
7	0.727	0.823	0.861	0.645	0.727	0.641	0.908	0.972
8	0.722	0.813	0.843	0.636	0.722	0.629	0.896	0.927
9	0.700	0.769	0.810	0.599	0.700	0.591	0.869	0.887

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	2.0	-1.7	2.6	0.328	0.852	0.094	0.038	0.038	0.015
2	10.00	1.9	-1.9	3.9	0.349	0.864	0.087	0.038	0.034	0.015
3	15.00	2.3	-1.6	4.6	0.367	0.839	0.105	0.064	0.040	0.024
4	30.00	3.0	-1.5	5.0	0.433	0.813	0.126	0.103	0.046	0.038
5	50.00	4.8	-0.8	4.7	0.453	0.881	0.084	0.077	0.029	0.026
6	70.00	6.7	0.1	4.3	0.424	0.876	0.091	0.091	0.027	0.027
7	85.00	7.7	0.6	3.9	0.384	0.851	0.108	0.108	0.027	0.027
8	90.00	7.9	0.8	4.3	0.374	0.810	0.135	0.135	0.031	0.031
9	95.00	8.6	1.5	6.2	0.379	0.704	0.204	0.204	0.045	0.045

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(aa) 120 Percent design speed; reading 2211

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	0.	26.5	54.3	35.5	288.7	1.127	10.09	1.416
2	23.612	23.040	0.0	27.4	51.8	34.7	288.5	1.125	10.12	1.416
3	22.789	22.327	0.0	28.6	50.6	32.9	288.4	1.123	10.12	1.424
4	20.368	20.178	0.	32.5	46.0	26.4	288.2	1.118	10.13	1.389
5	17.272	17.315	0.0	34.9	41.0	16.1	288.0	1.109	10.13	1.375
6	14.318	14.453	0.0	37.4	36.2	3.8	287.9	1.096	10.13	1.341
7	12.197	12.306	0.0	38.9	32.4	-5.6	287.6	1.089	10.13	1.299
8	11.509	11.590	0.0	39.6	31.0	-8.1	287.6	1.083	10.13	1.266
9	10.831	10.876	0.0	39.7	30.3	-8.4	287.6	1.075	10.43	1.209

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	215.1	268.2	368.9	294.9	215.1	240.0	0.	119.7	299.7	291.1
2	227.2	262.3	367.6	283.3	227.2	232.9	0.0	120.7	289.0	282.0
3	228.8	261.0	360.7	273.0	228.8	229.2	0.0	124.8	278.9	273.2
4	241.0	259.1	347.1	244.0	241.0	218.7	0.	139.0	249.7	247.4
5	243.2	262.3	322.4	223.8	243.2	215.1	0.0	150.2	211.7	212.3
6	239.4	268.0	296.9	213.3	239.4	212.8	0.0	162.8	175.5	177.2
7	235.9	273.5	279.3	213.9	235.9	212.9	0.0	171.8	149.6	151.0
8	234.7	269.8	273.9	210.1	234.7	207.9	0.0	171.9	141.3	142.3
9	226.3	254.0	262.8	197.7	226.8	195.5	0.0	162.1	132.7	133.3

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.658	0.736	1.129	0.864	0.658	0.703	1.115	1.593
2	0.699	0.768	1.131	0.829	0.699	0.682	1.025	1.541
3	0.705	0.765	1.111	0.800	0.705	0.671	1.002	1.518
4	0.747	0.761	1.075	0.716	0.747	0.642	0.907	1.417
5	0.755	0.775	1.000	0.661	0.755	0.636	0.884	1.303
6	0.742	0.799	0.919	0.636	0.742	0.635	0.889	1.115
7	0.730	0.822	0.864	0.642	0.730	0.639	0.902	0.978
8	0.726	0.811	0.847	0.632	0.726	0.625	0.886	0.933
9	0.699	0.761	0.810	0.592	0.699	0.586	0.862	0.894

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	2.4	-1.3	2.7	0.357	0.821	0.122	0.063	0.049	0.025
2	10.00	2.2	-1.6	3.7	0.383	0.835	0.112	0.062	0.044	0.024
3	15.00	2.6	-1.3	4.2	0.400	0.863	0.094	0.051	0.036	0.020
4	30.00	3.2	-1.3	4.4	0.462	0.833	0.116	0.092	0.043	0.034
5	50.00	5.0	-0.7	4.6	0.471	0.878	0.087	0.080	0.030	0.027
6	70.00	6.8	0.2	4.1	0.443	0.907	0.067	0.067	0.020	0.020
7	85.00	7.7	0.7	4.0	0.389	0.874	0.092	0.092	0.023	0.023
8	90.00	7.9	0.8	4.3	0.382	0.844	0.110	0.110	0.026	0.026
9	95.00	8.8	1.6	6.8	0.385	0.742	0.176	0.176	0.039	0.039

TABLE VII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(bb) 120 Percent design speed; reading 2208

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	29.0	54.4	35.8	288.9	1.131	10.10	1.431
2	23.612	23.040	-0.0	29.1	52.1	34.6	288.6	1.127	10.13	1.447
3	22.789	22.327	-0.0	30.5	51.1	32.5	288.3	1.128	10.13	1.449
4	20.368	20.178	-0.0	34.2	46.5	25.7	288.0	1.124	10.14	1.419
5	17.272	17.315	-0.0	35.9	41.5	15.9	287.9	1.109	10.14	1.392
6	14.318	14.453	-0.0	38.2	36.7	3.9	287.9	1.099	10.14	1.347
7	12.197	12.306	-0.0	39.6	32.8	-5.1	287.8	1.090	10.14	1.302
8	11.509	11.590	-0.0	39.9	31.4	-7.5	287.9	1.084	10.14	1.270
9	10.831	10.876	-0.0	40.1	30.0	-8.0	287.8	1.076	10.09	1.208

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	214.7	261.2	369.2	281.8	214.7	228.4	-0.0	126.8	300.4	291.8
2	225.8	260.0	367.6	275.8	225.8	227.1	-0.0	126.6	290.1	283.1
3	225.9	259.4	359.8	265.0	225.9	223.4	-0.0	131.6	280.0	274.3
4	237.2	258.0	344.9	236.9	237.2	213.4	-0.0	145.1	250.3	248.0
5	239.6	259.7	319.7	218.7	239.6	210.4	-0.0	152.3	211.6	212.2
6	236.2	264.4	294.4	208.4	236.2	207.9	-0.0	163.4	175.7	177.4
7	232.9	265.4	276.9	205.1	232.9	204.3	-0.0	169.3	149.8	151.2
8	231.8	263.0	271.5	203.5	231.8	201.7	-0.0	168.8	141.4	142.4
9	229.8	248.6	265.5	192.1	229.8	190.2	-0.0	160.0	132.9	133.5

	ABS MACH NO		REL MACH NO		MERID MACH NO				MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT			VEL R	MACH NO
1	0.657	0.762	1.130	0.822	0.657	0.666			1.064	1.598
2	0.694	0.760	1.130	0.806	0.694	0.663			1.006	1.550
3	0.695	0.758	1.107	0.774	0.695	0.653			0.989	1.531
4	0.734	0.755	1.067	0.693	0.734	0.624			0.899	1.430
5	0.742	0.767	0.990	0.646	0.742	0.621			0.878	1.305
6	0.731	0.786	0.911	0.620	0.731	0.618			0.880	1.119
7	0.719	0.793	0.855	0.613	0.719	0.610			0.877	0.983
8	0.716	0.788	0.838	0.609	0.716	0.604			0.870	0.937
9	0.709	0.743	0.819	0.574	0.709	0.568			0.828	0.891

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	2.6	-1.1	3.0	0.402	0.823	0.124	0.063	0.049	0.025
2	10.00	2.5	-1.3	3.6	0.411	0.876	0.086	0.034	0.033	0.013
3	15.00	3.1	-0.8	3.8	0.430	0.875	0.089	0.044	0.035	0.017
4	30.00	3.8	-0.8	3.7	0.487	0.850	0.110	0.085	0.041	0.032
5	50.00	5.4	-0.3	4.4	0.484	0.911	0.065	0.058	0.022	0.020
6	70.00	7.2	0.6	4.1	0.456	0.899	0.076	0.076	0.022	0.022
7	85.00	8.1	1.0	4.5	0.413	0.866	0.101	0.101	0.025	0.025
8	90.00	8.3	1.2	4.9	0.398	0.841	0.115	0.115	0.027	0.027
9	95.00	8.5	1.3	7.2	0.411	0.734	0.179	0.179	0.039	0.039

TABLE VII. - Concluded. BLADE-ELEMENT DATA AT BLADE EDGES

FOR ROTOR 52

(cc) 120 Percent design speed; reading 2207

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	24.458	23.757	-0.0	33.0	55.6	35.6	289.0	1.146	10.09	1.472
2	23.612	23.040	-0.0	33.1	53.6	33.8	288.7	1.142	10.12	1.494
3	22.789	22.327	-0.0	34.1	52.8	32.3	288.3	1.142	10.12	1.482
4	20.368	20.178	-0.0	36.5	48.1	25.3	288.0	1.129	10.14	1.453
5	17.272	17.315	-0.0	38.7	43.0	15.4	287.9	1.113	10.15	1.404
6	14.318	14.453	-0.0	40.2	38.1	3.8	287.9	1.099	10.15	1.349
7	12.197	12.306	-0.0	41.0	34.2	-5.5	287.8	1.089	10.14	1.299
8	11.509	11.590	-0.0	41.1	32.7	-7.8	287.7	1.082	10.14	1.268
9	10.831	10.876	-0.0	41.6	31.5	-9.0	287.8	1.076	10.08	1.224

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	205.4	254.2	363.4	262.4	205.4	213.3	-0.0	138.3	299.7	291.1
2	213.8	255.3	360.2	257.7	213.8	214.0	-0.0	139.3	289.8	282.8
3	212.8	252.9	351.7	247.8	212.8	209.4	-0.0	141.8	280.0	274.3
4	223.8	253.4	335.1	225.3	223.8	203.7	-0.0	150.8	249.4	247.0
5	226.6	252.3	310.1	204.2	226.6	196.9	-0.0	157.8	211.6	212.2
6	223.6	254.7	284.3	195.1	223.6	194.6	-0.0	164.3	175.6	177.2
7	219.8	258.5	265.8	196.1	219.8	195.2	-0.0	169.5	149.5	150.8
8	219.0	255.7	260.4	194.4	219.0	192.6	-0.0	168.2	140.9	141.9
9	216.7	244.3	254.2	185.0	216.7	182.7	-0.0	162.2	132.8	133.4

	ABS MACH NO		REL MACH NO		MERID MACH NO			MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT		VEL R	MACH NO
1	0.626	0.733	1.107	0.757	0.626	0.615		1.038	1.621
2	0.654	0.739	1.102	0.745	0.654	0.619		1.001	1.580
3	0.651	0.732	1.076	0.717	0.651	0.606		0.984	1.568
4	0.688	0.738	1.030	0.656	0.688	0.593		0.910	1.466
5	0.698	0.741	0.955	0.599	0.698	0.578		0.969	1.313
6	0.688	0.754	0.875	0.577	0.688	0.576		0.870	1.124
7	0.675	0.771	0.817	0.585	0.675	0.582		0.888	0.989
8	0.673	0.764	0.800	0.581	0.673	0.575		0.879	0.944
9	0.665	0.728	0.780	0.551	0.665	0.545		0.843	0.904

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	3.7	-0.0	2.8	0.461	0.801	0.156	0.094	0.062	0.037
2	10.00	3.9	0.2	2.9	0.466	0.854	0.114	0.061	0.045	0.024
3	15.00	4.8	0.8	3.6	0.479	0.840	0.129	0.081	0.050	0.031
4	30.00	5.3	0.7	3.3	0.513	0.871	0.103	0.077	0.038	0.029
5	50.00	7.0	1.3	3.9	0.521	0.898	0.081	0.075	0.027	0.026
6	70.00	8.7	2.1	4.0	0.485	0.902	0.078	0.078	0.023	0.023
7	85.00	9.6	2.5	4.1	0.423	0.871	0.103	0.103	0.026	0.026
8	90.00	9.7	2.5	4.6	0.407	0.851	0.114	0.114	0.027	0.027
9	95.00	10.0	2.8	6.2	0.414	0.778	0.163	0.163	0.036	0.036

TABLE VIII. - BLADE-ELEMENT DATA AT BLADE EDGES FOR STATOR 52

(a) 70 Percent design speed; reading 2221

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	14.0	-1.3	14.0	-1.3	297.2	0.997	11.05	0.968
2	22.675	22.700	14.4	-1.0	14.4	-1.0	297.3	0.997	11.08	0.985
3	21.979	22.022	15.2	-1.6	15.2	-1.6	297.2	0.997	11.12	0.989
4	19.888	19.992	19.1	-1.6	19.1	-1.6	297.0	0.996	11.10	0.992
5	17.120	17.315	23.9	-1.3	23.9	-1.3	297.3	0.994	11.24	0.991
6	14.374	14.633	27.8	-0.9	27.8	-0.9	297.1	0.995	11.20	0.993
7	12.332	12.548	30.4	0.7	30.4	0.7	296.7	0.998	11.11	0.995
8	11.654	11.806	31.3	2.8	31.3	2.8	296.5	0.999	11.07	0.981
9	10.980	11.039	32.1	4.1	32.1	4.1	295.8	1.000	10.85	0.974

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	183.0	151.5	183.0	151.5	177.5	151.5	44.4	-3.5	0.	0.
2	182.8	160.8	182.8	160.8	177.0	160.7	45.5	-2.8	0.	0.
3	182.7	164.3	182.7	164.3	176.3	164.3	48.0	-4.6	0.	0.
4	186.2	170.2	186.2	170.2	176.0	170.1	61.0	-4.8	0.	0.
5	189.1	173.6	189.1	173.6	172.8	173.5	76.7	-3.9	0.	0.
6	192.6	175.2	192.6	175.2	170.4	175.2	89.7	-2.8	0.	0.
7	195.6	175.3	195.6	175.3	168.7	175.3	99.0	2.1	0.	0.
8	196.0	166.6	196.0	166.6	167.4	166.4	101.9	8.2	0.	0.
9	188.5	153.3	188.5	153.3	159.7	152.9	100.2	11.0	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.545	0.448	0.545	0.448	0.529	0.448	0.853	0.545
2	0.544	0.476	0.544	0.476	0.527	0.476	0.908	0.544
3	0.544	0.487	0.544	0.487	0.525	0.487	0.932	0.544
4	0.555	0.506	0.555	0.506	0.525	0.506	0.967	0.555
5	0.564	0.517	0.564	0.517	0.516	0.517	1.004	0.564
6	0.576	0.522	0.576	0.522	0.509	0.522	1.028	0.576
7	0.586	0.522	0.586	0.522	0.505	0.522	1.039	0.586
8	0.587	0.495	0.587	0.495	0.502	0.494	0.994	0.587
9	0.564	0.454	0.564	0.454	0.478	0.452	0.957	0.564

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	-0.8	-8.1	2.5	0.283	0.	0.173	0.173	0.073	0.073
2	10.00	-1.7	-9.1	3.2	0.229	0.	0.084	0.084	0.035	0.035
3	15.00	-2.3	-9.6	2.8	0.216	0.	0.058	0.058	0.023	0.023
4	30.00	-2.2	-9.5	3.5	0.214	0.	0.043	0.043	0.016	0.016
5	50.00	-1.9	-9.1	4.5	0.215	0.	0.046	0.046	0.014	0.014
6	70.00	-1.4	-8.6	5.0	0.216	0.	0.034	0.034	0.009	0.009
7	85.00	-1.2	-8.3	6.6	0.215	0.	0.022	0.022	0.005	0.005
8	90.00	-0.8	-7.9	8.6	0.251	0.	0.093	0.093	0.020	0.020
9	95.00	-0.4	-7.6	9.8	0.281	0.	0.132	0.132	0.026	0.026

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(b) 70 Percent design speed; reading 2222

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	20.8	-0.0	20.8	-0.0	299.2	0.998	11.31	0.973
2	22.675	22.700	20.4	0.6	20.4	0.6	299.1	0.997	11.36	0.984
3	21.979	22.022	21.2	0.1	21.2	0.1	298.8	0.998	11.37	0.989
4	19.988	19.992	24.8	-0.3	24.8	-0.3	298.3	0.997	11.37	0.992
5	17.120	17.315	28.8	-0.1	28.8	-0.1	297.5	0.998	11.30	0.996
6	14.374	14.633	32.0	0.3	32.0	0.3	297.0	0.998	11.22	0.997
7	12.332	12.548	34.2	1.8	34.2	1.8	296.2	1.001	11.09	0.994
8	11.654	11.806	34.8	3.6	34.8	3.6	296.2	1.000	11.02	0.982
9	10.980	11.039	35.7	4.4	35.7	4.4	295.7	1.001	10.88	0.976

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	166.8	136.6	166.8	136.6	155.9	136.6	59.4	-0.0	0.	0.
2	167.4	144.7	167.4	144.7	156.9	144.7	58.3	1.6	0.	0.
3	166.1	147.1	166.1	147.1	154.9	147.1	59.9	0.4	0.	0.
4	168.0	150.0	168.0	150.0	152.5	150.0	70.4	-0.7	0.	0.
5	167.1	149.7	167.1	149.7	146.4	149.7	80.6	-0.3	0.	0.
6	169.8	148.1	169.8	148.1	144.0	148.1	90.0	0.8	0.	0.
7	171.2	141.6	171.2	141.6	141.6	141.6	96.3	4.5	0.	0.
8	171.3	130.7	171.3	130.7	140.6	130.4	97.8	8.2	0.	0.
9	167.0	118.4	167.0	118.4	135.6	118.0	97.4	9.1	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.493	0.401	0.493	0.401	0.460	0.401	0.876	0.549
2	0.495	0.425	0.495	0.425	0.464	0.425	0.922	0.495
3	0.491	0.433	0.491	0.433	0.458	0.433	0.949	0.491
4	0.497	0.442	0.497	0.442	0.451	0.442	0.983	0.497
5	0.495	0.442	0.495	0.442	0.434	0.442	1.022	0.495
6	0.504	0.437	0.504	0.437	0.427	0.437	1.028	0.504
7	0.509	0.418	0.509	0.418	0.421	0.417	1.000	0.509
8	0.509	0.384	0.509	0.384	0.418	0.384	0.927	0.509
9	0.496	0.347	0.496	0.347	0.403	0.346	0.870	0.496

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	6.0	-1.3	3.9	0.332	0.	0.174	0.174	0.074	0.074
2	10.00	4.2	-3.1	4.8	0.275	0.	0.103	0.103	0.042	0.042
3	15.00	3.7	-3.6	4.6	0.258	0.	0.072	0.072	0.029	0.029
4	30.00	3.4	-3.9	4.9	0.260	0.	0.053	0.053	0.019	0.019
5	50.00	3.0	-4.2	5.6	0.255	0.	0.024	0.024	0.008	0.008
6	70.00	2.8	-4.4	6.2	0.265	0.	0.020	0.020	0.005	0.005
7	85.00	2.7	-4.5	7.7	0.293	0.	0.036	0.036	0.008	0.008
8	90.00	2.7	-4.4	9.4	0.348	0.	0.113	0.113	0.024	0.024
9	95.00	3.2	-4.0	10.1	0.397	0.	0.152	0.152	0.030	0.030

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(c) 70 Percent design speed; reading 2224

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	26.7	1.7	26.7	1.7	300.7	0.999	11.44	0.976
2	22.675	22.700	25.5	1.8	25.5	1.8	300.3	0.999	11.51	0.981
3	21.979	22.022	26.3	1.2	26.3	1.2	299.9	0.999	11.49	0.988
4	19.888	19.992	29.7	0.4	29.7	0.4	299.2	0.998	11.47	0.992
5	17.120	17.315	33.1	0.4	33.1	0.4	298.2	0.998	11.35	0.997
6	14.374	14.633	35.7	0.7	35.7	0.7	297.3	0.999	11.23	0.996
7	12.332	12.548	37.2	2.8	37.2	2.8	296.1	1.000	11.10	0.990
8	11.654	11.806	37.5	4.3	37.5	4.3	295.9	0.999	11.02	0.979
9	10.980	11.039	38.5	4.9	38.5	4.9	295.5	1.001	10.89	0.978

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	154.3	126.2	154.3	126.2	137.9	126.1	69.3	3.6	0.	0.
2	156.4	132.6	156.4	132.6	141.2	132.6	67.2	4.1	0.	0.
3	154.8	134.9	154.8	134.9	138.7	134.8	68.7	2.8	0.	0.
4	155.8	137.1	155.8	137.1	135.4	137.1	77.1	0.9	0.	0.
5	155.0	135.0	155.0	135.0	129.8	135.0	84.7	1.0	0.	0.
6	156.7	129.5	156.7	129.5	127.2	129.5	91.4	1.5	0.	0.
7	158.1	118.7	158.1	118.7	125.9	118.6	95.6	5.8	0.	0.
8	157.6	106.7	157.6	106.7	125.0	106.4	96.1	8.0	0.	0.
9	153.4	95.1	153.4	95.1	120.1	94.7	95.4	8.2	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.453	0.368	0.453	0.368	0.405	0.368	0.914	0.609
2	0.460	0.388	0.460	0.388	0.415	0.387	0.939	0.573
3	0.455	0.395	0.455	0.395	0.408	0.395	0.972	0.559
4	0.459	0.402	0.459	0.402	0.399	0.402	1.013	0.548
5	0.457	0.396	0.457	0.396	0.383	0.396	1.040	0.524
6	0.463	0.380	0.463	0.380	0.376	0.380	1.018	0.501
7	0.468	0.348	0.468	0.348	0.373	0.346	0.942	0.468
8	0.467	0.312	0.467	0.312	0.370	0.312	0.851	0.467
9	0.454	0.278	0.454	0.278	0.356	0.277	0.788	0.454

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	11.8	4.5	5.5	0.363	0.	0.179	0.179	0.076	0.076
2	10.00	9.3	1.9	5.9	0.318	0.	0.138	0.138	0.057	0.057
3	15.00	8.9	1.5	5.6	0.299	0.	0.093	0.093	0.037	0.037
4	30.00	8.3	1.0	5.5	0.297	0.	0.056	0.056	0.020	0.020
5	50.00	7.3	0.1	6.2	0.297	0.	0.023	0.023	0.007	0.007
6	70.00	6.5	-0.7	6.6	0.323	0.	0.027	0.027	0.007	0.007
7	85.00	5.6	-1.5	8.7	0.376	0.	0.072	0.072	0.016	0.016
8	90.00	5.4	-1.7	10.1	0.442	0.	0.150	0.150	0.032	0.032
9	95.00	6.0	-1.2	10.6	0.494	0.	0.170	0.170	0.034	0.034

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(d) 70 Percent design speed; reading 2225

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	34.7	1.9	34.7	1.9	302.6	0.997	11.42	0.975
2	22.675	22.700	31.4	2.7	31.4	2.7	301.6	0.999	11.51	0.975
3	21.979	22.022	31.7	2.9	31.7	2.9	301.0	0.999	11.54	0.976
4	19.888	19.992	34.4	2.0	34.4	2.0	300.1	0.998	11.48	0.988
5	17.120	17.315	37.1	1.1	37.1	1.1	298.7	0.998	11.35	0.994
6	14.374	14.633	38.8	1.3	38.8	1.3	297.4	0.999	11.21	0.996
7	12.332	12.548	40.0	3.5	40.0	3.5	296.2	1.000	11.06	0.986
8	11.654	11.806	40.3	5.0	40.3	5.0	295.9	0.999	11.02	0.977
9	10.980	11.039	41.1	5.4	41.1	5.4	295.5	1.002	10.92	0.976

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	140.9	112.9	140.9	112.9	115.9	112.9	80.1	3.7	0.	0.
2	144.8	116.9	144.8	116.9	123.6	116.7	75.3	5.6	0.	0.
3	145.3	119.0	145.3	119.0	123.7	118.8	76.3	6.0	0.	0.
4	145.5	124.2	145.5	124.2	120.0	124.1	82.3	4.4	0.	0.
5	144.8	121.7	144.8	121.7	115.5	121.6	87.5	2.2	0.	0.
6	146.0	115.6	146.0	115.6	113.8	115.5	91.4	2.5	0.	0.
7	146.7	100.1	146.7	100.1	112.4	99.9	94.2	6.0	0.	0.
8	147.6	86.8	147.6	86.8	112.6	86.5	95.4	7.6	0.	0.
9	144.8	76.3	144.8	76.3	109.1	75.9	95.1	7.2	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.411	0.328	0.411	0.328	0.338	0.328	0.973	0.665
2	0.423	0.340	0.423	0.340	0.361	0.339	0.944	0.617
3	0.425	0.346	0.425	0.346	0.362	0.346	0.960	0.604
4	0.427	0.363	0.427	0.363	0.352	0.363	1.034	0.585
5	0.426	0.356	0.426	0.356	0.339	0.356	1.054	0.556
6	0.430	0.338	0.430	0.338	0.335	0.338	1.015	0.525
7	0.433	0.293	0.433	0.293	0.332	0.292	0.889	0.489
8	0.436	0.253	0.436	0.253	0.333	0.252	0.768	0.477
9	0.428	0.222	0.428	0.222	0.322	0.221	0.696	0.463

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	19.8	12.5	5.8	0.429	0.	0.224	0.224	0.095	0.095
2	10.00	15.2	7.8	6.9	0.391	0.	0.220	0.220	0.090	0.090
3	15.00	14.2	6.9	7.3	0.375	0.	0.205	0.205	0.082	0.082
4	30.00	13.1	5.8	7.2	0.340	0.	0.102	0.102	0.037	0.037
5	50.00	11.4	4.1	6.8	0.343	0.	0.049	0.049	0.015	0.015
6	70.00	9.6	2.4	7.2	0.367	0.	0.034	0.034	0.009	0.009
7	85.00	8.4	1.2	9.3	0.452	0.	0.097	0.097	0.022	0.022
8	90.00	8.2	1.0	10.8	0.538	0.	0.189	0.189	0.040	0.040
9	95.00	8.6	1.4	11.1	0.594	0.	0.203	0.203	0.040	0.040

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(e) 80 Percent design speed; reading 2219

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	11.2	-2.1	11.2	-2.1	298.4	0.995	11.05	0.958
2	22.675	22.700	11.6	-2.2	11.6	-2.2	298.9	0.995	11.25	0.970
3	21.979	22.022	12.3	-2.6	12.3	-2.6	299.0	0.994	11.31	0.978
4	19.888	19.992	16.9	-2.7	16.9	-2.7	299.6	0.994	11.46	0.985
5	17.120	17.315	22.1	-1.9	22.1	-1.9	300.2	0.993	11.55	0.988
6	14.374	14.633	26.3	-1.4	26.3	-1.4	300.1	0.994	11.54	0.987
7	12.332	12.548	29.2	1.1	29.2	1.1	300.1	0.998	11.45	0.986
8	11.654	11.806	30.0	2.9	30.0	2.9	299.6	0.999	11.35	0.962
9	10.980	11.039	30.6	4.5	30.6	4.5	298.5	1.000	11.01	0.942

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	218.9	183.2	218.9	183.2	214.8	183.1	42.5	-6.8	0.	0.
2	222.7	194.3	222.7	194.3	218.1	194.2	44.8	-7.4	0.	0.
3	222.2	198.7	222.2	198.7	217.2	198.5	47.2	-9.1	0.	0.
4	227.0	208.2	227.0	208.2	217.2	208.0	66.1	-9.9	0.	0.
5	231.1	216.0	231.1	216.0	214.1	215.9	87.1	-7.0	0.	0.
6	235.1	219.3	235.1	219.3	210.7	219.3	104.2	-5.3	0.	0.
7	239.4	220.6	239.4	220.6	209.1	220.6	116.7	4.1	0.	0.
8	239.7	209.2	239.7	209.2	207.7	209.0	119.7	10.8	0.	0.
9	228.6	187.4	228.6	187.4	196.8	186.8	116.4	14.7	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.659	0.546	0.659	0.546	0.647	0.545	0.853	0.659
2	0.671	0.581	0.671	0.581	0.657	0.580	0.890	0.671
3	0.669	0.595	0.669	0.595	0.654	0.594	0.914	0.669
4	0.684	0.625	0.684	0.625	0.655	0.624	0.958	0.684
5	0.697	0.650	0.697	0.650	0.646	0.649	1.008	0.697
6	0.710	0.661	0.710	0.661	0.637	0.660	1.040	0.710
7	0.725	0.663	0.725	0.663	0.633	0.663	1.055	0.725
8	0.726	0.627	0.726	0.627	0.629	0.626	1.006	0.726
9	0.691	0.558	0.691	0.558	0.595	0.556	0.949	0.691

