

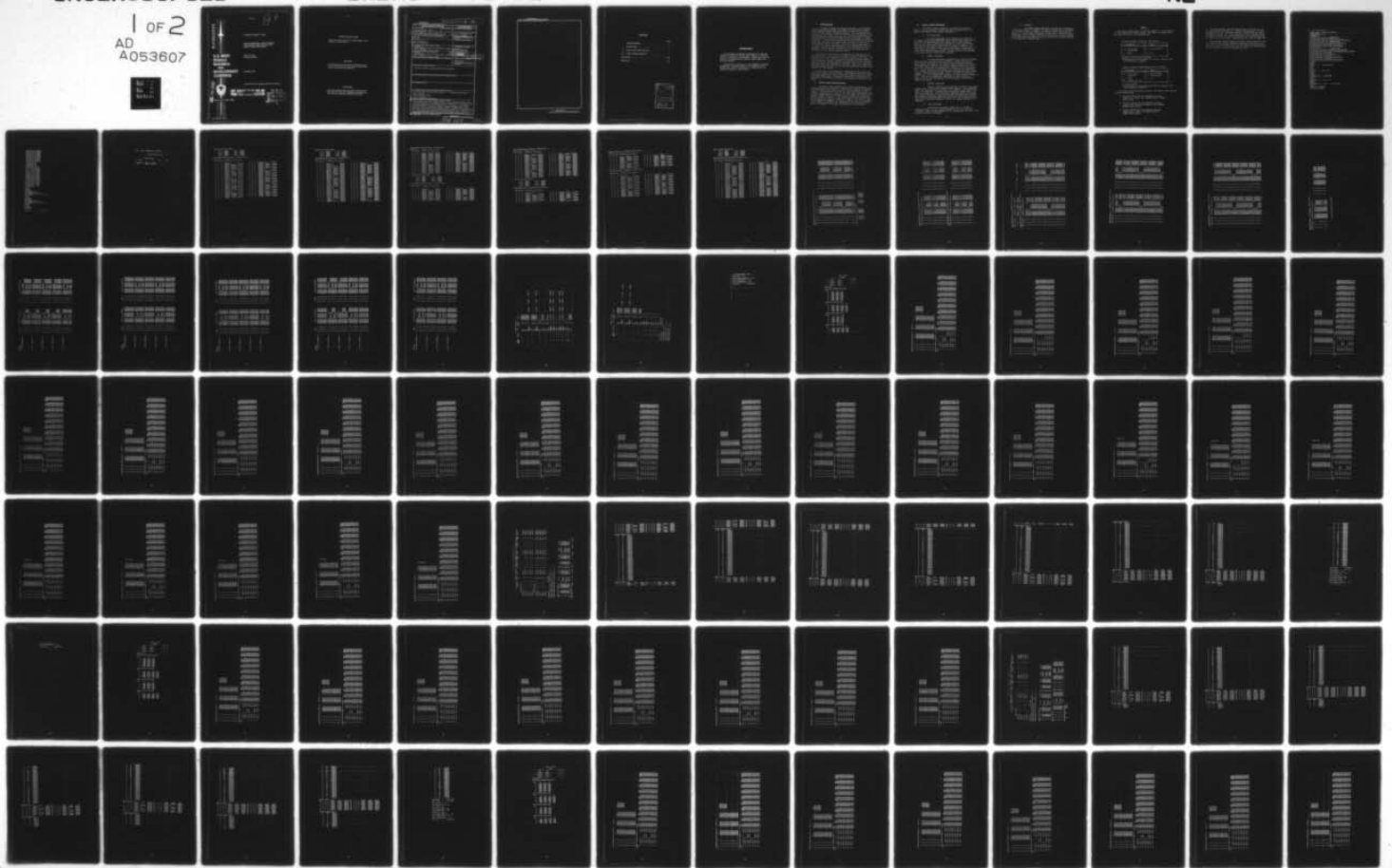
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TECHNICAL REPORT T-78-18

THREE-DIMENSIONAL FINITE ELEMENT  
ANALYSIS OF A SOLID PROPELLANT  
GRAIN TRANSITION REGION

Robert M. Hackett  
Propulsion Directorate

November 1977

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>A three-dimensional finite element analysis of the transition region, from a star cross-section to a cylindrical bore cross-section, for a typical solid propellant rocket motor grain configuration is carried out. The recently developed TEXGAP-3D (Texas Grain Analysis Program, 3-Dimensional) static linear elastic stress analysis computer program is employed in the analysis. Two loading conditions, combustion pressure and thermal, are considered, along with corresponding transition interface displacements obtained from previous two-dimensional finite element analyses of the uniform grain regions. |   |   |

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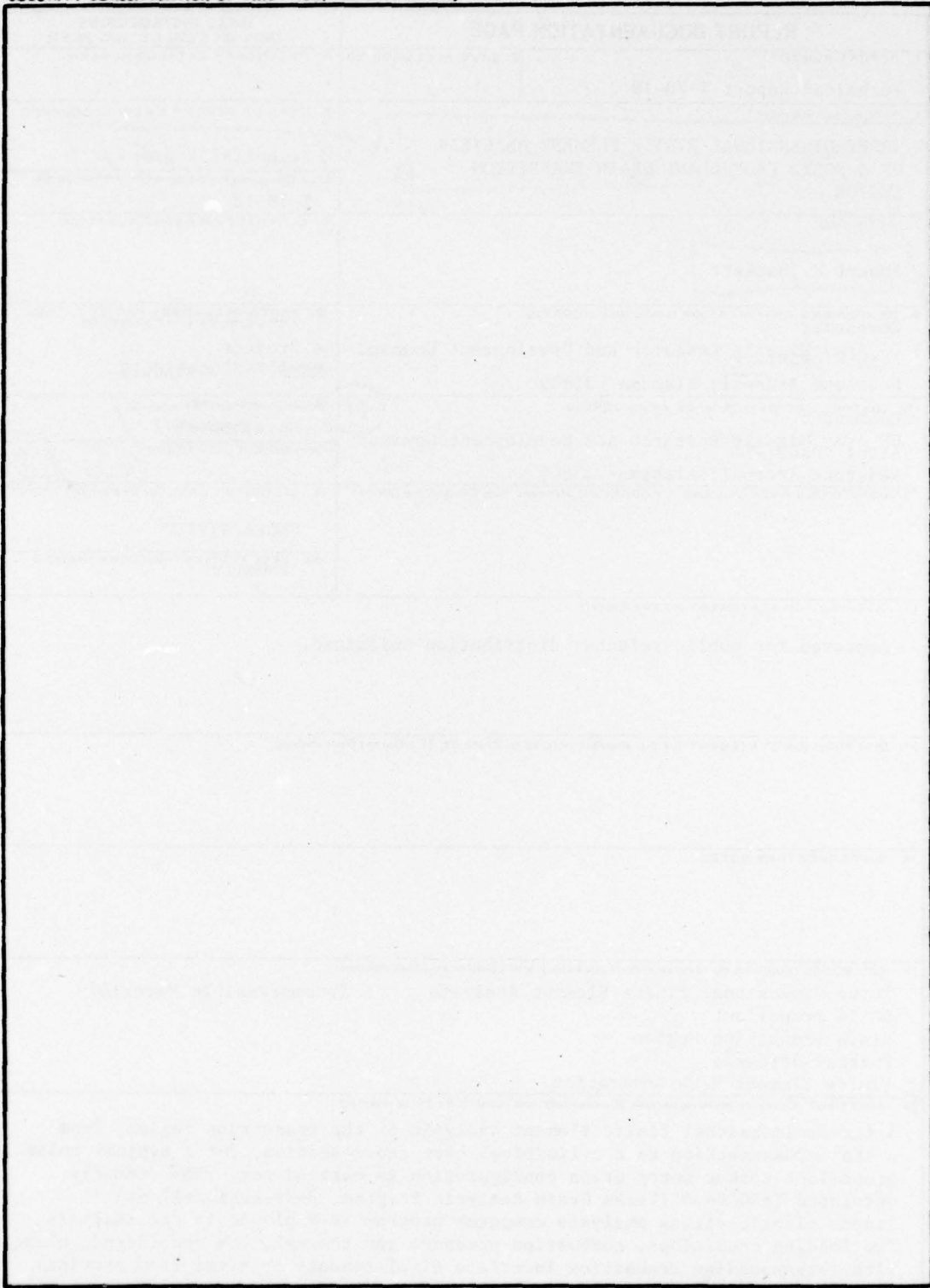
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### ACKNOWLEDGMENT

The invaluable assistance of Don Martin in getting TEXGAP-3D operable on the CDC 6600 computer at Redstone Arsenal is gratefully acknowledged. Discussions with him relative to formulating the finite element model were also most helpful.

Appreciation is expressed to the MIRADCOM Propulsion Directorate - Redstone Arsenal, Army Research Office - Durham, and Battelle Laboratories - Durham Office for financial support of this project.

## I. INTRODUCTION

In order to extend the analysis capability of the MIRADCOM Propulsion Mechanics Function, the TEXGAP-3D static linear elastic finite element computer code was obtained in July 1977 to be placed on the CDC 6600 computer at Redstone Arsenal. The development of the code evolved from a pilot effort in 1973, funded by Thiokol/Huntsville Division and more recently (the past two and a half years) has been sponsored by the US Air Force Rocket Propulsion Laboratory at Edwards, California. A short course on the TEXGAP-3D code, sponsored by Pacifica Technology, was held in Los Angeles the latter part of June 1977 at which time the code was released. Previous successful employment of the TEXGAP-2D computer code (developed by the same research group) by personnel of the Propulsion Mechanics Function primarily led to the decision to expend the effort necessary to get the TEXGAP-3D code operational on the Redstone computer system.

Once the code was adapted to the Redstone CDC 6600 computer and made operational, a task requiring a number of minor modifications to the obtained version of the code, a check-out procedure was begun. The check-out of the code involved running six classical check problems and two additional example problems and comparing the results obtained (computer output) with the results of computer runs (of the same problems) provided by the developers of TEXGAP-3D. Once these comparisons were made it was concluded that the code was operating correctly on the Redstone CDC 6600 computer.

At this point, the utilization of TEXGAP-3D for the purpose for which it was acquired was undertaken. The TEXGAP-3D analysis to which this report pertains is that of a transition region in a typical solid propellant rocket motor. The specific details of the analysis and a discussion of the results are given in the subsequent sections of this report.

## II. ROCKET GRAIN CONFIGURATION

The rocket grain configuration is taken from Reference 1 and reproduced, in part, in Figure 1. Since only the transition region is to be considered, only that portion of the total geometry is shown in Figure 1. The transition is from a four-point star cross-section to a circular cylindrical bore cross-section. The region considered actually extends somewhat beyond (a distance of 0.463 inches) the transition region, as shown in Figure 1. Two slightly different star geometries are considered, as shown on Section A2 in Figure 1 and labeled I and II. Due to geometrical symmetry, as noted in Figure 1, and to the symmetry of the loading conditions to be considered, it was only necessary to model a 45° segment of the grain cross-section in the analysis.



### III. FINITE ELEMENT MODELING

The finite element modeling of the transition region of Figure 1 will be discussed in detail and specific reference will be made to the TEXGAP-3D user's manual (Reference 2).

#### A. Grid Generation

The three-dimensional finite element grid system for the transition region was generated using a BLOCK command (Reference 2) to create a three-dimensional block region, such as that shown in Figure 2, the edges of which may be defined by a cubic interpolation. This permits a high degree of definition of curved boundaries. The eight corner points must be input, as per Reference 2, while points 9 through 32 (see Figure 2) not specified are located automatically by linear interpolation between corners. As many blocks as are necessary to accurately define a region may be generated.

#### B. Element Generation

The three-dimensional isoparametric 20 node brick element shown in Figure 3 was used in this analysis. As many bricks as are desired may be generated to fill the previously developed block(s). These elements are generated by a BRICK or BRICKH command (Reference 2). The BRICKH command employs a reformulated element (Reference 3) which takes into account near incompressibility (Poisson's ratio approaching 0.5). In this analysis the propellant grain elements were generated with a BRICKH command and the case elements were generated with a BRICK command. For both analysis models I and II, initially 16 propellant elements and 8 case elements were generated, as can be noted in Figures 4 and 5. The result of subsequent "rezoning" can also be noted in Figures 4 and 5, and this subject will be discussed a little further along in the report.

#### C. Boundary Conditions

Boundary conditions may be applied to element faces and/or element nodes. This is done through various commands, such as PRESSURE, SLOPE, etc. (Reference 2), along with a face number or node number (see Figure 3) designation. Various boundary condition commands were utilized in this analysis, and of particular importance were those displacement boundary conditions, taken from previous two-dimensional analyses (see Figure 6), which were applied at each end of the transition region. These will be mentioned relative to each of the separate analyses to be presented.

#### D. Post Processing

Various post processing commands may be utilized to compute stresses, strains and displacements at different points in an element. Some of these commands will be demonstrated when each of the separate analyses is presented.

### E. Rezoning

The REZONE command (Reference 2) allows one to subdivide a coarse grid region of elements, for which a solution has been obtained, into a region of smaller elements, and thereby obtain a more accurate solution. A REPOS command (Reference 2) allows one to reposition nodal points when a better geometry definition is desired in a rezone analysis. The REZONE command was employed in this analysis and the rezoned regions can be observed in Figures 4 and 5.

### MODEL I

The finite element model I is shown in Figure 4. It was analyzed for both pressure and thermal loading. The TEXGAP-3D computer input and output is shown on the following pages.

#### Pressure Loading - Firing at $-53^{\circ}\text{C}$ ( $-65^{\circ}\text{F}$ )

| Propellant  | Case                                   |
|---|--|
| $E_P = 1.31 \times 10^7 \text{ Pa}$<br>(19,000 psi) | $E_C = 2.07 \times 10^{10} \text{ Pa}$ |
| $\nu_P = 0.499$                                     | $\nu_C = 0.3$                          |

pressure = 1425 psi ( $9.83 \times 10^5 \text{ Pa}$ )

Corresponding end displacements are shown on computer input and referenced to Figure 6.

#### Thermal Loading (2 Weeks Storage at $-53^{\circ}\text{C}$ ( $-65^{\circ}\text{F}$ ))

| Propellant  | Case  |
|---|---|
| $E_P = 4.82 \times 10^5 \text{ Pa}$<br>(700 psi)    | $E_C = 2.07 \times 10^{10} \text{ Pa}$<br>( $3 \times 10^5 \text{ psi}$ ) |
| $\nu_P = 0.499$                                     | $\nu_C = 0.3$   |
| $\alpha_P = 0.00089 \text{ in/in/}^{\circ}\text{F}$ |   |

$T_0 = 60^{\circ}\text{C}$  ( $140^{\circ}\text{F}$ )

Corresponding end displacements are shown on computer input and referenced to Figure 6.

The results of three analyses on Model I are shown on the following computer output sheets:

- 1) pressure loading with two sequential rezoning computations, without any repositioning of element nodal points;
- 2) pressure loading with two sequential rezoning computations, with repositioning of some boundary element nodal points;
- 3) thermal loading with two sequential rezoning computations, without any repositioning of element nodal points.

The first analysis, with rezoning near the cylindrical bore end of the transition (see Figure 4), yielded a maximum strain of 0.0231 in element 113 (IJK). The second analysis, with rezoning and repositioning near the star end of the transition, yielded a maximum strain of 0.0594 in element 339. The third analysis, with rezoning near the cylindrical bore end, yielded a maximum strain of 0.200 in element 333.

The following results consist of the full computer output for the first analysis (for element orientation purposes, in the interest of the reader), and abbreviated output for the second and third analyses. The first analysis is contained on pages 8 thru 94, the second on pages 95 thru 102, and the third on pages 103 thru 108.

LINE DIRECT LIST OF INPUT DATA

```

1 SFINOCYL - STAR TO CYLINDRICAL BORE TRANSITION (I)
2 SETUP,4,PRESCRIB
3 ISO,PROPELLANT,1,1.9E4,.499
4 ISO,CASE,2,3,E7,.3
5 END,MATERIALS
6 BLOCK-C,1, 1,1,1, 5,5,3, 7,.5 $ PROPELLANT NODES
7 .94,0,0, 2.447,0,0, 1.730,1.730,0, .665,.665,0/
8 .94,0,.463, 2.447,0,.463, 1.730,1.730,.463, .665,.665,.463/
9 10,2.430,.651,0, 12,.814,.470,0, 18,2.430,.651,.463, 20,.814,.470,.463/
10 22,2.180,1.258,0, 24,.908,.243,0, 30,2.180,1.258,.463, 32,.908,.243,.463/
11 BLOCK-C,1, 1,1,3, 5,5,7, 7,.5 $ PROPELLANT NODES
12 .94,0,.463, 2.447,0,.463, 1.730,1.730,.463, .665,.665,.463/
13 2.145,0,1.942, 2.447,0,1.942, 1.730,1.730,1.942, .665,.665,1.942/
14 10,2.430,.651,.463, 12,.814,.470,.463, 13,1.310,.973/
15 18,2.430,.651,1.942, 20,1.15,.33,1.942, 22,2.180,1.258,.463/
16 24,.907,.243,.463, 25,1.775,0,1.472, 30,2.180,1.258,1.942/
17 32,1.75,.33,1.942/
18 BLOCK-C,1, 1,1,7, 5,5,9, 7,.5 $ PROPELLANT NODES
19 2.145,0,1.942, 2.447,0,1.942, 1.730,1.730,1.942, .665,.665,1.942/
20 2.145,0,2.405, 2.447,0,2.405, 1.730,1.730,2.405, .665,.665,2.405/
21 10,2.430,.651,1.942, 12,1.15,.33,1.942, 18,2.430,.651,2.405, 20,1.15,.33,2.405/
22 22,2.180,1.258,1.942, 24,1.75,.33,1.942, 30,2.180,1.258,2.405, 32,1.75,.33,2.405/
23 BLOCK,2, 5,1,1, 7,5,3 $ CASE NODES
24 2.447,0,0,2.917,0,0,2.917,45,0,2.447,45,0/
25 2.447,0,.463,2.517,0,.463,2.517,45,.463,2.447,45,.463/
26 BLOCK,2, 5,1,3, 7,5,7 $ CASE NODES
27 2.447,0,.463,2.517,0,.463,2.517,45,.463,2.447,45,.463/
28 2.447,0,1.942,2.517,0,1.942,2.517,45,1.942,2.447,45,1.942/
29 BLOCK,2, 5,1,7, 7,5,9 $ CASE NODES
30 2.447,0,1.942,2.517,0,1.942,2.517,45,1.942,2.447,45,1.942/
31 2.447,0,2.405,2.517,0,2.405,2.517,45,2.405,2.447,45,2.405/
32 END,GRID
33 KLOOP,4
34 ILOOP,2
35 JLOOP,2
36 SPICKM,1, 1,1,1 $ PROPELLANT ELEMENTS
37 JEND
38 IEND
39 KEND
40 KLOOP,4
41 JLOOP,2
42 BRICK,2, 5,1,1 $ CASE ELEMENTS
43 JEND
44 KEND
45 KLOOP,4
46 ILOOP,3
47 BC,SLOPE,1,1,1, 5 $ 0 DEGREE FACE
48 BC,SLOPE,1,3,1, 2 $ 45 DEGREE FACE
49 IEND
50 KEND
51 JLOOP,2
52 BC,SLOPE,5,1,1, 6 $ END OF CASE
53 JEND
54 KLOOP,4
55 JLOOP,2
56 BC,PRESSURE, 1,1,1, 4,1.425E3 $ 1425 PSI PRESSURE
57 JEND
58 KEND
59 BC,UZ,1,1,1, 0,-2.184E-2
60 BC,UZ,1,2,1, 0,-2.184E-2
61 BC,UZ,1,3,1, 0,-2.184E-2

```

```

63 BC,UZ,1,5,1,1, 0,-2.184E-2
64 BC,UZ,2,1,1,1, 0,-1.630E-2
65 BC,UZ,2,3,1,1, 0,-1.630E-2
66 BC,UZ,2,5,1,1, 0,-1.630E-2
67 BC,UZ,3,1,1,1, 0,-1.092E-2
68 BC,UZ,3,2,1,1, 0,-1.092E-2
69 BC,UZ,3,3,1,1, 0,-1.092E-2
70 BC,UZ,3,4,1,1, 0,-1.092E-2
71 BC,UZ,3,5,1,1, 0,-1.092E-2
72 BC,UZ,4,1,1,1, 0,-0.546E-2
73 BC,UZ,4,3,1,1, 0,-0.546E-2
74 BC,UZ,4,5,1,1, 0,-0.546E-2
75 BC,UZ,5,1,1,1, 0,0
76 BC,UZ,5,2,1,1, 0,0
77 BC,UZ,5,3,1,1, 0,0
78 BC,UZ,5,4,1,1, 0,0
79 BC,UZ,5,5,1,1, 0,0
80 BC,UZ,1,1,9, 0,-.215E-2
81 BC,UZ,1,2,9, 0,-.266E-2
82 BC,UZ,1,3,9, 0,-.347E-2
83 BC,UZ,1,4,9, 0,-.435E-2
84 BC,UZ,1,5,9, 0,-.462E-2
85 BC,UZ,2,1,9, 0,-.200E-2
86 BC,UZ,2,3,9, 0,-.246E-2
87 BC,UZ,2,5,9, 0,-.304E-2
88 BC,UZ,3,1,9, 0,-.184E-2
89 BC,UZ,3,2,9, 0,-.206E-2
90 BC,UZ,3,3,9, 0,-.257E-2
91 BC,UZ,3,4,9, 0,-.317E-2
92 BC,UZ,3,5,9, 0,-.341E-2
93 BC,UZ,4,1,9, 0,-.160E-2
94 BC,UZ,4,3,9, 0,-.199E-2
95 BC,UZ,4,5,9, 0,-.230E-2
96 BC,UZ,5,1,9, 0,-.153E-2
97 BC,UZ,5,2,9, 0,-.153E-2
98 BC,UZ,5,3,9, 0,-.153E-2
99 BC,UZ,5,4,9, 0,-.153E-2
100 BC,UZ,5,5,9, 0,-.153E-2
101 END,ELEMENTS
102 SOLVE
103 POST
104 BLOCK
105 OPTION,2
106 END,POST
107 REZONE,1,1,3, 3,3,5
108 REFINE,GRADS,1,1,3, 2,2,2
109 BCR,REZONE,1,1,3, 2,2,2,2,2,2, 1,1,3
110 END,CONTROL
111 SOLVE
112 POST
113 BLOCK
114 OPTION,2
115 END,POST
116 REZONE,1,1,3, 3,3,5
117 REFINE,GRADS,1,1,3, 2,2,2
118 BCR,REZONE,1,1,3, 2,2,2,2,2,2, 1,1,3
119 END,CONTROL
120 SOLVE
121 POST
122 BLOCK
123 OPTION,2
124 END,POST
125 STOP

```

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FINOCYL - STAR TO CYLINDRICAL BCRF TRANSITION (II)

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MATERIAL PROPERTIES BY TYPES

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ISOTROPIC MATERIALS

| NO | MATERIAL   | E        | NU       | ALPHA | RHO |
|----|------------|----------|----------|-------|-----|
| 1  | PROPELLANT | .190E+09 | .499E+00 | 0.    | 0.  |
| 2  | CASE       | .300E+08 | .300E+00 | 0.    | 0.  |

---

GRADIENTS FOR NEXT BLOCK GENERATION

G( 1) = .100E+01      G( 2) = .100E+01  
 G( 3) = .100E+01      G( 4) = .100E+01  
 G( 5) = .100E+01      G( 6) = .100E+01  
 G( 7) = .900E+00      G( 8) = .100E+01  
 G( 9) = .100E+01      G(10) = .100E+01  
 G(11) = .100E+01      G(12) = .100E+01

MESH GENERATION BLOCK-C IN CARTESIAN COORDINATE SYSTEM 1  
 FROM I J K 1 1 1 TO I J K 5 5 3

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 1 | 1 | 1 | .9400E+00 | 0.        | 0.        | 1 | 1 | 2 | .9400E+00 | 0.        | .2315E+00 |
| 1 | 1 | 3 | .9400E+00 | 0.        | .4630E+00 | 1 | 2 | 1 | .9221E+00 | .1831E+00 | 0.        |
| 1 | 2 | 2 | .9221E+00 | .1431E+00 | .2315E+00 | 1 | 2 | 3 | .9221E+00 | .1831E+00 | .4630E+00 |
| 1 | 3 | 1 | .8683E+00 | .3595E+00 | 0.        | 1 | 3 | 2 | .8683E+00 | .3595E+00 | .2315E+00 |
| 1 | 3 | 3 | .8683E+00 | .3595E+00 | .4630E+00 | 1 | 4 | 1 | .7816E+00 | .5224E+00 | 0.        |
| 1 | 4 | 2 | .7816E+00 | .5224E+00 | .2315E+00 | 1 | 4 | 3 | .7816E+00 | .5224E+00 | .4630E+00 |
| 1 | 5 | 1 | .6650E+00 | .6650E+00 | 0.        | 1 | 5 | 2 | .6650E+00 | .6650E+00 | .2315E+00 |
| 1 | 5 | 3 | .6650E+00 | .6650E+00 | .4630E+00 | 2 | 1 | 1 | .1317E+01 | 0.        | 0.        |
| 2 | 1 | 2 | .1317E+01 | 0.        | .2315E+00 | 2 | 1 | 3 | .1317E+01 | 0.        | .4630E+00 |
| 2 | 2 | 1 | .1306E+01 | .2595E+00 | 0.        | 2 | 2 | 2 | .1293E+01 | .2569E+00 | .2315E+00 |
| 2 | 2 | 3 | .1276E+01 | .2535E+00 | .4630E+00 | 2 | 3 | 1 | .1234E+01 | .5110E+00 | 0.        |
| 2 | 3 | 2 | .1209E+01 | .5095E+00 | .2315E+00 | 2 | 3 | 3 | .1176E+01 | .4871E+00 | .4630E+00 |
| 2 | 4 | 1 | .1107E+01 | .7398E+00 | 0.        | 2 | 4 | 2 | .1074E+01 | .7172E+00 | .2315E+00 |
| 2 | 4 | 3 | .1030E+01 | .6583E+00 | .4630E+00 | 2 | 5 | 1 | .9312E+00 | .9312E+00 | 0.        |
| 2 | 5 | 2 | .8943E+00 | .8943E+00 | .2315E+00 | 2 | 5 | 3 | .8471E+00 | .8471E+00 | .4630E+00 |
| 3 | 1 | 1 | .1694E+01 | 0.        | 0.        | 3 | 1 | 2 | .1694E+01 | 0.        | .2315E+00 |
| 3 | 1 | 3 | .1694E+01 | 0.        | .4630E+00 | 3 | 2 | 1 | .1690E+01 | .3360E+00 | 0.        |
| 3 | 2 | 2 | .1671E+01 | .3323E+00 | .2315E+00 | 3 | 2 | 3 | .1646E+01 | .3273E+00 | .4630E+00 |
| 3 | 3 | 1 | .1600E+01 | .6626E+00 | 0.        | 3 | 3 | 2 | .1565E+01 | .6481E+00 | .2315E+00 |
| 3 | 3 | 3 | .1517E+01 | .6242E+00 | .4630E+00 | 3 | 4 | 1 | .1433E+01 | .9573E+00 | 0.        |
| 3 | 4 | 2 | .1387E+01 | .9261E+00 | .2315E+00 | 3 | 4 | 3 | .1322E+01 | .8832E+00 | .4630E+00 |
| 3 | 5 | 1 | .1198E+01 | .1198E+01 | 0.        | 3 | 5 | 2 | .1147E+01 | .1147E+01 | .2315E+00 |
| 3 | 5 | 3 | .1077E+01 | .1077E+01 | .4630E+00 | 4 | 1 | 1 | .2070E+01 | 0.        | 0.        |
| 4 | 1 | 2 | .2070E+01 | 0.        | .2315E+00 | 4 | 1 | 3 | .2070E+01 | 0.        | .4630E+00 |
| 4 | 2 | 1 | .2074E+01 | .4124E+00 | 0.        | 4 | 2 | 2 | .2059E+01 | .4096E+00 | .2315E+00 |
| 4 | 2 | 3 | .2038E+01 | .4054E+00 | .4630E+00 | 4 | 3 | 1 | .1966E+01 | .8141E+00 | 0.        |
| 4 | 3 | 2 | .1939E+01 | .8029E+00 | .2315E+00 | 4 | 3 | 3 | .1899E+01 | .7862E+00 | .4630E+00 |
| 4 | 4 | 1 | .1759E+01 | .1175E+01 | 0.        | 4 | 4 | 2 | .1723E+01 | .1151E+01 | .2315E+00 |
| 4 | 4 | 3 | .1669E+01 | .1115E+01 | .4630E+00 | 4 | 5 | 1 | .1464E+01 | .1464E+01 | 0.        |
| 4 | 5 | 2 | .1424E+01 | .1424E+01 | .2315E+00 | 4 | 5 | 3 | .1366E+01 | .1366E+01 | .4630E+00 |
| 5 | 1 | 1 | .2447E+01 | 0.        | 0.        | 5 | 1 | 2 | .2447E+01 | 0.        | .2315E+00 |
| 5 | 1 | 3 | .2447E+01 | 0.        | .4630E+00 | 5 | 2 | 1 | .2457E+01 | .4888E+00 | 0.        |
| 5 | 2 | 2 | .2457E+01 | .4888E+00 | .2315E+00 | 5 | 2 | 3 | .2457E+01 | .4888E+00 | .4630E+00 |
| 5 | 3 | 1 | .2332E+01 | .9657E+00 | 0.        | 5 | 3 | 2 | .2332E+01 | .9657E+00 | .2315E+00 |
| 5 | 3 | 3 | .2332E+01 | .9657E+00 | .4630E+00 | 5 | 4 | 1 | .2085E+01 | .1392E+01 | 0.        |
| 5 | 4 | 2 | .2085E+01 | .1392E+01 | .2315E+00 | 5 | 4 | 3 | .2085E+01 | .1392E+01 | .4630E+00 |
| 5 | 5 | 1 | .1730E+01 | .1730E+01 | 0.        | 5 | 5 | 2 | .1730E+01 | .1730E+01 | .2315E+00 |
| 5 | 5 | 3 | .1730E+01 | .1730E+01 | .4630E+00 |   |   |   |           |           |           |



GRADIENTS FOR NEXT BLOCK GENERATION

G( 1) = .100E+01      G( 2) = .100E+01  
 G( 3) = .100E+01      G( 4) = .100E+01  
 G( 5) = .100E+01      G( 6) = .100E+01  
 G( 7) = .500E+00      G( 8) = .100E+01  
 G( 9) = .100E+01      G(10) = .100E+01  
 G(11) = .100E+01      G(12) = .100E+01

MESH GENERATION BLOCK-C IN CARTESIAN COORDINATE SYSTEM 1  
 FROM I J K 1 1 3 TO I J K 5 5 7

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 1 | 1 | 3 | .9400E+00 | 0.        | .4630E+00 | 1 | 1 | 4 | .1201E+01 | 0.        | .0543E+00 |
| 1 | 1 | 5 | .1543E+01 | 0.        | .1203E+01 | 1 | 1 | 6 | .1004E+01 | 0.        | .1551E+01 |
| 1 | 1 | 7 | .2149E+01 | 0.        | .1942E+01 | 1 | 2 | 3 | .9210E+00 | .1831E+00 | .4630E+00 |
| 1 | 2 | 4 | .1131E+01 | .2134E+00 | .0489E+00 | 1 | 2 | 5 | .1401E+01 | .2430E+00 | .1203E+01 |
| 1 | 2 | 6 | .1671E+01 | .2741E+00 | .1556E+01 | 1 | 2 | 7 | .1000E+01 | .8044E+00 | .1942E+01 |
| 1 | 3 | 3 | .0677E+00 | .3595E+00 | .4430E+00 | 1 | 3 | 4 | .9947E+00 | .3520E+00 | .0435E+00 |
| 1 | 3 | 5 | .1162E+01 | .3446E+00 | .1203E+01 | 1 | 3 | 6 | .1329E+01 | .3371E+00 | .1561E+01 |
| 1 | 3 | 7 | .1456E+01 | .3297E+00 | .1942E+01 | 1 | 4 | 3 | .7810E+00 | .5224E+00 | .4630E+00 |
| 1 | 4 | 4 | .0277E+00 | .4809E+00 | .0301E+00 | 1 | 4 | 9 | .0937E+00 | .4394E+00 | .1203E+01 |
| 1 | 4 | 6 | .9596E+00 | .3979E+00 | .1567E+01 | 1 | 4 | 7 | .1005E+01 | .3564E+00 | .1942E+01 |
| 1 | 5 | 3 | .6650E+00 | .6650E+00 | .4630E+00 | 1 | 5 | 4 | .6650E+00 | .6650E+00 | .0320E+00 |
| 1 | 5 | 5 | .6650E+00 | .6650E+00 | .1203E+01 | 1 | 5 | 6 | .6650E+00 | .6650E+00 | .1572E+01 |
| 1 | 5 | 7 | .6650E+00 | .6650E+00 | .1942E+01 | 2 | 1 | 3 | .1317E+01 | 0.        | .4630E+00 |
| 2 | 1 | 4 | .1513E+01 | 0.        | .0489E+00 | 2 | 1 | 5 | .1769E+01 | 0.        | .1203E+01 |
| 2 | 1 | 6 | .2029E+01 | 0.        | .1556E+01 | 2 | 1 | 7 | .2221E+01 | 0.        | .1942E+01 |
| 2 | 2 | 3 | .1305E+01 | .2595E+00 | .4630E+00 | 2 | 2 | 4 | .1457E+01 | .2412E+00 | .0449E+00 |
| 2 | 2 | 5 | .1656E+01 | .3029E+00 | .1203E+00 | 2 | 2 | 6 | .1056E+01 | .3240E+00 | .1560E+01 |
| 2 | 2 | 7 | .2013E+01 | .3469E+00 | .1942E+01 | 2 | 3 | 3 | .1234E+01 | .5110E+00 | .4630E+00 |
| 2 | 3 | 4 | .1310E+01 | .9104E+00 | .0409E+00 | 2 | 3 | 5 | .1434E+01 | .4891E+00 | .1203E+01 |
| 2 | 3 | 6 | .1552E+01 | .4765E+00 | .1564E+01 | 2 | 3 | 7 | .1640E+01 | .4636E+00 | .1942E+01 |
| 2 | 4 | 3 | .1100E+01 | .7394E+00 | .4630E+00 | 2 | 4 | 4 | .1127E+01 | .6979E+00 | .0309E+00 |
| 2 | 4 | 5 | .1160E+01 | .6520E+00 | .1203E+01 | 2 | 4 | 6 | .1194E+01 | .6852E+00 | .1560E+01 |
| 2 | 4 | 7 | .1211E+01 | .5540E+00 | .1942E+01 | 2 | 5 | 3 | .9312E+00 | .9312E+00 | .4630E+00 |
| 2 | 5 | 4 | .9137E+00 | .9137E+00 | .0327E+00 | 2 | 5 | 5 | .0943E+00 | .0943E+00 | .1203E+01 |
| 2 | 5 | 6 | .0723E+00 | .0723E+00 | .1572E+01 | 2 | 5 | 7 | .0471E+00 | .0471E+00 | .1942E+01 |
| 3 | 1 | 3 | .1694E+01 | 0.        | .4630E+00 | 3 | 1 | 4 | .1824E+01 | 0.        | .0435E+00 |
| 3 | 1 | 5 | .1995E+01 | 0.        | .1203E+01 | 3 | 1 | 6 | .2109E+01 | 0.        | .1942E+01 |
| 3 | 1 | 7 | .2296E+01 | 0.        | .1942E+01 | 3 | 2 | 3 | .1609E+01 | .3360E+00 | .4630E+00 |
| 3 | 2 | 4 | .1787E+01 | .3496E+00 | .0409E+00 | 3 | 2 | 5 | .1916E+01 | .3634E+00 | .1203E+01 |
| 3 | 2 | 6 | .2049E+01 | .3773E+00 | .1564E+01 | 3 | 2 | 7 | .2153E+01 | .3914E+00 | .1942E+01 |
| 3 | 3 | 3 | .1600E+01 | .6626E+00 | .4630E+00 | 3 | 3 | 4 | .1640E+01 | .6520E+00 | .0302E+00 |
| 3 | 3 | 5 | .1719E+01 | .6403E+00 | .1203E+01 | 3 | 3 | 6 | .1791E+01 | .6270E+00 | .1566E+01 |
| 3 | 3 | 7 | .1844E+01 | .6116E+00 | .1942E+01 | 3 | 4 | 3 | .1433E+01 | .9573E+00 | .4630E+00 |
| 3 | 4 | 4 | .1435E+01 | .9213E+00 | .0355E+00 | 3 | 4 | 5 | .1447E+01 | .0416E+00 | .1203E+01 |
| 3 | 4 | 6 | .1457E+01 | .0371E+00 | .1569E+01 | 3 | 4 | 7 | .1453E+01 | .7861E+00 | .1942E+01 |
| 3 | 5 | 3 | .1190E+01 | .1190E+01 | .4630E+00 | 3 | 5 | 4 | .1174E+01 | .1174E+01 | .0327E+00 |
| 3 | 5 | 5 | .1147E+01 | .1147E+01 | .1203E+01 | 3 | 5 | 6 | .1115E+01 | .1115E+01 | .1572E+01 |
| 3 | 5 | 7 | .1077E+01 | .1077E+01 | .1942E+01 | 4 | 1 | 3 | .2070E+01 | 0.        | .4630E+00 |
| 4 | 1 | 4 | .2130E+01 | 0.        | .0301E+00 | 4 | 1 | 9 | .2221E+01 | 0.        | .1203E+01 |
| 4 | 1 | 6 | .2386E+01 | 0.        | .1567E+01 | 4 | 1 | 7 | .2372E+01 | 0.        | .1942E+01 |
| 4 | 2 | 3 | .2073E+01 | .4124E+00 | .4630E+00 | 4 | 2 | 4 | .2120E+01 | .4100E+00 | .0369E+00 |

MESH GENERATION BLOCK-C IN CARTESIAN COORDINATE SYSTEM 1  
 FROM I J K 1 1 3 TO I J K 5 5 7

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 4 | 2 | 5 | .2183E+01 | .4293E+00 | .1203E+01 | 4 | 2 | 6 | .2249E+01 | .4310E+00 | .1560E+01 |
| 4 | 2 | 7 | .2300E+01 | .4305E+00 | .1942E+01 | 4 | 3 | 3 | .1906E+01 | .8141E+00 | .4639E+00 |
| 4 | 3 | 4 | .1986E+01 | .8071E+00 | .6355E+00 | 4 | 3 | 5 | .2018E+01 | .7989E+00 | .1203E+01 |
| 4 | 3 | 6 | .2050E+01 | .7992E+00 | .1569E+01 | 4 | 3 | 7 | .2073E+01 | .7774E+00 | .1942E+01 |
| 4 | 4 | 3 | .1759E+01 | .1175E+01 | .4630E+00 | 4 | 4 | 4 | .1755E+01 | .1153E+01 | .8342E+00 |
| 4 | 4 | 4 | .1799E+01 | .1125E+01 | .1203E+01 | 4 | 4 | 6 | .1792E+01 | .1090E+01 | .1571E+01 |
| 4 | 4 | 7 | .1741E+01 | .1062E+01 | .1942E+01 | 4 | 5 | 3 | .1464E+01 | .1464E+01 | .4630E+00 |
| 4 | 5 | 4 | .1446E+01 | .1446E+01 | .6327E+00 | 4 | 5 | 5 | .1424E+01 | .1424E+01 | .1203E+01 |
| 4 | 5 | 6 | .1398E+01 | .1398E+01 | .1572E+01 | 4 | 5 | 7 | .1366E+01 | .1366E+01 | .1942E+01 |
| 5 | 1 | 3 | .2447E+01 | 0.        | .4630E+00 | 5 | 1 | 4 | .2447E+01 | 0.        | .6320E+00 |
| 5 | 1 | 5 | .2447E+01 | 0.        | .1203E+01 | 5 | 1 | 6 | .2447E+01 | 0.        | .1572E+01 |
| 5 | 1 | 7 | .2447E+01 | 0.        | .1942E+01 | 5 | 2 | 3 | .2457E+01 | .4880E+00 | .4630E+00 |
| 5 | 2 | 4 | .2457E+01 | .4880E+00 | .6327E+00 | 5 | 2 | 5 | .2457E+01 | .4880E+00 | .1203E+01 |
| 5 | 2 | 6 | .2457E+01 | .4880E+00 | .1572E+01 | 5 | 2 | 7 | .2457E+01 | .4880E+00 | .1942E+01 |
| 5 | 3 | 3 | .2332E+01 | .9657E+00 | .4630E+00 | 5 | 3 | 4 | .2332E+01 | .9657E+00 | .6320E+00 |
| 5 | 3 | 5 | .2332E+01 | .9657E+00 | .1203E+01 | 5 | 3 | 6 | .2332E+01 | .9657E+00 | .1572E+01 |
| 5 | 3 | 7 | .2332E+01 | .9657E+00 | .1342E+01 | 5 | 4 | 3 | .2085E+01 | .1392E+01 | .4630E+00 |
| 5 | 4 | 4 | .2085E+01 | .1392E+01 | .6320E+00 | 5 | 4 | 5 | .2085E+01 | .1392E+01 | .1203E+01 |
| 5 | 4 | 6 | .2085E+01 | .1392E+01 | .1572E+01 | 5 | 4 | 7 | .2085E+01 | .1392E+01 | .1942E+01 |
| 5 | 5 | 3 | .1730E+01 | .1730E+01 | .4630E+00 | 5 | 5 | 4 | .1730E+01 | .1730E+01 | .6320E+00 |
| 5 | 5 | 5 | .1730E+01 | .1730E+01 | .1203E+01 | 5 | 5 | 6 | .1730E+01 | .1730E+01 | .1572E+01 |
| 5 | 5 | 7 | .1730E+01 | .1730E+01 | .1942E+01 |   |   |   |           |           |           |

GRADIENTS FOR NEXT BLOCK GENERATION

|         |          |         |          |
|---------|----------|---------|----------|
| G(1) =  | .100E+01 | G(2) =  | .100E+01 |
| G(3) =  | .100E+01 | G(4) =  | .100E+01 |
| G(5) =  | .100E+01 | G(6) =  | .100E+01 |
| G(7) =  | .500E+00 | G(8) =  | .100E+01 |
| G(9) =  | .100E+01 | G(10) = | .100E+01 |
| G(11) = | .100E+01 | G(12) = | .100E+01 |

MESH GENERATION BLOCK-C IN CARTESIAN COORDINATE SYSTEM 1  
 FROM I J K 1 1 7 TO I J K 5 5 9

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 1 | 1 | 7 | .2145E+01 | 0.        | .1342E+01 | 1 | 1 | 8 | .2145E+01 | 0.        | .2174E+01 |
| 1 | 1 | 9 | .2145E+01 | 0.        | .2405E+01 | 1 | 2 | 7 | .1800E+01 | .3044E+00 | .1942E+01 |
| 1 | 2 | 8 | .1800E+01 | .3044E+00 | .2174E+01 | 1 | 2 | 9 | .1800E+01 | .3044E+00 | .2405E+01 |
| 1 | 3 | 7 | .1456E+01 | .3297E+00 | .1942E+01 | 1 | 3 | 8 | .1456E+01 | .3297E+00 | .2174E+01 |
| 1 | 3 | 9 | .1456E+01 | .3297E+00 | .2405E+01 | 1 | 4 | 7 | .1005E+01 | .3564E+00 | .1942E+01 |
| 1 | 4 | 8 | .1005E+01 | .3564E+00 | .2174E+01 | 1 | 4 | 9 | .1005E+01 | .3564E+00 | .2405E+01 |
| 1 | 5 | 7 | .6650E+00 | .6650E+00 | .1942E+01 | 1 | 5 | 8 | .6650E+00 | .6650E+00 | .2174E+01 |
| 1 | 5 | 9 | .6650E+00 | .6650E+00 | .2405E+01 | 2 | 1 | 7 | .2221E+01 | 0.        | .1942E+01 |
| 2 | 1 | 4 | .2221E+01 | 0.        | .2174E+01 | 2 | 1 | 9 | .2221E+01 | 0.        | .2405E+01 |
| 2 | 2 | 7 | .2025E+01 | .3505E+00 | .1942E+01 | 2 | 2 | 8 | .2025E+01 | .3489E+00 | .2174E+01 |
| 2 | 2 | 9 | .2013E+01 | .3469E+00 | .2405E+01 | 2 | 3 | 7 | .1675E+01 | .4887E+00 | .1942E+01 |
| 2 | 3 | 8 | .1667E+01 | .4776E+00 | .2174E+01 | 2 | 3 | 9 | .1648E+01 | .4636E+00 | .2405E+01 |
| 2 | 4 | 7 | .1275E+01 | .6153E+00 | .1942E+01 | 2 | 4 | 8 | .1247E+01 | .5883E+00 | .2174E+01 |

MESH GENERATION BLOCK-C IN CARTESIAN COORDINATE SYSTEM 1  
 FROM I J K 1 1 7 TO I J K 5 5 9

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 2 | 4 | 9 | .1211E+01 | .5540E+00 | .2405E+01 | 2 | 5 | 7 | .9312E+00 | .9312E+00 | .1942E+01 |
| 2 | 5 | 8 | .8943E+00 | .8943E+00 | .2174E+01 | 2 | 5 | 9 | .8471E+00 | .8471E+00 | .2405E+01 |
| 3 | 1 | 7 | .2296E+01 | 0.        | .1942E+01 | 3 | 1 | 8 | .2296E+01 | 0.        | .2174E+01 |
| 3 | 1 | 9 | .2296E+01 | 0.        | .2405E+01 | 3 | 2 | 7 | .2169E+01 | .5966E+00 | .1942E+01 |
| 3 | 2 | 8 | .2162E+01 | .3944E+00 | .2174E+01 | 3 | 2 | 9 | .2153E+01 | .3914E+00 | .2405E+01 |
| 3 | 3 | 7 | .1899E+01 | .8477E+00 | .1942E+01 | 3 | 3 | 8 | .1873E+01 | .6329E+00 | .2174E+01 |
| 3 | 3 | 9 | .1844E+01 | .6116E+00 | .2405E+01 | 3 | 4 | 7 | .1945E+01 | .8743E+00 | .1942E+01 |
| 3 | 4 | 8 | .1507E+01 | .8372E+00 | .2174E+01 | 3 | 4 | 9 | .1453E+01 | .7861E+00 | .2405E+01 |
| 3 | 5 | 7 | .1198E+01 | .1198E+01 | .1942E+01 | 3 | 5 | 8 | .1147E+01 | .1147E+01 | .2174E+01 |
| 3 | 5 | 9 | .1877E+01 | .1877E+01 | .2405E+01 | 4 | 1 | 7 | .2372E+01 | 0.        | .1942E+01 |
| 4 | 1 | 8 | .2372E+01 | 0.        | .2174E+01 | 4 | 1 | 9 | .2372E+01 | 0.        | .2405E+01 |
| 4 | 2 | 7 | .2313E+01 | .4427E+00 | .1942E+01 | 4 | 2 | 8 | .2308E+01 | .4410E+00 | .2174E+01 |
| 4 | 2 | 9 | .2300E+01 | .4385E+00 | .2405E+01 | 4 | 3 | 7 | .2113E+01 | .8867E+00 | .1942E+01 |
| 4 | 3 | 8 | .2897E+01 | .7949E+00 | .2174E+01 | 4 | 3 | 9 | .2073E+01 | .7774E+00 | .2405E+01 |
| 4 | 4 | 7 | .1815E+01 | .1133E+01 | .1942E+01 | 4 | 4 | 8 | .1785E+01 | .1184E+01 | .2174E+01 |
| 4 | 4 | 9 | .1741E+01 | .1062E+01 | .2405E+01 | 4 | 5 | 7 | .1464E+01 | .1464E+01 | .1942E+01 |
| 4 | 5 | 8 | .1424E+01 | .1424E+01 | .2174E+01 | 4 | 5 | 9 | .1366E+01 | .1366E+01 | .2405E+01 |
| 5 | 1 | 7 | .2447E+01 | 0.        | .1942E+01 | 5 | 1 | 8 | .2447E+01 | 0.        | .2174E+01 |
| 5 | 1 | 9 | .2447E+01 | 0.        | .2405E+01 | 5 | 2 | 7 | .2457E+01 | .4888E+00 | .1942E+01 |
| 5 | 2 | 8 | .2457E+01 | .4888E+00 | .2174E+01 | 5 | 2 | 9 | .2457E+01 | .4888E+00 | .2405E+01 |
| 5 | 3 | 7 | .2332E+01 | .9657E+00 | .1942E+01 | 5 | 3 | 8 | .2332E+01 | .9657E+00 | .2174E+01 |
| 5 | 3 | 9 | .2332E+01 | .9657E+00 | .2405E+01 | 5 | 4 | 7 | .2085E+01 | .1392E+01 | .1942E+01 |
| 5 | 4 | 8 | .2085E+01 | .1392E+01 | .2174E+01 | 5 | 4 | 9 | .2085E+01 | .1392E+01 | .2405E+01 |
| 5 | 5 | 7 | .1730E+01 | .1730E+01 | .1942E+01 | 5 | 5 | 8 | .1730E+01 | .1730E+01 | .2174E+01 |
| 5 | 5 | 9 | .1730E+01 | .1730E+01 | .2405E+01 |   |   |   |           |           |           |

GRADIENTS FOR NEXT BLOCK GENERATION

|       |   |          |       |   |          |
|-------|---|----------|-------|---|----------|
| G(1)  | = | .100E+01 | G(2)  | = | .100E+01 |
| G(3)  | = | .100E+01 | G(4)  | = | .100E+01 |
| G(5)  | = | .100E+01 | G(6)  | = | .100E+01 |
| G(7)  | = | .100E+01 | G(8)  | = | .100E+01 |
| G(9)  | = | .100E+01 | G(10) | = | .100E+01 |
| G(11) | = | .100E+01 | G(12) | = | .100E+01 |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM 2  
 FROM I J K 5 1 1 TO I J K 7 5 3

GLOBAL CYLINDRICAL COORDINATES OF POINTS GENERATED

| I | J | K | R         | THETA     | Z         | I | J | K | R         | THETA     | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 5 | 1 | 1 | .2447E+01 | 0.        | 0.        | 5 | 1 | 2 | .2447E+01 | 0.        | .2315E+00 |
| 5 | 1 | 3 | .2447E+01 | 0.        | .4630E+00 | 5 | 2 | 1 | .2447E+01 | .1125E+02 | 0.        |
| 5 | 2 | 2 | .2447E+01 | .1125E+02 | .2315E+00 | 5 | 2 | 3 | .2447E+01 | .1125E+02 | .4630E+00 |
| 5 | 3 | 1 | .2447E+01 | .2250E+02 | 0.        | 5 | 3 | 2 | .2447E+01 | .2250E+02 | .2315E+00 |
| 5 | 3 | 3 | .2447E+01 | .2250E+02 | .4630E+00 | 5 | 4 | 1 | .2447E+01 | .3375E+02 | 0.        |
| 5 | 4 | 2 | .2447E+01 | .3375E+02 | .2315E+00 | 5 | 4 | 3 | .2447E+01 | .3375E+02 | .4630E+00 |
| 5 | 5 | 1 | .2447E+01 | .4400E+02 | 0.        | 5 | 5 | 2 | .2447E+01 | .4400E+02 | .2315E+00 |
| 5 | 5 | 3 | .2447E+01 | .4400E+02 | .4630E+00 | 6 | 1 | 1 | .2482E+01 | 0.        | 0.        |
| 6 | 1 | 2 | .2482E+01 | 0.        | .2315E+00 | 6 | 1 | 3 | .2482E+01 | 0.        | .4630E+00 |
| 6 | 2 | 1 | .2482E+01 | .1125E+02 | 0.        | 6 | 2 | 2 | .2482E+01 | .1125E+02 | .2315E+00 |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM 2  
 FROM I J K 5 1 1 TO I J K 7 5 3

GLOBAL CYLINDRICAL COORDINATES OF POINTS GENERATED

| I | J | K | R         | TWETA     | Z         | I | J | K | R         | TWETA     | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 6 | 2 | 3 | .2402E+01 | .1125E+02 | .4630E+00 | 6 | 3 | 1 | .2402E+01 | .2250E+02 | 0.        |
| 6 | 3 | 2 | .2402E+01 | .2250E+02 | .2315E+00 | 6 | 3 | 3 | .2402E+01 | .2250E+02 | .4630E+00 |
| 6 | 4 | 1 | .2402E+01 | .3375E+02 | 0.        | 6 | 4 | 2 | .2402E+01 | .3375E+02 | .2315E+00 |
| 6 | 4 | 3 | .2402E+01 | .3375E+02 | .4630E+00 | 6 | 5 | 1 | .2402E+01 | .4500E+02 | 0.        |
| 6 | 5 | 2 | .2402E+01 | .4500E+02 | .2315E+00 | 6 | 5 | 3 | .2402E+01 | .4500E+02 | .4630E+00 |
| 7 | 1 | 1 | .2517E+01 | 0.        | 0.        | 7 | 1 | 2 | .2517E+01 | 0.        | .2315E+00 |
| 7 | 1 | 3 | .2517E+01 | 0.        | .4630E+00 | 7 | 2 | 1 | .2517E+01 | .1125E+02 | 0.        |
| 7 | 2 | 2 | .2517E+01 | .1125E+02 | .2315E+00 | 7 | 2 | 3 | .2517E+01 | .1125E+02 | .4630E+00 |
| 7 | 3 | 1 | .2517E+01 | .2250E+02 | 0.        | 7 | 3 | 2 | .2517E+01 | .2250E+02 | .2315E+00 |
| 7 | 3 | 3 | .2517E+01 | .2250E+02 | .4630E+00 | 7 | 4 | 1 | .2517E+01 | .3375E+02 | 0.        |
| 7 | 4 | 2 | .2517E+01 | .3375E+02 | .2315E+00 | 7 | 4 | 3 | .2517E+01 | .3375E+02 | .4630E+00 |
| 7 | 5 | 1 | .2517E+01 | .4500E+02 | 0.        | 7 | 5 | 2 | .2517E+01 | .4500E+02 | .2315E+00 |
| 7 | 5 | 3 | .2517E+01 | .4500E+02 | .4630E+00 |   |   |   |           |           |           |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM 2  
 FROM I J K 5 1 1 TO I J K 7 5 3

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 5 | 1 | 1 | .2447E+01 | 0.        | 0.        | 5 | 1 | 2 | .2447E+01 | 0.        | .2315E+00 |
| 5 | 1 | 3 | .2447E+01 | 0.        | .4630E+00 | 5 | 2 | 1 | .2400E+01 | .4774E+00 | 0.        |
| 5 | 2 | 2 | .2400E+01 | .4774E+00 | .2315E+00 | 5 | 2 | 3 | .2400E+01 | .4774E+00 | .4630E+00 |
| 5 | 3 | 1 | .2261E+01 | .9364E+00 | 0.        | 5 | 3 | 2 | .2261E+01 | .9364E+00 | .2315E+00 |
| 5 | 3 | 3 | .2261E+01 | .9364E+00 | .4630E+00 | 5 | 4 | 1 | .2035E+01 | .1359E+01 | 0.        |
| 5 | 4 | 2 | .2035E+01 | .1359E+01 | .2315E+00 | 5 | 4 | 3 | .2035E+01 | .1359E+01 | .4630E+00 |
| 5 | 5 | 1 | .1730E+01 | .1730E+01 | 0.        | 5 | 5 | 2 | .1730E+01 | .1730E+01 | .2315E+00 |
| 5 | 5 | 3 | .1730E+01 | .1730E+01 | .4630E+00 | 6 | 1 | 1 | .2482E+01 | 0.        | 0.        |
| 6 | 1 | 2 | .2482E+01 | 0.        | .2315E+00 | 6 | 1 | 3 | .2482E+01 | 0.        | .4630E+00 |
| 6 | 2 | 1 | .2434E+01 | .4842E+00 | 0.        | 6 | 2 | 2 | .2434E+01 | .4842E+00 | .2315E+00 |
| 6 | 2 | 3 | .2434E+01 | .4842E+00 | .4630E+00 | 6 | 3 | 1 | .2293E+01 | .9498E+00 | 0.        |
| 6 | 3 | 2 | .2293E+01 | .9498E+00 | .2315E+00 | 6 | 3 | 3 | .2293E+01 | .9498E+00 | .4630E+00 |
| 6 | 4 | 1 | .2064E+01 | .1379E+01 | 0.        | 6 | 4 | 2 | .2064E+01 | .1379E+01 | .2315E+00 |
| 6 | 4 | 3 | .2064E+01 | .1379E+01 | .4630E+00 | 6 | 5 | 1 | .1755E+01 | .1755E+01 | 0.        |
| 6 | 5 | 2 | .1755E+01 | .1755E+01 | .2315E+00 | 6 | 5 | 3 | .1755E+01 | .1755E+01 | .4630E+00 |
| 7 | 1 | 1 | .2517E+01 | 0.        | 0.        | 7 | 1 | 2 | .2517E+01 | 0.        | .2315E+00 |
| 7 | 1 | 3 | .2517E+01 | 0.        | .4630E+00 | 7 | 2 | 1 | .2469E+01 | .4910E+00 | 0.        |
| 7 | 2 | 2 | .2469E+01 | .4910E+00 | .2315E+00 | 7 | 2 | 3 | .2469E+01 | .4910E+00 | .4630E+00 |
| 7 | 3 | 1 | .2325E+01 | .9632E+00 | 0.        | 7 | 3 | 2 | .2325E+01 | .9632E+00 | .2315E+00 |
| 7 | 3 | 3 | .2325E+01 | .9632E+00 | .4630E+00 | 7 | 4 | 1 | .2093E+01 | .1398E+01 | 0.        |
| 7 | 4 | 2 | .2093E+01 | .1398E+01 | .2315E+00 | 7 | 4 | 3 | .2093E+01 | .1398E+01 | .4630E+00 |
| 7 | 5 | 1 | .1780E+01 | .1780E+01 | 0.        | 7 | 5 | 2 | .1780E+01 | .1780E+01 | .2315E+00 |
| 7 | 5 | 3 | .1780E+01 | .1780E+01 | .4630E+00 |   |   |   |           |           |           |

GRADIENTS FOR NEXT BLOCK GENERATION

|                  |                  |
|------------------|------------------|
| G( 1) = .100E+01 | G( 2) = .100E+01 |
| G( 3) = .100E+01 | G( 4) = .100E+01 |
| G( 5) = .100E+01 | G( 6) = .100E+01 |
| G( 7) = .100E+01 | G( 8) = .100E+01 |
| G( 9) = .100E+01 | G(10) = .100E+01 |
| G(11) = .100E+01 | G(12) = .100E+01 |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM Z  
FROM I J K 5 1 3 TO I J K 7 5 7

GLOBAL CYLINDRICAL COORDINATES OF POINTS GENERATED

| I | J | K | R         | THETA     | Z         | I | J | K | R         | THETA     | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 5 | 1 | 3 | .2447E+01 | 0.        | .4630E+00 | 5 | 1 | 4 | .2447E+01 | 0.        | .8320E+00 |
| 5 | 1 | 5 | .2447E+01 | 0.        | .1203E+01 | 5 | 1 | 6 | .2447E+01 | 0.        | .1572E+01 |
| 5 | 1 | 7 | .2447E+01 | 0.        | .1942E+01 | 5 | 2 | 3 | .2447E+01 | .1125E+02 | .4630E+00 |
| 5 | 2 | 4 | .2447E+01 | .1125E+02 | .8320E+00 | 5 | 2 | 5 | .2447E+01 | .1125E+02 | .1203E+01 |
| 5 | 2 | 6 | .2447E+01 | .1125E+02 | .1572E+01 | 5 | 2 | 7 | .2447E+01 | .1125E+02 | .1942E+01 |
| 5 | 3 | 3 | .2447E+01 | .2250E+02 | .4630E+00 | 5 | 3 | 4 | .2447E+01 | .2250E+02 | .8320E+00 |
| 5 | 3 | 5 | .2447E+01 | .2250E+02 | .1203E+01 | 5 | 3 | 6 | .2447E+01 | .2250E+02 | .1572E+01 |
| 5 | 3 | 7 | .2447E+01 | .2250E+02 | .1942E+01 | 5 | 4 | 3 | .2447E+01 | .3375E+02 | .4630E+00 |
| 5 | 4 | 4 | .2447E+01 | .3375E+02 | .8320E+00 | 5 | 4 | 6 | .2447E+01 | .3375E+02 | .1203E+01 |
| 5 | 4 | 7 | .2447E+01 | .3375E+02 | .1572E+01 | 5 | 4 | 9 | .2447E+01 | .3375E+02 | .1942E+01 |
| 5 | 5 | 3 | .2447E+01 | .4500E+02 | .4630E+00 | 5 | 5 | 4 | .2447E+01 | .4500E+02 | .8320E+00 |
| 5 | 5 | 5 | .2447E+01 | .4500E+02 | .1203E+01 | 5 | 5 | 6 | .2447E+01 | .4500E+02 | .1572E+01 |
| 5 | 5 | 7 | .2447E+01 | .4500E+02 | .1942E+01 | 6 | 1 | 3 | .2402E+01 | 0.        | .4630E+00 |
| 6 | 1 | 4 | .2402E+01 | 0.        | .8320E+00 | 6 | 1 | 5 | .2402E+01 | 0.        | .1203E+01 |
| 6 | 1 | 6 | .2402E+01 | 0.        | .1572E+01 | 6 | 1 | 7 | .2402E+01 | 0.        | .1942E+01 |
| 6 | 2 | 3 | .2402E+01 | .1125E+02 | .4630E+00 | 6 | 2 | 4 | .2402E+01 | .1125E+02 | .8320E+00 |
| 6 | 2 | 5 | .2402E+01 | .1125E+02 | .1203E+01 | 6 | 2 | 6 | .2402E+01 | .1125E+02 | .1572E+01 |
| 6 | 2 | 7 | .2402E+01 | .1125E+02 | .1942E+01 | 6 | 3 | 3 | .2402E+01 | .2250E+02 | .4630E+00 |
| 6 | 3 | 4 | .2402E+01 | .2250E+02 | .8320E+00 | 6 | 3 | 5 | .2402E+01 | .2250E+02 | .1203E+01 |
| 6 | 3 | 6 | .2402E+01 | .2250E+02 | .1572E+01 | 6 | 3 | 7 | .2402E+01 | .2250E+02 | .1942E+01 |
| 6 | 4 | 3 | .2402E+01 | .3375E+02 | .4630E+00 | 6 | 4 | 4 | .2402E+01 | .3375E+02 | .8320E+00 |
| 6 | 4 | 6 | .2402E+01 | .3375E+02 | .1203E+01 | 6 | 4 | 6 | .2402E+01 | .3375E+02 | .1572E+01 |
| 6 | 4 | 9 | .2402E+01 | .3375E+02 | .1942E+01 | 6 | 5 | 3 | .2402E+01 | .4500E+02 | .4630E+00 |
| 6 | 5 | 4 | .2402E+01 | .4500E+02 | .8320E+00 | 6 | 5 | 5 | .2402E+01 | .4500E+02 | .1203E+01 |
| 6 | 5 | 6 | .2402E+01 | .4500E+02 | .1572E+01 | 6 | 5 | 7 | .2402E+01 | .4500E+02 | .1942E+01 |
| 7 | 1 | 3 | .2517E+01 | 0.        | .4630E+00 | 7 | 1 | 4 | .2517E+01 | 0.        | .8320E+00 |
| 7 | 1 | 5 | .2517E+01 | 0.        | .1203E+01 | 7 | 1 | 6 | .2517E+01 | 0.        | .1572E+01 |
| 7 | 1 | 7 | .2517E+01 | 0.        | .1942E+01 | 7 | 2 | 3 | .2517E+01 | .1125E+02 | .4630E+00 |
| 7 | 2 | 4 | .2517E+01 | .1125E+02 | .8320E+00 | 7 | 2 | 5 | .2517E+01 | .1125E+02 | .1203E+01 |
| 7 | 2 | 6 | .2517E+01 | .1125E+02 | .1572E+01 | 7 | 2 | 7 | .2517E+01 | .1125E+02 | .1942E+01 |
| 7 | 3 | 3 | .2517E+01 | .2250E+02 | .4630E+00 | 7 | 3 | 4 | .2517E+01 | .2250E+02 | .8320E+00 |
| 7 | 3 | 5 | .2517E+01 | .2250E+02 | .1203E+01 | 7 | 3 | 6 | .2517E+01 | .2250E+02 | .1572E+01 |
| 7 | 3 | 7 | .2517E+01 | .2250E+02 | .1942E+01 | 7 | 4 | 3 | .2517E+01 | .3375E+02 | .4630E+00 |
| 7 | 4 | 4 | .2517E+01 | .3375E+02 | .8320E+00 | 7 | 4 | 5 | .2517E+01 | .3375E+02 | .1203E+01 |
| 7 | 4 | 6 | .2517E+01 | .3375E+02 | .1572E+01 | 7 | 4 | 7 | .2517E+01 | .3375E+02 | .1942E+01 |
| 7 | 5 | 3 | .2517E+01 | .4500E+02 | .4630E+00 | 7 | 5 | 4 | .2517E+01 | .4500E+02 | .8320E+00 |
| 7 | 5 | 5 | .2517E+01 | .4500E+02 | .1203E+01 | 7 | 5 | 6 | .2517E+01 | .4500E+02 | .1572E+01 |
| 7 | 5 | 7 | .2517E+01 | .4500E+02 | .1942E+01 |   |   |   |           |           |           |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM 2  
FROM I J K 5 1 3 TO I J K 7 5 7

