

LEVEL

17
me

REPORT NO. NADC-80029-60



ADA 086358

**QUANTITATIVE MEASUREMENTS OF THE EFFECTS
OF VARIATIONS IN PANEL DENSITY AND DISTRIBUTIONS
FOR PANEL METHOD COMPUTER PROGRAMS**

Wilson C. Obi
Aircraft and Crew Systems Technology Directorate
NAVAL AIR DEVELOPMENT CENTER
Warminster, Pennsylvania 18974

January 1980

FINAL REPORT
AIRTASK NO. P.E. 6224IN
Work Unit No. ZA602
Project F41400 A.T. WF41400000

Approved For Public Release; Distribution Unlimited

DTIC
ELECTE
S JUL 9 1980
A

Prepared for
NAVAL AIR SYSTEMS COMMAND
Department of the Navy
Washington, D.C. 20361

DC FILE COPY

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

00 2 9 021

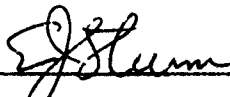
NOTICES

REPORT NUMBERING SYSTEM - The numbering of technical project reports issued by the Naval Air Development Center is arranged for specific identification purposes. Each number consists of the Center acronym, the calendar year in which the number was assigned, the sequence number of the report within the specific calendar year, and the official 2-digit correspondence code of the Command Office or the Functional Directorate responsible for the report. For example: Report No. NADC-78015-20 indicates the fifteenth Center report for the year 1978, and prepared by the Systems Directorate. The numerical codes are as follows:

CODE	OFFICE OR DIRECTORATE
00	Commander, Naval Air Development Center
01	Technical Director, Naval Air Development Center
02	Comptroller
10	Directorate Command Projects
20	Systems Directorate
30	Sensors & Avionics Technology Directorate
40	Communication & Navigation Technology Directorate
50	Software Computer Directorate
60	Aircraft & Crew Systems Technology Directorate
70	Planning Assessment Resources
80	Engineering Support Group

PRODUCT ENDORSEMENT - The discussion or instructions concerning commercial products herein do not constitute an endorsement by the Government nor do they convey or imply the license or right to use such products.

APPROVED BY:


B. J. STURM
CDR USN

DATE:

4-16-80

DISCLAIMER NOTICE

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

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NADC-80029-60	2. GOVT ACCESSION NO. AD-A086358	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Quantitative Measurements of the Effects of Variations in Panel Density and Distributions for Panel Method Computer Programs	5. TYPE OF REPORT & PERIOD COVERED Final Report	
7. AUTHOR(s) Wilson C. Obi	8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Aircraft and Crew Systems Technology Dir. (Code 60) Naval Air Development Center Warminster, PA 18974	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS P.E. 62241N W.U. No. ZA602 A.T. No. WF41400000	
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Air Systems Command Department of the Navy Washington, DC 20361	12. REPORT DATE January 1980	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	13. NUMBER OF PAGES 146	
	15. SECURITY CLASS. (of this report) UNCLASSIFIED	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release; Distribution Unlimited 12-555		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Approved for Public Release; Distribution Unlimited		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Computational Aerodynamics Panel Methods Paneling Sensitivity Loads Analysis		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Panel distributions have been characterized independently in terms of computable and controllable parameters. Thus, a methodology has been developed which will permit a conclusive establishment of the sensitivities of paneling parameters to aerodynamic estimation quality for a wide variety of paneling codes. It has been demonstrated that the global performance (input-output relationships, precision, and accuracy) of a panel method computer program can be established through calibration. Application of the sensitivity analysis developed herein to SURAIR (a Woodward constant pressure panel method derivative) has shown that		

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

it is possible to increase estimation accuracy without the commonly expected increase in computation cost.

NADC-80029-60

S U M M A R Y

Experts in panel methods have observed for some time that distributions of panel shapes, sizes, and locations play an important role in determining the outcome of computations with panel method programs. However, quantitative statements of this fact were often of the "brand name variety" such as this: cosine paneling (uniform panel spacing or any other fixed paneling scheme) converges rapidly (or slowly as the case may be). A disadvantage of this kind of information is that when a named paneling option is chosen the outcome, even if predictable, is rigid. In particular, any change in paneling must be accompanied by a change in the total number of panels and, consequently, in the cost of computation. By characterizing panel distributions independently through computable parameters which can be used to control paneling it is possible to study panel sensitivities conclusively. This was the approach taken in this study which also demonstrated that the global performance (input-output relationships, precision, and accuracy) of a panel method computer package can be established through calibration. Such results are often difficult, if not impossible, to obtain through purely mathematical analysis. A calibration of SURAIR (a derivative of the Woodward constant pressure panel method) shows that it is possible to increase and maintain the accuracy of computations without the commonly expected increase in cost. This is achieved by keeping the panel distributions near an optimum without increasing the total number of panels.

Accession For	
NTIS GRA&I	☒
DDC TAB	☐
Unannounced	☐
Justification	
By _____	
Distribution/ _____	
Availability Codes	
Dist	Avail and/or special
A	23 CP

T A B L E O F C O N T E N T S

	<u>Page No.</u>
SUMMARY	1
LIST OF FIGURES	3
LIST OF TABLES	6
INTRODUCTION	7
APPROACH	9
A Control Theory Model of Problem	9
Feasibility of Calibrating Panel Method Programs	10
CALIBRATION: PANELING SENSITIVITY	11
A Test Case	11
Choice of Parameters	11
Results and Their Presentation	12
CALIBRATION: PRECISION AND ACCURACY	15
Accuracy of SURAIR Based on Test Case	15
Total Lift Coefficient	16
Aerodynamic Center Location	16
Spanwise Lift Distribution	16
Convergence to True Solution	17
Discussion	18
CONCLUSIONS	20
REFERENCES	63
LIST OF SYMBOLS	64
SUGGESTED READING ON PANEL METHODS	65
APPENDIX A - INPUT INSTRUCTIONS FOR SURAIR	A-1
APPENDIX B - DETAILS OF REGRESSION FORMULAS	B-1

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
1	Current State of Panel Method Applications	24
2	Remove Disturbance To Get Clean Open Loop Control System	25
3	Symmetrical Swept-back Wing. Pressure Plotting Stations. (Falkner and Lehrian (3)).	26
4	Piercy Symmetrical Section Used in Test Model. (Falkner and Lehrian (3))	26
5	Reference Data From Experiment: C_{LW} vs α	27
6	Reference Data From Experiment: Section Characteristics	28
7	Residuals For Computed C_{LW} With NP=40	29
8	Residuals For Computed C_{LW} With NP=80	30
9	Residuals For Computed C_{LW} With NP=100	31
10	Residuals For Computed C_{LW} For PAR=1.0	32
11	Residuals For Computed C_{LW} For PAR=3.0	33
12	Residuals For Computed C_{LW} For PAR=6.0	34
13	Residuals For Computed A.C. With NP=40	35
14	Residuals For Computed A.C. With NP=80	36
15	Residuals For Computed A.C. With NP=100	37
16	Residuals For Computed A.C. For PAR=1.0	38
17	Residuals For Computed A.C. For PAR=3.0	39
18	Residuals For Computed A.C. For PAR=6.0	40
19	Spanwise Lift (CC_l) At $\alpha = 8^\circ$ (Low PAR)	41
20	Spanwise Lift (CC_l) At $\alpha = 8^\circ$ (High PAR)	42
21	Residuals of Computed CC_l At $\eta = .875$ With NP=40	43
22	Spanwise Lift ($CC_l / \bar{C}_{LW}$) At $\alpha = 8^\circ$	44

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
23	Residuals For Computed $CC_L / \bar{CC}_{LW}$ With NP=40: Inboard	45
24	Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\eta = .875$ With NP=40	46
25	Residuals For Computed $CC_L / \bar{CC}_{LW}$ With NP=80: Inboard	47
26	Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\eta = .875$ With NP=80	48
27	Residuals For Computed $CC_L / \bar{CC}_{LW}$ With NP=100: Inboard	49
28	Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\eta = .875$ With NP=100	50
29	Residuals For Computed $CC_L / \bar{CC}_{LW}$ For PAR=1.0: Inboard	51
30	Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\eta = .875$ For PAR=1.0	52
31	Residuals For Computed $CC_L / \bar{CC}_{LW}$ For PAR=3.0: Inboard	53
32	Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\eta = .875$ For PAR=3.0	54
33	Residuals For Computed $CC_L / \bar{CC}_{LW}$ For PAR=6.0: Inboard	55
34	Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\eta = .875$ For PAR=6.0	56
35	Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\alpha = 4^\circ$ As A Function of PAR/NP	57
36	The Mean and STDV of Residuals For Computed C_{LW} vs PAR	58
37	The Mean and STDV of Residuals For Computed C_{LW} vs NP	59
38	The Mean and STDV of Residuals For Computed $CC_L / \bar{CC}_{LW}$ For PAR=1.0	60

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
39	The Mean and STDV of Residuals For Computed $\bar{C}C_L / \bar{C}C_{LW}$ For PAR=3.0	61
40	The Mean and STDV of Residuals For Computed $\bar{C}C_L / \bar{C}C_{LW}$ For PAR=6.0	62

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
I	Profile of Piercy Symmetrical Airfoil, 12.08 percent thick, 12 in. Chord. (Falkner and Lehrman (3))	21
II	Location of Pressure Holes at the Surface of a Piercy Airfoil. (Falkner and Lehrman (3))	21
III	Reference Data From Experiment	22
IV	Cost Implications of Paneling Efficiency	23
B-I	Variable Definition and Numbering For Equations 5 and 6	B-1
B-II	Input Statistics For Equations 5 and 6	B-2
B-III	Computation of Coefficients of Equation 5	B-4
B-IV	Computation of Coefficients of Equation 6	B-8
B-V	Summary of Input Data For Equations 5 and 6	B-12
B-VI	Variable Definition and Numbering For Equations 7, 8 and 9	B-14
B-VII	Input Statistics for Equations 7, 8 and 9	B-15
B-VIII	Computation of Coefficients of Equation 7	B-30
B-IX	Computation of Coefficients of Equation 9	B-42
B-X	Computation of Coefficients of Equation 8	B-53
B-XI	Summary on Input Data For Equations 7, 8 and 9	B-64

I N T R O D U C T I O N

Panel method programs have gained a wide acceptance as tools for analyzing complex aircraft configurations. For this reason a battery of "can-ned" computer codes has been produced for routine use in the aerospace industry. Meanwhile, efforts are under way to extend the panel methods to more and more classes of problems. This success of the panel methods is creating some headaches, the most common and, perhaps, the least explored, being the plight of ordinary users. Such users have no in-depth knowledge of the panel methods. In fact, they do not need or care for such knowledge since all they look for is the output from the program. Yet, those users must be able to determine the quality of the results they get. To do so would require a priori quantitative estimates of the total number of panels, their distribution (specification of the sizes, shapes and locations of the panels), and the relationship (quantitative) of these to the accuracy of the computed result. This was the problem to be investigated in this study. It should be pointed out that this problem is not restricted to panel method programs. Most moderate to large computer programs of other types create the same problems. Hence recognition of the existence of the problem should not be viewed as an adverse criticism of panel methods, but rather as a reminder that the utility of the methods can be enhanced significantly through application of the method described herein.

Convergence of the panel method was one of the earliest questions to be probed, and it has been established that most panel methods converge as the total number of panels is increased. However, the convergence is not in the classical sense of a power series. In most instances convergence occurs at high panel densities (total number of panels) with an attendant prohibitive cost. Since the difference between computed results at such high densities and those at lower, more economical densities ranges anywhere from 5 to 20 percent, the user is often left with the feeling that he must either put up with low quality results or else pay an exorbitant price for accurate ones. Further compounding the problem is the observation that convergence is not a function of the number of panels alone; it is affected by the distribution of sizes, shapes and locations of the panels. That is not all. Some panel methods (vortex lattice) have been known to converge to the wrong answers for some situations. Hence, except in the hands of the experts, the results from a panel method could be both uncertain and costly.

What are generally available to the average user are qualitative paneling criteria suggested by experts, supplemented by what amounts to "maximum" error estimates based on comparisons with highly select special cases. What the user needs are quantitative relationships between the number of panels, the distributions of their sizes, shapes, and locations, and the (global) errors of the computer package. Deriving closed-form mathematical formulas for this purpose appears to be impossible because of the complexity of the analysis. It is easy to see why this statement is made if we realize that we are dealing with a complicated interaction between several programs, only some of which are specifically dictated by the panel method formulation. There would be too many variables if the programs are separated for mathematical treatment. Fortunately, the stated objective is best attained by studying the external behavior of the entire package of programs rather than by unravelling its internal structure. It is with regret, therefore, that

this report does not contain a treatise on the formulation, application, and implementation of panel method programs. Instead, the report addresses the input-output response of such programs and how we may set about describing their accuracy in quantitative terms. Suggested readings are presented at the end of the report for the benefit of those who need an introduction to the subject. The method of providing the solution to our problem will be discussed and demonstrated in the following sections.

A P P R O A C H

This section details and justifies the approach taken in quantifying paneling effects on the performance of a panel method program. It is asserted that calibration is a fundamental requirement for panel method programs. Meeting this requirement in concrete terms is postulated and later realized.

CONTROL THEORY MODEL OF PROBLEM

The convergence properties of the most widely used numerical operations are adequately characterized by single parameters. Convergence in panel method programs has been similarly treated, partly in keeping with this trend, and partly to keep the results simply at the users' level. The parameter usually chosen for panel methods is NP, the total number of panels. The tacit assumption is that convergence results as $NP \rightarrow \infty$. This choice presents great difficulties to the average user because convergence to the "true" solution as $NP \rightarrow \infty$ is highly qualified by the arrangement and distribution of the panels. It is even doubtful that such convergence is the rule rather than the exception. For example, non-uniform spacing does not converge as $NP \rightarrow \infty$ in the doublet lattice method; if convergence does occur, it could be to the wrong solution.

There is still some logic in the use of NP as the main parameter for panel methods. It represents the total number of equations in the resulting matrix system, and as such is a gauge limiting the size of a problem that can be solved by a particular program. It could also be an estimator for computer time and cost. Thus NP is a very important parameter. Recognizing, however, the difficulties just mentioned, it is apparent that additional parameters will be required to describe the external behavior of panel method programs. In particular, the distribution of panel sizes, shapes, and locations must be clearly and distinctly categorized, quantitatively as well as by enumeration. This has not been done completely with regard to currently available panel method programs. By creating a control system model of the current state of panel method applications it can be seen at once how this can create problems.

Figure 1 illustrates the model of the current applications practice in the use of panel methods. Since panel distributions are often uncontrolled and yet significant in their influence on the system they are treated as an external disturbance. Note also that the system is open. Thus we have an uncalibrated open loop control system with an external disturbance. Control theory, therefore, predicts that such a system will have a very unpredictable output.

To correct the situation we must do two things:

- (a) Remove the disturbance
- (b) Calibrate the system

Regarding (a), we note that panel distribution is inseparable from a panel method. Therefore what we are going to do is to change its character in the model so that it becomes part of a known input or output. The net effect is the same as removing the external disturbance. Figure 2 shows the two ways in which this can be accomplished.

After removing the disturbance from the model what is left is a clean open loop control system. Again, control theory tells us that such a system

is useless as a predictive tool unless it is calibrated. Thus we see that calibration is fundamental. Notice that the system would have automatically been calibrated if there is always a convergence to "true" solution and "remainder" estimates are available. Calibration is a logical fix to the problems created by failure to converge and the lack of "remainder-type" estimates. For panel method programs calibration will be very significant from the point of view of economy because the program can then be used in the inexpensive range of panel densities afterwards.

FEASIBILITY OF CALIBRATING PANEL METHOD PROGRAMS

We have seen that calibration is fundamental to the use of a panel method program if there is no guarantee of convergence to true solutions. The question, therefore, is whether a calibration can be carried out and if so, how. From previous discussions it is clear that this hinges on the possibility of controlling and quantifying the variables (also called parameters) that enter the problem.

The most direct approach to parameter selection for a particular panel method program would be to use all the variables (and combinations thereof) which appear in that program. While there is nothing logically wrong with this approach, avoiding the details of any one program has some important benefits. By choosing parameters that can be computed for any program (or just a broad cross section of programs), we will have a basis for comparing different programs. Furthermore, since the number of such variables in any given program is often prohibitively large, fewer and more general parameters will be necessary for actually carrying out a calibration.

The greatest challenge to the calibration of panel method programs is the control and quantification of the distribution of panel shapes, sizes, and locations. Since there are usually many panels for each computation, any function defined on a panel contributes NP variables and the total number of variables is always too large to handle. The main hypothesis of this study is that calibration can be carried out in terms of (statistical) distributions of variables rather than in terms of the individual variables. This way, any function defined on a panel contributes far fewer than NP parameters to be used in the calibration. The number of parameters entering calibration can be further reduced if we discover "fundamental" variables independent of program details which can be used to control the choice of paneling. This last step must be done experimentally and is really much easier than apparent. Once the choice of parameters is made the program can be calibrated for a well defined "population" of these parameters and future users can employ statistical inference to determine the significance of any choice they make.

It is clear that this approach implies some calibration costs which may or may not be necessary. In general the decision to calibrate must be made so as to minimize

$$\left[\text{Cost of Calibration + Testing} \right] + \left[\text{Expected Value of Penalty (of not calibrating or testing)} \right]$$

There is no question that calibration will be cost-effective for some widely used panel method programs.

CALIBRATION: PANELING SENSITIVITY

The first stage of a calibration will be establishing the relationship between the input and output variables. In the case of panel methods used in aerodynamic analysis we are not only concerned with such inputs as aircraft geometry and Mach number but also with the choice of the number and distribution of panels. In fact, the latter is the main object of this investigation and report. The key to success in this phase is stability between the input and output. A fairly general consideration of calibration is possible. In this report, however, we shall eschew all generalities and proceed to demonstrate a successful calibration of a panel method program.

A TEST CASE

To test the hypothesis of the last section a simple but non-trivial panel method program was sought. Simplicity was sought because changes had to be made to the program to compute any extra parameter that enters the calibration; a complex program would not permit quick modifications. Non-triviality means that the program must be a respectable production package used in serious analyses. Such a program was found in SURAIR (Reference 1). This is a thin wing lifting surface program of the Woodward constant pressure panel method vintage (Reference 2). It is part of a loads analysis package which has seen considerable use at NAVAIRDEVCEEN and AFFDL. The results of the calibration can therefore be put to practical use.

The next critical choice to be made is that of the specimen to be analyzed. A suitable specimen was found in Reference 3. The choice was based on the simplicity of the wing planform involved and on the fact that the measurements available can be used to investigate the accuracy of the program. Details of the specimen are given in Figures 3 and 4 and Tables I and II (all taken from Reference #3). No further details are necessary except to point out that SURAIR does not account for air foil thickness and fairing of wing tips.

CHOICE OF PARAMETERS

It has been pointed out that there are disadvantages in choosing parameters tied to a particular panel method program. Consequently, parameters which do not specifically refer to a particular program were sought. The guide was that in addition to NP (total number of panels) there must be some shape, size, and location parameters defined on each panel. Such parameters exist, and in SURAIR only a few really apply because of the simplicity of the program. Changes were made to compute the distributions of the parameters which, by choice, were characterized by the mean (μ) and the standard deviation (σ). Then the output was examined for possible sensitivity to (and correlation with) the parameters and the total number of panels. From a few runs it became clear that panel aspect ratio (PAR) has a significant effect on computed results. Panel aspect ratio is defined by

$$PAR = b_p^2 / S_p \quad (1)$$

where b_p is the panel span and S_p is the panel area. There was little evidence that other parameters such as panel taper ratio, λ_p , or panel sweep

angle, Λ_p , had as great an effect as PAR.

PAR can be controlled for the test specimen. It can be kept constant on all panels, or it can be made to vary over a predetermined range. SURAIR uses only flat trapezoidal panels and the formula for PAR can be derived for the case where equal spanwise and chordwise divisions are used:

$$\frac{PAR_i}{AR_w(1 + \lambda_w)} = \frac{(N/2M)/(1 + \lambda_p)}{\left\{ \left[1 - \frac{(i-1)}{M} \right] + \frac{(i-1)}{M} \lambda_w \right\}} \quad (2)$$

In equation (2) AR_w and λ_w are the wing aspect ratio and taper ratio respectively. N is the number of equal chordwise divisions and M is the number of equal spanwise divisions per semi-span. These are explained in the Input Instructions for SURAIR taken from Reference 1 (Appendix A). PAR_i is the panel aspect ratio for those panels in the i^{th} station, counting from wing root. It is clear that PAR is a function of λ_p and Λ_p . This is perhaps the reason why its distribution is sufficient to explain the paneling sensitivity to SURAIR in this simple case.

Since the specimen has a taper ratio of 1, there is the simple result that

$$\frac{PAR}{AR_w} = N/2M \quad (4)$$

Hence PAR can be selected a priori and kept constant by merely choosing N and M . Furthermore its distribution can be controlled approximately by controlling the width in the spanwise and chordwise directions. Thus a rational approach to paneling has been developed. By varying NP and PAR while keeping other variables constant, the paneling sensitivity of SURAIR was investigated. Of course, a full calibration would also involve the variation of the other variables such as AR_w , λ_w , Λ_w , and Mach Number. But since paneling sensitivity is our main interest in the study a full calibration is not pursued at the moment.

RESULTS AND THEIR PRESENTATION

According to our hypothesis, the output of SURAIR can be expressed as functions of NP, the mean and standard deviation of PAR over the panels (or equivalently, the mean and coefficient of variation of PAR, where the coefficient of variation is the ratio of the standard deviation to the mean). Computations were first carried out with PAR constant on all panels (standard deviation (coefficient of variation) equals zero) and graphical analysis of data confirmed the hypothesis for these cases. When controlled PAR variations over panels were introduced, it appeared that small PAR variations did not matter. Thus the output is stable with regard to panel variations.

Graphical data also revealed that most of the output variables do not depend linearly on NP and mean PAR. Thus many graphs will be required to present the input-output results. In order to present the result in a compact form regression formulas were employed. The results were fitted using

stepwise multiple regression analysis. The independent variables were μ , ν , NP, $C\theta$, and functions derived from them. See the list of symbols for the definitions of these variables. The following are formulas obtained for the specimen shown in Figure 3 at a Mach number of .06.

$$\frac{57.3}{\pi AR_w} \frac{\partial C_{LW}}{\partial \alpha} = (.248656) + (.911826 \times 10^{-1})\mu + (.852536 \times 10^{-4})NP \\ - (.523091 \times 10^{-1})\mu^2 + (.129222 \times 10^{-1})\mu^3 \\ - (.145552 \times 10^{-3})(\mu \times NP) - (.372808)(\mu/NP) \quad (5)$$

$$\frac{57.3}{\pi AR_w} \frac{\partial C_{LW}}{\partial \alpha} = (.245622) + (.787313 \times 10^{-1})\mu + (.163029 \times 10^{-3})NP \\ - (.470821 \times 10^{-1})\mu^2 + (.111066 \times 10^{-1})\mu^3 \\ - (.105580 \times 10^{-3})(\mu \times NP) - (.338221 \times 10^{-6})NP^2 \quad (6)$$

$$\frac{X_{a.c}}{AR_w \tan \Lambda_{LE}} = (.497430 \times 10^{-1}) + (.133938) C\theta - (.184406 \times 10^{-3})NP \\ - (.640692 \times 10^{-1})\mu + (.368197 \times 10^{-6})NP^2 + (.368751 \times 10^{-1})\mu^2 \\ + (.127828 \times 10^{-3})(\mu \times NP) + (.858019 \times 10^{-1})C\theta^5 \\ - (.137458)C\theta^3 - (.885823 \times 10^{-2})\mu^3 + (.490106)(\mu/NP) \quad (7)$$

$$\frac{57.3}{\pi AR_w} \left(\frac{c}{c}\right) \frac{\partial C_l}{\partial \alpha} = (.300038 \times 10^{-1}) + (.343218) C\theta - (.108133)C\theta^5 \\ + (.833598 \times 10^{-1})\mu + (.145387 \times 10^{-3})NP - (.462687 \times 10^{-1})\mu^2 \\ - (.120612 \times 10^{-3})(\mu \times NP) + (.965234 \times 10^{-2})\mu^3 \\ - (.259934 \times 10^{-6})NP^2 \quad (8)$$

$$\frac{57.3}{\pi AR_w} \left(\frac{c}{c}\right) \frac{\partial C_l}{\partial \alpha} = (.325854 \times 10^{-1}) + (.343225)C\theta - (.108136)C\theta^5 \\ + (.938552 \times 10^{-1})\mu + (.836013 \times 10^{-4})NP - (.506421 \times 10^{-1})\mu^2 \\ - (.153872 \times 10^{-3})(\mu \times NP) + (.112440 \times 10^{-1})\mu^3 \\ - (.336648)(\mu/NP) \quad (9)$$

We recommend use of these formulas in the ranges $30 \leq NP \leq 150$, $.05 \leq \mu \leq 1$, and $0 \leq \eta \leq .8$. (See Appendix B for available options.)

In Equations 5-9 AR_w , λ_w , and Mach number were held constant while ν was zero throughout. They must, therefore, not be misconstrued to be generally applicable. Details of the regression analysis that produced the formulas are given in Appendix B. The high multiple correlation coefficient in each case is a strong indication that our hypothesis is sound.

The (independent) variable combinations $(\mu \times NP)$ and (μ/NP) can be given more general meanings: the former is a measure of the fineness of chordwise divisions while the latter is a measure of the fineness of spanwise divisions.

Our regression analysis showed a strong correlation between (μ/NP) and NP^2 . Consequently, these two variables were not always included in the regression at the same time. The correlation between the two is probably due to the systematic (uniform) paneling scheme favored in the computations.

The input-output results have been presented with the aid of regression formulas. This makes for compactness and convenience. The results, however, might as well have been presented in the form of graphs and charts. To keep down the bulk of this report these alternatives will not be pursued although they have numerous advantages.

CALIBRATION: PRECISION AND ACCURACY

With the input-output relationship established and summarized either in the form of tables, charts, or regression equations, some important questions still have to be answered. These are questions of precision and accuracy. To avoid controversy about these terms the sense in which they are used in this report will be given. By precision we are referring to the degree to which a program meets its theoretical goals. For panel method programs designed to solve potential flow problems, precision for them involves a determination of the errors made in the solution of potential flow problems. This is distinct from a determination of the errors committed when the programs are applied to the modeling of certain types of viscous flow phenomena (such as circulation around a finite wing). The latter would constitute a determination of accuracy.

Two types of reference data will be required to determine precision and accuracy. For precision, a theoretical baseline data will be required; potential flow problems with known exact results are solved with the program and the errors noted. The baseline data for checking accuracy should be selected from the class of problems which the program was designed to model. Such data quite often turn out to be experimental since few exact solutions exist (or there will be no need for modeling).

It is clear from the distinction made between precision and accuracy that the nature of the answers need not be identical for the two. But there is some relationship between them because it is improbable that one phenomenon can be used to model another when the two are totally unrelated. In any case, it is quite permissible to treat one and not the other, depending on the interest of the moment. This is what will be done for SURAIR. To a limited extent, we wish to examine its accuracy by comparing its output to experimental measurements. There are two alternatives for representing SURAIR outputs: with regression formulas, or with tabulated data. We chose tabular data because comparisons can be made the instant a computation is made rather than await the end of all computations when a formula could be obtained. One should also be cautioned that to use regression formulas may indeed amount to evaluating a different system; the system is all the more different if the formulas are not an accurate representation of the computed data.

ACCURACY OF SURAIR BASED ON TEST CASE

Reference 3 contains experimental measurements on the planform chosen for analysis. Figure 3 shows the wing stations where measurements were made while Figure 4 shows the arrangement of pressure taps on the airfoil. Only a limited amount of data from Reference 3 was needed since this investigation was not intended to be exhaustive. Three quantities were examined: total lift coefficient, aerodynamic center locations, and spanwise lift distribution. Reference data extracted from Reference 3 are given in Figures 5 and 6, and Table III (a)-(c). The figures and tables are self-explanatory.

TOTAL LIFT COEFFICIENT

Total wing lift coefficients were computed for $\alpha = -16, -12, -8, -4, -2, 2, 4, 8, 12, 16$ degrees and compared to measured results (balance measurements corrected for zero reading) from Reference 3. Both PAR and NP were varied and residuals (residual = experimental value - computed value) were noted. Some graphical results are displayed in Figures 7-12. It is clear that the residuals decrease (hence the presumed accuracy based on these experimental data increases) as PAR and NP increase. PAR is, however, by far the dominant parameter. At moderately high PAR values dependence on NP diminishes rapidly (Figure 11) and all but disappears at very high values (Figure 12). If NP is fixed, the best result is obtained by keeping PAR as high as possible (Figures 7, 8, and 9). Contrary to what the average user is likely to believe, NP plays a subordinate role to PAR when it comes to accuracy of the program. As much accuracy (even slightly higher accuracy) can be achieved with 64 panels as with 144 or 196 (Figure 12). With paneling efficiency, accuracy is indeed more economical with this program. See Table IV for some cost comparisons.

AERODYNAMIC CENTER LOCATION

Instead of presenting the residuals for the center of pressure locations we have chosen to present residuals for the aerodynamic center locations because that would summarize the entire data of interest. Of course, SURAIR would predict center of pressure and the aerodynamic center to be the same (since there is no camber). But for the experimental data the two are not the same, and the aerodynamic center (A.C.) has to be computed. This has been done (Table III) assuming linear theory. Residuals were obtained each time by interpolating the computed results at the experimental stations.

The results presented in Figures 13-18 parallel those presented in the previous section for C_{LW} . The conclusions are also similar: at each spanwise station increasing PAR and NP reduce the residual, and the residual at very high values of PAR is less sensitive to NP (Figure 18). The residuals are, however, larger than was found for C_{LW} , indicating that less accuracy is achieved. The performance is worst at the wing tips.

SPANWISE LIFT DISTRIBUTION

Another output of SURAIR that was examined for accuracy is the spanwise lift distribution. This quantity is very important since the program is used for generating loads for structural analysis. Some of the results are presented in Figures 19-25.

Figures 19 and 20 show the lift per unit span for low and high values of PAR at $\alpha = 8^\circ$. Experimental results are cross-plotted. From these it is seen that section lift is under-predicted at very low values of PAR throughout the span. As PAR increases there is some amount of distortion; the lift is over-predicted outboard and under-predicted inboard. Figure 21 is typical of the trend of residuals as PAR increases (with NP fixed) in the outboard stations. Inboard, the trend is reversed. The station $\eta = .5$ generally behaves like an inboard station.

The non-dimensional load distribution, $CC_l/\bar{CC}_{LW}$, was also examined. This quantity varies only slightly with angle of attack, α , and is useful for some applications. Figure 22 shows a plot at $\alpha=8^\circ$ for $PAR=1.2$ and $PAR=9.375$. Experimental results are cross-plotted. The trend is similar to what was found above for CC_l but the variations involved are smaller. When residuals are examined at various points on the span, a very different and interesting trend was found. For the inboard stations there is very little variation with PAR (as NP is held constant), or with NP (as PAR is held constant). Outboard, however, the variations were greater. Midway between the tip and the mid-semispan the residuals tend to increase negatively with PAR as NP is fixed, but to approach zero if PAR is held constant and NP is increased. Well outboard, typified by $\eta=.875$, the magnitude of the residual would at first increase with PAR (NP fixed) and then decrease. The situation is similar if PAR is fixed and NP varied. See Figures 24, 26, 28, 30, 32 and 34. A visual examination of the graphs showed that they are almost similar whenever PAR/NP is the same. Recalling that this quantity measures the fineness of spanwise divisions, the relationship should not come as a surprise. Figure 35 shows the residuals of $CC_l/\bar{CC}_{LW}$ at $\alpha=4^\circ$ as a function of PAR/NP . This curve is typical and shows that $CC_l/\bar{CC}_{LW}$ is stable inboard while considerable variations are possible outboard. It also shows the existence of a region of high accuracy (comparatively speaking) for all stations in the range $.005 \leq (PAR/NP) \leq .01$. Results like this can be exploited to improve the computation of spanwise loads. First compute $CC_l/\bar{CC}_{LW}$ in this range. Because PAR is generally small for these limits, C_{LW} will not be predicted very accurately by these computations (see section on total lift coefficient). However, if the C_{LW} obtained in a computation performed at a high PAR is used in conjunction with the $CC_l/\bar{CC}_{LW}$ so obtained, a more accurate prediction of CC_l will be possible. Of course, if a sufficient amount of reference data are available, corrections can be applied to computations made with any combination of PAR and NP and the approach just suggested will be unnecessary.

CONVERGENCE TO TRUE SOLUTION

The results of the preceding sections have already revealed a lot about the convergence properties of the program SURAIR. It is fair to conclude that those results indicate convergence in the computations of C_{LW} and the A.C. locations. For a fixed number of panels computation approaches the true solution as PAR increases. This is a most fortunate result, for it means that increase in accuracy without increase in cost is possible. When PAR is fixed, computations also approach the true solutions as NP increases. If PAR is high, this convergence is very rapid and the best possible result can be obtained at a low value of NP where the cost is small. Again this is a very good quality. Of course, the final solution under the best choice of PAR and NP is still short of the "true" solution but this will not be a handicap after calibration because it is then possible to establish the magnitude of the residuals.

This program has done very well in the prediction of C_{LW} . Table IV shows that this can be done to within 3%, and considering that the experi-

mental reference data may not be precise to the same degree, this is an excellent performance. The results indicate a possible lack of convergence in the computation of spanwise loads for outboard wing stations. However, the computation is sufficiently stable to allow for calibration. We will touch on this again in a short while.

To get a more general picture of the convergence properties of SURAIR the distributions of residuals for some quantities were studied. Figure 36 shows the mean and standard deviation of the residuals of computed C_{LW} over the range $-16^\circ \leq \alpha \leq 16^\circ$ as a function of PAR, and Figure 37 shows the same distribution as a function of NP. The results confirm what has already been stated about the convergence of C_{LW} .

Figures 38-40 show the distribution of residuals for $CO_2/\bar{C}_{LW}$ as functions of both PAR and NP. Variations on the mean and STDV are indicated at the outboard stations. Variation in the mean is taken to mean lack of convergence while variation in the STDV is taken to mean that the computed results (at a fixed wing station) may not even belong to the same statistical family. With these interpretations it appears that the convergence of this quantity in the outboard stations is worse at low panel densities (low values of NP) and then improves as the density increases. At a high PAR stability is indicated for sufficiently high densities (estimated at $NP \geq 140$ from Figure 40). However, convergence is not quite well established at the most outboard station ($\eta = .875$) even at $NP = 200$ which is the limit of the program. Even then, operating in the stable region is debatable since higher accuracy is indicated at lower panel densities. Hence economy and accuracy will both support calibration at low panel densities.

The situation with SURAIR prior to this study was quite typical: practical confirmation of computational stability and convergence but no quantitative estimate of actual performance (based on some reference data). With the quantitative factors behind the performance of the program established, it is now possible to use the program economically and with greater accuracy. The implications for other programs are clear: can they be calibrated? Why not?

DISCUSSION

This short discussion is aimed at airing some matters of procedure and validity which have not been mentioned elsewhere in the report. The first issue concerns the nature of the experimental data used to evaluate the residuals. The values of C_{LW} used were corrected for symmetry and taken from Reference 3. The section data were corrected for zero α -effects but remained basically unsymmetrical. It is recalled that Reference 3 maintains that this lack of symmetry appears genuine. Also the data contain some nonlinearities which may have introduced more variations to the residuals. Furthermore, experimental C_{LW} was obtained from balance measurements rather than pressure data. SURAIR on the other hand obtains C_{LW} and section characteristics by computing and integrating the pressures. It is assumed that this lack of logical consistency will not change the results significantly. Should doubts persist, however, the C_{LW} obtained by integrating experimental pressure data must be substituted for the balance measurements. Finally

it is pointed out that the precision of the experimental data should be established (quantitatively) before it can be used in a general calibration of the program. Since this study is exploratory in nature no attempt has been made to assess (independently) the quality of the experimental data.

The following observations with regard to SURAIR are important from the users' point of view. From Equations (2) and (4) it is clear that PAR is determined largely by the quantities M and N. It increases with N and decreases with M. Since high or low PAR is desirable for accuracy depending on the objective of a computation, an important question concerns the range of values that M and N can take. In the computations made during the study M ranged from 1 to 20 and N ranged from 4 to 30. A slight asymmetry (with respect to α) of computed C_{LW} was detected when M was 20. Since this is contrary to the design of the program, loss of computational efficiency is implied. It seems to result from a slight amount of ill-conditioning in the matrices. This ill-conditioning may also be present if NP is high and could be responsible for the reversal in trend present in the runs numbered 35, 36 and 37 (see Table IV and Figure 12). When M=1 or 2, a reversal in trend was also detected (compare run # 46, 47, and 48 in Table IV). In this case, however, the problem can be traced to an integration (and interpolation) package used in the program. Function definitions were too sparse for accurate integration or interpolation. Even so, M=2 is quite good; only M=1 should be avoided. The same package was used to interpolate computed section data at experimental stations before residuals were computed. If M is small, residuals at the outboard sections should be examined for possible interpolation effects. Tolerance for variations in N appears to be quite high. All in all, the user who wants to stay within certain ranges of PAR should be careful not to increase M too much. In this study a value as high as 16 seemed all-right but slight discrepancies were present for M=20.

Finally, the propriety of using SURAIR to compute certain quantities may be raised. F. Woodward (Reference 2) points out that since the program uses stepwise constant spanwise and chordwise singularity distributions it would have difficulty following gradients outboard of the wing, and could, therefore, be in considerable error at outboard stations if used to compute spanwise loads. Thus the program is being extended beyond its theoretical design when it is used to obtain spanwise loads and A. C. locations. This is done quite often in practice. In this case, the loads analyst finds few suitable choices and is forced to stretch the theory a little. At this point the distinction between the precision and accuracy of SURAIR will be in order. Its precision should be tested against planforms in which the spanwise and chordwise singularity distributions are indeed adequately expressed by step functions, elliptic planforms, for example. For other cases we would use the term accuracy. It is important to note that lack of accuracy or precision may be compensated for when the program can be calibrated.

CONCLUSIONS

In the absence of closed form mathematical expressions for rates of convergence and remainder estimates, the global performance (input-output relationships, precision, and accuracy) of a panel method computer program must be established through calibration. The input-output relationships of a simple panel method program (SURAIR) can be established in terms of a few parameters, thereby making it possible to study its precision and accuracy. As a result, the program can be used inexpensively to establish the total lift, spanwise lift distribution, and the spanwise locations of the aerodynamic centers for simple planforms.

Experts in panel methods have observed for some time that the distributions of panel shapes, sizes, and locations play an important role in determining the outcome of computations with panel method programs. However, quantitative statements of this fact were often inadequate, the most common characterizations of panel distributions being of the "brand name variety" such as cosine paneling, uniform panel spacing, and so on. The major conclusion of this study is that panel distributions must be characterized by parameters, computable, and usable as controls for paneling. The mean of the distribution of panel aspect ratio (PAR) used to calibrate SURAIR is one such parameter. A new emphasis, vis-a-vis SURAIR, emerges from our results, namely that PAR rather than NP (total number of panels) is the driving force behind the global convergence and accuracy of this panel method package. Can this be generalized to all panel methods?

In the case of SURAIR it is clear that a more elaborate calibration and evaluation is possible in terms of NP and the distribution of PAR on the one hand, and Mach number, α , AR_w , λ_w and Λ_w on the other. It appears that more complex panel method programs are amenable to the same treatment, although more parameters may be required in specifying the panel distributions. It is recommended that the results be presented as regression formulas because the formulas are compact and information for statistical inference could be available as a by-product.

TABLE I

Profile of Piercy Symmetrical Aerofoil, 12.08 per-
cent thick, 12 in. Chord

(Falkner and Lehiran (3))

X Inches	Y Inches	X Inches	Y Inches
0.000	0.000	5.017	0.669
0.123	0.212	5.408	0.641
0.244	0.294	6.072	0.595
0.477	0.400	6.848	0.527
0.917	0.527	7.445	0.470
1.324	0.602	8.053	0.409
1.702	0.651	9.040	0.304
2.054	0.682	9.632	0.240
2.834	0.719	10.308	0.168
3.500	0.723	11.210	0.075
4.075	0.711	11.696	0.028
4.576	0.692	12.000	0.000

TABLE II

Location of Pressure Holes at the Surface of a
Piercy Airfoil. (Falkner and Lehiran (3))

Hole Number	Fraction of Chord	Y Inches	Hole Number	Fraction of Chord	Y Inches
1	0.0125	0.233	9	0.25	0.722
2	0.025	0.325	10	0.3	0.721
3	0.0375	0.391	11	0.4	0.679
4	0.050	0.443	12	0.5	0.600
5	0.075	0.522	13	0.6	0.494
6	0.10	0.584	14	0.7	0.373
7	0.15	0.662	15	0.8	0.245
8	0.20	0.702	16	0.9	0.115

TABLE III
REFERENCE DATA FROM EXPERIMENT

STATION (η)	A. C.	$C_{m.a.c.} \times 10^3$
A (.01389)	.3452	2.4087
B (.01389)	.3478	2.9833
C (.25)	.2706	2.8894
D (.50)	.2450	2.4667
E (.75)	.2092	3.2366
F (.875)	.1879	5.5795

(a)

α (DEGREES)	C_{LW}
-16	-.774
-12	-.584
-8	-.391
-4	-.196
-2	-.098
2	.098
4	.196
8	.391
12	.584
16	.774

(b)

		CC ρ /CC _{LW}					
		STATION (η)					
		A (.01389)	B (.01389)	C (.25)	D (.50)	E (.75)	F (.875)
α (DEGREES)	-16	1.056	1.050	1.169	1.068	.9625	.7558
	-12	1.065	1.063	1.159	1.034	.8921	.7295
	-8	1.074	1.072	1.146	1.054	.9105	.7417
	-4	1.097	1.102	1.163	1.102	.9541	.7449
	-2	1.143	1.133	1.173	1.112	.9796	.7449
	2	1.020	1.000	1.071	1.051	.9082	.6837
	4	1.051	1.031	1.107	1.041	.9032	.6990
	8	1.054	1.049	1.107	1.033	.8900	.7008
	12	1.045	1.039	1.101	1.027	.8921	.7089
	16	1.040	1.039	1.132	1.067	.9005	.7093
	MEAN	1.065	1.058	1.133	1.059	.9198	.7219
	STDV	.03261	.03570	.03296	.02746	.03119	.02327
	MEDIAN	1.055	1.050	1.139	1.053	.9082	.7194
	MIN	1.020	1.000	1.071	1.027	.8900	.6837
	MAX	1.143	1.133	1.173	1.112	.9796	.7558
	RANGE	.1230	.1330	.1020	.0850	.08960	.07210

(c)

TABLE IV
COST IMPLICATIONS OF PANELING EFFICIENCY

RUN#	NP	PAR	% EPROR IN C _{LW} AT $\alpha = 16^\circ$	C.P. SECS. ON CDC CYBER 175	COST \$
8	40	3.75	7.5	2.119	2.71
13	80	7.5	4.5	6.846	8.79
2	80	1.2	11.6	6.846	8.79
5	180	1.2	10.3	36.307	46.47
6	196	1.5	9.5	43.865	56.20
35	64	6.0	5.4	4.422	5.96
36	144	6.0	5.5	22.155	29.94
37	196	6.0	5.6	43.865	56.20
46	60	10.0	3.1	4.209	5.68
47	40	15.0	3.6	2.119	2.71
48	20	30.0	15.6	0.839	1.13

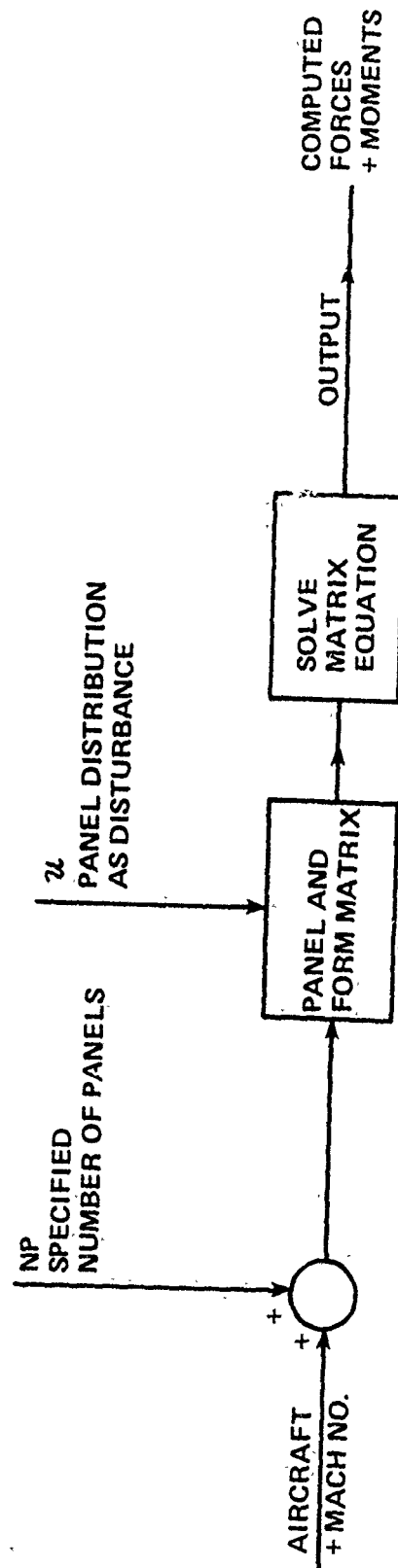


FIGURE 1. Current State Of Panel Method Applications.
Uncalibrated Open Loop Control System With External Disturbance

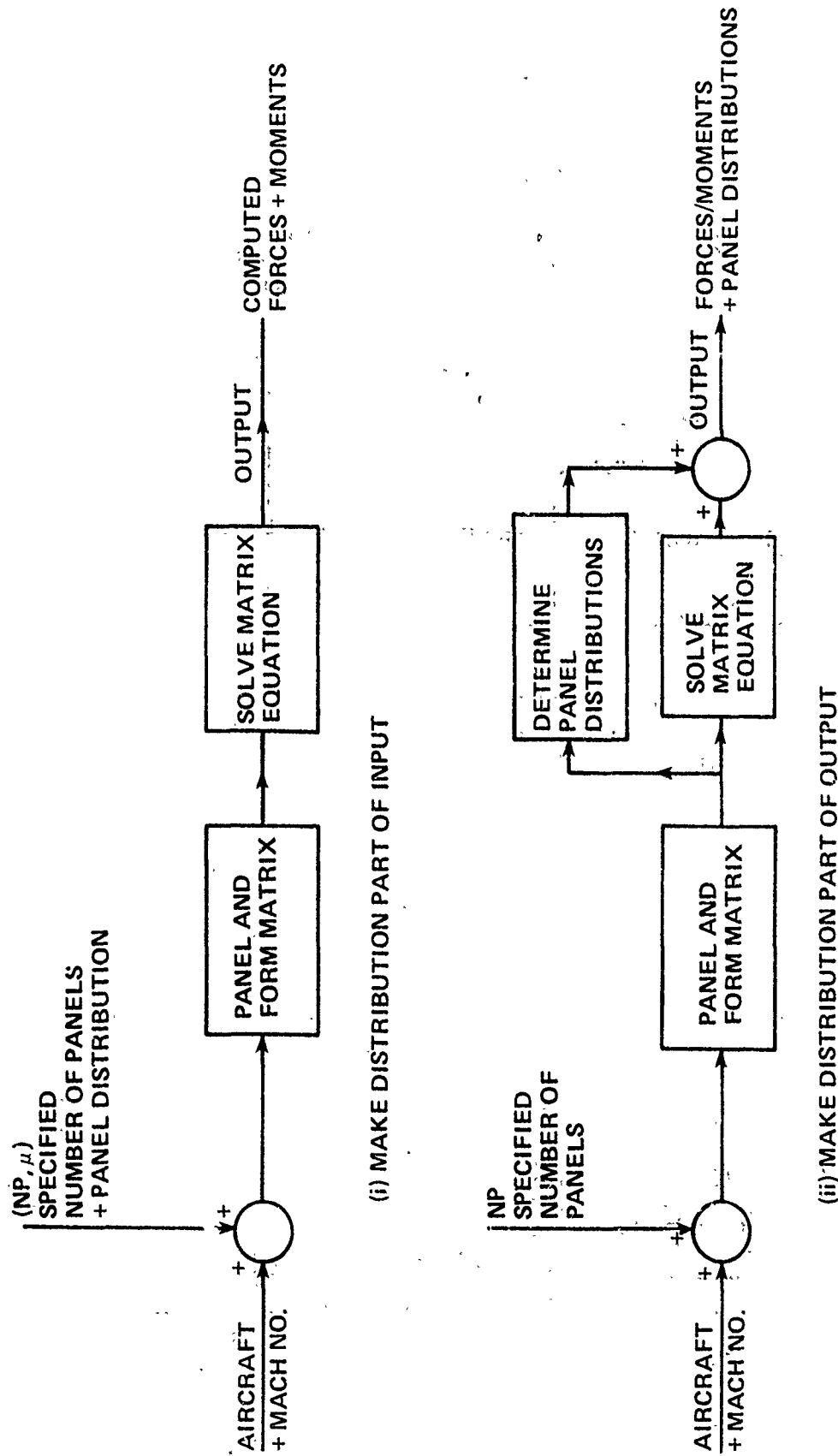


FIGURE 2. Remove Disturbance To Get Clean Open Loop Control System

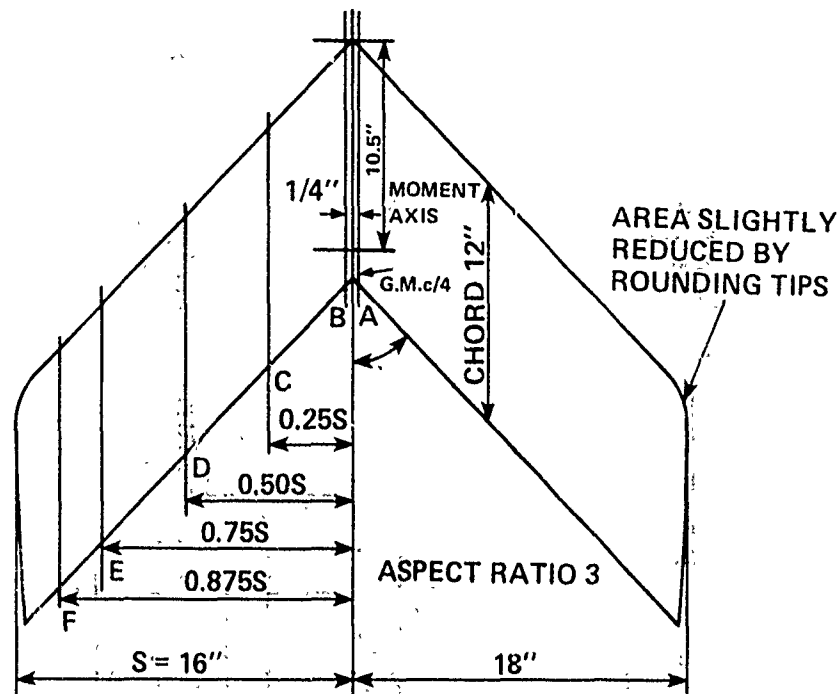


FIGURE 3. Symmetrical Swept-back Wing. Pressure Plotting Stations. (Falkner and Lehiran (3))