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	-3.6	-11.0	1.8	0.259	0.	0.168	0.168	0.071	0.071
2	10.00	-4.6	-11.9	2.0	0.224	0.	0.117	0.117	0.048	0.048
3	15.00	-5.2	-12.5	1.8	0.207	0.	0.086	0.086	0.034	0.034
4	30.00	-4.4	-11.7	2.4	0.204	0.	0.057	0.057	0.021	0.021
5	50.00	-3.7	-10.9	3.9	0.192	0.	0.042	0.042	0.013	0.013
6	70.00	-2.9	-10.1	4.5	0.189	0.	0.046	0.046	0.012	0.012
7	85.00	-2.4	-9.5	7.0	0.184	0.	0.048	0.048	0.011	0.011
8	90.00	-2.1	-9.3	8.8	0.223	0.	0.130	0.130	0.028	0.028
9	95.00	-1.9	-9.1	10.2	0.269	0.	0.213	0.213	0.042	0.042

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(f) 80 Percent design speed; reading 2220

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	17.2	-0.7	17.2	-0.7	301.4	0.995	11.54	0.961
2	22.675	22.700	17.4	-0.2	17.4	-0.2	301.2	0.996	11.62	0.977
3	21.979	22.022	18.2	-0.6	18.2	-0.6	301.2	0.997	11.60	0.990
4	19.888	19.992	22.0	-0.8	22.0	-0.8	300.8	0.995	11.67	0.989
5	17.120	17.315	26.1	-0.5	26.1	-0.5	300.2	0.994	11.62	0.992
6	14.374	14.633	29.4	-0.1	29.4	-0.1	299.6	0.996	11.53	0.995
7	12.332	12.548	32.1	1.6	32.1	1.6	299.3	0.999	11.42	0.992
8	11.654	11.806	32.8	3.4	32.8	3.4	299.0	0.998	11.35	0.970
9	10.980	11.039	33.7	4.4	33.7	4.4	298.3	0.999	11.07	0.964

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	201.2	164.0	201.2	164.0	192.3	164.0	59.4	-2.1	0.	0.
2	202.2	174.2	202.2	174.2	193.0	174.2	60.4	-0.6	0.	0.
3	199.5	178.3	199.5	178.3	189.5	178.3	62.4	-2.0	0.	0.
4	203.7	182.8	203.7	182.8	188.9	182.8	76.3	-2.6	0.	0.
5	204.7	184.2	204.7	184.2	183.9	184.2	89.9	-1.6	0.	0.
6	207.1	184.5	207.1	184.5	180.4	184.5	101.8	-0.2	0.	0.
7	210.9	181.8	210.9	181.8	178.6	181.7	112.2	5.1	0.	0.
8	211.7	169.2	211.7	169.2	178.0	168.9	114.6	10.2	0.	0.
9	202.8	152.9	202.8	152.9	168.7	152.4	112.6	11.7	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.599	0.483	0.599	0.483	0.572	0.483	0.853	0.599
2	0.602	0.515	0.602	0.515	0.574	0.515	0.903	0.602
3	0.593	0.528	0.593	0.528	0.564	0.527	0.941	0.593
4	0.607	0.542	0.607	0.542	0.563	0.542	0.968	0.607
5	0.611	0.548	0.611	0.548	0.549	0.548	1.002	0.611
6	0.619	0.548	0.619	0.548	0.539	0.548	1.023	0.619
7	0.632	0.540	0.632	0.540	0.535	0.539	1.018	0.632
8	0.635	0.501	0.635	0.501	0.534	0.500	0.949	0.635
9	0.607	0.451	0.607	0.451	0.505	0.449	0.904	0.607

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	2.3	-5.0	3.1	0.315	0.	0.181	0.181	0.077	0.077
2	10.00	1.2	-6.1	4.0	0.263	0.	0.106	0.106	0.044	0.044
3	15.00	0.8	-6.6	3.8	0.235	0.	0.046	0.046	0.018	0.018
4	30.00	0.6	-6.6	4.3	0.243	0.	0.048	0.048	0.017	0.017
5	50.00	0.3	-7.0	5.3	0.239	0.	0.035	0.035	0.011	0.011
6	70.00	0.3	-6.9	5.8	0.238	0.	0.023	0.023	0.006	0.006
7	85.00	0.6	-6.6	7.5	0.252	0.	0.033	0.033	0.007	0.007
8	90.00	0.7	-6.5	9.3	0.305	0.	0.127	0.127	0.027	0.027
9	95.00	1.2	-5.9	10.1	0.345	0.	0.165	0.165	0.033	0.033

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(g) 80 Percent design speed; reading 2196

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	22.2	0.1	22.2	0.1	303.5	0.997	11.72	0.967
2	22.675	22.700	22.1	0.2	22.1	0.2	303.3	0.997	11.73	0.966
3	21.979	22.022	22.0	0.2	22.0	0.2	302.9	0.998	11.83	0.987
4	19.888	19.992	26.1	-0.3	26.1	-0.3	301.7	0.997	11.80	0.992
5	17.120	17.315	29.5	-0.3	29.5	-0.3	300.9	0.997	11.69	0.994
6	14.374	14.633	32.6	0.1	32.6	0.1	300.0	0.998	11.57	0.996
7	12.332	12.548	34.4	1.9	34.4	1.9	299.3	0.999	11.48	0.988
8	11.654	11.806	35.1	3.5	35.1	3.5	298.6	0.999	11.36	0.971
9	10.980	11.039	35.5	4.2	35.5	4.2	298.0	1.001	11.17	0.961

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	188.1	153.4	188.1	153.4	174.2	153.4	71.0	0.4	0.	0.
2	187.6	152.2	187.6	152.2	173.8	152.2	70.7	0.4	0.	0.
3	190.6	166.4	190.6	166.4	176.7	166.4	71.5	0.5	0.	0.
4	191.5	169.4	191.5	169.4	172.0	169.4	84.3	-0.9	0.	0.
5	191.5	168.2	191.5	168.2	166.6	168.2	94.3	-0.8	0.	0.
6	193.4	166.0	193.4	166.0	162.9	166.0	104.2	0.4	0.	0.
7	198.7	159.6	198.7	159.6	164.0	159.6	112.1	5.2	0.	0.
8	197.7	145.3	197.7	145.3	161.8	145.1	113.6	8.8	0.	0.
9	192.4	129.3	192.4	129.3	156.6	129.0	111.8	9.4	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.555	0.449	0.555	0.449	0.514	0.449	0.881	0.652
2	0.554	0.445	0.554	0.445	0.513	0.445	0.875	0.612
3	0.563	0.489	0.563	0.489	0.522	0.489	0.942	0.563
4	0.567	0.499	0.567	0.499	0.510	0.499	0.985	0.567
5	0.568	0.496	0.568	0.496	0.494	0.496	1.009	0.568
6	0.575	0.490	0.575	0.490	0.484	0.490	1.019	0.575
7	0.593	0.471	0.593	0.471	0.489	0.470	0.973	0.593
8	0.590	0.427	0.590	0.427	0.483	0.427	0.897	0.590
9	0.574	0.379	0.574	0.379	0.467	0.378	0.824	0.574

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	7.4	0.0	4.0	0.344	0.	0.172	0.172	0.073	0.073
2	10.00	6.0	-1.4	4.3	0.343	0.	0.183	0.183	0.075	0.075
3	15.00	4.6	-2.8	4.6	0.276	0.	0.069	0.069	0.028	0.028
4	30.00	4.7	-2.5	4.8	0.276	0.	0.041	0.041	0.015	0.015
5	50.00	3.7	-3.5	5.5	0.276	0.	0.029	0.029	0.009	0.009
6	70.00	3.4	-3.8	6.0	0.282	0.	0.018	0.018	0.005	0.005
7	85.00	2.8	-4.4	7.7	0.317	0.	0.058	0.058	0.013	0.013
8	90.00	3.0	-4.2	9.3	0.377	0.	0.139	0.139	0.030	0.030
9	95.00	3.0	-4.1	9.9	0.434	0.	0.194	0.194	0.039	0.039

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(h) 80 Percent design speed; reading 2195

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	25.7	1.3	25.7	1.3	304.7	0.998	11.81	0.970
2	22.675	22.700	24.6	1.4	24.6	1.4	304.1	0.997	11.94	0.977
3	21.979	22.022	25.4	0.8	25.4	0.8	303.7	0.998	11.95	0.983
4	19.888	19.992	28.7	0.0	28.7	0.0	302.5	0.997	11.87	0.992
5	17.120	17.315	32.1	-0.0	32.1	-0.0	301.4	0.997	11.73	0.994
6	14.374	14.633	34.8	0.2	34.8	0.2	300.2	0.998	11.56	0.997
7	12.332	12.548	36.5	2.4	36.5	2.4	299.0	1.000	11.43	0.988
8	11.654	11.806	36.8	3.7	36.8	3.7	298.7	0.998	11.34	0.971
9	10.980	11.039	37.3	4.5	37.3	4.5	298.1	1.001	11.18	0.964

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	179.0	146.2	179.0	146.2	161.3	146.1	77.6	3.4	0.	0.
2	183.4	155.0	183.4	155.0	166.7	155.0	76.4	3.8	0.	0.
3	182.8	157.8	182.8	157.8	165.1	157.8	78.5	2.2	0.	0.
4	182.7	159.9	182.7	159.9	160.3	159.9	87.7	0.0	0.	0.
5	182.6	157.4	182.6	157.4	154.7	157.4	96.9	-0.0	0.	0.
6	183.7	152.9	183.7	152.9	150.7	152.9	104.9	0.7	0.	0.
7	187.3	143.4	187.3	143.4	150.6	143.3	111.4	6.0	0.	0.
8	187.6	128.5	187.6	128.5	150.1	128.2	112.4	8.3	0.	0.
9	183.2	114.4	183.2	114.4	145.8	114.1	110.9	8.9	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.525	0.426	0.525	0.426	0.474	0.426	0.906	0.689
2	0.540	0.453	0.540	0.453	0.491	0.453	0.929	0.656
3	0.538	0.462	0.538	0.462	0.486	0.462	0.956	0.641
4	0.539	0.469	0.539	0.469	0.473	0.469	0.998	0.621
5	0.540	0.463	0.540	0.463	0.457	0.463	1.017	0.592
6	0.544	0.449	0.544	0.449	0.447	0.449	1.014	0.555
7	0.557	0.421	0.557	0.421	0.448	0.421	0.952	0.557
8	0.558	0.376	0.558	0.376	0.447	0.376	0.854	0.558
9	0.545	0.334	0.545	0.334	0.434	0.333	0.702	0.545

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	10.9	3.5	5.2	0.359	0.	0.172	0.172	0.073	0.073
2	10.00	8.5	1.1	5.6	0.318	0.	0.126	0.126	0.052	0.052
3	15.00	8.0	0.6	5.2	0.303	0.	0.094	0.094	0.037	0.037
4	30.00	7.3	0.0	5.1	0.298	0.	0.047	0.047	0.017	0.017
5	50.00	6.3	-1.0	5.7	0.303	0.	0.033	0.033	0.010	0.010
6	70.00	5.6	-1.5	6.1	0.316	0.	0.018	0.018	0.005	0.005
7	85.00	4.9	-2.2	8.3	0.360	0.	0.063	0.063	0.014	0.014
8	90.00	4.7	-2.4	9.5	0.432	0.	0.154	0.154	0.033	0.033
9	95.00	4.8	-2.4	10.2	0.486	0.	0.196	0.196	0.039	0.039

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(i) 80 Percent design speed; reading 2193

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	32.7	1.9	32.7	1.9	307.0	0.997	11.87	0.969
2	22.675	22.700	30.1	2.3	30.1	2.3	305.5	1.000	12.02	0.970
3	21.979	22.022	30.3	2.1	30.3	2.1	304.8	1.000	12.02	0.975
4	19.888	19.992	33.2	1.1	33.2	1.1	303.6	0.998	11.92	0.987
5	17.120	17.315	36.2	0.4	36.2	0.4	302.0	0.998	11.79	0.991
6	14.374	14.633	38.1	0.8	38.1	0.8	300.4	0.998	11.61	0.992
7	12.332	12.548	39.3	3.1	39.3	3.1	299.2	0.999	11.42	0.982
8	11.654	11.806	39.5	4.6	39.5	4.6	298.6	0.999	11.33	0.969
9	10.980	11.039	40.1	5.5	40.1	5.5	298.0	1.003	11.22	0.964

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	165.3	133.6	165.3	133.6	139.2	133.6	89.2	4.5	0.	0.
2	171.4	140.6	171.4	140.6	148.3	140.5	85.8	5.8	0.	0.
3	171.9	143.1	171.9	143.1	148.4	143.0	86.7	5.3	0.	0.
4	171.5	147.1	171.5	147.1	143.5	147.0	93.9	2.7	0.	0.
5	172.0	143.7	172.0	143.7	138.8	143.7	101.7	0.9	0.	0.
6	173.5	136.6	173.5	136.6	136.5	136.6	107.1	1.9	0.	0.
7	175.0	120.5	175.0	120.5	135.3	120.4	110.9	6.6	0.	0.
8	174.9	105.2	174.9	105.2	135.0	104.8	111.3	8.5	0.	0.
9	172.7	93.2	172.7	93.2	132.2	92.8	111.1	9.0	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.482	0.387	0.482	0.387	0.405	0.386	0.959	0.747
2	0.501	0.408	0.501	0.408	0.434	0.408	0.947	0.708
3	0.503	0.416	0.503	0.416	0.435	0.416	0.963	0.691
4	0.503	0.429	0.503	0.429	0.421	0.429	1.024	0.669
5	0.506	0.420	0.506	0.420	0.408	0.420	1.035	0.644
6	0.512	0.400	0.512	0.400	0.403	0.400	1.001	0.612
7	0.518	0.352	0.518	0.352	0.401	0.352	0.889	0.569
8	0.518	0.307	0.518	0.307	0.400	0.306	0.777	0.542
9	0.512	0.271	0.512	0.271	0.392	0.270	0.702	0.512

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	17.8	10.5	5.8	0.409	0.	0.208	0.208	0.088	0.088
2	10.00	13.9	6.5	6.5	0.372	0.	0.193	0.193	0.079	0.079
3	15.00	12.8	5.5	6.5	0.357	0.	0.160	0.160	0.064	0.064
4	30.00	11.8	4.6	6.2	0.335	0.	0.079	0.079	0.028	0.028
5	50.00	10.4	3.2	6.1	0.347	0.	0.054	0.054	0.017	0.017
6	70.00	8.9	1.8	6.7	0.371	0.	0.050	0.050	0.013	0.013
7	85.00	7.8	0.6	9.0	0.444	0.	0.107	0.107	0.024	0.024
8	90.00	7.4	0.2	10.5	0.523	0.	0.186	0.186	0.040	0.040
9	95.00	7.6	0.4	11.2	0.578	0.	0.217	0.217	0.043	0.043

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(j) 80 Percent design speed; reading 2218

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	15.4	-1.2	15.4	-1.2	303.2	0.996	11.70	0.948
2	22.675	22.700	15.1	-1.1	15.1	-1.1	303.7	0.994	11.88	0.965
3	21.979	22.022	16.1	-1.7	16.1	-1.7	303.8	0.994	11.92	0.978
4	19.888	19.992	20.2	-1.7	20.2	-1.7	304.1	0.993	12.06	0.981
5	17.120	17.315	24.7	-0.0	24.7	-0.0	304.1	0.994	12.10	0.983
6	14.374	14.633	27.9	0.6	27.9	0.6	303.0	0.997	11.87	0.987
7	12.332	12.548	30.4	1.8	30.4	1.8	301.7	1.002	11.68	0.987
8	11.654	11.806	31.4	3.1	31.4	3.1	301.9	0.999	11.61	0.949
9	10.980	11.039	32.5	3.8	32.5	3.8	300.9	0.999	11.21	0.929

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	235.6	194.1	235.6	194.1	227.2	194.1	62.4	-4.0	0.	0.
2	239.1	206.8	239.1	206.8	230.8	206.8	62.3	-3.9	0.	0.
3	237.5	211.8	237.5	211.8	228.2	211.7	65.8	-6.3	0.	0.
4	243.6	220.2	243.6	220.2	228.7	220.1	83.9	-6.4	0.	0.
5	247.5	225.3	247.5	225.3	224.8	225.3	103.6	-0.1	0.	0.
6	246.7	226.1	246.7	226.1	218.1	226.1	115.4	2.5	0.	0.
7	248.5	222.5	248.5	222.5	214.4	222.4	125.7	7.1	0.	0.
8	249.7	205.4	249.7	205.4	213.2	205.1	130.0	11.1	0.	0.
9	237.5	180.5	237.5	180.5	200.4	180.1	127.5	11.9	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.708	0.575	0.708	0.575	0.683	0.575	0.854	0.708
2	0.719	0.616	0.719	0.616	0.694	0.616	0.896	0.719
3	0.714	0.632	0.714	0.632	0.686	0.632	0.928	0.714
4	0.733	0.659	0.733	0.659	0.688	0.659	0.962	0.733
5	0.746	0.675	0.746	0.675	0.678	0.675	1.002	0.746
6	0.745	0.678	0.745	0.678	0.659	0.678	1.037	0.745
7	0.753	0.666	0.753	0.666	0.650	0.666	1.038	0.753
8	0.757	0.612	0.757	0.612	0.646	0.611	0.962	0.757
9	0.717	0.534	0.717	0.534	0.605	0.533	0.899	0.717

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	0.5	-6.8	2.7	0.296	0.	0.184	0.184	0.078	0.078
2	10.00	-1.1	-8.4	3.1	0.249	0.	0.122	0.122	0.050	0.050
3	15.00	-1.4	-8.7	2.7	0.230	0.	0.078	0.078	0.031	0.031
4	30.00	-1.2	-8.5	3.5	0.230	0.	0.062	0.062	0.022	0.022
5	50.00	-1.0	-8.3	5.7	0.220	0.	0.056	0.056	0.017	0.017
6	70.00	-1.3	-8.5	6.5	0.203	0.	0.043	0.043	0.011	0.011
7	85.00	-1.2	-8.4	7.7	0.211	0.	0.043	0.043	0.010	0.010
8	90.00	-0.7	-7.9	8.9	0.278	0.	0.161	0.161	0.034	0.034
9	95.00	-0.0	-7.2	9.5	0.337	0.	0.244	0.244	0.049	0.049

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(k) 90 Percent design speed; reading 2190

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	19.6	-0.3	19.6	-0.3	306.3	0.996	12.10	0.950
2	22.675	22.700	19.5	0.2	19.5	0.2	305.3	0.998	12.20	0.972
3	21.979	22.022	20.2	-0.2	20.2	-0.2	305.7	0.996	12.23	0.981
4	19.888	19.992	23.5	-0.5	23.5	-0.5	305.0	0.996	12.20	0.989
5	17.120	17.315	27.5	-0.4	27.5	-0.4	304.2	0.996	12.12	0.992
6	14.374	14.633	30.6	-0.1	30.6	-0.1	303.5	0.997	11.96	0.996
7	12.332	12.548	32.8	1.6	32.8	1.6	302.5	1.000	11.84	0.984
8	11.654	11.806	33.0	3.5	33.0	3.5	301.8	0.998	11.73	0.951
9	10.980	11.039	33.8	4.2	33.8	4.2	300.9	1.000	11.40	0.941

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	222.7	179.2	222.7	179.2	209.8	179.2	74.6	-1.0	0.	0.
2	224.6	191.6	224.6	191.6	211.7	191.6	74.9	0.7	0.	0.
3	224.7	195.5	224.7	195.5	210.9	195.5	77.6	-0.8	0.	0.
4	226.5	200.4	226.5	200.4	207.6	200.4	90.5	-1.9	0.	0.
5	227.3	201.0	227.3	201.0	201.6	201.0	104.9	-1.3	0.	0.
6	229.1	201.1	229.1	201.1	197.3	201.1	116.6	-0.4	0.	0.
7	235.1	194.3	235.1	194.3	197.6	194.3	127.4	5.4	0.	0.
8	235.3	175.9	235.3	175.9	197.4	175.6	128.1	10.7	0.	0.
9	225.3	155.7	225.3	155.7	187.3	155.3	125.3	11.5	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.662	0.526	0.662	0.526	0.624	0.526	0.854	0.687
2	0.669	0.565	0.669	0.565	0.631	0.565	0.905	0.669
3	0.669	0.577	0.669	0.577	0.628	0.577	0.927	0.669
4	0.676	0.593	0.676	0.593	0.620	0.593	0.965	0.676
5	0.679	0.596	0.679	0.596	0.603	0.596	0.997	0.679
6	0.686	0.597	0.686	0.597	0.591	0.597	1.019	0.686
7	0.707	0.576	0.707	0.576	0.594	0.576	0.983	0.707
8	0.709	0.519	0.709	0.519	0.595	0.518	0.889	0.709
9	0.677	0.457	0.677	0.457	0.563	0.456	0.829	0.677

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	4.7	-2.6	3.6	0.339	0.	0.195	0.195	0.083	0.083
2	10.00	3.3	-4.0	4.4	0.283	0.	0.107	0.107	0.044	0.044
3	15.00	2.7	-4.6	4.2	0.269	0.	0.073	0.073	0.029	0.029
4	30.00	2.2	-5.1	4.6	0.262	0.	0.041	0.041	0.015	0.015
5	50.00	1.7	-5.5	5.4	0.261	0.	0.030	0.030	0.009	0.009
6	70.00	1.4	-5.8	5.8	0.256	0.	0.013	0.013	0.004	0.004
7	85.00	1.3	-5.9	7.5	0.290	0.	0.058	0.058	0.013	0.013
8	90.00	0.9	-6.3	9.3	0.358	0.	0.171	0.171	0.036	0.036
9	95.00	1.3	-5.9	9.9	0.410	0.	0.225	0.225	0.045	0.045

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(l) 90 Percent design speed: reading 2189

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	23.2	0.5	23.2	0.5	307.9	0.996	12.21	0 961
2	22.675	22.700	22.5	0.8	22.5	0.8	307.4	0.996	12.36	0.976
3	21.979	22.022	23.0	0.3	23.0	0.3	307.1	0.997	12.38	0.984
4	19.888	19.992	26.1	-0.2	26.1	-0.2	306.0	0.996	12.35	0.989
5	17.120	17.315	29.8	-0.0	29.8	-0.0	304.6	0.996	12.14	0.995
6	14.374	14.633	32.6	0.1	32.6	0.1	303.4	0.998	11.97	0.998
7	12.332	12.548	34.7	2.1	34.7	2.1	302.1	0.999	11.80	0.985
8	11.654	11.806	35.0	3.7	35.0	3.7	301.6	0.998	11.69	0.968
9	10.980	11.039	35.7	4.3	35.7	4.3	300.2	1.001	11.39	0.950

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	210.5	172.2	210.5	172.2	193.5	172.2	83.0	1.4	0.	0.
2	214.3	183.4	214.3	183.4	198.0	183.4	81.9	2.7	0.	0.
3	214.8	187.4	214.8	187.4	197.7	187.4	84.1	1.0	0.	0.
4	217.2	189.8	217.2	189.8	195.0	189.8	95.7	-0.6	0.	0.
5	215.2	188.3	215.2	188.3	186.7	188.3	107.0	-0.2	0.	0.
6	217.0	186.0	217.0	186.0	182.8	186.0	117.0	0.3	0.	0.
7	221.4	176.4	221.4	176.4	181.9	176.3	126.2	6.5	0.	0.
8	221.5	157.7	221.5	157.7	181.4	157.4	127.2	10.2	0.	0.
9	213.0	138.7	213.0	138.7	173.0	138.4	124.3	10.5	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.621	0.503	0.621	0.503	0.571	0.503	0.890	0.756
2	0.634	0.538	0.634	0.538	0.586	0.538	0.926	0.711
3	0.636	0.550	0.636	0.550	0.585	0.550	0.948	0.686
4	0.645	0.559	0.645	0.559	0.579	0.559	0.973	0.645
5	0.640	0.556	0.640	0.556	0.555	0.556	1.008	0.640
6	0.647	0.549	0.647	0.549	0.545	0.549	1.017	0.647
7	0.663	0.520	0.663	0.520	0.545	0.520	0.969	0.663
8	0.664	0.463	0.664	0.463	0.544	0.462	0.867	0.664
9	0.638	0.406	0.638	0.406	0.518	0.405	0.800	0.638

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	8.4	1.0	4.3	0.347	0.	0.171	0.171	0.073	0.073
2	10.00	6.3	-1.0	5.0	0.296	0.	0.102	0.102	0.042	0.042
3	15.00	5.6	-1.8	4.7	0.282	0.	0.066	0.066	0.027	0.027
4	30.00	4.8	-2.5	5.0	0.286	0.	0.047	0.047	0.017	0.017
5	50.00	4.0	-3.2	5.7	0.280	0.	0.019	0.019	0.006	0.006
6	70.00	3.4	-3.8	6.0	0.283	0.	0.010	0.010	0.003	0.003
7	85.00	3.2	-4.0	8.0	0.324	0.	0.057	0.057	0.013	0.013
8	90.00	2.9	-4.2	9.5	0.400	0.	0.165	0.165	0.035	0.035
9	95.00	3.2	-4.0	10.0	0.455	0.	0.207	0.207	0.041	0.041

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(m) 90 Percent design speed; reading 2188

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	26.1	1.5	26.1	1.5	309.7	0.998	12.40	0.962
2	22.675	22.700	25.6	1.6	25.6	1.6	308.8	0.997	12.51	0.974
3	21.979	22.022	26.1	1.0	26.1	1.0	308.1	0.997	12.58	0.976
4	19.888	19.992	29.2	-0.0	29.2	-0.0	306.5	0.997	12.42	0.989
5	17.120	17.315	32.6	-0.0	32.6	-0.0	305.0	0.997	12.19	0.995
6	14.374	14.633	35.2	0.4	35.2	0.4	303.4	0.999	11.98	0.997
7	12.332	12.548	36.6	2.6	36.6	2.6	302.3	0.999	11.81	0.981
8	11.654	11.806	36.9	4.1	36.9	4.1	301.4	0.998	11.65	0.961
9	10.980	11.039	37.8	4.8	37.8	4.8	300.4	1.002	11.41	0.956

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	203.0	165.4	203.0	165.4	182.2	165.3	89.4	4.4	0.	0.
2	206.1	174.6	206.1	174.6	185.8	174.6	89.2	5.0	0.	0.
3	207.2	177.5	207.2	177.5	186.1	177.4	91.0	3.2	0.	0.
4	206.1	179.1	206.1	179.1	180.0	179.1	100.5	-0.1	0.	0.
5	203.8	175.6	203.8	175.6	171.7	175.6	109.9	-0.0	0.	0.
6	206.0	170.8	206.0	170.8	168.4	170.8	118.7	1.1	0.	0.
7	209.9	156.5	209.9	156.5	168.4	156.4	125.3	7.2	0.	0.
8	208.8	138.6	208.8	138.6	167.0	138.3	125.3	9.9	0.	0.
9	202.3	122.3	202.3	122.3	160.0	121.9	123.9	10.2	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.595	0.480	0.595	0.480	0.535	0.480	0.907	0.790
2	0.606	0.509	0.606	0.509	0.546	0.509	0.940	0.761
3	0.610	0.518	0.610	0.518	0.548	0.518	0.954	0.742
4	0.609	0.525	0.609	0.525	0.531	0.525	0.995	0.715
5	0.603	0.516	0.603	0.516	0.508	0.516	1.023	0.678
6	0.612	0.502	0.612	0.502	0.500	0.502	1.014	0.641
7	0.625	0.459	0.625	0.459	0.502	0.458	0.929	0.625
8	0.623	0.405	0.623	0.405	0.498	0.404	0.828	0.623
9	0.603	0.356	0.603	0.356	0.477	0.355	0.762	0.603