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K  | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|----|-----------|-----------|-----------|
| 5 | 1 | 3 | .2447E+01 | 0.        | .4630E+00 | 5 | 1 | 4  | .2447E+01 | 0.        | .8329E+00 |
| 5 | 1 | 5 | .2447E+01 | 0.        | .1203E+01 | 5 | 1 | 6  | .2447E+01 | 0.        | .1572E+01 |
| 5 | 1 | 7 | .2447E+01 | 0.        | .1942E+01 | 5 | 1 | 8  | .2447E+01 | 0.        | .2647E+01 |
| 5 | 2 | 4 | .2400E+01 | .4774E+00 | .6826E+00 | 5 | 2 | 5  | .2400E+01 | .4774E+00 | .6630E+00 |
| 5 | 2 | 6 | .2400E+01 | .4774E+00 | .1572E+01 | 5 | 2 | 7  | .2400E+01 | .4774E+00 | .1203E+01 |
| 5 | 3 | 3 | .2261E+01 | .9364E+00 | .4630E+00 | 5 | 3 | 4  | .2261E+01 | .9364E+00 | .8329E+00 |
| 5 | 3 | 5 | .2261E+01 | .9364E+00 | .1203E+01 | 5 | 3 | 6  | .2261E+01 | .9364E+00 | .1572E+01 |
| 5 | 3 | 7 | .2261E+01 | .9364E+00 | .1942E+01 | 5 | 3 | 8  | .2261E+01 | .9364E+00 | .2647E+01 |
| 5 | 4 | 4 | .2035E+01 | .1359E+01 | .6826E+00 | 5 | 4 | 5  | .2035E+01 | .1359E+01 | .6630E+00 |
| 5 | 4 | 6 | .2035E+01 | .1359E+01 | .1572E+01 | 5 | 4 | 7  | .2035E+01 | .1359E+01 | .1203E+01 |
| 5 | 5 | 3 | .1730E+01 | .1730E+01 | .4630E+00 | 5 | 5 | 4  | .1730E+01 | .1730E+01 | .8329E+00 |
| 5 | 5 | 5 | .1730E+01 | .1730E+01 | .1203E+01 | 5 | 5 | 6  | .1730E+01 | .1730E+01 | .1572E+01 |
| 5 | 5 | 7 | .1730E+01 | .1730E+01 | .1942E+01 | 5 | 5 | 8  | .1730E+01 | .1730E+01 | .2647E+01 |
| 6 | 1 | 4 | .2482E+01 | 0.        | .6826E+00 | 6 | 1 | 5  | .2482E+01 | 0.        | .6630E+00 |
| 6 | 1 | 6 | .2482E+01 | 0.        | .1572E+01 | 6 | 1 | 7  | .2482E+01 | 0.        | .1203E+01 |
| 6 | 2 | 3 | .2434E+01 | .4842E+00 | .4630E+00 | 6 | 2 | 4  | .2434E+01 | .4842E+00 | .4630E+00 |
| 6 | 2 | 5 | .2434E+01 | .4842E+00 | .1203E+01 | 6 | 2 | 6  | .2434E+01 | .4842E+00 | .1572E+01 |
| 6 | 2 | 7 | .2434E+01 | .4842E+00 | .1942E+01 | 6 | 2 | 8  | .2434E+01 | .4842E+00 | .2647E+01 |
| 6 | 3 | 4 | .2293E+01 | .9498E+00 | .6826E+00 | 6 | 3 | 5  | .2293E+01 | .9498E+00 | .6630E+00 |
| 6 | 3 | 6 | .2293E+01 | .9498E+00 | .1572E+01 | 6 | 3 | 7  | .2293E+01 | .9498E+00 | .1203E+01 |
| 6 | 3 | 8 | .2293E+01 | .9498E+00 | .1942E+01 | 6 | 3 | 9  | .2293E+01 | .9498E+00 | .2647E+01 |
| 6 | 4 | 3 | .2064E+01 | .1379E+01 | .4630E+00 | 6 | 4 | 4  | .2064E+01 | .1379E+01 | .6630E+00 |
| 6 | 4 | 5 | .2064E+01 | .1379E+01 | .1203E+01 | 6 | 4 | 6  | .2064E+01 | .1379E+01 | .1572E+01 |
| 6 | 4 | 7 | .2064E+01 | .1379E+01 | .1942E+01 | 6 | 4 | 8  | .2064E+01 | .1379E+01 | .2647E+01 |
| 6 | 5 | 4 | .1755E+01 | .1755E+01 | .6826E+00 | 6 | 5 | 5  | .1755E+01 | .1755E+01 | .6630E+00 |
| 6 | 5 | 6 | .1755E+01 | .1755E+01 | .1203E+01 | 6 | 5 | 7  | .1755E+01 | .1755E+01 | .1572E+01 |
| 6 | 5 | 8 | .1755E+01 | .1755E+01 | .1942E+01 | 6 | 5 | 9  | .1755E+01 | .1755E+01 | .2647E+01 |
| 7 | 1 | 3 | .2517E+01 | 0.        | .4630E+00 | 7 | 1 | 4  | .2517E+01 | 0.        | .8329E+00 |
| 7 | 1 | 5 | .2517E+01 | 0.        | .1203E+01 | 7 | 1 | 6  | .2517E+01 | 0.        | .1572E+01 |
| 7 | 1 | 7 | .2517E+01 | 0.        | .1942E+01 | 7 | 1 | 8  | .2517E+01 | 0.        | .2647E+01 |
| 7 | 2 | 4 | .2469E+01 | .4910E+00 | .6826E+00 | 7 | 2 | 5  | .2469E+01 | .4910E+00 | .6630E+00 |
| 7 | 2 | 6 | .2469E+01 | .4910E+00 | .1572E+01 | 7 | 2 | 7  | .2469E+01 | .4910E+00 | .1203E+01 |
| 7 | 2 | 8 | .2469E+01 | .4910E+00 | .1942E+01 | 7 | 2 | 9  | .2469E+01 | .4910E+00 | .2647E+01 |
| 7 | 3 | 3 | .2325E+01 | .9632E+00 | .4630E+00 | 7 | 3 | 4  | .2325E+01 | .9632E+00 | .6630E+00 |
| 7 | 3 | 5 | .2325E+01 | .9632E+00 | .1203E+01 | 7 | 3 | 6  | .2325E+01 | .9632E+00 | .1572E+01 |
| 7 | 3 | 7 | .2325E+01 | .9632E+00 | .1942E+01 | 7 | 3 | 8  | .2325E+01 | .9632E+00 | .2647E+01 |
| 7 | 4 | 4 | .2093E+01 | .1398E+01 | .6826E+00 | 7 | 4 | 5  | .2093E+01 | .1398E+01 | .6630E+00 |
| 7 | 4 | 6 | .2093E+01 | .1398E+01 | .1572E+01 | 7 | 4 | 7  | .2093E+01 | .1398E+01 | .1203E+01 |
| 7 | 5 | 3 | .1785E+01 | .1785E+01 | .4630E+00 | 7 | 5 | 4  | .1785E+01 | .1785E+01 | .6630E+00 |
| 7 | 5 | 5 | .1785E+01 | .1785E+01 | .1203E+01 | 7 | 5 | 6  | .1785E+01 | .1785E+01 | .1572E+01 |
| 7 | 5 | 7 | .1785E+01 | .1785E+01 | .1942E+01 | 7 | 5 | 8  | .1785E+01 | .1785E+01 | .2647E+01 |
| 7 | 5 | 9 | .1785E+01 | .1785E+01 | .2647E+01 | 7 | 5 | 10 | .1785E+01 | .1785E+01 | .4630E+00 |

GRADIENTS FOR NEXT BLOCK GENERATION

|         |          |         |          |
|---------|----------|---------|----------|
| G(1) =  | .180E+01 | G(12) = | .100E+01 |
| G(3) =  | .100E+01 | G(14) = | .100E+01 |
| G(5) =  | .100E+01 | G(16) = | .100E+01 |
| G(7) =  | .100E+01 | G(18) = | .100E+01 |
| G(9) =  | .100E+02 | G(19) = | .100E+01 |
| G(11) = | .180E+01 | G(12) = | .100E+01 |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM 2  
FROM I J K 5 1 7 TO I J K 7 5 9

GLOBAL CYLINDRICAL COORDINATES OF POINTS GENERATED

| I | J | K | P | THETA     | Z         | I | J | K | P | THETA     | Z         |
|---|---|---|---|-----------|-----------|---|---|---|---|-----------|-----------|
| 5 | 1 | 7 | 0 | .2447E+01 | .1942E+01 | 5 | 1 | 0 | 0 | .2447E+01 | .2174E+01 |
| 5 | 1 | 9 | 0 | .2447E+01 | .2405E+01 | 5 | 2 | 7 | 0 | .2447E+01 | .1942E+01 |
| 5 | 2 | 0 | 0 | .1125E+02 | .2174E+01 | 5 | 2 | 9 | 0 | .1125E+02 | .2405E+01 |
| 5 | 3 | 7 | 0 | .2447E+01 | .2405E+01 | 5 | 3 | 0 | 0 | .2447E+01 | .2174E+01 |
| 5 | 3 | 9 | 0 | .2447E+01 | .2405E+01 | 5 | 4 | 7 | 0 | .2447E+01 | .1942E+01 |
| 5 | 4 | 0 | 0 | .3375E+02 | .2174E+01 | 5 | 4 | 9 | 0 | .3375E+02 | .2405E+01 |
| 5 | 5 | 7 | 0 | .4500E+02 | .1942E+01 | 5 | 5 | 0 | 0 | .4500E+02 | .2174E+01 |
| 5 | 5 | 9 | 0 | .4500E+02 | .2405E+01 | 5 | 6 | 7 | 0 | .4500E+02 | .1942E+01 |
| 6 | 1 | 7 | 0 | .1125E+02 | .2174E+01 | 6 | 1 | 9 | 0 | .1125E+02 | .2405E+01 |
| 6 | 2 | 0 | 0 | .2447E+01 | .2405E+01 | 6 | 2 | 7 | 0 | .2447E+01 | .1942E+01 |
| 6 | 2 | 9 | 0 | .2447E+01 | .2405E+01 | 6 | 3 | 0 | 0 | .2447E+01 | .2174E+01 |
| 6 | 3 | 7 | 0 | .2447E+01 | .2405E+01 | 6 | 3 | 9 | 0 | .2447E+01 | .1942E+01 |
| 6 | 4 | 0 | 0 | .3375E+02 | .2174E+01 | 6 | 4 | 7 | 0 | .3375E+02 | .2405E+01 |
| 6 | 4 | 9 | 0 | .3375E+02 | .2405E+01 | 6 | 5 | 0 | 0 | .3375E+02 | .2174E+01 |
| 6 | 5 | 0 | 0 | .4500E+02 | .1942E+01 | 6 | 5 | 7 | 0 | .4500E+02 | .2405E+01 |
| 7 | 1 | 7 | 0 | .2517E+01 | .1942E+01 | 7 | 1 | 9 | 0 | .2517E+01 | .2405E+01 |
| 7 | 1 | 9 | 0 | .2517E+01 | .2405E+01 | 7 | 2 | 7 | 0 | .2517E+01 | .1942E+01 |
| 7 | 2 | 0 | 0 | .1125E+02 | .2174E+01 | 7 | 2 | 9 | 0 | .1125E+02 | .2405E+01 |
| 7 | 3 | 7 | 0 | .2517E+01 | .2405E+01 | 7 | 3 | 0 | 0 | .2517E+01 | .2174E+01 |
| 7 | 3 | 9 | 0 | .2517E+01 | .2405E+01 | 7 | 4 | 7 | 0 | .2517E+01 | .1942E+01 |
| 7 | 4 | 0 | 0 | .3375E+02 | .2174E+01 | 7 | 4 | 9 | 0 | .3375E+02 | .2405E+01 |
| 7 | 5 | 7 | 0 | .4500E+02 | .1942E+01 | 7 | 5 | 0 | 0 | .4500E+02 | .2174E+01 |
| 7 | 5 | 9 | 0 | .4500E+02 | .2405E+01 | 7 | 6 | 7 | 0 | .4500E+02 | .1942E+01 |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM 2  
FROM I J K 5 1 7 TO I J K 7 5 9

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | P | THETA     | Z         | I | J | K | P | THETA     | Z         |
|---|---|---|---|-----------|-----------|---|---|---|---|-----------|-----------|
| 5 | 1 | 7 | 0 | .2447E+01 | .1942E+01 | 5 | 1 | 0 | 0 | .2447E+01 | .2174E+01 |
| 5 | 1 | 9 | 0 | .2447E+01 | .2405E+01 | 5 | 2 | 7 | 0 | .2447E+01 | .1942E+01 |
| 5 | 2 | 0 | 0 | .4774E+01 | .2174E+01 | 5 | 2 | 9 | 0 | .4774E+01 | .2405E+01 |
| 5 | 3 | 7 | 0 | .2261E+01 | .1942E+01 | 5 | 3 | 0 | 0 | .2261E+01 | .2174E+01 |
| 5 | 3 | 9 | 0 | .9364E+00 | .2405E+01 | 5 | 4 | 7 | 0 | .9364E+00 | .1942E+01 |
| 5 | 4 | 0 | 0 | .1359E+01 | .2174E+01 | 5 | 4 | 9 | 0 | .1359E+01 | .2405E+01 |
| 5 | 5 | 7 | 0 | .1730E+01 | .1942E+01 | 5 | 5 | 0 | 0 | .1730E+01 | .2174E+01 |
| 5 | 5 | 9 | 0 | .1730E+01 | .2405E+01 | 5 | 6 | 7 | 0 | .1730E+01 | .1942E+01 |
| 6 | 1 | 7 | 0 | .4342E+01 | .2174E+01 | 6 | 1 | 9 | 0 | .4342E+01 | .2405E+01 |
| 6 | 2 | 0 | 0 | .2405E+01 | .1942E+01 | 6 | 2 | 7 | 0 | .2405E+01 | .2174E+01 |
| 6 | 2 | 9 | 0 | .2405E+01 | .2405E+01 | 6 | 3 | 0 | 0 | .2405E+01 | .1942E+01 |
| 6 | 3 | 7 | 0 | .2033E+01 | .1942E+01 | 6 | 3 | 9 | 0 | .2033E+01 | .2405E+01 |
| 6 | 4 | 0 | 0 | .1755E+01 | .2174E+01 | 6 | 4 | 7 | 0 | .1755E+01 | .1942E+01 |
| 6 | 4 | 9 | 0 | .1755E+01 | .2405E+01 | 6 | 5 | 0 | 0 | .1755E+01 | .2174E+01 |
| 6 | 5 | 7 | 0 | .2517E+01 | .1942E+01 | 6 | 5 | 9 | 0 | .2517E+01 | .2405E+01 |
| 6 | 5 | 9 | 0 | .2517E+01 | .2405E+01 | 6 | 6 | 7 | 0 | .2517E+01 | .1942E+01 |
| 7 | 1 | 7 | 0 | .4910E+00 | .2174E+01 | 7 | 1 | 9 | 0 | .4910E+00 | .2405E+01 |
| 7 | 2 | 0 | 0 | .4910E+00 | .1942E+01 | 7 | 2 | 7 | 0 | .4910E+00 | .2174E+01 |
| 7 | 3 | 7 | 0 | .9632E+00 | .2405E+01 | 7 | 3 | 9 | 0 | .9632E+00 | .1942E+01 |
| 7 | 3 | 9 | 0 | .9632E+00 | .1942E+01 | 7 | 4 | 7 | 0 | .9632E+00 | .2405E+01 |
| 7 | 4 | 0 | 0 | .1194E+01 | .2174E+01 | 7 | 4 | 9 | 0 | .1194E+01 | .1942E+01 |
| 7 | 4 | 9 | 0 | .1194E+01 | .2405E+01 | 7 | 5 | 0 | 0 | .1194E+01 | .2174E+01 |
| 7 | 5 | 7 | 0 | .2033E+01 | .1942E+01 | 7 | 5 | 9 | 0 | .2033E+01 | .2405E+01 |

MESH GENERATION BLOCK IN CYLINDRICAL COORDINATE SYSTEM 2  
FROM I J K 5 1 7 TO I J K 7 5 9

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 7 | 5 | 7 | .1780E+01 | .1780E+01 | .1942E+01 | 7 | 5 | 8 | .1780E+01 | .1780E+01 | .2174E+01 |
| 7 | 5 | 9 | .1780E+01 | .1780E+01 | .2485E+01 |   |   |   |           |           |           |

MESH GENERATION EMO IN CARTESIAN COORDINATE SYSTEM 1  
FROM I J K 1 1 1 TO I J K 13 13 21

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | X         | Y         | Z         | I | J | K | X         | Y         | Z         |
|---|---|---|-----------|-----------|-----------|---|---|---|-----------|-----------|-----------|
| 1 | 1 | 1 | .9480E+00 | 0.        | 0.        | 1 | 1 | 2 | .9480E+00 | 0.        | .4630E+00 |
| 1 | 1 | 3 | .9480E+00 | 0.        | .1203E+01 | 1 | 1 | 4 | .9480E+00 | 0.        | .853E+00  |
| 1 | 1 | 5 | .9480E+00 | 0.        | .1543E+01 | 1 | 1 | 6 | .9480E+00 | 0.        | .1551E+01 |
| 1 | 1 | 7 | .9480E+00 | 0.        | .1842E+01 | 1 | 1 | 8 | .9480E+00 | 0.        | .2174E+01 |
| 1 | 1 | 9 | .9480E+00 | 0.        | .2145E+01 | 1 | 2 | 1 | .9221E+00 | .1831E+00 | 0.        |
| 1 | 2 | 2 | .9221E+00 | .1331E+00 | .2315E+00 | 1 | 2 | 3 | .9210E+00 | .1031E+00 | .4630E+00 |
| 1 | 2 | 4 | .9221E+00 | .2134E+00 | .2497E+00 | 1 | 2 | 5 | .9402E+00 | .2835E+00 | .1203E+01 |
| 1 | 2 | 6 | .9221E+00 | .2781E+00 | .2556E+00 | 1 | 2 | 7 | .1888E+00 | .3844E+00 | .1942E+01 |
| 1 | 2 | 8 | .1888E+00 | .3044E+00 | .2174E+01 | 1 | 2 | 9 | .1888E+00 | .3844E+00 | .2485E+01 |
| 1 | 3 | 1 | .8683E+00 | .3595E+00 | 0.        | 1 | 3 | 2 | .8683E+00 | .3595E+00 | .4630E+00 |
| 1 | 3 | 3 | .8677E+00 | .3595E+00 | .4630E+00 | 1 | 3 | 4 | .9947E+00 | .9947E+00 | .4630E+00 |
| 1 | 3 | 5 | .1162E+01 | .3446E+00 | .1203E+01 | 1 | 3 | 6 | .1329E+01 | .3520E+00 | .8435E+00 |
| 1 | 3 | 7 | .1456E+01 | .3297E+00 | .1942E+01 | 1 | 3 | 8 | .1456E+01 | .3571E+00 | .1551E+01 |
| 1 | 3 | 9 | .1456E+01 | .3297E+00 | .2495E+01 | 1 | 4 | 1 | .7816E+00 | .5224E+00 | 0.        |
| 1 | 4 | 2 | .7816E+00 | .5224E+00 | .2315E+00 | 1 | 4 | 3 | .7816E+00 | .5224E+00 | .4630E+00 |
| 1 | 4 | 4 | .8277E+00 | .4889E+00 | .8381E+00 | 1 | 4 | 5 | .8937E+00 | .4394E+00 | .1203E+01 |
| 1 | 4 | 6 | .9596E+00 | .3979E+00 | .1567E+01 | 1 | 4 | 7 | .1005E+01 | .3564E+00 | .1942E+01 |
| 1 | 4 | 8 | .1005E+01 | .3564E+00 | .2174E+01 | 1 | 4 | 9 | .1005E+01 | .3564E+00 | .2485E+01 |
| 1 | 5 | 1 | .6650E+00 | .6650E+00 | 0.        | 1 | 5 | 2 | .6650E+00 | .6650E+00 | .4630E+00 |
| 1 | 5 | 3 | .6650E+00 | .6650E+00 | .4630E+00 | 1 | 5 | 4 | .6650E+00 | .6650E+00 | .8435E+00 |
| 1 | 5 | 5 | .6650E+00 | .6650E+00 | .8435E+00 | 1 | 5 | 6 | .6650E+00 | .6650E+00 | .1572E+01 |
| 1 | 5 | 7 | .6650E+00 | .6650E+00 | .2174E+01 | 1 | 5 | 8 | .6650E+00 | .6650E+00 | .2174E+01 |
| 1 | 5 | 9 | .6650E+00 | .6650E+00 | 0.        | 2 | 1 | 1 | .1317E+01 | 0.        | .4630E+00 |
| 2 | 1 | 2 | .1317E+01 | 0.        | .2315E+00 | 2 | 1 | 3 | .1317E+01 | 0.        | .8435E+00 |
| 2 | 1 | 4 | .1313E+01 | 0.        | .8435E+00 | 2 | 1 | 5 | .1769E+01 | 0.        | .1942E+01 |
| 2 | 1 | 6 | .2825E+01 | 0.        | .1556E+01 | 2 | 1 | 7 | .2221E+01 | 0.        | .1942E+01 |
| 2 | 1 | 8 | .2221E+01 | 0.        | .2174E+01 | 2 | 1 | 9 | .2221E+01 | 0.        | .2485E+01 |
| 2 | 2 | 1 | .1305E+01 | .2595E+00 | 0.        | 2 | 2 | 2 | .1293E+01 | .2565E+00 | .2315E+00 |
| 2 | 2 | 3 | .1305E+01 | .2595E+00 | .4630E+00 | 2 | 2 | 4 | .1457E+01 | .2812E+00 | .8435E+00 |
| 2 | 2 | 5 | .1456E+01 | .3029E+00 | .1203E+01 | 2 | 2 | 6 | .1856E+01 | .3248E+00 | .1567E+01 |
| 2 | 2 | 7 | .2225E+01 | .3595E+00 | .1942E+01 | 2 | 2 | 8 | .2120E+01 | .3469E+00 | .2174E+01 |
| 2 | 2 | 9 | .2113E+01 | .3469E+00 | .2407E+01 | 2 | 3 | 1 | .1234E+01 | .5113E+00 | 0.        |
| 2 | 3 | 2 | .1609E+01 | .5385E+00 | .2315E+00 | 2 | 3 | 3 | .1234E+01 | .5110E+00 | .4630E+00 |
| 2 | 3 | 4 | .1318E+01 | .5084E+00 | .8435E+00 | 2 | 3 | 5 | .1434E+01 | .4891E+00 | .1203E+01 |
| 2 | 3 | 6 | .1552E+01 | .4769E+00 | .1564E+01 | 2 | 3 | 7 | .1675E+01 | .4887E+00 | .1942E+01 |
| 2 | 3 | 8 | .1660E+01 | .4776E+00 | .2174E+01 | 2 | 3 | 9 | .1644E+01 | .4648E+00 | .2485E+01 |
| 2 | 4 | 1 | .1107E+01 | .7398E+00 | 0.        | 2 | 4 | 2 | .1074E+01 | .7172E+00 | .2315E+00 |
| 2 | 4 | 3 | .1108E+01 | .7398E+00 | .4630E+00 | 2 | 4 | 4 | .1127E+01 | .6975E+00 | .8435E+00 |
| 2 | 4 | 5 | .1160E+01 | .6528E+00 | .1203E+01 | 2 | 4 | 6 | .1194E+01 | .6052E+00 | .1564E+01 |
| 2 | 4 | 7 | .1271E+01 | .6153E+00 | .1942E+01 | 2 | 4 | 8 | .1247E+01 | .5883E+00 | .2174E+01 |
| 2 | 4 | 9 | .1211E+01 | .5540E+00 | .2405E+01 | 2 | 5 | 1 | .9312E+00 | .9312E+00 | 0.        |
| 2 | 5 | 2 | .8943E+00 | .8943E+00 | .2315E+00 | 2 | 5 | 3 | .9312E+00 | .9312E+00 | .4630E+00 |



MESH GENERATION END IN CARTESIAN COORDINATE SYSTEM 1  
FROM I J K L I I TO I J K L I I

GLOBAL CARTESIAN COORDINATES OF POINTS GENERATED

| I | J | K | L | X         | Y         | Z         | I | J | K | L | X         | Y         | Z         |
|---|---|---|---|-----------|-----------|-----------|---|---|---|---|-----------|-----------|-----------|
| 2 | 5 | 4 | 0 | .9137E+00 | .0137E+00 | .8327E+00 | 2 | 5 | 4 | 0 | .8943E+00 | .0943E+00 | .8043E+00 |
| 2 | 5 | 6 | 0 | .8923E+00 | .8723E+00 | .1572E+01 | 2 | 5 | 6 | 0 | .9312E+00 | .912E+00  | .1942E+01 |
| 2 | 5 | 8 | 0 | .8943E+00 | .8943E+00 | .2174E+01 | 2 | 5 | 9 | 0 | .8471E+00 | .8471E+00 | .2405E+01 |
| 3 | 1 | 1 | 0 | .1694E+01 | 0.        | 0.        | 3 | 1 | 2 | 0 | .1694E+01 | 0.        | 0.        |
| 3 | 1 | 3 | 0 | .1694E+01 | 0.        | .6630E+00 | 3 | 1 | 4 | 0 | .1824E+01 | 0.        | .8439E+00 |
| 3 | 1 | 9 | 0 | .1939E+01 | 0.        | .1203E+01 | 3 | 1 | 6 | 0 | .2189E+01 | 0.        | .1501E+01 |
| 3 | 1 | 7 | 0 | .2296E+01 | 0.        | .1942E+01 | 3 | 1 | 8 | 0 | .2296E+01 | 0.        | .2174E+01 |
| 3 | 1 | 9 | 0 | .2296E+01 | 0.        | .2405E+01 | 3 | 2 | 1 | 0 | .1690E+01 | .3362E+00 | .3362E+00 |
| 3 | 2 | 2 | 0 | .1671E+01 | .3323E+00 | .2315E+00 | 3 | 2 | 3 | 0 | .1689E+01 | .3360E+00 | .6309E+00 |
| 3 | 2 | 4 | 0 | .1787E+01 | .5496E+00 | .8408E+00 | 3 | 2 | 5 | 0 | .1916E+01 | .3634E+00 | .1208E+01 |
| 3 | 2 | 4 | 0 | .2049E+01 | .3773E+00 | .1564E+01 | 3 | 2 | 7 | 0 | .2169E+01 | .3966E+00 | .1942E+01 |
| 3 | 2 | 5 | 0 | .2162E+01 | .3988E+00 | .2174E+01 | 3 | 2 | 9 | 0 | .2153E+01 | .3914E+00 | .2407E+01 |
| 3 | 3 | 1 | 0 | .1680E+01 | .6626E+00 | 0.        | 3 | 3 | 2 | 0 | .1565E+01 | .6641E+00 | .2315E+00 |
| 3 | 3 | 3 | 0 | .1680E+01 | .6626E+00 | .6630E+00 | 3 | 3 | 4 | 0 | .1640E+01 | .6920E+00 | .8302E+00 |
| 3 | 3 | 5 | 0 | .1719E+01 | .6483E+00 | .1203E+01 | 3 | 3 | 6 | 0 | .1791E+01 | .6270E+00 | .1564E+01 |
| 3 | 3 | 7 | 0 | .1894E+01 | .6477E+00 | .1942E+01 | 3 | 3 | 8 | 0 | .1873E+01 | .6329E+00 | .2174E+01 |
| 3 | 3 | 9 | 0 | .1844E+01 | .6116E+00 | .2405E+01 | 3 | 4 | 1 | 0 | .1473E+01 | .9573E+00 | 0.        |
| 3 | 4 | 2 | 0 | .1387E+01 | .9201E+00 | .2315E+00 | 3 | 4 | 3 | 0 | .1433E+01 | .9573E+00 | .6309E+00 |
| 3 | 4 | 4 | 0 | .1435E+01 | .9213E+00 | .8395E+00 | 3 | 4 | 5 | 0 | .1447E+01 | .8816E+00 | .1203E+01 |
| 3 | 4 | 6 | 0 | .1437E+01 | .8371E+00 | .1569E+01 | 3 | 4 | 7 | 0 | .1545E+01 | .8743E+00 | .1942E+01 |
| 3 | 4 | 8 | 0 | .1507E+01 | .8372E+00 | .2405E+01 | 3 | 4 | 9 | 0 | .1453E+01 | .7861E+00 | .2405E+01 |
| 3 | 5 | 1 | 0 | .1196E+01 | .1196E+01 | 0.        | 3 | 5 | 2 | 0 | .1147E+01 | .1147E+01 | .2315E+00 |
| 3 | 5 | 3 | 0 | .1196E+01 | .1196E+01 | .2174E+01 | 3 | 5 | 4 | 0 | .1174E+01 | .1174E+01 | .8327E+00 |
| 3 | 5 | 5 | 0 | .1196E+01 | .1187E+01 | .8630E+00 | 3 | 5 | 6 | 0 | .1115E+01 | .1115E+01 | .1572E+01 |
| 3 | 5 | 7 | 0 | .1196E+01 | .1187E+01 | .1203E+01 | 3 | 5 | 8 | 0 | .1147E+01 | .1147E+01 | .2174E+01 |
| 3 | 5 | 9 | 0 | .1877E+01 | .1077E+01 | .1942E+01 | 4 | 1 | 1 | 0 | .2070E+01 | 0.        | .6630E+00 |
| 4 | 1 | 2 | 0 | .2870E+01 | 0.        | .2315E+00 | 4 | 1 | 3 | 0 | .2221E+01 | 0.        | .1203E+01 |
| 4 | 1 | 4 | 0 | .2366E+01 | 0.        | .831E+00  | 4 | 1 | 5 | 0 | .2221E+01 | 0.        | .1942E+01 |
| 4 | 1 | 6 | 0 | .2366E+01 | 0.        | .1572E+01 | 4 | 1 | 7 | 0 | .2372E+01 | 0.        | .2405E+01 |
| 4 | 2 | 1 | 0 | .2074E+01 | 0.        | .2174E+01 | 4 | 2 | 2 | 0 | .2372E+01 | 0.        | .2405E+01 |
| 4 | 2 | 3 | 0 | .2073E+01 | .6124E+00 | .8630E+00 | 4 | 2 | 4 | 0 | .2059E+01 | .4096E+00 | .4096E+00 |
| 4 | 2 | 5 | 0 | .2103E+01 | .6233E+00 | .1203E+01 | 4 | 2 | 6 | 0 | .2128E+01 | .4188E+00 | .4188E+00 |
| 4 | 2 | 7 | 0 | .2313E+01 | .6427E+00 | .1942E+01 | 4 | 2 | 8 | 0 | .2249E+01 | .4310E+00 | .4310E+00 |
| 4 | 2 | 9 | 0 | .2300E+01 | .6385E+00 | .2405E+01 | 4 | 2 | 0 | 0 | .2388E+01 | .4410E+00 | .4410E+00 |
| 4 | 3 | 2 | 0 | .1939E+01 | .8029E+00 | .2405E+01 | 4 | 3 | 3 | 0 | .1966E+01 | .8161E+00 | 0.        |
| 4 | 3 | 4 | 0 | .1566E+01 | .8713E+00 | .3355E+00 | 4 | 3 | 5 | 0 | .1988E+01 | .8181E+00 | .6309E+00 |
| 4 | 3 | 6 | 0 | .2897E+01 | .7949E+00 | .1569E+01 | 4 | 3 | 7 | 0 | .2018E+01 | .7949E+00 | .1203E+01 |
| 4 | 3 | 8 | 0 | .1759E+01 | .1175E+01 | .2174E+01 | 4 | 3 | 9 | 0 | .2113E+01 | .8887E+00 | .1942E+01 |
| 4 | 4 | 1 | 0 | .1854E+01 | .1189E+01 | .8630E+00 | 4 | 4 | 2 | 0 | .2073E+01 | .7774E+00 | .2405E+01 |
| 4 | 4 | 3 | 0 | .1815E+01 | .1133E+01 | .1942E+01 | 4 | 4 | 4 | 0 | .1723E+01 | .1151E+01 | .2315E+00 |
| 4 | 4 | 5 | 0 | .1741E+01 | .1062E+01 | .2405E+01 | 4 | 4 | 6 | 0 | .1755E+01 | .1153E+01 | .6329E+00 |
| 4 | 4 | 7 | 0 | .1424E+01 | .1424E+01 | .2315E+00 | 4 | 4 | 8 | 0 | .1795E+01 | .1184E+01 | .2174E+01 |
| 4 | 4 | 9 | 0 | .1446E+01 | .1446E+01 | .3372E+00 | 4 | 4 | 0 | 0 | .1806E+01 | .1194E+01 | 0.        |
| 4 | 5 | 2 | 0 | .1398E+01 | .1398E+01 | .1572E+01 | 4 | 5 | 3 | 0 | .1464E+01 | .1464E+01 | .6630E+00 |
| 4 | 5 | 4 | 0 | .1446E+01 | .1465E+01 | .8395E+00 | 4 | 5 | 5 | 0 | .1424E+01 | .1424E+01 | .1203E+01 |
| 4 | 5 | 6 | 0 | .1446E+01 | .1398E+01 | .1572E+01 | 4 | 5 | 7 | 0 | .1464E+01 | .1464E+01 | .1942E+01 |
| 4 | 5 | 8 | 0 | .1424E+01 | .1424E+01 | .2174E+01 | 4 | 5 | 9 | 0 | .1308E+01 | .1308E+01 | .2405E+01 |
| 5 | 1 | 1 | 0 | .2447E+01 | 0.        | .6630E+00 | 5 | 1 | 2 | 0 | .2447E+01 | 0.        | .2315E+00 |
| 5 | 1 | 3 | 0 | .2447E+01 | 0.        | .1203E+01 | 5 | 1 | 4 | 0 | .2447E+01 | 0.        | .8329E+00 |
| 5 | 1 | 5 | 0 | .2447E+01 | 0.        | .1203E+01 | 5 | 1 | 6 | 0 | .2447E+01 | 0.        | .1572E+01 |



MESH GENERATION END IN CARTESIAN COORDINATE SYSTEM 1  
 FROM I J K L I I Y U I J K I J I J Z I

| GLOBAL CARTESIAN |   | COORDINATES OF POINTS GENERATED |   | GLOBAL CARTESIAN |          | COORDINATES OF POINTS GENERATED |    |
|------------------|---|---------------------------------|---|------------------|----------|---------------------------------|----|
| I                | J | K                               | L | I                | J        | K                               | L  |
| 7                | 1 | 1                               | 1 | 9632E+00         | 0.       | 0.                              | 0. |
| 7                | 1 | 2                               | 2 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 1 | 3                               | 3 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 1 | 4                               | 4 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 1 | 5                               | 5 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 1 | 6                               | 6 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 1 | 7                               | 7 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 1 | 8                               | 8 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 1 | 9                               | 9 | 2325E+01         | 9632E+00 | 0.                              | 0. |
| 7                | 2 | 1                               | 1 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 2                               | 2 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 3                               | 3 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 4                               | 4 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 5                               | 5 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 6                               | 6 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 7                               | 7 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 8                               | 8 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 2 | 9                               | 9 | 2093E+01         | 1390E+01 | 1390E+01                        | 0. |
| 7                | 3 | 1                               | 1 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 2                               | 2 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 3                               | 3 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 4                               | 4 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 5                               | 5 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 6                               | 6 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 7                               | 7 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 8                               | 8 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 3 | 9                               | 9 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 1                               | 1 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 2                               | 2 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 3                               | 3 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 4                               | 4 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 5                               | 5 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 6                               | 6 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 7                               | 7 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 8                               | 8 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 4 | 9                               | 9 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 1                               | 1 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 2                               | 2 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 3                               | 3 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 4                               | 4 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 5                               | 5 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 6                               | 6 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 7                               | 7 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 8                               | 8 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |
| 7                | 5 | 9                               | 9 | 1700E+01         | 1700E+01 | 1700E+01                        | 0. |

DATA FOR 24 ELEMENTS HAVE BEEN READ

| ELEMENT NO. | TYPE  | LOCAL POINT COORDINATES |         |         |         | GLOBAL POINT COORDINATES |         |         |         |
|-------------|-------|-------------------------|---------|---------|---------|--------------------------|---------|---------|---------|
|             |       | 1                       | 2       | 3       | 4       | 1                        | 2       | 3       | 4       |
| 1           | BRICK | 1000000                 | 1000000 | 1000000 | 1000000 | 1000000                  | 1000000 | 1000000 | 1000000 |
| 2           | BRICK | 1000000                 | 1000000 | 1000000 | 1000000 | 1000000                  | 1000000 | 1000000 | 1000000 |
| 3           | BRICK | 1000000                 | 1000000 | 1000000 | 1000000 | 1000000                  | 1000000 | 1000000 | 1000000 |
| 4           | BRICK | 1000000                 | 1000000 | 1000000 | 1000000 | 1000000                  | 1000000 | 1000000 | 1000000 |
| 5           | BRICK | 1000000                 | 1000000 | 1000000 | 1000000 | 1000000                  | 1000000 | 1000000 | 1000000 |

| ELEMENT NO. | TYPE  | NODES          |          |          | MODAL POINT COORDINATES |          |          | MODAL POINT COORDINATES |          |          |          |
|-------------|-------|----------------|----------|----------|-------------------------|----------|----------|-------------------------|----------|----------|----------|
|             |       | I              | J        | K        | X                       | Y        | Z        | X                       | Y        | Z        |          |
| 8           | BRICK | MATERIAL NO. 1 | 1        | 1        | 1                       | .958E+00 | .303E+00 | .603E+00                | .931E+00 | .781E+00 | .833E+00 |
|             |       |                | 3        | 3        | 3                       | .158E+01 | .643E+00 | .643E+00                | .602E+00 | .522E+00 | .63E+00  |
|             |       |                | 3        | 3        | 3                       | .128E+01 | .128E+01 | .643E+00                | .995E+00 | .152E+00 | .844E+00 |
|             |       |                | 1        | 5        | 3                       | .655E+00 | .643E+00 | .643E+00                | .165E+01 | .652E+00 | .838E+00 |
|             |       |                | 1        | 7        | 5                       | .118E+01 | .385E+00 | .128E+01                | .117E+01 | .137E+01 | .833E+00 |
|             |       |                | 3        | 5        | 3                       | .172E+01 | .643E+00 | .128E+01                | .665E+00 | .665E+00 | .833E+00 |
|             |       |                | 3        | 5        | 5                       | .119E+01 | .119E+01 | .128E+01                | .488E+01 | .689E+00 | .128E+01 |
|             |       |                | 3        | 5        | 5                       | .665E+00 | .665E+00 | .128E+01                | .451E+01 | .802E+00 | .128E+01 |
|             |       |                | 2        | 3        | 3                       | .123E+01 | .511E+00 | .643E+00                | .894E+00 | .804E+00 | .128E+01 |
|             |       |                | 3        | 4        | 3                       | .143E+01 | .957E+00 | .643E+00                | .899E+00 | .643E+00 | .128E+01 |
|             |       |                | 3        | 1        | 3                       | .169E+01 | .        | .643E+00                | .169E+01 | .886E+00 | .643E+00 |
|             |       |                | 5        | 3        | 3                       | .249E+01 | .        | .643E+00                | .249E+01 | .395E+00 | .643E+00 |
|             |       |                | 5        | 3        | 3                       | .226E+01 | .935E+00 | .643E+00                | .182E+01 | .802E+01 | .844E+00 |
|             |       |                | 3        | 3        | 3                       | .168E+01 | .643E+00 | .643E+00                | .245E+01 | .833E+00 | .        |
|             |       |                | 3        | 1        | 5                       | .199E+01 | .        | .128E+01                | .286E+01 | .936E+00 | .833E+00 |
|             |       |                | 9        | 1        | 5                       | .253E+01 | .        | .128E+01                | .183E+01 | .652E+00 | .833E+00 |
|             |       |                | 5        | 3        | 5                       | .226E+01 | .935E+00 | .128E+01                | .222E+01 | .477E+00 | .128E+01 |
|             |       |                | 3        | 3        | 5                       | .172E+01 | .643E+00 | .128E+01                | .248E+01 | .798E+00 | .128E+01 |
| 4           | 1     | 3              | .207E+01 | .        | .643E+00                | .288E+01 | .798E+00 | .128E+01                |          |          |          |
| 5           | 2     | 3              | .246E+01 | .477E+00 | .643E+00                | .192E+01 | .363E+00 | .128E+01                |          |          |          |
| 9           | BRICK | MATERIAL NO. 1 | 3        | 3        | 3                       | .188E+01 | .883E+00 | .483E+00                | .148E+01 | .148E+01 | .833E+00 |
|             |       |                | 5        | 3        | 3                       | .226E+01 | .935E+00 | .643E+00                | .148E+01 | .957E+00 | .63E+00  |
|             |       |                | 5        | 3        | 3                       | .173E+01 | .173E+01 | .643E+00                | .185E+01 | .652E+00 | .838E+00 |
|             |       |                | 3        | 5        | 3                       | .128E+01 | .128E+01 | .643E+00                | .226E+01 | .866E+00 | .833E+00 |
|             |       |                | 3        | 5        | 3                       | .172E+01 | .643E+00 | .128E+01                | .178E+01 | .173E+01 | .833E+00 |
|             |       |                | 5        | 3        | 5                       | .226E+01 | .935E+00 | .128E+01                | .117E+01 | .117E+01 | .833E+00 |
|             |       |                | 5        | 3        | 5                       | .173E+01 | .173E+01 | .128E+01                | .208E+01 | .788E+00 | .128E+01 |
|             |       |                | 3        | 5        | 5                       | .115E+01 | .115E+01 | .128E+01                | .243E+01 | .186E+01 | .128E+01 |
|             |       |                | 4        | 3        | 3                       | .195E+01 | .883E+00 | .643E+00                | .162E+01 | .162E+01 | .128E+01 |
|             |       |                | 5        | 4        | 3                       | .203E+01 | .135E+01 | .643E+00                | .165E+01 | .802E+00 | .128E+01 |
|             |       |                | 1        | 1        | 5                       | .154E+01 | .        | .128E+01                | .148E+01 | .643E+00 | .128E+01 |
|             |       |                | 1        | 5        | 5                       | .199E+01 | .        | .128E+01                | .199E+01 | .248E+00 | .128E+01 |
|             |       |                | 3        | 3        | 5                       | .172E+01 | .643E+00 | .128E+01                | .198E+01 | .156E+01 | .        |
|             |       |                | 1        | 3        | 5                       | .116E+01 | .345E+00 | .128E+01                | .217E+01 | .        | .156E+01 |
|             |       |                | 1        | 1        | 7                       | .218E+01 | .        | .194E+01                | .170E+01 | .427E+00 | .157E+01 |
|             |       |                | 3        | 3        | 7                       | .195E+01 | .643E+00 | .194E+01                | .133E+01 | .387E+00 | .156E+01 |
|             |       |                | 3        | 3        | 7                       | .189E+01 | .643E+00 | .194E+01                | .222E+01 | .        | .194E+01 |
|             |       |                | 2        | 1        | 5                       | .189E+01 | .398E+00 | .194E+01                | .217E+01 | .398E+00 | .194E+01 |
| 2           | 1     | 5              | .177E+01 | .        | .128E+01                | .167E+01 | .643E+00 | .194E+01                |          |          |          |
| 3           | 2     | 5              | .192E+01 | .363E+00 | .128E+01                | .198E+01 | .363E+00 | .194E+01                |          |          |          |
| 10          | BRICK | MATERIAL NO. 1 | 1        | 3        | 5                       | .115E+01 | .345E+00 | .128E+01                | .194E+00 | .894E+00 | .128E+01 |
|             |       |                | 1        | 3        | 5                       | .172E+01 | .643E+00 | .128E+01                | .809E+00 | .643E+00 | .128E+01 |
|             |       |                | 9        | 5        | 5                       | .119E+01 | .119E+01 | .128E+01                | .179E+01 | .397E+00 | .194E+01 |
|             |       |                | 1        | 5        | 5                       | .665E+00 | .665E+00 | .128E+01                | .113E+01 | .655E+00 | .157E+01 |
|             |       |                | 1        | 3        | 7                       | .146E+01 | .338E+00 | .194E+01                | .113E+01 | .113E+01 | .157E+01 |
|             |       |                | 1        | 3        | 7                       | .146E+01 | .643E+00 | .194E+01                | .655E+00 | .655E+00 | .157E+01 |
|             |       |                | 3        | 5        | 7                       | .128E+01 | .128E+01 | .194E+01                | .167E+01 | .809E+00 | .194E+01 |
|             |       |                | 3        | 5        | 7                       | .665E+00 | .665E+00 | .194E+01                | .154E+01 | .888E+00 | .194E+01 |
|             |       |                | 1        | 3        | 5                       | .143E+01 | .985E+00 | .128E+01                | .893E+00 | .893E+00 | .194E+01 |
|             |       |                | 3        | 4        | 5                       | .145E+01 | .882E+00 | .128E+01                | .143E+01 | .358E+00 | .194E+01 |

| ELEMENT NO. | TYPE  | MODAL POINT COORDINATES |    |       | MODAL POINT COORDINATES |          |          |          |          |          |          |          |          |          |
|-------------|-------|-------------------------|----|-------|-------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|             |       | X                       | Y  | Z     | X                       | Y        | Z        |          |          |          |          |          |          |          |
| 11          | BRICK | MATERIAL NO. 1          | 1  | 1     | 5                       | .199E+01 | .120E+01 | .120E+01 | 1        | 1        | 5        | .270E+01 | .798E+00 | .120E+01 |
|             |       |                         | 5  | 1     | 5                       | .245E+01 | .120E+01 | .120E+01 | 4        | 3        | 5        | .142E+01 | .142E+01 | .120E+01 |
|             |       |                         | 5  | 3     | 5                       | .226E+01 | .935E+00 | .120E+01 | 3        | 4        | 5        | .145E+01 | .802E+00 | .120E+01 |
|             |       |                         | 3  | 3     | 5                       | .172E+01 | .643E+00 | .120E+01 | 5        | 1        | 6        | .217E+01 | .0       | .157E+01 |
|             |       |                         | 3  | 1     | 7                       | .239E+01 | .0       | .194E+01 | 5        | 1        | 6        | .245E+01 | .0       | .157E+01 |
|             |       |                         | 5  | 1     | 7                       | .245E+01 | .0       | .194E+01 | 3        | 3        | 6        | .226E+01 | .986E+00 | .157E+01 |
|             |       |                         | 5  | 3     | 7                       | .226E+01 | .935E+00 | .194E+01 | 3        | 3        | 6        | .172E+01 | .172E+01 | .157E+01 |
|             |       |                         | 3  | 3     | 7                       | .189E+01 | .643E+00 | .194E+01 | 4        | 1        | 7        | .239E+01 | .0       | .194E+01 |
|             |       |                         | 3  | 3     | 7                       | .222E+01 | .0       | .120E+01 | 5        | 2        | 7        | .246E+01 | .477E+00 | .194E+01 |
|             |       |                         | 4  | 1     | 5                       | .222E+01 | .0       | .120E+01 | 4        | 3        | 7        | .209E+01 | .789E+00 | .194E+01 |
|             |       |                         | 5  | 2     | 5                       | .246E+01 | .477E+00 | .120E+01 | 3        | 2        | 7        | .217E+01 | .398E+00 | .194E+01 |
| 12          | BRICK | MATERIAL NO. 1          | 3  | 3     | 5                       | .172E+01 | .643E+00 | .120E+01 | 4        | 5        | 5        | .142E+01 | .142E+01 | .120E+01 |
|             |       |                         | 5  | 3     | 5                       | .226E+01 | .935E+00 | .120E+01 | 3        | 4        | 5        | .145E+01 | .802E+00 | .120E+01 |
|             |       |                         | 5  | 5     | 5                       | .172E+01 | .172E+01 | .120E+01 | 3        | 3        | 6        | .179E+01 | .627E+00 | .157E+01 |
|             |       |                         | 3  | 3     | 5                       | .145E+01 | .145E+01 | .120E+01 | 5        | 3        | 6        | .226E+01 | .986E+00 | .157E+01 |
|             |       |                         | 3  | 3     | 7                       | .189E+01 | .643E+00 | .194E+01 | 5        | 5        | 6        | .172E+01 | .172E+01 | .157E+01 |
|             |       |                         | 5  | 3     | 7                       | .226E+01 | .935E+00 | .194E+01 | 3        | 5        | 6        | .112E+01 | .112E+01 | .197E+01 |
|             |       |                         | 5  | 3     | 7                       | .172E+01 | .172E+01 | .194E+01 | 4        | 3        | 7        | .209E+01 | .789E+00 | .194E+01 |
|             |       |                         | 3  | 3     | 7                       | .120E+01 | .120E+01 | .194E+01 | 5        | 4        | 7        | .209E+01 | .789E+00 | .194E+01 |
|             |       |                         | 3  | 5     | 7                       | .200E+01 | .798E+00 | .120E+01 | 4        | 5        | 7        | .146E+01 | .146E+01 | .194E+01 |
|             |       |                         | 4  | 3     | 5                       | .200E+01 | .798E+00 | .120E+01 | 4        | 5        | 7        | .146E+01 | .146E+01 | .194E+01 |
|             |       |                         | 5  | 4     | 5                       | .200E+01 | .135E+01 | .120E+01 | 3        | 4        | 7        | .146E+01 | .888E+00 | .194E+01 |
| 13          | BRICK | MATERIAL NO. 1          | 1  | 1     | 7                       | .219E+01 | .0       | .194E+01 | 2        | 3        | 7        | .147E+01 | .892E+00 | .194E+01 |
|             |       |                         | 3  | 1     | 7                       | .219E+01 | .0       | .194E+01 | 1        | 2        | 7        | .108E+01 | .304E+00 | .194E+01 |
|             |       |                         | 3  | 3     | 7                       | .189E+01 | .643E+00 | .194E+01 | 1        | 1        | 8        | .215E+01 | .0       | .217E+01 |
|             |       |                         | 1  | 3     | 7                       | .146E+01 | .330E+00 | .194E+01 | 2        | 3E+01    | 0.       | .230E+01 | .0       | .217E+01 |
|             |       |                         | 1  | 1     | 9                       | .230E+01 | .0       | .241E+01 | 3        | 3        | 8        | .187E+01 | .682E+00 | .217E+01 |
|             |       |                         | 3  | 1     | 9                       | .230E+01 | .0       | .241E+01 | 1        | 3        | 8        | .146E+01 | .380E+00 | .217E+01 |
|             |       |                         | 3  | 3     | 9                       | .189E+01 | .643E+00 | .241E+01 | 2        | 1        | 9        | .209E+01 | .789E+00 | .241E+01 |
|             |       |                         | 1  | 3     | 9                       | .146E+01 | .330E+00 | .241E+01 | 3        | 2        | 9        | .215E+01 | .0       | .241E+01 |
|             |       |                         | 2  | 1     | 7                       | .222E+01 | .0       | .194E+01 | 2        | 3        | 9        | .146E+01 | .644E+00 | .241E+01 |
|             |       |                         | 3  | 2     | 7                       | .217E+01 | .390E+00 | .194E+01 | 1        | 2        | 9        | .108E+01 | .304E+00 | .241E+01 |
|             |       |                         | 14 | BRICK | MATERIAL NO. 1          | 1        | 3        | 7        | .146E+01 | .330E+00 | .194E+01 | 2        | 5        | 7        |
| 3           | 3     | 7                       |    |       |                         | .189E+01 | .643E+00 | .194E+01 | 1        | 4        | 7        | .101E+01 | .392E+00 | .194E+01 |
| 3           | 5     | 7                       |    |       |                         | .120E+01 | .120E+01 | .194E+01 | 1        | 3        | 8        | .146E+01 | .380E+00 | .217E+01 |
| 1           | 5     | 7                       |    |       |                         | .665E+00 | .665E+00 | .194E+01 | 3        | 3        | 8        | .107E+01 | .682E+00 | .217E+01 |
| 1           | 3     | 9                       |    |       |                         | .146E+01 | .330E+00 | .241E+01 | 3        | 5        | 8        | .135E+01 | .135E+01 | .217E+01 |
| 3           | 3     | 9                       |    |       |                         | .189E+01 | .643E+00 | .241E+01 | 1        | 5        | 8        | .645E+00 | .665E+00 | .217E+01 |
| 3           | 5     | 9                       |    |       |                         | .108E+01 | .108E+01 | .241E+01 | 2        | 3        | 9        | .164E+01 | .645E+00 | .241E+01 |
| 4           | 3     | 9                       |    |       |                         | .665E+00 | .665E+00 | .241E+01 | 3        | 4        | 9        | .146E+01 | .789E+00 | .241E+01 |
| 2           | 3     | 7                       |    |       |                         | .187E+01 | .892E+00 | .194E+01 | 2        | 5        | 9        | .665E+00 | .665E+00 | .241E+01 |
| 3           | 4     | 7                       |    |       |                         | .154E+01 | .888E+00 | .194E+01 | 1        | 4        | 9        | .101E+01 | .392E+00 | .241E+01 |
| 15          | BRICK | MATERIAL NO. 1          |    |       |                         | 3        | 1        | 7        | .239E+01 | .0       | .194E+01 | 4        | 3        | 7        |
|             |       |                         | 5  | 1     | 7                       | .245E+01 | .0       | .194E+01 | 3        | 2        | 7        | .217E+01 | .398E+00 | .194E+01 |
|             |       |                         | 3  | 3     | 7                       | .226E+01 | .935E+00 | .194E+01 | 3        | 1        | 8        | .245E+01 | .0       | .217E+01 |
|             |       |                         | 3  | 1     | 9                       | .239E+01 | .0       | .194E+01 | 5        | 1        | 8        | .245E+01 | .0       | .217E+01 |
|             |       |                         | 5  | 1     | 9                       | .239E+01 | .0       | .194E+01 | 5        | 1        | 8        | .245E+01 | .0       | .217E+01 |
|             |       |                         | 5  | 3     | 9                       | .226E+01 | .935E+00 | .241E+01 | 3        | 3        | 9        | .239E+01 | .0       | .241E+01 |
|             |       |                         | 3  | 3     | 9                       | .189E+01 | .643E+00 | .241E+01 | 5        | 2        | 9        | .245E+01 | .0       | .241E+01 |
|             |       |                         | 4  | 1     | 7                       | .232E+01 | .0       | .194E+01 | 4        | 3        | 9        | .209E+01 | .789E+00 | .241E+01 |
|             |       |                         | 5  | 2     | 7                       | .245E+01 | .477E+00 | .194E+01 | 3        | 2        | 9        | .215E+01 | .0       | .241E+01 |

ELEMENT NO. TYPE I J K MODAL POINT COORDINATES X Y Z MODAL POINT COORDINATES X Y Z

| ELEMENT NO. | TYPE  | I              | J  | K     | MODAL POINT COORDINATES X | Y        | Z        | MODAL POINT COORDINATES X | Y        | Z        |          |          |          |          |
|-------------|-------|----------------|----|-------|---------------------------|----------|----------|---------------------------|----------|----------|----------|----------|----------|----------|
| 16          | BRICK | MATERIAL NO. 2 | 5  | 3     | 7                         | .188E+01 | .888E+00 | .188E+01                  | .188E+01 | .888E+00 | .188E+01 |          |          |          |
|             |       |                | 5  | 3     | 7                         | .226E+01 | .935E+00 | .190E+01                  | .154E+01 | .808E+00 | .190E+01 |          |          |          |
|             |       |                | 5  | 5     | 7                         | .179E+01 | .179E+01 | .184E+01                  | .187E+01 | .882E+00 | .217E+01 |          |          |          |
|             |       |                | 3  | 5     | 7                         | .128E+01 | .128E+01 | .186E+01                  | .226E+01 | .866E+00 | .217E+01 |          |          |          |
|             |       |                | 2  | 3     | 9                         | .183E+01 | .872E+00 | .203E+01                  | .173E+01 | .873E+00 | .217E+01 |          |          |          |
|             |       |                | 2  | 3     | 9                         | .226E+01 | .935E+00 | .201E+01                  | .155E+01 | .815E+00 | .217E+01 |          |          |          |
|             |       |                | 3  | 5     | 9                         | .188E+01 | .188E+01 | .201E+01                  | .207E+01 | .874E+00 | .201E+01 |          |          |          |
|             |       |                | 3  | 5     | 9                         | .188E+01 | .188E+01 | .201E+01                  | .207E+01 | .874E+00 | .201E+01 |          |          |          |
|             |       |                | 4  | 3     | 7                         | .200E+01 | .789E+00 | .190E+01                  | .189E+01 | .898E+00 | .190E+01 |          |          |          |
|             |       |                | 5  | 4     | 7                         | .233E+01 | .135E+01 | .194E+01                  | .165E+01 | .885E+00 | .201E+01 |          |          |          |
|             |       |                | 5  | 1     | 1                         | .245E+01 | .0       | .0                        | .229E+01 | .958E+00 | .0       |          |          |          |
|             |       |                | 7  | 1     | 1                         | .202E+01 | .0       | .0                        | .268E+01 | .877E+00 | .0       |          |          |          |
|             |       |                | 7  | 1     | 1                         | .233E+01 | .987E+00 | .0                        | .268E+01 | .0       | .232E+00 |          |          |          |
|             |       |                | 5  | 3     | 1                         | .245E+01 | .935E+00 | .0                        | .255E+01 | .0       | .272E+00 |          |          |          |
|             |       |                | 5  | 1     | 3                         | .245E+01 | .0       | .633E+00                  | .233E+01 | .963E+00 | .232E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .233E+01 | .963E+00 | .633E+00                  | .233E+01 | .963E+00 | .232E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .226E+01 | .935E+00 | .232E+00 |          |          |          |
|             |       |                | 17 | BRICK | MATERIAL NO. 2            | 5        | 3        | 1                         | .200E+01 | .935E+00 | .0       | .178E+01 | .178E+01 | .0       |
| 7           | 3     | 1              |    |       |                           | .233E+01 | .963E+00 | .0                        | .203E+01 | .185E+01 | .0       |          |          |          |
| 7           | 3     | 1              |    |       |                           | .178E+01 | .178E+01 | .0                        | .226E+01 | .965E+00 | .232E+00 |          |          |          |
| 5           | 3     | 1              |    |       |                           | .178E+01 | .178E+01 | .0                        | .203E+01 | .965E+00 | .232E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .226E+01 | .935E+00 | .633E+00                  | .178E+01 | .178E+01 | .232E+00 |          |          |          |
| 7           | 3     | 3              |    |       |                           | .233E+01 | .963E+00 | .633E+00                  | .178E+01 | .178E+01 | .232E+00 |          |          |          |
| 7           | 3     | 3              |    |       |                           | .178E+01 | .178E+01 | .633E+00                  | .229E+01 | .958E+00 | .633E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .178E+01 | .178E+01 | .633E+00                  | .204E+01 | .848E+00 | .633E+00 |          |          |          |
| 6           | 3     | 1              |    |       |                           | .229E+01 | .958E+00 | .0                        | .178E+01 | .178E+01 | .633E+00 |          |          |          |
| 7           | 4     | 1              |    |       |                           | .209E+01 | .149E+01 | .0                        | .203E+01 | .186E+01 | .633E+00 |          |          |          |
| 5           | 1     | 3              |    |       |                           | .245E+01 | .0       | .633E+00                  | .229E+01 | .958E+00 | .633E+00 |          |          |          |
| 7           | 1     | 3              |    |       |                           | .226E+01 | .935E+00 | .633E+00                  | .203E+01 | .877E+00 | .633E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .233E+01 | .963E+00 | .633E+00                  | .245E+01 | .0       | .833E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .226E+01 | .935E+00 | .633E+00                  | .203E+01 | .877E+00 | .833E+00 |          |          |          |
| 5           | 1     | 5              |    |       |                           | .245E+01 | .0       | .128E+01                  | .289E+01 | .963E+00 | .833E+00 |          |          |          |
| 7           | 1     | 5              |    |       |                           | .226E+01 | .935E+00 | .128E+01                  | .289E+01 | .965E+00 | .833E+00 |          |          |          |
| 7           | 3     | 5              |    |       |                           | .233E+01 | .963E+00 | .128E+01                  | .248E+01 | .0       | .128E+01 |          |          |          |
| 18          | BRICK | MATERIAL NO. 2 |    |       |                           | 5        | 3        | 5                         | .226E+01 | .935E+00 | .128E+01 | .289E+01 | .965E+00 | .128E+01 |
|             |       |                | 6  | 1     | 3                         | .248E+01 | .0       | .633E+00                  | .229E+01 | .958E+00 | .128E+01 |          |          |          |
|             |       |                | 7  | 2     | 3                         | .247E+01 | .691E+00 | .633E+00                  | .248E+01 | .0       | .128E+01 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 3     | 3                         | .233E+01 | .963E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 3     | 3                         | .178E+01 | .178E+01 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 6  | 3     | 1                         | .229E+01 | .958E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 4     | 1                         | .209E+01 | .149E+01 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 1     | 3                         | .245E+01 | .0       | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 1     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .233E+01 | .963E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 1     | 5                         | .245E+01 | .0       | .128E+01                  | .289E+01 | .963E+00 | .833E+00 |          |          |          |
|             |       |                | 7  | 1     | 5                         | .226E+01 | .935E+00 | .128E+01                  | .289E+01 | .965E+00 | .833E+00 |          |          |          |
|             |       |                | 19 | BRICK | MATERIAL NO. 2            | 5        | 3        | 5                         | .226E+01 | .935E+00 | .128E+01 | .289E+01 | .965E+00 | .128E+01 |
|             |       |                |    |       |                           | 6        | 1        | 3                         | .248E+01 | .0       | .633E+00 | .229E+01 | .958E+00 | .128E+01 |
| 7           | 2     | 3              |    |       |                           | .247E+01 | .691E+00 | .633E+00                  | .248E+01 | .0       | .128E+01 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .226E+01 | .935E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 7           | 3     | 3              |    |       |                           | .233E+01 | .963E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 7           | 3     | 3              |    |       |                           | .178E+01 | .178E+01 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 6           | 3     | 1              |    |       |                           | .229E+01 | .958E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 7           | 4     | 1              |    |       |                           | .209E+01 | .149E+01 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 5           | 1     | 3              |    |       |                           | .245E+01 | .0       | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 7           | 1     | 3              |    |       |                           | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .233E+01 | .963E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 5           | 3     | 3              |    |       |                           | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
| 5           | 1     | 5              |    |       |                           | .245E+01 | .0       | .128E+01                  | .289E+01 | .963E+00 | .833E+00 |          |          |          |
| 7           | 1     | 5              |    |       |                           | .226E+01 | .935E+00 | .128E+01                  | .289E+01 | .965E+00 | .833E+00 |          |          |          |
| 20          | BRICK | MATERIAL NO. 2 |    |       |                           | 5        | 3        | 5                         | .226E+01 | .935E+00 | .128E+01 | .289E+01 | .965E+00 | .128E+01 |
|             |       |                |    |       |                           | 6        | 1        | 3                         | .248E+01 | .0       | .633E+00 | .229E+01 | .958E+00 | .128E+01 |
|             |       |                | 7  | 2     | 3                         | .247E+01 | .691E+00 | .633E+00                  | .248E+01 | .0       | .128E+01 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 3     | 3                         | .233E+01 | .963E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 3     | 3                         | .178E+01 | .178E+01 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 6  | 3     | 1                         | .229E+01 | .958E+00 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 4     | 1                         | .209E+01 | .149E+01 | .0                        | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 1     | 3                         | .245E+01 | .0       | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 7  | 1     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .233E+01 | .963E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 3     | 3                         | .226E+01 | .935E+00 | .633E+00                  | .248E+01 | .965E+00 | .633E+00 |          |          |          |
|             |       |                | 5  | 1     | 5                         | .245E+01 | .0       | .128E+01                  | .289E+01 | .963E+00 | .833E+00 |          |          |          |
|             |       |                | 7  | 1     | 5                         | .226E+01 | .935E+00 | .128E+01                  | .289E+01 | .965E+00 | .833E+00 |          |          |          |

| ELEMENT NO. | TYPE  | MATERIAL NO. | NODES |   |   | MODAL POINT COORDINATES |          |          | MODAL POINT COORDINATES |          |          |
|-------------|-------|--------------|-------|---|---|-------------------------|----------|----------|-------------------------|----------|----------|
|             |       |              | I     | J | K | X                       | Y        | Z        | X                       | Y        | Z        |
| 21          | BRICK | 2            | 5     | 1 | 5 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 3 | 5 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 5     | 3 | 5 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 4     | 1 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 1 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 5     | 3 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 3 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 5     | 3 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 6     | 3 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 2 | 5 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
| 22          | BRICK | 2            | 5     | 3 | 5 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 3 | 5 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 5 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 4 | 5 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
| 23          | BRICK | 2            | 5     | 1 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 1 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 5     | 3 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 5     | 3 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 1 | 9 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 1 | 9 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 5     | 3 | 9 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 5     | 3 | 9 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 6     | 3 | 9 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
|             |       |              | 7     | 2 | 7 | .205E+01                | .120E+01 | .120E+01 | .205E+01                | .120E+01 | .120E+01 |
| 24          | BRICK | 2            | 5     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 9 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 3 | 9 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 3 | 9 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 9 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 5     | 3 | 9 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 6     | 3 | 9 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |
|             |       |              | 7     | 4 | 7 | .176E+01                | .176E+01 | .176E+01 | .176E+01                | .176E+01 | .176E+01 |



BOUNDARY CONDITIONS.

| ELEMENT NUMBER | I | J | K | ELEMENT TYPE | MODE NO. | VALUE      |
|----------------|---|---|---|--------------|----------|------------|
| 1              | 1 | 1 | 1 | UZ           | 3        | -.1192E-01 |
|                |   |   |   | UZ           | 10       | -.1192E-01 |
|                |   |   |   | UZ           | 2        | -.1192E-01 |
|                |   |   |   | UZ           | 11       | -.1630E-01 |
|                |   |   |   | UZ           | 9        | -.1630E-01 |
|                |   |   |   | UZ           | 4        | -.2186E-01 |
| 2              | 1 | 3 | 1 | UZ           | 3        | -.1192E-01 |
|                |   |   |   | UZ           | 10       | -.1192E-01 |
|                |   |   |   | UZ           | 2        | -.1192E-01 |
|                |   |   |   | UZ           | 11       | -.1630E-01 |
|                |   |   |   | UZ           | 9        | -.1630E-01 |
|                |   |   |   | UZ           | 4        | -.2186E-01 |
| 3              | 3 | 1 | 1 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 4              | 3 | 3 | 1 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 5              | 1 | 1 | 3 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 6              | 1 | 3 | 3 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 7              | 3 | 1 | 3 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 8              | 1 | 3 | 3 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 9              | 1 | 1 | 5 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 10             | 1 | 3 | 5 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 11             | 3 | 1 | 5 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 12             | 3 | 3 | 5 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |
| 13             | 1 | 1 | 7 | PRESSURE     | 4        | .1625E+04  |
|                |   |   |   | SLOPE        | 5        | .1625E+04  |
|                |   |   |   | UZ           | 3        | 0.         |
|                |   |   |   | UZ           | 10       | 0.         |
|                |   |   |   | UZ           | 2        | 0.         |
|                |   |   |   | UZ           | 11       | 0.         |

BOUNDARY CONDITIONS.

| ELEMENT NUMBER             | ELEMENT I | ELEMENT J | ELEMENT K | TYPE           | NODE OR FACE | VALUE      |
|----------------------------|-----------|-----------|-----------|----------------|--------------|------------|
| 13                         | 1         | 1         | 7         | UZ             | 19           | -.2968E-02 |
|                            |           |           |           | UZ             | 17           | -.2999E-02 |
|                            |           |           |           | UZ             | 8            | -.3470E-02 |
|                            |           |           |           | UZ             | 20           | -.2658E-02 |
|                            |           |           |           | UZ             | 5            | -.2154E-02 |
| 14                         | 1         | 3         | 7         | PRESSURE       | 4            | .1425E+04  |
|                            |           |           |           | SLOPE          | 5            | 0.         |
|                            |           |           |           | UZ             | 7            | -.3410E-02 |
|                            |           |           |           | UZ             | 18           | -.3178E-02 |
|                            |           |           |           | UZ             | 19           | -.3040E-02 |
| 15                         | 3         | 1         | 7         | UZ             | 8            | -.4628E-02 |
|                            |           |           |           | UZ             | 6            | -.4350E-02 |
|                            |           |           |           | PRESSURE       | 4            | .1425E+04  |
|                            |           |           |           | SLOPE          | 2            | 0.         |
|                            |           |           |           | UZ             | 7            | -.1530E-02 |
| 16                         | 3         | 3         | 7         | UZ             | 18           | -.1530E-02 |
|                            |           |           |           | UZ             | 16           | -.1530E-02 |
|                            |           |           |           | UZ             | 19           | -.1500E-02 |
|                            |           |           |           | UZ             | 17           | -.1500E-02 |
|                            |           |           |           | SLOPE          | 5            | 0.         |
| 17                         | 5         | 1         | 1         | UZ             | 7            | -.1530E-02 |
|                            |           |           |           | UZ             | 18           | -.1530E-02 |
|                            |           |           |           | UZ             | 19           | -.2346E-02 |
|                            |           |           |           | SLOPE          | 2            | 0.         |
|                            |           |           |           | SLOPE          | 5            | 0.         |
| 18                         | 5         | 3         | 1         | SLOPE          | 6            | 0.         |
|                            |           |           |           | SLOPE          | 2            | 0.         |
| 19                         | 5         | 1         | 3         | SLOPE          | 5            | 0.         |
|                            |           |           |           | SLOPE          | 2            | 0.         |
| 20                         | 5         | 3         | 3         | SLOPE          | 2            | 0.         |
|                            |           |           |           | SLOPE          | 5            | 0.         |
| 21                         | 5         | 1         | 5         | SLOPE          | 5            | 0.         |
|                            |           |           |           | SLOPE          | 2            | 0.         |
| 22                         | 5         | 3         | 5         | SLOPE          | 2            | 0.         |
|                            |           |           |           | SLOPE          | 5            | 0.         |
| 23                         | 5         | 1         | 7         | SLOPE          | 5            | 0.         |
|                            |           |           |           | SLOPE          | 2            | 0.         |
| 24                         | 5         | 3         | 7         | SLOPE          | 2            | 0.         |
|                            |           |           |           | SLOPE          | 5            | 0.         |
| TIME IN SETUP =            |           |           |           | 3.438 SECONDS  |              |            |
| TIME IN FORMF =            |           |           |           | 10.951 SECONDS |              |            |
| TIME IN PREFRONT =         |           |           |           | 1.282          |              |            |
| TOTAL NUMBER OF D.O.F.'S = |           |           |           | 624            |              |            |
| D.O.F. IN FRONT =          |           |           |           | 144            |              |            |
| MAXIMUM ACTIVE STORAGE =   |           |           |           | 19802          |              |            |

|                               |                |
|-------------------------------|----------------|
| TOTAL NICKNAME STORAGE =      | 688            |
| BUFFER LENGTH =               | 7197           |
| TIME IN FORWARD ELIMINATION = | 33.827         |
| NUMBER OF SECTORS (PRUS) =    | 1452           |
| TIME IN BACKSUBSTITUTION =    | 2.785          |
| TIME IN ZIPP =                | 37.898 SECONDS |
|                               |                |
|                               |                |
|                               |                |
|                               |                |
|                               |                |
|                               |                |
|                               |                |

