

AFOSR-TR- 80 - 1040

AFOSR TR

Air Force Office of Scientific Research

Eglin Air Force Base

Grant AFOSR 78-3569-A

THE EFFECTS OF WARHEAD-INDUCED DAMAGE ON THE AEROELASTIC
CHARACTERISTICS OF LIFTING SURFACES
VOLUME II - AERODYNAMIC EFFECTS

by

J.C. Westkaemper

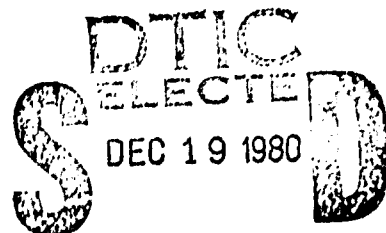
and

R. M. Chandrasekharan

Department of Aerospace Engineering
and Engineering Mechanics

CENTER FOR AERONAUTICAL RESEARCH

Bureau of Engineering Research
The University of Texas at Austin



A

This document has been approved
for public release and sale; its
distribution is unlimited.

80 10 21 03

DDC FILE COPY

THIS DOCUMENT IS NOT TO BE
REPRODUCED OR TRANSMITTED IN ANY FORM
BY ANY MEANS, ELECTRONIC OR MECHANICAL,
INCLUDING PHOTOCOPYING, RECORDING, OR BY
ANY INFORMATION STORAGE AND RETRIEVAL
SYSTEM, WITHOUT PERMISSION IN WRITING
FROM THE AIR FORCE OFFICE OF SCIENTIFIC
RESEARCH.

**Best
Available
Copy**

DISCLAIMER NOTICE

**THIS DOCUMENT IS BEST QUALITY
PRACTICABLE. THE COPY FURNISHED
TO DTIC CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO NOT
REPRODUCE LEGIBLY.**

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFOSR-TR- 80 - 1040	2. GOVT ACCESSION NO. AD-A093063	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) The Effects of Warhead-Induced Damage on the Aeroelastic Characteristics of Lifting Surfaces Volume II- Aerodynamic Effects		5. TYPE OF REPORT & PERIOD COVERED Final Scientific Report 2-1-79 to 3-1-80
7. AUTHOR(s) J. C. Westkaemper R. Chandrasekharan		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Center for Aeronautical Research Dept. of Aerospace Engr./Engineering Mechanics The University of Texas @ Austin/Austin TX 78712		8. CONTRACT OR GRANT NUMBER(s) AFOSR 78-3569
11. CONTROLLING OFFICE NAME AND ADDRESS Air Force Office of Scientific Research (AFDC) Bolling Air Force Base D. C. 20332 <i>N/P</i>		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 61102F 2301/196
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE July 1980
		13. NUMBER OF PAGES 114
		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Damaged Lifting Surfaces Drag Divergence Aeroelasticity & Ballastic Damage		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Tests were made in a subsonic wind tunnel to determine the effects of damage on the aerodynamic characteristics of a T-38 aircraft stabilator half. Six damage configurations were used, one circular and the remainder trapezoidal in planform, with areas of up to 2 percent of the stabilator area. The damage holes were all ahead of the 50 percent chord line, with centers at 43, 60 and 75 percent span. Surface pressure distributions and lift and drag coefficients were measured. The 65A004 airfoil used is subject to leading edge separation which strongly influenced the results. In the absence of separation, damage effects tended to →		

UNCLASSIFIED

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

be localized and aerodynamic degradation was modest. With extensive separation, the damage influence propagated completely across the span, with more substantial degradation. There was up to 300 percent increase on C_D but at moderate lift coefficients the drag increase was generally insignificant. The decrease in C_L was more consistent, ranging up to 10 percent for the larger damage holes.

up Sub

UNCLASSIFIED

Air Force Office of Scientific Research

Eglin Air Force Base

Grant **AFOSR-78-3569**

(15)

(C) THE EFFECTS OF WARHEAD-INDUCED DAMAGE ON THE AEROELASTIC
CHARACTERISTICS OF LIFTING SURFACES.

VOLUME II. - AERODYNAMIC EFFECTS.

(9) 1 Feb 77 - 1 May 80,
by

11/2321
(17) 16

(10) J.C. Westkaemper

and

R. M. Chandrasekharan

Department of Aerospace Engineering
and Engineering Mechanics

(18) AFOSR

(19) TIR-80-1014

CENTER FOR AERONAUTICAL RESEARCH

Bureau of Engineering Research
The University of Texas at Austin

(12) 116

(11) July 1980

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
Distribution/	
Availability Codes	
List	Avail and/or Special
A 23	

402465

LB

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	ii
ABSTRACT	iii
INTRODUCTION	1
TEST FACILITY	2
MODEL	2
DAMAGE CONFIGURATIONS	4
TEST CONDITIONS	4
RESULTS	6
Pressure Measurements	6
Spanwise Lift Distribution	8
Direct Lift and Drag Measurements	9
REFERENCES	13
TABLES	14
FIGURES	17
APPENDIX I - THREE-DIMENSIONAL PLOTS	47
APPENDIX II - TABULATED DATA	84

ACKNOWLEDGEMENT

This research was sponsored by the Vulnerability Assessments Group of the Air Force Armament Laboratory, Eglin Air Force Base, through the Air Force Office of Scientific Research. Mr. J.M. Heard was technical monitor on the program carried out under Grants ~~■~~-AFOSR 78-3569 and 3569~~■~~ during the period February 1, 1978 through January 31, 1980.

Austin, Texas

June, 1980

ABSTRACT

Tests were made in a subsonic wind tunnel to determine the effects of damage on the aerodynamic characteristics of a T-38 aircraft stabilator half. Six damage configurations were used, one circular and the remainder trapezoidal in planform, with areas of up to 2 percent of the stabilator area. The damage holes were all ahead of the 50 percent chord line, with centers at 43, 60 and 75 percent span. Surface pressure distributions and lift and drag coefficients were measured. The 65A004 airfoil used is subject to leading edge separation which strongly influenced the results. In the absence of separation, damage effects tended to be localized and aerodynamic degradation was modest. With extensive separation, the damage influence propagated completely across the span, with more substantial degradation. There was up to 300 percent increase on C_{D_0} , but at moderate lift coefficients the drag increase was generally insignificant. The decrease in C_L was more consistent, ranging up to 10 percent for the larger damage holes.

INTRODUCTION

This report covers the second phase of a study of the effects of damage on the aerodynamics of lifting surfaces. The work is part of a larger study of the effect of damage on the aeroelastic characteristics of lifting surfaces. In Reference 1, the report on the first phase of this study, it was observed that suitably accurate aeroelastic predictions could not be made because of the unknown changes in aerodynamic forces caused by damage. A limited amount of two-dimensional test data and results for one actual aircraft were found. These produced a very sparse data base that did not include surface pressure measurements which would aid in understanding the aerodynamics of damage holes or permit predictions of the effects of holes other than those tested. In addition, the airfoil sections were characteristic of subsonic aircraft, in contrast to the current interest in supersonic aircraft.

As a consequence, a test program was initiated to measure lift and drag coefficients and surface pressure distributions using a surplus T-38 horizontal stabilizer with a limited but systematic series of damage configurations. The phase covered herein is the subsonic, incompressible regime; planning is in progress for the next phase which will extend testing to the transonic regime.

TEST FACILITY

All aerodynamic tests were made in the University of Texas 5 x 7 ft. subsonic wind tunnel at a Mach Number of $0.186 \pm .005$. The tunnel is an atmospheric-intake, open-circuit type, hence the test conditions vary slightly with seasonal variations in the weather. The turbulence level at the test section was 0.6%. All data were recorded using a Hewlett Packard 3052 programmable data acquisition system. The pressure measurements were made using four 48-port Scannivalves, each with a DRUCK PDCR22, 1 psid pressure transducer.

MODEL

The models used in all the aerodynamic tests were left-half, T-38 stabilizers which had been removed from service because of local delamination of the skin from the honeycomb core. The majority of the delaminations were small enough in area to ignore aerodynamically, but in one case a repair was made. The surface conditions on the stabilizers were thus the same as on the T-38 aircraft; no attempt was made to obtain an aerodynamically-smooth surface. A small triangular planform section was added to the root of each stabilizer (Fig. 1) to give a root chord perpendicular to the torque tube which was then used to mount the stabilizer in the tunnel. This addition was necessary because the original root chord was oriented parallel to the boattailed fuselage of the T-38. The torque tube was supported by two pillow blocks mounted on a stand outside the tunnel; an angle-of-attack drive was also attached to the stand.

Because of the honeycomb construction, the pressure taps were installed using stainless steel tubing cemented to the lower-surface skin, passing through the lower skin and honeycomb to the inner side of the upper skin which contained the 0.81 mm diameter pressure orifices. Fabrication details are given in Ref. 1, and the location of the orifices is listed in Table 1. The stabilizer airfoil section is a symmetrical one, and the pressure data from the upper skin taps was measured at equal positive and negative angles of attack; data from the negative angles was used in place of measurements on the lower skin surface which was distorted by the pressure tubing. Thus, the data from the upper skin at +8 degrees, for example, was combined with data from the same orifices at -8 degrees to obtain overall lift and pressure coefficients. This method is not completely rigorous because of the -4 degrees dihedral of the stabilizer, but any error may be expected to be minor compared to the effects of the damage being studied.

The direct-measurement forces were obtained from a stabilizer having four-arm strain gage bridges at two stations on the cantilevered section of the torque tube, between the tunnel wall and the first pillow block. Two bridges were located in the axial-force plane and two in the normal-force plane; conversion to lift and drag coefficients was done by the computer in the data acquisition system. This stabilizer had no pressure instrumentation, hence data were obtained for both positive and negative angles of attack.

DAMAGE CONFIGURATIONS

One circular and five trapezoidal damage holes, as detailed in Table 2, were tested. In all cases, the openings were perpendicular to the plane of symmetry of the stabilizer. For most pressure distribution measurements, the honeycomb cells exposed by cutting each hole were filled with putty to produce a smooth-sided opening. However, after tests of the effect of filling the honeycomb showed no difference, the filling was discontinued. The hole areas ranged from 1/2 to 2 percent of the planform area of the tested stabilizer half. The trapezoidal shape was selected to aid in evaluating computer calculations of pressure distributions since curved hole shapes are more complex to model in computer studies.

TEST CONDITIONS

As previously noted, the tests were made at an average Mach Number of 0.186, which resulted in an average Reynolds Number of 5.29 million based on a mean aerodynamic chord of 1.15m (45.15 in.). Corrections for tunnel wall effects were made using the method of Ref. 2. The corrected angle of attack in degrees was

$$\alpha = \alpha_m + 3.27 C_{L_m}$$

The corrected lift coefficient was

$$C_L = 0.937 C_{L_m}$$

and the corrected drag coefficient

$$C_D = C_{D_m} + 0.035 C_{L_m}^2$$

where the subscript m indicates the measured value.

Oil flow visualization was by means of dye in SAE 20 motor oil. At angles of attack where flow separation was present, model vibrations and unsteady flow resulted in correspondingly unsteady pressure transducer and strain gage readings. These were recorded continuously on a strip chart recorder, to determine the mean values. Studies were then made to determine the number of digital-system readings which when averaged gave a value equal to the dynamic mean. Although not as precise a study as that reported in Ref. 3, the repeatability of data was improved by approximately one order of magnitude. For pressure measurements, five readings over a 1.5 second period were averaged, and for strain gage (force) measurements, 60 readings over 60 seconds were averaged. The indicated angle of attack range for pressure measurements was 0 to $+10^\circ$ in 2° increments, and for force from -12° to $+12^\circ$ in 1° increments.

The stabilizer was supported by a single, hollow steel torque tube, and as a consequence, substantial vibration was initially observed at the higher angles of attack where flow separation occurred. This vibration was a significant factor in the unsteadiness of the data. A small amount of lead shot was sealed in cavities at several positions in each stabilizer to supply dynamic damping. This reduced the motion of the tip to approximately ± 0.25 inch, compared to ± 0.75 inch without damping.

RESULTS

Pressure Measurements

The results of all the pressure tests are presented in the Appendices in two forms. Appendix I consists of plots in three-dimensional form of ΔC_p for all six configurations for which data were taken. As noted previously, pressure taps were installed on the upper skin surface only, thus ΔC_p was obtained by combining data for runs made at equal positive and negative angles of attack, e.g. ± 2 , ± 4 , etc. Although equal positive and negative geometric angles of attack were used, the tunnel corrections produced some minor deviations in actual angles of attack; this may be seen in Appendix II which is a tabulation of all pressure data. For example, for the undamaged case, $\pm 8^\circ$ geometric angle resulted in $+ 9.8^\circ$ and $- 10.1^\circ$ after wall corrections were applied. The variation is primarily the result of uncertainty in setting zero angle of attack. For the pressure model, this was done by aligning the tip chord with the tunnel axis. Subsequent testing with the force model disclosed some misalignment.

The sharp leading edge of the thin 65A004 airfoil causes a leading edge separation bubble to form at approximately 4° angle of attack (Ref. 4) and the length of the bubble increases with increasing angle of attack. As a consequence the data obtained without separation were generally of better quality than when separation and reverse flow were present. Separation also influenced the effects of damage on pressure distributions. Without separation, as in Fig. 2, there was little spanwise flow, and pressure changes were concentrated ahead of and aft of the damage. Separation produced both spanwise and reverse

flow (Fig. 3), and the strongest damage influence was observed outboard and forward of the hole for this case. The damage also substantially reduced the spanwise and reverse flow in some cases, as shown in Figures 3 to 5. The regions of perturbed pressures were small for the attached flow case, and generally were limited to a distance ahead of and behind the hole approximately equal to the hole chordwise dimension. For holes centered at 75% span with separated flow, the influence was concentrated at the leading edge and extended approximately to the stabilizer tip. The hole centered at 44% span caused less change in pressure than did the same area hole at 75% span, and influenced a smaller region of the skin.

Figure 6 shows the chordwise pressure distribution at 75% span for the undamaged stabilizer and the 1% area trapezoidal hole, for an angle of attack of 2.4° . The undamaged-case data are consistent with the two-dimensional results of Reference 4. For the 1% hole which had a length of 20% chord, the influence is concentrated in a region of 10% chord ahead of and behind the hole. Immediately aft of the hole, the pressure is reduced on both the top and bottom surfaces. A reduction is also observed ahead of the hole on the lower surface. These are all compatible with the expected flow into and out of the cavity formed by the damage. (The data points at 20% chord are the "base" pressure at the center of the forward face of the cavity.) Figure 7 shows similar data for a hole of 2% area, with similar trends but a larger change on the lower surface. Again, the pressure plotted at 10% chord is the base pressure within the cavity.

Figure 8 shows the influence of the 1% hole at 83.5% span; comparison with Figure 6 indicates only minor changes at this location, primarily on the upper surface. Inboard of the same hole, at 67% span, the perturbations are also small, as seen in Figure 9. This is consistent with the earlier observation that there is limited spanwise propagation of damage effects at lower angles of attack, where the flow is not separated.

Figures 10, 11 and 12 show the pressure distribution for the 1% hole, at 83.5, 75 and 67% span, and 9.8° angle of attack. The influence of separation is evident since the damage-induced disturbances are stronger at the outboard position than at the damage station or the inboard location. However the local lift from integration of the pressures is diminished inboard of the damage as will be shown in detail later.

SPANWISE LIFT DISTRIBUTION

The surface pressure distributions were integrated for several representative cases in order to show the spanwise lift distribution. The local lift coefficient C_l is shown in Figures 13 through 16 in the same form as used in References 1, i.e. referred to the mean geometric chord, $\bar{c}$, and to the angle of attack in radians. The data for the undamaged case is included for comparison.

Figures 13 and 14 present the results for the 1% and 2% trapezoidal holes at 75% span, based on pressure data at 2.4° angle of attack. The localized nature of the disturbance is again evident at this angle, for which the flow is attached. The 1% hole reduced the total lift by 2.1%,

whereas the theoretical prediction of Reference 1 was approximately 5% for a very similar planform. Figure 15 presents the results obtained at an angle of attack of 9.8° , at which substantial flow separation exists. The damage effect is seen to propagate to the row of pressure taps nearest the root and thus is substantially stronger than at the lower angle of attack. Data for the 1.96% hole located at 43% span, with $\alpha = 2.4^\circ$ is shown in Figure 16. This hole was between pressure-tap rows 8 and 9, so the lift at the hole centerline was obtained by spanwise interpolation of pressures prior to integration for lift. The loss in lift of 2.6% is only slightly higher than for the 1% hole at 75% span.

DIRECT LIFT AND DRAG MEASUREMENTS

As noted in Reference 1, investigation of the aeroelastic effects indicated that damage-induced drag is a possible source of structural failure. For this reason, a second T-38 stabilator half was instrumented with strain gages to directly measure normal and chordwise forces which were then converted to lift and drag coefficients by the data system computer. No pressure instrumentation was installed in this stabilator. For both pressure and force tests, the angle of attack was varied with a lever arm bolted to the stabilator torque tube using pre-existing holes in the tube. The zero angle of attack position was initially determined with the pressure model by aligning the symmetrical airfoil with the tunnel axis. This same setting was used for the force tests; however, it was found during these tests that zero lift did not correspond to the zero angle of attack setting. Consequently there is a slight offset in the results, as shown in Table 3 which gives the results of the force tests, in equation form.

These equations and the test data are shown in Figures 17 through 28 as C_L vs α and C_D vs C_L .

For all damage configurations, Table 3 shows an increase in zero-lift drag, C_{D_0} although the relationship as shown in Figure 29 is sensitive to the orientation of the damage as well as the size. The four cases indicated by the circular symbols all had the same spanwise dimension; the area was progressively increased by increasing the chordwise dimension of the damage hole. The approximate ratios of chordwise to spanwise dimension were 1, 1.5, 2.0 and 2.7 for the 0.5% to 2% area holes. The results indicate that C_{D_0} decreases as this hole "fineness ratio" exceeds 2. By contrast, the 2% spanwise damage which had a fineness ratio of 0.8, i.e. its long dimension was oriented spanwise, resulted in a C_{D_0} which was nearly twice as large as for the 2% chordwise hole, even though the actual dimensions were nearly the same. This characteristic is evident in Figure 30 for small lift coefficients as well.

It is likely that increased C_{D_0} is partially the result of reduced pressure on the cavity forward face, i.e. base pressure, and of increased pressure on the aft face. In several instances these two pressures were measured. As seen in Figures 6 and 7, a negative base pressure coefficient was observed. The pressure on the rear face was found to be essentially the free-stream dynamic pressure. By this rationale, spanwise holes would increase C_{D_0} by more than equal chordwise holes, which is the trend in Figures 29 and 30. However, the uncertainty in the data at these low drag levels does not justify drawing more exact conclusions.

Reference 5 reports the results of measurements of the effect of circular holes on drag, using a two-dimensional model having a NACA 65₁-012 airfoil section; these results are discussed in some detail in Reference 1. There were three configurations tested which were circular holes at 25% chord. For these, the C_{D0} based on hole area was -0.1, +0.1 and +1.1. The results from the present tests was +0.38 for the circular hole, and +0.40 for the 1% area trapezoidal hole (which had a fineness ratio of 1.5). These two most nearly correspond to the damage of Reference 5, and the results fall close to the center of the range reported in that reference.

The influence of damage on drag is summarized in Figure 30 which shows the effect of orientation of 2% holes, and in Figure 31 which shows the effect of chordwise holes of 1 and 2%. Both figures demonstrate that at higher lift coefficients, the increases in drag diminish to the point where they are obscured by the uncertainty in the data. In general, the increase was less than 10%, with only the 2% spanwise hole showing a consistent increase. This is contrary to the results of Reference 5, in which both C_D and K of the parabolic drag polar equation were found to increase.

Figure 32 shows typical effects of damage on lift coefficients, at angles of attack below and above the separation angle; both force and pressure data are included. Generally, the reduction in C_L was small and approximately constant up to $\alpha = 5^\circ$, beyond which the reduction increased markedly to a peak at 10° or 11° , followed by a decrease. There was substantial scatter in the force data, particularly for the smaller damage

cases, because the magnitude of the changes was small compared to the full-scale capability of the strain-gage measuring system. This was particularly true at smaller angles of attack. At $\alpha = 2.4^\circ$, for example, the lift force of the undamaged stabilator was about 30 kg and the damage effect was about 4 kg, whereas the maximum lift force was approximately 275kg. As seen in Figure 32, the integrated pressure distribution gave a more consistent result than did the force data; at $\alpha = 2.4^\circ$ the change in the lift curve slope of Table 3 was also a good indicator, although it under-predicts the effect in the presence of separated flow as at $\alpha = 9.8^\circ$.

REFERENCES

1. Scott, D.S., et al., "The influence of Ballistic Damage on the Aeroelastic Characteristics of Lifting Surfaces:", AFOSR TR 80-0220, May, 1979.
2. Pope, A., and Harper, J.J., Low Speed Wind Tunnel Testing, John Wiley & Sons, New York, 1966.
3. Muhlstein, L. Jr. and Coe, C.F., "Integration Time Required to Extract Accurate Data from Transonic Wind-Tunnel Tests," J. Aircraft, Vol. 16, Sept. 1979, pp. 620-625.
4. Gray, V.H., and von Glahn, U.H., "Aerodynamic Effects Caused by Icing of an Unswept NACA 65A004 Airfoil," NACA Technical Note 4155, Feb., 1958.
5. Shatz, R.E., "Aerodynamic Vulnerability of Aircraft", Final Report No. G1-634-G-14, Cornell Aeronautical Laboratory Inc., Mar. 31, 1952.

TABLE 1

PRESSURE TAP LOCATIONS

ROW #	% SEMISPAN
1	91.7
2	83.5
3	79.3
4	75.2
5	71.1
6	66.9
7	58.7
8	50.4
9	35.8
10	17.4

In each row, chordwise tap locations, numbered from the leading edge, were at the following positions in percent of the local chord: 0, 1.25, 2.5, 5.0, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 95.

TABLE 2
DAMAGE CONFIGURATIONS AND DIMENSIONS

SHAPE	AREA %	HOLE CENTER LOCATION		ORIENTATION, Long Axis	TYPE DATA
		% Span	% Chord		
Circle	0.5	75	25	---	Pr., F
Trapezoidal	1.0	75	27.2	Chordwise	Pr., F
Trapezoidal	1.5	75	22.5	Chordwise	Pr., F
Trapezoidal	2.0	75	27.1	Chordwise	Pr., F
Trapezoidal	1.96	43.4	19.9	Spanwise	Pressure
Trapezoidal	2.0	58.9	16.5	Spanwise	Force

HOLE AREA	HOLE EDGE LOCATIONS			
	Percent Span	Percent Span	Percent Chord	Percent Chord
1.0	71.6	78.6	17.4	37.0
1.5	"	"	8.0	"
2.0	"	"	"	46.2
1.96	36.9	49.8	12.8	27.0
2.0	47.8	69.9	11.5	21.4

TABLE 3
LIFT AND DRAG COEFFICIENTS FROM FORCE MEASUREMENTS

CONFIGURATION	C_{L0}	$\alpha, / \text{deg.}$	C_{D0}	K	ΔC_L
Wing Theory		.056			
Undamaged	.024	.055	.0040	.290	.014
0.5% circular	.032	.054	.0059	.274	.020
1.0% trapezoidal	.031	.053	.0080	.273	.022
1.5% trapezoidal	.037	.053	.0085	.285	.022
2.0% trapezoidal	.033	.052	.0066	.294	.026
2.0% spanwise	.028	.052	.0134	.278	.016

$$C_L = C_{L0} + a\alpha$$

$$C_D = C_{D0} + K(C_L - \Delta C_L)^2$$

Airfoil Section	- 65A004
Planform Area	- 1.626 sq m; 17.50 sq ft
Semispan	- 1.544 m; 60.78 in
Root Chord	- 1.589 m; 62.90 in
Tip Chord	- 0.508 m; 20.00 in
Leading Edge Sweep	- 32.7°
Trailing Edge Sweep	- 3.61° forward
Hinge Line	- 54.34%
Dihedral	- -4.00°
Aspect Ratio	- 2.93
m.a.c.	- 1.147 m; 45.15 in

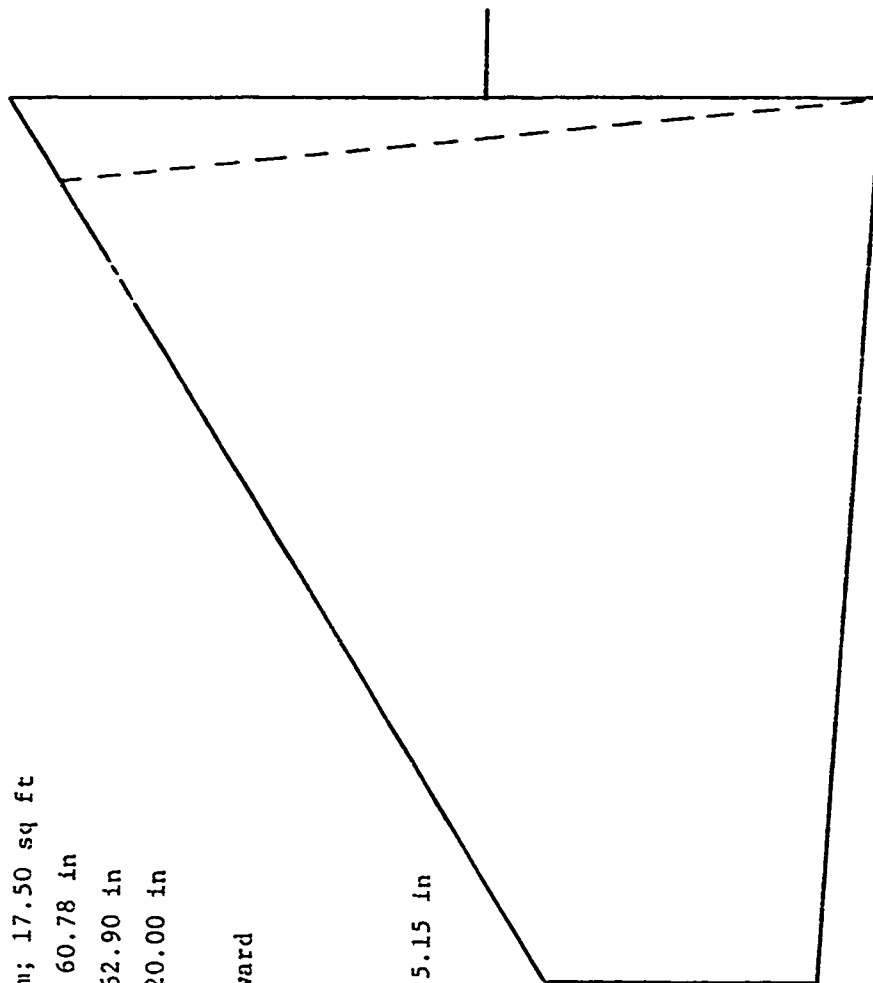


FIGURE 1. - WIND TUNNEL MODEL DIMENSIONS



FIGURE 2.
OIL FLOW PATTERN, 1.96% HOLE,
SPANWISE ORIENTATION, $\alpha = 4.7^\circ$

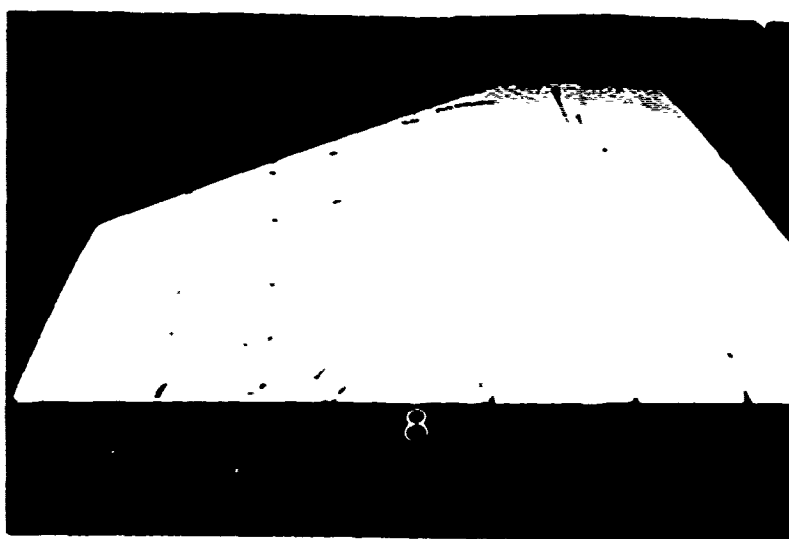


FIGURE 3.
OIL FLOW PATTERN, UNDAAGED, $\alpha = 9.8^\circ$

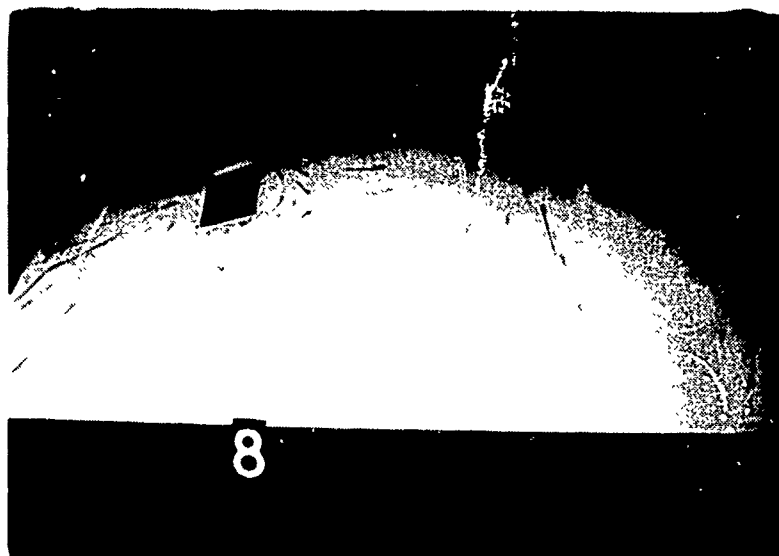


FIGURE 4.
OIL FLOW PATTERN, 1.5% HOLE, $\alpha = 9.8^\circ$

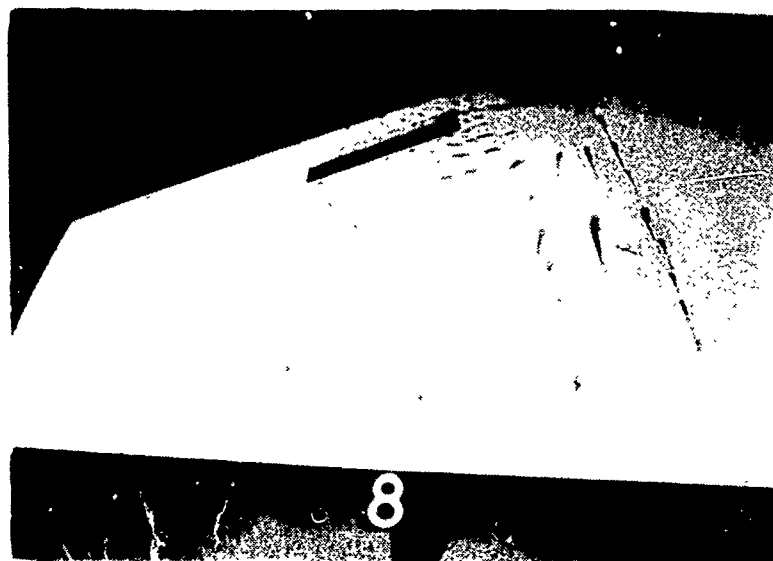


FIGURE 5.
OIL FLOW PATTERN, 1.96% HOLE, $\alpha = 9.8^\circ$

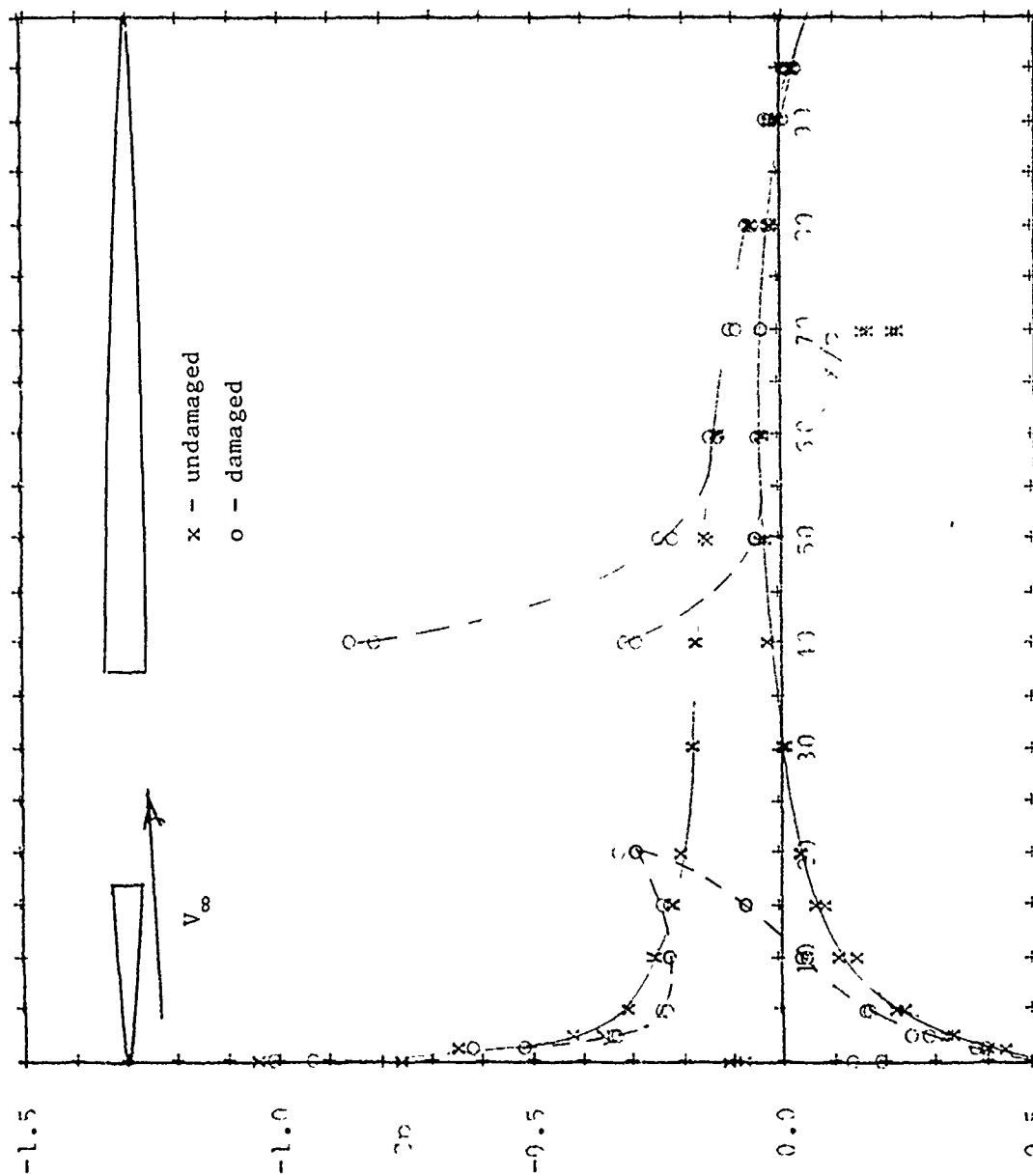


Fig. 6. - Chordwise Pressures at 75% Span, Undamaged and 1% Hole, $\alpha = 2.4^\circ$

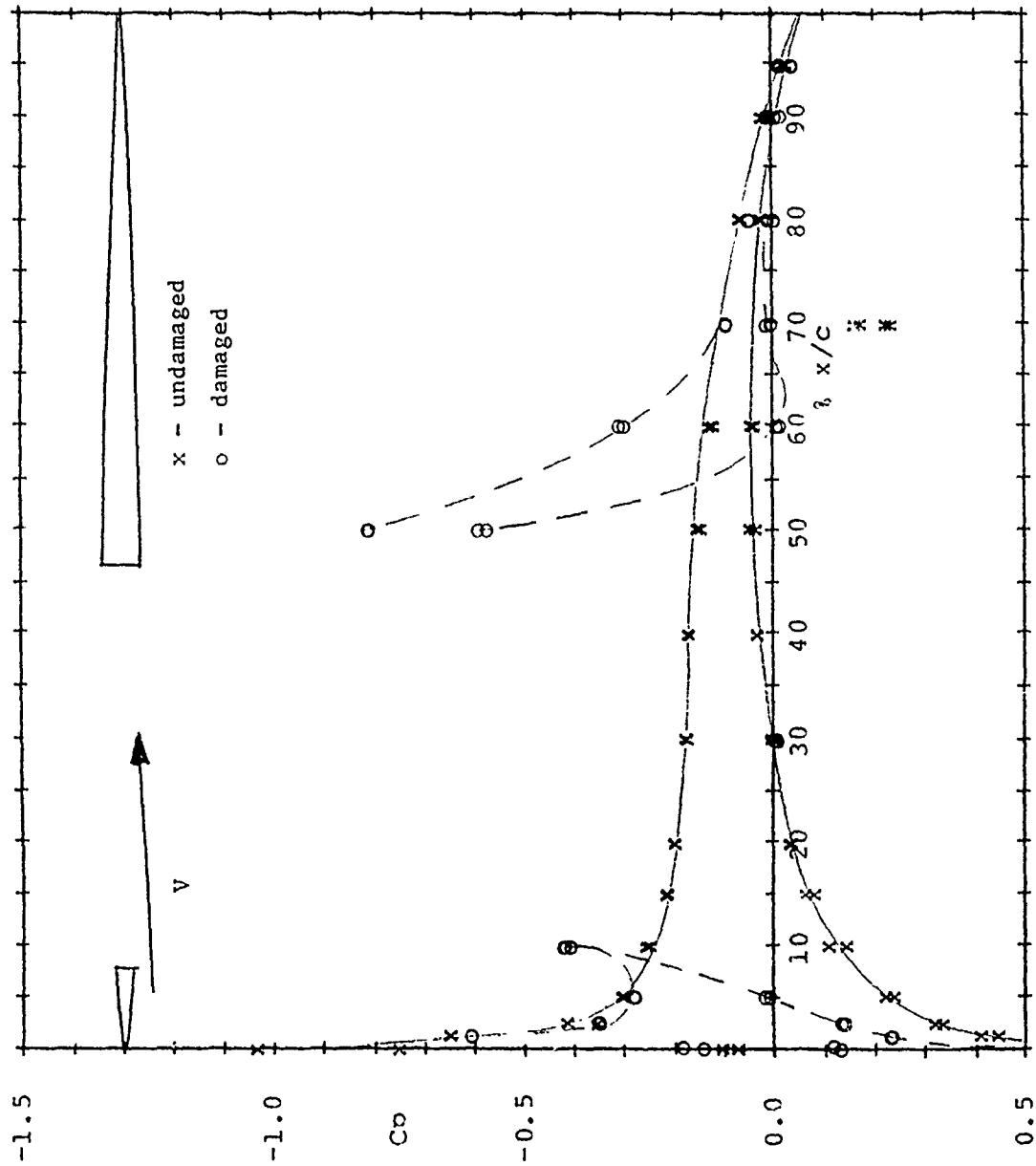


Fig. 7. - Chordwise Pressures at 75% Span, Undamaged and 2% Hole, $\alpha = 2.4^\circ$

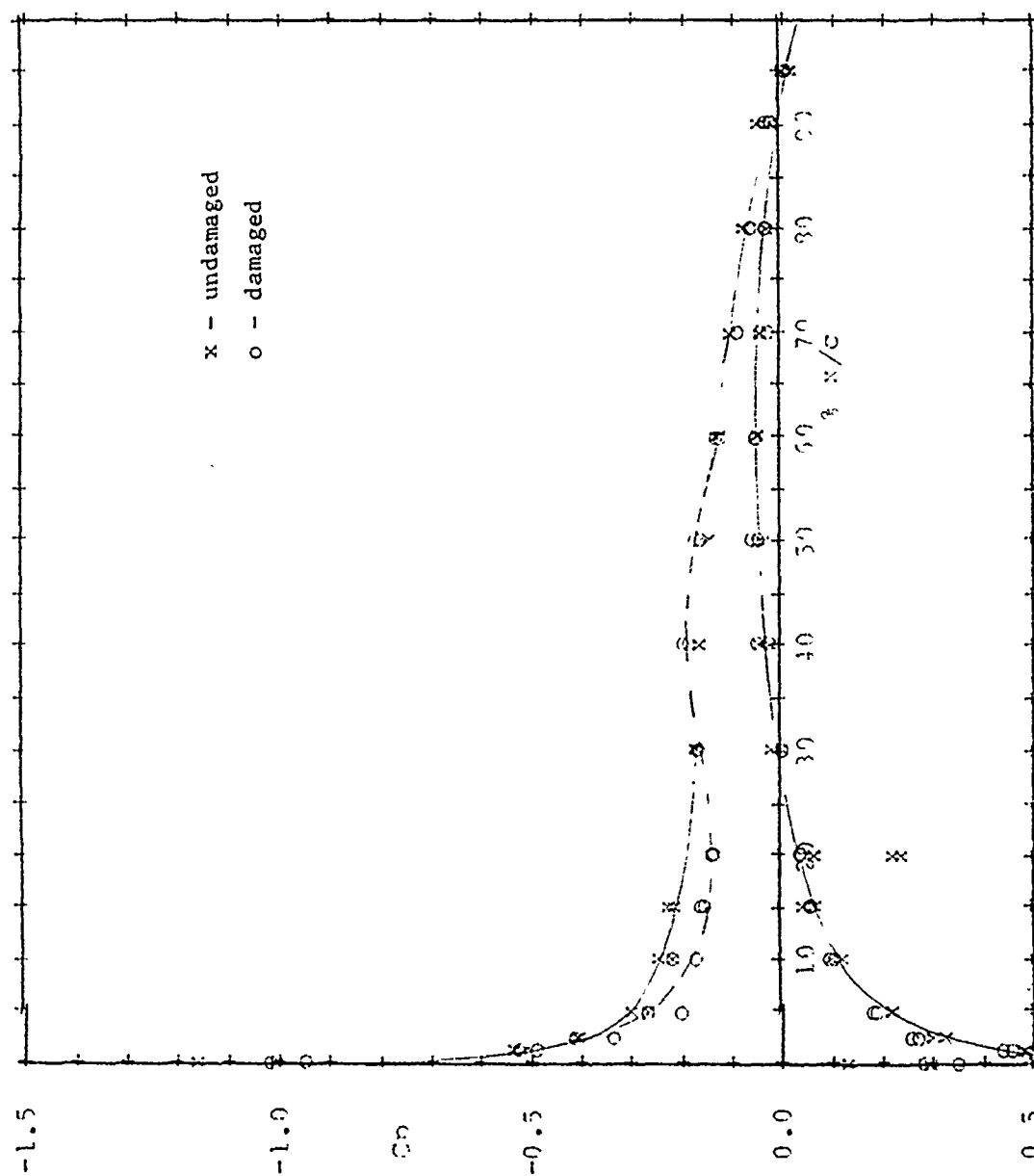


Fig. 8. - Chordwise Pressures at 83.5% Span, Undamaged and 1% Hole, $\alpha = 2.4^\circ$

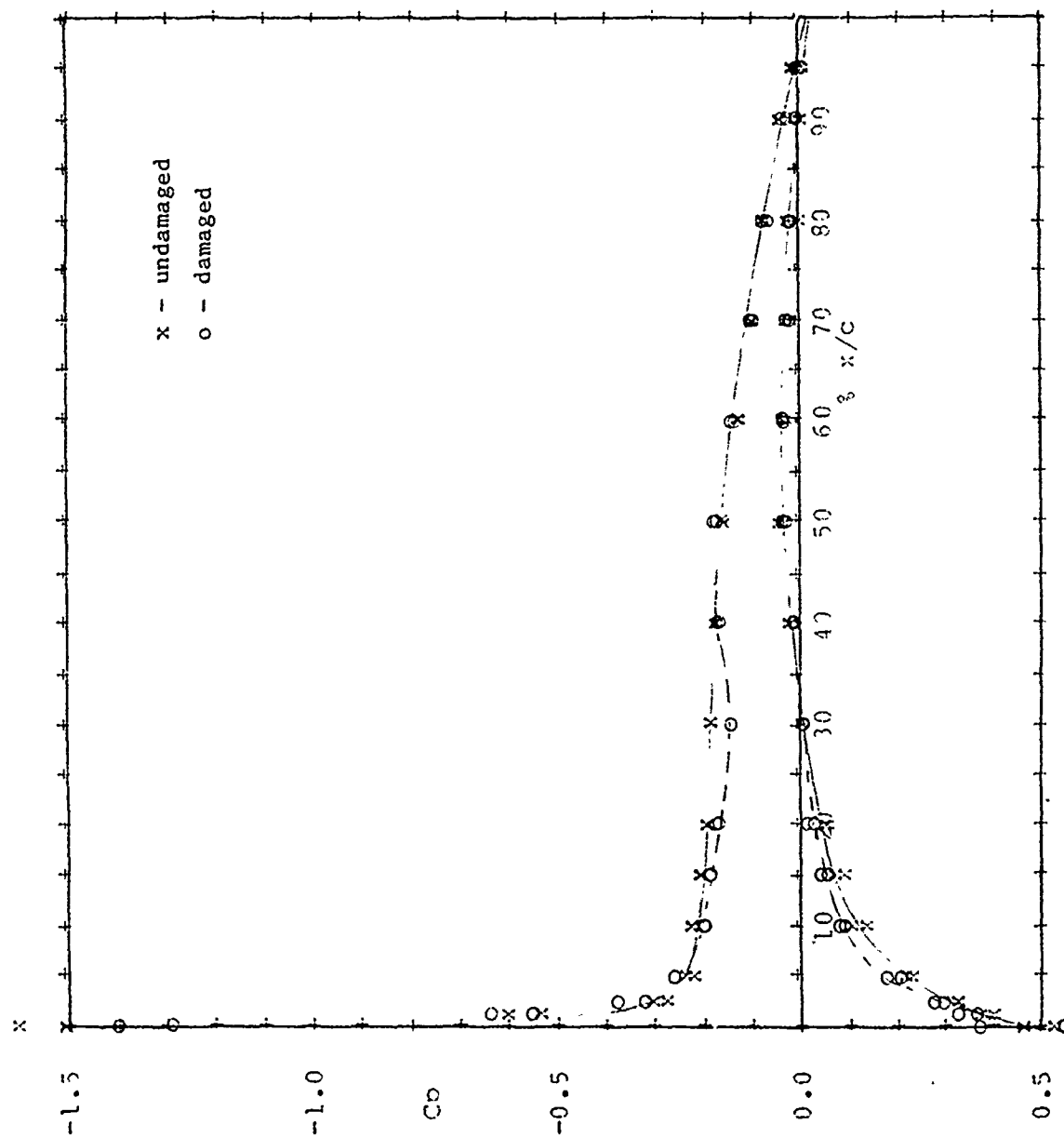


Fig. 9. - Chordwise Pressures at 67% Span, Undamaged and 1% Hole, $\alpha = 2.4^\circ$

