

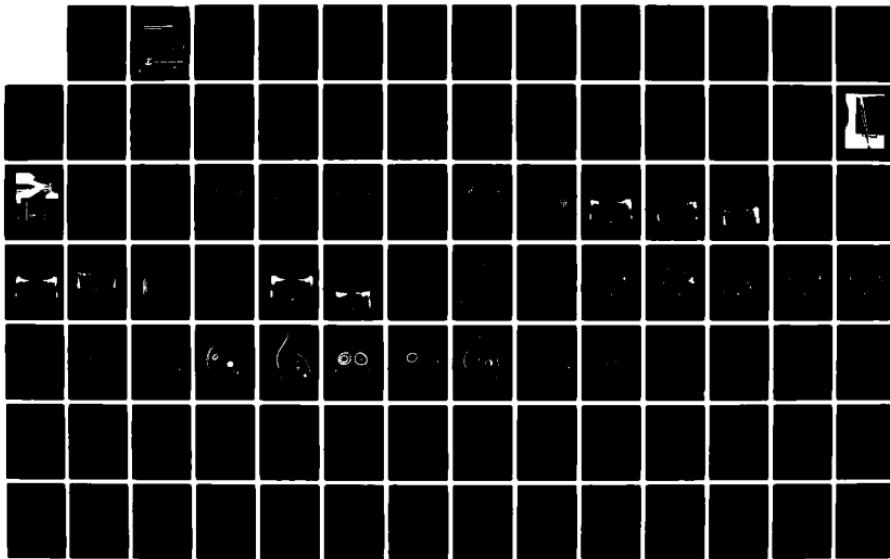
AD-A123 824 VORTEX ASYMMETRY DEVELOPMENT ON A TANGENT OGIVE(U)
NAVAL SURFACE WEAPONS CENTER SILVER SPRING MD
W J YANTA ET AL. OCT 82 NSWC/TR-82-394 SBI-AD-F500 119

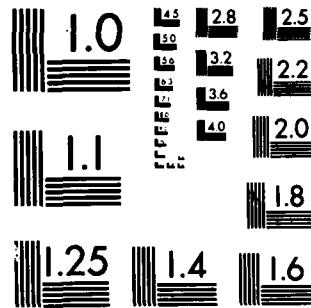
1/2

F/G 20/4

NL

UNCLASSIFIED





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

ADA 123924

VORTEX AERODYNAMICS DEVELOPMENT ON A TALL-HEELED COVE

BY WILLIAM J. YANTA, ANDREW B. WARDLAW, JR.
DANIEL STERNKLAAR

RESEARCH AND TECHNOLOGY DEPARTMENT

OCTOBER 1982

Approved for public release, distribution unlimited.

STIC
SELECTED
JAN 28 1983
A



NAVAL SURFACE WEAPONS CENTER

Dahlgren, Virginia 22448 • Silver Spring, Maryland 20910

89 01 28 036

FILE COPY

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NSWC TR 82-394	2. GOVT ACCESSION NO. AD-A123 924	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) VORTEX ASYMMETRY DEVELOPMENT ON A TANGENT OGIVE		5. TYPE OF REPORT & PERIOD COVERED
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) William J. Yanta Andrew B. Wardlaw, Jr. Daniel Sternklar		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Surface Weapons Center (Code K24) White Oak Silver Spring, MD 20910		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 61153N; WR02302; WR02302; R44AA
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE October 1982
		13. NUMBER OF PAGES 137
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		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) High Angle of Attack Vortex Shedding Side Force Separated Flow		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A rigidly supported tangent ogive model has been tested in low turbulent, incompressible flow at an incidence of 45°. A constant streamwise Reynolds number of 1.5 (10^5) was maintained which produced laminar boundary layer separation. The sharp nose tip was replaced in some tests with a 10% spherically blunted one. In the sharp nose experiments it was found necessary to stabilize the flow field by adding a small trip. Both unsteady surface pressures and flow field velocities in the crossflow plane were		

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

measured, the latter with a two component Laser Doppler Velocimeter. The flow field in the vicinity of the leeside of the model surface, including the primary separation region was examined in detail. Results indicate that the flow field generally features two secondary structures on each side of the model which contain vorticity of opposite sign. Asymmetry starts with the windward crossflow plane streamline from the primary saddle point, which detaches from the body. It appears to be completed when the crossflow plane focus of the shed vortex combines with the primary saddle point. The introduction of nose bluntness is not found to fundamentally change the leeward flow field, although it does significantly reduce the level of asymmetry and the side force magnitude.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

FOREWORD

A rigidly supported tangent ogive model has been tested in low turbulent, incompressible flow at an incidence of 45° . A constant streamwise Reynolds number of $1.5(10^5)$ was maintained which produced laminar boundary layer separation. The sharp nose tip was replaced in some tests with a 10% spherically blunted one. In the sharp nose experiments it was found necessary to stabilize the flow field by adding a small trip. Both unsteady surface pressures and flow field velocities in the crossflow plane were measured, the latter with a two component Laser Doppler Velocimeter. The flow field in the vicinity of the leeside of the model surface, including the primary separation region was examined in detail. Results indicate that the flow field generally features two secondary structures on each side of the model which contain vorticity of opposite sign. Asymmetry starts with the windward crossflow plane streamline from the primary saddle point, which detaches from the body. It appears to be completed when the crossflow plane focus of the shed vortex combines with the primary saddle point. The introduction of nose bluntness is not found to fundamentally change the leeward flow field, although it does significantly reduce the level of asymmetry and the side force magnitude.

Jean M Blatstein

IRA M. BLATSTEIN
By direction

• 12

CONTENTS

<u>Chapter</u>		<u>Page</u>
1	INTRODUCTION	7
2	NOMENCLATURE	8
3	DESCRIPTION OF THE MODEL INSTRUMENTATION AND EXPERIMENT . .	9
4	INFLUENCE OF THE NOSE TRIP.	11
5	PRESSURE AND FLOW FIELD MEASUREMENTS.	12
6	DISCUSSION OF RESULTS	15
6.1	TOPOLOGICAL NOTIONS.	15
6.2	FLOW FIELD DEVELOPMENT ON THE SHARP TRIPPED MODEL. . .	16
6.3	FLOW FIELD DEVELOPMENT ON THE SHARP UNTRIPPED MODEL. .	18
6.4	FLOW FIELD DEVELOPMENT ON THE BLUNTED MODEL.	19
7	ASYMMETRY FORMATION	20
8	SUMMARY AND CONCLUSIONS	22
9	REFERENCES.	68
Appendix A	VELOCITY MEASUREMENTS	A-1
Appendix B	SURFACE PRESSURE MEASUREMENTS	B-1

ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1	TANGENT OGIVE PRESSURE MODEL AND SUPPORT	24
2	SCHEMATIC OF THE LASER DOPPLER VELOCIMETER	25
3	PRESSURE MODEL MOUNTED IN THE WIND TUNNEL.	26
4	NOSE TRIP MADE FROM .45mm GRIT	27
5	C_y AS A FUNCTION OF MODEL ROLL ANGLE	28
6	AXIAL LOCATION OF $C_{y_{peak}}$ AND $C_y = 0$ AS A FUNCTION OF $C_{y_{peak}}$	29
7	CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE SHARP, TRIPPED MODEL	30
8	CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE BLUNT MODEL	31
9	CIRCUMFERENTIAL PRESSURE DISTRIBUTION ON THE SHARP, UNTRIPPED MODEL.	32
10	MEASURED CROSSFLOW PLANE VELOCITY VECTORS ON THE SHARP, TRIPPED MODEL	34
11	MEASURED CROSSFLOW PLANE VELOCITY VECTORS ON THE SHARP, UNTRIPPED MODEL.	41
12	MEASURED CROSSFLOW PLANE VELOCITY VECTORS ON THE BLUNT MODEL	45
13	ISOVORTICITY CONTOURS AND AREAS OF HIGH VELOCITY FLUCTUATIONS ON THE SHARP TRIPPED MODEL	49
14	ISOVORTICITY CONTOURS AND AREAS OF HIGH VELOCITY FLUCTUATIONS ON THE SHARP, UNTRIPPED MODEL	53
15	ISOVORTICITY CONTOURS AND AREAS OF HIGH VELOCITY FLUCTUATIONS ON THE SHARP, UNTRIPPED MODEL	54
16	STREAMLINES ON THE TRIPPED MODEL	56
17	STREAMLINES ON THE SHARP UNTRIPPED MODEL	60
18	STREAMLINES ON THE BLUNT MODEL	61
19	TOPOLOGICAL SKETCH OF ASYMMETRIC FLOW DEVELOPMENT	63

TABLES

<u>Table</u>		<u>Page</u>
1	WIND TUNNEL TESTS IN WHICH LDV DATA WAS TAKEN	65
2	CIRCULATION CONTAINED IN REGIONS P, S1 AND S2	66
3	SIDE FORCE VARIATION	67

CHAPTER 1

INTRODUCTION

At incidences greater than a few degrees, the flow on the leeside of a slender configuration separates and rolls up to form a pair of symmetric vortices. With increasing angle of attack, the pattern becomes asymmetric, even on axisymmetric bodies. In subsonic and transonic flow these vortices have a dominant and nonlinear influence on vehicle aerodynamics.

The asymmetric vortex pattern which develops on a circular body at high angles of attack has been extensively studied.¹⁻¹² In the subsonic flow regime this flow produces a large side force which has been found difficult to repeat experimentally. Even on axisymmetric bodies, the side force varies with changes in the model roll orientation.^{13,14} The non-repeatability appears to be primarily due to the occurrence of a multiplicity of stable vortex patterns. Such patterns have been documented by the authors in Ref. 12. The different patterns are most likely triggered by model irregularities on the order of the machining tolerance which occur in the vicinity of the nose tip. Unsteadiness can also contribute to the lack of repeatability problem. Free stream turbulence causes the vortex pattern to jump from one stable configuration to another.¹³

In the present study, crossflow plane velocities and surface pressures have been measured on sharp and slightly blunted tangent ogive models at an incidence of 45°, under the condition of laminar separation. The sharp model was tested with and without a nose trip, which was designed to stabilize the flow field. Results obtained on all runs are presented in this report. This includes a listing of the measured velocities and surface pressures which are tabulated in Appendices A and B respectively, and an analysis of the data which is discussed in the main body of the report.

The data presented in this report differs from previously available information in that it probes in detail the secondary flow regions near the model surface as well as outer or primary areas of the crossflow plane. The resulting measurements allow the presence of secondary vortices and shear layers to be determined. Further analysis is carried out by integrating the crossflow plane velocities to determine the crossflow plane streamlines. The resulting streamline patterns are interpreted in light of topological considerations. From this point of view it is possible to gain an alternate perspective on the onset of asymmetry and the process of vortex shedding.

CHAPTER 2

NOMENCLATURE

\bar{C}_p	average value of $(p-p_\infty)/(q\sin^2\alpha)$ for 100 data points taken at each visit to a pressure tap
C_y	$F_y/(Dq\sin^2\alpha)$
C_{ypeak}	maximum C_y value.
D	model diameter (5.715 cm)
F_y	side force per unit length
q	free stream dynamic pressure
Re_s	Reynolds number based on freestream properties and $D/\sin\alpha$
U_∞	freestream velocity
v, w	velocity components in y, z directions
x, y, z	cartesian coordinates (see Figure 1)
α	angle of attack
Γ	circulation (m^2/sec)
λ	$\Gamma/(\pi D U_\infty \sin\alpha)$ (sec^{-1})
ϕ	circumferential angle (windward is $\phi = 180^\circ$)
σ_{C_p}	standard deviation of C_p
σ_{V_c}	$\sqrt{\sigma_v^2 + \sigma_w^2}$, where σ_v and σ_w are the standard deviations of v and w respectively.
Φ	model roll orientation
ω	$[\Gamma/unit\ area] D/(\pi U_\infty \sin\alpha)$

CHAPTER 3

DESCRIPTION OF THE MODEL, INSTRUMENTATION AND EXPERIMENT

The experimental model shown in Figure 1 was a 5.715 cm in diameter tangent ogive with a nose fineness of 3 and an afterbody length of 9.6 calibers. The sharp nose tip could be unscrewed and replaced with a 10% blunted (spherical) nose tip. Six cross sectional stations were each instrumented with 24 pressure taps located circumferentially at intervals of 15°. Pressures were monitored using three internally mounted $\pm .1$ psi Setra differential pressure transducers. Each of these devices was connected to a 48 port internally mounted Scanivalve allowing all 144 pressure taps to be sampled. In order to maximize the response of the pressure measuring system the lengths of the tubes connecting pressure taps to Scanivalves were minimized. Pretest calibrations indicated that pressure fluctuations on the order of 500 Hz could be measured.

The crossflow planes were surveyed using a two dimensional, two color backscatter LDV system shown schematically in Figure 2. In order to adequately survey the entire leeward flow field, the model was mounted on the tunnel wall opposite the window through which the LDV measurements were made. The refraction resulting from the oblique passage of the laser beams through the glass was compensated for by optically aligning the focal volumes of the two different components inside the tunnel. Off-axis collecting optics were used to minimize the focal volume size which was estimated to have a diameter of .37mm and a length of 1.47mm. Directional ambiguity for both components were removed with the aid of Bragg cells. A coincident circuit was used to insure that both components of velocity were measured within a pre-selected time window. In general most of the optical and electrical components for the LDV system were manufactured by TSI (Thermo-Systems Inc.). This included beam splitters, color separators, photomultiplier tubes, Bragg cells and counter type signal processors. Scattering particules consisted of olive oil atomized to a 1.5 micron diameter by a Laskin nozzle. The aerosol was injected upstream of the turbulence damping screens to minimize flow disturbance.

Experiments were conducted in the Naval Academy 1m by 1.3m subsonic tunnel which has a nominal free-stream turbulence level of 0.1%. Tests were restricted to an incidence of 45° and free-stream velocity of 24m/sec which produced an Re_s of $1.5(10^5)$. As discussed in Ref. 15, this resulted in a laminar boundary layer separation. The wind tunnel model was mounted on the side of the wind tunnel wall illustrated in Figure 3. To increase the rigidness of the mounting, four support wires were attached to the model at a distance of 12.6 calibers from the nose tip.

Pressure alone tests were initially made on the sharp untripped model at the twelve roll angles; 0°, 30°, 60°... 330°. Measurements were integrated to determine the magnitude of the normal and side forces. The model was then positioned to a roll orientation featuring a maximum side force and detailed flow

surveys were initiated. Unfortunately, the flow field exhibited a tendency to change levels of asymmetry during a test and side force levels were also not repeatable from test to test. Accordingly, a trip was added to the model nose tip to stabilize the flow field. The trip, shown in Figure 4 consisted of 0.45mm grit glued to the model surface near the nose in a strip 5mm long and 1mm wide. Pressure alone tests were then repeated to determine a roll orientation which produced high side force levels and flow field surveys were than conducted at this roll angle. A final series of tests were also made on the blunted model using a roll orientation which produced the highest observed blunt model side force. An outline of tests in which LDV data was taken is provided in Table 1.

The surface pressure data were acquired three ports at a time using the internally mounted Scanivalves and transducer arrangement. At each pressure port 100 samples were taken which allowed both pressure mean and standard deviation values to be determined. The LDV velocity data were measured by focusing the system on a specific point in the flow field. Velocity measurements were acquired whenever both v and w components were measured within a 100 μ sec. window. Here 100 samples were also taken at each point in the flow field allowing both the mean and standard deviation values to be calculated. In the secondary flow region near the leeside of the model surface, measurements were taken with a y, z spacing which varied from .76mm near the model nose tip to 1.27mm on the afterbody crossflow planes. This spacing was increased by a factor of 3 to 4 in the outer portions of the flow field. Pressure alone tests could be completed in about 10 minutes while the LDV surveys which measured velocities at as many as 950 points in a crossflow plane lasted up to three hours.

CHAPTER 4

INFLUENCE OF THE NOSE TRIP

During the long experiments in which crossflow plane velocities were measured, the flow field occasionally changed level of asymmetry. This was determined by monitoring the surface pressures throughout the tests. Measured variations in the side force during the two sharp, untripped model tests are shown in Table 1. The level of variation was felt to be unacceptably large, hence the previously described trip was added to the model nose. Trips applied near the model nose have been successfully used by other investigators to stabilize the flow ^{eld}¹⁶. The magnitude of the peak local side force, C_y _{peak}, with and without the trip in place is illustrated in Figure 5. The addition of the trip usually ^{ip} ~~eased~~ ^{reduced} C_y _{peak}, particularly at roll orientations which featured low side force ^{peak} ~~in~~ in the untripped case. The grit trip also was found to produce a side force ^{peak} ~~which~~ which was repeatable throughout long experiments. In successive experiments the repeatability degraded somewhat as can be seen in Appendix B, however ^{peak} ~~the~~ ^{peak} was still well reproduced. Application of a tape trip with a similar planform was found to produce a more drastic effect which included reversal of the side force direction. This is more in keeping with the results of Ref. 16 where a tape trip was found to control the side force direction except at roll orientations which placed the trip near the windward plane.

Although addition of the trip stabilizes the flow field, it is relevant to ask whether the presence of the trip alters the fundamental character of the flow field. It was noted in Ref. 12 that a side force characteristic which appears repeatable from test to test and facility to facility is the relation between the axial location at which C_y _{peak} or $C_y = 0$ occur and the magnitude of C_y _{peak}. If the character of the flow field is unchanged by the addition of the trip, the tripped data should reproduce the previously observed relationship. As is shown in Figure 6, data taken on the untripped model from both this study and Ref. 12 are in reasonable agreement with the tripped results. This suggests that the trip locks the flow field into a pattern typical of the untripped model and does not fundamentally alter its character.

CHAPTER 5

PRESSURE AND FLOW FIELD MEASUREMENTS

Pressure coefficient and standard deviation data taken on the sharp tripped and blunt models are illustrated in Figures 7 and 8 respectively. During these experiments, results repeated reasonably well during each test and from run to run. The data provided in these two figures is representative of the sharp tripped and blunt model pressure measurements respectively. During the sharp, untripped model tests, the level of asymmetry was low and the measured side force changed during each run. In Figures 9a and 9b are illustrated the circumferential \bar{C}_p distribution corresponding to the lowest and highest side force levels encountered during runs 1 and 2.

The measured crossflow plane velocity vectors taken in the tests on the sharp untripped, sharp tripped and blunt model are illustrated in Figures 10, 11 and 12 respectively. Clearly visible in these figures are points located adjacent to the model surface where the velocity component parallel to the surface reverses direction. These locations are interpreted as attachment and separation points and are marked by an S'_a and S'_s respectively. Also marked by S'_s are the windward separation points on each side of the body whose locations are estimated using both velocity and pressure data. Evident in Figures 7 and 9 are locations where maximum values of σC_D occur. Such points are marked by P in Figures 10 to 12. Similarly, regions on the leeside of the body exhibiting large pressure gradients in Figures 7 to 9 are marked in Figures 10 to 12 by a G.

As is evident in Figures 10, 11 and 12, the crossflow plane surveys consisted of closely spaced measurements taken near the model surface and measurements taken farther from the model surface which are located a greater distance apart. Along the interface between the finely and coarsely spaced data occur points which have been probed twice; once as part of the finely spaced measurements and once as part of the coarsely spaced measurements. In Figures 10, 11 and 12 both sets of data have been plotted which provides a measure of the repeatability of the results. Near the outer edges of the crossflow plane coincident velocity measurements are generally indistinguishable, but in the vicinity of vortices a difference can often be seen (e.g. Figure 10b).

The vorticity throughout each crossflow plane is calculated by dividing the surveyed area into quadrilateral elements with corners located at points where flow field velocities are measured. The circulation associated with each element is determined from:

$$\Gamma = \oint \bar{v} \cdot \bar{ds} = 1/2 [\bar{n}_{12} \cdot (\bar{v}_1 + \bar{v}_2) + \bar{n}_{23} \cdot (\bar{v}_2 + \bar{v}_3) \\ + \bar{n}_{34} \cdot (\bar{v}_3 + \bar{v}_4) + \bar{n}_{41} \cdot (\bar{v}_4 + \bar{v}_1)] \quad (1)$$

Here \vec{n}_{ij} is the vector connecting element corners i and j while \vec{v}_i is the velocity at corner i. The computed circulation is assigned the location of the element centroid. Isovorticity contours resulting from this calculation are displayed for the sharp tripped, sharp untripped and blunt models in Figures 13, 14 and 15 respectively. Also indicated in these figures are regions of high velocity fluctuations in which the standard deviation of the crossflow velocity, σ_{V_C} , exceeds $.3U_\infty$.

A convenient method of characterizing the crossflow plane is to divide it into the regions shown in Table 2 which contain vorticity of the same sign. The circulation computed at each element in the crossflow plane is assigned to one of these regions allowing the total circulation in each region to be calculated. The few elements which do not possess a symmetric counter part with respect to the pitch plane are excluded from the summation. The outer portion of the crossflow plane is divided into two primary regions, designated by a P, which contain circulation of opposite sign. Secondary flow structure often is visible near the model surface. On each side of the model the secondary crossflow plane areas are divided into two regions, S1 and S2 which contain circulation of opposite sign. The boundaries between all three regions are somewhat subjective. Most easily determined is the dividing line between regions containing circulation of opposite sign where the zero vorticity contour provides a convenient demarcation line. The boundary between the primary and secondary regions with circulation of the same sign is taken to be the contour with the minimum vorticity value. The calculated circulation of the primary and secondary regions are provided in Table 2.

In two of the cases listed in Table 2, the strength of one of the secondary region, λ_{S1} , is marked with an asterisk. Here the surveyed portion of the flow field clearly omits areas of high vorticity and the calculated strengths is unreasonably low. These tabulated values are estimated using the known ratio of λ_{S1} left to λ_{S1} right from nearby crossflow planes and the measured value of λ_{S1} right.

It is important to note that the circulation contained in each region cannot necessarily be associated with a vortex since not all regions contain vortices. Also, in region S1, there often exists both a strong shear layer which springs from the separation point and a vortex. Here the circulation attributable to each structure cannot be determined.

Additional information concerning the structure of the flow field can be obtained by constructing the crossflow plane streamlines. A streamline can be generated by integrating the equations:

$$\frac{dy}{dt} = v \quad \frac{dz}{dt} = w \quad (2)$$

from a starting point. The starting points are selected by trial and error to highlight regions near the vortices and separation points. To evaluate Equations (2) a description of v and w throughout the surveyed portion of the crossflow plane is necessary. Such a description is constructed using a bilinear interpolating function of the form $a + by + cz + dzy$ to specify each velocity component within an element. Here a, b, c and d are constants evaluated using the measured velocities at the corners of the element. This provides a continuous description

of the velocity throughout the crossflow plane. As is noted in Refs. 18 and 19 the crossflow plane streamlines are not the projection of the three dimensional streamlines into the crossflow planes, but are instead the streamlines produced by the crossflow velocity vector field.

The streamlines determined by the above integration procedure are shown in Figures 17, 18 and 19, for the sharp tripped, sharp untripped and blunt models respectively. These figures illustrate two notable characteristics. First, streamlines originating near the estimated primary separation points do not feed into vortices but instead skirt the recirculation flow region. Second, streamlines near vortex cores often have a pronounced inwards or outwards spiral. Using the velocity measurements of Figures 10 to 12 it is possible to resolve the direction of spiral. Pronounced inwards or outwards spirals tend to occur in flow fields featuring high asymmetry. In such cases primary vortices which are clearly resolvable on adjacent crossflow planes usually retain the same direction of spiral. The more symmetric flow patterns feature vortices with poorly defined directions of spiral. Limit cycles are often observed with the direction of spiral changing across the limit cycle. In these cases it is conceivable that the presence of a spiral rather than a set of closed streamlines is a result of experimental error.

CHAPTER 6

6.1 TOPOLOGICAL NOTIONS

It has recently been suggested that the crossflow plane structure can be conveniently characterized in terms of singularities, or points where the crossflow velocity is zero.^{17,18} Several types of singularities occur in the flow fields illustrated in Figures 10, 11 and 12. Saddle singularities occur on the model surface as attachment or separation points. Also classed as saddle singularities are crossflow plane stagnation points interior to the flow field which are formed by the intersection of four streamlines, two directed towards the singularity and two directed away from it. Nodal singularities only occur off the body surface as stagnation points about which the streamlines spiral or circle. This structure is reminiscent of a vortex and in this report, the term vortex and nodal singularity will be used interchangably. For a more complete discussion of singularities, the reader is referred to references 17 and 18.

These topological notions are useful in analyzing the structure of the crossflow plane for two reasons. First such notions provide a concrete definition of several types of flow field structures. A vortex, for example, must contain a singular point. Thus the left secondary flow region depicted in Figures 10c and 16d is seen to contain a vortex and a shear layer rather than two vortices. Secondly, assuming that the crossflow plane is a continuous vector field and that singularities are limited to points, it can be proved that the following relation must exist between the number of nodes and saddles:¹⁸

$$N_v - N_s - \frac{1}{2}(N'_s) = -1 \quad (3)$$

Here N_v is the number of nodes or vortices while N'_s and N_s represent the number of saddles on and off the body surface respectively. This rule does not define crossflow plane structure but precludes certain structures. It may also point to the existence of certain flow field features which are not resolvable with the available experimental data.

The streamline integration patterns shown in Figures 16, 17 and 18 illustrate the existence of both vortices and saddle singularities throughout the surveyed crossflow planes. The primary region generally contains two vortices and a saddle point. This saddle point, which is usually located in between these vortices, is an important landmark and will be referred to as the primary saddle point. The secondary region on each side of the body often contains two vortices and a saddle point. The saddle is not always clearly visible, however satisfaction of Equation (3) mandates its existence. In other instances, only a single secondary vortex is present in this secondary region. A number of saddle points occur on the model surface. In all cases an attachment saddle is visible near the center of the model on the leeside. Also, on each side of the model a separation saddle can be seen marking the windward extend of the separation region. These attachment and separation saddles will be referred to as the rear attachment and

primary separation points respectively. When secondary vortices occur, an additional separation and attachment saddle occur on each side of the model. Not visible in the flow field surveys is a saddle of attachment which must occur on the windward side of the body, often termed the crossflow plane stagnation point.

Using the results from the streamline integrations, it is possible to construct crossflow plane topologies which contain the correct number of nodes and saddles to satisfy Equation (3). As an example, sketches of the crossflow plane topology for the sharp, tripped model are exhibited in Figure 19. The left primary vortex and primary saddle are shown as combined in Figure 19c. Inclusion of these two structures would also satisfy Equation (3).

6.2 FLOW FIELD DEVELOPMENT ON THE SHARP TRIPPED MODEL

The tabulated circulations on the surveyed crossflow planes are shown in Table 2. On each plane a net negative circulation occurs which increases in magnitude with increasing distance from the model nose. The magnitude of the net circulation increases in rough proportion to the size of the local side force coefficient. Also indicated in this table are the circulation strengths of the primary and secondary regions P, S₁ and S₂ associated with each side of the model. As expected, the largest circulation occurs in P. The circulation contained in S₁ is about half as large as that in P while that in S₂ is on the order of a tenth of that in P.

At the forward most crossflow plane probed, which is at X/D = .75, the outer edges of two primary vortices can be seen. In this crossflow plane which is illustrated in Figure 10a, the primary saddle is not fully visible, but is likely offset to the left.

The crossflow plane velocity field at an axial station of X/D = 1.3 is shown in Figure 10b and features two primary vortices but no secondary vortex structure. The vortices and primary saddle point appear to be symmetrically located; however, the rear attachment point, marked by an S_a' is offset slightly to the right. Also the velocities between the two vortices, second row behind the model are all pointing to the left. As is shown in Figure 16a, the resulting streamline pattern is highly skewed. The left and right vortices both spiral outwards and the windward streamline from the primary saddle point does not attach to the model surface, but moves around the left vortex and then out the leeside of the visible flow field. A topological sketch of this crossflow plane which satisfies Equation (3) is provided in Figure 19a.

At an axial station of X/D = 2.6, both primary and secondary vortices are visible in Figures 10c and 16b. The left primary vortex has moved away from the model surface while the right primary vortex has rotated towards the leeside. The primary saddle point has moved away from the model and to the left. The windward streamline from the primary saddle point feeds into the left vortex which has reversed its direction of spiral when compared to the axial station at X/D = 1.3 and now spirals inwards. The right primary vortex retains the outwards spiral visible at X/D = 1.3. Streamlines originating in the vicinity of the right primary separation point pass between the two primary vortices and leave the visible flow field from the left side. The streamlines originating near the left primary separation point also leave the visible flow field from the left side.

As can be seen in Figures 10d and 16c, the same flow field structure which exists at $X/D = 2.6$, persists at $X/D = 3.6$. The left primary vortex has moved farther from the model surface, but it still spirals inward and is fed by a streamline from the primary saddle point. The right vortex continues to spiral outwards, except very near to the vortex core where a limit cycle occurs. The topology sketched in Figure 19b which satisfies Equation (3) is representative of the crossflow plane structure at $X/D = 2.6$ and 3.6.

The maximum measured side force coefficient occurs at $X/D = 4.7$ and the accompanying flow field structure differs from that at $X/D = 2.6$ and 3.6. In Figure 10e only the right primary vortex is clearly visible. The distance between the left primary vortex and primary saddle point has decreased suggesting that these two structures have combined. The term combined is applied since both structures must disappear simultaneously in order to satisfy Equation (3). A careful construction of streamlines in the vicinity of the left primary vortex and adjacent saddle which is shown in Figure 16d indicates that the process of combination is not complete. The right primary vortex retains the outwards spiral visible at upstream stations and has moved leeward to a position nearly behind the model. The secondary region has become highly skewed with the rear attachment points and secondary separation points rotated in a counter-clock-wise direction. On the right side of the model, two counter-rotating secondary vortices are present while on the left side only one secondary vortex which rotates in a counter clock-wise manner can be seen. The clockwise rotating vortex and adjacent saddle point visible on this side of the model at $X/D = 2.6$ and 3.6 have combined to leave a strong shear region. An examination of the flow field adjacent to the left primary separation point indicates the formation of a region of counter-clockwise rotation. Although this is not particularly evident in Fig. 10e, the circulation of a number of adjacent elements in this region is positive suggesting the formation of a new secondary vortex. The calculated strength of this new vortex is given in Table 1. A plausible topology for this crossflow plane which satisfies Equation (3) is shown in Figure 19c. Here the left primary vortex and saddle are taken to be combined and are therefore not shown. Inclusion of these two structures would also satisfy Equation (3).

Circumferential pressure profiles measured at the axial stations of $X/D = 2.6$, 3.6 and 4.7 are shown in Figure 7. It can be seen that flow field asymmetry produces differing levels of pressure on each side of the model. Lowest pressures occur on the side of the model with the closest primary vortex. The differing pressure levels occurring on each side of the model are bridged by sharp pressure gradients on the leeside of the model. These gradients extend from below each primary vortex core to the rear attachment point and are indicated by a G in Figure 10e. At an X/D of 2.6, both primary vortices are located fairly close to the model surface and two pressure gradients of opposite sign occur. A single sharp pressure gradient exists beneath the right primary vortex at $X/D = 3.6$ and 4.7. Also indicated by a P in Figure 10 are points on the model surface where the pressure standard deviation reaches peak value. These peak values are located in the vicinity of the large pressure gradients and are likely caused by an unsteady circumferential motion of the vortex pattern. Such unsteadiness moves the position of the surface pressure gradients and produces large pressure fluctuations at fixed points on the model which are located nearby.

A comparison of Figures 7 and 10 indicates that secondary vortices have little discernable effect on the measured surface pressures. This is probably attributable to the small circulation strengths of these structures. Table 2 indicates that the circulation contained in the S2 region is typically small. The strength of the vortices in the S1 region cannot be determined since this region contains both a strong shear layer and a vortex.

6.3 FLOW FIELD DEVELOPMENT ON THE SHARP UNTRIPPED MODEL

On the sharp untripped model, surveys were carried out at X/D values of 2.6 and 5.7 with the latter survey covering only the secondary region. From Appendix B it is evident that the side force levels on the untripped model are much lower than those measured on the tripped model. As was previously mentioned, fluctuations in the surface pressures were noted in tests involving the untripped sharp model. The level of variation is indicated in Table 3 where samples of side force data spanning runs 1 and 2 are shown. The crossflow planes at X/D of 2.6 and 5.7 were probed in runs 1 and 2 respectively. It can be seen from Table 2 that side force levels in both of these runs were fairly steady at the axial locations where the velocity measurements were made.

At the axial station of $X/D = 2.6$ little asymmetry is visible in the crossflow velocity vector plots and streamline contours of Figures 11a and 17 respectively. As is shown in Table 2, the net circulation is nearly zero and the side force coefficient, although fluctuating slightly, is also small. The crossflow plane clearly contains two primary vortices and on each side of the model two secondary vortices. The streamlines originating near the estimated primary separation points do not roll up into the primary vortices but skirt the recirculatory region and pass out of the surveyed portion of the flow field on the side of the model from which they originated. This is in contrast to the asymmetric case shown in Figure 16b where the streamlines originating near the right primary separation point pass between the two primary vortices and out of the visible portion of the flow field from the left side. Another notable aspect of the streamline pattern is the windward streamline from the primary saddle point. As in the asymmetric case this streamline does not attach to the body but circles around the left vortex. Neither of the primary vortices has a well defined direction of spiral and limit cycles occur near each vortex.

At an axial station of 5.7, only the secondary portion of the flow field was surveyed. The primary vortices appear to have moved to the right since the rear attachment point is on the right side of the model. On the left side of the model two counter rotating vortices are visible in the secondary region shown in Figures 11b while on the right hand side only one vortex appears to exist. The second vortex has presumably combined with the adjacent saddle in a similar manner to that observed on the right hand of the sharp, tripped model at $X/D = 4.7$ (see Figure 16e).

The pressure distributions on the sharp untripped model are presented in Figure 9 and display the same general features which occur in the asymmetric case. In low side force cases where the flow field is relatively symmetric, a sharp pressure gradient occurs beneath each primary vortex. A single pressure gradient occurs when a larger side force is present (e.g. Figure 9b) and is likely located below the closer of the two primary vortices. As in the case of the tripped model, the secondary vortices do not induce a discernable effect on the circumferential pressure distribution.

6.4 FLOW FIELD DEVELOPMENT ON THE BLUNTED MODEL

The blunt model was tested at a roll orientation producing a C_y peak of .95, which is one of the highest values observed for this model. The velocity data was measured at axial stations with X/D values of 2.6 and 5.7.

Crossflow plane velocities and streamlines at $X/D = 2.6$ are shown in Figures 12a and 18a respectively. This crossflow plane contains two primary vortices and two secondary vortices of opposite rotation on the left side of the model. On the right side of the model only a secondary vortex of clockwise rotation is partially visible. The primary vortex pattern is slightly offset to the left side of the model. As is shown in Table 2, the net circulation is positive as is the local side force. This is in contrast to the sharp tripped model case where a net negative circulation is associated with a positive side force. The streamlines in the vicinity of the right primary vortices show a pronounced outwards spiral while those near the left primary vortex feature a limit cycle with an outwards spiral inside of the cycle and an inwards spiral outside of it. Streamlines originating near the primary separation points skirt the recirculatory flow region and leave the flow field from the same side on which they started. The windward streamline from the primary stagnation point does not attach to the body surface, but instead circles around the right vortex. When compared to the sharp untripped model streamline pattern, a strong similarity is evident. In the blunt model case, though, the primary vortices appear to have a more defined direction of spiral.

The blunt model achieves its maximum side force at $X/D = 5.7$. The measured flow field at this axial station is displayed in Figures 12b, 18b and shows significant asymmetry. The primary vortex pattern is offset to the left. Unlike the tripped, sharp model flow field, the left hand vortex has not moved away from the model. The secondary flow field region has two counter rotating vortices and a saddle on each side of the model but these areas are clearly not symmetric in structure or location. The attachment and separation points noted in Figure 12b are offset in a counter-clockwise direction. On the left side of the body the secondary vortex of clockwise rotation has moved away from the body surface. The net circulation over the surveyed portion of the flow field is slightly positive as indicated in Table 1. The streamline pattern which is shown in Figure 18b features primary vortices which have a well defined outwards spiral. This structure is reminiscent of that visible on the sharp tripped model at $X/D = 1.3$ (see Figure 16a). As in the sharp, tripped model case, streamlines originating near the right primary separation point appear to pass between the two primary vortices and then out of the surveyed portion of the flow field from the left side. An unusual aspect of the blunt model flow field can be seen by considering Figures 8 and 15b which indicate that both the velocity and surface pressures show very high levels of fluctuation.

The pressure profiles on the blunted model are very similar to those on the sharp model. The different pressure levels which form on each side of the model when a side force occurs are bridged by sharp pressure gradients which occur beneath the vortex nearest to the model surface. The symmetric primary vortex pattern, which occurs at $X/D = 2.6$ features pressure gradients beneath each primary vortex.

CHAPTER 7

DEVELOPMENT OF FLOW FIELD ASYMMETRIES

It has been suggested that flow field asymmetry is a manifestation of a hydrodynamic instability which develops when primary vortices are crowded together.¹⁹ Peake, et al.¹¹ form the hypothesis, based on Nishioka and Sato's²⁰ incompressible cylinder data, that amplification of perturbations in the flow field near the primary saddle point results in the development of the asymmetric flow field. Irregularities in the model geometry serve only to determine the extent and direction of the flow field asymmetries. The results from the current study support the hypothesis that the flow field near the primary saddle point plays a principal role in the formation of the asymmetric flow field. Many of the crossflow planes surveyed appear to be symmetric both with respect to vortex location and strength. However, in all cases the windward streamline from the primary saddle point does not attach to the body surface but instead circles about one of the primary vortices as is indicated in Figures 16 to 18. It thus seems to be this streamline which first reflects flow field asymmetry and presumably only small perturbations in the vicinity of the saddle point are sufficient to cause this streamline to detach from the model surface.

Using the streamline traces of Figures 16 to 18 it is possible to construct a description of vortex shedding in terms of saddle and nodal singularities. Small perturbations near the primary saddle point leads to a detachment of the windward primary saddle streamline from the body surface, as is shown in Figures 17 and 18a. This streamline initially appears to roll up into one of the two primary vortices, neither of which have a well defined spiral direction. Figures 16a and 18b suggest that as the asymmetry in the crossflow plane grows, both vortices tend to develop a well defined outwards spiral. The windward streamline from the primary saddle now circles one of the vortices and then passes out the leeward side of the surveyed flow field. This topology is illustrated in Figure 19a and still features primary vortices which are relatively symmetrically located. As the crossflow plane asymmetry increases, one of the vortices moves away from the model and reverses its direction of spiral to inwards as illustrated in Figures 16b and 16c. The windward streamline from the primary saddle now feeds into this vortex and the resulting crossflow plane topology is illustrated in Figure 19b. Further asymmetry development leads to a combination of a primary vortex and the primary saddle. Figure 16d suggests that such a combination occurs while Figure 19c illustrates the resulting topology. Clearly, in order to satisfy Equation (3), the vortex and primary saddle must simultaneously disappear from the flow field.

It is of interest to compare the topological description of asymmetry development with the more conventional view of this process. Traditionally the crossflow plane has been visualized as containing both shed and attached primary vortices. Each attached vortex is connected to a primary separation point by a feeding sheet. As asymmetry develops and a vortex starts to move away from the body surface, the feeding sheet is torn and the vortex is shed. In the current

study the calculated crossflow plane streamlines which originate near the primary separation points do not feed into vortices. Hence the current data does not define a feeding sheet and an analog to the tearing of the feeding sheet is not evident. The clearest topological landmark visible in the asymmetry development process is the combining of the primary saddle and a primary vortex. This occurrence provides a convenient definition of vortex shedding in the current study. However, the present study is limited in scope and it is not clear whether such a combination process takes place as subsequent vortices are shed or under different test conditions. Thus, the general applicability of this definition of vortex shedding remains to be demonstrated.

The blunt model experiences, in general, a much lower level of side force than does the sharp model. Not only are maximum side loads lower, but average values taken over many different roll angles are significantly less. The maximum local side force occurs on the blunt model at $X/D = 5.7$. The resulting velocity and streamline data at this axial station are shown in Figures 12b and 18b respectively, and represent a roll orientation with the highest observed side force. From these figures it is evident that the maximum degree of flow field asymmetry which occurs on the blunt model is much less than that observed on the sharp model (see Figures 10 and 16). In fact, the degree of asymmetry is sufficiently low on the blunt model to suggest that vortex shedding does not take place. The reason for the difference in asymmetry levels observed on the sharp and blunt models remains unclear. A comparison of the blunt measurements taken at $X/D = 2.6$ with those at the same axial station on the sharp and sharp, tripped models indicates that the general flow field structure is qualitatively the same. Quantitatively some differences are detectable which include a 10% to 15% reduction in primary vortex strength in the case of the blunt model. An interpolation of the measured velocities along the pitch plane indicates that the primary saddle point is closer to the body surface on the blunt model than on the sharp model. Also, on the blunt model asymmetries in vortex strengths are principally confined to secondary vortices. However, it is difficult to construct an explanation for the apparent increased stability of the blunt flow field from any of these observed differences and the best hypothesis appears to concern the absence of a sharp nose tip. Near the tip of a sharp nose the local diameter is small and local irregularities may amount to extremely large local perturbations. A similar perturbing mechanism does not exist on the blunt model.

CHAPTER 8

SUMMARY AND CONCLUSIONS

A tangent ogive model with nose fineness of three has been tested in incompressible flow at an incidence of 45° and with a Reynolds number producing laminar separation. The model was rigidly supported in the wind tunnel which had a streamwise turbulence level of .1%. The model's sharp nose tip was interchanged in some tests with a 10% spherically blunted one. In tests on the sharp model, a strip of grit placed near the nose was often used to stabilize the flow field. Both surface pressures and crossflow velocities were measured on several crossflow planes. A two component LDV system was used to probe the flow field near the primary separation points as well as further out from the model. Axial stations upstream of the location at which the maximum side force occurred were investigated. Based on the data taken in this study the following conclusions can be drawn:

1. Use of a grit trip near the model nose stabilizes the flow field without changing its basic side force characteristics.
2. In addition to two primary vortices and a primary saddle, the flow field generally contains two counter-rotating secondary vortices and a saddle point on each side of the model.
3. The development of the asymmetric flow field on the sharp tripped model up to the point of maximum side force can be characterized by the following three steps:
 - a. Flow field asymmetries seem to originate with instabilities at the primary saddle point. The windward streamline leaving this point detaches itself from the body surface, circles about one of the vortices and then moves out into the leeward flow field.
 - b. The vortex circled by this primary saddle point streamline moves away from the model.
 - c. The primary saddle and a primary vortex appear to combine on the crossflow plane at which the peak side force occurs. The point of combination appears to offer a convenient definition of vortex shedding.
4. Blunting the model nose by 10% drastically reduces side force and the degree of flow field asymmetry. The windward primary saddle point streamline detaches from the model and circles a primary vortex as in the sharp model case. However, at the axial station featuring maximum C_y , neither primary vortex appears to be in the process of shedding. The increased stability of the blunted model flow field is hypothesized to be related to the absence of a slender nose tip on which model irregularities become large perturbations.

ACKNOWLEDGMENTS

This project was supported by William C. Volz of the Naval Air Systems Command. The authors wish to thank Commander Paul Schlein and his staff at the U. S. Naval Academy for making the wind tunnel testing facilities available.

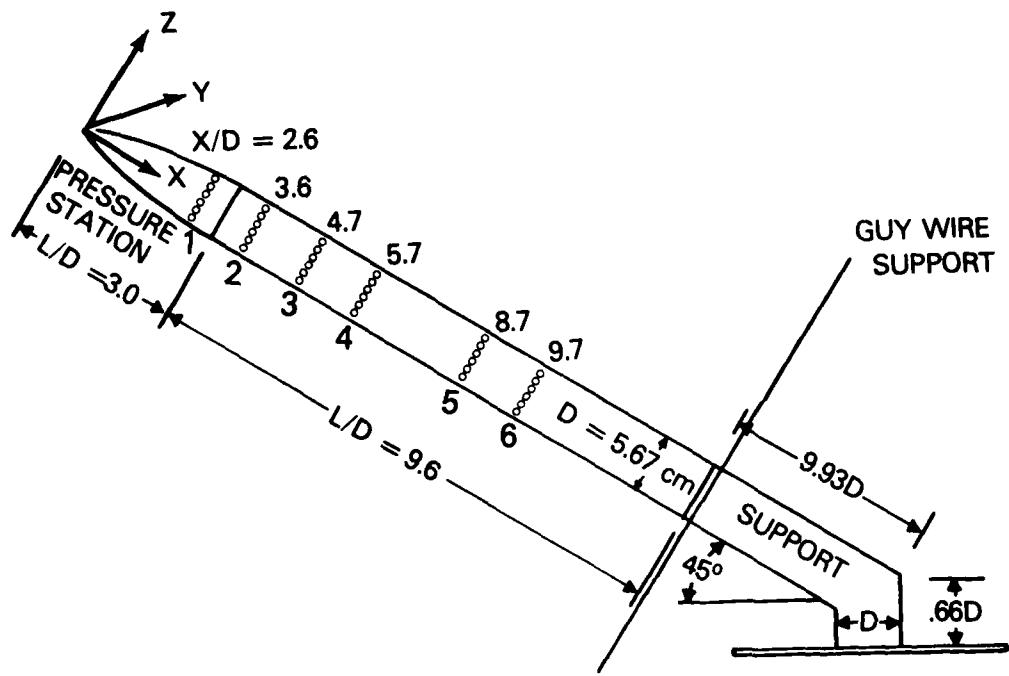


Figure 1. Tangent ogive pressure model and support

2-D BACKSCATTER LDV

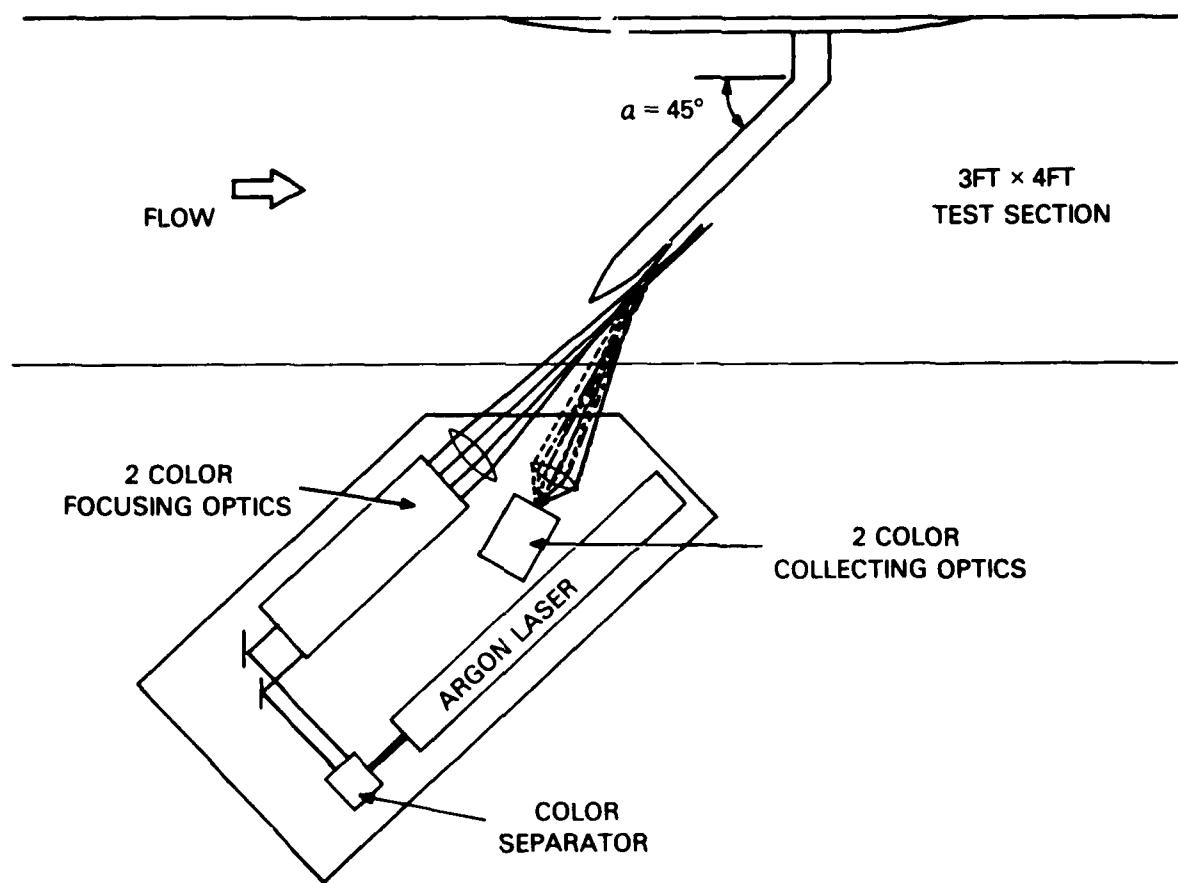


Figure 2. Schematic of the laser doppler velocimeter

NSWC TR 82-394

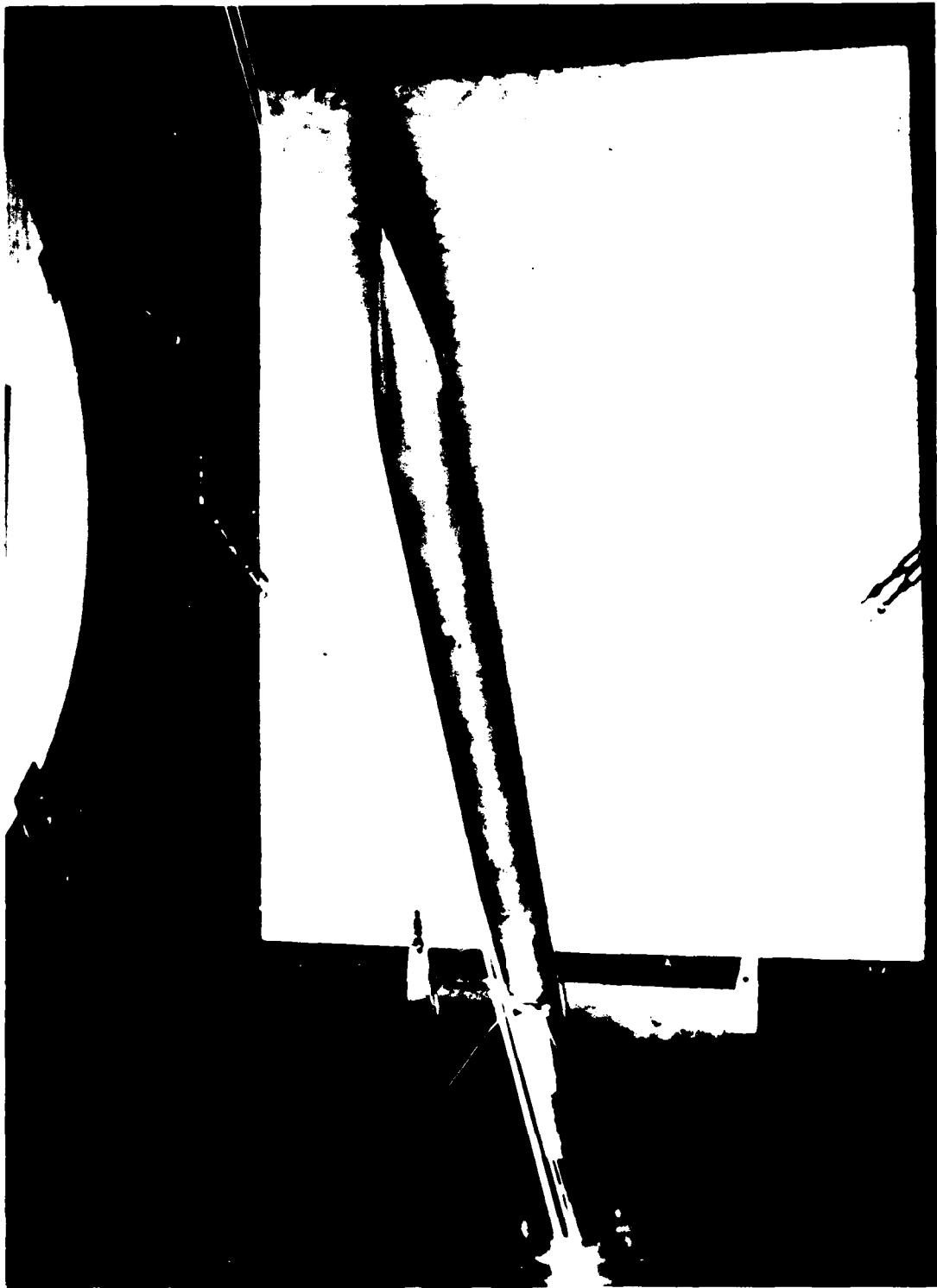


Figure 3. In-scale model mounted in the wind tunnel

NSWC TR 80-394

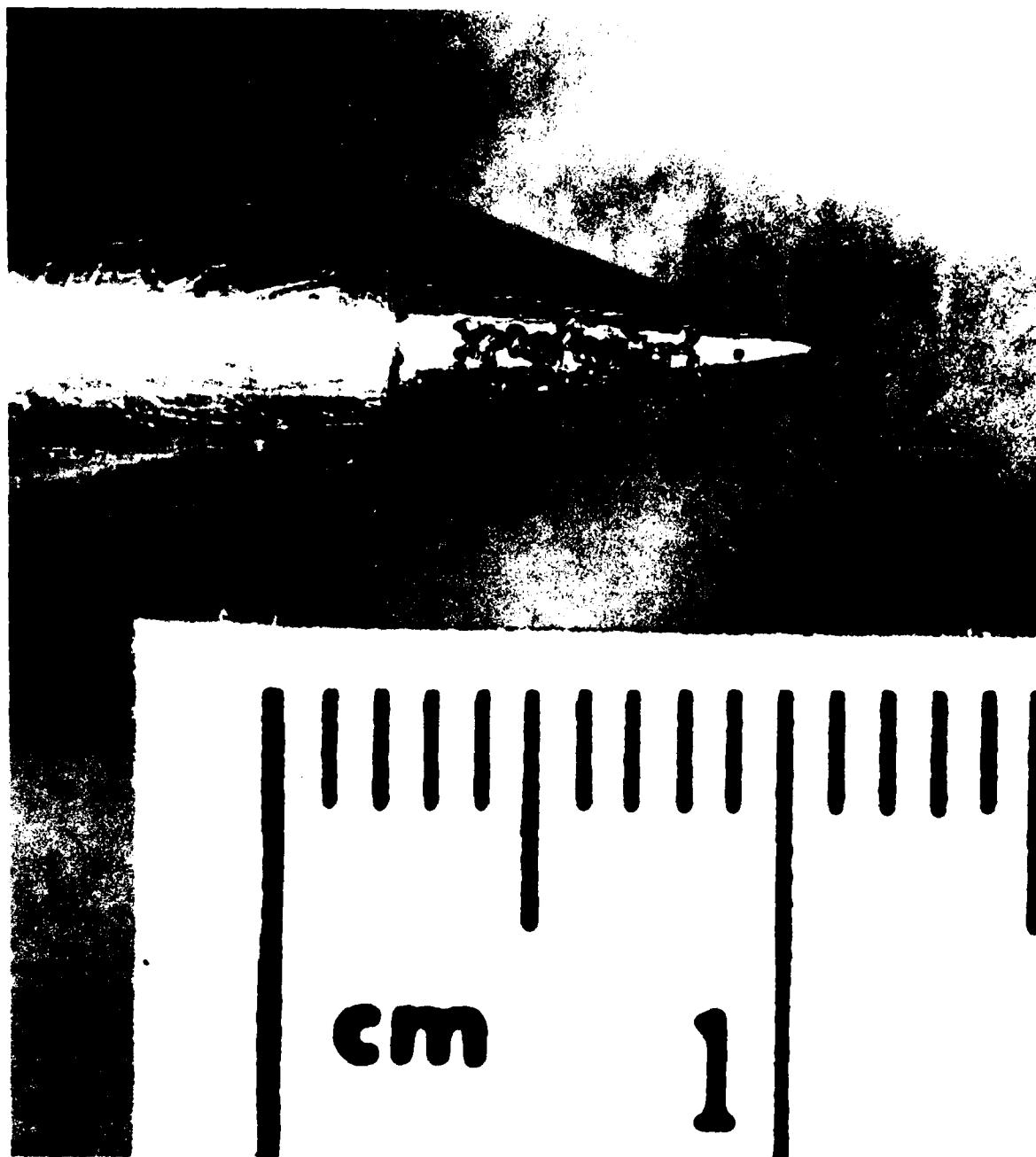


Figure 4. Nose trip made from 1.0mm grit.

