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LASER-DOPPLER VELOCIMETER MEASUREMENTS IN A
CASCADE OF CONTROLLED DIFFUSION COMPRESSOR
BLADES AT STALL

by

Humberto Javier Ganaim Rickel

June, 1994

Principal Advisor:

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REPORT DOCUMENTATION PAGEForm Approved
OMB No. 0704-0188

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1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE June, 1994	3. REPORT TYPE Master's Thesis
4. TITLE AND SUBTITLE LASER-DOPPLER VELOCIMETER MEASUREMENTS IN A CASCADE OF CONTROLLED DIFFUSION COMPRESSOR BLADES AT STALL			5. FUNDING NUMBERS
6. AUTHOR(S) Ganaim Rickel, Humberto Javier			
7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE A
13. ABSTRACT (Maximum 200 words) An incipient compressor blade stall has been generated and examined in the Low Speed Cascade Wind Tunnel at the Turbopropulsion Laboratory. The test blades were a controlled-diffusion design with solidity 1.67, and stalling occurred at 10 degrees of incidence above the design inlet air angle. Tufting and laser-sheet flow-visualization techniques showed that the stalling process was unsteady, and occurred over the whole cascade of 20 blades. Detailed laser-doppler velocimeter measurements over the suction side of the blades showed regions of continuous and intermittent reversed flow. The measurements of the continuous reversed flow region at the leading edge were the first data to be obtained of flow within the leading edge separation bubble. The intermittent reversed flow region measurements quantified what was observed in the flow visualization studies. Blade surface pressure measurements showed a decrease in normal force on the blade as would be expected at stall.			
14. SUBJECT TERMS			16. PRICE CODE
			15. NUMBER OF PAGES 140
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL

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by

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BS, Venezuelan Naval School, 1985

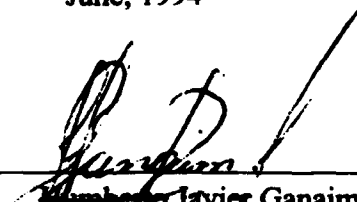
Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE IN ENGINEERING SCIENCE

from the

NAVAL POSTGRADUATE SCHOOL
June, 1994

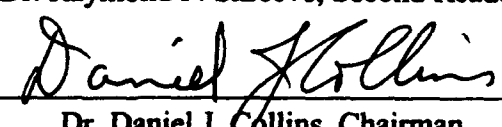
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ABSTRACT

An incipient compressor blade stall has been generated and examined in the Low Speed Cascade Wind Tunnel at the Turbopropulsion Laboratory. The test blades were a controlled-diffusion design with solidity 1.67, and stalling occurred at 10 degrees of incidence above the design inlet air angle. Tufting and laser-sheet flow-visualization techniques showed that the stalling process was unsteady, and occurred over the whole cascade of 20 blades. Detailed laser-doppler velocimeter measurements over the suction side of the blades showed regions of continuous and intermittent reversed flow. The measurements of the continuous reversed flow region at the leading edge were the first data to be obtained of flow within the leading edge separation bubble. The intermittent reversed flow region measurements quantified what was observed in the flow visualization studies. Blade surface pressure measurements showed a decrease in normal force on the blade as would be expected at stall.

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ACKNOWLEDGEMENTS

I would like to avail myself of this opportunity to thank Dr. Garth V. Hobson for taking so much of his time to explain the procedures involved in this project to me and for all his patience during his explanation. I would also like to thank Dr. Raymond Shreeve for his advice, which positively influenced my thesis. I would like to thank my wife Jaira and my children, Humbert and Kevin, for giving me the support to finish my studies at the Naval Postgraduate School. Jaira: you are the main reason in my life that helps me improve.

I. INTRODUCTION

A. BACKGROUND

The continuing effort to predict off-design performance and stalling behavior of compressor blades during the design phase has prompted studies to characterize the flow in and around leading edge separation bubbles of blades in cascade. Experimental studies have attempted to map viscous flow development in specific geometries. Recently Hobson and Shreeve [Ref. 1] reported detailed two-component (LDV) measurements of the flow through a controlled-diffusion (CD) compressor cascade at a Reynolds number of about 700,000, and at a very high-incidence angle (8 deg above design).

They obtained a laminar leading-edge separation, which reattached turbulent, and enclosed a (laminar) bubble on the suction surface of the blade. Consistent with measurements at lower incidence angles, the reattached suction surface boundary layer remained turbulent and attached over the rear part of the blade. Since boundary layer separation (for a code-validation test case) had not been achieved, the next step was to increase the incidence angle further to 10 deg above design and try to stall the (CD) blades. This was the motivation for the present study in which the flowfield through the CD cascade was extensively surveyed at a fixed incidence angle which was 2 deg greater than the previous incidence reported by Hobson and Shreeve [Ref. 1].

B. PURPOSE

The objective was to increase the inlet air angle beyond 48 degrees, as tested by Classick [Ref. 2], Murray [Ref. 3], Hobson and Shreeve [Ref. 1], and Wakefield [Ref. 4], to 50 degrees in an attempt to stall the blades. The intention was to determine the maximum turning or lift generated by the blades, and to determine the way in which the suction-side boundary layer separated. Would the leading-edge separation bubble grow or

would separation begin from the trailing edge where the boundary layer was fully turbulent. Two-dimensional laser doppler velocimeter measurements were to be taken in the pitchwise or blade-to-blade direction at most of the stations measured by Hobson and Shreeve [Ref. 1].

Prior to performing the above study, LDV measurements at 48 degrees were obtained in the inlet region in order to verify the results that both Hobson and Shreeve [Ref. 1] and Wakefield [Ref. 4] obtained during their experiments. This was desirable because Hobson and Shreeve had used different inlet guide vanes (IGV's) and, after new IGV's were installed, Wakefield performed only Hot-Wire measurements. A comparison of the measurements taken by the present author with those taken by Hobson and Shreeve at 48 degrees is presented in Appendix A. The study carried out at an inlet-air angle of 50 degrees is reported in the sections which follow.

II. TEST FACILITY AND INSTRUMENTATION

A. LOW-SPEED CASCADE WIND TUNNEL

The subsonic cascade wind tunnel and operating instrumentation were as described by Wakefield [Ref. 5]. The cascade had 20 blades, the flow Reynolds number, based on chord length, was approximately 700,000 and the inlet air angle was 48 and 50 deg.

The blades had a chord length of 5.01 in. and a spacing of 3 in. The blade coordinates and cascade geometry were reported by Elazar [Ref. 5]. Figure 1 shows the schematic of the cascade.

B. INSTRUMENTATION

1. Pneumatic Data Acquisition System

Blade surface static pressure measurements were recorded with a 48-channel Scanivalve. The pneumatic data acquisition system was the same as that described and used by Classick [Ref. 2] and the program "ACQUIRE" was used to perform the pressure measurements. Figure 2 shows the location of the pressure taps on blade number 10, the location of which is shown in Figure 1.

2. Laser-Doppler Velocimeter

The horizontal (U) and vertical (V) mean velocity components, U-turbulence, V-turbulence, and Reynolds stress were measured with a two-dimensional LDV system consisting of four major subsystems: (a) the laser and optics, (b) the data acquisition system, (c) the automated traverse table, and (d) the seeding probe. A photograph of the LDV equipment, traverse table, counters and oscilloscope is shown in Figure 3, which also shows the north endwall of the cascade.

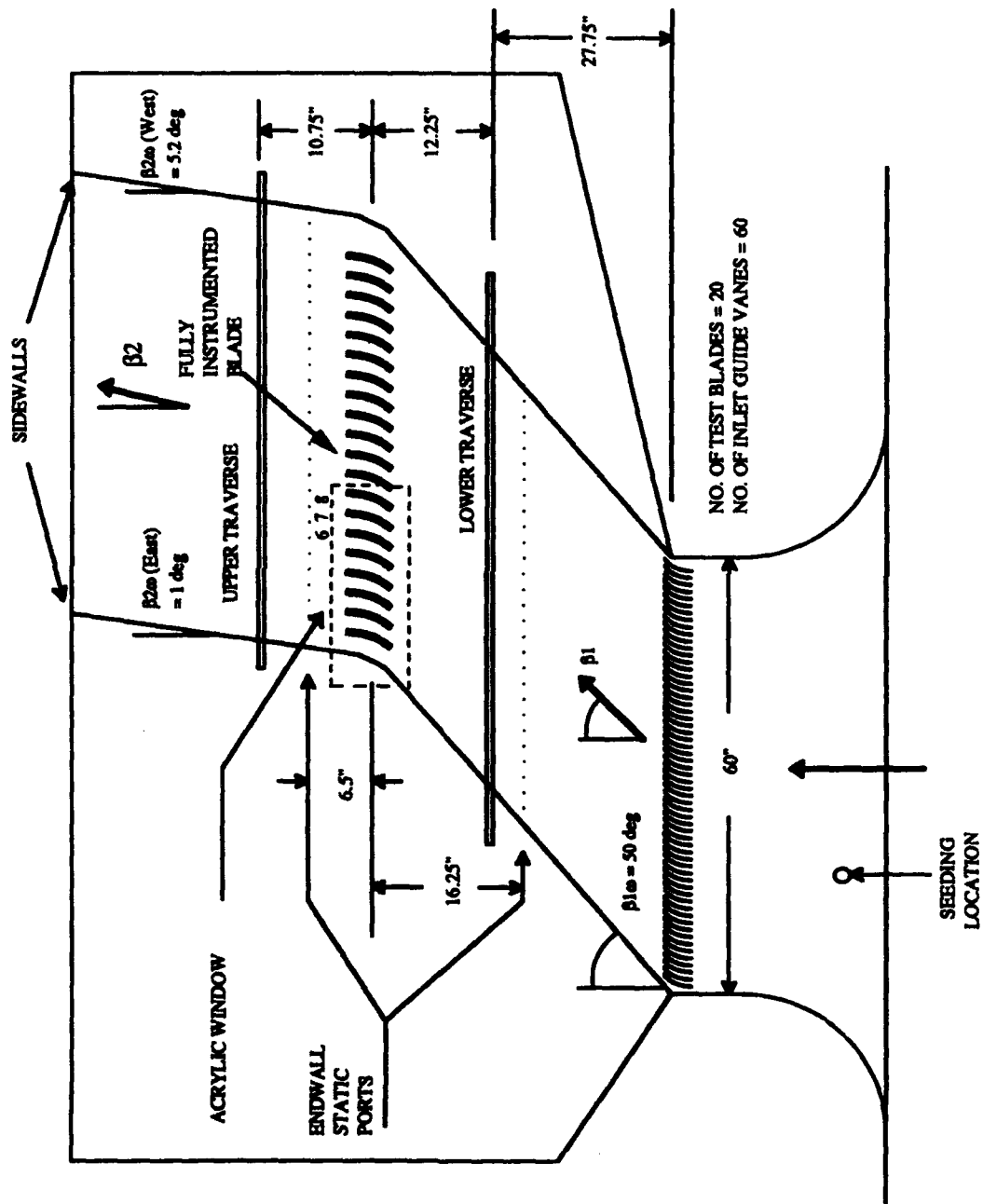


Figure. 1 Low Speed Cascade Tunnel Schematic

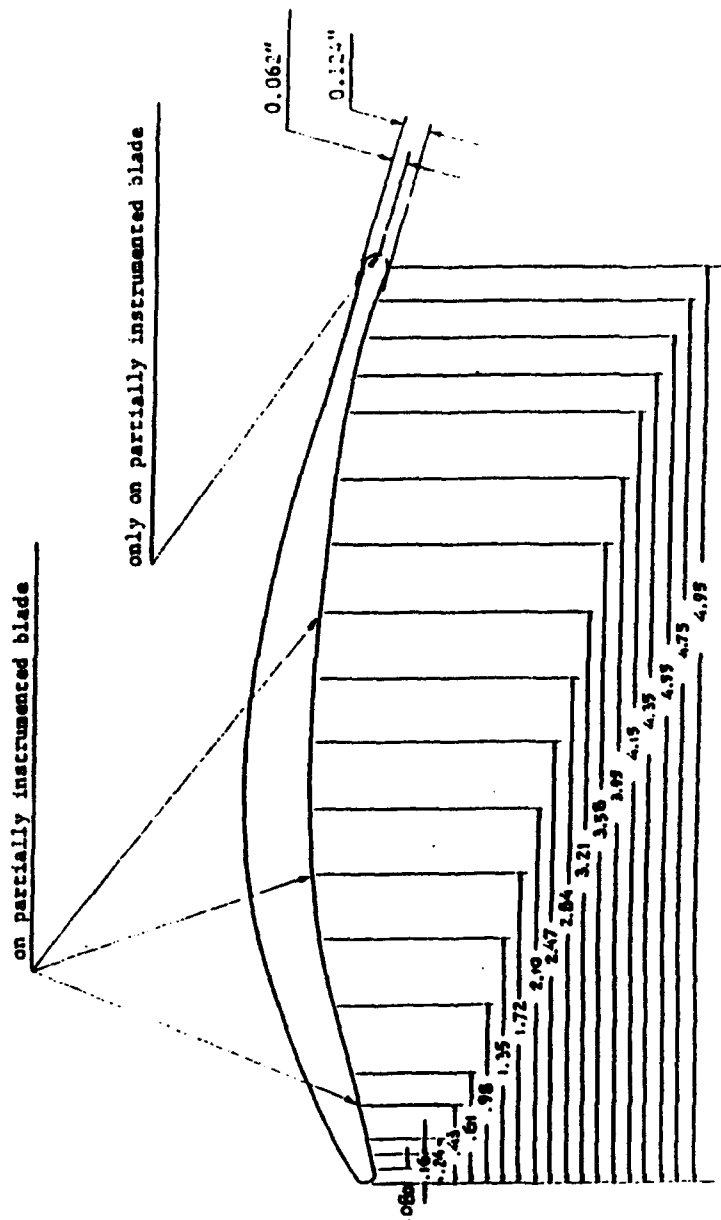


Figure 2. CD Blade Pressure Tap Locations on Pressure and Suction Sides



Figure 3. LDV System Installation

a. Laser and Optics

A four beam, two color TSI model 9100-7 LDV system was used. The laser was a Lexell four-Watt Argon-Ion laser which was operated nominally at 2 Watts in a multi-line mode. Two colors, green (514.5 nm) and blue (488 nm) were selected by the color separator. The two beams were centered and split into a four beam arrangement to measure two velocity components at right angles to each other. Two Bragg cells shifted the frequency of one beam in each pair to allow measurement of reverse flows. The four beams then passed through a divergence section which improved the dimensions measuring volume. Two photo-detectors collected the scattered light after it passed through the same optics. Table 1 contains a summary of the characteristics of the LDV system.

TABLE 1

CHARACTERISTIC	BLUE BEAM	GREEN BEAM
WAVELENGTH	488 nanometers	514.5 nanometers
FRINGE SPACING	4.51 microns	4.76 microns
FOCAL LENGTH	762 mm	762 mm
NUMBER OF FRINGES	28	28
HALF ANGLE	3.10 degrees	3.10 degrees
MEASURING VOL. DIAM	133 micro meter	133 micro meter
MEASURING VOL. LENG	2.5 mm	2.5 mm
FREQ. SHIFT (FIND)	+ 5 Mhz	+ 5 Mhz
BEAM SPACING	82.5 mm	82.5 mm
ORIENTATION	HORIZONTAL	VERTICAL
CHANNEL	2	1
FREQUENCY SHIFT	5 Mhz UP	5 Mhz DOWN

b. Data Acquisition

The data acquisition system consisted of two TSI Model 1990 counter-type signal processors and a 1998A Master Interface in which the signals from the photo-detectors were digitized. An oscilloscope attached to the input conditioner of the counters provided real-time display of the photomultiplier output. The digitized signals from the counters were sent to an IBM PC in which the information was processed by

TSI proprietary software "FIND" version 4.0 . Through this software it was possible to position the LDV at programmed locations and automatically take measurements in surveys at any desired increment.

c. Automated Traverse table

The automated three-axis traverse was Model 9500 from TSI. The traverse used stepping motors for positioning the optical table which rested between the upper support arms. Digital encoders along each axis provided positioning accuracy to 0.0001 inch. The traverse and encoder interface to the PC used RS-232C protocol.

d. Atomizer and Seeding Probe

Olive oil was used as a seed material in a TSI atomizer which produced approximately 1 micro-meter sized particles as measured by Elazar [Ref. 5]. The seeding wand was adjustable, however, the adjustment was done on an arc, perpendicular to the tunnel, thus the seeding was not always at midspan. This limited the distance over which the pitchwise surveys could be extended. Figure 4 shows the atomizer and seeding probe.



Figure 4. Atomizer and Seeding Probe

III. EXPERIMENTAL PROCEDURE

A. PRESSURE MEASUREMENTS AND FLOW VISUALIZATION

Once the tunnel was set up at 50 degrees and running at a plenum pressure of 12 inches of water (approximately 700,000 Reynolds number), the pressure measurements were taken as specified by Classick [Ref. 2].

The flow visualization was carried out by projecting a laser sheet from the bottom left of the cascade to blade number 14, and while the tunnel plenum pressure was set at 12 inches of water (gauge), fog was introduced through one of the endwalls. The flow pattern of the fog between the blades was illuminated by the laser sheet. This process was performed at night for better visibility. The process was filmed using an 8mm video camera.

B. TUNNEL SET-UP AND TEST-SECTION CONFIGURATION

For the present study, the 50 degree inlet flow angle was set by adjusting the inlet guide vanes and side walls to equalize the endwall static pressures on both upstream walls. The exit flow angle was adjusted by setting the tailboards at angles which gave nearly uniform downstream wall static pressure measurements in the pitchwise direction across the cascade. The average inlet flow angle was measured, with the LDV, over three passage widths, 31.3% of an axial chord length upstream of the blade leading edge. Fine adjustments of the inlet guide vanes were made to achieve an average inlet flow angle (as measured by the LDV) of 50.21 degrees.

Previous LDV measurements were taken between blades 7 and 8 which were anodized black to minimize reflections. Because of the present inlet flow angle setting of 50.21 deg., blade 8 was too close to the edge of the window. Thus blade 8 and 6 were

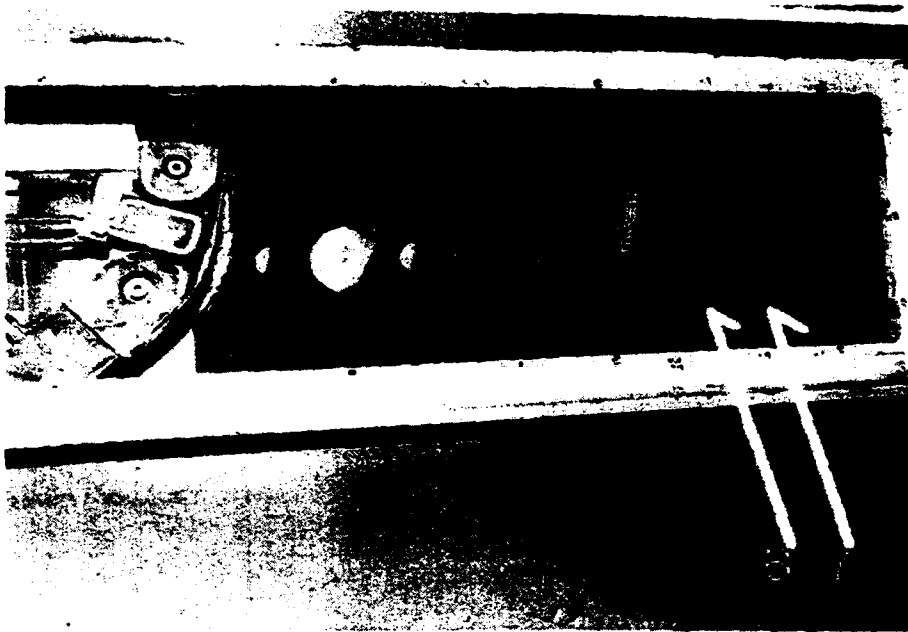


Figure 5. Anodized Blades

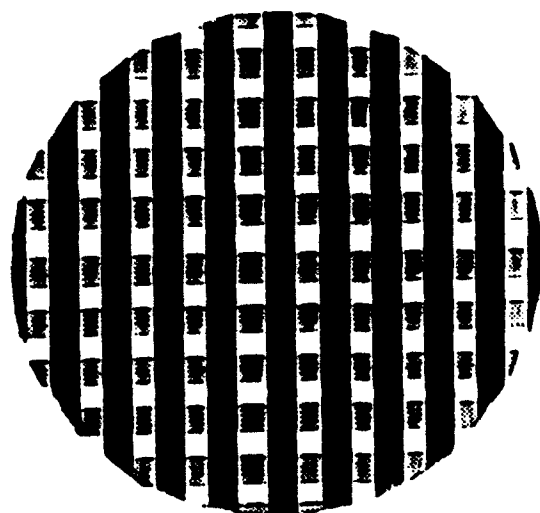
exchanged and all subsequent measurements during this study were taken between blades 6 and 7 as shown in Figure 5.

The tunnel reference velocity (V_{ref}) was determined using the analysis of Elazar [Ref. 5]. At different tunnel speeds, the inlet flow velocity was measured (31.3% axial chord upstream) with the LDV, and the plenum pressure and temperature and ambient pressure were recorded. A least-squares curve fit was applied to the data to determine the calibration curve. During each subsequent run, the plenum and atmospheric conditions were recorded and used as input to a Newton method iteration algorithm to determine V_{ref} . The result of this calibration is presented in Appendix E.

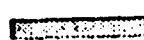
C. LASER SET-UP

The green beams of the laser were aligned vertically with the unshifted beam at the bottom and the blue beams were horizontal with the unshifted beam to the right, as shown in Figure 6. All surveys were conducted with the LDV optics "standard", i.e., the 488-nm blue beam measuring the horizontal velocity component (U), and the 514.5-nm green beam measuring the vertical velocity component (V). Down shifting was used in the following form; the green beam was downshifted by 5MHz and the blue beam was upshifted by 5MHz. The 1990 signal processors had the following settings: continuous (CONT) Mode; High Filter, 20MHz; Low Filter, 0.3MHz; Amplitude Limit, full counterclockwise; Cycles/Burst, 8; Comparison, 1 percent; Auto (green button), in; Voltage, External (EXT); Data Ready, Internal(INT); Gain, One (01); Resolution (No/SEC), One (01). For the Data Interface Master; Coincidence Mode, Range X1 and Delta Interval 2 to the power 3 micro-seconds was used throughout this study.

In the Optics screen of the acquisition menu of FIND the frequency shift was set to +5MHz on both channels. As the maximum reverse flow Doppler frequency was approximately 1MHz this level of 5MHz downshifting allowed the determination of reverse flow velocities, both in the mean and intermittently. The determination of this final selection is shown in Appendix D.

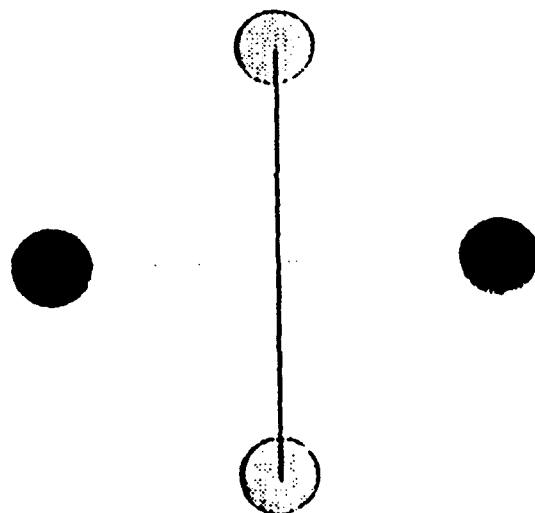


BLUE



GREEN

Two Color Fringe Pattern



Beam Arrangement

Figure 6. LDV Fringe Pattern and Beam Arrangement

D. SURVEYS

1. Inlet Surveys at 48 and 50 Degrees

All LDV measurements presented herein were averaged over 3000 data points, and plus or minus 2 Standard Deviation histogram editing was performed for the flowfield distribution plots. The edited histograms were used to determine the edge of the separation and reverse flow regions.

The initial pitchwise survey at station 1 (Figure 7) was conducted over three passage widths to determine the flow periodicity. All subsequent inlet pitchwise surveys were traversed over a 4 in. distance, spanning the region of maximum seeding. The first three inlet surveys, at stations 1, 1a and 1b, were carried out with the LDV horizontal. Station 1b was repeated with the laser pitched upwards by 4 deg. The need for pitching was to allow for closer access to the leading edge, i.e., so that there would not be any blade shadow interference at the subsequent stations 1c-1e. At any time during the experiment, if the laser was either pitched or yawed, then the previous survey would be repeated to enable the determination of any errors due to the measurement volume orientation. The maximum spatial error, due to probe volume orientation, was calculated by Hobson and Shreeve [Ref. 1] to be 0.3mm. This error was because the probe volume was not parallel to the blade span, and therefore seed particles displaced from the actual measurement location could be measured. The location of the measurement volume was always referenced to the same location between the blades throughout the study. The alignment procedure is described by Elazar [Ref. 5].

2. Passage Surveys at 50 Degrees

Measurements were taken only on the suction side, over a two inch pitchwise distance. Figure 7 shows the positions for the passage surveys and each dot on the figure represents a measurement location. These dots were stretched away from the surface to approximate a boundary layer survey. The passage surveys (between blades 6 and 7) were conducted with the same LDV optics configuration specified for the inlet surveys. In addition, the LDV was yawed by 4 deg to the left and pitched upward by 2 deg to avoid

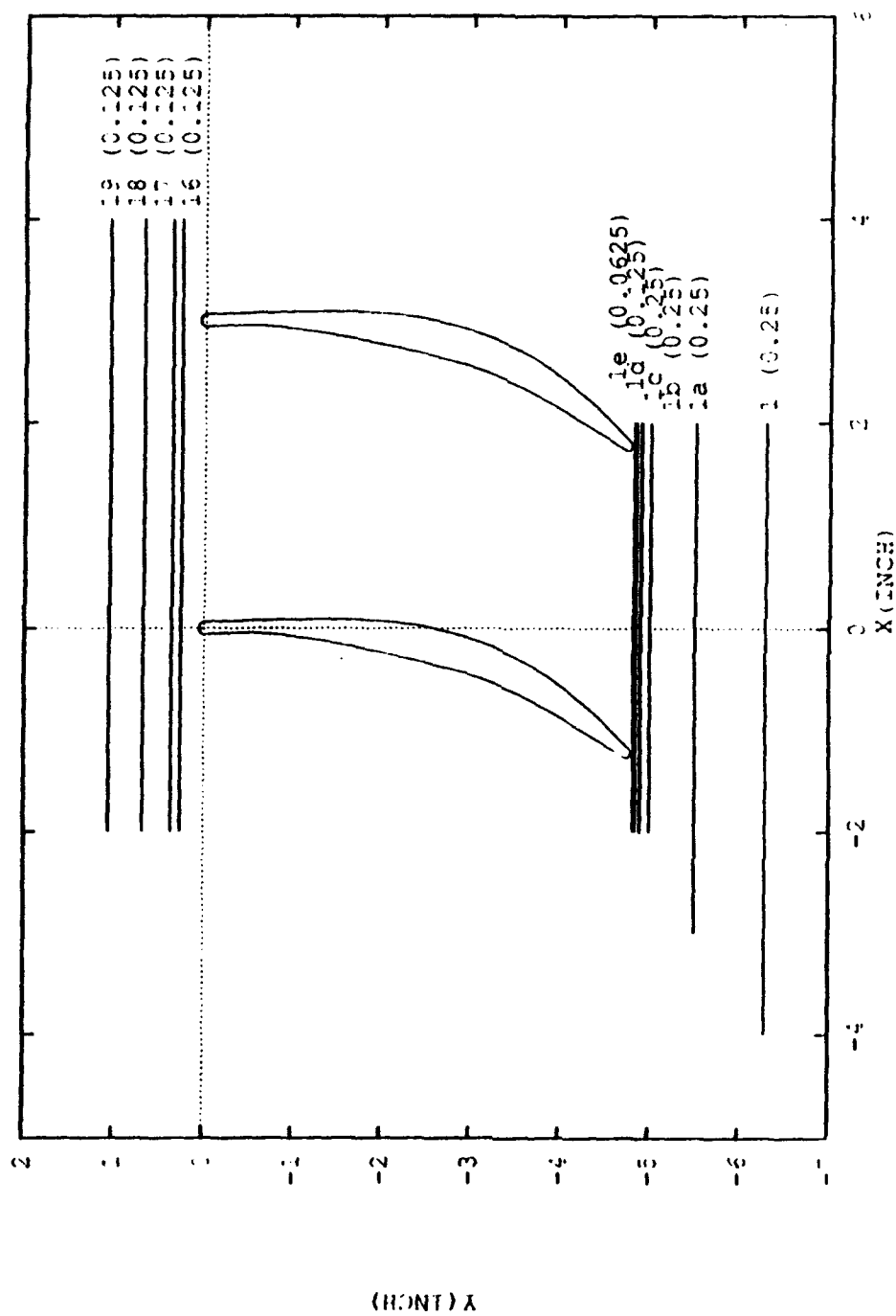


Figure 7. Inlet and Exit Pitchwise Survey Locations

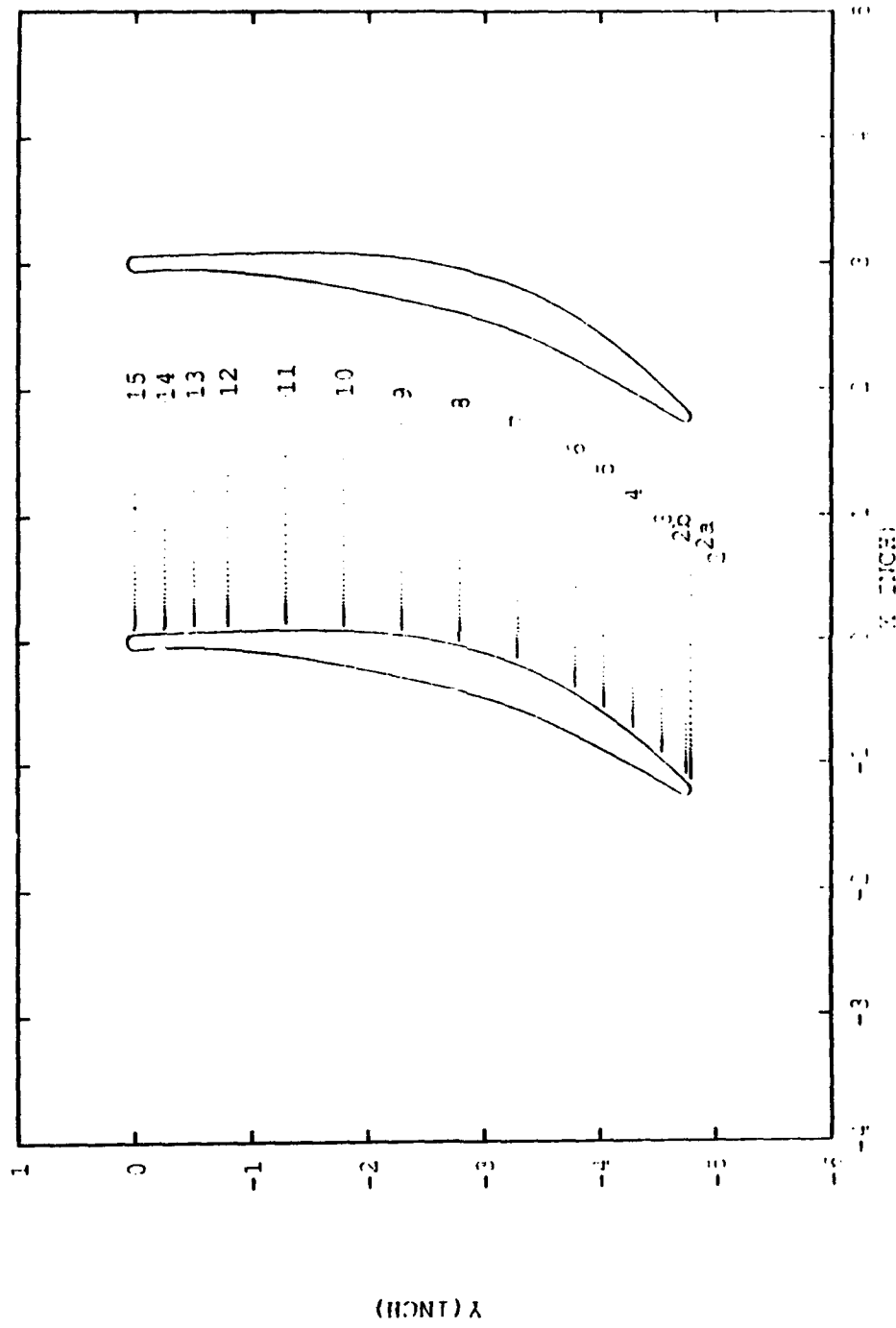


Figure 8. Suction Side Passage Survey Locations

the laser beams being shadowed by the blade. This was done for the suction side close to the leading edge, from station 2 to 7. At stations 7 to 15 the LDV was only yawed by 4 deg.

3. Wake Surveys at 50 Degrees

Wake surveys (between blades 6 and 7) were conducted with the same LDV optics configuration specified for the inlet surveys. The LDV was horizontal and perpendicular to the tunnel for stations 16 to 19 and the surveys were performed over two passage widths (6 inches). Figure 7 shows the positions for the wake surveys.

IV. RESULT AND DISCUSSION

A. BLADE SURFACE PRESSURE MEASUREMENTS

The upper plot of Figure 9 shows the blade surface pressure distribution measured by Dreon [Ref. 6] at 40 and 43 degrees, Armstrong [Ref. 7] at 48 degrees and the present work at 50 degrees. The integration of the area within the pressure distributions for each angle gave the Normal Force Coefficient. The lower plot (Normal Force Coefficient versus Angle of Attack) shows a drop-off in force (or lift) at 50 degrees, consistent with the observation that the cascade had entered into stall.

B. INLET SURVEYS (STATIONS 1 THROUGH 1E)

Figures 10 through 15 show the horizontal (U), vertical (V) components and the total velocity (U_{tot}) distributions in the pitchwise direction ahead of the blades. At station 1, a disturbance in the total velocity profile is evident which is periodic and three inches apart. This disturbance corresponds to the spacing of the blades and thus the presence of the blades is now felt 30% of an axial chord ahead of the leading edges. This magnitude of upstream disturbance, was not evident at lower inlet air angles.

Station 1A (Fig. 11) shows measurement anomalies on the U component which are due to imperfections in the acrylic window. In subsequent figures (12 through 15) the total velocity (U_{tot}) decreased as the flow approached the leading edge of blade number 6 and then increased again as the flow rounded the leading edge of the blade.

The final inlet profile (Fig. 15) shows a variation in total velocity of 40% (from 1.0 to 0.6) across the leading edge. This variation is less than that previously measured at 48 degrees inlet air angle (> 50% variations), and this too is an indication that stall had occurred.

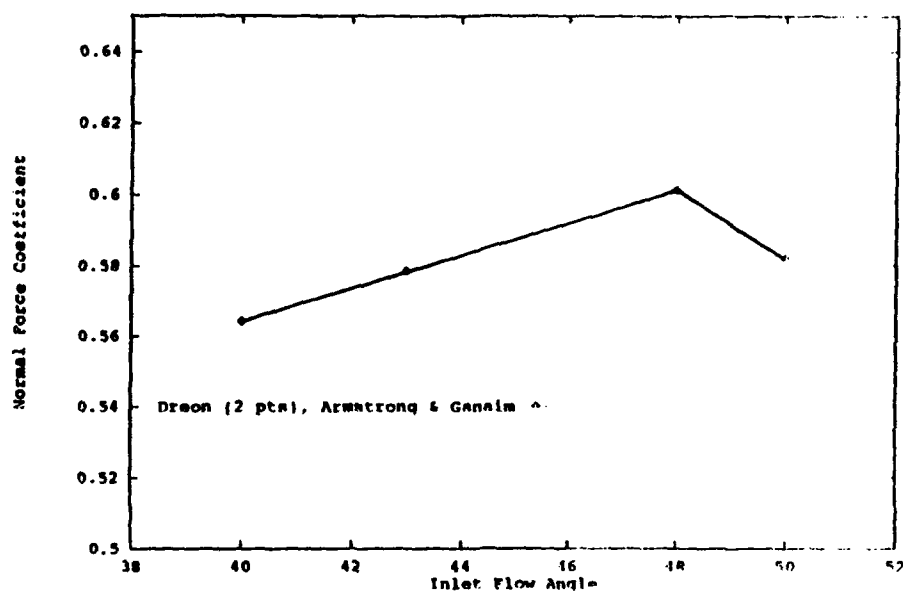
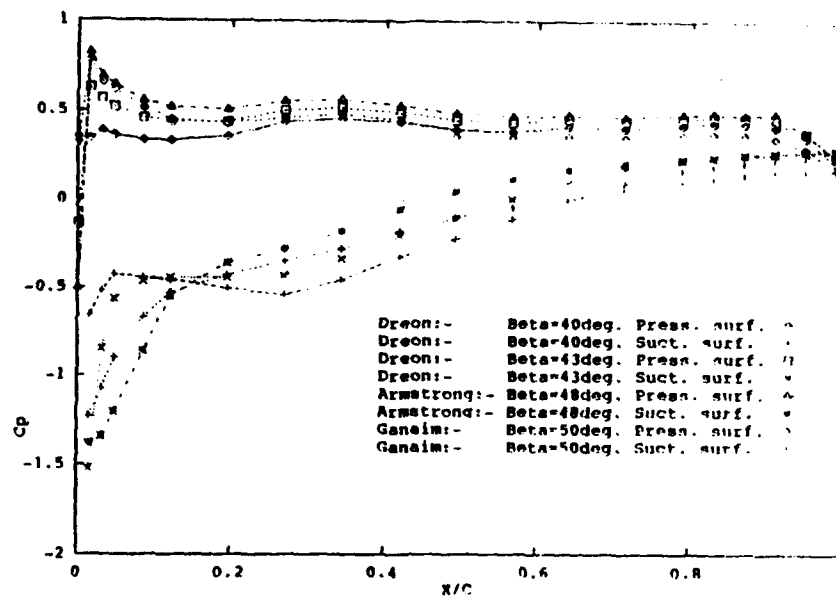