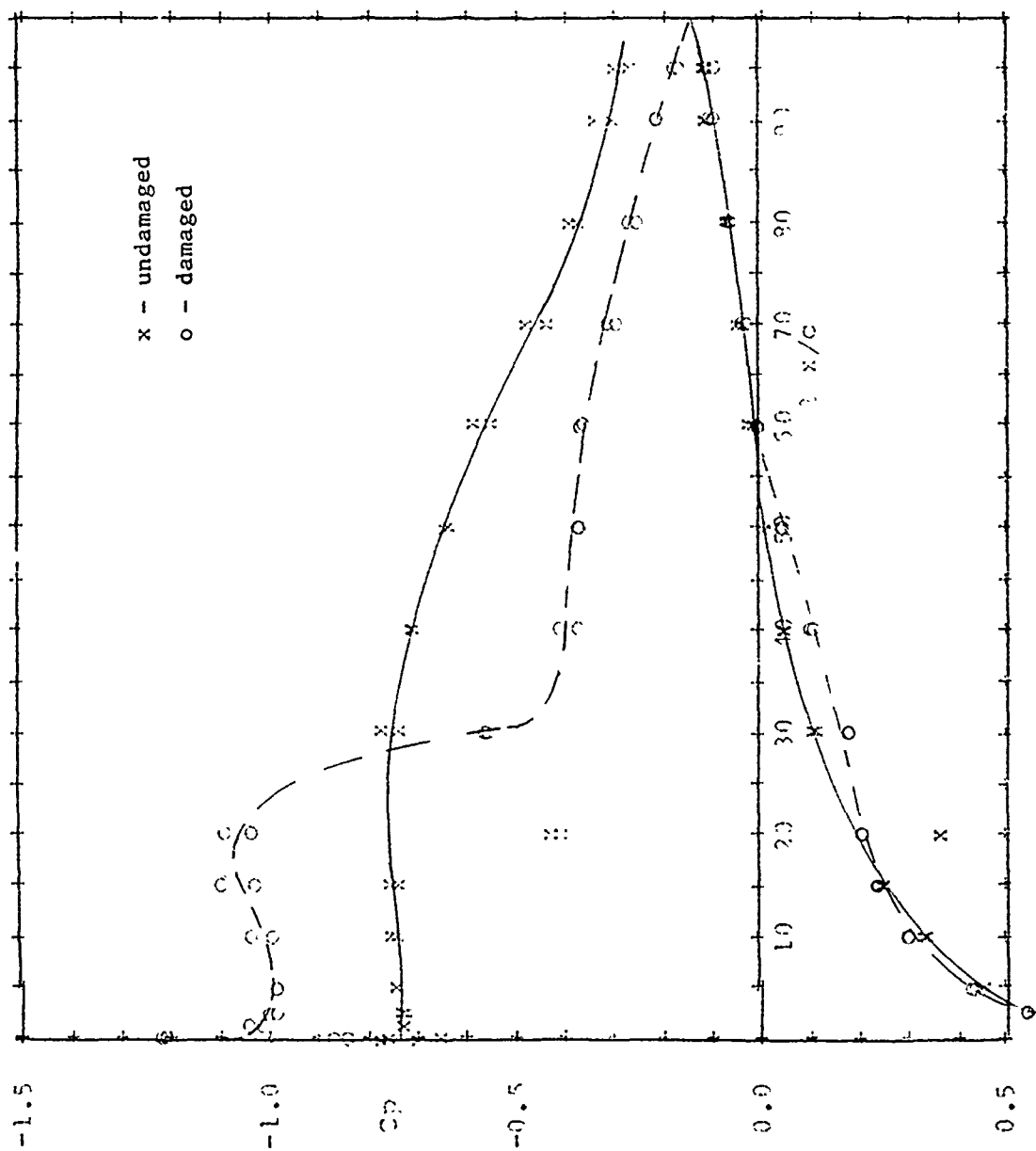


Fig. 10. - Chordwise Pressures at 83.5% Span, Undamaged and 1% Hole, $\alpha = 9.8^\circ$

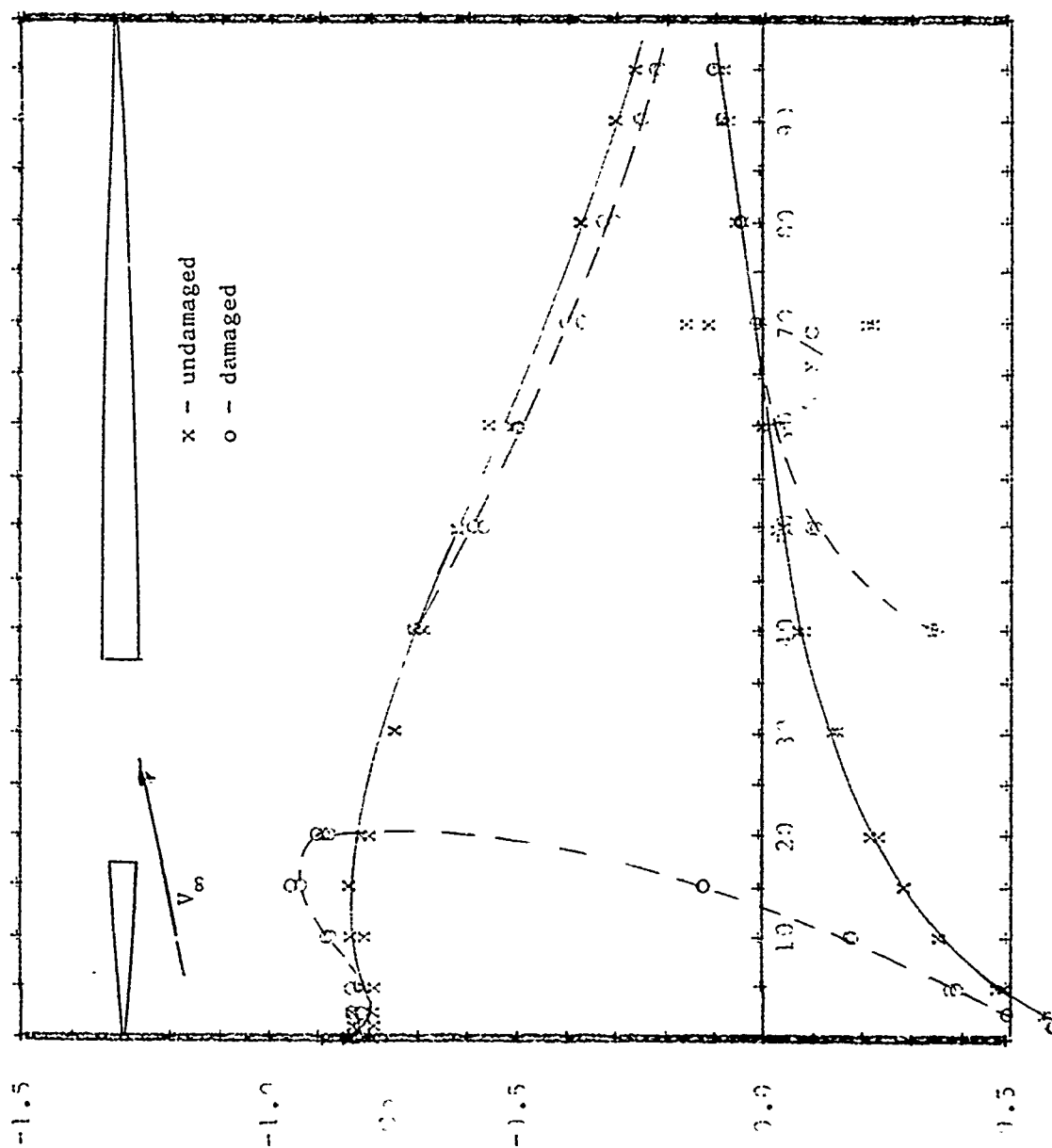


Fig. 11. - Chordwise Pressures at 65% Span, Undamaged and 1% Hole, $\alpha = 9.8^\circ$

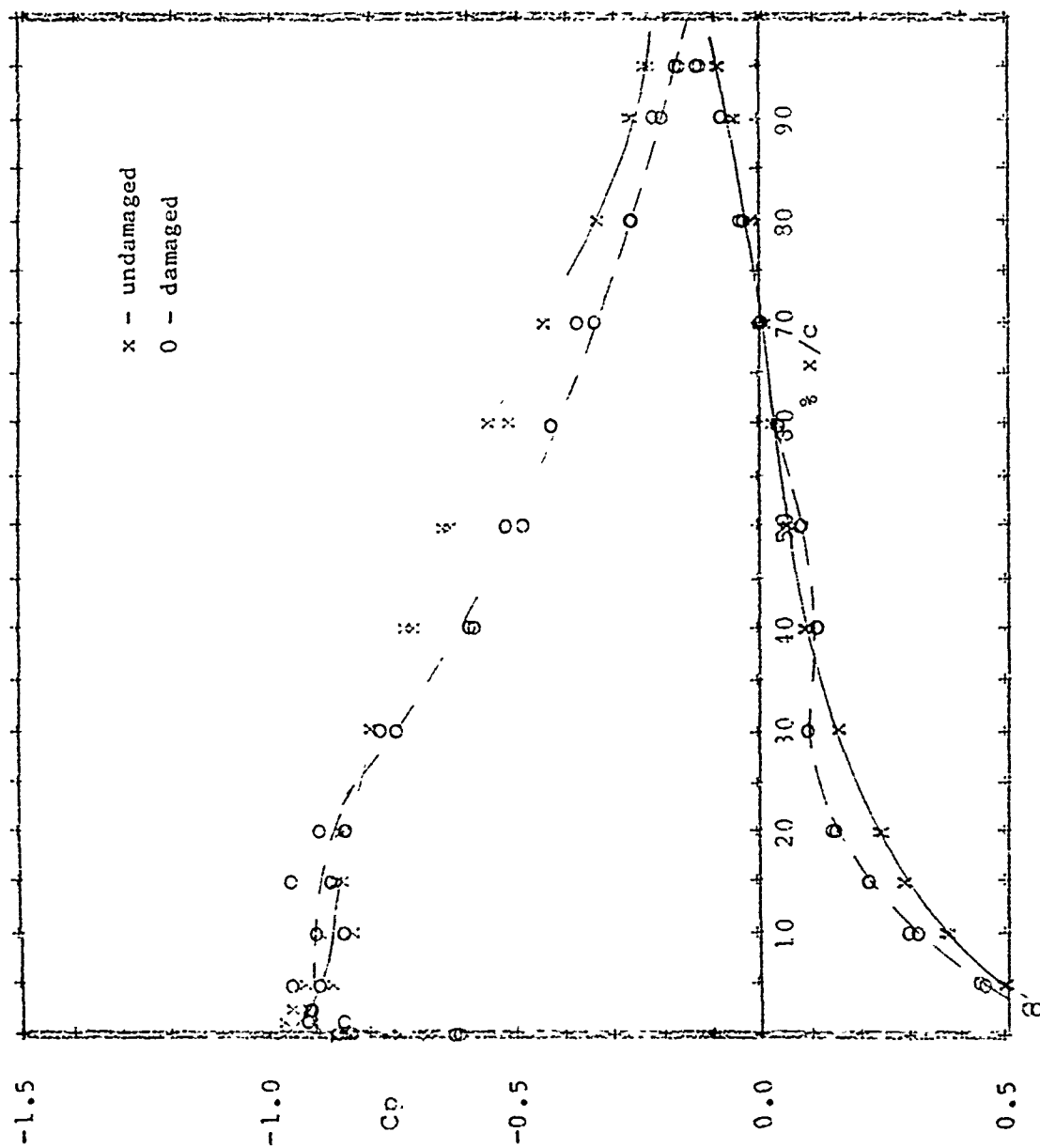


Fig. 12. - Chordwise Pressures at 67% Span, Undamaged and 1% Hole, $\alpha = 9.8^\circ$