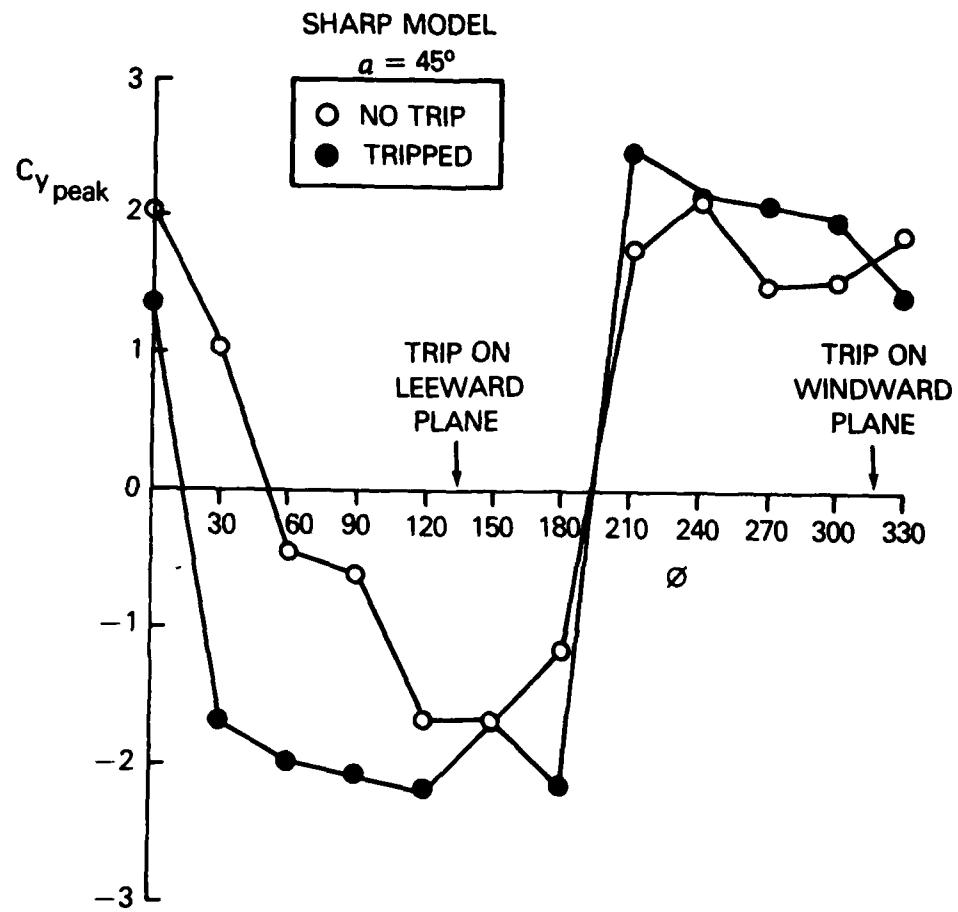


Figure 5. C_y_{peak} as a function of model roll angle

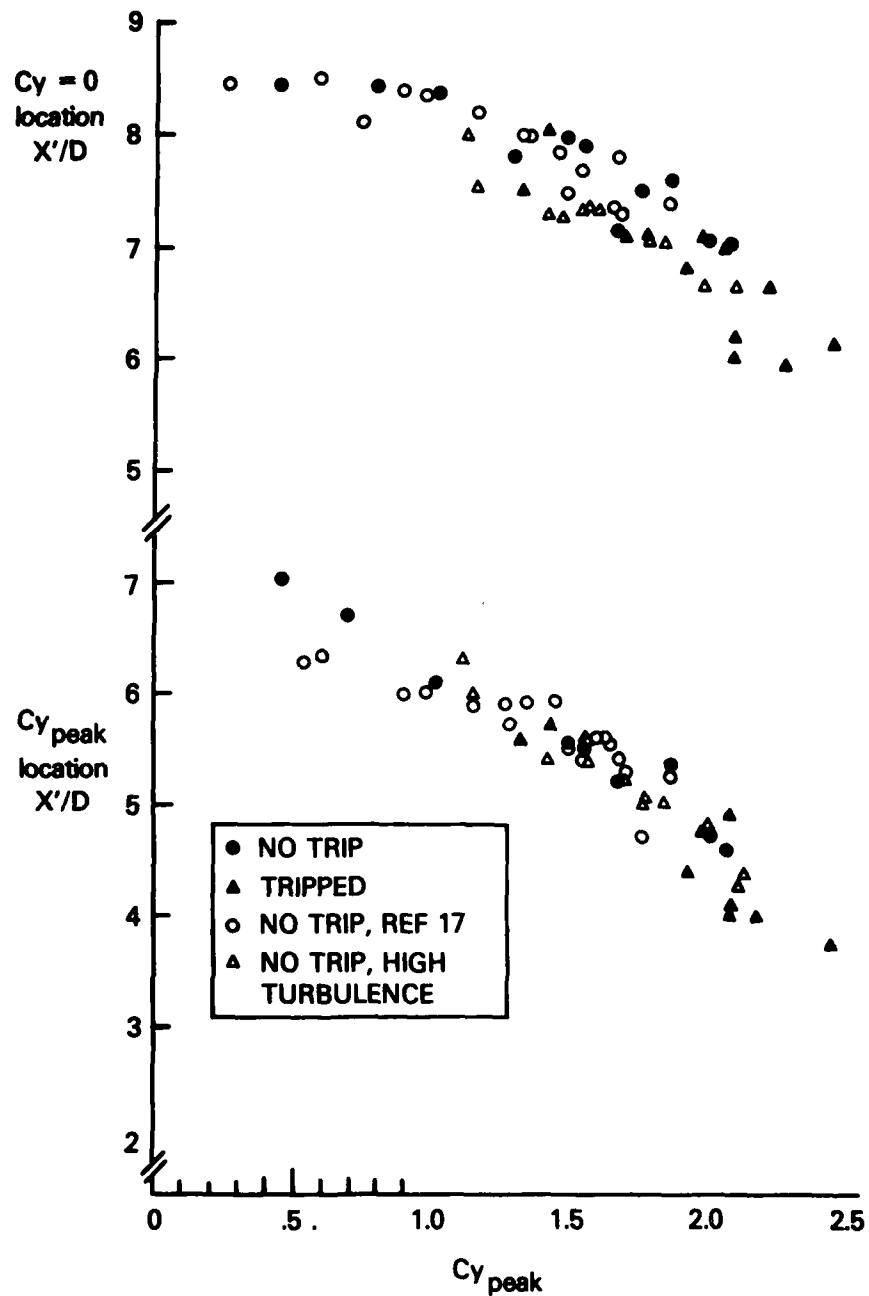


Figure 6. Axial location of C_y_{peak} and $C_y = 0$ as a function of C_y_{peak}

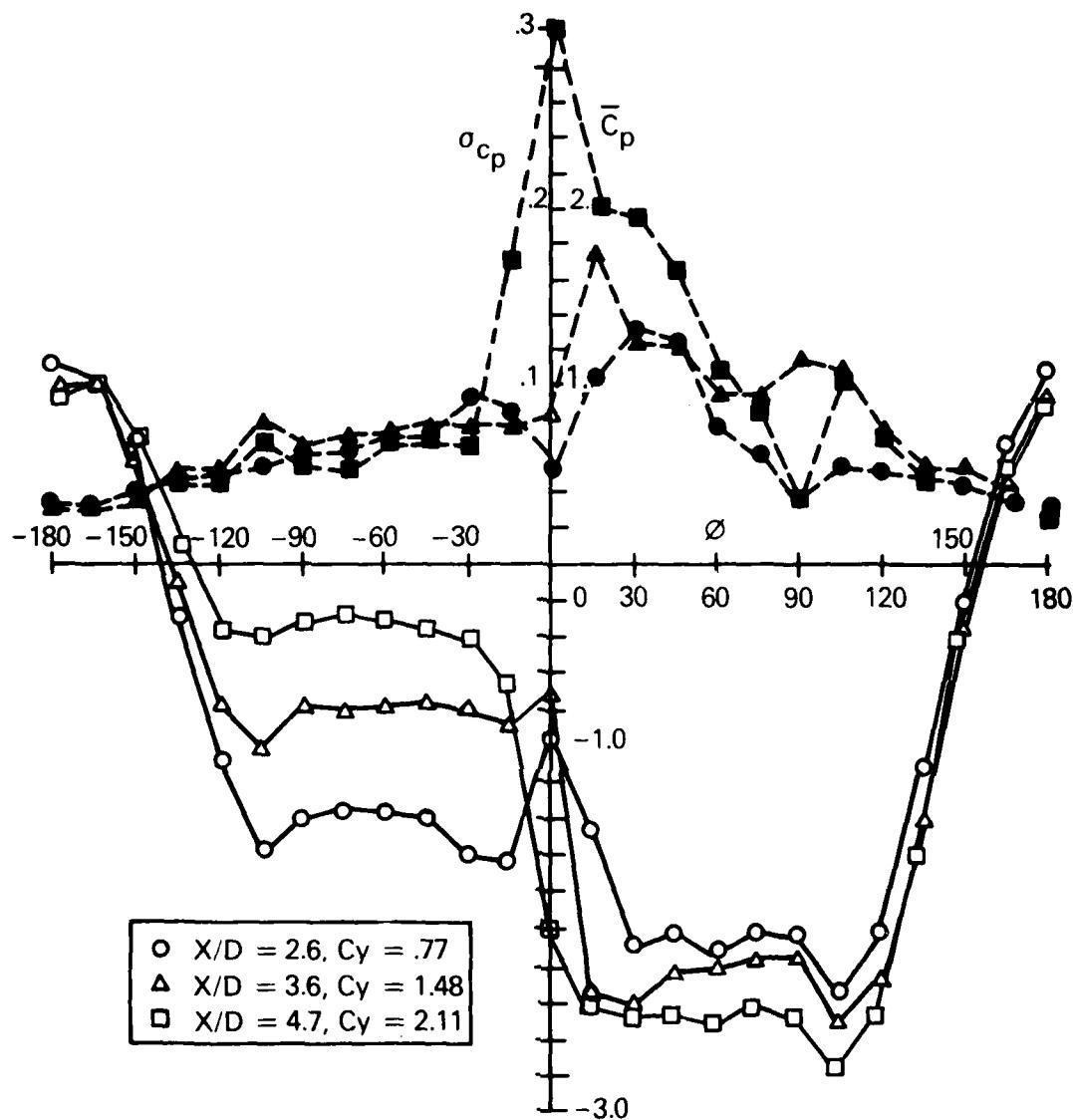


Figure 7. Circumferential pressure distributions on the sharp, tripped model. Open Symbols are \bar{C}_p and solid ones are σ_{Cp}

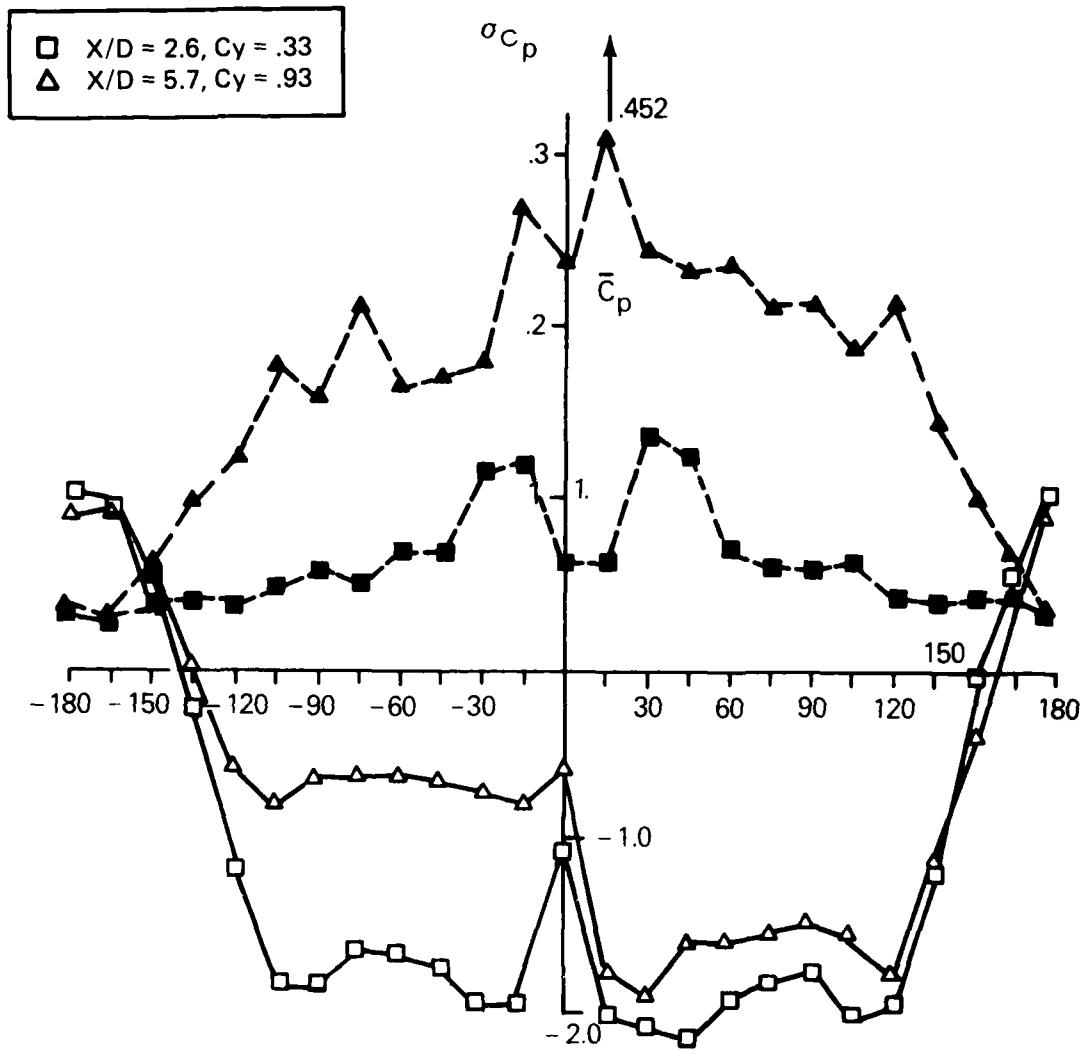


Figure 8. Circumferential pressure distributions on the blunt model.
Open symbols are \bar{C}_p and solid ones are σ_{C_p}

A) Highest side force case.

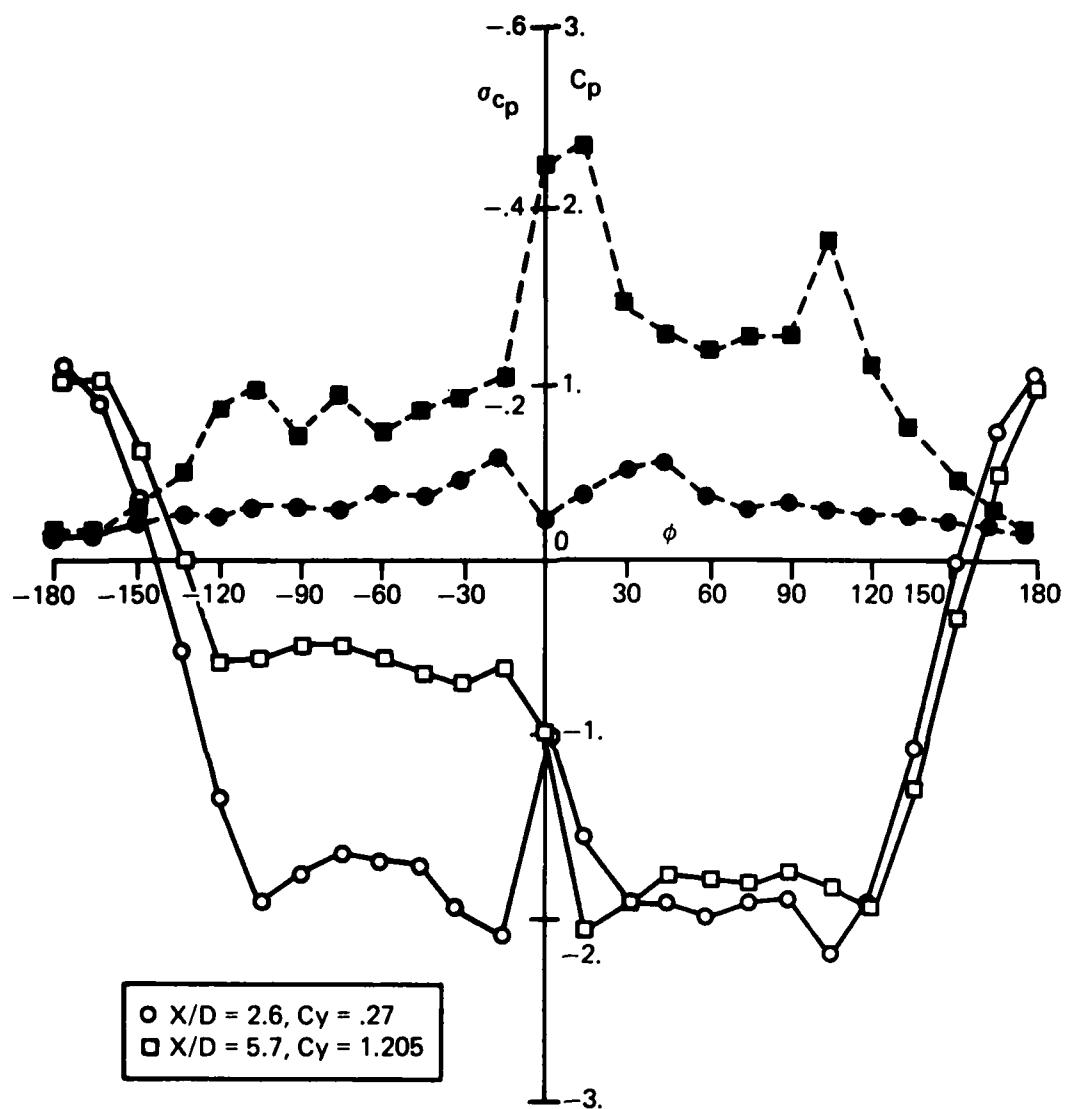


Figure 9. Circumferential pressure distribution on the sharp, untripped model. Open symbols are \bar{C}_p and solid symbols are σ_{C_p}

B) Lowest side force case

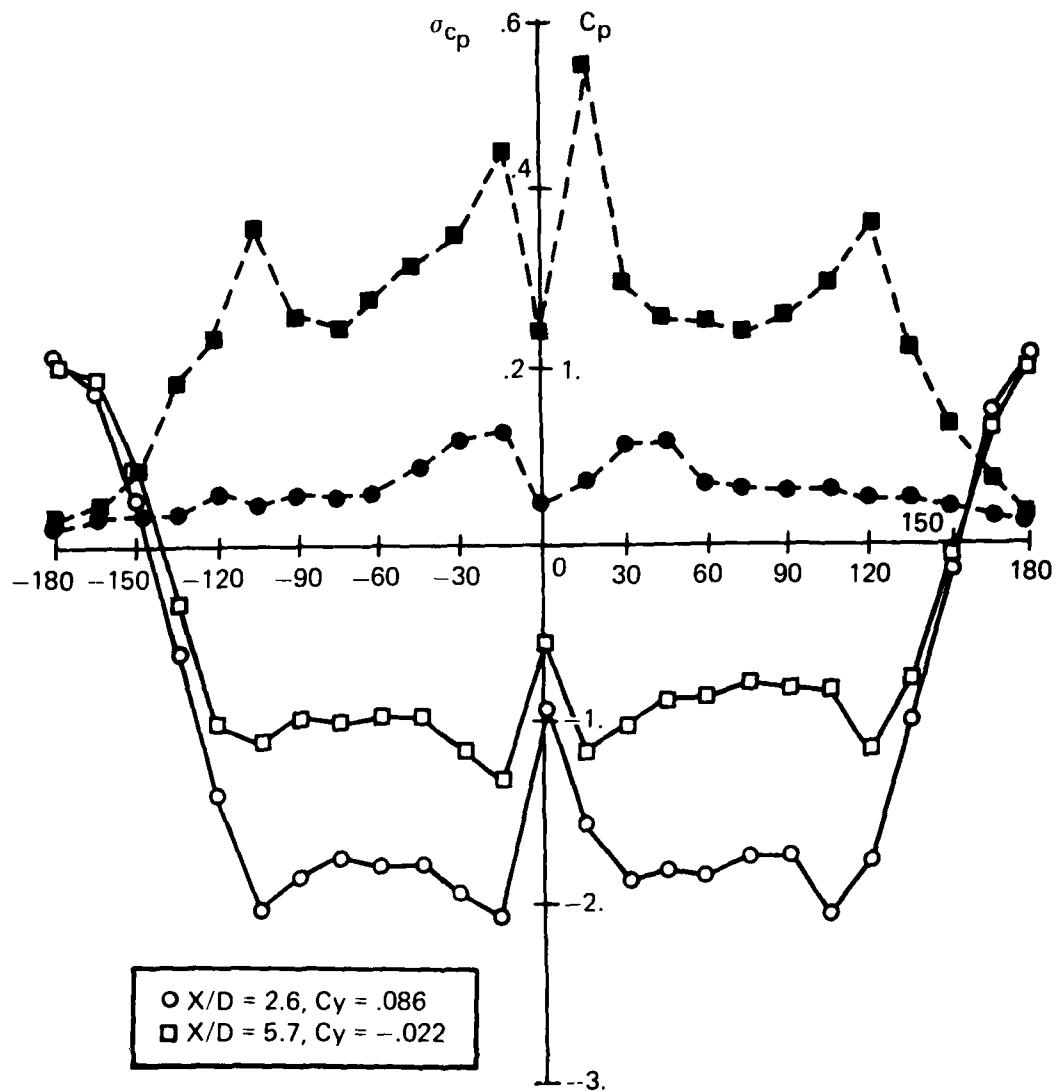


Figure 9. (Continued)

A) $X/D = .75$

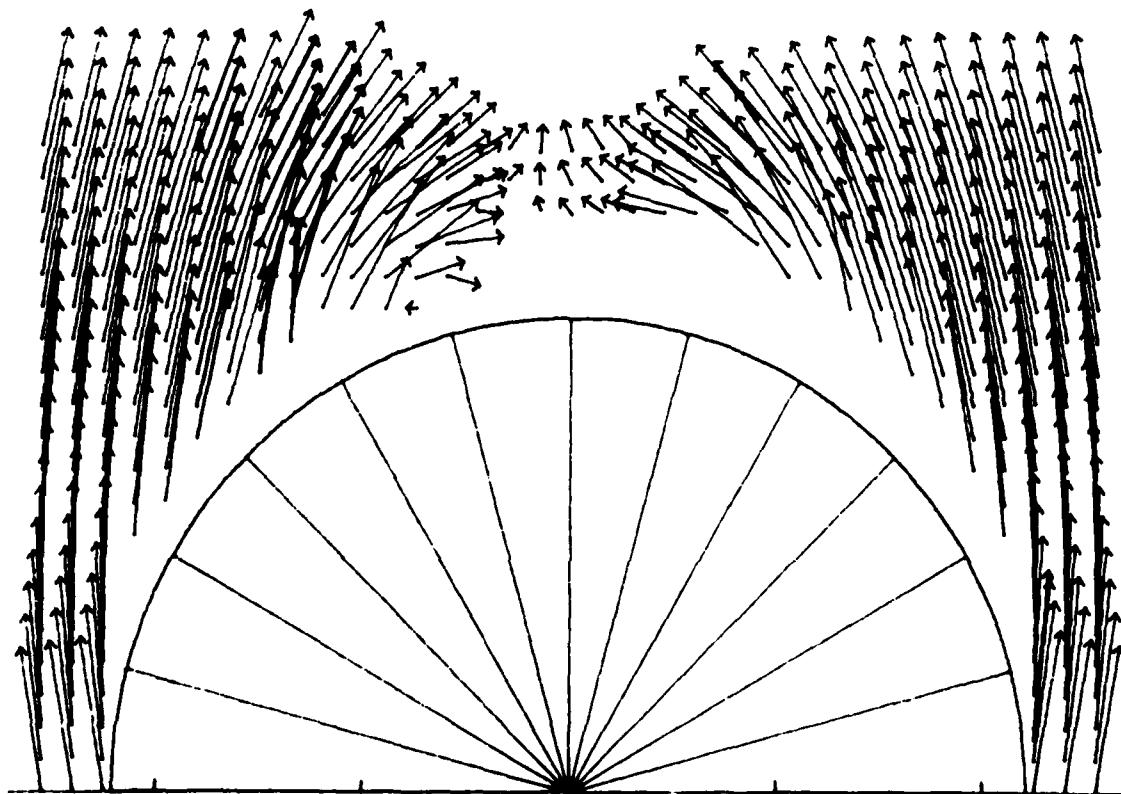


Figure 10. Measured crossflow plane velocity vectors on the sharp, tripped model. S'_a and S'_s are attachment and separation points respectively. The P represents peak σ_C locations while the G indicates regions of sharp pressure gradients.

B) $X/D = 1.3$

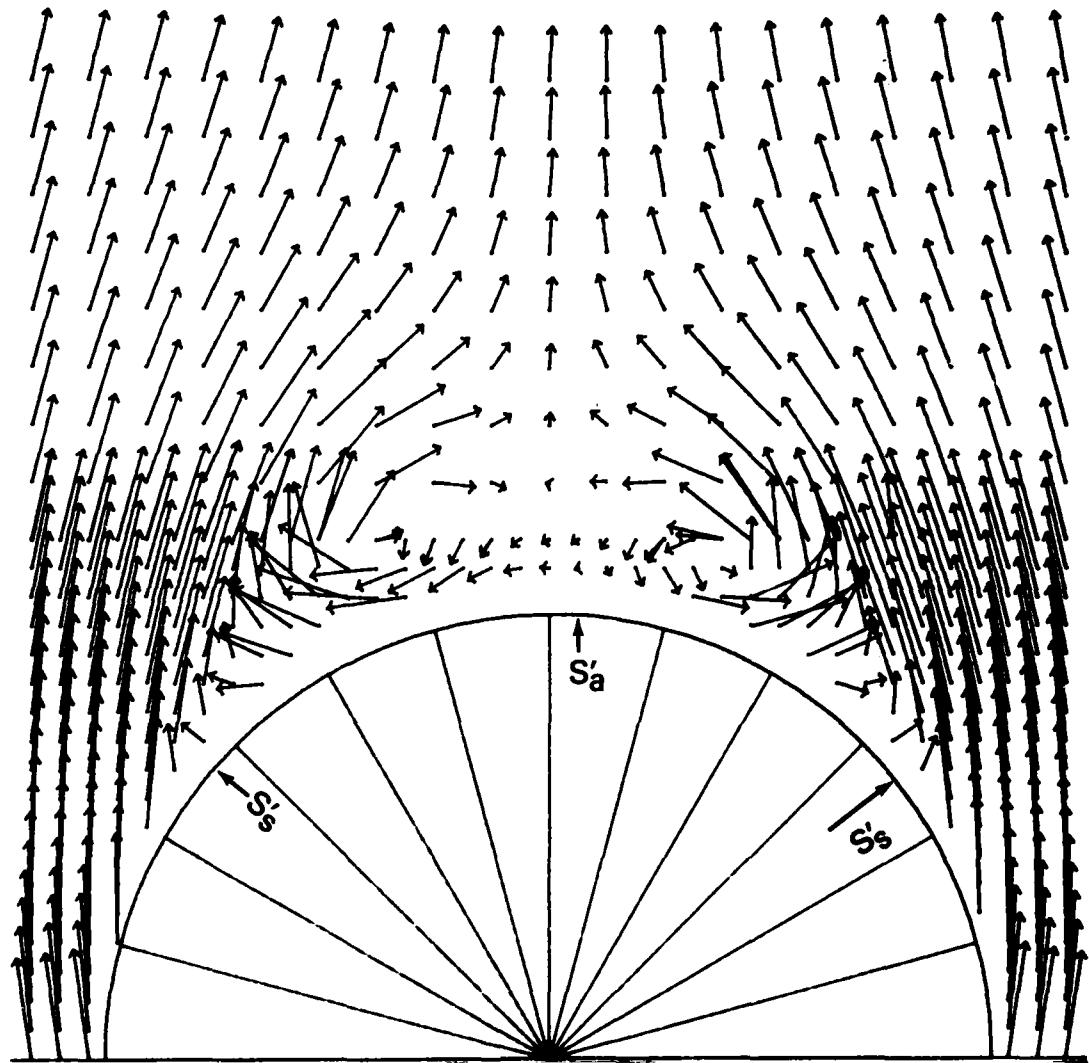


Figure 10. (Continued)

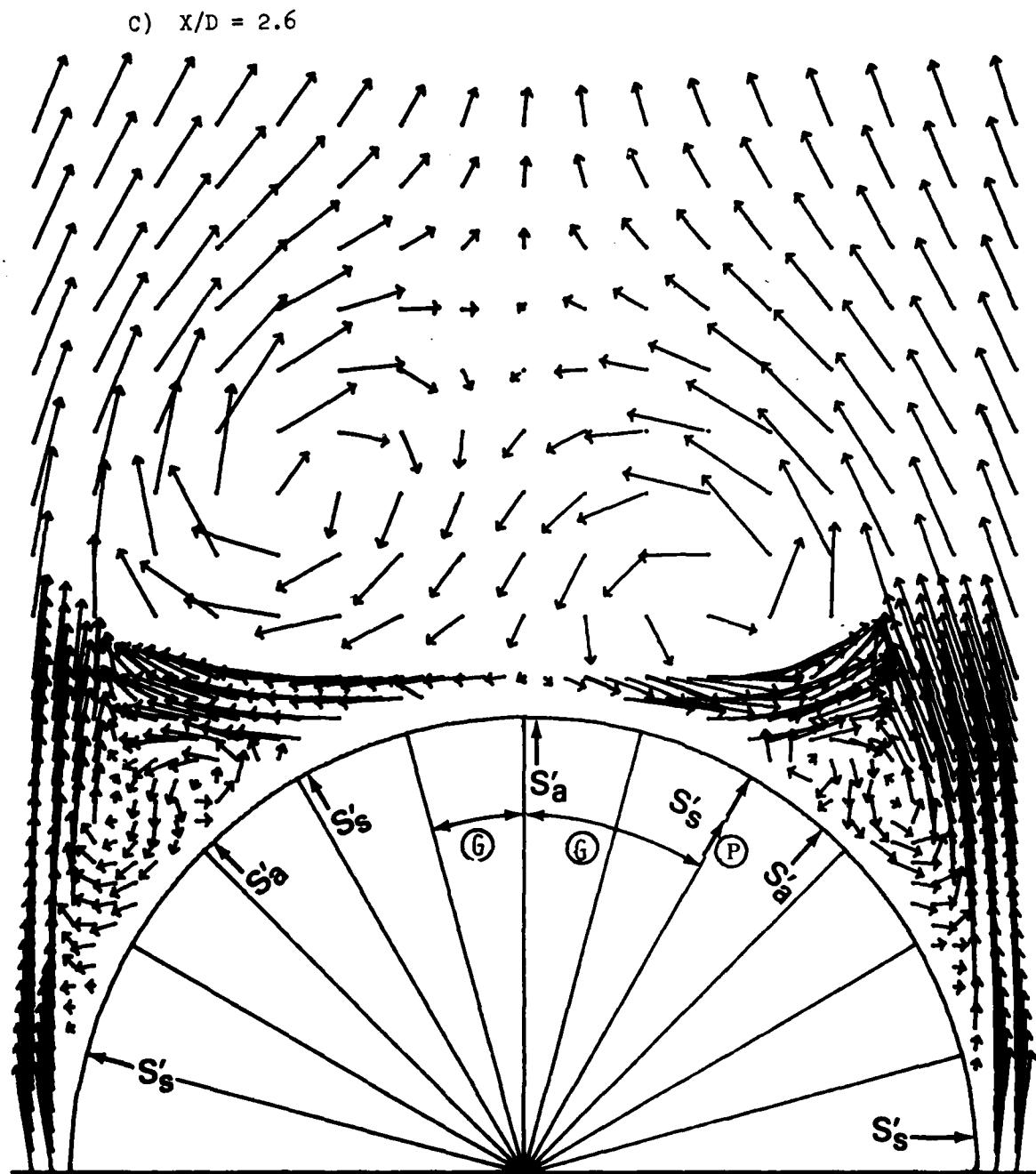


Figure 10. (Continued)

D) $X/D = 3.6$

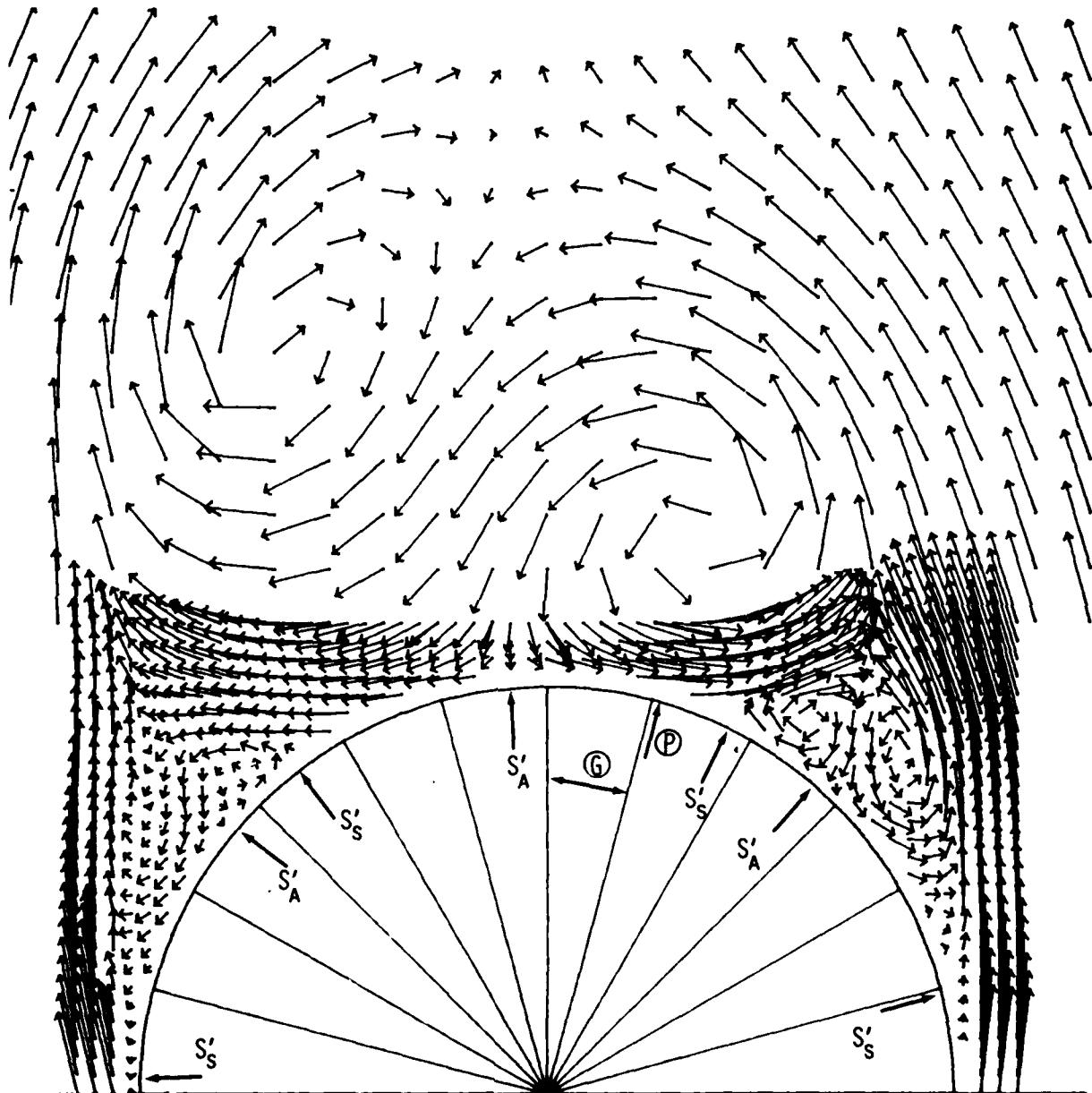


Figure 10. (Continued)

E) X/D = 4.7

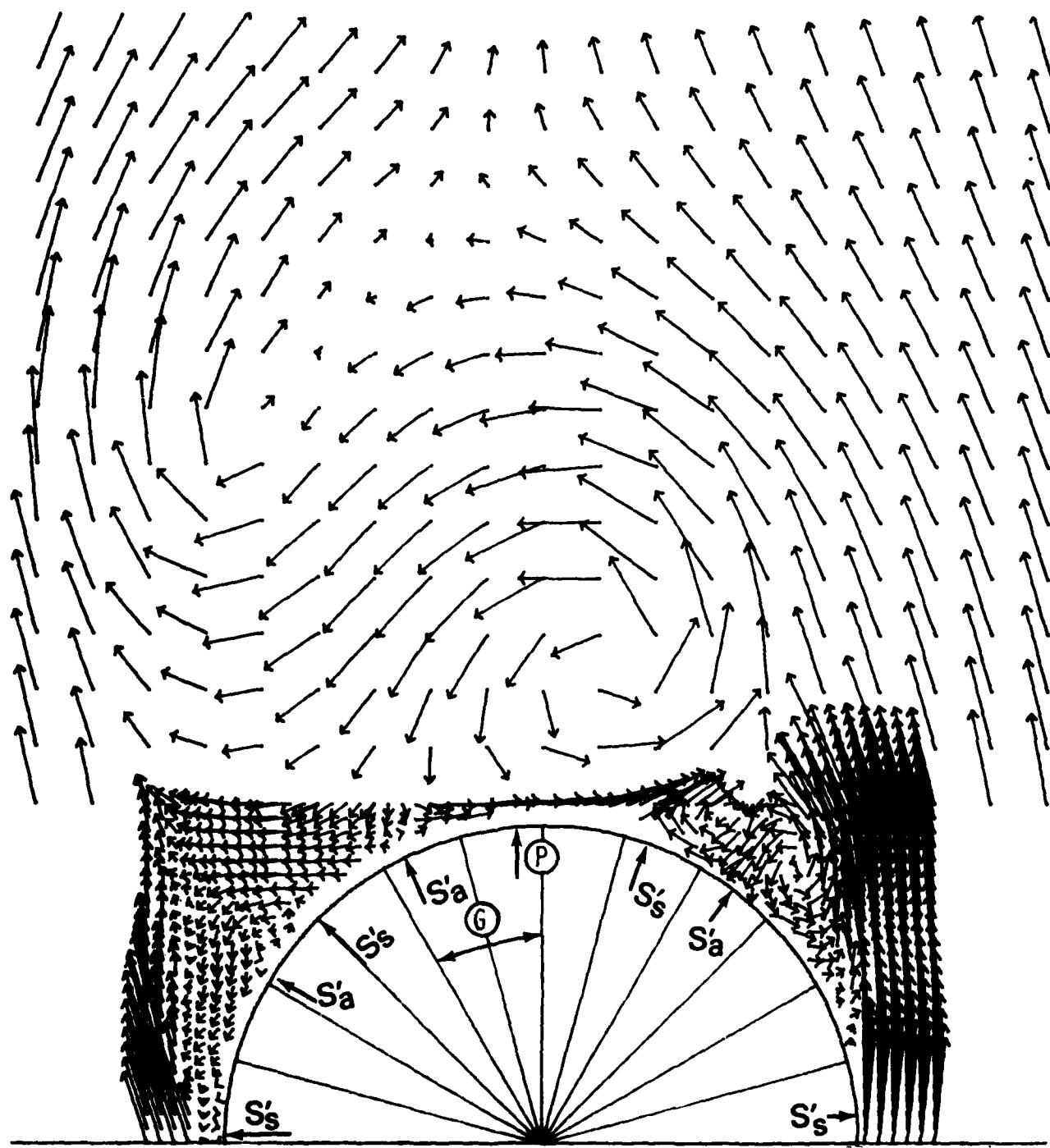


Figure 10. (Continued)

E) (Continued) Enlargement of left secondary region.

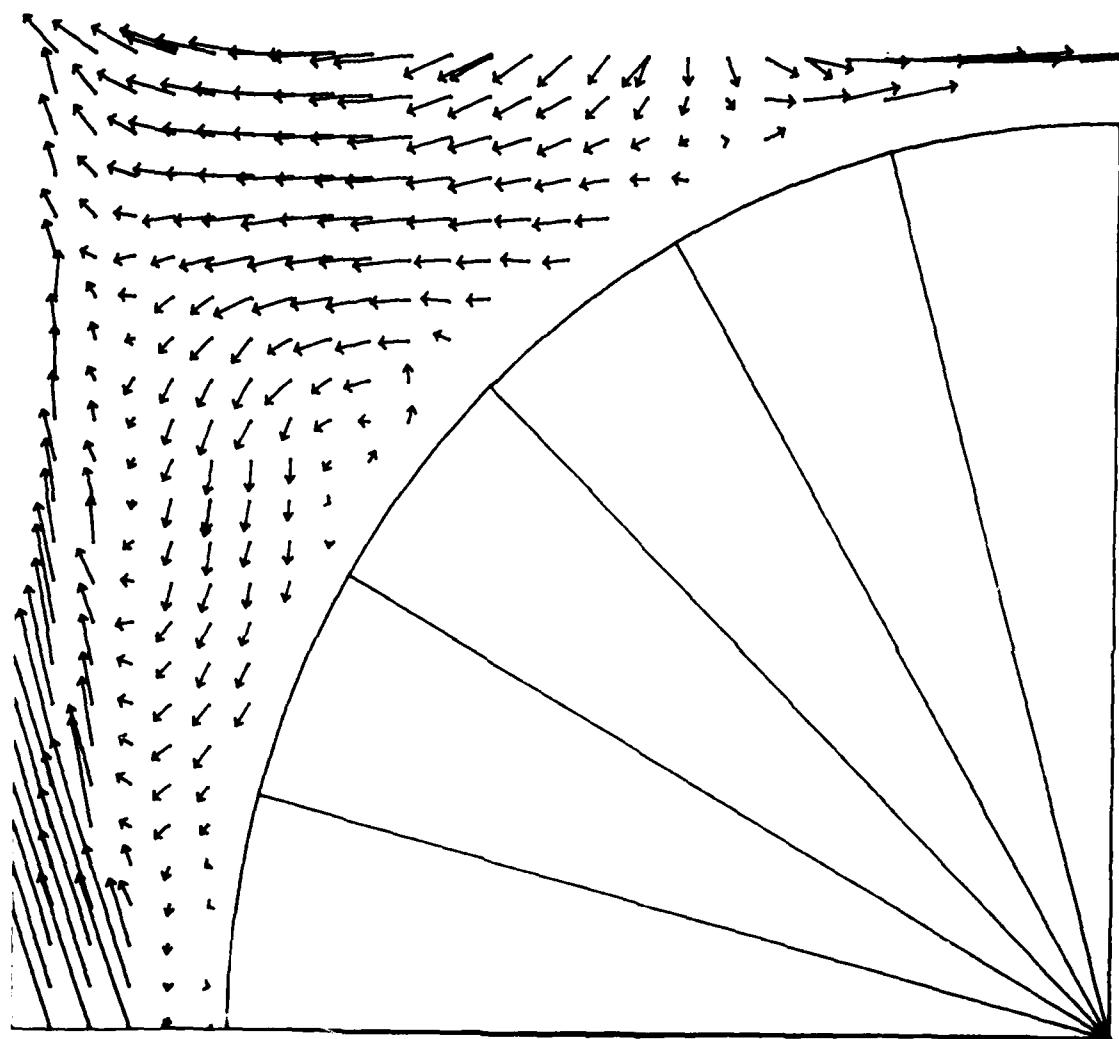


Figure 10. (Continued)

E) (Continued) Enlargement of right secondary region.

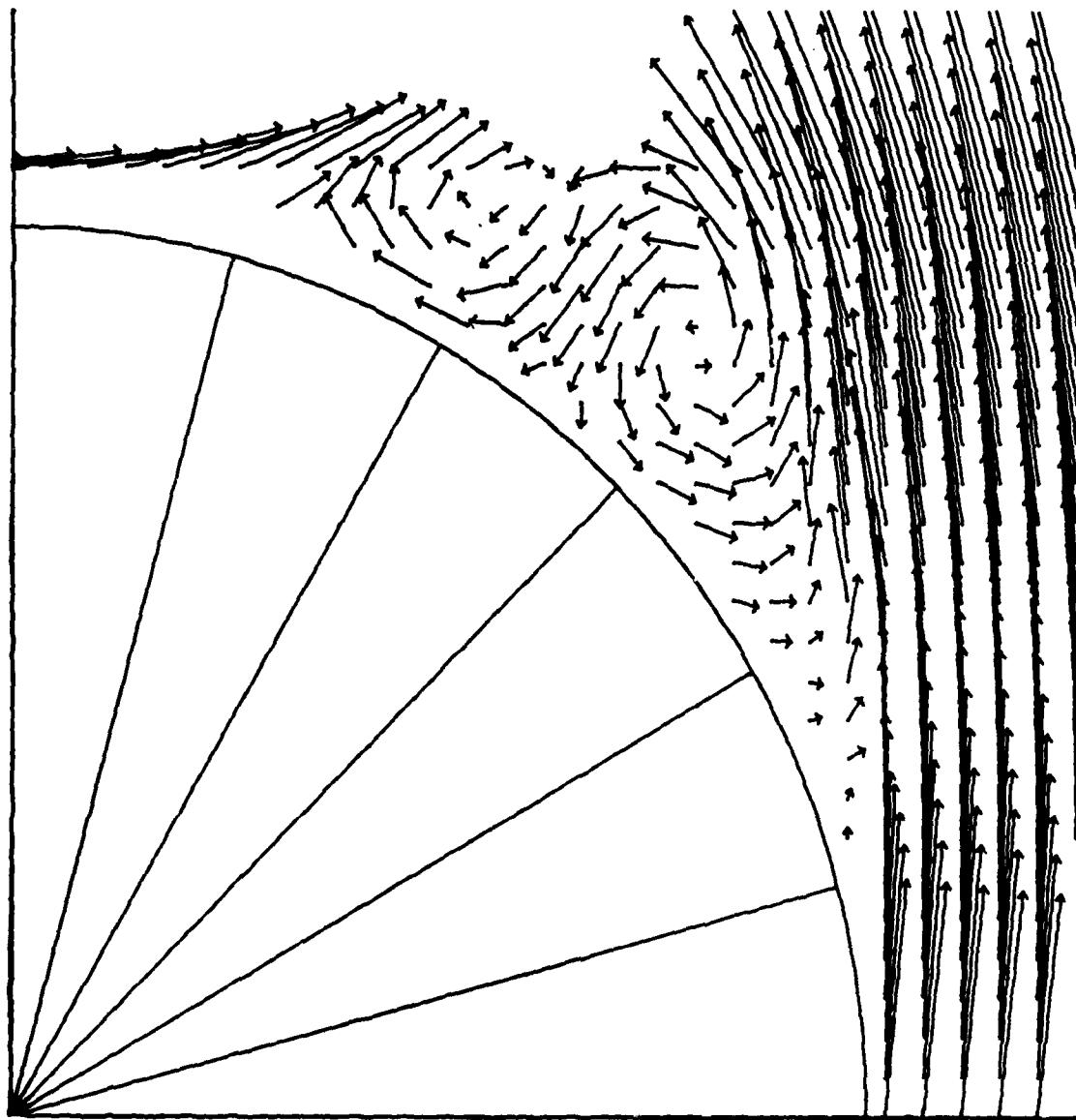


Figure 10. (Continued)

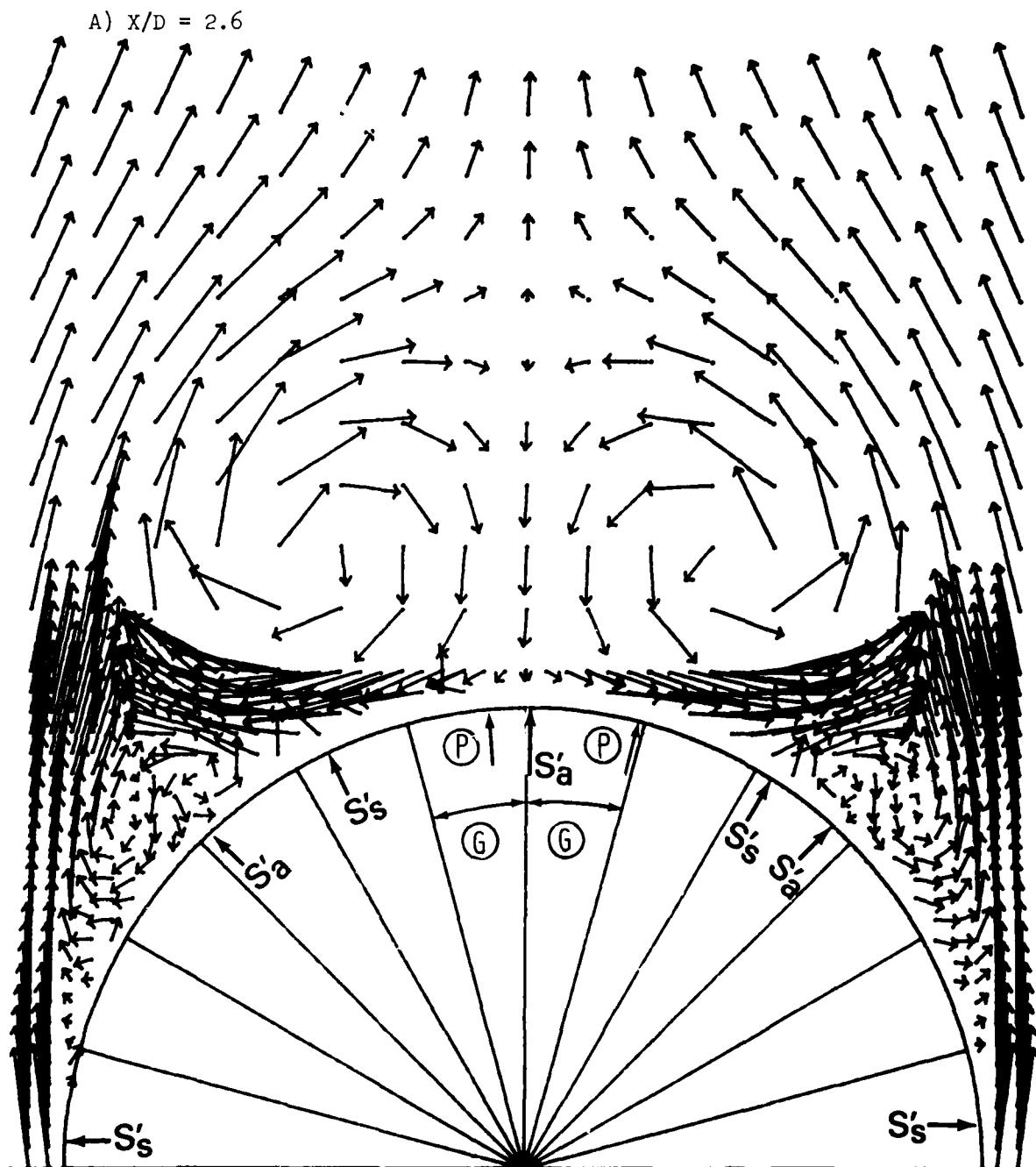


Figure 11. Measured crossflow plane velocity vectors on the sharp, untripped model. S'_a and S'_s are the attachment and separation points respectively. The P represents peak σ_{C_p} locations while the G indicates regions of sharp pressure gradients.

B) $X/D = 5.7$

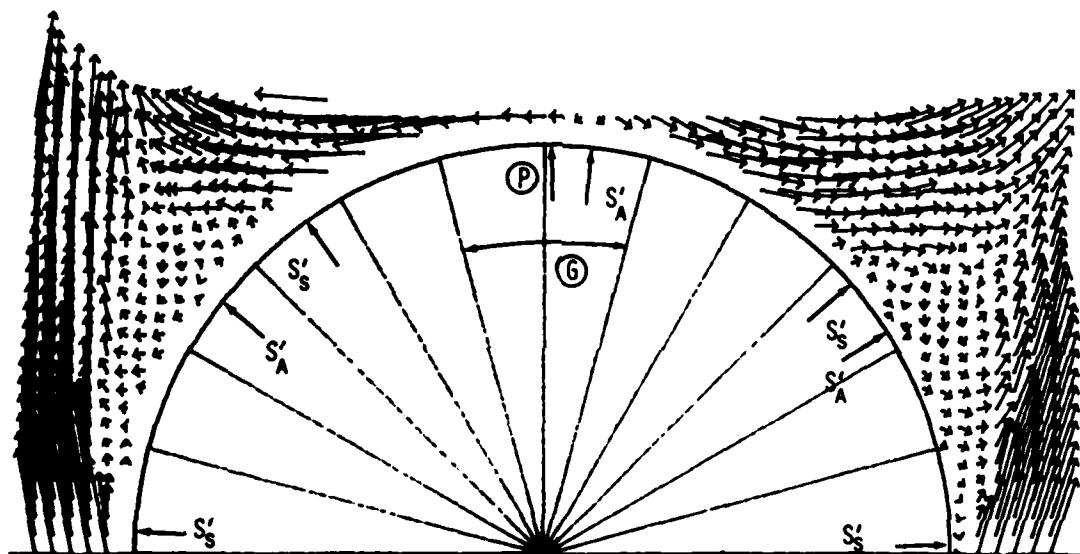


Figure 11. (Continued)

B) (Continued) Enlargement of left secondary region.

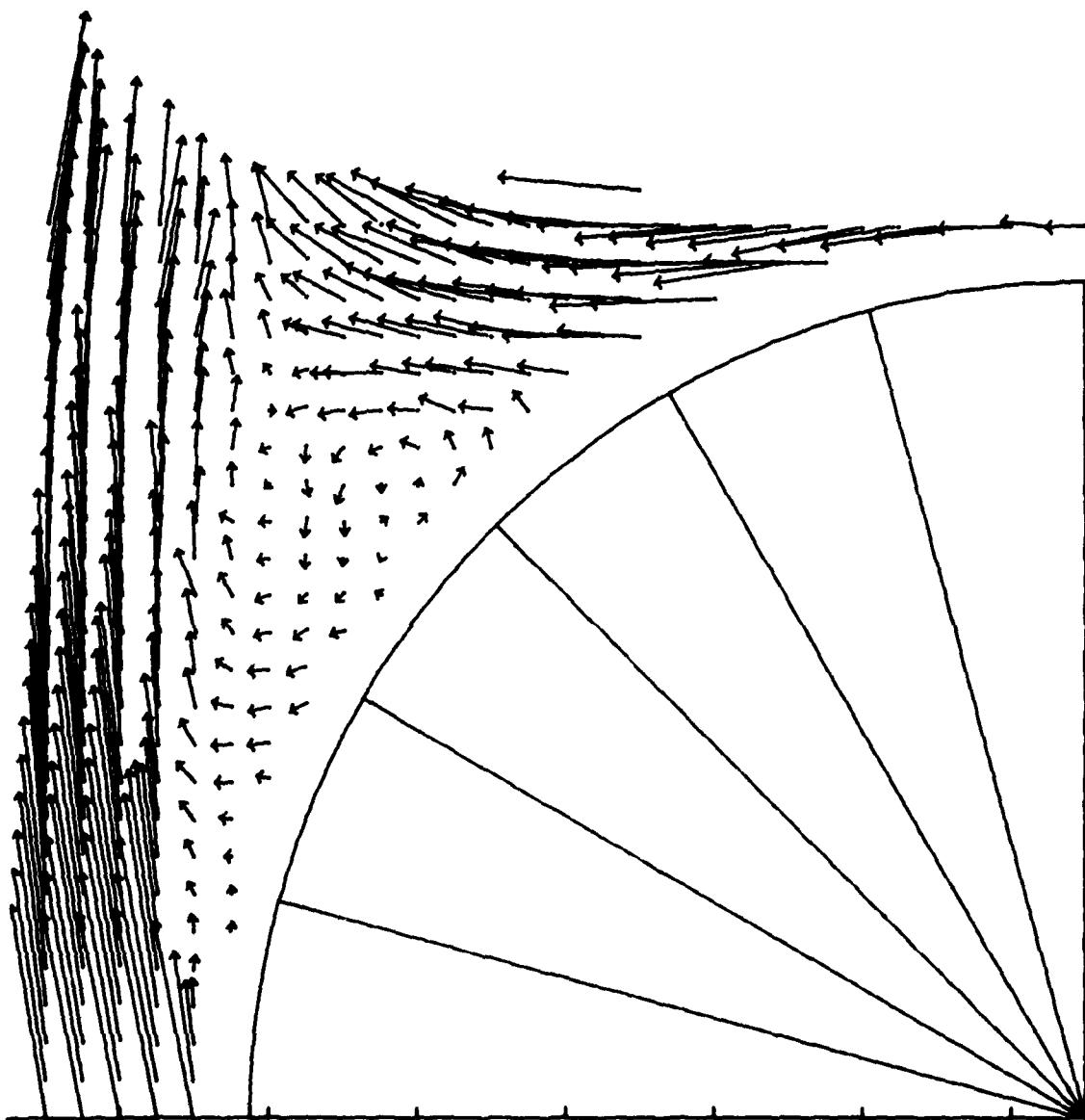


Figure 11. (Continued)

B) (Continued) Enlargement of right secondary region.

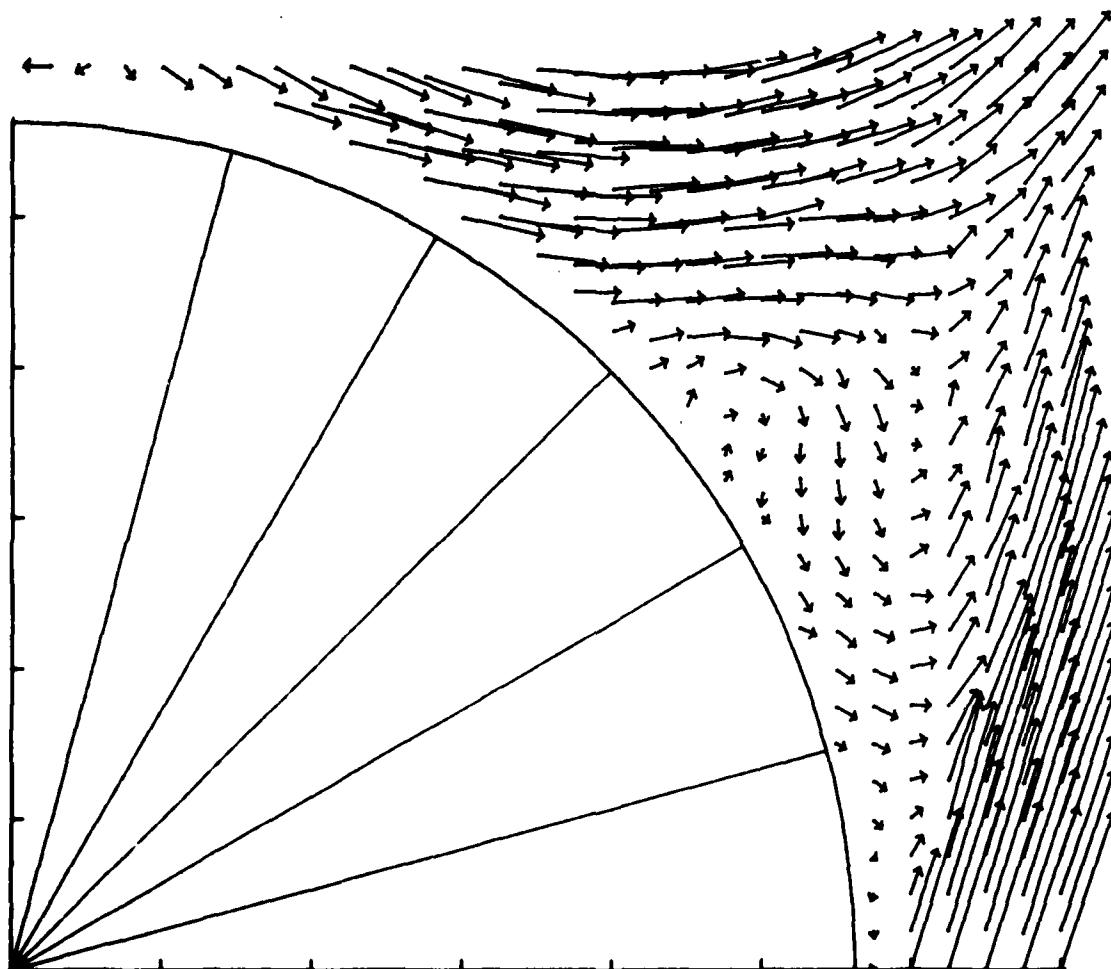


Figure 11. (Continued)

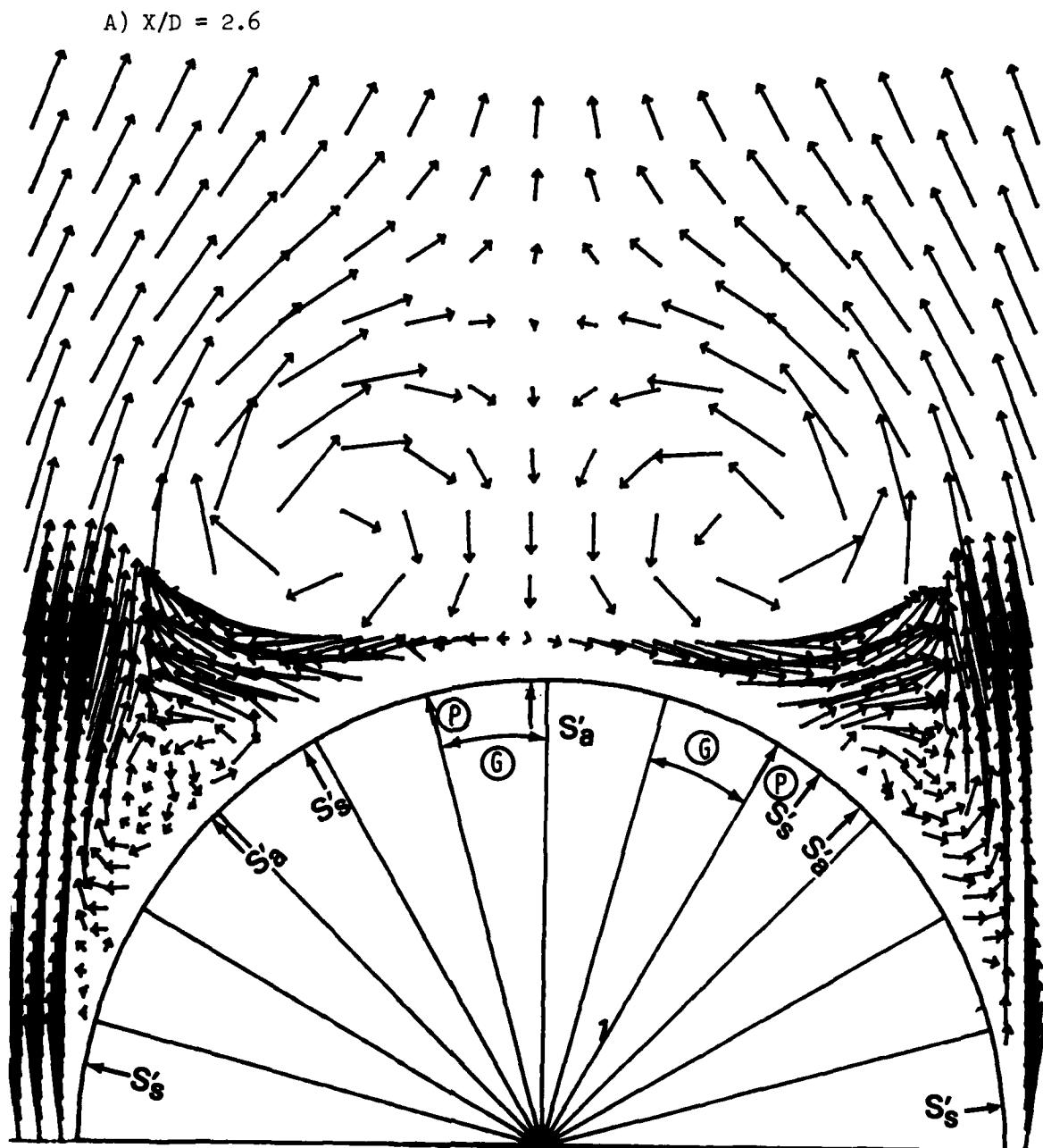


Figure 12. Measured Crossflow plane velocity vectors on the blunt model.
 S'_a and S'_s are attachment and separation points respectively.
 The P represents peak σ_C locations while the G indicates regions of sharp pressure gradients.

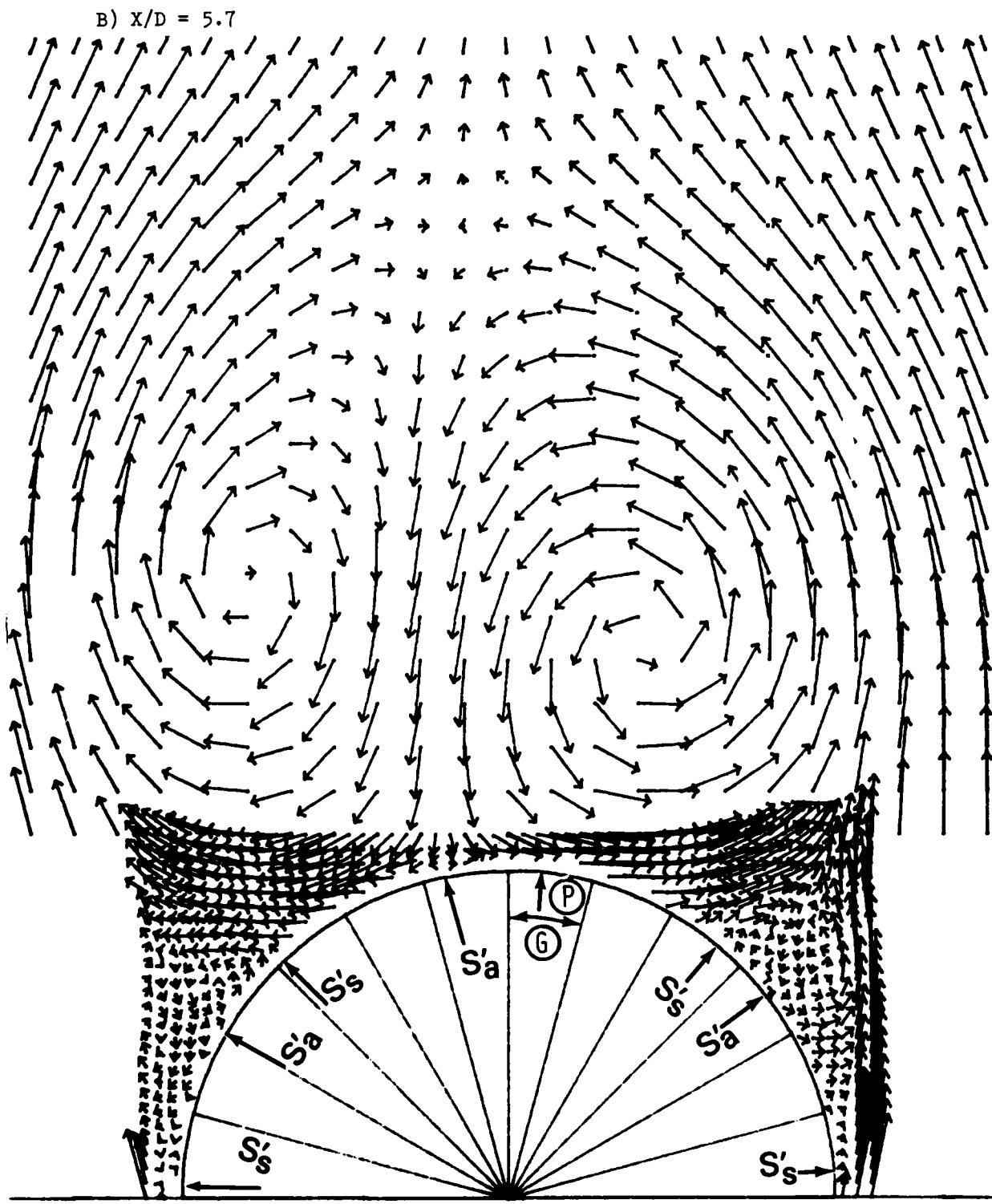


Figure 12. (Continued)

B) (Continued) Enlargement of the left secondary region.