Figure 9. Pressure Distribution and Normal Force Coefficient

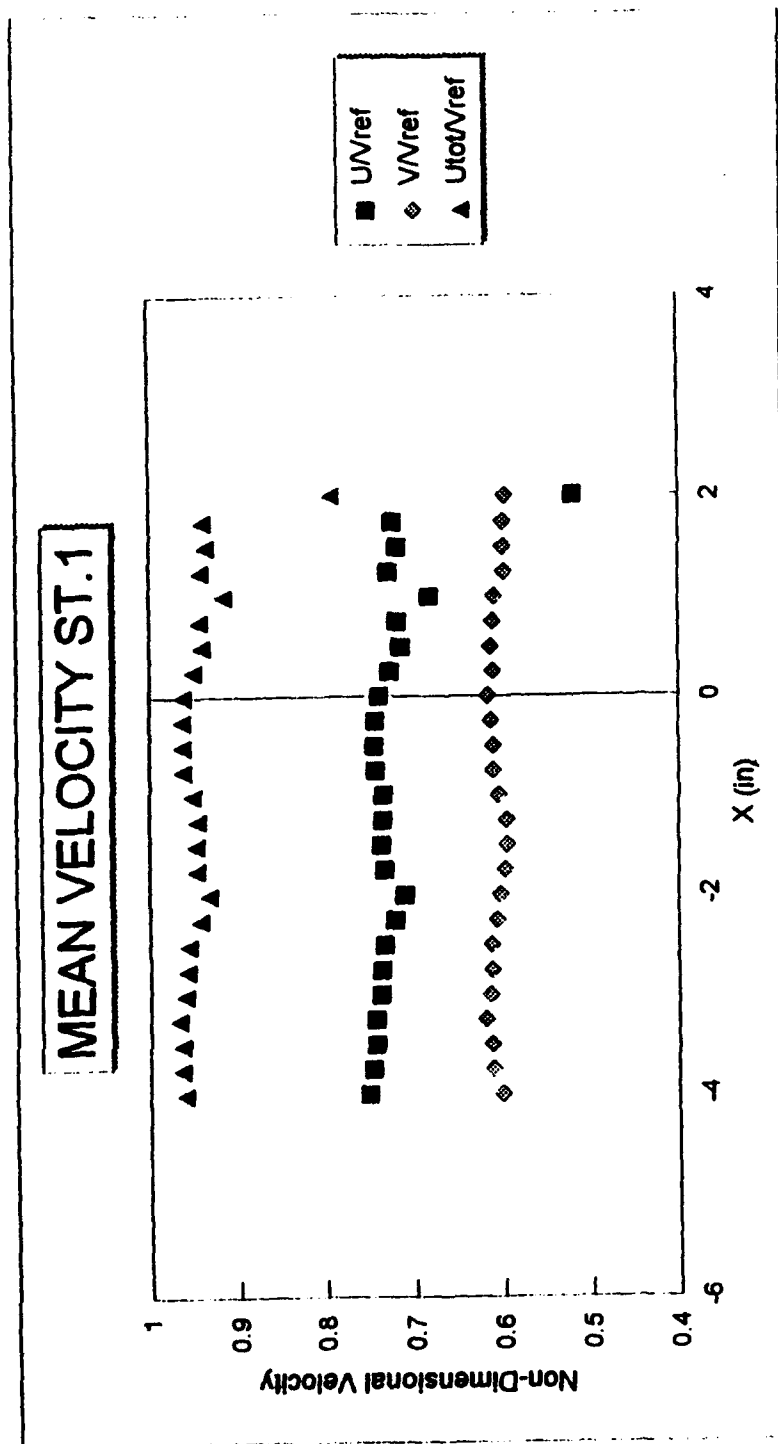


Figure 10. Survey at Station 1

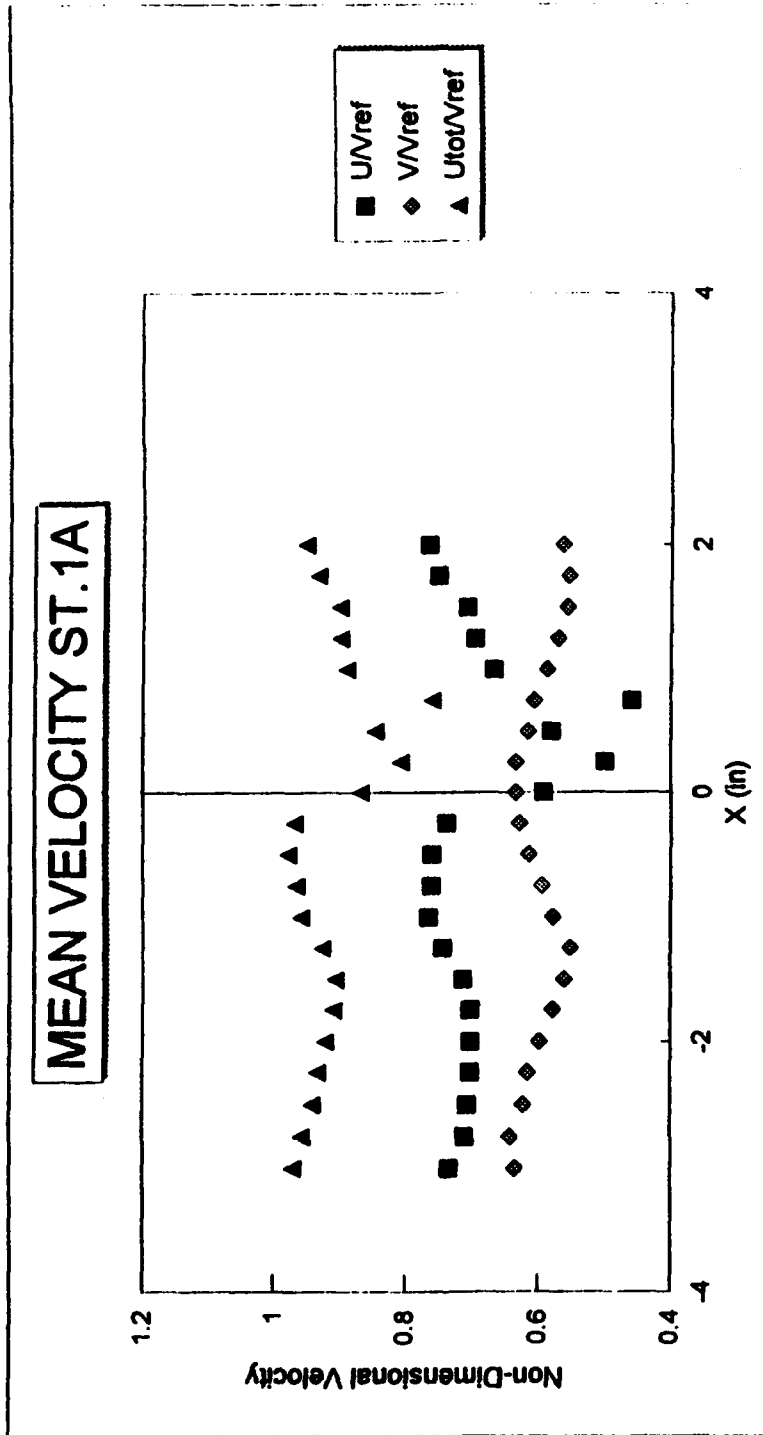


Figure 11. Survey at Station 1A

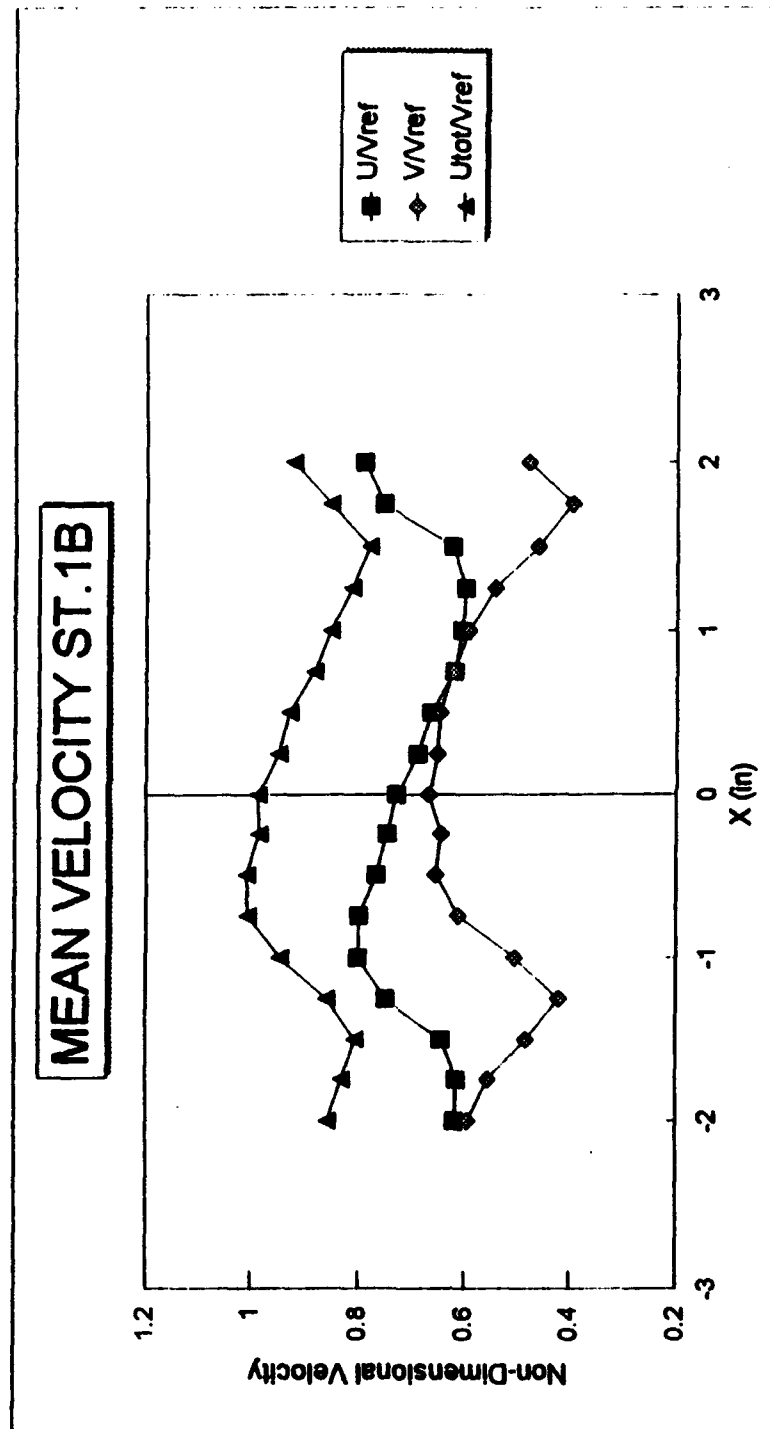


Figure 12. Survey at Station 1B

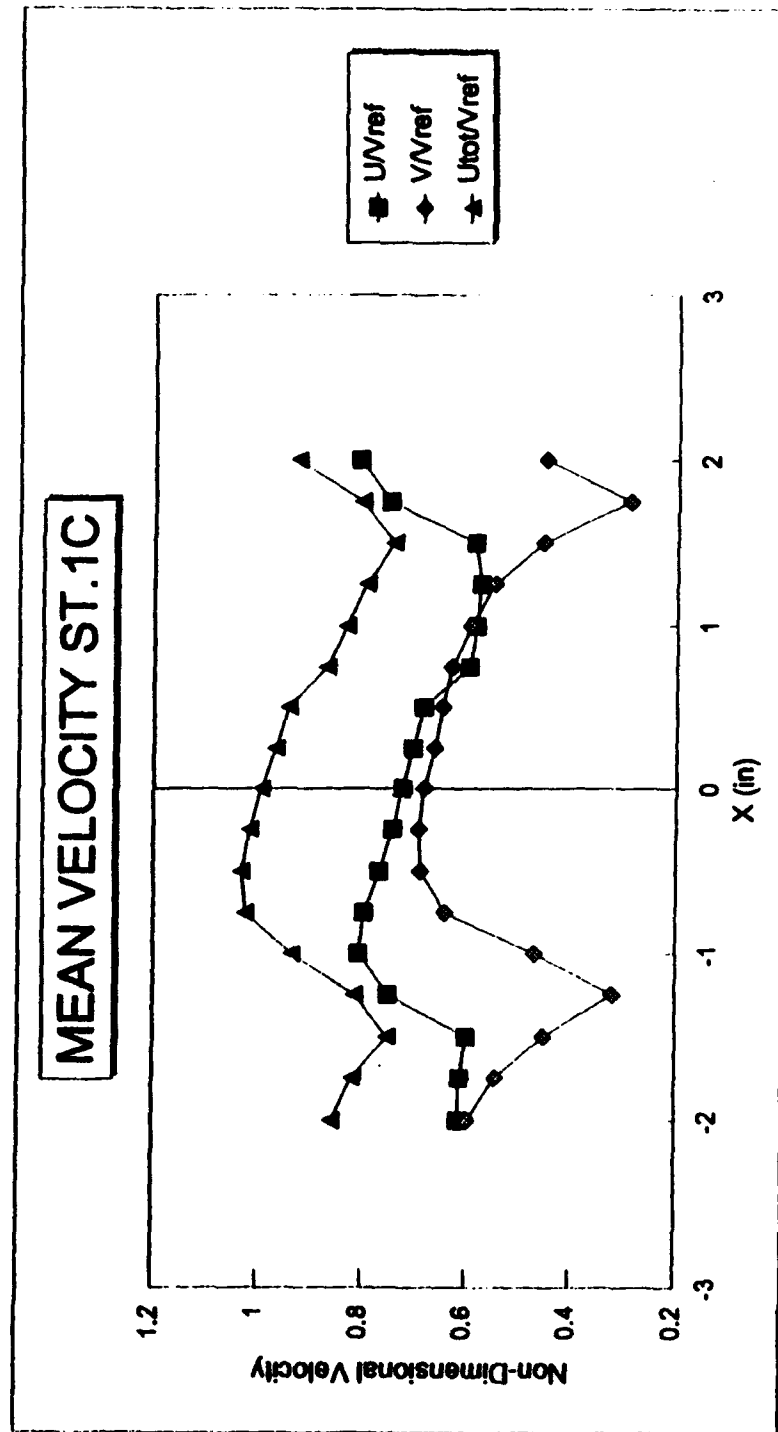


Figure 13. Survey at Station 1C

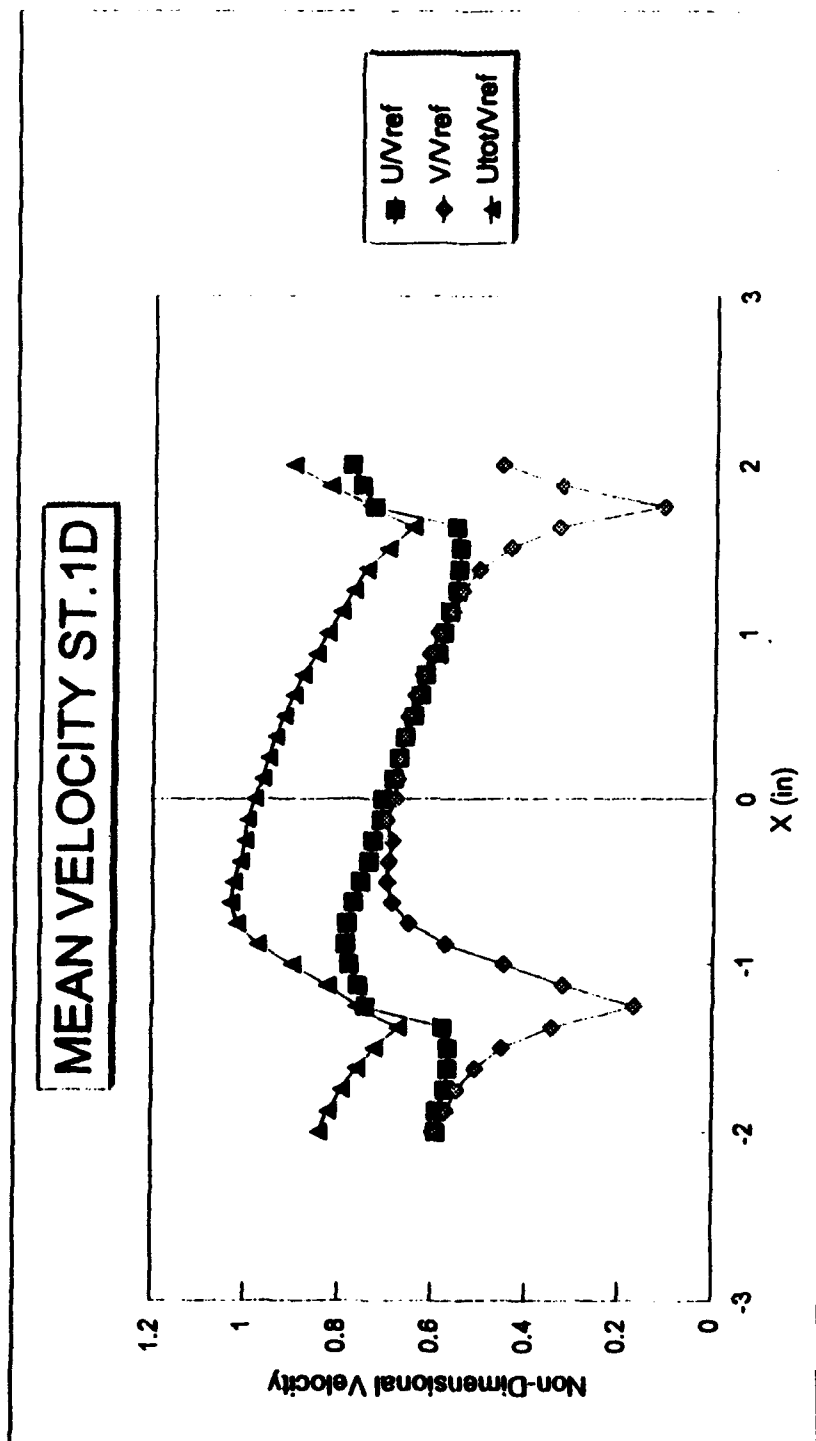


Figure 14. Survey at Station 1D

MEAN VELOCITY ST.1E

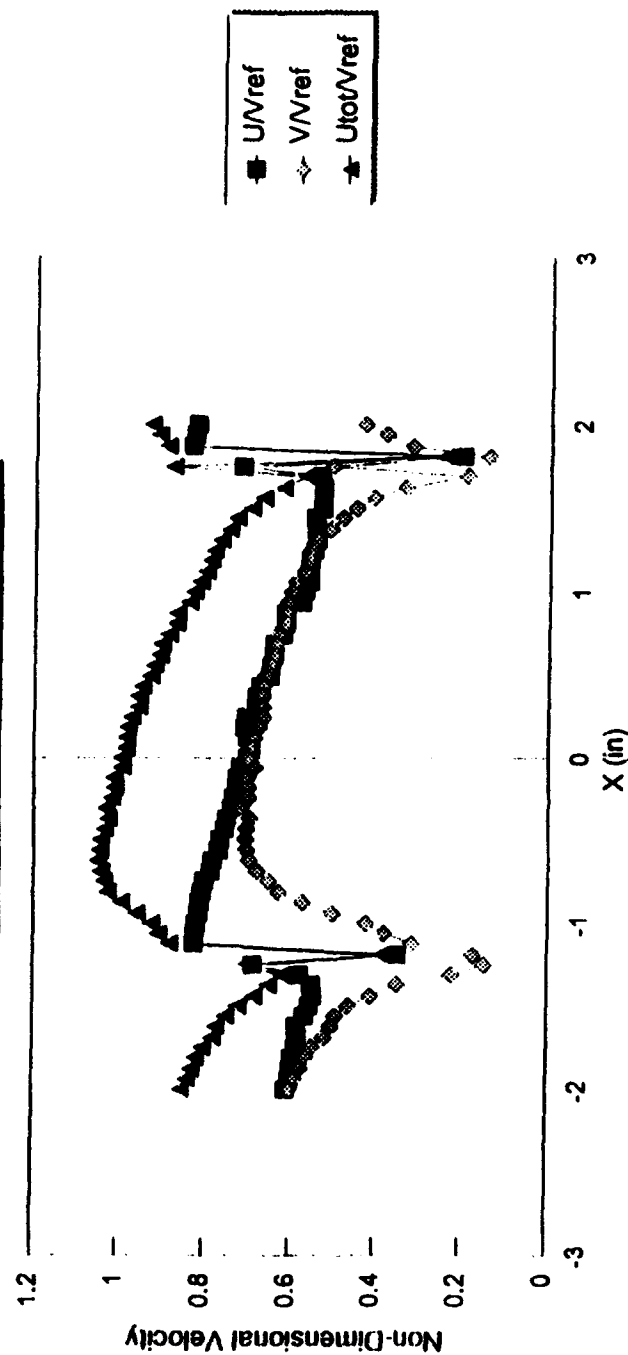


Figure 15. Survey at Station 1E

C. PASSAGE SURVEYS (STATIONS 2 THROUGH 15)

At station 2 only forward moving particles were measured, and the mean velocities (both U and V components) were all positive (Fig. 16). The discontinuity in the V/V_{ref} profile between points 11 and 12 was unexplained. At station 2A the magnitude of the first data point dropped off significantly (Fig. 17). Upon examination of the histograms for the vertical velocity component it was found to contain reverse flow particles, which indicated that this region had intermittent reverse flow. The first data point at station 2B had a negative mean V velocity and a positive mean U velocity (Fig. 18), and this indicated the beginning of the leading edge reverse flow region (i.e., negative mean velocity on V). The following 5 data points had intermittent reverse flow histograms.

At station 3 the first three data points had negative mean velocities, both U and V, and then the following 7 data points had intermittent reverse flow particles. Station 4 only had intermittent reverse flow particles (no histograms with a negative mean) for the first 6 data points. The discontinuity in the profile as shown in Figure 20 illustrated the change over from intermittent reverse flow to all positive, or forward-moving particles. The profile at station 5 (Fig. 21) was very similar to that at station 4.

At station 6 (Fig. 22) the first two points showed only forward moving particles, the third data point had intermittent reverse flow, the next five data points were all positive and the ninth data point again had intermittent reverse flow. All other data points beyond the tenth point had histograms with only positive values. The first data point at station 7 (Fig. 23) only had positive moving particles, the second through sixteenth data points showed intermittent reverse flow and then all higher points were positive.

The first data point at station 8 (Fig. 24) had only positive particles, the next 17 data points showed intermittent reverse flow, and then all the points showed only positive flow. The mean flow profile once again showed a significant discontinuity in that region.

Stations 9 through 15 (Figs. 25 through 31) were similar in that they all showed regions of intermittent reverse flow close to the suction surface of the blade followed by the core flow where all the measured particles had positive velocity components.