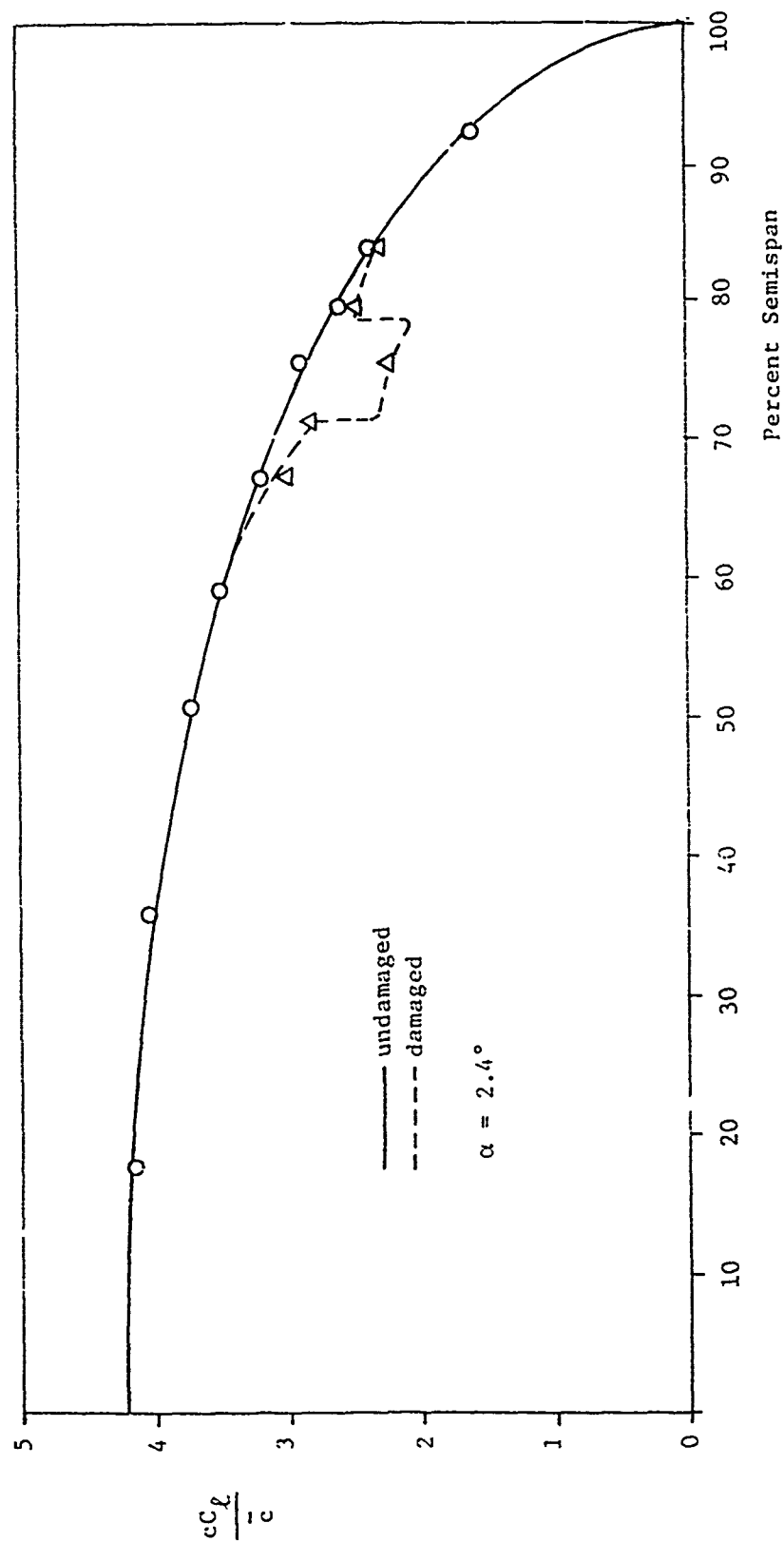


Fig. 13. - Spanwise Lift Distribution - 1% Hole at 75% Span

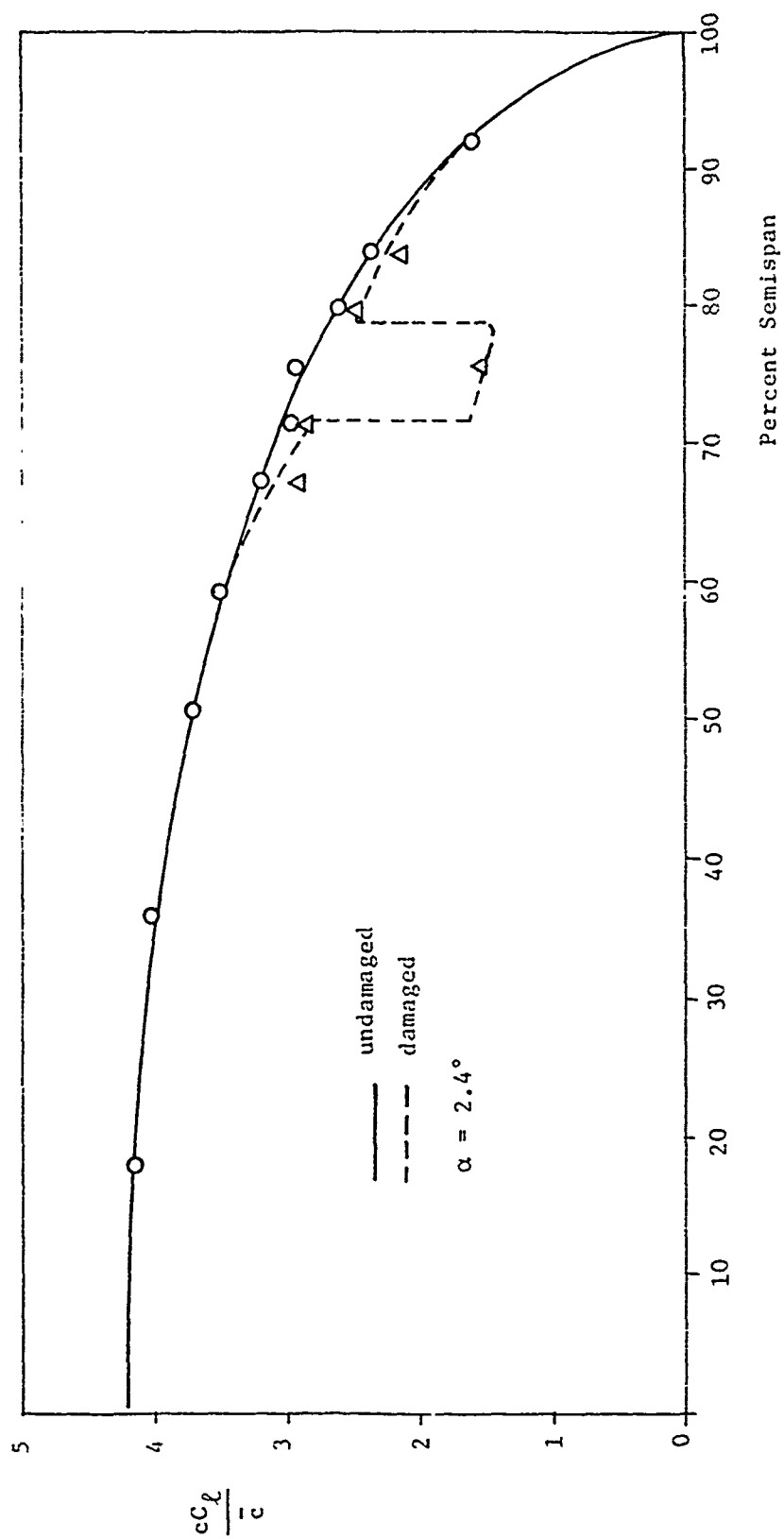


Fig. 14. - Lift Distribution - 2% Hole at 75% Span

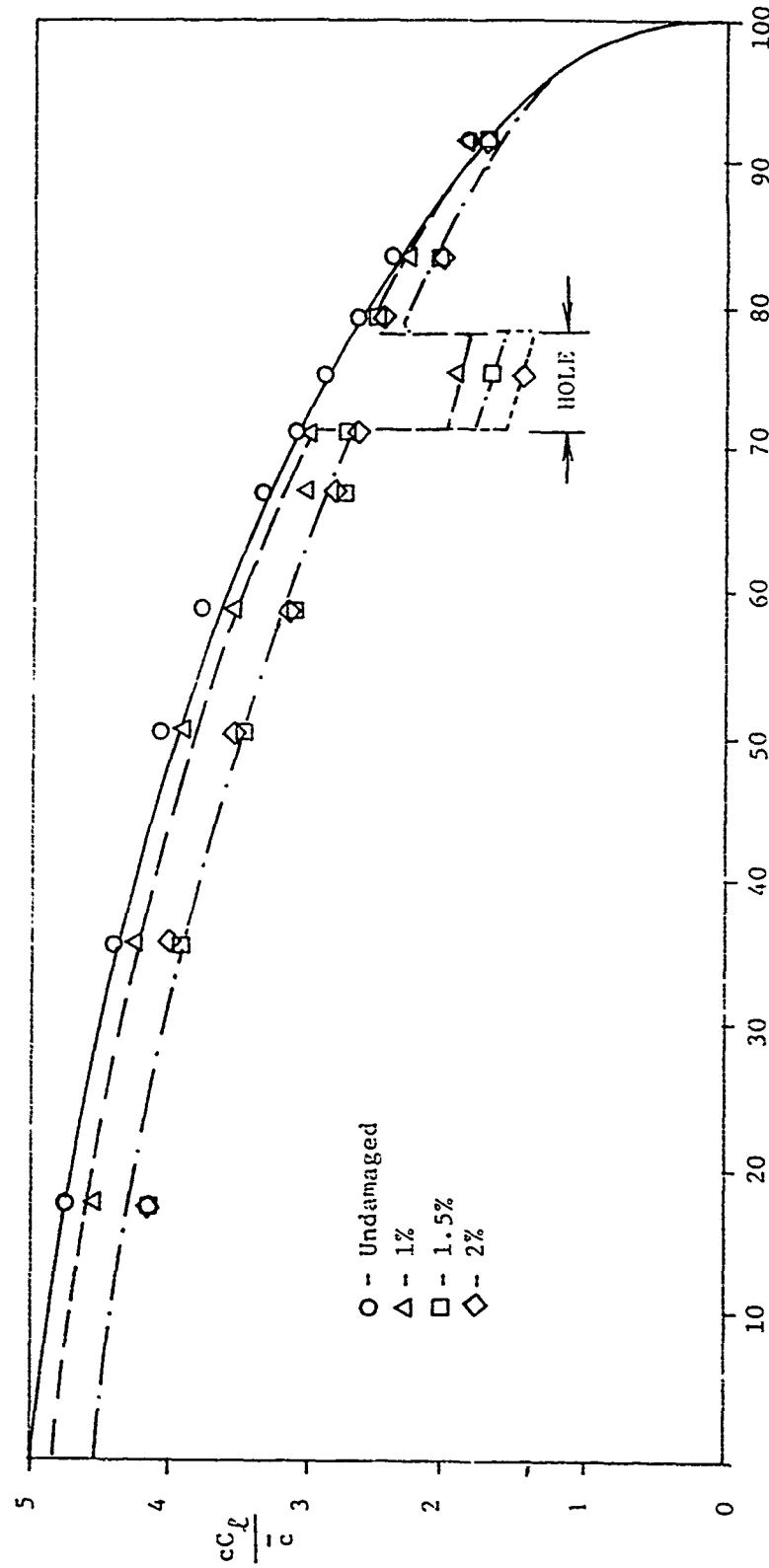


Fig. 15. ~ Spanwise Lift Distribution - 9.8° Angle of Attack

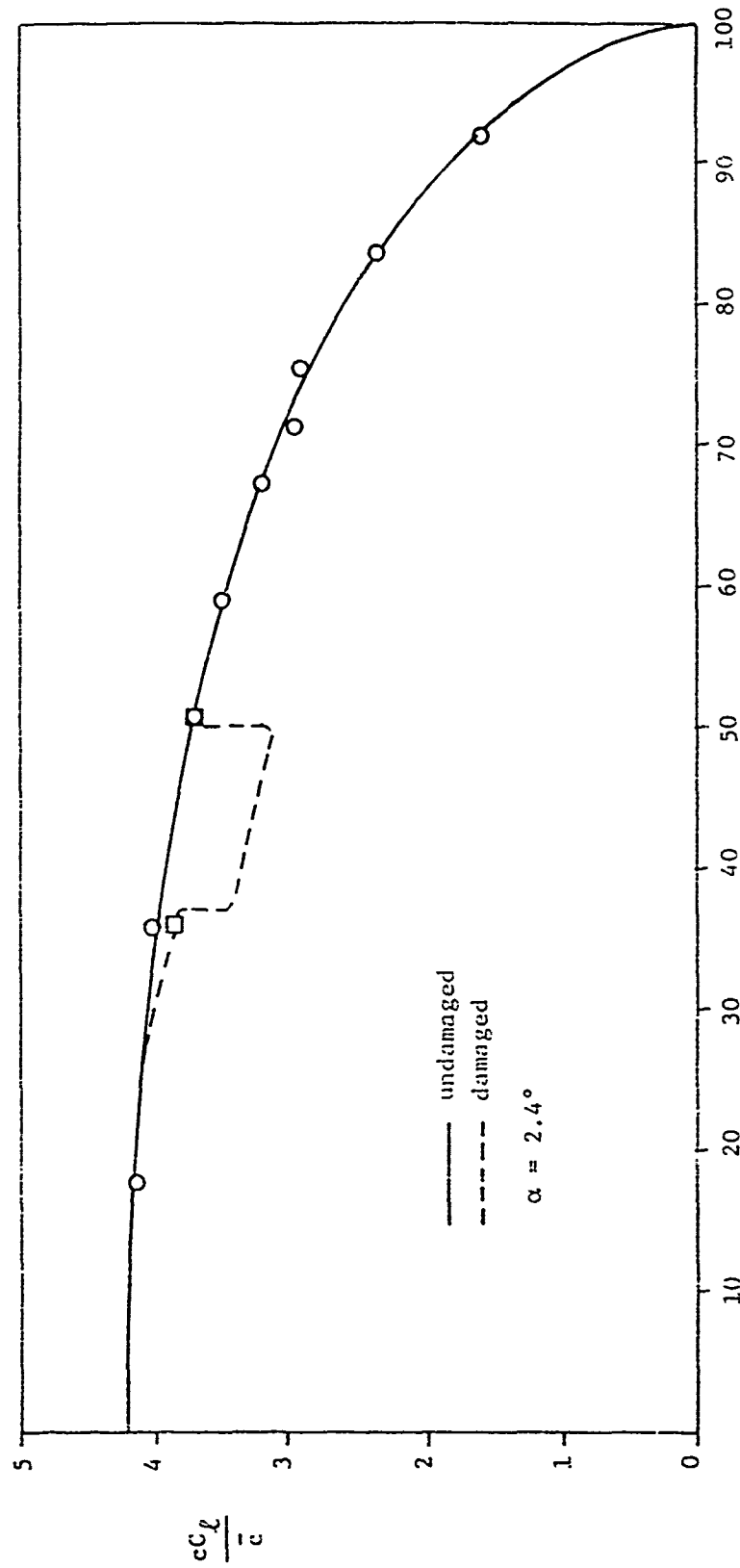


Fig. 16. - Spanwise Lift Distribution - 2% Hole at 43% Span

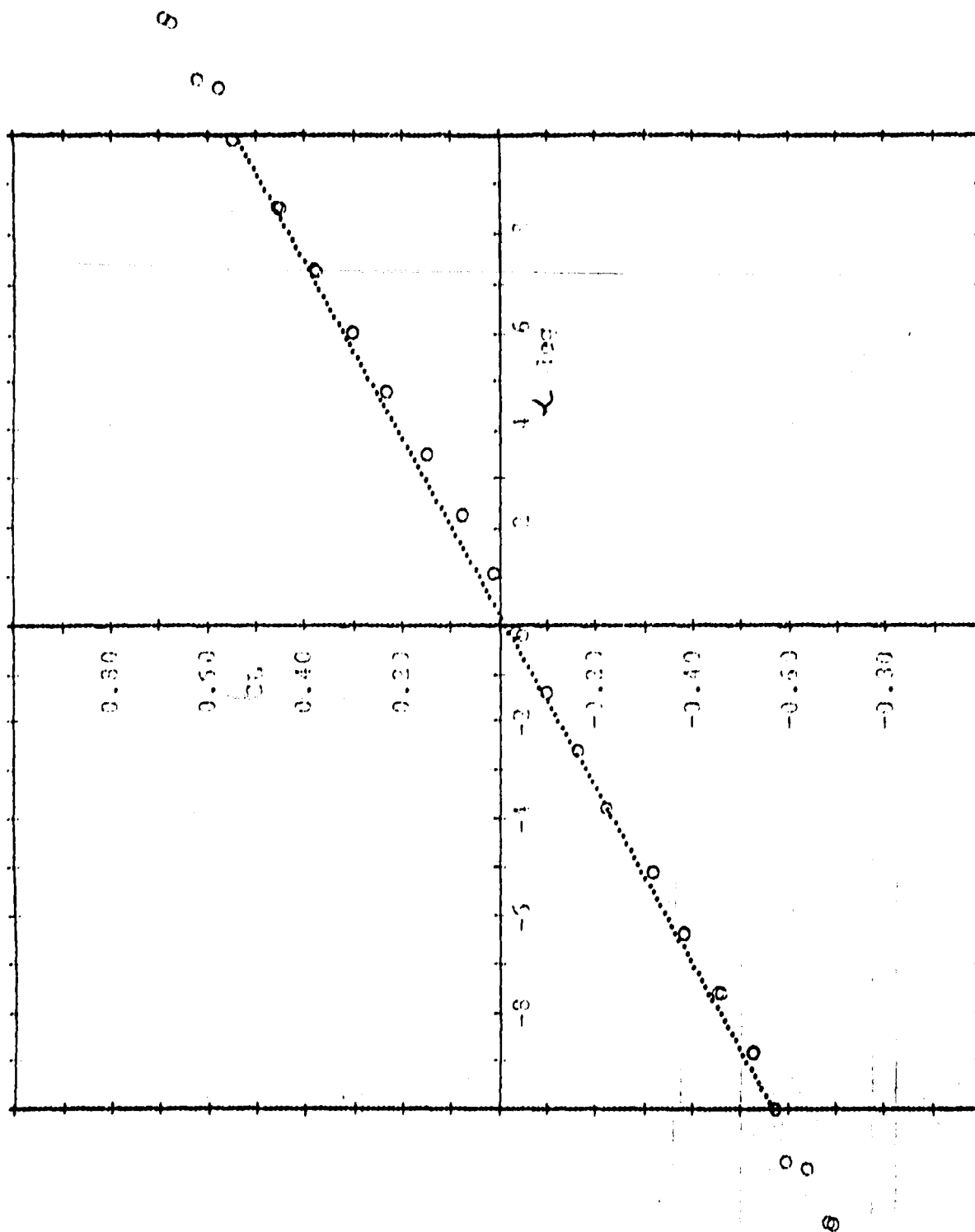


Fig. 17. - Lift Coefficient - Undamaged Case

Best Available Copy

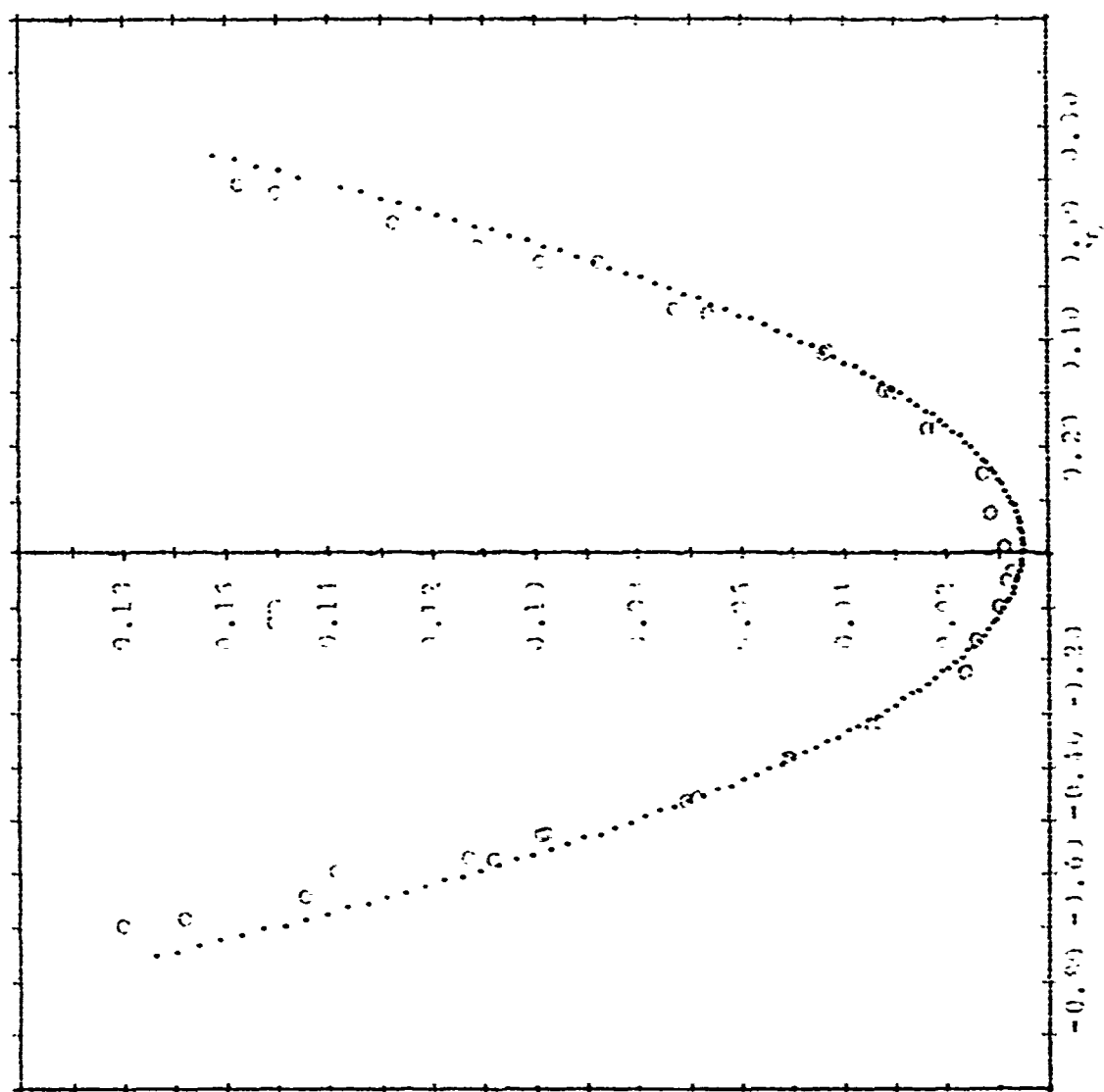


Fig. 18. - Drag Coefficient - Undamaged Case

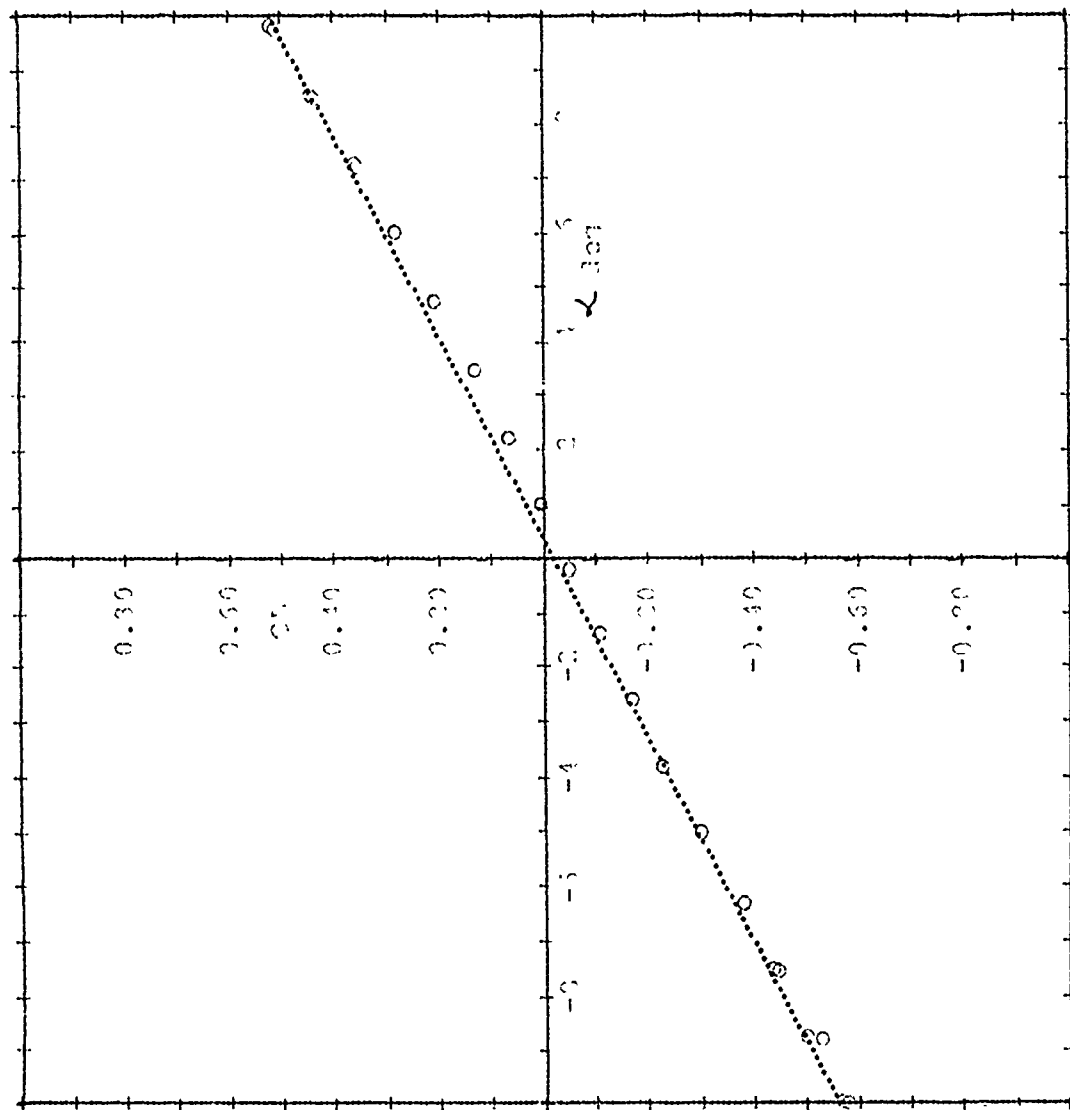


Fig. 19. - Lift Coefficient - 0.5% Circular Hole

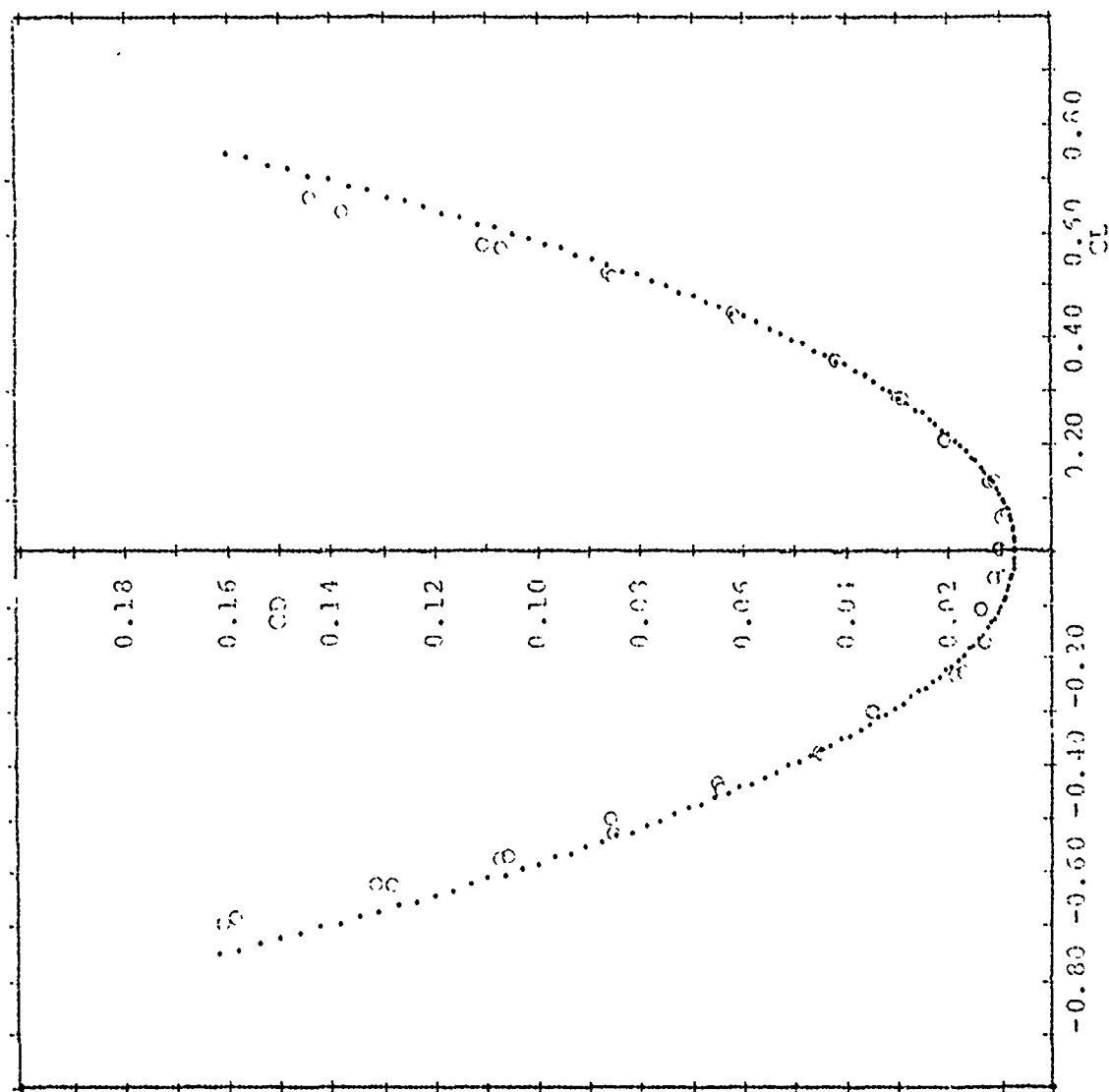


Fig. 20. - Drag Coefficient - 0.5% Circular Hole

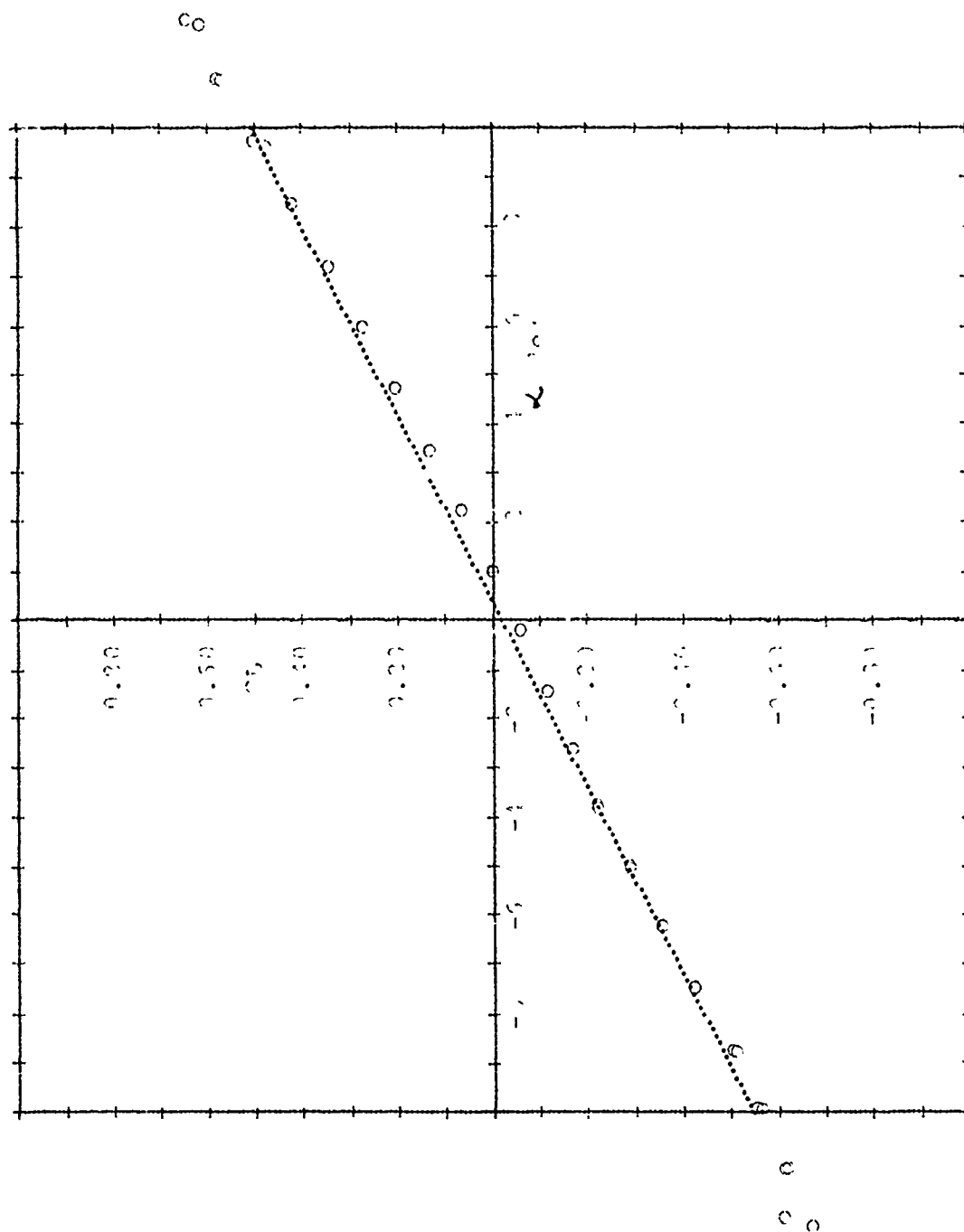


Fig. 21. - Lift Coefficient - 1% Trapezoidal Hole

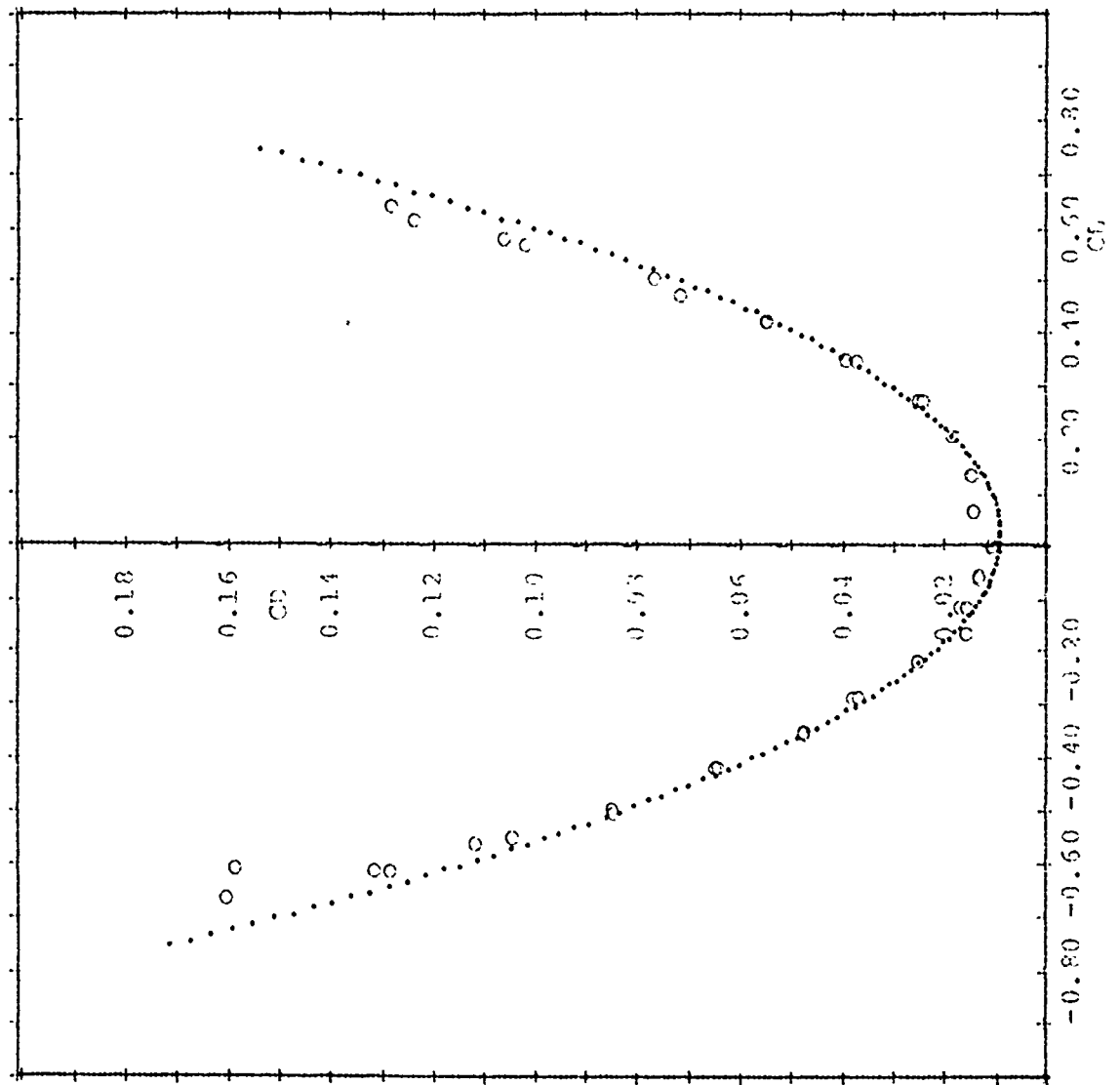


Fig. 22. - Drag Coefficient - 1% Trapezoidal Hole

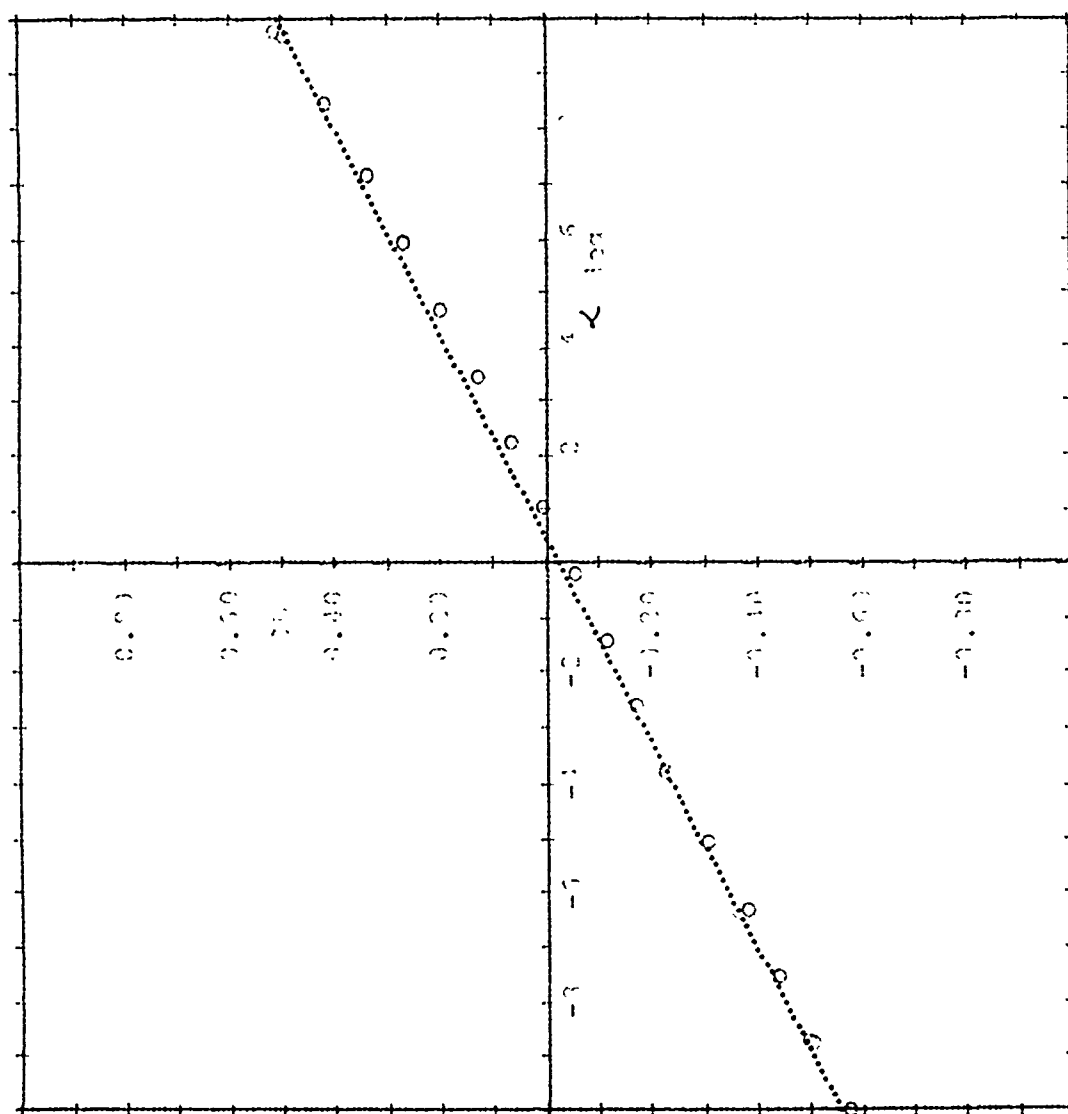


Fig. 23. - Lift Coefficient - 1.5% Trapezoidal Hole

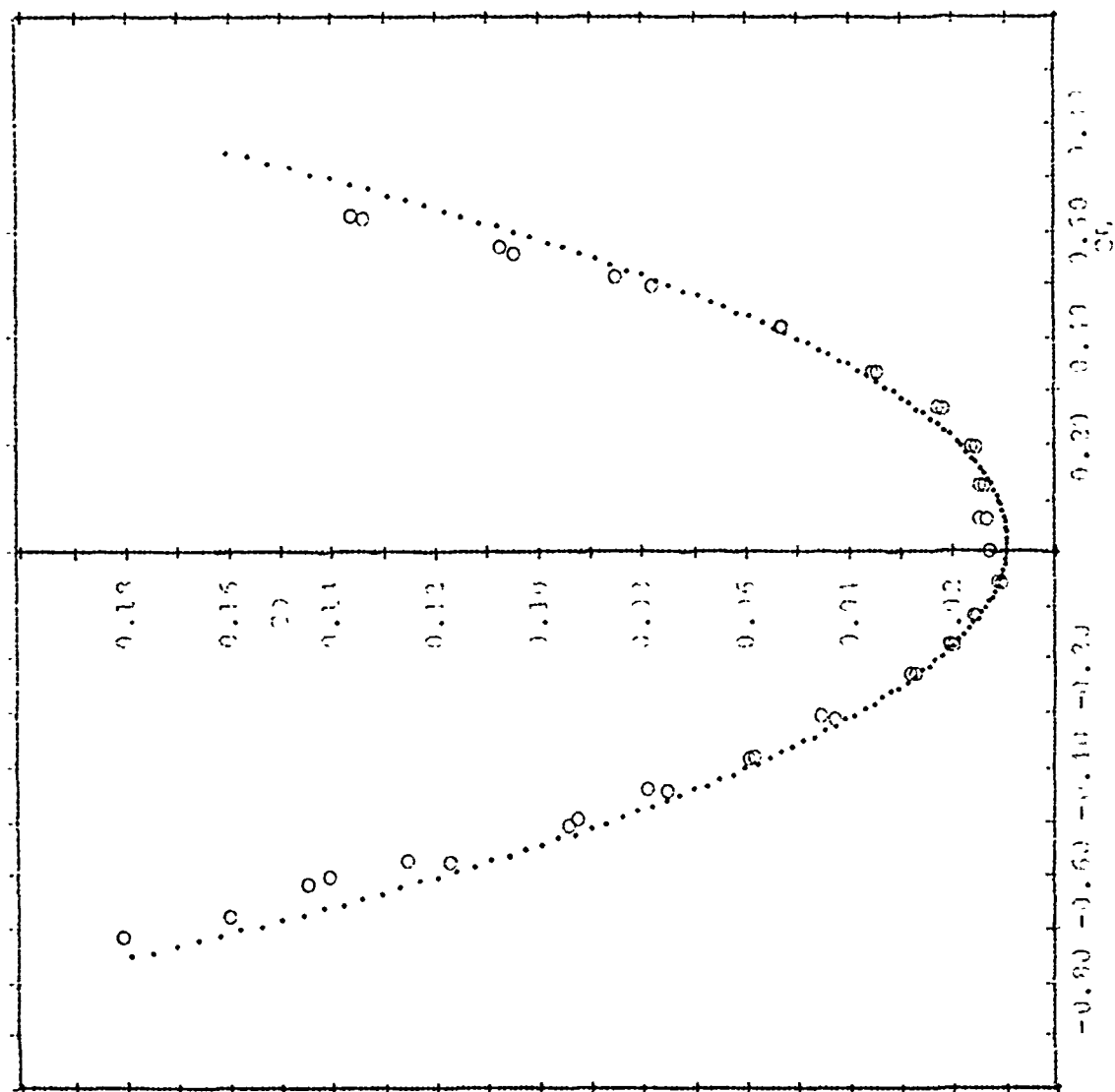


Fig. 24. - Drag Coefficient - 1.5% Trapezoidal Hole

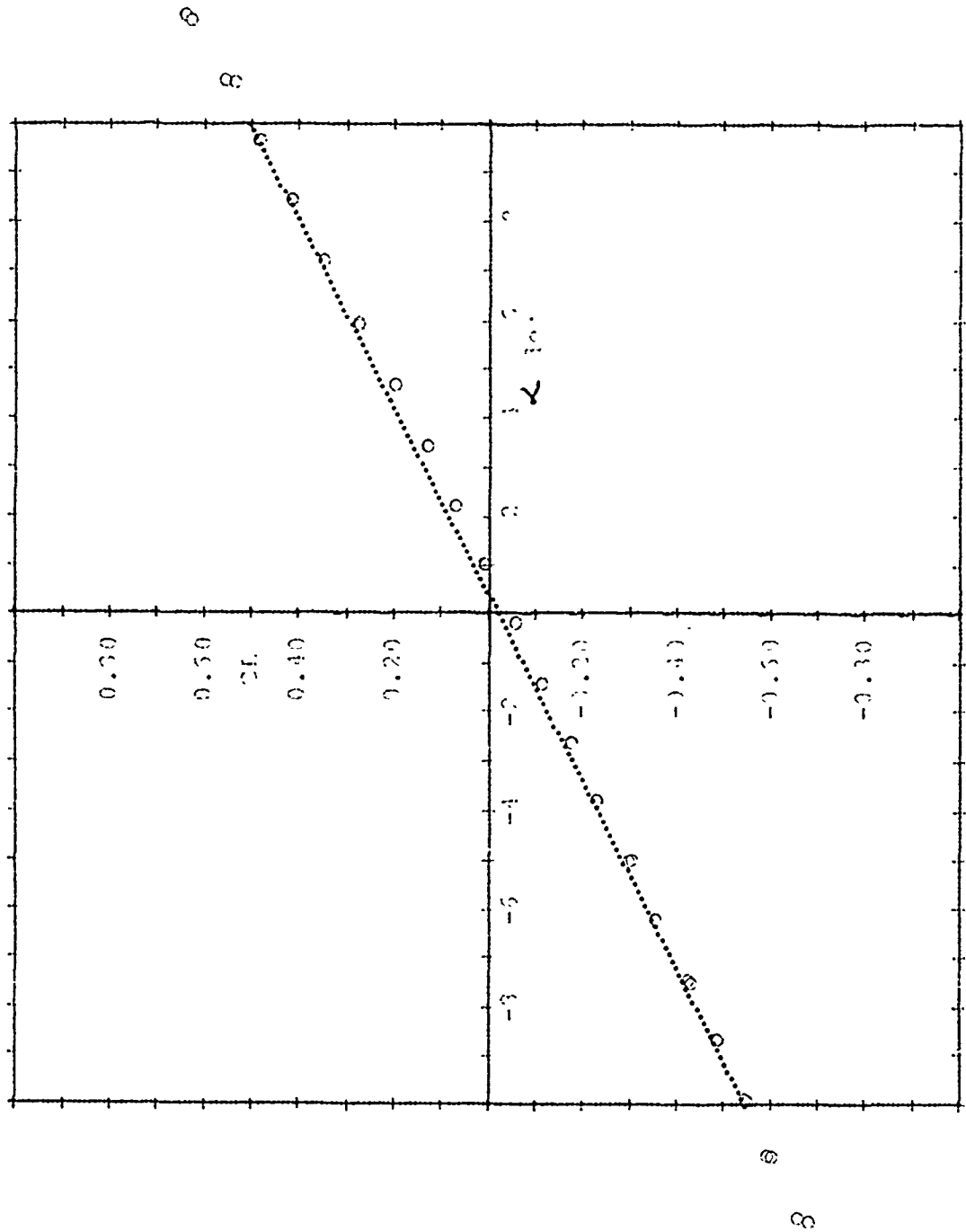


Fig. 25. - Lift Coefficient - 2% Trapezoidal Hole

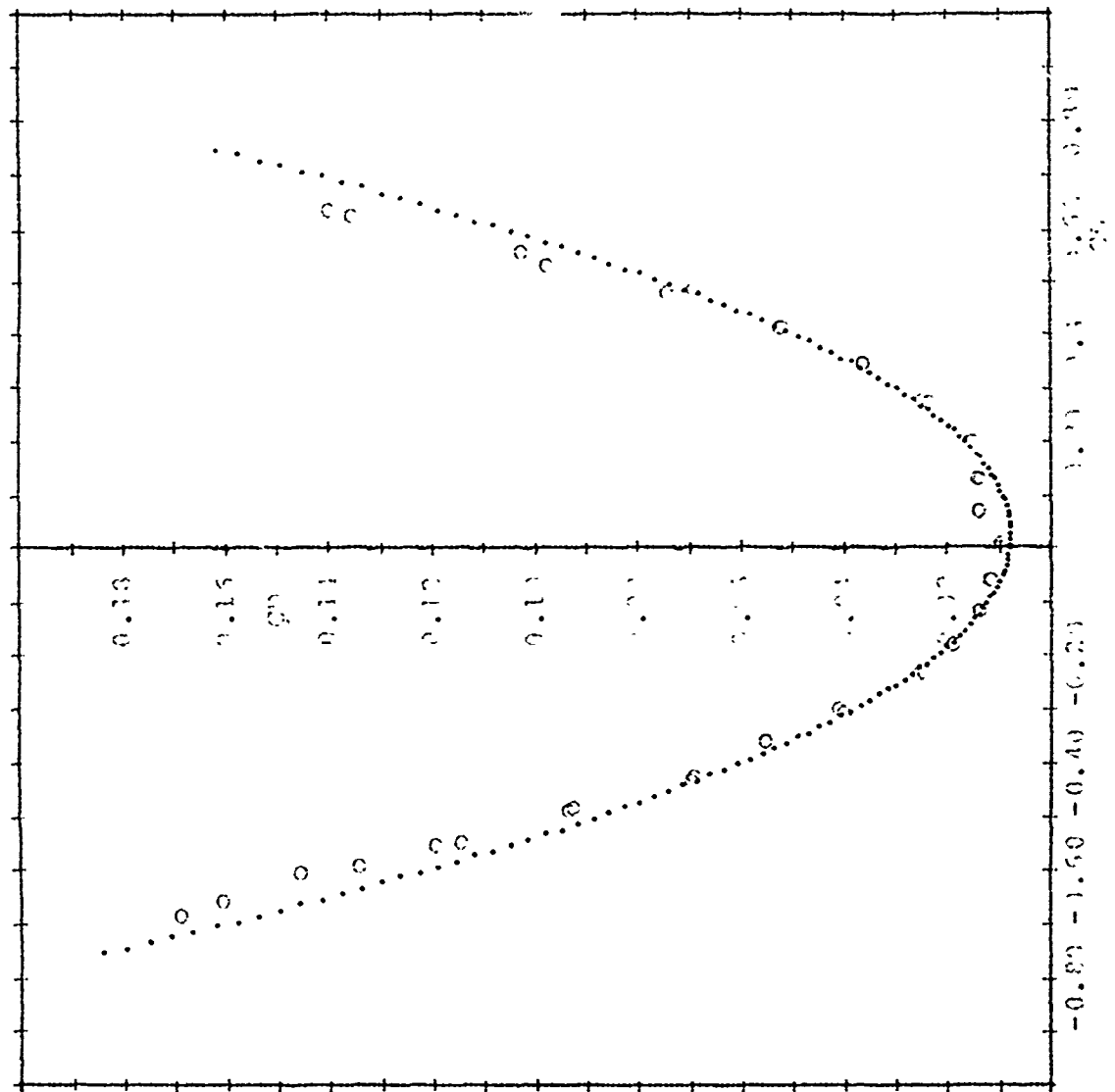


Fig. 26. - Drag Coefficient - 2% Trapezoidal Hole

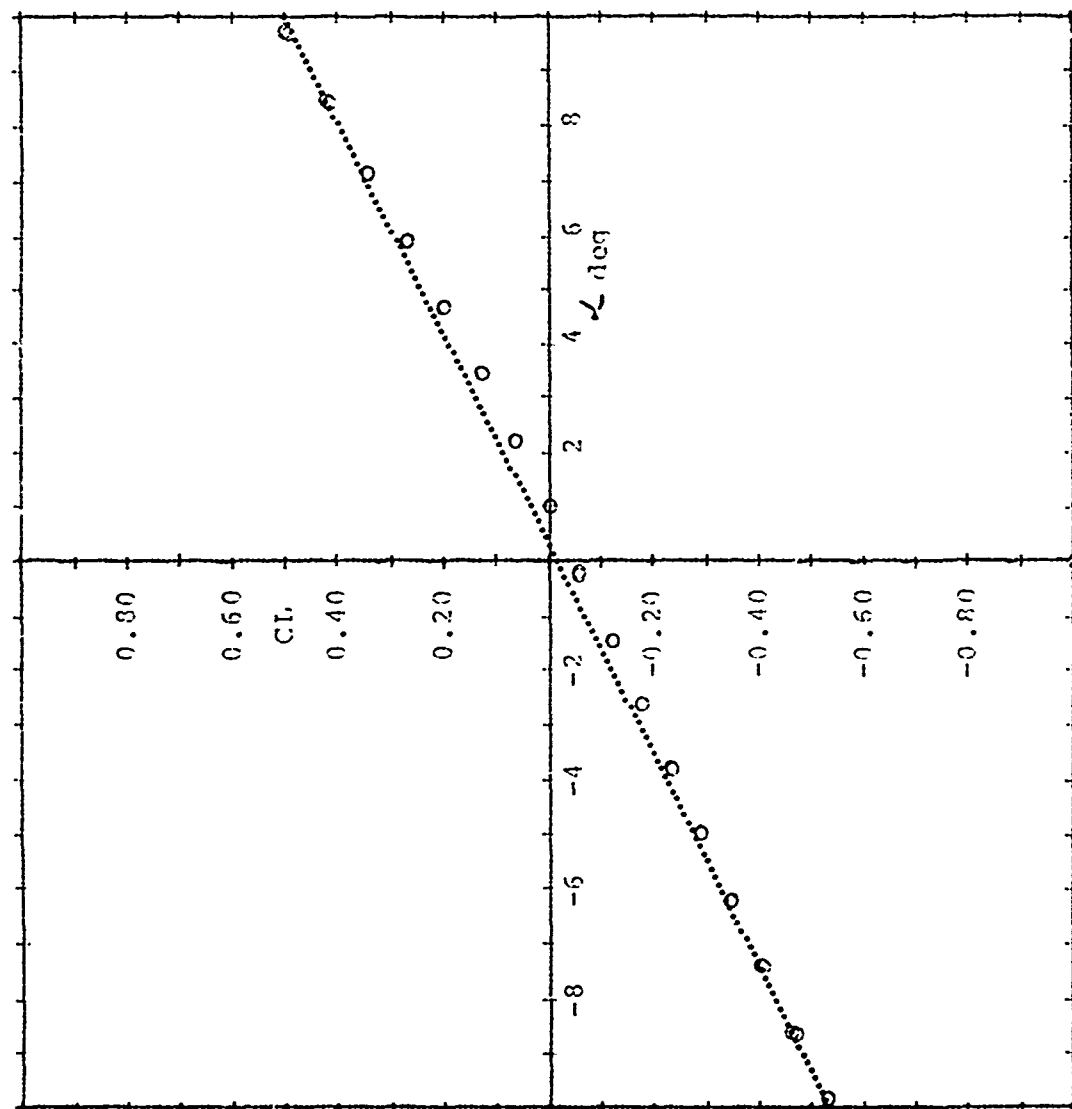


Fig. 27. - Lift Coefficient - 2% Spanwise Hole

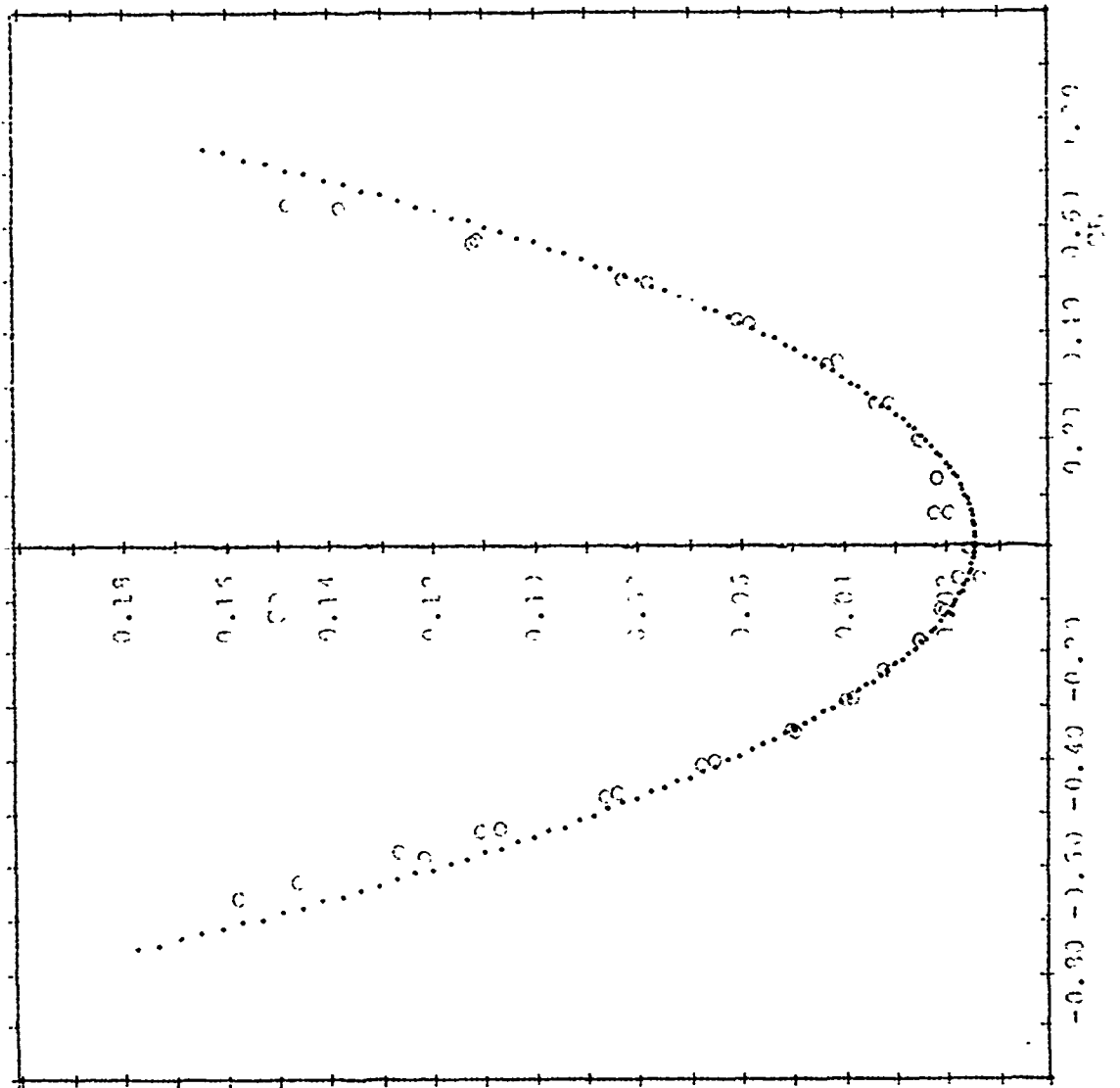


Fig. 28. - Drag Coefficient - 2% Spanwise Hole

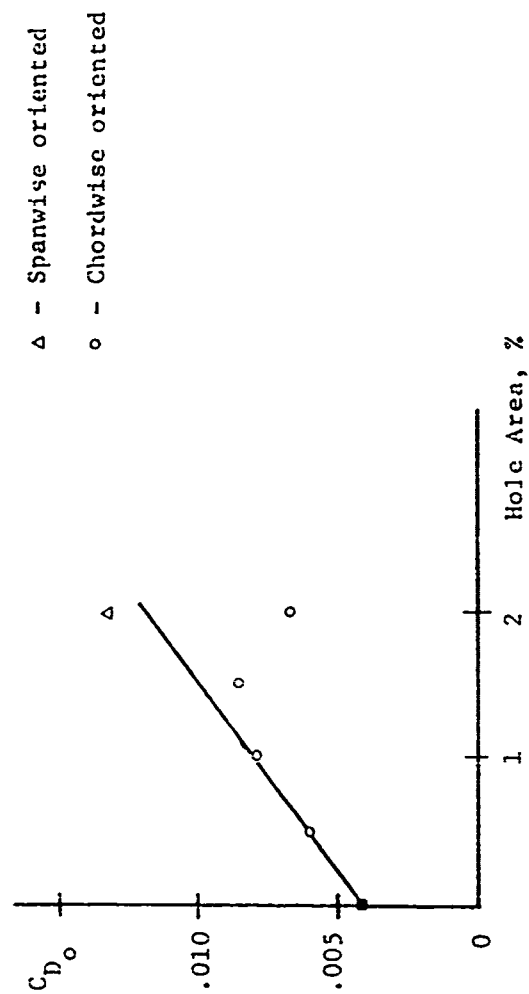


Fig. 29. - Effect of Damage on Zero-Lift Drag Coefficient

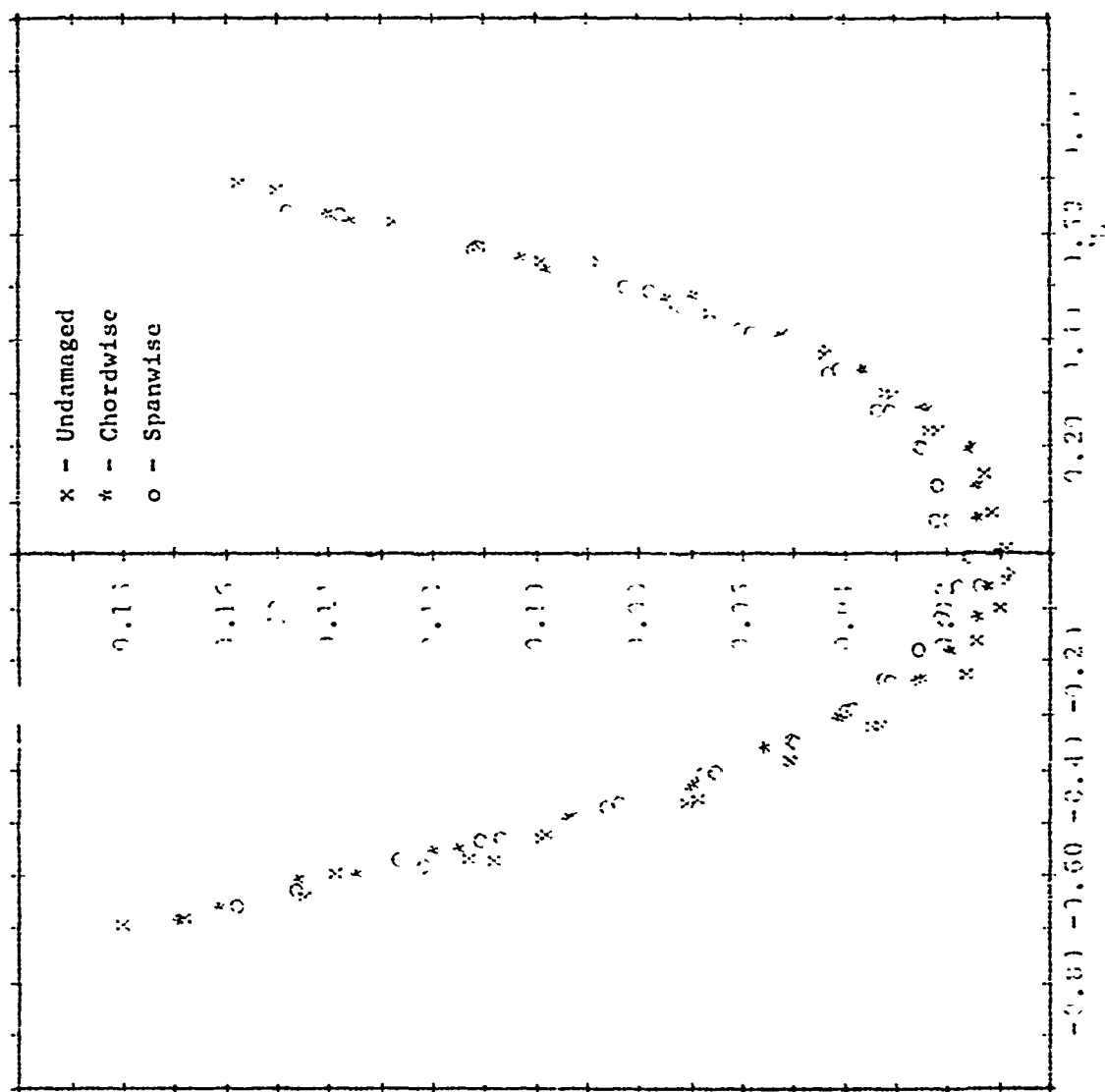


Fig. 30. - Drag Coefficient Comparison - 2% Spanwise and Chordwise Holes

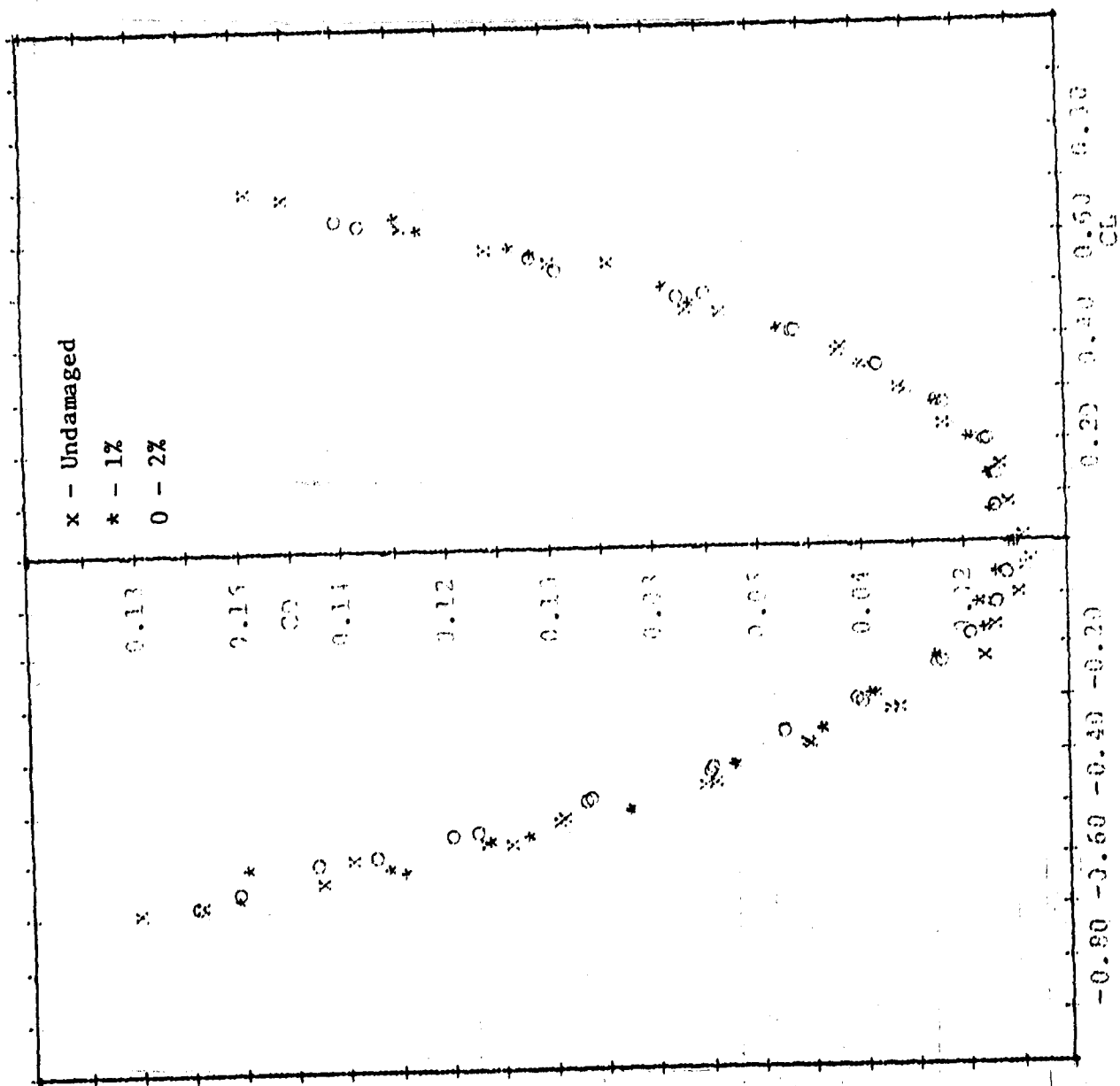


Fig. 31. - Drag Coefficient Comparison - 1 and 2% Chordwise Holes

Best Available Copy

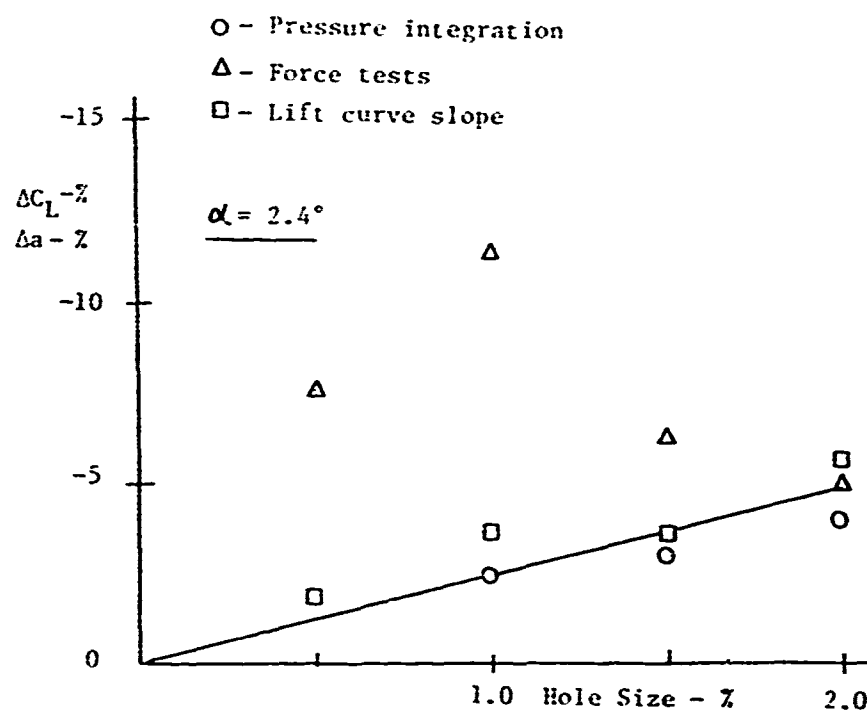
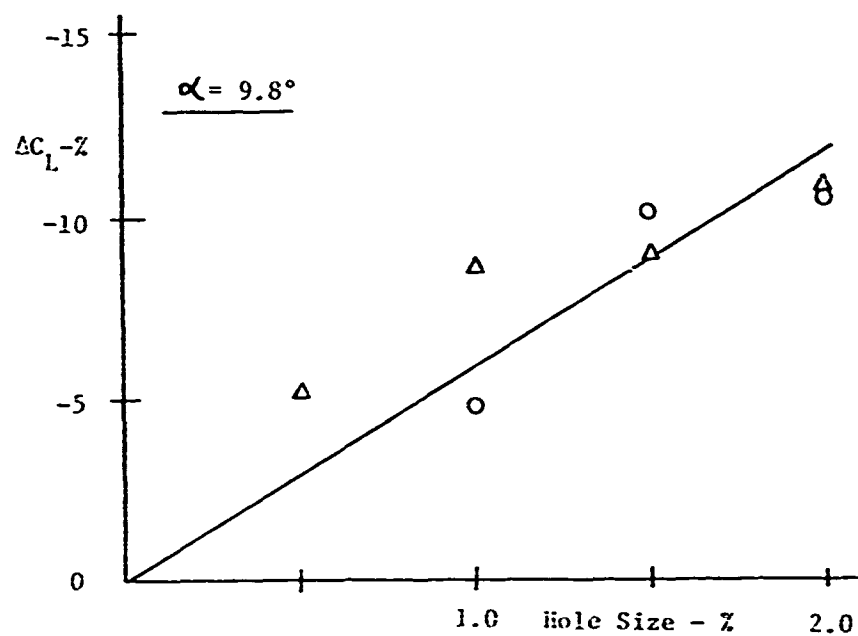