BLOCK OPTION

BOUNDS

|   | MIN        | MAX       | MIN | MAX |
|---|------------|-----------|-----|-----|
| X | -.1000E+21 | .1000E+21 | I   | 0 0 |
| Y | -.1000E+21 | .1000E+21 | J   | 0 0 |
| Z | -.1000E+21 | .1000E+21 | K   | 0 0 |

PRINT LEVEL = 4

STRESS POINTS FOR BRICK (DEGEN) ELEMENTS

| POINT | S1     | S2     | S3     |
|-------|--------|--------|--------|
| 1     | -1.000 | -1.000 | -1.000 |
| 2     | 1.000  | -1.000 | -1.000 |
| 3     | 1.000  | 1.000  | -1.000 |
| 4     | -1.000 | 1.000  | -1.000 |
| 5     | -1.000 | -1.000 | 1.000  |
| 6     | 1.000  | -1.000 | 1.000  |
| 7     | 1.000  | 1.000  | 1.000  |
| 8     | -1.000 | 1.000  | 1.000  |
| 9     | 0.000  | 0.000  | 1.000  |

STRESS POINTS FOR PRISM ELEMENTS

| POINT | S1    | S2    | S3    | S4     |
|-------|-------|-------|-------|--------|
| 1     | 1.000 | 0.000 | 0.000 | -1.000 |
| 2     | 0.000 | 1.000 | 0.000 | -1.000 |
| 3     | 0.000 | 0.000 | 1.000 | -1.000 |
| 4     | 1.000 | 0.000 | 0.000 | 1.000  |
| 5     | 0.000 | 1.000 | 0.000 | 1.000  |
| 6     | 0.000 | 0.000 | 1.000 | 1.000  |
| 7     | .333  | .333  | .333  | 0.000  |

STRESS POINTS FOR WEDGE ELEMENTS

| POINT | S1    | S2    | S3     |
|-------|-------|-------|--------|
| 1     | .050  | 0.000 | -1.000 |
| 2     | 1.000 | 0.000 | -1.000 |
| 3     | 1.000 | 1.000 | -1.000 |
| 4     | .050  | 0.000 | 1.000  |
| 5     | 1.000 | 0.000 | 1.000  |
| 6     | 1.000 | 1.000 | 1.000  |
| 7     | .667  | .500  | 0.000  |

STRESS POINTS FOR TETRA ELEMENTS

| POINT | S1    | S2    | S3    | S4    |
|-------|-------|-------|-------|-------|
| 1     | 1.000 | 0.000 | 0.000 | 0.000 |
| 2     | 0.000 | 1.000 | 0.000 | 0.000 |
| 3     | 0.000 | 0.000 | 1.000 | 0.000 |
| 4     | 0.000 | 0.000 | 0.000 | 1.000 |
| 5     | .250  | .250  | .250  | .250  |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 1 MATERIAL = 1

| I | J | K | U         | V          | M           | M |
|---|---|---|-----------|------------|-------------|---|
| 1 | 1 | 1 | .2181E-01 | .3775E-09  | -.1774E+00  |   |
| 1 | 1 | 1 | .4821E-01 | .3982E-09  | -.1892E-01  |   |
| 1 | 1 | 1 | .1874E-02 | .3927E-02  | -.1911E+00  |   |
| 1 | 1 | 1 | .1219E-01 | .8162E-02  | -.1772E+00  |   |
| 1 | 1 | 1 | .6429E-01 | .3490E-09  | -.1823E+00  |   |
| 1 | 1 | 1 | .6244E-02 | .2747E-02  | -.1745E+00  |   |
| 1 | 1 | 1 | .1241E-01 | .7230E-02  | -.2285E-01  |   |
| 1 | 1 | 1 | .4897E-02 | -.1820E-06 | -.1638E-01  |   |
| 1 | 1 | 1 | .7932E-02 | .2931E-02  | -.1792E-01  |   |
| 1 | 1 | 1 | .1345E-01 | .5765E-02  | -.1630E-01  |   |
| 1 | 1 | 1 | .2857E-01 | .5110E-02  | -.2194E-01  |   |
| 1 | 1 | 1 | .1883E-01 | -.7195E-09 | -.2190E-01  |   |
| 1 | 1 | 1 | .7813E-02 | -.0473E-09 | -.1822E-01  |   |
| 1 | 1 | 1 | .7293E-02 | .3862E-02  | -.1833E-01  |   |
| 1 | 1 | 1 | .1873E-01 | .7471E-02  | -.2143E-01  |   |
| 1 | 1 | 1 | .9539E-02 | -.1042E-09 | -.1538E-01  |   |
| 1 | 1 | 1 | .6298E-02 | .1348E-02  | -.1901E-02  |   |
| 1 | 1 | 1 | .8376E-02 | .3978E-02  | -.1518E-01  |   |
| 1 | 1 | 1 | .1873E-01 | .3947E-02  | -.22130E-01 |   |

STRESSES FOR BRICKM ELEMENT NO. 1 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMX    | SIGMY    | SIGMZ    | TAUXY    | TAUYZ    | TAUZX    | SIGMXX   | SIGMYY   | SIGMZZ   | TAUXX    | TAUYY    | TAUZZ    | SIGMXX   | SIGMYY   | SIGMZZ   | TAUXX    | TAUYY    | TAUZZ    | SIGMXX   | SIGMYY   | SIGMZZ   | TAUXX    | TAUYY    | TAUZZ    |
|-------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1     | .94E+00 | 0.      | 0.      | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 |
| 2     | .17E+01 | 0.      | 0.      | -.13E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 |
| 3     | .16E+01 | .66E+00 | 0.      | -.92E-02 | .62E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  |          |
| 4     | .97E+00 | .38E+00 | 0.      | -.13E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 |
| 5     | .94E+00 | 0.      | .46E+03 | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 | -.11E+04 | -.08E+03 | -.11E+04 | -.08E+03 | -.08E+03 | -.08E+03 |
| 6     | .17E+01 | 0.      | .46E+03 | -.13E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 |
| 7     | .16E+01 | .96E+00 | .46E+03 | -.92E-02 | .62E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  | .48E-02  |          |
| 8     | .97E+00 | .36E+00 | .46E+03 | -.13E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 |
| 9     | .13E+01 | .26E+00 | .23E+00 | -.13E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 | -.11E+04 |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 2 MATERIAL = 1

| I | J | K | U         | V         | M          | M          |
|---|---|---|-----------|-----------|------------|------------|
| 1 | 3 | 1 | .1935E-01 | .6182E-02 | -.2184E-01 | -.1792E+00 |
| 1 | 3 | 1 | .9492E-02 | .9492E-02 | -.1092E-01 | -.1811E+00 |
| 1 | 3 | 1 | .7777E-02 | .7777E-02 | -.1092E-01 | -.1811E+00 |
| 1 | 3 | 1 | .1496E-01 | .1496E-01 | -.2184E-01 | -.1792E+00 |
| 1 | 3 | 1 | .1411E-01 | .7310E-02 | -.2815E-01 | -.1403E+00 |
| 1 | 3 | 1 | .6244E-02 | .2767E-02 | -.9745E-02 | -.1995E+00 |
| 1 | 3 | 1 | .5321E-02 | .5321E-02 | -.1021E-01 | -.1995E+00 |
| 1 | 3 | 1 | .1131E-01 | .1131E-01 | -.1995E-01 | -.1861E+00 |
| 1 | 3 | 1 | .1345E-01 | .5765E-02 | -.1610E-01 | -.1861E+00 |
| 1 | 3 | 1 | .6062E-02 | .5765E-02 | -.1092E-01 | -.1861E+00 |
| 1 | 3 | 1 | .1065E-01 | .1065E-01 | -.1610E-01 | -.1861E+00 |
| 1 | 3 | 1 | .1733E-01 | .1185E-01 | -.2184E-01 | -.1861E+00 |
| 1 | 3 | 2 | .1673E-01 | .7671E-02 | -.2184E-01 | -.1861E+00 |
| 1 | 3 | 2 | .7295E-02 | .3062E-02 | -.1935E-01 | -.1861E+00 |
| 1 | 3 | 2 | .6214E-02 | .6214E-02 | -.1140E-01 | -.1861E+00 |
| 1 | 3 | 2 | .1303E-01 | .1303E-01 | -.2899E-01 | -.1861E+00 |
| 1 | 3 | 2 | .6976E-02 | .3075E-02 | -.5510E-01 | -.1861E+00 |
| 1 | 3 | 2 | .6828E-02 | .3945E-02 | -.6985E-02 | -.1861E+00 |
| 1 | 3 | 2 | .7435E-02 | .7435E-02 | -.1551E-01 | -.1861E+00 |
| 1 | 3 | 2 | .1332E-01 | .9364E-02 | -.1997E-01 | -.1861E+00 |

STRESSES FOR BRICKM ELEMENT NO. 2 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPY | SIGMAZ<br>EPSZ | TAUXX<br>GAMMAX | TAUZY<br>GAMMAZY | TAUZX<br>GAMMAX | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAUMAX<br>GAMMAX | TAUMIN<br>GAMMAX |
|-------|---------|---------|---------|----------------|---------------|----------------|-----------------|------------------|-----------------|----------------|----------------|----------------|------------------|------------------|
| 10    | .67E+00 | .36E+00 | 0.      | -.13E+04       | -.92E+03      | -.11E+04       | -.19E+03        | .11E+02          | -.6E+03         | -.14E+04       | -.14E+04       | -.14E+04       | -.14E+04         | -.14E+04         |
| 11    | .16E+01 | .66E+00 | 6.      | -.12E+04       | -.11E+04      | -.11E+04       | -.10E+03        | -.10E+02         | -.10E+02        | -.10E+02       | -.10E+02       | -.10E+02       | -.10E+02         | -.10E+02         |
| 12    | .12E+01 | .12E+01 | 0.      | -.15E+02       | -.12E+02      | -.12E+02       | -.60E+02        | -.62E+01         | -.11E+02        | -.11E+02       | -.11E+02       | -.11E+02       | -.11E+02         | -.11E+02         |
| 13    | .67E+00 | .67E+00 | 0.      | -.67E+04       | -.11E+04      | -.11E+04       | -.11E+03        | -.11E+03         | -.11E+03        | -.11E+03       | -.11E+03       | -.11E+03       | -.11E+03         | -.11E+03         |
| 14    | .97E+00 | .36E+00 | .46E+00 | -.13E+04       | -.11E+02      | -.11E+02       | -.10E+03        | -.10E+02         | -.10E+02        | -.10E+02       | -.10E+02       | -.10E+02       | -.10E+02         | -.10E+02         |
| 15    | .16E+01 | .66E+00 | .66E+00 | -.13E+04       | -.11E+02      | -.11E+02       | -.10E+03        | -.10E+02         | -.10E+02        | -.10E+02       | -.10E+02       | -.10E+02       | -.10E+02         | -.10E+02         |
| 16    | .12E+01 | .12E+01 | .66E+00 | -.13E+04       | -.11E+04      | -.11E+04       | -.10E+03        | -.10E+02         | -.10E+02        | -.10E+02       | -.10E+02       | -.10E+02       | -.10E+02         | -.10E+02         |
| 17    | .67E+00 | .67E+00 | .66E+00 | -.13E+04       | -.11E+04      | -.11E+04       | -.10E+03        | -.10E+02         | -.10E+02        | -.10E+02       | -.10E+02       | -.10E+02       | -.10E+02         | -.10E+02         |
| 18    | .11E+01 | .72E+00 | .23E+00 | -.13E+04       | -.11E+04      | -.11E+04       | -.10E+03        | -.10E+02         | -.10E+02        | -.10E+02       | -.10E+02       | -.10E+02       | -.10E+02         | -.10E+02         |

DISPLACEMENTS FOR BRICKEN ELEMENT NO. 3 MATERIAL = 1

| I | J | K | U         | V          | W          | H          |
|---|---|---|-----------|------------|------------|------------|
| 3 | 1 | 1 | .1021E-01 | .3581E-09  | -.1192E-01 | -.1043E+00 |
| 3 | 1 | 1 | .3097E-02 | -.1101E-12 | .1830E-21  | -.2463E+00 |
| 5 | 3 | 1 | .3668E-02 | .1921E-02  | .3366E-21  | -.2432E+00 |
| 3 | 3 | 1 | .9492E-02 | .1927E-02  | -.1892E-01 | -.1811E+00 |
| 3 | 1 | 3 | .6448E-02 | .1615E-09  | -.9979E-02 | -.1970E+00 |
| 5 | 1 | 3 | .3629E-02 | -.1099E-12 | -.3287E-03 | -.1936E+00 |
| 3 | 3 | 3 | .3661E-02 | .1731E-02  | -.3231E-03 | -.1931E+00 |
| 3 | 3 | 3 | .0248E-02 | .2787E-02  | -.9749E-02 | -.1993E+00 |
| 4 | 1 | 1 | .6178E-02 | -.9561E-09 | -.5460E-02 |            |
| 5 | 2 | 1 | .3789E-02 | .8701E-03  | -.8619E-21 |            |
| 4 | 3 | 1 | .6009E-02 | .2571E-02  | -.5460E-02 |            |
| 3 | 2 | 1 | .9898E-02 | .2031E-02  | -.1892E-01 |            |
| 3 | 1 | 2 | .7413E-02 | -.6473E-09 | -.1222E-01 |            |
| 5 | 1 | 2 | .3613E-02 | .9069E-12  | -.1846E-03 |            |
| 5 | 3 | 2 | .3799E-02 | .1760E-02  | -.1652E-03 |            |
| 3 | 3 | 2 | .7295E-02 | .2082E-02  | -.1863E-01 |            |
| 4 | 1 | 3 | .4538E-02 | -.9542E-09 | -.3977E-02 |            |
| 5 | 2 | 3 | .3518E-02 | .8296E-03  | -.3207E-03 |            |
| 4 | 3 | 3 | .4502E-02 | .1998E-02  | -.3920E-02 |            |
| 3 | 2 | 3 | .0298E-02 | .1348E-02  | -.9613E-02 |            |

STRESSES FOR BRICKEN ELEMENT NO. 3 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX  | SIGMY   | SIGMZ   | SIGMAX  | SIGMY   | SIGMZ   | GAMMAX  | GAMMAX  | GAMMAX  | TAUMAX  | TAUMAX  | TAUMAX  |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|       |         |         |         | EPSX    | EPSY    | EPSZ    | EPS1    | EPS2    | EPS3    | EPS1    | EPS2    | EPS3    | EPS1    | EPS2    | EPS3    |
| 19    | .17E+01 | 0.      | 0.      | .13E+04 | .12E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 |
| 20    | .24E+01 | 0.      | 0.      | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 |
| 21    | .23E+01 | .94E+00 | 0.      | .16E+04 | .17E+02 | .73E-03 | .58E-04 | .27E-04 | .15E-01 | .48E-02 | .17E-02 | .17E-02 | .17E+04 | .17E+04 | .17E+04 |
| 22    | .18E+01 | .99E+00 | 0.      | .13E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 23    | .17E+01 | 0.      | .46E+00 | .13E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 24    | .24E+01 | 0.      | .46E+00 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 | .15E+04 |
| 25    | .23E+01 | .94E+00 | .68E+00 | .17E+02 | .15E+02 | .65E-03 | .59E-04 | .27E-02 | .15E-01 | .48E-02 | .17E-02 | .17E-02 | .17E+04 | .17E+04 | .17E+04 |
| 26    | .16E+01 | .66E+00 | .46E+00 | .13E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 27    | .20E+01 | .41E+00 | .23E+00 | .14E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 | .13E+04 |

DISPLACEMENTS FOR BRICK ELEMENT NO. 4 MATERIAL = 1

| I | J | K | U         | V         | M          | M          |
|---|---|---|-----------|-----------|------------|------------|
| 3 | 3 | 1 | .9492E-02 | .3927E-02 | -.1032E-01 | -.1011E+00 |
| 3 | 3 | 1 | .3089E-02 | .1091E-02 | .2767E-01  | -.2737E+00 |
| 5 | 5 | 1 | .3442E-02 | .7872E-02 | .1548E-01  | -.2785E+00 |
| 3 | 3 | 1 | .7777E-02 | .7777E-02 | -.3792E-01 | -.1805E+00 |
| 3 | 3 | 3 | .6244E-02 | .2767E-02 | -.3792E-01 | -.1805E+00 |
| 5 | 5 | 3 | .3661E-02 | .1733E-02 | -.3249E-03 | -.1937E+00 |
| 5 | 5 | 3 | .3364E-02 | .3304E-02 | -.3249E-03 | -.1937E+00 |
| 3 | 3 | 3 | .9321E-02 | .5241E-02 | -.1024E-01 | -.1993E+00 |
| 4 | 3 | 1 | .6059E-02 | .2570E-02 | -.890E-02  |            |
| 5 | 4 | 1 | .3081E-02 | .2702E-02 | -.890E-02  |            |
| 4 | 5 | 1 | .5101E-02 | .5101E-02 | -.890E-02  |            |
| 3 | 4 | 1 | .9062E-02 | .5790E-02 | -.1032E-01 |            |
| 5 | 4 | 2 | .7295E-02 | .3082E-02 | -.1032E-01 |            |
| 3 | 4 | 2 | .5799E-02 | .1708E-02 | -.1032E-01 |            |
| 5 | 5 | 2 | .3303E-02 | .3033E-02 | -.1032E-01 |            |
| 3 | 5 | 2 | .6214E-02 | .6214E-02 | -.1032E-01 |            |
| 4 | 3 | 3 | .4502E-02 | .1998E-02 | -.3249E-03 |            |
| 5 | 4 | 3 | .3666E-02 | .2609E-02 | -.3249E-03 |            |
| 4 | 5 | 3 | .3964E-02 | .3964E-02 | -.3249E-03 |            |
| 3 | 4 | 3 | .6682E-02 | .3966E-02 | -.3969E-02 |            |

STRESSES FOR BRICK ELEMENT NO. 4 MATERIAL = 1

| POINT | X       | Y        | Z        | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUZY<br>GAMMAZ | TAUYZ<br>GAMMAZ | TAUZX<br>GAMMAX | SIGMAL<br>EPSL | STGMAX<br>EPSZ | STGMAX<br>EPSZ | SIGMA3<br>EPS3 | TAMMAX<br>GAMMAX |
|-------|---------|----------|----------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|------------------|
| 28    | .0      | .166E+01 | .666E+00 | -.13E+04       | -.11E+04       | -.11E+04       | -.69E+02        | -.95E+01        | -.10E+02        | -.11E+04       | -.11E+04       | -.11E+04       | -.13E+04       | .11E+03          |
| 29    | .23E+01 | .94E+00  | 0.       | -.94E-02       | .30E-02        | .45E-02        | -.23E+02        | .11E-01         | -.25E-02        | -.91E-02       | .46E-02        | .46E-02        | -.17E+04       | .17E+03          |
| 30    | .17E+01 | .17E+01  | 0.       | -.43E-02       | .13E-02        | .74E-03        | -.36E+02        | .65E-02         | .15E-01         | .59E-02        | .17E-02        | .17E-02        | -.15E+04       | .15E+03          |
| 31    | .12E+01 | .12E+01  | 0.       | -.14E-02       | .13E-02        | .74E-03        | -.39E+02        | .64E+02         | .64E+02         | -.15E+04       | -.15E+04       | -.15E+04       | -.17E+04       | .17E+03          |
| 32    | .16E+01 | .66E+00  | .66E+00  | -.25E-02       | -.23E-02       | .34E-02        | -.12E+03        | -.12E+03        | -.20E+02        | .73E-02        | .35E-02        | .35E-02        | -.13E+04       | .13E+03          |
| 33    | .23E+01 | .94E+00  | .66E+00  | -.48E-02       | .21E-02        | -.64E-03       | -.36E+02        | .95E+02         | .16E+03         | -.60E-02       | .30E-02        | .30E-02        | -.12E+04       | .12E+03          |
| 34    | .17E+01 | .17E+01  | .66E+00  | -.17E-02       | .18E-02        | -.66E-03       | -.69E+01        | .17E+02         | .40E+02         | -.12E+04       | -.12E+04       | -.12E+04       | -.15E+04       | .15E+03          |
| 35    | .12E+01 | .12E+01  | .66E+00  | -.12E+04       | -.12E+04       | -.12E+04       | -.40E+02        | .34E+02         | .34E+02         | -.12E+04       | -.12E+04       | -.12E+04       | -.15E+04       | .15E+03          |
| 36    | .17E+01 | .11E+01  | .23E+00  | -.89E-03       | -.66E-03       | -.25E-02       | -.11E-01        | .14E-01         | .12E-01         | .95E-02        | .45E-02        | .45E-02        | -.14E+04       | .14E+03          |
|       |         |          |          | -.13E+04       | -.13E+04       | -.13E+04       | -.62E+02        | .39E+02         | .55E+02         | -.12E+04       | -.12E+04       | -.12E+04       | -.14E+04       | .14E+03          |
|       |         |          |          | -.20E-02       | .60E-03        | .29E-02        | -.67E-02        | .62E-02         | .66E-02         | .57E-02        | .27E-02        | .27E-02        | -.75E-02       | .13E+03          |



DISPLACEMENTS FOR BRICK ELEMENT NO. 5 MATERIAL = 1

|    | I | J | K | U         | V          | M          | H          |
|----|---|---|---|-----------|------------|------------|------------|
| 1  | 1 | 3 | 3 | .1519E+01 | .1698E+09  | -.2284E-01 | -.1623E+00 |
| 2  | 1 | 3 | 3 | .6488E-02 | .7515E+09  | -.9797E-02 | -.1970E+00 |
| 3  | 1 | 3 | 3 | .6284E-02 | .2767E-02  | -.9745E-02 | -.1599E+00 |
| 4  | 1 | 3 | 3 | .1411E+01 | .7930E-02  | -.2011E-01 | -.1683E+00 |
| 5  | 1 | 5 | 5 | .5995E-02 | .2674E-09  | -.1266E-01 | -.1731E+00 |
| 6  | 1 | 5 | 5 | .3948E-02 | .2915E+09  | -.5814E-02 | -.1945E+00 |
| 7  | 1 | 5 | 5 | .4763E-02 | .2505E-02  | -.6874E-02 | -.1590E+00 |
| 8  | 1 | 5 | 5 | .6822E-02 | .8099E-02  | -.1237E-01 | -.2812E+00 |
| 9  | 1 | 3 | 3 | .9515E-02 | -.1042E-06 | -.1530E-01 |            |
| 10 | 1 | 3 | 3 | .6298E-02 | .1388E-02  | -.9513E-02 |            |
| 11 | 1 | 3 | 3 | .8976E-02 | .1510E-01  | -.1510E-01 |            |
| 12 | 1 | 2 | 4 | .1473E-01 | .3967E-02  | -.2114E-01 |            |
| 13 | 1 | 4 | 4 | .9158E-02 | -.1826E-06 | -.1810E-01 |            |
| 14 | 1 | 4 | 4 | .8497E-02 | -.1897E-08 | -.7248E-01 |            |
| 15 | 1 | 4 | 4 | .5320E-02 | .2201E-02  | -.6200E-02 |            |
| 16 | 1 | 4 | 4 | .9629E-02 | .7339E-02  | -.1744E-02 |            |
| 17 | 1 | 5 | 5 | .4214E-02 | -.685E-06  | -.7782E-01 |            |
| 18 | 2 | 1 | 5 | .3169E-02 | .7405E-01  | -.5600E-02 |            |
| 19 | 2 | 1 | 5 | .6165E-02 | .9359E-02  | -.1852E-01 |            |
| 20 | 2 | 1 | 5 | .5975E-02 | .4150E-02  | -.1270E-01 |            |

STRESSES FOR BRICK ELEMENT NO. 5 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAX<br>EPSY | SIGMAX<br>EPSZ | TANXY<br>GAMMAX | TANYZ<br>GAMMAX | TAUZX<br>GAMMAX | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TANMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|------------------|
| 37    | .94E+00 | 0.      | .48E+00 | -.11E+00       | .98E+03        | -.12E+04       | -.15E+02        | -.25E+02        | .71E+02         | -.98E+03       | -.12E+04       | -.18E+04       | .28E+03          |
| 38    | .17E+01 | 0.      | .46E+00 | -.12E+04       | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .12E-01         | .23E-01        | -.76E-03       | -.28E-01       | .43E-01          |
| 39    | .16E+01 | .66E+00 | .46E+00 | .12E+04        | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .47E+02         | .12E+04        | -.76E-03       | -.28E-01       | .79E+02          |
| 40    | .87E+00 | .38E+00 | .48E+00 | .12E+04        | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .10E-01         | .58E-01        | -.76E-03       | -.28E-01       | .98E+02          |
| 41    | .15E+01 | 0.      | .12E+01 | -.12E+04       | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .98E+03         | .98E+03        | -.76E-03       | -.28E-01       | .24E+03          |
| 42    | .20E+01 | 0.      | .12E+01 | -.12E+04       | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .19E-01         | .19E-01        | -.76E-03       | -.28E-01       | .38E-01          |
| 43    | .17E+01 | .68E+00 | .12E+01 | -.12E+04       | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .39E+02         | .39E+02        | -.76E-03       | -.28E-01       | .68E-02          |
| 44    | .12E+01 | .34E+00 | .12E+01 | -.12E+04       | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .11E+04         | .11E+04        | -.76E-03       | -.28E-01       | .12E+03          |
| 45    | .15E+01 | .20E+00 | .84E+00 | -.12E+04       | -.12E+04       | -.12E+04       | -.25E+02        | .38E-02         | .11E+04         | .11E+04        | -.76E-03       | -.28E-01       | .28E+03          |
|       |         |         |         | -.67E-02       | .51E-02        | .11E-02        | -.60E-02        | .51E-02         | .12E-01         | .64E-02        | -.64E-02       | -.11E-01       | .17E-01          |



DISPLACEMENTS FOR BRICKM ELEMENT NO. 7 MATERIAL = 1

| I | J | K | U         | V          | M          | M          |
|---|---|---|-----------|------------|------------|------------|
| 3 | 1 | 3 | .6440E-02 | .3616E-09  | -.9979E-02 | -.1978E+08 |
| 3 | 1 | 3 | .3429E-02 | -.1039E-12 | -.3297E-03 | -.1939E+08 |
| 5 | 1 | 3 | .3661E-02 | -.1735E-02 | -.3231E-03 | -.1931E+08 |
| 3 | 3 | 3 | .6244E-02 | .2747E-02  | -.9745E-02 | -.1995E+08 |
| 3 | 1 | 5 | .3448E-02 | .2910E-09  | -.5014E-02 | -.1945E+08 |
| 3 | 1 | 5 | .3076E-02 | -.1167E-12 | -.7247E-03 | -.1993E+08 |
| 5 | 3 | 5 | .3467E-02 | .1717E-02  | -.7340E-03 | -.2075E+08 |
| 3 | 3 | 3 | .4763E-02 | .2505E-02  | -.6878E-02 | -.1988E+08 |
| 4 | 1 | 3 | .4538E-02 | -.9542E-06 | -.3997E-02 |            |
| 4 | 2 | 3 | .3901E-02 | .4296E-03  | -.3207E-03 |            |
| 4 | 3 | 3 | .4542E-02 | .1998E-02  | -.3928E-02 |            |
| 3 | 2 | 3 | .6298E-02 | .1348E-02  | -.9813E-02 |            |
| 3 | 1 | 4 | .4497E-02 | -.1037E-06 | -.7208E-02 |            |
| 3 | 1 | 4 | .3169E-02 | .5381E-12  | -.5255E-03 |            |
| 5 | 3 | 4 | .3491E-02 | .1688E-02  | -.5324E-03 |            |
| 3 | 3 | 4 | .5328E-02 | .2283E-02  | -.8284E-02 |            |
| 4 | 1 | 5 | .3295E-02 | -.5087E-09 | -.2822E-02 |            |
| 5 | 2 | 5 | .3208E-02 | .0847E-03  | -.7251E-03 |            |
| 4 | 3 | 5 | .3927E-02 | .1678E-02  | -.3776E-02 |            |
| 3 | 2 | 5 | .3999E-02 | .7938E-03  | -.5489E-02 |            |

STRESSES FOR BRICKM ELEMENT NO. 7 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUZY<br>GAMMAZ | TAUZX<br>GAMMAX | SIEMZ<br>EPS2 | SIEMX<br>EPS1 | SIGMAZ<br>EPS3 | TAUZY<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|---------------|---------------|----------------|-----------------|
| 55    | .17E+01 | 0.      | .48E+00 | -.18E+08       | -.12E+08       | -.12E+08       | -.28E+01        | -.37E+01        | -.32E+08      | -.64E+08      | -.11E+08       | -.37E+01        |
| 56    | .24E+01 | 0.      | .46E+00 | -.12E+08       | -.12E+08       | -.25E+08       | -.9E+00         | -.37E+01        | -.12E+08      | -.12E+08      | -.11E+08       | -.37E+01        |
| 57    | .23E+01 | .94E+00 | .46E+00 | -.15E+08       | -.15E+08       | -.55E+08       | -.5E+03         | -.37E+01        | -.12E+08      | -.12E+08      | -.11E+08       | -.37E+01        |
| 58    | .18E+01 | .98E+00 | .48E+00 | -.11E+08       | -.11E+08       | -.55E+08       | -.5E+03         | -.37E+01        | -.12E+08      | -.12E+08      | -.11E+08       | -.37E+01        |
| 59    | .28E+01 | 0.      | .12E+01 | -.48E+08       | -.48E+08       | -.2E+08        | -.8E+00         | -.37E+01        | -.39E+08      | -.39E+08      | -.11E+08       | -.37E+01        |
| 60    | .24E+01 | 0.      | .12E+01 | -.48E+08       | -.48E+08       | -.2E+08        | -.8E+00         | -.37E+01        | -.39E+08      | -.39E+08      | -.11E+08       | -.37E+01        |
| 61    | .23E+01 | .94E+00 | .12E+01 | -.48E+08       | -.48E+08       | -.2E+08        | -.8E+00         | -.37E+01        | -.39E+08      | -.39E+08      | -.11E+08       | -.37E+01        |
| 62    | .17E+01 | .64E+00 | .12E+01 | -.48E+08       | -.48E+08       | -.2E+08        | -.8E+00         | -.37E+01        | -.39E+08      | -.39E+08      | -.11E+08       | -.37E+01        |
| 63    | .21E+01 | .42E+00 | .64E+00 | -.48E+08       | -.48E+08       | -.2E+08        | -.8E+00         | -.37E+01        | -.39E+08      | -.39E+08      | -.11E+08       | -.37E+01        |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 8 MATERIAL = 1

| I | J | K | U         | V         | M          | M          |
|---|---|---|-----------|-----------|------------|------------|
| 3 | 3 | 3 | .6244E-02 | .2763E-02 | -.9745E-02 | -.1995E+00 |
| 3 | 3 | 3 | .3661E-02 | .1731E-02 | -.3231E-03 | -.1791E+00 |
| 3 | 3 | 3 | .3041E-02 | .3304E-02 | -.3249E-03 | -.1791E+00 |
| 3 | 3 | 3 | .3321E-02 | .5241E-02 | -.4011E-01 | -.1995E+00 |
| 3 | 3 | 3 | .4763E-02 | .2591E-02 | -.4990E-03 | -.1995E+00 |
| 3 | 3 | 3 | .3487E-02 | .1741E-02 | -.7534E-03 | -.1280E+00 |
| 3 | 3 | 3 | .3302E-02 | .3302E-02 | -.7434E-03 | -.1280E+00 |
| 3 | 3 | 3 | .3596E-02 | .3596E-02 | -.6917E-02 | -.3945E+00 |
| 3 | 3 | 3 | .4582E-02 | .1988E-02 | -.3582E-02 | -.3945E+00 |
| 3 | 3 | 3 | .3668E-02 | .2695E-02 | -.3294E-03 | -.3945E+00 |
| 3 | 3 | 3 | .3964E-02 | .3864E-02 | -.4385E-02 | -.3945E+00 |
| 3 | 3 | 3 | .6628E-02 | .5965E-02 | -.9305E-02 | -.3945E+00 |
| 3 | 3 | 3 | .5328E-02 | .2243E-02 | -.6244E-02 | -.3945E+00 |
| 3 | 3 | 3 | .3491E-02 | .1595E-02 | -.3384E-03 | -.3945E+00 |
| 3 | 3 | 3 | .3234E-02 | .3234E-02 | -.5386E-03 | -.3945E+00 |
| 3 | 3 | 3 | .5162E-02 | .5162E-02 | -.3945E-02 | -.3945E+00 |
| 3 | 3 | 3 | .3927E-02 | .1870E-02 | -.3776E-02 | -.3945E+00 |
| 3 | 3 | 3 | .3613E-02 | .2612E-02 | -.7414E-03 | -.3945E+00 |
| 3 | 3 | 3 | .3993E-02 | .3993E-02 | -.5255E-02 | -.3945E+00 |
| 3 | 3 | 3 | .5592E-02 | .4081E-02 | -.8378E-02 | -.3945E+00 |

STRESSES FOR BRICKM ELEMENT NO. 8 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX  | EPST     | SIGMAY   | SIGMAZ   | TAUXX   | GAMMAX   | TAUYY    | GAMMAX   | TAUZZ   | GAMMAX   | TAUZX   | GAMMAX   | SIGMA1   | EPST     | SIGMA2   | EPST     | SIGMA3   | EPST     | TAMMAX  | GAMMAX   |         |          |
|-------|---------|---------|---------|---------|----------|----------|----------|---------|----------|----------|----------|---------|----------|---------|----------|----------|----------|----------|----------|----------|----------|---------|----------|---------|----------|
| 64    | .16E+01 | .66E+00 | .46E+00 | .13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 65    | .23E+01 | .94E+00 | .46E+00 | .12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 66    | .17E+01 | .17E+01 | .46E+00 | .12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 67    | .12E+01 | .12E+01 | .46E+00 | .13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 68    | .17E+01 | .64E+00 | .12E+01 | .13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 69    | .23E+01 | .94E+00 | .12E+01 | .13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 70    | .17E+01 | .17E+01 | .12E+01 | .13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 71    | .11E+01 | .11E+01 | .12E+01 | .13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |
| 72    | .17E+01 | .11E+01 | .63E+00 | .13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | -.36E+02 | -.36E+02 | .47E+02 | -.14E-01 | .89E+02 | -.14E-01 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | .89E+02 | -.14E-01 | .89E+02 | -.14E-01 |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 9 MATERIAL = 1

| I | J | K | U         | V          | M          | H          |
|---|---|---|-----------|------------|------------|------------|
| 1 | 1 | 5 | .5896E-02 | .2674E-09  | -.1280E-01 | -.1733E+00 |
| 3 | 1 | 3 | .7498E-02 | .2918E-09  | -.5918E-02 | .1909E+00  |
| 3 | 1 | 5 | .6763E-02 | .2505E-02  | -.6878E-02 | -.1900E+00 |
| 1 | 3 | 5 | .6622E-02 | .6099E-02  | -.1287E-01 | -.2812E+00 |
| 1 | 1 | 7 | .4961E-02 | .1085E-09  | -.3282E-02 | -.1759E+00 |
| 3 | 1 | 7 | .3332E-02 | .1165E-09  | -.2157E-02 | -.1974E+00 |
| 3 | 3 | 7 | .6643E-02 | .3501E-02  | -.6823E-02 | -.2857E+00 |
| 1 | 3 | 7 | .6779E-02 | .7892E-02  | -.8312E-02 | .2223E+00  |
| 2 | 1 | 5 | .4216E-02 | -.4505E-09 | -.7780E-02 |            |
| 3 | 2 | 5 | .3899E-02 | .7938E-03  | -.949E-02  |            |
| 2 | 3 | 5 | .6145E-02 | .1939E-02  | -.1862E-01 |            |
| 1 | 2 | 5 | .6879E-02 | .4180E-02  | -.1278E-01 |            |
| 1 | 1 | 6 | .6997E-02 | -.3217E-09 | -.7319E-02 |            |
| 3 | 1 | 6 | .3268E-02 | .6917E-09  | -.3311E-02 |            |
| 3 | 3 | 6 | .6801E-02 | .3210E-02  | -.5761E-02 |            |
| 1 | 3 | 6 | .5387E-02 | .7685E-02  | -.9842E-02 |            |
| 2 | 1 | 7 | .3746E-02 | -.1294E-09 | -.2696E-02 |            |
| 3 | 2 | 7 | .3988E-02 | .1872E-02  | -.2821E-02 |            |
| 2 | 3 | 7 | .5097E-02 | .5246E-02  | -.5266E-02 |            |
| 1 | 2 | 7 | .6794E-02 | .6190E-02  | -.6973E-02 |            |

STRESSES FOR BRICKM ELEMENT NO. 9 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPDZ | SIGMAX<br>EPDZ | SIGMAX<br>EPDZ | TAUXX<br>GAMMAX | TAUYY<br>GAMMAX | TAUZZ<br>GAMMAX | SIGMA1<br>EPDZ | SIGMA2<br>EPDZ | SIGMA3<br>EPDZ | TAUWXX<br>GAMMAX | TAUWYY<br>GAMMAX | TAUWZZ<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|------------------|------------------|------------------|
| 73    | .19E+01 | 0.      | .12E+01 | .12E+01        | .12E+01        | .12E+01        | .12E+01         | .12E+01         | .12E+01         | .12E+01        | .12E+01        | .12E+01        | .12E+01          | .12E+01          | .12E+01          |
| 74    | .28E+01 | 0.      | .12E+01 | .12E+01        | .12E+01        | .12E+01        | .12E+01         | .12E+01         | .12E+01         | .12E+01        | .12E+01        | .12E+01        | .12E+01          | .12E+01          | .12E+01          |
| 75    | .17E+01 | .64E+00 | .12E+01 | .12E+01        | .12E+01        | .12E+01        | .12E+01         | .12E+01         | .12E+01         | .12E+01        | .12E+01        | .12E+01        | .12E+01          | .12E+01          | .12E+01          |
| 76    | .12E+01 | .34E+00 | .12E+01 | .12E+01        | .12E+01        | .12E+01        | .12E+01         | .12E+01         | .12E+01         | .12E+01        | .12E+01        | .12E+01        | .12E+01          | .12E+01          | .12E+01          |
| 77    | .21E+01 | 0.      | .19E+01 | .19E+01        | .19E+01        | .19E+01        | .19E+01         | .19E+01         | .19E+01         | .19E+01        | .19E+01        | .19E+01        | .19E+01          | .19E+01          | .19E+01          |
| 78    | .23E+01 | 0.      | .19E+01 | .19E+01        | .19E+01        | .19E+01        | .19E+01         | .19E+01         | .19E+01         | .19E+01        | .19E+01        | .19E+01        | .19E+01          | .19E+01          | .19E+01          |
| 79    | .19E+01 | .69E+00 | .19E+01 | .19E+01        | .19E+01        | .19E+01        | .19E+01         | .19E+01         | .19E+01         | .19E+01        | .19E+01        | .19E+01        | .19E+01          | .19E+01          | .19E+01          |
| 80    | .19E+01 | .33E+00 | .19E+01 | .19E+01        | .19E+01        | .19E+01        | .19E+01         | .19E+01         | .19E+01         | .19E+01        | .19E+01        | .19E+01        | .19E+01          | .19E+01          | .19E+01          |
| 81    | .19E+01 | .32E+00 | .16E+01 | .16E+01        | .16E+01        | .16E+01        | .16E+01         | .16E+01         | .16E+01         | .16E+01        | .16E+01        | .16E+01        | .16E+01          | .16E+01          | .16E+01          |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 10 MATERIAL = 1

| I | J | K | U         | V         | W          | H          |
|---|---|---|-----------|-----------|------------|------------|
| 1 | 3 | 5 | .6622E-02 | .8095E-02 | -.1267E-01 | -.2012E+00 |
| 1 | 3 | 5 | .8765E-02 | .8295E-02 | -.5875E-02 | -.1989E+00 |
| 1 | 3 | 5 | .5505E-02 | .5505E-02 | -.8917E-02 | -.2033E+00 |
| 1 | 3 | 5 | .9039E-02 | .9039E-02 | -.1359E-01 | -.2161E+00 |
| 1 | 3 | 7 | .4776E-02 | .7092E-02 | -.6011E-02 | -.2295E+00 |
| 1 | 3 | 7 | .6643E-02 | .3581E-02 | -.8821E-02 | -.2057E+00 |
| 1 | 3 | 7 | .5638E-02 | .5638E-02 | -.5313E-02 | -.2127E+00 |
| 1 | 5 | 7 | .8395E-02 | .8395E-02 | -.7818E-02 | -.2189E+00 |
| 2 | 3 | 5 | .5145E-02 | .3939E-02 | -.1052E-01 |            |
| 2 | 3 | 5 | .5592E-02 | .4080E-02 | -.8375E-02 |            |
| 2 | 3 | 5 | .7561E-02 | .7561E-02 | -.1212E-01 |            |
| 2 | 3 | 5 | .9711E-02 | .9711E-02 | -.1358E-01 |            |
| 1 | 3 | 6 | .7405E-02 | .7405E-02 | -.9042E-02 |            |
| 1 | 3 | 6 | .8403E-02 | .8403E-02 | -.5793E-02 |            |
| 1 | 3 | 6 | .6037E-02 | .6037E-02 | -.7824E-02 |            |
| 1 | 5 | 6 | .8826E-02 | .8826E-02 | -.1050E-01 |            |
| 2 | 3 | 6 | .5258E-02 | .5258E-02 | -.5265E-02 |            |
| 2 | 3 | 7 | .5810E-02 | .5810E-02 | -.5895E-02 |            |
| 2 | 5 | 7 | .7231E-02 | .7231E-02 | -.6465E-02 |            |
| 2 | 5 | 7 | .9256E-02 | .9256E-02 | -.7332E-02 |            |

STRESSES FOR BRICKM ELEMENT NO. 10 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUXZ<br>GAMMA7Z | TAUYZ<br>GAMMA7Y | TAUXY<br>GAMMA7X | TAUZX<br>GAMMA7X | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAUMAX<br>GAMMA7X |
|-------|---------|---------|---------|----------------|----------------|----------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|-------------------|
| 82    | .12E+01 | .34E+00 | .12E+01 | -.14E+04       | -.15E+04       | -.12E+04       | .12E+02          | .41E+02          | .54E+01          | .12E+02          | -.12E+04       | -.14E+04       | -.12E+04       | .12E+03           |
| 83    | .17E+01 | .54E+00 | .12E+01 | -.17E+02       | -.15E+01       | -.12E+04       | .12E+04          | .67E+02          | .23E+02          | .12E+04          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |
| 84    | .11E+01 | .11E+01 | .12E+01 | -.12E+02       | -.12E+02       | -.12E+04       | .12E+04          | .54E+02          | .36E+02          | .12E+04          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |
| 85    | .67E+00 | .57E+00 | .12E+01 | -.12E+02       | -.12E+02       | -.12E+04       | .12E+04          | .12E+02          | .12E+01          | .12E+02          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |
| 86    | .15E+01 | .33E+00 | .19E+01 | -.15E+02       | -.14E+04       | -.12E+04       | .12E+04          | .12E+02          | .27E+02          | .12E+02          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |
| 87    | .19E+01 | .65E+00 | .19E+01 | -.19E+02       | -.19E+04       | -.12E+04       | .12E+04          | .12E+02          | .45E+02          | .12E+02          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |
| 88    | .12E+01 | .12E+01 | .19E+01 | -.12E+02       | -.12E+04       | -.12E+04       | .12E+04          | .12E+02          | .12E+02          | .12E+02          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |
| 89    | .67E+00 | .67E+00 | .19E+01 | -.12E+04       | -.12E+04       | -.12E+04       | .12E+04          | .12E+02          | .12E+02          | .12E+02          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |
| 90    | .12E+01 | .62E+00 | .16E+01 | -.12E+04       | -.12E+04       | -.12E+04       | .12E+04          | .12E+02          | .12E+02          | .12E+02          | -.12E+02       | -.12E+04       | -.12E+04       | .12E+03           |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 11 MATERIAL = 1

| I | J | K | U        | V         | W          | M          |
|---|---|---|----------|-----------|------------|------------|
| 3 | 1 | 5 | .364E-02 | .291E-09  | -.581E-02  | -.1945E+00 |
| 3 | 1 | 5 | .307E-02 | -.157E-12 | -.725E-03  | -.1903E+00 |
| 3 | 3 | 5 | .276E-02 | .177E-02  | -.734E-03  | -.2075E+00 |
| 3 | 3 | 5 | .476E-02 | .290E-02  | -.697E-02  | -.1980E+00 |
| 3 | 1 | 7 | .333E-02 | .155E-05  | -.2157E-02 | -.1971E+00 |
| 3 | 1 | 7 | .302E-02 | -.120E-12 | -.1158E-02 | -.1918E+00 |
| 3 | 1 | 7 | .362E-02 | .153E-02  | -.1171E-02 | -.2078E+00 |
| 3 | 3 | 7 | .329E-02 | .391E+00  | -.822E-02  | -.2897E+00 |
| 4 | 1 | 5 | .329E-02 | -.507E-05 | -.262E-02  |            |
| 4 | 1 | 5 | .328E-02 | .807E-03  | -.726E-03  |            |
| 4 | 3 | 5 | .392E-02 | .637E-02  | -.376E-02  |            |
| 4 | 3 | 5 | .389E-02 | .791E-05  | -.866E-02  |            |
| 3 | 1 | 6 | .326E-02 | -.493E-05 | -.331E-02  |            |
| 3 | 1 | 6 | .307E-02 | .679E-12  | -.988E-03  |            |
| 3 | 3 | 6 | .352E-02 | .171E-02  | -.980E-03  |            |
| 3 | 3 | 6 | .480E-02 | .324E-02  | -.876E-02  |            |
| 4 | 1 | 7 | .326E-02 | -.120E-03 | -.165E-02  |            |
| 5 | 2 | 7 | .326E-02 | .943E-03  | -.116E-02  |            |
| 4 | 3 | 7 | .394E-02 | .219E-02  | -.258E-02  |            |
| 3 | 2 | 7 | .398E-02 | .187E-02  | -.262E-02  |            |

STRESSES FOR BRICKM ELEMENT NO. 11 MATERIAL = 1

| PCINT | X       | Y       | Z       | SIGMX    | EPGX    | SIGMY    | EPGY    | SIGMZ    | EPGZ    | TAUXX   | GAMMAX  | TAUYY   | GAMMAY  | TAUZZ   | GAMMAZ  | SIGM1   | EPG1    | SIGM2   | EPG2    | SIGM3   | EPG3    | TANMAX  | GAMMAX  |         |
|-------|---------|---------|---------|----------|---------|----------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 91    | .20E+01 | 0.      | .12E+01 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 92    | .24E+01 | 0.      | .15E+01 | -.13E+04 | .13E+04 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 93    | .23E+01 | .94E+00 | .15E+01 | -.13E+04 | .13E+04 | -.13E+04 | .13E+04 | -.13E+04 | .13E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 94    | .17E+01 | .84E+00 | .12E+01 | -.13E+04 | .13E+04 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 95    | .23E+01 | 0.      | .19E+01 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 96    | .24E+01 | 0.      | .19E+01 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 97    | .23E+01 | .94E+00 | .19E+01 | -.13E+04 | .13E+04 | -.13E+04 | .13E+04 | -.13E+04 | .13E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 98    | .19E+01 | .65E+00 | .19E+01 | -.13E+04 | .13E+04 | -.13E+04 | .13E+04 | -.13E+04 | .13E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 99    | .22E+01 | .42E+00 | .16E+01 | -.13E+04 | .13E+04 | -.12E+04 | .12E+04 | -.12E+04 | .12E+04 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .32E+01 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 12 MATERIAL = 1

| I | J | K | U         | V         | W          | H          |
|---|---|---|-----------|-----------|------------|------------|
| 3 | 3 | 5 | .676E-02  | .250E-02  | -.5878E-02 | -.1980E+00 |
| 5 | 3 | 5 | .3497E-05 | .171E-02  | -.7348E+03 | -.2079E+00 |
| 5 | 5 | 5 | .1302E-02 | .302E-02  | -.7423E-03 | -.2093E+00 |
| 3 | 5 | 5 | .4506E-02 | .598E-02  | -.8917E-02 | -.2093E+00 |
| 5 | 3 | 7 | .2509E-02 | .350E-02  | -.8023E-02 | -.2097E+00 |
| 5 | 3 | 7 | .3624E-02 | .1870E-02 | -.1171E-02 | -.2079E+00 |
| 5 | 5 | 7 | .3521E-02 | .324E-02  | -.1184E-02 | -.2068E+00 |
| 3 | 5 | 7 | .2241E-02 | .9039E-02 | -.3313E-02 | -.2127E+00 |
| 4 | 3 | 5 | .347E-02  | .167E-02  | -.3776E-02 |            |
| 4 | 5 | 5 | .3943E-02 | .261E-02  | -.6184E-03 |            |
| 3 | 5 | 5 | .2592E-02 | .395E-02  | -.5255E-02 |            |
| 3 | 3 | 6 | .4591E-02 | .406E-02  | -.8379E-02 |            |
| 5 | 3 | 6 | .3588E-02 | .321E-02  | -.5753E-02 |            |
| 5 | 3 | 6 | .3588E-02 | .1770E-02 | -.9589E-03 |            |
| 3 | 5 | 6 | .3453E-02 | .3825E-02 | -.9626E-03 |            |
| 5 | 3 | 7 | .4937E-02 | .6837E-02 | -.7824E-02 |            |
| 5 | 4 | 7 | .3937E-02 | .219E-02  | -.2588E-02 |            |
| 4 | 5 | 7 | .4290E-02 | .279E-02  | -.1131E-02 |            |
| 3 | 4 | 7 | .5429E-02 | .829E-02  | -.3401E-02 |            |
| 3 | 4 | 7 | .5429E-02 | .5018E-02 | -.5895E-02 |            |

STRESSES FOR BRICKM ELEMENT NO. 12 MATERIAL = 1

| POINT | K       | Y       | Z       | SIGMAX   | SIGMY    | SIGMZ    | TAUXX    | TAUYY    | TAUZZ    | TAUZX    | TAUYZ    | TAUZY    | GAMMAX   | GAMMAX   | GAMMAX   | SIGM1    | SIGM2    | SIGM3    | TAUMAX   |          |
|-------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 100   | .17E+01 | .54E+00 | .12E+01 | -.13E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 | -.12E+04 |
| 101   | .23E+01 | .94E+00 | .12E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 102   | .17E+01 | .17E+01 | .12E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 103   | .11E+01 | .11E+01 | .12E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 104   | .19E+01 | .65E+00 | .19E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 105   | .23E+01 | .94E+00 | .19E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 106   | .17E+01 | .17E+01 | .19E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 107   | .12E+01 | .12E+01 | .19E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 108   | .17E+01 | .11E+01 | .16E+01 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |



DISPLACEMENTS FOR BRICKM ELEMENT NO. 13 MATERIAL = 1

|  | I | J | K | L | M        | N | O         | P | Q | R | S | T | U | V | W | X |
|--|---|---|---|---|----------|---|-----------|---|---|---|---|---|---|---|---|---|
|  | 1 | 1 | 7 |   | .494E+02 |   | .1085E+09 |   |   |   |   |   |   |   |   |   |
|  | 3 | 3 | 7 |   | .332E+02 |   | .1165E+09 |   |   |   |   |   |   |   |   |   |
|  | 3 | 1 | 7 |   | .464E+02 |   | .3501E+02 |   |   |   |   |   |   |   |   |   |
|  | 1 | 1 | 7 |   | .879E+02 |   | .7092E+02 |   |   |   |   |   |   |   |   |   |
|  | 1 | 1 | 9 |   | .436E+02 |   | .7652E+10 |   |   |   |   |   |   |   |   |   |
|  | 3 | 1 | 9 |   | .270E+02 |   | .6423E+10 |   |   |   |   |   |   |   |   |   |
|  | 3 | 1 | 9 |   | .418E+02 |   | .4056E+02 |   |   |   |   |   |   |   |   |   |
|  | 1 | 1 | 9 |   | .821E+02 |   | .7135E+02 |   |   |   |   |   |   |   |   |   |
|  | 2 | 1 | 7 |   | .374E+02 |   | .1294E+09 |   |   |   |   |   |   |   |   |   |
|  | 3 | 2 | 7 |   | .396E+02 |   | .1872E+02 |   |   |   |   |   |   |   |   |   |
|  | 2 | 3 | 7 |   | .507E+02 |   | .5250E+02 |   |   |   |   |   |   |   |   |   |
|  | 1 | 1 | 7 |   | .479E+02 |   | .4156E+02 |   |   |   |   |   |   |   |   |   |
|  | 1 | 1 | 9 |   | .494E+02 |   | .1247E+09 |   |   |   |   |   |   |   |   |   |
|  | 3 | 1 | 9 |   | .315E+02 |   | .1808E+09 |   |   |   |   |   |   |   |   |   |
|  | 3 | 1 | 8 |   | .443E+02 |   | .3871E+02 |   |   |   |   |   |   |   |   |   |
|  | 1 | 3 | 8 |   | .454E+02 |   | .7320E+02 |   |   |   |   |   |   |   |   |   |
|  | 2 | 1 | 9 |   | .320E+02 |   | .9711E+10 |   |   |   |   |   |   |   |   |   |
|  | 3 | 2 | 9 |   | .360E+02 |   | .1521E+02 |   |   |   |   |   |   |   |   |   |
|  | 2 | 3 | 9 |   | .442E+02 |   | .5751E+02 |   |   |   |   |   |   |   |   |   |
|  | 1 | 2 | 9 |   | .402E+02 |   | .4691E+02 |   |   |   |   |   |   |   |   |   |

M

M

V

STRESSES FOR BRICKM ELEMENT NO. 13 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMX<br>EPSX | SIGMY<br>EPSY | SIGMZ<br>EPSZ | TAUXY<br>GAMMAX | TAUYZ<br>GAMMAZY | TAUZX<br>GAMMAX | SIGMX<br>EPSX | SIGMY<br>EPSY | SIGMZ<br>EPSZ | TAUXY<br>GAMMAX | TAUYZ<br>GAMMAZY | TAUZX<br>GAMMAX | SIGMX<br>EPSX | SIGMY<br>EPSY | SIGMZ<br>EPSZ | TAUXY<br>GAMMAX | TAUYZ<br>GAMMAZY | TAUZX<br>GAMMAX |         |
|-------|---------|---------|---------|---------------|---------------|---------------|-----------------|------------------|-----------------|---------------|---------------|---------------|-----------------|------------------|-----------------|---------------|---------------|---------------|-----------------|------------------|-----------------|---------|
| 109   | .21E+01 | 0.      | .19E+01 | .19E+04       | .99E+03       | .11E+04       | .59E+02         | .39E+01          | .09E+02         | .97E+08       | .11E+08       | .11E+08       | .09E+02         | .39E+01          | .09E+02         | .97E+08       | .11E+08       | .11E+08       | .09E+02         | .39E+01          | .09E+02         | .97E+08 |
| 110   | .23E+01 | 0.      | .19E+01 | .21E+01       | .11E+01       | .41E+02       | .92E+02         | .61E+03          | .61E+03         | .11E+01       | .41E+02       | .92E+02       | .61E+03         | .61E+03          | .11E+01         | .41E+02       | .92E+02       | .61E+03       | .61E+03         | .11E+01          | .41E+02         | .92E+02 |
| 111   | .19E+01 | .55E+00 | .19E+01 | .19E+04       | .12E+04       | .13E+04       | .94E+01         | .12E+01          | .12E+01         | .12E+04       | .13E+04       | .13E+04       | .94E+01         | .12E+01          | .12E+01         | .12E+04       | .13E+04       | .13E+04       | .94E+01         | .12E+01          | .12E+01         | .12E+04 |
| 112   | .19E+01 | .33E+00 | .19E+01 | .19E+04       | .19E+04       | .19E+04       | .62E+02         | .23E+02          | .23E+02         | .19E+04       | .19E+04       | .19E+04       | .62E+02         | .23E+02          | .23E+02         | .19E+04       | .19E+04       | .19E+04       | .62E+02         | .23E+02          | .23E+02         | .19E+04 |
| 113   | .21E+01 | 0.      | .24E+01 | .16E+02       | .79E+02       | .64E+02       | .53E+02         | .04E+01          | .20E+02         | .10E+02       | .12E+02       | .12E+02       | .53E+02         | .04E+01          | .20E+02         | .10E+02       | .12E+02       | .12E+02       | .53E+02         | .04E+01          | .20E+02         | .10E+02 |
| 114   | .23E+01 | 0.      | .24E+01 | .17E+01       | .13E+01       | .84E+03       | .04E+02         | .13E+04          | .13E+04         | .17E+01       | .13E+01       | .84E+03       | .04E+02         | .13E+04          | .13E+04         | .17E+01       | .13E+01       | .84E+03       | .04E+02         | .13E+04          | .13E+04         | .17E+01 |
| 115   | .19E+01 | .51E+00 | .24E+01 | .19E+04       | .19E+04       | .19E+04       | .98E+02         | .98E+02          | .98E+02         | .19E+04       | .19E+04       | .19E+04       | .98E+02         | .98E+02          | .98E+02         | .19E+04       | .19E+04       | .19E+04       | .98E+02         | .98E+02          | .98E+02         | .19E+04 |
| 116   | .19E+01 | .33E+00 | .24E+01 | .19E+04       | .19E+04       | .19E+04       | .91E+03         | .12E+03          | .12E+03         | .19E+04       | .19E+04       | .19E+04       | .91E+03         | .12E+03          | .12E+03         | .19E+04       | .19E+04       | .19E+04       | .91E+03         | .12E+03          | .12E+03         | .19E+04 |
| 117   | .20E+01 | .35E+00 | .22E+01 | .25E+02       | .94E+02       | .44E+02       | .64E+02         | .54E+01          | .15E+01         | .25E+02       | .94E+02       | .44E+02       | .64E+02         | .54E+01          | .15E+01         | .25E+02       | .94E+02       | .44E+02       | .54E+01         | .15E+01          | .25E+02         | .94E+02 |

DISPLACEMENTS FOR BRICK ELEMENT NO. 14 MATERIAL = 1

| POINT | X       | Y       | Z       | U        | V        | W         | H         |
|-------|---------|---------|---------|----------|----------|-----------|-----------|
| 11    | .15E+01 | .33E+00 | .19E+01 | .477E-02 | .709E-02 | -.501E-02 | -.222E+00 |
| 12    | .15E+01 | .33E+00 | .19E+01 | .483E-02 | .701E-02 | -.502E-02 | -.208E+00 |
| 13    | .15E+01 | .33E+00 | .19E+01 | .533E-02 | .637E-02 | -.531E-02 | -.212E+00 |
| 14    | .15E+01 | .33E+00 | .19E+01 | .534E-02 | .636E-02 | -.531E-02 | -.212E+00 |
| 15    | .15E+01 | .33E+00 | .19E+01 | .421E-02 | .719E-02 | -.377E-02 | -.218E+00 |
| 16    | .15E+01 | .33E+00 | .19E+01 | .410E-02 | .730E-02 | -.377E-02 | -.218E+00 |
| 17    | .15E+01 | .33E+00 | .19E+01 | .527E-02 | .602E-02 | -.525E-02 | -.216E+00 |
| 18    | .15E+01 | .33E+00 | .19E+01 | .527E-02 | .602E-02 | -.525E-02 | -.216E+00 |
| 19    | .15E+01 | .33E+00 | .19E+01 | .509E-02 | .620E-02 | -.509E-02 | -.208E+00 |
| 20    | .15E+01 | .33E+00 | .19E+01 | .523E-02 | .606E-02 | -.523E-02 | -.216E+00 |
| 21    | .15E+01 | .33E+00 | .19E+01 | .723E-02 | .406E-02 | -.723E-02 | -.166E+00 |
| 22    | .15E+01 | .33E+00 | .19E+01 | .624E-02 | .505E-02 | -.624E-02 | -.166E+00 |
| 23    | .15E+01 | .33E+00 | .19E+01 | .452E-02 | .677E-02 | -.452E-02 | -.166E+00 |
| 24    | .15E+01 | .33E+00 | .19E+01 | .443E-02 | .686E-02 | -.443E-02 | -.166E+00 |
| 25    | .15E+01 | .33E+00 | .19E+01 | .580E-02 | .550E-02 | -.580E-02 | -.166E+00 |
| 26    | .15E+01 | .33E+00 | .19E+01 | .600E-02 | .530E-02 | -.600E-02 | -.166E+00 |
| 27    | .15E+01 | .33E+00 | .19E+01 | .442E-02 | .684E-02 | -.442E-02 | -.166E+00 |
| 28    | .15E+01 | .33E+00 | .19E+01 | .518E-02 | .608E-02 | -.518E-02 | -.166E+00 |
| 29    | .15E+01 | .33E+00 | .19E+01 | .703E-02 | .423E-02 | -.703E-02 | -.166E+00 |
| 30    | .15E+01 | .33E+00 | .19E+01 | .565E-02 | .565E-02 | -.565E-02 | -.166E+00 |

STRESSES FOR BRICK ELEMENT NO. 14 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAX<br>EPSY | SIGMAX<br>EPSZ | SIGMAY<br>GAMMAY | SIGMAY<br>GAMMAZ | SIGMAZ<br>GAMMAZ | TAUZX<br>GAMMAX | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TANMAX<br>GAMMAX | SIGMAX<br>EPS3 | TANMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|------------------|------------------|------------------|-----------------|----------------|----------------|----------------|------------------|----------------|------------------|
| 11    | .15E+01 | .33E+00 | .19E+01 | -.15E+04       | -.14E+04       | -.14E+04       | .23E+02          | -.23E+02         | -.23E+02         | .23E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 12    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .49E+02          | -.49E+02         | -.49E+02         | .49E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 13    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .71E+02          | -.71E+02         | -.71E+02         | .71E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 14    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .73E+02          | -.73E+02         | -.73E+02         | .73E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 15    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 16    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 17    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .78E+02          | -.78E+02         | -.78E+02         | .78E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 18    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .78E+02          | -.78E+02         | -.78E+02         | .78E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 19    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 20    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 21    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 22    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 23    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 24    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 25    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 26    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 27    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 28    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 29    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |
| 30    | .15E+01 | .33E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .52E+02          | -.52E+02         | -.52E+02         | .52E+02         | -.19E+04       | -.12E+02       | -.12E+02       | -.12E+02         | -.19E+04       | -.12E+02         |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 15 MATERIAL = 1

| POINT | X | Y | Z | U         | V          | M          | M          |
|-------|---|---|---|-----------|------------|------------|------------|
| 3     | 1 | 7 |   | .3332E-02 | .1165E-09  | -.2157E-02 | -.1971E+00 |
| 5     | 1 | 7 |   | .3089E-02 | -.1284E-12 | -.1157E-02 | -.1793E+00 |
| 5     | 3 | 7 |   | .3624E-02 | .1316E-02  | -.1171E-02 | -.2078E+00 |
| 3     | 3 | 7 |   | .4683E-02 | .3901E-02  | -.6023E-02 | -.2097E+00 |
| 3     | 1 | 9 |   | .2705E-02 | .6421E-10  | -.1840E-02 | -.2840E+00 |
| 5     | 1 | 9 |   | .2466E-02 | -.1293E-12 | -.1930E-02 | -.2099E+00 |
| 5     | 3 | 9 |   | .3188E-02 | .1654E-02  | -.1530E-02 | -.2167E+00 |
| 3     | 3 | 9 |   | .4180E-02 | .4097E-02  | -.2978E-02 | -.2897E+00 |
| 4     | 1 | 7 |   | .3262E-02 | -.1205E-09 | -.1653E-02 |            |
| 4     | 2 | 7 |   | .3248E-02 | .8496E-03  | -.1187E-02 |            |
| 4     | 3 | 7 |   | .3997E-02 | .2191E-02  | -.2588E-02 |            |
| 3     | 2 | 7 |   | .3968E-02 | .1072E-02  | -.2621E-02 |            |
| 3     | 1 | 8 |   | .3151E-02 | -.1804E-09 | -.2163E-02 |            |
| 3     | 1 | 8 |   | .2987E-02 | .6328E-12  | -.1383E-02 |            |
| 5     | 1 | 8 |   | .3520E-02 | .1405E-02  | -.1351E-02 |            |
| 3     | 3 | 8 |   | .4433E-02 | .3876E-02  | -.3480E-02 |            |
| 4     | 1 | 9 |   | .2533E-02 | -.7888E-10 | -.1640E-02 |            |
| 5     | 2 | 9 |   | .2661E-02 | .7508E-03  | -.1530E-02 |            |
| 4     | 3 | 9 |   | .3446E-02 | .2297E-02  | -.1990E-02 |            |
| 3     | 2 | 9 |   | .3480E-02 | .1529E-02  | -.2080E-02 |            |

STRESSES FOR BRICKM ELEMENT NO. 15 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>FPSX | SIGMAY<br>FPSY | SIGMAZ<br>FPSZ | TAUZY<br>GAMMAZ | TAUZX<br>GAMMAX | TAUYZ<br>SAMYAZ | TAUYX<br>SAMMAX | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAUMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|------------------|
| 127   | .23E+01 | 0.      | .19E+01 | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 128   | .24E+01 | 0.      | .19E+01 | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 129   | .23E+01 | .94E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 130   | .19E+01 | .69E+00 | .19E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 131   | .23E+01 | 0.      | .24E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 132   | .24E+01 | 0.      | .24E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 133   | .23E+01 | .94E+00 | .24E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 134   | .16E+01 | .61E+00 | .24E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |
| 135   | .23E+01 | .43E+00 | .22E+01 | -.13E+04       | -.13E+04       | -.13E+04       | .83E+01         | .83E+01         | -.13E+01        | .83E+01         | -.12E+04       | -.12E+04       | -.13E+04       | .83E+01          |

