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ANALYSIS AND FULL-SCALE TESTING OF AN AIRCRAFT SHELTER

Jimmy H. Smith

The Eric H. Wang Civil Engineering Research Facility

University of New Mexico

TECHNICAL REPORT NO. AFWL-TR-70-170

April 1971

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The objective of this research was to determine the response of a semicircular orthotropic steel shell aircraft shelter when subjected to symmetric and unsymmetric static load conditions. A numerical technique is presented which is capable of treating the problems of nonlinear material properties, nonlinear geometry, flexure and axial compression, and the orthotropic nature of the structure. Basically, a mathematical model is developed which exhibits the same characteristics (moment-rotation, load-deformation, and ultimate strength) as a finite portion of the actual structure. This information is then used as input to a digital computer program for proper assembly of the stiffness coefficients and subsequent solution. The method of analysis is based on a differential approach to the basic displacement method, and a fourth-order Runge-Kutta integration technique is employed to integrate the differential equations. To verify the analysis, 22 tests were conducted on a full-scale structure which compared favorably to the numerical analysis.

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FOREWORD

This report was prepared by the Eric H. Wang Civil Engineering Research Facility, University of New Mexico, Albuquerque, New Mexico, under Contract F29601-68-C-0009. The research was performed under Program Element 63723F, Projects 5713 and 683M.

Inclusive dates of research were July 1968 through October 1970. The report was submitted 1 April 1971 by the Air Force Weapons Laboratory Project Officer, Captain Jacob C. Armstrong (DEZ). The former project officer was Captain Marcus Moses.

This report has been reviewed and is approved.

Jacob C. Armstrong

JACOB C. ARMSTRONG
Captain, USAF
Project Officer

Clarence E. Teske

CLARENCE E. TESKE
Lt Colonel, USAF
Chief, Aerospace Facilities Branch

JEAN M. MARCHAND
Lt Colonel, USAF
Acting Chief, Civil Engineering
Research Division

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ABBREVIATIONS AND SYMBOLS

[A]	equilibrium matrix
A^*	equivalent shell area used to compute t_{eac}
Ar	cross-sectional area of the element
[B]	compatibility matrix
E	modulus of elasticity
I	moment of inertia
[K]	structure oriented stiffness matrix
K^*	derivative of K_i with respect to P
K_i	force-displacement function of structure at point i
L	length of element
M	applied moment
M_i	moment at i end of element
M_j	moment at j end of element
M_p	ultimate moment
P	parameter of applied loads
R	either stiffness coefficient or radius
b	width of panel
{d}	vector of nodal deformations
d_j	generalized displacement at point i in j direction
$\dot{d}_j$	derivative of d_j with respect to P
{f}	vector of externally applied forces
f_0	ultimate axial force for each element
[k]	element oriented stiffness matrix
$\bar{k}$	differential element stiffness matrix
n	curve-fitting parameter
{p}	vector of internal forces

ABBREVIATIONS AND SYMBOLS (Concl'd)

t_M	equivalent thickness (strong axis)
t_W	equivalent thickness (weak axis)
t_{eac}	equivalent shell thickness for axial stress in circumferential direction
t_{efc}	equivalent shell thickness for flexure in circumferential direction
$\{v\}$	vector of internal deformations
$\lambda_i P$	generalized applied load at point i
θ	rotation
θ_i	rotation at i end of element
θ_j	rotation at j end of element

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SECTION I

INTRODUCTION

1. OBJECTIVES

The objectives of this investigation are (1) to develop a technique for analyzing doubly corrugated steel shells used as protective shelters for aircraft, and (2) to verify the analysis by full-scale testing of such a structure.

2. DESCRIPTION OF STRUCTURE

Although the analysis developed and presented in this report is applicable to general shell structures exhibiting nonlinear response when subjected to arbitrary static loading, the particular structure studied here was a semicircular steel arch shell constructed of doubly corrugated arch panels bolted together to form a completely self-supporting structure. These panels were fabricated of 14-gage sheet steel that was first deformed into somewhat of a U-shape 14 in. deep. Then, to obtain the proper curvature, small corrugations were rolled into the panels on the bottom and sides of the U-shape. Consequently, the assembled structure had deep corrugations circumferentially and small corrugations longitudinally. The structure analyzed and tested in this study was 74 ft long and had an inside radius of 24 ft. This structure was manufactured by Wonder Trussless Building, Inc. of Chicago, Illinois.

3. PREVIOUS WORK

Since the structure being studied was one to which no closed form mathematical solution was applicable, the few previous attempts of analysis (refs. 1,2) have necessarily been restricted to treating the problem as being a linear, elastic, isotropic arch. To the author's knowledge, the change in structural response due to the small corrugations has never been studied.

Similar structures have been evaluated in the past. The U.S. Naval Civil Engineering Laboratory (NCEL) has published two technical reports on the evaluation of doubly corrugated metal buildings (refs. 3,4). In both of these reports, the characteristics determined were shipping weight and cube, weight of metal required, structural strength, ruggedness, erection and reerection time, first costs, and maintenance costs.

Although recently constructed aircraft shelters have a concrete cover, originally they were designed with an earth cover. A rather comprehensive structural test program (ref. 5) was conducted by the Civil Engineering Division of the Air Force Weapons Laboratory (AFWL). The objectives of that study were (1) to establish design criteria and standards for a family of protective shelters, and (2) to evaluate currently available structures for their potential use as aircraft protective shelters. The results indicated that a 48-ft-diameter 10-gage structure with a 14-in.-deep corrugation was capable of sustaining a 10-ft static load of earth cover.

4. APPROACH

a. Numerical Analysis

A numerical technique capable of treating the problems of nonlinear material properties, nonlinear geometry, and orthotropic response to arbitrary loading was developed. To accomplish this, a mathematical model which exhibited the same characteristics (moment-rotation, force-deformation, and ultimate strength) as a finite portion of the actual structure was developed. The entire structure was then analyzed by appropriate assembly of hundreds of these models within a computer program (appendix I) which was developed as part of this investigation. Basically the numerical approach employed was as follows:

(1) A differential approach to the basic displacement method was employed.

(2) A three-parameter moment-rotation (and force-deformation) equation was used to represent the material nonlinearity.

(3) A beam model was used which, when coupled to five other similar beam models, represented the behavior of a portion of the shell both in the elastic and plastic ranges.

(4) A fourth-order Runge-Kutta integration scheme was employed to integrate the system of differential equations.

(5) The compatibility matrix was adjusted during the incremental loading in order to account for geometric nonlinearity.

Every attempt was made to retain the physical characteristics of the real structure while developing a method of analysis which had a tractable solution. The end result was a technique which predicts the behavior of the

structure under any static loading condition. This approach was similar to that presented in reference 6.

b. Experimental Program

The experimental phase of this investigation consisted of two parts.

(1) Laboratory tests were conducted to determine the moment-rotation, force-deformation relationships, and the failure modes of finite portions of the structure. This information was then used as input to the computer program previously mentioned.

(2) Full-scale tests were conducted on 74 linear feet of the structure using known loads in order to verify the numerical analysis.

As a result of this experimental investigation, a technique which can be used to predict the elastic moment-rotation response of the individual panels was developed. The significance of this is best realized when a requirement for the analysis of a deeper corrugated section arises. By testing circumferential strips of the panels in uniaxial tension, the variation of the modulus of elasticity within the cross section of the panels can be determined. This information can be used to develop a transformed section similar to the approach used in the analysis of reinforced concrete members.

SECTION II

FORMULATION OF CONCEPTS

1. GENERAL APPROACH TO FULL-SCALE STRUCTURE

Although the analysis of the structure being studied appears, at first, to present a relatively simple problem, closer examination reveals several complications that prohibit the use of existing shell-analysis techniques. The structure exhibits pronounced orthotropy, nonlinear response to applied loads, and can be loaded to such an extent as to produce geometric nonlinearity. Since the spectrum of loads of interest encompasses virtually all possible magnitudes, the following conditions must be studied:

(a) elastic analysis (loads of low intensity),

(b) nonlinear analysis (loads of higher intensity), and

(c) ultimate strength analysis (loads that cause collapse).

A procedure has been developed which treats all the above conditions simultaneously. So that one may better understand the approach used in the numerical analysis, development of the matrix formulation is presented in detail. The differential approach used to consider material nonlinearity and the incremental approach used to handle geometric nonlinearity are presented. The mathematical models for the nonlinear beam element, the orthotropic shell element, and the full-scale structure are also presented.

2. MATRIX FORMULATION

Indeterminate structural systems which behave elastically can be analyzed by either the "force" or "displacement" method. Nonlinear systems can also be solved by either method as presented by Richard and Goldberg (ref. 7) and Goldberg and Richard (ref. 8). The displacement method prevails, however, because of the ease of generating the required equations on the digital computer; consequently, this method is applied to the approach taken in this report. Applying the displacement method to nonlinear systems, using a differential point of view, results in a set of simultaneous nonlinear ordinary differential equations which is solved by numerical integration.

The matrix formulation of the displacement method, as used in elastic analysis, is based on equilibrium, stress-strain, and compatibility relationships of a deformable body.

Consideration of equilibrium results in the following expression relating the vector of applied forces, {f}, to the vector of internal forces, {p}.

$$\{f\} = [A]\{p\} \tag{1}$$

where [A] is known as the equilibrium matrix.

Employing stress-strain (e.g., moment-rotation or force-deformation) concepts, the internal forces, {p}, are expressed in terms of the internal deformations, {v}.

$$\{p\} = [k]\{v\} \tag{2}$$

where [k] is the stress-strain relationship (usually called the element stiffness matrix).

Enforcing continuity results in the following expression relating external deformations, {d}, to the internal deformations, {v}.

$$\{v\} = [B]\{d\} \tag{3}$$

where [B] is the compatibility matrix presented in figure 1.

Applying a set of virtual displacements to a structure which is subjected to the action of real loads and introducing the theorem of virtual work gives

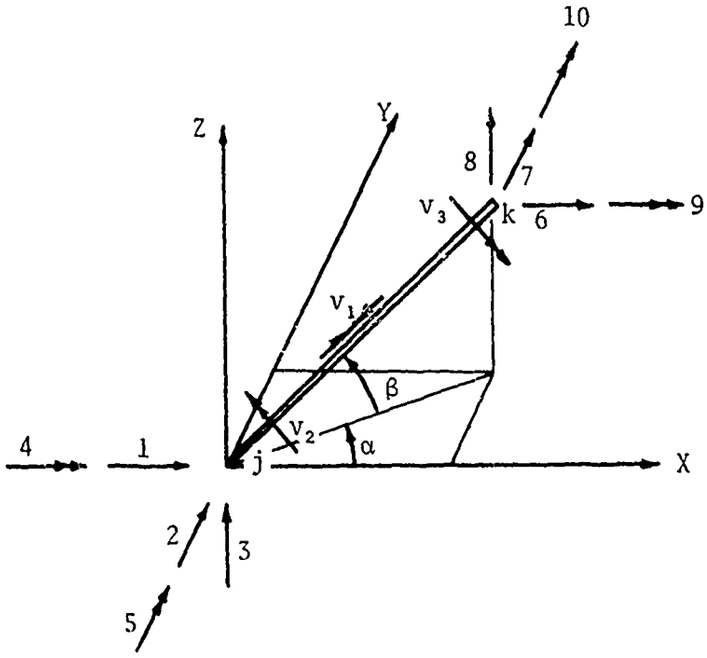
$$\{f\}^t\{d\} = \{p\}^t\{v\} \tag{4}$$

Substitution of eqs. (1) and (3) into (4) results in

$$\{p\}^t[A]^t\{d\} = \{p\}^t[B]\{d\} \tag{5}$$

Therefore, the compatibility matrix is the transpose of the equilibrium matrix.

$$[B] = [A]^t \tag{6}$$



*Cα = Cosα
Sα = Sinα
Cβ = Cosβ
Sβ = Sinβ

$$
\begin{array}{c}
 \\ v_1 \\ v_2 \\ v_3
\end{array}
\begin{array}{c}
\begin{array}{cccccccccc} d_1 & d_2 & d_3 & d_4 & d_5 & d_6 & d_7 & d_8 & d_9 & d_{10} \end{array} \\
\left[\begin{array}{c|c|c|c|c|c|c|c|c|c}
C\alpha*C\beta & S\alpha*C\beta & S\beta & 0 & 0 & -C\alpha*C\beta & -S\alpha*C\beta & -S\beta & 0 & 0 \\
\hline
\frac{C\alpha*S\beta}{L} & \frac{S\alpha*S\beta}{L} & \frac{-C\beta}{L} & -S\alpha & C\alpha & \frac{-C\alpha*S\beta}{L} & \frac{-S\alpha*S\beta}{L} & \frac{C\beta}{L} & 0 & 0 \\
\hline
\frac{-C\alpha*S\beta}{L} & \frac{-S\alpha*S\beta}{L} & \frac{C\beta}{L} & 0 & 0 & \frac{C\alpha*S\beta}{L} & \frac{S\alpha*S\beta}{L} & \frac{-C\beta}{L} & S\alpha & -C\alpha
\end{array}\right]
\end{array}
$$

Figure 1. Compatibility Matrix Development

It can now be shown that

$$\{f\} = [B]^t[k][B]\{d\} \tag{7}$$

or

$$\{f\} = [K]\{d\} \tag{8}$$

and

$$\{p\} = [k][B]\{d\} \tag{9}$$

where [K] is known as the structure oriented stiffness matrix ($[K] = [B]^t[k][B]$).

Equation (8) represents a set of simultaneous algebraic equations, the solution of which yields the linearly elastic response of the structure for any statically applied loading.

3. DIFFERENTIAL APPROACH

In structural systems which exhibit nonlinear material behavior, the displacements are not linear functions of the applied loading and, consequently, a differential approach must be taken. In order to formulate the fundamental equations of a nonlinear structure, consider first the set of equations derived for linear structures and introducing proportional loading,

$$\lambda_i P = K_i(d_j) \tag{10}$$

where P is the parameter of applied loads, $\lambda_i P$ represents the generalized applied load at point i, K_i denotes the force-displacement function of the structure at point i, and d_j is the generalized displacement at point i in the j direction. The differential form of eq. (10) is

$$\frac{d}{dP}(\lambda_i P) = \frac{d}{dP}\left(K_i(d_j)\right) \tag{11}$$

or

$$\lambda_i = F_i(d_j, \dot{d}_j) \tag{12}$$

where

$$F_i(d_j, \dot{d}_j) = \frac{dK_i(d_j)}{dP} \tag{13}$$

and

$$\dot{d}_j = \frac{d}{dP}(d_j) \tag{14}$$

Integration of eq. (14) results in a complete displacement pattern for the nonlinear structure for any given applied loading and initial conditions (ref. 8). This integration is accomplished numerically using a fourth order Runge-Kutta technique.

By introducing a shorthand notation for the first term on the right side of eq. (13),

$$\frac{dK_i}{dP} = K^* \tag{15}$$

K^* is the generalized differential stiffness matrix and is determined by

$$K^* = B^t \bar{k} B \tag{16}$$

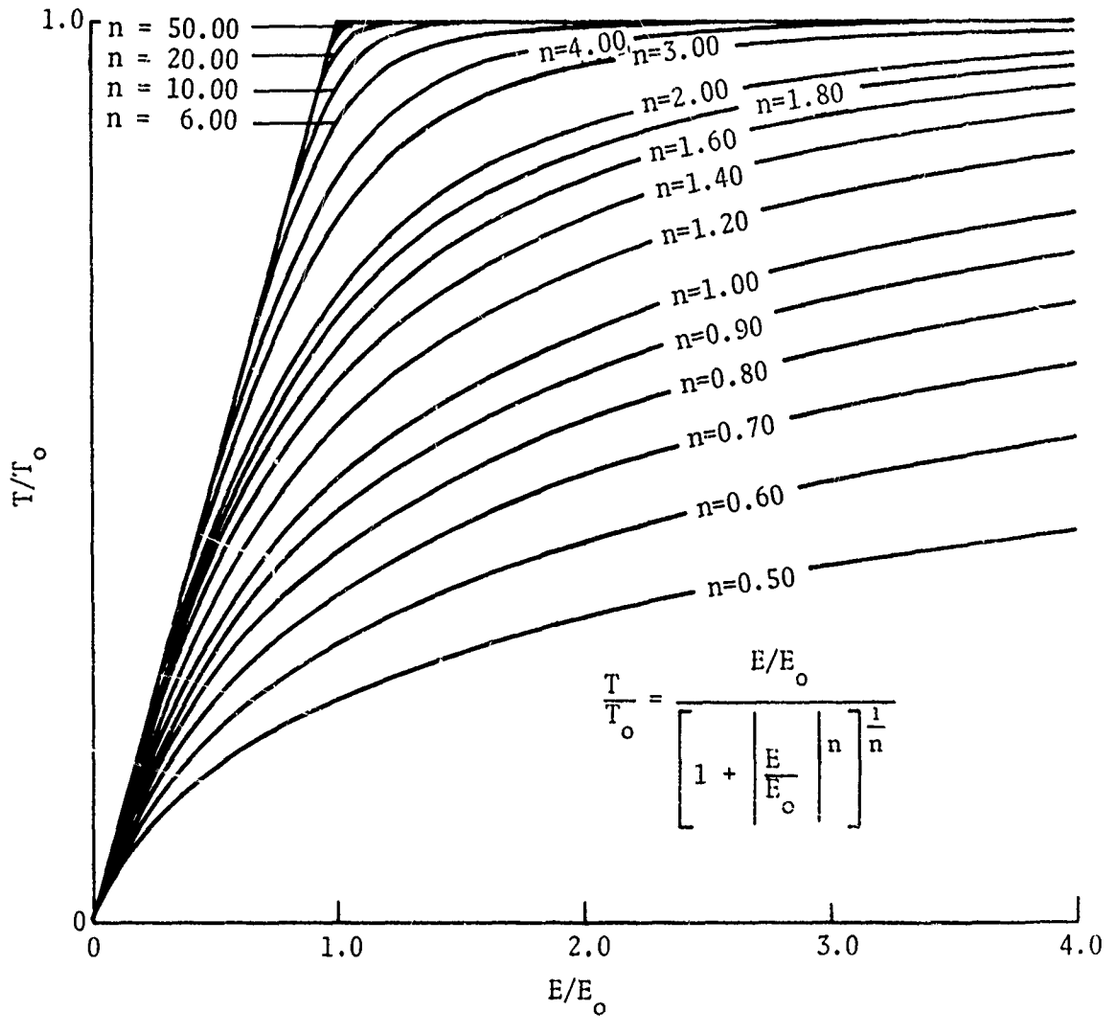
where $\bar{k}$ is a square matrix relating differential element displacements to the differential element forces.

4. NONLINEAR MODEL

In order to develop a mathematical beam model, an expression for nonlinear moment-rotation and force-deformation is required. The Richard stress-strain formula (ref. 7) was chosen because of its smooth transition to fully plastic behavior and its asymptotic nature. The following equation is one form of the expression.

$$M = \frac{R\theta}{\left[1 + \left|\frac{R\theta}{M_p}\right|^n\right]^{1/n}} \tag{17}$$

where R, θ, M, M_p, and n denote the stiffness coefficient, rotation, moment, ultimate moment, and the curve-fitting parameter, respectively. A nondimensionalized form of this equation is shown in figure 2.



T = moment, force, stress

T_o = ultimate (or plastic) value of T

E = rotation, deformation, strain

E_o = terminal value of E corresponding to T_o

n = curve-fitting parameter

Figure 2. Richard Equation

Equation (17) can be solved for $R\theta$, thus

$$R\theta = \frac{M}{\left[1 - \left|\frac{M}{M_p}\right|^n\right]^{1/n}} \tag{18}$$

Differentiation of eq. (18) with respect to the load parameter, P, yields

$$\frac{d}{dP}(R\theta) = \frac{\frac{dM}{dP}}{\left[1 - \left|\frac{M}{M_p}\right|^n\right]^{(n+1)/n}} \tag{19}$$

Equation (8) can be rewritten as

$$\{d\} = [K]^{-1}\{f\} \tag{20}$$

or in another form as

$$\{\theta\} = [K]^{-1}\{M\} \tag{21}$$

and in incremental differential form as

$$\frac{d}{dP}\left(\{\theta\}\right) = [K^*]^{-1}\,\frac{d\{M\}}{dP} \tag{22}$$

where $[K]^{-1}$ is the flexibility matrix corresponding to the stiffness matrix, $[K]$, and $[K^*]^{-1}$ is the corresponding differential relationship which is constant during each load increment (as well as during each numerical integration increment).

By using eqs. (19) and (22), the following expression can be written for a single beam element.

$$\begin{Bmatrix} \dfrac{d\theta_i}{dP} \\ \hline \dfrac{d\theta_j}{dP} \end{Bmatrix} = \left[\begin{array}{c:c} \dfrac{\frac{L}{3EI}}{\left[1 - \left|\frac{M_i}{M_p}\right|^n\right]^{(n+1)/n}} & -\dfrac{L}{6EI} \\ \hdashline -\dfrac{L}{6EI} & \dfrac{\frac{L}{3EI}}{\left[1 - \left|\frac{M_j}{M_p}\right|^n\right]^{(n+1)/n}} \end{array}\right] \begin{Bmatrix} \dfrac{dM_i}{dP} \\ \hline \dfrac{dM_j}{dP} \end{Bmatrix} \tag{23}$$

Introducing the notations

$$A_i = \left[1 - \left|\frac{M_i}{M_p}\right|^n\right]^{(n+1)/n}$$

and

$$A_j = \left[1 - \left|\frac{M_j}{M_p}\right|^n\right]^{(n+1)/n}$$

and solving eq. (23) for the differential moments, the following equation is obtained.

$$\begin{Bmatrix} \dfrac{dM_i}{dP} \\ \hline \dfrac{dM_j}{dP} \end{Bmatrix} = \frac{\frac{6EI}{L}}{4 - A_iA_j} \left[\begin{array}{c:c} 2A_i & A_iA_j \\ \hdashline A_iA_j & 2A_j \end{array}\right] \begin{Bmatrix} \dfrac{d\theta_i}{dP} \\ \hline \dfrac{d\theta_j}{dP} \end{Bmatrix} \tag{24}$$

To illustrate the behavior of the model, consider a large value for the curve-fitting parameter, n (thus making the curve bilinear). If neither end moment has reached its ultimate value ($M_i < M_p$ and $M_j < M_p$), eq. (24) becomes

$$\begin{Bmatrix} \dfrac{dM_i}{dP} \\ \hline \dfrac{dM_j}{dP} \end{Bmatrix} = \left[\begin{array}{c|c} \dfrac{4EI}{L} & \dfrac{2EI}{L} \\ \hline \dfrac{2EI}{L} & \dfrac{4EI}{L} \end{array}\right] \begin{Bmatrix} \dfrac{d\theta_i}{dP} \\ \hline \dfrac{d\theta_j}{dP} \end{Bmatrix} \tag{25}$$

which indicates linear action for the beam. If, however, the moment at the j end of the beam element has reached its ultimate value ($M_j = M_p$), while the moment at the i end is still elastic ($M_i < M_p$), eq. (24) becomes

$$\begin{Bmatrix} \dfrac{dM_i}{dP} \\ \hline \dfrac{dM_j}{dP} \end{Bmatrix} = \left[\begin{array}{c|c} \dfrac{3EI}{L} & 0 \\ \hline 0 & 0 \end{array}\right] \begin{Bmatrix} \dfrac{d\theta_i}{dP} \\ \hline \dfrac{d\theta_j}{dP} \end{Bmatrix} \tag{26}$$

which represents the stiffness coefficients for the beam pinned at the j end. This nonlinear beam model is used in the assembly of the shell model, which consists of six interconnected beams.

In order to incorporate the effect of axial force-deformation in the shell, the element stiffness matrix must be expanded. This expansion is

$$\begin{Bmatrix} \dfrac{df_1}{dP} \\ \\ \dfrac{df_2}{dP} \\ \dfrac{df_3}{dP} \end{Bmatrix} = \frac{\frac{6E}{L}}{4 - A_iA_j} \begin{bmatrix} \dfrac{Ar(4 - A_iA_j)}{6\left[1 + \left|\dfrac{f_1}{f_0}\right|^n\right](n+1)/n} & 0 & 0 \\ 0 & 2A_i & A_iA_j \\ 0 & A_iA_j & 2A_j \end{bmatrix} \begin{Bmatrix} \dfrac{dv_1}{dP} \\ \\ \dfrac{dv_2}{dP} \\ \dfrac{dv_3}{dP} \end{Bmatrix} \tag{27}$$

where f_1, v_1, f_2, v_2, f_3, v_3 denote the axial force and deformation, moment and rotation at the i end, and moment and rotation at the j end, respectively. The term Ar represents the cross-sectional area of the element and f_0 denotes the ultimate axial force for each element.

Figure 3 shows a portion of the actual structure to be analyzed, an equivalent physical model, a shell model, and a beam model. Since the background for the nonlinear beam model has been established, it remains now to show how these beam elements are to be interconnected to form the shell model and to develop expressions for the physical properties of these elements.

Geometric nonlinearity is treated with an incremental loading approach that assumes finite deflections. If large deflections are to be considered in the future, an iterative approach must be used. However, a rough approximation of a collapsed configuration may be obtained by incrementing the load vector.

5. SHELL MODEL

In order to obtain a general method for the analysis of nonlinear shell structures, a model must first be developed which adequately predicts the initial linear response and which may be modified to account for nonlinear action. The framework model, comprised of six interconnected beam elements, appears to fulfill the above requirements. A model first introduced by Hrennikoff (ref. 9), later used by Yettram and Husain (ref. 10), and subsequently extended to the nonlinear analysis of plate structures by Smith (ref. 6) was used as a guide to develop a model for orthotropic shell structures. The model used in this study is shown in figure 4. In order to obtain the properties of the individual beams, laboratory tests were conducted to determine the initial elastic response and the ultimate (plastic) capacity of portions of the actual structure when subjected to bending and axial force. The details of this technique and the laboratory results are presented in section III.

The full-scale structure is modeled by assembling (on the digital computer) many elements; consequently, any load, symmetric or unsymmetric, may then be applied and the results will include the elastic and nonlinear responses.

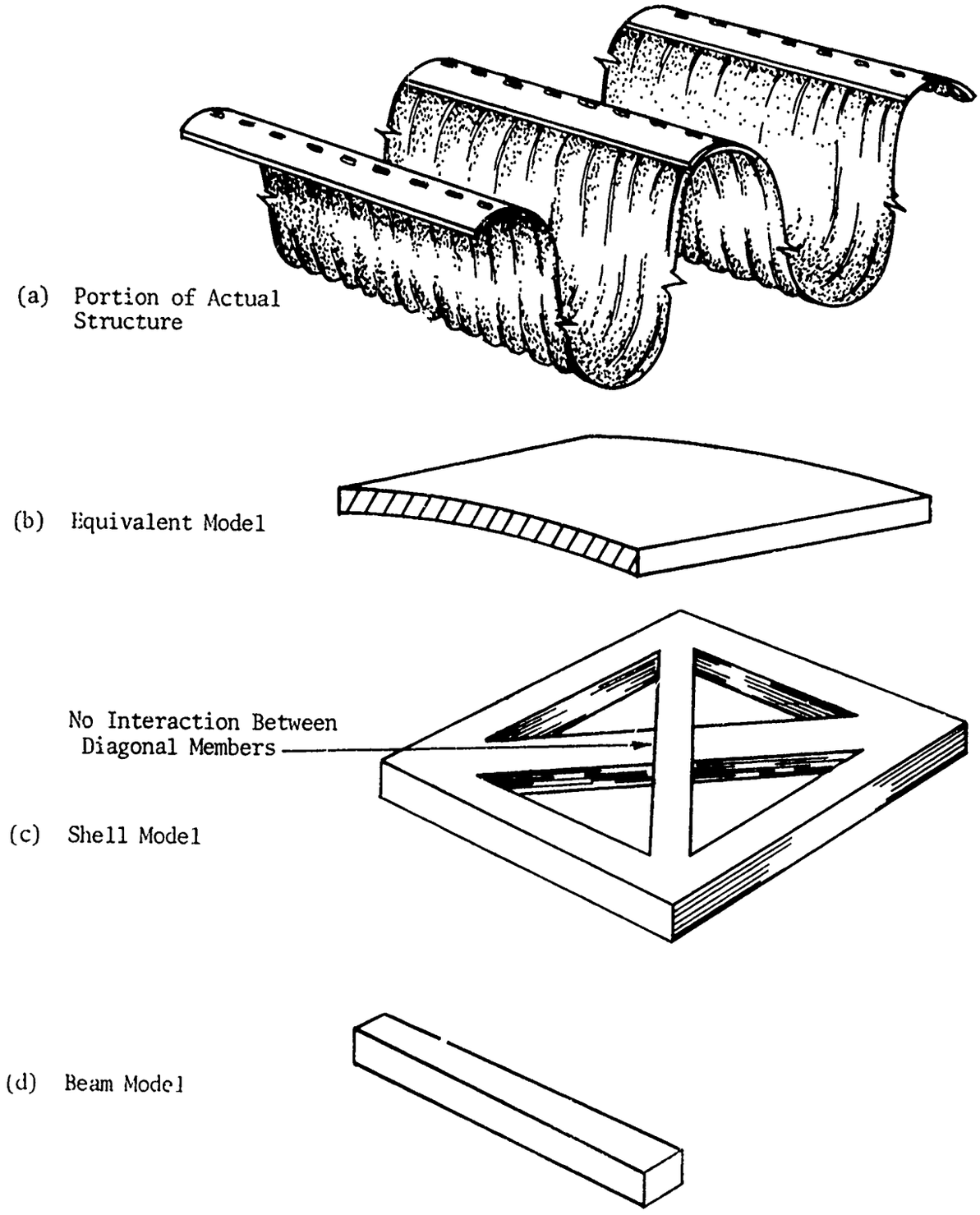


Figure 3. Modeling of Structures

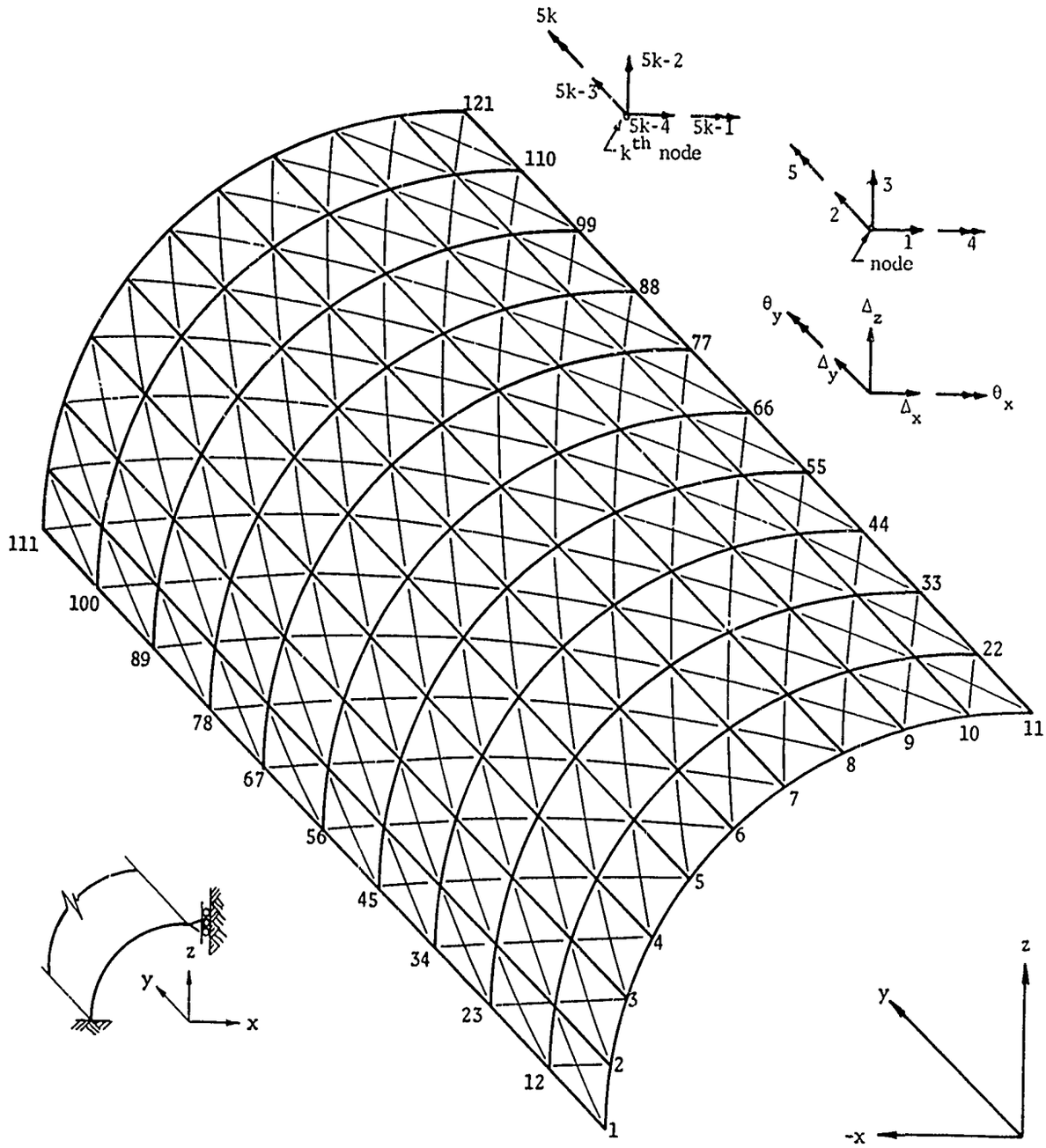


Figure 4. Model and Numbering System

SECTION III

DETERMINATION OF MODEL CHARACTERISTICS

1. OBJECTIVE

Before the concepts previously developed can be used to predict the behavior of the entire structure, information concerning the action of portions of the structure must be obtained. This section is devoted to a presentation of the laboratory tests conducted which are necessary for the determination of the required parameters for moment-rotation and force-deformation relationships.

2. MOMENT-ROTATION TESTS

a. Apparatus

In order to obtain the flexural behavior of a portion of the structure, a 20-ft section of the arch was tested as shown in figure 5. This test setup consisted of center supports located 76 in. apart which were connected to the panel with flanged cartridge ball bearings and a 2-inch-diameter solid-steel shaft. The loads were applied near the ends with double-acting hydraulic rams which made it possible to subject the panel to both positive and negative moments. Figure 6 shows the positive moment setup. It should be noted that the base of the ram was hinged to allow for rotation during loading. In order to subject the panel to negative moment, a 1-inch-diameter eyebolt was extended through the concrete (used for a load-distributing device) and the steel. The hydraulic pressure line was connected to the top of the ram.

Although figure 5 shows the lower end of both supports as fixed, later modifications involved the installation of a shaft with pillow block type ball bearings so the effect of combined bending and axial force could be studied. This effect was negligible on the initial response but did tend to result in a change in the ultimate moment of the section of about 15 percent (stronger with fixed base).

b. Instrumentation

Since the three parameters needed to use eq. (17), shown in figure 2, are initial slope of the moment-rotation curve, the ultimate moment, and the overall shape of the curve, instrumentation was chosen that would

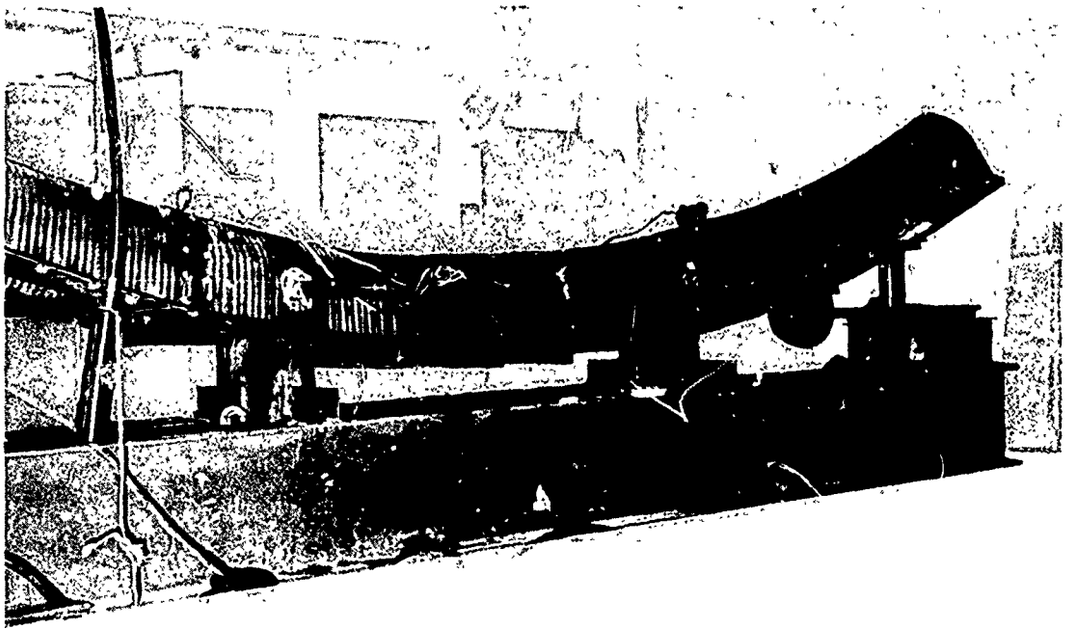


Figure 5. Moment-Rotation Test Apparatus

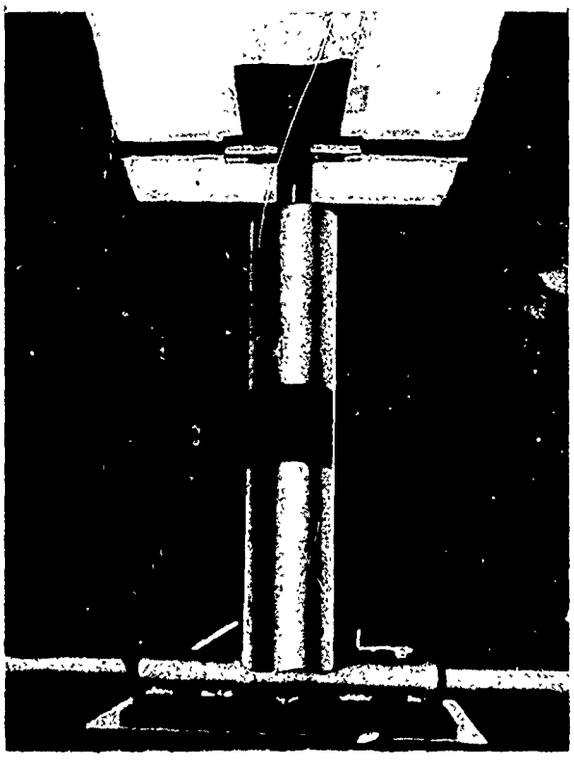


Figure 6. Hydraulic Ram Loader

continuously record the pressure in the rams and the resulting rotation at the supports. This information was recorded on the existing data acquisition system at CERF. It was recorded at 1-7/8 in./sec, played back at 60 in./sec, and plotted on an x-y plotter. Figure 7 shows the method used to obtain the amount of rotation. A 12-inch-diameter aluminum plate was attached to the support shaft; piano wire was placed around the circular plate and attached to a weight which moved vertically under test conditions. This movement was measured with linear potentiometers on both sides of the shaft in order to cancel the effect of vertical movement of the shaft.

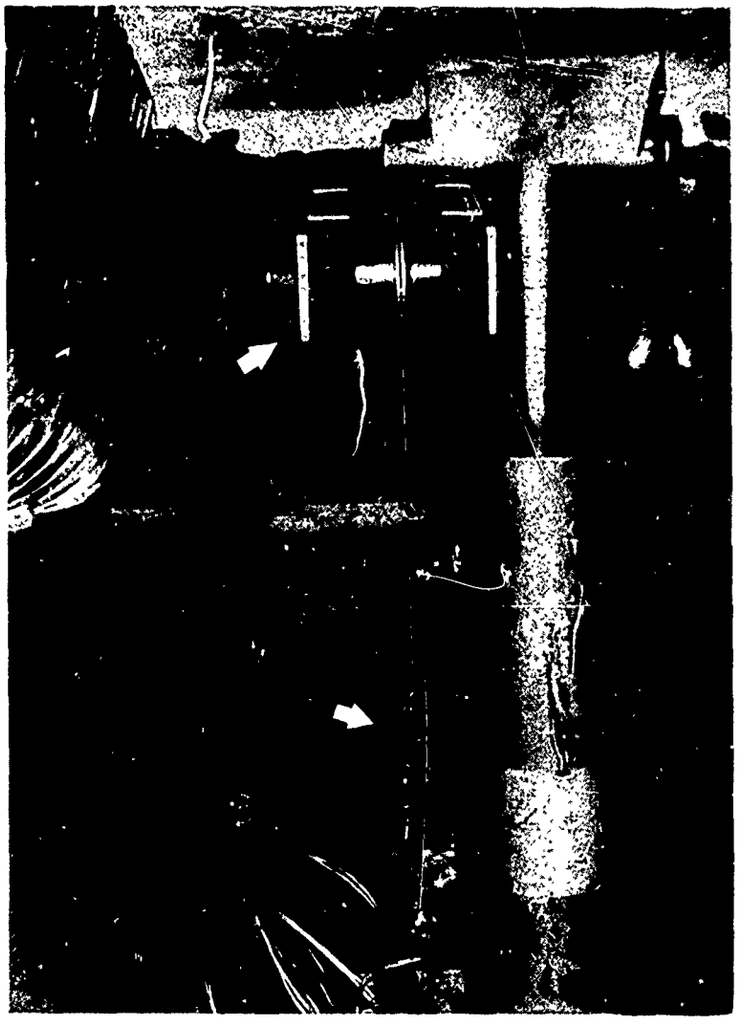


Figure 7. Rotation Measurement Instrumentation

c. Results

Initially, it was believed that there would be significant differences in positive and negative bending. However, inspection of the results (shown plotted in figure 8) revealed the difference in elastic response to be relatively small and, consequently, the effort required to incorporate the difference into the computer program was not considered necessary. The major difference occurred in the ultimate moment.

The initial slope of the moment-rotation curve is

$$\frac{M}{\theta} \doteq 2{,}000 \text{ ft-kips/radian} \tag{28}$$

and the ultimate moment is

$$M_o = 30 \text{ ft-kips/panel} \tag{29}$$

Although the curve-fitting parameter, n, is approximately 3, values of 2 and 4 would not be unreasonable. Studies were conducted with the computer program to determine the difference in final results for a range of 2 to 4 on the curve-fitting parameter. The final results were only slightly affected for problems where structural yielding was not widespread.

In every test, failure of the panels was of the buckling type. Figure 9 shows typical types of failure.

3. FORCE-DEFORMATION TESTS

a. Apparatus

As in the case of moment-rotation tests, axial force-deformation tests were conducted to determine the initial response, the ultimate axial force, and the general shape of the force-deformation curve for a portion of the structure. The equipment used in this test was a static hydraulic testing machine. The test setup is shown in figure 10. Figure 11 shows an early trial test on a short portion of the structure (which proved unstable); it is presented here because the bottom support in subsequent tests was the same as the top support shown in this figure.

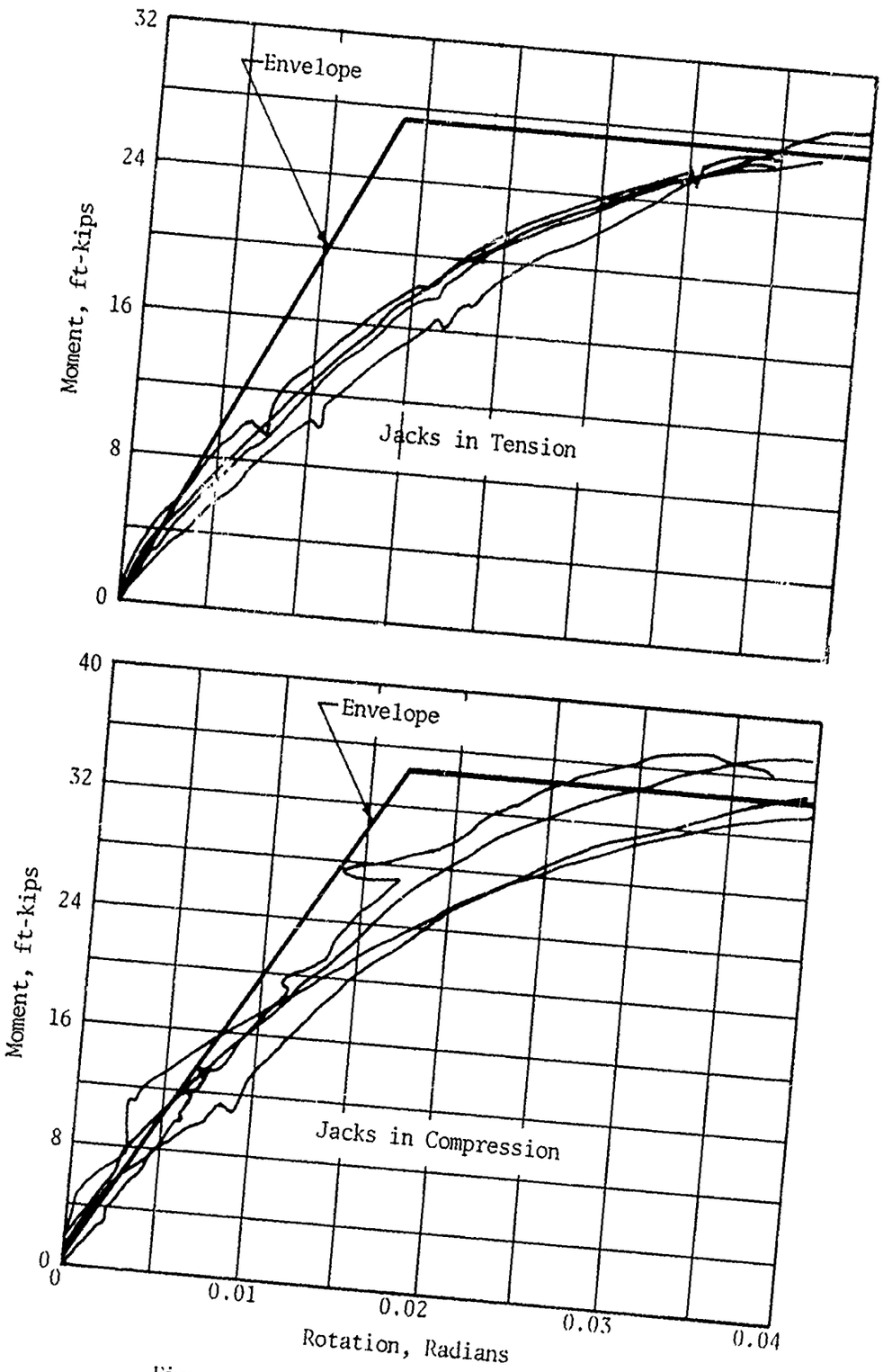


Figure 8. Moment-Rotation Curves

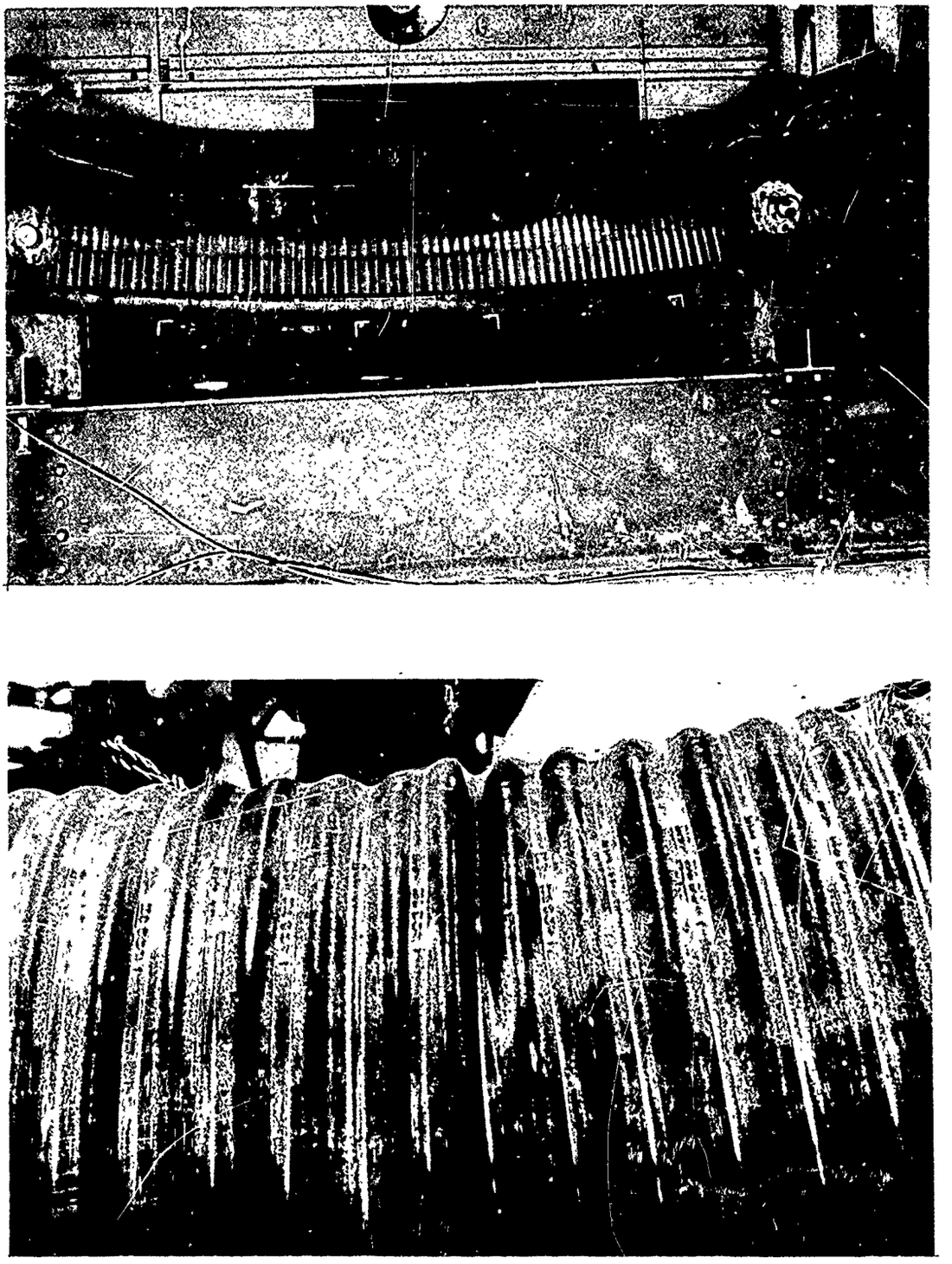


Figure 9. Typical Buckling Failures

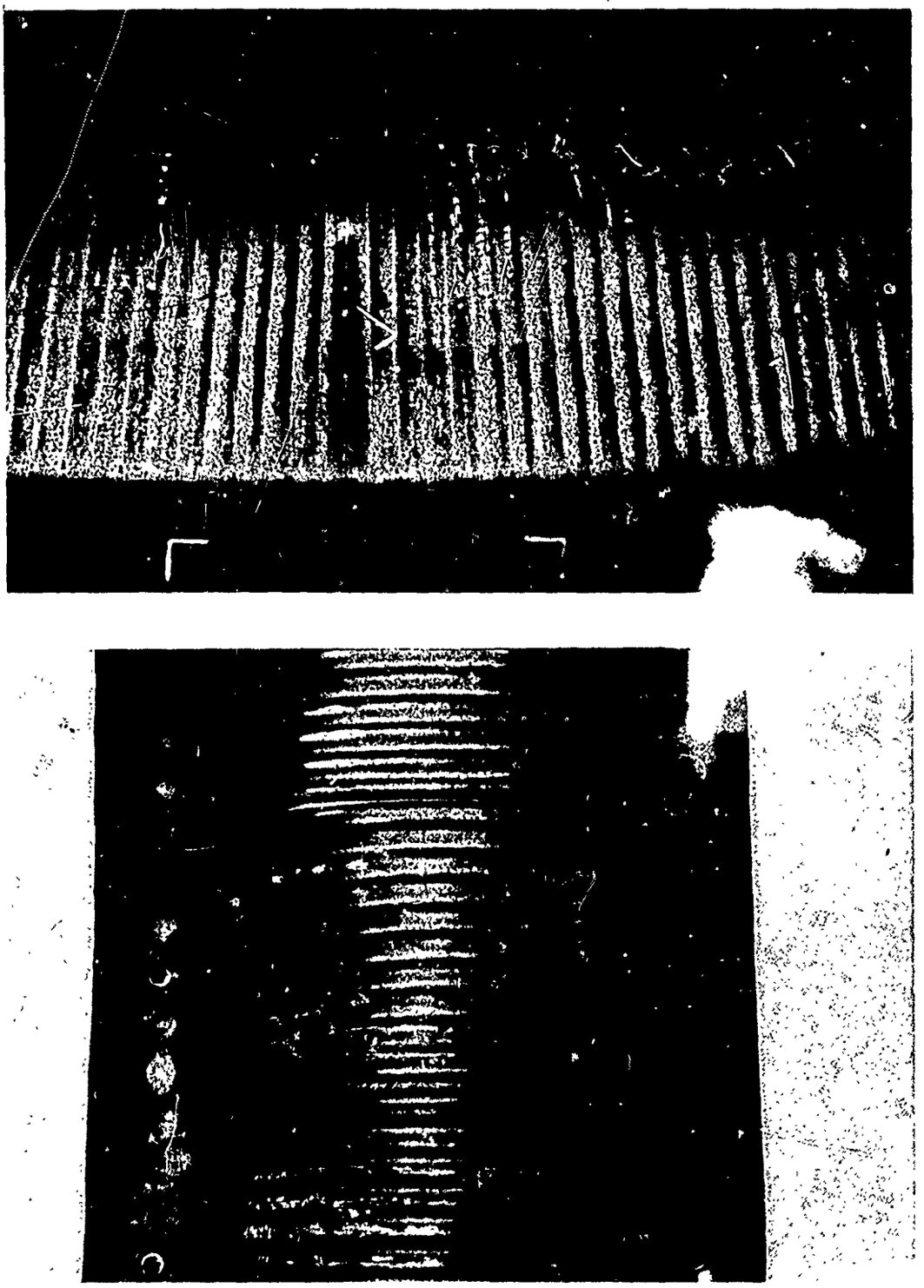


Figure 9---Concluded

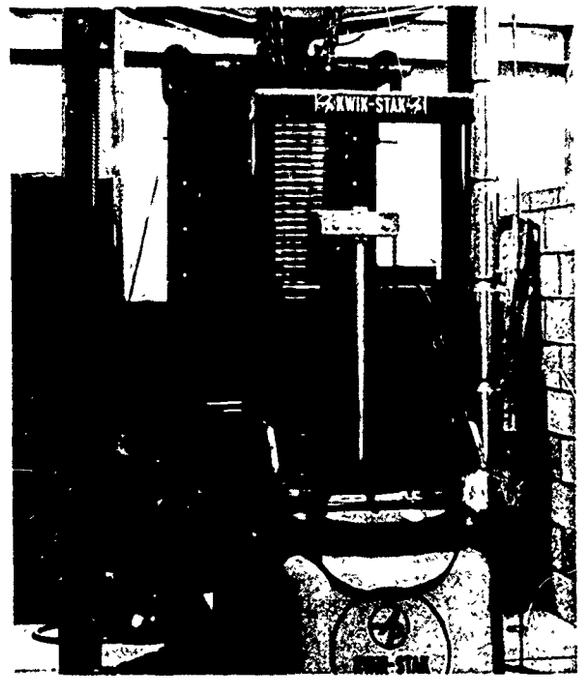


Figure 10. Force-Deformation Test Apparatus

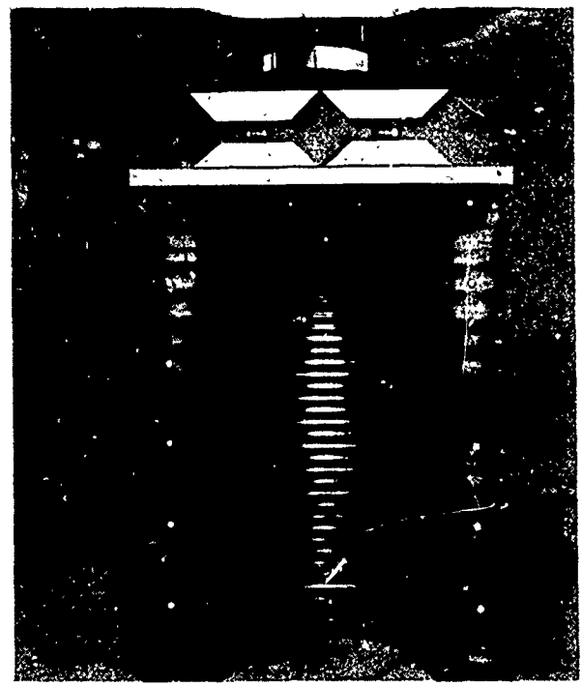


Figure 11. Support Conditions

b. Instrumentation

In order to obtain the complete shape of the force-deformation curve, both the load from the hydraulic loader and the displacement of the loading head were continuously recorded on an x-y plotter. In addition, potentiometers were mounted horizontally to observe lateral displacement (fig. 12). This information was recorded on paper tape readout.

c. Results

Since the panels were initially curved, the axial loads created some flexure because of the eccentricity. This effect was minimized by aligning the end loads with the centroid of the center (lengthwise) of the panel. Virtually all of the sections tested failed by local buckling at or very near the center. The type of buckling was essentially the same as that resulting from the moment-rotation tests. The response of the panels when subjected to axial force is presented in figure 13. Several specimens were loaded and unloaded repeatedly and a typical curve for this test is shown in figure 14. The repeated loading had no effect on either the initial or the final response of the panels.

From figure 13, the average initial slope of the curves for tests A-2, A-3, A-5, and A-6 is

$$\frac{P}{\Delta L} \doteq 1{,}950 \text{ kips/in.} \tag{30}$$

and the ultimate force is

$$f_o = 40 \text{ kips/panel} = 1.665 \text{ kips/in.} \tag{31}$$

Also, the curves are essentially bilinear and can be reproduced with eq. (17) using a large value of n (say n = 20). These values are needed to develop a model with the same characteristics.

In every test, the failure was a buckling type similar to those shown in figure 15.

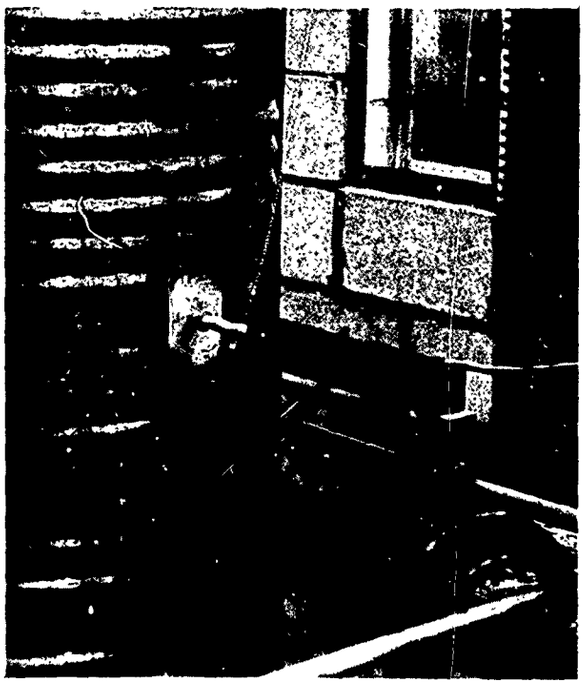


Figure 12. Lateral Displacement Measurement Instrumentation

4. MODEL CHARACTERISTICS

In order to generate a system of equations which represents the action of the entire structure when subjected to an arbitrary loading condition, information must be obtained regarding the representative equations for a portion of the structure. Basically, the parameters in the equations shown in matrix form by eq. (27) must be determined.

First, the actual structure is reduced to a cylindrical shell which has a constant thickness circumferentially based on the initial elastic response of portions of the structure. Also, the model will have a constant thickness in the longitudinal direction which differs from the circumferential thickness. It should be noted that the model will have characteristics that represent both compression and flexural modes.

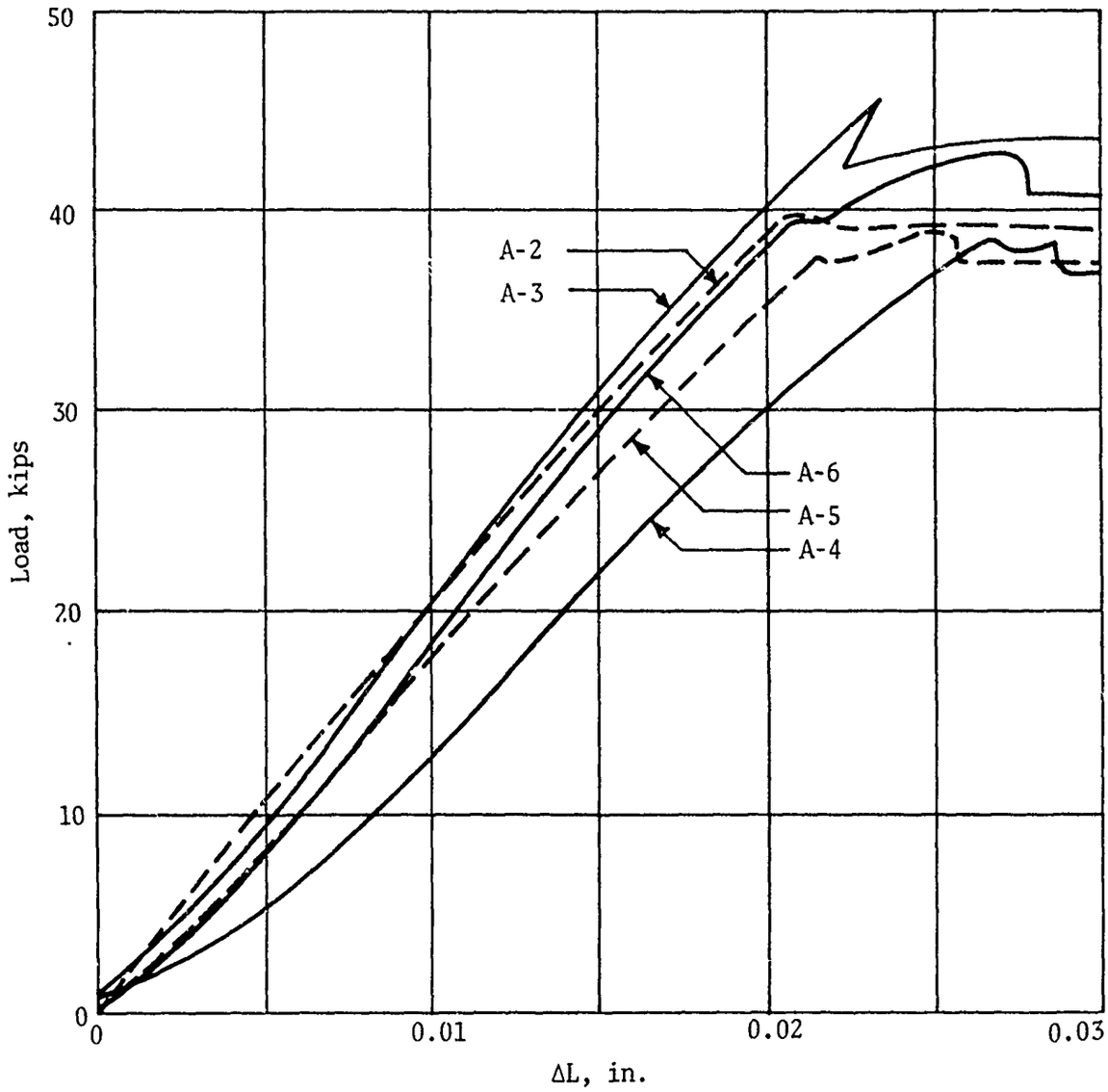


Figure 13. Force-Deformation Curves

Consider the flexural mode in the circumferential direction. If moments are applied along parallel sides of the element (shown in figure 16a), the resulting rotation is ML/2EI if purely cylindrical bending is assumed. Solving in terms of M/θ

$$\frac{M}{\theta} = \frac{2EI}{b} \tag{32}$$

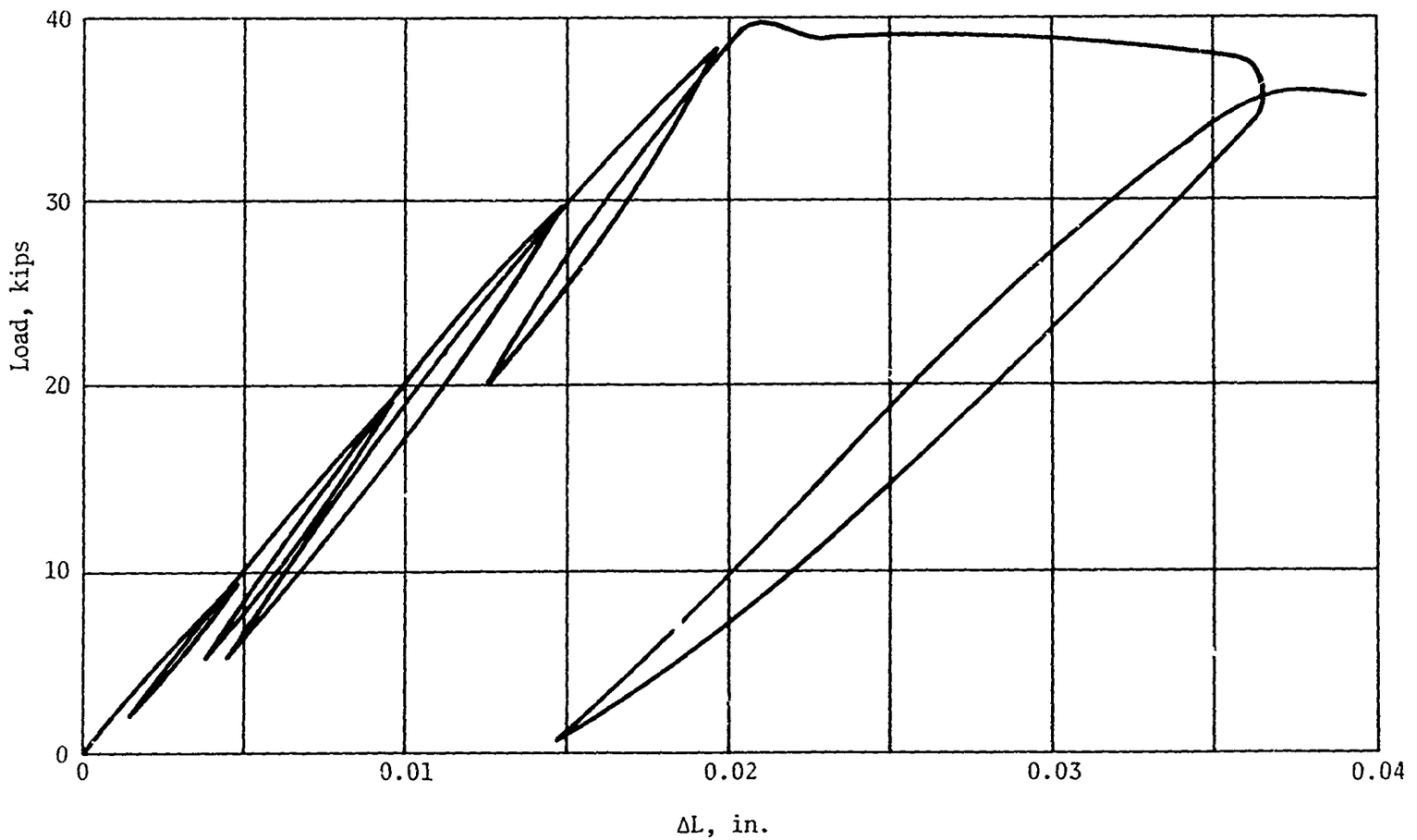


Figure 14. Repetitive Loading Curves

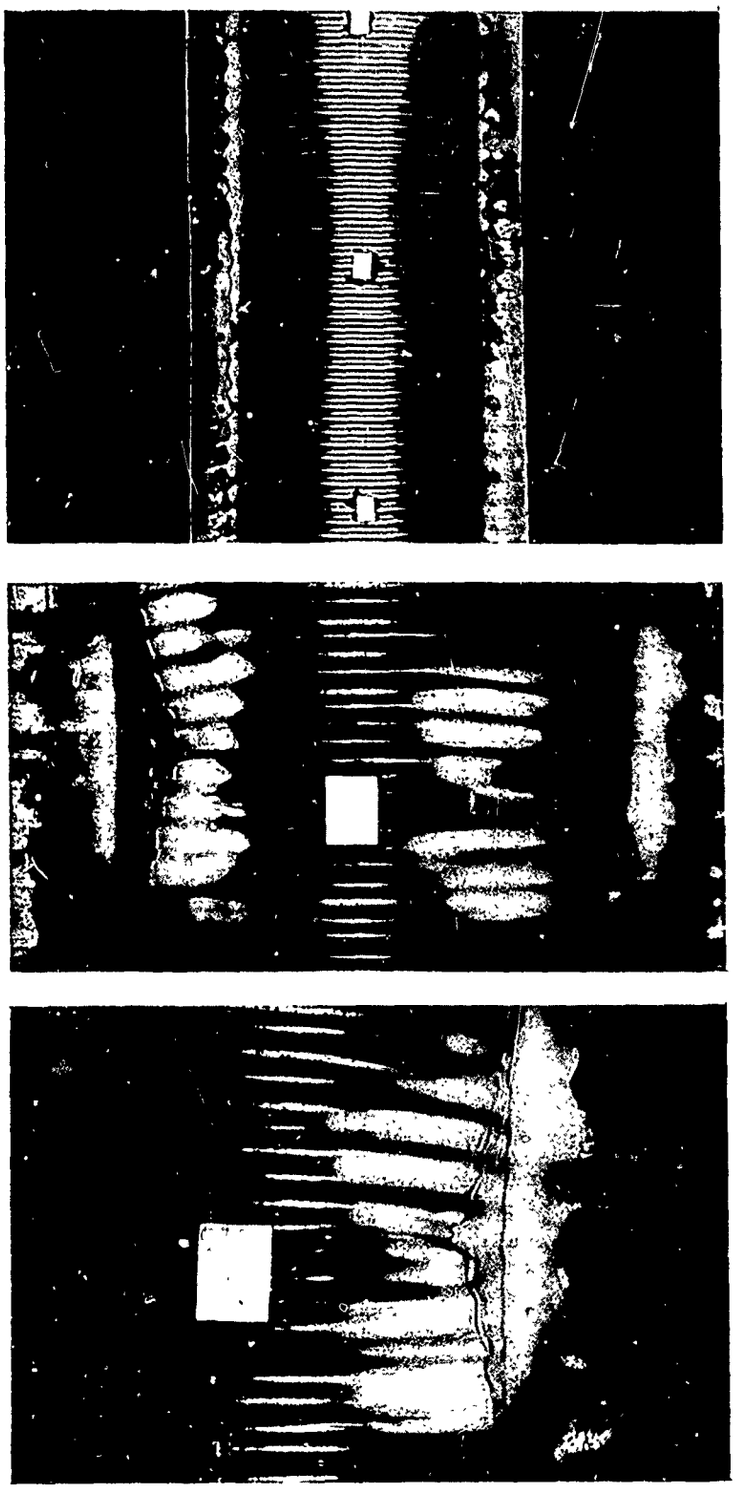


Figure 15. Typical Failure Modes (Axial)

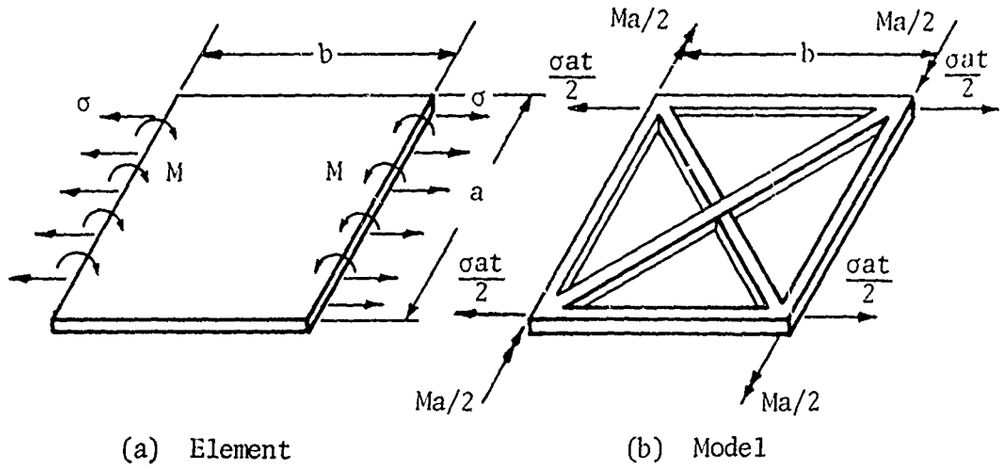


Figure 16. Models

Equating this to the experimental value, eq. (28)

$$\frac{M}{\theta} = \frac{2EI}{b} = \frac{2(30 \times 10^3)I}{76} = 2{,}000(12) \tag{33}$$

thus

$$I = 30.4 \text{ in.}^4/\text{panel} \tag{34}$$

A very important point must be made here. In all previous analyses, the moment of inertia has been taken as $I = \int_A y^2 dA$ which results in I = 92.4 in.^{4}/panel. This approach assumes a homogeneous cross section which at first may appear valid but if the small corrugations are considered, it becomes obvious that the slopes of the stress strain curves vary within the cross section. It should be noted that the stress and strain are average values and not the true stress and strain at a point. The author has developed a procedure to predict the elastic response of the section by removing (cutting) strips from the section and obtaining a modular ratio which is then used to develop a transformed section. The results of this approach are essentially the same as those obtained from the moment-rotation tests.