MEAN VELOCITY ST.2

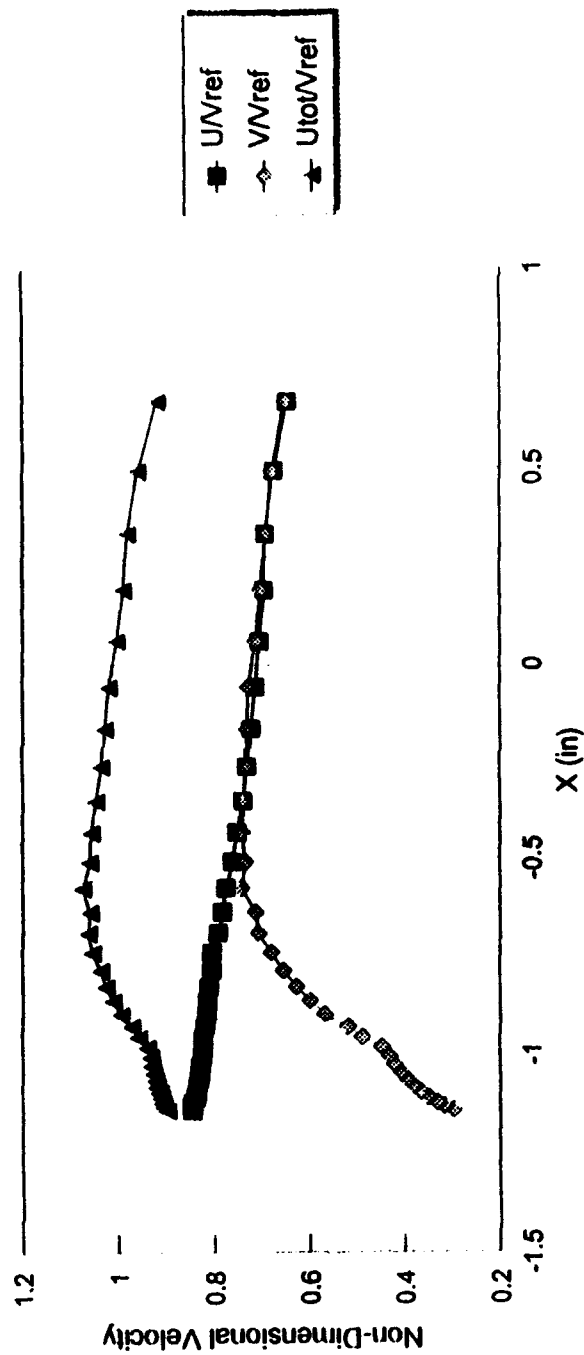


Figure 16. Survey at Station 2

MEAN VELOCITY ST.2A

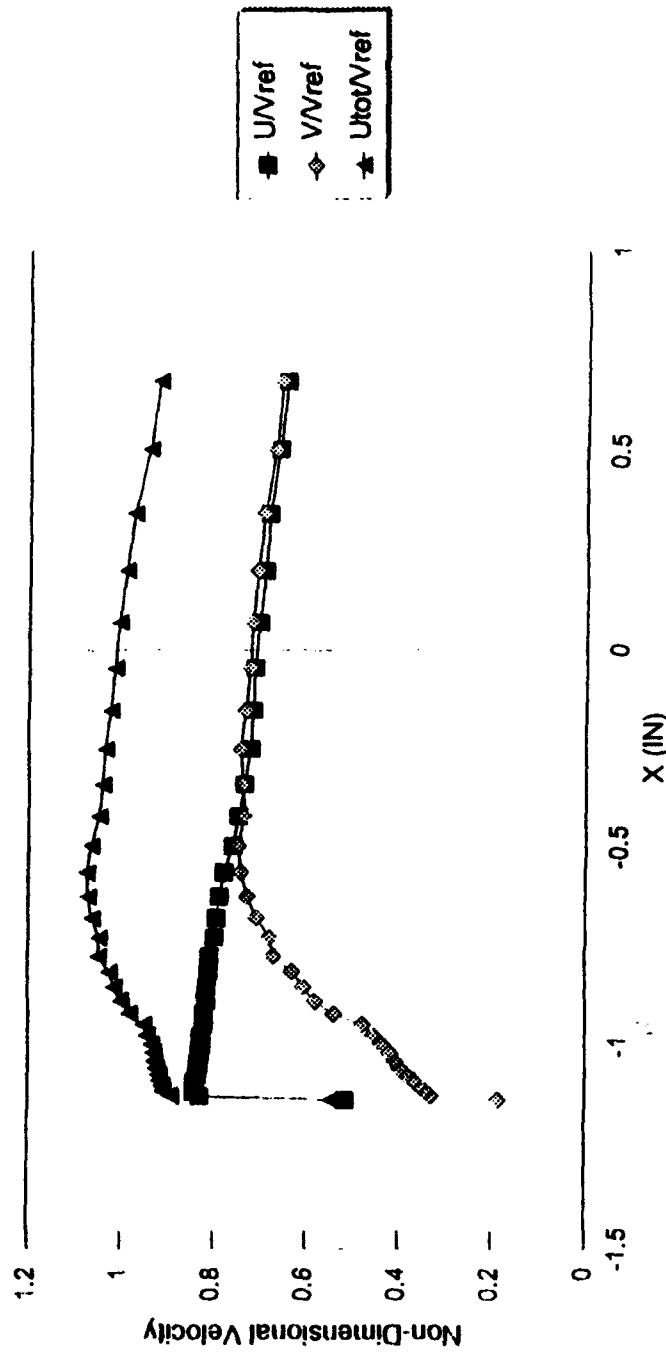


Figure 17. Survey at Station 2A

MEAN VELOCITY ST.2B

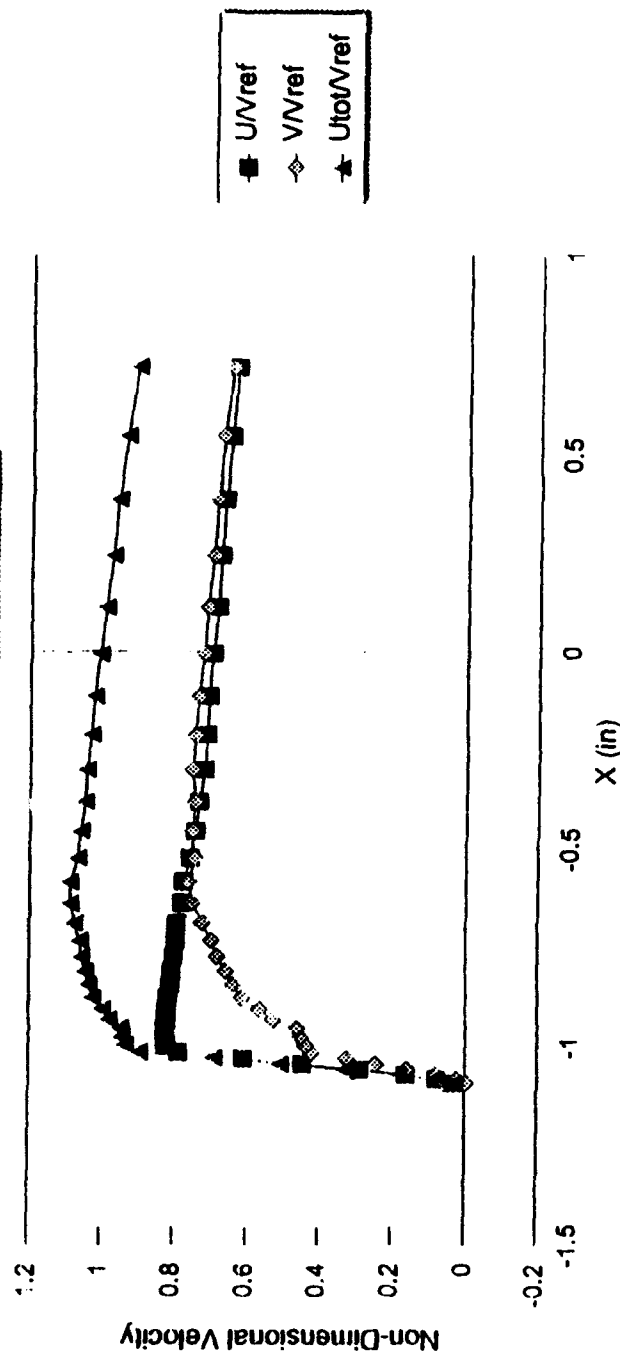


Figure 18. Survey at Station 2B

MEAN VELOCITY ST.3

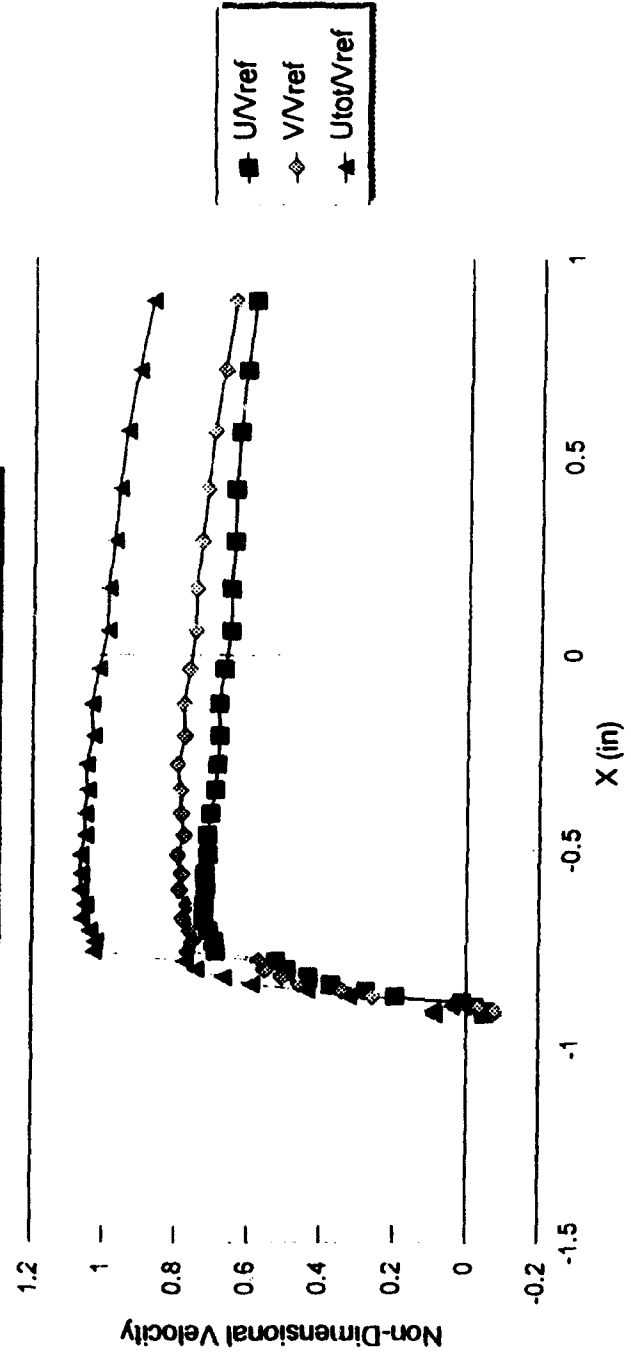


Figure 19. Survey at Station 3

MEAN VELOCITY ST.4

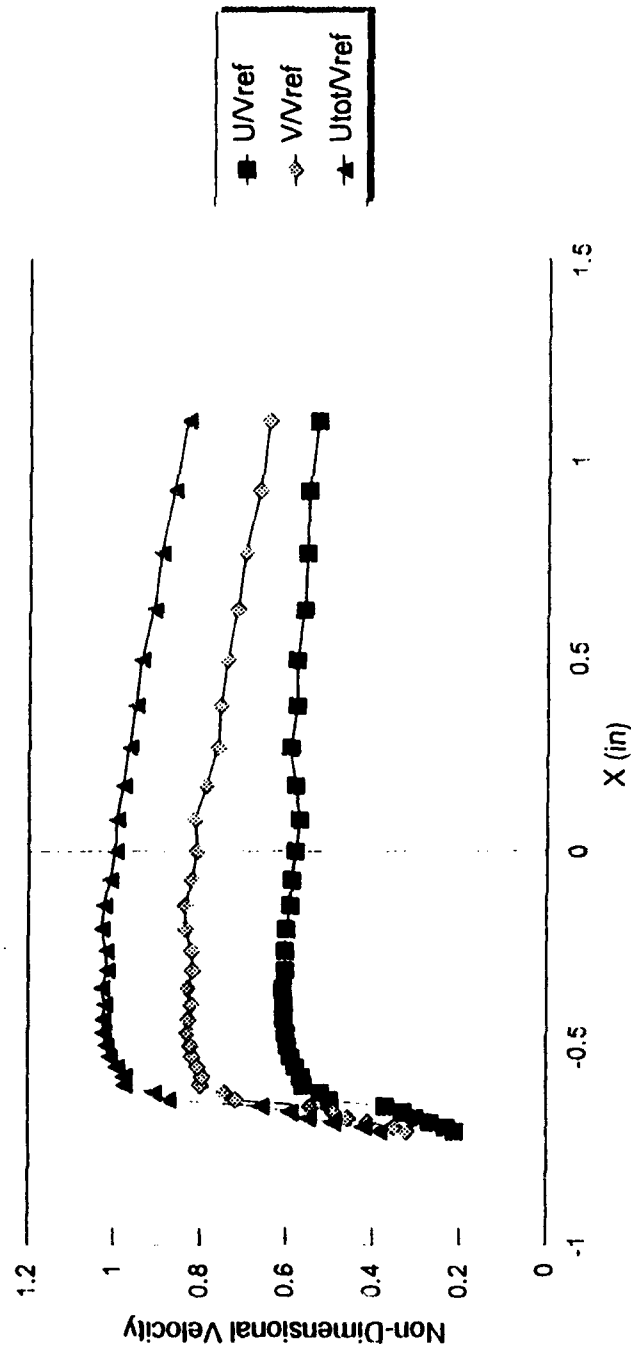


Figure 20. Survey at Station 4

MEAN VELOCITY ST.5

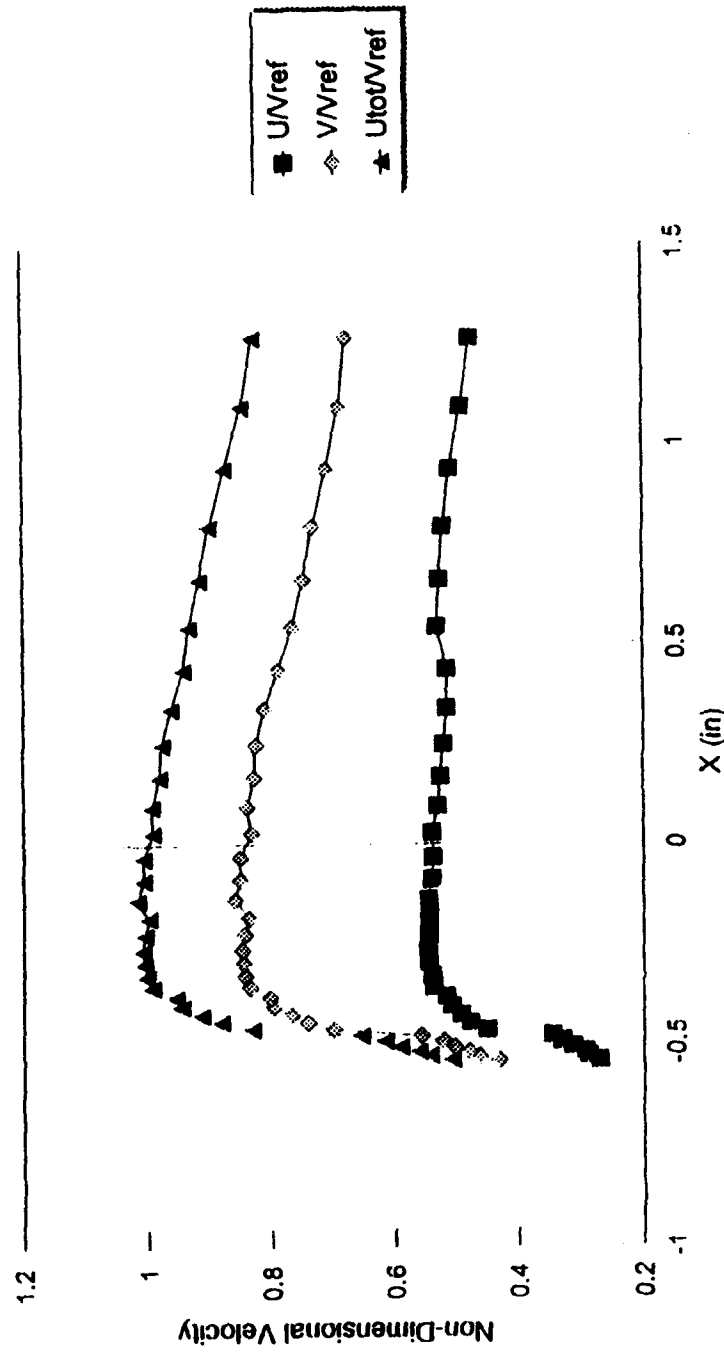


Figure 21. Survey at Station 5

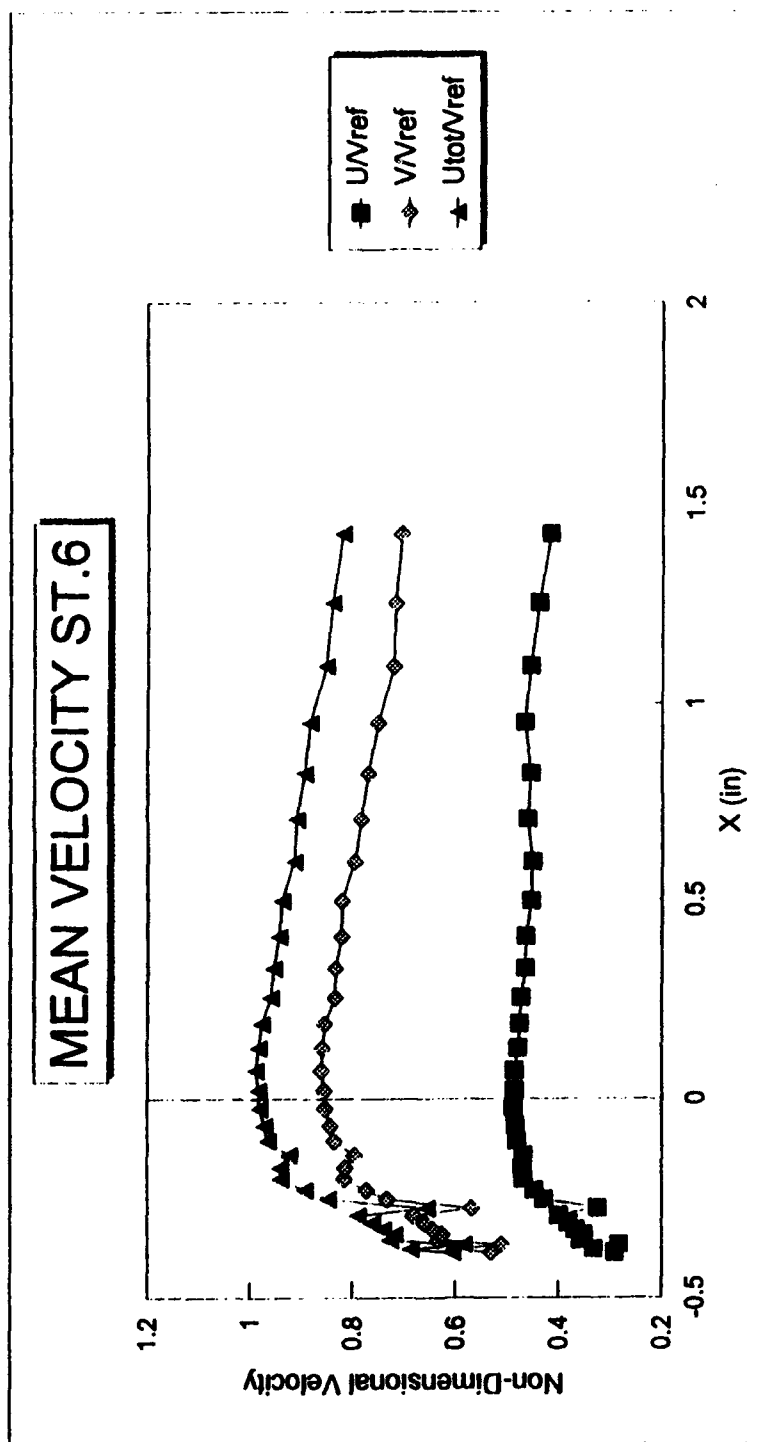


Figure 22. Survey at Station 6

MEAN VELOCITY ST.7

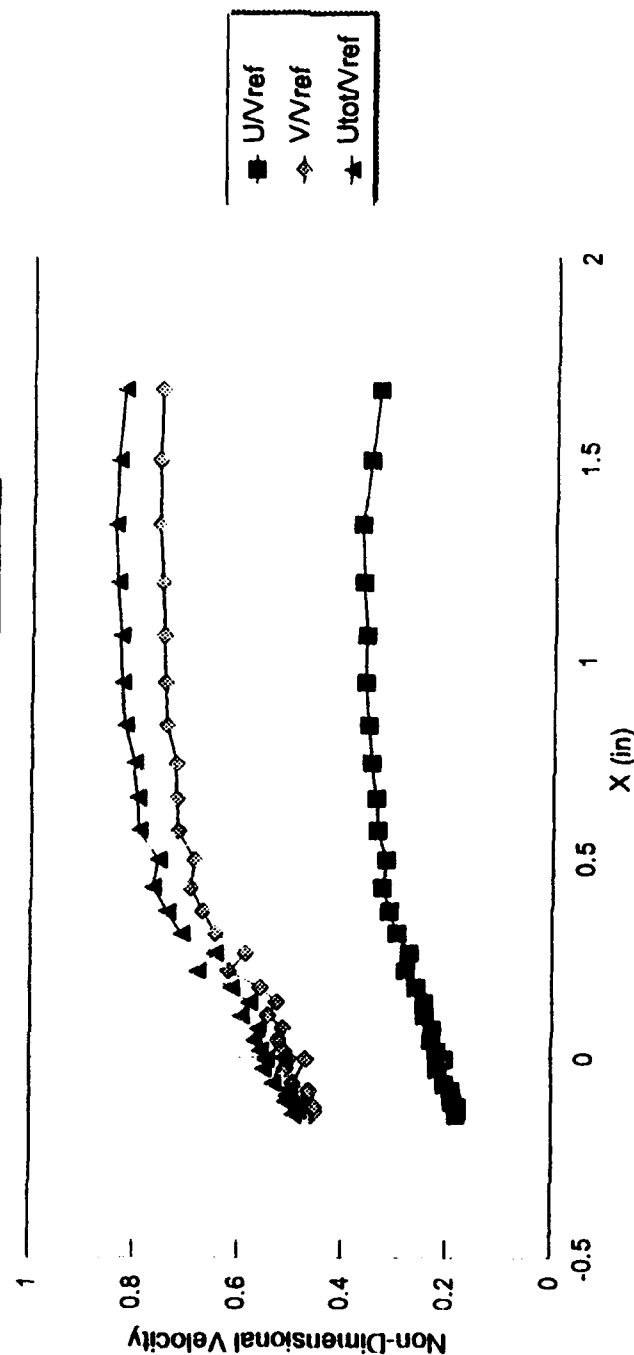


Figure 23. Survey at Station 7

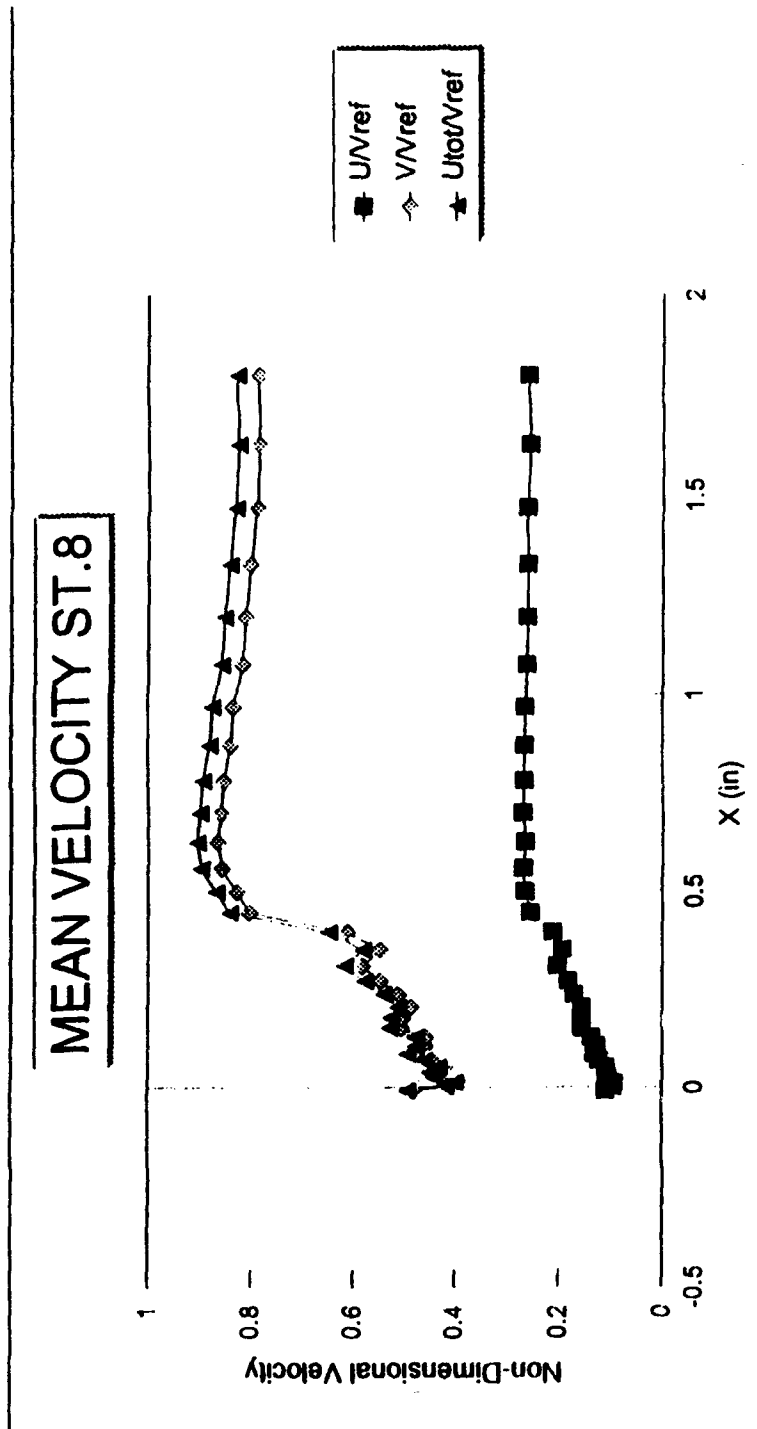


Figure 24. Survey at Station 8

MEAN VELOCITY ST.9

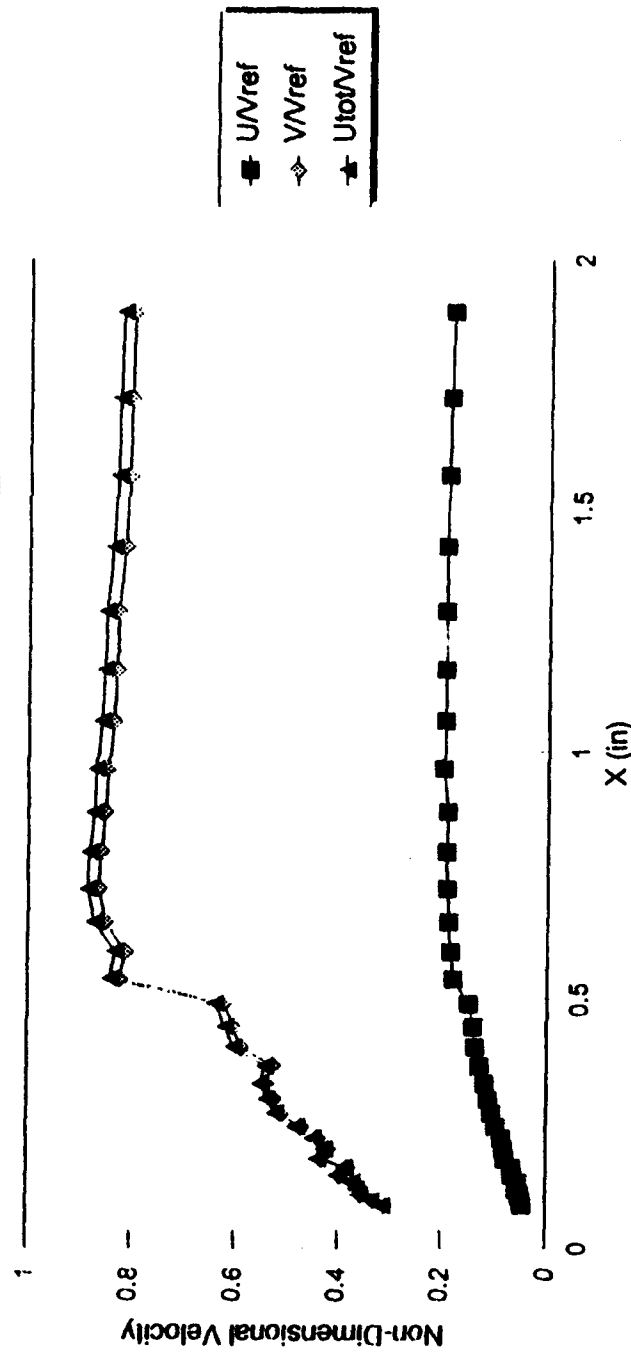


Figure 25. Survey at Station 9

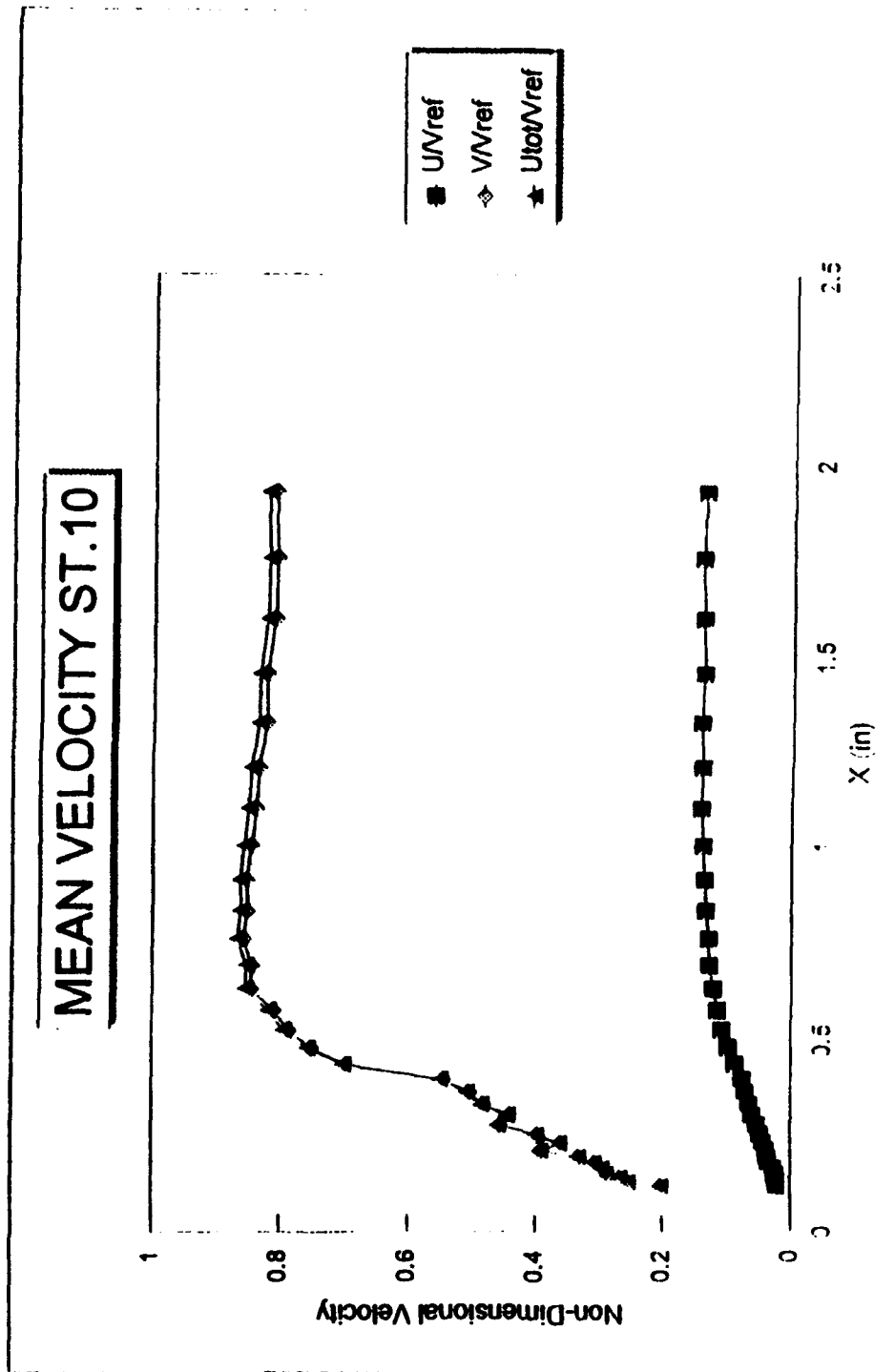


Figure 26. Survey at Station 10

MEAN VELOCITY ST.11

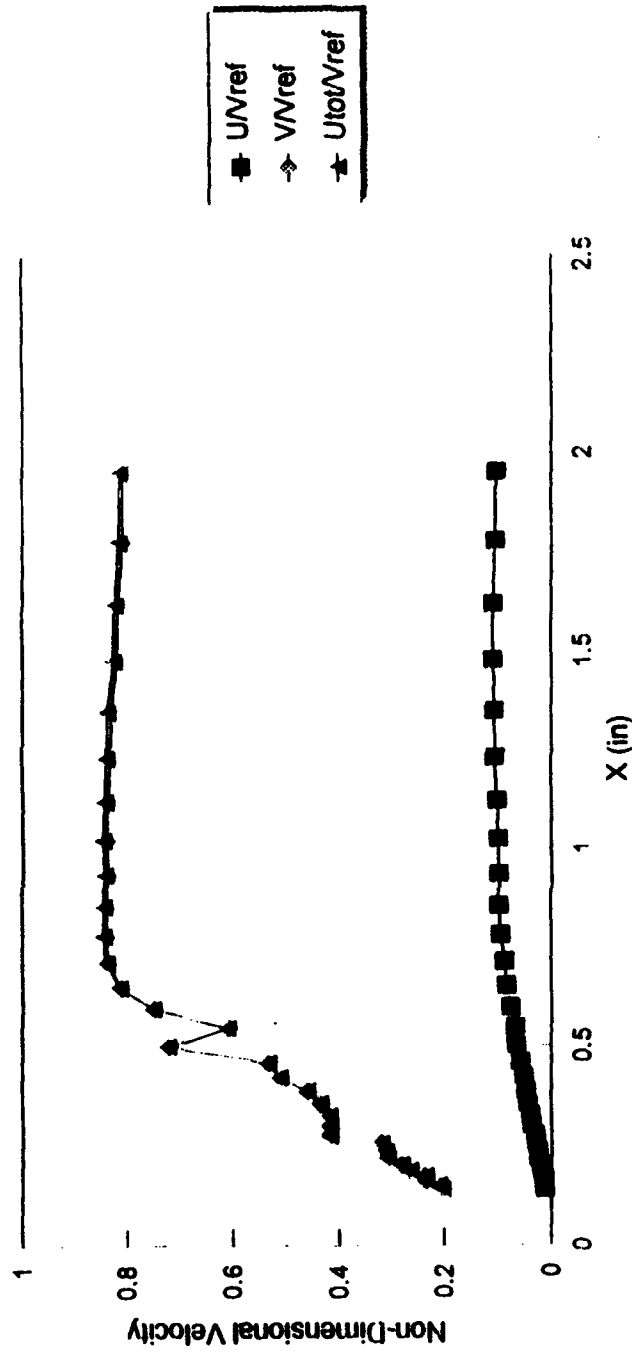


Figure 27. Survey at Station 11

MEAN VELOCITY ST.12

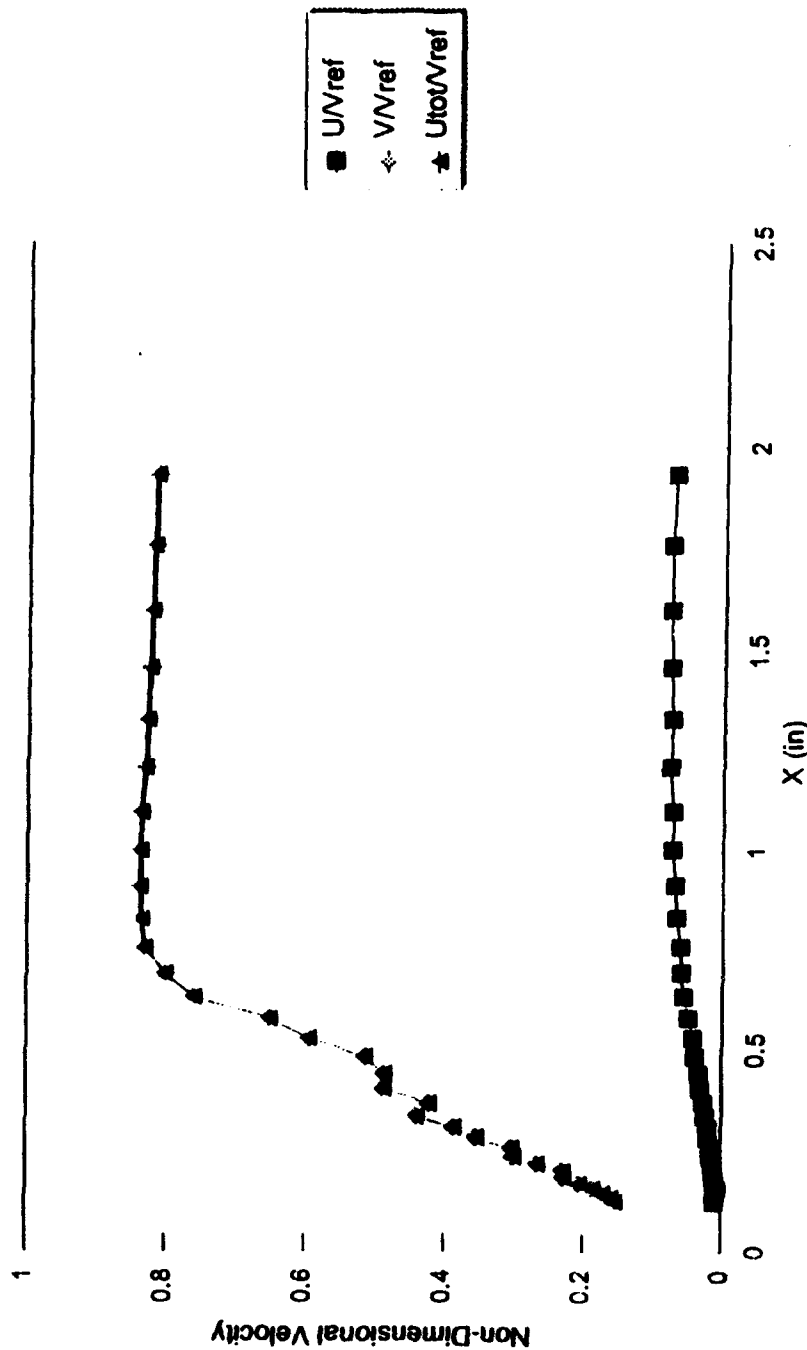


Figure 28. Survey at Station 12

MEAN VELOCITY ST.13

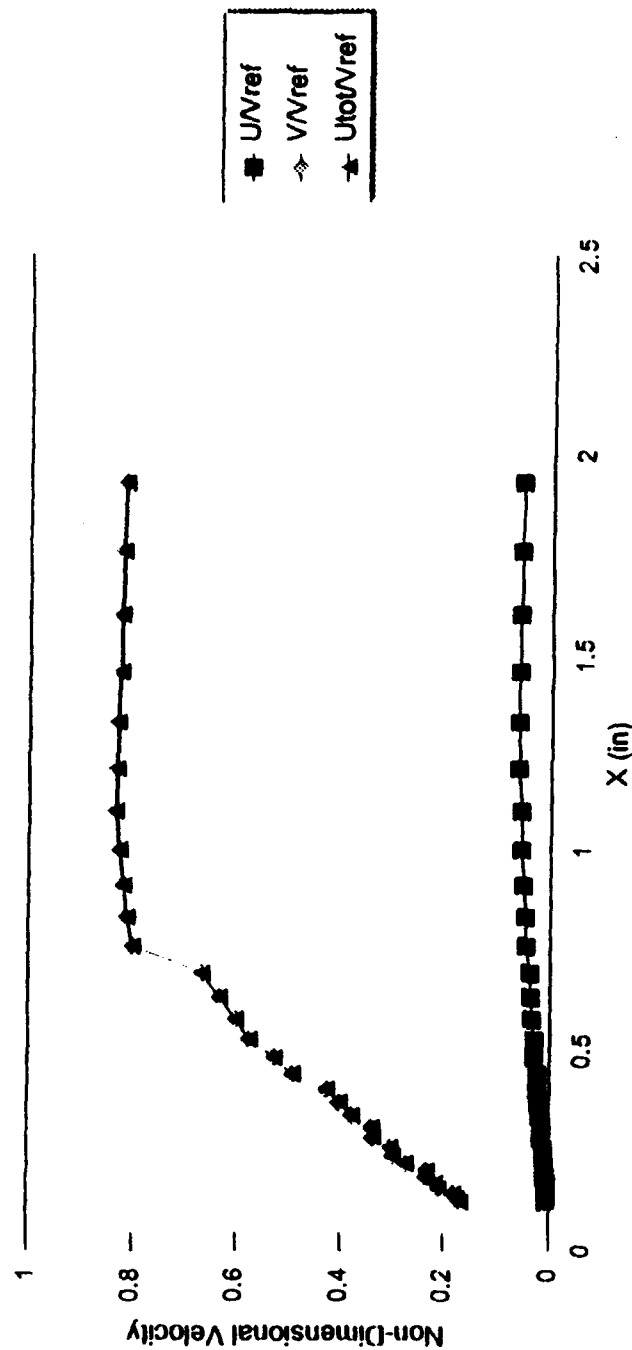


Figure 29. Survey at Station 13

MEAN VELOCITY ST.14

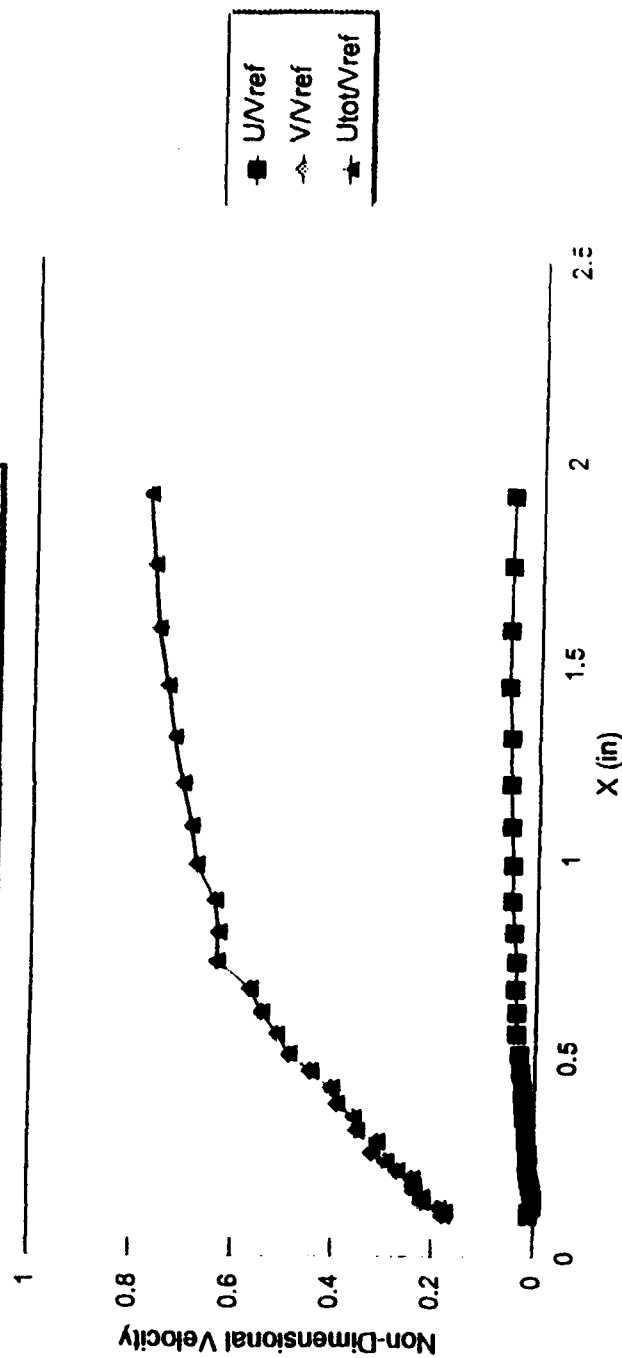


Figure 30. Survey at Station 14

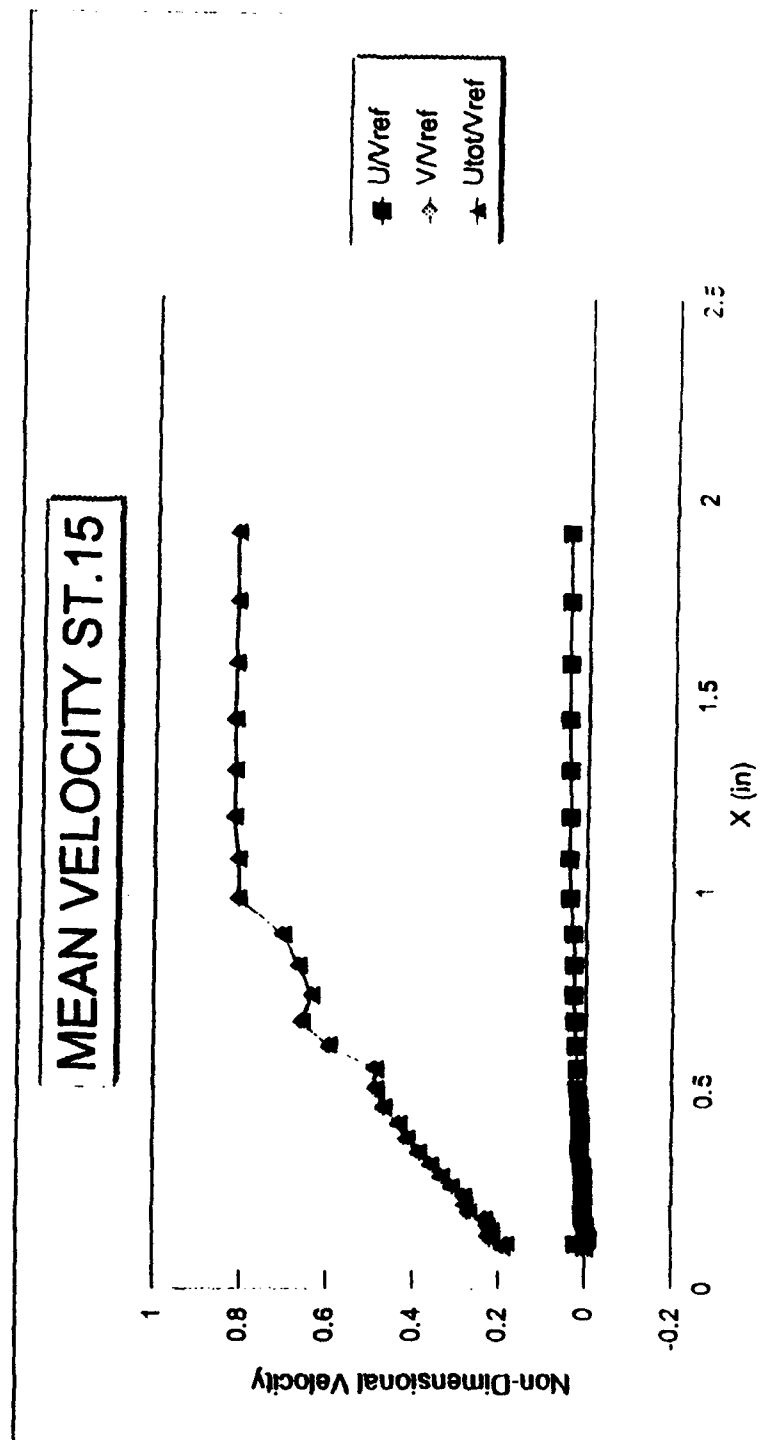


Figure 31. Survey at Station 15

It can be seen in Appendix B that for each station all the histograms to the left of the discontinuity had negative and positive velocities and the histograms to the right of the discontinuity had only positive velocities.

D. WAKE SURVEYS (STATIONS 16 THROUGH 19)

Figure 32 through 34 show the horizontal (U) and vertical (V) velocity components and the total velocity (U_{tot}) distributions through the wakes at the exit of the cascade. Like the other surveys, each point in these plots represents a histogram of 3000 data points which were analyzed at plus and minus two standard deviations. The ones that delimited positive from negative velocities for each station are printed in Appendix C. Two features are evident in these plots; firstly, the width of the wake increased from station 16 to 19, and secondly, the region of intermittent reverse flow was within the wake on the suction side of the blade (to the left of the $X=0$ line for blade 6).

E. SUMMARY

Once all the histograms from each station were analyzed, the boundary of the region of intermittent reverse flow (last point of negative velocity at a station) was plotted for each station 2 through 19. This is shown in figure 36 with dotted lines. Also shown on this plot, with the solid line, is the region of reverse flow as determined by a negative mean velocity on the vertical component. This line represented the reverse flow region of the leading edge separation bubble which had been observed with flow visualization techniques. It was postulated that the reason reverse flow was measured in this region was because the flow was unsteady and seed particles were entrained into the leading edge separation bubble. This was not possible at lower inlet air angles because the flow was relatively steady compared to the present study. Flow visualization also confirmed the two distinct regions of intermittent reverse flow, as shown by the two regions of dotted lines; the lower region being associated with the leading edge separation bubble and the upper region representing the turbulent separation that occurred aft of mid chord.

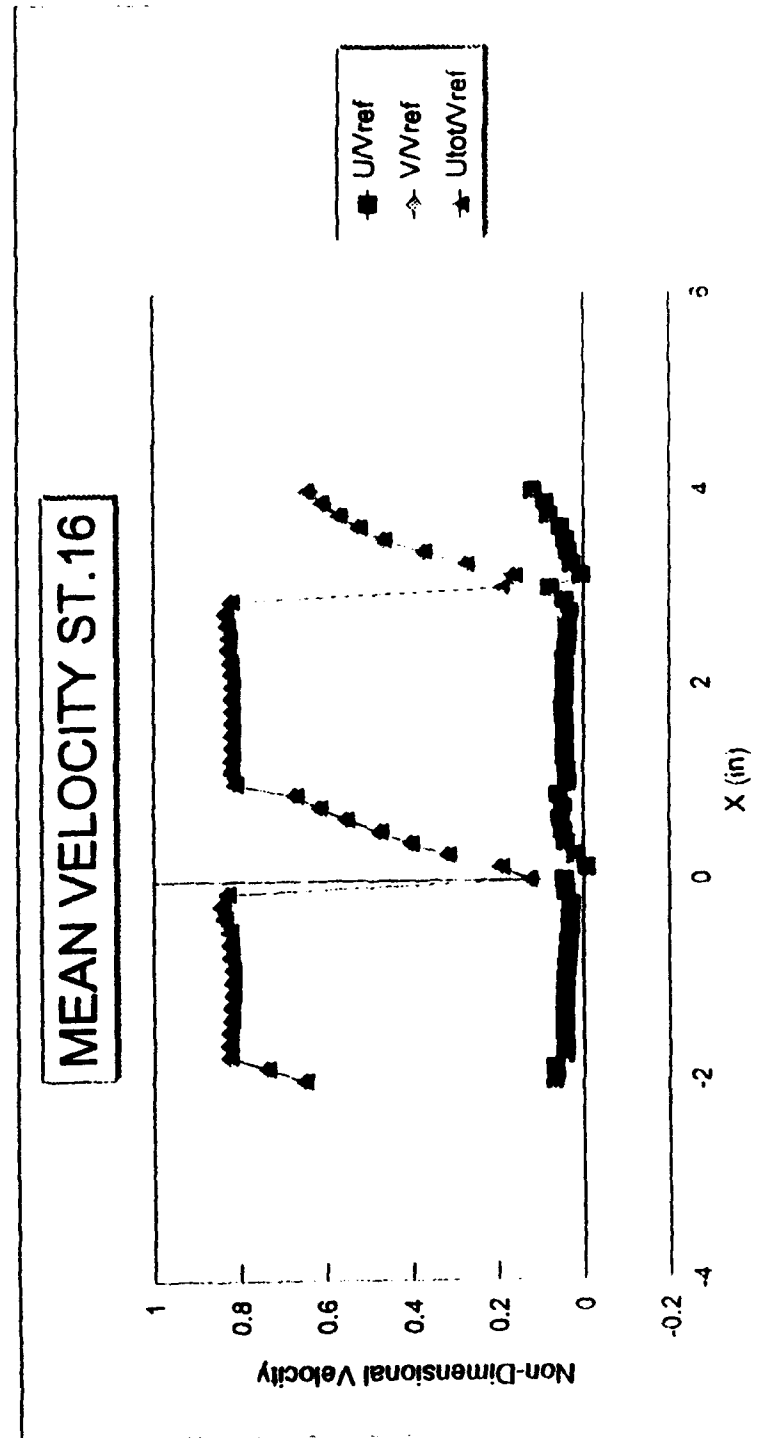


Figure 32. Survey at Station 16

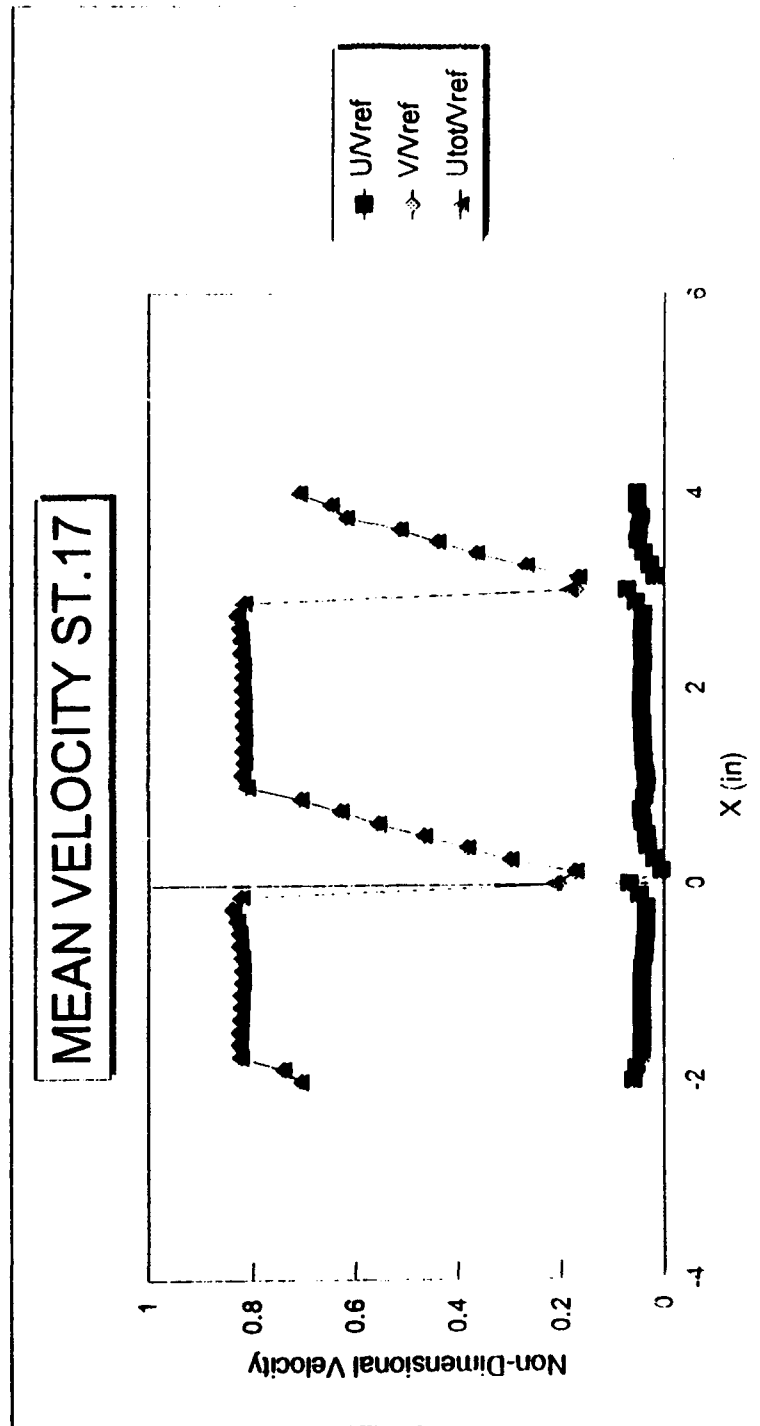


Figure 33. Survey at Station 17

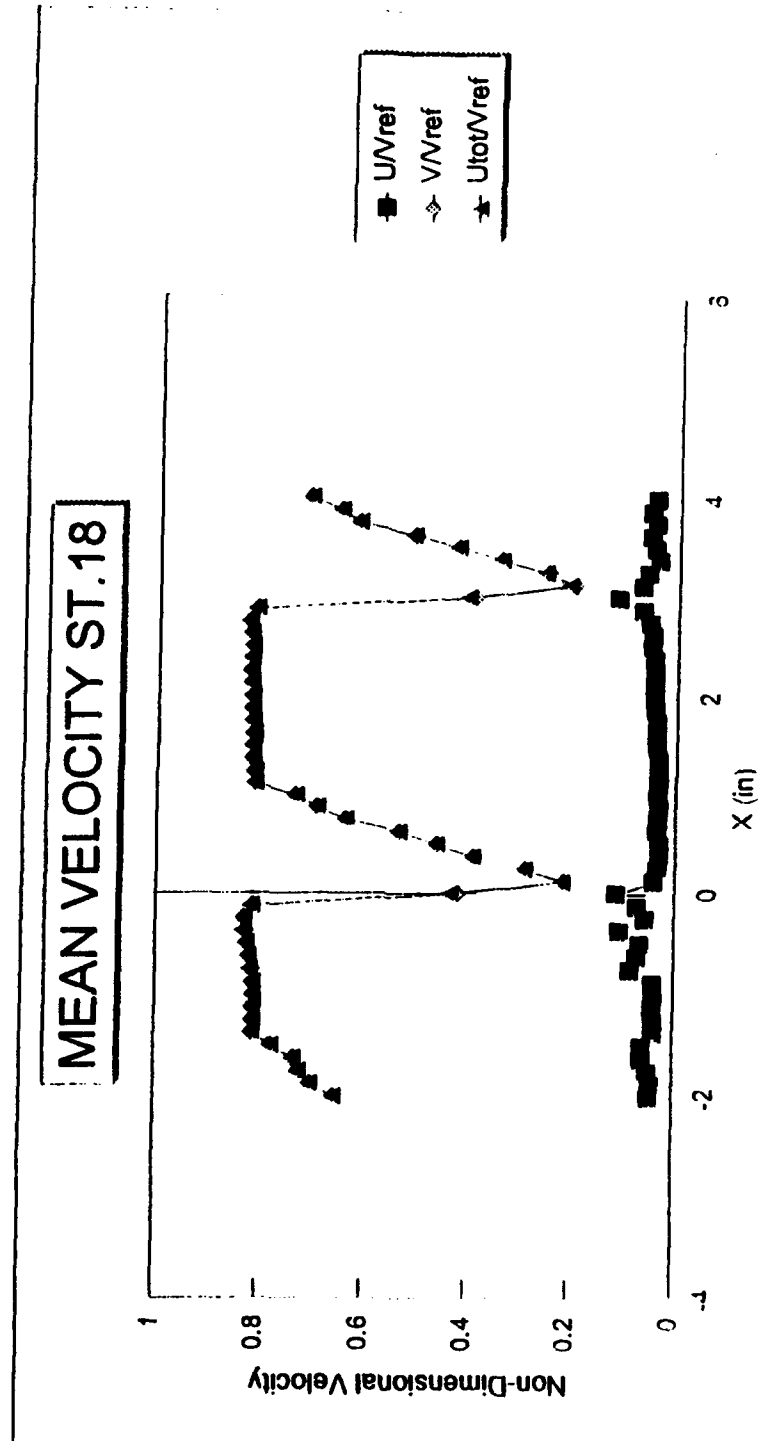


Figure 34. Survey at Station 18

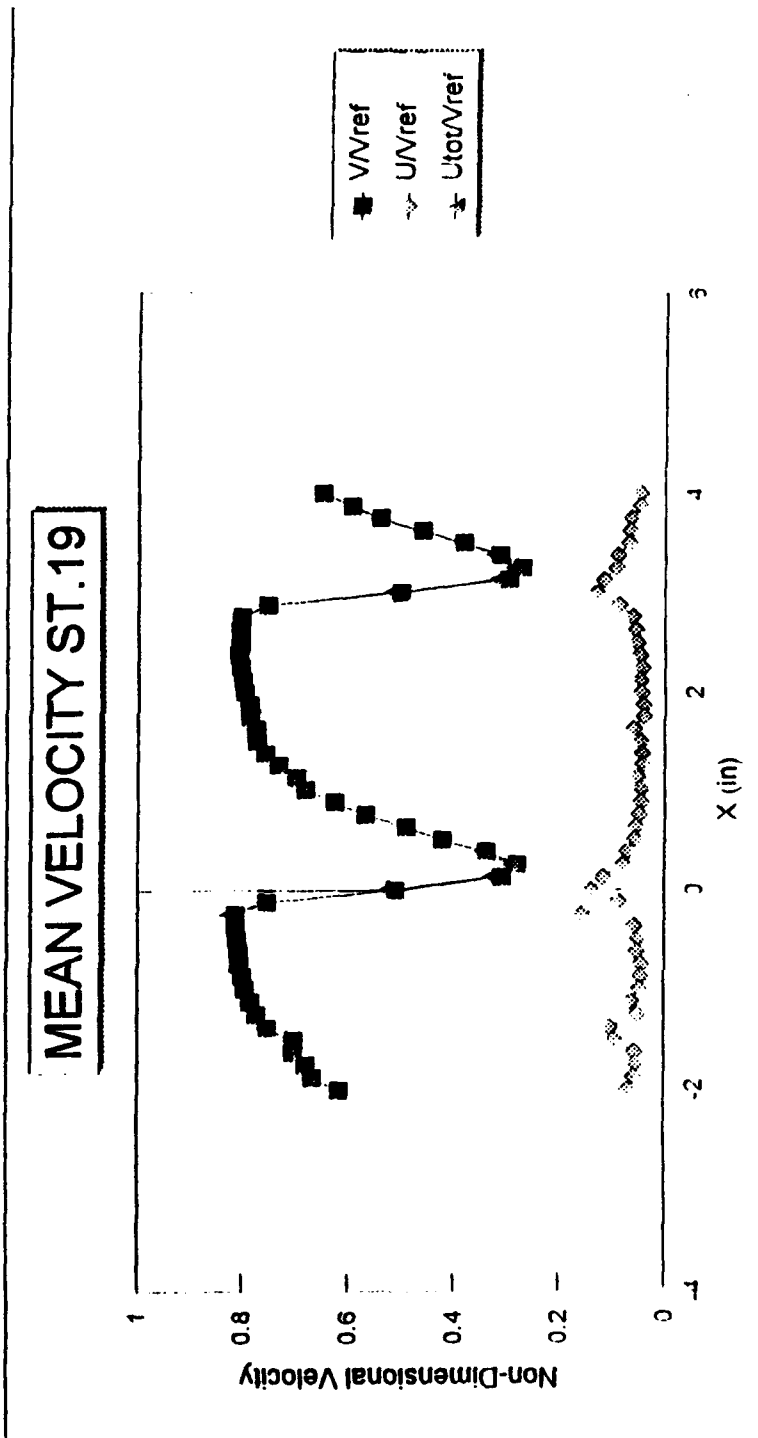


Figure 35. Survey at Station 19

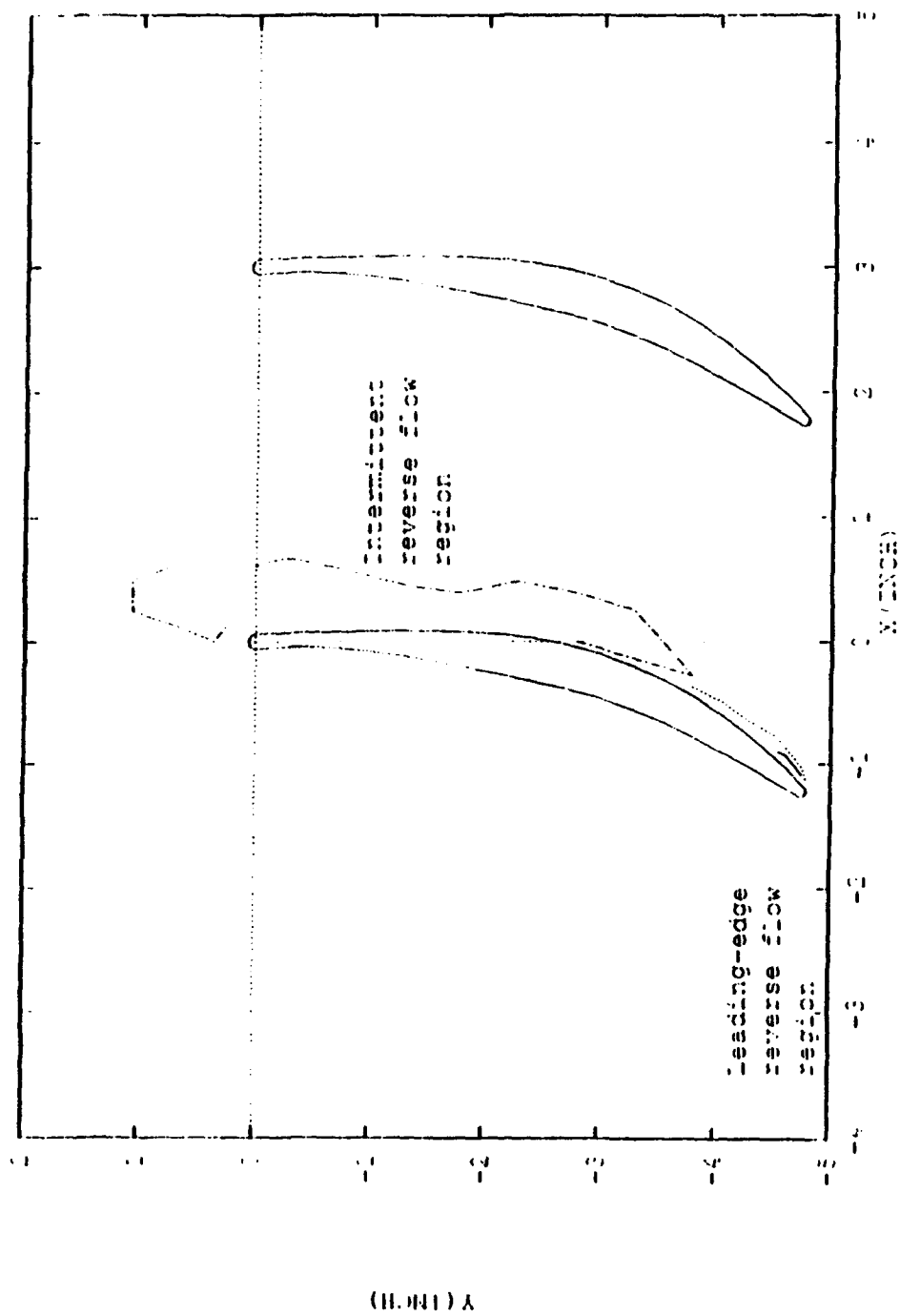


Figure 36. Reverse Flow Regions

More detailed surveys are needed between stations 6 and 7 to fully characterize the transition between these two regions.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The lack of experimental data of compressor cascades at or near stall has been somewhat alleviated with the current set of detailed measurements. The following specific conclusions can be drawn.

1. The controlled diffusion (CD) cascade was successfully stalled. This was confirmed with the blade surface pressure measurements, which showed that for 50 degrees the normal force on the blade had decreased. Flow visualization techniques (both tufting and laser sheet with fog or smoke) also confirmed that the blades had stalled.
2. It was possible to measure both mean reverse flow and intermittent reverse flow with the LDV. With the appropriate use of frequency shifting it was possible to do these measurements with the certainty that the results from the histograms were correctly representing negative or positive velocities.
3. The regions of reverse flow were plotted. With the information obtained from each histogram at each station it was possible to plot regions of intermittent reverse flow and also a region of leading-edge reverse flow.
4. It was possible to take LDV measurements inside the reverse flow region during the stalling process, which was unsteady.
5. The inlet-flow pitchwise surveys at an inlet air angle of 48 degrees compared very well with previous measurements.

B. RECOMMENDATIONS

The following specific recommendations for further measurements at the 50 degrees inlet-air angle setting are proposed;

1. More detailed measurements should be taken in the leading edge separation bubble region (station 2 to 4).
2. More detailed measurements should be taken between stations 6 and 8 to further characterize the region of forward and intermittent reverse flow.
3. Detailed measurements are needed between stations 15 and 16 to determine the trailing edge base flow region.
4. Pressure side passage surveys are also needed.
5. Measurements away from mid span are needed to determine the degree of two dimensionality of the flow.

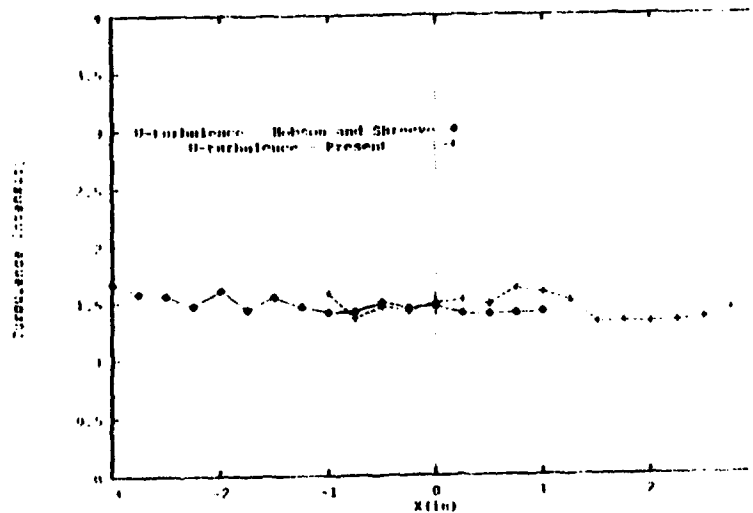
Blade surface pressure measurements at approximately 49 degrees inlet air angle are also needed to determine the maximum blade loading condition.

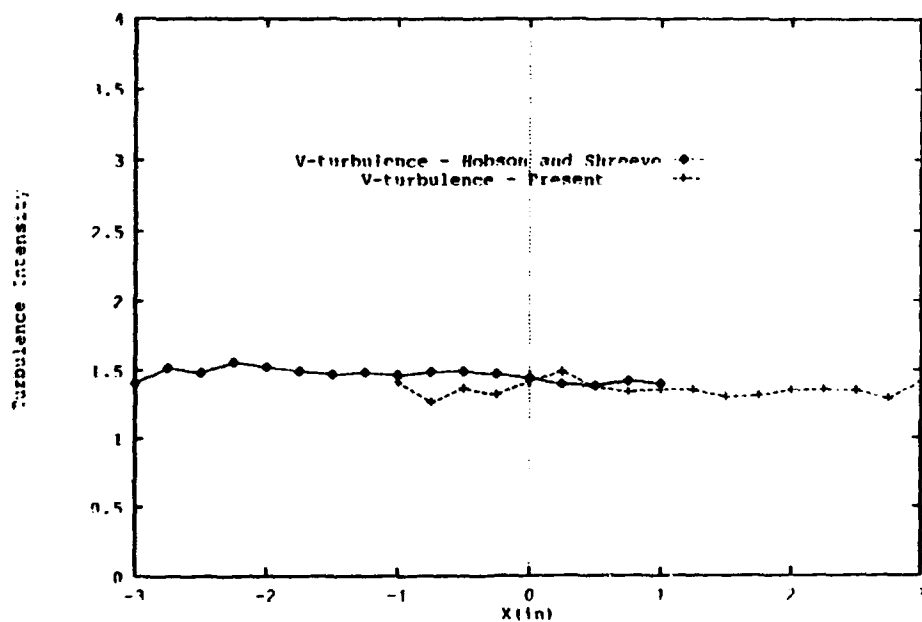
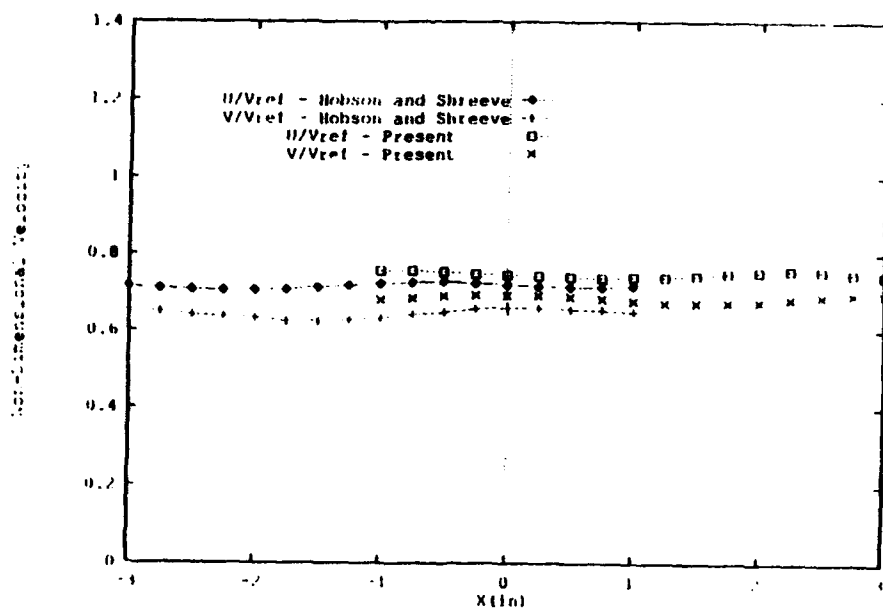
VI APPENDICES

A. INLET SURVEYS AT 48 DEGREES (STATIONS 1 THROUGH 1E)

Pitchwise survey at station 1

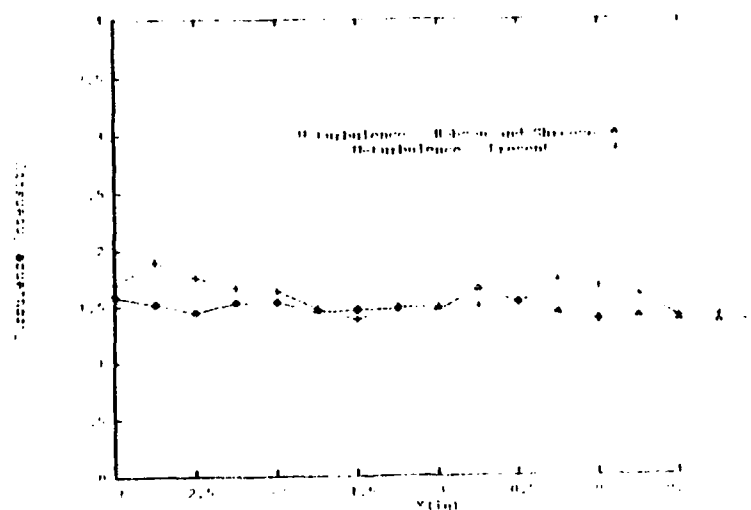
X(i)	Y(i)	U/Vref	V/Vref	U-turb refer	V-turb refer	Reynolds Stress	Correl. Coeff.
3	-6.292	0.74138	0.692654	1.463915	1.413083	0.067128	0.046882
2.75	-6.292	0.746466	0.692364	1.416979	1.283615	0.085471	0.06789
2.4999	-6.292	0.753923	0.688168	1.334609	1.346387	0.042565	0.034223
2.2499	-6.292	0.756578	0.682245	1.311649	1.348866	0.05643	0.04608
2	-6.292	0.753071	0.674006	1.300756	1.348572	0.017453	0.014374
1.75	-6.292	0.748567	0.67201	1.31101	1.306448	0.059379	0.050087
1.5	-6.292	0.742543	0.671287	1.303482	1.298236	0.043573	0.0372
1.25	-6.292	0.738081	0.670637	1.501345	1.348765	0.127392	0.090889
1	-6.292	0.738915	0.676326	1.574865	1.353234	0.120067	0.081395
0.75	-6.2921	0.735438	0.680991	1.61169	1.334633	0.115111	0.077315
0.4999	-6.292	0.738607	0.687099	1.475767	1.369417	0.11728	0.083842
0.25	-6.292	0.741475	0.690215	1.509785	1.488283	0.056298	0.036198
-0.0001	-6.292	0.744766	0.690738	1.487172	1.414451	0.093394	0.064144
-0.2501	-6.292	0.746923	0.691276	1.409122	1.312934	0.002955	0.002307
-0.5001	-6.292	0.751832	0.688292	1.455245	1.362432	0.12184	0.088783
-0.75	-6.292	0.754739	0.683108	1.350538	1.25881	0.110055	0.093525
-1	-6.292	0.755148	0.678992	1.576743	1.411971	0.074725	0.048492

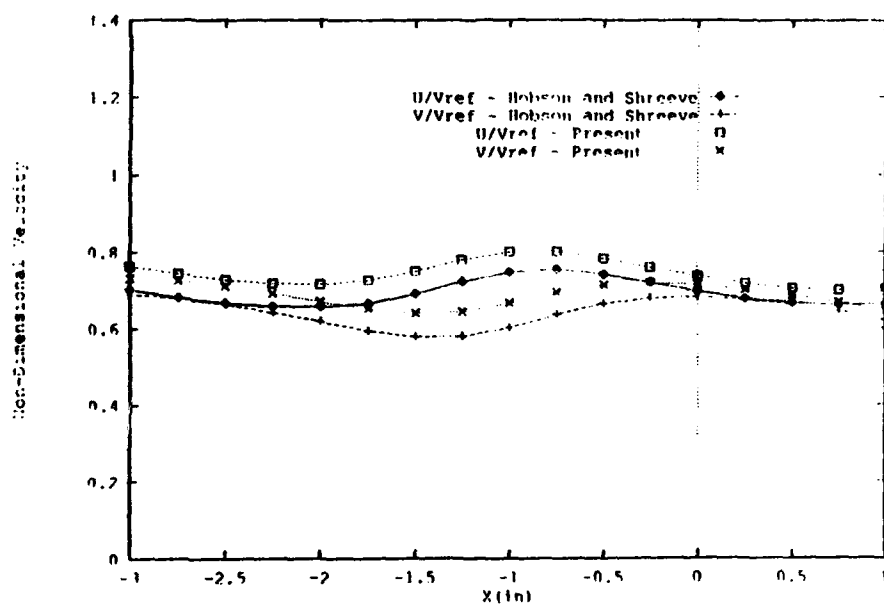
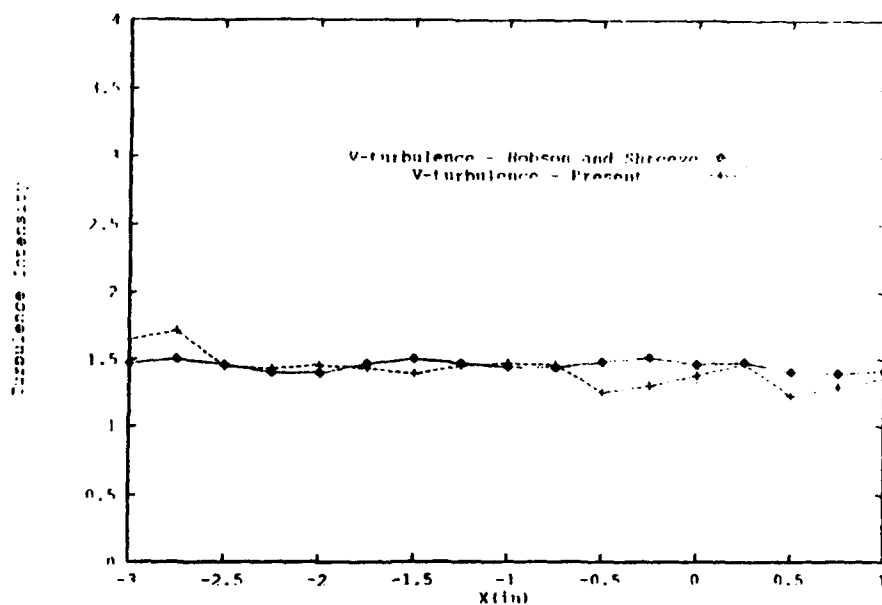




Pitchwise survey at station 1a

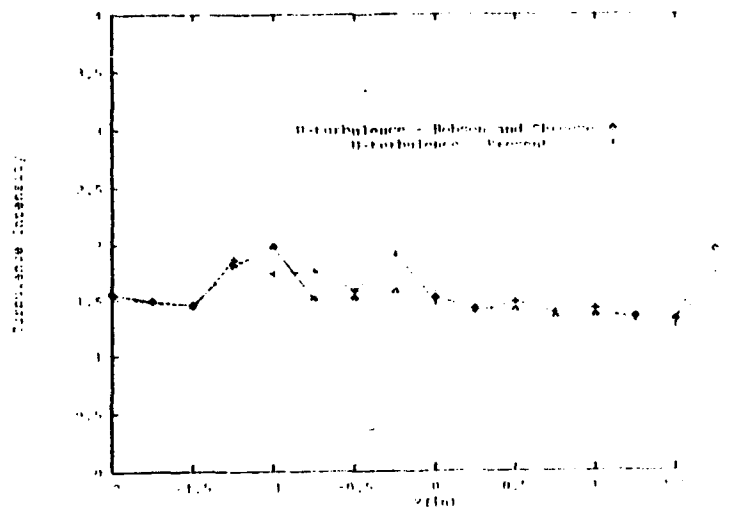
X(i)	Y(i)	U/Vref	V/Vref	U-turb refer	V-turb refer	Reynolds Stress	Correl. Coeff.
1	-5.5	0.703738	0.644747	1.320592	1.353239	0.112141	0.092111
0.75	-5.5	0.700153	0.668084	1.394284	1.284097	0.127712	0.104707
0.5	-5.5	0.705206	0.687196	1.384214	1.217664	0.033909	0.029531
0.25	-5.5	0.718	0.702983	1.589035	1.464419	0.166871	0.105262
0	-5.5001	0.736945	0.71407	1.665003	1.373785	0.190951	0.122541
-0.2501	-5.5	0.758807	0.718859	1.72404	1.296312	-0.06843	-0.04495
-0.5	-5.5	0.782435	0.712994	1.508213	1.245929	0.064386	0.050296
-0.75	-5.5001	0.799708	0.693006	1.487321	1.454848	-0.00563	-0.00382
-1	-5.5	0.800899	0.666727	1.479869	1.467399	-0.00566	-0.00383
-1.25	-5.5	0.779457	0.642881	1.482129	1.449028	-0.00456	-0.00311
-1.5	-5.5	0.749275	0.638938	1.373295	1.386049	0.071845	0.055405
-1.7501	-5.5	0.726591	0.651752	1.472721	1.426907	0.126707	0.088507
-2	-5.5	0.716153	0.670346	1.632892	1.457935	0.164624	0.101506
-2.25	-5.5	0.718584	0.692819	1.663465	1.428475	0.146736	0.090645
-2.5001	-5.5	0.728194	0.711438	1.754875	1.446504	0.188347	0.108915
-2.7501	-5.5	0.744533	0.725975	1.892023	1.714723	0.139615	0.063169
-3	-5.5	0.763451	0.732077	1.694677	1.649282	0.01088	0.005714

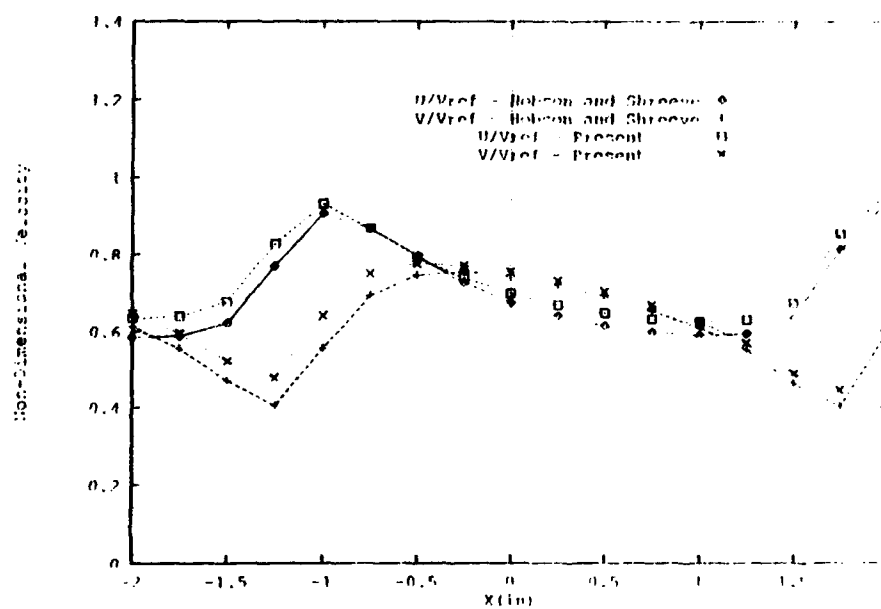
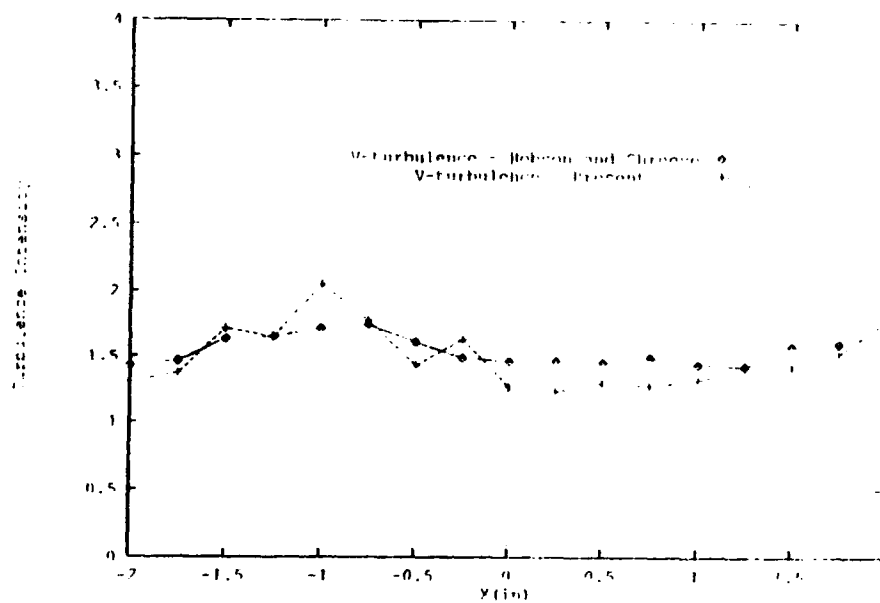