Fig. 32. - Damage-Induced Reduction in Lift Coefficient for Holes at 75% Span

APPENDIX I

Three-Dimensional Plots of ΔC_p

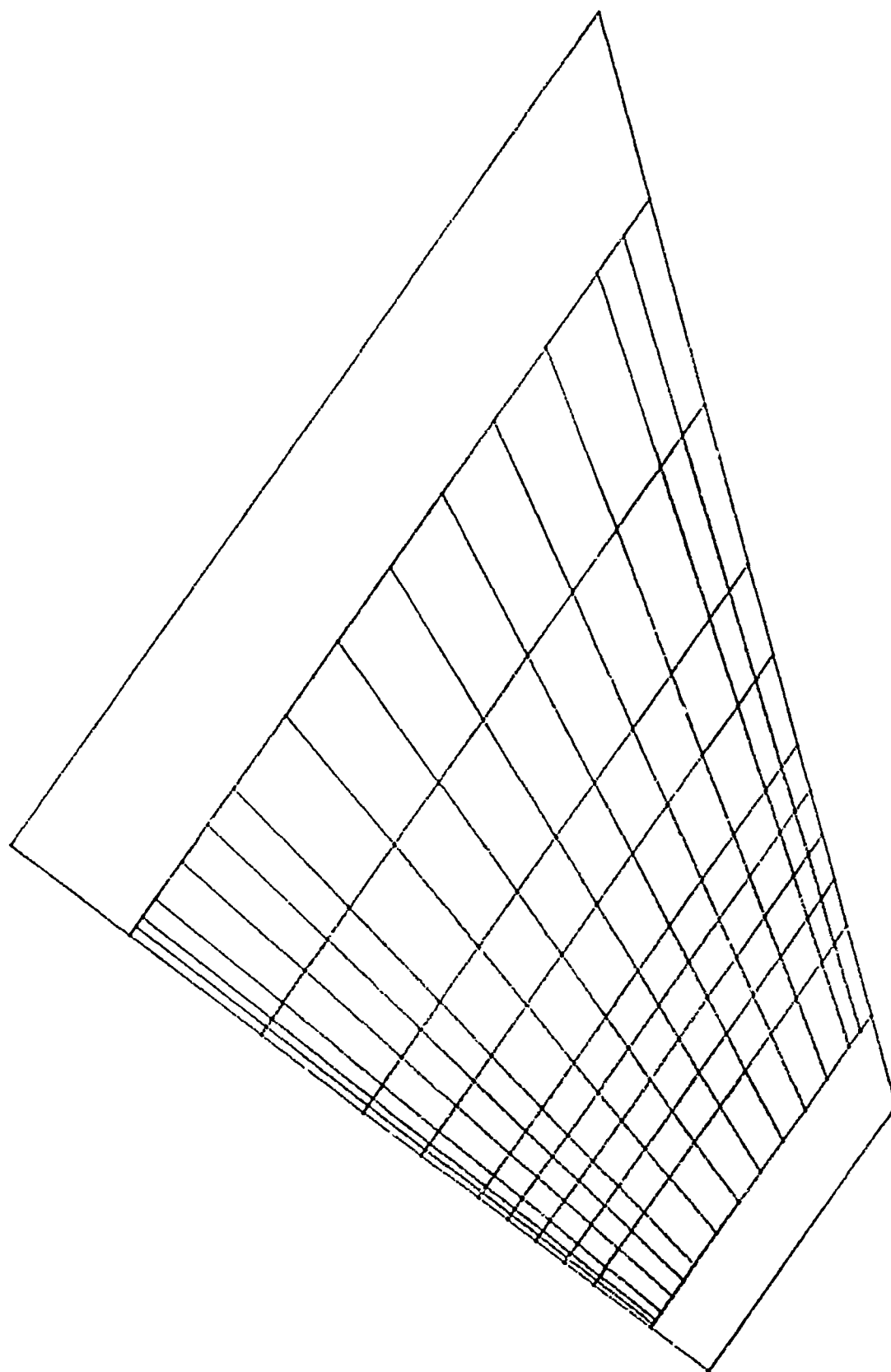


FIGURE A.1 - UNDAMAGED, $\alpha = 0^\circ$

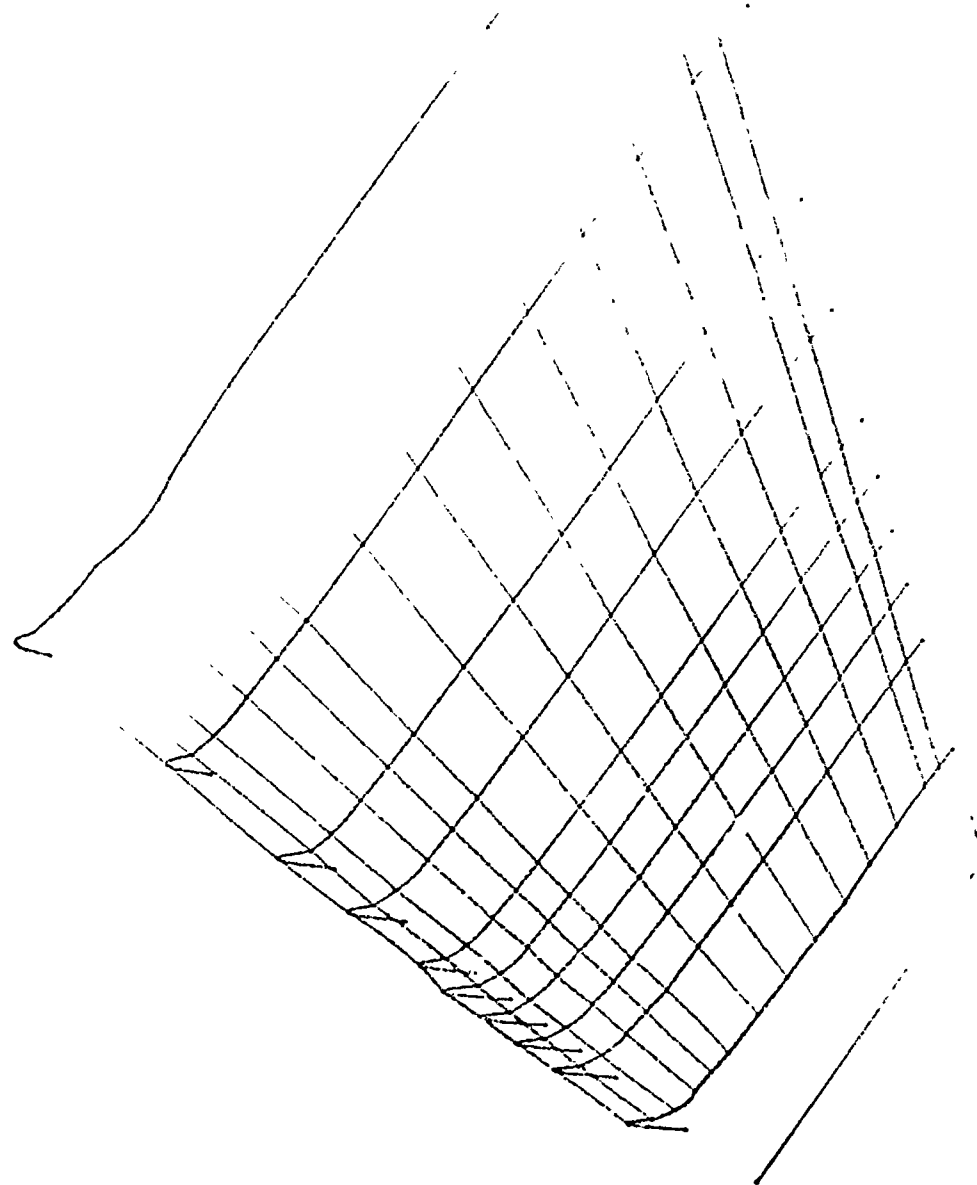


FIGURE A.2 - UNDAMAGED, $\alpha = 2.5^\circ$

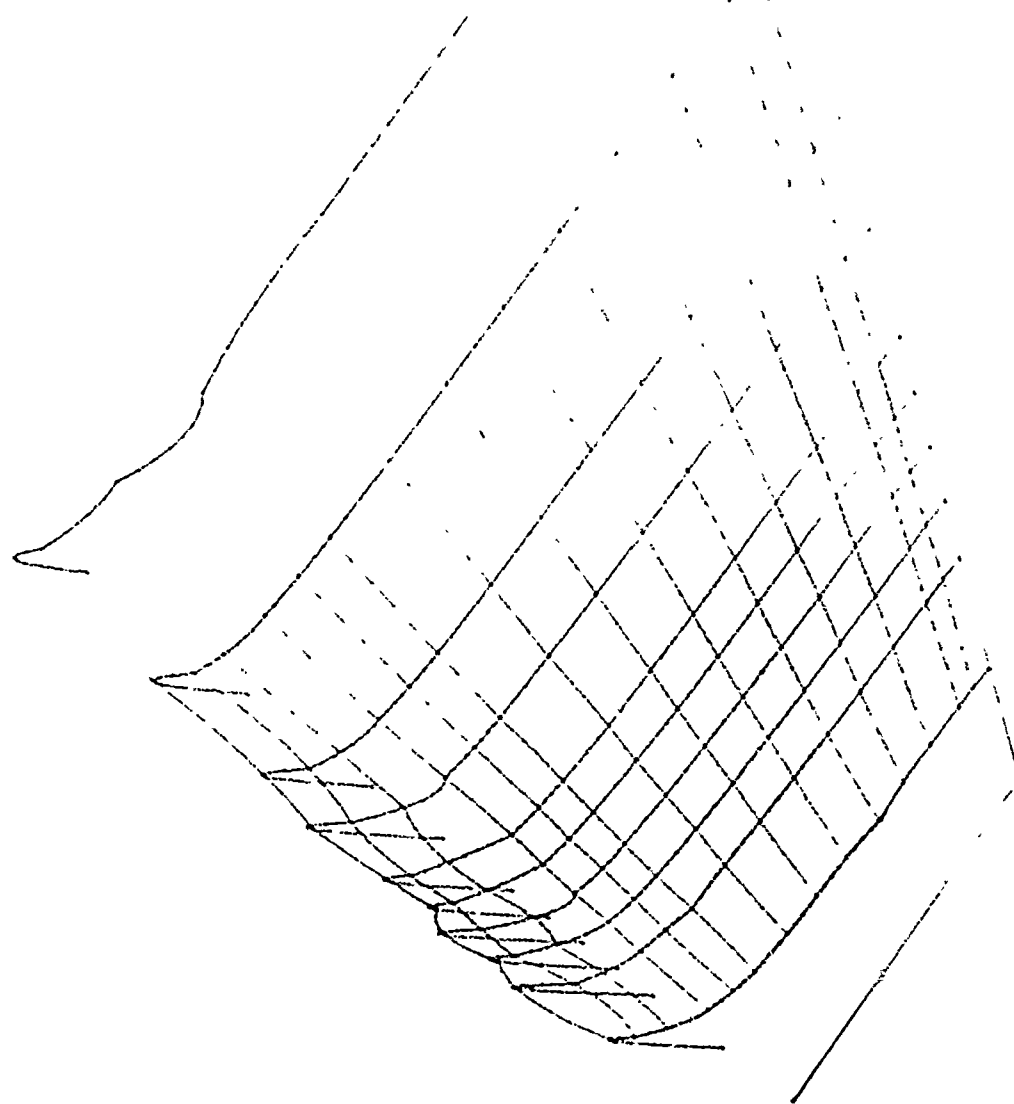


FIGURE A.3 - UNDAMAGED, $\alpha = 5.0^\circ$

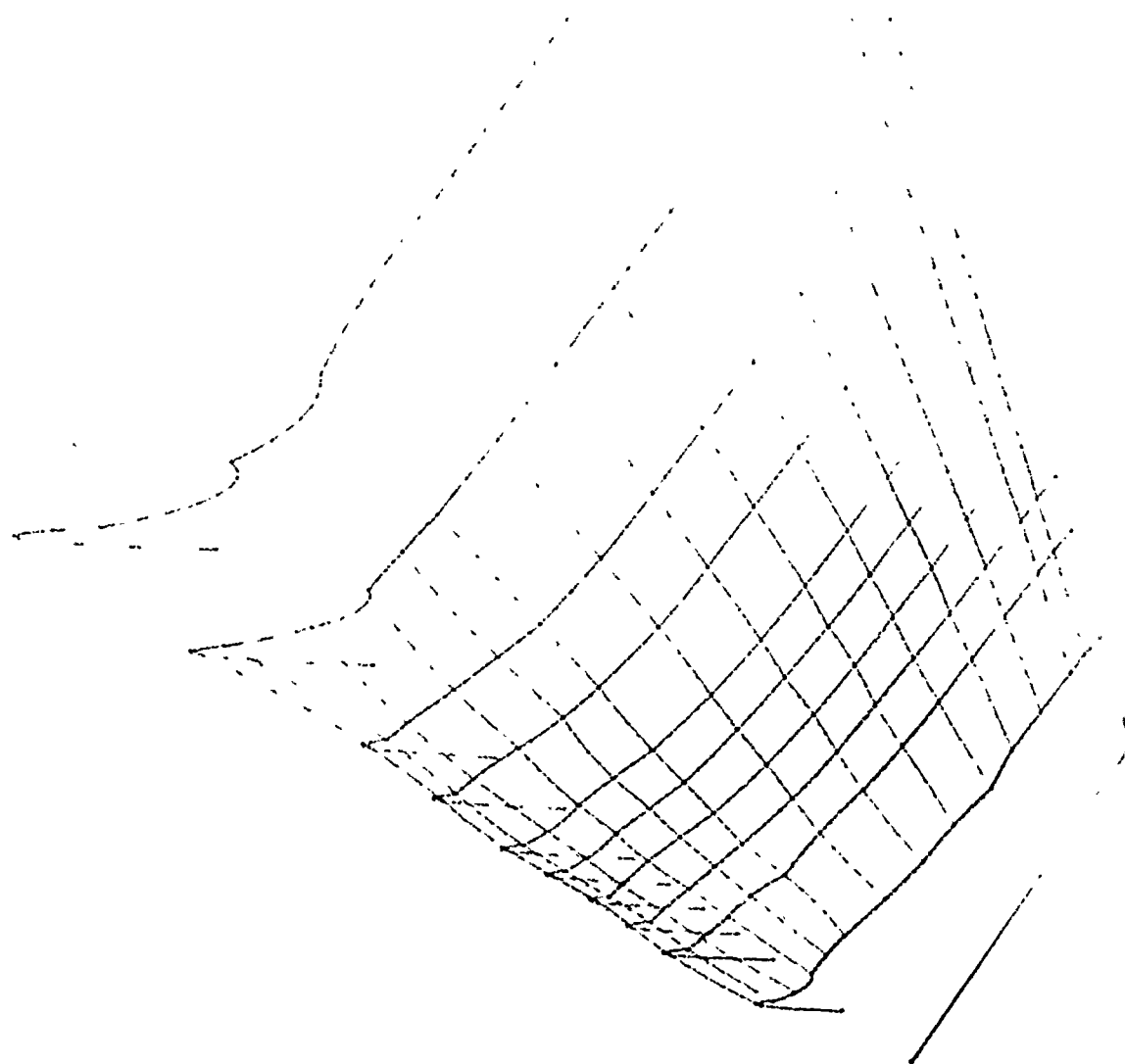


FIGURE A.4 - UNDAMAGED, $\alpha = 7.4^\circ$

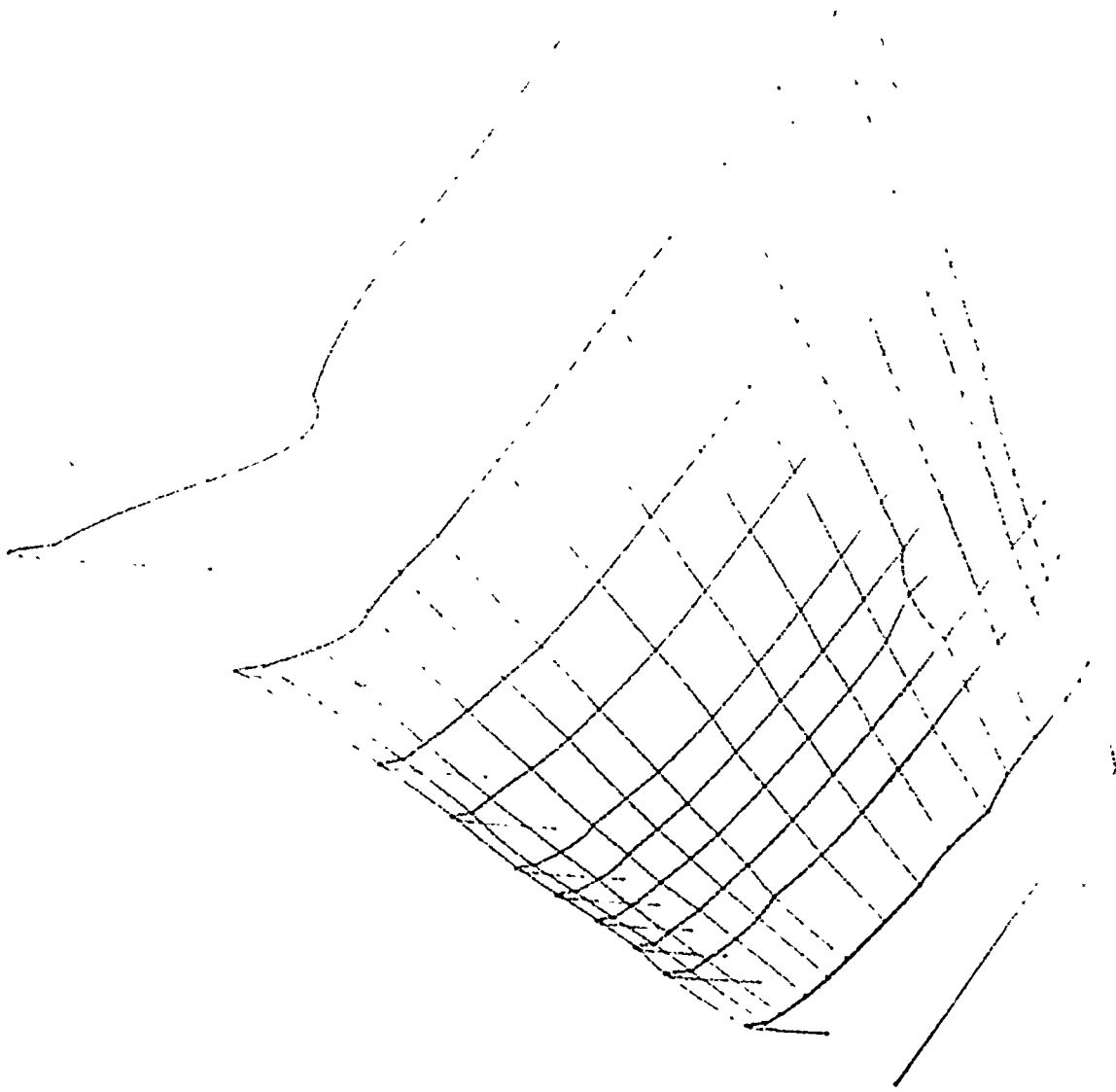


FIGURE A.5 - UNDAMAGED, $\alpha = 9.9^\circ$

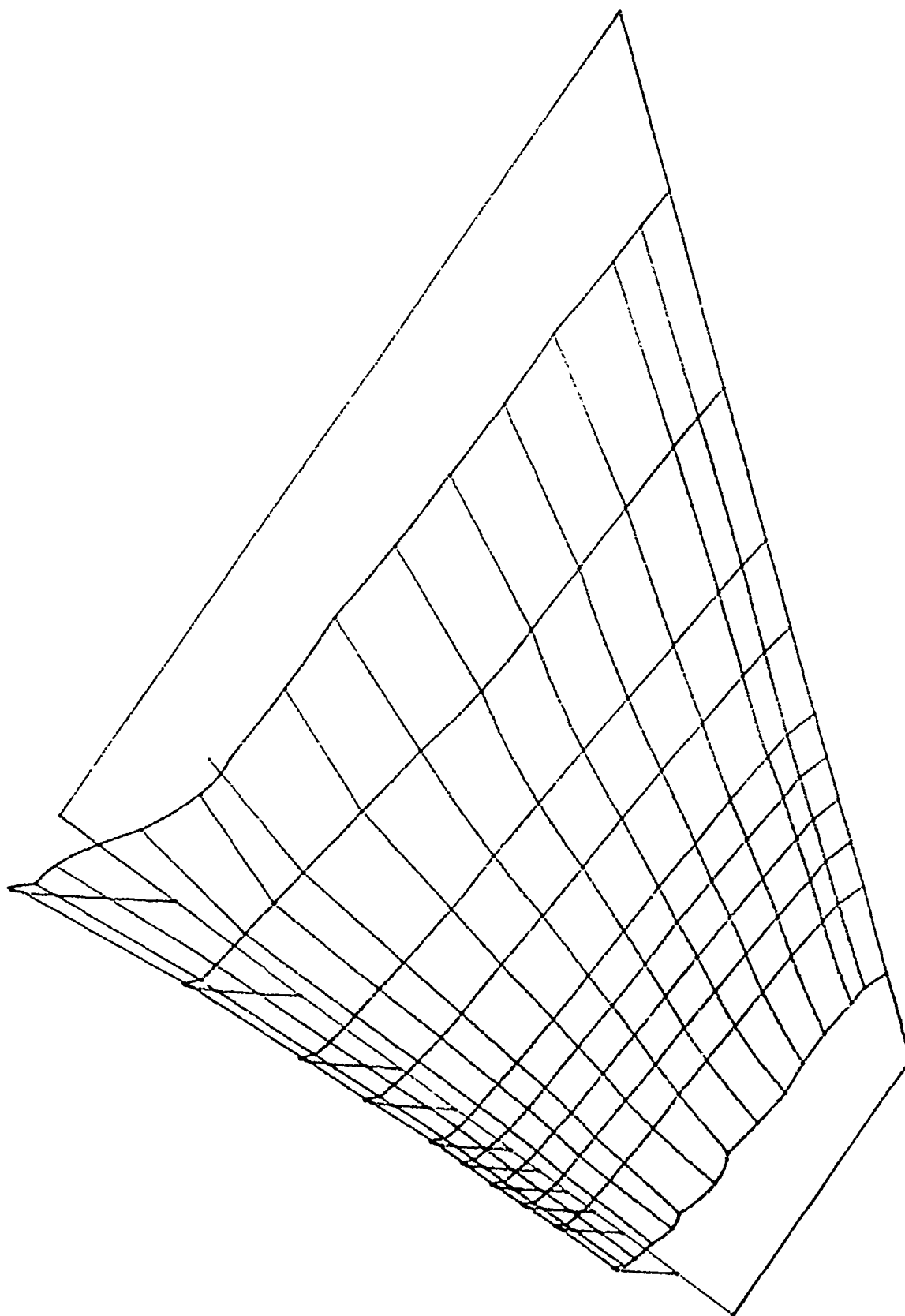


FIGURE A.6 - UNDAMAGED, $\alpha = 12.4^\circ$

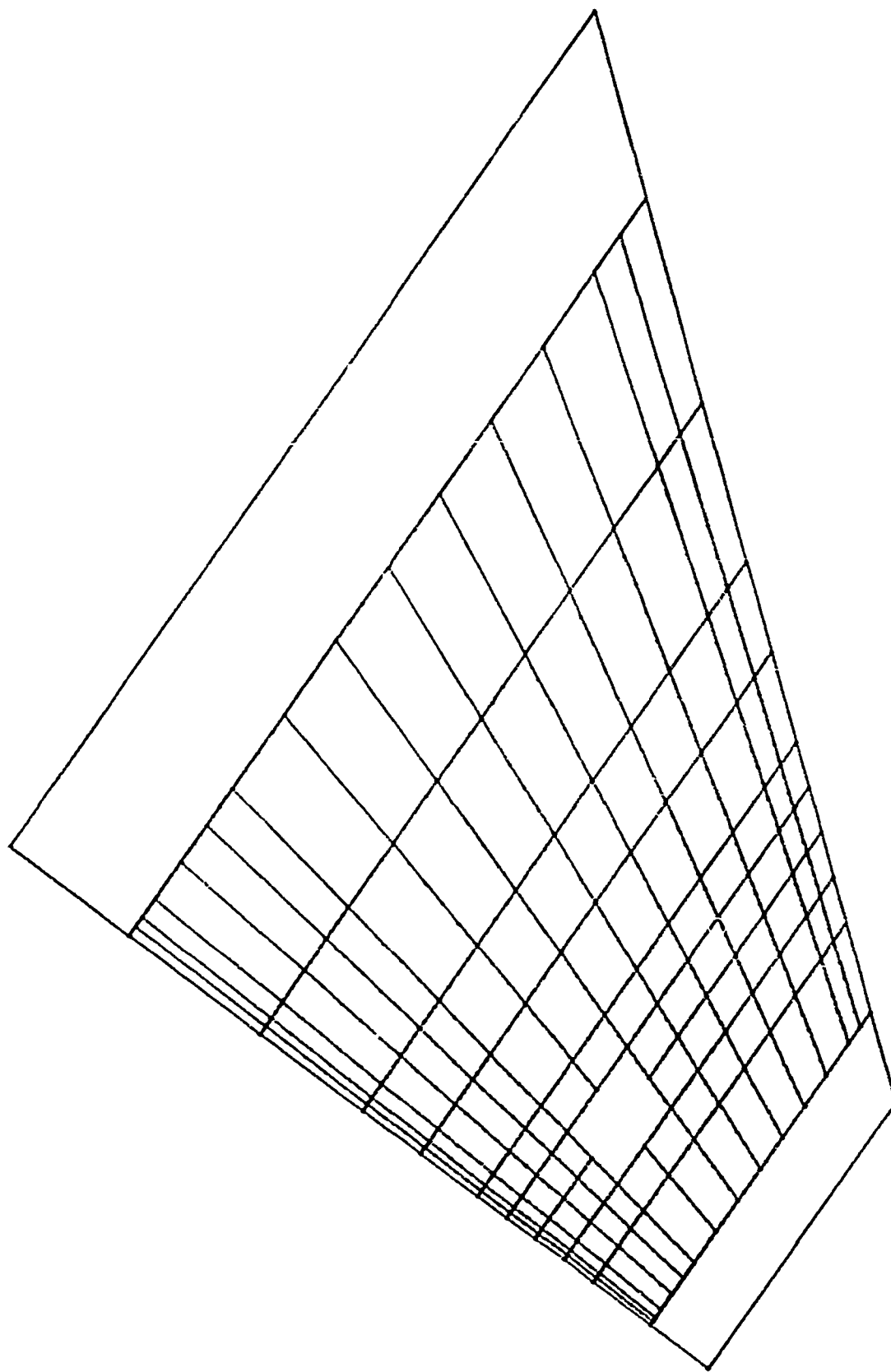


FIGURE A.7 - 0.5% CIRCULAR HOLE, $\alpha = 0$

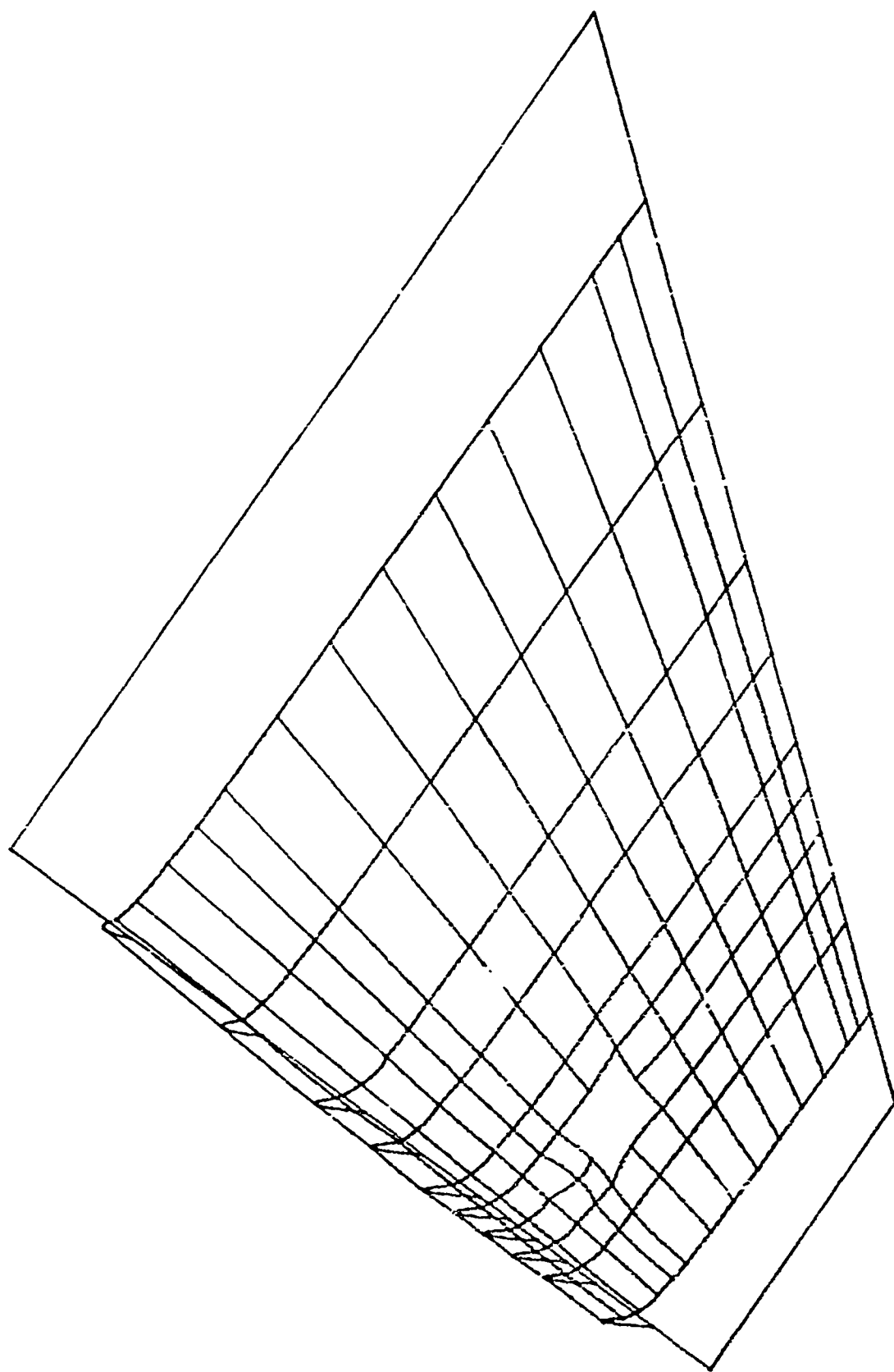


FIGURE A.8 - 0.5% CIRCULAR HOLE, $\alpha = 2.4^\circ$

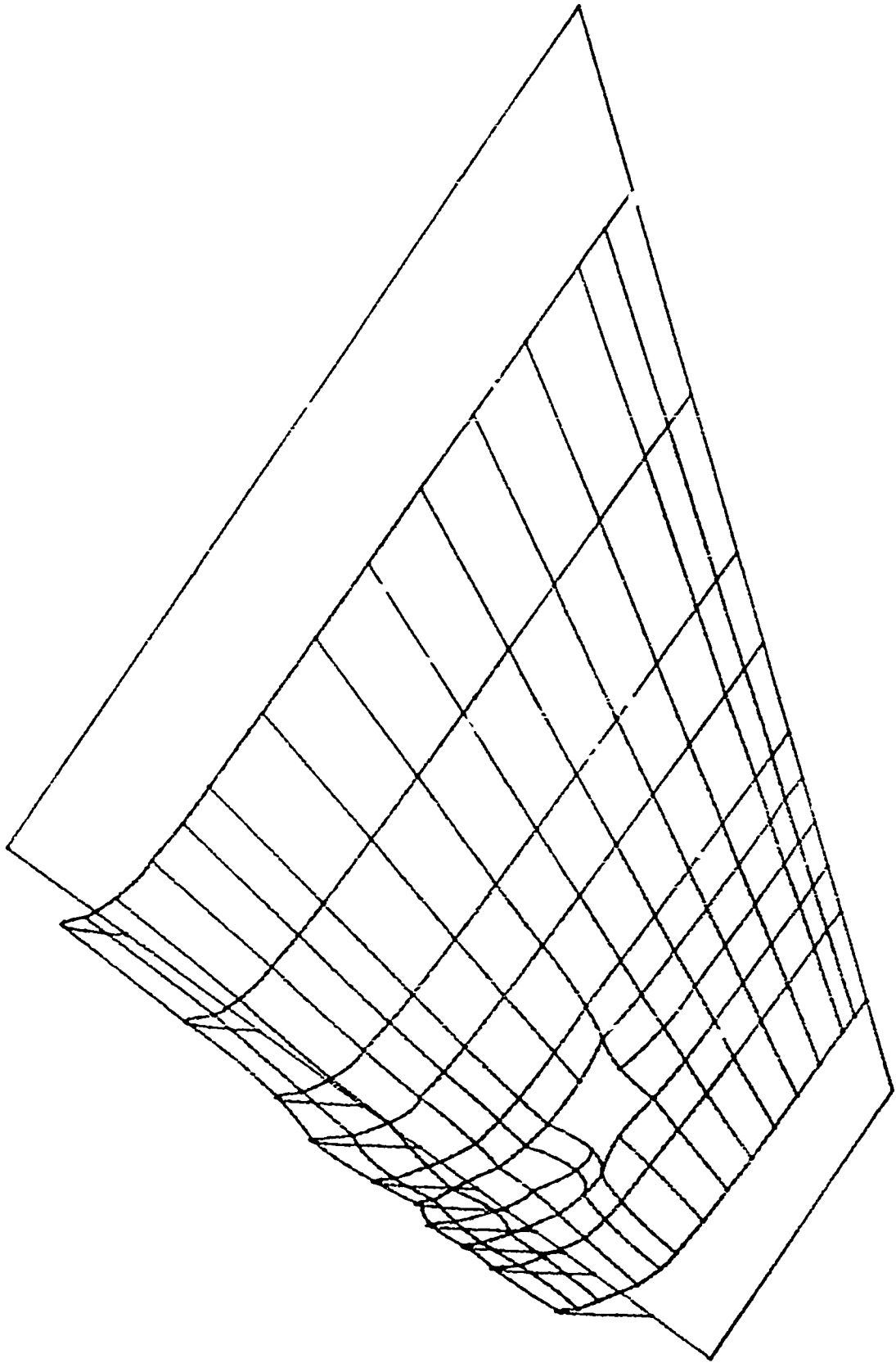


FIGURE A.9 - 0.5% CIRCULAR HOLE, $\alpha = 4.9^\circ$

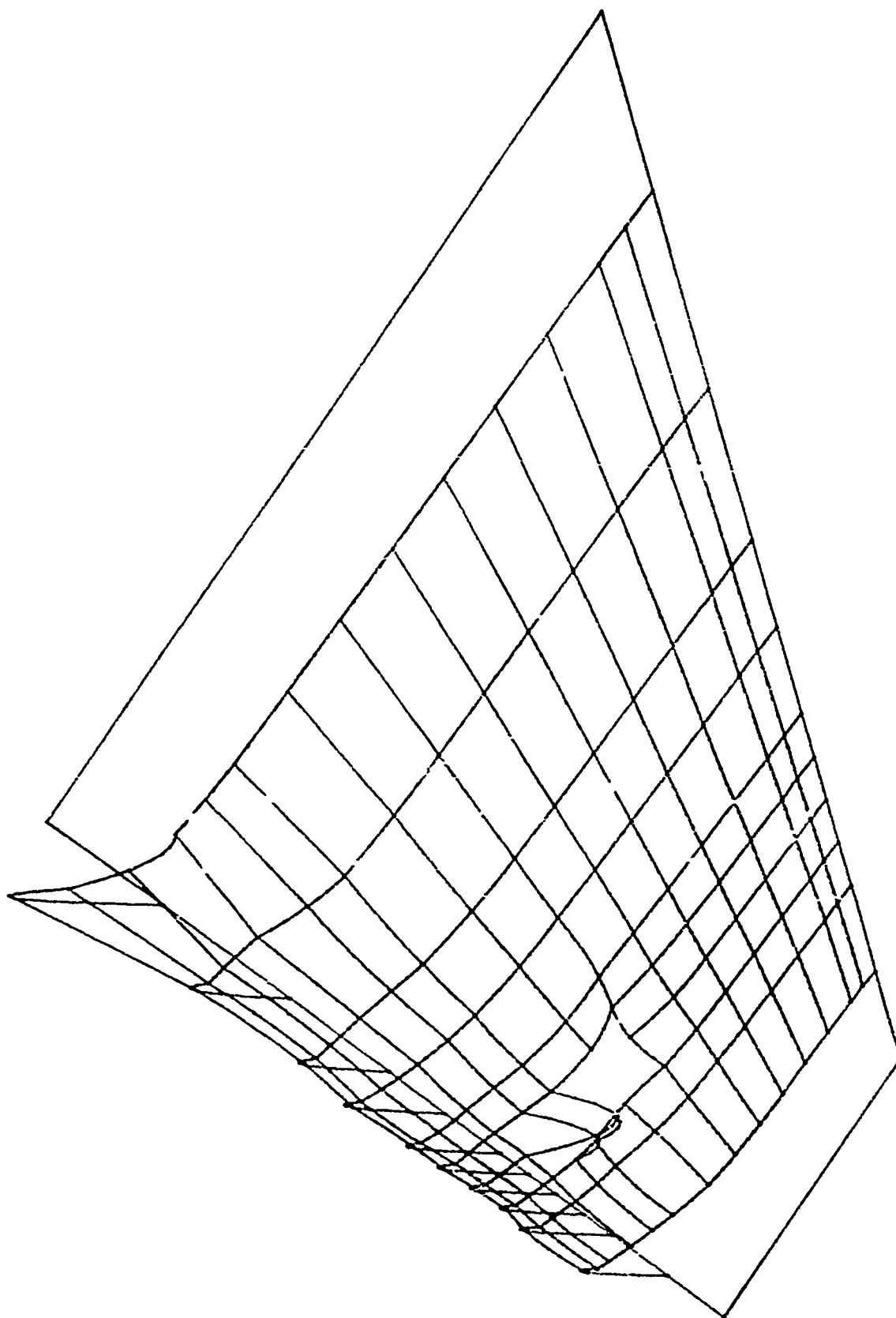


FIGURE A.10 - 0.5% CIRCULAR HOLE, $\alpha = 7.4^\circ$

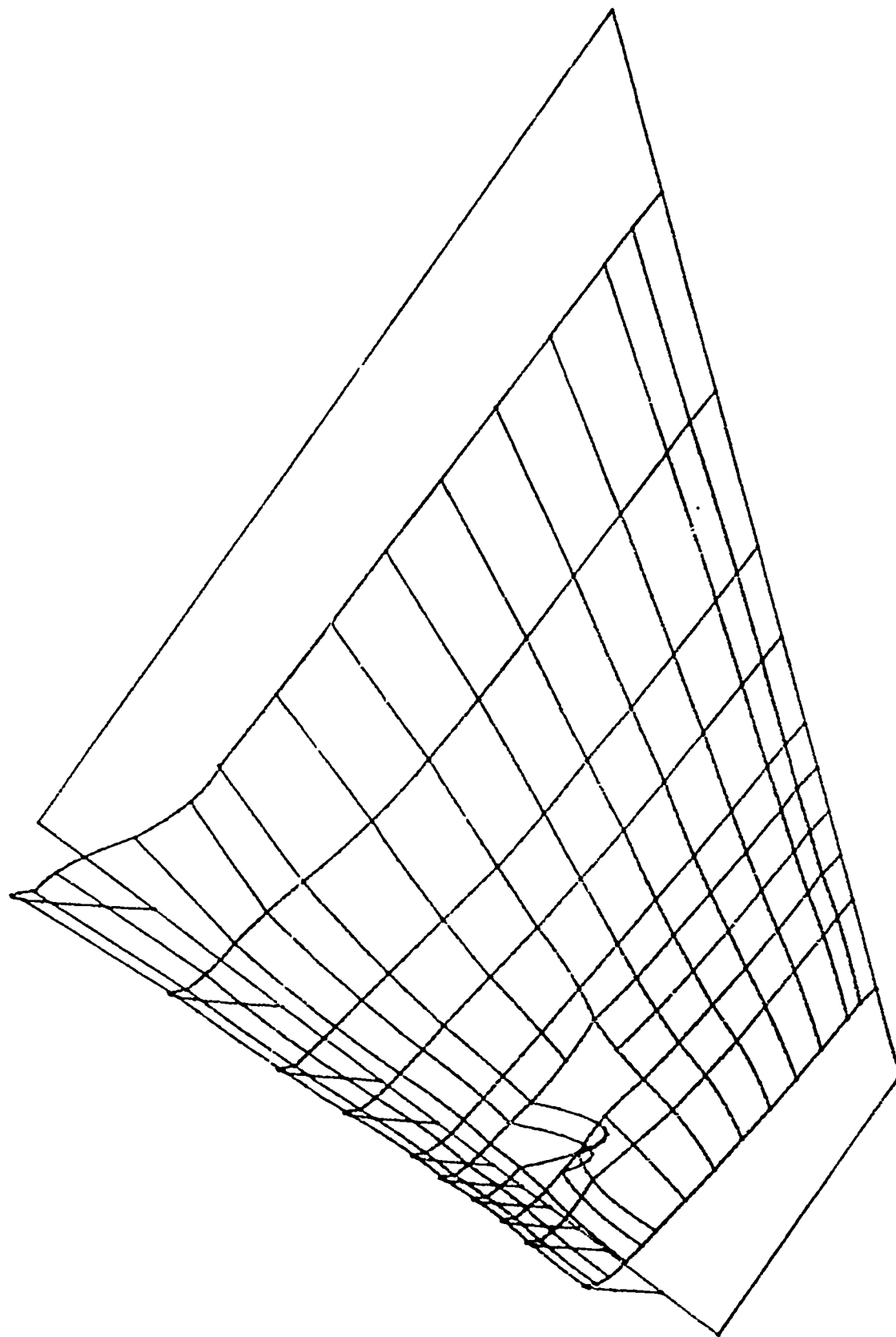


FIGURE A.11 - 0.5% CIRCULAR HOLE, $\alpha = 9.8^\circ$

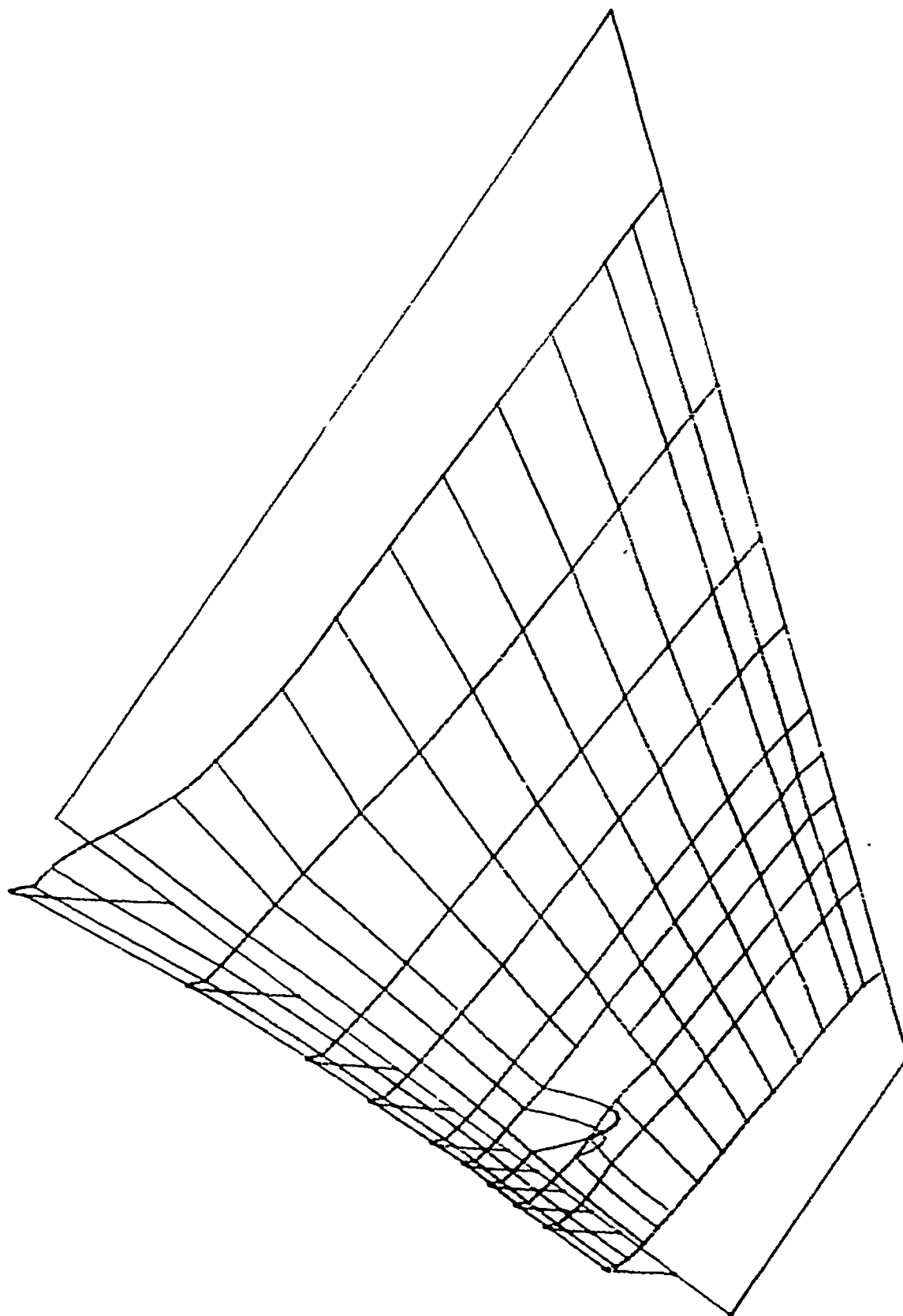


FIGURE A.12 - 0.5% CIRCULAR HOLE, $\alpha = 12.3^\circ$

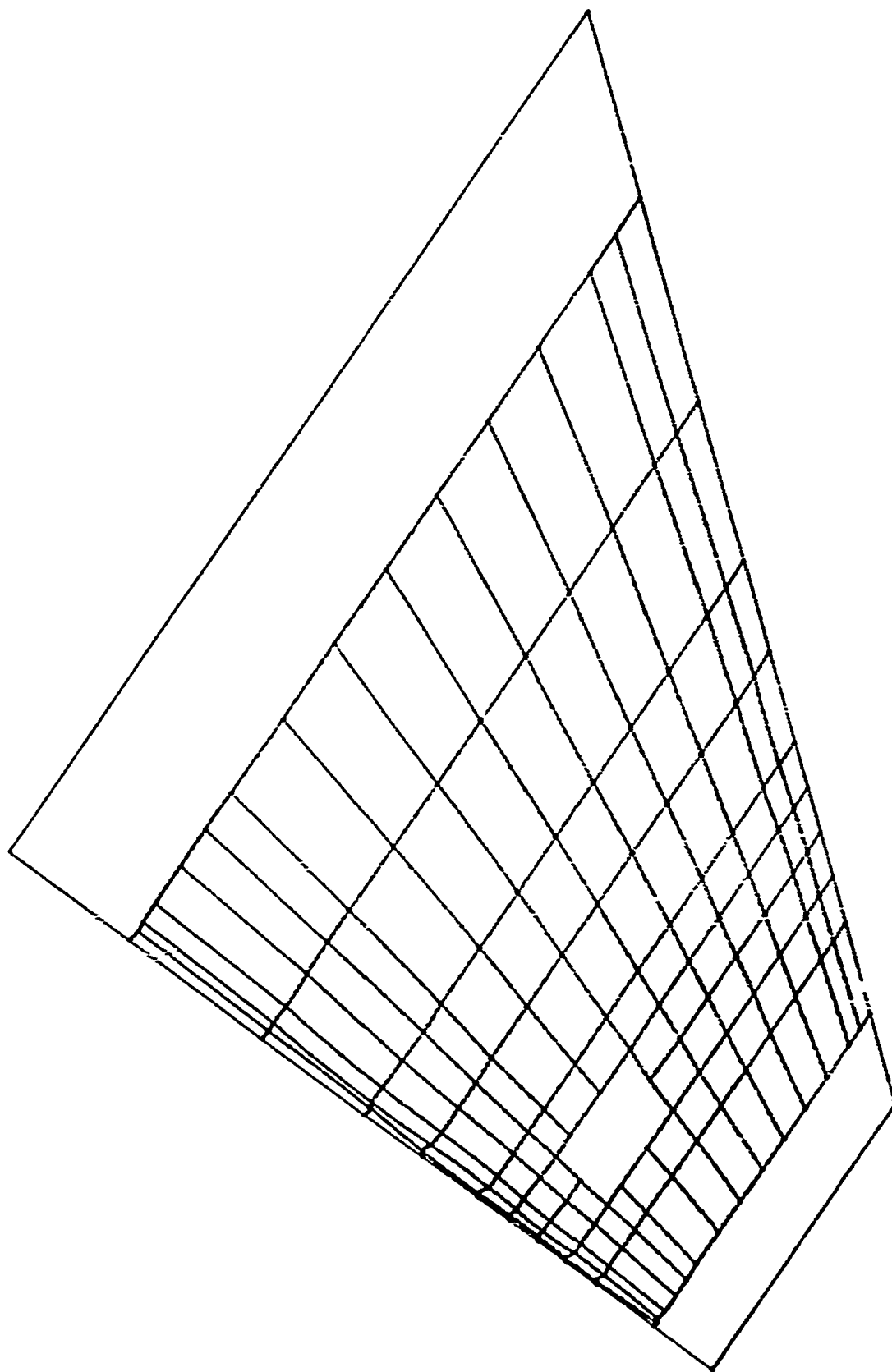


FIGURE A.13 -- 1.0% HOLE AT 75% SPAN, $\alpha = 0$

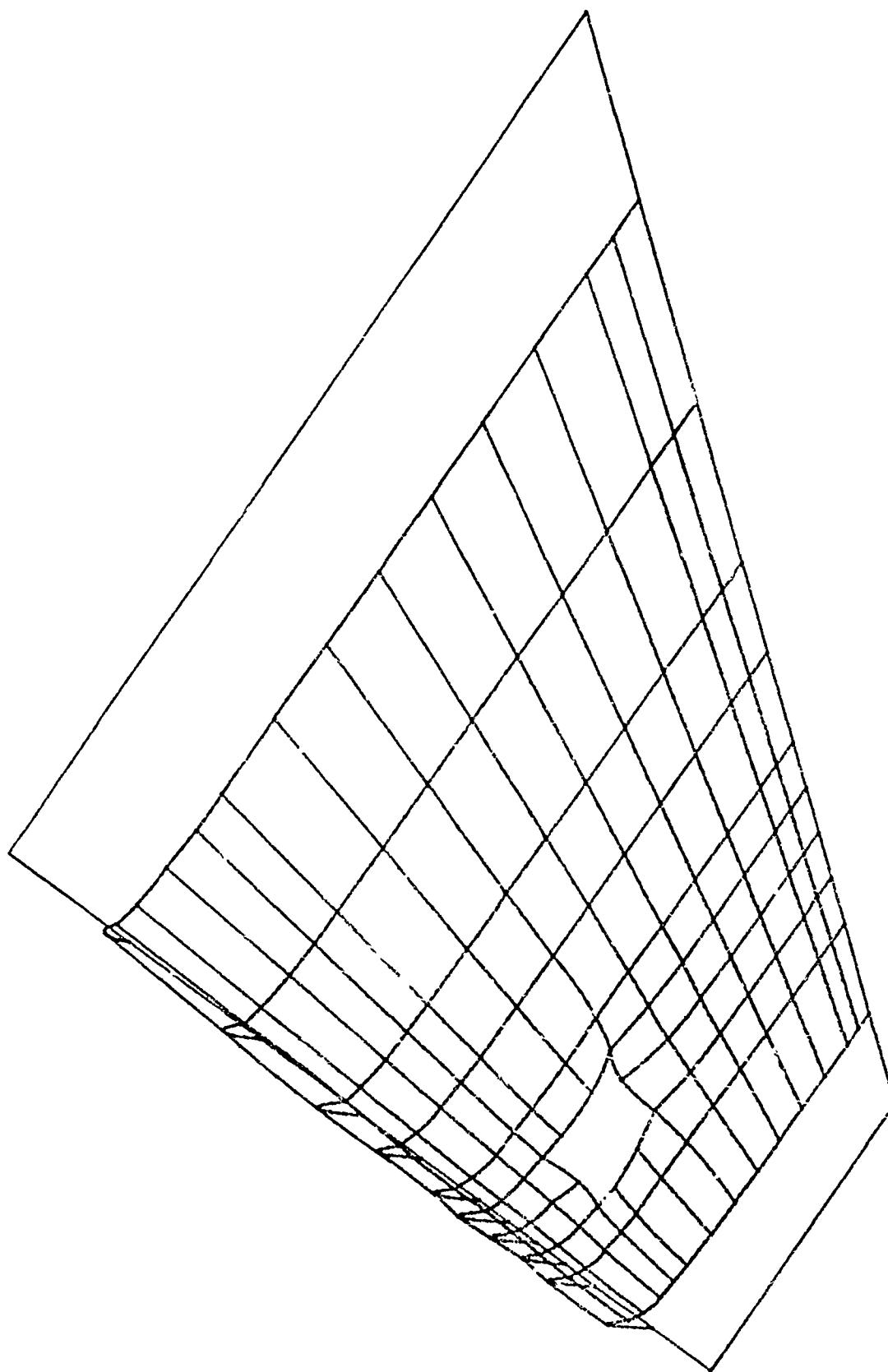


FIGURE A.14 - 1.0% HOLE AT 75% SPAN, $\alpha = 2.4^\circ$

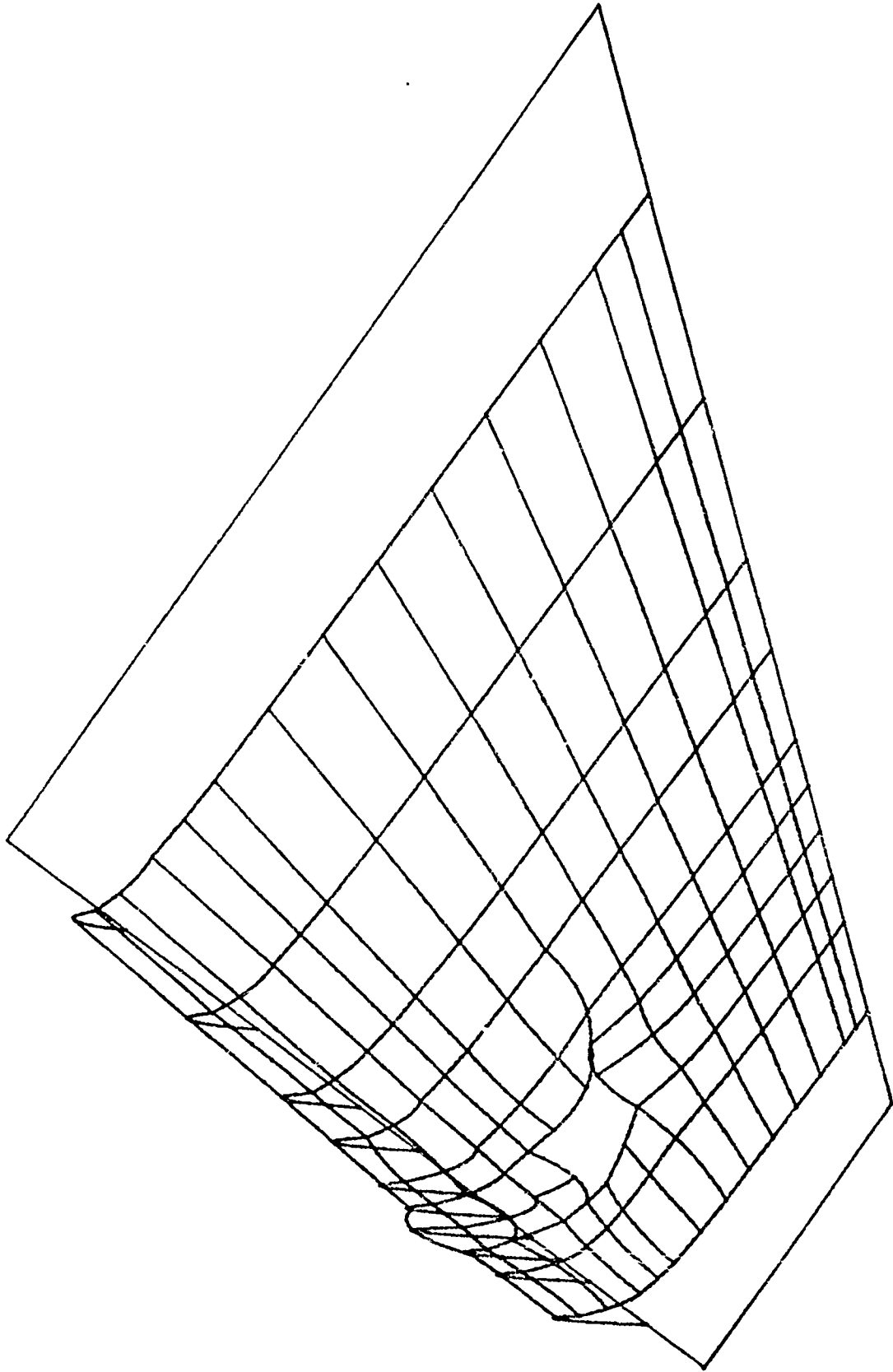


FIGURE A.15 - 1.0% HOLE AT 75% SPAN, $\alpha = 4.9^\circ$

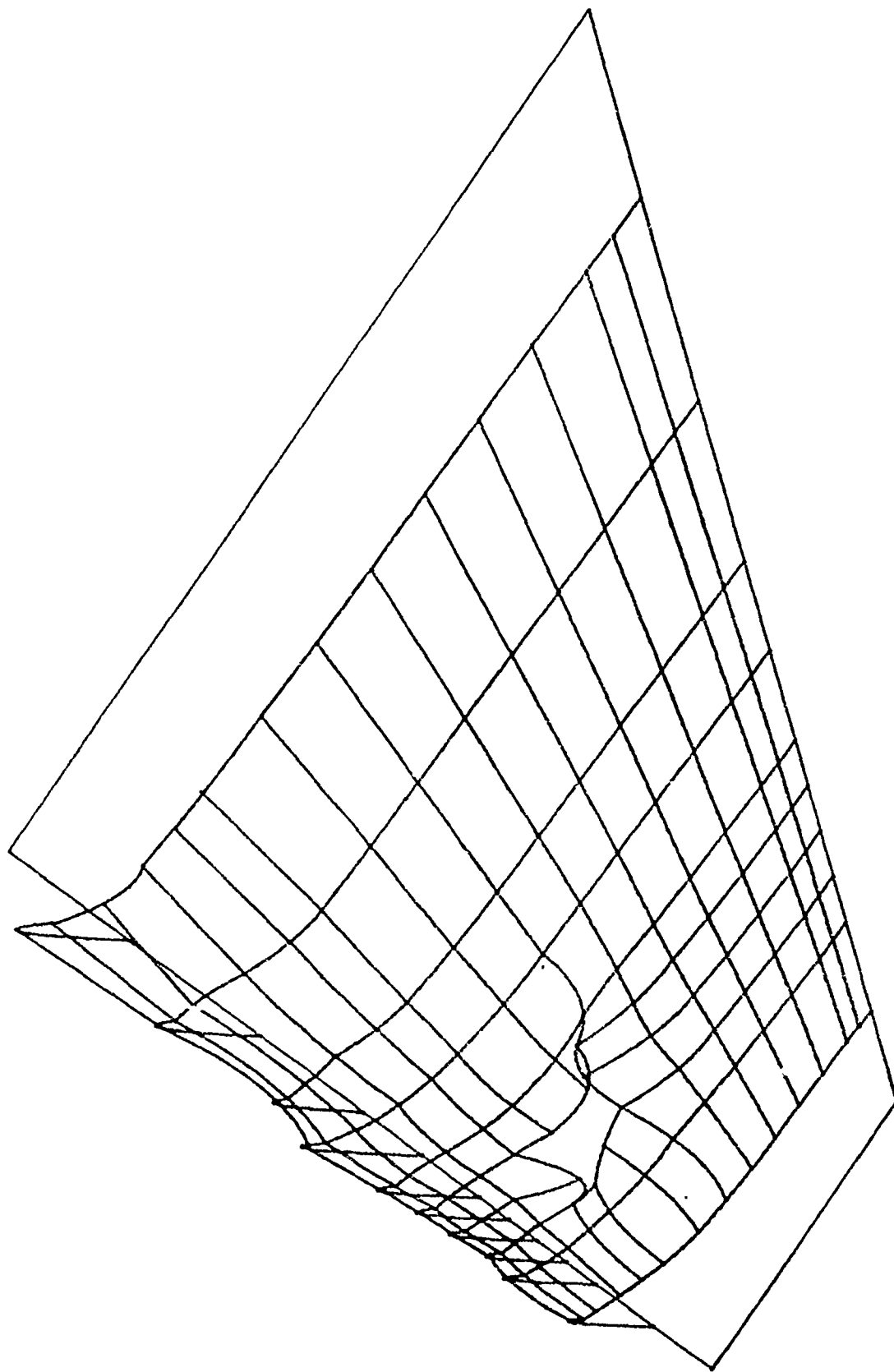


FIGURE A.16 - 1.0% HOLE AT 75% SPAN, $\alpha = 7.3^\circ$

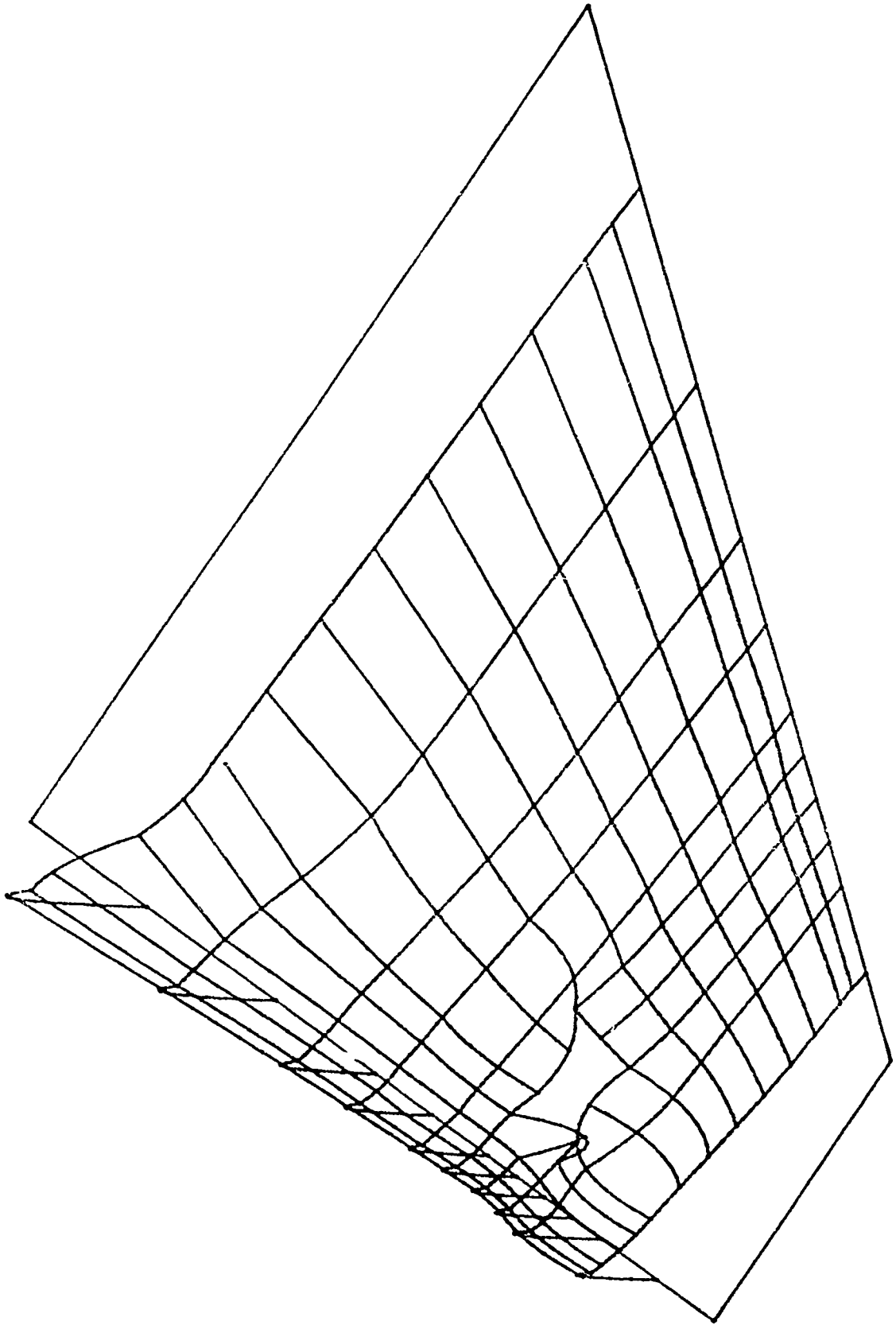


FIGURE A.17 - 1.0% HOLE AT 75% SPAN, $\alpha = 9.8^\circ$

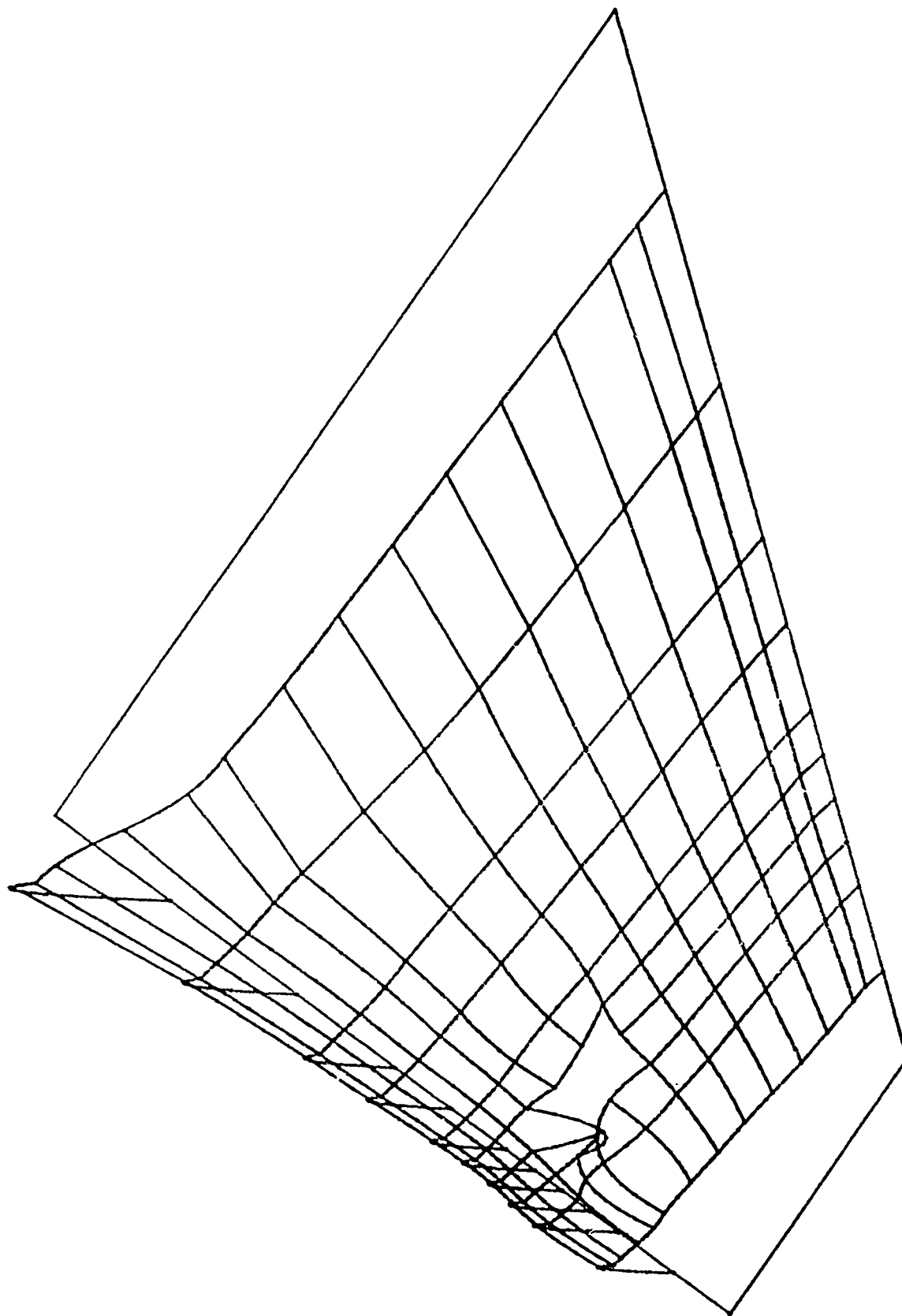


FIGURE A.18 - 1.5% HOLE AT 75% SPAN, $\alpha = 12.2^\circ$

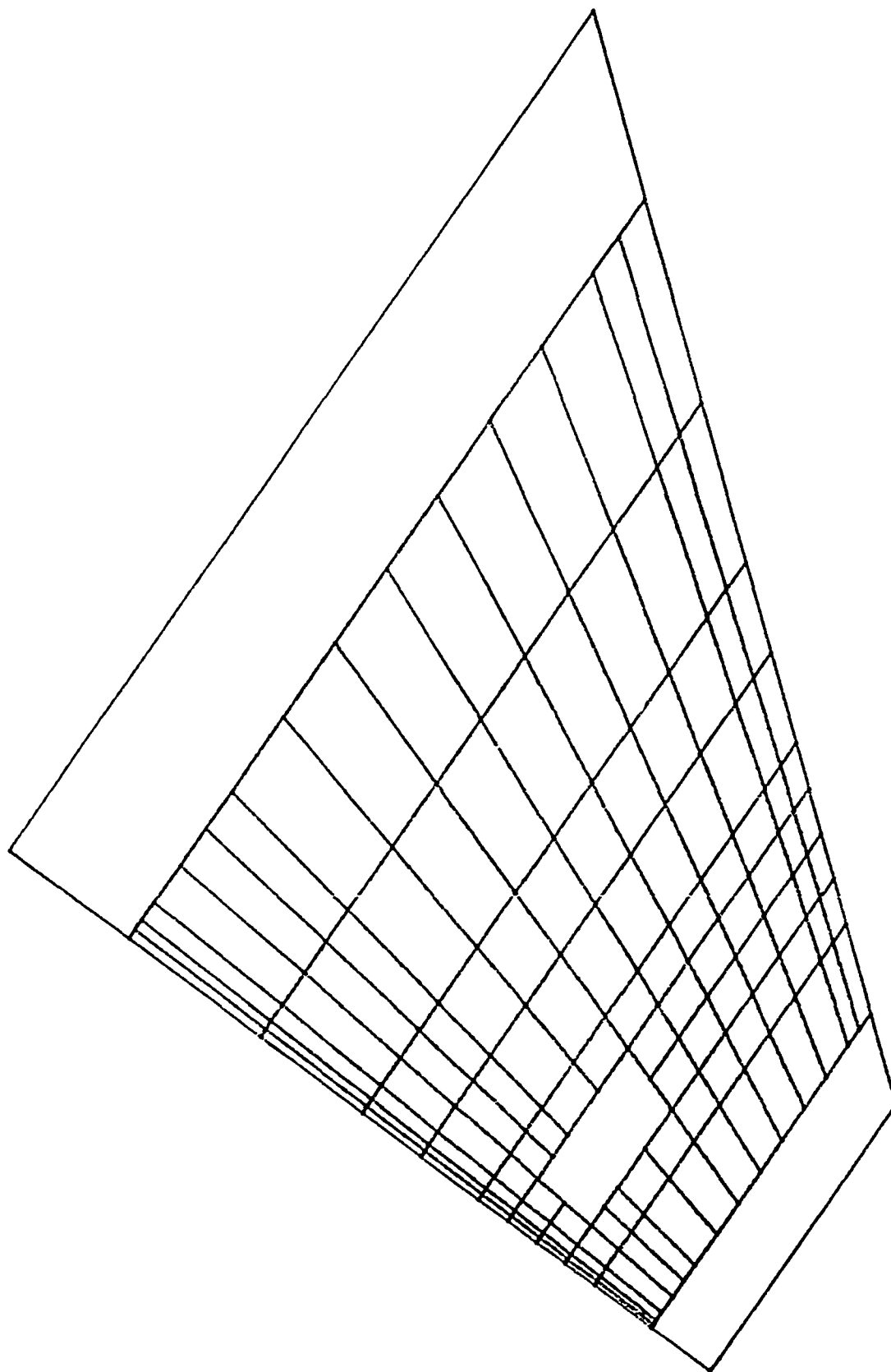


FIGURE A.19 - 1.5% HOLE AT 75% SPAN, $\alpha = 0^\circ$

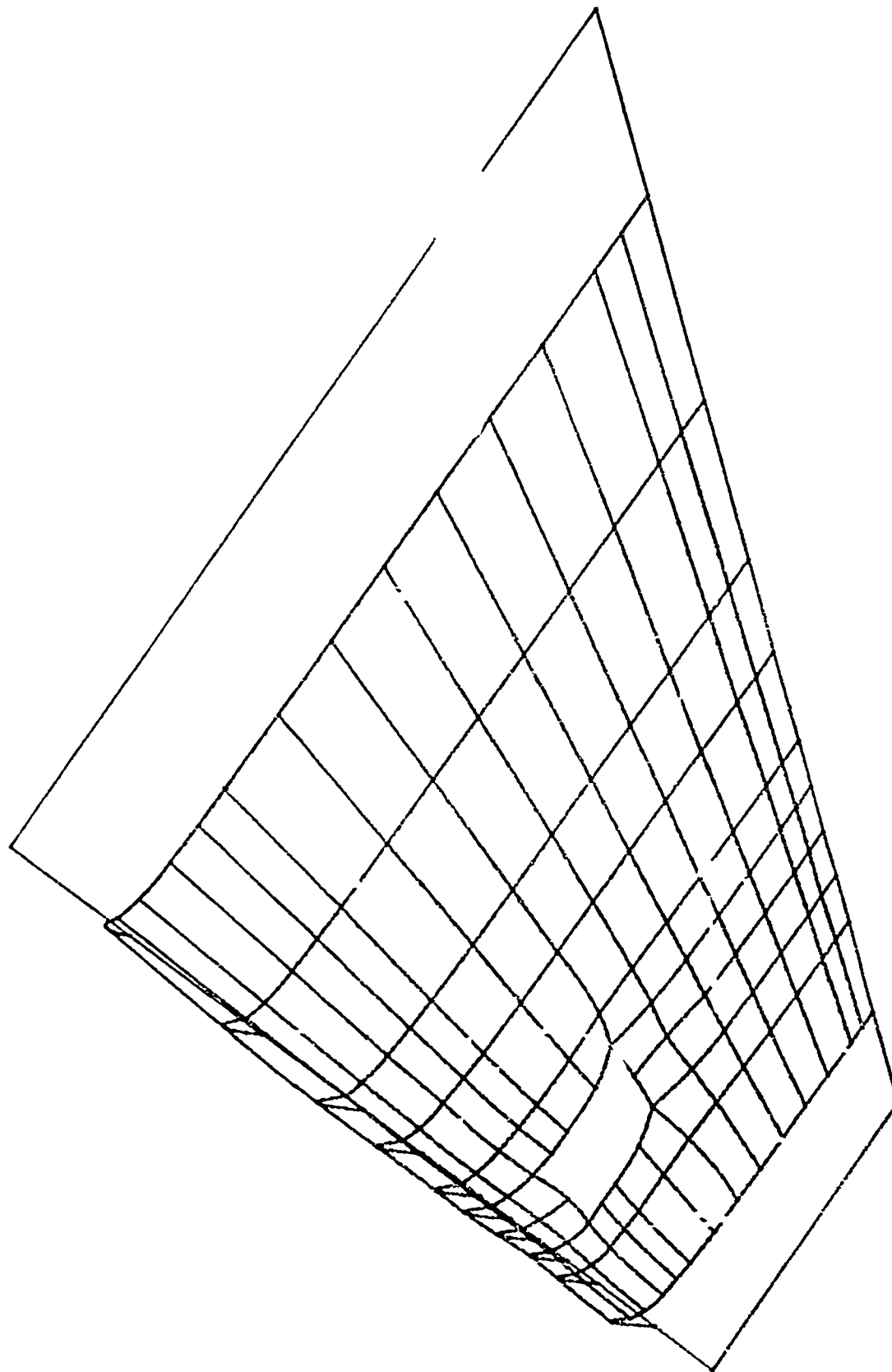


FIGURE A.20 - 1.5% HOLE AT 75% SPAN, $\alpha = 2.4^\circ$

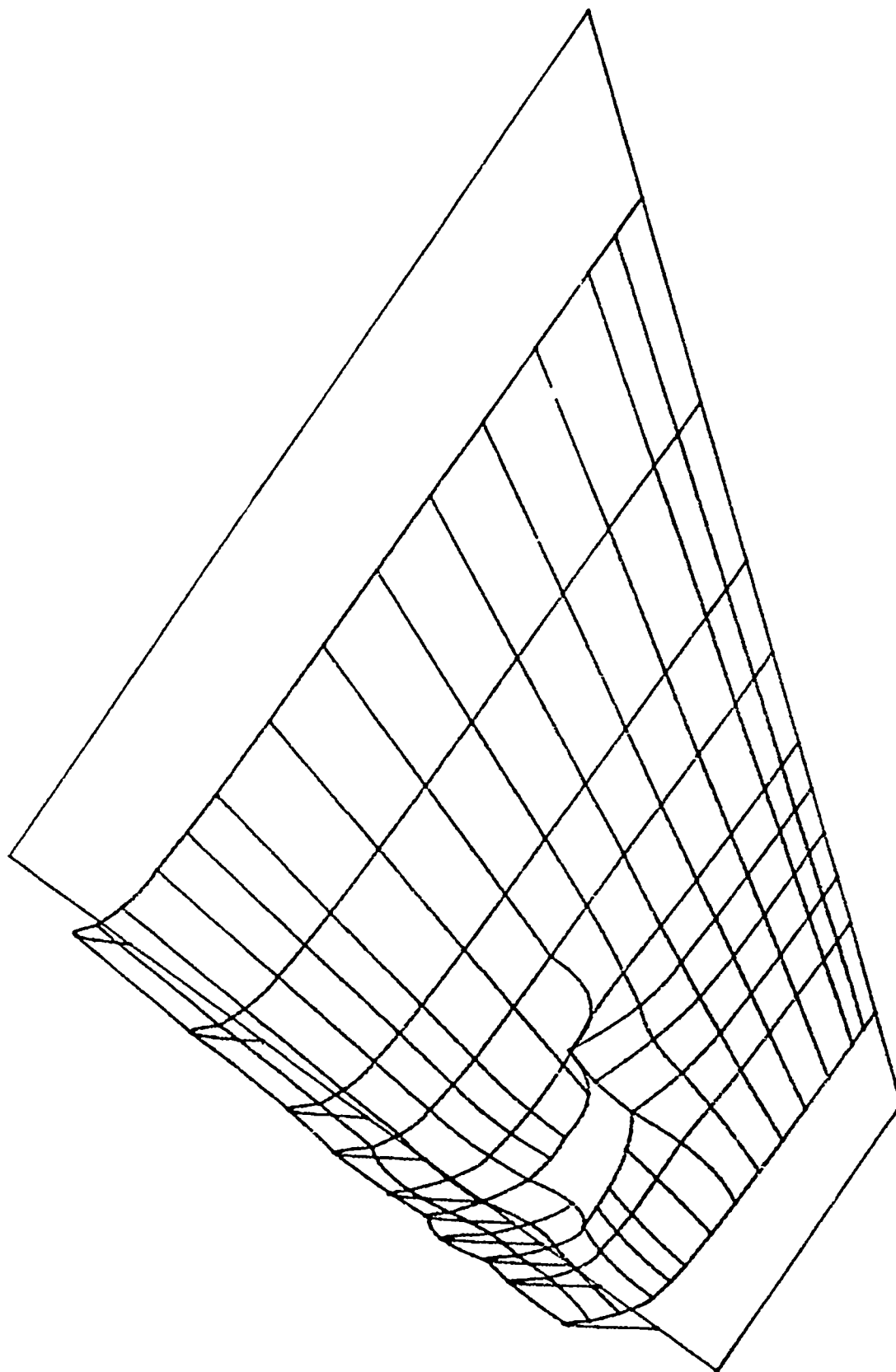


FIGURE A.21 - 1.5% HOLE AT 75% SPAN, $\alpha = 4.9^\circ$

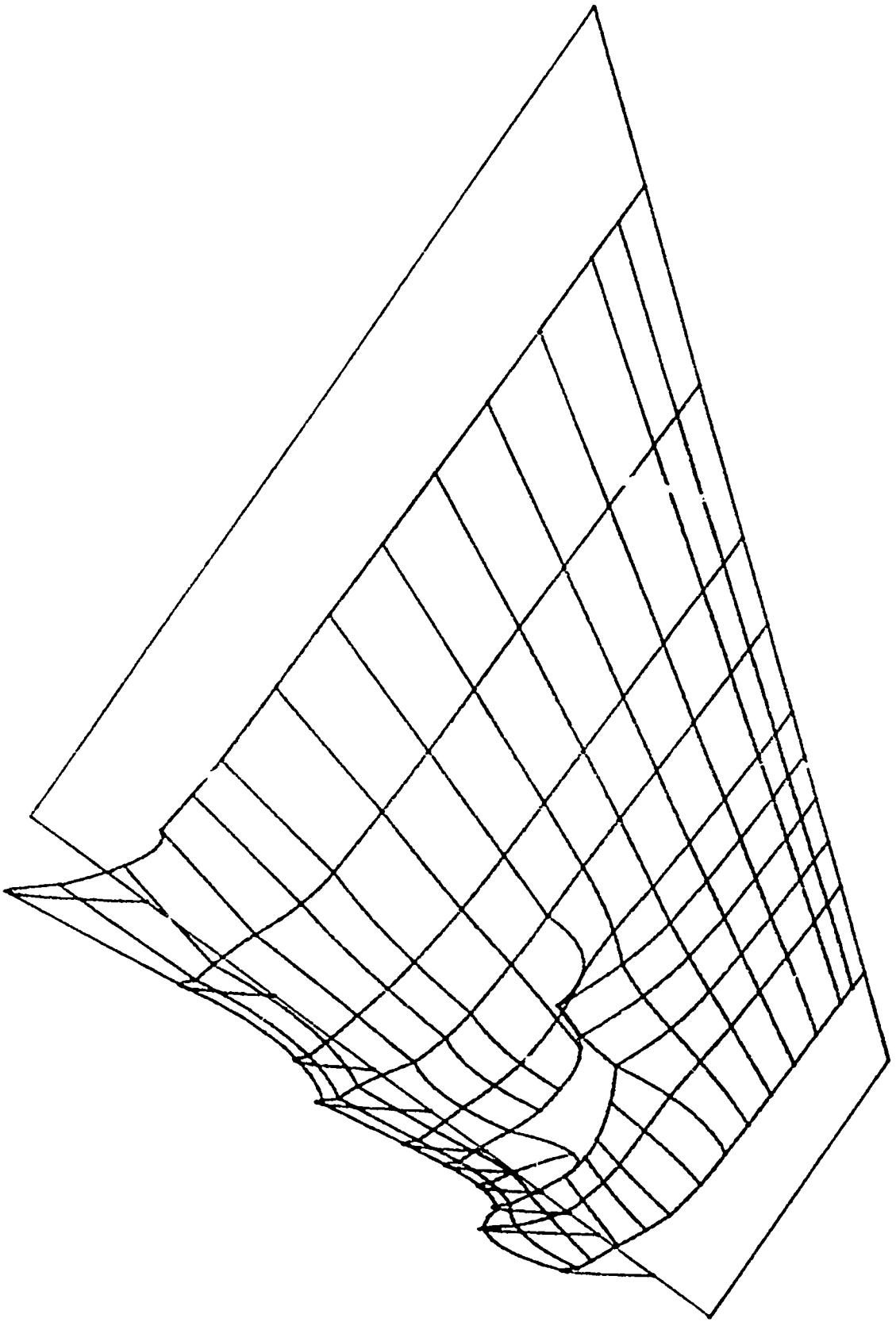


FIGURE A.22 - 1.5% HOLE AT 75% SPAN, $\alpha = 7.3^\circ$

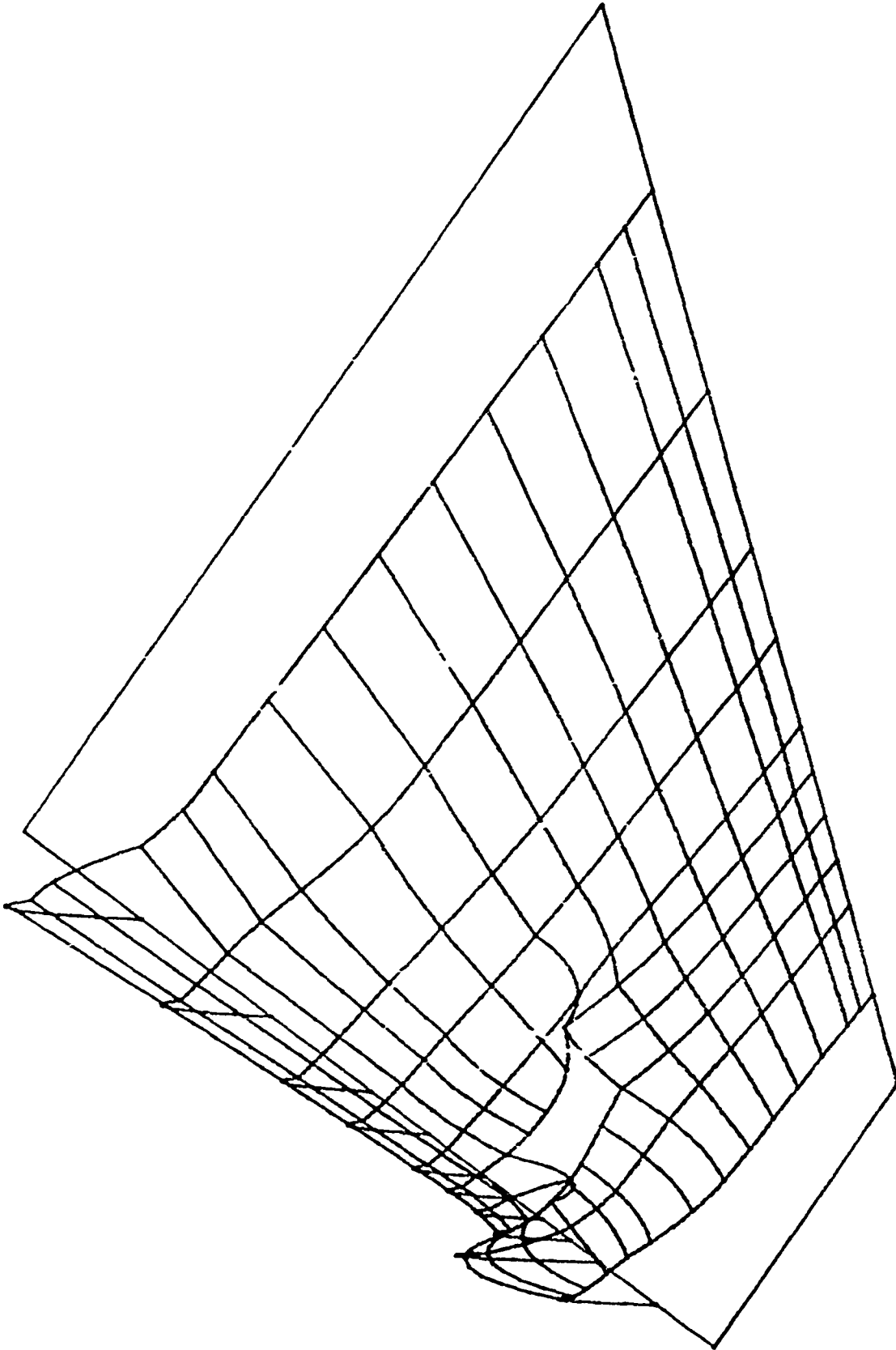


FIGURE A.23 - 1.5% HOLE AT 75% SPAN, $\alpha = 9.8^\circ$

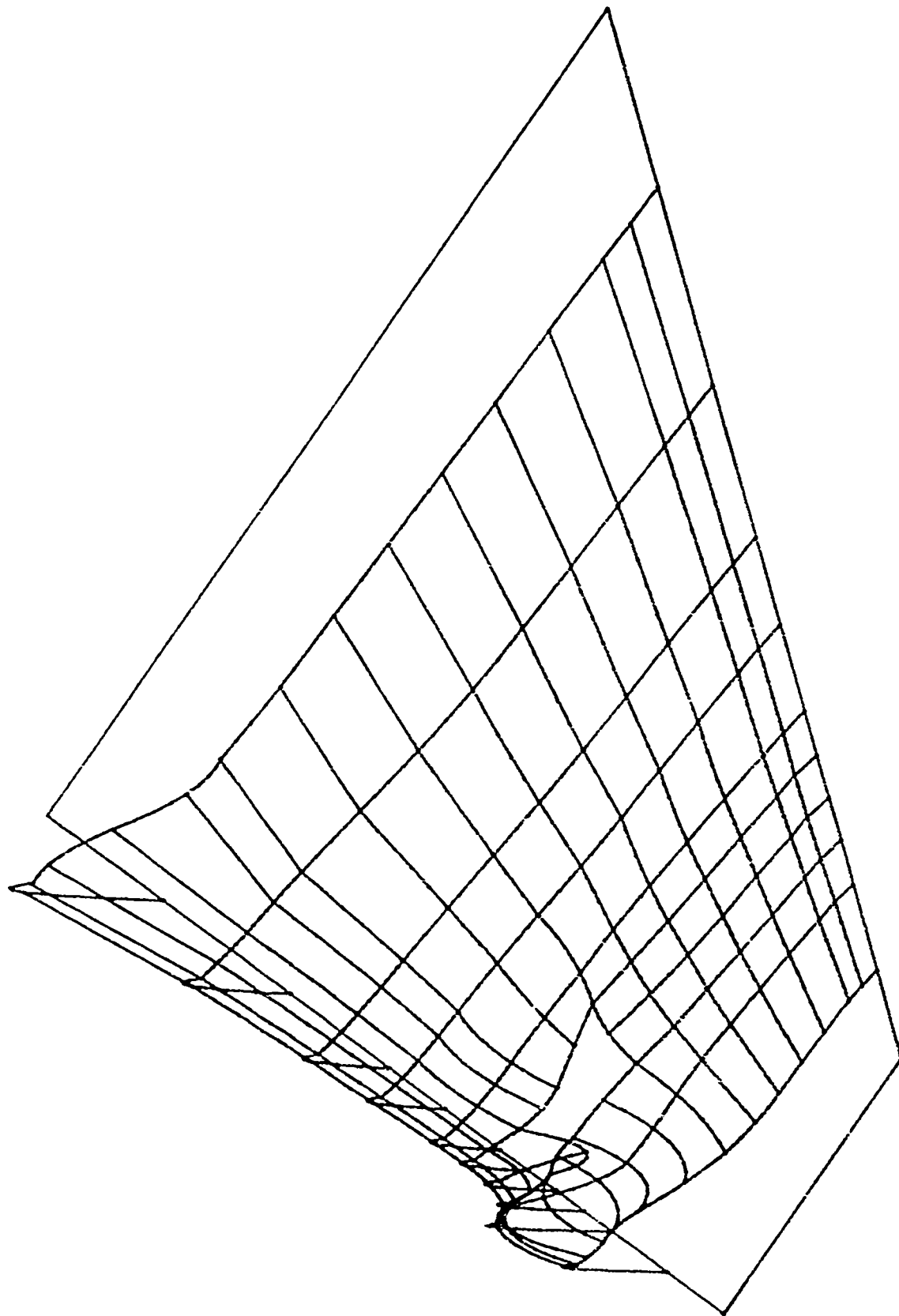


FIGURE A.24 - 1.5% HOLE AT 75% SPAN, $\alpha = 12.2^\circ$

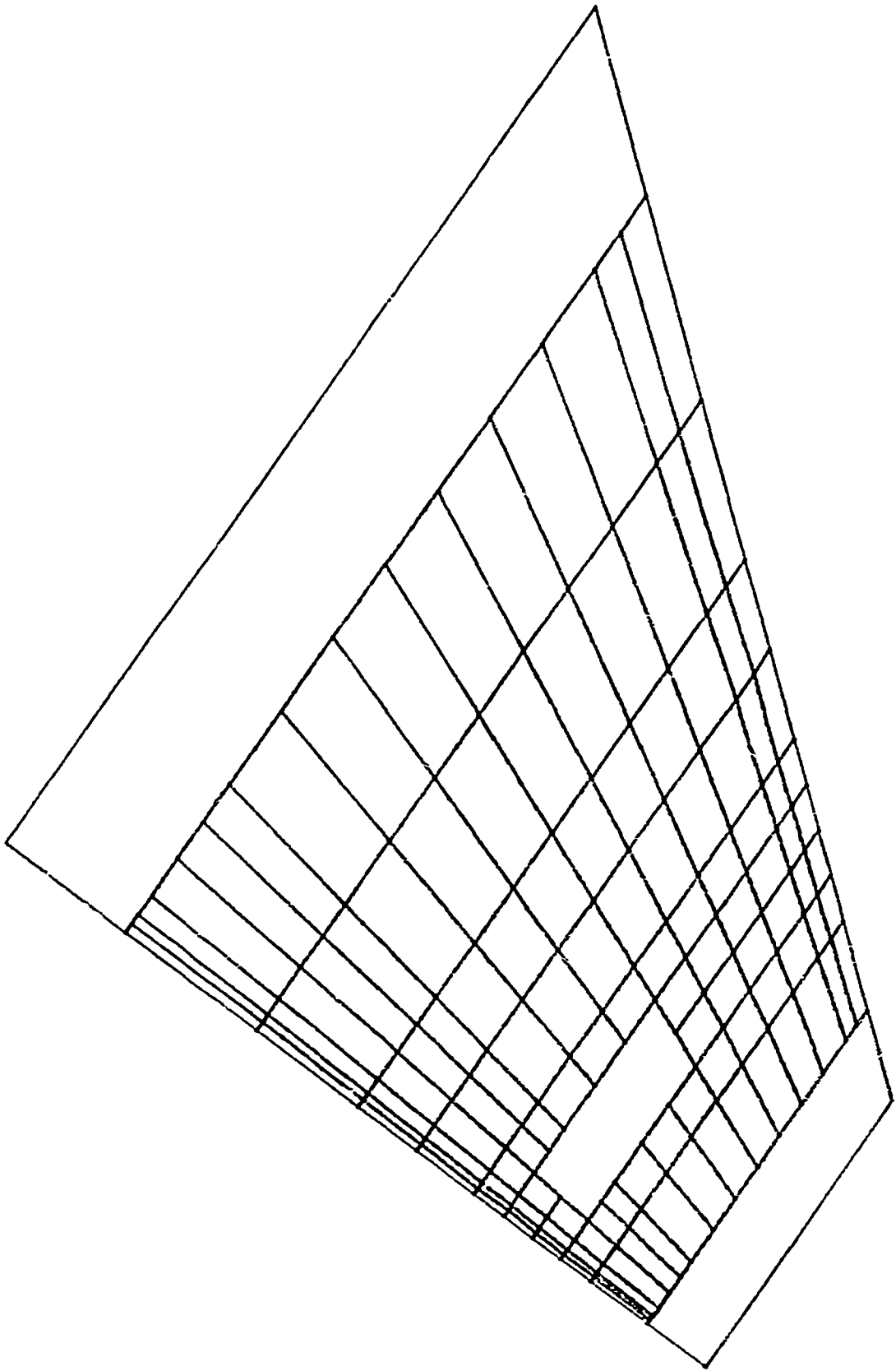


FIGURE A.25 - 2% HOLE AT 75% SPAN, $\alpha = 0^\circ$

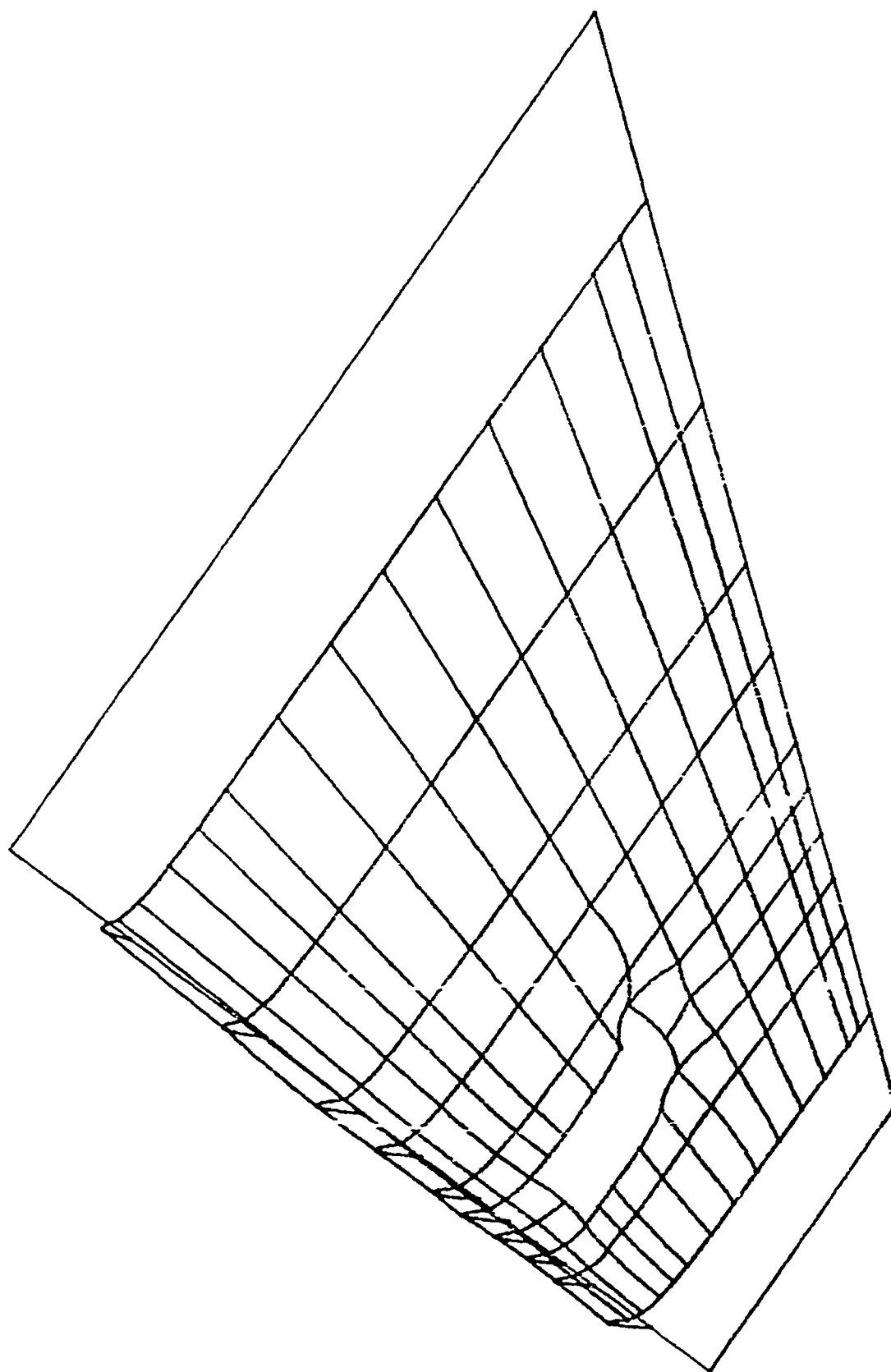


FIGURE A.26 - 2% HOLE AT 75% SPAN, $\alpha = 2.4^\circ$

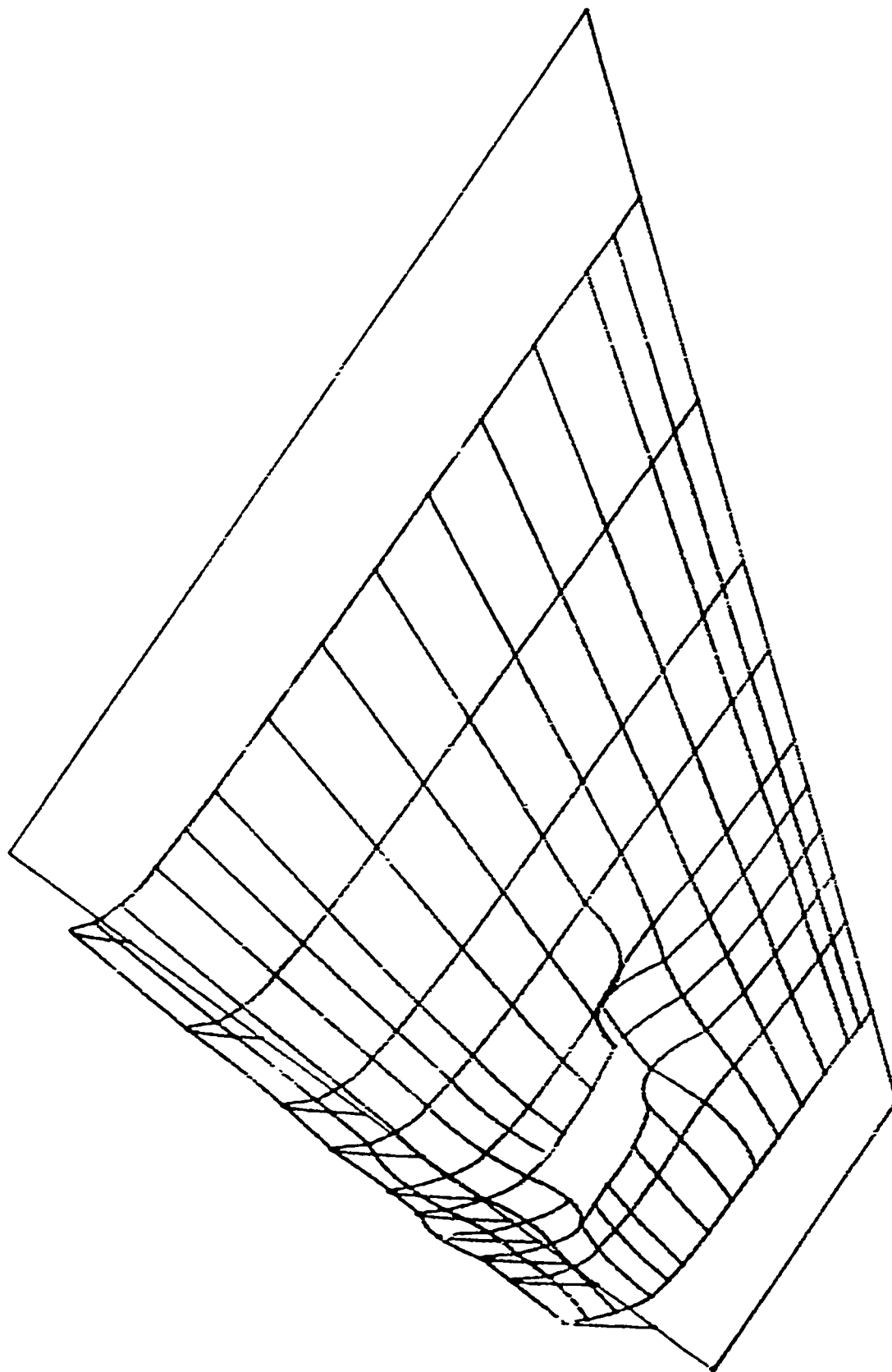


FIGURE A.27 -- 2% HOLE AT 75% SPAN, $\alpha = 4.9^\circ$

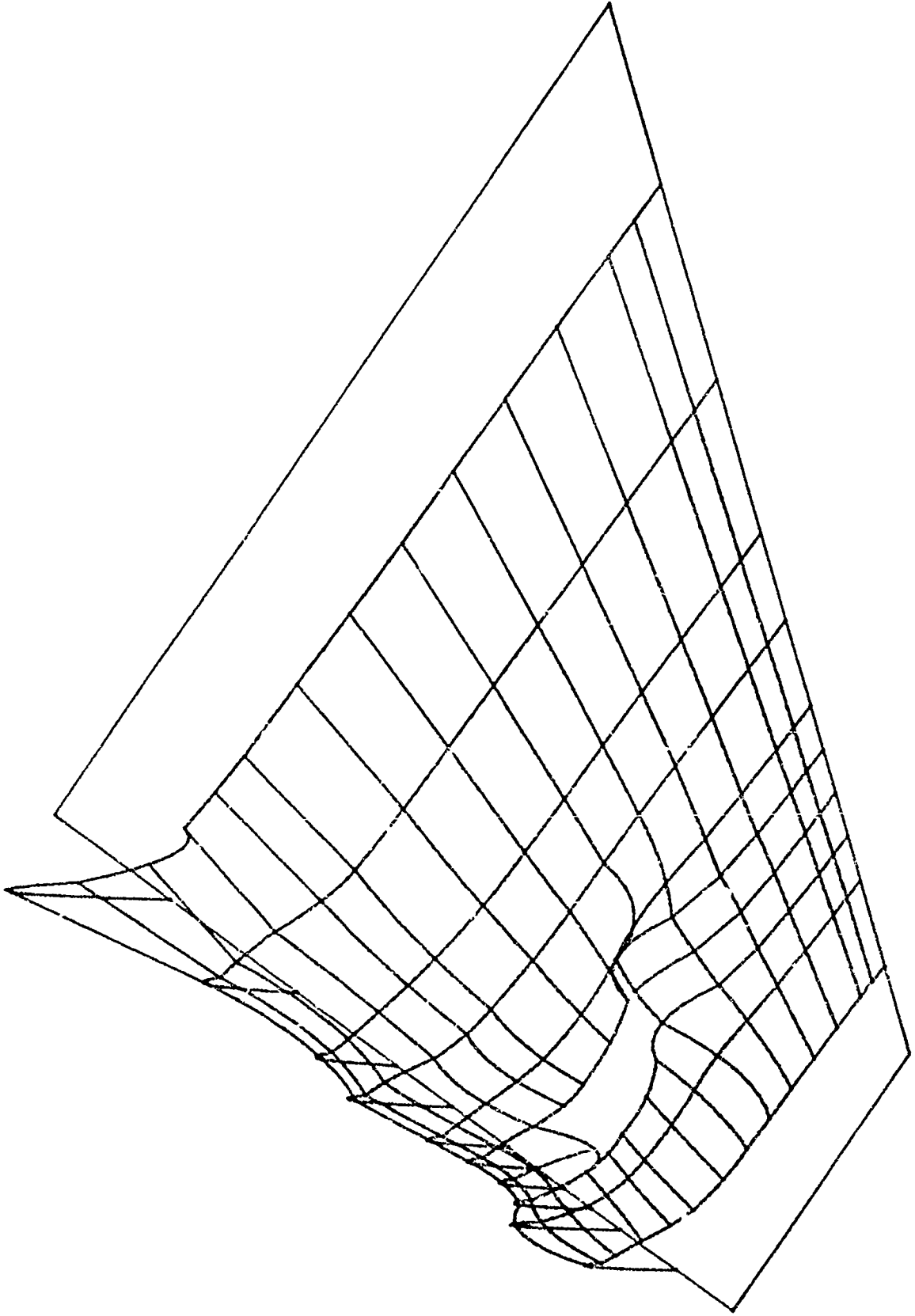


FIGURE A.28 - 2% HOLE AT 75% SPAN, $\alpha = 7.3^\circ$

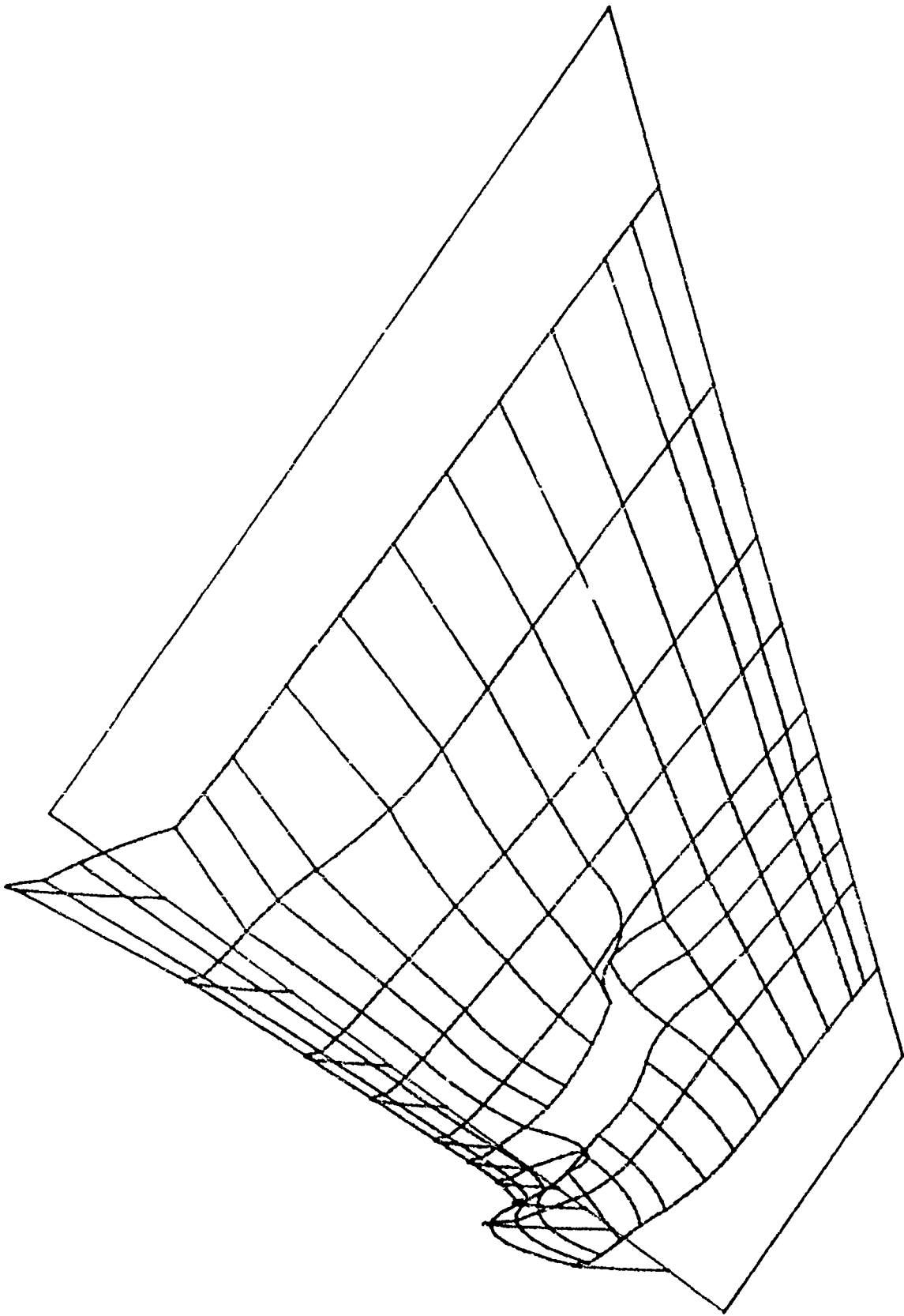


FIGURE A.29 - 2% HOLE AT 75% SPAN, $\alpha = 9.8^\circ$

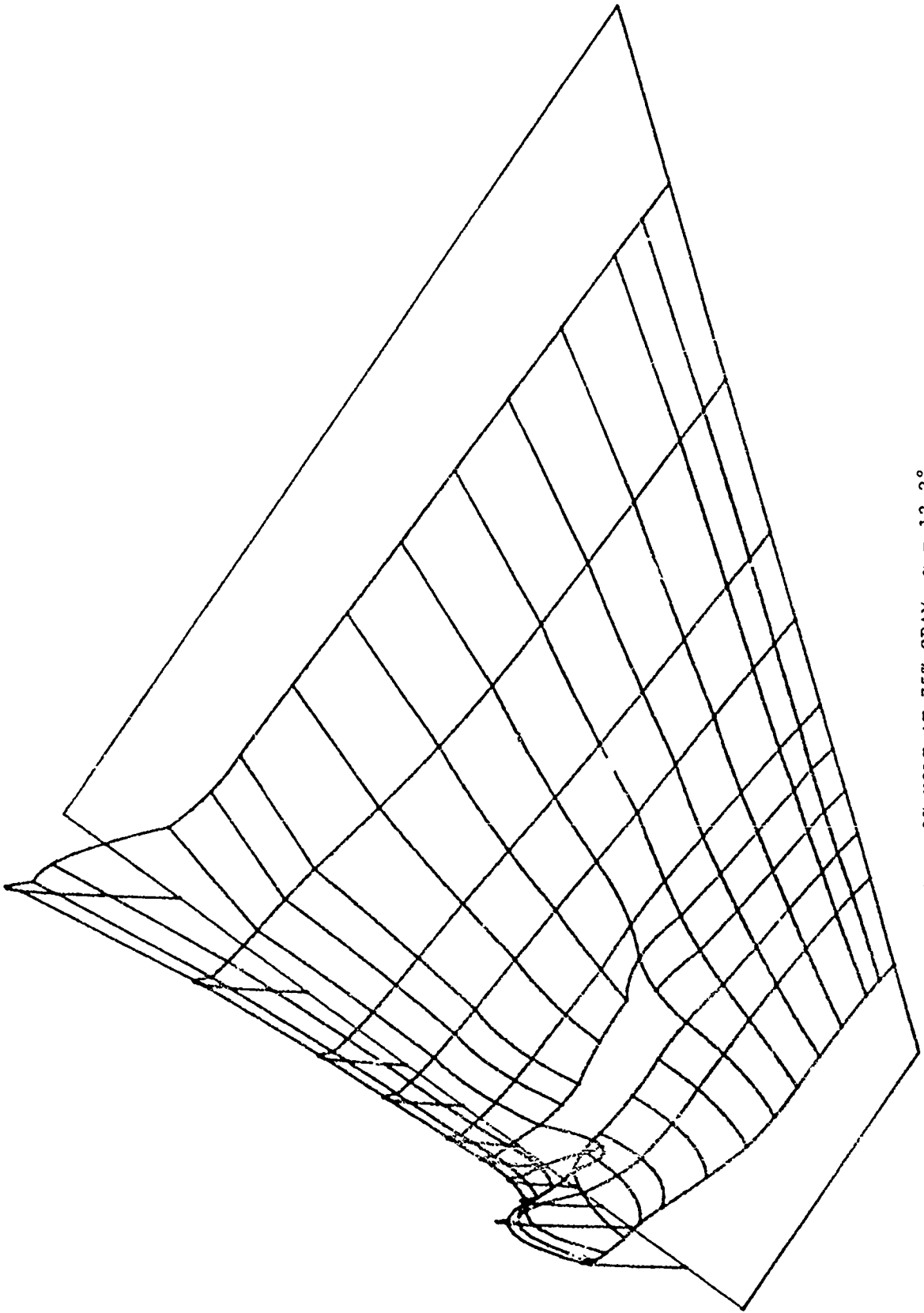


FIGURE A.30 - 2% HOLE AT 75% SPAN, $\alpha = 12.2^\circ$

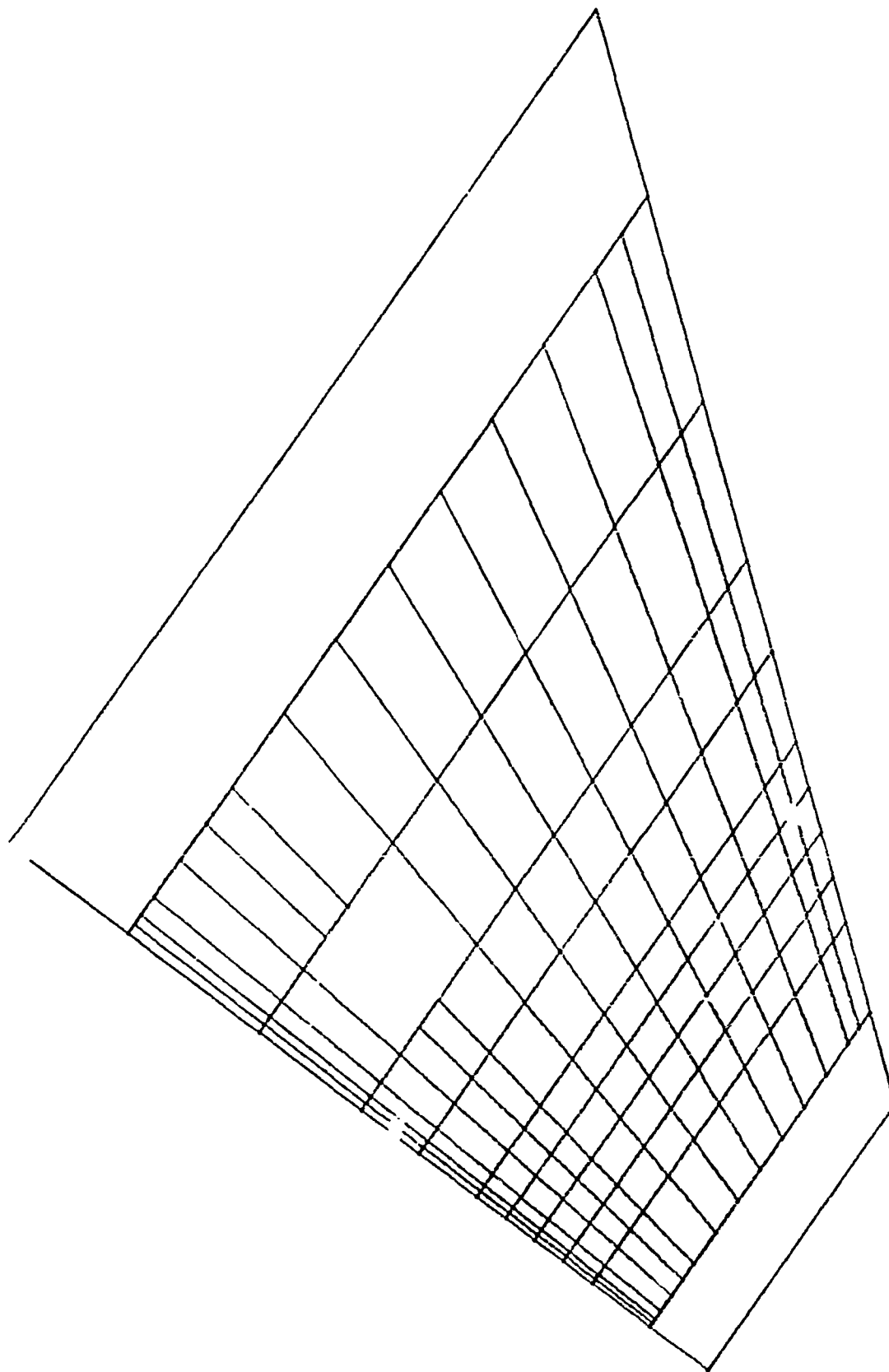


FIGURE A.31 - 2% HOLE AT 44% SPAN, $\alpha = 0^\circ$

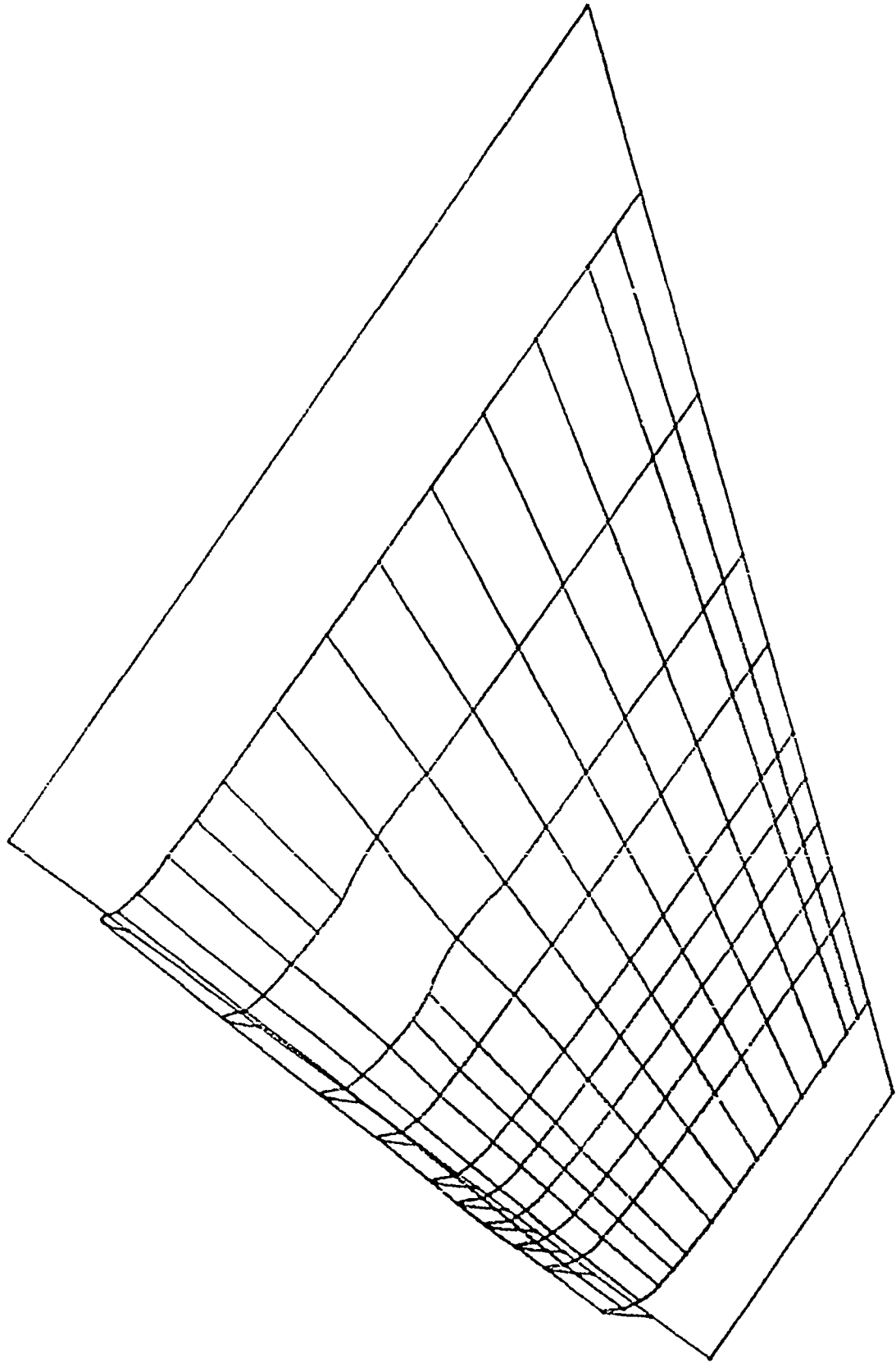


FIGURE A.32 - 2% HOLE AT 44% SPAN, $\alpha = 2.4^\circ$

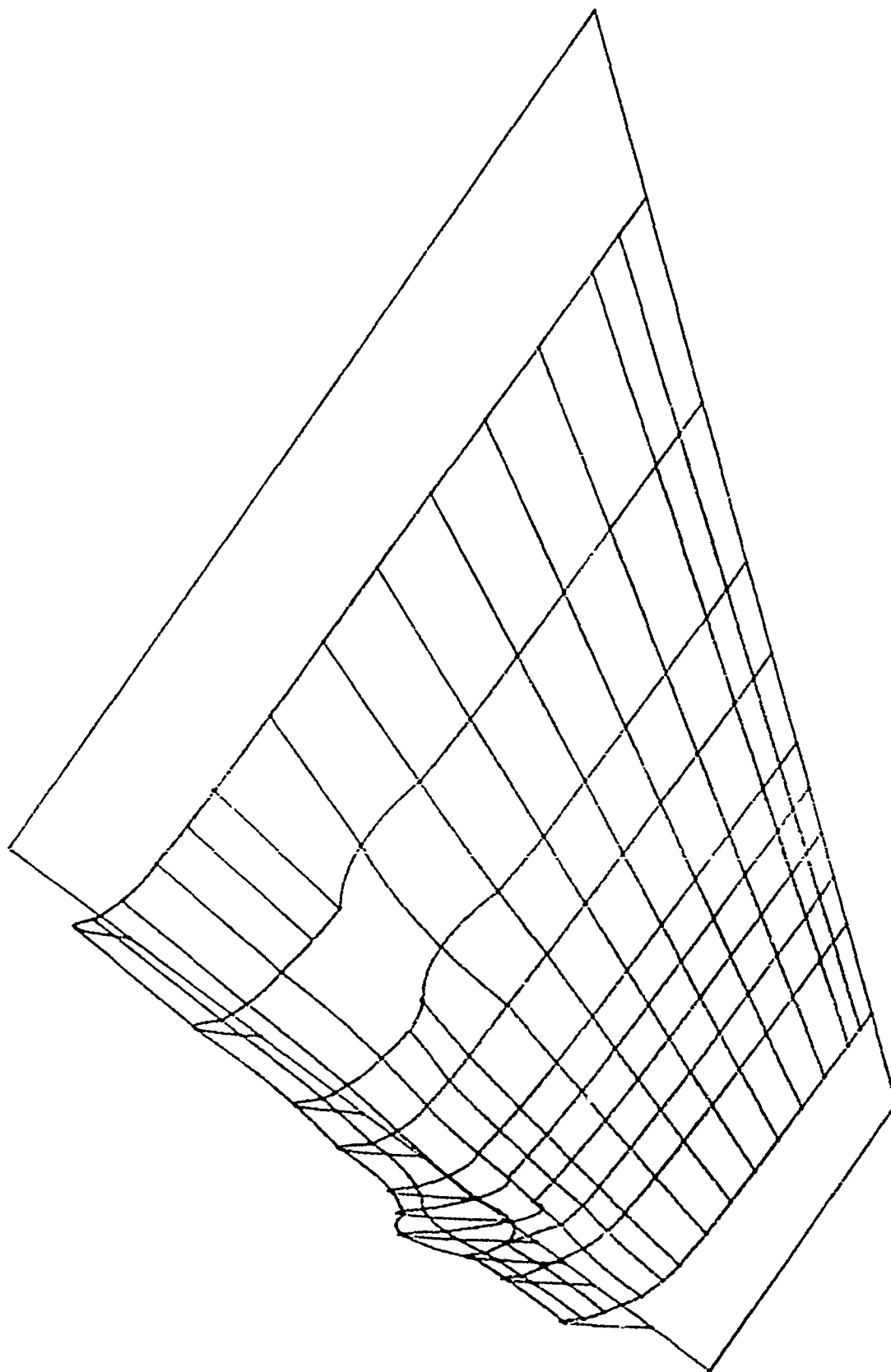


FIGURE A.33 - 2% HOLE AT 44% SPAN, $\alpha = 4.9^\circ$

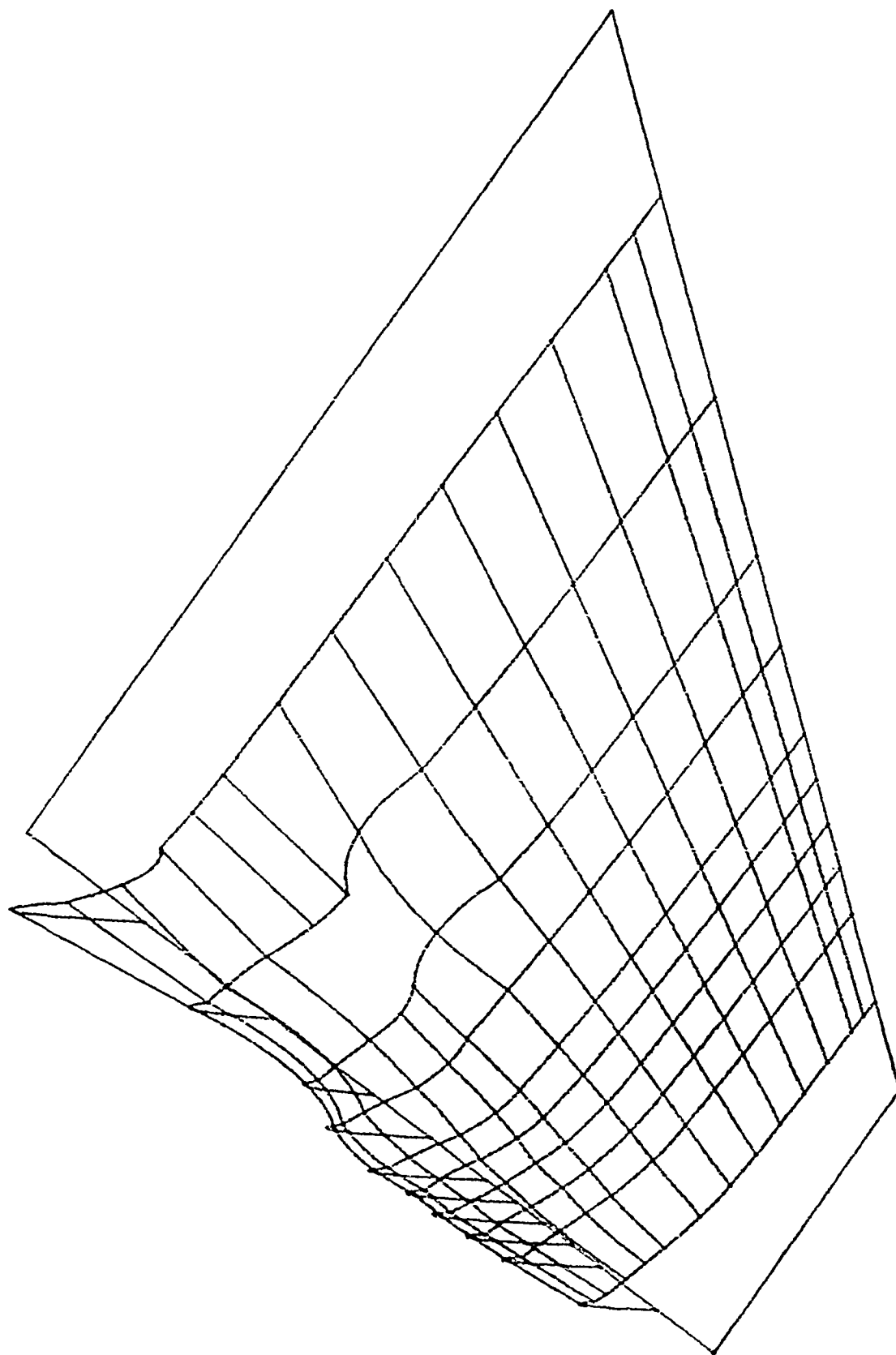


FIGURE A.34 - 2% HOLE AT 44% SPAN, $\alpha = 7.3^\circ$

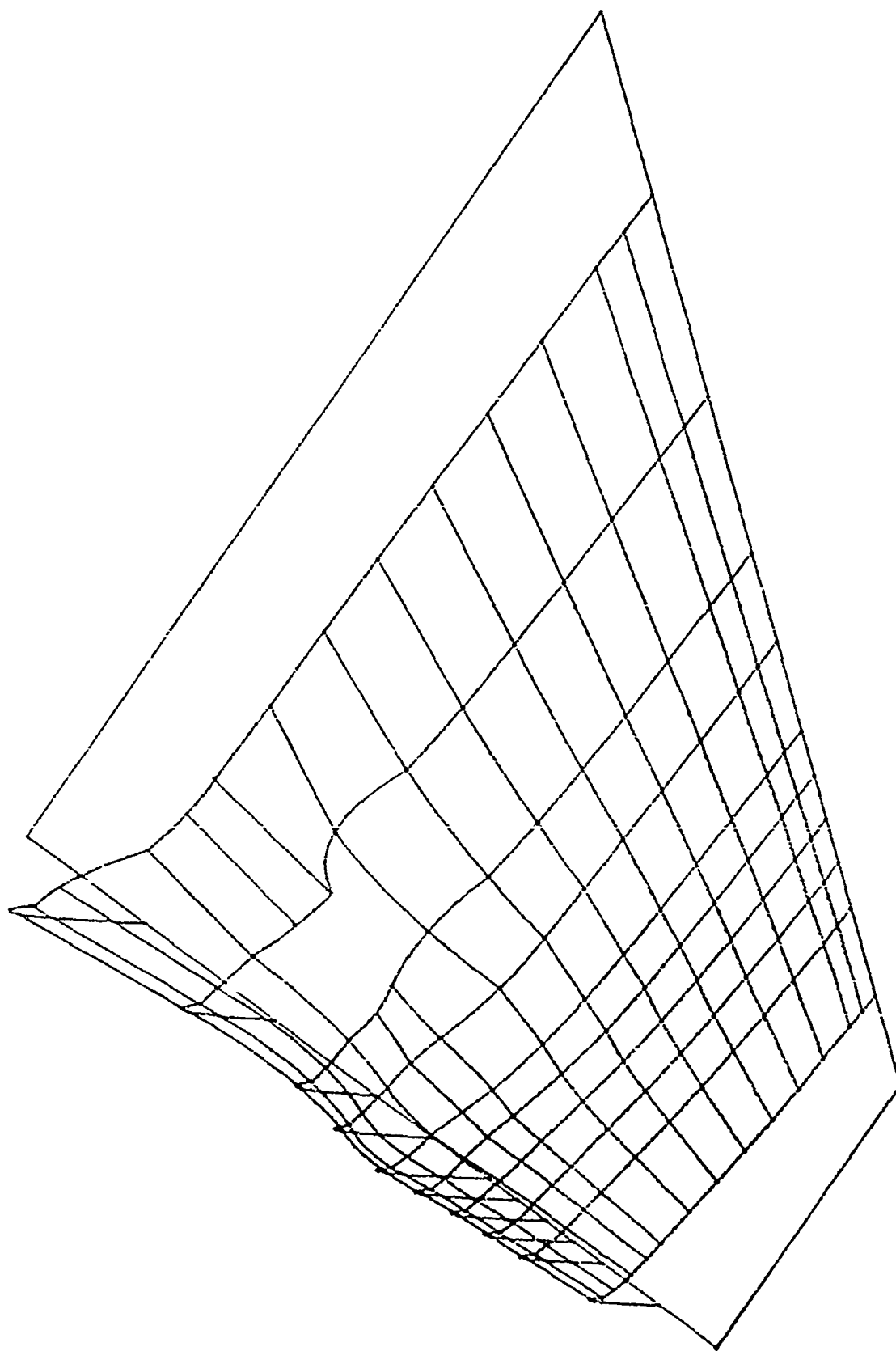


FIGURE A.35 - 2% HOLE AT 44% SPAN, $\alpha = 9.8^\circ$

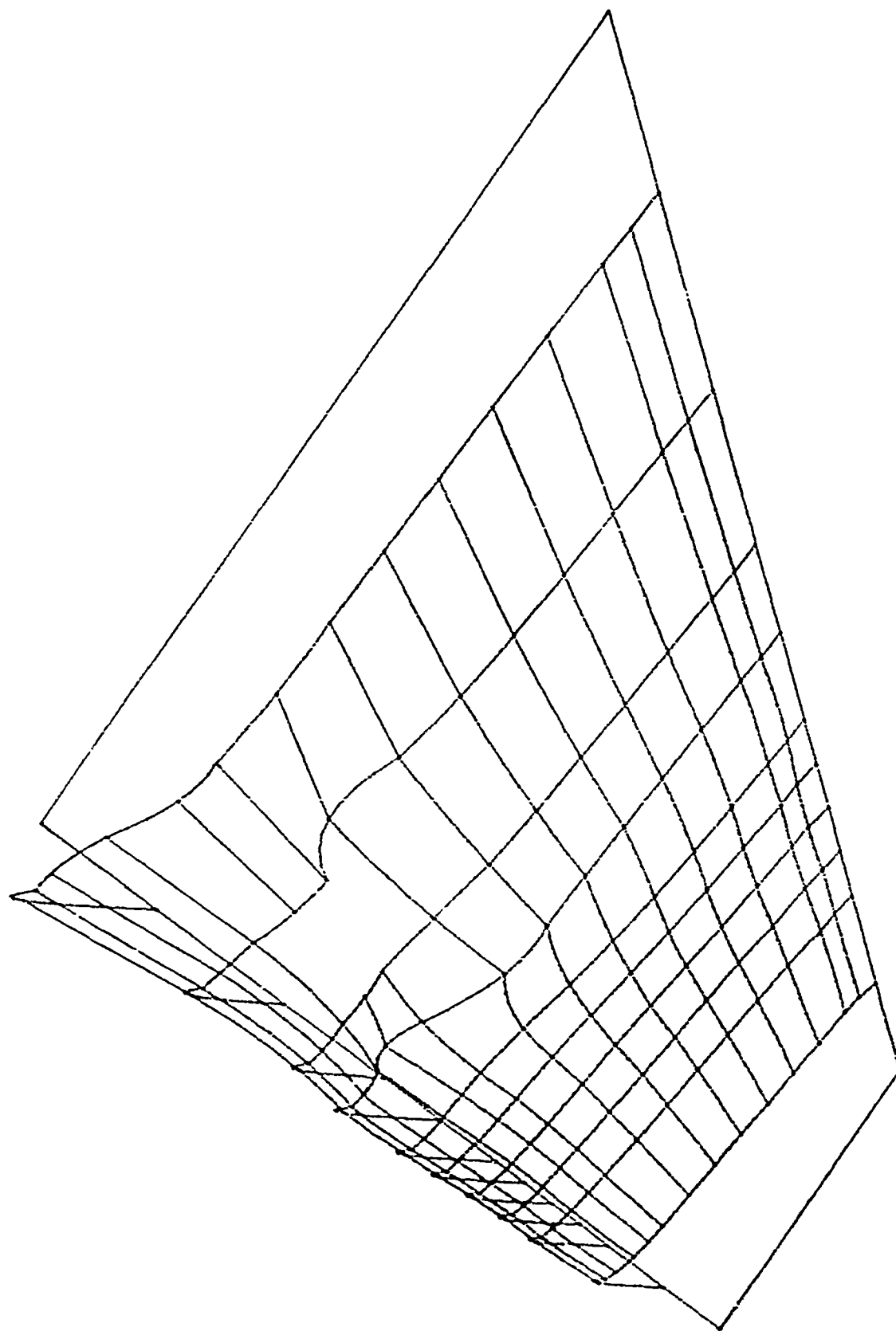


FIGURE A.36 - 2% HOLE AT 44% SPAN, $\alpha = 12.2^\circ$

APPENDIX II

Tabulated Data

Incidence: -12.5 deg.										
Row	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.656	-0.742	-0.874	-0.950	-0.920	-0.814	-1.013	-1.117	-1.513	-2.086
2	0.623	0.655	0.574	0.670	0.624	0.627	0.601	0.711	0.729	0.724
3	0.526	0.578	0.537	0.600	0.620	0.622	0.637	0.652	0.638	--
4	0.422	0.477	0.491	0.502	0.523	0.523	0.543	0.557	0.577	0.554
5	0.275	0.340	0.360	0.369	0.388	0.397	0.409	0.419	0.429	0.416
6	0.320	0.255	0.280	0.292	0.302	0.303	0.332	0.337	0.343	--
7	0.122	0.129	0.210	0.231	0.239	0.246	0.256	0.268	0.289	--
8	0.360	0.096	0.120	0.137	0.152	0.152	0.122	0.121	0.201	0.139
9	-0.028	0.023	0.043	0.059	0.067	0.072	0.105	0.111	0.130	0.127
10	0.179	-0.033	-0.014	0.002	0.010	0.021	0.047	0.061	0.081	0.081
11	--	-0.082	-0.058	-0.041	-0.023	-0.018	0.003	0.033	0.039	0.022
12	-0.011	-0.114	-0.090	-0.085	-0.073	-0.066	-0.032	-0.004	0.009	0.022
13	-0.126	-0.161	-0.150	-0.129	-0.118	-0.107	-0.078	-0.059	-0.009	0.031