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	11.3	4.0	5.4	0.363	0.	0.177	0.177	0.075	0.075
2	10.00	9.5	2.1	5.8	0.321	0.	0.120	0.120	0.050	0.050
3	15.00	8.6	1.3	5.5	0.313	0.	0.107	0.107	0.043	0.043
4	30.00	7.8	0.5	5.1	0.307	0.	0.050	0.050	0.018	0.018
5	50.00	6.8	-0.4	5.7	0.306	0.	0.023	0.023	0.007	0.007
6	70.00	6.0	-1.2	6.3	0.320	0.	0.013	0.013	0.004	0.004
7	85.00	5.1	-2.1	8.5	0.380	0.	0.084	0.084	0.019	0.019
8	90.00	4.8	-2.4	9.9	0.453	0.	0.170	0.170	0.036	0.036
9	95.00	5.3	-1.9	10.5	0.508	0.	0.200	0.200	0.040	0.040

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(n) 90 Percent design speed; reading 2187

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	32.3	1.7	32.3	1.7	311.1	0.999	12.35	0.961
2	22.675	22.700	29.3	2.2	29.3	2.2	310.3	0.998	12.58	0.959
3	21.979	22.022	30.1	1.9	30.1	1.9	309.3	0.998	12.55	0.969
4	19.888	19.992	33.2	1.1	33.2	1.1	307.4	0.998	12.41	0.985
5	17.120	17.315	36.1	0.2	36.1	0.2	305.5	0.997	12.22	0.991
6	14.374	14.633	37.9	0.6	37.9	0.6	303.8	0.998	12.00	0.991
7	12.332	12.548	39.0	2.7	39.0	2.7	302.0	0.999	11.78	0.975
8	11.654	11.806	39.4	4.7	39.4	4.7	301.4	0.998	11.67	0.958
9	10.980	11.039	39.9	5.6	39.9	5.6	300.7	1.001	11.50	0.959

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	186.2	149.7	186.2	149.7	157.3	149.7	99.6	4.3	0.	0.
2	194.5	157.8	194.5	157.8	169.6	157.6	95.1	5.9	0.	0.
3	193.8	161.3	193.8	161.3	167.8	161.2	97.1	5.3	0.	0.
4	193.1	164.7	193.1	164.7	161.7	164.7	105.6	3.2	0.	0.
5	193.0	161.3	193.0	161.3	156.0	161.3	113.6	0.6	0.	0.
6	195.0	153.8	195.0	153.8	153.8	153.8	119.9	1.6	0.	0.
7	197.5	135.1	197.5	135.1	153.5	134.9	124.3	6.5	0.	0.
8	198.0	117.7	198.0	117.7	153.1	117.3	125.6	9.7	0.	0.
9	194.0	107.8	194.0	107.8	148.9	107.3	124.4	10.6	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.542	0.432	0.542	0.432	0.458	0.431	0.631	0.834
2	0.568	0.456	0.568	0.456	0.496	0.456	0.929	0.788
3	0.567	0.468	0.567	0.468	0.491	0.468	0.961	0.774
4	0.567	0.480	0.567	0.480	0.475	0.480	1.019	0.752
5	0.568	0.471	0.568	0.471	0.459	0.471	1.034	0.720
6	0.576	0.449	0.576	0.449	0.455	0.449	1.000	0.684
7	0.586	0.394	0.586	0.394	0.456	0.394	0.879	0.633
8	0.588	0.343	0.588	0.343	0.455	0.341	0.766	0.609
9	0.576	0.313	0.576	0.313	0.442	0.311	0.721	0.576

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	17.5	10.2	5.5	0.413	0.	0.213	0.213	0.090	0.090
2	10.00	13.1	5.8	6.3	0.378	0.	0.206	0.206	0.085	0.085
3	15.00	12.6	5.3	6.3	0.357	0.	0.159	0.159	0.063	0.063
4	30.00	11.8	4.5	6.2	0.339	0.	0.078	0.078	0.028	0.028
5	50.00	10.3	3.0	6.0	0.346	0.	0.045	0.045	0.014	0.014
6	70.00	8.8	1.6	6.5	0.370	0.	0.044	0.044	0.011	0.011
7	85.00	7.4	0.3	8.6	0.450	0.	0.120	0.120	0.027	0.027
8	90.00	7.3	0.1	10.5	0.529	0.	0.203	0.203	0.043	0.043
9	95.00	7.3	0.2	11.3	0.561	0.	0.202	0.202	0.040	0.040

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(o) 100 Percent design speed; reading 2217

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	18.4	-0.9	18.4	-0.9	310.3	0.993	12.46	0.940
2	22.675	22.700	18.7	-0.2	18.7	-0.2	309.9	0.994	12.65	0.964
3	21.979	22.022	19.4	-0.3	19.4	-0.3	309.6	0.994	12.71	0.975
4	19.888	19.992	23.2	-0.2	23.2	-0.2	309.3	0.993	12.73	0.981
5	17.120	17.315	27.2	1.6	27.2	1.6	308.3	0.994	12.62	0.979
6	14.374	14.633	29.9	1.9	29.9	1.9	307.0	0.997	12.39	0.985
7	12.332	12.548	32.2	2.5	32.2	2.5	305.6	1.000	12.10	0.974
8	11.654	11.806	33.0	3.6	33.0	3.6	304.6	0.998	11.92	0.934
9	10.980	11.039	34.0	3.8	34.0	3.8	303.7	0.997	11.51	0.914

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	252.0	204.0	252.0	204.0	239.1	204.0	79.7	-3.2	0.	0.
2	255.0	219.3	255.0	219.3	241.5	219.3	81.9	-0.8	0.	0.
3	254.2	223.5	254.2	223.5	239.8	223.5	84.4	-1.3	0.	0.
4	258.2	228.9	258.2	228.9	237.3	228.9	101.9	-0.6	0.	0.
5	260.0	230.0	260.0	230.0	231.3	229.9	119.8	6.6	0.	0.
6	262.0	230.4	262.0	230.4	227.1	230.3	130.8	7.7	0.	0.
7	262.7	219.9	262.7	219.9	222.3	219.7	140.0	9.4	0.	0.
8	260.6	196.0	260.6	196.0	218.6	195.6	141.8	12.3	0.	0.
9	248.6	168.9	248.6	168.9	206.1	168.6	139.0	11.1	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.753	0.600	0.753	0.600	0.714	0.600	0.853	0.753
2	0.764	0.649	0.764	0.649	0.723	0.649	0.908	0.764
3	0.761	0.663	0.761	0.663	0.718	0.663	0.932	0.761
4	0.775	0.681	0.775	0.681	0.712	0.681	0.965	0.775
5	0.783	0.686	0.783	0.686	0.696	0.685	0.994	0.783
6	0.791	0.687	0.791	0.687	0.686	0.687	1.014	0.791
7	0.796	0.654	0.796	0.654	0.673	0.653	0.988	0.796
8	0.790	0.579	0.790	0.579	0.663	0.578	0.895	0.790
9	0.751	0.496	0.751	0.496	0.622	0.495	0.818	0.751

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	3.6	-3.7	3.0	0.330	0.	0.192	0.192	0.082	0.082
2	10.00	2.6	-4.8	3.9	0.274	0.	0.111	0.111	0.046	0.046
3	15.00	1.9	-5.4	4.1	0.256	0.	0.077	0.077	0.031	0.031
4	30.00	1.9	-5.4	5.0	0.257	0.	0.059	0.059	0.021	0.021
5	50.00	1.4	-5.8	7.4	0.249	0.	0.064	0.064	0.020	0.020
6	70.00	0.7	-6.4	7.8	0.243	0.	0.045	0.045	0.012	0.012
7	85.00	0.6	-6.5	8.4	0.274	0.	0.076	0.076	0.017	0.017
8	90.00	0.9	-6.3	9.4	0.353	0.	0.196	0.196	0.042	0.042
9	95.00	1.5	-5.7	9.5	0.423	0.	0.275	0.275	0.055	0.055

TABLE VIII. - Continued. BLADE-ELFMENT DATA AT BLADE EDGES

FOR STATOR 52

(p) 100 Percent design speed; reading 2185

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	22.1	-0.1	22.1	-0.1	311.5	0.995	12.73	0.948
2	22.675	22.700	21.1	0.5	21.1	0.5	311.5	0.995	12.93	0.967
3	21.979	22.022	22.0	0.3	22.0	0.3	311.2	0.994	13.00	0.975
4	19.888	19.992	25.4	-0.3	25.4	-0.3	310.1	0.996	12.91	0.987
5	17.120	17.315	29.0	0.3	29.0	0.3	309.0	0.995	12.72	0.993
6	14.374	14.633	31.5	0.4	31.5	0.4	307.1	0.998	12.50	0.991
7	12.332	12.548	33.1	2.6	33.1	2.6	306.0	0.997	12.25	0.968
8	11.654	11.806	33.8	4.3	33.8	4.3	305.4	0.995	12.10	0.931
9	10.980	11.039	34.7	4.8	34.7	4.8	304.1	0.997	11.70	0.918

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	243.3	195.8	243.3	195.8	225.4	195.8	91.5	-0.5	0.	0.
2	247.9	209.3	247.9	209.3	231.2	209.3	89.4	1.9	0.	0.
3	248.2	213.6	248.2	213.6	230.2	213.6	92.8	1.0	0.	0.
4	250.1	217.7	250.1	217.7	225.9	217.7	107.3	-1.1	0.	0.
5	251.1	218.8	251.1	218.8	219.5	218.8	121.9	1.1	0.	0.
6	253.0	215.1	253.0	215.1	215.7	215.1	132.3	1.5	0.	0.
7	257.0	200.4	257.0	200.4	215.3	200.2	140.4	9.0	0.	0.
8	255.8	178.2	255.8	178.2	212.7	177.7	142.1	13.3	0.	0.
9	244.2	153.4	244.2	153.4	200.7	152.9	139.1	12.9	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.723	0.573	0.723	0.573	0.670	0.573	0.869	0.846
2	0.738	0.615	0.738	0.615	0.688	0.615	0.905	0.773
3	0.739	0.629	0.739	0.629	0.686	0.629	0.928	0.739
4	0.747	0.643	0.747	0.643	0.675	0.643	0.964	0.747
5	0.752	0.648	0.752	0.648	0.657	0.648	0.997	0.752
6	0.761	0.637	0.761	0.637	0.648	0.637	0.997	0.761
7	0.776	0.592	0.776	0.592	0.650	0.591	0.930	0.775
8	0.773	0.524	0.773	0.524	0.642	0.522	0.836	0.773
9	0.735	0.448	0.735	0.448	0.604	0.447	0.762	0.735

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS	F	LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	7.3	-0.1	3.7	0.356	0.	0.176	0.176	0.075	0.075
2	10.00	5.0	-2.4	4.7	0.301	0.	0.108	0.108	0.044	0.044
3	15.00	4.5	-2.8	4.7	0.287	0.	0.081	0.081	0.032	0.032
4	30.00	4.0	-3.2	4.9	0.286	0.	0.042	0.042	0.015	0.015
5	50.00	3.3	-4.0	6.0	0.278	0.	0.023	0.023	0.007	0.007
6	70.00	2.3	-4.8	6.3	0.285	0.	0.027	0.027	0.007	0.007
7	85.00	1.5	-5.6	8.5	0.335	0.	0.099	0.099	0.022	0.022
8	90.00	1.7	-5.5	10.1	0.410	0.	0.211	0.211	0.045	0.045
9	95.00	2.2	-4.9	10.5	0.475	0.	0.273	0.273	0.054	0.054

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(q) 100 Percent design speed; reading 2184

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	23.7	0.6	23.7	0.6	312.7	0.997	12.91	0.950
2	22.675	22.700	22.7	0.8	22.7	0.8	312.3	0.997	13.11	0.964
3	21.979	22.022	23.7	0.5	23.7	0.5	312.4	0.996	13.13	0.976
4	19.888	19.992	27.1	-0.1	27.1	-0.1	311.2	0.995	13.05	0.986
5	17.120	17.315	30.1	0.2	30.1	0.2	309.4	0.995	12.81	0.991
6	14.374	14.633	32.8	0.4	32.8	0.4	307.6	0.997	12.49	0.994
7	12.332	12.548	34.2	2.7	34.2	2.7	306.0	0.997	12.24	0.972
8	11.654	11.806	35.3	4.0	35.3	4.0	305.0	0.997	12.05	0.941
9	10.980	11.039	35.4	4.8	35.4	4.8	303.9	0.999	11.71	0.928

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	238.0	192.1	238.0	192.1	217.9	192.1	95.7	2.1	0.	0.
2	242.7	203.4	242.7	203.4	223.9	203.4	93.8	3.0	0.	0.
3	242.0	208.3	242.0	208.3	221.6	208.3	97.4	2.0	0.	0.
4	244.4	211.6	244.4	211.6	217.6	211.6	111.2	-0.4	0.	0.
5	245.1	210.2	245.1	210.2	212.0	210.2	123.0	0.9	0.	0.
6	244.8	205.3	244.8	205.3	205.7	205.3	132.8	1.4	0.	0.
7	248.4	189.4	248.4	189.4	205.4	189.2	139.7	8.8	0.	0.
8	246.6	168.0	246.6	168.0	201.3	167.6	142.5	11.8	0.	0.
9	237.3	145.4	237.3	145.4	193.3	144.9	137.6	12.2	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.704	0.559	0.704	0.559	0.644	0.559	0.882	0.870
2	0.720	0.595	0.720	0.595	0.664	0.595	0.909	0.817
3	0.717	0.611	0.717	0.611	0.657	0.611	0.940	0.800
4	0.727	0.623	0.727	0.623	0.647	0.623	0.972	0.779
5	0.731	0.620	0.731	0.620	0.632	0.620	0.992	0.731
6	0.733	0.606	0.733	0.606	0.616	0.606	0.998	0.733
7	0.747	0.557	0.747	0.557	0.618	0.557	0.921	0.747
8	0.742	0.492	0.742	0.492	0.606	0.491	0.833	0.742
9	0.713	0.424	0.713	0.424	0.581	0.422	0.750	0.713

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	8.9	1.5	4.5	0.360	0.	0.178	0.178	0.076	0.076
2	10.00	6.6	-0.8	5.0	0.316	0.	0.123	0.123	0.051	0.051
3	15.00	6.3	-1.1	5.0	0.297	0.	0.082	0.082	0.033	0.033
4	30.00	5.7	-1.6	5.0	0.299	0.	0.048	0.048	0.017	0.017
5	50.00	4.3	-2.9	6.0	0.297	0.	0.029	0.029	0.009	0.009
6	70.00	3.6	-3.5	6.3	0.301	0.	0.020	0.020	0.005	0.005
7	85.00	2.7	-4.5	8.6	0.355	0.	0.091	0.091	0.020	0.020
8	90.00	3.2	-4.0	9.8	0.431	0.	0.194	0.194	0.041	0.041
9	95.00	2.9	-4.2	10.5	0.493	0.	0.250	0.250	0.050	0.050

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(r) 100 Percent design speed; reading 2200

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	27.1	1.6	27.1	1.6	314.9	0.997	13.14	0.954
2	22.675	22.700	26.5	1.8	26.5	1.8	314.5	0.996	13.29	0.964
3	21.979	22.022	27.2	1.2	27.2	1.2	313.8	0.996	13.29	0.973
4	19.888	19.992	30.2	0.3	30.2	0.3	312.1	0.995	13.15	0.984
5	17.120	17.315	33.1	0.1	33.1	0.1	309.4	0.996	12.80	0.992
6	14.374	14.633	35.6	0.3	35.6	0.3	306.8	0.999	12.44	0.996
7	12.332	12.548	36.9	2.7	36.9	2.7	305.4	0.997	12.17	0.972
8	11.654	11.806	37.3	4.4	37.3	4.4	304.5	0.996	12.02	0.946
9	10.983	11.039	37.9	5.2	37.9	5.2	303.4	0.999	11.71	0.943

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	226.6	184.7	226.6	184.7	201.7	184.6	103.3	5.1	0.	0.
2	230.0	193.4	230.0	193.4	206.0	193.3	102.5	6.1	0.	0.
3	228.6	196.1	228.6	196.1	203.4	196.0	104.4	4.1	0.	0.
4	230.5	198.3	230.5	198.3	199.3	198.3	115.8	1.1	0.	0.
5	227.3	193.0	227.3	193.0	190.3	193.0	124.2	0.2	0.	0.
6	226.6	185.3	226.6	185.3	184.4	185.3	131.8	0.9	0.	0.
7	230.3	165.5	230.3	165.5	184.2	165.3	138.1	7.9	0.	0.
8	229.7	144.4	229.7	144.4	182.7	144.0	139.2	11.1	0.	0.
9	221.8	126.0	221.8	126.0	175.1	125.5	136.2	11.4	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.664	0.535	0.664	0.535	0.591	0.534	0.915	0.905
2	0.676	0.562	0.676	0.562	0.605	0.562	0.939	0.869
3	0.672	0.571	0.672	0.571	0.598	0.571	0.964	0.847
4	0.681	0.580	0.681	0.580	0.588	0.580	0.995	0.827
5	0.673	0.566	0.673	0.566	0.564	0.566	1.014	0.773
6	0.674	0.543	0.674	0.543	0.548	0.543	1.005	0.723
7	0.688	0.484	0.688	0.484	0.550	0.483	0.897	0.688
8	0.687	0.421	0.687	0.421	0.546	0.420	0.788	0.687
9	0.663	0.366	0.663	0.366	0.523	0.364	0.717	0.663

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	12.3	5.0	5.5	0.369	0.	0.180	0.180	0.076	0.076
2	10.00	10.3	2.9	6.0	0.332	0.	0.136	0.136	0.056	0.056
3	15.00	9.7	2.4	5.6	0.318	0.	0.104	0.104	0.042	0.042
4	30.00	8.8	1.5	5.5	0.320	0.	0.060	0.060	0.022	0.022
5	50.00	7.3	0.1	5.8	0.320	0.	0.030	0.030	0.010	0.010
6	70.00	6.4	-0.8	6.2	0.333	0.	0.015	0.015	0.004	0.004
7	85.00	5.3	-1.9	8.6	0.408	0.	0.103	0.103	0.023	0.023
8	90.00	5.2	-2.0	10.2	0.489	0.	0.201	0.201	0.043	0.043
9	95.00	5.4	-1.8	10.9	0.544	0.	0.225	0.225	0.045	0.045

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(s) 100 Percent design speed; reading 2182

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	29.6	1.5	29.6	1.5	316.3	0.999	13.21	0.955
2	22.675	22.700	30.0	2.0	30.0	2.0	316.3	0.997	13.38	0.962
3	21.979	22.022	29.6	1.8	29.6	1.8	315.1	0.998	13.42	0.967
4	19.888	19.992	32.3	0.9	32.3	0.9	312.9	0.997	13.25	0.981
5	17.120	17.315	35.1	0.1	35.1	0.1	310.1	0.997	12.83	0.992
6	14.374	14.633	36.8	0.4	36.8	0.4	307.9	0.997	12.48	0.993
7	12.332	12.548	38.5	3.2	38.5	3.2	305.5	0.997	12.18	0.968
8	11.654	11.806	38.7	5.0	38.7	5.0	304.7	0.998	12.03	0.946
9	10.980	11.039	39.6	6.1	39.6	6.1	303.9	1.000	11.74	0.944

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	218.8	180.4	218.8	180.4	190.3	180.3	108.0	4.8	0.	0.
2	224.3	188.6	224.3	188.6	194.2	188.5	112.2	6.5	0.	0.
3	225.1	191.0	225.1	191.0	195.7	190.9	111.3	5.9	0.	0.
4	226.2	192.2	226.2	192.2	191.2	192.2	120.8	2.9	0.	0.
5	222.2	186.4	222.2	186.4	181.9	186.4	127.7	0.4	0.	0.
6	221.7	176.1	221.7	176.1	177.5	176.1	132.8	1.2	0.	0.
7	224.8	152.7	224.8	152.7	175.8	152.5	140.0	8.4	0.	0.
8	224.1	133.1	224.1	133.1	175.0	132.6	140.0	11.7	0.	0.
9	216.8	114.7	216.8	114.7	167.1	114.0	138.2	12.1	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.638	0.520	0.638	0.520	0.555	0.520	0.948	0.923
2	0.656	0.545	0.656	0.545	0.568	0.545	0.970	0.926
3	0.660	0.554	0.660	0.554	0.573	0.553	0.976	0.890
4	0.666	0.560	0.666	0.560	0.563	0.560	1.005	0.862
5	0.656	0.544	0.656	0.544	0.537	0.544	1.025	0.806
6	0.657	0.515	0.657	0.515	0.526	0.515	0.992	0.747
7	0.670	0.445	0.670	0.445	0.524	0.444	0.867	0.705
8	0.669	0.387	0.669	0.387	0.522	0.385	0.758	0.669
9	0.646	0.332	0.646	0.332	0.498	0.330	0.682	0.646

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	14.8	7.4	5.4	0.376	0.	0.187	0.187	0.079	0.079
2	10.00	13.8	6.5	6.1	0.353	0.	0.151	0.151	0.062	0.062
3	15.00	12.2	4.8	6.2	0.338	0.	0.131	0.131	0.052	0.052
4	30.00	10.9	3.6	6.0	0.339	0.	0.072	0.072	0.026	0.026
5	50.00	9.3	2.0	5.9	0.339	0.	0.033	0.033	0.010	0.010
6	70.00	7.6	0.4	6.3	0.360	0.	0.028	0.028	0.007	0.007
7	85.00	7.0	-0.2	9.1	0.451	0.	0.125	0.125	0.028	0.028
8	90.00	6.6	-0.6	10.9	0.527	0.	0.209	0.209	0.044	0.044
9	95.00	7.1	-0.1	11.8	0.587	0.	0.230	0.230	0.046	0.046

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(t) 110 Percent design speed; reading 2205

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	21.9	-0.1	21.9	-0.1	315.7	0.995	13.12	0.939
2	22.675	22.700	21.5	0.6	21.5	0.6	315.4	0.995	13.33	0.959
3	21.979	22.022	22.8	0.2	22.8	0.2	315.5	0.994	13.30	0.977
4	19.888	19.992	26.6	-0.2	26.6	-0.2	315.1	0.992	13.31	0.981
5	17.120	17.315	29.6	0.7	29.6	0.7	313.5	0.993	13.28	0.980
6	14.374	14.633	32.3	1.0	32.3	1.0	311.1	0.996	13.00	0.979
7	12.332	12.548	34.1	3.0	34.1	3.0	309.5	0.994	12.62	0.946
8	11.654	11.806	34.4	4.2	34.4	4.2	308.4	0.992	12.33	0.911
9	10.980	11.039	35.1	4.8	35.1	4.8	306.4	0.996	11.73	0.918

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	260.6	207.3	260.6	207.3	241.7	207.3	97.4	-0.2	0.	0.
2	264.5	221.0	264.5	221.0	246.1	220.9	96.9	2.3	0.	0.
3	262.7	225.9	262.7	225.9	242.2	225.9	101.6	0.9	0.	0.
4	267.1	230.2	267.1	230.2	238.9	230.2	119.4	-0.7	0.	0.
5	273.4	232.7	273.4	232.7	237.6	232.7	135.2	2.7	0.	0.
6	276.1	228.9	276.1	228.9	233.5	228.8	147.3	4.1	0.	0.
7	277.5	206.1	277.5	206.1	229.9	205.8	155.5	10.9	0.	0.
8	272.8	179.5	272.8	179.5	225.0	179.0	154.2	15.2	0.	0.
9	255.6	157.6	255.6	157.6	209.2	157.0	146.9	13.3	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.774	0.605	0.774	0.605	0.718	0.605	0.858	0.901
2	0.788	0.648	0.788	0.648	0.733	0.648	0.898	0.843
3	0.781	0.664	0.781	0.664	0.721	0.664	0.933	0.829
4	0.797	0.679	0.797	0.679	0.713	0.679	0.964	0.827
5	0.821	0.689	0.821	0.689	0.713	0.689	0.979	0.821
6	0.833	0.678	0.833	0.678	0.705	0.678	0.980	0.833
7	0.841	0.607	0.841	0.607	0.696	0.607	0.895	0.841
8	0.826	0.526	0.826	0.526	0.681	0.524	0.795	0.826
9	0.771	0.459	0.771	0.459	0.631	0.458	0.750	0.771

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	7.1	-0.2	3.8	0.363	0.	0.187	0.187	0.080	0.080
2	10.00	5.3	-2.0	4.8	0.312	0.	0.121	0.121	0.050	0.050
3	15.00	5.3	-2.0	4.6	0.293	0.	0.068	0.068	0.027	0.027
4	30.00	5.2	-2.1	5.0	0.300	0.	0.056	0.056	0.020	0.020
5	50.00	3.8	-3.4	6.4	0.299	0.	0.056	0.056	0.017	0.017
6	70.00	3.1	-4.1	6.9	0.306	0.	0.056	0.056	0.015	0.015
7	85.00	2.5	-4.7	8.9	0.374	0.	0.146	0.146	0.033	0.033
8	90.00	2.3	-4.8	10.0	0.451	0.	0.246	0.246	0.052	0.052
9	95.00	2.6	-4.6	10.5	0.488	0.	0.252	0.252	0.050	0.050

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(u) 110 Percent design speed; reading 2204

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	24.5	0.8	24.5	0.8	318.4	0.995	13.56	0.941
2	22.675	22.700	24.1	1.3	24.1	1.3	317.8	0.995	13.72	0.958
3	21.979	22.022	25.1	0.9	25.1	0.9	317.5	0.994	13.73	0.969
4	19.888	19.992	28.6	-0.2	28.6	-0.2	316.4	0.992	13.61	0.983
5	17.120	17.315	31.4	0.1	31.4	0.1	313.9	0.995	13.40	0.992
6	14.374	14.633	33.4	0.7	33.4	0.7	311.2	0.998	13.07	0.992
7	12.332	12.548	35.2	3.3	35.2	3.3	309.6	0.995	12 .1	0.957
8	11.654	11.806	35.2	4.6	35.2	4.6	308.2	0.993	1. 58	0.918
9	10.980	11.039	35.9	5.2	35.9	5.2	306.2	0.997	11.82	0.927

	ABS VEL		REL VEL		MERID VEL		TA'. VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	'.	OUT	IN	OUT
1	258.4	205.9	258.4	205.9	235.1	205.9	107.2	2.8	0.	0.
2	260.8	216.0	260.8	216.0	238.0	2[illegible].0	106.6	4.9	0.	0.
3	259.9	220.1	259.9	220.1	235.4	220.1	110.3	3.5	0.	0.
4	263.1	224.6	263.1	224.6	231.0	224.6	125.8	-0.9	0.	0.
5	266.4	226.3	266.4	226.3	227.4	226.3	138.8	0.4	0.	0.
6	268.2	220.6	268.2	220.6	223.7	220.6	147.8	2.6	0.	0.
7	269.0	194.6	269.0	194.6	219.8	194.2	155.0	11.2	0.	0.
8	266.8	167.1	266.8	167.1	218.0	166.6	153.8	13.4	0.	0.
9	251.0	147.2	251.0	147.2	203.3	146.6	147.1	13.3	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.763	0.597	0.763	0.597	0.695	0.597	0.876	0.967
2	0.772	0.630	0.772	0.630	0.705	0.629	0.908	0.923
3	0.770	0.643	0.770	0.643	0.697	0.643	0.935	0.906
4	0.781	0.659	0.781	0.659	0.686	0.659	0.972	0.896
5	0.796	0.667	0.796	0.667	0.680	0.667	0.995	0.842
6	0.806	0.650	0.806	0.650	0.673	0.650	0.986	0.806
7	0.811	0.571	0.811	0.571	0.663	0.570	0.884	0.811
8	0.806	0.488	0.806	0.488	0.658	0.486	0.764	0.806
9	0.755	0.428	0.755	0.428	0.612	0.426	0.721	0.755