Consider a rectangular section

$$I = \frac{1}{12} at^3_{efc} \tag{35}$$

where t_{efc} denotes the equivalent thickness for flexure in the circumferential direction. For our case where a = 24 in. (single panel test)

$$t_{efc} = 2.48 \text{ in.} \tag{36}$$

It should be noted that other approaches are possible. For example, an effective EI could be determined. However, since E appears in both the axial compression and the flexural modes, it was decided that the approach used here is a more logical one.

Since the structure is orthotropic, an investigation into its flexural capacity in the longitudinal direction is required. The strength (both in compression and flexural modes) in this direction is very small compared to that in the circumferential direction. In fact, tests have shown that the strength in this direction could be neglected if the grid size could be chosen small enough. However, because of the core storage on the digital computer, the grid size used was such that the flexural capacity in the longitudinal direction was required.

Consider a portion of the structure as shown in figure 17. The location of the centroid is determined as

$$\bar{y} = \frac{\int_A y dA}{\int_A dA} = 2\frac{\int_0^\phi R\cos\theta t R d\theta}{2R\phi t} = \frac{R}{\phi}\sin\phi \tag{37}$$

The moment of inertia about the x-axis is

$$I_x = \int_A y^2 dA = 2\int_0^\phi (R\cos\theta)^2 t R d\theta = R^3 t(\phi + \frac{1}{2}\sin 2\phi) \tag{38}$$

Then the moment of inertia about the centroidal axis is

$$I_{CG} = I_x - A\bar{y}^2 = R^3 t(\phi + \frac{1}{2}\sin 2\phi - \frac{2}{\phi}\sin^2\phi) \tag{39}$$

This information is used in appendix I to determine the properties of longitudinal members.

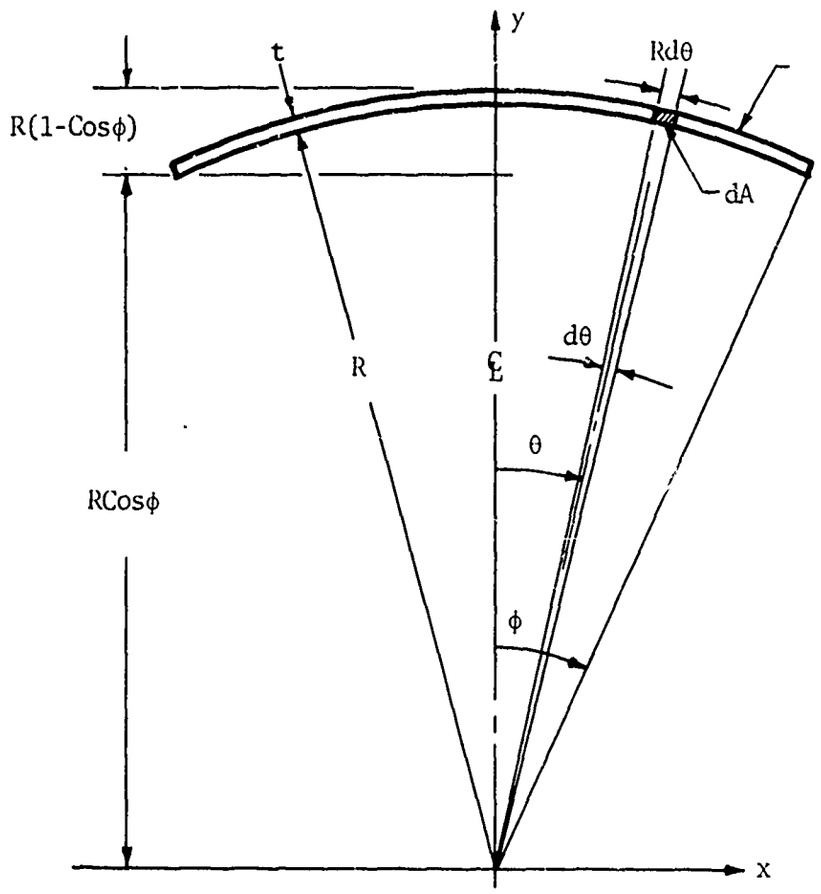


Figure 17. Section of Structure

The force-deformation relationships, as determined from laboratory tests and shown in figure 13, are used to develop the required model parameters. To obtain an equivalent shell thickness, consider

$$E = \frac{\sigma}{\varepsilon} = \frac{P/A}{\Delta L/L} = \left(\frac{P}{\Delta L}\right)\left(\frac{L}{A^*}\right) \tag{40}$$

$$A^* = \left(\frac{P}{\Delta L}\right)\left(\frac{L}{E}\right) = \frac{(1{,}950)(76)}{30{,}000} = 0.493 \text{ in}^2/\text{panel} \tag{41}$$

Then the equivalent thickness for axial stress in the circumferential direction is

$$t_{eac} = 0.493/24 = 0.0205 \text{ in.}^2/\text{in.} \tag{42}$$

The equivalent thickness in the longitudinal direction was taken as the true material thickness.

Considering the ultimate force, eq. (31), and the equivalent area, eq. (41), the ultimate axial stress, σ_o, is obtained.

$$\sigma_o = \frac{f_o}{A^*} = \frac{40}{0.493} = 81.3 \text{ ksi} \tag{43}$$

The diagonal members shown in figure 16b are not actually required for stability in low ranges of loading. However, as the structure starts to yield, the equations become unstable and their solution meaningless. These members are supplied to stabilize the system and permit a complete nonlinear solution.

SECTION IV

FULL-SCALE TESTS AND ANALYSIS

1. CONSTRUCTION

Since there was initially a possibility of covering the structure with either soil or concrete, a loading system was designed with these eventualities in mind. The loading floor was designed to serve not only as a deadman for loading the structure but also as a system that could be used to conduct moment-rotation tests on portions of the structure with varying thicknesses of concrete cover. This reinforced concrete floor was 16 ft wide, 32 ft long, and 8 ft thick with screw type inserts for tiedowns. To minimize support settlement and spreading, wing walls and horizontal tie bars were included. Figure 18a shows the formwork and reinforcing steel used in the loading floor. The concrete was placed in 2-ft lifts with the first three lifts being 2,500-psi concrete and the top lift 4,000-psi concrete. An overall view of the loading floor, wing walls, and footings, prior to backfilling, is shown in figure 18b. Figure 18c shows in greater detail the screw anchor inserts. These inserts are on 2-ft centers and each one has a "pullout" strength of approximately 80 kips. The completed loading floor after backfilling is shown in figure 18d.

To determine the best method of erection, single, double, and triple arches were assembled on the ground and lifted into place with a crane. The double-arch procedure proved to be the best and was consequently used in subsequent construction. Since tests were planned for three different shelter lengths, two arches were omitted during construction. Figure 19a shows the structure partially completed and figure 19b shows the structure ready for the first series of tests.

2. LOADING AND INSTRUMENTATION SYSTEMS

The loading system was constructed by attaching double-acting rams to the loading floor. Force links were then connected from the rams to the cables by means of a pin at one end and a free-turning swivel at the other end. The cables were then extended to the structure and connected to U-nuts which were attached to 1-inch-diameter high-strength full-threaded bolts. The bolts passed through both the metal and short sections of 4- x 4-in. timber which

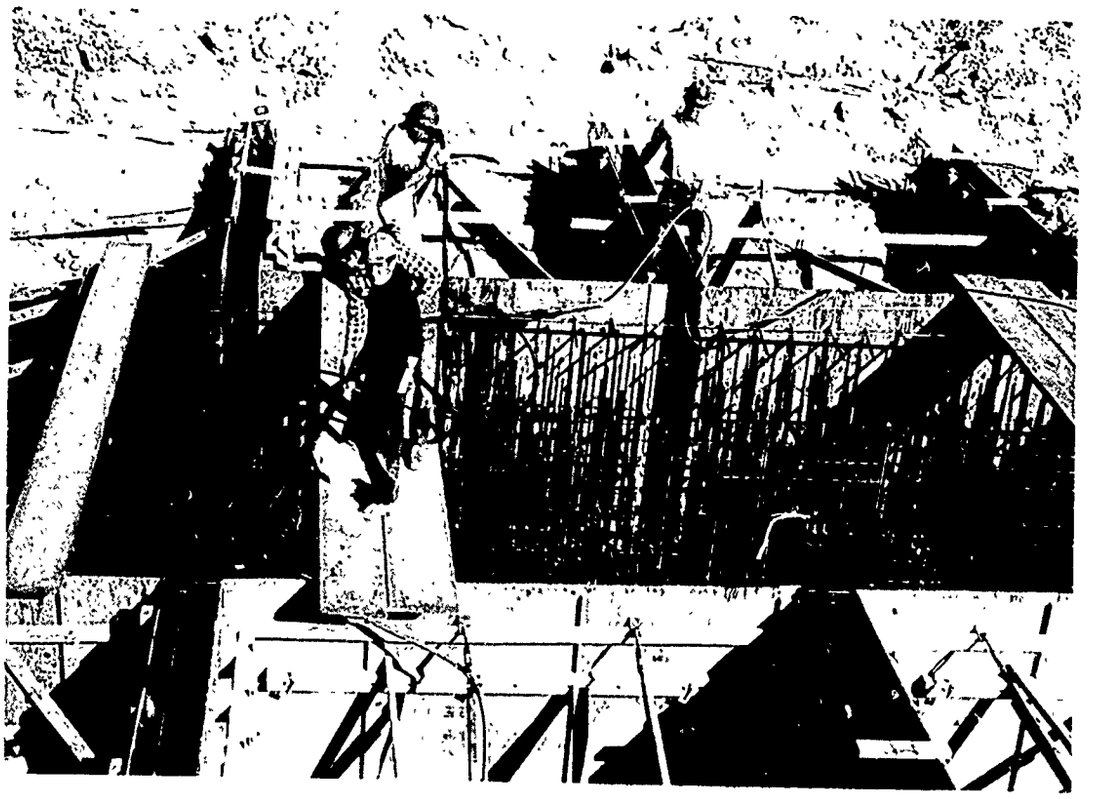
were partially encased in metal channels. The tops of the bolts were then double-nutted. This arrangement is shown in figure 20. Hydraulic pressure was supplied to the rams by means of the air-actuated pump shown in figure 21.

Although the force in the cables could have been approximated by recording the hydraulic fluid pressure, the use of strain gaged force links provided a much more accurate record of the force in the individual cables. Figure 21 shows the two 10-channel switch and balance units and the portable strain indicator that were used to determine the cable forces. The force links were calibrated so that 1 μin./in. of strain represented 10 lb of force.

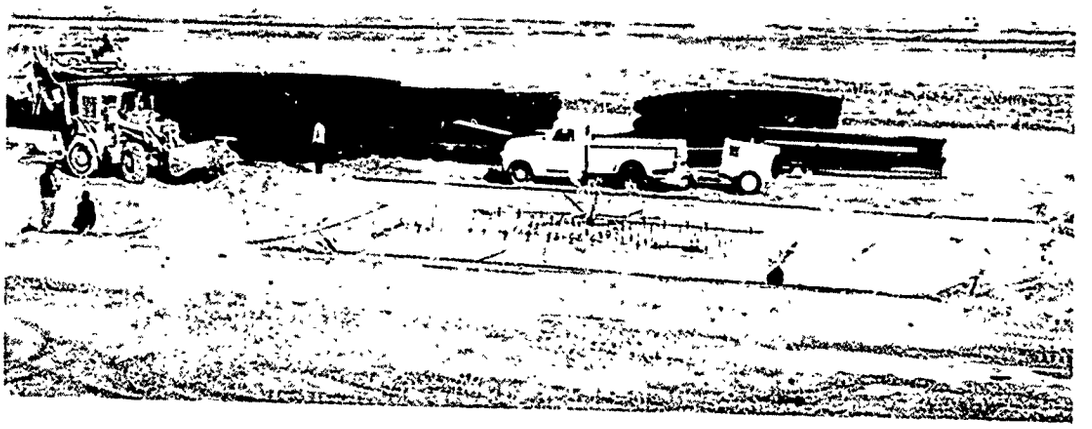
Horizontal and vertical deflections were measured at 35 locations on the structure as shown in figure 22. This measuring method consisted of two horizontal strands of piano wire (vertical separation of approximately 2 ft) stretched perpendicular to the longitudinal axis of the structure at five locations. These wires were attached to standards which were independent of the structure. Thirty-five weights were then suspended from the structure with piano wires in such a way that each one intersected with a pair of the horizontal wires. Short strips of measuring tape (1/16-in. markings) were attached to the vertical wires and to one horizontal wire in each pair. This arrangement (fig. 23) provided good records when read with a transit.

3. TYPES OF TESTS

Since one question to be answered in this research endeavor was whether the structure exhibited primarily arch or shell action, three series of tests were conducted on different structure lengths. The first seven tests were made on 30 linear ft of the shelter with the loads distributed throughout the entire length. The second seven tests were conducted on 52 linear ft of the structure with loads applied on a 30-ft portion from one end. Finally, seven tests were made on 74 linear ft of the structure with loads applied on the center 30 ft. Figure 24 shows the arrangement of the loads. Not all hydraulic rams were acting on all tests. Table I gives the type of tests, structure length, and type and amount of loading for the full-scale test series.

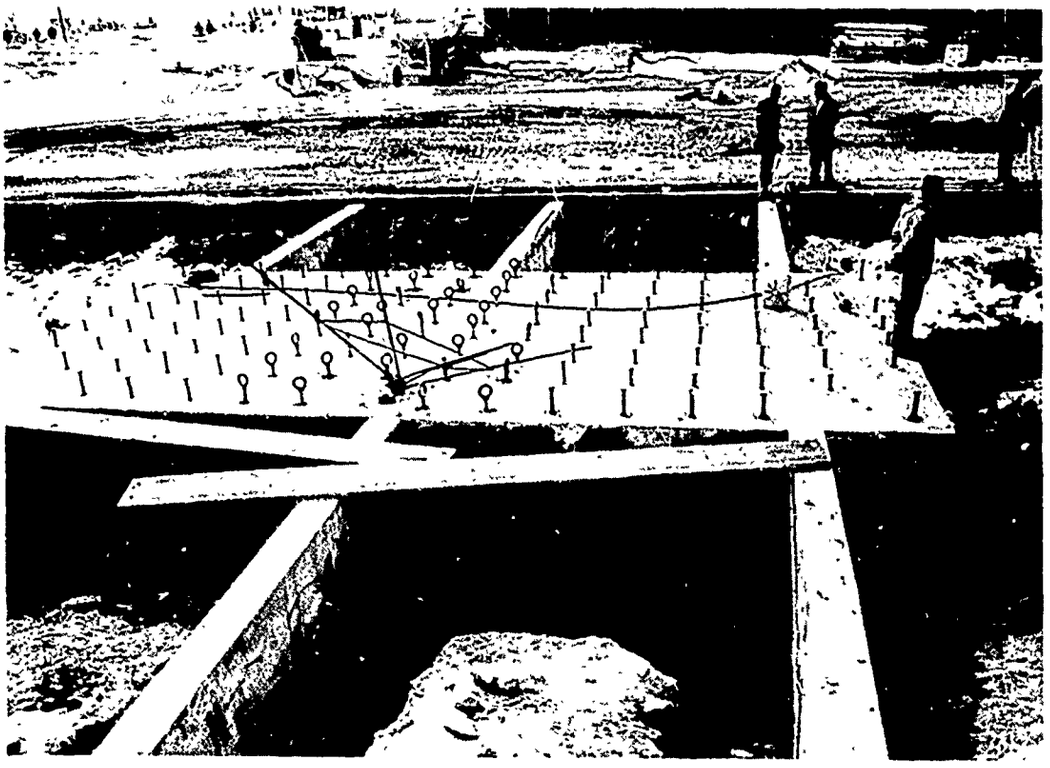


(a) Reinforcing Steel Layout

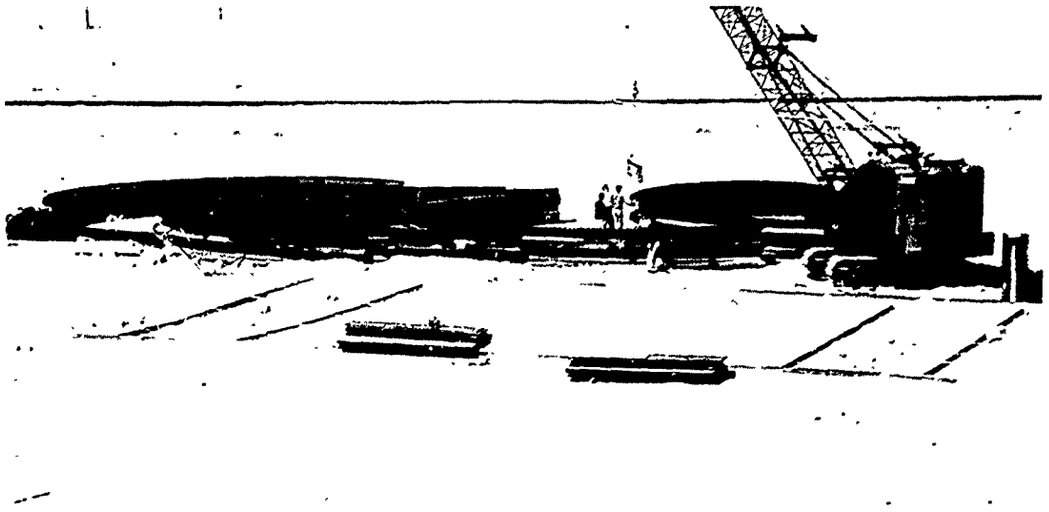


(b) Loading Floor Prior to Backfilling

Figure 18. Construction of Loading Floor

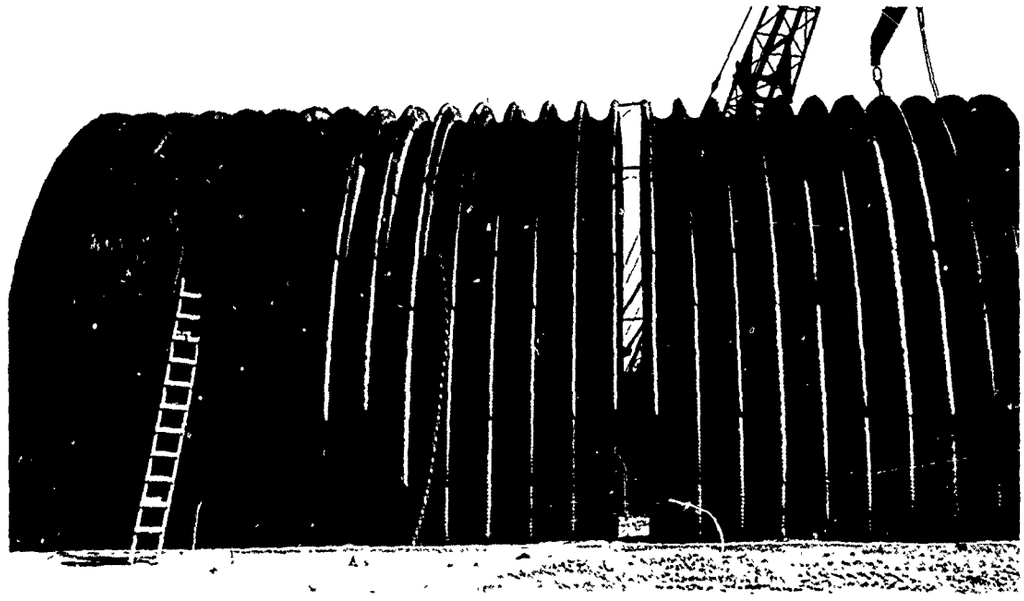


(c) Loading Floor Showing Tiedowns and Wing Walls

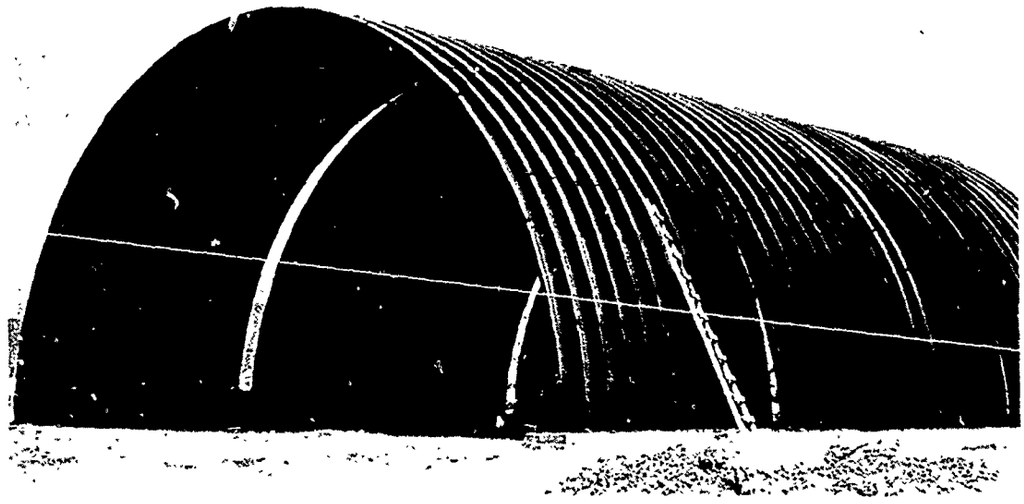


(d) Loading Floor After Backfilling

Figure 18---Concluded

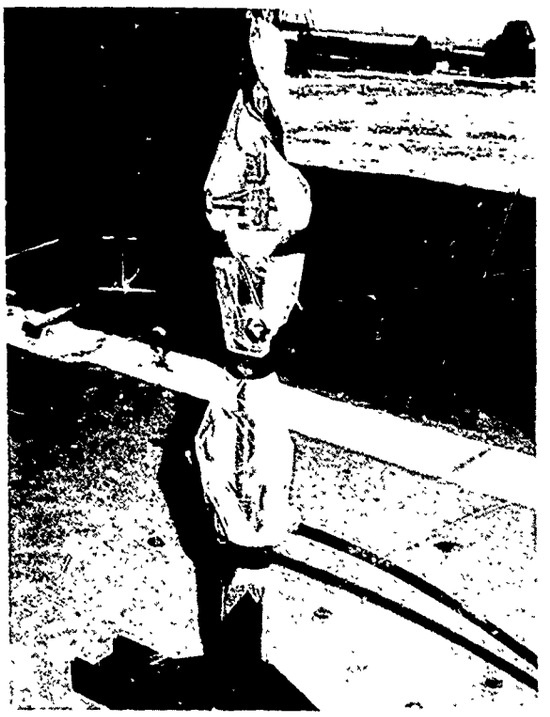


(a) Shelter Under Construction

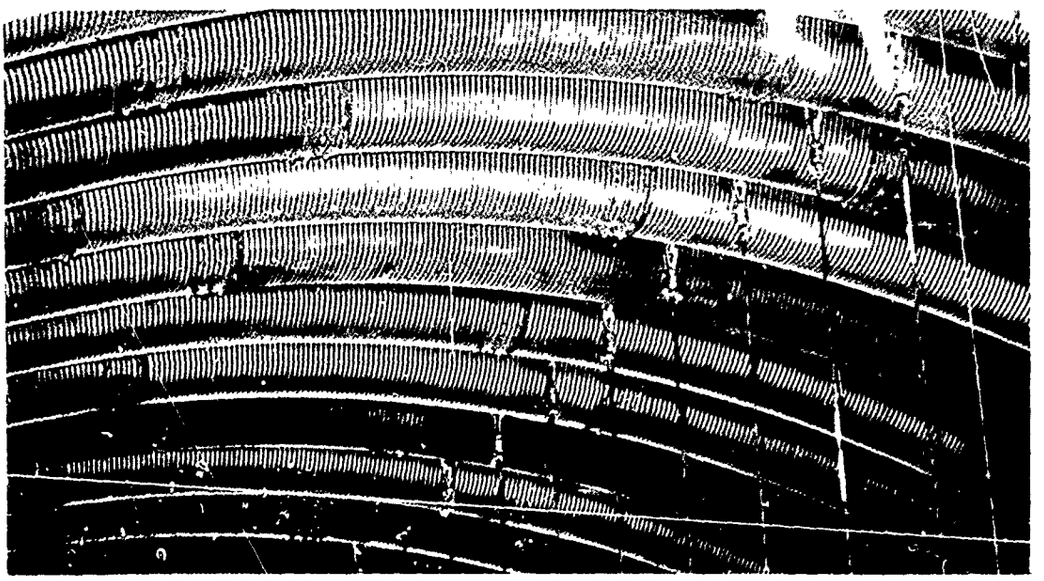


(b) Completed Shelter

Figure 19. Shelter for First Test Series



(a) Hydraulic Ram and Force Link



(b) Loading Cables

Figure 20. Loading System

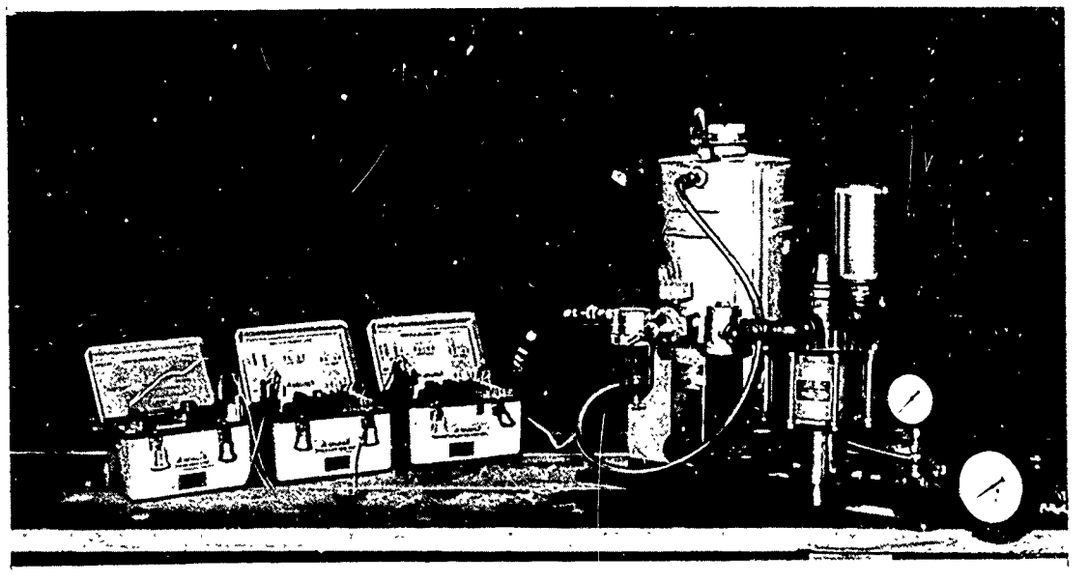


Figure 21. Load-Producing and Load-Measurement Systems

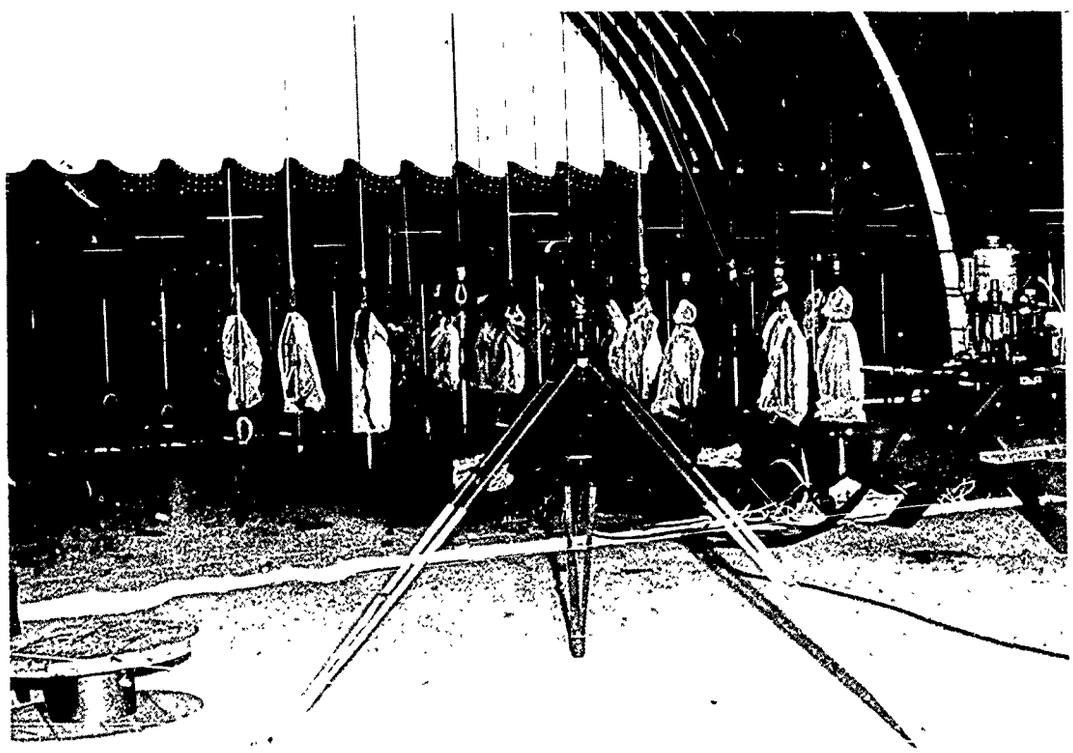


Figure 22. Deflection-Measurement System

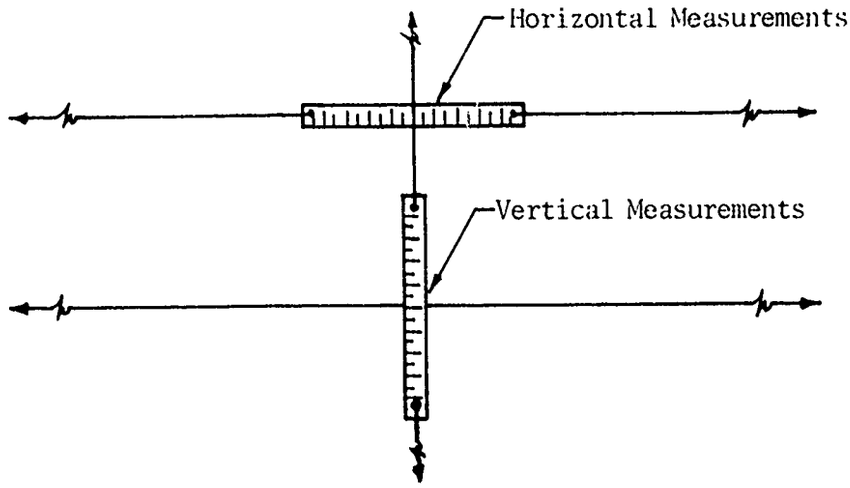


Figure 23. Deflection-Measurement Detail

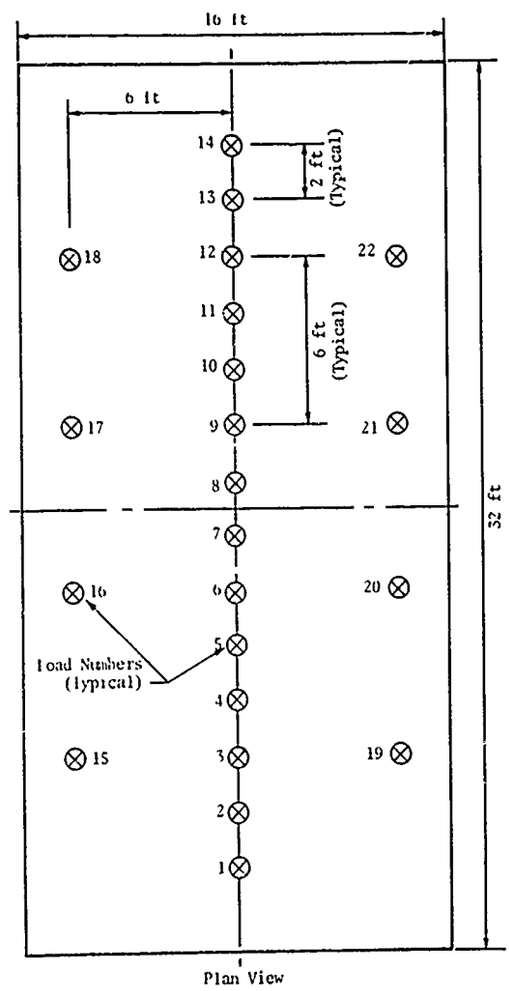


Figure 24. Applied Loads

Table I

FULL-SCALE TESTS

Test Number	Type of Test	Structure Length, ft	Loading Load Numbers Acting (See fig. 24 for load numbers)	Average Maximum Load per Ram, lb		Total Load, lb
				Side Rams	Center Rams	
2	Symmetric	30	1 through 14	0	4,956	69,385
3	Symmetric	30	All 22	3,434	2,940	68,607
4	Unsymmetric	30	1 through 14, 19 through 22	3,539	2,970	55,690
5	Unsymmetric	30	1 through 18	3,598	2,980	56,090
6	Symmetric	30	15 through 22	5,981	0	47,850
7	Unsymmetric	30	19 through 22	8,020	0	32,080
8	Unsymmetric	30	15 through 18	7,962	0	31,850
102	Symmetric	52	1 through 14	0	6,044	84,425
103	Symmetric	52	All 22	4,048	3,450	80,784
104	Unsymmetric	52	1 through 14, 19 through 22	4,793	4,010	75,200
105	Unsymmetric	52	1 through 18	4,766	3,980	74,645
106	Symmetric	52	15 through 22	7,806	0	62,450
107	Unsymmetric	52	19 through 22	8,130	0	32,520
108	Unsymmetric	52	15 through 18	8,108	0	32,430
202	Symmetric	74	1 through 14	0	6,010	84,055
203	Symmetric	74	All 22	4,138	3,490	81,960
204	Unsymmetric	74	1 through 14, 19 through 22	4,783	4,010	75,320
205	Unsymmetric	74	1 through 18	4,791	4,020	75,565
206	Symmetric	74	15 through 22	7,888	0	63,100
207	Unsymmetric	74	19 through 22	8,175	0	32,700
208	Unsymmetric	74	15 through 18	8,088	0	32,350

Tests were numbered as follows: the first series (30-ft shelter) is numbered 2 through 8; the second series (52-ft shelter) is numbered 102 through 108; and the last series (74-ft shelter) is numbered 202 through 208. Consequently, to determine whether the structure behaves like an arch or a shell, comparisons must be made among tests ending in the same number. To facilitate such a comparison, table II is presented to show the effect of structure length on the centerline deflections. The last column is a normalized load/deflection computation in which the lowest value of P/Δ is taken as the reference and the other two tests using the same loading are then referred to it. The lowest value was taken so the percentage difference could be automatically presented. For example, consider tests 5, 105, and 205. With test 205 as the reference, it is obvious that test 105 differs by almost 3 percent and test 5 differs by over 6 percent. Furthermore, it can readily be seen from such comparisons that the structure exhibits essentially arch behavior and, consequently, the length effect is negligible.

4. NUMERICAL ANALYSIS AND COMPARISONS TO EXPERIMENTAL RESULTS

The numerical analysis developed in this investigation is based on a discrete element idealization technique which uses the beam element developed in section II. The grid systems used for each of the test cases were as follows:

Test Series	Test Case	Grid System	Reference
1	5, 8	20 x 10	Grid layouts are
1	2, 3, 6	10 x 10	contained at
2	102, 103, 106	10 x 15	the end of the
3	202, 203, 206	10 x 20	report.

All test problems except 5 and 8 were symmetrically loaded and, consequently, the grid represents only one-half the structure for most cases. The grid systems were chosen with as many degrees of freedom as possible while utilizing only the central core memory of the computer.

Since the structure was constructed of doubly corrugated steel panels which have essentially no areas free of small corrugations or holes, strain measurements were not attempted. Deflection measurements were taken during each test and these results were compared to the analytical predictions (fig. 25). Horizontal deflections were not recorded in test 2 because the measuring system had not reached the final stage of refinement. However, in all subsequent tests, horizontal measurements were recorded.

Table II

CENTERLINE DEFLECTION VERSUS TOTAL LOAD COMPARISONS

Test Number	Total Load (P), lb	Centerline Deflection (Δ), in.	P/Δ, lb/in.	Normalized, P/Δ
2 *	69,385	3.38	20,528	1.0159
102 *	70,070	3.44	20,369	1.0080
202 *	69,710	3.45	20,206	1.0000
3 *	61,740	3.49	17,690	1.0000
103 *	61,218	3.38	18,396	1.0399
203 *	62,720	3.48	18,023	1.0188
4 †	55,690	2.81	19,819	1.0104
104 †	56,100	2.86	19,615	1.0000
204 †	56,580	2.72	20,801	1.0295
5 †	56,090	2.61	21,490	1.0635
105 †	56,580	2.72	20,801	1.0295
205 †	56,575	2.80	20,205	1.0000
6 *	47,850	2.06	23,228	1.0000
106 *	46,610	1.97	23,660	1.0185
206 *	57,048	2.00	23,524	1.0127
7 †	32,080	1.44	22,278	1.0000
107 †	32,520	1.31	24,824	1.1142
207 †	32,700	1.37	23,869	1.0714
8 †	31,850	1.50	21,233	1.0000
108 †	32,430	1.37	23,672	1.1148
208 †	32,350	1.38	23,442	1.1040

* Symmetric loading.
† Unsymmetric loading.

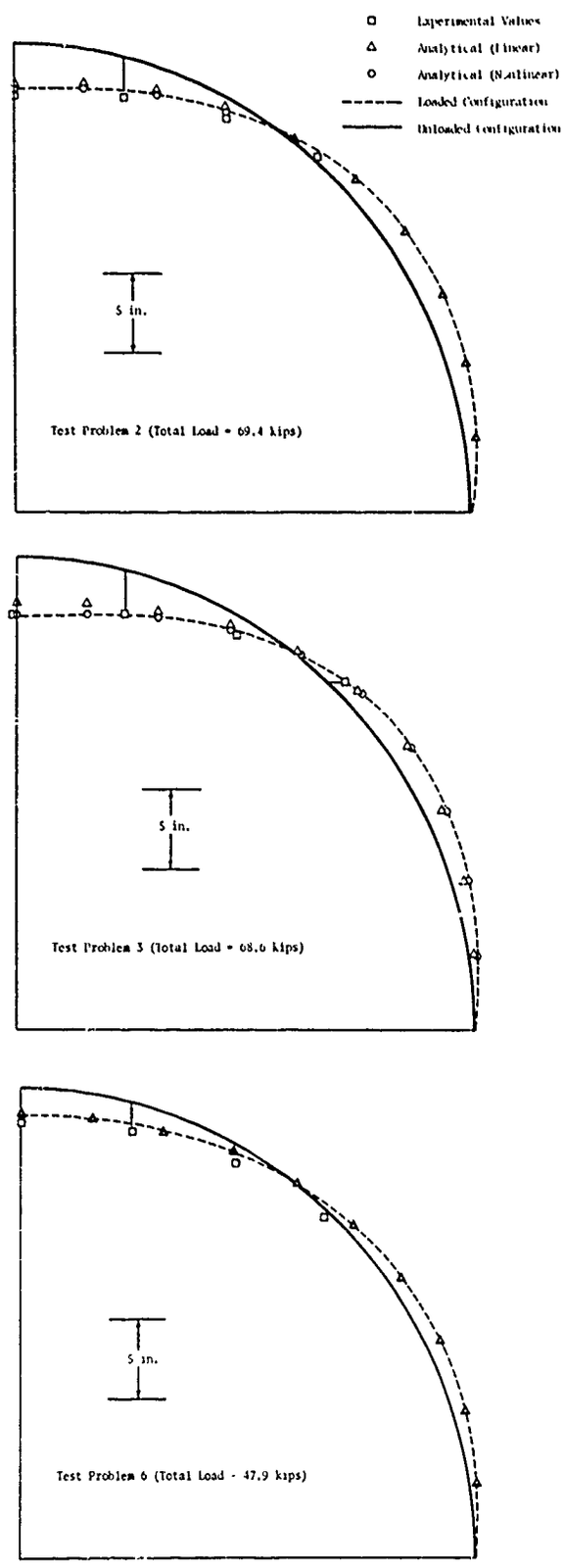


Figure 25. Analytical and Experimental Deflection Curves

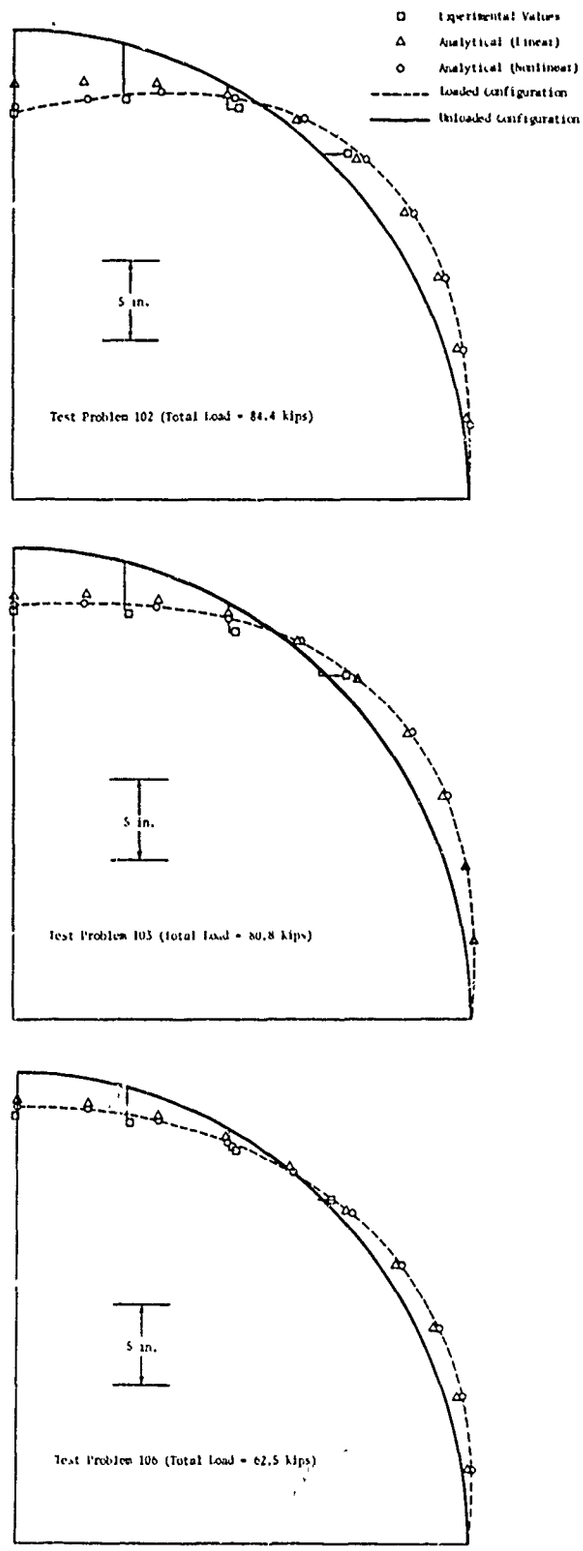


Figure 25---Continued

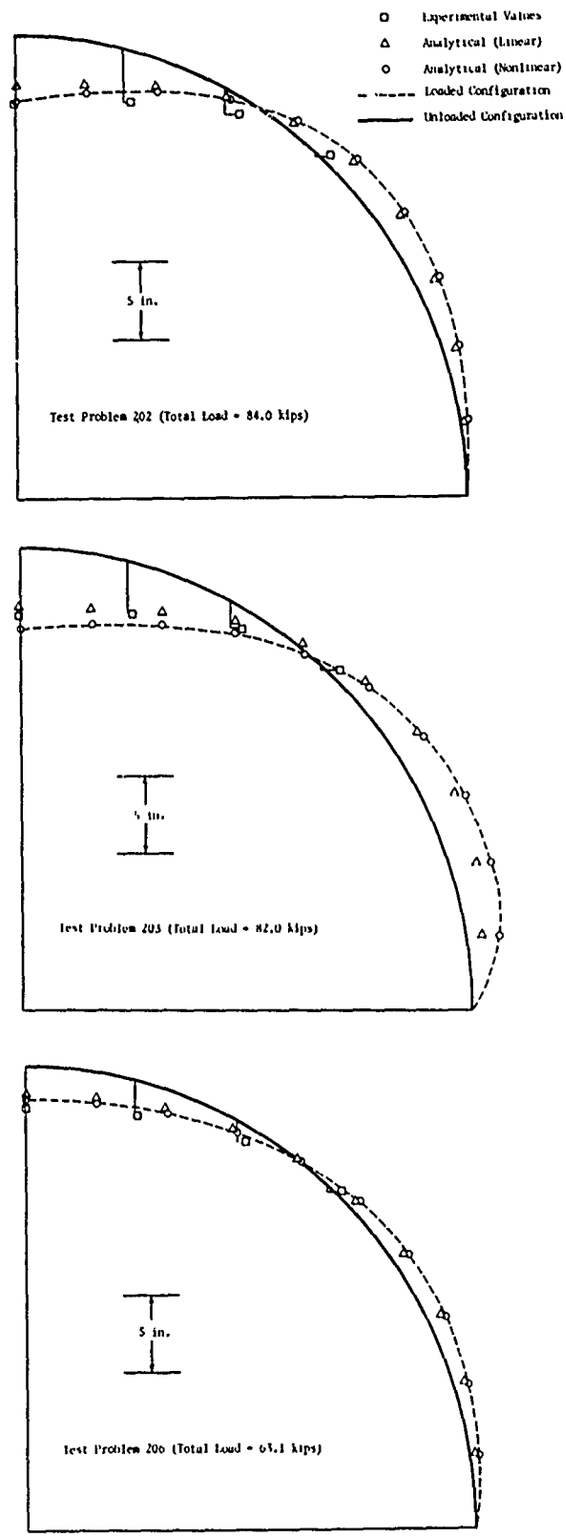


Figure 25---Continued

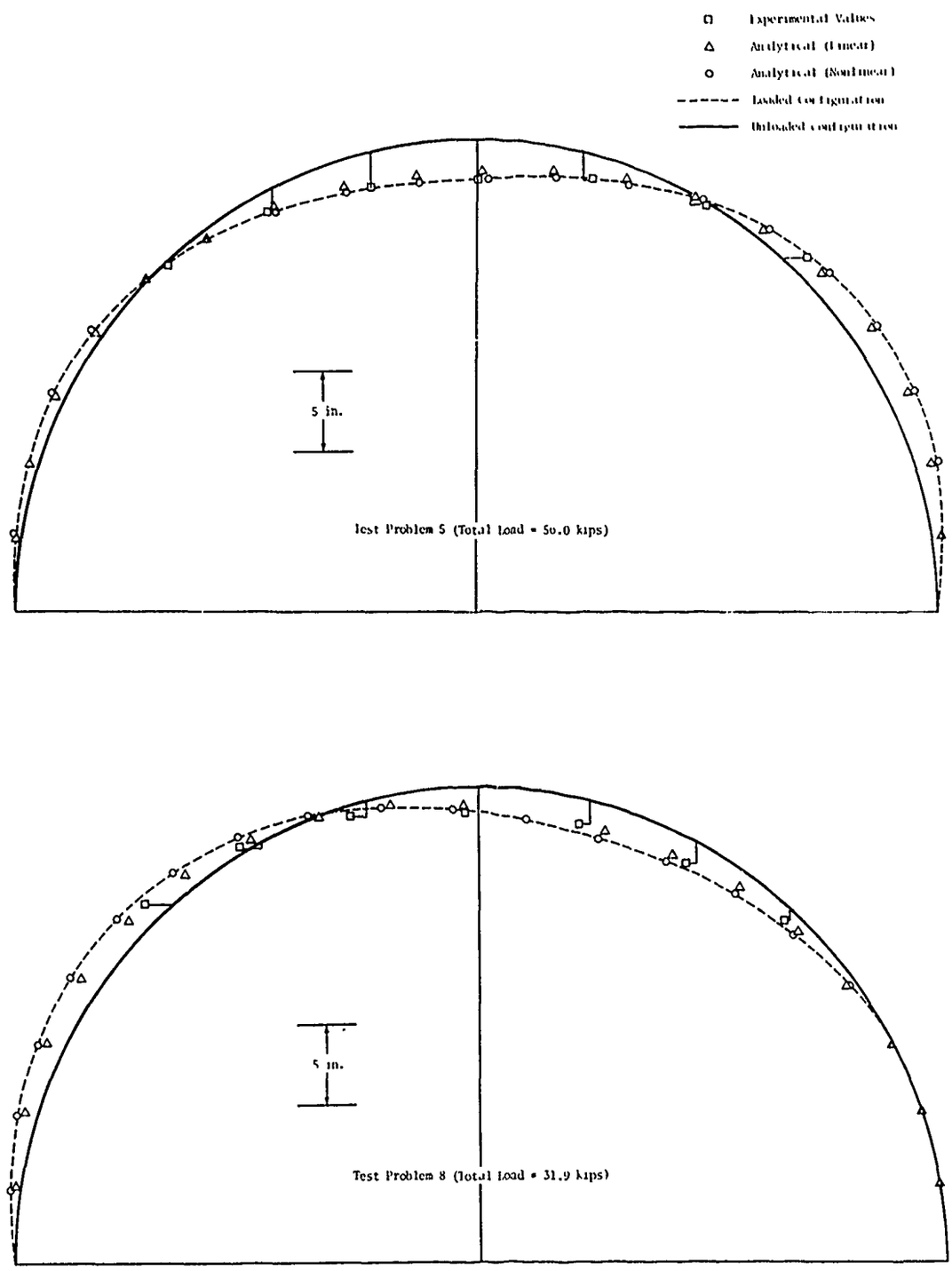


Figure 25---Concluded

Although 22 full-scale tests were conducted, only 11 are presented here. The first test was considered a "shake-down" and was conducted in an attempt to remove the effects of bolt misalignment and other irregularities caused by fabrication and construction. The results of two of these tests were disregarded because of high wind in one instance and rain in the other. Because of the limited computer storage capacity, analytical solutions for the unsymmetrically loaded 52- and 74-ft-long structures were not obtained. Consequently, test results from the second and third test series involving unsymmetrically loaded structures will be presented in the future.

Figure 26 is presented to give the reader an idea of the response of the crown when subjected to various load configurations. No scale is shown since these plots (from program presented in appendix II) are for the linear analysis only and essentially the same information may be obtained from figure 25.

It has been noted that no strain measurements were taken and, consequently, no experimental stress values can be presented. However, in order to develop an insight into probable stress patterns, an approximate stress analysis was performed for a selected number of the test problems. These plots, shown in figure 27, are useful only for predicting regions of high stress and are not intended for design purposes. The stress distribution of test problem 3 is with fixed supports while all others are based on simple supports. The question of the degree of fixity at the base was studied and it was concluded that for the loading considered in this investigation, the hinged condition was more representative of the actual conditions. The main reasons for this conclusion were (1) the base plates, to which the structure was attached, were secured to the footings in such a way as to allow some rotation, and (2) the panels were bolted to the base plate in a staggered manner so that the bolts along the outside and inside were 2 ft apart and the holes were considerably larger than the bolts. It is believed, however, that for high load intensities, the slack will be taken out of the system and the fixed base condition will be more representative. This presents a rather difficult problem if the support response becomes a function of the load intensity.

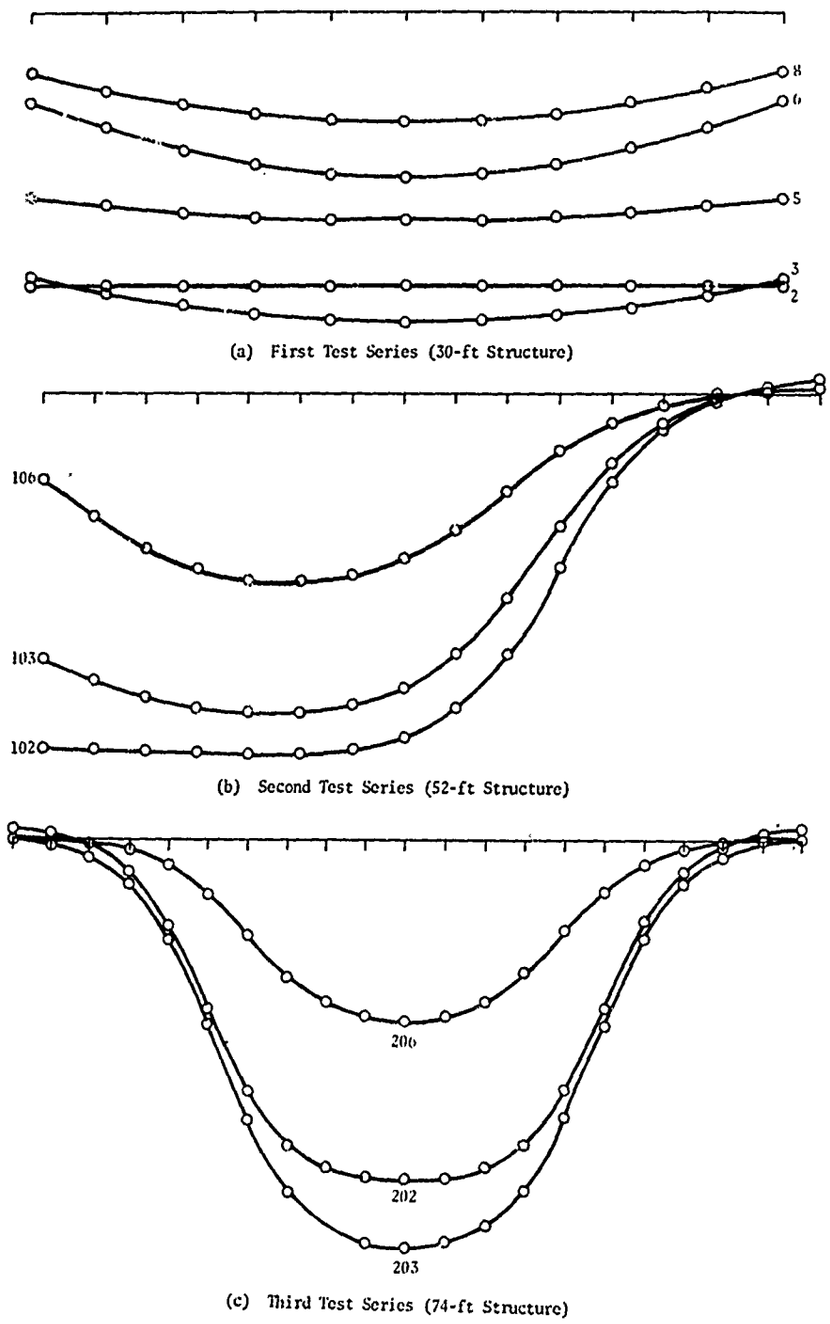
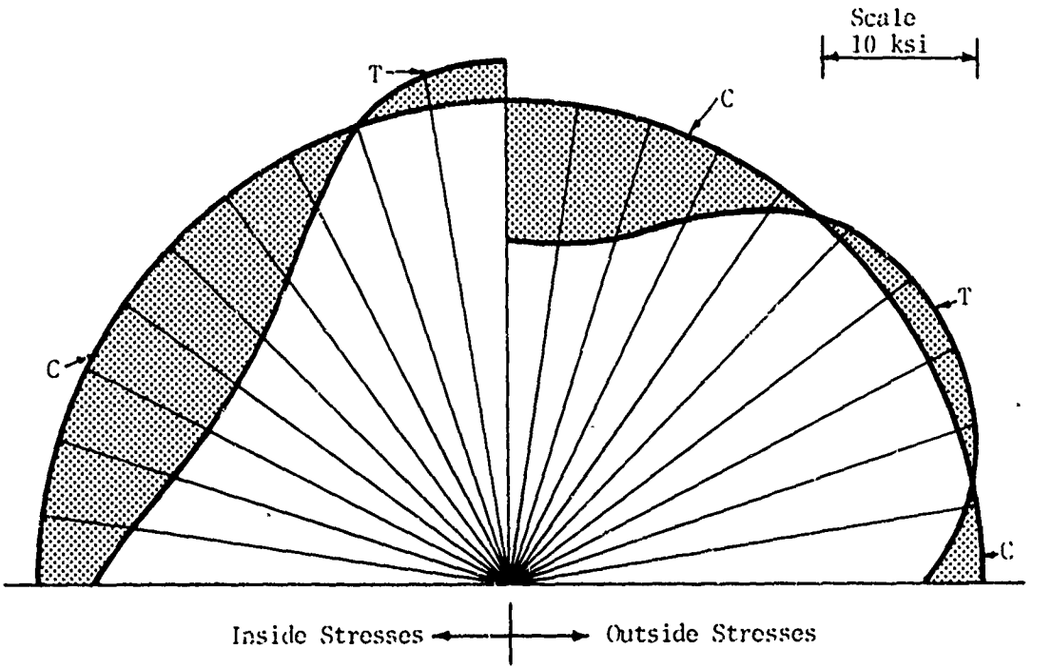
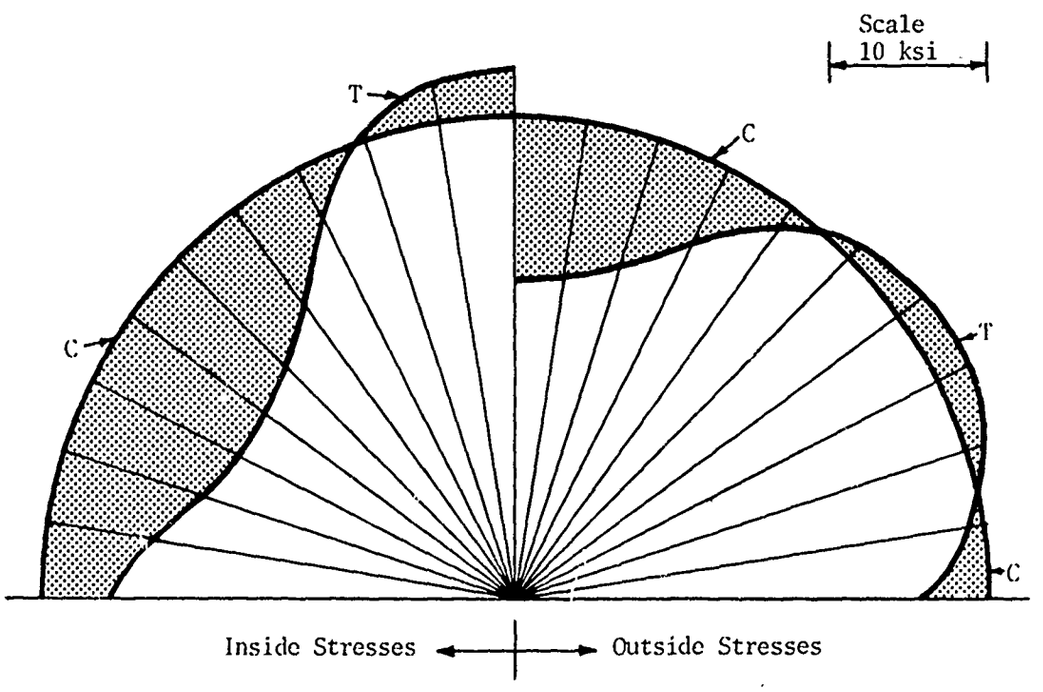


Figure 26. Crown Displacements (Linear Analysis)

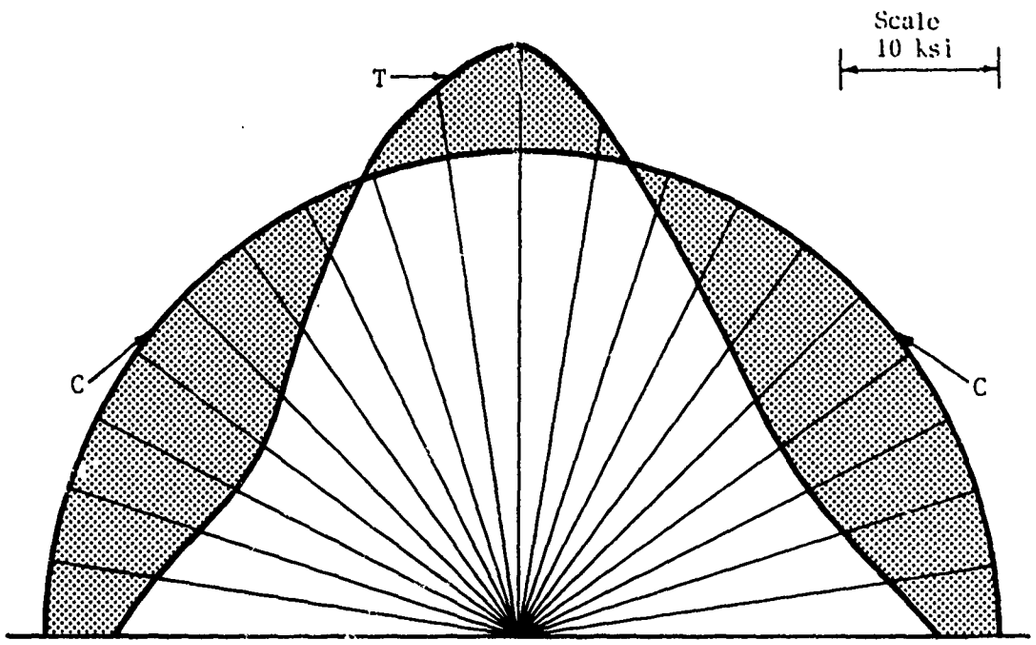


(a) Test Problem 6

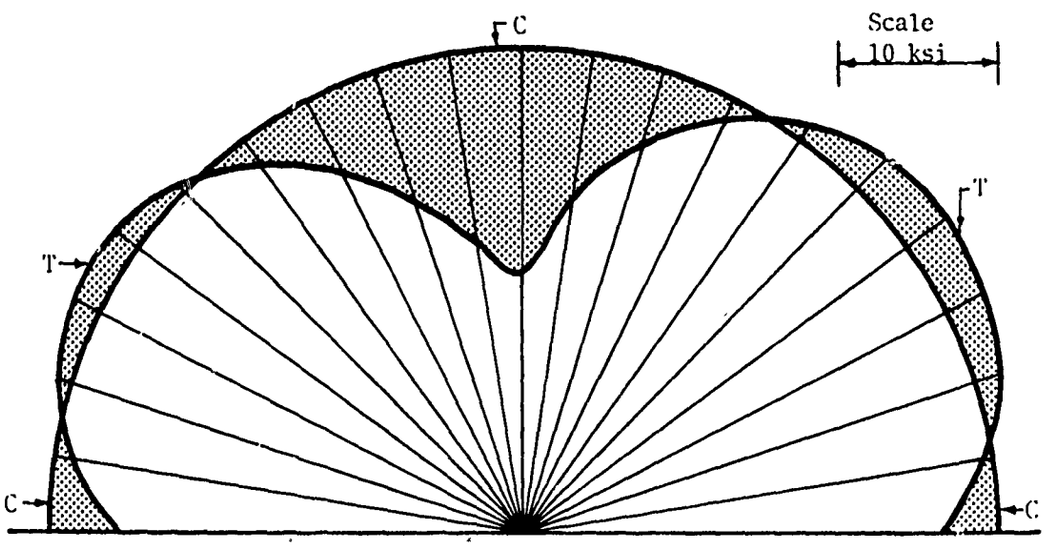


(b) Test Problem 106

Figure 27. Comparative Stresses on Inside and Outside Fibers



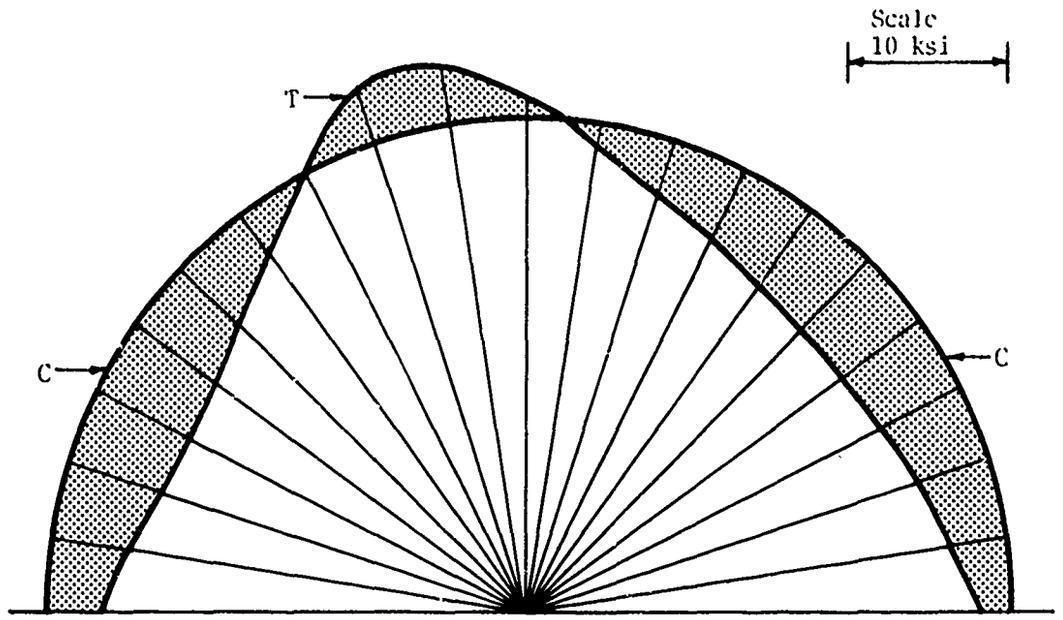
Inside Stresses



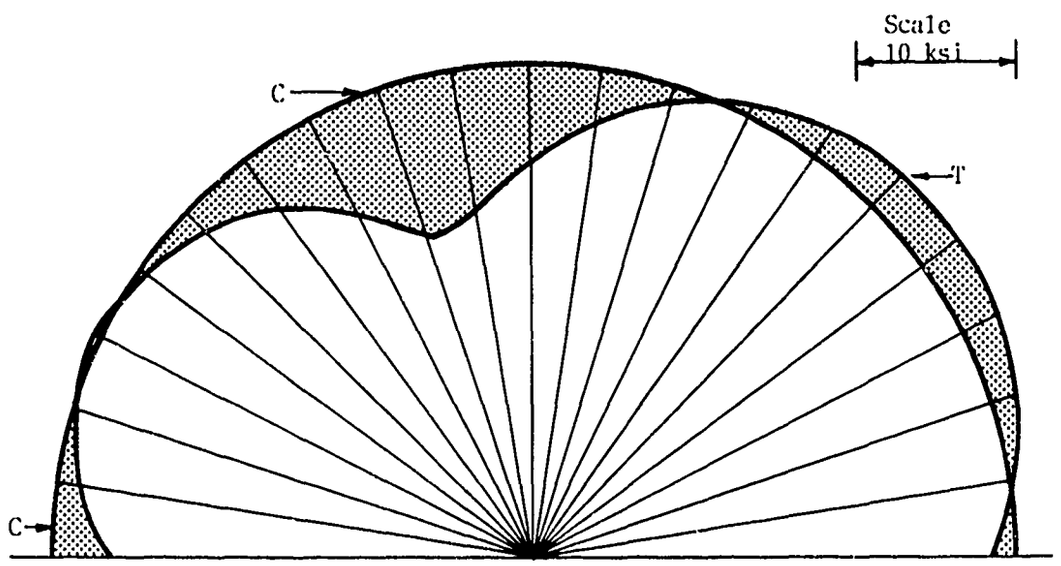
Outside Stresses

(c) Test Problem 5

Figure 27---Continued



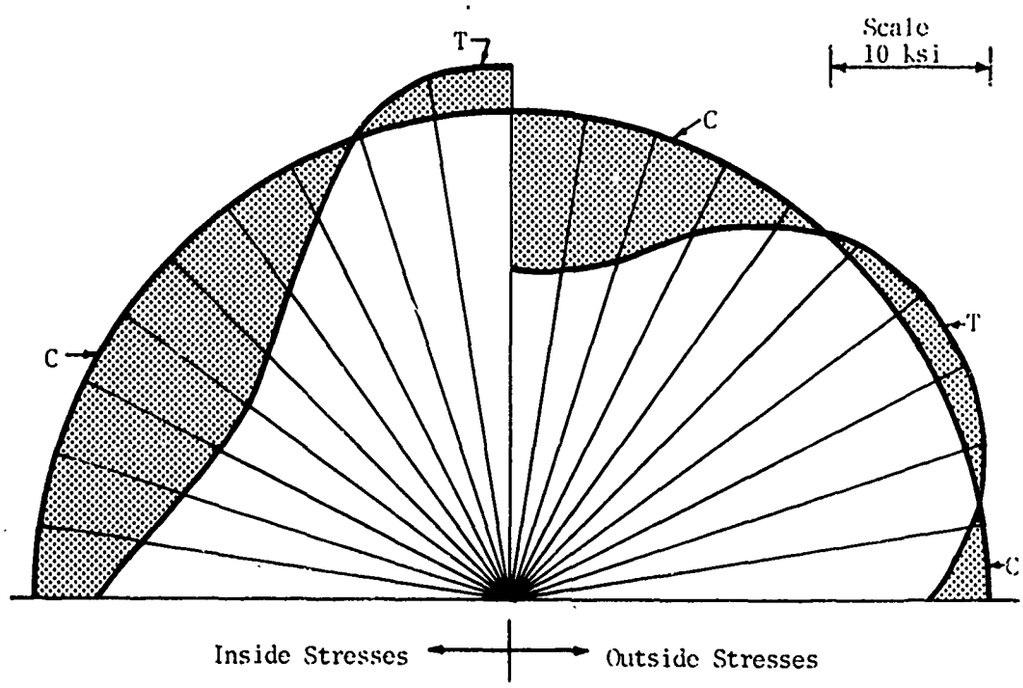
Inside Stresses



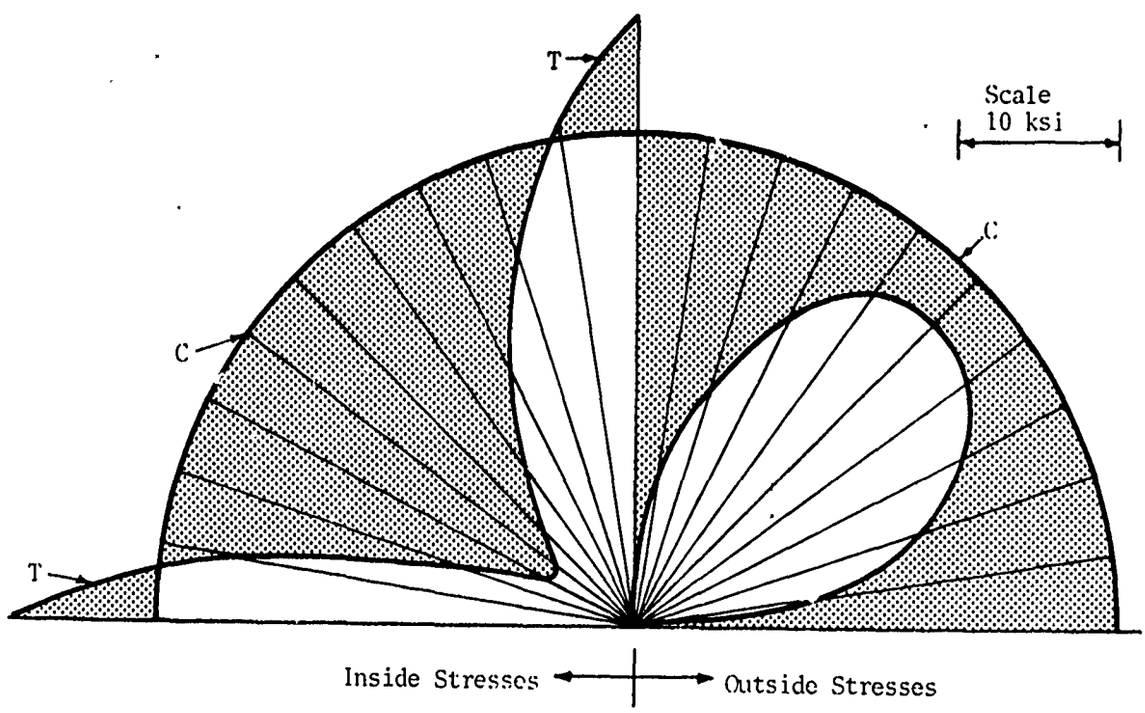
Outside Stresses

(d) Test Problem 8

Figure 27---Continued



(e) Test Problem 206



(f) Test Problem 3

Figure 27---Concluded

SECTION V

CONCLUSIONS

The following conclusions have been made as a result of this investigation of a doubly corrugated steel aircraft shelter.