14	-0.266	-0.239	-0.194	-0.194	-0.192	-0.171	-0.138	-0.113	-0.035	-0.012
15	-0.324	-0.274	-0.249	-0.221	-0.139	-0.232	-0.124	-0.169	-0.056	-0.033

RMS Deviation: 0.012

Incidence: -10.3 deg.										
Row	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.751	-0.759	-0.782	-0.830	-0.844	-0.846	-1.020	-1.151	-1.573	-2.611
2	0.622	0.656	0.653	0.650	0.676	0.672	0.675	0.703	0.714	0.715
3	0.520	0.554	0.551	0.570	0.581	0.604	0.622	0.629	0.630	--
4	0.390	0.443	0.459	0.475	0.480	0.497	0.517	0.527	0.531	0.507
5	0.256	0.327	0.336	0.351	0.368	0.369	0.379	0.366	0.382	0.375
6	0.182	0.240	0.258	0.281	0.285	0.283	0.290	0.315	0.317	--
7	0.112	0.265	0.283	0.280	0.231	0.231	0.238	0.271	0.261	--
8	0.043	0.101	0.123	0.132	0.153	0.151	0.171	0.172	0.183	0.186
9	-0.012	0.039	0.055	0.072	0.082	0.092	0.106	0.116	0.120	0.134
10	-0.032	0.005	0.012	0.026	0.035	0.041	0.060	0.071	0.082	0.091
11	--	-0.029	-0.021	-0.001	0.007	0.018	0.031	0.052	0.050	0.054
12	-0.087	-0.049	-0.047	0.218	-0.023	-0.006	0.012	0.031	0.033	0.052
13	-0.100	-0.075	-0.071	-0.055	-0.045	-0.034	-0.014	0.002	0.038	0.043
14	-0.150	-0.122	-0.063	-0.083	-0.088	-0.064	-0.042	-0.011	0.013	0.034
15	-0.163	-0.124	-0.113	-0.092	-0.069	-0.094	-0.073	-0.026	0.009	0.021

RMS Deviation: 0.014

Incidence: -7.6 deg.										
Row	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.735	-0.908	-1.008	-1.072	-1.233	-1.282	-1.394	-1.868	-2.006	-2.378
2	0.630	0.657	0.650	0.631	0.653	0.653	0.668	0.687	0.653	0.638
3	0.490	0.535	0.532	0.546	0.559	0.566	0.567	0.570	0.557	--
4	0.343	0.411	0.425	0.437	0.437	0.453	0.443	0.452	0.449	0.409
5	0.215	0.285	0.296	0.305	0.297	0.319	0.311	0.319	0.322	0.290
6	0.148	0.208	0.230	0.230	0.235	0.239	0.235	0.243	0.251	--
7	0.094	0.345	0.166	0.183	0.189	0.187	0.188	0.208	0.202	--
8	0.028	0.086	0.096	0.114	0.122	0.111	0.132	0.135	0.134	0.139
9	-0.011	0.038	0.040	0.051	0.057	0.062	0.068	0.082	0.079	0.091
10	-0.027	0.002	-0.014	-0.023	0.027	0.028	0.041	0.044	0.055	0.056
11	--	-0.018	-0.002	0.014	0.016	0.019	0.017	0.035	0.031	0.033
12	-0.056	-0.026	-0.018	0.247	-0.006	0.007	0.011	0.030	0.019	0.042
13	-0.052	-0.035	-0.024	-0.002	-0.005	0.001	0.005	0.015	0.029	0.043
14	-0.071	-0.052	0.009	-0.006	-0.011	-0.001	0.011	0.011	0.013	0.042
15	-0.063	-0.038	-0.012	0.007	0.025	-0.004	0.006	0.006	0.007	0.033

RMS Deviation: 0.018

UNDAMAGED WING

Incidence: -5.1 deg.										
RMS Deviation: 0.063										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.945	-1.549	-1.631	-1.567	-1.554	-1.392	-1.616	-2.149	-2.533	-1.560
2	0.606	0.604	0.622	0.594	0.592	0.568	0.511	0.591	0.576	0.476
3	0.434	0.459	0.486	0.473	0.471	0.471	0.472	0.473	0.449	--
4	0.319	0.345	0.350	0.356	0.357	0.356	0.360	0.363	0.350	0.305
5	0.183	0.218	0.222	0.233	0.228	0.227	0.235	0.224	0.224	0.215
6	0.111	0.179	0.151	0.162	0.160	0.160	0.163	0.164	0.156	--
7	0.062	0.292	0.106	0.110	0.129	0.125	0.124	0.135	0.129	--
8	0.010	0.035	0.044	0.052	0.071	0.053	0.096	0.075	0.076	0.086
9	-0.024	0.006	-0.001	0.017	0.016	0.019	0.026	0.034	0.039	0.049
10	-0.038	-0.016	-0.016	-0.001	-0.008	-0.006	0.007	0.013	0.010	0.016
11	--	-0.036	-0.029	-0.013	-0.012	-0.009	-0.002	0.011	-0.001	-0.008
12	-0.056	-0.027	-0.032	0.235	-0.020	-0.008	-0.001	0.000	-0.005	0.007
13	-0.039	-0.021	-0.028	-0.011	-0.009	-0.004	0.004	0.006	0.021	0.019
14	-0.042	-0.027	0.024	0.003	-0.004	0.004	0.020	0.015	0.013	0.031
15	-0.014	-0.000	0.017	0.028	0.040	0.007	0.023	0.019	0.021	0.035

Incidence: -2.6 deg.										
RMS Deviation: 0.072										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.314	-1.077	-0.629	-0.694	-0.817	-1.547	-1.179	-1.077	-0.461	-0.205
2	0.479	0.486	0.484	0.425	0.419	0.387	0.435	0.432	0.392	0.393
3	0.270	0.308	0.326	0.324	0.306	0.321	0.342	0.295	0.286	--
4	0.176	0.212	0.232	0.225	0.210	0.217	0.244	0.213	0.199	0.199
5	0.070	0.101	0.116	0.121	0.113	0.114	0.124	0.119	0.106	0.110
6	0.028	0.047	0.050	0.058	0.059	0.072	0.076	0.072	0.060	--
7	0.001	0.230	0.031	0.029	0.038	0.014	0.029	0.054	0.021	--
8	-0.029	-0.015	-0.011	-0.006	-0.001	-0.000	0.005	0.008	-0.010	0.015
9	-0.055	-0.039	-0.043	-0.033	-0.026	-0.031	-0.033	-0.030	-0.036	-0.023
10	-0.057	-0.049	-0.045	-0.046	-0.033	-0.045	-0.036	-0.052	-0.040	-0.044
11	--	-0.054	-0.042	-0.015	-0.034	-0.035	-0.037	-0.034	-0.042	-0.063
12	-0.051	-0.046	-0.046	0.227	-0.037	-0.027	-0.018	-0.015	-0.042	-0.036
13	-0.029	-0.029	-0.032	-0.028	-0.006	-0.010	-0.014	-0.012	-0.013	-0.021
14	-0.021	-0.018	0.034	-0.000	0.002	0.008	0.009	-0.007	-0.008	-0.001
15	0.000	0.020	0.028	0.025	0.049	0.012	0.018	0.005	0.006	0.007

Incidence: -0.1 deg.										