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	9.7	2.3	4.6	0.375	0.	0.186	0.186	0.079	0.079
2	10.00	8.0	0.6	5.5	0.332	0.	0.130	0.130	0.054	0.054
3	15.00	7.6	0.3	5.3	0.317	0.	0.095	0.095	0.038	0.038
4	30.00	7.2	-0.1	4.9	0.320	0.	0.052	0.052	0.019	0.019
5	50.00	5.6	-1.6	5.9	0.312	0.	0.022	0.022	0.007	0.007
6	70.00	4.3	-2.9	6.6	0.319	0.	0.023	0.023	0.006	0.006
7	85.00	3.6	-3.5	9.2	0.396	0.	0.124	0.124	0.028	0.028
8	90.00	3.1	-4.1	10.4	0.485	0.	0.236	0.236	0.050	0.050
9	95.00	3.4	-3.8	10.9	0.520	0.	0.231	0.231	0.046	0.046

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(v) 110 Percent design speed; reading 2203

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	26.1	1.6	26.1	1.6	319.5	0.995	13.94	0.943
2	22.675	22.700	25.9	1.9	25.9	1.9	319.4	0.994	13.98	0.952
3	21.979	22.022	26.8	1.3	26.8	1.3	319.2	0.993	13.91	0.967
4	19.888	19.992	30.0	-0.1	30.0	-0.1	317.0	0.993	13.75	0.984
5	17.120	17.315	32.3	0.0	32.3	0.0	314.5	0.994	13.52	0.990
6	14.374	14.633	34.4	0.5	34.4	0.5	311.9	0.996	13.06	0.991
7	12.332	12.548	35.8	3.3	35.8	3.3	309.3	0.995	12.64	0.955
8	11.654	11.806	36.1	4.6	36.1	4.6	308.1	0.993	12.36	0.925
9	10.980	11.039	36.7	5.4	36.7	5.4	306.6	0.995	11.89	0.921

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	257.9	209.5	257.9	209.5	231.7	209.4	113.4	5.8	0.	0.
2	258.4	213.6	258.4	213.6	232.6	213.5	112.7	7.2	0.	0.
3	256.4	216.9	256.4	216.9	229.0	216.8	115.4	5.1	0.	0.
4	258.6	221.2	258.6	221.2	224.1	221.2	129.2	-0.2	0.	0.
5	262.5	221.1	262.5	221.1	221.8	221.1	140.4	0.1	0.	0.
6	262.7	212.5	262.7	212.5	216.8	212.5	148.4	2.0	0.	0.
7	263.6	185.7	263.6	185.7	213.9	185.4	154.1	10.8	0.	0.
8	260.1	159.7	260.1	159.7	210.1	159.1	153.2	12.8	0.	0.
9	247.2	134.1	247.2	134.1	198.3	133.5	147.6	12.6	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.760	0.607	0.760	0.607	0.683	0.607	0.904	1.007
2	0.762	0.621	0.762	0.621	0.686	0.620	0.918	0.962
3	0.756	0.631	0.756	0.631	0.675	0.631	0.947	0.940
4	0.766	0.647	0.766	0.647	0.664	0.647	0.987	0.924
5	0.782	0.650	0.782	0.650	0.661	0.650	0.997	0.869
6	0.787	0.624	0.787	0.624	0.649	0.624	0.98^	0.787
7	0.794	0.544	0.794	0.544	0.644	0.543	0.867	0.794
8	0.783	0.465	0.783	0.465	0.633	0.464	0.757	0.783
9	0.742	0.389	0.742	0.389	0.595	0.387	0.673	0.742

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	11.3	3.9	5.4	0.365	0.	0.178	0.178	0.076	0.076
2	10.00	9.7	2.3	6.1	0.341	0.	0.152	0.152	0.062	0.062
3	15.00	9.3	2.0	5.8	0.326	0.	0.106	0.106	0.042	0.042
4	30.00	8.6	1.3	5.1	0.325	0.	0.050	0.050	0.018	0.018
5	50.00	6.5	-0.7	5.8	0.324	0.	0.030	0.030	0.010	0.010
6	70.00	5.2	-2.0	6.4	0.337	0.	0.028	0.028	0.007	0.007
7	85.00	4.2	-3.0	9.2	0.417	0.	0.131	0.131	0.030	0.030
8	90.00	4.0	-3.2	10.4	0.500	0.	0.224	0.224	0.048	0.048
9	95.00	4.2	-3.0	11.1	0.567	0.	0.257	0.257	0.051	0.051

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(w) 110 Percent design speed; reading 2202

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	29.7	0.9	29.7	0.9	322.9	0.994	13.97	0.946
2	22.675	22.700	28.3	1.8	28.3	1.8	321.7	0.994	14.21	0.948
3	21.979	22.022	29.8	1.6	29.8	1.6	321.2	0.994	14.14	0.960
4	19.880	19.992	32.1	0.6	32.1	0.6	318.4	0.995	13.96	0.978
5	17.120	17.315	34.5	0.3	34.5	0.3	315.4	0.996	13.58	0.992
6	14.374	14.635	36.1	0.7	36.1	0.7	311.9	0.997	13.06	0.993
7	12.332	12.548	37.4	3.3	37.4	3.3	309.8	0.994	12.62	0.958
8	11.654	11.806	37.6	4.8	37.6	4.8	308.3	0.994	12.41	0.928
9	10.980	11.039	38.1	5.7	38.1	5.7	307.3	0.996	12.03	0.925

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	246.2	201.7	246.2	201.7	214.0	201.7	121.8	3.1	0.	0.
2	251.6	208.8	251.6	208.8	221.4	208.7	119.4	6.5	0.	0.
3	249.8	211.1	249.8	211.1	216.9	211.0	124.0	5.7	0.	0.
4	252.9	214.9	252.9	214.9	214.3	214.9	134.3	2.1	0.	0.
5	253.6	212.8	253.6	212.8	209.0	212.8	143.7	1.1	0.	0.
6	252.3	201.3	252.3	201.3	203.9	201.3	148.6	2.3	0.	0.
7	253.2	171.3	253.2	171.3	201.1	171.0	154.0	9.9	0.	0.
8	252.1	146.2	252.1	146.2	199.8	145.7	153.8	12.3	0.	0.
9	242.8	124.9	242.8	124.9	191.0	124.2	149.8	12.4	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.718	0.580	0.718	0.580	0.624	0.580	0.943	1.040
2	0.737	0.603	0.737	0.603	0.648	0.603	0.943	0.997
3	0.732	0.611	0.732	0.611	0.635	0.611	0.973	0.991
4	0.745	0.625	0.745	0.625	0.632	0.625	1.002	0.959
5	0.751	0.622	0.751	0.622	0.619	0.622	1.019	0.906
6	0.752	0.589	0.752	0.589	0.608	0.589	0.987	0.828
7	0.758	0.499	0.758	0.499	0.602	0.498	0.851	0.758
8	0.756	0.424	0.756	0.424	0.599	0.423	0.729	0.756
9	0.726	0.361	0.726	0.361	0.572	0.359	0.650	0.726

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	14.8	7.5	4.8	0.386	0.	0.187	0.187	0.079	0.079
2	10.00	12.2	4.8	5.9	0.355	0.	0.170	0.170	0.070	0.070
3	15.00	12.3	5.0	6.0	0.344	0.	0.133	0.133	0.053	0.053
4	30.00	10.7	3.4	5.7	0.339	0.	0.073	0.073	0.026	0.026
5	50.00	8.7	1.5	6.1	0.335	0.	0.026	0.026	0.008	0.008
6	70.00	6.9	-0.3	6.6	0.353	0.	0.022	0.022	0.006	0.006
7	85.00	5.9	-1.3	9.2	0.451	0.	0.133	0.133	0.030	0.030
8	90.00	5.5	-1.7	10.6	0.539	0.	0.228	0.228	0.048	0.048
9	95.00	5.6	-1.6	11.4	0.599	0.	0.252	0.252	0.050	0.050

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(x) 110 Percent design speed; reading 2201

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.396	32.9	1.1	32.9	1.1	324.5	0.995	14.06	0.940
2	22.675	22.700	31.6	1.8	31.6	1.8	323.5	0.995	14.33	0.938
3	21.979	22.022	32.5	1.6	32.5	1.6	323.0	0.993	14.34	0.940
4	19.888	19.992	34.5	1.1	34.5	1.1	319.5	0.996	14.06	0.964
5	17.120	17.315	36.6	0.3	36.6	0.3	315.6	0.996	13.58	0.986
6	14.374	14.633	37.9	0.5	37.9	0.5	312.0	0.996	13.01	0.988
7	12.332	12.548	39.3	3.6	39.3	3.6	309.5	0.994	12.64	0.950
8	11.654	11.806	39.5	5.4	39.5	5.4	308.4	0.994	12.47	0.928
9	10.980	11.039	40.2	6.3	40.2	6.3	307.2	0.998	12.13	0.929

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	236.7	194.3	236.7	194.3	198.7	194.2	128.5	3.8	0.	0.
2	243.6	200.3	243.6	200.3	207.4	200.2	127.8	6.3	0.	0.
3	243.6	201.0	243.6	201.0	205.4	200.9	131.0	5.7	0.	0.
4	244.8	205.0	244.8	205.0	201.7	205.0	138.6	4.1	0.	0.
5	242.5	201.3	242.5	201.3	194.6	201.3	144.7	0.9	0.	0.
6	239.8	186.6	239.8	186.6	189.2	186.6	147.3	1.7	0.	0.
7	242.6	154.0	242.6	154.0	187.8	153.7	153.7	9.6	0.	0.
8	242.9	133.3	242.9	133.3	187.6	132.7	154.4	12.5	0.	0.
9	235.0	115.2	235.0	115.2	179.5	114.4	151.6	12.7	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.686	0.556	0.686	0.556	0.576	0.556	0.977	1.069
2	0.709	0.575	0.709	0.575	0.603	0.575	0.966	1.040
3	0.710	0.578	0.710	0.578	0.598	0.578	0.978	1.028
4	0.717	0.593	0.717	0.593	0.591	0.593	1.016	0.986
5	0.715	0.586	0.715	0.586	0.574	0.586	1.035	0.921
6	0.711	0.543	0.711	0.543	0.561	0.543	0.986	0.842
7	0.723	0.447	0.723	0.447	0.560	0.446	0.818	0.793
8	0.726	0.385	0.726	0.385	0.560	0.384	0.707	0.757
9	0.701	0.332	0.701	0.332	0.536	0.330	0.637	0.715

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	18.1	10.7	5.0	0.403	0.	0.221	0.221	0.094	0.094
2	10.00	15.5	8.1	5.9	0.383	0.	0.218	0.218	0.090	0.090
3	15.00	15.1	7.7	6.1	0.380	0.	0.211	0.211	0.	0.084
4	30.00	13.1	5.8	6.3	0.361	0.	0.122	0.122	0.0	0.044
5	50.00	10.8	3.6	6.0	0.354	0.	0.048	0.048	0.015	0.015
6	70.00	8.7	1.5	6.4	0.380	0.	0.043	0.043	0.011	0.011
7	85.00	7.7	0.6	9.5	0.498	0.	0.170	0.170	0.038	0.038
8	90.00	7.4	0.2	11.2	0.575	0.	0.244	0.244	0.052	0.052
9	95.00	7.7	0.5	12.0	0.628	0.	0.253	0.253	0.050	0.050

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(y) 120 Percent design speed; reading 2216

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	22.1	0.7	22.1	0.7	320.8	0.994	13.71	0.920
2	22.675	22.700	22.0	1.5	22.0	1.5	320.8	0.994	13.84	0.944
3	21.979	22.022	23.2	1.1	23.2	1.1	320.1	0.994	13.79	0.961
4	19.888	19.992	27.1	0.5	27.1	0.5	318.7	0.993	13.49	0.990
5	17.120	17.315	30.1	1.1	30.1	1.1	317.9	0.990	13.68	0.971
6	14.374	14.633	33.0	1.6	33.0	1.6	316.1	0.990	13.52	0.953
7	12.332	12.548	35.3	3.3	35.3	3.3	314.0	0.989	13.05	0.914
8	11.654	11.806	36.1	4.8	36.1	4.8	312.5	0.987	12.73	0.879
9	10.980	11.039	37.5	5.9	37.5	5.9	310.9	0.991	12.04	0.884

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	282.8	215.4	282.8	215.4	262.0	215.4	106.6	2.6	0.	0.
2	285.9	228.7	285.9	228.7	263.2	228.6	106.2	5.9	0.	0.
3	281.8	233.0	281.8	233.0	259.0	233.0	110.9	4.3	0.	0.
4	279.5	239.2	279.5	239.2	248.9	239.2	127.2	2.1	0.	0.
5	290.5	240.6	290.5	240.6	251.3	240.6	145.7	4.8	0.	0.
6	297.1	233.4	297.1	233.4	249.2	233.3	161.8	6.6	0.	0.
7	297.4	205.5	297.4	205.5	242.6	205.1	172.1	11.9	0.	0.
8	293.2	177.2	293.2	177.2	236.9	176.5	172.7	14.9	0.	0.
9	274.9	150.4	274.9	150.4	218.0	149.6	167.5	15.3	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO				MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT			VEL R	MACH NO
1	0.842	0.525	0.842	0.625	0.780	0.625			0.822	0.987
2	0.845	0.667	0.845	0.667	0.784	0.667			0.869	0.928
3	0.839	0.681	0.839	0.681	0.771	0.681			0.899	0.911
4	0.834	0.703	0.834	0.703	0.742	0.703			0.961	0.894
5	0.872	0.710	0.872	0.710	0.755	0.710			0.957	0.872
6	0.898	0.689	0.898	0.689	0.753	0.688			0.936	0.898
7	0.903	0.602	0.903	0.602	0.737	0.601			0.846	0.903
8	0.890	0.517	0.890	0.517	0.720	0.515			0.745	0.890
9	0.830	0.436	0.830	0.436	0.658	0.433			0.686	0.830

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	7.3	-0.0	4.6	0.394	0.	0.216	0.216	0.092	0.092
2	10.00	5.8	-1.5	5.6	0.340	0.	0.150	0.150	0.062	0.062
3	15.00	5.7	-1.6	5.5	0.324	0.	0.105	0.105	0.042	0.042
4	30.00	5.7	-1.6	5.6	0.306	0.	0.028	0.028	0.010	0.010
5	50.00	4.3	-2.9	6.9	0.322	0.	0.075	0.075	0.023	0.023
6	70.00	3.8	-3.4	7.5	0.351	0.	0.116	0.116	0.031	0.031
7	85.00	3.8	-3.4	9.2	0.430	0.	0.210	0.210	0.047	0.047
8	90.00	4.0	-3.2	10.6	0.510	0.	0.299	0.299	0.064	0.064
9	95.00	5.0	-2.1	11.5	0.563	0.	0.319	0.319	0.064	0.064

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(z) 120 Percent design speed; reading 2215

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	24.6	1.1	24.6	1.1	322.6	0.997	14.07	0.921
2	22.675	22.700	24.5	2.2	24.5	2.2	322.5	0.996	14.19	0.942
3	21.979	22.022	25.6	1.7	25.6	1.7	321.9	0.995	14.05	0.961
4	19.888	19.992	29.1	0.4	29.1	0.4	320.9	0.992	13.83	0.989
5	17.120	17.315	31.8	-0.1	31.8	-0.1	318.6	0.992	13.87	0.981
6	14.374	14.633	33.9	1.4	33.9	1.4	316.1	0.994	13.54	0.977
7	12.332	12.548	36.1	4.4	36.1	4.4	313.0	0.995	13.04	0.939
8	11.654	11.806	36.7	5.9	36.7	5.9	311.6	0.993	12.72	0.902
9	10.980	11.039	37.3	6.6	37.3	6.6	309.4	0.995	12.09	0.900

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	277.6	211.5	277.6	211.5	252.4	211.4	115.6	4.2	0.	0.
2	278.8	223.0	278.8	223.0	253.6	222.9	115.7	8.7	0.	0.
3	275.1	226.6	275.1	226.6	248.1	226.5	118.9	6.8	0.	0.
4	275.7	234.0	275.7	234.0	240.9	234.0	134.2	1.8	0.	0.
5	283.8	234.7	283.8	234.7	241.2	234.7	149.4	-0.2	0.	0.
6	289.6	228.6	289.6	228.6	240.3	228.5	161.7	5.6	0.	0.
7	290.0	199.7	290.0	199.7	234.2	199.2	171.1	15.2	0.	0.
8	284.9	168.7	284.9	168.7	228.3	167.8	170.4	17.2	0.	0.
9	267.6	138.2	267.6	138.2	212.9	137.3	162.2	15.8	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.821	0.610	0.821	0.610	0.747	0.610	0.858	1.044
2	0.825	0.646	0.825	0.646	0.751	0.646	0.879	1.000
3	0.814	0.658	0.814	0.658	0.734	0.658	0.913	0.975
4	0.818	0.684	0.818	0.684	0.714	0.684	0.971	0.958
5	0.848	0.689	0.848	0.689	0.721	0.689	0.973	0.917
6	0.872	0.672	0.872	0.672	0.724	0.671	0.951	0.872
7	0.879	0.583	0.879	0.583	0.710	0.582	0.850	0.879
8	0.863	0.490	0.863	0.490	0.692	0.487	0.735	0.863
9	0.807	0.399	0.807	0.399	0.642	0.396	0.645	0.807

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	9.8	2.4	5.0	0.409	0.	0.221	0.221	0.094	0.094
2	10.00	8.4	1.0	6.4	0.358	0.	0.162	0.162	0.067	0.067
3	15.00	8.1	0.8	6.1	0.339	0.	0.109	0.109	0.044	0.044
4	30.00	7.8	0.5	5.6	0.325	0.	0.030	0.030	0.011	0.011
5	50.00	6.0	-1.3	5.7	0.337	0.	0.050	0.050	0.016	0.016
6	70.00	4.8	-2.4	7.3	0.351	0.	0.058	0.058	0.015	0.015
7	85.00	4.6	-2.6	10.3	0.431	0.	0.154	0.154	0.035	0.035
8	90.00	4.6	-2.5	11.7	0.522	0.	0.255	0.255	0.054	0.054
9	95.00	4.8	-2.4	12.2	0.593	0.	0.286	0.286	0.057	0.057

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(aa) 120 Percent design speed; reading 2211

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	26.4	1.0	26.4	1.0	325.5	0.994	14.28	0.925
2	22.675	22.700	26.6	2.4	26.6	2.4	324.6	0.995	14.33	0.949
3	21.979	22.022	27.7	2.2	27.7	2.2	323.9	0.996	14.41	0.954
4	19.888	19.992	31.0	0.6	31.0	0.6	322.2	0.994	14.06	0.986
5	17.120	17.315	32.8	-0.2	32.8	-0.2	319.2	0.992	13.93	0.986
6	14.374	14.633	35.0	1.3	35.0	1.3	315.7	0.998	13.58	0.984
7	12.332	12.548	36.3	4.5	36.3	4.5	313.2	0.995	13.16	0.936
8	11.654	11.806	37.0	6.2	37.0	6.2	311.5	0.993	12.83	0.900
9	10.980	11.039	37.3	6.7	37.3	6.7	309.3	0.996	12.62	0.878

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	273.9	211.6	273.9	211.6	245.4	211.5	121.6	3.9	0.	0.
2	273.5	221.9	273.5	221.9	244.4	221.7	122.6	9.4	0.	0.
3	272.5	224.5	272.5	224.5	241.2	224.4	126.8	8.7	0.	0.
4	274.0	231.5	274.0	231.5	234.8	231.5	141.1	2.4	0.	0.
5	280.2	231.8	280.2	231.8	235.5	231.8	152.0	-0.8	0.	0.
6	285.8	226.6	285.8	226.6	234.3	226.5	163.7	5.2	0.	0.
7	289.6	195.0	289.6	195.0	233.4	194.4	171.5	15.4	0.	0.
8	284.0	161.7	284.0	161.7	226.7	160.8	171.0	17.6	0.	0.
9	265.1	132.9	265.1	132.9	211.0	132.0	160.5	15.5	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.805	0.608	0.805	0.608	0.721	0.608	.862	1.074
2	.805	0.641	0.805	0.641	0.719	0 640	0.907	1.040
3	0.803	0.650	0.803	0.650	0.710	0.649	0.930	1.028
4	0.810	0.674	0.810	0.674	0.694	0.674	0.986	1.010
5	0.835	0.679	0.835	0.679	0.702	0.679	0.984	0.948
6	0.860	0.664	0.860	0.664	0.705	0.664	0.967	0.886
7	0.877	0.569	0.877	0.569	0.707	0.567	0.833	0.877
8	0.860	0.469	0.860	0.469	0.687	0.466	0.709	0.860
9	0.799	0.383	0.799	0.383	0.636	0.381	0.625	0.799

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	11.5	4.2	4.9	0.410	0.	0.217	0.217	0.092	0.092
2	10.00	10.5	3.1	6.6	0.359	0.	0.147	0.147	0.061	0.061
3	15.00	10.3	2.9	6.6	0.349	0.	0.133	0.133	0.053	0.053
4	30.00	9.6	2.3	5.7	0.338	0.	0.039	0.039	0.014	0.014
5	50.00	7.0	-0.2	5.5	0.342	0.	0.039	0.039	0.012	0.012
6	70.00	5.8	-1.4	7.2	0.352	0.	0.042	0.042	0.011	0.011
7	85.00	4.7	-2.4	10.4	0.447	0.	0.162	0.162	0.036	0.036
8	90.00	4.9	-2.2	12.0	0.545	0.	0.261	0.261	0.055	0.055
9	95.00	4.8	-2.4	12.4	0.608	0.	0.357	0.357	0 071	0.071

TABLE VIII. - Continued. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(bb) 120 Percent design speed; reading 2208

RP	RADII IN	RADII OUT	ABS BETAM IN	ABS BETAM OUT	REL BETAM IN	REL BETAM OUT	TOTAL TEMP IN	TOTAL TEMP RATIO	TOTAL PRESS IN	TOTAL PRESS RATIO
1	23.373	23.386	28.9	0.7	28.9	0.7	326.7	0.997	14.45	0.934
2	22.675	22.700	28.4	2.1	28.4	2.1	325.2	1.000	14.65	0.943
3	21.979	22.022	29.7	2.0	29.7	2.0	325.1	0.998	14.68	0.950
4	19.888	19.992	32.8	0.5	32.8	0.5	323.7	0.993	14.38	0.978
5	17.120	17.315	33.9	-0.6	33.9	-0.6	319.2	0.996	14.11	0.987
6	14.374	14.633	35.8	0.9	35.8	0.9	316.3	0.997	13.65	0.988
7	12.332	12.548	37.2	4.5	37.2	4.5	313.8	0.992	13.20	0.932
8	11.654	11.806	37.5	6.2	37.5	6.2	312.0	0.991	12.87	0.900
9	10.980	11.039	37.8	6.6	37.8	6.6	309.5	0.997	12.18	0.911

RP	ABS VEL IN	ABS VEL OUT	REL VEL IN	REL VEL OUT	MERID VEL IN	MERID VEL OUT	TANG VEL IN	TANG VEL OUT	WHEEL SPEED IN	WHEEL SPEED OUT
1	266.4	212.0	266.4	212.0	233.2	211.9	128.9	2.7	0.	0.
2	270.4	220.8	270.4	220.8	237.8	220.6	128.6	8.2	0.	0.
3	270.1	223.4	270.1	223.4	234.6	223.3	133.9	7.7	0.	0.
4	271.8	229.0	271.8	229.0	228.5	229.0	147.2	1.9	0.	0.
5	276.5	228.8	276.5	228.8	229.6	228.8	154.1	-2.2	0.	0.
6	281.0	220.9	281.0	220.9	228.0	220.9	164.3	3.6	0.	0.
7	279.4	183.9	279.4	183.9	222.6	183.3	169.0	14.5	0.	0.
8	275.9	152.9	275.9	152.9	219.0	152.0	167.8	16.5	0.	0.
9	258.9	125.2	258.9	125.2	204.7	124.4	158.5	14.3	0.	0.

RP	ABS MACH NO IN	ABS MACH NO OUT	REL MACH NO IN	REL MACH NO OUT	MERID MACH NO IN	MERID MACH NO OUT	MERID PEAK SS VEL R	MERID PEAK SS MACH NO
1	0.779	0.607	0.779	0.607	0.681	0.607	0.909	1.109
2	0.794	0.635	0.794	0.635	0.698	0.635	0.928	1.076
3	0.793	0.644	0.793	0.644	0.689	0.644	0.952	1.072
4	0.801	0.664	0.801	0.664	0.673	0.664	1.002	1.052
5	0.822	0.668	0.822	0.668	0.683	0.668	0.997	0.970
6	0.842	0.646	0.842	0.646	0.683	0.646	0.969	0.914
7	0.841	0.535	0.841	0.535	0.670	0.533	0.824	0.841
8	0.831	0.442	0.831	0.442	0.660	0.440	0.694	0.831
9	0.777	0.360	0.777	0.360	0.615	0.358	0.608	0.777

RP	PERCENT SPAN	INCIDENCE MEAN	INCIDENCE SS	DEV	D-FACT	EFF	LOSS COEFF TOT	LOSS COEFF PROF	LOSS PARAM TOT	LOSS PARAM PROF
1	5.00	14.1	6.8	4.6	0.406	0.	0.201	0.201	0.093	0.085
2	10.00	12.2	4.9	6.3	0.367	0.	0.169	0.169	0.070	0.070
3	15.00	12.2	4.9	6.4	0.359	0.	0.149	0.149	0.059	0.059
4	30.00	11.4	4.1	5.6	0.351	0.	0.064	0.064	0.023	0.023
5	50.00	8.1	0.8	5.2	0.348	0.	0.037	0.037	0.012	0.012
6	70.00	6.6	-0.6	6.8	0.363	0.	0.033	0.033	0.009	0.009
7	85.00	5.6	-1.5	10.4	0.465	0.	0.184	0.184	0.041	0.041
8	90.00	5.4	-1.8	12.0	0.562	0.	0.274	0.274	0.058	0.058
9	95.00	5.3	-1.9	12.3	0.628	0.	0.271	0.271	0.054	0.054

TABLE VIII. - Concluded. BLADE-ELEMENT DATA AT BLADE EDGES

FOR STATOR 52

(cc) 120 Percent design speed; reading 2207

	RADII		ABS BETAM		REL BETAM		TOTAL TEMP		TOTAL PRESS	
RP	IN	OUT	IN	OUT	IN	OUT	IN	RATIO	IN	RATIO
1	23.373	23.386	32.9	1.4	32.9	1.4	331.2	0.993	14.85	0.922
2	22.675	22.700	32.4	2.3	32.4	2.3	329.8	0.995	15.13	0.920
3	21.979	22.022	33.4	2.2	33.4	2.2	329.2	0.993	15.00	0.931
4	19.888	19.992	35.2	1.6	35.2	1.6	325.3	0.995	14.74	0.955
5	17.126	17.315	36.8	0.2	36.8	0.2	320.5	0.996	14.24	0.985
6	14.374	14.633	38.0	1.1	38.0	1.1	316.3	0.997	13.68	0.983
7	12.332	12.548	38.6	4.3	38.6	4.3	313.4	0.991	13.18	0.930
8	11.654	11.806	38.8	6.0	38.8	6.0	311.4	0.993	12.86	0.910
9	10.980	11.039	39.3	6.7	39.3	6.7	309.7	0.998	12.33	0.917

	ABS VEL		REL VEL		MERID VEL		TANG VEL		WHEEL SPEED	
RP	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	258.9	207.6	258.9	207.6	217.4	207.6	140.6	5.1	0.	0.
2	264.3	213.9	264.3	213.9	223.2	213.7	141.5	8.6	0.	0.
3	262.1	214.6	262.1	214.6	218.9	214.5	144.1	8.3	0.	0.
4	265.7	219.8	265.7	219.8	217.2	219.7	153.0	6.2	0.	0.
5	266.2	220.1	266.2	220.1	213.1	220.1	159.6	0.9	0.	0.
6	268.4	207.1	268.4	207.1	211.5	207.1	165.2	3.9	0.	0.
7	270.8	165.9	270.8	165.9	211.5	165.5	169.1	12.5	0.	0.
8	266.9	140.5	266.9	140.5	208.0	139.7	167.3	14.6	0.	0.
9	253.4	117.9	253.4	117.9	196.0	117.1	160.7	13.8	0.	0.