(1) The initial response of the structure can be predicted with reasonably good accuracy by treating it as a linear elastic problem without conducting moment-rotation and force-deformation tests on individual panels. However, the cross-sectional properties (such as the moment of inertia and the centroid) cannot be taken from existing manufacturers' tables since this information ignores the effect of the small corrugations. Rather, simple tests must be made to determine the apparent modulus of elasticity of longitudinal strips at different locations within the cross section. This information can then be used to develop a transformed section which includes the effect of the small corrugations. When a future requirement for the analysis of different doubly corrugated sections arises, this approach can result in a significant savings since the new panel concepts do not have to be fabricated prior to an initial analysis.

(2) There is approximately a 10- to 15-percent variation (depending upon the loading conditions) resulting from treating the structure first as an arch and then as a shell.

(3) For the loadings used in the full-scale testing program, the nonlinear solutions differed by approximately 15 percent from the linear solutions. However, for loads which could result in incipient collapse, the nonlinear and linear analyses could differ by several hundred percent.

APPENDIX I

COMPUTER PROGRAMS

1. INTRODUCTION

Although the computer program, SANOS (*Structural Analysis of Nonlinear Orthotropic Shells*), was developed specifically for the analysis of the structure described in section I, it is not restricted to such structures. The program is designed so that virtually any structural geometry (symmetric or unsymmetric) can be handled with slight modifications.

A companion program, SAN1PLT, was written to plot the results from SANOS which expedites interpretation of the grid system, loading, crown and arch displacements, moments, axial forces, and comparative stresses on inside and outside fibers.

Sample input and output for the SANOS program are presented in appendix III and IV, respectively.

2. COMPUTER PROGRAM SANOS

Card Number(s)	Explanation
1	Control card
2 through 11	Dimension statements (These would require changes to increase the number of elements used.)
12 through 18	Common blocks
19 through 83	Format specifications for input and output information
84 through 99	Read statements and comment cards for input data
100 through 110	Initialization of certain parameters
111 through 116	Calculating dimensions and central angles
117 through 119	Initialization of support information vectors
120 through 129	Reading and arranging support information
130 through 144	Initialization of parameters
145 through 146	Reading load vector
147 through 182	Printing input information
183 through 230	Calculating and printing nodal coordinates
231 through 280	Calculating and printing element properties
281 through 287	Printing support and loading information

Card Number(s)	Explanation
288 through 289	Storing loading information for later use
290 through 291	Calling subroutine BAND to determine the indexing matrices for banding the stiffness matrix
292 through 430	This phase is a DO loop that applies a certain percent of the load, generates the differential stiffness matrix, solves the equations, and integrates the internal moments, axial forces, and displacements. This process is repeated until the full load is applied. During the first pass through this section, subroutine PRNT is called which calculates and prints the linear analysis.
431 through 446	Checking auxiliary tapes and storing information to be used as input to plot routine SAN1PLT
447	End of main program
448 through 481	Subroutine EQSOL--Solves the equations for the displacements
482 through 511	Subroutine PACK--Assembles the master stiffness matrix
512 through 542	Subroutine BAND--Determines indexing matrices required for banding the stiffness matrix
543 through 552	Subroutine MULT--Obtains the product of two matrices
553 through 562	Subroutine MTRAN--Multiplies one matrix by the transpose of another
563 through 601	Subroutine CMPAT--Generates the compatibility matrix for each element
602 through 629	Subroutine ELEMK--Generates the elemental stiffness matrices
630 through 830	Subroutine PRNT--Calculates, prints, and sets up data for plot routine SAN1PLT for the linear solutions

```
                    SANOS
      PROGRAM SANOS(INPUT,OUTPUT,TAPE7,FILMPL)
      DIMENSION T(830),XIX(830),AREA(830),PM(830),JEM(830),KEM(830),
     2          XJ(830),YJ(830),ZJ(830),XK(830),YK(830),ZK(830),
     3          IX(1155),D(1155),JBLD(1155),JBRD(1155),NS(1155),
     4          NSP(1155),Q(1155),XO(1155),  AXIAL(830),PULT(830),
     5          SOM(1660),SOM2(1660),SUM(1660),
     6          S(65 ,1155),
     7          TK(10,10),B(10,10),P(10),SB(10,10),ES(10,10),
     8          DD(10),PCENT(30),CRS(21),SRN(21),NP(5),
     9          Y(231)
     *,MMTYP(830)
      COMMON /2/ X(231), Z(231), PLOTAX(220),
     1PLOTMJ(220),PLOTMK(220),STRSOJ(220),STRSIJ(220),STRSOK(220),
     2STRSIK(220) ,MANGLE
      COMMON/3/NBAYL,NBAYW,NPROB
      COMMON/4/PLOTN
      COMMON/5/DA,JPROB,NUMPR
      REAL _SUM
  202 FORMAT(3I3,I11)
  301 FORMAT(8I10)
  362                          FORMAT(1H0)
  420 FORMAT(20X14HPROBLEM NUMBER  I5/)
  421 FORMAT(16X,41H NONLINEAR ANALYSIS OF ORTHOTROPIC SHELLS )
  422 FORMAT(14X,45H MATERIAL NONLINEARITY ** RICHARD FORMULATION  )
  424 FORMAT(49H NUMBER OF RUNGE-KUTTA INTERVALS ******      NRK =  I5)
  425 FORMAT(49H NUMBER OF MEMBERS ********************       NM =  I5)
  426 FORMAT(49H NUMBER OF LOADS **********************    NLOAD =  I5)
  427 FORMAT(49H NUMBER OF SUPPORTS *******************    NSUPS =  I5)
  428 FORMAT(49H BAND WIDTH ***************************    NBAND =  I5)
  430 FORMAT(49H CURVE FITTING PARAMETER ***************        R =F9.2)
  440 FORMAT(53H ******************SHELL GEOMETRY****************** )
  441 FORMAT(61H0MN  JM    KM      AREA     ULT.FORCE        SECMO        JL
     1T.MOM, 8X,6HLENGTH, 8X,5HMTYPE  ,/)
  442 FORMAT(3I4,5F12.3,I8)
  450 FORMAT(18X24H RUNGE-KUTTA INTERVAL = I3)
  451 FORMAT(26X8H MOMENTS)
  452 FORMAT(120H MEMBER NO.   MOM. AT J END   MOM. AT K END       SHEAR
     1          AXIAL FORCE    ULT. MOM.    MJ/PM       MK/PM  ULT. FORCE)
  453 FORMAT(I7,4E17.5,4F11.3)
  454 FORMAT(27X14H DISPLACEMENTS)
  455 FORMAT(120H  NODE       DELTA X           DELTA Y            DELTA Z
     1           THETA X            THETA Y            THETA Z            )
  456 FORMAT(I6,1E17.5,5E15.5)
  459 FORMAT(I9,1P2E17.5)
  460 FORMAT(10X29H THESE ARE THE ELASTIC FORCES//)
  461 FORMAT(42H THESE ARE THE ELASTIC NODAL DISPLACEMENTS/)
  494 FORMAT(49H THICKNESS OF SHELL (BENDING)**********  THICKM =F9.2)
  495 FORMAT(49H THICKNESS OF SHELL (AXIAL)************  THICKA =F9.2)
  497 FORMAT(49H MODULUS OF ELASTICITY OF SHELL *******        E =F9.2)
  502 FORMAT(49H NUMBER OF NODES **********************    NODES =  I5)
  503 FORMAT(49H NUMBER OF EQUATIONS ******************     NODS =  I5)
  504 FORMAT(49H NUMBER OF BAYS LONG ******************    NBAYL =  I5)
  505 FORMAT(49H NUMBER OF BAYS WIDE ******************    NBAYW =  I5)
  507 FORMAT(49H LENGTH OF DIAGONAL ELEMENTS **********     DIAG =F9.2)
  510 FORMAT(53H0**************THE NUMBER OF EACH SUPPORT*************)
  511 FORMAT(12I5)
  512 FORMAT(53H0**************LOAD NUMBER AND LOAD*****************)
  514 FORMAT(I4,F8.3,I16,F8.3,I16,F8.3)
  516 FORMAT(5F12.5)
  517 FORMAT(53H0***PERCENTAGE OF LOAD ON EACH RUNGE-KUTTA INTERVAL**)
  518 FORMAT(48H PERCENT OF TOTAL LOAD TAKEN IN THIS INTERVAL = F9.0)
```

```
  519 FORMAT(48H0TOTAL PERCENT OF LOAD INCLUDED AT THIS TIME  = F9.0)
  550 FORMAT(1H1)
  551 FORMAT(15X,40H PLASTIC ANALYSIS ** SMITH PLASTIC MODEL  )
  552 FORMAT(12X,48H GEOMETRIC NONLINEARITY ** INCREMENTAL TECHNIQUE )
  600 FORMAT(1P3E20.8)
  601 FORMAT(1P9E13.3)
  620 FORMAT(49H HEIGHT OF STRUCTURE ******************* HEIGHT =F9.2)
  621 FORMAT(49H SPAN OF STRUCTURE ********************** SPAN =F9.2)
  623 FORMAT(49H CENTRAL ANGLE--DEGREES******************** CAD =F9.2)
  900 FORMAT(8F10.0)
  901 FORMAT (1I10,1F10.0)
10004 FORMAT(49H THICKNESS OF SHELL (BENDING-WEAK AXIS)  THICKW =F9.2)
10005 FORMAT(49H HALF BAND WIDTH PLUS DIAGONAL ********   NBSYM =  I5)
10006 FORMAT(49H LENGTH OF SHELL **********************  SENGTH =F9.2)
10007 FORMAT(49H LENGTH OF LONGITUDINAL MEMBERS *******    SIDE =F9.2)
10008 FORMAT(49H RADIUS OF SHELL **********************   RADII =F9.2)
10009 FORMAT(49H ULTIMATE MOMENT (IN-KIPS/IN) *********    ULTM =F9.2)
20000 FORMAT(49H LARGER NODE NUMBER ON END OF MEMBER **   NUMBE =  I5)
20001 FORMAT(49H SMALLER NODE NUMBER ON END OF MEMBER *   NUMSE =  I5)
20002 FORMAT(49H NUMBER OF NODES WITH SUPPORTS ********   NSUPN =  I5)
20003 FORMAT(49H METHOD OF NUMBERING NODES ************   NCODE =  I5)
20009 FORMAT(49H ULT. AXIAL STRESS (KIPS/SQ.IN/INCH) **  ULTSTR =F9.2)
      READ 301,NUMPR
C     NUMPR ** NUMBER OF PROBLEMS TO BE SOLVED IN THIS COMPUTER RUN
      DO 999 JPROB=1,NUMPR
    1 READ 301,    NPROB,NCODE        ,NBAYL,NBAYW,NLOAD,NSUPN,NRK,MANGLE
C     NPROB ** PROBLEM IDENTIFICATION NUMBER
C     NUMBE ** NODE NUMBER ON BIG END OF MEMBER(FOR BAND WIDTH CALC)
C      NUMSE ** NODE NUMBER ON SMALL END OF MEMBER(FOR BAND WIDTH CALC)
C     NBAYL ** NUMBER OF BAYS ALONG SHELL AXIS
C     NBAYW ** NUMBER OF BAYS ALONG ARCH
C     NLOAD ** NUMBER OF LOADS ON SHELL
C     NSUPN ** NUMBER OF NODES WHICH HAVE SUPPORTS
C     SENGTH ** LENGTH OF SHELL
      READ 900,SPAN,HEIGHT,SENGTH
      READ 900,THICKM,THICKW,ULTM,THICKA,ULTSTR,E,R
      READ900,COUT,CIN,RATMOD
      READ 900,(PCENT(I),I=1,NRK)
       MQ=NBAYW*NBAYL
      IF (NBAYL-NBAYW)4,5,5
    4 NUMBE = NBAYL+3
      GO TO 6
    5 NUMBE = NBAYW + 3
    6 NUMSE = 1
      NBAND=10*(NUMBE-NUMSE)+9
      NBSYM=(NBAND+1)/2
      NM=NBAYL*(4*NBAYW+1)+NBAYW
      NODES=(NBAYW+1)*(NBAYL+1)
      NOD5 = 5*NODES
      SIDE=SENGTH/NBAYL
      PI=3.14159265
      BETA=PI/2.-2.*  ATANF(HEIGHT/(SPAN/2.))
      RADII=HEIGHT+SPAN*TANF(BETA)/2.
      CA=PI-2.*BETA
      CAD=CA*180./PI
      DO 981 I=1,NOD5
  981 NSP(I)=0
      NSUPS=0
      DO 890 I=1,NSUPN
      READ 301,NODE,(NP(J),J=1,5)
      DO 891 K=1,5
      IF(NP(K)) 892,891,892
  892 NCT=5*NODE-5+NP(K)
      NSP(NCT)=1
```

```
      NSUPS=NSUPS+1
      NS(NSUPS)=NCT
  891 CONTINUE
  890 CONTINUE
      IRK=1
      NPRNT=0
      LSUM=0
      RN=(1.0+R)/R
      DO 342 J=1,NODS
      XO(J)=0.0
      D(J)=0.0
  342 CONTINUE
      III=NM*2
      DO 331 I=1,III
      SUM(I)=0.0
      SDM(I)=0.0
  331 SDM2(I)=0.0
      DO 235 MN=1,NM
  235 AXIAL(MN)=0.0
      DO 236 J=1,NLOAD
  236 READ 901,I,D(I)
      PRINT 550
      PRINT 420,NPROB
      PRINT 421
      PRINT 422
      PRINT 551
      PRINT 552
      PRINT 424,NRK
      PRINT 425,NM
      PRINT 502,NODES
      PRINT 503,NODS
      PRINT 504,NBAYL
      PRINT 505,NBAYW
      PRINT 426,NLOAD
      PRINT 427,NSUPS
      PRINT 20002,NSUPV
      PRINT 428,NBAND
      PRINT 20000,NUMBE
      PRINT 20001,NUMSE
      PRINT 20003,NCODE
      PRINT 10005,NBSYM
      PRINT 430,R
      PRINT 495,THICKA
      PRINT 494, THICKM
      PRINT 10004,THICKW
      PRINT 10009,ULTM
      PRINT 20009,ULTSTR
      PRINT 620,HEIGHT
      PRINT 621,SPAN
      PRINT 623,CAD
      PRINT 10006,SENGTH
      PRINT 10007,SIDE
      PRINT 10008,RADII
      PRINT 497,E
      PRINT 362
      PRINT 550
      PRINT 440
C     GENERATE SHELL COORDINATES
C     ORIGIN ALONG CENTERLINE OF SHELL
      NBAY1=NBAYW+1
      AA=0.0
      PI=3.14159265
C  MANGLE  =  1  **** ONE-HALF ARCH  (90 DEGREES)
C  MANGLE  =  2  **** FULL ARCH   (180 DEGREES)
```

```
      GO TO (880,881),MANGLE
  881 SEG = NBAYW
      GO TO 882
  880 SEG = NBAYW * 2
  882 CONTINUE
      DO 9 I=1,NBAY1
      CRS(I)=COSF(AA*CA/SEG+BETA)*RADII
      SRN(I)=SINF(AA*CA/SEG+BETA)*RADII
    9 AA=AA+1.0
      JCT=0
      BB=0.0
      NBAY2=NBAYL+1 $NBAY3=NBAY1*NBAY2
C     NCODE=0--NODES NUMBERED IN DIRECTION OF ARCH AXIS
C     NCODE=1--NODES NUMBERED ALONG ARCH
      IF(NCODE)16,17,16
   16 CONTINUE
      DO 13 I=1,NBAY2
      DO 18 J=1,NBAY1
      JCT=JCT+1
      X(JCT)=-CRS(J)
      Y(JCT)=BB*SIDE
      Z(JCT)=SRN(J)-(RADII-HEIGHT)
   18 CONTINUE
   10 BB=BB+1.0
      GO TO 112
   17 CONTINUE
      DO 110 I=1,NBAY1
      BB=0.0
      DO 111 J=1,NBAY2
      JCT=JCT+1
      X(JCT)=-CRS(I)
      Y(JCT)=BB*SIDE
      Z(JCT)=SRN(I)-(RADII-HEIGHT)
  111 BB=BB+1.0
  110 CONTINUE
  112 CONTINUE
      PRINT520
  520 FORMAT(5H NODE  X COORDINATE    Y COORDINATE    Z COORDINATE/)
      DO 11 N=1,NODES
   11 PRINT 521,N,X(N),Y(N),Z(N)
  521 FORMAT(I5,F11.3,2F16.3)
C     OBTAINING MEMBER PROPERTIES AND GEOMETRY RELATIONSHIPS
      SQT2=SQRTF(2.0)
C     AAA= LENGTH OF ELEMENTS ALONG ARCH
C     BBB= LENGTH OF ELEMENTS ALONG SHELL AXIS
      AAA=2.0*RADII*SINF(CA/(2.0*SEG))
      BBB= SENGTH/NBAYL
      DO 13 IJK=1,NM
      READ 202,MN,JM,KM,MTYPE
      XJ(MN)=X(JM)
      YJ(MN)=Y(JM)
      ZJ(MN)=Z(JM)
      XK(MN)=X(KM)
      YK(MN)=Y(KM)
      ZK(MN)=Z(KM)
      JEM(MN)=JM
      KEM(MN)=KM
C     MTYPE = 1 ******************** INTERIOR MEMBER ALONG ARCH
C     MTYPE = 2 ******************** EXTERIOR MEMBER ALONG ARCH
C     MTYPE = 3 ******************** INTERIOR HORIZONTAL MEMBER
C     MTYPE = 4 ******************** EXTERIOR HORIZONTAL MEMBER
C     MTYPE = 5 ********************DIAGONAL MEMBER .
      GO TO (250,260,270,280,290)MTYPE
  250 SECMO= BBB*THICKM**3/12.
```

```
      AREA(MN)=BBB*THICKA
      PULT(MN)=BBB*THICKA*ULTSTR
      PM(MN)=BBB*ULTM
      GO TO 12
  260 SECMO=.5*BBB*THICKM**3/12.
      AREA(MN)=.5*BBB*THICKA
      PULT(MN)=.5*BBB*THICKA*ULTSTR
      PM(MN)=.5*BBB*ULTM
      GO TO 12
  270 SECMO=AAA*THICKW**3/12.
      AREA(MN)=AAA*THICKA
      PULT(MN)=AAA*THICKA*ULTSTR
      PM(MN)=AAA*ULTM
      GO TO 12
  280 SECMO=.5*AAA*THICKW**3/12.
      AREA(MN)=.5*AAA*THICKA
      PULT(MN)=.5*AAA*THICKA*ULTSTR
      PM(MN)=.5*AAA*ULTM
      GO TO 12
  290 SECMO=.01
      AREA(MN)=.01
      PULT(MN)=10.
      PM(MN)=10.
   12 CONTINUE
C  12 PRINT 442,MN,JM,KM,AREA(MN),PULT(MN),SECMO,PM(MN)
      MMTYP(MN)=MTYPE
   13 XIX(MN)=SECMO
      PRINT 550
      PRINT 510
      PRINT 511,(NS(I),I=1,NSUPS)
      PRINT 512
      PRINT 516,(D(I),I=1,NODS)
      PRINT 517
      PRINT 516,(PCENT(I),I=1,NRK)
      DO 237 I=1,NODS
  237 Q(I)=D(I)
C     DETERMINE INDEXING MATRICES REQUIRED FOR BANDING
      CALL BAND  (NODES,NBAND,IX,JBLD,JBRD)
      DO 400 MMMMM=1,NRK
      RUNG=5.0
      FACT=0.0
  200 CONTINUE
       IJ=0
      DO 330 I=1,NBSYM
      DO 330 J=1,NODS
  330 S(I,J)=0.0
      DO 549 J=1,NODS
  549 D(J)=Q(J)*PCENT(MMMMM)
      DO 14 MN=1,NM
C     GENERATE COMPATIBILITY MATRIX,  B
      CALL CMPAT(XJ,YJ,ZJ,KK,YK,ZK,T,B,MN)
C     GENERATE ELEMENT STIFFNESS MATRIX,  ES
      CALL ELEMK(MN,XIX,T,E,SOM,PM,R,RN,ES ,PULT,AXIAL,AREA)
C     MULTIPLY COMPATIBILITY MATRIX BY ES
      CALL MULT(3,10,3,SB,ES,B)
C     DEVELOP STRUCTURE ORIENTED STIFFNESS MATRIX,  ZK
      CALL MTRAN(10,10,3,TK,B,SB)
   15 JMM=JEM(MN)
      KMM=KEM(MN)
C     ASSEMBLE THE MASTER STIFFNESS MATRIX,  S
      CALL PACK (JMM,KMM,IX,TK,S)
   14 CONTINUE
C     SOLVE FOR THE DISPLACEMENTS
      CALL  EQSOL(NODES,S,D,IX,JBLD,JBRD,NSP)
```

```
      IF(NPRNT) 678,680,679
  680 CONTINUE
  888 PRINT 550
      PRINT 441
      DO 889 MN=1,NM
      PRINT 442,MN,JEM(MN),  KEM(MN),
     1                    AREA(MN),PULT(MN),XIX(MN),PM(MN),T(MN)
     2,MMTYP(MN)
  889 CONTINUE
      PLOTN=0.
      RK=1.0/PCENT(1)
      CALL        PRNT(NM,JEM,KEM,T,XJ,YJ,ZJ,XK,YK,ZK,XIX,E,RK,NODS,D,
     1    NPROB,AREA,MMTYP,CIN,COUT,RATMOD,Q,CONTROL)
      NPRNT=NPRNT+1
  678 CONTINUE
      PLOTN=1.
      IF(NRK) 683, 998, 683
  683 CONTINUE
C     INTEGRATING THE INTERNAL MOMENTS
       IJ=0
      DO 42 MN=1,NM
      J5=JEM(MN)*5
      DD(1)=D(J5-4)
      DD(2)=D(J5-3)
      DD(3)=D(J5-2)
      DD(4)=D(J5-1)
      DD(5)=D(K5)
      K5=KEM(MN)*5
      DD(6)=D(K5-4)
      DD(7)=D(K5-3)
      DD(8)=D(K5-2)
      DD( 9)=D(K5-1)
      DD(10)=D(K5)
      CALL CMPAT(XJ,YJ,ZJ,XK,YK,ZK,T,B,MN)
       XJ(MN)=XJ(MN)+DD(1)/RUNG
       YJ(MN)=YJ(MN)+DD(2)/RUNG
       ZJ(MN)=ZJ(MN)+DD(3)/RUNG
       XK(MN)=XK(MN)+DD(6)/RUNG
       YK(MN)=YK(MN)+DD(7)/RUNG
       ZK(MN)=ZK(MN)+DD(8)/RUNG
      CALL ELEMK(MN,XIX,T,E,SOM,PM,R,RN,ES ,PULT,AXIAL,AREA)
      CALL MULT(3,10,3,SB,ES,B)
C     P = (SB) * D
      CALL MULT(3,1,10,P,SB,DD)
       AXIAL(MN)=AXIAL(MN)+P(1)/RUNG
      DO 622 I=2,3
      IJ=IJ+1
      SUM(IJ)=SUM(IJ)+P(I)/RUNG
      SOM(IJ)=SOM2(IJ)+P(I)*FACT
  622 CONTINUE
   42 CONTINUE
C     BEGIN RUNGE-KUTTA INTEGRATION
      GO TO (700,701,702,703),IRK
  700 DO 800 J=1,NODS
  800 X0(J)=X0(J)+D(J)/6.0
      FACT=.50
      RUNG=3.0
      GO TO 100
  701 DO 801 J=1,NODS
  801 X0(J)=X0(J)+D(J)/3.0
      FACT=.50
      RUNG=3.0
      GO TO 100
  702 DO 802 J=1,NODS
```

```
  802 XO(J)=XO(J)+D(J)/3.0
      FACT=1.0
      RUNG=6.0
      GO TO 100
  703 DO 803 J=1,NODS
  803 XO(J)=XO(J)+D(J)/6.0
      RUNG=6.0
  100 CONTINUE
      IF(IRK-4) 482,490,490
  490 CONTINUE
      PRINT 550
      PRINT 420,NPROB
      PRINT 362
      PRINT 450,MMMMM
      TSUM=PCENT(MMMMM)*100.0
      LSUM=LSUM+TSUM
      PRINT 519,LSUM
      PRINT 518,TSUM
      PRINT 362
      PRINT 454
      PRINT 455
      JRD=0
      DO 671 JR=5,NODS,5
      JRD=JRD+1
  671 PRINT 456,JRD,XO(JR-4),XO(JR-3),XO(JR-2),XO(JR-1),XO(JR)
      PRINT 362
      PRINT 362
      PRINT 451
      PRINT 452
  491 IBD=0
      NMT2=NM*2
      DO 652 IA=1,NMT2,2
      IBD=IBD+1
      EMOMJ=SUM(IA)
      EMOMK=SUM(IA+1)
      SHEAR=(EMOMK-EMOMJ)/T(IBD)
       PPPJ=EMOMJ/PM(IBD)
       PPPK=EMOMK/PM(IBD)
      PAX=AXIAL(IBD)/PJLT(IBD)
  652 PRINT 453,IBD,EMOMJ,EMOMK,SHEAR,AXIAL(IBD),PM(IBD),PPPJ,PPPK,PAX
  482 CONTINUE
      IRK=IRK+1
      IF(IRK-5) 200,99,99
   99 IRK=1
      DO632 I=1,NMT2
      SOM(I)=SUM(I)
  632 SOM2(I)=SUM(I)
  399 CONTINUE
  400 CONTINUE
      PRINT 900,CONTROL
      PRINT 30000,(XO(I),I=1,NODS)
30000 FORMAT(5(E13.5,5X))
      IF(CONTROL.EQ.0.)GO TO 998
30001 IF(UNIT,7)30001,850,30002,30003
30002 PRINT 805
30003 PRINT 804
  804 FORMAT(*PARITY*)
  805 FORMAT(*EOF*)
  850 BUFFEROUT(7,1)(XO(1),XO(NODS))
21000 IF(UNIT,7)21000,851,851,851
  851 CONTINUE
      END FILE 7
  998 CONTINUE
      PRINT 550
```

```
  999 CONTINUE
      END
      SUBROUTINE EQSOL(M2,SS,P,IX,JL,JR,NSP)
      DIMENSION SS(65,1155),P(1155),IX(1155),JL(1155),JR(1155),NSP(1155)
      NODES=M2*5
      DO 420 II=1,NODES
      IF(NSP(II)) 420,425,420
  425 KB = IX(II)
      AA = 1.0/SS(KB,II)
      JRT= JR(II)
      DO 434 JJ = II,JRT
  434 SS(KB,JJ)=SS(KB,JJ)*AA
      P(II)=P(II)*AA
      DO 424 LL=1,JRT
      LB = IX(LL)
      IF(LB-II) 424,424,428
  428 IF(NSP(LL))424,421,424
  421 BB = SS(KB,LL)/AA
      IF(BB) 423,424,423
  423 DO 422 JJ=LL,JRT
  422 SS(LB,JJ)=SS(LB,JJ)-SS(KB,JJ)*BB
      P(LL)=P(LL)-P(II)*BB
  424 CONTINUE
  420 CONTINUE
      DO 452 II=2,NODES
      JJ=NODES+1-II
      IF(NSP(JJ)) 451,451,452
  451 JB=IX(JJ)
      KK=II-1
      LL=JL(II)
      DO 450 MM=LL,KK
      NN = NODES + 1 - MM
  450 P(JJ)=P(JJ)-SS(JB,NN)*P(NN)
  452 CONTINUE
      RETURN
      END
      SUBROUTINE PACK(JM,KM,IX,ZK,SS)
      DIMENSION IX(1155),ZK(10,10),SS(65,1155)
      IP3=JM*5
      IQ3=KM*5
      DO 380 IROW=1,5
      JROW=5-IROW
      IIP3=IP3-JROW
      IIQ3=IQ3-JROW
      KROW=IX(IIP3)
      LROW=IX(IIQ3)
      DO 381 ICOL=1,5
      JCOL=5-ICOL
      KCOL=IP3-JCOL
      LCOL=IQ3-JCOL
      IF(IP3-IQ3) 315,315,314
  315 SS(KROW,LCOL)=SS(KROW,LCOL)+ZK(IROW,ICOL+5)
  314 IF(IP3-IQ3) 319,307,307
  307 SS(LROW,KCOL)=SS(LROW,KCOL)+ZK(IROW+5,ICOL)
  319 CONTINUE
  381 CONTINUE
      DO 382 ICOL=IROW,5
      JCOL=5-ICOL
      KCOL=IP3-JCOL
      LCOL=IQ3-JCOL
      SS(KROW,KCOL)=SS(KROW,KCOL)+ZK(IROW,ICOL)
      SS(LROW,LCOL)=SS(LROW,LCOL)+ZK(IROW+5,ICOL+5)
  382 CONTINUE
  380 CONTINUE
```

```
      RETURN
      END
      SUBROUTINE BAND(M1,NBAND,IX,JL,JR)
      DIMENSION IX(1155),JL(1155),JR(1155)
      NODES=3*M1
      NBSYM = (NBAND + 1)/2
      KOUNT = 1
      DO 370 II=1,NODES
      IF(II-KOUNT * NBSYM) 371,371,372
  371 IX(II)=II -NBSYM *(KOUNT -1)
      GO TO 370
  372 IX(II)=II-NBSYM * KOUNT
      KOUNT = KOUNT + 1
  370 CONTINUE
      JRT =(NBAND -1)/2
      JS  =NODES - JRT
      IS  =JRT + 1
      DO 340 II=1,NODES
      IF(II-IS) 350,350,352
  350 JLT = 1
      JRT = JRT + 1
      GO TO 356
  352 IF(II-JS) 351,353,353
  351 JLT = JLT + 1
      JRT = JRT + 1
      GO TO 356
  353 JLT = JLT + 1
      JRT = NODES
  356 JL(II) = JLT
      JR(II) = JRT
  340 CONTINUE
      RETURN
      END
      SUBROUTINE MULT(L,M,N,RESLT,AA,BB)
      DIMENSION RESLT(10,10),AA(10,10),BB(10,10)
C     RESLT = AA * BB       AA IS L X N       BB IS N X M
      DO 100 I=1,L
      DO 100 J=1,M
      RESLT(I,J)=0.0
      DO 100 K=1,N
  100 RESLT(I,J)=RESLT(I,J)+AA(I,K)*BB(K,J)
      RETURN
      END
      SUBROUTINE MTRAN(L,M,N,RESLT,AA,BB)
      DIMENSION RESLT(10,10),AA(10,10),BB(10,10)
C     RESLT=(AA)T * BB    AA IS  NXL      BB IS    NXM
      DO 100 I=1,L
      DO 100 J=1,M
      RESLT(I,J)=0.0
      DO 100 K=1,N
  100 RESLT(I,J)=RESLT(I,J)+AA(K,I)*BB(K,J)
      RETURN
      END
      SUBROUTINE CMPAT(XJ,YJ,ZJ,XK,YK,ZK,T,B,MN)
      DIMENSION B(10,10),XJ(830),YJ(830),ZJ(830),XK(830),
     2          YK(830),ZK(830),T(830)
      DO 10 I=1,3
      DO 10 J=1,10
   10 B(I,J)=0.0
      XX=XK(MN)-XJ(MN)
      YY=YK(MN)-YJ(MN)
      ZZ=ZK(MN)-ZJ(MN)
      T(MN)=SQRTF(XX*XX+YY*YY+ZZ*ZZ)
      XY = SQRTF(XX*XX+YY*YY)
```

```
      CA = XX/XY
      SA = YY/XY
      CB = XY/T(MN)
      SB = ZZ/T(MN)
      B(1,1)= CA*CB
      B(1,2)= SA*CB
      B(1,3) = SB
      B(1,5)=-B(1,1)
      B(1,7)=-B(1,2)
      B(1,8)=-B(1,3)
      B(2,1) = CA*SB/T(MN)
      B(2,2) = SA*SB/T(MN)
      B(2,3) = -CB/T(MN)
      B(2,4) = -SA
      B(2,5) = CA
      B(2,5)=-B(2,1)
      B(2,7)=-B(2,2)
      B(2,8)=-B(2,3)
      B(3,1)=-B(2,1)
      B(3,2)=-B(2,2)
      B(3,3)=-B(2,3)
      B(3,5)=-B(2,6)
      B(3,7)=-B(2,7)
      B(3,8)=-B(2,8)
      B(3,9)  = -B(2,4)
      B(3,10) = -B(2,5)
      RETURN
      END
      SUBROUTINE ELEMK(MN,SECMO,T,E,SUM,PM,R,RN,ES,PULT,AXIAL,AREA)
      DIMENSION SECMO(830),T(830),PM(830),SUM(1660),ES(10,10)
     2          ,AREA(830),PULT(830),AXIAL(830)
      JZ=MN*2-1
      AA=ABSF(AXIAL(MN)/PULT(MN))
      IF(AA-1.0) 50,60,60
   60 AA=5.0*AA
   50 CONTINUE
      PPIJ=ABSF(SUM(JZ)/PM(MN))
      PPJI=ABSF(SUM(JZ+1)/PM(MN))
      IF(PPIJ-1.0) 10,10,20
   20 PPIJ=0.99999
   10 IF(PPJI-1.0) 30,30,40
   40 PPJI=0.99999
   30 ES(1,1)=(AREA(MN)*E/(T(MN))/(1.0+AA**R)**RN
      ES(1,2)=0.0
      ES(1,3)=0.0
      ES(2,1)=0.0
      ES(3,1)=0.0
      AI=(1.0-PPIJ**R)**RN
      AJ=(1.0-PPJI**R)**RN
      PROD=(5.0*E*SECMO(MN)/T(MN))/(4.0-AI*AJ)
      ES(2,2)=PROD*2.0*AI
      ES(2,3)=-PROD*AI*AJ
      ES(3,2)=ES(2,3)
      ES(3,3)=PROD*2.0*AJ
      RETURN
      END
      SUBROUTINE PRNT(NM,JEM,KEM,T,XJ,YJ,ZJ,XK,YK,ZK,XIX,E,RK,NODS,D,
     1NPROB,AREA,MTYPE,CIN,COUT,RATMOD,Q,CONTROL)
      DIMENSION Q(1)
C     ONE INPUT CARD IS REQUIRED IN SUBROUTINE PRNT-
C     CONTROL
      DIMENSION JEM(830),KEM(830),T(830),
     2          XIX(830),B(10,10),ES(10,10),SB(10,10),DJ(10),
     3          P(10),D(1155),XJ(830),YJ(830),ZJ(830),XK(830),YK(830),
```

```
     4          ZK(830),AREA(830)
     *,MTYPE(830)
      COMMON /2/ X(231), Z(231), PLOTAX(220),
     1PLOTMJ(220),PLOTMK(220),STRSOJ(220),STRSIJ(220),STRSOK(220),
     2STRSIK(220) ,MANGLE
      COMMON/3/NBAYL,NBAYW
      COMMON/4/PLOTN
      COMMON/5/CA,JPROB,NUMPR
      DIMENSION A(13)
  399 FORMAT( 8X,2HMN, 14X,6HSTRSOJ, 14X,6HSTRSOK, 14X,5HSTRSIJ,
     114X,5HSTRSIK ,//)
  400 FORMAT(I10,4E20.5 )
  420 FORMAT(20X14HPROBLEM NUMBER  I4/)
  452 FORMAT(99H MEMBER NO.   MOM. AT J END   MOM. AT K END       SHEAR
     2          AXIAL                                          )
  453 FORMAT(I7,1P4E17.5)
  362                                FORMAT(1H0)
  461 FORMAT(42H THESE ARE THE ELASTIC NODAL DISPLACEMENTS/)
  550 FORMAT(1H1)
  460 FORMAT(10X29H THESE ARE THE ELASTIC FORCES//)
  455 FORMAT(I6,1E17.5,5E15.5)
  455 FORMAT(120H  NODE       DELTA X           DELTA Y           DELTA Z
     1          THETA X           THETA Y           THETA Z            )
      PRINT 550
      PRINT 420, NPROB
      PRINT 461
      PRINT 455
      JRD=0
      I=0
      DO 671 JR=5,NODS,5
      JRD=JRD+1
      I=I+1
      XX1=D(JR-4)*RK
      YY1=D(JR-3)*RK
      ZZ1=D(JR-2)*RK
      XX=D(JR-1)*RK
      YY=D(JR)*RK
  671 PRINT 455,JRD,XX1,YY1,ZZ1,XX,YY
      NBAYS=NODS/5
      PRINT 362
      PRINT 362
      PRINT 460
      PRINT 452
      JERK=0
      DO 41 MN=1,NM
      J6=JEM(MN)*5
      DD(1)=D(J6-4)
      DD(2)=D(J6-3)
      DD(3)=D(J6-2)
      DD(4)=D(J6-1)
      DD(5)=D(J6)
      K6=KEM(MN)*5
      DD(6)=D(K6-4)
      DD(7)=D(K6-3)
      DD(8)=D(K6-2)
      DD( 9)=D(K6-1)
      DD(10)=D(K6)
      CALL CMPAT(XJ,YJ,ZJ,XK,YK,ZK,T,R,MN)
      ES(1,1)=AREA(MN)*E/T(MN)
      ES(1,2)=0.0
      ES(1,3)=0.0
      ES(2,1)=0.0
      ES(3,1)=0.0
      ES(2,2)=4.0*E*XIX(MN)/T(MN)
```

```
      ES(2,3)= -ES(2,2)/2.0
      ES(3,2)=ES(2,3)
      ES(3,3)=ES(2,2)
      CALL MULT(3,10,3,SB,ES,B)
C     P = (SB) * D
      CALL MULT(3,1,10,P,SB,DD)
      AXIAL=P(1)*RK
      XXX=P(2)*RK
      YYY=P(3)*RK
      IF (MTYPE(MN)-2) 10,10,20
   10 JERK=JERK+1
      PLOTAX(JERK)=AXIAL
      PLOTMJ(JERK)=XXX
      PLOTMK(JERK)=YYY
      AA=AXIAL /AREA(MN)
      STRSOJ(JERK)=AA+XXX*COUT/XIX(MN)
      STRSIJ(JERK)=AA-XXX*CIN/(XIX(MN)*RATMOD)
      STRSOK(JERK)=AA+YYY*COUT/XIX(MN)
      STRSIK(JERK)=AA-YYY*CIN/(XIX(MN)*RATMOD)
   20 CONTINUE
      SHEAR=(YYY-XXX)/T(MN)
      PRINT 453,MN,XXX,YYY,SHEAR,AXIAL
   41 CONTINUE
      PRINT 550
      PRINT 399
      J=0
      DO 40 MN=1,NM
      IF (MTYPE(MN)-2) 50,50,40
   50 J=J+1
      PRINT 400,MN,STRSOJ(J),STRSOK(J),STRSIJ(J),STRSIK(J)
   40 CONTINUE
C     THIS PART OF THE SUBROUTINE CONTROLS THE ENTRY OR NON-ENTRY INTO THE
C     PLOTTING ROUTINES.
C     IF CONTROL EQUALS ZERO NO PLOTS WILL BE GENERATED.  CONTROL IS READ IN AN
C     F10.0 FORMAT.
      READ 500,CONTROL
  500 FORMAT(F10.0)
      IF(CONTROL.EQ.0.) GO TO 42
      A(1)=CA
      A(2)=JERK
      A(3)=NBAYL
      A(4)=NBAYW
      A(5)=NUMPR
      A(6)=NPROB
      A(7)=RK
      A(8)=MANGLE
      A(9)=JPROB
      A(10)=PLOTN
      NODES=NODS/5
      A(11)=NODS
      A(12)=NODES
      A(13)=NM
      DO 700 I=1,13
      PRINT 701,I,A(I)
  701 FORMAT(5X,3HI =,I5,5X,6HA(I) =,F10.4)
  700 CONTINUE
      PRINT 704
      DO 702 I=1,JERK
      PRINT 703,I,STRSOJ(I),STRSIJ(I),STRSOK(I),STRSIK(I),PLOTMJ(I),
     1PLOTMK(I),PLOTAX(I)
  704 FORMAT(7X,1HI,10X,5HOJ(I),10X,5HIJ(I),10X,5HOK(I),10X,5HIK(I),
     110X,5HMJ(I),10X,5HMK(I),10X,5HAX(I))
  703 FORMAT(5X,I5,7(5X,F10.4))
  702 CONTINUE
```

```
      PRINT 706
      DO 705 I=1,NODS
      PRINT 707,I,Q(I),D(I)
  706 FORMAT(5X,3H I ,10X,4HQ(I),10X,4HD(I))
  707 FORMAT(5X,I5,10X,F10.4,10X,F10.4)
  705 CONTINUE
      PRINT 709
      DO 708 I=1,NODES
      PRINT 710,I,X(I),Z(I)
  709 FORMAT(5X,3H I ,10X,4HX(I),10X,4HZ(I))
  710 FORMAT(5X,I5,10X,F10.4,10X,F10.4)
  708 CONTINUE
  817 IF(UNIT,7)817,818,819,820
  820 PRINT 804
  818 BUFFEROUT(7,1)(A(1),A(13))
  819 CONTINUE
  800 IF (UNIT,7)800,801,802,803
  803 PRINT 804
  801 BUFFEROUT(7,1)(STRSOJ(1),STRSOJ(JERK))
  804 FORMAT(*PARITY ERROR*)
  802 CONTINUE
  805 IF(UNIT,7)805,806,807,808
  808 PRINT 804
  806 BUFFEROUT(7,1)(STRSIJ(1),STRSIJ(JERK))
  807 CONTINUE
  809 IF(UNIT,7)809,810,811,812
  812 PRINT 804
  810 BUFFEROUT(7,1)(STRSOK(1),STRSOK(JERK))
  811 CONTINUE
  813 IF(UNIT,7)813,814,815,816
  816 PRINT 804
  814 BUFFEROUT(7,1)(STRSIK(1),STRSIK(JERK))
  815 CONTINUE
  821 IF(UNIT,7)821,822,823,824
  824 PRINT 804
  822 BUFFEROUT(7,1)(PLOTMJ(1),PLOTMJ(JERK))
  823 CONTINUE
  825 IF(UNIT,7)825,826,827,828
  828 PRINT 804
  826 BUFFEROUT(7,1)(PLOTMK(1),PLOTMK(JERK))
  827 CONTINUE
  829 IF(UNIT,7)829,830,831,832
  832 PRINT 804
  830 BUFFEROUT(7,1)(PLOTAX(1),PLOTAX(JERK))
  831 CONTINUE
  833 IF(UNIT,7)833,834,835,836
  836 PRINT 804
  834 BUFFEROUT(7,1)(Q(1),Q(NODS))
  835 CONTINUE
  837 IF(UNIT,7)837,838,839,840
  840 PRINT 804
  838 BUFFEROUT(7,1)(X(1),X(NODES))
  839 CONTINUE
  841 IF(UNIT,7)841,842,843,844
  844 PRINT 804
  842 BUFFEROUT(7,1)(Z(1),Z(NODES))
  843 CONTINUE
  845 IF(UNIT,7)845,846,847,848
  848 PRINT 804
  846 BUFFEROUT(7,1)(D(1),D(NODS))
  900 IF(UNIT,7)900,847,847,847
  847 CONTINUE
   42 CONTINUE
      END
```

3. COMPUTER PROGRAM SAN1PLT

```
      PROGRAM SAN1PLT(INPUT,OUTPUT,TAPE7,TAPE5,FILMPL)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     THE INPUTS TO THIS ROUTINE ARE THE TAPE 7 FROM SAN1 AND THE
C     FOLLOWING CARDS
C     (1)PLOTCON-SIGNALS LAST SET OF PLOTS WHEN EQUAL TO 0(F10.0)
C     (2) L-DETERMINES TYPE OF LOADS(I10)
C     L=1---X DIRECTION
C     L=2---Y DIRECTION
C     L=3---Z DIRECTION
C     L=4---THETA X  DIRECTION
C     L=5---THETA Y DIRECTION
C     (3)NUMX--NUMBER OF NODES FOR CENTER ARCH
C        NUMZ--NUMBER OF NODES FOR CROWN DEFLECTIONS(2I10)
C     (4) NOD---NODE NUMBERS FOR CENTER ARCH(NUMX OF THEM)(I10)(LINEAR SOLUTION)
C     (5) NOD-NODE NUMBERS FOR CROWN DEFLECTIONS (NUMZ OF THEM) (I10)
C     (6)NOD-NODE NUMBERS FOR CENTER ARCH(NUMX OF THEM)(I10)(NONLINEAR SOLUTION)
C     (7)SF-SCALE FACTOR FOR INSIDE AND OUTSIDE STRESSES(F10.4)
C     A SET OF THE ABOVE ARE NECESSARY FOR EACH SET OF PLOTS
C     THE LAST DATA CARD SHOULD BE BLANK TO SIGNAL THE END OF THE PLOTS
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      COMMON/1/A(1000),B(1000),C(1000),D(1000),E(13),
     1          F(1000),G(1000),
     2          H(220),O(220),P(220),S(231),U(231),V(1155),W(1155)
      COMMON/2/STRSOJ(1000),STRSIJ(1000),STRSOK(1000),STRSIK(1000),
     1          PLOTMJ(220),PLOTMK(220),PLOTAX(220),X(231),Z(231),
     2          D1(1155),X0(1155),Q(1155)
      COMMON/3/CA,JERK,NBAYL,NBAYW,NUMPR,NPROB,MANGLE,JPROB
      CALL PLOTS(100.,DUM,5)
      CALL PMODE (3)
      CALL ROTATE (270.)
      CALL MAP (-1.,11.,-1.,11.,0.,1.,0.,1.)
C     A(1)-A(1000)=STRSOJ
C     B(1)-B(1000)=STRSIJ
C     C(1)-C(1000)=STRSOK
C     D(1)-D(1000)=STRSIK
C     E(1)=CA E(2)=JERK E(3)=NBAYL E(4)=NBAYW E(5)=NUMPR E(6)=NPROB
C     E(7)=RK E(8)=MANGLE E(9)=JPROB E(10)=PLOTN
C     E(11)=NOD5  E(12)=NODES  E(13)=NM
C     H(1)-H(220)=PLOTMJ
C     O(1)-O(220)=PLOTMK
C     P(1)-P(220)=PLOTAX
C     Q(1)-Q(1155)=Q
C     S(1)-S(231)=X
C     U(1)-U(231)=Z
C     V(1)-V(1155)=D1
C     W(1)-W(1155)=X0
    4 FORMAT(8F10.4)
    3 READ 2,PLOTCON
    2 FORMAT(F10.0)
      IF(PLOTCON.EQ.0.) GO TO 16
  817 IF(UNIT,7)817,818,819,820
  820 PRINT 804
  818 BUFFERIN(7,1)(E(1),E(13))
  910 IF(UNIT,7)910,819,819,819
  819 CONTINUE
      CA=E(1) $ JERK=E(2) $ NBAYL=E(3) $ NBAYW=E(4) $ NUMPR=E(5)
      NPROB=E(6) $RK=E(7) $ MANGLE=E(8) $JPROB=E(9) $PLOTN=E(10)
      NOD5=E(11) $ NODES=E(12) $ NM=E(13)
  800 IF (UNIT,7)800,801,802,803
```

```
  803 PRINT 804
  801 BUFFERIN(7,1)(A(1),A(JERK))
  804 FORMAT(*PARITY ERROR*)
  802 CONTINUE
  805 IF(UNIT,7)805,806,807,808
  808 PRINT 804
  806 BUFFERIN(7,1)(B(1),B(JERK))
  807 CONTINUE
  809 IF(UNIT,7)809,810,811,812
  812 PRINT 804
  810 BUFFERIN(7,1)(C(1),C(JERK))
  811 CONTINUE
  813 IF(UNIT,7)813,814,815,816
  816 PRINT 804
  814 BUFFERIN(7,1)(D(1),D(JERK))
  815 CONTINUE
  821 IF(UNIT,7)821,822,823,824
  824 PRINT 804
  822 BUFFERIN(7,1)(H(1),H(JERK))
  823 CONTINUE
  825 IF(UNIT,7)825,826,827,828
  828 PRINT 804
  826 BUFFERIN(7,1)(O(1),O(JERK))
  827 CONTINUE
  829 IF(UNIT,7)829,830,831,832
  832 PRINT 804
  830 BUFFERIN(7,1)(P(1),P(JERK))
  831 CONTINUE
  833 IF(UNIT,7)833,834,835,836
  836 PRINT 804
  834 BUFFERIN(7,1)(Q(1),Q(NOD5))
  835 CONTINUE
  837 IF(UNIT,7)837,838,839,840
  840 PRINT 804
  838 BUFFERIN(7,1)(S(1),S(NODES))
  839 CONTINUE
  841 IF(UNIT,7)841,842,843,844
  844 PRINT 804
  842 BUFFERIN(7,1)(U(1),U(NODES))
  843 CONTINUE
  845 IF(UNIT,7)845,846,847,848
  848 PRINT 804
  846 BUFFERIN(7,1)(V(1),V(NOD5))
  847 CONTINUE
  849 IF(UNIT,7)849,850,851,852
  852 PRINT 804
850   BUFFERIN(7,1)(W(1),W(NOD5))
  900 IF(UNIT,7)900,851,851,851
  851 CONTINUE
      DO 10 I=1,NOD5
      STRSOJ(I)=A(I)
      STRSIJ(I)=B(I)
      STRSOK(I)=C(I)
      STRSIK(I)=D(I)
   10 CONTINUE
      DO 11 I=1,JERK
      PLOTMJ(I)=H(I)
      PLOTMK(I)=O(I)
      PLOTAX(I)=P(I)
   11 CONTINUE
      DO 12 I=1,NOD5
      Q(I)=Q(I)
      D1(I)=V(I)
      X0(I)=W(I)
```

```
   12 CONTINUE
      DO 13 I=1,NODES
      X(I)=S(I)
      Z(I)=U(I)
   13 CONTINUE
      DO 700 I=1,13
      PRINT 701,I,E(I)
  701 FORMAT(5X,3HI =,I5,5X,6HA(I) =,F10.4)
  700 CONTINUE
      PRINT 704
      DO 702 I=1,JERK
      PRINT 703,I,STRSOJ(I),STRSIJ(I),STRSOK(I),STRSIK(I),PLOTMJ(I),
     1PLOTMK(I),PLOTAX(I)
  704 FORMAT(7X,1HI,10X,5HOJ(I),10X,5HIJ(I),10X,5HOK(I),10X,5HIK(I),
     110X,5HMJ(I),10X,5HMK(I),10X,5HAX(I))
  703 FORMAT(5X,I5,7(5X,F10.4))
  702 CONTINUE
      PRINT 706
      DO 705 I=1,NODS
      PRINT 707,I,Q(I),D1(I),XO(I)
  706 FORMAT(5X,3H I ,10X,4HQ(I),10X,4HD(I),10X,5HXO(I))
  707 FORMAT(5X,I5,10X,F10.4,10X,F10.4,10X,F10.4)
  705 CONTINUE
      PRINT 709
      DO 708 I=1,NODES
      PRINT 710,I,X(I),Z(I)
  709 FORMAT(5X,3H I ,10X,4HX(I),10X,4HZ(I))
  710 FORMAT(5X,I5,10X,F10.4,10X,F10.4)
  708 CONTINUE
      CALL TLOP(RK)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     IB-CONTROL CROWN DEFLECTIONS AND CENTER ARCH PLOTS
C     IB=0-BOTH PLOTS
C     IB=1-CENTER ARCH ONLY
C     PLOTN-CONTROLS LABELS FOR CENTER ARCH PLOTS
C     PLOTN=0.-LINEAR SOLUTION
C     PLOTN=1.-NON-LINEAR SOLUTION
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      PLOTN=0.
      IB=0
      CALL ARCHPLT(RK,X,Z,D1,MANGLE,PLOTN,IB)
      PLOTN=1.
      IB=1
      CALL ARCHPLT(1.,X,Z,XO,MANGLE,PLOTN,IB)
      CALL STRESSP
      GO TO 3
   16 CALL PLOT(0.,0.,40)
      END
      SUBROUTINE TLOP(RK)
      COMMON/2/STRSOJ(1000),STRSIJ(1000),STRSOK(1000),STRSIK(1000),
     1          PLOTMJ(220),PLOTMK(220),PLOTAX(220),X(231),Z(231),
     2         D1(1155),XO(1155),Q(1155)
      COMMON/3/CA,JERK,NBAYL,NBAYW,NUMPR,NPROB,MANGLE,JPROB
      CALL SLADR(ONEL,ONEW,XL,YW,NBL,NBW)
      IF(NBAYW.GT.NBAYL) GO TO 1
      NBAYLI=NBAYL
      NBAYWI=NBAYW
      GO TO 5000
    1 NBAYLI=NBAYW  $NBAYWI=NBAYL
      GO TO 5000
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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C       PLOT NUMBER 2
C       MOMENTS AT J-END AND K-END
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 5000 XA=0.0
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 10 I=1,NBAYLI
      CALL PLOT(XA+0.,YH,1)
      CALL PLOT(XA+ONEL,YH,1)
      CALL PLOT(XA+ONEL,0.,1)
      CALL PLOT(XA,0.,1)
      CALL PLOT(XA+ONEL,0.,3)
      CALL PLOT(XA+ONEL,0.,2)
      XA=XA+ONEL
   10 CONTINUE
       YA=0.
      LI=NBAYWI/2.
      DO 11 J=1,LI
      CALL PLOT(0.,YA,3)
      CALL PLOT(0.,YA+ONEW,3)
      CALL PLOT(0.,YA+ONEW,2)
      CALL PLOT(XL,YA+ONEW,1)
      CALL PLOT(XL,YA+2*ONEW,3)
      CALL PLOT(XL,YA+2*ONEW,2)
      CALL PLOT(0.,YA+2*ONEW,1)
      YA=YA+2*ONEW
   11 CONTINUE
      XA=XL $YA=0.  $L=1
C     PLOT NUMBER TWO.
C     DEFINING MOMENTS AT J-END AND K-END OF ELEMENTS.
      DO 110 I=1,NBL
      DO 100 K=1,NBAYWI
C     PLOTMJ = MOMENT AT JEND OF ELEMENT
C     PLOTMK = MOMENT AT KEND OF ELEMENT
      CALL NUMBER(XA-.28,YA+(.1*ONEW),.12,PLOTMJ(L),0.,4HF8.2)
      CALL NUMBER(XA-.28,YA+(.8*ONEW),.12,PLOTMK(L),0.,4HF8.2)
      L=L+1
  100 YA=YA+ONEW
      YA=0.
      XA=XA-ONEL
  110 CONTINUE
      XPOS=(XL/2.)-1.
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,21HMOMENTS ( INCH-KIPS ),0.,21)
      CALL SYMBOL(XPOS+.5,-.50,.10,7HPROBLEM,0.,7)
      CALLNUMBER(XPOS+1.25,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
      GO TO 600
  500 XA=0.
      YA=0.
      L=1
      DO 121 I=1,NBAYLI
      DO 111 K=1,NBW
      CALL NUMBER(XA+(.15*ONEL),YA-(.2*ONEW),.12,PLOTMJ(L),90.,4HF8.2)
      CALL NUMBER(XA+(.85*ONEL),YA-(.2*ONEW),.12,PLOTMK(L),90.,4HF8.2)
      L=L+1
  111 YA=YA+ONEW
      YA=0.
      XA=XA+ONEL
  121 CONTINUE
      XPOS=(XL/2.)-1.
      CALL PLOT(XPOS,-.35,3)
```

```
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPCS,-.35,.12,21HMOMENTS ( INCH-KIPS ),0.,21)
      CALL SYMBOL(XPOS+.5,-.50,.10,7HPROBLEM,0.,7)
      CALLNUMBER(XPOS+1.25,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 3
C     AXIAL STRESSES
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  600 XA=0.0
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 12 I=1,NBAYLI
      CALL PLOT(XA+0.,YW,1)
      CALL PLOT(XA+ONEL,YW,1)
      CALL PLOT(XA+ONEL,0.,1)
      CALL PLOT(XA,0.,1)
      CALL PLOT(XA+ONEL,0.,3)
      CALL PLOT(XA+ONEL,0.,2)
      XA=XA+ONEL
   12 CONTINUE
       YA=0.
      LI=NBAYWI/2.
      DO 13 J=1,LI
      CALL PLOT(0.,YA,3)
      CALL PLOT(0.,YA+ONEW,3)
      CALL PLOT(0.,YA+ONEW,2)
      CALL PLOT(XL,YA+ONEW,1)
      CALL PLOT(XL,YA+2*ONEW,3)
      CALL PLOT(XL,YA+2*ONEW,2)
      CALL PLOT(0.,YA+2*ONEW,1)
      YA=YA+2*ONEW
   13 CONTINUE
C     CHECK FOR FULL OR HALF ARCH.
      IF(MANGLE.EQ.2)  GO TO 700
      XA=XL $YA=0.  $L=1
C     PLOT NUMBER THREE.
C     DEFINING AXIAL FORCE FOR EACH ELEMENT.
      DO 210 I=1,NBL
      DO 200 K=1,NBAYWI
C     PLOTAX = AXIAL FORCE
      CALL NUMBER(XA-.28,YA+(.5*ONEW),.12,PLOTAX(L),0.,4HF5.2)
      L=L+1
  200 YA=YA+ONEW
      YA=0.
      XA=XA-ONEL
  210 CONTINUE
      XPOS=(XL/2.)-1.
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPCS,-.35,.12,21HAXIAL FORCES ( KIPS ),0.,21)
      CALL SYMBOL(XPCS+.5,-.50,.10,7HPROBLEM,0.,7)
      CALLNUMBER(XPOS+1.25,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
      GO TO 800
  700 XA=0.
      YA=0.
      L=1
      DO 221 I=1,NBAYLI
      DO 211 K=1,NBW
      CALL NUMBER(XA+.5,YA-(.2*ONEW),.12,PLOTAX(L),90.,4HF5.2)
      L=L+1
```

```
  211 YA=YA+CNEW
      YA=0.
      XA=XA+CNEL
  221 CONTINUE
      XPOS=(XL/2.)-1.
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,21HAXIAL FORCES ( KIPS ),0.,21)
      CALL SYMBOL(XPOS+.5,-.50,.10,7HPROBLEM,0.,7)
      CALLNUMBER(XPOS+1.25,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 4
C     INSIDE STRESSES AT J-END AND K-END
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  800 XA=0.0
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 14 I=1,NBAYLI
      CALL PLOT(XA+0.,YW,1)
      CALL PLOT(XA+ONEL,YW,1)
      CALL PLOT(XA+ONEL,0.,1)
      CALL PLOT(XA,0.,1)
      CALL PLOT(XA+ONEL,0.,3)
      CALL PLOT(XA+ONEL,0.,2)
      XA=XA+CNEL
   14 CONTINUE
       YA=0.
      LI=NBAYWI/2.
      DO 15 J=1,LI
      CALL PLOT(0.,YA,3)
      CALL PLOT(0.,YA+ONEW,3)
      CALL PLOT(0.,YA+ONEW,2)
      CALL PLOT(XL,YA+ONEW,1)
      CALL PLOT(XL,YA+2*ONEW,3)
      CALL PLOT(XL,YA+2*ONEW,2)
      CALL PLOT(0.,YA+2*ONEW,1)
      YA=YA+2*ONEW
   15 CONTINUE
C     CHECK FOR FULL OR HALF ARCH.
      IF(MANGLE.EQ.2) GO TO 900
      XA=XL $YA=0.  $L=1
C     PLOT NUMBER FOUR.
C     DEFINING INSIDE STRESSES AT J-END AND K-END OF ELEMENT.
      DO 310 I=1,NBL
      DO 300 K=1,NBAYWI
C     STRS1J=INSIDE STRESS AT J-END.
C     STRS1K=INSIDE STRESS AT K-END.
      CALL NUMBER(XA-.28,YA+(.1*ONEW),.12,STRSIJ(L),0.,4HF7.2)
      CALL NUMBER(XA-.28,YA+(.8*ONEW),.12,STRSIK(L),0.,4HF7.2)
      L=L+1
  300 YA=YA+CNEW
      YA=0.
      XA=XA-CNEL
  310 CONTINUE
      XPOS=(XL/2.)-2.
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,43HCOMPARATIVE STRESSES ON INSIDE FIBERS
     1 (KSI),0.,43)
      CALL SYMBOL(XPOS+1.5,-.50,.10,7HPROBLEM,0.,7)
      CALL NUMBER(XPOS+2.25,-.50,.10,NPROB,0.,2HI5)
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```
      CALL PLOT(XL+5.,0.,-3)
      GO TO 1000
  900 XA=0.
      YA=0.
      L=1
      DO 321 I=1,NBAYLI
      DO 311 K=1,NBW
      CALL NUMBER(XA+(.15*ONEL),YA-(.2*ONEW),.12,STRSIJ(L),90.,4HF7.2)
      CALL NUMBER(XA+(.85*ONEL),YA-(.2*ONEW),.12,STRSIK(L),90.,4HF7.2)
      L=L+1
  311 YA=YA+ONEW
      YA=0.
      XA=XA+ONEL
  321 CONTINUE
      XPOS=(XL/2.)-2.
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,43HCOMPARATIVE STRESSES ON INSIDE FIBERS
     1 (KSI),0.,43)
      CALL SYMBOL(XPOS+1.5,-.50,.10,7HPROBLEM,0.,7)
      CALL NUMBER(XPOS+2.25,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 5
C     OUTSIDE STRESSES AT J-END AND K-END
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 1000 XA=0.0
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 16 I=1,NBAYLI
      CALL PLOT(XA+0.,YW,1)
      CALL PLOT(XA+ONEL,YW,1)
      CALL PLOT(XA+ONEL,0.,1)
      CALL PLOT(XA,0.,1)
      CALL PLOT(XA+ONEL,0.,3)
      CALL PLOT(XA+ONEL,0.,2)
      XA=XA+ONEL
   16 CONTINUE
       YA=0.
      LI=NBAYWI/2.
      DO 17 J=1,LI
      CALL PLOT(0.,YA,3)
      CALL PLOT(0.,YA+ONEW,3)
      CALL PLOT(0.,YA+ONEW,2)
      CALL PLOT(XL,YA+ONEW,1)
      CALL PLOT(XL,YA+2*ONEW,3)
      CALL PLOT(XL,YA+2*ONEW,2)
      CALL PLOT(0.,YA+2*ONEW,1)
      YA=YA+2*ONEW
   17 CONTINUE
C     CHECK FOR FULL OR HALF ARCH.
      IF(MANGLE.EQ.2) GO TO 1100
      XA=XL $YA=0.  $L=1
C     PLOT NUMBER FIVE.
C     DEFINING OUTSIDE STRESSES AT J-END AND K-END OF ELEMENT.
      DO 410 I=1,NBL
      DO 400 K=1,NBAYWI
C     STRSOJ=OUTSIDE STRESS AT J-END.
C     STRSOK=OUTSIDE STRESS AT K-END.
      CALL NUMBER(XA-.28,YA+(.1*ONEW),.12,STRSOJ(L),0.,4HF7.2)
      CALL NUMBER(XA-.28,YA+(.8*ONEW),.12,STRSOK(L),0.,4HF7.2)
      L=L+1
```

```
  400 YA=YA+CNEW
      YA=0.
      XA=XA-CNEL
  410 CONTINUE
      XPOS=(XL/2.)-2.
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,44HCOMPARATIVE STRESSES ON OUTSIDE FIBER
     1S (KSI),0.,44)
      CALL SYMBOL(XPOS+1.5,-.50,.10,7HPROBLEM,0.,7)
      CALL NUMBER(XPOS+2.25,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
      GO TO 1200
 1100 XA=0.
      YA=0.
      L=1
      DO 421 I=1,NBAYLI
      DO 411 K=1,NBW
      CALL NUMBER(XA+(.15*ONEL),YA-(.2*ONEW),.12,STRSOJ(L),90.,4HF7.2)
      CALL NUMBER(XA+(.85*ONEL),YA-(.2*ONEW),.12,STRSOK(L),90.,4HF7.2)
      L=L+1
  411 YA=YA+CNEW
      YA=0.
      XA=XA+CNEL
  421 CONTINUE
      XPOS=(XL/2.)-2.
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,44HCOMPARATIVE STRESSES ON OUTSIDE FIBER
     1S (KSI),0.,44)
      CALL SYMBOL(XPOS+1.5,-.50,.10,7HPROBLEM,0.,7)
      CALL NUMBER(XPOS+2.25,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
 1200 CONTINUE
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 6
C     LOADING VALUES
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      READ2,L
    2 FORMAT(I10)
      XA=0.0
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 18 I=1,NBAYLI
      CALL PLOT(XA+0.,YW,1)
      CALL PLOT(XA+ONEL,YW,1)
      CALL PLOT(XA+ONEL,0.,1)
      CALL PLOT(XA,0.,1)
      CALL PLOT(XA+ONEL,0.,3)
      CALL PLOT(XA+ONEL,0.,2)
      XA=XA+CNEL
   18 CONTINUE
      YA=0.
      LI=NBAYWI/2.
      DO 19 J=1,LI
      CALL PLOT(0.,YA,3)
      CALL PLOT(0.,YA+ONEW,3)
      CALL PLOT(0.,YA+ONEW,2)
      CALL PLOT(XL,YA+ONEW,1)
      CALL PLOT(XL,YA+2*ONEW,3)
      CALL PLOT(XL,YA+2*ONEW,2)
      CALL PLOT(0.,YA+2*ONEW,1)
```

```
      YA=YA+2*ONEW
   19 CONTINUE
C     CHECK FOR FULL OR HALF ARCH.
      IF(MANGLE.EQ.2) GO TO 1400
      NBAYWII=NBAYWI+1
      XA=XL  $YA=0.
      DO 521 J=1,NBL
      DO 511 K=1,NBAYWII
      CALL NUMBER(XA-.28,YA+(.1*ONEW),.12,Q(L),0.,4HF6.2)
      L=L+5
  511 YA=YA+ONEW
      YA=0.
      XA=XA-ONEL
  521 CONTINUE
      XPOS=(XL/2.)-.75
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL (XPOS,-.35,.12,16HLOADING ( KIPS ),0.,16)
      CALL SYMBOL(XPOS+.25,-.50,.10,7HPROBLEM,0.,7)
      CALL NUMBER(XPOS+1.0,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
      GO TO 1600
 1400 CONTINUE
      XA=0.
      YA=0.
      DO 621 I=1,NBAYLI
      DO 611 K=1,NBW
      CALL NUMBER(XA+(.15*ONEL),YA-(.2*ONEW),.12,Q(L),90.,4HF6.2)
      L=L+5
  611 XA=XA+ONEL
      XA=0.
  621 YA=YA+ONEW
      XPOS=(XL/2.)-.75
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,16HLOADING ( KIPS ),0.,16)
      CALL SYMBOL(XPOS+.25,-.50,.10,7HPROBLEM,0.,7)
      CALL NUMBER(XPOS+1.0,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XL+5.,0.,-3)
 1600 CONTINUE
      RETURN
      END
      SUBROUTINE SLALR(ONEL,ONEW,XL,YW,NBL,NBW)
C     ONEL = ONE  INCREMENT IN X DIRECTION
C     ONEW = ONE  INCREMENT IN Y DIRECTION
C     XL   = TOTAL LENGTH X DIRECTION
C     YW   = TOTAL LENGTH Y DIRECTION
C     NBAYW = NUMBER OF BAYS WIDE
C     NBAYL = NUMBER OF BAYS LONG
C     NBL  = NUMBER OF X INCREMENTS PLUS 1
C     NBW  = NUMBER OF Y INCREMENTS PLUS 1
C     NBAYLI = NUMBER OF X INCREMENTS
C     NBAYWI = NUMBER OF Y INCREMENTS
      COMMON/3/CA,JERK,NBAYL,NBAYW,NUMPR,NPROB,MANGLE,JPROB
    2 FORMAT(2I10)
      IF(NBAYW.GT.NBAYL) GO TO 1
C     CHECK TO SEE WHICH DIMENSION  IS  LARGER
C     SET UP SCALES  TO  A  10 INCH VERTICAL SCALE
      YSCALE=10.
      XSCALE=(10./NBAYW)*NBAYL
      ONEL=XSCALE/NBAYL $XL=ONEL*NBAYL
      ONEW=YSCALE/NBAYW $YW=ONEW*NBAYW
      NBAYLI=NBAYL
      NBAYWI=NBAYW
```

```
      GO TO 5000
    1 YSCALE=10.
       XSCALE=(10./NBAYL)*NBAYW
      ONEL=XSCALE/NBAYW  $XL=ONEL*NBAYW
      ONEW=YSCALE/NBAYL  $ YW=ONEW*NBAYL
      NBAYLI=NBAYW
      NBAYWI=NBAYL
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 1
C     GRID SYSTEM
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 5000 X=0.
C     ACTUAL DRAWING OF  STRUCTURE WITH ELEMENTS
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 10 I=1,NBAYLI
      CALL PLOT(X+0.,YW,1)
      CALL PLOT(X+ONEL,YW,1)
      CALL PLOT(X+ONEL,0.,1)
      CALL PLOT(X+0.,0.,1)
      CALL PLOT(X+ONEL,0.,3)
      CALL PLOT(X+ONEL,0.,2)
      X=X+ONEL
   10 CONTINUE
      Y=0.
      L=NBAYWI/2.
      DO 11 J=1,L
      CALL PLOT(0.,Y+0.,3)
      CALL PLOT(0.,Y+ONEW,3)
      CALL PLOT(0.,Y+ONEW,2)
      CALL PLOT(XL,Y+ONEW,1)
      CALL PLOT(XL,Y+2*ONEW,3)
      CALL PLOT(XL,Y+2*ONEW,2)
      CALL PLOT(0.,Y+2*ONEW,1)
      Y=Y+2*ONEW
   11 CONTINUE
      T=NBAYWI/2.             $ LT=T      $Z=LT
      IF(T.GT.Z)GO TO 16
  102 X=0. $Y=0.
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 12 I=1,NBAYLI
      IK=NBAYWI/2
      DO 20 K=1,IK
      CALL PLOT(X+ONEL,Y+ONEW,1)
      CALL PLOT(X+0.,Y+2*ONEW,1)
      Y=Y+2*ONEW
   20 CONTINUE
      X=X+0. $Y=YW
      CALL PLOT(X+ONEL,YW,3)
      CALL PLOT(X+ONEL,YW,2)
      M=NBAYWI/2.
      DO 15 J=1,M
      CALL PLOT(X+0.,Y-ONEW,1)
      CALL PLOT(X+ONEL,Y-2*ONEW,1)
      Y=Y-2*ONEW
   15 CONTINUE
      X=X+ONEL $Y=0.
      CALL PLOT(X,Y,3)
      CALL PLOT(X,Y,2)
   12 CONTINUE
      GO TO 22
```

```
   16 X=0.$Y=0.
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 17 I=1,NBAYLI
      IK=NBAYWI/2
      DO 19 K=1,IK
      CALL PLOT(X+ONEL,Y+ONEW,1)
      CALL PLOT(X,Y+2*ONEW,1)
      Y=Y+2.*ONEW
   19 CONTINUE
      CALL PLOT(X+ONEL,Y+ONEW,1)
      X=X+0. $Y=YW
      CALL PLOT(X,YW,3)
      CALL PLOT(X,YW,2)
      M=NBAYWI/2
      DO 21 J=1,M
      CALL PLOT(X+ONEL,Y-ONEW,1)
      CALL PLOT(X,Y-2.*ONEW,1)
      Y=Y-2.*ONEW
   21 CONTINUE
      CALL PLOT(X+ONEL,0.,1)
      X=X+ONEL  $ Y=0.
   17 CONTINUE
   22 CONTINUE
C     NUMBERING OF ELEMENTS
  500 X=XL $Y=0. $SCALE=1.
      NBL=NBAYLI+1
      NBW=NBAYWI+1
      DO 550 I=1,NBL
      DO 540 K=1,NBW
      CALL NUMBER(X-.07,Y+0.,.10,SCALE,0.,4HF4.0)
      SCALE =SCALE +1.
      Y=Y+ONEW
  540 CONTINUE
      Y=0.
      X=X-ONEL
  550 CONTINUE
      X=XL$NUMB=1$Y=0.
      DO 2003 K=1,NBAYLI
      DO 2000 I=1,NBAYWI
      CALL NUMBER(X,Y+.4*ONEW,.07,NUMB,90.,2HI3)
      Y=Y+ONEW
      NUMB=NUMB+1
 2000 CONTINUE
 2001 Y=0.
      DO 2002 J=1,NBAYWI
      CALL NUMBER(X-.5*ONEL,Y-.05*ONEW,.07,NUMB,90.,2HI3)
      NUMB=NUMB+1
      CALL NUMBER(X-.25*ONEL,Y+.25*ONEW,.07,NUMB,135.,2HI3)
      NUMB=NUMB+1
      CALL NUMBER(X-.375*ONEL,Y+.625*ONEW,.07,NUMB,45.,2HI3)
      Y=Y+ONEW
      NUMB=NUMB+1
 2002 CONTINUE
      CALL NUMBER(X-.5*ONEL,Y-.05*ONEW,.07,NUMB,90.,2HI3)
      X=X-ONEL
      Y=0.$NUMB=NUMB+1
 2003 CONTINUE
      Y=0.$X=0.
      DO 2004 I=1,NBAYWI
      CALL NUMBER(X,Y+.4*ONEW,.07,NUMB,90.,2HI3)
      Y=Y+ONEW
      NUMB=NUMB+1
 2004 CONTINUE
```

```
      GO TO 800
  800 CONTINUE
      XPOS=(XSCALE/2.)-.5
      CALL PLOT(XPOS,-.35,3)
      CALL PLOT(XPOS,-.35,2)
      CALL SYMBOL(XPOS,-.35,.12,11HGRID SYSTEM,0.,11)
      CALL SYMBOL(XPOS,-.50,.10,7HPROBLEM,0.,7)
      CALL NUMBER(XPOS+.65,-.50,.10,NPROB,0.,2HI5)
      CALL PLOT(XSCALE+4.,0.,-3)
 6000 RETURN
      END
      SUBROUTINE ARCHPLT(RK,X,Z,D,MANGLE,PLOTN,IB)
      COMMON/3/CA,JERK,NBAYL,NBAYW,NUMPR,NPROB
      CALL MAP (-1.,20.,-1.,20.,0.,1.,0.,1.)
C     RK = 1.0  / PCENT  OF  LOAD
C     X=X FROM MAIN PROGRAM.
C     Z=Z FROM MAIN PROGRAM.
C     D=DISPLACEMENT.
C     MANGLE=FULL OR HALF ARCH.
      DIMENSION X(1),Z(1),D(1)
      DIMENSION XXD(21),ZZD(21),XOR(21),ZOR(21),ZCOR(21)
C     NUMX = NUMBER OF NODES TO PLOT ARCH
C     NUMZ = NUMBER OF NODES TO PLOT CROWN DEFLECTIONS
      READ 1,NUMX,NUMZ
    1 FORMAT(2I10)
      DO 10 I=1,NUMX
C     NOD  = NODE NUMBERS TO BE USED TO PLOT THE ARCH
      READ 1,NOD
      MOD=5*NOD-4
      MOD1=5*NOD-2
C     CALCULATION OF COORDINATES OF CENTERLINE ARCH. AND DEFLECTED CENTERLINE
C     ARCH.
C     XXD=DEFLECTED COORDINATES.
C     ZZD=DEFLECTED COORDINATES.
C     XOR=ORIGINAL COORDINATES.
C     ZOR=ORIGINAL COORDINATES.
      XXD(I)=(D(MOD)*RK)*10.+X(NOD)
      ZZD(I)=(D(MOD1)*RK)*10.+Z(NOD)
      XOR(I)=X(NOD)
      ZOR(I)=Z(NOD)
   10 CONTINUE
C     MANGLE =  1 OR 2  DEPENDING ON WHETHER IT IS A FULL ARCH  OR  HALF  ARCH
      IF(MANGLE.EQ.2)GO TO 100
      DO 11 I=1,NUMX
C     SCALING OF COORDINATES.
      XXD(I)=XXD(I)/(-50.)
      ZZD(I)=ZZD(I)/50.
      XOR(I)=XOR(I)/(-50.)
      ZOR(I)=ZOR(I)/50.
   11 CONTINUE
C     PLOTTING AXES.
      YY=10.
      CALL PLOT(0.,YY,3)
      CALL PLOT(0.,YY,2)
      DO 12 IT=1,10
      CALL PLOT(0.,YY,1)
      CALL PLOT(0.,YY-1.,1)
      CALL PLOT(-.1,YY-1.,1)
      CALL PLOT(0.,YY-1.,1)
   12 YY=YY-1.
      XX=0.
      DO 13 IX=1,16
      CALL PLOT(XX,0.,1)
      CALL PLOT(XX+1.,0.,1)
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      CALL PLOT(XX+1.,-.1,1)
      CALL PLOT(XX+1.,0.,1)
   13 XX=XX+1.
C     NUMBERING OF AXES.
      SCALINC=50.  $YY=10.  $YSCALE=10.*SCALINC
      DO 14 IY=1,11
      CALL NUMBER(-1.,YY,.10,YSCALE,0.,4HF8.2)
      YY=YY-1.
   14 YSCALE=YSCALE-SCALINC
      XSCALI=50.  $XX=0.  $XSCA=0.
      DO 15 IX=1,17
      CALL NUMBER(XX-.25,-.25,.10,XSCA,0.,4HF8.2)
      XX=XX+1.
   15 XSCA=XSCA+XSCALI
      CALL PLOT(0.,0.,3)
       CALL PLOT(0.,0.,2)
      DO 16 I=1,NUMX
C     PLOTTING DEFLECTED ARCH.
      CALL SYMBOL(XXD(I),ZZD(I),.07,1,0.,-1)
   16 CONTINUE
      DO 17 I=1,NUMX
C     PLOTTING ORIGINAL ARCH.
      CALL SYMBOL(XOR(I),ZOR(I),.07,2,0.,-1)
   17 CONTINUE
      IF(PLOTN)200,200,300
  200 CALL SYMBOL (6.,-.50,.12,49HDEFLECTIONS-LINEAR SOLUTION (MAGNIFICA
     1TION OF 10),0.,48)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 7
C     CENTER ARCH AND DEFLECTED CENTER ARCH(LINEAR SOLUTION)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      GO TO 400
  300 CALL SYMBOL(6.,-.50,.12,52HDEFLECTIONS-NONLINEAR SOLUTION (MAGNIFI
     1CATION OF 10),0.,51)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 9
C     CENTER ARCH AND DEFLECTED CENTER ARCH(NONLINEAR SOLUTION)
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  400 CONTINUE
      CALL SYMBOL(7.5,-.65,.10,7HPROBLEM,0.,7)
      CALL NUMBER(8.5,-.65,.10,NPROB,0.,2HI5)
      CALL PLOT(20.,0.,-3)
      IF(IB.EQ.1)22,25
  100 DO 26 I=1,NUMX
      XXD(I)=XXD(I)/50.
      ZZD(I)=ZZD(I)/50.
      XOR(I)=XOR(I)/50.
      ZOR(I)=ZOR(I)/50.
   26 CONTINUE
C     PLOTTING AXES.
      YY=10.  $XX=16.
      CALL PLOT(XX,YY,3)
      CALL PLOT(XX,YY,2)
      DO 27 IT=1,10
      CALL PLOT(XX,YY,1)
      CALL PLOT(XX,YY-1.,1)
      CALL PLOT(XX-.1,YY-1.,1)
       CALL PLOT(XX,YY-1.,1)
   27 YY=YY-1.
      XX=0.
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      DO 28 IX=1,32
      CALL PLOT(XX,0.,1)
      CALL PLOT(XX+1.,0.,1)
      CALL PLOT(XX+1.,-.1,1)
      CALL PLOT(XX+1.,0.,1)
   28 XX=XX+1.
C     NUMBERING OF AXES.
      YS=50. $YY=10.  $YSCA=10.*YS
      DO 29 IY=1,11
      CALL NUMBER(7.,YY,.10,YSCA,0.,4HF8.2)
      YY=YY-1.
   29 YSCA=YSCA-YS
      CALL SYMBOL(-1.5,4.,.10,1HZ,90.,1)
      XSCAIN=50.  $XX=0.  $XSCA=-400.
      DO 30 IX=1,17
      CALL NUMBER(XX-.25,-.25,.10,XSCA,0.,4HF8.2)
      XX=XX+1.
   30 XSCA=XSCA+XSCAIN
      CALL SYMBOL(8.,-1.,.10,1HX,0.,1)
      XX=8.$YY=0.
      CALL PLOT(XX,YY,3)
      CALL PLOT(XX,YY,2)
      DO 31 I=1,NUMX
C     PLOTTING DEFLECTED ARCH.
      CALL SYMBOL(XXC(I)+XX,ZZD(I),.07,1,0.,-1)
   31 CONTINUE
      DO 32 I=1,NUMX
C     PLOTTING ORIGINAL ARCH.
      CALL SYMBOL(XOR(I)+XX,ZOR(I),.07,2,0.,-1)
   32 CONTINUE
      IF(PLOTN)201,201,301
  201 CALL SYMBOL (12.,-.50,.12,49HDEFLECTIONS-LINEAR SOLUTION (MAGNIFIC
     1ATION OF 10),0.,48)
      GO TO 401
  301 CALL SYMBOL (12.,-.50,.12,52HDEFLECTIONS-NONLINEAR SOLUTION (MAGNI
     1FICATION OF 10),0.,51)
  401 CONTINUE
      CALL SYMBOL(15.,-.65,.10,7HPROBLEM,0.,7)
      CALL NUMBER(16.,-.65,.10,NPROB,0.,2HI5)
      CALL SYMBOL(9.,5.,.12,3HRK=,0.,3)
      CALL NUMBER(9.5,5.,.12,RK,0.,4HF5.2)
      CALL PLOT(40.,0.,-3)
      IF(IB.EQ.1)GO TO 22
   25 DO 18 I=1,NUMZ
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 8
C     CROWN DEFLECTIONS
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     NOD=NODE NUMBERS TO BE USED TO CALCULATE CROWN DEFLECTIONS.
      READ1,NOD
      MOD1=5*NOD-2
C     CALCULATION OF CROWN DEFLECTIONS.
C     ZCOR=CROWN DEFLECTIONS.
      ZCOR(I)=(D(MOD1)*RK)
   18 CONTINUE
C     DRAWING AXES.
      XX=0.  $YY=5.
      CALL PLOT(XX,YY,3)
      CALL PLOT(XX,YY,2)
      TZ=8./NUMZ
      DO 19I=1,NUMZ
      CALL PLOT(XX,YY,1)
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      CALL PLOT(XX+TZ,YY,1)
      CALL PLOT(XX+TZ,YY-.1,1)
      CALL PLOT(XX+TZ,YY,1)
   19 XX=XX+TZ
      XX=0.  $YY=5.
      CALL PLOT(XX,YY,3)
      DO 21 I=1,NUMZ
C     PLOTTING OF CROWN DEFLECTIONS.
      CALL SYMBOL(XX,ZCOR(I)+YY,.07,2,0.,-1)
   21 XX=XX+TZ
      CALL SYMBOL(2.5,-.35,.12,28HCROWN DISPLACEMENTS (INCHES),0.,28)
      CALL SYMBOL(2.,-.75,.12,32HVERTICAL SCALE - 1 INCH = 1 INCH,0.,32)
      CALL SYMBOL(3.,-.5,.10,7HPROBLEM,0.,7)
      CALL NUMBER(4.,-.5,.10,NPROB,0.,2HI5)
      CALL PLOT(12.,0.,-3)
   22 CONTINUE
      RETURN
      END
      SUBROUTINE STRESSP
      CALL MAP(-1.,11.,-1.,11.,0.,1.,0.,1.)
      COMMON/1/A(1000),B(1000),C(1000),D(1000),E(10),
     1         F(1000),G(1000),
     2         H(220),O(220),P(220),S(231),U(231),V(1155),W(1155)
      DIMENSION X(100),Y(100),T(100),R(100),R1(100),X1(1000),Y1(1000),X2
     1(1000),Y2(1000)
C     A-STRSCJ
C     B-STRSIJ
C     C-STRSCK
C     D-STRSIK
C     E(1)=CA,E(2)=JERK,E(3)=NBAYL,E(4)=NBAYW,E(5)=NUMPR,E(6)=NPROB
      I=(E(4)/2.)*E(3)+1.
      NBAYL=E(3)  $ NBAYW=E(4)  $NUMPR=E(5)  $NPROB=E(6)  $CA=E(1)
      NUM=I+NBAYL
      NUMT=NBAYL
      J=NBAYL+1
      PRINT1,I,NUM,NUMT,J
    1 FORMAT(4(5X,I10))
      F(1)=A(I)  $F(J)=C(NUM)
      G(1)=B(I)  $G(J)=D(NUM)
      DO 10 K=2,NBAYL
      F(K)=(C(I)+A(I+1))/2.
      G(K)=(D(I)+B(I+1))/2.
      PRINT3000,F(K),G(K),C(I),A(I+1),D(I),B(I+1)
 3000 FORMAT(5X,5HF(K)=,F10.4,5X,5HG(K)=,F10.4,5X,5HC(I)=,F10.4,5X,7HA(I
     1+1)=,F10.4,5X,5HD(I)=,F10.4,5X,7HB(I+1)=,F10.4)
      I=I+1
   10 CONTINUE
      PRINT 3001,CA
 3001 FORMAT(5X,3HCA=,F10.4)
      Y(1)=0.
      X(1)=8.
      DO 12 K=2,81
      Y(K)=Y(K-1)+.1
      X(K)=SQRTF(64-Y(K)*Y(K))
   12 CONTINUE
      PI=3.14159265
      BETA=(PI-CA)/2.
      L=0
      READ 2, SF
    2 FORMAT(F10.4)
      DO 13 K=1,J
      T(K)=((PI-CA)/2.)+L*(CA/20.)
      R(K)=8.+(SF*F(K))
      R1(K)=8.+(SF*G(K))
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      PRINT 3002,T(K),R(K),R1(K)
 3002 FORMAT(5X,5HT(K)=,F10.4,5X,5HR(K)=,F10.4,5X,6HR1(K)=,F10.4)
      L=L+1
   13 CONTINUE
      DO 14 K=1,J
      TAK=T(K)
      X1(K)=R(K)* COS(TAK)
      Y1(K)=R(K)* SIN(TAK)
      X2(K)=R1(K)* COS(TAK)
      Y2(K)=R1(K)* SIN(TAK)
   14 CONTINUE
      ZEROX=8.* COS(T(1))
      ZEROY=8.* SIN(T(1))
      LP=0
 1000 YY=8. $LP=LP+1
      CALL PLOT(0.,YY,3)
      CALL PLOT(0.,YY,2)
      DO 15 K=1,8
      CALL PLOT(0.,YY-1.,1)
      CALL PLOT(-.1,YY-1.,1)
      CALL PLOT(0.,YY-1.,1)
      YY=YY-1.
   15 CONTINUE
      XX=0.
      DO 16 K=1,9
      CALL PLOT(XX+1.,0.,1)
      CALL PLOT(XX+1.,-.1,1)
      CALL PLOT(XX+1.,0.,1)
      XX=XX+1.
   16 CONTINUE
      YY=8. $ XX=-.5
      NUM=8
      DO 5000 I=1,9
      CALL NUMBER(XX,YY,.10,NUM,0.,2HI3)
      NUM=NUM-1
 5000 YY=YY-1.
      NUMX=0 $ YY=-.3 $ XX=0
      DO 5001 I=1,10
      CALL NUMBER(XX,YY,.10,NUMX,0.,2HI3)
      NUMX=NUMX+1
 5001 XX=XX+1
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      DO 17 K=1,81
      CALL PLOT(X(K),Y(K),1)
   17 CONTINUE
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      CALL PLOT(ZEROX,ZEROY,1)
      CALL PLOT(0.,0.,3)
      CALL PLOT(0.,0.,2)
      UNIT=1./SF
      IF(LP.EQ.2)GO TO 2000
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 10
C     AVERAGE OF J-END AND K-END OUTSIDE STRESSES ALONG CENTER ARCH
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      DO 18 K=1,J
      CALL SYMBOL(X1(K),Y1(K),.07,2,0.,-1)
   18 CONTINUE
      CALL SYMBOL(3.,-.50,.12,16HOUTSIDE STRESSES,0.,16)
      CALL SYMBOL(3.2,-.70,.10,7HPROBLEM,0.,7)
```

```
      CALL NUMBER(4.0,-.70,.10,NPROB,0.,2HI5)
      CALL SYMBOL(3.,-.9,.10,7H UNIT =,0.,8)
      CALL NUMBER(3.7,-.9,.10,UNIT,0.,4HF5.2)
      CALL SYMBOL(4.0,-.9,.10,3HKSI,0.,3)
      CALL PLOT(12.,0.,-3)
      GO TO 1000
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     PLOT NUMBER 11
C     AVERAGE OF J-END AND K-END INSIDE STRESSES ALONG CENTER ARCH
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 2000 DO 19 K=1,J
      CALL SYMBOL(X2(K),Y2(K),.07,2,0.,-1)
   19 CONTINUE
      CALL SYMBOL(3.,-.50,.12,15HINSIDE STRESSES,0.,15)
      CALL SYMBOL(3.2,-.7,.10,7HPROBLEM,0.,7)
      CALL NUMBER(4.0,-.7,.10,NPROB,0.,2HI5)
      CALL SYMBOL(3.,-.9,.10,7H UNIT =,0.,8)
      CALL NUMBER(3.7,-.9,.10,UNIT,0.,4HF5.2)
      CALL SYMBOL(4.0,-.9,.10,3HKSI,0.,3)
      CALL PLOT(12.,0.,-3)
      RETURN
      END
```