RMS Deviation: 0.032										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.656	0.683	0.660	0.660	0.673	0.574	0.740	0.555	0.639	0.697
2	0.022	-0.011	0.029	-0.039	-0.058	-0.080	0.006	0.119	0.071	0.006
3	-0.072	-0.057	0.003	-0.003	-0.021	0.003	0.026	0.054	0.053	--
4	-0.048	-0.055	-0.004	-0.035	-0.027	-0.006	0.007	0.002	0.018	-0.020
5	-0.072	-0.074	-0.058	-0.083	-0.082	-0.057	-0.055	-0.043	-0.023	-0.051
6	-0.093	-0.066	-0.076	-0.074	-0.095	-0.071	-0.056	-0.067	-0.041	--
7	-0.091	0.153	-0.082	-0.079	-0.092	-0.067	-0.070	-0.063	-0.049	--
8	-0.097	-0.101	-0.096	-0.092	-0.086	-0.098	-0.066	-0.079	-0.065	-0.091
9	-0.109	-0.103	-0.107	-0.104	-0.101	-0.106	-0.076	-0.089	-0.076	-0.104
10	-0.102	-0.099	-0.100	-0.101	-0.103	-0.096	-0.068	-0.087	-0.078	-0.106
11	--	-0.095	-0.091	-0.083	-0.085	-0.090	-0.071	-0.072	-0.072	-0.101
12	-0.072	-0.075	-0.080	0.204	-0.080	-0.074	-0.054	-0.055	-0.054	-0.058
13	-0.053	-0.056	-0.058	-0.051	-0.047	-0.052	-0.034	-0.039	-0.029	-0.029
14	-0.039	-0.038	0.014	-0.021	-0.024	-0.021	-0.006	-0.015	-0.012	0.005
15	-0.010	0.008	0.011	0.015	0.036	-0.000	0.008	0.001	0.006	0.014

UNDAMAGED WING

Incidence: 2.3 deg.										
RMS Deviation: 0.051										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.157	0.217	-0.193	-0.087	-0.216	0.493	0.438	0.266	0.383	0.456
2	-0.482	-0.529	-0.576	-0.651	-0.718	-0.570	-0.545	-0.551	-0.407	-0.289
3	-0.378	-0.401	-0.380	-0.333	-0.363	-0.284	-0.339	-0.276	-0.235	--
4	-0.262	-0.279	-0.253	-0.302	-0.240	-0.221	-0.234	-0.220	-0.180	-0.191
5	-0.205	-0.227	-0.216	-0.252	-0.204	-0.219	-0.195	-0.210	-0.179	-0.173
6	-0.206	-0.214	-0.200	-0.215	-0.200	-0.201	-0.182	-0.195	-0.164	--
7	-0.171	0.066	-0.193	-0.198	-0.188	-0.188	-0.177	-0.162	-0.156	--
8	-0.155	-0.173	-0.174	-0.176	-0.160	-0.180	-0.158	-0.161	-0.148	-0.157
9	-0.146	-0.164	-0.170	-0.169	-0.173	-0.168	-0.158	-0.154	-0.153	-0.163
10	-0.128	-0.144	-0.147	-0.151	-0.151	-0.154	-0.155	-0.144	-0.141	-0.155
11	--	-0.124	-0.120	-0.125	-0.123	-0.122	-0.140	-0.109	-0.120	-0.143
12	-0.097	-0.099	-0.097	0.167	-0.104	-0.094	-0.132	-0.079	-0.095	-0.079
13	-0.070	-0.074	-0.072	-0.066	-0.065	-0.071	-0.036	-0.050	-0.040	-0.026
14	-0.044	-0.040	0.005	-0.022	-0.034	-0.035	-0.015	-0.025	-0.021	-0.010
15	-0.002	0.007	0.007	0.020	0.020	-0.012	0.005	-0.003	0.005	-0.001

Incidence: 4.8 deg.										
RMS Deviation: 0.102										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.468	-1.285	-1.230	-1.333	-1.335	-0.438	-0.886	-2.137	-2.478	-1.417
2	-1.141	-1.623	-1.341	-1.458	-1.265	-1.429	-1.551	-1.208	-1.003	-0.760
3	-1.066	-0.922	-1.290	-1.280	-1.185	-1.307	-1.167	-0.777	-0.617	--
4	-0.854	-0.701	-0.876	-0.694	-0.994	-0.991	-0.603	-0.535	-0.455	-0.417
5	-0.518	-0.460	-0.444	-0.443	-0.437	-0.491	-0.421	-0.429	-0.259	-0.334
6	-0.356	-0.408	-0.362	-0.355	-0.348	-0.353	-0.362	-0.364	-0.315	--
7	-0.274	-0.067	-0.319	-0.320	-0.326	-0.304	-0.333	-0.315	-0.280	--
8	-0.235	-0.284	-0.271	-0.281	-0.276	-0.268	-0.264	-0.269	-0.246	-0.264
9	-0.221	-0.241	-0.244	-0.253	-0.260	-0.247	-0.252	-0.252	-0.235	-0.252
10	-0.193	-0.211	-0.211	-0.214	-0.223	-0.215	-0.210	-0.222	-0.207	-0.227
11	--	-0.182	-0.174	-0.172	-0.180	-0.170	-0.183	-0.164	-0.182	-0.202
12	-0.147	-0.142	-0.141	0.137	-0.147	-0.137	-0.155	-0.138	-0.144	-0.148
13	-0.124	-0.110	-0.099	-0.095	-0.104	-0.102	-0.138	-0.094	-0.082	-0.104
14	-0.096	-0.074	-0.016	-0.051	-0.059	-0.055	-0.077	-0.047	-0.042	-0.055
15	-0.057	-0.034	-0.027	-0.016	-0.003	-0.027	-0.029	-0.019	-0.015	-0.026

Incidence: 7.3 deg.										
RMS Deviation: 0.076										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.608	-0.821	-1.084	-1.129	-1.262	-0.875	-1.108	-1.572	-2.220	-2.560
2	-0.723	-1.075	-1.110	-1.130	-1.256	-1.467	-1.398	-1.421	-2.227	-2.706
3	-0.719	-0.957	-0.996	-1.119	-1.273	-1.375	-1.374	-1.390	-2.064	--
4	-0.754	-0.983	-1.057	-1.158	-1.196	-1.251	-1.383	-1.360	-0.960	-0.509
5	-0.727	-0.919	-0.998	-1.145	-1.139	-1.184	-1.122	-1.095	-0.601	-0.477
6	-0.731	-0.878	-0.907	-0.961	-0.945	-1.012	-0.807	-0.826	-0.549	--
7	-0.708	-0.435	-0.790	-0.744	-0.719	-0.734	-0.621	-0.540	-0.452	--
8	-0.525	-0.607	-0.564	-0.504	-0.509	-0.469	-0.373	-0.373	-0.390	-0.331
9	-0.379	-0.438	-0.424	-0.358	-0.390	-0.329	-0.317	-0.321	-0.350	-0.305
10	-0.305	-0.315	-0.343	-0.266	-0.292	-0.262	-0.280	-0.289	-0.298	-0.274
11	--	-0.240	-0.256	-0.209	-0.212	-0.207	-0.251	-0.222	-0.251	-0.241
12	-0.232	-0.191	-0.193	0.099	-0.177	-0.169	-0.177	-0.174	-0.200	-0.175
13	-0.182	-0.149	-0.137	-0.125	-0.128	-0.129	-0.144	-0.137	-0.135	-0.114
14	-0.144	-0.112	-0.053	-0.080	-0.083	-0.082	-0.086	-0.087	-0.090	-0.058
15	-0.126	-0.084	-0.077	-0.047	-0.037	-0.055	-0.055	-0.060	-0.056	-0.025

Incidence: 10.6 deg.