	ABS MACH NO		REL MACH NO		MERID MACH NO		MERID PEAK SS	
RP	IN	OUT	IN	OUT	IN	OUT	VEL R	MACH NO
1	0.748	0.591	0.748	0.591	0.628	0.590	0.955	1.167
2	0.768	0.611	0.768	0.611	0.648	0.610	0.957	1.146
3	0.761	0.614	0.761	0.614	0.636	0.614	0.980	1.125
4	0.778	0.633	0.778	0.633	0.636	0.633	1.011	1.087
5	0.786	0.639	0.786	0.639	0.629	0.639	1.033	1.018
6	0.799	0.603	0.799	0.603	0.630	0.603	0.979	0.950
7	0.812	0.480	0.812	0.480	0.634	0.479	0.782	0.860
8	0.802	0.405	0.802	0.405	0.625	0.403	0.672	0.802
9	0.759	0.338	0.759	0.338	0.587	0.336	0.587	0.759

	PERCENT	INCIDENCE		DEV	D-FACT	EFF	LOSS COEFF		LOSS PARAM	
RP	SPAN	MEAN	SS				TOT	PROF	TOT	PROF
1	5.00	18.1	10.7	5.3	0.420	0.	0.253	0.253	0.107	0.107
2	10.00	16.2	8.9	6.5	0.398	0.	0.248	0.248	0.102	0.102
3	15.00	15.9	8.6	6.6	0.388	0.	0.218	0.218	0.087	0.087
4	30.00	13.8	6.5	6.8	0.372	0.	0.135	0.135	0.049	0.049
5	50.00	11.0	3.8	6.0	0.359	0.	0.045	0.045	0.014	0.014
6	70.00	8.8	1.6	7.0	0.385	0.	0.048	0.048	0.013	0.013
7	85.00	7.1	-0.1	10.2	0.517	0.	0.198	0.198	0.045	0.045
8	90.00	6.7	-0.4	11.8	0.595	0.	0.261	0.261	0.055	0.055
9	95.00	6.8	-0.3	12.4	0.650	0.	0.262	0.262	0.052	0.052

Flow path coordinates		
Axial distance, Z, cm	Radius, r, cm	
	Inner	Outer
-14.204	10.160	25.400
.013		25.400
1.283		25.146
2.553		24.816
3.823		24.562
5.093		24.384
6.363		24.282
7.633		24.206
8.903		24.155
10.173		24.130
38.971		24.130

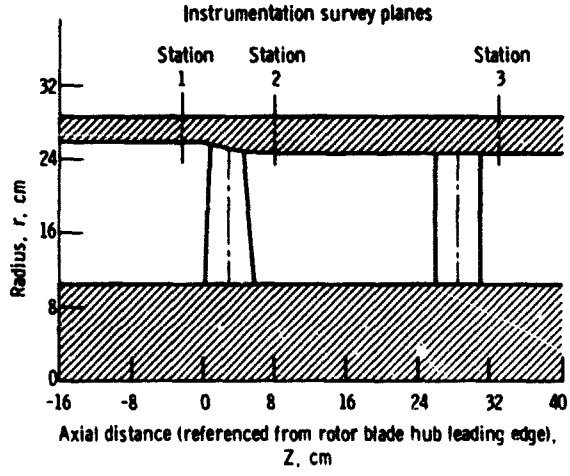


Figure 1. - Flow path for stage 52-52 showing axial location of instrumentation.

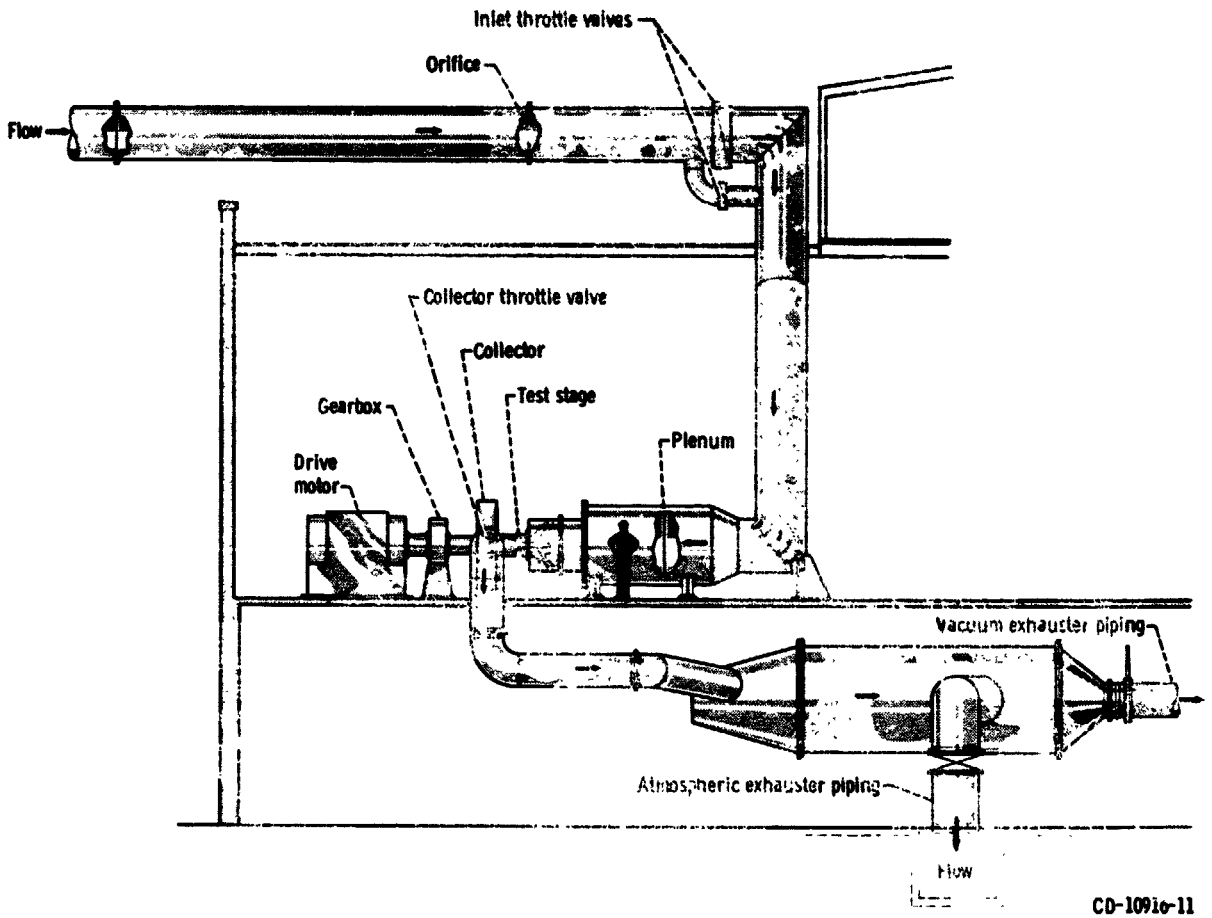
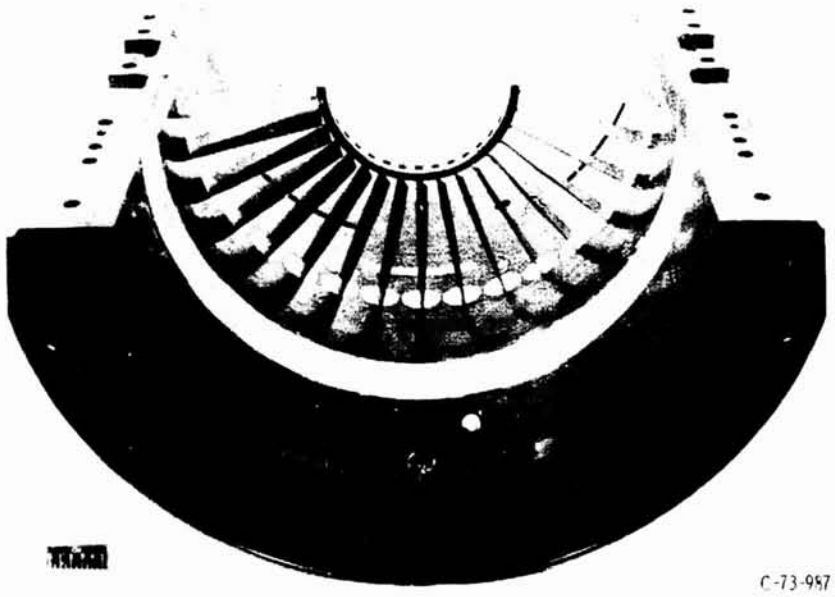


Figure 2. - Single-stage compressor facility.

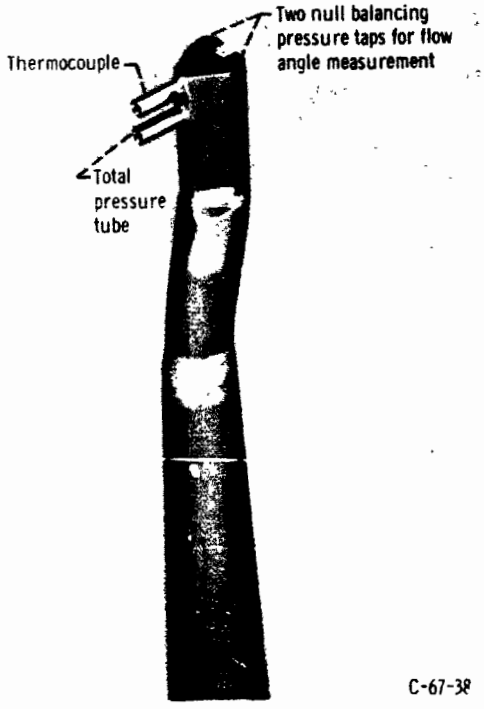
C-73-988

Figure 3. - Rotor 52.

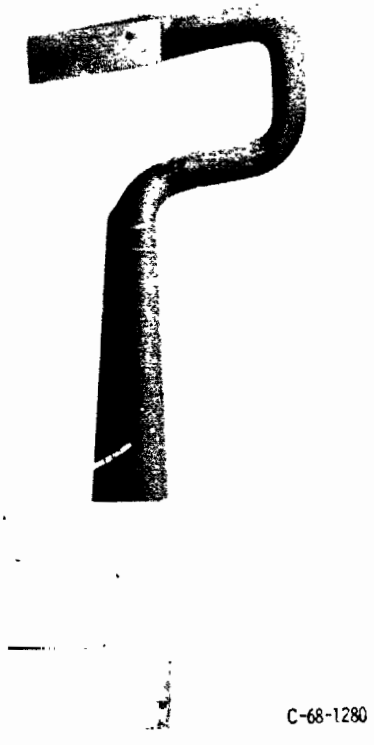


C-73-987

Figure 4. - Stator 52.



(a) Combination total pressure, total temperature, and flow angle probe.



(b) Static pressure probe; 8° C-shaped wedge.

Figure 5. - Survey probes.

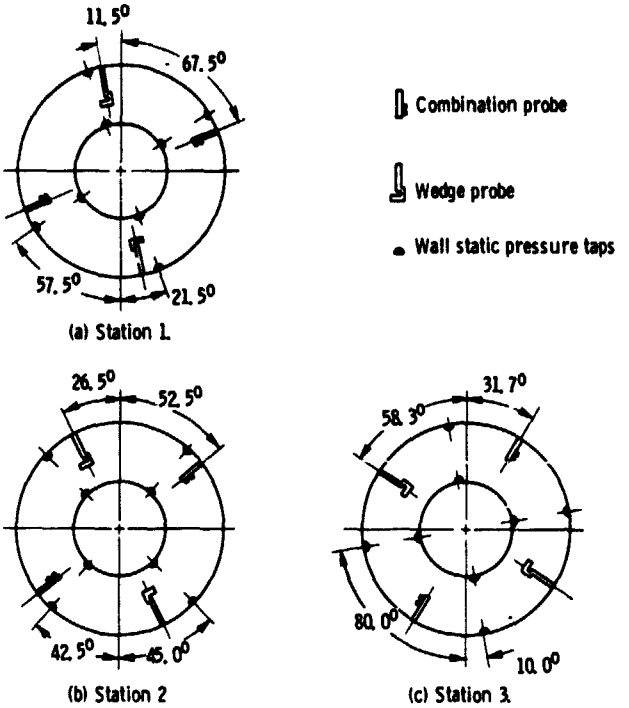


Figure 6. - Circumferential location of instrumentation at measuring stations (looking downstream).

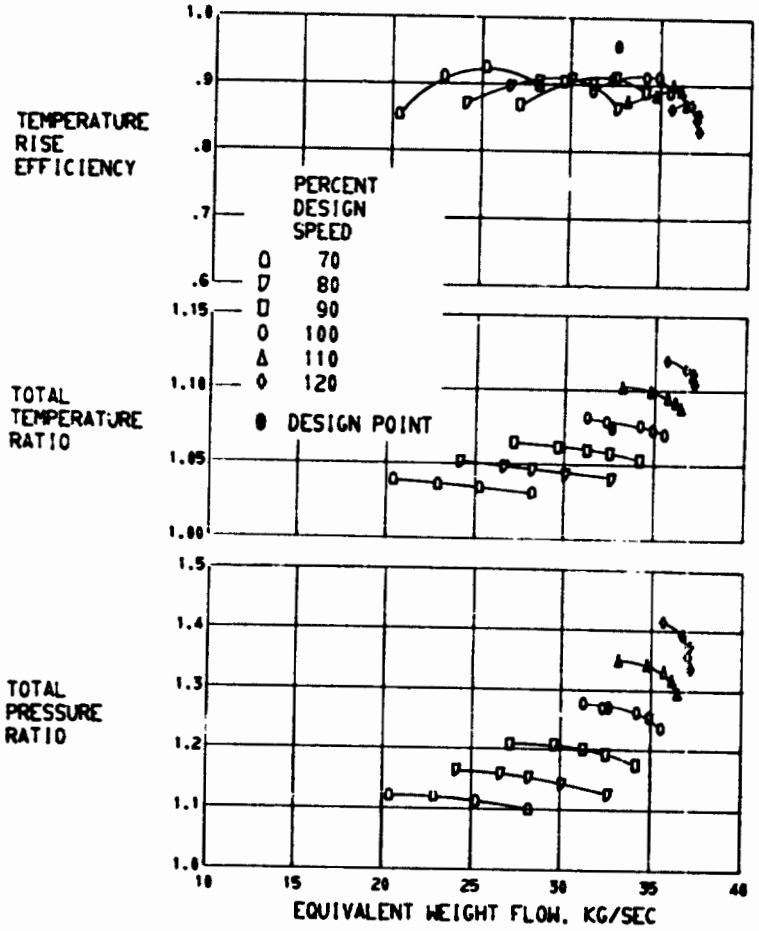


FIGURE 7. - OVERALL PERFORMANCE FOR ROTOR 52.

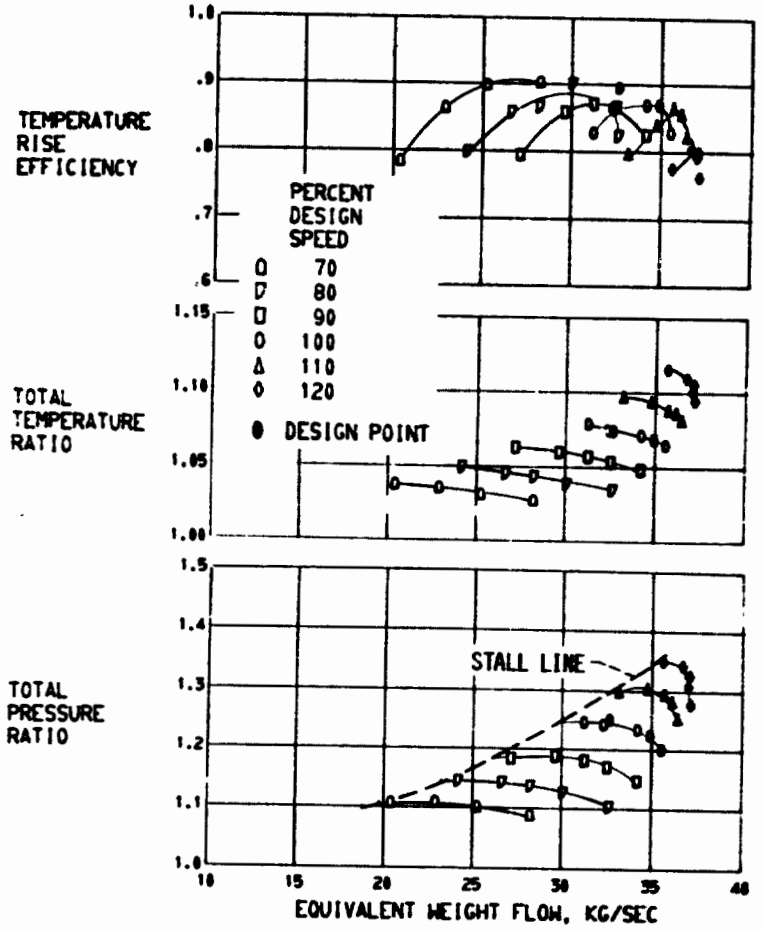
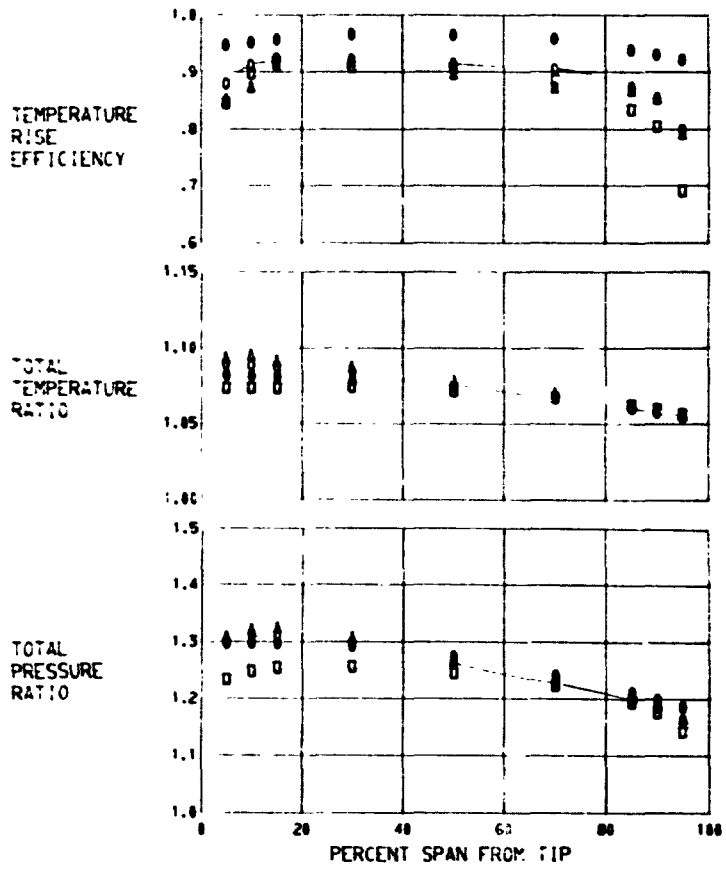
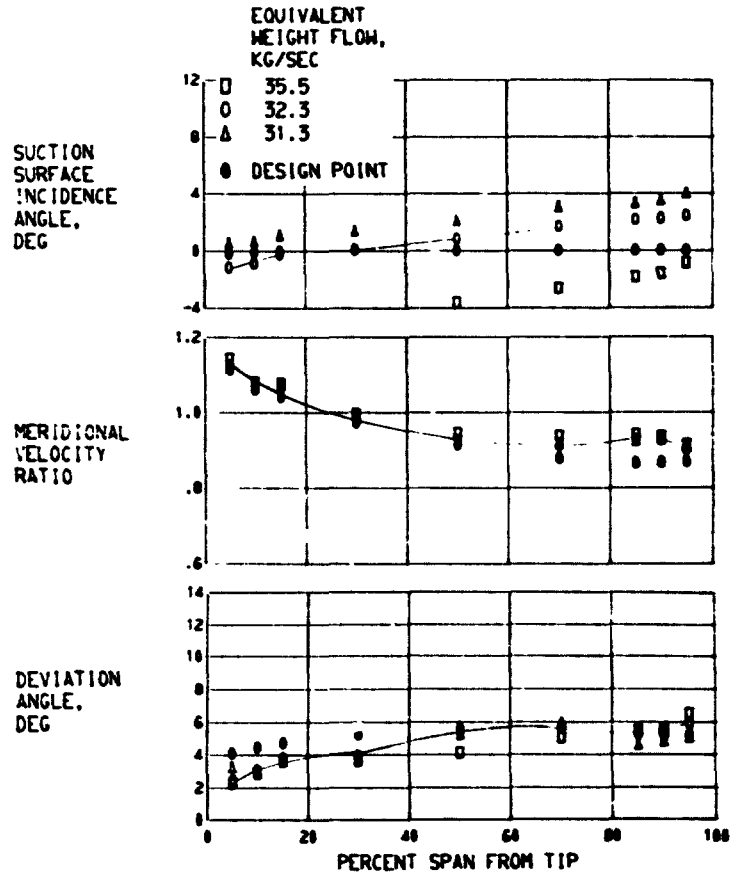


FIGURE 8. - OVERALL PERFORMANCE FOR STAGE 52-52.


TEMPERATURE RISE EFFICIENCY
TOTAL TEMPERATURE RATIO
TOTAL PRESSURE RATIO
PERCENT SPAN FROM TIP


EQUIVALENT WEIGHT FLOW, KG/SEC
35.5
32.3
31.3
DESIGN POINT
SUCTION SURFACE INCIDENCE ANGLE, DEG
MERIDIONAL VELOCITY RATIO
DEVIATION ANGLE, DEG
PERCENT SPAN FROM TIP

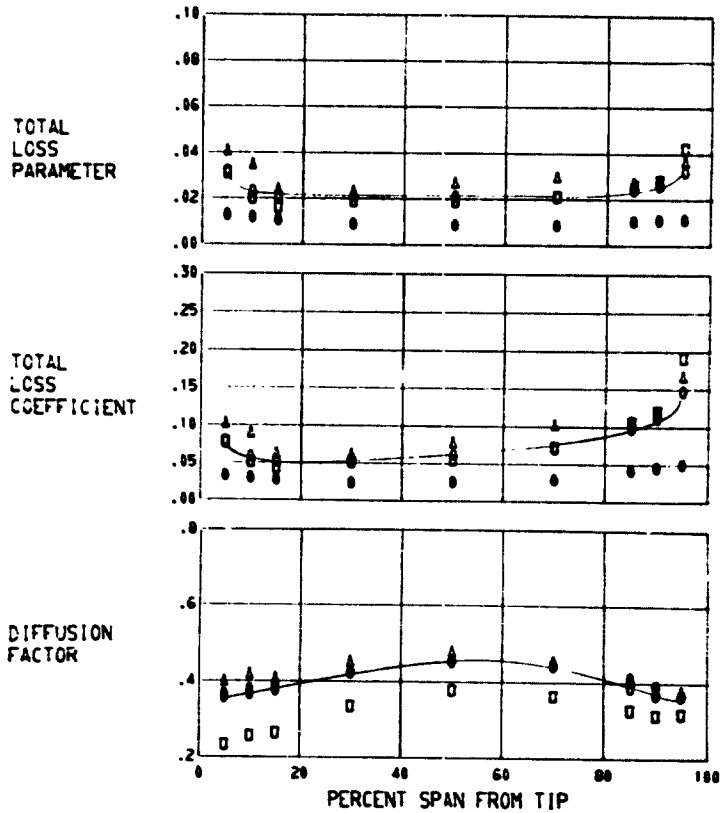


FIGURE 9. - RADIAL DISTRIBUTION OF PERFORMANCE FOR ROTOR 52. 100 PERCENT DESIGN SPEED.