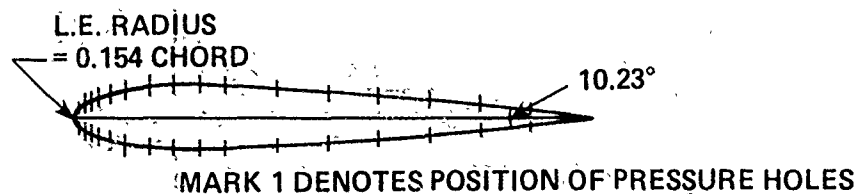


FIGURE 4. Piercy Symmetrical Section Used In Test Model (Falkner and Lehiran (3))

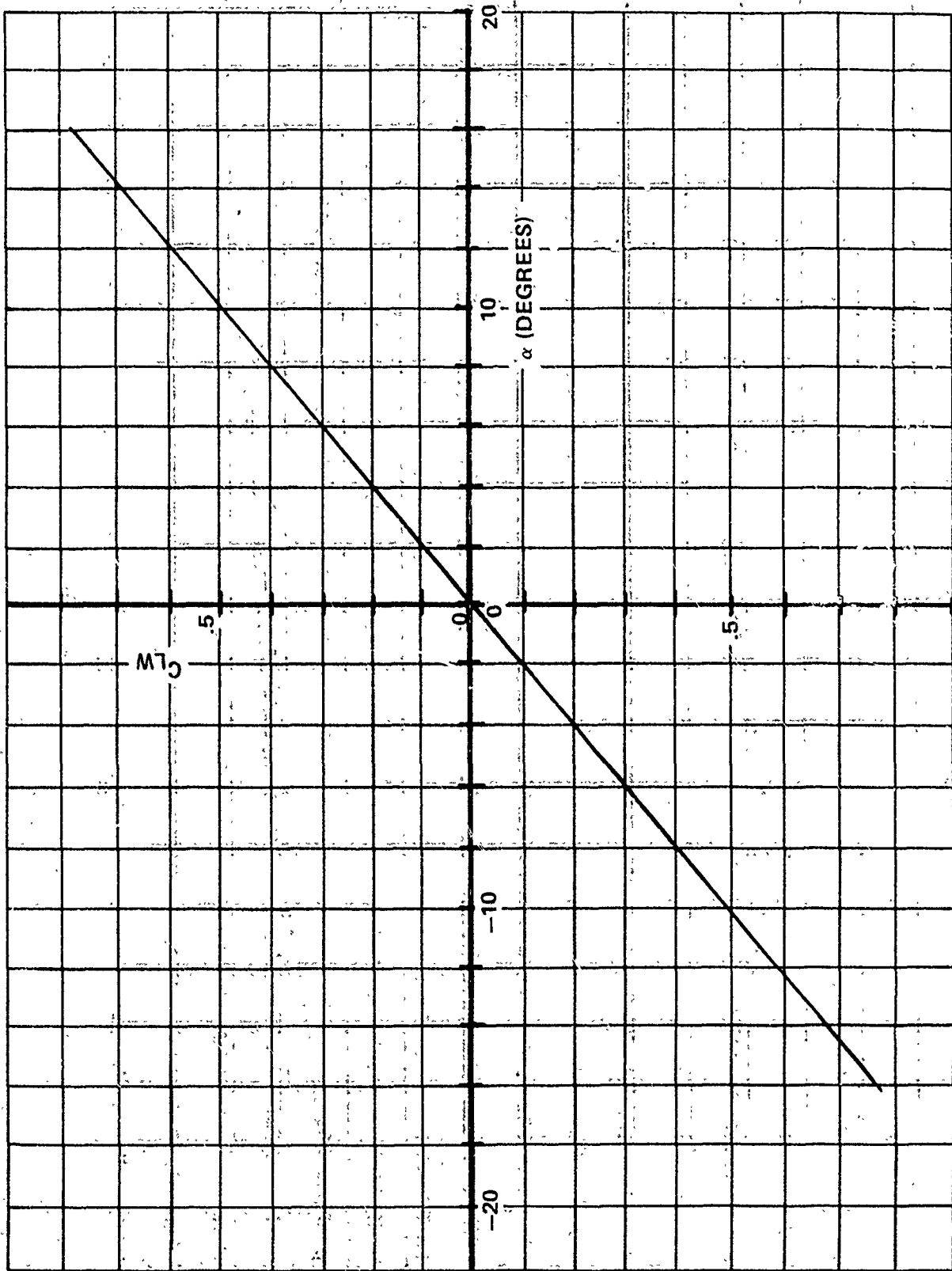


FIGURE 5. Reference Data From Experiment: C_L vs α

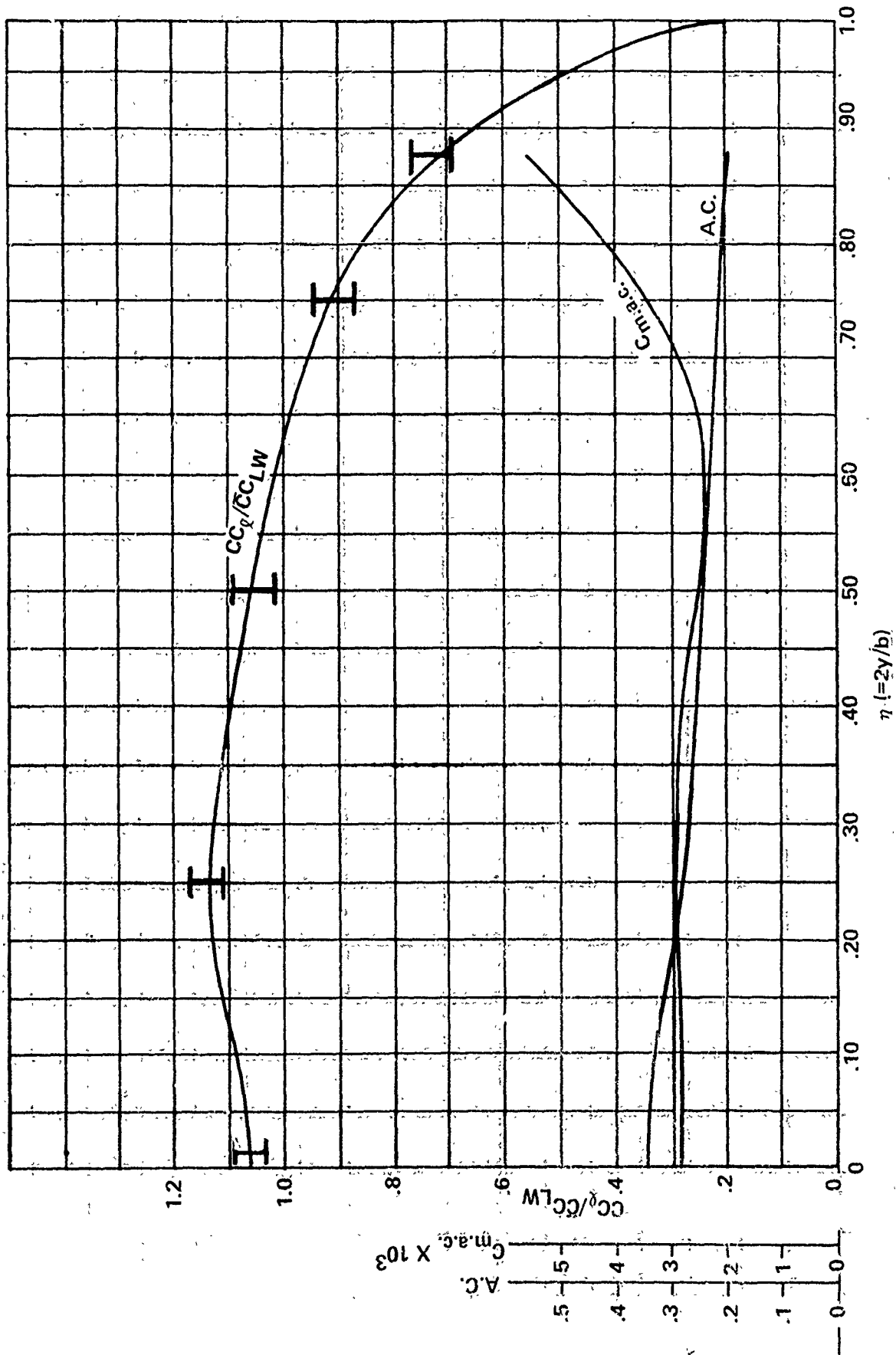


FIGURE 6. Reference Data From Experiment
Section Characteristics
(Mark I Denotes Range Of Values)