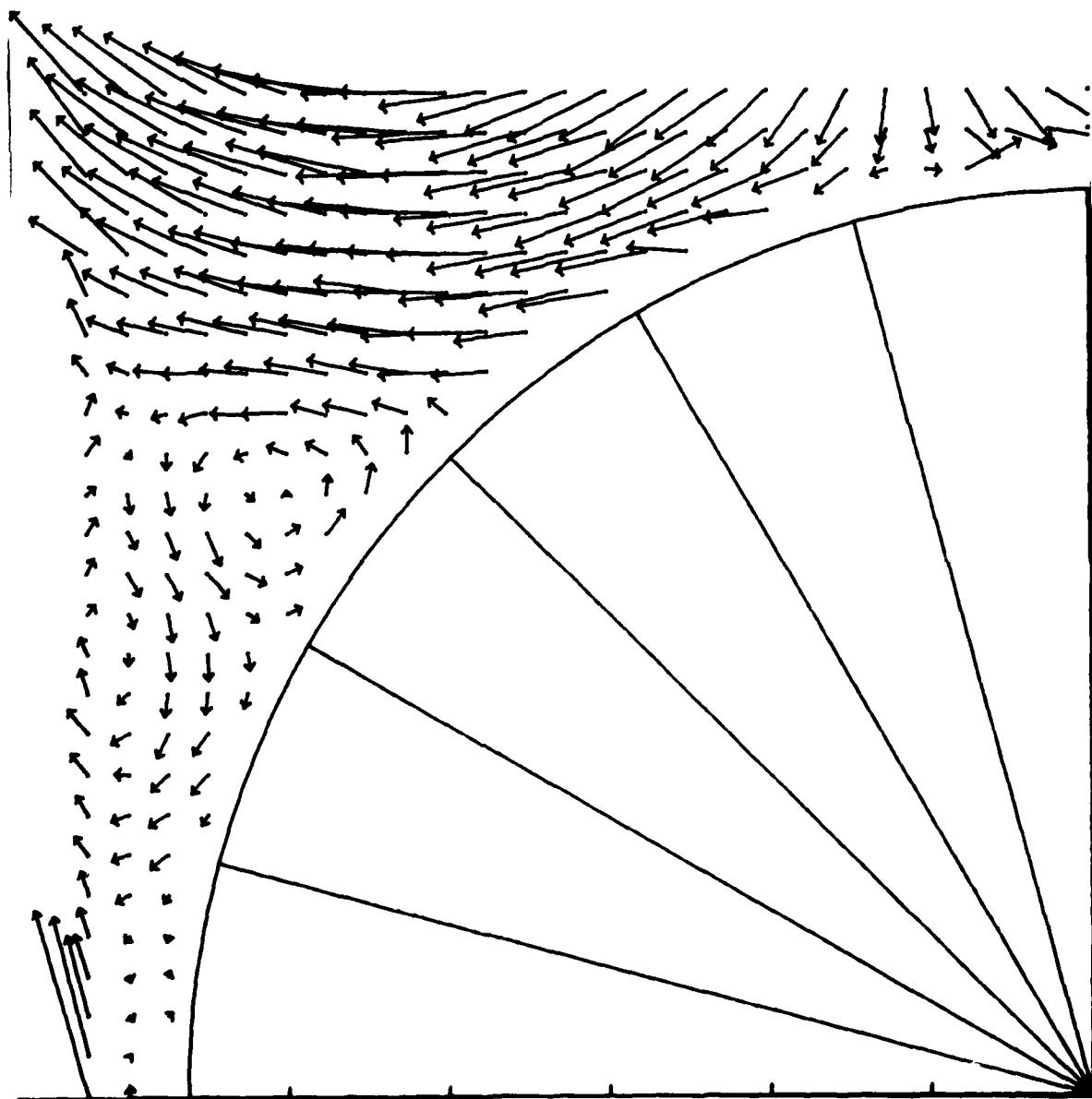


Figure 12. (Continued)

B)(Continued) Enlargement of right secondary region.

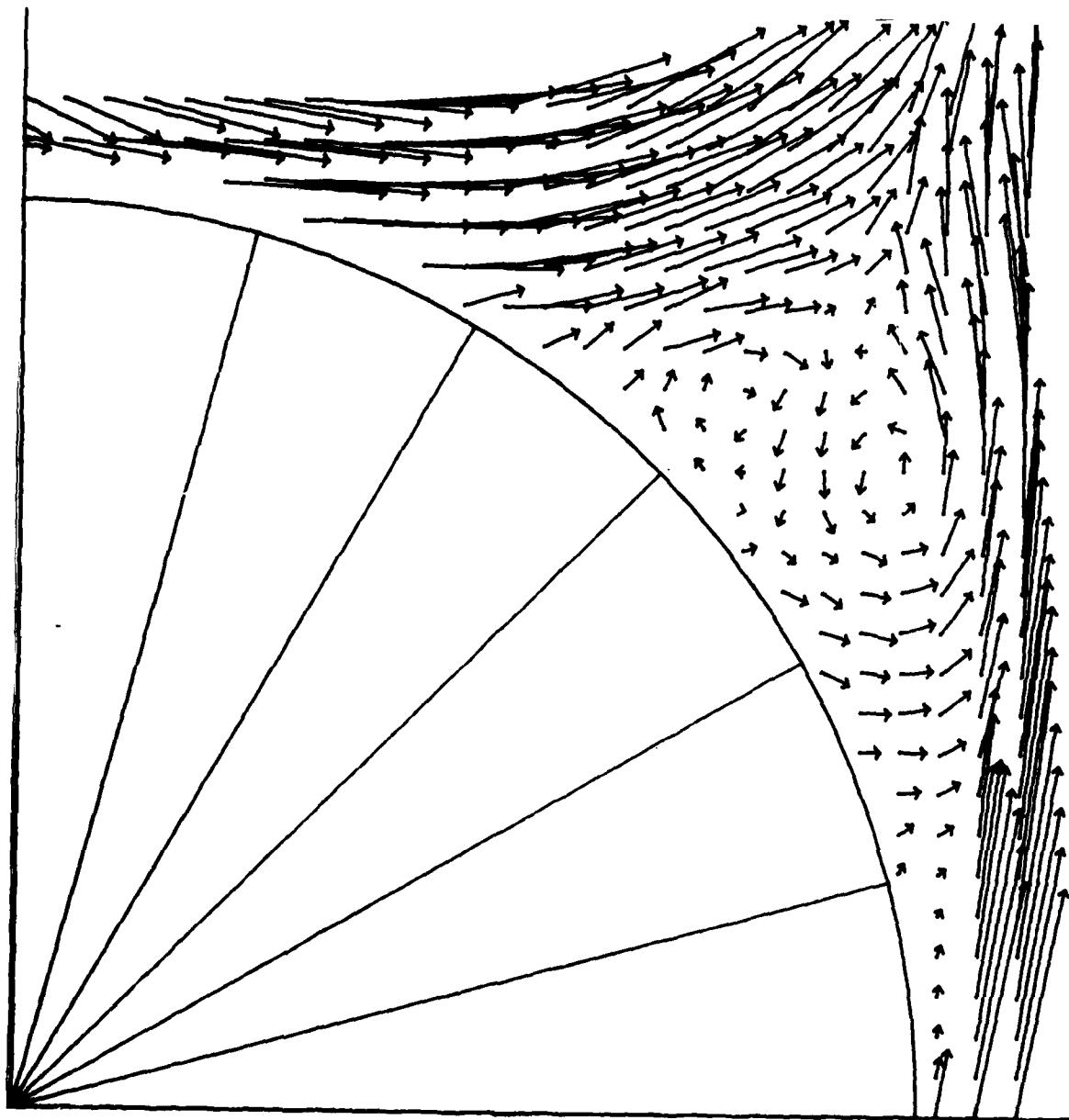


Figure 12. (Continued)

A) $X/D = 1.3$

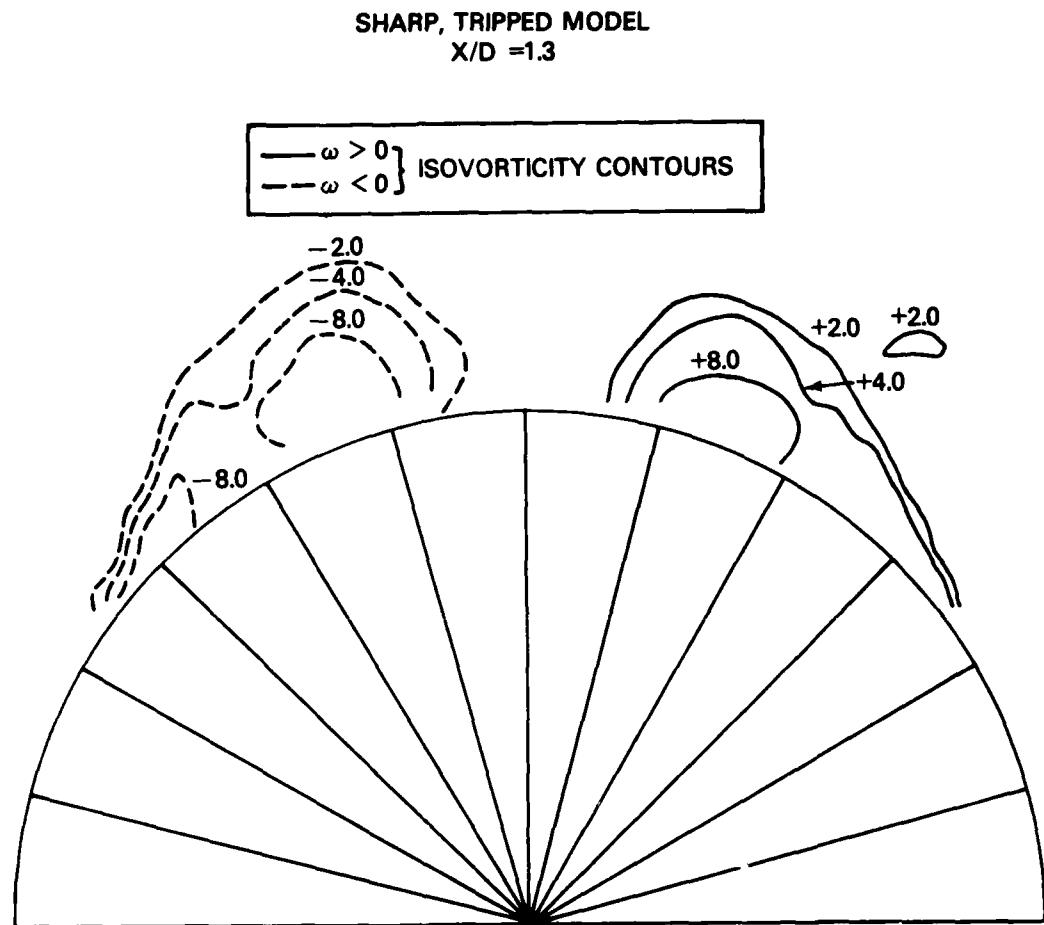


Figure 13. Isovorticity contours and areas of high velocity fluctuations on the sharp tripped model. — $\omega > 0$; --- $\omega \leq 0$;
 $\sigma_{V_c} / U_\infty > .3$

B) $X/D = 2.6$, $C_y = .77$

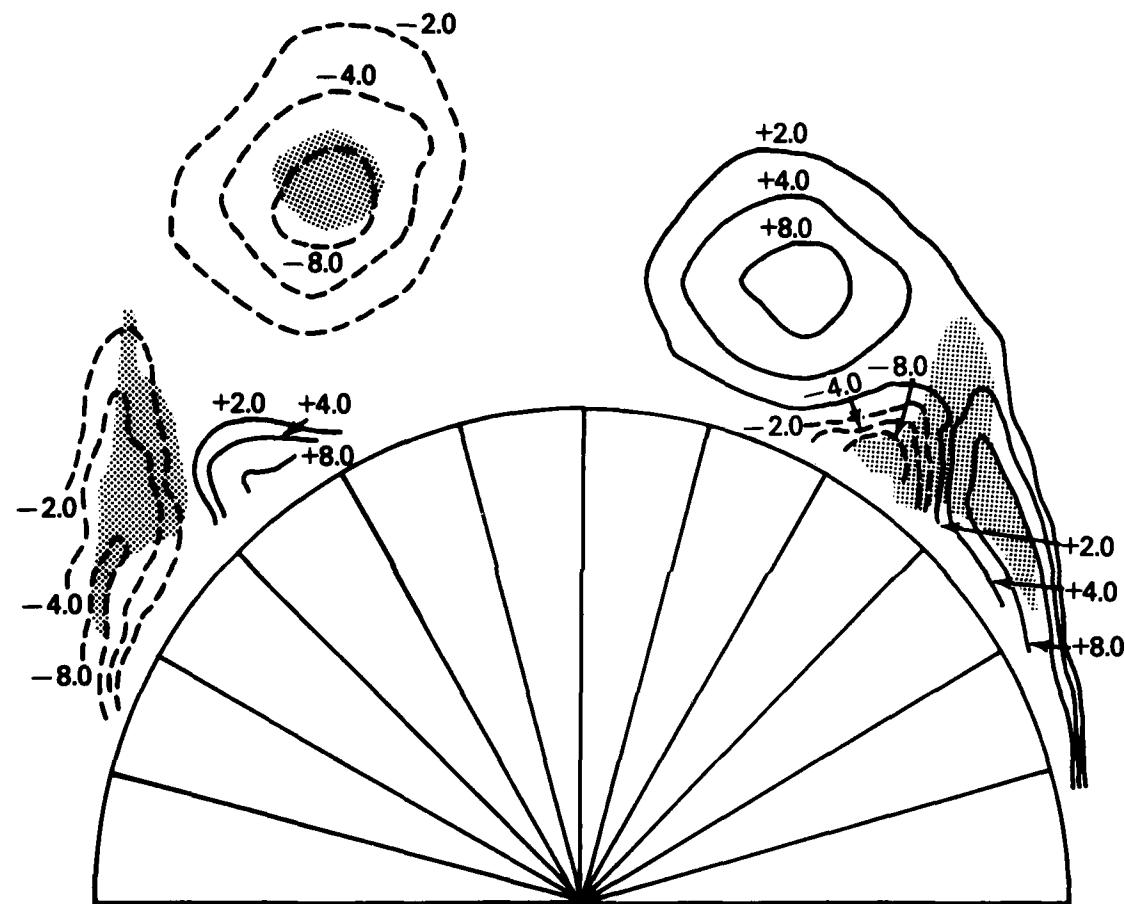


Figure 13. (Continued)

c) $X/D = 3.6$, $C_y = 1.52$

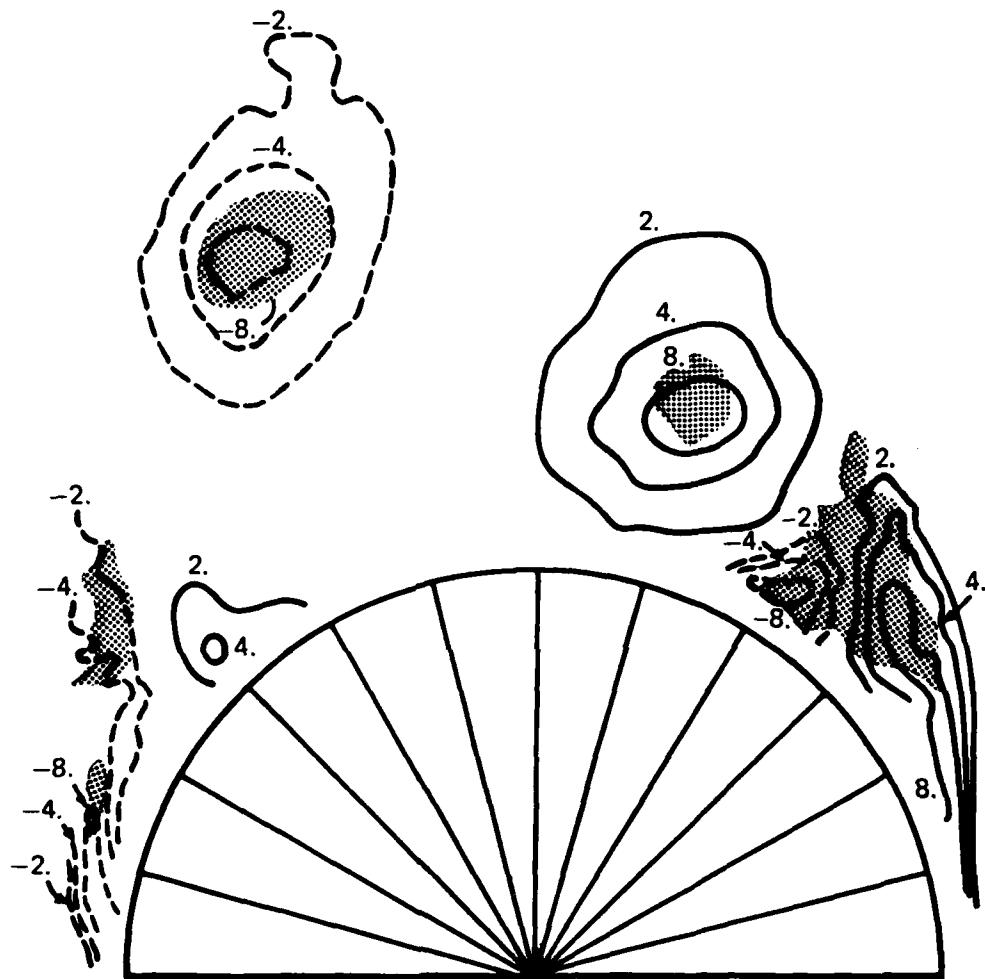


Figure 13. (Continued)

D) $X/D = 4.7$, $C_y = 2.11$

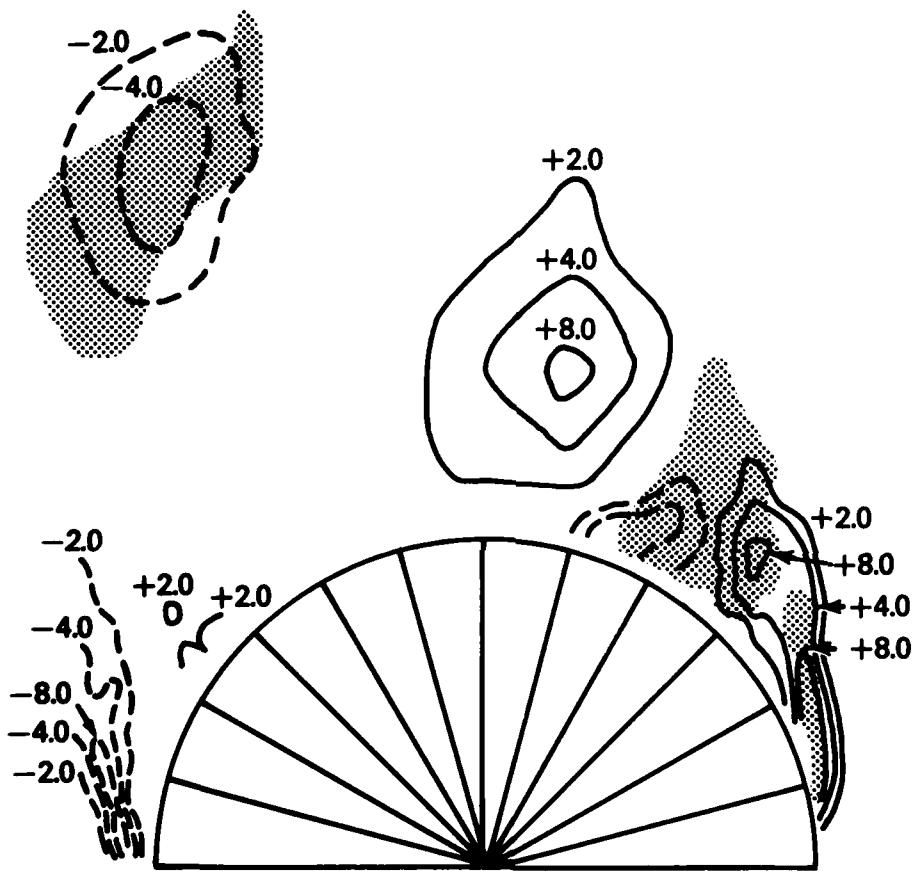


Figure 13. (Continued)

$X/D = 2.6$, $C_y = .09$

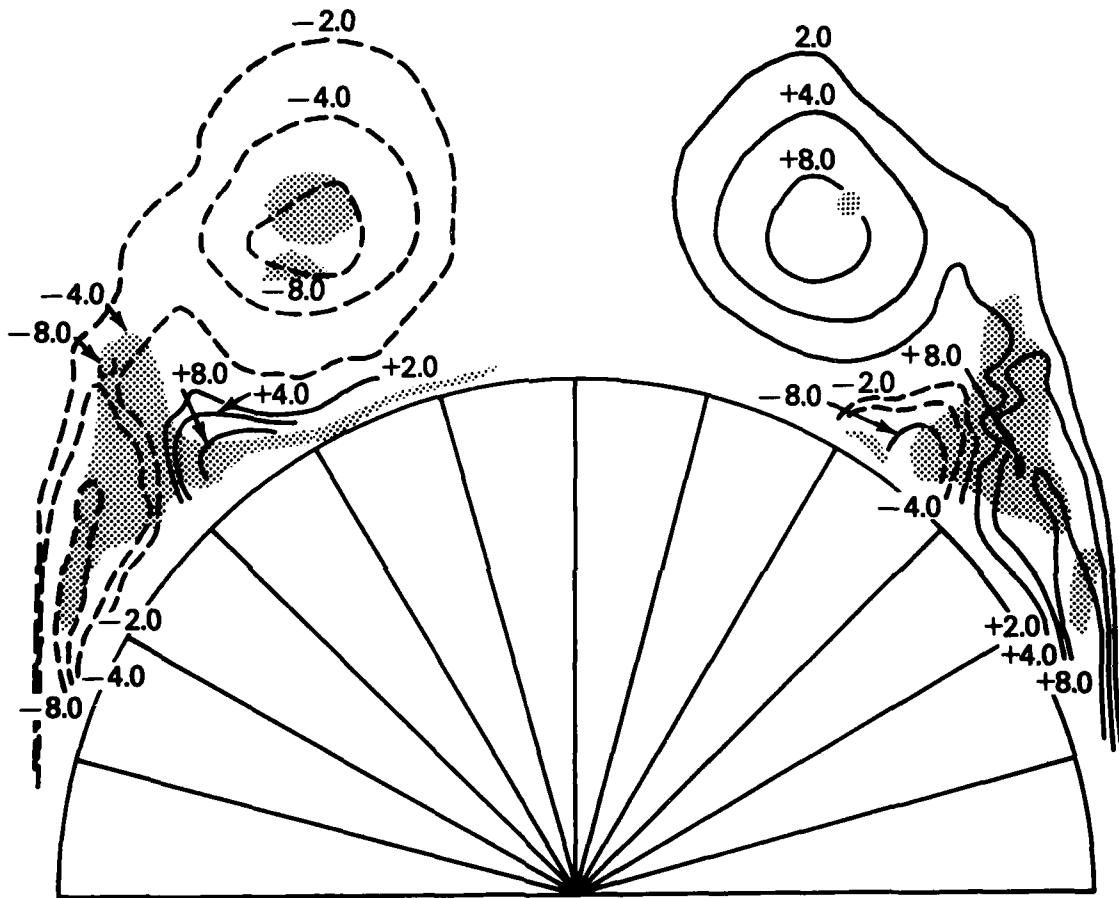


Figure 14. Isovorticity contours and areas of high velocity fluctuations on the sharp, untripped model. — $\omega > 0$; - - - $\omega \leq 0$;
 $\text{hatched} \quad \sigma_{V_c} / U_\infty \geq .3$

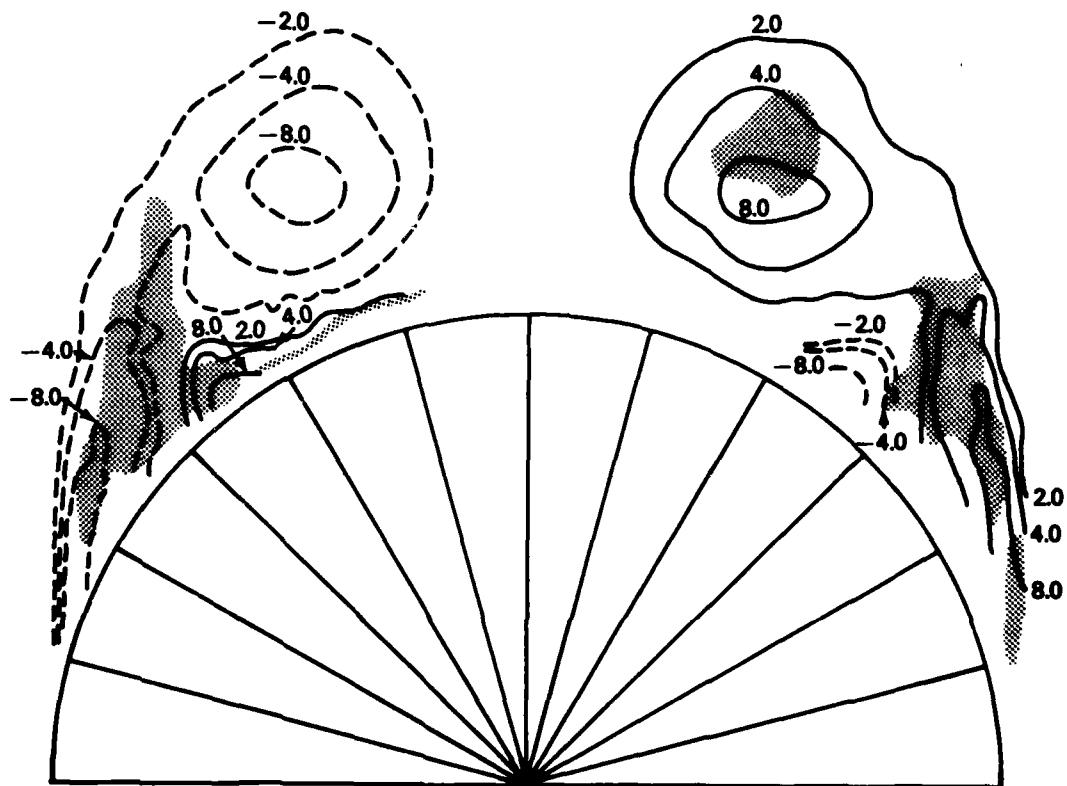
A) $X/D = 2.6$; $C_y = .33$ 

Figure 15. Isovorticity contours and areas of high velocity fluctuations on the sharp, untripped model. — $\omega > 0$; - - - $\omega \leq 0$;
 $\sigma_{V_c} / U_\infty > .3$

B) $X/D = 5.7$, $C_y = .93$

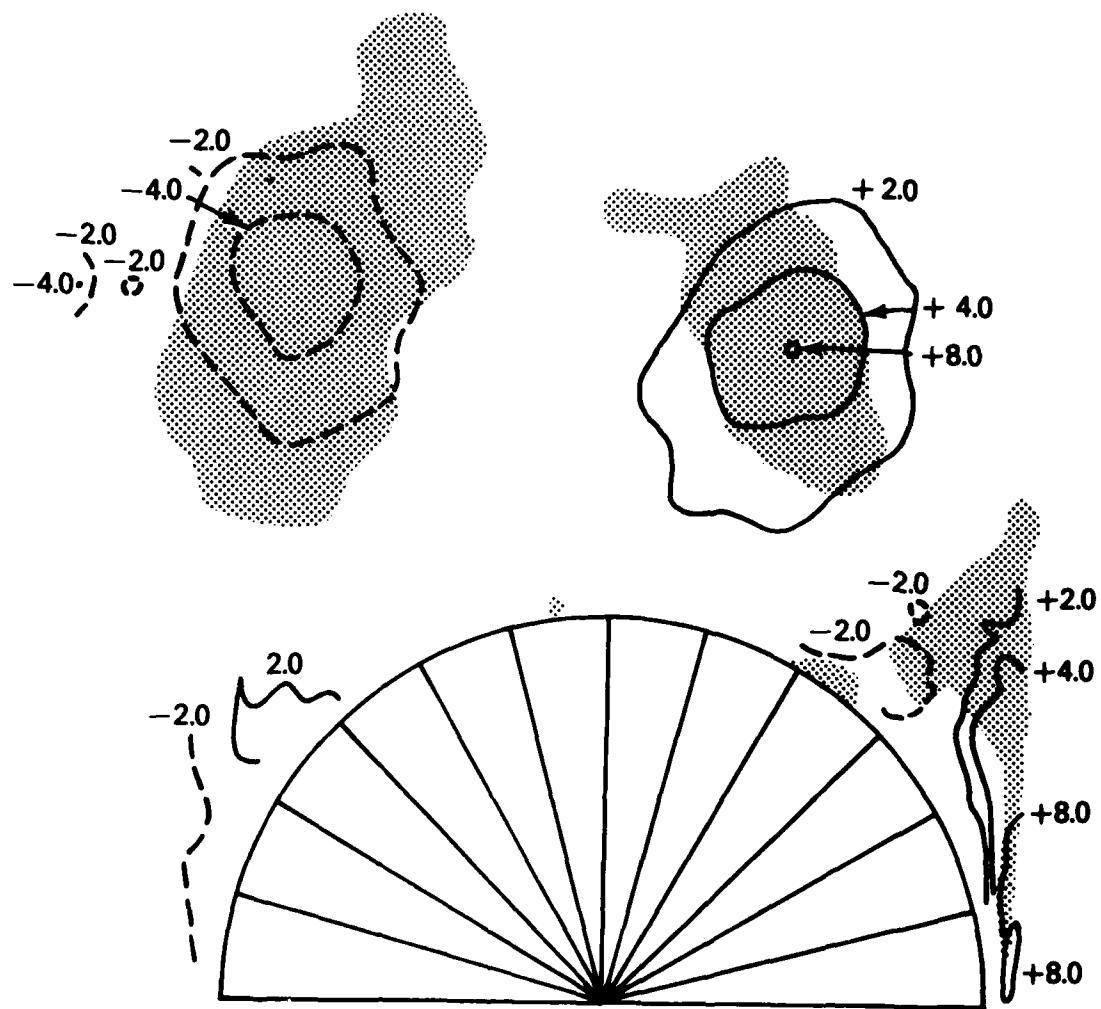


Figure 15.(Continued)

NSWC TR 82-394

A) $X/D = 1.3$

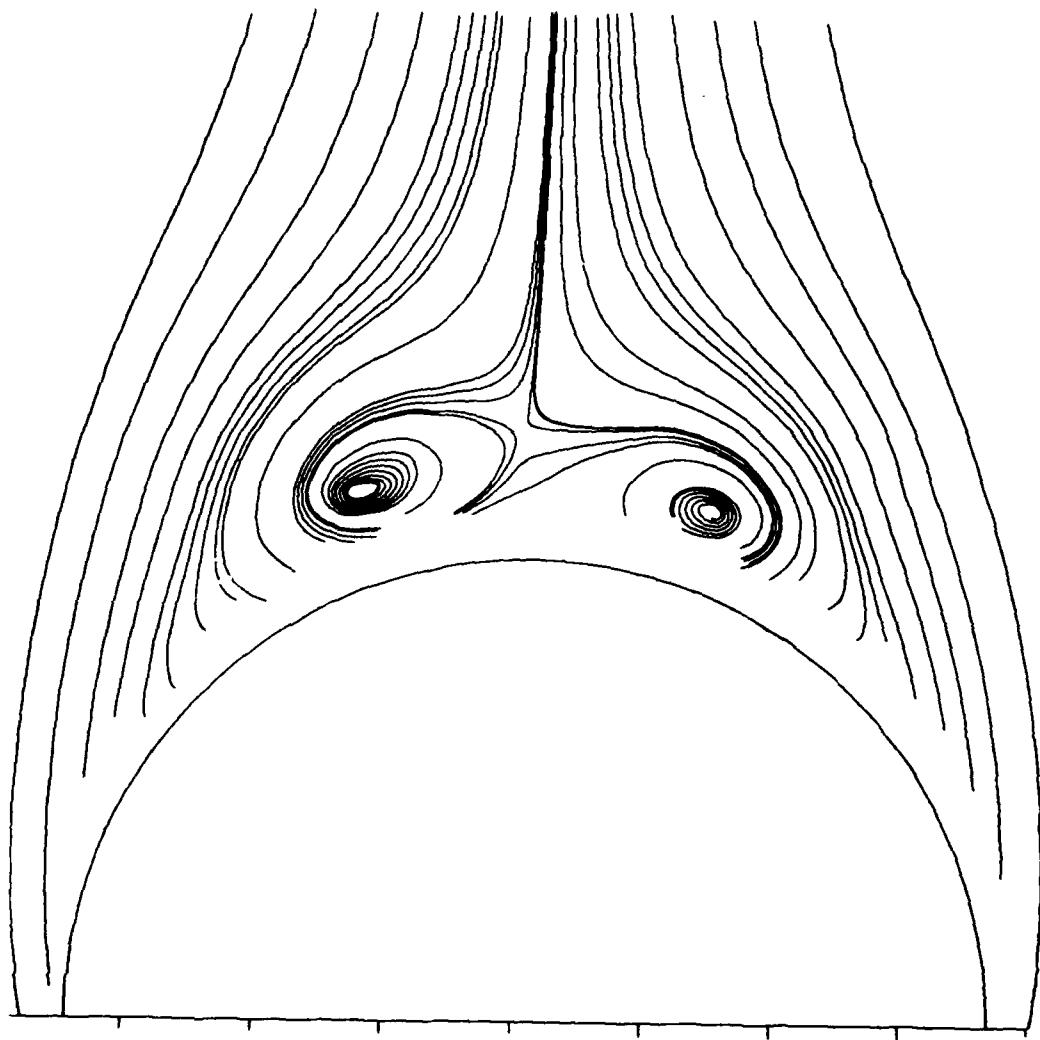


Figure 16. Streamlines on the tripped model.

NSWC TR 82-394

B) $X/D = 2.6$

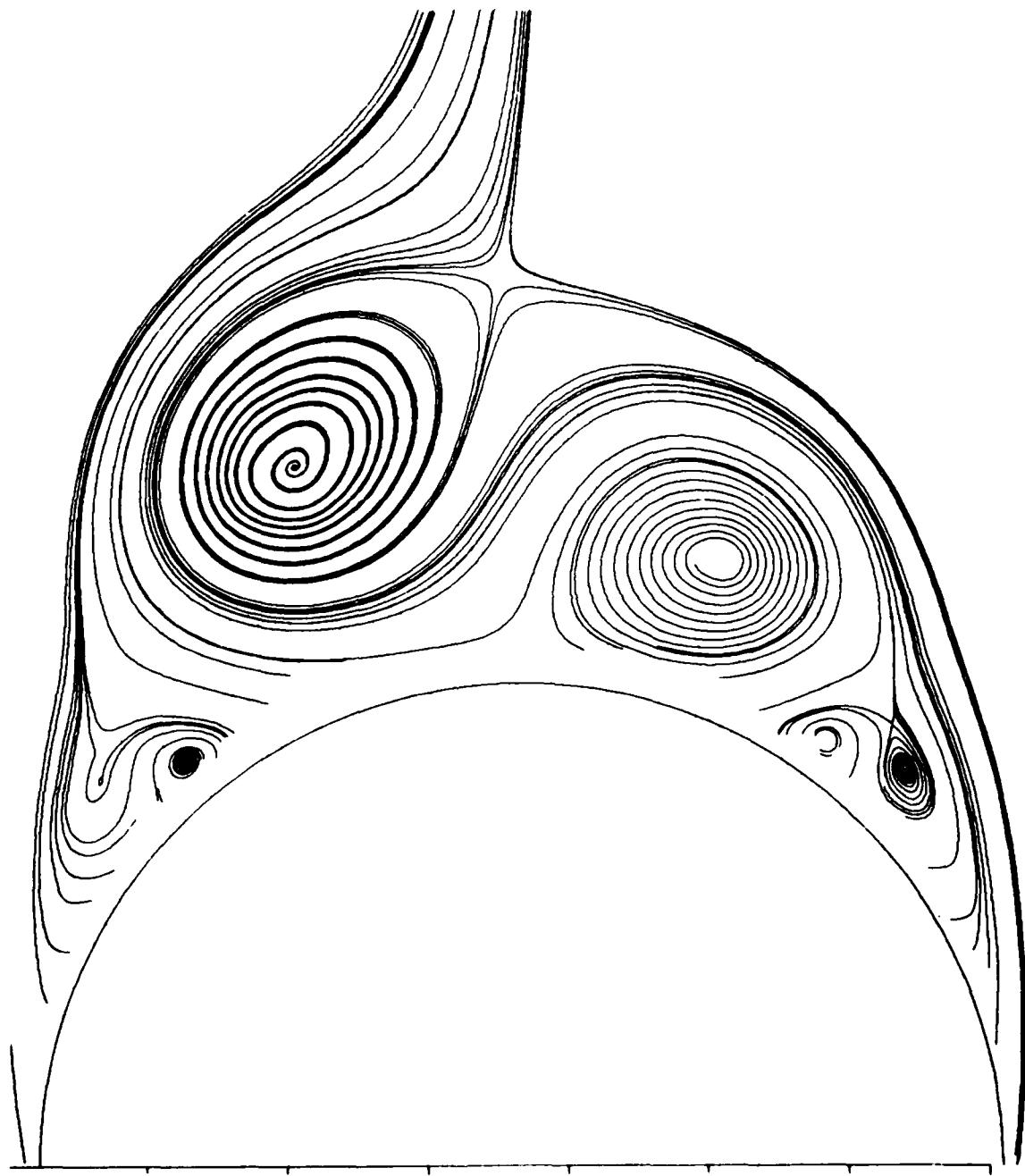


Figure 16. (Continued)

c) $X/D = 3.6$

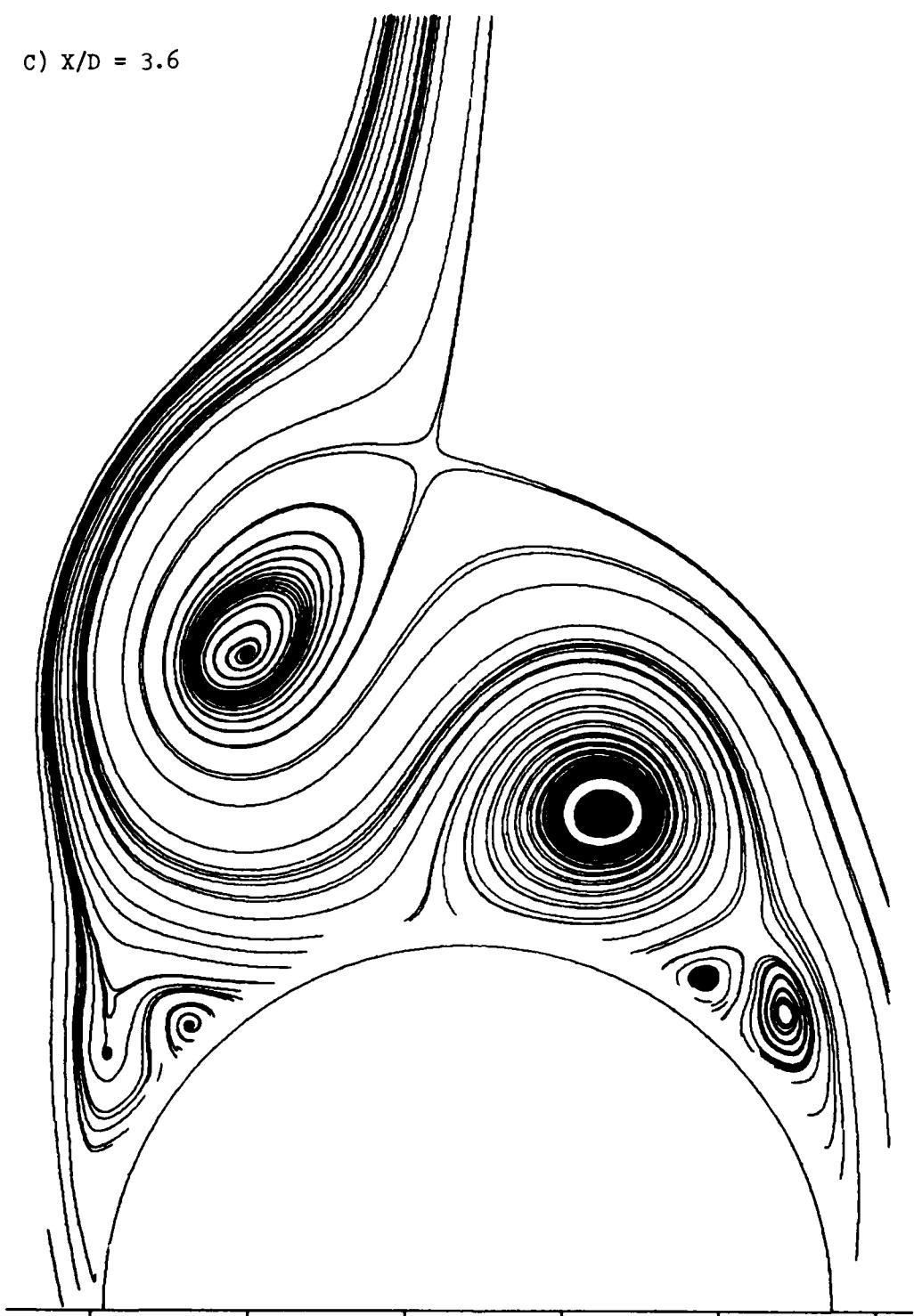


Figure 16. (Continued)

D) $X/D = 4.7$

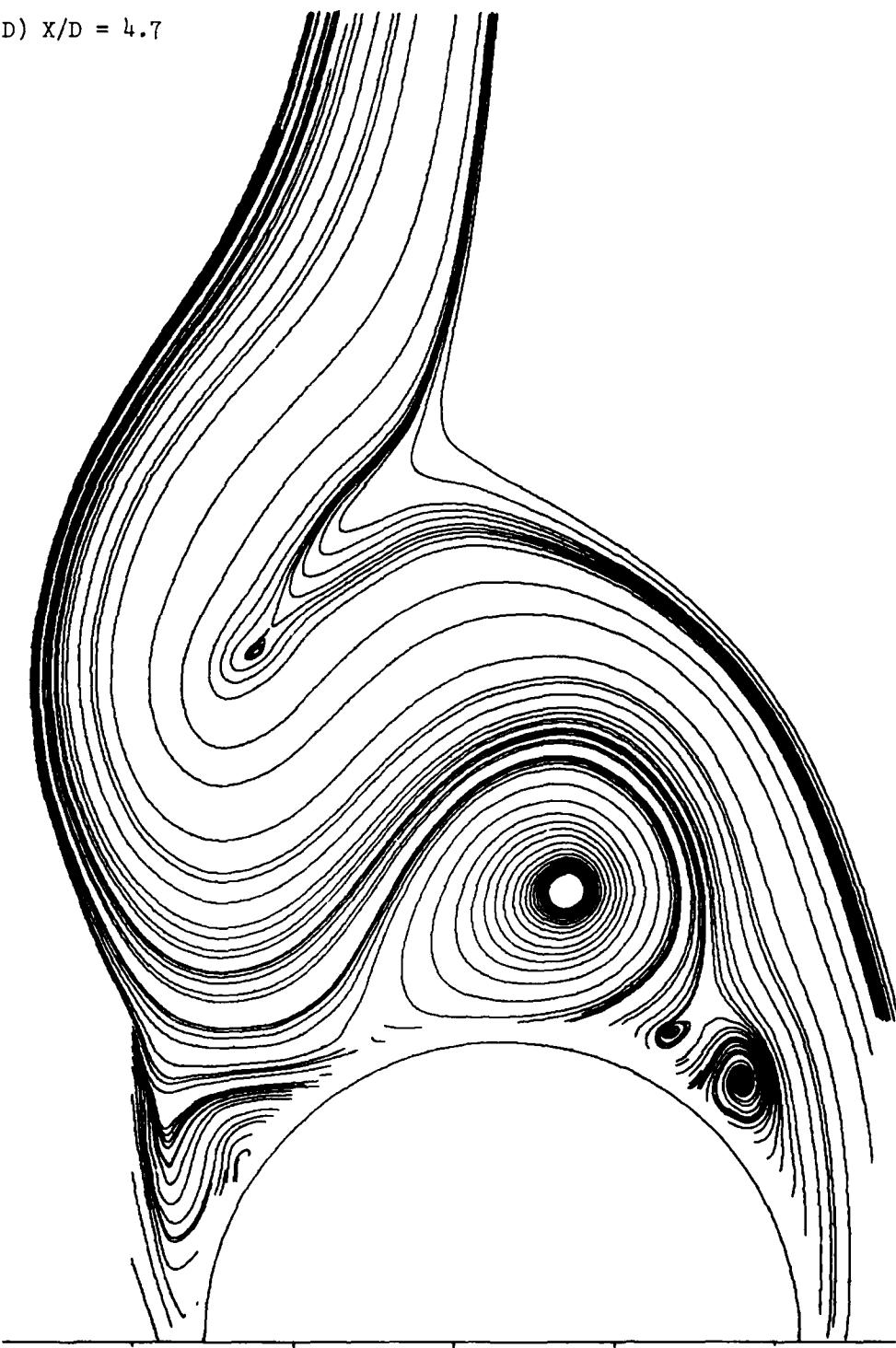


Figure 16.(Continued)

NSWC TR 82-394

X/D = 2.6

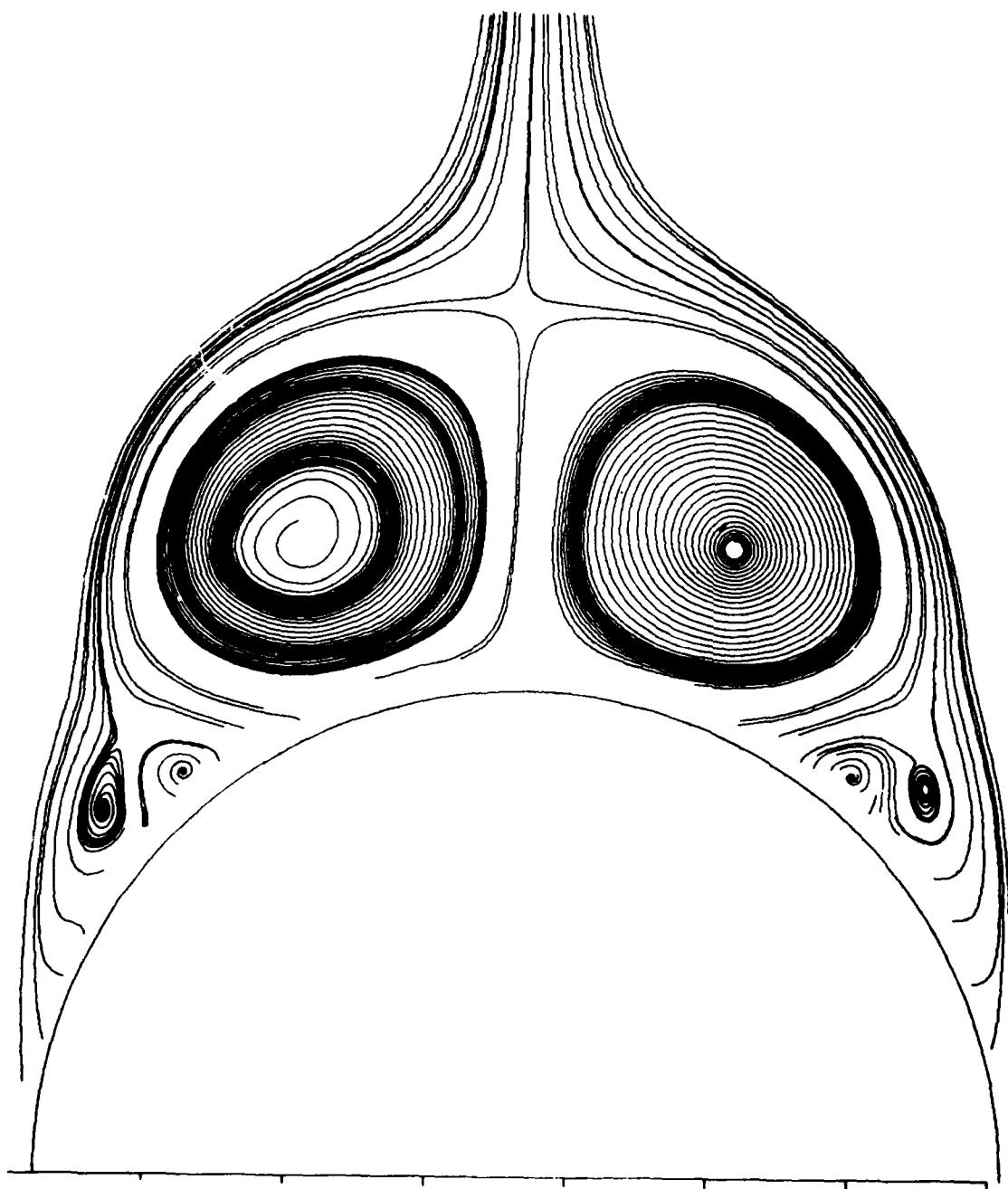


Figure 17. Streamlines on the sharp untripped model.

A) $X/D = 2.6$

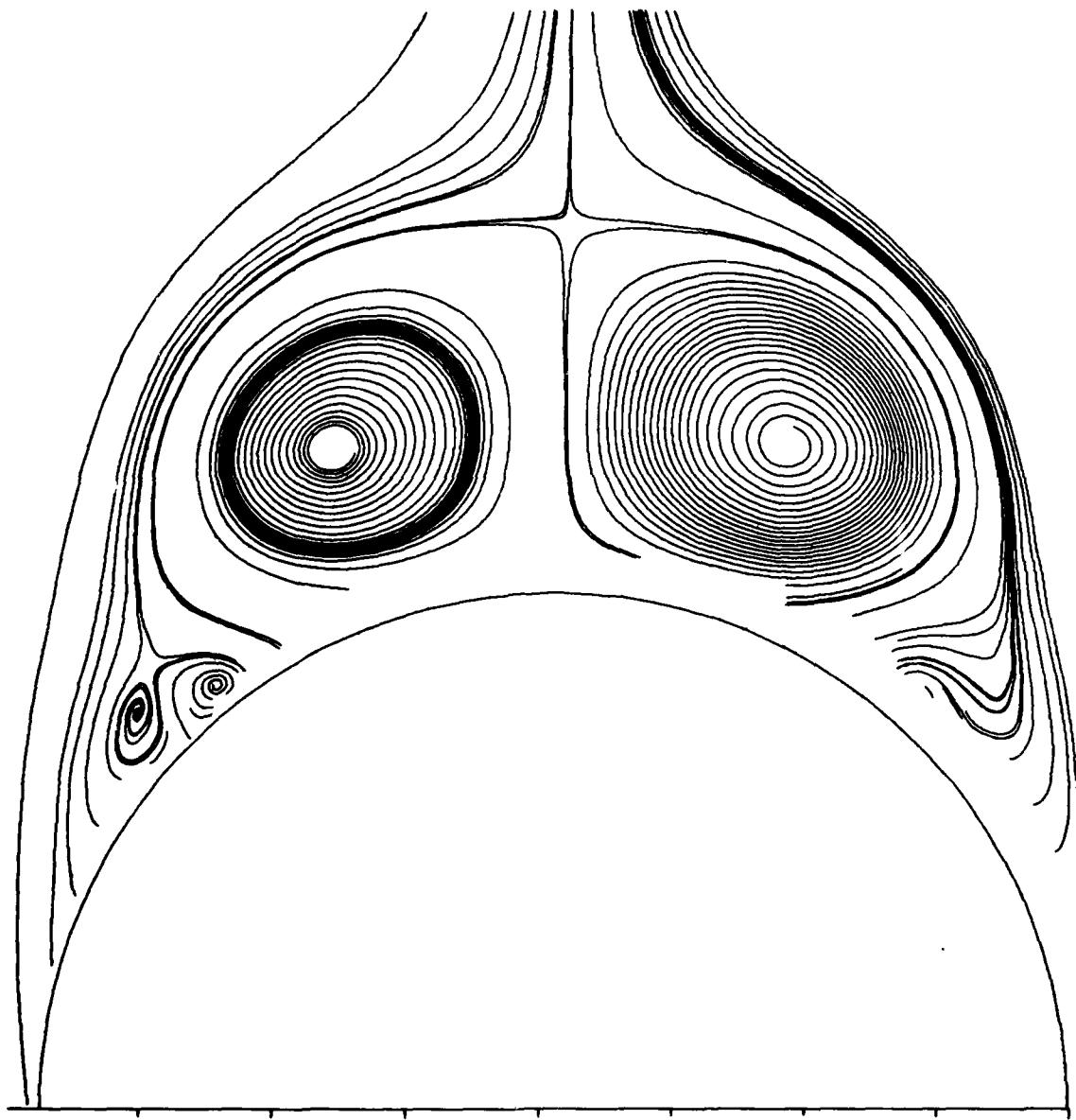


Figure 18. Streamlines on the blunt model.

NSWC TR 82-394

B) $X/D = 5.7$

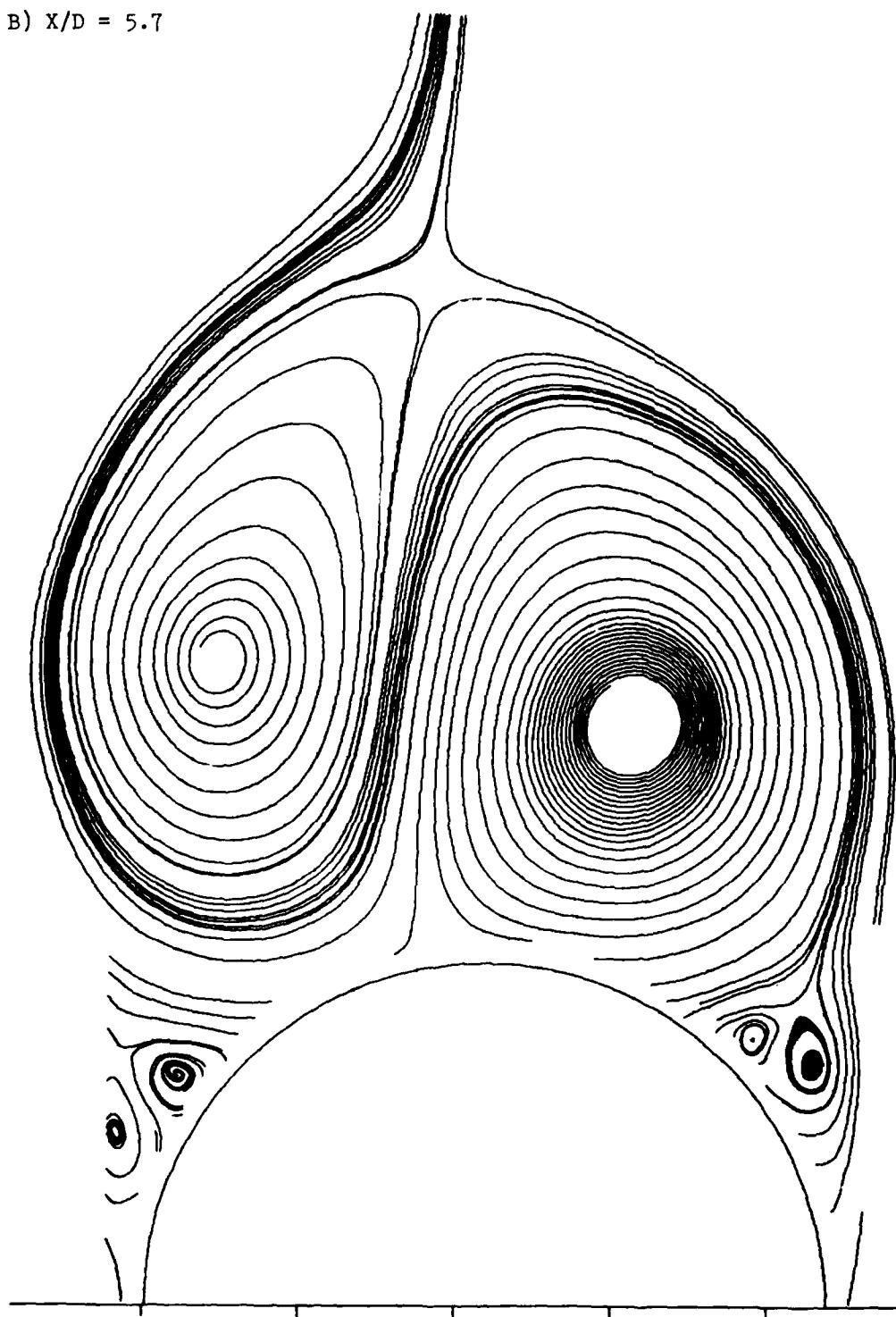


Figure 18. (Continued)

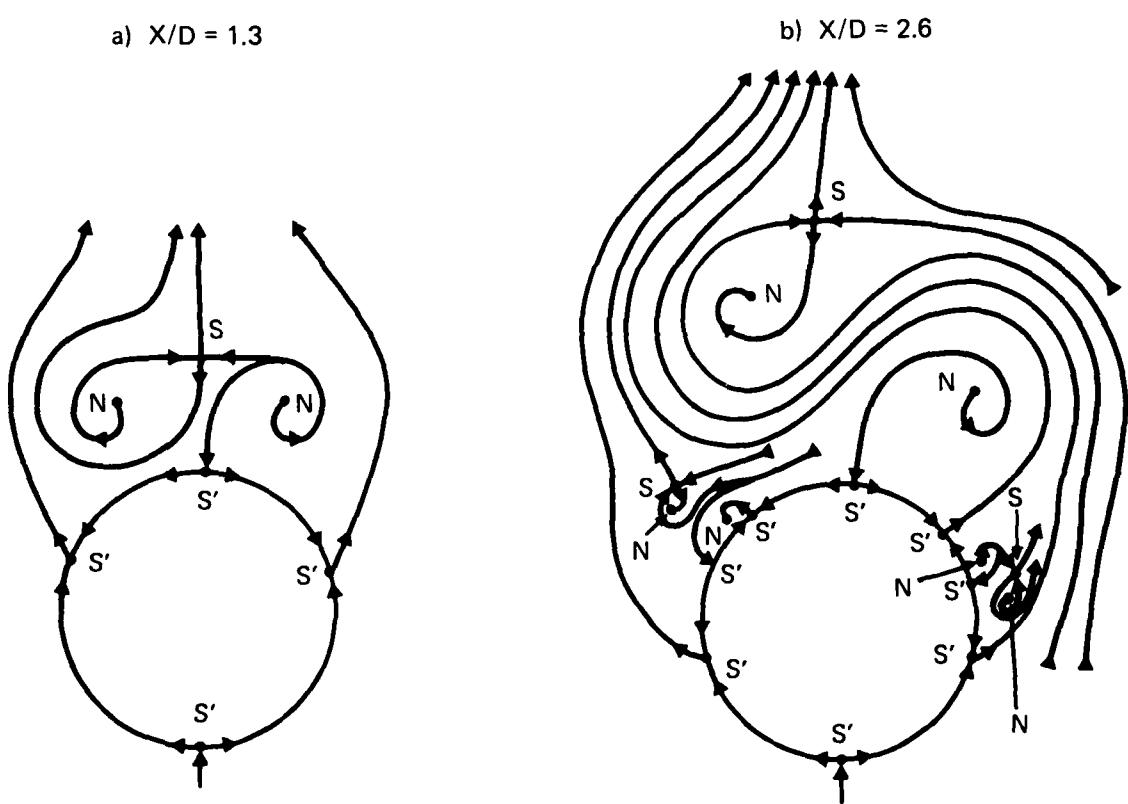


Figure 19. Topological sketch of asymmetric flow development.

c) $X/D = 4.7$

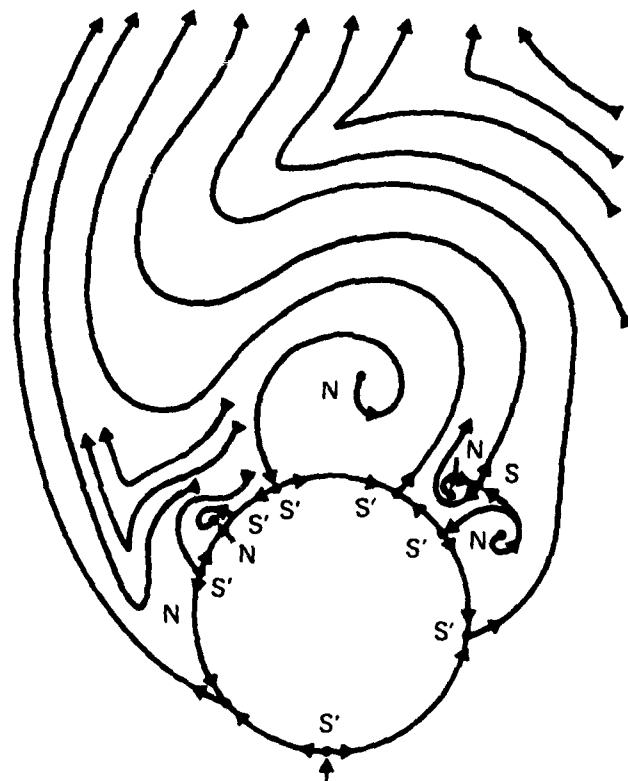


Figure 19. (Continued)

TABLE 1

WIND TUNNEL TESTS IN WHICH LDV DATA WAS TAKEN

Run No.	Model	Crosssectional Plane Surveyed (X/D)	Comments	Test No.
1	Sharp, no trip	2.6	Flow field unsteadiness occurred	81061602
2	Sharp, no trip	5.7	Only secondary region surveyed	81061701
3	Sharp, tripped	.75	Vortices not clearly resolved.	81070702
4	Sharp, tripped	1.3		81070701
5	Sharp, tripped	2.6		81070802
6	Sharp, tripped	3.6		81070803
7	Sharp, tripped	4.7		81062502
8	Blunt	2.6		81071515
9	Blunt	5.7		81071601

TABLE - 2
CIRCULATION CONTAINED IN REGIONS P, S1 and S2

X/D	Left Hand Side			Right Hand Side			$\sum \lambda$	C_y
	Secondary λ_{S1}	Secondary λ_{S2}	Primary λ_p	Secondary λ_{S1}	Secondary λ_{S2}	Primary λ_p		
SHARP, TRIPPED MODEL								
.75			-.019			.010	-.009	
1.30			-.218			.198	-.020	
2.60	-.218	.053	-.403	.209	-.046	.360	-.044	.77
3.60	-.265	.048	-.581	.245	-.070	.578	-.095	1.475
4.70+	-.332*	.031	-.755	.297	-.064	.665	-.158	2.1
SHARP, UNTRIPPED MODEL								
2.60	-.203	.068	-.412	.204	-.047	.388	-.003	0 ~ .2
5.70		.037			-.039			-.6 ~ -8
BLUNT, TRIPPED MODEL								
2.60	-.203	.048	-.346	.216	-.030	.340	.026	.33
5.70	-.188*	.046	-.837	.201	-.048	.869	.043	.93

* Estimated

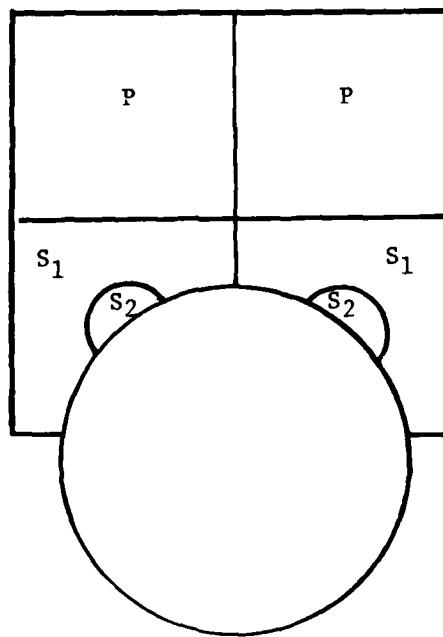
+ Second vortex with a $\lambda = .0023$ starts to form on left hand side of model.