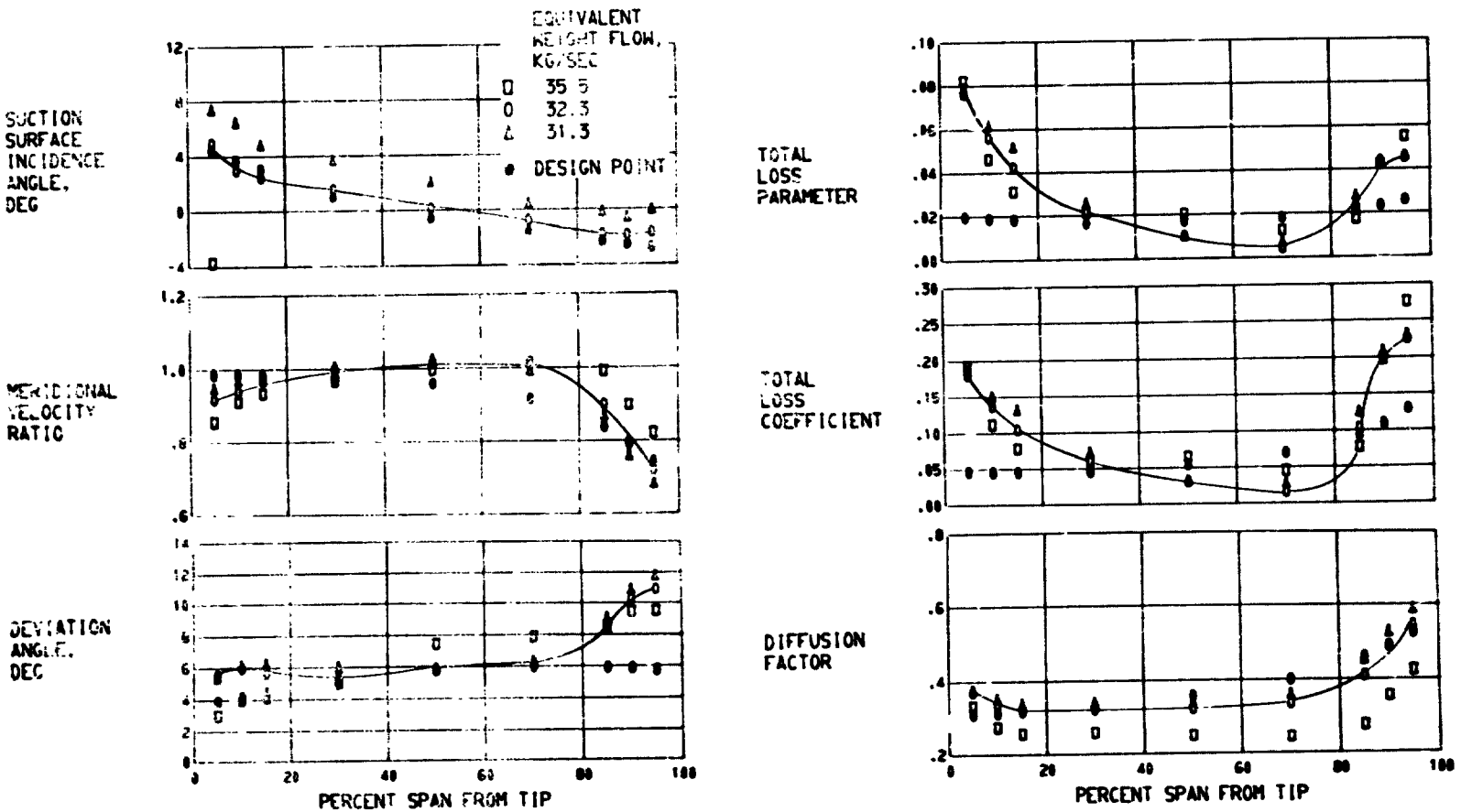
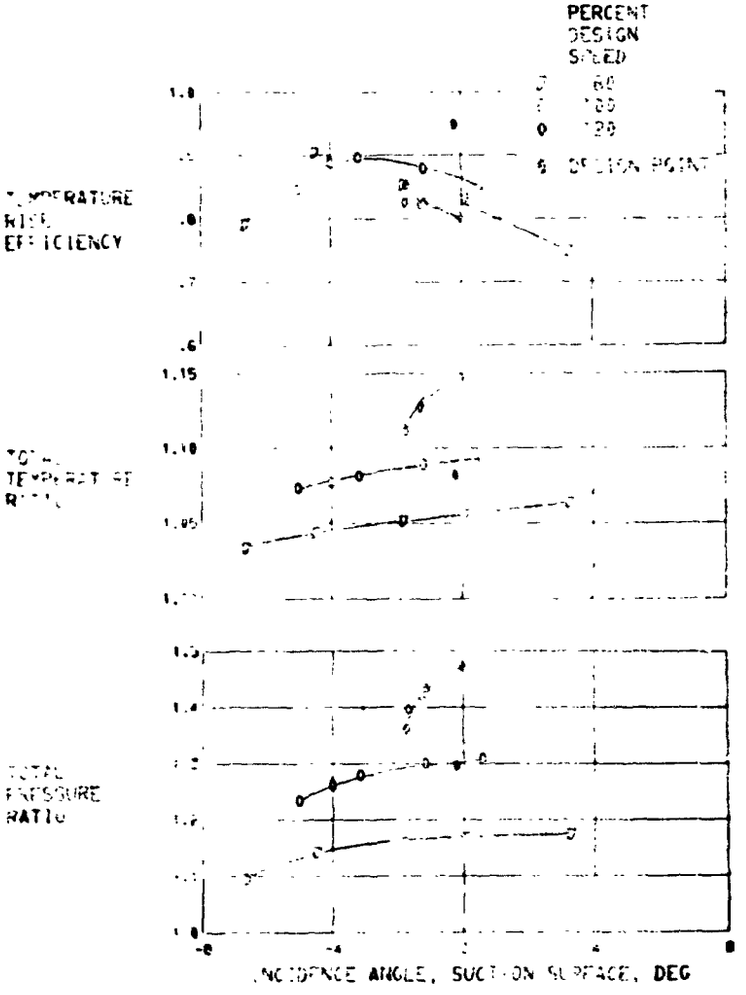
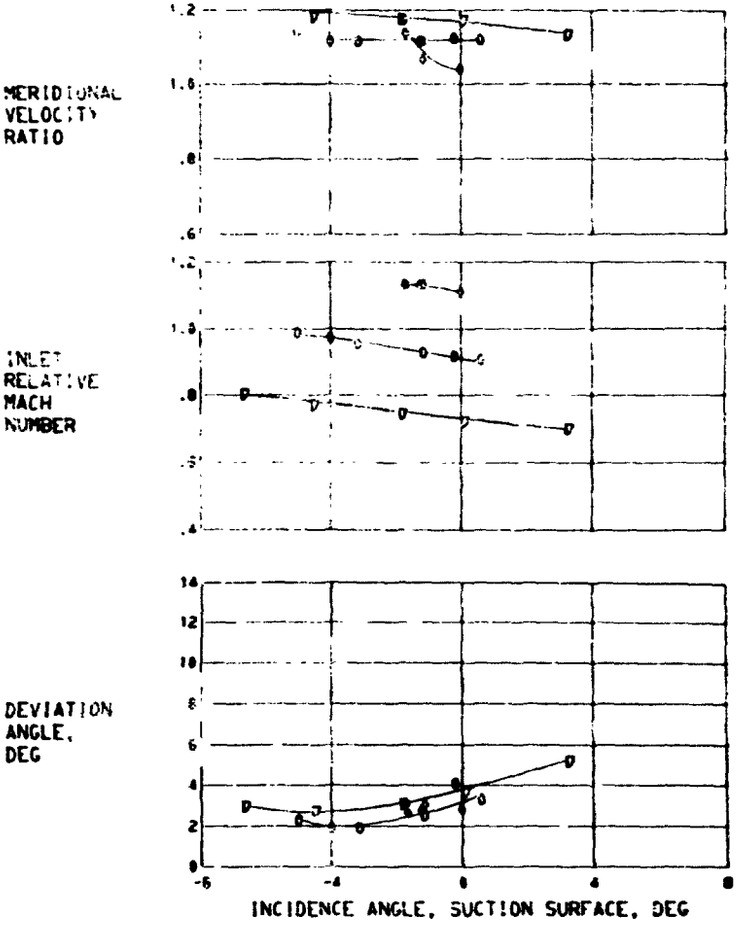
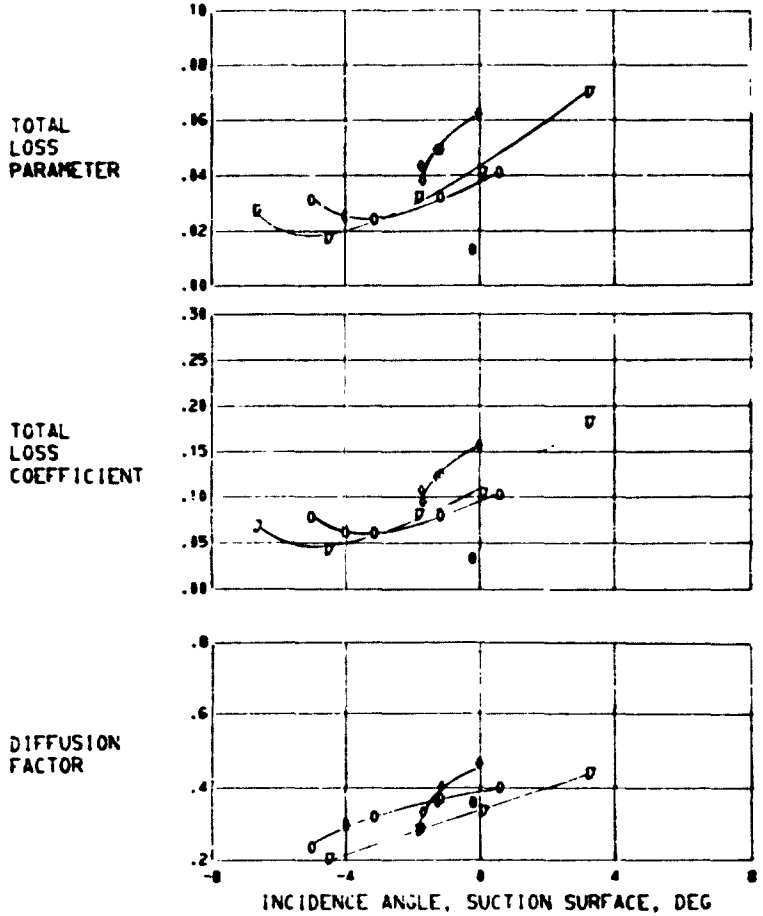


FIGURE 10. - RADIAL DISTRIBUTION OF PERFORMANCE FOR STATOR 52. 100 PERCENT DESIGN SPEED.



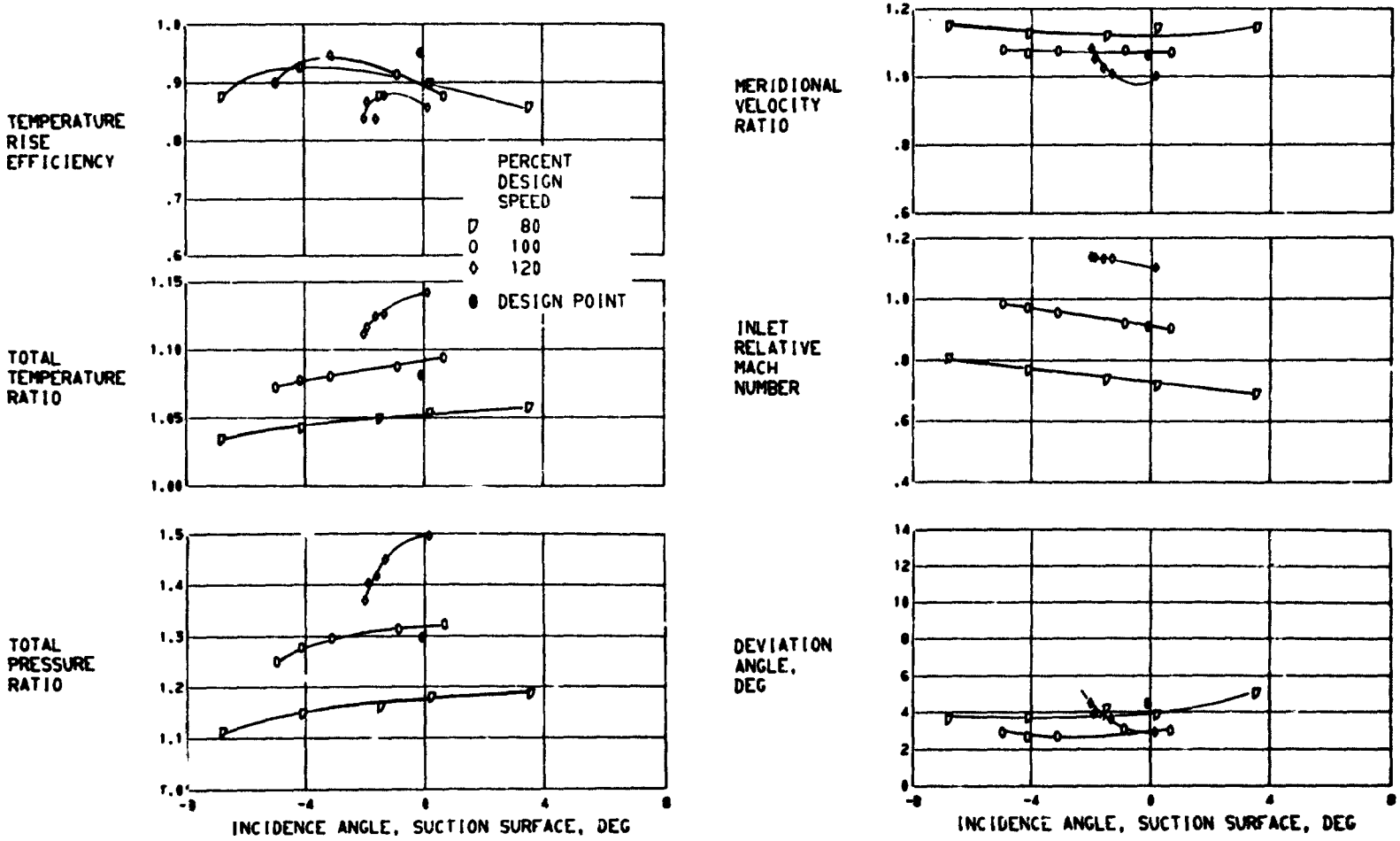


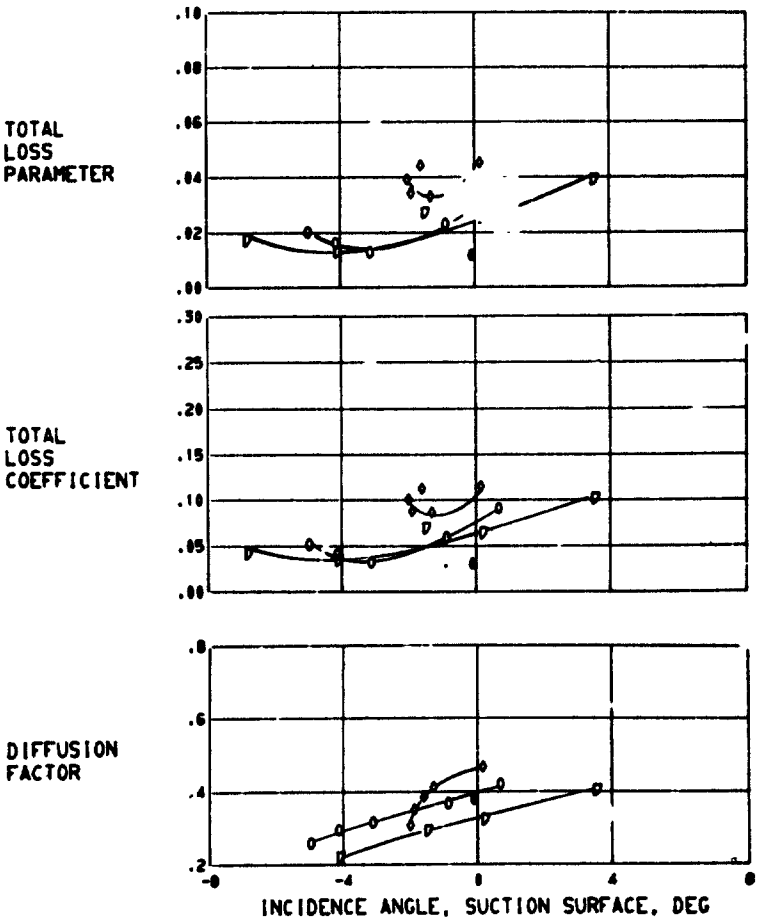


(A) 5.0 PERCENT SPAN.

FIGURE 11. - BLADE-ELEMENT PERFORMANCE FOR ROTOR 52.

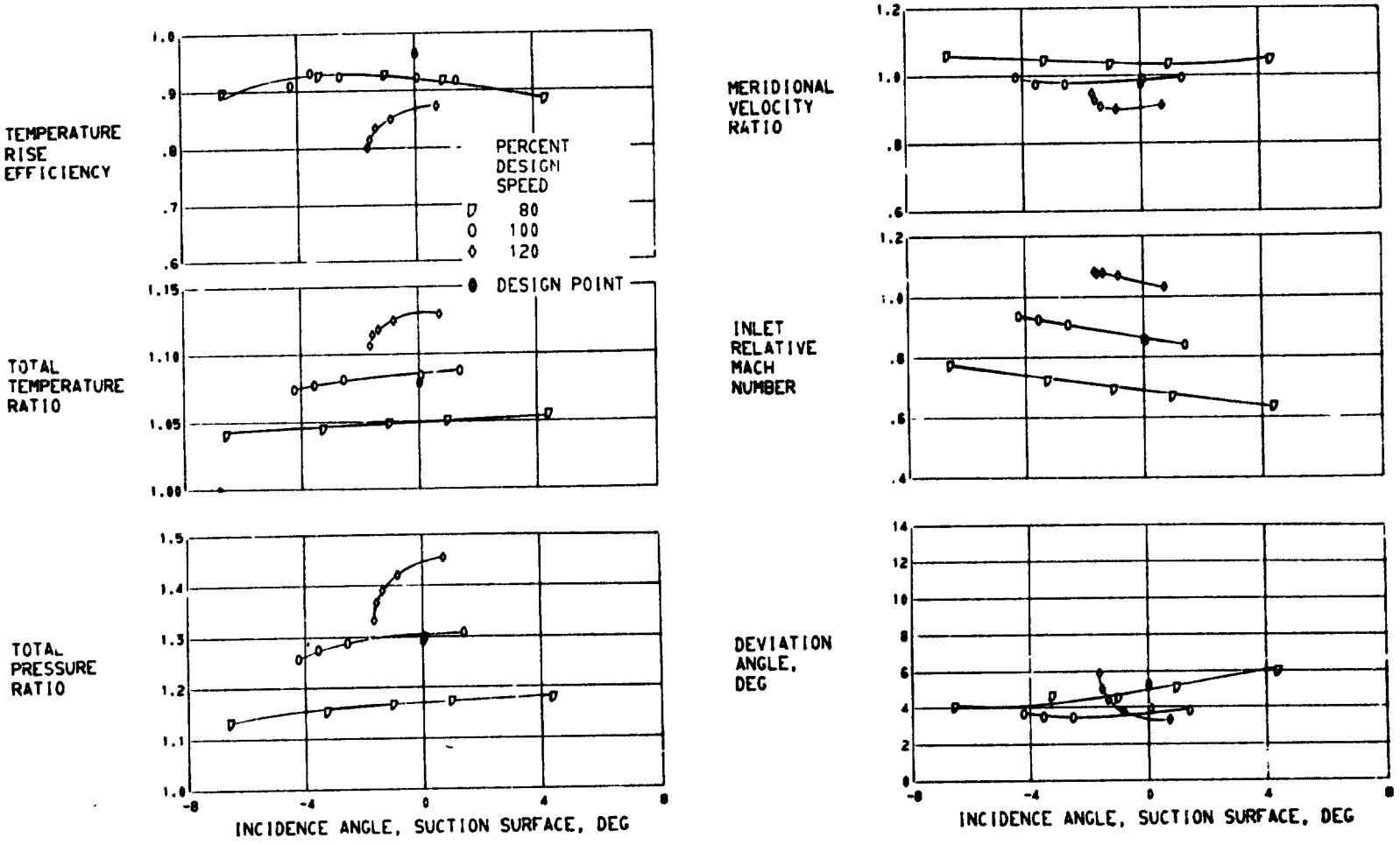
C 2

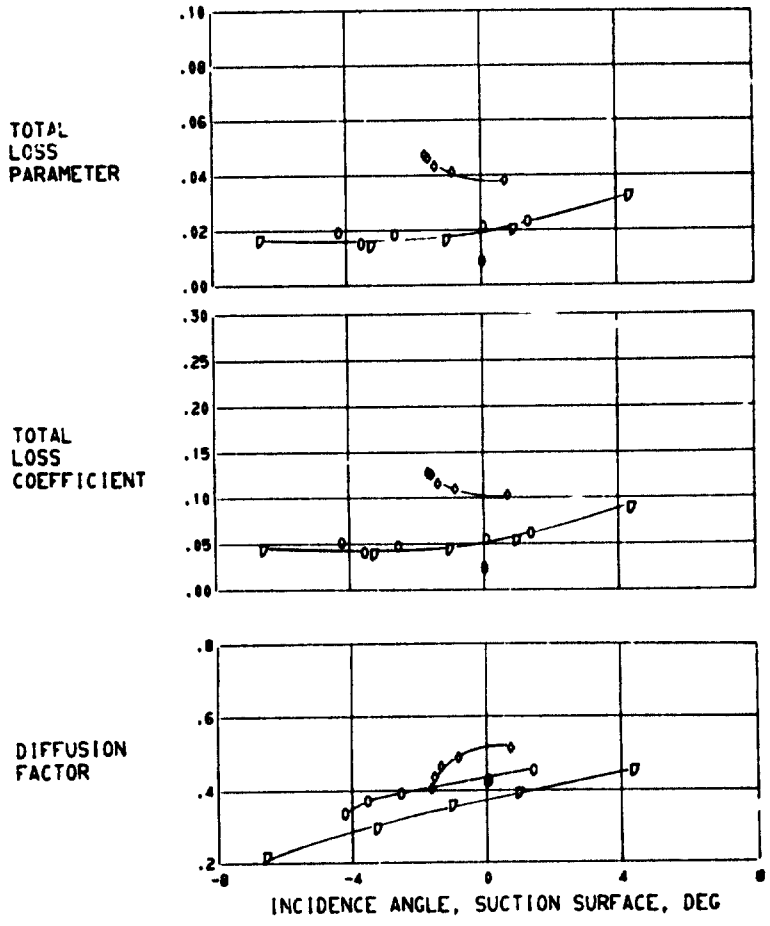

TEMPERATURE RISE EFFICIENCY
TOTAL TEMPERATURE RATIO
TOTAL PRESSURE RATIO
PERCENT DESIGN SPEED
80
100
120
DESIGN POINT
INCIDENCE ANGLE, SUCTION SURFACE, DEG
MERIDIONAL VELOCITY RATIO
INLET RELATIVE MACH NUMBER
DEVIATION ANGLE, DEG
INCIDENCE ANGLE, SUCTION SURFACE, DEG



(B) 10.0 PERCENT SPAN.

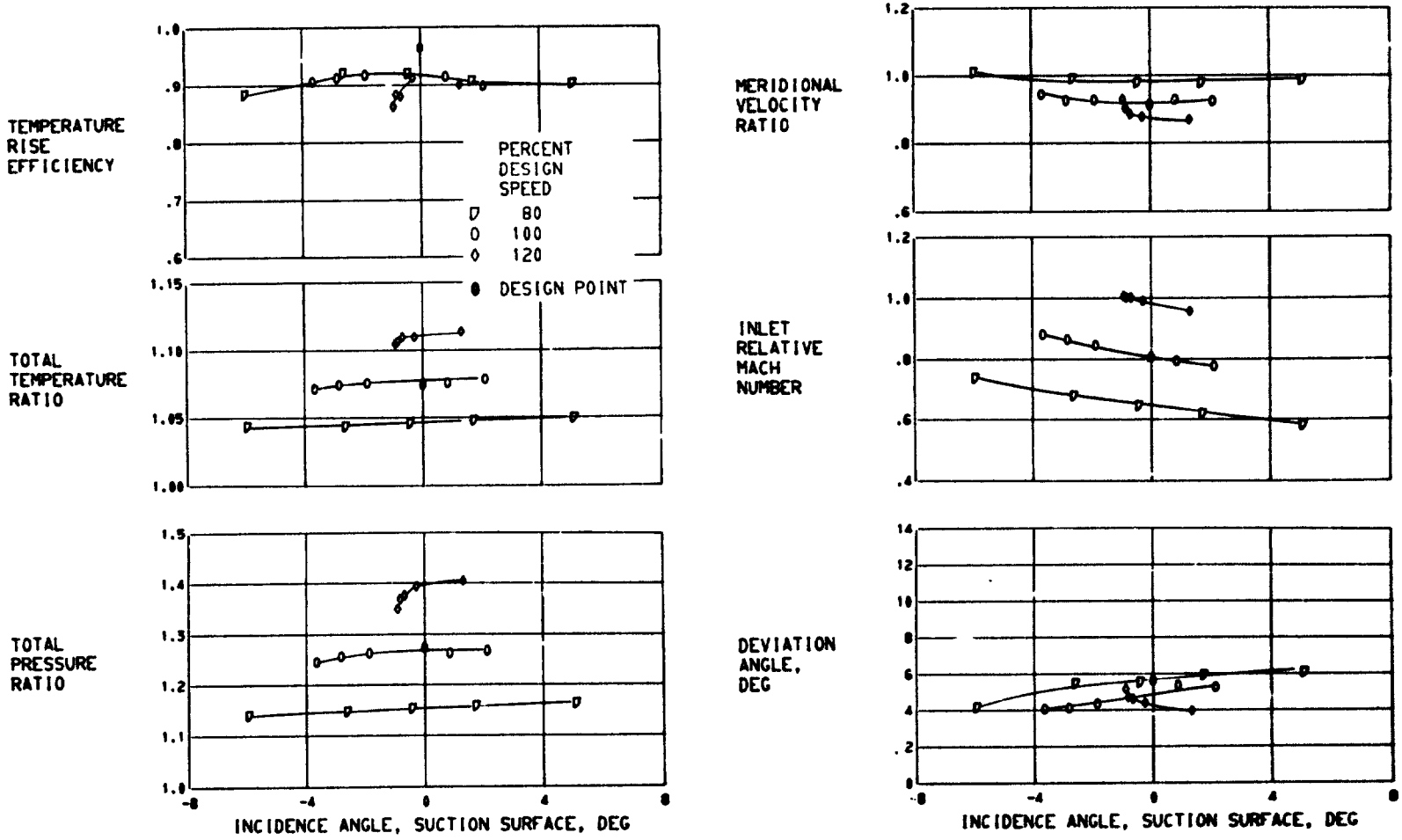
FIGURE 11. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR ROTOR 52.

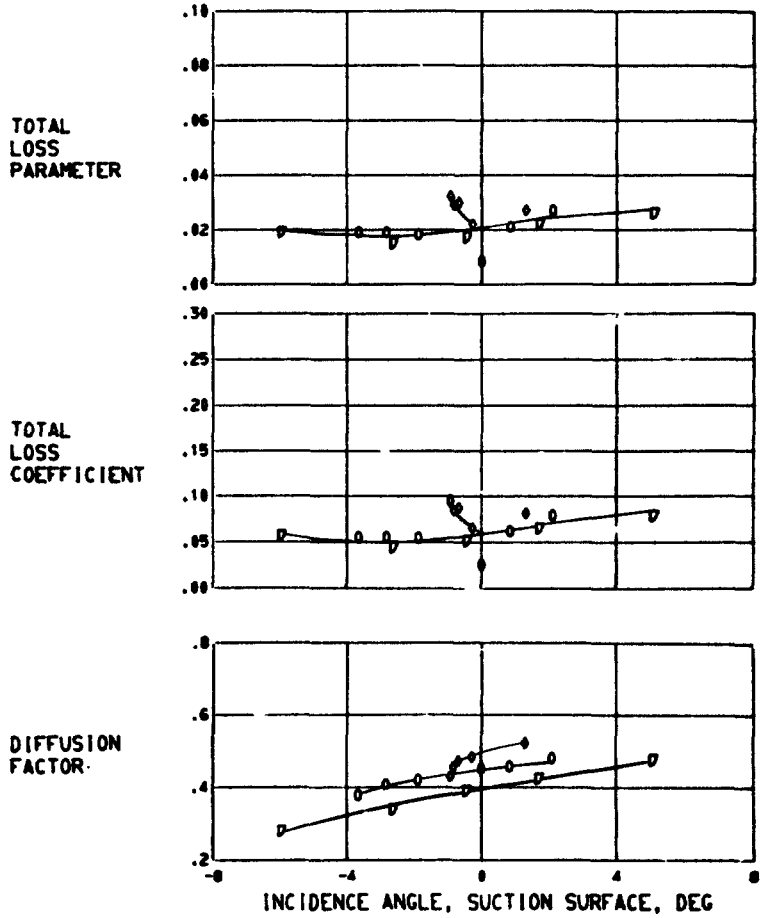

TEMPERATURE RISE EFFICIENCY
TOTAL TEMPERATURE RATIO
TOTAL PRESSURE RATIO
PERCENT DESIGN SPEED
80
100
120
DESIGN POINT
INCIDENCE ANGLE, SUCTION SURFACE, DEG
MERIDIONAL VELOCITY RATIO
INLET RELATIVE MACH NUMBER
DEVIATION ANGLE, DEG
INCIDENCE ANGLE, SUCTION SURFACE, DEG



(C) 30.0 PERCENT SPAN.

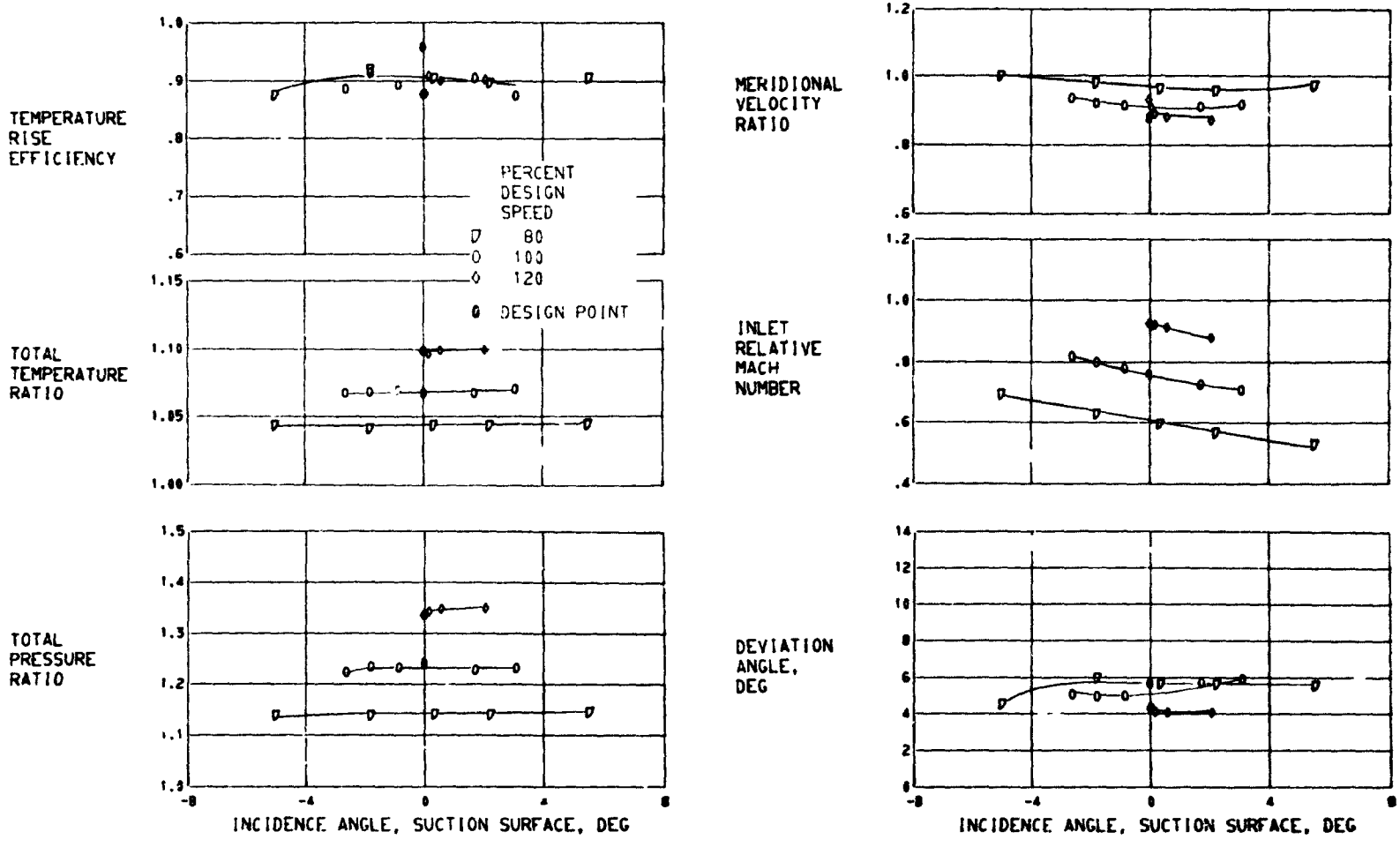
FIGURE 11. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR ROTOR 52.