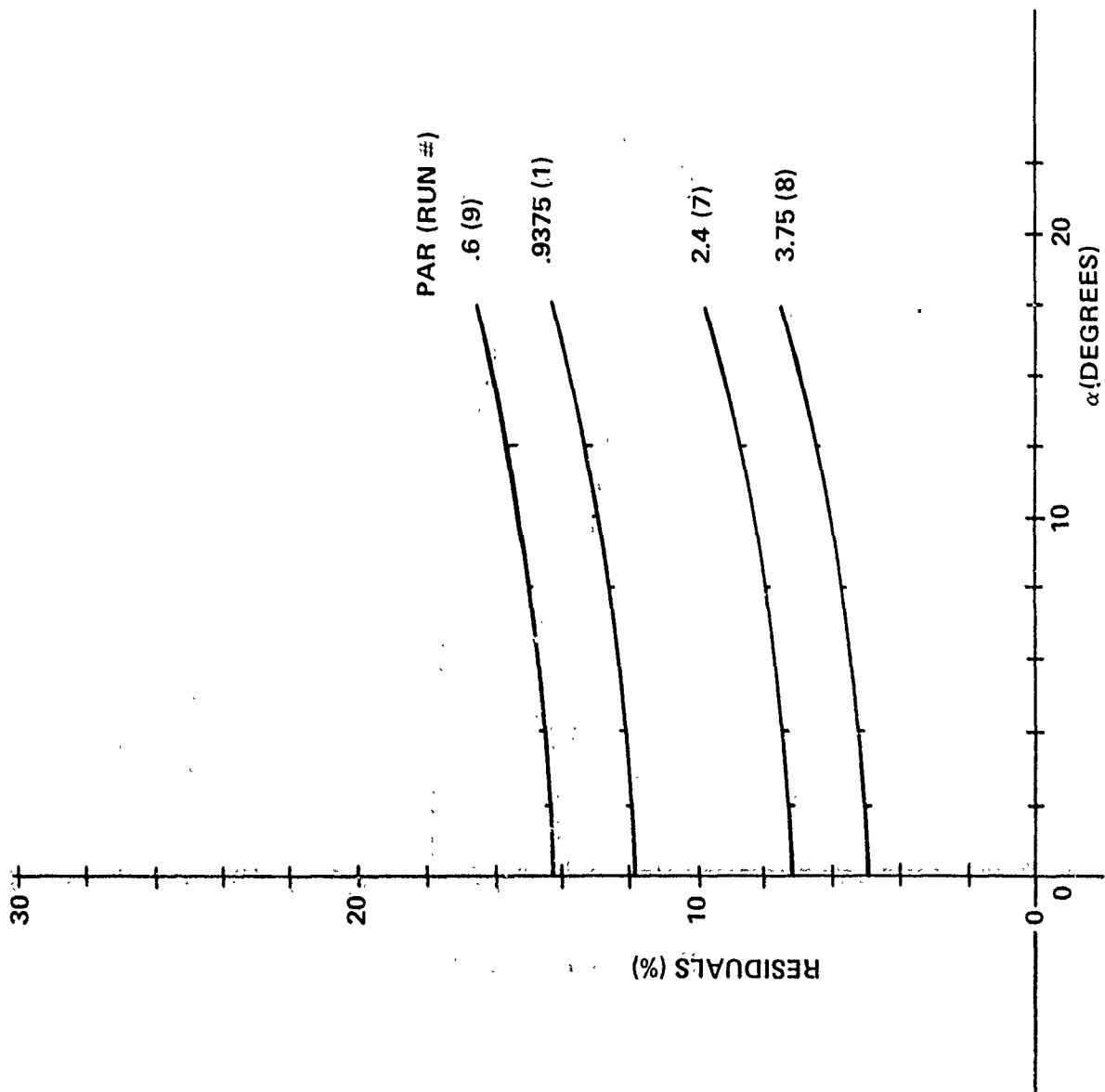


FIGURE 7. Residuals For Computed C_{LW} With NP=40

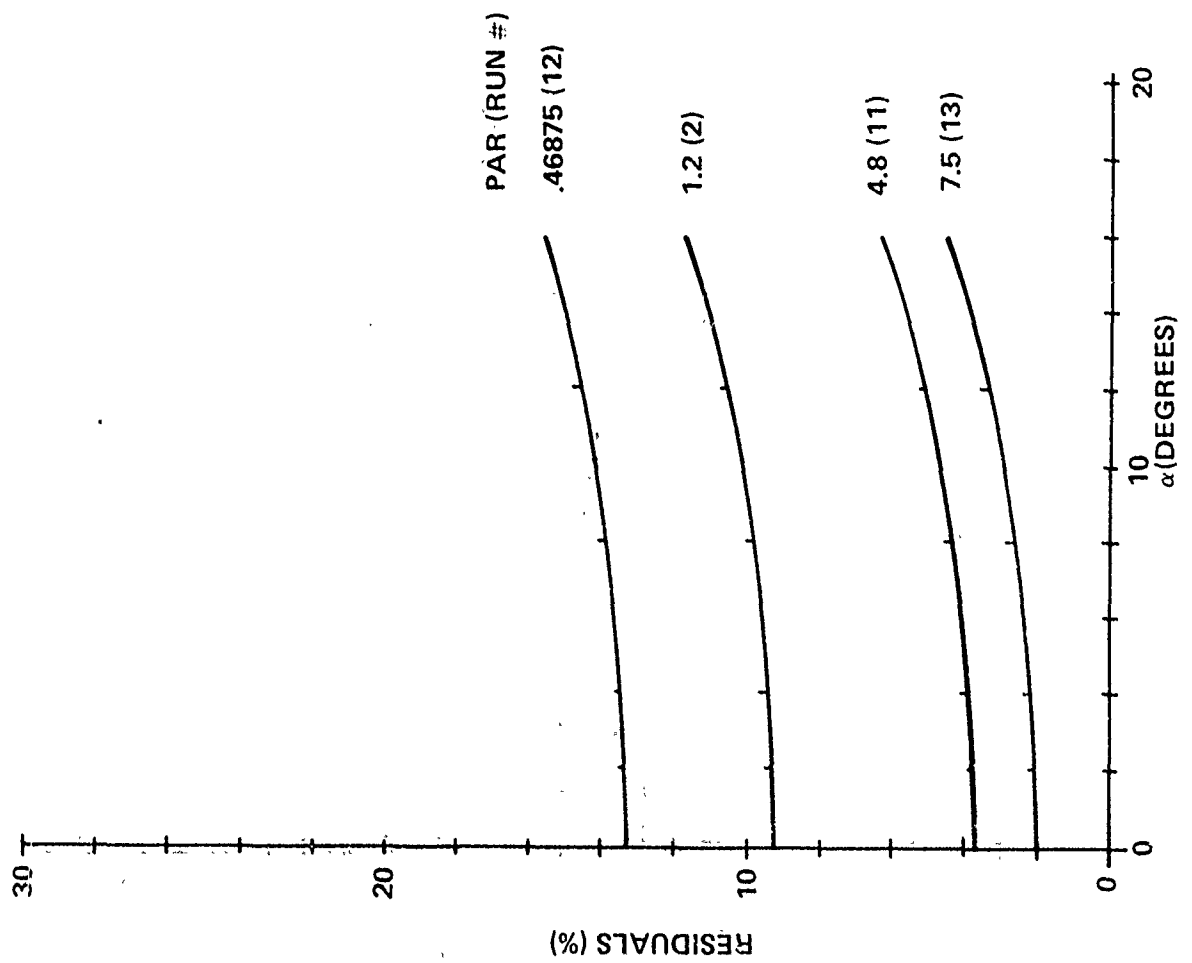


FIGURE 8. Residuals For Computed C_{LW} With NP=80

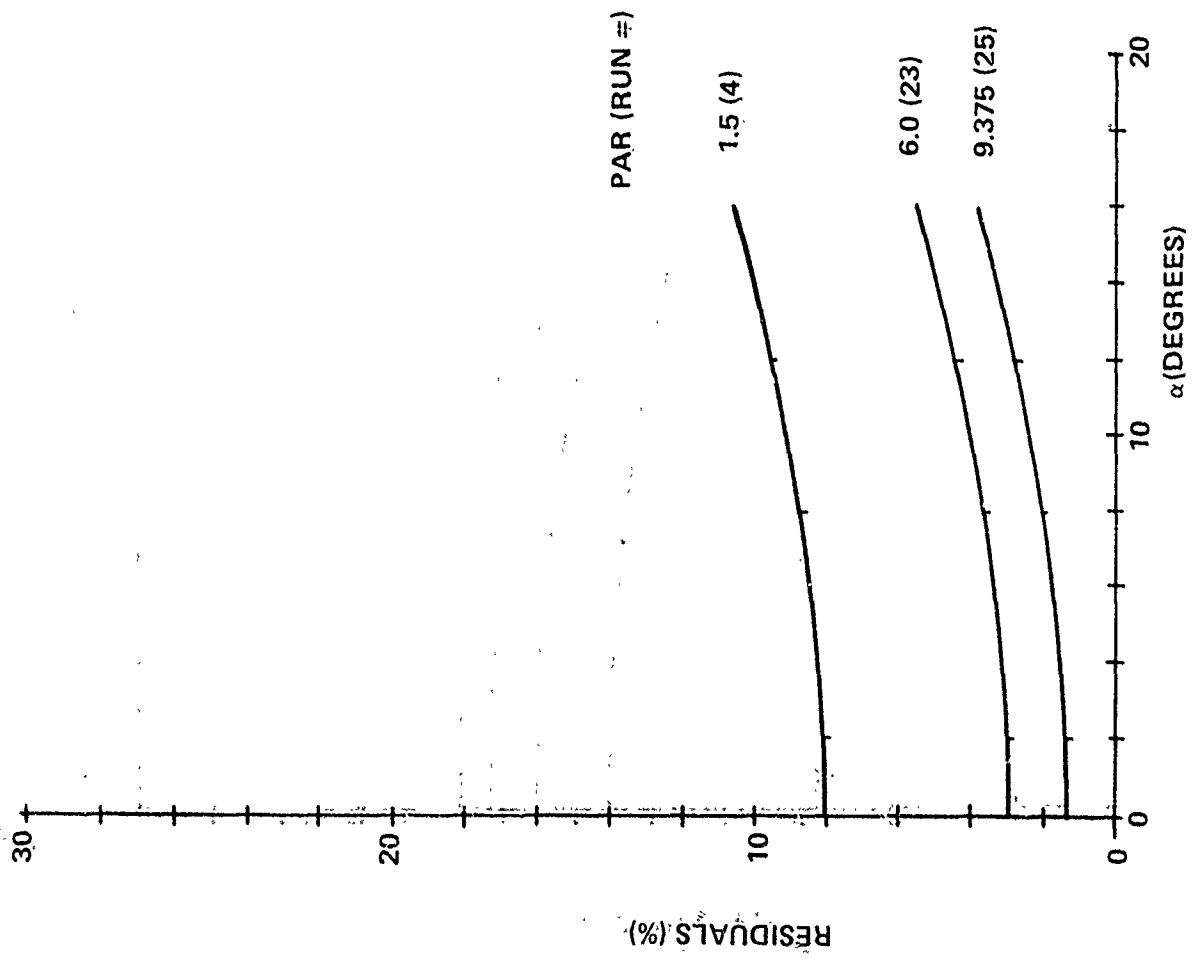


FIGURE 9. Residuals For Computed C_{LW} With NP=100

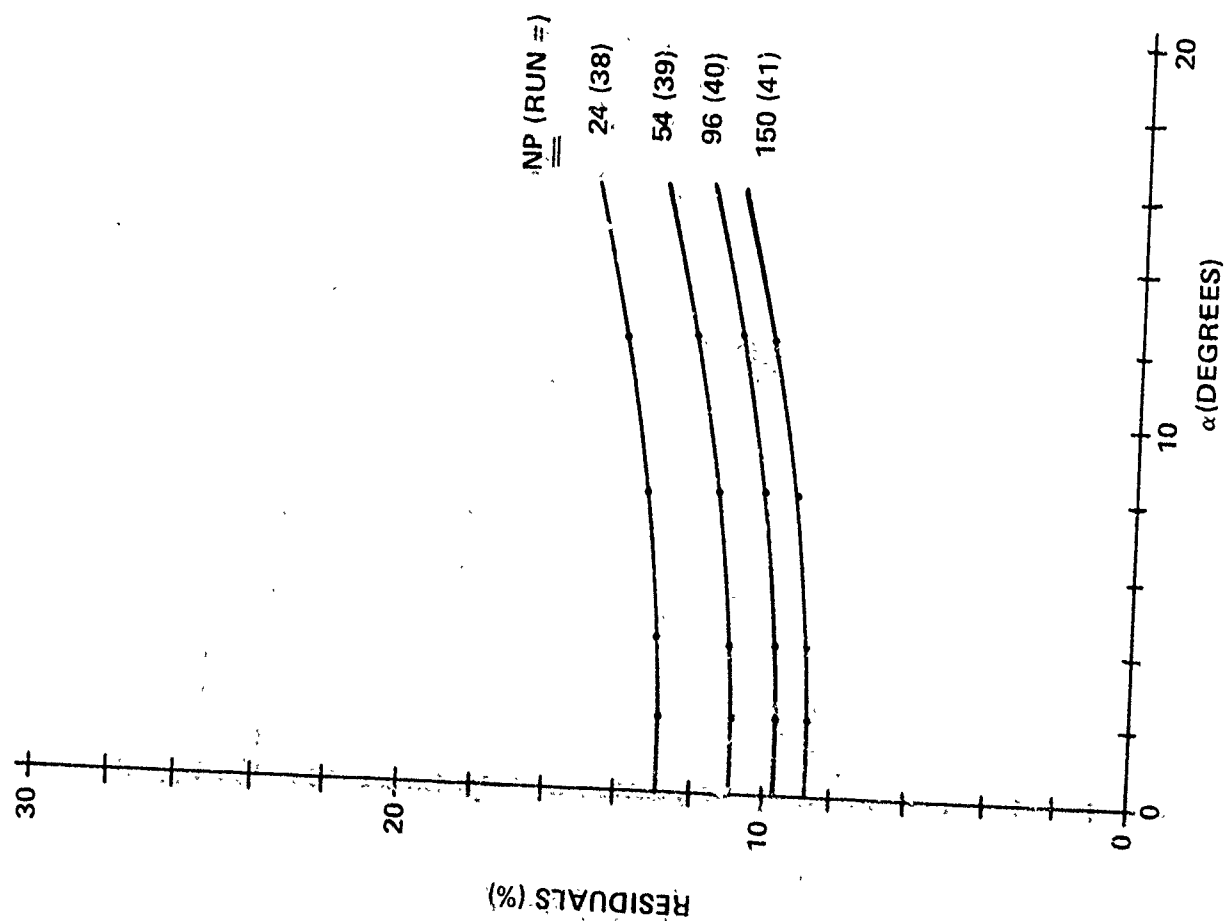


FIGURE 10. Residuals For Computed C_{LW} For PAR=1.0

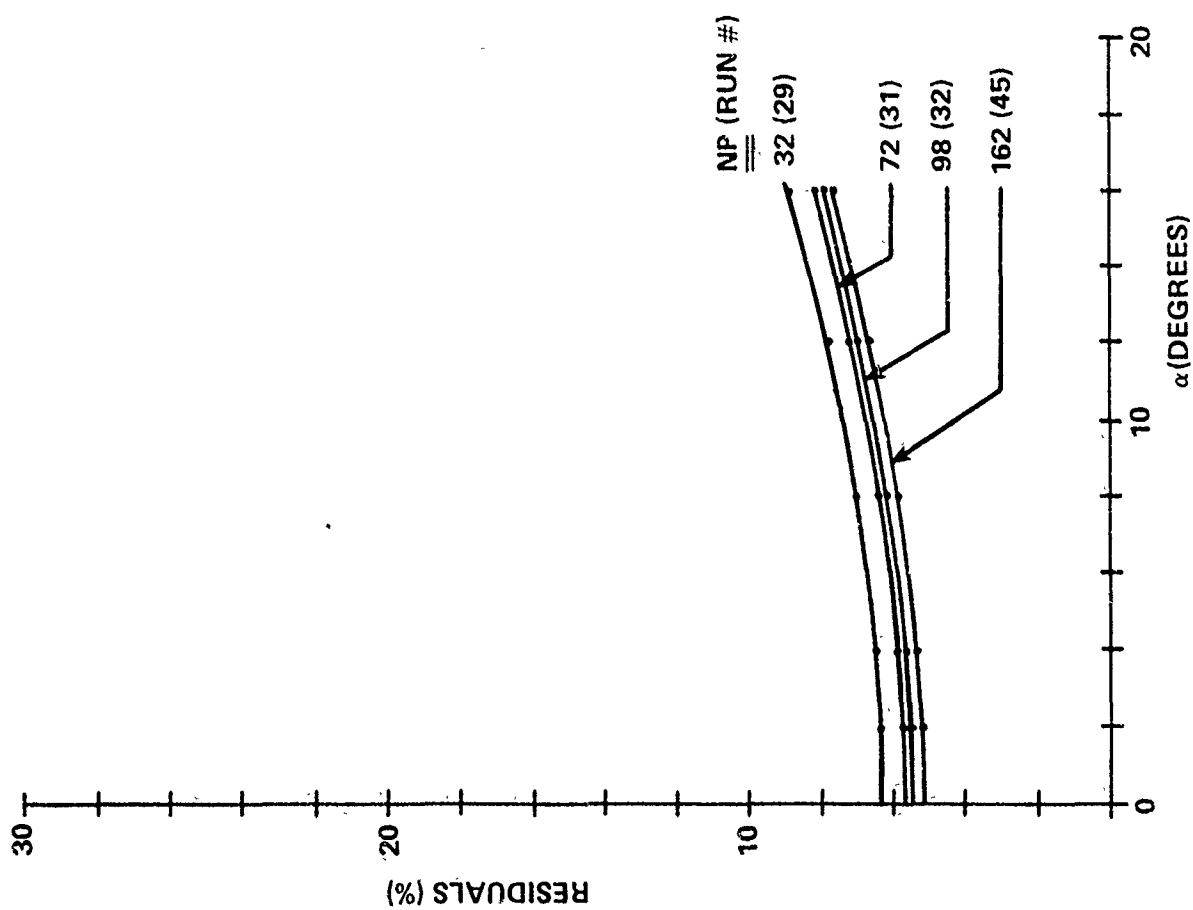


FIGURE 11. Residuals For Computed C_{LW} For PAR=3.0

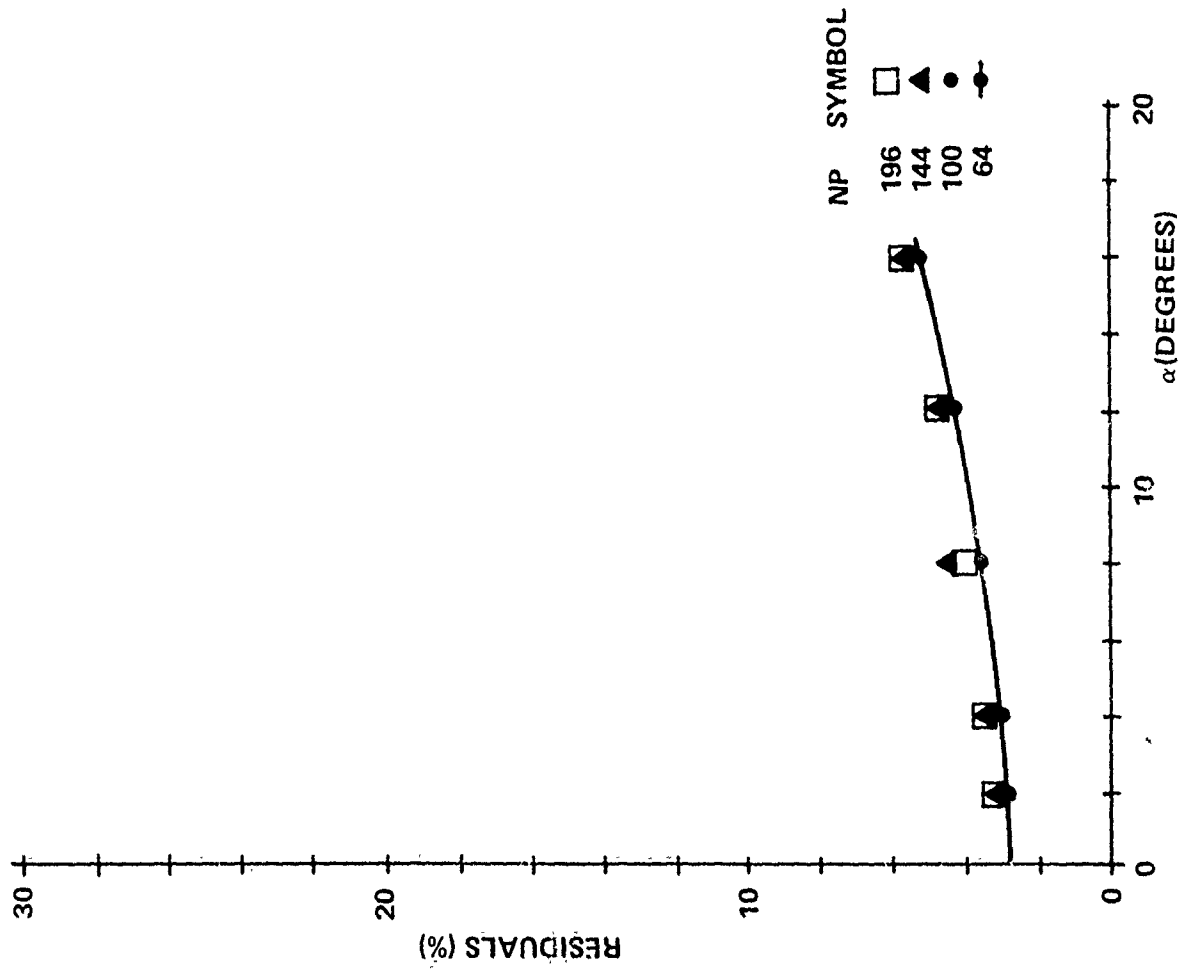


FIGURE 12. Residuals For Computed C_{LW} For $PAR=6.0$

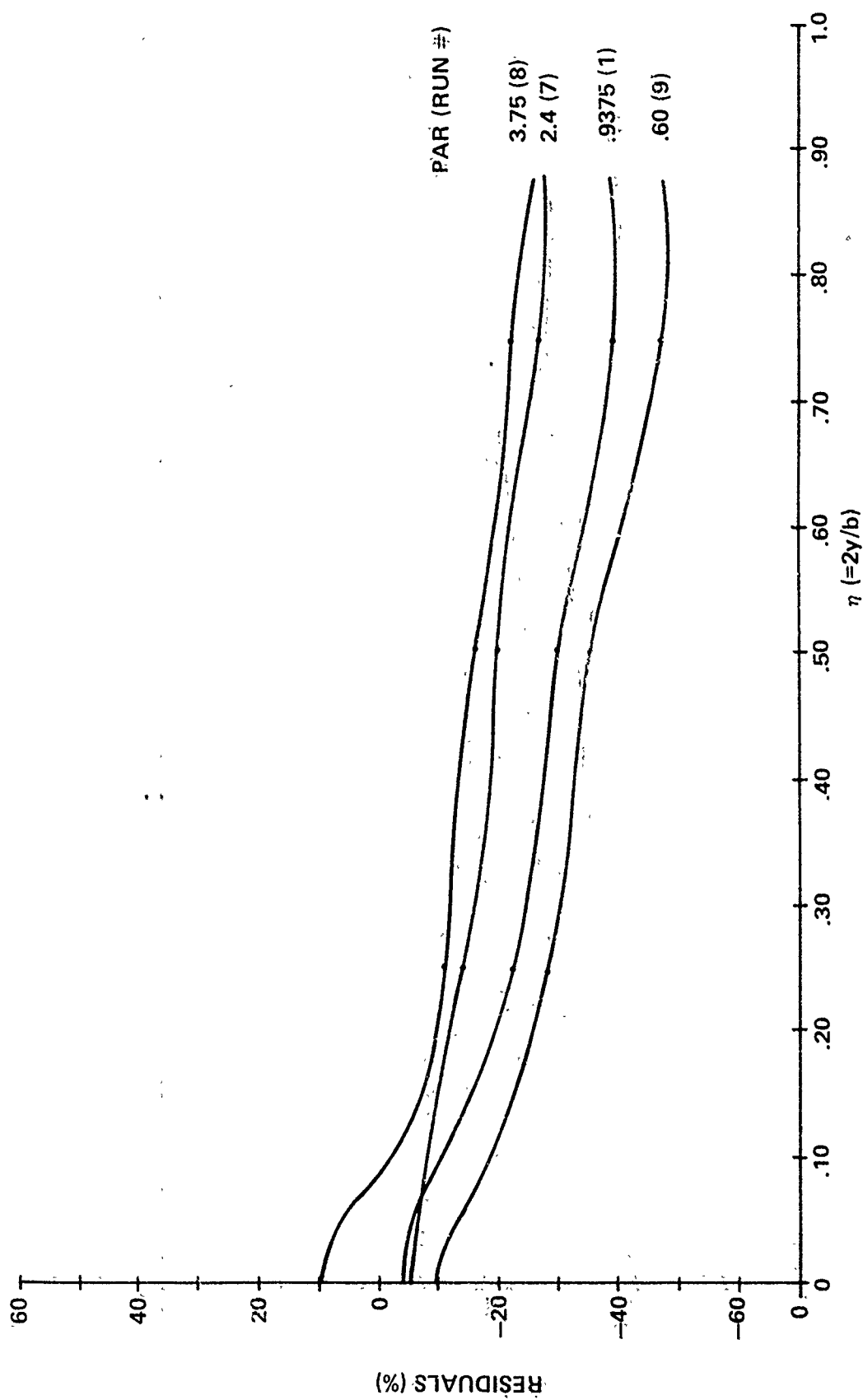


FIGURE 13. Residuals For Computed A.C. With NP=40

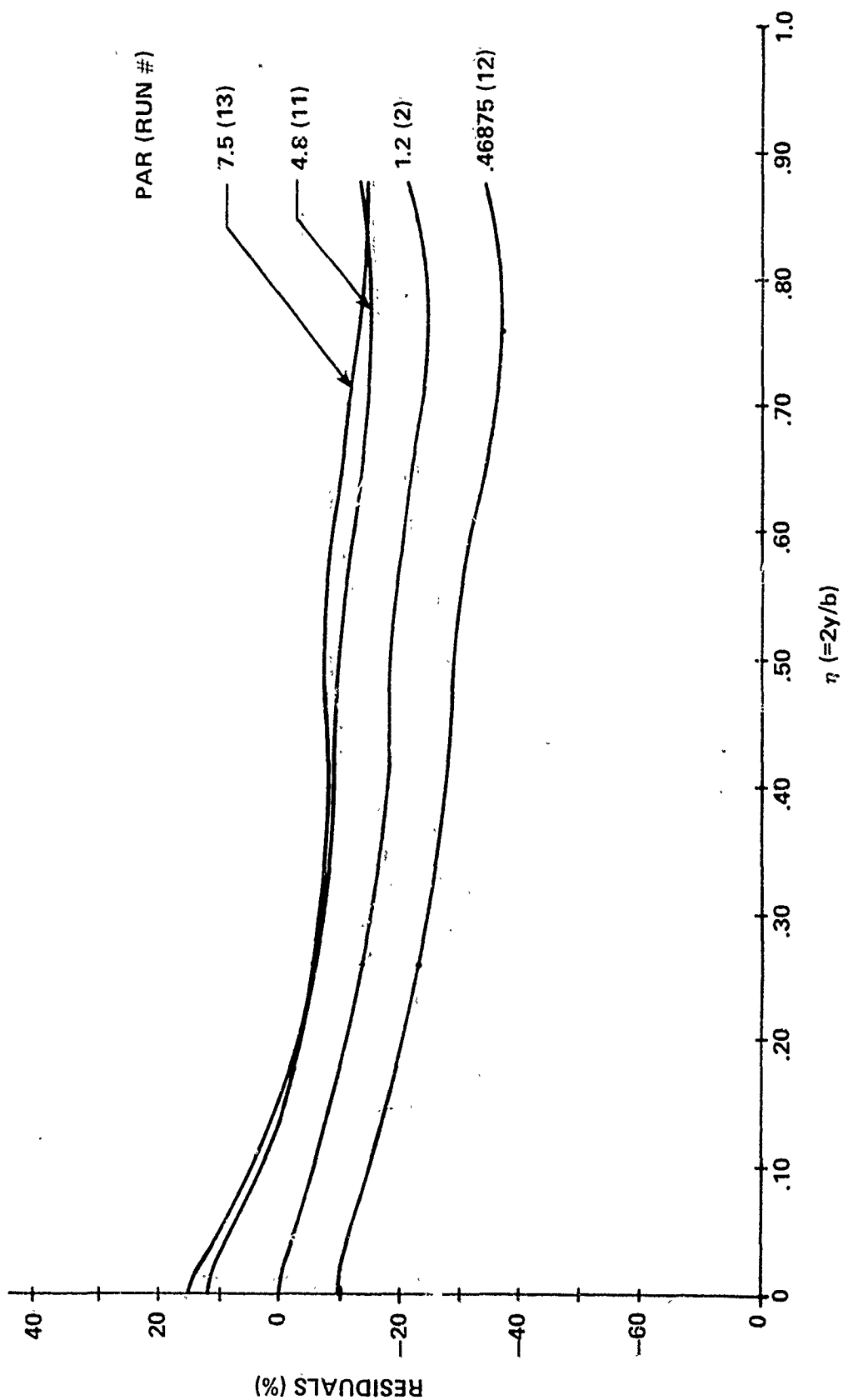


FIGURE 14. Residuals For Computed A.C. With NP=80

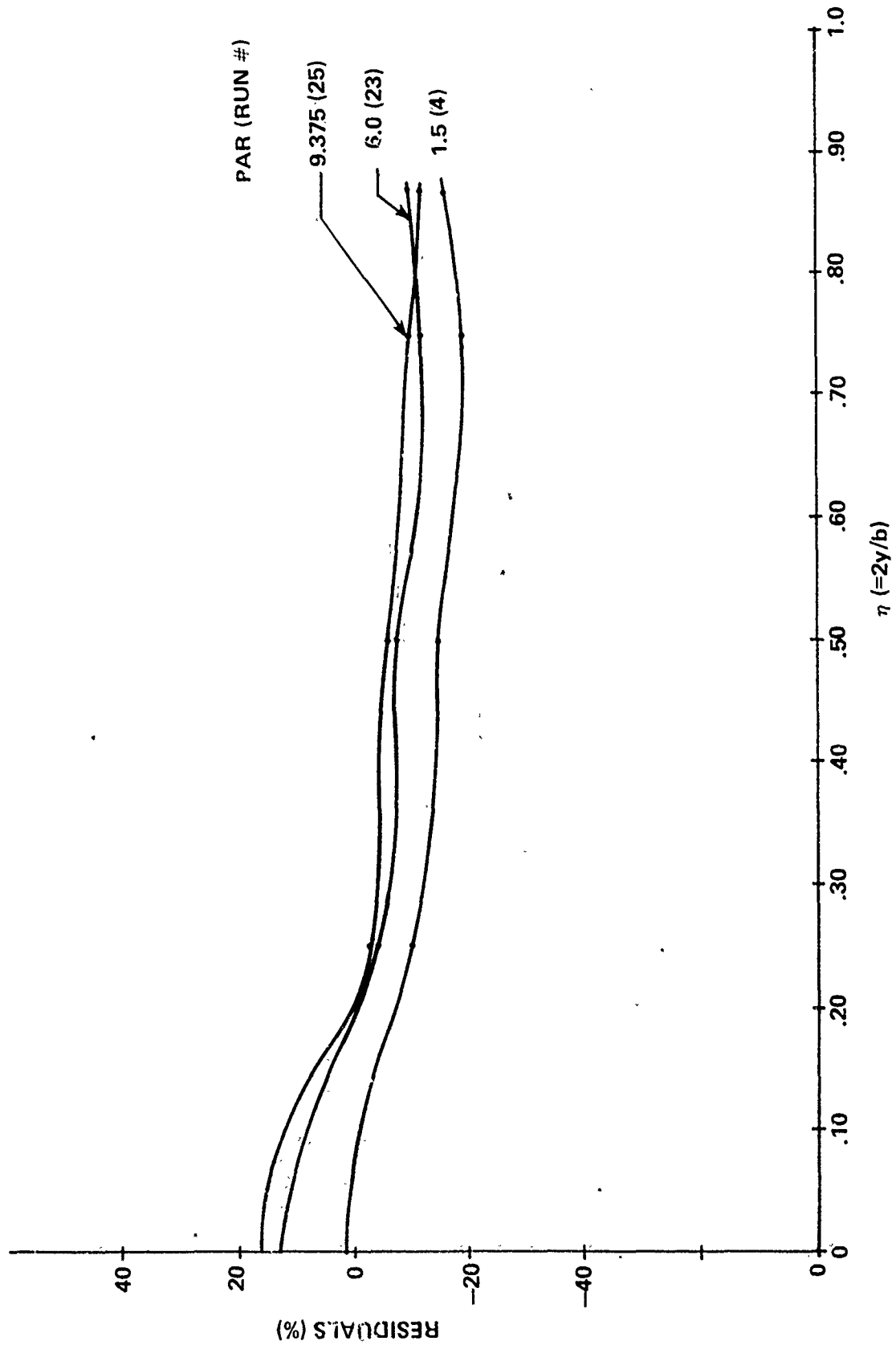


FIGURE 15. Residuals For Computed A.C. With NP=100

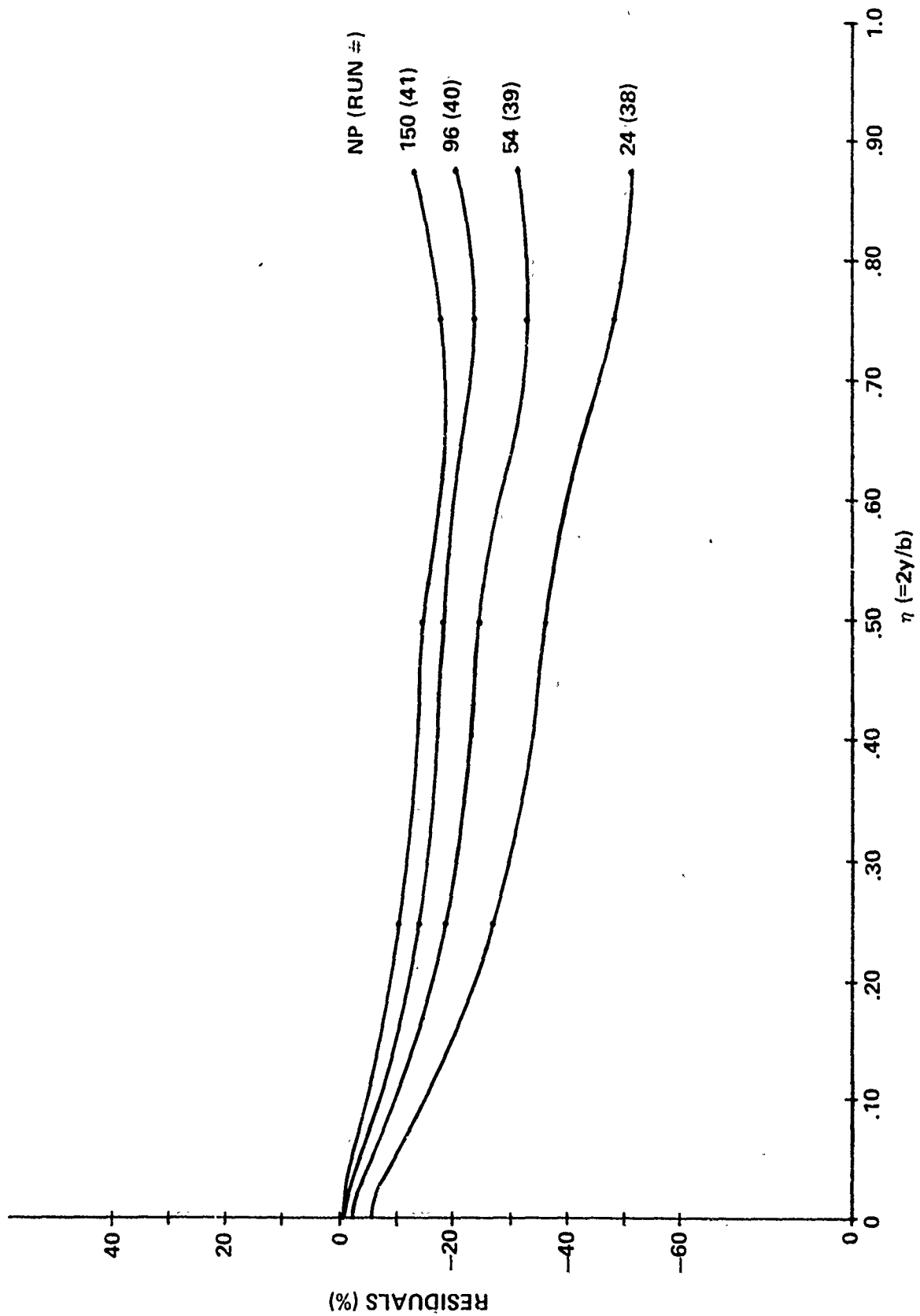


FIGURE 16. Residuals For Computed A.C. For PAR=1.0

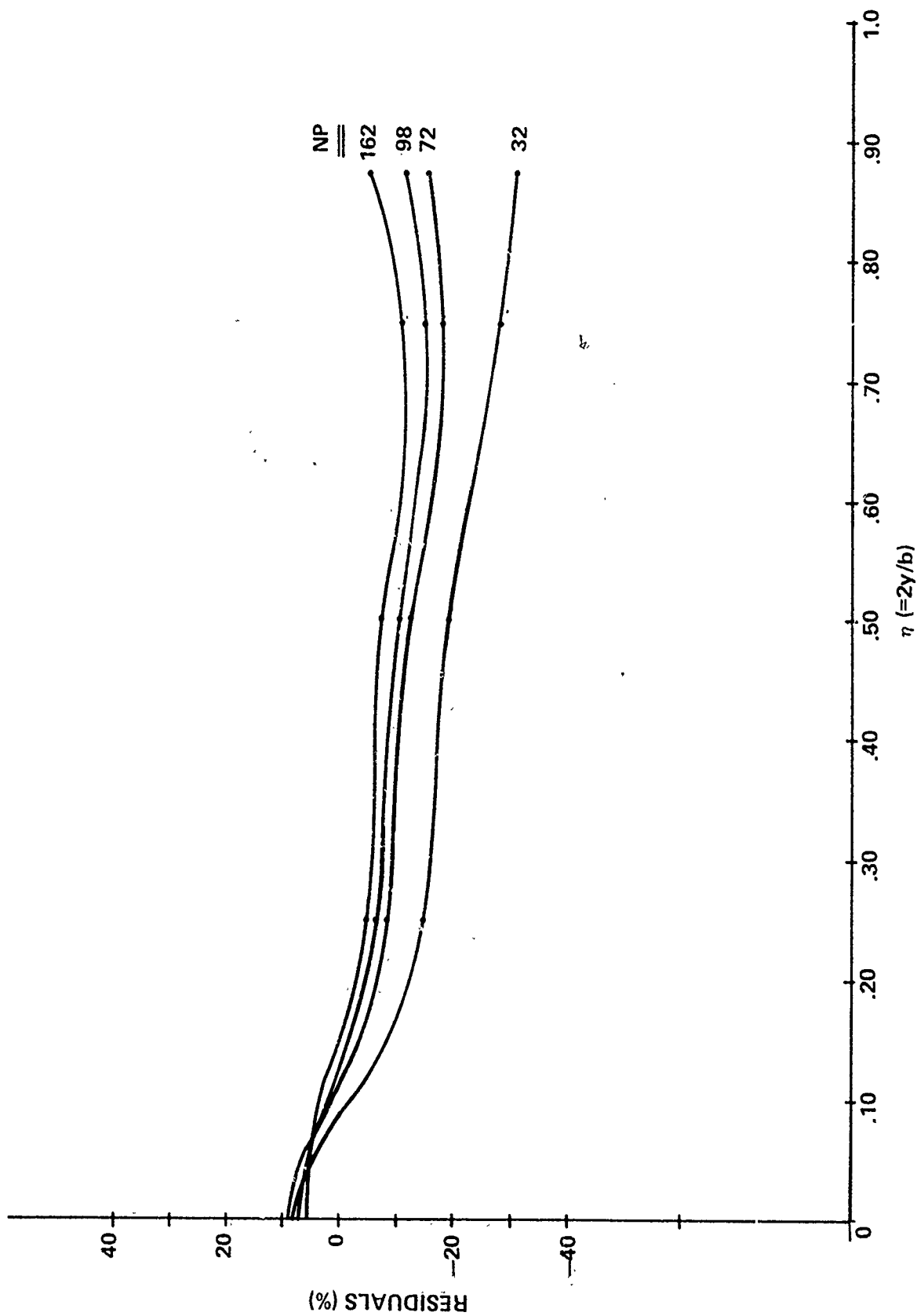


FIGURE 17. Residuals For Computed A.C. For PAR=3.0

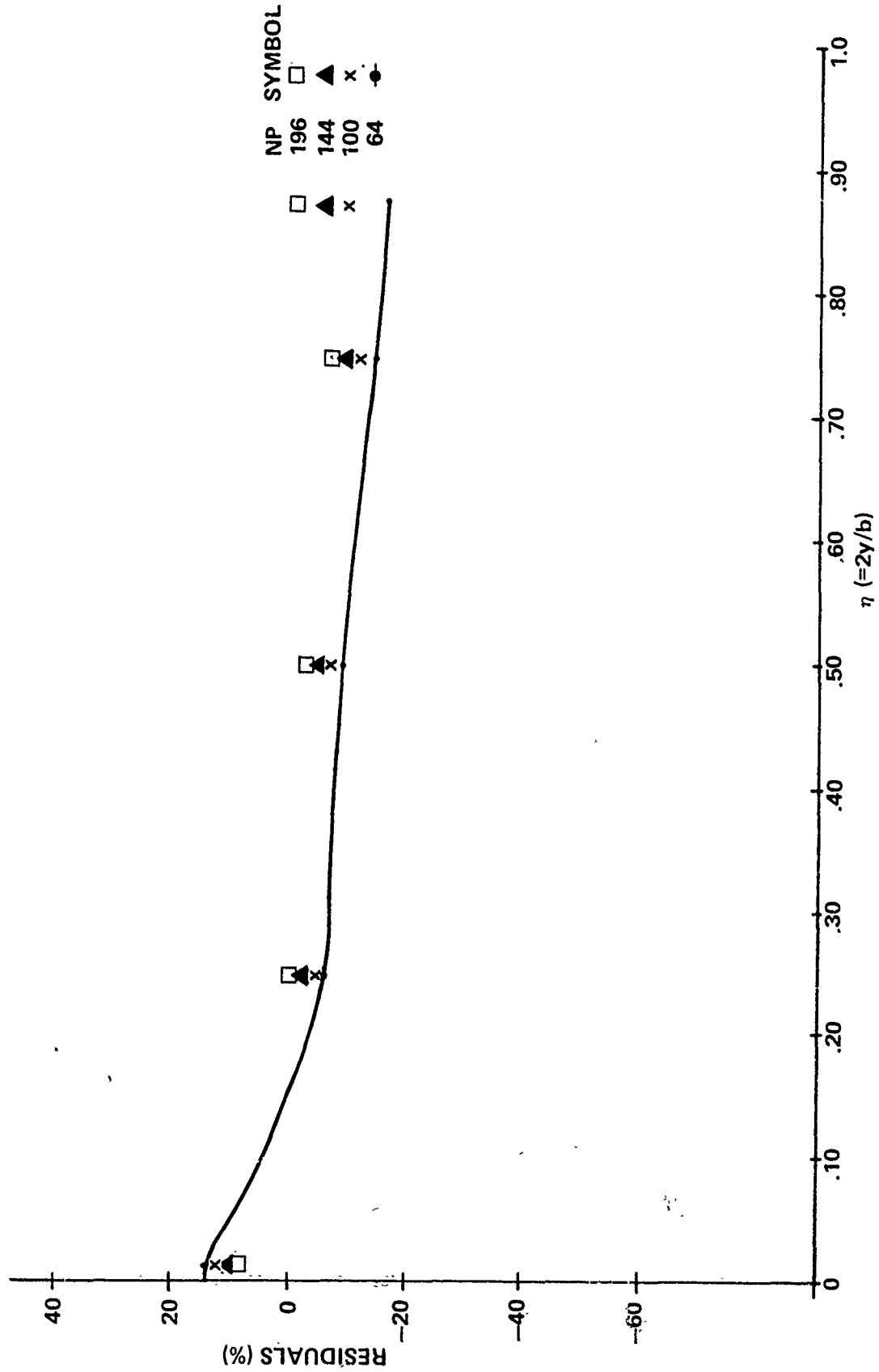


FIGURE 18. Residuals For Computed A.C. For PAR=6.0

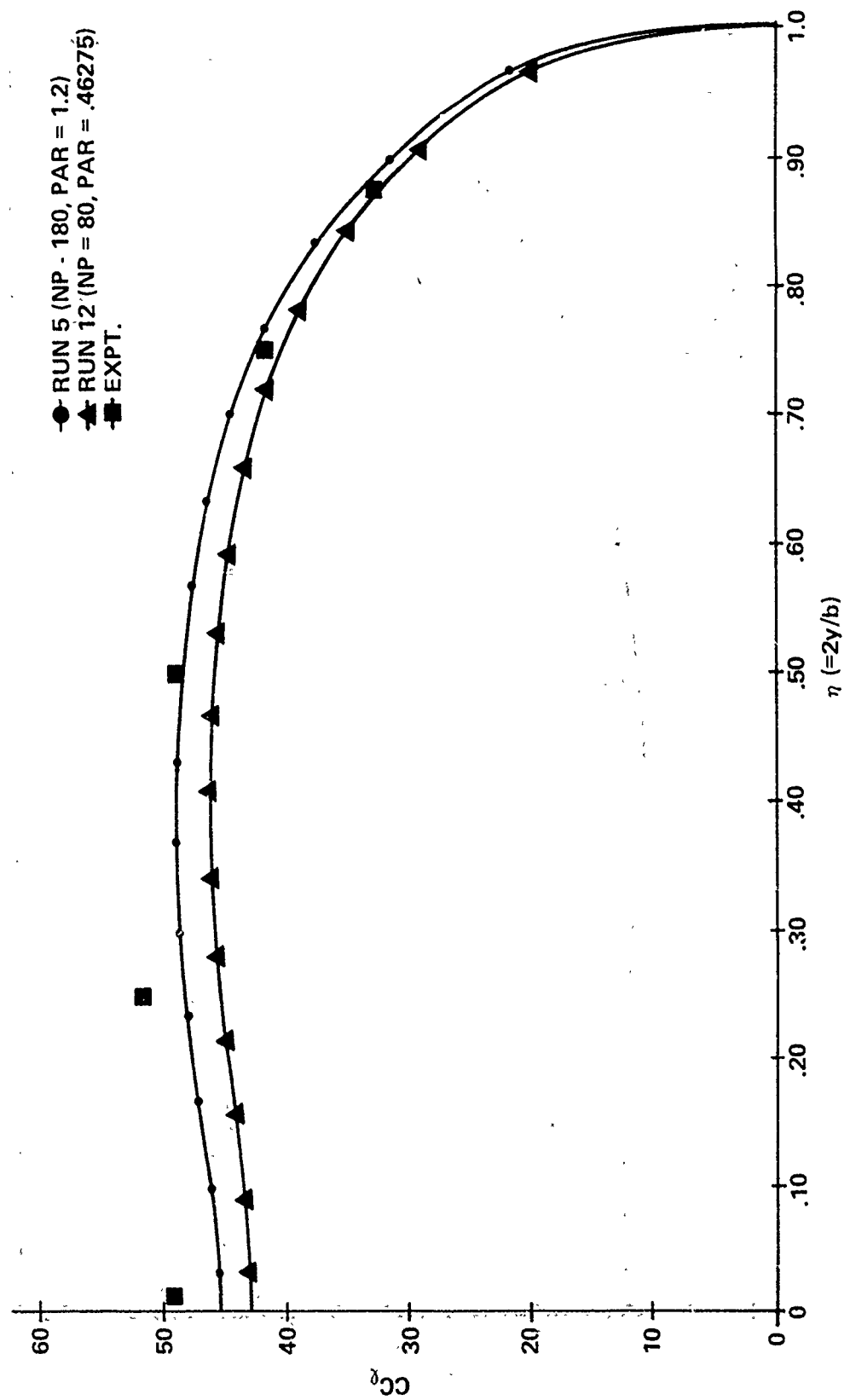


FIGURE 19. Spanwise Lift (CC_l) At $\alpha=8^\circ$ (Low PAR)

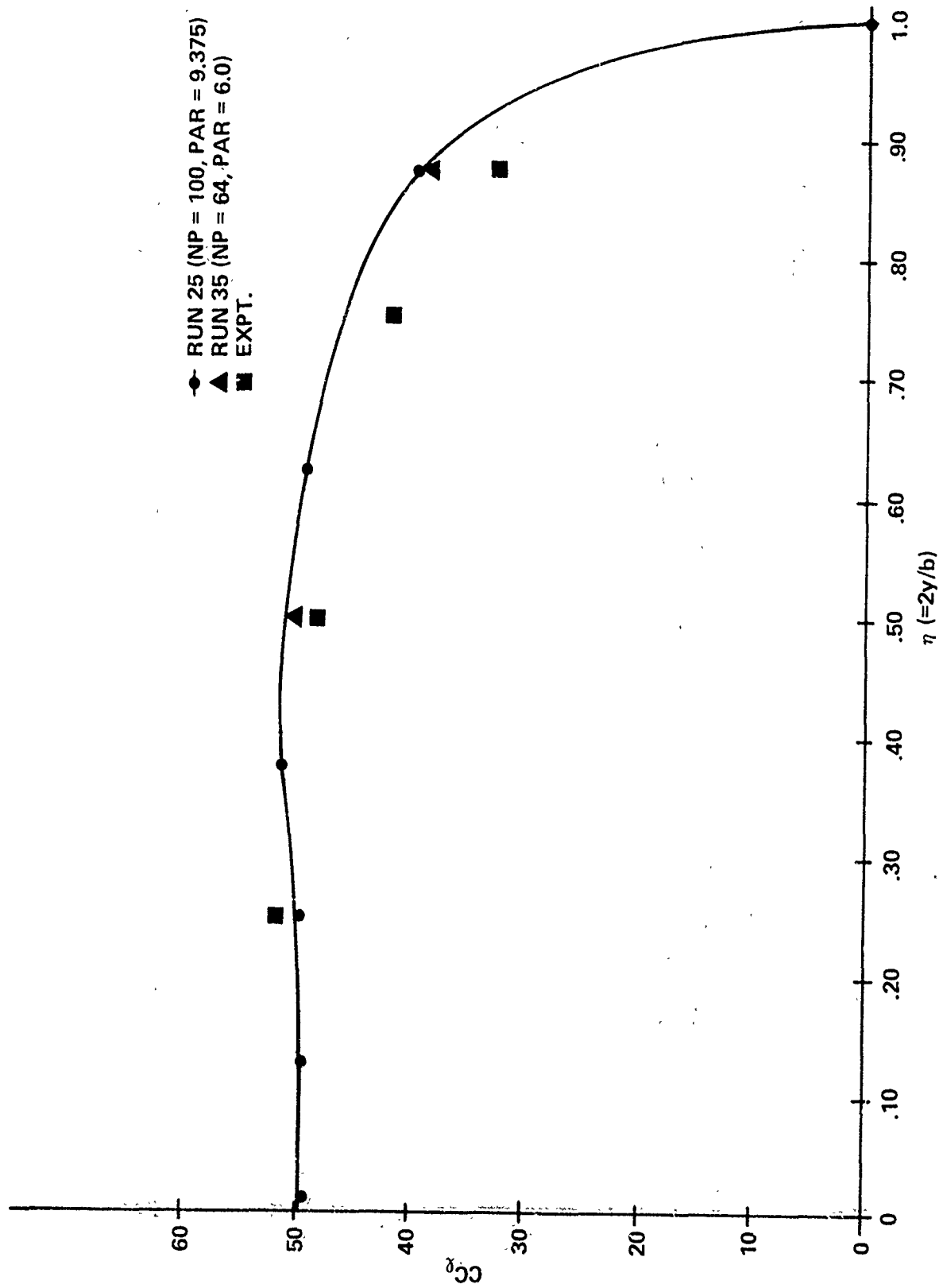


FIGURE 20. Spanwise Lift (CC_l) At $\alpha=8^\circ$ (High PAR)

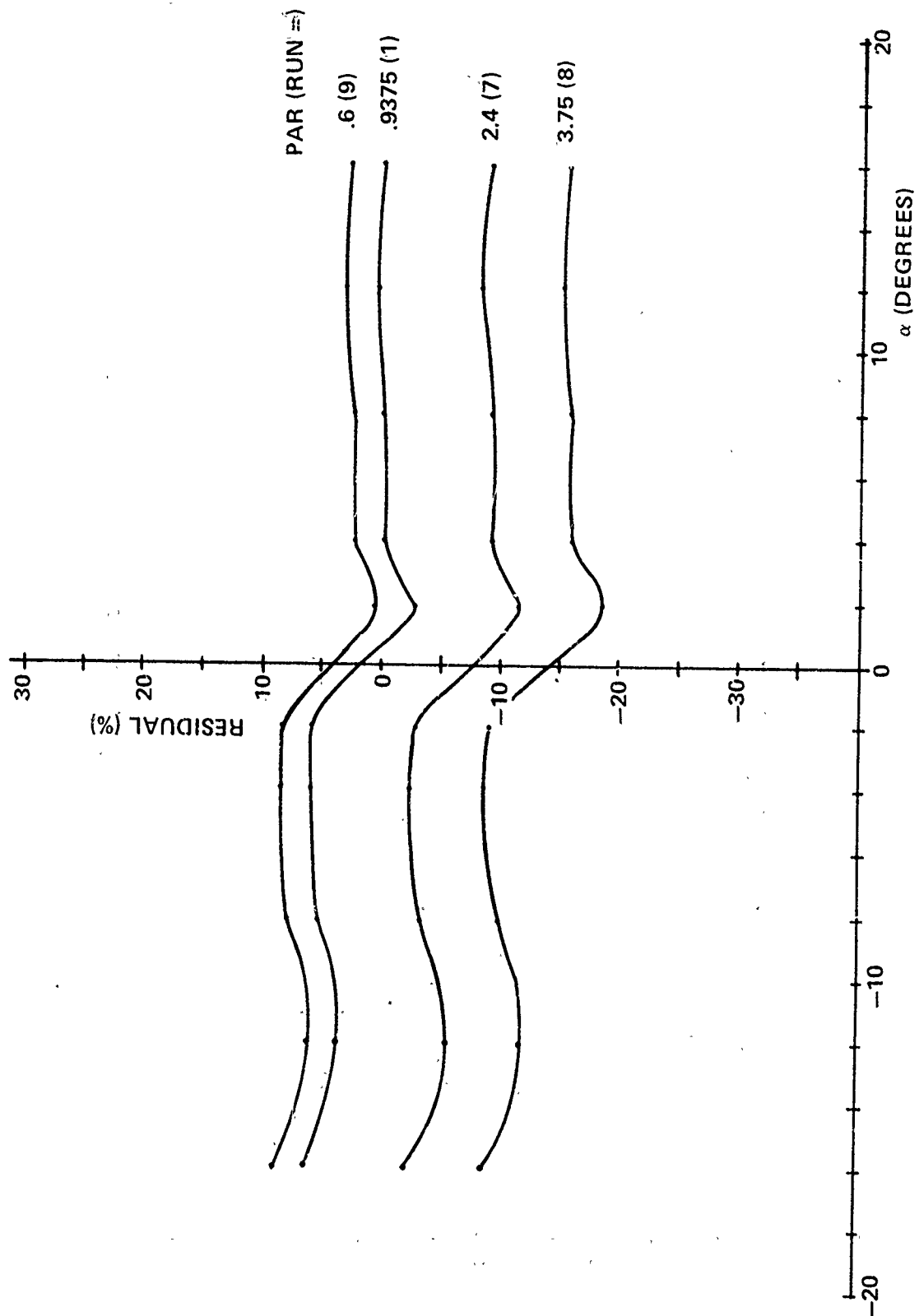


FIGURE 21. Residuals Of Computed $CC\theta$ At $\eta = .875$ With $NP=40$

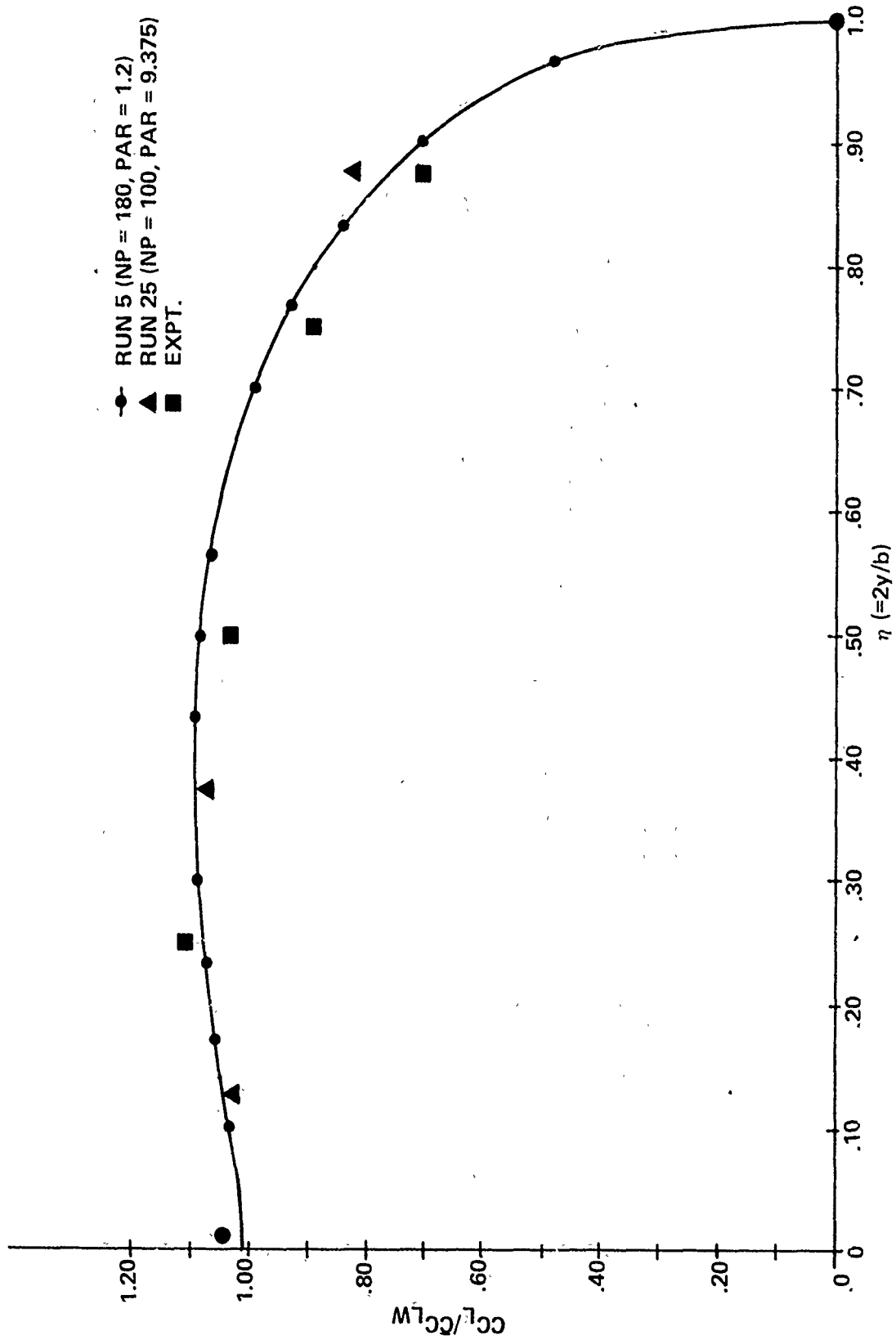


FIGURE 22. Spanwise Lift (CC_l / CC_{LW}) At $\alpha = 8^\circ$

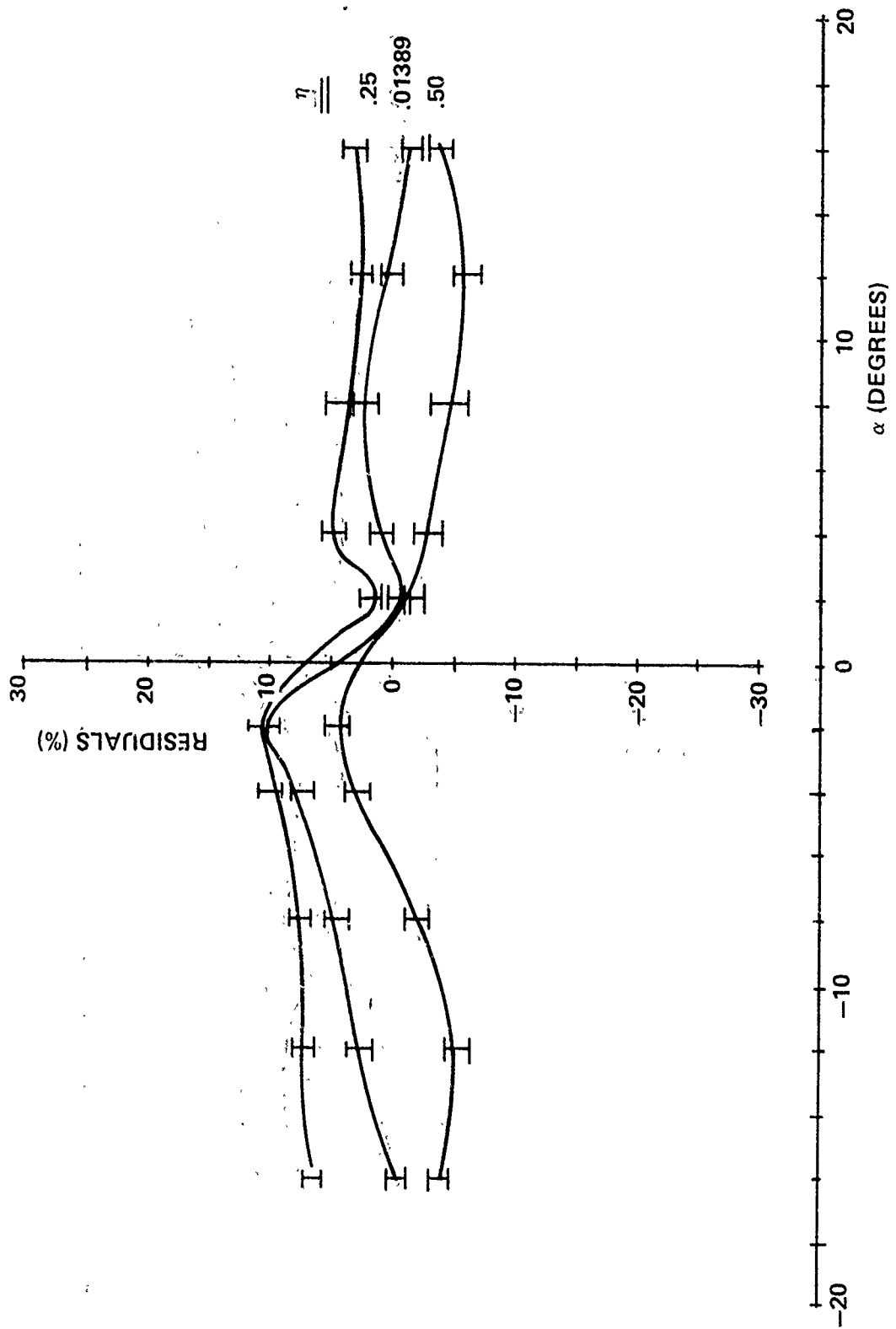


FIGURE 23. Residuals For Computed CC_0/CC_{1W} With NP=40: Inboard
(Vertical Bars Indicate Ranges For PAR=0.60, .9375, 2.4, and 3.75)

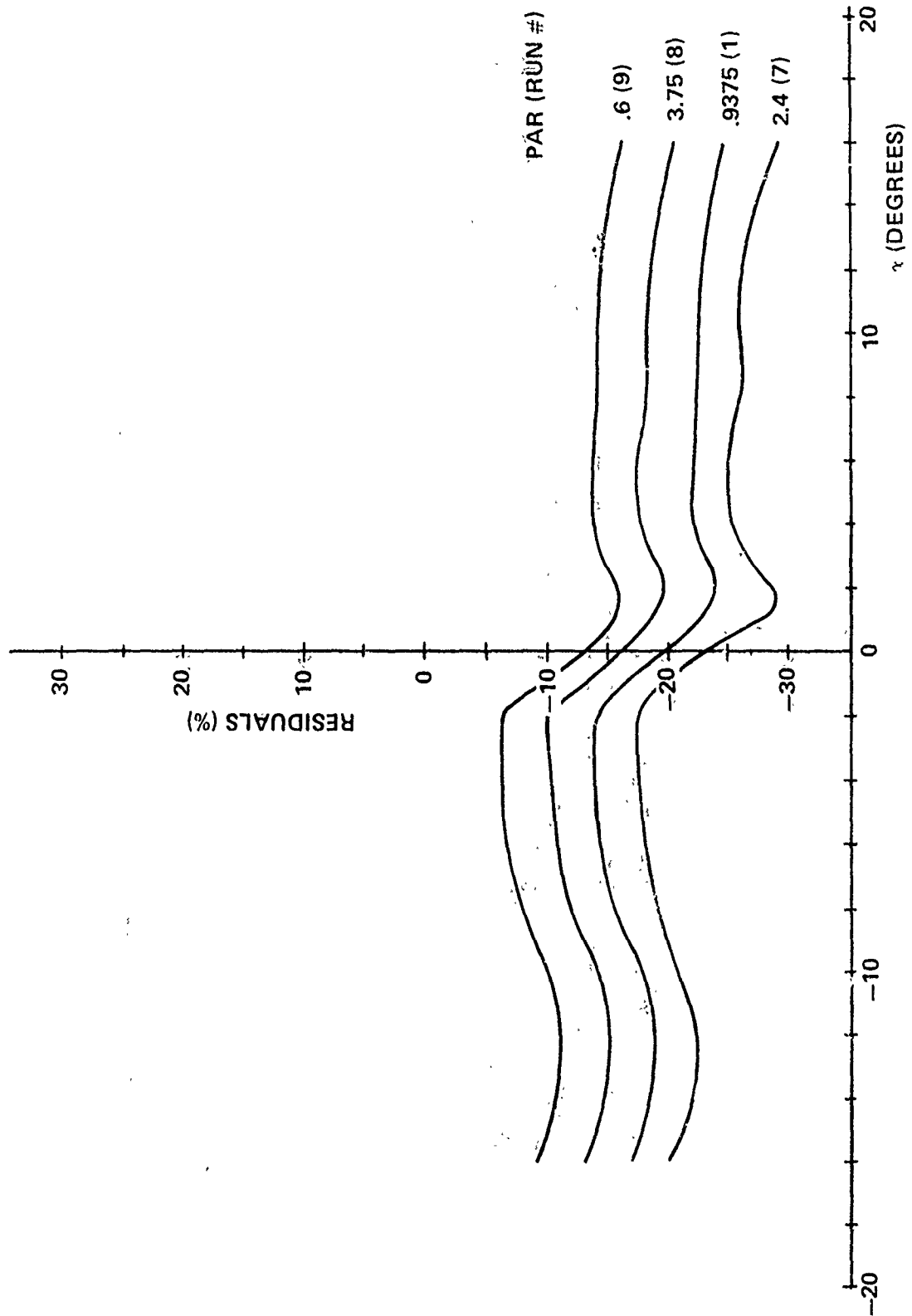


FIGURE 24. Residuals For Computed $CC_p/\overline{CC}_{LW}$ At $\eta = .875$ With NP=40

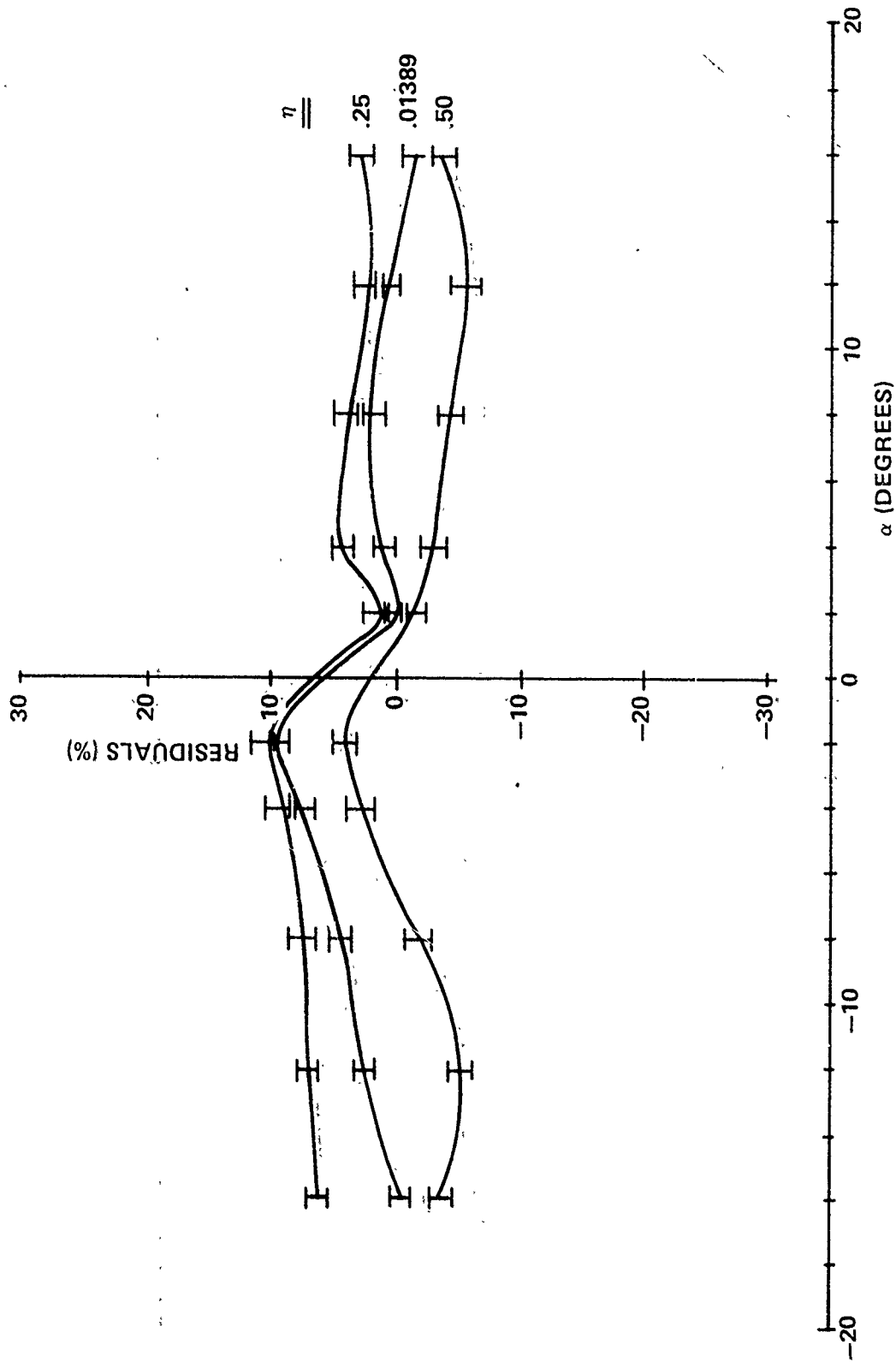


FIGURE 25. Residuals For Computed $CC\ell/CC_{W}$ With NP=80: Inboard
(Vertical Bars Indicate Ranges For PAR=.46875, 1.2, 4.8 and 7.5)

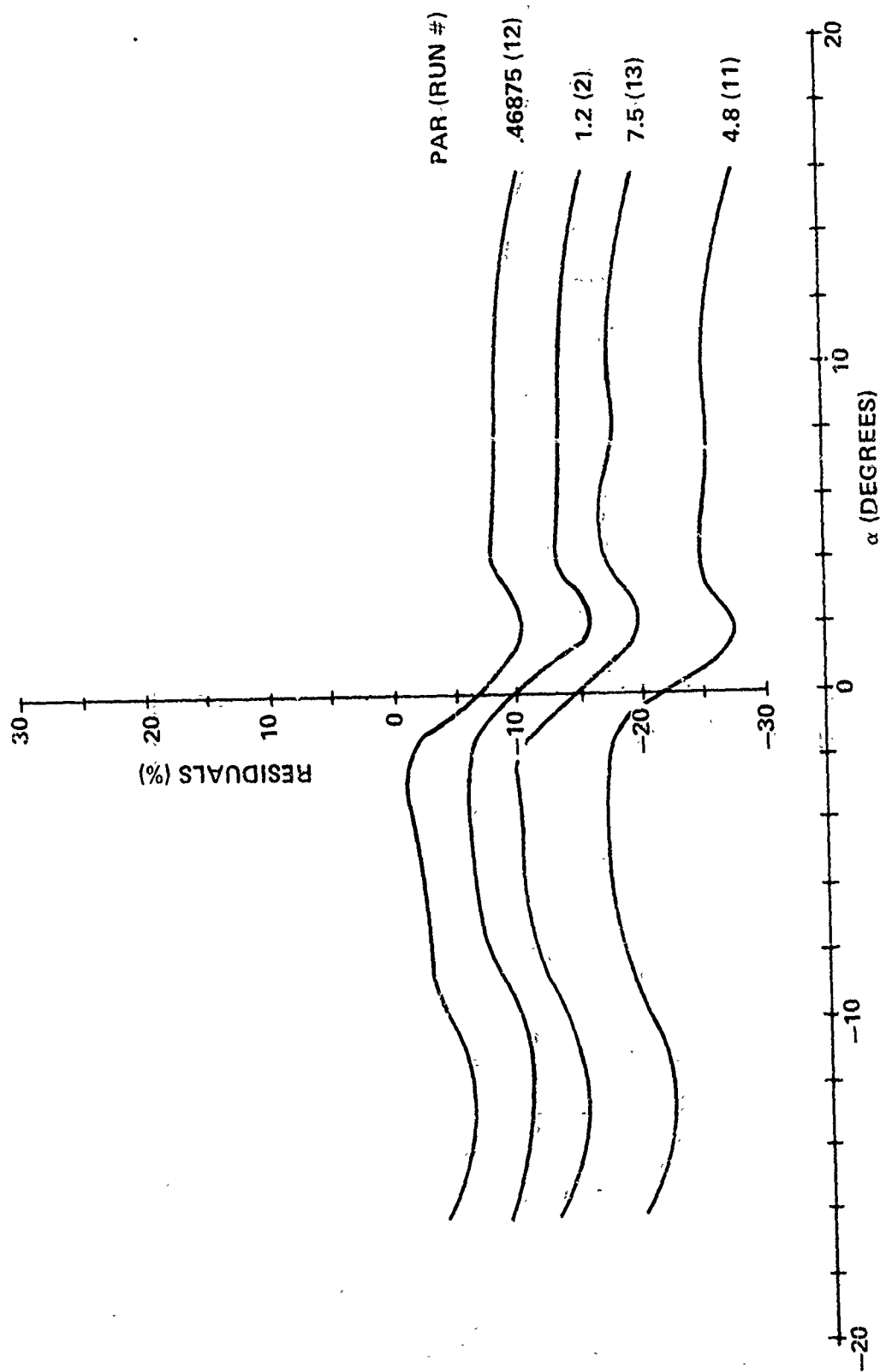


FIGURE 26. Residuals For Computed $CC_l/\bar{CC}_{LW}$ At $\eta = .875$ With NP=80

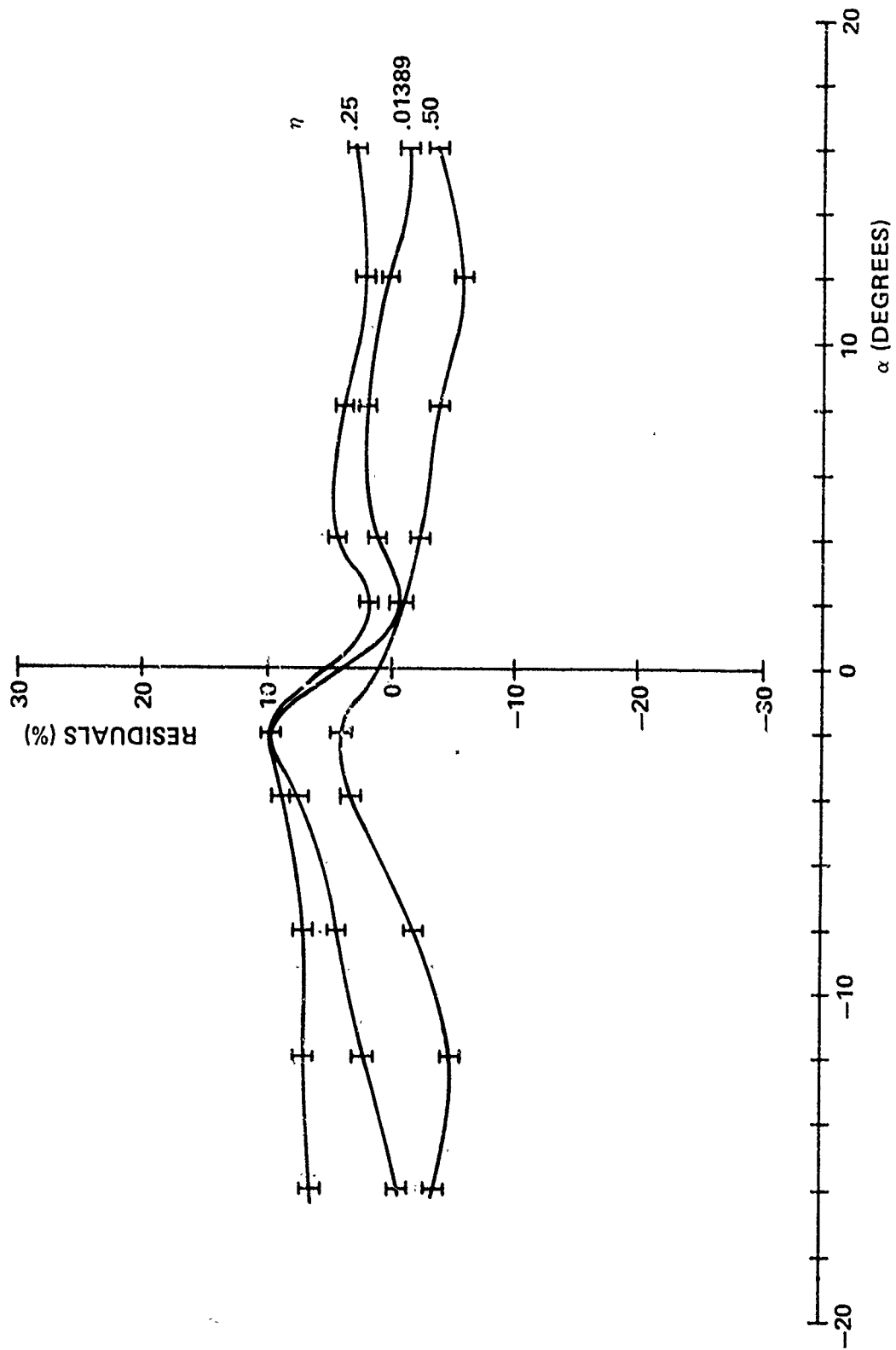


FIGURE 27. Residuals For Computed CC/CC_{LW} With NP=100: Inboard
(Vertical Bars Indicate Ranges For PAR=1.5, 6.0, 9.375)

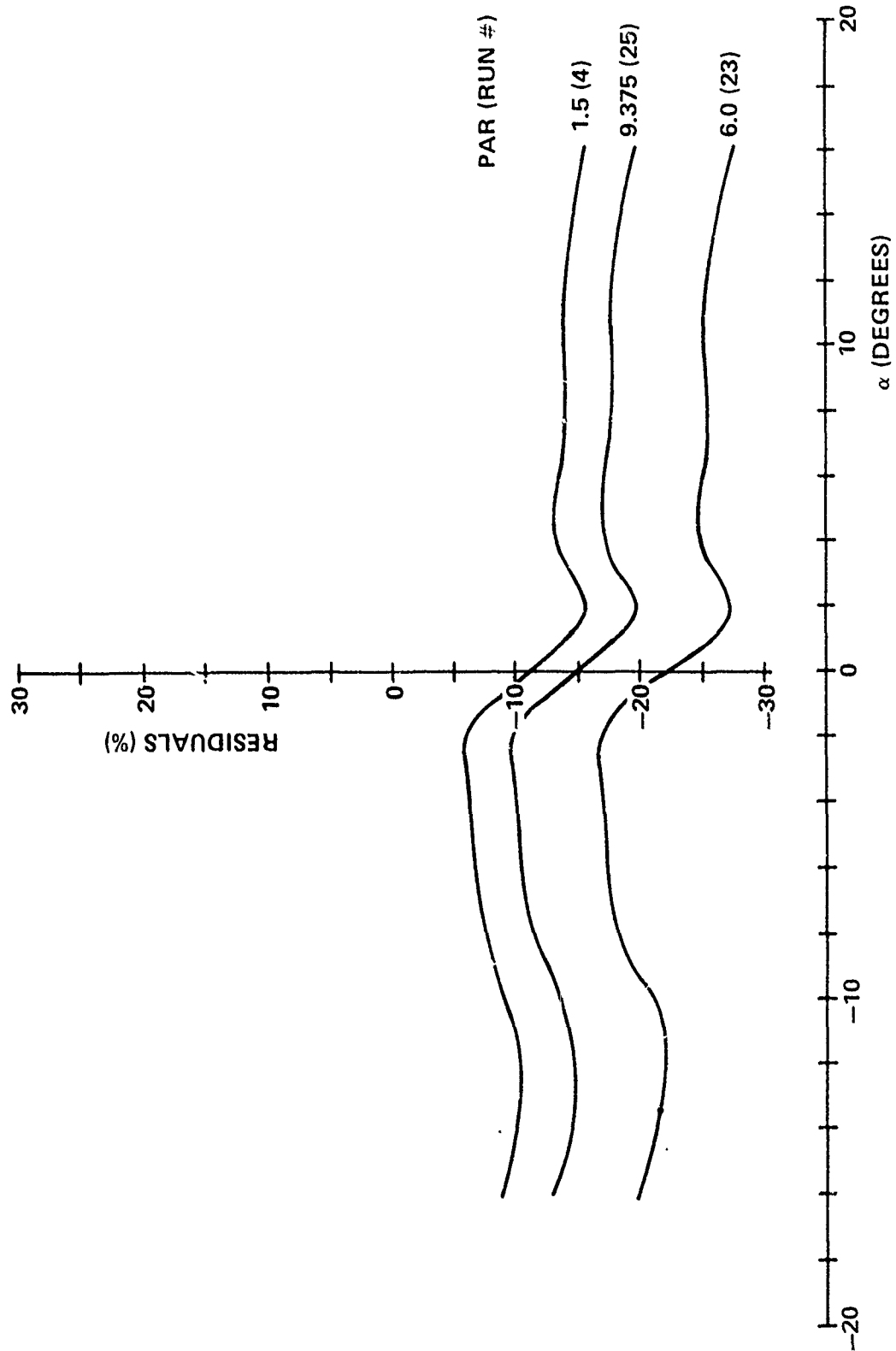


FIGURE 28. Residuals For Computed $CC\eta/CC_{LW}$ At $\eta = .875$ With NP=100

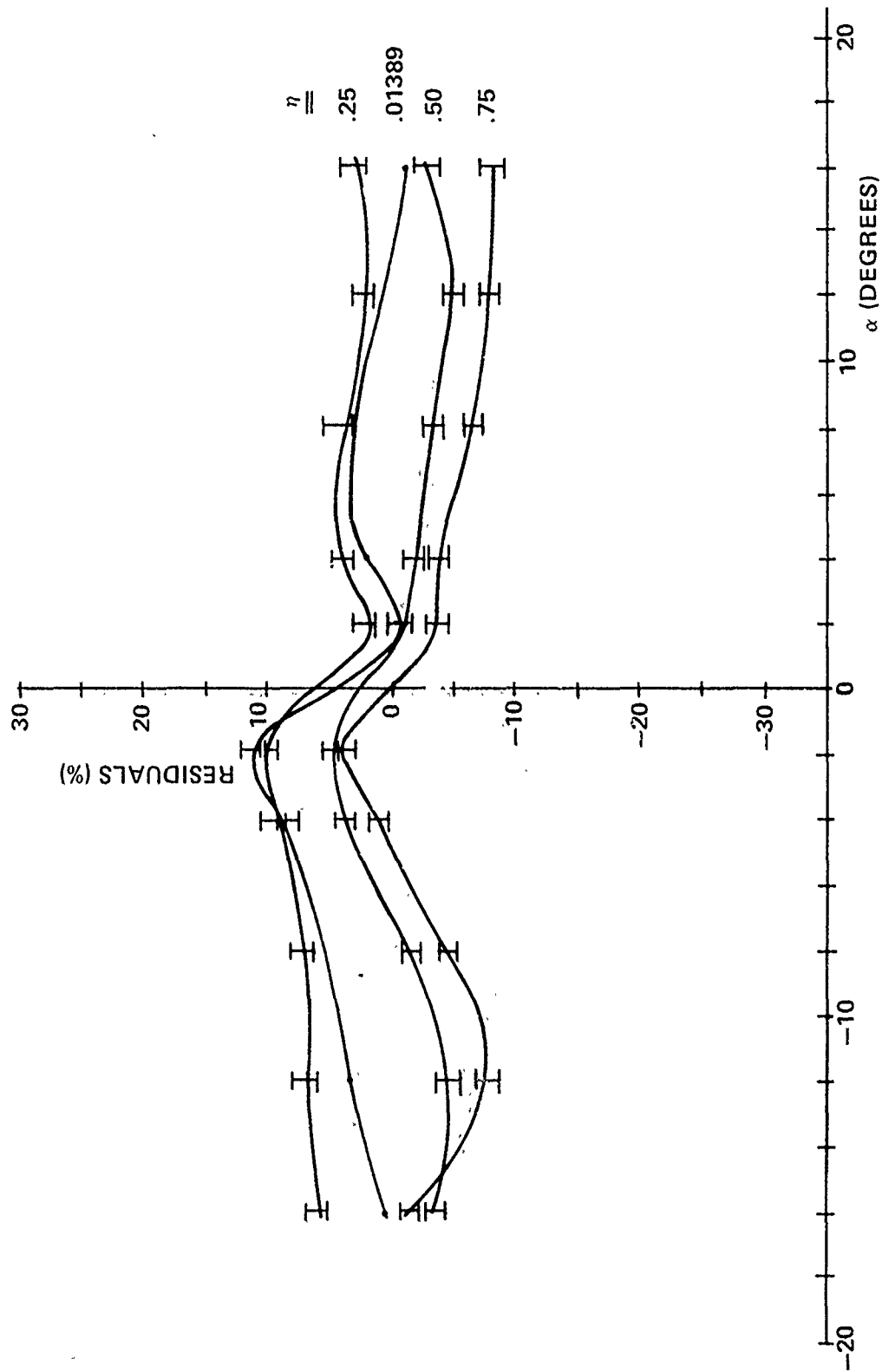


FIGURE 29. Residuals For Computed CC_I/CC_W For $PAR=1.0$: Inboard
(Vertical Bars Indicate Ranges For $NP=24, 54, 96$, and 150)