TABLE 3
SIDE FORCE VARIATION

Run 1

X/D	1	2	3	Sample 4
2.6	.093	-.018	0.86	.270
3.6	.038	-.18	.059	.520
4.7	.013	-.47	.013	.909
5.7	-.075	-.723	-.022	1.205

Run 2

X/D	1	2	3	Sample 4
2.6	-.005	-.019	-.043	-.058
3.6	-.161	-.137	-.205	-.231
4.7	-.442	-.412	-.523	-.578
5.7	-.656	-.620	-.779	-.845

CHAPTER 9

REFERENCES

1. Gowens, F. E. and Perkins, E. W., "Study of the Effects of Body Shape on the Vortex Wakes of Inclined Bodies at $M = 2.$," NACA, 1953, RM A53I17.
2. Fiechter, M., "Über Wirbelsysteme an Schlanken Rotationskörpern und Ihren Einfluss auf die Aerodynamischen Beiwerte," Deutsch-Franzosisches Forschungsinstitut, Saint-Louis, 1966, Bericht 10/66.
3. Thomson, K. D. and Morrison, D. F., "The Spacing, Position and Strength of Vortices in the Wake of Slender Cylindrical Bodies at Large Incidence," Journal of Fluid Mechanics, 50, 4, 1971, pp. 751-783.
4. Clark, W. H. and Nelson, R. D., "Body Vortex Formation on Missiles at High Angles of Attack," AIAA Paper 76-65, 1976.
5. Clark, W. H., "Body Vortex Formation on Missiles in Incompressible Flows," AIAA Paper No. 77-1154, 1977.
6. Fidler, J. E., Schwind, R. G. and Nielsen, J. N., "Investigation of Slender-Body Vortices," AIAA Journal, 15, 12, Dec 1977, pp. 1736-1741.
7. Yanta, W. J. and Wardlaw, A. B., "Laser Doppler Velocimeter Measurements of Leeward Flowfields on Slender Bodies at Large Angle-of-Attack," AIAA Paper 77-660, 1977.
8. Schwind, R. G. and Mullen, J., "Laser Velocimeter Measurements of Slender Body Wake Vortices," AIAA Paper 79-0302, 1979.
9. Owen, F. K. and Johnson, D. A., "Wake Vortex Measurements of an Ogive Cylinder at $\alpha = 36$ Degrees," Journal of Aircraft, Sep 1979, pp. 577-583.
10. Wardlaw, A. B. and Yanta, W. J., "Flow Field About and Forces on Slender Bodies at High Incidence," AIAA Journal, 19, 3, Mar 1981, pp. 296-302.
11. Peake, D. J., Owen, F. K., and Johnson, D. A., "Control of Forebody Vortex Orientation to Alleviate Side Forces," AIAA Paper 80-0183, 1980.
12. Yanta, W. J. and Wardlaw, A. B., "Multi-Stable Vortex Patterns on Slender, Circular Bodies at High Incidence," AIAA Journal, 20, 4 Apr 1982, pp 509-515.
13. Lamont, P. J. and Hunt, B. L., "Pressure and Force Distributions on a Sharp-Nosed Circular Cylinder at Large Angles of Inclination to a Uniform Subsonic Stream," Journal of Fluid Mechanics, 76, 3, 1976, pp. 519-559.

14. Wardlaw, A. B. and Morrison, A. M., "Induced Side Forces at High Angles of Attack," Journal of Space Craft and Rockets, 13, 10, 1976, pp. 589-593.
15. Wardlaw, A. B. and Yanta, W. J., "The Flow Field About and Forces on Slender Bodies at High Incidence," AIAA Paper 80-0184, 1980.
16. Canning, T. N. and Nielson, J. N., "Experimental Study of the Influence of Supports on the Aerodynamic Loads of an Ogive Cylinder at High Angles of Attack," AIAA Paper 81-0007, 1981.
17. Hunt, J. C. R., Abell, C. J., Peterka, J. A., and Woo, H., "Kinematical Studies of the Flows Around Free or Surface-Mounted Obstacles; Applying Topology to Flow Visualization," Journal of Fluid Mechanics, 86, 1, 1978, pp. 179-200.
18. Tobak, M. and Peake, D. J., "Topology of Two-Dimensional and Three Dimensional Separated Flows," AIAA Paper 79-1480.
19. Keener, E. R. and Chapman, G. T., "Similarities in Vortex Asymmetries Over Slender Bodies and Wings," AIAA Journal, 15, 9, 1977, pp. 1370-1372.
20. Nishioka, M. and Sato, H., "Mechanism of the Determination of the Shedding Frequency of Vortices Behind a Cylinder at Low Reynolds Number," Journal of Fluid Mechanics, 89, 1, 1978, pp. 49-60.

APPENDIX A

This appendix provides a listing of the measured crossflow plane velocities and standard deviations. The symbols using in the listing are defined as follows:

X,Y,Y - x,y,z coordinate (see Figure 1)

V,W - v and w velocity components

VS,WS - standard deviation of the v and w velocity components.

In some cases the standard deviation values are not available. In these instances the listed value is 0.0000. A tape containing the information provided in this appendix is available on request.

TEST NUMBER	81061602	RUN NUMBER	1	X/P	P	2.60
NO.	V	VS	VS	V	V	VS
1	-1.200	-3.391	25.7662	.6068	.6236	2.996
2	-1.200	-2.942	25.7150	.6208	.6080	4.9659
3	-1.200	-1.00	25.7987	.6736	.6048	5.4287
4	-1.200	-1.350	25.7299	.6775	.6395	2.6718
5	-1.200	-1.200	25.7594	.6714	.6614	3.3210
6	-1.200	-1.201	25.8977	.7048	.6663	-1.9641
7	-1.200	-1.252	25.8974	.6074	.6054	3.0641
8	-1.200	-1.301	25.8654	.6105	.5584	10.3426
9	-1.200	-1.350	25.6624	.7280	.6921	7.3941
10	-1.200	-1.402	25.9771	.7990	.6242	6.3216
11	-1.200	-1.452	25.7706	.8123	.6596	6.0216
12	-1.200	-1.501	25.5220	.9552	.6671	6.2216
13	-1.200	-1.550	25.7845	1.0089	.7489	3.4846
14	-1.200	-1.602	25.5780	1.0065	.8393	3.1428
15	-1.200	-1.652	25.6558	1.1982	.8847	3.2952
16	-1.200	-1.700	25.6493	1.0137	.9067	3.4744
17	-1.200	-1.750	25.5592	1.2460	.9064	3.0059
18	-1.200	-1.802	25.8699	1.4628	.8165	6.1000
19	-1.200	-1.852	25.3114	1.9923	.9445	6.1000
20	-1.200	-1.901	25.9652	1.6337	.1070	6.1000
21	-1.200	-1.950	24.3366	1.1741	.9022	6.1000
22	-1.200	-1.992	24.1706	1.0209	.8617	6.1000
23	-1.200	-2.052	24.5955	1.2870	.9884	6.1000
24	-1.200	-2.100	23.7165	1.0824	.8209	6.1000
25	-1.200	-2.150	23.7660	1.1205	.8971	6.1000
26	-1.200	-2.200	23.4126	1.920	.9306	6.1000
27	-1.200	-2.252	23.9325	1.3926	.8855	6.1000
28	-1.200	-2.301	23.3927	1.3926	.8855	6.1000
29	-1.200	-2.350	26.0763	1.6393	.6391	6.1000
30	-1.200	-1.01	26.1788	1.7451	.7977	6.1000
31	-1.200	-1.150	22.3353	23.399	.6930	6.1000
32	-1.200	-1.201	26.1257	1.6630	.6956	6.1000
33	-1.200	-1.252	26.0666	.9213	.6124	6.1000
34	-1.200	-1.301	26.6694	26.0580	.8132	6.1000
35	-1.200	-1.350	26.7889	.9525	.7979	6.1000
36	-1.200	-1.402	25.7782	1.0682	.5568	6.1000
37	-1.200	-1.452	25.5815	1.9921	.1377	6.1000
38	-1.200	-1.501	25.1154	2.0003	.1788	6.1000
39	-1.200	-1.550	1.4241	2.0057	.9445	6.1000
40	-1.200	-1.602	1.7959	25.9427	2.1840	6.1000
41	-1.200	-1.652	1.8922	24.8362	3.3279	6.1000
42	-1.200	-1.701	2.5195	25.3668	3.0048	6.1000
43	-1.200	-1.750	2.9125	26.0129	2.5707	6.1000
44	-1.200	-1.802	3.3338	25.2983	2.6680	6.1000
45	-1.200	-1.852	4.4417	2.2398	2.078	6.1000
46	-1.200	-1.901	4.8599	25.0374	1.9202	6.1000
47	-1.200	-1.950	5.4515	24.5295	1.5261	6.1000
48	-1.200	-2.002	5.1006	23.6208	1.7776	6.1000
49	-1.200	-2.052	5.4693	23.7549	1.4420	6.1000
50	-1.200	-2.102	5.1130	23.5334	1.922	6.1000
51	-1.200	-2.151	5.150	23.2001	1.4493	6.1000
52	-1.200	-2.201	4.6697	23.5339	1.5881	6.1000
53	-1.200	-2.252	4.002	2.3550	3.5947	6.1000
54	-1.200	-2.302	3.303	1.7829	.3748	6.1000
55	-1.200	-2.352	1.303	1.3378	.3631	6.1000
	-1.402	-1.4131	1.4131	1.2942	3.4912	1.050

TEST NUMBER	81061602	RUN NUMBER 1	X/D p	2.60	
No.					
111	-1.098	-1.5807	7.2822	V	
112	1.150	-3.9326	9.5839	W	
113	-1.950	1.200	-2.2470	13.2476	VS
114	-1.901	-749	-3.6310	-3.1437	VS
115	-1.901	-800	-1.1075	-4.6145	VS
116	-1.901	-850	-5.2444	-5.7566	VS
117	-1.901	-898	-8.6628	-5.3244	VS
118	-1.901	-949	-0.6641	-4.2788	VS
119	-1.901	1.000	-2.7464	-2.7956	VS
120	-1.901	1.050	-5.6209	-5.4887	VS
121	-1.098	-6.9622	4.2498	5.2496	VS
122	-1.901	1.149	-6.2612	-9.2751	VS
123	-1.901	1.200	-6.7533	-12.6054	VS
124	-1.851	-798	-2.2901	-2.5378	VS
125	-1.851	-850	1.6445	-4.5096	VS
126	-1.851	-900	-2.5569	-5.5983	VS
127	-1.851	-949	-2.3816	-4.4176	VS
128	-1.851	-998	-6.0529	-3.2460	VS
129	-1.851	1.050	-11.9462	-5.3067	VS
130	-1.851	-851	-11.6337	-4.7838	VS
131	-1.851	1.149	-12.0467	-9.1850	VS
132	-1.851	1.198	-11.3287	12.4806	VS
133	-1.801	-850	-5.9175	-1.1630	VS
134	-1.801	-900	2.3657	-1.2011	VS
135	-1.801	-949	-2.5696	-1.9262	VS
136	-1.801	-998	-8.8693	-4.0426	VS
137	-1.801	1.050	-14.8672	3.3114	VS
138	-1.801	1.160	-14.0000	6.3578	VS
139	-1.801	1.149	-16.3784	-1.0147	VS
140	-1.801	1.198	-14.8029	12.9356	VS
141	-1.751	-900	5.3147	3.5374	VS
142	-1.751	-949	-1.1762	-7.7226	VS
143	-1.751	-998	-11.8392	2.2202	VS
144	-1.751	-1.050	-16.2755	5.2612	VS
145	-1.751	-1.149	-16.9556	7.5918	VS
146	-1.751	-1.149	-16.7786	9.9190	VS
147	-1.751	-1.198	-17.6195	12.2728	VS
148	-1.751	-949	-9.98	-0.3335	VS
149	-1.751	-701	-9.98	-9.3615	VS
150	-1.751	-701	-1.050	-16.5944	VS
151	-1.701	-1.160	-21.9930	5.7124	VS
152	-1.701	-1.149	-21.9912	6.8221	VS
153	-1.701	-1.198	-21.2976	6.5225	VS
154	-1.651	-999	-20.0620	10.9062	VS
155	-1.651	-950	-1.050	-19.8376	VS
156	-1.651	-701	-1.049	-21.9930	VS
157	-1.651	-701	-1.160	-22.5033	VS
158	-1.651	-1.149	-21.7653	7.5738	VS
159	-1.651	-1.198	-21.1985	2.1185	VS
160	-1.651	-701	-1.149	-20.8550	VS
161	-1.651	-701	-1.149	-22.3995	VS
162	-1.651	-1.160	-21.5142	3.9924	VS
163	-1.651	-1.149	-21.5669	6.3672	VS
164	-1.651	-1.198	-20.4687	1.8438	VS
165	-1.651	-999	-22.5556	1.2320	VS
				WB	
				VS	
				Y	
				Z	
		No.		Y	
		116	-1.1325	Y	
		117	3.9909	Y	
		118	4.9550	Y	
		119	3.1710	Y	
		120	4.6984	Y	
		121	4.3371	Y	
		122	4.5282	Y	
		123	6.2788	Y	
		124	7.4084	Y	
		125	5.1220	Y	
		126	5.1063	Y	
		127	5.6723	Y	
		128	5.6750	Y	
		129	6.0523	Y	
		130	3.9373	Y	
		131	5.1220	Y	
		132	5.0150	Y	
		133	1.0500	Y	
		134	5.6750	Y	
		135	5.8356	Y	
		136	6.0435	Y	
		137	3.6083	Y	
		138	4.3731	Y	
		139	3.8810	Y	
		140	4.2889	Y	
		141	3.1444	Y	
		142	4.2889	Y	
		143	3.5174	Y	
		144	3.6628	Y	
		145	4.7158	Y	
		146	5.6750	Y	
		147	6.7090	Y	
		148	6.8570	Y	
		149	7.1919	Y	
		150	7.501	Y	
		151	7.501	Y	
		152	7.501	Y	
		153	7.501	Y	
		154	7.501	Y	
		155	7.501	Y	
		156	7.501	Y	
		157	7.501	Y	
		158	7.501	Y	
		159	7.501	Y	
		160	7.501	Y	
		161	7.501	Y	
		162	7.501	Y	
		163	7.501	Y	
		164	7.501	Y	
		165	7.501	Y	
		166	7.501	Y	
		167	7.501	Y	
		168	7.501	Y	
		169	7.501	Y	
		170	7.501	Y	
		171	7.501	Y	
		172	7.501	Y	
		173	7.501	Y	
		174	7.501	Y	
		175	7.501	Y	
		176	7.501	Y	
		177	7.501	Y	
		178	7.501	Y	
		179	7.501	Y	
		180	7.501	Y	
		181	7.501	Y	
		182	7.501	Y	
		183	7.501	Y	
		184	7.501	Y	
		185	7.501	Y	
		186	7.501	Y	
		187	7.501	Y	
		188	7.501	Y	
		189	7.501	Y	
		190	7.501	Y	
		191	7.501	Y	
		192	7.501	Y	
		193	7.501	Y	
		194	7.501	Y	
		195	7.501	Y	
		196	7.501	Y	
		197	7.501	Y	
		198	7.501	Y	
		199	7.501	Y	
		200	7.501	Y	
		201	7.501	Y	
		202	7.501	Y	
		203	7.501	Y	
		204	7.501	Y	
		205	7.501	Y	
		206	7.501	Y	
		207	7.501	Y	
		208	7.501	Y	
		209	7.501	Y	
		210	7.501	Y	
		211	7.501	Y	
		212	7.501	Y	
		213	7.501	Y	
		214	7.501	Y	
		215	7.501	Y	
		216	7.501	Y	
		217	7.501	Y	
		218	7.501	Y	
		219	7.501	Y	
		220	7.501	Y	
		221	7.501	Y	
		222	7.501	Y	
		223	7.501	Y	
		224	7.501	Y	
		225	7.501	Y	
		226	7.501	Y	
		227	7.501	Y	
		228	7.501	Y	
		229	7.501	Y	
		230	7.501	Y	
		231	7.501	Y	
		232	7.501	Y	
		233	7.501	Y	
		234	7.501	Y	
		235	7.501	Y	
		236	7.501	Y	
		237	7.501	Y	
		238	7.501	Y	
		239	7.501	Y	
		240	7.501	Y	
		241	7.501	Y	
		242	7.501	Y	
		243	7.501	Y	
		244	7.501	Y	
		245	7.501	Y	
		246	7.501	Y	
		247	7.501	Y	
		248	7.501	Y	
		249	7.501	Y	
		250	7.501	Y	
		251	7.501	Y	
		252	7.501	Y	
		253	7.501	Y	
		254	7.501	Y	
		255	7.501	Y	
		256	7.501	Y	
		257	7.501	Y	
		258	7.501	Y	
		259	7.501	Y	
		260	7.501	Y	
		261	7.501	Y	
		262	7.501	Y	
		263	7.501	Y	
		264	7.501	Y	
		265	7.501	Y	
		266	7.501	Y	
		267	7.501	Y	
		268	7.501	Y	
		269	7.501	Y	
		270	7.501	Y	
		271	7.501	Y	
		272	7.501	Y	
		273	7.501	Y	
		274	7.501	Y	
		275	7.501	Y	
		276	7.501	Y	
		277	7.501	Y	
		278	7.501	Y	
		279	7.501	Y	
		280	7.501	Y	
		281	7.501	Y	
		282	7.501	Y	
		283	7.501	Y	
		284	7.501	Y	
		285	7.501	Y	
		286	7.501	Y	
		287	7.501	Y	
		288	7.501	Y	
		289	7.501	Y	
		290	7.501	Y	
		291	7.501	Y	
		292	7.501	Y	
		293	7.501	Y	
		294	7.501	Y	
		295	7.501	Y	
		296	7.501	Y	
		297	7.501	Y	
		298	7.501	Y	
		299	7.501	Y	
		300	7.501	Y	
		301	7.501	Y	
		302	7.501	Y	
		303	7.501	Y	
		304	7.501	Y	
		305	7.501	Y	
		306	7.501	Y	
		307	7.501	Y	
		308	7.501	Y	
		309	7.501	Y	
		310	7.501	Y	
		311	7.501	Y	
		312	7.501	Y	
		313	7.501	Y	
		314	7.501	Y	
		315	7.501	Y	
		316	7.501	Y	
		317	7.501	Y	
		318	7.501	Y	
		319	7.501	Y	
		320	7.501	Y	
		321	7.501	Y	
		322	7.501	Y	
		323	7.501	Y	
		324	7.501	Y</td	

TEST NUMBER	81061602	RUN NUMBER 1	X-0.6	Z-2.60	
W _{NO.}	331	VS	MS	V	
Y	1.100	21.5244	6.0689	W	
Z	.004	2.8374	3.1369	W	
V	-2.5997	21.6196	6.2069	VS	
W	.053	-5.0023	23.3656	VS	
X	.002	-5.4203	2.2949	VS	
Y	.993	-6.2178	23.5277	VS	
Z	1.100	1.004	2.0177	VS	
V	333	21.6196	2.2949	VS	
W	334	-5.0023	23.3656	VS	
X	335	-5.4203	2.2949	VS	
Y	336	-6.2178	23.5277	VS	
Z	337	1.004	2.0177	VS	
V	338	21.5244	6.0689	VS	
W	339	1.100	2.2949	VS	
X	340	.002	3.4093	VS	
Y	341	.150	.002	3.0107	VS
Z	342	1.150	.391	4.3394	VS
V	343	1.150	.100	2.5660	VS
W	344	1.150	.002	2.0205	VS
X	345	1.150	.150	2.0205	VS
Y	346	1.150	.202	1.7295	VS
Z	347	1.150	.252	1.7295	VS
V	348	1.150	.301	1.7295	VS
W	349	1.150	.351	1.7295	VS
X	350	1.150	.402	1.7295	VS
Y	351	1.150	.452	1.7295	VS
Z	352	1.150	.501	1.7295	VS
V	353	1.150	.551	1.7295	VS
W	354	1.150	.602	1.6832	VS
X	355	1.150	.653	1.1461	VS
Y	356	1.150	.701	2.4245	VS
Z	357	1.150	.751	2.8394	VS
V	358	1.150	.802	2.9232	VS
W	359	1.150	.852	3.7982	VS
X	360	1.150	.901	4.7426	VS
Y	361	1.150	.951	4.9924	VS
Z	362	1.150	1.002	5.4442	VS
V	363	1.150	1.052	5.4442	VS
W	364	1.150	1.101	5.7435	VS
X	365	1.150	1.151	5.9781	VS
Y	366	1.150	1.202	5.9781	VS
Z	367	1.150	1.250	6.054	VS
V	368	1.150	1.300	6.2748	VS
W	369	1.150	1.350	6.6664	VS
X	370	1.150	1.400	7.2381	VS
Y	371	1.150	1.450	7.5529	VS
Z	372	1.150	1.500	8.8881	VS
V	373	1.150	1.550	8.3739	VS
W	374	1.150	1.600	8.8642	VS
X	375	1.150	1.650	8.0403	VS
Y	376	1.150	1.704	8.0403	VS
Z	377	1.150	1.754	8.7318	VS
V	378	1.150	1.803	8.8686	VS
W	379	1.150	1.853	2.8886	VS
X	380	1.150	1.903	2.8886	VS
Y	381	1.150	1.953	3.3034	VS
Z	382	1.150	2.000	3.5816	VS
V	383	1.150	2.050	4.0554	VS
W	384	1.150	2.100	4.254	VS
X	385	1.150	2.150	4.7552	VS
Y	386	1.150	2.200	5.0958	VS
Z	387	1.150	2.250	5.2045	VS
V	388	1.150	2.300	5.6097	VS
W	389	1.150	2.350	6.0057	VS
X	390	1.150	2.400	6.3079	VS
Y	391	1.150	2.450	6.8642	VS
Z	392	1.150	2.500	6.0543	VS
V	393	1.150	2.550	6.2500	VS
W	394	1.150	2.600	6.9697	VS
X	395	1.150	2.650	7.1866	VS
Y	396	1.150	2.700	7.8226	VS
Z	397	1.150	2.750	8.0403	VS
V	398	1.150	2.800	8.8686	VS
W	399	1.150	2.850	9.0517	VS
X	400	1.150	2.900	9.0517	VS
Y	401	1.150	2.950	9.433	VS
Z	402	1.150	3.000	9.433	VS
V	403	1.150	3.050	9.7555	VS
W	404	1.150	3.100	1.122	VS
X	405	1.150	3.150	2.6250	VS
Y	406	1.150	3.200	2.8337	VS
Z	407	1.150	3.250	7.078	VS
V	408	1.150	3.300	1.8234	VS
W	409	1.150	3.350	1.8661	VS
X	410	1.150	3.400	1.9802	VS
Y	411	1.150	3.450	1.4545	VS
Z	412	1.150	3.500	1.9802	VS
V	413	1.150	3.550	1.3430	VS
W	414	1.150	3.600	1.9990	VS
X	415	1.150	3.650	1.1225	VS
Y	416	1.150	3.700	1.4587	VS
Z	417	1.150	3.750	1.0492	VS
V	418	1.150	3.800	1.8223	VS
W	419	1.150	3.850	1.9997	VS
X	420	1.150	3.900	1.7366	VS
Y	421	1.150	3.950	1.5244	VS
Z	422	1.150	4.000	6.0520	VS
V	423	1.150	4.050	4.216	VS
W	424	1.150	4.100	4.216	VS
X	425	1.150	4.150	4.216	VS
Y	426	1.150	4.200	4.216	VS
Z	427	1.150	4.250	4.216	VS
V	428	1.150	4.300	4.216	VS
W	429	1.150	4.350	4.216	VS
X	430	1.150	4.400	4.216	VS
Y	431	1.150	4.450	4.216	VS
Z	432	1.150	4.500	4.216	VS
V	433	1.150	4.550	4.216	VS
W	434	1.150	4.600	4.216	VS
X	435	1.150	4.650	4.216	VS
Y	436	1.150	4.700	4.216	VS
Z	437	1.150	4.750	4.216	VS
V	438	1.150	4.800	4.216	VS
W	439	1.150	4.850	4.216	VS
X	440	1.150	4.900	4.216	VS
Y	441	1.150	4.950	4.216	VS
Z	442	1.150	5.000	4.216	VS
V	443	1.150	5.050	4.216	VS
W	444	1.150	5.100	4.216	VS
X	445	1.150	5.150	4.216	VS
Y	446	1.150	5.200	4.216	VS
Z	447	1.150	5.250	4.216	VS
V	448	1.150	5.300	4.216	VS
W	449	1.150	5.350	4.216	VS
X	450	1.150	5.400	4.216	VS
Y	451	1.150	5.450	4.216	VS
Z	452	1.150	5.500	4.216	VS
V	453	1.150	5.550	4.216	VS
W	454	1.150	5.600	4.216	VS
X	455	1.150	5.650	4.216	VS
Y	456	1.150	5.700	4.216	VS
Z	457	1.150	5.750	4.216	VS
V	458	1.150	5.800	4.216	VS
W	459	1.150	5.850	4.216	VS
X	460	1.150	5.900	4.216	VS
Y	461	1.150	5.950	4.216	VS
Z	462	1.150	6.000	4.216	VS
V	463	1.150	6.050	4.216	VS
W	464	1.150	6.100	4.216	VS
X	465	1.150	6.150	4.216	VS
Y	466	1.150	6.200	4.216	VS
Z	467	1.150	6.250	4.216	VS
V	468	1.150	6.300	4.216	VS
W	469	1.150	6.350	4.216	VS
X	470	1.150	6.400	4.216	VS
Y	471	1.150	6.450	4.216	VS
Z	472	1.150	6.500	4.216	VS
V	473	1.150	6.550	4.216	VS
W	474	1.150	6.600	4.216	VS
X	475	1.150	6.650	4.216	VS
Y	476	1.150	6.700	4.216	VS
Z	477	1.150	6.750	4.216	VS
V	478	1.150	6.800	4.216	VS
W	479	1.150	6.850	4.216	VS
X	480	1.150	6.900	4.216	VS
Y	481	1.150	6.950	4.216	VS
Z	482	1.150	7.000	4.216	VS
V	483	1.150	7.050	4.216	VS
W	484	1.150	7.100	4.216	VS
X	485	1.150	7.150	4.216	VS
Y	486	1.150	7.200	4.216	VS
Z	487	1.150	7.250	4.216	VS
V	488	1.150	7.300	4.216	VS
W	489	1.150	7.350	4.216	VS
X	490	1.150	7.400	4.216	VS
Y	491	1.150	7.450	4.216	VS
Z	492	1.150	7.500	4.216	VS
V	493	1.150	7.550	4.216	VS
W	494	1.150	7.600	4.216	VS
X	495	1.150	7.650	4.216	VS
Y	496	1.150	7.700	4.216	VS
Z	497	1.150	7.750	4.216	VS
V	498	1.150	7.800	4.216	VS
W	499	1.150	7.850	4.216	VS
X	500	1.150	7.900	4.216	VS
Y	501	1.150	7.950	4.216	VS
Z	502	1.150	8.000	4.216	VS
V	503	1.150	8.050	4.216	VS
W	504	1.150	8.100	4.216	VS
X	505	1.150	8.150	4.216	VS
Y	506	1.150	8.200	4.216	VS
Z	507	1.150	8.250	4.216	VS
V	508	1.150	8.300	4.216	VS
W	509	1.150	8.350	4.216	VS
X	510	1.150	8.400	4.216	VS
Y	511	1.150	8.450	4.216	VS
Z	512	1.150	8.500	4.216	VS
V	513	1.150	8.550	4.216	VS
W	514	1.150	8.600	4.216	VS
X	515	1.150	8.650	4.216	VS
Y	516	1.150	8.700	4.216	VS
Z	517	1.150	8.750	4.216	VS
V	518	1.150	8.800	4.216	VS
W	519	1.150	8.850	4.216	VS
X	520	1.150	8.900	4.216	VS
Y	521	1.150	8.950	4.216	VS
Z	522	1.150	9.000	4.216	VS
V	523	1.150	9.050	4.216	VS
W	524	1.150	9.100	4.216	VS
X	525	1.150	9.150	4.216	VS
Y	526	1.150	9.200	4.216	VS
Z	527	1.150	9.250	4.216	VS
V	528	1.150	9.300	4.216	VS
W	529	1.150	9.350	4.216	VS
X	530	1.150	9.400	4.216	VS
Y	531	1.150	9.450	4.216	VS
Z	532	1.150	9.500	4.216	VS
V	533	1.150	9.550	4.216	VS
W	534	1.150	9.600	4.216	VS
X	535	1.150	9.650	4.216	VS
Y	536	1.150	9.700	4.216	VS
Z	537	1.150	9.750	4.216	VS
V	538	1.150	9.800	4.216	VS
W	539	1.150	9.850	4.216	VS
X	540	1.150	9.900	4.216	VS
Y	541	1.150	9.950	4.216	VS
Z	542	1.150	1.000	4.216	VS
V	543	1.150	1.050	4.216	VS
W	544	1.150	1.100	4.216	VS
X	545	1.150	1.150	4.216	VS
Y	546	1.150	1.200	4.216	VS
Z	547	1.150	1.250	4.216	VS
V	548	1.150	1.300	4.216	VS
W	549	1.150	1.350	4.216	VS
X	550	1.150	1.400	4.216	VS
Y	551	1.150	1.450	4.216	VS
Z	552	1.150	1.		

	TEST NUMBER	81061602	RUN NUMBER	1	X/0	*	2.60				
No.	Y	Z	V	W	VS	WS	NO.	Y	Z	V	W
551	.900	2.254	-8.6587	14.6960	.6502	.5871	564	1.050	2.553	-5.0689	15.0583
552	.900	2.003	-7.1026	14.0985	.5910	.5615	565	1.050	2.764	-5.108	14.1199
553	.900	2.554	-6.0002	14.0156	.6687	.5391	566	1.200	1.203	-4.9726	23.3411
554	.900	2.704	-4.9339	14.0873	.5926	.5438	567	1.200	1.352	-5.0583	.8938
555	1.050	1.204	-3.3785	20.0514	3.1418	6.3054	568	1.200	1.504	-6.7308	.7963
556	1.050	1.352	-4.9918	23.6650	2.3990	3.7574	569	1.200	1.654	-7.7371	.7726
557	1.050	1.504	-7.8995	23.9815	1.6994	1.1911	570	1.200	1.804	-8.4591	.6777
558	1.050	1.654	-9.7925	22.7187	.9551	1.0587	571	1.200	1.953	-8.1181	.6285
559	1.050	1.804	-10.5584	20.5884	.9912	.9131	572	1.200	2.164	-7.8405	.5698
560	1.050	1.952	-10.1550	16.5986	.6681	.6710	573	1.200	2.254	-7.0509	.5511
561	1.050	2.104	-9.1026	16.9445	.6310	.6310	574	1.200	2.404	-6.2589	.6733
562	1.050	2.254	-7.8862	15.9164	.5812	.6633	575	1.200	2.553	-5.5161	.4765
563	1.050	2.404	-6.8778	15.3142	.5126	.5911	576	1.200	2.764	-4.0572	.5231

TEST NUMBER	81061701	RUN NUMBER	2	X/D = 5.70
No.		No.		
Y		W		W
111	-1.201	.500	-1.5967	2.9124
112	-1.201	.550	-.9920	4.5208
113	-1.201	.599	-.7150	4.4797
114	-1.201	.659	-1.1020	5.1406
115	-1.201	.709	-2.9806	5.380
116	-1.201	.750	-4639	6.6343
117	-1.201	.799	-.5792	6.4555
118	-1.201	.850	.2202	7.4103
119	-1.201	.900	.9565	9.3604
120	-1.201	.950	-.0525	7.9031
121	-1.201	.999	1.0000	9.7598
122	-1.201	1.050	1.050	8.6648
123	-1.201	1.100	2.3106	10.7070
124	-1.201	1.150	.9158	8.3262
125	-1.201	1.199	.5884	10.9979
126	-1.151	.249	.0876	1.0770
127	-1.151	.300	-.0875	.8762
128	-1.151	.350	-.7764	1.2215
129	-1.151	.400	-1.3324	0.552
130	-1.151	.449	-1.9922	2.9334
131	-1.151	.500	-.12374	-.1624
132	-1.151	.550	-2.3615	.5961
133	-1.151	.600	-.6028	1.1760
134	-1.151	.649	-.9458	1.5994
135	-1.151	.699	-1.5452	2.6629
136	-1.151	.750	-.8474	2.5029
137	-1.151	.800	-1.5002	-.8667
138	-1.151	.849	-.2423	2.5256
139	-1.151	.899	-.4437	3.3714
140	-1.151	.950	-.5136	3.9617
141	-1.151	1.000	-.6300	2.7758
142	-1.151	1.049	-.10091	5.4409
143	-1.151	1.100	-.2596	5.2333
144	-1.151	1.150	-.8767	7.2793
145	-1.151	1.200	-.0202	8.2930
146	-1.151	1.250	-.4335	4.4238
147	-1.151	1.303	-.2716	-.4276
148	-1.151	1.365	-.4412	2.4825
149	-1.151	1.400	-.2396	7.2149
150	-1.151	1.450	-.0401	6.6669
151	-1.151	1.500	-.1254	5.0747
152	-1.151	1.550	-.4435	4.4238
153	-1.151	1.600	-.2716	-.4276
154	-1.151	1.649	-.4365	2.4825
155	-1.151	1.699	-.1361	7.2299
156	-1.151	1.750	-.0555	6.4956
157	-1.151	1.800	-.6769	-.9547
158	-1.151	1.850	-.4019	3.0978
159	-1.151	1.900	-.5932	3.4510
160	-1.151	1.950	-.3044	2.9092
161	-1.151	2.000	-.2149	4.2203
162	-1.151	2.050	-.1011	0.0330
163	-1.151	2.100	-.1214	4.7261
164	-1.151	2.150	-.0550	-.4557
165	-1.151	2.200	-.4171	5.1421
166	-1.151	2.250	-.3661	-.4829
167	-1.151	2.300	-.0254	-.0555
168	-1.151	2.350	-.6769	-.6295
169	-1.151	2.400	-.4019	-.9547
170	-1.151	2.450	-.5932	-.6295
171	-1.151	2.500	-.3044	-.2295
172	-1.151	2.550	-.1214	-.5263
173	-1.151	2.600	-.0550	-.4557
174	-1.151	2.650	-.4171	5.1421
175	-1.151	2.700	-.3661	-.4829
176	-1.151	2.750	-.0254	-.0555
177	-1.151	2.800	-.6769	-.6295
178	-1.151	2.850	-.4019	-.9547
179	-1.151	2.900	-.5932	-.6295
180	-1.151	2.950	-.3044	-.2295
181	-1.151	3.000	-.1214	-.5263
182	-1.151	3.050	-.0550	-.4557
183	-1.151	3.100	-.4171	5.1421
184	-1.151	3.150	-.3661	-.4829
185	-1.151	3.200	-.0254	-.0555
186	-1.151	3.250	-.6769	-.6295
187	-1.151	3.300	-.4019	-.9547
188	-1.151	3.350	-.5932	-.6295
189	-1.151	3.400	-.3044	-.2295
190	-1.151	3.450	-.1214	-.5263
191	-1.151	3.500	-.0550	-.4557
192	-1.151	3.550	-.4171	5.1421
193	-1.151	3.600	-.3661	-.4829
194	-1.151	3.650	-.0254	-.0555
195	-1.151	3.700	-.6769	-.6295
196	-1.151	3.750	-.4019	-.9547
197	-1.151	3.800	-.5932	-.6295
198	-1.151	3.850	-.3044	-.2295
199	-1.151	3.900	-.1214	-.5263
200	-1.151	3.950	-.0550	-.4557
201	-1.151	4.000	-.4171	5.1421
202	-1.151	4.050	-.3661	-.4829
203	-1.151	4.100	-.0254	-.0555
204	-1.151	4.150	-.6769	-.6295
205	-1.151	4.200	-.4019	-.9547
206	-1.151	4.250	-.5932	-.6295
207	-1.151	4.300	-.3044	-.2295
208	-1.151	4.350	-.1214	-.5263
209	-1.151	4.400	-.0550	-.4557
210	-1.151	4.450	-.4171	5.1421
211	-1.151	4.500	-.3661	-.4829
212	-1.151	4.550	-.0254	-.0555
213	-1.151	4.600	-.6769	-.6295
214	-1.151	4.650	-.4019	-.9547
215	-1.151	4.700	-.5932	-.6295
216	-1.151	4.750	-.3044	-.2295
217	-1.151	4.800	-.1214	-.5263
218	-1.151	4.850	-.0550	-.4557
219	-1.151	4.900	-.4171	5.1421
220	-1.151	4.950	-.3661	-.4829
221	-1.151	5.000	-.0254	-.0555
222	-1.151	5.050	-.6769	-.6295
223	-1.151	5.100	-.4019	-.9547
224	-1.151	5.150	-.5932	-.6295
225	-1.151	5.200	-.3044	-.2295
226	-1.151	5.250	-.1214	-.5263
227	-1.151	5.300	-.0550	-.4557
228	-1.151	5.350	-.4171	5.1421
229	-1.151	5.400	-.3661	-.4829
230	-1.151	5.450	-.0254	-.0555
231	-1.151	5.500	-.6769	-.6295
232	-1.151	5.550	-.4019	-.9547
233	-1.151	5.600	-.5932	-.6295
234	-1.151	5.650	-.3044	-.2295
235	-1.151	5.700	-.1214	-.5263
236	-1.151	5.750	-.0550	-.4557
237	-1.151	5.800	-.4171	5.1421
238	-1.151	5.850	-.3661	-.4829
239	-1.151	5.900	-.0254	-.0555
240	-1.151	5.950	-.6769	-.6295
241	-1.151	6.000	-.4019	-.9547
242	-1.151	6.050	-.5932	-.6295
243	-1.151	6.100	-.3044	-.2295
244	-1.151	6.150	-.1214	-.5263
245	-1.151	6.200	-.0550	-.4557
246	-1.151	6.250	-.4171	5.1421
247	-1.151	6.300	-.3661	-.4829
248	-1.151	6.350	-.0254	-.0555
249	-1.151	6.400	-.6769	-.6295
250	-1.151	6.450	-.4019	-.9547
251	-1.151	6.500	-.5932	-.6295
252	-1.151	6.550	-.3044	-.2295
253	-1.151	6.600	-.1214	-.5263
254	-1.151	6.650	-.0550	-.4557
255	-1.151	6.700	-.4171	5.1421
256	-1.151	6.750	-.3661	-.4829
257	-1.151	6.800	-.0254	-.0555
258	-1.151	6.850	-.6769	-.6295
259	-1.151	6.900	-.4019	-.9547
260	-1.151	6.950	-.5932	-.6295
261	-1.151	7.000	-.3044	-.2295
262	-1.151	7.050	-.1214	-.5263
263	-1.151	7.100	-.0550	-.4557
264	-1.151	7.150	-.4171	5.1421
265	-1.151	7.200	-.3661	-.4829
266	-1.151	7.250	-.0254	-.0555
267	-1.151	7.300	-.6769	-.6295
268	-1.151	7.350	-.4019	-.9547
269	-1.151	7.400	-.5932	-.6295
270	-1.151	7.450	-.3044	-.2295
271	-1.151	7.500	-.1214	-.5263
272	-1.151	7.550	-.0550	-.4557
273	-1.151	7.600	-.4171	5.1421
274	-1.151	7.650	-.3661	-.4829
275	-1.151	7.700	-.0254	-.0555
276	-1.151	7.750	-.6769	-.6295
277	-1.151	7.800	-.4019	-.9547
278	-1.151	7.850	-.5932	-.6295
279	-1.151	7.900	-.3044	-.2295
280	-1.151	7.950	-.1214	-.5263
281	-1.151	8.000	-.0550	-.4557
282	-1.151	8.050	-.4171	5.1421
283	-1.151	8.100	-.3661	-.4829
284	-1.151	8.150	-.0254	-.0555
285	-1.151	8.200	-.6769	-.6295
286	-1.151	8.250	-.4019	-.9547
287	-1.151	8.300	-.5932	-.6295
288	-1.151	8.350	-.3044	-.2295
289	-1.151	8.400	-.1214	-.5263
290	-1.151	8.450	-.0550	-.4557
291	-1.151	8.500	-.4171	5.1421
292	-1.151	8.550	-.3661	-.4829
293	-1.151	8.600	-.0254	-.0555
294	-1.151	8.650	-.6769	-.6295
295	-1.151	8.700	-.4019	-.9547
296	-1.151	8.750	-.5932	-.6295
297	-1.151	8.800	-.3044	-.2295
298	-1.151	8.850	-.1214	-.5263
299	-1.151	8.900	-.0550	-.4557
300	-1.151	8.950	-.4171	5.1421
301	-1.151	9.000	-.3661	-.4829
302	-1.151	9.050	-.0254	-.0555
303	-1.151	9.100	-.6769	-.6295
304	-1.151	9.150	-.4019	-.9547
305	-1.151	9.200	-.5932	-.6295
306	-1.151	9.250	-.3044	-.2295
307	-1.151	9.300	-.1214	-.5263
308	-1.151	9.350	-.0550	-.4557
309	-1.151	9.400	-.4171	5.1421
310	-1.151	9.450	-.3661	-.4829
311	-1.151	9.500	-.0254	-.0555
312	-1.151	9.550	-.6769	-.6295
313	-1.151	9.600	-.4019	-.9547
314	-1.151	9.650	-.5932	-.6295
315	-1.151	9.700	-.3044	-.2295
316	-1.151	9.750	-.1214	-.5263
317	-1.151	9.800	-.0550	-.4557
318	-1.151	9.850	-.4171	5.1421
319	-1.151	9.900	-.3661	-.48

NSWC TR 82-394

TEST NUMBER	01061701	RUN NUMBER	2	X/D =	5.70	
No.						
441	1.200	7.9220	4.521	Y	1.175	VS
442	1.250	0.000	6.1900	19.853	4.4917	VS
443	1.250	-0.052	6.0176	20.0236	1.0120	VS
444	1.250	-1.01	5.8227	19.7810	.9994	VS
445	1.250	-1.250	5.2935	18.1228	1.2997	VS
446	1.250	-1.250	5.151	4.0220	1.1631	VS
447	1.250	-1.250	5.0202	3.6570	1.3124	VS
448	1.250	-1.250	4.6881	3.6881	1.3428	VS
449	1.250	-1.250	4.1353	5.6999	4.7665	VS
450	1.250	-1.250	4.052	3.1360	5.3229	VS
451	1.250	-1.250	4.52	2.8167	4.3160	VS
452	1.250	-1.250	4.500	2.8298	4.3823	VS
453	1.250	-1.250	4.552	2.2441	5.0128	VS
454	1.250	-1.250	4.602	2.0295	4.0669	VS
455	1.250	-1.250	4.652	1.2022	1.6769	VS
456	1.250	-1.250	4.700	8.0116	3.0908	VS
457	1.250	-1.250	4.752	6.6468	6.6257	VS
458	1.250	-1.250	4.822	2.0156	1.5853	VS
459	1.250	-1.250	4.872	2.1998	2.0428	VS
460	1.250	-1.250	4.900	2.7920	1.4515	VS
461	1.250	-1.250	4.952	2.9254	3.2703	VS
462	1.250	-1.250	5.002	5.0059	4.4629	VS
463	1.250	-1.250	5.052	5.3047	4.1236	VS
464	1.250	-1.250	5.101	6.0137	4.5202	VS
465	1.250	-1.250	5.152	5.950	5.2935	VS
466	1.250	-1.250	5.202	7.2059	5.532	VS
467	1.250	-1.250	5.250	6.2298	19.6528	VS
468	1.250	-1.250	5.300	6.054	19.9587	VS
469	1.250	-1.250	5.350	1.05	6.0819	VS
470	1.250	-1.250	5.398	1.2300	20.1600	VS
471	1.250	-1.250	5.450	1.101	6.0159	VS
472	1.250	-1.250	5.500	1.154	5.7768	VS
473	1.250	-1.250	5.550	1.204	5.5459	VS
474	1.250	-1.250	5.600	1.250	5.532	VS
475	1.250	-1.250	5.650	1.300	5.532	VS
476	1.250	-1.250	5.700	1.350	5.532	VS
477	1.250	-1.250	5.750	1.350	5.532	VS
478	1.250	-1.250	5.800	1.350	5.532	VS
479	1.250	-1.250	5.850	1.350	5.532	VS
480	1.250	-1.250	5.900	1.350	5.532	VS
481	1.250	-1.250	5.950	1.350	5.532	VS
482	1.250	-1.250	6.000	1.350	5.532	VS
483	1.250	-1.250	6.050	1.350	5.532	VS
484	1.250	-1.250	6.100	1.350	5.532	VS
485	1.250	-1.250	6.150	1.350	5.532	VS
486	1.250	-1.250	6.200	1.350	5.532	VS
487	1.250	-1.250	6.250	1.350	5.532	VS
488	1.250	-1.250	6.300	1.350	5.532	VS
489	1.250	-1.250	6.350	1.350	5.532	VS
490	1.250	-1.250	6.400	1.350	5.532	VS
491	1.250	-1.250	6.450	1.350	5.532	VS
492	1.250	-1.250	6.500	1.350	5.532	VS
493	1.250	-1.250	6.550	1.350	5.532	VS
494	1.250	-1.250	6.600	1.350	5.532	VS
495	1.250	-1.250	6.650	1.350	5.532	VS
No.						
441	1.200	7.9220	4.521	Y	1.175	VS
442	1.250	0.000	6.1900	19.853	4.4917	VS
443	1.250	-0.052	6.0176	20.0236	1.0120	VS
444	1.250	-1.01	5.8227	19.7810	1.2997	VS
445	1.250	-1.250	5.2935	18.1228	1.3124	VS
446	1.250	-1.250	5.151	4.0220	1.8911	VS
447	1.250	-1.250	5.0202	3.6570	2.8911	VS
448	1.250	-1.250	4.6881	3.6881	3.6570	VS
449	1.250	-1.250	4.1353	5.6999	4.7665	VS
450	1.250	-1.250	4.052	3.1360	5.3229	VS
451	1.250	-1.250	4.52	2.8167	4.3160	VS
452	1.250	-1.250	4.500	2.8298	4.3823	VS
453	1.250	-1.250	4.552	2.2441	5.0128	VS
454	1.250	-1.250	4.602	2.0295	4.0669	VS
455	1.250	-1.250	4.652	1.2022	1.6769	VS
456	1.250	-1.250	4.700	8.0116	3.0908	VS
457	1.250	-1.250	4.752	6.6468	6.6257	VS
458	1.250	-1.250	4.822	2.0156	1.5853	VS
459	1.250	-1.250	4.872	2.1998	2.0428	VS
460	1.250	-1.250	4.900	2.7920	1.4515	VS
461	1.250	-1.250	4.952	2.9254	3.2703	VS
462	1.250	-1.250	5.002	5.0059	4.4629	VS
463	1.250	-1.250	5.052	5.3047	4.1236	VS
464	1.250	-1.250	5.101	6.0137	4.5202	VS
465	1.250	-1.250	5.152	5.950	5.2935	VS
466	1.250	-1.250	5.202	7.2059	5.532	VS
467	1.250	-1.250	5.250	6.2298	19.6528	VS
468	1.250	-1.250	5.300	6.054	19.9587	VS
469	1.250	-1.250	5.350	1.05	6.0819	VS
470	1.250	-1.250	5.398	1.2300	20.1600	VS
471	1.250	-1.250	5.450	1.101	6.0159	VS
472	1.250	-1.250	5.500	1.154	5.5459	VS
473	1.250	-1.250	5.550	1.204	5.532	VS
474	1.250	-1.250	5.600	1.250	5.532	VS
475	1.250	-1.250	5.650	1.300	5.532	VS
476	1.250	-1.250	5.700	1.350	5.532	VS
477	1.250	-1.250	5.750	1.350	5.532	VS
478	1.250	-1.250	5.800	1.350	5.532	VS
479	1.250	-1.250	5.850	1.350	5.532	VS
480	1.250	-1.250	5.900	1.350	5.532	VS
481	1.250	-1.250	5.950	1.350	5.532	VS
482	1.250	-1.250	6.000	1.350	5.532	VS
483	1.250	-1.250	6.050	1.350	5.532	VS
484	1.250	-1.250	6.100	1.350	5.532	VS
485	1.250	-1.250	6.150	1.350	5.532	VS
486	1.250	-1.250	6.200	1.350	5.532	VS
487	1.250	-1.250	6.250	1.350	5.532	VS
488	1.250	-1.250	6.300	1.350	5.532	VS
489	1.250	-1.250	6.350	1.350	5.532	VS
490	1.250	-1.250	6.400	1.350	5.532	VS
491	1.250	-1.250	6.450	1.350	5.532	VS
492	1.250	-1.250	6.500	1.350	5.532	VS
493	1.250	-1.250	6.550	1.350	5.532	VS
494	1.250	-1.250	6.600	1.350	5.532	VS
495	1.250	-1.250	6.650	1.350	5.532	VS

NSWC TR 82-394

TEST NUMBER	RUN NUMBER	3	X/Y =	.75	HS	
					VS	W
NO. 1	1				.5610	.7522
2	-3.9262	25.9061	*4411	*6349	24.4743	*5789
3	0.000	-3.0840	26.1932	*4904	*6491	*5732
4	-5.50	.029	-2.4292	26.2556	*4669	*6732
5	-5.50	*059	-1.5809	26.1885	*5161	*6714
6	-5.50	*089	-8.7194	26.0980	*6466	*6353
7	-5.50	*119	-2.2997	26.0490	*5363	*6090
8	-5.50	*149	-1.179	25.6654	*5319	*6438
9	-5.50	*209	*9499	25.6428	*5319	*6150
10	-5.50	*239	1.6731	25.3617	*5705	*6453
11	-5.50	*269	2.0177	25.2034	*6435	*5620
12	-5.50	*299	2.5445	24.8612	*7435	*6533
13	-5.50	*329	2.9715	24.5726	*5289	*6546
14	-5.50	*359	3.2413	24.1086	*6062	*6253
15	-5.50	*390	3.6081	23.9319	*5785	*6315
16	-5.50	*421	3.9859	23.3326	*5745	*6267
17	-5.50	*451	4.1064	23.1374	*6193	*6267
18	-5.50	*481	4.2999	22.7250	*5178	*6267
19	-5.50	*510	*511	4.4766	*23.3887	*5259
20	-5.50	*539	*539	4.6764	22.0954	*5338
21	-5.50	*570	*570	4.8200	21.6398	*5533
22	-5.50	*601	*601	4.8645	21.1147	*5406
23	-5.50	*630	*601	4.2065	26.8704	*4744
24	-5.50	*660	*630	-3.1647	26.8824	*5156
25	-5.50	*680	*680	-2.3501	26.9365	*4778
26	-5.50	*710	*680	-1.4997	26.9035	*4353
27	-5.50	*740	*710	-1.119	-7.284	*6276
28	-5.50	*770	*740	-1.150	*0561	26.6144
29	-5.50	*800	*770	-1.181	*5537	26.5224
30	-5.50	*830	*800	-1.211	1.1094	25.2728
31	-5.50	*860	*830	-1.241	1.8812	25.7247
32	-5.50	*890	*860	-1.270	2.3510	25.7189
33	-5.50	*920	*890	-1.300	4.5443	23.3170
34	-5.50	*950	*920	-1.330	4.8787	22.9786
35	-5.50	*980	*950	-1.360	3.4187	24.9265
36	-5.50	*1010	*980	-1.390	4.9892	22.6011
37	-5.50	*1040	*1010	-1.420	5.1744	24.5744
38	-5.50	*1070	*1040	-1.450	6.070	6.604
39	-5.50	*1100	*1070	-1.480	6.9828	6.604
40	-5.50	*1130	*1100	-1.510	4.0828	22.1131
41	-5.50	*1160	*1130	-1.540	5.3768	23.6374
42	-5.50	*1190	*1160	-1.570	5.3768	21.6141
43	-5.50	*1220	*1190	-1.600	5.2497	21.2929
44	-5.50	*1250	*1220	-1.630	4.5443	23.3170
45	-5.50	*1280	*1250	-1.660	4.8787	22.9786
46	-5.50	*1310	*1280	-1.690	3.4187	24.9265
47	-5.50	*1340	*1310	-1.720	4.9892	22.6011
48	-5.50	*1370	*1340	-1.750	5.1744	24.5744
49	-5.50	*1400	*1370	-1.780	6.070	6.604
50	-5.50	*1430	*1400	-1.810	6.9828	6.604
51	-5.50	*1460	*1430	-1.840	4.0828	22.1131
52	-5.50	*1490	*1460	-1.870	5.3768	23.6374
53	-5.50	*1520	*1490	-1.900	5.3768	21.6141
54	-5.50	*1550	*1520	-1.930	4.5443	23.3170
55	-5.50	*1580	*1550	-1.960	4.8787	22.9786

TEST NUMBER	01070702	RUN NUMBER	3	X/D *	.75	V	Z	Y	W	NO.	V	Z	Y	W	VS	WS	W	VS	W
No.																			
111	.391	6.1717	24.0886	2.1698	1.6424	.166	-.179	.539	18.1216	12.4645	2.9441	2.2106	1.9073	1.6733	1.9073	1.6733	1.9073	1.6733	
112	-.330	.421	5.1335	24.6772	1.7620	1.4409	167	-.179	.570	15.9142	12.0832	1.9073	1.6733	1.9073	1.6733	1.9073	1.6733	1.9073	
113	-.330	.450	6.8782	24.6543	1.3408	1.6577	168	-.179	.601	13.2762	12.4911	1.2670	1.3599	1.2670	1.3599	1.2670	1.3599	1.2670	
114	-.330	.479	7.6974	24.8457	1.1927	1.3463	169	-.149	.451	-1.9423	1.2036	5.8940	4.6204	5.8940	4.6204	5.8940	4.6204	5.8940	
115	-.330	.511	8.6747	24.4436	.9354	.9768	170	-.149	.480	6.8440	2.8813	7.7011	4.2192	6.8440	2.8813	7.7011	4.2192	6.8440	
116	-.330	.541	9.2526	22.9966	.9535	.8396	171	-.149	.509	15.1191	5.5536	4.9667	2.8302	15.1191	5.5536	4.9667	2.8302	15.1191	
117	-.330	.572	9.0274	21.6322	.9221	.8450	172	-.149	.539	15.8058	7.8580	2.5363	2.0347	15.8058	7.8580	2.5363	2.0347	15.8058	
118	-.330	.601	8.8191	20.1648	.9168	.7443	173	-.149	.570	13.5556	6.8254	1.5183	1.5677	13.5556	6.8254	1.5183	1.5677	13.5556	
119	-.300	.390	2.5224	18.9444	7.5458	3.4431	174	-.149	.601	11.4953	10.0087	1.3146	1.3930	11.4953	10.0087	1.3146	1.3930	11.4953	
120	-.300	.419	5.2842	23.3010	3.9536	3.3040	175	-.119	.481	6.0183	-1.8238	5.1860	2.5519	6.0183	-1.8238	5.1860	2.5519	6.0183	
121	-.300	.449	7.7480	25.3761	2.5341	2.6262	176	-.119	.512	10.4737	1.2548	3.8680	1.7344	10.4737	1.2548	3.8680	1.7344	10.4737	
122	-.300	.479	8.6330	25.6807	1.7690	2.0335	177	-.119	.543	10.8670	6.6236	2.2311	1.5302	10.8670	6.6236	2.2311	1.5302	10.8670	
123	-.300	.509	10.6372	24.4899	1.4140	1.4044	178	-.119	.573	9.8548	6.2787	1.4120	1.4120	9.8548	6.2787	1.4120	1.4120	9.8548	
124	-.300	.540	10.4596	23.4445	1.2467	1.1802	179	-.119	.603	8.8099	7.6303	1.1956	1.4979	8.8099	7.6303	1.1956	1.4979	8.8099	
125	-.300	.571	11.0502	21.5864	1.1679	.8469	180	-.089	.541	4.2576	*.3031	1.9768	1.3081	4.2576	*.3031	1.9768	1.3081	4.2576	
126	-.300	.601	10.2612	20.0936	.9357	.6254	181	-.089	.570	5.2353	1.5068	1.8018	1.3610	5.2353	1.5068	1.8018	1.3610	5.2353	
127	-.300	.630	9.5582	19.0418	.8585	.7082	182	-.059	.599	6.0149	3.6800	1.6237	1.2179	6.0149	3.6800	1.6237	1.2179	6.0149	
128	-.300	.392	2.2374	19.2846	7.8857	3.8140	183	-.060	.571	2.3370	2.6649	1.1920	7.6556	2.3370	2.6649	1.1920	2.3370	2.6649	
129	-.300	.421	5.5560	23.5029	3.2340	184	-.060	.601	3.1375	4.3608	1.1865	8.3446	3.1375	4.3608	1.1865	3.1375	4.3608		
130	-.300	.451	7.8087	25.5865	2.2467	2.5188	185	-.030	.543	6.6586	2.3396	.9060	.7381	6.6586	2.3396	.9060	.7381	6.6586	
131	-.300	.480	8.8317	26.0528	1.0261	2.1954	186	-.030	.569	-1.011	3.3503	1.0570	.7546	-1.011	3.3503	1.0570	.7546	-1.011	
132	-.300	.510	10.5111	24.4229	1.3770	1.5973	187	-.030	.598	4.7128	1.0873	.7285	.6122	4.7128	1.0873	.7285	.6122	4.7128	
133	-.300	.539	11.2080	23.1348	1.0723	1.1826	188	0.000	.539	-2.0387	6.6797	.8528	.6122	-2.0387	6.6797	.8528	.6122	-2.0387	
134	-.300	.569	10.9345	21.4510	1.1787	.7211	189	0.000	.569	-1.8552	3.7563	.7786	.6256	-1.8552	3.7563	.7786	.6256	-1.8552	
135	-.300	.599	10.5054	20.2167	1.0380	.8237	190	0.000	.599	-1.1179	.9483	.9868	.9614	-1.1179	.9483	.9868	.9614	-1.1179	
136	-.270	.421	1.0463	21.8693	7.2562	5.0890	191	0.000	.541	-3.6547	2.7314	.6348	.8045	-3.6547	2.7314	.6348	.8045	-3.6547	
137	-.270	.451	7.3415	25.1735	1.0261	2.1954	192	0.000	.571	-3.6146	3.9863	.7949	.7666	-3.6146	3.9863	.7949	.7666	-3.6146	
138	-.270	.481	10.4460	24.6614	3.4770	5.3093	193	0.000	.601	-3.4183	5.3265	.9726	.8855	-3.4183	5.3265	.9726	.8855	-3.4183	
139	-.270	.512	12.9905	24.2819	1.7619	2.6228	194	0.000	.542	-5.9584	2.1693	.9094	1.3513	-5.9584	2.1693	.9094	1.3513	-5.9584	
140	-.270	.543	13.4569	22.4948	1.3844	1.3984	195	0.000	.571	-6.2025	4.3943	.9868	.9614	-6.2025	4.3943	.9868	.9614	-6.2025	
141	-.270	.573	12.5912	20.5788	1.2936	1.4844	196	0.000	.600	-5.9492	5.9467	.9604	.9165	-5.9492	5.9467	.9604	.9165	-5.9492	
142	-.270	.601	11.5554	19.1226	1.2008	.8865	197	0.000	.540	-9.5432	1.9294	.1950	.13367	-9.5432	1.9294	.1950	.13367	-9.5432	
143	-.270	.620	1.8410	22.0421	6.4372	5.5250	198	0.000	.569	-9.1322	4.4156	.2992	.13367	-9.1322	4.4156	.2992	.13367	-9.1322	
144	-.270	.450	7.8113	24.1950	4.1000	4.6066	199	0.000	.598	-6.3002	6.1135	.1260	.0903	-6.3002	6.1135	.1260	.0903	-6.3002	
145	-.270	.480	10.7420	25.9302	2.6192	3.0884	200	0.000	.540	-1.3416	4.0180	.6943	.08730	-1.3416	4.0180	.6943	.08730	-1.3416	
146	-.270	.511	13.1216	24.5817	1.9322	2.0358	201	0.000	.571	-12.6635	6.2430	.15033	1.4954	-12.6635	6.2430	.15033	1.4954	-12.6635	
147	-.270	.541	11.0009	22.0422	2.3469	2.6035	202	0.000	.601	-1.0522	.18750	.18750	.2469	-1.0522	.18750	.18750	-1.0522	.18750	
148	-.270	.571	12.6017	20.4738	1.3140	1.0741	203	0.000	.541	-18.2707	6.9590	.15862	.2469	-18.2707	6.9590	.15862	.2469	-18.2707	
149	-.270	.601	11.4432	19.1378	1.1338	.8533	204	0.000	.572	-15.8652	9.8333	.17532	.15424	-15.8652	9.8333	.17532	.15424	-15.8652	
150	-.270	.451	10.3450	16.6915	5.1472	5.1903	205	0.000	.601	-13.1260	1.0704	.1260	.0903	-13.1260	1.0704	.1260	.0903	-13.1260	
151	-.270	.481	14.7650	24.6603	3.3991	3.2746	206	0.000	.512	-19.7546	1.47746	.25250	.1624	-19.7546	1.47746	.25250	.1624	-19.7546	
152	-.270	.512	6.5891	22.4422	1.4659	1.4926	207	0.000	.541	-19.9419	14.6757	.17949	.2469	-19.9419	14.6757	.17949	.2469	-19.9419	
153	-.270	.543	1.5038	16.9763	20.4126	3.4016	208	0.000	.570	-17.4439	1.35557	.16365	.15483	-17.4439	1.35557	.16365	.15483	-17.4439	
154	-.270	.573	14.6001	19.2089	1.5842	1.6639	209	0.000	.599	-14.6934	13.3145	.16347	.15483	-14.6934	13.3145	.16347	.15483	-14.6934	
155	-.270	.602	12.5692	17.4085	1.2966	1.0508	210	0.000	.629	-11.6444	13.2268	.16456	.14452	-11.6444	13.2268	.16456	.14452	-11.6444	
156	-.270	.631	11.1757	16.8193	1.1793	.9276	211	0.000	.481	-4.2996	21.9930	.4538	.3543	-4.2996	21.9930	.4538	.3543	-4.2996	
157	-.270	.451	13.1748	23.4417	5.0159	5.5187	212	0.000	.510	-19.0466	21.0317	.27179	.20607	-19.0466	21.0317	.27179	.20607	-19.0466	
158	-.270	.479	17.4130	22.0701	3.9071	3.6731	213	0.000	.539	-18.5998	18.9926	.24843	.21872	-18.5998	18.9926	.24843	.21872	-18.5998	
159	-.270	.509	2.512	5.09	1.7963	2.04126	214	0.000	.569	-16.6143	17.1618	.15509	.14583	-16.6143	17.1618	.15509	.14583	-16.6143	
160	-.270	.539	17.9514	17.9514	1.79616	2.3066	215	0.000	.600	-14.0496	15.9889	.16456	.14452	-14.0496	15.9889	.16456	.14452	-14.0496	
161	-.270	.570	15.9830	16.8334	1.8484	1.8537	216	0.000	.481	-11.8050	23.5316	.40595	.3543	-11.8050	23.5316	.40595	.3543	-11.8050	
162	-.270	.601	13.5828	15.3412	1.2202	1.1830	217	0.000	.512	-15.6511	23.2854	.21880	.17364	-15.6511	23.2854	.21880	.17364	-15.6511	
163	-.270	.631	4.1382	9.3985	11.5655	5.9125	218	0.000	.542	-15.8175	21.9032	.17026	.15988	-15.8175	21.9032	.17026	.15988	-15.8175	
164	-.270	.479	17.1764	13.9225	6.2922	4.0678	219	0.000	.571	-14.7548	19.7634	.15638	.14583	-14.7548	19.7634	.15638	.14583	-14.7548	
165	-.270	.509	18.0160	12.5606	5.1544	3.7440	220	0.000	.601	-13.35									