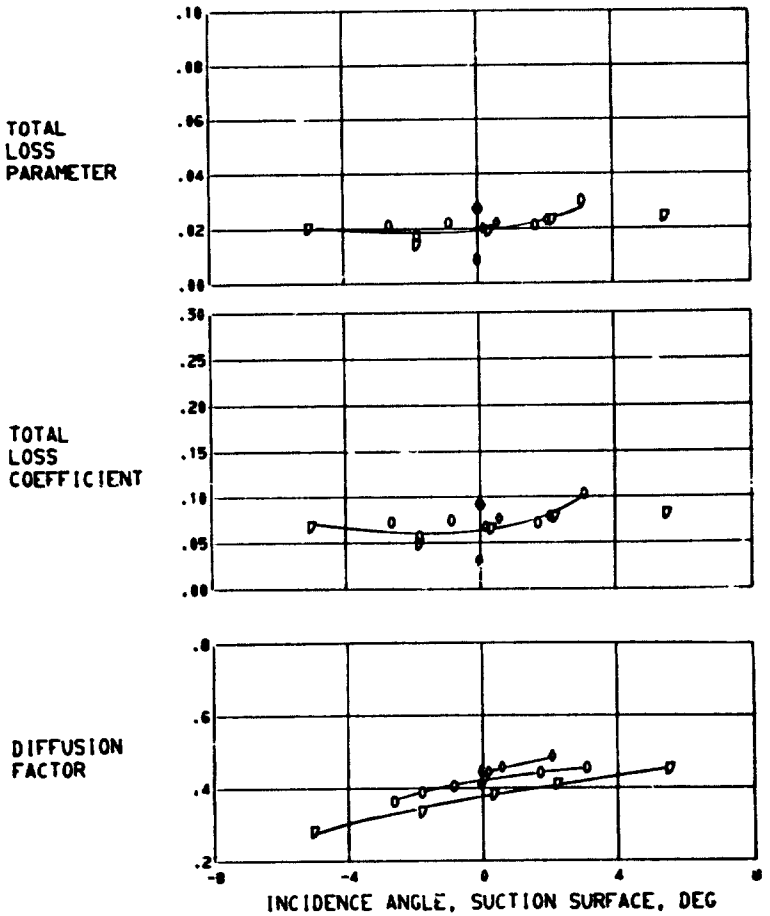

TEMPERATURE RISE EFFICIENCY
TOTAL TEMPERATURE RATIO
TOTAL PRESSURE RATIO
PERCENT DESIGN SPEED
80
100
120
DESIGN POINT
INCIDENCE ANGLE, SUCTION SURFACE, DEG
MERIDIONAL VELOCITY RATIO
INLET RELATIVE MACH NUMBER
DEVIATION ANGLE, DEG
INCIDENCE ANGLE, SUCTION SURFACE, DEG



(D) 50.0 PERCENT SPAN.

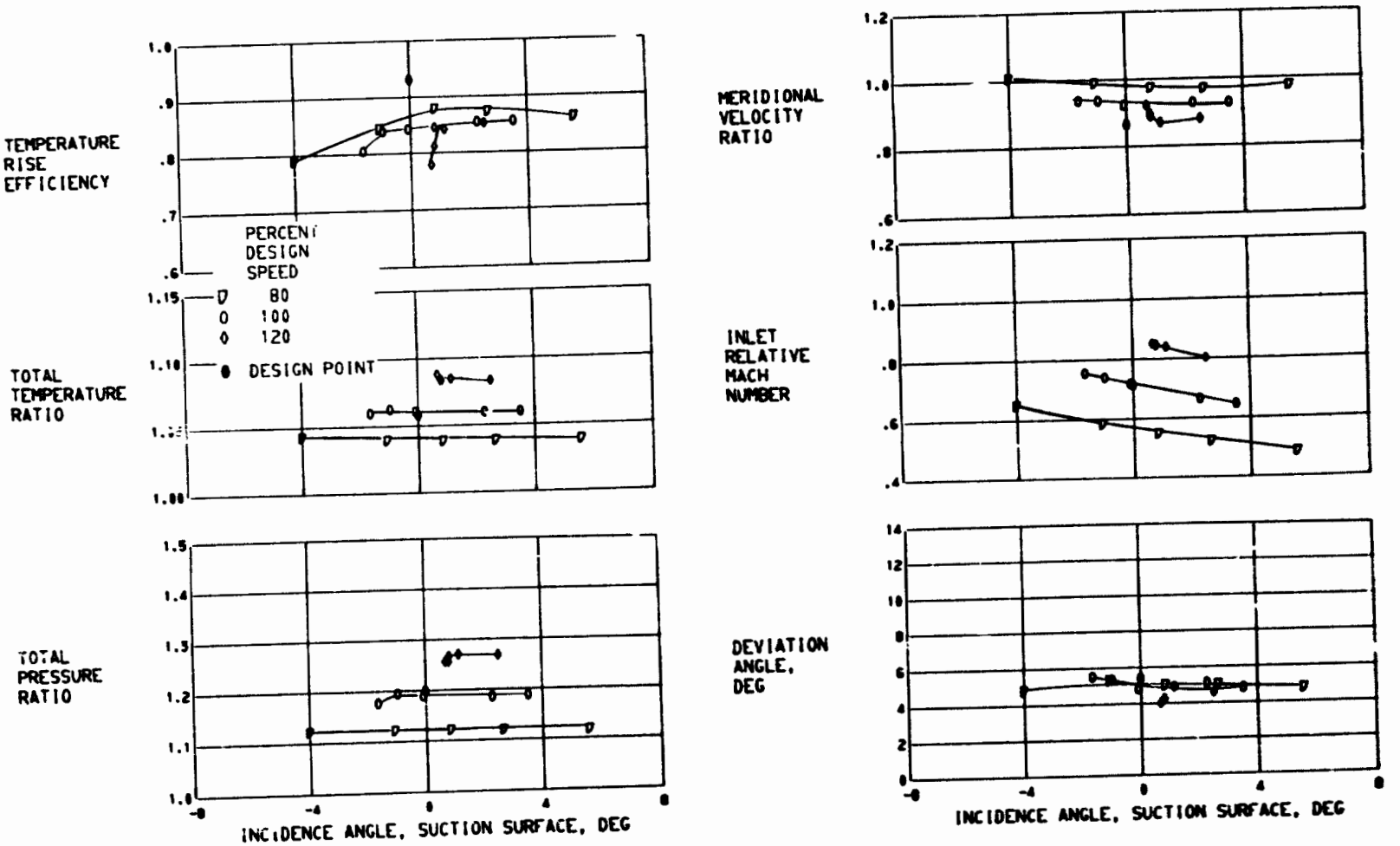
FIGURE 11. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR ROTOR 52.

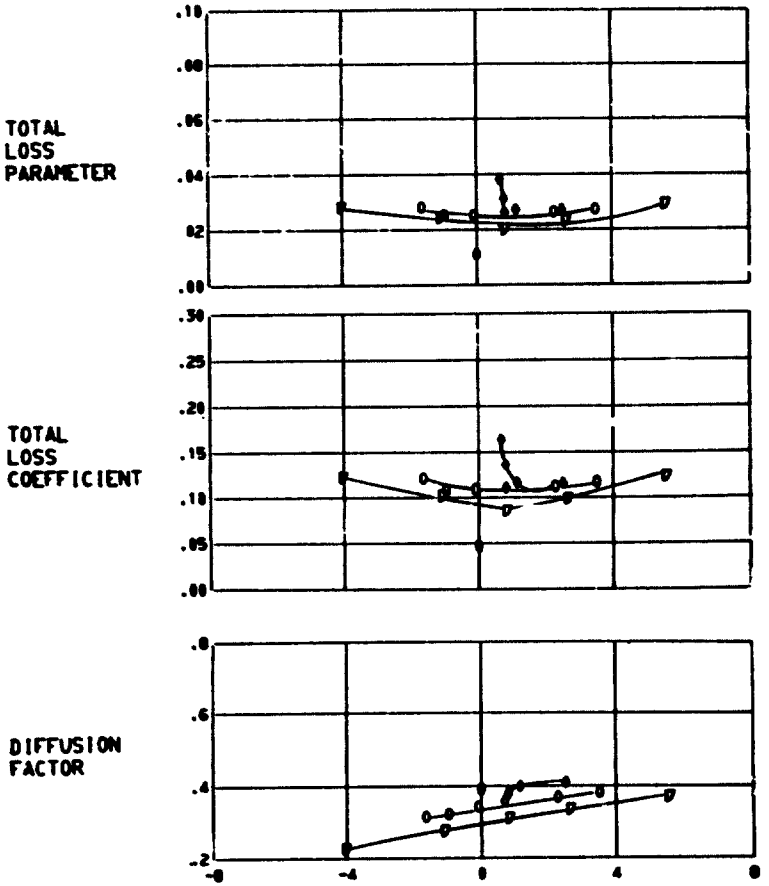

TEMPERATURE RISE EFFICIENCY
TOTAL TEMPERATURE RATIO
TOTAL PRESSURE RATIO
PERCENT DESIGN SPEED
80
100
120
DESIGN POINT
INCIDENCE ANGLE, SUCTION SURFACE, DEG
MERIDIONAL VELOCITY RATIO
INLET RELATIVE MACH NUMBER
DEVIATION ANGLE, DEG
INCIDENCE ANGLE, SUCTION SURFACE, DEG



(E) 70.0 PERCENT SPAN.

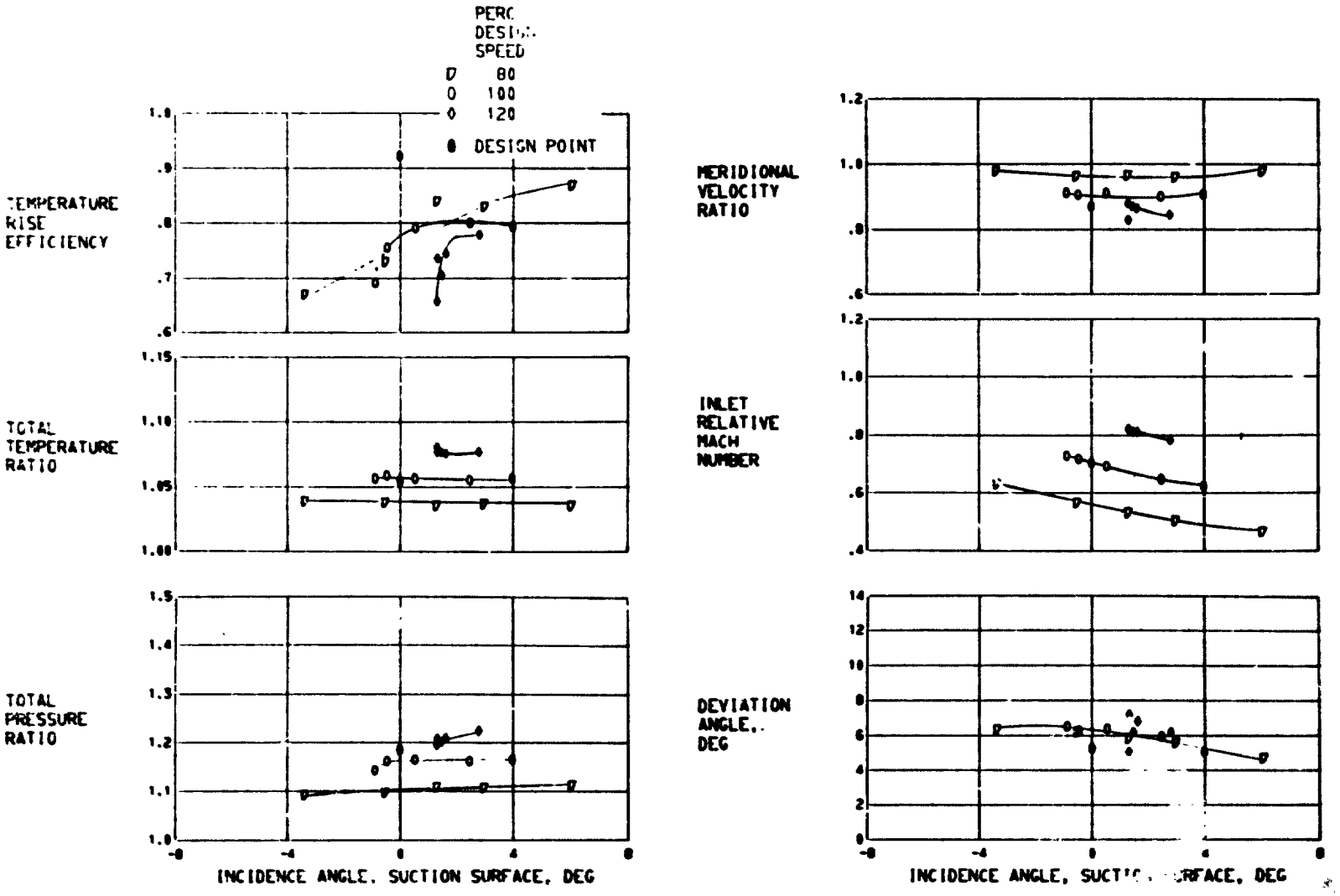
FIGURE 11. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR ROTOR 52.

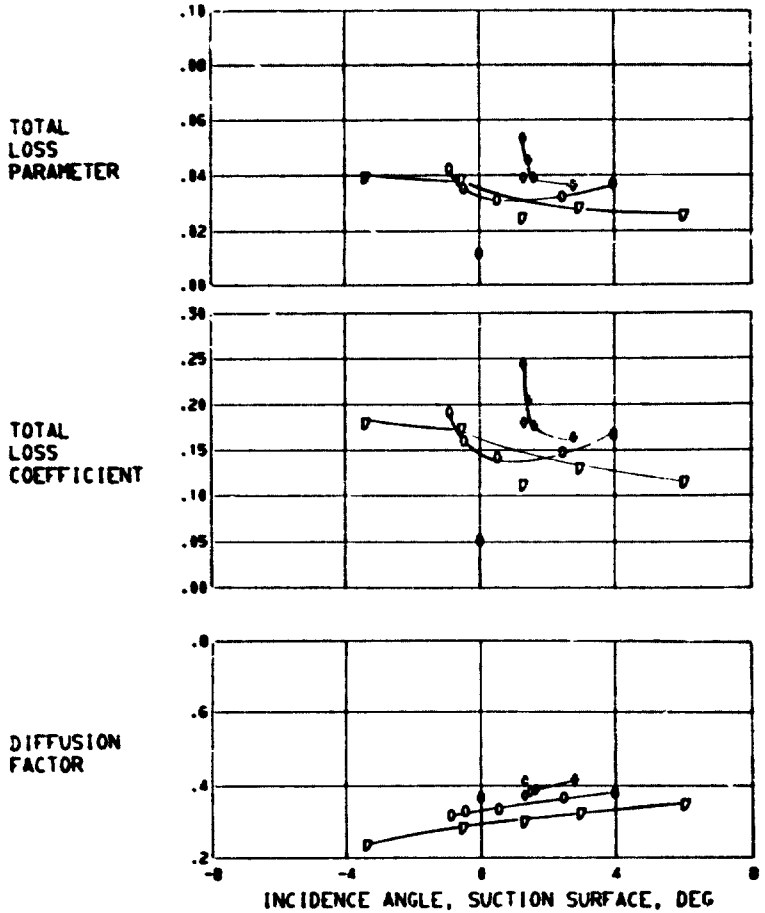

TEMPERATURE RISE EFFICIENCY
TOTAL TEMPERATURE RATIO
TOTAL PRESSURE RATIO
PERCENT DESIGN SPEED
80
100
120
DESIGN POINT
MERIDIONAL VELOCITY RATIO
INLET RELATIVE MACH NUMBER
DEVIATION ANGLE, DEG
INCIDENCE ANGLE, SUCTION SURFACE, DEG
INCIDENCE ANGLE, SUCTION SURFACE, DEG



(F) 90.0 PERCENT SPAN.

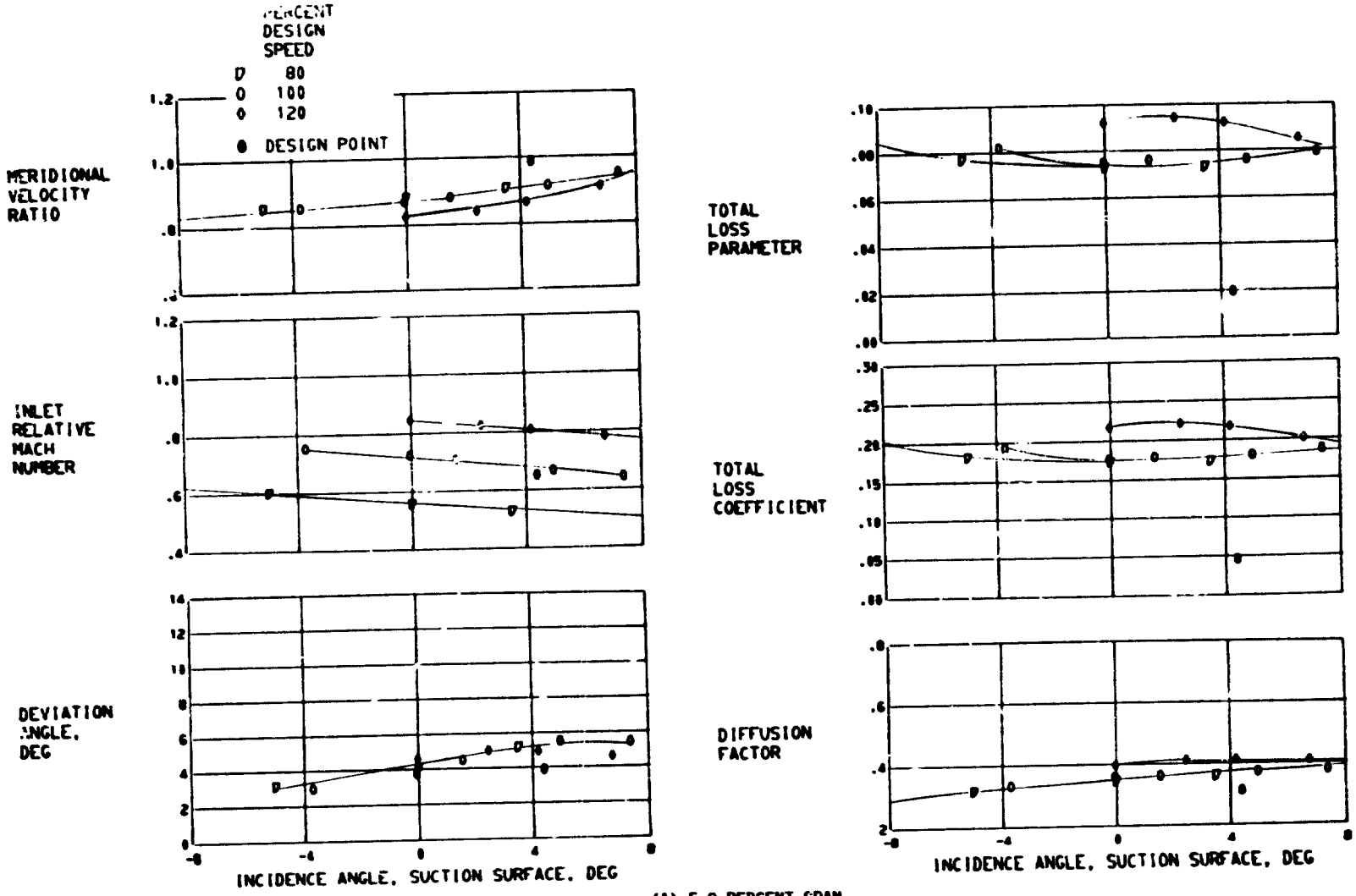
FIGURE 11. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR ROTOR 52.


PERC
DESIGN
SPEED
80
100
120
DESIGN POINT
TEMPERATURE RISE EFFICIENCY
TOTAL TEMPERATURE RATIO
TOTAL PRESSURE RATIO
INCIDENCE ANGLE, SUCTION SURFACE, DEG
MERIDIONAL VELOCITY RATIO
INLET RELATIVE MACH NUMBER
DEVIATION ANGLE, DEG
INCIDENCE ANGLE, SUCTION SURFACE, DEG



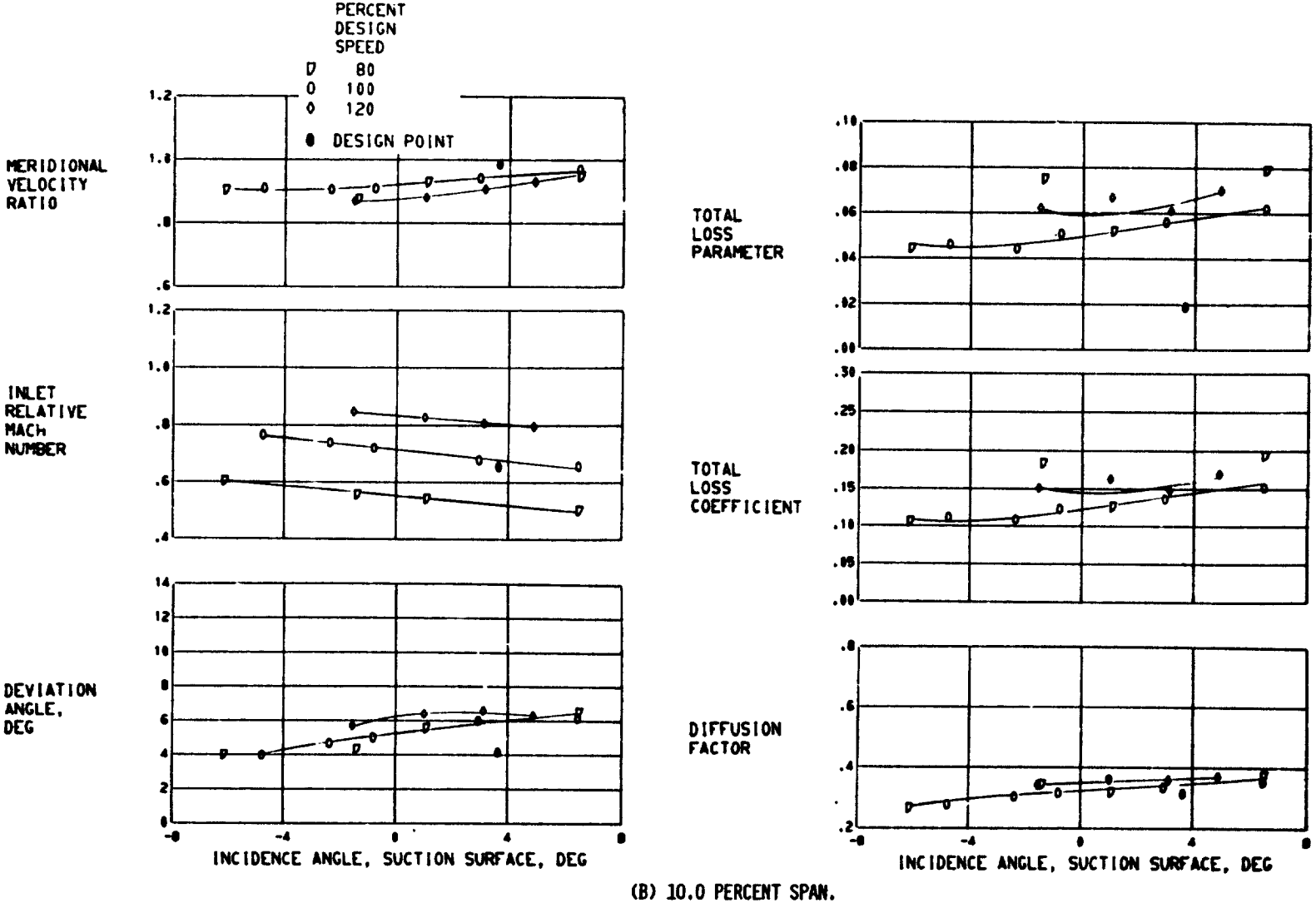
(G) 95.0 PERCENT SPAN.

FIGURE 11. - CONCLUDED. BLADE-ELEMENT PERFORMANCE FOR ROTOR 52.



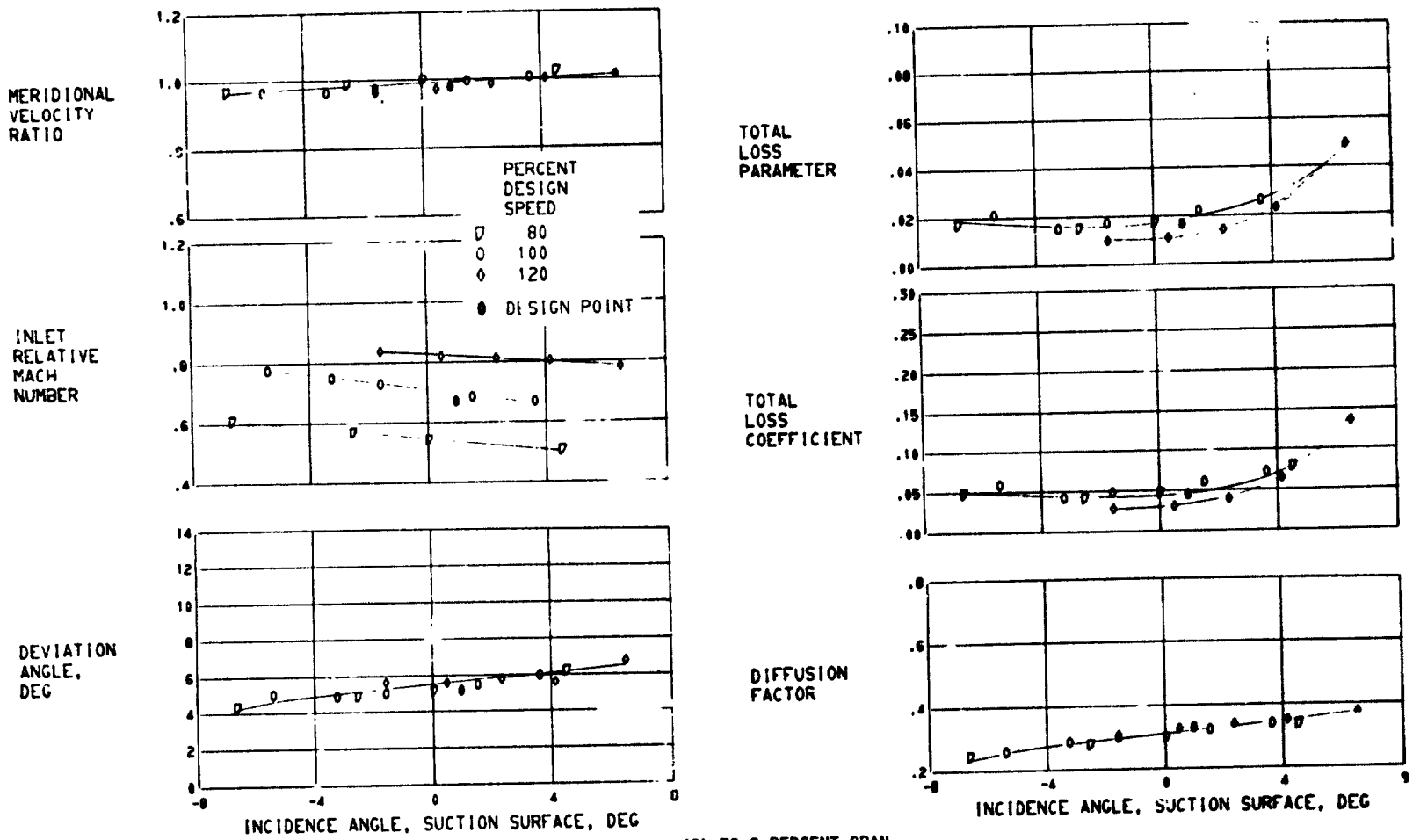
(A) 5.0 PERCENT SPAN.