Incidence: 10.6 deg.										
RMS Deviation: 0.027										
Row	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.673	-0.673	-0.617	-0.675	-0.673	-0.704	-1.036	-1.036	-0.667	-0.667
2	-0.664	-0.736	-0.773	-0.663	-0.672	-0.711	-1.036	-1.036	-1.627	-0.601
3	-0.705	-0.731	-0.772	-0.665	-0.646	-0.736	-1.036	-1.036	-1.627	--
4	-0.652	-0.744	-0.746	-0.703	-0.621	-0.665	-1.036	-1.036	-1.660	-1.696
5	-0.660	-0.750	-0.776	-0.670	-0.729	-0.661	-1.036	-1.036	-1.667	-0.627
6	-0.711	-0.748	-0.792	-0.610	-0.630	-0.657	-1.036	-1.036	-1.667	--
7	-0.743	-0.613	-0.663	-0.600	-0.647	-0.643	-0.635	-1.110	-0.601	--
8	-0.750	-0.768	-0.775	-0.747	-0.751	-0.700	-0.607	-0.607	-0.607	-0.478
9	-0.698	-0.704	-0.711	-0.690	-0.705	-0.717	-0.607	-0.710	-0.607	-0.430
10	-0.620	-0.633	-0.631	-0.615	-0.625	-0.636	-0.640	-0.640	-0.622	-0.394
11	--	-0.562	-0.549	-0.527	-0.526	-0.530	-0.490	-0.331	-0.286	-0.342
12	-0.464	-0.453	-0.457	-0.130	-0.442	-0.439	-0.357	-0.277	-0.259	-0.261
13	-0.404	-0.376	-0.370	-0.376	-0.343	-0.329	-0.269	-0.212	-0.177	-0.189
14	-0.344	-0.315	-0.241	-0.296	-0.271	-0.261	-0.186	-0.117	-0.139	-0.113
15	-0.320	-0.279	-0.252	-0.252	-0.240	-0.229	-0.177	-0.113	-0.093	-0.075

Incidence: 12.3 deg.										
RMS Deviation: 0.087										
Row	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.661	-0.735	-0.767	-0.955	-0.917	-0.737	-1.124	-1.421	-1.606	-2.606
2	-0.647	-0.659	-0.718	-0.800	-0.829	-0.870	-1.072	-1.201	-1.537	-2.464
3	-0.647	-0.680	-0.754	-0.793	-0.810	-0.855	-1.041	-1.222	-1.533	--
4	-0.648	-0.675	-0.748	-0.739	-0.824	-0.844	-1.032	-1.291	-1.552	-2.352
5	-0.657	-0.703	-0.760	-0.768	-0.784	-0.841	-1.013	-1.190	-1.536	-1.355
6	-0.408	-0.716	-0.790	-0.739	-0.793	-0.860	-0.951	-1.170	-1.473	--
7	-0.676	-0.739	-0.806	-0.763	-0.794	-0.832	-0.965	-1.110	-1.358	--
8	-0.135	-0.732	-0.765	-0.770	-0.801	-0.820	-0.919	-0.978	-1.114	-0.569
9	-0.686	-0.760	-0.755	-0.766	-0.791	-0.801	-0.844	-0.934	-0.862	-0.563
10	-0.290	-0.750	-0.770	-0.741	-0.748	-0.761	-0.770	-0.840	-0.548	-0.463
11	--	-0.714	-0.713	-0.690	-0.723	-0.737	-0.736	-0.711	-0.623	-0.402
12	-0.457	-0.675	-0.652	-0.622	-0.650	-0.627	-0.615	-0.580	-0.367	-0.321
13	-0.607	-0.625	-0.530	-0.560	-0.573	-0.521	-0.521	-0.417	-0.272	-0.110
14	-0.566	-0.575	-0.410	-0.480	-0.495	-0.401	-0.430	-0.220	-0.100	-0.151
15	-0.565	-0.526	-0.405	-0.460	-0.451	-0.477	-0.390	-0.205	-0.111	-0.123

0.53 CIRCULAR HOLE 2752S, 258C

Incidence: -12.4 deg.										RMS Deviation: 0.026
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.751	-0.868	-0.918	-0.838	-0.309	-0.996	-0.227	-1.111	-1.494	--
2	0.547	0.654	0.658	0.655	0.562	0.671	0.685	0.700	0.727	0.753
3	0.548	0.576	0.565	0.578	0.585	0.595	0.628	0.627	0.670	--
4	0.430	0.457	0.443	0.472	0.429	0.426	0.435	0.440	0.472	0.572
5	0.285	0.336	0.286	0.293	0.345	0.356	0.401	0.414	0.467	0.432
6	0.199	0.265	0.158	--	0.231	0.272	0.310	0.327	0.314	0.372
7	0.127	0.217	0.197	-0.032	0.129	0.220	0.243	0.271	0.274	--
8	0.031	0.131	0.235	--	0.115	0.138	0.149	0.133	0.205	0.217
9	-0.033	0.046	0.098	0.131	0.131	0.093	0.109	0.116	0.120	0.155
10	-0.083	-0.020	0.009	0.025	0.038	0.040	0.045	0.053	0.095	0.100
11	-0.125	-0.071	-0.047	-0.032	-0.016	-0.008	0.002	0.020	0.040	0.063
12	-0.158	-0.109	-0.097	-0.084	-0.075	-0.055	-0.034	-0.006	0.010	0.048
13	-0.188	-0.160	-0.149	-0.130	-0.118	-0.109	-0.083	-0.051	-0.004	0.026
14	-0.262	-0.246	-0.215	-0.196	-0.200	-0.177	-0.144	-0.120	-0.034	0.006
15	-0.302	-0.272	-0.257	-0.226	-0.205	-0.250	-0.207	-0.170	-0.080	-0.008

Incidence: -9.9 deg.										RMS Deviation: 0.019
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.899	-0.879	-0.858	-0.805	-0.836	-0.856	-0.989	-1.157	-1.602	--
2	0.644	0.660	0.646	0.638	0.657	0.660	0.682	0.708	0.716	0.727
3	0.539	0.556	0.537	0.549	0.560	0.580	0.594	0.157	0.633	--
4	0.413	0.449	0.421	0.436	0.460	0.471	0.494	0.514	0.522	0.517
5	0.270	0.315	0.263	0.258	0.315	0.335	0.362	0.373	0.378	0.383
6	0.194	0.252	0.145	--	0.217	0.248	0.284	0.293	0.294	0.317
7	0.133	0.206	0.159	-0.928	0.194	0.193	0.229	0.239	0.241	--
8	0.051	0.135	0.229	--	0.121	0.128	0.131	0.166	0.173	0.173
9	-0.001	0.065	0.103	0.140	0.138	0.107	0.096	0.108	0.116	0.120
10	-0.039	0.007	0.030	0.049	0.053	0.051	0.057	0.061	0.073	0.083
11	-0.069	-0.031	-0.007	0.008	0.015	0.020	0.029	0.043	0.043	0.057
12	-0.082	-0.047	-0.041	-0.023	-0.023	-0.012	0.011	0.025	0.021	0.054
13	-0.089	-0.072	-0.065	-0.046	-0.045	-0.038	-0.016	0.002	0.027	0.044
14	-0.127	-0.109	-0.094	-0.080	-0.088	-0.074	-0.045	-0.031	0.017	0.036
15	-0.139	-0.111	-0.098	-0.090	-0.077	-0.106	-0.079	-0.050	0.001	0.029

Incidence: -7.5 deg.										RMS Deviation: 0.026
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.159	-1.079	-0.882	-0.897	-1.037	-1.078	-1.248	-1.651	-1.905	--
2	0.645	0.631	0.618	0.620	0.638	0.634	0.662	0.673	0.654	0.644
3	0.513	0.513	0.494	0.505	0.519	0.541	0.551	0.008	0.562	--
4	0.379	0.393	0.379	0.390	0.412	0.432	0.440	0.457	0.449	0.423
5	0.241	0.273	0.228	0.231	0.276	0.299	0.314	0.324	0.313	0.296
6	0.160	0.211	0.119	--	0.181	0.210	0.248	0.250	0.243	0.252
7	0.102	0.178	0.133	-0.609	0.038	0.163	0.192	0.203	0.200	--
8	0.034	0.114	0.188	--	0.128	0.107	0.099	0.135	0.136	0.129
9	-0.004	0.057	0.076	0.116	0.116	0.082	0.074	0.083	0.082	0.084
10	-0.030	0.018	0.027	0.041	0.051	0.042	0.042	0.047	0.053	0.049
11	-0.043	-0.005	0.001	0.016	0.027	0.020	0.025	0.038	0.027	0.033
12	-0.044	-0.015	-0.017	-0.001	-0.001	0.003	0.020	0.026	0.015	0.041
13	-0.046	-0.026	-0.028	-0.011	-0.005	-0.007	0.006	0.017	0.025	0.036
14	-0.062	-0.047	-0.032	-0.020	-0.020	-0.014	0.005	0.006	0.026	0.037
15	-0.053	-0.024	-0.018	-0.012	0.009	-0.023	-0.002	0.003	0.011	0.036

Incidence: -5.0 deg.										
RMS Deviation: 0.023										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.010	-1.517	-1.548	-1.542	-1.453	-1.331	-1.954	-2.735	-2.150	--
2	0.595	0.513	0.596	0.537	0.567	0.562	0.593	0.560	0.577	0.345
3	0.429	0.459	0.459	0.455	0.444	0.462	0.463	0.466	0.455	--
4	0.310	0.342	0.342	0.351	0.343	0.348	0.350	0.333	0.349	0.289
5	0.130	0.215	0.191	0.204	0.215	0.217	0.234	0.224	0.217	0.184
6	0.111	0.138	0.139	--	0.131	0.145	0.151	0.155	0.153	0.142
7	0.065	0.100	0.111	-0.238	0.070	0.115	0.127	0.115	0.123	--
8	0.009	0.049	0.093	--	0.100	0.065	0.053	0.060	0.067	0.072
9	-0.027	0.013	0.026	0.043	0.035	0.033	0.025	0.031	0.027	0.031
10	-0.051	-0.013	-0.029	-0.003	-0.001	-0.002	-0.001	-0.002	-0.003	0.005
11	-0.058	-0.039	-0.020	-0.017	-0.006	-0.002	-0.011	-0.002	-0.013	-0.007
12	-0.047	-0.028	-0.023	-0.020	-0.022	-0.01	-0.005	-0.001	-0.011	0.005
13	-0.037	-0.020	-0.024	-0.016	-0.015	-0.011	-0.007	-0.003	0.004	0.013
14	-0.036	-0.026	-0.011	-0.003	-0.012	-0.001	0.006	-0.002	0.019	0.026
15	-0.017	0.004	0.015	0.025	0.032	0.003	0.013	0.001	0.013	0.034

Incidence: -2.6 deg.										
RMS Deviation: 0.077										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.259	-0.831	-0.643	-1.115	-1.551	-1.503	-0.793	-0.77	-0.235	--
2	0.417	0.441	0.157	0.259	0.324	0.397	0.355	0.324	0.540	0.274
3	0.247	0.265	0.232	0.237	0.273	0.207	0.215	0.114	0.242	--
4	0.144	0.134	0.175	0.151	0.133	0.137	0.173	0.175	0.173	0.139
5	0.053	0.080	0.077	0.068	0.006	0.007	0.100	0.034	0.033	0.082
6	0.011	0.045	0.024	--	0.011	0.051	0.042	0.053	0.051	0.042
7	-0.019	0.032	0.027	-0.170	0.014	0.025	0.013	0.039	0.025	--
8	-0.048	-0.011	0.011	--	0.043	0.034	-0.024	-0.002	0.004	-0.015
9	-0.067	-0.033	-0.028	-0.013	-0.033	-0.021	-0.044	-0.027	-0.022	-0.043
10	-0.077	-0.052	-0.037	-0.053	-0.013	-0.035	-0.050	-0.040	-0.025	-0.043
11	-0.070	-0.052	-0.047	-0.045	-0.034	-0.013	-0.043	-0.026	-0.044	-0.049
12	-0.053	-0.036	-0.037	-0.034	-0.032	-0.031	-0.025	-0.012	-0.035	-0.015
13	-0.041	-0.029	-0.033	-0.028	-0.022	-0.023	-0.026	-0.013	-0.012	-0.012
14	-0.031	-0.021	-0.008	-0.007	-0.011	-0.003	-0.005	-0.009	0.003	0.007
15	-0.011	0.008	0.024	0.018	0.034	0.006	-0.002	-0.004	0.008	0.013

Incidence: -0.2 deg.										
RMS Deviation: 0.036										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.659	0.679	0.665	0.572	0.681	0.635	0.697	0.659	0.664	--
2	-0.015	0.004	-0.089	-0.131	-0.096	-0.134	-0.102	-0.018	-0.002	0.003
3	-0.055	-0.040	-0.075	-0.046	-0.021	-0.037	-0.023	0.584	-0.015	--
4	-0.070	-0.056	-0.063	-0.056	-0.036	-0.049	-0.057	-0.041	-0.038	-0.026
5	-0.091	-0.083	-0.096	-0.094	-0.081	-0.065	-0.085	-0.079	-0.067	-0.050
6	-0.109	-0.091	-0.091	--	-0.092	-0.092	-0.091	-0.088	-0.075	-0.066
7	-0.110	-0.095	-0.051	-0.229	-0.098	-0.064	-0.097	-0.092	-0.091	--
8	-0.114	-0.113	-0.125	--	-0.025	-0.092	-0.117	-0.107	-0.094	-0.100
9	-0.122	-0.122	-0.123	-0.175	-0.155	-0.116	-0.121	-0.118	-0.108	-0.116
10	-0.118	-0.111	-0.110	-0.123	-0.117	-0.117	-0.122	-0.112	-0.110	-0.119
11	-0.112	-0.098	-0.100	-0.105	-0.096	-0.100	-0.112	-0.093	-0.105	-0.112
12	-0.083	-0.082	-0.070	-0.073	-0.085	-0.063	-0.070	-0.068	-0.072	-0.057
13	-0.052	-0.051	-0.053	-0.049	-0.050	-0.048	-0.054	-0.042	-0.036	-0.039
14	-0.032	-0.036	-0.024	-0.013	-0.029	-0.023	-0.035	-0.031	-0.011	-0.010
15	-0.002	0.002	0.021	0.011	0.024	0.002	-0.028	-0.015	-0.003	0.002

0.53 CIRCULAR POLE 075%S,25%C

Incidence: 2.3 Deg.										
RMS Deviation: 0.066										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.071	0.150	-0.428	-0.257	-0.243	0.252	0.284	0.341	0.100	--
2	-0.583	-0.579	-0.522	-0.729	-0.735	-0.735	-0.588	-0.630	-0.325	-0.355
3	-0.415	-0.428	-0.416	-0.407	-0.396	-0.373	-0.359	0.411	-0.320	--
4	-0.306	-0.297	-0.270	-0.273	-0.270	-0.230	-0.253	-0.250	-0.249	-0.235
5	-0.258	-0.225	-0.231	-0.260	-0.218	-0.236	-0.261	-0.227	-0.215	-0.199
6	-0.222	-0.221	-0.179	--	-0.299	-0.217	-0.226	-0.211	-0.203	-0.159
7	-0.185	-0.213	-0.104	-0.223	-0.194	-0.187	-0.205	-0.210	-0.187	--
8	-0.175	-0.216	-0.273	--	-0.136	-0.173	-0.211	-0.191	-0.190	-0.175
9	-0.168	-0.181	-0.214	-0.332	-0.272	-0.203	-0.132	-0.181	-0.184	-0.179
10	-0.140	-0.162	-0.136	-0.170	-0.174	-0.131	-0.134	-0.164	-0.155	-0.169
11	-0.135	-0.139	-0.135	-0.136	-0.135	-0.141	-0.155	-0.133	-0.141	-0.143
12	-0.197	-0.167	-0.195	-0.111	-0.116	-0.107	-0.135	-0.194	-0.115	-0.138
13	-0.083	-0.077	-0.077	-0.033	-0.073	-0.075	-0.086	-0.075	-0.061	-0.075
14	-0.053	-0.048	-0.035	-0.041	-0.044	-0.037	-0.043	-0.045	-0.029	-0.033
15	-0.015	-0.008	-0.009	-0.001	0.006	-0.015	-0.010	-0.023	-0.017	-0.008

Incidence: 4.7 Deg.										
RMS Deviation: 0.132										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.722	-0.600	-1.131	-1.073	-1.136	-0.428	-1.221	-0.373	-1.222	--
2	-1.207	-1.336	-1.232	-1.461	-1.150	-1.409	-1.716	-1.111	-0.323	-0.606
3	-1.091	-1.097	-1.210	-1.221	-1.132	-1.301	-1.001	1.021	-0.312	--
4	-0.626	-0.606	-0.270	-0.715	-1.002	-0.212	-0.163	-0.111	-0.174	-0.122
5	-0.506	-0.430	-0.420	-0.103	-0.500	-0.111	-0.133	-0.451	-0.275	-1.315
6	-0.340	-0.360	-0.237	--	-1.362	-0.230	-0.353	-0.317	-0.332	-0.251
7	-0.201	-0.327	-0.133	-0.230	-0.200	-0.204	-0.322	-0.235	-0.208	--
8	-0.214	-0.301	-0.304	--	-0.200	-0.241	-0.317	-0.205	-0.255	-0.215
9	-0.226	-0.260	-0.230	-0.411	-0.305	-0.271	-0.256	-0.164	-0.242	-0.239
10	-0.185	-0.230	-0.211	-0.521	-0.253	-0.212	-0.225	-0.211	-0.215	-0.219
11	-0.177	-0.165	-0.176	-0.170	-0.119	-0.111	-0.102	-0.122	-0.120	-0.193
12	-0.147	-0.143	-0.139	-0.133	-0.151	-0.131	-0.144	-0.143	-0.143	-0.139
13	-0.117	-0.102	-0.101	-0.102	-0.102	-0.105	-0.100	-0.103	-0.099	-0.097
14	-0.065	-0.071	-0.054	-0.059	-0.061	-0.043	-0.056	-0.062	-0.038	-0.045
15	-0.045	-0.032	-0.015	-0.013	-0.014	-0.021	-0.025	-0.034	-0.017	-0.010

Incidence: 7.2 Deg.										
RMS Deviation: 0.073										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.999	-0.700	-1.005	-1.034	-1.272	-0.575	-0.970	-1.123	-1.445	--
2	-1.031	-1.164	-0.998	-1.055	-1.130	-1.151	-1.275	-1.094	-1.306	-2.458
3	-1.095	-1.058	-1.016	-1.058	-1.090	-1.213	-1.313	-0.115	-1.285	--
4	-1.095	-1.061	-0.999	-1.033	-1.102	-1.119	-1.191	-1.026	-1.308	-0.753
5	-0.993	-0.934	-0.968	-0.923	-0.998	-0.906	-0.295	-0.995	-1.184	-0.439
6	-0.772	-0.812	-0.808	--	-0.802	-0.825	-0.690	-0.704	-0.670	-0.377
7	-0.626	-0.717	-0.652	-0.553	-0.508	-0.606	-0.538	-0.560	-0.384	--
8	-0.403	-0.464	-0.527	--	-0.331	-0.387	-0.399	-0.386	-0.299	-0.328
9	-0.315	-0.333	-0.343	-0.574	-0.499	-0.355	-0.322	-0.311	-0.289	-0.302
10	-0.265	-0.270	-0.265	-0.316	-0.332	-0.307	-0.279	-0.274	-0.255	-0.268
11	-0.236	-0.221	-0.214	-0.233	-0.237	-0.239	-0.236	-0.222	-0.223	-0.233
12	-0.208	-0.175	-0.173	-0.183	-0.184	-0.191	-0.186	-0.170	-0.185	-0.172
13	-0.174	-0.136	-0.143	-0.140	-0.131	-0.145	-0.140	-0.124	-0.124	-0.121
14	-0.138	-0.096	-0.093	-0.092	-0.084	-0.089	-0.086	-0.076	-0.065	-0.062
15	-0.108	-0.059	-0.061	-0.059	-0.043	-0.065	-0.057	-0.047	-0.047	-0.024

0.52 CIRCULAR HOLE 975%S, 25%O

Incidence: 9.6 deg.										
RMS deviation: 0.044										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.850	-0.798	-0.808	-0.836	-0.941	-1.533	-1.043	-1.538	-1.377	--
2	-0.859	-0.868	-0.814	-0.832	-0.915	-0.935	-1.192	-1.263	-1.433	-2.01
3	-0.849	-0.866	-0.824	-0.835	-0.916	-0.904	-1.005	-0.916	-1.467	--
4	-0.835	-0.875	-0.847	-0.823	-0.832	-0.851	-1.065	-1.295	-1.413	-1.94
5	-0.855	-0.897	-0.834	-0.872	-0.935	-0.862	-1.056	-1.256	-1.405	-1.00
6	-0.829	-0.955	-0.946	--	-0.893	-0.855	-1.021	-1.135	-1.283	-0.47
7	-0.826	-1.042	-0.856	-0.842	-0.871	-0.840	-0.925	-1.035	-1.052	--
8	-0.749	-0.732	-0.790	--	-0.710	-0.717	-0.765	-0.733	-0.697	-0.42
9	-0.657	-0.557	-0.675	-0.742	-0.758	-0.660	-0.732	-0.565	-0.405	-0.39
10	-0.571	-0.457	-0.574	-0.590	-0.597	-0.577	-0.516	-0.422	-0.322	-0.35
11	-0.456	-0.371	-0.470	-0.466	-0.495	-0.474	-0.373	-0.355	-0.263	-0.29
12	-0.397	-0.314	-0.359	-0.351	-0.391	-0.367	-0.276	-0.247	-0.215	-0.22
13	-0.321	-0.251	-0.274	-0.284	-0.290	-0.273	-0.213	-0.177	-0.142	-0.16
14	-0.267	-0.201	-0.223	-0.221	-0.219	-0.214	-0.152	-0.122	-0.093	-0.09
15	-0.243	-0.175	-0.203	-0.193	-0.192	-0.193	-0.132	-0.093	-0.080	-0.05

Incidence: 12.2 deg.										
RMS deviation: 0.026										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.752	-0.749	-0.858	-0.803	-0.790	-0.696	-1.017	-1.111	-1.597	--
2	-0.745	-0.792	-0.812	-0.810	-0.774	-0.833	-0.937	-1.055	-1.452	-2.34
3	-0.738	-0.790	-0.835	-0.814	-0.782	-0.815	-0.935	-0.913	-1.405	--
4	-0.724	-0.790	-0.851	-0.827	-0.792	-0.824	-0.917	-1.013	-1.421	-2.35
5	-0.749	-0.815	-0.835	-0.870	-0.830	-0.834	-0.915	-1.032	-1.415	-1.76
6	-0.757	-0.858	-0.815	--	-0.863	-0.855	-0.912	-1.014	-1.330	-1.05
7	-0.771	-0.905	-0.847	-0.852	-0.835	-0.854	-0.907	-0.923	-1.227	--
8	-0.771	-0.819	-0.800	--	-0.893	-0.837	-0.953	-0.912	-1.050	-0.52
9	-0.741	-0.729	-0.735	-0.710	-0.724	-0.737	-0.810	-0.850	-0.907	-0.49
10	-0.719	-0.578	-0.686	-0.792	-0.714	-0.712	-0.741	-0.764	-0.613	-0.45
11	-0.651	-0.533	-0.551	-0.554	-0.561	-0.555	-0.558	-0.549	-0.492	-0.39
12	-0.595	-0.531	-0.535	-0.533	-0.507	-0.504	-0.559	-0.530	-0.389	-0.30
13	-0.561	-0.533	-0.542	-0.531	-0.531	-0.537	-0.434	-0.431	-0.294	-0.23
14	-0.507	-0.480	-0.474	-0.457	-0.454	-0.453	-0.401	-0.341	-0.293	-0.15
15	-0.493	-0.449	-0.447	-0.440	-0.410	-0.415	-0.372	-0.290	-0.172	-0.15

13 TRAPEZOIDAL HOLE 17529,2530

Incidence: -12.4 deg.										RMS Deviation: 0.014
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.913	-1.064	-1.018	-0.950	-0.857	-0.834	-0.753	-1.095	-1.533	--
2	0.641	0.652	0.631	0.620	0.635	0.640	0.650	0.598	0.717	0.746
3	0.544	0.572	0.541	0.538	0.557	0.583	0.614	0.635	0.670	--
4	0.429	0.460	0.418	0.430	0.456	0.473	0.524	0.535	0.555	0.609
5	0.289	0.323	0.229	0.212	0.235	0.340	0.370	0.397	0.428	0.431
6	0.205	0.252	0.044	-0.118	0.110	0.232	0.304	0.329	0.345	0.365
7	0.139	0.221	-0.016	--	-0.220	0.150	0.240	0.267	0.284	--
8	0.057	0.178	0.297	--	-0.128	0.002	0.144	0.177	0.193	0.214
9	-0.008	0.097	0.211	0.377	0.259	0.103	0.094	0.107	0.127	0.145
10	-0.055	0.015	0.057	0.103	0.095	0.070	0.053	0.070	0.079	0.089
11	-0.102	-0.049	-0.016	-0.002	0.013	0.014	0.013	0.028	0.036	0.057
12	-0.126	-0.090	-0.069	-0.052	-0.055	-0.037	-0.019	-0.006	0.003	0.043
13	-0.151	-0.135	-0.133	-0.102	-0.102	-0.093	-0.067	-0.048	-0.009	0.023
14	-0.208	-0.215	-0.204	-0.174	-0.190	-0.176	-0.133	-0.113	-0.041	0.003
15	-0.227	-0.241	-0.244	-0.210	-0.199	-0.245	-0.195	-0.161	-0.093	-0.013

Incidence: -9.0 deg.										RMS Deviation: 0.012
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.263	-1.207	-0.930	-0.885	-0.885	-0.841	-0.801	-1.142	-1.518	--
2	0.646	0.644	0.622	0.592	0.607	0.626	0.652	0.683	0.705	0.720
3	0.534	0.543	0.504	0.499	0.525	0.550	0.573	0.588	0.626	--
4	0.413	0.426	0.383	0.373	0.414	0.442	0.464	0.478	0.509	0.511
5	0.275	0.282	0.127	0.173	0.210	0.301	0.337	0.350	0.375	0.395
6	0.125	0.222	0.024	-0.127	0.088	0.200	0.254	0.277	0.294	0.319
7	0.131	0.190	-0.027	--	-0.211	0.130	0.208	0.237	0.243	--
8	0.052	0.165	0.205	--	-0.007	0.000	0.001	0.110	0.155	0.175
9	-0.001	0.005	0.103	0.340	0.251	0.100	0.003	0.005	0.105	0.120
10	-0.030	0.035	0.060	0.005	0.103	0.071	0.143	0.057	0.066	0.072
11	-0.066	-0.014	0.004	0.020	0.036	0.027	0.025	0.038	0.032	0.051
12	-0.077	-0.043	-0.035	-0.013	-0.020	-0.010	0.004	0.015	0.014	0.051
13	-0.090	-0.073	-0.070	-0.053	-0.051	-0.046	-0.030	-0.011	0.014	0.042
14	-0.120	-0.110	-0.103	-0.092	-0.090	-0.080	-0.063	-0.044	0.002	0.034
15	-0.121	-0.108	-0.110	-0.108	-0.090	-0.136	-0.104	-0.065	-0.010	0.025

Incidence: -7.5 deg.										RMS Deviation: 0.044
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.244	-1.494	-1.097	-0.968	-0.943	-0.923	-1.253	-1.420	-1.815	--
2	0.644	0.637	0.600	0.586	0.608	0.611	0.644	0.638	0.673	0.643
3	0.501	0.494	0.462	0.475	0.482	0.522	0.535	0.558	0.545	--
4	0.371	0.377	0.342	0.340	0.378	0.400	0.422	0.440	0.432	0.433
5	0.220	0.240	0.164	0.140	0.224	0.263	0.292	0.312	0.300	0.305
6	0.152	0.187	0.024	-0.105	0.073	0.180	0.225	0.232	0.245	0.252
7	0.100	0.150	-0.021	--	-0.150	0.110	0.171	0.186	0.194	--
8	0.030	0.127	0.252	--	-0.023	0.071	0.093	0.115	0.122	0.130
9	-0.006	0.075	0.142	0.250	0.212	0.090	0.064	0.050	0.075	0.078
10	-0.030	0.024	0.052	0.022	0.020	0.051	0.041	0.030	0.047	0.049
11	-0.052	-0.010	0.009	0.023	0.033	0.020	0.024	0.035	0.024	0.032
12	-0.054	-0.018	-0.013	-0.004	0.000	0.008	0.013	0.005	0.014	0.033
13	-0.051	-0.037	-0.030	-0.020	-0.017	-0.000	-0.003	0.007	0.022	0.028
14	-0.067	-0.051	-0.044	-0.035	-0.033	-0.020	-0.011	-0.003	0.017	0.027
15	-0.051	-0.033	-0.027	-0.020	-0.003	-0.033	-0.025	-0.008	0.005	0.029

18 TRAPEZOIDAL NOSE 9753S, 2510

Incidence: -5.0 deg.										
RMS Deviation: 0.032										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.929	-1.497	-1.456	-1.804	-1.352	-1.332	-1.594	-1.555	-2.187	--
2	0.589	0.501	0.504	0.554	0.555	0.531	0.571	0.568	0.585	0.555
3	0.420	0.455	0.434	0.446	0.445	0.445	0.455	0.452	0.464	--
4	0.293	0.325	0.308	0.316	0.322	0.322	0.333	0.331	0.339	0.329
5	0.158	0.204	0.159	0.151	0.190	0.192	0.230	0.220	0.213	0.227
6	0.109	0.141	0.064	-0.011	0.075	0.122	0.155	0.152	0.163	0.179
7	0.061	0.114	0.064	--	-0.056	0.001	0.115	0.125	0.129	--
8	0.005	0.062	0.103	--	0.059	0.045	0.054	0.055	0.062	0.071
9	-0.035	0.011	-0.038	-0.039	0.073	0.039	0.026	0.029	0.021	0.037
10	-0.037	-0.009	-0.005	0.028	0.019	0.003	0.017	0.011	0.005	0.018
11	-0.050	-0.031	-0.021	0.003	-0.002	-0.007	0.004	0.005	-0.010	0.005
12	-0.042	-0.029	-0.026	-0.009	-0.019	-0.011	0.006	0.003	-0.011	0.016
13	-0.037	-0.031	-0.025	-0.019	-0.017	-0.011	-0.009	-0.003	0.009	0.018
14	-0.043	-0.034	-0.016	-0.008	-0.018	-0.005	0.003	-0.005	0.015	0.021
15	-0.019	-0.002	0.007	0.018	0.028	-0.009	0.008	0.002	0.010	0.030

Incidence: -2.5 deg.										
RMS Deviation: 0.040										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.448	-0.976	-0.339	-0.966	-0.799	-1.336	-1.590	-1.210	-0.565	--
2	0.455	0.452	0.407	0.392	0.387	0.346	0.419	0.425	0.381	0.379
3	0.248	0.259	0.253	0.264	0.260	0.280	0.297	0.285	0.260	--
4	0.143	0.178	0.159	0.161	0.190	0.185	0.193	0.205	0.217	0.189
5	0.061	0.092	0.050	0.037	0.075	0.078	0.098	0.098	0.100	0.122
6	0.025	0.050	-0.008	-0.082	-0.005	0.041	0.051	0.055	0.069	0.061
7	-0.007	0.028	0.030	--	-0.108	0.013	0.032	0.028	0.036	--
8	-0.039	-0.009	0.128	--	0.066	-0.000	-0.012	-0.009	0.001	0.000
9	-0.066	-0.046	-0.121	-0.309	-0.075	-0.020	-0.029	-0.025	-0.019	-0.022
10	-0.071	-0.061	-0.045	-0.053	-0.053	-0.039	-0.043	-0.046	-0.022	-0.039
11	-0.073	-0.060	-0.047	-0.042	-0.042	-0.041	-0.041	-0.031	-0.032	-0.042
12	-0.058	-0.037	-0.041	-0.038	-0.037	-0.031	-0.027	-0.016	-0.027	-0.020
13	-0.042	-0.033	-0.031	-0.022	-0.026	-0.021	-0.018	-0.015	-0.006	-0.004
14	-0.027	-0.021	-0.008	-0.001	-0.011	-0.002	0.002	-0.004	0.013	0.014
15	-0.005	0.015	0.021	0.024	0.038	0.008	0.007	0.008	0.013	0.021

Incidence: -0.2 deg.										
RMS Deviation: 0.033										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.658	0.634	0.682	0.643	0.671	0.501	0.555	0.614	0.622	--
2	0.096	0.053	0.005	-0.027	-0.055	-0.032	-0.018	0.076	0.133	0.032
3	0.024	0.013	-0.013	0.052	0.018	0.031	0.053	0.039	0.064	--
4	-0.018	0.010	-0.033	0.019	0.005	-0.025	-0.000	0.003	0.013	0.021
5	-0.059	-0.040	-0.079	-0.071	-0.067	-0.055	-0.048	-0.044	-0.015	-0.010
6	-0.070	-0.044	-0.086	-0.160	-0.100	-0.075	-0.070	-0.059	-0.052	-0.035
7	-0.076	-0.041	-0.001	--	-0.155	-0.076	-0.074	-0.066	-0.076	--
8	-0.090	-0.068	0.053	--	0.046	-0.075	-0.095	-0.085	-0.086	-0.056
9	-0.093	-0.105	-0.234	-0.514	-0.202	-0.034	-0.030	-0.092	-0.093	-0.073
10	-0.089	-0.102	-0.197	-0.120	-0.113	-0.105	-0.094	-0.097	-0.091	-0.082
11	-0.085	-0.084	-0.086	-0.081	-0.077	-0.083	-0.086	-0.071	-0.089	-0.074
12	-0.064	-0.059	-0.063	-0.064	-0.070	-0.061	-0.053	-0.057	-0.071	-0.045
13	-0.037	-0.042	-0.037	-0.037	-0.044	-0.036	-0.045	-0.044	-0.029	-0.024
14	-0.023	-0.018	-0.009	-0.011	-0.017	-0.011	-0.019	-0.023	-0.006	0.001
15	0.007	0.022	0.021	0.019	0.038	0.004	-0.003	-0.005	-0.004	0.017

Incidence: 2.3 %.										
RMS Deviation: 0.045										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.295	0.322	-0.107	0.158	0.048	0.159	0.558	1.344	0.377	--
2	-0.470	-0.509	-0.473	-0.571	-0.553	-0.547	-0.542	-0.555	-0.433	-0.219
3	-0.327	-0.367	-0.368	-0.326	-0.303	-0.344	-0.302	-0.223	-0.243	--
4	-0.244	-0.222	-0.242	-0.232	-0.223	-0.251	-0.222	-0.218	-0.192	-0.152
5	-0.201	-0.140	-0.191	-0.221	-0.202	-0.194	-0.201	-0.195	-0.166	-0.126
6	-0.179	-0.154	-0.155	-0.222	-0.200	-0.131	-0.132	-0.189	-0.146	-0.109
7	-0.165	-0.135	-0.041	--	-0.214	-0.187	-0.165	-0.133	-0.159	--
8	-0.147	-0.135	-0.028	--	-0.033	-0.120	-0.161	-0.110	-0.161	-0.139
9	-0.142	-0.101	-0.444	-0.040	-0.303	-0.171	-0.152	-0.17	-0.131	-0.140
10	-0.123	-0.166	-0.197	-0.231	-0.206	-0.177	-0.140	-0.160	-0.140	-0.140
11	-0.115	-0.123	-0.123	-0.134	-0.110	-0.135	-0.127	-0.111	-0.125	-0.117
12	-0.090	-0.087	-0.082	-0.087	-0.093	-0.095	-0.094	-0.082	-0.088	-0.083
13	-0.058	-0.060	-0.064	-0.061	-0.057	-0.063	-0.066	-0.060	-0.064	-0.053
14	-0.035	-0.032	-0.023	-0.025	-0.028	-0.020	-0.027	-0.021	-0.010	-0.014
15	0.004	0.006	0.006	0.009	0.025	-0.002	-0.003	-0.000	-0.001	0.009

Incidence: 4.7 %.										
RMS Deviation: 0.103										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.568	-0.200	-0.082	-1.307	-1.006	-0.307	-0.328	-1.545	-1.521	--
2	-1.139	-1.150	-1.004	-1.707	-1.206	-1.246	-1.115	-0.379	-0.121	-0.562
3	-0.379	-0.970	-1.123	-1.050	-1.058	-1.150	-0.501	-0.600	-0.612	--
4	-0.595	-0.608	-0.874	-0.335	-0.575	-0.551	-0.460	-0.196	-0.425	-0.321
5	-0.383	-0.343	-0.307	-0.361	-0.384	-0.376	-0.301	-0.379	-0.340	-0.260
6	-0.290	-0.262	-0.206	-0.307	-0.319	-0.313	-0.320	-0.320	-0.286	-0.220
7	-0.252	-0.222	-0.092	--	-0.252	-0.253	-0.230	-0.237	-0.257	--
8	-0.220	-0.244	-0.137	--	-0.094	-0.205	-0.259	-0.241	-0.223	-0.214
9	-0.205	-0.278	-0.547	-1.003	-0.580	-0.248	-0.227	-0.216	-0.206	-0.211
10	-0.179	-0.228	-0.277	-0.402	-0.208	-0.246	-0.211	-0.196	-0.177	-0.194
11	-0.162	-0.176	-0.151	-0.182	-0.174	-0.177	-0.177	-0.157	-0.153	-0.167
12	-0.133	-0.122	-0.115	-0.123	-0.124	-0.121	-0.131	-0.115	-0.122	-0.115
13	-0.096	-0.087	-0.087	-0.073	-0.080	-0.087	-0.088	-0.092	-0.073	-0.071
14	-0.063	-0.053	-0.046	-0.038	-0.042	-0.042	-0.038	-0.043	-0.030	-0.024
15	-0.026	-0.008	-0.008	-0.005	0.011	-0.011	-0.011	-0.010	-0.007	0.004

Incidence: 7.2 %.										
RMS Deviation: 0.067										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.839	-0.652	-0.040	-1.007	-1.171	-0.565	-1.044	-1.002	-1.298	--
2	-0.333	-1.080	-0.325	-1.060	-1.133	-1.205	-1.310	-1.017	-1.316	-1.591
3	-0.944	-1.010	-0.017	-1.067	-1.034	-1.210	-1.409	-1.003	-1.324	--
4	-0.938	-0.957	-0.915	-1.006	-1.074	-1.254	-1.135	-1.018	-1.301	-0.554
5	-0.832	-0.780	-0.866	-0.852	-0.900	-0.904	-0.822	-0.844	-0.851	-0.423
6	-0.694	-0.571	-0.610	-0.663	-0.684	-0.558	-0.597	-0.623	-0.459	-0.347
7	-0.529	-0.544	-0.406	--	-0.488	-0.456	-0.470	-0.436	-0.319	--
8	-0.353	-0.365	-0.563	--	-0.229	-0.204	-0.332	-0.337	-0.298	-0.267
9	-0.293	-0.353	-0.237	-1.042	-0.731	-0.332	-0.270	-0.200	-0.276	-0.261
10	-0.220	-0.285	-0.348	-0.454	-0.397	-0.323	-0.240	-0.240	-0.210	-0.232
11	-0.216	-0.222	-0.222	-0.237	-0.260	-0.250	-0.216	-0.200	-0.205	-0.200
12	-0.136	-0.168	-0.157	-0.160	-0.187	-0.181	-0.159	-0.156	-0.156	-0.146
13	-0.140	-0.122	-0.126	-0.120	-0.121	-0.131	-0.121	-0.106	-0.103	-0.099
14	-0.117	-0.083	-0.079	-0.070	-0.072	-0.075	-0.072	-0.061	-0.049	-0.047
15	-0.086	-0.043	-0.045	-0.045	-0.023	-0.047	-0.040	-0.031	-0.028	-0.010

18 TRAPEZOIDAL HOLE 97532, 2580

Incidence: 9.6 deg.										
RMS Deviation: 0.055										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.895	-0.847	-0.841	-0.735	-0.825	-0.833	-1.000	-1.452	-1.370	--
2	-0.887	-1.028	-0.863	-0.810	-0.808	-1.000	-1.035	-1.100	-1.122	-1.882
3	-0.883	-0.959	-0.882	-0.810	-0.817	-0.816	-1.032	-1.156	-1.337	--
4	-0.893	-0.930	-0.916	-0.824	-0.730	-0.825	-0.835	-1.102	-1.507	-1.269
5	-0.874	-1.017	-0.950	-0.886	-0.831	-0.874	-0.835	-1.120	-1.470	-0.756
6	-0.845	-1.068	-1.028	-0.852	-0.870	-1.000	-1.051	-1.100	-1.251	-0.434
7	-0.823	-1.055	-0.863	--	-0.822	-0.867	-0.824	-1.004	-0.813	--
8	-0.752	-0.556	-0.867	--	-0.751	-1.751	-0.701	-0.811	-0.800	-0.404
9	-0.644	-0.387	-0.705	-0.707	-1.070	-1.000	-1.007	-0.811	-0.800	-0.358
10	-0.534	-0.357	-0.522	-0.572	-1.613	-1.000	-0.451	-0.811	-0.806	-0.323
11	-0.420	-0.352	-0.130	-0.401	-0.500	-0.104	-0.303	-0.300	-0.235	-0.274
12	-0.330	-0.301	-0.359	-0.331	-0.301	-0.351	-0.313	-0.230	-0.190	-0.202
13	-0.274	-0.257	-0.270	-0.310	-0.304	-0.242	-0.255	-0.114	-0.126	-0.147
14	-0.225	-0.210	-0.218	-0.245	-0.232	-0.200	-0.187	-0.121	-0.075	-0.077
15	-0.192	-0.170	-0.190	-0.211	-0.195	-0.166	-0.152	-0.009	-0.049	-0.039

Incidence: 12.0 deg.										
RMS Deviation: 0.038										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.822	-0.832	-0.911	-0.738	-0.767	-0.602	-1.002	-1.371	-1.607	--
2	-0.796	-1.022	-0.900	-0.708	-0.755	-0.802	-0.921	-1.043	-1.450	-2.293
3	-0.774	-0.934	-0.881	-0.825	-0.750	-0.781	-0.843	-1.051	-1.450	--
4	-0.841	-0.919	-0.821	-0.853	-0.724	-0.817	-0.825	-1.073	-1.473	-2.220
5	-0.831	-0.852	-0.857	-0.811	-0.855	-0.820	-0.836	-1.051	-1.404	-1.404
6	-0.833	-1.036	-0.853	-0.870	-0.820	-0.835	-0.870	-1.022	-1.338	-0.803
7	-0.860	-1.074	-0.906	--	-0.870	-0.860	-0.870	-0.823	-1.250	--
8	-0.832	-0.782	-0.836	--	-0.887	-0.870	-0.844	-0.833	-1.017	-0.491
9	-0.702	-0.666	-0.631	-0.611	-0.678	-0.605	-0.761	-0.827	-0.718	-0.446
10	-0.715	-0.590	-0.604	-0.625	-0.648	-0.644	-0.673	-0.600	-0.528	-0.398
11	-0.615	-0.557	-0.604	-0.604	-0.606	-0.625	-0.566	-0.555	-0.360	-0.339
12	-0.474	-0.506	-0.562	-0.524	-0.561	-0.560	-0.488	-0.452	-0.309	-0.257
13	-0.432	-0.449	-0.489	-0.471	-0.494	-0.490	-0.429	-0.371	-0.209	-0.182
14	-0.357	-0.401	-0.415	-0.404	-0.418	-0.407	-0.345	-0.292	-0.149	-0.107
15	-0.366	-0.374	-0.380	-0.382	-0.388	-0.380	-0.304	-0.254	-0.115	-0.065

1.5% TRAPEZOIDAL HOLE 475%S,25%C

Incidence: -12.4 deg.										
RMS Deviation: 0.007										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.551	-1.950	0.898	-1.007	-0.912	-0.805	-0.901	-1.057	-1.447	--
2	0.655	0.682	0.610	0.524	0.577	0.523	0.670	0.596	0.720	0.752
3	0.609	0.613	0.459	0.376	0.469	0.549	0.599	0.628	0.658	--
4	0.492	0.503	0.252	0.096	0.307	0.436	0.499	0.529	0.556	0.569
5	0.347	0.387	0.048	-0.991	-0.145	0.235	0.372	0.396	0.419	0.430
6	0.256	0.331	0.115	--	-0.297	0.178	0.290	0.314	0.336	0.364
7	0.138	0.298	0.156	--	-0.284	0.132	0.233	0.259	0.291	--
8	0.096	0.244	0.364	0.457	-0.065	0.130	0.119	0.180	0.197	0.210
9	0.031	0.150	0.282	0.453	0.319	0.156	0.112	0.118	0.129	0.148
10	-0.019	0.062	0.110	0.140	0.144	0.112	0.071	0.070	0.085	0.094
11	-0.067	-0.002	0.023	0.036	0.055	0.052	0.032	0.045	0.049	0.059
12	-0.088	-0.039	-0.027	-0.020	-0.015	-0.003	-0.001	0.015	0.020	0.049
13	-0.104	-0.084	-0.080	-0.070	-0.064	-0.059	-0.048	-0.025	0.011	0.032
14	-0.143	-0.144	-0.137	-0.138	-0.139	-0.124	-0.111	-0.086	-0.016	0.013
15	-0.147	-0.161	-0.173	-0.166	-0.145	-0.190	-0.163	-0.134	-0.054	0.002

Incidence: -9.9 deg.										
RMS Deviation: 0.019										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.487	-2.341	0.913	-0.828	-0.799	-0.735	-0.929	-1.097	-1.503	--
2	0.678	0.688	0.596	0.494	0.554	0.508	0.657	0.680	0.702	0.717
3	0.582	0.590	0.434	0.343	0.441	0.519	0.554	0.580	0.614	--
4	0.454	0.462	0.233	0.082	0.281	0.402	0.460	0.492	0.503	0.505
5	0.302	0.345	0.077	-0.658	-0.119	0.259	0.329	0.350	0.365	0.365
6	0.223	0.292	0.124	--	-0.241	0.155	0.251	0.273	0.291	0.307
7	0.163	0.259	0.153	--	-0.230	0.113	0.199	0.223	0.237	--
8	0.092	0.211	0.333	0.553	-0.035	0.117	0.122	0.113	0.153	0.158
9	0.027	0.130	0.242	0.399	0.299	0.113	0.097	0.096	0.105	0.113
10	-0.005	0.057	0.100	0.133	0.129	0.101	0.063	0.059	0.071	0.075
11	-0.041	0.009	0.035	0.053	0.058	0.051	0.012	0.045	0.041	0.052
12	-0.051	-0.019	-0.006	0.008	0.002	0.015	0.021	0.021	0.023	0.049
13	-0.062	-0.013	-0.042	-0.029	-0.025	-0.023	-0.012	0.005	0.025	0.039
14	-0.086	-0.093	-0.076	-0.067	-0.076	-0.065	-0.047	-0.031	0.014	0.029
15	-0.082	-0.081	-0.082	-0.083	-0.066	-0.069	-0.031	-0.054	-0.005	0.024

Incidence: -7.5 deg.										
RMS Deviation: 0.010										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.193	-1.835	1.229	-0.813	-0.801	-0.916	-1.208	-1.502	-1.843	--
2	0.667	0.679	0.599	0.458	0.528	0.534	0.638	0.651	0.645	1.630
3	0.521	0.537	0.411	0.310	0.405	0.481	0.526	0.551	0.545	--
4	0.383	0.413	0.220	0.067	0.251	0.360	0.414	0.434	0.429	0.412
5	0.252	0.293	0.106	-0.769	-0.109	0.214	0.282	0.299	0.300	0.299
6	0.175	0.237	0.123	--	-0.178	0.129	0.210	0.226	0.234	0.246
7	0.122	0.207	0.138	--	-0.149	0.097	0.164	0.181	0.187	--
8	0.059	0.156	0.292	0.653	0.002	0.103	0.091	0.117	0.123	0.124
9	0.017	0.093	0.190	0.316	0.256	0.122	0.076	0.059	0.070	0.082
10	-0.008	0.042	0.080	0.109	0.104	0.084	0.055	0.040	0.044	0.051
11	-0.031	0.009	0.037	0.049	0.052	0.052	0.037	0.037	0.023	0.032
12	-0.033	-0.002	0.012	0.017	0.014	0.030	0.027	0.028	0.021	0.036
13	-0.031	-0.019	-0.005	0.002	0.000	0.011	0.013	0.017	0.032	0.037
14	-0.044	-0.034	-0.019	-0.013	-0.020	-0.005	0.005	0.004	0.029	0.036
15	-0.035	-0.017	-0.011	-0.007	0.009	-0.017	-0.003	0.000	0.013	0.033

1.51 TRAPEZOIDAL WOLF 17386,2530

Incidence: -5.0 deg.										
RMS Deviation: 0.013										
Tao	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow10
1	-1.522	-1.201	1.047	-1.398	-1.323	-1.235	-1.722	-1.611	-2.325	--
2	0.514	0.583	0.338	0.477	0.315	0.324	0.575	0.581	0.672	0.535
3	0.437	0.423	0.353	0.321	0.377	0.427	0.452	0.443	0.441	--
4	0.305	0.310	0.128	0.116	0.233	0.210	0.341	0.334	0.326	0.298
5	0.185	0.207	0.093	-0.431	-0.041	0.174	0.215	0.215	0.213	0.196
6	0.117	0.155	0.100	--	-0.015	0.185	0.150	0.154	0.157	0.157
7	0.074	0.135	0.122	--	-0.013	0.032	0.113	0.110	0.110	--
8	0.024	0.087	0.231	0.523	0.067	0.065	0.051	0.072	0.053	0.054
9	-0.011	0.047	0.046	0.131	0.135	0.053	0.035	0.032	0.024	0.023
10	-0.028	0.011	0.025	0.045	0.047	0.020	0.017	0.012	0.001	0.035
11	-0.043	-0.006	0.003	0.014	0.025	0.012	0.005	0.017	-0.003	-0.005
12	-0.035	-0.007	-0.004	-0.001	0.001	0.003	0.007	0.014	-0.005	0.008
13	-0.027	-0.004	-0.010	0.002	0.002	0.003	0.006	0.012	0.014	0.018
14	-0.022	-0.009	0.001	0.009	0.004	0.010	0.014	0.011	0.025	0.027
15	0.006	0.017	0.023	0.030	0.045	0.013	0.017	0.015	0.018	0.033

Incidence: -2.6 deg.										
RMS Deviation: 0.015										
Tao	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow10
1	-0.376	-0.529	1.137	-0.297	-0.377	-1.096	-0.593	-0.714	-0.257	--
2	0.429	0.411	0.338	0.257	0.320	0.325	0.355	0.371	0.340	0.337
3	0.251	0.243	0.171	0.150	0.210	0.254	0.253	0.268	0.241	--
4	0.155	0.170	0.073	0.006	0.110	0.151	0.173	0.133	0.157	0.157
5	0.069	0.099	0.033	-0.309	-0.037	0.067	0.080	0.082	0.080	0.082
6	0.023	0.061	0.063	--	-0.011	0.015	0.030	0.041	0.033	0.052
7	-0.003	0.045	0.040	--	-0.003	0.000	0.012	0.017	0.007	--
8	-0.031	0.007	0.150	0.325	0.050	0.006	-0.022	-0.020	-0.015	-0.003
9	-0.051	-0.030	-0.163	-0.501	-0.022	-0.006	-0.032	-0.042	-0.041	-0.028
10	-0.059	-0.040	-0.030	-0.017	-0.035	-0.035	-0.045	-0.052	-0.045	-0.042
11	-0.064	-0.040	-0.036	-0.027	-0.031	-0.033	-0.045	-0.036	-0.050	-0.043
12	-0.046	-0.035	-0.033	-0.027	-0.027	-0.025	-0.027	-0.027	-0.017	-0.018
13	-0.034	-0.025	-0.022	-0.011	-0.010	-0.010	-0.021	-0.017	-0.015	-0.003
14	-0.021	-0.015	-0.005	0.006	-0.005	-0.000	0.000	-0.010	0.007	0.010
15	0.010	0.020	0.027	0.033	0.044	0.014	0.007	0.007	0.007	0.023

Incidence: -0.2 deg.										
RMS Deviation: 0.011										
Tao	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow10
1	0.635	0.680	1.144	0.669	0.675	0.661	0.683	0.656	0.681	--
2	0.055	0.056	-0.001	-0.136	-0.005	-0.075	-0.030	0.013	0.023	0.050
3	-0.005	-0.007	-0.053	-0.030	-0.011	-0.007	-0.003	0.003	0.003	--
4	-0.029	-0.001	-0.055	-0.133	-0.062	-0.013	-0.012	-0.015	-0.003	0.002
5	-0.055	-0.027	-0.015	-0.392	-0.170	-0.059	-0.050	-0.059	-0.041	-0.030
6	-0.069	-0.036	0.017	--	-0.042	-0.075	-0.072	-0.059	-0.063	-0.042
7	-0.074	-0.030	0.023	--	-0.023	-0.055	-0.077	-0.074	-0.074	--
8	-0.081	-0.056	0.068	0.757	0.025	-0.059	-0.092	-0.095	-0.085	-0.050
9	-0.084	-0.080	-0.226	-0.659	-0.185	-0.086	-0.090	-0.083	-0.073	-0.080
10	-0.081	-0.093	-0.095	-0.113	-0.110	-0.100	-0.095	-0.095	-0.093	-0.082
11	-0.075	-0.076	-0.068	-0.070	-0.075	-0.072	-0.068	-0.067	-0.071	-0.073
12	-0.057	-0.051	-0.052	-0.056	-0.055	-0.055	-0.050	-0.051	-0.057	-0.042
13	-0.031	-0.031	-0.033	-0.030	-0.036	-0.035	-0.037	-0.034	-0.028	-0.017
14	-0.005	-0.011	-0.004	0.001	-0.012	-0.010	-0.008	-0.017	-0.005	0.014
15	0.019	0.020	0.025	0.020	0.043	0.005	0.005	0.000	-0.007	0.020

Incidence: 2.3 deg.