TEST NUMBER	61070702	RUN NUMBER	3	X/D = .75
No.		No.		
Y	V	VS	W	WS
Z	U	W	U	WS
.210	.451	-4.5114	21.5583	4.4933
.210	.480	-10.8359	2.5132	2.0206
.222	.511	-12.2785	24.1262	1.5569
.223	.510	-12.4695	22.8961	1.6342
.224	.572	-12.5485	20.9400	1.3801
.225	.270	-11.3516	19.2626	.6613
.226	.270	-10.4402	21.3064	.6537
.227	.300	-10.3997	20.2799	.6368
.228	.300	-8.1076	23.1694	2.1441
.229	.451	-8.1958	23.8656	1.7258
.230	.481	-8.4864	24.7054	1.5319
.230	.510	-8.8659	23.9938	1.2599
.231	.300	-10.4674	22.7679	1.0185
.232	.300	-10.4402	21.3064	.6537
.233	.601	-10.3997	20.2799	.6368
.234	.391	-8.1076	23.1694	2.1441
.235	.320	-7.9613	24.8888	1.0151
.236	.330	-7.9810	24.4337	.8586
.237	.330	-8.2393	24.0411	.8041
.238	.330	-8.8269	23.4157	.6582
.239	.330	-9.0943	22.6248	.6229
.240	.330	-9.2728	21.6466	.4883
.241	.330	-6.600	8.8846	20.3958
.242	.360	-6.7802	26.6531	.6022
.243	.360	-7.1880	25.7564	.6216
.244	.360	-7.3371	24.9599	.5287
.245	.360	-7.4471	27.2979	.5000
.246	.360	-7.6309	23.7075	.5316
.247	.360	-7.8410	23.0523	.5597
.248	.360	-8.1130	22.2943	.6111
.249	.360	-8.0092	21.5361	.5520
.250	.360	-7.9146	20.6889	.5202
.251	.360	-7.4471	27.4988	.5809
.252	.360	-6.6096	22.9369	.5381
.253	.360	-5.2911	26.8295	.5107
.254	.360	-5.8945	26.0183	.6440
.255	.390	-3.91	-6.3944	.5194
.256	.390	-6.6371	24.8000	.5001
.257	.390	-6.7340	23.9996	.4979
.258	.390	-6.9558	23.5432	.4355
.259	.390	-7.1758	22.9369	.4490
.260	.390	-7.0950	22.2692	.5109
.261	.390	-7.2994	21.5772	.5175
.262	.420	-6.6371	24.8000	.5001
.263	.420	-6.7340	23.9996	.4979
.264	.420	-6.9558	23.5432	.4355
.265	.420	-7.0950	22.2692	.5109
.266	.420	-7.2994	21.5772	.5175
.267	.420	-6.6371	24.8000	.5001
.268	.420	-6.7340	23.9996	.4979
.269	.420	-6.9558	23.5432	.4355
.270	.420	-7.0950	22.2692	.5109
.271	.420	-7.2994	21.5772	.5175
.272	.420	-6.6371	24.8000	.5001
.273	.420	-6.7340	23.9996	.4979
.274	.420	-6.9558	23.5432	.4355
.275	.450	-6.0577	24.0138	.4583
.276	.420	-6.3358	23.4023	.5187
.277	.420	-6.4907	22.8678	.4641
.278	.420	-6.5914	25.1911	.6019
.279	.420	-5.392	5.5199	.2729
.280	.420	-5.8741	24.5620	.5139
.281	.420	-6.0577	24.0138	.4583
.282	.420	-6.3358	23.4023	.5187
.283	.420	-6.4907	22.8678	.4641
.284	.420	-6.5914	25.1911	.6019
.285	.420	-5.392	5.5199	.2729
.286	.420	-5.8741	24.5620	.5139
.287	.420	-6.0577	24.0138	.4583
.288	.420	-6.3358	23.4023	.5187
.289	.420	-6.4907	22.8678	.4641
.290	.420	-6.5914	25.1911	.6019
.291	.420	-5.392	5.5199	.2729
.292	.420	-5.8741	24.5620	.5139
.293	.420	-6.0577	24.0138	.4583
.294	.420	-6.3358	23.4023	.5187
.295	.420	-6.4907	22.8678	.4641
.296	.420	-6.5914	25.1911	.6019
.297	.420	-5.392	5.5199	.2729
.298	.420	-5.8741	24.5620	.5139
.299	.420	-6.0577	24.0138	.4583
.300	.420	-6.3358	23.4023	.5187
.301	.420	-6.4907	22.8678	.4641
.302	.420	-6.5914	25.1911	.6019
.303	.420	-5.392	5.5199	.2729
.304	.420	-5.8741	24.5620	.5139
.305	.420	-6.0577	24.0138	.4583
.306	.420	-6.3358	23.4023	.5187
.307	.420	-6.4907	22.8678	.4641
.308	.420	-6.5914	25.1911	.6019
.309	.420	-5.392	5.5199	.2729
.310	.420	-5.8741	24.5620	.5139
.311	.420	-6.0577	24.0138	.4583
.312	.420	-6.3358	23.4023	.5187
.313	.420	-6.4907	22.8678	.4641
.314	.420	-6.5914	25.1911	.6019
.315	.420	-5.392	5.5199	.2729
.316	.420	-5.8741	24.5620	.5139
.317	.420	-6.0577	24.0138	.4583
.318	.420	-6.3358	23.4023	.5187
.319	.420	-6.4907	22.8678	.4641
.320	.420	-6.5914	25.1911	.6019
.321	.420	-5.392	5.5199	.2729
.322	.420	-5.8741	24.5620	.5139
.323	.420	-6.0577	24.0138	.4583
.324	.420	-6.3358	23.4023	.5187
.325	.420	-6.4907	22.8678	.4641
.326	.420	-6.5914	25.1911	.6019
.327	.420	-5.392	5.5199	.2729
.328	.420	-5.8741	24.5620	.5139
.329	.420	-6.0577	24.0138	.4583
.330	.420	-6.3358	23.4023	.5187
.331	.420	-6.4907	22.8678	.4641
.332	.420	-6.5914	25.1911	.6019
.333	.420	-5.392	5.5199	.2729
.334	.420	-5.8741	24.5620	.5139
.335	.420	-6.0577	24.0138	.4583
.336	.420	-6.3358	23.4023	.5187
.337	.420	-6.4907	22.8678	.4641
.338	.420	-6.5914	25.1911	.6019
.339	.420	-5.392	5.5199	.2729
.340	.420	-5.8741	24.5620	.5139
.341	.420	-6.0577	24.0138	.4583
.342	.420	-6.3358	23.4023	.5187
.343	.420	-6.4907	22.8678	.4641
.344	.420	-6.5914	25.1911	.6019
.345	.420	-5.392	5.5199	.2729
.346	.420	-5.8741	24.5620	.5139
.347	.420	-6.0577	24.0138	.4583
.348	.420	-6.3358	23.4023	.5187
.349	.420	-6.4907	22.8678	.4641
.350	.420	-6.5914	25.1911	.6019
.351	.420	-5.392	5.5199	.2729
.352	.420	-5.8741	24.5620	.5139
.353	.420	-6.0577	24.0138	.4583
.354	.420	-6.3358	23.4023	.5187
.355	.420	-6.4907	22.8678	.4641
.356	.420	-6.5914	25.1911	.6019
.357	.420	-5.392	5.5199	.2729
.358	.420	-5.8741	24.5620	.5139
.359	.420	-6.0577	24.0138	.4583
.360	.420	-6.3358	23.4023	.5187
.361	.420	-6.4907	22.8678	.4641
.362	.420	-6.5914	25.1911	.6019
.363	.420	-5.392	5.5199	.2729
.364	.420	-5.8741	24.5620	.5139
.365	.420	-6.0577	24.0138	.4583
.366	.420	-6.3358	23.4023	.5187
.367	.420	-6.4907	22.8678	.4641
.368	.420	-6.5914	25.1911	.6019
.369	.420	-5.392	5.5199	.2729
.370	.420	-5.8741	24.5620	.5139
.371	.420	-6.0577	24.0138	.4583
.372	.420	-6.3358	23.4023	.5187
.373	.420	-6.4907	22.8678	.4641
.374	.420	-6.5914	25.1911	.6019
.375	.420	-5.392	5.5199	.2729
.376	.420	-5.8741	24.5620	.5139
.377	.420	-6.0577	24.0138	.4583
.378	.420	-6.3358	23.4023	.5187
.379	.420	-6.4907	22.8678	.4641
.380	.420	-6.5914	25.1911	.6019
.381	.420	-5.392	5.5199	.2729
.382	.420	-5.8741	24.5620	.5139
.383	.420	-6.0577	24.0138	.4583
.384	.420	-6.3358	23.4023	.5187
.385	.420	-6.4907	22.8678	.4641
.386	.420	-6.5914	25.1911	.6019
.387	.420	-5.392	5.5199	.2729
.388	.420	-5.8741	24.5620	.5139
.389	.420	-6.0577	24.0138	.4583
.390	.420	-6.3358	23.4023	.5187
.391	.420	-6.4907	22.8678	.4641
.392	.420	-6.5914	25.1911	.6019
.393	.420	-5.392	5.5199	.2729
.394	.420	-5.8741	24.5620	.5139
.395	.420	-6.0577	24.0138	.4583
.396	.420	-6.3358	23.4023	.5187
.397	.420	-6.4907	22.8678	.4641
.398	.420	-6.5914	25.1911	.6019
.399	.420	-5.392	5.5199	.2729
.400	.420	-5.8741	24.5620	.5139
.401	.420	-6.0577	24.0138	.4583
.402	.420	-6.3358	23.4023	.5187
.403	.420	-6.4907	22.8678	.4641
.404	.420	-6.5914	25.1911	.6019
.405	.420	-5.392	5.5199	.2729
.406	.420	-5.8741	24.5620	.5139
.407	.420	-6.0577	24.0138	.4583
.408	.420	-6.3358	23.4023	.5187
.409	.420	-6.4907	22.8678	.4641
.410	.420	-6.5914	25.1911	.6019
.411	.420	-5.392	5.5199	.2729
.412	.420	-5.8741	24.5620	.5139
.413	.420	-6.0577	24.0138	.4583
.414	.420	-6.3358	23.4023	.5187
.415	.420	-6.4907	22.8678	.4641
.416	.420	-6.5914	25.1911	.6019
.417	.420	-5.392	5.5199	.2729
.418	.420	-5.8741	24.5620	.5139
.419	.420	-6.0577	24.0138	.4583
.420	.420	-6.3358	23.4023	.5187
.421	.420	-6.4907	22.8678	.4641
.422	.420	-6.5914	25.1911	.6019
.423	.420	-5.392	5.5199	.2729
.424	.420	-5.8741	24.5620	.5139
.425	.420	-6.0577	24.0138	.4583
.426	.420	-6.3358	23.4023	.5187
.427	.420	-6.4907	22.8678	.4641
.428	.420	-6.5		

NSWC TR 82-394

TEST NUMBER	01070701	HUN NUMBER	4	X/D =	1.30
W	25.0865	VS	7423	MS	6966
V	-3.0231	W	7423	VS	.6561
Z	0.000	V	7423	W	22.918
Y	-.899	Z	7423	V	5.7150
0.	1	Y	7423	Z	.851
1	2	Y	7423	Y	-.799
2	3	Y	7423	Y	-.799
3	4	Y	7423	Y	-.799
4	5	Y	7423	Y	-.799
5	6	Y	7423	Y	-.799
6	7	Y	7423	Y	-.799
7	8	Y	7423	Y	-.799
8	9	Y	7423	Y	-.799
9	10	Y	7423	Y	-.799
10	11	Y	7423	Y	-.799
11	12	Y	7423	Y	-.799
12	13	Y	7423	Y	-.799
13	14	Y	7423	Y	-.799
14	15	Y	7423	Y	-.799
15	16	Y	7423	Y	-.799
16	17	Y	7423	Y	-.799
17	18	Y	7423	Y	-.799
18	19	Y	7423	Y	-.799
19	20	Y	7423	Y	-.799
20	21	Y	7423	Y	-.799
21	22	Y	7423	Y	-.799
22	23	Y	7423	Y	-.799
23	24	Y	7423	Y	-.799
24	25	Y	7423	Y	-.799
25	26	Y	7423	Y	-.799
26	27	Y	7423	Y	-.799
27	28	Y	7423	Y	-.799
28	29	Y	7423	Y	-.799
29	30	Y	7423	Y	-.799
30	31	Y	7423	Y	-.799
31	32	Y	7423	Y	-.799
32	33	Y	7423	Y	-.799
33	34	Y	7423	Y	-.799
34	35	Y	7423	Y	-.799
35	36	Y	7423	Y	-.799
36	37	Y	7423	Y	-.799
37	38	Y	7423	Y	-.799
38	39	Y	7423	Y	-.799
39	40	Y	7423	Y	-.799
40	41	Y	7423	Y	-.799
41	42	Y	7423	Y	-.799
42	43	Y	7423	Y	-.799
43	44	Y	7423	Y	-.799
44	45	Y	7423	Y	-.799
45	46	Y	7423	Y	-.799
46	47	Y	7423	Y	-.799
47	48	Y	7423	Y	-.799
48	49	Y	7423	Y	-.799
49	50	Y	7423	Y	-.799
50	51	Y	7423	Y	-.799
51	52	Y	7423	Y	-.799
52	53	Y	7423	Y	-.799
53	54	Y	7423	Y	-.799
54	55	Y	7423	Y	-.799
55	56	Y	7423	Y	-.799
56	57	Y	7423	Y	-.799
57	58	Y	7423	Y	-.799
58	59	Y	7423	Y	-.799
59	60	Y	7423	Y	-.799
60	61	Y	7423	Y	-.799
61	62	Y	7423	Y	-.799
62	63	Y	7423	Y	-.799
63	64	Y	7423	Y	-.799
64	65	Y	7423	Y	-.799
65	66	Y	7423	Y	-.799
66	67	Y	7423	Y	-.799
67	68	Y	7423	Y	-.799
68	69	Y	7423	Y	-.799
69	70	Y	7423	Y	-.799
70	71	Y	7423	Y	-.799
71	72	Y	7423	Y	-.799
72	73	Y	7423	Y	-.799
73	74	Y	7423	Y	-.799
74	75	Y	7423	Y	-.799
75	76	Y	7423	Y	-.799
76	77	Y	7423	Y	-.799
77	78	Y	7423	Y	-.799
78	79	Y	7423	Y	-.799
79	80	Y	7423	Y	-.799
80	81	Y	7423	Y	-.799
81	82	Y	7423	Y	-.799
82	83	Y	7423	Y	-.799
83	84	Y	7423	Y	-.799
84	85	Y	7423	Y	-.799
85	86	Y	7423	Y	-.799
86	87	Y	7423	Y	-.799
87	88	Y	7423	Y	-.799
88	89	Y	7423	Y	-.799
89	90	Y	7423	Y	-.799
90	91	Y	7423	Y	-.799
91	92	Y	7423	Y	-.799
92	93	Y	7423	Y	-.799
93	94	Y	7423	Y	-.799
94	95	Y	7423	Y	-.799
95	96	Y	7423	Y	-.799
96	97	Y	7423	Y	-.799
97	98	Y	7423	Y	-.799
98	99	Y	7423	Y	-.799
99	100	Y	7423	Y	-.799
100	101	Y	7423	Y	-.799
101	102	Y	7423	Y	-.799
102	103	Y	7423	Y	-.799
103	104	Y	7423	Y	-.799
104	105	Y	7423	Y	-.799
105	106	Y	7423	Y	-.799
106	107	Y	7423	Y	-.799
107	108	Y	7423	Y	-.799
108	109	Y	7423	Y	-.799
109	110	Y	7423	Y	-.799
110	111	Y	7423	Y	-.799
111	112	Y	7423	Y	-.799
112	113	Y	7423	Y	-.799
113	114	Y	7423	Y	-.799
114	115	Y	7423	Y	-.799
115	116	Y	7423	Y	-.799
116	117	Y	7423	Y	-.799
117	118	Y	7423	Y	-.799
118	119	Y	7423	Y	-.799
119	120	Y	7423	Y	-.799
120	121	Y	7423	Y	-.799
121	122	Y	7423	Y	-.799
122	123	Y	7423	Y	-.799
123	124	Y	7423	Y	-.799
124	125	Y	7423	Y	-.799
125	126	Y	7423	Y	-.799
126	127	Y	7423	Y	-.799
127	128	Y	7423	Y	-.799
128	129	Y	7423	Y	-.799
129	130	Y	7423	Y	-.799
130	131	Y	7423	Y	-.799
131	132	Y	7423	Y	-.799
132	133	Y	7423	Y	-.799
133	134	Y	7423	Y	-.799
134	135	Y	7423	Y	-.799
135	136	Y	7423	Y	-.799
136	137	Y	7423	Y	-.799
137	138	Y	7423	Y	-.799
138	139	Y	7423	Y	-.799
139	140	Y	7423	Y	-.799
140	141	Y	7423	Y	-.799
141	142	Y	7423	Y	-.799
142	143	Y	7423	Y	-.799
143	144	Y	7423	Y	-.799
144	145	Y	7423	Y	-.799
145	146	Y	7423	Y	-.799
146	147	Y	7423	Y	-.799
147	148	Y	7423	Y	-.799
148	149	Y	7423	Y	-.799
149	150	Y	7423	Y	-.799
150	151	Y	7423	Y	-.799
151	152	Y	7423	Y	-.799
152	153	Y	7423	Y	-.799
153	154	Y	7423	Y	-.799
154	155	Y	7423	Y	-.799
155	156	Y	7423	Y	-.799
156	157	Y	7423	Y	-.799
157	158	Y	7423	Y	-.799
158	159	Y	7423	Y	-.799
159	160	Y	7423	Y	-.799
160	161	Y	7423	Y	-.799
161	162	Y	7423	Y	-.799
162	163	Y	7423	Y	-.799
163	164	Y	7423	Y	-.799
164	165	Y	7423	Y	-.799
165	166	Y	7423	Y	-.799
166	167	Y	7423	Y	-.799
167	168	Y	7423	Y	-.799
168	169	Y	7423	Y	-.799
169	170	Y	7423	Y	-.799
170	171	Y	7423	Y	-.799
171	172	Y	7423	Y	-.799
172	173	Y	7423	Y	-.799
173	174	Y	7423	Y	-.799
174	175	Y	7423	Y	-.799
175	176	Y	7423	Y	-.799
176	177	Y	7423	Y	-.799
177	178	Y	7423	Y	-.799
178	179	Y	7423	Y	-.799
179	180	Y	7423	Y	-.799
180	181	Y	7423	Y	-.799
181	182	Y	7423	Y	-.799
182	183	Y	7423	Y	-.799
183	184	Y	7423	Y	-.799
184	185	Y	7423	Y	-.799
185	186	Y	7423	Y	-.799
186	187	Y	7423	Y	-.799
187	188	Y	7423	Y	-.799
188	189	Y	7423	Y	-.799
189	190	Y	7423	Y	-.799
190	191	Y	7423	Y	-.799
191	192	Y	7423	Y	-.799
192	193	Y	7423	Y	-.799
193	194	Y	7423	Y	-.799
194	195	Y	7423	Y	-.799
195	196	Y	7423	Y	-.799
196	197	Y	7423	Y	-.799
197	198	Y	7423	Y	-.799
198	199	Y	7423	Y	-.799
199	200	Y	7423	Y	-.799
200	201	Y	7423	Y	-.799
201	202	Y	7423	Y	-.799
202	203	Y	7423	Y	-.799
203	204	Y	7423	Y	-.799
204	205	Y	7423	Y	-.799
205	206	Y	7423	Y	-.799
206	207	Y	7423	Y	-.799
207	208	Y	7423	Y	-.799
208	209	Y	7423	Y	-.799
209	210	Y	7423	Y	-.799
210	211	Y	7423	Y	-.799
211	212	Y	7423	Y	-.799
212	213	Y	7423	Y	-.799
213	214	Y	7423	Y	-.799
214	215	Y	7423	Y	-.799
215	216	Y	7423	Y	-.799
216	217	Y	7423	Y	-.799
217	218	Y	7423	Y	-.799
218	219	Y	7423	Y	-.799
219	220	Y	7423	Y	-.799
220	221	Y	7423	Y	-.799
221	222	Y	7423	Y	-.799
222	223	Y	7423	Y	-.799
223	224	Y	7423	Y	-.799
224	225	Y	7423	Y	-.799
225	226	Y	7423	Y	-.799
226	227	Y	7423	Y	-.799
227	228	Y	7423	Y	-.799
228	229	Y	7423	Y	-.799
229	230	Y	7423	Y	-.799
230	231	Y	7423	Y	-.799
231	232	Y	7423	Y	-.799
232	233	Y	7423	Y	-.799
233	234	Y	7423	Y	-.799
234	235	Y	7423	Y	-.799
235	236	Y	7423	Y	-.799
236	237	Y	7423	Y	-.799
237	238	Y	7423	Y	-.799
238	239	Y	7423	Y	-.799
239	240	Y	7423	Y	-.799
240	241	Y	7423	Y	-.799
241	242	Y	7		

NSWC TR 82-394

NSWC TR 82-394

TEST NUMBER	81070701	RUN NUMBER	4	X/Y =	1.30
No.					
W	221	VS	W5	VS	W5
V	9701	21.9476	•5066	•7631	•6205
Z	902	4.2107	•6579	•6818	•4535
Y	.750	26.4948	•6579	•6818	•4535
W	222	28.2751	•5752	•6106	•6065
V	223	26.6967	•5842	•6232	•5743
Z	224	26.1014	•5842	•6193	•4745
Y	225	27.7966	•5884	•6193	•4654
W	226	•3339	•5524	•6250	•5341
V	227	27.3356	•4659	•6332	•5066
Z	228	27.1550	•5180	•5180	•5559
Y	229	1.0051	•5180	•5180	•5259
W	230	-1.0770	•5842	•5842	•5144
V	231	-2.5066	•4869	•6742	•5346
Z	232	-5.1687	•4543	•6816	•5018
Y	233	-3.6729	•5060	•6060	•4990
W	234	-4.2443	•5394	•6572	•4980
V	235	-4.7084	•5185	•7104	•4980
Z	236	-5.1351	•5288	•7036	•4980
Y	237	-5.4358	•4918	•7196	•4980
W	238	-5.7430	•4968	•6376	•4980
V	239	-5.9419	•6875	•6104	•4980
Z	240	-6.3549	•4066	•6080	•4980
Y	241	-6.602	•4775	•5764	•4980
W	242	-6.652	•5192	•5997	•4980
V	243	-6.700	•5288	•6633	•4980
Z	244	-7.002	•6299	•6223	•4980
Y	245	-7.3476	•5779	•6215	•4980
W	246	-7.974	•5724	•6215	•4980
V	247	-8.1543	•5187	•6871	•4980
Z	248	-8.50	•5187	•6871	•4980
Y	249	-8.50	•5187	•6871	•4980
W	250	-8.50	•5187	•6871	•4980
V	251	-8.50	•5187	•6871	•4980
Z	252	-8.50	•5187	•6871	•4980
Y	253	-8.50	•5187	•6871	•4980
W	254	-8.50	•5187	•6871	•4980
V	255	-8.50	•5187	•6871	•4980
Z	256	-8.50	•5187	•6871	•4980
Y	257	-8.50	•5187	•6871	•4980
W	258	-8.50	•5187	•6871	•4980
V	259	-8.50	•5187	•6871	•4980
Z	260	-8.50	•5187	•6871	•4980
Y	261	-9.00	•5187	•6871	•4980
W	262	-9.00	•5187	•6871	•4980
V	263	-9.00	•5187	•6871	•4980
Z	264	-9.00	•5187	•6871	•4980
Y	265	-9.00	•5187	•6871	•4980
W	266	-9.00	•5187	•6871	•4980
V	267	-9.00	•5187	•6871	•4980
Z	268	-9.00	•5187	•6871	•4980
Y	269	-9.00	•5187	•6871	•4980
W	270	-9.00	•5187	•6871	•4980
V	271	-9.00	•5187	•6871	•4980
Z	272	-9.00	•5187	•6871	•4980
Y	273	-9.00	•5187	•6871	•4980
W	274	-9.00	•5187	•6871	•4980
V	275	-9.00	•5187	•6871	•4980

NSWC TR 82-394

TEST NUMBER	01070802	RUN NUMBER	5	X/D =	2.60	
W	24.030	*3895	*5553	V	MS 2.8861	
W	-4.087	-3.7642	-3.7642	V	VS 6.9866	
W	2.001	-1.200	-1.200	V	V 6.9866	
W	2	-1.200	-1.200	V	V 6.9866	
W	3	-1.200	-1.02	V	V 3.2951	
W	4	-1.200	-3.5197	V	V 3.2951	
W	5	-1.200	-1.52	V	V 3.2951	
W	6	-1.200	-2.03	V	V 3.2951	
W	7	-1.200	-2.120	V	V 3.2951	
W	8	-1.200	-1.552	V	V 3.2951	
W	9	-1.200	-1.293	V	V 3.2951	
W	10	-1.200	-1.653	V	V 3.2951	
W	11	-1.200	-1.502	V	V 3.2951	
W	12	-1.200	-1.552	V	V 3.2951	
W	13	-1.200	-1.603	V	V 3.2951	
W	14	-1.200	-1.653	V	V 3.2951	
W	15	-1.200	-1.202	V	V 3.2951	
W	16	-1.200	-1.752	V	V 3.2951	
W	17	-1.200	-1.603	V	V 3.2951	
W	18	-1.200	-1.653	V	V 3.2951	
W	19	-1.200	-1.502	V	V 3.2951	
W	20	-1.200	-1.550	V	V 3.2951	
W	21	-1.200	-1.001	V	V 3.2951	
W	22	-1.200	-1.051	V	V 3.2951	
W	23	-1.200	-1.100	V	V 3.2951	
W	24	-1.200	-1.150	V	V 3.2951	
W	25	-1.200	-1.201	V	V 3.2951	
W	26	-1.200	-1.150	V	V 3.2951	
W	27	-1.200	-1.150	V	V 3.2951	
W	28	-1.200	-1.150	V	V 3.2951	
W	29	-1.200	-1.150	V	V 3.2951	
W	30	-1.200	-1.150	V	V 3.2951	
W	31	-1.200	-1.150	V	V 3.2951	
W	32	-1.200	-1.150	V	V 3.2951	
W	33	-1.200	-1.150	V	V 3.2951	
W	34	-1.200	-1.150	V	V 3.2951	
W	35	-1.200	-1.150	V	V 3.2951	
W	36	-1.200	-1.150	V	V 3.2951	
W	37	-1.200	-1.150	V	V 3.2951	
W	38	-1.200	-1.150	V	V 3.2951	
W	39	-1.200	-1.051	V	V 3.2951	
W	40	-1.200	-1.150	V	V 3.2951	
W	41	-1.200	-1.150	V	V 3.2951	
W	42	-1.200	-1.150	V	V 3.2951	
W	43	-1.200	-1.150	V	V 3.2951	
W	44	-1.200	-1.150	V	V 3.2951	
W	45	-1.200	-1.150	V	V 3.2951	
W	46	-1.200	-1.150	V	V 3.2951	
W	47	-1.200	-1.150	V	V 3.2951	
W	48	-1.200	-1.150	V	V 3.2951	
W	49	-1.200	-1.150	V	V 3.2951	
W	50	-1.200	-1.150	V	V 3.2951	
W	51	-1.200	-1.100	V	V 3.2951	
W	52	-1.200	-1.100	V	V 3.2951	
W	53	-1.200	-1.100	V	V 3.2951	
W	54	-1.200	-1.100	V	V 3.2951	
Y	0.01	-1.200	-1.200	Y	VS 6.9897	
Z	2	-1.200	-1.200	Z	W 2.4151	
Z	3	-1.200	-1.02	Z	Z 3.2901	
Z	4	-1.200	-3.03	Z	Z 3.2901	
Z	5	-1.200	-2.773	Z	Z 3.2901	
Z	6	-1.200	-2.4662	Z	Z 3.2901	
Z	7	-1.200	-2.120	Z	Z 3.2901	
Z	8	-1.200	-1.552	Z	Z 3.2901	
Z	9	-1.200	-1.293	Z	Z 3.2901	
Z	10	-1.200	-1.653	Z	Z 3.2901	
Z	11	-1.200	-1.502	Z	Z 3.2901	
Z	12	-1.200	-1.552	Z	Z 3.2901	
Z	13	-1.200	-1.603	Z	Z 3.2901	
Z	14	-1.200	-1.653	Z	Z 3.2901	
Z	15	-1.200	-1.202	Z	Z 3.2901	
Z	16	-1.200	-1.752	Z	Z 3.2901	
Z	17	-1.200	-1.603	Z	Z 3.2901	
Z	18	-1.200	-1.653	Z	Z 3.2901	
Z	19	-1.200	-1.502	Z	Z 3.2901	
Z	20	-1.200	-1.550	Z	Z 3.2901	
Z	21	-1.200	-1.001	Z	Z 3.2901	
Z	22	-1.200	-1.051	Z	Z 3.2901	
Z	23	-1.200	-1.100	Z	Z 3.2901	
Z	24	-1.200	-1.150	Z	Z 3.2901	
Z	25	-1.200	-1.201	Z	Z 3.2901	
Z	26	-1.200	-1.150	Z	Z 3.2901	
Z	27	-1.200	-1.150	Z	Z 3.2901	
Z	28	-1.200	-1.150	Z	Z 3.2901	
Z	29	-1.200	-1.150	Z	Z 3.2901	
Z	30	-1.200	-1.150	Z	Z 3.2901	
Z	31	-1.200	-1.150	Z	Z 3.2901	
Z	32	-1.200	-1.051	Z	Z 3.2901	
Z	33	-1.200	-1.150	Z	Z 3.2901	
Z	34	-1.200	-1.150	Z	Z 3.2901	
Z	35	-1.200	-1.150	Z	Z 3.2901	
Z	36	-1.200	-1.150	Z	Z 3.2901	
Z	37	-1.200	-1.150	Z	Z 3.2901	
Z	38	-1.200	-1.150	Z	Z 3.2901	
Z	39	-1.200	-1.051	Z	Z 3.2901	
Z	40	-1.200	-1.150	Z	Z 3.2901	
Z	41	-1.200	-1.150	Z	Z 3.2901	
Z	42	-1.200	-1.150	Z	Z 3.2901	
Z	43	-1.200	-1.150	Z	Z 3.2901	
Z	44	-1.200	-1.150	Z	Z 3.2901	
Z	45	-1.200	-1.150	Z	Z 3.2901	
Z	46	-1.200	-1.150	Z	Z 3.2901	
Z	47	-1.200	-1.150	Z	Z 3.2901	
Z	48	-1.200	-1.150	Z	Z 3.2901	
Z	49	-1.200	-1.150	Z	Z 3.2901	
Z	50	-1.200	-1.150	Z	Z 3.2901	
W	1	No.	56	-1.100	Y	VS 2.8861
W	2	No.	57	-1.100	Y	VS 2.8861
W	3	No.	58	-1.100	Y	VS 2.8861
W	4	No.	59	-1.100	Y	VS 2.8861
W	5	No.	60	-1.100	Y	VS 2.8861
W	6	No.	61	-1.100	Y	VS 2.8861
W	7	No.	62	-1.100	Y	VS 2.8861
W	8	No.	63	-1.100	Y	VS 2.8861
W	9	No.	64	-1.100	Y	VS 2.8861
W	10	No.	65	-1.100	Y	VS 2.8861
W	11	No.	66	-1.100	Y	VS 2.8861
W	12	No.	67	-1.100	Y	VS 2.8861
W	13	No.	68	-1.100	Y	VS 2.8861
W	14	No.	69	-1.100	Y	VS 2.8861
W	15	No.	70	-1.100	Y	VS 2.8861
W	16	No.	71	-1.100	Y	VS 2.8861
W	17	No.	72	-1.100	Y	VS 2.8861
W	18	No.	73	-1.100	Y	VS 2.8861
W	19	No.	74	-1.100	Y	VS 2.8861
W	20	No.	75	-1.100	Y	VS 2.8861
W	21	No.	76	-1.100	Y	VS 2.8861
W	22	No.	77	-1.100	Y	VS 2.8861
W	23	No.	78	-1.100	Y	VS 2.8861
W	24	No.	79	-1.100	Y	VS 2.8861
W	25	No.	80	-1.100	Y	VS 2.8861
W	26	No.	81	-1.100	Y	VS 2.8861
W	27	No.	82	-1.100	Y	VS 2.8861
W	28	No.	83	-1.100	Y	VS 2.8861
W	29	No.	84	-1.100	Y	VS 2.8861
W	30	No.	85	-1.100	Y	VS 2.8861
W	31	No.	86	-1.100	Y	VS 2.8861
W	32	No.	87	-1.100	Y	VS 2.8861
W	33	No.	88	-1.100	Y	VS 2.8861
W	34	No.	89	-1.100	Y	VS 2.8861
W	35	No.	90	-1.100	Y	VS 2.8861
W	36	No.	91	-1.100	Y	VS 2.8861
W	37	No.	92	-1.100	Y	VS 2.8861
W	38	No.	93	-1.100	Y	VS 2.8861
W	39	No.	94	-1.100	Y	VS 2.8861
W	40	No.	95	-1.100	Y	VS 2.8861
W	41	No.	96	-1.100	Y	VS 2.8861
W	42	No.	97	-1.100	Y	VS 2.8861
W	43	No.	98	-1.100	Y	VS 2.8861
W	44	No.	99	-1.100	Y	VS 2.8861
W	45	No.	100	-1.100	Y	VS 2.8861
W	46	No.	101	-1.100	Y	VS 2.8861
W	47	No.	102	-1.100	Y	VS 2.8861
W	48	No.	103	-1.100	Y	VS 2.8861
W	49	No.	104	-1.100	Y	VS 2.8861
W	50	No.	105	-1.100	Y	VS 2.8861
W	51	No.	106	-1.100	Y	VS 2.8861
W	52	No.	107	-1.100	Y	VS 2.8861
W	53	No.	108	-1.100	Y	VS 2.8861
W	54	No.	109	-1.100	Y	VS 2.8861

TEST NUMBER	81070802	RUN NUMBER	S	X/D *	2.60	V	VS	W	WS	VS	W	Y	Z	V	VS	W	WS	
No.																		
111	Y	-2.3055	-3.3957	4.1665	4.1665	.500	1.200	-18.2199	.1736	1.0450	.1736	-3289	-9420	-7598	-7598	-7598	-7598	
112	Y	.802	-9.9670	-5.8263	3.9147	167	-450	1.102	-15.3880	-1341	-1341	-16.3617	-7834	-6848	-6848	-6848	-6848	
113	Y	-.899	.901	-5.5131	-5.6122	5.0456	3.7234	168	-450	1.152	1.152	-17.1183	-8411	-8350	-7833	-7833	-7833	
114	Y	-.899	.952	-1.2596	-4.3692	5.8356	4.0665	169	-450	1.201	1.201	-15.8156	-8534	-7156	-6330	-6330	-6330	
115	Y	-.899	1.002	-4.9125	-3.8199	4.6144	4.8893	170	-400	1.151	1.151	-16.2254	-8025	-7800	-6386	-6386	-6386	
116	Y	1.051	-7.2945	-1.9493	4.1082	4.6569	171	-400	1.202	1.202	-14.9276	-10430	-7607	-5164	-5164	-5164		
117	Y	-.899	1.101	-8.4745	2.1953	5.0888	4.3107	172	-350	1.152	1.152	-15.1725	-1023	-7477	-6045	-6045	-6045	
118	Y	-.899	1.152	-9.1611	4.6717	3.4492	2.9189	173	-350	1.201	1.201	-13.9537	-9856	-6124	-6707	-6707	-6707	
119	Y	1.202	-9.2562	7.6075	2.7355	2.9908	174	-300	1.151	1.151	-13.7738	-7010	-6351	-5388	-5388	-5388		
120	Y	-.850	-.801	-7.7704	-2.4630	4.3199	4.0665	175	-300	1.201	1.201	-7.4500	6352	11.2291	1.1396	1.1396	1.1396	
121	Y	-.850	-.851	-.6637	-3.2766	4.3068	4.9280	176	-250	1.202	1.202	-12.3067	-9377	-5890	-6275	-6275	-6275	
122	Y	-.850	.902	1.4121	-4.5378	5.4669	4.5896	177	-200	1.202	1.202	-10.5891	-14.907	-5692	-6610	-6610	-6610	
123	Y	-.850	.951	-1.6596	-5.0796	5.2102	4.9544	178	-150	1.201	1.201	-8.7993	-9989	-5677	-5608	-5608	-5608	
124	Y	-.850	1.001	-6.8437	-3.0807	3.8570	4.4630	179	-150	1.202	1.202	-6.4709	-6222	-6339	-6339	-6339	-6339	
125	Y	1.051	-10.0448	-6.0597	3.4732	4.0390	180	-100	1.202	1.202	-4.0660	-5969	-6665	-7522	-7522	-7522		
126	Y	1.050	1.102	-11.8271	-1.8552	2.6802	3.1716	181	-50	1.202	1.202	-1.1517	-8287	-6684	-8278	-8278	-8278	
127	Y	1.050	1.151	-12.4433	4.9199	1.7503	2.2377	182	0	1.202	1.202	1.4373	-1.4237	-7121	-9135	-9135	-9135	
128	Y	1.050	1.200	-12.5126	7.5648	1.5313	1.9216	183	50	1.201	1.201	4.4387	-1501	-8451	-8692	-8692	-8692	
129	Y	1.050	1.252	3.2225	.2260	3.2955	3.9148	184	100	1.201	1.201	7.5716	-2393	1.0351	1.0111	1.0111	1.0111	
130	Y	-.800	.901	3.2589	-3.3924	4.1751	5.2122	185	150	1.201	1.201	10.8212	-4261	-722	-9569	-9569	-9569	
131	Y	-.800	.950	-7.1828	-1.7023	5.2556	4.9695	186	200	1.201	1.201	15.5080	-4979	-2497	-13618	-13618	-13618	
132	Y	-.800	1.001	-6.0665	-1.6149	4.6420	5.0889	187	250	1.201	1.201	13.7233	-5.9882	1.6521	1.4399	1.4399	1.4399	
133	Y	-.800	1.052	-11.9338	-9.675	3.0941	3.0350	188	250	1.201	1.201	18.0621	-18.621	-18.621	-18.621	-18.621	-18.621	
134	Y	-.800	1.101	-14.2856	3.1842	2.5668	2.1131	189	300	1.202	1.202	16.4503	-5.9714	-3.3676	-3.3676	-3.3676	-3.3676	
135	Y	-.800	1.150	-14.3665	5.2919	1.2174	1.9147	190	350	1.202	1.202	19.7933	-4047	-9029	1.3214	1.3214	1.3214	
136	Y	-.800	1.201	-14.5677	5.7130	1.3390	1.5730	191	350	1.202	1.202	19.0728	-4.0498	-7562	-1535	-1535	-1535	
137	Y	-.750	.900	3.4576	4.6607	3.1166	4.6229	192	350	1.202	1.202	21.2446	-1926	-8626	-1.5818	-1.5818	-1.5818	
138	Y	-.750	.951	-.1414	2.9780	5.0021	5.0230	193	400	1.200	1.200	20.6854	-3.0126	2.7149	2.2272	2.2272	2.2272	
139	Y	-.750	1.002	-7.7707	1.5531	6.0279	3.2114	194	400	1.200	1.200	21.7803	35088	35579	2.6485	2.6485	2.6485	
140	Y	-.750	1.051	-12.5860	3.3140	4.8844	3.0971	195	450	1.201	1.201	21.5302	-8136	1.3307	1.3307	1.3307	1.3307	
141	Y	-.750	1.100	-15.6668	4.0775	1.8252	1.6098	196	450	1.201	1.201	22.5302	-8980	1.2260	1.6082	1.6082	1.6082	
142	Y	-.750	1.151	-16.1141	5.3298	1.4161	1.3126	197	450	1.201	1.201	21.2343	-5010	32328	2.6001	2.6001	2.6001	
143	Y	-.750	1.202	-16.6575	6.5609	1.0911	1.3826	198	500	1.201	1.201	22.7253	3.0233	1.5053	1.5255	1.5255	1.5255	
144	Y	-.700	.950	1.5526	6.6245	3.0511	3.6409	199	500	1.201	1.201	21.4245	-1047	-9268	-1.9878	-1.9878	-1.9878	
145	Y	-.700	1.001	-4.6605	4.2074	6.5687	2.8758	200	500	1.201	1.201	21.7803	35088	35579	2.6485	2.6485	2.6485	
146	Y	-.700	1.052	-12.2507	3.9166	5.3979	2.0538	201	550	1.201	1.201	21.3779	51457	4.3377	4.3377	4.3377	4.3377	
147	Y	-.700	1.101	-16.3240	4.3196	1.4231	1.3030	202	550	1.201	1.201	21.3779	51457	4.3377	4.3377	4.3377	4.3377	
148	Y	-.700	1.150	-16.9522	5.0038	1.0791	1.0339	203	550	1.201	1.201	22.3803	5.8173	2.0653	1.6946	1.6946	1.6946	
149	Y	-.700	1.201	-17.5530	5.0045	1.1117	1.3199	204	550	1.201	1.201	22.4521	6.8504	3.0655	2.7270	2.7270	2.7270	
150	Y	-.650	1.001	-1.5840	4.4509	4.9020	2.5967	205	600	1.001	1.001	21.047	6.9453	3.0227	1.9878	1.9878	1.9878	
151	Y	-.650	1.051	-12.9049	2.9727	4.1481	2.3102	206	600	1.049	1.049	13.2145	4.2252	4.5050	6.1307	6.1307	6.1307	
152	Y	-.650	1.102	-16.6620	3.0856	1.6115	1.0841	207	600	1.101	1.101	21.8750	7.3073	2.2132	2.7885	2.7885	2.7885	
153	Y	-.650	1.151	-17.2899	4.1715	1.1085	0.9290	208	600	1.151	1.151	21.7376	8.5016	2.2010	2.0380	2.0380	2.0380	
154	Y	-.650	1.201	-18.4774	4.5257	1.1926	1.2631	209	600	1.201	1.201	20.4564	9.4727	2.5081	2.2749	2.2749	2.2749	
155	Y	-.600	1.002	1.0916	3.2112	4.4155	3.2090	210	650	1.001	1.001	12.3865	4.0656	4.0656	4.0656	4.0656	4.0656	
156	Y	-.600	1.050	-12.2717	2.1172	4.1481	1.0817	211	650	1.050	1.050	12.3865	4.0656	4.0656	4.0656	4.0656	4.0656	
157	Y	-.600	1.101	-16.3822	2.9130	1.0507	1.0528	212	650	1.100	1.100	19.5724	7.9150	2.1095	3.1458	3.1458	3.1458	
158	Y	-.600	1.152	-17.5154	3.0007	1.0528	1.0245	213	650	1.151	1.151	19.5673	9.4514	2.3027	2.0689	2.0689	2.0689	
159	Y	-.600	1.201	-18.6619	2.9335	1.0666	1.0189	214	650	1.201	1.201	17.9408	12.2373	2.9076	2.1632	2.1632	2.1632	
160	Y	-.550	1.052	-14.1818	1.7309	1.7315	1.6603	215	700	.951	.951	-5.2096	5.7602	4.722	4.722	4.722	4.722	
161	Y	-.550	1.101	-16.1777	1.9556	1.9788	1.7435	216	700	1.000	1.000	1.1210	7.1474	6.9653	6.9653	6.9653	6.9653	
162	Y	-.550	1.150	-17.2890	1.9332	1.9182	1.9039	217	700	1.000	1.000	11.2871	7.9510	6.4740	6.5435	6.5435	6.5435	
163	Y	-.550	1.201	-18.6317	1.2927	1.0133	1.0139	218	700	1.101	1.101	16.8367	5.9993	4.0405	3.8144	3.8144	3.8144	
164	Y	-.500	1.102	-16.0094	1.1735	1.0491	1.0663	219	700	1.151	1.151	17.4185	9.6999	2.7957	2.0246	2.0246	2.0246	
165	Y	-.500	1.151	-16.8981	1.7336	.9922	.7834	220	700	1.200	1.200	15.8464	13.2566	2.9084	2.1632	2.1632	2.1632	

TEST NUMBER 81070802 RUN NUMBER 5 X/0 = 2.60

No.	X	Y	Z	V	W	VS	WS	NO.	V	Z	W	VS	WS
221	.750	.901	-2.7587	-1.9918	5.7436	4.8204	2.2	1.000	-1.001	-7.0563	20.8609	2.7715	5.3661
222	.750	.950	-3.0528	-3.7122	5.5079	5.3178	2.7	1.000	1.051	-1.051	21.6994	2.7815	3.8837
223	.750	.999	1.5586	-5.1283	6.7282	6.2203	2.8	1.000	1.102	-1.0734	22.2893	2.6164	2.6308
224	.750	1.051	9.8128	-1.7282	6.8780	4.6003	2.9	1.000	1.151	-1.0943	22.5541	1.9531	2.2897
225	.750	1.101	14.2135	3.7235	4.9295	3.3159	2.9	1.000	1.200	-1.0354	22.8994	1.8015	1.8015
226	.750	1.150	15.1233	8.8954	3.4551	2.5808	2.9	1.050	.451	2.0196	-2.2377	1.5244	2.1369
227	.750	1.199	12.0038	12.0038	4.4070	3.1255	2.9	1.050	.501	2.4664	-2.1777	2.7894	2.0057
228	.800	.851	2.4464	-3.4374	4.9405	3.3191	2.9	1.050	.552	2.9418	*.0632	2.6711	4.0057
229	.800	.900	-9.796	-5.7912	4.5963	4.9883	2.9	1.050	.601	3.2673	3.0343	3.2393	1.3424
230	.800	.950	-6.6150	-5.6160	4.7691	6.6744	2.9	1.050	.651	1.7160	6.3601	3.2516	7.0148
231	.800	1.001	1.6720	-6.0083	6.0562	6.7892	2.9	1.050	.702	-1.0448	12.2525	3.7526	8.0528
232	.800	1.051	6.6812	-3.4444	6.5011	5.9568	2.9	1.050	.752	-1.5289	16.7065	3.5375	7.8923
233	.800	1.100	7.9686	1.3246	6.2322	6.1394	2.9	1.050	.801	-1.9509	21.3898	3.7597	6.3945
234	.800	1.150	10.2119	6.0331	5.4489	3.9961	2.9	1.050	.851	.52570	23.3008	2.8575	5.1553
235	.800	1.201	8.2095	10.1942	5.5013	4.2108	2.9	1.050	.902	-1.8898	25.3161	2.2047	3.0635
236	.850	.850	3.3335	-3.9528	3.9107	3.6871	2.9	1.050	.951	-1.6505	12.8671	2.8871	
237	.850	.901	3.4207	-4.3462	4.0895	5.0060	2.9	1.050	1.001	-1.2122	25.2265	1.0757	
238	.850	.950	1.0793	-5.7158	5.0787	5.4098	2.9	1.050	1.051	-1.5937	24.5289	1.3119	1.3136
239	.850	1.001	-1.0533	-5.7575	5.3006	6.7519	2.9	1.050	1.102	-1.0273	1.4377	1.6580	
240	.850	1.050	.4570	-3.6115	5.1021	6.5221	2.9	1.050	1.152	-1.9457	23.5727	1.0063	1.2687
241	.850	1.051	3.5165	-1.6066	5.2818	6.6715	2.9	1.050	1.201	-1.7502	23.4158	1.0182	1.1538
242	.850	1.101	2.6229	1.9410	6.1114	5.4855	2.9	1.100	.251	.6716	1.2127	1.4624	
243	.850	1.150	1.9680	7.4089	5.4630	6.3605	2.9	1.100	.301	.6716	2.7769	1.1662	
244	.850	1.199	1.3983	11.4309	6.0187	7.4316	2.9	1.100	.352	.5790	5.1317	2.6746	3.6354
245	.900	.751	6.9804	-2.9795	3.1649	3.7209	3.0	1.100	.401	.7344	6.6447	2.9242	4.3064
246	.900	.801	6.5134	-2.7056	4.3895	4.3370	3.0	1.100	.450	.0532	11.8501	5.8645	
247	.900	.849	4.3710	-2.9451	4.7944	5.1666	3.0	1.100	.501	-.8790	17.9288	4.9252	7.9822
248	.900	.900	1.6575	-8.8990	4.6337	7.7960	3.0	1.100	.552	-.2.3000	24.1734	2.8210	
249	.900	.950	1.4722	-.9016	4.4180	9.3786	3.0	1.100	.602	-.2.4427	25.3012	2.3577	
250	.900	1.001	-2.5069	3.3880	4.6673	9.4820	3.0	1.100	.651	-.3.5232	26.6708	1.9191	1.9754
251	.900	1.049	-3.2170	4.1167	4.1941	9.4118	3.0	1.100	.701	-.2.1767	26.4389	1.6479	3.0335
252	.900	1.101	-3.9524	6.4022	5.0827	9.2246	3.0	1.100	.752	-.3.9382	26.6550	1.6669	2.8751
253	.900	1.151	-1.2669	10.7316	5.0124	9.8240	3.0	1.100	.802	-.5.0536	27.0524	1.9153	1.8110
254	.900	1.201	-1.8940	14.6067	4.0558	8.9370	3.0	1.100	.851	-.6.0279	26.8826	1.4402	
255	.900	.650	5.3000	-1.3925	2.0772	3.1179	3.1	1.100	.901	-.6.3452	26.6826	1.5389	
256	.950	.701	6.1357	-.8236	2.3758	3.6176	3.1	1.100	.952	-.7.1901	26.0679	.9116	1.1560
257	.950	.751	6.1774	-2.0377	3.3991	4.3180	3.1	1.100	1.002	-.7.6042	25.3610	1.0766	
258	.950	.800	5.4706	2.0229	3.5563	5.8776	3.1	1.100	1.051	-.7.6201	24.7923	1.0134	1.0581
259	.950	.850	1.8584	4.9399	4.3861	7.2006	3.1	1.100	1.101	-.7.6327	24.1777	.7857	.8262
260	.950	.901	-1.6077	7.6570	4.6030	7.1296	3.1	1.100	1.152	-.7.6489	24.5307	1.4402	
261	.950	.951	-4.8797	10.0847	4.4284	7.9594	3.1	1.100	1.201	-.7.7465	23.5087	.8871	
262	.950	1.000	-5.5048	12.0466	4.2729	8.4231	3.1	1.100	1.251	-.8.1361	23.3267	.3811	
263	.950	1.050	-7.4367	15.9044	3.7551	6.6052	3.1	1.100	1.302	-.8.1513	27.7435	.4529	
264	.950	1.101	-6.2096	15.6529	3.4804	7.9458	3.1	1.100	1.352	-.8.2119	27.7263	.4276	
265	.950	1.151	-7.0298	18.4471	2.9531	5.9900	3.2	1.100	1.401	-.8.1517	27.9808	.5518	
266	.950	1.199	-6.1165	19.0870	2.4610	6.5333	3.2	1.100	1.451	-.1.2699	27.9237	.4303	1.5711
267	.950	.550	.550	2.7290	1.8070	4.4284	3.2	1.100	1.502	-.1.7351	27.4800	.4466	
268	1.000	1.000	4.9163	-.8957	1.9532	3.2729	3.2	1.100	1.550	-.2.3353	27.2900	.5354	
269	1.000	.651	5.0169	.3785	2.7873	3.3715	3.2	1.100	1.602	-.4.3119	27.7263	.4276	
270	1.000	.702	5.2439	2.3544	3.4804	2.6318	3.2	1.100	1.650	-.8.1443	27.9808	.5840	
271	1.000	.751	2.2997	6.3285	3.7705	6.4859	3.2	1.100	1.702	-.1.6675	27.9237	.4303	1.5711
272	1.000	.801	6.6683	9.8340	4.0473	7.6646	3.2	1.100	1.751	-.1.7351	27.4800	.4466	
273	1.000	.851	-2.0641	13.7078	3.9653	6.6205	3.2	1.100	1.801	-.2.8027	27.0212	.6001	
274	1.000	.902	-6.5501	15.8612	3.5995	7.8312	3.2	1.100	1.851	-.6.021	27.1512	.7960	
275	1.000	.951	-6.5323	19.3514	3.9080	6.2829	3.3	1.100	.651	-2.9429	26.9552	.5994	

TEST NUMBER	81070802	RUN NUMBER	S	X/D =	2.60
NO.					
331	1.150	26.9301	W	V	VS
	.702	-3.5241	V	Y	VS
	1.150	26.9424	W	Y	VS
	.752	-4.0396	V	Z	W
	1.150	26.6885	W	Z	V
	.801	-4.5812	V	Y	VS
	1.150	26.4977	W	Y	VS
	.851	-5.1614	V	Z	W
	1.150	25.9970	W	Z	V
	.902	-5.8357	V	Y	VS
	1.150	25.7467	W	Y	VS
	.952	-6.3462	V	Z	W
	1.150	25.0550	W	Z	V
	1.001	-6.6920	V	Y	VS
	1.150	25.0550	W	Y	VS
	.938	1.050	W	Z	W
	1.150	24.7652	V	Y	VS
	.102	-7.0622	W	Y	VS
	1.150	24.0247	V	Z	W
	.5916	-5.916	W	Z	V
	1.150	23.6358	V	Y	VS
	.73540	23.4571	W	Y	VS
	1.150	23.4571	V	Z	W
	.72664	27.7059	W	Z	V
	1.201	3.3652	V	Y	VS
	1.200	.002	W	Y	VS
	1.200	.032	V	Z	W
	1.200	.27053	W	Z	V
	343	1.050	27.5688	W	VS
	1.200	.101	2.3041	W	VS
	344	1.200	.151	27.6547	W
	345	1.200	.151	27.3276	V
	346	1.200	.202	27.3735	W
	347	1.200	.251	7.7254	V
	348	1.200	.300	27.4126	W
	349	1.200	.350	27.3607	V
	350	1.200	.401	7.0532	W
	351	1.200	.451	27.2054	V
	352	1.200	.500	-1.2261	W
	353	1.200	.550	-1.5581	V
	354	1.200	.601	-2.0866	W
	355	1.200	.651	-2.4701	V
	356	1.200	.700	-3.4814	W
	357	1.200	.750	-3.8313	V
	358	1.200	.801	-4.2760	W
	359	1.200	.851	-4.8224	V
	360	1.200	.900	-5.4714	W
	361	1.200	.950	-5.9983	V
	362	1.200	1.001	-6.2397	W
	363	1.200	1.051	-6.5298	V
	364	1.200	1.100	-6.6468	W
	365	1.200	1.150	-6.7631	V
	366	1.200	1.201	-7.0359	W
	367	1.200	1.201	-7.3134	V
	368	1.200	1.250	1.3577	W
	369	1.200	1.300	24.323	V
	370	1.200	1.350	24.0325	W
	371	1.200	1.400	24.5653	V
	372	1.200	1.450	24.4094	W
	373	1.200	1.500	24.5298	V
	374	1.200	1.550	24.4716	W
	375	1.200	1.600	2.4228	V
	376	1.200	1.653	2.4767	W
	377	1.200	1.773	23.5207	V
	378	1.200	1.943	8.8667	W
	379	1.200	2.000	1.2284	V
	380	1.200	2.050	2.0527	W
	381	1.200	2.100	2.4117	V
	382	1.200	2.150	7.9552	W
	383	1.200	2.200	16.6447	V
	384	1.200	2.250	13.5160	W
	385	1.200	2.300	1.225	V
	386	1.200	2.350	1.152	W
	387	1.200	2.400	1.0925	V
	388	1.200	2.450	1.0964	W
	389	1.200	2.500	8.0097	V
	390	1.200	2.556	7.2055	W
	391	1.200	2.600	1.6447	V
	392	1.200	2.650	1.0562	W
	393	1.200	2.700	1.050	V
	394	1.200	2.750	1.050	W
	395	1.200	2.800	1.050	V
	396	1.200	2.850	1.050	W
	397	1.200	2.900	1.050	V
	398	1.200	2.950	1.050	W
	399	1.200	3.000	1.050	V
	400	1.200	3.050	1.050	W
	401	1.200	3.100	1.050	V
	402	1.200	3.150	1.050	W
	403	1.200	3.200	1.050	V
	404	1.200	3.250	1.050	W
	405	1.200	3.300	1.050	V
	406	1.200	3.350	1.050	W
	407	1.200	3.400	1.050	V
	408	1.200	3.450	1.050	W
	409	1.200	3.500	1.050	V
	410	1.200	3.550	1.050	W
	411	1.200	3.600	1.050	V
	412	1.200	3.650	1.050	W
	413	1.200	3.700	1.050	V
	414	1.200	3.750	1.050	W
	415	1.200	3.800	1.050	V
	416	1.200	3.850	1.050	W
	417	1.200	3.900	1.050	V
	418	1.200	3.950	1.050	W
	419	1.200	4.000	1.050	V
	420	1.200	4.050	1.050	W
	421	1.200	4.100	1.050	V
	422	1.200	4.150	1.050	W
	423	1.200	4.200	1.050	V
	424	1.200	4.250	1.050	W
	425	1.200	4.300	1.050	V
	426	1.200	4.350	1.050	W
	427	1.200	4.400	1.050	V
	428	1.200	4.450	1.050	W
	429	1.200	4.500	1.050	V
	430	1.200	4.550	1.050	W
	431	1.200	4.600	1.050	V
	432	1.200	4.650	1.050	W
	433	1.200	4.700	1.050	V
	434	1.200	4.750	1.050	W
	435	1.200	4.800	1.050	V
	436	1.200	4.850	1.050	W
	437	1.200	4.900	1.050	V
	438	1.200	4.950	1.050	W
	439	1.200	5.000	1.050	V
	440	1.200	5.050	1.050	W
	441	1.200	5.100	1.050	V
	442	1.200	5.150	1.050	W
	443	1.200	5.200	1.050	V
	444	1.200	5.250	1.050	W
	445	1.200	5.300	1.050	V
	446	1.200	5.350	1.050	W
	447	1.200	5.400	1.050	V
	448	1.200	5.450	1.050	W
	449	1.200	5.500	1.050	V
	450	1.200	5.550	1.050	W
	451	1.200	5.600	1.050	V
	452	1.200	5.650	1.050	W
	453	1.200	5.700	1.050	V
	454	1.200	5.750	1.050	W
	455	1.200	5.800	1.050	V
	456	1.200	5.850	1.050	W
	457	1.200	5.900	1.050	V
	458	1.200	5.950	1.050	W
	459	1.200	6.000	1.050	V
	460	1.200	6.050	1.050	W
	461	1.200	6.100	1.050	V
	462	1.200	6.150	1.050	W
	463	1.200	6.200	1.050	V
	464	1.200	6.250	1.050	W
	465	1.200	6.300	1.050	V
	466	1.200	6.350	1.050	W
	467	1.200	6.400	1.050	V
	468	1.200	6.450	1.050	W
	469	1.200	6.500	1.050	V
	470	1.200	6.550	1.050	W
	471	1.200	6.600	1.050	V
	472	1.200	6.650	1.050	W
	473	1.200	6.700	1.050	V
	474	1.200	6.750	1.050	W
	475	1.200	6.800	1.050	V
	476	1.200	6.850	1.050	W
	477	1.200	6.900	1.050	V
	478	1.200	6.950	1.050	W
	479	1.200	7.000	1.050	V
	480	1.200	7.050	1.050	W
	481	1.200	7.100	1.050	V
	482	1.200	7.150	1.050	W
	483	1.200	7.200	1.050	V
	484	1.200	7.250	1.050	W
	485	1.200	7.300	1.050	V
	486	1.200	7.350	1.050	W
	487	1.200	7.400	1.050	V
	488	1.200	7.450	1.050	W
	489	1.200	7.500	1.050	V
	490	1.200	7.550	1.050	W
	491	1.200	7.600	1.050	V
	492	1.200	7.650	1.050	W
	493	1.200	7.700	1.050	V
	494	1.200	7.750	1.050	W
	495	1.200	7.800	1.050	V
	496	1.200	7.850	1.050	W
	497	1.200	7.900	1.050	V
	498	1.200	7.950	1.050	W
	499	1.200	8.000	1.050	V
	500	1.200	8.050	1.050	W
	501	1.200	8.100	1.050	V
	502	1.200	8.150	1.050	W
	503	1.200	8.200	1.050	V
	504	1.200	8.250	1.050	W
	505	1.200	8.300	1.050	V
	506	1.200	8.350	1.050	W
	507	1.200	8.400	1.050	V
	508	1.200	8.450	1.050	W
	509	1.200	8.500	1.050	V
	510	1.200	8.550	1.050	W
	511	1.200	8.600	1.050	V
	512	1.200	8.650	1.050	W
	513	1.200	8.700	1.050	V
	514	1.200	8.750	1.050	W
	515	1.200	8.800	1.050	V
	516	1.200	8.850	1.050	W
	517	1.200	8.900	1.050	V
	518	1.200	8.950	1.050	W
	519	1.200	9.000	1.050	V
	520	1.200	9.050	1.050	W
	521	1.200	9.100	1.050	V
	522	1.200	9.150	1.050	W
	523	1.200	9.200	1.050	V
	524	1.200	9.250	1.050	W
	525	1.200	9.300	1.050	V
	526	1.200	9.350	1.050	W
	527	1.200	9.400	1.050	V
	528	1.200	9.450	1.050	W</td

TEST NUMBER	81070803	RUN NUMBER	6	X/D =	3.60
No.					
1	-1.300				
2	-1.300				
3	-1.300				
4	-1.300				
5	-1.300				
6	-1.300				
7	-1.300				
8	-1.300				
9	-1.300				
10	-1.300				
11	-1.300				
12	-1.300				
13	-1.300				
14	-1.300				
15	-1.300				
16	-1.300				
17	-1.300				
18	-1.300				
19	-1.300				
20	-1.300				
21	-1.300				
22	-1.300				
23	-1.300				
24	-1.300				
25	-1.300				
26	-1.300				
27	-1.300				
28	-1.300				
29	-1.300				
30	-1.250				
31	-1.250				
32	-1.250				
33	-1.250				
34	-1.250				
35	-1.250				
36	-1.250				
37	-1.250				
38	-1.250				
39	-1.250				
40	-1.250				
41	-1.250				
42	-1.250				
43	-1.250				
44	-1.250				
45	-1.250				
46	-1.250				
47	-1.250				
48	-1.250				
49	-1.250				
50	-1.250				
51	-1.250				
52	-1.250				
53	-1.250				
54	-1.250				
55	-1.200				
		VS	VS	VS	VS
		W	W	W	W
		V	V	V	V
		Y	Y	Y	Y
		Z	Z	Z	Z
		NO.	NO.	NO.	NO.
		5590	5768	56	56
		4711	5690	57	57
		5078	6146	58	58
		5111	5111	59	59
		5633	4993	60	60
		5735	5735	61	61
		6264	5927	62	62
		1.0283	1.0283	63	63
		21.9394	21.9394	64	64
		22.1387	1.4379	65	65
		21.8925	2.0919	65	65
		21.8255	1.8255	66	66
		21.8976	1.7112	67	67
		21.8917	2.3555	68	68
		20.7031	2.2351	69	69
		19.6948	4.2158	70	70
		19.6948	4.2158	71	71
		18.8989	5.1549	72	72
		18.8987	5.1549	73	73
		18.8871	4.7751	74	74
		18.8056	5.4517	75	75
		18.8055	3.4120	76	76
		18.0147	4.9075	77	77
		18.0147	4.9075	78	78
		17.4975	4.8057	79	79
		16.8038	4.9282	80	80
		16.8038	4.9282	81	81
		17.0124	5.4232	82	82
		17.0124	5.4232	83	83
		16.2490	5.2225	84	84
		16.3771	5.0863	85	85
		15.8360	5.0055	86	86
		15.2953	6.4154	87	87
		15.9181	6.2677	88	88
		15.9181	6.2677	89	89
		16.6184	5.5501	90	90
		16.6184	5.5501	91	91
		16.2490	5.2225	92	92
		16.2490	5.2225	93	93
		16.2490	5.2225	94	94
		16.2490	5.2225	95	95
		16.2490	5.2225	96	96
		16.2490	5.2225	97	97
		16.2490	5.2225	98	98
		16.2490	5.2225	99	99
		16.2490	5.2225	100	100
		1.0283	1.0283	101	101
		2.0919	2.0919	102	102
		1.8255	1.8255	103	103
		4.2158	4.2158	104	104
		4.9075	4.9075	105	105
		4.9075	4.9075	106	106
		4.9075	4.9075	107	107
		4.9075	4.9075	108	108
		4.9075	4.9075	109	109
		4.9075	4.9075	110	110