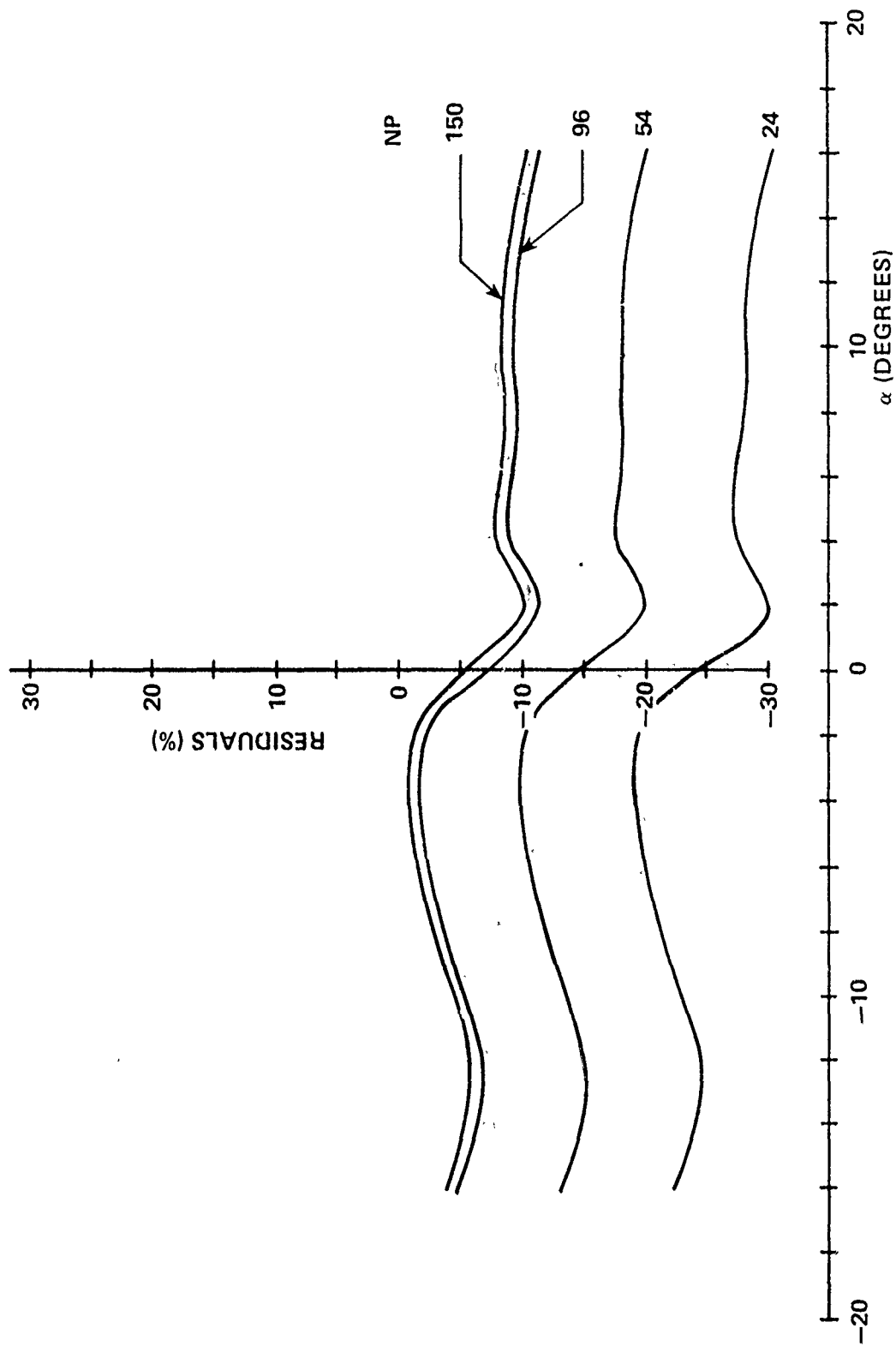


FIGURE 30. Residuals For Computed $CC_L / \bar{CC}_{LW}$ At $\eta = .875$ For $PAR = 1.0$

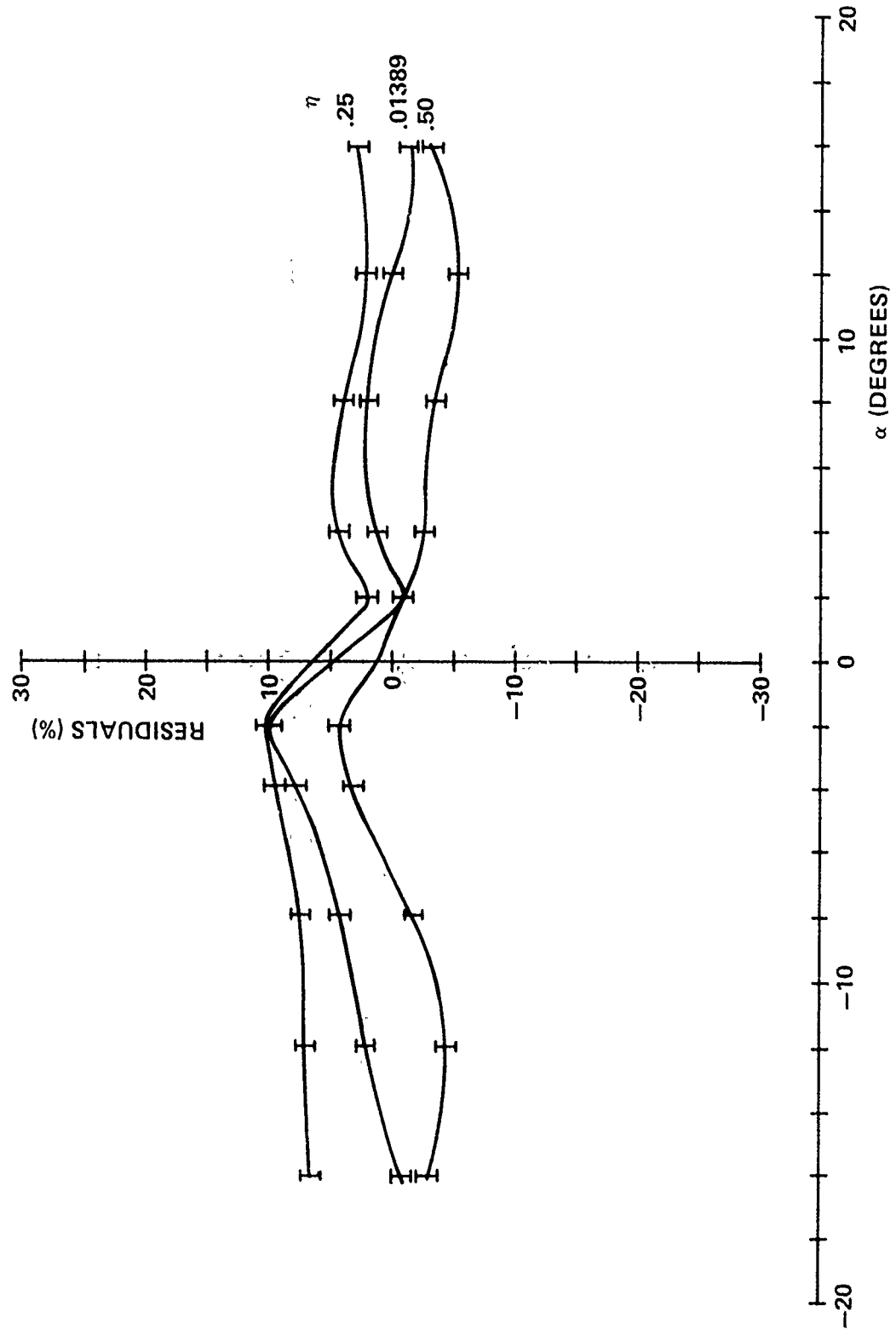


FIGURE 31. Residuals For Computed $CC/\bar{CC}_{1W}$ For PAR=3.0: Inboard
(Vertical Bars Indicate Ranges For NP=32, 72, 98 and 162)

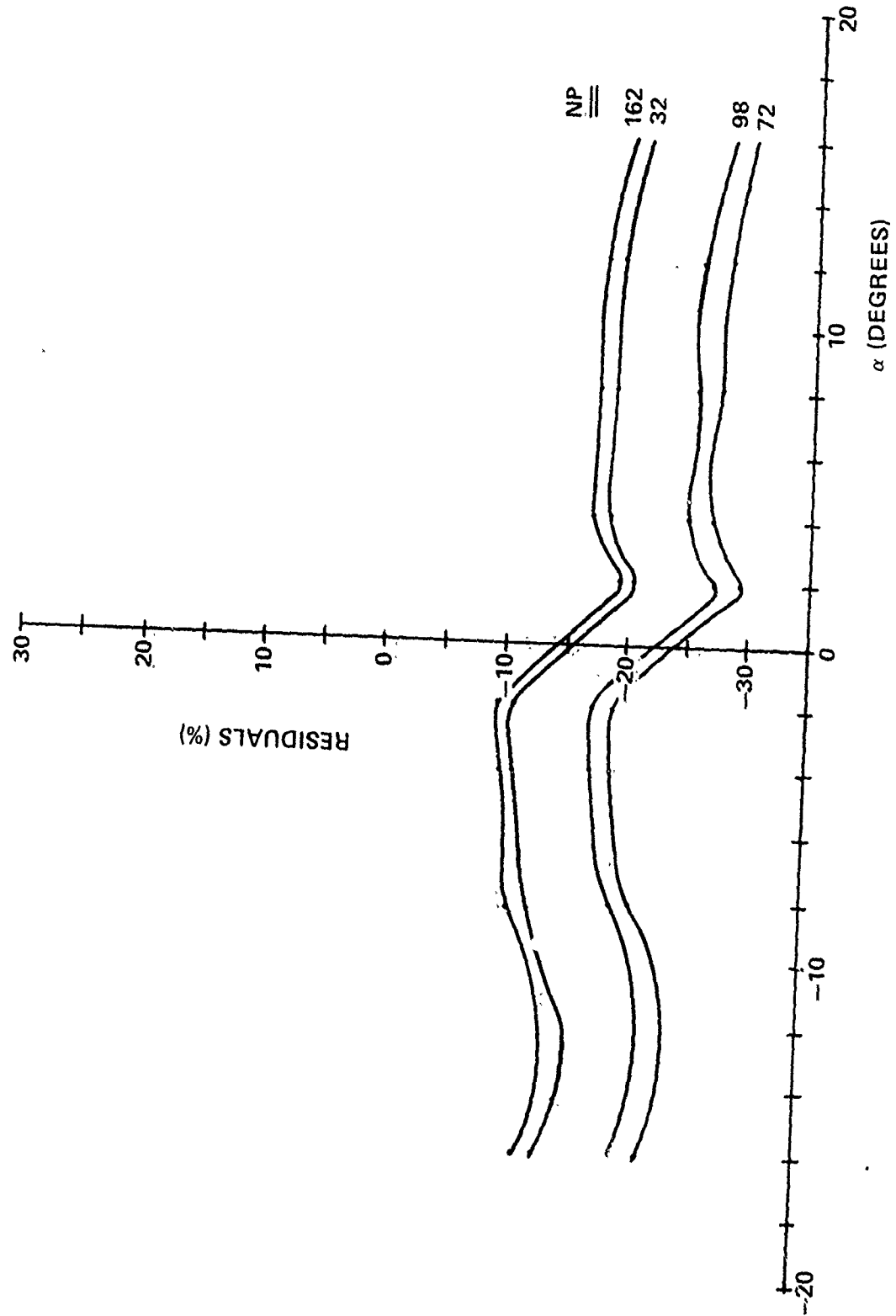


FIGURE 32. Residuals For Computed $CC\eta/\bar{CC}_{LW}$ At $\eta = .875$ For $PAR=3.0$

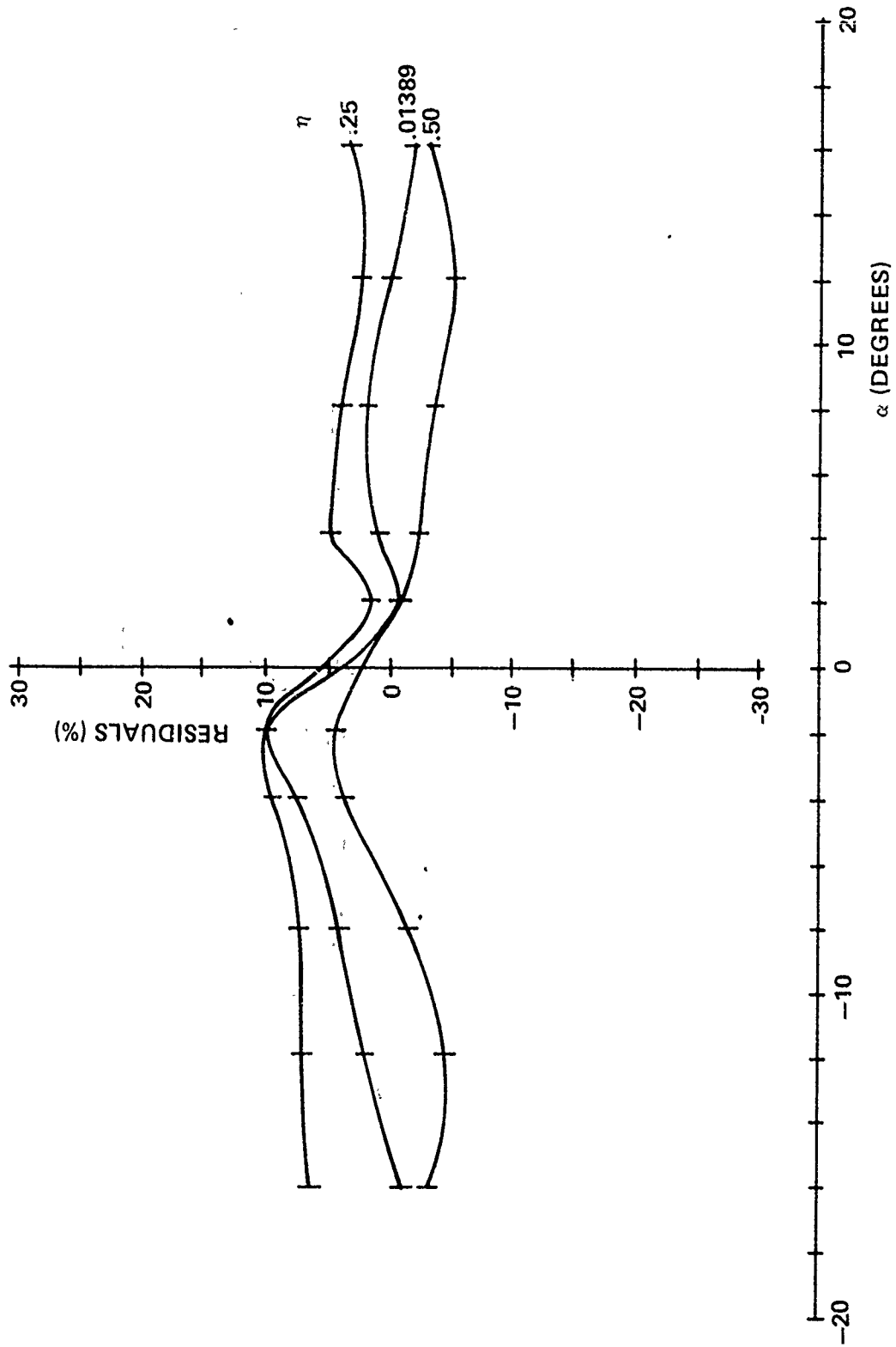


FIGURE 33. Residuals For Computed $CC\eta/\bar{CC}_L$ For PAR=6.0: Inboard
(Vertical Bars Indicate Ranges For NP=64, 100, 144 and 196)

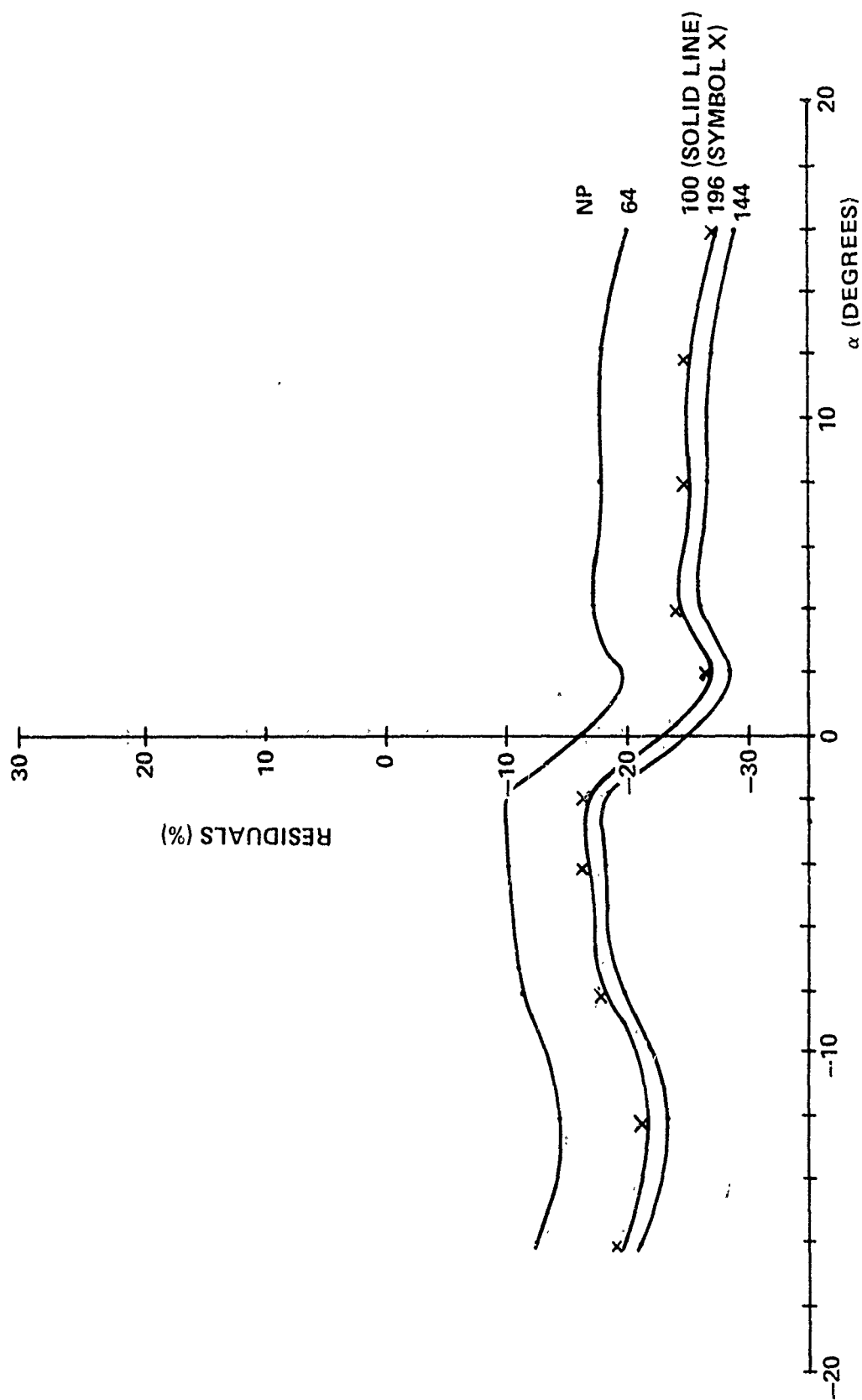


FIGURE 34. Residuals For Computed CC_p/CC_{LW} At $\eta = .875$ For $PAR = 6.0$

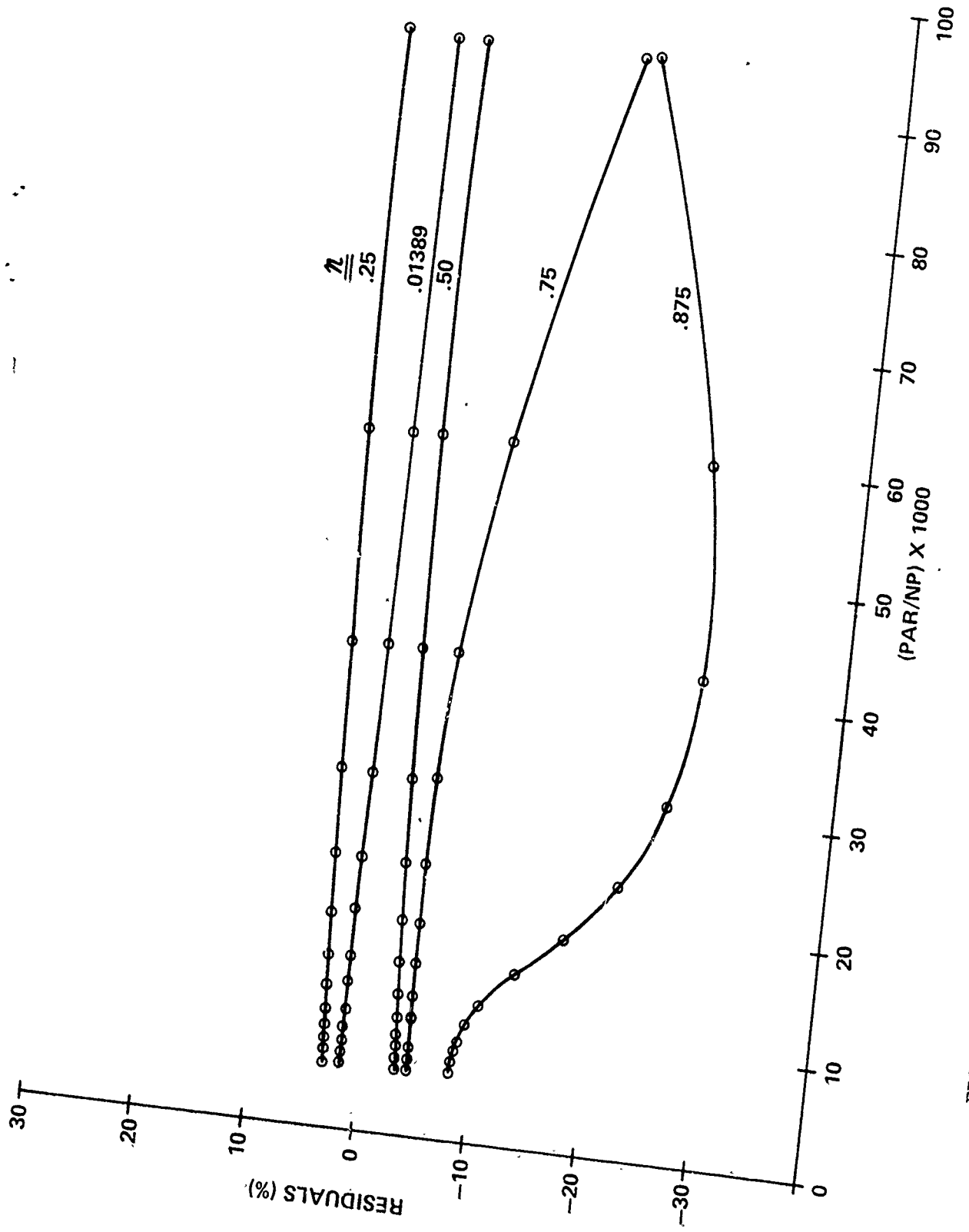


FIGURE 35. Residual For Computed $CC_H/\bar{CC}$

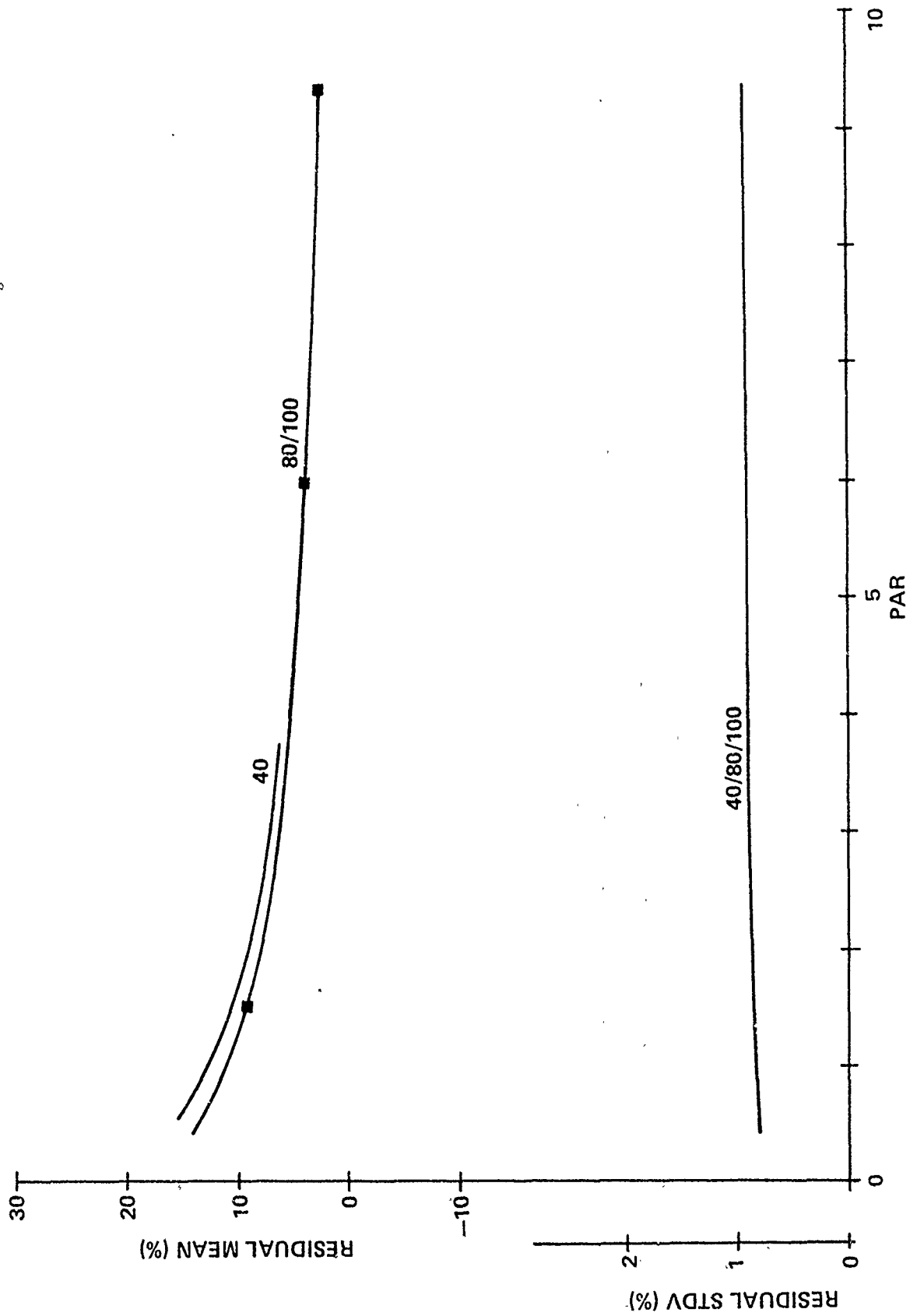


FIGURE 36. The MEAN And STDV Of Residuals For Computed C_{LW} vs PAR
(Number Of Panels Indicated)

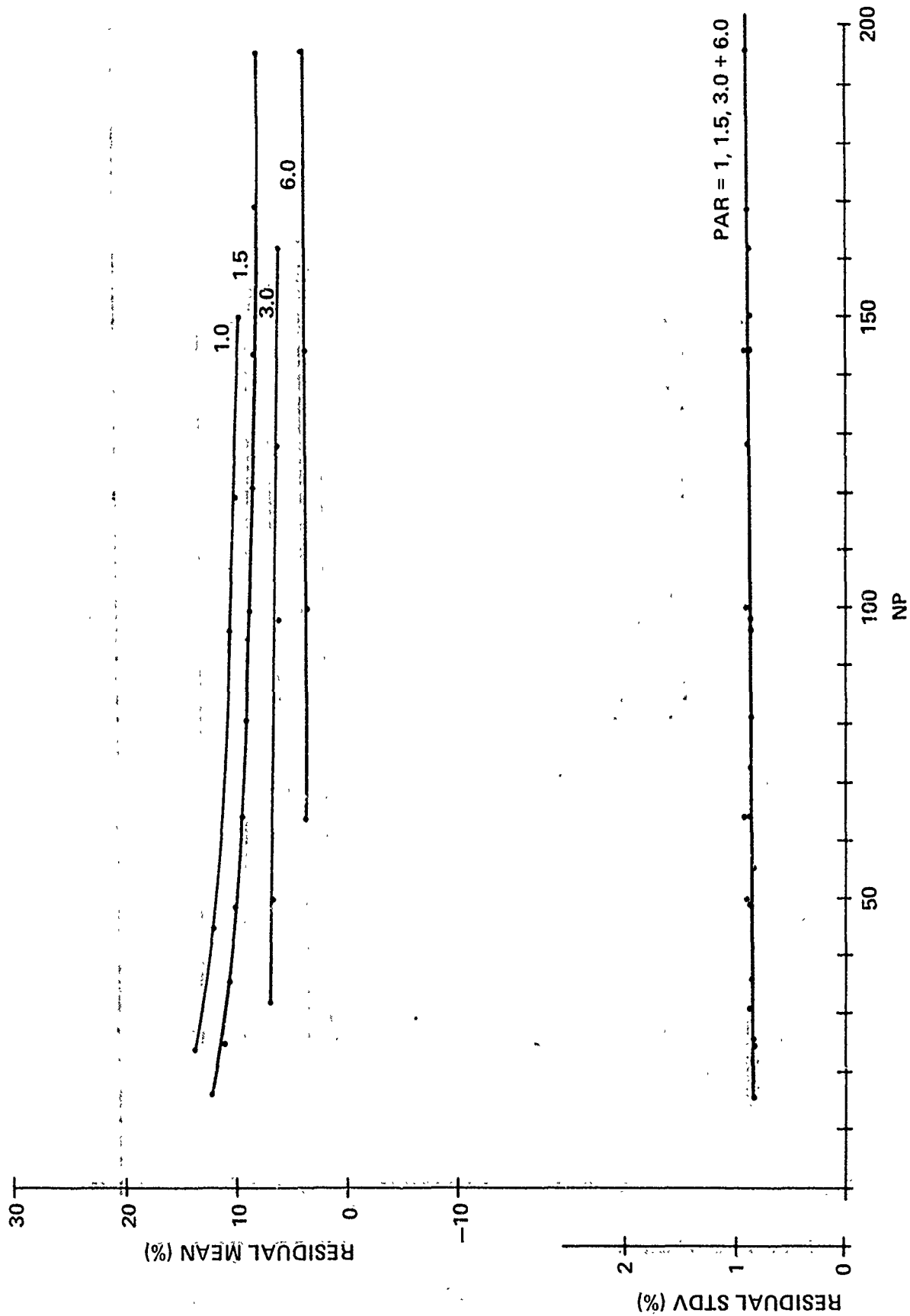


FIGURE 37. The MEAN And STDV Of Residuals For Computed C_{LW} vs NP
(Numbers Are PAR Values)

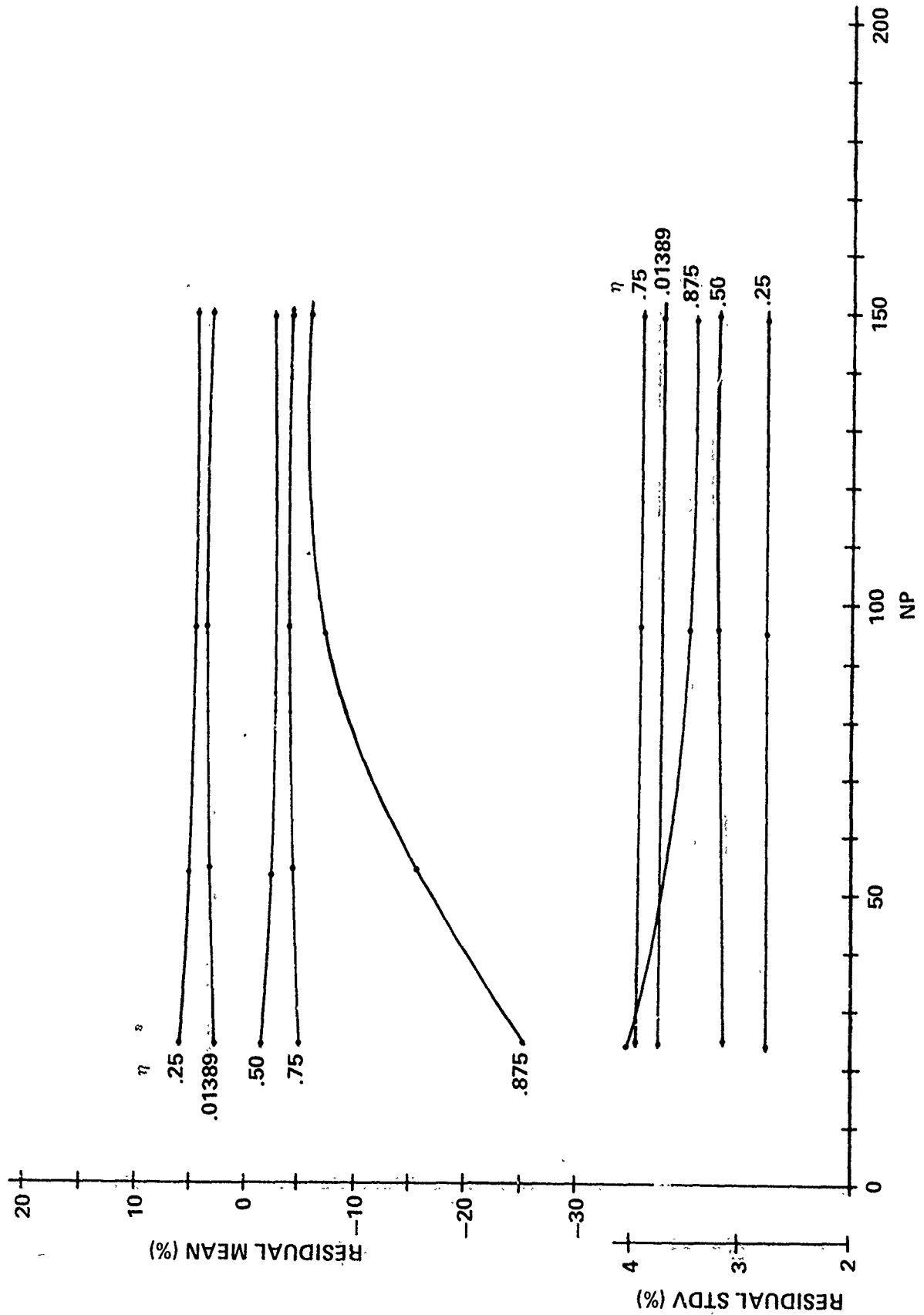


FIGURE 38. The MEAN And STDV Of Residuals For Computed CCq/CC_{LW} For $PAR=1.0$

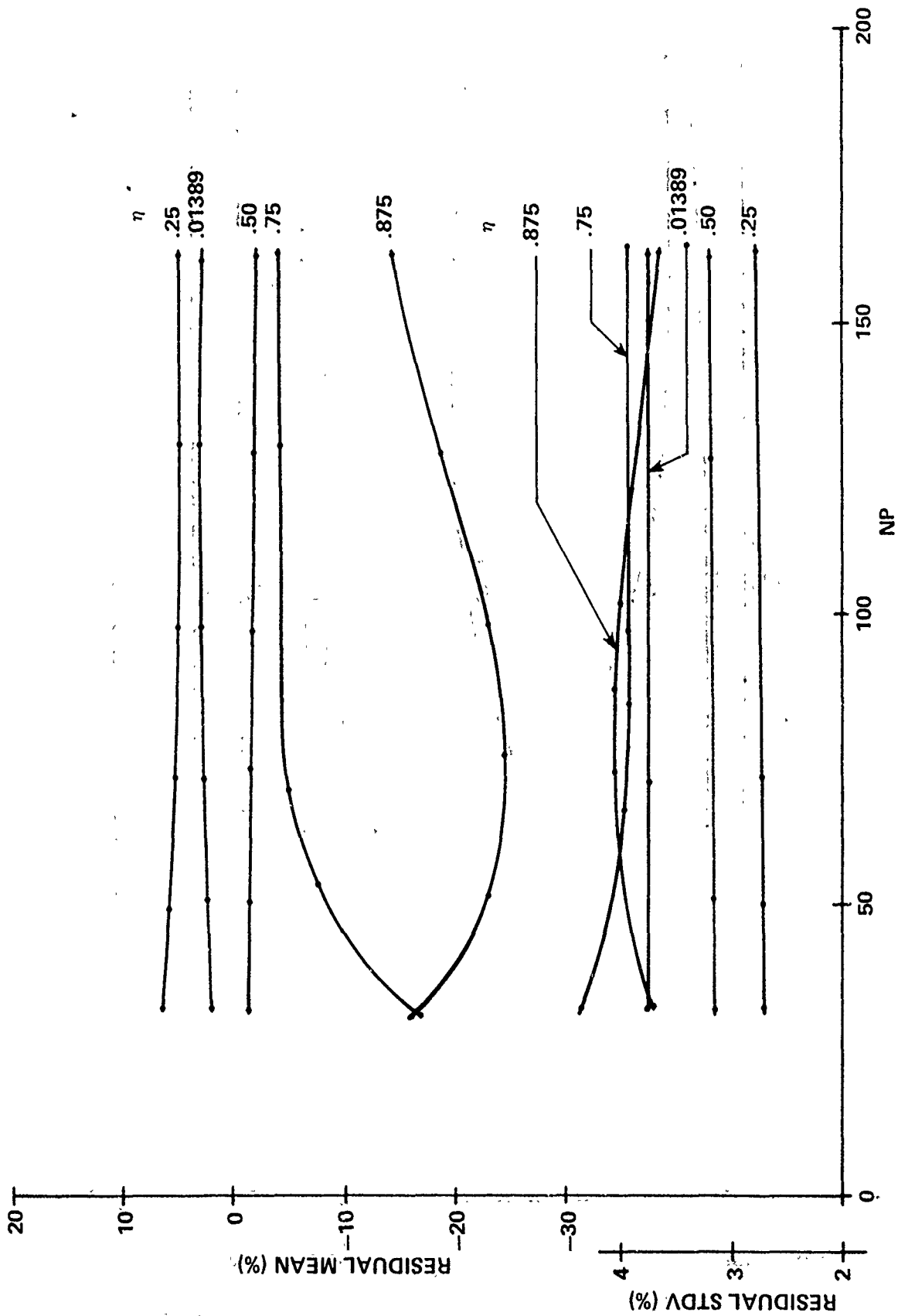


FIGURE 39. The MEAN And S.D.V Of Residuals For Computed CC_{LW} For PAR=3.0

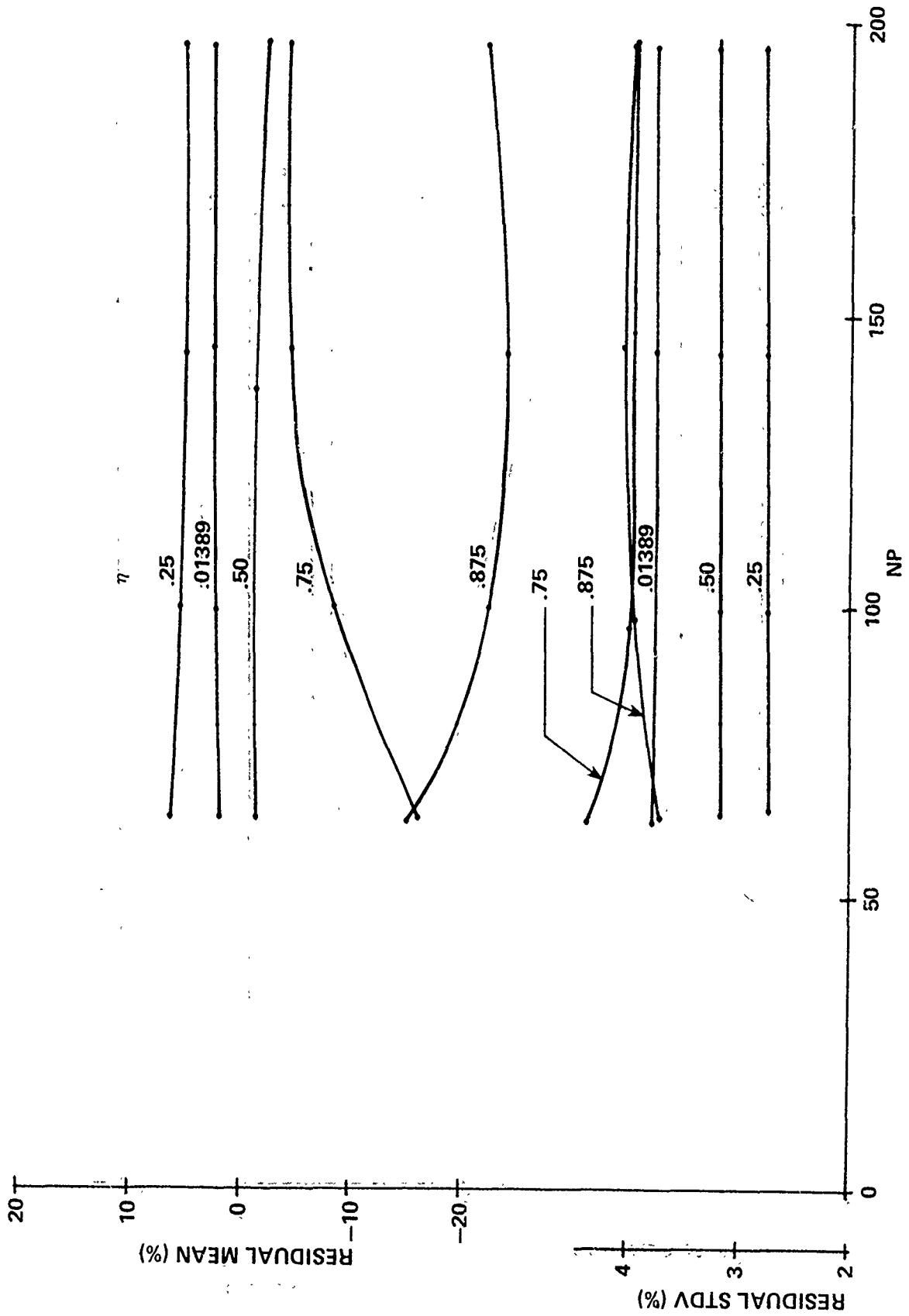


FIGURE 40. The MEAN And STDV Of Residuals For Computed $CC\eta/CC_{LW}$ For PAR=6.0

R E F E R E N C E S

1. E. A. Minter and A. R. Rudnicki, "Preliminary Airframe Structural Design Load Prediction Techniques For Military Aircraft." Vol. II: Aerodynamic Data Module - Technical Report and User's Manual. AFFDL TR-76-23, Feb. 1976.
2. F. A. Woodward, E. A. Tinoco, and J. W. Larsen, "Analysis and Design of Supersonic Wing-Body Combinations, Including Flow Properties In The Near Field." Part I - Theory and Application. NASA CR-73106, Aug. 1967.
3. V. M. Falkner and D. E. Lehnian, "Low-Speed Measurements Of The Pressure Distribution At The Surface Of A Swept-back Wing." British R and M No. 2741, Nov. 1949.

LIST OF SYMBOLS

Symbol

AR	Aspect Ratio
b	Span
$c \theta$	A function of spanwise location = $\sqrt{1 - \eta^2}$
M	Number of divisions of wing semispan. Mach Number
N	Number of chordwise divisions
NP	Total number of panels
PAR	Panel aspect ratio
S	Area
STDV	Standard deviation
$\mathcal{U}$	External disturbance
ν	Coefficient of variation = σ/μ
x	Dimensional x - coordinate
y	Dimensional y - coordinate
∞	Infinity
α	Angle of attack (degrees)
η	Non-dimensional spanwise station = $2y/b$
λ	Taper ratio
Λ	Sweep angle
μ	Mean (of $PAR / [AR_w (1 + \lambda_w)]$ over all panels)
σ	Standard deviation (of $PAR / [AR_w (1 + \lambda_w)]$)

Subscripts

p	Panel
w	Wing

SUGGESTED READING ON PANEL METHODS

- John L. Hess and A. M. O. Smith, "Calculation of Non-Lifting Potential Flow About Arbitrary Three-Dimensional Bodies," Journal of Ship Research Vol. 8, No. 2, pp. 22-44, Sept. 1964.
- John L. Hess, "Review Of Integral-Equation Techniques For Solving Potential-Flow Problems With Emphasis On The Surface-Source Method," Computer Methods In Applied Mech. and Engin., 5 (1975), pp. 145-196.
- L. L. Erickson, F. T. Johnson, and F. E. Ehlers, "Advanced Surface Paneling Method For Subsonic and Supersonic Flow," NASA CP-001, Part 1, Nov. 1976, pp. 25-54.
- L. Morino and C-C Kuo, "Subsonic Potential Aerodynamics For Complex Configurations: A General Theory," AIAA Journal, 1974, pp. 191-197.
- F. A. Woodward, "Analysis and Design Of Wing-Body Combinations at Subsonic and Supersonic Speeds," Journal Of Aircraft, Vol. 5, No. 6. Dec. 1968, pp. 528-534.
- J. L. Hess, "Calculation Of Potential Flow About Arbitrary Three-Dimensional Lifting Bodies," Report No. MDC J5679-01, McDonnell Douglas Corp., Long Beach, Calif., Oct. 1972.
- J. L. Hess, "Higher Order Numerical Solution Of The Integral Equation For The Two-Dimensional Neumann Problem," Computer Methods in Applied Mechanics and Engineering, 2 (1973), pp. 1-15, North-Holland Publishing Co.

NADC-80029-60

APPENDIX A
INPUT INSTRUCTIONS FOR SURAIR

A P P E N D I X A
 INPUT INSTRUCTIONS FOR SURAIR
 (E. A. Minter and A. R. Rudnicki (2))

• Input Method

The lifting surface module uses NAMELIST input which permits a flexible input format. Only those parameters required for a particular problem or which change from previous values need be specified. Two NAMELISTs, WING and AERO, are used by the program, and title cards may be inserted whenever a new title is desired. A permanent file header precedes the NAMELIST input cards.

• Permanent File Header

A five card header identifying the contents of the permanent file (load sources, Mach numbers on file, etc.) makes up the first five cards of the input deck. This file header always consists of five cards (blank cards are inserted if necessary). If the computations are not placed on permanent file, five blank cards may be used. The format for the header information is 8A10.

• Namelist Wing

Wing geometry is described in NAMELIST WING. Each WING card represents a trapezoidal lifting surface which may be an independent surface or one segment of a wing which is divided into several trapezoidal panels.

WING Variables

ROOTLE	X coordinate of wing root leading edge	
ROOTTE	X coordinate of wing root trailing edge	
TIPLE	X coordinate of wing tip leading edge	
TIPTE	X coordinate of wing tip trailing edge	
YROOT	Y coordinate of wing root	
YTIP	Y coordinate of wing tip	
ZROOT	Z coordinate of wing root	
ZTIP	Z coordinate of wing tip	
M	Number of spanwise panels	} Total panels on all wings <256
N	Number of chordwise panels	
F	Array of nondimensional root chord panel divisions, N + 1 values	

G Array of nondimensional tip chord panel divisions, $N + 1$ values

P Array of nondimensional semispan panel divisions, $M + 1$ values

TYPE Panel Option desired

 1 Input F, G, and P

 2 Input F and G Equal divisions of P

 3 Input P Equal divisions of F and G

 4 Equal divisions of F, G, and P

 5 Input F and P $G = F$

ISYM Camber symmetry option

 1 Symmetrical camber about X - Z plane (Default value)

 -1 Anti-symmetrical camber about X - Z plane (aileron)

IWING Wing number set sequentially by program. If several segments are part of the same wing, they should be given the same wing number. See Table 1.

MACH Free stream Mach number

SREF Reference area

CBAR Reference chord-units consistent with wing geometry

MOMREF Moment reference for pitching moment

SPAN Reference span for rolling moment coefficient

NMN Index associated with the data for the Mach numbers on permanent file. NMN may have a value of 1,2,3, or 4. For example, if $M = 0.7$ and 0.8 data are to be placed on file, then $NMN = 1$ ($M = 0.7$) and $NMN = 2$ ($M = 0.8$). Up to four Mach numbers may be placed on file for a particular configuration.

TABLE 1

IWING	SURFACE
1	Wing
2	H. Tail (can be used for canard)
3	V. Tail
4	Auxiliary Surface (can be used for canard, side force control, fuselage strake, etc.)

• Namelist Aero

The AERO card specifies angle of attack and camber distribution.

ALPHA Configuration angle of attack (degrees with respect to geometry reference system.