DISPLACEMENTS FOR BRICK ELEMENT NO. 16 MATERIAL = 1

| POINT | X | Y | Z | U         | V         | W          | H          |
|-------|---|---|---|-----------|-----------|------------|------------|
| 3     | 3 | 7 |   | .4643E-02 | .3501E-02 | -.4023E-02 | -.2057E+00 |
| 5     | 3 | 7 |   | .3624E-02 | .1830E-02 | -.1171E-02 | -.2078E+00 |
| 5     | 5 | 7 |   | .3521E-02 | .3521E-02 | -.1154E-02 | -.2068E+00 |
| 3     | 5 | 7 |   | .5630E-02 | .6639E-02 | -.5313E-02 | -.2127E+00 |
| 3     | 3 | 9 |   | .4106E-02 | .4055E-02 | -.2570E-02 | -.2097E+00 |
| 5     | 3 | 9 |   | .3140E-02 | .1654E-02 | -.1530E-02 | -.2167E+00 |
| 5     | 5 | 9 |   | .3241E-02 | .2441E-02 | -.1530E-02 | -.2101E+00 |
| 3     | 5 | 9 |   | .5927E-02 | .3410E-02 | -.3410E-02 | -.2148E+00 |
| 4     | 3 | 7 |   | .3997E-02 | .2193E-02 | -.2500E-02 |            |
| 5     | 4 | 7 |   | .3825E-02 | .1181E-02 | -.1181E-02 |            |
| 3     | 4 | 7 |   | .4290E-02 | .3401E-02 | -.3401E-02 |            |
| 3     | 4 | 7 |   | .5425E-02 | .8015E-02 | -.5095E-02 |            |
| 3     | 3 | 8 |   | .4433E-02 | .3975E-02 | .3410E-02  |            |
| 5     | 3 | 8 |   | .3529E-02 | .1905E-02 | -.1351E-02 |            |
| 5     | 5 | 8 |   | .3480E-02 | .3480E-02 | -.1356E-02 |            |
| 3     | 5 | 8 |   | .5805E-02 | .5805E-02 | -.4447E-02 |            |
| 4     | 3 | 9 |   | .3446E-02 | .2297E-02 | -.1990E-02 |            |
| 5     | 4 | 9 |   | .3455E-02 | .2566E-02 | -.1530E-02 |            |
| 4     | 5 | 9 |   | .4289E-02 | .4289E-02 | -.2300E-02 |            |
| 3     | 4 | 9 |   | .5174E-02 | .5174E-02 | -.3170E-02 |            |

STRESSES FOR BRICK ELEMENT NO. 16 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX   | SIGMAY  | SIGMAZ   | TAUXX    | TAUYY   | TAUZZ   | TAUZX   | TAUYZ   | TAUZY   | TAUZY   | TAUZY   | SIGMAX   | SIGMAY   | SIGMAZ   | SIGMAY   | SIGMAY   | SIGMAX   | SIGMAX   | SIGMAX   | SIGMAX   | SIGMAX   |
|-------|---------|---------|---------|----------|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 136   | .19E+01 | .55E+00 | .19E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.47E+02 | .23E+02 | .23E+02 | .20E+02 | .23E+02 | .23E+02 | .23E+02 | .23E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 137   | .23E+01 | .94E+00 | .19E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.74E+02 | .37E+02 | .37E+02 | .44E+02 | .37E+02 | .37E+02 | .37E+02 | .37E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 138   | .17E+01 | .17E+01 | .19E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.87E+02 | .28E+02 | .28E+02 | .66E+02 | .28E+02 | .28E+02 | .28E+02 | .28E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 139   | .15E+01 | .15E+01 | .19E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.11E+04 | .47E+02 | .47E+02 | .47E+02 | .47E+02 | .47E+02 | .47E+02 | .47E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 140   | .18E+01 | .61E+00 | .24E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.13E+04 | .46E+02 | .46E+02 | .29E+02 | .46E+02 | .46E+02 | .46E+02 | .46E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 141   | .23E+01 | .94E+00 | .24E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.74E+02 | .37E+02 | .37E+02 | .73E+02 | .37E+02 | .37E+02 | .37E+02 | .37E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 142   | .17E+01 | .17E+01 | .24E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.13E+04 | .47E+02 | .47E+02 | .67E+02 | .47E+02 | .47E+02 | .47E+02 | .47E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 143   | .11E+01 | .11E+01 | .24E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.13E+04 | .47E+02 | .47E+02 | .21E+01 | .47E+02 | .47E+02 | .47E+02 | .47E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |
| 144   | .18E+01 | .11E+01 | .23E+01 | -.13E+04 | .13E+04 | -.13E+04 | -.13E+04 | .47E+02 | .47E+02 | .13E+02 | .47E+02 | .47E+02 | .47E+02 | .47E+02 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 | -.13E+04 |

DISPLACEMENTS FOR BRICK ELEMENT NO. 17 MATERIAL = 2

| I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W |    |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | X | Y  |
| 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 5 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 5 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 5 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 6 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 6 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 5 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 5 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 5 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 6 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 7 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 6 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |
| 5 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0. |

STRESSES FOR BRICK ELEMENT NO. 17 MATERIAL = 2

| PCENT | X       | Y       | Z       | SIGMAX   | SIGMY    | SIGMZ    | TAUXY    | TAUYX    | TAUVZ    | TAUZX    | SIGM1    | EPS1     | SIGM2    | EPS2     | SIGM3    | EPS3     | TAUMAX   | GAMMAX   |          |
|-------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|       |         |         |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          | 149      |
| 146   | .25E+01 | 0.      | 0.      | -.83E+03 | -.67E+02 | -.19E+04 | -.62E+03 | -.62E+03 | -.78E+04 | -.97E+03 | -.67E+02 | -.36E+03 | -.26E+04 | -.26E+04 | -.54E+03 | -.26E+04 | -.24E+04 | -.24E+04 | -.24E+04 |
| 147   | .23E+01 | .96E+00 | 0.      | -.69E+04 | -.39E+02 | -.37E+04 | -.17E+03 | -.17E+03 | -.37E+04 | -.11E+04 | -.66E+02 | -.66E+02 | -.66E+04 | -.66E+04 | -.66E+04 | -.66E+04 | -.22E+04 | -.22E+04 | -.22E+04 |
| 148   | .23E+01 | .96E+00 | 0.      | -.69E+04 | -.39E+02 | -.37E+04 | -.17E+03 | -.17E+03 | -.37E+04 | -.11E+04 | -.66E+02 | -.66E+02 | -.66E+04 | -.66E+04 | -.66E+04 | -.66E+04 | -.22E+04 | -.22E+04 | -.22E+04 |
| 149   | .24E+01 | 0.      | .46E+00 | -.30E+04 | -.65E+02 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.65E+02 | -.65E+02 | -.65E+04 | -.65E+04 | -.65E+04 | -.65E+04 | -.27E+04 | -.27E+04 | -.27E+04 |
| 150   | .25E+01 | 0.      | .46E+00 | -.37E+03 | -.63E+02 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.63E+02 | -.63E+02 | -.63E+04 | -.63E+04 | -.63E+04 | -.63E+04 | -.21E+04 | -.21E+04 | -.21E+04 |
| 151   | .23E+01 | .96E+00 | .66E+00 | -.37E+03 | -.63E+02 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.63E+02 | -.63E+02 | -.63E+04 | -.63E+04 | -.63E+04 | -.63E+04 | -.21E+04 | -.21E+04 | -.21E+04 |
| 152   | .23E+01 | .96E+00 | .66E+00 | -.37E+03 | -.63E+02 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.64E+04 | -.63E+02 | -.63E+02 | -.63E+04 | -.63E+04 | -.63E+04 | -.63E+04 | -.21E+04 | -.21E+04 | -.21E+04 |
| 153   | .24E+01 | .48E+00 | .23E+00 | -.39E+03 | -.66E+02 | -.63E+03 | -.66E+02 | -.66E+02 | -.66E+02 | -.66E+02 | -.66E+02 | -.66E+02 | -.66E+04 | -.66E+04 | -.66E+04 | -.66E+04 | -.27E+04 | -.27E+04 | -.27E+04 |

DISPLACEMENTS FOR BRICK ELEMENT NO. 18 MATERIAL = 2

| I | J | K | U         | V         | M         |
|---|---|---|-----------|-----------|-----------|
| 5 | 3 | 1 | .3860E-02 | .1801E-02 | .3344E-21 |
| 7 | 3 | 1 | .3897E-02 | .1721E-02 | 0.        |
| 5 | 5 | 1 | .3390E-02 | .6112E-13 | 0.        |
| 7 | 5 | 1 | .3822E-02 | .3422E-02 | .1560E-21 |
| 5 | 3 | 3 | .3663E-02 | .1733E-02 | 0.        |
| 7 | 3 | 3 | .3663E-02 | .1646E-02 | 0.        |
| 5 | 3 | 3 | .3282E-02 | .2822E-02 | 0.        |
| 7 | 3 | 3 | .3304E-02 | .3249E-02 | 0.        |
| 6 | 3 | 1 | .3859E-02 | .1761E-02 | .4474E-13 |
| 7 | 6 | 1 | .3816E-02 | .2651E-02 | .9582E-13 |
| 6 | 5 | 1 | .3411E-02 | .3411E-02 | .5036E-13 |
| 5 | 6 | 1 | .3821E-02 | .2702E-02 | .8996E-21 |
| 5 | 3 | 2 | .3799E-02 | .1741E-02 | 0.        |
| 7 | 3 | 2 | .3790E-02 | .1332E-03 | 0.        |
| 5 | 5 | 2 | .3359E-02 | .1699E-02 | 0.        |
| 7 | 5 | 2 | .3383E-02 | .1406E-03 | 0.        |
| 6 | 3 | 3 | .3661E-02 | .1691E-03 | 0.        |
| 7 | 6 | 3 | .3667E-02 | .2979E-03 | 0.        |
| 6 | 5 | 3 | .3293E-02 | .2850E-03 | 0.        |
| 5 | 6 | 3 | .3660E-02 | .3061E-03 | 0.        |
| 7 | 6 | 3 | .3660E-02 | .3294E-03 | 0.        |

STRESSES FOR BRICK ELEMENT NO. 18 MATERIAL = 2

| POINT | X       | Y       | Z       | SIGMAX  | EPSX    | SIGMAY  | EPSY    | SIGMAZ  | EPSZ    | TAUXX   | GAMMAX  | TAUYY   | GAMMAY  | TAUZZ   | GAMMAZ  | TAUXZ   | GAMMAXZ | TAUYZ   | GAMMAYZ | TAUZY   | GAMMAZY | SIGMA1  | EPS1    | SIGMA2  | EPS2    | SIGMA3  | EPS3    | TAUMAX  | GAMMAX  |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 154   | .23E+01 | .94E+00 | 0.      | .66E+04 | .14E-03 | .43E+05 | .14E-02 | .77E+04 | .77E+04 | .19E+05 | .19E+05 | .39E+03 | .39E+03 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .51E+05 | .18E-02 | .51E+05 | .18E-02 | .51E+05 | .18E-02 | .51E+05 | .18E-02 |
| 155   | .23E+01 | .94E+00 | 0.      | .66E+04 | .14E-03 | .43E+05 | .14E-02 | .77E+04 | .77E+04 | .19E+05 | .19E+05 | .39E+03 | .39E+03 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .53E+05 | .18E-02 | .53E+05 | .18E-02 | .53E+05 | .18E-02 | .53E+05 | .18E-02 |
| 156   | .18E+01 | .18E+01 | 0.      | .68E+03 | .57E-03 | .25E+05 | .27E+05 | .20E+04 | .20E+04 | .26E+05 | .26E+05 | .97E+03 | .97E+03 | .84E-04 | .84E-04 | .97E+03 | .97E+03 | .97E+03 | .97E+03 | .97E+03 | .97E+03 | .53E+05 | .18E-02 | .53E+05 | .18E-02 | .53E+05 | .18E-02 | .53E+05 | .18E-02 |
| 157   | .17E+01 | .17E+01 | 6.      | .24E+05 | .24E+05 | .24E+05 | .24E+05 | .19E+04 | .19E+04 | .22E+05 | .22E+05 | .86E-04 | .86E-04 | .18E+04 | .18E+04 | .18E+04 | .18E+04 | .18E+04 | .18E+04 | .18E+04 | .18E+04 | .52E+05 | .18E-02 | .52E+05 | .18E-02 | .52E+05 | .18E-02 | .52E+05 | .18E-02 |
| 158   | .23E+01 | .94E+00 | .44E+00 | .56E+04 | .17E-03 | .41E+05 | .14E-02 | .58E+04 | .58E+04 | .18E+05 | .18E+05 | .68E+02 | .68E+02 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .49E+05 | .17E-02 | .49E+05 | .17E-02 | .49E+05 | .17E-02 | .49E+05 | .17E-02 |
| 159   | .23E+01 | .94E+00 | .44E+00 | .56E+04 | .17E-03 | .41E+05 | .14E-02 | .58E+04 | .58E+04 | .18E+05 | .18E+05 | .68E+02 | .68E+02 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .11E+04 | .51E+05 | .17E-02 | .51E+05 | .17E-02 | .51E+05 | .17E-02 | .51E+05 | .17E-02 |
| 160   | .18E+01 | .18E+01 | .44E+01 | .22E+05 | .22E+05 | .27E+05 | .14E-02 | .62E-03 | .62E-03 | .15E+05 | .15E+05 | .43E+04 | .43E+04 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .59E+05 | .18E-02 | .59E+05 | .18E-02 | .59E+05 | .18E-02 | .59E+05 | .18E-02 |
| 161   | .17E+01 | .17E+01 | .44E+01 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .60E-03 | .45E+05 | .17E-02 | .45E+05 | .17E-02 | .45E+05 | .17E-02 | .45E+05 | .17E-02 |
| 162   | .21E+01 | .14E+01 | .23E+01 | .14E+05 | .14E+05 | .32E+05 | .14E+05 | .32E+05 | .32E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .14E+05 | .47E+05 | .17E-02 | .47E+05 | .17E-02 | .47E+05 | .17E-02 | .47E+05 | .17E-02 |

DISPLACEMENTS FOR BRICK ELEMENT NO. 19 MATERIAL = 2

|  | I | J | K | U         | V          | M          |
|--|---|---|---|-----------|------------|------------|
|  | 5 | 1 | 3 | .3207E-02 | 0.         | .3207E-03  |
|  | 7 | 1 | 3 | .2398E-02 | -.1703E-12 | -.2561E-03 |
|  | 7 | 3 | 3 | .1646E-02 | .1646E-02  | -.2729E-03 |
|  | 5 | 3 | 3 | .3663E-02 | .1733E-02  | -.3231E-03 |
|  | 5 | 1 | 5 | .3076E-02 | -.1167E-12 | -.7247E-03 |
|  | 7 | 1 | 5 | .3047E-02 | -.1688E-12 | -.7218E-03 |
|  | 7 | 3 | 5 | .3498E-02 | .1613E-02  | -.7510E-03 |
|  | 5 | 3 | 5 | .3487E-02 | .1717E-02  | -.7380E-03 |
|  | 6 | 1 | 3 | .3413E-02 | .2035E-12  | -.2883E-03 |
|  | 7 | 2 | 3 | .3478E-02 | .7826E-03  | -.2801E-03 |
|  | 6 | 3 | 3 | .3661E-02 | .1690E-02  | -.2979E-03 |
|  | 5 | 2 | 3 | .3501E-02 | .8296E-03  | -.3207E-03 |
|  | 5 | 1 | 4 | .3169E-02 | .5361E-12  | -.5255E-03 |
|  | 7 | 1 | 4 | .3181E-02 | .8897E-12  | -.8917E-03 |
|  | 5 | 3 | 4 | .3498E-02 | .1594E-02  | -.5165E-03 |
|  | 7 | 3 | 4 | .3491E-02 | .1688E-02  | -.5324E-03 |
|  | 6 | 1 | 5 | .3068E-02 | .1964E-12  | -.7231E-03 |
|  | 7 | 2 | 5 | .3188E-02 | .7447E-03  | -.7293E-03 |
|  | 6 | 3 | 5 | .3492E-02 | .1665E-02  | -.7424E-03 |
|  | 9 | 2 | 5 | .3288E-02 | .8084E-03  | -.7261E-03 |

STRESSES FOR BRICK ELEMENT NO. 19 MATERIAL = 2

| POINT | X       | Y       | Z       | SIGMAX   |         |          | SIGMAY  |         |          | SIGMAZ   |          |         | TAUXY    | TAUYZ   | TAUZX   | SIGMAY  |         |         | SIGMAZ  |          |         | TAUMAX  |          |         |         |          |          |          |         |         |          |         |         |         |         |
|-------|---------|---------|---------|----------|---------|----------|---------|---------|----------|----------|----------|---------|----------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|----------|----------|----------|---------|---------|----------|---------|---------|---------|---------|
|       |         |         |         | EPSX     | EPY     | EPSZ     | EPY     | EPSX    | EPSZ     | EPSX     | EPY      | EPSZ    |          |         |         | EPY     | EPX     | EPZ     | EPY     | EPX      | EPZ     |         | EPY      | EPX     | EPZ     |          |          |          |         |         |          |         |         |         |         |
| 163   | .24E+01 | 0.      | .86E+00 | -.46E+04 | .46E+03 | -.19E-03 | .46E+03 | .16E-02 | -.56E-03 | -.30E+04 | -.30E+04 | .46E+03 | -.19E-03 | .58E+02 | .71E+01 | .71E+01 | .46E+03 | .46E+03 | .16E-02 | -.56E-03 | .46E+03 | .16E-02 | -.56E-03 | .46E+03 | .16E-02 | -.56E-03 | -.30E+04 | -.30E+04 | .46E+03 | .16E-02 | -.56E-03 |         |         |         |         |
| 164   | .25E+01 | 0.      | .86E+00 | -.61E+03 | .42E+03 | .42E+03  | .68E+03 | .82E+03 | .82E+03  | .68E+03  | .82E+03  | .68E+03 | .82E+03  | .82E+03 | .68E+03 | .82E+03 | .68E+03 | .82E+03 | .82E+03 | .68E+03  | .82E+03 | .82E+03 | .68E+03  | .82E+03 | .82E+03 | .68E+03  | .82E+03  | .82E+03  | .68E+03 | .82E+03 | .82E+03  | .68E+03 | .82E+03 |         |         |
| 165   | .23E+01 | .96E+00 | .86E+00 | .83E+04  | .35E+04 | .35E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04  | .82E+04  | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04 | .82E+04 | .82E+04 | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04  | .82E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04 |         |
| 166   | .23E+01 | .94E+00 | .86E+00 | .86E+04  | .68E+04 | .68E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04  | .82E+04  | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04 | .82E+04 | .82E+04 | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04  | .82E+04  | .82E+04 | .82E+04 | .82E+04  | .82E+04 | .82E+04 | .82E+04 | .82E+04 |
| 167   | .24E+01 | 0.      | .12E+01 | -.24E+04 | .65E+04 | .65E+04  | .65E+04 | .65E+04 | .65E+04  | .65E+04  | .65E+04  | .65E+04 | .65E+04  | .65E+04 | .65E+04 | .65E+04 | .65E+04 | .65E+04 | .65E+04 | .65E+04  | .65E+04 | .65E+04 | .65E+04  | .65E+04 | .65E+04 | .65E+04  | .65E+04  | .65E+04  | .65E+04 | .65E+04 | .65E+04  | .65E+04 | .65E+04 | .65E+04 |         |
| 168   | .25E+01 | 0.      | .12E+01 | -.69E+03 | .69E+03 | .69E+03  | .69E+03 | .69E+03 | .69E+03  | .69E+03  | .69E+03  | .69E+03 | .69E+03  | .69E+03 | .69E+03 | .69E+03 | .69E+03 | .69E+03 | .69E+03 | .69E+03  | .69E+03 | .69E+03 | .69E+03  | .69E+03 | .69E+03 | .69E+03  | .69E+03  | .69E+03  | .69E+03 | .69E+03 | .69E+03  | .69E+03 | .69E+03 | .69E+03 |         |
| 169   | .23E+01 | .96E+00 | .12E+01 | .38E+04  | .34E+04 | .34E+04  | .34E+04 | .34E+04 | .34E+04  | .34E+04  | .34E+04  | .34E+04 | .34E+04  | .34E+04 | .34E+04 | .34E+04 | .34E+04 | .34E+04 | .34E+04 | .34E+04  | .34E+04 | .34E+04 | .34E+04  | .34E+04 | .34E+04 | .34E+04  | .34E+04  | .34E+04  | .34E+04 | .34E+04 | .34E+04  | .34E+04 | .34E+04 | .34E+04 |         |
| 170   | .23E+01 | .94E+00 | .12E+01 | .46E+04  | .46E+04 | .46E+04  | .46E+04 | .46E+04 | .46E+04  | .46E+04  | .46E+04  | .46E+04 | .46E+04  | .46E+04 | .46E+04 | .46E+04 | .46E+04 | .46E+04 | .46E+04 | .46E+04  | .46E+04 | .46E+04 | .46E+04  | .46E+04 | .46E+04 | .46E+04  | .46E+04  | .46E+04  | .46E+04 | .46E+04 | .46E+04  | .46E+04 | .46E+04 | .46E+04 |         |
| 171   | .24E+01 | .86E+00 | .83E+00 | .14E+04  | .64E+04 | .64E+04  | .64E+04 | .64E+04 | .64E+04  | .64E+04  | .64E+04  | .64E+04 | .64E+04  | .64E+04 | .64E+04 | .64E+04 | .64E+04 | .64E+04 | .64E+04 | .64E+04  | .64E+04 | .64E+04 | .64E+04  | .64E+04 | .64E+04 | .64E+04  | .64E+04  | .64E+04  | .64E+04 | .64E+04 | .64E+04  | .64E+04 | .64E+04 | .64E+04 |         |





DISPLACEMENTS FOR BRICK ELEMENT NO. 21 MATERIAL = 2

| POINT | X       | Y  | Z       | U         | V          | W  |
|-------|---------|----|---------|-----------|------------|----|
| 181   | .28E+01 | 0. | .12E+11 | .1167E-02 | -.7267E-03 | 0. |
| 182   | .28E+01 | 0. | .12E+11 | .1088E-12 | -.7218E-03 | 0. |
| 183   | .28E+01 | 0. | .12E+11 | .1613E-02 | -.7515E-03 | 0. |
| 184   | .28E+01 | 0. | .12E+11 | .1717E-02 | -.7348E-03 | 0. |
| 185   | .28E+01 | 0. | .12E+11 | .1244E-12 | -.1158E-02 | 0. |
| 186   | .28E+01 | 0. | .12E+11 | .1089E-02 | -.1158E-02 | 0. |
| 187   | .28E+01 | 0. | .12E+11 | .1641E-02 | -.1182E-02 | 0. |
| 188   | .28E+01 | 0. | .12E+11 | .1338E-02 | -.1173E-02 | 0. |
| 189   | .28E+01 | 0. | .12E+11 | .1964E-12 | -.7231E-03 | 0. |
| 190   | .28E+01 | 0. | .12E+11 | .1747E-03 | -.7293E-03 | 0. |
| 191   | .28E+01 | 0. | .12E+11 | .1655E-02 | -.7264E-03 | 0. |
| 192   | .28E+01 | 0. | .12E+11 | .1047E-03 | -.7264E-03 | 0. |
| 193   | .28E+01 | 0. | .12E+11 | .1654E-12 | -.9392E-03 | 0. |
| 194   | .28E+01 | 0. | .12E+11 | .1943E-12 | -.9822E-03 | 0. |
| 195   | .28E+01 | 0. | .12E+11 | .1662E-02 | -.9575E-03 | 0. |
| 196   | .28E+01 | 0. | .12E+11 | .1778E-02 | -.9598E-03 | 0. |
| 197   | .28E+01 | 0. | .12E+11 | .1998E-12 | -.1159E-02 | 0. |
| 198   | .28E+01 | 0. | .12E+11 | .1778E-03 | -.1159E-02 | 0. |
| 199   | .28E+01 | 0. | .12E+11 | .1768E-02 | -.1177E-02 | 0. |
| 200   | .28E+01 | 0. | .12E+11 | .1849E-03 | -.1182E-02 | 0. |

STRESSES FOR BRICK ELEMENT NO. 21 MATERIAL = 2

| POINT | X | Y | Z | SIGMAX | EPSX | SIGMY | EPSY | SIGMZ | EPSZ | TAUXX | GAMMAX | TAUYX | GAMMAX | TAUZY | GAMMAX | TAUZX | GAMMAX | SIGM1 | EPS1 | SIGM2 | EPS2 | TAUYZ | GAMMAX | TAUZY | GAMMAX | TAUZX | GAMMAX | SIGM3 | EPS3 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM4 | EPS4 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM5 | EPS5 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM6 | EPS6 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM7 | EPS7 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM8 | EPS8 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM9 | EPS9 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM10 | EPS10 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM11 | EPS11 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM12 | EPS12 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM13 | EPS13 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM14 | EPS14 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM15 | EPS15 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM16 | EPS16 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM17 | EPS17 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM18 | EPS18 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM19 | EPS19 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM20 | EPS20 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM21 | EPS21 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM22 | EPS22 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM23 | EPS23 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM24 | EPS24 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM25 | EPS25 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM26 | EPS26 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM27 | EPS27 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM28 | EPS28 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM29 | EPS29 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM30 | EPS30 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM31 | EPS31 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM32 | EPS32 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM33 | EPS33 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM34 | EPS34 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM35 | EPS35 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM36 | EPS36 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM37 | EPS37 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM38 | EPS38 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM39 | EPS39 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM40 | EPS40 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM41 | EPS41 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM42 | EPS42 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM43 | EPS43 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM44 | EPS44 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM45 | EPS45 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM46 | EPS46 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM47 | EPS47 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM48 | EPS48 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM49 | EPS49 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM50 | EPS50 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM51 | EPS51 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM52 | EPS52 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM53 | EPS53 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM54 | EPS54 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM55 | EPS55 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM56 | EPS56 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM57 | EPS57 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM58 | EPS58 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM59 | EPS59 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM60 | EPS60 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM61 | EPS61 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM62 | EPS62 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM63 | EPS63 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM64 | EPS64 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM65 | EPS65 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM66 | EPS66 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM67 | EPS67 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM68 | EPS68 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM69 | EPS69 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM70 | EPS70 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM71 | EPS71 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM72 | EPS72 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM73 | EPS73 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM74 | EPS74 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM75 | EPS75 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM76 | EPS76 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM77 | EPS77 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM78 | EPS78 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM79 | EPS79 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM80 | EPS80 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM81 | EPS81 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM82 | EPS82 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM83 | EPS83 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM84 | EPS84 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM85 | EPS85 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM86 | EPS86 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM87 | EPS87 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM88 | EPS88 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM89 | EPS89 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM90 | EPS90 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM91 | EPS91 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM92 | EPS92 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM93 | EPS93 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM94 | EPS94 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM95 | EPS95 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM96 | EPS96 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM97 | EPS97 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM98 | EPS98 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM99 | EPS99 | TAUYZ | GAMMAX | TAUZX | GAMMAX | SIGM100 | EPS100 | TAUYZ | GAMMAX | TAUZX | GAMMAX |
|-------|---|---|---|--------|------|-------|------|-------|------|-------|--------|-------|--------|-------|--------|-------|--------|-------|------|-------|------|-------|--------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|---------|--------|-------|--------|-------|--------|
|-------|---|---|---|--------|------|-------|------|-------|------|-------|--------|-------|--------|-------|--------|-------|--------|-------|------|-------|------|-------|--------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|-------|------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|--------|-------|-------|--------|-------|--------|---------|--------|-------|--------|-------|--------|

DISPLACEMENTS FOR BRICK ELEMENT NO. 22 MATERIAL = 2

| POINT | I | J | K | U  | V  | W  |
|-------|---|---|---|----|----|----|
| 188   | 3 | 4 | 5 | 0. | 0. | 0. |
| 189   | 3 | 4 | 5 | 0. | 0. | 0. |
| 190   | 3 | 4 | 5 | 0. | 0. | 0. |
| 191   | 3 | 4 | 5 | 0. | 0. | 0. |
| 192   | 3 | 4 | 5 | 0. | 0. | 0. |
| 193   | 3 | 4 | 5 | 0. | 0. | 0. |
| 194   | 3 | 4 | 5 | 0. | 0. | 0. |
| 195   | 3 | 4 | 5 | 0. | 0. | 0. |
| 196   | 3 | 4 | 5 | 0. | 0. | 0. |
| 197   | 3 | 4 | 5 | 0. | 0. | 0. |
| 198   | 3 | 4 | 5 | 0. | 0. | 0. |

STRESSES FOR BRICK ELEMENT NO. 22 MATERIAL = 2

| POINT | X | Y | Z | SIGMX<br>EPSX | SIGMY<br>EPSY | SIGMZ<br>EPSZ | TAUXY<br>GAMMAX | TAUXZ<br>GAMMAX | TAUYZ<br>GAMMAX | SIGM1<br>EPS1 | SIGM2<br>EPS2 | SIGM3<br>EPS3 | TAUMAX<br>GAMMAX |
|-------|---|---|---|---------------|---------------|---------------|-----------------|-----------------|-----------------|---------------|---------------|---------------|------------------|
| 188   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 189   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 190   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 191   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 192   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 193   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 194   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 195   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 196   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 197   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |
| 198   | 3 | 4 | 5 | 0.            | 0.            | 0.            | 0.              | 0.              | 0.              | 0.            | 0.            | 0.            | 0.               |

DISPLACEMENTS FOR BRICK ELEMENT NO. 23 MATERIAL = 2

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUXY<br>GAMMAX | TAUYZ<br>GAMMAX | TAUZX<br>GAMMAX | SIGM1<br>EPS1 | SIGM2<br>EPS2 | SIGM3<br>EPS3 | TANMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|---------------|---------------|---------------|------------------|
| 199   | .28E+01 | 0.      | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 200   | .29E+01 | 0.      | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 201   | .23E+01 | .96E+00 | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 202   | .23E+01 | .94E+00 | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 203   | .24E+01 | 0.      | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 204   | .25E+01 | 0.      | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 205   | .23E+01 | .96E+00 | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 206   | .23E+01 | .94E+00 | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 207   | .24E+01 | .95E+00 | .22E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |

STRESSES FOR BRICK ELEMENT NO. 23 MATERIAL = 2

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUXY<br>GAMMAX | TAUYZ<br>GAMMAX | TAUZX<br>GAMMAX | SIGM1<br>EPS1 | SIGM2<br>EPS2 | SIGM3<br>EPS3 | TANMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|---------------|---------------|---------------|------------------|
| 199   | .28E+01 | 0.      | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 200   | .29E+01 | 0.      | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 201   | .23E+01 | .96E+00 | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 202   | .23E+01 | .94E+00 | .19E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 203   | .24E+01 | 0.      | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 204   | .25E+01 | 0.      | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 205   | .23E+01 | .96E+00 | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 206   | .23E+01 | .94E+00 | .24E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |
| 207   | .24E+01 | .95E+00 | .22E+01 | -.12E+01       | -.12E+01       | -.12E+01       | -.12E+01        | -.12E+01        | -.12E+01        | -.12E+01      | -.12E+01      | -.12E+01      | -.12E+01         |

DISPLACEMENTS FOR BRICK ELEMENT NO. 24 MATERIAL = 2

| I  | J | K | U         | V         | W          |
|----|---|---|-----------|-----------|------------|
| 5  | 3 | 7 | .3624E-02 | .1630E-02 | -.1171E-02 |
| 6  | 3 | 7 | .3648E-02 | .1707E-02 | -.1189E-02 |
| 7  | 3 | 7 | .3496E-02 | .1601E-02 | -.1201E-02 |
| 8  | 5 | 7 | .3521E-02 | .1694E-02 | -.1194E-02 |
| 9  | 3 | 9 | .3140E-02 | .1654E-02 | -.1530E-02 |
| 10 | 3 | 9 | .3165E-02 | .1528E-02 | -.1351E-02 |
| 11 | 3 | 9 | .3220E-02 | .1383E-02 | -.1303E-02 |
| 12 | 3 | 7 | .3281E-02 | .2241E-02 | -.1930E-02 |
| 13 | 3 | 7 | .3633E-02 | .1760E-02 | -.1177E-02 |
| 14 | 7 | 4 | .3834E-02 | .2723E-02 | -.1199E-02 |
| 15 | 5 | 7 | .3505E-02 | .3509E-02 | -.1194E-02 |
| 16 | 3 | 8 | .3825E-02 | .2792E-02 | -.1191E-02 |
| 17 | 3 | 8 | .3527E-02 | .1905E-02 | -.1351E-02 |
| 18 | 7 | 5 | .3456E-02 | .1677E-02 | -.1274E-02 |
| 19 | 7 | 5 | .3456E-02 | .3456E-02 | -.1298E-02 |
| 20 | 3 | 3 | .3154E-02 | .1597E-02 | -.1358E-02 |
| 21 | 4 | 9 | .3472E-02 | .2492E-02 | -.1439E-02 |
| 22 | 5 | 9 | .3232E-02 | .3232E-02 | -.1371E-02 |
| 23 | 4 | 9 | .3455E-02 | .2566E-02 | -.1455E-02 |
| 24 | 4 | 9 | .3455E-02 | .2566E-02 | -.1538E-02 |

STRESSES FOR BRICK ELEMENT NO. 24 MATERIAL = 2

| POINT | X       | Y       | Z       | SIGMAX  |         |         | SIGMY   |         |         | SIGMZ   |         |         | TAUXY   | TAUZX   | TAUYZ   | GAMMAX  | GAMMAX  | GAMMAX  |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|       |         |         |         | EPX     | EPSY    | EPSZ    | EPX     | EPSY    | EPSZ    | EPX     | EPSY    | EPSZ    |         |         |         |         |         |         |
| 200   | .23E+01 | .94E+00 | .19E+01 | .69E+04 | .64E+05 | .90E+04 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 | .64E+05 |
| 209   | .23E+01 | .95E+00 | .19E+01 | .12E+05 | .14E+03 | .12E+05 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 | .14E+03 |
| 210   | .18E+01 | .18E+01 | .19E+01 | .27E+05 | .55F+03 | .27E+05 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 | .55F+03 |
| 211   | .17E+01 | .17E+01 | .19E+01 | .28E+05 | .58E+03 | .28E+05 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 | .58E+03 |
| 212   | .23E+01 | .94E+00 | .24E+01 | .66E+04 | .80E+03 | .66E+04 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 | .80E+03 |
| 213   | .23E+01 | .96E+00 | .24E+01 | .93E+04 | .13E+03 | .93E+04 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 | .13E+03 |
| 214   | .18E+01 | .18E+01 | .24E+01 | .23E+05 | .56E+03 | .23E+05 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 | .56E+03 |
| 215   | .17E+01 | .17E+01 | .24E+01 | .28E+05 | .57E+03 | .28E+05 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 | .57E+03 |
| 216   | .21E+01 | .14E+01 | .22E+01 | .13E+05 | .17E+03 | .13E+05 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 | .17E+03 |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS

| FIRST STRESS        |   | SECOND STRESS |    | THIRD STRESS |   |   |    |             |   |   |    |     |            |
|---------------------|---|---------------|----|--------------|---|---|----|-------------|---|---|----|-----|------------|
| ELEMENT NO.         | I | J             | K  | ELEMENT NO.  | I | J | K  | ELEMENT NO. | I | J | K  |     |            |
| MATERIAL NUMBER = 1 |   |               |    |              |   |   |    |             |   |   |    |     |            |
| SIGMA MAX           | 1 | 1             | 4  | -0.87E+03    | 1 | 1 | 1  | -0.841E+03  | 1 | 3 | 1  | 10  | -0.041E+03 |
| SIGMA MIN           | 3 | 1             | 20 | -0.169E+04   | 3 | 1 | 21 | -0.160E+04  | 3 | 3 | 1  | 29  | -0.160E+04 |
| TAU MAX             | 1 | 5             | 73 | 0.276E+03    | 1 | 3 | 41 | 0.276E+03   | 1 | 3 | 37 | 37  | 0.275E+03  |
| EPS MAX             | 1 | 1             | 4  | 0.234E-01    | 1 | 1 | 5  | 0.231E-01   | 1 | 3 | 1  | 18  | 0.281E-01  |
| EPS MIN             | 1 | 1             | 5  | -0.292E-11   | 1 | 1 | 3  | -0.292E-01  | 1 | 1 | 5  | 77  | -0.292E-01 |
| GAMMA MAX           | 1 | 1             | 5  | 0.366E-01    | 1 | 1 | 3  | 0.35E-01    | 1 | 1 | 3  | 87  | 0.046E-01  |
| MATERIAL NUMBER = 2 |   |               |    |              |   |   |    |             |   |   |    |     |            |
| SIGMA MAX           | 5 | 3             | 7  | 0.551E+05    | 5 | 3 | 7  | 0.547E+05   | 5 | 3 | 1  | 155 | 0.583E+05  |
| SIGMA MIN           | 5 | 1             | 7  | -0.142E+05   | 5 | 1 | 7  | -0.127E+05  | 5 | 1 | 7  | 199 | -0.184E+05 |
| TAU MAX             | 5 | 3             | 1  | 0.298E+05    | 5 | 3 | 1  | 0.209E+05   | 5 | 3 | 7  | 200 | 0.205E+05  |
| EPS MAX             | 5 | 3             | 1  | 0.178E-02    | 5 | 3 | 7  | 0.177E-02   | 5 | 3 | 5  | 196 | 0.177E-02  |
| EPS MIN             | 5 | 1             | 7  | -0.832E-03   | 5 | 1 | 7  | -0.803E-03  | 5 | 3 | 7  | 212 | -0.787E-03 |
| GAMMA MAX           | 5 | 3             | 1  | 0.252E-02    | 5 | 3 | 1  | 0.251E-02   | 5 | 3 | 7  | 200 | 0.247E-02  |

TIME IN SECS 3.897 SECONDS

MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 16

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 15

| COARSE GRID ELEMENT = 5 |       |   |   |           |         |         |      |       |   |   |           |            |           |
|-------------------------|-------|---|---|-----------|---------|---------|------|-------|---|---|-----------|------------|-----------|
| MODE                    | K     | J | I | X-COORD   | Y-COORD | Z-COORD | MODE | K     | J | I | X-COORD   | Y-COORD    | Z-COORD   |
| 1                       | 30101 | 0 | 0 | 0.948E+00 | 0       | 0       | 11   | 30302 | 0 | 0 | 0.123E+01 | 0.511E+00  | 0.463E+00 |
| 2                       | 30103 | 0 | 0 | 0.169E+01 | 0       | 0       | 12   | 30281 | 0 | 0 | 0.921E+09 | -0.103E+00 | 0.63E+00  |
| 3                       | 30303 | 0 | 0 | 0.166E+01 | 0       | 0       | 13   | 40101 | 0 | 0 | 0.120E+01 | 0          | 0.85E+00  |
| 4                       | 30301 | 0 | 0 | 0.948E+00 | 0       | 0       | 14   | 40103 | 0 | 0 | 0.102E+01 | 0          | 0.84E+00  |
| 5                       | 50101 | 0 | 0 | 0.154E+01 | 0       | 0       | 15   | 40303 | 0 | 0 | 0.155E+01 | 0          | 0.83E+00  |
| 6                       | 50103 | 0 | 0 | 0.154E+01 | 0       | 0       | 16   | 40281 | 0 | 0 | 0.177E+01 | 0          | 0.84E+00  |
| 7                       | 50303 | 0 | 0 | 0.172E+01 | 0       | 0       | 17   | 50102 | 0 | 0 | 0.192E+01 | 0          | 0.84E+00  |
| 8                       | 50301 | 0 | 0 | 0.166E+01 | 0       | 0       | 18   | 50203 | 0 | 0 | 0.192E+01 | 0          | 0.84E+00  |
| 9                       | 30102 | 0 | 0 | 0.112E+01 | 0       | 0       | 19   | 50202 | 0 | 0 | 0.143E+01 | 0          | 0.84E+00  |
| 10                      | 30203 | 0 | 0 | 0.169E+01 | 0       | 0       | 20   | 50201 | 0 | 0 | 0.140E+01 | 0          | 0.84E+00  |

| FINE GRID ELEMENT = 1 |   |   |   |           |         |         |      |   |   |   |         |         |         |
|-----------------------|---|---|---|-----------|---------|---------|------|---|---|---|---------|---------|---------|
| MODE                  | I | J | K | X-COORD   | Y-COORD | Z-COORD | MODE | I | J | K | X-COORD | Y-COORD | Z-COORD |
| 1                     | 1 | 1 | 4 | -0.87E+03 | 1       | 1       | 1    | 1 | 1 | 1 | 1       | 1       | 1       |

| 4  | 4 | 4 | J | 0.790E+00 | 0.       | 0.790E+00 | 11 | 4 | 3 | 3 | 0.111E+00 | 0.221E+00 | 0.403E+00 |
|----|---|---|---|-----------|----------|-----------|----|---|---|---|-----------|-----------|-----------|
| 2  | 3 | 1 | 3 | .132E+01  | 0.       | .463E+00  | 12 | 1 | 2 | 3 | .939E+00  | .926E-01  | .463E+00  |
| 3  | 3 | 3 | 3 | .131E+01  | .260E+00 | .463E+00  | 13 | 1 | 1 | 4 | .106E+01  | 0.        | .668F+00  |
| 4  | 1 | 3 | 3 | .921E+00  | .183E+00 | .463E+00  | 14 | 3 | 1 | 4 | .141E+01  | 0.        | .668F+00  |
| 5  | 1 | 1 | 5 | .120E+01  | 0.       | .854E+00  | 15 | 3 | 3 | 4 | .138E+01  | .270E+00  | .657E+00  |
| 6  | 3 | 1 | 5 | .151E+01  | 0.       | .849E+00  | 16 | 1 | 3 | 4 | .102E+01  | .190E+00  | .668F+00  |
| 7  | 3 | 3 | 5 | .146E+01  | .281E+00 | .849E+00  | 17 | 2 | 1 | 5 | .130E+01  | 0.        | .892E+00  |
| 8  | 1 | 3 | 5 | .113E+01  | .213E+00 | .849E+00  | 18 | 3 | 2 | 5 | .150E+01  | .168E+00  | .847E+00  |
| 9  | 2 | 1 | 3 | .113E+01  | 0.       | .463E+00  | 19 | 2 | 3 | 5 | .129E+01  | .247E+00  | .847E+00  |
| 10 | 3 | 2 | 3 | .132E+01  | .131E+00 | .463E+00  | 20 | 1 | 2 | 5 | .117E+01  | .116E+00  | .852E+00  |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 4    | .1473E-01  |
| 2    | 4    | .3947E-02  |
| 3    | 4    | -.2136E-01 |
| 1    | 1    | .1519E-01  |
| 2    | 1    | .3898E-09  |
| 3    | 1    | -.2204E-01 |
| 1    | 5    | .9150E-02  |
| 2    | 5    | -.1026E-00 |
| 3    | 5    | -.1810E-01 |
| 1    | 8    | .9240E-02  |
| 2    | 8    | .3908E-02  |
| 3    | 8    | -.1756E-01 |
| 1    | 12   | .1498E-01  |
| 2    | 12   | .2056E-02  |
| 3    | 12   | -.2172E-01 |
| 1    | 13   | .1102E-01  |
| 2    | 13   | -.6569E-09 |
| 3    | 13   | -.2023E-01 |
| 1    | 20   | .9150E-02  |
| 2    | 20   | .2014E-02  |
| 3    | 20   | -.1703E-01 |
| 1    | 16   | .1172E-01  |
| 2    | 16   | .3892E-02  |
| 3    | 16   | -.1959E-01 |
| 1    | 2    | .9539E-02  |
| 2    | 2    | -.1842E-00 |
| 3    | 2    | -.1530E-01 |
| 1    | 6    | .5956E-02  |
| 2    | 6    | -.2135E-00 |
| 3    | 6    | -.1171E-01 |
| 1    | 9    | .1205E-01  |
| 2    | 9    | -.6807E-09 |
| 3    | 9    | -.1849E-01 |
| 1    | 14   | .7517E-02  |
| 2    | 14   | -.1936E-00 |
| 3    | 14   | -.1355E-01 |
| 1    | 17   | .7336E-02  |
| 2    | 17   | -.1849E-00 |
| 3    | 17   | -.1467E-01 |
| 1    | 3    | .9279E-02  |
| 2    | 3    | .2137E-02  |
| 3    | 3    | -.1511E-01 |
| 1    | 11   | .1170E-01  |
| 2    | 11   | .2914E-02  |
| 3    | 11   | -.1815E-01 |
| 1    | 10   | .9414E-02  |
| 2    | 10   | .1106E-02  |
| 3    | 10   | -.1518E-01 |

FINE GRID ELEMENT = 2

| NODE | I | J | K | X-COORD  | Y-COORD | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|---------|----------|------|---|---|---|----------|----------|----------|
| 1    | 1 | 1 | 5 | .120E+01 | 0.      | .854E+00 | 11   | 2 | 3 | 5 | .129E+01 | .247E+00 | .847E+00 |
| 2    | 3 | 1 | 5 | .151E+01 | 0.      | .849E+00 | 12   | 1 | 2 | 5 | .117E+01 | .116E+00 | .852E+00 |

| NO | POINT | CLAMP | AND | SLOPE    | TYPE     | BC       | VALUE | NO | POINT | CLAMP | AND      | SLOPE    | TYPE     | BC | VALUE |
|----|-------|-------|-----|----------|----------|----------|-------|----|-------|-------|----------|----------|----------|----|-------|
| 4  | 1     | 3     | 5   | .113E+01 | .213E+00 | .064E+00 | 14    | 3  | 1     | 6     | .163E+01 | 0.       | .103E+01 |    |       |
| 5  | 1     | 1     | 7   | .194E+01 | 0.       | .120E+01 | 15    | 3  | 3     | 6     | .195E+01 | .291E+00 | .103E+01 |    |       |
| 6  | 3     | 1     | 7   | .177E+01 | 0.       | .120E+01 | 16    | 1  | 3     | 6     | .126E+01 | .229E+00 | .103E+01 |    |       |
| 7  | 3     | 3     | 7   | .166E+01 | .302E+00 | .120E+01 | 17    | 2  | 1     | 7     | .166E+01 | 0.       | .120E+01 |    |       |
| 8  | 1     | 3     | 7   | .140E+01 | .244E+00 | .120E+01 | 18    | 3  | 2     | 7     | .173E+01 | .165E+00 | .120E+01 |    |       |
| 9  | 2     | 1     | 5   | .136E+01 | 0.       | .052E+00 | 19    | 2  | 3     | 7     | .193E+01 | .272E+00 | .120E+01 |    |       |
| 10 | 3     | 2     | 5   | .150E+01 | .146E+00 | .064E+00 | 20    | 1  | 2     | 7     | .140E+01 | .140E+00 | .120E+01 |    |       |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 4    | .9240E-02  |
| 2    | 4    | .3900E-02  |
| 3    | 4    | -.1756E-01 |
| 1    | 1    | -.9190E-02 |
| 2    | 1    | -.1026E-00 |
| 3    | 1    | -.1010E-01 |
| 1    | 5    | .5096E-02  |
| 2    | 5    | .2074E-09  |
| 3    | 5    | -.1200E-01 |
| 1    | 8    | .5079E-02  |
| 2    | 8    | .4150E-02  |
| 3    | 8    | -.1270E-01 |
| 1    | 12   | .9150E-02  |
| 2    | 12   | .2914E-02  |
| 3    | 12   | -.1793E-01 |
| 1    | 13   | .7174E-02  |
| 2    | 13   | -.7101E-09 |
| 3    | 13   | -.1909E-01 |
| 1    | 20   | .5790E-02  |
| 2    | 20   | .2111E-02  |
| 3    | 20   | -.1277E-01 |
| 1    | 16   | .7292E-02  |
| 2    | 16   | .3994E-02  |
| 3    | 16   | -.1920E-01 |
| 1    | 2    | .5956E-02  |
| 2    | 2    | -.2139E-00 |
| 3    | 2    | -.1171E-01 |
| 1    | 6    | .4214E-02  |
| 2    | 6    | -.4505E-09 |
| 3    | 6    | -.7702E-02 |
| 1    | 9    | .7336E-02  |
| 2    | 9    | -.1049E-00 |
| 3    | 9    | -.1467E-01 |
| 1    | 14   | .4855E-02  |
| 2    | 14   | -.1640E-00 |
| 3    | 14   | -.9790E-02 |
| 1    | 17   | .4940E-02  |
| 2    | 17   | -.2740E-09 |
| 3    | 17   | -.1004E-01 |
| 1    | 7    | .4802E-02  |
| 2    | 7    | .1813E-02  |
| 3    | 7    | -.8929E-02 |
| 1    | 18   | .4474E-02  |
| 2    | 18   | .0672E-03  |
| 3    | 18   | -.0204E-02 |
| 1    | 19   | .5370E-02  |
| 2    | 19   | .2016E-02  |
| 3    | 19   | -.1077E-01 |

FINE GRID ELEMENT # 3

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 1 | 3 | 3 | .921E+00 | .183E+00 | .463E+00 | 11   | 2 | 5 | 3 | .105E+01 | .435E+00 | .463E+00 |
| 2    | 3 | 3 | 3 | .131E+01 | .200E+00 | .463E+00 | 12   | 1 | 4 | 3 | .099E+00 | .272E+00 | .463E+00 |
| 3    | 3 | 5 | 3 | .123E+01 | .511E+00 | .463E+00 | 13   | 1 | 3 | 4 | .102E+01 | .198E+00 | .660E+00 |
| 4    | 1 | 5 | 3 | .060E+00 | .360E+00 | .463E+00 | 14   | 3 | 3 | 4 | .136E+01 | .270E+00 | .657E+00 |

| 1  | 2 | 3 | 4 | 5        | 6        | 7        | 8  | 9 | 10 | 11 | 12       | 13       | 14       | 15       | 16 | 17 | 18 | 19 | 20 |
|----|---|---|---|----------|----------|----------|----|---|----|----|----------|----------|----------|----------|----|----|----|----|----|
| 6  | 3 | 3 | 5 | .146E+01 | .281E+01 | .845E+00 | 16 | 1 | 5  | 4  | .107E+01 | .292E+00 | .962E+00 | .056E+00 |    |    |    |    |    |
| 7  | 3 | 5 | 5 | .132E+01 | .500E+00 | .841E+00 | 17 | 2 | 3  | 5  | .126E+01 | .292E+00 | .962E+00 | .056E+00 |    |    |    |    |    |
| 8  | 1 | 5 | 5 | .995E+00 | .352E+00 | .844E+00 | 18 | 3 | 4  | 5  | .140E+01 | .390E+00 | .843E+00 |          |    |    |    |    |    |
| 9  | 2 | 3 | 3 | .111E+01 | .221E+00 | .463E+00 | 19 | 2 | 5  | 5  | .116E+01 | .426E+00 | .862E+00 |          |    |    |    |    |    |
| 10 | 3 | 4 | 3 | .120E+01 | .306E+00 | .463E+00 | 20 | 1 | 4  | 5  | .107E+01 | .292E+00 | .966E+00 |          |    |    |    |    |    |

POINT, CLAMP, AND SLOPE TYPE BC.

| POINT TYPE | CLAMP | AND SLOPE | TYPE BC. | VALUE      |
|------------|-------|-----------|----------|------------|
| 1          | 4     |           |          | .1411E-01  |
| 2          | 4     |           |          | .7230E-02  |
| 3          | 4     |           |          | -.2851E-01 |
| 1          | 1     |           |          | .1473E-01  |
| 2          | 1     |           |          | .3947E-02  |
| 3          | 1     |           |          | -.2136E-01 |
| 1          | 5     |           |          | .9240E-02  |
| 2          | 5     |           |          | .3980E-02  |
| 3          | 5     |           |          | -.1756E-01 |
| 1          | 8     |           |          | .9629E-02  |
| 2          | 8     |           |          | .7339E-02  |
| 3          | 8     |           |          | -.1701E-01 |
| 1          | 12    |           |          | .1444E-01  |
| 2          | 12    |           |          | .5671E-02  |
| 3          | 12    |           |          | -.2096E-01 |
| 1          | 13    |           |          | .1172E-01  |
| 2          | 13    |           |          | .3892E-02  |
| 3          | 13    |           |          | -.1959E-01 |
| 1          | 20    |           |          | .9397E-02  |
| 2          | 20    |           |          | .5683E-02  |
| 3          | 20    |           |          | -.1729E-01 |
| 1          | 16    |           |          | .1160E-01  |
| 2          | 16    |           |          | .7214E-02  |
| 3          | 16    |           |          | -.1887E-01 |
| 1          | 3     |           |          | .8976E-02  |
| 2          | 3     |           |          | .3970E-02  |
| 3          | 3     |           |          | -.1510E-01 |
| 1          | 7     |           |          | .7101E-02  |
| 2          | 7     |           |          | .3642E-02  |
| 3          | 7     |           |          | -.1363E-01 |
| 1          | 11    |           |          | .1124E-01  |
| 2          | 11    |           |          | .5349E-02  |
| 3          | 11    |           |          | -.1780E-01 |
| 1          | 19    |           |          | .8272E-02  |
| 2          | 19    |           |          | .5198E-02  |
| 3          | 19    |           |          | -.1512E-01 |
| 1          | 15    |           |          | .7924E-02  |
| 2          | 15    |           |          | .3734E-02  |
| 3          | 15    |           |          | -.1411E-01 |
| 1          | 2     |           |          | .9279E-02  |
| 2          | 2     |           |          | .2137E-02  |
| 3          | 2     |           |          | -.1511E-01 |
| 1          | 10    |           |          | .9133E-02  |
| 2          | 10    |           |          | .3895E-02  |
| 3          | 10    |           |          | -.1508E-01 |
| 1          | 9     |           |          | .1170E-01  |
| 2          | 9     |           |          | .2914E-02  |
| 3          | 9     |           |          | -.1815E-01 |

| FINE GRID ELEMENT = 4 |   |   |   |          |          |          |      |   |   |   |          |          |          |
|-----------------------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| NODE                  | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
| 1                     | 1 | 3 | 5 | .113E+01 | .213E+01 | .849E+00 | 11   | 2 | 5 | 5 | .116E+01 | .426E+00 | .962E+00 |
| 2                     | 3 | 3 | 5 | .146E+01 | .281E+01 | .845E+00 | 12   | 1 | 4 | 5 | .107E+01 | .292E+00 | .966E+00 |
| 3                     | 3 | 5 | 5 | .132E+01 | .500E+00 | .841E+00 | 13   | 1 | 3 | 6 | .126E+01 | .292E+00 | .966E+00 |
| 4                     | 1 | 5 | 5 | .995E+00 | .352E+00 | .844E+00 | 14   | 3 | 3 | 6 | .140E+01 | .390E+00 | .843E+00 |
| 5                     | 1 | 3 | 7 | .140E+01 | .244E+00 | .120E+01 | 15   | 3 | 5 | 6 | .137E+01 | .495E+00 | .182E+01 |
| 6                     | 3 | 3 | 7 | .166E+01 | .302E+00 | .120E+01 | 16   | 1 | 5 | 6 | .107E+01 | .348E+00 | .183E+01 |



| I  | J | K | L | VALUE    | VALUE    | VALUE    | AI | LI | SI | VALUE | VALUE    | VALUE    |          |
|----|---|---|---|----------|----------|----------|----|----|----|-------|----------|----------|----------|
| 8  | 1 | 5 | 7 | .116E+01 | .345E+00 | .127E+01 | 18 | 3  | 4  | 7     | .156E+01 | .410E+00 | .128E+01 |
| 9  | 2 | 3 | 5 | .129E+01 | .247E+00 | .847E+00 | 19 | 2  | 5  | 7     | .130E+01 | .416E+00 | .128E+01 |
| 10 | 3 | 4 | 5 | .140E+01 | .390E+00 | .843E+00 | 20 | 1  | 4  | 7     | .129E+01 | .312E+00 | .128E+01 |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 4    | .9629E-02  |
| 2    | 4    | .7339E-02  |
| 3    | 4    | -.1701E-01 |
| 1    | 1    | .9240E-02  |
| 2    | 1    | .3980E-02  |
| 3    | 1    | -.1796E-01 |
| 1    | 5    | .5075E-02  |
| 2    | 5    | .4150E-01  |
| 3    | 5    | -.1270E-01 |
| 1    | 8    | .6022E-02  |
| 2    | 8    | .8089E-02  |
| 3    | 8    | -.1267E-01 |
| 1    | 12   | .9397E-02  |
| 2    | 12   | .5683E-02  |
| 3    | 12   | -.1729E-01 |
| 1    | 13   | .7292E-02  |
| 2    | 13   | .3994E-02  |
| 3    | 13   | -.1926E-01 |
| 1    | 20   | .6153E-02  |
| 2    | 20   | .6116E-02  |
| 3    | 20   | -.1267E-01 |
| 1    | 10   | .7941E-02  |
| 2    | 16   | .7604E-02  |
| 3    | 16   | -.1494E-01 |
| 1    | 3    | .7101E-02  |
| 2    | 3    | .3642E-02  |
| 3    | 3    | -.1303E-01 |
| 1    | 7    | .6149E-02  |
| 2    | 7    | .3939E-02  |
| 3    | 7    | -.1862E-01 |
| 1    | 11   | .8272E-02  |
| 2    | 11   | .5198E-02  |
| 3    | 11   | -.1512E-01 |
| 1    | 19   | .8497E-02  |
| 2    | 19   | .5644E-02  |
| 3    | 19   | -.1185E-01 |
| 1    | 15   | .6508E-02  |
| 2    | 15   | .3711E-02  |
| 3    | 15   | -.1187E-01 |
| 1    | 6    | .4882E-02  |
| 2    | 6    | .1813E-02  |
| 3    | 6    | -.8925E-02 |
| 1    | 18   | .5440E-02  |
| 2    | 18   | .2837E-02  |
| 3    | 18   | -.9703E-02 |
| 1    | 17   | .5370E-02  |
| 2    | 17   | .2816E-02  |
| 3    | 17   | -.1077E-01 |

FINE GRID ELEMENT = 5

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 3 | 1 | 3 | .132E+01 | 0.       | .463E+00 | 11   | 4 | 3 | 3 | .159E+01 | .250E+00 | .483E+00 |
| 2    | 3 | 1 | 3 | .169E+01 | 0.       | .463E+00 | 12   | 3 | 2 | 3 | .132E+01 | .131E+00 | .463E+00 |
| 3    | 5 | 3 | 3 | .169E+01 | .336E+00 | .463E+00 | 13   | 3 | 1 | 4 | .141E+01 | 0.       | .600E+00 |
| 4    | 3 | 3 | 3 | .131E+01 | .260E+00 | .463E+00 | 14   | 5 | 1 | 4 | .175E+01 | 0.       | .656E+00 |
| 5    | 3 | 1 | 5 | .151E+01 | 0.       | .849E+00 | 15   | 5 | 3 | 4 | .173E+01 | .343E+00 | .654E+00 |
| 6    | 3 | 1 | 5 | .182E+01 | 0.       | .844E+00 | 16   | 3 | 3 | 4 | .139E+01 | .270E+00 | .697E+00 |
| 7    | 3 | 3 | 5 | .179E+01 | .350E+00 | .841E+00 | 17   | 4 | 1 | 5 | .167E+01 | 0.       | .846E+00 |
| 8    | 3 | 3 | 5 | .146E+01 | .281E+00 | .845E+00 | 18   | 5 | 2 | 5 | .182E+01 | .181E+00 | .842E+00 |

7 4 3 3 .020E+04 17 .000E+00 17 3 3 3 .000E+04 .000E+00 .000E+00  
 10 5 2 3 .170E+01 .169E+00 .463E+00 20 3 2 3 .157E+01 .148E+00 .897E+00

POINT, CLAMP, AND SLOPE TYPE BC.

| POINT<br>TYPE | CLAMP<br>NODE | SLOPE | TYPE | BC | VALUE      |
|---------------|---------------|-------|------|----|------------|
| 1             | 2             |       |      |    | .6440E-02  |
| 2             | 2             |       |      |    | .3810E-03  |
| 3             | 2             |       |      |    | -.9970E-02 |
| 1             | 3             |       |      |    | .6290E-02  |
| 2             | 3             |       |      |    | .1340E-02  |
| 3             | 3             |       |      |    | -.9013E-02 |
| 1             | 7             |       |      |    | .4701E-02  |
| 2             | 7             |       |      |    | .8945E-03  |
| 3             | 7             |       |      |    | -.7363E-02 |
| 1             | 6             |       |      |    | .4497E-02  |
| 2             | 6             |       |      |    | -.1897E-00 |
| 3             | 6             |       |      |    | -.7200E-02 |
| 1             | 10            |       |      |    | .6350E-02  |
| 2             | 10            |       |      |    | .6653E-03  |
| 3             | 10            |       |      |    | -.9734E-02 |
| 1             | 15            |       |      |    | .5461E-02  |
| 2             | 15            |       |      |    | .1877E-02  |
| 3             | 15            |       |      |    | -.8444E-00 |
| 1             | 18            |       |      |    | .4607E-02  |
| 2             | 18            |       |      |    | .3855E-03  |
| 3             | 18            |       |      |    | -.7195E-02 |
| 1             | 14            |       |      |    | .5356E-02  |
| 2             | 14            |       |      |    | -.7236E-09 |
| 3             | 14            |       |      |    | -.8581E-02 |
| 1             | 1             |       |      |    | .9539E-02  |
| 2             | 1             |       |      |    | -.1642E-00 |
| 3             | 1             |       |      |    | -.1E30E-01 |
| 1             | 5             |       |      |    | .5996E-02  |
| 2             | 5             |       |      |    | -.2135E-00 |
| 3             | 5             |       |      |    | -.1171E-01 |
| 1             | 9             |       |      |    | -.7670E-02 |
| 2             | 9             |       |      |    | -.6940E-09 |
| 3             | 9             |       |      |    | -.1246E-01 |
| 1             | 17            |       |      |    | .F010E-C2  |
| 2             | 17            |       |      |    | -.1805E-00 |
| 3             | 17            |       |      |    | -.9225E-02 |
| 1             | 13            |       |      |    | .7517E-02  |
| 2             | 13            |       |      |    | -.1936E-00 |
| 3             | 13            |       |      |    | -.1355E-01 |
| 1             | 4             |       |      |    | .9279E-02  |
| 2             | 4             |       |      |    | .2137E-02  |
| 3             | 4             |       |      |    | -.1511E-01 |
| 1             | 12            |       |      |    | .9414E-C2  |
| 2             | 12            |       |      |    | .1106E-02  |
| 3             | 12            |       |      |    | -.1510E-C1 |
| 1             | 11            |       |      |    | .7479E-02  |
| 2             | 11            |       |      |    | .1615E-02  |
| 3             | 11            |       |      |    | -.1227E-01 |

FINE GRID ELEMENT = 6

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 3 | 1 | 5 | .151E+01 | 0.       | .849E+00 | 11   | 4 | 3 | 5 | .162E+01 | .319E+00 | .963E+00 |
| 2    | 5 | 1 | 5 | .182E+01 | 0.       | .844E+00 | 12   | 3 | 2 | 5 | .157E+01 | .148E+00 | .967E+00 |
| 3    | 5 | 3 | 5 | .179E+01 | .350E+00 | .841E+00 | 13   | 2 | 1 | 6 | .163E+01 | 0.       | .193E+01 |
| 4    | 3 | 3 | 5 | .146E+01 | .281E+00 | .845E+00 | 14   | 5 | 1 | 6 | .190E+01 | 0.       | .103E+01 |
| 5    | 3 | 1 | 7 | .177E+01 | 0.       | .120E+01 | 15   | 5 | 3 | 6 | .185E+01 | .357E+00 | .182E+01 |
| 6    | 5 | 1 | 7 | .199E+01 | 0.       | .120E+01 | 16   | 3 | 3 | 6 | .155E+01 | .291E+00 | .183E+01 |
| 7    | 5 | 3 | 7 | .192E+01 | .363E+00 | .120E+01 | 17   | 4 | 1 | 7 | .188E+01 | 0.       | .129E+01 |
| 8    | 3 | 3 | 7 | .166E+01 | .302E+00 | .120E+01 | 18   | 5 | 2 | 7 | .197E+01 | .192E+00 | .120E+01 |
| 9    | 4 | 1 | 5 | .167E+01 | 0.       | .846E+00 | 19   | 4 | 3 | 7 | .179E+01 | .332E+00 | .120E+01 |
| 10   | 5 | 2 | 5 | .182E+01 | .181E+00 | .842E+00 | 20   | 3 | 2 | 7 | .173E+01 | .169E+00 | .120E+01 |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 2    | .4497E-02  |
| 2    | 2    | -.1097E-00 |
| 3    | 2    | -.7200E-02 |
| 1    | 3    | .4701E-02  |
| 2    | 3    | .0965E-03  |
| 3    | 3    | -.7363E-02 |
| 1    | 7    | .3095E-02  |
| 2    | 7    | .7938E-03  |
| 3    | 7    | -.5469E-02 |
| 1    | 6    | .3040E-02  |
| 2    | 6    | .2910E-09  |
| 3    | 6    | -.5014E-02 |
| 1    | 10   | .4607E-02  |
| 2    | 10   | .3055E-03  |
| 3    | 10   | -.7195E-02 |
| 1    | 15   | .4259E-02  |
| 2    | 15   | .0000E-03  |
| 3    | 15   | -.6372E-02 |
| 1    | 18   | .3619E-02  |
| 2    | 18   | .2022E-03  |
| 3    | 18   | -.5122E-02 |
| 1    | 14   | .3061E-02  |
| 2    | 14   | -.7509E-09 |
| 3    | 14   | -.6030E-02 |
| 1    | 1    | .5956E-02  |
| 2    | 1    | -.2139E-00 |
| 3    | 1    | -.1171E-01 |
| 1    | 5    | .4214E-02  |
| 2    | 5    | -.4505E-09 |
| 3    | 5    | -.7700E-02 |
| 1    | 9    | .5010E-02  |
| 2    | 9    | -.1005E-00 |
| 3    | 9    | -.9225E-02 |
| 1    | 17   | .3717E-02  |
| 2    | 17   | -.2622E-09 |
| 3    | 17   | -.6105E-02 |
| 1    | 13   | .4055E-02  |
| 2    | 13   | -.1040E-00 |
| 3    | 13   | -.9796E-02 |
| 1    | 8    | .4002E-02  |
| 2    | 8    | .1013E-02  |
| 3    | 8    | -.0925E-02 |
| 1    | 19   | .4300E-02  |
| 2    | 19   | .1130E-02  |
| 3    | 19   | -.7157E-02 |
| 1    | 20   | .4474E-02  |
| 2    | 20   | .0672E-03  |
| 3    | 20   | -.0204E-02 |