Pitchwise survey at station 1b

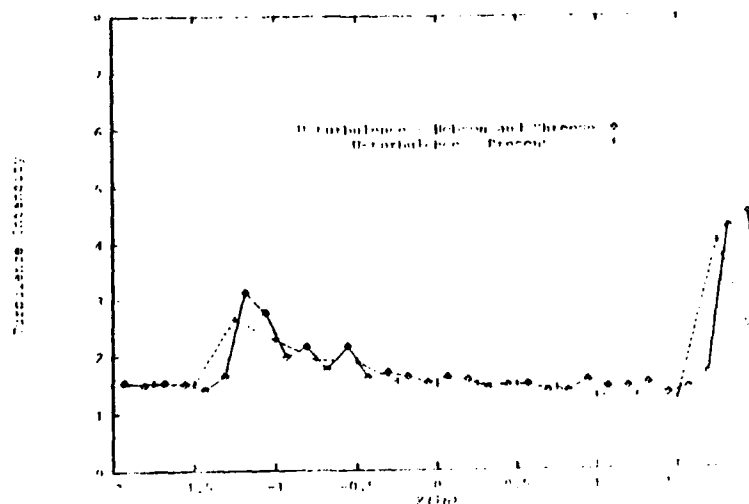
X(i)	Y(i)	U/Vref	V/Vref	U-turb refer	V-turb refer	Reynolds Stress	Correl. Coeff.
2	-5	0.958084	0.627842	1.607578	1.781224	0.096447	0.049347
1.75	-5	0.853672	0.444457	1.729976	1.526591	0.025728	0.014273
1.5	-5	0.673285	0.487715	1.244763	1.41887	0.117505	0.097474
1.25	-5	0.63042	0.569016	1.298135	1.408513	0.060343	0.048351
1	-5	0.624632	0.626094	1.413872	1.319718	0.113958	0.089479
0.75	-5	0.632516	0.669163	1.375078	1.271422	0.162005	0.135761
0.4999	-5.0001	0.647871	0.703524	1.474691	1.29333	0.197921	0.152035
0.25	-5	0.668768	0.730604	1.378618	1.227758	0.152697	0.132172
0	-5	0.699079	0.755237	1.472813	1.265611	0.154464	0.121407
-0.2501	-5	0.738667	0.770627	1.907636	1.633206	-0.02761	-0.01298
-0.5	-5	0.791511	0.77656	1.580932	1.429406	0.100471	0.065138
-0.75	-5	0.866611	0.750163	1.757226	1.776589	-0.29205	-0.13706
-1	-5	0.931505	0.641569	1.729945	2.052353	0.062178	0.025658
-1.25	-5	0.827388	0.477815	1.866588	1.647463	0.104234	0.04966
-1.5	-5	0.677658	0.521568	1.426295	1.718446	0.149499	0.089363
-1.75	-5	0.640081	0.594843	1.475752	1.367188	0.244467	0.177518
-2	-5	0.63561	0.646967	1.527771	1.302694	0.204851	0.1508





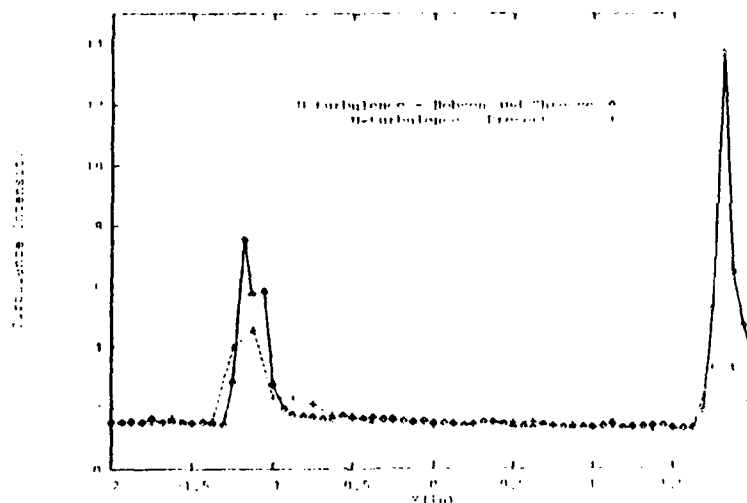
Pitchwise survey at station 1c

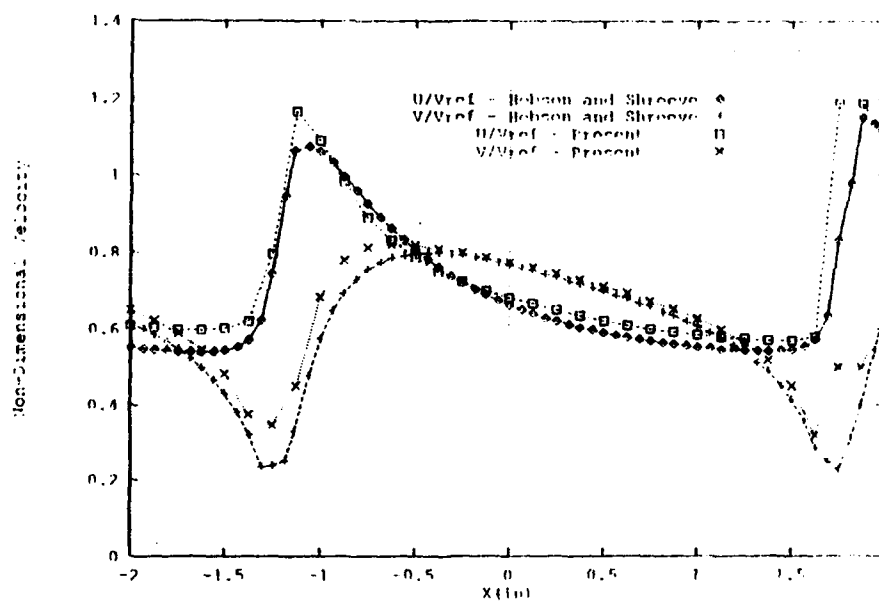
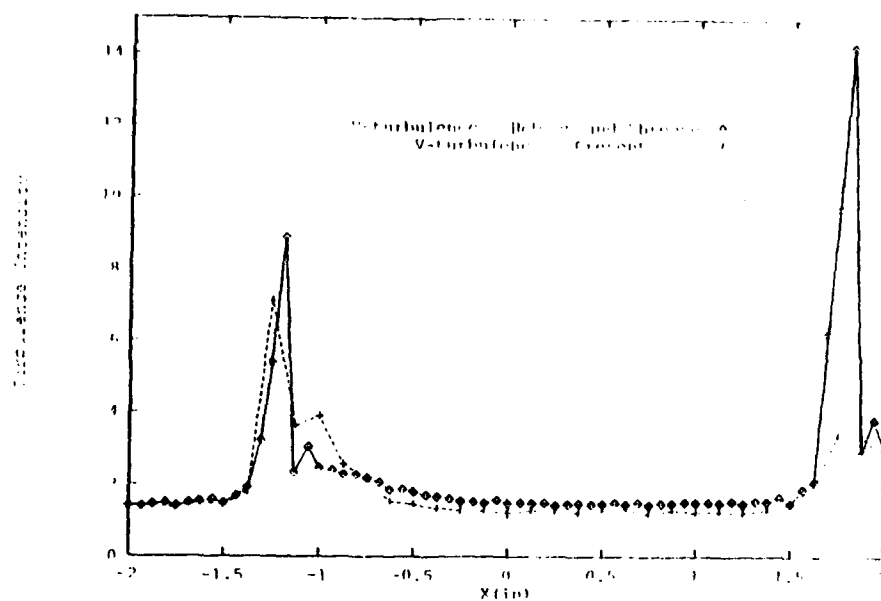
X(i)	Y(i)	U/Vref	V/Vref	U-turb refer	V-turb refer	Reynolds Stress	Correl. Coeff.
2	-4.896	1.032942	0.655777	1.95444	2.395522	0.309529	0.09653
1.75	-4.896	0.899393	0.305473	4.000105	4.453251	-3.537	-0.28991
1.5	-4.896	0.611193	0.452963	1.218652	1.492263	0.128289	0.103002
1.25	-4.896	0.592662	0.560462	1.266566	1.320667	0.138072	0.120522
1	-4.896	0.596724	0.621573	1.264895	1.247186	0.166161	0.15379
0.75	-4.896	0.609269	0.668145	1.407681	1.275609	0.15649	0.127247
0.4999	-4.896	0.626958	0.705764	1.471754	1.314726	0.242738	0.183168
0.25	-4.896	0.65313	0.733446	1.490103	1.267063	0.210081	0.162463
0	-4.896	0.685123	0.765836	1.481566	1.287087	0.121722	0.093201
-0.25	-4.896	0.726156	0.787	1.542182	1.306153	0.117827	0.085408
-0.5	-4.896	0.78884	0.799841	1.883499	1.530384	-0.03132	-0.01587
-0.75	-4.896	0.884321	0.784678	1.922391	2.078085	-0.77927	-0.28482
-1	-4.896	1.019106	0.655669	2.272077	3.191467	-0.67551	-0.13602
-1.25	-4.896	0.846569	0.34376	2.641355	2.621281	-0.66567	-0.14038
-1.5	-4.896	0.627775	0.48539	1.513604	1.485803	0.192735	0.125133
-1.75	-4.896	0.609753	0.585436	1.529772	1.327857	0.26045	0.18721
-2	-4.896	0.616697	0.645592	1.495324	1.342328	0.165122	0.120114



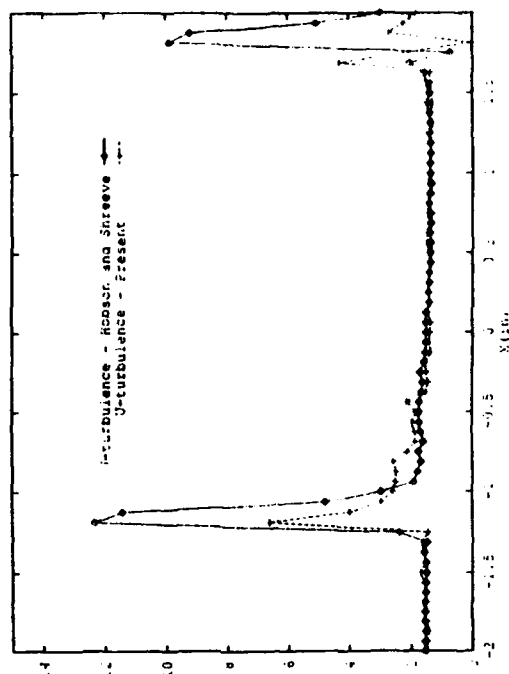
Pitchwise survey at station 1d

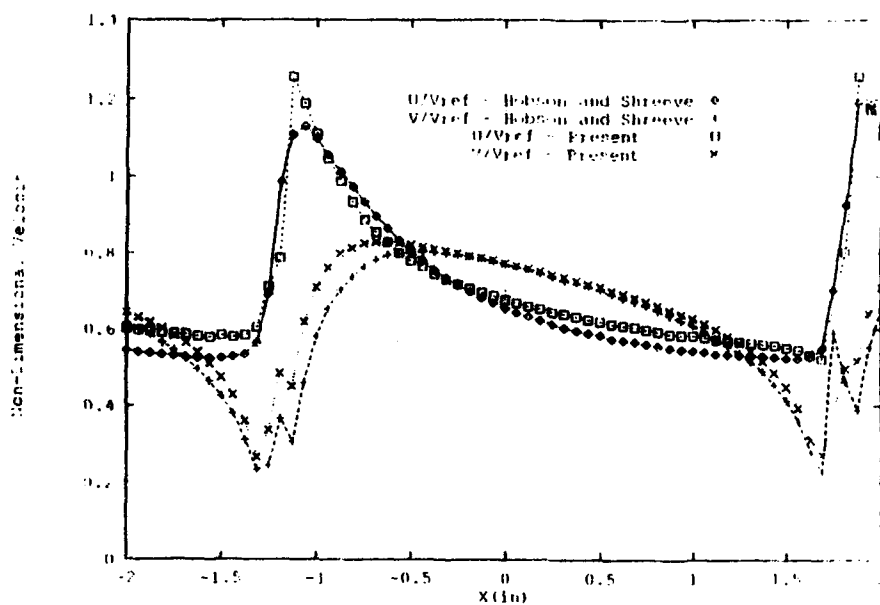
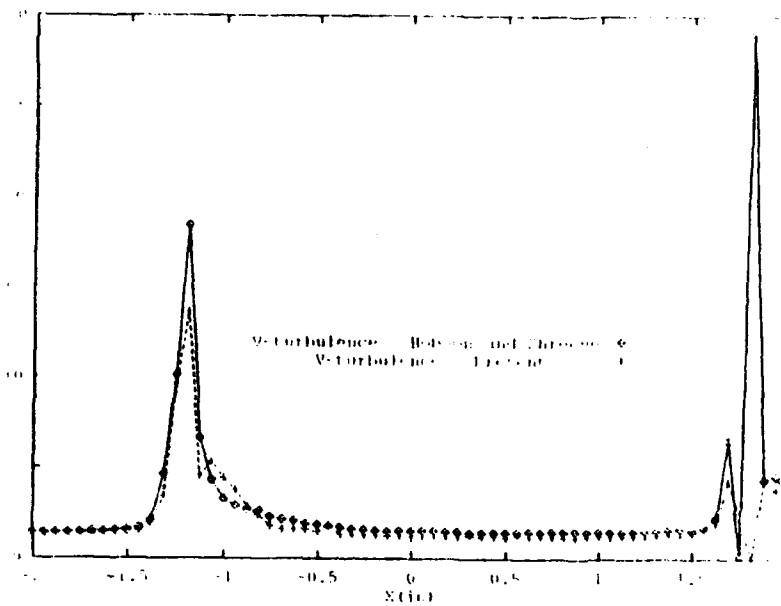
X(i)	Y(i)	U/Vref	V/Vref	U-turb refer	V-turb refer	Reynolds Stress	Correl. Coeff.
2	-4.844	1.07927	0.691071	1.70938	2.788001	0.175375	0.05373
1.875	-4.844	1.187167	0.497841	3.30138	3.384047	1.44019	0.188222
1.75	-4.844	1.187167	0.497841	3.30138	3.384047	1.44019	0.188222
1.625	-4.844	0.577508	0.318685	1.266654	1.977669	0.232642	0.135599
1.5	-4.844	0.568449	0.450118	1.300276	1.457942	0.132569	0.102105
1.375	-4.8441	0.569421	0.518367	1.247914	1.316408	0.125447	0.111498
1.25	-4.844	0.573569	0.563031	1.317631	1.238009	0.167099	0.149569
1.125	-4.844	0.577805	0.598154	1.354335	1.259156	0.17762	0.152079
1	-4.8441	0.58466	0.626691	1.316982	1.238104	0.177691	0.159115
0.875	-4.8441	0.591886	0.651528	1.421663	1.298462	0.20271	0.160336
0.75	-4.844	0.599771	0.672473	1.411686	1.197735	0.148799	0.128494
0.625	-4.844	0.609006	0.693352	1.542253	1.321696	0.154754	0.110851
0.5	-4.844	0.62082	0.711766	1.534475	1.310233	0.184049	0.133661
0.375	-4.844	0.63455	0.728728	1.519501	1.234516	0.170355	0.132599
0.2499	-4.844	0.649186	0.74463	1.482682	1.261745	0.127431	0.099457
0.125	-4.8441	0.66519	0.75998	1.454505	1.277603	0.122416	0.096185
0.0001	-4.844	0.680877	0.77378	1.423782	1.221272	0.16884	0.141775
-0.125	-4.844	0.699117	0.786315	1.466321	1.288817	0.18499	0.142925
-0.2501	-4.844	0.723446	0.799266	1.550707	1.289112	0.11641	0.085026
-0.3751	-4.844	0.748298	0.807987	1.524747	1.349774	0.108343	0.076864
-0.5	-4.844	0.78575	0.817583	1.755867	1.459877	0.037677	0.021461
-0.625	-4.844	0.829675	0.820534	1.750142	1.541152	0.114339	0.061895
-0.7501	-4.844	0.888058	0.812054	2.131969	2.158399	-0.63247	-0.20068
-0.875	-4.844	0.980107	0.778259	2.326029	2.584084	-1.17601	-0.28567
-1	-4.844	1.087523	0.683	2.355792	3.890212	-0.99661	-0.15878
-1.125	-4.844	1.164313	0.45077	4.517489	3.635272	2.47677	0.220208
-1.25	-4.844	0.795877	0.345364	3.956939	7.094027	-4.37986	-0.22782
-1.375	-4.844	0.619863	0.373951	1.557443	1.789111	0.141239	0.074009
-1.5	-4.844	0.601546	0.482327	1.528185	1.44206	0.223027	0.147768
-1.625	-4.844	0.597837	0.545238	1.65922	1.501836	0.200149	0.117276
-1.75	-4.844	0.598954	0.589662	1.510196	1.374525	0.216697	0.152423
-1.875	-4.844	0.60419	0.623358	1.480675	1.420208	0.258699	0.179625
-2	-4.844	0.608207	0.649622	1.460579	1.435412	0.215375	0.163921



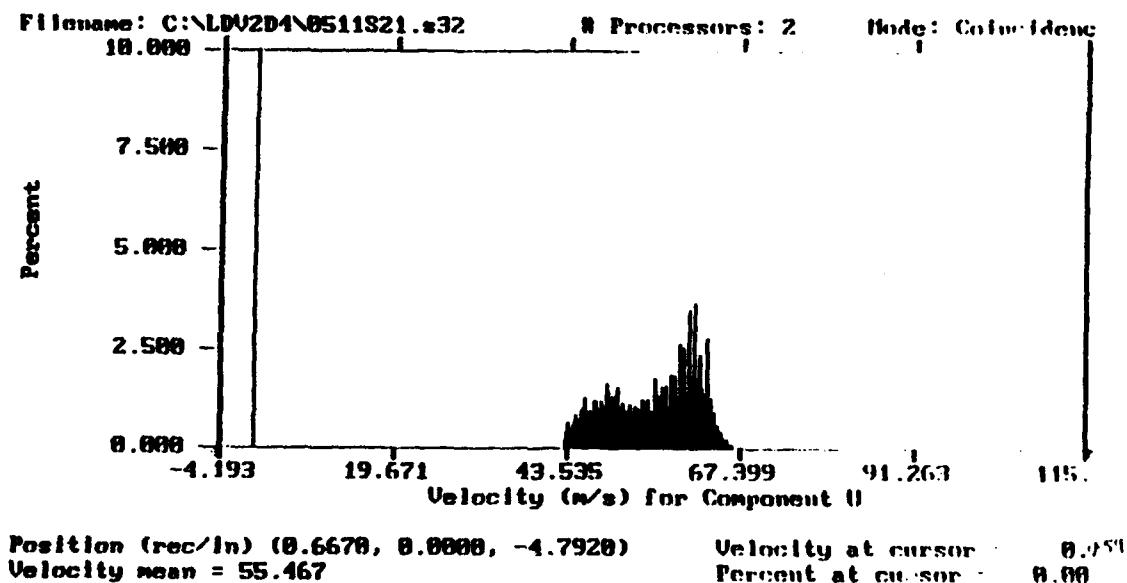
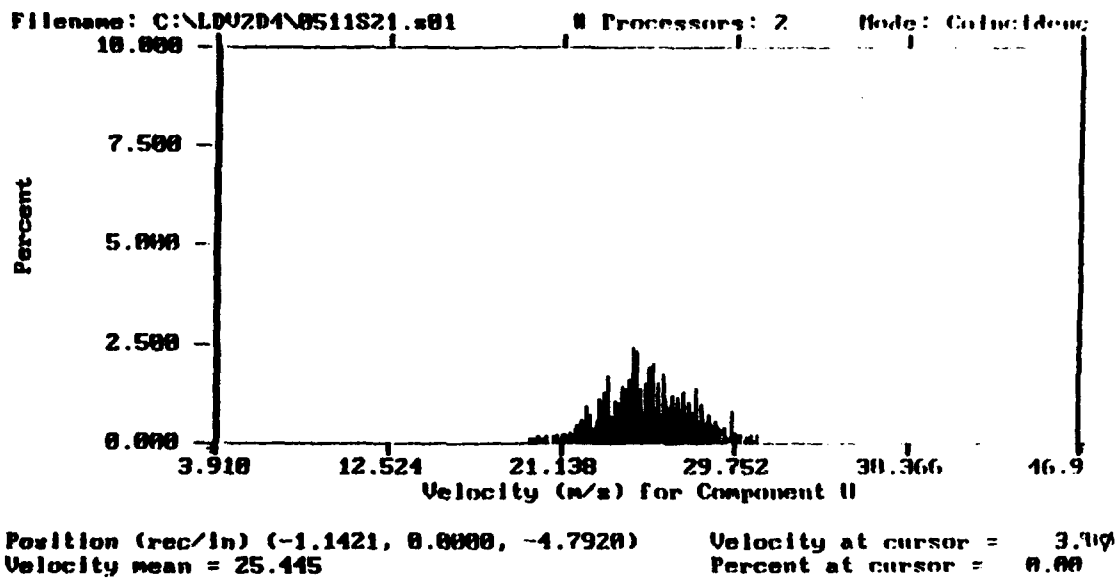


$\pi(i)$	$V(i)$	$D/Vref$	$V/Vref$	$D\text{-}turb$	$V\text{-}turb$	$Reynolds$	$CompL$
2	-0.0179	1.161894	7.10223	1.318643	1.318643	0.004909	0.037664
-0.0179	1.175764	0.640601	2.342492	1.318643	1.318643	1.21891	0.004909
-0.0179	1.246406	0.518292	2.693777	1.318643	1.318643	0.782596	0.009920
-0.0179	1.300374	0.488999	2.738139	1.318643	1.318643	0.48133	0.009920
-0.0179	1.349374	0.468999	2.738139	1.318643	1.318643	0.201923	0.009920
-0.0179	1.393966	0.453282	2.738139	1.318643	1.318643	0.121293	0.009920
-0.0179	1.434966	0.438999	2.738139	1.318643	1.318643	0.062500	0.009920
-0.0179	1.471966	0.424999	2.738139	1.318643	1.318643	0.037664	0.009920
-0.0179	1.506966	0.410999	2.738139	1.318643	1.318643	0.022917	0.009920
-0.0179	1.539966	0.396999	2.738139	1.318643	1.318643	0.018170	0.009920
-0.0179	1.571966	0.382999	2.738139	1.318643	1.318643	0.013423	0.009920
-0.0179	1.603966	0.368999	2.738139	1.318643	1.318643	0.008676	0.009920
-0.0179	1.635966	0.354999	2.738139	1.318643	1.318643	0.003929	0.009920
-0.0179	1.667966	0.340999	2.738139	1.318643	1.318643	0.001472	0.009920
-0.0179	1.699966	0.326999	2.738139	1.318643	1.318643	0.000923	0.009920
-0.0179	1.731966	0.312999	2.738139	1.318643	1.318643	0.000376	0.009920
-0.0179	1.763966	0.298999	2.738139	1.318643	1.318643	0.000129	0.009920
-0.0179	1.795966	0.284999	2.738139	1.318643	1.318643	0.000080	0.009920
-0.0179	1.827966	0.270999	2.738139	1.318643	1.318643	0.000031	0.009920
-0.0179	1.859966	0.256999	2.738139	1.318643	1.318643	0.000002	0.009920
-0.0179	1.891966	0.242999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	1.923966	0.228999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	1.955966	0.214999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	1.987966	0.200999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.019966	0.186999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.051966	0.172999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.083966	0.158999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.115966	0.144999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.147966	0.130999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.179966	0.116999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.211966	0.102999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.243966	0.088999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.275966	0.074999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.307966	0.060999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.339966	0.046999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.371966	0.032999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.403966	0.018999	2.738139	1.318643	1.318643	0.000000	0.009920
-0.0179	2.435966	0					

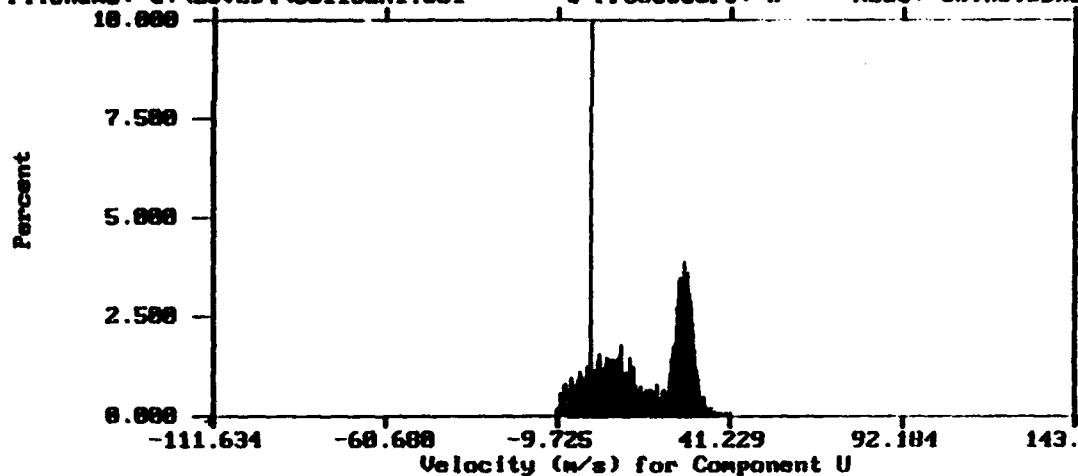




B. HISTOGRAMS FROM STATION 2 THROUGH 15 FOR 50 DEG



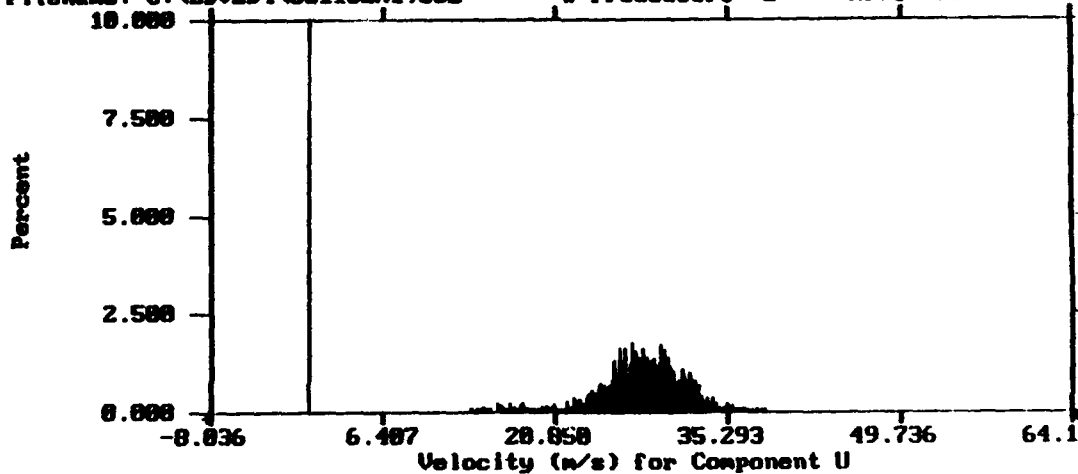
Filename: C:\LDV2D4\0511S2A1.s01 # Processors: 2 Mode: Coincidence



Position (rec/in) (-1.1331, 0.0000, -4.7906)
Velocity mean = 15.759

Velocity at cursor = -0.044
Percent at cursor = 0.98

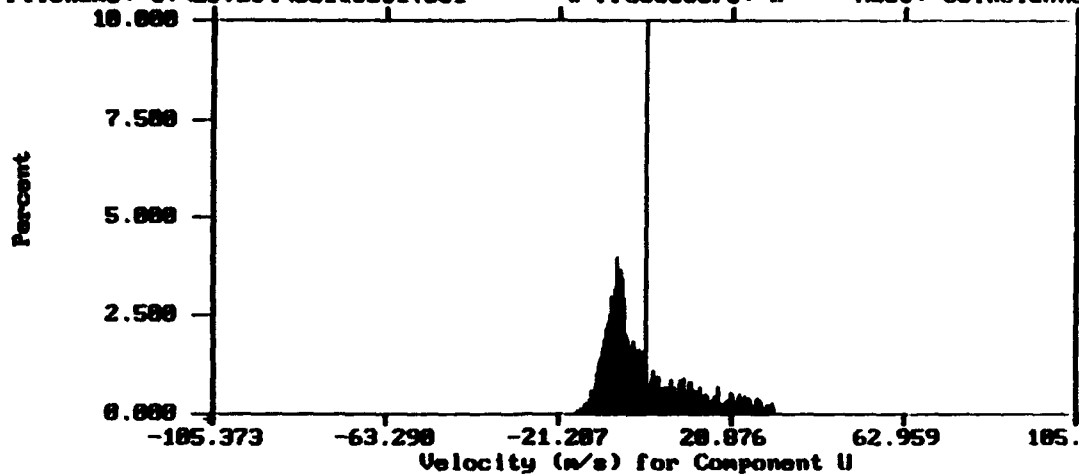
Filename: C:\LDV2D4\0511S2A1.s02 # Processors: 2 Mode: Coincidence



Position (rec/in) (-1.1233, 0.0000, -4.7905)
Velocity mean = 28.071

Velocity at cursor = -0.012
Percent at cursor = 0.00

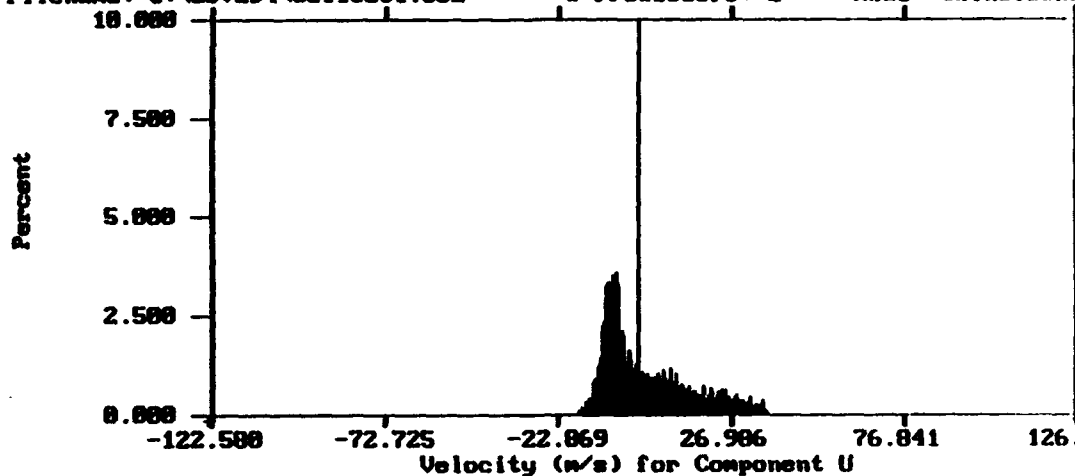
Filename: C:\LDU2D4\0511s2b1.s01 8 Processors: 2 Mode: Coincidence



Position (rec/in) (-1.0928, 0.0000, -4.7500)
Velocity mean = -0.164

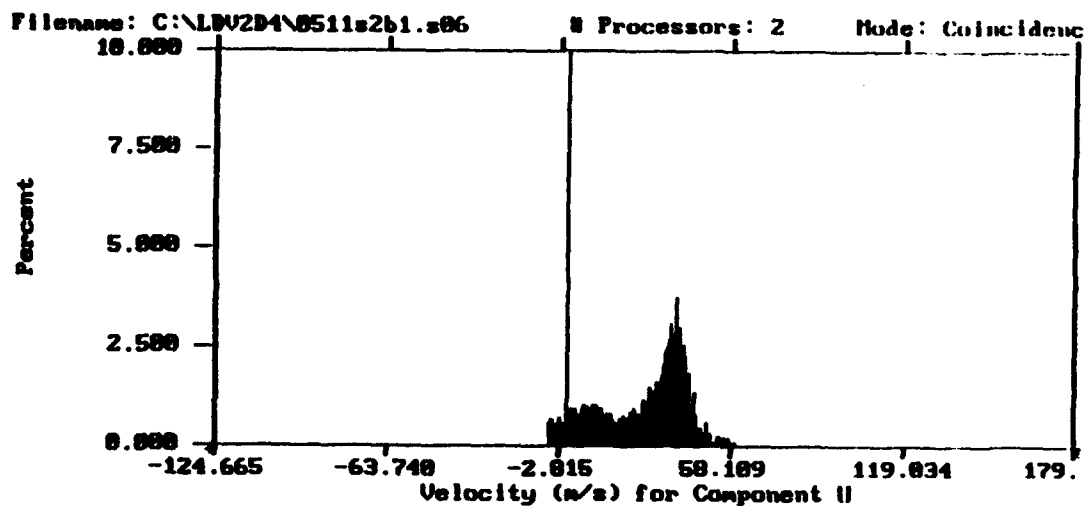
Velocity at cursor = 0.055
Percent at cursor = 1.11

Filename: C:\LDU2D4\0511s2b1.s02 8 Processors: 2 Mode: Coincidence

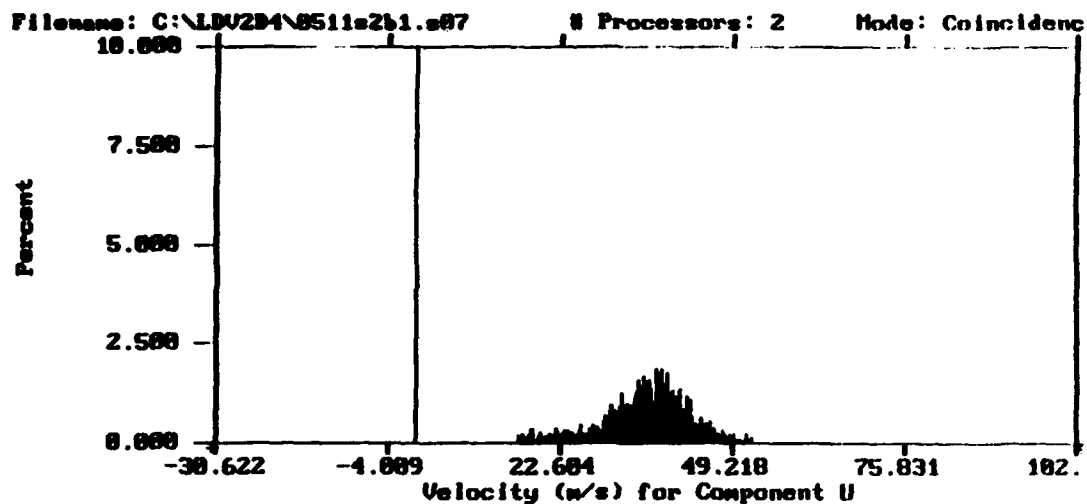


Position (rec/in) (-1.0930, 0.0000, -4.7500)
Velocity mean = 2.059

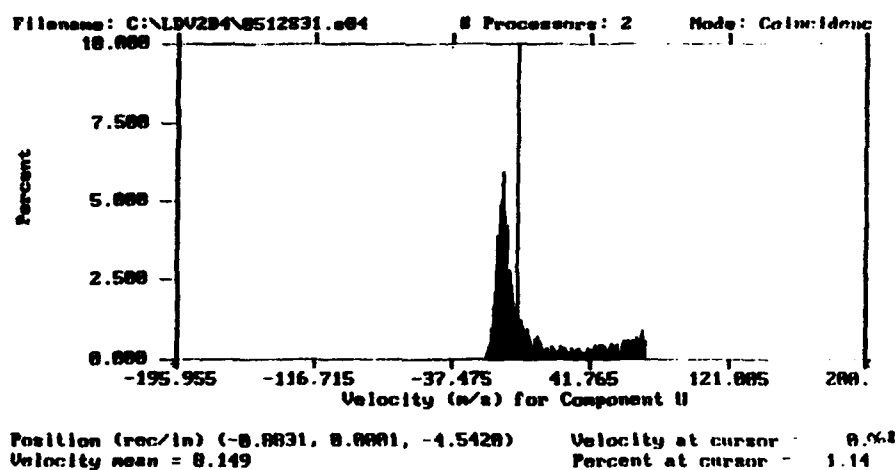
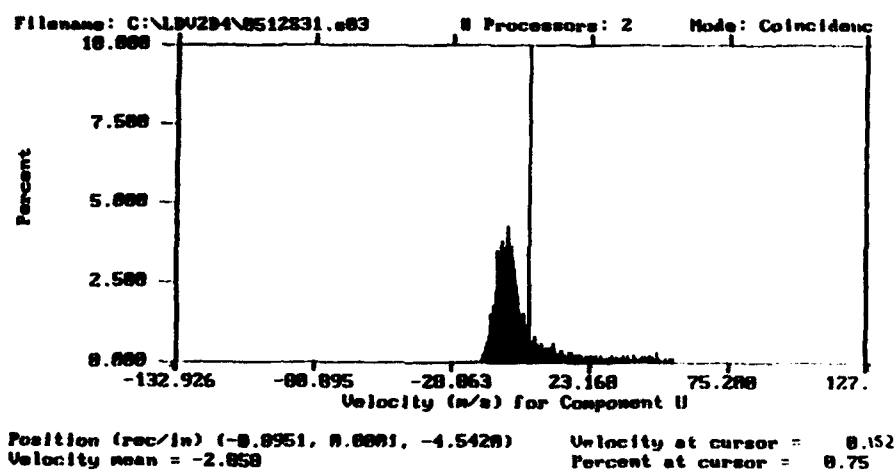
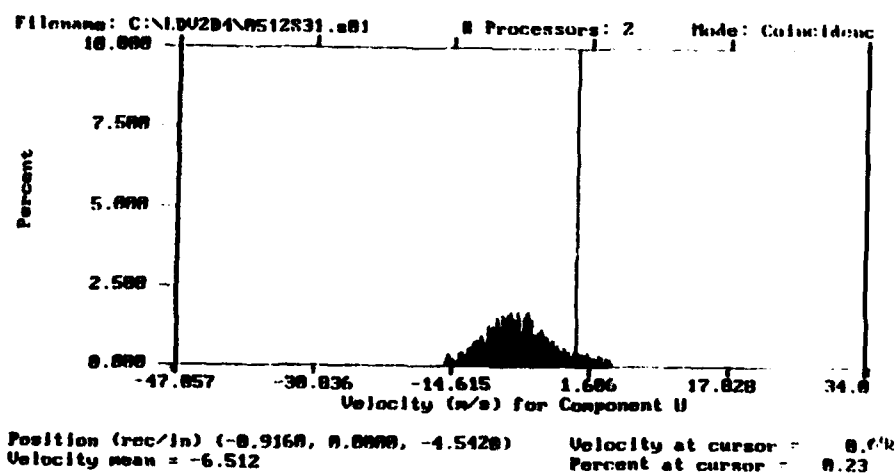
Velocity at cursor = 0.224
Percent at cursor = 0.85



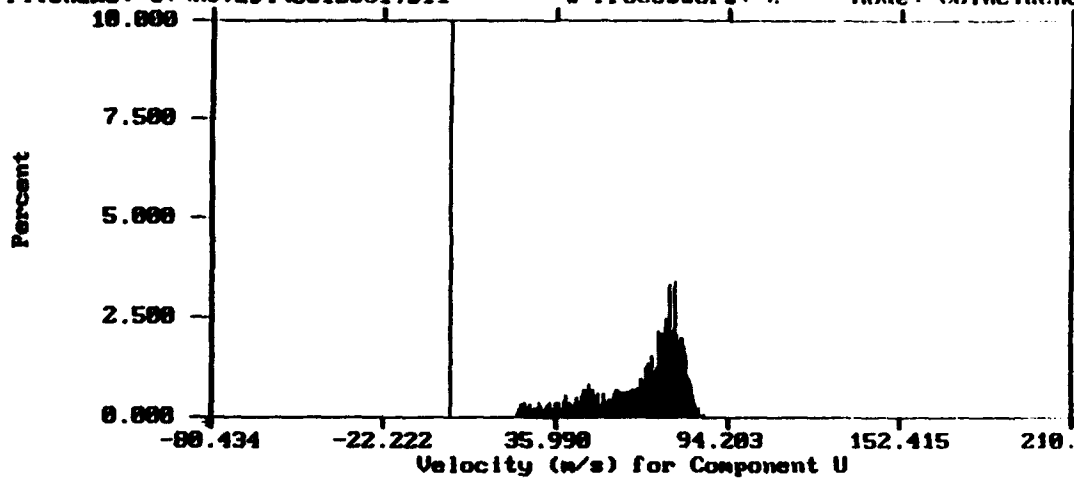
Position (rec/in) (-1.0321, 0.0000, -4.7500) Velocity at cursor = -0.133
 Velocity mean = 27.647 Percent at cursor = 0.33



Position (rec/in) (-1.0162, 0.0000, -4.7500) Velocity at cursor = 0.069
 Velocity mean = 35.911 Percent at cursor = 0.00



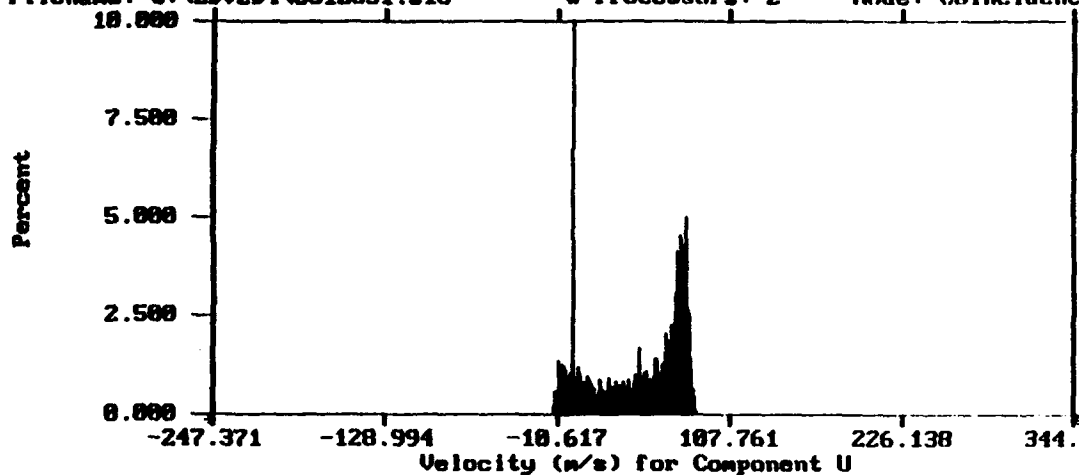
Filename: C:\LDV2D4\0512S31.s11 # Processors: 2 Mode: Coincidence



Position (rec/in) (-0.7575, 0.0001, -4.5420)
Velocity mean = 65.897

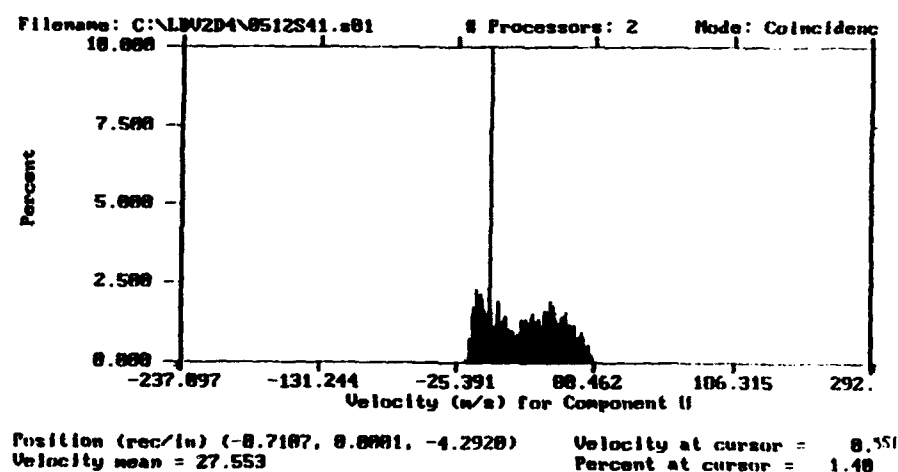
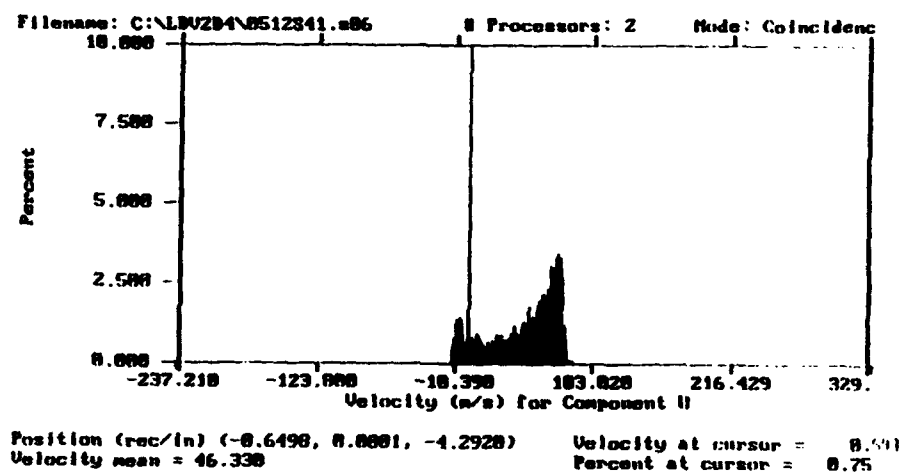
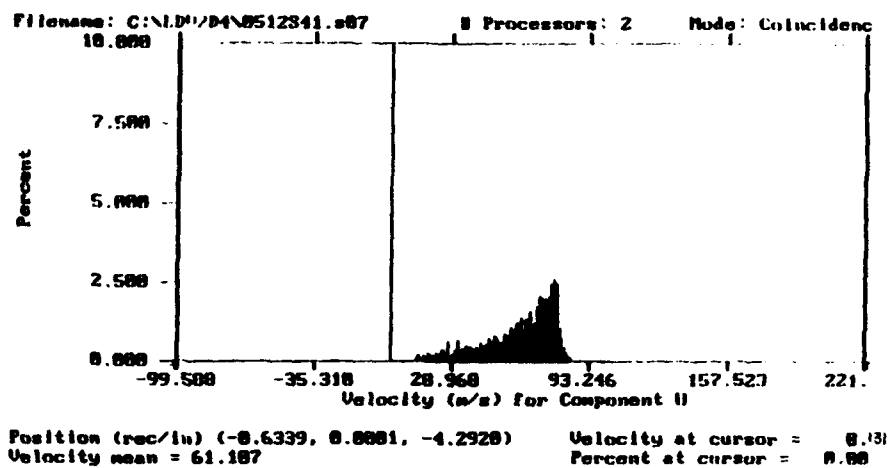
Velocity at cursor = 8.111
Percent at cursor = 0.00

Filename: C:\LDV2D4\0512S31.s10 # Processors: 2 Mode: Coincidence

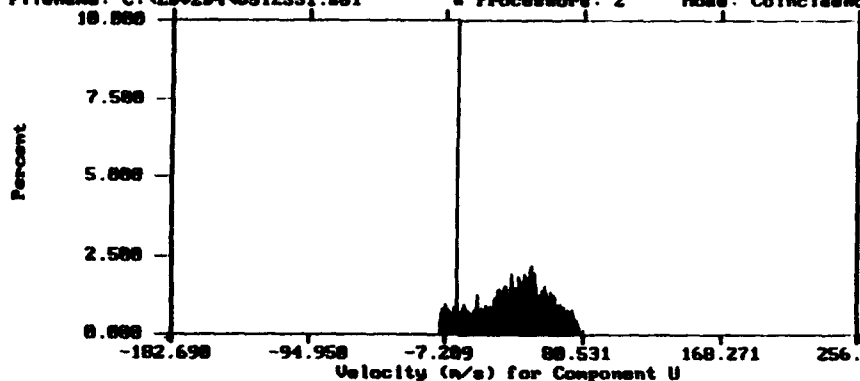


Position (rec/in) (-0.7811, 0.0001, -4.5420)
Velocity mean = 48.572

Velocity at cursor = -8.442
Percent at cursor = 0.59

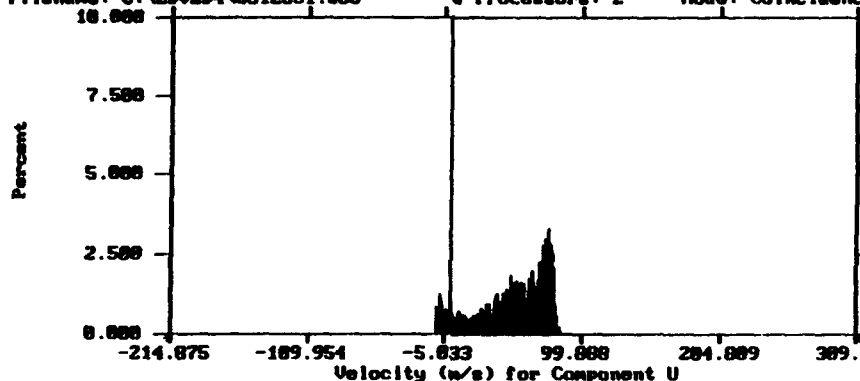


Filename: C:\LDV294\8512351.e01 # Processors: 2 Mode: Coincidence



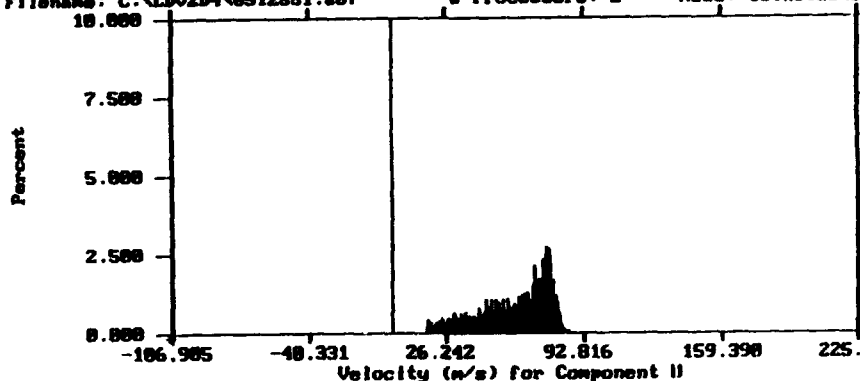
Position (rec/in) (-0.5409, 0.0001, -4.0420) Velocity at cursor = 36.661
Velocity mean = 36.661 Percent at cursor = 0.39