CAMBER Array of local panel angles of incidence (radians). Positive values indicate positive angles-of-attack and thus negative dz/dx . Panel numbers are shown in Figure 1.

NPNCH Punch control - integer array
 ≠ 0 Punch data cards for wing number IWING
 0 No punch output for wing number IWING (default)

ID Load type control integer. See Table 2.

ANG Angle representing magnitude of load source. Not used in the program but recorded on output card - see Table II and sample case.

NPRT 0 Do not print out chordwise C_p 's (default value)
 ≠ 0 Print out chordwise C_p 's

TABLE 2

ID	LOAD SOURCE	ANG*	ID	LOAD SOURCE	ANG*
1	Intercept, ($\alpha = 0$)	0.	8**	Aux Surf. T.E., δ_{AUX}	1.0
2	Angle-of-Attack, α	1.0	9	Unit V. Tail, i_v	1.0
3	Wing LE Flap, δ_{LE}	1.0	10	Rudder, δ_R	1.0
4	Wing TE Flap, δ_F	1.0	11	Sideslip, β	1.0
5**	Unit H. Tail, i_T	1.0	12	Aileron, δ_A	1.0
6**	Elevator, δ_E	1.0	13	Roll Damping, (Pb/2V)	1.0
7**	Unit Aux Surf, i_{AUX}	1.0	14	Roll H. Tail, Δi_T	1.0

* For cases where $ID > 1$ it is permissible for $ANG > 1.0$. However, the use of 1.0 is recommended. All angles and deflections are in degrees, (Pb/2v) is in radians.

**May also be used for canard surfaces, consistent with IWING, Table 1.

NADC-80029-60

APPENDIX B
DETAILS OF REGRESSION FORMULAS

DETAILS OF REGRESSION FORMULAS

This appendix contains the details of the regression formulas presented in the report. These details are generated with a stepwise multiple regression program available in the IBM Scientific Subroutine Package. The input-output instructions as well as the theoretical documentation may be found in the appropriate IBM publications. Tables B-I and B-VI give the variable definitions and numbering for identifying the terms of the regression formulas in the computer output. The rest of the output is self-explanatory.

TABLE B-I

VARIABLE DEFINITION AND NUMBERING FOR EQUATIONS 5 + 6		
VARIABLE NO.	VARIABLE SYMBOL	DEFINITION
1	μ	Mean of PAR/ $[AR_w (1 + \lambda_w)]$ over all panels
2	NP	Total number of panels
3	$\overline{\mu^2}$	$\mu \times NP$
4	μ^2	$\mu \times \mu$
5	NP^2	$NP \times NP$
6	$\overline{\mu^3}$	μ / NP
7	μ^3	$\mu \times \mu \times \mu$
8	—	$(57.3 / \pi AR_w) \frac{\partial C}{\partial \alpha} LW$

APPENDIX B
TABLE B-II
INPUT STATISTICS FOR EQUATIONS 5 & 6

STEP-WISE MULTIPLE REGRESSION.....OCLWDA

NUMBER OF OBSERVATIONS 41
NUMBER OF VARIABLES 8
NUMBER OF SELECTIONS 4

CONSTANT TO LIMIT VARIABLES 0.00000							
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1500E+04	.3905E-02	.3815E-02	.2622E+00
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8900E-02	.2702E+00
.2500E+00	.1500E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01	.1563E-01	.2532E+00
.2500E+00	.1000E+03	.2500E+02	.5250E-01	.1000E+05	.2500E-02	.1563E-01	.2740E+00
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.2743E+00
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.2767E+00
.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01	.6400E-01	.2762E+00
.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1700E+04	.1563E-01	.2441E+00	.2827E+00
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.2553E+00
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.5400E+04	.3906E-02	.3052E-01	.2756E+00
.8000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01	.5120E+00	.2867E+00
.7813E+01	.8000E+02	.5250E+01	.6104E-02	.6400E+04	.9766E-03	.4768E-03	.2582E+00
.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01	.1953E+01	.2319E+00
.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01	.1563E-01	.2664E+00
.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02	.1563E+01	.2687E+00
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.2704E+00
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.2718E+00
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.2730E+00
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.2748E+00
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.2755E+00
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.2761E+00
.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01	.1000E+01	.2891E+00
.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01	.3815E+01	.2941E+00
.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01	.1250E+00	.2788E+00
.5000E+00	.5000E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01	.1250E+00	.2801E+00
.5000E+00	.7200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02	.1250E+00	.2804E+00
.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.2816E+00
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.2820E+00
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.2843E+00
.1000E+01	.6400E+02	.5400E+02	.1000E+01	.4096E+04	.1563E-01	.1000E+01	.2897E+00
.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2674E+05	.6944E-02	.1000E+01	.2889E+00
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.2887E+00
.1567E+00	.2400E+02	.4000E+01	.2778E-01	.5764E+03	.6944E-02	.4630E-02	.2591E+00
.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.2653E+00
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.2591E+00
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.2715E+00
.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01	.8000E-02	.2509E+00
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.2845E+00
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.2824E+00
.1667E+01	.6000E+02	.1000E+03	.2778E+01	.3600E+04	.2778E-01	.4630E+01	.2962E+00
.2500E+01	.4000E+02	.1000E+03	.6250E+01	.1600E+04	.6250E-01	.1563E+02	.3158E+00

APPENDIX B
TABLE B-II
INPUT STATISTICS FOR EQUATIONS 5 & 6 (Cont'd)

VARIABLE NO.	MEAN	STANDARD DEVIATION
1	.52894E+00	.50128E+00
2	.88854E+02	.52056E+02
3	.47030E+02	.46522E+02
4	.52493E+00	.11089E+01
5	.10539E+05	.10984E+05
6	.82634E-02	.10453E-01
7	.78771E+00	.25643E+01
8	.27726E+00	.12008E-01

CORRELATION MATRIX							
ROW							
1	1.0000	.0013	.7366	.9405	-.0282	.8315	
	.8440	.9077					
2	.0013	1.0000	.5265	-.0889	.9738	-.3867	
	-.1332	.2649					
3	.7366	.5265	1.0000	.5555	.4994	.2873	
	.4033	.7709					
4	.9405	-.0889	.5555	1.0000	-.1017	.9126	
	.9736	.7941					
5	-.0282	.9738	.4994	-.1017	1.0000	-.3576	
	-.1328	.2091					
6	.8315	-.3867	.2873	.9126	-.3576	1.0000	
	.9179	.6603					
7	.8440	-.1332	.4033	.9736	-.1328	.9179	
	1.0000	.6951					
8	.9077	.2649	.7709	.7941	.2091	.6603	
	.6951	1.0000					

APPENDIX B
TABLE B-III
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 5

SELECTION..... 1

DEPENDENT VARIABLE..... 8
 NUMBER OF VARIABLES FORCED..... 0
 NUMBER OF VARIABLES DELETED... 1

STEP 1

VARIABLE ENTERED..... 1

SUM OF SQUARES REDUCED IN THIS STEP.... .47518E-02
 PROPORTION REDUCED IN THIS STEP..... .82392
 CUMULATIVE SUM OF SQUARES REDUCED..... .47518E-02
 CUMULATIVE PROPORTION REDUCED..... .82392 OF .57674E-02
 FOR 1 VARIABLES ENTERED
 MULTIPLE CORRELATION COEFFICIENT... .90770
 (ADJUSTED FOR D.F.)..... .90770E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .18249E+03
 STANDARD ERROR OF ESTIMATE..... .51928E-02
 (ADJUSTED FOR D.F.)..... .51928E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.217429E-01	.160952E-02	13.509
INTERCEPT	.265755E+00		

STEP 2

VARIABLE ENTERED..... 2

SUM OF SQUARES REDUCED IN THIS STEP.... .40129E-03
 PROPORTION REDUCED IN THIS STEP..... .06958
 CUMULATIVE SUM OF SQUARES REDUCED..... .51531E-02
 CUMULATIVE PROPORTION REDUCED..... .89350 OF .57674E-02
 FOR 2 VARIABLES ENTERED
 MULTIPLE CORRELATION COEFFICIENT... .94525
 (ADJUSTED FOR D.F.)..... .94381E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .15940E+03
 STANDARD ERROR OF ESTIMATE..... .40204E-02
 (ADJUSTED FOR D.F.)..... .40716E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.217348E-01	.126811E-02	17.140
2	.609451E-04	.122114E-04	4.983
INTERCEPT	.260353E+00		

APPENDIX B
TABLE B-III
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 5 (Cont'd)

STEP 3

VARIABLE ENTERED..... 4

SUM OF SQUARES REDUCED IN THIS STEP....	.69165E-04	
PROPORTION REDUCED IN THIS STEP.....	.01199	
CUMULATIVE SUM OF SQUARES REDUCED.....	.52223E-02	
CUMULATIVE PROPORTION REDUCED.....	.90549 OF	.57674E-02
FOR 3 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.95157	
(ADJUSTED FOR D.F.).....	.94896E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.11817E+03	
STANDARD ERROR OF ESTIMATE.....	.38381E-02	
(ADJUSTED FOR D.F.).....	.39378E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.292689E-01	.368176E-02	7.950
2	.538958E-04	.120909E-04	4.458
4	-.352082E-02	.167103E-02	-2.167
INTERCEPT	.258886E+00		

STEP 4

VARIABLE ENTERED..... 7

SUM OF SQUARES REDUCED IN THIS STEP....	.31526E-03	
PROPORTION REDUCED IN THIS STEP.....	.05466	
CUMULATIVE SUM OF SQUARES REDUCED.....	.55375E-02	
CUMULATIVE PROPORTION REDUCED.....	.96016 OF	.57674E-02
FOR 4 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.97987	
(ADJUSTED FOR D.F.).....	.97823E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.21688E+03	
STANDARD ERROR OF ESTIMATE.....	.25265E-02	
(ADJUSTED FOR D.F.).....	.26270E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.694065E-01	.620435E-02	11.187
2	.498565E-04	.797979E-05	5.248
4	-.489322E-01	.054078E-02	-7.481
7	.125380E-01	.178410E-02	7.028
INTERCEPT	.251923E+00		

APPENDIX B
TABLE B-III
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 5 (Cont'd)

STEP 5

VARIABLE ENTERED..... 3

SUM OF SQUARES REDUCED IN THIS STEP.... .12825E-03
 PROPORTION REDUCED IN THIS STEP..... .02224

CUMULATIVE SUM OF SQUARES REDUCED..... .56658E-02
 CUMULATIVE PROPORTION REDUCED..... .98239 OF .57674E-02

FOR 5 VARIABLES ENTERED
 MULTIPLE CORRELATION COEFFICIENT... .99116
 (ADJUSTED FOR D.F.)..... .99017E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .39056E+03
 STANDARD ERROR OF ESTIMATE..... .17033E-02
 (ADJUSTED FOR D.F.)..... .17955E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.799264E-01	.447212E-02	17.872
2	.998044E-04	.924014E-05	10.801
4	-.455501E-01	.443892E-02	-10.262
7	.104096E-01	.124468E-02	8.363
3	-.122490E-03	.184233E-04	-6.649
INTERCEPT	.247583E+00		

STEP 6

VARIABLE ENTERED..... 6

SUM OF SQUARES REDUCED IN THIS STEP.... .22791E-04
 PROPORTION REDUCED IN THIS STEP..... .00395

CUMULATIVE SUM OF SQUARES REDUCED..... .56886E-02
 CUMULATIVE PROPORTION REDUCED..... .98634 OF .57674E-02

FOR 5 VARIABLES ENTERED
 MULTIPLE CORRELATION COEFFICIENT... .99315
 (ADJUSTED FOR D.F.)..... .99217E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .40930E+03
 STANDARD ERROR OF ESTIMATE..... .15220E-02
 (ADJUSTED FOR D.F.)..... .15270E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.911825E-01	.537074E-02	16.978
2	.852536E-04	.947020E-05	9.002
4	-.523091E-01	.451381E-02	-11.589
7	.129222E-01	.137059E-02	9.428
3	-.145552E-03	.180288E-04	-8.073
6	-.372808E+00	.118853E+00	-3.137
INTERCEPT	.248656E+00		

APPENDIX B
TABLE B-III
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 5 (Cont'd)

SELECTION..... 1

TABLE OF RESIDUALS

CASE NO.	X VALUE	Y ESTIMATE	RESIDUAL	RESIDUAL%
1	.262188E+00	.262720E+00	-.531852E-03	-.202851E+00
2	.270213E+00	.268463E+00	.175307E-02	.647652E+00
3	.263221E+00	.253341E+00	-.119605E-03	-.454388E-01
4	.273952E+00	.272379E+00	.151328E-02	.588892E+00
5	.274317E+00	.274595E+00	-.278235E-03	-.101429E+00
6	.276688E+00	.277486E+00	-.79447E-03	-.288573E+00
7	.276232E+00	.274940E+00	.129212E-02	.467758E+00
8	.282737E+00	.282313E+00	.424323E-03	.150077E+00
9	.255287E+00	.259160E+00	-.387268E-02	-.151699E+01
10	.275594E+00	.274162E+00	.143179E-02	.519524E+00
11	.286659E+00	.289517E+00	-.185863E-02	-.648378E+00
12	.258206E+00	.261013E+00	-.287746E-02	-.108730E+01
13	.291918E+00	.292580E+00	-.662299E-03	-.226679E+00
14	.266383E+00	.265878E+00	.505015E-03	.189582E+00
15	.268663E+00	.267555E+00	.110625E-02	.412507E+00
16	.270426E+00	.269877E+00	.154926E-02	.572895E+00
17	.271824E+00	.270055E+00	.176881E-02	.650717E+00
18	.272979E+00	.271192E+00	.178760E-02	.654847E+00
19	.274773E+00	.273527E+00	.124611E-02	.453506E+00
20	.275502E+00	.274774E+00	.728738E-03	.264512E+00
21	.276141E+00	.276091E+00	.497219E-04	.180060E-01
22	.289121E+00	.290694E+00	-.157283E-02	-.544004E+00
23	.294076E+00	.292673E+00	.140284E-02	.477033E+00
24	.278846E+00	.277360E+00	.149678E-02	.533190E+00
25	.280093E+00	.279681E+00	.411482E-03	.146909E+00
26	.290400E+00	.281095E+00	-.695137E-03	-.247909E+00
27	.281552E+00	.282106E+00	-.554313E-03	-.196878E+00
28	.282038E+00	.282926E+00	-.888657E-03	-.314875E+00
29	.284257E+00	.285426E+00	-.116856E-02	-.411094E+00
30	.289729E+00	.290769E+00	-.103855E-02	-.358456E+00
31	.288878E+00	.289180E+00	-.302035E-03	-.104555E+00
32	.288665E+00	.286731E+00	.193382E-02	.669917E+00
33	.259118E+00	.261335E+00	-.221730E-02	-.855710E+00
34	.265349E+00	.264603E+00	.746264E-03	.281238E+00
35	.269088E+00	.267668E+00	.142010E-02	.527744E+00
36	.271611E+00	.271195E+00	.416449E-03	.153325E+00
37	.250850E+00	.262298E+00	-.144805E-02	-.555125E+00
38	.284470E+00	.285996E+00	-.152585E-02	-.536382E+00
39	.282433E+00	.283656E+00	-.122277E-02	-.432940E+00
40	.296204E+00	.295353E+00	.850633E-03	.287178E+00
41	.316784E+00	.317145E+00	-.750767E-03	-.113884E+00

APPENDIX B
TABLE B-IV
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 6

SELECTION..... 1

DEPENDENT VARIABLE..... 8
 NUMBER OF VARIABLES FORCED.... 0
 NUMBER OF VARIABLES DELETED... 1

STEP 1

VARIABLE ENTERED..... 1

SUM OF SQUARES REDUCED IN THIS STEP.... .47518E-02
 PROPORTION REDUCED IN THIS STEP..... .82392
 CUMULATIVE SUM OF SQUARES REDUCED..... .47518E-02
 CUMULATIVE PROPORTION REDUCED..... .82392 OF .57674E-02

FOR 1 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .90770
 (ADJUSTED FOR D.F.)..... .90770E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .18249E+03
 STANDARD ERROR OF ESTIMATE..... .51028E-02
 (ADJUSTED FOR D.F.)..... .51028E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.217423E-01	.160952E-02	13.509
INTERCEPT	.265755E+00		

STEP 2

VARIABLE ENTERED..... 2

SUM OF SQUARES REDUCED IN THIS STEP.... .40129E-03
 PROPORTION REDUCED IN THIS STEP..... .06958
 CUMULATIVE SUM OF SQUARES REDUCED..... .51531E-02
 CUMULATIVE PROPORTION REDUCED..... .89350 OF .57674E-02

FOR 2 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .94525
 (ADJUSTED FOR D.F.)..... .94381E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .15940E+03
 STANDARD ERROR OF ESTIMATE..... .40204E-02
 (ADJUSTED FOR D.F.)..... .40716E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.217348E-01	.126811E-02	17.140
2	.608451E-04	.122114E-04	4.983
INTERCEPT	.260353E+00		

APPENDIX B
TABLE B-IV
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 6 (Cont'd)

STEP 3

VARIABLE ENTERED..... 4

SUM OF SQUARES REDUCED IN THIS STEP.... .69165E-04
 PROPORTION REDUCED IN THIS STEP..... .01199
 CUMULATIVE SUM OF SQUARES REDUCED..... .52223E-02
 CUMULATIVE PROPORTION REDUCED..... .90549 OF .57674E-02

FOR 3 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .95157
 (ADJUSTED FOR D.F.)..... .94896E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .11817E+03
 STANDARD ERROR OF ESTIMATE..... .39381E-02
 (ADJUSTED FOR D.F.)..... .39378E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.292689E-01	.368176E-02	7.950
2	.538958E-04	.120909E-04	4.458
4	-.362082E-02	.167103E-02	-2.167
INTERCEPT	.258886E+00		

STEP 4

VARIABLE ENTERED..... 7

SUM OF SQUARES REDUCED IN THIS STEP.... .31525E-03
 PROPORTION REDUCED IN THIS STEP..... .05466
 CUMULATIVE SUM OF SQUARES REDUCED..... .55376E-02
 CUMULATIVE PROPORTION REDUCED..... .96016 OF .57674E-02

FOR 4 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .97987
 (ADJUSTED FOR D.F.)..... .97823E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .21688E+03
 STANDARD ERROR OF ESTIMATE..... .25265E-02
 (ADJUSTED FOR D.F.)..... .26270E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.694065E-01	.620435E-02	11.187
2	.498565E-04	.797979E-05	6.248
4	-.489322E-01	.654078E-02	-7.481
7	.125380E-01	.178410E-02	7.028
INTERCEPT	.251923E+00		

APPENDIX B
TABLE B-IV
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 6 (Cont'd)

STEP 5

VARIABLE ENTERED..... 3

SUM OF SQUARES REDUCED IN THIS STEP....	.12825E-03	
PROPORTION REDUCED IN THIS STEP.....	.02224	
CUMULATIVE SUM OF SQUARES REDUCED.....	.56658E-02	
CUMULATIVE PROPORTION REDUCED.....	.98239 OF	.57674E-02
FOR 5 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.39116	
(ADJUSTED FOR D.F.).....	.99017E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.39356E+03	
STANDARD ERROR OF ESTIMATE.....	.17033E-02	
(ADJUSTED FOR D.F.).....	.17955E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.799264E-01	.447212E-02	17.872
2	.998044E-04	.92+014E-05	10.801
4	-.455500E-01	.443892E-02	-10.262
7	.104096E-01	.124468E-02	8.363
3	-.122490E-03	.184233E-04	-6.649
INTERCEPT	.247583E+00		

STEP 6

VARIABLE ENTERED..... 5

SUM OF SQUARES REDUCED IN THIS STEP....	.24468E-04	
PROPORTION REDUCED IN THIS STEP.....	.00424	
CUMULATIVE SUM OF SQUARES REDUCED.....	.56903E-02	
CUMULATIVE PROPORTION REDUCED.....	.98664 OF	.57674E-02
FOR 6 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.99330	
(ADJUSTED FOR D.F.).....	.99233E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.41833E+03	
STANDARD ERROR OF ESTIMATE.....	.15057E-02	
(ADJUSTED FOR D.F.).....	.16096E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
1	.787313E-01	.396984E-02	19.832
2	.163029E-03	.209064E-04	7.798
4	-.470821E-01	.395140E-02	-11.915
7	.111065E-01	.112051E-02	9.912
3	-.105580E-03	.170793E-04	-6.182
5	-.338221E-06	.102950E-06	-3.285
INTERCEPT	.245622E+00		

APPENDIX B
TABLE B-IV
COMPUTATIONS OF COEFFICIENTS FOR EQUATION 6 (Cont'd)

SELECTION..... 1

TABLE OF RESIDUALS

CASE NO.	Y VALUE	Y ESTIMATE	RESIDUAL	RESIDUAL%
1	.262188E+00	.262136E+00	.514291E-04	.196154E-01
2	.270213E+00	.268762E+00	.145120E-02	.537057E+00
3	.263221E+00	.264635E+00	-.141350E-02	-.537001E+00
4	.273952E+00	.272817E+00	.113556E-02	.414509E+00
5	.274317E+00	.274159E+00	.157441E-03	.573939E-01
6	.276688E+00	.276323E+00	.365444E-03	.132078E+00
7	.276232E+00	.274583E+00	.164946E-02	.597129E+00
8	.282737E+00	.282489E+00	.248015E-03	.877197E-01
9	.255287E+00	.258593E+00	-.330536E-02	-.129476E+01
10	.275594E+00	.274204E+00	.138919E-02	.504072E+00
11	.286659E+00	.288281E+00	-.162251E-02	-.566008E+00
12	.258206E+00	.261708E+00	-.350264E-02	-.135653E+01
13	.291918E+00	.292482E+00	-.564458E-03	-.193362E+00
14	.266383E+00	.265740E+00	.643047E-03	.241400E+00
15	.268663E+00	.267016E+00	.164691E-02	.613003E+00
16	.270426E+00	.268418E+00	.200752E-02	.742355E+00
17	.271824E+00	.259895E+00	.192963E-02	.709881E+00
18	.272979E+00	.271384E+00	.159571E-02	.584553E+00
19	.273773E+00	.274116E+00	.656685E-03	.238992E+00
20	.275302E+00	.275197E+00	.305124E-03	.110752E+00
21	.276341E+00	.275967E+00	.174221E-03	.630914E-01
22	.289121E+00	.290740E+00	-.161903E-02	-.559983E+00
23	.294076E+00	.292485E+00	.159128E-02	.541111E+00
24	.278848E+00	.277786E+00	.105992E-02	.380110E+00
25	.290093E+00	.279271E+00	.821175E-03	.293180E+00
26	.280400E+00	.280789E+00	-.389274E-03	-.138828E+00
27	.281552E+00	.282160E+00	-.608446E-03	-.216104E+00
28	.282038E+00	.283174E+00	-.113610E-02	-.402818E+00
29	.284257E+00	.285532E+00	-.127518E-02	-.448602E+00
30	.289729E+00	.290669E+00	-.939752E-03	-.324355E+00
31	.288878E+00	.289637E+00	-.758826E-03	-.262680E+00
32	.288645E+00	.286644E+00	.202079E-02	.700047E+00
33	.259118E+00	.260783E+00	-.166507E-02	-.642593E+00
34	.265349E+00	.264354E+00	.995101E-03	.375015E+00
35	.269088E+00	.268332E+00	.756756E-03	.281229E+00
36	.271611E+00	.271692E+00	-.805853E-04	-.296693E-01
37	.260850E+00	.262276E+00	-.142610E-02	-.546713E+00
38	.284470E+00	.286017E+00	-.154694E-02	-.543798E+00
39	.282433E+00	.283588E+00	-.115419E-02	-.408658E+00
40	.296204E+00	.295482E+00	.721631E-03	.243627E+00
41	.316784E+00	.317149E+00	-.365264E-03	-.115304E+00

APPENDIX B
TABLE B-V
SUMMARY OF INPUT DATA FOR EQUATIONS 5 & 6

OBSERVATION NO.	INPUT DATA					
1	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.2622E+00				
2	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.9000E-02	.2702E+00				
3	.2500E+00	.1600E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01
	.1563E-01	.2632E+00				
4	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.2740E+00				
5	.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.2743E+00				
6	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.2767E+00				
7	.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01
	.6400E-01	.2762E+00				
8	.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01
	.2441E+00	.2827E+00				
9	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02
	.1000E-02	.2553E+00				
10	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.2756E+00				
11	.3000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01
	.5120E+00	.2567E+00				
12	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.2582E+00				
13	.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01
	.1953E+01	.2919E+00				
14	.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01
	.1563E-01	.2664E+00				
15	.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02
	.1563E-01	.2687E+00				
16	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.2704E+00				
17	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.2718E+00				
18	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3036E-02
	.1563E-01	.2730E+00				
19	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.2748E+00				
20	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.2755E+00				
21	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.2761E+00				
22	.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01
	.1000E+01	.2891E+00				
23	.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01
	.3815E+01	.2941E+00				
24	.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01
	.1250E+00	.2788E+00				

APPENDIX B
TABLE B-V
SUMMARY OF INPUT DATA FOR EQUATIONS 5 & 6 (Cont'd)

25	.5000E+00 .1250E+00	.5000E+02 .2501E+00	.2500E+02	.2500E+00	.2500E+04	.1000E-01
26	.5000E+00 .1250E+00	.7200E+02 .2804E+00	.3600E+02	.2500E+00	.5184E+04	.6944E-02
27	.5000E+00 .1250E+00	.9800E+02 .2816E+00	.4900E+02	.2500E+00	.9604E+04	.5102E-02
28	.5000E+00 .1250E+00	.1280E+03 .2820E+00	.6400E+02	.2500E+00	.1538E+05	.3906E-02
29	.5938E+00 .2093E+00	.1520E+03 .2843E+00	.9025E+02	.3525E+00	.2310E+05	.3906E-02
30	.1000E+01 .1000E+01	.6400E+02 .2897E+00	.6400E+02	.1000E+01	.4095E+04	.1553E-01
31	.1000E+01 .1000E+01	.1440E+03 .2889E+00	.1440E+03	.1000E+01	.2074E+05	.6944E-02
32	.1000E+01 .1000E+01	.1960E+03 .2887E+00	.1960E+03	.1000E+01	.3842E+05	.5102E-02
33	.1667E+00 .4630E-02	.2400E+02 .2591E+00	.4000E+01	.2778E-01	.5760E+03	.6944E-02
34	.1667E+00 .4630E-02	.5400E+02 .2653E+00	.9000E+01	.2778E-01	.2916E+04	.3086E-02
35	.1667E+00 .4630E-02	.9600E+02 .2691E+00	.1600E+02	.2778E-01	.9216E+04	.1736E-02
36	.1667E+00 .4630E-02	.1500E+03 .2716E+00	.2500E+02	.2778E-01	.2250E+05	.1111E-02
37	.2000E+00 .8000E-02	.2000E+02 .2609E+00	.4000E+01	.4000E-01	.4000E+03	.1000E-01
38	.6250E+00 .2441E+00	.1600E+03 .2845E+00	.1000E+03	.3906E+00	.2560E+05	.3906E-02
39	.5000E+00 .1250E+00	.1620E+03 .2824E+00	.8100E+02	.2500E+00	.2624E+05	.3086E-02
40	.1667E+01 .4630E+01	.6000E+02 .2962E+00	.1000E+03	.2778E+01	.3600E+04	.2778E-01
41	.2500E+01 .1563E+02	.4000E+02 .3168E+00	.1000E+03	.6250E+01	.1600E+04	.6250E-01

APPENDIX B

TABLE B-VI

VARIABLE DEFINITION AND NUMBERING FOR EQUATIONS 7, 8 AND 9

VARIABLE NO.	VARIABLE SYMBOL	DEFINITION
1	μ	Mean of $PAR/[AR_W(1 + \lambda_W)]$ over all panels
2	NP	Total number of panels
3	—	$\mu \times NP$
4	μ^2	$\mu \times \mu$
5	NP2	$NP \times NP$
6	—	μ/NP
7	μ^3	$\mu \times \mu \times \mu$
8	$C\theta$	$\sqrt{1 - \eta^2}$ where η is the non-dimensional spanwise station, $2Y/b$
9	$C\theta^3$	$(C\theta)^3$
10	$C\theta^5$	$(C\theta)^5$
11	$(x_{a,c})'$	$X_{a,c}/(AR_W \tan \Lambda_{LE})$
12	$(\partial C_L / \partial \alpha)'$	$\frac{57.3}{\pi AR_W} \left(\frac{C}{\bar{C}} \right) \frac{\partial C_L}{\partial \alpha} (\eta)$ where

C is chord length at station η and
 $\bar{C}$ is the mean chord length of the wing.

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8, & 9

STEP-WISE MULTIPLE REGRESSION.....AQ&CLT

NUMBER OF OBSERVATIONS 317
NUMBER OF VARIABLES 12
NUMBER OF SELECTIONS 12

CONSTANT TO LIMIT VARIABLES 0.00000							
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.9980E+00
.9941E+03	.9903E+00	.1200E+00	.2766E+00				
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.9823E+00
.9477E+00	.9144E+00	.1123E+00	.2851E+00				
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.9499E+00
.8572E+00	.7734E+00	.1089E+00	.2907E+00				
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.8992E+00
.7271E+00	.5879E+00	.1066E+00	.2918E+00				
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.8268E+00
.5652E+00	.3864E+00	.1041E+00	.2858E+00				
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.7262E+00
.3829E+00	.2019E+00	.1001E+00	.2720E+00				
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.5830E+00
.1981E+00	.6733E-01	.9300E-01	.2399E+00				
.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02	.3815E-02	.3480E+00
.4214E-01	.5103E-02	.8013E-01	.1735E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.9987E+00
.9963E+00	.9938E+00	.1152E+00	.2847E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.9887E+00
.9664E+00	.9447E+00	.1067E+00	.2924E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.9682E+00
.9077E+00	.8510E+00	.1025E+00	.2985E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.9367E+00
.8223E+00	.7213E+00	.9993E-01	.3019E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.8930E+00
.7122E+00	.5680E+00	.9787E-01	.3019E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.8352E+00
.5825E+00	.4063E+00	.9550E-01	.2975E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.7599E+00
.4389E+00	.2534E+00	.9217E-01	.2866E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.6614E+00
.2894E+00	.1266E+00	.8697E-01	.2658E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.5268E+00
.1462E+00	.4057E-01	.7877E-01	.2288E+00				
.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02	.8000E-02	.3122E+00
.3044E-01	.2968E-02	.6623E-01	.1621E+00				
.2500E+00	.1600E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01	.1563E-01	.9922E+00
.9767E+00	.9614E+00	.1187E+00	.2803E+00				
.2500E+00	.1600E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01	.1563E-01	.9270E+00
.7967E+00	.6846E+00	.1130E+00	.2894E+00				
.2500E+00	.1600E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01	.1563E-01	.7806E+00
.4757E+00	.2899E+00	.1090E+00	.2805E+00				
.2500E+00	.1600E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01	.1563E-01	.4841E+00
.1135E+00	.2659E-01	.9860E-01	.2263E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.9987E+00
.9963E+00	.9938E+00	.1129E+00	.2888E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.9887E+00
.9664E+00	.9447E+00	.1041E+00	.2966E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.9582E+00
.9077E+00	.8510E+00	.9973E-01	.3026E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.9367E+00
.8220E+00	.7213E+00	.9710E-01	.3062E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.8930E+00
.7122E+00	.5680E+00	.9493E-01	.3062E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.8352E+00
.5825E+00	.4063E+00	.9247E-01	.3016E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.7599E+00
.4389E+00	.2534E+00	.8900E-01	.2905E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.6014E+00
.2894E+00	.1266E+00	.8360E-01	.2692E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.5268E+00
.1462E+00	.4057E-01	.7523E-01	.2316E+00				
.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02	.1563E-01	.3122E+00
.3044E-01	.2968E-02	.6257E-01	.1642E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.9994E+00
.9983E+00	.9972E+00	.1152E+00	.2387E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.9950E+00
.9850E+00	.9752E+00	.1068E+00	.2943E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.9860E+00
.9586E+00	.9320E+00	.1018E+00	.2996E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.9724E+00
.9195E+00	.8694E+00	.9867E-01	.3040E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.9539E+00
.8681E+00	.7900E+00	.9650E-01	.3070E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.9303E+00
.8052E+00	.6970E+00	.9486E-01	.3086E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.9012E+00
.7320E+00	.5946E+00	.9323E-01	.3036E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.8650E+00
.6495E+00	.4871E+00	.9160E-01	.3066E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.8239E+00
.5593E+00	.3797E+00	.8963E-01	.3020E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.7739E+00
.4635E+00	.2776E+00	.8707E-01	.2941E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.7141E+00
.3642E+00	.1857E+00	.8370E-01	.2819E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.6420E+00
.2646E+00	.1091E+00	.7910E-01	.2637E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.5528E+00
.1689E+00	.5163E-01	.7297E-01	.2371E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.4359E+00
.8282E-01	.1574E-01	.6487E-01	.1981E+00				
.2000E+00	.1800E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02	.8000E-02	.2559E+00
.1676E-01	.1098E-02	.5430E-01	.1366E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.9981E+00	.9968E+00	.1134E+00	.2914E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.9828E+00	.9716E+00	.1046E+00	.2974E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.9525E+00	.9222E+00	.9977E-01	.3031E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.9077E+00	.8510E+00	.9667E-01	.3174E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.8491E+00	.7614E+00	.9450E-01	.3103E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.7776E+00	.6576E+00	.9273E-01	.3114E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.6947E+00	.5450E+00	.9103E-01	.3104E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.6021E+00	.4293E+00	.8910E-01	.3069E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.5018E+00	.3168E+00	.8663E-01	.3001E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.3963E+00	.2138E+00	.8333E-01	.2887E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.2894E+00	.1266E+00	.7880E-01	.2711E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.1855E+00	.6036E-01	.7260E-01	.2448E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.9126E-01	.1851E-01	.6430E-01	.2053E+00				
.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02	.1563E-01	.9994E+00
.1857E-01	.1302E-02	.5327E-01	.1423E+00				
.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01	.6400E-01	.9950E+00
.9450E+00	.9752E+00	.1083E+00	.2932E+00				
.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01	.6400E-01	.9950E+00
.8681E+00	.7900E+00	.1008E+00	.3039E+00				
.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01	.6400E-01	.9950E+00
.6495E+00	.4871E+00	.9713E-01	.3037E+00				
.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01	.6400E-01	.9950E+00
.3642E+00	.1857E+00	.9147E-01	.2840E+00				
.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01	.6400E-01	.9950E+00
.8282E-01	.1574E-01	.7840E-01	.2193E+00				
.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01	.2441E+00	.9922E+00
.9767E+00	.9614E+00	.1036E+00	.3015E+00				
.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01	.2441E+00	.9922E+00
.7967E+00	.6846E+00	.9653E-01	.3115E+00				
.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01	.2441E+00	.9922E+00
.4757E+00	.2899E+00	.9147E-01	.3011E+00				
.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01	.2441E+00	.9922E+00
.1135E+00	.2659E-01	.7913E-01	.2419E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.9987E+00
.9963E+00	.9938E+00	.1264E+00	.2690E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.9987E+00
.9664E+00	.9447E+00	.1191E+00	.2759E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.9982E+00
.9077E+00	.8510E+00	.1156E+00	.2815E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.9937E+00
.8220E+00	.7213E+00	.1135E+00	.2846E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.8930E+00
.7122E+00	.5680E+00	.1118E+00	.2847E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.8352E+00
.5825E+00	.4063E+00	.1099E+00	.2809E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.7599E+00
.4389E+00	.2534E+00	.1072E+00	.2711E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.6014E+00
.2894E+00	.1266E+00	.1028E+00	.2519E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.5268E+00
.1462E+00	.4057E-01	.9540E-01	.2171E+00				
.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02	.1000E-02	.3122E+00
.3044E-01	.2968E-02	.8303E-01	.1534E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.9980E+00
.9941E+00	.9903E+00	.1106E+00	.2910E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.9932E+00
.9477E+00	.9144E+00	.1019E+00	.3002E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.9499E+00
.8572E+00	.7734E+00	.9793E-01	.3061E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.8992E+00
.7271E+00	.5879E+00	.9523E-01	.3072E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.8268E+00
.5652E+00	.3864E+00	.9227E-01	.3016E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.7262E+00
.3829E+00	.2019E+00	.8767E-01	.2854E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.5930E+00
.1981E+00	.6733E-01	.7970E-01	.2511E+00				
.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02	.3052E-01	.3480E+00
.4214E-01	.5103E-02	.6623E-01	.1818E+00				
.8000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01	.5120E+00	.9950E+00
.3850E+00	.9752E+00	.1017E+00	.3048E+00				
.8000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01	.5120E+00	.9539E+00
.8681E+00	.7900E+00	.9363E-01	.3159E+00				
.8000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01	.5120E+00	.8660E+00
.6495E+00	.4871E+00	.8947E-01	.3155E+00				
.8000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01	.5120E+00	.7141E+00
.3642E+00	.1857E+00	.8323E-01	.2942E+00				
.8000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01	.5120E+00	.4359E+00
.8282E-01	.1574E-01	.6927E-01	.2265E+00				
.7813E-01	.8090E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03	.4768E-03	.9995E+00
.9985E+00	.9976E+00	.1259E+00	.2716E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03	.4768E-03	.9956E+00
.9869E+00	.9781E+00	.1187E+00	.2761E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.7813E-01	.8000E+02	.5250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.9877E+00
.9636E+00	.9400E+00	.1144E+00	.2908E+00				
.7813E-01	.8000E+02	.6250E+01	.5116E-02	.5400E+04	.9765E-03	.4768E-03	.9758E+00
.9291E+00	.8846E+00	.1116E+00	.2947E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.9595E+00
.8837E+00	.8138E+00	.1097E+00	.2877E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.9390E+00
.8280E+00	.7302E+00	.1083E+00	.2896E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.9137E+00
.7629E+00	.6370E+00	.1071E+00	.2902E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.8833E+00
.6892E+00	.5377E+00	.1059E+00	.2894E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.8472E+00
.6080E+00	.4364E+00	.1045E+00	.2868E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.8046E+00
.5209E+00	.3372E+00	.1028E+00	.2819E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.7545E+00
.4295E+00	.2445E+00	.1006E+00	.2740E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.6952E+00
.3360E+00	.1624E+00	.9763E-01	.2621E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.6242E+00
.2432E+00	.9473E-01	.9353E-01	.2446E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.5367E+00
.1546E+00	.4451E-01	.8793E-01	.2194E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.4226E+00
.7549E-01	.1348E-01	.8033E-01	.1824E+00				
.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9765E-03	.4768E-03	.2478E+00
.1522E-01	.9352E-03	.6990E-01	.1249E+00				
.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01	.1953E+01	.9922E+00
.9767E+00	.9614E+00	.9803E-01	.3118E+00				
.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01	.1953E+01	.9270E+00
.7967E+00	.8846E+00	.9043E-01	.3220E+00				
.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01	.1953E+01	.7806E+00
.4757E+00	.2899E+00	.8490E-01	.3108E+00				
.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01	.1953E+01	.4841E+00
.1135E+00	.2659E-01	.7177E-01	.2488E+00				
.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01	.1563E-01	.9950E+00
.9850E+00	.9752E+00	.1157E+00	.2825E+00				
.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01	.1563E-01	.9539E+00
.8681E+00	.7900E+00	.1090E+00	.2927E+00				
.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01	.1563E-01	.8660E+00
.6495E+00	.4871E+00	.1056E+00	.2927E+00				
.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01	.1563E-01	.7141E+00
.3642E+00	.1857E+00	.1006E+00	.2741E+00				
.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01	.1563E-01	.4359E+00
.8282E-01	.1574E-01	.9840E-01	.2121E+00				
.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02	.1563E-01	.9955E+00
.9895E+00	.9827E+00	.1141E+00	.2843E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02	.1563E-01	.9682E+00
.9077E+00	.8510E+00	.1067E+00	.2944E+00				
.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02	.1563E-01	.9090E+00
.7512E+00	.6208E+00	.1033E+00	.2979E+00				
.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02	.1563E-01	.8123E+00
.5359E+00	.3536E+00	.9997E-01	.2912E+00				
.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02	.1563E-01	.6614E+00
.2894E+00	.1266E+00	.9380E-01	.2658E+00				
.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02	.1563E-01	.3996E+00
.6380E-01	.1019E-01	.8073E-01	.1997E+00				
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.9974E+00
.9924E+00	.3873E+00	.1134E+00	.2857E+00				
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.9768E+00
.9319E+00	.3891E+00	.1053E+00	.2353E+00				
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.9341E+00
.8150E+00	.7110E+00	.1018E+00	.3004E+00				
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.8660E+00
.6495E+00	.4871E+00	.9900E-01	.2989E+00				
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.7650E+00
.4494E+00	.2636E+00	.9513E-01	.2871E+00				
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.6186E+00
.2367E+00	.9359E-01	.8807E-01	.2568E+00				
.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02	.1563E-01	.3711E+00
.5110E-01	.7036E-02	.7473E-01	.1889E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.9980E+00
.9941E+00	.9903E+00	.1130E+00	.2869E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.9823E+00
.9477E+00	.9144E+00	.1046E+00	.2959E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.9499E+00
.8572E+00	.7734E+00	.1007E+00	.3017E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.8992E+00
.7271E+00	.5879E+00	.9817E-01	.3029E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.8258E+00
.5652E+00	.3864E+00	.9533E-01	.2975E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.7262E+00
.3829E+00	.2019E+00	.9090E-01	.2817E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.5820E+00
.1981E+00	.6733E-01	.8317E-01	.2480E+00				
.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02	.1563E-01	.3480E+00
.4214E-01	.5107E-02	.6990E-01	.1795E+00				
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.9985E+00
.9954E+00	.9923E+00	.1128E+00	.2879E+00				
.2500E+00	.9100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.9850E+00
.9586E+00	.9320E+00	.1042E+00	.2963E+00				
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.9606E+00
.9865E+00	.8181E+00	.1001E+00	.3025E+00				
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.9213E+00
.7819E+00	.6637E+00	.9753E-01	.3050E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.8660E+00
.6495E+00	.4871E+00	.9517E-01	.3030E+00				
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.7915E+00
.4950E+00	.3107E+00	.9203E-01	.2944E+00				
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.6917E+00
.3309E+00	.1583E+00	.8707E-01	.2756E+00				
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.5528E+00
.1689E+00	.5163E-01	.7893E-01	.2395E+00				
.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02	.1563E-01	.3288E+00
.3555E-01	.3843E-02	.6590E-01	.1714E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.9990E+00
.9969E+00	.9948E+00	.1129E+00	.2895E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.9907E+00
.9722E+00	.9541E+00	.1042E+00	.2969E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.9738E+00
.9235E+00	.8758E+00	.9957E-01	.3030E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.9480E+00
.8520E+00	.7658E+00	.9683E-01	.3069E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.9125E+00
.7598E+00	.6326E+00	.9473E-01	.3081E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.8650E+00
.6495E+00	.4871E+00	.9263E-01	.3059E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.8067E+00
.5251E+00	.3417E+00	.8997E-01	.2992E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.7315E+00
.3915E+00	.2095E+00	.8617E-01	.2459E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.6348E+00
.2558E+00	.1031E+00	.8047E-01	.2628E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.5042E+00
.1282E+00	.3258E-01	.7200E-01	.2243E+00				
.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02	.1563E-01	.2982E+00
.2652E-01	.2358E-02	.5973E-01	.1578E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.9991E+00
.9974E+00	.9957E+00	.1131E+00	.2902E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.9922E+00
.9757E+00	.9614E+00	.1043E+00	.2971E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.9781E+00
.9356E+00	.8950E+00	.9957E-01	.3031E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.9565E+00
.8751E+00	.8007E+00	.9667E-01	.3072E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.9270E+00
.7967E+00	.6846E+00	.9460E-01	.3092E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.8888E+00
.7321E+00	.5546E+00	.9267E-01	.3086E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.8406E+00
.5939E+00	.4196E+00	.9050E-01	.3046E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.7886E+00
.4757E+00	.2899E+00	.8763E-01	.2961E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.7059E+00
.3518E+00	.1753E+00	.8353E-01	.2811E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.6109E+00
.2280E+00	.8509E-01	.7760E-01	.2566E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.4841E+00
.1135E+00	.2659E-01	.6913E-01	.2175E+00				
.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02	.1563E-01	.2858E+00
.2334E-01	.1906E-02	.5727E-01	.1521E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.9993E+00
.9978E+00	.9963E+00	.1132E+00	.2908E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.9933E+00
.9801E+00	.9670E+00	.1045E+00	.2973E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2656E+05	.1479E-02	.1563E-01	.9813E+00
.9450E+00	.9101E+00	.9963E-01	.3931E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.9631E+00
.8933E+00	.9286E+00	.9663E-01	.3074E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.9382E+00
.8257E+00	.7268E+00	.9450E-01	.3099E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.9061E+00
.7439E+00	.6107E+00	.9270E-01	.3103E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.8650E+00
.6495E+00	.4871E+00	.9083E-01	.3081E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.8168E+00
.5450E+00	.7636E+00	.8853E-01	.3026E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.7567E+00
.4332E+00	.2480E+00	.8543E-01	.2925E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.6826E+00
.3180E+00	.1412E+00	.8110E-01	.2761E+00				
.2500E+00	.1590E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.5896E+00
.2050E+00	.7125E-01	.7500E-01	.2505E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.4654E+00
.1014E+00	.2206E-01	.6657E-01	.2112E+00				
.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02	.1563E-01	.2748E+00
.2075E-01	.1567E-02	.5513E-01	.1469E+00				
.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01	.1000E+01	.9950E+00
.9850E+00	.9752E+00	.1003E+00	.3076E+00				
.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01	.1000E+01	.9539E+00
.9681E+00	.7900E+00	.9210E-01	.3188E+00				
.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01	.1000E+01	.8650E+00
.6495E+00	.4971E+00	.8783E-01	.3182E+00				
.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01	.1000E+01	.7141E+00
.3642E+00	.1857E+00	.8143E-01	.2966E+00				
.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01	.1000E+01	.4359E+00
.8282E-01	.1574E-01	.6727E-01	.2280E+00				
.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01	.3815E+01	.9922E+00
.9767E+00	.9614E+00	.9687E-01	.3143E+00				
.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01	.3815E+01	.9270E+00
.7967E+00	.6846E+00	.8913E-01	.3246E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01	.1815E+01	.7805E+00
.4757E+00	.2899E+00	.8347E-01	.3131E+00				
.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01	.1815E+01	.4841E+00
.1135E+00	.2659E-01	.7013E-01	.2503E+00				
.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01	.1250E+00	.9922E+00
.9767E+00	.9614E+00	.1062E+00	.2971E+00				
.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01	.1250E+00	.9270E+00
.7967E+00	.6846E+00	.9940E-01	.3070E+00				
.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01	.1250E+00	.7806E+00
.4757E+00	.2899E+00	.9453E-01	.2969E+00				
.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01	.1250E+00	.4841E+00
.1135E+00	.2659E-01	.8257E-01	.2389E+00				
.5000E+00	.3200E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01	.1250E+00	.9950E+00
.9850E+00	.9752E+00	.1057E+00	.2974E+00				
.5000E+00	.3200E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01	.1250E+00	.9539E+00
.8681E+00	.7900E+00	.9803E-01	.3083E+00				
.5000E+00	.3200E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01	.1250E+00	.8660E+00
.6495E+00	.4871E+00	.9413E-01	.3080E+00				
.5000E+00	.3200E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01	.1250E+00	.7141E+00
.3642E+00	.1857E+00	.8827E-01	.2878E+00				
.5000E+00	.3200E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01	.1250E+00	.4359E+00
.8282E-01	.1574E-01	.7487E-01	.2220E+00				
.5000E+00	.3200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02	.1250E+00	.9965E+00
.9896E+00	.9327E+00	.1055E+00	.2977E+00				
.5000E+00	.3200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02	.1250E+00	.9682E+00
.9077E+00	.9510E+00	.9753E-01	.3083E+00				
.5000E+00	.3200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02	.1250E+00	.9090E+00
.7512E+00	.6208E+00	.9373E-01	.3121E+00				
.5000E+00	.3200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02	.1250E+00	.8123E+00
.5359E+00	.3536E+00	.8987E-01	.3045E+00				
.5000E+00	.3200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02	.1250E+00	.6614E+00
.2894E+00	.1266E+00	.8293E-01	.2771E+00				
.5000E+00	.3200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02	.1250E+00	.3996E+00
.6380E-01	.1019E-01	.6893E-01	.2078E+00				
.5000E+00	.3200E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.9974E+00
.9924E+00	.9873E+00	.1903E+00	.2979E+00				
.5000E+00	.3200E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.9768E+00
.9319E+00	.9891E+00	.9750E-01	.3080E+00				
.5000E+00	.3200E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.9341E+00
.8150E+00	.7110E+00	.9343E-01	.3134E+00				
.5000E+00	.3200E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.8660E+00
.6495E+00	.4871E+00	.9040E-01	.3116E+00				
.5000E+00	.3200E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.7660E+00
.4494E+00	.2636E+00	.9607E-01	.2987E+00				
.5000E+00	.3200E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.6186E+00
.2367E+00	.9059E-01	.7827E-01	.2665E+00				
.5000E+00	.3200E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02	.1250E+00	.3711E+00
.5110E-01	.7036E-02	.6423E-01	.1958E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.9980E+00
.9941E+00	.3903E+00	.1668E+00	.2982E+00				
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.9923E+00
.9477E+00	.9144E+00	.9777E-01	.3078E+00				
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.9999E+00
.8572E+00	.7734E+00	.9353E-01	.1236E+00				
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.8992E+00
.7271E+00	.5979E+00	.9063E-01	.3146E+00				
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.8258E+00
.5652E+00	.7864E+00	.9747E-01	.3088E+00				
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.7262E+00
.3829E+00	.2019E+00	.8257E-01	.2318E+00				
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.5130E+00
.1991E+00	.6733E-01	.7423E-01	.2564E+00				
.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02	.1250E+00	.3480E+00
.4214E-01	.5103E-02	.6040E-01	.1855E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.9980E+00
.9941E+00	.9903E+00	.1058E+00	.3002E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.9823E+00
.9477E+00	.9144E+00	.9663E-01	.3098E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.9499E+00
.8572E+00	.7734E+00	.9230E-01	.3159E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.8992E+00
.7271E+00	.5979E+00	.8977E-01	.3169E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.8258E+00
.5652E+00	.7864E+00	.8613E-01	.3108E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.7262E+00
.3829E+00	.2019E+00	.8113E-01	.2936E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.5830E+00
.1991E+00	.6733E-01	.7270E-01	.2579E+00				
.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02	.2093E+00	.3480E+00
.4214E-01	.5103E-02	.5877E-01	.1865E+00				
.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01	.1000E+01	.9922E+00
.3757E+00	.9614E+00	.9947E-01	.2969E+00				
.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01	.1000E+01	.9270E+00
.7967E+00	.6846E+00	.9203E-01	.3192E+00				
.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01	.1000E+01	.7805E+00
.4757E+00	.2899E+00	.8660E-01	.3080E+00				
.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01	.1000E+01	.4841E+00
.1135E+00	.2059E-01	.7370E-01	.2469E+00				
.1000E+01	.1440E+03	.1440E-03	.1000E+01	.2074E+05	.6944E-02	.1000E+01	.9965E+00
.9896E+00	.1227E+00	.1114E+00	.3068E+00				
.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02	.1000E+01	.9582E+00
.9077E+00	.8510E+00	.9257E-01	.3177E+00				
.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02	.1000E+01	.9090E+00
.7512E+00	.6208E+00	.8847E-01	.3212E+00				
.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02	.1000E+01	.8123E+00
.5359E+00	.3536E+00	.8427E-01	.3131E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.1000E+01	.1440E+03	.1440E+03	.1000E+01	2074E+05	.6944E-02	.1000E+01	.6014E+00
.2894E+00	.1266E+00	.7683E-01	.2342E+00				
.1000E+01	.1440E+03	.1440E+03	.1700E+01	.2074E+05	.6944E-02	.1000E+01	.3996E+00
.6380E-01	.1019E-01	.6230E-01	.2128E+00				
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.9974E+00
.9924E+00	.9873E+00	.1025E+00	.3060E+00				
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.9758E+00
.9319E+00	.8891E+00	.9327E-01	.3164E+00				
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.9341E+00
.8150E+00	.7110E+00	.8900E-01	.3217E+00				
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.8660E+00
.6495E+00	.4871E+00	.8563E-01	.3194E+00				
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.7650E+00
.4494E+00	.2636E+00	.3097E-01	.3060E+00				
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.6186E+00
.2367E+00	.9059E-01	.7277E-01	.2725E+00				
.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02	.1000E+01	.3711E+00
.5110E-01	.7036E-02	.5830E-01	.1999E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02	.4630E-02	.9965E+00
.9896E+00	.9827E+00	.1220E+00	.2741E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02	.4630E-02	.9582E+00
.9077E+00	.8519E+00	.1133E+00	.2837E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02	.4630E-02	.9090E+00
.7512E+00	.6208E+00	.1124E+00	.2970E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02	.4630E-02	.8123E+00
.5359E+00	.3536E+00	.1095E+00	.2807E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.5944E-02	.4630E-02	.6614E+00
.2894E+00	.1266E+00	.1040E+00	.2566E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02	.4630E-02	.3996E+00
.6380E-01	.1019E-01	.9160E-01	.1928E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.9385E+00
.9954E+00	.9923E+00	.1180E+00	.2797E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.9850E+00
.9586E+00	.9320E+00	.1100E+00	.2878E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.9608E+00
.8865E+00	.8181E+00	.1081E+00	.2936E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.9213E+00
.7819E+00	.6637E+00	.1038E+00	.2961E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.8661E+00
.5495E+00	.4871E+00	.1016E+00	.2944E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.7916E+00
.4960E+00	.3107E+00	.9877E-01	.2863E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.6917E+00
.3309E+00	.1583E+00	.9417E-01	.2683E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.5528E+00
.1689E+00	.5163E-01	.8647E-01	.2335E+00				
.1667E+00	.2400E+02	.4000E+01	.2778E-01	.2916E+04	.3086E-02	.4630E-02	.3288E+00
.3555E-01	.3843E-02	.7373E-01	.1668E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.9991E+00
.9974E+00	.3957E+00	.1169E+00	.2832E+00				
.1667E+00	.9600E+02	.1500E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.9922E+00
.9767E+00	.9614E+00	.1086E+00	.2998E+00				
.1067E+00	.9600E+02	.1000E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.9781E+00
.9356E+00	.9950E+00	.1041E+00	.2956E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.9565E+00
.9751E+00	.9807E+00	.1014E+00	.2997E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.9276E+00
.7967E+00	.9846E+00	.9943E-01	.3017E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.8888E+00
.7021E+00	.9546E+00	.9767E-01	.3012E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.8406E+00
.5939E+00	.4196E+00	.9567E-01	.2974E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.7806E+00
.4757E+00	.2899E+00	.9297E-01	.2893E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.7059E+00
.3518E+00	.1707E+00	.8910E-01	.2749E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.6109E+00
.2280E+00	.8509E-01	.8343E-01	.2512E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.4841E+00
.1135E+00	.2659E-01	.7523E-01	.2130E+00				
.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02	.4630E-02	.2858E+00
.2334E-01	.1906E-02	.6350E-01	.1487E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.9994E+00
.9983E+00	.9972E+00	.1167E+00	.2457E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.9950E+00
.9357E+00	.9752E+00	.1085E+00	.2913E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.9860E+00
.9586E+00	.9320E+00	.1036E+00	.2965E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.9724E+00
.9195E+00	.8694E+00	.1005E+00	.3009E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.9539E+00
.8681E+00	.7900E+00	.9840E-01	.3037E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.9303E+00
.8052E+00	.6970E+00	.9673E-01	.3055E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.9112E+00
.7320E+00	.5946E+00	.9523E-01	.3055E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.8660E+00
.6495E+00	.4871E+00	.9363E-01	.3035E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.8239E+00
.5593E+00	.3797E+00	.9173E-01	.2989E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.7739E+00
.4835E+00	.2776E+00	.8927E-01	.2913E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.7141E+00
.3642E+00	.1957E+00	.8597E-01	.2794E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.6420E+00
.2646E+00	.1091E+00	.8147E-01	.2614E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-12	.4630E-02	.5528E+00
.1689E+00	.5163E-01	.7543E-01	.2351E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.4359E+00
.8282E-01	.1574E-01	.5740E-01	.1964E+00				
.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02	.4630E-02	.2559E+00
.1676E-01	.1098E-02	.5683E-01	.353E+00				
.2000E+00	.2700E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01	.8000E-02	.9950E+00
.9850E+00	.9752E+00	.1205E+00	.2766E+00				
.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01	.8000E-02	.9539E+00
.8681E+00	.7900E+00	.1142E+00	.2865E+00				
.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01	.8000E-02	.8660E+00
.6495E+00	.4471E+00	.1112E+00	.2865E+00				
.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01	.8000E-02	.7141E+00
.3642E+00	.1857E+00	.1065E+00	.2685E+00				
.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01	.8000E-02	.4359E+00
.8282E-01	.1574E-01	.9480E-01	.2078E+00				
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.9980E+00
.9941E+00	.9907E+00	.1055E+00	.3009E+00				
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.9823E+00
.9477E+00	.9144E+00	.9630E-01	.3106E+00				
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.9499E+00
.8572E+00	.7734E+00	.3197E-01	.3166E+00				
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.8992E+00
.7271E+00	.5879E+00	.8903E-01	.3174E+00				
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.8258E+00
.5652E+00	.3964E+00	.8577E-01	.3113E+00				
.5256E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.7262E+00
.3829E+00	.2019E+00	.8077E-01	.2941E+00				
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.5830E+00
.1981E+00	.6733E-01	.7230E-01	.2581E+00				
.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02	.2441E+00	.3480E+00
.4214E-01	.5107E-02	.5533E-01	.1968E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.9985E+00
.9954E+00	.9923E+00	.1074E+00	.2984E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.9860E+00
.9585E+00	.9320E+00	.9817E-01	.3073E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.9606E+00
.9865E+00	.8181E+00	.9370E-01	.3136E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.9213E+00
.7819E+00	.6637E+00	.9083E-01	.3161E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.8560E+00
.5495E+00	.4871E+00	.8820E-01	.3136E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.7916E+00
.4960E+00	.3107E+00	.8473E-01	.3045E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.6911E+00
.3309E+00	.1587E+00	.7933E-01	.2845E+00				
.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.5528E+00
.1689E+00	.5163E-01	.7071E-01	.2468E+00				