RMS Deviation: 0.017

Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.211	0.408	1.121	0.147	0.374	0.403	0.284	0.277	0.150	--
2	-0.450	-0.412	-0.327	-0.490	-0.527	-0.503	-0.522	-0.612	-0.592	-0.261
3	-0.318	-0.293	-0.398	-0.338	-0.311	-0.233	-0.218	-0.257	-0.252	--
4	-0.234	-0.133	-0.193	-0.255	-0.223	-0.221	-0.223	-0.221	-0.203	-0.155
5	-0.127	-0.136	-0.073	-0.352	-0.220	-0.162	-0.226	-0.204	-0.117	-0.148
6	-0.169	-0.135	-0.057	--	-0.228	-0.165	-0.110	-0.111	-0.177	-0.123
7	-0.151	-0.121	-0.052	--	-0.217	-0.122	-0.116	-0.172	-0.165	--
8	-0.140	-0.157	-0.022	0.013	-0.242	-0.122	-0.110	-0.173	-0.157	-0.153
9	-0.135	-0.202	-0.060	-0.061	-0.114	-0.122	-0.117	-0.117	-0.160	-0.143
10	-0.120	-0.155	-0.211	-0.220	-0.211	-0.102	-0.151	-0.117	-0.112	-0.127
11	-0.112	-0.128	-0.119	-0.117	-0.112	-0.122	-0.132	-0.117	-0.125	-0.122
12	-0.025	-0.048	-0.025	-0.072	-0.022	-0.022	-0.022	-0.022	-0.123	-0.021
13	-0.054	-0.057	-0.056	-0.046	-0.019	-0.157	-0.167	-0.052	-0.051	-0.049
14	-0.028	-0.031	-0.019	-0.012	-0.021	-0.016	-0.027	-0.025	-0.011	-0.009
15	0.012	0.012	0.010	0.023	0.034	0.006	-0.001	-0.016	-0.007	0.017

Incidence: 4.7 deg.

RMS Deviation: 0.019

Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.714	-0.470	1.025	-1.149	-0.914	-0.727	-1.308	-2.075	-1.248	--
2	-1.165	-1.206	-1.125	-1.517	-1.159	-1.250	-1.226	-1.000	-0.398	-0.639
3	-0.978	-0.684	-0.787	-0.728	-0.971	-1.143	-0.737	-0.550	-0.600	--
4	-0.640	-0.391	-0.353	-0.376	-0.648	-0.555	-0.493	-0.473	-0.433	-0.347
5	-0.319	-0.270	-0.156	-0.377	-0.307	-0.304	-0.353	-0.352	-0.335	-0.273
6	-0.262	-0.227	-0.145	--	-0.131	-0.255	-0.307	-0.304	-0.289	-0.227
7	-0.231	-0.204	-0.154	--	-0.147	-0.206	-0.264	-0.271	-0.261	--
8	-0.202	-0.243	-0.214	0.795	-0.189	-0.201	-0.239	-0.231	-0.229	-0.211
9	-0.198	-0.309	-0.803	-0.950	-1.071	-0.285	-0.212	-0.211	-0.213	-0.197
10	-0.165	-0.252	-0.382	-0.508	-0.370	-0.287	-0.203	-0.191	-0.184	-0.179
11	-0.147	-0.175	-0.183	-0.196	-0.193	-0.194	-0.171	-0.147	-0.155	-0.153
12	-0.120	-0.114	-0.116	-0.110	-0.118	-0.128	-0.126	-0.109	-0.123	-0.106
13	-0.086	-0.075	-0.075	-0.058	-0.069	-0.079	-0.084	-0.073	-0.067	-0.064
14	-0.051	-0.037	-0.036	-0.027	-0.030	-0.033	-0.033	-0.033	-0.025	-0.016
15	-0.015	0.003	0.002	0.004	0.017	-0.003	-0.002	-0.005	-0.001	0.014

Incidence: 7.2 deg.

RMS Deviation: 0.028

Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.979	-1.039	1.013	-0.642	-0.340	-0.425	-1.170	-0.950	-1.250	--
2	-1.105	-1.552	-0.913	-0.912	-0.940	-1.036	-1.573	-0.992	-1.212	-2.224
3	-1.027	-1.224	-0.916	-0.956	-0.911	-1.021	-1.165	-0.925	-1.231	--
4	-1.054	-0.793	-0.944	-0.922	-0.943	-1.001	-1.370	-0.927	-1.213	-0.537
5	-0.886	-0.500	-0.505	-0.629	-0.779	-0.953	-0.718	-0.756	-0.930	-0.415
6	-0.608	-0.337	-0.334	--	-0.529	-0.512	-0.491	-0.595	-0.501	-0.335
7	-0.387	-0.332	-0.347	--	-0.407	-0.422	-0.370	-0.437	-0.331	--
8	-0.262	-0.353	-0.441	0.628	-0.406	-0.399	-0.305	-0.344	-0.273	-0.287
9	-0.241	-0.393	-0.951	-1.010	-1.102	-0.398	-0.274	-0.232	-0.251	-0.253
10	-0.213	-0.329	-0.475	-0.510	-0.530	-0.416	-0.252	-0.245	-0.227	-0.232
11	-0.209	-0.239	-0.264	-0.235	-0.393	-0.279	-0.225	-0.199	-0.193	-0.199
12	-0.176	-0.168	-0.174	-0.179	-0.194	-0.184	-0.163	-0.151	-0.151	-0.133
13	-0.138	-0.117	-0.119	-0.113	-0.112	-0.119	-0.118	-0.105	-0.046	-0.087
14	-0.099	-0.078	-0.075	-0.057	-0.070	-0.052	-0.063	-0.050	-0.041	-0.039
15	-0.066	-0.036	-0.040	-0.040	-0.028	-0.039	-0.035	-0.029	-0.020	0.002

Incidence: 4.6 Jan.

RMS Deviation: 0.016

Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.142	-1.546	-0.673	-0.733	-0.728	-0.747	-0.764	-1.233	-1.747	--
2	-1.145	-1.607	-0.661	-0.704	-0.726	-0.758	-0.867	-1.265	-1.333	-1.876
3	-1.130	-1.720	-0.865	-0.920	-0.726	-0.758	-0.862	-1.047	-1.291	--
4	-1.119	-1.254	-0.873	-0.844	-0.751	-0.752	-0.864	-1.047	-1.374	-1.736
5	-1.077	-0.711	-0.826	-0.853	-0.845	-0.761	-0.874	-1.026	-1.340	-0.652
6	-0.924	-0.504	-0.709	--	-0.914	-1.701	-0.856	-0.980	-1.170	-0.361
7	-0.783	-0.366	-0.676	--	-0.760	-0.761	-0.810	-0.915	-0.869	--
8	-0.476	-0.383	-0.622	0.461	-0.755	-0.603	-0.676	-0.607	-0.422	-0.357
9	-0.345	-0.451	-0.837	-0.933	-1.058	-0.501	-0.517	-0.427	-0.285	-0.321
10	-0.297	-0.426	-0.579	-0.545	-0.753	-0.510	-0.404	-0.353	-0.247	-0.281
11	-0.288	-0.250	-0.406	-0.450	-0.497	-0.413	-0.329	-0.250	-0.210	-0.239
12	-0.258	-0.274	-0.393	-0.331	-0.349	-0.315	-0.263	-0.200	-0.173	-0.175
13	-0.214	-0.210	-0.232	-0.248	-0.245	-0.237	-0.202	-0.144	-0.113	-0.119
14	-0.170	-0.160	-0.174	-0.178	-0.172	-0.164	-0.140	-0.093	-0.056	-0.054
15	-0.131	-0.119	-0.143	-0.152	-0.146	-0.135	-0.105	-0.067	-0.037	-0.014

Incidence: 12.0 Jan.

RMS Deviation: 0.016

Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.310	-1.427	0.889	-0.833	-0.752	-0.615	-0.829	-1.217	-1.594	--
2	-1.311	-1.670	-1.653	-0.975	-0.755	-0.712	-0.863	-0.991	-1.370	-2.165
3	-1.319	-1.661	-1.653	-0.899	-0.769	-0.740	-0.859	-0.899	-1.341	--
4	-1.324	-1.685	-1.695	-0.912	-0.805	-0.751	-0.845	-0.823	-1.333	-2.228
5	-1.361	-1.473	-1.141	-0.920	-0.800	-1.703	-0.816	-0.876	-1.283	-1.586
6	-1.416	-0.697	-1.263	--	-0.832	-0.823	-0.851	-0.843	-1.270	-0.536
7	-1.272	-0.370	-1.000	--	-1.270	-1.267	-1.226	-1.210	-1.201	--
8	-0.817	-0.317	-1.203	0.201	-0.800	-1.01	-1.014	-0.811	-0.813	-0.836
9	-0.400	-0.10	-0.733	-0.500	-1.713	-0.625	-0.710	-0.70	-0.637	-0.410
10	-0.353	-0.351	-0.561	-0.700	-0.605	-0.523	-0.503	-0.501	-0.490	-0.354
11	-0.342	-0.533	-0.567	-0.604	-0.619	-0.617	-0.567	-0.573	-0.536	-0.311
12	-0.335	-0.457	-0.584	-0.719	-0.531	-1.0	-0.500	-0.501	-0.507	-0.339
13	-0.312	-0.411	-0.404	-0.431	-0.430	-1.110	-0.356	-0.315	-0.210	-0.174
14	-0.288	-0.317	-0.353	-0.350	-0.350	-1.200	-0.221	-0.210	-0.180	-0.147
15	-0.220	-0.220	-0.220	-0.220	-0.220	-1.210	-0.203	-0.210	-0.117	-0.105

23 TRAPEZOIDAL WOLF 3753S, 253C

Incidence: -12.4 deg.										
RMS Deviation: 0.005										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.690	-2.250	1.129	-0.910	-0.313	-0.774	-0.903	-1.061	-1.453	--
2	0.657	0.666	0.537	0.506	0.569	0.617	0.666	0.693	0.720	0.751
3	0.611	0.599	0.433	0.356	0.453	0.442	0.505	0.528	0.662	--
4	0.494	0.435	0.223	0.080	0.294	0.428	0.491	0.529	0.562	0.571
5	0.343	0.353	0.017	--	-0.155	0.271	0.350	0.297	0.423	0.432
6	0.258	0.297	0.047	--	-0.331	0.160	0.283	0.312	0.342	0.361
7	0.190	0.264	0.054	--	-0.357	0.191	0.226	0.257	0.294	--
8	0.104	0.227	0.164	--	-0.227	0.039	0.136	0.121	0.198	0.219
9	0.042	0.139	0.333	--	-0.050	0.109	0.299	0.111	0.139	0.151
10	0.002	0.199	0.237	0.400	0.280	0.121	0.071	0.070	0.019	0.101
11	-0.045	0.029	0.081	0.112	0.113	0.092	0.041	0.011	0.050	0.069
12	-0.071	-0.023	-0.001	0.010	0.093	0.016	0.003	0.016	0.023	0.059
13	-0.093	-0.075	-0.069	-0.056	-0.077	-0.052	-0.043	-0.016	0.001	0.039
14	-0.133	-0.145	-0.130	-0.132	-0.145	-0.135	-0.100	-0.049	-0.021	0.017
15	-0.145	-0.166	-0.172	-0.170	-0.151	-0.205	-0.173	-0.141	-0.057	0.001

Incidence: -9.9 deg.										
RMS Deviation: 0.009										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.383	-2.436	1.226	-0.827	-0.732	-0.770	-0.921	-1.038	-1.521	--
2	0.634	0.579	0.589	0.435	0.556	0.606	0.653	0.593	0.793	0.719
3	0.578	0.579	0.418	0.331	0.432	0.516	0.567	0.591	0.620	--
4	0.449	0.451	0.215	0.073	0.271	0.393	0.465	0.436	0.512	0.510
5	0.397	0.325	0.051	--	-0.133	0.231	0.336	0.384	0.371	0.379
6	0.222	0.256	0.060	--	-0.273	0.119	0.254	0.270	0.236	0.211
7	0.161	0.226	0.012	--	-0.200	0.097	0.200	0.227	0.234	--
8	0.087	0.203	0.138	--	-0.184	0.077	0.119	0.173	0.161	0.179
9	0.040	0.172	0.301	--	-0.012	0.094	0.031	0.107	0.197	0.127
10	0.000	0.102	0.229	0.364	0.271	0.125	0.070	0.061	0.079	0.001
11	-0.026	0.036	0.080	0.119	0.115	0.031	0.052	0.052	0.050	0.057
12	-0.042	0.001	0.021	0.034	0.029	0.030	0.032	0.036	0.029	0.051
13	-0.054	-0.030	-0.025	-0.014	-0.009	-0.002	-0.003	0.021	0.031	0.041
14	-0.080	-0.073	-0.055	-0.064	-0.050	-0.061	-0.040	-0.021	0.017	0.034
15	-0.070	-0.070	-0.073	-0.070	-0.053	-0.100	-0.072	-0.045	-0.092	0.001

Incidence: -7.5 deg.										
RMS Deviation: 0.008										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.169	-1.906	1.234	-0.796	-0.777	-0.391	-1.172	-1.510	-1.894	--
2	0.666	0.669	0.580	0.445	0.530	0.574	0.635	0.661	0.646	0.534
3	0.515	0.523	0.391	0.297	0.397	0.475	0.524	0.551	0.544	--
4	0.379	0.394	0.197	0.054	0.241	0.352	0.414	0.435	0.435	0.414
5	0.245	0.266	0.095	--	-0.123	0.204	0.281	0.301	0.301	0.294
6	0.172	0.207	0.081	--	-0.199	0.114	0.208	0.227	0.234	0.249
7	0.125	0.179	0.068	--	-0.130	0.079	0.163	0.181	0.189	--
8	0.063	0.154	0.116	--	-0.110	0.067	0.093	0.117	0.126	0.123
9	0.022	0.136	0.267	--	0.031	0.085	0.069	0.074	0.077	0.039
10	-0.002	0.080	0.164	0.237	0.231	0.105	0.053	0.045	0.052	0.050
11	-0.023	0.035	0.070	0.099	0.101	0.076	0.044	0.044	0.031	0.031
12	-0.027	0.015	0.029	0.039	0.039	0.042	0.035	0.035	0.022	0.031
13	-0.027	-0.004	0.001	0.012	0.015	0.015	0.017	0.024	0.032	0.031
14	-0.040	-0.024	-0.014	-0.007	-0.012	-0.004	0.010	0.010	0.028	0.031
15	-0.030	-0.006	-0.007	0.001	0.015	-0.020	0.002	0.007	0.012	0.031

Incidence: -2.0 deg.										
Tap	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow 10
1	-0.928	-1.329	1.389	-1.116	-1.200	-1.130	-1.166	-1.10	-0.342	--
2	0.577	0.576	0.528	0.477	0.112	0.500	0.577	0.561	0.572	0.529
3	0.411	0.413	0.337	0.311	0.272	0.418	0.451	0.443	0.447	--
4	0.288	0.296	0.176	0.099	0.526	0.301	0.329	0.234	0.339	0.296
5	0.170	0.186	0.068	--	-0.057	0.170	0.299	0.216	0.217	0.194
6	0.109	0.139	0.079	--	-0.023	0.006	0.146	0.161	0.159	0.165
7	0.068	0.115	0.067	--	-0.035	0.067	0.105	0.141	0.119	--
8	0.021	0.094	0.086	--	-0.027	0.041	0.047	0.072	0.065	0.067
9	-0.007	0.067	0.012	--	0.071	0.047	0.032	0.032	0.026	0.032
10	-0.027	0.026	0.015	0.153	0.112	0.050	0.016	0.019	0.012	0.007
11	-0.041	-0.009	0.029	0.041	0.044	0.029	0.011	0.011	0.003	-0.001
12	-0.024	-0.004	0.005	0.011	0.009	0.016	0.012	0.013	-0.002	0.012
13	-0.027	-0.008	-0.002	0.009	0.007	0.010	0.011	0.013	0.019	0.022
14	-0.023	-0.011	0.004	0.011	0.003	0.011	0.020	0.011	0.026	0.033
15	-0.012	0.017	0.024	0.030	0.035	0.013	0.019	0.016	0.019	0.036

Incidence: -2.6 deg.										
Tap	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow 10
1	-0.230	-0.418	1.448	-0.140	-0.309	-1.045	-0.683	-0.763	-0.346	--
2	0.421	0.387	0.317	0.235	0.303	0.315	0.360	0.382	0.347	0.327
3	0.240	0.232	0.160	0.140	0.207	0.251	0.266	0.266	0.246	--
4	0.149	0.155	0.055	-0.009	0.104	0.158	0.206	0.181	0.172	0.164
5	0.071	0.082	0.029	--	-0.097	0.052	0.091	0.092	0.089	0.095
6	0.030	0.050	0.041	--	-0.017	0.016	0.049	0.052	0.048	0.062
7	0.003	0.035	0.028	--	-0.018	0.005	0.023	0.027	0.023	--
8	-0.024	0.022	0.038	--	-0.012	-0.007	-0.011	-0.008	-0.009	0.001
9	-0.043	-0.003	0.148	--	0.068	-0.005	-0.023	-0.026	-0.032	-0.022
10	-0.048	-0.040	-0.197	-0.572	-0.037	-0.016	-0.029	-0.037	-0.037	-0.032
11	-0.053	-0.036	-0.029	0.013	-0.013	-0.024	-0.029	-0.017	-0.037	-0.032
12	-0.036	-0.020	-0.019	-0.006	-0.020	-0.015	-0.012	-0.008	-0.032	-0.008
13	-0.023	-0.012	-0.018	0.001	-0.004	-0.009	-0.004	0.000	-0.005	0.007
14	-0.014	-0.005	0.002	0.015	0.006	0.007	0.014	0.005	0.015	0.025
15	0.015	0.024	0.029	0.041	0.048	0.016	0.020	0.011	0.013	0.035

Incidence: -0.2 deg.										
Tap	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow 10
1	0.632	0.681	1.582	0.669	0.678	0.638	0.704	0.653	0.690	--
2	0.047	0.049	-0.021	-0.134	-0.088	-0.081	-0.021	0.031	0.025	0.052
3	-0.014	-0.015	-0.062	-0.083	-0.038	-0.002	0.009	0.015	0.011	--
4	-0.027	-0.014	-0.079	-0.133	-0.062	-0.022	-0.004	-0.007	-0.004	0.006
5	-0.052	-0.037	-0.039	--	-0.170	-0.064	-0.045	-0.046	-0.042	-0.027
6	-0.062	-0.048	-0.010	--	-0.049	-0.078	-0.056	-0.063	-0.058	-0.038
7	-0.069	-0.045	-0.017	--	-0.039	-0.067	-0.064	-0.069	-0.066	--
8	-0.074	-0.049	-0.003	--	-0.024	-0.062	-0.074	-0.082	-0.078	-0.065
9	-0.083	-0.077	0.045	--	0.013	-0.064	-0.079	-0.089	-0.089	-0.081
10	-0.083	-0.107	-0.267	-0.679	-0.197	-0.092	-0.133	-0.099	-0.099	-0.092
11	-0.078	-0.091	-0.090	-0.100	-0.032	-0.089	-0.077	-0.073	-0.073	-0.073
12	-0.056	-0.056	-0.062	-0.059	-0.066	-0.059	-0.045	-0.043	-0.062	-0.041
13	-0.035	-0.036	-0.039	-0.024	-0.033	-0.035	-0.030	-0.025	-0.022	-0.020
14	-0.010	-0.016	-0.008	0.004	-0.010	-0.008	-0.013	-0.012	0.003	0.008
15	0.015	0.023	0.021	0.032	0.045	0.009	-0.001	0.005	0.004	0.026

Incidence: 2.2 deg.										
RMS Deviation: 0.011										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.181	0.391	1.538	0.125	0.024	0.314	0.374	0.264	0.187	--
2	-0.449	-0.416	-0.455	-0.609	-0.644	-0.612	-0.596	-0.664	-0.482	-0.318
3	-0.317	-0.309	-0.231	-0.348	-0.339	-0.312	-0.296	-0.310	-0.263	--
4	-0.235	-0.187	-0.211	-0.277	-0.232	-0.233	-0.225	-0.221	-0.201	-0.171
5	-0.183	-0.163	-0.086	--	-0.212	-0.137	-0.193	-0.196	-0.127	-0.150
6	-0.161	-0.141	-0.072	--	-0.091	-0.175	-0.177	-0.159	-0.153	-0.121
7	-0.142	-0.117	-0.035	--	-0.079	-0.137	-0.153	-0.163	-0.162	--
8	-0.128	-0.111	-0.061	--	-0.076	-0.127	-0.154	-0.151	-0.153	-0.137
9	-0.130	-0.148	-0.057	--	-0.371	-0.138	-0.137	-0.146	-0.153	-0.138
10	-0.118	-0.290	-0.619	-0.211	-0.612	-0.125	-0.136	-0.137	-0.135	-0.133
11	-0.112	-0.155	-0.212	-0.303	-0.200	-0.177	-0.124	-0.106	-0.119	-0.113
12	-0.084	-0.097	-0.097	-0.093	-0.105	-0.110	-0.097	-0.081	-0.082	-0.077
13	-0.055	-0.053	-0.056	-0.045	-0.053	-0.064	-0.063	-0.053	-0.046	-0.045
14	-0.026	-0.027	-0.015	-0.012	-0.022	-0.021	-0.018	-0.023	-0.008	-0.005
15	0.003	0.014	0.014	0.013	0.032	0.002	0.003	0.001	0.002	0.016

Incidence: 4.7 deg.										
RMS Deviation: 0.023										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.721	-0.479	1.459	-1.159	-1.120	-0.237	-1.326	-2.173	-2.114	--
2	-1.184	-1.149	-1.175	-1.535	-1.283	-1.229	-1.243	-1.058	-0.941	-0.691
3	-1.010	-0.666	-0.791	-0.804	-1.014	-1.110	-0.763	-0.680	-0.525	--
4	-0.666	-0.412	-0.399	-0.401	-0.543	-0.648	-0.513	-0.490	-0.452	-0.365
5	-0.398	-0.279	-0.192	--	-0.292	-0.335	-0.377	-0.372	-0.351	-0.285
6	-0.256	-0.235	-0.163	--	-0.111	-0.260	-0.313	-0.314	-0.302	-0.231
7	-0.221	-0.200	-0.188	--	-0.152	-0.217	-0.256	-0.277	-0.273	--
8	-0.195	-0.185	-0.167	--	-0.172	-0.180	-0.235	-0.234	-0.239	-0.214
9	-0.189	-0.237	-0.258	--	-0.280	-0.192	-0.235	-0.229	-0.218	-0.201
10	-0.172	-0.301	-0.240	-0.220	-0.236	-0.289	-0.200	-0.235	-0.189	-0.133
11	-0.160	-0.242	-0.357	-0.435	-0.427	-0.230	-0.181	-0.172	-0.161	-0.155
12	-0.126	-0.156	-0.173	-0.166	-0.164	-0.165	-0.134	-0.138	-0.127	-0.101
13	-0.091	-0.101	-0.097	-0.065	-0.079	-0.092	-0.080	-0.082	-0.071	-0.059
14	-0.055	-0.052	-0.042	-0.018	-0.031	-0.034	-0.032	-0.038	-0.023	-0.013
15	-0.019	-0.006	-0.005	0.012	0.019	-0.006	-0.001	-0.003	-0.004	0.017

Incidence: 7.2 deg.										
RMS Deviation: 0.017										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.000	-0.888	1.332	-0.691	-0.846	-0.497	-1.013	-0.969	-1.231	--
2	-1.094	-1.485	-0.235	-0.249	-0.838	-1.027	-1.385	-0.922	-1.212	-2.713
3	-1.078	-1.192	-0.959	-0.856	-0.827	-1.007	-1.396	-0.934	-1.213	--
4	-1.049	-0.878	-0.859	-0.818	-0.837	-0.995	-1.209	-0.908	-1.206	-0.506
5	-0.860	-0.491	-0.540	--	-0.763	-0.847	-0.758	-0.789	-0.978	-0.409
6	-0.571	-0.360	-0.351	--	-0.510	-0.619	-0.510	-0.635	-0.546	-0.324
7	-0.361	-0.298	-0.354	--	-0.391	-0.422	-0.404	-0.499	-0.335	--
8	-0.239	-0.264	-0.325	--	-0.350	-0.282	-0.296	-0.321	-0.267	-0.279
9	-0.227	-0.304	-0.493	--	-0.430	-0.300	-0.252	-0.268	-0.253	-0.252
10	-0.213	-0.369	-0.993	-1.009	-1.037	-0.403	-0.244	-0.235	-0.219	-0.221
11	-0.210	-0.301	-0.460	-0.553	-0.630	-0.393	-0.226	-0.194	-0.188	-0.181
12	-0.179	-0.204	-0.233	-0.226	-0.296	-0.249	-0.177	-0.156	-0.152	-0.128
13	-0.143	-0.138	-0.143	-0.124	-0.154	-0.153	-0.124	-0.109	-0.092	-0.081
14	-0.102	-0.085	-0.080	-0.066	-0.079	-0.083	-0.063	-0.059	-0.041	-0.021
15	-0.069	-0.038	-0.045	-0.037	-0.032	-0.054	-0.035	-0.028	-0.023	0.001

Incidence: 9.6 deg.										
RMS Deviation: 0.014										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.170	-1.411	1.267	-0.677	-0.722	-0.412	-0.734	-1.222	-1.746	--
2	-1.148	-1.840	-0.832	-0.710	-0.692	-0.716	-0.845	-1.012	-1.378	-2.406
3	-1.136	-1.485	-0.843	-0.749	-0.693	-0.713	-0.846	-1.006	-1.380	--
4	-1.122	-1.294	-0.859	-0.796	-0.766	-0.717	-0.832	-0.991	-1.378	-1.717
5	-1.079	-0.715	-0.811	--	-0.799	-0.739	-0.819	-0.869	-1.387	-0.409
6	-0.961	-0.485	-0.746	--	-0.781	-0.727	-0.803	-0.926	-1.254	-0.294
7	-0.746	-0.393	-0.701	--	-0.724	-0.710	-0.766	-0.872	-0.961	--
8	-0.435	-0.326	-0.599	--	-0.671	-0.691	-0.674	-0.732	-0.812	-0.376
9	-0.321	-0.327	-0.512	--	-0.767	-0.802	-0.640	-0.656	-0.667	-0.344
10	-0.283	-0.375	-0.706	-0.904	-1.000	-0.517	-0.436	-0.443	-0.527	-0.305
11	-0.282	-0.374	-0.480	-0.538	-0.656	-0.590	-0.352	-0.321	-0.203	-0.254
12	-0.262	-0.315	-0.359	-0.389	-0.436	-0.329	-0.302	-0.217	-0.168	-0.188
13	-0.222	-0.253	-0.276	-0.289	-0.312	-0.282	-0.217	-0.158	-0.106	-0.130
14	-0.180	-0.189	-0.204	-0.213	-0.225	-0.214	-0.157	-0.101	-0.054	-0.056
15	-0.140	-0.144	-0.177	-0.192	-0.187	-0.180	-0.125	-0.075	-0.026	-0.026

Incidence: 12.6 deg.										
RMS Deviation: 0.020										
Tan	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-1.323	-1.532	1.180	-0.776	-0.754	-0.524	-0.929	-1.331	-1.518	--
2	-1.319	-1.960	-0.993	-0.817	-0.728	-0.757	-0.895	-1.024	-1.473	-2.580
3	-1.316	-1.789	-0.994	-0.835	-0.737	-0.754	-0.886	-1.027	-1.466	--
4	-1.321	-1.816	-1.034	-0.880	-0.756	-0.771	-0.883	-1.024	-1.445	-2.485
5	-1.307	-1.082	-1.061	--	-0.805	-0.786	-0.870	-1.001	-1.407	-0.770
6	-1.291	-0.687	-1.051	--	-0.875	-0.808	-0.867	-0.935	-1.354	-0.472
7	-1.134	-0.487	-1.051	--	-0.850	-0.821	-0.846	-0.852	-1.241	--
8	-0.727	-0.370	-0.757	--	-0.876	-0.774	-0.802	-0.867	-0.868	-0.467
9	-0.463	-0.373	-0.584	--	-0.725	-0.640	-0.693	-0.743	-0.571	-0.420
10	-0.398	-0.410	-0.624	-0.666	-0.722	-0.620	-0.562	-0.586	-0.392	-0.370
11	-0.315	-0.407	-0.550	-0.618	-0.634	-0.608	-0.446	-0.431	-0.290	-0.209
12	-0.322	-0.459	-0.484	-0.510	-0.516	-0.500	-0.291	-0.349	-0.223	-0.231
13	-0.306	-0.404	-0.415	-0.417	-0.411	-0.426	-0.335	-0.272	-0.155	-0.164
14	-0.279	-0.342	-0.336	-0.350	-0.351	-0.348	-0.286	-0.225	-0.101	-0.024
15	-0.227	-0.293	-0.315	-0.291	-0.313	-0.320	-0.255	-0.186	-0.092	-0.051

Incidence: -12.4 deg.

RMS Deviation: 0.015

Tan	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow 10
1	-0.886	-0.867	-0.837	-0.888	-1.002	-1.107	-1.308	-1.265	-1.484	--
2	0.629	0.661	0.665	0.690	0.709	0.709	0.709	0.583	0.687	0.740
3	0.552	0.601	0.608	0.639	0.645	0.656	0.647	0.586	0.610	--
4	0.444	0.502	0.497	0.544	0.552	0.559	0.549	0.452	0.485	0.559
5	0.306	0.369	0.376	0.416	0.425	0.434	0.429	0.226	0.263	0.413
6	0.218	0.286	0.311	0.334	0.341	0.349	0.363	0.161	-0.056	0.342
7	0.150	0.221	0.239	0.266	0.279	0.292	0.318	0.331	-0.040	--
8	0.058	0.125	0.153	0.169	0.193	0.203	0.220	0.356	0.362	0.204
9	-0.008	0.049	0.059	0.101	0.112	0.130	0.145	0.191	0.220	0.154
10	-0.049	-0.006	-0.003	0.047	0.053	0.070	0.092	0.103	0.129	0.109
11	-0.096	-0.048	-0.027	0.008	0.025	0.032	0.038	0.066	0.071	0.075
12	-0.125	-0.083	-0.055	-0.030	-0.025	-0.007	0.004	0.023	0.030	0.057
13	-0.156	-0.123	-0.117	-0.069	-0.056	-0.040	-0.037	-0.017	0.011	0.031
14	-0.224	-0.204	-0.164	-0.111	-0.108	-0.082	-0.078	-0.078	-0.025	0.007
15	-0.275	-0.218	-0.183	-0.130	-0.087	-0.111	-0.113	-0.119	-0.075	-0.012

Incidence: -9.9 deg.

RMS Deviation: 0.007

Tan	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow 10
1	-0.781	-0.935	-0.948	-1.011	-1.135	-1.293	-1.307	-1.162	-1.351	--
2	0.636	0.668	0.677	0.671	0.689	0.684	0.682	0.645	0.662	0.706
3	0.520	0.576	0.583	0.593	0.599	0.609	0.592	0.527	0.560	--
4	0.404	0.464	0.462	0.487	0.495	0.502	0.492	0.395	0.432	0.485
5	0.269	0.335	0.339	0.360	0.370	0.377	0.375	0.189	0.224	0.349
6	0.187	0.254	0.280	0.282	0.289	0.298	0.315	0.143	-0.052	0.288
7	0.125	0.197	0.218	0.219	0.235	0.248	0.273	0.309	-0.025	--
8	0.048	0.116	0.141	0.134	0.161	0.169	0.183	0.301	0.331	0.162
9	0.000	0.051	0.060	0.078	0.091	0.106	0.125	0.165	0.188	0.122
10	-0.026	0.012	0.014	0.038	0.047	0.059	0.077	0.095	0.115	0.087
11	-0.059	-0.020	0.001	0.012	0.027	0.034	0.044	0.066	0.070	0.061
12	-0.072	-0.038	-0.013	-0.010	-0.007	0.011	0.025	0.039	0.042	0.056
13	-0.085	-0.057	-0.055	-0.031	-0.018	-0.008	0.001	0.016	0.035	0.041
14	-0.124	-0.103	-0.075	-0.048	-0.042	-0.026	-0.015	-0.015	0.014	0.030
15	-0.140	-0.104	-0.074	-0.047	-0.013	-0.034	-0.028	-0.040	-0.014	0.020

Incidence: -7.5 deg.

RMS Deviation: 0.011

Tan	Pow 1	Pow 2	Pow 3	Pow 4	Pow 5	Pow 6	Pow 7	Pow 8	Pow 9	Pow 10
1	-0.834	-1.216	-1.284	-1.479	-1.628	-1.761	-1.991	-1.169	-1.606	--
2	0.638	0.667	0.672	0.657	0.669	0.654	0.650	0.583	0.611	0.625
3	0.490	0.549	0.550	0.561	0.558	0.561	0.541	0.457	0.489	--
4	0.371	0.424	0.417	0.444	0.444	0.442	0.431	0.335	0.361	0.399
5	0.233	0.293	0.290	0.311	0.316	0.317	0.308	0.172	0.177	0.279
6	0.157	0.214	0.239	0.238	0.240	0.241	0.251	0.137	-0.024	0.231
7	0.106	0.162	0.178	0.177	0.187	0.196	0.213	0.279	0.010	--
8	0.039	0.090	0.112	0.101	0.123	0.127	0.131	0.192	0.250	0.115
9	-0.005	0.036	0.040	0.054	0.061	0.074	0.084	0.106	0.125	0.079
10	-0.023	0.005	0.001	0.023	0.027	0.035	0.045	0.056	0.058	0.049
11	-0.046	-0.016	-0.002	0.007	0.017	0.020	0.023	0.040	0.035	0.032
12	-0.050	-0.020	-0.005	-0.006	-0.004	0.006	0.012	0.025	0.019	0.032
13	-0.046	-0.027	-0.028	-0.012	-0.007	-0.001	0.001	0.011	0.024	0.030
14	-0.058	-0.047	-0.024	-0.008	-0.018	-0.007	-0.004	-0.005	0.017	0.029
15	-0.053	-0.021	0.001	0.011	0.024	-0.007	-0.003	-0.016	-0.001	0.027

Incidence: -5.0 deg.										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.933	-1.074	-1.473	-1.475	-1.471	-1.267	-1.711	-1.815	-2.440	--
2	0.601	0.634	0.629	0.587	0.585	0.705	0.560	0.540	0.547	0.529
3	0.431	0.486	0.476	0.473	0.461	0.475	0.445	0.414	0.415	--
4	0.309	0.359	0.340	0.357	0.352	0.340	0.337	0.292	0.295	0.292
5	0.188	0.229	0.217	0.234	0.232	0.229	0.223	0.152	0.144	0.144
6	0.118	0.157	0.152	0.170	0.160	0.166	0.168	0.121	0.096	0.161
7	0.074	0.111	0.128	0.119	0.122	0.128	0.133	0.080	0.060	--
8	0.029	0.052	0.072	0.055	0.069	0.072	0.064	0.035	0.125	0.068
9	-0.012	0.011	0.065	0.019	0.025	0.030	0.030	0.041	0.043	0.025
10	-0.028	-0.013	-0.021	-0.021	-0.002	0.002	0.005	0.000	0.014	0.012
11	-0.044	-0.024	-0.017	-0.007	-0.000	-0.003	-0.004	0.007	-0.004	0.004
12	-0.039	-0.021	-0.012	-0.010	-0.014	-0.007	-0.003	0.001	-0.001	0.015
13	-0.028	-0.017	-0.025	-0.002	-0.005	-0.000	-0.005	0.002	0.003	0.020
14	-0.026	-0.020	-0.005	0.005	-0.002	0.002	0.003	0.011	0.015	0.031
15	-0.008	0.012	0.023	0.033	0.041	0.007	0.006	0.006	0.006	0.035

Incidence: -2.5 deg.										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.556	-0.855	-0.666	-0.742	-0.566	-1.261	-0.752	-0.517	-0.328	--
2	0.473	0.457	0.459	0.367	0.375	0.353	0.357	0.317	0.342	0.328
3	0.277	0.229	0.216	0.293	0.274	0.250	0.251	0.233	0.235	--
4	0.173	0.192	0.181	0.201	0.193	0.193	0.161	0.143	0.151	0.156
5	0.079	0.101	0.085	0.104	0.106	0.103	0.096	0.054	0.038	0.085
6	0.027	0.050	0.100	0.050	0.020	0.055	0.057	0.073	-0.064	0.053
7	0.007	0.021	0.039	0.025	0.033	0.031	0.031	0.157	0.036	--
8	-0.027	-0.007	-0.009	-0.019	-0.001	-0.005	-0.012	-0.034	-0.021	-0.000
9	-0.052	-0.037	-0.046	-0.037	-0.031	-0.022	-0.034	-0.025	-0.033	-0.025
10	-0.054	-0.040	-0.057	-0.042	-0.044	-0.040	-0.048	-0.043	-0.042	-0.038
11	-0.063	-0.049	-0.044	-0.039	-0.027	-0.032	-0.046	-0.033	-0.045	-0.038
12	-0.048	-0.033	-0.031	-0.032	-0.024	-0.032	-0.032	-0.024	-0.042	-0.016
13	-0.029	-0.022	-0.024	-0.019	-0.010	-0.010	-0.021	-0.015	-0.013	-0.002
14	-0.017	-0.012	-0.006	0.004	-0.004	-0.002	-0.006	-0.007	0.003	0.017
15	0.010	0.021	0.031	0.027	0.017	0.010	0.004	0.002	0.002	0.028

Incidence: -0.2 deg.										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.653	0.639	0.645	0.653	0.671	0.625	0.721	0.655	0.679	--
2	0.067	0.060	0.053	-0.059	-0.049	-0.062	-0.029	0.016	0.018	0.050
3	-0.015	-0.005	-0.010	-0.002	0.002	0.010	0.006	0.003	0.000	--
4	-0.033	-0.012	-0.034	-0.014	-0.006	-0.011	-0.007	-0.016	-0.023	0.001
5	-0.060	-0.049	-0.103	-0.052	-0.049	-0.048	-0.048	-0.049	-0.072	-0.033
6	-0.072	-0.066	-0.019	-0.065	-0.066	-0.067	-0.063	0.003	-0.136	-0.045
7	-0.075	-0.074	-0.062	-0.082	-0.075	-0.070	-0.078	0.074	-0.009	--
8	-0.081	-0.082	-0.073	-0.100	-0.085	-0.086	-0.101	-0.211	-0.154	-0.073
9	-0.089	-0.091	-0.101	-0.098	-0.097	-0.097	-0.103	-0.113	-0.113	-0.086
10	-0.081	-0.090	-0.098	-0.091	-0.098	-0.097	-0.104	-0.104	-0.099	-0.090
11	-0.080	-0.079	-0.076	-0.075	-0.080	-0.080	-0.093	-0.078	-0.090	-0.087
12	-0.060	-0.056	-0.052	-0.059	-0.063	-0.064	-0.059	-0.061	-0.073	-0.048
13	-0.036	-0.035	-0.046	-0.037	-0.034	-0.032	-0.044	-0.041	-0.035	-0.026
14	-0.013	-0.025	-0.012	-0.004	-0.016	-0.012	-0.017	-0.020	-0.009	0.004
15	0.018	0.019	0.030	0.032	0.042	0.002	-0.003	-0.005	-0.007	0.018

23 TRAPEZOIDAL HOLE 04535,2530

Incidence: 2.3 Sec.										
RMS Deviation: 0.005										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	0.164	0.238	-0.244	-0.143	-0.137	0.421	0.454	0.363	0.273	--
2	-0.501	-0.505	-0.523	-0.540	-0.630	-0.602	-0.544	-0.539	-0.455	-0.29
3	-0.366	-0.380	-0.377	-0.338	-0.323	-0.290	-0.271	-0.244	-0.244	--
4	-0.263	-0.252	-0.311	-0.254	-0.238	-0.230	-0.205	-0.126	-0.194	-0.16
5	-0.202	-0.214	-0.254	-0.211	-0.183	-0.200	-0.184	-0.135	-0.186	-0.14
6	-0.178	-0.199	-0.151	-0.184	-0.173	-0.165	-0.177	-0.035	-0.195	-0.12
7	-0.155	-0.171	-0.168	-0.192	-0.176	-0.172	-0.174	-0.011	-0.054	--
8	-0.135	-0.152	-0.147	-0.174	-0.153	-0.162	-0.181	-0.477	-0.292	-0.13
9	-0.127	-0.147	-0.153	-0.156	-0.154	-0.155	-0.168	-0.199	-0.189	-0.14
10	-0.110	-0.127	-0.137	-0.135	-0.143	-0.140	-0.151	-0.152	-0.146	-0.14
11	-0.101	-0.108	-0.107	-0.110	-0.107	-0.111	-0.124	-0.116	-0.125	-0.12
12	-0.075	-0.070	-0.076	-0.023	-0.090	-0.086	-0.099	-0.087	-0.100	-0.080
13	-0.046	-0.051	-0.060	-0.052	-0.055	-0.055	-0.061	-0.059	-0.052	-0.04
14	-0.021	-0.025	-0.018	-0.015	-0.022	-0.021	-0.026	-0.027	-0.019	-0.00
15	0.015	0.017	0.023	0.025	0.032	0.002	-0.002	-0.000	-0.013	0.010

Incidence: 4.7 Sec.										
RMS Deviation: 0.014										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.678	-0.402	-1.122	-1.384	-1.332	-0.437	-1.069	-1.487	-1.653	--
2	-1.126	-1.099	-1.215	-0.915	-1.439	-1.171	-1.093	-0.854	-0.233	-0.529
3	-0.988	-1.035	-1.197	-1.415	-1.319	-0.955	-0.652	-0.543	-0.553	--
4	-0.808	-0.875	-1.053	-0.387	-0.589	-0.554	-0.450	-0.379	-0.399	-0.346
5	-0.428	-0.460	-0.307	-0.364	-0.332	-0.337	-0.343	-0.226	-0.306	-0.271
6	-0.293	-0.310	-0.239	-0.319	-0.312	-0.309	-0.303	-0.077	-0.252	-0.219
7	-0.239	-0.257	-0.254	-0.293	-0.279	-0.294	-0.284	-0.098	-0.193	--
8	-0.196	-0.226	-0.218	-0.253	-0.235	-0.252	-0.292	-0.575	-0.484	-0.208
9	-0.170	-0.201	-0.215	-0.219	-0.219	-0.225	-0.244	-0.394	-0.295	-0.206
10	-0.152	-0.169	-0.187	-0.134	-0.128	-0.184	-0.203	-0.205	-0.203	-0.191
11	-0.139	-0.142	-0.144	-0.143	-0.142	-0.151	-0.163	-0.152	-0.152	-0.165
12	-0.112	-0.106	-0.105	-0.112	-0.115	-0.118	-0.117	-0.109	-0.125	-0.110
13	-0.079	-0.074	-0.067	-0.074	-0.074	-0.089	-0.079	-0.075	-0.071	-0.065
14	-0.046	-0.013	-0.035	-0.025	-0.034	-0.033	-0.032	-0.036	-0.025	-0.019
15	-0.019	0.009	0.005	0.013	0.023	-0.011	-0.007	-0.013	-0.019	0.011

Incidence: 7.2 Sec.										
RMS Deviation: 0.031										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.691	-0.326	-1.253	-1.341	-1.386	-0.930	-0.846	-0.676	-0.975	--
2	-0.843	-1.172	-1.284	-1.391	-1.347	-1.521	-1.284	-0.756	-1.022	-2.044
3	-0.833	-1.118	-1.270	-1.386	-1.362	-1.516	-1.335	-0.802	-1.004	--
4	-0.829	-1.118	-1.278	-1.282	-1.348	-1.385	-1.209	-0.796	-1.003	-0.536
5	-0.799	-1.003	-1.036	-0.987	-0.962	-0.818	-0.643	-0.645	-0.809	-0.412
6	-0.709	-0.819	-0.740	-0.752	-0.614	-0.513	-0.422	-0.453	-0.521	-0.331
7	-0.593	-0.621	-0.538	-0.516	-0.444	-0.405	-0.430	-0.434	-0.250	--
8	-0.393	-0.361	-0.326	-0.327	-0.319	-0.340	-0.405	-0.517	-0.564	-0.293
9	-0.282	-0.268	-0.274	-0.275	-0.282	-0.291	-0.335	-0.425	-0.418	-0.285
10	-0.224	-0.215	-0.235	-0.234	-0.239	-0.250	-0.271	-0.284	-0.302	-0.256
11	-0.192	-0.180	-0.183	-0.188	-0.185	-0.203	-0.212	-0.199	-0.223	-0.220
12	-0.161	-0.142	-0.141	-0.145	-0.150	-0.157	-0.157	-0.155	-0.154	-0.153
13	-0.133	-0.107	-0.115	-0.105	-0.103	-0.108	-0.113	-0.102	-0.098	-0.099
14	-0.097	-0.075	-0.065	-0.054	-0.060	-0.059	-0.062	-0.064	-0.048	-0.038
15	-0.073	-0.038	-0.026	-0.018	-0.006	-0.034	-0.037	-0.040	-0.035	-0.005

21. TRAP-TO-TRAP TIME 045 0,1500

Incidence: 8.6 sec.										
Standard Deviation: 0.016										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.696	-0.803	-1.050	-1.134	-1.215	-1.120	-1.047	-0.930	-1.348	--
2	-0.700	-0.805	-0.880	-1.107	-1.230	-1.301	-1.159	-0.903	-1.124	-1.899
3	-0.700	-0.892	-1.011	-1.120	-1.230	-1.447	-1.214	-0.920	-1.121	--
4	-0.690	-0.879	-0.888	-1.133	-1.211	-1.410	-1.220	-0.910	-1.102	-1.599
5	-0.700	-0.870	-0.863	-1.101	-1.211	-1.250	-1.103	-1.075	-1.052	-0.502
6	-0.698	-0.840	-0.824	-1.021	-1.175	-1.142	-1.123	-0.940	-0.800	-0.302
7	-0.687	-0.790	-0.860	-0.960	-1.015	-0.805	-0.825	-0.822	-0.504	--
8	-0.634	-0.690	-0.744	-0.702	-0.715	-0.610	-0.510	-0.472	-1.030	-0.360
9	-0.554	-0.585	-0.613	-0.508	-0.431	-0.151	-0.270	-0.535	-0.624	-0.353
10	-0.462	-0.471	-0.450	-0.120	-0.200	-0.251	-0.314	-0.412	-0.450	-0.320
11	-0.384	-0.375	-0.260	-0.210	-0.200	-0.271	-0.258	-0.302	-0.333	-0.278
12	-0.307	-0.200	-0.260	-0.230	-0.200	-0.210	-0.100	-0.210	-0.237	-0.205
13	-0.263	-0.211	-0.205	-0.170	-0.157	-0.154	-0.140	-0.155	-0.152	-0.143
14	-0.210	-0.155	-0.142	-0.105	-0.085	-0.080	-0.091	-0.100	-0.085	-0.073
15	-0.157	-0.120	-0.105	-0.070	-0.045	-0.060	-0.065	-0.074	-0.065	-0.032

Incidence: 12.0 sec.										
Standard Deviation: 0.013										
Tap	Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	Row 7	Row 8	Row 9	Row 10
1	-0.703	-0.870	-0.801	-0.916	-1.000	-1.000	-1.300	-1.354	-1.537	--
2	-0.716	-0.830	-0.875	-0.930	-1.050	-1.150	-1.257	-1.074	-1.242	-2.031
3	-0.710	-0.837	-0.873	-0.910	-1.040	-1.100	-1.282	-1.000	-1.220	--
4	-0.712	-0.853	-0.800	-0.917	-1.010	-1.104	-1.313	-1.141	-1.214	-2.046
5	-0.709	-0.840	-0.870	-0.920	-1.063	-1.111	-1.400	-1.331	-1.187	-1.590
6	-0.710	-0.835	-0.868	-0.927	-1.047	-1.054	-1.747	-1.315	-1.117	-0.734
7	-0.711	-0.810	-0.850	-0.900	-1.030	-1.041	-1.300	-1.180	-0.905	--
8	-0.693	-0.762	-0.801	-0.870	-0.930	-1.000	-0.520	-0.871	-1.311	-0.403
9	-0.679	-0.707	-0.754	-0.831	-0.884	-0.940	-0.434	-0.675	-0.800	-0.403
10	-0.625	-0.651	-0.695	-0.734	-0.734	-0.660	-0.410	-0.553	-0.643	-0.373
11	-0.557	-0.515	-0.600	-0.611	-0.507	-0.487	-0.360	-0.456	-0.497	-0.325
12	-0.503	-0.500	-0.510	-0.505	-0.461	-0.358	-0.310	-0.360	-0.380	-0.263
13	-0.453	-0.500	-0.424	-0.395	-0.345	-0.261	-0.257	-0.291	-0.274	-0.195
14	-0.410	-0.500	-0.342	-0.294	-0.244	-0.193	-0.192	-0.214	-0.180	-0.116
15	-0.400	-0.500	-0.291	-0.257	-0.191	-0.142	-0.162	-0.176	-0.147	-0.070