Filename: C:\LDV294\8512351.e06 # Processors: 2 Mode: Coincidence

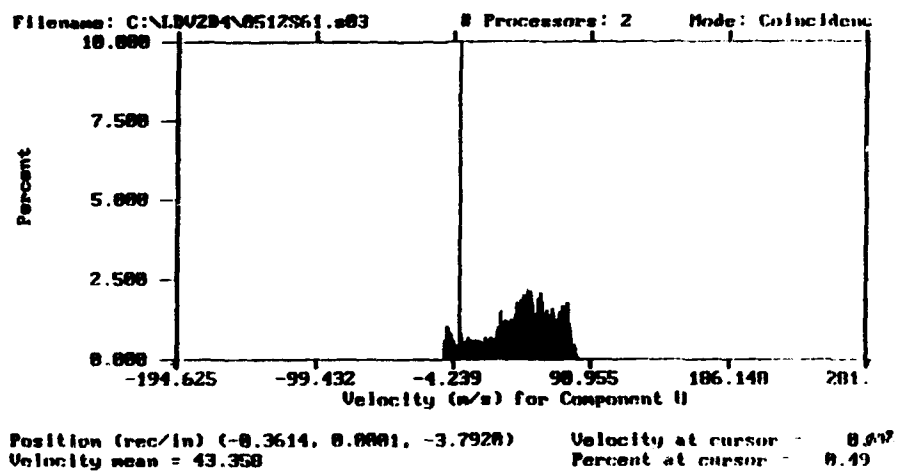
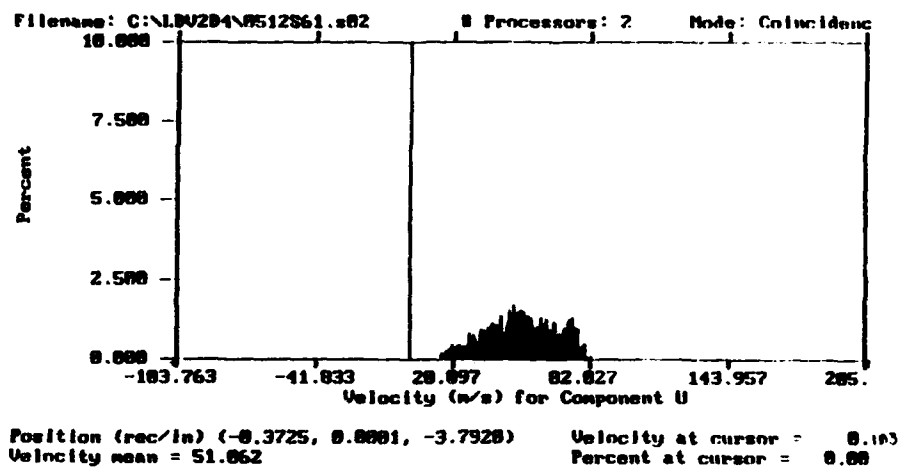
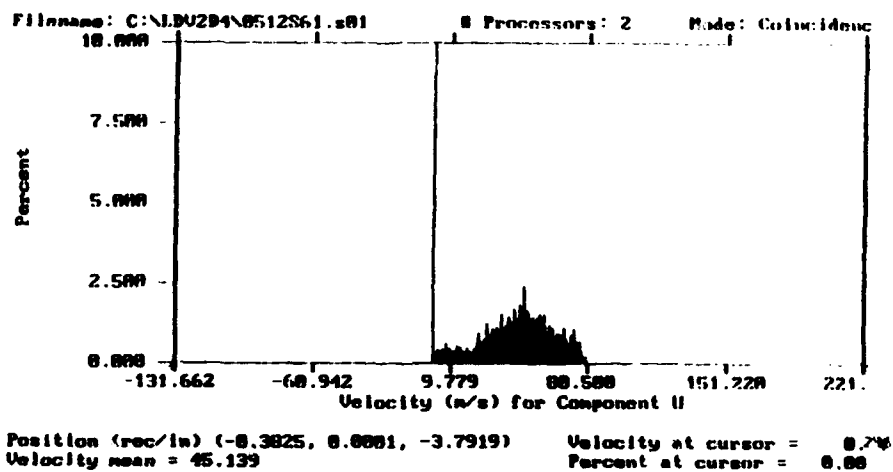


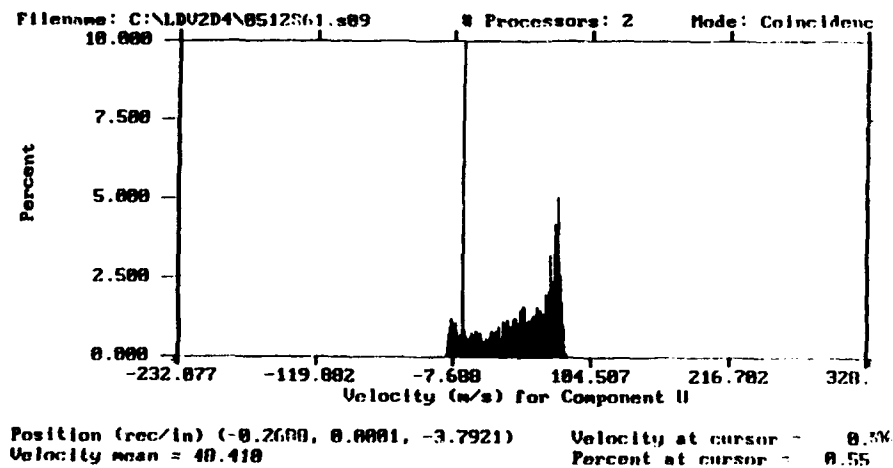
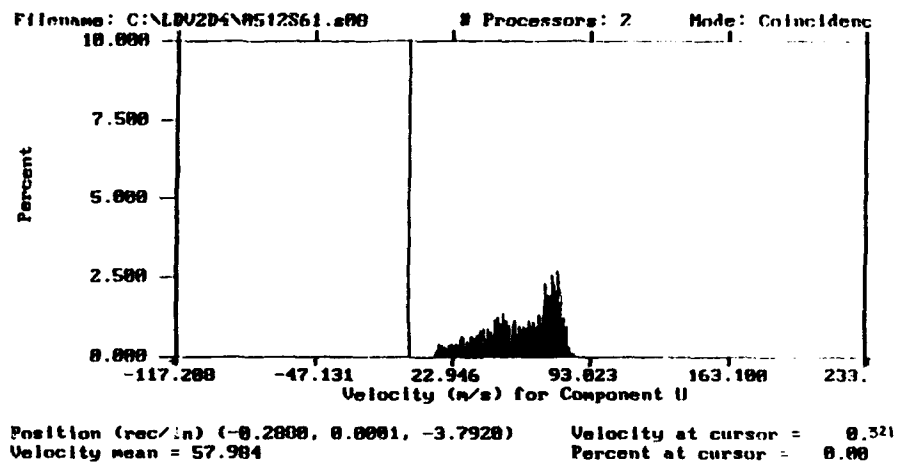
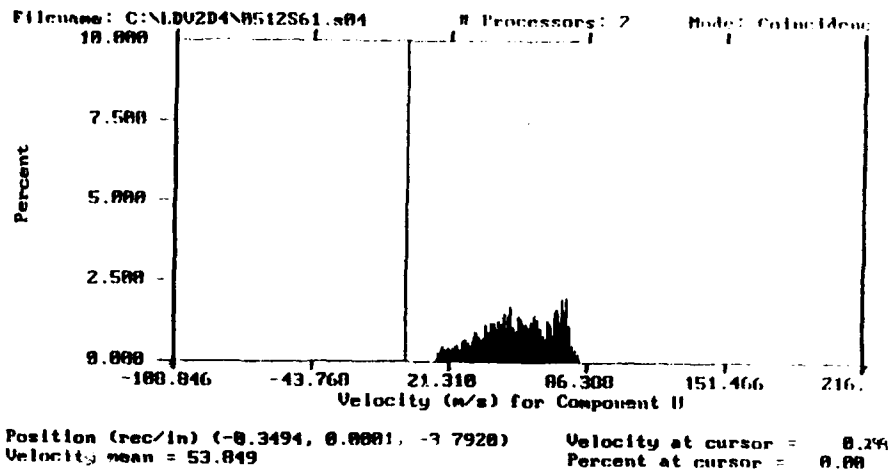
Position (rec/in) (-0.4802, 0.0001, -4.0419) Velocity at cursor = 47.428
Velocity mean = 47.428 Percent at cursor = 0.39

Filename: C:\LDV294\8512351.e07 # Processors: 2 Mode: Coincidence

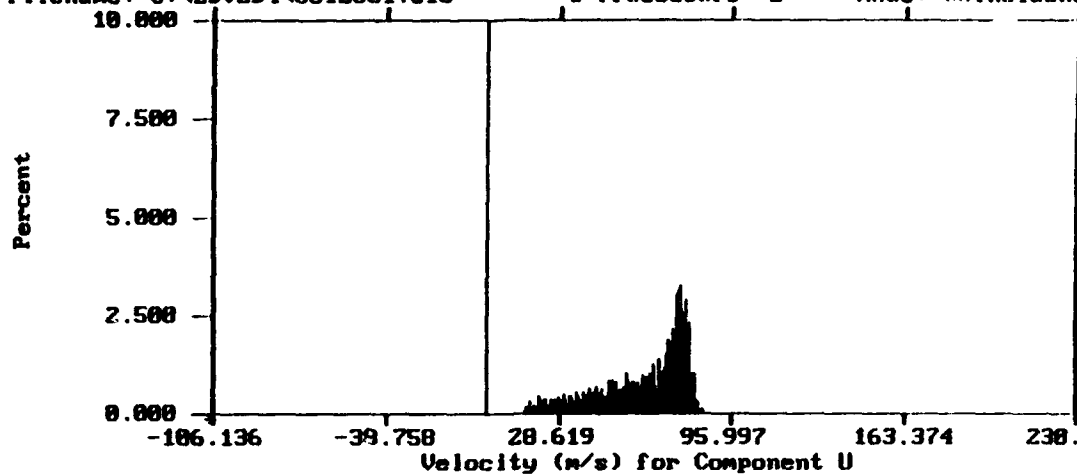


Position (rec/in) (-0.4642, 0.0001, -4.0420) Velocity at cursor = 59.529
Velocity mean = 59.529 Percent at cursor = 0.00





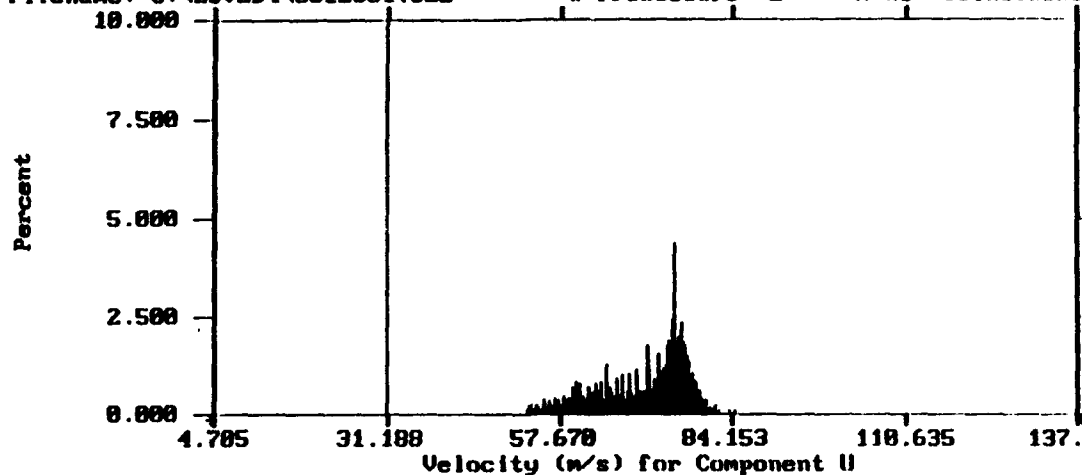
Filename: C:\LDU2D4\0512S61.s10 # Processors: 2 Mode: Coincidence



Position (rec/in) (-0.2474, 0.0001, -3.7921)
Velocity mean = 62.388

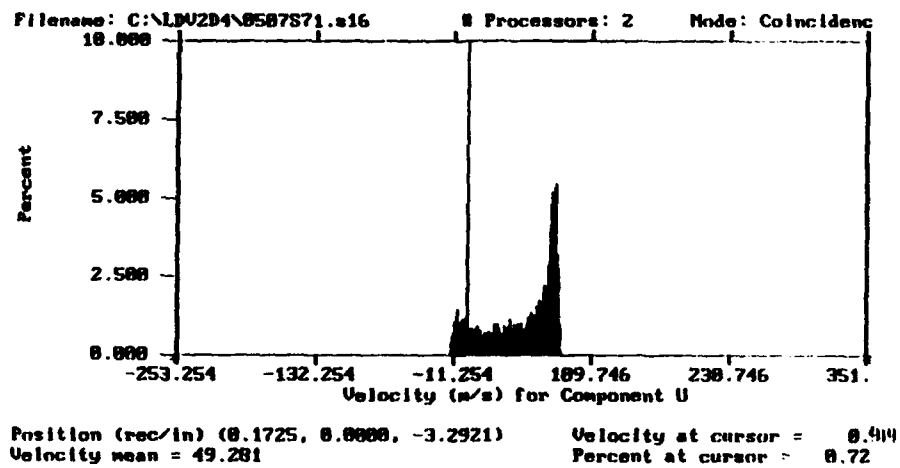
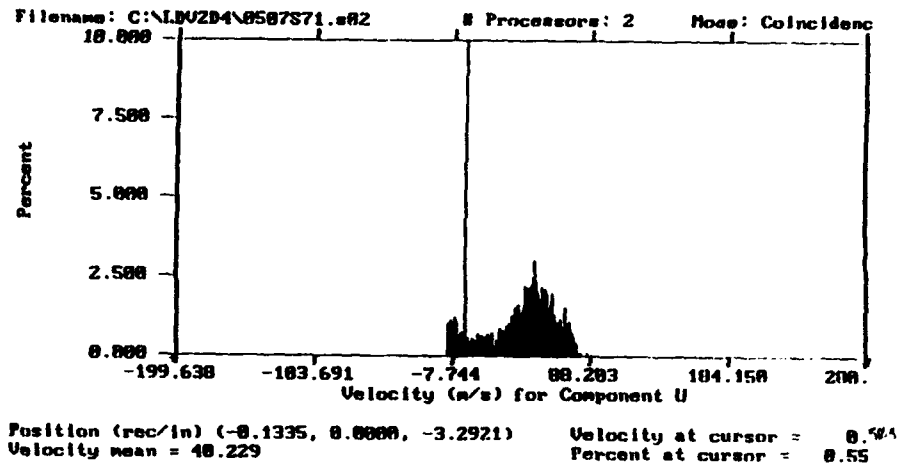
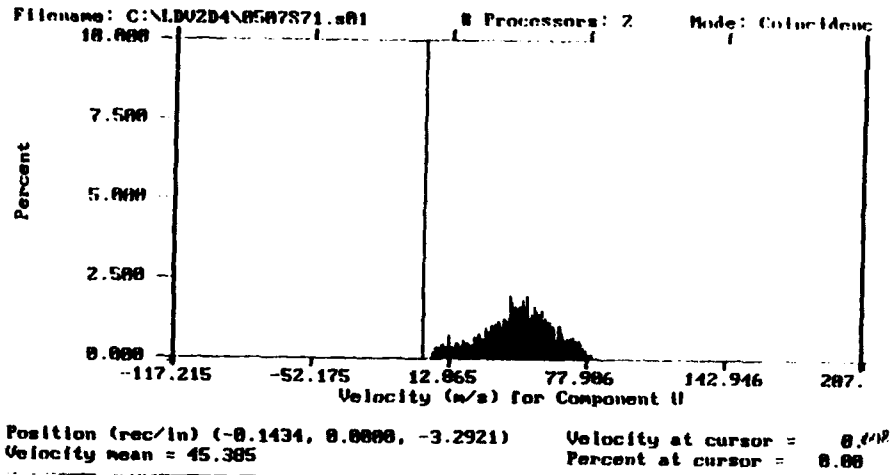
Velocity at cursor = -0.196
Percent at cursor = 0.00

Filename: C:\LDU2D4\0512S61.s22 # Processors: 2 Mode: Coincidence

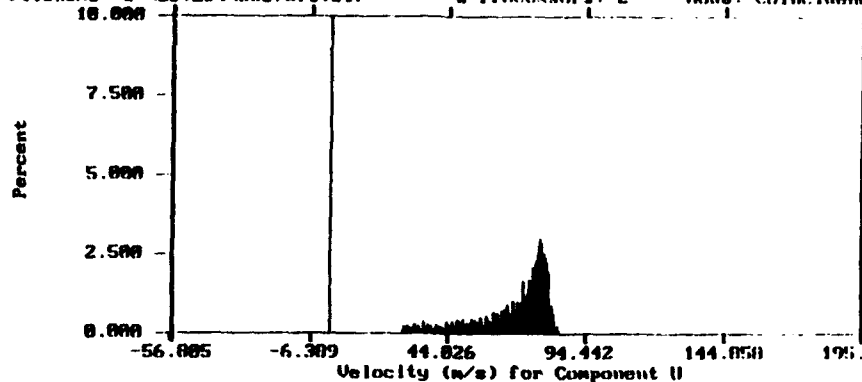


Position (rec/in) (0.2541, 0.0001, -3.7920)
Velocity mean = 70.912

Velocity at cursor = 30.711
Percent at cursor = 0.00

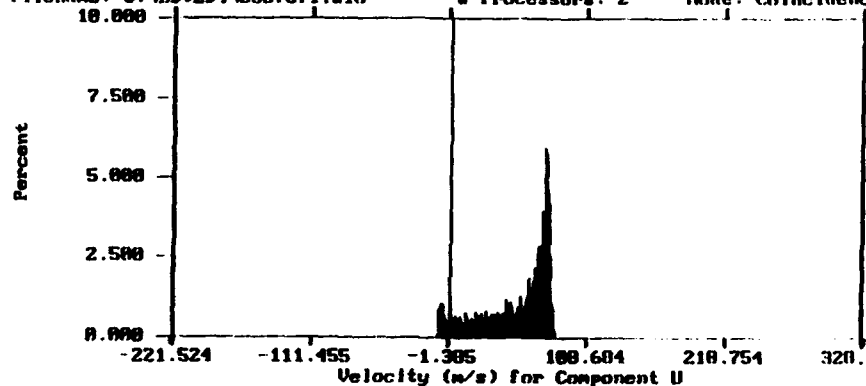


Filename: C:\LDV204\0507S71.s17 # Processors: 2 Mode: Coincidence



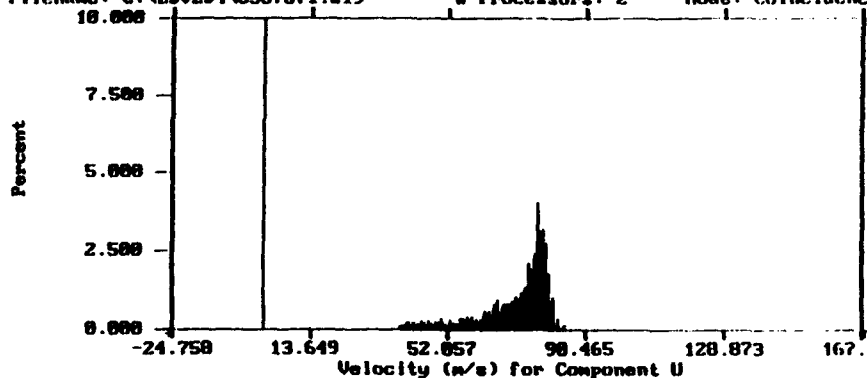
Position (rec/in) (0.2141, 0.0000, -3.2921) Velocity at cursor = 0.269
Velocity mean = 69.234 Percent at cursor = 0.00

Filename: C:\LDV204\0507S71.s18 # Processors: 2 Mode: Coincidence



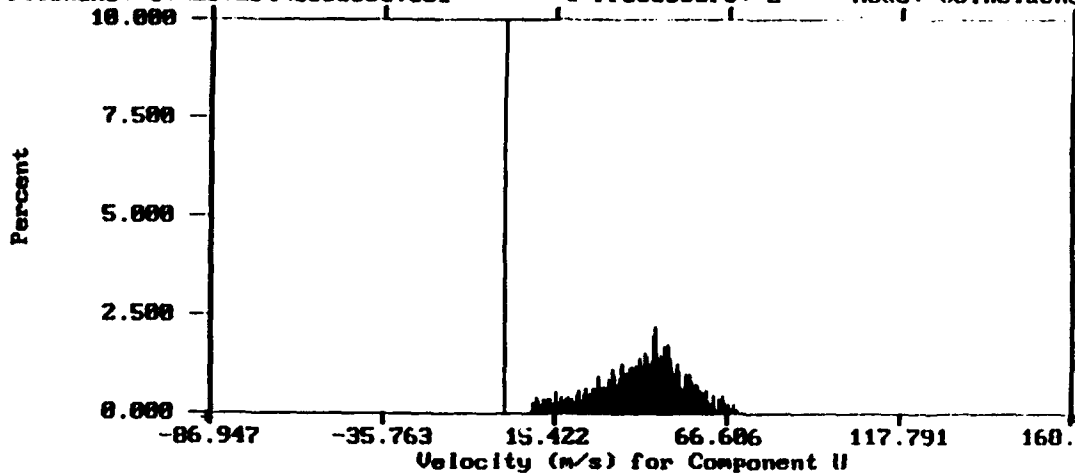
Position (rec/in) (0.2598, 0.0000, -3.2921) Velocity at cursor = -0.001
Velocity mean = 53.650 Percent at cursor = 1.14

Filename: C:\LDV204\0507S71.s19 # Processors: 2 Mode: Coincidence



Position (rec/in) (0.3100, 0.0000, -3.2921) Velocity at cursor = 0.001
Velocity mean = 71.261 Percent at cursor = 0.00

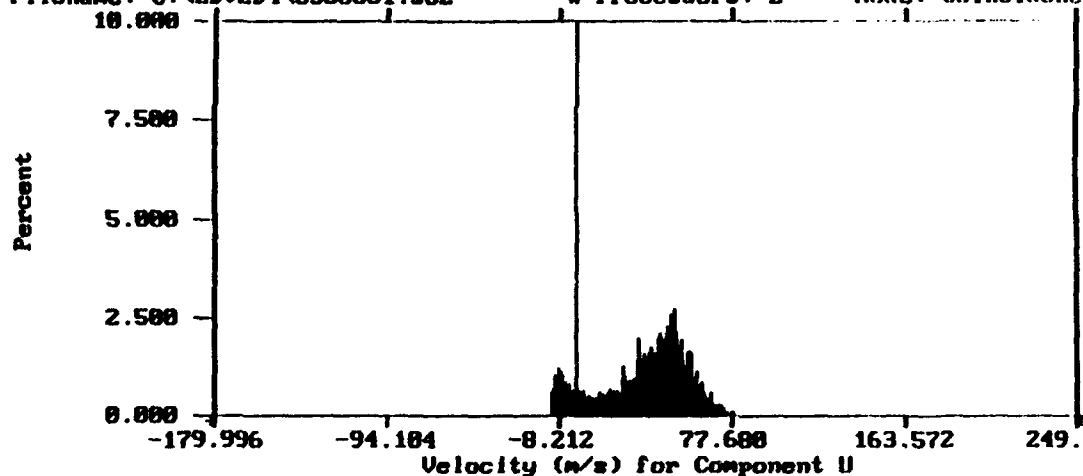
Filename: C:\LDU2D4\0500S01.s01 # Processors: 2 Mode: Coincidence



Position (rec/in) (-0.0083, 0.0000, -2.7920)
Velocity mean = 41.014

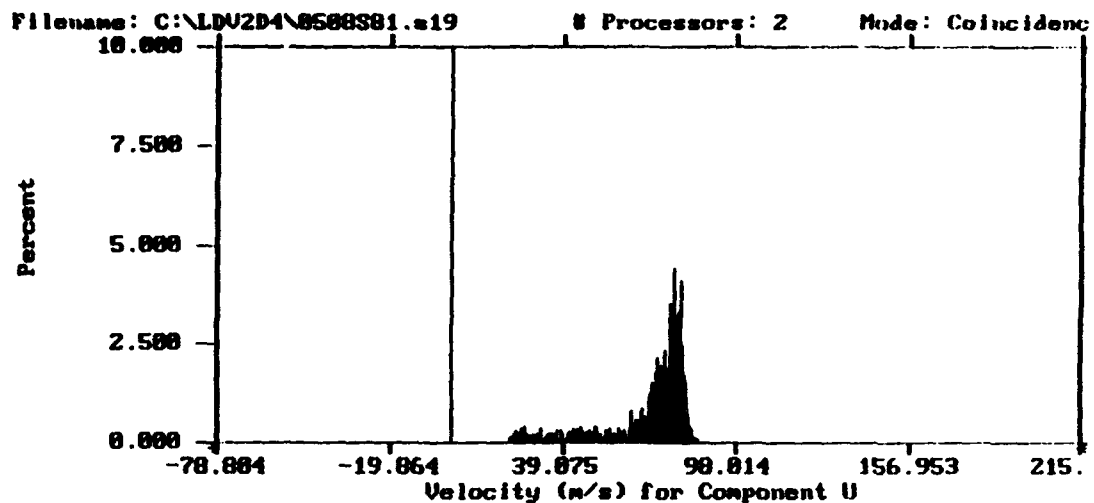
Velocity at cursor = -0.034
Percent at cursor = 0.00

Filename: C:\LDU2D4\0500S01.s02 # Processors: 2 Mode: Coincidence

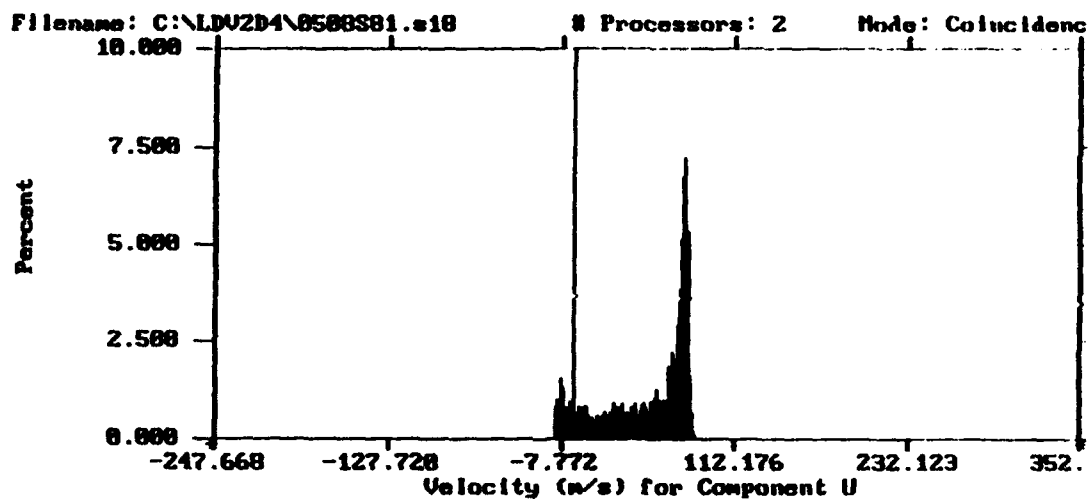


Position (rec/in) (0.0016, 0.0000, -2.7920)
Velocity mean = 34.754

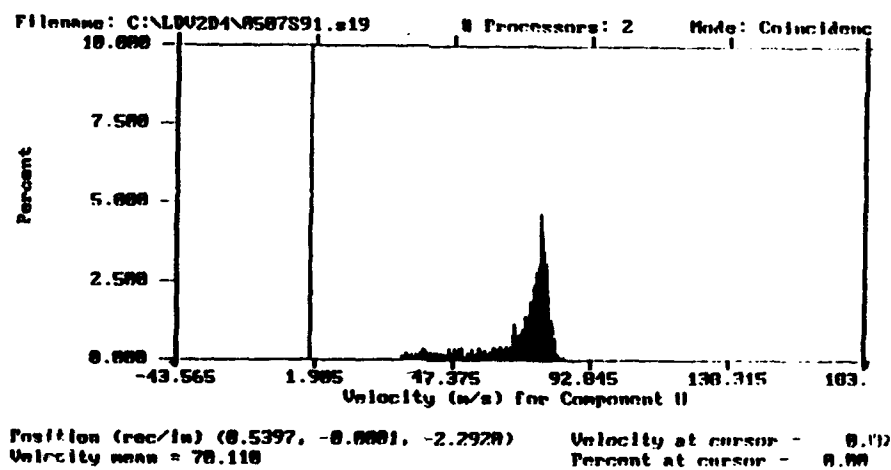
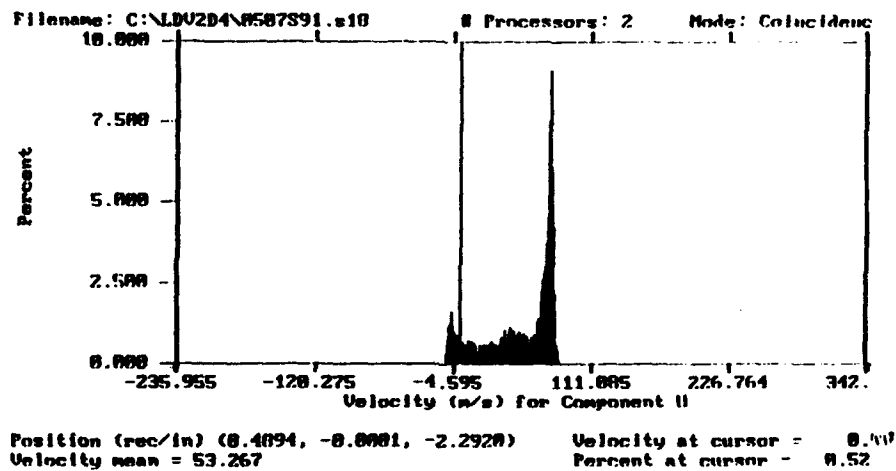
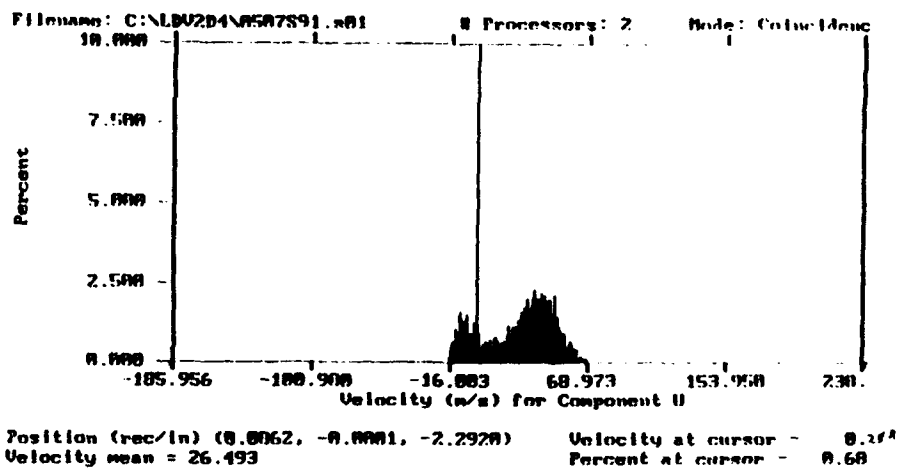
Velocity at cursor = 0.611
Percent at cursor = 0.59



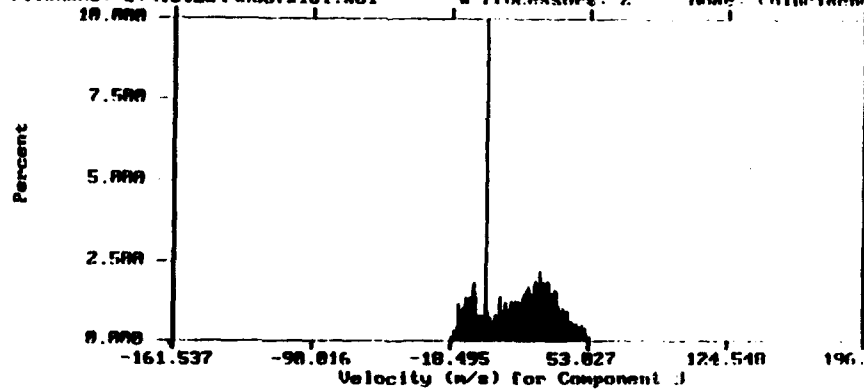
Position (rec/in) (0.4451, -0.0001, -2.7920) Velocity at cursor = 68.545
 Velocity mean = 68.545 Percent at cursor = 4.5



Position (rec/in) (0.3949, -0.0001, -2.7920) Velocity at cursor = 52.282
 Velocity mean = 52.282 Percent at cursor = 7.5

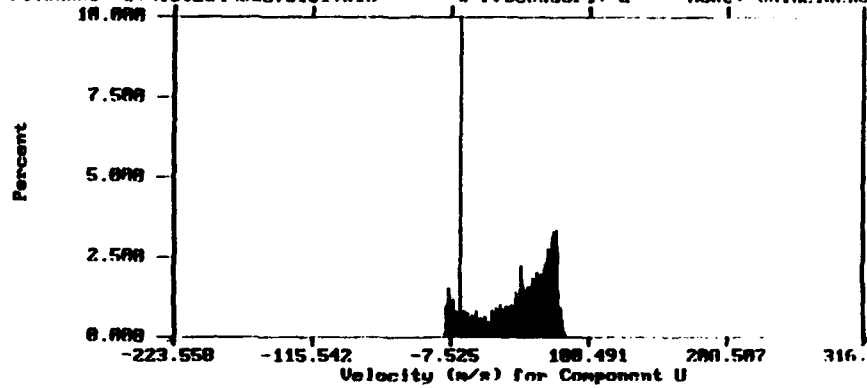


Filename: c:\ide244\0507s101.s01 8 Processors: 2 Mode: Coincidence



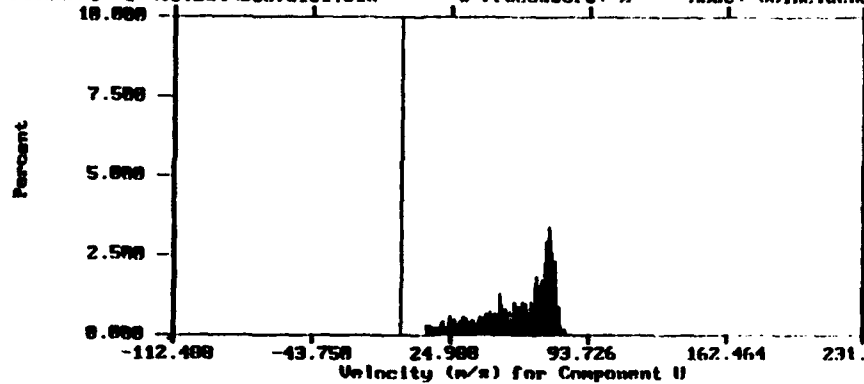
Position (rec/in) (0.1206, -0.0001, -1.7920) Velocity at cursor = -0.352
Velocity mean = 17.262 Percent at cursor = 0.90

Filename: c:\ide244\0507s101.s15 8 Processors: 2 Mode: Coincidence

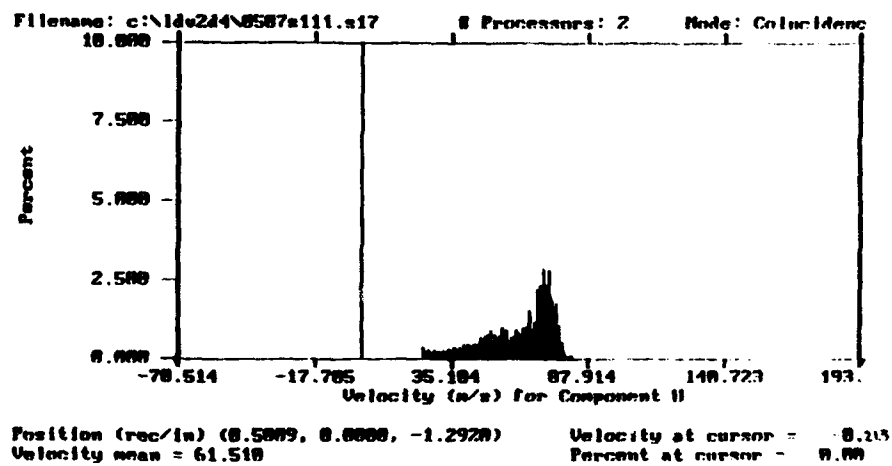
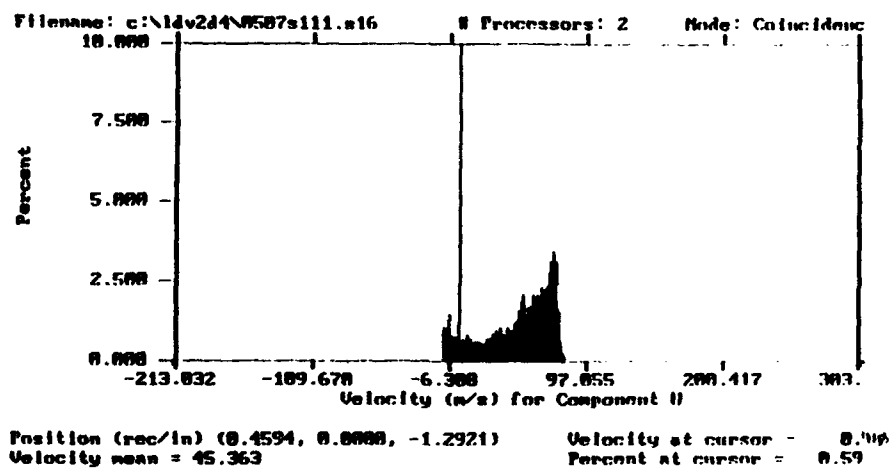
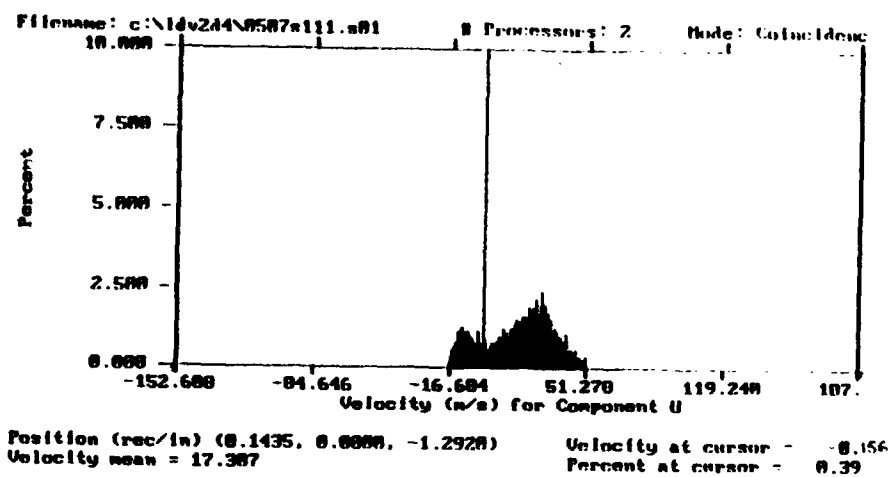


Position (rec/in) (0.3900, -0.0001, -1.7920) Velocity at cursor = -0.546
Velocity mean = 46.474 Percent at cursor = 0.05

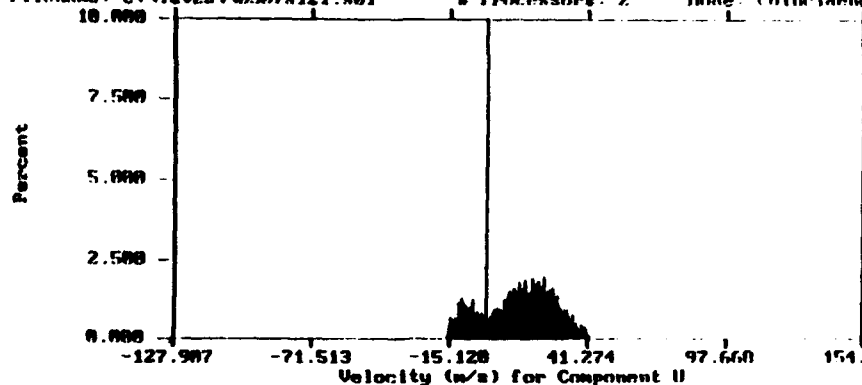
Filename: c:\ide244\0507s101.s16 8 Processors: 2 Mode: Coincidence



Position (rec/in) (0.4365, -0.0001, -1.7920) Velocity at cursor = -0.647
Velocity mean = 59.370 Percent at cursor = 0.00

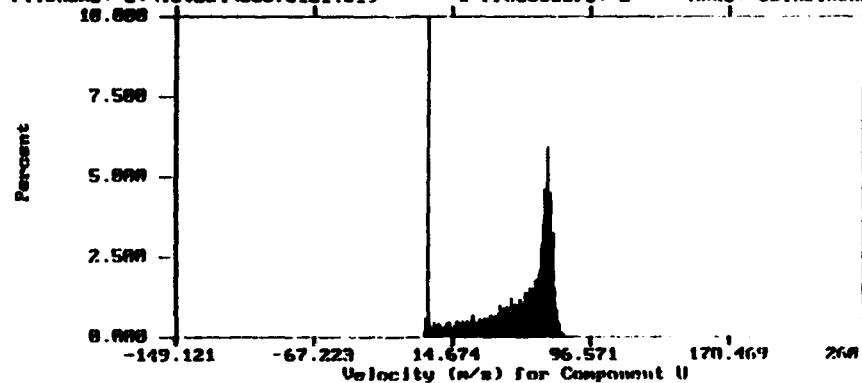


Filename: c:\1dv2d4\0587s121.s01 8 Processors: 2 Mode: Colucldeuc



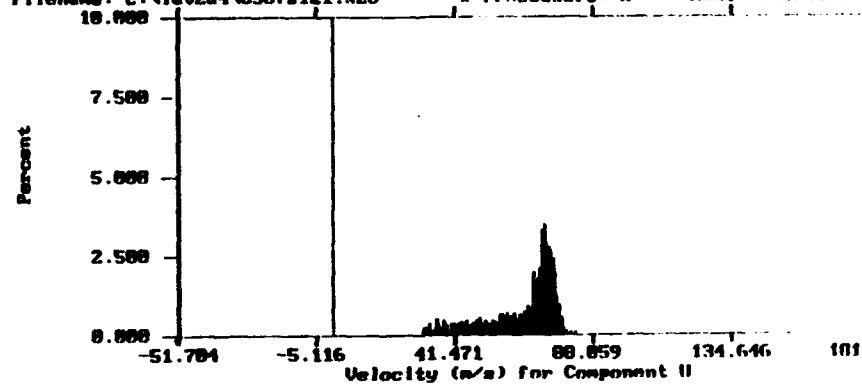
Position (rec/in) (0.1238, 0.0000, -0.7928) Velocity at cursor = 0.213
Velocity mean = 13.058 Percent at cursor = 0.65

Filename: c:\1dv2d4\0587s121.s19 8 Processors: 2 Mode: Colucldeuc

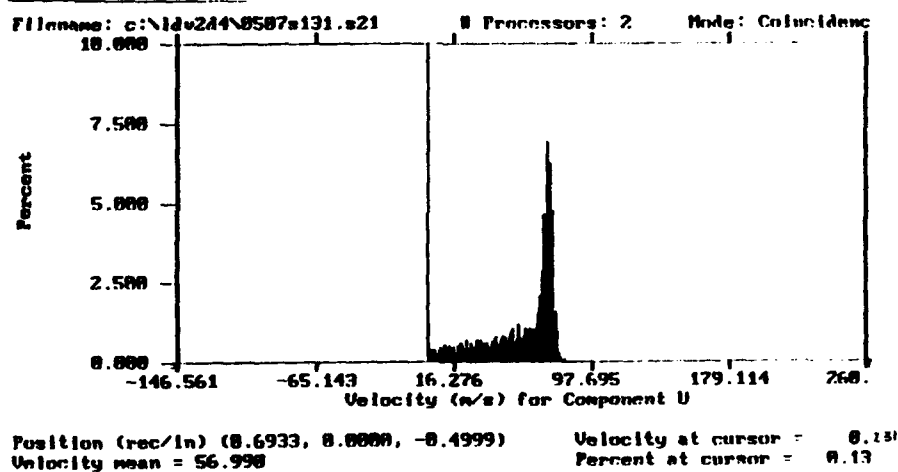
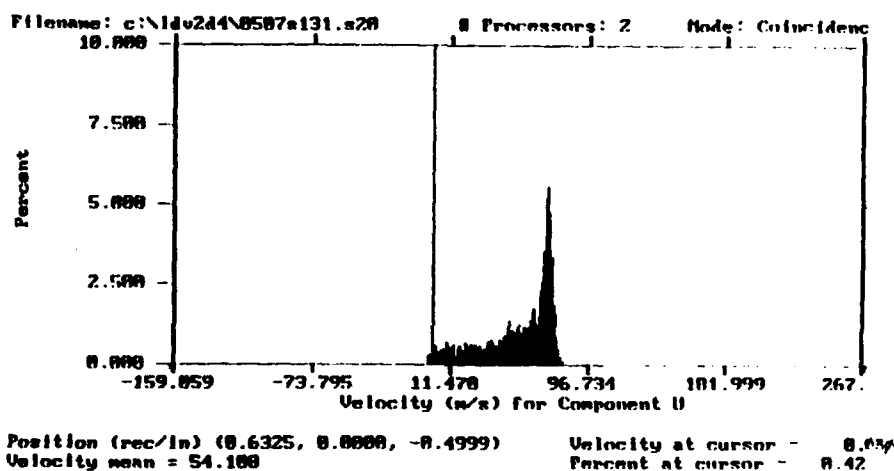
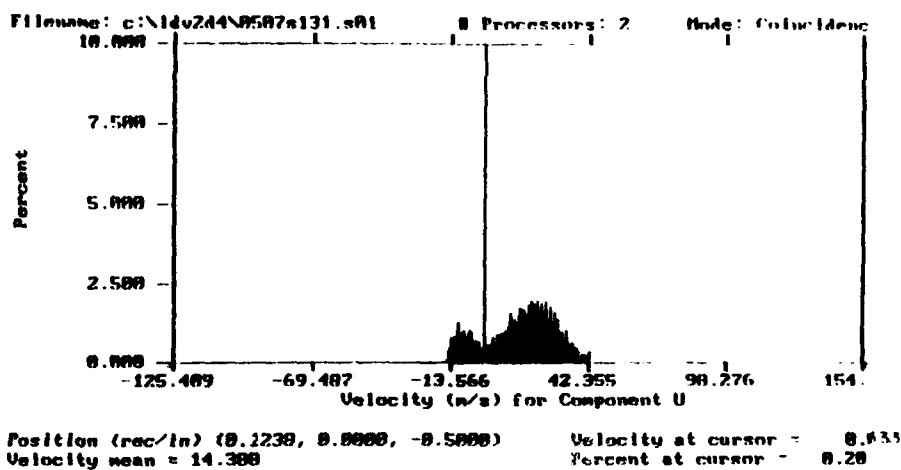


Position (rec/in) (0.5772, 0.0000, -0.7928) Velocity at cursor = 0.252
Velocity mean = 55.623 Percent at cursor = 0.29

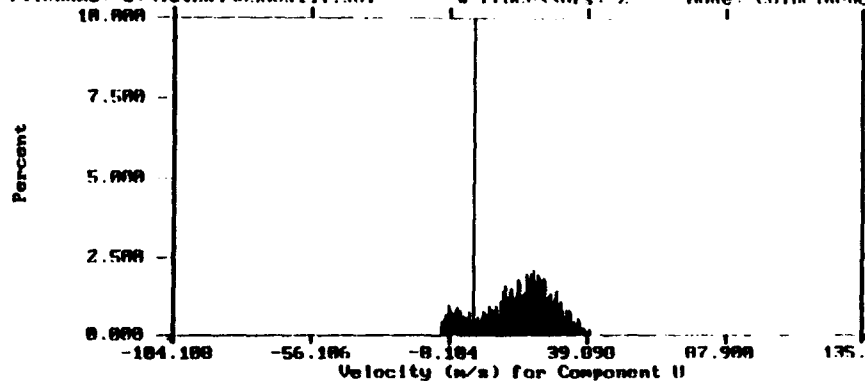
Filename: c:\1dv2d4\0587s121.s20 8 Processors: 2 Mode: Colucldeuc



Position (rec/in) (0.6325, 0.0000, -0.7928) Velocity at cursor = 0.644
Velocity mean = 64.765 Percent at cursor = 0.00