FINE GRID ELEMENT = 7

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 3 | 3 | 3 | .131E+01 | .260E+00 | .463E+00 | 11   | 4 | 5 | 3 | .142E+01 | .507E+00 | .463E+00 |
| 2    | 3 | 3 | 3 | .169E+01 | .336E+00 | .463E+00 | 12   | 3 | 4 | 3 | .120E+01 | .306E+00 | .463E+00 |
| 3    | 5 | 5 | 3 | .160E+01 | .663E+00 | .463E+00 | 13   | 3 | 3 | 4 | .130E+01 | .270E+00 | .657E+00 |
| 4    | 3 | 5 | 3 | .123E+01 | .511E+00 | .463E+00 | 14   | 5 | 3 | 4 | .173E+01 | .343E+00 | .654E+00 |
| 5    | 3 | 3 | 5 | .146E+01 | .201E+00 | .045E+00 | 15   | 5 | 5 | 4 | .162E+01 | .057E+00 | .652E+00 |
| 6    | 3 | 3 | 5 | .179E+01 | .350E+00 | .041E+00 | 16   | 3 | 5 | 4 | .127E+01 | .506E+00 | .654E+00 |
| 7    | 5 | 5 | 5 | .165E+01 | .652E+00 | .030E+00 | 17   | 4 | 3 | 5 | .162E+01 | .315E+00 | .043E+00 |
| 8    | 3 | 5 | 5 | .132E+01 | .500E+00 | .041E+00 | 18   | 5 | 4 | 5 | .173E+01 | .507E+00 | .043E+00 |
| 9    | 4 | 3 | 3 | .150E+01 | .290E+00 | .463E+00 | 19   | 4 | 5 | 5 | .140E+01 | .576E+00 | .040E+00 |
| 10   | 5 | 4 | 3 | .166E+01 | .500E+00 | .463E+00 | 20   | 3 | 4 | 5 | .140E+01 | .390E+00 | .043E+00 |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 2    | .6298E-02  |
| 2    | 2    | .1340E-02  |
| 3    | 2    | -.9613E-02 |
| 1    | 3    | .6244E-02  |
| 2    | 3    | .2767E-02  |
| 3    | 3    | -.9749E-02 |
| 1    | 7    | .5320E-02  |
| 2    | 7    | .2203E-02  |
| 3    | 7    | -.8244E-02 |
| 1    | 6    | .4701E-02  |
| 2    | 6    | .8945E-03  |
| 3    | 6    | -.7363E-02 |
| 1    | 10   | .6260E-02  |
| 2    | 10   | .2049E-02  |
| 3    | 10   | -.9617E-02 |
| 1    | 15   | .9730E-02  |
| 2    | 15   | .2437E-02  |
| 3    | 15   | -.8978E-02 |
| 1    | 18   | .5819E-02  |
| 2    | 18   | .1527E-02  |
| 3    | 18   | -.7713E-02 |
| 1    | 14   | .5461E-02  |
| 2    | 14   | .1877E-02  |
| 3    | 14   | -.8444E-02 |
| 1    | 4    | .897E-C2   |
| 2    | 4    | .3978E-02  |
| 3    | 4    | -.1510E-01 |
| 1    | 8    | .7101E-02  |
| 2    | 8    | .3642E-C2  |
| 3    | 8    | -.1303E-01 |
| 1    | 11   | .7310E-02  |
| 2    | 11   | .3110E-02  |
| 3    | 11   | -.1241E-01 |
| 1    | 16   | .7924E-02  |
| 2    | 16   | .3731E-02  |
| 3    | 16   | -.1411E-01 |
| 1    | 19   | .6117E-02  |
| 2    | 19   | .2670E-C2  |
| 3    | 19   | -.1074E-C1 |
| 1    | 1    | .9279E-02  |
| 2    | 1    | .2137E-02  |
| 3    | 1    | -.1511E-01 |
| 1    | 12   | .9133E-02  |
| 2    | 12   | .3895E-02  |
| 3    | 12   | -.1508E-01 |
| 1    | 9    | .7479E-02  |
| 2    | 9    | .1615E-02  |
| 3    | 9    | -.1227E-01 |

| FINE GRID ELEMENT = 8 |   |   |   |          |          |          |      |   |   |   |          |          |          |
|-----------------------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| NODE                  | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
| 1                     | 3 | 3 | 5 | .146E+01 | .291E+00 | .845E+00 | 11   | 4 | 5 | 5 | .148E+01 | .576E+00 | .809E+00 |
| 2                     | 5 | 3 | 5 | .179E+01 | .150E+00 | .841E+00 | 12   | 3 | 4 | 5 | .144E+01 | .398E+00 | .943E+00 |
| 3                     | 5 | 5 | 5 | .165E+01 | .652E+00 | .838E+00 | 13   | 3 | 3 | 6 | .155E+01 | .291E+00 | .103E+01 |
| 4                     | 3 | 5 | 5 | .132E+01 | .500E+00 | .841E+00 | 14   | 5 | 3 | 6 | .185E+01 | .357E+00 | .102E+01 |
| 5                     | 3 | 3 | 7 | .166E+01 | .302E+00 | .120E+01 | 15   | 5 | 5 | 6 | .168E+01 | .646E+00 | .182E+01 |
| 6                     | 5 | 3 | 7 | .192E+01 | .363E+00 | .120E+01 | 16   | 3 | 5 | 6 | .137E+01 | .495E+00 | .102E+01 |
| 7                     | 5 | 5 | 7 | .172E+01 | .640E+00 | .120E+01 | 17   | 4 | 3 | 7 | .179E+01 | .332E+00 | .120E+01 |
| 8                     | 3 | 5 | 7 | .143E+01 | .489E+00 | .120E+01 | 18   | 5 | 4 | 7 | .183E+01 | .513E+00 | .120E+01 |
| 9                     | 4 | 3 | 5 | .162E+01 | .315E+00 | .843E+00 | 19   | 4 | 5 | 7 | .157E+01 | .564E+00 | .120E+01 |
| 10                    | 5 | 4 | 5 | .173E+01 | .507E+00 | .84CE+00 | 20   | 3 | 4 | 7 | .156E+01 | .410E+00 | .120E+01 |

| POINT, CLAMP, AND SLOPE TYPE BC |      |           |
|---------------------------------|------|-----------|
| TYPE                            | NODE | VALUE     |
| 1                               | 2    | .4701E-02 |
| 2                               | 2    | .1340E-02 |

|   |    |            |
|---|----|------------|
| 4 | 4  | .0000E-00  |
| 3 | 2  | -.7363E-02 |
| 1 | 3  | .5320E-02  |
| 2 | 3  | .2203E-02  |
| 3 | 3  | -.0264E-02 |
| 1 | 7  | .4763E-02  |
| 2 | 7  | .2895E-02  |
| 3 | 7  | -.6070E-02 |
| 1 | 6  | .3099E-02  |
| 2 | 6  | .7030E-03  |
| 3 | 6  | .5409E-02  |
| 1 | 10 | .5019E-02  |
| 2 | 10 | .1927E-02  |
| 3 | 10 | -.7713E-02 |
| 1 | 15 | .4995E-02  |
| 2 | 15 | .2306E-02  |
| 3 | 15 | .7904E-02  |
| 1 | 10 | .4276E-02  |
| 2 | 10 | .1939E-02  |
| 3 | 10 | -.6054E-02 |
| 1 | 14 | .4259E-02  |
| 2 | 14 | .0000E-03  |
| 3 | 14 | -.0372E-02 |
| 1 | 4  | .7401E-02  |
| 2 | 4  | .3642E-02  |
| 3 | 4  | -.1303E-01 |
| 1 | 8  | .3039E-02  |
| 2 | 8  | .3039E-02  |
| 3 | 8  | -.1902E-01 |
| 1 | 11 | .6117E-02  |
| 2 | 11 | .2670E-02  |
| 3 | 11 | -.1074E-01 |
| 1 | 16 | .0500E-02  |
| 2 | 16 | .3711E-02  |
| 3 | 16 | -.1107E-01 |
| 1 | 19 | .5567E-02  |
| 2 | 19 | .2093E-02  |
| 3 | 19 | -.0959E-02 |
| 1 | 5  | .4002E-02  |
| 2 | 5  | .1013E-02  |
| 3 | 5  | -.0922E-02 |
| 1 | 20 | .5440E-02  |
| 2 | 20 | .2037E-02  |
| 3 | 20 | -.0703E-02 |
| 1 | 17 | .4300E-02  |
| 2 | 17 | .1130E-02  |
| 3 | 17 | -.7197E-02 |

TIME IN REZONE = 1.261 SECONDS

TIME IN FORMKF = 3.690 SECONDS

TIME IN PREFRONT = .309

TOTAL NUMBER OF D.O.F.'S = 270

D.O.F. IN FRONT = 112

MAXIMUM ACTIVE STORAGE = 0900

TOTAL NICKNAME STORAGE = 224

BUFFER LENGTH = 10033

TIME IN FORWARD ELIMINATION = 7.523

NUMBER OF RECORDS/DONES = 100

NUMBER OF SECTORS/FRUST = 404

TIME IN BACKSUBSTITUTION = .658

TIME IN ZIPP \* 8.494 SECONDS

BLOCK OPTION

ROUNDS

|   | MIN        | MAX       | MIN | MAX |
|---|------------|-----------|-----|-----|
| X | -1.000E+21 | .1000E+21 | I   | 0 0 |
| Y | -1.000E+21 | .1000E+21 | J   | 0 0 |
| Z | -1.000E+21 | .1000E+21 | K   | 0 0 |

PRINT LEVEL = 4

STRESS POINTS FOR BRICK(DEGEN) ELEMENTS

| POINT | S1     | S2     | S3     |
|-------|--------|--------|--------|
| 1     | -1.000 | -1.000 | -1.000 |
| 2     | 1.000  | -1.000 | -1.000 |
| 3     | 1.000  | 1.000  | -1.000 |
| 4     | -1.000 | 1.000  | -1.000 |
| 5     | -1.000 | -1.000 | 1.000  |
| 6     | 1.000  | -1.000 | 1.000  |
| 7     | 1.000  | 1.000  | 1.000  |
| 8     | -1.000 | 1.000  | 1.000  |
| 9     | 0.000  | 0.000  | 0.000  |

STRESS POINTS FOR PRISM ELEMENTS

| POINT | S1    | S2    | S3    | S4     |
|-------|-------|-------|-------|--------|
| 1     | 1.000 | 0.000 | 0.000 | -1.000 |
| 2     | 0.000 | 1.000 | 0.000 | -1.000 |
| 3     | 0.000 | 0.000 | 1.000 | -1.000 |
| 4     | 1.000 | 0.000 | 1.000 | 1.000  |
| 5     | 0.000 | 1.000 | 0.000 | 1.000  |
| 6     | 0.000 | 0.000 | 1.000 | 1.000  |
| 7     | .333  | .333  | .333  | 0.000  |

STRESS POINTS FOR WEDGE ELEMENTS

| POINT | S1    | S2    | S3     |
|-------|-------|-------|--------|
| 1     | .050  | 0.000 | -1.000 |
| 2     | 1.000 | 0.000 | -1.000 |
| 3     | 1.000 | 1.000 | -1.000 |
| 4     | .050  | 0.000 | 1.000  |
| 5     | 1.000 | 0.000 | 1.000  |
| 6     | 1.000 | 1.000 | 1.000  |
| 7     | .667  | .500  | 0.000  |

STRESS POINTS FOR TETRA ELEMENTS

| POINT | S1    | S2    | S3    | S4    |
|-------|-------|-------|-------|-------|
| 1     | 1.000 | 0.000 | 0.000 | 0.000 |
| 2     | 0.000 | 1.000 | 0.000 | 0.000 |
| 3     | 0.000 | 0.000 | 1.000 | 0.000 |
| 4     | 0.000 | 0.000 | 0.000 | 1.000 |
| 5     | .250  | .250  | .250  | .250  |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 1 MATERIAL = 1

| POINT | X | Y | Z | U         | V          | M          | M          |
|-------|---|---|---|-----------|------------|------------|------------|
| 1     | 1 | 1 | 1 | .1519E-01 | .1098E-09  | -.2214E-11 | .1106E+00  |
| 1     | 1 | 3 | 3 | .9239E-02 | -.1042E-08 | -.1930E-01 | -.1197E+01 |
| 1     | 1 | 3 | 3 | .9279E-02 | .2137E-02  | -.1511E-01 | .9537E-01  |
| 1     | 3 | 3 | 3 | .1873E-01 | .3947E-02  | -.2136E-01 | .1359E+01  |
| 1     | 1 | 5 | 5 | .9150E-02 | -.1025E-08 | -.1010E-01 | .1505E+01  |
| 1     | 1 | 5 | 5 | .5956E-02 | -.2135E-08 | -.1171E-01 | .2160E+00  |
| 1     | 3 | 5 | 5 | .6460E-02 | .1510E-02  | -.1195E-01 | .2179E+00  |
| 1     | 3 | 5 | 5 | .9240E-02 | .3900E-02  | -.1195E-01 | -.1128E+01 |
| 2     | 1 | 1 | 1 | .1225E-01 | -.6007E-09 | -.1049E-01 |            |
| 2     | 1 | 3 | 3 | .9414E-02 | .1105E-02  | -.1510E-01 |            |
| 2     | 1 | 3 | 3 | .1170E-01 | .2914E-02  | -.1915E-01 |            |
| 2     | 3 | 3 | 3 | .1490E-01 | .2056E-02  | -.2172E-01 |            |
| 3     | 1 | 1 | 1 | .1102E-01 | -.6569E-09 | -.2023E-01 |            |
| 3     | 1 | 4 | 4 | .7517E-02 | -.1936E-08 | -.1355E-01 |            |
| 3     | 3 | 4 | 4 | .7809E-02 | .2431E-02  | -.1300E-01 |            |
| 1     | 3 | 4 | 4 | .1172E-01 | .3892E-02  | -.1995E-01 |            |
| 2     | 1 | 5 | 5 | .7336E-02 | -.1049E-08 | -.1467E-01 |            |
| 3     | 2 | 5 | 5 | .6620E-02 | .9415E-03  | -.1313E-01 |            |
| 2     | 3 | 5 | 5 | .6721E-02 | .2720E-02  | -.1466E-01 |            |
| 1     | 2 | 5 | 5 | .9150E-02 | .2014E-02  | -.1930E-01 |            |

STRESSES FOR BRICKM ELEMENT NO. 1 MATERIAL = 1

| POINT | X | Y | Z | SIGMAX   | SIGMY   | SIGMZ   | TAUXY    | TAUYZ    | TAUZX   | SIGM91  | SIGM92  | SIGM93   | SIGM94   | SIGM95  | TAUMAX  |
|-------|---|---|---|----------|---------|---------|----------|----------|---------|---------|---------|----------|----------|---------|---------|
| 1     | 1 | 1 | 1 | .646E+00 | .99E+03 | .67E+03 | -.44E+02 | .21E+02  | .74E+02 | .99E+03 | .67E+03 | .64E+03  | .99E+03  | .67E+03 | .64E+03 |
| 1     | 1 | 3 | 3 | .46E+00  | .23E-01 | .23E-01 | -.22E-02 | .34E-02  | .12E-01 | .23E-01 | .23E-01 | -.22E-02 | .34E-02  | .12E-01 | .63E-01 |
| 2     | 1 | 3 | 3 | .46E+00  | .99E+04 | .99E+04 | -.69E+00 | -.65E+00 | .61E+02 | .99E+04 | .99E+04 | -.91E+04 | -.91E+04 | .99E+04 | .14E+03 |
| 3     | 1 | 3 | 3 | .46E+00  | .87E-02 | .87E-02 | -.11E-03 | -.10E-03 | .96E-02 | .87E-02 | .87E-02 | -.11E-03 | -.10E-03 | .87E-02 | .27E-01 |
| 3     | 1 | 5 | 5 | .46E+00  | .69E+03 | .69E+03 | -.44E+02 | .54E+02  | .72E+02 | .72E+02 | .68E+02 | -.44E+02 | .54E+02  | .72E+02 | .14E+03 |
| 4     | 1 | 3 | 3 | .64E+00  | .70E-02 | .70E-02 | -.76E-02 | .85E-02  | .11E-01 | .70E-02 | .70E-02 | -.76E-02 | .85E-02  | .11E-01 | .23E-01 |
| 4     | 1 | 3 | 3 | .64E+00  | .69E+04 | .69E+04 | -.18E+03 | .63E+02  | .62E+02 | .69E+04 | .69E+04 | -.64E+04 | -.64E+04 | .69E+04 | .20E+03 |
| 5     | 1 | 3 | 3 | .05E+00  | .19E-01 | .19E-01 | .53E-03  | .16E-01  | .98E-02 | .19E-01 | .19E-01 | .53E-03  | .16E-01  | .98E-02 | .64E-01 |
| 5     | 1 | 3 | 3 | .05E+00  | .97E+04 | .97E+04 | -.67E-02 | .35E+02  | .72E+02 | .97E+04 | .97E+04 | -.67E-02 | .35E+02  | .72E+02 | .24E+03 |
| 6     | 1 | 3 | 3 | .05E+00  | .13E+04 | .13E+04 | -.15E-03 | .42E+02  | .21E-01 | .13E+04 | .13E+04 | -.15E-03 | .42E+02  | .21E-01 | .37E+01 |
| 6     | 1 | 3 | 3 | .05E+00  | .72E-02 | .72E-02 | -.17E-02 | .67E-02  | .94E+02 | .72E-02 | .72E-02 | -.17E-02 | .67E-02  | .94E+02 | .17E+03 |
| 7     | 1 | 3 | 3 | .04E+00  | .15E+04 | .15E+04 | -.13E+04 | .19E+04  | .17E+01 | .15E+04 | .15E+04 | -.13E+04 | .19E+04  | .17E+01 | .27E+01 |
| 7     | 1 | 3 | 3 | .04E+00  | .15E+04 | .15E+04 | -.13E+04 | .19E+04  | .17E+01 | .15E+04 | .15E+04 | -.13E+04 | .19E+04  | .17E+01 | .27E+01 |
| 8     | 1 | 3 | 3 | .05E+00  | .17E-03 | .17E-03 | -.30E+02 | .19E+01  | .34E+01 | .17E-03 | .17E-03 | -.30E+02 | .19E+01  | .34E+01 | .17E+01 |
| 8     | 1 | 3 | 3 | .05E+00  | .07E+04 | .07E+04 | -.11E+03 | .12E+03  | .11E+03 | .07E+04 | .07E+04 | -.11E+03 | .12E+03  | .11E+03 | .23E+03 |
| 9     | 1 | 3 | 3 | .66E+00  | .20E-01 | .20E-01 | .19E-01  | .19E-01  | .19E-01 | .20E-01 | .20E-01 | .19E-01  | .19E-01  | .19E-01 | .64E-01 |
| 9     | 1 | 3 | 3 | .66E+00  | .62E+03 | .62E+03 | -.44E+02 | .36E+02  | .65E+02 | .62E+03 | .62E+03 | -.44E+02 | .36E+02  | .65E+02 | .17E+03 |
| 9     | 1 | 3 | 3 | .66E+00  | .13E-01 | .13E-01 | -.13E-02 | .56E-02  | .18E-01 | .13E-01 | .13E-01 | -.13E-02 | .56E-02  | .18E-01 | .27E-01 |



DISPLACEMENTS FOR BRICK ELEMENT NO. 2 MATERIAL = 1

| I | J | K | U        | V         | M         | M         |
|---|---|---|----------|-----------|-----------|-----------|
| 1 | 1 | 5 | .915E-02 | -.182E+00 | -.181E-01 | .180E+01  |
| 1 | 1 | 2 | .939E+02 | -.213E+00 | .117E-01  | .219E+00  |
| 3 | 1 | 2 | .648E-02 | .131E-02  | -.119E-01 | -.217E+00 |
| 1 | 3 | 7 | .924E-02 | .370E-02  | -.179E-01 | -.229E+01 |
| 1 | 1 | 7 | .594E-02 | -.264E-02 | -.728E-02 | -.364E+01 |
| 3 | 1 | 7 | .421E-02 | -.450E-02 | -.702E-02 | -.364E+00 |
| 3 | 1 | 7 | .488E-02 | .183E-02  | -.632E-02 | -.208E+00 |
| 1 | 3 | 7 | .972E+02 | -.415E+02 | -.127E-01 | .280E+01  |
| 2 | 1 | 5 | .733E-02 | -.104E-00 | -.146E-01 |           |
| 3 | 2 | 5 | .662E-02 | .941E-03  | -.131E-01 |           |
| 2 | 3 | 5 | .672E-02 | .272E-02  | -.146E-01 |           |
| 1 | 2 | 5 | .915E-02 | .241E-02  | -.178E-01 |           |
| 1 | 1 | 6 | .717E-02 | -.710E-02 | -.156E-01 |           |
| 3 | 1 | 6 | .489E+02 | -.168E+00 | -.979E-02 |           |
| 3 | 3 | 6 | .572E-02 | .909E-03  | -.992E-02 |           |
| 1 | 3 | 6 | .729E-02 | .399E-02  | -.152E-01 |           |
| 2 | 1 | 7 | .694E-02 | -.274E-02 | -.100E-01 |           |
| 3 | 2 | 7 | .447E-02 | .067E-03  | -.829E-02 |           |
| 2 | 3 | 7 | .537E-02 | .281E-02  | -.107E-01 |           |
| 1 | 2 | 7 | .979E+02 | .211E-02  | -.127E-01 |           |

STRESSES FOR BRICK ELEMENT NO. 2 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAX<br>EPY | SIGMAX<br>EPSZ | TAUXZ<br>GAMMAXZ | TAUYZ<br>GAMMAXZ | TAUZX<br>GAMMAXZ | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAMMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|---------------|----------------|------------------|------------------|------------------|----------------|----------------|----------------|------------------|
| 10    | .12E+01 | 0.      | .05E+00 | .94E+04        | .97E+04       | .94E+04        | .24E+03          | .39E+02          | .24E+03          | .97E+04        | .97E+04        | .97E+04        | .24E+03          |
| 11    | .15E+01 | 0.      | .05E+00 | -.13E-01       | .17E-01       | -.67E-02       | .21E-01          | .55E-02          | .21E-01          | .17E-01        | .12E-02        | -.21E-01       | .30E-01          |
| 12    | .15E+01 | .20E+00 | .04E+00 | .13E+04        | .15E+04       | .14E+04        | .94E+02          | -.11E+03         | .94E+02          | .15E+04        | .14E+04        | .14E+04        | .17E+03          |
| 13    | .11E+01 | .21E+00 | .05E+00 | .15E+04        | .14E+04       | .15E+04        | .30E+02          | -.17E-01         | .30E+02          | .15E+04        | .14E+04        | .14E+04        | .17E+03          |
| 14    | .15E+01 | 0.      | .12E+01 | -.23E+05       | .23E+05       | -.23E+05       | .21E+03          | .57E+02          | .21E+03          | -.23E+05       | -.23E+05       | -.23E+05       | .20E+03          |
| 15    | .19E+01 | 0.      | .12E+01 | .95E+02        | .14E-01       | -.61E-02       | .33E-01          | .90E-02          | .33E-01          | .14E-01        | .66E-02        | -.29E-01       | .64E-01          |
| 16    | .17E+01 | .30E+00 | .12E+01 | .14E+04        | .15E+04       | .14E+04        | .20E+02          | -.12E+03         | .20E+02          | .15E+04        | .14E+04        | .14E+04        | .17E+03          |
| 17    | .14E+01 | .24E+00 | .12E+01 | .16E+05        | .16E+05       | .16E+05        | .11E+03          | .17E-01          | .11E+03          | .16E+05        | .16E+05        | .16E+05        | .22E+03          |
| 18    | .15E+01 | .14E+00 | .10E+01 | -.90E+03       | -.62E+03      | -.90E+03       | .97E+02          | .61E+02          | .97E+02          | -.79E+03       | -.05E+03       | -.11E+04       | .14E+03          |
|       |         |         |         | -.50E-02       | .70E-02       | .81E-03        | -.76E-02         | .97E-02          | .15E-01          | .97E-02        | .50E-02        | -.13E-01       | .22E-01          |

DISPLACEMENTS FOR BRICK ELEMENT NO. 3 MATERIAL = 1

| I | J | K | U         | V         | M          | H          |
|---|---|---|-----------|-----------|------------|------------|
| 1 | 3 | 3 | .1473E-01 | .3947E-02 | -.2136E-01 | .1359E-01  |
| 3 | 3 | 3 | .9279E-02 | .2137E-02 | -.1311E-01 | .8937E-01  |
| 3 | 5 | 3 | .6974E-02 | .3791E-02 | -.1510E-01 | -.1203E-01 |
| 1 | 3 | 5 | .1814E-01 | .7230E-02 | -.2811E-01 | .7116E+00  |
| 1 | 3 | 5 | .9248E-02 | .3988E-02 | -.1756E-01 | -.1258E+01 |
| 3 | 5 | 5 | .4666E-02 | .1918E-02 | -.1195E-01 | .2179E+00  |
| 3 | 5 | 5 | .7114E-02 | .3642E-02 | -.1303E-01 | .2526E+00  |
| 1 | 3 | 3 | .9629E-02 | .7339E-02 | -.1701E-01 | .5205E+00  |
| 3 | 4 | 3 | .1178E-01 | .6914E-02 | -.1315E-01 |            |
| 3 | 4 | 3 | .9133E-02 | .3095E-02 | -.1508E-01 |            |
| 2 | 5 | 3 | .1124E-01 | .5349E-02 | -.1740E-01 |            |
| 1 | 4 | 3 | .1644E-01 | .5671E-02 | -.2096E-01 |            |
| 1 | 3 | 4 | .1172E-01 | .3692E-02 | -.1959E-01 |            |
| 3 | 3 | 4 | .7889E-02 | .2431E-02 | -.1305E-01 |            |
| 3 | 5 | 4 | .7924E-02 | .3731E-02 | -.1414E-01 |            |
| 1 | 5 | 4 | .1168E-01 | .7214E-02 | -.1887E-01 |            |
| 2 | 3 | 5 | .6724E-02 | .2720E-02 | -.1466E-01 |            |
| 3 | 4 | 5 | .6712E-02 | .2280E-02 | -.1154E-01 |            |
| 2 | 5 | 5 | .8272E-02 | .5198E-02 | -.1512E-01 |            |
| 1 | 4 | 5 | .9397E-02 | .5683E-02 | -.1729E-01 |            |

STRESSES FOR BRICK ELEMENT NO. 3 MATERIAL = 1

| POINT | K       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUXY<br>GAMMAX | TAUXZ<br>GAMMAX | TAUYZ<br>GAMMAX | TAUZX<br>GAMMAX | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAUMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|------------------|
| 15    | .92E+00 | .40E+00 | .46E+00 | .84E+04        | .80E+04        | .86E+04        | -.18E+03        | .63E+02         | .42E+02         | .49E+04         | .89E+04        | .86E+04        | .84E+04        | .29E+03          |
| 20    | .13E+01 | .26E+00 | .46E+00 | .36E-01        | .18E-01        | .53E-01        | -.16E-01        | .99E-02         | .72E-02         | .21E-01         | .76E+03        | .76E+03        | .76E+03        | .68E-01          |
| 21    | .12E+01 | .51E+00 | .46E+00 | .10E-01        | .70E-02        | .85E-02        | -.76E-02        | .85E-02         | .11E-01         | .12E-01         | .68E-02        | .68E-02        | .68E-02        | .18E+03          |
| 22    | .87E+00 | .36E+00 | .46E+00 | .77E+04        | .76E+04        | .76E+04        | -.79E+02        | .35E+02         | .57E+02         | .75E+04         | .75E+04        | .75E+04        | .75E+04        | .12E+03          |
| 23    | .11E+01 | .21E+00 | .85E+00 | .13E-01        | .11E-01        | .28E-02        | -.13E-01        | .67E-02         | .81E-02         | .65E-02         | .13E-01        | .13E-01        | .13E-01        | .38E+03          |
| 24    | .15E+01 | .28E+00 | .84E+00 | .82E+04        | .78E+04        | .80E+04        | -.18E+03        | .12E+03         | .11E+03         | .77E+04         | .77E+04        | .77E+04        | .77E+04        | .30E+03          |
| 25    | .13E+01 | .59E+00 | .84E+00 | .20E-01        | .15E-01        | .37E-03        | -.21E-01        | .18E-01         | .18E-01         | .28E-01         | .28E-01        | .28E-01        | .28E-01        | .88E+02          |
| 26    | .99E+00 | .35E+00 | .84E+00 | .45E-02        | .19E-03        | .61E-02        | -.43E-02        | .11E-01         | .24E+02         | .54E+02         | .54E+02        | .54E+02        | .54E+02        | .88E+02          |
| 27    | .12E+01 | .34E+00 | .66E+00 | .11E-02        | .83E-02        | .18E-02        | -.80E+02        | -.36E+02        | .97E+02         | .13E-01         | .13E-01        | .13E-01        | .13E-01        | .15E+03          |
|       |         |         |         | .32E+04        | .33E+04        | .34E+04        | .14E+03         | .14E+03         | .14E+03         | .39E+04         | .39E+04        | .39E+04        | .39E+04        | .22E+03          |
|       |         |         |         | .42E+03        | .63E+03        | .59E+03        | -.76E+02        | .22E+01         | .22E+01         | .29E+02         | .29E+02        | .29E+02        | .29E+02        | .35E+03          |
|       |         |         |         | .18E-01        | .69E-02        | .31E-02        | -.12E-01        | .85E-02         | .85E-02         | .94E-02         | .94E-02        | .94E-02        | .94E-02        | .23E-01          |

DISPLACEMENTS FOR BRICKM ELEMENT NO. & MATERIAL = 1

|    | I | J | K | U         | V         | A | M |
|----|---|---|---|-----------|-----------|---|---|
| 1  | 3 | 5 |   | .3908E-02 | .1758E-01 |   |   |
| 2  | 3 | 5 |   | .1510E-02 | .1159E-01 |   |   |
| 3  | 5 | 5 |   | .642E-02  | .5279E-00 |   |   |
| 4  | 5 | 5 |   | .7339E-02 | .5200E-00 |   |   |
| 5  | 3 | 7 |   | .4158E-02 | .2468E-01 |   |   |
| 6  | 3 | 7 |   | .1813E-02 | .2087E-00 |   |   |
| 7  | 3 | 7 |   | .3933E-02 | .1806E-01 |   |   |
| 8  | 3 | 7 |   | .8009E-02 | .7500E-00 |   |   |
| 9  | 3 | 5 |   | .2723E-02 | .1466E-01 |   |   |
| 10 | 3 | 5 |   | .2200E-02 | .1194E-01 |   |   |
| 11 | 4 | 5 |   | .5198E-02 | .1512E-01 |   |   |
| 12 | 4 | 5 |   | .5683E-02 | .1729E-01 |   |   |
| 13 | 3 | 6 |   | .3994E-02 | .1526E-01 |   |   |
| 14 | 3 | 6 |   | .9091E-03 | .9982E-02 |   |   |
| 15 | 3 | 6 |   | .3711E-02 | .1107E-01 |   |   |
| 16 | 3 | 6 |   | .6508E-02 | .1107E-01 |   |   |
| 17 | 3 | 6 |   | .7941E-02 | .1494E-01 |   |   |
| 18 | 2 | 3 | 7 | .2816E-02 | .1877E-01 |   |   |
| 19 | 2 | 3 | 7 | .2837E-02 | .1978E-01 |   |   |
| 20 | 2 | 5 | 7 | .5644E-02 | .1185E-01 |   |   |
| 21 | 4 | 7 |   | .8133E-02 | .1267E-01 |   |   |

STRESSES FOR BRICKM ELEMENT NO. & MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUXY<br>GAMMAX | TAUYZ<br>GAMMAX | TAUZX<br>GAMMAX | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAMMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|------------------|
| 28    | .11E+01 | .21E+00 | .89E+00 | -.82E+04       | .78E+04        | -.80E+04       | -.33E+03        | .12E+03         | .11E+03         | .77E+04        | -.79E+04       | -.83E+04       | .38E+03          |
| 29    | .19E+01 | .20E+00 | .84E+00 | -.80E-01       | .15E-01        | .37E-03        | -.21E-01        | .18E-01         | .18E-01         | .20E-01        | .25E-02        | -.26E-01       | .60E-01          |
| 30    | .13E+01 | .50E+00 | .84E+00 | .44E+04        | .14E+04        | .19E+04        | -.26E+02        | .76E+02         | .62E+02         | .59E+04        | .44E+04        | .43E+04        | .10E+03          |
| 31    | .19E+00 | .59E+00 | .84E+00 | .46E+02        | .17E+04        | .16E+04        | -.62E-02        | .12E-01         | .67E-02         | .10E-01        | .52E-02        | -.53E-02       | .16E-01          |
| 32    | .14E+01 | .24E+00 | .84E+00 | -.61E-02       | .03E-02        | .10E-02        | -.13E-01        | .57E-02         | .15E-01         | .13E-01        | .16E-02        | -.12E-01       | .25E-01          |
| 33    | .17E+01 | .30E+00 | .82E+01 | .32E+04        | .39E+04        | .38E-02        | .14E+03         | .44E+03         | .10E+02         | .99E+04        | .99E+04        | .91E+04        | .22E+03          |
| 34    | .14E+01 | .39E+00 | .82E+01 | -.64E-02       | .38E-02        | .98E-02        | -.23E-01        | .22E-01         | .29E-02         | .20E-01        | .05E-03        | -.19E-01       | .39E-01          |
| 35    | .12E+01 | .34E+00 | .82E+01 | .46E+05        | .16E+05        | .18E+05        | -.98E+02        | .17E+03         | .97E+02         | .16E+05        | .16E+05        | .16E+05        | .28E+03          |
| 36    | .13E+01 | .35E+00 | .80E+01 | -.36E-02       | .01E-02        | .36E-02        | -.16E-01        | .27E-01         | .69E-02         | .28E-01        | .27E-02        | -.14E-01       | .34E-01          |
|       |         |         |         | -.14E-02       | .11E-02        | .14E+04        | -.99E+02        | .11E+03         | .67E+02         | .28E+04        | -.13E+04       | -.19E+04       | .14E+03          |
|       |         |         |         | .41E-02        | .31E-02        | .62E-02        | .61E-02         | .17E-01         | .11E-01         | .06E-02        | .45E-03        | -.14E-01       | .23E-01          |
|       |         |         |         | .69E+04        | .68E+04        | .68E+04        | .49E+02         | .99E+02         | .97E+02         | .67E+04        | -.67E+04       | -.67E+04       | .10E+03          |
|       |         |         |         | -.66E-02       | .15E-02        | .42E-02        | -.67E-02        | .83E-02         | .90E-02         | .78E-02        | .68E-03        | -.94E-02       | .16E-01          |
|       |         |         |         | -.23E-02       | -.12E-01       | .13E-01        | -.80E-02        | .17E-01         | -.36E-02        | .16E-01        | .47E+04        | .66E+04        | .28E+03          |
|       |         |         |         | .13E+04        | .14E+04        | .13E+04        | -.76E+02        | .11E+03         | .72E+02         | .16E+04        | -.26E-02       | -.19E-01       | .32E-01          |
|       |         |         |         | -.56E-02       | .32E-02        | .16E-02        | -.12E-01        | .17E-01         | .11E-01         | .11E-01        | .24E-02        | -.14E-01       | .29E-01          |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 5 MATERIAL = 1

| I | J | K | U         | V          | M          | M          |
|---|---|---|-----------|------------|------------|------------|
| 3 | 1 | 3 | .9539E-02 | -.1642E-08 | -.1530E-01 | -.1437E+01 |
| 3 | 1 | 4 | .6446E-02 | .3618E-09  | -.9979E-02 | .1829E+01  |
| 3 | 3 | 3 | .6298E-02 | .1348E-02  | -.9513E-02 | .2491E+00  |
| 3 | 3 | 4 | .9279E-02 | .2137E-02  | -.1511E-01 | .9537E+01  |
| 3 | 1 | 5 | .5956E-02 | -.2139E-08 | -.1171E-01 | .2192E+00  |
| 3 | 1 | 5 | .4697E-02 | -.1079E-08 | -.7208E-02 | .7170E+01  |
| 3 | 3 | 5 | .4781E-02 | .8945E-03  | -.7353E-02 | -.5364E+00 |
| 3 | 3 | 4 | .6458E-02 | .1918E-02  | -.1192E-01 | .2719E+00  |
| 4 | 1 | 3 | .7670E-02 | -.6948E-09 | -.1246E-01 |            |
| 4 | 1 | 3 | .6358E-02 | .6653E-03  | -.9734E-02 |            |
| 4 | 3 | 3 | .7479E-02 | .1615E-02  | -.1277E-01 |            |
| 4 | 3 | 3 | .9414E-02 | .1106E-02  | -.1510E-01 |            |
| 3 | 1 | 4 | .7517E-02 | -.1355E-01 | -.1359E-01 |            |
| 3 | 1 | 4 | .5366E-02 | -.7239E-09 | -.8521E-02 |            |
| 3 | 3 | 4 | .5461E-02 | .1077E-02  | -.8444E-02 |            |
| 3 | 3 | 4 | .7009E-02 | .2431E-02  | -.1300E-01 |            |
| 4 | 1 | 5 | .5010E-02 | -.1405E-09 | -.2255E-02 |            |
| 4 | 2 | 5 | .4607E-02 | .3855E-03  | -.7195E-02 |            |
| 4 | 3 | 5 | .4961E-02 | .1790E-02  | -.1829E-01 |            |
| 3 | 2 | 5 | .6682E-02 | .9419E-03  | -.1343E-01 |            |

STRESSES FOR BRICKM ELEMENT NO. 5 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX   | EPGX     | SIGMAY   | EPGY     | SIGMAZ   | EPGZ    | TAUXY    | GAMMAX   | TAUYZ    | GAMMAX   | TAUZX   | GAMMAX  | SIGMA1   | EPG1    | SIGMA2   | EPG2     | SIGMA3   | EPG3     | TAUMAX  | GAMMAX  |
|-------|---------|---------|---------|----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|---------|---------|----------|---------|----------|----------|----------|----------|---------|---------|
| 38    | .13E+01 | 0.      | .46E+00 | -.92E+04 | -.12E+11 | -.98E+04 | -.91E+04 | -.19E-02 | .19E-02 | -.11E-03 | -.10E-03 | -.60E+00 | -.60E+00 | .61E+02 | .96E-02 | -.90E+04 | .07E-02 | -.38E-02 | -.38E-02 | -.13E-01 | -.13E-01 | .54E+03 | .54E+03 |
| 39    | .17E+01 | .34E+00 | .46E+00 | -.11E+05 | .39E-02  | .39E-02  | .12E+05  | .12E+05  | .12E+05 | -.17E-01 | .27E+01  | .47E+02  | .47E+02  | .75E-02 | .75E-02 | .12E+05  | .12E+05 | .12E+05  | .12E+05  | .11E+05  | .11E+05  | .75E+02 | .75E+02 |
| 40    | .13E+01 | .26E+00 | .46E+00 | -.15E+04 | -.44E-02 | .44E-02  | .16E+04  | .16E+04  | .16E+04 | -.15E+02 | .16E+04  | .46E+01  | .46E+01  | .91E-02 | .91E-02 | .16E+04  | .16E+04 | .16E+04  | .16E+04  | -.62E-02 | -.62E-02 | .15E+04 | .15E+04 |
| 41    | .15E+01 | 0.      | .05E+00 | -.10E-01 | .70E-02  | .70E-02  | .85E-02  | .85E-02  | .85E-02 | -.76E-02 | .85E-02  | .85E-02  | .85E-02  | .11E-01 | .11E-01 | .12E-01  | .12E-01 | .12E-01  | .12E-01  | -.13E-01 | -.13E-01 | .25E+01 | .25E+01 |
| 42    | .10E+01 | 0.      | .04E+00 | -.75E+02 | .72E-02  | .72E-02  | .51E+03  | .51E+03  | .51E+03 | -.67E-02 | -.17E-01 | .81E+00  | .81E+00  | .15E-01 | .15E-01 | .13E-01  | .13E-01 | .13E-01  | .13E-01  | -.15E-01 | -.15E-01 | .27E+01 | .27E+01 |
| 43    | .10E+01 | .35E+00 | .04E+00 | -.20E-02 | .17E-02  | .17E-02  | .20E-02  | .20E-02  | .20E-02 | .47E-03  | .13E-03  | .33E-03  | .33E-03  | .62E-02 | .62E-02 | .61E-02  | .61E-02 | .61E-02  | .61E-02  | -.65E-02 | -.65E-02 | .92E+02 | .92E+02 |
| 44    | .15E+01 | .20E+00 | .04E+00 | .24E+02  | .11E-02  | .11E-02  | .84E+04  | .84E+04  | .84E+04 | -.32E+02 | .64E+02  | .64E+02  | .64E+02  | .17E-01 | .17E-01 | .33E+02  | .33E+02 | .33E+02  | .33E+02  | -.96E-02 | -.96E-02 | .19E+01 | .19E+01 |
| 45    | .16E+01 | .16E+00 | .66E+00 | -.11E-01 | .46E-02  | .46E-02  | .56E+03  | .56E+03  | .56E+03 | -.50E-02 | .10E-01  | .97E+04  | .97E+04  | .26E-02 | .26E-02 | .26E-02  | .26E-02 | .26E-02  | .26E-02  | -.26E-02 | -.26E-02 | .20E+01 | .20E+01 |
|       |         |         |         | -.47E+03 | .63E+03  | .63E+03  | .55E+03  | .55E+03  | .55E+03 | -.22E+02 | .13E+02  | .13E+02  | .13E+02  | .75E+02 | .75E+02 | .64E+03  | .64E+03 | .64E+03  | .64E+03  | -.62E+03 | -.62E+03 | .11E+03 | .11E+03 |
|       |         |         |         | -.77E-02 | .62E-02  | .62E-02  | .80E+03  | .80E+03  | .80E+03 | -.35E-02 | .20E-02  | .20E-02  | .20E-02  | .12E-01 | .12E-01 | .65E-02  | .65E-02 | .65E-02  | .65E-02  | -.11E-01 | -.11E-01 | .17E+01 | .17E+01 |





DISPLACEMENTS FOR BRICK ELEMENT NO. 6 MATERIAL = 1

| I | J | K | U         | V         | M          | H          |
|---|---|---|-----------|-----------|------------|------------|
| 3 | 3 | 5 | .646E-02  | .1510E-02 | -.1195E-01 | .2179E+00  |
| 3 | 3 | 5 | .6781E-02 | .6985E-03 | -.7353E-02 | .5765E+00  |
| 3 | 3 | 5 | .5720E-02 | .2203E-02 | -.9245E-02 | .2611E+00  |
| 3 | 3 | 5 | .7103E-02 | .3502E-02 | -.1303E-01 | .5526E+00  |
| 3 | 3 | 7 | .4802E-02 | .1813E-02 | -.8225E-02 | -.5037E+00 |
| 3 | 3 | 7 | .3895E-02 | .7930E-03 | -.8659E-02 | .6694E+00  |
| 3 | 3 | 7 | .5763E-02 | .2505E-02 | -.6978E-02 | .3203E+00  |
| 3 | 3 | 7 | .3788E-02 | .5930E-03 | -.8312E-02 | -.1800E+01 |
| 3 | 3 | 5 | .4963E-02 | .1790E-02 | -.1826E-01 |            |
| 3 | 3 | 5 | .8018E-02 | .1927E-02 | -.7138E-02 |            |
| 3 | 3 | 5 | .6117E-02 | .2670E-02 | -.1875E-01 |            |
| 3 | 3 | 5 | .5720E-02 | .2800E-02 | -.2439E-01 |            |
| 3 | 3 | 6 | .5726E-02 | .9091E-03 | -.5986E-02 |            |
| 3 | 3 | 6 | .8925E-02 | .8002E-03 | -.6372E-02 |            |
| 3 | 3 | 6 | .6592E-02 | .5700E-02 | -.7394E-02 |            |
| 3 | 3 | 7 | .4388E-02 | .7131E-02 | -.1187E-02 |            |
| 3 | 3 | 7 | .4278E-02 | .1398E-02 | -.7837E-02 |            |
| 3 | 3 | 7 | .5567E-02 | .2893E-02 | -.8939E-02 |            |
| 3 | 3 | 7 | .5948E-02 | .2637E-02 | -.9793E-02 |            |

STRESSES FOR BRICK ELEMENT NO. 6 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMX    | SIGMY   | SIGMZ    | TAUMX    | TAUMY   | TAUMZ   | GAMMAX  | GAMMAX  | SIGM1   | SIGM1   | SIGM2   | SIGM2   | SIGM3   | SIGM3   | TAUMAX  | TAUMAX  | GAMMAX  | GAMMAX  |
|-------|---------|---------|---------|----------|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 64    | .19E+01 | .20E+00 | .84E+00 | .12E+04  | .19E+04 | .11E+04  | .39E+02  | .61E+01 | .39E+02 | .30E+02 | .30E+02 | .15E+04 | .15E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 | .12E+04 |
| 65    | .18E+01 | .39E+00 | .84E+00 | -.12E+01 | .39E+02 | .11E+01  | .19E+03  | .19E+03 | .30E+02 | .30E+02 | .30E+02 | .11E+01 | .11E+01 | .30E+02 | .30E+02 | .19E+01 | .19E+01 | .30E+02 | .30E+02 | .30E+02 | .30E+02 |
| 66    | .16E+01 | .65E+00 | .84E+00 | .24E+02  | .11E+02 | -.07E+03 | -.07E+02 | .60E+02 | .60E+02 | .60E+02 | .60E+02 | .92E+02 | .92E+02 | .17E+04 | .17E+04 | .92E+02 | .92E+02 | .17E+04 | .17E+04 | .17E+04 | .17E+04 |
| 67    | .13E+01 | .90E+00 | .84E+00 | -.41E+02 | .42E+02 | .19E+02  | -.29E+02 | .49E+02 | .49E+02 | .49E+02 | .49E+02 | .65E+02 | .65E+02 | .30E+02 | .30E+02 | .65E+02 | .65E+02 | .30E+02 | .30E+02 | .30E+02 | .30E+02 |
| 68    | .17E+01 | .30E+00 | .12E+01 | .11E+02  | .03E+02 | .10E+02  | .13E+01  | .57E+02 | .19E+01 | .19E+01 | .19E+01 | .13E+01 | .13E+01 | .16E+02 | .16E+02 | .13E+01 | .13E+01 | .16E+02 | .16E+02 | .16E+02 | .16E+02 |
| 69    | .19E+01 | .36E+00 | .12E+01 | .11E+02  | .31E+02 | .52E+02  | .61E+02  | .17E+01 | .17E+01 | .17E+01 | .17E+01 | .66E+02 | .66E+02 | .59E+03 | .59E+03 | .66E+02 | .66E+02 | .59E+03 | .59E+03 | .59E+03 | .59E+03 |
| 70    | .17E+01 | .84E+00 | .12E+01 | .38E+02  | .30E+02 | .11E+03  | .11E+03  | .32E+02 | .32E+02 | .32E+02 | .32E+02 | .67E+02 | .67E+02 | .12E+01 | .12E+01 | .67E+02 | .67E+02 | .12E+01 | .12E+01 | .12E+01 | .12E+01 |
| 71    | .14E+01 | .49E+00 | .12E+01 | .55E+02  | .56E+02 | .96E+03  | .48E+02  | .94E+02 | .94E+02 | .94E+02 | .94E+02 | .13E+01 | .13E+01 | .34E+02 | .34E+02 | .13E+01 | .13E+01 | .34E+02 | .34E+02 | .34E+02 | .34E+02 |
| 72    | .16E+01 | .46E+00 | .10E+01 | .46E+02  | .16E+02 | .62E+02  | .62E+02  | .83E+02 | .83E+02 | .83E+02 | .83E+02 | .76E+02 | .76E+02 | .69E+03 | .69E+03 | .76E+02 | .76E+02 | .69E+03 | .69E+03 | .69E+03 | .69E+03 |
|       |         |         |         | -.51E+02 | .42E+02 | .16E+02  | -.26E+02 | .31E+02 | .31E+02 | .31E+02 | .31E+02 | .53E+02 | .53E+02 | .39E+02 | .39E+02 | .53E+02 | .53E+02 | .39E+02 | .39E+02 | .39E+02 | .39E+02 |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS  
 FIRST POINT STRESS / SECOND POINT STRESS / THIRD POINT STRESS /

| ELEMENT NO.         | FIRST POINT STRESS |   |    | SECOND POINT STRESS |   |   | THIRD POINT STRESS |     |           |   |   |   |    |           |
|---------------------|--------------------|---|----|---------------------|---|---|--------------------|-----|-----------|---|---|---|----|-----------|
|                     | I                  | J | K  | I                   | J | K | I                  | J   | K         |   |   |   |    |           |
| MATERIAL NUMBER = 1 |                    |   |    |                     |   |   |                    |     |           |   |   |   |    |           |
| SIGMA MAX           | 1                  | 5 | 17 | .160E+05            | 1 | 3 | 5                  | .32 | .160E+05  | 3 | 1 | 2 | 36 | .114E+05  |
| SIGMA MIN           | 1                  | 5 | 14 | -.234E+05           | 3 | 1 | 3                  | 37  | -.926E+04 | 1 | 1 | 3 | 2  | -.286E+04 |
| TAU MAX             | 1                  | 1 | 3  | .303E+03            | 1 | 3 | 5                  | 26  | .303E+03  | 1 | 1 | 5 | 13 | .303E+03  |
| EPS MAX             | 1                  | 1 | 3  | .231E-01            | 1 | 1 | 3                  | 4   | .208E-01  | 1 | 3 | 3 | 19 | .208E-01  |
| EPS MIN             | 1                  | 1 | 5  | -.292E-01           | 1 | 1 | 5                  | 13  | -.276E-01 | 1 | 1 | 3 | 8  | -.276E-01 |
| GAMMA MAX           | 1                  | 1 | 5  | .478E-01            | 1 | 1 | 3                  | 8   | .478E-01  | 1 | 3 | 5 | 28 | .478E-01  |

TIME IN POST = 1.116 SECONDS

MINIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 16

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 15

COARSE GRID ELEMENT = 1

| MODE | K     | J | I | X-COORD  | Y-COORD  | Z-COORD  | MODE | K     | J | I | X-COORD  | Y-COORD  | Z-COORD  |
|------|-------|---|---|----------|----------|----------|------|-------|---|---|----------|----------|----------|
| 1    | 30101 |   |   | .940E+00 | 0.       | .463E+00 | 11   | 30302 |   |   | .111E+01 | .221E+00 | .463E+00 |
| 2    | 30302 |   |   | .132E+01 | 0.       | .463E+00 | 12   | 30201 |   |   | .935E+00 | .924E-01 | .463E+00 |
| 3    | 30303 |   |   | .131E+01 | .260E+01 | .463E+00 | 13   | 40101 |   |   | .106E+01 | 0.       | .664E+00 |
| 4    | 30304 |   |   | .921E+00 | .181E+01 | .463E+00 | 14   | 40103 |   |   | .141E+01 | 0.       | .668E+00 |
| 5    | 50101 |   |   | .120E+01 | 0.       | .854E+00 | 15   | 40303 |   |   | .138E+01 | .270E+00 | .657E+00 |
| 6    | 50103 |   |   | .151E+01 | 0.       | .899E+00 | 16   | 40301 |   |   | .102E+01 | .198E+00 | .660E+00 |
| 7    | 50303 |   |   | .146E+01 | .281E+01 | .855E+00 | 17   | 50102 |   |   | .136E+01 | 0.       | .852E+00 |
| 8    | 50301 |   |   | .113E+01 | .213E+01 | .899E+00 | 18   | 50203 |   |   | .148E+01 | .148E+00 | .847E+00 |
| 9    | 30102 |   |   | .113E+01 | 0.       | .463E+00 | 19   | 50302 |   |   | .129E+01 | .247E+00 | .847E+00 |
| 10   | 30203 |   |   | .132E+01 | .131E+01 | .463E+00 | 20   | 50201 |   |   | .117E+01 | .116E+00 | .852E+00 |

FINE GRID ELEMENT = 1

| MODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | MODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 1 | 1 | 3 | .940E+00 | 0.       | .463E+00 | 11   | 2 | 3 | 3 | .183E+01 | .108E+00 | .463E+00 |
| 2    | 3 | 1 | 3 | .113E+01 | 0.       | .463E+00 | 12   | 1 | 2 | 3 | .938E+00 | .464E-01 | .463E+00 |
| 3    | 3 | 3 | 3 | .113E+01 | .112E+0E | .463E+00 | 13   | 1 | 1 | 4 | .999E+00 | 0.       | .565E+00 |
| 4    | 1 | 3 | 3 | .106E+01 | .924E-01 | .463E+00 | 14   | 3 | 1 | 4 | .118E+01 | 0.       | .564E+00 |
| 5    | 1 | 1 | 5 | .106E+01 | 0.       | .664E+00 | 15   | 3 | 3 | 4 | .117E+01 | .117E+00 | .564E+00 |
| 6    | 3 | 1 | 5 | .123E+01 | 0.       | .662E+00 | 16   | 1 | 3 | 4 | .988E+00 | .983E-01 | .564E+00 |
| 7    | 3 | 3 | 5 | .122E+01 | .122E+0E | .660E+00 | 17   | 2 | 1 | 5 | .118E+01 | 0.       | .663E+00 |
| 8    | 1 | 3 | 5 | .103E+01 | .174E+0E | .662E+00 | 18   | 3 | 2 | 5 | .123E+01 | .621E-01 | .661E+00 |
| 9    | 2 | 1 | 3 | .103E+01 | 0.       | .463E+00 | 19   | 2 | 3 | 5 | .113E+01 | .113E+00 | .661E+00 |
| 10   | 3 | 2 | 3 | .113E+01 | .560E-01 | .463E+00 | 20   | 1 | 2 | 5 | .105E+01 | .534E-01 | .663E+00 |

PERCENT CLAMP AND SLOPE TYPE EG.

| TYPE | MODE | VALUE     |
|------|------|-----------|
| 1    | 1    | .1498E-01 |
| 2    | 4    | .0000E+00 |
| 3    | 4    | .0000E+00 |



|   |    |            |
|---|----|------------|
| 1 | 4  | .2172E-01  |
| 1 | 1  | .1519E-01  |
| 2 | 1  | .3090E-09  |
| 3 | 1  | -.2204E-01 |
| 1 | 5  | .1102E-01  |
| 2 | 5  | -.6569E-09 |
| 3 | 5  | -.2023E-01 |
| 1 | 8  | .1170E-01  |
| 2 | 8  | .2017E-02  |
| 3 | 8  | -.1992E-01 |
| 1 | 12 | .1509E-01  |
| 2 | 12 | .1049E-02  |
| 3 | 12 | -.2109E-01 |
| 1 | 13 | .1342E-01  |
| 2 | 13 | -.2103E-09 |
| 3 | 13 | -.2110E-01 |
| 1 | 20 | .1179E-01  |
| 2 | 20 | .1026E-02  |
| 3 | 20 | -.2000E-01 |
| 1 | 16 | .1330E-01  |
| 2 | 16 | .2032E-02  |
| 3 | 16 | -.2000E-01 |
| 1 | 2  | .1205E-01  |
| 2 | 2  | -.6007E-09 |
| 3 | 2  | -.1049E-01 |
| 1 | 6  | .9402E-02  |
| 2 | 6  | -.1600E-00 |
| 3 | 6  | -.1000E-01 |
| 1 | 9  | .1354E-01  |
| 2 | 9  | -.2341E-09 |
| 3 | 9  | -.2022E-01 |
| 1 | 14 | .1065E-01  |
| 2 | 14 | -.1230E-00 |
| 3 | 14 | -.1701E-01 |
| 1 | 17 | .1055E-01  |
| 2 | 17 | -.1210E-00 |
| 3 | 17 | -.1041E-01 |
| 1 | 3  | .1100E-01  |
| 2 | 3  | .1517E-02  |
| 3 | 3  | -.1032E-01 |
| 1 | 11 | .1336E-01  |
| 2 | 11 | .1771E-02  |
| 3 | 11 | -.1999E-01 |
| 1 | 10 | .1197E-01  |
| 2 | 10 | .7736E-03  |
| 3 | 10 | -.1041E-01 |

| FINE GRID ELEMENT # 2 |   |   |   |          |          |          |      |   |   |   |          |          |          |
|-----------------------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| NODE                  | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
| 1                     | 1 | 1 | 5 | .106E+01 | 0.       | .664E+00 | 11   | 2 | 3 | 5 | .113E+01 | .113E+00 | .661E+00 |
| 2                     | 3 | 1 | 5 | .123E+01 | 0.       | .662E+00 | 12   | 1 | 2 | 5 | .105E+01 | .534E-01 | .663E+00 |
| 3                     | 3 | 3 | 5 | .122E+01 | .122E+00 | .660E+00 | 13   | 1 | 1 | 6 | .113E+01 | 0.       | .760E+00 |
| 4                     | 1 | 3 | 5 | .105E+01 | .104E+00 | .662E+00 | 14   | 3 | 1 | 6 | .129E+01 | 0.       | .750E+00 |
| 5                     | 1 | 1 | 7 | .120E+01 | 0.       | .854E+00 | 15   | 3 | 3 | 6 | .120E+01 | .127E+00 | .756E+00 |
| 6                     | 3 | 1 | 7 | .136E+01 | 0.       | .852E+00 | 16   | 1 | 3 | 6 | .111E+01 | .110E+00 | .750E+00 |
| 7                     | 3 | 3 | 7 | .133E+01 | .132E+00 | .849E+00 | 17   | 2 | 1 | 7 | .120E+01 | 0.       | .853E+00 |
| 8                     | 1 | 3 | 7 | .117E+01 | .116E+00 | .852E+00 | 18   | 3 | 2 | 7 | .135E+01 | .681E-01 | .850E+00 |
| 9                     | 2 | 1 | 9 | .115E+01 | 0.       | .663E+00 | 19   | 2 | 3 | 7 | .125E+01 | .124E+00 | .890E+00 |
| 10                    | 3 | 2 | 5 | .123E+01 | .621E-01 | .661E+00 | 20   | 1 | 2 | 7 | .119E+01 | .604E-01 | .853E+00 |

| POINT, CLAMP, AND SLOPE TYPE BC. |      |            |
|----------------------------------|------|------------|
| TYPE                             | NODE | VALUE      |
| 1                                | 4    | .1170E-01  |
| 2                                | 4    | .2017E-02  |
| 3                                | 4    | -.1992E-01 |
| .                                | .    | .....      |

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2 1 -.6569E-09
3 1 -.2623E-01
1 5 .9150E-02
2 5 -.1026E-00
3 5 -.1011E-01
1 8 .9199E-02
2 8 .2014E-02
3 8 -.1703E-01
1 12 .1179E-C1
2 12 .1020E-02
3 12 -.2000E-C1
1 13 .1040E-01
2 13 -.9262E-09
3 13 -.1921E-C1
1 20 .9145E-02
2 20 .1022E-02
3 20 -.1797E-01
1 16 .1030E-01
2 16 .2011E-C2
3 16 -.1091E-C1
1 2 .9402E-02
2 2 -.1600E-00
3 2 -.1660E-C1
1 6 .7336E-02
2 6 -.1049E-00
3 6 -.1467E-01
1 9 .1055E-C1
2 9 -.1210E-C0
3 9 -.1041E-01
1 14 .0297E-C2
2 14 -.1014E-00
3 14 -.1570E-01
1 17 .0109E-02
2 17 -.1505E-G0
3 17 -.1633E-01
1 7 .7220E-C2
2 7 .1461E-C2
3 7 -.1531E-C1
1 10 .7326E-02
2 10 .7709E-03
3 10 -.1515E-C1
1 19 .0021E-C2
2 19 .1740E-02
3 19 -.1653E-01

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FINE GRID ELEMENT = 3

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 1 | 3 | 3 | .935E+00 | .924E-01 | .463E+00 | 11   | 2 | 5 | 3 | .102E+01 | .202E+00 | .463E+00 |
| 2    | 3 | 3 | 3 | .113E+01 | .112E+00 | .463E+00 | 12   | 1 | 4 | 3 | .929E+00 | .130E+00 | .463E+00 |
| 3    | 3 | 5 | 3 | .111E+01 | .221E+00 | .463E+00 | 13   | 1 | 3 | 4 | .900E+00 | .903E-01 | .564E+00 |
| 4    | 1 | 5 | 3 | .921E+00 | .183E+00 | .463E+00 | 14   | 3 | 3 | 4 | .117E+01 | .117E+00 | .563E+00 |
| 5    | 1 | 3 | 5 | .105E+01 | .104E+00 | .662E+00 | 15   | 3 | 5 | 4 | .115E+01 | .220E+00 | .562E+00 |
| 6    | 3 | 3 | 5 | .122E+01 | .122E+00 | .660E+00 | 16   | 1 | 5 | 4 | .960E+00 | .191E+00 | .562E+00 |
| 7    | 3 | 5 | 5 | .120E+01 | .234E+00 | .650E+00 | 17   | 2 | 3 | 5 | .113E+01 | .113E+00 | .661E+00 |
| 8    | 1 | 5 | 5 | .102E+01 | .190E+00 | .660E+00 | 18   | 3 | 4 | 5 | .121E+01 | .179E+00 | .659E+00 |
| 9    | 2 | 3 | 3 | .103E+01 | .102E+00 | .463E+00 | 19   | 2 | 5 | 5 | .111E+01 | .216E+00 | .659E+00 |
| 10   | 3 | 4 | 3 | .112E+01 | .167E+00 | .463E+00 | 20   | 1 | 4 | 5 | .103E+01 | .153E+00 | .661E+00 |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 4    | .1473E-01  |
| 2    | 4    | .3947E-02  |
| 3    | 4    | -.2136E-01 |
| 1    | 1    | .1490E-C1  |
| 2    | 1    | .2056E-C2  |
| 3    | 7    | -.2170E-01 |

|   |    |            |
|---|----|------------|
| 1 | 5  | .1176E-01  |
| 2 | 5  | .2017E-02  |
| 3 | 5  | -.1992E-01 |
| 1 | 8  | .1172E-01  |
| 2 | 8  | .3092E-02  |
| 3 | 8  | -.1959E-01 |
| 1 | 12 | .1406E-01  |
| 2 | 12 | .3022E-02  |
| 3 | 12 | -.2155E-01 |
| 1 | 13 | .1330E-01  |
| 2 | 13 | .2032E-02  |
| 3 | 13 | -.2006E-01 |
| 1 | 20 | .1174E-01  |
| 2 | 20 | .2973E-02  |
| 3 | 20 | -.1976E-01 |
| 1 | 16 | .1316E-01  |
| 2 | 16 | .3911E-02  |
| 3 | 16 | -.2051E-01 |
| 1 | 3  | .1170E-01  |
| 2 | 3  | .2914E-02  |
| 3 | 3  | -.1815E-01 |
| 1 | 7  | .9006E-02  |
| 2 | 7  | .3101E-02  |
| 3 | 7  | -.1620E-01 |
| 1 | 11 | .1314E-01  |
| 2 | 11 | .3399E-02  |
| 3 | 11 | -.1973E-01 |
| 1 | 19 | .1022E-01  |
| 2 | 19 | .3402E-02  |
| 3 | 19 | -.1707E-01 |
| 1 | 15 | .1036E-01  |
| 2 | 15 | .3079E-02  |
| 3 | 15 | -.1712E-01 |
| 1 | 2  | .1100E-01  |
| 2 | 2  | .1517E-02  |
| 3 | 2  | -.1832E-01 |
| 1 | 10 | .1179E-01  |
| 2 | 10 | .2231E-02  |
| 3 | 10 | -.1823E-01 |
| 1 | 9  | .1336E-01  |
| 2 | 9  | .1771E-02  |
| 3 | 9  | -.1999E-01 |

FINE GRID ELEMENT = 4

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 1 | 3 | 5 | .109E+01 | .104E+00 | .662E+00 | 11   | 2 | 9 | 9 | .111E+01 | .210E+00 | .699E+00 |
| 2    | 3 | 3 | 5 | .122E+01 | .122E+00 | .660E+00 | 12   | 1 | 4 | 5 | .103E+01 | .153E+00 | .661E+00 |
| 3    | 3 | 5 | 5 | .126E+01 | .234E+00 | .658E+00 | 13   | 1 | 3 | 6 | .111E+01 | .110E+00 | .750E+00 |
| 4    | 1 | 5 | 5 | .102E+01 | .198E+00 | .660E+00 | 14   | 3 | 3 | 6 | .128E+01 | .127E+00 | .756E+00 |
| 5    | 1 | 3 | 7 | .117E+01 | .116E+00 | .652E+00 | 15   | 3 | 5 | 6 | .124E+01 | .241E+00 | .754E+00 |
| 6    | 3 | 3 | 7 | .133E+01 | .132E+00 | .649E+00 | 16   | 1 | 5 | 6 | .107E+01 | .206E+00 | .755E+00 |
| 7    | 3 | 5 | 7 | .129E+01 | .247E+00 | .647E+00 | 17   | 2 | 3 | 7 | .129E+01 | .124E+00 | .850E+00 |
| 8    | 1 | 5 | 7 | .113E+01 | .213E+00 | .649E+00 | 18   | 3 | 4 | 7 | .132E+01 | .192E+00 | .848E+00 |
| 9    | 2 | 3 | 5 | .113E+01 | .113E+00 | .661E+00 | 19   | 2 | 5 | 7 | .121E+01 | .230E+00 | .848E+00 |
| 10   | 3 | 4 | 5 | .121E+01 | .179E+00 | .659E+00 | 20   | 1 | 4 | 7 | .115E+01 | .167E+00 | .850E+00 |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 4    | .1172E-01  |
| 2    | 4    | .3092E-02  |
| 3    | 4    | -.1959E-01 |
| 1    | 1    | .1176E-01  |
| 2    | 1    | .2017E-02  |
| 3    | 1    | -.1992E-01 |
| 1    | 5    | .9150E-02  |

|   |    |            |
|---|----|------------|
| 3 | 5  | -.1703E-01 |
| 1 | 8  | .9240E-02  |
| 2 | 8  | .3908E-02  |
| 3 | 8  | -.1756E-01 |
| 1 | 12 | .1174E-01  |
| 2 | 12 | .2973E-02  |
| 3 | 12 | -.1974E-01 |
| 1 | 13 | .1830E-01  |
| 2 | 13 | .2011E-02  |
| 3 | 13 | -.1091E-01 |
| 1 | 20 | .9190E-02  |
| 2 | 20 | .2976E-02  |
| 3 | 20 | -.1770E-01 |
| 1 | 16 | .1041E-01  |
| 2 | 16 | .3091E-02  |
| 3 | 16 | -.1061E-01 |
| 1 | 3  | .9066E-02  |
| 2 | 3  | .3101E-02  |
| 3 | 3  | -.1620E-01 |
| 1 | 7  | .6721E-02  |
| 2 | 7  | .2720E-02  |
| 3 | 7  | -.1406E-01 |
| 1 | 11 | .1022E-01  |
| 2 | 11 | .3482E-02  |
| 3 | 11 | -.1787E-01 |
| 1 | 19 | .7898E-02  |
| 2 | 19 | .3316E-02  |
| 3 | 19 | -.1009E-01 |
| 1 | 15 | .7872E-02  |
| 2 | 15 | .2982E-02  |
| 3 | 15 | -.1538E-01 |
| 1 | 6  | .7220E-02  |
| 2 | 6  | .1481E-02  |
| 3 | 6  | -.1531E-01 |
| 1 | 18 | .7018E-02  |
| 2 | 18 | .2131E-02  |
| 3 | 18 | -.1515E-01 |
| 1 | 17 | .8021E-02  |
| 2 | 17 | .1748E-02  |
| 3 | 17 | -.1453E-01 |