APPENDIX II

INPUT INSTRUCTIONS FOR COMPUTER PROGRAMS

1. INTRODUCTION

The basic program, SANOS, can be executed independently but will yield only printed results; to obtain plots of the results, the SAN1PLT program must be executed.

2. DATA FOR SANOS

Format	Information
I 10	(1) NUMPR - number of problems in this computer run
8I10	(2) NPROB, NCODE, NBAYL, NBAYW, NLOAD, NSUPN, NRK, MANGLE where: NPROB = problem identification number NCODE = 0, nodes numbered in direction of shell axis = 1, nodes numbered along arch NBAYL = number of bays along shell axis NBAYW = number of bays along arch NLOAD = number of loads on shell NSUPN = number of nodes which have supports NRK = number of Runge-Kutta (loading) intervals MANGLE = 1, one-half arch (symmetrical loading) = 2, full arch (unsymmetrical loading)
3F10.0	(3) SPAN, HEIGHT, SENGTH where: SPAN = span of shelter (total) (inches) HEIGHT = height of shelter (inches) SENGTH = length of shelter (inches)
7F10.0	(4) *THICKM, THICKW, ULTM, THICKA, ULTSTR, E, R where: THICKM = equivalent thickness of shell-bending-strong axis (inches) THICKW = equivalent thickness of shell-bending-weak axis (inches) ULTM = ultimate moment (inches-kip/inch) THICKA = equivalent thickness of shell - axial (inches) ULTSTR = ultimate axial stress (ksi/inch) E = modulus of elasticity (ksi) R = curve-fitting parameter

*This information is obtained from laboratory tests.

Format		Information
3F10.0	(5)	COUT, CIN, RATMOD where: COUT = distance from neutral axis to outside fibers (inches) CIN = distance from neutral axis to inside fibers (inches) RATMOD = E strong/E weak (ratio of moduli)
8F10.0	(6)	PCENT (I), I = 1, NRK percent of load (in decimal) on each increment of loading
6I10	(7)	NODE, NP(J), J = 1,5 support information 0 indicates no support 1 indicates supported against displacement in x direction 2 indicates supported against displacement in y direction 3 indicates supported against displacement in z direction 4 indicates supported against rotation about x axis 5 indicates supported against rotation about y axis
I10, F10.0	(8)	I, D(I) NLOAD times loading conditions (I indicates coordinate number)
3I3, I11	(9)	MN, JM, KM, MTYPE where: MN = member number JM = j end of member KM = k end of member MTYPE = 1, interior member along arch 2, exterior member along arch 3, interior horizontal member 4, exterior horizontal member 5, diagonal member
F10.0	(10)	CONTROL where: CONTROL = 0 -- no plots required = value -- plots required

3. DATA FOR SAN1PLT

Format		Information
F10.0	(1)	PLOTCON If PLOTCON = 0, signals last set of plots If PLOTCON = value, more plots to come
I10	(2)	L (Determines type of loads) L = 1 -- loads in x direction L = 2 -- loads in y direction L = 3 -- loads in z direction L = 4 -- moment about x axis L = 5 -- moment about y axis

Format	Information
2I10	(3) NUMX, NUMZ NUMX = number of nodes around arch desired for plotting NUMZ = number of nodes along crown for plotting
I10	(4) NOD (node numbers for arch deflection plot of linear solution, NUMX of them)
I10	(5) NOD (node numbers for crown deflection plot of linear solution, NUMZ of them)
I10	(6) NOD (node numbers for arch deflection plot of non-linear solution, NUMX of them)
F10.4	(7) SF (scale factor desired for plots of inside and outside stresses)

APPENDIX III

SAMPLE INPUT DATA FOR SANOS

Test problem 5 is presented since it is an example of unsymmetric loading.

```
    5       0      10      20      19      23       6       2
  590.   290.   360.
 2.48    0.15    15.0   0.021    81.5  30000.     2.0
 2.00    12.0     7.5
.1667   .1667   .1667   .1667   .1667   .1667
    1       1       2       3       4
    2       1       2       3       4
    3       1       2       3       4
    4       1       2       3       4
    5       1       2       3       4
    6       1       2       3       4
    7       1       2       3       4
    8       1       2       3       4
    9       1       2       3       4
   10       1       2       3       4
   11       1       2       3       4
  221       1       2       3       4
  222       1       2       3       4
  223       1       2       3       4
  224       1       2       3       4
  225       1       2       3       4
  226       1       2       3       4
  227       1       2       3       4
  228       1       2       3       4
  229       1       2       3       4
  230       1       2       3       4
  231       1       2       3       4
  116       0       2       0       0
  453   -2.08
  463   -2.08
  473   -2.08
  483   -2.08
  508   -1.52
  518   -1.52
  528   -1.52
  538   -1.52
  553   -2.09
  558   -4.17
  563   -4.17
  568   -4.17
  573   -4.17
  578   -4.17
  583   -4.17
  588   -4.17
  593   -4.17
  598   -4.17
  603   -2.09
```

1	001	002	4	56	013	025	5
2	002	003	4	57	014	024	5
3	003	004	4	58	014	025	1
4	004	005	4	59	014	026	5
5	005	006	4	60	015	025	5
6	006	007	4	61	015	026	1
7	007	008	4	62	015	027	5
8	008	009	4	63	016	026	5
9	009	010	4	64	016	027	1
10	010	011	4	65	016	028	5
11	001	012	2	66	017	027	5
12	001	013	5	67	017	028	1
13	002	012	5	68	017	029	5
14	002	013	1	69	018	028	5
15	002	014	5	70	018	029	1
16	003	013	5	71	018	030	5
17	003	014	1	72	019	029	5
18	003	015	5	73	019	030	1
19	004	014	5	74	019	031	5
20	004	015	1	75	020	030	5
21	004	016	5	76	020	031	1
22	005	015	5	77	020	032	5
23	005	016	1	78	021	031	5
24	005	017	5	79	021	032	1
25	006	016	5	80	021	033	5
26	006	017	1	81	022	032	5
27	006	018	5	82	022	033	2
28	007	017	5	83	023	034	3
29	007	018	1	84	024	035	3
30	007	019	5	85	025	036	3
31	008	018	5	86	026	027	3
32	008	019	1	87	027	028	3
33	008	020	5	88	028	029	3
34	009	019	5	89	029	030	3
35	009	020	1	90	030	031	3
36	009	021	5	91	031	032	3
37	010	020	5	92	032	033	3
38	010	021	1	93	023	034	3
39	010	022	5	94	023	035	5
40	011	021	5	95	024	034	5
41	011	022	2	96	024	035	1
42	012	013	3	97	024	036	5
43	013	014	3	98	025	035	5
44	014	015	3	99	025	036	1
45	015	016	3	100	025	037	5
46	016	017	3	101	026	036	5
47	017	018	3	102	026	037	1
48	018	019	3	103	026	038	5
49	019	020	3	104	027	037	5
50	020	021	3	105	027	038	1
51	021	022	3	106	027	039	5
52	012	023	2	107	028	039	5
53	012	024	5	108	028	039	1
54	013	023	5	109	028	040	5
55	013	024	1	110	029	039	5

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115	030	042	5
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117	031	042	1
118	031	043	5
119	032	042	5
120	032	043	1
121	032	044	5
122	033	043	5
123	033	044	2
124	034	035	2
125	035	036	2
126	036	037	2
127	037	038	3
128	038	039	3
129	039	040	3
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131	041	042	3
132	042	043	3
133	043	044	3
134	034	045	2
135	034	046	5
136	035	045	5
137	035	046	1
138	035	047	5
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140	036	047	1
141	036	048	5
142	037	047	5
143	037	048	1
144	037	049	5
145	038	048	5
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158	042	053	1
159	042	054	5
160	042	053	5
161	042	054	1
162	043	055	5
163	044	054	5
164	044	055	2
165	045	046	3

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167	047	048	3
168	048	049	3
169	049	050	3
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171	051	052	3
172	052	053	3
173	053	054	3
174	054	055	3
175	045	056	2
176	045	057	5
177	046	056	5
178	046	057	1
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182	047	059	5
183	048	058	5
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224	059	069	5
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252	072	073	3
253	073	074	2
254	074	075	3
255	075	076	2
256	076	077	3
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291	081	082	2
292	082	083	3
293	083	084	3
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295	085	086	3
296	086	087	2
297	087	088	3
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347	099	102	5
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416	116	117	3
417	117	118	3
418	118	119	3
419	119	120	3
420	120	121	3
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543	153	154	3
544	144	155	2
545	144	156	5
546	145	155	5
547	145	156	1
548	145	157	5
549	146	156	5
550	146	157	1

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554	147	159	5
555	148	158	5
556	148	159	1
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559	149	160	1
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572	153	165	5
573	154	164	5
574	154	165	2
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576	156	157	3
577	157	158	3
578	158	159	3
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581	161	162	3
582	162	163	3
583	163	164	3
584	164	165	3
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614	165	175	5
615	165	176	2
616	166	167	3
617	167	168	3
618	168	169	3
619	169	170	3
620	170	171	3
621	171	172	3
622	172	173	3
623	173	174	3
624	174	175	3
625	175	176	3
626	166	177	2
627	166	178	5
628	167	177	5
629	167	178	1
630	167	179	5
631	168	178	5
632	168	179	1
633	168	180	5
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635	169	180	1
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639	170	182	5
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642	171	183	5
643	172	182	5
644	172	183	1
645	172	184	5
646	173	183	5
647	173	184	1
648	173	185	5
649	174	184	5
650	174	185	1
651	174	186	5
652	175	185	5
653	175	186	1
654	175	187	5
655	176	186	5
656	176	187	2
657	177	178	3
658	178	179	3
659	179	180	3
660	180	181	3

661	181	182	3	
662	182	183	3	
663	183	184	3	
664	184	185	3	
665	185	186	3	
666	186	187	3	
667	177	188	2	
668	177	189	5	
669	178	188	5	
670	178	189	1	
671	178	190	5	
672	179	189	5	
673	179	190	1	
674	179	191	5	
675	180	190	5	
676	180	191	1	
677	180	192	5	
678	181	191	5	
679	181	192	1	
680	181	193	5	
681	182	192	5	
682	182	193	1	
683	182	194	5	
684	183	193	5	
685	183	194	1	
686	183	195	5	
687	184	194	5	
688	184	195	1	
689	184	196	5	
690	185	195	5	
691	185	196	1	
692	185	197	5	
693	186	196	5	
694	186	197	1	
695	186	198	5	
696	187	197	5	
697	187	198	2	
698	188	189	3	
699	189	190	3	
700	190	191	3	
701	191	192	3	
702	192	193	3	
703	193	194	3	
704	194	195	3	
705	195	196	3	
706	196	197	3	
707	197	198	3	
708	188	199	2	
709	188	200	5	
710	189	199	5	
711	189	200	1	
712	189	201	5	
713	190	200	5	
714	190	201	1	
715	190	202	5	

716	191	201	5	
717	191	202	1	
718	191	203	5	
719	192	202	5	
720	192	203	1	
721	192	204	5	
722	193	203	5	
723	193	204	1	
724	193	205	5	
725	194	204	5	
726	194	205	1	
727	194	206	5	
728	195	205	5	
729	195	206	1	
730	195	207	5	
731	196	206	5	
732	196	207	1	
733	196	208	5	
734	197	207	5	
735	197	208	1	
736	197	209	5	
737	198	208	5	
738	198	209	2	
739	199	200	3	
740	200	201	3	
741	201	202	3	
742	202	203	3	
743	203	204	3	
744	204	205	3	
745	205	206	3	
746	206	207	3	
747	207	208	3	
748	208	209	3	
749	199	210	2	
750	199	211	5	
751	200	210	5	
752	200	211	1	
753	200	212	5	
754	201	211	5	
755	201	212	1	
756	201	213	5	
757	202	212	5	
758	202	213	1	
759	202	214	5	
760	203	213	5	
761	203	214	1	
762	203	215	5	
763	204	214	5	
764	204	215	1	
765	204	216	5	
766	205	215	5	
767	205	216	1	
768	205	217	5	
769	206	216	5	
770	206	217	1	

771	206	218	5
772	207	217	5
773	207	218	1
774	207	219	5
775	208	218	5
776	208	219	1
777	208	220	5
778	209	219	5
779	209	220	2
780	210	211	3
781	211	212	3
782	212	213	3
783	213	214	3
784	214	215	3
785	215	216	3
786	216	217	3
787	217	218	3
788	218	219	3
789	219	220	3
790	210	221	2
791	210	222	5
792	211	221	5
793	211	222	1
794	211	223	5
795	212	222	5
796	212	223	1
797	212	224	5
798	213	223	5
799	213	224	1
800	213	225	5
801	214	224	5
802	214	225	1
803	214	226	5
804	215	225	5
805	215	226	1
806	215	227	5
807	216	226	5
808	216	227	1
809	216	228	5
810	217	227	5
811	217	228	1
812	217	229	5
813	218	228	5
814	218	229	1
815	218	230	5
816	219	229	5
817	219	230	1
818	219	231	5
819	220	230	5
820	220	231	2
821	221	222	4
822	222	223	4
823	223	224	4
824	224	225	4
825	225	226	4
826	226	227	4
827	227	228	4
828	228	229	4
829	229	230	4
830	230	231	4

APPENDIX IV

SAMPLE OUTPUT DATA FOR SANOS

Test problem 5 is presented since it is an example of unsymmetrical loading.

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                    PROBLEM NUMBER    5

          NONLINEAR ANALYSIS OF ORTHOTROPIC SHELLS
       MATERIAL NONLINEARITY ** RICHARD FORMULATION
         PLASTIC ANALYSIS ** SMITH PLASTIC MODEL
    GEOMETRIC NONLINEARITY ** INCREMENTAL TECHNIQUE


METHOD OF NUMBERING NODES ************   NCODE =     0
NUMBER OF BAYS LONG ******************   NBAYL =    10
NUMBER OF BAYS WIDE ******************   NBAYW =    20
NUMBER OF LOADS **********************   NLOAD =    19
NUMBER OF NODES WITH SUPPORTS ********   NSUPN =    23
NUMBER OF RUNGE-KUTTA INTERVALS ******     NRK =     6
AMOUNT OF STRUCTURE MODELED **********  MANGLE =     2


SPAN OF STRUCTURE ********************    SPAN =   590.00
HEIGHT OF STRUCTURE ******************  HEIGHT =   295.00
LENGTH OF SHELL **********************  SENGTH =   360.00


THICKNESS OF SHELL (BENDING)**********  THICKH =     2.48
COUBLE THICKNESS OF METAL(THICKW CAL)*  THICK =      .15
ULTIMATE MOMENT (IN-KIPS/IN) *********    ULTM =    15.00
THICKNESS OF SHELL (AXIAL)************  THICKA =      .02
ULT. AXIAL STRESS (KIPS/SQ.IN/INCH) **  ULTSTR =    41.50
MODULUS OF ELASTICITY OF SHELL *******       E = 30000.00
CURVE FITTING PARAMETER **************       R =     2.00


DISTANCE FROM N.A. TO OUTSIDE FIBERS *    COUT =     2.00
DISTANCE FROM N.A. TO INSIDE FIBERS **     CIN =    12.00
MODULAR RATIO(UNCORR. TO CORR.) ******  RATIOD =     7.50