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

.5000E+00	.1620E+03	.8106E+02	.2500E+00	.2624E+05	.3086E-02	.1250E+00	.3288E+00
.3555E-01	.3843E-02	.5723E-01	.1766E+00				
.1667E+01	.6000E+02	.1000E+03	.2778E+01	.3600E+04	.2778E-01	.4630E+01	.9850E+00
.9586E+00	.9320E+00	.9540E-01	.3190E+00				
.1667E+01	.6000E+02	.1000E+03	.2778E+01	.3600E+04	.2778E-01	.4630E+01	.9850E+00
.6495E+00	.4871E+00	.8830E-01	.3232E+00				
.1667E+01	.6000E+02	.1000E+03	.2778E+01	.3600E+04	.2778E-01	.4630E+01	.9850E+00
.1689E+00	.5163E-01	.7730E-01	.2760E+00				
.2500E+01	.4000E+02	.1000E+03	.6250E+01	.1600E+04	.6250E-01	.1563E+02	.9682E+00
.9077E+00	.9510E+00	.9250E-01	.3283E+00				
.2500E+01	.4000E+02	.1000E+03	.6250E+01	.1600E+04	.6250E-01	.1563E+02	.9682E+00
.2894E+00	.1265E+00	.8377E-01	.3083E+00				

VARIABLE NO.	MEAN	STANDARD DEVIATION
1	.39353E+00	.35907E+00
2	.10242E+03	.52892E+02
3	.41190E+02	.41230E+02
4	.28339E+00	.66421E+00
5	.13278E+05	.11713E+05
6	.52158E-02	.65281E-02
7	.33074E+00	.13967E+01
8	.78969E+00	.21198E+00
9	.58950E+00	.33153E+00
10	.49011E+00	.35907E+00
11	.92723E-01	.14737E-01
12	.27732E+00	.41901E-01

CORRELATION MATRIX

ROW	1	2	3	4	5	6	7	8	9	10
1	1.0000	.0467	.7757	.9220	.0285	.7711				
2	.0467	1.0000	.5181	-.0391	-.0391	.9776				
3	-.0835	-.0076	1.0000	.5879	.5879	-.3419				
4	.7757	.5181	.5879	1.0000	1.0000	-.0479				
5	.0285	-.0391	.5879	.5879	1.0000	-.1562				
6	.7711	-.0391	-.0479	-.0479	-.1562	1.0000				
7	.9776	.5879	.5879	.5879	.5879	.9776				
8	-.3419	-.0479	-.0479	-.0479	-.1562	-.3419	1.0000			
9	.0285	-.0391	.5879	.5879	.5879	.9776	.9776	1.0000		
10	.0467	-.0076	.5879	.5879	.5879	.9776	.9776	.9776	1.0000	

APPENDIX B
TABLE B-VII
INPUT STATISTICS FOR EQUATIONS 7, 8 & 9 (Cont'd)

11	-.2434	-.2529	-.3419	-.1562	-.3196	-.0055
	-.0955	.8466	.9344	.8063	1.0000	.6250
12	.2260	.0725	.1980	.1828	.0635	.1481
	.1432	.8897	.7685	.6636	.6250	1.0000

APPENDIX B

TABLE B-VIII

COMPUTATION OF COEFFICIENTS FOR EQUATION 7

SELECTION..... 5

DEPENDENT VARIABLE.....11
NUMBER OF VARIABLES FORCED.... 0
NUMBER OF VARIABLES DELETED... 1

STEP 1

VARIABLE ENTERED..... 8

SUM OF SQUARES REDUCED IN THIS STEP.... .49189E-01
PROPORTION REDUCED IN THIS STEP..... .71670

CUMULATIVE SUM OF SQUARES REDUCED..... .49189E-01
CUMULATIVE PROPORTION REDUCED..... .71670 OF .68633E-01

FOR 1 VARIABLES ENTERED
MULTIPLE CORRELATION COEFFICIENT... .84658
(ADJUSTED FOR D.F.)..... .84658E+00
F-VALUE FOR ANALYSIS OF VARIANCE... .79691E+03
STANDARD ERROR OF ESTIMATE..... .78565E-02
(ADJUSTED FOR D.F.)..... .78565E-02

VARIABLE	REGRESSION	STD. ERROR OF	COMPUTED
NUMBER	COEFFICIENT	REG. COEFF.	T-VALUE
8	.588561E-01	.208491E-02	28.230
INTERCEPT	.462449E-01		

STEP 2

VARIABLE ENTERED..... 2

SUM OF SQUARES REDUCED IN THIS STEP.... .85187E-02
PROPORTION REDUCED IN THIS STEP..... .12412

CUMULATIVE SUM OF SQUARES REDUCED..... .57708E-01
CUMULATIVE PROPORTION REDUCED..... .84082 OF .68633E-01

FOR 2 VARIABLES ENTERED
MULTIPLE CORRELATION COEFFICIENT... .91697
(ADJUSTED FOR D.F.)..... .91669E+00
F-VALUE FOR ANALYSIS OF VARIANCE... .82934E+03
STANDARD ERROR OF ESTIMATE..... .38984E-02
(ADJUSTED FOR D.F.)..... .59078E-02

VARIABLE	REGRESSION	STD. ERROR OF	COMPUTED
NUMBER	COEFFICIENT	REG. COEFF.	T-VALUE
8	.586656E-01	.156534E-02	37.478
2	-.981675E-04	.627362E-05	-15.649
INTERCEPT	.564496E-01		

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

STEP 3

VARIABLE ENTERED..... 1

SUM OF SQUARES REDUCED IN THIS STEP....	.38872E-02	
PROPORTION REDUCED IN THIS STEP.....	.05664	
CUMULATIVE SUM OF SQUARES REDUCED.....	.61595E-01	
CUMULATIVE PROPORTION REDUCED.....	.89746 OF	.68633E-01
FOR 3 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.94735	
(ADJUSTED FOR D.F.).....	.94700E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.91319E+03	
STANDARD ERROR OF ESTIMATE.....	.47417E-02	
(ADJUSTED FOR D.F.).....	.47568E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.588838E-01	.125946E-02	46.790
2	-.950597E-04	.504892E-05	-13.828
1	-.977939E-02	.743745E-03	-13.149
INTERCEPT	.598074E-01		

STEP 4

VARIABLE ENTERED..... 5

SUM OF SQUARES REDUCED IN THIS STEP....	.11048E-02	
PROPORTION REDUCED IN THIS STEP.....	.01610	
CUMULATIVE SUM OF SQUARES REDUCED.....	.62700E-01	
CUMULATIVE PROPORTION REDUCED.....	.91356 OF	.68633E-01
FOR 4 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.95580	
(ADJUSTED FOR D.F.).....	.95537E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.82436E+03	
STANDARD ERROR OF ESTIMATE.....	.43606E-02	
(ADJUSTED FOR D.F.).....	.43814E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.589510E-01	.115732E-02	50.851
2	-.259852E-03	.221123E-04	-11.751
1	-.957211E-02	.686261E-03	-13.628
5	.760553E-06	.997779E-07	7.622
INTERCEPT	.664432E-01		

APPENDIX B

TABLE B-VIII

COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

STEP 5

VARIABLE ENTERED..... 4

SUM OF SQUARES REDUCED IN THIS STEP....	.60179E-03	
PROPORTION REDUCED IN THIS STEP.....	.00877	
CUMULATIVE SUM OF SQUARES REDUCED.....	.63302E-01	
CUMULATIVE PROPORTION REDUCED.....	.92233 OF	.68633E-01

FOR 5 VARIABLES ENTERED	
MULTIPLE CORRELATION COEFFICIENT...	.96038
(ADJUSTED FOR D.F.).....	.95986E+00
F-VALUE FOR ANALYSIS OF VARIANCE...	.73861E+03
STANDARD ERROR OF ESTIMATE.....	.41401E-02
(ADJUSTED FOR D.F.).....	.41666E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.588410E-01	.109882E-02	53.549
2	-.244707E-03	.211495E-04	-11.570
1	-.188128E-01	.172450E-02	-10.909
5	.716945E-06	.950194E-07	7.545
4	.550951E-02	.929836E-03	5.925
INTERCEPT	.676417E-01		

STEP 6

VARIABLE ENTERED..... 3

SUM OF SQUARES REDUCED IN THIS STEP....	.66179E-03	
PROPORTION REDUCED IN THIS STEP.....	.00954	
CUMULATIVE SUM OF SQUARES REDUCED.....	.63964E-01	
CUMULATIVE PROPORTION REDUCED.....	.93197 OF	.68633E-01

FOR 5 VARIABLES ENTERED	
MULTIPLE CORRELATION COEFFICIENT...	.96539
(ADJUSTED FOR D.F.).....	.96482E+00
F-VALUE FOR ANALYSIS OF VARIANCE...	.70782E+03
STANDARD ERROR OF ESTIMATE.....	.38809E-02
(ADJUSTED FOR D.F.).....	.39120E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.588653E-01	.103002E-02	57.150
2	-.256284E-03	.199019E-04	-12.877
1	-.352061E-01	.295452E-02	-11.916
5	.604633E-06	.906664E-07	6.669
4	.965308E-02	.107259E-02	9.000
3	.106774E-03	.161077E-04	6.629
INTERCEPT	.711787E-01		

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

STEP 9

VARIABLE ENTERED..... 7

SUM OF SQUARES REDUCED IN THIS STEP....	.34049E-03	
PROPORTION REDUCED IN THIS STEP.....	.J0496	
CUMULATIVE SUM OF SQUARES REDUCED.....	.65034E-01	
CUMULATIVE PROPORTION REDUCED.....	.95631 OF	.68633E-01
FOR 9 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.97791	
(ADJUSTED FOR D.F.).....	.97733E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.74657E+03	
STANDARD ERROR OF ESTIMATE.....	.31254E-02	
(ADJUSTED FOR D.F.).....	.31057E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.134348E+01	.921202E-02	14.584
2	-.25F172E-03	.160517E-04	-15.897
1	-.49C169E-01	.324017E-02	-15.128
5	.652155E-06	.738581E-07	8.830
4	.300518E-01	.352615E-02	8.523
3	.832943E-04	.136686E-04	6.094
10	.861169E-01	.811543E-02	10.611
9	-.138048E+00	.141456E-01	-9.759
7	-.633883E-02	.107366E-02	-5.904
INTERCEPT	.526570E-01		

STEP 10

VARIABLE ENTERED..... 6

SUM OF SQUARES REDUCED IN THIS STEP....	.77001E-04	
PROPORTION REDUCED IN THIS STEP.....	.00112	
CUMULATIVE SUM OF SQUARES REDUCED.....	.65711E-01	
CUMULATIVE PROPORTION REDUCED.....	.95743 OF	.68633E-01
FOR 10 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.97848	
(ADJUSTED FOR D.F.).....	.97784E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.58818E+03	
STANDARD ERROR OF ESTIMATE.....	.30901E-02	
(ADJUSTED FOR D.F.).....	.31350E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.133938E+00	.910897E-02	14.704
2	-.184406E-03	.295441E-04	-6.242

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

1	-.640692E-01	.619342E-02	-10.345
5	.368197E-06	.123818E-06	2.974
4	.368751E-01	.423408E-02	8.709
3	.127828E-03	.207016E-04	6.175
10	.058019E-01	.802441E-02	10.693
9	-.137458E+00	.139871E-01	-9.828
7	-.885823E-02	.138344E-02	-6.403
6	.490105E+00	.172587E+00	2.840
INTERCEPT	.497430E-01		

SELECTION..... 5

TABLE OF RESIDUALS

CASE NO.	Y VALUE	Y ESTIMATE	RESIDUAL	RESIDUAL%
1	.120000E+00	.118514E+00	.148638E-02	.123865E+01
2	.112300E+00	.116272E+00	-.397203E-02	-.353699E+01
3	.108867E+00	.112295E+00	-.342857E-02	-.314933E+01
4	.106600E+00	.107464E+00	-.863541E-03	-.810076E+00
5	.104067E+00	.102724E+00	.134221E-02	.128976E+01
6	.100100E+00	.984763E-01	.162369E-02	.162207E+01
7	.930000E-01	.931497E-01	-.149742E-03	-.161013E+00
8	.801333E-01	.777798E-01	.235451E-02	.293823E+01
9	.115200E+00	.111301E+00	.399851E-02	.339412E+01
10	.106700E+00	.107842E+00	-.314156E-02	-.294430E+01
11	.102500E+00	.107135E+00	-.463455E-02	-.452152E+01
12	.999333E-01	.103573E+00	-.363935E-02	-.364178E+01
13	.978667E-01	.996546E-01	-.178796E-02	-.182693E+01
14	.955000E-01	.958571E-01	-.357071E-03	-.373897E+00
15	.921667E-01	.924123E-01	-.245670E-03	-.266549E+00
16	.869667E-01	.888846E-01	-.191793E-02	-.220532E+01
17	.787667E-01	.831525E-01	-.438388E-02	-.556566E+01
18	.662333E-01	.670997E-01	-.866382E-03	-.130808E+01
19	.118733E+00	.122332E+00	-.359908E-02	-.303123E+01
20	.113000E+00	.114603E+00	-.160347E-02	-.141900E+01
21	.109033E+00	.105244E+00	.378932E-02	.347538E+01
22	.986000E-01	.927322E-01	.586776E-02	.595108E+01
23	.112867E+00	.107648E+00	.521865E-02	.462373E+01
24	.104100E+00	.106188E+00	-.208808E-02	-.200585E+01
25	.997333E-01	.103481E+00	-.374774E-02	-.375775E+01
26	.971000E-01	.999192E-01	-.281921E-02	-.290341E+01
27	.949333E-01	.963011E-01	-.136781E-02	-.112480E+01
28	.924667E-01	.922036E-01	.263075E-03	.284508E+00
29	.890000E-01	.887589E-01	.241143E-03	.270947E+00
30	.836000E-01	.852311E-01	-.163108E-02	-.195106E+01
31	.752333E-01	.794971E-01	-.426374E-02	-.566735E+01
32	.625667E-01	.634462E-01	-.979569E-03	-.140581E+01
33	.115167E+00	.104414E+00	.107526E-01	.933652E+01
34	.106800E+00	.103754E+00	.304616E-02	.285221E+01
35	.101800E+00	.102476E+00	-.675919E-03	-.663967E+00
36	.986667E-01	.100667E+00	-.200021E-02	-.202724E+01

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

37	.965000E-01	.984390E-01	-.193898E-02	-.200931E+01
38	.948000E-01	.959374E-01	-.113744E-02	-.119983E+01
39	.932333E-01	.933203E-01	-.859650E-04	-.932768E-01
40	.916000E-01	.907253E-01	.87+662E-03	.954871E+00
41	.896333E-01	.882659E-01	.136739E-02	.152554E+01
42	.870667E-01	.859771E-01	.108958E-02	.125143E+01
43	.837000E-01	.837403E-01	-.403496E-04	-.482074E-01
44	.791000E-01	.811894E-01	-.208943E-02	-.264150E+01
45	.729667E-01	.774666E-01	-.449993E-02	-.616711E+01
46	.648667E-01	.705643E-01	-.569759E-02	-.878354E+01
47	.543000E-01	.542829E-01	.171420E-04	.315690E-01
48	.113433E+00	.102967E+00	.104661E-01	.922662E+01
49	.104800E+00	.102212E+00	.258837E-02	.246982E+01
50	.997667E-01	.100754E+00	-.987712E-03	-.990022E+00
51	.966667E-01	.987085E-01	-.204183E-02	-.211224E+01
52	.945000E-01	.962245E-01	-.172448E-02	-.182484E+01
53	.927333E-01	.934792E-01	-.7+5874E-03	-.804321E+00
54	.910333E-01	.906687E-01	.364627E-03	.406542E+00
55	.891000E-01	.879533E-01	.114673E-02	.128701E+01
56	.866333E-01	.854261E-01	.120720E-02	.139346E+01
57	.833333E-01	.830331E-01	.300238E-03	.360285E+00
58	.789000E-01	.804585E-01	-.165851E-02	-.210471E+01
59	.726000E-01	.768485E-01	-.4+2485E-02	-.585198E+01
60	.643000E-01	.701285E-01	-.582849E-02	-.906452E+01
61	.532667E-01	.538092E-01	-.542560E-03	-.101857E+01
62	.108267E+00	.111145E+00	-.287863E-02	-.265883E+01
63	.100833E+00	.105830E+00	-.499711E-02	-.495581E+01
64	.971333E-01	.981168E-01	-.983461E-03	-.101249E+01
65	.914667E-01	.911318E-01	.33+861E-03	.366102E+00
66	.784000E-01	.779557E-01	.44+289E-03	.566695E+00
67	.103567E+00	.107135E+00	-.356868E-02	-.344578E+01
68	.965333E-01	.994064E-01	-.287308E-02	-.297625E+01
69	.914667E-01	.900470E-01	.141972E-02	.155217E+01
70	.791333E-01	.775352E-01	.159816E-02	.201957E+01
71	.126433E+00	.120730E+00	.569420E-02	.450371E+01
72	.119133E+00	.119279E+00	-.145876E-03	-.122448E+00
73	.115567E+00	.116572E+00	-.100553E-02	-.877088E+00
74	.113467E+00	.113010E+00	.456335E-03	.402175E+00
75	.111800E+00	.109092E+00	.273773E-02	.242194E+01
76	.104900E+00	.105295E+00	.460528E-02	.419043E+01
77	.107167E+00	.101850E+00	.531659E-02	.496114E+01
78	.102767E+00	.983222E-01	.44+446E-02	.432481E+01
79	.954000E-01	.925822E-01	.281181E-02	.294739E+01
80	.831333E-01	.765374E-01	.649547E-02	.782333E+01
81	.110567E+00	.107755E+00	.281172E-02	.254301E+01
82	.101933E+00	.105513E+00	-.358003E-02	-.351213E+01
83	.979333E-01	.101537E+00	-.350323E-02	-.367927E+01
84	.952333E-01	.9670+9E-01	-.147153E-02	-.154519E+01
85	.922667E-01	.919558E-01	.300881E-03	.326099E+00
86	.876667E-01	.877176E-01	-.509673E-04	-.581376E-01
87	.797000E-01	.823911E-01	-.269107E-02	-.337650E+01

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

88	.662333E-01	.670202E-01	-.786824E-03	-.118796E+01
89	.101733E+00	.997760E-01	.195733E-02	.192398E+01
90	.936333E-01	.944612E-01	-.827817E-03	-.884105E+00
91	.894667E-01	.867475E-01	.271916E-02	.303930E+01
92	.832333E-01	.797625E-01	.347082E-02	.416998E+01
93	.692667E-01	.665864E-01	.258025E-02	.386945E+01
94	.125933E+00	.116048E+00	.988570E-02	.784995E+01
95	.118733E+00	.115466E+00	.326729E-02	.275179E+01
96	.114367E+00	.114337E+00	.299543E-04	.262002E-01
97	.111600E+00	.112724E+00	-.112443E-02	-.100756E+01
98	.109733E+00	.110722E+00	-.988181E-03	-.900530E+00
99	.108333E+00	.108441E+00	-.108077E-03	-.997638E-01
100	.107100E+00	.106010E+00	.109028E-02	.101800E+01
101	.105900E+00	.103552E+00	.234847E-02	.221763E+01
102	.104533E+00	.101174E+00	.335952E-02	.321382E+01
103	.102933E+00	.989404E-01	.339249E-02	.378563E+01
104	.100633E+00	.968351E-01	.379823E-02	.377433E+01
105	.976333E-01	.947022E-01	.293113E-02	.300218E+01
106	.935333E-01	.921422E-01	.139109E-02	.148726E+01
107	.879333E-01	.882927E-01	-.359373E-03	-.406668E+00
108	.803333E-01	.812268E-01	-.893513E-03	-.111276E+01
109	.639000E-01	.650232E-01	.487683E-02	.697687E+01
110	.980333E-01	.991447E-01	-.111137E-02	-.113367E+01
111	.904333E-01	.914158E-01	-.982436E-03	-.108637E+01
112	.849000E-01	.820563E-01	.284369E-02	.334946E+01
113	.717667E-01	.695445E-01	.222213E-02	.309633E+01
114	.115700E+00	.113750E+00	-.304965E-02	-.263582E+01
115	.108967E+00	.113435E+00	-.446813E-02	-.410045E+01
116	.105633E+00	.105721E+00	-.878160E-04	-.831328E-01
117	.100600E+00	.987362E-01	.186384E-02	.185272E+01
118	.884000E-01	.855601E-01	.283993E-02	.321260E+01
119	.114133E+00	.116048E+00	-.191457E-02	-.167749E+01
120	.106667E+00	.112211E+00	-.554462E-02	-.519808E+01
121	.103333E+00	.106044E+00	-.271053E-02	-.262309E+01
122	.999667E-01	.997495E-01	.217179E-03	.217252E+00
123	.938000E-01	.939613E-01	-.151299E-03	-.171960E+00
124	.807333E-01	.799075E-01	.825882E-03	.102298E+01
125	.113367E+00	.113707E+00	-.339838E-03	-.299769E+00
126	.105333E+00	.110821E+00	-.548808E-02	-.521021E+01
127	.101767E+00	.105899E+00	-.413224E-02	-.406051E+01
128	.990000E-01	.100316E+00	-.131577E-02	-.132906E+01
129	.951333E-01	.952473E-01	-.113978E-03	-.119809E+00
130	.880667E-01	.898943E-01	-.182763E-02	-.207528E+01
131	.747333E-01	.751883E-01	-.354966E-03	-.474977E+00
132	.113000E+00	.111547E+00	.145348E-02	.128625E+01
133	.104600E+00	.109305E+00	-.470494E-02	-.449803E+01
134	.100733E+00	.105328E+00	-.459481E-02	-.456136E+01
135	.981667E-01	.100496E+00	-.232978E-02	-.237329E+01
136	.953333E-01	.957574E-01	-.424033E-03	-.444790E+00
137	.909000E-01	.915092E-01	-.609214E-03	-.670203E+00
138	.831667E-01	.861827E-01	-.301598E-02	-.362643E+01

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

139	.699000E-01	.708117E-01	-.911738E-03	-.130435E+01
140	.112933E+00	.109522E+00	.331182E-02	.293514E+01
141	.104233E+00	.107732E+00	-.349847E-02	-.335638E+01
142	.100100E+00	.104474E+00	-.437420E-02	-.436983E+01
143	.975333E-01	.100327E+00	-.279329E-02	-.286393E+01
144	.951667E-01	.959812E-01	-.314554E-03	-.855924E+00
145	.920333E-01	.919804E-01	.529634E-04	.575481E-01
146	.870667E-01	.882112E-01	-.114452E-02	-.131453E+01
147	.789333E-01	.827225E-01	-.378915E-02	-.480044E+01
148	.659000E-01	.659542E-01	-.105424E-02	-.159976E+01
149	.112933E+00	.105975E+00	.695843E-02	.616154E+01
150	.104167E+00	.104761E+00	-.594773E-03	-.570982E+00
151	.995667E-01	.102482E+00	-.291505E-02	-.292774E+01
152	.968333E-01	.994100E-01	-.257668E-02	-.266095E+01
153	.947333E-01	.959093E-01	-.117503E-02	-.124032E+01
154	.926333E-01	.923582E-01	.275109E-03	.296387E+00
155	.899667E-01	.890498E-01	.915893E-03	.101915E+01
156	.861667E-01	.859928E-01	.173836E-03	.201744E+00
157	.804667E-01	.825537E-01	-.208701E-02	-.259363E+01
158	.720000E-01	.765561E-01	-.455610E-02	-.632791E+01
159	.597333E-01	.603477E-01	-.614398E-03	-.102857E+01
160	.113067E+00	.104576E+00	.849084E-02	.750959E+01
161	.104300E+00	.103553E+00	.747449E-03	.716634E+00
162	.995667E-01	.101611E+00	-.204390E-02	-.205280E+01
163	.966667E-01	.989432E-01	-.227652E-02	-.235503E+01
164	.946000E-01	.958276E-01	-.122361E-02	-.129346E+01
165	.926667E-01	.925466E-01	.120095E-03	.129599E+00
166	.905000E-01	.893765E-01	.112347E-02	.124140E+01
167	.876333E-01	.864642E-01	.116918E-02	.133417E+01
168	.835333E-01	.836605E-01	-.127207E-03	-.152283E+00
169	.776000E-01	.802098E-01	-.260980E-02	-.336315E+01
170	.691333E-01	.739524E-01	-.481905E-02	-.697065E+01
171	.572667E-01	.576555E-01	-.388873E-03	-.679057E+00
172	.113233E+00	.103539E+00	.969422E-02	.856128E+01
173	.104573E+00	.102664E+00	.186911E-02	.178806E+01
174	.996333E-01	.100991E+00	-.135752E-02	-.136251E+01
175	.966333E-01	.986639E-01	-.203054E-02	-.210128E+01
176	.945000E-01	.958792E-01	-.137921E-02	-.145948E+01
177	.927000E-01	.929758E-01	-.175818E-03	-.189663E+00
178	.908333E-01	.899784E-01	.954979E-03	.105135E+01
179	.885333E-01	.870583E-01	.147501E-02	.166606E+01
180	.854333E-01	.844474E-01	.985942E-03	.115405E+01
181	.911000E-01	.817912E-01	-.691189E-03	-.852267E+00
182	.750000E-01	.782784E-01	-.327837E-02	-.437115E+01
183	.665667E-01	.717823E-01	-.521560E-02	-.783515E+01
184	.551333E-01	.554578E-01	-.324441E-03	-.588466E+00
185	.100333E+00	.981536E-01	.217977E-02	.217252E+01
186	.921000E-01	.928387E-01	-.738714E-03	-.802078E+00
187	.878333E-01	.851251E-01	.270826E-02	.308341E+01
188	.814333E-01	.781401E-01	.329325E-02	.404411E+01
189	.672667E-01	.649640E-01	.230268E-02	.342321E+01

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

190	.958667E-01	.998763E-01	-.300363E-02	-.310079E+01
191	.891333E-01	.921414E-01	-.300803E-02	-.337475E+01
192	.834667E-01	.827819E-01	.684767E-03	.820408E+00
193	.701333E-01	.702761E-01	-.136793E-03	-.195046E+00
194	.106200E+00	.111127E+00	-.492653E-02	-.463892E+01
195	.994000E-01	.103398E+00	-.399759E-02	-.402172E+01
196	.945333E-01	.940381E-01	.495200E-03	.523837E+00
197	.825667E-01	.815264E-01	.104031E-02	.125995E+01
198	.105700E+00	.107155E+00	-.145454E-02	-.137611E+01
199	.981333E-01	.101840E+00	-.380635E-02	-.388272E+01
200	.941333E-01	.941260E-01	.728694E-05	.774109E-02
201	.882667E-01	.871411E-01	.112551E-02	.127524E+01
202	.748667E-01	.739650E-01	.901704E-03	.120441E+01
203	.105867E+00	.104220E+00	.164657E-02	.155533E+01
204	.975333E-01	.100333E+00	-.285014E-02	-.292223E+01
205	.937333E-01	.942160E-01	-.482715E-03	-.514988E+00
206	.898667E-01	.879217E-01	.194499E-02	.216431E+01
207	.829333E-01	.821335E-01	.799845E-03	.964445E+00
208	.689333E-01	.680795E-01	.853694E-03	.123843E+01
209	.106300E+00	.101948E+00	.435169E-02	.409379E+01
210	.975000E-01	.990632E-01	-.156322E-02	-.160330E+01
211	.935333E-01	.941407E-01	-.607377E-03	-.649369E+00
212	.904000E-01	.885576E-01	.184243E-02	.203809E+01
213	.860667E-01	.834891E-01	.257755E-02	.299483E+01
214	.782667E-01	.781361E-01	.130571E-03	.166829E+00
215	.642333E-01	.633301E-01	.903233E-03	.140617E+01
216	.106800E+00	.100333E+00	.646742E-02	.605564E+01
217	.977667E-01	.980910E-01	-.324327E-03	-.331735E+00
218	.935333E-01	.941142E-01	-.580863E-03	-.621022E+00
219	.906333E-01	.892825E-01	.135083E-02	.149044E+01
220	.874667E-01	.845434E-01	.292325E-02	.334213E+01
221	.825667E-01	.802953E-01	.227140E-02	.275099E+01
222	.742333E-01	.749687E-01	-.735363E-03	-.990619E+00
223	.604000E-01	.595978E-01	.802210E-03	.132816E+01
224	.105300E+00	.987643E-01	.703569E-02	.664999E+01
225	.966333E-01	.965227E-01	.110602E-03	.114455E+00
226	.923000E-01	.925459E-01	-.245934E-03	-.266451E+00
227	.893667E-01	.877142E-01	.165243E-02	.184904E+01
228	.861333E-01	.829752E-01	.315818E-02	.366661E+01
229	.811333E-01	.787270E-01	.240633E-02	.296589E+01
230	.727000E-01	.734004E-01	-.700441E-03	-.963467E+00
231	.587667E-01	.580295E-01	.737138E-03	.125435E+01
232	.994667E-01	.100363E+00	-.896473E-03	-.901280E+00
233	.920333E-01	.926342E-01	-.600858E-03	-.652881E+00
234	.865000E-01	.832747E-01	.332526E-02	.383979E+01
235	.737000E-01	.707630E-01	.293703E-02	.398512E+01
236	.101400E+00	.983452E-01	.195478E-02	.301260E+01
237	.925667E-01	.945086E-01	-.194194E-02	-.209788E+01
238	.884667E-01	.883412E-01	.125493E-03	.141853E+00
239	.842667E-01	.820468E-01	.201987E-02	.263433E+01
240	.768333E-01	.762586E-01	.574721E-03	.748010E+00

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

241	.623000E-01	.622048E-01	.952354E-04	.152865E+00
242	.102467E+00	.101146E+00	.132022E-02	.128844E+01
243	.932667E-01	.982614E-01	-.499469E-02	-.535528E+01
244	.890000E-01	.933388E-01	-.433885E-02	-.487511E+01
245	.856333E-01	.877577E-01	-.212237E-02	-.247844E+01
246	.809667E-01	.826873E-01	-.172059E-02	-.212505E+01
247	.727667E-01	.773342E-01	-.456757E-02	-.627701E+01
248	.583000E-01	.625282E-01	-.422824E-02	-.725256E+01
249	.122073E+00	.121513E+00	.528688E-03	.426677E+00
250	.115300E+00	.117676E+00	-.237503E-02	-.206074E+01
251	.112400E+00	.111509E+00	.891411E-03	.793032E+00
252	.109467E+00	.105214E+00	.425244E-02	.388469E+01
253	.104000E+00	.994260E-01	.457395E-02	.439804E+01
254	.916000E-01	.853722E-01	.622781E-02	.679892E+01
255	.118033E+00	.115876E+00	.215689E-02	.182736E+01
256	.109967E+00	.114087E+00	-.412006E-02	-.374665E+01
257	.106133E+00	.110829E+00	-.469579E-02	-.442443E+01
258	.103800E+00	.106682E+00	-.288155E-02	-.277606E+01
259	.101633E+00	.102336E+00	-.702817E-03	-.691522E+00
260	.987667E-01	.983353E-01	.431367E-03	.436754E+00
261	.941667E-01	.945661E-01	-.399447E-03	-.424192E+00
262	.864667E-01	.890774E-01	-.261074E-02	-.301935E+01
263	.737333E-01	.733092E-01	.424153E-03	.575261E+00
264	.115933E+00	.110785E+00	.614809E-02	.525778E+01
265	.108567E+00	.109762E+00	-.119530E-02	-.110098E+01
266	.104067E+00	.107820E+00	-.375332E-02	-.360665E+01
267	.101367E+00	.105153E+00	-.378594E-02	-.373490E+01
268	.994333E-01	.102033E+00	-.259970E-02	-.261451E+01
269	.975667E-01	.987560E-01	-.108932E-02	-.111535E+01
270	.956333E-01	.955860E-01	.473831E-04	.495467E-01
271	.929667E-01	.926736E-01	.293099E-03	.315273E+00
272	.891000E-01	.898700E-01	-.759956E-03	-.864148E+00
273	.834333E-01	.864192E-01	-.298589E-02	-.357877E+01
274	.752333E-01	.801618E-01	-.492846E-02	-.655090E+01
275	.635000E-01	.638650E-01	-.364956E-03	-.574734E+00
276	.115700E+00	.106610E+00	.100902E-01	.864624E+01
277	.108467E+00	.105950E+00	.251711E-02	.232063E+01
278	.103567E+00	.104672E+00	-.110497E-02	-.106692E+01
279	.100500E+00	.102863E+00	-.236260E-02	-.235084E+01
280	.984000E-01	.100635E+00	-.223470E-02	-.227104E+01
281	.967333E-01	.981332E-01	-.139982E-02	-.144710E+01
282	.952333E-01	.955160E-01	-.232685E-03	-.296834E+00
283	.936333E-01	.929211E-01	.712275E-03	.760706E+00
284	.917333E-01	.904617E-01	.127167E-02	.138627E+01
285	.892667E-01	.881728E-01	.109386E-02	.122538E+01
286	.859667E-01	.859361E-01	.705967E-04	.355914E-01
287	.814667E-01	.833851E-01	-.191848E-02	-.235493E+01
288	.754333E-01	.796623E-01	-.422899E-02	-.560625E+01
289	.674000E-01	.727600E-01	-.535997E-02	-.795248E+01
290	.568333E-01	.564786E-01	.354755E-03	.624202E+00
291	.120500E+00	.121743E+00	-.124254E-02	-.103115E+01

APPENDIX B
TABLE B-VIII
COMPUTATION OF COEFFICIENTS FOR EQUATION 7 (Cont'd)

292	.114200E+00	.116428E+00	-.222769E-02	-.135059E+01
293	.111167E+00	.108714E+00	.245253E-02	.220626E+01
294	.106500E+00	.101729E+00	.477095E-02	.447977E+01
295	.948000E-01	.885530E-01	.524705E-02	.658971E+01
296	.105500E+00	.985482E-01	.695178E-02	.658937E+01
297	.963000E-01	.963066E-01	-.663392E-05	-.688881E-02
298	.919667E-01	.923298E-01	-.363170E-03	-.394893E+00
299	.890333E-01	.874981E-01	.153519E-02	.172429E+01
300	.857667E-01	.827591E-01	.300761E-02	.350673E+01
301	.807667E-01	.785109E-01	.225575E-02	.279293E+01
302	.723000E-01	.731943E-01	-.884343E-03	-.122316E+01
303	.583333E-01	.573134E-01	.514902E-03	.891261E+00
304	.107367E+00	.995253E-01	.784139E-02	.730337E+01
305	.981667E-01	.977356E-01	.431097E-03	.439149E+00
306	.937000E-01	.944780E-01	-.777965E-03	-.830273E+00
307	.908333E-01	.903304E-01	.502946E-03	.553702E+00
308	.882000E-01	.859850E-01	.221501E-02	.251135E+01
309	.847333E-01	.819841E-01	.274920E-02	.324453E+01
310	.793333E-01	.782150E-01	.111838E-02	.140972E+01
311	.707000E-01	.727262E-01	-.202625E-02	-.286598E+01
312	.572333E-01	.569560E-01	.275321E-03	.481049E+00
313	.954000E-01	.101299E+00	-.589926E-02	-.618371E+01
314	.883000E-01	.895487E-01	-.124868E-02	-.141414E+01
315	.773000E-01	.762899E-01	.101006E-02	.130667E+01
316	.925333E-01	.961835E-01	-.365021E-02	-.394475E+01
317	.837667E-01	.779336E-01	.583311E-02	.696352E+01

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9

SELECTION.....10

DEPENDENT VARIABLE.....12
NUMBER OF VARIABLES FORCED.... 0
NUMBER OF VARIABLES DELETED... 3

STEP 1

VARIABLE ENTERED..... 8

SUM OF SQUARES REDUCED IN THIS STEP....	.43919E+00	
PROPORTION REDUCED IN THIS STEP.....	.79162	
CUMULATIVE SUM OF SQUARES REDUCED.....	.43919E+00	
CUMULATIVE PROPORTION REDUCED.....	.79162 OF	.55480E+00
FOR 1 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.88973	
(ADJUSTED FOR D.F.).....	.88973E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.11967E+04	
STANDARD ERROR OF ESTIMATE.....	.19158E-01	
(ADJUSTED FOR D.F.).....	.19158E-01	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.175867E+00	.508391E-02	34.593
INTERCEPT	.138443E+00		

STEP 2

VARIABLE ENTERED.....10

SUM OF SQUARES REDUCED IN THIS STEP....	.78752E-01	
PROPORTION REDUCED IN THIS STEP.....	.14195	
CUMULATIVE SUM OF SQUARES REDUCED.....	.51794E+00	
CUMULATIVE PROPORTION REDUCED.....	.93357 OF	.55480E+00
FOR 2 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.96621	
(ADJUSTED FOR D.F.).....	.96610E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.22063E+04	
STANDARD ERROR OF ESTIMATE.....	.10834E-01	
(ADJUSTED FOR D.F.).....	.10851E-01	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.345774E+00	.716200E-02	48.279
10	-.109520E+00	.422824E-02	-25.902
INTERCEPT	.580228E-01		

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

STEP 3

VARIABLE ENTERED..... 1

SUM OF SQUARES REDUCED IN THIS STEP.... .22957E-01
 PROPORTION REDUCED IN THIS STEP..... .04138

CUMULATIVE SUM OF SQUARES REDUCED..... .54090E+00
 CUMULATIVE PROPORTION REDUCED..... .97495 OF .55480E+00

FOR 3 VARIABLES ENTERED
 MULTIPLE CORRELATION COEFFICIENT... .98739
 (ADJUSTED FOR D.F.)..... .98731E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .40660E+04
 STANDARD ERROR OF ESTIMATE..... .66640E-02
 (ADJUSTED FOR D.F.)..... .66852E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.342496E+00	.440764E-02	77.705
10	-.107740E+00	.260193E-02	-41.408
1	.237504E-01	.104459E-02	22.736
INTERCEPT	.503905E-01		

STEP 4

VARIABLE ENTERED..... 2

SUM OF SQUARES REDUCED IN THIS STEP.... .32649E-02
 PROPORTION REDUCED IN THIS STEP..... .00589

CUMULATIVE SUM OF SQUARES REDUCED..... .54417E+00
 CUMULATIVE PROPORTION REDUCED..... .98083 OF .55480E+00

FOR 4 VARIABLES ENTERED
 MULTIPLE CORRELATION COEFFICIENT... .99037
 (ADJUSTED FOR D.F.)..... .99029E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .39910E+04
 STANDARD ERROR OF ESTIMATE..... .58384E-02
 (ADJUSTED FOR D.F.)..... .58663E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343300E+00	.386245E-02	88.881
10	-.108176E+00	.228002E-02	-47.445
1	.233253E-01	.916210E-03	25.459
2	.608519E-04	.621778E-05	9.787
INTERCEPT	.439046E-01		

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

STEP 5

VARIABLE ENTERED..... 4

SUM OF SQUARES REDUCED IN THIS STEP.... .18400E-02
 PROPORTION REDUCED IN THIS STEP..... .90332

CUMULATIVE SUM OF SQUARES REDUCED..... .54601E+00
 CUMULATIVE PROPORTION REDUCED..... .98415 OF .55400E+00

FOR 5 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .99204
 (ADJUSTED FOR D.F.)..... .99194E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .38614E+04
 STANDARD ERROR OF ESTIMATE..... .53179E-02
 (ADJUSTED FOR D.F.)..... .53519E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.347446E+00	.351816E-02	97.621
10	-.108257E+00	.207678E-02	-52.127
1	.397750E-01	.220348E-02	18.051
2	.509267E-04	.579559E-05	8.787
4	-.960504E-02	.119078E-02	-8.066
INTERCEPT	.410939E-01		