FINE GRID ELEMENT = 5

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 3 | 1 | 3 | .113E+01 | 0.       | .463E+00 | 11   | 4 | 3 | 3 | .122E+01 | .121E+00 | .463E+00 |
| 2    | 5 | 1 | 3 | .132E+01 | 0.       | .463E+00 | 12   | 3 | 2 | 3 | .113E+01 | .560E-01 | .463E+00 |
| 3    | 5 | 3 | 3 | .132E+01 | .131E+00 | .463E+00 | 13   | 3 | 1 | 4 | .110E+01 | 0.       | .463E+00 |
| 4    | 3 | 3 | 3 | .113E+01 | .112E+00 | .463E+00 | 14   | 5 | 1 | 4 | .135E+01 | 0.       | .562E+00 |
| 5    | 3 | 1 | 4 | .123E+01 | 0.       | .662E+00 | 15   | 5 | 3 | 4 | .136E+01 | .135E+00 | .562E+00 |
| 6    | 5 | 1 | 5 | .141E+01 | 0.       | .560E+00 | 16   | 3 | 3 | 4 | .117E+01 | .117E+00 | .563E+00 |
| 7    | 5 | 3 | 5 | .140E+01 | .139E+00 | .658E+00 | 17   | 4 | 1 | 5 | .132E+01 | 0.       | .661E+00 |
| 8    | 3 | 3 | 5 | .122E+01 | .122E+00 | .660E+00 | 18   | 5 | 2 | 5 | .141E+01 | .708E-01 | .659E+00 |
| 9    | 4 | 1 | 5 | .122E+01 | 0.       | .463E+00 | 19   | 4 | 3 | 5 | .131E+01 | .131E+00 | .659E+00 |
| 10   | 5 | 2 | 3 | .132E+01 | .656E-01 | .463E+00 | 20   | 3 | 2 | 5 | .123E+01 | .621E-01 | .661E+00 |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 2    | .9539E-02  |
| 2    | 2    | -.1042E-08 |
| 3    | 2    | -.1530E-01 |
| 1    | 3    | .9414E-02  |
| 2    | 3    | .1106E-02  |
| 3    | 3    | -.1518E-01 |
| 1    | 7    | .7916E-02  |
| 2    | 7    | .1325E-02  |
| 3    | 7    | -.1391E-01 |

|   |    |            |
|---|----|------------|
| 2 | 6  | -.1936E-08 |
| 3 | 6  | -.1355E-01 |
| 1 | 10 | .9470E-02  |
| 2 | 10 | .9621E-03  |
| 3 | 10 | -.1924E-01 |
| 1 | 15 | .0034E-02  |
| 2 | 15 | .1291E-02  |
| 3 | 15 | -.1440E-01 |
| 1 | 18 | .7770E-02  |
| 2 | 18 | .0900E-03  |
| 3 | 18 | -.1309E-01 |
| 1 | 14 | .0471E-02  |
| 2 | 14 | -.1576E-00 |
| 3 | 14 | -.1443E-01 |
| 1 | 1  | .1205E-01  |
| 2 | 1  | -.0807E-09 |
| 3 | 1  | -.1049E-01 |
| 1 | 5  | .9402E-02  |
| 2 | 5  | -.1600E-00 |
| 3 | 5  | -.1060E-01 |
| 1 | 9  | .1071E-01  |
| 2 | 9  | -.0901E-09 |
| 3 | 9  | -.1605E-01 |
| 1 | 17 | .0393E-02  |
| 2 | 17 | -.1050E-00 |
| 3 | 17 | -.1500E-01 |
| 1 | 13 | .1065E-01  |
| 2 | 13 | -.1230E-00 |
| 3 | 13 | -.1761E-01 |
| 1 | 4  | .1100E-01  |
| 2 | 4  | .1517E-02  |
| 3 | 4  | -.1032E-01 |
| 1 | 12 | .1197E-01  |
| 2 | 12 | .7730E-03  |
| 3 | 12 | -.1041E-01 |
| 1 | 11 | .1057E-01  |
| 2 | 11 | -.1296E-02 |
| 3 | 11 | -.1672E-01 |

FINE GRID ELEMENT = 6

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 3 | 1 | 5 | .123E+01 | 0.       | .662E+00 | 11   | 4 | 3 | 9 | .131E+01 | .131E+00 | .659E+00 |
| 2    | 5 | 1 | 5 | .141E+01 | 0.       | .660E+00 | 12   | 3 | 2 | 5 | .123E+01 | .621E-01 | .661E+00 |
| 3    | 5 | 3 | 5 | .140E+01 | .139E+00 | .658E+00 | 13   | 3 | 1 | 6 | .129E+01 | 0.       | .758E+00 |
| 4    | 3 | 3 | 5 | .122E+01 | .132E+00 | .660E+00 | 14   | 3 | 1 | 6 | .146E+01 | 0.       | .755E+00 |
| 5    | 3 | 1 | 7 | .130E+01 | 0.       | .652E+00 | 15   | 5 | 3 | 6 | .149E+01 | .100E+00 | .794E+00 |
| 6    | 5 | 1 | 7 | .151E+01 | 0.       | .649E+00 | 16   | 3 | 3 | 6 | .120E+01 | .127E+00 | .756E+00 |
| 7    | 5 | 3 | 7 | .150E+01 | .148E+00 | .647E+00 | 17   | 4 | 1 | 7 | .143E+01 | 0.       | .850E+00 |
| 8    | 3 | 3 | 7 | .133E+01 | .132E+00 | .649E+00 | 18   | 3 | 2 | 7 | .151E+01 | .760E-01 | .848E+00 |
| 9    | 4 | 1 | 5 | .132E+01 | 0.       | .661E+00 | 19   | 4 | 3 | 7 | .142E+01 | .140E+00 | .848E+00 |
| 10   | 5 | 2 | 5 | .141E+01 | .708E-01 | .659E+00 | 20   | 3 | 2 | 7 | .135E+01 | .681E-01 | .850E+00 |

POINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 2    | .7517E-02  |
| 2    | 2    | -.1936E-08 |
| 3    | 2    | -.1355E-01 |
| 1    | 3    | .7910E-02  |
| 2    | 3    | .1325E-02  |
| 3    | 3    | -.1391E-01 |
| 1    | 7    | .6620E-02  |
| 2    | 7    | .9415E-03  |
| 3    | 7    | -.1313E-01 |
| 1    | 6    | .5956E-02  |
| 2    | 6    | -.2135E-08 |

|   |    |            |
|---|----|------------|
| 1 | 0  | -.6474E-04 |
| 2 | 10 | .7770E-02  |
| 3 | 10 | .6980E-03  |
| 1 | 10 | -.1389E-01 |
| 2 | 15 | .7246E-02  |
| 3 | 15 | .1209E-02  |
| 1 | 19 | -.1390E-01 |
| 2 | 10 | .6397E-02  |
| 3 | 10 | .5164E-03  |
| 1 | 10 | -.1274E-01 |
| 2 | 14 | .6077E-02  |
| 3 | 14 | -.2123E-00 |
| 1 | 14 | -.1264E-01 |
| 2 | 1  | -.9402E-02 |
| 3 | 1  | -.1608E-00 |
| 1 | 1  | -.1668E-01 |
| 2 | 5  | .7336E-02  |
| 3 | 5  | -.1849E-00 |
| 1 | 5  | -.1467E-01 |
| 2 | 9  | .8393E-02  |
| 3 | 9  | -.1850E-00 |
| 1 | 9  | -.1506E-01 |
| 2 | 17 | .6592E-02  |
| 3 | 17 | -.2866E-00 |
| 1 | 17 | -.1313E-01 |
| 2 | 13 | .8297E-02  |
| 3 | 13 | -.1814E-00 |
| 1 | 13 | -.1576E-01 |
| 2 | 8  | .7220E-02  |
| 3 | 8  | -.1481E-02 |
| 1 | 8  | -.1531E-01 |
| 2 | 19 | .6756E-02  |
| 3 | 19 | .1212E-02  |
| 1 | 19 | -.1418E-01 |
| 2 | 20 | .7326E-02  |
| 3 | 20 | .7709E-03  |
| 1 | 20 | -.1515E-01 |

| FINE GRID ELEMENT = 7 |   |   | X-COORD |   |          | Y-COORD  |          |    | Z-COORD |   |   | NODE     |          |          | I        |          |          | J        |          |          | K        |          |          | X-COORD  |          |          | Y-COORD  |          |          | Z-COORD |  |  |
|-----------------------|---|---|---------|---|----------|----------|----------|----|---------|---|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|--|--|
| 1                     | 3 | 3 | 3       | 3 | .113E+01 | .112E+00 | .463E+00 | 11 | 4       | 5 | 3 | .121E+01 | .240E+00 | .463E+00 | .121E+01 | .240E+00 | .463E+00 | .121E+01 | .240E+00 | .463E+00 | .121E+01 | .240E+00 | .463E+00 | .121E+01 | .240E+00 | .463E+00 | .121E+01 | .240E+00 | .463E+00 |         |  |  |
| 2                     | 5 | 3 | 3       | 3 | .132E+01 | .131E+00 | .463E+00 | 12 | 3       | 4 | 3 | .112E+01 | .167E+00 | .463E+00 | .112E+01 | .167E+00 | .463E+00 | .112E+01 | .167E+00 | .463E+00 | .112E+01 | .167E+00 | .463E+00 | .112E+01 | .167E+00 | .463E+00 | .112E+01 | .167E+00 | .463E+00 |         |  |  |
| 3                     | 5 | 5 | 3       | 3 | .131E+01 | .260E+00 | .463E+00 | 13 | 3       | 3 | 4 | .117E+01 | .117E+00 | .463E+00 | .117E+01 | .117E+00 | .463E+00 | .117E+01 | .117E+00 | .463E+00 | .117E+01 | .117E+00 | .463E+00 | .117E+01 | .117E+00 | .463E+00 | .117E+01 | .117E+00 | .463E+00 |         |  |  |
| 4                     | 3 | 5 | 3       | 3 | .111E+01 | .221E+00 | .463E+00 | 14 | 5       | 3 | 4 | .136E+01 | .135E+00 | .463E+00 | .136E+01 | .135E+00 | .463E+00 | .136E+01 | .135E+00 | .463E+00 | .136E+01 | .135E+00 | .463E+00 | .136E+01 | .135E+00 | .463E+00 | .136E+01 | .135E+00 | .463E+00 |         |  |  |
| 5                     | 3 | 3 | 5       | 3 | .122E+01 | .122E+00 | .660E+00 | 15 | 5       | 5 | 4 | .134E+01 | .265E+00 | .660E+00 | .134E+01 | .265E+00 | .660E+00 | .134E+01 | .265E+00 | .660E+00 | .134E+01 | .265E+00 | .660E+00 | .134E+01 | .265E+00 | .660E+00 | .134E+01 | .265E+00 | .660E+00 |         |  |  |
| 6                     | 5 | 3 | 5       | 5 | .140E+01 | .139E+00 | .658E+00 | 16 | 3       | 5 | 4 | .115E+01 | .228E+00 | .658E+00 | .115E+01 | .228E+00 | .658E+00 | .115E+01 | .228E+00 | .658E+00 | .115E+01 | .228E+00 | .658E+00 | .115E+01 | .228E+00 | .658E+00 | .115E+01 | .228E+00 | .658E+00 |         |  |  |
| 7                     | 5 | 5 | 5       | 5 | .138E+01 | .270E+00 | .657E+00 | 17 | 4       | 3 | 5 | .131E+01 | .131E+00 | .657E+00 | .131E+01 | .131E+00 | .657E+00 | .131E+01 | .131E+00 | .657E+00 | .131E+01 | .131E+00 | .657E+00 | .131E+01 | .131E+00 | .657E+00 | .131E+01 | .131E+00 | .657E+00 |         |  |  |
| 8                     | 3 | 5 | 5       | 5 | .120E+01 | .234E+00 | .658E+00 | 18 | 5       | 4 | 5 | .139E+01 | .205E+00 | .658E+00 | .139E+01 | .205E+00 | .658E+00 | .139E+01 | .205E+00 | .658E+00 | .139E+01 | .205E+00 | .658E+00 | .139E+01 | .205E+00 | .658E+00 | .139E+01 | .205E+00 | .658E+00 |         |  |  |
| 9                     | 4 | 3 | 3       | 3 | .122E+01 | .121E+00 | .463E+00 | 19 | 4       | 5 | 5 | .129E+01 | .252E+00 | .463E+00 | .129E+01 | .252E+00 | .463E+00 | .129E+01 | .252E+00 | .463E+00 | .129E+01 | .252E+00 | .463E+00 | .129E+01 | .252E+00 | .463E+00 | .129E+01 | .252E+00 | .463E+00 |         |  |  |
| 10                    | 5 | 4 | 3       | 3 | .131E+01 | .195E+00 | .463E+00 | 20 | 3       | 4 | 5 | .121E+01 | .179E+00 | .463E+00 | .121E+01 | .179E+00 | .463E+00 | .121E+01 | .179E+00 | .463E+00 | .121E+01 | .179E+00 | .463E+00 | .121E+01 | .179E+00 | .463E+00 | .121E+01 | .179E+00 | .463E+00 |         |  |  |

| POINT, CLAMP, AND SLOPE TYPE BC. |      |  | VALUE      |  |
|----------------------------------|------|--|------------|--|
| TYPE                             | NODE |  |            |  |
| 1                                | 2    |  | .9414E-02  |  |
| 2                                | 2    |  | .1106E-02  |  |
| 3                                | 2    |  | -.1518E-01 |  |
| 1                                | 3    |  | .9279E-02  |  |
| 2                                | 3    |  | .2137E-02  |  |
| 3                                | 3    |  | -.1511E-01 |  |
| 1                                | 7    |  | .7889E-02  |  |
| 2                                | 7    |  | .2431E-02  |  |
| 3                                | 7    |  | -.1300E-01 |  |
| 1                                | 6    |  | .7916E-02  |  |
| 2                                | 6    |  | .1325E-02  |  |
| 3                                | 6    |  | -.1391E-01 |  |
| 1                                | 10   |  | .9348E-02  |  |
| 2                                | 10   |  | .1212E-02  |  |
| 3                                | 10   |  | -.1515E-01 |  |

|   |    |            |
|---|----|------------|
| 3 | 10 | -.1516E-01 |
| 1 | 15 | .0509E-02  |
| 2 | 15 | .2435E-02  |
| 3 | 15 | -.1392E-01 |
| 1 | 18 | .7956E-02  |
| 2 | 18 | .1905E-02  |
| 3 | 18 | -.1361E-01 |
| 1 | 14 | .0639E-02  |
| 2 | 14 | .1291E-02  |
| 3 | 14 | -.1448E-01 |
| 1 | 4  | .1178E-01  |
| 2 | 4  | .2914E-02  |
| 3 | 4  | -.1815E-01 |
| 1 | 8  | .9006E-02  |
| 2 | 8  | .3101E-02  |
| 3 | 8  | -.1020E-01 |
| 1 | 11 | .1041E-01  |
| 2 | 11 | .2494E-02  |
| 3 | 11 | -.1661E-01 |
| 1 | 16 | .1036E-01  |
| 2 | 16 | .3079E-02  |
| 3 | 16 | -.1712E-01 |
| 1 | 19 | .0306E-02  |
| 2 | 19 | .2751E-02  |
| 3 | 19 | -.1457E-01 |
| 1 | 1  | .1108E-01  |
| 2 | 1  | .1517E-02  |
| 3 | 1  | -.1032E-01 |
| 1 | 12 | .1179E-01  |
| 2 | 12 | .2231E-02  |
| 3 | 12 | -.1023E-01 |
| 1 | 9  | .1057E-01  |
| 2 | 9  | .1296E-02  |
| 3 | 9  | -.1072E-01 |

FINE GRID ELEMENT = 8

| NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  | NODE | I | J | K | X-COORD  | Y-COORD  | Z-COORD  |
|------|---|---|---|----------|----------|----------|------|---|---|---|----------|----------|----------|
| 1    | 3 | 3 | 5 | .122E+01 | .122E+00 | .660E+00 | 11   | 4 | 5 | 5 | .129E+01 | .252E+00 | .658E+00 |
| 2    | 3 | 3 | 5 | .140E+01 | .139E+00 | .658E+00 | 12   | 3 | 4 | 5 | .121E+01 | .179E+00 | .659E+00 |
| 3    | 9 | 9 | 9 | .138E+01 | .270E+00 | .697E+00 | 13   | 3 | 3 | 6 | .128E+01 | .127E+00 | .798E+00 |
| 4    | 3 | 5 | 5 | .120E+01 | .234E+00 | .658E+00 | 14   | 5 | 3 | 6 | .145E+01 | .144E+00 | .754E+00 |
| 5    | 3 | 3 | 7 | .133E+01 | .132E+00 | .849E+00 | 15   | 5 | 5 | 6 | .142E+01 | .276E+00 | .752E+00 |
| 6    | 5 | 3 | 7 | .150E+01 | .148E+00 | .847E+00 | 16   | 3 | 5 | 6 | .124E+01 | .241E+00 | .754E+00 |
| 7    | 5 | 5 | 7 | .146E+01 | .281E+00 | .845E+00 | 17   | 4 | 3 | 7 | .142E+01 | .148E+00 | .848E+00 |
| 8    | 3 | 5 | 7 | .129E+01 | .247E+00 | .847E+00 | 18   | 5 | 4 | 7 | .146E+01 | .216E+00 | .846E+00 |
| 9    | 4 | 3 | 9 | .131E+01 | .131E+00 | .899E+00 | 19   | 4 | 9 | 7 | .139E+01 | .204E+00 | .848E+00 |
| 10   | 5 | 4 | 5 | .139E+01 | .206E+00 | .658E+00 | 20   | 3 | 4 | 7 | .132E+01 | .192E+00 | .848E+00 |

PCINT, CLAMP, AND SLOPE TYPE BC.

| TYPE | NODE | VALUE      |
|------|------|------------|
| 1    | 2    | .7916E-02  |
| 2    | 2    | .1325E-02  |
| 3    | 2    | -.1391E-01 |
| 1    | 3    | .7889E-02  |
| 2    | 3    | .2431E-02  |
| 3    | 3    | -.1388E-01 |
| 1    | 7    | .6460E-02  |
| 2    | 7    | .1518E-02  |
| 3    | 7    | -.1195E-01 |
| 1    | 6    | .6628E-02  |
| 2    | 6    | .9415E-03  |
| 3    | 6    | -.1313E-01 |
| 1    | 10   | .7956E-02  |
| 2    | 10   | .1905E-02  |
| 3    | 10   | -.1361E-01 |

|   |    |            |
|---|----|------------|
| 4 | 17 | .1406E-06  |
| 2 | 15 | .2125E-02  |
| 3 | 15 | -.1234E-01 |
| 1 | 10 | .6649E-02  |
| 2 | 10 | -.1275E-02 |
| 3 | 10 | -.1206E-01 |
| 1 | 14 | .7200E-02  |
| 2 | 14 | .1209E-02  |
| 3 | 14 | -.1346E-01 |
| 1 | 4  | .9006E-02  |
| 2 | 4  | .3101E-02  |
| 3 | 4  | -.1620E-01 |
| 1 | 0  | .6721E-02  |
| 2 | 0  | -.2720E-02 |
| 3 | 0  | -.1466E-01 |
| 1 | 11 | .0300E-02  |
| 2 | 11 | .0791E-02  |
| 3 | 11 | -.1457E-01 |
| 1 | 16 | .7072E-02  |
| 2 | 16 | .2902E-02  |
| 3 | 16 | -.1530E-01 |
| 1 | 19 | .6300E-02  |
| 2 | 19 | .8121E-02  |
| 3 | 19 | -.1320E-01 |
| 1 | 5  | .7220E-02  |
| 2 | 5  | -.1401E-02 |
| 3 | 5  | -.1531E-01 |
| 1 | 20 | .7010E-02  |
| 2 | 20 | .2131E-02  |
| 3 | 20 | -.1515E-01 |
| 1 | 17 | .6756E-02  |
| 2 | 17 | -.1212E-02 |
| 3 | 17 | -.1410E-01 |

TIME IN REZONE = 1.214 SECONDS

TIME IN FORMKF = 3.772 SECONDS

TIME IN PREFRONT = .300

TOTAL NUMBER OF D.O.F.'S = 270

D.O.F. IN FRONT = 112

MAXIMUM ACTIVE STORAGE = 8966

TOTAL NICKNAME STORAGE = 224

BUFFER LENGTH = 10333

TIME IN FORWARD ELIMINATION = 7.500

NUMBER OF SECTORS (PRUS) = 201

TIME IN BACKSUBSTITUTION = .643

TIME IN ZIPP = 0.539 SECONDS



## BLOCK OPTION

## BOUNDS

|   | MIN        | MAX       | MIN | MAX |
|---|------------|-----------|-----|-----|
| X | -.1000E+21 | .1000E+21 | I   | 0 0 |
| Y | -.1000E+21 | .1000E+21 | J   | 0 0 |
| Z | -.1000E+21 | .1000E+21 | K   | 0 0 |

PRINT LEVEL = 4

## STRESS POINTS FOR BRICK (DEGEN) ELEMENTS

| POINT | S1     | S2     | S3     |
|-------|--------|--------|--------|
| 1     | -1.000 | -1.000 | -1.000 |
| 2     | 1.000  | -1.000 | -1.000 |
| 3     | 1.000  | 1.000  | -1.000 |
| 4     | -1.000 | 1.000  | -1.000 |
| 5     | -1.000 | -1.000 | 1.000  |
| 6     | 1.000  | -1.000 | 1.000  |
| 7     | 1.000  | 1.000  | 1.000  |
| 8     | -1.000 | 1.000  | 1.000  |
| 9     | 0.000  | 0.000  | 0.000  |

## STRESS POINTS FOR PRISM ELEMENTS

| POINT | S1    | S2    | S3    | S4     |
|-------|-------|-------|-------|--------|
| 1     | 1.000 | 0.000 | 0.000 | -1.000 |
| 2     | 0.000 | 1.000 | 0.000 | -1.000 |
| 3     | 0.000 | 0.000 | 1.000 | -1.000 |
| 4     | 1.000 | 0.000 | 0.000 | 1.000  |
| 5     | 0.000 | 1.000 | 0.000 | 1.000  |
| 6     | 0.000 | 0.000 | 1.000 | 1.000  |
| 7     | .333  | .333  | .333  | 0.000  |

## STRESS POINTS FOR WEDGE ELEMENTS

| POINT | S1    | S2    | S3     |
|-------|-------|-------|--------|
| 1     | .050  | 0.000 | -1.000 |
| 2     | 1.000 | 0.000 | -1.000 |
| 3     | 1.000 | 1.000 | -1.000 |
| 4     | .050  | 0.000 | 1.000  |
| 5     | 1.000 | 0.000 | 1.000  |
| 6     | 1.000 | 1.000 | 1.000  |
| 7     | .667  | .500  | 0.000  |

## STRESS POINTS FOR TETRA ELEMENTS

| POINT | S1    | S2    | S3    | S4    |
|-------|-------|-------|-------|-------|
| 1     | 1.000 | 0.000 | 0.000 | 0.000 |
| 2     | 0.000 | 1.000 | 0.000 | 0.000 |
| 3     | 0.000 | 0.000 | 1.000 | 0.000 |
| 4     | 0.000 | 0.000 | 1.000 | 1.000 |
| 5     | .250  | .250  | .250  | .250  |

DISPLACEMENTS FOR BRICK ELEMENT NO. 1 MATERIAL = 1

| PCINT | X       | Y       | Z       | SIGMX   | SIGMY   | SIGMZ   | TAUXX   | TAUYY   | TAUZZ   | GAMMAX  | GAMMAY  | GAMMAZ  |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1     | .94E+00 | 0.      | .46E+00 | .65E+04 | .59E+04 | .77E+04 | .14E+02 | .14E+02 | .14E+02 | .14E+02 | .14E+02 | .14E+02 |
| 2     | .11E+01 | 0.      | .46E+00 | .10E+01 | .23E-01 | .26E-02 | .22E-02 | .22E-02 | .34E-02 | .34E-02 | .34E-02 | .34E-02 |
| 3     | .11E+01 | .11E+00 | .46E+00 | .90E+03 | .62E+03 | .86E+03 | .49E+01 | .49E+01 | .56E+01 | .56E+01 | .56E+01 | .56E+01 |
| 4     | .93E+00 | .92E-01 | .66E+00 | .52E+04 | .59E+04 | .54E+04 | .13E-01 | .13E-01 | .13E-01 | .13E-01 | .13E-01 | .13E-01 |
| 5     | .11E+01 | 0.      | .66E+00 | .65E+03 | .74E+03 | .66E+03 | .53E-02 | .53E-02 | .65E-02 | .65E-02 | .65E-02 | .65E-02 |
| 6     | .12E+01 | 0.      | .66E+00 | .16E+01 | .59E+04 | .56E+04 | .12E-02 | .12E-02 | .12E-02 | .12E-02 | .12E-02 | .12E-02 |
| 7     | .12E+01 | .62E+00 | .66E+00 | .22E+04 | .29E+04 | .23E+04 | .44E-02 | .44E-02 | .44E-02 | .44E-02 | .44E-02 | .44E-02 |
| 8     | .10E+01 | .10E+00 | .66E+00 | .71E+02 | .66E+04 | .66E+04 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 |
| 9     | .11E+01 | .54E-01 | .56E+00 | .19E+01 | .79E+03 | .53E+03 | .19E-01 | .19E-01 | .19E-01 | .19E-01 | .19E-01 | .19E-01 |

STRESSES FOR BRICK ELEMENT NO. 1 MATERIAL = 1

| PCINT | X       | Y       | Z       | SIGMX   | SIGMY   | SIGMZ   | TAUXX   | TAUYY   | TAUZZ   | GAMMAX  | GAMMAY  | GAMMAZ  |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1     | .94E+00 | 0.      | .46E+00 | .65E+04 | .59E+04 | .77E+04 | .14E+02 | .14E+02 | .14E+02 | .14E+02 | .14E+02 | .14E+02 |
| 2     | .11E+01 | 0.      | .46E+00 | .10E+01 | .23E-01 | .26E-02 | .22E-02 | .22E-02 | .34E-02 | .34E-02 | .34E-02 | .34E-02 |
| 3     | .11E+01 | .11E+00 | .46E+00 | .90E+03 | .62E+03 | .86E+03 | .49E+01 | .49E+01 | .56E+01 | .56E+01 | .56E+01 | .56E+01 |
| 4     | .93E+00 | .92E-01 | .66E+00 | .52E+04 | .59E+04 | .54E+04 | .13E-01 | .13E-01 | .13E-01 | .13E-01 | .13E-01 | .13E-01 |
| 5     | .11E+01 | 0.      | .66E+00 | .65E+03 | .74E+03 | .66E+03 | .53E-02 | .53E-02 | .65E-02 | .65E-02 | .65E-02 | .65E-02 |
| 6     | .12E+01 | 0.      | .66E+00 | .16E+01 | .59E+04 | .56E+04 | .12E-02 | .12E-02 | .12E-02 | .12E-02 | .12E-02 | .12E-02 |
| 7     | .12E+01 | .62E+00 | .66E+00 | .22E+04 | .29E+04 | .23E+04 | .44E-02 | .44E-02 | .44E-02 | .44E-02 | .44E-02 | .44E-02 |
| 8     | .10E+01 | .10E+00 | .66E+00 | .71E+02 | .66E+04 | .66E+04 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 |
| 9     | .11E+01 | .54E-01 | .56E+00 | .19E+01 | .79E+03 | .53E+03 | .19E-01 | .19E-01 | .19E-01 | .19E-01 | .19E-01 | .19E-01 |

DISPLACEMENTS FOR BRICKM ELEMENT NO. 2 MATERIAL = 1

| I | J | K | U        | V         | M         |           | M |
|---|---|---|----------|-----------|-----------|-----------|---|
|   |   |   |          |           | SIGMAZ    | EPSZ      |   |
| 1 | 1 | 5 | .112E-01 | -.656E-09 | -.212E-01 | .696E+00  |   |
| 1 | 1 | 5 | .980E-02 | -.108E-09 | -.109E-01 | .373E+00  |   |
| 3 | 1 | 5 | .928E-02 | .142E-02  | -.189E-01 | .275E+00  |   |
| 1 | 1 | 5 | .117E-01 | .281E-02  | -.192E-01 | .878E-01  |   |
| 1 | 1 | 7 | .915E-02 | -.182E-06 | -.181E-01 | -.189E+01 |   |
| 3 | 1 | 7 | .733E-02 | -.189E-06 | -.188E-01 | .898E-01  |   |
| 3 | 1 | 7 | .722E-02 | .148E-02  | -.193E-01 | .957E+00  |   |
| 1 | 3 | 7 | .939E-02 | .283E-02  | -.178E-01 | .123E+01  |   |
| 2 | 1 | 5 | .185E-01 | -.121E-06 | -.184E-01 |           |   |
| 3 | 2 | 5 | .983E-02 | .788E-03  | -.189E-01 |           |   |
| 2 | 3 | 5 | .182E-01 | .177E-02  | -.182E-01 |           |   |
| 1 | 2 | 5 | .117E-01 | .182E-02  | -.288E-01 |           |   |
| 1 | 1 | 6 | .184E-01 | -.928E-09 | -.182E-01 |           |   |
| 3 | 1 | 6 | .829E-02 | .189E-09  | -.187E-01 |           |   |
| 3 | 3 | 6 | .827E-02 | .198E-02  | -.188E-01 |           |   |
| 1 | 3 | 6 | .183E-01 | .891E-02  | -.189E-01 |           |   |
| 2 | 1 | 7 | .819E-02 | -.189E-06 | -.183E-01 |           |   |
| 3 | 2 | 7 | .732E-02 | .779E-03  | -.191E-01 |           |   |
| 2 | 3 | 7 | .802E-02 | .176E-02  | -.189E-01 |           |   |
| 1 | 2 | 7 | .914E-02 | .192E-02  | -.187E-01 |           |   |

STRESSES FOR BRICKM ELEMENT NO. 2 MATERIAL = 1

| PGINT | X       | Y       | Z       | SIGMA   |         | SIGMAZ  |         | TAUZY   | GAMMAZ  | TAUZX   | GAMMAX  | SIGMAZ  |         | EPSZ    | SIGMAZ  |         | EPSZ    | SIGMAZ  | GAMMAX  | EPSZ    | SIGMAZ  | GAMMAX  | EPSZ    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|       |         |         |         | EPSX    | EPSY    | SIGMAZ  | EPSZ    |         |         |         |         | SIGMAZ  | EPSZ    |         | SIGMAZ  | EPSZ    |         |         |         |         |         |         |         |
| 10    | .11E+01 | 0.      | .00E+00 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .18E+02 | .27E+02 | .17E-01 | .17E-01 | .98E+09 | .98E+09 | .18E-01 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 |
| 11    | .12E+01 | 0.      | .66E+00 | .16E-01 | .19E-01 | .44E-02 | .44E-02 | .19E-02 | .43E-02 | .17E-01 | .17E-01 | .16E-01 | .16E-01 | .19E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 |
| 12    | .12E+01 | .12E+00 | .66E+00 | .12E+01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 |
| 13    | .10E+01 | .10E+00 | .00E+00 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 |
| 14    | .12E+01 | 0.      | .09E+00 | .13E-01 | .17E-01 | .67E-02 | .67E-02 | .17E-02 | .59E-02 | .21E-01 | .21E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 | .17E-01 |
| 15    | .14E+01 | 0.      | .09E+00 | .18E-01 | .11E-01 | .31E-02 | .31E-02 | .11E-02 | .74E-02 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 | .14E-01 |
| 16    | .13E+01 | .13E+00 | .09E+00 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 | .98E+09 |
| 17    | .12E+01 | .12E+00 | .09E+00 | .16E-01 | .17E-01 | .26E-03 | .26E-03 | .17E-03 | .18E-02 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 | .16E-01 |
| 18    | .12E+01 | .61E-01 | .76E+00 | .11E-01 | .15E-01 | .15E-02 | .15E-02 | .15E-02 | .15E-02 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 | .15E-01 |

DISPLACEMENTS FOR BRICK ELEMENT NO. 3 MATERIAL = 1

| POINT | K | J | I | U         | V         | M          | H          |
|-------|---|---|---|-----------|-----------|------------|------------|
| 1     | 3 | 3 | 3 | .1498E-01 | .2056E-02 | -.2172E-01 | .7493E-01  |
| 2     | 3 | 3 | 3 | .1196E-01 | .2315E-02 | -.1952E-01 | .6950E+00  |
| 3     | 3 | 3 | 3 | .1174E-01 | .2212E-02 | -.1912E-01 | -.9130E+00 |
| 1     | 3 | 2 | 3 | .1497E-01 | .3942E-02 | -.2139E-01 | .1818E+01  |
| 1     | 3 | 2 | 2 | .1176E-01 | .2011E-02 | -.1922E-01 | .8711E-01  |
| 3     | 3 | 2 | 2 | .3286E-02 | .1628E-02 | -.1634E-01 | .2750E+00  |
| 1     | 3 | 2 | 2 | .1172E-01 | .3992E-02 | -.1628E-01 | .5808E+00  |
| 2     | 3 | 3 | 3 | .1336E-01 | .1771E-02 | -.1939E-01 | .1800E+01  |
| 3     | 3 | 3 | 3 | .1174E-01 | .2232E-02 | -.1823E-01 |            |
| 2     | 3 | 3 | 3 | .1314E-01 | .3392E-02 | -.1973E-01 |            |
| 1     | 3 | 4 | 3 | .1486E-01 | .3022E-02 | -.2152E-01 |            |
| 1     | 3 | 4 | 2 | .1330E-01 | .2032E-02 | -.2086E-01 |            |
| 3     | 3 | 4 | 2 | .1039E-01 | .1732E-02 | -.1732E-01 |            |
| 3     | 3 | 4 | 3 | .1036E-01 | .3079E-02 | -.1712E-01 |            |
| 1     | 3 | 4 | 4 | .1316E-01 | .3911E-02 | -.2091E-01 |            |
| 2     | 3 | 5 | 4 | .1027E-01 | .1732E-02 | -.1826E-01 |            |
| 3     | 3 | 5 | 4 | .9566E-02 | .2380E-02 | -.1669E-01 |            |
| 2     | 3 | 5 | 5 | .1022E-01 | .3482E-02 | -.1707E-01 |            |
| 1     | 3 | 5 | 5 | .1174E-01 | .2973E-02 | -.1976E-01 |            |

STRESSES FOR BRICK ELEMENT NO. 3 MATERIAL = 1

| POINT | K       | Y       | Z       | SIGMAX   | SIGMY   | SIGMZ     | TAUXX    | TAUYY    | TAUZZ    | TAUZX   | TAUZY    | TAUZX   | SIGM1   | SIGM2    | SIGM3    | TAUMAX  |
|-------|---------|---------|---------|----------|---------|-----------|----------|----------|----------|---------|----------|---------|---------|----------|----------|---------|
| 19    | 93E+00  | .92E+01 | .46E+00 | .25E+03  | .74E+03 | .46E+03   | -.60E+02 | -.60E+02 | .42E+02  | .61E+02 | .42E+02  | .61E+02 | .79E+09 | -.97E+03 | .23E+03  | .26E+03 |
| 20    | .11E+01 | .11E+00 | .46E+00 | -.17E-01 | .21E-01 | -.12E-02  | -.95E-02 | -.95E-02 | .67E-02  | .96E-02 | .67E-02  | .96E-02 | .22E-01 | -.53E-04 | -.19E-01 | .41E-01 |
| 21    | .11E+01 | .22E+00 | .46E+00 | -.14E-01 | .13E-01 | .53E-02   | -.63E-02 | -.63E-02 | .54E+02  | .64E-02 | .54E+02  | .64E-02 | .15E-01 | .64E-02  | -.15E-01 | .30E-01 |
| 22    | .92E+00 | .10E+00 | .46E+00 | -.13E-01 | .11E-01 | .46E-02   | -.11E-01 | -.11E-01 | .87E-02  | .71E-02 | .87E-02  | .71E-02 | .14E-01 | -.16E-01 | -.16E-01 | .29E-01 |
| 23    | .10E+01 | .10E+00 | .66E+00 | -.16E-01 | .18E-01 | .53E-03   | -.16E-01 | -.16E-01 | .99E-02  | .72E-02 | .99E-02  | .72E-02 | .21E-01 | .70E-03  | -.19E-01 | .60E-01 |
| 24    | .12E+01 | .12E+00 | .66E+00 | -.19E-01 | .19E-01 | .53E+03   | -.55E+02 | -.55E+02 | .52E+02  | .94E+02 | .52E+02  | .94E+02 | .60E+03 | .96E+03  | .26E+03  | .27E+03 |
| 25    | .12E+01 | .23E+00 | .66E+00 | -.16E-01 | .20E+04 | .17E+04   | .21E+02  | .21E+02  | .82E-02  | .96E+02 | .82E-02  | .96E+02 | .20E+04 | .11E-02  | -.23E-01 | .42E-01 |
| 26    | .10E+01 | .20E+00 | .66E+00 | -.17E-02 | .17E-01 | .56E-02   | .32E-02  | .32E-02  | -.83E-02 | .15E-01 | -.83E-02 | .15E-01 | .90E-01 | .90E-04  | -.16E-01 | .34E-01 |
| 27    | .11E+01 | .16E+00 | .56E+00 | -.17E-01 | .17E-01 | .44E-03   | -.24E-01 | -.24E-01 | .21E-01  | .62E-02 | .21E-01  | .62E-02 | .19E-01 | .80E-03  | -.17E-01 | .37E-01 |
|       |         |         |         | .22E+04  | .26E+04 | .24E+04   | -.52E+02 | -.52E+02 | .85E+02  | .84E+02 | .85E+02  | .84E+02 | .20E-01 | .11E-02  | -.22E-01 | .42E-01 |
|       |         |         |         | -.14E-01 | .14E-01 | -.163E-03 | -.82E-02 | -.82E-02 | .77E-02  | .10E-01 | .77E-02  | .10E-01 | .16E-01 | .69E-03  | -.16E-01 | .32E-01 |





DISPLACEMENTS FOR BRICKM ELEMENT NO. 6 MATERIAL = 1

| I | J | K | U         | V          | W          | M          |
|---|---|---|-----------|------------|------------|------------|
| 3 | 1 | 5 | .9402E-02 | -.1600E-00 | -.1600E-01 | .3738E+00  |
| 5 | 1 | 5 | .7517E-02 | -.1935E-08 | -.1391E-01 | .1132E+01  |
| 3 | 3 | 5 | .1325E-02 | -.1391E-01 | -.1391E-01 | .3054E+00  |
| 3 | 3 | 5 | .9286E-02 | -.1694E-02 | -.1694E-01 | .2790E+00  |
| 3 | 1 | 7 | .7336E-02 | -.1849E-08 | -.1467E-01 | .8903E-01  |
| 5 | 1 | 7 | .5956E-02 | -.2137E-08 | -.1371E-01 | -.1831E+00 |
| 5 | 3 | 7 | .6620E-02 | -.9415E-03 | -.1313E-01 | .1408E+00  |
| 3 | 3 | 7 | .7220E-02 | -.1801E-02 | -.1973E-01 | .9377E+00  |
| 4 | 1 | 5 | .8393E-02 | -.1850E-08 | -.1506E-01 |            |
| 5 | 2 | 5 | .7778E-02 | -.6900E-03 | -.1392E-01 |            |
| 4 | 3 | 5 | .8442E-02 | -.1691E-02 | -.1920E-01 |            |
| 3 | 2 | 5 | .9830E-02 | -.7805E-03 | -.1699E-01 |            |
| 3 | 1 | 6 | .8597E-02 | -.1814E-08 | -.1978E-01 |            |
| 5 | 1 | 6 | .8879E-02 | -.2129E-08 | -.1288E-01 |            |
| 5 | 3 | 6 | .7246E-02 | -.1209E-02 | -.1346E-01 |            |
| 3 | 3 | 6 | .8275E-02 | -.1990E-02 | -.1907E-01 |            |
| 4 | 1 | 7 | .6592E-02 | -.2868E-08 | -.1313E-01 |            |
| 5 | 2 | 7 | .6397E-02 | -.5164E-03 | -.1274E-01 |            |
| 4 | 3 | 7 | .6756E-02 | -.1212E-02 | -.1418E-01 |            |
| 5 | 2 | 7 | .7320E-02 | -.7709E-03 | -.1919E-01 |            |

STRESSES FOR BRICKM ELEMENT NO. 6 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | SIGMA1<br>EPS1 | TAUXX<br>GAMMAX | TAUYY<br>GAMMAY | TAUZZ<br>GAMMAZ | TAUXX<br>GAMMAX | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAUMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|------------------|
| 46    | .12E+01 | 0.      | .68E+00 | .22E+04        | .29E+04        | .23E+04        | .23E+04        | .92E+02         | -.51E+02        | -.51E+02        | .92E+02         | .23E+04        | .23E+04        | .23E+04          |
| 47    | .14E+01 | 0.      | .66E+00 | -.12E-01       | .14E-01        | -.15E-02       | .77E-02        | .77E-02         | -.91E-02        | -.91E-02        | .14E-01         | .17E-02        | -.17E-01       | .32E-01          |
| 48    | .14E+01 | .14E+00 | .66E+00 | .94E+02        | .79E+04        | .79E+04        | .79E+04        | .28E+02         | -.64E+02        | -.64E+02        | .79E+04         | .79E+04        | .79E+04        | .79E+04          |
| 49    | .12E+01 | .12E+00 | .68E+00 | -.43E-02       | .19E+04        | .19E+04        | .19E+04        | .43E-02         | -.72E-02        | -.72E-02        | .19E+04         | .28E+02        | -.11E-01       | .29E-01          |
| 50    | .14E+01 | 0.      | .65E+00 | .18E+04        | .18E+04        | .18E+04        | .18E+04        | .74E-02         | .64E-02         | .64E-02         | .64E-02         | .94E-02        | -.89E-02       | .18E-01          |
| 51    | .15E+01 | 0.      | .65E+00 | -.10E-01       | .11E+04        | .11E+04        | .11E+04        | -.69E-02        | -.69E-02        | -.69E-02        | .11E+04         | -.64E-03       | -.14E-01       | .27E-01          |
| 52    | .15E+01 | .15E+00 | .65E+00 | .75E+02        | .75E+02        | .75E+02        | .75E+02        | -.44E-03        | -.44E-03        | -.44E-03        | .75E+02         | .59E+03        | .39E+03        | .19E+03          |
| 53    | .13E+01 | .13E+00 | .65E+00 | .23E-03        | .92E+03        | .92E+03        | .92E+03        | .67E-02         | -.17E-01        | -.17E-01        | .92E+03         | .11E+04        | -.11E+04       | .17E+03          |
| 54    | .14E+01 | .69E-01 | .74E+00 | -.75E-02       | .36E+04        | .36E+04        | .36E+04        | .41E-02         | -.21E-02        | -.21E-02        | .36E+04         | .14E-02        | -.54E-02       | .11E-01          |
|       |         |         |         | -.29E+04       | .99E-02        | .99E-02        | .99E-02        | -.68E-02        | -.68E-02        | -.68E-02        | .99E-02         | -.16E-02       | -.11E-01       | .22E-01          |
|       |         |         |         | -.85E-12       | .23E+04        | .23E+04        | .23E+04        | -.88E-01        | -.10E+02        | -.10E+02        | .23E+04         | .23E+04        | .23E+04        | .23E+04          |
|       |         |         |         |                | .11E-01        | .11E-01        | .11E-01        | -.16E-02        | -.16E-02        | -.16E-02        | .11E-01         | .15E-02        | -.12E-01       | .23E-01          |

DISPLACEMENTS FOR BRICK ELEMENT NO. 7 MATERIAL = 1

| POINT | J      | K      | U        | V        | W        | H        |
|-------|--------|--------|----------|----------|----------|----------|
| 52    | 11E+01 | 11E+00 | 1108E-01 | 1517E-02 | 1032E-01 | 8450E+00 |
| 53    | 11E+01 | 11E+00 | 9410E-02 | 1108E-02 | 1032E-01 | 5910E+01 |
| 54    | 11E+01 | 11E+00 | 9279E-02 | 2137E-02 | 1511E-01 | 2426E+01 |
| 55    | 11E+01 | 11E+00 | 1170E-01 | 2914E-02 | 1015E-01 | 9130E+00 |
| 56    | 11E+01 | 11E+00 | 9266E-02 | 1624E-02 | 1654E-01 | 2750E+00 |
| 57    | 11E+01 | 11E+00 | 7916E-02 | 1325E-02 | 1391E-01 | 3094E+00 |
| 58    | 11E+01 | 11E+00 | 7809E-02 | 2314E-02 | 1300E-01 | 1219E+00 |
| 59    | 11E+01 | 11E+00 | 9066E-02 | 3404E-02 | 1809E-01 | 5909E+00 |
| 60    | 11E+01 | 11E+00 | 1057E-01 | 1296E-01 | 1672E-01 |          |
| 61    | 11E+01 | 11E+00 | 9340E-02 | 1631E-02 | 1514E-01 |          |
| 62    | 11E+01 | 11E+00 | 1041E-01 | 2494E-02 | 1661E-01 |          |
| 63    | 11E+01 | 11E+00 | 1179E-01 | 2231E-02 | 1833E-01 |          |
| 64    | 11E+01 | 11E+00 | 1039E-01 | 1735E-02 | 1723E-01 |          |
| 65    | 11E+01 | 11E+00 | 8639E-02 | 1894E-02 | 1440E-01 |          |
| 66    | 11E+01 | 11E+00 | 8501E-02 | 2435E-02 | 1392E-01 |          |
| 67    | 11E+01 | 11E+00 | 1036E-01 | 3079E-02 | 1712E-01 |          |
| 68    | 11E+01 | 11E+00 | 8442E-02 | 1691E-02 | 1520E-01 |          |
| 69    | 11E+01 | 11E+00 | 7956E-02 | 1905E-02 | 1361E-01 |          |
| 70    | 11E+01 | 11E+00 | 8308E-02 | 2751E-02 | 1437E-01 |          |
| 71    | 11E+01 | 11E+00 | 9564E-02 | 2304E-02 | 1169E-01 |          |

STRESSES FOR BRICK ELEMENT NO. 7 MATERIAL = 1

| POINT | X      | Y      | Z       | SIGMAX  | EPSX   | SIGMAY | EPSY   | SIGMAZ | EPSZ    | TAUXX   | GAMMAX | TAUYX  | GAMMAX | TAUZY  | GAMMAX | TAUZZ  | GAMMAX | SIGMA1 | EPS1   | SIGMA2 | EPS2   | SIGMA3 | EPS3   | TAUMAX | GAMMAX |
|-------|--------|--------|---------|---------|--------|--------|--------|--------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 52    | 11E+01 | 11E+00 | 466E+00 | 52E+04  | 14E-01 | 55E+04 | 13E-01 | 53E-02 | 54E+04  | 41E+02  | 54E+02 | 54E+02 | 54E+02 | 64E-02 | 64E-02 | 74E+02 | 74E+02 | 59E+04 | 15E-01 | 64E-02 | 64E-02 | 15E-01 | 64E-02 | 59E+04 | 59E+04 |
| 53    | 11E+01 | 11E+00 | 466E+00 | 47E+03  | 11E-01 | 22E+03 | 13E-01 | 30E+03 | 54E+04  | 64E-02  | 63E-02 | 26E+02 | 26E+02 | 41E-02 | 41E-02 | 17E-02 | 17E-02 | 21E+03 | 21E+03 | 20E+03 | 20E+03 | 50E+03 | 50E+03 | 54E+04 | 54E+04 |
| 54    | 11E+01 | 11E+00 | 466E+00 | 11E-01  | 81E-02 | 15E+05 | 81E-02 | 15E+05 | 15E+05  | 17E-02  | 17E-02 | 41E-02 | 41E-02 | 41E-02 | 41E-02 | 54E+02 | 54E+02 | 89E-02 | 89E-02 | 36E-02 | 36E-02 | 14E-01 | 14E-01 | 23E-01 | 23E-01 |
| 55    | 11E+01 | 11E+00 | 466E+00 | 59E+04  | 78E-02 | 78E-02 | 78E-02 | 89E-02 | 78E-02  | 78E-02  | 78E-02 | 78E-02 | 78E-02 | 78E-02 | 78E-02 | 85E-02 | 85E-02 | 12E-01 | 12E-01 | 16E+05 | 16E+05 | 15E+05 | 15E+05 | 16E+05 | 16E+05 |
| 56    | 11E+01 | 11E+00 | 466E+00 | 11E-01  | 11E-01 | 56E+04 | 11E-01 | 46E-02 | 56E+04  | 46E-02  | 46E-02 | 11E-01 | 11E-01 | 11E-01 | 11E-01 | 11E-01 | 11E-01 | 14E-01 | 14E-01 | 16E+05 | 16E+05 | 16E+05 | 16E+05 | 16E+05 | 16E+05 |
| 57    | 11E+01 | 11E+00 | 466E+00 | 16E+04  | 20E+04 | 20E+04 | 19E-01 | 33E-02 | 17E+04  | 17E+04  | 14E-01 | 14E-01 | 14E-01 | 14E-01 | 14E-01 | 14E-01 | 14E-01 | 22E-01 | 22E-01 | 21E+04 | 21E+04 | 10E-01 | 10E-01 | 10E-01 | 10E-01 |
| 58    | 11E+01 | 11E+00 | 466E+00 | 19E+04  | 20E+04 | 20E+04 | 80E-02 | 12E-02 | 19E+04  | 19E+04  | 76E-02 | 76E-02 | 76E-02 | 76E-02 | 76E-02 | 68E-02 | 68E-02 | 96E-02 | 96E-02 | 96E-02 | 96E-02 | 89E-02 | 89E-02 | 89E-02 | 89E-02 |
| 59    | 11E+01 | 11E+00 | 466E+00 | 74E+03  | 65E+03 | 65E+03 | 66E-02 | 17E-02 | 74E+03  | 74E+03  | 66E-02 | 66E-02 | 66E-02 | 66E-02 | 66E-02 | 16E+03 | 16E+03 | 13E-01 | 13E-01 | 93E+03 | 93E+03 | 86E-02 | 86E-02 | 86E-02 | 86E-02 |
| 60    | 11E+01 | 11E+00 | 466E+00 | 36E+04  | 36E+04 | 36E+04 | 36E+04 | 37E+04 | 36E+04  | 36E+04  | 15E+03 | 15E+03 | 15E+03 | 15E+03 | 15E+03 | 13E+03 | 13E+03 | 39E+04 | 39E+04 | 39E+04 | 39E+04 | 35E+04 | 35E+04 | 35E+04 | 35E+04 |
| 61    | 11E+01 | 11E+00 | 466E+00 | 27E+04  | 27E+04 | 27E+04 | 27E+04 | 29E+04 | 27E+04  | 27E+04  | 24E-01 | 24E-01 | 24E-01 | 24E-01 | 24E-01 | 21E-01 | 21E-01 | 19E-01 | 19E-01 | 19E-01 | 19E-01 | 17E-01 | 17E-01 | 17E-01 | 17E-01 |
| 62    | 11E+01 | 11E+00 | 466E+00 | 110E-01 | 82E-02 | 82E-02 | 82E-02 | 84E-03 | 110E-01 | 110E-01 | 82E-02 | 82E-02 | 82E-02 | 82E-02 | 82E-02 | 86E-02 | 86E-02 | 10E-01 | 10E-01 | 10E-01 | 10E-01 | 13E-01 | 13E-01 | 13E-01 | 13E-01 |



DISPLACEMENTS FOR BRICKM ELEMENT NO. 8 MATERIAL = 1

| I | J | K | U         | V         | M          | M         |
|---|---|---|-----------|-----------|------------|-----------|
| 3 | 3 | 5 | .9284E-02 | .1424E-02 | -.1654E-01 | .2750E+00 |
| 3 | 3 | 5 | .7918E-02 | .1329E-02 | -.1391E-01 | .3094E+00 |
| 5 | 5 | 5 | .7884E-02 | .2431E-02 | -.1380E-01 | .1218E+00 |
| 3 | 3 | 5 | .9086E-02 | .3101E-02 | -.1620E-01 | .9868E+00 |
| 3 | 3 | 7 | .7224E-02 | .1481E-02 | -.1331E-01 | .8537E+00 |
| 5 | 3 | 7 | .6624E-02 | .9459E-03 | -.1313E-01 | .1408E+00 |
| 5 | 5 | 7 | .6468E-02 | .1518E-02 | -.1195E-01 | .1809E+01 |
| 3 | 3 | 7 | .8721E-02 | .2728E-02 | -.1186E-01 | .2169E-01 |
| 4 | 3 | 5 | .8442E-02 | .1691E-02 | -.1520E-01 |           |
| 5 | 4 | 5 | .7958E-02 | .1905E-02 | -.1351E-01 |           |
| 4 | 5 | 5 | .8308E-02 | .2751E-02 | -.1497E-01 |           |
| 3 | 4 | 5 | .9568E-02 | .2380E-02 | -.1669E-01 |           |
| 3 | 3 | 6 | .8278E-02 | .1596E-02 | -.1587E-01 |           |
| 3 | 3 | 8 | .7248E-02 | .1269E-02 | -.1366E-01 |           |
| 5 | 5 | 6 | .7184E-02 | .2155E-02 | -.1234E-01 |           |
| 3 | 5 | 6 | .7872E-02 | .2982E-02 | -.1398E-01 |           |
| 4 | 3 | 7 | .6756E-02 | .1212E-02 | -.1418E-01 |           |
| 5 | 4 | 7 | .6644E-02 | .1279E-02 | -.1486E-01 |           |
| 4 | 5 | 7 | .6304E-02 | .2121E-02 | -.1328E-01 |           |
| 3 | 4 | 7 | .7014E-02 | .2131E-02 | -.1319E-01 |           |

STRESSES FOR BRICKM ELEMENT NO. 8 MATERIAL = 1

| POINT | X       | Y       | Z       | SIGMAX<br>EPSX | SIGMAY<br>EPSY | SIGMAZ<br>EPSZ | TAUXY<br>GAMMAX | TAUYZ<br>GAMMAX | TAUZX<br>GAMMAX | SIGMA1<br>EPS1 | SIGMA2<br>EPS2 | SIGMA3<br>EPS3 | TAUMAX<br>GAMMAX |
|-------|---------|---------|---------|----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|------------------|
| 54    | .12E+01 | .12E+00 | .68E+00 | .18E+04        | .28E+04        | .17E+04        | .87E+03         | -.28E+02        | .78E+02         | .21E+01        | .18E+02        | -.18E+01       | .23E+03          |
| 55    | .14E+01 | .14E+00 | .66E+00 | .19E+04        | .28E+04        | .18E+04        | -.48E+02        | .43E+02         | .59E+02         | .21E+04        | .28E+04        | .18E+04        | .12E+03          |
| 56    | .14E+01 | .27E+00 | .65E+00 | .74E+03        | .85E+03        | .75E+03        | -.78E-02        | .68E-02         | .86E-02         | .94E-02        | .18E-02        | -.88E-02       | .18E+01          |
| 57    | .12E+01 | .23E+00 | .68E+00 | .38E+04        | .38E+04        | .37E+04        | -.73E-02        | .15E-01         | .78E-02         | .13E-01        | .25E-02        | -.86E-02       | .12E+01          |
| 58    | .13E+01 | .13E+00 | .69E+00 | .34E+04        | .34E+04        | .34E+04        | -.24E-01        | .21E-01         | .62E-01         | .18E-01        | .88E-03        | -.17E-01       | .37E+01          |
| 59    | .15E+01 | .15E+00 | .69E+00 | .75E-02        | .99E-02        | .48E-02        | -.89E-02        | .48E-02         | .77E-02         | .11E-01        | -.14E-02       | -.11E-01       | .22E+01          |
| 70    | .15E+01 | .28E+00 | .68E+00 | .23E-03        | .46E-02        | .48E-02        | -.21E-02        | -.10E+01        | .34E+01         | .18E+04        | .94E+03        | .87E+03        | .65E+02          |
| 71    | .13E+01 | .25E+00 | .69E+00 | .57E-02        | .17E-03        | .33E-02        | -.18E-01        | .19E-01         | .47E-03         | .78E+04        | .68E+04        | .67E+04        | .12E+03          |
| 72    | .13E+01 | .28E+00 | .75E+00 | -.66E-02       | .64E-02        | .15E-02        | -.18E-01        | .19E-01         | .35E+02         | .33E+03        | .11E+03        | -.58E+02       | .18E+03          |
|       |         |         |         | .24E+04        | .24E+04        | .24E+04        | -.56E+02        | .58E+02         | .43E+02         | .24E+04        | .24E+04        | .24E+04        | .12E+03          |
|       |         |         |         | -.53E-02       | .69E-02        | -.19E-02       | -.88E-02        | .91E-02         | .68E-02         | .94E-02        | .14E-04        | -.97E-02       | .18E+01          |

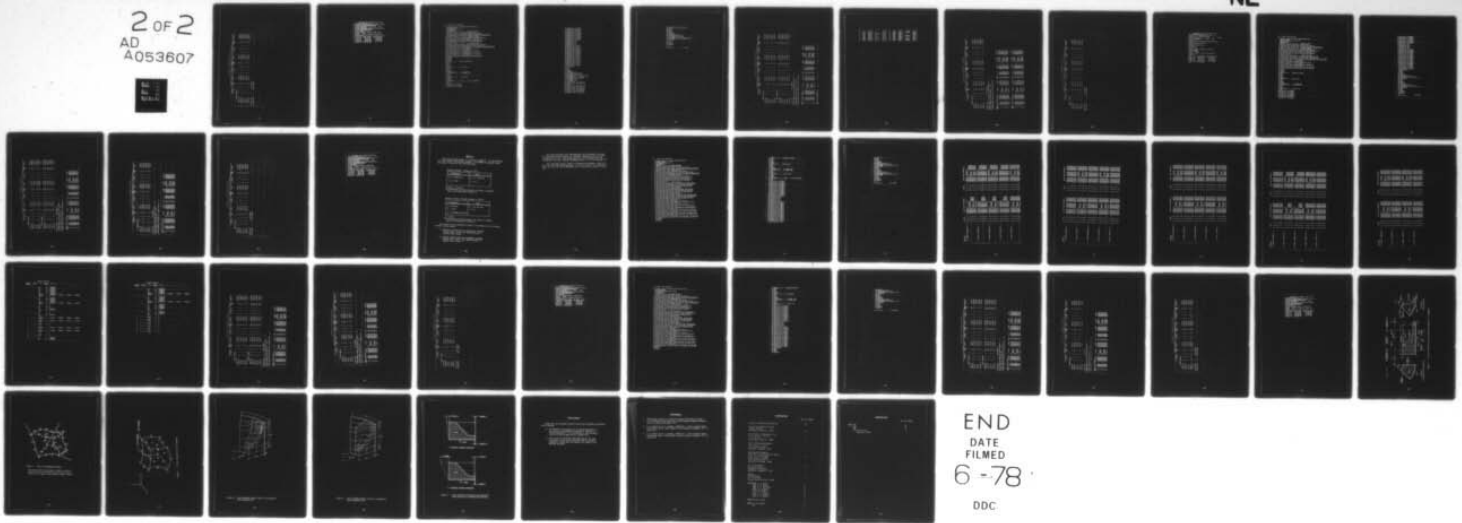
AD-A053 607

ARMY MISSILE RESEARCH AND DEVELOPMENT COMMAND REDSTO--ETC F/G 21/9.2  
THREE-DIMENSIONAL FINITE ELEMENT ANALYSIS OF A SOLID PROPELLANT--ETC(U)  
NOV 77 R M HACKETT  
DRDMI-T-78-18

UNCLASSIFIED

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2 of 2  
AD  
A053607



END  
DATE  
FILMED  
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DDC

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS  
 FIRST SECOND THIRD  
 I ELEMENT POINT STRESS I ELEMENT POINT STRESS I ELEMENT POINT STRESS  
 J K NO. J K NO. J K NO.

MATERIAL NUMBER = 1

|           |   |   |   |    |           |   |   |   |    |           |   |   |   |    |           |
|-----------|---|---|---|----|-----------|---|---|---|----|-----------|---|---|---|----|-----------|
| SIGMA MAX | 3 | 3 | 3 | 57 | .155E+05  | 1 | 3 | 5 | 32 | .003E+04  | 1 | 1 | 5 | 17 | .003E+04  |
| SIGMA MIN | 1 | 3 | 5 | 35 | -.134E+05 | 1 | 1 | 5 | 14 | -.719E+04 | 3 | 3 | 3 | 50 | -.500E+04 |
| TAU MAX   | 1 | 3 | 5 | 35 | .303E+03  | 1 | 1 | 3 | 1  | .275E+03  | 1 | 1 | 5 | 13 | .269E+03  |
| EPS MAX   | 1 | 1 | 3 | 1  | .231E-01  | 1 | 1 | 3 | 4  | .219E-01  | 1 | 3 | 3 | 19 | .219E-01  |
| EPS MIN   | 1 | 3 | 5 | 35 | -.276E-01 | 1 | 1 | 5 | 13 | -.227E-01 | 1 | 1 | 3 | 8  | -.227E-01 |
| GAMMA MAX | 1 | 3 | 5 | 35 | .478E-01  | 1 | 1 | 3 | 1  | .434E-01  | 1 | 1 | 5 | 13 | .425E-01  |

TIME IN POST = 1.120 SECONDS

TIME IN STOP = .054501 SECONDS

NICOM SCOPE 3.4.2 HN SN 68 MXN 9.0 14.27  
 15.22.58.MHLKPMN PROM /KP  
 15.22.58.IP 00000976 WORDS - FILE INPUT , DC 88  
 15.22.58.MHLKPM.YL000,CN200000.L1000.  
 15.22.59.7E01K10N05 7200 A3 MACKETT 0M01  
 15.23.00.LIMIT(1000)  
 15.23.00.ATTACH(TEX30,KPXXMM.ID=KPXXX,CY=3,MR=1)  
 15.23.00.DISPOSE(OUTPUT,"PR=C")  
 15.41.54.LOSET(PRESET=ZERO)  
 15.41.54.TEX30.  
 16.29.10. NON-FATAL ERROR(S) IN OVERLAY GEN.  
 18.37.31. STOP  
 18.37.31. 05.988 CP SECONDS EXECUTION TIME  
 18.37.31.EXIT.  
 18.37.31.OP 00043000 WORDS - FILE OUTPUT , DC 40  
 18.37.31.MS 43000 WORDS ( 300400 MAX USED)  
 18.37.31.CPA 92.477 SEC. 83.230 ADJ.  
 18.37.31.IO 96.901 SEC. 94.630 ADJ.  
 18.37.31.CH 9367.442 KMS. 95.276 ADJ.  
 18.37.32.PP 196.389 SEC. DATE 10/10/77  
 18.37.32.EJ END OF JOB. KP

LINE DIRECT LIST OF INPUT DATA

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1 $FLNOCYL - STAR TO CYLINDRICAL TORR TRANSITION (I)
2 SETUP,4,PRESGRID
3 ISJ,PROP,LLANT,1,1 9:4:449
4 ISJ,CASE,2,3,E/.3
5 ENJ,MATERIALS
6 BLJCK-C,1, 1,1,1, :0:3, 7:00 $ PROPELLANT NODES
7 9:000,000 2:447,000 1:730,1:730,000 0:000,000,000/
8 9:000,000 2:447,000 1:730,1:730,000 0:665,065,000
9 10:2:430,000 1:0, 12:0:014,000 470,00 16:2:430,000 1:0,463, 20:0:014,000 70,0003/
10 22:2:100,1:250,0, 24: 9:00,2:3,3, 30:2 100,1 230,000, 32:0:900,0243,000
11 BLJCK-C,0, 1,1,3, :0:7, 7:05 $ PROPELLANT NODES
12 9:000,000 2:447,000 1:730,1:730,000 0:665,065,000/
13 2:1:0:0,1:942, 2:447,000 1:942, 1 730,1:730,1 342, 0:000,000,1:942
14 1:0:2:430,000 1:0,463, 2:0:014,000 470,000, 13:0:310,000 973/
15 18:2:430,000 1:1:942, 2:0:1:15,000 33,1:942, 22:2:100,1:250,000 33/
16 24:0:007,000 2:4:000,000 20:1:775,000 1:432, 30:2:100,1:250,1:942/
17 32:0: 75, 33:1:342
18 BLJCK-C,1, 1,1,7, :0:5, 7:00 $ PROPELLANT NODES
19 2:1:0:0,1:942, 2:447,000 1:942, 1 730,1:730,1:942, 0:000,000,1:942/
20 2:1:0:0,2:445, 2:447,000 2:445, 1 730,1:730,2:445, 0:000,000,2:445
21 1:0:2:430,000 1:1:942, 12:0:1:15,000 33,1:942, 18:2:430,000 651,2:445, 2:0:1:15,000 33,2:445/
22 22:2:100,1:250,1:942, 2:0:1:15,000 33,1:942, 30:2:100,1:250,2:445, 32:1:75,000 33,2:445
23 BLJCK,2, 5,1,1, 7:0:3 $ CASE NODES
24 2:0:0:0,000 2:0:0:0,000 2:5:7:0,000 2:0:4:7,000,000/
25 2:0:0:0,000 2:5:7:0,000 2:5:7:0,000 2:5:7:0,000 2:0:0:0,000 2:0:0:0,000
26 BLJCK,2, 5,1,1, 7:0:3 $ CASE NODES
27 2:0:0:0,000 2:5:7:0,000 2:5:7:0,000 2:5:7:0,000 2:0:0:0,000 2:0:0:0,000
28 2:0:0:0,000 2:5:7:0,000 2:5:7:0,000 2:5:7:0,000 2:0:0:0,000 2:0:0:0,000
29 BLJCK,2, 5,1,1, 7:0:3 $ CASE NODES
30 2:0:0:0,000 2:5:7:0,000 2:5:7:0,000 2:5:7:0,000 2:0:0:0,000 2:0:0:0,000
31 2:0:0:0,000 2:5:7:0,000 2:5:7:0,000 2:5:7:0,000 2:0:0:0,000 2:0:0:0,000
32 ENJ,GRID
33 KLJOP,4
34 ILJOP,2
35 JLJOP,2
36 $MICKH,1, 1,1,1 $ PROPELLANT ELEMENTS
37 JEVD
38 I:VD
39 KEVD
40 KLJOP,4
41 JLJOP,2
42 $MICK,2, 5,1,1 $ CASE ELEMENTS
43 JEVD
44 KEVD
45 KLJOP,4
46 ILJOP,3
47 $G,SLOPE,1,1,1, 5 $ 1 DEGREE FACE
48 $G,SLOPE,1,3,1, 2 $ 45 DEGREE FACE
49 I:VD
50 KLVD
51 JLJOP,2
52 $G,SLOPE,1,1,1, 0 $ END OF CASE
53 JEVD
54 KLJOP,4
55 JLJOP,2
56 $G,PRESSURE, 1,1,1, 4,1,25E3 $ 1420 PSI PRESSURE
57 JEVD
58 KEVD
59 $G,JZ,1,1,1, 0,-2:104L-2
60 $G,JZ,1,2,1, 0,-2:104L-2
61 $G,JZ,1,3,1, 0,-2:104L-2
62 $G,JZ,1,4,1, 0,-2:104L-2

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63 BC,UZ,1,5,1, 6,-2.184E-2
64 BC,JZ,2,1,1, 0,-1.038E-2
65 BC,UZ,2,3,1, 0,-1.638E-2
66 BC,UZ,2,5,1, 0,-1.038E-2
67 BC,UZ,3,1,1, 0,-1.092E-2
68 BC,UZ,3,2,1, 0,-1.092E-2
69 BC,UZ,3,3,1, 0,-1.092E-2
70 BC,UZ,3,4,1, 0,-1.092E-2
71 BC,JZ,3,5,1, 0,-1.192E-2
72 BC,UZ,4,1,1, 0,-6.548E-2
73 BC,UZ,4,3,1, 0,-6.548E-2
74 BC,UZ,4,5,1, 0,-6.548E-2
75 BC,JZ,5,1,1, 0,0
76 BC,UZ,5,2,1, 0,0
77 BC,UZ,5,3,1, 0,0
78 BC,UZ,5,4,1, 0,0
79 BC,UZ,5,5,1, 0,0
80 BC,UZ,1,1,9, 6,-.245E-2
81 BC,UZ,1,2,9, 0,-.266E-2
82 BC,UZ,1,3,9, 0,-.37E-2
83 BC,UZ,1,4,9, 0,-.435E-2
84 BC,UZ,1,5,9, 0,-.482E-2
85 BC,JZ,2,1,9, 0,-.246E-2
86 BC,JZ,2,3,9, 0,-.296E-2
87 BC,UZ,2,5,9, 0,-.384E-2
88 BC,UZ,3,1,9, 0,-.184E-2
89 BC,UZ,3,2,9, 0,-.266E-2
90 BC,JZ,3,3,9, 0,-.257E-2
91 BC,UZ,3,4,9, 0,-.317E-2
92 BC,JZ,3,5,9, 0,-.341E-2
93 BC,UZ,4,1,9, 0,-.188E-2
94 BC,UZ,4,3,9, 0,-.194E-2
95 BC,UZ,4,5,9, 0,-.236E-2
96 BC,UZ,5,1,9, 0,-.13E-2
97 BC,UZ,5,3,9, 0,-.133E-2
98 BC,JZ,5,5,9, 0,-.133E-2
99 BC,UZ,5,5,9, 0,-.133E-2
100 BC,UZ,5,5,9, 0,-.133E-2
101 END,ELEMENTS
102 SU,VE
103 PJST
104 BLOCK
105 OPTIUM,2
106 END,POST
107 REZONE,1,1,9, 3,3,9
108 REFINE,GRADS,1,1,9, 2,2,2
109 REFINE,GRADS,1,1,7, 2,2,2
110 BC,REZONE,1,1,9, 2,2,2,2,2, 1,1,9
111 BC,REZONE,1,1,7, 2,2,2,2,2, 1,1,9
112 BC,PRESSURE,1,1,9, 4,1,-2963
113 BC,PRESSURE,1,1,7, 4,1,-425E3
114 REPOS,REZONE,1,1,9
115 REPOS,REZONE,1,1,7
116 END,CONTROL
117 POINT,1,1,2,9, 2.648, .233,1.942
118 POINT,1,1,3,9, 1.815, .33,1.942
119 END,SET
120 POINT,1,1,2,1, 2.648, .233,1.942
121 POINT,1,1,3,1, 1.815, .33,1.942
122 POINT,1,1,2,2, 2.648, .233,2.06
123 POINT,1,1,3,2, 1.815, .33,2.06
124 POINT,1,1,2,3, 2.648, .233,2.17
125 POINT,1,1,3,3, 1.815, .33,2.17
126 POINT,1,1,2,4, 2.648, .233,2.29
127 POINT,1,1,3,4, 1.815, .33,2.29
128 POINT,1,1,2,5, 2.648, .233,2.41

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129 POINT,1,1,3,3, 1,0,5,33,2,4,5
130 END,SET
131 SOLVE
132 POST
133 BLOCK
134 OPTION,2
135 END,POST
136 REZONE,1,1,7, 3,3,11
137 REFINE,GRAUS,1,1,7, 2,2,2
138 REZONE,GRAUS,1,1,9, 2,2,2
139 SOLVE,REZONE, 1,1,7, 2,2,2,2,2,2, 1,1,7
140 SOLVE,REZONE, 1,1,9, 2,2,2,2,2,2, 1,1,11
141 END,CONTROL
142 SOLVE
143 POST
144 BLOCK
145 OPTION,2
146 END,POST
147 STOP

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TIME IN FFLDS3 \* 1.141 SECONDS

ELEMENT SUMMARY REPORT

THREE MOST HEAVILY STRESSED ELEMENTS

| FIRST ELEMENT       |   | SECOND ELEMENT |    | THIRD ELEMENT |   | POINT STRESS |   | POINT STRESS |   | POINT STRESS |   |
|---------------------|---|----------------|----|---------------|---|--------------|---|--------------|---|--------------|---|
| I                   | J | K              | L  | M             | N | O            | P | Q            | R | S            | T |
| MATERIAL NUMBER = 1 |   |                |    |               |   |              |   |              |   |              |   |
| SIGMA MAX           | 1 | 1              | 4  |               |   |              |   |              |   |              |   |
| SIGMA MIN           | 3 | 1              | 20 |               |   |              |   |              |   |              |   |
| TAU 48X             | 1 | 1              | 73 |               |   |              |   |              |   |              |   |
| EPS 48X             | 1 | 1              | 4  |               |   |              |   |              |   |              |   |
| EPS 41N             | 1 | 1              | 73 |               |   |              |   |              |   |              |   |
| GAMMA MAX           | 1 | 1              | 73 |               |   |              |   |              |   |              |   |
| MATERIAL NUMBER = 2 |   |                |    |               |   |              |   |              |   |              |   |
| SIGMA MAX           | 5 | 3              | 7  | 209           |   |              |   |              |   |              |   |
| SIGMA MIN           | 5 | 1              | 7  | 203           |   |              |   |              |   |              |   |
| TAU 48X             | 5 | 3              | 1  | 154           |   |              |   |              |   |              |   |
| EPS 48X             | 5 | 3              | 1  | 156           |   |              |   |              |   |              |   |
| EPS 41N             | 5 | 1              | 7  | 203           |   |              |   |              |   |              |   |
| GAMMA MAX           | 5 | 3              | 1  | 154           |   |              |   |              |   |              |   |

TIME IN POST = 3.153 SECONDS

MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 16

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 13

| COARSE GRID ELEMENT = 9 |       | Y-COORD |    | Z-COORD |   | MODE |      | K J I |   | X-COORD |   | Y-COORD |   | Z-COORD |   |   |   |
|-------------------------|-------|---------|----|---------|---|------|------|-------|---|---------|---|---------|---|---------|---|---|---|
| MODE                    | K     | J       | I  | X       | Y | Z    | MODE | K     | J | I       | X | Y       | Z | MODE    | K | J | I |
| 1                       | 50101 | 1398001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 2                       | 50103 | 1398001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 3                       | 50103 | 1398001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 4                       | 50101 | 1398001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 5                       | 70101 | 2158001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 6                       | 70103 | 2158001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 7                       | 70103 | 2158001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 8                       | 70101 | 2158001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 9                       | 50102 | 1398001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |
| 10                      | 50203 | 1398001 | 60 |         |   |      |      |       |   |         |   |         |   |         |   |   |   |

COARSE GRID ELEMENT = 13



| NO. | NO.   | NO.      | NO.      | NO.     | NO. | NO.   | NO.      | NO.      | NO.      |
|-----|-------|----------|----------|---------|-----|-------|----------|----------|----------|
| 1   | 70101 | .215E+01 | ..       | .19E+01 | 11  | 70302 | .167E+01 | .409E+00 | .19E+01  |
| 2   | 70103 | .230E+01 | 0.       | .19E+01 | 12  | 70201 | .100E+01 | .30E+00  | .19E+01  |
| 3   | 70303 | .109E+01 | .0-0E+0J | .19E+01 | 13  | 00101 | .215E+01 | u.       | .217E+01 |
| 4   | 70301 | .10E+01  | .330E+0J | .19E+01 | 14  | 00103 | .230E+01 | 0.       | .217E+01 |
| 5   | 90101 | .215E+01 | u.       | .21E+01 | 15  | 00303 | .107E+01 | .632E+00 | .217E+01 |
| 6   | 90103 | .230E+01 | l.       | .21E+01 | 16  | 00301 | .106E+01 | .330E+00 | .217E+01 |
| 7   | 90303 | .130E+01 | .612E+0J | .21E+01 | 17  | 90102 | .222E+01 | u.       | .24E+01  |
| 8   | 90301 | .14E+01  | .330E+0J | .21E+01 | 18  | 90203 | .215E+01 | .391E+00 | .24E+01  |
| 9   | 70102 | .222E+01 | ..       | .19E+01 | 19  | 90302 | .160E+01 | .40E+00  | .24E+01  |
| 10  | 70203 | .217E+01 | .390E+0J | .19E+01 | 20  | 90201 | .100E+01 | .30E+00  | .24E+01  |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS  
 /-----FIRST POINT STRESS /-----SECOND POINT STRESS /-----THIRD POINT STRESS /  
 I ELEMENT NO. J K MO. I ELEMENT NO. J K MO. I ELEMENT NO. J K MO.