NUMBER OF MEMBERS ********************      NM =   830
NUMBER OF NODES ******************       NODES =   231
NUMBER OF EQUATIONS ******************    NODS =  1155
BAND WIDTH ***************************   NBAND =   129
HALF BAND WIDTH PLUS DIAGONAL ********   NBS/M =    65
NUMBER OF SUPPORTS *******************   NSUPS =    89
SMALLER NODE NUMBER ON END OF MEMBER *  NUMSE =     1
LARGER NODE NUMBER ON END OF MEMBER **  NUMBE =    13
THICKNESS OF SHELL (BENDING-WEAK AXIS)  THICKH =     1.28
CENTRAL ANGLE--DEGREES****************     CAD =   180.00
LENGTH OF LONGITUDINAL MEMBERS *******    SIDE =    36.00
RADIUS OF SHELL ******************       RADII =   295.00
```

**********SHELL GEOMETRY**********

NODE	X COORDINATE	Y COORDINATE	Z COORDINATE
1	-295.000	0.	.000
2	-295.000	36.000	.000
3	-295.000	72.000	.000
4	-295.000	108.000	.000
5	-295.000	144.000	.000
6	-295.000	180.000	.000
7	-295.000	216.000	.000
8	-295.000	252.000	.000
9	-295.000	288.000	.000
10	-295.000	324.000	.000
11	-295.000	360.000	.000
12	-291.369	0.	46.148
13	-291.369	36.000	46.148
14	-291.369	72.000	46.148
15	-291.369	108.000	46.148
16	-291.369	144.000	46.148
17	-291.369	180.000	46.148
18	-291.369	216.000	46.148
19	-291.369	252.000	46.148
20	-291.369	288.000	46.148
21	-291.369	324.000	46.148
22	-291.369	360.000	46.148
23	-280.562	0.	91.160
24	-280.562	36.000	91.160
25	-280.562	72.000	91.160
26	-280.562	108.000	91.160
27	-280.562	144.000	91.160
28	-280.562	180.000	91.160
29	-280.562	216.000	91.160
30	-280.562	252.000	91.160
31	-280.562	288.000	91.160
32	-280.562	324.000	91.160
33	-280.562	360.000	91.160
34	-262.847	0.	133.927
35	-262.847	36.000	133.927
36	-262.847	72.000	133.927
37	-262.847	108.000	133.927
38	-262.847	144.000	133.927
39	-262.847	180.000	133.927
40	-262.847	216.000	133.927
41	-262.847	252.000	133.927
42	-262.847	288.000	133.927
43	-262.847	324.000	133.927
44	-262.847	360.000	133.927
45	-238.660	0.	173.397
46	-238.660	36.000	173.397
47	-238.660	72.000	173.397
48	-238.660	108.000	173.397
49	-238.660	144.000	173.397
50	-238.660	180.000	173.397
51	-238.660	216.000	173.397
52	-238.660	252.000	173.397
53	-238.660	288.000	173.397
54	-238.660	324.000	173.397
55	-238.660	360.000	173.397
56	-208.597	0.	208.597
57	-208.597	36.000	208.597
58	-208.597	72.000	208.597
59	-208.597	108.000	208.597
60	-208.597	144.000	208.597

61	-208.597	180.000	208.597
62	-208.597	216.000	208.597
63	-208.597	252.000	208.597
64	-208.597	288.000	208.597
65	-208.597	324.000	208.597
66	-208.597	360.000	208.597
67	-173.397	0.	238.660
68	-173.397	36.000	238.660
69	-173.397	72.000	238.660
70	-173.397	108.000	238.660
71	-173.397	144.000	238.660
72	-173.397	180.000	238.660
73	-173.397	216.000	238.660
74	-173.397	252.000	238.660
75	-173.397	288.000	238.660
76	-173.397	324.000	238.660
77	-173.397	360.000	238.660
78	-133.927	0.	262.947
79	-133.927	36.000	262.947
80	-133.927	72.000	262.947
81	-133.927	108.000	262.947
82	-133.927	144.000	262.947
83	-133.927	180.000	262.947
84	-133.927	216.000	262.947
85	-133.927	252.000	262.947
86	-133.927	288.000	262.947
87	-133.927	324.000	262.947
88	-133.927	360.000	262.947
89	-91.160	0.	280.362
90	-91.160	36.000	280.362
91	-91.160	72.000	280.362
92	-91.160	108.000	280.362
93	-91.160	144.000	280.362
94	-91.160	180.000	280.362
95	-91.160	216.000	280.362
96	-91.160	252.000	280.362
97	-91.160	288.000	280.362
98	-91.160	324.000	280.362
99	-91.160	360.000	280.362
100	-46.149	0.	291.368
101	-46.149	36.000	291.368
102	-46.149	72.000	291.368
103	-46.149	108.000	291.368
104	-46.149	144.000	291.368
105	-46.149	180.000	291.368
106	-46.149	216.000	291.368
107	-46.149	252.000	291.368
108	-46.149	288.000	291.368
109	-46.149	324.000	291.368
110	-46.149	360.000	291.368
111	-.000	0.	295.000
112	-.000	36.000	295.000
113	-.000	72.000	295.000
114	-.000	108.000	295.000
115	-.000	144.000	295.000
116	-.000	180.000	295.000
117	-.000	216.000	295.000
118	-.000	252.000	295.000
119	-.000	288.000	295.000
120	-.000	324.000	295.000
121	-.000	360.000	295.000
122	46.149	0.	291.368
123	46.149	36.000	291.368
124	46.149	72.000	291.368

125	46.149	108.000	291.369
126	46.149	144.000	291.369
127	46.149	180.000	291.369
128	46.149	216.000	291.369
129	46.149	252.000	291.369
130	46.149	288.000	291.369
131	46.149	324.000	291.369
132	46.149	360.000	291.369
133	91.160	0.	280.562
134	91.160	36.000	280.562
135	91.160	72.000	280.562
136	91.160	108.000	280.562
137	91.160	144.000	280.562
138	91.160	180.000	280.562
139	91.160	216.000	280.562
140	91.160	252.000	280.562
141	91.160	288.000	280.562
142	91.160	324.000	280.562
143	91.160	360.000	280.562
144	133.927	0.	262.347
145	133.927	36.000	262.347
146	133.927	72.000	262.347
147	133.927	108.000	262.347
148	133.927	144.000	262.347
149	133.927	180.000	262.347
150	133.927	216.000	262.347
151	133.927	252.000	262.347
152	133.927	288.000	262.347
153	133.927	324.000	262.347
154	133.927	360.000	262.347
155	173.397	0.	238.660
156	173.397	36.000	238.660
157	173.397	72.000	238.660
158	173.397	108.000	238.660
159	173.397	144.000	238.660
160	173.397	180.000	238.660
161	173.397	216.000	238.660
162	173.397	252.000	238.660
163	173.397	288.000	238.660
164	173.397	324.000	238.660
165	173.397	360.000	238.660
166	208.595	0.	208.597
167	208.595	36.000	208.597
168	208.595	72.000	208.597
169	208.595	108.000	208.597
170	208.596	144.000	208.597
171	208.596	180.000	208.597
172	208.596	216.000	208.597
173	208.595	252.000	208.597
174	208.595	288.000	208.597
175	208.596	324.000	208.597
176	208.596	360.000	208.597
177	238.660	0.	173.397
178	238.660	36.000	173.397
179	238.660	72.000	173.397
180	238.660	108.000	173.397
181	238.660	144.000	173.397
182	238.660	180.000	173.397
183	238.660	216.000	173.397
184	238.660	252.000	173.397
185	238.660	288.000	173.397
186	238.660	324.000	173.397
187	238.660	360.000	173.397
188	262.847	0.	133.927

189	262.847	36.000	133.927
190	262.847	72.000	133.927
191	262.847	108.000	133.927
192	262.847	144.000	133.927
193	262.847	180.000	133.927
194	262.847	216.000	133.927
195	262.847	252.000	133.927
196	262.847	288.000	133.927
197	262.847	324.000	133.927
198	262.847	360.000	133.927
199	280.562	0.	91.160
200	280.562	36.000	91.160
201	280.562	72.000	91.160
202	280.562	108.000	91.160
203	280.562	144.000	91.160
204	280.562	180.000	91.160
205	280.562	216.000	91.160
206	280.562	252.000	91.160
207	280.562	288.000	91.160
208	280.562	324.000	91.160
209	280.562	360.000	91.160
210	291.369	0.	46.148
211	291.369	36.000	46.148
212	291.369	72.000	46.148
213	291.369	108.000	46.148
214	291.369	144.000	46.148
215	291.369	180.000	46.148
216	291.369	216.000	46.148
217	291.369	252.000	46.148
218	291.369	288.000	46.148
219	291.369	324.000	46.148
220	291.369	360.000	46.148
221	295.000	0.	.000
222	295.000	36.000	.000
223	295.000	72.000	.000
224	295.000	108.000	.000
225	295.000	144.000	.000
226	295.000	180.000	.000
227	295.000	216.000	.000
228	295.000	252.000	.000
229	295.000	288.000	.000
230	295.000	324.000	.000
231	295.000	360.000	.000

***************THE NUMBER OF EACH SUPPORT***************

1	2	3	4	6	7	8	9	11	12	13	14
16	17	18	19	21	22	23	24	26	27	28	29
31	32	33	34	35	37	38	39	41	42	43	44
46	47	48	49	51	52	53	54	1101	1102	1103	1104
1106	1107	1108	1109	1111	1112	1113	1114	1116	1117	1118	1119
1121	1122	1123	1124	1126	1127	1128	1129	1131	1132	1133	1134
1136	1137	1138	1139	1141	1142	1143	1144	1146	1147	1148	1149
1151	1152	1153	1154	577							

***************LOAD NUMBER AND LOAD********************

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0.	0.	0.	0.	0.
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0.	0.	-2.08000	0.	0.
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***PERCENTAGE OF LOAD ON EACH RUNGE-KUTTA INTERVAL**

.16671	.16670	.16670	.16670	.16670
.16671				

MN	JM	KM	AREA	ULT.FORCE	SEC'10	ULT.MOM	LENGTH	HTYPE
1	1	2	.486	39.613	4.090	347.181	36.000	4
2	2	3	.486	39.613	4.090	347.181	36.000	4
3	3	4	.486	39.613	4.090	347.181	36.000	4
4	4	5	.486	39.613	4.090	347.181	36.000	4
5	5	6	.486	39.613	4.090	347.181	36.000	4
6	6	7	.486	39.613	4.090	347.181	36.000	4
7	7	8	.486	39.613	4.090	347.181	36.000	4
8	8	9	.486	39.613	4.090	347.181	36.000	4
9	9	10	.486	39.613	4.090	347.181	36.000	4
10	10	11	.486	39.613	4.090	347.181	36.000	4
11	1	12	.378	30.807	22.379	270.000	46.291	2
12	1	13	.010	10.000	.010	10.000	58.642	5
13	2	12	.010	10.000	.010	10.000	58.642	5
14	2	13	.756	61.614	45.759	540.000	46.291	1
15	2	14	.010	10.000	.010	10.000	58.642	5
16	3	13	.010	10.000	.010	10.000	58.642	5
17	3	14	.756	61.614	45.759	540.000	46.291	1
18	3	15	.010	10.000	.010	10.000	58.642	5
19	4	14	.010	10.000	.010	10.000	58.642	5
20	4	15	.756	61.614	45.759	540.000	46.291	1
21	4	16	.010	10.000	.010	10.000	58.642	5
22	5	15	.010	10.000	.010	10.000	58.642	5
23	5	16	.756	61.614	45.759	540.000	46.291	1
24	5	17	.010	10.000	.010	10.000	58.642	5
25	6	16	.010	10.000	.010	10.000	58.642	5
26	6	17	.756	61.614	45.759	540.000	46.291	1
27	6	18	.010	10.000	.010	10.000	58.642	5
28	7	17	.010	10.000	.010	10.000	58.642	5
29	7	18	.756	61.614	45.759	540.000	46.291	1
30	7	19	.010	10.000	.010	10.000	58.642	5
31	8	18	.010	10.000	.010	10.000	58.642	5
32	8	19	.756	61.614	45.759	540.000	46.291	1
33	8	20	.010	10.000	.010	10.000	58.642	5
34	9	19	.010	10.000	.010	10.000	58.642	5
35	9	20	.756	61.614	45.759	540.000	46.291	1
36	9	21	.010	10.000	.010	10.000	58.642	5
37	10	20	.010	10.000	.010	10.000	58.642	5
38	10	21	.756	61.614	45.759	540.000	46.291	1
39	10	22	.010	10.000	.010	10.000	58.642	5
40	11	21	.010	10.000	.010	10.000	58.642	5
41	11	22	.378	30.807	22.379	270.000	46.291	2
42	12	13	.972	79.227	8.180	694.363	36.000	3
43	13	14	.972	79.227	8.180	694.363	36.000	3
44	14	15	.972	79.227	8.180	694.363	36.000	3
45	15	16	.972	79.227	8.180	694.363	36.000	3
46	16	17	.972	79.227	8.180	694.363	36.000	3
47	17	18	.972	79.227	8.180	694.363	36.000	3
48	18	19	.972	79.227	8.180	694.363	36.000	3
49	19	20	.972	79.227	8.180	694.363	36.000	3
50	20	21	.972	79.227	8.180	694.363	36.000	3
51	21	22	.972	79.227	8.180	694.363	36.000	3
52	12	23	.378	30.807	22.379	270.000	46.291	2
53	12	24	.010	10.000	.010	10.000	58.642	5
54	13	23	.010	10.000	.010	10.000	58.642	5
55	13	24	.756	61.614	45.759	540.000	46.291	1
56	13	25	.010	10.000	.010	10.000	58.642	5
57	14	24	.010	10.000	.010	10.000	58.642	5
58	14	25	.756	61.614	45.759	540.000	46.291	1
59	14	26	.010	10.000	.010	10.000	58.642	5

60	15	25	.010	10.000	.110	10.000	58.642	5
61	15	26	.756	61.614	45.759	540.000	46.291	1
62	15	27	.010	10.000	.010	10.000	58.642	5
63	16	26	.010	10.000	.010	10.000	58.642	5
64	16	27	.756	61.614	45.759	540.000	46.291	1
65	16	28	.010	10.000	.110	10.000	58.642	5
66	17	27	.010	10.000	.010	10.000	58.642	5
67	17	28	.756	61.614	45.759	540.000	46.291	1
68	17	29	.010	10.000	.010	10.000	58.642	5
69	18	28	.010	10.000	.010	10.000	58.642	5
70	18	29	.756	61.614	45.759	540.000	46.291	1
71	18	30	.010	10.000	.010	10.000	58.642	5
72	19	29	.010	10.000	.010	10.000	58.642	5
73	19	30	.756	61.614	45.759	540.000	46.291	1
74	19	31	.010	10.000	.010	10.000	58.642	5
75	20	30	.010	10.000	.110	10.000	58.642	5
76	20	31	.756	61.614	45.759	540.000	46.291	1
77	20	32	.010	10.000	.010	10.000	58.642	5
78	21	31	.010	10.000	.010	10.000	58.642	5
79	21	32	.756	61.614	45.759	540.000	46.291	1
80	21	33	.010	10.000	.010	10.000	58.642	5
81	22	32	.010	10.000	.010	10.000	58.642	5
82	22	33	.378	30.807	22.379	270.000	46.291	2
83	23	24	.972	79.227	8.180	694.363	36.000	3
84	24	25	.972	79.227	8.180	694.363	36.000	3
85	25	26	.972	79.227	8.180	694.363	36.000	3
86	26	27	.972	79.227	8.180	694.363	36.000	3
87	27	28	.972	79.227	8.180	694.363	36.000	3
88	28	29	.972	79.227	8.180	694.363	36.000	3
89	29	30	.972	79.227	8.180	694.363	36.000	3
90	30	31	.972	79.227	8.180	694.363	36.000	3
91	31	32	.972	79.227	8.180	694.363	36.000	3
92	32	33	.972	79.227	8.180	694.363	36.000	3
93	23	34	.378	30.807	22.379	270.000	46.291	2
94	23	35	.010	10.000	.110	10.000	58.642	5
95	24	34	.010	10.000	.110	10.000	58.642	5
96	24	35	.756	61.614	45.759	540.000	46.291	1
97	24	36	.010	10.000	.110	10.000	58.642	5
98	25	35	.010	10.000	.110	10.000	58.642	5
99	25	36	.756	61.614	45.759	540.000	46.291	1
100	25	37	.010	10.000	.110	10.000	58.642	5
101	26	36	.010	10.000	.110	10.000	58.642	5
102	26	37	.756	61.614	45.759	540.000	46.291	1
103	26	38	.010	10.000	.110	10.000	58.642	5
104	27	37	.010	10.000	.110	10.000	58.642	5
105	27	38	.756	61.614	45.759	540.000	46.291	1
106	27	39	.010	10.000	.110	10.000	58.642	5
107	28	38	.010	10.000	.110	10.000	58.642	5
108	28	39	.756	61.614	45.759	540.000	46.291	1
109	28	40	.010	10.000	.110	10.000	58.642	5
110	29	39	.010	10.000	.110	10.000	58.642	5
111	29	40	.756	61.614	45.759	540.000	46.291	1
112	29	41	.010	10.000	.110	10.000	58.642	5
113	30	40	.010	10.000	.110	10.000	58.642	5
114	30	41	.756	61.614	45.759	540.000	46.291	1
115	30	42	.010	10.000	.110	10.000	58.642	5
116	31	41	.010	10.000	.110	10.000	58.642	5
117	31	42	.756	61.614	45.759	540.000	46.291	1
118	31	43	.010	10.000	.110	10.000	58.642	5
119	32	42	.010	10.000	.110	10.000	58.642	5
120	32	43	.756	61.614	45.759	540.000	46.291	1
121	32	44	.010	10.000	.010	10.000	58.642	5
122	33	43	.010	10.000	.110	10.000	58.642	5
123	33	44	.378	30.807	22.379	270.000	46.291	2

124	34	35	.972	79.227	9.180	694.363	36.000	3
125	35	36	.972	79.227	9.180	694.363	36.000	3
126	36	37	.972	79.227	9.180	694.363	36.000	3
127	37	38	.972	79.227	9.180	694.363	36.000	3
128	38	39	.972	79.227	9.180	694.363	36.000	3
129	39	40	.972	79.227	9.180	694.363	36.000	3
130	40	41	.972	79.227	9.180	694.363	36.000	3
131	41	42	.972	79.227	9.180	694.363	36.000	3
132	42	43	.972	79.227	9.180	694.363	36.000	3
133	43	44	.972	79.227	9.180	694.363	36.000	3
134	34	45	.378	30.807	22.379	270.000	46.291	2
135	34	46	.010	10.000	.010	10.000	58.642	5
136	35	45	.010	10.000	.010	10.000	58.642	5
137	35	46	.756	61.614	45.759	540.000	46.291	1
138	35	47	.010	10.000	.010	10.000	58.642	5
139	36	46	.010	10.000	.010	10.000	58.642	5
140	36	47	.756	61.614	45.759	540.000	46.291	1
141	36	48	.010	10.000	.010	10.000	58.642	5
142	37	47	.010	10.000	.010	10.000	58.642	5
143	37	48	.756	61.614	45.759	540.000	46.291	1
144	37	49	.010	10.000	.010	10.000	58.642	5
145	38	48	.010	10.000	.010	10.000	58.642	5
146	38	49	.756	61.614	45.759	540.000	46.291	1
147	38	50	.010	10.000	.010	10.000	58.642	5
148	39	49	.010	10.000	.010	10.000	58.642	5
149	39	50	.756	61.614	45.759	540.000	46.291	1
150	39	51	.010	10.000	.010	10.000	58.642	5
151	40	50	.010	10.000	.010	10.000	58.642	5
152	40	51	.756	61.614	45.759	540.000	46.291	1
153	40	52	.010	10.000	.010	10.000	58.642	5
154	41	51	.010	10.000	.010	10.000	58.642	5
155	41	52	.756	61.614	45.759	540.000	46.291	1
156	41	53	.010	10.000	.010	10.000	58.642	5
157	42	52	.010	10.000	.010	10.000	58.642	5
158	42	53	.756	61.614	45.759	540.000	46.291	1
159	42	54	.010	10.000	.010	10.000	58.642	5
160	43	53	.010	10.000	.010	10.000	58.642	5
161	43	54	.756	61.614	45.759	540.000	46.291	1
162	43	55	.010	10.000	.010	10.000	58.642	5
163	44	54	.010	10.000	.010	10.000	58.642	5
164	44	55	.378	30.807	22.379	270.000	46.291	2
165	45	46	.972	79.227	9.180	694.363	36.000	3
166	46	47	.972	79.227	9.180	694.363	36.000	3
167	47	48	.972	79.227	9.180	694.363	36.000	3
168	48	49	.972	79.227	9.180	694.363	36.000	3
169	49	50	.972	79.227	9.180	694.363	36.000	3
170	50	51	.972	79.227	9.180	694.363	36.000	3
171	51	52	.972	79.227	9.180	694.363	36.000	3
172	52	53	.972	79.227	9.180	694.363	36.000	3
173	53	54	.972	79.227	9.180	694.363	36.000	3
174	54	55	.972	79.227	9.180	694.363	36.000	3
175	45	56	.378	30.807	22.379	270.000	46.291	2
176	45	57	.010	10.000	.010	10.000	58.642	5
177	46	56	.010	10.000	.010	10.000	58.642	5
178	46	57	.756	61.614	45.759	540.000	46.291	1
179	46	58	.010	10.000	.010	10.000	58.642	5
180	47	57	.010	10.000	.010	10.000	58.642	5
181	47	58	.756	61.614	45.759	540.000	46.291	1
182	47	59	.010	10.000	.010	10.000	58.642	5
183	48	58	.010	10.000	.010	10.000	58.642	5
184	48	59	.756	61.614	45.759	540.000	46.291	1
185	48	60	.010	10.000	.010	10.000	58.642	5
186	49	59	.010	10.000	.010	10.000	58.642	5
187	49	60	.756	61.614	45.759	540.000	46.291	1

188	49	61	.010	10.000	.110	10.000	58.642	5
189	50	60	.010	10.000	.110	10.000	58.642	5
190	50	61	.756	61.614	45.759	540.000	46.291	1
191	50	62	.010	10.000	.110	10.000	58.642	5
192	51	61	.010	10.000	.110	10.000	58.642	5
193	51	62	.756	61.614	45.759	540.000	46.291	1
194	51	63	.010	10.000	.110	10.000	58.642	5
195	52	62	.010	10.000	.110	10.000	58.642	5
196	52	63	.756	61.614	45.759	540.000	46.291	1
197	52	64	.010	10.000	.110	10.000	58.642	5
198	53	63	.010	10.000	.110	10.000	58.642	5
199	53	64	.756	61.614	45.759	540.000	46.291	1
200	53	65	.010	10.000	.110	10.000	58.642	5
201	54	64	.010	10.000	.110	10.000	58.642	5
202	54	65	.756	61.614	45.759	540.000	46.291	1
203	54	66	.010	10.000	.110	10.000	58.642	5
204	55	65	.010	10.000	.110	10.000	58.642	5
205	55	66	.378	30.807	22.379	270.000	46.291	2
206	56	57	.972	79.227	9.180	694.363	36.000	3
207	57	58	.972	79.227	9.180	694.363	36.000	3
208	58	59	.972	79.227	9.180	694.363	36.000	3
209	59	60	.972	79.227	9.180	694.363	36.000	3
210	60	61	.972	79.227	9.180	694.363	36.000	3
211	61	62	.972	79.227	9.180	694.363	36.000	3
212	62	63	.972	79.227	9.180	694.363	36.000	3
213	63	64	.972	79.227	9.180	694.363	36.000	3
214	64	65	.972	79.227	9.180	694.363	36.000	3
215	65	66	.972	79.227	9.180	694.363	36.000	3
216	56	67	.378	30.807	22.379	270.000	46.291	2
217	56	68	.010	10.000	.110	10.000	58.642	5
218	57	67	.010	10.000	.110	10.000	58.642	5
219	57	68	.756	61.614	45.759	540.000	46.291	1
220	57	69	.010	10.000	.110	10.000	58.642	5
221	58	68	.010	10.000	.110	10.000	58.642	5
222	58	69	.756	61.614	45.759	540.000	46.291	1
223	58	70	.010	10.000	.110	10.000	58.642	5
224	59	69	.010	10.000	.110	10.000	58.642	5
225	59	70	.756	61.614	45.759	540.000	46.291	1
226	59	71	.010	10.000	.110	10.000	58.642	5
227	60	70	.010	10.000	.110	10.000	58.642	5
228	60	71	.756	61.614	45.759	540.000	46.291	1
229	60	72	.010	10.000	.110	10.000	58.642	5
230	61	71	.010	10.000	.110	10.000	58.642	5
231	61	72	.756	61.614	45.759	540.000	46.291	1
232	61	73	.010	10.000	.110	10.000	58.642	5
233	62	72	.010	10.000	.110	10.000	58.642	5
234	62	73	.756	61.614	45.759	540.000	46.291	1
235	62	74	.010	10.000	.110	10.000	58.642	5
236	63	73	.010	10.000	.110	10.000	58.642	5
237	63	74	.756	61.614	45.759	540.000	46.291	1
238	63	75	.010	10.000	.110	10.000	58.642	5
239	64	74	.010	10.000	.110	10.000	58.642	5
240	64	75	.756	61.614	45.759	540.000	46.291	1
241	64	76	.010	10.000	.110	10.000	58.642	5
242	65	75	.010	10.000	.110	10.000	58.642	5
243	65	76	.756	61.614	45.759	540.000	46.291	1
244	65	77	.010	10.000	.110	10.000	58.642	5
245	66	76	.010	10.000	.110	10.000	58.642	5
246	66	77	.378	30.807	22.379	270.000	46.291	2
247	67	68	.972	79.227	9.180	694.363	36.000	3
248	68	69	.972	79.227	9.180	694.363	36.000	3
249	69	70	.972	79.227	9.180	694.363	36.000	3
250	70	71	.972	79.227	9.180	694.363	36.000	3
251	71	72	.972	79.227	9.180	694.363	36.000	3

252	72	73	.972	79.227	8.180	694.363	36.000	3
253	73	74	.972	79.227	8.180	694.363	36.000	3
254	74	75	.972	79.227	8.180	694.363	36.000	3
255	75	76	.972	79.227	8.180	694.363	36.000	3
256	76	77	.972	79.227	8.180	694.363	36.000	3
257	67	79	.378	30.907	22.379	270.000	46.291	2
258	67	79	.010	10.000	.110	10.000	58.642	5
259	68	79	.010	10.000	.010	10.000	58.642	5
260	68	79	.756	61.614	45.759	540.000	46.291	1
261	68	80	.010	10.000	.010	10.000	58.642	5
262	69	79	.010	10.000	.010	10.000	58.642	5
263	69	80	.756	61.614	45.759	540.000	46.291	1
264	69	81	.010	10.000	.010	10.000	58.642	5
265	70	80	.010	10.000	.010	10.000	58.642	5
266	70	81	.756	61.614	45.759	540.000	46.291	1
267	70	82	.010	10.000	.010	10.000	58.642	5
268	71	81	.010	10.000	.010	10.000	58.642	5
269	71	82	.756	61.614	45.759	540.000	46.291	1
270	71	83	.010	10.000	.010	10.000	58.642	5
271	72	82	.010	10.000	.010	10.000	58.642	5
272	72	83	.756	61.614	45.759	540.000	46.291	1
273	72	84	.010	10.000	.010	10.000	58.642	5
274	73	83	.010	10.000	.010	10.000	58.642	5
275	73	84	.756	61.614	45.759	540.000	46.291	1
276	73	85	.010	10.000	.010	10.000	58.642	5
277	74	84	.010	10.000	.010	10.000	58.642	5
278	74	85	.756	61.614	45.759	540.000	46.291	1
279	74	86	.010	10.000	.010	10.000	58.642	5
280	75	85	.010	10.000	.010	10.000	58.642	5
281	75	86	.756	61.614	45.759	540.000	46.291	1
282	75	87	.010	10.000	.010	10.000	58.642	5
283	76	86	.010	10.000	.010	10.000	58.642	5
284	76	87	.756	61.614	45.759	540.000	46.291	1
285	76	88	.010	10.000	.010	10.000	58.642	5
286	77	87	.010	10.000	.010	10.000	58.642	5
287	77	88	.378	30.907	22.379	270.000	46.291	2
288	78	79	.972	79.227	8.180	694.363	36.000	3
289	79	80	.972	79.227	8.180	694.363	36.000	3
290	80	81	.972	79.227	8.180	694.363	36.000	3
291	81	82	.972	79.227	8.180	694.363	36.000	3
292	82	83	.972	79.227	8.180	694.363	36.000	3
293	83	84	.972	79.227	8.180	694.363	36.000	3
294	84	85	.972	79.227	8.180	694.363	36.000	3
295	85	86	.972	79.227	8.180	694.363	36.000	3
296	86	87	.972	79.227	8.180	694.363	36.000	3
297	87	88	.972	79.227	8.180	694.363	36.000	3
298	78	89	.378	30.907	22.379	270.000	46.291	2
299	78	90	.010	10.000	.110	10.000	58.642	5
300	79	89	.010	10.000	.110	10.000	58.642	5
301	79	90	.756	61.614	45.759	540.000	46.291	1
302	79	91	.010	10.000	.110	10.000	58.642	5
303	80	90	.010	10.000	.110	10.000	58.642	5
304	80	91	.756	61.614	45.759	540.000	46.291	1
305	80	92	.010	10.000	.110	10.000	58.642	5
306	81	91	.010	10.000	.110	10.000	58.642	5
307	81	92	.756	61.614	45.759	540.000	46.291	1
308	81	93	.010	10.000	.110	10.000	58.642	5
309	82	92	.010	10.000	.110	10.000	58.642	5
310	82	93	.756	61.614	45.759	540.000	46.291	1
311	82	94	.010	10.000	.110	10.000	58.642	5
312	83	93	.010	10.000	.110	10.000	58.642	5
313	83	94	.756	61.614	45.759	540.000	46.291	1
314	83	95	.010	10.000	.010	10.000	58.642	5
315	84	94	.010	10.000	.110	10.000	58.642	5

316	84	95	.756	61.614	45.759	540.000	46.291	1
317	84	96	.010	10.000	.110	10.000	58.642	5
318	85	95	.010	10.000	.110	10.000	58.642	5
319	85	96	.756	61.614	45.759	540.000	46.291	1
320	85	97	.010	10.000	.110	10.000	58.642	5
321	86	96	.010	10.000	.110	10.000	58.642	5
322	86	97	.756	61.614	45.759	540.000	46.291	1
323	86	98	.010	10.000	.110	10.000	58.642	5
324	87	97	.010	10.000	.110	10.000	58.642	5
325	87	98	.756	61.614	45.759	540.000	46.291	1
326	87	99	.010	10.000	.110	10.000	58.642	5
327	88	98	.010	10.000	.110	10.000	58.642	5
328	88	99	.378	30.807	22.379	270.000	46.291	2
329	89	90	.972	79.227	8.180	694.363	36.000	3
330	90	91	.972	79.227	8.180	694.363	36.000	3
331	91	92	.972	79.227	8.180	694.363	36.000	3
332	92	93	.972	79.227	8.180	694.363	36.000	3
333	93	94	.972	79.227	8.180	694.363	36.000	3
334	94	95	.972	79.227	8.180	694.363	36.000	3
335	95	96	.972	79.227	8.180	694.363	36.000	3
336	96	97	.972	79.227	8.180	694.363	36.000	3
337	97	98	.972	79.227	8.180	694.363	36.000	3
338	98	99	.972	79.227	8.180	694.363	36.000	3
339	89	100	.378	30.807	22.379	270.000	46.291	2
340	89	101	.010	10.000	.110	10.000	58.642	5
341	90	100	.010	10.000	.110	10.000	58.642	5
342	90	101	.756	61.614	45.759	540.000	46.291	1
343	90	102	.010	10.000	.110	10.000	58.642	5
344	91	101	.010	10.000	.110	10.000	58.642	5
345	91	102	.756	61.614	45.759	540.000	46.291	1
346	91	103	.010	10.000	.110	10.000	58.642	5
347	92	102	.010	10.000	.110	10.000	58.642	5
348	92	103	.756	61.614	45.759	540.000	46.291	1
349	92	104	.010	10.000	.110	10.000	58.642	5
350	93	103	.010	10.000	.110	10.000	58.642	5
351	93	104	.756	61.614	45.759	540.000	46.291	1
352	93	105	.010	10.000	.110	10.000	58.642	5
353	94	104	.010	10.000	.110	10.000	58.642	5
354	94	105	.756	61.614	45.759	540.000	46.291	1
355	94	106	.010	10.000	.110	10.000	58.642	5
356	95	105	.010	10.000	.110	10.000	58.642	5
357	95	106	.756	61.614	45.759	540.000	46.291	1
358	95	107	.010	10.000	.110	10.000	58.642	5
359	96	106	.010	10.000	.110	10.000	58.642	5
360	96	107	.756	61.614	45.759	540.000	46.291	1
361	96	108	.010	10.000	.110	10.000	58.642	5
362	97	107	.010	10.000	.110	10.000	58.642	5
363	97	108	.756	61.614	45.759	540.000	46.291	1
364	97	109	.010	10.000	.110	10.000	58.642	5
365	98	108	.010	10.000	.110	10.000	58.642	5
366	98	109	.756	61.614	45.759	540.000	46.291	1
367	98	110	.010	10.000	.110	10.000	58.642	5
368	99	109	.010	10.000	.110	10.000	58.642	5
369	99	110	.378	30.807	22.379	270.000	46.291	2
370	100	101	.972	79.227	8.180	694.363	36.000	3
371	101	102	.972	79.227	8.180	694.363	36.000	3
372	102	103	.972	79.227	8.180	694.363	36.000	3
373	103	104	.972	79.227	8.180	694.363	36.000	3
374	104	105	.972	79.227	8.180	694.363	36.000	3
375	105	106	.972	79.227	8.180	694.363	36.000	3
376	106	107	.972	79.227	8.180	694.363	36.000	3
377	107	108	.972	79.227	8.180	694.363	36.000	3
378	108	109	.972	79.227	8.180	694.363	36.000	3
379	109	110	.972	79.227	8.180	694.363	36.000	3

380	100	111	.378	30.807	22.479	270.000	46.291	2
381	100	112	.010	10.000	.110	10.000	58.642	5
382	101	111	.010	10.000	.110	10.000	58.642	5
383	101	112	.756	61.614	45.759	540.000	46.291	1
384	101	113	.010	10.000	.110	10.000	58.642	5
385	102	112	.010	10.000	.110	10.000	58.642	5
386	102	113	.756	61.614	45.759	540.000	46.291	1
387	102	114	.010	10.000	.110	10.000	58.642	5
388	103	113	.010	10.000	.010	10.000	58.642	5
389	103	114	.756	61.614	45.759	540.000	46.291	1
390	103	115	.010	10.000	.110	10.000	58.642	5
391	104	114	.010	10.000	.110	10.000	58.642	5
392	104	115	.756	61.614	45.759	540.000	46.291	1
393	104	116	.010	10.000	.110	10.000	58.642	5
394	105	115	.010	10.000	.110	10.000	58.642	5
395	105	116	.756	61.614	45.759	540.000	46.291	1
396	105	117	.010	10.000	.110	10.000	58.642	5
397	106	116	.010	10.000	.110	10.000	58.642	5
398	106	117	.756	61.614	45.759	540.000	46.291	1
399	106	118	.010	10.000	.110	10.000	58.642	5
400	107	117	.010	10.000	.110	10.000	58.642	5
401	107	118	.756	61.614	45.759	540.000	46.291	1
402	107	119	.010	10.000	.110	10.000	58.642	5
403	108	118	.010	10.000	.110	10.000	58.642	5
404	108	119	.756	61.614	45.759	540.000	46.291	1
405	108	120	.010	10.000	.110	10.000	58.642	5
406	109	119	.010	10.000	.110	10.000	58.642	5
407	109	120	.756	61.614	45.759	540.000	46.291	1
408	109	121	.010	10.000	.110	10.000	58.642	5
409	110	120	.010	10.000	.110	10.000	58.642	5
410	110	121	.378	30.807	22.479	270.000	46.291	2
411	111	112	.972	79.227	8.180	694.363	36.000	3
412	112	113	.972	79.227	8.180	694.363	36.000	3
413	113	114	.972	79.227	8.180	694.363	36.000	3
414	114	115	.972	79.227	8.180	694.363	36.000	3
415	115	116	.972	79.227	8.180	694.363	36.000	3
416	116	117	.972	79.227	8.180	694.363	36.000	3
417	117	118	.972	79.227	8.180	694.363	36.000	3
418	118	119	.972	79.227	8.180	694.363	36.000	3
419	119	120	.972	79.227	8.180	694.363	36.000	3
420	120	121	.972	79.227	8.180	694.363	36.000	3
421	111	122	.378	30.807	22.479	270.000	46.291	2
422	111	123	.010	10.000	.110	10.000	58.642	5
423	112	122	.010	10.000	.110	10.000	58.642	5
424	112	123	.756	61.614	45.759	540.000	46.291	1
425	112	124	.010	10.000	.110	10.000	58.642	5
426	113	123	.010	10.000	.110	10.000	58.642	5
427	113	124	.756	61.614	45.759	540.000	46.291	1
428	113	125	.010	10.000	.110	10.000	58.642	5
429	114	124	.010	10.000	.110	10.000	58.642	5
430	114	125	.756	61.614	45.759	540.000	46.291	1
431	114	126	.010	10.000	.110	10.000	58.642	5
432	115	125	.010	10.000	.110	10.000	58.642	5
433	115	126	.756	61.614	45.759	540.000	46.291	1
434	115	127	.010	10.000	.110	10.000	58.642	5
435	116	126	.010	10.000	.110	10.000	58.642	5
436	116	127	.756	61.614	45.759	540.000	46.291	1
437	116	128	.010	10.000	.110	10.000	58.642	5
438	117	127	.010	10.000	.110	10.000	58.642	5
439	117	128	.756	61.614	45.759	540.000	46.291	1
440	117	129	.010	10.000	.110	10.000	58.642	5
441	118	128	.010	10.000	.110	10.000	58.642	5
442	118	129	.756	61.614	45.759	540.000	46.291	1
443	118	130	.010	10.000	.110	10.000	58.642	5

444	119	129	.010	10.000	.110	10.000	59.642	5
445	119	130	.756	61.614	45.759	540.000	46.291	1
446	119	131	.010	10.000	.110	10.000	59.642	5
447	120	130	.010	10.000	.010	10.000	59.642	5
448	120	131	.756	61.614	45.759	540.000	46.291	1
449	120	132	.010	10.000	.110	10.000	59.642	5
450	121	131	.010	10.000	.110	10.000	59.642	5
451	121	132	.378	30.807	22.379	270.000	46.291	2
452	122	123	.972	79.227	8.180	694.363	36.000	3
453	123	124	.972	79.227	8.180	694.363	36.000	3
454	124	125	.972	79.227	8.180	694.363	36.000	3
455	125	126	.972	79.227	8.180	694.363	36.000	3
456	126	127	.972	79.227	8.180	694.363	36.000	3
457	127	128	.972	79.227	8.180	694.363	36.000	3
458	128	129	.972	79.227	8.180	694.363	36.000	3
459	129	130	.972	79.227	8.180	694.363	36.000	3
460	130	131	.972	79.227	8.180	694.363	36.000	3
461	131	132	.972	79.227	8.180	694.363	36.000	3
462	122	133	.378	30.807	22.379	270.000	46.291	2
463	122	134	.010	10.000	.110	10.000	59.642	5
464	123	133	.010	10.000	.110	10.000	59.642	5
465	123	134	.756	61.614	45.759	540.000	46.291	1
466	123	135	.010	10.000	.010	10.000	59.642	5
467	124	134	.010	10.000	.110	10.000	59.642	5
468	124	135	.756	61.614	45.759	540.000	46.291	1
469	124	136	.010	10.000	.110	10.000	59.642	5
470	125	135	.010	10.000	.110	10.000	59.642	5
471	125	136	.756	61.614	45.759	540.000	46.291	1
472	125	137	.010	10.000	.110	10.000	59.642	5
473	126	136	.010	10.000	.110	10.000	59.642	5
474	126	137	.756	61.614	45.759	540.000	46.291	1
475	126	138	.010	10.000	.110	10.000	59.642	5
476	127	137	.010	10.000	.010	10.000	59.642	5
477	127	138	.756	61.614	45.759	540.000	46.291	1
478	127	139	.010	10.000	.110	10.000	59.642	5
479	128	138	.010	10.000	.110	10.000	59.642	5
480	128	139	.756	61.614	45.759	540.000	46.291	1
481	129	140	.010	10.000	.110	10.000	59.642	5
482	129	139	.010	10.000	.010	10.000	59.642	5
483	129	141	.756	61.614	45.759	540.000	46.291	1
484	129	141	.010	10.000	.110	10.000	59.642	5
485	130	140	.010	10.000	.110	10.000	59.642	5
486	130	141	.756	61.614	45.759	540.000	46.291	1
487	131	141	.010	10.000	.110	10.000	59.642	5
488	131	141	.010	10.000	.110	10.000	59.642	5
489	131	142	.756	61.614	45.759	540.000	46.291	1
490	131	142	.010	10.000	.110	10.000	59.642	5
491	132	142	.010	10.000	.110	10.000	59.642	5
492	132	143	.378	30.807	22.379	270.000	46.291	2
493	133	134	.972	79.227	8.180	694.363	36.000	3
494	134	135	.972	79.227	8.180	694.363	36.000	3
495	135	136	.972	79.227	8.180	694.363	36.000	3
496	136	137	.972	79.227	8.180	694.363	36.000	3
497	137	138	.972	79.227	8.180	694.363	36.000	3
498	138	139	.972	79.227	8.180	694.363	36.000	3
499	139	140	.972	79.227	8.180	694.363	36.000	3
500	140	141	.972	79.227	8.180	694.363	36.000	3
501	141	142	.972	79.227	8.180	694.363	36.000	3
502	142	143	.972	79.227	8.180	694.363	36.000	3
503	133	144	.378	30.807	22.379	270.000	46.291	2
504	133	145	.010	10.000	.110	10.000	59.642	5
505	134	144	.010	10.000	.110	10.000	59.642	5
506	134	145	.756	61.614	45.759	540.000	46.291	1
507	134	146	.010	10.000	.110	10.000	59.642	5

508	135	145	.010	10.000	.010	10.000	58.642	5
509	135	146	.756	61.614	45.759	540.000	46.291	1
510	135	147	.010	10.000	.010	10.000	58.642	5
511	136	146	.010	10.000	.010	10.000	58.642	5
512	136	147	.756	61.614	45.759	540.000	46.291	1
513	136	149	.010	10.000	.010	10.000	58.642	5
514	137	147	.010	10.000	.010	10.000	58.642	5
515	137	149	.756	61.614	45.759	540.000	46.291	1
516	137	149	.010	10.000	.010	10.000	58.642	5
517	138	149	.010	10.000	.010	10.000	58.642	5
518	138	140	.756	61.614	45.759	540.000	46.291	1
519	138	150	.010	10.000	.010	10.000	58.642	5
520	139	149	.010	10.000	.010	10.000	58.642	5
521	139	150	.756	61.614	45.759	540.000	46.291	1
522	139	151	.010	10.000	.010	10.000	58.642	5
523	140	150	.010	10.000	.010	10.000	58.642	5
524	140	151	.756	61.614	45.759	540.000	46.291	1
525	140	152	.010	10.000	.010	10.000	58.642	5
526	141	151	.010	10.000	.010	10.000	58.642	5
527	141	152	.756	61.614	45.759	540.000	46.291	1
528	141	153	.010	10.000	.010	10.000	58.642	5
529	142	152	.010	10.000	.010	10.000	58.642	5
530	142	153	.756	61.614	45.759	540.000	46.291	1
531	142	154	.010	10.000	.010	10.000	58.642	5
532	143	153	.010	10.000	.010	10.000	58.642	5
533	143	154	.378	30.807	22.479	270.000	46.291	2
534	144	145	.972	79.227	8.180	694.363	36.000	3
535	145	146	.972	79.227	8.180	694.363	36.000	3
536	146	147	.972	79.227	8.180	694.363	36.000	3
537	147	149	.972	79.227	8.180	694.363	36.000	3
538	148	149	.972	79.227	8.180	694.363	36.000	3
539	149	150	.972	79.227	8.180	694.363	36.000	3
540	150	151	.972	79.227	8.180	694.363	36.000	3
541	151	152	.972	79.227	8.180	694.363	36.000	3
542	152	153	.972	79.227	8.180	694.363	36.000	3
543	153	154	.972	79.227	8.180	694.363	36.000	3
544	144	155	.378	30.807	22.479	270.000	46.291	2
545	144	156	.010	10.000	.010	10.000	58.642	5
546	145	155	.010	10.000	.010	10.000	58.642	5
547	145	156	.756	61.614	45.759	540.000	46.291	1
548	145	157	.010	10.000	.010	10.000	58.642	5
549	146	156	.010	10.000	.010	10.000	58.642	5
550	146	157	.756	61.614	45.759	540.000	46.291	1
551	146	158	.010	10.000	.010	10.000	58.642	5
552	147	157	.010	10.000	.010	10.000	58.642	5
553	147	158	.756	61.614	45.759	540.000	46.291	1
554	147	159	.010	10.000	.010	10.000	58.642	5
555	148	158	.010	10.000	.010	10.000	58.642	5
556	148	159	.756	61.614	45.759	540.000	46.291	1
557	148	160	.010	10.000	.010	10.000	58.642	5
558	149	159	.010	10.000	.010	10.000	58.642	5
559	149	160	.756	61.614	45.759	540.000	46.291	1
560	149	161	.010	10.000	.010	10.000	58.642	5
561	150	160	.010	10.000	.010	10.000	58.642	5
562	150	161	.756	61.614	45.759	540.000	46.291	1
563	150	162	.010	10.000	.010	10.000	58.642	5
564	151	161	.010	10.000	.010	10.000	58.642	5
565	151	162	.756	61.614	45.759	540.000	46.291	1
566	151	163	.010	10.000	.010	10.000	58.642	5
567	152	162	.010	10.000	.010	10.000	58.642	5
568	152	163	.756	61.614	45.759	540.000	46.291	1
569	152	164	.010	10.000	.010	10.000	58.642	5
570	153	163	.010	10.000	.010	10.000	58.642	5
571	153	164	.756	61.614	45.759	540.000	46.291	1

572	153	165	.010	10.000	.110	10.000	58.642	5
573	154	164	.010	10.000	.110	10.000	58.642	5
574	154	165	.378	30.807	22.379	270.000	46.291	2
575	155	156	.972	79.227	8.180	694.363	36.000	3
576	156	157	.972	79.227	8.180	694.363	36.000	3
577	157	158	.972	79.227	8.180	694.363	36.000	3
578	158	159	.972	79.227	8.180	694.363	36.000	3
579	159	160	.972	79.227	8.180	694.363	36.000	3
580	160	161	.972	79.227	8.180	694.363	36.000	3
581	161	162	.972	79.227	8.180	694.363	36.000	3
582	162	163	.972	79.227	8.180	694.363	36.000	3
583	163	164	.972	79.227	8.180	694.363	36.000	3
584	164	165	.972	79.227	8.180	694.363	36.000	3
585	155	166	.378	30.807	22.379	270.000	46.291	2
586	155	167	.010	10.000	.010	10.000	58.642	5
587	156	166	.010	10.000	.110	10.000	58.642	5
588	156	167	.756	61.614	45.759	540.000	46.291	1
589	156	168	.010	10.000	.010	10.000	58.642	5
590	157	167	.010	10.000	.110	10.000	58.642	5
591	157	168	.756	61.614	45.759	540.000	46.291	1
592	157	169	.010	10.000	.010	10.000	58.642	5
593	158	169	.010	10.000	.110	10.000	58.642	5
594	158	169	.756	61.614	45.759	540.000	46.291	1
595	158	170	.010	10.000	.110	10.000	58.642	5
596	159	169	.010	10.000	.110	10.000	58.642	5
597	159	170	.756	61.614	45.759	540.000	46.291	1
598	159	171	.010	10.000	.110	10.000	58.642	5
599	160	170	.010	10.000	.110	10.000	58.642	5
600	160	171	.756	61.614	45.759	540.000	46.291	1
601	160	172	.010	10.000	.110	10.000	58.642	5
602	161	171	.010	10.000	.110	10.000	58.642	5
603	161	172	.756	61.614	45.759	540.000	46.291	1
604	161	173	.010	10.000	.110	10.000	58.642	5
605	162	172	.010	10.000	.110	10.000	58.642	5
606	162	173	.756	61.614	45.759	540.000	46.291	1
607	162	174	.010	10.000	.110	10.000	58.642	5
608	163	173	.010	10.000	.110	10.000	58.642	5
609	163	174	.756	61.614	45.759	540.000	46.291	1
610	163	175	.010	10.000	.110	10.000	58.642	5
611	164	174	.010	10.000	.110	10.000	58.642	5
612	164	175	.756	61.614	45.759	540.000	46.291	1
613	164	176	.010	10.000	.110	10.000	58.642	5
614	165	175	.010	10.000	.110	10.000	58.642	5
615	165	176	.378	30.807	22.379	270.000	46.291	2
616	166	167	.972	79.227	8.180	694.363	36.000	3
617	167	168	.972	79.227	8.180	694.363	36.000	3
618	168	169	.972	79.227	8.180	694.363	36.000	3
619	169	170	.972	79.227	8.180	694.363	36.000	3
620	170	171	.972	79.227	8.180	694.363	36.000	3
621	171	172	.972	79.227	8.180	694.363	36.000	3
622	172	173	.972	79.227	8.180	694.363	36.000	3
623	173	174	.972	79.227	8.180	694.363	36.000	3
624	174	175	.972	79.227	8.180	694.363	36.000	3
625	175	176	.972	79.227	8.180	694.363	36.000	3
626	166	177	.378	30.807	22.379	270.000	46.291	2
627	166	178	.010	10.000	.010	10.000	58.642	5
628	167	177	.010	10.000	.110	10.000	58.642	5
629	167	178	.756	61.614	45.759	540.000	46.291	1
630	167	179	.010	10.000	.010	10.000	58.642	5
631	168	178	.010	10.000	.110	10.000	58.642	5
632	168	179	.756	61.614	45.759	540.000	46.291	1
633	168	180	.010	10.000	.110	10.000	58.642	5
634	169	179	.010	10.000	.110	10.000	58.642	5
635	169	180	.756	61.614	45.759	540.000	46.291	1

636	169	191	.010	10.000	.010	10.000	58.642	5
637	170	180	.010	10.000	.010	10.000	58.642	5
638	170	181	.756	61.614	45.759	540.000	46.291	1
639	170	192	.010	10.000	.010	10.000	58.642	5
640	171	181	.010	10.000	.010	10.000	58.642	5
641	171	182	.756	61.614	45.759	540.000	46.291	1
642	171	193	.010	10.000	.010	10.000	58.642	5
643	172	192	.010	10.000	.010	10.000	58.642	5
644	172	193	.756	61.614	45.759	540.000	46.291	1
645	172	194	.010	10.000	.010	10.000	58.642	5
646	173	193	.010	10.000	.010	10.000	58.642	5
647	173	194	.756	61.614	45.759	540.000	46.291	1
648	173	195	.010	10.000	.010	10.000	58.642	5
649	174	184	.010	10.000	.010	10.000	58.642	5
650	174	195	.756	61.614	45.759	540.000	46.291	1
651	174	196	.010	10.000	.010	10.000	58.642	5
652	175	195	.010	10.000	.010	10.000	58.642	5
653	175	196	.756	61.614	45.759	540.000	46.291	1
654	175	187	.010	10.000	.010	10.000	58.642	5
655	176	196	.010	10.000	.010	10.000	58.642	5
656	176	187	.378	30.807	22.379	270.000	46.291	2
657	177	178	.972	79.227	8.180	694.363	36.000	3
658	178	179	.972	79.227	8.180	694.363	36.000	3
659	179	180	.972	79.227	8.180	694.363	36.000	3
660	180	181	.972	79.227	8.180	694.363	36.000	3
661	181	182	.972	79.227	8.180	694.363	36.000	3
662	182	183	.972	79.227	8.180	694.363	36.000	3
663	183	184	.972	79.227	8.180	694.363	36.000	3
664	184	185	.972	79.227	8.180	694.363	36.000	3
665	185	186	.972	79.227	8.180	694.363	36.000	3
666	186	187	.972	79.227	8.180	694.363	36.000	3
667	177	188	.378	30.807	22.379	270.000	46.291	2
668	177	189	.010	10.000	.010	10.000	58.642	5
669	178	188	.010	10.000	.010	10.000	58.642	5
670	179	189	.756	61.614	45.759	540.000	46.291	1
671	178	190	.010	10.000	.010	10.000	58.642	5
672	179	189	.010	10.000	.010	10.000	58.642	5
673	179	190	.756	61.614	45.759	540.000	46.291	1
674	179	191	.010	10.000	.010	10.000	58.642	5
675	180	190	.010	10.000	.010	10.000	58.642	5
676	180	191	.756	61.614	45.759	540.000	46.291	1
677	180	192	.010	10.000	.010	10.000	58.642	5
678	181	191	.010	10.000	.010	10.000	58.642	5
679	181	192	.756	61.614	45.759	540.000	46.291	1
680	181	193	.010	10.000	.010	10.000	58.642	5
681	182	192	.010	10.000	.010	10.000	58.642	5
682	182	193	.756	61.614	45.759	540.000	46.291	1
683	182	194	.010	10.000	.010	10.000	58.642	5
684	183	193	.010	10.000	.010	10.000	58.642	5
685	183	194	.756	61.614	45.759	540.000	46.291	1
686	183	195	.010	10.000	.010	10.000	58.642	5
687	184	194	.010	10.000	.010	10.000	58.642	5
688	184	195	.756	61.614	45.759	540.000	46.291	1
689	184	196	.010	10.000	.010	10.000	58.642	5
690	185	195	.010	10.000	.010	10.000	58.642	5
691	185	196	.756	61.614	45.759	540.000	46.291	1
692	185	197	.010	10.000	.010	10.000	58.642	5
693	186	196	.010	10.000	.010	10.000	58.642	5
694	186	197	.756	61.614	45.759	540.000	46.291	1
695	186	198	.010	10.000	.010	10.000	58.642	5
696	187	197	.010	10.000	.010	10.000	58.642	5
697	187	198	.378	30.807	22.379	270.000	46.291	2
698	188	189	.972	79.227	8.180	694.363	36.000	3
699	189	190	.972	79.227	8.180	694.363	36.000	3

700	190	191	.972	79.227	8.180	694.363	36.000	3
701	191	192	.972	79.227	8.180	694.363	36.000	3
702	192	193	.972	79.227	8.180	694.363	36.000	3
703	193	194	.972	79.227	8.180	694.363	36.000	3
704	194	195	.972	79.227	8.180	694.363	36.000	3
705	195	196	.972	79.227	8.180	694.363	36.000	3
706	196	197	.972	79.227	8.180	694.363	36.000	3
707	197	198	.972	79.227	8.180	694.363	36.000	3
708	188	199	.378	30.807	22.979	270.000	46.291	2
709	188	200	.010	10.000	.010	10.000	58.642	5
710	189	199	.010	10.000	.010	10.000	58.642	5
711	189	200	.756	61.614	45.759	540.000	46.291	1
712	189	201	.010	10.000	.010	10.000	58.642	5
713	190	200	.010	10.000	.010	10.000	58.642	5
714	190	201	.756	61.614	45.759	540.000	46.291	1
715	190	202	.010	10.000	.010	10.000	58.642	5
716	191	201	.010	10.000	.010	10.000	58.642	5
717	191	202	.756	61.614	45.759	540.000	46.291	1
718	191	203	.010	10.000	.010	10.000	58.642	5
719	192	202	.010	10.000	.010	10.000	58.642	5
720	192	203	.756	61.614	45.759	540.000	46.291	1
721	192	204	.010	10.000	.010	10.000	58.642	5
722	193	203	.010	10.000	.010	10.000	58.642	5
723	193	204	.756	61.614	45.759	540.000	46.291	1
724	193	205	.010	10.000	.010	10.000	58.642	5
725	194	204	.010	10.000	.010	10.000	58.642	5
726	194	205	.756	61.614	45.759	540.000	46.291	1
727	194	206	.010	10.000	.010	10.000	58.642	5
728	195	205	.010	10.000	.010	10.000	58.642	5
729	195	206	.756	61.614	45.759	540.000	46.291	1
730	195	207	.010	10.000	.010	10.000	58.642	5
731	196	206	.010	10.000	.010	10.000	58.642	5
732	196	207	.756	61.614	45.759	540.000	46.291	1
733	196	208	.010	10.000	.010	10.000	58.642	5
734	197	207	.010	10.000	.010	10.000	58.642	5
735	197	208	.756	61.614	45.759	540.000	46.291	1
736	197	209	.010	10.000	.010	10.000	58.642	5
737	198	208	.010	10.000	.010	10.000	58.642	5
738	198	209	.378	30.807	22.979	270.000	46.291	2
739	199	200	.972	79.227	8.180	694.363	36.000	3
740	200	201	.972	79.227	8.180	694.363	36.000	3
741	201	202	.972	79.227	8.180	694.363	36.000	3
742	202	203	.972	79.227	8.180	694.363	36.000	3
743	203	204	.972	79.227	8.180	694.363	36.000	3
744	204	205	.972	79.227	8.180	694.363	36.000	3
745	205	206	.972	79.227	8.180	694.363	36.000	3
746	206	207	.972	79.227	8.180	694.363	36.000	3
747	207	208	.972	79.227	8.180	694.363	36.000	3
748	208	209	.972	79.227	8.180	694.363	36.000	3
749	199	210	.378	30.807	22.979	270.000	46.291	2
750	199	211	.010	10.000	.010	10.000	58.642	5
751	200	210	.010	10.000	.010	10.000	58.642	5
752	200	211	.756	61.614	45.759	540.000	46.291	1
753	200	212	.010	10.000	.010	10.000	58.642	5
754	201	211	.010	10.000	.010	10.000	58.642	5
755	201	212	.756	61.614	45.759	540.000	46.291	1
756	201	213	.010	10.000	.010	10.000	58.642	5
757	202	212	.010	10.000	.010	10.000	58.642	5
758	202	213	.756	61.614	45.759	540.000	46.291	1
759	202	214	.010	10.000	.010	10.000	58.642	5
760	203	213	.010	10.000	.010	10.000	58.642	5
761	203	214	.756	61.614	45.759	540.000	46.291	1
762	203	215	.010	10.000	.010	10.000	58.642	5
763	204	214	.010	10.000	.010	10.000	58.642	5

764	204	215	.756	61.614	45.759	540.000	46.291	1
765	204	216	.010	10.000	.010	10.000	58.642	5
766	205	215	.010	10.000	.010	10.000	58.642	5
767	205	216	.756	61.614	45.759	540.000	46.291	1
768	205	217	.010	10.000	.010	10.000	58.642	5
769	206	216	.010	10.000	.010	10.000	58.642	5
770	206	217	.756	61.614	45.759	540.000	46.291	1
771	206	219	.010	10.000	.010	10.000	58.642	5
772	207	217	.010	10.000	.010	10.000	58.642	5
773	207	219	.756	61.614	45.759	540.000	46.291	1
774	207	219	.010	10.000	.010	10.000	58.642	5
775	208	219	.010	10.000	.010	10.000	58.642	5
776	208	219	.756	61.614	45.759	540.000	46.291	1
777	208	220	.010	10.000	.010	10.000	58.642	5
778	209	219	.010	10.000	.010	10.000	58.642	5
779	209	220	.378	30.807	22.379	270.000	46.291	2
780	210	211	.972	79.227	8.180	694.363	36.000	3
781	211	212	.972	79.227	8.180	694.363	36.000	3
782	212	213	.972	79.227	8.180	694.363	36.000	3
783	213	214	.972	79.227	8.180	694.363	36.000	3
784	214	215	.972	79.227	8.180	694.363	36.000	3
785	215	216	.972	79.227	8.180	694.363	36.000	3
786	216	217	.972	79.227	8.180	694.363	36.000	3
787	217	219	.972	79.227	8.180	694.363	36.000	3
788	218	219	.972	79.227	8.180	694.363	36.000	3
789	219	220	.972	79.227	8.180	694.363	36.000	3
790	210	221	.378	30.807	22.379	270.000	46.291	2
791	210	222	.010	10.000	.010	10.000	58.642	5
792	211	221	.010	10.000	.010	10.000	58.642	5
793	211	222	.756	61.614	45.759	540.000	46.291	1
794	211	223	.010	10.000	.010	10.000	58.642	5
795	212	222	.010	10.000	.010	10.000	58.642	5
796	212	223	.756	61.614	45.759	540.000	46.291	1
797	212	224	.010	10.000	.010	10.000	58.642	5
798	213	223	.010	10.000	.010	10.000	58.642	5
799	213	224	.756	61.614	45.759	540.000	46.291	1
800	213	225	.010	10.000	.010	10.000	58.642	5
801	214	224	.010	10.000	.010	10.000	58.642	5
802	214	225	.756	61.614	45.759	540.000	46.291	1
803	214	226	.010	10.000	.010	10.000	58.642	5
804	215	225	.010	10.000	.010	10.000	58.642	5
805	215	226	.756	61.614	45.759	540.000	46.291	1
806	215	227	.010	10.000	.010	10.000	58.642	5
807	216	226	.010	10.000	.010	10.000	58.642	5
808	216	227	.756	61.614	45.759	540.000	46.291	1
809	216	229	.010	10.000	.010	10.000	58.642	5
810	217	227	.010	10.000	.010	10.000	58.642	5
811	217	228	.756	61.614	45.759	540.000	46.291	1
812	217	229	.010	10.000	.010	10.000	58.642	5
813	218	228	.010	10.000	.010	10.000	58.642	5
814	218	229	.756	61.614	45.759	540.000	46.291	1
815	218	230	.010	10.000	.010	10.000	58.642	5
816	219	229	.010	10.000	.010	10.000	58.642	5
817	219	230	.756	61.614	45.759	540.000	46.291	1
818	219	231	.010	10.000	.010	10.000	58.642	5
819	220	230	.010	10.000	.010	10.000	58.642	5
820	220	231	.378	30.807	22.379	270.000	46.291	2
821	221	222	.486	39.613	4.090	347.181	36.000	4
822	222	223	.486	39.613	4.090	347.181	36.000	4
823	223	224	.486	39.613	4.090	347.181	36.000	4
824	224	225	.486	39.613	4.090	347.181	36.000	4
825	225	226	.486	39.613	4.090	347.181	36.000	4
826	226	227	.486	39.613	4.090	347.181	36.000	4
827	227	228	.486	39.613	4.090	347.181	36.000	4
828	228	229	.486	39.613	4.090	347.181	36.000	4
829	229	230	.486	39.613	4.090	347.181	36.000	4
830	230	231	.486	39.613	4.090	347.181	36.000	4

PROBLEM NUMBER 5

THESE ARE THE ELASTIC NODAL DISPLACEMENTS

NODE	DELTA X	DELTA Y	DELTA Z	THETA X	THETA Y	THETA Z
1	0.	0.	0.	0.	-7.76342E-03	
2	0.	0.	0.	0.	-8.21096E-03	
3	0.	0.	0.	0.	-8.70662E-03	
4	0.	0.	0.	0.	-9.05075E-03	
5	0.	0.	0.	0.	-9.25902E-03	
6	0.	0.	0.	0.	-9.31233E-03	
7	0.	0.	0.	0.	-9.25914E-03	
8	0.	0.	0.	0.	-9.05065E-03	
9	0.	0.	0.	0.	-8.70595E-03	
10	0.	0.	0.	0.	-8.21240E-03	
11	0.	0.	0.	0.	-7.76411E-03	
12	-3.42230E-01	-4.27863E-04	2.09870E-02	4.64779E-05	-6.69057E-03	
13	-3.62242E-01	-3.81915E-04	2.26243E-02	4.33631E-05	-7.09691E-03	
14	-3.84183E-01	-3.14901E-04	2.40288E-02	3.39546E-05	-7.53019E-03	
15	-3.99365E-01	-2.27447E-04	2.50168E-02	2.05631E-05	-7.82777E-03	
16	-4.03493E-01	-1.26208E-04	2.55230E-02	8.55063E-06	-8.00359E-03	
17	-4.10829E-01	-1.81408E-05	2.56725E-02	-1.11059E-10	-8.04863E-03	
18	-4.09499E-01	8.99309E-05	2.55228E-02	-8.56729E-06	-8.06366E-03	
19	-3.99359E-01	1.91071E-04	2.50159E-02	2.05609E-05	-7.82764E-03	
20	-3.84150E-01	2.78485E-04	2.40292E-02	-3.38916E-05	-7.52956E-03	
21	-3.62304E-01	3.45499E-04	2.26275E-02	-4.32743E-05	-7.09816E-03	
22	-3.42264E-01	3.91475E-04	2.09934E-02	-4.63889E-05	-6.69149E-03	
23	-5.86049E-01	-6.19759E-04	7.30959E-02	1.51934E-04	-3.84476E-03	
24	-6.21813E-01	-5.64256E-04	7.85267E-02	1.48212E-04	-4.12357E-03	
25	-6.59906E-01	-4.71277E-04	8.34411E-02	1.18165E-04	-4.39020E-03	
26	-6.85937E-01	-3.44540E-04	8.68094E-02	7.01262E-05	-4.56117E-03	
27	-7.01291E-01	-1.95625E-04	8.85735E-02	2.95436E-05	-4.65330E-03	
28	-7.05196E-01	-3.61055E-05	8.90861E-02	-1.63765E-09	-4.67562E-03	
29	-7.01296E-01	1.23413E-04	8.85729E-02	-2.95875E-05	-4.65326E-03	
30	-6.85925E-01	2.72311E-04	8.64064E-02	-7.01934E-05	-4.56100E-03	
31	-6.59854E-01	3.99966E-04	8.34403E-02	-1.17870E-04	-4.38993E-03	
32	-6.21936E-01	4.91927E-04	7.85416E-02	-1.47834E-04	-4.12477E-03	
33	-5.86135E-01	5.47465E-04	7.31181E-02	-1.51424E-04	-3.84619E-03	
34	-6.72590E-01	-7.03043E-04	1.02116E-01	2.38900E-04	1.52529E-05	
35	-7.16052E-01	-6.43510E-04	1.10572E-01	2.26344E-04	-4.91220E-05	
36	-7.61896E-01	-5.39103E-04	1.17864E-01	1.69443E-04	-8.34009E-05	
37	-7.93651E-01	-3.96768E-04	1.22516E-01	9.24349E-05	-7.64420E-05	
38	-8.07782E-01	-2.30291E-04	1.24754E-01	3.58081E-05	-6.13593E-05	
39	-8.12001E-01	-5.26003E-05	1.25340E-01	-3.36255E-08	-5.24292E-05	
40	-8.07783E-01	1.25079E-04	1.24751E-01	-3.59183E-05	-6.14021E-05	
41	-7.90631E-01	2.91509E-04	1.22510E-01	-9.24892E-05	-7.62334E-05	
42	-7.61839E-01	4.33721E-04	1.17864E-01	-1.69803E-04	-8.34396E-05	
43	-7.16225E-01	5.38079E-04	1.10605E-01	-2.25504E-04	-5.02614E-05	
44	-6.72747E-01	5.97643E-04	1.02170E-01	-2.38355E-04	1.33727E-05	
45	-5.93699E-01	-6.54383E-04	4.66644E-02	1.82123E-04	4.11950E-03	
46	-6.34495E-01	-5.97939E-04	5.29560E-02	1.59360E-04	4.34055E-03	
47	-6.75786E-01	-5.00336E-04	5.75609E-02	8.99985E-05	4.56848E-03	
48	-7.01573E-01	-3.71049E-04	5.94833E-02	2.59065E-05	4.76852E-03	
49	-7.16191E-01	-2.22773E-04	5.98847E-02	8.81539E-07	4.88400E-03	
50	-7.19416E-01	-6.60875E-05	5.98302E-02	-1.19482E-07	4.92531E-03	
51	-7.16185E-01	9.05735E-05	5.98763E-02	-1.09941E-06	4.88424E-03	
52	-7.01545E-01	2.34768E-04	5.94709E-02	-2.58288E-05	4.76876E-03	