STEP 6

VARIABLE ENTERED..... 3

SUM OF SQUARES REDUCED IN THIS STEP.... .16304E-02
 PROPORTION REDUCED IN THIS STEP..... .00294

CUMULATIVE SUM OF SQUARES REDUCED..... .54764E+00
 CUMULATIVE PROPORTION REDUCED..... .98709 OF .55400E+00

FOR 6 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .99352
 (ADJUSTED FOR D.F.)..... .99342E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .39492E+04
 STANDARD ERROR OF ESTIMATE..... .48075E-02
 (ADJUSTED FOR D.F.)..... .48450E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343253E+00	.318057E-02	107.922
10	-.108152E+00	.187748E-02	-57.605
1	.647321E-01	.357731E-02	18.095
2	.106434E-03	.843355E-05	12.620
4	-.158628E-01	.130917E-02	-12.117
3	-.154644E-03	.196025E-04	-3.399
INTERCEPT	.342438E-01		

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

STEP 7

VARIABLE ENTERED..... 7

SUM OF SQUARES REDUCED IN THIS STEP.... .71653E-03
 PROPORTION REDUCED IN THIS STEP..... .00129

CUMULATIVE SUM OF SQUARES REDUCED..... .54835E+00
 CUMULATIVE PROPORTION REDUCED..... .98838 OF .55480E+00

FOR 7 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .99417
 (ADJUSTED FOR D.F.)..... .99406E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .37579E+04
 STANDARD ERROR OF ESTIMATE..... .45681E-02
 (ADJUSTED FOR D.F.)..... .45121E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343146E+00	.302227E-02	113.539
10	-.108094E+00	.178404E-02	-60.589
1	.839730E-01	.472615E-02	17.768
2	.926177E-04	.835332E-05	11.088
4	-.450077E-01	.512694E-02	-8.779
3	-.131289E-03	.194770E-04	-5.741
7	.909438E-02	.151211E-02	5.860
INTERCEPT	.320199E-01		

STEP 8

VARIABLE ENTERED..... 6

SUM OF SQUARES REDUCED IN THIS STEP.... .10456E-03
 PROPORTION REDUCED IN THIS STEP..... .00019

CUMULATIVE SUM OF SQUARES REDUCED..... .54846E+00
 CUMULATIVE PROPORTION REDUCED..... .98857 OF .55480E+00

FOR 8 VARIABLES ENTERED

MULTIPLE CORRELATION COEFFICIENT... .99427
 (ADJUSTED FOR D.F.)..... .99414E+00
 F-VALUE FOR ANALYSIS OF VARIANCE... .33286E+04
 STANDARD ERROR OF ESTIMATE..... .45383E-02
 (ADJUSTED FOR D.F.)..... .45894E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343225E+00	.300273E-02	114.304
10	-.108136E+00	.177248E-02	-61.008
1	.938552E-01	.542510E-02	14.608
2	.836013E-04	.921318E-05	9.074
4	-.506421E-01	.567421E-02	-8.925
3	-.153872E-03	.217914E-04	-7.051
7	.112440E-01	.181311E-02	6.201
6	-.336648E+00	.149411E+00	-2.253
INTERCEPT	.325854E-01		

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

SELECTION.....10

TABLE OF RESIDUALS

CASE NO.	Y VALUE	Y ESTIMATE	RESIDUAL	RESIDUAL%
1	.275585E+00	.282595E+00	-.600997E-02	-.217292E+01
2	.285096E+00	.285381E+00	-.284273E-03	-.997111E-01
3	.299671E+00	.289522E+00	.114941E-02	.395433E+00
4	.291826E+00	.292182E+00	-.355135E-03	-.121694E+00
5	.296841E+00	.289122E+00	-.228656E-02	-.795661E+00
6	.272037E+00	.274531E+00	-.249400E-02	-.916788E+00
7	.239851E+00	.239930E+00	-.792871E-04	-.330568E-01
8	.173497E+00	.166010E+00	.748739E-02	.431557E+01
9	.284689E+00	.288139E+00	-.345022E-02	-.121193E+01
10	.292386E+00	.289991E+00	.239483E-02	.819064E+00
11	.298484E+00	.293168E+00	.537617E-02	.180116E+01
12	.301858E+00	.296322E+00	.553602E-02	.193398E+01
13	.301864E+00	.297897E+00	.396760E-02	.131436E+01
14	.297462E+00	.295517E+00	.194501E-02	.653869E+00
15	.285610E+00	.286227E+00	.382879E-03	.133589E+00
16	.265799E+00	.266137E+00	-.337543E-03	-.126992E+00
17	.228828E+00	.229224E+00	-.395127E-03	-.172674E+00
18	.162061E+00	.159656E+00	.240476E-02	.148386E+01
19	.280257E+00	.285093E+00	-.483628E-02	-.172566E+01
20	.239407E+00	.292666E+00	-.325949E-02	-.112627E+01
21	.280451E+00	.285106E+00	-.465421E-02	-.165954E+01
22	.226342E+00	.211909E+00	.145328E-01	.642072E+01
23	.298756E+00	.292065E+00	-.730912E-02	-.114599E+01
24	.296636E+00	.293917E+00	.271832E-02	.916384E+00
25	.302831E+00	.297034E+00	.579694E-02	.191425E+01
26	.335229E+00	.309248E+00	.298111E-02	.195315E+01
27	.306199E+00	.301823E+00	.437620E-02	.142920E+01
28	.301627E+00	.299444E+00	.218339E-02	.723871E+00
29	.290477E+00	.290153E+00	.323349E-03	.111317E+00
30	.269210E+00	.279063E+00	-.853052E-03	-.316872E+00
31	.231631E+00	.233150E+00	-.151861E-02	-.655614E+00
32	.164152E+00	.163582E+00	.559954E-03	.347210E+00
33	.298732E+00	.293753E+00	-.502135E-02	-.173911E+01
34	.294277E+00	.294607E+00	-.330211E-03	-.112211E+00
35	.299639E+00	.296198E+00	.344072E-02	.114829E+01
36	.303968E+00	.298292E+00	.567578E-02	.186723E+01
37	.307026E+00	.300548E+00	.647155E-02	.210786E+01
38	.308631E+00	.302555E+00	.612522E-02	.198497E+01
39	.308588E+00	.303589E+00	.499940E-02	.162009E+01
40	.306552E+00	.303120E+00	.343203E-02	.111956E+01
41	.301998E+00	.300288E+00	.171000E-02	.566231E+00
42	.294149E+00	.294159E+00	-.102960E-04	-.350026E-02
43	.281898E+00	.283581E+00	-.168264E-02	-.596895E+00
44	.263665E+00	.267114E+00	-.344844E-02	-.130789E+01

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

45	.237109E+00	.242714E+00	-.560509E-02	-.236393E+01
46	.198102E+00	.206462E+00	-.936064E-02	-.422038E+01
47	.136623E+00	.146272E+00	-.964887E-02	-.706238E+01
48	.291401E+00	.296691E+00	-.528961E-02	-.181524E+01
49	.297432E+00	.297605E+00	-.233254E-03	-.784225E-01
50	.303062E+00	.293465E+00	.359705E-02	.118690E+01
51	.307421E+00	.301779E+00	.564210E-02	.183530E+01
52	.310266E+00	.304155E+00	.611159E-02	.196979E+01
53	.311373E+00	.305991E+00	.538169E-02	.172838E+01
54	.310430E+00	.306531E+00	.389914E-02	.125604E+01
55	.306922E+00	.304875E+00	.204706E-02	.666964E+00
56	.300071E+00	.293952E+00	.118573E-03	.395169E-01
57	.238695E+00	.290460E+00	-.176429E-02	-.611126E+00
58	.271197E+00	.274808E+00	-.370121E-02	-.136522E+01
59	.244763E+00	.250719E+00	-.594569E-02	-.242916E+01
60	.205312E+00	.214014E+00	-.870207E-02	-.423846E+01
61	.142265E+00	.152226E+00	-.995043E-02	-.700130E+01
62	.293207E+00	.296311E+00	-.310473E-02	-.105889E+01
63	.303907E+00	.302253E+00	.165425E-02	.544329E+00
64	.303731E+00	.304824E+00	-.109345E-02	-.360006E+00
65	.293953E+00	.285285E+00	-.133218E-02	-.469154E+00
66	.219326E+00	.208167E+00	.111592E-01	.500794E+01
67	.301487E+00	.305016E+00	-.352923E-02	-.117061E+01
68	.311537E+00	.312590E+00	-.105265E-02	-.337889E+00
69	.301141E+00	.305029E+00	-.388826E-02	-.129119E+01
70	.241894E+00	.231732E+00	.101614E-01	.420075E+01
71	.269039E+00	.278697E+00	-.958726E-02	-.360109E+01
72	.275910E+00	.281548E+00	-.463865E-02	-.168122E+01
73	.291461E+00	.283655E+00	-.220449E-02	-.783230E+00
74	.284610E+00	.286879E+00	-.226958E-02	-.797436E+00
75	.294744E+00	.289454E+00	-.371033E-02	-.130304E+01
76	.280859E+00	.286075E+00	-.521614E-02	-.185721E+01
77	.271064E+00	.276785E+00	-.572040E-02	-.211035E+01
78	.251907E+00	.255694E+00	-.478714E-02	-.190036E+01
79	.217070E+00	.219781E+00	-.271074E-02	-.124879E+01
80	.153355E+00	.150214E+00	.314116E-02	.204830E+01
81	.290987E+00	.294310E+00	-.332207E-02	-.114165E+01
82	.300223E+00	.297095E+00	.310712E-02	.104160E+01
83	.305138E+00	.301237E+00	.499127E-02	.160100E+01
84	.307214E+00	.303997E+00	.331758E-02	.107993E+01
85	.301603E+00	.300837E+00	.756048E-03	.253993E+00
86	.285443E+00	.286246E+00	-.803170E-03	-.281377E+00
87	.251062E+00	.251645E+00	-.583233E-03	-.232307E+00
88	.181778E+00	.177724E+00	.405302E-02	.222965E+01
89	.304825E+00	.310541E+00	-.571580E-02	-.187511E+01
90	.315939E+00	.316482E+00	-.543396E-03	-.171994E+00
91	.315452E+00	.319053E+00	-.360116E-02	-.114159E+01
92	.294216E+00	.299515E+00	-.524902E-02	-.180107E+01
93	.225524E+00	.222396E+00	.412815E-02	.182239E+01
94	.271587E+00	.280197E+00	-.863972E-02	-.317015E+01
95	.275141E+00	.280950E+00	-.480917E-02	-.174156E+01

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

95	.280798E+00	.282366E+00	-.156793E-02	-.556382E+00
97	.284731E+00	.284265E+00	.466370E-03	.163793E+00
98	.237711E+00	.286380E+00	.133031E-02	.462377E+00
99	.289589E+00	.288356E+00	.123297E-02	.425755E+00
100	.290228E+00	.289751E+00	.476117E-03	.164050E+00
101	.299401E+00	.290037E+00	-.636634E-03	-.219983E+00
102	.236792E+00	.288595E+00	-.180277E-02	-.628597E+00
103	.281904E+00	.284707E+00	-.280297E-02	-.994297E+00
104	.274013E+00	.277535E+00	-.352164E-02	-.128571E+01
105	.262091E+00	.266066E+00	-.797495E-02	-.151663E+01
106	.244630E+00	.243994E+00	-.436467E-02	-.178420E+01
107	.219393E+00	.224393E+00	-.99985E-02	-.227896E+01
108	.182477E+00	.188612E+00	-.613579E-02	-.336251E+01
109	.124896E+00	.129977E+00	-.508115E-02	-.406832E+01
110	.311841E+00	.315349E+00	-.356828E-02	-.112502E+01
111	.321970E+00	.322922E+00	-.952667E-03	-.295887E+00
112	.316926E+00	.315362E+00	-.453608E-02	-.145936E+01
113	.248764E+00	.242065E+00	.669862E-02	.269276E+01
114	.282549E+00	.286873E+00	-.432409E-02	-.153039E+01
115	.292714E+00	.292814E+00	-.100130E-03	-.342073E-01
116	.292696E+00	.295786E+00	-.268975E-02	-.918960E+00
117	.274135E+00	.275847E+00	.171254E-02	-.624709E+00
118	.212109E+00	.198728E+00	.133809E-01	.630851E+01
119	.284275E+00	.286109E+00	-.383308E-02	-.134837E+01
120	.294362E+00	.292649E+00	.171264E-02	.581813E+00
121	.297394E+00	.297226E+00	.667610E-03	.224110E+00
122	.291200E+00	.292900E+00	-.170021E-02	-.583862E+00
123	.265757E+00	.265678E+00	.784171E-04	.295071E-01
124	.199652E+00	.188390E+00	.112621E-01	.564088E+01
125	.285680E+00	.289139E+00	-.345933E-02	-.121091E+01
126	.295310E+00	.292659E+00	.265073E-02	.897627E+00
127	.300429E+00	.297260E+00	.310904E-02	.105484E+01
128	.298915E+00	.298118E+00	.797707E-03	.266867E+00
129	.287133E+00	.287938E+00	-.805429E-03	-.280507E+00
130	.256807E+00	.256079E+00	.728025E-03	.283491E+00
131	.181866E+00	.180157E+00	.870896E-02	.461118E+01
132	.236859E+00	.290104E+00	-.324440E-02	-.113101E+01
133	.295906E+00	.292890E+00	.701631E-02	.101935E+01
134	.301749E+00	.297031E+00	.471751E-02	.156339E+01
135	.302867E+00	.299691E+00	.317648E-02	.104880E+01
136	.297450E+00	.296631E+00	.819394E-03	.275473E+00
137	.281692E+00	.282040E+00	-.348563E-03	-.123739E+00
138	.247967E+00	.247439E+00	.527984E-03	.212925E+00
139	.179516E+00	.173519E+00	.599716E-02	.334074E+01
140	.287875E+00	.291068E+00	-.319330E-02	-.110927E+01
141	.296325E+00	.293319E+00	.300626E-02	.101451E+01
142	.302454E+00	.296927E+00	.552731E-02	.182749E+01
143	.305026E+00	.300115E+00	.491062E-02	.160990E+01
144	.303007E+00	.300241E+00	.276653E-02	.913026E+00
145	.294441E+00	.293755E+00	.685993E-03	.232982E+00
146	.275581E+00	.275960E+00	-.378622E-03	-.137172E+00

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

147	.233535E+00	.239835E+00	-.307303E-03	-.125368E+00
148	.171351E+00	.103113E+00	.323787E-02	.188961E+01
149	.289574E+00	.293117E+00	-.358284E-02	-.123745E+01
150	.296885E+00	.294666E+00	.221900E-02	.747428E+00
151	.303013E+00	.297361E+00	.565252E-02	.186544E+01
152	.305898E+00	.700404E+00	.649451E-02	.211618E+01
153	.308090E+00	.302606E+00	.548392E-02	.177997E+01
154	.305925E+00	.302389E+00	.753598E-02	.115583E+01
155	.299213E+00	.297767E+00	.144634E-02	.483381E+00
156	.285941E+00	.286253E+00	-.311612E-03	-.108978E+00
157	.262826E+00	.264550E+00	-.172401E-02	-.655952E+00
158	.224281E+00	.227349E+00	-.706802E-02	-.136794E+01
159	.157775E+00	.159924E+00	-.214896E-02	-.136205E+01
160	.290228E+00	.294234E+00	-.400651E-02	-.138047E+01
161	.297092E+00	.295546E+00	.154573E-02	.520287E+00
162	.303086E+00	.297885E+00	.520082E-02	.171596E+01
163	.307245E+00	.300692E+00	.655239E-02	.213263E+01
164	.309227E+00	.303119E+00	.610755E-02	.197514E+01
165	.308600E+00	.304055E+00	.454563E-02	.147298E+01
166	.304636E+00	.302102E+00	.253481E-02	.832076E+00
167	.296113E+00	.295558E+00	.554411E-03	.187230E+00
168	.281096E+00	.282306E+00	-.121017E-02	-.430519E+00
169	.256576E+00	.259453E+00	-.287628E-02	-.112103E+01
170	.217472E+00	.222252E+00	-.479028E-02	-.220272E+01
171	.152066E+00	.156850E+00	-.478388E-02	-.314593E+01
172	.290842E+00	.295424E+00	-.458211E-02	-.157547E+01
173	.297274E+00	.296549E+00	.724785E-03	.243811E+00
174	.303092E+00	.298593E+00	.449874E-02	.148428E+01
175	.307397E+00	.301147E+00	.624975E-02	.203312E+01
176	.309895E+00	.303601E+00	.629428E-02	.203110E+01
177	.310297E+00	.305139E+00	.515780E-02	.166222E+01
178	.308126E+00	.304753E+00	.337288E-02	.109464E+01
179	.302618E+00	.301223E+00	.139535E-02	.461093E+00
180	.292550E+00	.293074E+00	-.524071E-03	-.179139E+00
181	.276117E+00	.278448E+00	-.233105E-02	-.844226E+00
182	.250545E+00	.254848E+00	-.430299E-02	-.171745E+01
183	.211161E+00	.217867E+00	-.670639E-02	-.317596E+01
184	.145922E+00	.154340E+00	-.741726E-02	-.504842E+01
185	.307634E+00	.312700E+00	-.506658E-02	-.164695E+01
186	.318827E+00	.318642E+00	.184859E-03	.579811E-01
187	.318243E+00	.321213E+00	-.297018E-02	-.933307E+00
188	.296629E+00	.301674E+00	-.504499E-02	-.170077E+01
189	.228008E+00	.224556E+00	.345139E-02	.151398E+01
190	.314261E+00	.314118E+00	.143070E-03	.455258E-01
191	.324560E+00	.321691E+00	.286892E-02	.883942E+00
192	.313057E+00	.314130E+00	-.107320E-02	-.342812E+00
193	.250345E+00	.240834E+00	.951098E-02	.379915E+01
194	.297146E+00	.299782E+00	-.263621E-02	-.887175E+00
195	.327026E+00	.307356E+00	-.329857E-03	-.107436E+00
196	.296891E+00	.299795E+00	-.290404E-02	-.978150E+00
197	.238909E+00	.226498E+00	.124102E-01	.519452E+01

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

198	.297402E+00	.301276E+00	-.787451E-02	-.130273E+01
199	.308290E+00	.307217E+00	.107294E-02	.348030E+00
200	.308041E+00	.309789E+00	-.174771E-02	-.567364E+00
201	.287771E+00	.290250E+00	-.247890E-02	-.861414E+00
202	.222037E+00	.213171E+00	.390594E-02	.401101E+01
203	.297651E+00	.302162E+00	-.451104E-02	-.151555E+01
204	.308290E+00	.306712E+00	.158793E-02	.515077E+00
205	.312090E+00	.311280E+00	.210414E-03	.259673E+00
206	.304491E+00	.306944E+00	-.246328E-02	-.803995E+00
207	.277132E+00	.279732E+00	-.259977E-02	-.938098E+00
208	.207799E+00	.202443E+00	.535560E-02	.257730E+01
209	.297906E+00	.302779E+00	-.487292E-02	-.163572E+01
210	.318041E+00	.305299E+00	.174181E-02	.565447E+00
211	.313361E+00	.310900E+00	.246059E-02	.785257E+00
212	.311586E+00	.311758E+00	-.172067E-03	-.552231E-01
213	.298666E+00	.301578E+00	-.291211E-02	-.975039E+00
214	.266491E+00	.269719E+00	-.322689E-02	-.121088E+01
215	.195761E+00	.193797E+00	.195954E-02	.100606E+01
216	.298162E+00	.303267E+00	-.510508E-02	-.171219E+01
217	.307786E+00	.306053E+00	.173321E-02	.563123E+00
218	.313510E+00	.310194E+00	.341617E-02	.108930E+01
219	.314625E+00	.312854E+00	.177178E-02	.563141E+00
220	.308801E+00	.309794E+00	-.992642E-03	-.321450E+00
221	.291826E+00	.295203E+00	-.337554E-02	-.115704E+01
222	.256353E+00	.261602E+00	-.23680E-02	-.165343E+01
223	.185480E+00	.186682E+00	-.120151E-02	-.647784E+00
224	.300186E+00	.305788E+00	-.560206E-02	-.186620E+01
225	.309810E+00	.308574E+00	.123523E-02	.399028E+00
226	.315890E+00	.312715E+00	.317453E-02	.100495E+01
227	.316905E+00	.315375E+00	.153015E-02	.482841E+00
228	.310826E+00	.312315E+00	-.14963E-02	-.479248E+00
229	.293602E+00	.297725E+00	-.412280E-02	-.140421E+01
230	.297883E+00	.293124E+00	-.524040E-02	-.203208E+01
231	.186544E+00	.189203E+00	-.255909E-02	-.142545E+01
232	.296861E+00	.313856E+00	-.159959E-01	-.572521E+01
233	.319185E+00	.321430E+00	-.224437E-02	-.703155E+00
234	.308041E+00	.313869E+00	-.582778E-02	-.189188E+01
235	.246913E+00	.240572E+00	.634016E-02	.250778E+01
236	.306770E+00	.310348E+00	-.357715E-02	-.116607E+01
237	.317665E+00	.314888E+00	.277716E-02	.874240E+00
238	.321210E+00	.319455E+00	.174429E-02	.543038E+00
239	.313106E+00	.315140E+00	-.203402E-02	-.649628E+00
240	.284227E+00	.287917E+00	-.369044E-02	-.129841E+01
241	.212766E+00	.210629E+00	.213703E-02	.100440E+01
242	.306110E+00	.307137E+00	-.112700E-02	-.368287E+00
243	.316401E+00	.310658E+00	.574308E-02	.181513E+01
244	.321720E+00	.315259E+00	.646195E-02	.200855E+01
245	.319441E+00	.316116E+00	.332459E-02	.104075E+01
246	.306010E+00	.305937E+00	.738496E-04	.241330E-01
247	.272572E+00	.274078E+00	-.150551E-02	-.552336E+00
248	.199895E+00	.199156E+00	.173933E-02	.870120E+00

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

249	.274092E+00	.281688E+00	-.759628E-02	-.277143E+01
250	.293722E+00	.285229E+00	-.257654E-02	-.983448E+00
251	.287011E+00	.290806E+00	-.779473E-02	-.132216E+01
252	.280682E+00	.286480E+00	-.579779E-02	-.206560E+01
253	.256613E+00	.259258E+00	-.754515E-02	-.103079E+01
254	.192806E+00	.181969E+00	.103367E-01	.562051E+01
255	.279667E+00	.284355E+00	-.468627E-02	-.167637E+01
256	.297771E+00	.286607E+00	.116475E-02	.404748E+00
257	.293602E+00	.290214E+00	.338790E-02	.115391E+01
258	.295131E+00	.297402E+00	.272865E-02	.921432E+00
259	.274362E+00	.293528E+00	.833828E-03	.283266E+00
260	.286251E+00	.287042E+00	-.790735E-03	-.276238E+00
261	.268268E+00	.269247E+00	-.979271E-03	-.365035E+00
262	.233461E+00	.233122E+00	.338714E-03	.145083E+00
263	.166840E+00	.161400E+00	.543937E-02	.326024E+01
264	.283212E+00	.287112E+00	-.390060E-02	-.137727E+01
265	.289802E+00	.288424E+00	.137805E-02	.475514E+00
266	.295626E+00	.290763E+00	.486291E-02	.164495E+01
267	.299681E+00	.293570E+00	.611113E-02	.203921E+01
268	.301706E+00	.295997E+00	.570894E-02	.189222E+01
269	.301201E+00	.296933E+00	.426851E-02	.141716E+01
270	.297402E+00	.294980E+00	.242184E-02	.814335E+00
271	.299291E+00	.288436E+00	.854871E-03	.295505E+00
272	.274852E+00	.275184E+00	-.737138E-03	-.120843E+00
273	.251196E+00	.252331E+00	-.113493E-02	-.451812E+00
274	.213021E+00	.215140E+00	-.211873E-02	-.994609E+00
275	.148673E+00	.143728E+00	-.105446E-02	-.709246E+00
276	.285747E+00	.290390E+00	-.464363E-02	-.162508E+01
277	.291322E+00	.291244E+00	.779236E-04	.267483E-01
278	.296642E+00	.292835E+00	.780630E-02	.128313E+01
279	.310946E+00	.294929E+00	.601704E-02	.199937E+01
280	.303731E+00	.297185E+00	.654531E-02	.215497E+01
281	.305506E+00	.299142E+00	.636412E-02	.208314E+01
282	.305506E+00	.300226E+00	.527986E-02	.172823E+01
283	.303481E+00	.299757E+00	.372465E-02	.122731E+01
284	.298922E+00	.296925E+00	.199654E-02	.667916E+00
285	.291322E+00	.290796E+00	.525513E-03	.180389E+00
286	.279412E+00	.280218E+00	-.806364E-03	-.288593E+00
287	.261428E+00	.263751E+00	-.232290E-02	-.888543E+00
288	.235084E+00	.239351E+00	-.426676E-02	-.181499E+01
289	.195424E+00	.203099E+00	-.667576E-02	-.339866E+01
290	.135298E+00	.142909E+00	-.761137E-02	-.562563E+01
291	.276627E+00	.283162E+00	-.653490E-02	-.236235E+01
292	.286507E+00	.289103E+00	-.259668E-02	-.906323E+00
293	.286507E+00	.291675E+00	-.516807E-02	-.180382E+01
294	.268523E+00	.272136E+00	-.351328E-02	-.134561E+01
295	.207823E+00	.195017E+00	.128056E-01	.616177E+01
296	.300946E+00	.306352E+00	-.540641E-02	-.179647E+01
297	.310570E+00	.309138E+00	.143189E-02	.461050E+00
298	.316650E+00	.313260E+00	.337019E-02	.106433E+01
299	.317410E+00	.315939E+00	.147046E-02	.463267E+00

APPENDIX B
TABLE B-IX
COMPUTATION OF COEFFICIENTS FOR EQUATION 9 (Cont'd)

300	.311330E+00	.312880E+00	-.154932E-02	-.497645E+00
301	.294106E+00	.293289E+00	-.419249E-02	-.142210E+01
302	.258133E+00	.263688E+00	-.555944E-02	-.215216E+01
303	.196824E+00	.189707E+00	-.294373E-02	-.157507E+01
304	.298411E+00	.303690E+00	-.527938E-02	-.176916E+01
305	.307281E+00	.305941E+00	.133963E-02	.435980E+00
306	.313610E+00	.309549E+00	.406137E-02	.129504E+01
307	.316145E+00	.312737E+00	.740820E-02	.107805E+01
308	.313610E+00	.312863E+00	.747335E-03	.239301E+00
309	.304491E+00	.306377E+00	-.188646E-02	-.619547E+00
310	.294482E+00	.288582E+00	-.409954E-02	-.144105E+01
311	.246764E+00	.252457E+00	-.569374E-02	-.230737E+01
312	.176592E+00	.181735E+00	-.414364E-02	-.234646E+01
313	.318991E+00	.319314E+00	.670534E-03	.212086E+00
314	.323240E+00	.325235E+00	-.199509E-02	-.617212E+00
315	.275952E+00	.264830E+00	.111223E-01	.403051E+01
316	.328305E+00	.333617E+00	-.531188E-02	-.161797E+01
317	.308290E+00	.306646E+00	.154454E-02	.533438E+00

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8

SELECTION.....11

DEPENDENT VARIABLE.....12
NUMBER OF VARIABLES FORCED.... 0
NUMBER OF VARIABLES DELETED... 3

STEP 1

VARIABLE ENTERED..... 8

SUM OF SQUARES REDUCED IN THIS STEP....	.43919E+00	
PROPORTION REDUCED IN THIS STEP.....	.79162	
CUMULATIVE SUM OF SQUARES REDUCED.....	.43919E+00	
CUMULATIVE PROPORTION REDUCED.....	.79162 OF	.55480E+00
FOR 1 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.88973	
(ADJUSTED FOR D.F.).....	.88973E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.11967E+04	
STANDARD ERROR OF ESTIMATE.....	.19158E-01	
(ADJUSTED FOR D.F.).....	.19158E-01	
VARIABLE	REGRESSION	STD. ERROR OF
NUMBER	COEFFICIENT	REG. COEFF.
8	.175867E+00	.508391E-02
INTERCEPT	.138443E+00	34.593
		COMPUTED
		T-VALUE

STEP 2

VARIABLE ENTERED.....10

SUM OF SQUARES REDUCED IN THIS STEP....	.78752E-01	
PROPORTION REDUCED IN THIS STEP.....	.14195	
CUMULATIVE SUM OF SQUARES REDUCED.....	.51794E+00	
CUMULATIVE PROPORTION REDUCED.....	.93357 OF	.55480E+00
FOR 2 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.96621	
(ADJUSTED FOR D.F.).....	.96610E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.22063E+04	
STANDARD ERROR OF ESTIMATE.....	.10634E-01	
(ADJUSTED FOR D.F.).....	.10651E-01	
VARIABLE	REGRESSION	STD. ERROR OF
NUMBER	COEFFICIENT	REG. COEFF.
8	.34577E+00	.716200E-02
10	-.109520E+00	.422824E-02
INTERCEPT	.580223E-01	48.279
		-25.902
		COMPUTED
		T-VALUE

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

STEP 3

VARIABLE ENTERED..... 1

SUM OF SQUARES REDUCED IN THIS STEP....	.22957E-01	
PROPORTION REDUCED IN THIS STEP.....	.04138	
CUMULATIVE SUM OF SQUARES REDUCED.....	.54090E+00	
CUMULATIVE PROPORTION REDUCED.....	.07495 OF	.55480E+00
FOR 3 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.98739	
(ADJUSTED FOR D.F.).....	.98731E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.40600E+04	
STANDARD ERROR OF ESTIMATE.....	.66640E-02	
(ADJUSTED FOR D.F.).....	.66852E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.342496E+00	.440764E-02	77.705
10	-.107740E+00	.260193E-02	-41.408
1	.237504E-01	.104459E-02	22.736
INTERCEPT	.503905E-01		

STEP 4

VARIABLE ENTERED..... 2

SUM OF SQUARES REDUCED IN THIS STEP....	.32649E-02	
PROPORTION REDUCED IN THIS STEP.....	.00588	
CUMULATIVE SUM OF SQUARES REDUCED.....	.54417E+00	
CUMULATIVE PROPORTION REDUCED.....	.98083 OF	.55480E+00
FOR 4 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.99037	
(ADJUSTED FOR D.F.).....	.99028E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.39910E+04	
STANDARD ERROR OF ESTIMATE.....	.58384E-02	
(ADJUSTED FOR D.F.).....	.58663E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343300E+00	.386245E-02	88.881
10	-.108175E+00	.228002E-02	-47.445
1	.233253E-01	.916210E-03	25.459
2	.608519E-04	.621778E-05	9.787
INTERCEPT	.439045E-01		

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

STEP 5

VARIABLE ENTERED..... 4

SUM OF SQUARES REDUCED IN THIS STEP....	.18400E-02	
PROPORTION REDUCED IN THIS STEP.....	.00332	
CUMULATIVE SUM OF SQUARES REDUCED.....	.54601E+00	
CUMULATIVE PROPORTION REDUCED.....	.98415 OF	.55460E+00
FOR 5 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.99204	
(ADJUSTED FOR D.F.).....	.99194E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.38614E+04	
STANDARD ERROR OF ESTIMATE.....	.53179E-02	
(ADJUSTED FOR D.F.).....	.53519E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343446E+00	.351816E-02	97.621
10	-.108257E+00	.207678E-02	-52.127
1	.397750E-01	.220348E-02	18.051
2	.509267E-04	.579559E-05	8.787
4	-.960504E-02	.119078E-02	-8.066
INTERCEPT	.419939E-01		

STEP 6

VARIABLE ENTERED..... 3

SUM OF SQUARES REDUCED IN THIS STEP....	.16304E-02	
PROPORTION REDUCED IN THIS STEP.....	.00294	
CUMULATIVE SUM OF SQUARES REDUCED.....	.54764E+00	
CUMULATIVE PROPORTION REDUCED.....	.99709 OF	.55480E+00
FOR 5 VARIABLES ENTERED		
MULTIPLE CORRELATION COEFFICIENT...	.99352	
(ADJUSTED FOR D.F.).....	.99342E+00	
F-VALUE FOR ANALYSIS OF VARIANCE...	.39492E+04	
STANDARD ERROR OF ESTIMATE.....	.48075E-02	
(ADJUSTED FOR D.F.).....	.48460E-02	

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343253E+00	.318057E-02	107.922
10	-.108152E+00	.187748E-02	-57.605
1	.647321E-01	.357731E-02	18.095
2	.106434E-03	.843355E-05	12.620
4	-.158628E-01	.130917E-02	-12.117
3	-.164644E-03	.196025E-04	-8.399
INTERCEPT	.342438E-01		

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

STEP 7

VARIABLE ENTERED..... 7

SUM OF SQUARES REDUCED IN THIS STEP.... .71653E-03
PROPORTION REDUCED IN THIS STEP..... .00129

CUMULATIVE SUM OF SQUARES REDUCED..... .54835E+00
CUMULATIVE PROPORTION REDUCED..... .98838 OF .55480E+00

FOR 7 VARIABLES ENTERED
MULTIPLE CORRELATION COEFFICIENT... .39417
(ADJUSTED FOR D.F.)..... .99406E+00
F-VALUE FOR ANALYSIS OF VARIANCE... .37539E+04
STANDARD ERROR OF ESTIMATE..... .43681E-02
(ADJUSTED FOR D.F.)..... .46121E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343146E+00	.302227E-02	113.539
10	-.109094E+00	.178404E-02	-60.589
1	.839730E-01	.472615E-02	17.768
2	.926177E-04	.835332E-05	11.048
4	-.440077E-01	.512694E-02	-8.779
3	-.131289E-03	.194770E-04	-6.741
7	.909498E-02	.155211E-02	5.860
INTERCEPT	.320199E-01		

STEP 8

VARIABLE ENTERED..... 5

SUM OF SQUARES REDUCED IN THIS STEP.... .12109E-03
PROPORTION REDUCED IN THIS STEP..... .00022

CUMULATIVE SUM OF SQUARES REDUCED..... .54847E+00
CUMULATIVE PROPORTION REDUCED..... .98860 OF .55480E+00

FOR 8 VARIABLES ENTERED
MULTIPLE CORRELATION COEFFICIENT... .99428
(ADJUSTED FOR D.F.)..... .99415E+00
F-VALUE FOR ANALYSIS OF VARIANCE... .33374E+04
STANDARD ERROR OF ESTIMATE..... .45324E-02
(ADJUSTED FOR D.F.)..... .45834E-02

VARIABLE NUMBER	REGRESSION COEFFICIENT	STD. ERROR OF REG. COEFF.	COMPUTED T-VALUE
8	.343218E+00	.299376E-02	114.453
10	-.108133E+00	.177015E-02	-61.087
1	.833598E-01	.469595E-02	17.751
2	.145387E-03	.232614E-04	5.250
4	-.462687E-01	.511326E-02	-9.049
3	-.120612E-03	.198186E-04	-6.086
7	.965234E-02	.155696E-02	6.179

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

5 -.259934E-06 .107062E-06 -2.428
INTERCEPT .300038E-01

SELECTION.....11

TABLE OF RESIDUALS

CASE NO.	Y VALUE	Y ESTIMATE	RESIDUAL	RESIDUAL%
1	.276585E+00	.282049E+00	-.546456E-02	-.197573E+01
2	.285096E+00	.284835E+00	.261314E-03	.916580E-01
3	.290671E+00	.288976E+00	.169530E-02	.583236E+00
4	.291826E+00	.291635E+00	.191092E-03	.654815E-01
5	.286841E+00	.288575E+00	-.173408E-02	-.604543E+00
6	.272037E+00	.273985E+00	-.194752E-02	-.715902E+00
7	.239851E+00	.239384E+00	.456730E-03	.194592E+00
8	.173497E+00	.165465E+00	.803206E-02	.462951E+01
9	.284689E+00	.288271E+00	-.358177E-02	-.125813E+01
10	.292386E+00	.290122E+00	.226340E-02	.774113E+00
11	.298484E+00	.293239E+00	.524494E-02	.175719E+01
12	.301858E+00	.296453E+00	.540506E-02	.179060E+01
13	.301864E+00	.298027E+00	.383691E-02	.127107E+01
14	.297462E+00	.295648E+00	.181453E-02	.610003E+00
15	.285610E+00	.286358E+00	.252450E-03	.880813E-01
16	.265799E+00	.266267E+00	-.468157E-03	-.176135E+00
17	.228828E+00	.229355E+00	-.526340E-03	-.230015E+00
18	.162061E+00	.159789E+00	.227225E-02	.140209E+01
19	.280257E+00	.286448E+00	-.613136E-02	-.220917E+01
20	.289407E+00	.294021E+00	-.461400E-02	-.159430E+01
21	.280451E+00	.286460E+00	-.600825E-02	-.214235E+01
22	.226342E+00	.213164E+00	.131777E-01	.582204E+01
23	.288756E+00	.292358E+00	-.360145E-02	-.124723E+01
24	.296636E+00	.294209E+00	.242610E-02	.817873E+00
25	.302831E+00	.297326E+00	.550492E-02	.181782E+01
26	.306229E+00	.300540E+00	.568936E-02	.185788E+01
27	.306199E+00	.302114E+00	.408473E-02	.133401E+01
28	.301627E+00	.299735E+00	.189212E-02	.627304E+00
29	.290477E+00	.290445E+00	.321347E-04	.110627E-01
30	.269210E+00	.270354E+00	-.114446E-02	-.425118E+00
31	.231631E+00	.233442E+00	-.181061E-02	-.781676E+00
32	.164152E+00	.163876E+00	.276652E-03	.168534E+00
33	.288732E+00	.293503E+00	-.477085E-02	-.165235E+01
34	.294277E+00	.294356E+00	-.796504E-04	-.270665E-01
35	.299639E+00	.295948E+00	.369138E-02	.123194E+01
36	.303968E+00	.298041E+00	.592558E-02	.194974E+01
37	.307020E+00	.300297E+00	.672252E-02	.218961E+01
38	.308631E+00	.302253E+00	.637737E-02	.206634E+01
39	.308588E+00	.303338E+00	.525073E-02	.170153E+01
40	.306552E+00	.302868E+00	.368352E-02	.120160E+01
41	.301998E+00	.300036E+00	.196160E-02	.649543E+00
42	.294149E+00	.293908E+00	.241344E-03	.820482E-01
43	.281898E+00	.283329E+00	-.143106E-02	-.507652E+00

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

44	.263665E+00	.266862E+00	-.319707E-02	-.121255E+01
45	.237109E+00	.242463E+00	-.535411E-02	-.225808E+01
46	.198102E+00	.206212E+00	-.811031E-02	-.409402E+01
47	.136623E+00	.146023E+00	-.939970E-02	-.688000E+01
48	.291401E+00	.295914E+00	-.451313E-02	-.154877E+01
49	.237432E+00	.295889E+00	.543292E-03	.182661E+00
50	.303062E+00	.298688E+00	.437371E-02	.144317E+01
51	.307421E+00	.301002E+00	.641891E-02	.208799E+01
52	.310266E+00	.303378E+00	.688859E-02	.222022E+01
53	.311373E+00	.305214E+00	.615899E-02	.197798E+01
54	.310430E+00	.305754E+00	.467653E-02	.159646E+01
55	.306922E+00	.304098E+00	.282459E-02	.920295E+00
56	.300071E+00	.299174E+00	.896190E-03	.298660E+00
57	.298695E+00	.289682E+00	-.986707E-03	-.341781E+00
58	.271107E+00	.274031E+00	-.292379E-02	-.107846E+01
59	.244763E+00	.249932E+00	-.516864E-02	-.211169E+01
60	.205312E+00	.213238E+00	-.792568E-02	-.386031E+01
61	.142265E+00	.151451E+00	-.918522E-02	-.645640E+01
62	.293207E+00	.296081E+00	-.287392E-02	-.980170E+00
63	.303907E+00	.302021E+00	.188546E-02	.620408E+00
64	.303731E+00	.304592E+00	-.861715E-03	-.283711E+00
65	.283953E+00	.285054E+00	-.110036E-02	-.387514E+00
66	.219326E+00	.207936E+00	.113897E-01	.519307E+01
67	.301487E+00	.305339E+00	-.385180E-02	-.127760E+01
68	.311537E+00	.312912E+00	-.137464E-02	-.441244E+00
69	.301141E+00	.305350E+00	-.420978E-02	-.139794E+01
70	.241894E+00	.232055E+00	.983881E-02	.406741E+01
71	.269009E+00	.278135E+00	-.912542E-02	-.339223E+01
72	.275910E+00	.279986E+00	-.407670E-02	-.147755E+01
73	.281461E+00	.283103E+00	-.164232E-02	-.583501E+00
74	.284610E+00	.286317E+00	-.170715E-02	-.599824E+00
75	.284744E+00	.287891E+00	-.314764E-02	-.110543E+01
76	.280859E+00	.285512E+00	-.465324E-02	-.165679E+01
77	.271064E+00	.276222E+00	-.515744E-02	-.190266E+01
78	.251907E+00	.256131E+00	-.422438E-02	-.167695E+01
79	.217070E+00	.219219E+00	-.214857E-02	-.989804E+00
80	.153355E+00	.149653E+00	.370203E-02	.241403E+01
81	.290987E+00	.294249E+00	-.326193E-02	-.112099E+01
82	.300223E+00	.297035E+00	.318743E-02	.106169E+01
83	.305138E+00	.301176E+00	.496188E-02	.162080E+01
84	.307214E+00	.303836E+00	.337864E-02	.109977E+01
85	.301603E+00	.300775E+00	.827257E-03	.274287E+00
86	.285443E+00	.286185E+00	-.741960E-03	-.259933E+00
87	.251062E+00	.251584E+00	-.522491E-03	-.208112E+00
88	.181778E+00	.177665E+00	.411241E-02	.226233E+01
89	.304255E+00	.310318E+00	-.549320E-02	-.190208E+01
90	.315939E+00	.316259E+00	-.320398E-03	-.101411E+00
91	.315452E+00	.318830E+00	-.337764E-02	-.107073E+01
92	.294216E+00	.299291E+00	-.507542E-02	-.172507E+01
93	.226524E+00	.222174E+00	.435051E-02	.192055E+01
94	.271587E+00	.280634E+00	-.904700E-02	-.333116E+01

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

95	.276141E+00	.281387E+00	-.524640E-02	-.189990E+01
96	.280798E+00	.282803E+00	-.200507E-02	-.714061E+00
97	.284731E+00	.284702E+00	.293501E-04	.103080E-01
98	.287711E+00	.285817E+00	.893441E-03	.310535E+00
99	.289589E+00	.289793E+00	.796271E-03	.274966E+00
100	.290228E+00	.290188E+00	.395910E-04	.136414E-01
101	.289401E+00	.290474E+00	-.107300E-02	-.370766E+00
102	.286792E+00	.289031E+00	-.223901E-02	-.780706E+00
103	.281904E+00	.285144E+00	-.323912E-02	-.114902E+01
104	.274013E+00	.277971E+00	-.395779E-02	-.144438E+01
105	.262091E+00	.266502E+00	-.441120E-02	-.168308E+01
106	.244630E+00	.249431E+00	-.480113E-02	-.196262E+01
107	.219393E+00	.224829E+00	-.543674E-02	-.247809E+01
108	.192477E+00	.189050E+00	-.657332E-02	-.360228E+01
109	.124896E+00	.130415E+00	-.551982E-02	-.441954E+01
110	.311841E+00	.315235E+00	-.339439E-02	-.108850E+01
111	.321970E+00	.322808E+00	-.838197E-03	-.250334E+00
112	.310826E+00	.315247E+00	-.442114E-02	-.142239E+01
113	.248764E+00	.241951E+00	.681254E-02	.273856E+01
114	.282549E+00	.286869E+00	-.432056E-02	-.152914E+01
115	.292714E+00	.292810E+00	-.961908E-04	-.328617E-01
116	.292696E+00	.295381E+00	-.269530E-02	-.917435E+00
117	.274135E+00	.275843E+00	-.170800E-02	-.623050E+00
118	.212109E+00	.198725E+00	.133842E-01	.631007E+01
119	.284275E+00	.287673E+00	-.339761E-02	-.119518E+01
120	.294362E+00	.292213E+00	.214840E-02	.729850E+00
121	.297894E+00	.296790E+00	.110382E-02	.370542E+00
122	.291200E+00	.292464E+00	-.126366E-02	-.433950E+00
123	.265757E+00	.265242E+00	.514782E-03	.193704E+00
124	.199652E+00	.187955E+00	.116971E-01	.585877E+01
125	.285680E+00	.288708E+00	-.302771E-02	-.105983E+01
126	.295310E+00	.292228E+00	.308262E-02	.104385E+01
127	.300429E+00	.296128E+00	.361124E-02	.119870E+01
128	.298915E+00	.297685E+00	.123028E-02	.411581E+00
129	.287173E+00	.287506E+00	-.372708E-03	-.129803E+00
130	.256807E+00	.255647E+00	.116039E-02	.451853E+00
131	.188866E+00	.179726E+00	.913998E-02	.483939E+01
132	.285859E+00	.289881E+00	-.302115E-02	-.105318E+01
133	.295906E+00	.292666E+00	.323973E-02	.109485E+01
134	.301749E+00	.296807E+00	.494122E-02	.163753E+01
135	.302867E+00	.299467E+00	.340054E-02	.112278E+01
136	.297450E+00	.295407E+00	.104371E-02	.350885E+00
137	.281692E+00	.281816E+00	-.124246E-03	-.441071E-01
138	.247967E+00	.247216E+00	.751833E-03	.303198E+00
139	.179516E+00	.173296E+00	.621966E-02	.346468E+01
140	.287875E+00	.291120E+00	-.324504E-02	-.112724E+01
141	.295325E+00	.293371E+00	.295465E-02	.997098E+00
142	.302454E+00	.296978E+00	.547596E-02	.181051E+01
143	.305026E+00	.300166E+00	.485957E-02	.159317E+01
144	.303007E+00	.300291E+00	.271576E-02	.896270E+00
145	.294441E+00	.293805E+00	.635367E-03	.215788E+00

APPENDIX B

TABLE B-X

COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

145	.275581E+00	.276010E+00	-.428759E-03	-.155583E+00
147	.239535E+00	.239886E+00	-.351579E-03	-.146776E+00
148	.171351E+00	.168166E+00	.318526E-02	.185891E+01
149	.289534E+00	.293529E+00	-.399487E-02	-.137976E+01
150	.295885E+00	.295078E+00	.180706E-02	.608675E+00
151	.303013E+00	.297772E+00	.524075E-02	.172955E+01
152	.306898E+00	.300815E+00	.608298E-02	.198208E+01
153	.308090E+00	.303017E+00	.507264E-02	.164648E+01
154	.305925E+00	.302806E+00	.312492E-02	.102147E+01
155	.299213E+00	.298178E+00	.103541E-02	.346046E+00
156	.285341E+00	.286664E+00	-.722553E-03	-.252693E+00
157	.262826E+00	.264961E+00	-.213521E-02	-.812405E+00
158	.224281E+00	.227761E+00	-.347984E-02	-.155156E+01
159	.157775E+00	.160337E+00	-.255206E-02	-.162387E+01
160	.290288E+00	.294563E+00	-.433547E-02	-.149382E+01
161	.297092E+00	.295875E+00	.121685E-02	.409587E+00
162	.303086E+00	.298214E+00	.487209E-02	.160749E+01
163	.307245E+00	.301021E+00	.622387E-02	.202570E+01
164	.309227E+00	.303447E+00	.577935E-02	.186897E+01
165	.308600E+00	.304383E+00	.421755E-02	.136667E+01
166	.304636E+00	.302430E+00	.220690E-02	.724437E+00
167	.296113E+00	.295886E+00	.226578E-03	.765175E-01
168	.281096E+00	.282634E+00	-.153808E-02	-.547175E+00
169	.256576E+00	.259781E+00	-.320451E-02	-.124895E+01
170	.217472E+00	.222591E+00	-.511914E-02	-.235393E+01
171	.152066E+00	.157180E+00	-.511398E-02	-.336300E+01
172	.290842E+00	.295385E+00	-.454315E-02	-.156207E+01
173	.297274E+00	.296510E+00	.763813E-03	.256939E+00
174	.303092E+00	.298554E+00	.453790E-02	.149720E+01
175	.307397E+00	.301108E+00	.628909E-02	.204592E+01
176	.309895E+00	.303562E+00	.633382E-02	.204385E+01
177	.310297E+00	.305099E+00	.519755E-02	.167503E+01
178	.308126E+00	.304713E+00	.341282E-02	.110760E+01
179	.302618E+00	.301183E+00	.143541E-02	.474331E+00
180	.292550E+00	.293034E+00	-.483991E-03	-.165439E+00
181	.275117E+00	.279418E+00	-.229110E-02	-.829758E+00
182	.250545E+00	.254809E+00	-.426338E-02	-.170164E+01
183	.211161E+00	.217828E+00	-.666743E-02	-.315751E+01
184	.145922E+00	.154302E+00	-.737951E-02	-.502273E+01
185	.307634E+00	.312674E+00	-.503989E-02	-.163828E+01
186	.318827E+00	.318615E+00	.211948E-03	.664776E-01
187	.318243E+00	.321185E+00	-.294257E-02	-.924630E+00
188	.296529E+00	.301647E+00	-.501729E-02	-.169143E+01
189	.228008E+00	.224529E+00	.347844E-02	.152558E+01
190	.314261E+00	.313776E+00	.485155E-03	.154380E+00
191	.324560E+00	.321348E+00	.321158E-02	.989520E+00
192	.313057E+00	.313787E+00	-.730065E-03	-.233205E+00
193	.250345E+00	.240491E+00	.985308E-02	.393581E+01
194	.297146E+00	.300348E+00	-.320142E-02	-.107739E+01
195	.307026E+00	.307920E+00	-.894494E-03	-.291342E+00
196	.296891E+00	.300359E+00	-.346821E-02	-.116818E+01