MATERIAL NUMBER = 1

| PARAMETER | ELEMENT NO. | J | K  | MO. | STRESS    |
|-----------|-------------|---|----|-----|-----------|
| SIGMA MAX | 3           | 1 | 12 | 123 | .025E+00  |
| SIGMA MIN | 1           | 3 | 11 | 107 | -.070E+00 |
| TAU MAX   | 1           | 3 | 9  | 95  | .015E+03  |
| EPS MAX   | 1           | 3 | 9  | 95  | .065E+01  |
| EPS MIN   | 1           | 3 | 11 | 100 | -.025E+01 |
| GAMMA MAX | 1           | 3 | 9  | 95  | .123E+00  |

TIME IN POST = 2.687 SECONDS  
 MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 16  
 MAXIMUM DIMENSION OF REFINING GRID = 1331  
 MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 13

COARSE GRID ELEMENT = 2

| MODE | K     | J | I | X-COORD  | Y-COORD  | Z-COORD  | MODE | K     | J | I | X-COORD  | Y-COORD  | Z-COORD  |
|------|-------|---|---|----------|----------|----------|------|-------|---|---|----------|----------|----------|
| 1    | 70101 |   |   | .198E+01 | ..       | .155E+01 | 11   | 70102 |   |   | .176E+01 | .297E+00 | .156E+01 |
| 2    | 70103 |   |   | .242E+01 | ..       | .155E+01 | 12   | 70201 |   |   | .179E+01 | .163E+00 | .156E+01 |
| 3    | 70303 |   |   | .159E+01 | .320E+02 | .155E+01 | 13   | 80101 |   |   | .262E+01 | ..       | .176E+01 |
| 4    | 70101 |   |   | .197E+01 | .274E+01 | .155E+01 | 14   | 80103 |   |   | .213E+01 | ..       | .179E+01 |
| 5    | 90201 |   |   | .215E+01 | ..       | .156E+01 | 15   | 80303 |   |   | .195E+01 | .333E+00 | .179E+01 |
| 6    | 90103 |   |   | .222E+01 | ..       | .156E+01 | 16   | 80301 |   |   | .170E+01 | .289E+00 | .179E+01 |
| 7    | 90303 |   |   | .203E+01 | .347E+03 | .155E+01 | 17   | 90102 |   |   | .210E+01 | ..       | .194E+01 |
| 8    | 90301 |   |   | .182E+01 | .338E+03 | .155E+01 | 18   | 90203 |   |   | .214E+01 | .199E+00 | .194E+01 |
| 9    | 70102 |   |   | .135E+01 | ..       | .155E+01 | 19   | 90302 |   |   | .195E+01 | .326E+00 | .194E+01 |
| 10   | 70203 |   |   | .136E+01 | .180E+03 | .155E+01 | 20   | 90201 |   |   | .205E+01 | .233E+00 | .194E+01 |

COARSE GRID ELEMENT = 3

| MODE | K      | J | I | X-COORD  | Y-COORD  | Z-COORD  | MODE | K      | J | I | X-COORD  | Y-COORD  | Z-COORD  |
|------|--------|---|---|----------|----------|----------|------|--------|---|---|----------|----------|----------|
| 1    | 90101  |   |   | .215E+01 | ..       | .194E+01 | 11   | 90502  |   |   | .195E+01 | .326E+00 | .194E+01 |
| 2    | 90103  |   |   | .222E+01 | ..       | .194E+01 | 12   | 90201  |   |   | .215E+01 | .233E+00 | .194E+01 |
| 3    | 90303  |   |   | .203E+01 | .347E+03 | .194E+01 | 13   | 100103 |   |   | .222E+01 | ..       | .206E+01 |
| 4    | 90301  |   |   | .182E+01 | .338E+03 | .194E+01 | 14   | 100101 |   |   | .222E+01 | ..       | .206E+01 |
| 5    | 110103 |   |   | .215E+01 | ..       | .212E+01 | 15   | 100103 |   |   | .202E+01 | .347E+00 | .206E+01 |
| 6    | 110101 |   |   | .222E+01 | ..       | .212E+01 | 16   | 100101 |   |   | .182E+01 | .336E+00 | .206E+01 |
| 7    | 110103 |   |   | .203E+01 | .347E+03 | .217E+01 | 17   | 110102 |   |   | .210E+01 | .200E+00 | .217E+01 |
| 8    | 110101 |   |   | .182E+01 | .338E+03 | .217E+01 | 18   | 110103 |   |   | .210E+01 | .323E+00 | .217E+01 |
| 9    | 90102  |   |   | .210E+01 | ..       | .194E+01 | 19   | 110102 |   |   | .205E+01 | .233E+00 | .217E+01 |
| 10   | 90203  |   |   | .214E+01 | .199E+03 | .194E+01 | 20   | 110201 |   |   | .205E+01 | .233E+00 | .217E+01 |

ELEMENT SUMMARY REPORT

P R E 4 0 3 1 M I S M L Y S T R - 3 - S I D E L E M E N T S  
 /-----FIRST-----/-----SECOND-----/-----THIRD-----/  
 ELEMENT POINT STRESS ELEMENT POINT STRESS ELEMENT POINT STRESS  
 I J K NO. I J K NO. I J K NO.

MATERIAL NUMBER = 4

| STRESS | MAX | MIN | TAU MAX | EPS MAX | EPS MIN | GAMMA MAX |
|--------|-----|-----|---------|---------|---------|-----------|
| SIGMA  | MAX | MIN | TAU     | EPS     | EPS     | GAMMA     |
| 1      | 4   | 3   | 89      | 110     | 100     | 120       |
| 1      | 3   | 7   | 24      | 110     | 100     | 123       |
| 3      | 1   | 3   | 120     | 115     | 100     | 132       |
| 3      | 3   | 9   | 69      | 115     | 100     | 115       |
| 3      | 1   | 3   | 120     | 115     | 100     | 137       |
| 3      | 1   | 3   | 120     | 115     | 100     | 137       |

TIME IN POST = 2.000 S.COMDS  
 TIME IN STOP = 122.537 S.COMDS

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VICOM SCOPE 3.0.2 MW SN 08 MKN R.D 10.97
15.51.43.WH1KPCN FROM /KP
15.51.43.IP 03.1672 WORDS - FILE INPUT 03 03
15.51.44.WH1KP,7188J,CN26660,L1888.
15.51.44.
15.51.44.3F35K1FF05 7206 AJ MACKETT 0M01 000186
15.51.44.LIMIT(1000)
15.51.44.
15.51.44.ATTACH(TEX3B,KPXXXXM,IO=KPXXX,CY=3,MR=1)
15.51.44.
15.51.44.DISPOSE(OUTPUT,*PK=C)
15.51.44.
15.51.44.LOSEI(PRES=T=ZLKJ)
15.51.44.
15.51.44.TEX3D.
15.51.44.
10.05.13. NON-FATAL ERROR(S) IN OVERLAY GEN.
10.31.43.LOCKIN.
10.32.30.UNLOCK.
10.35.10 STOP
10.35.10 122.501 CP SECONDS EXECUTION TIME
10.35.10.EXIT.
10.35.10.
10.35.10 JP 00007720 WORDS - FILE OUTPUT 03 03
10.35.10.45 0.920 WORDS ( 347600 MAX USE)
10.35.10.CPA 129.764 SEC. 117.745 ADJ.
10.35.10.10 141.122 SEC. 73.833 ADJ.
10.35.10.0M 130.09 419 KWS. 137.464 ADJ
10.35.10.PP 271.880 SEC. JAT: 11/26/77
10.35.10.EJ END OF JOB, KP

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LINE DIRECT LIST OF INPUT DATA

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1 SPINOCYL - STAR TO CYLINDRICAL BORE TRANSITION (I)
2 SETUP,6,PRESCRIB
3 ISO,PROPELLANT,1,,7E3,,499,-.013245
4 ISO,CASE,2,3,E7,,3
5 END,MATERIALS
6 BLOCK=C,1, 1,1,1, 9,9,3, 7,,5 8 PROPELLANT NODES
7 .94,0,0, 2.447,0,0, 1.730,1.730,0, .665,.665,0/
8 .94,0,.463, 2.447,0,.463, 1.730,1.730,.463, .665,.665,.463
9 10,2.430,.651,0, 12,.814,.470,3, 11,2.430,.651,.463, 20,.814,.470,.463/
10 22,2.100,1.250,0, 24,.900,.243,5, 30,2.100,1.250,.463, 32,.900,.243,.463
11 BLOCK=C,1, 1,1,3, 5,5,7, 7,,5 8 PROPELLANT NODES
12 .94,0,.463, 2.447,0,.463, 1.730,1.730,.463, .665,.665,.463/
13 2.145,0,1.942, 2.447,0,1.942, 1.730,1.730,1.942, .665,.665,1.942
14 10,2.430,.651,.463, 12,.814,.470,.463, 13,1.31,0,.973/
15 10,2.430,.651,1.942, 20,1.15,.33,1.942, 22,2.100,1.250,.463/
16 24,.900,.243,.463, 25,1.775,0,1.432, 30,2.100,1.250,1.942/
17 32,1.75,.33,1.942
18 BLOCK=C,1, 1,1,1, 9,9,9, 7,,5 8 PROPELLANT NODES
19 2.145,0,1.942, 2.447,0,1.942, 1.730,1.730,1.942, .665,.665,1.942/
20 2.145,0,2.405, 2.447,0,2.405, 1.730,1.730,2.405, .665,.665,2.405
21 10,2.430,.651,1.942, 12,1.15,.33,1.942, 10,2.430,.651,2.405, 20,1.15,.33,2.405/
22 22,2.100,1.250,1.942, 24,1.75,.33,1.942, 30,2.100,1.250,2.405, 32,1.75,.33,2.405
23 BLOCK,2, 5,1,1, 7,5,3 8 CASE NODES
24 2.447,0,0,2.517,0,0,2.517,45,0,2.447,45,3/
25 2.447,0,.463,2.517,0,.463,2.517,45,.463,2.447,45,.463
26 BLOCK,2, 5,1,3, 7,5,7 8 CASE NODES
27 2.447,0,.463,2.517,0,.463,2.517,45,.463,2.447,45,.463/
28 2.447,0,1.942,2.517,0,1.942,2.517,45,1.942,2.447,45,1.942
29 BLOCK,2, 5,1,7, 7,5,9 8 CASE NODES
30 2.447,0,1.942,2.517,0,1.942,2.517,45,1.942,2.447,45,1.942/
31 2.447,0,2.405,2.517,0,2.405,2.517,45,2.405,2.447,45,2.405
32 END,GRID
33 KLOOP,4
34 ILOOP,2
35 JLOOP,2
36 ORIGN,1, 1,1,1 8 PROPELLANT ELEMENTS
37 JEND
38 IEND
39 KEND
40 KLOOP,4
41 JLOOP,2
42 ORIGN,2, 5,1,1 8 CASE ELEMENTS
43 JEND
44 KEND
45 KLOOP,4
46 ILOOP,3
47 BC,SLOPE,1,1,1, 5 8 0 DEGREE FACE
48 BC,SLOPE,1,3,1, 2 8 45 DEGREE FACE
49 IEND
50 KEND
51 JLOOP,2
52 BC,SLOPE,5,1,1, 6 8 END OF CASE
53 JEND
54 BC,UZ,1,1,1, 0,-7.305E-2
55 BC,UZ,1,2,1, 0,-7.305E-2
56 BC,UZ,1,3,1, 0,-7.305E-2
57 BC,UZ,1,4,1, 0,-7.305E-2
58 BC,UZ,1,5,1, 0,-7.305E-2
59 BC,UZ,2,1,1, 0,-5.530E-2
60 BC,UZ,2,3,1, 0,-5.530E-2
61 BC,UZ,2,5,1, 0,-5.530E-2

```

```

63 BC,UZ,3,2,1, 0,-3.692E-2
64 BC,UZ,3,3,1, 0,-3.692E-2
65 BC,UZ,3,4,1, 0,-3.692E-2
66 BC,UZ,3,5,1, 0,-3.692E-2
67 BC,UZ,4,1,1, 0,-1.846E-2
68 BC,UZ,4,3,1, 0,-1.846E-2
69 BC,UZ,4,5,1, 0,-1.846E-2
70 BC,UZ,5,1,1, 0,0
71 BC,UZ,5,2,1, 0,0
72 BC,UZ,5,3,1, 0,0
73 BC,UZ,5,4,1, 0,0
74 BC,UZ,5,5,1, 0,0
75 BC,UZ,1,1,9, 0,-.577E-2
76 BC,UZ,1,2,9, 0,-.799E-2
77 BC,UZ,1,3,9, 0,-1.036E-2
78 BC,UZ,1,4,9, 0,-1.382E-2
79 BC,UZ,1,5,9, 0,-1.836E-2
80 BC,UZ,2,1,9, 0,-.529E-2
81 BC,UZ,2,3,9, 0,-.899E-2
82 BC,UZ,2,5,9, 0,-1.199E-2
83 BC,UZ,3,1,9, 0,-.478E-2
84 BC,UZ,3,2,9, 0,-.948E-2
85 BC,UZ,3,3,9, 0,-.723E-2
86 BC,UZ,3,4,9, 0,-.932E-2
87 BC,UZ,3,5,9, 0,-1.019E-2
88 BC,UZ,4,1,9, 0,-.414E-2
89 BC,UZ,4,3,9, 0,-.522E-2
90 BC,UZ,4,5,9, 0,-.638E-2
91 BC,UZ,5,1,9, 0,-.362E-2
92 BC,UZ,5,2,9, 0,-.362E-2
93 BC,UZ,5,3,9, 0,-.362E-2
94 BC,UZ,5,4,9, 0,-.362E-2
95 BC,UZ,5,5,9, 0,-.362E-2
96 END,ELEMENTS
97 SOLVE
98 POST
99 BLOCK
100 OPTION,2
101 END,POST
102 REZONE,1,1,3, 3,3,9
103 REFINE,GRADS,1,1,3, 2,2,2
104 BCR,REZONE,1,1,3, 2,2,2,2,2,2, 1,1,3
105 END,CONTROL
106 SOLVE
107 POST
108 BLOCK
109 OPTION,2
110 END,POST
111 REZONE,1,1,3, 3,3,5
112 REFINE,GRADS,1,1,3, 2,2,2
113 BCR,REZONE,1,1,3, 2,2,2,2,2,2, 1,1,3
114 END,CONTROL
115 SOLVE
116 POST
117 BLOCK
118 OPTION,2
119 END,POST
120 STOP

```

TIME IN FFLOS8 = .843 SECONDS

ELEMENT SUMMARY REPORT

| FIRST               |             | SECOND      |             | THIRD       |             | FOURTH      |             | FIFTH       |             |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| ELEMENT NO.         | ELEMENT NO. | ELEMENT NO. | ELEMENT NO. | ELEMENT NO. | ELEMENT NO. | ELEMENT NO. | ELEMENT NO. | ELEMENT NO. | ELEMENT NO. |
| MATERIAL NUMBER = 1 |             |             |             |             |             |             |             |             |             |
| SIGMA MAX           | 1 1 7 109   | .101E+03    | 1 1 5 77    | .101E+03    | 1 1 5 78    | .170E+03    |             |             |             |
| SIGMA MIN           | 1 1 7 116   | -.205E+02   | 1 1 5 06    | -.373E+02   | 1 1 7 112   | -.309E+02   |             |             |             |
| TAU MAX             | 1 1 5 73    | .958E+02    | 1 1 3 41    | .948E+02    | 1 1 5 77    | .999E+02    |             |             |             |
| EPS MAX             | 1 1 1 5     | .197E+00    | 1 1 3 37    | .197E+00    | 1 1 3 15    | .170E+00    |             |             |             |
| EPS MIN             | 1 1 5 77    | -.201E+00   | 1 1 7 109   | -.253E+00   | 1 1 5 73    | -.253E+00   |             |             |             |
| GAMMA MAX           | 1 1 5 73    | .637E+00    | 1 1 3 41    | .606E+00    | 1 1 5 77    | .608E+00    |             |             |             |
| MATERIAL NUMBER = 2 |             |             |             |             |             |             |             |             |             |
| SIGMA MAX           | 5 3 7 213   | .373E+05    | 5 3 7 209   | .267E+05    | 5 3 7 210   | .303E+05    |             |             |             |
| SIGMA MIN           | 5 1 7 203   | -.116E+05   | 5 1 7 206   | -.115E+06   | 5 3 7 212   | -.111E+06   |             |             |             |
| TAU MAX             | 5 1 7 203   | .648E+05    | 5 3 7 212   | .637E+05    | 5 1 7 206   | .626E+05    |             |             |             |
| EPS MAX             | 5 1 7 203   | .234E+02    | 5 3 7 212   | .233E+02    | 5 1 7 206   | .283E+02    |             |             |             |
| EPS MIN             | 5 1 7 203   | -.321E+02   | 5 3 7 212   | -.310E+02   | 5 1 7 206   | -.310E+02   |             |             |             |
| GAMMA MAX           | 5 1 7 203   | .859E+02    | 5 3 7 212   | .592E+02    | 5 1 7 206   | .592E+02    |             |             |             |

TIME IN SECS = 3.099 SECONDS  
 MAXIMUM NUMBER OF CHANGE GRID ELEMENTS POSSIBLE = 14  
 MAXIMUM DIMENSION OF MESH GRID = 1331  
 MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 19

| CHANGE GRID ELEMENT = 5 |       | 1-COORD  |          | 2-COORD |          | 3-COORD |   | 4-COORD  |   | 5-COORD |          |
|-------------------------|-------|----------|----------|---------|----------|---------|---|----------|---|---------|----------|
| MODE                    | K J I | X        | Y        | Z       | X        | Y       | Z | X        | Y | Z       | STRESS   |
| 1                       | 30101 | .968E+00 | 0.       |         | .653E+03 |         |   | .123E+01 |   |         | .643E+01 |
| 2                       | 30102 | .169E+01 | 0.       |         | .603E+03 |         |   | .921E+00 |   |         | .603E+01 |
| 3                       | 30103 | .150E+01 | 0.       |         | .643E+03 |         |   | .120E+01 |   |         | .594E+01 |
| 4                       | 30104 | .168E+00 | .663E+00 |         | .603E+03 |         |   | .102E+01 |   |         | .604E+01 |
| 5                       | 51101 | .150E+01 | 0.       |         | .123E+01 |         |   | .109E+01 |   |         | .610E+01 |
| 6                       | 50103 | .259E+01 | 0.       |         | .158E+02 |         |   | .999E+00 |   |         | .900E+00 |
| 7                       | 50104 | .172E+01 | .649E+01 |         | .123E+01 |         |   | .177E+01 |   |         | .120E+01 |
| 8                       | 50101 | .116E+01 | .249E+01 |         | .123E+01 |         |   | .192E+01 |   |         | .120E+01 |
| 9                       | 30102 | .172E+01 | 0.       |         | .643E+03 |         |   | .102E+01 |   |         | .619E+00 |
| 10                      | 30203 | .169E+01 | .396E+01 |         | .653E+03 |         |   | .106E+01 |   |         | .120E+01 |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS  
 FIRST SECOND THIRD  
 ELEMENT POINT STRESS ELEMENT POINT STRESS ELEMENT POINT STRESS  
 NO. NO. NO. NO. NO. NO. NO. NO. NO.

MATERIAL NUMBER = 1

|           | 1 | 2 | 3 | 4  | 5         | 6 | 7 | 8 | 9  | 10        | 11 | 12 | 13 | 14 | 15        | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|-----------|---|---|---|----|-----------|---|---|---|----|-----------|----|----|----|----|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| SIGMA MAX | 1 | 1 | 5 | 17 | .531E+04  | 1 | 3 | 5 | 32 | .531E+04  | 1  | 1  | 3  | 5  | .353E+04  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| SIGMA MIN | 1 | 1 | 5 | 14 | -.726E+04 | 1 | 1 | 3 | 2  | -.299E+04 | 3  | 1  | 3  | 37 | -.259E+04 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| TAU MAX   | 1 | 3 | 5 | 20 | .968E+02  | 1 | 3 | 3 | 23 | .968E+02  | 1  | 1  | 3  | 0  | .968E+02  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| EPS MAX   | 1 | 1 | 3 | 1  | .197E+00  | 1 | 3 | 5 | 32 | .194E+00  | 1  | 1  | 3  | 17 | .184E+00  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| EPS MIN   | 1 | 1 | 5 | 14 | -.259E+00 | 1 | 1 | 5 | 13 | -.224E+00 | 1  | 1  | 3  | 0  | -.224E+00 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |
| GAMMA MAX | 1 | 1 | 5 | 13 | .615E+00  | 1 | 1 | 3 | 0  | .615E+00  | 1  | 3  | 3  | 23 | .615E+00  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |

TIME IN POST = 1.111 SECONDS

MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 10

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 15

COARSE GRID ELEMENT = 1

| MODE | K     | J        | I        | X-COORD  | Y-COORD  | Z-COORD  | MODE | K     | J        | I        | X-COORD  | Y-COORD  | Z-COORD |
|------|-------|----------|----------|----------|----------|----------|------|-------|----------|----------|----------|----------|---------|
| 1    | 30101 | .940E+00 | 0.       | .000E+00 | .000E+00 | .000E+00 | 11   | 30302 | .111E+01 | .221E+00 | .463E+00 | .463E+00 |         |
| 2    | 30102 | .132E+01 | 0.       | .000E+00 | .000E+00 | .000E+00 | 12   | 30303 | .099E+00 | .924E-01 | .463E+00 | .463E+00 |         |
| 3    | 30303 | .131E+01 | .248E+00 | .000E+00 | .000E+00 | .000E+00 | 13   | 40101 | .186E+01 | 0.       | .664E+00 | .664E+00 |         |
| 4    | 30301 | .961E+00 | .183E+00 | .000E+00 | .000E+00 | .000E+00 | 14   | 40103 | .461E+01 | 0.       | .664E+00 | .664E+00 |         |
| 5    | 50101 | .120E+01 | 0.       | .000E+00 | .000E+00 | .000E+00 | 15   | 40303 | .130E+01 | .278E+00 | .664E+00 | .664E+00 |         |
| 6    | 50103 | .151E+01 | 0.       | .000E+00 | .000E+00 | .000E+00 | 16   | 40301 | .182E+01 | .190E+00 | .664E+00 | .664E+00 |         |
| 7    | 50303 | .146E+01 | .281E+00 | .000E+00 | .000E+00 | .000E+00 | 17   | 50102 | .136E+01 | 0.       | .657E+00 | .657E+00 |         |
| 8    | 50301 | .113E+01 | .743E+00 | .000E+00 | .000E+00 | .000E+00 | 18   | 50303 | .150E+01 | .340E+00 | .657E+00 | .657E+00 |         |
| 9    | 30102 | .113E+01 | 0.       | .000E+00 | .000E+00 | .000E+00 | 19   | 50302 | .129E+01 | .247E+00 | .657E+00 | .657E+00 |         |
| 10   | 30203 | .132E+01 | .131E+00 | .000E+00 | .000E+00 | .000E+00 | 20   | 50201 | .117E+01 | .116E+00 | .657E+00 | .657E+00 |         |



ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS

| FIRST   |       | SECOND  |       | THIRD   |       |
|---------|-------|---------|-------|---------|-------|
| ELEMENT | POINT | ELEMENT | POINT | ELEMENT | POINT |
| I J K   | NO.   | I J K   | NO.   | I J K   | NO.   |
| 3 3 3   | 57    | 3 3 5   | 70    | 3 1 3   | 62    |
| 1 3 5   | 35    | 1 1 5   | 14    | 1 3 3   | 21    |
| 1 3 5   | 35    | 1 1 5   | 13    | 1 3 3   | 20    |
| 3 3 3   | 59    | 1 1 3   | 1     | 3 3 3   | 64    |
| 1 3 5   | 35    | 1 1 5   | 13    | 1 3 3   | 20    |
| 1 3 5   | 35    | 1 1 5   | 13    | 1 3 3   | 20    |

MATERIAL NUMBER = 1

|           |       |    |            |       |    |            |       |    |            |
|-----------|-------|----|------------|-------|----|------------|-------|----|------------|
| SIGMA MAX | 3 3 3 | 57 | +678E+04   | 3 3 5 | 70 | +296E+04   | 3 1 3 | 62 | -278E+04   |
| SIGMA MIN | 1 3 5 | 35 | -0.379E+04 | 1 1 5 | 14 | -0.132E+04 | 1 3 3 | 21 | -0.189E+04 |
| TAU MAX   | 1 3 5 | 35 | +968E+02   | 1 1 5 | 13 | +334E+02   | 1 3 3 | 20 | +0.34E+02  |
| EPS MAX   | 3 3 3 | 59 | +288E+00   | 1 1 3 | 1  | +1.97E+00  | 3 3 3 | 64 | +1.02E+00  |
| EPS MIN   | 1 3 5 | 35 | -0.224E+00 | 1 1 5 | 13 | -0.176E+00 | 1 3 3 | 20 | -0.174E+00 |
| GAMMA MAX | 1 3 5 | 35 | +615E+00   | 1 1 5 | 13 | +357E+00   | 1 3 3 | 20 | +357E+00   |

TIME IN POST = 1.189 SECONDS

TIME IN STOP = 05.593 SECONDS

```

NICON SCOPE 3.4.2 MR BN 48 MXN R.D 16.27
15.25.00.MMKPBN FROM /KP
15.25.00.IP 0000076 WORDS - FILE INPUT , DC 00
15.25.00.MMKP.Y1000.CKZUUUUU.L1000.
15.25.00.FE4K10M05 7200 AJ MACKETT 0M01
15.25.00.LIMIT(1000)
15.25.00.ATTACH(TEX30,KPKXRM,IO=KPKX,CY=3,MR=1)
15.25.00.DISPOSE(OUTPUT,"PRCT")
15.42.31.LDSET(PRESET=ZERO)
15.46.25.TEX30.
16.32.37. NON-FATAL ERROR(S) IN OVERLAY GEN.
18.44.18. STOP
18.44.18. 05.591 CP SECONDS EXECUTION TIME
18.44.18.EXIT.
18.44.18.OP 00042000 WORDS - FILE OUTPUT , DC 48
18.44.18.MS 43000 WORDS ( 330000 MAX USED)
18.44.18.CPA 92.547 SEC. 81.381 ADJ.
18.44.18.IO 96.174 SEC. 84.400 ADJ.
18.44.18.CH 9380.425 KMS. 97.103 ADJ.
18.44.18.PP 182.357 SEC. DATE 10/10/77
18.44.18.EJ END OF JOB, KP

```

### MODEL II

The finite element model II is shown in Figure 5. It was analyzed for both pressure and thermal loading. The TEXGAP-3D computer input and output is shown on the following pages.

#### Pressure Loading - Firing at $-65^{\circ}\text{F}$

| Propellant                 | Case                              |
|----------------------------|-----------------------------------|
| $E_p = 19,000 \text{ psi}$ | $E_c = 3 \times 10^7 \text{ psi}$ |
| $\nu_p = 0.499$            | $\nu_c = 0.3$                     |

pressure = 1425 psi

Corresponding end displacements are shown on computer input and referenced to Figure 6.

#### Thermal Loading (2 Weeks Storage at $-65^{\circ}\text{F}$ )

| Propellant   | Case                              |
|--|-----------------------------------|
| $E_p = 700 \text{ psi}$                              | $E_c = 3 \times 10^7 \text{ psi}$ |
| $\nu_p = 0.499$                                      | $\nu_c = 0.3$                     |
| $\alpha_p = 0.000089 \text{ in/in/}^{\circ}\text{F}$ |                                   |

$T_o = 140^{\circ}\text{F}$

Corresponding end displacements are shown on computer input and referenced to Figure 6.

The results of two analyses on Model II are shown on the following computer output sheets:

- 1) pressure loading with two sequential rezoning computations, without any repositioning of element nodal points;
- 2) thermal loading with two sequential rezoning computations, without any repositioning of element nodal points.

The first analysis, with rezoning near the cylindrical bore end of the transition (see Figure 5), yielded a maximum strain of 0.0260 in element 113 (IJK). The second analysis, with rezoning near the cylindrical bore end, yielded a maximum strain of 0.235 in element 113.

The following results consist of abbreviated computer output for both the first and second analyses. The first analysis is contained on pages 111 thru 124; the second analysis is contained on pages 125 thru 131.

| Element   | Strain |
|-----------|--------|
| 113 (IJK) | 0.0260 |

| Element   | Strain |
|-----------|--------|
| 113 (IJK) | 0.235  |

LINE DIRECT LIST OF INPUT DATA

```

1 SFINOCYL - STAR TO CYLINDRICAL BORE TRANSITION (III)
2 SETUP,6,PRESCHIB
3 ISO. PROPELLANT,1.1.944,.499
4 ISO. CASE,2.3.E7,.3
5 END. MATERIALS
6 BLOCK-C.1. 1.1.1. 9.3.3 SPROPELLANT NODES
7 .94.0.0. 2.447.0.0. 2.291.06.0. .00..33.0/
8 .94.0.0.463. 2.447.0.463. 2.291.06.463. .00..33.463
9 10.2.430.292.0. 12.913.223.0. 10.2.430.292.463. 20.913.223.463/
10 22.2.377.500.0. 24.933.112.0. 32.2.377.500.463. 32.933.112.463
11 BLOCK-C.1. 1.3.1. 5.5.3 SPROPELLANT NODES
12 .00..33.0. 2.291.06.0. 1.730.1.730.0. .009.009.0/
13 .00..33.463. 2.291.06.463. 1.730.1.730.463. .009.009.463
14 10.2.150.1.170.0. 12.752.559.0. 10.2.150.1.170.463. 20.752.559.463/
15 22.1.950.1.457.0. 24.825.452.0. 30.1.950.1.457.463. 32.825.452.463
16 BLOCK-C.1. 1.1.3. 9.3.7 SPROPELLANT NODES
17 .94.0.0.463. 2.447.0.463. 2.291.06.463. .00..33.463/
18 2.149.0.1.942. 2.447.0.1.942. 2.291.06.1.942. .00..33.1.942
19 10.2.430.292.463. 12.913.223.463. 13.1.39.0.963/
20 10.2.430.292.1.942. 20.1.403.33.1.942. 22.2.377.500.463/
21 24.933.112.463. 25.1.79.0.1.363. 30.2.377.500.1.942/
22 32.1.09.33.1.942
23 BLOCK-C.1. 1.3.3. 5.5.7 SPROPELLANT NODES
24 .00..33.463. 2.291.06.463. 1.730.1.730.463. .009.009.463/
25 .00..33.1.942. 2.291.06.1.942. 1.730.1.730.1.942. .009.009.1.942
26 10.2.150.1.170.463. 12.752.559.463. 10.2.150.1.170.1.942/
27 20.752.559.1.942. 22.1.950.1.457.463. 24.825.452.463/
28 30.1.950.1.457.1.942. 32.825.452.1.942
29 BLOCK-C.1. 1.1.7. 5.3.9 SPROPELLANT NODES
30 2.149.0.1.942. 2.447.0.1.942. 2.291.06.1.942. .00..33.1.942/
31 2.149.0.2.405. 2.447.0.2.405. 2.291.06.2.405. .00..33.2.405
32 10.2.430.292.1.942. 12.1.403.33.1.942. 10.2.430.292.2.405/
33 20.1.403.33.2.405. 22.2.377.500.1.942. 24.1.09.33.1.942/
34 30.2.377.500.2.405. 32.1.09.33.2.405
35 BLOCK-C.1. 1.3.7. 5.5.9 SPROPELLANT NODES
36 .00..33.1.942. 2.291.06.1.942. 1.730.1.730.1.942. .009.009.1.942/
37 .00..33.2.405. 2.291.06.2.405. 1.730.1.730.2.405. .009.009.2.405
38 10.2.150.1.170.1.942. 12.752.559.1.942. 10.2.150.1.170.2.405/
39 20.752.559.2.405. 22.1.950.1.457.1.942. 24.825.452.1.942/
40 30.1.950.1.457.2.405. 32.825.452.2.405
41 BLOCK.2. 5.1.1. 7.3.3 SCASE NODES
42 2.447.0.0. 2.517.0.0. 2.517.0.0. 2.447.20.56.0/
43 2.447.0.463. 2.517.0.463. 2.517.0.463. 2.447.20.56.463
44 BLOCK.2. 5.3.1. 7.5.3 SCASE NODES
45 2.447.20.56.0. 2.517.20.56.0. 2.517.45.0. 2.447.45.0/
46 2.447.20.56.463. 2.517.20.56.463. 2.517.45.463. 2.447.45.463
47 BLOCK.2. 5.1.3. 7.3.7 SCASE NODES
48 2.447.0.463. 2.517.0.463. 2.517.0.463. 2.447.20.56.463/
49 2.447.0.1.942. 2.517.0.1.942. 2.517.0.1.942. 2.447.20.56.1.942
50 BLOCK.2. 5.3.3. 7.5.7 SCASE NODES
51 2.447.20.56.463. 2.517.20.56.463. 2.517.45.463. 2.447.45.463/
52 2.447.20.56.1.942. 2.517.20.56.1.942. 2.517.45.1.942. 2.447.45.1.942
53 BLOCK.2. 5.1.7. 7.3.9 SCASE NODES
54 2.447.0.1.942. 2.517.0.1.942. 2.517.20.56.1.942. 2.447.20.56.1.942/
55 2.447.0.2.405. 2.517.0.2.405. 2.517.20.56.2.405. 2.447.20.56.2.405
56 BLOCK.2. 5.3.7. 7.5.9 SCASE NODES
57 2.447.20.56.1.942. 2.517.20.56.1.942. 2.517.45.1.942. 2.447.45.1.942/
58 2.447.20.56.2.405. 2.517.20.56.2.405. 2.517.45.2.405. 2.447.45.2.405
59 END. GRID
60 KLOOP,4
61 ILOOP,2

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63 BRICK,1, 1,1,1  8 PROPELLANT ELEMENTS
64 JEND
65 IEND
66 KEND
67 KLOOP,4
68 JLOOP,2
69 BRICK,2, 5,1,1  8 CASE ELEMENTS
70 JEND
71 KEND
72 KLOOP,4
73 ILOOP,3
74 DC,SLOPE,1,1,1, 9  8 0 DEGREE FACE
75 DC,SLOPE,1,3,1, 2  8 45 DEGREE FACE
76 IEND
77 KEND
78 JLOOP,2
79 DC,SLOPE,9,1,1, 6  8 END OF CASE
80 JEND
81 KLOOP,4
82 JLOOP,2
83 DC,PRESSURE, 1,1,1, 4,1.429E3  8 1429 PSI PRESSURE
84 JEND
85 KEND
86 DC,UZ,1,1,1, 0,-2.104E-2
87 DC,UZ,1,2,1, 0,-2.104E-2
88 DC,UZ,1,3,1, 0,-2.104E-2
89 DC,UZ,1,4,1, 0,-2.104E-2
90 DC,UZ,1,9,1, 0,-2.104E-2
91 DC,UZ,2,1,1, 0,-1.630E-2
92 DC,UZ,2,3,1, 0,-1.630E-2
93 DC,UZ,2,5,1, 0,-1.630E-2
94 DC,UZ,3,1,1, 0,-1.092E-2
95 DC,UZ,3,2,1, 0,-1.092E-2
96 DC,UZ,3,3,1, 0,-1.092E-2
97 DC,UZ,3,4,1, 0,-1.092E-2
98 DC,UZ,3,9,1, 0,-1.092E-2
99 DC,UZ,4,1,1, 0,-0.546E-2
100 DC,UZ,4,3,1, 0,-0.546E-2
101 DC,UZ,4,9,1, 0,-0.546E-2
102 DC,UZ,9,1,1, 0,0
103 DC,UZ,9,2,1, 0,0
104 DC,UZ,9,3,1, 0,0
105 DC,UZ,9,4,1, 0,0
106 DC,UZ,9,9,1, 0,0
107 DC,UZ,1,1,9, 0,-.215E-2
108 DC,UZ,1,2,9, 0,-.399E-2
109 DC,UZ,1,3,9, 0,-.462E-2
110 DC,UZ,1,4,9, 0,-.462E-2
111 DC,UZ,1,5,9, 0,-.462E-2
112 DC,UZ,2,1,9, 0,-.200E-2
113 DC,UZ,2,3,9, 0,-.304E-2
114 DC,UZ,2,9,9, 0,-.504E-2
115 DC,UZ,3,1,9, 0,-.104E-2
116 DC,UZ,3,2,9, 0,-.230E-2
117 DC,UZ,3,3,9, 0,-.341E-2
118 DC,UZ,3,4,9, 0,-.341E-2
119 DC,UZ,3,9,9, 0,-.341E-2
120 DC,UZ,4,1,9, 0,-.210E-2
121 DC,UZ,4,3,9, 0,-.230E-2
122 DC,UZ,4,9,9, 0,-.230E-2
123 DC,UZ,9,1,9, 0,-.153E-2
124 DC,UZ,9,2,9, 0,-.153E-2
125 DC,UZ,9,3,9, 0,-.190E-2
126 DC,UZ,9,4,9, 0,-.153E-2
127 DC,UZ,9,9,9, 0,-.153E-2

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400 END, ELEMENTS

129 SOLVE

130 POST

131 BLOCK

132 OPTION, 2

133 END, POST

134 REZONE, 1, 1, 3, 3, 3, 5

135 REZONE, GRAD, 1, 1, 3, 2, 2, 2

136 OCR, REZONE, 1, 1, 3, 2, 2, 2, 2, 2, 1, 1, 3

137 END, CONTROL

138 SOLVE

139 POST

140 BLOCK

141 OPTION, 2

142 END, POST

143 REZONE, 1, 1, 3, 3, 3, 5

144 REZONE, GRAD, 1, 1, 3, 2, 2, 2

145 OCR, REZONE, 1, 1, 3, 2, 2, 2, 2, 2, 1, 1, 3

146 END, CONTROL

147 SOLVE

148 POST

149 BLOCK

150 OPTION, 2

151 END, POST

152 STOP

TIME IN FFLOSB = 1.132 SECONDS

ELEMENT NO. TYPE

| 1 BRICKM MATERIAL NO. 1 |   | NODES |   |   | MODAL POINT COORDINATES |          |          | NODES    |   |   | MODAL POINT COORDINATES |          |          |          |
|-------------------------|---|-------|---|---|-------------------------|----------|----------|----------|---|---|-------------------------|----------|----------|----------|
| I                       | J | K     | I | J | K                       | X        | Y        | Z        | I | J | K                       | X        | Y        | Z        |
| 1                       | 1 | 1     | 1 | 1 | 1                       | .000E+00 | .338E+00 | 0.       | 2 | 3 | 1                       | .128E+01 | .653E+00 | 0.       |
| 3                       | 1 | 1     | 1 | 1 | 1                       | .168E+01 | .595E+00 | 0.       | 1 | 2 | 1                       | .925E+00 | .168E+00 | 0.       |
| 3                       | 1 | 1     | 1 | 1 | 2                       | .159E+01 | .595E+00 | 0.       | 1 | 1 | 2                       | .960E+00 | 0.       | .222E+00 |
| 1                       | 3 | 1     | 1 | 3 | 1                       | .000E+00 | .338E+00 | 0.       | 3 | 1 | 2                       | .168E+01 | 0.       | .222E+00 |
| 1                       | 1 | 3     | 1 | 3 | 1                       | .000E+00 | .338E+00 | 0.       | 3 | 2 | 2                       | .159E+01 | .395E+00 | .232E+00 |
| 3                       | 1 | 3     | 1 | 3 | 2                       | .168E+01 | .595E+00 | 0.       | 1 | 3 | 2                       | .000E+00 | .380E+00 | .232E+00 |
| 3                       | 1 | 3     | 1 | 3 | 3                       | .159E+01 | .595E+00 | 0.       | 2 | 1 | 3                       | .182E+01 | 0.       | .653E+00 |
| 1                       | 3 | 3     | 1 | 3 | 3                       | .000E+00 | .338E+00 | 0.       | 2 | 3 | 3                       | .167E+01 | .382E+00 | .653E+00 |
| 2                       | 1 | 1     | 1 | 1 | 1                       | .132E+01 | 0.       | 0.       | 2 | 3 | 3                       | .123E+01 | .653E+00 | .653E+00 |
| 3                       | 2 | 1     | 1 | 2 | 1                       | .167E+01 | .382E+00 | 0.       | 1 | 2 | 3                       | .925E+00 | .168E+00 | .653E+00 |
| 1                       | 3 | 1     | 1 | 3 | 1                       | .000E+00 | .338E+00 | 0.       | 2 | 5 | 1                       | .981E+00 | .653E+00 | 0.       |
| 3                       | 3 | 1     | 1 | 3 | 1                       | .159E+01 | .595E+00 | 0.       | 1 | 4 | 1                       | .791E+00 | .597E+00 | 0.       |
| 3                       | 3 | 1     | 1 | 3 | 2                       | .120E+01 | .653E+00 | 0.       | 1 | 3 | 2                       | .000E+00 | .380E+00 | .232E+00 |
| 1                       | 3 | 1     | 1 | 3 | 2                       | .000E+00 | .338E+00 | 0.       | 3 | 2 | 2                       | .159E+01 | .395E+00 | .232E+00 |
| 1                       | 3 | 1     | 1 | 3 | 3                       | .000E+00 | .338E+00 | 0.       | 3 | 5 | 2                       | .120E+01 | .653E+00 | .232E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .159E+01 | .595E+00 | 0.       | 1 | 3 | 2                       | .000E+00 | .380E+00 | .232E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .120E+01 | .653E+00 | 0.       | 2 | 3 | 3                       | .123E+01 | .653E+00 | .653E+00 |
| 1                       | 3 | 3     | 1 | 3 | 3                       | .000E+00 | .338E+00 | 0.       | 3 | 4 | 3                       | .167E+01 | .382E+00 | .653E+00 |
| 2                       | 3 | 1     | 1 | 2 | 3                       | .162E+01 | .313E+00 | 0.       | 1 | 4 | 3                       | .781E+00 | .597E+00 | .653E+00 |
| 3                       | 1 | 1     | 1 | 3 | 1                       | .162E+01 | .313E+00 | 0.       | 3 | 1 | 1                       | .198E+01 | .728E+00 | 0.       |
| 3                       | 1 | 1     | 1 | 3 | 2                       | .242E+01 | .618E+00 | 0.       | 3 | 2 | 1                       | .167E+01 | .382E+00 | 0.       |
| 3                       | 1 | 1     | 1 | 3 | 3                       | .229E+01 | .595E+00 | 0.       | 3 | 1 | 2                       | .159E+01 | .395E+00 | .232E+00 |
| 3                       | 1 | 3     | 1 | 3 | 3                       | .159E+01 | .595E+00 | 0.       | 5 | 1 | 2                       | .245E+01 | 0.       | .232E+00 |
| 5                       | 1 | 3     | 1 | 3 | 3                       | .245E+01 | .618E+00 | 0.       | 2 | 2 | 2                       | .200E+01 | .499E+00 | .232E+00 |
| 3                       | 1 | 3     | 1 | 3 | 3                       | .229E+01 | .595E+00 | 0.       | 3 | 2 | 2                       | .159E+01 | .395E+00 | .232E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .229E+01 | .595E+00 | 0.       | 5 | 1 | 3                       | .287E+01 | 0.       | .653E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .159E+01 | .595E+00 | 0.       | 5 | 2 | 3                       | .245E+01 | .618E+00 | .653E+00 |
| 4                       | 1 | 1     | 1 | 4 | 1                       | .207E+01 | 0.       | 0.       | 4 | 3 | 3                       | .184E+01 | .728E+00 | .653E+00 |
| 5                       | 2 | 1     | 1 | 2 | 1                       | .241E+01 | .637E+00 | 0.       | 3 | 2 | 3                       | .167E+01 | .382E+00 | .653E+00 |
| 3                       | 3 | 1     | 1 | 3 | 1                       | .159E+01 | .595E+00 | 0.       | 4 | 5 | 1                       | .145E+01 | .145E+01 | 0.       |
| 3                       | 3 | 1     | 1 | 3 | 2                       | .229E+01 | .595E+00 | 0.       | 3 | 1 | 1                       | .182E+01 | .618E+00 | 0.       |
| 5                       | 1 | 1     | 1 | 5 | 1                       | .173E+01 | .373E+00 | 0.       | 3 | 3 | 2                       | .159E+01 | .395E+00 | .232E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .120E+01 | .653E+00 | 0.       | 5 | 3 | 2                       | .200E+01 | .499E+00 | .232E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .159E+01 | .595E+00 | 0.       | 5 | 5 | 2                       | .178E+01 | .173E+01 | .232E+00 |
| 5                       | 3 | 3     | 1 | 5 | 3                       | .120E+01 | .653E+00 | 0.       | 5 | 5 | 5                       | .182E+01 | .629E+01 | .232E+00 |
| 5                       | 3 | 3     | 1 | 5 | 3                       | .173E+01 | .373E+00 | 0.       | 4 | 3 | 3                       | .194E+01 | .728E+00 | .653E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .120E+01 | .653E+00 | 0.       | 5 | 4 | 3                       | .200E+01 | .499E+00 | .232E+00 |
| 4                       | 3 | 1     | 1 | 4 | 3                       | .198E+01 | .728E+00 | 0.       | 5 | 5 | 3                       | .146E+01 | .146E+01 | .653E+00 |
| 5                       | 4 | 1     | 1 | 5 | 4                       | .200E+01 | .499E+00 | 0.       | 3 | 4 | 3                       | .142E+01 | .618E+00 | .653E+00 |
| 1                       | 1 | 3     | 1 | 1 | 3                       | .948E+00 | 0.       | .663E+00 | 2 | 3 | 3                       | .120E+01 | .653E+00 | .653E+00 |
| 3                       | 1 | 3     | 1 | 3 | 3                       | .168E+01 | 0.       | .663E+00 | 1 | 2 | 3                       | .925E+00 | .168E+00 | .653E+00 |
| 3                       | 3 | 3     | 1 | 3 | 3                       | .159E+01 | .595E+00 | 0.       | 1 | 4 | 3                       | .127E+01 | 0.       | .653E+00 |
| 1                       | 3 | 3     | 1 | 3 | 3                       | .000E+00 | .338E+00 | 0.       | 5 | 1 | 4                       | .196E+01 | 0.       | .653E+00 |
| 1                       | 1 | 3     | 1 | 1 | 3                       | .168E+01 | 0.       | .110E+01 | 3 | 4 | 3                       | .159E+01 | .395E+00 | .653E+00 |
| 3                       | 1 | 3     | 1 | 3 | 3                       | .202E+01 | 0.       | .110E+01 | 1 | 3 | 4                       | .000E+00 | .380E+00 | .653E+00 |
| 3                       | 1 | 3     | 1 | 3 | 3                       | .159E+01 | .595E+00 | 0.       | 2 | 1 | 5                       | .181E+01 | 0.       | .117E+01 |
| 1                       | 3 | 3     | 1 | 3 | 3                       | .000E+00 | .338E+00 | 0.       | 2 | 5 | 5                       | .186E+01 | .346E+00 | .119E+01 |
| 2                       | 1 | 3     | 1 | 2 | 3                       | .132E+01 | 0.       | .663E+00 | 2 | 3 | 3                       | .120E+01 | .653E+00 | .120E+01 |
| 3                       | 2 | 3     | 1 | 3 | 2                       | .167E+01 | .382E+00 | 0.       | 1 | 2 | 5                       | .131E+01 | .286E+00 | .118E+01 |



| ELEMENT NO.              | TYPE | NODES |   |   | MODAL POINT COORDINATES |          |          | MODAL POINT COORDINATES |          |          |
|--------------------------|------|-------|---|---|-------------------------|----------|----------|-------------------------|----------|----------|
|                          |      | I     | J | K | X                       | Y        | Z        | X                       | Y        | Z        |
| 6 BRICKM MATERIAL NO. 1  |      |       |   |   |                         |          |          |                         |          |          |
| 1                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .081E+00                | .331E+00 | .663E+00 |
| 2                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 3                        | 3    | 3     | 3 | 3 | .120E+01                | .120E+01 | .663E+00 | .120E+01                | .120E+01 | .663E+00 |
| 4                        | 3    | 3     | 3 | 3 | .665E+00                | .665E+00 | .663E+00 | .665E+00                | .665E+00 | .663E+00 |
| 5                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 6                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 7                        | 3    | 3     | 3 | 3 | .120E+01                | .120E+01 | .663E+00 | .120E+01                | .120E+01 | .663E+00 |
| 8                        | 3    | 3     | 3 | 3 | .665E+00                | .665E+00 | .663E+00 | .665E+00                | .665E+00 | .663E+00 |
| 9                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 10                       | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 7 BRICKM MATERIAL NO. 1  |      |       |   |   |                         |          |          |                         |          |          |
| 1                        | 3    | 3     | 3 | 3 | .169E+01                | .0       | .663E+00 | .169E+01                | .0       | .663E+00 |
| 2                        | 3    | 3     | 3 | 3 | .245E+01                | .0       | .663E+00 | .245E+01                | .0       | .663E+00 |
| 3                        | 3    | 3     | 3 | 3 | .229E+01                | .691E+00 | .663E+00 | .229E+01                | .691E+00 | .663E+00 |
| 4                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 5                        | 3    | 3     | 3 | 3 | .202E+01                | .0       | .663E+00 | .202E+01                | .0       | .663E+00 |
| 6                        | 3    | 3     | 3 | 3 | .118E+01                | .0       | .663E+00 | .118E+01                | .0       | .663E+00 |
| 7                        | 3    | 3     | 3 | 3 | .249E+01                | .0       | .663E+00 | .249E+01                | .0       | .663E+00 |
| 8                        | 3    | 3     | 3 | 3 | .229E+01                | .691E+00 | .663E+00 | .229E+01                | .691E+00 | .663E+00 |
| 9                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 10                       | 3    | 3     | 3 | 3 | .202E+01                | .0       | .663E+00 | .202E+01                | .0       | .663E+00 |
| 8 BRICKM MATERIAL NO. 1  |      |       |   |   |                         |          |          |                         |          |          |
| 1                        | 3    | 3     | 3 | 3 | .199E+01                | .591E+00 | .663E+00 | .199E+01                | .591E+00 | .663E+00 |
| 2                        | 3    | 3     | 3 | 3 | .229E+01                | .691E+00 | .663E+00 | .229E+01                | .691E+00 | .663E+00 |
| 3                        | 3    | 3     | 3 | 3 | .173E+01                | .173E+01 | .663E+00 | .173E+01                | .173E+01 | .663E+00 |
| 4                        | 3    | 3     | 3 | 3 | .120E+01                | .120E+01 | .663E+00 | .120E+01                | .120E+01 | .663E+00 |
| 5                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 6                        | 3    | 3     | 3 | 3 | .229E+01                | .691E+00 | .663E+00 | .229E+01                | .691E+00 | .663E+00 |
| 7                        | 3    | 3     | 3 | 3 | .173E+01                | .173E+01 | .663E+00 | .173E+01                | .173E+01 | .663E+00 |
| 8                        | 3    | 3     | 3 | 3 | .120E+01                | .120E+01 | .663E+00 | .120E+01                | .120E+01 | .663E+00 |
| 9                        | 3    | 3     | 3 | 3 | .199E+01                | .591E+00 | .663E+00 | .199E+01                | .591E+00 | .663E+00 |
| 10                       | 3    | 3     | 3 | 3 | .202E+01                | .0       | .663E+00 | .202E+01                | .0       | .663E+00 |
| 9 BRICKM MATERIAL NO. 1  |      |       |   |   |                         |          |          |                         |          |          |
| 1                        | 3    | 3     | 3 | 3 | .169E+01                | .0       | .663E+00 | .169E+01                | .0       | .663E+00 |
| 2                        | 3    | 3     | 3 | 3 | .202E+01                | .0       | .663E+00 | .202E+01                | .0       | .663E+00 |
| 3                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 4                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 5                        | 3    | 3     | 3 | 3 | .238E+01                | .0       | .663E+00 | .238E+01                | .0       | .663E+00 |
| 6                        | 3    | 3     | 3 | 3 | .199E+01                | .591E+00 | .663E+00 | .199E+01                | .591E+00 | .663E+00 |
| 7                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 8                        | 3    | 3     | 3 | 3 | .181E+01                | .0       | .663E+00 | .181E+01                | .0       | .663E+00 |
| 9                        | 3    | 3     | 3 | 3 | .106E+01                | .340E+00 | .663E+00 | .106E+01                | .340E+00 | .663E+00 |
| 10 BRICKM MATERIAL NO. 1 |      |       |   |   |                         |          |          |                         |          |          |
| 1                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 2                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 3                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 4                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 5                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 6                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 7                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 8                        | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |
| 9                        | 3    | 3     | 3 | 3 | .080E+00                | .331E+00 | .663E+00 | .080E+00                | .331E+00 | .663E+00 |
| 10                       | 3    | 3     | 3 | 3 | .159E+01                | .591E+00 | .663E+00 | .160E+01                | .591E+00 | .663E+00 |

| ELEMENT NO. | TYPE  | NODES          |    |   | MODAL POINT COORDINATES |          |          | MODAL POINT COORDINATES |          |          |          |
|-------------|-------|----------------|----|---|-------------------------|----------|----------|-------------------------|----------|----------|----------|
|             |       | I              | J  | K | X                       | Y        | Z        | X                       | Y        | Z        |          |
| 11          | BRICK | MATERIAL NO. 1 | 1  | 3 | 1                       | .282E+01 | .118E+01 | .128E+01                | .178E+01 | .728E+00 | .128E+01 |
|             |       |                | 2  | 3 | 2                       | .245E+01 | .128E+01 | .128E+01                | .185E+01 | .348E+00 | .194E+01 |
|             |       |                | 3  | 3 | 3                       | .229E+01 | .895E+00 | .128E+01                | .217E+01 | 0.       | .194E+01 |
|             |       |                | 4  | 3 | 4                       | .158E+01 | .595E+00 | .128E+01                | .245E+01 | 0.       | .157E+01 |
|             |       |                | 5  | 3 | 5                       | .238E+01 | .194E+01 | .194E+01                | .228E+01 | .895E+00 | .137E+01 |
|             |       |                | 6  | 3 | 6                       | .245E+01 | 0.       | .194E+01                | .198E+01 | .195E+00 | .157E+01 |
|             |       |                | 7  | 3 | 7                       | .229E+01 | .895E+00 | .194E+01                | .287E+01 | 0.       | .194E+01 |
|             |       |                | 8  | 3 | 8                       | .158E+01 | .595E+00 | .194E+01                | .245E+01 | .878E+00 | .194E+01 |
|             |       |                | 9  | 3 | 9                       | .229E+01 | .895E+00 | .118E+01                | .194E+01 | .728E+00 | .194E+01 |
|             |       |                | 10 | 3 | 10                      | .245E+01 | .137E+00 | .128E+01                | .284E+01 | .194E+01 | .194E+01 |
| 12          | BRICK | MATERIAL NO. 1 | 1  | 3 | 1                       | .159E+01 | .595E+00 | .128E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 2  | 3 | 2                       | .229E+01 | .895E+00 | .128E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 3  | 3 | 3                       | .128E+01 | .128E+01 | .128E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 4  | 3 | 4                       | .158E+01 | .595E+00 | .194E+01                | .178E+01 | .178E+01 | .157E+01 |
|             |       |                | 5  | 3 | 5                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 6  | 3 | 6                       | .245E+01 | 0.       | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 7  | 3 | 7                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 8  | 3 | 8                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 9  | 3 | 9                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 10 | 3 | 10                      | .245E+01 | .137E+00 | .128E+01                | .185E+01 | .185E+01 | .128E+01 |
| 13          | BRICK | MATERIAL NO. 1 | 1  | 1 | 1                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 2  | 1 | 2                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 3  | 1 | 3                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 4  | 1 | 4                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 5  | 1 | 5                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 6  | 1 | 6                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 7  | 1 | 7                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 8  | 1 | 8                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 9  | 1 | 9                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 10 | 1 | 10                      | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
| 14          | BRICK | MATERIAL NO. 1 | 1  | 1 | 1                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 2  | 1 | 2                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 3  | 1 | 3                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 4  | 1 | 4                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 5  | 1 | 5                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 6  | 1 | 6                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 7  | 1 | 7                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 8  | 1 | 8                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 9  | 1 | 9                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 10 | 1 | 10                      | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
| 15          | BRICK | MATERIAL NO. 1 | 1  | 1 | 1                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 2  | 1 | 2                       | .245E+01 | 0.       | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 3  | 1 | 3                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 4  | 1 | 4                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 5  | 1 | 5                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 6  | 1 | 6                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 7  | 1 | 7                       | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 8  | 1 | 8                       | .238E+01 | .194E+01 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 9  | 1 | 9                       | .158E+01 | .595E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |
|             |       |                | 10 | 1 | 10                      | .229E+01 | .895E+00 | .194E+01                | .185E+01 | .185E+01 | .128E+01 |