53	-6.75731E-01	3.67886E-04	5.75667E-02	-8.89050E-05	4.56838E-03	
54	-6.34715E-01	4.65405E-04	5.30149E-02	-1.57862E-04	4.33938E-03	
55	-5.93935E-01	5.21871E-04	4.67692E-02	-1.80961E-04	4.11736E-03	
56	-3.86356E-01	-4.64478E-04	-1.37658E-01	-1.56582E-04	7.71976E-03	
57	-4.14412E-01	-4.19250E-04	-1.43421E-01	-1.67553E-04	8.29568E-03	
58	-4.43462E-01	-3.48933E-04	-1.49948E-01	-1.95955E-04	8.73735E-03	

59	-4.59366E-01	-2.63406E-04	-1.56814E-01	-1.63556E-04	9.09894E-03
60	-4.69789E-01	-1.70458E-04	-1.61181E-01	-9.51333E-05	9.27986E-03
61	-4.70107E-01	-7.47475E-05	-1.62871E-01	-2.61792E-07	9.34147E-03
62	-4.69773E-01	2.09243E-05	-1.61198E-01	8.47625E-05	9.28016E-03
63	-4.59324E-01	1.13755E-04	-1.56835E-01	1.63824E-04	9.09925E-03
64	-4.43407E-01	1.99067E-04	-1.49936E-01	1.97636E-04	8.73732E-03
65	-4.14676E-01	2.69260E-04	-1.43329E-01	1.69926E-04	8.25451E-03
66	-3.86665E-01	3.14504E-04	-1.37486E-01	1.58719E-04	7.71760E-03
67	-1.17755E-01	-1.52349E-04	-4.59322E-01	-8.57003E-04	1.01344E-02
68	-1.26683E-01	-1.25923E-04	-4.89735E-01	-8.20523E-04	1.09246E-02
69	-1.33476E-01	-1.01737E-04	-5.17392E-01	-6.99321E-04	1.16093E-02
70	-1.42524E-01	-9.66103E-05	-5.39587E-01	-4.53440E-04	1.20250E-02
71	-1.46141E-01	-7.99601E-05	-5.50045E-01	-2.07773E-04	1.22354E-02
72	-1.45525E-01	-7.67899E-05	-5.54010E-01	-4.48662E-07	1.22913E-02
73	-1.46117E-01	-7.40718E-05	-5.50074E-01	2.07185E-04	1.22367E-02
74	-1.42477E-01	-6.71714E-05	-5.38621E-01	4.53881E-04	1.20254E-02
75	-1.39415E-01	-5.23147E-05	-5.17374E-01	7.01406E-04	1.16094E-02
76	-1.26984E-01	-2.82819E-05	-4.89608E-01	8.23940E-04	1.09236E-02
77	-1.18126E-01	-1.49750E-06	-4.59076E-01	8.60227E-04	1.01325E-02
78	1.36422E-01	2.20049E-04	-8.81045E-01	-1.79240E-03	1.08101E-02
79	1.45703E-01	2.23505E-04	-9.45150E-01	-1.75664E-03	1.16113E-02
80	1.51294E-01	1.91227E-04	-1.00253E+00	-1.30425E-03	1.23896E-02
81	1.55663E-01	1.23120E-04	-1.03799E+00	-7.62077E-04	1.26433E-02
82	1.57658E-01	3.16196E-05	-1.05880E+00	-3.35782E-04	1.29173E-02
83	1.58560E-01	-7.06991E-05	-1.06326E+00	-6.57037E-07	1.28633E-02
84	1.57690E-01	-1.73081E-04	-1.05884E+00	3.34912E-04	1.29176E-02
85	1.55720E-01	-2.64737E-04	-1.03804E+00	7.62614E-04	1.26438E-02
86	1.51367E-01	-3.33183E-04	-1.00252E+00	1.30735E-03	1.23899E-02
87	1.45373E-01	-3.65642E-04	-9.44992E-01	1.76113E-03	1.16106E-02
88	1.36010E-01	-3.62170E-04	-8.80730E-01	1.79675E-03	1.08096E-02
89	3.15889E-01	5.37565E-04	-1.32120E+00	-2.51751E-03	9.34110E-03
90	3.34140E-01	5.21655E-04	-1.41330E+00	-2.63839E-03	9.72221E-03
91	3.50348E-01	4.40791E-04	-1.49915E+00	-1.75754E-03	1.01237E-02
92	3.57666E-01	3.02743E-04	-1.54125E+00	-9.93649E-04	1.02370E-02
93	3.63814E-01	1.31273E-04	-1.57317E+00	-4.35796E-04	1.04045E-02
94	3.63640E-01	-5.54975E-05	-1.57410E+00	-8.35035E-07	1.03650E-02
95	3.63851E-01	-2.42337E-04	-1.57322E+00	4.34627E-04	1.04048E-02
96	3.57729E-01	-4.13995E-04	-1.54132E+00	9.94144E-04	1.02374E-02
97	3.50439E-01	-5.51496E-04	-1.49915E+00	1.76125E-03	1.01241E-02
98	3.33791E-01	-6.33461E-04	-1.41312E+00	2.64375E-03	9.72192E-03
99	3.15461E-01	-6.49344E-04	-1.32084E+00	2.52251E-03	9.34048E-03
100	3.95901E-01	6.33390E-04	-1.66263E+00	-2.61115E-03	5.35678E-03
101	4.12480E-01	6.11481E-04	-1.75764E+00	-2.69359E-03	5.08792E-03
102	4.24525E-01	5.19247E-04	-1.84553E+00	-1.85670E-03	4.79774E-03
103	4.36887E-01	3.66324E-04	-1.89200E+00	-1.07621E-03	4.85293E-03
104	4.43198E-01	1.76171E-04	-1.92526E+00	-4.82083E-04	4.76367E-03
105	4.43601E-01	-3.10558E-05	-1.92806E+00	-8.94100E-07	4.86492E-03
106	4.43234E-01	-2.38344E-04	-1.92532E+00	4.80716E-04	4.76366E-03
107	4.38951E-01	-4.28663E-04	-1.89208E+00	1.07647E-03	4.85309E-03
108	4.28637E-01	-5.81940E-04	-1.84555E+00	1.86057E-03	4.79823E-03
109	4.12116E-01	-6.74362E-04	-1.75747E+00	2.69929E-03	5.08821E-03
110	3.95474E-01	-6.96218E-04	-1.66226E+00	2.61629E-03	5.35728E-03
111	4.02463E-01	4.83958E-04	-1.76360E+00	-2.01257E-03	-1.48510E-03
112	4.15037E-01	4.71858E-04	-1.83552E+00	-1.96441E-03	-2.14498E-03
113	4.24703E-01	4.10748E-04	-1.90064E+00	-1.54924E-03	-2.74320E-03
114	4.36924E-01	3.01103E-04	-1.94520E+00	-9.78649E-04	-2.90989E-03
115	4.42556E-01	1.58559E-04	-1.97172E+00	-4.59343E-04	-3.07246E-03
116	4.43436E-01	0.	-1.97900E+00	-7.59791E-07	-3.01909E-03
117	4.42592E-01	-1.56720E-04	-1.97177E+00	4.58049E-04	-3.07277E-03
118	4.36986E-01	-2.97991E-04	-1.94528E+00	9.78522E-04	-2.91018E-03
119	4.28940E-01	-4.07095E-04	-1.90067E+00	1.55263E-03	-2.74292E-03
120	4.14656E-01	-4.67859E-04	-1.83537E+00	1.96966E-03	-2.14336E-03
121	4.03044E-01	-4.79755E-04	-1.76329E+00	2.01709E-03	-1.48341E-03
122	4.13192E-01	-2.44324E-04	-1.52881E+00	-1.11969E-03	-8.11412E-03

123	4.32315E-01	2.52266E-04	-1.56889E+00	-1.09871E-03	-8.77783E-03
124	4.47533E-01	2.41619E-04	-1.60697E+00	-9.98682E-04	-9.33303E-03
125	4.56725E-01	2.05880E-04	-1.63870E+00	-7.24331E-04	-9.67893E-03
126	4.62779E-01	1.50877E-04	-1.65814E+00	-3.67899E-04	-9.83801E-03
127	4.63782E-01	8.70352E-05	-1.65506E+00	-4.72715E-07	-9.88501E-03
128	4.62816E-01	2.60833E-05	-1.65817E+00	3.67085E-04	-9.83851E-03
129	4.56787E-01	-2.01916E-05	-1.63876E+00	7.23852E-04	-9.67974E-03
130	4.47700E-01	-4.08845E-05	-1.60701E+00	1.00058E-03	-9.33301E-03
131	4.31903E-01	-1.19005E-04	-1.56881E+00	1.10233E-03	-8.77610E-03
132	4.19769E-01	-1.13452E-04	-1.52859E+00	1.12345E-03	-8.11161E-03
133	5.24902E-01	-4.97642E-04	-1.07603E+00	-3.66674E-04	-1.14453E-02
134	5.42815E-01	-4.73649E-04	-1.08966E+00	-4.01093E-04	-1.19293E-02
135	5.62962E-01	-4.49639E-04	-1.10513E+00	-4.53228E-04	-1.23645E-02
136	5.75874E-01	-4.34633E-04	-1.12105E+00	-4.01908E-04	-1.27004E-02
137	5.83675E-01	-4.30543E-04	-1.13263E+00	-2.30827E-04	-1.28827E-02
138	5.85365E-01	-4.34533E-04	-1.13696E+00	-1.13720E-07	-1.29461E-02
139	5.83717E-01	-4.41329E-04	-1.13264E+00	2.30591E-04	-1.28833E-02
140	5.75942E-01	-4.45686E-04	-1.12106E+00	4.01918E-04	-1.27013E-02
141	5.62986E-01	-4.44409E-04	-1.10513E+00	4.53760E-04	-1.23645E-02
142	5.42228E-01	-4.99191E-04	-1.08963E+00	4.02447E-04	-1.19273E-02
143	5.24444E-01	-4.71679E-04	-1.07594E+00	3.68721E-04	-1.14423E-02
144	7.31391E-01	-6.72701E-04	-5.66987E-01	9.88755E-05	-1.18364E-02
145	7.55056E-01	-6.34129E-04	-5.64002E-01	5.09752E-05	-1.21133E-02
146	7.81209E-01	-5.77023E-04	-5.63983E-01	-5.18087E-05	-1.23932E-02
147	7.9927 8E-01	-5.09907E-04	-5.67277E-01	-1.16065E-04	-1.26404E-02
148	8.10083E-01	-4.34940E-04	-5.71262E-01	-9.00466E-05	-1.28026E-02
149	8.12892E-01	-3.67166E-04	-5.72992E-01	2.05167E-07	-1.28594E-02
150	8.10173E-01	-2.95437E-04	-5.71248E-01	9.03679E-05	-1.28050E-02
151	7.99357E-01	-2.24592E-04	-5.67259E-01	1.15916E-04	-1.26409E-02
152	7.81215E-01	-1.57608E-04	-5.63989E-01	5.04325E-05	-1.23929E-02
153	7.54459E-01	-1.00817E-04	-5.64058E-01	-5.15852E-05	-1.21119E-02
154	7.30864E-01	-6.25553E-05	-5.67027E-01	-9.78735E-05	-1.18333E-02
155	9.93279E-01	-7.25143E-04	-1.30062E-01	3.06077E-04	-9.82056E-03
156	1.02088E+00	-6.78116E-04	-1.19468E-01	2.69908E-04	-9.91961E-03
157	1.05169E+00	-6.03719E-04	-1.11355E-01	1.73946E-04	-1.00461E-02
158	1.07437E+00	-5.09239E-04	-1.07011E-01	7.31350E-05	-1.01839E-02
159	1.08839E+00	-3.99667E-04	-1.05574E-01	1.59016E-05	-1.02902E-02
160	1.09240E+00	-2.85069E-04	-1.05369E-01	4.07459E-07	-1.03305E-02
161	1.09944E+00	-1.70405E-04	-1.05547E-01	-1.53419E-05	-1.02914E-02
162	1.07446E+00	-6.16468E-05	-1.06990E-01	-7.36099E-05	-1.01840E-02
163	1.05167E+00	3.41209E-05	-1.11372E-01	-1.76196E-04	-1.00455E-02
164	1.02027E+00	1.09547E-04	-1.19573E-01	-2.71783E-04	-9.91897E-03
165	9.92680E-01	1.55460E-04	-1.30202E-01	-3.06592E-04	-9.81845E-03
166	1.23098E+00	-7.06557E-04	1.57081E-01	3.32409E-04	-6.04791E-03
167	1.25921E+00	-6.55801E-04	1.68854E-01	3.14960E-04	-6.01309E-03
168	1.29169E+00	-5.75528E-04	1.79183E-01	2.50450E-04	-6.01249E-03
169	1.31692E+00	-4.69156E-04	1.86574E-01	1.57473E-04	-6.04645E-03
170	1.33307E+00	-3.44679E-04	1.90588E-01	7.06956E-05	-6.08659E-03
171	1.33798E+00	-2.11099E-04	1.91819E-01	4.39909E-07	-6.10474E-03
172	1.33313E+00	-7.74392E-05	1.90616E-01	-7.01412E-05	-6.08661E-03
173	1.31700E+00	4.72665E-05	1.86564E-01	-1.58111E-04	-6.04668E-03
174	1.29166E+00	1.53966E-04	1.79157E-01	-2.52915E-04	-6.01219E-03
175	1.25868E+00	2.34318E-04	1.69729E-01	-3.17329E-04	-6.01311E-03
176	1.23033E+00	2.84991E-04	1.56896E-01	-3.33722E-04	-6.04729E-03
177	1.35716E+00	-6.35830E-04	2.73032E-01	2.59206E-04	-1.24113E-03
178	1.38247E+00	-5.85116E-04	2.82375E-01	2.58590E-04	-1.12006E-03
179	1.41316E+00	-5.07630E-04	2.91279E-01	2.27754E-04	-1.02777E-03
180	1.43803E+00	-4.04001E-04	2.98325E-01	1.60382E-04	-9.76695E-04
181	1.45445E+00	-2.81165E-04	3.02663E-01	7.99566E-05	-9.55658E-04
182	1.45961E+00	-1.48291E-04	3.04088E-01	3.44188E-07	-9.51656E-04
183	1.45450E+00	-1.53368E-05	3.02685E-01	-7.95216E-05	-9.55379E-04
184	1.43810E+00	1.07732E-04	2.98347E-01	-1.60942E-04	-9.76346E-04
185	1.41312E+00	2.11687E-04	2.91253E-01	-2.29989E-04	-1.02777E-03
186	1.38188E+00	2.89268E-04	2.82256E-01	-2.60803E-04	-1.12096E-03

187	1.35651E+00	3.39912E-04	2.72957E-01	-2.60464E-04	-1.24221E-03
188	1.30220E+00	-5.31373E-04	2.46938E-01	1.56152E-04	3.83466E-03
189	1.32187E+00	-4.83451E-04	2.52681E-01	1.64900E-04	3.99511E-03
190	1.34764E+00	-4.14616E-04	2.58604E-01	1.56983E-04	4.14653E-03
191	1.36918E+00	-3.23342E-04	2.63590E-01	1.16867E-04	4.26057E-03
192	1.38377E+00	-2.15008E-04	2.66822E-01	6.08401E-05	4.32958E-03
193	1.39941E+00	-9.75705E-05	2.67912E-01	2.05224E-07	4.35126E-03
194	1.39381E+00	1.99357E-05	2.66835E-01	-6.05620E-05	4.32995E-03
195	1.36924E+00	1.28471E-04	2.63604E-01	-1.17209E-04	4.26095E-03
196	1.34760E+00	2.20037E-04	2.58584E-01	-1.58651E-04	4.14624E-03
197	1.32134E+00	2.83954E-04	2.52591E-01	-1.66523E-04	3.99309E-03
198	1.30163E+00	3.36806E-04	2.46811E-01	-1.56892E-04	3.83197E-03
199	1.03495E+00	-4.09239E-04	1.43247E-01	7.05449E-05	8.39554E-03
200	1.04773E+00	-3.65823E-04	1.45891E-01	7.83696E-05	8.55602E-03
201	1.06621E+00	-3.08840E-04	1.48798E-01	7.88623E-05	8.74235E-03
202	1.08194E+00	-2.35807E-04	1.51339E-01	6.05532E-05	8.89647E-03
203	1.09282E+00	-1.50245E-04	1.53834E-01	3.22208E-05	8.99912E-03
204	1.03627E+00	-5.79315E-05	1.53612E-01	9.19955E-08	9.03227E-03
205	1.09284E+00	3.44297E-05	1.53040E-01	-3.20365E-05	8.99947E-03
206	1.08198E+00	1.20137E-04	1.51746E-01	-6.07055E-05	8.89731E-03
207	1.06618E+00	1.93436E-04	1.48787E-01	-7.97610E-05	8.74196E-03
208	1.04732E+00	2.50429E-04	1.45843E-01	-7.92211E-05	8.55267E-03
209	1.03453E+00	2.93773E-04	1.43181E-01	-7.08437E-05	8.39158E-03
210	5.75808E-01	-2.76119E-04	3.94502E-02	2.04326E-05	1.16600E-02
211	5.81859E-01	-2.38311E-04	4.02011E-02	2.14183E-05	1.17999E-02
212	5.91485E-01	-1.95218E-04	4.09761E-02	2.11939E-05	1.20045E-02
213	5.99745E-01	-1.44271E-04	4.16745E-02	1.67880E-05	1.21737E-02
214	6.05537E-01	-8.71630E-05	4.21425E-02	8.99176E-06	1.23011E-02
215	6.07361E-01	-2.66904E-05	4.23070E-02	2.75833E-08	1.23397E-02
216	6.05548E-01	3.38039E-05	4.21443E-02	-8.95026E-06	1.23014E-02
217	5.99766E-01	9.09864E-05	4.16762E-02	-1.68574E-05	1.21801E-02
218	5.91476E-01	1.42064E-04	4.09724E-02	-2.13969E-05	1.20043E-02
219	5.81630E-01	1.85174E-04	4.01894E-02	-2.16178E-05	1.17952E-02
220	5.75581E-01	2.22920E-04	3.94326E-02	-2.05719E-05	1.16552E-02
221	0.	0.	0.	0.	1.28712E-02
222	0.	0.	0.	0.	1.29946E-02
223	0.	0.	0.	0.	1.32092E-02
224	0.	0.	0.	0.	1.33902E-02
225	0.	0.	0.	0.	1.35178E-02
226	0.	0.	0.	0.	1.35578E-02
227	0.	0.	0.	0.	1.35180E-02
228	0.	0.	0.	0.	1.33907E-02
229	0.	0.	0.	0.	1.32090E-02
230	0.	0.	0.	0.	1.29935E-02
231	0.	0.	0.	0.	1.28662E-02

THESE ARE THE ELASTIC FORCES

MEMBER NO.	MOM. AT J END	MOM. AT K END	SHEAR	AXIAL
1	0.	0.	0.	0.
2	0.	0.	0.	0.
3	0.	0.	0.	0.
4	0.	0.	0.	0.
5	0.	0.	0.	0.
6	0.	0.	0.	0.
7	0.	0.	0.	0.
8	0.	0.	0.	0.
9	0.	0.	0.	0.

10	0.	0.	0.	0.
11	1.24017E-04	-3.18159E+01	-6.87307E-01	1.45237E+00
12	-1.23550E-03	9.92302E-04	3.79901E-05	2.48912E-02
13	-2.51110E-03	4.76476E-04	5.09463E-05	2.25985E-02
14	3.69572E-04	-6.60815E+01	-1.42754E+00	2.87436E+00
15	-1.17071E-03	8.17153E-04	3.38985E-05	2.59777E-02
16	-2.60305E-03	5.08293E-04	5.30569E-05	2.24923E-02
17	4.06555E-04	-6.97776E+01	-1.50738E+00	3.03171E+00
18	-1.44721E-03	7.53941E-04	3.75356E-05	2.65361E-02
19	-2.46249E-03	5.55132E-04	5.14587E-05	2.39998E-02
20	4.19118E-04	-7.25361E+01	-1.56697E+00	3.13278E+00
21	-1.71292E-03	7.24499E-04	4.15646E-05	2.70725E-02
22	-2.34965E-03	5.70383E-04	5.14998E-05	2.51075E-02
23	4.36540E-04	-7.44607E+01	-1.60855E+00	3.23643E+00
24	-1.99933E-03	7.56219E-04	4.69996E-05	2.68713E-02
25	-2.17957E-03	7.49417E-04	4.99302E-05	2.62797E-02
26	4.36043E-04	-7.49517E+01	-1.61915E+00	3.25318E+00
27	-2.16445E-03	7.33192E-04	4.94127E-05	2.63964E-02
28	-2.01444E-03	7.71251E-04	4.75043E-05	2.67570E-02
29	4.36626E-04	-7.44635E+01	-1.60861E+00	3.23672E+00
30	-2.33535E-03	6.55854E-04	5.10081E-05	2.52233E-02
31	-1.72773E-03	7.39660E-04	4.20757E-05	2.69606E-02
32	4.19213E-04	-7.25375E+01	-1.56700E+00	3.13298E+00
33	-2.44863E-03	5.41411E-04	5.09983E-05	2.41021E-02
34	-1.46086E-03	7.68226E-04	3.80119E-05	2.64235E-02
35	4.06122E-04	-6.97668E+01	-1.50715E+00	3.03025E+00
36	-2.5850AE-03	4.93416E-04	5.24969E-05	2.26144E-02
37	-1.18859E-03	9.32306E-04	3.44618E-05	2.59513E-02
38	3.70000E-04	-6.60868E+01	-1.42765E+00	2.87529E+00
39	-2.49749E-03	4.63230E-04	5.04883E-05	2.26999E-02
40	-1.24857E-03	1.00515E-03	3.94321E-05	2.47945E-02
41	1.25328E-04	-3.18089E+01	-6.87155E-01	1.45148E+00
42	1.63674E-03	-4.41015E-02	-1.27051E-03	-3.72224E-02
43	-4.95360E-02	-7.87333E-02	-8.11036E-04	-5.42871E-02
44	-8.37743E-02	-9.87977E-02	-4.17315E-04	-7.08462E-02
45	-1.02171E-01	-6.16499E-02	1.12422E-03	-8.20173E-02
46	-6.32742E-02	-5.33011E-02	2.77030E-04	-8.75037E-02
47	-5.33302E-02	-6.34692E-02	-2.81639E-04	-8.75073E-02
48	-6.19001E-02	-1.01613E-01	-1.10313E-03	-8.20119E-02
49	-9.83362E-02	-9.34061E-02	4.14725E-04	-7.08128E-02
50	-7.34318E-02	-4.94863E-02	8.04043E-04	-5.42869E-02
51	-4.41167E-02	1.65402E-03	1.27141E-03	-3.72452E-02
52	-3.18152E+01	-5.25782E+01	-4.48532E-01	1.53048E+00
53	-2.20385E-03	-4.35037E-03	-3.66039E-05	3.80555E-02
54	-8.02973E-03	-2.60059E-03	9.25816E-05	1.20519E-02
55	-6.60785E+01	-1.10766E+02	-9.54560E-01	3.05608E+00
56	-1.45284E-03	-5.37596E-03	-6.00787E-05	4.29843E-02
57	-8.67707E-03	-2.46351E-03	1.05958E-04	9.23801E-03
58	-6.97741E+01	-1.16458E+02	-1.00849E+00	3.23147E+00
59	-3.14163E-03	-5.23754E-03	-3.57410E-05	3.80423E-02
60	-7.80338E-03	-3.26516E-03	7.73890E-05	1.54362E-02
61	-7.25325E+01	-1.21212E+02	-1.05159E+00	3.33833E+00
62	-4.24688E-03	-5.00326E-03	-1.28985E-05	3.49635E-02
63	-7.12442E-03	-3.60535E-03	6.00096E-05	2.02123E-02
64	-7.44570E+01	-1.24251E+02	-1.07568E+00	3.45108E+00
65	-5.45237E-03	-4.42112E-03	1.75857E-05	2.99100E-02
66	-6.16444E-03	-4.11289E-03	3.49846E-05	2.62735E-02
67	-7.49480E+01	-1.25107E+02	-1.08356E+00	3.46721E+00
68	-6.14968E-03	-4.12820E-03	3.44717E-05	2.63936E-02
69	-5.46737E-03	-4.40645E-03	1.80917E-05	2.97922E-02
70	-7.44598E+01	-1.24255E+02	-1.07570E+00	3.45136E+00
71	-7.11237E-03	-3.61860E-03	5.95783E-05	2.03200E-02
72	-4.25885E-03	-4.99057E-03	-1.24778E-05	3.46603E-02
73	-7.25339E+01	-1.21213E+02	-1.05159E+00	3.33859E+00

74	-7.79649E-03	-3.26945E-03	7.71983E-05	1.55050E-02
75	-3.14956E-03	-5.22712E-03	-3.54280E-05	3.79629E-02
76	-6.97633E+01	-1.16447E+02	-1.00449E+00	3.22987E+00
77	-8.64534E-03	-2.48690E-03	1.05018E-04	9.44119E-03
78	-1.38427E-03	-5.35120E-03	-5.91207E-05	4.18768E-02
79	-6.60834E+01	-1.10270E+02	-9.54529E-01	3.05714E+00
80	-9.12214E-03	-2.60772E-03	9.23307E-05	1.21102E-02
81	-2.20814E-03	-4.34809E-03	-3.64919E-05	3.79927E-02
82	-3.14082E+01	-5.25701E+01	-4.44510E-01	1.53009E+00
83	6.51579E-03	-5.73169E-02	-1.77313E-03	-4.49622E-02
84	-5.39275E-02	-3.40704E-01	-7.54934E-03	-7.53219E-02
85	-3.51245E-01	-3.03690E-01	1.32099E-03	-1.02668E-01
86	-3.10669E-01	-2.42609E-01	1.99060E-03	-1.20635E-01
87	-2.45977E-01	-1.56824E-01	2.47647E-03	-1.29225E-01
88	-1.56849E-01	-2.46505E-01	-2.49143E-03	-1.29225E-01
89	-2.43181E-01	-3.10414E-01	-1.86759E-03	-1.29020E-01
90	-3.03467E-01	-3.46521E-01	-1.19494E-03	-1.02602E-01
91	-3.36049E-01	-7.24650E-02	7.32175E-03	-7.53069E-02
92	-6.09198E-02	6.52346E-03	1.87343E-03	-4.49913E-02
93	-5.25769E+01	-6.18929E+01	-2.01248E-01	1.54536E+00
94	-4.48591E-03	-1.19776E-02	-1.27753E-04	6.11634E-02
95	-1.53149E-02	-4.21358E-03	1.39708E-04	-3.97436E-03
96	-1.10259E+02	-1.31399E+02	-4.56667E-01	3.16413E+00
97	-4.38887E-03	-1.36674E-02	-1.58325E-04	6.40975E-02
98	-1.55191E-02	-4.04463E-03	2.12041E-04	-1.49950E-02
99	-1.16450E+02	-1.38989E+02	-4.86906E-01	3.35365E+00
100	-7.12372E-03	-1.26997E-02	-9.67901E-05	5.60334E-02
101	-1.50547E-02	-6.08512E-03	1.52956E-04	-6.30866E-04
102	-1.21204E+02	-1.44788E+02	-5.09490E-01	3.47049E+00
103	-9.01782E-03	-1.16240E-02	-4.44414E-05	4.63710E-02
104	-1.38482E-02	-7.40445E-03	1.09476E-04	1.08273E-02
105	-1.24243E+02	-1.48096E+02	-5.15291E-01	3.58905E+00
106	-1.10436E-02	-1.00121E-02	1.75887E-05	3.34701E-02
107	-1.21894E-02	-8.98408E-03	5.46423E-05	2.47751E-02
108	-1.25099E+02	-1.49109E+02	-5.19603E-01	3.60593E+00
109	-1.21762E-02	-8.99803E-03	5.41957E-05	2.48918E-02
110	-1.10566E-02	-9.99868E-03	1.80401E-05	3.33593E-02
111	-1.24246E+02	-1.48099E+02	-5.15279E-01	3.58933E+00
112	-1.38409E-02	-7.41310E-03	1.09609E-04	1.09148E-02
113	-9.02681E-03	-1.16145E-02	-4.41270E-05	4.62870E-02
114	-1.21205E+02	-1.44749E+02	-5.09479E-01	3.47071E+00
115	-1.50528E-02	-6.07961E-03	1.53017E-04	-6.09790E-04
116	-7.02382E-03	-1.26962E-02	-9.67302E-05	5.60019E-02
117	-1.16439E+02	-1.39984E+02	-4.87035E-01	3.35206E+00
118	-1.64737E-02	-4.11893E-03	2.10684E-04	-1.46696E-02
119	-4.43374E-03	-1.36302E-02	-1.56825E-04	6.77684E-02
120	-1.10267E+02	-1.31398E+02	-4.56579E-01	3.10523E+00
121	-1.53142E-02	-4.21061E-03	1.89347E-04	-9.96438E-03
122	-4.48685E-03	-1.19846E-02	-1.27857E-04	6.11519E-02
123	-3.25649E+01	-6.18874E+01	-2.01304E-01	1.54443E+00
124	9.60315E-03	-1.79421E-01	-5.25068E-03	-4.92272E-02
125	-1.97185E-01	-5.78569E-01	-1.05940E-02	-9.45785E-02
126	-5.94325E-01	-4.55548E-01	3.85491E-03	-1.15305E-01
127	-4.55865E-01	-3.06148E-01	4.43659E-03	-1.34861E-01
128	-3.11044E-01	-1.77559E-01	3.70900E-03	-1.43945E-01
129	-1.77578E-01	-3.11651E-01	-3.72424E-03	-1.43936E-01
130	-3.06746E-01	-4.64505E-01	-4.38220E-03	-1.34823E-01
131	-4.54203E-01	-5.86205E-01	-3.66675E-03	-1.15205E-01
132	-5.70519E-01	-2.02510E-01	1.07225E-02	-8.45389E-02
133	-1.34817E-01	9.60170E-03	5.40042E-03	-4.82529E-02
134	-6.18904E+01	-5.98217E+01	4.46979E-02	1.43447E+00
135	-7.01460E-03	-1.83401E-02	-1.93131E-04	3.85594E-02
136	-2.04455E-02	-2.96498E-03	2.98091E-04	-3.81537E-02
137	-1.31390E+02	-1.23964E+02	5.24182E-02	3.19061E+00

138	-7.57649E-03	-1.99294E-02	-2.10651E-04	9.71179E-02
139	-2.19318E-02	-3.22556E-03	3.18992E-04	-4.34004E-02
140	-1.38979E+02	-1.36927E+02	4.43479E-02	3.40352E+00
141	-1.11456E-02	-1.77584E-02	-1.12768E-04	7.53178E-02
142	-2.02141E-02	-6.26908E-03	2.37800E-04	-1.90361E-02
143	-1.44778E+02	-1.42579E+02	4.75039E-02	3.52425E+00
144	-1.35092E-02	-1.55735E-02	-3.52201E-05	5.79983E-02
145	-1.99413E-02	-8.63496E-03	1.74046E-04	1.99667E-04
146	-1.48086E+02	-1.45238E+02	6.15201E-02	3.65243E+00
147	-1.57490E-02	-1.30112E-02	4.66472E-05	3.65912E-02
148	-1.69361E-02	-1.12389E-02	9.71532E-05	2.26434E-02
149	-1.49095E+02	-1.46138E+02	6.38949E-02	3.66514E+00
150	-1.69293E-02	-1.12493E-02	9.68423E-05	2.27934E-02
151	-1.57581E-02	-1.30001E-02	4.70319E-05	3.64836E-02
152	-1.48089E+02	-1.45240E+02	6.15441E-02	3.65271E+00
153	-1.98385E-02	-8.63660E-03	1.73970E-04	2.54692E-04
154	-1.35171E-02	-1.55675E-02	-3.50334E-05	5.79477E-02
155	-1.44779E+02	-1.42581E+02	4.74869E-02	3.52847E+00
156	-2.02148E-02	-6.25687E-03	2.38020E-04	-1.90691E-02
157	-1.11405E-02	-1.77603E-02	-1.12895E-04	7.53386E-02
158	-1.38975E+02	-1.36927E+02	4.42282E-02	3.40183E+00
159	-2.18776E-02	-3.26599E-03	3.17379E-04	-4.29310E-02
160	-7.62997E-03	-1.98840E-02	-2.08965E-04	9.66453E-02
161	-1.31390E+02	-1.28962E+02	5.24419E-02	3.19188E+00
162	-2.04470E-02	-2.95512E-03	2.98284E-04	-3.41832E-02
163	-7.01606E-03	-1.83517E-02	-1.93303E-04	9.85909E-02
164	-6.18854E+01	-5.98197E+01	4.46243E-02	1.49397E+00
165	9.45302E-03	-3.19785E-01	-9.14549E-03	-4.57244E-02
166	-3.40543E-01	-6.05093E-01	-7.34962E-03	-7.90669E-02
167	-6.23089E-01	-2.50701E-01	1.03441E-02	-1.04735E-01
168	-2.62378E-01	-7.88353E-02	5.09731E-03	-1.29117E-01
169	-8.43319E-02	7.06845E-02	4.30601E-03	-1.26929E-01
170	7.06734E-02	-8.40331E-02	-4.29740E-03	-1.26910E-01
171	-7.85526E-02	-2.58592E-01	-5.00109E-03	-1.20051E-01
172	-2.46952E-01	-6.12989E-01	-1.01677E-02	-1.04597E-01
173	-5.95060E-01	-3.45057E-01	6.94452E-03	-7.89391E-02
174	-3.24369E-01	9.44702E-03	9.27263E-03	-4.57429E-02
175	-5.98175E+01	-4.69492E+01	2.77988E-01	1.34757E+00
176	-9.10934E-03	-2.07631E-02	-1.98729E-04	1.12758E-01
177	-2.09054E-02	1.22476E-03	3.77380E-04	-6.50427E-02
178	-1.28956E+02	-1.03253E+02	5.55250E-01	3.13256E+00
179	-1.02059E-02	-2.14201E-02	-1.91233E-04	1.21269E-01
180	-2.25949E-02	4.35792E-04	3.92736E-04	-6.90789E-02
181	-1.36918E+02	-1.10340E+02	5.74137E-01	3.34473E+00
182	-1.39221E-02	-1.77913E-02	-6.58099E-05	8.99511E-02
183	-2.09363E-02	-3.35012E-03	2.99893E-04	-3.37605E-02
184	-1.42571E+02	-1.14269E+02	6.11384E-01	3.51434E+00
185	-1.56405E-02	-1.48183E-02	1.40201E-05	6.64604E-02
186	-1.99880E-02	-6.36353E-03	2.32334E-04	-8.26801E-03
187	-1.45229E+02	-1.15492E+02	6.42385E-01	3.63765E+00
188	-1.75146E-02	-1.17502E-02	9.82980E-05	3.81641E-02
189	-1.82315E-02	-9.65927E-03	1.46180E-04	2.10306E-02
190	-1.46129E+02	-1.15998E+02	6.50907E-01	3.64020E+00
191	-1.82290E-02	-9.66480E-03	1.46043E-04	2.10962E-02
192	-1.75183E-02	-1.17425E-02	9.84929E-05	3.81009E-02
193	-1.45231E+02	-1.15494E+02	6.42401E-01	3.63793E+00
194	-1.99887E-02	-6.35936E-03	2.32418E-04	-8.25581E-03
195	-1.56406E-02	-1.48150E-02	1.40791E-05	6.64535E-02
196	-1.42572E+02	-1.14272E+02	6.11358E-01	3.51463E+00
197	-2.09390E-02	-3.33312E-03	3.00228E-04	-3.38492E-02
198	-1.39140E-02	-1.77856E-02	-6.60205E-05	9.00256E-02
199	-1.36918E+02	-1.10344E+02	5.74072E-01	3.38257E+00
200	-2.25354E-02	3.93331E-04	3.90994E-04	-6.74492E-02
201	-1.02642E-02	-2.13707E-02	-1.89398E-04	1.20638E-01

202	-1.28954E+02	-1.03254E+02	5.55185E-01	3.13434E+00
203	-2.09058E-02	1.23658E-03	3.77587E-04	-6.50955E-02
204	-9.11218E-03	-2.07761E-02	-1.98902E-04	1.12818E-01
205	-5.98155E+01	-4.69505E+01	2.77916E-01	1.34711E+00
206	6.30307E-03	-1.55876E-01	-4.50497E-03	-3.66348E-02
207	-1.75375E-01	-2.11840E-01	-1.01291E-03	-5.69629E-02
208	-2.28462E-01	6.70165E-01	2.49619E-02	-6.92846E-02
209	6.59540E-01	4.09626E-01	-6.94206E-03	-7.52961E-02
210	4.04726E-01	7.52357E-01	9.65641E-03	-7.75342E-02
211	7.52353E-01	4.06813E-01	-9.59832E-03	-7.75028E-02
212	4.11710E-01	6.66160E-01	7.06805E-03	-7.52013E-02
213	6.76797E-01	-2.15417E-01	-2.47948E-02	-6.91069E-02
214	-1.39257E-01	-1.78524E-01	5.75917E-04	-5.68662E-02
215	-1.59091E-01	6.29712E-03	4.59413E-03	-3.66517E-02
216	-4.69414E+01	-2.46660E+01	4.81203E-01	1.14121E+00
217	-1.01301E-02	-1.76516E-02	-1.28261E-04	1.24932E-01
218	-1.56943E-02	7.29931E-03	3.92104E-04	-8.16206E-02
219	-1.03247E+02	-5.50481E+01	1.04122E+00	2.99952E+00
220	-1.11800E-02	-1.66964E-02	-9.40762E-05	1.32476E-01
221	-1.78180E-02	6.74160E-03	4.18809E-04	-8.08993E-02
222	-1.10334E+02	-6.00022E+01	1.08730E+00	3.29388E+00
223	-1.39685E-02	-1.14319E-02	4.32563E-05	9.43459E-02
224	-1.65104E-02	2.47097E-03	3.23685E-04	-3.91887E-02
225	-1.14263E+02	-5.92814E+01	1.18775E+00	3.47630E+00
226	-1.39079E-02	-8.85824E-03	8.61096E-05	0.89047E-02
227	-1.65913E-02	-3.50388E-04	2.76952E-04	-1.14027E-02
228	-1.15486E+02	-5.98691E+01	1.20146E+00	3.52959E+00
229	-1.52765E-02	-5.64535E-03	1.64238E-04	3.73048E-02
230	-1.50853E-02	-4.08005E-03	1.47670E-04	2.05934E-02
231	-1.15992E+02	-5.47650E+01	1.23624E+00	3.53293E+00
232	-1.30877E-02	-4.08051E-03	1.87703E-04	2.06105E-02
233	-1.52744E-02	-5.64146E-03	1.64268E-04	3.72955E-02
234	-1.15487E+02	-5.98697E+01	1.20147E+00	3.52990E+00
235	-1.65946E-02	-3.41835E-04	2.77153E-04	-1.18423E-02
236	-1.39034E-02	-8.85664E-03	8.60608E-05	6.89511E-02
237	-1.14266E+02	-5.92841E+01	1.18775E+00	3.43672E+00
238	-1.65145E-02	2.49181E-03	3.24109E-04	-3.93396E-02
239	-1.39579E-02	-1.14364E-02	4.29976E-05	9.44767E-02
240	-1.10338E+02	-6.00073E+01	1.08727E+00	3.29045E+00
241	-1.77558E-02	6.69921E-03	4.17024E-04	-8.00937E-02
242	-1.12401E-02	-1.66459E-02	-9.21835E-05	1.31668E-01
243	-1.03249E+02	-5.50545E+01	1.04111E+00	3.00216E+00
244	-1.56930E-02	7.30978E-03	3.92260E-04	-8.16808E-02
245	-1.01345E-02	-1.76646E-02	-1.28409E-04	1.25005E-01
246	-4.69426E+01	-2.46711E+01	4.81122E-01	1.14073E+00
247	7.18529E-04	4.96628E-01	1.37753E-02	-2.14392E-02
248	4.92203E-01	1.17428E+00	1.92243E-02	-1.95930E-02
249	1.16157E+00	2.18652E+00	2.84707E-02	-1.22542E-02
250	2.17866E+00	1.17061E+00	-2.90015E-02	-5.71134E-03
251	1.16712E+00	1.65940E+00	1.36745E-02	-2.24419E-03
252	1.65940E+00	1.17134E+00	-1.35572E-02	-2.20178E-03
253	1.17484E+00	2.18945E+00	2.81554E-02	-5.58999E-03
254	2.19632E+00	1.17828E+00	-2.82791E-02	-1.20352E-02
255	1.19092E+00	4.79633E-01	-1.97581E-02	-1.94697E-02
256	4.93997E-01	7.15083E-04	-1.37023E-02	-2.14499E-02
257	-2.46544E+01	4.61690E+00	6.32335E-01	8.88918E-01
258	-8.81095E-03	-8.55674E-03	4.33420E-06	1.16780E-01
259	-5.29409E-03	1.28613E-02	3.09594E-04	-7.91752E-02
260	-5.50446E+01	1.43137E+01	1.49831E+00	2.79536E+00
261	-9.76983E-03	-4.64013E-03	8.74753E-05	1.23874E-01
262	-7.70728E-03	1.49841E-02	3.86951E-04	-7.44974E-02
263	-5.99997E+01	1.37190E+01	1.59251E+00	3.14310E+00
264	-9.19651E-03	9.45084E-04	1.72942E-04	8.49652E-02
265	-7.13269E-03	1.09426E-02	3.20170E-04	-3.19823E-02

266	-5.92780E+01	2.26041E+01	1.76386E+00	3.27690E+00
267	-7.93094E-03	1.99659E-03	1.69291E-04	6.36796E-02
268	-8.31885E-03	9.06480E-03	2.96439E-04	-8.99531E-03
269	-5.99660E+01	1.94812E+01	1.71410E+00	3.32661E+00
270	-8.21019E-03	4.89961E-03	2.23558E-04	3.37004E-02
271	-7.98497E-03	5.46501E-03	2.27653E-04	2.15154E-02
272	-5.97612E+01	2.48401E+01	1.40600E+00	3.33446E+00
273	-7.39108E-03	5.46891E-03	2.27824E-04	2.14556E-02
274	-8.20301E-03	4.89994E-03	2.23441E-04	3.37640E-02
275	-5.98665E+01	1.94825E+01	1.71414E+00	3.32697E+00
276	-8.32361E-03	9.07641E-03	2.96718E-04	-9.08496E-03
277	-7.92228E-03	1.99753E-03	1.69160E-04	6.37878E-02
278	-5.92807E+01	2.26034E+01	1.76490E+00	3.27745E+00
279	-7.33694E-03	1.09659E-02	3.20639E-04	-3.21036E-02
280	-9.18330E-03	9.42124E-04	1.72666E-04	8.51575E-02
281	-6.90048E+01	1.37139E+01	1.59251E+00	3.13840E+00
282	-7.64554E-03	1.49433E-02	3.95202E-04	-7.33933E-02
283	-9.92819E-03	-4.58960E-03	8.93321E-05	1.22868E-01
284	-5.50510E+01	1.43025E+01	1.49821E+00	2.79969E+00
285	-5.29197E-03	1.29691E-02	3.09679E-04	-7.92303E-02
286	-8.91695E-03	-8.56865E-03	4.23412E-06	1.16857E-01
287	-2.46595E+01	4.60720E+00	6.32234E-01	4.93345E-01
288	-6.61319E-03	4.95197E-01	1.39392E-02	-2.73955E-02
289	4.87333E-01	5.68034E+00	1.44250E-01	2.61478E-02
290	5.67269E+00	1.71895E+00	-1.09926E-01	5.51732E-02
291	1.71467E+00	4.09716E+00	6.61902E-02	7.41233E-02
292	4.09529E+00	4.73596E-01	-1.00603E-01	8.23974E-02
293	4.73591E-01	4.10134E+00	1.00771E-01	9.29347E-02
294	4.10322E+00	1.72778E+00	-6.59944E-02	7.42659E-02
295	1.73209E+00	5.69457E+00	1.10069E-01	5.54397E-02
296	5.70219E+00	4.84348E-01	-1.44940E-01	2.62953E-02
297	4.92159E-01	-6.61346E-03	-1.38549E-02	-2.81259E-03
298	4.62484E+00	3.99349E+01	7.41095E-01	6.45739E-01
299	-3.18931E-03	6.13111E-03	1.58939E-04	8.39260E-02
300	6.96132E-03	1.59225E-02	1.51107E-04	-5.29190E-02
301	1.43173E+01	9.77276E+01	1.40187E+00	2.47899E+00
302	-5.46149E-03	1.70999E-02	3.84734E-04	9.19611E-02
303	8.44306E-03	2.12269E-02	2.17999E-04	-4.63486E-02
304	1.37141E+01	1.20678E+02	2.31069E+00	3.01167E+00
305	4.94386E-03	1.49523E-02	1.94314E-04	6.22272E-02
306	1.92391E-03	2.43587E-02	3.92586E-04	-1.26699E-02
307	2.26100E+01	1.20199E+02	2.10623E+00	2.92132E+00
308	6.41381E-05	1.96100E-02	3.33109E-04	5.04525E-02
309	6.48178E-03	1.99333E-02	2.10626E-04	2.16895E-04
310	1.94773E+01	1.29557E+02	2.37800E+00	3.12535E+00
311	5.75276E-03	1.64331E-02	1.92138E-04	2.91223E-02
312	6.95144E-04	2.14179E-02	3.53379E-04	2.29644E-02
313	2.49462E+01	1.23326E+02	2.12742E+00	2.95037E+00
314	6.97382E-04	2.14249E-02	3.53631E-04	2.27179E-02
315	5.76269E-03	1.64304E-02	1.91914E-04	2.92726E-02
316	1.94786E+01	1.29562E+02	2.37804E+00	3.12575E+00
317	6.47717E-03	1.88462E-02	2.10926E-04	5.05619E-05
318	7.62654E-05	1.96109E-02	3.33119E-04	5.06249E-02
319	2.26097E+01	1.20113E+02	2.10633E+00	2.92251E+00
320	1.32035E-03	2.43924E-02	3.83039E-04	-1.29726E-02
321	4.75976E-03	1.49528E-02	1.84050E-04	6.24832E-02
322	1.37090E+01	1.20675E+02	2.31073E+00	3.00565E+00
323	8.49993E-03	2.11894E-02	2.16789E-04	-4.51229E-02
324	-5.51315E-03	1.71479E-02	3.86432E-04	9.07310E-02
325	1.43061E+01	9.77124E+01	1.80179E+00	2.44423E+00
326	6.96271E-03	1.58236E-02	1.51103E-04	-5.28519E-02
327	-3.19609E-03	6.12167E-03	1.58993E-04	8.40024E-02
328	4.61915E+00	3.89199E+01	7.40983E-01	6.45155E-01
329	-1.48804E-02	-1.63322E+00	-4.49539E-02	1.28884E-02

330	-1.63990E+00	1.36483E+01	4.24669E-01	6.59127E-02
331	1.36460E+01	-3.23114E+00	-4.68410E-01	1.11426E-01
332	-3.23242E+00	1.08378E+01	3.90441E-01	1.38906E-01
333	1.08373E+01	-4.90729E+00	-4.37349E-01	1.51301E-01
334	-4.90729E+00	1.09441E+01	4.37534E-01	1.51357E-01
335	1.09447E+01	-3.21659E+00	-3.90591E-01	1.39054E-01
336	-3.21529E+00	1.36736E+01	4.69135E-01	1.11712E-01
337	1.36754E+01	-1.64446E+00	-4.25563E-01	6.60745E-02
338	-1.63793E+00	-1.49777E-02	4.50849E-02	1.28665E-02
339	3.99410E+01	7.92152E+01	8.70024E-01	4.65950E-01
340	7.51040E-03	2.53488E-02	3.04194E-04	3.19205E-02
341	1.44454E-02	1.99616E-02	8.55339E-05	-7.11950E-03
342	9.77297E+01	1.77133E+02	1.71533E+00	2.06262E+00
343	9.81090E-03	3.45327E-02	4.21574E-04	3.68637E-02
344	2.51045E-02	2.11111E-02	-6.81663E-05	2.45445E-04
345	1.20673E+02	1.95210E+02	1.61018E+00	2.37348E+00
346	2.12823E-02	2.51876E-02	6.65962E-05	3.07629E-02
347	1.54960E-02	3.34809E-02	3.06692E-04	9.29675E-03
348	1.20113E+02	1.99220E+02	1.70497E+00	2.37600E+00
349	1.34443E-02	3.35590E-02	3.43009E-04	2.65544E-02
350	2.30843E-02	2.53678E-02	3.89398E-05	1.43699E-02
351	1.29553E+02	2.05010E+02	1.63009E+00	2.45126E+00
352	2.21382E-02	2.49055E-02	4.71904E-05	2.17752E-02
353	1.39754E-02	3.38569E-02	3.39034E-04	1.93703E-02
354	1.23330E+02	2.02490E+02	1.71470E+00	2.39052E+00
355	1.39691E-02	3.38652E-02	3.39382E-04	1.91290E-02
356	2.21498E-02	2.49006E-02	4.69265E-05	2.20201E-02
357	1.29559E+02	2.05018E+02	1.63014E+00	2.45164E+00
358	2.30819E-02	2.53798E-02	3.91861E-05	1.41341E-02
359	1.34547E-02	3.35598E-02	3.42779E-04	2.68013E-02
360	1.20116E+02	1.99331E+02	1.70907E+00	2.37695E+00
361	1.54954E-02	3.35023E-02	3.07061E-04	8.89429E-03
362	2.13010E-02	2.51929E-02	6.63469E-05	3.11021E-02
363	1.20670E+02	1.95212E+02	1.61028E+00	2.36519E+00
364	2.51549E-02	2.10787E-02	-6.95105E-05	1.71551E-03
365	9.77187E-03	3.45753E-02	4.22966E-04	3.53468E-02
366	9.77141E+01	1.77114E+02	1.71525E+00	2.06949E+00
367	1.48439E-02	1.98557E-02	8.54661E-05	-7.14771E-03
368	7.50497E-03	2.53426E-02	3.04180E-04	3.19981E-02
369	3.99261E+01	7.91966E+01	8.69945E-01	4.65329E-01
370	-2.69875E-02	-1.09702E+00	-2.97260E-02	1.77480E-02
371	-1.09919E+00	1.25098E+01	3.78000E-01	7.47180E-02
372	1.25047E+01	-1.86793E+00	-3.99351E-01	1.23881E-01
373	-1.96779E+00	9.96767E+00	3.28763E-01	1.54042E-01
374	9.96773E+00	-3.40752E+00	-3.71535E-01	1.67872E-01
375	-3.40751E+00	9.97347E+00	3.71694E-01	1.67922E-01
376	9.97342E+00	-1.85135E+00	-3.28466E-01	1.54176E-01
377	-1.85148E+00	1.25415E+01	3.99405E-01	1.24168E-01
378	1.25416E+01	-1.10703E+00	-3.79128E-01	7.48707E-02
379	-1.10499E+00	-2.68824E-02	2.99447E-02	1.77092E-02
380	7.92121E+01	1.23646E+02	9.60745E-01	3.39052E-01
381	2.35449E-02	4.10440E-02	2.98407E-04	-2.17563E-02
382	2.06799E-02	2.80607E-02	1.25963E-04	4.19128E-02
383	1.77171E+02	2.51857E+02	1.61426E+00	1.74423E+00
384	2.84990E-02	4.18796E-02	2.28192E-04	-1.93764E-02
385	2.99519E-02	2.67352E-02	-5.48536E-05	5.09755E-02
386	1.95215E+02	2.52045E+02	1.22768E+00	2.03103E+00
387	3.11871E-02	3.65197E-02	9.09188E-05	-1.55328E-03
388	2.95721E-02	3.56851E-02	1.21296E-04	3.58239E-02
389	1.99215E+02	2.61202E+02	1.33907E+00	2.02675E+00
390	2.91636E-02	3.96549E-02	1.95958E-04	3.08627E-03
391	3.99046E-02	3.41253E-02	5.49225E-05	3.19663E-02
392	2.05014E+02	2.59752E+02	1.18248E+00	2.03918E+00
393	3.04986E-02	3.53164E-02	9.21563E-05	1.66227E-02

394	2.40297E-02	3.88879E-02	1.85162E-04	1.86338E-02
395	2.02885E+02	2.64715E+02	1.33570E+00	2.03888E+00
396	2.40285E-02	3.88946E-02	1.85297E-04	1.93071E-02
397	3.0504AE-02	3.53110E-02	8.19598E-05	1.69467E-02
398	2.05023E+02	2.59761E+02	1.18249E+00	2.09951E+00
399	3.09063E-02	3.41336E-02	5.50348E-05	3.16659E-02
400	2.91775E-02	3.96545E-02	1.95714E-04	3.39459E-03
401	1.99226E+02	2.61218E+02	1.33920E+00	2.02779E+00
402	2.35759E-02	3.57000E-02	1.21487E-04	3.53043E-02
403	3.12086E-02	3.65294E-02	9.07169E-05	-1.12239E-03
404	1.95216E+02	2.52053E+02	1.22782E+00	2.01978E+00
405	2.99801E-02	2.67111E-02	-5.57454E-05	5.27032E-02
406	2.9479AE-02	4.19133E-02	2.29095E-04	-2.11174E-02
407	1.77112E+02	2.51833E+02	1.61416E+00	1.75393E+00
408	2.06719E-02	2.80504E-02	1.25831E-04	4.17825E-02
409	2.35424E-02	4.10413E-02	2.98399E-04	-2.16583E-02
410	7.91936E+01	1.23669E+02	9.60784E-01	3.37369E-01
411	-4.18350E-02	6.98368E-01	2.05612E-02	9.80232E-03
412	6.99277E-01	4.96094E+00	1.18379E-01	4.95046E-02
413	4.96023E+00	2.81893E+00	-5.94833E-02	8.98226E-02
414	2.81857E+00	4.26132E+00	4.00763E-02	1.15473E-01
415	4.26125E+00	1.99078E+00	-6.30688E-02	1.28447E-01
416	1.99079E+00	4.26433E+00	6.31543E-02	1.26957E-01
417	4.26439E+00	2.83141E+00	-3.98050E-02	1.14442E-01
418	2.83166E+00	4.99536E+00	6.01028E-02	8.83446E-02
419	4.99607E+00	6.993A7E-01	-1.19630E-01	4.92245E-02
420	6.99478E-01	-4.18769E-02	-2.02862E-02	9.63677E-03
421	1.23676E+02	7.29090E+01	-1.09671E+00	4.27357E-01
422	3.99549E-02	2.46289E-02	-2.61352E-04	-5.77561E-02
423	2.95046E-02	1.43341E-02	-2.41645E-04	7.97364E-02
424	2.51855E+02	1.41543E+02	-2.38301E+00	1.91042E+00
425	4.13352E-02	2.27304E-02	-3.17263E-04	-5.76851E-02
426	3.19229E-02	1.39249E-02	-3.06916E-04	9.00750E-02
427	2.52050E+02	1.38796E+02	-2.44657E+00	2.09188E+00
428	3.92687E-02	2.18752E-02	-2.96607E-04	-2.91791E-02
429	3.61275E-02	1.59160E-02	-3.46366E-04	6.42715E-02
430	2.61199E+02	1.40277E+02	-2.61220E+00	2.11024E+00
431	3.99433E-02	2.07935E-02	-3.09538E-04	-1.26649E-02
432	3.63406E-02	1.86233E-02	-3.02129E-04	4.86194E-02
433	2.59756E+02	1.41512E+02	-2.55437E+00	2.17650E+00
434	3.72126E-02	2.06339E-02	-2.82712E-04	1.19356E-02
435	3.77157E-02	1.96049E-02	-3.08839E-04	2.42614E-02
436	2.64711E+02	1.42510E+02	-2.63985E+00	2.13030E+00
437	3.77234E-02	1.96057E-02	-3.08956E-04	2.35494E-02
438	3.72083E-02	2.06336E-02	-2.82643E-04	1.26354E-02
439	2.59765E+02	1.41515E+02	-2.55450E+00	2.17682E+00
440	3.63506E-02	1.86225E-02	-3.02314E-04	4.79357E-02
441	3.89495E-02	2.07913E-02	-3.09648E-04	-1.19991E-02
442	2.61215E+02	1.40292E+02	-2.61224E+00	2.11167E+00
443	3.61399E-02	1.58137E-02	-3.46617E-04	6.32398E-02
444	3.92889E-02	2.18883E-02	-2.96728E-04	-2.83097E-02
445	2.52059E+02	1.38804E+02	-2.44659E+00	2.07671E+00
446	3.19237E-02	1.39139E-02	-3.07117E-04	9.19126E-02
447	4.13434E-02	2.27514E-02	-3.17045E-04	-5.93332E-02
448	2.51831E+02	1.41525E+02	-2.38289E+00	1.92301E+00
449	2.94904E-02	1.43269E-02	-2.41526E-04	7.95314E-02
450	3.99516E-02	2.46375E-02	-2.61146E-04	-5.74562E-02
451	1.23660E+02	7.29016E+01	-1.09650E+00	4.26395E-01
452	-2.57324E-02	3.11693E-01	9.37292E-03	-6.43370E-03
453	3.09662E-01	1.05405E+00	2.06775E-02	8.62531E-03
454	1.05159E+00	2.68874E+00	4.54765E-02	2.89518E-02
455	2.68695E+00	2.17242E+00	-1.42923E-02	4.45568E-02
456	2.17161E+00	2.83764E+00	1.85008E-02	5.17179E-02
457	2.83767E+00	2.17337E+00	-1.84530E-02	4.93765E-02

458	2.17425E+00	2.68969E+00	1.43178E-02	3.74869E-02
459	2.69155E+00	1.08115E+00	-4.47333E-02	1.67631E-02
460	1.09213E+00	2.95063E-01	-2.21408E-02	6.32847E-02
461	3.13645E-01	-2.57[illegible]6E-02	-9.42935E-03	-4.46631E-03
462	7.28991E+01	2.58892E+01	-1.01553E+00	7.12640E-01
463	2.70828E-02	7.99434E-03	-3.25510E-04	-6.91803E-02
464	1.24619E-02	4.17432E-03	-1.41326E-04	9.47059E-02
465	1.41544E+02	4.53724E+01	-2.07754E+00	2.16901E+00
466	2.62536E-02	6.53009E-03	-3.36339E-04	-7.36159E-02
467	1.35643E-02	3.36205E-03	-1.73976E-04	1.11284E-01
468	1.38797E+02	4.09994E+01	-2.11264E+00	2.40655E+00
469	2.43180E-02	6.40222E-03	-3.05513E-04	-4.37529E-02
470	1.69205E-02	2.80550E-03	-2.40699E-04	8.37930E-02
471	1.40278E+02	3.89257E+01	-2.18947E+00	2.44334E+00
472	2.29994E-02	5.75344E-03	-2.94043E-04	-1.94137E-02
473	1.88966E-02	4.19225E-03	-2.50749E-04	6.03936E-02
474	1.41513E+02	3.90714E+01	-2.21299E+00	2.50907E+00
475	2.13644E-02	5.91664E-03	-2.65201E-04	1.18051E-02
476	2.05901E-02	4.83489E-03	-2.68669E-04	2.95182E-02
477	1.42511E+02	3.90433E+01	-2.23516E+00	2.47856E+00
478	2.05352E-02	4.39872E-03	-2.66644E-04	3.26319E-02
479	2.14255E-02	5.75181E-03	-2.67279E-04	8.69294E-03
480	1.41515E+02	3.90712E+01	-2.21705E+00	2.50928E+00
481	1.98399E-02	4.25749E-03	-2.44569E-04	6.36056E-02
482	2.30614E-02	5.68832E-03	-2.96259E-04	-2.26130E-02
483	1.40297E+02	3.89174E+01	-2.18996E+00	2.44477E+00
484	1.68693E-02	2.45660E-03	-2.38954E-04	9.73790E-02
485	2.44077E-02	6.33201E-03	-3.04240E-04	-4.67326E-02
486	1.38815E+02	4.09823E+01	-2.11344E+00	2.47919E+00
487	2.63324E-02	6.43472E-03	-3.40162E-04	-7.86327E-02
488	2.63324E-02	6.43472E-03	-3.40163E-04	-7.86327E-02
489	1.41504E+02	4.83943E+01	-2.07622E+00	2.24654E+00
490	1.23849E-02	4.22870E-03	-1.19222E-04	1.07361E-01
491	2.21526E-02	7.94375E-03	-3.27563E-04	-7.21771E-02
492	7.28917E+01	2.59804E+01	-1.01956E+00	7.13784E-01
493	-1.15057E-02	-4.57745E-01	-1.23955E-02	-1.94037E-02
494	-4.63479E-01	-2.47302E-01	6.00492E-03	-1.94826E-02
495	-2.52664E-01	9.52334E-01	3.34721E-02	-1.21566E-02
496	9.44457E-01	1.38396E+00	1.20974E-02	-3.31296E-03
497	1.38200E+00	1.76339E+00	1.05939E-02	3.23215E-03
498	1.76341E+00	1.38186E+00	-1.05985E-02	5.50522E-03
499	1.38347E+00	9.51900E-01	-1.19992E-02	3.52936E-03
500	9.55847E-01	-2.49070E-01	-3.34699E-02	-1.03414E-03
501	-2.47593E-01	-4.51942E-01	-5.67773E-03	4.43703E-02
502	-4.48247E-01	-1.15170E-02	1.21325E-02	-2.22789E-02
503	2.58819E+01	-1.42856E+01	-8.67719E-01	9.87790E-01
504	1.38179E-02	-5.83747E-03	-3.35177E-04	-6.69659E-02
505	-4.08725E-04	-3.61301E-03	-5.46419E-05	1.03544E-01
506	4.53717E+01	-3.44594E+01	-1.72455E+00	2.48607E+00
507	1.29891E-02	-7.05540E-03	-3.41797E-04	-7.67323E-02
508	-7.57146E-04	-4.53114E-03	-6.43569E-05	1.18993E-01
509	4.19989E+01	-3.92930E+01	-1.73452E+00	2.67172E+00
510	1.11813E-02	-6.79988E-03	-3.06629E-04	-5.02935E-02
511	1.34393E-03	-6.05506E-03	-1.26173E-04	9.43548E-02
512	3.99257E+01	-4.24830E+01	-1.75863E+00	2.70523E+00
513	9.51301E-03	-6.65821E-03	-2.75763E-04	-2.41604E-02
514	3.75634E-03	-6.40926E-03	-1.73351E-04	6.99519E-02
515	3.90709E+01	-4.38242E+01	-1.79074E+00	2.76976E+00
516	7.68251E-0[illegible]	-6.34263E-03	-2.39167E-04	9.47446E-03
517	5.97136E-03	-6.50206E-03	-2.12706E-04	3.58055E-02
518	3.90432E+01	-4.41829E+01	-1.79789E+00	2.74959E+00
519	5.39545E-03	-6.51911E-03	-2.13407E-04	3.52156E-02
520	7.65861E-03	-6.32232E-03	-2.38497E-04	1.00245E-02
521	3.90707E+01	-4.38707E+01	-1.79098E+00	2.76990E+00

522	3.77964E-03	-6.43224E-03	-1.74140E-04	6.95231E-02
523	9.49431E-03	-6.64525E-03	-2.75223E-04	-2.35924E-02
524	3.99174E+01	-4.24980E+01	-1.75874E+00	2.70657E+00
525	1.35241E-03	-6.04253E-03	-1.26786E-04	9.41436E-02
526	1.11852E-02	-6.79512E-03	-3.06614E-04	-4.99617E-02
527	4.39866E+01	-3.93013E+01	-1.73442E+00	2.67972E+00
528	-9.34783E-04	-4.47196E-03	-6.20306E-05	1.20727E-01
529	1.30635E-02	-7.09966E-03	-3.43837E-04	-7.82451E-02
530	4.53908E+01	-3.44348E+01	-1.72452E+00	2.47511E+00
531	-3.78059E-04	-3.65413E-03	-5.5865 9E-05	1.02472E-01
532	1.37856E-02	-5.77435E-03	-3.33550E-04	-6.59384E-02
533	2.58732E+01	-1.42770E+01	-9.67346E-01	9.91157E-01
534	7.07563E-04	-6.53748E-01	-1.91793E-02	-3.12471E-02
535	-6.62547E-01	-7.34743E-01	-2.11656E-03	-4.62637E-02
536	-7.47159E-01	-1.29871E-01	1.71747E-02	-5.43699E-02
537	-1.34959E-01	4.89677E-01	1.73510E-02	-5.74495E-02
538	4.96519E-01	7.43916E-01	7.14993E-03	-5.81434E-02
539	7.43882E-01	4.95330E-01	-7.18180E-03	-5.81067E-02
540	4.98435E-01	-1.40129E-01	-1.74601E-02	-5.73910E-02
541	-1.34045E-01	-7.59674E-01	-1.73497E-02	-5.42626E-02
542	-7.50201E-01	-6.40642E-01	3.04331E-03	-4.60062E-02
543	-6.31809E-01	7.44654E-04	1.75709E-02	-3.09953E-02
544	-1.42901E+01	-4.54895E+01	-6.73987E-01	1.22398E+00
545	2.40272E-03	-1.57132E-02	-3.09926E-04	-5.24877E-02
546	-9.63574E-03	-9.45504E-03	3.08145E-06	9.50759E-02
547	-3.44614E+01	-9.56470E+01	-1.32176E+00	2.75154E+00
548	2.17162E-03	-1.69518E-02	-3.26106E-04	-6.63609E-02
549	-1.10043E-02	-9.09913E-03	1.87433E-05	1.12376E-01
550	-3.92959E+01	-9.99217E+01	-1.30967E+00	2.98122E+00
551	5.24884E-04	-1.63645E-02	-2.99009E-04	-4.54312E-02
552	-9.77929E-03	-1.19370E-02	-3.50209E-05	9.26195E-02
553	-4.24851E+01	-1.03210E+02	-1.31181E+00	2.90576E+00
554	-1.12096E-03	-1.57353E-02	-2.49214E-04	-2.15895E-02
555	-7.74657E-03	-1.31741E-02	-9.25551E-05	6.93460E-02
556	-4.38262E+01	-1.05183E+02	-1.32546E+00	2.95661E+00
557	-3.20757E-03	-1.48561E-02	-1.99640E-04	1.04740E-02
558	-5.26834E-03	-1.42617E-02	-1.53361E-04	3.75925E-02
559	-4.41849E+01	-1.05905E+02	-1.33115E+00	2.94598E+00
560	-5.23359E-03	-1.42940E-02	-1.54505E-04	3.69324E-02
561	-3.24259E-03	-1.48278E-02	-1.97560E-04	1.11345E-02
562	-4.38326E+01	-1.05192E+02	-1.32551E+00	2.95666E+00
563	-7.71747E-03	-1.32114E-02	-9.36864E-05	6.87492E-02
564	-1.15191E-03	-1.57117E-02	-2.48284E-04	-2.09851E-02
565	-4.25001E+01	-1.03220E+02	-1.31171E+00	2.90666E+00
566	-9.77390E-03	-1.18602E-02	-3.55774E-05	9.23494E-02
567	5.13487E-04	-1.63560E-02	-2.97671E-04	-4.51066E-02
568	-3.93035E+01	-9.99206E+01	-1.30949E+00	2.88699E+00
569	-1.10870E-02	-9.83638E-03	2.13269E-05	1.13702E-01
570	2.25949E-03	-1.70215E-02	-3.24793E-04	-6.77627E-02
571	-3.44412E+01	-9.56277E+01	-1.32178E+00	2.74375E+00
572	-9.60325E-03	-9.49250E-03	1.88877E-06	9.43873E-02
573	2.38697E-03	-1.56596E-02	-3.07744E-04	-5.18257E-02
574	-1.42816E+01	-4.54698E+01	-6.73745E-01	1.22621E+00
575	1.06977E-02	-5.03802E-01	-1.42917E-02	-3.80964E-02
576	-5.14455E-01	-7.93828E-01	-7.76036E-03	-6.02688E-02
577	-8.04428E-01	-5.69960E-01	6.51299E-03	-7.73466E-02
578	-5.77749E-01	-2.02575E-01	1.04226E-02	-3.79530E-02
579	-2.06614E-01	-4.62292E-03	3.61085E-03	-9.23351E-02
580	-4.66819E-03	-2.10047E-01	-5.70496E-03	-9.23875E-02
581	-2.06055E-01	-5.88334E-01	-1.06189E-02	-8.81042E-02
582	-5.80609E-01	-8.17979E-01	-6.59361E-03	-7.75805E-02
583	-8.07310E-01	-4.95862E-01	9.65134E-03	-6.02921E-02
584	-4.95164E-01	1.07360E-02	1.37759E-02	-3.80037E-02
585	-4.54923E+01	-6.63869E+01	-4.51377E-01	1.40507E+00

586	-6.05035E-03	-2.11199E-02	-2.56977E-04	-3.28672E-02
587	-1.50470E-02	-1.30649E-02	3.44829E-05	8.00432E-02
588	-9.56514E+01	-1.36047E+02	-8.72647E-01	2.95067E+00
589	-5.65832E-03	-2.24321E-02	-2.46038E-04	-4.86600E-02
590	-1.70101E-02	-1.28690E-02	7.06173E-05	9.74700E-02
591	-9.39262E+01	-1.39301E+02	-8.50598E-01	3.03005E+00
592	-7.30966E-03	-2.17168E-02	-2.50797E-04	-3.36315E-02
593	-1.63966E-02	-1.47393E-02	2.82622E-05	8.30484E-02
594	-1.33214E+02	-1.42154E+02	-8.41293E-01	3.04224E+00
595	-8.51069E-03	-2.08151E-02	-2.09824E-04	-1.43980E-02
596	-1.4917AE-02	-1.64711E-02	-2.64885E-05	6.40976E-02
597	-1.05187E+02	-1.44127E+02	-8.41192E-01	3.07623E+00
598	-1.16030E-02	-1.94493E-02	-1.50853E-04	1.28989E-02
599	-1.26374E-02	-1.82334E-02	-9.54255E-05	3.69784E-02
600	-1.05809E+02	-1.44824E+02	-8.42823E-01	3.06961E+00
601	-1.26004E-02	-1.82725E-02	-9.67181E-05	3.64036E-02
602	-1.06420E-02	-1.94139E-02	-1.49584E-04	1.34726E-02
603	-1.05196E+02	-1.44134E+02	-8.41161E-01	3.07614E+00
604	-1.48884E-02	-1.65119E-02	-2.76852E-05	6.35880E-02
605	-8.54863E-03	-2.07859E-02	-2.08680E-04	-1.39662E-02
606	-1.03225E+02	-1.42164E+02	-8.41179E-01	3.04280E+00
607	-1.63897E-02	-1.47636E-02	2.77291E-05	8.27938E-02
608	-7.02885E-03	-2.17074E-02	-2.50310E-04	-3.13422E-02
609	-9.99251E+01	-1.39204E+02	-8.50459E-01	3.03397E+00
610	-1.70852E-02	-1.27914E-02	7.32215E-05	9.85479E-02
611	-5.57653E-03	-2.25068E-02	-2.88708E-04	-4.97532E-02
612	-9.56321E+01	-1.36024E+02	-8.72569E-01	2.94492E+00
613	-1.50502E-02	-1.30972E-02	3.33034E-05	7.94845E-02
614	-6.06868E-03	-2.10727E-02	-2.55459E-04	-3.23299E-02
615	-4.54726E+01	-6.63622E+01	-4.51269E-01	1.40660E+00
616	1.77336E-02	-2.55624E-01	-7.59327E-03	-4.11170E-02
617	-2.66620E-01	-6.12472E-01	-9.61910E-03	-6.50242E-02
618	-6.24273E-01	-6.43309E-01	-5.28773E-04	-8.61710E-02
619	-6.51839E-01	-5.31230E-01	3.35024E-03	-1.00838E-01
620	-5.35743E-01	-4.22078E-01	3.15735E-03	-1.08211E-01
621	-4.22130E-01	-5.40127E-01	-3.27770E-03	-1.08277E-01
622	-5.35716E-01	-6.63601E-01	-3.55237E-03	-1.01023E-01
623	-6.55148E-01	-6.37352E-01	4.94335E-04	-8.64360E-02
624	-6.25894E-01	-2.59305E-01	1.03772E-02	-6.50930E-02
625	-2.41267E-01	1.77771E-02	7.19567E-03	-4.10496E-02
626	-6.63890E+01	-7.61574E+01	-2.11022E-01	1.52515E+00
627	-1.09335E-02	-2.19646E-02	-1.88110E-04	-1.29458E-02
628	-1.66938E-02	-1.41642E-02	4.31365E-05	6.30916E-02
629	-1.36054E+02	-1.54155E+02	-3.91031E-01	3.07222E+00
630	-1.00541E-02	-2.33260E-02	-2.26323E-04	-2.82892E-02
631	-1.97600E-02	-1.33900E-02	9.15729E-05	7.87669E-02
632	-1.39308E+02	-1.56339E+02	-3.67905E-01	3.11201E+00
633	-1.10721E-02	-2.26616E-02	-1.97633E-04	-1.84719E-02
634	-1.85500E-02	-1.49196E-02	6.19249E-05	6.91164E-02
635	-1.42165E+02	-1.58549E+02	-3.53926E-01	3.11236E+00
636	-1.23229E-02	-2.16755E-02	-1.59486E-04	-4.69930E-03
637	-1.76165E-02	-1.66007E-02	1.73224E-05	5.53743E-02
638	-1.44134E+02	-1.60191E+02	-3.46879E-01	3.13114E+00
639	-1.41427E-02	-2.00869E-02	-1.01365E-04	1.60299E-02
640	-1.58290E-02	-1.95648E-02	-4.86525E-05	3.46992E-02
641	-1.44831E+02	-1.60801E+02	-3.44991E-01	3.12501E+00
642	-1.57943E-02	-1.86048E-02	-4.79259E-05	3.42319E-02
643	-1.41813E-02	-2.00498E-02	-1.00056E-04	1.64951E-02
644	-1.44141E+02	-1.60195E+02	-3.46815E-01	3.13093E+00
645	-1.75870E-02	-1.66405E-02	1.61410E-05	5.49246E-02
646	-1.23646E-02	-2.16429E-02	-1.58220E-04	-4.24442E-03
647	-1.42170E+02	-1.58551E+02	-3.53871E-01	3.11263E+00
648	-1.85382E-02	-1.49418E-02	6.13285E-05	6.88730E-02
649	-1.10979E-02	-2.26507E-02	-1.97007E-04	-1.82069E-02

650	-1.39300E+02	-1.56328E+02	-3.67842E-01	3.11459E+00
651	-1.88259E-02	-1.33142E-02	9.39890E-05	7.95443E-02
652	-9.98410E-03	-2.33972E-02	-2.28730E-04	-2.90815E-02
653	-1.36031E+02	-1.54126E+02	-3.90897E-01	3.06790E+00
654	-1.66510E-02	-1.41915E-02	4.19424E-05	6.26244E-02
655	-1.09601E-02	-2.19209E-02	-1.86911E-04	-1.24970E-02
656	-6.63644E+01	-7.61319E+01	-2.11004E-01	1.52616E+00
657	2.07810E-02	-2.91792E-02	-1.38778E-03	-4.10827E-02
658	-3.89528E-02	-3.81438E-01	-9.51347E-03	-6.27709E-02
659	-3.92012E-01	-5.26497E-01	-3.73570E-03	-8.39486E-02
660	-5.34535E-01	-5.61932E-01	-7.61046E-04	-9.95088E-02
661	-5.66229E-01	-5.19156E-01	1.30760E-03	-1.07640E-01
662	-5.19210E-01	-5.69629E-01	-1.40051E-03	-1.07705E-01
663	-5.65440E-01	-5.44596E-01	5.78982E-04	-9.96967E-02
664	-5.36646E-01	-4.04696E-01	3.66529E-03	-8.42129E-02
665	-3.94071E-01	-2.60185E-02	1.02237E-02	-6.28476E-02
666	-1.62169E-02	2.08296E-02	1.02907E-03	-4.10260E-02
667	-7.61599E+01	-7.43641E+01	3.87922E-02	1.58424E+00
668	-1.19380E-02	-1.87409E-02	-1.16008E-04	3.90268E-03
669	-1.46891E-02	-1.27124E-02	3.37086E-05	4.75330E-02
670	-1.54163E+02	-1.49221E+02	1.06774E-01	3.10944E+00
671	-1.08474E-02	-2.00705E-02	-1.57349E-04	-8.88732E-03
672	-1.65499E-02	-1.15767E-02	8.48064E-05	5.99011E-02
673	-1.56747E+02	-1.50543E+02	1.25386E-01	3.12332E+00
674	-1.15855E-02	-1.95314E-02	-1.35500E-04	-3.12309E-03
675	-1.65615E-02	-1.26426E-02	6.68270E-05	5.39213E-02
676	-1.58558E+02	-1.52068E+02	1.40206E-01	3.11394E+00
677	-1.24828E-02	-1.86401E-02	-1.04999E-04	5.41698E-03
678	-1.51117E-02	-1.39654E-02	3.66006E-05	4.52508E-02
679	-1.60200E+02	-1.53271E+02	1.49695E-01	3.12130E+00
680	-1.38115E-02	-1.71470E-02	-5.68785E-05	1.91071E-02
681	-1.49411E-02	-1.57073E-02	-1.30669E-05	3.15025E-02
682	-1.60810E+02	-1.53709E+02	1.53416E-01	3.11419E+00
683	-1.49104E-02	-1.57436E-02	-1.42092E-05	3.11439E-02
684	-1.38459E-02	-1.71109E-02	-5.56745E-05	1.94627E-02
685	-1.60204E+02	-1.53271E+02	1.49770E-01	3.12100E+00
686	-1.60830E-02	-1.40014E-02	3.54975E-05	4.48940E-02
687	-1.25238E-02	-1.86066E-02	-1.03728E-04	5.77086E-03
688	-1.59560E+02	-1.52069E+02	1.40222E-01	3.11407E+00
689	-1.65443E-02	-1.26658E-02	6.61403E-05	5.36897E-02
690	-1.16190E-02	-1.95172E-02	-1.34703E-04	-2.87733E-03
691	-1.56337E+02	-1.50536E+02	1.25313E-01	3.12514E+00
692	-1.65996E-02	-1.15104E-02	8.67847E-05	6.02904E-02
693	-1.07907E-02	-2.01314E-02	-1.59283E-04	-9.39142E-03
694	-1.54174E+02	-1.49183E+02	1.06945E-01	3.10590E+00