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

197	.238909E+00	.227064E+00	.118450E-01	.495795E+01
198	.297482E+00	.300976E+00	-.357393E-02	-.120172E+01
199	.308290E+00	.306916E+00	.137393E-02	.445659E+00
200	.309041E+00	.309487E+00	-.144621E-02	-.469486E+00
201	.287771E+00	.289949E+00	-.217731E-02	-.756611E+00
202	.222037E+00	.212831E+00	.920629E-02	.414628E+01
203	.297651E+00	.301860E+00	-.420931E-02	-.141418E+01
204	.308290E+00	.306400E+00	.188995E-02	.613042E+00
205	.312090E+00	.310977E+00	.111288E-02	.356590E+00
206	.304491E+00	.306651E+00	-.215048E-02	-.709540E+00
207	.277132E+00	.279429E+00	-.229715E-02	-.828901E+00
208	.207799E+00	.202142E+00	.565689E-02	.272229E+01
209	.297906E+00	.302747E+00	-.484087E-02	-.162495E+01
210	.308041E+00	.306267E+00	.177409E-02	.575925E+00
211	.313361E+00	.310868E+00	.249333E-02	.795675E+00
212	.311586E+00	.311725E+00	-.139056E-03	-.446285E-01
213	.298666E+00	.301545E+00	-.287895E-02	-.963936E+00
214	.266492E+00	.269686E+00	-.319403E-02	-.119857E+01
215	.195767E+00	.193766E+00	.200099E-02	.102213E+01
216	.298162E+00	.303422E+00	-.520059E-02	-.176434E+01
217	.307786E+00	.306208E+00	.157788E-02	.512654E+00
218	.313610E+00	.310349E+00	.326113E-02	.103987E+01
219	.314625E+00	.313008E+00	.161709E-02	.513973E+00
220	.308801E+00	.309948E+00	-.114708E-02	-.371463E+00
221	.291826E+00	.295357E+00	-.353098E-02	-.120996E+01
222	.256363E+00	.260757E+00	-.439370E-02	-.171386E+01
223	.185480E+00	.186838E+00	-.135777E-02	-.732028E+00
224	.300186E+00	.305883E+00	-.569703E-02	-.189783E+01
225	.309810E+00	.308669E+00	.114144E-02	.368431E+00
226	.315890E+00	.312810E+00	.308004E-02	.975035E+00
227	.316905E+00	.315469E+00	.143600E-02	.453132E+00
228	.310826E+00	.312409E+00	-.158352E-02	-.509457E+00
229	.293602E+00	.297818E+00	-.421069E-02	-.143619E+01
230	.257883E+00	.263218E+00	-.533478E-02	-.206857E+01
231	.186544E+00	.189299E+00	-.275480E-02	-.147676E+01
232	.296861E+00	.313836E+00	-.169758E-01	-.571846E+01
233	.319185E+00	.321409E+00	-.222373E-02	-.696691E+00
234	.308041E+00	.313848E+00	-.580668E-02	-.188503E+01
235	.246913E+00	.240552E+00	.636024E-02	.257591E+01
236	.306770E+00	.310684E+00	-.391319E-02	-.127561E+01
237	.317665E+00	.315224E+00	.244142E-02	.768551E+00
238	.321210E+00	.319801E+00	.140900E-02	.438655E+00
239	.313106E+00	.315474E+00	-.236898E-02	-.756607E+00
240	.284227E+00	.288252E+00	-.402557E-02	-.141632E+01
241	.212766E+00	.210965E+00	.180056E-02	.846264E+00
242	.306010E+00	.307200E+00	-.118952E-02	-.388720E+00
243	.316401E+00	.310720E+00	.568078E-02	.179544E+01
244	.321726E+00	.315320E+00	.640003E-02	.198931E+01
245	.319441E+00	.316178E+00	.326302E-02	.102148E+01
246	.306010E+00	.305998E+00	.124285E-04	.406145E-02
247	.272572E+00	.274139E+00	-.156729E-02	-.575000E+00

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

248	.199895E+00	.198219E+00	.167620E-02	.838538E+00
249	.274092E+00	.281272E+00	-.713050E-02	-.261974E+01
250	.293722E+00	.285813E+00	-.209047E-02	-.736801E+00
251	.297011E+00	.290300E+00	-.337823E-02	-.117704E+01
252	.290682E+00	.286063E+00	-.538094E-02	-.191709E+01
253	.256613E+00	.258841E+00	-.222847E-02	-.868419E+00
254	.192806E+00	.181554E+00	.112520E-01	.583593E+01
255	.279667E+00	.284052E+00	-.438534E-02	-.156806E+01
256	.287771E+00	.286304E+00	.146781E-02	.510061E+00
257	.293602E+00	.289911E+00	.369121E-02	.125721E+01
258	.296131E+00	.293099E+00	.303226E-02	.102396E+01
259	.294362E+00	.293224E+00	.113772E-02	.386503E+00
260	.286251E+00	.286738E+00	-.480697E-03	-.170024E+00
261	.268268E+00	.268943E+00	-.675343E-03	-.251742E+00
262	.233461E+00	.232819E+00	.642100E-03	.275035E+00
263	.166840E+00	.161098E+00	.574143E-02	.344129E+01
264	.293212E+00	.287546E+00	-.433335E-02	-.153007E+01
265	.289802E+00	.283857E+00	.945381E-03	.326216E+00
266	.295626E+00	.291196E+00	.443039E-02	.149855E+01
267	.299681E+00	.294003E+00	.567881E-02	.189495E+01
268	.301700E+00	.296429E+00	.527686E-02	.174901E+01
269	.301201E+00	.297355E+00	.383664E-02	.127378E+01
270	.297402E+00	.295411E+00	.199015E-02	.669179E+00
271	.289291E+00	.283868E+00	.423248E-03	.146305E+00
272	.274852E+00	.275616E+00	-.763841E-03	-.277910E+00
273	.251196E+00	.252763E+00	-.156694E-02	-.623793E+00
274	.213021E+00	.215573E+00	-.255137E-02	-.119771E+01
275	.148673E+00	.150162E+00	-.148835E-02	-.100109E+01
276	.285747E+00	.290796E+00	-.504879E-02	-.176687E+01
277	.291322E+00	.291649E+00	-.327187E-03	-.112311E+00
278	.296642E+00	.293240E+00	.340129E-02	.114660E+01
279	.300946E+00	.295334E+00	.561216E-02	.186484E+01
280	.303731E+00	.297590E+00	.614060E-02	.202173E+01
281	.305506E+00	.299545E+00	.595960E-02	.195073E+01
282	.305506E+00	.300630E+00	.487551E-02	.159588E+01
283	.303481E+00	.300161E+00	.332046E-02	.109412E+01
284	.298922E+00	.297329E+00	.159247E-02	.532740E+00
285	.291322E+00	.291200E+00	.121481E-03	.416999E-01
286	.279412E+00	.280622E+00	-.121046E-02	-.433217E+00
287	.261428E+00	.264155E+00	-.272720E-02	-.104319E+01
288	.235084E+00	.239756E+00	-.467145E-02	-.198714E+01
289	.196424E+00	.203505E+00	-.708110E-02	-.360502E+01
290	.135298E+00	.143316E+00	-.801787E-02	-.592608E+01
291	.276627E+00	.283272E+00	-.664459E-02	-.240200E+01
292	.246507E+00	.289213E+00	-.270597E-02	-.944409E+00
293	.285507E+00	.291784E+00	-.527683E-02	-.184178E+01
294	.268523E+00	.272245E+00	-.372196E-02	-.138609E+01
295	.207823E+00	.195127E+00	.126955E-01	.610887E+01
296	.300946E+00	.306400E+00	-.545430E-02	-.181239E+01
297	.310570E+00	.309186E+00	.138416E-02	.445684E+00
298	.316650E+00	.313327E+00	.332276E-02	.104935E+01

APPENDIX B
TABLE B-X
COMPUTATION OF COEFFICIENTS FOR EQUATION 8 (Cont'd)

299	.317410E+00	.315987E+00	.142337E-02	.448434E+00
300	.311330E+00	.312926E+00	-.159615E-02	-.512686E+00
301	.294106E+00	.298336E+00	-.422931E-02	-.143802E+01
302	.258173E+00	.253735E+00	-.563273E-02	-.217049E+01
303	.186824E+00	.189816E+00	-.299238E-02	-.160171E+01
304	.298411E+00	.303673E+00	-.526208E-02	-.176337E+01
305	.307281E+00	.305924E+00	.135712E-02	.441654E+00
306	.313610E+00	.309531E+00	.407905E-02	.130058E+01
307	.316145E+00	.312719E+00	.342618E-02	.108374E+01
308	.313610E+00	.312845E+00	.755599E-03	.244124E+00
309	.304491E+00	.306359E+00	-.186805E-02	-.613500E+00
310	.284482E+00	.288563E+00	-.408124E-02	-.143462E+01
311	.246764E+00	.252440E+00	-.567598E-02	-.230017E+01
312	.176592E+00	.180719E+00	-.412721E-02	-.233715E+01
313	.318991E+00	.318465E+00	.525458E-03	.164725E+00
314	.323240E+00	.325386E+00	-.214533E-02	-.663694E+00
315	.275952E+00	.264981E+00	.109715E-01	.397588E+01
316	.328305E+00	.333679E+00	-.537445E-02	-.163703E+01
317	.308290E+00	.306708E+00	.158258E-02	.513339E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9

OBSERVATION NO.	INPUT DATA					
1	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.9980E+00	.9941E+00	.9903E+00	.1200E+00	.2756E+00
2	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1500E+04	.3906E-02
	.3815E-02	.9923E+00	.9477E+00	.9144E+00	.1123E+00	.2851E+00
3	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.9499E+00	.8572E+00	.7734E+00	.1089E+00	.2907E+00
4	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.8992E+00	.7271E+00	.5879E+00	.1066E+00	.2918E+00
5	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.9268E+00	.5652E+00	.3864E+00	.1041E+00	.2868E+00
6	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.7262E+00	.3829E+00	.2919E+00	.1001E+00	.2720E+00
7	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.5937E+00	.1981E+00	.6733E-01	.9300E-01	.2399E+00
8	.1563E+00	.4000E+02	.6250E+01	.2441E-01	.1600E+04	.3906E-02
	.3815E-02	.3487E+00	.4214E-01	.5103E-02	.8013E-01	.1735E+00
9	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.9987E+00	.9963E+00	.9939E+00	.1152E+00	.2847E+00
10	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.9387E+00	.9664E+00	.9447E+00	.1067E+00	.2924E+00
11	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.9682E+00	.9077E+00	.8510E+00	.1025E+00	.2985E+00
12	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.9367E+00	.8220E+00	.7213E+00	.9993E-01	.3019E+00
13	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.8930E+00	.7122E+00	.5684E+00	.9787E-01	.3019E+00
14	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.8352E+00	.5825E+00	.4063E+00	.9550E-01	.2975E+00
15	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.7599E+00	.4389E+00	.2534E+00	.9217E-01	.2866E+00
16	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.6614E+00	.2894E+00	.1266E+00	.8697E-01	.2658E+00
17	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.5268E+00	.1462E+00	.4357E-01	.7877E-01	.2288E+00
18	.2000E+00	.8000E+02	.1600E+02	.4000E-01	.6400E+04	.2500E-02
	.8000E-02	.3122E+00	.3044E-01	.2968E-02	.6623E-01	.1621E+00
19	.2500E+00	.1000E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01
	.1563E-01	.9924E+00	.9767E+00	.9614E+00	.1187E+00	.2803E+00
20	.2500E+00	.1000E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01
	.1563E-01	.9270E+00	.7967E+00	.6846E+00	.1130E+00	.2894E+00
21	.2500E+00	.1000E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01
	.1563E-01	.7906E+00	.4757E+00	.2899E+00	.1090E+00	.2805E+00
22	.2500E+00	.1000E+02	.4000E+01	.6250E-01	.2560E+03	.1563E-01
	.1563E-01	.4941E+00	.1135E+00	.2659E-01	.9860E-01	.2263E+00
23	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.3967E+00	.9963E+00	.9938E+00	.1129E+00	.2888E+00
24	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.9387E+00	.9664E+00	.9447E+00	.1041E+00	.2966E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

25	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.9682E+00	.9077E+00	.8510E+00	.9973E-01	.3028E+00
26	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.9367E+00	.8220E+00	.7213E+00	.9710E-01	.3062E+00
27	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.8930E+00	.7122E+00	.5680E+00	.9493E-01	.3062E+00
28	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.8352E+00	.5825E+00	.4063E+00	.9247E-01	.3016E+00
29	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.7599E+00	.4389E+00	.2534E+00	.8900E-01	.2905E+00
30	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.6614E+00	.2894E+00	.1266E+00	.8360E-01	.2692E+00
31	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.5268E+00	.1462E+00	.4057E-01	.7523E-01	.2316E+00
32	.2500E+00	.1000E+03	.2500E+02	.6250E-01	.1000E+05	.2500E-02
	.1563E-01	.3122E+00	.3044E-01	.2368E-02	.6257E-01	.1542E+00
33	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.9994E+00	.9983E+00	.9972E+00	.1152E+00	.2987E+00
34	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.9950E+00	.9850E+00	.9752E+00	.1068E+00	.2943E+00
35	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.9860E+00	.9586E+00	.9320E+00	.1018E+00	.2996E+00
36	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.9724E+00	.9195E+00	.8694E+00	.9867E-01	.3040E+00
37	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.9539E+00	.8681E+00	.7900E+00	.9650E-01	.3070E+00
38	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.9303E+00	.8052E+00	.6970E+00	.9480E-01	.3086E+00
39	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.9012E+00	.7320E+00	.5946E+00	.9323E-01	.3086E+00
40	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.8660E+00	.6495E+00	.4871E+00	.9160E-01	.3056E+00
41	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.8239E+00	.5593E+00	.3797E+00	.8963E-01	.3020E+00
42	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.7739E+00	.4635E+00	.2776E+00	.8707E-01	.2941E+00
43	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.7141E+00	.3642E+00	.1857E+00	.8370E-01	.2819E+00
44	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.6421E+00	.2046E+00	.1091E+00	.7910E-01	.2637E+00
45	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.5526E+00	.1689E+00	.5163E-01	.7297E-01	.2371E+00
46	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.4399E+00	.8282E-01	.1574E-01	.6487E-01	.1381E+00
47	.2500E+00	.1000E+03	.3600E+02	.4000E-01	.3240E+05	.1111E-02
	.8000E-02	.2559E+00	.1676E-01	.1098E-02	.5430E-01	.1366E+00
48	.2500E+00	.1000E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.9094E+00	.9981E+00	.9968E+00	.1134E+00	.2914E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

49	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.9942E+00	.9828E+00	.9715E+00	.1048E+00	.2974E+00
50	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.9839E+00	.9525E+00	.9222E+00	.9977E-01	.3331E+00
51	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.9582E+00	.9077E+00	.8510E+00	.9667E-01	.3074E+00
52	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.9469E+00	.8491E+00	.7614E+00	.9450E-01	.3103E+00
53	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.9196E+00	.7776E+00	.6575E+00	.9273E-01	.3114E+00
54	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.8857E+00	.6947E+00	.5450E+00	.9103E-01	.3134E+00
55	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.8444E+00	.6021E+00	.4293E+00	.8910E-01	.3069E+00
56	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.7946E+00	.5018E+00	.3168E+00	.8663E-01	.3001E+00
57	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.7345E+00	.3963E+00	.2138E+00	.8333E-01	.2987E+00
58	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.6614E+00	.2894E+00	.1266E+00	.7880E-01	.2711E+00
59	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.5704E+00	.1855E+00	.6036E-01	.7260E-01	.2448E+00
60	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.4503E+00	.9128E-01	.1851E-01	.5430E-01	.2053E+00
61	.2500E+00	.1960E+03	.4900E+02	.6250E-01	.3842E+05	.1276E-02
	.1563E-01	.2648E+00	.1857E-01	.1302E-02	.5327E-01	.1423E+00
62	.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01
	.6400E-01	.9950E+00	.9850E+00	.9752E+00	.1083E+00	.2932E+00
63	.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01
	.6400E-01	.9539E+00	.8681E+00	.7900E+00	.1008E+00	.3039E+00
64	.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01
	.6400E-01	.8660E+00	.6495E+00	.4871E+00	.9713E-01	.3037E+00
65	.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01
	.6400E-01	.7141E+00	.3640E+00	.1857E+00	.9147E-01	.2840E+00
66	.4000E+00	.4000E+02	.1600E+02	.1600E+00	.1600E+04	.1000E-01
	.6400E-01	.4359E+00	.8282E-01	.1574E-01	.7840E-01	.2193E+00
67	.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01
	.2441E+00	.9922E+00	.9767E+00	.9614E+00	.1036E+00	.3015E+00
68	.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01
	.2441E+00	.9270E+00	.7957E+00	.5845E+00	.9653E-01	.3115E+00
69	.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01
	.2441E+00	.7806E+00	.4757E+00	.2899E+00	.9147E-01	.3011E+00
70	.6250E+00	.4000E+02	.2500E+02	.3906E+00	.1600E+04	.1563E-01
	.2441E+00	.4841E+00	.1135E+00	.2659E-01	.7913E-01	.2419E+00
71	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02
	.1000E-02	.9987E+00	.9963E+00	.9938E+00	.1264E+00	.2690E+00
72	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02
	.1000E-02	.9887E+00	.9564E+00	.9447E+00	.1191E+00	.2759E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

73	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1500E+04	.2500E-02
	.1000E-02	.9682E+03	.9077E+00	.8510E+00	.1156E+00	.2815E+01
74	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1500E+04	.2500E-02
	.1000E-02	.9367E+00	.8220E+00	.7213E+00	.1135E+00	.2846E+00
75	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02
	.1000E-02	.8330E+00	.7122E+00	.5683E+00	.1118E+00	.2847E+00
76	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1500E+04	.2500E-02
	.1000E-02	.8352E+00	.5825E+00	.4063E+00	.1099E+00	.2839E+00
77	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1500E+04	.2500E-02
	.1000E-02	.7599E+00	.4389E+00	.2574E+00	.1072E+00	.2711E+00
78	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1500E+04	.2500E-02
	.1000E-02	.6614E+00	.2894E+00	.1266E+00	.1028E+00	.2519E+00
79	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1600E+04	.2500E-02
	.1000E-02	.5268E+00	.1462E+00	.4057E-01	.9540E-01	.2171E+00
80	.1000E+00	.4000E+02	.4000E+01	.1000E-01	.1500E+04	.2500E-02
	.1000E-02	.3122E+00	.3044E-01	.2968E-02	.8303E-01	.1534E+00
81	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.9980E+00	.9941E+00	.9903E+00	.1106E+00	.2910E+00
82	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.9823E+00	.9477E+00	.9144E+00	.1019E+00	.3002E+00
83	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.9499E+00	.8572E+00	.7734E+00	.9793E-01	.3051E+00
84	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.8992E+00	.7271E+00	.5879E+00	.9523E-01	.3072E+00
85	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.8268E+00	.5652E+00	.3854E+00	.9227E-01	.3016E+00
86	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.7262E+00	.3829E+00	.2019E+00	.8767E-01	.2854E+00
87	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.5830E+00	.1981E+00	.6733E-01	.7970E-01	.2511E+00
88	.3125E+00	.8000E+02	.2500E+02	.9766E-01	.6400E+04	.3906E-02
	.3052E-01	.3481E+00	.4214E-01	.5103E-02	.6623E-01	.1818E+00
89	.4000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01
	.5120E+00	.9950E+00	.9850E+00	.9752E+00	.1017E+00	.3048E+00
90	.4000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01
	.5120E+00	.9539E+00	.8681E+00	.7900E+00	.9363E-01	.3159E+00
91	.4000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01
	.5120E+00	.8661E+00	.6495E+00	.4871E+00	.8947E-01	.3155E+00
92	.4000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01
	.5120E+00	.7141E+00	.3642E+00	.1857E+00	.8323E-01	.2942E+00
93	.4000E+00	.8000E+02	.6400E+02	.6400E+00	.6400E+04	.1000E-01
	.5120E+00	.4359E+00	.8282E-01	.1574E-01	.6927E-01	.2265E+00
94	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.9995E+00	.9985E+00	.9976E+00	.1259E+00	.2716E+00
95	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.9956E+00	.9868E+00	.9781E+00	.1187E+00	.2761E+00
96	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.9977E+00	.9636E+00	.9400E+00	.1144E+00	.2808E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

97	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.9758E+00	.9291E+00	.8846E+00	.1116E+00	.2847E+00
98	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.9596E+00	.8837E+00	.8138E+00	.1097E+00	.2877E+00
99	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.9390E+00	.8280E+00	.7302E+00	.1083E+00	.2896E+00
100	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.9137E+00	.7629E+00	.6370E+00	.1071E+00	.2902E+00
101	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.8833E+00	.6892E+00	.5377E+00	.1059E+00	.2894E+00
102	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.8472E+00	.6080E+00	.4364E+00	.1045E+00	.2868E+00
103	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.8046E+00	.5209E+00	.3372E+00	.1028E+00	.2819E+00
104	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.7545E+00	.4295E+00	.2445E+00	.1006E+00	.2740E+00
105	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.6952E+00	.3360E+00	.1624E+00	.9763E-01	.2621E+00
106	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.6242E+00	.2432E+00	.9473E-01	.9353E-01	.2446E+00
107	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.5367E+00	.1546E+00	.4451E-01	.8793E-01	.2194E+00
108	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.4226E+00	.7549E-01	.1348E-01	.8033E-01	.1825E+00
109	.7813E-01	.8000E+02	.6250E+01	.6104E-02	.6400E+04	.9766E-03
	.4768E-03	.2478E+00	.1522E-01	.9352E-03	.6990E-01	.1249E+00
110	.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1553E-01
	.1953E+01	.9922E+00	.9767E+00	.9614E+00	.9803E-01	.3118E+00
111	.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01
	.1953E+01	.9270E+00	.7967E+00	.6846E+00	.9043E-01	.3220E+00
112	.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01
	.1953E+01	.7906E+00	.4757E+00	.2899E+00	.8490E-01	.3108E+00
113	.1250E+01	.8000E+02	.1000E+03	.1563E+01	.6400E+04	.1563E-01
	.1953E+01	.4841E+00	.1135E+00	.2659E-01	.7177E-01	.2488E+00
114	.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01
	.1563E-01	.9957E+00	.9850E+00	.9752E+00	.1157E+00	.2825E+00
115	.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01
	.1563E-01	.9539E+00	.8681E+00	.7900E+00	.1090E+00	.2927E+00
116	.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01
	.1563E-01	.8660E+00	.6495E+00	.4871E+00	.1056E+00	.2927E+00
117	.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01
	.1563E-01	.7141E+00	.3642E+00	.1857E+00	.1006E+00	.2741E+00
118	.2500E+00	.2500E+02	.6250E+01	.6250E-01	.6250E+03	.1000E-01
	.1563E-01	.4359E+00	.8282E-01	.1574E-01	.8840E-01	.2121E+00
119	.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02
	.1563E-01	.9965E+00	.9895E+00	.9827E+00	.1141E+00	.2843E+00
120	.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6944E-02
	.1563E-01	.9682E+00	.9077E+00	.8510E+00	.1057E+00	.2944E+00

APPENDIX B

TABLE B-XI

SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

121	.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6344E-02
	.1563E-01	.9090E+00	.7512E+00	.6208E+00	.1033E+00	.2979E+00
122	.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6344E-02
	.1563E-01	.8123E+00	.5359E+00	.3536E+00	.9997E-01	.2912E+00
123	.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6344E-02
	.1563E-01	.5514E+00	.2894E+00	.1256E+00	.9380E-01	.2658E+00
124	.2500E+00	.3600E+02	.9000E+01	.6250E-01	.1296E+04	.6344E-02
	.1563E-01	.3996E+00	.6380E-01	.1019E-01	.9073E-01	.1997E+00
125	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.9974E+00	.9924E+00	.9973E+00	.1134E+00	.2857E+00
126	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.9760E+00	.9319E+00	.8891E+00	.1053E+00	.2953E+00
127	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.9341E+00	.8150E+00	.7110E+00	.1018E+00	.3004E+00
128	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.8660E+00	.6495E+00	.4871E+00	.9900E-01	.2989E+00
129	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.7660E+00	.4494E+00	.2636E+00	.9513E-01	.2871E+00
130	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.6186E+00	.2367E+00	.9059E-01	.8807E-01	.2568E+00
131	.2500E+00	.4900E+02	.1225E+02	.6250E-01	.2401E+04	.5102E-02
	.1563E-01	.3711E+00	.5110E-01	.7036E-02	.7477E-01	.1889E+00
132	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.9980E+00	.9941E+00	.9903E+00	.1130E+00	.2859E+00
133	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.9323E+00	.9477E+00	.9144E+00	.1046E+00	.2959E+00
134	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.9499E+00	.8572E+00	.7734E+00	.1007E+00	.3017E+00
135	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.8992E+00	.7271E+00	.5879E+00	.9817E-01	.3029E+00
136	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.9268E+00	.5552E+00	.3864E+00	.9533E-01	.2975E+00
137	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.7262E+00	.3829E+00	.2019E+00	.9090E-01	.2817E+00
138	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.5830E+00	.1981E+00	.6733E-01	.8317E-01	.2480E+00
139	.2500E+00	.6400E+02	.1600E+02	.6250E-01	.4096E+04	.3906E-02
	.1563E-01	.3480E+00	.4214E-01	.5103E-02	.6990E-01	.1795E+00
140	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.9985E+00	.9954E+00	.9923E+00	.1128E+00	.2879E+00
141	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.9360E+00	.9586E+00	.9320E+00	.1042E+00	.2963E+00
142	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.9606E+00	.9865E+00	.8181E+00	.1001E+00	.3325E+00
143	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.9213E+00	.7819E+00	.6637E+00	.9753E-01	.3050E+00
144	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.8660E+00	.6495E+00	.4871E+00	.9517E-01	.3030E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

145	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.7916E+00	.4960E+00	.3107E+00	.9203E-01	.2944E+00
146	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.6917E+00	.3309E+00	.1583E+00	.8707E-01	.2756E+00
147	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.5528E+00	.1689E+00	.5163E-01	.7393E-01	.2395E+00
148	.2500E+00	.8100E+02	.2025E+02	.6250E-01	.6561E+04	.3086E-02
	.1563E-01	.3288E+00	.3555E-01	.3943E-02	.6590E-01	.1714E+00
149	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.9390E+00	.9959E+00	.9948E+00	.1129E+00	.2895E+00
150	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.9307E+00	.9722E+00	.9541E+00	.1042E+00	.2969E+00
151	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.9738E+00	.9235E+00	.8758E+00	.9957E-01	.3030E+00
152	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.3480E+00	.8520E+00	.7658E+00	.9683E-01	.3069E+00
153	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.9125E+00	.7598E+00	.6326E+00	.9473E-01	.3031E+00
154	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.8660E+00	.6495E+00	.4871E+00	.9263E-01	.3059E+00
155	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.8067E+00	.5231E+00	.3417E+00	.8997E-01	.2992E+00
156	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.7315E+00	.3915E+00	.2095E+00	.8617E-01	.2859E+00
157	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.6348E+00	.2558E+00	.1031E+00	.8047E-01	.2628E+00
158	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.5042E+00	.1282E+00	.3258E-01	.7200E-01	.2243E+00
159	.2500E+00	.1210E+03	.3025E+02	.6250E-01	.1464E+05	.2066E-02
	.1563E-01	.2982E+00	.2652E-01	.2358E-02	.5973E-01	.1578E+00
160	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.9991E+00	.9974E+00	.9957E+00	.1131E+00	.2902E+00
161	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.9922E+00	.9767E+00	.9614E+00	.1043E+00	.2971E+00
162	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.9781E+00	.9356E+00	.8950E+00	.9957E-01	.3031E+00
163	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.9565E+00	.8751E+00	.8007E+00	.9667E-01	.3072E+00
164	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.9270E+00	.7967E+00	.6846E+00	.9460E-01	.3092E+00
165	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.8388E+00	.7021E+00	.5546E+00	.9267E-01	.3086E+00
166	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.8406E+00	.5939E+00	.4196E+00	.9050E-01	.3046E+00
167	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.7806E+00	.4757E+00	.2899E+00	.8763E-01	.2961E+00
168	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.7059E+00	.3518E+00	.1753E+00	.8353E-01	.2811E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

159	.2500E+00	.1440E+03	.3500E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.5119E+00	.2280E+00	.8509E-01	.7760E-01	.2566E+00
170	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.4841E+00	.1135E+00	.2659E-01	.6913E-01	.2175E+00
171	.2500E+00	.1440E+03	.3600E+02	.6250E-01	.2074E+05	.1736E-02
	.1563E-01	.2858E+00	.2334E-01	.1905E-02	.5727E-01	.1521E+00
172	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.9993E+00	.9978E+00	.9963E+00	.1132E+00	.2908E+00
173	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.9933E+00	.9801E+00	.9670E+00	.1045E+00	.2973E+00
174	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.9813E+00	.9450E+00	.9101E+00	.9963E-01	.3031E+00
175	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.9631E+00	.8933E+00	.8285E+00	.9663E-01	.3074E+00
176	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.9382E+00	.8257E+00	.7268E+00	.9450E-01	.3099E+00
177	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.9061E+00	.7439E+00	.6107E+00	.9270E-01	.3103E+00
178	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.8660E+00	.6495E+00	.4871E+00	.9093E-01	.3081E+00
179	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.8168E+00	.5450E+00	.3636E+00	.8853E-01	.3026E+00
180	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.7567E+00	.4332E+00	.2480E+00	.8543E-01	.2925E+00
181	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.6826E+00	.3180E+00	.1482E+00	.8110E-01	.2761E+00
182	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.5896E+00	.2050E+00	.7125E-01	.7500E-01	.2505E+00
183	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.4664E+00	.1014E+00	.2206E-01	.6657E-01	.2112E+00
184	.2500E+00	.1690E+03	.4225E+02	.6250E-01	.2856E+05	.1479E-02
	.1563E-01	.2748E+00	.2075E-01	.1567E-02	.5513E-01	.1459E+00
185	.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01
	.1000E+01	.9950E+00	.9850E+00	.9752E+00	.1003E+00	.3076E+00
186	.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01
	.1000E+01	.9539E+00	.8681E+00	.7900E+00	.9210E-01	.3188E+00
187	.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01
	.1000E+01	.8660E+00	.6495E+00	.4871E+00	.8723E-01	.3182E+00
188	.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01
	.1000E+01	.7141E+00	.3642E+00	.1857E+00	.8143E-01	.2966E+00
189	.1000E+01	.1000E+03	.1000E+03	.1000E+01	.1000E+05	.1000E-01
	.1000E+01	.4359E+00	.8282E-01	.1574E-01	.6727E-01	.2200E+00
190	.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01
	.3815E+01	.9922E+00	.9767E+00	.9614E+00	.9587E-01	.3143E+00
191	.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01
	.3815E+01	.9270E+00	.7967E+00	.6946E+00	.8913E-01	.3246E+00
192	.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01
	.3815E+01	.7806E+00	.4757E+00	.2899E+00	.8347E-01	.3131E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

193	.1563E+01	.1000E+03	.1563E+03	.2441E+01	.1000E+05	.1563E-01
	.3815E+01	.4841E+00	.1135E+00	.2659E-01	.7013E-01	.2503E+00
194	.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01
	.1250E+00	.9922E+00	.9767E+00	.9614E+00	.1062E+00	.2971E+00
195	.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01
	.1250E+00	.9270E+00	.7967E+00	.6946E+00	.9940E-01	.3070E+00
196	.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01
	.1250E+00	.7806E+00	.4757E+00	.2899E+00	.9453E-01	.2369E+00
197	.5000E+00	.3200E+02	.1600E+02	.2500E+00	.1024E+04	.1563E-01
	.1250E+00	.4841E+00	.1135E+00	.2659E-01	.8257E-01	.2389E+00
198	.5000E+00	.5000E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01
	.1250E+00	.9950E+00	.9850E+00	.9752E+00	.1057E+00	.2974E+00
199	.5000E+00	.5000E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01
	.1250E+00	.9539E+00	.8681E+00	.7900E+00	.9803E-01	.3083E+00
200	.5000E+00	.5000E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01
	.1250E+00	.8660E+00	.6495E+00	.4871E+00	.9413E-01	.3080E+00
201	.5000E+00	.5000E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01
	.1250E+00	.7141E+00	.3642E+00	.1857E+00	.8827E-01	.2978E+00
202	.5000E+00	.5000E+02	.2500E+02	.2500E+00	.2500E+04	.1000E-01
	.1250E+00	.4359E+00	.8282E-01	.1574E-01	.7487E-01	.2220E+00
203	.5000E+00	.7200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02
	.1250E+00	.9965E+00	.9896E+00	.9827E+00	.1159E+00	.2977E+00
204	.5000E+00	.7200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02
	.1250E+00	.9682E+00	.9077E+00	.8510E+00	.9753E-01	.3083E+00
205	.5000E+00	.7200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02
	.1250E+00	.9990E+00	.7512E+00	.6208E+00	.9373E-01	.3121E+00
206	.5000E+00	.7200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02
	.1250E+00	.8123E+00	.5359E+00	.3536E+00	.8987E-01	.3045E+00
207	.5000E+00	.7200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02
	.1250E+00	.6614E+00	.2894E+00	.1266E+00	.8293E-01	.2771E+00
208	.5000E+00	.7200E+02	.3600E+02	.2500E+00	.5184E+04	.6944E-02
	.1250E+00	.3996E+00	.6380E-01	.1019E-01	.6893E-01	.2078E+00
209	.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02
	.1250E+00	.10474E+00	.9924E+00	.9873E+00	.1063E+00	.2979E+00
210	.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02
	.1250E+00	.9768E+00	.9319E+00	.8891E+00	.9750E-01	.3080E+00
211	.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02
	.1250E+00	.9341E+00	.8150E+00	.7110E+00	.9353E-01	.3134E+00
212	.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02
	.1250E+00	.9660E+00	.6495E+00	.4871E+00	.9040E-01	.3116E+00
213	.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02
	.1250E+00	.7660E+00	.4494E+00	.2636E+00	.8607E-01	.2987E+00
214	.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02
	.1250E+00	.6186E+00	.2367E+00	.9059E-01	.7827E-01	.2665E+00
215	.5000E+00	.9800E+02	.4900E+02	.2500E+00	.9604E+04	.5102E-02
	.1250E+00	.3711E+00	.5110E-01	.7035E-02	.6423E-01	.1958E+00
216	.5000E+00	.1080E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.1093E+00	.9941E+00	.9903E+00	.1068E+00	.2982E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

217	.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.9923E+00	.9477E+00	.9144E+00	.9777E-01	.3078E+00
218	.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.9499E+00	.8572E+00	.7734E+00	.9353E-01	.3136E+00
219	.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.8992E+00	.7271E+00	.5879E+00	.9063E-01	.3146E+00
220	.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.9268E+00	.5652E+00	.3864E+00	.8747E-01	.3088E+00
221	.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.7262E+00	.3829E+00	.2719E+00	.8257E-01	.2919E+00
222	.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.5830E+00	.1981E+00	.6733E-01	.7423E-01	.2564E+00
223	.5000E+00	.1280E+03	.6400E+02	.2500E+00	.1638E+05	.3906E-02
	.1250E+00	.3490E+00	.4214E-01	.5103E-02	.6040E-01	.1855E+00
224	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.9980E+00	.9941E+00	.9903E+00	.1058E+00	.3002E+00
225	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.9823E+00	.9477E+00	.9144E+00	.9663E-01	.3098E+00
226	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.9499E+00	.8572E+00	.7734E+00	.9230E-01	.3159E+00
227	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.8992E+00	.7271E+00	.5879E+00	.8937E-01	.3159E+00
228	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.8268E+00	.5652E+00	.3864E+00	.9613E-01	.3108E+00
229	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.7262E+00	.3829E+00	.2019E+00	.8113E-01	.2936E+00
230	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.5830E+00	.1981E+00	.6733E-01	.7270E-01	.2579E+00
231	.5938E+00	.1520E+03	.9025E+02	.3525E+00	.2310E+05	.3906E-02
	.2093E+00	.3490E+00	.4214E-01	.5103E-02	.5877E-01	.1855E+00
232	.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01
	.1000E+01	.9922E+00	.9767E+00	.9614E+00	.9947E-01	.2969E+00
233	.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01
	.1000E+01	.9270E+00	.7967E+00	.6846E+00	.9203E-01	.3192E+00
234	.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01
	.1000E+01	.7806E+00	.4757E+00	.2899E+00	.8660E-01	.3080E+00
235	.1000E+01	.6400E+02	.6400E+02	.1000E+01	.4096E+04	.1563E-01
	.1000E+01	.4841E+00	.1135E+00	.2659E-01	.7370E-01	.2469E+00
236	.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02
	.1000E+01	.9965E+00	.9896E+00	.9827E+00	.1014E+00	.3068E+00
237	.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02
	.1000E+01	.9682E+00	.9077E+00	.8510E+00	.9257E-01	.3177E+00
238	.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02
	.1000E+01	.9090E+00	.7512E+00	.6208E+00	.8847E-01	.3212E+00
239	.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02
	.1000E+01	.8127E+00	.5359E+00	.3536E+00	.8427E-01	.3131E+00
240	.1000E+01	.1440E+03	.1440E+03	.1000E+01	.2074E+05	.6944E-02
	.1000E+01	.6614E+00	.2894E+00	.1266E+00	.7683E-01	.2842E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

241	.1000E+01	.1440E+03	.1440E+07	.1000E+01	.2074E+05	.6344E-02
	.1000E+01	.3996E+00	.6380E-01	.1019E-01	.6230E-01	.2128E+00
242	.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02
	.1000E+01	.3974E+00	.9924E+00	.9873E+00	.1025E+00	.3050E+00
243	.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02
	.1000E+01	.9758E+00	.9319E+00	.8991E+00	.9327E-01	.3164E+00
244	.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02
	.1000E+01	.9341E+00	.8150E+00	.7110E+00	.8900E-01	.3217E+03
245	.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02
	.1000E+01	.8660E+00	.6495E+00	.4371E+00	.8563E-01	.3194E+00
246	.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02
	.1000E+01	.7060E+00	.4494E+00	.2636E+00	.8097E-01	.3050E+00
247	.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02
	.1000E+01	.6186E+00	.2367E+00	.9059E-01	.7277E-01	.2726E+00
248	.1000E+01	.1960E+03	.1960E+03	.1000E+01	.3842E+05	.5102E-02
	.1000E+01	.3711E+00	.5110E-01	.7036E-02	.5830E-01	.1999E+00
249	.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02
	.4630E-02	.9965E+00	.9896E+00	.9827E+00	.1220E+00	.2741E+00
250	.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02
	.4630E-02	.9082E+00	.9077E+00	.8510E+00	.1153E+00	.2837E+00
251	.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02
	.4630E-02	.9090E+00	.7512E+00	.6208E+00	.1124E+00	.2870E+00
252	.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02
	.4630E-02	.9123E+00	.5359E+00	.3536E+00	.1095E+00	.2807E+00
253	.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02
	.4630E-02	.6614E+00	.2894E+00	.1266E+00	.1040E+00	.2566E+00
254	.1667E+00	.2400E+02	.4000E+01	.2778E-01	.5760E+03	.6944E-02
	.4630E-02	.3996E+00	.6380E-01	.1019E-01	.9160E-01	.1928E+00
255	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.9965E+00	.9954E+00	.9923E+00	.1180E+00	.2737E+00
256	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.9860E+00	.9586E+00	.9320E+00	.1100E+00	.2978E+00
257	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.9606E+00	.8865E+00	.8181E+00	.1061E+00	.2936E+00
258	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.9213E+00	.7819E+00	.6637E+00	.1038E+00	.2981E+00
259	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.8660E+00	.6495E+00	.4371E+00	.1016E+00	.2944E+00
260	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.7916E+00	.4960E+00	.3107E+00	.9877E-01	.2853E+00
261	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.5917E+00	.3309E+00	.1583E+00	.9417E-01	.2583E+00
262	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.5520E+00	.1689E+00	.5163E-01	.8647E-01	.2335E+00
263	.1667E+00	.5400E+02	.9000E+01	.2778E-01	.2916E+04	.3086E-02
	.4630E-02	.3288E+00	.3555E-01	.3943E-02	.7373E-01	.1658E+00
264	.1667E+00	.9500E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.9991E+00	.9974E+00	.9957E+00	.1169E+00	.2832E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

265	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.9922E+00	.9767E+00	.9614E+00	.1086E+00	.2396E+00
266	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.9781E+00	.9356E+00	.8950E+00	.1041E+00	.2356E+00
267	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.9565E+00	.8751E+00	.8007E+00	.1014E+00	.2997E+00
268	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.9270E+00	.7967E+00	.6846E+00	.9943E-01	.3017E+00
269	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.8888E+00	.7021E+00	.5545E+00	.9767E-01	.3012E+00
270	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.8406E+00	.5939E+00	.4196E+00	.9563E-01	.2974E+00
271	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.7806E+00	.4757E+00	.2899E+00	.9297E-01	.2893E+00
272	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.7059E+00	.3518E+00	.1753E+00	.8910E-01	.2749E+00
273	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.6109E+00	.2280E+00	.8509E-01	.8343E-01	.2512E+00
274	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.4841E+00	.1135E+00	.2659E-01	.7523E-01	.2130E+00
275	.1667E+00	.9600E+02	.1600E+02	.2778E-01	.9216E+04	.1736E-02
	.4630E-02	.2858E+00	.2334E-01	.1906E-02	.6350E-01	.1487E+00
276	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.9994E+00	.9983E+00	.9972E+00	.1167E+00	.2857E+00
277	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.9303E+00	.9850E+00	.9752E+00	.1085E+00	.2913E+00
278	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.9860E+00	.9586E+00	.9320E+00	.1036E+00	.2966E+00
279	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.9774E+00	.9195E+00	.8694E+00	.1005E+00	.3009E+00
280	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.9539E+00	.8691E+00	.7900E+00	.9840E-01	.3037E+00
281	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.9303E+00	.8052E+00	.6970E+00	.9673E-01	.3055E+00
282	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.9012E+00	.7320E+00	.5946E+00	.9523E-01	.3055E+00
283	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.8660E+00	.6495E+00	.4871E+00	.9363E-01	.3035E+00
284	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.8239E+00	.5593E+00	.3797E+00	.9173E-01	.2989E+00
285	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.7739E+00	.4635E+00	.2776E+00	.8927E-01	.2913E+00
286	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.7141E+00	.3642E+00	.1857E+00	.8597E-01	.2794E+00
287	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.6420E+00	.2646E+00	.1091E+00	.8147E-01	.2614E+00
288	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.5528E+00	.1689E+00	.5163E-01	.7543E-01	.2351E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

289	.1547E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.4359E+00	.8282E-01	.1574E-01	.6740E-01	.1954E+00
290	.1667E+00	.1500E+03	.2500E+02	.2778E-01	.2250E+05	.1111E-02
	.4630E-02	.2559E+00	.1676E-01	.1098E-02	.5683E-01	.1353E+00
291	.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4300E+03	.1300E-01
	.8000E-02	.9950E+00	.9950E+00	.9752E+00	.1205E+00	.2766E+00
292	.2000E+00	.2300E+02	.4000E+01	.4300E-01	.4000E+03	.1000E-01
	.8000E-02	.9539E+00	.8581E+00	.7900E+00	.1142E+00	.2855E+00
293	.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4000E+03	.1300E-01
	.8000E-02	.9660E+00	.6495E+00	.4871E+00	.1112E+00	.2865E+00
294	.2300E+00	.2300E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01
	.8000E-02	.7142E+00	.3642E+00	.1857E+00	.1365E+00	.2535E+00
295	.2000E+00	.2000E+02	.4000E+01	.4000E-01	.4000E+03	.1000E-01
	.8000E-02	.4359E+00	.8282E-01	.1574E-01	.9480E-01	.2078E+00
296	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.9980E+00	.9941E+00	.9903E+00	.1355E+00	.3039E+00
297	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.9923E+00	.9477E+00	.9144E+00	.9630E-01	.3106E+00
298	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.9499E+00	.8572E+00	.7734E+00	.9197E-01	.3166E+00
299	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.8992E+00	.7271E+00	.5879E+00	.8903E-01	.3174E+00
300	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.8268E+00	.5652E+00	.3864E+00	.8577E-01	.3113E+00
301	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.7262E+00	.3829E+00	.2019E+00	.8077E-01	.2941E+00
302	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.5830E+00	.1981E+00	.6733E-01	.7230E-01	.2581E+00
303	.6250E+00	.1600E+03	.1000E+03	.3906E+00	.2560E+05	.3906E-02
	.2441E+00	.3481E+00	.4214E-01	.5103E-02	.5833E-01	.1958E+00
304	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.9985E+00	.9954E+00	.9923E+00	.1074E+00	.2984E+00
305	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.9860E+00	.9586E+00	.9320E+00	.9817E-01	.3073E+00
306	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.9606E+00	.8865E+00	.8181E+00	.9370E-01	.3136E+00
307	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.9213E+00	.7819E+00	.6037E+00	.9083E-01	.3161E+00
308	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.9660E+00	.6495E+00	.4871E+00	.8820E-01	.3136E+00
309	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.7916E+00	.4960E+00	.3107E+00	.8473E-01	.3045E+00
310	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.6917E+00	.3309E+00	.1583E+00	.7933E-01	.2845E+00
311	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.5528E+00	.1689E+00	.5163E-01	.7070E-01	.2466E+00
312	.5000E+00	.1620E+03	.8100E+02	.2500E+00	.2624E+05	.3086E-02
	.1250E+00	.3288E+00	.3555E-01	.3843E-02	.5723E-01	.1766E+00

APPENDIX B
TABLE B-XI
SUMMARY OF INPUT DATA FOR EQUATIONS 7, 8, AND 9 (Cont'd)

313	.1667E+01	.6000E+02	.1000E+03	.2778E+01	.3600E+04	.2778E-01
	.4630E+01	.9860E+00	.9586E+00	.9320E+00	.9540E-01	.3190E+00
314	.1667E+01	.6000E+02	.1000E+03	.2778E+01	.3600E+04	.2778E-01
	.4630E+01	.3660E+00	.6495E+00	.4971E+00	.9830E-01	.3232E+00
315	.1667E+01	.6000E+02	.1000E+03	.2778E+01	.3600E+04	.2778E-01
	.4630E+01	.9528E+00	.1689E+00	.5163E-01	.7730E-01	.2760E+00
316	.2500E+01	.4000E+02	.1000E+03	.6250E+01	.1600E+04	.6250E-01
	.1563E+02	.9582E+00	.9077E+00	.8510E+00	.9253E-01	.3283E+00
317	.2500E+01	.4000E+02	.1000E+03	.6250E+01	.1600E+04	.6250E-01
	.1563E+02	.6614E+00	.2894E+00	.1266E+00	.8377E-01	.3083E+00

NADC-80029-60

	<u>No. of Copies</u>
Boeing Military Airplane Development (1 for P. E. Rubbert)	1
Flow Industries, Inc. (1 for E. Murman)	1
Boston University (1 for L. Morino)	1
OSD/USDRE (ET) (1 for R. F. Siewert, Rm. # 3D 1089, the Pentagon)	1

NADC-80029-60

D I S T R I B U T I O N L I S T

REPORT NO. NADC-79005-60

AIRTASK NO. WF41400000

Work Unit No. ZA-602

	<u>No. of Copies</u>
NAVAIR (AIR-950D)	10
(2 for retention)	
(2 for AIR-5301)	
(2 for AIR-320D)	
(2 for AIR-5302)	
(2 for AIR 5302F)	
DTNSRDC	1
ONR	1
NASA, LRC	3
(1 for retention)	
(1 for J. Lamar)	
(1 for E. C. Yates)	
NASA, Ames	2
(1 for retention)	
(1 for L. L. Erickson)	
CNO, OP-03EG	1
COMOPTEVFOR	1
NAVELECSYSCOM	1
NAVSHIPSYSCOM	1
AIRTEVROM ONE	1
NELCEN	1
NUSC, New London	1
NAVWPNSCEN	1
NURDC	1
NRL	1
NAVSURFWPNCEN	1
NAVAIRTESTCEN	1
NAVPGSCOL	1
NAVIONIC FAC	1
NAVMISCEN	1
AFSC (SCTS), Andrews AFB	1
USAECOM, AMSEL-GG-DD	1
DDC	12
AFFDL	2
(1 for retention)	
(1 for J. Olsen)	
Analytical Methods Inc.	1
(1 for F. Woodward)	