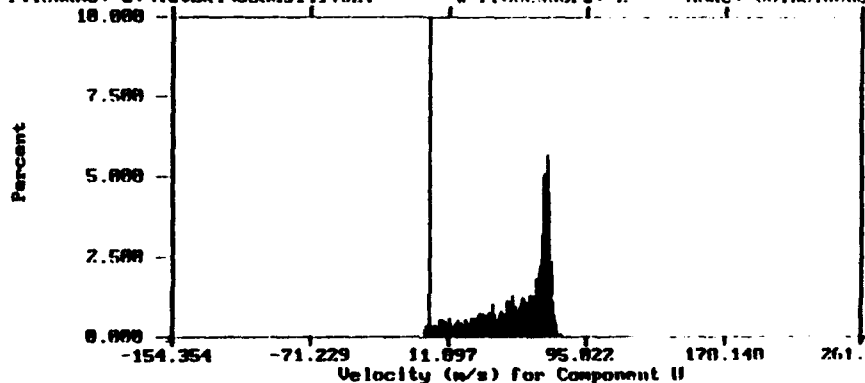


Filename: c:\ide244\0500s141.s01 # Processors: 2 Mode: Coincidence



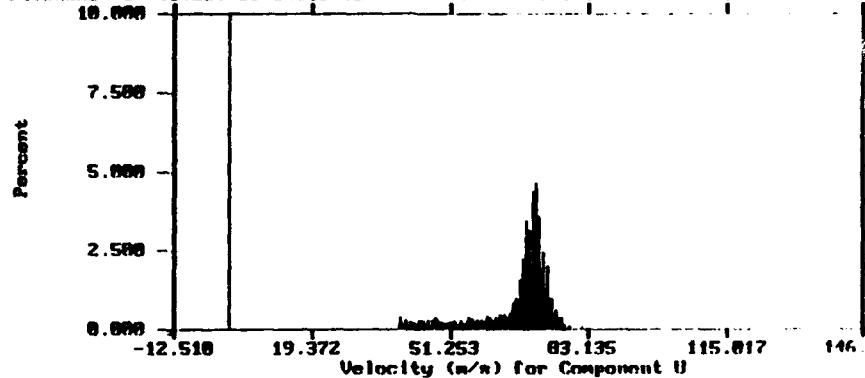
Position (rec/in) (0.1041, 0.0000, -0.2500) Velocity at cursor = 0.000
Velocity mean = 15.899 Percent at cursor = 0.33

Filename: c:\ide244\0500s141.s21 # Processors: 2 Mode: Coincidence



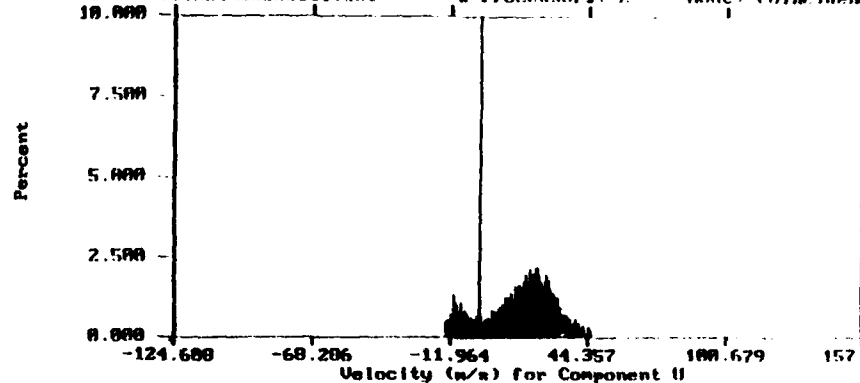
Position (rec/in) (0.6735, 0.0001, -0.2501) Velocity at cursor = 95.822
Velocity mean = 53.496 Percent at cursor = 0.46

Filename: c:\ide244\0500s141.s22 # Processors: 2 Mode: Coincidence



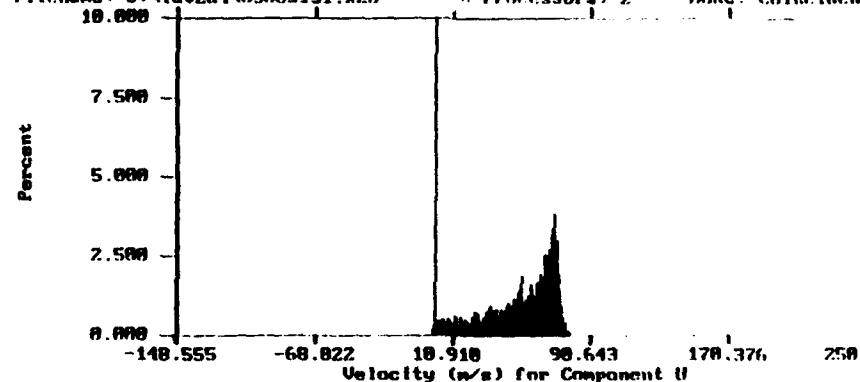
Position (rec/in) (0.7405, 0.0000, -0.2501) Velocity at cursor = 83.135
Velocity mean = 67.190 Percent at cursor = 0.00

Filename: c:\idu2d4\0500s151.s01 8 Processors: 2 Mode: Coincidence



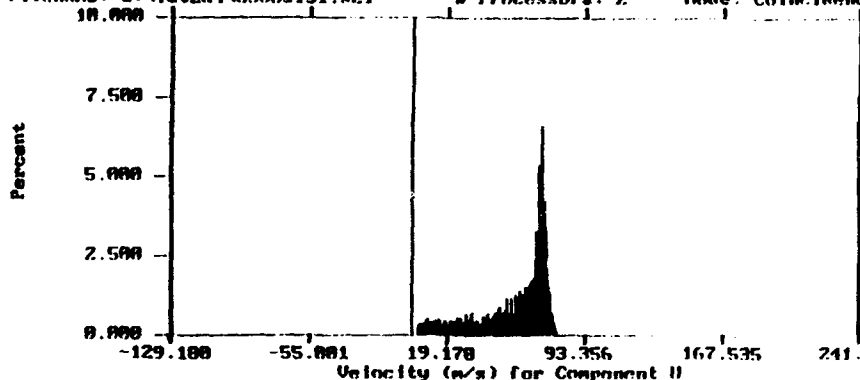
Position (rec/in) (0.1023, 0.0000, 0.0001) Velocity at cursor = 0.000
Velocity mean = 16.194 Percent at cursor = 0.42

Filename: c:\idu2d4\0500s151.s20 8 Processors: 2 Mode: Coincidence



Position (rec/in) (0.6110, 0.0000, 0.0001) Velocity at cursor = 0.213
Velocity mean = 50.777 Percent at cursor = 0.33

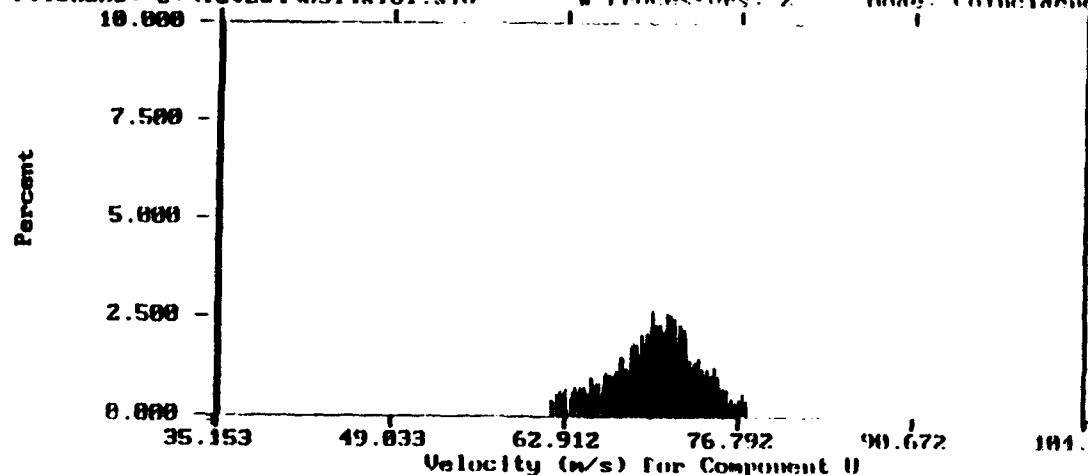
Filename: c:\idu2d4\0500s151.s21 8 Processors: 2 Mode: Coincidence



Position (rec/in) (0.6719, 0.0000, 0.0001) Velocity at cursor = 0.306
Velocity mean = 56.262 Percent at cursor = 0.00

C. HISTOGRAMS FROM STATION 16 THROUGH 19 FOR 50 DEG

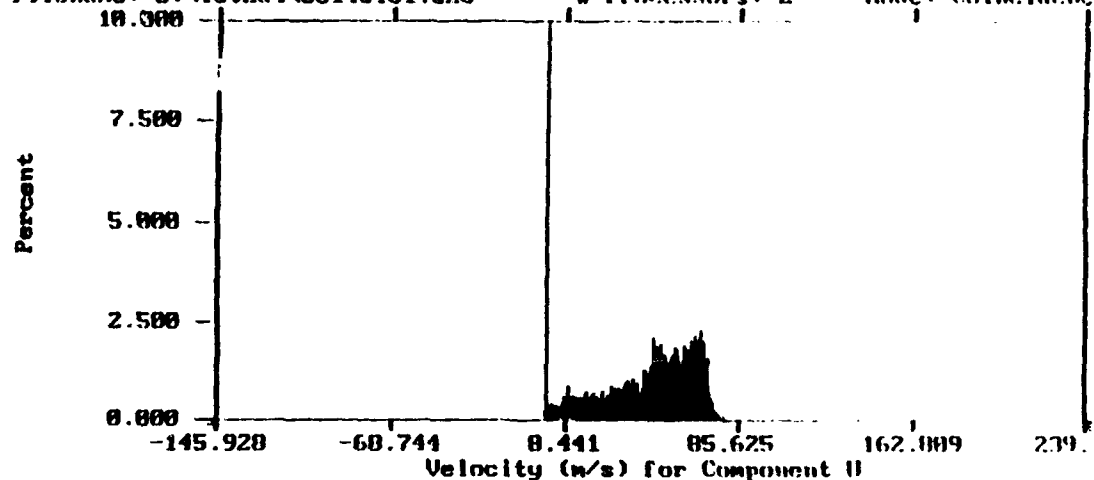
Filename: c:\ldv2d4\0514s161.s10 # Processors: 2 Mode: Coincidence



Position (rec/in) (2.8749, 0.0001, 0.2620)
Velocity mean = 69.852

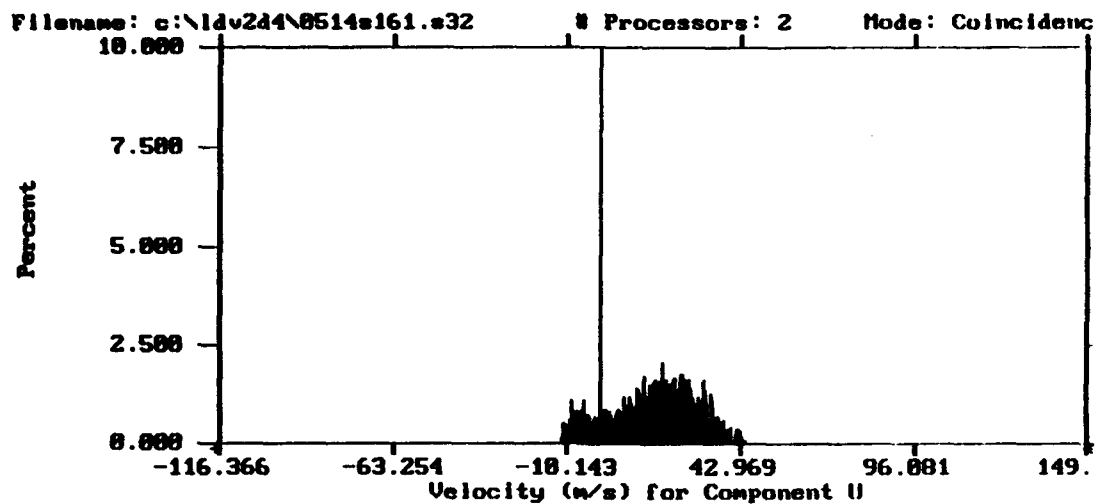
Velocity at cursor = 35.153
Percent at cursor = 0.00

Filename: c:\ldv2d4\0514s161.s20 # Processors: 2 Mode: Coincidence



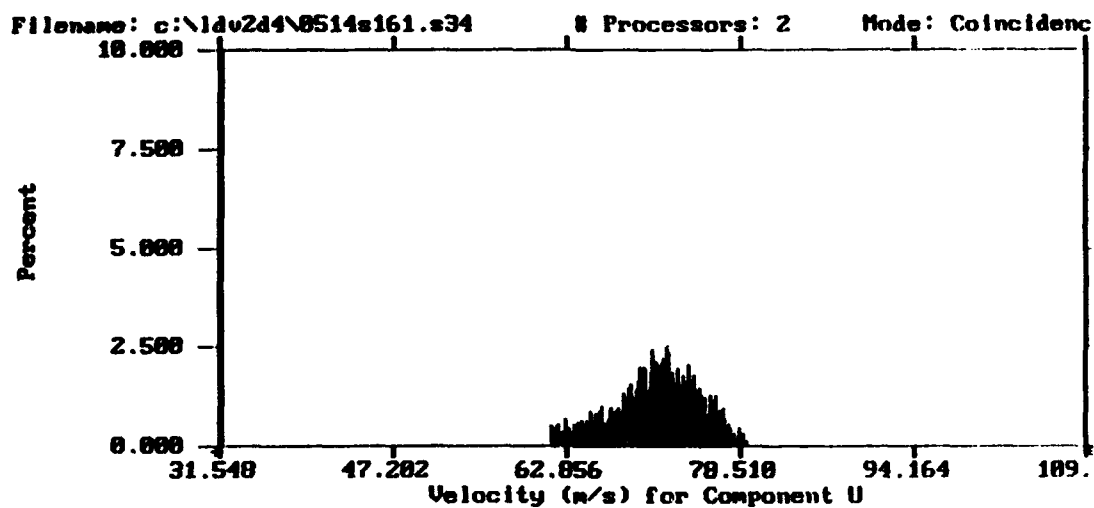
Position (rec/in) (0.6250, 0.0001, 0.2620)
Velocity mean = 47.020

Velocity at cursor = 0.441
Percent at cursor = 0.55



Position (rec/in) (0.1250, 0.0001, 0.2620)
Velocity mean = 16.427

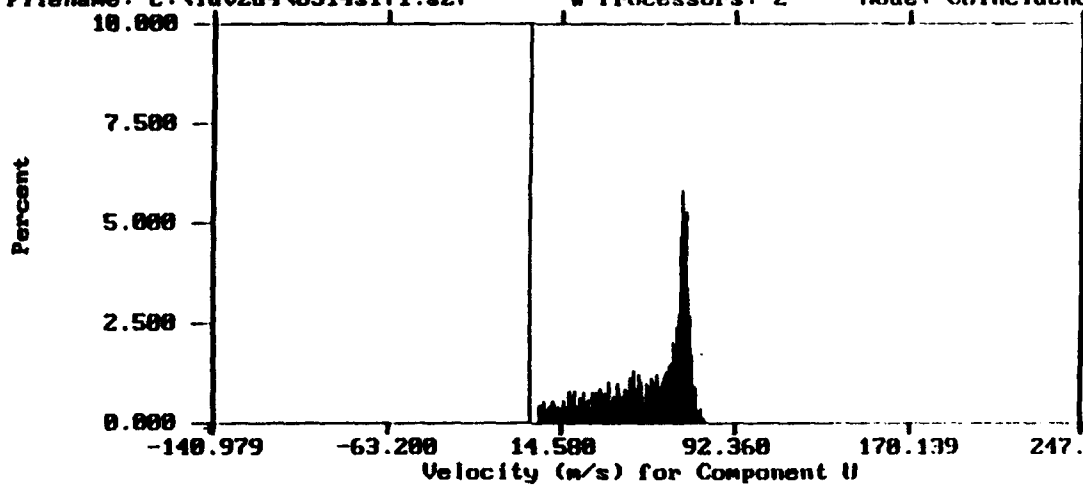
Velocity at cursor = -8.616
Percent at cursor = 0.68



Position (rec/in) (-0.1250, 0.0001, 0.2620)
Velocity mean = 70.683

Velocity at cursor = 31.548
Percent at cursor = 0.00

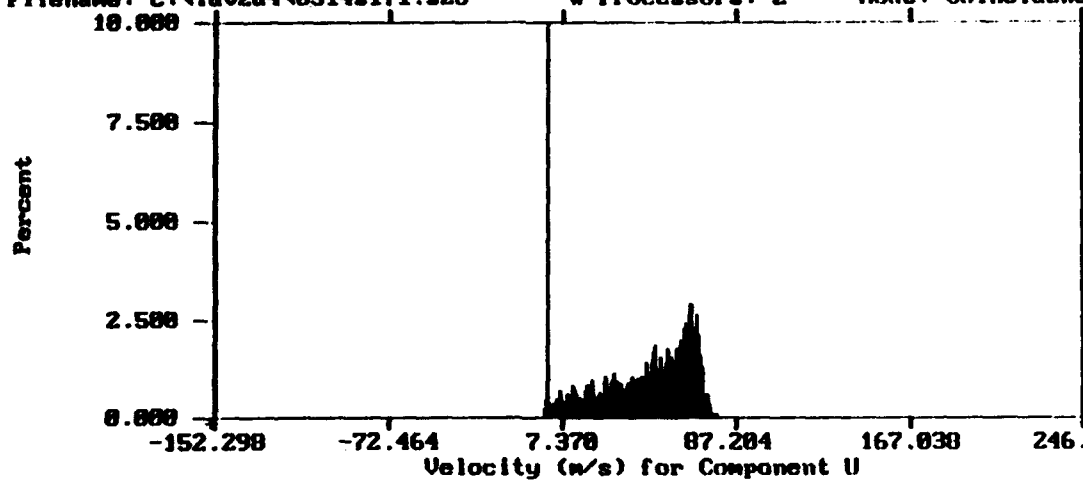
Filename: c:\ldv2d4\0514s171.s27 # Processors: 2 Mode: Coincidence



Position (rec/in) (0.7500, 0.0001, 0.3620)
Velocity mean = 53.464

Velocity at cursor = 0.063
Percent at cursor = 0.00

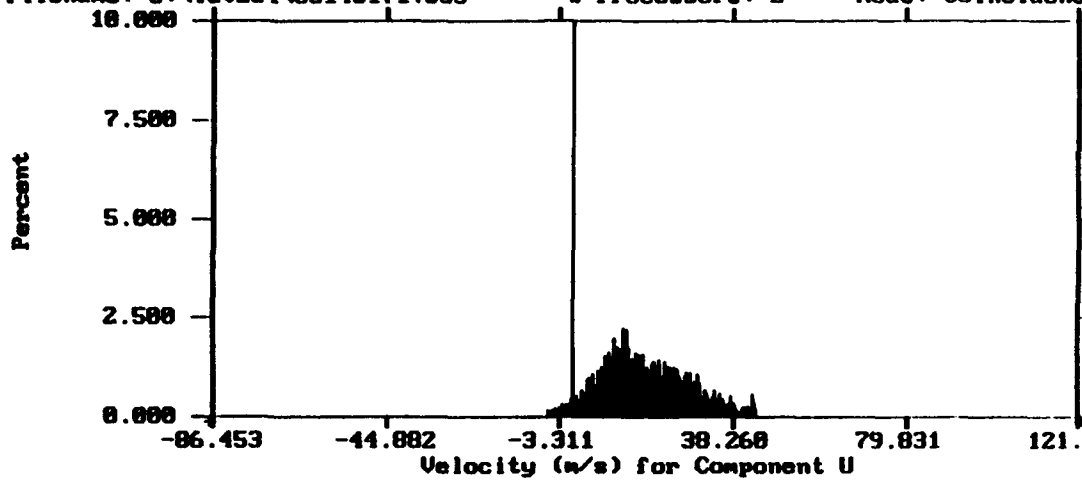
Filename: c:\ldv2d4\0514s171.s28 # Processors: 2 Mode: Coincidence



Position (rec/in) (0.6250, 0.0001, 0.3620)
Velocity mean = 47.268

Velocity at cursor = 0.066
Percent at cursor = 0.42

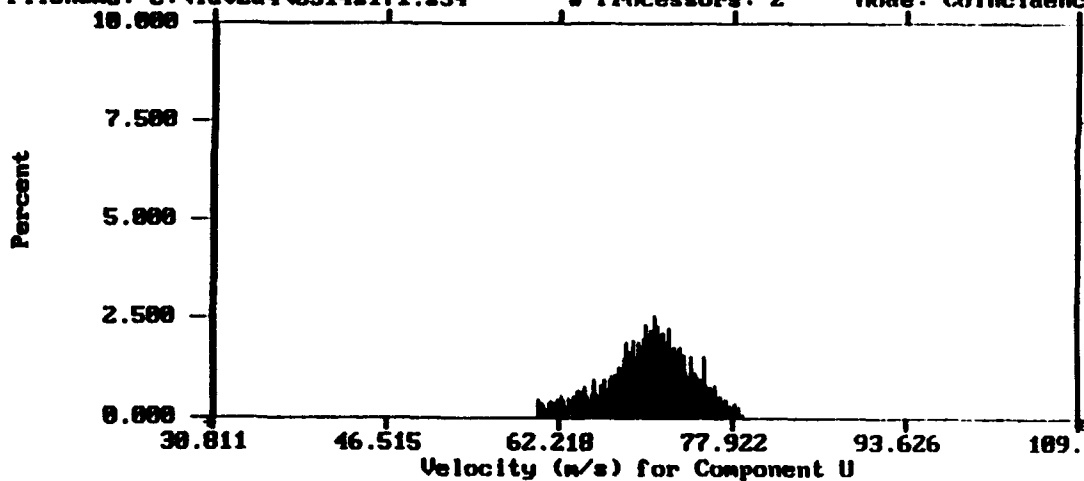
Filename: c:\ldv2d4\0514s171.s33 # Processors: 2 Mode: Coincidence



Position (rec/in) (-0.0001, 0.0001, 0.3620)
Velocity mean = 17.474

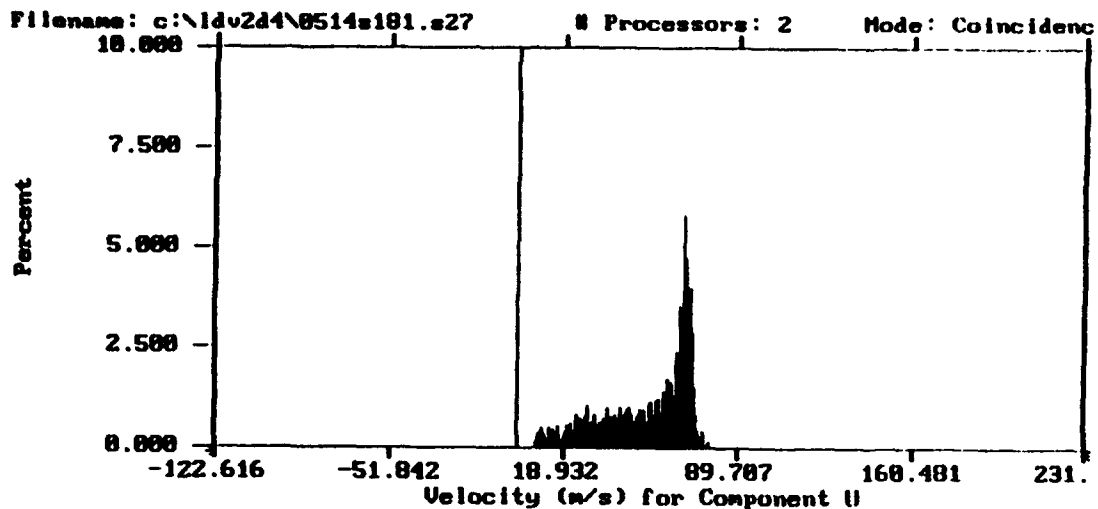
Velocity at cursor = -0.174
Percent at cursor = 0.16

Filename: c:\ldv2d4\0514s171.s34 # Processors: 2 Mode: Coincidence



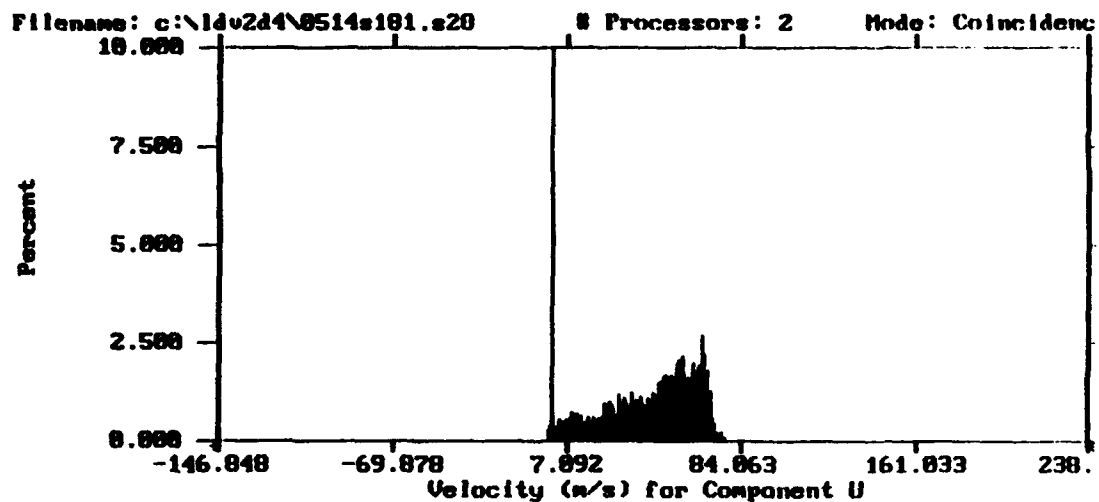
Position (rec/in) (-0.1250, 0.0001, 0.3620)
Velocity mean = 70.670

Velocity at cursor = 30.811
Percent at cursor = 0.00



Position (rec/in) (0.7500, 0.0000, 0.6779)
 Velocity mean = 54.324

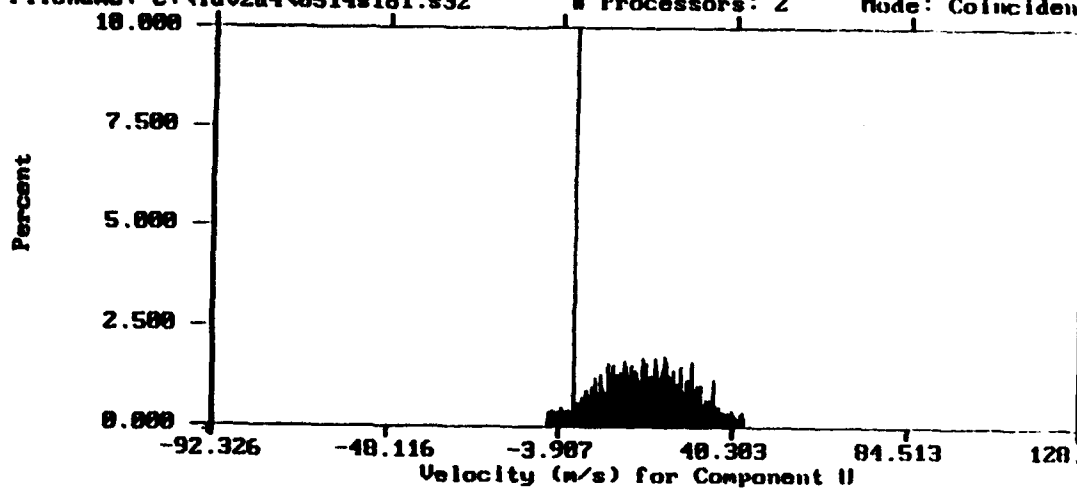
Velocity at cursor = -0.208
 Percent at cursor = 0.00



Position (rec/in) (0.6250, 0.0000, 0.6779)
 Velocity mean = 45.557

Velocity at cursor = -0.008
 Percent at cursor = 0.23

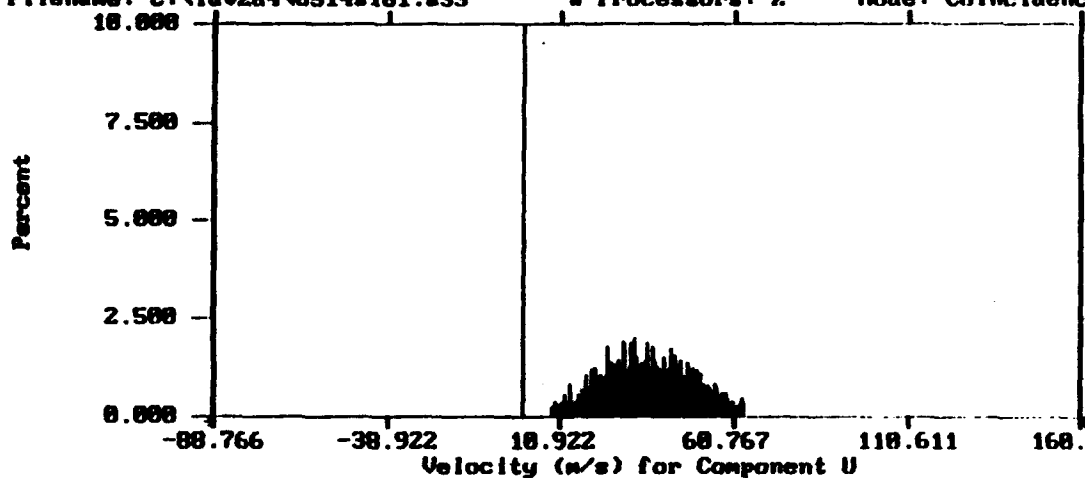
Filename: c:\ldv2d4\8514s181.s32 # Processors: 2 Mode: Coincidence



Position (rec/in) (0.1250, 0.0000, 0.6779)
Velocity mean = 18.198

Velocity at cursor = -0.107
Percent at cursor = 0.49

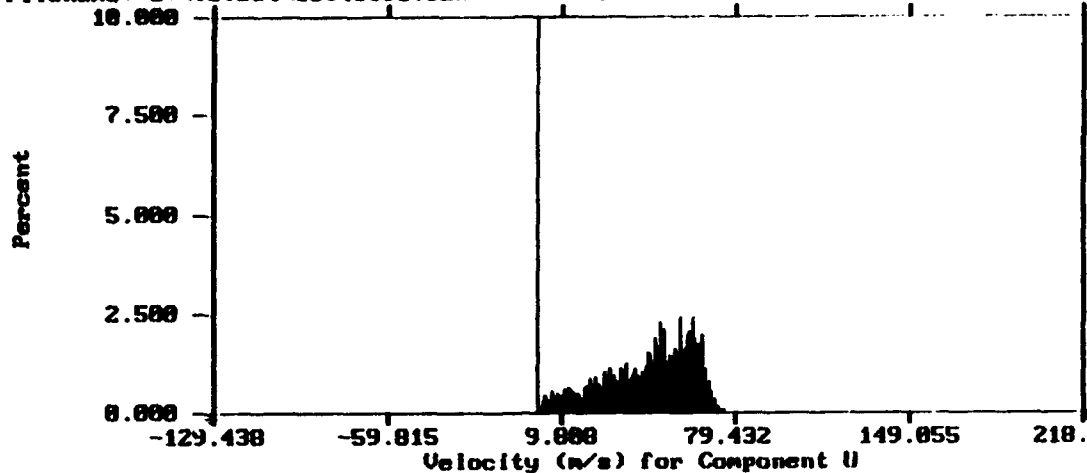
Filename: c:\ldv2d4\8514s181.s33 # Processors: 2 Mode: Coincidence



Position (rec/in) (-0.0001, 0.0000, 0.6779)
Velocity mean = 35.853

Velocity at cursor = 0.055
Percent at cursor = 0.00

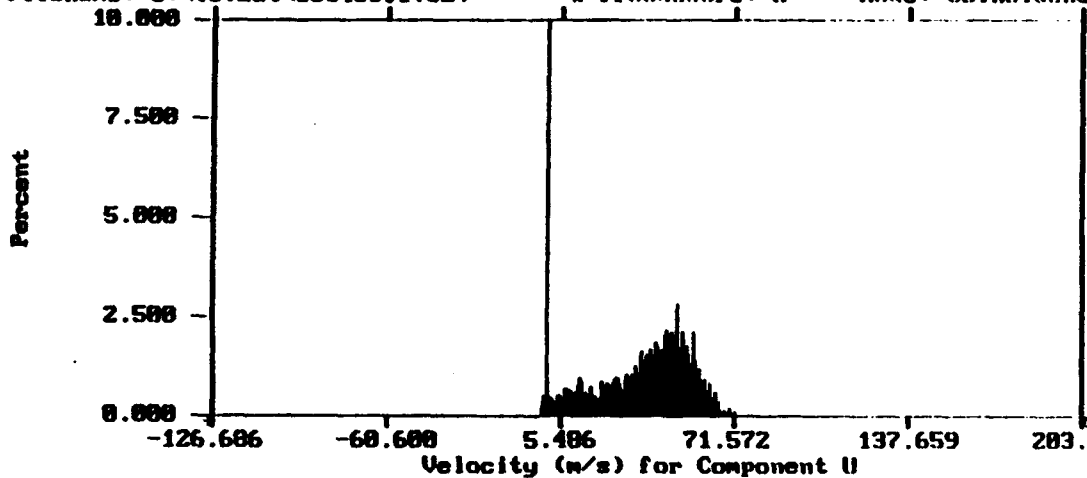
Filename: c:\ldv2d4\0514s191.s28 # Processors: 2 Mode: Coincidence



Position (rec/in) (0.6250, 0.0000, 1.0620)
Velocity mean = 44.614

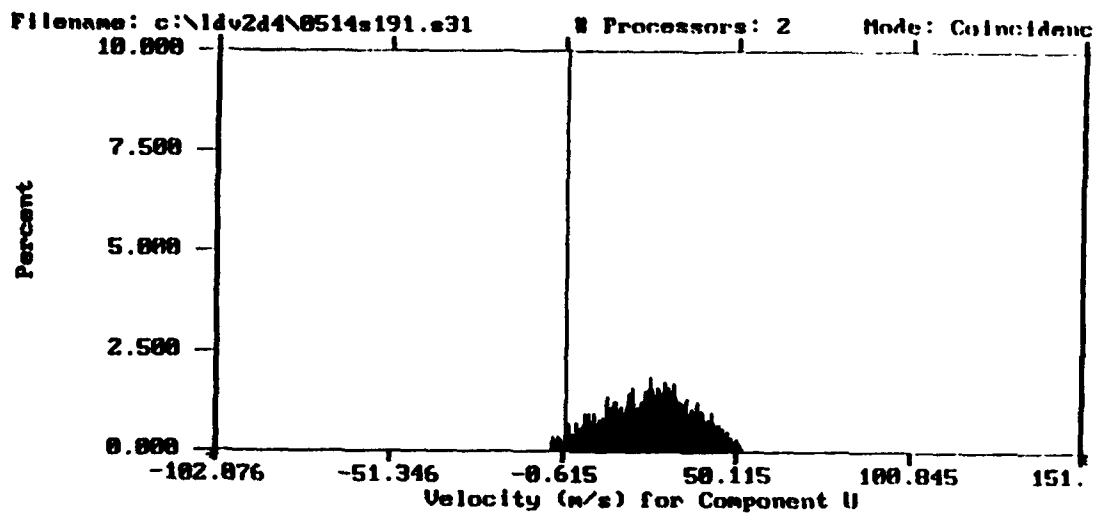
Velocity at cursor = -0.263
Percent at cursor = 0.00

Filename: c:\ldv2d4\0514s191.s29 # Processors: 2 Mode: Coincidence



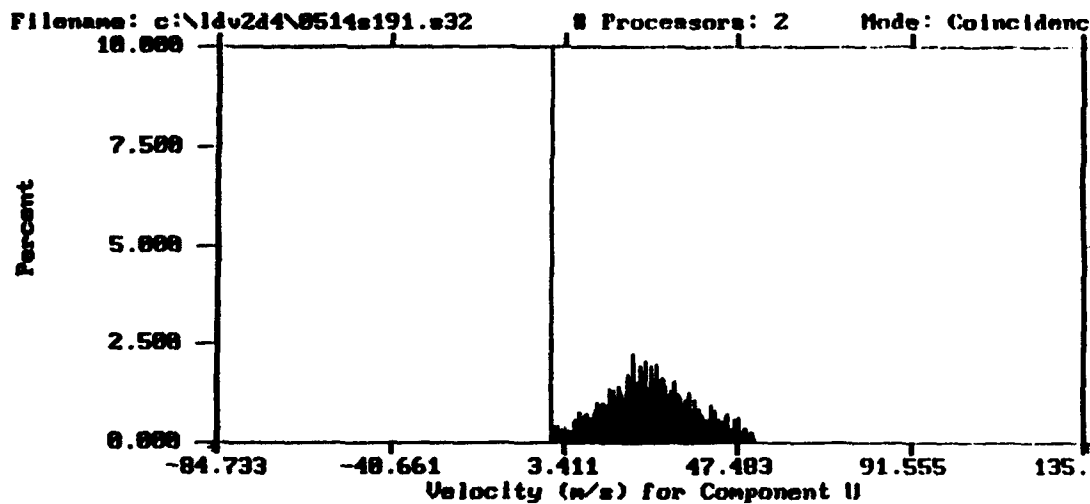
Position (rec/in) (0.4999, 0.0000, 1.0620)
Velocity mean = 38.523

Velocity at cursor = 0.023
Percent at cursor = 0.29



Position (rec/in) (0.2500, 0.0000, 1.0620)
Velocity mean = 24.759

Velocity at cursor = 0.023
Percent at cursor = 0.33



Position (rec/in) (0.1250, 0.0000, 1.0620)
Velocity mean = 25.447

Velocity at cursor = 0.02
Percent at cursor = 0.00

D. TABLE OF SHIFT SELECTION AT PLUS OR MINUS 5MHZ AND LDV MEASUREMENTS.

BLUE BEAM (NORMAL FLOW), FRINGES DIRECTION → FLOW DIRECTION →

SHIFT	FIND SOFTWARE	VELOCITY M/S	FREQUENCY MHZ
0	0	-	-
UP 5	0	22.832	5.128
DOWN 5	0	21.501	4.702
UP 5	+ 5	0.492	5.213
DOWN 5	+ 5	-1.689	4.639
UP 5	- 5	45.031	5.063
DOWN 5	- 5	44.823	4.889

BLUE BEAM (REVERSE FLOW), FRINGES DIRECTION → FLOW DIRECTION ←

SHIFT	FIND SOFTWARE	VELOCITY M/S	FREQUENCY MHZ
0	0	-	-
UP 5	0	20.597	4.622
DOWN 5	0	24.232	5.422
UP 5	+ 5	-2.253	4.543
DOWN 5	+ 5	1.710	5.363
UP 5	- 5	43.005	4.576
DOWN 5	- 5	46.660	5.347

This two tables shows that with the shifter at UP 5MHz and FIND software at +5 it is possible to measured a positive and negative velocity (normal and reverse flow).

GREEN BEAN (NORMAL FLOW), FRINGES DIRECTION ↓ FLOW DIRECTIONS ↑

SHIFT	FIND SOFTWARE	VELOCITY M/S	FREQUENCY MHZ
0	0	2.389	0.481
UP 5	0	21.795	4.549
DOWN 5	0	25.433	5.284
UP 5	+ 5	-2.116	4.682
DOWN 5	+ 5	1.724	5.350
UP 5	- 5	45.805	4.401
DOWN 5	- 5	49.137	5.392

GREEN BEAN (REVERSE FLOW), FRINGES DIRECTION ↓ FLOW DIRECTIONS ↓

SHIFT	FIND SOFTWARE	VELOCITY M/S	FREQUENCY MHZ
0	0	6.077	1.282
UP 5	0	29.226	6.136
DOWN 5	0	17.658	3.725
UP 5	+ 5	5.025	6.185
DOWN 5	+ 5	-6.355	3.672
UP 5	- 5	53.047	6.185
DOWN 5	- 5	41.470	3.757

This two tables shows that with the shifter at DOWN 5MHz and FIND software at +5 it is possible to measured a positive and negative velocity (normal and reverse flow).

[illegible]

NEWTON S METHOD IS USED TO DETERMINE THE REFERENCE VELOCITY FROM THE RECORDED AMBIENT PRESSURE AND TUNNEL FLENUM PRESSURE AND TEMPERATURE

AXIAL VEL. M PER SEC	TANGENTIAL VEL. M PER SEC.	AMBIENT PRESS. INCHES MERCURY	PLENUM PRESS. INCHES WATER	PLENUM TEMP. DEG. C.
19.9600	24.6660	29.8941	2.0000	17.7778
32.0520	39.2970	29.8941	4.7000	18.0556
39.7110	48.1900	29.8941	7.3000	18.8889
46.6360	55.9700	29.9841	10.0000	19.4444
50.9830	61.5980	29.9841	12.0000	20.0000
54.9530	66.2070	29.9841	14.1000	20.5556

TOTAL VELOCITY	MACH NUMBER	MACH NUMBER FUNCT.	PRESSURE RATIO
0.317303192E+02	0.414931434E-01	0.599998018E-02	-0.193311650E+03
0.507107968E+02	0.662819212E-01	0.152081979E-01	-0.816858085E+02
0.624438918E+02	0.815012269E-01	0.228644274E-01	-0.522360685E+02
0.728529848E+02	0.949967822E-01	0.308775796E-01	-0.379793300E+02
0.799598643E+02	0.104164963E+00	0.369544196E-01	-0.314827750E+02
0.860418448E+02	0.111981989E+00	0.425268503E-01	-0.266449149E+02

PRESSURE RATIO = A1 * ANUX + A0

```

0.60E+01  -0.42E+03  A0      0.15E+00
-0.42E+03  0.50E+05  A1      -0.71E+01

```

A1 = 0.19109469172E-03 A0 = 0.39221597704E-01

96

29.8737	12.0000	18.8889	0514s11.PRN
29.8737	12.0000	20.0000	0514s1a1.PRN
29.8684	12.0000	22.7778	0514s1b1.PRN
29.8481	12.0000	22.2222	0514s1c1.PRN
29.8481	12.0000	22.7778	0514s1d1.PRN
29.8481	12.0000	22.7778	0514s1e1.PRN
30.0110	12.1000	21.1111	0511s21.PRN
30.0110	12.1000	21.1111	0511s2a1.PRN
30.0110	12.1000	22.2222	0511s2b1.PRN
29.9702	12.2000	20.5556	0512s31.PRN
29.9906	12.2000	21.1111	0512s41.PRN
29.9906	12.1000	21.1111	0512s51.PRN
29.9906	12.1000	21.1111	0512s61.PRN
29.9092	12.1000	22.2222	0507s71.PRN
29.9295	12.2000	22.7778	0508s81.PRN
29.9295	12.2000	22.7778	0507s91.PRN
29.9295	12.2000	22.7778	0507s101.PRN
29.9295	12.2000	23.3333	0507s111.PRN
29.9499	12.2000	23.3333	0507s121.PRN
29.9499	12.2000	23.3333	0507s131.PRN
30.0110	12.0000	21.1111	0508s141.PRN
29.9906	12.0000	21.6667	0508s151.PRN
29.8684	12.0000	21.6667	0514s161.PRN
29.8684	12.0000	22.2222	0514s171.PRN
29.8684	12.0000	22.2222	0514s181.PRN
29.8684	12.0000	22.2222	0514s191.PRN

I = 1

PRESSURE RATIO = -31.36317 MACH NUMBER PARAMETER = 0.4151E-01

RUN NAME = 0514s11.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER 1	MACH NO. PARAM. = 0.104363	ERROR TERM = -0.6401E-02
ITERATION NUMBER 2	MACH NO. PARAM. = 0.110764	ERROR TERM = 0.1655E-03
ITERATION NUMBER 3	MACH NO. PARAM. = 0.110598	ERROR TERM = 0.5999E-07
ITERATION NUMBER 4	MACH NO. PARAM. = 0.110598	ERROR TERM = -0.1731E-10

VREF = 84.73722268314

I = 2

PRESSURE RATIO = -31.36317 MACH NUMBER PARAMETER = 0.4151E-01

RUN NAME = 0514s1a1.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER 1	MACH NO. PARAM. = 0.104165	ERROR TERM = -0.6610E-02
ITERATION NUMBER 2	MACH NO. PARAM. = 0.110775	ERROR TERM = 0.1765E-03
ITERATION NUMBER 3	MACH NO. PARAM. = 0.110598	ERROR TERM = 0.7161E-07
ITERATION NUMBER 4	MACH NO. PARAM. = 0.110598	ERROR TERM = -0.2066E-10

VREF = 84.89826103496

I = 3

PRESSURE RATIO = -31.35743 MACH NUMBER PARAMETER = 0.4151E-01
RUN NAME = 0514s1b1.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103675	ERROR TERM = -0.7129E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110804	ERROR TERM = 0.2053E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110598	ERROR TERM = 0.1066E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110598	ERROR TERM = -0.3074E-10

VREF = 85.29953401308

I = 4

PRESSURE RATIO = -31.33544 MACH NUMBER PARAMETER = 0.4151E-01
RUN NAME = 0514s1c1.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103772	ERROR TERM = -0.7025E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110798	ERROR TERM = 0.1994E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110598	ERROR TERM = 0.9887E-07
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110598	ERROR TERM = -0.2852E-10

VREF = 85.21942480550

I = 5

PRESSURE RATIO = -31.33544 MACH NUMBER PARAMETER = 0.4151E-01
RUN NAME = 0514s1d1.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103675	ERROR TERM = -0.7129E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110804	ERROR TERM = 0.2053E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110598	ERROR TERM = 0.1066E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110598	ERROR TERM = -0.3074E-10

VREF = 85.29953401308

I = 6

PRESSURE RATIO = -31.33544 MACH NUMBER PARAMETER = 0.4151E-01
RUN NAME = 0514s1e1.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103675	ERROR TERM = -0.7129E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110804	ERROR TERM = 0.2053E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110598	ERROR TERM = 0.1066E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110598	ERROR TERM = -0.3074E-10

VREF = 85.29953401308

I = 7

PRESSURE RATIO = -31.24322 MACH NUMBER PARAMETER = 0.4153E-01
RUN NAME = 0511s21.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103968	ERROR TERM = -0.6846E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110814	ERROR TERM = 0.1893E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110625	ERROR TERM = 0.8621E-07
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110625	ERROR TERM = -0.2489E-10

VREF = 85.07919440271

I = 8

PRESSURE RATIO = -31.24322 MACH NUMBER PARAMETER = 0.4153E-01
RUN NAME = 0511s2a1.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103968	ERROR TERM = -0.6846E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110814	ERROR TERM = 0.1893E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110625	ERROR TERM = 0.8621E-07
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110625	ERROR TERM = -0.2489E-10

VREF = 85.07919440271

I = 9

PRESSURE RATIO = -31.24322 MACH NUMBER PARAMETER = 0.4153E-01
RUN NAME = 0511s2b1.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103772	ERROR TERM = -0.7053E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110826	ERROR TERM = 0.2009E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110625	ERROR TERM = 0.1007E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110625	ERROR TERM = -0.2908E-10

VREF = 85.23966280667

I = 10

PRESSURE RATIO = -30.93546 MACH NUMBER PARAMETER = 0.4155E-01
RUN NAME = 0512s31.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.104066	ERROR TERM = -0.6770E-02
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ITERATION NUMBER	2	MACH NO.	PARAM. = 0.110836	ERROR TERM =	0.1850E-03
ITERATION NUMBER	3	MACH NO.	PARAM. = 0.110651	ERROR TERM =	0.8108E-07
ITERATION NUMBER	4	MACH NO.	PARAM. = 0.110651	ERROR TERM =	-0.2344E-10

VREF = 85.01903047416

I = 11

PRESSURE RATIO = -30.95720 MACH NUMBER PARAMETER = 0.4155E-01

RUN NAME = 0512s41.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO.	PARAM. = 0.103968	ERROR TERM =	-0.6874E-02
ITERATION NUMBER	2	MACH NO.	PARAM. = 0.110842	ERROR TERM =	0.1908E-03
ITERATION NUMBER	3	MACH NO.	PARAM. = 0.110651	ERROR TERM =	0.8790E-07
ITERATION NUMBER	4	MACH NO.	PARAM. = 0.110651	ERROR TERM =	-0.2540E-10

VREF = 85.09939011711

I = 12

PRESSURE RATIO = -31.22131 MACH NUMBER PARAMETER = 0.4153E-01

RUN NAME = 0512s51.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO.	PARAM. = 0.103968	ERROR TERM =	-0.6846E-02
ITERATION NUMBER	2	MACH NO.	PARAM. = 0.110814	ERROR TERM =	0.1893E-03
ITERATION NUMBER	3	MACH NO.	PARAM. = 0.110625	ERROR TERM =	0.8621E-07
ITERATION NUMBER	4	MACH NO.	PARAM. = 0.110625	ERROR TERM =	-0.2489E-10

VREF = 85.07919440271

I = 13

PRESSURE RATIO = -31.22131 MACH NUMBER PARAMETER = 0.4153E-01

RUN NAME = 0512s61.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO.	PARAM. = 0.103968	ERROR TERM =	-0.6846E-02
ITERATION NUMBER	2	MACH NO.	PARAM. = 0.110814	ERROR TERM =	0.1893E-03
ITERATION NUMBER	3	MACH NO.	PARAM. = 0.110625	ERROR TERM =	0.8621E-07
ITERATION NUMBER	4	MACH NO.	PARAM. = 0.110625	ERROR TERM =	-0.2489E-10

VREF = 85.07919440271

I = 14

PRESSURE RATIO = -31.13385 MACH NUMBER PARAMETER = 0.4153E-01

RUN NAME = 0507s71.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103772	ERROR TERM = -0.7053E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110826	ERROR TERM = 0.2009E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110625	ERROR TERM = 0.1007E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110625	ERROR TERM = -0.2908E-10

VREF = 85.23966280667

I = 15

PRESSURE RATIO = -30.89209 MACH NUMBER PARAMETER = 0.4155E-01

RUN NAME = 0508s81.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103675	ERROR TERM = -0.7184E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110859	ERROR TERM = 0.2084E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110651	ERROR TERM = 0.1105E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110651	ERROR TERM = -0.3193E-10