695	-1.46404E-02	-1.27384E-02	3.24342E-05	4.71403E-02
696	-1.19713E-02	-1.86990E-02	-1.14726E-04	4.27724E-03
697	-7.61744E+01	-7.43419E+01	3.87212E-02	1.58488E+00
698	1.99045E-02	1.00366E-01	2.76281E-03	-3.88212E-02
699	9.30906E-02	-2.01027E-01	-8.16992E-03	-5.57629E-02
700	-2.09252E-01	-3.37667E-01	-3.56708E-03	-7.39404E-02
701	-3.44005E-01	-4.19826E-01	-2.10614E-03	-8.77598E-02
702	-4.23244E-01	-4.03412E-01	5.50880E-04	-9.51352E-02
703	-4.03466E-01	-4.24995E-01	-5.98025E-04	-9.51906E-02
704	-4.21684E-01	-3.50605E-01	1.97442E-03	-8.79235E-02
705	-3.44359E-01	-2.70628E-01	3.43696E-03	-7.41769E-02
706	-2.12393E-01	1.05060E-01	9.81784E-03	-5.58287E-02
707	1.12336E-01	1.89562E-02	-2.59388E-03	-3.87641E-02
708	-7.43671E+01	-6.08871E+01	2.91202E-01	1.58535E+00
709	-9.30903E-03	-1.27335E-02	-5.83966E-05	1.57357E-02
710	-9.87746E-03	-9.13501E-03	1.26607E-05	3.53423E-02
711	-1.49229E+02	-1.21290E+02	6.03768E-01	3.06106E+00
712	-8.39686E-03	-1.38384E-02	-9.27926E-05	6.97062E-03
713	-1.12137E-02	-7.98423E-03	5.50708E-05	4.31104E-02

714	-1.50553E+02	-1.22029E+02	6.16192E-01	3.06245E+00
715	-8.91837E-03	-1.34263E-02	-7.69725E-05	9.44437E-03
716	-1.17230E-02	-8.57424E-03	4.68745E-05	3.99812E-02
717	-1.52077E+02	-1.22905E+02	6.30195E-01	3.04525E+00
718	-9.40805E-03	-1.27752E-02	-5.74184E-05	1.40727E-02
719	-1.12404E-02	-9.34945E-03	3.15633E-05	3.55235E-02
720	-1.53280E+02	-1.23673E+02	6.39595E-01	3.04580E+00
721	-1.01440E-02	-1.16578E-02	-2.58133E-05	2.14294E-02
722	-1.06743E-02	-1.06121E-02	1.12952E-06	2.40479E-02
723	-1.53718E+02	-1.23915E+02	6.43825E-01	3.03685E+00
724	-1.06520E-02	-1.06425E-02	1.61665E-07	2.77823E-02
725	-1.01726E-02	-1.16267E-02	-2.47973E-05	2.16914E-02
726	-1.53281E+02	-1.23671E+02	6.39654E-01	3.04542E+00
727	-1.12138E-02	-9.42026E-03	3.05453E-05	3.52494E-02
728	-9.44766E-03	-1.27437E-02	-5.62756E-05	1.43425E-02
729	-1.52079E+02	-1.22907E+02	6.30215E-01	3.04524E+00
730	-1.13023E-02	-8.59649E-03	4.61399E-05	3.97672E-02
731	-8.95515E-03	-1.34067E-02	-7.59111E-05	1.00739E-02
732	-1.50546E+02	-1.22030E+02	6.16013E-01	3.06446E+00
733	-1.12388E-02	-7.93778E-03	5.62914E-05	4.33311E-02
734	-8.36896E-03	-1.38804E-02	-9.39865E-05	6.73537E-03
735	-1.49192E+02	-1.21239E+02	6.03364E-01	3.05774E+00
736	-9.82805E-03	-9.16349E-03	1.13324E-05	3.50226E-02
737	-9.34255E-03	-1.26960E-02	-5.71847E-05	1.60354E-02
738	-7.43449E+01	-6.08717E+01	2.91056E-01	1.54576E+00
739	1.23457E-02	9.42774E-02	2.27584E-03	-3.51714E-02
740	9.00575E-02	-8.33408E-02	-4.81662E-03	-4.61246E-02
741	-8.93540E-02	-1.61261E-01	-2.02519E-03	-5.91956E-02
742	-1.65161E-01	-2.21105E-01	-1.55400E-03	-6.93135E-02
743	-2.33223E-01	-2.14800E-01	2.33947E-04	-7.47819E-02
744	-2.14850E-01	-2.23850E-01	-2.50009E-04	-7.44201E-02
745	-2.21833E-01	-1.69340E-01	1.48594E-03	-6.94316E-02
746	-1.04532E-01	-9.52586E-02	1.92427E-03	-5.93785E-02
747	-9.02637E-02	9.76255E-02	5.21915E-03	-4.61697E-02
748	1.01813E-01	1.23980E-02	-2.44376E-03	-3.51122E-02
749	-6.04899E+01	-3.59174E+01	5.39470E-01	1.53267E+00
750	-4.33222E-03	-6.16326E-03	-3.12243E-05	2.19735E-02
751	-3.88479E-03	-4.67810E-03	-1.35240E-05	2.72043E-02
752	-1.21297E+02	-7.11019E+01	1.08413E+00	2.93250E+00
753	-3.92801E-03	-6.77666E-03	-4.85773E-05	1.76032E-02
754	-4.50916E-03	-3.92172E-03	1.00174E-05	3.03992E-02
755	-1.22036E+02	-7.14457E+01	1.09288E+00	2.92941E+00
756	-4.20646E-03	-6.51324E-03	-3.93369E-05	1.85841E-02
757	-4.64578E-03	-4.11000E-03	9.13652E-06	2.91274E-02
758	-1.22912E+02	-7.17935E+01	1.10430E+00	2.90634E+00
759	-4.35539E-03	-6.16396E-03	-3.08393E-05	1.98659E-02
760	-4.75024E-03	-4.45454E-03	5.04321E-06	2.75722E-02
761	-1.23681E+02	-7.21611E+01	1.11295E+00	2.90335E+00
762	-4.56552E-03	-5.57677E-03	-1.72446E-05	2.24692E-02
763	-4.65756E-03	-5.04534E-03	-6.61277E-06	2.48260E-02
764	-1.23923E+02	-7.22443E+01	1.11638E+00	2.89289E+00
765	-4.03492E-03	-5.07028E-03	-7.42578E-06	2.46261E-02
766	-4.59923E-03	-5.55126E-03	-1.64051E-05	2.26654E-02
767	-1.23679E+02	-7.21587E+01	1.11296E+00	2.90293E+00
768	-4.72672E-03	-4.44041E-03	4.20038E-06	2.73631E-02
769	-4.38366E-03	-6.13700E-03	-2.98992E-05	2.00700E-02
770	-1.22913E+02	-7.17935E+01	1.10432E+00	2.90625E+00
771	-4.62418E-03	-4.13012E-03	8.42505E-06	2.89373E-02
772	-4.24033E-03	-6.49997E-03	-3.83625E-05	1.87854E-02
773	-1.22037E+02	-7.14515E+01	1.09278E+00	2.93102E+00
774	-4.50551E-03	-3.90616E-03	1.02204E-05	3.03922E-02
775	-3.92996E-03	-6.79012E-03	-4.87752E-05	1.75962E-02
776	-1.21246E+02	-7.10699E+01	1.08392E+00	2.92922E+00
777	-3.94491E-03	-4.70703E-03	-1.47031E-05	2.69608E-02

778	-4.36008E-03	-6.13446E-03	-3.02580E-05	2.21979E-02
779	-6.08744E+01	-3.59097E+01	5.39302E-01	1.53288E+00
780	4.03457E-03	9.40400E-03	1.49151E-04	-3.06277E-02
781	7.58509E-03	-1.07871E-02	-5.10227E-04	-3.49099E-02
782	-1.30383E-02	-4.68905E-02	-9.40339E-04	-4.12711E-02
783	-4.46151E-02	-5.76741E-02	-2.51638E-04	-4.62630E-02
784	-5.46234E-02	-6.35884E-02	-1.37915E-04	-4.89983E-02
785	-6.36337E-02	-5.97645E-02	1.35257E-04	-4.90059E-02
786	-5.79070E-02	-4.98933E-02	2.22596E-04	-4.63230E-02
787	-4.82619E-02	-1.36266E-02	9.62089E-04	-4.13776E-02
788	-1.14241E-02	9.41232E-03	5.51011E-04	-3.49231E-02
789	1.31721E-02	4.09676E-03	-1.69036E-04	-3.05774E-02
790	-3.59188E+01	1.64158E-04	7.75940E-01	1.43279E+00
791	4.49280E-04	-2.03114E-03	-4.22809E-05	2.27523E-02
792	7.53097E-04	-1.63540E-03	-4.07304E-05	2.32619E-02
793	-7.11049E+01	3.51837E-04	1.53605E+00	2.73140E+00
794	4.23441E-04	-2.08899E-03	-4.28436E-05	2.17650E-02
795	6.69186E-04	-1.47450E-03	-3.65557E-05	2.30567E-02
796	-7.14490E+01	3.59845E-04	1.54349E+00	2.72293E+00
797	3.68762E-04	-2.00754E-03	-4.05224E-05	2.14306E-02
798	6.09523E-04	-1.49594E-03	-3.59038E-05	2.27022E-02
799	-7.17967E+01	3.56680E-04	1.55100E+00	2.69933E+00
800	3.61139E-04	-1.90632E-03	-3.86663E-05	2.17960E-02
801	5.18871E-04	-1.54585E-03	-3.52084E-05	2.24739E-02
802	-7.21644E+01	3.57235E-04	1.55894E+00	2.69339E+00
803	3.96292E-04	-1.77854E-03	-3.70967E-05	2.19264E-02
804	4.42938E-04	-1.65259E-03	-3.57344E-05	2.21995E-02
805	-7.22476E+01	3.54922E-04	1.56074E+00	2.68314E+00
806	4.53930E-04	-1.67439E-03	-3.64640E-05	2.20318E-02
807	3.74788E-04	-1.75633E-03	-3.63414E-05	2.20904E-02
808	-7.21620E+01	3.57111E-04	1.55889E+00	2.69295E+00
809	5.39837E-04	-1.56746E-03	-3.59351E-05	2.23027E-02
810	3.37629E-04	-1.88329E-03	-3.78724E-05	2.19630E-02
811	-7.17967E+01	3.56669E-04	1.55100E+00	2.69929E+00
812	6.32098E-04	-1.51717E-03	-3.66508E-05	2.25345E-02
813	3.44120E-04	-1.98581E-03	-3.97316E-05	2.20094E-02
814	-7.14548E+01	3.60409E-04	1.54361E+00	2.72434E+00
815	6.91054E-04	-1.48921E-03	-3.71794E-05	2.29017E-02
816	4.01258E-04	-2.07336E-03	-4.21991E-05	2.19066E-02
817	-7.10729E+01	3.50995E-04	1.53536E+00	2.72834E+00
818	7.77638E-04	-1.65750E-03	-4.15257E-05	2.30697E-02
819	4.23674E-04	-2.00754E-03	-4.14588E-05	2.29182E-02
820	-3.59111E+01	1.66376E-04	7.75774E-01	1.43272E+00
821	0.	0.	0.	0.
822	0.	0.	0.	0.
823	0.	0.	0.	0.
824	0.	0.	0.	0.
825	0.	0.	0.	0.
826	0.	0.	0.	0.
827	0.	0.	0.	0.
828	0.	0.	0.	0.
829	0.	0.	0.	0.
830	0.	0.	0.	0.

MN	STRSOJ	STRSOK	STRSIJ	STRSIK
11	3.84227E+00	1.06109E+00	3.84225E+00	6.06720E+00
14	3.80207E+00	9.13815E-01	3.80204E+00	6.11265E+00
17	4.01022E+00	9.60414E-01	4.01019E+00	6.45003E+00
20	4.14391E+00	9.73532E-01	4.14387E+00	6.68017E+00
23	4.28101E+00	1.07652E+00	4.28098E+00	6.88457E+00
26	4.30316E+00	1.02721E+00	4.30313E+00	6.92389E+00
29	4.28140E+00	1.02673E+00	4.28136E+00	6.88505E+00
32	4.14417E+00	9.73735E-01	4.14414E+00	6.68049E+00
35	4.00829E+00	9.58954E-01	4.00826E+00	6.44772E+00
38	3.80331E+00	9.14817E-01	3.80328E+00	6.11407E+00
41	3.83949E+00	1.05932E+00	3.83987E+00	6.06433E+00
52	1.26892E+00	-5.46169E-01	6.27483E+00	7.72681E+00
55	1.15432E+00	-7.76989E-01	6.35292E+00	7.49797E+00
58	1.22479E+00	-8.15627E-01	6.71413E+00	8.34647E+00
61	1.24539E+00	-8.82045E-01	6.95194E+00	8.65405E+00
64	1.31061E+00	-8.65753E-01	7.16837E+00	8.90946E+00
67	1.31049E+00	-8.81825E-01	7.20698E+00	8.96073E+00
70	1.31086E+00	-8.65542E-01	7.16884E+00	8.30997E+00
73	1.24596E+00	-8.81756E-01	6.95233E+00	8.65443E+00
76	1.22316E+00	-8.17269E-01	6.71165E+00	8.34399E+00
79	1.15549E+00	-7.75753E-01	6.35451E+00	7.89951E+00
82	1.26737E+00	-5.47530E-01	6.27227E+00	7.72414E+00
93	-5.08530E-01	-1.32284E+00	7.76425E+00	8.41573E+00
96	-6.33774E-01	-1.65772E+00	8.04066E+00	8.77982E+00
99	-6.53669E-01	-1.63873E+00	8.50781E+00	9.29591E+00
102	-7.06831E-01	-1.73771E+00	8.82857E+00	9.65323E+00
105	-6.92892E-01	-1.72549E+00	9.09167E+00	9.92571E+00
108	-6.97984E-01	-1.74723E+00	9.14393E+00	9.98333E+00
111	-6.82691E-01	-1.72522E+00	9.09217E+00	9.92020E+00
114	-7.06639E-01	-1.73744E+00	8.82891E+00	9.65355E+00
117	-6.55237E-01	-1.64069E+00	8.50537E+00	9.29365E+00
120	-6.32495E-01	-1.55623E+00	8.04225E+00	8.78126E+00
123	-5.09494E-01	-1.32407E+00	7.76202E+00	8.41368E+00
134	-1.48298E+00	-1.30211E+00	8.25531E+00	8.11061E+00
137	-1.52239E+00	-1.41626E+00	8.81455E+00	8.72971E+00
140	-1.57240E+00	-1.49267E+00	9.36155E+00	9.28976E+00
143	-1.66047E+00	-1.56475E+00	9.72929E+00	9.65240E+00
146	-1.64116E+00	-1.51669E+00	1.00092E+01	9.90963E+00
149	-1.66844E+00	-1.53921E+00	1.00613E+01	9.95789E+00
152	-1.64093E+00	-1.51642E+00	1.00097E+01	9.91006E+00
155	-1.66061E+00	-1.56453E+00	9.72960E+00	9.65274E+00
158	-1.57443E+00	-1.48494E+00	9.35914E+00	9.28755E+00
161	-1.52063E+00	-1.41[illegible]2E+00	8.81622E+00	8.73134E+00
164	-1.48343E+00	-1.30326E+00	8.25360E+00	8.10914E+00
175	-1.66392E+00	-5.39046E-01	7.74814E+00	6.84823E+00
178	-1.49270E+00	-3.69293E-01	8.65265E+00	7.75392E+00
181	-1.50714E+00	-3.45521E-01	9.26460E+00	8.33530E+00
184	-1.58277E+00	-3.45789E-01	9.63370E+00	8.64412E+00
187	-1.53545E+00	-2.36147E-01	9.88975E+00	8.84399E+00
190	-1.57191E+00	-2.54866E-01	9.92459E+00	8.87103E+00
193	-1.53557E+00	-2.35823E-01	9.89020E+00	8.85041E+00
196	-1.58245E+00	-3.45517E-01	9.63414E+00	8.64459E+00
199	-1.51003E+00	-3.48543E-01	9.26177E+00	8.33258E+00
202	-1.49029E+00	-3.67017E-01	8.65495E+00	7.75032E+00
205	-1.66496E+00	-5.40371E-01	7.74678E+00	6.84711E+00
216	-1.08429E+00	9.62900E-01	6.30176E+00	4.74401E+00
219	-5.45028E-01	1.56162E+00	7.57773E+00	5.89242E+00
222	-4.65414E-01	1.73446E+00	8.21491E+00	6.45201E+00
225	-4.49762E-01	1.95435E+00	8.54069E+00	6.61920E+00
228	-3.78799E-01	2.05203E+00	8.70682E+00	6.76214E+00

231	-3.96499E-01	2.10473E+00	8.72893E+00	6.72795E+00
234	-3.74437E-01	2.05244E+00	8.70728E+00	6.76258E+00
237	-4.48328E-01	1.95473E+00	8.54133E+00	6.61884E+00
240	-4.69599E-01	1.73022E+00	8.21103E+00	6.45118E+00
243	-5.41603E-01	1.56483E+00	7.58128E+00	5.99614E+00
246	-1.08568E+00	8.61183E-01	6.30057E+00	4.74309E+00
257	1.96490E-01	2.75522E+00	4.07576E+00	2.02877E+00
260	1.29239E+00	4.32384E+00	5.62291E+00	3.19774E+00
263	1.53513E+00	4.75717E+00	6.25548E+00	3.67785E+00
266	1.74364E+00	5.32243E+00	6.40722E+00	3.54415E+00
269	1.78370E+00	5.25174E+00	6.49354E+00	3.71910E+00
272	1.84237E+00	5.49635E+00	6.46530E+00	3.54211E+00
275	1.78415E+00	5.25229E+00	6.49404E+00	3.71954E+00
278	1.74425E+00	5.32319E+00	6.40804E+00	3.54490E+00
281	1.52921E+00	4.75125E+00	6.24997E+00	3.67234E+00
284	1.29717E+00	4.32842E+00	5.62820E+00	3.20320E+00
287	1.94627E-01	2.75296E+00	4.07470E+00	2.02803E+00
290	2.11293E+00	5.11177E+00	1.38460E+00	-1.01447E+00
301	3.90471E+00	7.55033E+00	2.77832E+00	-1.39195E-01
304	4.58310E+00	4.25820E+00	3.50417E+00	-2.35905E-01
307	4.85307E+00	9.11450E+00	3.07427E+00	-3.34876E-01
310	4.98536E+00	9.79665E+00	3.45302E+00	-3.96004E-01
313	4.98857E+00	9.29286E+00	3.03384E+00	-4.09601E-01
316	4.98594E+00	9.79739E+00	3.45350E+00	-3.95052E-01
319	4.85395E+00	9.11557E+00	3.07521E+00	-3.34093E-01
322	4.57491E+00	9.25010E+00	3.49638E+00	-2.43764E-01
325	3.91130E+00	7.55675E+00	2.78579E+00	-1.30576E-01
328	2.11054E+00	5.10893E+00	1.38374E+00	-1.91497E+00
339	4.63668E+00	9.15723E+00	-1.49054E+00	-4.30698E+00
342	6.99982E+00	1.04704E+01	-6.88844E-01	-3.46528E+00
345	8.41392E+00	1.16716E+01	-1.07992E+00	-3.68016E+00
348	8.39265E+00	1.19502E+01	-1.05697E+00	-3.92304E+00
351	8.90442E+00	1.22029E+01	-1.28752E+00	-3.92392E+00
354	9.55247E+00	1.20299E+01	-1.15025E+00	-3.93214E+00
357	8.90554E+00	1.22037E+01	-1.28718E+00	-3.92972E+00
360	8.39393E+00	1.18519E+01	-1.05599E+00	-3.92229E+00
363	8.40272E+00	1.16607E+01	-1.09079E+00	-3.69718E+00
366	7.00876E+00	1.04791E+01	-6.78705E-01	-3.46500E+00
369	4.63374E+00	9.15397E+00	-1.49114E+00	-4.30732E+00
380	7.81861E+00	1.17063E+01	-4.64511E+00	-7.75323E+00
383	1.00491E+01	1.33152E+01	-3.88673E+00	-6.49917E+00
386	1.12199E+01	1.37027E+01	-4.13930E+00	-6.12642E+00
389	1.13890E+01	1.40973E+01	-4.28484E+00	-6.45226E+00
392	1.17373E+01	1.41297E+01	-4.39179E+00	-6.30576E+00
395	1.15645E+01	1.42669E+01	-4.39709E+00	-6.55905E+00
398	1.17391E+01	1.41306E+01	-4.39165E+00	-6.30362E+00
401	1.13899E+01	1.40994E+01	-4.28382E+00	-6.45145E+00
404	1.12040E+01	1.36882E+01	-4.15424E+00	-6.14159E+00
407	1.00611E+01	1.33269E+01	-3.87284E+00	-6.48552E+00
410	7.81518E+00	1.17030E+01	-4.64563E+00	-7.75587E+00
421	1.19417E+01	7.50389E+00	-7.51832E+00	-3.96807E+00
424	1.34026E+01	8.58122E+00	-6.41158E+00	-2.55445E+00
427	1.37835E+01	8.83345E+00	-6.04610E+00	-2.08609E+00
430	1.42076E+01	8.92246E+00	-6.34170E+00	-2.11359E+00
433	1.42322E+01	9.06409E+00	-6.20361E+00	-2.06912E+00
436	1.43877E+01	9.04659E+00	-6.43799E+00	-2.16513E+00
439	1.42330E+01	9.06462E+00	-6.20350E+00	-2.06840E+00
442	1.42192E+01	8.92494E+00	-6.34038E+00	-2.11221E+00
445	1.37634E+01	8.81369E+00	-6.06647E+00	-2.10442E+00
448	1.34192E+01	8.59706E+00	-6.39409E+00	-2.53715E+00
451	1.19377E+01	7.50069E+00	-7.51970E+00	-3.97010E+00
462	8.25774E+00	4.14839E+00	-3.21266E+00	7.48151E-02
465	9.05555E+00	4.85217E+00	-2.08013E+00	1.28258E+00
468	9.24972E+00	4.97524E+00	-1.66989E+00	1.74969E+00

471	9.36311E+00	4.93327E+00	-1.67301E+00	1.47086E+00
474	9.50400E+00	5.02659E+00	-1.62923E+00	1.95271E+00
477	9.50728E+00	4.98501E+00	-1.70448E+00	1.91334E+00
480	9.50441E+00	5.02685E+00	-1.62904E+00	1.95300E+00
483	9.36563E+00	4.93479E+00	-1.67163E+00	1.47304E+00
486	9.34656E+00	5.07055E+00	-1.57445E+00	1.84035E+00
489	9.15634E+00	4.95567E+00	-1.97621E+00	1.34436E+00
492	8.26036E+00	4.15083E+00	-3.20887E+00	7.47077E-02
503	4.87566E+00	1.36444E+00	8.03237E-01	3.61221E+00
506	5.27153E+00	1.78233E+00	1.70200E+00	4.49336E+00
509	5.32536E+00	1.81661E+00	2.10046E+00	4.90795E+00
512	5.27058E+00	1.72153E+00	2.21727E+00	5.06380E+00
515	5.37139E+00	1.74825E+00	2.29755E+00	5.19605E+00
518	5.34348E+00	1.70589E+00	2.27183E+00	5.18190E+00
521	5.37156E+00	1.74815E+00	2.29774E+00	5.19645E+00
524	5.28110E+00	1.72265E+00	2.21935E+00	5.06610E+00
527	5.33602E+00	1.82685E+00	2.11147E+00	4.91480E+00
530	5.25796E+00	1.76872E+00	1.68682E+00	4.47813E+00
533	4.88380E+00	1.37409E+00	8.12756E-01	3.62052E+00
536	1.98899E+00	-7.38392E-01	4.23738E+00	6.41921E+00
539	2.13343E+00	-5.40911E-01	4.84464E+00	6.98403E+00
542	2.09352E+00	-5.56167E-01	5.18515E+00	7.30498E+00
545	1.98670E+00	-6.67413E-01	5.32913E+00	7.45242E+00
548	1.99534E+00	-6.86394E-01	5.43328E+00	7.58867E+00
551	1.96560E+00	-7.27653E-01	5.44176E+00	7.59636E+00
554	1.99513E+00	-6.86706E-01	5.44357E+00	7.58304E+00
557	1.98723E+00	-6.66681E-01	5.33084E+00	7.45398E+00
560	2.10092E+00	-5.48485E-01	5.19305E+00	7.31258E+00
563	2.12336E+00	-5.50331E-01	4.83356E+00	6.97299E+00
566	1.99553E+00	-7.30777E-01	4.24268E+00	6.42372E+00
569	-2.59591E-01	-2.08609E+00	6.89846E+00	8.35465E+00
572	-2.77664E-01	-2.04325E+00	7.24753E+00	8.65999E+00
575	-3.59493E-01	-2.08045E+00	7.50201E+00	8.87379E+00
578	-4.87032E-01	-2.18919E+00	7.63315E+00	8.99486E+00
581	-5.24364E-01	-2.23030E+00	7.74704E+00	9.10859E+00
584	-5.64714E-01	-2.26955E+00	7.76004E+00	9.12424E+00
587	-5.24854E-01	-2.23074E+00	7.74723E+00	9.10873E+00
590	-4.86803E-01	-2.18872E+00	7.63420E+00	8.99373E+00
593	-3.54258E-01	-2.07495E+00	7.50716E+00	8.88371E+00
596	-2.84427E-01	-2.04985E+00	7.23925E+00	8.65159E+00
599	-2.53792E-01	-2.07985E+00	6.90114E+00	8.36199E+00
602	-1.76858E+00	-2.62243E+00	8.67748E+00	9.36060E+00
605	-1.88275E+00	-2.67390E+00	8.82101E+00	9.45393E+00
608	-1.97236E+00	-2.71672E+00	8.98743E+00	9.58292E+00
611	-2.09678E+00	-2.91285E+00	9.08780E+00	9.66066E+00
614	-2.15798E+00	-2.85900E+00	9.18147E+00	9.74292E+00
617	-2.19657E+00	-2.89457E+00	9.19776E+00	9.75016E+00
620	-2.15856E+00	-2.86025E+00	9.18145E+00	9.74281E+00
623	-2.09664E+00	-2.81261E+00	9.08835E+00	9.66112E+00
626	-1.96861E+00	-2.71283E+00	8.99058E+00	9.58597E+00
629	-1.88746E+00	-2.67834E+00	8.81449E+00	9.44720E+00
632	-1.76374E+00	-2.61757E+00	8.67844E+00	9.36150E+00
635	-2.46637E+00	-2.30940E+00	9.51709E+00	9.39151E+00
638	-2.62503E+00	-2.40903E+00	9.50346E+00	9.33064E+00
641	-2.70214E+00	-2.44845E+00	9.59820E+00	9.39525E+00
644	-2.81115E+00	-2.52749E+00	9.66308E+00	9.43614E+00
647	-2.87321E+00	-2.57034E+00	9.73023E+00	9.48794E+00
650	-2.99929E+00	-2.59883E+00	9.74216E+00	9.49384E+00
653	-2.87379E+00	-2.57077E+00	9.72998E+00	9.48756E+00
656	-2.81111E+00	-2.52741E+00	9.66333E+00	9.43637E+00
659	-2.69927E+00	-2.44574E+00	9.60024E+00	9.39741E+00
662	-2.62844E+00	-2.41205E+00	9.49776E+00	9.32466E+00
665	-2.46243E+00	-2.30573E+00	9.51702E+00	9.39167E+00
668	-2.30673E+00	-1.12833E+00	9.39465E+00	8.43197E+00

711	-2.47339E+00	-1.25181E+00	9.26695E+00	8.28970E+00
714	-2.52895E+00	-1.28214E+00	9.31559E+00	8.31422E+00
717	-2.61977E+00	-1.34373E+00	9.34560E+00	8.32557E+00
720	-2.67063E+00	-1.37657E+00	9.38841E+00	8.35316E+00
723	-2.70161E+00	-1.39903E+00	9.39188E+00	8.34974E+00
726	-2.67117E+00	-1.37699E+00	9.38793E+00	8.35259E+00
729	-2.51847E+00	-1.34373E+00	9.34566E+00	8.32559E+00
732	-2.52642E+00	-1.28007E+00	9.31746E+00	8.32034E+00
735	-2.47615E+00	-1.25433E+00	9.26126E+00	8.28395E+00
738	-2.30369E+00	-1.12594E+00	9.39419E+00	8.45199E+00
749	-1.26798E+00	9.14983E-01	8.31292E+00	6.56645E+00
752	-1.42217E+00	7.71301E-01	8.11988E+00	6.36511E+00
755	-1.45897E+00	7.52183E-01	8.14197E+00	6.37304E+00
758	-1.52779E+00	7.06471E-01	8.14210E+00	6.35469E+00
761	-1.56533E+00	6.86447E-01	8.16500E+00	6.36358E+00
764	-1.58977E+00	6.69956E-01	8.15961E+00	6.35264E+00
767	-1.56591E+00	6.85992E-01	8.16438E+00	6.36294E+00
770	-1.52795E+00	7.06347E-01	8.14201E+00	6.35456E+00
773	-1.45691E+00	7.54052E-01	8.14413E+00	6.37537E+00
776	-1.42469E+00	7.68356E-01	8.11408E+00	6.35965E+00
779	-1.26607E+00	9.16207E-01	8.31229E+00	6.56646E+00
790	6.50636E-01	3.79049E+00	6.30232E+00	3.79045E+00
793	5.05157E-01	3.61297E+00	6.09920E+00	3.61295E+00
796	4.78926E-01	3.60179E+00	6.10004E+00	3.60175E+00
799	4.32508E-01	3.57056E+00	6.08098E+00	3.57053E+00
802	4.09576E-01	3.56270E+00	6.08597E+00	3.56267E+00
805	3.91797E-01	3.54915E+00	6.07533E+00	3.54912E+00
808	4.09104E-01	3.56212E+00	6.08531E+00	3.56209E+00
811	4.32440E-01	3.57050E+00	6.08091E+00	3.57047E+00
814	4.80592E-01	3.60369E+00	6.10215E+00	3.60366E+00
817	5.02515E-01	3.60993E+00	6.09403E+00	3.60190E+00
820	6.51122E-01	3.79029E+00	6.30160E+00	3.79026E+00

PROBLEM NUMBER 5

RUNGE-KUTTA INTERVAL = 6

TOTAL PERCENT OF LOAD INCLUDED AT THIS TIME = 100
PERCENT OF TOTAL LOAD TAKEN IN THIS INTERVAL = 17

DISPLACEMENTS

NODE	DELTA X	DELTA Y	DELTA Z	THETA X	THETA Y
1	0.	0.	0.	0.	-8.56328E-03
2	0.	0.	0.	0.	-9.17128E-03
3	0.	0.	0.	0.	-9.86274E-03
4	0.	0.	0.	0.	-1.03873E-02
5	0.	0.	0.	0.	-1.07479E-02
6	0.	0.	0.	0.	-1.09065E-02
7	0.	0.	0.	0.	-1.08998E-02
8	0.	0.	0.	0.	-1.06842E-02
9	0.	0.	0.	0.	-1.03006E-02
10	0.	0.	0.	0.	-9.77040E-03
11	0.	0.	0.	0.	-9.30925E-03
12	-3.76718E-01	-5.05395E-03	2.12378E-02	8.60381E-05	-7.32070E-03
13	-4.05972E-01	-5.01463E-03	2.41175E-02	7.49070E-05	-7.97919E-03
14	-4.37231E-01	-4.95580E-03	2.63064E-02	5.34837E-05	-8.62344E-03
15	-4.60845E-01	-4.86730E-03	2.78141E-02	3.54677E-05	-9.10859E-03
16	-4.77039E-01	-4.75690E-03	2.87519E-02	2.02392E-05	-9.43978E-03
17	-4.84203E-01	-4.63420E-03	2.92157E-02	6.66625E-06	-9.59076E-03
18	-4.83979E-01	-4.51035E-03	2.92166E-02	-7.53697E-06	-9.59252E-03
19	-4.74392E-01	-4.39633E-03	2.87056E-02	-2.42487E-05	-9.40694E-03
20	-4.57198E-01	-4.30229E-03	2.76261E-02	-3.93211E-05	-9.06234E-03
21	-4.33352E-01	-4.23630E-03	2.61762E-02	-4.55290E-05	-8.57830E-03
22	-4.12437E-01	-4.19331E-03	2.46293E-02	-4.54465E-05	-8.14242E-03
23	-6.39279E-01	-9.13171E-03	7.60788E-02	2.94956E-04	-3.99823E-03
24	-5.96363E-01	-9.11134E-03	8.62361E-02	2.63694E-04	-4.53262E-03
25	-7.53544E-01	-9.04530E-03	9.44272E-02	1.97746E-04	-5.01096E-03
26	-7.96597E-01	-8.91685E-03	1.00310E-01	1.36147E-04	-5.36287E-03
27	-8.26049E-01	-8.74472E-03	1.04139E-01	8.04981E-05	-5.60295E-03
28	-8.39746E-01	-8.54803E-03	1.06080E-01	3.03670E-05	-5.73044E-03
29	-8.40375E-01	-8.34870E-03	1.06287E-01	-2.13691E-05	-5.76552E-03
30	-8.24534E-01	-8.16406E-03	1.04501E-01	-8.12903E-05	-5.68540E-03
31	-7.94671E-01	-8.02686E-03	1.00598E-01	-1.39262E-04	-5.48526E-03
32	-7.52286E-01	-7.94198E-03	9.50702E-02	-1.65090E-04	-5.16662E-03
33	-7.13666E-01	-7.90042E-03	8.92769E-02	-1.62657E-04	-4.83396E-03
34	-7.17877E-01	-1.16114E-02	1.00717E-01	4.94390E-04	5.36923E-04
35	-7.90500E-01	-1.16136E-02	1.17901E-01	4.40566E-04	4.25068E-04
36	-8.61799E-01	-1.15535E-02	1.31759E-01	3.28580E-04	2.71815E-04
37	-9.15064E-01	-1.14108E-02	1.41662E-01	2.24712E-04	1.73443E-04
38	-9.51507E-01	-1.12125E-02	1.48128E-01	1.36795E-04	1.04094E-04
39	-9.69213E-01	-1.09832E-02	1.51694E-01	6.42838E-05	4.88773E-05
40	-9.71846E-01	-1.07498E-02	1.52763E-01	-7.72070E-06	-1.54502E-05
41	-9.55459E-01	-1.05373E-02	1.50970E-01	-9.75292E-05	-7.84123E-05
42	-9.21796E-01	-1.03721E-02	1.45619E-01	-1.98617E-04	-1.17250E-04
43	-8.71484E-01	-1.02783E-02	1.37102E-01	-2.62126E-04	-8.05929E-05
44	-8.23363E-01	-1.02416E-02	1.27407E-01	-2.72432E-04	1.27854E-05
45	-6.04313E-01	-1.18397E-02	2.28200E-02	4.36202E-04	5.32614E-03
46	-6.73492E-01	-1.18392E-02	3.81333E-02	3.89661E-04	5.71429E-03
47	-7.42738E-01	-1.17837E-02	5.04135E-02	2.78567E-04	5.98666E-03
48	-7.93494E-01	-1.16523E-02	5.85574E-02	1.75044E-04	6.22273E-03

49	-8.29138E-01	-1.14733E-02	6.36550E-02	1.08769E-04	6.37506E-03
50	-8.45344E-01	-1.12688E-02	6.68733E-02	7.39247E-05	6.44178E-03
51	-8.49864E-01	-1.10610E-02	6.91193E-02	4.81640E-05	6.38966E-03
52	-8.37534E-01	-1.08699E-02	7.00278E-02	-2.51960E-07	6.22538E-03
53	-8.09627E-01	-1.07141E-02	6.84650E-02	-9.13160E-05	5.94583E-03
54	-7.64081E-01	-1.06212E-02	6.32356E-02	-1.83257E-04	5.65145E-03
55	-7.19975E-01	-1.05835E-02	5.57627E-02	-2.13889E-04	5.39130E-03
56	-7.45922E-01	-9.66246E-03	-2.07497E-01	-3.88891E-05	9.42953E-03
57	-3.96589E-01	-9.64487E-03	-2.08804E-01	-4.78299E-05	1.01876E-02
58	-4.49721E-01	-9.59735E-03	-2.11027E-01	-9.73205E-05	1.08474E-02
59	-4.86787E-01	-9.50705E-03	-2.15038E-01	-1.12119E-04	1.13860E-02
60	-5.12401E-01	-9.39430E-03	-2.18092E-01	-6.31650E-05	1.17250E-02
61	-5.24885E-01	-9.27026E-03	-2.19007E-01	2.26407E-05	1.19028E-02
62	-5.30070E-01	-9.14597E-03	-2.16192E-01	1.26950E-04	1.18907E-02
63	-5.23484E-01	-9.02875E-03	-2.10006E-01	2.22796E-04	1.17010E-02
64	-5.07322E-01	-8.92779E-03	-2.01094E-01	2.51907E-04	1.12754E-02
65	-4.76431E-01	-8.85761E-03	-1.93083E-01	2.01668E-04	1.07028E-02
66	-4.46201E-01	-8.81945E-03	-1.86592E-01	1.76750E-04	1.00853E-02
67	-2.39070E-02	-5.56877E-03	-5.96128E-01	-9.24781E-04	1.20812E-02
68	-4.93849E-02	-5.56291E-03	-6.29061E-01	-9.03802E-04	1.30795E-02
69	-7.93984E-02	-5.55777E-03	-6.60356E-01	-8.31836E-04	1.40351E-02
70	-9.79288E-02	-5.55059E-03	-6.87131E-01	-6.25205E-04	1.47332E-02
71	-1.11748E-01	-5.54547E-03	-7.04540E-01	-3.60589E-04	1.51745E-02
72	-1.18059E-01	-5.54200E-03	-7.12916E-01	-8.78310E-05	1.53884E-02
73	-1.22937E-01	-5.53976E-03	-7.10598E-01	2.03895E-04	1.54220E-02
74	-1.21451E-01	-5.53629E-03	-6.97893E-01	5.23985E-04	1.52352E-02
75	-1.17981E-01	-5.53067E-03	-6.73325E-01	8.09984E-04	1.47918E-02
76	-1.06145E-01	-5.52178E-03	-6.41650E-01	9.32085E-04	1.40346E-02
77	-9.71005E-02	-5.51119E-03	-6.07481E-01	9.60455E-04	1.31619E-02
78	2.74576E-01	-5.75856E-04	-1.09666E+00	-2.15342E-03	1.27221E-02
79	2.72714E-01	-6.54192E-04	-1.17451E+00	-2.17802E-03	1.38928E-02
80	2.69054E-01	-7.65411E-04	-1.24984E+00	-1.81287E-03	1.50777E-02
81	2.65378E-01	-8.86525E-04	-1.30272E+00	-1.25248E-03	1.56969E-02
82	2.62690E-01	-1.01904E-03	-1.33932E+00	-7.15747E-04	1.62310E-02
83	2.60558E-01	-1.15420E-03	-1.35482E+00	-2.26650E-04	1.63483E-02
84	2.57589E-01	-1.28862E-03	-1.35553E+00	2.69440E-04	1.64896E-02
85	2.54172E-01	-1.41600E-03	-1.33453E+00	8.36503E-04	1.62420E-02
86	2.49735E-01	-1.52963E-03	-1.29439E+00	1.47383E-03	1.59509E-02
87	2.42005E-01	-1.63130E-03	-1.23016E+00	1.95736E-03	1.50917E-02
88	2.31415E-01	-1.70156E-03	-1.15864E+00	1.99770E-03	1.41923E-02
89	4.82837E-01	3.87298E-03	-1.61357E+00	-3.52503E-03	1.09197E-02
90	4.99457E-01	3.62381E-03	-1.74291E+00	-3.71844E-03	1.19761E-02
91	5.13132E-01	3.30664E-03	-1.86859E+00	-2.83481E-03	1.29829E-02
92	5.27156E-01	3.04291E-03	-1.94649E+00	-1.89384E-03	1.35552E-02
93	5.26345E-01	2.76288E-03	-2.00655E+00	-1.07826E-03	1.40101E-02
94	5.25937E-01	2.50216E-03	-2.02552E+00	-3.75459E-04	1.41524E-02
95	5.25620E-01	2.24483E-03	-2.03381E+00	3.08144E-04	1.42746E-02
96	5.19412E-01	1.99697E-03	-2.00217E+00	1.08393E-03	1.41374E-02
97	5.09515E-01	1.77775E-03	-1.95371E+00	2.02128E-03	1.39865E-02
98	4.90569E-01	1.53549E-03	-1.85596E+00	2.99831E-03	1.34876E-02
99	4.69383E-01	1.35653E-03	-1.75067E+00	2.88157E-03	1.29599E-02
100	5.74847E-01	5.61100E-03	-2.00915E+00	-4.59259E-03	6.16001E-03
101	5.95780E-01	5.20322E-03	-2.17506E+00	-4.63350E-03	6.45639E-03
102	6.16387E-01	4.74362E-03	-2.32969E+00	-3.57508E-03	6.63073E-03
103	6.29824E-01	4.37548E-03	-2.43129E+00	-2.41043E-03	7.09773E-03
104	6.34011E-01	4.01629E-03	-2.50525E+00	-1.40752E-03	7.21267E-03
105	6.40049E-01	3.69483E-03	-2.53433E+00	-5.43055E-04	7.54240E-03
106	6.40143E-01	3.38709E-03	-2.54497E+00	2.70049E-04	7.48914E-03
107	6.33322E-01	3.09848E-03	-2.51422E+00	1.13588E-03	7.71125E-03
108	6.23503E-01	2.84197E-03	-2.46161E+00	2.12728E-03	7.69159E-03
109	6.04576E-01	2.57175E-03	-2.36114E+00	3.10097E-03	8.16930E-03
110	5.84742E-01	2.36825E-03	-2.25031E+00	3.06245E-03	8.50729E-03
111	5.82175E-01	2.18126E-03	-2.10919E+00	-4.50633E-03	-2.21234E-03
112	5.99282E-01	1.79606E-03	-2.26685E+00	-4.12284E-03	-4.02998E-03

113	6.17558E-01	1.37593E-03	-2.39976E+00	-3.22155E-03	-5.09260E-03
114	6.29746E-01	9.42433E-04	-2.49838E+00	-2.29161E-03	-5.59612E-03
115	6.39218E-01	4.84195E-04	-2.56524E+00	-1.40710E-03	-5.88246E-03
116	6.40845E-01	0.	-2.60044E+00	-5.87645E-04	-5.91794E-03
117	6.40597E-01	-3.55005E-05	-2.60809E+00	1.87373E-04	-5.90134E-03
118	6.34709E-01	-9.58896E-05	-2.58723E+00	9.40959E-04	-5.64143E-03
119	6.25431E-01	-1.74597E-04	-2.54114E+00	1.63142E-03	-5.19309E-03
120	6.09541E-01	-2.64254E-04	-2.47296E+00	2.06150E-03	-4.28321E-03
121	5.94846E-01	-3.43074E-04	-2.39720E+00	2.12467E-03	-3.24141E-03
122	6.03984E-01	2.46107E-03	-1.80978E+00	-2.26511E-03	-9.99764E-03
123	6.23707E-01	2.36807E-03	-1.89007E+00	-2.24962E-03	-1.15834E-02
124	6.45191E-01	2.24699E-03	-1.96845E+00	-2.06004E-03	-1.26749E-02
125	6.59558E-01	2.11092E-03	-2.03506E+00	-1.61009E-03	-1.34140E-02
126	6.69177E-01	1.97535E-03	-2.08291E+00	-1.05004E-03	-1.38452E-02
127	6.72424E-01	1.84920E-03	-2.11033E+00	-4.68729E-04	-1.40504E-02
128	6.72164E-01	1.73852E-03	-2.11693E+00	8.87854E-05	-1.40604E-02
129	6.65427E-01	1.64937E-03	-2.10489E+00	5.71892E-04	-1.38735E-02
130	6.55327E-01	1.58884E-03	-2.07780E+00	8.94493E-04	-1.34559E-02
131	6.37621E-01	1.46738E-03	-2.04378E+00	9.91219E-04	-1.28239E-02
132	6.22226E-01	1.44777E-03	-2.00783E+00	9.89085E-04	-1.20933E-02
133	7.29899E-01	-1.00885E-03	-1.25994E+00	-7.14574E-04	-1.37322E-02
134	7.59921E-01	-1.00635E-03	-1.24720E+00	-8.47627E-04	-1.45453E-02
135	7.90911E-01	-1.01045E-03	-1.32073E+00	-9.87159E-04	-1.54316E-02
136	8.12424E-01	-1.02319E-03	-1.35520E+00	-8.98291E-04	-1.60963E-02
137	8.26350E-01	-1.04298E-03	-1.38324E+00	-6.48029E-04	-1.65239E-02
138	8.31860E-01	-1.06553E-03	-1.40085E+00	-3.24202E-04	-1.67339E-02
139	8.31722E-01	-1.08761E-03	-1.40663E+00	-5.59890E-06	-1.67499E-02
140	8.23784E-01	-1.10642E-03	-1.40236E+00	2.27613E-04	-1.65452E-02
141	8.09389E-01	-1.11938E-03	-1.39224E+00	3.09907E-04	-1.62476E-02
142	7.86751E-01	-1.19507E-03	-1.38190E+00	2.63501E-04	-1.58044E-02
143	7.67049E-01	-1.17499E-03	-1.37354E+00	2.22744E-04	-1.53309E-02
144	9.73252E-01	-5.60797E-03	-6.50633E-01	3.74121E-05	-1.40935E-02
145	1.01383E+00	-5.58630E-03	-6.49794E-01	-2.40339E-05	-1.45969E-02
146	1.05582E+00	-5.54364E-03	-6.53006E-01	-1.79275E-04	-1.51530E-02
147	1.09741E+00	-5.47708E-03	-6.61835E-01	-2.99413E-04	-1.56645E-02
148	1.10797E+00	-5.39835E-03	-6.72749E-01	-2.93181E-04	-1.60316E-02
149	1.11594E+00	-5.31460E-03	-6.81697E-01	-1.96850E-04	-1.62213E-02
150	1.11705E+00	-5.23115E-03	-6.86748E-01	-8.46955E-05	-1.62412E-02
151	1.10668E+00	-5.15235E-03	-6.88932E-01	-4.25166E-05	-1.61149E-02
152	1.09744E+00	-5.08360E-03	-6.91178E-01	-8.95181E-05	-1.58839E-02
153	1.05911E+00	-5.03357E-03	-6.96246E-01	-1.79473E-04	-1.56192E-02
154	1.03416E+00	-5.00247E-03	-7.03980E-01	-2.22147E-04	-1.53530E-02
155	1.28219E+00	-1.04330E-02	-1.29199E-01	4.85310E-04	-1.16841E-02
156	1.33123E+00	-1.04142E-02	-1.11937E-01	4.47903E-04	-1.20060E-02
157	1.39417E+00	-1.03614E-02	-9.77327E-02	3.05404E-04	-1.23192E-02
158	1.42551E+00	-1.02609E-02	-9.00737E-02	1.14646E-04	-1.26232E-02
159	1.45339E+00	-1.01283E-02	-8.84508E-02	-1.81927E-05	-1.28961E-02
160	1.46654E+00	-9.99038E-03	-9.03830E-02	-8.32032E-05	-1.30449E-02
161	1.46737E+00	-9.83295E-03	-9.41447E-02	-1.26821E-04	-1.30890E-02
162	1.45498E+00	-9.69922E-03	-9.99997E-02	-1.93767E-04	-1.30398E-02
163	1.43187E+00	-9.59137E-03	-1.08696E-01	-2.49914E-04	-1.29429E-02
164	1.39958E+00	-9.52051E-03	-1.20991E-01	-3.72989E-04	-1.28554E-02
165	1.37133E+00	-9.48217E-03	-1.35296E-01	-4.00928E-04	-1.27931E-02
166	1.56213E+00	-1.42292E-02	2.11410E-01	7.28593E-04	-7.10512E-03
167	1.61842E+00	-1.42178E-02	2.36958E-01	6.57609E-04	-7.19333E-03
168	1.67690E+00	-1.41635E-02	2.57911E-01	4.90612E-04	-7.25655E-03
169	1.72396E+00	-1.40517E-02	2.72382E-01	3.08088E-04	-7.34105E-03
170	1.75725E+00	-1.38976E-02	2.80545E-01	1.45292E-04	-7.45383E-03
171	1.77434E+00	-1.37207E-02	2.83320E-01	1.16854E-05	-7.55757E-03
172	1.77685E+00	-1.35425E-02	2.81618E-01	-1.05294E-04	-7.62378E-03
173	1.76439E+00	-1.33825E-02	2.75728E-01	-2.17786E-04	-7.66223E-03
174	1.74043E+00	-1.32565E-02	2.65958E-01	-3.15603E-04	-7.69832E-03
175	1.70802E+00	-1.31751E-02	2.53298E-01	-3.69886E-04	-7.76643E-03
176	1.69051E+00	-1.31306E-02	2.39624E-01	-3.74918E-04	-7.86136E-03

177	1.73486E+00	-1.58652E-02	3.43094E-01	6.98359E-04	-1.18811E-03
178	1.76047E+00	-1.58507E-02	3.67195E-01	6.09142E-04	-9.28823E-04
179	1.81660E+00	-1.57949E-02	3.86084E-01	4.46923E-04	-7.45797E-04
180	1.86280E+00	-1.56869E-02	3.99730E-01	3.13912E-04	-6.33459E-04
181	1.89706E+00	-1.55392E-02	4.08763E-01	1.87441E-04	-5.95492E-04
182	1.91615E+00	-1.53674E-02	4.13249E-01	6.31027E-05	-6.16230E-04
183	1.92073E+00	-1.51925E-02	4.13376E-01	-5.53504E-05	-6.72496E-04
184	1.91049E+00	-1.50349E-02	4.09410E-01	-1.61492E-04	-7.61937E-04
185	1.89932E+00	-1.49101E-02	4.02096E-01	-2.38231E-04	-8.84054E-04
186	1.86097E+00	-1.48275E-02	3.92871E-01	-2.62881E-04	-1.04197E-03
187	1.83931E+00	-1.47785E-02	3.83530E-01	-2.56155E-04	-1.21534E-03
188	1.62404E+00	-1.47614E-02	3.02242E-01	4.34996E-04	5.04673E-03
189	1.66608E+00	-1.47312E-02	3.17195E-01	3.81608E-04	5.55942E-03
190	1.71106E+00	-1.46767E-02	3.29037E-01	2.89003E-04	5.90545E-03
191	1.74979E+00	-1.45866E-02	3.38040E-01	2.18124E-04	6.14460E-03
192	1.77986E+00	-1.44663E-02	3.44519E-01	1.44289E-04	6.29660E-03
193	1.79768E+00	-1.43260E-02	3.48223E-01	6.35902E-05	6.36094E-03
194	1.80334E+00	-1.41817E-02	3.49051E-01	-1.75253E-05	6.34683E-03
195	1.79637E+00	-1.40496E-02	3.47113E-01	-8.95006E-05	6.25960E-03
196	1.78031E+00	-1.39427E-02	3.43000E-01	-1.39085E-04	6.11428E-03
197	1.75961E+00	-1.38693E-02	3.37842E-01	-1.43939E-04	5.93467E-03
198	1.74286E+00	-1.38194E-02	3.33017E-01	-1.30610E-04	5.76470E-03
199	1.24337E+00	-1.11438E-02	1.70519E-01	1.56058E-04	1.05620E-02
200	1.30407E+00	-1.11438E-02	1.76025E-01	1.53414E-04	1.10402E-02
201	1.33330E+00	-1.10984E-02	1.81124E-01	1.34359E-04	1.14031E-02
202	1.36036E+00	-1.10336E-02	1.85797E-01	1.05391E-04	1.16942E-02
203	1.38220E+00	-1.09495E-02	1.88434E-01	7.32528E-05	1.19143E-02
204	1.39562E+00	-1.08517E-02	1.90347E-01	3.57263E-05	1.20368E-02
205	1.40056E+00	-1.07500E-02	1.90932E-01	-3.19969E-06	1.20671E-02
206	1.39652E+00	-1.06546E-02	1.90219E-01	-3.77913E-05	1.20041E-02
207	1.38613E+00	-1.05742E-02	1.88496E-01	-6.06105E-05	1.19739E-02
208	1.37179E+00	-1.05141E-02	1.86743E-01	-5.96540E-05	1.17051E-02
209	1.36259E+00	-1.04695E-02	1.84495E-01	-4.96272E-05	1.15743E-02
210	7.10906E-01	-6.01919E-03	4.40027E-02	3.04796E-05	1.44392E-02
211	7.15846E-01	-5.98155E-03	4.51350E-02	3.58382E-05	1.46544E-02
212	7.29804E-01	-5.94724E-03	4.63993E-02	3.52853E-05	1.49721E-02
213	7.43511E-01	-5.90558E-03	4.74030E-02	2.62419E-05	1.52699E-02
214	7.54840E-01	-5.85500E-03	4.81420E-02	1.52012E-05	1.55116E-02
215	7.61891E-01	-5.79766E-03	4.86099E-02	8.73807E-06	1.56698E-02
216	7.64665E-01	-5.73780E-03	4.87368E-02	-1.22503E-06	1.57166E-02
217	7.62799E-01	-5.67978E-03	4.85670E-02	-1.01419E-05	1.56729E-02
218	7.57749E-01	-5.62733E-03	4.81513E-02	-1.55262E-05	1.55594E-02
219	7.50639E-01	-5.58303E-03	4.76673E-02	-1.44640E-05	1.54029E-02
220	7.46602E-01	-5.54481E-03	4.72548E-02	-1.17640E-05	1.53062E-02
221	0.	0.	0.	0.	1.58606E-02
222	0.	0.	0.	0.	1.59131E-02
223	0.	0.	0.	0.	1.62098E-02
224	0.	0.	0.	0.	1.65061E-02
225	0.	0.	0.	0.	1.67527E-02
226	0.	0.	0.	0.	1.69064E-02
227	0.	0.	0.	0.	1.69676E-02
228	0.	0.	0.	0.	1.69276E-02
229	0.	0.	0.	0.	1.68193E-02
230	0.	0.	0.	0.	1.66660E-02
231	0.	0.	0.	0.	1.65840E-02

MEMBER NO.	MOMENTS MOM. AT J END	MOM. AT K END	SHEAR	AXIAL FORCE	ULT. MOM.	MJ/PM	MK/PM	ULT. FORCE
1	0.	0.	0.	0.	347.181	0.	0.	0.
2	0.	0.	0.	0.	347.181	0.	0.	0.
3	0.	0.	0.	0.	347.181	0.	0.	0.
4	0.	0.	0.	0.	347.181	0.	0.	0.
5	0.	0.	0.	0.	347.181	0.	0.	0.
6	0.	0.	0.	0.	347.181	0.	0.	0.
7	0.	0.	0.	0.	347.181	0.	0.	0.
8	0.	0.	0.	0.	347.181	0.	0.	0.
9	0.	0.	0.	0.	347.181	0.	0.	0.
10	0.	0.	0.	0.	347.181	0.	0.	0.
11	-4.36171E+01	-1.50788E+01	6.16501E-01	1.69271E+00	270.000	-.162	-.056	.055
12	2.97174E-03	-1.57319E-03	-7.75063E-05	4.04116E-02	10.000	.000	-.000	.004
13	-2.25256E-03	7.38485E-04	5.10072E-05	1.20672E-02	10.000	-.000	.000	.001
14	1.99339E+02	-1.64239E+02	-7.45562E+00	2.98464E+00	540.000	.369	-.704	.049
15	3.22279E-03	-2.05787E-03	-9.00609E-05	4.02174E-02	10.000	.000	-.000	.004
16	-2.13419E-03	7.48411E-04	4.91577E-05	8.90924E-03	10.000	-.000	.000	.001
17	2.12207E+02	-1.68028E+02	-7.99901E+00	2.98758E+00	540.000	.374	-.711	.054
18	3.08645E-03	-2.26176E-03	-9.12062E-05	4.04702E-02	10.000	.000	-.000	.004
19	-1.92626E-03	9.16180E-04	4.94729E-05	9.04500E-03	10.000	-.000	.000	.001
20	1.91210E+02	-1.65270E+02	-7.70185E+00	3.05171E+00	540.000	.354	-.706	.053
21	2.49377E-03	-2.37243E-03	-8.98138E-05	4.08469E-02	10.000	.000	-.000	.004
22	-1.74564E-03	1.06858E-03	4.79925E-05	9.49322E-03	10.000	-.000	.000	.001
23	1.79526E+02	-1.61631E+02	-7.37087E+00	3.13919E+00	540.000	.332	-.699	.051
24	2.03690E-03	-2.42694E-03	-8.63615E-05	4.05739E-02	10.000	.000	-.000	.004
25	-1.51384E-03	1.16539E-03	4.56999E-05	1.09634E-02	10.000	-.000	.000	.001
26	1.62790E+02	-1.54517E+02	-6.85556E+00	3.15351E+00	540.000	.301	-.696	.051
27	2.43273E-03	-2.50972E-03	-8.42927E-05	4.01232E-02	10.000	.000	-.000	.004
28	-1.31564E-03	1.24799E-03	4.37191E-05	1.14672E-02	10.000	-.000	.000	.001
29	1.46976E+02	-1.46874E+02	-6.34876E+00	3.14532E+00	540.000	.272	-.692	.051
30	2.18421E-03	-2.61102E-03	-8.17416E-05	3.91693E-02	10.000	.000	-.000	.004
31	-1.36424E-03	1.32056E-03	4.06690E-05	1.17895E-02	10.000	-.000	.000	.001
32	1.24765E+02	-1.34804E+02	-5.59944E+00	3.07330E+00	540.000	.230	-.690	.050
33	1.95049E-03	-2.68497E-03	-7.90634E-05	3.94404E-02	10.000	.000	-.000	.004
34	-8.94084E-04	1.47381E-03	4.03806E-05	1.19510E-02	10.000	-.000	.000	.001
35	1.02994E+02	-1.22642E+02	-4.57492E+00	3.02089E+00	540.000	.191	-.687	.049
36	1.69177E-03	-2.62526E-03	-7.36256E-05	3.74005E-02	10.000	.000	-.000	.004
37	-7.78733E-04	1.64742E-03	4.13741E-05	1.14129E-02	10.000	-.000	.000	.001
38	8.23628E+01	-1.10225E+02	-4.16090E+00	2.92021E+00	540.000	.153	-.684	.047
39	1.69117E-03	-2.57994E-03	-7.24425E-05	3.76056E-02	10.000	.000	-.000	.004
40	-9.24497E-04	1.81246E-03	4.66411E-05	1.07474E-02	10.000	-.000	.000	.001
41	4.24409E+01	-5.50108E+01	-2.10547E+00	1.48067E+00	270.000	.157	-.244	.149
42	2.08137E-02	-1.70056E-01	-5.30194E-03	-4.10765E-02	694.363	.000	-.000	-.001
43	-1.60178E-01	-1.35579E-01	6.43296E-04	-5.91479E-02	694.363	-.000	-.000	-.001
44	-1.31921E-01	-1.15794E-01	4.48245E-04	-7.76642E-02	694.363	-.000	-.000	-.001
45	-1.10703E-01	-9.78911E-02	3.59474E-04	-9.22293E-02	694.363	-.000	-.000	-.001
46	-9.12050E-02	-9.40327E-02	-7.85478E-05	-9.99372E-02	694.363	-.000	-.000	-.001
47	-8.59954E-02	-1.07639E-01	-6.01200E-04	-1.00329E-01	694.363	-.000	-.000	-.001
48	-9.94342E-02	-1.29720E-01	-8.68931E-04	-9.33542E-02	694.363	-.000	-.000	-.001
49	-1.19500E-01	-9.70647E-02	9.00359E-04	-7.93609E-02	694.363	-.000	-.000	-.001
50	-7.59937E-02	-1.07488E-02	1.81236E-03	-5.95454E-02	694.363	-.000	-.000	-.001
51	-1.64762E-04	-3.94166E-04	-6.09455E-06	-3.95420E-02	694.363	-.000	-.000	-.001
52	-8.20861E+01	-3.84421E+01	9.42962E-01	1.76790E+00	270.000	-.304	-.142	.057
53	1.91540E-02	-1.58627E-02	-5.97232E-04	5.44339E-02	10.000	.002	-.002	.005
54	8.94751E-03	-1.25597E-02	-3.65053E-04	5.99190E-04	10.000	.001	-.001	.000
55	3.21006E+02	-2.77909E+02	-1.25977E+01	3.17137E+00	540.000	.557	-.515	.051
56	2.04913E-02	-1.79017E-02	-6.54827E-04	5.90202E-02	10.000	.002	-.002	.004
57	9.40241E-03	-1.28539E-02	-3.79523E-04	-7.02913E-03	10.000	.001	-.001	-.001
58	3.05255E+02	-2.84921E+02	-1.27510E+01	3.19377E+00	540.000	.565	-.529	.052
59	2.02812E-02	-1.84526E-02	-6.60632E-04	5.50491E-02	10.000	.002	-.002	.004
60	1.10515E-02	-1.36637E-02	-4.21459E-04	-2.50481E-03	10.000	.001	-.001	-.000
61	3.03889E+02	-2.89979E+02	-1.28092E+01	3.26554E+00	540.000	.563	-.535	.053
62	1.94651E-02	-1.47301E-02	-6.58254E-04	5.10178E-02	10.000	.002	-.002	.005
63	1.24773E-02	-1.43049E-02	-4.56783E-04	2.74409E-03	10.000	.001	-.001	.000
64	3.01436E+02	-2.91259E+02	1.28055E+01	3.36054E+00	540.000	.554	-.539	.055
65	1.89107E-02	-1.84434E-02	-6.37078E-04	4.44874E-02	10.000	.002	-.002	.004

66	1.39331E-02	-1.50258E-02	-4.93846E-04	1.00990E-02	10.000	.001	-.002	.001
67	2.95497E+02	-2.90422E+02	-1.26677E+01	3.37542E+00	540.000	.549	-.539	.005
68	1.79799E-02	-1.81546E-02	-6.16267E-04	3.92492E-02	10.000	.002	-.002	.004
69	1.49545E-02	-1.53269E-02	-5.14702E-04	1.53896E-02	10.000	.001	-.002	.002
70	2.98603E+02	-2.87158E+02	-1.24416E+01	3.36756E+00	540.000	.535	-.532	.005
71	1.64741E-02	-1.74309E-02	-5.78239E-04	3.14696E-02	10.000	.002	-.002	.003
72	1.58177E-02	-1.56131E-02	-5.36020E-04	2.21166E-02	10.000	.002	-.002	.002
73	2.76247E+02	-2.79802E+02	-1.20137E+01	3.24734E+00	540.000	.512	-.518	.003
74	1.49458E-02	-1.66557E-02	-5.38935E-04	2.65622E-02	10.000	.001	-.002	.003
75	1.62819E-02	-1.52898E-02	-5.38430E-04	2.64401E-02	10.000	.002	-.002	.003
76	2.60556E+02	-2.69740E+02	-1.14573E+01	3.22990E+00	540.000	.483	-.500	.002
77	1.32032E-02	-1.53634E-02	-4.47170E-04	2.09797E-02	10.000	.001	-.002	.002
78	1.65399E-02	-1.46962E-02	-5.32714E-04	3.08354E-02	10.000	.002	-.001	.003
79	2.42790E+02	-2.57907E+02	-1.08174E+01	3.11694E+00	540.000	.450	-.478	.001
80	1.29775E-02	-1.50943E-02	-4.78737E-04	2.45620E-02	10.000	.001	-.002	.002
81	1.53716E-02	-1.72323E-02	-4.47819E-04	2.70030E-02	10.000	.002	-.001	.003
82	1.17699E+02	-1.25706E+02	-5.25987E+00	1.58646E+00	270.000	.436	-.466	.001
83	3.15919E-02	-4.51756E-01	-1.34263E-02	-5.23209E-02	694.363	.001	-.001	-.001
84	-4.54372E-01	-4.49966E-01	1.22402E-04	-8.91079E-02	694.363	-.001	-.001	-.001
85	-4.63710E-01	-3.78995E-01	2.35318E-03	-1.24156E-01	694.363	-.001	-.001	-.002
86	-3.99779E-01	-3.71262E-01	4.96569E-04	-1.43912E-01	694.363	-.001	-.001	-.002
87	-3.76446E-01	-3.07335E-01	1.91974E-03	-1.61325E-01	694.363	-.001	-.000	-.002
88	-3.07932E-01	-3.97398E-01	-2.48489E-03	-1.61461E-01	694.363	-.000	-.001	-.002
89	-3.97452E-01	-4.23674E-01	-8.39479E-04	-1.49050E-01	694.363	-.001	-.001	-.002
90	-4.15290E-01	-3.76152E-01	1.08716E-03	-1.24111E-01	694.363	-.001	-.001	-.002
91	-3.63970E-01	9.33440E-03	1.03695E-02	-8.83505E-02	694.363	-.001	.000	-.002
92	2.23799E-02	8.34790E-03	-3.49751E-04	-5.00239E-02	694.363	.000	.000	-.001
93	-1.04191E+02	-4.98799E+01	1.17345E+00	1.77261E+00	270.000	-.386	-.195	.001
94	3.85176E-02	-3.66758E-02	-1.78263E-03	8.44526E-02	10.000	.004	-.004	.008
95	2.35935E-02	-2.62165E-02	-8.49321E-04	-2.86531E-02	10.000	.002	-.003	-.003
96	3.27362E+02	-3.23053E+02	-1.40526E+01	3.26334E+00	540.000	.605	-.599	.003
97	4.21164E-02	-4.04309E-02	-1.41489E-03	9.22919E-02	10.000	.004	-.004	.003
98	2.57979E-02	-2.87149E-02	-9.29410E-04	-3.86094E-02	10.000	.003	-.003	-.004
99	3.40745E+02	-3.35093E+02	-1.46019E+01	3.32849E+00	540.000	.631	-.621	.004
100	4.23930E-02	-4.17029E-02	-1.43443E-03	7.96527E-02	10.000	.004	-.004	.004
101	2.36367E-02	-3.19473E-02	-1.04839E-03	-2.50691E-02	10.000	.003	-.003	-.003
102	3.46441E+02	-3.42899E+02	-1.48937E+01	3.40979E+00	540.000	.642	-.635	.005
103	4.22137E-02	-4.18959E-02	-1.43460E-03	6.71232E-02	10.000	.004	-.004	.007
104	3.27511E-02	-3.43981E-02	-1.14487E-03	-1.12547E-02	10.000	.003	-.003	-.001
105	3.50359E+02	-3.47905E+02	-1.50965E+01	3.50970E+00	540.000	.649	-.644	.007
106	4.39403E-02	-4.09409E-02	-1.39481E-03	4.98552E-02	10.000	.004	-.004	.005
107	3.56598E-02	-3.69861E-02	-1.23714E-03	6.87469E-03	10.000	.004	-.004	.001
108	3.51923E+02	-3.49984E+02	-1.51653E+01	3.52715E+00	540.000	.652	-.649	.007
109	3.95627E-02	-3.96232E-02	-1.35049E-03	3.60817E-02	10.000	.004	-.004	.004
110	3.73006E-02	-3.83771E-02	-1.29060E-03	2.07119E-02	10.000	.004	-.004	.002
111	3.51410E+02	-3.49154E+02	-1.51363E+01	3.51777E+00	540.000	.651	-.647	.007
112	3.68911E-02	-3.73071E-02	-1.26535E-03	1.75969E-02	10.000	.004	-.004	.002
113	3.99145E-02	-3.97737E-02	-1.34031E-03	3.44954E-02	10.000	.004	-.004	.004
114	3.47045E+02	-3.44798E+02	-1.49478E+01	3.43001E+00	540.000	.643	-.639	.006
115	3.39215E-02	-3.44242E-02	-1.17231E-03	3.36247E-03	10.000	.003	-.003	.000
116	3.93166E-02	-3.99747E-02	-1.35065E-03	5.16423E-02	10.000	.004	-.004	.005
117	3.38309E+02	-3.36873E+02	-1.45878E+01	3.36084E+00	540.000	.626	-.624	.005
118	3.03122E-02	-3.16059E-02	-1.05583E-03	-1.07152E-02	10.000	.003	-.003	-.001
119	3.96365E-02	-3.91673E-02	-1.34403E-03	6.44494E-02	10.000	.004	-.004	.006
120	3.25071E+02	-3.26438E+02	-1.40753E+01	3.23902E+00	540.000	.602	-.605	.003
121	2.91941E-02	-3.06010E-02	-1.01965E-03	-3.33313E-03	10.000	.003	-.003	-.000
122	3.71471E-02	-3.58524E-02	-1.24576E-03	5.68723E-02	10.000	.004	-.004	.006
123	1.56494E+02	-1.58360E+02	-6.80259E+00	1.61821E+00	270.000	.580	-.587	.003
124	2.49691E-02	-7.54932E-01	-2.17750E-02	-5.75506E-02	694.363	.000	-.001	-.001
125	-7.69227E-01	-7.59961E-01	2.57391E-04	-1.04848E-01	694.363	-.001	-.001	-.001
126	-7.91769E-01	-6.35577E-01	4.06088E-03	-1.46793E-01	694.363	-.001	-.001	-.002
127	-6.50892E-01	-5.48335E-01	2.84879E-03	-1.75154E-01	694.363	-.001	-.001	-.002
128	-5.56513E-01	-4.32270E-01	3.45117E-03	-1.99141E-01	694.363	-.001	-.001	-.002
129	-4.33387E-01	-5.48264E-01	-3.19098E-03	-1.89133E-01	694.363	-.001	-.001	-.002

130	-5.42316E-01	-6.81786E-01	-3.47417E-03	-1.75031E-01	694.363	-.001	-.001	-.002
131	-6.69799E-01	-7.09034E-01	-1.11791E-03	-1.46269E-01	694.363	-.001	-.001	-.002
132	-6.39992E-01	-1.76259E-01	1.42678E-02	-1.03892E-01	694.363	-.001	-.000	-.001
133	-1.55747E-01	1.39160E-02	4.70173E-03	-5.55964E-02	694.363	-.000	.000	-.001
134	-9.83159E+01	-5.45815E+01	9.44911E-01	1.64494E+00	270.000	-.364	-.202	.055
135	4.98519E-02	-5.19580E-02	-1.71975E-03	1.22346E-01	10.000	.005	-.005	.012
136	3.34675E-02	-3.12098E-02	-1.10269E-03	-6.79735E-02	10.000	.003	-.003	-.007
137	3.06179E+02	-3.21722E+02	-1.35662E+01	3.26454E+00	540.000	.567	-.596	.053
138	5.41213E-02	-5.70524E-02	-1.99661E-03	1.31993E-01	10.000	.005	-.006	.013
139	3.66420E-02	-3.56023E-02	-1.23166E-03	-7.76620E-02	10.000	.004	-.004	-.009
140	3.27744E+02	-3.37918E+02	-1.43921E+01	3.39400E+00	540.000	.607	-.626	.055
141	5.51162E-02	-5.77682E-02	-1.92565E-03	1.07853E-01	10.000	.006	-.006	.011
142	4.22176E-02	-4.13246E-02	-1.42439E-03	-5.21554E-02	10.000	.004	-.004	-.005
143	3.40256E+02	-3.48666E+02	-1.48847E+01	3.48174E+00	540.000	.630	-.646	.057
144	5.54997E-02	-5.73543E-02	-1.92499E-03	4.44322E-02	10.000	.006	-.006	.008
145	4.63715E-02	-4.58249E-02	-1.57207E-03	-2.77413E-02	10.000	.005	-.005	-.003
146	3.50239E+02	-3.55475E+02	-1.52476E+01	3.59882E+00	540.000	.649	-.659	.054
147	5.43907E-02	-5.53057E-02	-1.97095E-03	5.52169E-02	10.000	.005	-.006	.006
148	5.01054E-02	-5.01013E-02	-1.70482E-03	2.74307E-03	10.000	.005	-.005	.000
149	3.57029E+02	-3.59271E+02	-1.54763E+01	3.60491E+00	540.000	.661	-.665	.059
150	5.32211E-02	-5.30600E-02	-1.91256E-03	3.14675E-02	10.000	.005	-.005	.003
151	5.20496E-02	-5.30403E-02	-1.79223E-03	2.62179E-02	10.000	.005	-.005	.003
152	3.61957E+02	-3.60234E+02	-1.56036E+01	3.59941E+00	540.000	.670	-.657	.054
153	5.03435E-02	-4.93410E-02	-1.69990E-03	8.15059E-04	10.000	.003	-.005	.000
154	5.37994E-02	-5.59738E-02	-1.97226E-03	5.65112E-02	10.000	.005	-.006	.006
155	3.63678E+02	-3.54237E+02	-1.55976E+01	3.50069E+00	540.000	.673	-.653	.057
156	4.70325E-02	-4.57815E-02	-1.57579E-03	-2.43708E-02	10.000	.005	-.005	-.002
157	5.41262E-02	-5.74073E-02	-1.90245E-03	4.04099E-02	10.000	.005	-.006	.004
158	3.61727E+02	-3.52293E+02	-1.54269E+01	3.41805E+00	540.000	.670	-.652	.055
159	4.23778E-02	-4.05643E-02	-1.41416E-03	-4.96419E-02	10.000	.004	-.004	-.009
160	5.44046E-02	-5.75363E-02	-1.90954E-03	1.04121E-01	10.000	.005	-.006	.010
161	3.53163E+02	-3.42819E+02	-1.50371E+01	3.27339E+00	540.000	.654	-.635	.053
162	4.03012E-02	-3.84046E-02	-1.34197E-03	-4.20035E-02	10.000	.004	-.004	-.004
163	5.10463E-02	-5.32892E-02	-1.77975E-03	9.43873E-02	10.000	.005	-.005	.009
164	1.70516E+02	-1.65714E+02	-7.26444E+00	1.56107E+00	270.000	.632	-.614	.051
165	6.52796E-03	-6.37391E-01	-1.78466E-02	-5.37400E-02	694.363	.000	-.001	-.001
166	-6.66794E-01	-8.44852E-01	-4.94606E-03	-9.76349E-02	694.363	-.001	-.001	-.001
167	-8.70357E-01	-5.39243E-01	9.19645E-03	-1.34373E-01	694.363	-.001	-.001	-.002
168	-5.57050E-01	-3.45747E-01	5.86950E-03	-1.57921E-01	694.363	-.001	-.000	-.002
169	-3.35249E-01	-1.19645E-01	6.54450E-03	-1.69494E-01	694.363	-.001	-.000	-.002
170	-1.21022E-01	-2.30180E-01	-3.03213E-03	-1.69560E-01	694.363	-.000	-.000	-.002
171	-2.23375E-01	-4.36216E-01	-5.91222E-03	-1.57223E-01	694.363	-.000	-.001	-.002
172	-4.21052E-01	-8.13861E-01	-1.10502E-02	-1.33821E-01	694.363	-.001	-.001	-.002
173	-7.96211E-01	-4.54656E-01	9.44762E-03	-9.77626E-02	694.363	-.001	-.001	-.001
174	-4.29376E-01	1.39[illegible]52E-02	1.23142E-02	-5.30040E-02	694.363	-.001	.000	-.001
175	-6.42174E+01	-5.38094E+01	2.24967E-01	1.49073E+00	270.000	-.238	-.199	.048
176	4.49399E-02	-5.37189E-02	-1.68324E-03	1.55614E-01	10.000	.004	-.005	.016
177	3.34144E-02	-2.50714E-02	-9.97016E-04	-1.04916E-01	10.000	.003	-.003	-.010
178	2.39152E+02	-2.74571E+02	-1.10992E+01	3.19259E+00	540.000	.443	-.519	.052
179	4.97803E-02	-5.79376E-02	-1.83786E-03	1.66601E-01	10.000	.005	-.006	.017
180	3.58492E-02	-2.85514E-02	-1.10463E-03	-1.12837E-01	10.000	.004	-.003	-.011
181	2.64779E+02	-2.93395E+02	-1.20727E+01	3.34441E+00	540.000	.490	-.544	.055
182	5.05883E-02	-5.71939E-02	-1.83874E-03	1.31107E-01	10.000	.005	-.006	.013
183	4.13653E-02	-3.56872E-02	-1.31364E-03	-7.52219E-02	10.000	.004	-.004	-.008
184	2.95276E+02	-3.04030E+02	-1.24188E+01	3.44200E+00	540.000	.528	-.570	.057
185	5.14282E-02	-5.55256E-02	-1.82442E-03	9.47828E-02	10.000	.005	-.006	.010
186	4.48531E-02	-4.04911E-02	-1.46198E-03	-4.13299E-02	10.000	.004	-.004	-.004
187	3.03536E+02	-3.17282E+02	-1.34133E+01	3.59444E+00	540.000	.562	-.588	.058
188	5.04938E-02	-5.23390E-02	-1.75388E-03	5.86069E-02	10.000	.005	-.005	.006
189	4.92793E-02	-4.60352E-02	-1.60432E-03	-2.21254E-04	10.000	.005	-.005	-.000
190	3.15859E+02	-3.22865E+02	-1.38002E+01	3.60479E+00	540.000	.595	-.598	.059
191	4.99337E-02	-4.94393E-02	-1.69473E-03	2.82482E-02	10.000	.005	-.005	.003
192	4.98008E-02	-4.96793E-02	-1.69657E-03	3.02524E-02	10.000	.005	-.005	.003
193	3.26604E+02	-3.26166E+02	-1.41036E+01	3.60849E+00	540.000	.605	-.604	.061

194	4.76441E-02	-4.50274E-02	-1.58023E-03	-1.28962E-02	10.000	.003	-.005	-.001
195	5.15595E-02	-5.38036E-02	-1.79712E-03	7.06393E-02	10.000	.005	-.005	.007
196	3.34391E+02	-3.27256E+02	-1.42954E+01	3.59402E+00	540.000	.619	-.606	.057
197	4.55014E-02	-4.07288E-02	-1.47024E-03	-4.71553E-02	10.000	.005	-.004	-.005
198	5.15371E-02	-5.67957E-02	-1.84798E-03	1.03370E-01	10.000	.005	-.006	.010