NSWC TR 82-394

TEST NUMBER	B1070803	RUN NUMBER	6	X/D =	3.60
No.	V	W	VS	WS	VS
221	-1.150	-12.7992	1.2638	.8563	.9160
222	-1.150	-13.4688	1.1439	.8006	.9914
223	-1.150	-14.3294	1.1629	1.2252	1.4666
224	-1.150	-14.9536	.7769	1.2826	1.354*
225	-1.050	-1.3380	.5192	5.3665	2.9956
226	-1.050	-10.8400	.5725	1.3132	1.574*
227	-1.150	-11.6889	.7088	1.0882	1.0313
228	-1.150	-12.4425	.4778	.9153	.9203
229	-1.150	-13.3193	.1303	.9426	1.1415
230	-1.150	-14.1323	-.0426	1.2057	1.2483
231	-1.150	-15.3149	-.1453	1.2780	1.6194
232	-1.050	-6.2921	.1108	5.2393	2.9016
233	-1.050	-10.7784	-.1351	1.2556	.9676
234	-1.150	-11.4273	-.0996	.8600	.8082
235	-1.150	-12.2555	-.2110	.9277	.8811
236	-1.150	-13.0688	-.6438	.8801	.8987
237	-1.150	-13.6703	-.9009	1.0943	1.3163
238	-1.150	-14.5593	-.8879	1.1967	1.2884
239	-1.150	-10.9780	1.051	.9950	.7094
240	-1.150	-11.2966	-.5251	1.0130	.8263
241	-1.150	-12.1064	-.8478	.9099	.8114
242	-1.150	-12.7236	-.3600	.8699	.8593
243	-1.150	-13.5460	-.21068	1.0191	1.1233
244	-1.150	-14.2575	-.25158	1.3151	1.2662
245	-1.150	-11.3954	1.1545	.8107	.7897
246	-1.150	-11.6997	1.2899	.8668	.8061
247	-1.150	-12.2284	1.9501	.924*	.7605
248	-1.150	-12.8179	2.8321	1.0543	1.0831
249	-1.150	-13.6591	3.5022	1.0609	1.3610
250	-1.150	-10.8754	1.3185	9.109	.7342
251	-1.150	-11.1003	1.151	1.1545	.8107
252	-1.150	-11.5896	1.7512	1.6262	.8317
253	-1.150	-12.0810	3.3422	1.8234	1.0513
254	-1.150	-12.4310	4.4783	1.1121	1.1668
255	-1.150	-10.6075	1.514*	9.349	.7486
256	-1.150	-10.4032	1.9976	.8823	.7030
257	-1.150	-10.6333	2.8354	1.9426	.7751
258	-1.150	-10.9900	3.8864	1.6262	.8864
259	-1.150	-11.3203	5.0363	1.9322	1.0030
260	-1.150	-9.5096	4.4084	1.0352	1.0352
261	-1.150	-1.201	9.5186	2.9917	1.0352
262	-1.150	-1.250	9.5920	5.8420	1.0352
263	-1.150	-1.2874	9.7821	1.1658	1.0352
264	-1.150	-1.201	1.0300	9.986	5.4138
265	-1.150	-1.250	8.8330	1.5798	1.8864
266	-1.150	-1.301	6.2393	2.9454	1.0363
267	-1.150	-1.301	6.2893	4.4084	1.0363
268	-1.150	-1.250	6.5920	5.8420	1.0352
269	-1.150	-1.201	6.6016	2.8050	1.0485
270	-1.150	-1.250	6.9160	4.5761	1.0650
271	-1.150	-1.301	6.7010	6.1683	1.1438
272	-1.150	-1.250	5.1625	7.162	1.1442
273	-1.150	-1.201	4.8153	2.7146	9.6660
274	-1.150	-1.250	4.8420	4.5474	9.081
275	-1.150	-1.301	5.1036	-6.3574	9.742

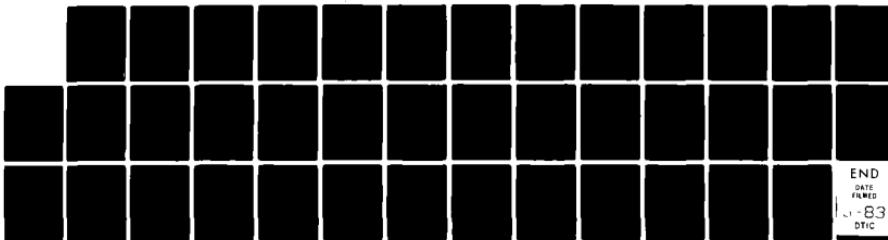
AD-A123 824 VORTEX ASYMMETRY DEVELOPMENT ON A TANGENT OGIVE(U)
NAVAL SURFACE WEAPONS CENTER SILVER SPRING MD
W J YANTA ET AL. OCT 82 NSWC/TR-82-394 SBI-AD-F500 119

F/G 20/4

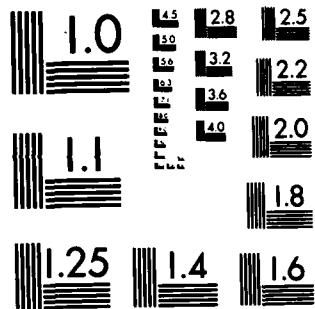
22

NL

UNCLASSIFIED



END
DATE
FILED
JUL -83
DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

TEST NUMBER	81070803	RUN NUMBER	6	X/O =	3.60	V	Z	Y	W	VS	WS	NO.	Y	Z	VS	WS	NO.	Y	Z	VS	WS	NO.	Y	Z	VS	WS
441	1.050	-10.2161	19.7635	2.9242	5.6886	4.96	1.200	.401	-4.385	28.3637	.5884	*6007	-9.005	-9.005	28.3823	.8045	1.0394	-1.0532*	-1.0532*	28.4291	1.0335	1.0260	-1.0260	1.0260	1.0260	
442	1.050	1.201	1.252	20.5282	2.3913	4.5912	4.97	1.200	.450	-1.1843	28.4291	1.0335	-1.0532*	-1.0532*	27.8819	1.4367	2.1342	-1.05681	-1.05681	27.8819	1.4367	2.1342	-1.05681	2.1342	2.1342	
443	1.050	1.301	-9.0666	20.2598	2.5607	4.8319	4.98	1.200	.501	-1.1843	28.4291	1.0335	-1.0532*	-1.0532*	27.8819	1.4367	2.1342	-1.05681	-1.05681	27.8819	1.4367	2.1342	-1.05681	2.1342	2.1342	
444	1.050	1.401	*5544	1.8635	1.8222	4.0082	4.99	1.200	.551	-1.1843	28.4291	1.0335	-1.0532*	-1.0532*	27.8819	1.4367	2.1342	-1.05681	-1.05681	27.8819	1.4367	2.1342	-1.05681	2.1342	2.1342	
445	1.050	1.452	*4026	*2372	1.4027	1.7837	500	1.200	.600	-1.1843	28.4291	1.0335	-1.0532*	-1.0532*	27.8819	1.4367	2.1342	-1.05681	-1.05681	27.8819	1.4367	2.1342	-1.05681	2.1342	2.1342	
446	1.100	*502	2.0291	-1.1552	2.6265	2.1632	2.9023	501	1.200	.650	-2.0969	27.6442	1.4596	-1.0496	-1.0496	27.6442	1.4596	1.9332	-1.0496	-1.0496	27.6442	1.4596	1.9332	-1.0496	27.6442	1.4596
447	1.100	*502	2.4106	.1818	2.6586	2.3946	2.8555	502	1.200	.701	-2.0270	28.1764	1.5507	-1.0336	-1.0336	28.1764	1.5507	2.0336	-1.0336	-1.0336	28.1764	1.5507	2.0336	-1.0336	28.1764	1.5507
448	1.100	*551	2.4106	.1818	2.6586	2.3946	2.8555	503	1.200	.751	-3.1597	28.1966	1.5639	-2.0274	-2.0274	28.1966	1.5639	2.0274	-2.0274	-2.0274	28.1966	1.5639	2.0274	-2.0274	28.1966	1.5639
449	1.100	*601	3.0163	2.6977	2.8192	4.0323	504	1.200	.800	-4.0000	28.6423	1.949	-1.0274	-1.0274	28.6423	1.949	2.0274	-1.0274	-1.0274	28.6423	1.949	2.0274	-1.0274	28.6423	1.949	
450	1.100	*652	2.1010	5.1537	2.7747	4.6430	505	1.200	.850	-4.0000	28.6423	1.949	-1.0274	-1.0274	28.6423	1.949	2.0274	-1.0274	-1.0274	28.6423	1.949	2.0274	-1.0274	28.6423	1.949	
451	1.100	*702	1.8727	8.1308	2.8795	5.6689	506	1.200	.901	-5.5663	28.2130	1.5332	-2.0671	-2.0671	28.2130	1.5332	2.0671	-2.0671	-2.0671	28.2130	1.5332	2.0671	-2.0671	28.2130	1.5332	
452	1.100	*751	1.0791	10.3420	3.3768	6.9552	507	1.200	.951	-6.7108	28.2016	1.2671	-1.2671	-1.2671	28.2016	1.2671	1.2671	-1.2671	-1.2671	28.2016	1.2671	1.2671	-1.2671	28.2016	1.2671	
453	1.100	*801	.2236	13.4701	7.3517	508	1.200	1.000	-7.3967	27.6966	1.6966	-1.1095	-1.1095	27.6966	1.6966	1.1095	-1.1095	-1.1095	27.6966	1.6966	1.1095	-1.1095	27.6966	1.6966		
454	1.100	*852	-1.3889	16.4427	3.8763	6.5742	509	1.200	1.050	-7.9741	26.8416	1.5116	-1.2069	-1.2069	26.8416	1.5116	1.2069	-1.2069	-1.2069	26.8416	1.5116	1.2069	-1.2069	26.8416	1.5116	
455	1.100	*902	-4.0709	16.5091	3.6119	7.5774	510	1.200	1.101	-8.4373	26.0969	1.2021	-1.1699	-1.1699	26.0969	1.2021	1.1699	-1.1699	-1.1699	26.0969	1.2021	1.1699	-1.1699	26.0969	1.2021	
456	1.100	*950	-5.3750	19.6796	3.4391	7.2053	511	1.200	1.151	-8.8226	25.3964	1.9049	-1.1699	-1.1699	25.3964	1.9049	1.1699	-1.1699	-1.1699	25.3964	1.9049	1.1699	-1.1699	25.3964	1.9049	
457	1.100	*1.000	-7.4760	22.2760	3.3453	6.3455	512	1.200	1.200	-8.6678	24.8718	1.2646	-1.2646	-1.2646	24.8718	1.2646	1.2646	-1.2646	-1.2646	24.8718	1.2646	1.2646	-1.2646	24.8718	1.2646	
458	1.100	*1.051	-8.4161	23.5307	2.8749	5.2342	513	1.200	1.249	-8.6658	24.3026	1.6718	-1.1229	-1.1229	24.3026	1.6718	1.1229	-1.1229	-1.1229	24.3026	1.6718	1.1229	-1.1229	24.3026	1.6718	
459	1.100	*1.101	-10.0828	23.6363	2.6339	4.3267	514	1.200	1.301	-8.3977	23.9311	1.9937	-1.0492	-1.0492	23.9311	1.9937	1.0492	-1.0492	-1.0492	23.9311	1.9937	1.0492	-1.0492	23.9311	1.9937	
460	1.100	*1.150	-10.6516	23.7247	2.3578	3.0046	515	1.250	.001	3.2772	27.9357	.5915	-1.2069	-1.2069	27.9357	.5915	1.2069	-1.2069	-1.2069	27.9357	.5915	1.2069	-1.2069	27.9357	.5915	
461	1.100	*1.200	-10.6585	23.6428	1.8758	2.3855	516	1.250	.049	2.8406	27.9812	.5823	-1.2059	-1.2059	27.9812	.5823	1.2059	-1.2059	-1.2059	27.9812	.5823	1.2059	-1.2059	27.9812	.5823	
462	1.100	*1.251	-9.5844	22.8447	2.4371	4.3672	517	1.250	.150	-1.3978	26.0666	.4939	-1.2059	-1.2059	26.0666	.4939	1.2059	-1.2059	-1.2059	26.0666	.4939	1.2059	-1.2059	26.0666	.4939	
463	1.100	*1.301	-9.0071	23.0161	1.4898	2.2999	518	1.250	.151	1.7372	28.1255	.6337	-1.2059	-1.2059	28.1255	.6337	1.2059	-1.2059	-1.2059	28.1255	.6337	1.2059	-1.2059	28.1255	.6337	
464	1.100	*1.350	-9.2501	23.1811	1.4898	2.2999	519	1.250	.201	1.4455	28.1143	.5964	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	28.1143	.5964	
465	1.100	*1.400	-9.4927	18.2663	2.8811	3.0833	520	1.250	.201	1.4455	28.1143	.5964	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	28.1143	.5964	
466	1.100	*1.451	-7.2339	3.7993	2.0833	3.2885	521	1.250	.300	1.351	28.1143	.5964	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	28.1143	.5964	
467	1.100	*1.500	*451	1.0122	5.2058	2.6527	4.3268	522	1.250	.351	1.351	28.1143	.5964	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	-1.2059	28.1143	.5964	1.2059	-1.2059	28.1143	.5964
468	1.100	*1.550	*501	.2442	1.4123	1.0565	1.9653	523	1.250	.450	1.8510	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337
469	1.100	*1.600	*550	.2241	1.6498	1.2201	1.2844	524	1.250	.500	1.8510	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337
470	1.100	*1.650	*601	.0695	2.0768	1.3538	1.3039	525	1.250	.550	1.8510	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337
471	1.100	*1.702	-1.1702	14.7315	3.7938	7.9076	526	1.250	.600	1.6449	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337	
472	1.100	*1.751	-1.4927	18.2663	2.8811	3.0833	3.2885	527	1.250	.650	1.7751	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337
473	1.100	*1.801	-1.4927	18.2663	2.8811	3.0833	3.2885	528	1.250	.700	1.7751	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337
474	1.100	*1.850	-1.4927	18.2663	2.8811	3.0833	3.2885	529	1.250	.750	1.7751	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337
475	1.100	*1.900	-2.3991	20.4781	3.6462	7.1752	530	1.250	.800	1.751	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337	
476	1.100	*1.950	-1.2769	21.7484	3.3883	6.4963	531	1.250	.850	1.751	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337	
477	1.100	*2.000	-2.5108	22.7704	3.1645	7.5650	532	1.250	.901	1.751	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337	
478	1.100	*2.050	-1.3036	24.0987	3.2194	5.2194	6.18001	533	1.250	.951	1.751	28.0235	.6337	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	-1.2059	28.0235	.6337	1.2059	-1.2059	28.0235	.6337
479	1.100	*2.100	-5.3811	25																						

NSWC TR 82-394

TEST NUMBER	81070803	HUN NUMBER	6	X/0 *	3.60
No.	V	W	X	Y	Z
661	-1.049	3.700	5.84227	14.46226	.4555
662	-1.049	3.850	5.1545	15.0502	.5572
663	-1.049	4.001	4.6281	15.1271	.4442
664	-1.049	1.302	-12.5370	4.6809	1.2831
665	-1.049	1.451	-14.7292	7.4417	2.9130
666	-1.049	1.600	-16.9818	10.3975	2.8686
667	-1.049	1.751	-15.7284	14.8433	5.8918
668	-1.049	1.902	-8.5062	22.7799	6.9290
669	-1.049	2.051	5.4697	24.4806	4.6413
670	-1.049	2.200	11.86662	20.9984	3.8276
671	-1.049	2.351	12.5162	17.9787	3.7528
672	-1.049	2.501	13.1926	16.4770	4.2197
673	-1.049	2.651	13.2732	15.0198	3.9061
674	-1.049	2.800	14.6540	14.3229	2.1586
675	-1.049	2.951	12.9098	1.0600	1.1326
676	-1.049	3.101	11.0955	13.7444	.7878
677	-1.049	3.251	9.2405	13.8323	.6882
678	-1.049	3.400	7.7193	13.9822	.6599
679	-1.049	3.551	6.6092	14.0342	.5231
680	-1.049	3.701	5.5723	14.1236	.4802
681	-1.049	3.851	4.9851	14.4620	.4498
682	-1.049	4.000	4.4373	14.7049	.5227
683	-1.049	4.150	-13.8165	1.7286	1.3903
684	-1.049	4.300	-17.0462	1.7776	2.1928
685	-1.049	4.450	-18.3542	2.1113	2.6606
686	-1.049	4.600	-20.5935	2.1890	5.0161
687	-1.049	4.750	1.900	-7.8939	5.1245
688	-1.049	4.900	2.050	6.7928	11.0418
689	-1.049	5.050	2.201	12.6763	6.5612
690	-1.049	5.200	2.351	10.6673	4.3731
691	-1.049	5.350	11.5096	10.3466	4.7407
692	-1.049	5.500	13.4433	10.0484	4.4773
693	-1.049	5.650	2.601	14.4269	10.6510
694	-1.049	5.750	2.951	10.0492	1.5556
695	-1.049	5.850	3.100	10.4810	11.8269
696	-1.049	5.950	3.250	8.7569	12.3288
697	-1.049	6.100	3.401	7.1050	12.7754
698	-1.049	6.250	3.551	1.600	-17.8089
699	-1.049	6.400	3.700	5.3366	13.4879
700	-1.049	6.550	3.850	12.0051	10.492
701	-1.049	6.700	4.001	4.0279	4.9707
702	-1.049	6.850	4.150	-13.2170	-1.6200
703	-1.049	7.000	4.301	1.451	-15.8497
704	-1.049	7.150	4.451	1.600	-17.8089
705	-1.049	7.300	4.600	1.751	-17.2489
706	-1.049	7.450	4.750	1.901	1.901
707	-1.049	7.600	4.901	2.051	-2.9980
708	-1.049	7.750	5.050	2.199	-6.4885
709	-1.049	7.900	2.351	1.302	-1.6200
710	-1.049	8.050	3.401	1.451	-15.8497
711	-1.049	8.200	5.600	5.501	9.1720
712	-1.049	8.350	6.650	6.501	-12.6644
713	-1.049	8.500	7.600	1.2950	8.2531
714	-1.049	8.650	8.101	9.4399	9.6118
715	-1.049	8.800	3.250	7.6044	10.8513
					.6481
	V	W	X	Y	Z
No.	W	X	Y	Z	V
661	-1.049	3.700	5.84227	14.46226	.4555
662	-1.049	3.850	5.1545	15.0502	.5572
663	-1.049	4.001	4.6281	15.1271	.4442
664	-1.049	1.302	-12.5370	4.6809	1.2831
665	-1.049	1.451	-14.7292	7.4417	2.9130
666	-1.049	1.600	-16.9818	10.3975	2.8686
667	-1.049	1.751	-15.7284	14.8433	5.8918
668	-1.049	1.902	-8.5062	22.7799	6.9290
669	-1.049	2.051	5.4697	24.4806	4.6413
670	-1.049	2.200	11.86662	20.9984	3.8276
671	-1.049	2.351	12.5162	17.9787	3.7528
672	-1.049	2.501	13.1926	16.4770	4.2197
673	-1.049	2.651	13.2732	15.0198	3.9061
674	-1.049	2.800	14.6540	14.3229	2.1586
675	-1.049	2.951	12.9098	1.0600	1.1326
676	-1.049	3.101	11.0955	13.7444	.7878
677	-1.049	3.251	9.2405	13.8323	.6882
678	-1.049	3.400	7.7193	13.9822	.6599
679	-1.049	3.551	6.6092	14.0342	.5062
680	-1.049	3.701	5.5723	14.1236	.4517
681	-1.049	3.851	4.9851	14.4620	.4093
682	-1.049	4.000	4.4373	14.7049	.5227
683	-1.049	4.150	-13.8165	1.7286	1.3903
684	-1.049	4.300	-17.0462	1.7776	2.1928
685	-1.049	4.450	-18.3542	2.1113	2.6606
686	-1.049	4.600	-20.5935	2.1890	5.0161
687	-1.049	4.750	1.900	-7.8939	5.1245
688	-1.049	4.900	2.050	6.7928	11.0418
689	-1.049	5.050	2.201	12.6763	6.5612
690	-1.049	5.200	2.351	10.6673	4.3731
691	-1.049	5.350	11.5096	10.3466	4.7407
692	-1.049	5.500	13.4433	10.0484	4.4773
693	-1.049	5.650	2.601	14.4269	10.6510
694	-1.049	5.750	2.951	10.0492	1.5556
695	-1.049	5.850	3.100	10.4810	11.8269
696	-1.049	5.950	3.250	8.7569	12.3288
697	-1.049	6.100	3.401	7.1050	12.7754
698	-1.049	6.250	3.551	1.600	-17.8089
699	-1.049	6.400	3.700	5.3366	13.4879
700	-1.049	6.550	3.850	12.0051	10.492
701	-1.049	6.700	4.001	4.0279	4.9707
702	-1.049	6.850	4.150	-13.2170	-1.6200
703	-1.049	7.000	2.351	1.451	-15.8497
704	-1.049	7.150	1.600	-17.8089	-5.6210
705	-1.049	7.300	1.751	-17.2489	-8.3402
706	-1.049	7.450	1.901	1.901	1.901
707	-1.049	7.600	2.051	4.0279	-2.9980
708	-1.049	7.750	2.199	6.4885	-6.4885
709	-1.049	7.900	2.351	-1.6200	1.2950
710	-1.049	8.050	3.401	1.451	-15.8497
711	-1.049	8.200	5.600	9.1720	4.1790
712	-1.049	8.350	6.650	12.6644	3.6432
713	-1.049	8.500	7.600	8.2531	1.2315
714	-1.049	8.650	8.101	9.4399	9.6118
715	-1.049	8.800	3.250	7.6044	10.8513
	V	W	X	Y	Z
No.	W	X	Y	Z	V
661	-1.049	3.700	5.84227	14.46226	.4555
662	-1.049	3.850	5.1545	15.0502	.5572
663	-1.049	4.001	4.6281	15.1271	.4442
664	-1.049	1.302	-12.5370	4.6809	1.2831
665	-1.049	1.451	-14.7292	7.4417	2.9130
666	-1.049	1.600	-16.9818	10.3975	2.8686
667	-1.049	1.751	-15.7284	14.8433	5.8918
668	-1.049	1.902	-8.5062	22.7799	6.9290
669	-1.049	2.051	5.4697	24.4806	4.6413
670	-1.049	2.200	11.86662	20.9984	3.8276
671	-1.049	2.351	12.5162	17.9787	3.7528
672	-1.049	2.501	13.1926	16.4770	4.2197
673	-1.049	2.651	13.2732	15.0198	3.9061
674	-1.049	2.800	14.6540	14.3229	2.1586
675	-1.049	2.951	12.9098	1.0600	1.1326
676	-1.049	3.101	11.0955	13.7444	.7878
677	-1.049	3.251	9.2405	13.8323	.6882
678	-1.049	3.400	7.7193	13.9822	.6599
679	-1.049	3.551	6.6092	14.0342	.5062
680	-1.049	3.701	5.5723	14.1236	.4517
681	-1.049	3.851	4.9851	14.4620	.4093
682	-1.049	4.000	4.4373	14.7049	.5227
683	-1.049	4.150	-13.8165	1.7286	1.3903
684	-1.049	4.300	-17.0462	1.7776	2.1928
685	-1.049	4.450	-18.3542	2.1113	2.6606
686	-1.049	4.600	-20.5935	2.1890	5.0161
687	-1.049	4.750	1.900	-7.8939	5.1245
688	-1.049	4.900	2.050	6.7928	11.0418
689	-1.049	5.050	2.201	12.6763	6.5612
690	-1.049	5.200	2.351	10.6673	4.3731
691	-1.049	5.350	11.5096	10.3466	4.7407
692	-1.049	5.500	13.4433	10.0484	4.4773
693	-1.049	5.650	2.601	14.4269	10.6510
694	-1.049	5.750	2.951	10.0492	1.5556
695	-1.049	5.850	3.100	10.4810	11.8269
696	-1.049	6.000	3.250	8.7569	12.3288
697	-1.049	6.150	2.351	1.451	-15.8497
698	-1.049	6.300	1.600	-17.8089	-5.6210
699	-1.049	6.450	1.751	-17.2489	-8.3402
700	-1.049	6.600	1.901	1.901	1.901
701	-1.049	6.750	4.0279	-2.9980	-6.4885
702	-1.049	6.900	2.199	6.4885	-6.4885
703	-1.049	7.050	-13.2170	-1.6200	1.2950
704	-1.049	7.200	1.600	-17.8089	-5.6210
705	-1.049	7.350	1.751	-17.2489	-8.3402
706	-1.049	7.500	1.901	1.901	1.901
707	-1.049	7.650	4.0279	-2.9980	-6.4885
708	-1.049	7.800	2.199	6.4885	-6.4885
709	-1.049	7.950	-13.2170	-1.6200	1.2950
710	-1.049	8.101	1.600	-17.8089	-5.6210
711	-1.049	8.250	1.751	-17.2489	-8.3402
712	-1.049	8.400	1.901	1.901	1.901
713	-1.049	8.550	4.0279	-2.9980	-6.4885
714	-1.049	8.700	2.199	6.4885	-6.4885
715	-1.049	8.850	-13.2170	-1.6200	1.29

TEST NUMBER	8107003	RUN NUMBER	6	X/D =	3.60
No.	Y	Z	V	W	W
771	-1.150	3.01	2.5184	7.0188	.6155
772	-1.150	3.250	2.6956	8.6608	.5144
773	-1.150	3.399	2.0883	9.8883	.6875
774	-1.150	3.551	2.2695	10.9063	.4603
775	-1.150	3.701	2.2179	11.6874	.4321
776	-1.150	3.950	2.0077	12.2971	.4147
777	-1.150	3.999	1.9110	12.961	.4084
778	0.000	1.301	5.7314	-7.9539	2.0977
779	0.000	1.451	-9.912	-13.7553	1.3244
780	0.000	1.601	-7.9903	-16.9350	1.7797
781	0.000	1.750	-12.5790	-15.9849	1.5154
782	0.000	2.000	-12.7277	-13.3015	1.3601
783	0.000	2.051	-10.1472	-6.9572	1.4928
784	0.000	2.201	-10.2669	-6.9607	1.1206
785	0.000	2.350	-7.9972	-3.0242	1.9008
786	0.000	2.499	-4.7802	-1.2155	1.8280
787	0.000	2.650	-2.8259	-1.3932	1.7745
788	0.000	2.801	-1.0405	3.6181	6.6883
789	0.000	2.950	-1.1660	5.7130	6.6201
790	0.000	3.099	-5.663	7.3020	5.5004
791	0.000	3.250	1.0546	8.6830	5.0224
792	0.000	3.401	1.0615	9.8874	4.519
793	0.000	3.550	1.2202	10.8903	3.8336
794	0.000	3.700	3.7011	11.5874	4.753
795	0.000	3.850	1.3210	12.2904	3.8119
796	0.000	4.001	1.2708	12.8025	4.451
797	-1.150	1.302	11.9332	-7.9233	3.3510
798	-1.150	1.451	4.0718	-12.1452	3.3832
799	-1.150	1.600	-6.2228	-14.6650	3.6384
800	-1.150	1.751	-13.7275	-13.0290	3.0243
801	-1.150	1.901	-17.2313	-11.5994	2.0775
802	-1.150	2.051	-16.6674	-8.6647	1.0772
803	-1.150	2.199	-13.6774	-4.2210	6.3637
804	-1.150	2.350	-10.6104	-1.1921	6.400
805	-1.150	2.501	-7.9386	1.0505	5.727
806	-1.150	2.650	-5.1996	3.0784	5.841
807	-1.150	2.799	-3.4628	4.9844	5.608
808	-1.150	2.950	-2.8867	6.5332	4.2112
809	-1.150	3.101	-1.2116	7.9357	4.6009
810	-1.150	3.250	-6.6069	9.1004	4.0903
811	-1.150	3.399	-1.1919	10.1317	4.3339
812	-1.150	3.550	-1.0162	1.0162	3.8853
813	-1.150	3.701	-1.751	1.1376	4.1754
820	-1.150	3.850	-6.6210	12.2841	4.0339
821	-1.150	3.999	-5.3449	12.8609	4.4293
822	-1.150	4.002	1.302	17.2150	4.097
823	-1.150	4.251	-1.1919	-3.5892	2.9993
824	-1.150	4.501	-9.6193	3.3319	4.3319
825	-1.150	4.649	-7.2723	5.1226	4.4772
No.	Y	Z	V	W	W
826	-1.150	4.950	1.1928	1.1928	3.4349
827	-1.150	5.100	-1.1928	-1.1928	5.3367
828	-1.150	5.350	-3.100	-3.100	5.593
829	-1.150	5.603	-3.249	-3.249	5.7268
830	-1.150	5.853	-3.400	-3.400	5.894
831	-1.150	6.100	-3.550	-3.550	5.975
832	-1.150	6.350	-3.700	-3.700	6.061
833	-1.150	6.600	-3.850	-3.850	6.138
834	-1.150	6.850	-4.000	-4.000	6.218
835	-1.150	7.100	-4.150	-4.150	6.296
836	-1.150	7.350	-4.300	-4.300	6.375
837	-1.150	7.600	-4.450	-4.450	6.454
838	-1.150	7.850	-4.600	-4.600	6.533
839	-1.150	8.100	-4.750	-4.750	6.612
840	-1.150	8.350	-4.900	-4.900	6.691
841	-1.150	8.600	-5.050	-5.050	6.769
842	-1.150	8.850	-5.200	-5.200	6.850
843	-1.150	9.100	-5.350	-5.350	6.939
844	-1.150	9.350	-5.500	-5.500	7.018
845	-1.150	9.600	-5.650	-5.650	7.097
846	-1.150	9.850	-5.800	-5.800	7.176
847	-1.150	10.100	-5.950	-5.950	7.255
848	-1.150	10.350	-6.100	-6.100	7.334
849	-1.150	10.600	-6.250	-6.250	7.413
850	-1.150	10.850	-6.400	-6.400	7.492
851	-1.150	11.100	-6.550	-6.550	7.571
852	-1.150	11.350	-6.700	-6.700	7.650
853	-1.150	11.600	-6.850	-6.850	7.729
854	-1.150	11.850	-7.000	-7.000	7.808
855	-1.150	12.100	-7.150	-7.150	7.887
856	-1.150	12.350	-7.300	-7.300	7.966
857	-1.150	12.600	-7.450	-7.450	8.045
858	-1.150	12.850	-7.600	-7.600	8.124
859	-1.150	13.100	-7.750	-7.750	8.203
860	-1.150	13.350	-7.900	-7.900	8.282
861	-1.150	13.600	-8.050	-8.050	8.361
862	-1.150	13.850	-8.200	-8.200	8.440
863	-1.150	14.100	-8.350	-8.350	8.519
864	-1.150	14.350	-8.500	-8.500	8.598
865	-1.150	14.600	-8.650	-8.650	8.677
866	-1.150	14.850	-8.800	-8.800	8.756
867	-1.150	15.100	-8.950	-8.950	8.835
868	-1.150	15.350	-9.100	-9.100	8.914
869	-1.150	15.600	-9.250	-9.250	9.993
870	-1.150	15.850	-9.400	-9.400	9.972
871	-1.150	16.100	-9.550	-9.550	9.951
872	-1.150	16.350	-9.700	-9.700	9.930
873	-1.150	16.600	-9.850	-9.850	9.909
874	-1.150	16.850	-10.000	-10.000	9.888
875	-1.150	17.100	-10.150	-10.150	9.867
876	-1.150	17.350	-10.300	-10.300	9.846
877	-1.150	17.600	-10.450	-10.450	9.825
878	-1.150	17.850	-10.600	-10.600	9.804
879	-1.150	18.100	-10.750	-10.750	9.783
880	-1.150	18.350	-10.900	-10.900	9.762
881	-1.150	18.600	-11.050	-11.050	9.741
882	-1.150	18.850	-11.200	-11.200	9.720
883	-1.150	19.100	-11.350	-11.350	9.699
884	-1.150	19.350	-11.500	-11.500	9.678
885	-1.150	19.600	-11.650	-11.650	9.657
886	-1.150	19.850	-11.800	-11.800	9.636
887	-1.150	20.100	-11.950	-11.950	9.615
888	-1.150	20.350	-12.100	-12.100	9.594
889	-1.150	20.600	-12.250	-12.250	9.573
890	-1.150	20.850	-12.400	-12.400	9.552
891	-1.150	21.100	-12.550	-12.550	9.531
892	-1.150	21.350	-12.700	-12.700	9.510
893	-1.150	21.600	-12.850	-12.850	9.489
894	-1.150	21.850	-13.000	-13.000	9.468
895	-1.150	22.100	-13.150	-13.150	9.447
896	-1.150	22.350	-13.300	-13.300	9.426
897	-1.150	22.600	-13.450	-13.450	9.405
898	-1.150	22.850	-13.600	-13.600	9.384
899	-1.150	23.100	-13.750	-13.750	9.363
900	-1.150	23.350	-13.900	-13.900	9.342
901	-1.150	23.600	-14.050	-14.050	9.321
902	-1.150	23.850	-14.200	-14.200	9.300
903	-1.150	24.100	-14.350	-14.350	9.279
904	-1.150	24.350	-14.500	-14.500	9.258
905	-1.150	24.600	-14.650	-14.650	9.237
906	-1.150	24.850	-14.800	-14.800	9.216
907	-1.150	25.100	-14.950	-14.950	9.195
908	-1.150	25.350	-15.100	-15.100	9.174
909	-1.150	25.600	-15.250	-15.250	9.153
910	-1.150	25.850	-15.400	-15.400	9.132
911	-1.150	26.100	-15.550	-15.550	9.111
912	-1.150	26.350	-15.700	-15.700	9.090
913	-1.150	26.600	-15.850	-15.850	9.069
914	-1.150	26.850	-16.000	-16.000	9.048
915	-1.150	27.100	-16.150	-16.150	9.027
916	-1.150	27.350	-16.300	-16.300	9.006
917	-1.150	27.600	-16.450	-16.450	9.985
918	-1.150	27.850	-16.600	-16.600	9.964
919	-1.150	28.100	-16.750	-16.750	9.943
920	-1.150	28.350	-16.900	-16.900	9.922
921	-1.150	28.600	-17.050	-17.050	9.901
922	-1.150	28.850	-17.200	-17.200	9.879
923	-1.150	29.100	-17.350	-17.350	9.858
924	-1.150	29.350	-17.500	-17.500	9.837
925	-1.150	29.600	-17.650	-17.650	9.816
926	-1.150	29.850	-17.800	-17.800	9.795
927	-1.150	30.100	-17.950	-17.950	9.774
928	-1.150	30.350	-18.100	-18.100	9.753
929	-1.150	30.600	-18.250	-18.250	9.732
930	-1.150	30.850	-18.400	-18.400	9.711
931	-1.150	31.100	-18.550	-18.550	9.690
932	-1.150	31.350	-18.700	-18.700	9.669
933	-1.150	31.600	-18.850	-18.850	9.648
934	-1.150	31.850	-19.000	-19.000	9.627
935	-1.150	32.100	-19.150	-19.150	9.606
936	-1.150	32.350	-19.300	-19.300	9.585
937	-1.150	32.600	-19.450	-19.450	9.564
938	-1.150	32.850	-19.600	-19.600	9.543
939	-1.150	33.100	-19.750	-19.750	9.522
940	-1.150	33.350	-19.900	-19.900	9.501
941	-1.150	33.600	-20.050	-20.050	9.480
942	-1.150	33.850	-20.200	-20.200	9.459
943	-1.150	34.100	-20.350	-20.350	9.438
944	-1.150	34.350	-20.500	-20.500	9.417
945	-1.150	34.600	-20.650	-20.650	9.396

TEST NUMBER	81070603			RUN NUMBER 6			X/D = 3.60		
	No.	V	W	No.	V	W	No.	V	W
881	-750	2.500	-11.3181	11.5691	-4.671	-5.980	936	1.200	2.291
882	-750	2.649	-9.2927	11.2438	-3.970	-4.969	937	1.200	2.251
883	-750	2.800	-7.5299	11.2611	-3.662	-4.621	938	1.200	2.250
884	-750	2.950	-6.1229	11.3436	-3.281	-4.636	939	1.200	2.651
885	-750	3.100	-5.0067	11.6088	-4.219	-4.102	940	1.200	2.601
886	-750	3.259	-4.0012	12.0119	-4.233	-3.982	941	1.200	2.991
887	-750	3.400	-3.2222	12.3436	-4.339	-5.132	942	1.200	3.099
888	-750	3.551	-2.6133	12.6714	-4.381	-4.400	943	1.200	3.250
889	-750	3.700	-2.0946	13.0233	-4.022	-4.392	944	1.200	3.001
890	-750	3.849	-1.7131	13.2932	-4.338	-4.212	945	1.200	3.550
891	-750	4.000	-1.3736	13.6791	-4.033	-4.421	946	1.200	3.699
892	-900	1.301	-1.5401	11.2638	-6.2033	-6.6987	947	1.200	3.550
893	-900	1.451	-3.9796	19.0559	-4.4868	-6.3713	948	1.200	4.001
894	-900	1.601	-7.6000	22.6633	-5.1595	-5.152	949	1.350	1.002
895	-900	1.749	-16.8268	22.3154	-3.9552	-4.2116	950	1.350	1.450
896	-900	1.900	-13.4205	20.9826	-2.6270	-3.2616	951	1.350	1.601
897	-900	2.051	-15.0710	18.9826	-1.9733	-1.9838	952	1.350	1.751
898	-900	2.200	-14.2601	16.1719	-6.6972	-7.758	953	1.350	1.901
899	-900	2.359	-12.5187	14.4207	-3.900	-6.124	954	1.350	2.050
900	-900	2.500	-10.6233	13.3597	-4.022	-5.728	955	1.350	2.200
901	-900	2.651	-8.9387	12.7933	-3.982	-5.299	956	1.350	2.350
902	-900	2.800	-7.4350	12.4564	-3.880	-5.202	957	1.350	2.501
903	-900	2.950	-6.2899	12.5512	-4.188	-4.711	958	1.350	2.650
904	-900	3.100	-5.2722	12.6017	-4.223	-4.113	959	1.350	2.800
905	-900	3.250	-4.3518	12.7067	-4.390	-4.962	960	1.350	2.950
906	-900	3.400	-3.6744	12.9652	-4.334	-4.664	961	1.350	3.101
907	-900	3.559	-3.0172	13.1575	-3.983	-4.533	962	1.350	3.249
908	-900	3.700	-2.7046	13.4310	-3.510	-4.257	963	1.350	3.400
909	-900	3.859	-2.0242	13.7136	-4.158	-4.733	964	1.350	3.551
910	-900	4.000	-1.6334	13.9019	-4.768	-4.888	965	1.350	3.701
911	-1.050	1.302	-8.7838	21.4868	-1.7517	-4.4218	966	1.350	3.859
912	-1.050	1.451	-7.2962	22.8994	-2.5357	-4.6539	967	1.350	4.000
913	-1.050	1.600	-9.8577	23.4279	-2.1607	-3.4465	968	1.500	1.301
914	-1.050	1.750	-10.8529	23.3416	-1.9224	-5.066	969	1.500	1.450
915	-1.050	1.901	-12.1730	21.6030	-1.2116	-1.2368	970	1.500	1.601
916	-1.050	2.051	-12.4791	19.3436	-7.766	-7.811	971	1.500	1.751
917	-1.050	2.200	-12.3407	17.3407	-5.059	-6.300	972	1.500	1.901
918	-1.050	2.350	-10.9411	15.8047	-4.422	-5.602	973	1.500	2.050
919	-1.050	2.501	-9.6959	14.6900	-3.510	-4.724	974	1.500	2.201
920	-1.050	2.651	-8.5034	14.0501	-3.883	-5.171	975	1.500	2.351
921	-1.050	2.800	-7.2720	13.7504	-3.222	-4.660	976	1.500	2.500
922	-1.050	2.950	-6.2216	13.4583	-3.897	-4.819	977	1.500	2.650
923	-1.050	3.100	-5.2933	13.4533	-3.439	-4.566	978	1.500	2.800
924	-1.050	3.251	-4.5307	13.4328	-3.877	-4.006	979	1.500	2.951
925	-1.050	3.400	-3.8100	13.6779	-3.775	-4.995	980	1.500	3.100
926	-1.050	3.559	-3.2092	13.6366	-3.223	-5.111	981	1.500	3.250
927	-1.050	3.700	-2.7732	13.8894	-3.438	-4.550	982	1.500	3.401
928	-1.050	3.851	-2.4463	14.0426	-3.502	-5.193	983	1.500	3.551
929	-1.050	4.000	-1.9064	14.1999	-3.866	-4.665	984	1.500	3.700
930	-1.050	4.151	-8.3075	13.4328	-3.877	-4.724	985	1.500	3.849
931	-1.050	4.301	-8.2921	23.6254	-9.216	-9.333	986	1.500	4.000
932	-1.050	4.451	-8.6077	23.2067	-1.035	-9.308	987	1.650	4.150
933	-1.050	4.601	-7.7230	13.8894	-2.2686	-3.885	988	1.650	4.301
934	-1.050	4.751	-7.1209	17.4791	-8.479	-8.479	989	1.650	4.451
935	-1.050	4.901	-6.5586	19.2974	-6.153	-5.039	990	1.650	4.601
936	-1.050	5.050	-6.9726	20.3626	-4.466	-5.426	991	1.650	4.751
937	-1.050	5.200	-7.0361	19.5342	-4.671	-5.331	992	1.650	4.901
938	-1.050	5.350	-6.6077	16.7937	-3.885	-5.220	993	1.650	5.050
939	-1.050	5.500	-6.7559	18.0662	-4.228	-5.491	994	1.650	5.200
940	-1.050	5.650	-6.5330	17.4769	-4.998	-10.3	995	1.650	5.350
941	-1.050	5.800	-6.0936	16.8225	-4.332	-5.995	996	1.650	5.500
942	-1.050	5.950	-5.6677	16.4228	-3.868	-5.176	997	1.650	5.650
943	-1.050	6.100	-5.1913	16.0883	-3.222	-4.661	998	1.650	5.800

TEST NUMBER	01062502	RUN NUMBER	7	X/D =	4.70
No.					
1	-1.400	0.000	V		
2	-1.400	-0.051	V		
3	-1.400	.102	V		
4	-1.400	.153	V		
5	-1.400	.202	V		
6	-1.400	.251	V		
7	-1.400	.303	V		
8	-1.400	.353	V		
9	-1.400	.402	V		
10	-1.400	.451	V		
11	-1.400	.503	V		
12	-1.400	.553	V		
13	-1.400	.602	V		
14	-1.400	.651	V		
15	-1.400	.703	V		
16	-1.400	.753	V		
17	-1.400	.802	V		
18	-1.400	.851	V		
19	-1.400	.903	V		
20	-1.400	.953	V		
21	-1.400	1.002	V		
22	-1.400	1.051	V		
23	-1.400	1.103	V		
24	-1.400	1.153	V		
25	-1.400	1.202	V		
26	-1.350	0.000	V		
27	-1.350	-0.051	V		
28	-1.350	.103	V		
29	-1.350	.153	V		
30	-1.350	.199	V		
31	-1.350	.249	V		
32	-1.350	.300	V		
33	-1.350	.351	V		
34	-1.350	.399	V		
35	-1.350	.449	V		
36	-1.350	.500	V		
37	-1.350	.551	V		
38	-1.350	.600	V		
39	-1.350	.649	V		
40	-1.350	.699	V		
41	-1.350	.750	V		
42	-1.350	.800	V		
43	-1.350	.849	V		
44	-1.350	.899	V		
45	-1.350	.950	V		
46	-1.350	.999	V		
47	-1.350	1.049	V		
48	-1.350	1.100	V		
49	-1.350	1.150	V		
50	-1.350	1.200	V		
51	-1.350	1.250	V		
52	-1.350	1.300	V		
53	-1.350	1.350	V		
54	-1.350	1.400	V		
55	-1.350	1.450	V		
56	-1.350	1.500	V		
57	-1.350	1.550	V		
58	-1.350	1.600	V		
59	-1.350	1.650	V		
60	-1.350	1.700	V		
61	-1.350	1.750	V		
62	-1.350	1.800	V		
63	-1.350	1.850	V		
64	-1.350	1.900	V		
65	-1.350	1.950	V		
66	-1.350	2.000	V		
67	-1.350	2.050	V		
68	-1.350	2.100	V		
69	-1.350	2.150	V		
70	-1.350	2.200	V		
71	-1.350	2.250	V		
72	-1.350	2.300	V		
73	-1.350	2.350	V		
74	-1.350	2.400	V		
75	-1.350	2.450	V		
76	-1.350	2.500	V		
77	-1.350	2.550	V		
78	-1.350	2.600	V		
79	-1.350	2.650	V		
80	-1.350	2.700	V		
81	-1.350	2.750	V		
82	-1.350	2.800	V		
83	-1.350	2.850	V		
84	-1.350	2.900	V		
85	-1.350	2.950	V		
86	-1.350	3.000	V		
87	-1.350	3.050	V		
88	-1.350	3.100	V		
89	-1.350	3.150	V		
90	-1.350	3.200	V		
91	-1.350	3.250	V		
92	-1.350	3.300	V		
93	-1.350	3.350	V		
94	-1.350	3.400	V		
95	-1.350	3.450	V		
96	-1.350	3.500	V		
97	-1.350	3.550	V		
98	-1.350	3.600	V		
99	-1.350	3.650	V		
100	-1.350	3.700	V		
101	-1.350	3.750	V		
102	-1.350	3.800	V		
103	-1.350	3.850	V		
104	-1.350	3.900	V		
105	-1.350	3.950	V		
106	-1.350	4.000	V		
107	-1.350	4.050	V		
108	-1.350	4.100	V		
109	-1.350	4.150	V		
110	-1.350	4.200	V		
111	-1.350	4.250	V		
112	-1.350	4.300	V		
113	-1.350	4.350	V		
114	-1.350	4.400	V		
115	-1.350	4.450	V		
116	-1.350	4.500	V		
117	-1.350	4.550	V		
118	-1.350	4.600	V		
119	-1.350	4.650	V		
120	-1.350	4.700	V		
121	-1.350	4.750	V		
122	-1.350	4.800	V		
123	-1.350	4.850	V		
124	-1.350	4.900	V		
125	-1.350	4.950	V		
126	-1.350	5.000	V		
127	-1.350	5.050	V		
128	-1.350	5.100	V		
129	-1.350	5.150	V		
130	-1.350	5.200	V		
131	-1.350	5.250	V		
132	-1.350	5.300	V		
133	-1.350	5.350	V		
134	-1.350	5.400	V		
135	-1.350	5.450	V		
136	-1.350	5.500	V		
137	-1.350	5.550	V		
138	-1.350	5.600	V		
139	-1.350	5.650	V		
140	-1.350	5.700	V		
141	-1.350	5.750	V		
142	-1.350	5.800	V		
143	-1.350	5.850	V		
144	-1.350	5.900	V		
145	-1.350	5.950	V		
146	-1.350	6.000	V		
147	-1.350	6.050	V		
148	-1.350	6.100	V		
149	-1.350	6.150	V		
150	-1.350	6.200	V		
151	-1.350	6.250	V		
152	-1.350	6.300	V		
153	-1.350	6.350	V		
154	-1.350	6.400	V		
155	-1.350	6.450	V		
156	-1.350	6.500	V		
157	-1.350	6.550	V		
158	-1.350	6.600	V		
159	-1.350	6.650	V		
160	-1.350	6.700	V		
161	-1.350	6.750	V		
162	-1.350	6.800	V		
163	-1.350	6.850	V		
164	-1.350	6.900	V		
165	-1.350	6.950	V		
166	-1.350	7.000	V		
167	-1.350	7.050	V		
168	-1.350	7.100	V		
169	-1.350	7.150	V		
170	-1.350	7.200	V		
171	-1.350	7.250	V		
172	-1.350	7.300	V		
173	-1.350	7.350	V		
174	-1.350	7.400	V		
175	-1.350	7.450	V		
176	-1.350	7.500	V		
177	-1.350	7.550	V		
178	-1.350	7.600	V		
179	-1.350	7.650	V		
180	-1.350	7.700	V		
181	-1.350	7.750	V		
182	-1.350	7.800	V		
183	-1.350	7.850	V		
184	-1.350	7.900	V		
185	-1.350	7.950	V		
186	-1.350	8.000	V		
187	-1.350	8.050	V		
188	-1.350	8.100	V		
189	-1.350	8.150	V		
190	-1.350	8.200	V		
191	-1.350	8.250	V		
192	-1.350	8.300	V		
193	-1.350	8.350	V		
194	-1.350	8.400	V		
195	-1.350	8.450	V		
196	-1.350	8.500	V		
197	-1.350	8.550	V		
198	-1.350	8.600	V		
199	-1.350	8.650	V		
200	-1.350	8.700	V		
201	-1.350	8.750	V		
202	-1.350	8.800	V		
203	-1.350	8.850	V		
204	-1.350	8.900	V		
205	-1.350	8.950	V		
206	-1.350	9.000	V		
207	-1.350	9.050	V		
208	-1.350	9.100	V		
209	-1.350	9.150	V		
210	-1.350	9.200	V		
211	-1.350	9.250	V		
212	-1.350	9.300	V		
213	-1.350	9.350	V		
214	-1.350	9.400	V		
215	-1.350	9.450	V		
216	-1.350	9.500	V		
217	-1.350	9.550	V		
218	-1.350	9.600	V		
219	-1.350	9.650	V		
220	-1.350	9.700	V		
221	-1.350	9.750	V		
222	-1.350	9.800	V		
223	-1.350	9.850	V		
224	-1.350	9.900	V		
225	-1.350	9.950	V		
226	-1.350	10.000	V		
227	-1.350	10.050	V		
228	-1.350	10.100	V		
229	-1.350	10.150	V		
230	-1.350	10.200	V		
231	-1.350	10.250	V		
232	-1.350	10.300	V		
233	-1.350	10.350	V		
234	-1.350	10.400	V		
235	-1.350	10.450	V		
236	-1.350	10.500	V		
237	-1.350	10.550	V		
238	-1.350	10.600	V		
239	-1.350	10.650	V		
240	-1.350	10.700	V		
241	-1.350	10.750	V		
242	-1.350	10.800	V		
243	-1.350	10.850	V		
244	-1.350	10.900	V		
245	-1.350	10.950	V		
246	-1.350	11.000	V		
247	-1.				

TEST NUMBER	81062502	RUN NUMBER	7	X/D = 4.70
No.				
111	-1.200			
112	-1.200			
113	-1.200			
114	-1.200			
115	-1.200			
116	-1.200			
117	-1.200			
118	-1.200			
119	-1.200			
120	-1.200			
121	-1.200			
122	-1.200			
123	-1.200			
124	-1.200			
125	-1.200			
126	-1.150	0.000		
127	-1.150	0.053		
128	-1.150	0.103		
129	-1.150	0.152		
130	-1.150	0.203		
131	-1.150	0.253		
132	-1.150	0.299		
133	-1.150	0.348		
134	-1.150	0.400		
135	-1.150	0.451		
136	-1.150	0.500		
137	-1.150	0.549		
138	-1.150	0.600		
139	-1.150	0.651		
140	-1.150	0.701		
141	-1.150	0.749		
142	-1.150	0.799		
143	-1.150	0.849		
144	-1.150	0.850		
145	-1.150	0.900		
146	-1.150	0.949		
147	-1.150	0.999		
148	-1.150	1.051		
149	-1.150	1.100		
150	-1.150	1.150		
151	-1.150	1.199		
152	-1.150	1.200		
153	-1.150	1.401		
154	-1.150	1.451		
155	-1.150	1.501		
156	-1.150	1.550		
157	-1.150	1.601		
158	-1.150	1.651		
159	-1.150	1.701		
160	-1.150	1.750		
161	-1.150	1.801		
162	-1.150	1.851		
163	-1.150	1.901		
164	-1.150	1.950		
165	-1.150	2.001		
			VS	VS
V			W	W
Y			Z	Z
NO.			NO.	NO.
			166	166
			167	167
			168	168
			169	169
			170	170
			171	171
			172	172
			173	173
			174	174
			175	175
			176	176
			177	177
			178	178
			179	179
			180	180
			181	181
			182	182
			183	183
			184	184
			185	185
			186	186
			187	187
			188	188
			189	189
			190	190
			191	191
			192	192
			193	193
			194	194
			195	195
			196	196
			197	197
			198	198
			199	199
			200	200
			201	201
			202	202
			203	203
			204	204
			205	205
			206	206
			207	207
			208	208
			209	209
			210	210
			211	211
			212	212
			213	213
			214	214
			215	215
			216	216
			217	217
			218	218
			219	219
			220	220

NSWC TR 82-394

TEST NUMBER	01062502	RUN NUMBER	7	X/D = 4.70
W	44.1	VS	W	W5
V	-3.563	1.1.1703	VS	1.1.5430
U	.649	1.200	VS	1.1.3111
T	1.200	.700	VS	20.6325
S	44.3	1.200	W	20.6325
R	-3.7215	.750	W	28.3930
P	-3.6229	1.200	W	28.3939
O	44.4	1.200	Y	1.0310
N	-4.6754	1.200	Y	1.0312
M	44.5	1.200	Y	28.4991
L	-5.2225	1.200	Y	1.1416
K	-5.2225	.900	Y	1.2036
J	44.6	1.200	Y	28.6660
I	44.7	1.200	Y	1.3955
H	-6.0292	1.200	Y	1.3785
G	44.8	1.200	Y	1.1969
F	-6.1926	1.200	Y	1.1969
E	44.9	1.200	Z	28.5146
D	-7.072	1.200	Z	1.999
C	45.0	1.200	Z	1.049
B	-8.0276	1.200	Z	1.050
A	45.1	1.200	Z	8.6109
Z	45.2	1.200	Z	-9.2442
Y	45.3	1.250	Z	0.001
X	45.4	1.250	Z	3.0427
W	45.5	1.250	Z	2.5919
V	45.6	1.250	Z	1.9219
U	45.7	1.250	Z	1.5783
T	45.8	1.250	Z	1.0228
S	45.9	1.250	Z	1.3337
R	46.0	1.250	Z	1.974
P	46.1	1.250	Z	-6.1442
O	46.2	1.250	Z	-6.1442
N	46.3	1.250	Z	-1.0501
M	46.4	1.250	Z	-1.5395
L	46.5	1.250	Z	1.5449
K	46.6	1.250	Z	1.250
J	46.7	1.250	Z	6.00
I	46.8	1.250	Z	-3.449
H	46.9	1.250	Z	-3.449
G	47.0	1.250	Z	-6.00
F	47.1	1.250	Z	-3.002
E	47.2	1.250	Z	-3.002
D	47.3	1.250	Z	1.700
C	47.4	1.250	Z	-7.449
B	47.5	1.250	Z	1.050
A	47.6	1.250	Z	1.100
Z	47.7	1.250	Z	1.149
Y	47.8	1.250	Z	1.200
X	47.9	1.300	Z	0.002
W	48.0	1.300	Z	3.449
V	48.1	1.300	Z	-4.00
U	48.2	1.300	Z	1.300
T	48.3	1.300	Z	-8.549
S	48.4	1.300	Z	2.300
R	48.5	1.300	Z	2.300
P	48.6	1.300	Z	1.300
O	48.7	1.300	Z	1.300
N	48.8	1.300	Z	4.886
M	48.9	1.300	Z	1.300
L	49.0	1.300	Z	1.300
K	49.1	1.300	Z	1.300
J	49.2	1.300	Z	1.300
I	49.3	1.300	Z	1.300
H	49.4	1.300	Z	1.300
G	49.5	1.300	Z	1.300
F	49.6	1.300	Z	1.300
E	49.7	1.300	Z	1.300
D	49.8	1.300	Z	1.300
C	49.9	1.300	Z	1.300
B	50.0	1.300	Z	1.300
A	50.1	1.300	Z	1.300
Z	50.2	1.300	Z	1.300
Y	50.3	1.300	Z	1.300
X	50.4	1.300	Z	1.300
W	50.5	1.300	Z	1.300
V	50.6	1.300	Z	1.300
U	50.7	1.300	Z	1.300
T	50.8	1.300	Z	1.300
S	50.9	1.300	Z	1.300
R	51.0	1.300	Z	1.300
P	51.1	1.300	Z	1.300
O	51.2	1.300	Z	1.300
N	51.3	1.300	Z	1.300
M	51.4	1.300	Z	1.300
L	51.5	1.300	Z	1.300
K	51.6	1.300	Z	1.300
J	51.7	1.300	Z	1.300
I	51.8	1.300	Z	1.300
H	51.9	1.300	Z	1.300
G	52.0	1.300	Z	1.300
F	52.1	1.300	Z	1.300
E	52.2	1.300	Z	1.300
D	52.3	1.300	Z	1.300
C	52.4	1.300	Z	1.300
B	52.5	1.300	Z	1.300
A	52.6	1.300	Z	1.300
Z	52.7	1.300	Z	1.300
Y	52.8	1.300	Z	1.300
X	52.9	1.300	Z	1.300
W	53.0	1.300	Z	1.300
V	53.1	1.300	Z	1.300
U	53.2	1.300	Z	1.300
T	53.3	1.300	Z	1.300
S	53.4	1.300	Z	1.300
R	53.5	1.300	Z	1.300
P	53.6	1.300	Z	1.300
O	53.7	1.300	Z	1.300
N	53.8	1.300	Z	1.300
M	53.9	1.300	Z	1.300
L	54.0	1.300	Z	1.300
K	54.1	1.300	Z	1.300
J	54.2	1.300	Z	1.300
I	54.3	1.300	Z	1.300
H	54.4	1.300	Z	1.300
G	54.5	1.300	Z	1.300
F	54.6	1.300	Z	1.300
E	54.7	1.300	Z	1.300
D	54.8	1.300	Z	1.300
C	54.9	1.300	Z	1.300
B	55.0	1.300	Z	1.300
A	55.1	1.300	Z	1.300
Z	55.2	1.300	Z	1.300
Y	55.3	1.300	Z	1.300
X	55.4	1.300	Z	1.300
W	55.5	1.300	Z	1.300
V	55.6	1.300	Z	1.300
U	55.7	1.300	Z	1.300
T	55.8	1.300	Z	1.300
S	55.9	1.300	Z	1.300
R	56.0	1.300	Z	1.300
P	56.1	1.300	Z	1.300
O	56.2	1.300	Z	1.300
N	56.3	1.300	Z	1.300
M	56.4	1.300	Z	1.300
L	56.5	1.300	Z	1.300
K	56.6	1.300	Z	1.300
J	56.7	1.300	Z	1.300
I	56.8	1.300	Z	1.300
H	56.9	1.300	Z	1.300
G	57.0	1.300	Z	1.300
F	57.1	1.300	Z	1.300
E	57.2	1.300	Z	1.300
D	57.3	1.300	Z	1.300
C	57.4	1.300	Z	1.300
B	57.5	1.300	Z	1.300
A	57.6	1.300	Z	1.300
Z	57.7	1.300	Z	1.300
Y	57.8	1.300	Z	1.300
X	57.9	1.300	Z	1.300
W	58.0	1.300	Z	1.300
V	58.1	1.300	Z	1.300
U	58.2	1.300	Z	1.300
T	58.3	1.300	Z	1.300
S	58.4	1.300	Z	1.300
R	58.5	1.300	Z	1.300
P	58.6	1.300	Z	1.300
O	58.7	1.300	Z	1.300
N	58.8	1.300	Z	1.300
M	58.9	1.300	Z	1.300
L	59.0	1.300	Z	1.300
K	59.1	1.300	Z	1.300
J	59.2	1.300	Z	1.300
I	59.3	1.300	Z	1.300
H	59.4	1.300	Z	1.300
G	59.5	1.300	Z	1.300
F	59.6	1.300	Z	1.300
E	59.7	1.300	Z	1.300
D	59.8	1.300	Z	1.300
C	59.9	1.300	Z	1.300
B	60.0	1.300	Z	1.300
A	60.1	1.300	Z	1.300
Z	60.2	1.300	Z	1.300
Y	60.3	1.300	Z	1.300
X	60.4	1.300	Z	1.300
W	60.5	1.300	Z	1.300
V	60.6	1.300	Z	1.300
U	60.7	1.300	Z	1.300
T	60.8	1.300	Z	1.300
S	60.9	1.300	Z	1.300
R	61.0	1.300	Z	1.300
P	61.1	1.300	Z	1.300
O	61.2	1.300	Z	1.300
N	61.3	1.300	Z	1.300
M	61.4	1.300	Z	1.300
L	61.5	1.300	Z	1.300
K	61.6	1.300	Z	1.300
J	61.7	1.300	Z	1.300
I	61.8	1.300	Z	1.300
H	61.9	1.300	Z	1.300
G	62.0	1.300	Z	1.300
F	62.1	1.300	Z	1.300
E	62.2	1.300	Z	1.300
D	62.3	1.300	Z	1.300
C	62.4	1.300	Z	1.300
B	62.5	1.300	Z	1.300
A	62.6	1.300	Z	1.300
Z	62.7	1.300	Z	1.300
Y	62.8	1.300	Z	1.300
X	62.9	1.300	Z	1.300
W	63.0	1.300	Z	1.300
V	63.1	1.300	Z	1.300
U	63.2	1.300	Z	1.300
T	63.3	1.300	Z	1.300
S	63.4	1.300	Z	1.300
R	63.5	1.300	Z	1.300
P	63.6	1.300	Z	1.300
O	63.7	1.300	Z	1.300
N	63.8	1.300	Z	1.300
M	63.9	1.300	Z	1.300
L	64.0	1.300	Z	1.300
K	64.1	1.300	Z	1.300
J	64.2	1.300	Z	1.300
I	64.3	1.300	Z	1.300
H	64.4	1.300	Z	1.300
G	64.5	1.300	Z	1.300
F	64.6	1.300	Z	1.300
E	64.7	1.300	Z	1.300
D	64.8	1.300	Z	1.300
C	64.9	1.300	Z	1.300
B	65.0	1.300	Z	1.300
A	65.1	1.300	Z	1.300
Z	65.2	1.300	Z	1.300
Y	65.3	1.300	Z	1.300
X	65.4	1.300	Z	1.300
W	65.5	1.300	Z	1.300
V	65.6	1.300	Z	1.300
U	65.7	1.300	Z	1.300
T	65.8	1.300	Z	1.300
S	65.9	1.300	Z	1.300
R	66.0	1.300	Z	1.300
P	66.1	1.300	Z	1.300
O	66.2	1.300	Z	1.300
N	66.3	1.300	Z	1.300
M	66.4	1.300	Z	1.300
L	66.5	1.300	Z	1.300
K	66.6	1.300	Z	1.300
J	66.7	1.300	Z	1.300
I	66.8	1.300	Z	1.300
H	66.9	1.300	Z	1.300
G	67.0	1.300	Z	1.300
F	67.1	1.300	Z	1.300
E	67.2	1.300	Z	1.300
D	67.3	1.300	Z	1.300
C	67.4	1.300	Z	1.300
B	67.5	1.300	Z	1.300
A	67.6	1.300	Z	1.300
Z	67.7	1.300	Z	1.300
Y	67.8	1.300	Z	1.300
X	67.9	1.300	Z	1.300
W	68.0	1.300	Z	1.300
V	68.1	1.300	Z	1.300
U	68.2	1.300	Z	1.300
T	68.3	1.300	Z	1.300
S	68.4	1.300	Z	1.300
R	68.5	1.300	Z	1.300
P	68.6	1.300	Z	1.300
O	68.7	1.300	Z	1.300
N	68.8	1.300	Z	1.300
M	68.9	1.300	Z	1.300
L	69.0	1.300	Z	1.300
K	69.1	1.300	Z	1.300
J	69.2	1.300	Z	1.300
I	69.3	1.300	Z	1.300
H	69.4	1.300	Z	1.300
G	69.5	1.300	Z	1.300
F	69.6	1.300	Z	1.300
E	69.7	1.300	Z	1.300
D	69.8	1.300	Z	1.300
C	69.9	1.300	Z	1.300
B	70.0	1.300	Z	1.300
A	70.1	1.300	Z	1.300
Z	70.2	1.300	Z	1.300
Y	70.3	1.300	Z	1.300
X	70.4	1.300	Z	1.300
W	70.5	1.300	Z	1.300
V	70.6	1.300	Z	1.300
U	70.7	1.300	Z	1.300
T	70.8</			