VREF = 85.34004386482

I = 16

PRESSURE RATIO = -30.89209 MACH NUMBER PARAMETER = 0.4155E-01

RUN NAME = 0507s91.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103675	ERROR TERM = -0.7184E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110859	ERROR TERM = 0.2084E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110651	ERROR TERM = 0.1105E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110651	ERROR TERM = -0.3193E-10

VREF = 85.34004386482

I = 17

PRESSURE RATIO = -30.89209 MACH NUMBER PARAMETER = 0.4155E-01

RUN NAME = 0507s101.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103675	ERROR TERM = -0.7184E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110859	ERROR TERM = 0.2084E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110651	ERROR TERM = 0.1105E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110651	ERROR TERM = -0.3193E-10

VREF = 85.34004386482

I = 18

PRESSURE RATIO = -30.89209 MACH NUMBER PARAMETER = 0.4155E-01
RUN NAME = 0507s111.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103578	ERROR TERM = -0.7288E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110865	ERROR TERM = 0.2145E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110651	ERROR TERM = 0.1188E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110651	ERROR TERM = -0.3432E-10

VREF = 85.42010151240

I = 19

PRESSURE RATIO = -30.91383 MACH NUMBER PARAMETER = 0.4155E-01
RUN NAME = 0507s121.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103578	ERROR TERM = -0.7288E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110865	ERROR TERM = 0.2145E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110651	ERROR TERM = 0.1188E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110651	ERROR TERM = -0.3432E-10

VREF = 85.42010151240

I = 20

PRESSURE RATIO = -30.91383 MACH NUMBER PARAMETER = 0.4155E-01
RUN NAME = 0507s131.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103578	ERROR TERM = -0.7288E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110865	ERROR TERM = 0.2145E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110651	ERROR TERM = 0.1188E-06
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110651	ERROR TERM = -0.3432E-10

VREF = 85.42010151240

I = 21

PRESSURE RATIO = -31.51192 MACH NUMBER PARAMETER = 0.4151E-01
RUN NAME = 0508s141.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO. PARAM. = 0.103968	ERROR TERM = -0.6818E-02
ITERATION NUMBER	2	MACH NO. PARAM. = 0.110786	ERROR TERM = 0.1878E-03
ITERATION NUMBER	3	MACH NO. PARAM. = 0.110598	ERROR TERM = 0.8454E-07
ITERATION NUMBER	4	MACH NO. PARAM. = 0.110598	ERROR TERM = -0.2439E-10

VREF = 85.05899450070

I = 22

PRESSURE RATIO = -31.48982 MACH NUMBER PARAMETER = 0.4151E-01

RUN NAME = 0508s151.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO.	PARAM. = 0.103870	ERROR TERM =	-0.6922E-02
ITERATION NUMBER	2	MACH NO.	PARAM. = 0.110792	ERROR TERM =	0.1936E-03
ITERATION NUMBER	3	MACH NO.	PARAM. = 0.110598	ERROR TERM =	0.9153E-07
ITERATION NUMBER	4	MACH NO.	PARAM. = 0.110598	ERROR TERM =	-0.2640E-10

VREF = 85.13925466046

I = 23

PRESSURE RATIO = -31.35743 MACH NUMBER PARAMETER = 0.4151E-01

RUN NAME = 0514s161.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO.	PARAM. = 0.103870	ERROR TERM =	-0.6922E-02
ITERATION NUMBER	2	MACH NO.	PARAM. = 0.110792	ERROR TERM =	0.1936E-03
ITERATION NUMBER	3	MACH NO.	PARAM. = 0.110598	ERROR TERM =	0.9153E-07
ITERATION NUMBER	4	MACH NO.	PARAM. = 0.110598	ERROR TERM =	-0.2640E-10

VREF = 85.13925466046

I = 24

PRESSURE RATIO = -31.35743 MACH NUMBER PARAMETER = 0.4151E-01

RUN NAME = 0514s171.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO.	PARAM. = 0.103772	ERROR TERM =	-0.7025E-02
ITERATION NUMBER	2	MACH NO.	PARAM. = 0.110798	ERROR TERM =	0.1994E-03
ITERATION NUMBER	3	MACH NO.	PARAM. = 0.110598	ERROR TERM =	0.9887E-07
ITERATION NUMBER	4	MACH NO.	PARAM. = 0.110598	ERROR TERM =	-0.2852E-10

VREF = 85.21942480550

I = 25

PRESSURE RATIO = -31.35743 MACH NUMBER PARAMETER = 0.4151E-01

RUN NAME = 0514s181.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER	1	MACH NO.	PARAM. = 0.103772	ERROR TERM =	-0.7025E-02
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ITERATION NUMBER 2 MACH NO. PARAM. = 0.110798 ERROR TERM = 0.1994E-03
 ITERATION NUMBER 3 MACH NO. PARAM. = 0.110598 ERROR TERM = 0.9887E-07
 ITERATION NUMBER 4 MACH NO. PARAM. = 0.110598 ERROR TERM = -0.2852E-10

VREF = 85.21942480550

I = 26

PRESSURE RATIO = -31.35743 MACH NUMBER PARAMETER = 0.4151E-01

RUN NAME = 0514s191.PRN

BEGIN NEWTON ITERATION

ITERATION NUMBER 1 MACH NO. PARAM. = 0.103772 ERROR TERM = -0.7025E-02
 ITERATION NUMBER 2 MACH NO. PARAM. = 0.110798 ERROR TERM = 0.1994E-03
 ITERATION NUMBER 3 MACH NO. PARAM. = 0.110598 ERROR TERM = 0.9887E-07
 ITERATION NUMBER 4 MACH NO. PARAM. = 0.110598 ERROR TERM = -0.2852E-10

VREF = 85.21942480550

EXPERIMENT NUMBER	REFERENCE VELOCITY	NAME
1	84.7372	0514s11.PRN
2	84.8983	0514s1a1.PRN
3	85.2995	0514s1b1.PRN
4	85.2194	0514s1c1.PRN
5	85.2995	0514s1d1.PRN
6	85.2995	0514s1e1.PRN
7	85.0792	0511s21.PRN
8	85.0792	0511s2a1.PRN
9	85.2397	0511s2b1.PRN
10	85.0190	0512s31.PRN
11	85.0994	0512s41.PRN
12	85.0792	0512s51.PRN
13	85.0792	0512s61.PRN
14	85.2397	0507s71.PRN
15	85.3400	0508s81.PRN
16	85.3400	0507s91.PRN
17	85.3400	0507s101.PRN
18	85.4201	0507s111.PRN
19	85.4201	0507s121.PRN
20	85.4201	0507s131.PRN
21	85.0590	0508s141.PRN
22	85.1393	0508s151.PRN
23	85.1393	0514s161.PRN
24	85.2194	0514s171.PRN
25	85.2194	0514s181.PRN
26	85.2194	0514s191.PRN

F. SURVEYS FROM STATION 1 THROUGH 19

Pitchwise Survey at Station 1

	X(in)	Y(in)	UVref	VHref	U-Turb	V-Turb	UsedVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.
1										
2	2	-8.29	0.520433	0.59714	25.95733	3.75768	0.78504	41.1	0.104	0.09146
3	1.75	-8.29	0.723413	0.898501	8.89985	3.635375	0.935375	50.4	0.303	0.01169
4	1.5	-8.29	0.710893	0.899501	6.894131	3.623349	0.935355	50.2	-0.00786	-0.00944
5	1.25	-8.29	0.728134	0.93532	4.892444	3.89515	0.941735	50.6	0.00458	0.00341
6	1	-8.29	0.892109	0.89942	13.03828	3.59129	0.914882	48.2	0.702	0.0212
7	0.75	-8.29	0.718693	0.611302	6.31652	3.931653	0.942515	49.6	-0.185	-0.0115
8	0.5	-8.29	0.713972	0.611302	6.33474	3.706319	0.940555	49.3	0.0727	0.03329
9	0.25	-8.29	0.728953	0.611302	6.333968	3.849368	0.949368	50	-0.324	-0.0188
10	-0.0001	-8.29	0.739755	0.611302	4.137628	3.746418	0.961797	50.1	-0.172	-0.0155
11	-0.25	-8.29	0.743475	0.611302	4.379088	3.759311	0.962977	50.5	-0.529	-0.0449
12	-0.5	-8.29	0.744685	0.611302	5.242373	3.741167	0.962977	50.6	0.0508	0.0038
13	-0.75	-8.29	0.743475	0.611302	5.409364	3.612793	0.961797	50.8	-0.0836	-0.00486
14	-1	-8.29	0.734034	0.609401	7.08911	3.639461	0.961176	50.5	-0.0394	-0.00267
15	-1.25	-8.29	0.734034	0.599596	8.61603	3.945267	0.946276	50.9	-0.746	-0.0303
16	-1.5	-8.29	0.733394	0.599596	8.176349	3.953942	0.947336	51	-0.482	-0.0292
17	-1.75	-8.29	0.732854	0.5932	5.870161	3.470289	0.944456	50.8	-0.622	-0.0425
18	-2	-8.29	0.710432	0.603041	8.679302	3.576033	0.932294	49.6	-0.129	-0.00911
19	-2.25	-8.29	0.721083	0.607761	3.979367	3.620608	0.95897	50.1	-0.755	-0.073
20	-2.5	-8.29	0.732854	0.613632	3.979367	3.620608	0.95897	50.2	-0.536	-0.0647
21	-2.75	-8.29	0.736394	0.613632	3.897159	3.59823	0.958257	50.2	-0.544	-0.0686
22	-3	-8.29	0.737975	0.614642	3.635242	3.495155	0.958257	50.2	-0.233	-0.0293
23	-3.25	-8.29	0.743475	0.616583	3.672767	3.54225	0.967668	50.4	-0.134	-0.0146
24	-3.5	-8.29	0.743475	0.613632	3.667668	3.516253	0.964157	50.4	-0.134	-0.0146
25	-3.75	-8.29	0.748838	0.611302	3.955428	3.498968	0.964157	50.7	-0.189	-0.0215
26	-4	-8.29	0.750656	0.600681	3.542624	3.39953	0.960617	51.3	-0.312	-0.0362

Pitchwise Survey at Station 1A

	X(in)	Y(in)	UVref	VHref	U-Turb	V-Turb	UsedVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.
1										
2	2	-5.5	0.765622	0.564204	6.72809	6.26267	0.931727	53.6	2.87	0.0726
3	1.75	-5.5	0.751487	0.554781	6.304979	5.209398	0.934059	53.6	0.0688	0.0029
4	1.5	-5.5	0.707908	0.57137	6.140817	4.652086	0.901078	51.9	0.179	0.00655
5	1.25	-5.5	0.696127	0.570094	3.396023	4.851496	0.8999	50.7	0.0564	0.00299
6	1	-5.5	0.687858	0.567762	8.214852	4.813771	0.890477	48.6	-0.262	-0.0022
7	0.75	-5.5	0.499373	0.606808	23.61178	5.034948	0.78091	37.1	-0.551	-0.00843
8	0.5	-5.5	0.580685	0.617209	21.80185	5.418086	0.846696	43.3	2.07	0.0245
9	0.25	-5.5	0.499421	0.633699	24.37175	5.468628	0.868026	38.2	4.64	0.0503
10	-0.0001	-5.5	0.592474	0.633699	22.57324	5.60362	0.868026	43.1	1.27	0.0137
11	-0.25	-5.5	0.738531	0.828988	7.829425	6.28879	0.969395	49.6	-1.74	-0.0489
12	-0.5	-5.5	0.76091	0.814853	7.180167	6.271504	0.97764	51.1	-0.153	-0.00474
13	-0.75	-5.5	0.762066	0.596007	6.523476	6.317677	0.967039	52	1.33	0.045
14	-1	-5.5	0.765622	0.578339	5.487165	5.471087	0.958794	52.9	2.8	0.129
15	-1.25	-5.5	0.74442	0.552426	6.728568	5.18328	0.926901	53.4	0.818	0.0324
16	-1.5	-5.5	0.713795	0.560671	7.009469	4.933903	0.908968	51.9	-0.973	-0.0391
17	-1.75	-5.5	0.702016	0.578339	5.075579	4.719246	0.909323	50.5	-0.742	-0.0473
18	-2	-5.5	0.702016	0.596363	5.033458	4.53542	0.92228	49.6	-0.981	-0.0594
19	-2.25	-5.5	0.702016	0.616031	5.003377	4.78562	0.934059	48.7	-1.29	-0.0747
20	-2.5	-5.5	0.706728	0.623068	5.069441	5.321261	0.942204	48.6	-2.16	-0.111
21	-2.75	-5.5	0.710282	0.641945	6.278712	4.923715	0.957816	47.9	-0.93	-0.0417
22	-3	-5.5	0.734097	0.634877	5.740327	5.558178	0.971751	49.2	-0.98	-0.0426

Pitchwise Survey at Station 1B										
	A	B	C	D	E	F	G	H	I	
	X(m)	Y(m)	UVref	VVref	U-Turb	V-Turb	UdVref	UV-Angle Mean	UV-Reyn Stress	UV-Correl Coeff
1										
2										
3										
4										
5										
6										
7	2	-5	0.790157	0.477567	4.748844	8.925561	0.922631	58.9	8.4	0.222
8	1.75	-5	0.752842	0.398185	7.195259	6.0719	0.853483	61.0	7.5	0.232
9	1.5	-5	0.624857	0.461383	5.648708	5.785731	0.779806	53.2	1.11	-0.0426
10	1.25	-5	0.589066	0.542358	4.157516	4.538632	0.812431	47.6	1.19	0.0605
11	1	-5	0.6081	0.593129	4.291186	4.325254	0.852291	45.4	1.69	0.125
12	0.75	-5	0.62134	0.623505	4.9148	5.502236	0.863944	44.6	0.847	0.0431
13	0.5	-5	0.682372	0.647552	6.100448	6.242616	0.928685	45.4	3.08	0.112
14	0.25	-5	0.686163	0.65213	6.571961	7.274251	0.949595	46.4	5.08	0.173
15	-0.0001	-5	0.728851	0.683359	6.62161	8.486568	0.98711	47.4	6.35	0.195
16	-0.25	-5	0.745808	0.645243	6.198003	9.624783	0.965938	49.1	-9.54	0.22
17	-0.5	-5	0.765538	0.654824	4.891787	10.37266	1.008212	49.3	1.66	0.046
18	-0.75	-5	0.788383	0.612245	4.448884	10.77052	1.005868	52.5	7.99	0.21
19	-1	-5	0.800708	0.503191	4.668128	9.052808	0.944906	57.8	10.9	0.25
20	-1.25	-5	0.747853	0.420004	7.088072	6.111173	0.859325	60.4	7.1	0.223
21	-1.5	-5	0.643615	0.481474	5.58083	5.532975	0.805397	53	1.37	0.0639
22	-1.75	-5	0.614306	0.554627	4.711728	4.87616	0.831189	47.6	1.13	0.0552
23	-2	-5	0.617823	0.593764	5.010545	5.567407	0.858153	46	0.198	0.00975

Pitchwise Survey at Station 1C										
	A	B	C	D	E	F	G	H	I	
	X(m)	Y(m)	UVref	VVref	U-Turb	V-Turb	UdVref	UV-Angle Mean	UV-Reyn Stress	UV-Correl Coeff
1										
2										
3										
4										
5										
6										
7	2	-4.9	0.808675	0.451775	4.084587	7.981241	0.927019	60.9	4.47	0.191
8	1.75	-4.9	0.751003	0.282187	8.110829	4.987179	0.806154	68.8	4.26	0.146
9	1.5	-4.9	0.585547	0.466295	5.00843	4.86272	0.741615	52.1	-0.273	-0.0151
10	1.25	-4.9	0.574886	0.547887	4.312386	4.983865	0.79442	46.4	1.74	0.112
11	1	-4.9	0.583201	0.594835	4.481484	5.473402	0.831144	44.4	0.453	0.0258
12	0.75	-4.9	0.597282	0.631312	4.234728	5.728997	0.86952	43.4	-0.16	-0.00911
13	0.5	-4.9	0.685329	0.64774	6.969958	7.080364	0.942274	48.6	-5.58	-0.157
14	0.25	-4.9	0.704065	0.632965	6.878715	7.491839	0.968816	48.7	-5.81	-0.155
15	-0.0001	-4.9	0.724014	0.68177	6.92157	8.728851	0.993805	48.7	-5.99	-0.137
16	-0.25	-4.9	0.742789	0.682331	6.217141	10.24849	1.016201	47	-8.1	-0.174
17	-0.5	-4.9	0.768604	0.68881	4.988566	11.22781	1.032629	48.1	0.427	0.0106
18	-0.75	-4.9	0.78794	0.641873	4.867951	12.19558	1.024415	51.2	11.3	0.272
19	-1	-4.9	0.807328	0.486203	3.875174	8.008276	0.93408	59.9	5.61	0.248
20	-1.25	-4.9	0.748829	0.319178	7.488293	5.872841	0.814369	66.9	8.1	0.253
21	-1.5	-4.9	0.608602	0.451775	5.59748	6.053786	0.752178	53.1	-0.185	0.00675
22	-1.75	-4.9	0.611383	0.543304	5.355641	5.487366	0.817889	48.4	-0.0217	-0.00101
23	-2	-4.9	0.614883	0.597282	5.294147	6.032547	0.857788	45.9	-0.823	-0.0356

A	B	C	D	E	F	G	H	I	J
Pitchwise Survey at Station 1D									
X(In)	Y(In)	UVref	VVref	U-Turb	V-Turb	UtoVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.
1									
2									
3									
4									
5									
6									
7	2	-0.844	0.778157	0.456255	14.59978	8.557148	59.8157	-22.0161	-0.2422
8	1.975	-0.844	0.757237	0.326391	17.99853	8.800658	66.6825	-25.2127	-0.33263
9	1.75	-0.844	0.750422	0.108807	9.603218	5.878302	81.4429	-8.77056	-0.21364
10	1.625	-0.844	0.557247	0.334964	5.917017	5.777084	58.9904	-5.34166	-0.21477
11	1.5	-0.844	0.548677	0.43947	4.818882	5.863264	51.3065	-0.28305	-0.01428
12	1.375	-0.844	0.560137	0.508439	4.510885	4.914887	47.3683	0.980964	0.081432
13	1.25	-0.844	0.553921	0.542199	4.804963	5.067545	45.6127	0.378153	0.022318
14	1.1249	-0.844	0.570131	0.563818	5.431109	5.828108	45.3139	0.058893	0.002883
15	1	-0.844	0.562335	0.593108	5.562041	5.896264	44.475	-0.42142	-0.0186
16	0.875	-0.844	0.594252	0.611184	5.944541	6.05437	44.1953	-2.99451	-0.11825
17	0.75	-0.844	0.619821	0.625818	6.328729	6.173211	44.7149	-1.12419	-0.03835
18	0.625	-0.844	0.630849	0.642045	6.826504	6.531586	44.5008	-2.66725	-0.08219
19	0.4999	-0.844	0.644833	0.654979	6.997786	6.937933	44.5528	-4.0735	-0.1139
20	0.3749	-0.844	0.662465	0.663159	7.629605	7.339177	44.97	-6.16138	-0.15123
21	0.25	-0.844	0.674188	0.673546	7.478877	7.910793	45.026	-9.58082	-0.22216
22	0.125	-0.844	0.688855	0.679438	7.571753	8.301234	45.3152	-9.9735	-0.21808
23	-0.0001	-0.844	0.708889	0.680707	8.004001	9.095478	46.0813	-9.77831	-0.1846
24	-0.125	-0.844	0.71167	0.700438	7.845237	9.08234	45.4558	-10.1554	-0.18536
25	-0.2501	-0.844	0.730038	0.688852	7.918754	10.8888	46.8585	-11.3925	-0.18864
26	-0.3751	-0.844	0.73746	0.695425	7.569629	10.82025	46.8804	-3.91207	-0.08859
27	-0.5	-0.844	0.754004	0.69726	7.724172	11.89583	47.2392	-0.42649	-0.00849
28	-0.625	-0.844	0.789749	0.696993	7.78551	12.39083	48.1886	7.71874	0.108895
29	-0.75	-0.844	0.784485	0.653604	8.743851	12.84267	50.1995	7.07877	0.088615
30	-0.875	-0.844	0.786081	0.573416	11.91511	11.87058	53.89	-7.18541	-0.08905
31	-1	-0.844	0.778046	0.447591	14.34133	8.280391	60.0892	-17.6841	-0.20444
32	-1.125	-0.844	0.76034	0.320533	17.12931	5.743586	67.1414	-18.9382	-0.28455
33	-1.25	-0.844	0.74262	0.167485	10.40002	7.537854	77.2908	-4.24899	-0.07449
34	-1.375	-0.844	0.578189	0.343962	6.310755	6.871077	59.2518	-2.96356	-0.06875
35	-1.5	-0.844	0.586505	0.450876	5.748233	6.081145	51.4841	-0.48877	-0.01881
36	-1.625	-0.844	0.588314	0.508797	5.238241	5.728084	48.1828	-1.32559	-0.06072
37	-1.75	-0.844	0.572721	0.548559	4.864118	5.423629	46.2345	1.29635	0.067875
38	-1.875	-0.844	0.569105	0.571081	5.385549	5.911393	45.8911	-1.07529	-0.04642
39	-2	-0.844	0.590632	0.596073	5.478931	5.91958	44.6414	0.729665	0.03092

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73	A	B	C	D	E
	X(in)	Y(in)	U/Vref	V/Vref	Utot/Vref
	2	-4.82	0.825327	0.433786	0.93201
	1.94	-4.82	0.831189	0.383365	0.91597
	1.87	-4.82	0.837081	0.320049	0.88888
	1.81	-4.82	0.202815	0.143025	0.247384
	1.75	-4.82	0.718817	0.807823	0.880427
	1.69	-4.82	0.838789	0.181091	0.888767
	1.62	-4.82	0.838888	0.334117	0.888029
	1.56	-4.82	0.83107	0.411481	0.871751
	1.5	-4.82	0.832242	0.483889	0.888867
	1.44	-4.82	0.848827	0.488348	0.733885
	1.37	-4.82	0.847463	0.513485	0.780297
	1.31	-4.82	0.843888	0.543888	0.770227
	1.25	-4.82	0.881	0.588206	0.784285
	1.19	-4.82	0.888208	0.882723	0.788302
	1.12	-4.82	0.881861	0.873274	0.803063
	1.06	-4.82	0.880378	0.883204	0.818849
	1	-4.82	0.872102	0.808786	0.832381
	0.937	-4.82	0.877884	0.811981	0.841174
	0.875	-4.82	0.817823	0.813134	0.888878
	0.812	-4.82	0.818881	0.817823	0.872221
	0.75	-4.82	0.822512	0.834238	0.888834
	0.687	-4.82	0.842442	0.837753	0.908046
	0.625	-4.82	0.844787	0.84127	0.908863
	0.562	-4.82	0.888848	0.881821	0.921488
	0.5	-4.82	0.881821	0.882372	0.928885
	0.437	-4.82	0.874085	0.887081	0.948423
	0.375	-4.82	0.883474	0.870878	0.967802
	0.312	-4.82	0.884648	0.888408	0.967802
	0.25	-4.82	0.708821	0.887081	0.97187
	0.187	-4.82	0.710438	0.877812	0.981248
	0.125	-4.82	0.702232	0.888819	0.982421
	0.0625	-4.82	0.888188	0.884025	0.983883
	-0.0001	-4.82	0.703404	0.702232	0.884144
	-0.0625	-4.82	0.718817	0.884848	0.982872
	-0.125	-4.82	0.728881	0.704878	1.011729
	-0.187	-4.82	0.728023	0.701888	1.018867
	-0.25	-4.82	0.738229	0.701888	1.018419
	-0.313	-4.82	0.738746	0.718844	1.031888
	-0.375	-4.82	0.75147	0.887542	1.034825
	-0.437	-4.82	0.788189	0.706749	1.034804
	-0.5	-4.82	0.78871	0.708821	1.043382
	-0.562	-4.82	0.7714	0.706749	1.045727
	-0.625	-4.82	0.788488	0.888887	1.051888
	-0.687	-4.82	0.788187	0.878887	1.04221
	-0.75	-4.82	0.803063	0.882883	1.038178
	-0.812	-4.82	0.808814	0.828848	1.025787
	-0.875	-4.82	0.813884	0.873274	0.988317
	-0.937	-4.82	0.817121	0.802834	0.980148
	-1	-4.82	0.82181	0.428888	0.824878
	-1.06	-4.82	0.825327	0.38101	0.808883
	-1.12	-4.82	0.8285	0.314187	0.883844
	-1.19	-4.82	0.348185	0.171182	0.388044
	-1.25	-4.82	0.888183	0.148842	0.703404
	-1.31	-4.82	0.877884	0.221872	0.818885
	-1.37	-4.82	0.881	0.348185	0.881821
	-1.44	-4.82	0.847463	0.412884	0.888819
	-1.5	-4.82	0.884517	0.483874	0.722181
	-1.56	-4.82	0.887412	0.483885	0.75147
	-1.62	-4.82	0.88817	0.804108	0.772572
	-1.69	-4.82	0.883825	0.828819	0.781851
	-1.75	-4.82	0.887342	0.848885	0.804225
	-1.81	-4.82	0.888848	0.881881	0.818488
	-1.88	-4.82	0.887883	0.878819	0.830017
	-1.94	-4.82	0.888088	0.888815	0.838385
	-2	-4.82	0.808444	0.800238	0.854838

Pitchwise Survey at Station 2										
A	B	C	D	E	F	G	H	I	J	
X(in)	Y(in)	UVref	V/Vref	U-Turb	V-Turb	Uac/Vref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff	
-1.1421	-4.792	0.84622	0.299073	2.531737	2.531112	0.897514	70.5354	0.383851	0.078442	
-1.1322	-4.792	0.846912	0.316987	2.296563	2.948563	0.904283	69.4811	-0.22899	-0.04675	
-1.1212	-4.792	0.843549	0.332368	2.659642	3.463303	0.909686	68.495	-0.30802	-0.04603	
-1.1092	-4.792	0.839085	0.350881	2.282387	3.45338	0.909488	67.3079	-0.50685	-0.10023	
-1.096	-4.792	0.836783	0.367117	2.266012	3.45888	0.913754	66.3113	-0.32189	-0.05814	
-1.0814	-4.792	0.835939	0.382051	2.348654	3.58333	0.919107	65.4381	-0.04897	-0.00904	
-1.0654	-4.792	0.833354	0.394858	2.398051	3.685724	0.922185	64.6477	-0.20284	-0.03186	
-1.0477	-4.792	0.831344	0.408039	2.3998	4.054868	0.926083	63.8574	-0.31353	-0.04452	
-1.0284	-4.792	0.829877	0.421768	2.464512	4.242669	0.930904	63.0591	-0.28711	-0.03793	
-1.007	-4.792	0.825143	0.431898	2.599101	4.879436	0.93134	62.3715	-0.37061	-0.04137	
-0.9836	-4.792	0.823983	0.448877	2.519854	4.829847	0.938347	61.4141	0.166956	0.018568	
-0.9577	-4.792	0.822916	0.468604	3.010382	8.781788	0.957233	59.2808	1.5188	0.076369	
-0.9295	-4.792	0.819687	0.520394	3.107017	10.38706	0.971182	57.5986	3.47764	0.148868	
-0.8983	-4.792	0.817284	0.588894	3.198916	12.82225	0.988248	55.1213	4.08359	0.19035	
-0.8639	-4.792	0.815607	0.697728	3.376067	13.00691	1.012368	53.8724	5.19462	0.183428	
-0.8262	-4.792	0.811674	0.827776	3.628106	13.78741	1.028118	52.2805	5.16968	0.142855	
-0.7846	-4.792	0.80503	0.855125	3.728599	13.86441	1.037912	50.8617	4.883	0.13046	
-0.7389	-4.792	0.805016	0.880578	3.801236	14.02024	1.054152	48.7881	5.93235	0.15378	
-0.6886	-4.792	0.793286	0.708632	4.342894	13.10235	1.083903	48.214	8.8236	0.214226	
-0.6334	-4.792	0.794067	0.713639	4.304803	13.44459	1.060209	47.6923	6.80889	0.182528	
-0.5726	-4.792	0.776178	0.743668	4.818513	12.00943	1.07484	46.2254	7.49319	0.179024	
-0.506	-4.792	0.763022	0.735685	4.788016	12.20148	1.059923	46.045	8.89141	0.092022	
-0.432	-4.792	0.753551	0.742084	5.02898	11.47023	1.05759	45.4401	9.908748	0.021764	
-0.3512	-4.792	0.741467	0.741414	5.287508	11.57043	1.048555	45.0021	-0.01269	-0.00029	
-0.2621	-4.792	0.731038	0.73388	5.858138	10.77448	1.035841	44.8866	-1.12868	-0.02471	
-0.1642	-4.792	0.723278	0.732678	6.447259	10.35092	1.029538	44.63	-2.85278	-0.05906	
-0.0584	-4.792	0.713914	0.728588	6.70739	9.983644	1.020055	44.4171	-3.90589	-0.08058	
0.062	-4.792	0.708281	0.71388	7.188737	9.18777	1.004077	44.7014	-3.45345	-0.07223	
0.1923	-4.792	0.695166	0.703175	7.338324	8.705311	0.988793	44.8719	-4.14156	-0.08956	
0.3358	-4.792	0.693792	0.693251	7.347489	8.26877	0.960787	45.0224	-5.8787	-0.1268	
0.4934	-4.792	0.674875	0.679883	6.79781	7.322295	0.957823	44.7966	-3.98202	-0.10897	
0.667	-4.792	0.646575	0.65194	6.673387	7.012262	0.918197	44.7833	-1.88913	-0.04928	

Plicewise Survey at Station 2a												
A	B	C	D	E	F	G	H	I	J			
X(m)	Y(m)	U(m)	V(m)	U-Turb	V-Turb	Ucl/Vrel	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coef.			
1	-1.1331	-4.7908	0.514764	32.32794	14.97263	0.547047	70.218	280.812	0.801479			
2	-1.1233	-4.7908	0.828393	32.9942	4.24364	0.891682	68.263	7.20231	0.368004			
3	-1.1122	-4.7908	0.840317	3.40244	2.34802	0.908587	67.957	0.018332	0.003321			
4	-1.1001	-4.7908	0.83873	0.364318	2.436791	3.891935	67.0986	-0.23011	-0.03828			
5	-1.087	-4.7908	0.838803	0.365378	2.229051	3.62258	66.4336	-0.3924	-0.0804			
6	-1.0724	-4.7908	0.834451	0.38007	2.358412	3.64178	66.4609	-0.32	-0.09236			
7	-1.0583	-4.7908	0.832641	0.39842	2.35887	3.828619	64.5397	-0.24173	-0.03894			
8	-1.0388	-4.7908	0.831802	0.408883	2.284306	4.088867	63.923	-0.15781	-0.02335			
9	-1.0194	-4.7908	0.828848	0.418281	2.479697	4.258344	63.2148	-0.20436	-0.02876			
10	-0.998	-4.7908	0.824338	0.434648	2.47803	4.624235	62.1824	-0.05582	-0.0087			
11	-0.9748	-4.7908	0.828228	0.453542	2.500787	5.523398	61.2088	0.208611	0.020855			
12	-0.9486	-4.7908	0.820439	0.477279	2.464801	6.855726	59.8119	0.640227	0.082349			
13	-0.9205	-4.7908	0.820518	0.540074	3.028777	11.69468	58.6488	2.84807	0.111083			
14	-0.8983	-4.7908	0.818037	0.57874	3.284886	13.08971	54.5758	8.50779	0.208887			
15	-0.8548	-4.7908	0.812807	0.605117	3.272501	13.48362	53.3332	3.58862	0.111833			
16	-0.8172	-4.7908	0.808236	0.628818	3.474762	14.08446	52.0725	4.85445	0.131388			
17	-0.7757	-4.7908	0.8071	0.68824	3.519881	13.92305	50.3481	5.22514	0.147304			
18	-0.7299	-4.7908	0.797238	0.679332	3.848886	13.98557	48.5572	4.47017	0.114898			
19	-0.6798	-4.7908	0.783216	0.707861	4.160723	13.62735	48.2828	5.79178	0.1418			
20	-0.6244	-4.7908	0.788826	0.72714	4.351317	12.8675	47.2812	5.93854	0.148861			
21	-0.5638	-4.7908	0.777055	0.741777	4.604112	11.94194	46.3308	5.35824	0.134584			
22	-0.4986	-4.7908	0.759035	0.748118	4.827805	10.59751	45.4151	3.35112	0.090488			
23	-0.4231	-4.7908	0.748811	0.734982	5.202754	11.47248	45.4494	3.15946	0.073127			
24	-0.3422	-4.7908	0.734715	0.737684	5.472322	11.19863	44.8853	-1.19087	-0.02684			
25	-0.2532	-4.7908	0.719888	0.741807	5.824292	10.04714	44.1517	-0.52864	-0.01248			
26	-0.1652	-4.7908	0.711951	0.731163	6.262041	9.89322	44.3801	-2.72741	-0.08204			
27	-0.0475	-4.7908	0.711644	0.722929	6.98422	9.919305	44.5483	-3.13568	-0.08249			
28	0.071	-4.7908	0.703037	0.717719	7.047873	9.229857	44.4079	-5.7445	-0.122			
29	0.2014	-4.7908	0.682302	0.708841	7.315348	7.79023	44.3237	-4.29378	-0.10409			
30	0.3448	-4.7908	0.682238	0.693337	7.31728	7.900846	44.5295	-3.37444	-0.08084			
31	0.5028	-4.7908	0.680875	0.689886	7.117754	7.51481	44.6088	-3.8238	-0.08876			
32	0.678	-4.7908	0.645491	0.658811	6.828875	6.954294	44.5107	-1.82948	-0.05483			

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Pitchwise Survey at Station 2b

UV-Angle Mean UV-Reyn. Stress UV-Correl. Coeff.

UV-Angle Mean UV-Reyn. Stress UV-Correl. Coeff.

P/W/wise Survey at Station 3										
A	B	C	D	E	F	G	H	I	J	
X(in)	Y(in)	UVref	VNref	U-Turb	V-Turb	Utd/Vref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.	
-0.916	-4.542	-0.04741	-0.0765	-4.78085	-4.76987	0.09	211.786	4.37949	0.265892	
-0.9061	-4.542	-0.04994	-0.07787	-4.99584	-4.98297	0.09251	212.87	4.38616	0.244739	
-0.8951	-4.542	-0.02459	-0.03349	-10.4808	-15.3	0.041552	216.291	73.8739	0.636559	
-0.8831	-4.542	0.010015	0.025227	15.09989	23.3007	0.027142	21.6531	189.36	0.74466	
-0.8699	-4.542	0.165803	0.258238	28.87682	39.36851	0.324077	37.1704	783.786	0.895449	
-0.8583	-4.542	0.278102	0.342578	31.82788	41.17597	0.43999	38.8673	957.97	0.902899	
-0.8393	-4.542	0.372907	0.469895	31.56991	40.13113	0.591828	39.0492	815.874	0.890945	
-0.8217	-4.542	0.434126	0.508009	30.81043	38.57868	0.682335	40.5161	762.412	0.887433	
-0.8023	-4.542	0.495195	0.565257	29.88687	37.20899	0.745995	41.7278	712.001	0.893387	
-0.7811	-4.542	0.524276	0.571309	27.08807	34.8091	0.775409	42.5419	570.672	0.837305	
-0.7575	-4.542	0.608754	0.765671	10.70827	17.11747	1.029671	41.9727	75.1521	0.587221	
-0.7317	-4.542	0.694988	0.783582	9.872081	17.48438	1.025139	42.6633	61.7434	0.595114	
-0.7035	-4.542	0.711137	0.782208	7.436808	15.51582	1.042598	43.0241	32.8286	0.391118	
-0.6722	-4.542	0.723207	0.783637	6.255722	13.84835	1.066356	42.7034	11.2507	0.178668	
-0.6378	-4.542	0.722509	0.787198	5.840184	14.82694	1.053858	43.2817	0.894489	0.014487	
-0.6001	-4.542	0.717949	0.792008	5.324646	12.74156	1.068983	42.1921	-0.34341	-0.007	
-0.5585	-4.542	0.720016	0.785636	5.509242	13.24025	1.065868	42.5045	-8.3568	-0.15849	
-0.5128	-4.542	0.712583	0.796732	5.347273	12.30617	1.088905	41.8089	-7.301	-0.1535	
-0.4828	-4.542	0.715142	0.779816	5.637497	13.48076	1.058085	42.8229	-15.5378	-0.28285	
-0.4073	-4.542	0.708584	0.766843	5.633615	12.61516	1.067367	41.9298	-15.6511	-0.30487	
-0.3485	-4.542	0.692806	0.790355	5.269107	11.75946	1.050869	41.2288	-11.0751	-0.24728	
-0.2706	-4.542	0.687914	0.798271	5.801403	10.79422	1.053784	40.7533	-5.54343	-0.12247	
-0.208	-4.542	0.682504	0.777553	6.037184	11.5357	1.034802	41.2753	-8.78027	-0.17442	
-0.1251	-4.542	0.684174	0.781988	6.594623	10.71073	1.039037	41.1832	-4.21785	-0.08261	
-0.036	-4.542	0.672196	0.768665	7.243513	10.25944	1.021124	41.1696	-6.78383	-0.12629	
0.0619	-4.542	0.654738	0.752175	6.528684	10.5531	0.997221	41.0382	-10.3242	-0.20731	
0.1696	-4.542	0.654216	0.750997	7.035908	9.346982	0.995989	41.0601	-8.50301	-0.13681	
0.2881	-4.542	0.646347	0.736781	7.300587	8.633712	0.980108	41.2591	-3.30816	-0.07097	
0.4185	-4.542	0.644355	0.719802	7.530381	8.899089	0.988145	41.8308	-8.82473	-0.17805	
0.562	-4.542	0.631388	0.701787	7.189029	8.075529	0.944011	41.9773	-7.99586	-0.1903	
0.7196	-4.542	0.615736	0.675429	7.01781	7.857204	0.913967	42.353	-4.89398	-0.126	
0.8932	-4.542	0.590615	0.64537	6.228736	7.489904	0.87483	42.4634	-4.38682	-0.13013	

Pitchwise Survey at Station 4										
A	B	C	D	E	F	G	H	I	J	
1	2	3	4	5	6	7	8	9	10	
X(In)	Y(In)	UVref	V/Ref	U-Turb	V-Turb	UtoVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.	
-0.7107	-4.292	0.212372	0.323587	21.06198	31.08864	0.387038	33.2787	334.394	0.705	
-0.7007	-4.292	0.23211	0.352861	22.86687	33.21171	0.422358	33.3387	397.691	0.729804	
-0.6897	-4.292	0.269582	0.412049	23.3677	34.50688	0.492402	33.1947	424.492	0.72883	
-0.8777	-4.292	0.304871	0.487987	23.72603	34.828	0.55018	33.8508	448.847	0.750098	
-0.8645	-4.292	0.332136	0.490655	23.7325	35.0113	0.562749	34.0787	460.451	0.789208	
-0.8498	-4.292	0.372185	0.544244	22.25359	33.3169	0.659323	34.3651	394.254	0.734278	
-0.8339	-4.292	0.498827	0.718065	11.51407	18.88317	0.874783	34.8301	52.26	0.331805	
-0.8163	-4.292	0.51995	0.743408	10.82145	17.74731	0.907198	34.9895	52.3975	0.376738	
-0.5989	-4.292	0.559817	0.798693	8.843428	11.94829	0.97535	35.0272	14.4705	0.244412	
-0.5757	-4.292	0.588003	0.794887	8.260377	13.68006	0.975846	35.458	28.815	0.35211	
-0.5522	-4.292	0.578297	0.807183	8.857309	12.03085	0.983328	35.6688	19.4828	0.328098	
-0.5283	-4.292	0.590381	0.818551	8.281019	11.13825	1.009234	35.8001	19.8998	0.390036	
-0.498	-4.292	0.597103	0.822718	5.840634	10.93935	1.016661	35.971	15.2802	0.342168	
-0.4688	-4.292	0.602508	0.82898	5.079415	10.54437	1.024787	36.0105	14.3574	0.370157	
-0.4324	-4.292	0.607994	0.829042	4.144499	10.21397	1.02809	36.2552	10.7102	0.349386	
-0.3947	-4.292	0.606314	0.821435	4.187875	10.82873	1.020986	36.4316	11.8447	0.380684	
-0.3531	-4.292	0.609032	0.828991	3.548798	9.738888	1.029468	36.2706	5.90169	0.235843	
-0.3074	-4.292	0.603651	0.818378	3.448541	9.922808	1.018825	36.4132	6.10402	0.24459	
-0.2572	-4.292	0.604035	0.820134	3.279124	9.944389	1.018567	36.3719	3.16628	0.134079	
-0.2019	-4.292	0.602507	0.834268	3.108244	7.881424	1.029084	35.8368	3.33876	0.188318	
-0.1411	-4.292	0.592049	0.834838	2.808094	7.801285	1.023463	35.3434	5.39558	0.34905	
-0.0742	-4.292	0.59039	0.821556	3.202988	8.089361	1.011889	35.7019	3.4852	0.185132	
-0.0007	-4.292	0.581994	0.810148	3.231531	7.805841	0.997523	35.8928	2.80954	0.153798	
0.0803	-4.292	0.570456	0.814623	2.718898	6.647354	0.984499	35.0024	5.83169	0.430306	
0.1685	-4.292	0.580915	0.788948	4.780754	8.266202	0.979748	36.3848	-0.11488	-0.00403	
0.2673	-4.292	0.593501	0.782316	6.903488	10.12004	0.966109	37.9028	-10.0238	-0.19812	
0.3749	-4.292	0.57748	0.75692	6.348584	8.777239	0.952058	37.3413	-5.28021	-0.13085	
0.4934	-4.292	0.578088	0.739844	7.140233	9.101547	0.938753	38.0102	-9.42362	-0.20023	
0.8239	-4.292	0.581093	0.717685	6.481999	8.211398	0.910986	38.0187	-4.12814	-0.10738	
0.7673	-4.292	0.555918	0.700528	6.580888	7.557505	0.894307	38.4345	-3.76355	-0.10481	
0.925	-4.292	0.551098	0.685751	6.750288	7.054988	0.864254	39.6174	-3.03193	-0.08115	
1.0985	-4.292	0.530428	0.645169	5.739523	7.054988	0.835221	39.4253	-0.25585	-0.00872	

Pitchwise Survey at Station 5										
A	B	C	D	E	F	G	H	I	J	
X(in)	Y(in)	UVref	VHref	U-Turb	V-Turb	UtoVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.	
-0.5409	-4.042	0.270295	0.430802	18.77976	25.78195	0.508881	32.0902	170.44	0.544282	
-0.531	-4.042	0.287194	0.46302	18.91802	26.8656	0.544856	31.8097	178.171	0.538543	
-0.52	-4.042	0.292559	0.478302	18.7929	29.94864	0.561534	31.3802	258.356	0.629799	
-0.5081	-4.042	0.313084	0.502849	18.65518	29.6076	0.56234	31.9055	248.442	0.623906	
-0.4948	-4.042	0.329576	0.52182	19.05018	30.74599	0.57016	32.2861	287.175	0.630176	
-0.4802	-4.0419	0.348223	0.557454	19.80248	30.83041	0.585893	31.7894	277.447	0.637475	
-0.4642	-4.042	0.45048	0.668862	19.82393	18.86233	0.832155	32.7734	48.2553	0.290031	
-0.4468	-4.0419	0.477463	0.741849	17.00481	17.00481	0.86223	32.767	27.532	0.245291	
-0.4272	-4.042	0.492876	0.768378	8.874577	15.97446	0.91276	32.6676	27.3198	0.268229	
-0.4061	-4.042	0.508257	0.798945	7.718798	13.87488	0.94497	32.5377	23.8282	0.304788	
-0.3825	-4.0419	0.518874	0.803008	7.72077	13.75103	0.954978	32.7682	28.8332	0.349195	
-0.3588	-4.0419	0.53699	0.834866	5.942398	10.80314	0.992478	32.7559	14.8694	0.321630	
-0.3283	-4.0419	0.540627	0.845326	4.867138	9.254575	1.001736	32.6625	10.3852	0.310235	
-0.2972	-4.0419	0.54589	0.845802	4.588152	9.34804	1.008389	32.8353	8.86528	0.28574	
-0.2628	-4.042	0.548364	0.847454	4.283817	9.174705	1.006311	32.8104	9.70281	0.343478	
-0.225	-4.042	0.549802	0.843675	3.826299	9.598806	1.004832	32.9002	8.22776	0.310259	
-0.1834	-4.042	0.544584	0.836343	3.203378	9.488161	0.99019	33.0701	6.59358	0.298381	
-0.1378	-4.0419	0.545328	0.838927	2.521508	7.368897	1.017417	32.4113	4.24968	0.318084	
-0.0875	-4.042	0.539585	0.848954	2.453982	7.478586	1.00592	32.4396	3.69063	0.277818	
-0.0322	-4.042	0.538423	0.850713	2.335098	7.437805	1.008783	32.33	2.2509	0.179051	
0.0285	-4.042	0.539232	0.832406	2.74841	9.236539	0.991801	32.8352	0.711242	0.038708	
0.0855	-4.0419	0.530366	0.838068	2.274867	7.511499	0.982633	32.2868	1.82817	0.131473	
0.1691	-4.042	0.525338	0.826803	2.480891	7.635902	0.979583	32.4312	0.014287	0.001042	
0.2499	-4.0419	0.521348	0.824648	2.729581	7.241458	0.975627	32.3013	0.893932	0.06248	
0.3391	-4.042	0.515449	0.811554	3.068398	7.102935	0.96141	32.4212	0.454304	0.028611	
0.4371	-4.0419	0.514242	0.788593	4.058884	8.048252	0.941448	33.1084	-3.45327	-0.14599	
0.5447	-4.0419	0.531021	0.762268	5.983114	8.935532	0.932282	34.7218	-8.38248	-0.21661	
0.6631	-4.042	0.528957	0.748638	7.156448	9.092056	0.915501	35.1413	-7.13093	-0.15141	
0.7938	-4.0419	0.520423	0.73342	7.109295	8.497993	0.898302	35.3589	-6.55171	-0.16982	
0.937	-4.0419	0.509543	0.710725	6.928917	7.482113	0.874509	35.638	-2.62328	-0.07009	
1.0846	-4.0419	0.491104	0.689496	6.156622	6.99632	0.848516	35.4609	-2.53785	-0.08139	
1.2682	-4.0419	0.475787	0.676952	6.083178	6.353441	0.827428	35.101	2.22852	0.078658	

	A	B	C	D	E	F	G	H	I	J
	Pichwise Survey at Station 8									
	X(in)	Y(in)	UVref	VNref	U-Turb	V-Turb	UtoVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.
1	-0.3825	-3.7919	0.291545	0.530557	12.80063	20.79062	0.805384	28.789	79.3759	0.411949
2	-0.3725	-3.792	0.332725	0.600174	11.87663	18.18775	0.888231	29.0032	48.8389	0.304514
3	-0.3614	-3.792	0.283184	0.509819	16.70771	27.97193	0.963014	29.08	210.509	0.622278
4	-0.3494	-3.792	0.357269	0.632927	12.04359	18.12274	0.728799	29.4435	47.048	0.28222
5	-0.3363	-3.792	0.351738	0.628151	12.47693	20.72283	0.71818	29.3249	58.3593	0.317165
6	-0.3218	-3.792	0.387174	0.642762	12.30875	20.92288	0.740243	29.7369	55.0748	0.29544
7	-0.3057	-3.792	0.380409	0.658778	12.38947	20.8708	0.760722	30.0042	56.515	0.304864
8	-0.288	-3.792	0.399574	0.681534	11.8816	20.59168	0.79003	30.3825	53.1299	0.318647
9	-0.2688	-3.792	0.328469	0.599988	18.80888	32.9878	0.888808	29.7898	321.185	0.715981
10	-0.2474	-3.792	0.428102	0.732354	11.3814	19.79846	0.848301	30.3087	66.4934	0.407667
11	-0.2239	-3.792	0.447313	0.772179	8.904339	16.13808	0.892384	30.0631	33.6522	0.323528
12	-0.1981	-3.792	0.468352	0.815213	7.502689	13.50817	0.940173	29.878	24.4731	0.333602
13	-0.1698	-3.792	0.468908	0.813863	7.18818	13.68251	0.93275	29.9479	25.2088	0.353915
14	-0.1386	-3.792	0.468205	0.795756	7.855402	16.01364	0.92328	30.4716	38.3959	0.421877
15	-0.1042	-3.792	0.480089	0.836307	5.92535	11.97809	0.964299	29.8573	18.8816	0.383102
16	-0.0685	-3.792	0.483484	0.842778	4.528503	10.0926	0.971603	29.8409	7.54181	0.228808
17	-0.025	-3.792	0.486491	0.852399	3.687391	8.874493	0.981457	29.7148	4.31797	0.183287
18	0.0207	-3.792	0.485682	0.854638	3.049209	8.322673	0.98316	29.6038	1.28991	0.089075
19	0.071	-3.792	0.486028	0.860429	2.726368	7.338107	0.988211	29.4807	0.375894	0.025957
20	0.1263	-3.792	0.477765	0.858715	2.475485	6.865486	0.982676	29.0903	1.04766	0.085162
21	0.187	-3.792	0.475059	0.853829	2.405041	6.793812	0.977177	29.0881	-0.41713	-0.03527
22	0.2541	-3.792	0.472287	0.834478	2.755072	7.781704	0.957987	29.5379	-2.38	-0.15336
23	0.3278	-3.792	0.464585	0.832795	2.636516	6.863668	0.953617	29.1555	-1.26481	-0.09649
24	0.4085	-3.792	0.462835	0.820586	3.00861	7.95737	0.942113	29.4243	-3.52377	-0.20334
25	0.4976	-3.792	0.452844	0.820358	2.677707	6.547293	0.937047	29.899	-0.58117	-0.0458
26	0.5955	-3.792	0.450385	0.795831	3.845921	7.245361	0.914436	29.5088	-3.04317	-0.15915
27	0.7031	-3.792	0.460755	0.783592	5.171242	7.839894	0.909018	30.4557	-4.48127	-0.15271
28	0.8216	-3.792	0.453598	0.768881	5.346785	7.501247	0.892535	30.5447	-1.58542	-0.05461
29	0.9521	-3.792	0.465282	0.749804	6.730291	7.950544	0.882425	31.8201	-2.79114	-0.07206
30	1.0955	-3.792	0.454198	0.720303	6.505659	7.108454	0.851548	32.2341	-2.78605	-0.08323
31	1.2532	-3.792	0.438191	0.716813	6.312222	6.831469	0.839968	31.4447	0.620797	0.020488
32	1.4267	-3.792	0.41619	0.70572	5.535075	5.881909	0.819301	30.5295	6.45742	0.274012