199	3.40705E+02	-3.24825E+02	-1.43792E+01	3.40443E+00	540.000	.631	-.602	.055
200	4.14089E-02	-3.53450E-02	-1.30851E-03	-8.39655E-02	10.000	.004	-.004	-.004
201	5.17925E-02	-5.49718E-02	-1.88967E-03	1.38031E-01	10.000	.005	-.006	.014
202	3.38801E+02	-3.17006E+02	-1.41690E+01	3.21397E+00	540.000	.627	-.547	.052
203	3.94344E-02	-3.25525E-02	-1.22726E-03	-7.89561E-02	10.000	.004	-.003	-.003
204	4.93808E-02	-5.56990E-02	-1.77558E-03	1.24487E-01	10.000	.005	-.006	.013
205	1.64750E+02	-1.52549E+02	-6.85526E+00	1.41179E+00	270.000	.610	-.565	.046
206	-1.14913E-02	-1.11828E-01	-2.77601E-03	-4.15264E-02	694.363	-.000	-.000	-.001
207	-1.47347E-01	-5.21748E-01	-1.04000E-02	-6.85154E-02	694.363	-.000	-.001	-.001
208	-5.46165E-01	3.47475E-01	2.48233E-02	-8.78113E-02	694.363	-.001	.001	-.001
209	3.30290E-01	3.38508E-01	2.28532E-04	-9.83219E-02	694.363	.000	.000	-.001
210	3.29116E-01	8.41020E-01	1.47195E-02	-1.02049E-01	694.363	.000	.001	-.001
211	9.79156E-01	5.87963E-01	-7.11644E-03	-1.01032E-01	694.363	.001	.001	-.001
212	5.88623E-01	7.19370E-01	3.60407E-03	-9.58230E-02	694.363	.001	.001	-.001
213	7.31921E-01	-3.33695E-01	-2.95004E-02	-8.54467E-02	694.363	.001	-.000	-.001
214	-3.12908E-01	-3.68660E-01	-1.54867E-03	-6.77773E-02	694.363	-.000	-.001	-.001
215	-3.44855E-01	9.61140E-03	9.81849E-03	-4.11696E-02	694.363	-.000	.000	-.001
216	-1.39229E+01	-4.49320E+01	-6.69945E-01	1.20275E+00	270.000	-.052	-.166	.039
217	2.80956E-02	-4.15695E-02	-1.18863E-03	1.72736E-01	10.000	.003	-.004	.017
218	2.34803E-02	-9.92404E-03	-5.69404E-04	-1.27728E-01	10.000	.002	-.001	-.013
219	1.07461E+02	-1.63290E+02	-5.84965E+00	3.05695E+00	540.000	.199	-.302	.050
220	3.14230E-02	-4.40003E-02	-1.28693E-03	1.84851E-01	10.000	.003	-.004	.018
221	2.49107E-02	-1.21741E-02	-6.32131E-04	-1.32592E-01	10.000	.002	-.001	-.013
222	1.33740E+02	-1.85904E+02	-6.90606E+00	3.29491E+00	540.000	.249	-.344	.053
223	3.18739E-02	-4.07346E-02	-1.23972E-03	1.40869E-01	10.000	.003	-.004	.014
224	2.93711E-02	-1.81122E-02	-7.92452E-04	-8.57622E-02	10.000	.003	-.002	-.009
225	1.67717E+02	-2.04659E+02	-9.04543E+00	3.41829E+00	540.000	.311	-.379	.055
226	3.30399E-02	-3.40172E-02	-1.21210E-03	1.03949E-01	10.000	.003	-.004	.010
227	2.98863E-02	-2.26204E-02	-8.95250E-04	-4.71053E-02	10.000	.003	-.002	-.005
228	1.36505E+02	-2.19154E+02	-8.98059E+00	3.51340E+00	540.000	.364	-.406	.057
229	3.22646E-02	-3.39791E-02	-1.12984E-03	5.81207E-02	10.000	.003	-.003	.006
230	3.20969E-02	-2.77663E-02	-1.02083E-03	-4.18319E-04	10.000	.003	-.003	-.000
231	2.16587E+02	-2.27330E+02	-9.59113E+00	3.62340E+00	540.000	.401	-.421	.057
232	3.22586E-02	-3.11740E-02	-1.08185E-03	2.62364E-02	10.000	.003	-.003	.003
233	3.27594E-02	-3.09496E-02	-1.09650E-03	3.15924E-02	10.000	.003	-.003	.004
234	2.33479E+02	-2.75151E+02	-1.01251E+01	3.52833E+00	540.000	.432	-.453	.057
235	3.04265E-02	-2.65897E-02	-9.79040E-04	-1.93222E-02	10.000	.003	-.003	-.002
236	3.41655E-02	-3.53678E-02	-1.18602E-03	7.65049E-02	10.000	.003	-.004	.008
237	2.49775E+02	-2.40829E+02	-1.05998E+01	3.44517E+00	540.000	.463	-.440	.050
238	3.03741E-02	-2.29101E-02	-9.08474E-04	-5.67745E-02	10.000	.003	-.002	-.006
239	3.36370E-02	-3.88028E-02	-1.23574E-03	1.12291E-01	10.000	.003	-.004	.011
240	2.67599E+02	-2.46889E+02	-1.11158E+01	3.31919E+00	540.000	.496	-.457	.054
241	2.93558E-02	-1.79628E-02	-7.89599E-04	-1.01874E-01	10.000	.003	-.002	-.010
242	3.34607E-02	-4.33325E-02	-1.31018E-03	1.54412E-01	10.000	.003	-.004	.015
243	2.79671E+02	-2.44710E+02	-1.13294E+01	3.07239E+00	540.000	.518	-.453	.050
244	2.76099E-02	-1.58304E-02	-7.40533E-04	-1.01567E-01	10.000	.003	-.002	-.010
245	3.08299E-02	-4.25842E-02	-1.25257E-03	1.46262E-01	10.000	.003	-.004	.015
246	1.38191E+02	-1.17814E+02	-5.53091E+00	1.17906E+00	270.000	.512	-.436	.036
247	-1.44437E-02	2.97739E-01	8.67172E-03	-2.34734E-02	694.363	-.000	.000	-.000
248	2.70188E-01	7.15059E-01	1.23575E-02	-2.38374E-02	694.363	.000	.001	-.000
249	6.95388E-01	2.12344E+00	3.96681E-02	-1.72269E-02	694.363	.001	.003	-.000
250	2.10965E+00	1.49889E+00	-1.69657E-02	-9.40015E-03	694.363	.003	.002	-.000
251	1.49131E+00	2.22747E+00	2.04488E-02	-3.95275E-03	694.363	.002	.003	-.000
252	2.22554E+00	1.75172E+00	-1.31616E-02	-2.09539E-03	694.363	.003	.003	-.000
253	1.75573E+00	2.60864E+00	2.37032E-02	-4.56134E-03	694.363	.003	.004	-.000
254	2.61822E+00	1.28123E+00	-3.71385E-02	-1.11560E-02	694.363	.004	.002	-.000
255	1.29658E+00	3.69725E-01	-2.57461E-02	-1.94643E-02	694.363	.002	.001	-.000
256	3.47089E-01	1.17139E-03	-1.07199E-02	-2.19851E-02	694.363	.001	.000	-.000
257	3.76743E+01	-2.46662E+01	-1.34681E+00	8.64858E-01	270.000	.140	-.091	.024

258	1.50009E-03	-1.89929E-02	-3.49645E-04	1.66136E-01	10.000	.000	-.002	.017
259	5.51758E-03	1.19424E-02	1.09523E-04	-1.24297E-01	10.000	.001	.001	-.013
260	-1.00723E+02	7.22661E+01	2.47324E+00	2.44115E+00	540.000	-.187	.650	.046
261	2.27234E-03	-1.75038E-03	-3.37424E-04	1.77859E-01	10.000	.000	-.002	.014
262	6.57745E-03	1.16551E-02	8.65530E-05	-1.28202E-01	10.000	.001	.001	-.013
263	-8.35192E+01	1.38098E+01	2.10283E+00	3.14532E+00	540.000	-.155	.026	.051
264	5.10447E-03	-1.26498E-02	-3.03567E-04	1.31552E-01	10.000	.001	-.001	.013
265	5.38064E-03	7.47905E-03	3.57747E-05	-7.82165E-02	10.000	.001	.001	-.004
266	-2.78657E+01	-8.84748E+00	4.10897E-01	3.28177E+00	540.000	-.052	-.016	.053
267	4.97200E-03	-9.54000E-03	-2.45839E-04	9.75128E-02	10.000	.000	-.001	.010
268	6.44071E-03	3.73810E-03	-4.60807E-05	-4.24930E-02	10.000	.001	.000	-.004
269	-9.25890E+00	-2.34055E+01	-3.97250E-01	3.33977E+00	540.000	-.015	-.043	.054
270	5.76011E-03	-5.92834E-03	-2.02764E-04	5.30740E-02	10.000	.001	-.001	.005
271	5.60958E-03	-4.01864E-04	-1.02511E-04	2.60627E-03	10.000	.001	-.000	.006
272	3.01917E+01	-3.71342E+01	-1.45461E+00	3.35798E+00	540.000	.056	-.169	.055
273	4.92131E-03	-3.43403E-03	-1.40787E-04	2.61362E-02	10.000	.000	-.000	.003
274	7.04771E-03	-3.01696E-03	-1.71646E-04	2.96514E-02	10.000	.001	-.000	.003
275	3.88267E+01	-4.71636E+01	-1.85786E+00	3.35120E+00	540.000	.072	-.037	.054
276	5.93490E-03	2.91763E-04	-9.62253E-05	-1.66290E-02	10.000	.001	.000	-.002
277	6.40250E-03	-6.52782E-03	-2.20549E-04	7.19478E-02	10.000	.001	-.001	.007
278	7.68442E+01	-6.23719E+01	-3.00792E+00	3.30567E+00	540.000	.142	-.115	.054
279	5.40226E-03	3.33580E-03	-3.52332E-05	-4.90415E-02	10.000	.001	.000	-.005
280	7.28669E-03	-9.67417E-03	-2.89323E-04	1.02802E-01	10.000	.001	-.001	.013
281	9.29070E+01	-8.10497E+01	-3.86634E+00	3.17345E+00	540.000	.181	-.150	.053
282	7.40864E-03	6.59079E-03	-2.07613E-05	-9.50445E-02	10.000	.001	.001	-.011
283	5.43549E-03	-1.50723E-02	-3.39639E-04	1.45043E-01	10.000	.000	-.002	.019
284	1.50670E+02	-1.02196E+02	-5.46320E+00	2.46007E+00	540.000	.273	-.189	.045
285	8.57483E-03	5.56575E-03	-5.12966E-05	-9.92163E-02	10.000	.001	.001	-.011
286	5.25822E-03	-1.89309E-02	-4.12671E-04	1.37606E-01	10.000	.001	-.002	.014
287	7.81831E+01	-5.29173E+01	-2.93231E+00	8.92605E-01	270.000	.290	-.136	.023
288	-7.45941E-03	-3.27893E-01	-8.90099E-03	-1.45693E-03	694.363	-.000	-.000	-.003
289	-3.38789E-01	5.31674E+03	1.57098E-01	3.07772E-02	694.363	-.000	.009	.000
290	5.30445E+00	2.33537E+00	-8.24749E-02	6.70909E-02	694.363	.009	.003	.001
291	2.32723E+00	4.99026E+00	7.39733E-02	9.30527E-02	694.363	.003	.007	.001
292	4.98574E+00	1.68226E+00	-9.17637E-02	1.06942E-01	694.363	.007	.002	.001
293	1.69101E+02	5.98237E+00	9.44427E-02	1.04817E-01	694.363	.002	.007	.001
294	5.09419E+00	2.64662E+00	-6.77105E-02	9.43305E-02	694.363	.007	.004	.001
295	2.55174E+00	6.03679E+00	9.40294E-02	7.44543E-02	694.363	.004	.009	[illegible]
296	6.04563E+00	5.45304E-01	-1.52787E-01	3.70124E-02	694.363	.009	.001	[illegible]
297	5.54190E-01	-5.91117E-03	-1.55584E-02	8.44543E-04	694.363	.001	-.100	.007
298	9.94047E+01	5.11113E+00	-1.82103E+00	5.41734E-01	270.000	.331	.019	.018
299	-3.23920E-02	1.38134E-02	7.98252E-04	1.30862E-01	10.000	-.003	.001	.013
300	-2.26131E-02	3.97511E-02	1.06314E-03	-1.01018E-01	10.000	-.002	.004	-.010
301	-2.78544E+02	2.28626E+02	1.09573E+01	2.50205E+00	540.000	-.515	.423	.041
302	-3.92879E-02	2.70754E-02	1.13218E-03	1.40853E-01	10.000	-.004	.003	.014
303	-2.49034E-02	4.53272E-02	1.19727E-03	-9.46128E-02	10.000	-.002	.005	-.009
304	-2.91139E+02	2.45231E+02	1.15884E+01	3.02345E+00	540.000	-.539	.454	.043
305	-3.31394E-02	2.81221E-02	1.04502E-03	1.02798E-01	10.000	-.003	.003	.010
306	-3.28068E-02	4.76993E-02	1.37262E-03	-5.25291E-02	10.000	-.003	.005	-.005
307	-2.60200E+02	2.32792E+02	1.06512E+01	2.96011E+00	540.000	-.482	.431	.043
308	-3.74484E-02	3.50293E-02	1.23625E-03	7.92267E-02	10.000	-.004	.004	.003
309	-2.97464E-02	4.10596E-02	1.20733E-03	-2.75674E-02	10.000	-.003	.004	-.003
310	-2.60257E+02	2.38641E+02	1.07788E+01	3.16327E+00	540.000	-.482	.442	.051
311	-3.23056E-02	3.34281E-02	1.12109E-03	4.48432E-02	10.000	-.003	.003	.004
312	-3.54337E-02	4.21503E-02	1.32305E-03	7.28568E-03	10.000	-.004	.004	.001
313	-2.30220E+02	2.23146E+02	9.79506E+00	3.00604E+00	540.000	-.426	.413	.043
314	-3.66293E-02	3.91892E-02	1.29302E-03	2.76713E-02	10.000	-.004	.004	.003
315	-3.07064E-02	3.59056E-02	1.13600E-03	2.45040E-02	10.000	-.003	.004	.002
316	-2.34234E+02	2.28219E+02	9.99145E+00	3.16786E+00	540.000	-.434	.423	.051
317	-3.07193E-02	3.71520E-02	1.15737E-03	-4.27588E-03	10.000	-.003	.004	-.000
318	-3.49851E-02	3.73852E-02	1.23433E-03	5.60749E-02	10.000	-.003	.004	.006
319	-2.30244E+02	2.07315E+02	8.80538E+00	2.97308E+00	540.000	-.371	.394	.043
320	-3.32895E-02	4.22661E-02	1.28832E-03	-2.44147E-02	10.000	-.003	.004	-.002
321	-2.90069E-02	3.03890E-02	1.01310E-03	7.49498E-02	10.000	-.003	.003	.007

322	-1.93566E+02	2.01419E+02	9.53374E+00	3.04321E+00	540.000	-.359	.373	.049	
323	-2.39725E-02	3.79109E-02	1.05509E-03	-5.95271E-02	10.000	-.002	.004	-.000	
324	-3.31474E-02	2.89165E-02	1.05701E-03	1.06170E-01	10.000	-.003	.003	.011	
325	-1.21908E+02	1.49904E+02	5.87028E+00	2.53927E+00	540.000	-.226	.277	.041	
326	-1.92975E-02	2.95127E-02	8.32167E-04	-6.66721E-02	10.000	-.002	.003	-.007	
327	-2.42894E-02	1.35604E-02	6.45489E-04	9.79905E-02	10.000	-.002	.001	.010	
328	-4.07547E+01	5.59507E+01	2.08918E+00	6.18358E-01	270.000	-.151	.207	.020	
329	2.34920E-03	-2.63378E+00	-7.32258E-02	2.04466E-02	694.363	.000	-.004	.000	
330	-2.63067E+00	1.46717E+01	4.80624E-01	8.59454E-02	694.363	-.004	.021	.001	
331	1.46684E+01	-1.84283E+00	-4.59648E-01	1.48687E-01	694.363	.021	-.003	.002	
332	-1.34479E+00	1.29619E+01	4.11299E-01	1.84176E-01	694.363	-.003	.019	.002	
333	1.29613E+01	-3.38092E+00	-4.53954E-01	2.07551E-01	694.363	.019	-.005	.003	
334	-3.38046E+00	1.26991E+01	4.46657E-01	2.07784E-01	694.363	-.005	.019	.003	
335	1.27006E+01	-2.12534E+00	-4.11833E-01	1.89502E-01	694.363	.018	-.003	.002	
336	-2.12303E+00	1.49000E+01	4.72865E-01	1.51542E-01	694.363	-.003	.021	.002	
337	1.49034E+01	-1.58692E+00	-4.58065E-01	8.99241E-02	694.363	.021	-.002	.001	
338	-1.57954E+00	-1.41860E-02	4.34821E-02	2.12549E-02	694.363	-.002	-.000	.000	
339	1.44591E+02	4.34972E+01	-2.18394E+00	2.89199E-01	270.000	.536	.161	.009	
340	-7.28234E-02	6.33755E-02	2.32305E-03	6.80538E-02	10.000	-.007	.006	.007	
341	-6.69699E-02	7.49208E-02	2.41928E-03	-4.59147E-02	10.000	-.007	.007	-.005	
342	-3.68072E+02	3.59114E+02	1.56989E+01	2.07257E+00	540.000	-.682	.653	.034	
343	-8.43622E-02	8.38842E-02	2.86970E-03	7.17424E-02	10.000	-.009	.009	.007	
344	-7.19571E-02	9.48378E-02	2.67350E-03	-3.38436E-02	10.000	-.007	.008	-.003	
345	-3.94889E+02	3.79508E+02	1.65146E+01	2.42277E+00	540.000	-.713	.703	.039	
346	-8.39861E-02	9.29630E-02	2.94746E-03	5.91727E-02	10.000	-.009	.009	.006	
347	-9.48221E-02	9.92910E-02	3.13946E-03	-1.77511E-02	10.000	-.008	.010	-.002	
348	-3.97092E+02	3.83866E+02	1.68722E+01	2.43726E+00	540.000	-.735	.711	.040	
349	-9.21391E-02	9.43259E-02	3.18020E-03	4.74324E-02	10.000	-.009	.009	.005	
350	-8.32456E-02	9.26712E-02	2.99982E-03	-4.84195E-03	10.000	-.009	.009	-.000	
351	-3.92885E+02	3.85009E+02	1.69056E+01	2.52713E+00	540.000	-.723	.721	.041	
352	-8.73327E-02	8.81145E-02	2.99219E-03	3.60476E-02	10.000	-.009	.009	.004	
353	-9.06952E-02	9.99210E-02	3.25060E-03	6.86887E-03	10.000	-.009	.010	.001	
354	-3.95819E+02	3.86578E+02	1.69035E+01	2.46415E+00	540.000	-.733	.716	.040	
355	-9.23942E-02	9.69419E-02	3.22896E-03	2.67661E-02	10.000	-.009	.010	.003	
356	-9.55434E-02	9.05529E-02	3.00309E-03	1.61563E-02	10.000	-.009	.009	.002	
357	-3.86933E+02	3.88478E+02	1.67537E+01	2.52517E+00	540.000	-.717	.719	.041	
358	-9.51447E-02	8.86593E-02	2.96406E-03	1.72774E-02	10.000	-.009	.009	.002	
359	-8.96279E-02	9.66004E-02	3.17596E-03	2.52586E-02	10.000	-.009	.010	.003	
360	-3.88203E+02	3.81744E+02	1.66345E+01	2.43774E+00	540.000	-.719	.707	.04	
361	-8.70012E-02	9.38214E-02	3.08360E-03	8.62572E-03	10.000	-.009	.009	.001	
362	-7.99476E-02	8.54445E-02	2.82068E-03	3.27583E-02	10.000	-.009	.009	.003	
363	-3.76175E+02	3.76760E+02	1.62669E+01	2.42499E+00	540.000	-.697	.698	.039	
364	-7.41821E-02	7.72597E-02	2.54250E-03	1.09505E-03	10.000	-.007	.008	.000	
365	-7.75713E-02	8.69527E-02	2.80591E-03	3.71470E-02	10.000	-.008	.009	-.004	
366	-3.70109E+02	3.54436E+02	1.56534E+01	2.11911E+00	540.000	-.685	.656	.034	
367	-6.92790E-02	6.69870E-02	2.32365E-03	-7.58807E-03	10.000	-.007	.007	-.001	
368	-6.62761E-02	6.75773E-02	2.28280E-03	3.22704E-02	10.000	-.007	.007	.003	
369	-1.69451E+02	1.63144E+02	7.18513E+00	4.25115E-01	270.000	-.628	.604	.014	
370	-1.87302E-05	-5.46700E-01	-1.51456E-02	3.29687E-02	694.363	-.000	-.001	.000	
371	-5.28824E-01	1.49549E+01	4.30106E-01	1.13622E-01	694.363	-.001	.022	.001	
372	1.49560E+01	9.18695E-01	-3.89928E-01	1.87566E-01	694.363	.022	.001	.002	
373	9.20490E-01	1.27511E+01	3.28629E-01	2.32367E-01	694.363	.001	.019	.003	
374	1.27534E+01	-9.69233E-01	-3.81188E-01	2.51743E-01	694.363	.018	-.001	.003	
375	-9.66649E-01	1.20510E+01	3.61604E-01	2.48224E-01	694.363	-.001	.017	.003	
376	1.20533E+01	-2.49779E-01	-3.41754E-01	2.23163E-01	694.363	.017	-.000	.003	
377	-2.48048E-01	1.37627E+01	3.89189E-01	1.77073E-01	694.363	-.000	.020	.002	
378	1.37647E+01	-4.89853E-01	-3.95962E-01	1.06906E-01	694.363	.020	-.001	.001	
379	-4.94694E-01	-3.91688E-02	1.23757E-02	2.89335E-02	694.363	-.001	-.000	.000	
380	1.93629E+02	9.69048E+01	-1.87348E+00	1.07809E-01	270.000	.680	.359	.033	
381	-1.19632E-01	1.37250E-01	4.38041E-03	-7.51675E-03	10.000	-.012	.014	-.001	
382	-1.34442E-01	1.19381E-01	4.33556E-03	2.42360E-02	10.000	-.013	.012	.002	
383	-4.10289E+02	4.48074E+02	1.85442E+01	1.77442E+00	540.000	-.760	.830	.024	
384	-1.45371E-01	1.62825E-01	5.25544E-03	-6.57020E-03	10.000	-.015	.016	-.001	
385	-1.52391E-01	1.47267E-01	5.11066E-03	3.95263E-02	10.000	-.015	.015	.004	

386	-4.44645E+02	4.61758E+02	1.95823E+01	2.09550E+00	540.000	-.823	.855	.034
387	-1.56269E-01	1.69404E-01	5.53671E-03	1.04202E-02	10.000	-.016	.017	.001
388	-1.65253E-01	1.66296E-01	5.65430E-03	2.59006E-02	10.000	-.017	.017	.001
389	-4.62616E+02	4.69479E+02	2.01374E+01	2.10447E+00	540.000	-.857	.869	.034
390	-1.68672E-01	1.77297E-01	5.90002E-03	1.60992E-02	10.000	-.017	.018	.002
391	-1.68422E-01	1.71672E-01	5.79994E-03	2.14379E-02	10.000	-.017	.017	.002
392	-4.68071E+02	4.71710E+02	2.03036E+01	2.18569E+00	540.000	-.867	.874	.035
393	-1.70940E-01	1.76382E-01	5.92336E-03	3.09914E-02	10.000	-.017	.018	.003
394	-1.74759E-01	1.79911E-01	6.04423E-03	7.04269E-03	10.000	-.017	.018	.001
395	-4.73714E+02	4.74196E+02	2.04791E+01	2.12927E+00	540.000	-.877	.878	.035
396	-1.75877E-01	1.80339E-01	6.07504E-03	3.26568E-02	10.000	-.018	.018	.003
397	-1.72280E-01	1.77811E-01	5.97010E-03	3.99105E-03	10.000	-.017	.018	.000
398	-4.73463E+02	4.73218E+02	2.04526E+01	2.18319E+00	540.000	-.877	.876	.035
399	-1.71890E-01	1.74015E-01	5.89950E-03	4.61399E-02	10.000	-.017	.017	.005
400	-1.72398E-01	1.80461E-01	6.01703E-03	-9.76011E-03	10.000	-.017	.018	-.001
401	-4.75740E+02	4.72709E+02	2.04904E+01	2.10154E+00	540.000	-.881	.875	.034
402	-1.71294E-01	1.70759E-01	5.83319E-03	5.05531E-02	10.000	-.017	.017	.005
403	-1.62541E-01	1.73620E-01	5.73219E-03	-1.51970E-02	10.000	-.016	.017	-.002
404	-4.74113E+02	4.68513E+02	2.03649E+01	2.08273E+00	540.000	-.874	.868	.034
405	-1.63583E-01	1.55830E-01	5.44907E-03	6.95546E-02	10.000	-.016	.016	.007
406	-1.56298E-01	1.72464E-01	5.61236E-03	-3.69099E-02	10.000	-.016	.017	-.004
407	-4.76725E+02	4.65611E+02	2.03594E+01	1.80963E+00	540.000	-.883	.862	.026
408	-1.66173E-01	1.51626E-01	5.42036E-03	5.97057E-02	10.000	-.017	.015	.005
409	-1.52297E-01	1.66997E-01	5.44414E-03	-3.94811E-02	10.000	-.015	.017	-.004
410	-2.37771E+02	2.30660E+02	1.01109E+01	3.10444E-01	270.000	-.879	.856	.110
411	-6.96246E-02	5.29497E+00	1.49100E-01	4.64040E-02	694.363	-.000	.004	.001
412	5.29447E+00	7.00678E+00	4.78422E-02	1.49997E-01	694.363	.004	.010	.002
413	7.00217E+00	5.67721E+00	-3.68035E-02	2.46907E-01	694.363	.010	.013	.003
414	5.67245E+00	6.38660E+00	1.98374E-02	3.23435E-01	694.363	.008	.009	.004
415	6.38178E+00	4.79046E+00	-4.41929E-02	3.79354E-01	694.363	.009	.007	.005
416	4.78446E+00	5.78108E+00	2.76728E-02	2.82848E-02	694.363	.007	.008	.000
417	5.77616E+00	4.49793E+00	-3.55063E-02	4.39140E-02	694.363	.004	.006	.001
418	4.49340E+00	4.92580E+00	1.20000E-02	4.00433E-02	694.363	.005	.007	.001
419	4.92194E+00	9.38959E-01	-1.10638E-01	2.00317E-02	694.363	.007	.001	.000
420	9.32346E-01	-6.80286E-02	-2.77482E-02	-4.33507E-05	694.363	.001	-.000	-.001
421	9.49871E+01	1.03617E+02	3.16042E-01	2.19545E-01	270.000	.330	.334	.007
422	-6.92626E-02	9.50914E-02	2.78475E-03	-1.00392E-01	10.000	-.007	.010	-.010
423	-9.38850E-02	6.95552E-02	2.78816E-03	1.19653E-01	10.000	-.009	.007	.012
424	-2.92039E+02	3.52210E+02	1.39185E+01	1.43687E+00	540.000	-.541	.652	.030
425	-6.70373E-02	8.90072E-02	2.66018E-03	-9.54430E-02	10.000	-.007	.009	-.010
426	-8.60541E-02	7.09395E-02	2.67826E-03	1.29159E-01	10.000	-.009	.007	.013
427	-3.13430E+02	3.54553E+02	1.44314E+01	2.14433E+00	540.000	-.580	.657	.035
428	-7.05774E-02	8.66446E-02	2.68054E-03	-6.13805E-02	10.000	-.007	.009	-.006
429	-8.32342E-02	7.54457E-02	2.71358E-03	9.92391E-02	10.000	-.008	.008	.010
430	-3.35878E+02	3.61421E+02	1.50649E+01	2.17071E+00	540.000	-.622	.669	.035
431	-7.46645E-02	8.59542E-02	2.73966E-03	-3.75527E-02	10.000	-.007	.009	-.004
432	-8.19084E-02	7.97062E-02	2.75662E-03	7.56040E-02	10.000	-.009	.008	.008
433	-3.51282E+02	3.65623E+02	1.54884E+01	2.24727E+00	540.000	-.651	.677	.036
434	-7.75647E-02	9.51273E-02	2.77429E-03	-6.48466E-03	10.000	-.009	.009	-.001
435	-9.13378E-02	8.25993E-02	2.79577E-03	4.50385E-02	10.000	-.008	.008	.005
436	-3.63012E+02	3.69592E+02	1.58276E+01	2.20413E+00	540.000	-.672	.684	.036
437	-7.99866E-02	9.42201E-02	2.79459E-03	1.19455E-02	10.000	-.009	.008	.001
438	-9.00033E-02	8.40578E-02	2.79784E-03	2.52190E-02	10.000	-.008	.008	.003
439	-3.70381E+02	3.70683E+02	1.60103E+01	2.24689E+00	540.000	-.686	.686	.036
440	-8.11818E-02	8.21099E-02	2.78405E-03	4.20830E-02	10.000	-.009	.008	.004
441	-7.93320E-02	8.51847E-02	2.78835E-03	-5.20017E-03	10.000	-.008	.008	-.001
442	-3.78176E+02	3.72537E+02	1.62188E+01	2.17086E+00	540.000	-.700	.690	.036
443	-9.31669E-02	7.94880E-02	2.77427E-03	6.23748E-02	10.000	-.008	.009	.005
444	-7.60628E-02	9.61169E-02	2.76536E-03	-2.65973E-02	10.000	-.008	.009	-.003
445	-3.96414E+02	3.73962E+02	1.64275E+01	2.12783E+00	540.000	-.716	.693	.036
446	-8.58829E-02	7.77531E-02	2.80834E-03	9.32545E-02	10.000	-.009	.008	.009
447	-7.64043E-02	8.88424E-02	2.81736E-03	-5.99122E-02	10.000	-.008	.009	-.006
448	-3.97597E+02	3.79814E+02	1.67954E+01	1.86955E+00	540.000	-.736	.714	.036
449	-9.32346E-02	8.05903E-02	2.96497E-03	8.19999E-02	10.000	-.009	.008	.003

450	-7.97739E-02	9.27984E-02	2.94226E-03	-5.96272E-02	10.000	-.008	.039	-.006
451	-2.02897E+02	1.93097E+02	8.55478E+00	4.16140E-01	270.000	-.751	.715	.014
452	-4.77440E-02	2.54860E-01	8.40567E-03	1.22457E-03	694.363	-.000	.000	.000
453	2.43942E-01	2.34544E+00	5.83750E-02	2.41343E-02	694.363	.000	.003	.000
454	2.34501E+00	3.79134E+00	4.01761E-02	6.11059E-02	694.363	.003	.005	.001
455	3.79206E+00	3.84413E+00	1.44632E-03	9.47343E-02	694.363	.005	.006	.001
456	3.84601E+00	4.07924E+00	6.47857E-03	9.42695E-02	694.363	.006	.006	.001
457	4.08219E+00	3.51856E+00	-1.56560E-02	8.93105E-02	694.363	.006	.005	.001
458	3.52244E+00	3.06407E+00	-1.27334E-02	7.02729E-02	694.363	.005	.004	.001
459	3.06916E+00	1.32977E+00	-4.83164E-02	4.00069E-02	694.363	.004	.002	.001
460	1.34415E+00	-2.34135E-02	-3.79879E-02	9.23299E-02	694.363	.002	-.000	.001
461	-3.27549E-04	-2.69077E-02	-7.35559E-04	-2.04642E-04	694.363	-.000	-.000	-.000
462	-3.95310E+01	9.58697E+01	2.70910E+00	5.94329E-01	270.000	-.146	.318	.013
463	-2.21096E-02	3.79755E-02	1.02422E-03	-1.21591E-01	10.000	-.002	.004	-.012
464	-4.37392E-02	2.71391E-02	1.20920E-03	1.49553E-01	10.000	-.004	.003	.012
465	-1.11227E+02	1.58902E+02	5.33594E+00	2.14279E+00	540.000	-.205	.294	.032
466	-1.64229E-02	3.12449E-02	9.12545E-04	-1.23793E-01	10.000	-.002	.003	-.012
467	-3.55406E-02	2.10296E-02	9.65169E-04	1.62162E-01	10.000	-.004	.002	.016
468	-8.93753E+01	1.37499E+02	4.90154E+00	2.44019E+00	540.000	-.166	.255	.040
469	-1.56273E-02	2.83562E-02	7.49837E-04	-4.50279E-02	10.000	-.002	.003	-.009
470	-2.99564E-02	2.05629E-02	9.60127E-04	1.25963E-01	10.000	-.003	.002	.012
471	-1.31748E+02	1.39350E+02	5.20885E+00	2.44415E+00	540.000	-.189	.258	.040
472	-1.71401E-02	2.66751E-02	7.47050E-04	-4.93631E-02	10.000	-.002	.003	-.005
473	-2.65216E-02	2.21577E-02	9.30352E-04	9.13426E-02	10.000	-.003	.002	.009
474	-1.25242E+02	1.49925E+02	5.92332E+00	2.55721E+00	540.000	-.232	.276	.042
475	-1.95449E-02	2.58816E-02	7.74629E-04	-6.66724E-03	10.000	-.002	.003	-.001
476	-2.39876E-02	2.33249E-02	8.05291E-04	4.90659E-02	10.000	-.002	.002	.009
477	-1.46237E+02	1.57947E+02	6.57181E+00	2.53059E+00	540.000	-.271	.232	.041
478	-2.16021E-02	2.46865E-02	7.99411E-04	2.55294E-02	10.000	-.002	.002	.003
479	-2.19456E-02	2.44543E-02	7.91283E-04	1.64675E-02	10.000	-.002	.002	.002
480	-1.65360E+02	1.66219E+02	7.16369E+00	2.55900E+00	540.000	-.306	.309	.042
481	-2.40728E-02	2.36420E-02	8.13937E-04	6.50907E-02	10.000	-.002	.002	.007
482	-1.99976E-02	2.50012E-02	7.67291E-04	-2.30997E-02	10.000	-.002	.003	-.002
483	-1.83767E+02	1.74574E+02	7.73321E+00	2.49023E+00	540.000	-.340	.323	.041
484	-2.69791E-02	2.26065E-02	8.45826E-04	9.49037E-02	10.000	-.003	.002	.009
485	-1.92819E+02	2.62172E-02	7.75990E-04	-5.32639E-02	10.000	-.002	.003	-.006
486	-2.338725E+02	1.86249E+02	8.42849E+00	2.53039E+00	540.000	-.378	.345	.041
487	-2.70994E-02	3.14486E-02	9.99117E-04	-8.75247E-02	10.000	-.003	.003	-.009
488	-2.70994E-02	3.14486E-02	9.99117E-04	-8.75247E-02	10.000	-.003	.003	-.009
489	-2.23423E+02	2.00895E+02	9.16719E+00	2.29738E+00	540.000	-.414	.372	.037
490	-3.50149E-02	2.63205E-02	1.04631E-03	1.12286E-01	10.000	-.004	.003	.011
491	-2.27158E-02	3.11335E-02	9.18032E-04	-9.15936E-02	10.000	-.002	.003	-.009
492	-1.19694E+02	1.07977E+02	4.91854E+00	7.12049E-01	270.000	-.443	.400	.013
493	-3.66612E-02	-1.72970E+00	-4.70289E-02	-1.94224E-02	694.363	-.000	-.002	-.000
494	-1.74997E+00	-1.47256E-01	4.45198E-02	-1.88663E-02	694.363	-.003	-.000	-.001
495	-1.55947E-01	1.37022E+00	4.23934E-02	-7.16071E-03	694.363	-.000	.002	-.001
496	1.36399E+00	2.04903E+00	1.90287E-02	5.70003E-03	694.363	.002	.003	.000
497	2.34559E+00	2.36945E+00	8.99613E-03	1.47243E-02	694.363	.003	.003	.000
498	2.36872E+00	1.97449E+00	-1.09398E-02	1.75970E-02	694.363	.003	.003	.000
499	1.97676E+00	1.20291E+00	-2.14959E-02	1.43999E-02	694.363	.003	.002	.000
500	1.20720E+00	-9.44270E-02	-3.58785E-02	7.20793E-03	694.363	.002	-.000	.000
501	-8.07890E-02	-5.50138E-01	-1.30375E-02	5.46892E-02	694.363	-.000	-.001	.001
502	-5.44427E-01	-9.66484E-03	1.48545E-02	-2.11613E-02	694.363	-.001	-.000	-.000
503	-6.47013E+01	2.88890E+01	2.02194E+00	9.58378E-01	270.000	-.240	.197	.031
504	1.24368E-02	-4.04355E-03	-2.80929E-04	-1.17803E-01	10.000	.001	-.000	-.012
505	-5.44273E-03	-3.80853E-03	3.47056E-05	1.54332E-01	10.000	-.001	-.000	.015
506	9.67665E+01	-6.83789E+01	-3.56793E+00	2.52025E+00	540.000	.179	-.127	.041
507	1.65835E-02	-7.75251E-03	-4.14822E-04	-1.30315E-01	10.000	.002	-.001	-.013
508	-2.56006E-03	-8.21568E-03	-9.64965E-05	1.73101E-01	10.000	-.000	-.001	.017
509	1.27350E+02	-9.49728E+01	-4.80327E+00	2.67969E+00	540.000	.236	-.176	.043
510	1.97218E-02	-1.01625E-02	-4.92406E-04	-9.55813E-02	10.000	.002	-.001	-.010
511	3.19215E-03	-1.19538E-02	-2.58224E-04	1.39945E-01	10.000	.000	-.001	.014
512	1.34460E+02	-1.05153E+02	-5.17683E+00	2.72361E+00	540.000	.249	-.195	.044
513	1.92727E-02	-1.14484E-02	-5.06734E-04	-5.72281E-02	10.000	.002	-.001	-.006

514	7.60342E-03	-1.27400E-02	-3.47023E-04	1.02536E-01	10.000	.001	-.001	.010
515	1.23571E+02	-1.02424E+02	-4.49134E+00	2.79234E+00	540.000	.229	-.190	.045
516	1.61718E-02	-1.17182E-02	-4.75594E-04	-1.05354E-02	10.000	.002	-.001	-.001
517	1.11546E-02	-1.24553E-02	-4.09676E-04	5.62941E-02	10.000	.001	-.001	.000
518	1.06641E+02	-9.57549E+01	-4.37362E+00	2.77474E+00	540.000	.194	-.177	.045
519	1.37519E-02	-1.20470E-02	-4.39940E-04	2.81083E-02	10.000	.001	-.001	.003
520	1.36360E-02	-1.25342E-02	-4.46297E-04	1.77136E-02	10.000	.001	-.001	.002
521	8.72459E+01	-8.60832E+01	-3.74477E+00	2.79903E+00	540.000	.162	-.159	.045
522	1.05696E-02	-1.18013E-02	-3.31555E-04	7.15327E-02	10.000	.001	-.001	.007
523	1.54844E-02	-1.24146E-02	-4.75713E-04	-2.60009E-02	10.000	.002	-.001	-.003
524	6.84255E+01	-7.42031E+01	-3.04691E+00	2.74199E+00	540.000	.124	-.137	.045
525	7.04965E-03	-1.09483E-02	-3.07015E-04	1.04018E-01	10.000	.001	-.001	.010
526	1.57748E-02	-1.16455E-02	-4.67500E-04	-5.91269E-02	10.000	.002	-.001	-.006
527	4.50505E+01	-5.86550E+01	-2.24055E+00	2.71873E+00	540.000	.083	-.109	.044
528	3.05699E-03	-8.37748E-03	-1.95072E-04	1.33475E-01	10.000	.000	-.001	.013
529	1.49357E-02	-1.05171E-02	-4.33911E-04	-9.01377E-02	10.000	.001	-.001	-.014
530	2.53465E+01	-4.11698E+01	-1.43707E+00	2.52230E+00	540.000	.047	-.075	.041
531	8.41224E-04	-6.10916E-03	-1.19249E-04	1.14940E-01	10.000	.000	-.001	.011
532	1.22317E-02	-7.55184E-03	-3.37278E-04	-7.77027E-02	10.000	.001	-.001	-.005
533	3.47027E+00	-1.15555E+01	-3.33263E-01	1.00737E+00	270.000	.014	-.043	.033
534	-2.54744E-02	-8.20846E-01	-2.20947E-02	-3.43929E-02	694.363	-.000	-.001	-.000
535	-9.47143E-01	-1.26469E+00	-1.15986E-02	-5.41560E-02	694.363	-.001	-.002	-.001
536	-1.27779E+00	-3.62467E-01	2.54257E-02	-6.53369E-02	694.363	-.002	-.001	-.001
537	-3.72661E-01	4.64461E-01	2.32533E-02	-6.95976E-02	694.363	-.001	.001	-.001
538	4.58307E-01	9.55716E-01	1.10280E-02	-6.95157E-02	694.363	.001	.001	-.001
539	9.53499E-01	6.20994E-01	-6.45846E-03	-6.78351E-02	694.363	.001	.001	-.001
540	6.23396E-01	6.38720E-03	-1.71388E-02	-6.50159E-02	694.363	.001	.001	-.001
541	1.25425E-02	-6.52592E-01	-1.94759E-02	-5.96969E-02	694.363	.000	-.001	-.001
542	-6.43523E-01	-5.47037E-01	1.56904E-03	-4.93976E-02	694.363	-.001	-.001	-.001
543	-5.77484E-01	2.21391E-03	1.61027E-02	-3.24939E-02	694.363	-.001	.000	-.000
544	-9.74538E+01	-1.91994E+01	1.47667E+00	1.28702E+00	270.000	-.324	-.071	.142
545	4.18239E-02	-3.65326E-02	-1.33577E-03	-9.91928E-02	10.000	.004	-.004	-.012
546	2.48674E-02	-3.08419E-02	-9.50422E-04	1.42257E-01	10.000	.002	-.003	.014
547	2.51767E+02	-2.76025E+02	-1.05389E+01	2.79247E+00	540.000	.466	-.437	.045
548	4.47892E-02	-4.01597E-02	-1.44807E-03	-1.16377E-01	10.000	.004	-.004	-.012
549	2.60620E-02	-3.27434E-02	-1.00331E-03	1.62824E-01	10.000	.003	-.003	.016
550	2.53105E+02	-2.44403E+02	-1.10512E+01	2.98294E+00	540.000	.487	-.460	.047
551	4.61476E-02	-4.17784E-02	-1.49995E-03	-9.91115E-02	10.000	.005	-.004	-.009
552	3.07163E-02	-3.72292E-02	-1.15915E-03	1.36295E-01	10.000	.003	-.004	.014
553	2.72867E+02	-2.58592E+02	-1.14822E+01	2.90313E+00	540.000	.505	-.479	.047
554	4.65097E-02	-4.26194E-02	-1.51963E-03	-5.49036E-02	10.000	.005	-.004	-.005
555	3.53607E-02	-4.01201E-02	-1.28757E-03	1.02574E-01	10.000	.004	-.004	.010
556	2.74473E+02	-2.62670E+02	-1.16051E+01	2.95977E+00	540.000	.504	-.490	.044
557	4.49203E-02	-4.22731E-02	-1.48683E-03	-1.08571E-02	10.000	.004	-.004	-.001
558	3.94016E-02	-4.14331E-02	-1.38553E-03	5.88631E-02	10.000	.004	-.004	.008
559	2.69289E+02	-2.61960E+02	-1.14777E+01	2.95120E+00	540.000	.499	-.495	.044
560	4.23970E-02	-4.15890E-02	-1.43232E-03	2.79018E-02	10.000	.004	-.004	.003
561	4.20915E-02	-4.24552E-02	-1.44184E-03	2.02071E-02	10.000	.004	-.004	.002
562	2.50044E+02	-2.58006E+02	-1.11926E+01	2.96760E+00	540.000	.482	-.478	.043
563	3.34267E-02	-3.99217E-02	-1.34317E-03	6.97002E-02	10.000	.004	-.004	.007
564	4.39097E-02	-4.29574E-02	-1.47780E-03	-2.17052E-02	10.000	.004	-.004	-.002
565	2.49331E+02	-2.51642E+02	-1.08236E+01	2.93025E+00	540.000	.462	-.466	.043
566	3.51879E-02	-3.76176E-02	-1.24193E-03	1.00239E-01	10.000	.004	-.004	.011
567	4.39951E-02	-4.24512E-02	-1.47219E-03	-5.25007E-02	10.000	.004	-.004	-.005
568	2.38639E+02	-2.43207E+02	-1.04116E+01	2.92246E+00	540.000	.442	-.450	.047
569	3.16887E-02	-3.43025E-02	-1.12578E-03	1.24796E-01	10.000	.003	-.003	.012
570	4.39722E-02	-4.16529E-02	-1.44443E-03	-7.49339E-02	10.000	.004	-.004	-.008
571	2.29570E+02	-2.33865E+02	-1.00125E+01	2.79415E+00	540.000	.425	-.433	.045
572	3.05245E-02	-3.25177E-02	-1.07540E-03	1.05561E-01	10.000	.003	-.003	.011
573	4.01819E-02	-3.46727E-02	-1.34441E-03	-6.19140E-02	10.000	.004	-.004	-.006
574	1.10355E+02	-1.11909E+02	-4.40196E+00	1.26333E+00	270.000	.409	-.414	.041
575	-1.56269E-02	-5.04242E-01	-1.35726E-02	-4.39285E-02	694.363	-.000	-.001	-.001
576	-5.34714E-01	-1.40517E+00	-2.41904E-02	-7.47125E-02	694.363	-.001	-.002	-.001
577	-1.42124E+00	-1.17694E+00	6.79723E-03	-1.00190E-01	694.363	-.002	-.002	-.001

578	-1.18945E+00	-6.20230E-01	1.58116E-02	-1.15645E-01	694.363	-.002	-.001	-.001
579	-6.27891E-01	-2.59050E-01	1.02731E-02	-1.21643E-01	694.363	-.001	-.000	-.002
580	-2.60249E-01	-3.34426E-01	-2.06049E-03	-1.19570E-01	694.363	-.000	-.000	-.002
581	-3.31223E-01	-5.81431E-01	-6.95021E-03	-1.10317E-01	694.363	-.000	-.001	-.001
582	-5.73430E-01	-7.37092E-01	-4.54617E-03	-9.39169E-02	694.363	-.001	-.001	-.001
583	-7.25504E-01	-4.06742E-01	8.95449E-03	-7.02057E-02	694.363	-.001	-.001	-.001
584	-3.94899E-01	1.41901E-02	1.13633E-02	-4.18013E-02	694.363	-.001	.000	-.001
585	-1.11349E+02	-5.11033E+01	1.30160E+00	1.55177E+00	270.000	-.412	-.149	.050
586	6.16750E-02	-5.97976E-02	-2.07091E-03	-7.05379E-02	10.000	.006	-.006	-.007
587	4.73935E-02	-5.00738E-02	-1.66272E-03	1.20502E-01	10.000	.005	-.005	.012
588	3.26446E+02	-3.23015E+02	-1.40318E+01	2.98993E+00	540.000	.605	-.598	.041
589	6.51400E-02	-6.43730E-02	-2.20792E-03	-9.03004E-02	10.000	.007	-.006	-.004
590	4.90052E-02	-5.20329E-02	-1.72374E-03	1.39451E-01	10.000	.005	-.005	.014
591	3.73398E+02	-3.30992E+02	-1.43543E+01	3.03341E+00	540.000	.617	-.613	.049
592	6.60796E-02	-6.54541E-02	-2.24250E-03	-7.16063E-02	10.000	.007	-.007	-.007
593	5.25163E-02	-5.59676E-02	-1.94995E-03	1.20329E-01	10.000	.005	-.006	.012
594	3.41194E+02	-3.38091E+02	-1.46759E+01	3.02702E+00	540.000	.632	-.626	.049
595	6.67787E-02	-6.57464E-02	-2.25959E-03	-4.55141E-02	10.000	.007	-.007	-.005
596	5.63765E-02	-5.95673E-02	-1.97775E-03	9.47530E-02	10.000	.006	-.005	.003
597	3.46787E+02	-3.42741E+02	-1.48975E+01	3.05545E+00	540.000	.642	-.635	.050
598	6.58642E-02	-6.49022E-02	-2.22986E-03	-3.24237E-03	10.000	.007	-.006	-.001
599	6.02257E-02	-6.26374E-02	-2.09553E-03	5.46199E-02	10.000	.006	-.006	.006
600	3.48992E+02	-3.44392E+02	-1.49611E+01	3.05363E+00	540.000	.645	-.638	.050
601	6.39477E-02	-6.35341E-02	-2.17238E-03	2.41940E-02	10.000	.006	-.006	.002
602	6.23728E-02	-6.43594E-02	-2.16981E-03	2.53047E-02	10.000	.006	-.006	.003
603	3.45851E+02	-3.43450E+02	-1.49926E+01	3.07021E+00	540.000	.640	-.636	.050
604	6.06645E-02	-6.10530E-02	-2.07602E-03	5.98160E-02	10.000	.006	-.006	.006
605	6.45911E-02	-6.55126E-02	-2.21454E-03	-1.02111E-02	10.000	.006	-.007	-.001
606	3.42064E+02	-3.40633E+02	-1.47499E+01	3.05425E+00	540.000	.633	-.631	.050
607	5.75925E-02	-5.42200E-02	-1.97546E-03	9.52111E-02	10.000	.006	-.006	.009
608	6.48739E-02	-6.56239E-02	-2.22439E-03	-3.54917E-02	10.000	.006	-.007	-.004
609	3.38040E+02	-3.36694E+02	-1.45771E+01	3.06418E+00	540.000	.620	-.623	.050
610	5.49160E-02	-5.50196E-02	-1.87526E-03	1.04079E-01	10.000	.005	-.006	.011
611	6.43435E-02	-6.52472E-02	-2.20944E-03	-5.46115E-02	10.000	.006	-.007	-.002
612	3.34455E+02	-3.32301E+02	-1.44141E+01	2.93557E+00	540.000	.620	-.615	.049
613	5.47971E-02	-5.41565E-02	-1.85947E-03	8.57909E-02	10.000	.005	-.005	.009
614	6.16516E-02	-6.25623E-02	-2.11793E-03	-3.73046E-02	10.000	.006	-.006	-.004
615	1.65731E+02	-1.63910E+02	-7.12195E+00	1.45934E+00	270.000	.614	-.607	.047
616	5.44267E-04	-9.77017E-01	-2.71545E-02	-4.97306E-02	694.363	.000	-.001	-.001
617	-1.00332E+00	-1.27250E+00	-7.47724E-03	-3.44953E-02	694.363	-.001	-.002	-.001
618	-1.24911E+00	-1.19452E+00	2.51629E-03	-1.16336E-01	694.363	-.002	-.002	-.001
619	-1.21159E+00	-1.00716E+00	5.67443E-03	-1.37178E-01	694.363	-.002	-.001	-.002
620	-1.01506E+00	-9.06106E-01	5.80439E-03	-1.46498E-01	694.363	-.001	-.001	-.002
621	-8.04149E-01	-7.86672E-01	5.96595E-04	-1.44424E-01	694.363	-.001	-.001	-.002
622	-7.32861E-01	-7.51031E-01	8.44986E-04	-1.31641E-01	694.363	-.001	-.001	-.002
623	-7.42031E-01	-5.91907E-01	4.17010E-03	-1.09207E-01	694.363	-.001	-.001	-.001
624	-5.79207E-01	-1.61510E-01	1.16025E-02	-7.39081E-02	694.363	-.001	-.000	-.001
625	-1.44926E-01	2.51021E-02	4.83411E-03	-4.62257E-02	694.363	-.000	.000	-.001
626	-1.16495E+02	-7.29443E+01	9.40646E-01	1.72173E+00	270.000	-.431	-.279	.050
627	6.69194E-02	-6.95592E-02	-2.32703E-03	-3.93609E-02	10.000	.007	-.007	-.004
628	5.30835E-02	-5.67005E-02	-1.95796E-03	9.32512E-02	10.000	.006	-.006	.009
629	3.50009E+02	-3.58490E+02	-1.53161E+01	3.13049E+00	540.000	.648	-.665	.051
630	7.10961E-02	-7.39509E-02	-2.47299E-03	-5.94313E-02	10.000	.007	-.007	-.006
631	5.76292E-02	-5.93574E-02	-2.02976E-03	1.10339E-01	10.000	.006	-.006	.011
632	3.59737E+02	-3.65766E+02	-1.56749E+01	3.11242E+00	540.000	.666	-.677	.051
633	7.23784E-02	-7.45019E-02	-2.50432E-03	-4.95431E-02	10.000	.007	-.007	-.005
634	6.18572E-02	-6.22094E-02	-2.11635E-03	9.99340E-02	10.000	.006	-.006	.010
635	3.67131E+02	-3.70721E+02	-1.59416E+01	3.08570E+00	540.000	.680	-.687	.050
636	7.31094E-02	-7.43028E-02	-2.51354E-03	-3.25378E-02	10.000	.007	-.007	-.003
637	6.43941E-02	-6.54705E-02	-2.21512E-03	8.25108E-02	10.000	.006	-.007	.008
638	3.77357E+02	-3.74525E+02	-1.61583E+01	3.09507E+00	540.000	.691	-.694	.049
639	7.26067E-02	-7.31178E-02	-2.48496E-03	-6.41880E-03	10.000	.007	-.007	-.001
640	6.73693E-02	-6.88818E-02	-2.32387E-03	5.63590E-02	10.000	.007	-.007	.006
641	3.77344E+02	-3.76714E+02	-1.62917E+01	3.09244E+00	540.000	.699	-.698	.050

642	7.13693E-02	-7.15256E-02	-2.43690E-03	1.94632E-02	10.000	.007	-.007	.007
643	6.96144E-02	-7.13051E-02	-2.40330E-03	3.16104E-02	10.000	.007	-.007	.003
644	3.74904E+02	-3.77141E+02	-1.63356E+01	3.11023E+00	540.000	.702	-.699	.003
645	6.91942E-02	-6.90473E-02	-2.35775E-03	4.51853E-02	10.000	.007	-.007	.000
646	7.13202E-02	-7.31923E-02	-2.46419E-03	5.15234E-03	10.000	.007	-.007	.001
647	3.79024E+02	-3.76278E+02	-1.63186E+01	3.11219E+00	540.000	.702	-.699	.001
648	6.72247E-02	-6.65876E-02	-2.28241E-03	6.34874E-02	10.000	.007	-.007	.006
649	7.19446E-02	-7.39553E-02	-2.44783E-03	-1.31475E-02	10.000	.007	-.007	-.001
650	3.78367E+02	-3.74610E+02	-1.62684E+01	3.13692E+00	540.000	.701	-.694	.001
651	6.56527E-02	-6.42015E-02	-2.21491E-03	7.72861E-02	10.000	.007	-.006	.004
652	7.21044E-02	-7.41748E-02	-2.49425E-03	-2.62891E-02	10.000	.007	-.007	-.013
653	3.77770E+02	-3.72893E+02	-1.62184E+01	3.11413E+00	540.000	.700	-.691	.001
654	6.65791E-02	-6.45449E-02	-2.23647E-03	6.19537E-02	10.000	.007	-.006	.000
655	7.11396E-02	-7.21909E-02	-2.42702E-03	-1.73520E-02	10.000	.007	-.007	-.001
656	1.99430E+02	-1.95733E+02	-9.08395E+00	1.53465E+00	270.000	.694	-.689	.001
657	2.53273E-02	-1.24459E+00	-3.92754E-02	-5.05073E-02	694.363	.000	-.002	-.001
658	-1.25753E+00	-9.55913E-01	8.37427E-03	-8.24899E-02	694.363	-.002	-.001	-.001
659	-9.70659E-01	-8.43714E-01	3.52624E-03	-1.12097E-01	694.363	-.001	-.001	-.001
660	-8.55759E-01	-8.65689E-01	-3.59184E-04	-1.32930E-01	694.363	-.001	-.001	-.002
661	-8.76115E-01	-8.18942E-01	1.58813E-03	-1.43146E-01	694.363	-.001	-.001	-.002
662	-9.20945E-01	-7.93960E-01	7.49592E-04	-1.41797E-01	694.363	-.001	-.001	-.002
663	-7.90510E-01	-6.56862E-01	3.71243E-03	-1.23091E-01	694.363	-.001	-.001	-.002
664	-6.48646E-01	-3.99265E-01	6.95500E-03	-1.06391E-01	694.363	-.001	-.001	-.001
665	-3.46674E-01	4.95419E-12	1.21171E-02	-7.64265E-02	694.363	-.001	.000	-.001
666	6.07414E-02	3.00542E-02	-9.52309E-04	-4.61367E-02	694.363	.000	.000	-.001
667	-9.20844E+01	-9.74372E+01	1.03409E-01	1.79135E+00	270.000	-.341	-.334	.003
668	5.68506E-02	-6.24670E-02	-2.03462E-03	-1.09613E-02	10.000	.006	-.006	-.001
669	5.79166E-02	-4.95144E-02	-1.76415E-03	6.67203E-02	10.000	.005	-.005	.007
670	3.39301E+02	-3.57344E+02	-1.50514E+01	3.21563E+00	540.000	.629	-.662	.052
671	6.11422E-02	-5.48323E-02	-2.13095E-03	-3.09639E-02	10.000	.006	-.006	-.003
672	5.32679E-02	-5.07446E-02	-1.77416E-03	8.26396E-02	10.000	.005	-.005	.004
673	3.50746E+02	-3.67459E+02	-1.54091E+01	3.11379E+00	540.000	.650	-.671	.001
674	6.15525E-02	-6.48595E-02	-2.15544E-03	-2.45065E-02	10.000	.005	-.006	-.003
675	5.39996E-02	-5.24160E-02	-1.81496E-03	7.47919E-02	10.000	.005	-.005	.008
676	3.58171E+02	-3.66064E+02	-1.56474E+01	3.07351E+00	540.000	.663	-.678	.035
677	6.28798E-02	-6.43473E-02	-2.15649E-03	-1.93505E-02	10.000	.005	-.006	-.002
678	5.52166E-02	-5.46118E-02	-1.47329E-03	6.31494E-02	10.000	.006	-.005	.007
679	3.64272E+02	-3.69179E+02	-1.58465E+01	3.07295E+00	540.000	.679	-.684	.030
680	6.17001E-02	-6.31185E-02	-2.12849E-03	-3.12634E-03	10.000	.005	-.006	-.001
681	5.70293E-02	-5.73536E-02	-1.95986E-03	5.24021E-02	10.000	.006	-.006	.003
682	3.69499E+02	-3.71527E+02	-1.60099E+01	3.06849E+00	540.000	.684	-.688	.000
683	6.10776E-02	-6.16829E-02	-2.09350E-03	1.25699E-02	10.000	.006	-.006	.001
684	5.95458E-02	-5.96366E-02	-2.01557E-03	3.47240E-02	10.000	.006	-.006	.004
685	3.73296E+02	-3.72466E+02	-1.61211E+01	3.09775E+00	540.000	.691	-.690	.000
686	5.99494E-02	-5.97359E-02	-2.04115E-03	2.99292E-02	10.000	.006	-.006	.003
687	5.39648E-02	-6.16910E-02	-2.07469E-03	2.33326E-02	10.000	.005	-.006	.002
688	3.75940E+02	-3.73261E+02	-1.61477E+01	3.10271E+00	540.000	.696	-.691	.003
689	5.91156E-02	-5.80944E-02	-1.99903E-03	4.17161E-02	10.000	.006	-.006	.004
690	6.07466E-02	-6.29730E-02	-2.10479E-03	3.01822E-03	10.000	.005	-.006	.001
691	3.77512E+02	-3.73090E+02	-1.62169E+01	3.13772E+00	540.000	.699	-.691	.001
692	5.95177E-02	-5.66929E-02	-1.96499E-03	5.04044E-02	10.000	.006	-.006	.003
693	6.14944E-02	-6.35686E-02	-2.13250E-03	8.74173E-04	10.000	.006	-.006	.004
694	3.74366E+02	-3.72864E+02	-1.62307E+01	3.14235E+00	540.000	.701	-.690	.001
695	5.99900E-02	-5.79972E-02	-2.01956E-03	3.92210E-02	10.000	.005	-.006	.004
696	6.03872E-02	-6.23097E-02	-2.09240E-03	1.33551E-02	10.000	.006	-.006	.001
697	1.99293E+02	-1.86606E+02	-9.11956E+00	1.63492E+00	270.000	.701	-.691	.153
698	3.95478E-02	-7.63602E-01	-2.22919E-02	-4.34993E-02	694.363	.000	-.001	-.001
699	-7.64867E-01	-5.00668E-01	7.33982E-03	-6.71521E-02	694.363	-.001	-.001	-.001
700	-5.12023E-01	-4.56034E-01	1.55526E-03	-8.97415E-02	694.363	-.001	-.001	-.001
701	-4.65794E-01	-5.41667E-01	-2.10757E-03	-1.07449E-01	694.363	-.001	-.001	-.001
702	-5.48107E-01	-5.52291E-01	-1.15942E-04	-1.17079E-01	694.363	-.001	-.001	-.001
703	-5.54599E-01	-5.51294E-01	9.15383E-05	-1.17169E-01	694.363	-.001	-.001	-.001
704	-5.49392E-01	-4.32094E-01	7.25927E-03	-1.07585E-01	694.363	-.001	-.001	-.001
705	-4.26476E-01	-2.36449E-01	5.27852E-03	-9.95255E-02	694.363	-.001	-.001	-.001

706	-2.28243E-01	1.47596E-01	1.04197E-02	-6.55229E-02	694.363	-.000	.000	-.001
707	1.55355E-01	2.57707E-02	-3.59955E-03	-4.25157E-02	694.363	.000	.000	-.001
708	-4.88725E+01	-9.99025E+01	-8.86486E-01	1.79605E+00	270.000	-.161	-.333	.053
709	3.73538E-02	-4.20860E-02	-1.35470E-03	7.29795E-03	10.000	.004	-.004	.001
710	3.69869E-02	-3.27725E-02	-1.18977E-03	4.93544E-02	10.000	.004	-.003	.005
711	2.99900E+02	-3.19325E+02	-1.33787E+01	3.21022E+00	540.000	.555	-.591	.052
712	3.97706E-02	-4.26935E-02	-1.38914E-03	-1.01670E-02	10.000	.004	-.004	-.001
713	3.43287E-02	-3.14353E-02	-1.12167E-03	6.13442E-02	10.000	.003	-.003	.006
714	3.06290E+02	-3.21022E+02	-1.35531E+01	3.04257E+00	540.000	.567	-.594	.049
715	3.95663E-02	-4.25546E-02	-1.40034E-03	-1.17173E-02	10.000	.004	-.004	-.001
716	3.41113E-02	-3.20427E-02	-1.12432E-03	6.09492E-02	10.000	.003	-.003	.006
717	3.11996E+02	-3.23461E+02	-1.37292E+01	2.99290E+00	540.000	.573	-.599	.049
718	3.97710E-02	-4.20707E-02	-1.39559E-03	-8.05367E-03	10.000	.004	-.004	-.001
719	3.44075E-02	-3.30832E-02	-1.15110E-03	5.66996E-02	10.000	.003	-.003	.006
720	3.17811E+02	-3.26227E+02	-1.39146E+01	2.98673E+00	540.000	.589	-.604	.048
721	3.94935E-02	-4.10398E-02	-1.37332E-03	1.47055E-04	10.000	.004	-.004	.006
722	3.51917E-02	-3.47331E-02	-1.19259E-03	4.93289E-02	10.000	.004	-.003	.005
723	3.24223E+02	-3.28925E+02	-1.41114E+01	2.98107E+00	540.000	.600	-.609	.048
724	3.92570E-02	-4.00059E-02	-1.39169E-03	8.06918E-03	10.000	.004	-.004	.001
725	3.58959E-02	-3.62513E-02	-1.23046E-03	4.05161E-02	10.000	.004	-.004	.004
726	3.29997E+02	-3.31156E+02	-1.42844E+01	3.00100E+00	540.000	.611	-.613	.049
727	3.99425E-02	-3.87459E-02	-1.32317E-03	1.71277E-02	10.000	.004	-.004	.002
728	3.67190E-02	-3.77960E-02	-1.27081E-03	3.18559E-02	10.000	.004	-.004	.003
729	3.35100E+02	-3.32778E+02	-1.44297E+01	3.02237E+00	540.000	.621	-.616	.049
730	3.97066E-02	-3.78559E-02	-1.30570E-03	2.32701E-02	10.000	.004	-.004	.002
731	3.73144E-02	-3.88221E-02	-1.29544E-03	2.63663E-02	10.000	.004	-.004	.003
732	3.38635E+02	-3.33852E+02	-1.45291E+01	3.06617E+00	540.000	.627	-.618	.050
733	3.96436E-02	-3.71653E-02	-1.29287E-03	2.41542E-02	10.000	.004	-.004	.003
734	3.90455E-02	-3.95693E-02	-1.32363E-03	2.21188E-02	10.000	.004	-.004	.002
735	3.40717E+02	-3.34556E+02	-1.45995E+01	3.08079E+00	540.000	.631	-.620	.050
736	3.99574E-02	-3.84025E-02	-1.33464E-03	2.17444E-02	10.000	.004	-.004	.002
737	3.75555E-02	-3.87957E-02	-1.30212E-03	3.00212E-02	10.000	.004	-.004	.003
738	1.70202E+02	-1.67818E+02	-7.30309E+00	1.61469E+00	270.000	.630	-.622	.052
739	2.70715E-02	-6.00034E-02	-2.41475E-03	-3.73285E-02	694.363	.000	-.000	-.003
740	-5.95323E-02	-2.03343E-01	-4.02364E-03	-4.61597E-02	694.363	-.000	-.000	-.001
741	-2.09495E-01	-1.86428E-01	6.29658E-04	-6.03997E-02	694.363	-.000	-.000	-.001
742	-1.92622E-01	-2.46343E-01	-1.49335E-03	-7.32793E-02	694.363	-.000	-.000	-.001
743	-2.50394E-01	-2.61506E-01	-3.08649E-04	-8.11906E-02	694.363	-.000	-.000	-.001
744	-2.53125E-01	-2.67597E-01	-1.24215E-04	-8.26304E-02	694.363	-.000	-.000	-.001
745	-2.66723E-01	-2.04949E-01	1.71593E-03	-7.73832E-02	694.363	-.000	-.000	-.001
746	-2.01869E-01	-1.09525E-01	2.56511E-03	-6.62709E-02	694.363	-.000	-.000	-.001
747	-1.04862E-01	1.17417E-01	6.17439E-03	-5.09830E-02	694.363	-.000	.000	-.001
748	1.21776E-01	1.46871E-02	-2.97469E-03	-3.70592E-02	694.363	.000	.000	-.001
749	-1.35429E+01	-7.00707E+01	-1.22151E+00	1.73319E+00	270.000	-.050	-.260	.000
750	1.75898E-02	-1.93910E-02	-6.30649E-04	1.23074E-02	10.000	.002	-.002	.001
751	1.57705E-02	-1.39432E-02	-5.06765E-04	4.15455E-02	10.000	.002	-.001	.004
752	2.24428E+02	-2.35112E+02	-9.92450E+00	3.08945E+00	540.000	.416	-.435	.050
753	1.76070E-02	-1.96733E-02	-6.35649E-04	1.61680E-03	10.000	.002	-.002	.000
754	1.37811E-02	-1.19039E-02	-4.38063E-04	4.75822E-02	10.000	.001	-.001	.004
755	2.13457E+02	-2.29384E+02	-9.56764E+00	2.90734E+00	540.000	.395	-.425	.047
756	1.75826E-02	-1.94970E-02	-6.32308E-04	-5.67592E-04	10.000	.002	-.002	-.001
757	1.33574E-02	-1.18174E-02	-4.29362E-04	4.76588E-02	10.000	.001	-.001	.004
758	2.15261E+02	-2.30156E+02	-9.62327E+00	2.84420E+00	540.000	.399	-.426	.046
759	1.76619E-02	-1.92092E-02	-6.28753E-04	2.83549E-06	10.000	.002	-.002	.000
760	1.32501E-02	-1.20981E-02	-4.32318E-04	4.64120E-02	10.000	.001	-.001	.004
761	2.20909E+02	-2.32917E+02	-9.90494E+00	2.83509E+00	540.000	.409	-.431	.046
762	1.75862E-02	-1.86444E-02	-6.17837E-04	2.73083E-03	10.000	.002	-.002	.000
763	1.33701E-02	-1.27736E-02	-4.45882E-04	4.34993E-02	10.000	.001	-.001	.004
764	2.29307E+02	-2.36639E+02	-1.00668E+01	2.82818E+00	540.000	.425	-.438	.046
765	1.75974E-02	-1.81168E-02	-6.09037E-04	5.33421E-03	10.000	.002	-.002	.001
766	1.34798E-02	-1.34406E-02	-4.59123E-04	4.09932E-02	10.000	.001	-.001	.004
767	2.37531E+02	-2.40250E+02	-1.03225E+01	2.94853E+00	540.000	.440	-.445	.046
768	1.75868E-02	-1.75257E-02	-5.98783E-04	8.56524E-03	10.000	.002	-.002	.001
769	1.36943E-02	-1.41867E-02	-4.75570E-04	3.81575E-02	10.000	.001	-.001	.004

770	2.45686E+02	-2.43598E+02	-1.05710E+01	2.97290E+00	540.000	.455	-.451	.047
771	1.77099E-02	-1.71625E-02	-5.94690E-04	1.07672E-02	10.000	.002	-.002	.001
772	1.38993E-02	-1.47240E-02	-4.88159E-04	3.66192E-02	10.000	.001	-.001	.004
773	2.51459E+02	-2.46079E+02	-1.07494E+01	2.92150E+00	540.000	.466	-.456	.047
774	1.78277E-02	-1.69220E-02	-5.92602E-04	1.28444E-02	10.000	.002	-.002	.001
775	1.42991E-02	-1.51854E-02	-5.02445E-04	3.51571E-02	10.000	.001	-.002	.004
776	2.55035E+02	-2.47643E+02	-1.08605E+01	2.93756E+00	540.000	.472	-.459	.048
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778	1.41948E-02	-1.48203E-02	-4.94446E-04	3.86691E-02	10.000	.001	-.001	.004
779	1.26277E+02	-1.23990E+02	-5.40710E+00	1.53279E+00	270.000	.469	-.459	.050
780	1.79155E-02	5.62352E-02	1.06444E-03	-3.07671E-02	694.363	.000	.000	-.000
781	6.99851E-02	-7.83414E-02	-4.12018E-03	-2.99919E-02	694.363	.000	-.000	-.000
782	-6.93776E-02	-5.56525E-02	3.53474E-04	-3.57571E-02	694.363	-.000	-.000	-.000
783	-4.63039E-02	-6.38084E-02	-4.86240E-04	-4.23424E-02	694.363	-.000	-.000	-.001
784	-5.41632E-02	-7.50352E-02	-5.79777E-04	-4.69633E-02	694.363	-.000	-.000	-.001
785	-6.48169E-02	-7.10377E-02	-1.72801E-04	-4.85639E-02	694.363	-.000	-.000	-.001
786	-6.01613E-02	-6.14190E-02	-3.49367E-05	-4.70276E-02	694.363	-.000	-.000	-.001
787	-4.39957E-02	-2.35178E-02	7.35499E-04	-4.27608E-02	694.363	-.000	-.000	-.001
788	-1.16883E-02	2.59642E-02	1.04590E-03	-3.64262E-02	694.363	-.000	-.000	-.001
789	3.73602E-02	-6.20630E-04	-1.05502E-03	-3.11374E-02	694.363	.000	.000	-.000
790	9.16593E+00	-2.55645E+01	-7.50365E-01	1.63767E+00	270.000	.034	-.035	.033
791	5.36815E-03	-5.73224E-03	-1.49297E-04	4.12490E-03	10.000	.001	-.001	.001
792	1.27374E-03	-9.55040E-04	-3.63063E-05	4.25279E-02	10.000	.000	-.000	.004
793	6.71770E+01	-7.02438E+01	-2.96899E+00	2.47729E+00	540.000	.124	-.130	.047
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800	4.98641E-03	-5.47849E-03	-1.79457E-04	3.14289E-03	10.000	.000	-.001	.000
801	6.08011E-04	-1.99181E-04	-1.37495E-05	3.99906E-02	10.000	.000	-.000	.004
802	4.37941E+01	-5.83070E+01	-2.20588E+00	2.61939E+00	540.000	.081	-.118	.042
803	5.03764E-03	-5.36047E-03	-1.77318E-04	3.20970E-03	10.000	.001	-.001	.000
804	5.23302E-04	-2.97001E-04	-1.39901E-05	3.97540E-02	10.000	.000	-.000	.004
805	5.47717E+01	-6.37472E+01	-2.56144E+00	2.61156E+00	540.000	.101	-.114	.042
806	5.11838E-03	-5.25867E-03	-1.76959E-04	3.33333E-03	10.000	.001	-.001	.000
807	4.46470E-04	-4.07704E-04	-1.45677E-05	3.97243E-02	10.000	.000	-.000	.004
808	6.56351E+01	-6.92149E+01	-2.91741E+00	2.63072E+00	540.000	.122	-.129	.043
809	5.21846E-03	-5.16319E-03	-1.77038E-04	3.67966E-03	10.000	.001	-.001	.000
810	4.01409E-04	-5.47527E-04	-1.61939E-05	3.97567E-02	10.000	.000	-.000	.004
811	7.72673E+01	-7.49415E+01	-3.28945E+00	2.65670E+00	540.000	.143	-.139	.043
812	5.33178E-03	-5.12231E-03	-1.78273E-04	4.07650E-03	10.000	.001	-.001	.000
813	4.11893E-04	-6.76296E-04	-1.85588E-05	3.99890E-02	10.000	.000	-.000	.004
814	9.51869E+01	-7.99926E+01	-3.54492E+00	2.70474E+00	540.000	.158	-.146	.044
815	5.41367E-03	-5.10794E-03	-1.79423E-04	4.63819E-03	10.000	.001	-.001	.000
816	5.07960E-04	-9.03108E-04	-2.23600E-05	3.99958E-02	10.000	.000	-.000	.004
817	9.03414E+01	-9.14574E+01	-3.71179E+00	2.72240E+00	540.000	.167	-.151	.044
818	5.45619E-03	-5.22900E-03	-1.92214E-04	4.92324E-03	10.000	.001	-.001	.000
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829	0.	0.	0.	0.	347.181	0.	0.	0.
830	0.	0.	0.	0.	347.181	0.	0.	0.

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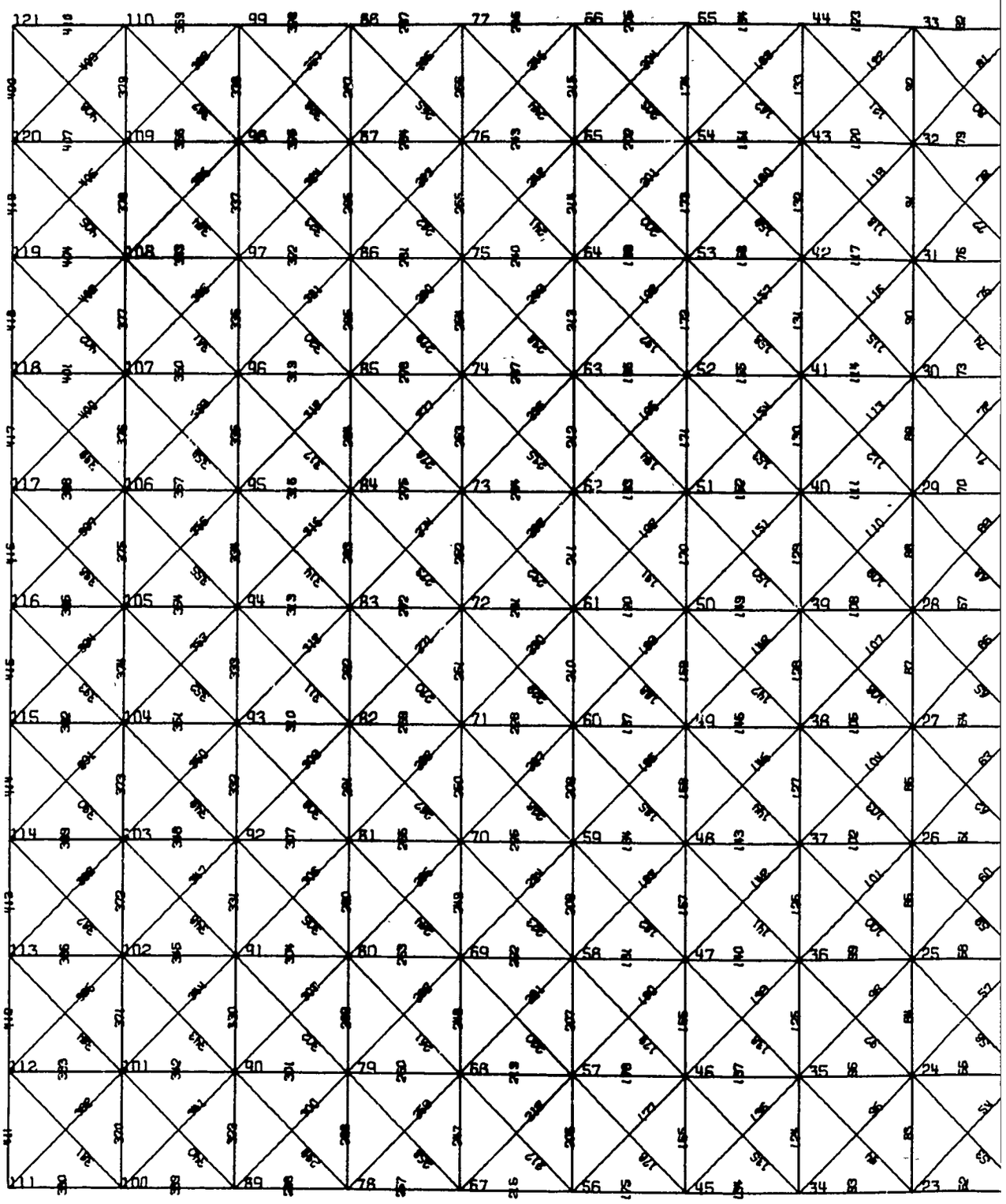

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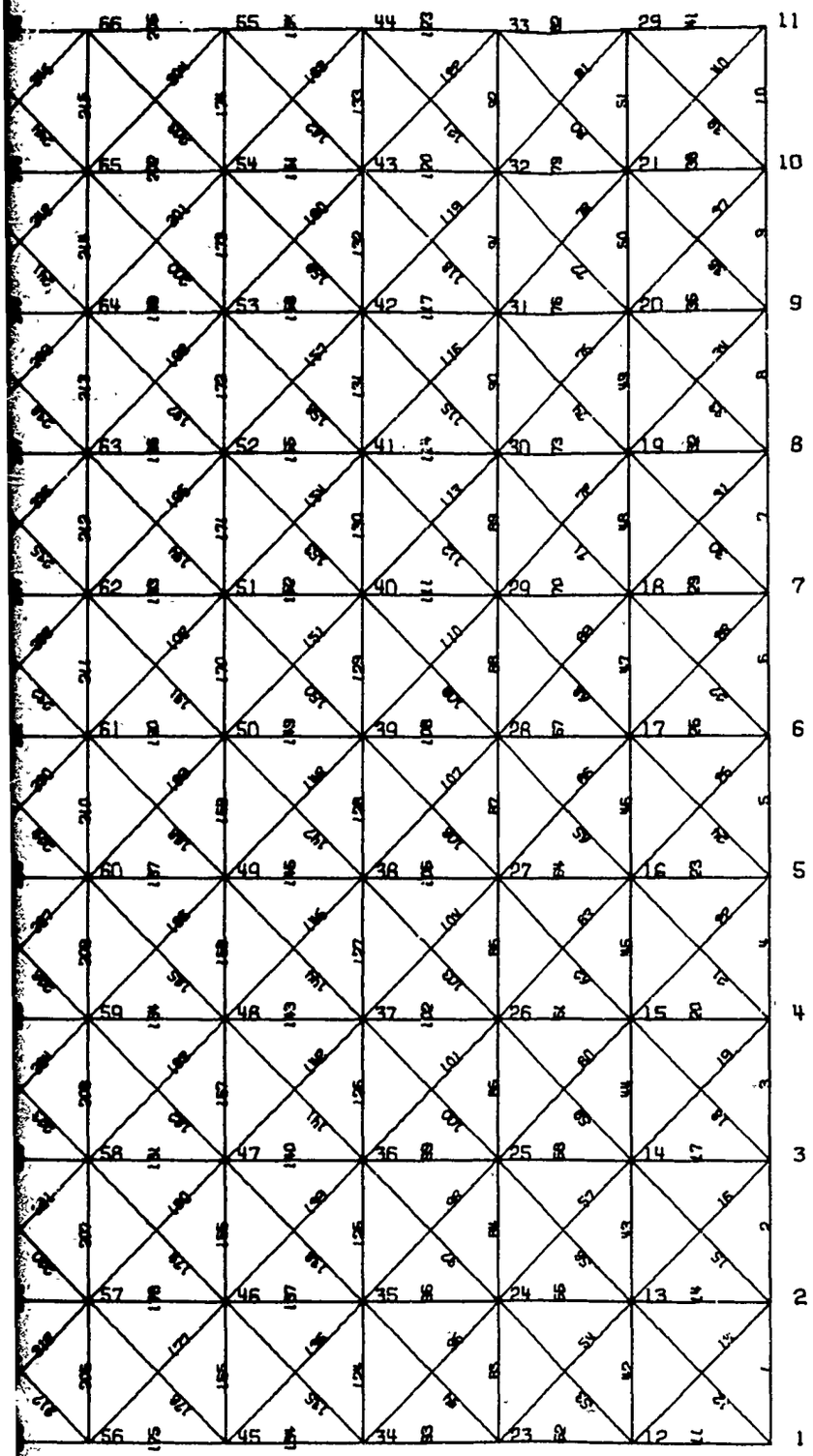

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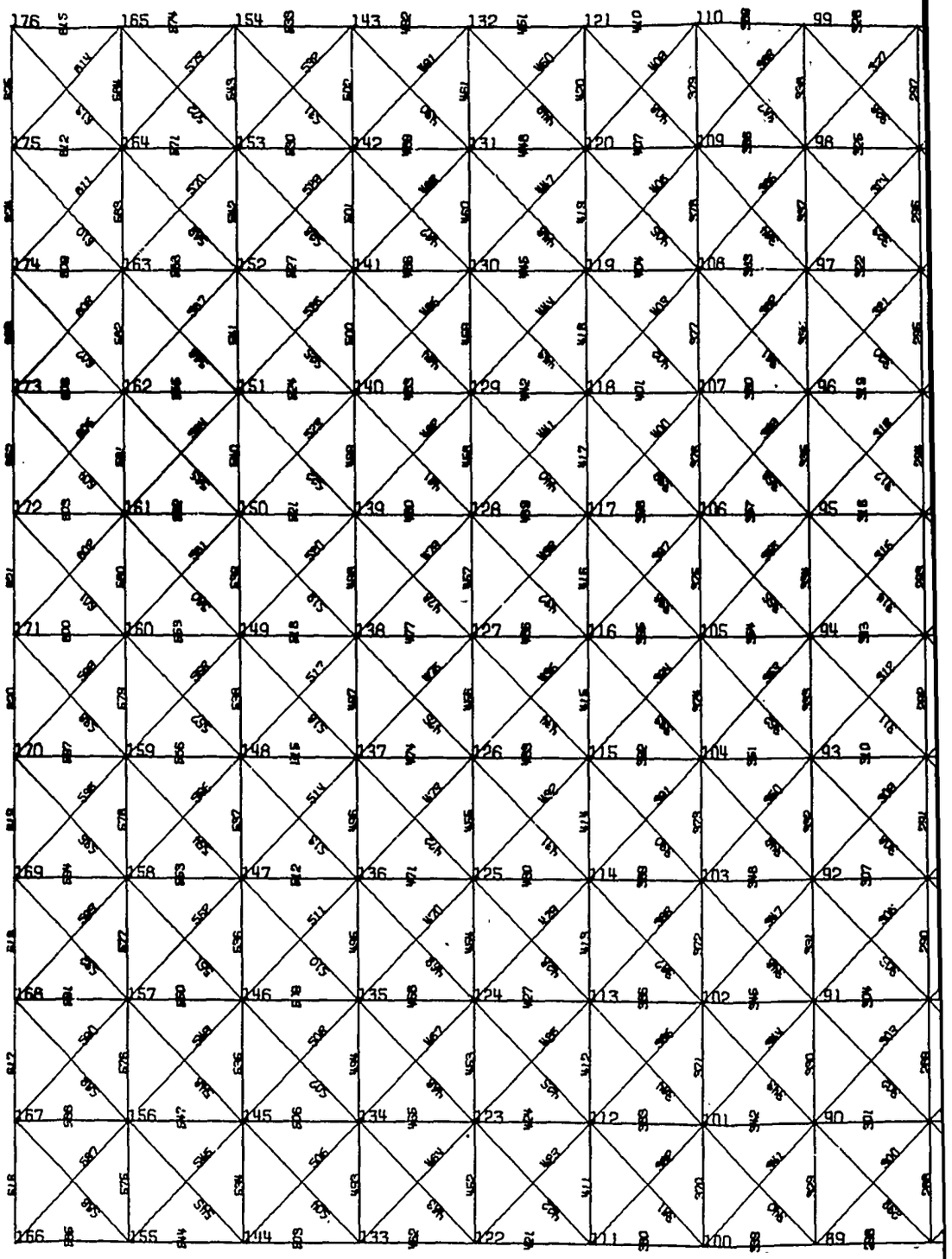

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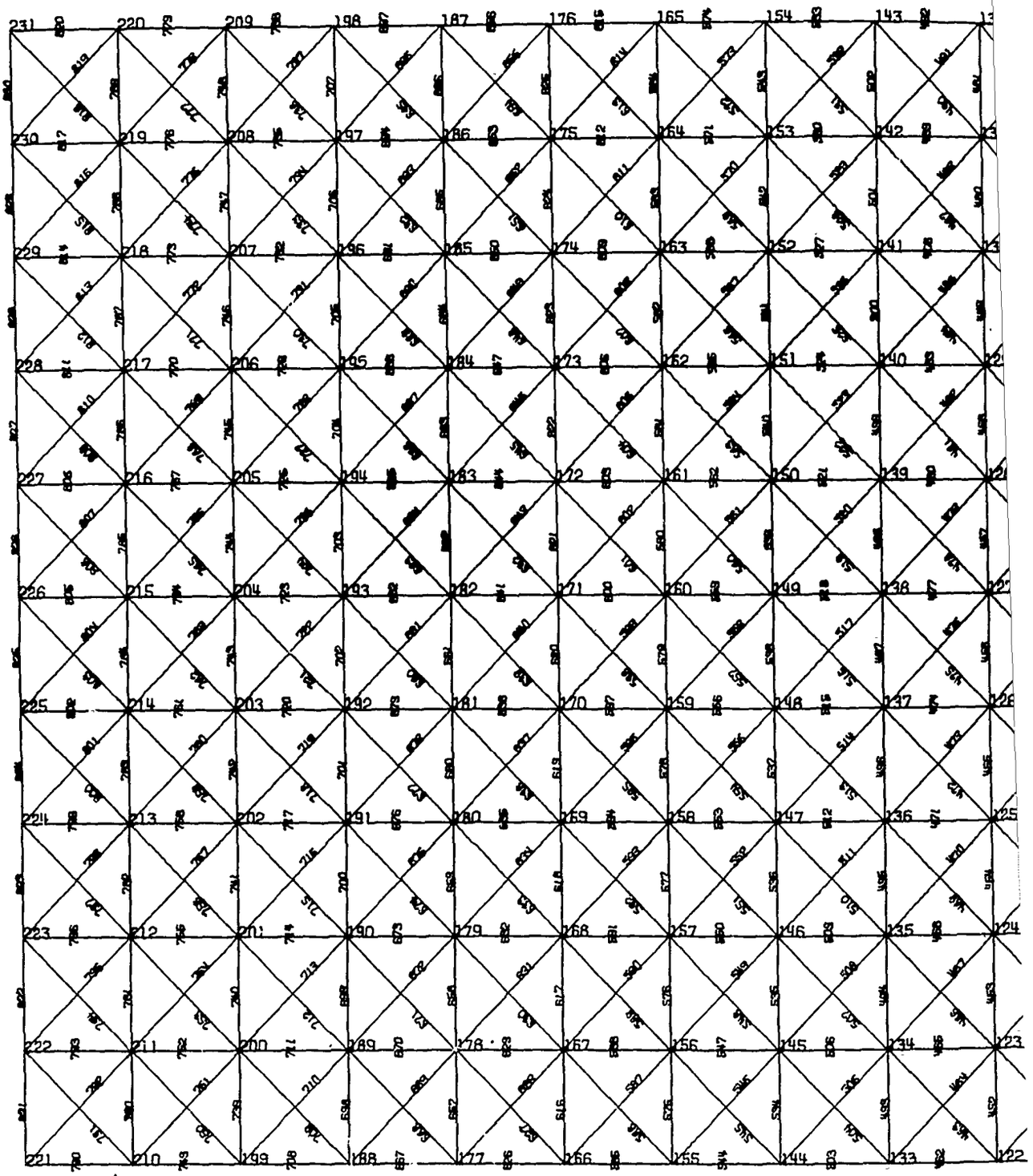

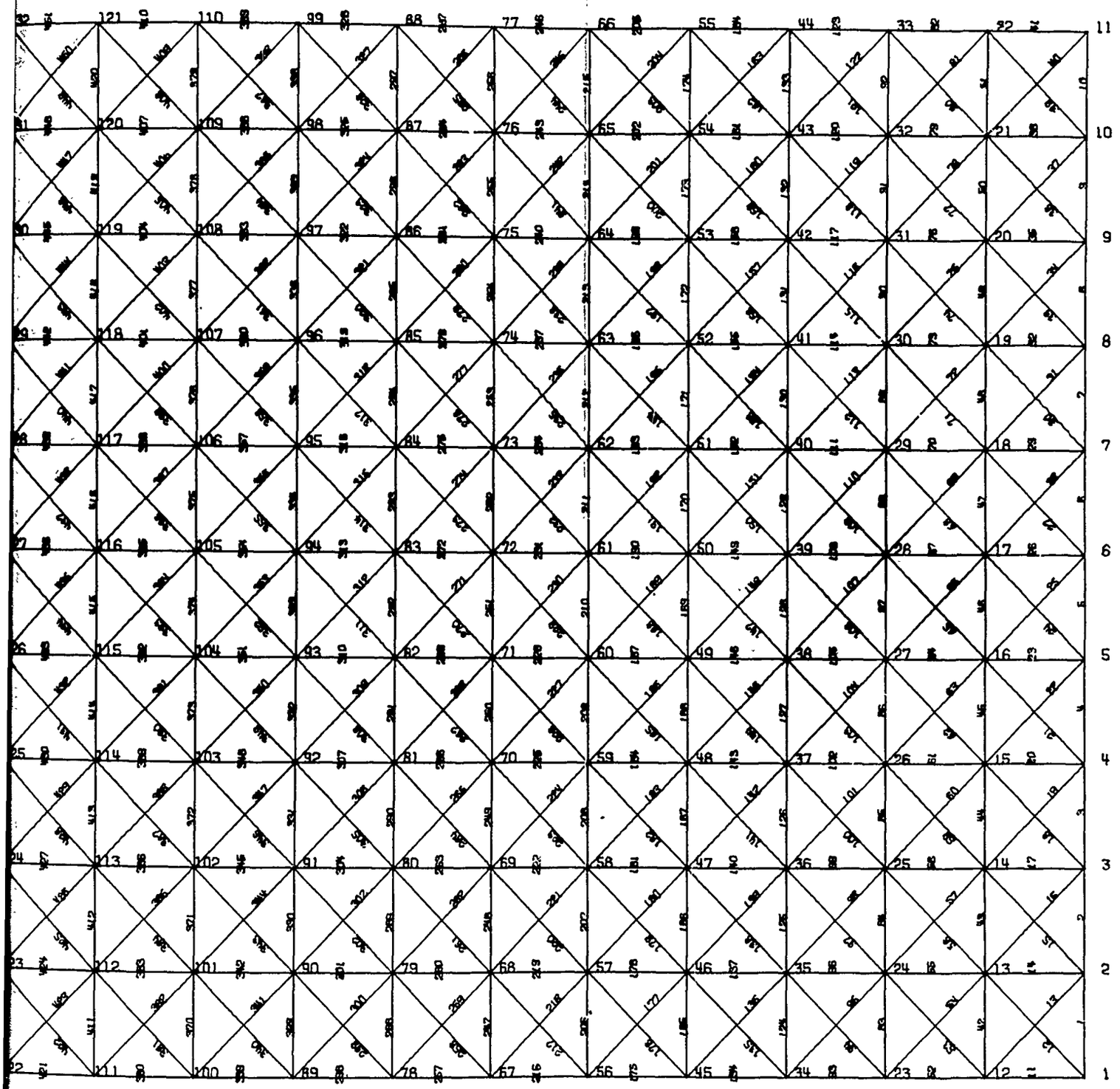

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