FIGURE 12. - BLADE-ELEMENT PERFORMANCE FOR STATOR 52.



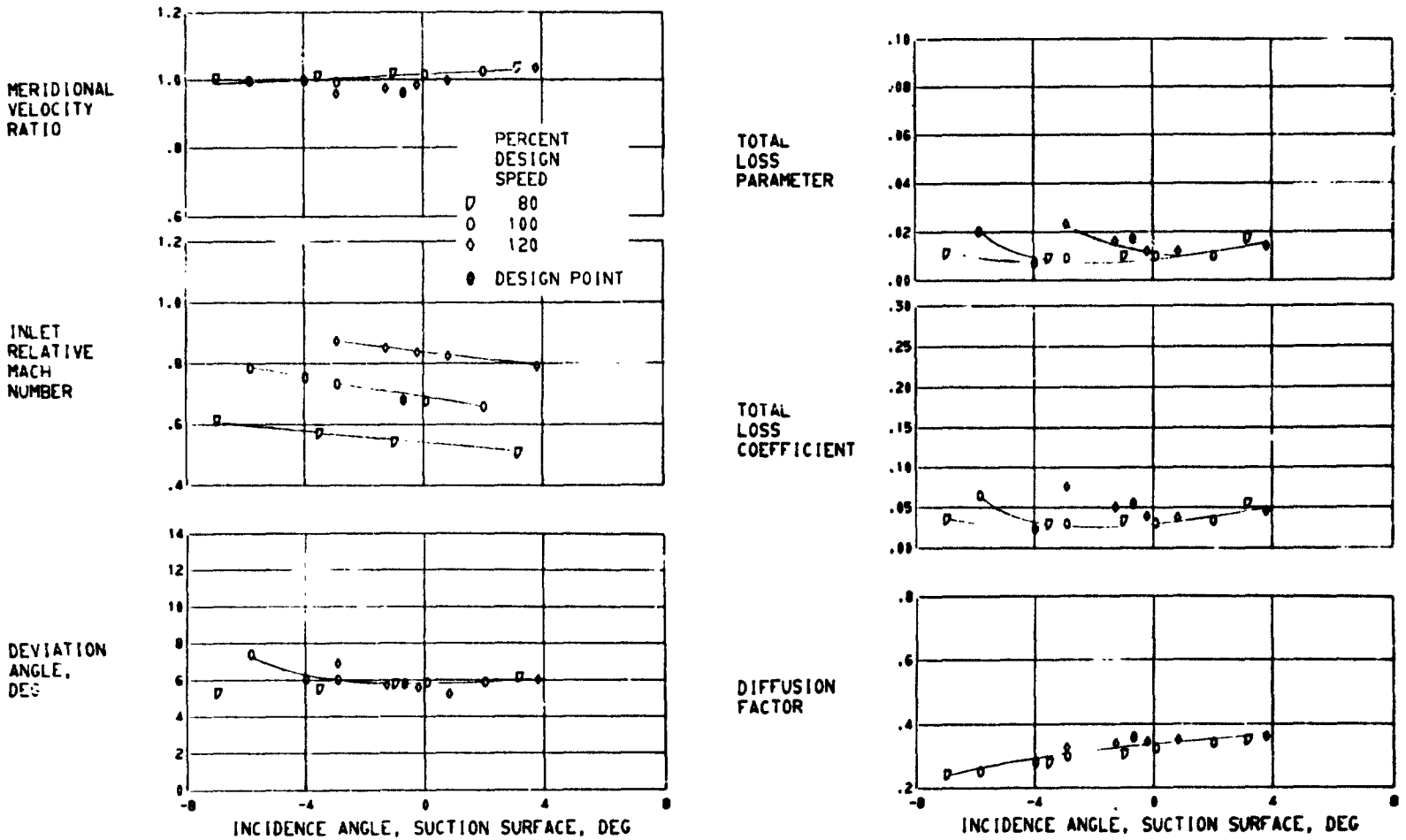
(B) 10.0 PERCENT SPAN.

FIGURE 12. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR STATOR 52.



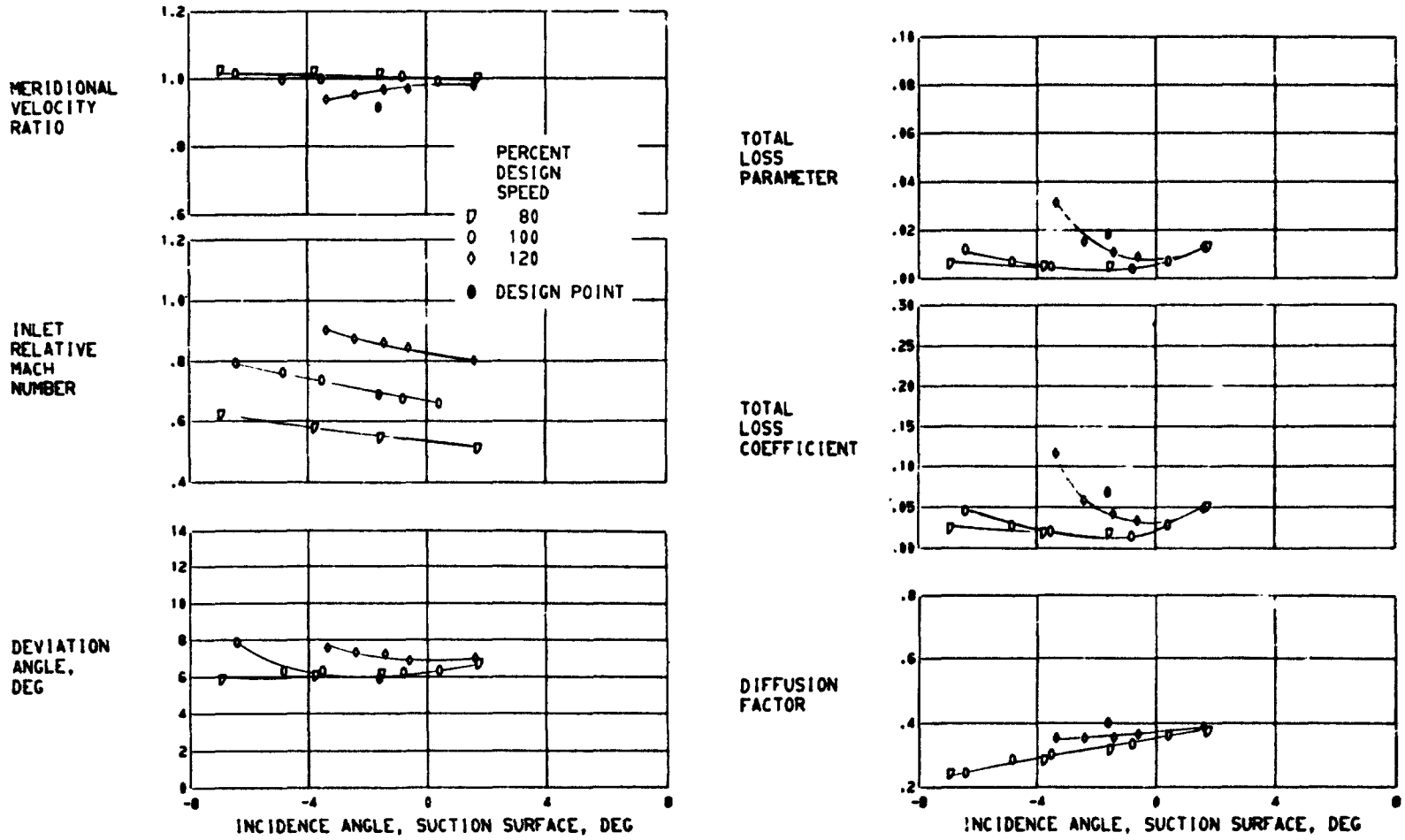
(C) 30.0 PERCENT SPAN.

FIGURE 12. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR STATOR 52.



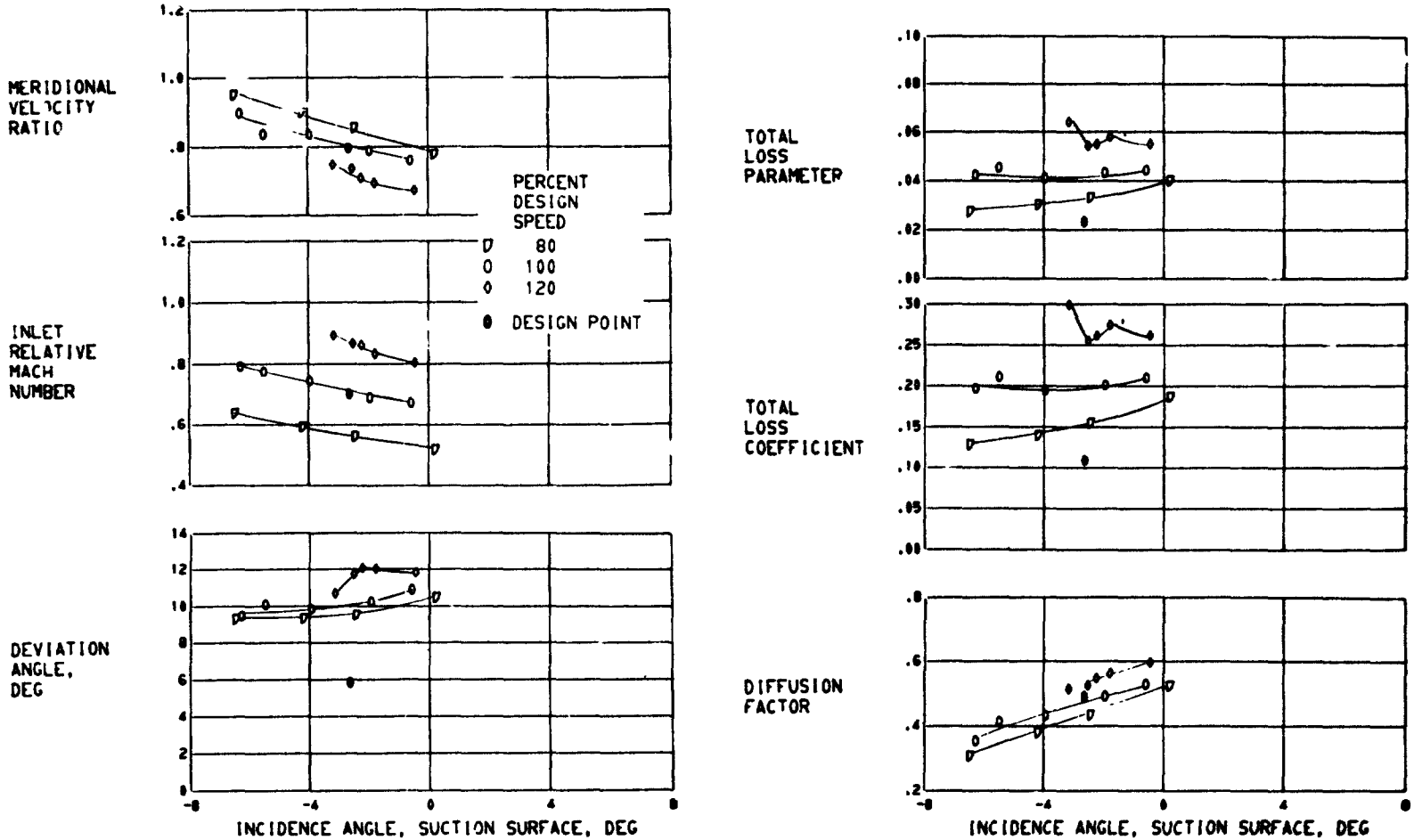
(D) 50.0 PERCENT SPAN.

FIGURE 12. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR STATOR 52.



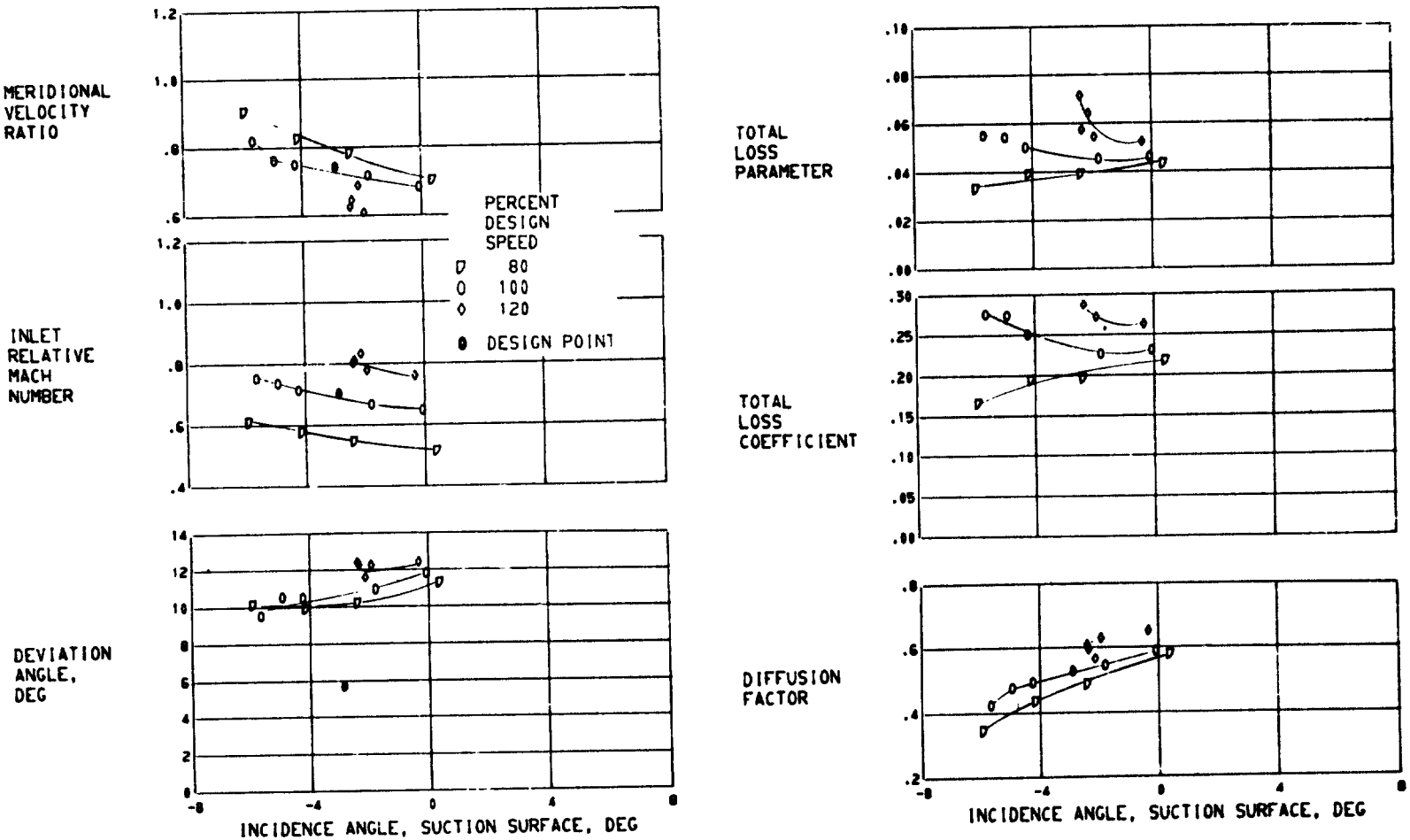
(E) 70.00 PERCENT SPAN.

FIGURE 12. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR STATOR 52.



(F) 90.0 PERCENT SPAN.

FIGURE 12. - CONTINUED. BLADE-ELEMENT PERFORMANCE FOR STATOR 52.



(G) 95.0 PERCENT SPAN.

FIGURE 12. - CONCLUDED. BLADE-ELEMENT PERFORMANCE FOR STATOR 52.

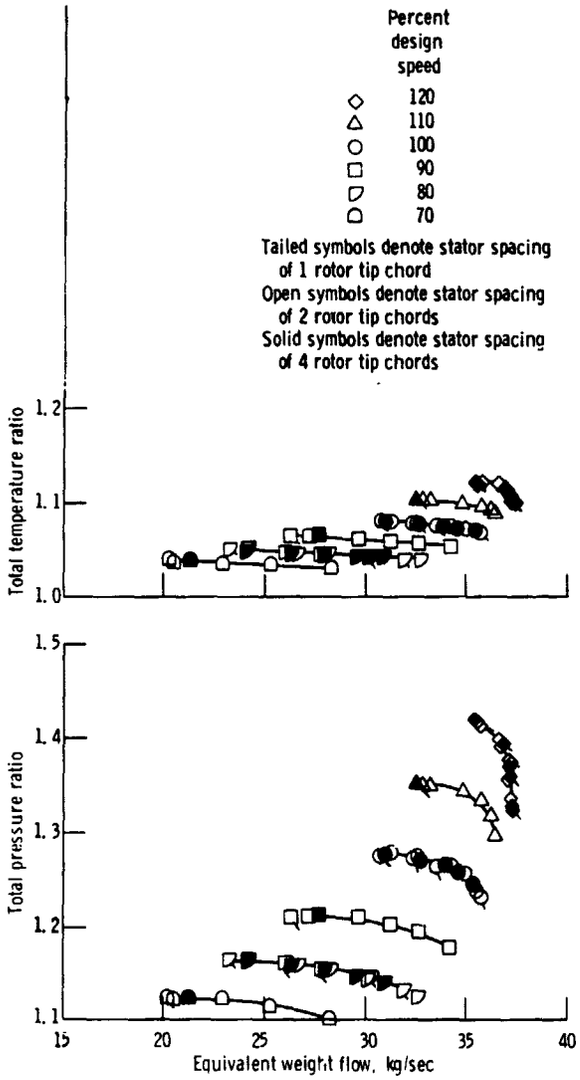


Figure 13. - Effect of stator spacing on overall performance for rotor 52.

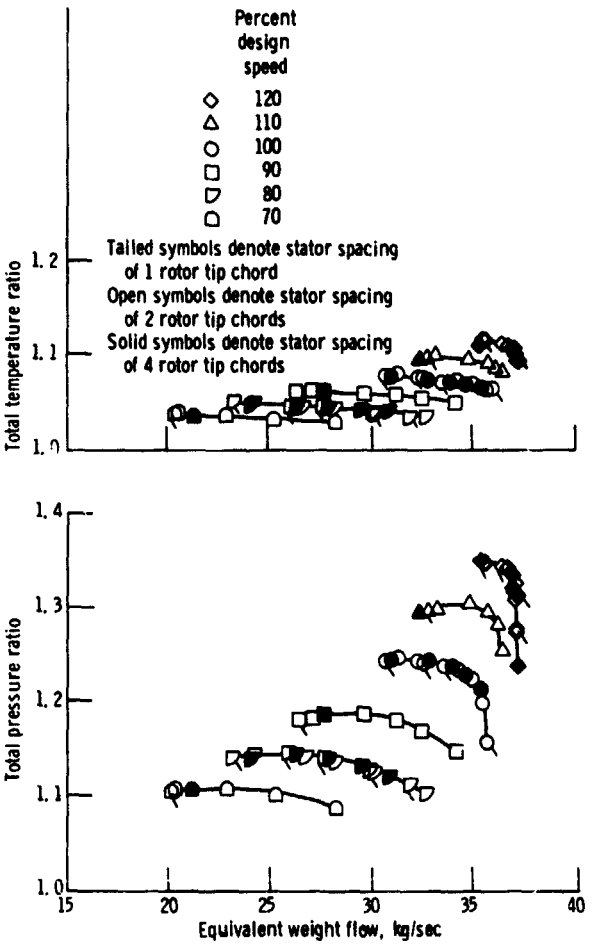


Figure 14. - Effect of stator spacing on overall performance for stage 52-52.

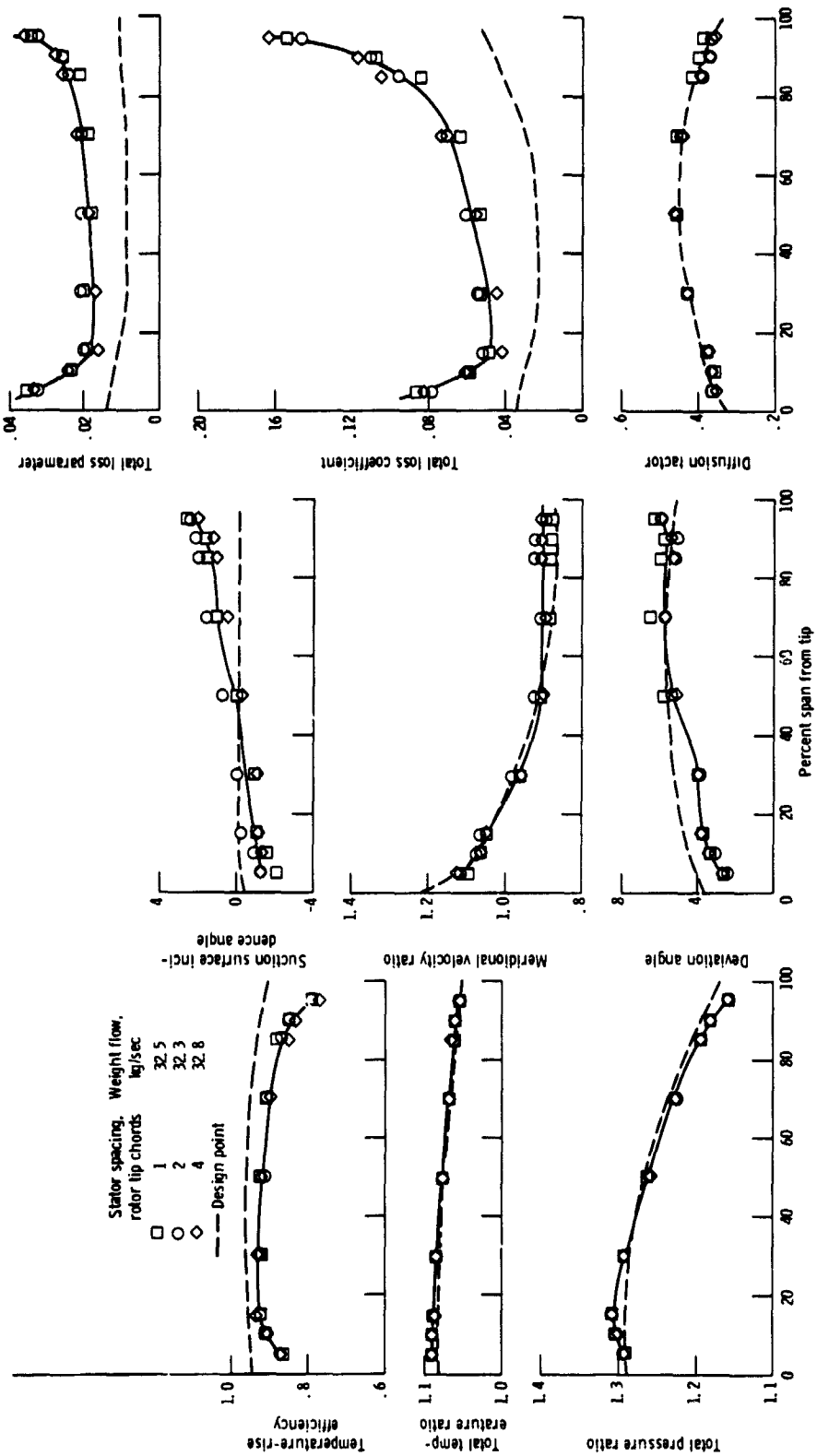


Figure 15. - Effect of stator spacing on radial distribution of performance for rotor 52; 100 percent design speed.

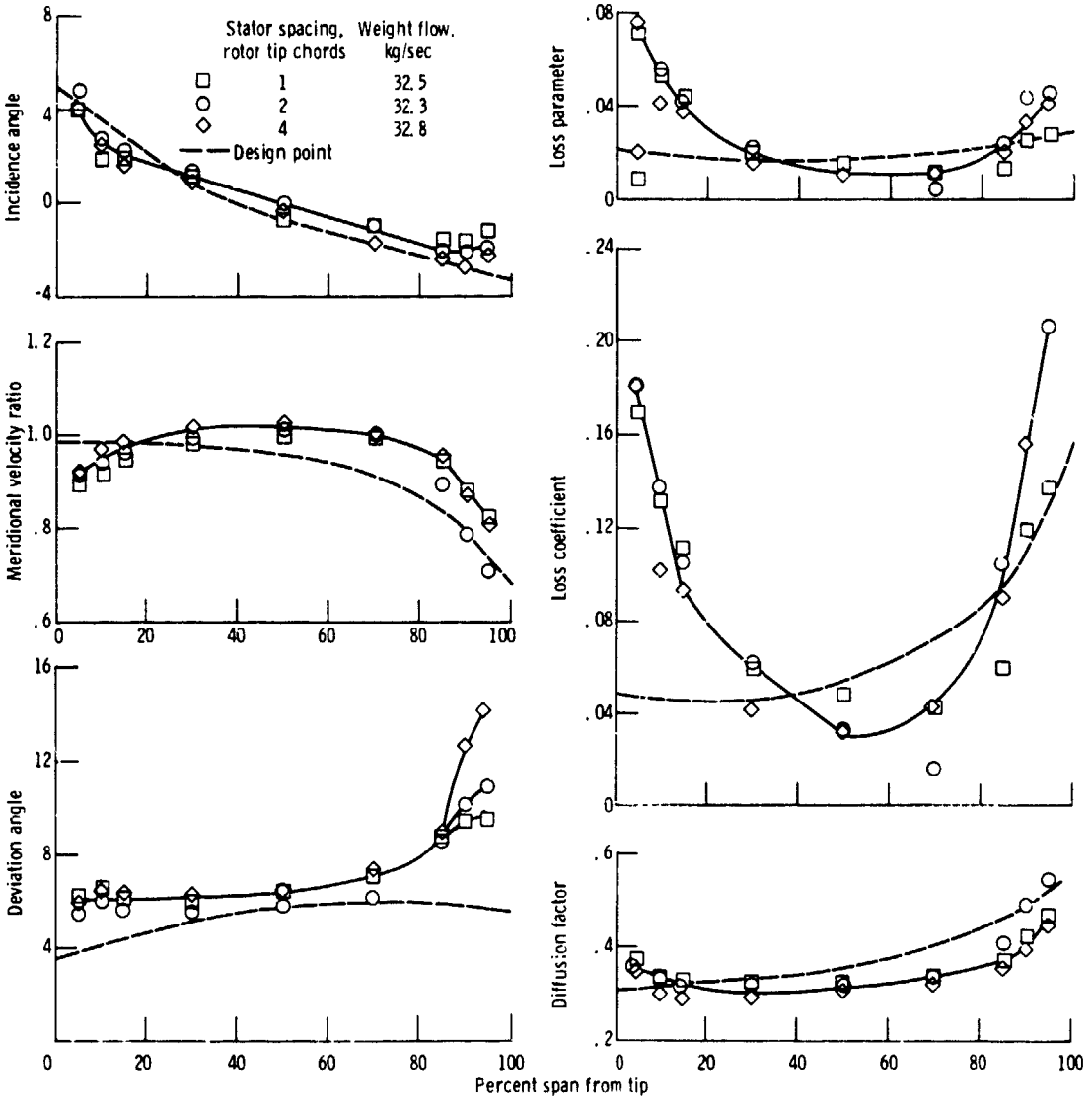


Figure 16. Effect of stator spacing on radial distribution of performance for stator 52; 100 percent design speed.