TEST NUMBER	81062602	RUN NUMBER	7	X/D =	4.70
No.					
551	Y	VS	W	V	MS
552	1.101	-6.0137	25.9476	.5694	.7367
553	1.152	-6.1404	25.6786	.6638	.7083
554	1.202	-6.5581	25.2732	.5236	.6798
555	1.203	-6.2228	20.1340	.8134	.6625
556	1.403	-4.44612	20.8021	.9006	.7230
557	1.603	-1.1912	21.5704	1.0437	1.0437
558	1.604	-4.2060	22.5152	1.5576	.9516
559	1.999	2.004	23.5264	1.7906	.9926
560	-1.999	2.004	-1.2274	24.5168	1.2584
561	-1.999	2.004	.2553	25.2620	1.8449
562	-1.999	2.004	1.9861	25.3879	1.6311
563	-1.999	2.005	4.0543	25.0260	1.3194
564	-1.999	3.004	5.5267	24.0187	.8225
565	-1.999	3.205	6.2828	23.0115	1.0702
566	-1.999	3.405	6.9398	21.8387	.9725
567	-1.999	3.604	6.8401	20.6339	.9430
568	-1.999	3.804	6.5145	19.7009	.6629
569	-1.999	4.004	6.1220	18.8774	.8303
570	-1.999	4.204	5.7671	18.3531	.7458
571	-1.999	4.404	5.3074	17.9934	.6891
572	-1.999	4.604	4.9285	17.6796	.6014
573	-1.999	4.804	4.5904	17.3445	.4938
574	-1.799	1.200	3.9864	17.0772	.5236
575	-1.799	1.404	-4.8066	17.5033	1.1337
576	-1.799	1.604	-5.6584	20.5785	2.5099
577	-1.799	1.805	-6.6006	21.1901	4.8662
578	-1.799	2.005	-5.8663	22.0301	4.8189
579	-1.799	2.205	-2.5140	24.2767	4.2994
580	-1.799	2.406	-1.7503	1.9793	4.4726
581	-1.799	2.606	2.9092	25.9419	3.1970
582	-1.799	2.806	4.9426	25.2698	3.1476
583	-1.799	3.006	5.7553	24.6369	2.0000
584	-1.799	3.206	8.1591	23.2624	1.6366
585	-1.799	3.406	6.7174	21.8832	1.2135
586	-1.799	3.606	8.3740	20.2266	1.0159
587	-1.799	3.806	7.9159	19.3762	.9203
588	-1.799	4.006	7.2902	18.6230	.8034
589	-1.799	4.205	6.6297	17.9172	.6427
590	-1.799	4.405	5.9574	15.3886	.6748
591	-1.799	4.605	5.5282	17.1945	.5535
592	-1.799	4.805	4.7874	16.8841	.6288
593	-1.799	5.005	4.1814	16.7047	.4906
594	-1.599	1.200	-3.5191	16.6218	4.0396
595	-1.599	1.404	-4.9731	15.1477	5.5896
596	-1.599	1.604	-5.7259	15.5066	6.0042
597	-1.599	1.804	-7.3525	16.0454	5.9668
598	-1.599	1.964	-7.6377	19.7855	6.5303
599	-1.599	2.002	-5.9744	23.4380	6.4442
600	-1.599	2.404	-2.7556	25.6494	5.5196
601	-1.599	2.604	1.6129	26.4167	3.1569
602	-1.599	2.804	5.2139	28.8951	4.6238
603	-1.599	3.000	7.8326	23.8702	2.7489
604	-1.599	3.201	9.9820	22.6031	2.0555
605	-1.599	3.401	16.5269	1.9554	1.5285
No.					
551	Y	VS	W	V	MS
552	1.101	25.9476	.5694	.7367	.7367
553	1.152	25.6786	.6638	.7083	.6798
554	1.202	25.2732	.5236	.6798	.6638
555	1.203	20.1340	.8134	.6625	.7240
556	1.403	20.8021	.9006	.7230	.7240
557	1.603	21.5704	1.0437	1.0437	.7204
558	1.604	22.5152	1.5576	.9516	.5966
559	1.999	23.5264	1.7906	.9926	.5166
560	1.999	25.6786	.6638	.7083	.5166
561	1.999	25.2732	.5236	.6798	.5166
562	1.999	20.1340	.8134	.6625	.5166
563	1.999	21.5704	1.0437	1.0437	.5166
564	1.999	22.5152	1.5576	.9516	.5166
565	1.999	23.5264	1.7906	.9926	.5166
566	1.999	25.6786	.6638	.7083	.5166
567	1.999	25.2732	.5236	.6798	.5166
568	1.999	20.1340	.8134	.6625	.5166
569	1.999	21.5704	1.0437	1.0437	.5166
570	1.999	22.5152	1.5576	.9516	.5166
571	1.999	23.5264	1.7906	.9926	.5166
572	1.999	25.6786	.6638	.7083	.5166
573	1.999	25.2732	.5236	.6798	.5166
574	1.799	1.200	-4.8066	19.7313	1.1337
575	-1.799	1.404	-4.8066	20.7404	1.5265
576	-1.799	1.604	-5.6584	20.5785	2.5099
577	-1.799	1.805	-6.6006	21.1901	4.8662
578	-1.799	2.005	-5.8663	22.0301	4.8189
579	-1.799	2.205	-2.5140	24.2767	4.2994
580	-1.799	2.406	-1.7503	1.9793	4.4726
581	-1.799	2.606	2.9092	25.9419	3.1970
582	-1.799	2.806	4.9426	25.2698	3.1476
583	-1.799	3.006	5.7553	24.6369	2.0000
584	-1.799	3.206	8.1591	23.2624	1.6366
585	-1.799	3.406	6.7174	21.8832	1.2135
586	-1.799	3.606	8.3740	20.2266	1.0159
587	-1.799	3.806	7.9159	19.3762	.9203
588	-1.799	4.006	7.2902	18.6230	.8034
589	-1.799	4.205	6.6297	17.9172	.6427
590	-1.799	4.405	5.9574	15.3886	.6748
591	-1.799	4.605	5.5282	17.1945	.5535
592	-1.799	4.805	4.7874	16.8841	.6288
593	-1.799	5.005	4.1814	16.7047	.4906
594	-1.599	1.200	-3.5191	16.6218	4.0396
595	-1.599	1.404	-4.9731	15.1477	5.5896
596	-1.599	1.604	-5.7259	15.5066	6.0042
597	-1.599	1.804	-7.3525	16.0454	5.9668
598	-1.599	1.964	-7.6377	19.7855	6.5303
599	-1.599	2.002	-5.9744	23.4380	6.4442
600	-1.599	2.404	-2.7556	25.6494	5.5196
601	-1.599	2.604	1.6129	26.4167	3.1569
602	-1.599	2.804	5.2139	28.8951	4.6238
603	-1.599	3.000	7.8326	23.8702	2.7489
604	-1.599	3.201	9.9820	22.6031	2.0555
605	-1.599	3.401	16.5269	1.9554	1.5285

TEST NUMBER	81062502	RUN NUMBER	7	X/D = .470
No.				
661	-999	2.404	-11.0030	-5.4325
662	-999	2.604	-2.6371	-2.0332
663	-999	2.804	5.7111	5.9334
664	-999	3.004	6.0849	10.1722
665	-999	3.204	7.66167	10.6132
666	-999	3.404	9.8375	12.0267
667	-999	3.604	11.4069	12.6459
668	-999	3.804	10.7045	13.3918
669	-999	4.004	8.9651	13.5708
670	-999	4.204	7.4344	13.6320
671	-999	4.403	6.1749	14.1265
672	-999	4.603	5.2355	14.2738
673	-999	4.803	4.6332	14.5647
674	-999	5.003	3.8746	14.8166
675	-799	2.200	-6.4730	-2.9476
676	-799	1.404	-9.138	-5.2026
677	-799	1.604	-11.0532	-8.3400
678	-799	1.804	-14.0147	-9.5578
679	-799	2.004	-15.3009	-10.9008
680	-799	2.204	-13.3706	-11.7890
681	-799	2.404	-9.1138	-10.1262
682	-799	2.604	-4.1562	-5.6509
683	-799	2.800	-1.0173	.2125
684	-799	3.000	2.6634	3.5810
685	-799	3.200	5.2973	6.8505
686	-799	3.399	7.4176	8.2568
687	-799	3.599	9.2500	10.0340
688	-799	3.799	9.3039	10.9412
689	-799	3.999	11.9090	11.9095
690	-799	4.199	6.8220	12.5775
691	-799	4.399	5.5900	13.1235
692	-799	4.599	4.6497	13.6980
693	-799	4.798	3.9562	14.0200
694	-799	4.998	3.4184	14.3611
695	-799	1.200	-3.1872	-3.4878
696	-799	1.402	-5.3814	-7.9675
697	-599	1.599	1.603	-8.7124
698	-599	1.793	-10.3362	-12.5241
699	-599	1.890	-12.3529	-13.6677
700	-599	2.001	-13.3079	-14.1614
701	-599	2.201	-12.9136	-13.9734
702	-599	2.401	-11.9776	-11.6742
703	-599	2.599	2.402	-9.1546
704	-599	2.801	-6.1390	-4.8881
705	-599	3.000	-2.1393	-9.6668
706	-599	3.200	2.5110	2.4899
707	-599	3.400	5.0001	3.6404
708	-599	3.600	6.5923	6.8643
709	-599	3.800	7.2051	9.0349
710	-599	4.000	6.4266	10.3650
711	-599	4.200	5.4381	11.4602
712	-599	4.400	4.6687	12.1751
713	-599	4.600	3.4885	12.9686
714	-599	4.800	3.4607	13.4607
715	-599	5.000	3.0350	13.9218

TEST NUMBER	81062502	RUN NUMBER	7	X/D = 4.70
No.				
771	.5779	10.4288	W	
772	.5779	11.4430	W	
773	.5779	9.9398	W	
774	.5779	12.2665	W	
775	.5779	12.1969	W	
776	.5779	13.4229	W	
777	.5779	12.5453	W	
778	.5779	1.4158	W	
779	.5779	10.4114	W	
780	.5779	-12.5333	W	
781	.5779	2.200	W	
782	.5779	-12.2220	W	
783	.5779	-18.6881	W	
784	.5779	2.800	W	
785	.5779	1.800	W	
786	.5779	-21.4015	W	
787	.5779	3.199	W	
788	.5779	-5.8288	W	
789	.5779	2.400	W	
790	.5779	2.599	W	
791	.5779	-1.201	W	
792	.5779	2.01	W	
793	.5779	3.599	W	
794	.5779	-4.1293	W	
795	.5779	2.01	W	
796	.5779	3.999	W	
797	.5779	-1.5241	W	
798	.5779	1.201	W	
799	.5779	4.198	W	
800	.5779	4.398	W	
801	.5779	4.598	W	
802	.5779	4.800	W	
803	.5779	5.000	W	
804	.5779	5.201	W	
805	.5779	5.401	W	
806	.5779	5.601	W	
807	.5779	5.801	W	
808	.5779	6.001	W	
809	.5779	6.201	W	
810	.5779	6.401	W	
811	.5779	6.601	W	
812	.5779	6.801	W	
813	.5779	7.001	W	
814	.5779	7.201	W	
815	.5779	7.401	W	
816	.5779	7.601	W	
817	.5779	7.801	W	
818	.5779	8.001	W	
819	.5779	8.201	W	
820	.5779	8.401	W	
821	.5779	8.601	W	
822	.5779	8.801	W	
823	.5779	9.001	W	
824	.5779	9.201	W	
825	.5779	9.401	W	
826	.5779	9.601	W	
827	.5779	9.801	W	
828	.5779	10.000	W	
829	.5779	10.200	W	
830	.5779	10.400	W	
831	.5779	10.600	W	
832	.5779	10.800	W	
833	.5779	11.000	W	
834	.5779	11.200	W	
835	.5779	11.400	W	
836	.5779	11.600	W	
837	.5779	11.800	W	
838	.5779	12.000	W	
839	.5779	12.200	W	
840	.5779	12.400	W	
841	.5779	12.600	W	
842	.5779	12.800	W	
843	.5779	13.000	W	
844	.5779	13.200	W	
845	.5779	13.400	W	
846	.5779	13.600	W	
847	.5779	13.800	W	
848	.5779	14.000	W	
849	.5779	14.200	W	
850	.5779	14.400	W	
851	.5779	14.600	W	
852	.5779	14.800	W	
853	.5779	15.000	W	
854	.5779	15.200	W	
855	.5779	15.400	W	
856	.5779	15.600	W	
857	.5779	15.800	W	
858	.5779	16.000	W	
859	.5779	16.200	W	
860	.5779	16.400	W	
861	.5779	16.600	W	
862	.5779	16.800	W	
863	.5779	17.000	W	
864	.5779	17.200	W	
865	.5779	17.400	W	
866	.5779	17.600	W	
867	.5779	17.800	W	
868	.5779	18.000	W	
869	.5779	18.200	W	
870	.5779	18.400	W	
871	.5779	18.600	W	
872	.5779	18.800	W	
873	.5779	19.000	W	
874	.5779	19.200	W	
875	.5779	19.400	W	
876	.5779	19.600	W	
877	.5779	19.800	W	
878	.5779	20.000	W	
879	.5779	20.200	W	
880	.5779	20.400	W	
881	.5779	20.600	W	
882	.5779	20.800	W	
883	.5779	21.000	W	
884	.5779	21.200	W	
885	.5779	21.400	W	
886	.5779	21.600	W	
887	.5779	21.800	W	
888	.5779	22.000	W	
889	.5779	22.200	W	
890	.5779	22.400	W	
891	.5779	22.600	W	
892	.5779	22.800	W	
893	.5779	23.000	W	
894	.5779	23.200	W	
895	.5779	23.400	W	
896	.5779	23.600	W	
897	.5779	23.800	W	
898	.5779	24.000	W	
899	.5779	24.200	W	
900	.5779	24.400	W	
901	.5779	24.600	W	
902	.5779	24.800	W	
903	.5779	25.000	W	
904	.5779	25.200	W	
905	.5779	25.400	W	
906	.5779	25.600	W	
907	.5779	25.800	W	
908	.5779	26.000	W	
909	.5779	26.200	W	
910	.5779	26.400	W	
911	.5779	26.600	W	
912	.5779	26.800	W	
913	.5779	27.000	W	
914	.5779	27.200	W	
915	.5779	27.400	W	
916	.5779	27.600	W	
917	.5779	27.800	W	
918	.5779	28.000	W	
919	.5779	28.200	W	
920	.5779	28.400	W	
921	.5779	28.600	W	
922	.5779	28.800	W	
923	.5779	29.000	W	
924	.5779	29.200	W	
925	.5779	29.400	W	
926	.5779	29.600	W	
927	.5779	29.800	W	
928	.5779	30.000	W	
929	.5779	30.200	W	
930	.5779	30.400	W	
931	.5779	30.600	W	
932	.5779	30.800	W	
933	.5779	31.000	W	
934	.5779	31.200	W	
935	.5779	31.400	W	
936	.5779	31.600	W	
937	.5779	31.800	W	
938	.5779	32.000	W	
939	.5779	32.200	W	
940	.5779	32.400	W	
941	.5779	32.600	W	
942	.5779	32.800	W	
943	.5779	33.000	W	
944	.5779	33.200	W	
945	.5779	33.400	W	
946	.5779	33.600	W	
947	.5779	33.800	W	
948	.5779	34.000	W	
949	.5779	34.200	W	
950	.5779	34.400	W	
951	.5779	34.600	W	
952	.5779	34.800	W	
953	.5779	35.000	W	
954	.5779	35.200	W	
955	.5779	35.400	W	
956	.5779	35.600	W	
957	.5779	35.800	W	
958	.5779	36.000	W	
959	.5779	36.200	W	
960	.5779	36.400	W	
961	.5779	36.600	W	
962	.5779	36.800	W	
963	.5779	37.000	W	
964	.5779	37.200	W	
965	.5779	37.400	W	
966	.5779	37.600	W	
967	.5779	37.800	W	
968	.5779	38.000	W	
969	.5779	38.200	W	
970	.5779	38.400	W	
971	.5779	38.600	W	
972	.5779	38.800	W	
973	.5779	39.000	W	
974	.5779	39.200	W	
975	.5779	39.400	W	
976	.5779	39.600	W	
977	.5779	39.800	W	
978	.5779	40.000	W	
979	.5779	40.200	W	
980	.5779	40.400	W	
981	.5779	40.600	W	
982	.5779	40.800	W	
983	.5779	41.000	W	
984	.5779	41.200	W	
985	.5779	41.400	W	
986	.5779	41.600	W	
987	.5779	41.800	W	
988	.5779	42.000	W	
989	.5779	42.200	W	
990	.5779	42.400	W	
991	.5779	42.600	W	
992	.5779	42.800	W	
993	.5779	43.000	W	
994	.5779	43.200	W	
995	.5779	43.400	W	
996	.5779	43.600	W	
997	.5779	43.800	W	
998	.5779	44.000	W	
999	.5779	44.200	W	
1000	.5779	44.400	W	
1001	.5779	44.600	W	
1002	.5779	44.800	W	
1003	.5779	45.000	W	
1004	.5779	45.200	W	
1005	.5779	45.400	W	
1006	.5779	45.600	W	
1007	.5779	45.800	W	
1008	.5779	46.000	W	
1009	.5779	46.200	W	
1010	.5779	46.400	W	
1011	.5779	46.600	W	
1012	.5779	46.800	W	
1013	.5779	47.000	W	
1014	.5779	47.200	W	
1015	.5779	47.400	W	
1016	.5779	47.600	W	
1017	.5779	47.800	W	
1018	.5779	48.000	W	
1019	.5779	48.200	W	
1020	.5779	48.400	W	
1021	.5779	48.600	W	
1022	.5779	48.800	W	
1023	.5779	49.000	W	
1024	.5779	49.200	W	
1025	.5779	49.400	W	
1026	.5779	49.600	W	
1027	.5779	49.800	W	
1028	.5779	50.000	W	
1029	.5779	50.200	W	
1030	.5779	50.400	W	
1031	.577			

NSWC TR 82-394

TEST NUMBER	H10625/02	HUN NUMBER	7	X/U = 4.70
NU.	V	W	X	Y
681	2.200	-10.5673	21.2042	.8904
682	1.200	-11.0657	19.3491	.6530
683	1.200	2.600	-10.7886	17.8318
684	1.200	2.800	-9.9253	16.4203
685	1.200	3.000	-8.8882	15.3887
686	1.200	3.200	-7.9815	14.6827
687	1.200	3.399	-6.8852	14.2584
688	1.200	3.599	-5.9113	14.0638
689	1.200	3.794	-5.0372	13.8650
690	1.200	3.999	-4.3332	13.8827
691	1.200	4.199	-3.7466	14.0286
692	1.200	4.399	-3.1753	14.1753
693	1.200	4.599	-2.6957	14.2637
694	1.200	4.799	-2.2249	14.4567
695	1.200	5.000	-1.7562	14.5041
696	1.000	2.202	-6.6377	25.3086
697	1.400	1.401	-7.0648	24.6755
698	1.000	1.601	-7.3661	23.3831
699	1.000	1.801	-7.6950	22.7612
700	1.400	2.001	-8.5946	21.9784
701	1.000	2.200	-9.0838	20.7560
702	1.400	2.400	-9.3851	19.3937
703	1.400	2.600	-9.2721	18.0725
704	1.000	2.800	-8.8022	17.0952
705	1.400	3.000	-8.0159	16.2245
706	1.400	3.200	-7.2782	15.5936
707	1.000	3.400	-6.5617	15.0995
708	1.400	3.600	-5.7077	14.8431
709	1.000	3.800	-4.9517	14.5831
710	1.000	3.999	-4.2405	14.6162
711	1.400	4.199	-3.6853	14.5769
712	1.000	4.399	-3.2771	14.5776
713	1.400	4.599	-2.7729	14.6956
714	1.400	4.799	-2.4099	14.8005
715	1.000	4.999	-4.6640	14.8753
716	1.600	2.002	-5.3111	24.5226
VS	W5	W5	No.	Y
	.7497	.6215	917	1.600
	.6530	.5860	918	1.600
	1.4590	.5931	919	1.600
	.4090	.6090	920	1.600
	.4465	.6085	921	1.600
	.3812	.5085	922	1.600
	.3968	.4856	923	1.600
	.4064	.5056	924	1.600
	.3899	.5411	925	1.600
	.3056	.4154	926	1.600
	.3722	.4491	927	1.600
	.3498	.4992	928	1.600
	.3484	.5099	929	1.600
	.4886	.4886	930	1.600
	.4482	.4042	931	1.600
	.5804	.7092	932	1.600
	.7875	.7856	933	1.600
	.7792	.7792	934	1.600
	.6950	.6950	935	1.600
	.6299	.6299	936	1.600
	.6505	.6505	937	1.600
	.6072	.6183	938	1.800
	.5187	.4213	939	1.800
	.4084	.4948	940	1.800
	.4163	.4149	941	1.800
	.4187	.5682	942	1.800
	.5006	.5006	943	1.800
	.5076	.4849	944	1.800
	.4266	.4929	945	1.800
	.4138	.4704	946	1.800
	.4584	.5513	947	1.800
	.32771	.4162	948	1.800
	.46669	.5476	949	1.800
	.44660	.4719	950	1.800
	.4504	.5263	951	1.800
	.5336	.7126		1.800
W	VS	W	V	Z
	.5450	.5365	-5.9728	-1.402
	.5365	.6354	-6.6354	-1.402
	22.9242	22.2827	22.2827	-1.402
	22.2827	7.6740	7.6740	-1.402
	7.6740	20.4407	20.4407	-1.402
	20.4407	7.9383	7.9383	-1.402
	7.9383	19.4082	19.4082	-1.402
	19.4082	8.1723	8.1723	-1.402
	8.1723	8.0501	8.0501	-1.402
	8.0501	16.4311	16.4311	-1.402
	16.4311	4.4077	4.4077	-1.402
	4.4077	17.5871	17.5871	-1.402
	17.5871	3.7394	3.7394	-1.402
	3.7394	16.8660	16.8660	-1.402
	16.8660	3.4614	3.4614	-1.402
	3.4614	4.3554	4.3554	-1.402
	4.3554	16.0803	16.0803	-1.402
	16.0803	4.8224	4.8224	-1.402
	4.8224	15.6667	15.6667	-1.402
	15.6667	3.6669	3.6669	-1.402
	3.6669	15.4658	15.4658	-1.402
	15.4658	3.8648	3.8648	-1.402
	3.8648	15.2451	15.2451	-1.402
	15.2451	4.2516	4.2516	-1.402
	4.2516	3.8770	3.8770	-1.402
	3.8770	15.0758	15.0758	-1.402
	15.0758	4.2717	4.2717	-1.402
	4.2717	15.0758	15.0758	-1.402
	15.0758	3.7203	3.7203	-1.402
	3.7203	14.9910	14.9910	-1.402
	14.9910	3.8664	3.8664	-1.402
	3.8664	4.5028	4.5028	-1.402
	4.5028	3.2995	3.2995	-1.402
	3.2995	14.9658	14.9658	-1.402
	14.9658	4.0056	4.0056	-1.402
	4.0056	8.0598	8.0598	-1.402
	8.0598	15.0065	15.0065	-1.402
	15.0065	3.9100	3.9100	-1.402
	3.9100	4.3554	4.3554	-1.402
	4.3554	15.0802	15.0802	-1.402
	15.0802	4.4220	4.4220	-1.402
	4.4220	21.8726	21.8726	-1.402
	21.8726	4.6314	4.6314	-1.402
	4.6314	5.3386	5.3386	-1.402
	5.3386	4.5388	4.5388	-1.402
	4.5388	5.6213	5.6213	-1.402
	5.6213	17.2704	17.2704	-1.402
	17.2704	6.0600	6.0600	-1.402
	6.0600	16.6844	16.6844	-1.402
	16.6844	3.9046	3.9046	-1.402
	3.9046	5.2096	5.2096	-1.402
	5.2096	5.5446	5.5446	-1.402
	5.5446	5.0997	5.0997	-1.402
	5.0997	5.5491	5.5491	-1.402
	5.5491	4.5971	4.5971	-1.402
	4.5971	4.7597	4.7597	-1.402
	4.7597	23.1822	23.1822	-1.402
	23.1822	5.6314	5.6314	-1.402
	5.6314	5.6314	5.6314	-1.402
	5.6314	5.6314	5.6314	-1.402
	5.6314	5.3386	5.3386	-1.402
	5.3386	4.4449	4.4449	-1.402
	4.4449	17.9299	17.9299	-1.402
	17.9299	4.5167	4.5167	-1.402
	4.5167	5.3388	5.3388	-1.402
	5.3388	5.5070	5.5070	-1.402
	5.5070	5.3036	5.3036	-1.402
	5.3036	4.5550	4.5550	-1.402
	4.5550	4.5550	4.5550	-1.402
	4.5550	4.5550	4.5550	-1.402

TEST NUMBER	RUN NUMBER	X/D =	2.66	
			MS	VS
1	Y			
2	-1.199	0.000	W	V5
3	-1.199	0.050	25.2094	1.0930
4	-1.199	0.102	25.5339	-2.4349
5	-1.199	0.152	25.5459	-2.1707
6	-1.199	0.201	25.5997	-1.7339
7	-1.199	0.250	25.5099	-1.6111
8	-1.199	0.302	25.4615	-8.0861
9	-1.199	0.352	25.3894	-6.6981
10	-1.199	0.401	25.4916	-2.2508
11	-1.199	0.450	25.4346	-4.0928
12	-1.199	0.502	25.4205	-6.9881
13	-1.199	0.601	25.4334	-1.0880
14	-1.199	0.650	25.4942	-1.6666
15	-1.199	0.702	25.3955	-2.1260
16	-1.199	0.752	25.3336	-2.2884
17	-1.199	0.801	25.1209	-2.8667
18	-1.199	0.850	25.3866	-2.9418
19	-1.199	0.902	25.7293	-3.7359
20	-1.199	0.952	24.4944	-4.0538
21	-1.199	1.002	4.0398	-4.0398
22	-1.199	1.050	4.3565	-24.1937
23	-1.199	1.102	24.0365	-4.6109
24	-1.199	1.152	4.4446	-23.6339
25	-1.199	1.202	4.7229	-23.6126
26	-1.199	1.252	3.4116	-25.4116
27	-1.150	1.302	-2.9263	-0.5052
28	-1.150	1.352	-2.4669	-1.01
29	-1.150	1.402	-2.1237	-1.150
30	-1.150	1.452	-1.7112	-2.0202
31	-1.150	1.502	-1.2552	-1.150
32	-1.150	1.551	-1.1704	-1.150
33	-1.150	1.602	-1.150	-1.150
34	-1.150	1.652	-1.150	-1.150
35	-1.150	1.702	-1.150	-1.150
36	-1.150	1.751	-1.150	-1.150
37	-1.150	1.802	-1.150	-1.150
38	-1.150	1.852	-1.150	-1.150
39	-1.150	1.902	-1.150	-1.150
40	-1.150	1.952	-1.150	-1.150
41	-1.150	2.002	-1.150	-1.150
42	-1.150	2.052	-1.150	-1.150
43	-1.150	2.102	-1.150	-1.150
44	-1.150	2.152	-1.150	-1.150
45	-1.150	2.202	-1.150	-1.150
46	-1.150	2.252	-1.150	-1.150
47	-1.150	2.302	-1.150	-1.150
48	-1.150	2.352	-1.150	-1.150
49	-1.150	2.402	-1.150	-1.150
50	-1.150	2.452	-1.150	-1.150
51	-1.150	2.502	-1.150	-1.150
52	-1.150	2.552	-1.150	-1.150
53	-1.150	2.602	-1.150	-1.150
54	-1.150	2.652	-1.150	-1.150
55	-1.150	2.702	-1.150	-1.150
56	-1.150	2.752	-1.150	-1.150
57	-1.150	2.802	-1.150	-1.150
58	-1.150	2.852	-1.150	-1.150
59	-1.150	2.902	-1.150	-1.150
60	-1.150	2.952	-1.150	-1.150
61	-1.150	3.002	-1.150	-1.150
62	-1.150	3.052	-1.150	-1.150
63	-1.150	3.102	-1.150	-1.150
64	-1.150	3.152	-1.150	-1.150
65	-1.150	3.202	-1.150	-1.150
66	-1.150	3.252	-1.150	-1.150
67	-1.150	3.302	-1.150	-1.150
68	-1.150	3.352	-1.150	-1.150
69	-1.150	3.402	-1.150	-1.150
70	-1.150	3.452	-1.150	-1.150
71	-1.150	3.502	-1.150	-1.150
72	-1.150	3.552	-1.150	-1.150
73	-1.150	3.602	-1.150	-1.150
74	-1.150	3.652	-1.150	-1.150
75	-1.150	3.702	-1.150	-1.150
76	-1.150	3.752	-1.150	-1.150
77	-1.150	3.802	-1.150	-1.150
78	-1.150	3.852	-1.150	-1.150
79	-1.150	3.902	-1.150	-1.150
80	-1.150	3.952	-1.150	-1.150
81	-1.150	4.002	-1.150	-1.150
82	-1.150	4.052	-1.150	-1.150
83	-1.150	4.102	-1.150	-1.150
84	-1.150	4.152	-1.150	-1.150
85	-1.150	4.202	-1.150	-1.150
86	-1.150	4.252	-1.150	-1.150
87	-1.150	4.302	-1.150	-1.150
88	-1.150	4.352	-1.150	-1.150
89	-1.150	4.402	-1.150	-1.150
90	-1.150	4.452	-1.150	-1.150
91	-1.150	4.502	-1.150	-1.150
92	-1.150	4.552	-1.150	-1.150
93	-1.150	4.602	-1.150	-1.150
94	-1.150	4.652	-1.150	-1.150
95	-1.150	4.702	-1.150	-1.150
96	-1.150	4.752	-1.150	-1.150
97	-1.150	4.802	-1.150	-1.150
98	-1.150	4.852	-1.150	-1.150
99	-1.150	4.902	-1.150	-1.150
100	-1.150	4.952	-1.150	-1.150
101	-1.150	5.002	-1.150	-1.150
102	-1.150	5.052	-1.150	-1.150
103	-1.150	5.102	-1.150	-1.150
104	-1.150	5.152	-1.150	-1.150
105	-1.150	5.202	-1.150	-1.150
106	-1.150	5.252	-1.150	-1.150
107	-1.150	5.302	-1.150	-1.150
108	-1.150	5.352	-1.150	-1.150
109	-1.150	5.402	-1.150	-1.150
110	-1.150	5.452	-1.150	-1.150
111	-1.150	5.502	-1.150	-1.150
112	-1.150	5.552	-1.150	-1.150
113	-1.150	5.602	-1.150	-1.150
114	-1.150	5.652	-1.150	-1.150
115	-1.150	5.702	-1.150	-1.150
116	-1.150	5.752	-1.150	-1.150
117	-1.150	5.802	-1.150	-1.150
118	-1.150	5.852	-1.150	-1.150
119	-1.150	5.902	-1.150	-1.150
120	-1.150	5.952	-1.150	-1.150
121	-1.150	6.002	-1.150	-1.150
122	-1.150	6.052	-1.150	-1.150
123	-1.150	6.102	-1.150	-1.150
124	-1.150	6.152	-1.150	-1.150
125	-1.150	6.202	-1.150	-1.150
126	-1.150	6.252	-1.150	-1.150
127	-1.150	6.302	-1.150	-1.150
128	-1.150	6.352	-1.150	-1.150
129	-1.150	6.402	-1.150	-1.150
130	-1.150	6.452	-1.150	-1.150
131	-1.150	6.502	-1.150	-1.150
132	-1.150	6.552	-1.150	-1.150
133	-1.150	6.602	-1.150	-1.150
134	-1.150	6.652	-1.150	-1.150
135	-1.150	6.702	-1.150	-1.150
136	-1.150	6.752	-1.150	-1.150
137	-1.150	6.802	-1.150	-1.150
138	-1.150	6.852	-1.150	-1.150
139	-1.150	6.902	-1.150	-1.150
140	-1.150	6.952	-1.150	-1.150
141	-1.150	7.002	-1.150	-1.150
142	-1.150	7.052	-1.150	-1.150
143	-1.150	7.102	-1.150	-1.150
144	-1.150	7.152	-1.150	-1.150
145	-1.150	7.202	-1.150	-1.150
146	-1.150	7.252	-1.150	-1.150
147	-1.150	7.302	-1.150	-1.150
148	-1.150	7.352	-1.150	-1.150
149	-1.150	7.402	-1.150	-1.150
150	-1.150	7.452	-1.150	-1.150
151	-1.150	7.502	-1.150	-1.150
152	-1.150	7.552	-1.150	-1.150
153	-1.150	7.602	-1.150	-1.150
154	-1.150	7.652	-1.150	-1.150
155	-1.150	7.702	-1.150	-1.150
156	-1.150	7.752	-1.150	-1.150
157	-1.150	7.802	-1.150	-1.150
158	-1.150	7.852	-1.150	-1.150
159	-1.150	7.902	-1.150	-1.150
160	-1.150	7.952	-1.150	-1.150
161	-1.150	8.002	-1.150	-1.150
162	-1.150	8.052	-1.150	-1.150
163	-1.150	8.102	-1.150	-1.150
164	-1.150	8.152	-1.150	-1.150
165	-1.150	8.202	-1.150	-1.150
166	-1.150	8.252	-1.150	-1.150
167	-1.150	8.302	-1.150	-1.150
168	-1.150	8.352	-1.150	-1.150
169	-1.150	8.402	-1.150	-1.150
170	-1.150	8.452	-1.150	-1.150
171	-1.150	8.502	-1.150	-1.150
172	-1.150	8.552	-1.150	-1.150
173	-1.150	8.602	-1.150	-1.150
174	-1.150	8.652	-1.150	-1.150
175	-1.150	8.702	-1.150	-1.150
176	-1.150	8.752	-1.150	-1.150
177	-1.150	8.802	-1.150	-1.150
178	-1.150	8.852	-1.150	-1.150
179	-1.150	8.902	-1.150	-1.150
180	-1.150	8.952	-1.150	-1.150
181	-1.150	9.002	-1.150	-1.150
182	-1.150	9.052	-1.150	-1.150
183	-1.150	9.102	-1.150	-1.150
184	-1.150	9.152	-1.150	-1.150
185	-1.150	9.202	-1.150	-1.150
186	-1.150	9.252	-1.150	-1.150
187	-1.150	9.302	-1.150	-1.150
188	-1.150	9.352	-1.150	-1.150
189	-1.150	9.402	-1.150	-1.150
190	-1.150	9.452	-1.150	-1.150
191	-1.150	9.502	-1.150	-1.150
192	-1.150	9.552	-1.150	-1.150
193	-1.150	9.602	-1.150	-1.150
194	-1.150	9.652	-1.150	-1.150
195	-1.150	9.702	-1.150	-1.150
196	-1.150	9.752	-1.150	-1.150
197	-1.150	9.802	-1.150	-1.150
198	-1.150	9.852	-1.150	-1.150
199	-1.150	9.902	-1.150	-1.150
200	-1.150	9.952	-1.150	-1.150
201	-1.150	10.002	-1.150	-1.150
202	-1.150	10.052	-1.150	-1.150
203	-1.150	10.102	-1.150	-1.150
204	-1.150	10.152	-1.150	-1.150
205	-1.150	10.202	-1.150	-1.150
206	-1.150	10.252	-1.150	-1.150
207	-1.150	10.302	-1.150	-1.150
208	-1.150	10.352	-1.150	-1.150
209	-1.150	10.402	-1.150	-1.150
210	-1.150	10.452	-1.150	-1.150
211	-1.150	10.502	-1.150	-1.150
212	-1.150	10.552	-1.150	-1.150
213	-1.150	10.602	-1.150	-1.150
214	-1.150	10.652	-1.150	-1.150
215	-1.150	10.702	-1.150	-1.150
216	-1.150	10.752	-1.150	-1.150
217	-1.150	10.802	-1.150	-1.150
218	-1.150	10.852	-1.150	-1.150
219	-1.150	10.902	-1.150	-1.150
220	-1.150	10.952	-1.150	-1.150
221	-1.150	11.002	-1.150	-1.150
222	-1.150	11.052	-1.150	-1.150
223	-1.150	11.102	-1.150	-1.150
224	-1.150	11.152	-1.150	-1.150
225	-1.150	11.202	-1.150	-1.150
226	-1.150	11.252	-1.150	-1.150
227	-1.150	11.302	-1.150	-1.150
228	-1.150	11.352	-1.150	-1.150
229	-1.150	11.402	-1.150	-1.150
230	-1.150	11.452	-1.150	-1.150
231	-1.150	11.502	-1.150	-1.15

TEST NUMBER	01071515	RUN NUMBER	6	X/D = 2.60
NO.	VS	VS	Z	VS
111	-0.950	-4.1801	-0.2367	4.0265
112	-0.950	-4.4400	-0.1311	4.3888
113	-0.950	-0.0570	-0.4165	5.3165
114	-0.950	-1.3776	-0.9045	6.5556
115	-0.950	-2.2343	-2.2215	7.1780
116	-0.950	-0.7959	-0.7552	3.5664
117	-0.950	-0.901	3.0773	5.8314
118	-0.950	-0.951	2.9881	5.4755
119	-0.950	1.000	2.791	9.1117
120	-0.950	1.050	1.1794	6.9853
121	-0.950	1.102	2.2053	7.5029
122	-0.950	1.151	1.2960	13.2994
123	-0.950	1.200	1.2479	15.9102
124	-0.900	0.701	-3.7739	-1.6863
125	-0.900	0.751	-2.2367	-1.3988
126	-0.900	0.800	-1.7922	-2.3823
127	-0.900	0.850	-0.920	-1.7149
128	-0.900	0.901	-0.9221	-1.8575
129	-0.900	0.951	-0.6182	-0.3741
130	-0.900	1.000	-0.3416	3.9997
131	-0.900	1.050	-2.1365	4.8895
132	-0.900	1.101	-1.101	-0.6071
133	-0.900	1.151	-1.6569	11.0393
134	-0.900	1.200	-1.0659	14.0626
135	-0.850	0.750	-0.9557	-1.4216
136	-0.850	0.800	-0.8682	-0.0330
137	-0.850	0.851	1.0310	-3.6773
138	-0.850	0.900	-0.8662	-3.1622
139	-0.850	0.950	-1.7764	-2.5797
140	-0.850	1.000	-4.3442	-0.9043
141	-0.850	1.050	-5.3227	3.3196
142	-0.850	1.101	-4.6883	6.9325
143	-0.850	1.150	-5.7238	9.9980
144	-0.850	1.200	-5.0599	12.9692
145	-0.800	0.800	-0.7589	-0.5889
146	-0.800	0.850	-1.7866	-2.3464
147	-0.800	0.901	-0.8557	-3.9010
148	-0.800	0.951	-3.2506	-2.5384
149	-0.800	1.000	-7.1394	-8.8852
150	-0.800	1.050	-1.1314	-2.6955
151	-0.800	1.101	-0.956	-0.5041
152	-0.800	1.151	-1.151	-1.4553
153	-0.800	1.200	-9.3459	12.6236
154	-0.750	0.851	4.8880	2.4308
155	-0.750	0.901	2.2170	-9.0058
156	-0.750	0.950	-3.5076	-7.1112
157	-0.750	0.999	-0.9441	-0.9223
158	-0.800	1.050	-1.26507	5.7164
159	-0.800	1.101	-14.2688	7.0383
160	-0.750	1.150	-14.4668	9.7586
161	-0.750	1.200	-13.4269	12.1788
162	-0.700	0.900	5.0563	5.9667
163	-0.700	0.950	-3.7926	3.2390
164	-0.700	1.001	-11.7560	4.0066
165	-0.700	1.050	-16.3954	5.5571
NO.	VS	VS	Y	VS
111	0.950	-0.2367	2.3373	1.66
112	0.950	-0.1311	4.3888	1.67
113	0.950	-0.0570	5.3165	1.68
114	0.950	-1.3776	6.5556	1.69
115	0.950	-2.2343	7.1780	1.70
116	0.950	-0.7959	7.5029	1.71
117	0.950	-0.901	3.0773	1.72
118	0.950	-0.951	2.9881	1.73
119	0.950	1.000	2.791	1.74
120	0.950	1.050	1.1794	1.75
121	0.950	1.102	2.2053	1.76
122	0.950	1.151	1.2960	1.77
123	0.950	1.200	1.2479	1.78
124	0.900	0.701	-3.7739	5.0246
125	0.900	0.751	-2.2367	5.3369
126	0.900	0.800	-1.7922	5.9246
127	0.900	0.850	-0.920	6.4195
128	0.900	0.901	-0.9221	6.3361
129	0.900	0.951	-0.6182	3.2994
130	0.900	1.000	-0.3416	3.9997
131	0.900	1.050	-2.1365	4.8895
132	0.900	1.101	-1.101	-0.6071
133	0.900	1.151	-1.6569	11.0393
134	0.900	1.200	-1.0659	14.0626
135	0.850	0.750	-0.9557	-1.4216
136	0.850	0.800	-0.8682	-0.0330
137	0.850	0.851	1.0310	-3.6773
138	0.850	0.900	-0.8662	-3.1622
139	0.850	0.950	-1.7764	-2.5797
140	0.850	1.000	-4.3442	-0.9043
141	0.850	1.050	-5.3227	3.3196
142	0.850	1.101	-4.6883	6.9325
143	0.850	1.150	-5.7238	9.9980
144	0.850	1.200	-5.0599	12.9692
145	0.800	0.800	-0.7589	-0.5889
146	0.800	0.850	-1.7866	-2.3464
147	0.800	0.901	-0.8557	-3.9010
148	0.800	0.951	-3.2506	-2.5384
149	0.800	1.000	-7.1394	-8.8852
150	0.800	1.050	-1.1314	-2.6955
151	0.800	1.101	-0.956	-0.5041
152	0.800	1.151	-1.151	-1.4553
153	0.800	1.200	-9.3459	12.6236
154	0.750	0.851	4.8880	2.4308
155	0.750	0.901	2.2170	-9.0058
156	0.750	0.950	-3.5076	-7.1112
157	0.750	0.999	-0.9441	-0.9223
158	0.800	1.050	-1.26507	5.7164
159	0.800	1.101	-14.2688	7.0383
160	0.750	1.150	-14.4668	9.7586
161	0.750	1.200	-13.4269	12.1788
162	0.700	0.900	5.0563	5.9667
163	0.700	0.950	-3.7926	3.2390
164	0.700	1.001	-11.7560	4.0066
165	0.700	1.050	-16.3954	5.5571
NO.	VS	VS	Y	VS
111	0.950	-0.2367	2.3373	1.66
112	0.950	-0.1311	4.3888	1.67
113	0.950	-0.0570	5.3165	1.68
114	0.950	-1.3776	6.5556	1.69
115	0.950	-2.2343	7.1780	1.70
116	0.950	-0.7959	7.5029	1.71
117	0.950	-0.901	3.0773	1.72
118	0.950	-0.951	2.9881	1.73
119	0.950	1.000	2.791	1.74
120	0.950	1.050	1.1794	1.75
121	0.950	1.102	2.2053	1.76
122	0.950	1.151	1.2960	1.77
123	0.950	1.200	1.2479	1.78
124	0.900	0.701	-3.7739	5.0246
125	0.900	0.751	-2.2367	5.3369
126	0.900	0.800	-1.7922	5.9246
127	0.900	0.850	-0.920	6.4195
128	0.900	0.901	-0.9221	6.3361
129	0.900	0.951	-0.6182	3.2994
130	0.900	1.000	-0.3416	3.9997
131	0.900	1.050	-2.1365	4.8895
132	0.900	1.101	-1.101	-0.6071
133	0.900	1.151	-1.6569	11.0393
134	0.900	1.200	-1.0659	14.0626
135	0.850	0.750	-0.9557	-1.4216
136	0.850	0.800	-0.8682	-0.0330
137	0.850	0.851	1.0310	-3.6773
138	0.850	0.900	-0.8662	-3.1622
139	0.850	0.950	-1.7764	-2.5797
140	0.850	1.000	-4.3442	-0.9043
141	0.850	1.050	-5.3227	3.3196
142	0.850	1.101	-4.6883	6.9325
143	0.850	1.150	-5.7238	9.9980
144	0.850	1.200	-5.0599	12.9692
145	0.800	0.800	-0.7589	-0.5889
146	0.800	0.850	-1.7866	-2.3464
147	0.800	0.901	-0.8557	-3.9010
148	0.800	0.951	-3.2506	-2.5384
149	0.800	1.000	-7.1394	-8.8852
150	0.800	1.050	-1.1314	-2.6955
151	0.800	1.101	-0.956	-0.5041
152	0.800	1.151	-1.151	-1.4553
153	0.800	1.200	-9.3459	12.6236
154	0.750	0.851	4.8880	2.4308
155	0.750	0.901	2.2170	-9.0058
156	0.750	0.950	-3.5076	-7.1112
157	0.750	0.999	-0.9441	-0.9223
158	0.800	1.050	-1.26507	5.7164
159	0.800	1.101	-14.2688	7.0383
160	0.750	1.150	-14.4668	9.7586
161	0.750	1.200	-13.4269	12.1788
162	0.700	0.900	5.0563	5.9667
163	0.700	0.950	-3.7926	3.2390
164	0.700	1.001	-11.7560	4.0066
165	0.700	1.050	-16.3954	5.5571
NO.	VS	VS	Y	VS
111	0.950	-0.2367	2.3373	1.66
112	0.950	-0.1311	4.3888	1.67
113	0.950	-0.0570	5.3165	1.68
114	0.950	-1.3776	6.5556	1.69
115	0.950	-2.2343	7.1780	1.70
116	0.950	-0.7959	7.5029	1.71
117	0.950	-0.901	3.0773	1.72
118	0.950	-0.951	2.9881	1.73
119	0.950	1.000	2.791	1.74
120	0.950	1.050	1.1794	1.75
121	0.950	1.102	2.2053	1.76
122	0.950	1.151	1.2960	1.77
123	0.950	1.200	1.2479	1.78
124	0.900	0.701	-3.7739	5.0246
125	0.900	0.751	-2.2367	5.3369
126	0.900	0.800	-1.7922	5.9246
127	0.900	0.850	-0.920	6.4195
128	0.900	0.901	-0.9221	6.3361
129	0.900	0.951	-0.6182	3.2994
130	0.900	1.000	-0.3416	3.9997
131	0.900	1.050	-2.1365	4.8895
132	0.900	1.101	-1.101	-0.6071
133	0.900	1.151	-1.6569	11.0393
134	0.900	1.200	-1.0659	14.0626
135	0.850	0.851	4.8880	2.4308
136	0.850	0.901	2.2170	-9.0058
137	0.850	0.950	-3.5076	-7.1112
138	0.850	1.000	-7.1394	-8.8852
139	0.850	1.050	-1.1314	-2.6955
140	0.850	1.101	-0.956	-0.5041
141	0.850	1.151	-1.151	-1.4553
142	0.850	1.200	-9.3459	12.6236
143	0.800	0.901	-0.8557	-3.9010
144	0.800	0.951	-3.2506	-2.5384
145	0.800	1.000	-7.1394	-8.8852
146	0.800	1.050	-1.1314	-2.6955
147				

TEST NUMBER	01071515	RUN NUMBER	8	X/D =	2.660
No.				HS	6.9165 6.7405
221	1.101	V	VS	4.5724 4.7788	
222	.550	W	VS	9.2542 12.1638	
223	1.152	W	VS	1.4167 1.4167	
224	.550	W	VS	1.3927 1.3927	
225	1.202	W	VS	2.1386 2.1386	
226	.600	W	VS	1.2203 1.2203	
227	.600	W	VS	22.2992 22.2992	
228	.600	W	VS	19.5024 19.5024	
229	.600	W	VS	20.9229 20.9229	
230	.600	W	VS	21.9524 21.9524	
231	.600	W	VS	21.9524 21.9524	
232	.600	W	VS	21.9524 21.9524	
233	.700	W	VS	1.0001 1.0001	
234	.700	W	VS	1.0001 1.0001	
235	.700	W	VS	1.0002 1.0002	
236	.700	W	VS	1.0002 1.0002	
237	.700	W	VS	1.0002 1.0002	
238	.700	W	VS	1.0002 1.0002	
239	.750	W	VS	1.0002 1.0002	
240	.750	W	VS	1.0002 1.0002	
241	.750	W	VS	1.0002 1.0002	
242	.750	W	VS	1.0002 1.0002	
243	.750	W	VS	1.0002 1.0002	
244	.800	W	VS	1.0002 1.0002	
245	.800	W	VS	1.0002 1.0002	
246	.800	W	VS	1.0002 1.0002	
247	.800	W	VS	1.0002 1.0002	
248	.800	W	VS	1.0002 1.0002	
249	.800	W	VS	1.0002 1.0002	
250	.850	W	VS	1.0002 1.0002	
251	.850	W	VS	1.0002 1.0002	
252	.850	W	VS	1.3568 1.3568	
253	.850	W	VS	5.1099 5.1099	
254	.850	W	VS	8.9994 8.9994	
255	.850	W	VS	1.4499 1.4499	
256	.850	W	VS	1.9991 1.9991	
257	.850	W	VS	1.1532 1.1532	
258	.850	W	VS	1.0000 1.0000	
259	.900	W	VS	1.0000 1.0000	
260	.900	W	VS	1.0000 1.0000	
261	.900	W	VS	1.1515 1.1515	
262	.900	W	VS	1.0000 1.0000	
263	.900	W	VS	1.0000 1.0000	
264	.900	W	VS	1.0000 1.0000	
265	.900	W	VS	1.0000 1.0000	
266	.900	W	VS	1.0000 1.0000	
267	.900	W	VS	1.0000 1.0000	
268	.900	W	VS	1.0000 1.0000	
269	.950	W	VS	1.0000 1.0000	
270	.950	W	VS	1.0000 1.0000	
271	.950	W	VS	1.0000 1.0000	
272	.950	W	VS	1.0000 1.0000	
273	.950	W	VS	1.0000 1.0000	
274	.950	W	VS	1.0000 1.0000	
275	.950	W	VS	1.0000 1.0000	
No.				Y	1.6555 1.6555
221	1.101	Z	NO.	1.4167 1.4167	
222	.550	Z	NO.	.276 .276	
223	1.152	Z	NO.	.950 .950	
224	.550	Z	NO.	1.201 1.201	
225	1.202	Z	NO.	.650 .650	
226	.600	Z	NO.	.700 .700	
227	.600	Z	NO.	.751 .751	
228	.600	Z	NO.	.801 .801	
229	.600	Z	NO.	.850 .850	
230	.650	Z	NO.	.850 .850	
231	.650	Z	NO.	.8667 .8667	
232	.650	Z	NO.	.900 .900	
233	.700	Z	NO.	.900 .900	
234	.700	Z	NO.	.900 .900	
235	.700	Z	NO.	.900 .900	
236	.700	Z	NO.	.900 .900	
237	.700	Z	NO.	.900 .900	
238	.700	Z	NO.	.900 .900	
239	.750	Z	NO.	.900 .900	
240	.750	Z	NO.	.900 .900	
241	.750	Z	NO.	.900 .900	
242	.750	Z	NO.	.900 .900	
243	.750	Z	NO.	.900 .900	
244	.800	Z	NO.	.900 .900	
245	.800	Z	NO.	.900 .900	
246	.800	Z	NO.	.900 .900	
247	.800	Z	NO.	.900 .900	
248	.800	Z	NO.	.900 .900	
249	.800	Z	NO.	.900 .900	
250	.850	Z	NO.	.900 .900	
251	.850	Z	NO.	.900 .900	
252	.850	Z	NO.	.900 .900	
253	.850	Z	NO.	.900 .900	
254	.850	Z	NO.	.900 .900	
255	.850	Z	NO.	.900 .900	
256	.850	Z	NO.	.900 .900	
257	.850	Z	NO.	.900 .900	
258	.850	Z	NO.	.900 .900	
259	.900	Z	NO.	.900 .900	
260	.900	Z	NO.	.900 .900	
261	.900	Z	NO.	.900 .900	
262	.900	Z	NO.	.900 .900	
263	.900	Z	NO.	.900 .900	
264	.900	Z	NO.	.900 .900	
265	.900	Z	NO.	.900 .900	
266	.900	Z	NO.	.900 .900	
267	.900	Z	NO.	.900 .900	
268	.900	Z	NO.	.900 .900	
269	.950	Z	NO.	.900 .900	
270	.950	Z	NO.	.900 .900	
271	.950	Z	NO.	.900 .900	
272	.950	Z	NO.	.900 .900	
273	.950	Z	NO.	.900 .900	
274	.950	Z	NO.	.900 .900	
275	.950	Z	NO.	.900 .900	

TEST NUMBER	81071515	RUN NUMBER	8	X/D =	2.60
NO.		VS	VS	W	W
4.41	-3.4640	-8723	-8493	-8493	-8493
4.42	-3.952	-8730	-6875	-481	-600
4.43	0.000	-7259	-3.3937	-482	-750
4.44	0.000	-2.2501	-5.9098	-483	-750
4.45	0.000	-2.401	-5.3241	-6.032	-1.201
4.46	-1.50	-6.4437	-1.9908	-6.3026	-1.350
4.47	-1.50	-4.3758	-7.5145	-1.9922	-1.499
4.48	-1.50	-1.352	-7.0680	-9.5944	-1.499
4.49	-1.50	-6.502	-3.3332	-7.2560	-1.127
4.50	-1.50	-4.2828	-3.4183	-9.049	-1.2434
4.51	-1.50	-1.952	-3.6922	-5.870	-1.003
4.52	-1.50	-2.102	-2.7800	-3.5494	-7.917
4.53	-1.50	-2.252	-6.0602	-6.1731	-5.986
4.54	-1.50	-2.401	-1.5663	-6.0377	-5.511
4.55	-1.50	-1.652	-1.201	-1.6254	-6.579
4.56	-1.50	-1.352	-9.2845	-9.746	-2.4034
4.57	-1.50	-1.502	-1.1695	-10.6540	-2.1290
4.58	-1.50	-1.648	-7.6601	-7.1613	-3.6869
4.59	-1.50	-1.800	-6.6700	-7.4748	-2.7108
4.60	-1.50	-3.00	-1.951	-6.1106	-1.7744
4.61	-1.50	-3.00	-2.100	-6.1531	-4.7658
4.62	-1.50	-3.00	-2.249	-4.6996	-6.049
4.63	-1.50	-3.00	-2.400	-3.5454	-6.6829
4.64	-1.50	-4.50	-1.200	-20.9718	-3.3993
4.65	-1.50	-4.50	-1.351	-12.7140	-6.6831
4.66	-1.50	-4.50	-1.501	-11.7652	-5.8929
4.67	-1.50	-4.50	-2.400	-13.6530	-6.8067
4.68	-1.50	-4.50	-1.800	-15.4536	-6.0219
4.69	-1.50	-4.50	-1.951	-12.4763	-4.8825
4.70	-1.50	-4.50	-2.101	-4.0247	-6.8687
4.71	-1.50	-4.50	-2.250	-2.101	-6.7186
4.72	-1.50	-4.50	-2.400	-7.5135	-9.6722
4.73	-1.50	-4.50	-2.101	-22.1250	-4.2241
4.74	-1.50	-4.50	-1.350	-16.6508	-8.9876
4.75	-1.50	-4.50	-1.500	-11.2312	-11.2026
4.76	-1.50	-4.50	-1.800	-1.951	-10.6825
4.77	-1.50	-4.50	-1.951	-7.161	-6.2217
4.78	-1.50	-4.50	-2.400	-9.5466	-9.4685
4.79	-1.50	-4.50	-2.100	-10.7101	-9.7215
VS		VS	VS	VS	VS
NO.		Y	Z	V	W
4.80	-8.01	-10.4307	-8.0132	-8.0132	-6.6220
4.81	-0.000	-6.2345	-6.2345	-6.2345	-5.6615
4.82	-0.000	-11.1835	-11.1835	-11.1835	-5.6567
4.83	-0.000	-15.7120	-15.7120	-15.7120	-5.6567
4.84	-0.000	-19.175	-19.175	-19.175	-5.6567
4.85	-0.000	-22.3928	-22.3928	-22.3928	-5.6567
4.86	-0.000	-16.1453	-16.1453	-16.1453	-5.6567
4.87	-0.000	-16.285	-16.285	-16.285	-5.6567
4.88	-0.000	-14.4349	-14.4349	-14.4349	-5.6567
4.89	-0.000	-13.0306	-13.0306	-13.0306	-5.6567
4.90	-0.000	-12.6336	-12.6336	-12.6336	-5.6567
4.91	-0.000	-12.6116	-12.6116	-12.6116	-5.6567
4.92	-0.000	-12.6003	-12.6003	-12.6003	-5.6567
4.93	-0.000	-11.9685	-11.9685	-11.9685	-5.6567
4.94	-0.000	-11.3448	-11.3448	-11.3448	-5.6567
4.95	-0.000	-10.9132	-10.9132	-10.9132	-5.6567
4.96	-0.000	-10.8357	-10.8357	-10.8357	-5.6567
4.97	-0.000	-10.5093	-10.5093	-10.5093	-5.6567
4.98	-0.000	-9.8400	-9.8400	-9.8400	-5.6567
4.99	-0.000	-9.6003	-9.6003	-9.6003	-5.6567
5.00	-0.000	-9.1615	-9.1615	-9.1615	-5.6567
5.01	-0.000	-8.6400	-8.6400	-8.6400	-5.6567
5.02	-0.000	-8.1238	-8.1238	-8.1238	-5.6567
5.03	-0.000	-7.4960	-7.4960	-7.4960	-5.6567
5.04	-0.000	-7.0401	-7.0401	-7.0401	-5.6567
5.05	-0.000	-6.5917	-6.5917	-6.5917	-5.6567
5.06	-0.000	-6.1017	-6.1017	-6.1017	-5.6567
5.07	-0.000	-5.9318	-5.9318	-5.9318	-5.6567
5.08	-0.000	-5.2349	-5.2349	-5.2349	-5.6567
5.09	-0.000	-4.9885	-4.9885	-4.9885	-5.6567
5.10	-0.000	-4.6964	-4.6964	-4.6964	-5.6567
5.11	-0.000	-4.3614	-4.3614	-4.3614	-5.6567
5.12	-0.000	-4.2819	-4.2819	-4.2819	-5.6567
5.13	-0.000	-4.0684	-4.0684	-4.0684	-5.6567
5.14	-0.000	-3.6232	-3.6232	-3.6232	-5.6567
5.15	-0.000	-3.4084	-3.4084	-3.4084	-5.6567
5.16	-0.000	-3.2031	-3.2031	-3.2031	-5.6567
5.17	-0.000	-2.8444	-2.8444	-2.8444	-5.6567
5.18	-0.000	-2.4313	-2.4313	-2.4313	-5.6567
5.19	-0.000	-2.0376	-2.0376	-2.0376	-5.6567
5.20	-0.000	-1.7714	-1.7714	-1.7714	-5.6567
5.21	-0.000	-1.4006	-1.4006	-1.4006	-5.6567
5.22	-0.000	-1.0406	-1.0406	-1.0406	-5.6567
5.23	-0.000	-0.7757	-0.7757	-0.7757	-5.6567
5.24	-0.000	-0.3777	-0.3777	-0.3777	-5.6567
5.25	-0.000	-0.0232	-0.0232	-0.0232	-5.6567
5.26	-0.000	-4.8617	-4.8617	-4.8617	-5.6567
5.27	-0.000	-8.3871	-8.3871	-8.3871	-5.6567
5.28	-0.000	-10.3245	-10.3245	-10.3245	-5.6567
5.29	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.30	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.31	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.32	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.33	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.34	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.35	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.36	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.37	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.38	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.39	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.40	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.41	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.42	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.43	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.44	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.45	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.46	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.47	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.48	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.49	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.50	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.51	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.52	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.53	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.54	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.55	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.56	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.57	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.58	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.59	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.60	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.61	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.62	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.63	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.64	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.65	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.66	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.67	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.68	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.69	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.70	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.71	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.72	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.73	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.74	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.75	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.76	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.77	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.78	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.79	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.80	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.81	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.82	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.83	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.84	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.85	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.86	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.87	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.88	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.89	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.90	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.91	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.92	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.93	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.94	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.95	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.96	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.97	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.98	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
5.99	-0.000	-16.4413	-16.4413	-16.4413	-5.6567
6.00	-0.000	-16.4413	-16.4413	-16.4413	-5.6567