A	Pitchwise Survey at Station 7			D	E	F	G	H	I	J
	A	B	C							
	X(in)	Y(in)	UVref	VNref	U-Turb	V-Turb	UcdVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.
1										
2										
3										
4										
5										
6										
7	-0.1434	-3.2921	0.180813	0.458558	12.80234	28.40004	0.492855	21.4976	156.247	0.636259
8	-0.1335	-3.2921	0.177975	0.45079	14.0877	29.81033	0.484851	21.5444	205.644	0.673946
9	-0.1224	-3.2921	0.179636	0.452785	14.44764	30.64493	0.487116	21.84	211.911	0.658736
10	-0.1105	-3.2921	0.1884	0.473045	14.86542	31.04267	0.509182	21.7159	217.921	0.657918
11	-0.0973	-3.292	0.180982	0.469111	14.97024	31.78397	0.506501	22.153	228.619	0.661269
12	-0.0827	-3.292	0.191813	0.481997	15.36069	33.1859	0.500157	22.5262	245.186	0.661099
13	-0.0667	-3.292	0.204002	0.492804	15.66251	33.51598	0.533174	22.4959	257.524	0.673903
14	-0.0548	-3.292	0.204422	0.486046	16.77647	36.41224	0.511656	23.5488	307.429	0.682647
15	-0.0296	-3.292	0.216381	0.507666	15.75186	34.28792	0.552644	23.2757	280.182	0.683009
16	-0.0084	-3.292	0.213267	0.502102	16.07961	35.46962	0.549517	23.0133	284.869	0.687431
17	0.0151	-3.292	0.218955	0.512033	16.30063	35.87592	0.556863	23.1525	301.399	0.709321
18	0.0408	-3.292	0.229684	0.522408	16.02426	35.86352	0.570782	23.761	279.754	0.689998
19	0.0692	-3.292	0.229857	0.514938	16.6081	36.05897	0.563911	24.0548	299.19	0.687713
20	0.1004	-3.292	0.245152	0.545149	15.83982	35.98155	0.597734	24.2134	278.217	0.68072
21	0.1348	-3.2921	0.244872	0.526572	15.84739	36.79496	0.590724	24.9399	279.928	0.68072
22	0.1725	-3.2921	0.256282	0.558688	16.00137	36.4164	0.618921	24.8966	282.62	0.687521
23	0.2141	-3.2921	0.280929	0.620247	15.00416	34.56899	0.660902	24.3672	248.247	0.656722
24	0.2598	-3.2921	0.273733	0.587117	15.28143	35.15899	0.647794	24.9664	258.186	0.661375
25	0.31	-3.2921	0.298912	0.64653	14.25851	32.8536	0.711407	24.6592	216.859	0.63714
26	0.3654	-3.2921	0.311518	0.689535	13.00867	31.19131	0.738459	24.9514	174.516	0.591941
27	0.426	-3.2921	0.325953	0.695587	12.17994	28.69042	0.768117	25.1079	132.543	0.521861
28	0.493	-3.2921	0.318456	0.686268	12.55538	28.86602	0.758391	24.8291	126.203	0.476928
29	0.5668	-3.2921	0.335316	0.720885	10.63135	25.23298	0.795054	24.9452	83.5102	0.42845
30	0.6474	-3.2921	0.338652	0.722425	10.11276	23.54629	0.797862	25.1158	49.4368	0.285742
31	0.7365	-3.292	0.349025	0.72562	9.885518	21.52913	0.805196	25.6877	34.5881	0.228293
32	0.8345	-3.292	0.353758	0.742107	8.945011	18.51253	0.822112	25.4868	15.042	0.125019
33	0.9422	-3.292	0.361957	0.748758	8.406667	15.51023	0.829855	25.8597	-11.1425	-0.11761
34	1.0608	-3.292	0.360187	0.750201	7.444013	13.55733	0.832187	25.6466	-12.0447	-0.16426
35	1.1911	-3.292	0.366211	0.753859	7.946445	11.69235	0.838101	25.9097	-10.618	-0.16025
36	1.3345	-3.292	0.36953	0.758334	7.76053	10.17586	0.843578	25.9798	-4.29428	-0.07484
37	1.4922	-3.292	0.354856	0.760719	6.74375	7.817534	0.839414	25.0078	3.87147	0.095848
38	1.6657	-3.292	0.336873	0.755315	6.032438	7.614252	0.826952	24.0244	9.31951	0.276246

A	Pitchwise Survey at Station 6										H	I	J
	A	B	C	D	E	F	G	U-Turb	V-Turb	Uo/Uref			
1	X(in)	Y(in)	U/Uref	V/Uref	U-Turb	V-Turb	Uo/Uref	U-Turb	V-Turb	Uo/Uref	U-V Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.
2	-0.0083	-2.792	0.107971	0.480594	4.840002	14.9943	0.482573				12.862	13.4256	0.253693
3	0.0016	-2.792	0.094641	0.407006	7.447023	26.16189	0.417865				13.003	75.4077	0.53257
4	0.0126	-2.792	0.06233	0.390006	8.646002	28.7984	0.400786				13.319	110.516	0.609423
5	0.0245	-2.792	0.10468	0.428598	8.799021	28.53714	0.441281				13.7805	101.744	0.556367
6	0.0377	-2.792	0.108724	0.439602	9.861248	32.82565	0.448486				13.7865	150.856	0.642986
7	0.0525	-2.792	0.108516	0.419374	-0.00149	33.78981	0.433186				14.5074	152.895	0.60931
8	0.0694	-2.792	0.120909	0.444841	10.12864	33.09908	0.46098				15.2059	138.526	0.5591
9	0.086	-2.792	0.131135	0.478956	10.57585	33.84572	0.49369				15.4039	148.599	0.570023
10	0.1054	-2.792	0.127443	0.459167	11.12042	34.44707	0.476526				15.5122	156.345	0.560408
11	0.1267	-2.792	0.13643	0.458212	11.32235	35.73072	0.478091				16.5806	168.275	0.574522
12	0.1502	-2.792	0.158813	0.505342	10.90368	35.63799	0.528618				17.1362	159.415	0.5633
13	0.1759	-2.792	0.154964	0.501917	11.42733	35.95944	0.525177				17.1161	170.044	0.568194
14	0.2043	-2.792	0.159003	0.486598	11.63358	37.57134	0.510963				17.7782	186.258	0.594425
15	0.2354	-2.792	0.169968	0.511814	11.39433	37.70323	0.538298				18.3708	181.834	0.581169
16	0.2699	-2.792	0.181648	0.547763	11.77483	37.26334	0.577096				18.3465	186.384	0.583276
17	0.3075	-2.792	0.202685	0.582988	10.6394	36.01578	0.617217				19.1708	147.468	0.528415
18	0.3493	-2.792	0.193258	0.548188	11.45045	37.7255	0.581256				19.4195	177.438	0.564006
19	0.3949	-2.792	0.211389	0.611691	10.40201	35.13822	0.647187				19.0842	136.376	0.523582
20	0.4451	-2.792	0.255285	0.603194	5.654295	17.26903	0.842762				17.6309	16.5262	0.232432
21	0.5004	-2.792	0.264694	0.827271	4.786332	13.22376	0.968586				17.7427	2.06494	0.044796
22	0.5612	-2.792	0.268771	0.85699	3.11598	7.671635	0.898147				17.4126	-5.8098	-0.33782
23	0.628	-2.792	0.264777	0.868907	2.460036	5.548567	0.905485				17.0026	-3.75024	-0.37633
24	0.7017	-2.792	0.269434	0.859077	2.720933	5.549704	0.900337				17.4131	-5.08619	-0.48267
25	0.7825	-2.792	0.267986	0.853272	2.531918	5.177473	0.894368				17.436	-3.79462	-0.39746
26	0.8717	-2.792	0.26661	0.840108	2.770132	5.09454	0.881398				17.6089	-4.18405	-0.40709
27	0.9696	-2.792	0.265711	0.834463	2.74028	4.88542	0.875775				17.682	-4.41815	-0.45315
28	1.0773	-2.792	0.261865	0.81729	2.592251	4.965903	0.858217				17.7659	-4.04325	-0.43128
29	1.1959	-2.792	0.261608	0.810753	2.909182	5.079082	0.851915				17.8634	-3.6228	-0.33665
30	1.3262	-2.792	0.260105	0.80091	3.235218	5.440072	0.842088				17.9918	-3.84545	-0.30001
31	1.4696	-2.792	0.261761	0.78923	3.664987	5.69475	0.831507				18.3489	-0.82723	-0.05486
32	1.6273	-2.792	0.256641	0.785701	3.543782	5.749224	0.826816				18.1023	0.491201	0.033104
33	1.8008	-2.792	0.259002	0.785363	4.301629	6.439735	0.826969				18.2518	4.77142	0.236506

Pitchwise Survey at Station 9										
A	B	C	D	E	F	G	H	I	J	
X(In)	Y(In)	UVref	VNref	U-Turb	V-Turb	Ucl/Vnref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.	
0.0662	-2.292	0.043477	0.310347	5.136796	24.89345	0.313378	7.97481	32.9796	0.354133	
0.0661	-2.292	0.046773	0.332176	5.723939	25.76968	0.339453	8.01505	47.3584	0.394455	
0.1071	-2.292	0.046243	0.354268	5.98459	25.98524	0.357674	7.91342	30.315	0.348278	
0.119	-2.292	0.053301	0.399681	8.215393	27.36299	0.384203	8.73363	45.0998	0.363715	
0.1323	-2.292	0.053403	0.399336	8.680362	28.01347	0.372681	8.23399	46.8289	0.331737	
0.1469	-2.292	0.052457	0.396124	8.791023	28.37594	0.401017	8.96002	49.9124	0.343538	
0.1629	-2.292	0.053373	0.382474	7.018994	31.52547	0.398021	9.69929	50.4289	0.312823	
0.1808	-2.292	0.076904	0.432386	7.271181	30.77184	0.439172	10.0852	48.4381	0.297254	
0.2	-2.292	0.079519	0.418146	7.864805	31.6954	0.425641	10.7673	52.5887	0.297235	
0.2212	-2.292	0.083768	0.438872	7.825014	33.37985	0.446795	10.8081	67.2944	0.353759	
0.2448	-2.292	0.084579	0.470884	7.887924	33.57947	0.480093	11.3616	56.8247	0.294575	
0.2705	-2.292	0.103323	0.509632	8.100829	34.12624	0.52	11.4608	71.8276	0.356754	
0.2987	-2.292	0.110297	0.525618	8.468073	36.22787	0.537068	11.8511	66.4102	0.388969	
0.33	-2.292	0.117633	0.539807	8.488021	38.48978	0.551303	12.3201	84.315	0.373812	
0.3845	-2.292	0.126454	0.526358	8.864742	36.89433	0.541335	13.5069	86.6771	0.363962	
0.4022	-2.292	0.136001	0.598553	8.768053	34.98699	0.604081	13.0113	77.2423	0.345882	
0.4438	-2.292	0.139377	0.604578	8.420048	35.82386	0.620434	12.9819	78.2794	0.398338	
0.4694	-2.292	0.148752	0.623813	8.475713	33.88787	0.6414	13.41	70.1102	0.335183	
0.5397	-2.292	0.178663	0.821836	4.918325	13.32022	0.840786	12.284	6.87448	0.144081	
0.5949	-2.292	0.183144	0.811287	4.880059	14.99907	0.831701	12.721	5.49718	0.107527	
0.6557	-2.292	0.18848	0.851517	3.878189	8.211013	0.877128	12.481	-2.99864	-0.12641	
0.7228	-2.292	0.191424	0.86404	2.917987	5.302649	0.884991	12.4918	-3.27205	-0.26035	
0.7962	-2.292	0.193106	0.899238	2.889975	5.140032	0.88087	12.6883	-3.72486	-0.3431	
0.8771	-2.292	0.191999	0.850845	3.108684	5.152529	0.872239	12.7182	-3.78298	-0.32428	
0.9682	-2.292	0.198898	0.844873	2.743824	4.293888	0.868021	13.2329	-3.90059	-0.45482	
1.0641	-2.292	0.19855	0.835442	2.876852	4.391374	0.858252	13.239	-4.20835	-0.45886	
1.1717	-2.292	0.195998	0.830796	3.174369	4.482816	0.853802	13.2743	-4.37103	-0.42178	
1.2905	-2.292	0.198426	0.827358	2.859097	4.208512	0.850355	13.5555	-3.70527	-0.42297	
1.4206	-2.292	0.198815	0.815778	2.864858	4.40348	0.839136	13.5507	-3.36313	-0.39809	
1.5641	-2.292	0.192512	0.808295	2.994068	4.518241	0.830905	13.3968	-3.84677	-0.37039	
1.7218	-2.292	0.190221	0.808119	3.21111	5.017293	0.828259	13.2773	-1.80475	-0.15381	
1.8955	-2.292	0.1855	0.800216	3.008389	5.30048	0.821435	13.0513	-1.14841	-0.09889	

Pitchwise Survey at Station 10										
	A	B	C	D	E	F	G	H	I	J
	X(in)	Y(in)	UWref	VWref	U-Turb	V-Turb	UesWref	UV-Angle Mean	UV-Rayn. Stress	UV-Correl. Coef.
1										
2										
3										
4										
5										
6										
7	0.1206	-1.792	0.022259	0.203321	4.099917	20.96179	0.203542	8.27826	5.17505	0.082801
8	0.1305	-1.792	0.021998	0.253887	4.831564	22.0226	0.254504	4.86822	4.4248	0.057099
9	0.1415	-1.792	0.02413	0.288994	5.187335	22.98935	0.287783	5.1869	6.42001	0.073884
10	0.1535	-1.792	0.024839	0.26796	5.439401	24.47976	0.269026	4.93012	6.33057	0.095919
11	0.1667	-1.792	0.027929	0.254341	5.830093	24.89987	0.259584	5.42035	9.34802	0.088419
12	0.1813	-1.792	0.035124	0.306417	6.017204	25.82082	0.308423	6.53928	9.81707	0.087438
13	0.1973	-1.792	0.039813	0.331483	6.021338	26.75867	0.333521	6.33705	9.37134	0.079659
14	0.2149	-1.792	0.039462	0.360912	6.230679	25.63707	0.362898	5.76441	8.01896	0.086397
15	0.2343	-1.792	0.044196	0.380303	6.786397	28.28786	0.383304	6.99303	14.6841	0.105027
16	0.2568	-1.792	0.048726	0.398319	6.738796	28.80747	0.398303	7.00918	10.7865	0.078294
17	0.2791	-1.792	0.053497	0.45886	6.813388	27.30655	0.45879	6.98816	14.0089	0.106499
18	0.3048	-1.792	0.060948	0.440105	8.841943	31.29159	0.444285	7.84612	20.9406	0.134301
19	0.3332	-1.792	0.069111	0.481982	8.825107	30.88878	0.488474	7.81061	23.2023	0.150014
20	0.3645	-1.792	0.071825	0.504374	8.897745	32.38839	0.509482	8.10487	23.7708	0.144008
21	0.3988	-1.792	0.076811	0.544877	7.238403	31.84293	0.560039	8.00836	36.1286	0.218875
22	0.4365	-1.792	0.081684	0.695531	5.324335	20.13652	0.7011	7.22881	11.8589	0.148314
23	0.4782	-1.792	0.088435	0.750396	4.830896	15.79403	0.758827	7.47322	7.34039	0.137898
24	0.5239	-1.792	0.108315	0.78805	4.242788	14.05772	0.793478	7.84572	5.8806	0.136932
25	0.574	-1.792	0.116062	0.810124	3.849072	12.54599	0.818398	8.153	3.80894	0.106303
26	0.6293	-1.792	0.122362	0.845987	2.901798	7.65286	0.85479	8.23012	-0.89507	-0.05534
27	0.6902	-1.792	0.128047	0.843805	3.085015	8.130953	0.853465	8.62877	-0.89925	-0.03815
28	0.7571	-1.792	0.126036	0.857896	2.594468	4.707802	0.867634	8.55283	-1.41209	-0.15874
29	0.8306	-1.792	0.133457	0.852064	2.571258	4.307616	0.862451	8.90178	-1.95532	-0.2424
30	0.9115	-1.792	0.136007	0.852587	2.195808	3.543905	0.863387	9.08361	-1.98287	-0.34987
31	1.0008	-1.792	0.138327	0.845835	2.340322	3.762053	0.858874	9.29002	-2.35859	-0.36752
32	1.0995	-1.792	0.141028	0.837867	2.715473	3.773841	0.849458	9.55659	-2.53307	-0.3394
33	1.2062	-1.792	0.140984	0.833859	2.838798	3.581857	0.845844	9.57708	-2.98008	-0.3903
34	1.3248	-1.792	0.142951	0.822918	3.245907	3.928244	0.83241	9.85483	-4.1807	-0.44839
35	1.4552	-1.792	0.139802	0.823362	2.841811	3.49704	0.835145	9.63859	-3.24783	-0.44874
36	1.5985	-1.792	0.140382	0.811132	2.275878	3.210614	0.82319	9.8189	-2.08138	-0.39115
37	1.7581	-1.792	0.141098	0.806038	3.244392	4.552556	0.820264	9.90508	-3.44764	-0.3205
38	1.9297	-1.792	0.137455	0.811301	3.017382	4.872461	0.822863	9.61602	-2.7971	-0.28123

Pitchwise Survey at Station 11										
A	B	C	D	E	F	G	H	I	J	
X(in)	Y(in)	UVVel	VWVel	U-Turb	V-Turb	UoVel	UV-Angle Mean	UV-Royn. Stress	UV-Correl. Coef.	
0.1435	-1.292	0.011954	0.202404	4.8954	19.89049	0.202947	3.37652	-7.8985	-0.10265	
0.1534	-1.292	0.013308	0.208978	5.022905	20.79871	0.2084	3.64309	-8.23781	-0.10823	
0.1644	-1.2921	0.011786	0.22603	5.168776	21.07354	0.226325	2.87053	-8.38317	-0.10463	
0.1764	-1.292	0.014189	0.236782	5.802982	22.09121	0.237177	3.43209	-8.04766	-0.09812	
0.1898	-1.292	0.01882	0.268861	5.899449	22.18519	0.26832	3.40644	-8.07834	-0.08385	
0.2042	-1.292	0.020822	0.29164	6.014419	23.21177	0.292286	4.18894	-8.34967	-0.08252	
0.2202	-1.292	0.024337	0.308917	6.273647	23.20317	0.308973	4.30447	-11.711	-0.11028	
0.2378	-1.292	0.024412	0.3123	6.302704	24.82482	0.313253	4.48858	-8.64687	-0.05799	
0.2573	-1.292	0.027787	0.32042	6.489322	25.41828	0.321823	4.98801	-8.98462	-0.08804	
0.2764	-1.292	0.029473	0.417628	6.31432	22.12813	0.418696	4.03817	-1.99001	-0.01585	
0.3018	-1.292	0.026497	0.41868	6.437791	24.80164	0.418369	4.86894	-8.71005	-0.06738	
0.3278	-1.292	0.027741	0.417488	6.487187	25.34007	0.419189	5.18871	-1.88411	-0.01412	
0.3591	-1.292	0.04252	0.434803	6.943417	26.98825	0.436579	5.88916	8.22768	0.048547	
0.3874	-1.292	0.048827	0.467422	7.188827	27.28913	0.469792	5.82028	2.01248	0.014074	
0.4217	-1.2919	0.080357	0.508642	6.788822	28.84113	0.512014	5.83294	6.47897	0.04878	
0.4584	-1.2921	0.087238	0.531181	7.043788	30.28111	0.534256	8.18008	10.1888	0.088984	
0.5009	-1.292	0.094882	0.720078	4.461884	18.48882	0.723003	5.18889	1.71803	0.034182	
0.5487	-1.292	0.088806	0.807057	6.883382	28.81944	0.810733	6.28825	18.7319	0.13845	
0.5989	-1.292	0.078387	0.748812	4.918222	18.88375	0.782886	5.74742	5.38808	0.110789	
0.6521	-1.292	0.082983	0.811149	3.394002	8.847284	0.816383	5.84124	0.493407	0.020911	
0.713	-1.292	0.086873	0.834801	2.880016	8.97488	0.836377	5.91889	-0.02123	-0.00141	
0.78	-1.292	0.083073	0.838348	2.894084	5.741174	0.844483	6.32751	-0.58833	-0.04888	
0.8535	-1.292	0.088221	0.838867	2.880718	5.804871	0.843573	6.54882	-0.74841	-0.07865	
0.9344	-1.292	0.097833	0.838015	2.47278	3.942187	0.843707	6.85879	-1.90484	-0.28782	
1.0235	-1.292	0.088878	0.838733	2.722468	3.487547	0.845489	8.89328	-1.40702	-0.28309	
1.1214	-1.292	0.100788	0.838877	2.418224	3.074484	0.843021	8.88513	-1.58238	-0.288	
1.2291	-1.292	0.104037	0.831979	2.343486	3.088873	0.838458	7.12768	-1.91047	-0.38888	
1.3477	-1.2919	0.108826	0.838734	2.128882	2.73854	0.837448	7.25893	-1.35585	-0.31858	
1.4781	-1.2919	0.107908	0.819129	2.283881	2.868038	0.828208	7.50444	-1.81848	-0.38051	
1.6213	-1.2921	0.107386	0.818853	2.408282	3.144337	0.823881	7.48854	-1.93464	-0.35	
1.7791	-1.292	0.103887	0.810232	2.502326	3.48881	0.818885	7.38832	-2.44544	-0.38888	
1.9526	-1.292	0.102553	0.808671	2.518858	3.57888	0.815048	7.22835	-2.05842	-0.31272	

Pictorial Survey at Station 12									
A	B	C	D	E	F	G	H	I	J
X(in)	Y(in)	UVrel	VWrel	U-Turb	V-Turb	UaVrel	UV-Angle Mean	UV-Rayn. Stress	UV-Cornel. Coeff.
1	0.1236	-0.782	0.00898	4.134791	16.80475	0.163421	3.73551	-5.54774	-0.11141
2	0.1337	-0.782	0.00891	4.84343	17.88017	0.161701	3.04853	-8.28818	-0.10748
3	0.1447	-0.782	0.007802	4.824238	17.97545	0.173602	2.80983	-10.2172	-0.1682
4	0.1567	-0.782	0.00738	5.302878	18.28673	0.187145	2.28388	-10.8079	-0.14088
5	0.1686	-0.782	0.01008	5.884638	18.88873	0.20814	2.8029	-8.78788	-0.12004
6	0.1845	-0.782	0.011486	5.829707	16.78515	0.228573	2.87284	-10.4847	-0.13188
7	0.2005	-0.782	0.012286	6.188482	21.4827	0.23029	3.05789	-7.88033	-0.0782
8	0.2181	-0.782	0.013873	6.087881	20.78202	0.288248	2.84045	-8.08808	-0.08937
9	0.2375	-0.782	0.01614	6.30385	20.30478	0.301289	3.07086	-8.88384	-0.09141
10	0.2588	-0.782	0.013883	6.348189	22.2829	0.303411	2.64151	-10.8748	-0.10341
11	0.2823	-0.782	0.018735	6.47821	21.48871	0.354874	3.18848	-5.82258	-0.05729
12	0.3081	-0.782	0.018807	6.48088	20.80887	0.387374	2.90131	-3.70882	-0.03747
13	0.3384	-0.782	0.024883	6.440744	20.54427	0.441429	3.18248	-1.88428	-0.01731
14	0.3678	-0.782	0.02879	6.423414	24.0084	0.424281	3.62037	-1.88788	-0.01424
15	0.402	-0.782	0.031828	6.787847	21.4282	0.489185	3.74218	-1.3888	-0.0128
16	0.4387	-0.782	0.03327	6.78782	28.23002	0.487744	3.91135	3.31011	0.023584
17	0.4813	-0.782	0.038184	6.81333	28.88191	0.514501	4.38788	3.0888	0.023525
18	0.527	-0.782	0.0434	6.81888	23.84014	0.588381	4.08381	4.98884	0.044808
19	0.5772	-0.782	0.048361	6.81188	23.88884	0.683024	4.3341	5.02804	0.047873
20	0.6326	-0.782	0.058184	6.788183	13.88481	0.780188	4.18288	3.27545	0.085884
21	0.6833	-0.782	0.06848	6.800438	9.280823	0.882873	4.27808	0.043888	0.001875
22	0.7802	-0.782	0.081722	6.82888	8.111889	0.882131	4.28374	-0.24348	-0.01843
23	0.8336	-0.782	0.084118	6.83801	4.813157	0.88842	4.58384	-0.58321	-0.08858
24	0.9147	-0.782	0.088702	6.88888	3.433071	0.888157	4.78457	-0.71458	-0.12803
25	1.0038	-0.782	0.078848	6.888741	3.28079	0.888883	4.88888	-1.18424	-0.21588
26	1.1002	-0.782	0.073881	6.88884	2.840223	0.888883	4.88837	-0.98875	-0.18808
27	1.2094	-0.782	0.078888	6.88887	2.8184	0.888182	5.27884	-1.23788	-0.25888
28	1.328	-0.782	0.074844	6.827107	2.577885	0.888497	5.17741	-1.08812	-0.28038
29	1.4583	-0.782	0.078884	6.82488	2.778788	0.888787	5.3478	-1.53888	-0.28848
30	1.6017	-0.782	0.077731	6.821885	2.811882	0.888787	5.48881	-1.32833	-0.28014
31	1.7584	-0.782	0.077188	6.817145	3.01888	0.888884	5.48881	-1.32833	-0.28014
32	1.9328	-0.782	0.071828	6.81813	2.7784	0.888882	5.01483	-1.88812	-0.27813

Phosphate Survey at Station 13										
A	B	C	D	E	F	G	H	I	J	
X(m)	Y(m)	UVref	Vref	U-Turb	V-Turb	UscWref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.	
0.1238	-0.5	0.00887	0.168511	4.149111	16.38646	0.168543	2.28068	-5.68333	-0.11801	
0.1337	-0.5	0.008616	0.174875	4.083218	17.48616	0.174882	1.8087	-7.282	-0.12202	
0.1447	-0.5	0.008746	0.181809	3.930344	17.62779	0.181834	2.12818	-9.18058	-0.14	
0.1567	-0.5	0.008708	0.208786	3.146897	17.67898	0.208798	1.0168	-8.10573	-0.09199	
0.1690	-0.5	0.004462	0.210836	5.88822	18.3378	0.210881	1.17832	-10.2222	-0.13827	
0.1845	-0.4999	0.008437	0.234283	8.701314	18.7812	0.234435	2.08236	-7.98201	-0.10175	
0.2008	-0.5	0.008909	0.253977	8.063778	19.7812	0.253988	2.43851	-9.42864	-0.10854	
0.2181	-0.5	0.010808	0.273801	8.263208	19.85105	0.274002	2.18781	-9.88883	-0.10871	
0.2375	-0.5	0.012135	0.288884	8.08728	19.48138	0.28911	2.32511	-8.82883	-0.10338	
0.2588	-0.4999	0.010757	0.303111	8.488772	20.7887	0.303302	2.03268	-11.4788	-0.11876	
0.2823	-0.4999	0.01684	0.337103	8.470918	21.88824	0.337803	2.7883	-8.71884	-0.09513	
0.308	-0.4999	0.014818	0.35888	8.807482	22.74894	0.358205	2.80389	-8.80774	-0.08122	
0.3364	-0.4999	0.018608	0.377801	8.861815	21.78857	0.378104	2.85785	-8.74388	-0.08842	
0.3676	-0.4999	0.021821	0.40214	8.808882	22.87382	0.40272	3.07787	-8.08071	-0.0708	
0.402	-0.4999	0.024882	0.428786	8.858722	23.03871	0.427479	3.31159	-8.40224	-0.04707	
0.4397	-0.4999	0.023843	0.461821	8.811857	21.82864	0.462404	2.78708	-2.02805	0.018703	
0.4812	-0.4999	0.03123	0.525773	8.810802	22.87087	0.5267	3.38825	-8.427	-0.04874	
0.527	-0.4999	0.031245	0.578081	8.3744	24.02182	0.578808	3.10486	3.47823	0.03114	
0.5772	-0.4999	0.036372	0.601883	8.37543	24.38185	0.602881	3.48882	0.874111	0.059851	
0.6325	-0.4999	0.03824	0.633384	8.08139	24.86447	0.634578	3.84819	7.33255	0.08188	
0.6833	-0.4999	0.038488	0.67121	8.083128	23.82884	0.68287	3.3886	10.0802	0.104317	
0.7403	-0.4999	0.047414	0.80129	3.032704	8.984823	0.803882	3.38839	0.148503	0.08822	
0.8339	-0.4999	0.050141	0.812383	2.87187	8.17888	0.813829	3.53188	1.07593	0.083118	
0.9147	-0.4999	0.053787	0.818382	2.832818	8.388848	0.821148	3.75887	-0.94788	-0.07713	
1.0038	-0.4999	0.058442	0.828086	2.834883	8.488881	0.828081	3.90859	-1.13882	-0.13121	
1.1002	-0.4999	0.062255	0.834439	2.318897	8.388501	0.834489	3.88352	-1.20091	-0.21818	
1.2084	-0.4999	0.062648	0.838386	2.280851	8.981814	0.837716	4.31482	-1.02342	-0.21038	
1.328	-0.4999	0.064058	0.8303	2.807843	2.728881	0.832788	4.41152	-1.53233	-0.28628	
1.4583	-0.4999	0.06357	0.828547	2.488297	2.717512	0.828688	4.38785	-1.16482	-0.2379	
1.6017	-0.4999	0.061548	0.824048	2.884722	2.838578	0.826344	4.27151	-1.28117	-0.25149	
1.7594	-0.4999	0.058828	0.820916	2.882545	2.838808	0.823079	4.15443	-1.87791	-0.30073	
1.9329	-0.4999	0.058837	0.81787	2.748286	2.944187	0.819862	4.09386	-1.75833	-0.2872	

Picholas Survey at Station 13

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Pitchwise Survey at Station 14

Pitchwise Survey at Station 15									
A	B	C	D	E	F	G	H	I	J
X(in)	Y(in)	UVref	VVref	U-Turb	V-Turb	UtdVref	UV-Angle Mean	UV-Reyn. Stress	UV-Correl. Coeff.
0.1023	0.0001	-0.00017	0.190234	-4.31419	16.53814	0.190234	-0.05025	-14.3479	-0.27743
0.1122	0.0001	0.02125	0.179686	6.05404	17.92427	0.180847	6.74791	-20.7209	-0.2643
0.1232	0.0001	-0.00877	0.211779	-4.93056	17.06396	0.217285	-1.76547	-12.7822	-0.20952
0.135	0.0001	-0.00363	0.228001	-4.82875	17.57023	0.228034	-0.87134	-10.4289	-0.18807
0.1484	0.0001	-0.00129	0.218881	-3.42829	18.9469	0.219584	-0.34374	-15.0907	-0.20238
0.163	0.0001	-0.00202	0.228818	-3.47835	18.97187	0.228827	-0.51178	-11.9319	-0.15847
0.179	0.0001	0.002708	0.23105	5.804713	19.66858	0.231086	0.671399	-12.7104	-0.15358
0.1968	0.0001	0.003787	0.269034	5.848782	18.08212	0.269031	0.808383	-10.8653	-0.14217
0.216	0.0001	0.004747	0.280503	6.148659	19.1787	0.280543	0.969472	-12.2394	-0.14319
0.2372	0.0001	0.004019	0.283285	6.205428	19.98172	0.283315	0.812823	-11.5275	-0.12819
0.2609	0.0001	0.004147	0.313	6.253277	19.98336	0.313027	0.759133	-8.3302	-0.09193
0.2866	0.0001	0.00488	0.338224	6.425453	20.80532	0.33826	0.831535	-9.03704	-0.09326
0.3149	0.0001	0.008319	0.361119	6.546256	20.12782	0.361214	1.3186	-10.6833	-0.1118
0.3461	0.0001	0.01217	0.388782	6.588801	20.5903	0.388963	1.79308	-8.40287	-0.08594
0.3805	0.0001	0.011145	0.415872	6.807818	20.36387	0.415821	1.53599	-5.57472	-0.05716
0.4182	0.0001	0.010634	0.434885	6.802207	21.91862	0.435083	1.38734	-7.81898	-0.07235
0.4598	0.0001	0.015842	0.470222	6.641853	22.38175	0.470463	1.90519	-3.28957	-0.03058
0.5055	0.0001	0.017419	0.488156	6.731036	23.28209	0.488468	2.04368	1.48054	0.013121
0.5558	0.0001	0.01879	0.499484	6.77794	26.8939	0.498644	2.19837	-3.44808	-0.0261
0.611	0.0001	0.022315	0.588396	6.194497	23.4124	0.596813	2.14283	2.36322	0.02248
0.6719	0.0001	0.027125	0.68088	5.828346	21.78156	0.681438	2.35035	-4.036	-0.04826
0.7386	0	0.02759	0.637346	6.123647	23.78888	0.637943	2.47872	5.49633	0.052079
0.8124	0	0.028152	0.688235	5.818815	22.88888	0.688827	2.41237	8.1987	0.088824
0.8932	0	0.030381	0.704881	5.119244	20.32384	0.705235	2.46804	7.78756	0.102995
0.9822	0	0.041084	0.809341	2.708222	5.863482	0.810372	2.90598	-0.24551	-0.02314
1.0622	0	0.042428	0.808341	2.488081	5.758055	0.810452	3.00076	-0.93154	-0.08251
1.1878	0	0.041209	0.818739	2.350846	3.75124	0.820774	2.8779	0.021916	0.003428
1.3085	0	0.042075	0.818001	2.58207	3.77594	0.819802	2.94482	-0.45872	-0.08482
1.4368	0	0.04711	0.820134	2.428259	2.667009	0.82135	3.12047	-0.51047	-0.1087
1.5902	0	0.044874	0.817525	2.803283	2.643715	0.818744	3.12782	-0.68913	-0.13803
1.7379	0	0.044405	0.816752	2.794024	2.542247	0.817958	3.112	-0.65427	-0.12707
1.9114	0	0.045262	0.815839	2.471915	2.297037	0.817095	3.17546	-0.76776	-0.18654

Pictet's Survey at Station 17						
A	B	C	D	E		
X(m)	Y(m)	U(m)	V(m)	UseV(m)		
1	3.9609	0.022668	0.70831	0.74678		
2	3.8752	0.023403	0.64812	0.64812		
3	3.75	0.02322	0.81825	0.81825		
4	3.625	0.02321	0.51464	0.51464		
5	3.5	0.02321	0.43849	0.43849		
6	3.3748	0.02322	0.38389	0.38389		
7	3.2469	0.02322	0.28863	0.28863		
8	3.125	0.02322	0.16704	0.16704		
9	2.9999	0.02322	0.07301	0.07301		
10	2.8749	0.02322	0.05486	0.05486		
11	2.7501	0.02322	0.04081	0.04081		
12	2.625	0.02322	0.04138	0.04138		
13	2.5	0.02322	0.04145	0.04145		
14	2.3748	0.02322	0.04171	0.04171		
15	2.2469	0.02322	0.04083	0.04083		
16	2.125	0.02322	0.04031	0.04031		
17	2	0.02322	0.04333	0.04333		
18	1.875	0.02322	0.04426	0.04426		
19	1.75	0.02322	0.04384	0.04384		
20	1.625	0.02322	0.04132	0.04132		
21	1.5	0.02322	0.04168	0.04168		
22	1.375	0.02322	0.04079	0.04079		
23	1.25	0.02322	0.03824	0.03824		
24	1.125	0.02322	0.03596	0.03596		
25	0.9999	0.02322	0.03437	0.03437		
26	0.875	0.02322	0.03417	0.03417		
27	0.75	0.02322	0.04484	0.04484		
28	0.625	0.02322	0.04174	0.04174		
29	0.4999	0.02322	0.03489	0.03489		
30	0.375	0.02322	0.02392	0.02392		
31	0.25	0.02322	0.01826	0.01826		
32	0.125	0.02322	0.00484	0.00484		
33	-0.0001	0.02322	0.00836	0.00836		
34	-0.125	0.02322	0.04811	0.04811		
35	-0.2501	0.02322	0.03508	0.03508		
36	-0.375	0.02322	0.03481	0.03481		
37	-0.4999	0.02322	0.03481	0.03481		
38	-0.625	0.02322	0.03481	0.03481		
39	-0.75	0.02322	0.03481	0.03481		
40	-0.875	0.02322	0.03481	0.03481		
41	-1	0.02322	0.03481	0.03481		
42	-1.125	0.02322	0.03481	0.03481		
43	-1.25	0.02322	0.03481	0.03481		
44	-1.375	0.02322	0.03481	0.03481		
45	-1.4999	0.02322	0.03481	0.03481		
46	-1.625	0.02322	0.03481	0.03481		
47	-1.75	0.02322	0.03481	0.03481		
48	-1.875	0.02322	0.03481	0.03481		
49	-2.0001	0.02322	0.03481	0.03481		
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Pictet's Survey at Station 16						
A	B	C	D	E		
X(m)	Y(m)	U(m)	V(m)	UseV(m)		
1	0.262	0.11809	0.635435	0.648315		
2	0.262	0.060433	0.634386	0.611014		
3	0.262	0.02322	0.634386	0.57154		
4	0.262	0.02322	0.634386	0.534613		
5	0.262	0.02322	0.634386	0.487701		
6	0.262	0.02322	0.634386	0.440789		
7	0.262	0.02322	0.634386	0.393877		
8	0.262	0.02322	0.634386	0.346965		
9	0.262	0.02322	0.634386	0.299999		
10	0.262	0.02322	0.634386	0.253033		
11	0.262	0.02322	0.634386	0.206067		
12	0.262	0.02322	0.634386	0.159101		
13	0.262	0.02322	0.634386	0.112135		
14	0.262	0.02322	0.634386	0.065169		
15	0.262	0.02322	0.634386	0.018203		
16	0.262	0.02322	0.634386	0.000000		
17	0.262	0.02322	0.634386	0.000000		
18	0.262	0.02322	0.634386	0.000000		
19	0.262	0.02322	0.634386	0.000000		
20	0.262	0.02322	0.634386	0.000000		
21	0.262	0.02322	0.634386	0.000000		
22	0.262	0.02322	0.634386	0.000000		
23	0.262	0.02322	0.634386	0.000000		
24	0.262	0.02322	0.634386	0.000000		
25	0.262	0.02322	0.634386	0.000000		
26	0.262	0.02322	0.634386	0.000000		
27	0.262	0.02322	0.634386	0.000000		
28	0.262	0.02322	0.634386	0.000000		
29	0.262	0.02322	0.634386	0.000000		
30	0.262	0.02322	0.634386	0.000000		
31	0.262	0.02322	0.634386	0.000000		
32	0.262	0.02322	0.634386	0.000000		
33	0.262	0.02322	0.634386	0.000000		
34	0.262	0.02322	0.634386	0.000000		
35	0.262	0.02322	0.634386	0.000000		
36	0.262	0.02322	0.634386	0.000000		
37	0.262	0.02322	0.634386	0.000000		
38	0.262	0.02322	0.634386	0.000000		
39	0.262	0.02322	0.634386	0.000000		
40	0.262	0.02322	0.634386	0.000000		
41	0.262	0.02322	0.634386	0.000000		
42	0.262	0.02322	0.634386	0.000000		
43	0.262	0.02322	0.634386	0.000000		
44	0.262	0.02322	0.634386	0.000000		
45	0.262	0.02322	0.634386	0.000000		
46	0.262	0.02322	0.634386	0.000000		
47	0.262	0.02322	0.634386	0.000000		
48	0.262	0.02322	0.634386	0.000000		
49	0.262	0.02322	0.634386	0.000000		
50	0.262	0.02322	0.634386	0.000000		
51	0.262	0.02322	0.634386	0.000000		
52	0.262	0.02322	0.634386	0.000000		
53	0.262	0.02322	0.634386	0.000000		
54	0.262	0.02322	0.634386	0.000000		
55	0.262	0.02322	0.634386	0.000000		
56	0.262	0.02322	0.634386	0.000000		

Pictance Survey at Station 18						
A	B	C	D	E		
X(in)	Y(in)	U(in)	V(in)	U(in)	V(in)	U(in)
1	0.678	0.04148	0.71187	0.71187	0.71187	0.71187
2	3.675	0.04238	0.64607	0.64607	0.64607	0.64607
3	3.748	0.04488	0.61924	0.61924	0.61924	0.61924
4	3.625	0.04488	0.61924	0.61924	0.61924	0.61924
5	3.5	0.04488	0.61924	0.61924	0.61924	0.61924
6	3.374	0.04488	0.61924	0.61924	0.61924	0.61924
7	3.25	0.04488	0.61924	0.61924	0.61924	0.61924
8	3.125	0.04488	0.61924	0.61924	0.61924	0.61924
9	2.999	0.04488	0.61924	0.61924	0.61924	0.61924
10	2.874	0.04488	0.61924	0.61924	0.61924	0.61924
11	2.748	0.04488	0.61924	0.61924	0.61924	0.61924
12	2.625	0.04488	0.61924	0.61924	0.61924	0.61924
13	2.5	0.04488	0.61924	0.61924	0.61924	0.61924
14	2.374	0.04488	0.61924	0.61924	0.61924	0.61924
15	2.25	0.04488	0.61924	0.61924	0.61924	0.61924
16	2.125	0.04488	0.61924	0.61924	0.61924	0.61924
17	2.0	0.04488	0.61924	0.61924	0.61924	0.61924
18	1.874	0.04488	0.61924	0.61924	0.61924	0.61924
19	1.75	0.04488	0.61924	0.61924	0.61924	0.61924
20	1.625	0.04488	0.61924	0.61924	0.61924	0.61924
21	1.5	0.04488	0.61924	0.61924	0.61924	0.61924
22	1.374	0.04488	0.61924	0.61924	0.61924	0.61924
23	1.25	0.04488	0.61924	0.61924	0.61924	0.61924
24	1.125	0.04488	0.61924	0.61924	0.61924	0.61924
25	1.0	0.04488	0.61924	0.61924	0.61924	0.61924
26	0.874	0.04488	0.61924	0.61924	0.61924	0.61924
27	0.75	0.04488	0.61924	0.61924	0.61924	0.61924
28	0.625	0.04488	0.61924	0.61924	0.61924	0.61924
29	0.5	0.04488	0.61924	0.61924	0.61924	0.61924
30	0.374	0.04488	0.61924	0.61924	0.61924	0.61924
31	0.25	0.04488	0.61924	0.61924	0.61924	0.61924
32	0.125	0.04488	0.61924	0.61924	0.61924	0.61924
33	0.0	0.04488	0.61924	0.61924	0.61924	0.61924
34	-0.125	0.04488	0.61924	0.61924	0.61924	0.61924
35	-0.25	0.04488	0.61924	0.61924	0.61924	0.61924
36	-0.374	0.04488	0.61924	0.61924	0.61924	0.61924
37	-0.5	0.04488	0.61924	0.61924	0.61924	0.61924
38	-0.625	0.04488	0.61924	0.61924	0.61924	0.61924
39	-0.75	0.04488	0.61924	0.61924	0.61924	0.61924
40	-0.874	0.04488	0.61924	0.61924	0.61924	0.61924
41	-1.0	0.04488	0.61924	0.61924	0.61924	0.61924
42	-1.125	0.04488	0.61924	0.61924	0.61924	0.61924
43	-1.25	0.04488	0.61924	0.61924	0.61924	0.61924
44	-1.374	0.04488	0.61924	0.61924	0.61924	0.61924
45	-1.5	0.04488	0.61924	0.61924	0.61924	0.61924
46	-1.625	0.04488	0.61924	0.61924	0.61924	0.61924
47	-1.75	0.04488	0.61924	0.61924	0.61924	0.61924
48	-1.874	0.04488	0.61924	0.61924	0.61924	0.61924
49	-2.0	0.04488	0.61924	0.61924	0.61924	0.61924
50	-2.125	0.04488	0.61924	0.61924	0.61924	0.61924
51	-2.25	0.04488	0.61924	0.61924	0.61924	0.61924
52	-2.374	0.04488	0.61924	0.61924	0.61924	0.61924
53	-2.5	0.04488	0.61924	0.61924	0.61924	0.61924
54	-2.625	0.04488	0.61924	0.61924	0.61924	0.61924
55	-2.75	0.04488	0.61924	0.61924	0.61924	0.61924
56	-2.874	0.04488	0.61924	0.61924	0.61924	0.61924
57	-3.0	0.04488	0.61924	0.61924	0.61924	0.61924

Pictance Survey at Station 19						
A	B	C	D	E		
X(in)	Y(in)	V(in)	U(in)	U(in)	V(in)	U(in)
1	4	1.052	0.64836	0.64836	0.64836	0.64836
2	3.874	1.052	0.64836	0.64836	0.64836	0.64836
3	3.748	1.052	0.64836	0.64836	0.64836	0.64836
4	3.625	1.052	0.64836	0.64836	0.64836	0.64836
5	3.499	1.052	0.64836	0.64836	0.64836	0.64836
6	3.374	1.052	0.64836	0.64836	0.64836	0.64836
7	3.25	1.052	0.64836	0.64836	0.64836	0.64836
8	3.125	1.052	0.64836	0.64836	0.64836	0.64836
9	2.999	1.052	0.64836	0.64836	0.64836	0.64836
10	2.874	1.052	0.64836	0.64836	0.64836	0.64836
11	2.748	1.052	0.64836	0.64836	0.64836	0.64836
12	2.625	1.052	0.64836	0.64836	0.64836	0.64836
13	2.5	1.052	0.64836	0.64836	0.64836	0.64836
14	2.374	1.052	0.64836	0.64836	0.64836	0.64836
15	2.25	1.052	0.64836	0.64836	0.64836	0.64836
16	2.125	1.052	0.64836	0.64836	0.64836	0.64836
17	2.0	1.052	0.64836	0.64836	0.64836	0.64836
18	1.874	1.052	0.64836	0.64836	0.64836	0.64836
19	1.75	1.052	0.64836	0.64836	0.64836	0.64836
20	1.625	1.052	0.64836	0.64836	0.64836	0.64836
21	1.5	1.052	0.64836	0.64836	0.64836	0.64836
22	1.374	1.052	0.64836	0.64836	0.64836	0.64836
23	1.25	1.052	0.64836	0.64836	0.64836	0.64836
24	1.125	1.052	0.64836	0.64836	0.64836	0.64836
25	1.0	1.052	0.64836	0.64836	0.64836	0.64836
26	0.874	1.052	0.64836	0.64836	0.64836	0.64836
27	0.75	1.052	0.64836	0.64836	0.64836	0.64836
28	0.625	1.052	0.64836	0.64836	0.64836	0.64836
29	0.5	1.052	0.64836	0.64836	0.64836	0.64836
30	0.374	1.052	0.64836	0.64836	0.64836	0.64836
31	0.25	1.052	0.64836	0.64836	0.64836	0.64836
32	0.125	1.052	0.64836	0.64836	0.64836	0.64836
33	0.0	1.052	0.64836	0.64836	0.64836	0.64836
34	-0.125	1.052	0.64836	0.64836	0.64836	0.64836
35	-0.25	1.052	0.64836	0.64836	0.64836	0.64836
36	-0.374	1.052	0.64836	0.64836	0.64836	0.64836
37	-0.5	1.052	0.64836	0.64836	0.64836	0.64836
38	-0.625	1.052	0.64836	0.64836	0.64836	0.64836
39	-0.75	1.052	0.64836	0.64836	0.64836	0.64836
40	-0.874	1.052	0.64836	0.64836	0.64836	0.64836
41	-1.0	1.052	0.64836	0.64836	0.64836	0.64836
42	-1.125	1.052	0.64836	0.64836	0.64836	0.64836
43	-1.25	1.052	0.64836	0.64836	0.64836	0.64836
44	-1.374	1.052	0.64836	0.64836	0.64836	0.64836
45	-1.5	1.052	0.64836	0.64836	0.64836	0.64836
46	-1.625	1.052	0.64836	0.64836	0.64836	0.64836
47	-1.75	1.052	0.64836	0.64836	0.64836	0.64836
48	-1.874	1.052	0.64836	0.64836	0.64836	0.64836
49	-2.0	1.052	0.64836	0.64836	0.64836	0.64836
50	-2.125	1.052	0.64836	0.64836	0.64836	0.64836
51	-2.25	1.052	0.64836	0.64836	0.64836	0.64836
52	-2.374	1.052	0.64836	0.64836	0.64836	0.64836
53	-2.5	1.052	0.64836	0.64836	0.64836	0.64836
54	-2.625	1.052	0.64836	0.64836	0.64836	0.64836
55	-2.75	1.052	0.64836	0.64836	0.64836	0.64836
56	-2.874	1.052	0.64836	0.64836	0.64836	0.64836
57	-3.0	1.052	0.64836	0.64836	0.64836	0.64836

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