NSWC TR 82-394

No.	TEST NUMBER	01071601	RUN NUMBER	9	X/D =	5.70		MS	VS	Y	Z	NO.	56	Y	Z	NO.	56	Y	Z	NO.	56	Y	Z			
						W	W							W	W	W	W	W	W	W	W	W	W	W	W	
1	-1.250	V	-5.9087	20.1120	1.0962	1.0960	3.7502	6.3265	1.2000	1.2000	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150		
2	-1.250	Z	0.000	-3.9413	14.9600	8.6655	4.9885	6.6619	6.6619	6.3265	6.3265	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
3	-1.250	Y	-1.250	-4.3854	8.6650	4.9885	4.2379	4.1163	4.1163	4.2379	4.2379	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
4	-1.250	Y	-1.250	-1.5630	4.4932	5.5075	3.6665	3.1015	3.1015	3.6665	3.6665	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
5	-1.250	Z	-1.250	-2.01	2.975	4.9800	4.0572	2.8855	2.8855	4.0572	4.0572	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
6	-1.250	Z	-1.250	-2.52	-8.8501	4.9800	4.0572	2.8855	2.8855	4.0572	4.0572	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
7	-1.250	Z	-1.250	-3.01	-1.4963	2.0088	3.8861	2.4530	2.4530	3.8861	3.8861	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
8	-1.250	Y	-1.250	-3.50	-1.2700	2.1145	3.7744	2.2027	2.2027	3.7744	3.7744	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
9	-1.250	Y	-1.250	-4.01	-1.8199	2.3143	4.1163	2.6967	2.6967	4.1163	4.1163	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
10	-1.250	Z	-1.250	-4.52	-2.1214	2.5535	5.4007	3.2071	3.2071	5.4007	5.4007	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
11	-1.250	Z	-1.250	-5.01	-8.820	2.6865	5.1061	4.2138	4.2138	5.1061	5.1061	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
12	-1.250	Z	-1.250	-5.50	-8.8219	1.8442	4.7614	4.3186	4.3186	1.8442	1.8442	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
13	-1.250	Z	-1.250	-6.01	-7.90	1.0151	4.9938	4.9938	4.9938	1.0151	1.0151	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
14	-1.250	Z	-1.250	-6.52	-7.958	1.5506	4.7719	4.1229	4.1229	1.5506	1.5506	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
15	-1.250	Y	-1.250	-7.01	-9.09	5.798	4.3598	4.1959	4.1959	5.798	5.798	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
16	-1.250	Z	-1.250	-7.50	-8.732	1.6235	4.0667	3.2882	3.2882	1.6235	1.6235	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
17	-1.250	Z	-1.250	-8.01	-1.2167	1.9957	6.0045	3.6897	3.6897	1.9957	1.9957	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
18	-1.250	Z	-1.250	-8.50	-7.30	2.0332	3.7282	3.7282	3.7282	2.0332	2.0332	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
19	-1.250	Z	-1.250	-9.01	-1.4144	1.9000	5.4742	3.2016	3.2016	1.9000	1.9000	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
20	-1.250	Z	-1.250	-9.50	-1.8127	3.7991	5.9304	3.2363	3.2363	5.9304	5.9304	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
21	-1.250	Z	-1.250	-10.01	-2.2925	4.6158	6.1334	4.4222	4.4222	6.1334	6.1334	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
22	-1.250	Z	-1.250	-10.52	-6.0926	3.8235	4.7015	3.2882	3.2882	4.7015	4.7015	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
23	-1.250	Z	-1.250	-11.01	-15.6639	5.6449	4.4222	3.0112	3.0112	5.6449	5.6449	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
24	-1.250	Z	-1.250	-11.50	-1.212	5.9334	6.9662	3.1227	3.1227	5.9334	5.9334	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
25	-1.250	Z	-1.250	-12.01	-6.0002	8.1861	9.9554	3.3984	3.3984	8.1861	8.1861	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
26	-1.250	Z	-1.250	-12.51	-6.0255	8.8654	4.8457	3.3841	3.3841	8.8654	8.8654	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
27	-1.250	Z	-1.250	-13.00	-1.0119	1.5633	1.4915	2.1221	2.1221	1.5633	1.5633	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
28	-1.250	Z	-1.250	-13.50	-1.115	1.9267	1.7982	1.8011	1.8011	1.9267	1.9267	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
29	-1.250	Z	-1.250	-14.00	-1.02	5.5313	5.6535	1.8864	1.8864	5.5313	5.5313	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
30	-1.250	Z	-1.250	-14.50	-1.199	2.0200	5.5448	2.9011	2.9011	5.5448	5.5448	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
31	-1.250	Z	-1.250	-15.00	-2.52	1.3719	-7.7159	1.6753	1.6753	1.3719	1.3719	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
32	-1.250	Z	-1.250	-15.50	-2.52	1.302	-6.8332	2.7781	1.7979	1.7979	2.7781	2.7781	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150
33	-1.250	Z	-1.250	-16.00	-1.199	1.351	-6.8632	1.6832	1.6832	1.351	1.351	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
34	-1.250	Z	-1.250	-16.50	-1.199	1.351	-6.8632	1.6832	1.6832	1.351	1.351	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	
35	-1.250	Z	-1.250	-17.00	-1.199	1.401	-1.5538	1.0337	2.9014	2.9014	1.0337	1.0337	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150
36	-1.250	Z	-1.250	-17.50	-1.199	1.452	-1.8565	1.1366	1.6669	1.6669	1.1366	1.1366	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150
37	-1.250	Z	-1.250	-18.00	-1.199	1.502	-1.9079	2.9803	3.0779	3.0779	1.9079	1.9079	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150
38	-1.250	Z	-1.250	-18.50	-1.199	1.551	-0.0000	1.0992	3.8622	3.7665	1.0992	1.0992	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150	-1.150
39	-1.250	Z	-1.250	-19.00	-1.199	1.601	-6.034	1.3685	1.8014	1.8014	1.3685	1.3685	-1.150	-1.150	-1.150	.251	-1.150	-1.150	-1							

TEST NUMBER	81071601	RUN NUMBER	9	X/D =	5.70
No.					
111	-1.050	-10.8733	V		
112	-1.000	1.4437	W		
113	-1.000	1.5513	S		
114	-1.000	1.2890	N		
115	-1.000	0.750	V		
116	-1.000	-0.652	S		
117	-1.000	-0.652	W		
118	-1.000	-0.901	N		
119	-1.000	-0.950	V		
120	-1.000	1.001	Y		
121	-1.000	1.052	W		
122	-1.000	1.101	S		
123	-1.000	1.150	N		
124	-1.000	1.201	V		
125	-1.000	1.251	Y		
126	-1.000	-0.950	W		
127	-1.000	-0.950	S		
128	-1.000	-0.950	N		
129	-1.000	-0.950	V		
130	-1.000	-0.950	Y		
131	-1.000	-0.950	W		
132	-1.000	-0.950	S		
133	-1.000	-0.950	N		
134	-1.000	-0.950	V		
135	-1.000	-0.950	Y		
136	-1.000	-0.950	W		
137	-1.000	-0.950	S		
138	-1.000	-0.900	N		
139	-1.000	-0.900	V		
140	-1.000	-0.850	Y		
141	-1.000	-0.900	W		
142	-1.000	-0.900	S		
143	-1.000	-0.900	N		
144	-1.000	-0.900	V		
145	-1.000	-0.850	Y		
146	-1.000	-0.900	W		
147	-1.000	-0.900	S		
148	-1.000	-0.900	N		
149	-1.000	-0.850	V		
150	-1.000	-0.900	Y		
151	-1.000	-0.850	W		
152	-1.000	-0.850	S		
153	-1.000	-0.850	N		
154	-1.000	-0.850	V		
155	-1.000	-0.850	Y		
156	-1.000	-0.850	W		
157	-1.000	-0.850	S		
158	-1.000	-0.850	N		
159	-1.000	-0.800	V		
160	-1.000	-0.800	Y		
161	-1.000	-0.800	W		
162	-1.000	-0.800	S		
163	-1.000	-0.800	N		
164	-1.000	-0.800	V		
165	-1.000	-0.800	Y		
166			VS		
167			W		
168			S		
169			N		
170			V		
171			Y		
172			W		
173			S		
174			N		
175			V		
176			Y		
177			W		
178			S		
179			N		
180			V		
181			Y		
182			W		
183			S		
184			N		
185			V		
186			Y		
187			W		
188			S		
189			N		
190			V		
191			Y		
192			W		
193			S		
194			N		
195			V		
196			Y		
197			W		
198			S		
199			N		
200			V		
201			Y		
202			W		
203			S		
204			N		
205			V		
206			Y		
207			W		
208			S		
209			N		
210			V		
211			Y		
212			W		
213			S		
214			N		
215			V		
216			Y		
217			W		
218			S		
219			N		
220			V		

NSWC TR 82-394

TEST NUMBER	81071601	RUN NUMBER	9	X/D =	5.70
No.		VS	MS	V	WS
331	.950 .700	-1.2650	-1.1307	3.2925	2.7317
332	.950 .750	-1.5685	-1.3180	4.3664	2.9326
333	.950 .801	-1.6254	-2.0076	4.6068	3.1194
334	.950 .851	-1.8269	-2.5683	4.7646	4.8226
335	.950 .900	-1.9887	-7.0043	5.375	4.4478
336	.950 .949	2.2601	-1.5503	5.9031	5.1608
337	.950 1.001	3.5600	.5244	6.7636	5.7027
338	.950 1.051	5.2910	1.7591	6.6522	6.6004
339	.950 1.100	7.1067	3.5706	6.6324	5.4101
340	.950 1.149	7.0615	5.1546	5.3377	5.6146
341	.950 1.201	10.6532	7.0666	3.6393	4.8887
342	.950 1.251	10.5378	9.1428	4.5230	4.6102
343	1.000 .551	3.0389	-1.3590	1.7116	2.4866
344	1.000 .601	2.7727	-2.3813	2.3360	2.3823
345	1.000 .649	1.9678	-1.4689	3.1563	2.3783
346	1.000 .699	1.4807	-1.0568	3.1154	2.3869
347	1.000 .751	1.0906	-2.2055	4.4330	4.2845
348	1.000 .801	1.1523	-2.7306	4.6081	5.6909
349	1.000 .849	.3450	-2.2629	4.7258	4.2611
350	1.000 .899	-.6013	-2.2760	4.8193	4.0559
351	1.000 .951	.2924	-1.7726	6.0655	4.9626
352	1.000 1.000	-.8710	-.4033	5.3529	5.3436
353	1.000 1.049	3.3563	1.7139	6.2081	4.08
354	1.000 1.099	5.4903	3.7655	6.2162	4.09
355	1.000 1.151	6.0063	4.3377	5.8848	5.0821
356	1.000 1.201	7.2030	7.8216	5.7195	5.9619
357	1.000 1.250	9.2851	9.2640	4.8038	4.5672
358	1.000 1.300	1.050	2.1642	1.047	1.6895
359	1.050 .501	3.2185	-.0815	1.7855	2.6177
360	1.050 .552	2.9952	2.991	2.7403	4.5154
361	1.050 .601	3.1754	-.8037	2.2932	2.8761
362	1.050 .650	2.9387	-.4968	3.4207	2.7514
363	1.050 .701	2.5506	-1.0467	4.1081	3.1751
364	1.050 .752	1.1428	-1.0456	4.0364	3.7476
365	1.050 .801	-.4617	-2.1776	3.6942	4.6618
366	1.050 .850	2.9589	-1.3435	5.1441	4.6885
367	1.050 .901	-1.4188	-1.1670	5.1169	5.7791
368	1.050 .951	-.9581	-.0708	5.0746	6.2433
369	1.050 1.001	.6190	1.3154	4.8815	6.0017
370	1.050 1.050	2.3585	2.4057	6.1401	6.7954
371	1.050 1.101	2.7703	4.5009	5.7220	7.4704
372	1.050 1.151	5.1036	6.3400	6.3075	6.3075
373	1.050 1.201	5.5135	7.4238	6.0019	6.2890
374	1.050 1.250	6.7531	9.2636	5.0056	5.6419
375	1.100 .301	1.100	1.0798	1.5717	2.3490
376	1.100 .350	1.4483	1.0437	1.8659	2.2413
377	1.100 .401	2.2701	-.2272	1.4904	2.798
378	1.100 .452	1.100	-.0097	1.5864	2.5117
379	1.100 .501	3.1122	-.6092	1.9858	2.6800
380	1.100 .550	3.7732	-.4026	2.0846	2.3772
381	1.100 .601	3.5548	1.0737	2.7652	3.2834
382	1.100 .651	3.7186	1.0861	3.5394	3.0715
383	1.100 .701	2.3526	-.6224	4.3758	3.6851
384	1.100 .750	1.1300	-.9470	4.4506	4.3985
385	1.100 .801	.0736	2.0008	4.7838	5.0843

TEST NUMBER	81071601	RUN NUMBER	9	X/D =	5.70
No.		No.		V	MS
441	1.200	1.001	-2.6370	14.2247	8.0557
442	1.200	1.050	-2.7800	14.8155	6.6834
443	1.200	1.099	-4.499	12.1682	4.0752
444	1.200	1.150	-4.497	14.4304	3.1334
445	1.200	1.201	-4.496	13.3926	3.5262
446	1.200	1.249	-7.7612	14.5950	3.2686
447	1.250	.001	5.1014	24.6777	.8225
448	1.250	.051	4.7177	24.7655	.6662
449	1.250	.100	4.5057	25.8472	.3348
450	1.250	.149	4.1330	25.0766	.7973
451	1.250	.201	3.8538	25.1684	.7816
452	1.250	.251	3.3589	25.4223	1.3605
453	1.250	.300	3.3722	24.8130	1.4209
454	1.250	.349	3.2836	24.9770	1.3893
455	1.250	.401	2.7635	23.2412	2.8619
456	1.250	.451	2.9599	21.7241	3.8372
457	1.250	.500	2.7763	21.5156	3.1144
458	1.250	.549	2.0969	21.5161	3.3845
459	1.250	.601	1.6704	20.9363	3.5581
460	1.250	.651	1.6419	19.9462	3.5903
461	1.250	.700	1.5618	19.1558	4.1010
462	1.250	.749	-1.1338	21.0177	3.7503
463	1.250	.801	-1.014	20.6768	4.0012
464	1.250	.851	-8.8338	20.2635	4.6438
465	1.250	.900	-2.5891	19.4316	4.4002
466	1.250	.949	-2.6704	19.5546	5.1034
467	1.250	1.000	-1.6329	17.3076	4.5637
468	1.250	1.051	-3.1381	16.7139	4.2049
469	1.250	1.099	-1.3605	16.3369	3.2196
470	1.250	1.149	-.7737	16.6025	2.8456
471	1.250	1.200	-.5443	17.9864	5.2940
472	1.250	1.251	1.1101	17.5157	2.1105
473	1.250	1.251	-5.1755	19.8267	4.1339
474	1.250	1.650	-1.051	20.5301	4.8371
475	1.250	1.650	-5.1660	20.5301	5.4335
476	1.250	1.700	-5.2235	21.9615	5.8763
477	1.250	1.851	-2.2869	22.7394	4.6613
478	1.250	2.001	-1.4573	23.9450	4.1555
479	1.250	2.50	1.0969	24.7561	4.8340
480	1.250	3.01	-1.650	2.4454	24.2453
481	1.250	2.451	5.1572	24.3694	4.1849
482	1.250	2.601	6.7565	24.0861	3.0138
483	1.250	2.750	8.5551	22.4603	2.6373
484	1.250	2.901	9.0291	21.9124	1.7510
485	1.250	3.052	9.1327	21.3056	1.6220
486	1.250	3.301	9.3625	20.0031	1.2483
487	1.250	3.350	9.2180	19.4100	1.1879
488	1.250	3.501	8.5155	18.3895	1.2632
489	1.250	3.652	8.0410	17.8342	1.0566
490	1.250	3.601	7.2836	17.0406	1.2160
491	1.250	3.950	6.6585	16.6892	1.0028
492	1.250	4.01	6.1642	16.4307	.8456
493	1.250	4.252	5.5947	16.2771	.8811
494	1.250	4.500	-5.6314	15.9774	6.0971
495	1.250	4.401	-6.4509	15.7298	5.9621
					2.8052
					5.5851
					1.3805
					.9352
					1.3805
No.		No.		V	MS
441	1.200	1.001	14.2247	8.0557	6.6834
442	1.200	1.050	14.8155	6.6834	4.0752
443	1.200	1.099	12.1682	4.0752	3.2686
444	1.200	1.150	14.4304	3.1334	2.8225
445	1.200	1.201	13.3926	3.5262	2.0056
446	1.200	1.249	14.5950	3.2686	1.8225
447	1.200	1.301	24.6777	.8225	1.1721
448	1.200	1.352	24.8130	1.4209	1.0871
449	1.200	1.401	24.9770	1.3893	1.0871
450	1.200	1.451	25.8472	.3348	1.0871
451	1.200	1.500	25.1684	.7973	1.0871
452	1.200	1.550	25.4223	1.3605	1.0871
453	1.200	1.601	20.9363	3.5581	1.0871
454	1.200	1.651	19.9462	3.5903	1.0871
455	1.200	1.700	19.1558	4.1010	1.0871
456	1.200	1.750	21.0177	3.7503	1.0871
457	1.200	1.801	20.6768	4.0012	1.0871
458	1.200	1.851	20.2635	4.6438	1.0871
459	1.200	1.900	19.4316	4.4002	1.0871
460	1.200	1.949	19.5546	5.1034	1.0871
461	1.200	2.001	17.3076	4.5637	1.0871
462	1.200	2.50	21.0177	3.7503	1.0871
463	1.200	3.01	20.6768	4.0012	1.0871
464	1.200	3.501	20.2635	4.6438	1.0871
465	1.200	4.01	19.4316	4.4002	1.0871
466	1.200	4.500	19.5546	5.1034	1.0871
467	1.200	5.001	17.3076	4.5637	1.0871
468	1.200	5.502	21.0177	3.7503	1.0871
469	1.200	6.001	20.6768	4.0012	1.0871
470	1.200	6.500	20.2635	4.6438	1.0871
471	1.200	7.00	19.4316	4.4002	1.0871
472	1.200	7.501	19.5546	5.1034	1.0871
473	1.200	8.001	17.3076	4.5637	1.0871
474	1.200	8.501	21.0177	3.7503	1.0871
475	1.200	9.001	20.6768	4.0012	1.0871
476	1.200	9.502	20.2635	4.6438	1.0871
477	1.200	10.001	19.4316	4.4002	1.0871
478	1.200	10.501	19.5546	5.1034	1.0871
479	1.200	11.001	17.3076	4.5637	1.0871
480	1.200	11.501	21.0177	3.7503	1.0871
481	1.200	12.001	20.6768	4.0012	1.0871
482	1.200	12.501	20.2635	4.6438	1.0871
483	1.200	13.001	19.4316	4.4002	1.0871
484	1.200	13.501	19.5546	5.1034	1.0871
485	1.200	14.001	17.3076	4.5637	1.0871
486	1.200	14.501	21.0177	3.7503	1.0871
487	1.200	15.001	20.6768	4.0012	1.0871
488	1.200	15.501	20.2635	4.6438	1.0871
489	1.200	16.001	19.4316	4.4002	1.0871
490	1.200	16.500	19.5546	5.1034	1.0871
491	1.200	17.001	17.3076	4.5637	1.0871
492	1.200	17.501	21.0177	3.7503	1.0871
493	1.200	18.001	20.6768	4.0012	1.0871
494	1.200	18.501	20.2635	4.6438	1.0871
495	1.200	19.001	19.4316	4.4002	1.0871
No.		No.		V	MS
441	1.200	1.001	14.2247	8.0557	6.6834
442	1.200	1.050	14.8155	6.6834	4.0752
443	1.200	1.099	12.1682	4.0752	3.2686
444	1.200	1.150	14.4304	3.1334	2.8225
445	1.200	1.201	13.3926	3.5262	2.0056
446	1.200	1.249	14.5950	3.2686	1.8225
447	1.200	1.301	24.6777	.8225	1.1721
448	1.200	1.352	24.8130	1.4209	1.0871
449	1.200	1.401	24.9770	1.3893	1.0871
450	1.200	1.451	25.8472	.3348	1.0871
451	1.200	1.500	25.1684	.7973	1.0871
452	1.200	1.550	25.4223	1.3605	1.0871
453	1.200	1.601	20.9363	3.5581	1.0871
454	1.200	1.650	19.9462	5.1034	1.0871
455	1.200	1.700	17.3076	4.5637	1.0871
456	1.200	1.750	21.0177	3.7503	1.0871
457	1.200	1.801	20.6768	4.0012	1.0871
458	1.200	1.851	20.2635	4.6438	1.0871
459	1.200	1.900	19.4316	4.4002	1.0871
460	1.200	1.949	19.5546	5.1034	1.0871
461	1.200	2.001	17.3076	4.5637	1.0871
462	1.200	2.501	21.0177	3.7503	1.0871
463	1.200	3.001	20.6768	4.0012	1.0871
464	1.200	3.501	20.2635	4.6438	1.0871
465	1.200	4.001	19.4316	4.4002	1.0871
466	1.200	4.500	19.5546	5.1034	1.0871
467	1.200	5.001	17.3076	4.5637	1.0871
468	1.200	5.501	21.0177	3.7503	1.0871
469	1.200	6.001	20.6768	4.0012	1.0871
470	1.200	6.500	20.2635	4.6438	1.0871
471	1.200	7.001	19.4316	4.4002	1.0871
472	1.200	7.501	19.5546	5.1034	1.0871
473	1.200	8.001	17.3076	4.5637	1.0871
474	1.200	8.501	21.0177	3.7503	1.0871
475	1.200	9.001	20.6768	4.0012	1.0871
476	1.200	9.501	20.2635	4.6438	1.0871
477	1.200	10.001	19.4316	4.4002	1.0871
478	1.200	10.501	19.5546	5.1034	1.0871
479	1.200	11.001	17.3076	4.5637	1.0871
480	1.200	11.501	21.0177	3.7503	1.0871
481	1.200	12.001	20.6768	4.0012	1.0871
482	1.200	12.501	20.2635	4.6438	1.0871
483	1.200	13.001	19.4316	4.4002	1.0871
484	1.200	13.501	19.5546	5.1034	1.0871
485	1.200	14.001	17.3076	4.5637	1.0871
486	1.200	14.501	21.0177	3.7503	1.0871
487	1.200	15.001	20.6768	4.0012	1.0871
488	1.200	15.501	20.2635	4.6438	1.0871
489	1.200	16.001	19.4316	4.4002	1.0871
490	1.200	16.500	19.5546	5.1034	1.0871
491	1.200	17.001	17.3076	4.5637	1.0871
492	1.200	17.501	21.0177		

TEST NUMBER	81071601	RUN NUMBER	9	X/D =	5.70
No.	Y	W	V	U	VS
551	-1.199	3.951	7.7136	14.2831	*.9552
552	-1.199	4.101	6.0085	14.2826	.8790
553	-1.199	4.251	6.2001	14.3764	.7842
554	-1.049	1.049	-11.2019	5.6829	5.4421
555	-1.049	1.401	6.049	-12.2779	6.3356
556	-1.049	1.551	-12.8115	6.0547	6.0543
557	-1.049	1.701	-12.6900	10.2669	8.2558
558	-1.049	1.852	-10.6421	11.0803	10.0004
559	-1.049	2.002	-6.2129	12.4437	11.2179
560	-1.049	2.151	1.7592	13.5065	12.0433
561	-1.049	2.301	9.2224	12.7452	8.2778
562	-1.049	2.451	10.2436	11.8806	7.3628
563	-1.049	2.602	10.1976	11.0032	4.7506
564	-1.049	2.751	9.3736	12.1049	5.4450
565	-1.049	2.901	9.7810	11.9672	5.0378
566	-1.049	3.051	10.6604	12.6335	5.1855
567	-1.049	3.201	11.9711	13.1886	3.9202
568	-1.049	3.351	12.553	12.9805	2.9557
569	-1.049	3.501	11.3196	13.0408	2.4742
570	-1.049	3.651	10.2696	13.3978	1.5179
571	-1.049	3.801	8.6378	13.3489	1.3952
572	-1.049	3.950	7.6432	13.3794	.9555
573	-1.049	4.101	6.7333	13.3678	.9565
574	-1.049	4.251	6.0774	13.5055	1.1420
575	-1.049	4.400	-12.832	1.0881	4.6109
576	-1.049	4.551	-13.2391	1.1899	6.4026
577	-1.049	4.700	-12.6699	7.9228	7.1376
578	-1.049	4.850	-11.700	-13.3178	1.9238
579	-1.049	5.000	-12.041	-9.725	6.7222
580	-1.049	5.150	-6.2557	12.1411	6.5975
581	-1.049	5.300	2.3160	-1.699	12.9515
582	-1.049	5.450	9.2272	3.3830	10.5027
583	-1.049	5.600	11.551	6.2265	6.7470
584	-1.049	5.750	2.600	9.6473	5.9078
585	-1.049	5.900	2.751	9.3652	7.7169
586	-1.049	6.050	2.001	-6.7385	-1.2893
587	-1.049	6.200	2.151	2.3160	9.3654
588	-1.049	6.350	3.200	10.7627	9.3175
589	-1.049	6.500	3.351	11.0336	9.7068
590	-1.049	6.650	3.500	10.6786	11.0522
591	-1.049	6.800	3.650	9.6739	11.6663
592	-1.049	6.950	2.800	8.800	8.3699
593	-1.049	7.100	3.951	7.4289	12.1180
594	-1.049	7.250	4.000	6.020	12.6660
595	-1.049	7.400	4.249	5.5954	12.7379
596	-1.049	7.550	7.49	1.252	-11.8451
597	-1.049	7.700	1.001	-11.6034	-3.5454
598	-1.049	7.850	1.549	-12.7898	-3.6211
599	-1.049	8.000	1.749	-11.4954	-6.4931
600	-1.049	8.150	1.700	-9.5993	-8.0194
601	-1.049	8.300	7.49	2.001	-6.2425
602	-1.049	8.450	2.150	1.2121	-10.2124
603	-1.049	8.600	2.300	5.7735	-6.2490
604	-1.049	8.750	2.451	7.4141	-3.4198
605	-1.049	8.900	7.6430	-0.0571	6.1866
NO.	Y	W	V	U	VS
551	-1.199	3.951	7.7136	14.2831	*.9552
552	-1.199	4.101	6.0085	14.2826	.8790
553	-1.199	4.251	6.2001	14.3764	5.4421
554	-1.049	1.049	-11.2019	5.6829	3.0553
555	-1.049	1.401	6.049	-12.2779	6.0543
556	-1.049	1.551	-12.8115	6.0547	7.0552
557	-1.049	1.701	-12.6900	10.2669	8.2558
558	-1.049	1.852	-10.6421	11.0803	10.0004
559	-1.049	2.002	-6.2129	12.4437	11.2179
560	-1.049	2.151	1.7592	13.5065	12.0433
561	-1.049	2.301	9.2224	12.7452	8.2778
562	-1.049	2.451	10.2436	11.8806	7.3628
563	-1.049	2.602	10.1976	11.0032	4.7506
564	-1.049	2.751	9.3736	12.1049	5.4450
565	-1.049	2.901	9.7810	11.9672	5.0378
566	-1.049	3.051	10.6604	12.6335	5.1855
567	-1.049	3.201	11.9711	13.1886	3.9202
568	-1.049	3.351	12.553	12.9805	2.9557
569	-1.049	3.501	11.3196	13.0408	2.4742
570	-1.049	3.651	10.2696	13.3978	1.5179
571	-1.049	3.801	8.6378	13.3489	1.3952
572	-1.049	3.950	7.6432	13.3794	.9555
573	-1.049	4.101	6.7333	13.3678	.9565
574	-1.049	4.251	6.0774	13.5055	1.1420
575	-1.049	4.400	-12.832	1.0881	4.6109
576	-1.049	4.551	-13.2391	1.1899	6.4026
577	-1.049	4.700	-12.6699	7.9228	7.1376
578	-1.049	4.850	-11.700	-13.3178	1.9238
579	-1.049	4.950	-12.041	-9.725	6.7222
580	-1.049	5.000	-6.2557	12.1411	6.5975
581	-1.049	5.150	2.3160	-1.699	12.9515
582	-1.049	5.300	9.2272	3.3830	10.5027
583	-1.049	5.450	11.551	6.2265	6.7470
584	-1.049	5.600	2.600	9.6473	5.9078
585	-1.049	5.750	2.751	9.3652	7.7169
586	-1.049	5.900	2.001	-6.7385	-1.2893
587	-1.049	6.050	2.151	2.3160	9.3654
588	-1.049	6.200	3.200	10.7627	9.3175
589	-1.049	6.350	3.351	11.0336	9.7068
590	-1.049	6.500	3.500	10.6786	11.0522
591	-1.049	6.650	3.650	9.6739	11.6663
592	-1.049	6.800	2.800	8.800	8.3699
593	-1.049	6.950	3.951	7.4289	12.1180
594	-1.049	7.100	4.000	6.020	12.6660
595	-1.049	7.250	4.249	5.5954	12.7379
596	-1.049	7.400	7.49	1.252	-11.8451
597	-1.049	7.550	1.001	-11.6034	-3.5454
598	-1.049	7.700	1.549	-12.7898	-3.6211
599	-1.049	7.850	1.749	-11.4954	-6.4931
600	-1.049	8.000	1.700	-9.5993	-8.0194
601	-1.049	8.150	7.49	2.001	-6.2425
602	-1.049	8.300	2.150	1.2121	-10.2124
603	-1.049	8.450	2.300	5.7735	-6.2490
604	-1.049	8.600	2.451	7.4141	-3.4198
605	-1.049	8.750	7.6430	-0.0571	6.1866

TEST NUMBER	81071601	HUN NUMBER	9	X/D =	5.70
No.		No.		VS	WS
661	1.551	-1.48992	-14.9070	4.0552	2.0895
662	1.701	-1.3341	-17.8272	3.4946	3.0792
663	-1.301	1.850	-1.9965	-18.3778	4.0120
664	-1.301	2.001	-3.0604	-19.2609	4.1341
665	-1.301	2.151	-3.4118	-18.9612	4.3548
666	-1.301	2.301	-2.3607	-17.5756	5.4873
667	-1.301	2.450	-2.8237	-15.4366	6.4308
668	-1.301	2.601	-1.9138	-12.4772	5.0277
669	-1.301	2.751	-2.1077	-10.4867	5.5685
670	-1.301	2.901	-6.6516	-7.7662	4.3345
671	-1.301	3.050	-8.1112	-5.3120	4.5181
672	-1.301	3.200	1.3198	-2.8163	4.6743
673	-1.301	3.351	2.2898	-0.0826	5.5510
674	-1.301	3.501	2.7418	2.9944	1.5511
675	-1.301	3.650	2.4681	4.2011	5.5953
676	-1.301	3.800	2.9050	2.4011	5.6669
677	-1.301	3.951	2.7316	6.1581	1.9507
678	-1.301	4.100	2.4813	9.0197	1.5748
679	-1.301	4.259	2.2938	10.0815	1.0618
680	-1.150	1.251	3.2512	-5.1399	4.4423
681	-1.150	1.401	2.9205	-10.3007	4.8411
682	-1.150	1.551	1.7928	-15.1182	3.9004
683	-1.150	1.700	-1.1382	-17.7866	3.1332
684	-1.150	1.850	-1.5047	-19.3964	3.4981
685	-1.150	2.001	-3.0228	-19.1295	3.4337
686	-1.150	2.151	-3.7912	-19.3572	3.1645
687	-1.150	2.300	-3.8994	-17.8802	3.4430
688	-1.150	2.450	-5.9447	-15.4673	2.6659
689	-1.150	2.601	-3.3284	-13.2257	3.4882
690	-1.150	2.751	-5.2988	-10.6561	4.4105
691	-1.150	2.900	-2.9000	-6.4144	5.4512
692	-1.150	3.050	-3.0500	-3.7057	5.1627
693	-1.150	3.201	-2.4026	-2.4126	2.9305
694	-1.150	3.351	-9.9228	-10.1071	2.1815
695	-1.150	3.500	-2.0887	2.0244	2.3262
696	-1.150	3.650	3.9899	4.2619	1.6964
697	-1.150	3.800	9.9225	6.0025	1.3000
698	-1.150	3.950	1.6136	1.2535	1.0221
699	-1.150	4.099	1.1552	-1.5663	1.0109
700	-1.150	4.249	1.0053	9.6131	0.4019
701	0.000	1.252	9.1189	-4.7924	4.2863
702	0.000	1.401	8.2004	-9.5137	5.1548
703	0.000	1.550	5.1550	5.1667	4.2804
704	0.000	1.701	1.0000	1.2627	4.0176
705	0.000	2.001	1.0552	-1.5663	1.8004
706	0.000	2.151	-3.9177	-18.1562	2.9929
707	0.000	2.301	-5.8885	-17.4200	2.6428
708	0.000	2.451	-7.4442	-15.4775	2.6336
709	0.000	2.601	-8.451	-8.4772	3.1966
710	0.000	2.751	-2.5204	-16.7073	3.4029
711	0.000	2.901	-3.9177	-18.3305	2.5863
712	0.000	2.950	-7.8073	-6.1222	2.3975
713	0.000	3.151	-5.8885	-3.8007	4.5125
714	0.000	3.200	-5.951	-5.8856	1.0469
715	0.000	3.350	-3.4982	-1.0264	2.6291

TEST NUMBER	81071601	RUN NUMBER	9	X/0 =	5.70
NU.	Y	V	VS	W	WS
881	3.049	-11.3611	17.1185	*4.685	1.0854
882	1.200	3.200	-10.3349	6.1309	1.0203
883	1.200	3.350	-9.1509	15.2978	*5835
884	1.200	3.500	-8.2417	14.8867	*8264
885	1.200	3.649	-7.3302	14.5286	*4798
886	1.200	3.800	-6.5407	14.1855	*5702
887	1.200	3.950	-5.6859	14.1450	*5237
888	1.200	4.099	-4.9834	14.0556	*937
889	1.200	4.249	-4.3650	14.0328	*5525
890	1.350	1.251	1.1704	21.8854	1.5951
891	1.350	1.399	2.1506	21.6726	2.1864
892	1.350	1.551	2.3081	22.3165	2.8615
893	1.350	1.701	*9719	23.9360	3.0795
894	1.350	1.850	-8776	24.5971	2.4959
895	1.350	1.999	-3.2035	25.3382	2.8746
896	1.350	2.151	-5.3529	24.8416	2.9322
897	1.350	2.301	-7.5741	21.4530	2.5333
898	1.350	2.450	-9.8350	23.4558	2.0307
899	1.350	2.599	-10.4420	22.0352	1.3607
900	1.350	2.751	-10.8138	20.6402	1.0246
901	1.350	2.901	-10.5793	18.9226	*8561
902	1.350	3.050	-10.0160	17.9345	*7173
903	1.350	3.199	-9.2937	16.8966	*6570
904	1.350	3.350	-8.6428	16.2702	*5513
905	1.350	3.501	-7.7661	15.7019	*5528
906	1.350	3.650	-6.9226	15.2030	*5370
907	1.350	3.799	-6.2048	14.9792	*5407
908	1.350	3.950	-5.6860	14.7662	*5277
909	1.350	4.100	-5.0506	14.5718	*4842
910	1.350	4.249	-4.3457	14.6118	*5148
911	1.350	4.400	-3.046	24.1335	1.3727
912	1.500	1.251	-1.251	24.5814	*3452
913	1.500	1.500	1.551	-2.2965	*5407
914	1.500	1.700	-2.4388	25.5023	2.2408
915	1.500	1.851	-2.2638	25.6280	2.2466
916	1.500	2.001	-4.4215	25.7554	1.8187

APPENDIX B

The measured surface pressures are provided in this appendix at pressure stations 1 to 4 (see Figure 1). Due to equipment problems, data at pressure stations 5 and 6 were not acquired in all tests and this information has been omitted from the listed results for all runs. The symbols appearing in the data list are defined as follows:

- PHI - Circumferential angle measured from the leeward plane.
- X/D - x/D (see Figure 1)
- CP - Average pressure coefficient based on a sample of 100 measurements.
Here CP is defined as $(p - p_{\infty})/q\sin^2$.
- SCP - Standard deviation of the pressure coefficient using a sample of 100 measurements.
- CN - Local normal force coefficient: normal force/ $(Dq\sin^2)$
- CY - Local side force coefficient: side force/ $(Dq\sin^2)$

In runs 1 and 2, two sets of data are listed. During these tests, substantial fluctuation in the measured pressure was seen and the listed data sets produced the highest and lowest side force values. In the remaining tests, pressures were fairly stable throughout each experiment and the presented data represents a typical set of measurements. A tape containing this information is available on request.

TEST NUMBER A1061602 RUN NUMBER 1

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.079	.028	.991	.028	.986	.032	.976	.030
2	-165.00	.968	.030	.908	.034	.965	.034	.988	.032
3	-150.00	.399	.040	.386	.046	.525	.054	.606	.054
4	-135.00	-.461	.050	-.434	.062	-.161	.090	-.003	.098
5	-120.00	-1.316	.044	-1.187	.074	-.827	.114	-.576	.174
6	-105.00	-1.926	.058	-1.526	.088	-.948	.188	-.556	.196
7	-90.00	-1.758	.060	-1.257	.082	-.767	.150	-.474	.144
8	-75.00	-1.647	.058	-1.248	.104	-.763	.164	-.472	.186
9	-60.00	-1.684	.078	-1.309	.088	-.778	.160	-.546	.146
10	-45.00	-1.701	.078	-1.335	.094	-.865	.138	-.630	.172
11	-30.00	-1.971	.092	-1.406	.112	-.932	.180	-.684	.188
12	-15.00	-2.079	.118	-1.464	.110	-.953	.214	-.599	.208
13	0.00	-.927	.048	-.626	.050	-.506	.148	-.939	.458
14	15.00	-1.572	.074	-1.609	.136	-1.641	.356	-2.056	.480
15	30.00	-1.969	.108	-1.841	.136	-1.833	.186	-1.903	.296
16	45.00	-1.887	.114	-1.950	.124	-1.796	.190	-1.759	.268
17	60.00	-1.961	.078	-1.814	.108	-1.776	.186	-1.758	.242
18	75.00	-1.878	.058	-1.711	.112	-1.677	.202	-1.797	.266
19	90.00	-1.881	.068	-1.677	.104	-1.652	.170	-1.708	.258
20	105.00	-2.212	.054	-1.907	.144	-1.846	.224	-1.813	.370
21	120.00	-1.899	.050	-1.882	.090	-1.896	.140	-1.950	.226
22	135.00	-1.042	.052	-1.126	.070	-1.190	.140	-1.255	.152
23	150.00	-.067	.042	-.200	.060	-.274	.078	-.292	.112
24	165.00	.737	.040	.584	.036	.563	.054	.511	.058
CN		1.760		1.455		1.286		1.191	
CY		.270		.502		.909		1.205	

TEST NUMBER 81061602 RUN NUMBER 1

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.090	.028	1.000	.032	1.019	.026	1.104	.034
2	-165.00	.961	.036	.873	.034	.932	.036	.930	.048
3	-150.00	.355	.040	.298	.046	.379	.076	.424	.098
4	-135.00	-.508	.040	-.564	.080	-.349	.106	-.306	.194
5	-120.00	-1.408	.058	-1.353	.080	-1.165	.176	-.984	.246
6	-105.00	-2.007	.048	-1.723	.112	-1.325	.196	-1.097	.366
7	-90.00	-1.842	.062	-1.446	.092	-1.135	.188	-.961	.266
8	-75.00	-1.734	.058	-1.437	.088	-1.127	.174	-.991	.252
9	-60.00	-1.788	.066	-1.471	.104	-1.132	.184	-.949	.286
10	-45.00	-1.771	.090	-1.474	.104	-1.209	.164	-.951	.318
11	-30.00	-1.951	.122	-1.582	.130	-1.236	.226	-1.130	.356
12	-15.00	-2.047	.132	-1.677	.132	-1.378	.202	-1.304	.426
13	0.00	-.860	.052	-.730	.058	-.521	.156	-.543	.246
14	15.00	-1.543	.074	-1.397	.118	-1.153	.322	-1.151	.558
15	30.00	-1.860	.120	-1.482	.096	-1.132	.164	-1.007	.288
16	45.00	-1.806	.122	-1.524	.112	-1.176	.228	-.855	.260
17	60.00	-1.827	.074	-1.488	.092	-.961	.190	-.842	.256
18	75.00	-1.719	.066	-1.391	.088	-1.028	.182	-.761	.240
19	90.00	-1.725	.066	-1.383	.084	-.999	.182	-.789	.262
20	105.00	-2.063	.068	-1.557	.120	-1.130	.234	-.809	.302
21	120.00	-1.770	.056	-1.613	.116	-1.327	.218	-1.151	.356
22	135.00	-.957	.056	-.941	.080	-.886	.168	-.746	.216
23	150.00	.003	.046	-.107	.062	-.035	.106	-.053	.138
24	165.00	.761	.034	.644	.042	.657	.060	.661	.076
CN		1.748		1.430		1.234		1.042	
CY		.086		.054		.013		-.022	

TEST NUMBER 81061701 RUN NUMBER 2

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.081	.030	.987	.026	1.031	.030	1.022	.024
2	-165.00	.917	.034	.806	.030	.843	.038	.813	.044
3	-150.00	.300	.038	.212	.044	.231	.070	.223	.082
4	-135.00	-.590	.044	-.704	.066	-.647	.086	-.647	.134
5	-120.00	-1.447	.052	=1.513	.076	-1.426	.154	-1.445	.214
6	-105.00	-2.068	.054	-1.939	.088	-1.813	.200	-1.807	.272
7	-90.00	-1.896	.062	-1.641	.112	-1.513	.190	-1.581	.270
8	-75.00	-1.779	.058	-1.633	.096	-1.516	.216	-1.569	.212
9	-60.00	-1.825	.064	-1.679	.102	-1.579	.170	-1.588	.224
10	-45.00	-1.789	.088	-1.713	.098	-1.553	.166	-1.599	.224
11	-30.00	-2.345	.128	-1.748	.112	-1.758	.188	-1.676	.264
12	-15.00	-2.508	.138	-1.803	.144	-1.853	.184	-2.117	.286
13	0.00	-.819	.050	-.769	.066	-.946	.262	-1.530	.614
14	15.00	-1.476	.080	-1.238	.102	-.715	.168	-.505	.194
15	30.00	-1.747	.108	-1.414	.116	-.965	.148	-.758	.284
16	45.00	-1.731	.132	-1.483	.124	-.927	.168	-.607	.178
17	60.00	-1.790	.072	-1.386	.114	-.820	.152	-.665	.226
18	75.00	-1.674	.060	-1.297	.096	-.812	.126	-.586	.202
19	90.00	-1.667	.054	-1.260	.086	-.815	.126	-.521	.176
20	105.00	-2.011	.050	-1.446	.082	-.911	.172	-.527	.170
21	120.00	-1.701	.052	-1.400	.082	-1.068	.136	-.718	.178
22	135.00	-.873	.052	-.803	.068	-.561	.112	-.395	.146
23	150.00	.044	.044	.022	.056	.152	.074	.276	.086
24	165.00	.778	.032	.692	.038	.770	.038	.796	.052
CN		1.811		1.465		1.373		1.310	
CY		-.058		-.231		-.570		-.845	

TEST NUMBER 81061701 RUN NUMBER 2

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.074	.026	.994	.026	.994	.026	.997	.024
2	-165.00	.927	.030	.823	.032	.825	.032	.813	.044
3	-150.00	.320	.038	.215	.044	.235	.068	.207	.086
4	-135.00	-.578	.044	-.687	.064	-.653	.102	-.632	.130
5	-120.00	-1.427	.046	=1.510	.082	-1.450	.136	-1.478	.202
6	-105.00	-2.059	.052	-1.904	.106	-1.789	.224	-1.441	.112
7	-90.00	-1.868	.058	-1.607	.104	-1.385	.094	-1.476	.320
8	-75.00	-1.749	.054	-1.616	.086	-1.476	.190	-1.505	.252
9	-60.00	-1.794	.064	-1.645	.098	-1.527	.186	-1.498	.276
10	-45.00	-1.779	.084	-1.683	.120	-1.509	.160	-1.578	.254
11	-30.00	-2.288	.106	-1.722	.132	-1.688	.172	-1.654	.244
12	-15.00	-2.459	.106	-1.729	.122	-1.780	.198	-1.939	.456
13	0.00	-.823	.056	-.738	.068	-.900	.252	-1.285	.510
14	15.00	-1.761	.024	-1.433	.032	-.798	.182	-.590	.196
15	30.00	-1.768	.122	-1.477	.108	-1.057	.162	-.880	.250
16	45.00	-1.733	.124	-1.531	.106	-1.028	.164	-.676	.170
17	60.00	-1.796	.074	-1.628	.098	-.920	.178	-.697	.214
18	75.00	-1.714	.056	-1.339	.088	-.939	.158	-.706	.206
19	90.00	-1.704	.058	-1.323	.098	-.936	.164	-.683	.198
20	105.00	-2.021	.052	-1.472	.102	-.968	.166	-.628	.224
21	120.00	-1.728	.048	-1.498	.076	-1.167	.174	-.865	.230
22	135.00	-.891	.044	-.829	.070	-.612	.120	-.468	.162
23	150.00	.031	.034	-.013	.044	.099	.086	.174	.110
24	165.00	.782	.026	.693	.032	.792	.046	.755	.054
CN		1.835		1.481		1.344		1.249	
CY		-.005		-.161		-.441		-.659	

TEST NUMBER 81070702 RUN NUMBER 3

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.074	.036	.956	.034	.923	.034	.929	.034
2	-165.00	1.035	.036	.989	.034	.997	.034	.955	.036
3	-150.00	.552	.038	.594	.036	.676	.034	.569	.040
4	-135.00	-.211	.052	-.042	.036	.105	.036	-.078	.052
5	-120.00	-.1.007	.056	-.671	.048	-.375	.050	-.697	.084
6	-105.00	-1.489	.052	-.816	.066	-.410	.062	-.884	.138
7	-90.00	-1.280	.054	-.620	.066	-.318	.052	-.762	.138
8	-75.00	-1.231	.062	-.647	.062	-.346	.054	-.825	.140
9	-60.00	-1.278	.078	-.690	.074	-.391	.072	-.941	.144
10	-45.00	-1.247	.078	-.662	.060	-.446	.054	-1.027	.182
11	-30.00	-1.466	.080	-.687	.064	-.596	.088	-1.152	.124
12	-15.00	-1.507	.078	-.758	.058	-1.344	.188	-2.098	.106
13	0.00	-.947	.062	-1.109	.158	-2.819	.242	-2.572	.196
14	15.00	-1.900	.128	-2.837	.198	-2.541	.218	-2.031	.140
15	30.00	-2.519	.172	-2.708	.182	-2.636	.218	-1.898	.122
16	45.00	-2.287	.116	-2.656	.140	-2.887	.170	-1.947	.116
17	60.00	-2.369	.084	-2.625	.084	-2.745	.094	-2.034	.150
18	75.00	-2.245	.066	-2.495	.094	-2.688	.070	-2.062	.128
19	90.00	-2.341	.064	-2.549	.090	-2.697	.082	-2.042	.100
20	105.00	-2.686	.056	-2.975	.098	-3.095	.060	-2.340	.168
21	120.00	-2.253	.052	-2.544	.058	-2.671	.050	-2.212	.082
22	135.00	-1.304	.048	-1.568	.052	-1.713	.048	-1.435	.066
23	150.00	-.264	.040	-.472	.046	-.595	.038	-.436	.046
24	165.00	.601	.040	.449	.040	.360	.038	.430	.040
CN		1.577		1.448		1.678		1.644	
CY		1.038		1.807		2.147		1.144	

TEST NUMBER 81070701 RUN NUMBER 4

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.092	.034	.977	.032	.924	.032	.905	.034
2	-165.00	1.042	.032	1.000	.032	1.004	.030	.977	.032
3	-150.00	.537	.040	.590	.040	.694	.034	.636	.040
4	-135.00	-.245	.038	-.084	.044	.129	.034	.068	.046
5	-120.00	-.1.070	.050	-.767	.056	-.356	.044	-.440	.066
6	-105.00	-1.612	.052	-.979	.064	-.372	.054	-.519	.094
7	-90.00	-1.414	.060	-.745	.060	-.284	.054	-.428	.098
8	-75.00	-1.344	.068	-.774	.072	-.307	.050	-.499	.092
9	-60.00	-1.390	.068	-.787	.070	-.351	.068	-.558	.110
10	-45.00	-1.397	.086	-.764	.080	-.393	.074	-.599	.122
11	-30.00	-1.606	.080	-.807	.078	-.444	.062	-.925	.126
12	-15.00	-1.636	.096	-.832	.068	-.847	.160	-2.053	.196
13	0.00	-.970	.064	-.779	.102	-2.381	.326	-2.020	.240
14	15.00	-1.609	.130	-2.528	.190	-2.559	.220	-2.314	.190
15	30.00	-2.214	.126	-2.480	.132	-2.639	.216	-2.291	.168
16	45.00	-2.121	.138	-2.352	.130	-2.654	.170	-2.294	.142
17	60.00	-2.258	.090	-2.410	.090	-2.676	.106	-2.227	.116
18	75.00	-2.131	.068	-2.249	.084	-2.598	.090	-2.286	.108
19	90.00	-2.129	.070	-2.276	.078	-2.606	.098	-2.309	.088
20	105.00	-2.475	.062	-2.621	.106	-2.969	.080	-2.630	.094
21	120.00	-2.110	.048	-2.350	.074	-2.621	.062	-2.445	.058
22	135.00	-1.226	.044	-1.427	.052	-1.717	.048	-1.570	.052
23	150.00	-.189	.040	-.361	.048	-.585	.042	-.512	.046
24	165.00	.647	.034	.478	.034	.368	.036	.366	.034
CN		1.566		1.372		1.522		1.698	
CY		.776		1.477		2.129		1.658	

TEST NUMBER 81070802 RUN NUMBER 5

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.064	.036	.956	.038	.919	.038	.931	.034
2	-165.00	1.041	.036	.992	.030	1.011	.036	.964	.034
3	-150.00	.548	.040	.609	.034	.691	.036	.598	.048
4	-135.00	-.201	.044	-.029	.042	.140	.038	-.004	.058
5	-120.00	-.981	.046	-.662	.050	-.331	.040	-.585	.074
6	-105.00	-1.494	.048	-.813	.066	-.358	.056	-.803	.142
7	-90.00	-1.265	.058	-.611	.062	-.272	.060	-.695	.132
8	-75.00	-1.225	.066	-.638	.060	-.297	.050	-.726	.128
9	-60.00	-1.237	.072	-.668	.072	-.339	.068	-.814	.156
10	-45.00	-1.228	.082	-.634	.068	-.402	.062	-.925	.188
11	-30.00	-1.449	.078	-.688	.064	-.518	.084	-1.043	.130
12	-15.00	-1.499	.092	-.742	.064	-.169	.188	-2.050	.146
13	0.00	-.931	.052	-1.015	.140	-2.651	.232	-2.522	.180
14	15.00	-1.771	.140	-2.758	.188	-2.458	.190	-2.027	.152
15	30.00	-2.386	.152	-2.626	.164	-2.602	.200	-1.917	.142
16	45.00	-2.172	.130	-2.520	.132	-2.779	.156	-1.895	.108
17	60.00	-2.323	.070	-2.539	.082	-2.682	.086	-1.998	.136
18	75.00	-2.200	.064	-2.433	.098	-2.614	.084	-2.077	.126
19	90.00	-2.253	.070	-2.420	.096	-2.596	.082	-2.050	.118
20	105.00	-2.604	.060	-2.829	.090	-2.994	.066	-2.319	.118
21	120.00	-2.163	.054	-2.447	.064	-2.586	.048	-2.213	.064
22	135.00	-1.271	.052	-1.506	.058	-1.669	.044	-1.398	.058
23	150.00	-.225	.044	-.430	.046	-.550	.042	-.405	.048
24	165.00	.622	.040	.461	.042	.390	.042	.431	.042
CN		1.678		1.543		1.738		1.745	
CY		.972		1.726		2.122		1.218	

TEST NUMBER 81070803 RUN NUMBER 6

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.055	.034	.947	.038	.906	.032	.900	.034
2	-165.00	1.013	.038	.973	.036	.994	.036	.960	.036
3	-150.00	.509	.038	.574	.038	.678	.034	.624	.042
4	-135.00	-.237	.040	-.086	.038	.140	.036	.052	.050
5	-120.00	-1.059	.048	-.738	.052	-.334	.048	-.481	.074
6	-105.00	-1.582	.046	-.938	.068	-.354	.052	-.574	.102
7	-90.00	-1.372	.062	-.727	.072	-.259	.050	-.454	.106
8	-75.00	-1.295	.070	-.739	.066	-.276	.058	-.484	.092
9	-60.00	-1.331	.072	-.754	.072	-.308	.072	-.572	.106
10	-45.00	-1.366	.076	-.735	.066	-.364	.062	-.640	.124
11	-30.00	-1.556	.082	-.816	.082	-.430	.062	-.929	.140
12	-15.00	-1.588	.084	-.833	.066	-.843	.172	-1.995	.202
13	0.00	-.931	.058	-.789	.114	-2.337	.256	-2.629	.178
14	15.00	-1.723	.126	-2.585	.196	-2.431	.188	-2.195	.174
15	30.00	-2.328	.146	-2.492	.144	-2.591	.186	-2.148	.128
16	45.00	-2.136	.116	-2.355	.128	-2.624	.164	-2.142	.140
17	60.00	-2.235	.074	-2.426	.084	-2.621	.106	-2.154	.104
18	75.00	-2.114	.068	-2.277	.090	-2.545	.084	-2.221	.102
19	90.00	-2.144	.058	-2.295	.084	-2.582	.092	-2.214	.086
20	105.00	-2.499	.056	-2.665	.098	-2.960	.076	-2.542	.110
21	120.00	-2.113	.048	-2.347	.060	-2.572	.058	-2.345	.062
22	135.00	-1.220	.054	-1.452	.052	-1.651	.054	-1.512	.050
23	150.00	-.215	.044	-.392	.052	-.562	.046	-.478	.048
24	165.00	.621	.042	.453	.042	.370	.044	.378	.036
CN		1.689		1.490		1.607		1.746	
CY		.821		1.516		2.109		1.552	

TEST NUMBER 81062502 RUN NUMBER 7

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.094	.032	.991	.028	.937	.028	.925	.030
2	-165.00	1.041	.030	.999	.032	1.021	.032	.992	.032
3	-150.00	.532	.038	.578	.034	.706	.032	.670	.036
4	-135.00	-.240	.044	-.094	.048	.152	.040	.122	.050
5	-120.00	-1.061	.050	-.763	.052	-.325	.044	-.359	.066
6	-105.00	-1.604	.052	-1.011	.078	-.349	.066	-.399	.076
7	-90.00	-1.401	.060	-.768	.062	-.249	.056	-.315	.078
8	-75.00	-1.332	.062	-.798	.070	-.266	.050	-.354	.084
9	-60.00	-1.368	.074	-.788	.072	-.287	.066	-.429	.108
10	-45.00	-1.391	.072	-.756	.076	-.348	.068	-.486	.094
11	-30.00	-1.608	.094	-.809	.076	-.391	.062	-.799	.144
12	-15.00	-1.648	.084	-.872	.076	-.667	.152	-1.742	.254
13	0.00	-.908	.054	-.695	.082	-2.021	.300	-2.682	.232
14	15.00	-1.581	.104	-2.306	.174	-2.445	.200	-2.342	.186
15	30.00	-2.117	.132	-2.404	.124	-2.504	.194	-2.224	.150
16	45.00	-2.027	.124	-2.238	.122	-2.484	.162	-2.303	.152
17	60.00	-2.170	.076	-2.252	.096	-2.525	.106	-2.233	.098
18	75.00	-2.032	.060	-2.159	.096	-2.442	.084	-2.266	.096
19	90.00	-2.057	.036	-2.151	.116	-2.489	.034	-2.248	.080
20	105.00	-2.370	.054	-2.507	.110	-2.788	.102	-2.594	.086
21	120.00	-2.038	.050	-2.246	.074	-2.489	.072	-2.362	.054
22	135.00	-1.161	.046	-1.385	.056	-1.603	.046	-1.515	.050
23	150.00	-.155	.042	-.345	.054	-.521	.064	-.495	.044
24	165.00	.640	.032	.529	.036	.388	.034	.394	.036
CN		1.679		1.459		1.544		1.639	
CY		.704		1.363		2.036		1.734	

TEST NUMBER 81071515 RUN NUMBER 8

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.091	.028	1.000	.030	.979	.030	.974	.034
2	-165.00	1.066	.028	1.002	.028	1.014	.030	1.020	.028
3	-150.00	.628	.038	.582	.040	.650	.050	.693	.056
4	-135.00	-.117	.036	-.139	.052	.044	.072	.130	.096
5	-120.00	-1.023	.046	-.921	.060	-.663	.122	-.463	.126
6	-105.00	-1.690	.042	-1.403	.084	-.985	.140	-.713	.196
7	-90.00	-1.715	.054	-1.157	.090	-.767	.124	-.475	.176
8	-75.00	-1.491	.056	-1.122	.090	-.753	.138	-.507	.174
9	-60.00	-1.520	.068	-1.180	.084	-.788	.148	-.583	.182
10	-45.00	-1.587	.084	-1.207	.090	-.807	.134	-.565	.178
11	-30.00	-1.830	.124	-1.302	.106	-.878	.154	-.616	.172
12	-15.00	-1.826	.134	-1.317	.100	-.942	.182	-.680	.258
13	0.00	-.903	.058	-.687	.070	-.444	.154	-.494	.266
14	15.00	-1.046	.066	-.992	.082	-1.118	.302	-1.469	.460
15	30.00	-1.933	.130	-1.559	.118	-.486	.146	-.634	.248
16	45.00	-2.001	.122	-1.627	.116	-1.533	.182	-1.405	.240
17	60.00	-1.741	.082	-1.478	.098	-1.365	.166	-1.325	.224
18	75.00	-1.614	.078	-1.482	.084	-1.352	.134	-1.371	.228
19	90.00	-1.625	.067	-1.431	.094	-1.325	.148	-1.321	.218
20	105.00	-1.903	.064	-1.523	.106	-1.371	.188	-1.373	.264
21	120.00	-1.767	.044	-1.650	.092	-1.584	.152	-1.559	.218
22	135.00	-1.064	.044	-1.074	.070	-1.090	.104	-1.008	.140
23	150.00	-.123	.036	-.208	.048	-.743	.084	-.245	.108
24	165.00	.652	.028	.570	.038	.511	.044	.508	.070
CN		1.564		1.223		1.059		1.050	
CY		.308		.411		.661		.867	

TEST NUMBER 81071601 RUN NUMBER 9

PORT	PHI	X/D=2.6		X/D=3.6		X/D=4.7		X/D=5.7	
		CP	SCP	CP	SCP	CP	SCP	CP	SCP
1	-180.00	1.010	.030	.912	.032	.903	.032	.890	.036
2	-165.00	.996	.028	.920	.028	.953	.030	.950	.030
3	-150.00	.545	.038	.488	.038	.584	.046	.627	.052
4	-135.00	-.244	.040	-.272	.056	-.058	.082	.018	.098
5	-120.00	-1.162	.036	-1.054	.060	-.774	.114	-.578	.124
6	-105.00	-1.827	.048	-1.526	.074	-1.107	.150	-.767	.178
7	-90.00	-1.846	.058	-1.298	.084	-.878	.154	-.609	.158
8	-75.00	-1.622	.052	-1.256	.100	-.850	.124	-.629	.212
9	-60.00	-1.659	.072	-1.283	.086	-.870	.146	-.602	.164
10	-45.00	-1.736	.070	-1.339	.092	-.928	.134	-.647	.170
11	-30.00	-1.958	.116	-1.430	.098	-.964	.130	-.718	.178
12	-15.00	-1.937	.120	-1.418	.114	-1.082	.172	-.787	.270
13	0.00	-1.037	.060	-.816	.062	-.565	.150	-.581	.238
14	15.00	-1.175	.064	-1.144	.108	-1.280	.290	-1.762	.532
15	30.00	-2.084	.136	-1.729	.106	-1.620	.148	-1.870	.244
16	45.00	-2.142	.124	-1.776	.120	-1.717	.188	-1.595	.232
17	60.00	-1.885	.072	-1.668	.106	-1.541	.160	-1.570	.236
18	75.00	-1.790	.060	-1.640	.092	-1.527	.146	-1.559	.212
19	90.00	-1.782	.064	-1.562	.086	-1.517	.166	-1.469	.216
20	105.00	-2.046	.064	-1.673	.100	-1.553	.184	-1.526	.184
21	120.00	-1.933	.044	-1.816	.084	-1.767	.140	-1.771	.218
22	135.00	-1.178	.042	-1.217	.066	-1.204	.110	-1.138	.144
23	150.00	-.259	.044	-.350	.048	-.369	.090	-.383	.102
24	165.00	.563	.034	.459	.042	.437	.046	.409	.070
CN		1.723		1.363		1.212		1.096	
CY		.327		.440		.723		.959	

DISTRIBUTION LIST

	<u>Copies</u>
Hughes Aircraft Co. Missile Systems Group Canoga Park, CA 91304 Attn: Mr. Henry August	1
Calspan Field Services, Inc. PWT-4T, MS 600 AEDC (AFSC) Arnold Air Force Station, TN 37389 Attn: Dr. W. B. Baker	1
AEDC/DOFAA Arnold Air Force Station, TN 37389 Attn: Mr. Thomas Best	1
AFATL/DLMA Eglin AFB, FL 32542 Attn: Mr. Carroll B. Butler	1
Naval Weapons Center Code 3246 China Lake, CA 93555 Attn: Dr. William H. Clark	1
Department of Engineering Sciences University of Florida Gainesville, FL 32611 Attn: Dr. Mark H. Clarkson	1
AEDC Arnold Air Force Station, TN 37389 Attn: Mr. Stuart Coulter	1
AFATL-DLB Eglin Air Force Base, FL 32542 Attn: Dr. Donald C. Daniel	1
Commander US Army Missile Command Redstone Arsenal, AL 35898 Attn: Mr. Ray Deep, DRSMT-RDK	1

DISTRIBUTION LIST (Cont.)

	<u>Copies</u>
Department of Aeronautical Engineering University of Bristol Bristol BS8 1TR United Kingdom Attn: Mr. Paul Dexter	1
Lockheed Missiles and Space Co. Inc. Dept. 81-10, Bldg. 154, Fac. 1 P.O. Box 504 Sunnyvale, CA 94086 Attn: Dr. Lars E. Ericsson	1
Vought Corporation Advanced Technology Center P. O. Box 226144 Dallas, TX 75266 Attn: Dr. C. H. Haight	1
Nielsen Engineering and Research, Inc. 510 Clyde Avenue Mountain View, CA 94043 Attn: Dr. Michael J. Hemsch	1
Rockwell International Missile System Division 4300 East 5th Avenue Columbus, OH 43216 Attn: Mr. Fred Hessman, D-165	1
Northrup Corporation, Aircraft Division Orgn 3813, Zone 82 One Northrop Avenue Hawthorne, CA 90250 Attn: Dr. Brian L. Hunt	1
Department of Mechanics of Fluids University of Manchester Manchester M13 9PL ENGLAND Attn: Dr. Peter Lamont	1
AFWAL/FIGC Department of the Air Force Wright Patterson Air Force Base, OH 45433 Attn: Dr. William H. Lane	1
AFATL/DLJCA Eglin AFB, FL 32542 Attn: Dr. Lawrence E. Lijewski	1

DISTRIBUTION LIST (Cont.)

	<u>Copies</u>
FIMG Air Force Wright Aeronautical Laboratories (AFSC) Wright-Patterson AFB, Ohio 45433 Attn: Capt. Alex J. Malanowski	1
NASA-Ames Research Center Mail Stop 227-8 Moffett Field, CA 94035 Attn: Mr. Gerald N. Malcomm	1
Commander US Army Research Office P. O. Box 12211 Research Triangle Park, NC 27709 Attn: Colonel Duff G. Manges	1
Department of Aerospace and Mechanical Engineering University if Notre Dame Notre Dame, IN 46556 Attn: Dr. Robert C. Nelson	1
Nielsen Engineering and Research 510 Clyde Avenue Mountain View, CA 94043 Attn: Dr. Jack N. Nielsen	1
AEDC/DOFAA, DOT Arnold Air Force Station, TN 37389 Attn: Captain Alvin R. Obal	1
Completere, Inc. P. O. Box 1697 Palo Alto, CA 94302 Attn: Dr. F. K. Owen	1
Commander Naval Sea Systems Command SEA 62R41 Washington, DC 20362 Attn: Mr. Lionel Pasiuk	1
Mechanical Engineering Department Clemson University Clemson, SC 29631 Attn: Dr. C. E. G. Prizirembel	1

DISTRIBUTION LIST (Cont.)

	<u>Copies</u>
Director Engineering Sciences Division US Army Research Office P. O. Box 12211 Research Triangle Park, NC 27709 Attn: Dr. Robert E. Singleton	1
Commander U.S. Army Missile Command Redstone Arsenal, AL 35898 Attn: David Washington, DRSMI-RDK	1
USAFA/DFAN USAF Academy, CO 80840 Attn: Captain G. J. Zollars	1
Defense Technical Information Center Cameron Station Alexandria, VA 22314	12
Library of Congress Attn: Gift and Exchange Division Washington, DC 20540	4