| ELEMENT NO. | TYPE  | NODES          |          |          | MODAL POINT COORDINATES |             |             | MODAL POINT COORDINATES |          |             |          |
|-------------|-------|----------------|----------|----------|-------------------------|-------------|-------------|-------------------------|----------|-------------|----------|
|             |       | I              | J        | K        | X                       | Y           | Z           | X                       | Y        | Z           |          |
| 16          | BRICK | MATERIAL NO. 1 | 3        | 3        | 7                       | .159E+01    | .599E+00    | .199E+01                | .165E+01 | .146E+01    | .199E+01 |
|             |       |                | 5        | 3        | 7                       | .229E+01    | .051E+00    | .199E+01                | .142E+01 | .013E+00    | .199E+01 |
|             |       |                | 5        | 5        | 7                       | .173E+01    | .173E+01    | .199E+01                | .199E+01 | .595E+00    | .217E+01 |
|             |       |                | 5        | 3        | 0                       | .120E+01    | .120E+01    | .199E+01                | .299E+01 | .059E+00    | .217E+01 |
|             |       |                | 3        | 3        | 9                       | .199E+01    | .059E+00    | .241E+01                | .173E+01 | .173E+01    | .217E+01 |
|             |       |                | 3        | 3        | 9                       | .229E+01    | .059E+00    | .241E+01                | .120E+01 | .120E+01    | .217E+01 |
|             |       |                | 3        | 5        | 9                       | .173E+01    | .173E+01    | .241E+01                | .199E+01 | .720E+00    | .241E+01 |
|             |       |                | 3        | 5        | 9                       | .120E+01    | .120E+01    | .241E+01                | .206E+01 | .182E+01    | .241E+01 |
|             |       |                | 4        | 3        | 7                       | .199E+01    | .720E+00    | .199E+01                | .146E+01 | .146E+01    | .241E+01 |
|             |       |                | 4        | 3        | 7                       | .206E+01    | .132E+01    | .199E+01                | .146E+01 | .013E+00    | .241E+01 |
|             |       |                | 5        | 1        | 1                       | .249E+01 0. | .0.         | 0.                      | .239E+01 | .072E+00 0. |          |
|             |       |                | 7        | 1        | 1                       | .252E+01 0. | .0.         | 0.                      | .241E+01 | .087E+00 0. |          |
|             |       |                | 7        | 3        | 1                       | .236E+01    | .084E+00 0. | 0.                      | .249E+01 | .0.         | .232E+00 |
|             |       |                | 5        | 3        | 1                       | .229E+01    | .059E+00 0. | 0.                      | .252E+01 | .0.         | .232E+00 |
|             |       |                | 7        | 1        | 3                       | .249E+01 0. | .0.         | .463E+00                | .236E+01 | .084E+00    | .232E+00 |
|             |       |                | 7        | 3        | 3                       | .236E+01    | .084E+00    | .463E+00                | .229E+01 | .059E+00    | .232E+00 |
| 5           | 3     | 3              | .229E+01 | .059E+00 | .463E+00                | .249E+01    | .0.         | .232E+00                |          |             |          |
| 7           | 1     | 3              | .173E+01 | .173E+01 | .0.                     | .249E+01    | .0.         | .663E+00                |          |             |          |
| 7           | 3     | 3              | .236E+01 | .084E+00 | .463E+00                | .249E+01    | .0.         | .663E+00                |          |             |          |
| 5           | 3     | 3              | .229E+01 | .059E+00 | .463E+00                | .249E+01    | .0.         | .663E+00                |          |             |          |
| 7           | 1     | 3              | .173E+01 | .173E+01 | .0.                     | .249E+01    | .0.         | .663E+00                |          |             |          |
| 6           | 3     | 1              | .236E+01 | .084E+00 | .0.                     | .170E+01    | .170E+01    | .0.                     |          |             |          |
| 7           | 4     | 1              | .212E+01 | .132E+01 | .0.                     | .206E+01    | .182E+01    | .0.                     |          |             |          |
| 18          | BRICK | MATERIAL NO. 2 | 5        | 3        | 1                       | .229E+01    | .059E+00    | .0.                     | .170E+01 | .170E+01    | .0.      |
|             |       |                | 7        | 3        | 1                       | .236E+01    | .084E+00    | .0.                     | .206E+01 | .182E+01    | .0.      |
|             |       |                | 7        | 5        | 1                       | .173E+01    | .173E+01    | .0.                     | .206E+01 | .182E+01    | .0.      |
|             |       |                | 5        | 3        | 3                       | .173E+01    | .173E+01    | .0.                     | .206E+01 | .182E+01    | .0.      |
|             |       |                | 5        | 3        | 3                       | .229E+01    | .059E+00    | .463E+00                | .236E+01 | .084E+00    | .232E+00 |
|             |       |                | 7        | 3        | 3                       | .236E+01    | .084E+00    | .463E+00                | .236E+01 | .084E+00    | .232E+00 |
|             |       |                | 7        | 5        | 3                       | .229E+01    | .059E+00    | .463E+00                | .236E+01 | .084E+00    | .232E+00 |
|             |       |                | 7        | 5        | 3                       | .173E+01    | .173E+01    | .0.                     | .236E+01 | .084E+00    | .232E+00 |
|             |       |                | 5        | 3        | 3                       | .173E+01    | .173E+01    | .0.                     | .236E+01 | .084E+00    | .232E+00 |
|             |       |                | 6        | 3        | 1                       | .236E+01    | .084E+00    | .0.                     | .170E+01 | .170E+01    | .0.      |
|             |       |                | 7        | 4        | 1                       | .212E+01    | .132E+01    | .0.                     | .206E+01 | .182E+01    | .0.      |
|             |       |                | 5        | 1        | 3                       | .249E+01 0. | .0.         | .463E+00                | .236E+01 | .072E+00    | .663E+00 |
|             |       |                | 7        | 1        | 3                       | .252E+01 0. | .0.         | .463E+00                | .236E+01 | .072E+00    | .663E+00 |
|             |       |                | 5        | 3        | 3                       | .229E+01    | .059E+00    | .463E+00                | .249E+01 | .0.         | .663E+00 |
|             |       |                | 7        | 1        | 3                       | .236E+01    | .084E+00    | .463E+00                | .249E+01 | .0.         | .663E+00 |
|             |       |                | 20       | BRICK    | MATERIAL NO. 2          | 5           | 3           | 3                       | .229E+01 | .059E+00    | .463E+00 |
| 7           | 3     | 3              |          |          |                         | .236E+01    | .084E+00    | .463E+00                | .206E+01 | .182E+01    | .663E+00 |
| 7           | 4     | 3              |          |          |                         | .173E+01    | .173E+01    | .0.                     | .206E+01 | .182E+01    | .663E+00 |
| 5           | 3     | 3              |          |          |                         | .173E+01    | .173E+01    | .0.                     | .206E+01 | .182E+01    | .663E+00 |
| 5           | 3     | 3              |          |          |                         | .229E+01    | .059E+00    | .463E+00                | .236E+01 | .084E+00    | .663E+00 |
| 7           | 3     | 3              |          |          |                         | .236E+01    | .084E+00    | .463E+00                | .236E+01 | .084E+00    | .663E+00 |
| 7           | 3     | 3              |          |          |                         | .229E+01    | .059E+00    | .463E+00                | .236E+01 | .084E+00    | .663E+00 |
| 7           | 5     | 3              |          |          |                         | .173E+01    | .173E+01    | .0.                     | .236E+01 | .084E+00    | .663E+00 |
| 5           | 3     | 3              |          |          |                         | .173E+01    | .173E+01    | .0.                     | .236E+01 | .084E+00    | .663E+00 |
| 6           | 1     | 3              |          |          |                         | .236E+01    | .084E+00    | .0.                     | .170E+01 | .170E+01    | .0.      |
| 7           | 2     | 3              |          |          |                         | .249E+01    | .449E+00    | .463E+00                | .236E+01 | .072E+00    | .663E+00 |
| 5           | 3     | 3              |          |          |                         | .229E+01    | .059E+00    | .463E+00                | .170E+01 | .170E+01    | .663E+00 |
| 7           | 3     | 3              |          |          |                         | .236E+01    | .084E+00    | .463E+00                | .206E+01 | .182E+01    | .663E+00 |
| 7           | 4     | 3              |          |          |                         | .173E+01    | .173E+01    | .0.                     | .206E+01 | .182E+01    | .663E+00 |
| 5           | 3     | 3              |          |          |                         | .173E+01    | .173E+01    | .0.                     | .206E+01 | .182E+01    | .663E+00 |

| ELEMENT NO. | TYPE  | NODES          |   |   | MODAL POINT COORDINATES |          |          | MODAL POINT COORDINATES |          |          |          |
|-------------|-------|----------------|---|---|-------------------------|----------|----------|-------------------------|----------|----------|----------|
|             |       | I              | J | K | X                       | Y        | Z        | X                       | Y        | Z        |          |
| 21          | BRICK | MATERIAL NO. 2 | 5 | 1 | 5                       | .259E+01 | .178E+01 | .128E+01                | .259E+01 | .178E+01 | .128E+01 |
|             |       |                | 7 | 1 | 5                       | .252E+01 | .184E+00 | .120E+01                | .241E+01 | .187E+00 | .128E+01 |
|             |       |                | 7 | 3 | 5                       | .236E+01 | .188E+00 | .120E+01                | .245E+01 | .187E+00 | .157E+01 |
|             |       |                | 5 | 3 | 5                       | .229E+01 | .189E+00 | .120E+01                | .252E+01 | .187E+00 | .157E+01 |
|             |       |                | 5 | 1 | 7                       | .245E+01 | .194E+01 | .194E+01                | .245E+01 | .188E+00 | .137E+01 |
|             |       |                | 7 | 1 | 7                       | .252E+01 | .194E+01 | .194E+01                | .252E+01 | .188E+00 | .137E+01 |
|             |       |                | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 3 | 7                       | .229E+01 | .189E+00 | .194E+01                | .252E+01 | .187E+01 | .194E+01 |
|             |       |                | 6 | 1 | 7                       | .240E+01 | .185E+00 | .120E+01                | .240E+01 | .187E+00 | .194E+01 |
|             |       |                | 7 | 2 | 5                       | .248E+01 | .149E+00 | .120E+01                | .241E+01 | .187E+00 | .194E+01 |
|             |       |                | 5 | 3 | 5                       | .229E+01 | .189E+00 | .120E+01                | .229E+01 | .187E+01 | .128E+01 |
|             |       |                | 7 | 3 | 5                       | .236E+01 | .188E+00 | .120E+01                | .241E+01 | .182E+01 | .128E+01 |
|             |       |                | 7 | 5 | 5                       | .178E+01 | .178E+01 | .120E+01                | .236E+01 | .189E+00 | .157E+01 |
|             |       |                | 5 | 5 | 5                       | .173E+01 | .173E+01 | .120E+01                | .236E+01 | .189E+00 | .157E+01 |
|             |       |                | 5 | 3 | 7                       | .229E+01 | .189E+00 | .194E+01                | .178E+01 | .178E+01 | .157E+01 |
| 22          | BRICK | MATERIAL NO. 2 | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .178E+01 | .173E+01 | .157E+01 |
|             |       |                | 7 | 5 | 7                       | .178E+01 | .178E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 5 | 7                       | .173E+01 | .173E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .178E+01 | .173E+01 | .157E+01 |
|             |       |                | 7 | 5 | 7                       | .178E+01 | .178E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 5 | 7                       | .173E+01 | .173E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 6 | 3 | 5                       | .232E+01 | .187E+00 | .120E+01                | .178E+01 | .173E+01 | .194E+01 |
|             |       |                | 7 | 4 | 5                       | .242E+01 | .135E+01 | .120E+01                | .178E+01 | .173E+01 | .194E+01 |
|             |       |                | 5 | 3 | 5                       | .229E+01 | .189E+00 | .120E+01                | .229E+01 | .187E+01 | .128E+01 |
|             |       |                | 7 | 3 | 5                       | .236E+01 | .188E+00 | .120E+01                | .241E+01 | .182E+01 | .128E+01 |
|             |       |                | 7 | 5 | 5                       | .178E+01 | .178E+01 | .120E+01                | .236E+01 | .189E+00 | .157E+01 |
|             |       |                | 5 | 5 | 5                       | .173E+01 | .173E+01 | .120E+01                | .236E+01 | .189E+00 | .157E+01 |
|             |       |                | 5 | 3 | 7                       | .229E+01 | .189E+00 | .194E+01                | .178E+01 | .178E+01 | .157E+01 |
|             |       |                | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .178E+01 | .173E+01 | .157E+01 |
|             |       |                | 7 | 5 | 7                       | .178E+01 | .178E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
| 23          | BRICK | MATERIAL NO. 2 | 9 | 1 | 7                       | .249E+01 | .149E+00 | .130E+01                | .249E+01 | .149E+00 | .130E+01 |
|             |       |                | 7 | 1 | 7                       | .252E+01 | .149E+00 | .130E+01                | .241E+01 | .149E+00 | .130E+01 |
|             |       |                | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 3 | 7                       | .229E+01 | .189E+00 | .194E+01                | .252E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 1 | 9                       | .245E+01 | .194E+01 | .194E+01                | .245E+01 | .188E+00 | .137E+01 |
|             |       |                | 7 | 1 | 9                       | .252E+01 | .194E+01 | .194E+01                | .252E+01 | .188E+00 | .137E+01 |
|             |       |                | 7 | 3 | 9                       | .236E+01 | .188E+00 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 3 | 9                       | .229E+01 | .189E+00 | .194E+01                | .252E+01 | .187E+01 | .194E+01 |
|             |       |                | 6 | 1 | 7                       | .240E+01 | .185E+00 | .194E+01                | .240E+01 | .187E+00 | .194E+01 |
|             |       |                | 7 | 2 | 7                       | .248E+01 | .149E+00 | .194E+01                | .241E+01 | .187E+00 | .194E+01 |
|             |       |                | 5 | 3 | 7                       | .229E+01 | .189E+00 | .194E+01                | .229E+01 | .187E+01 | .128E+01 |
|             |       |                | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .241E+01 | .182E+01 | .128E+01 |
|             |       |                | 7 | 5 | 7                       | .178E+01 | .178E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 5 | 7                       | .173E+01 | .173E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 3 | 9                       | .229E+01 | .189E+00 | .194E+01                | .178E+01 | .178E+01 | .157E+01 |
| 24          | BRICK | MATERIAL NO. 2 | 5 | 3 | 7                       | .229E+01 | .189E+00 | .194E+01                | .178E+01 | .173E+01 | .157E+01 |
|             |       |                | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 7 | 5 | 7                       | .178E+01 | .178E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 5 | 7                       | .173E+01 | .173E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 3 | 9                       | .229E+01 | .189E+00 | .194E+01                | .178E+01 | .173E+01 | .157E+01 |
|             |       |                | 7 | 3 | 9                       | .236E+01 | .188E+00 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 7 | 5 | 9                       | .178E+01 | .178E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 5 | 9                       | .173E+01 | .173E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 6 | 3 | 7                       | .232E+01 | .187E+00 | .194E+01                | .178E+01 | .173E+01 | .194E+01 |
|             |       |                | 7 | 4 | 7                       | .242E+01 | .135E+01 | .194E+01                | .178E+01 | .173E+01 | .194E+01 |
|             |       |                | 5 | 3 | 7                       | .229E+01 | .189E+00 | .194E+01                | .229E+01 | .187E+01 | .128E+01 |
|             |       |                | 7 | 3 | 7                       | .236E+01 | .188E+00 | .194E+01                | .241E+01 | .182E+01 | .128E+01 |
|             |       |                | 7 | 5 | 7                       | .178E+01 | .178E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 5 | 7                       | .173E+01 | .173E+01 | .194E+01                | .245E+01 | .187E+01 | .194E+01 |
|             |       |                | 5 | 3 | 9                       | .229E+01 | .189E+00 | .194E+01                | .178E+01 | .178E+01 | .157E+01 |

BOLNDARY CONDITIONS.

| ELEMENT NUMBER | ELEMENT I | ELEMENT J | ELEMENT K | TYPE     | NOE OR FACE | VALUE      |           |           |           |
|----------------|-----------|-----------|-----------|----------|-------------|------------|-----------|-----------|-----------|
| 1              | 1         | 1         | 1         | UZ       | 3           | -.1092E-01 |           |           |           |
|                |           |           |           | UZ       | 10          | -.1092E-01 |           |           |           |
|                |           |           |           | UZ       | 2           | -.1092E-01 |           |           |           |
|                |           |           |           | UZ       | 11          | -.1638E-01 |           |           |           |
|                |           |           |           | UZ       | 9           | -.1638E-01 |           |           |           |
|                |           |           |           | UZ       | 4           | -.2184E-01 |           |           |           |
|                |           |           |           | UZ       | 12          | -.2184E-01 |           |           |           |
|                |           |           |           | UZ       | 1           | -.2184E-01 |           |           |           |
|                |           |           |           | PRESSURE | 4           | .1425E+04  | .1425E+04 | .1425E+04 | .1425E+04 |
|                |           |           |           | SLOPE    | 5           | 0.         |           |           |           |
| 2              | 1         | 3         | 1         | UZ       | 3           | -.1092E-01 |           |           |           |
|                |           |           |           | UZ       | 10          | -.1092E-01 |           |           |           |
|                |           |           |           | UZ       | 11          | -.1638E-01 |           |           |           |
|                |           |           |           | UZ       | 4           | -.2184E-01 |           |           |           |
|                |           |           |           | UZ       | 12          | -.2184E-01 |           |           |           |
|                |           |           |           | PRESSURE | 4           | .1425E+04  | .1425E+04 | .1425E+04 | .1425E+04 |
|                |           |           |           | SLOPE    | 2           | 0.         |           |           |           |
| 3              | 3         | 1         | 1         | UZ       | 3           | 0.         |           |           |           |
|                |           |           |           | UZ       | 10          | 0.         |           |           |           |
|                |           |           |           | UZ       | 2           | 0.         |           |           |           |
|                |           |           |           | UZ       | 11          | -.5460E-02 |           |           |           |
|                |           |           |           | UZ       | 9           | -.5460E-02 |           |           |           |
| SLOPE          | 5         | 0.        |           |          |             |            |           |           |           |
| 4              | 3         | 3         | 1         | UZ       | 3           | 0.         |           |           |           |
|                |           |           |           | UZ       | 10          | 0.         |           |           |           |
|                |           |           |           | UZ       | 11          | -.5460E-02 |           |           |           |
|                |           |           |           | SLOPE    | 2           | 0.         |           |           |           |
| 5              | 1         | 1         | 3         | PRESSURE | 4           | .1425E+04  | .1425E+04 | .1425E+04 | .1425E+04 |
|                |           |           |           | SLOPE    | 5           | 0.         |           |           |           |
| 6              | 1         | 3         | 3         | PRESSURE | 4           | .1425E+04  | .1425E+04 | .1425E+04 | .1425E+04 |
|                |           |           |           | SLOPE    | 2           | 0.         |           |           |           |
| 7              | 3         | 1         | 3         | SLOPE    | 5           | 0.         |           |           |           |
| 8              | 3         | 3         | 3         | SLOPE    | 2           | 0.         |           |           |           |
| 9              | 1         | 1         | 5         | PRESSURE | 4           | .1425E+04  | .1425E+04 | .1425E+04 | .1425E+04 |
|                |           |           |           | SLOPE    | 5           | 0.         |           |           |           |
| 10             | 1         | 3         | 5         | PRESSURE | 4           | .1425E+04  | .1425E+04 | .1425E+04 | .1425E+04 |
|                |           |           |           | SLOPE    | 2           | 0.         |           |           |           |
| 11             | 3         | 1         | 5         | SLOPE    | 5           | 0.         |           |           |           |
| 12             | 3         | 3         | 5         | SLOPE    | 2           | 0.         |           |           |           |
| 13             | 1         | 1         | 7         | UZ       | 7           | -.3418E-02 |           |           |           |
|                |           |           |           | UZ       | 10          | -.2308E-02 |           |           |           |
|                |           |           |           | UZ       | 6           | -.1848E-02 |           |           |           |

BOUNDARY CONDITIONS.

| ELEMENT<br>NUMBER | ELEMENT |    |   | TYPE     | NODE<br>OR FACE | VALUE      |           |           |           |
|-------------------|---------|----|---|----------|-----------------|------------|-----------|-----------|-----------|
|                   | I       | J  | K |          |                 |            |           |           |           |
| 13                | 1       | 1  | 7 | UZ       | 19              | -.3060E-02 |           |           |           |
|                   |         |    |   | UZ       | 17              | -.2000E-02 |           |           |           |
|                   |         |    |   | UZ       | 8               | -.4620E-02 |           |           |           |
|                   |         |    |   | UZ       | 20              | -.3990E-02 |           |           |           |
|                   |         |    |   | UZ       | 5               | -.2190E-02 |           |           |           |
|                   |         |    |   | PRESSURE | 4               | .1429E+04  | .1429E+04 | .1429E+04 | .1429E+04 |
| SLOPE             | 5       | 0. |   |          |                 |            |           |           |           |
| 14                | 1       | 3  | 7 | UZ       | 7               | -.3410E-02 |           |           |           |
|                   |         |    |   | UZ       | 10              | -.3410E-02 |           |           |           |
|                   |         |    |   | UZ       | 19              | -.3060E-02 |           |           |           |
|                   |         |    |   | UZ       | 8               | -.4620E-02 |           |           |           |
|                   |         |    |   | UZ       | 20              | -.4620E-02 |           |           |           |
|                   |         |    |   | PRESSURE | 4               | .1429E+04  | .1429E+04 | .1429E+04 | .1429E+04 |
| SLOPE             | 2       | 0. |   |          |                 |            |           |           |           |
| 15                | 3       | 1  | 7 | UZ       | 7               | -.1930E-02 |           |           |           |
|                   |         |    |   | UZ       | 10              | -.1930E-02 |           |           |           |
|                   |         |    |   | UZ       | 6               | -.1930E-02 |           |           |           |
|                   |         |    |   | UZ       | 19              | -.2300E-02 |           |           |           |
|                   |         |    |   | UZ       | 17              | -.1600E-02 |           |           |           |
|                   |         |    |   | SLOPE    | 5               | 0.         |           |           |           |
| 16                | 3       | 3  | 7 | UZ       | 7               | -.1930E-02 |           |           |           |
|                   |         |    |   | UZ       | 10              | -.1930E-02 |           |           |           |
|                   |         |    |   | UZ       | 19              | -.2300E-02 |           |           |           |
|                   |         |    |   | SLOPE    | 2               | 0.         |           |           |           |
| 17                | 5       | 1  | 1 | SLOPE    | 6               | 0.         |           |           |           |
|                   |         |    |   | SLOPE    | 5               | 0.         |           |           |           |
| 18                | 9       | 3  | 1 | SLOPE    | 6               | 0.         |           |           |           |
|                   |         |    |   | SLOPE    | 2               | 0.         |           |           |           |
| 19                | 5       | 1  | 3 | SLOPE    | 5               | 0.         |           |           |           |
| 20                | 9       | 3  | 3 | SLOPE    | 2               | 0.         |           |           |           |
| 21                | 5       | 1  | 5 | SLOPE    | 5               | 0.         |           |           |           |
| 22                | 9       | 3  | 5 | SLOPE    | 2               | 0.         |           |           |           |
| 23                | 5       | 1  | 7 | SLOPE    | 5               | 0.         |           |           |           |
| 24                | 5       | 3  | 7 | SLOPE    | 2               | 0.         |           |           |           |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS  
 FIRST SECOND THIRD  
 ELEMENT POINT STRESS ELEMENT POINT STRESS ELEMENT POINT STRESS

| MATERIAL NUMBER = 1 |   |   | MATERIAL NUMBER = 2 |     |            |   |   |   |     |            |   |   |   |     |            |
|---------------------|---|---|---------------------|-----|------------|---|---|---|-----|------------|---|---|---|-----|------------|
| I                   | J | K | I                   | J   | K          |   |   |   |     |            |   |   |   |     |            |
| SIGMA MAX           | 1 | 1 | 3                   | 41  | -0.798E+03 | 1 | 1 | 5 | 73  | -0.798E+03 | 1 | 1 | 1 | 5   | -0.808E+03 |
| SIGMA MIN           | 3 | 1 | 1                   | 20  | -0.166E+04 | 1 | 1 | 7 | 116 | -0.167E+04 | 3 | 3 | 1 | 30  | -0.166E+04 |
| TAU MAX             | 1 | 1 | 3                   | 41  | -0.315E+03 | 1 | 1 | 5 | 73  | -0.309E+03 | 1 | 1 | 3 | 07  | -0.299E+03 |
| EPS MAX             | 1 | 1 | 1                   | 5   | -0.246E-01 | 1 | 1 | 3 | 37  | -0.246E-01 | 1 | 1 | 1 | 4   | -0.289E-01 |
| EPS MIN             | 1 | 1 | 3                   | 41  | -0.327E-01 | 1 | 1 | 5 | 73  | -0.318E-01 | 1 | 1 | 3 | 37  | -0.226E-01 |
| GAMMA MAX           | 1 | 1 | 3                   | 41  | -0.697E-01 | 1 | 1 | 5 | 73  | -0.681E-01 | 1 | 1 | 3 | 37  | -0.72E-01  |
| SIGMA MAX           | 5 | 3 | 7                   | 209 | -0.553E+05 | 5 | 3 | 7 | 218 | -0.548E+05 | 5 | 3 | 1 | 155 | -0.588E+05 |
| SIGMA MIN           | 5 | 1 | 7                   | 203 | -0.143E+05 | 5 | 1 | 7 | 206 | -0.129E+05 | 5 | 1 | 7 | 199 | -0.124E+05 |
| TAU MAX             | 5 | 3 | 1                   | 154 | -0.291E+05 | 5 | 3 | 1 | 157 | -0.290E+05 | 5 | 3 | 7 | 208 | -0.280E+05 |
| EPS MAX             | 5 | 3 | 1                   | 156 | -0.179E-02 | 5 | 3 | 1 | 154 | -0.176E-02 | 5 | 3 | 1 | 155 | -0.176E-02 |
| EPS MIN             | 5 | 1 | 7                   | 203 | -0.033E-03 | 5 | 1 | 7 | 199 | -0.005E-03 | 5 | 3 | 7 | 212 | -0.798E-03 |
| GAMMA MAX           | 5 | 3 | 1                   | 154 | -0.252E-02 | 5 | 3 | 1 | 157 | -0.251E-02 | 5 | 3 | 7 | 208 | -0.249E-02 |

TIME IN POST = 3.099 SECONDS

MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 16

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 15

| COARSE GRID ELEMENT = 5 |       |            | COARSE GRID ELEMENT = 16 |      |       |            |            |
|-------------------------|-------|------------|--------------------------|------|-------|------------|------------|
| MODE                    | K     | J          | I                        | MODE | K     | J          | I          |
| 1                       | 30101 | -0.948E+00 | 0.                       | 11   | 30102 | -0.123E+01 | -0.63E+03  |
| 2                       | 30103 | -0.159E+01 | 0.                       | 12   | 30201 | -0.92E+00  | -0.63E+00  |
| 3                       | 30103 | -0.159E+01 | -0.595E+00               | 13   | 40101 | -0.12E+01  | 0.         |
| 4                       | 30101 | -0.808E+00 | -0.308E+00               | 14   | 40103 | -0.16E+01  | 0.         |
| 5                       | 50101 | -0.158E+01 | 0.                       | 15   | 40303 | -0.15E+01  | -0.595E+00 |
| 6                       | 50103 | -0.209E+01 | 0.                       | 16   | 40303 | -0.08E+00  | -0.63E+00  |
| 7                       | 50303 | -0.158E+01 | -0.595E+00               | 17   | 50102 | -0.181E+01 | 0.         |
| 8                       | 50301 | -0.808E+00 | -0.308E+00               | 18   | 50203 | -0.186E+01 | -0.348E+00 |
| 9                       | 30102 | -0.132E+01 | 0.                       | 19   | 50302 | -0.123E+01 | -0.62E+00  |
| 10                      | 30203 | -0.167E+01 | -0.362E+00               | 20   | 50201 | -0.131E+01 | -0.266E+00 |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS

| FIRST               |       | SECOND  |       | THIRD   |           |   |     |   |    |           |     |   |   |    |           |
|---------------------|-------|---------|-------|---------|-----------|---|-----|---|----|-----------|-----|---|---|----|-----------|
| ELEMENT             | POINT | ELEMENT | POINT | ELEMENT | POINT     |   |     |   |    |           |     |   |   |    |           |
| I                   | J     | K       | NO.   | I       | J         | K | NO. | I | J  | K         | NO. |   |   |    |           |
| MATERIAL NUMBER = 1 |       |         |       |         |           |   |     |   |    |           |     |   |   |    |           |
| SIGMA MAX           | 1     | 1       | 5     | 17      | .181E+05  | 1 | 3   | 5 | 32 | .101E+05  | 3   | 1 | 3 | 38 | .186E+05  |
| SIGMA MIN           | 1     | 3       | 5     | 35      | -.259E+05 | 1 | 1   | 5 | 14 | -.166E+05 | 3   | 1 | 3 | 37 | -.000E+04 |
| TAU MAX             | 1     | 1       | 5     | 16      | .315E+03  | 1 | 3   | 5 | 28 | .307E+03  | 1   | 1 | 5 | 13 | .307E+03  |
| EPS MAX             | 1     | 1       | 3     | 1       | .246E-01  | 1 | 1   | 3 | 4  | .227E-01  | 1   | 3 | 3 | 19 | .227E-01  |
| EPS MIN             | 1     | 1       | 5     | 16      | -.327E-01 | 1 | 1   | 5 | 13 | -.293E-01 | 1   | 1 | 3 | 8  | -.209E-01 |
| GAMMA MAX           | 1     | 1       | 5     | 16      | .697E-01  | 1 | 1   | 3 | 8  | .606E-01  | 1   | 1 | 3 | 13 | .606E-01  |

TIME IN POST = 1.139 SECONDS

MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 15

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 15

| COARSE GRID ELEMENT = 1 |       | X-COORD |   | Y-COORD  |   | Z-COORD  |      | MODE  |   | K |          | J |          | I    |   | X-COORD |          | Y-COORD |          | Z-COORD |          |
|-------------------------|-------|---------|---|----------|---|----------|------|-------|---|---|----------|---|----------|------|---|---------|----------|---------|----------|---------|----------|
| MODE                    | K     | J       | I | X        | Y | Z        | MODE | K     | J | I | X        | Y | Z        | MODE | K | J       | I        | X       | Y        | Z       |          |
| 1                       | 38181 | 0       | 0 | .048E+08 | 0 | .043E+08 | 11   | 38182 | 0 | 0 | .111E+01 | 0 | .281E+08 | 0    | 0 | 0       | .111E+01 | 0       | .281E+08 | 0       | .453E+08 |
| 2                       | 38182 | 0       | 0 | .132E+01 | 0 | .003E+08 | 12   | 38201 | 0 | 0 | .000E+08 | 0 | .000E-01 | 0    | 0 | 0       | .000E+08 | 0       | .000E-01 | 0       | .000E+08 |
| 3                       | 38183 | 0       | 0 | .130E+01 | 0 | .043E+08 | 13   | 48101 | 0 | 0 | .110E+01 | 0 | .000E-01 | 0    | 0 | 0       | .110E+01 | 0       | .000E-01 | 0       | .642E+08 |
| 4                       | 38184 | 0       | 0 | .239E+03 | 0 | .043E+08 | 14   | 48103 | 0 | 0 | .146E+01 | 0 | .000E-01 | 0    | 0 | 0       | .146E+01 | 0       | .000E-01 | 0       | .659E+08 |
| 5                       | 58181 | 0       | 0 | .160E+08 | 0 | .043E+08 | 15   | 48303 | 0 | 0 | .137E+01 | 0 | .253E+08 | 0    | 0 | 0       | .137E+01 | 0       | .253E+08 | 0       | .653E+08 |
| 6                       | 58182 | 0       | 0 | .157E+01 | 0 | .043E+08 | 16   | 48301 | 0 | 0 | .182E+01 | 0 | .192E+08 | 0    | 0 | 0       | .182E+01 | 0       | .192E+08 | 0       | .656E+08 |
| 7                       | 58183 | 0       | 0 | .166E+01 | 0 | .037E+08 | 17   | 58182 | 0 | 0 | .142E+01 | 0 | .000E-01 | 0    | 0 | 0       | .142E+01 | 0       | .000E-01 | 0       | .843E+08 |
| 8                       | 58201 | 0       | 0 | .217E+08 | 0 | .043E+08 | 18   | 58202 | 0 | 0 | .128E+01 | 0 | .188E+08 | 0    | 0 | 0       | .128E+01 | 0       | .188E+08 | 0       | .838E+08 |
| 9                       | 38182 | 0       | 0 | .110E+01 | 0 | .043E+08 | 19   | 58203 | 0 | 0 | .128E+01 | 0 | .246E+08 | 0    | 0 | 0       | .128E+01 | 0       | .246E+08 | 0       | .838E+08 |
| 10                      | 38203 | 0       | 0 | .110E+01 | 0 | .043E+08 | 20   | 58201 | 0 | 0 | .128E+01 | 0 | .121E+08 | 0    | 0 | 0       | .128E+01 | 0       | .121E+08 | 0       | .842E+08 |



ELEMENT SUMMARY REPORT

| THREE MOST HIGHLY STRESSED ELEMENTS |                  |   |              |             |           |             |   |             |    |           |   |           |        |    |           |
|-------------------------------------|------------------|---|--------------|-------------|-----------|-------------|---|-------------|----|-----------|---|-----------|--------|----|-----------|
| FIRST POINT                         |                  |   | SECOND POINT |             |           | THIRD POINT |   |             |    |           |   |           |        |    |           |
| ELEMENT NO.                         | I                | J | K            | ELEMENT NO. | I         | J           | K | ELEMENT NO. | I  | J         | K | POINT NO. | STRESS |    |           |
| MATERIAL NUMBER = 1                 |                  |   |              |             |           |             |   |             |    |           |   |           |        |    |           |
| SIGMA MAX                           | 3                | 3 | 3            | 57          | .190E+05  | 3           | 1 | 5           | 51 | .113E+05  | 1 | 3         | 3      | 22 | .980E+04  |
| SIGMA MIN                           | 3                | 3 | 5            | 70          | -.349E+05 | 3           | 3 | 3           | 50 | -.151E+05 | 1 | 3         | 3      | 21 | -.151E+05 |
| TAU MAX                             | 1                | 3 | 5            | 35          | .317E+03  | 1           | 3 | 5           | 20 | .300E+03  | 1 | 1         | 3      | 0  | .300E+03  |
| EPS MAX                             | 1                | 1 | 3            | 7           | .260E-01  | 3           | 1 | 3           | 44 | .249E-01  | 1 | 1         | 3      | 1  | .246E-01  |
| EPS MIN                             | 1                | 3 | 5            | 35          | -.293E-01 | 1           | 1 | 3           | 0  | -.259E-01 | 1 | 1         | 5      | 13 | -.259E-01 |
| GAMMA MAX                           | 1                | 3 | 5            | 35          | .406E-01  | 1           | 1 | 5           | 13 | .473E-01  | 1 | 1         | 3      | 0  | .473E-01  |
| TIME IN POST                        | = 1.142 SECONDS  |   |              |             |           |             |   |             |    |           |   |           |        |    |           |
| TIME IN STOP                        | = 86.868 SECONDS |   |              |             |           |             |   |             |    |           |   |           |        |    |           |

MICOM SCOPE 3.4.2 MM SN 48 MXN R.D 14.27  
 15.27.28.HM3KPB0 FROM /KP  
 15.27.28.IP 8888784 WORDS - FILE INPUT , DC 88  
 15.27.28.HM3KP.T1000.CHZ00000.L1000.  
 15.27.29.7E41K10M05 7200 A3 MACKETT 0M01  
 15.27.30.LIMIT(1000)  
 15.27.30.ATTACH(TEX30,KPXXXXM,IC=KPXXX,CY=3,MP=1)  
 15.27.30.0T3POSETOUTPUT,PP=C  
 15.43.20.LOSET(PRESET=ZERO)  
 15.43.21.TEX30.  
 16.33.12. NON-FATAL ERROR(S) IN OVERLAY GEN.  
 19.04.52. STOP  
 19.04.52. 86.400 CP SECCROS EXECUTION TIME  
 19.04.52.EXIT.  
 19.04.52.OP 88844992 WORDS - FILE OUTPUT , DC 48  
 19.04.53.MS 46592 WORDS ( 344064 MAX USED)  
 19.04.53.CPA 93.411 SEC. 84.878 ADJ.  
 19.04.53.IO 96.688 SEC. 54.647 ADJ.  
 19.04.53.CM 9415.918 KWS. 95.769 ADJ.  
 19.04.53.PP 194.494 SEC. DATE 10/10/77  
 19.04.53.EJ END OF JOB, KP

LINE DIRECT LIST OF INPUT DATA

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1 #FINOCYL - STAR TO CYLINDRICAL NORE TRANSITION (III)
2 SETUP,4,PRESCRIB
3 ISO,PROPELLANT,1,,7F3,.499,-,014245
4 ISO,CASE,2,3,E7,,3
5 END,MATERIALS
6 BLOCK-C,1, 1,1,1, 5,3,3  SPROPELLANT NODES
7 94,0,0, 2,447,0,0, 2,291,,86,0, .88,,33,C/
8 94,0,,463, 2,446,0,,463, 2,291,,86,,463, .88,,33,,463
9 10,2,430,,292,0, 12,,913,,223,0, 18,2,430,,292,,463, 20,,913,,223,,463/
10 22,2,377,,580,0, 24,,933,,112,0, 30,2,377,,580,,463, 32,,933,,112,,463
11 BLOCK-C,1, 1,3,1, 5,5,3  SPROPELLANT NODES
12 88,,33,0, 2,291,,86,0, 1,730,1,730,0, .665,,665,87
13 88,,33,,463, 2,291,,86,,463, 1,730,1,730,,463, .665,,665,,463
14 10,2,150,1,176,0, 12,,752,,559,0, 18,2,150,1,176,,463, 20,,752,,559,,463/
15 22,1,958,1,457,0, 24,,825,,452,3, 30,1,958,1,457,,463, 32,,825,,452,,463
16 BLOCK-C,1, 1,1,3, 5,3,7  SPROPELLANT NODES
17 94,0,,463, 2,447,0,,463, 2,291,,86,,463, .88,,33,,463/
18 2,145,0,1,942, 2,447,0,1,942, 2,291,,86,1,942, .88,,33,1,942
19 10,2,430,,292,,463, 12,,913,,223,,463, 13,1,39,0,,963/
20 18,2,430,,292,1,942, 20,1,403,,33,1,942, 22,2,377,,580,,463/
21 24,,933,,112,,463, 25,1,79,0,1,363, 30,2,377,,580,1,942/
22 32,1,89,,33,1,942
23 BLOCK-C,1, 1,3,3, 5,5,7  SPROPELLANT NODES
24 88,,33,,463, 2,291,,86,,463, 1,730,1,730,,463, .665,,665,,463/
25 88,,33,1,942, 2,291,,86,1,942, 1,730,1,730,1,942, .665,,665,1,942
26 10,2,150,1,176,,463, 12,,752,,559,,463, 18,2,150,1,176,1,942/
27 20,,752,,559,1,942, 22,1,958,1,457,,463, 24,,825,,452,,463/
28 30,1,958,1,457,1,942, 32,,825,,452,1,942
29 BLOCK-C,1, 1,1,7, 5,3,9  SPROPELLANT NODES
30 2,145,0,1,942, 2,447,0,1,542, 2,291,,86,1,942, .88,,33,1,942/
31 2,145,0,2,485, 2,447,0,2,405, 2,291,,86,2,485, .88,,33,2,485
32 10,2,430,,292,1,942, 12,1,403,,33,1,942, 18,2,430,,292,2,485/
33 20,1,403,,33,2,485, 22,2,377,,580,1,942, 24,1,89,,33,1,942/
34 30,2,377,,580,2,485, 32,1,89,,33,2,485
35 BLOCK-C,1, 1,3,7, 5,5,9  SPROPELLANT NODES
36 88,,33,1,942, 2,291,,86,1,942, 1,730,1,730,1,942, .665,,665,1,942/
37 88,,33,2,485, 2,291,,86,2,485, 1,730,1,730,2,485, .665,,665,2,485
38 10,2,150,1,176,1,942, 12,,752,,559,1,942, 18,2,150,1,176,2,485/
39 20,,752,,559,2,485, 22,1,958,1,457,1,942, 24,,825,,452,1,942/
40 30,1,958,1,457,2,485, 32,,825,,452,2,485
41 BLOCK,2, 5,1,1, 7,3,3  SCASE NODES
42 2,447,0,0, 2,517,0,0, 2,517,20,56,0, 2,447,20,56,0/
43 2,447,0,,463, 2,517,0,,463, 2,517,20,56,,463, 2,447,20,56,,463
44 BLOCK,2, 5,3,1, 7,5,3  SCASE NODES
45 2,447,20,56,0, 2,517,20,56,0, 2,517,45,0, 2,447,45,0/
46 2,447,20,56,,463, 2,517,20,56,,463, 2,517,45,,463, 2,447,45,,463
47 BLOCK,2, 5,1,3, 7,3,7  SCASE NODES
48 2,447,0,,463, 2,517,0,,463, 2,517,20,56,,463, 2,447,20,56,,463/
49 2,447,0,1,942, 2,517,0,1,942, 2,517,20,56,1,942, 2,447,20,56,1,942
50 BLOCK,2, 5,3,3, 7,5,7  SCASE NODES
51 2,447,20,56,,463, 2,517,20,56,,463, 2,517,45,,463, 2,447,45,,463/
52 2,447,20,56,1,942, 2,517,20,56,1,942, 2,517,45,1,942, 2,447,45,1,942
53 BLOCK,2, 5,1,7, 7,3,9  SCASE NODES
54 2,447,0,1,942, 2,517,0,1,942, 2,517,20,56,1,942, 2,447,20,56,1,942/
55 2,447,0,2,485, 2,517,0,2,485, 2,517,20,56,2,485, 2,447,20,56,2,485
56 BLOCK,2, 5,3,7, 7,5,9  SCASE NODES
57 2,447,20,56,1,942, 2,517,20,56,1,942, 2,517,45,1,942, 2,447,45,1,942/
58 2,447,20,56,2,485, 2,517,20,56,2,485, 2,517,45,2,485, 2,447,45,2,485
99 END,GRID
60 KLOOP,4
61 ILOOP,2
62 *****

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63 BRICK,1, 1,1,1  8 PROPELLANT ELEMENTS
64 JEND
65 IEND
66 KEND
67 KLOOP,4
68 KLOOP,2
69 BRICK,2, 5,1,1  8 CASE ELEMENTS
70 JEND
71 IEND
72 KLOOP,4
73 ILOOP,3
74 BC,SLOPE,1,1,1, 9  8 0 DEGREE FACE
75 BC,SLOPE,1,3,1, 2  8 45 DEGREE FACE
76 IEND
77 KEND
78 KLOOP,2
79 BC,SLOPE,5,1,1, 6  8 END OF CASE
80 JEND
81 BC,UZ,1,1,1, 0,-7.385E-2
82 BC,UZ,1,2,1, 0,-7.385E-2
83 BC,UZ,1,3,1, 0,-7.385E-2
84 BC,UZ,1,4,1, 0,-7.385E-2
85 BC,UZ,1,5,1, 0,-7.385E-2
86 BC,UZ,2,1,1, 0,-5.938E-2
87 BC,UZ,2,3,1, 0,-5.938E-2
88 BC,UZ,2,5,1, 0,-5.938E-2
89 BC,UZ,3,1,1, 0,-3.692E-2
90 BC,UZ,3,2,1, 0,-3.692E-2
91 BC,UZ,3,3,1, 0,-3.692E-2
92 BC,UZ,3,4,1, 0,-3.692E-2
93 BC,UZ,3,5,1, 0,-3.692E-2
94 BC,UZ,4,1,1, 0,-1.846E-2
95 BC,UZ,4,3,1, 0,-1.846E-2
96 BC,UZ,4,5,1, 0,-1.846E-2
97 BC,UZ,5,1,1, 0,0.
98 BC,UZ,5,2,1, 0,0.
99 BC,UZ,5,3,1, 0,0.
100 BC,UZ,5,4,1, 0,0.
101 BC,UZ,5,5,1, 0,0.
102 BC,UZ,1,1,9, 0,-.977E-2
103 BC,UZ,1,2,9, 0,-1.864E-2
104 BC,UZ,1,3,9, 0,-1.436E-2
105 BC,UZ,1,4,9, 0,-1.436E-2
106 BC,UZ,1,5,9, 0,-1.436E-2
107 BC,UZ,2,1,9, 0,-.525E-2
108 BC,UZ,2,3,9, 0,-1.165E-2
109 BC,UZ,2,5,9, 0,-1.165E-2
110 BC,UZ,3,1,9, 0,-.478E-2
111 BC,UZ,3,2,9, 0,-.638E-2
112 BC,UZ,3,3,9, 0,-1.815E-2
113 BC,UZ,3,4,9, 0,-1.815E-2
114 BC,UZ,3,5,9, 0,-1.815E-2
115 BC,UZ,4,1,9, 0,-.414E-2
116 BC,UZ,4,3,9, 0,-.638E-2
117 BC,UZ,4,5,9, 0,-.638E-2
118 BC,UZ,5,1,9, 0,-.362E-2
119 BC,UZ,5,2,9, 0,-.362E-2
120 BC,UZ,5,3,9, 0,-.362E-2
121 BC,UZ,5,4,9, 0,-.362E-2
122 BC,UZ,5,5,9, 0,-.362E-2
123 END, ELEMENTS
124 SOLVE
125 POST
126 BLOCK
127 OPTION,2
128 END, PROC

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129 REZONE,1,1,3, 3,3,5
130 REFINE,GRADS,1,1,3, 2,2,2
131 OCR,REZONE,1,1,3, 2,2,2,2,2, 1,1,3
132 END,CONTROL
133 SOLVE
134 POST
135 BLOCK
136 OPTION,2
137 END,POST
138 REZONE,1,1,3, 3,3,5
139 REFINE,GRADS,1,1,3, 2,2,2
140 OCR,REZONE,1,1,3, 2,2,2,2,2, 1,1,3
141 END,CONTROL
142 SOLVE
143 POST
144 BLOCK
145 OPTION,2
146 END,POST
147 STOP
```

TIME IN FFLOS9 = 1.111 SECONDS

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS

| ELEMENT NO.         | FIRST POINT STRESS |   |   | SECOND POINT STRESS |           |   | THIRD POINT STRESS |   |     |           |   |   |   |     |           |
|---------------------|--------------------|---|---|---------------------|-----------|---|--------------------|---|-----|-----------|---|---|---|-----|-----------|
|                     | I                  | J | K | I                   | J         | K | I                  | J | K   |           |   |   |   |     |           |
| MATERIAL NUMBER = 1 |                    |   |   |                     |           |   |                    |   |     |           |   |   |   |     |           |
| SIGMA MAX           | 1                  | 1 | 5 | 73                  | .225E+03  | 1 | 1                  | 3 | 41  | .225E+03  | 1 | 1 | 7 | 149 | .208E+03  |
| SIGMA MIN           | 1                  | 1 | 7 | 116                 | -.938E+02 | 1 | 1                  | 3 | 44  | -.808E+02 | 1 | 1 | 5 | 76  | -.764E+02 |
| TAU MAX             | 1                  | 1 | 3 | 41                  | .118E+03  | 1 | 1                  | 5 | 73  | .107E+03  | 1 | 1 | 5 | 77  | .919E+02  |
| EPS MAX             | 1                  | 1 | 1 | 5                   | .211E+00  | 1 | 1                  | 3 | 37  | .211E+00  | 1 | 1 | 1 | 4   | .103E+00  |
| EPS MIN             | 1                  | 1 | 3 | 41                  | -.291E+00 | 1 | 1                  | 5 | 73  | -.276E+00 | 1 | 1 | 5 | 77  | -.226E+00 |
| GAMMA MAX           | 1                  | 1 | 3 | 41                  | .673E+00  | 1 | 1                  | 5 | 73  | .659E+00  | 1 | 1 | 5 | 77  | .304E+00  |
| MATERIAL NUMBER = 2 |                    |   |   |                     |           |   |                    |   |     |           |   |   |   |     |           |
| SIGMA MAX           | 5                  | 3 | 7 | 213                 | .374E+05  | 5 | 3                  | 7 | 209 | .348E+05  | 5 | 3 | 7 | 210 | .366E+05  |
| SIGMA MIN           | 5                  | 1 | 7 | 203                 | -.116E+06 | 5 | 1                  | 7 | 206 | -.116E+06 | 5 | 3 | 7 | 212 | -.114E+06 |
| TAU MAX             | 5                  | 1 | 7 | 203                 | .640E+05  | 5 | 3                  | 7 | 212 | .637E+05  | 5 | 1 | 7 | 206 | .686E+05  |
| EPS MAX             | 5                  | 1 | 7 | 203                 | .234E-02  | 5 | 3                  | 7 | 212 | .233E-02  | 5 | 1 | 7 | 206 | .283E-02  |
| EPS MIN             | 5                  | 1 | 7 | 203                 | -.321E-02 | 5 | 3                  | 7 | 212 | -.318E-02 | 5 | 1 | 7 | 206 | -.318E-02 |
| GAMMA MAX           | 5                  | 1 | 7 | 203                 | .555E-02  | 5 | 3                  | 7 | 212 | .552E-02  | 5 | 1 | 7 | 206 | .552E-02  |

TIME IN POST = 3.009 SECONDS

MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 16

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 15

| COARSE GRID ELEMENT NO. | X-COORD |          |          | MODE | Z-COORD  |    |       | K        | J        | I        | X-COORD  |          |          | Y-COORD  |          |          | Z-COORD  |          |          |
|-------------------------|---------|----------|----------|------|----------|----|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                         | K       | J        | I        |      | K        | J  | I     |          |          |          | K        | J        | I        | K        | J        | I        | K        | J        | I        |
| 1                       | 38181   | .948E+00 | 0.       | 11   | .663E+00 | 11 | 38382 | .123E+01 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |
| 2                       | 38183   | .169E+01 | 0.       | 12   | .663E+00 | 12 | 38281 | .929E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |
| 3                       | 38383   | .159E+01 | .592E+03 | 13   | .663E+00 | 13 | 48101 | .127E+01 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |
| 4                       | 38381   | .808E+00 | .338E+00 | 14   | .663E+00 | 14 | 48103 | .106E+01 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |
| 5                       | 58181   | .168E+01 | 0.       | 15   | .116E+01 | 15 | 48383 | .159E+01 | .592E+00 | .592E+00 | .592E+00 | .592E+00 | .592E+00 | .592E+00 | .592E+00 | .592E+00 | .592E+00 | .592E+00 | .592E+00 |
| 6                       | 58183   | .283E+04 | 0.       | 16   | .116E+01 | 16 | 48381 | .008E+04 | .338E+00 | .338E+00 | .338E+00 | .338E+00 | .338E+00 | .338E+00 | .338E+00 | .338E+00 | .338E+00 | .338E+00 | .338E+00 |
| 7                       | 58383   | .159E+01 | .592E+00 | 17   | .128E+01 | 17 | 58182 | .101E+01 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |
| 8                       | 58381   | .806E+00 | .338E+00 | 18   | .128E+01 | 18 | 58283 | .106E+01 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |
| 9                       | 38182   | .132E+01 | 0.       | 19   | .663E+00 | 19 | 58382 | .123E+01 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |
| 10                      | 38283   | .167E+01 | .382E+00 | 20   | .663E+00 | 20 | 58281 | .131E+01 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 | .663E+00 |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS  
 FIRST SECOND THIRD  
 ELEMENT POINT STRESS ELEMENT POINT STRESS ELEMENT POINT STRESS  
 I J K NO. I J K NO. I J K NO.

MATERIAL NUMBER = 1

|           |   |   |   |    |          |   |   |   |    |          |   |   |   |    |          |
|-----------|---|---|---|----|----------|---|---|---|----|----------|---|---|---|----|----------|
| SIGMA MAX | 1 | 3 | 5 | 32 | 540E+04  | 1 | 1 | 5 | 17 | 540E+04  | 3 | 1 | 3 | 30 | 362E+04  |
| SIGMA MIN | 1 | 3 | 5 | 35 | -802E+04 | 1 | 1 | 5 | 14 | -807E+04 | 1 | 1 | 3 | 2  | -240E+04 |
| TAU MAX   | 1 | 1 | 5 | 14 | 110E+03  | 1 | 3 | 3 | 23 | 100E+03  | 1 | 3 | 7 | 20 | 160E+03  |
| EPS MAX   | 1 | 1 | 3 | 1  | 211E+00  | 1 | 1 | 3 | 4  | 193E+00  | 1 | 3 | 3 | 19 | 103E+00  |
| EPS MIN   | 1 | 1 | 5 | 14 | -291E+00 | 1 | 3 | 5 | 20 | -244E+00 | 1 | 3 | 7 | 23 | -244E+00 |
| GAMMA MAX | 1 | 1 | 7 | 14 | 6.75E+01 | 1 | 3 | 5 | 20 | 6.29E+01 | 1 | 1 | 7 | 17 | 6.09E+01 |

TIME IN POST = 1.128 SECONDS

MAXIMUM NUMBER OF COARSE GRID ELEMENTS POSSIBLE = 15

MAXIMUM DIMENSION OF REFINED GRID = 1331

MAXIMUM NUMBER OF GRID POINTS IN ANY ONE DIRECTION = 15

COARSE GRID ELEMENT # 1

| NODE | K     | J       | I  | X-COORD  | Y-COORD | Z-COORD  | MODE | K     | J  | I  | X-COORD  | Y-COORD | Z-COORD  |
|------|-------|---------|----|----------|---------|----------|------|-------|----|----|----------|---------|----------|
| 1    | 30181 | 948E+08 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 11   | 30202 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 2    | 30203 | 132E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 12   | 30201 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 3    | 30303 | 130E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 13   | 40101 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 4    | 30301 | 929E+00 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 14   | 40103 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 5    | 50101 | 127E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 15   | 40303 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 6    | 50103 | 157E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 16   | 40301 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 7    | 50303 | 144E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 17   | 50102 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 8    | 50301 | 112E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 18   | 50203 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 9    | 30102 | 110E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 19   | 50302 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |
| 10   | 30203 | 131E+01 | 0. | 0.63E+00 | 0.      | 0.63E+00 | 20   | 50201 | 0. | 0. | 0.63E+00 | 0.      | 0.63E+00 |

ELEMENT SUMMARY REPORT

THREE MOST HIGHLY STRESSED ELEMENTS

| FIRST SECOND THIRD  |     | ELEMENT POINT ELEMENT POINT ELEMENT POINT |   | STRESS STRESS STRESS |    | ELEMENT ELEMENT ELEMENT |   | POINT POINT POINT |   | STRESS STRESS STRESS |           |   |   |   |    |           |   |
|---------------------|-----|---|---|----------------------|----|-------------------------|---|-------------------|---|----------------------|-----------|---|---|---|----|-----------|---|
| I                   | J   | K   | I | J                    | K  | I                       | J | K                 | I | J                    | K         | I | J | K | I  | J         | K |
| MATERIAL NUMBER = 1 |     |   |   |                      |    |                         |   |                   |   |                      |           |   |   |   |    |           |   |
| SIGMA               | MAX | 3   | 3 | 3                    | 57 | .662E+04                | 3 | 1                 | 5 | 51                   | .679E+04  | 1 | 3 | 3 | 22 | .292E+04  |   |
| SIGMA               | MIN | 3   | 3 | 5                    | 70 | -.118E+05               | 3 | 3                 | 3 | 50                   | -.614E+04 | 1 | 3 | 3 | 21 | -.614E+04 |   |
| TAU                 | MAX | 1   | 3 | 5                    | 35 | .108E+03                | 1 | 3                 | 3 | 23                   | .933E+02  | 1 | 3 | 3 | 20 | .933E+02  |   |
| EPS                 | MAX | 1   | 1 | 3                    | 7  | .235E+10                | 3 | 1                 | 3 | 44                   | .229E+00  | 1 | 1 | 3 | 1  | .211E+00  |   |
| EPS                 | MIN | 1   | 3 | 5                    | 35 | -.244E+00               | 1 | 1                 | 5 | 13                   | -.203E+00 | 1 | 3 | 3 | 20 | -.203E+00 |   |
| GAMMA               | MAX | 1   | 3 | 5                    | 35 | .629E+00                | 1 | 1                 | 5 | 13                   | .399E+00  | 1 | 1 | 3 | 0  | .309E+00  |   |

TIME IN POST = 1.158 SECONDS

TIME IN STOP = 06.298 SECONDS



MICOM SCOPE 3.4.2 MM SN 43 MXM P.0 14.27  
15.30.24.MMKPBR FROM /KP  
15.30.24.IP 00000704 WORDS - FILE INPUT , DC 00  
15.30.26.MMKP.YI000.CWZ00000.LI000.  
15.30.25.7E41K10M05 7200 AJ WACKETT BM01  
15.30.26.LIMIT(1000)  
15.30.26.ATTACH(TEX30,KPXXXXM,IC=KPXXX,CY=3,MP=1)  
15.30.26.DISPOSE(OUTPUT,PP=C)  
15.44.25.LOSET(PRESET=ZERO)  
15.44.25.TEX39.  
16.31.53. NON-FATAL ERROR(S) IN OVERLAY GEN.  
19.06.51. STOP  
19.06.51. 06.173 CP SECONDS EXECUTION TIME  
19.06.51.EXIT.  
19.06.51.OP 0004066 WORDS - FILE OUTPUT , DC 40  
19.06.51.MS 46592 WORDS ( 344064 MAX USED)  
19.06.51.CPA 93.278 SEC. 83.959 ADJ.  
19.06.51.IO 96.212 SEC. 94.420 ADJ.  
19.06.51.CH 9306.892 KWS. 95.473 ADJ.  
19.06.51.PP 197.300 SEC. DATE 10/10/77  
19.06.51.EJ END OF JOB. KP

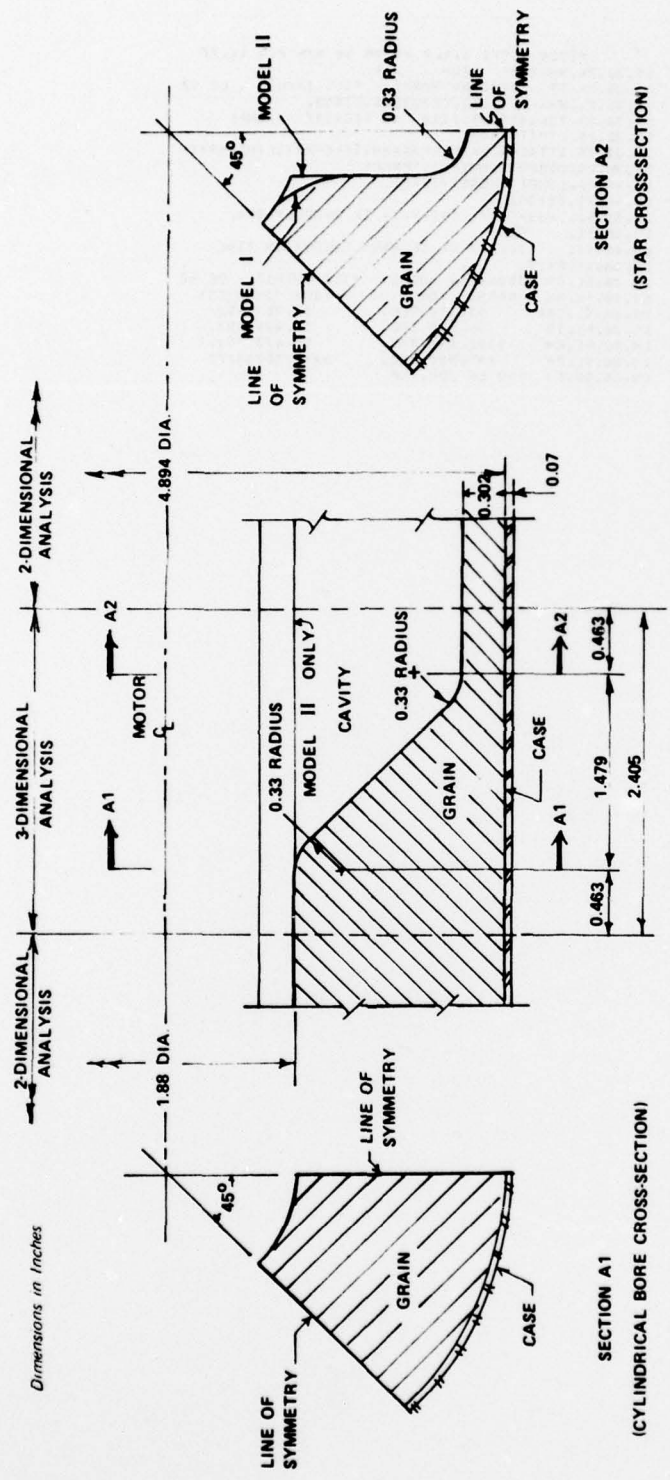


Figure 1. Star to Cylindrical Bore Transition Region (45° Segment)

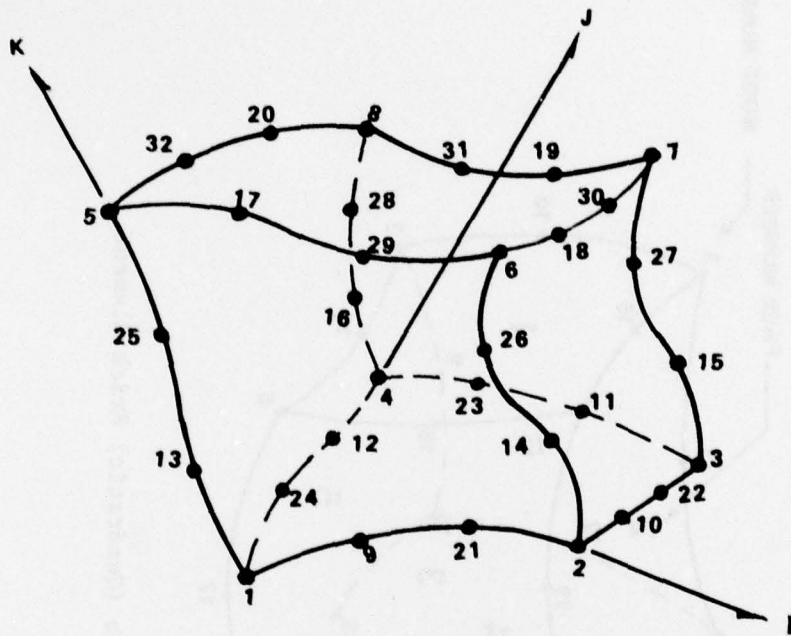


Figure 2. Cubic Grid Generation Block

The eight corner points must be input (1 thru 8). Points 9 thru 32 not specified are located automatically by linear interpolation between corners.

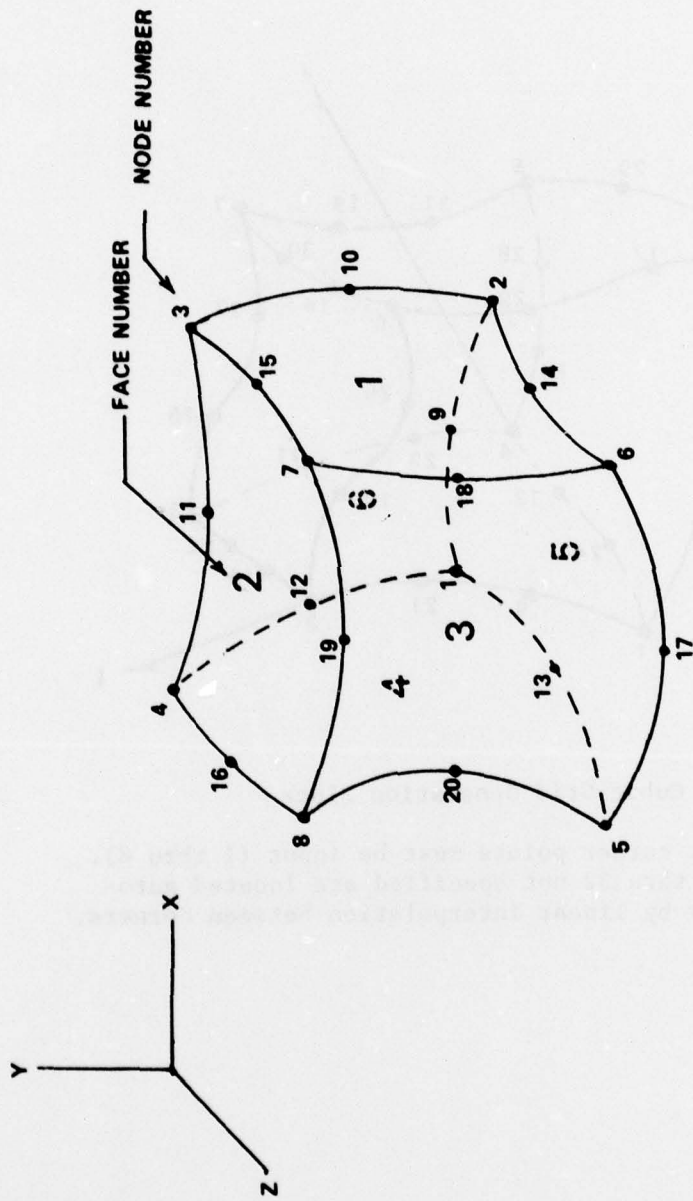


Figure 3. 20 Node (Quadratic) Brick Element

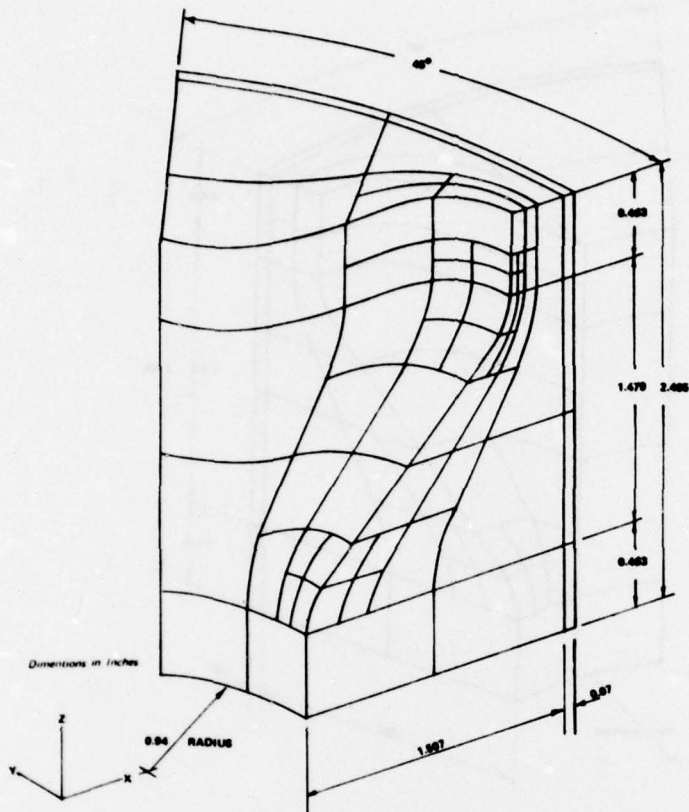


Figure 4. Finite Element Model of Star to Cylindrical Bore Transition (I)

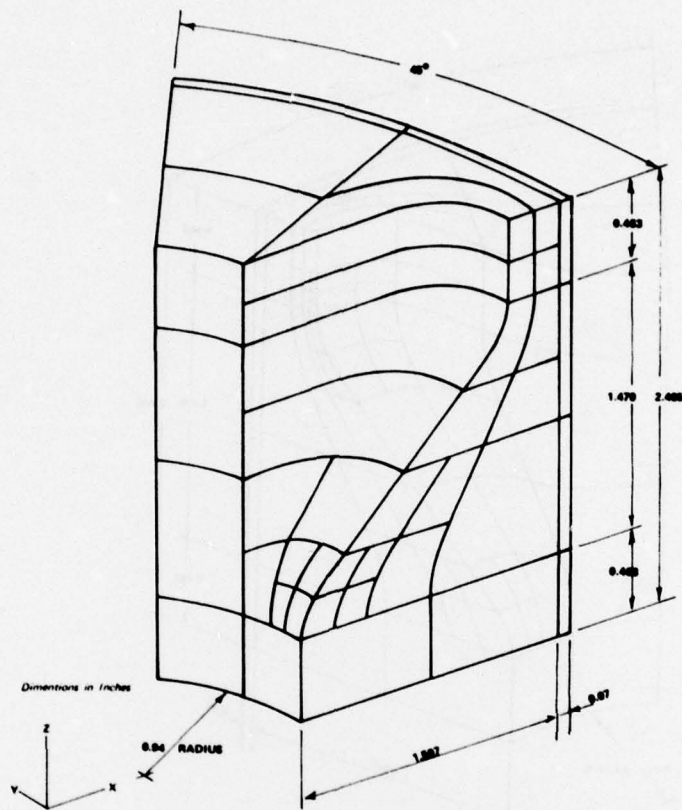
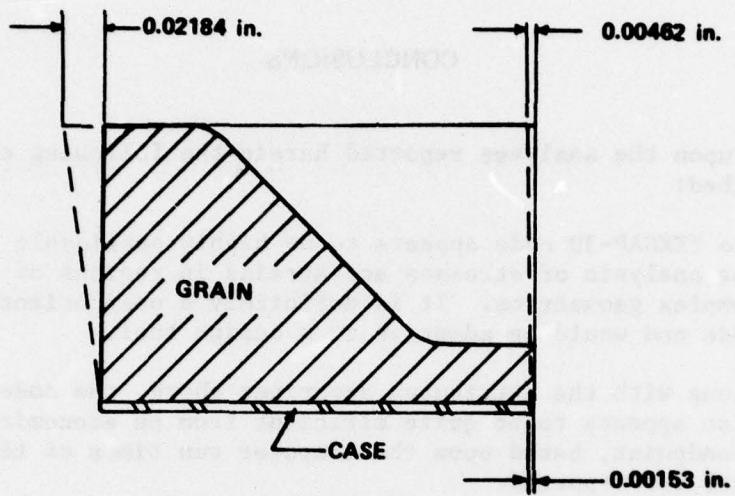
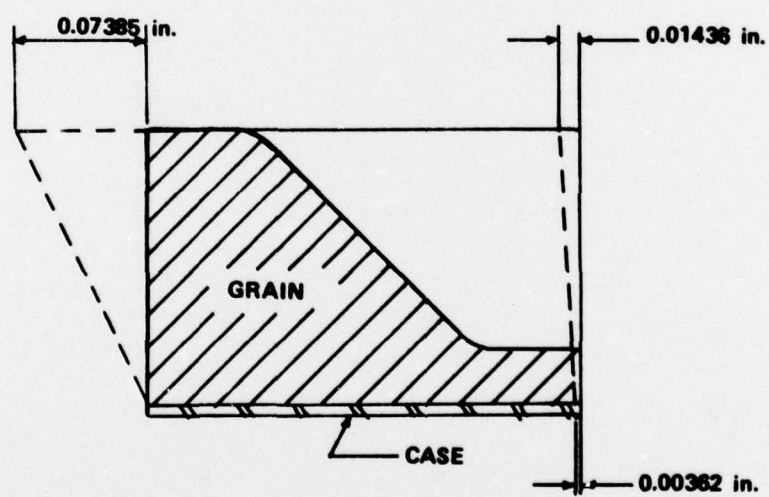


Figure 5. Finite Element Model of Star to Cylindrical Bore Transition (II)



a) PRESSURE LOADING CONDITION



b) THERMAL LOADING CONDITION

Figure 6. Grain Transition Interface Displacements (From Previous Two-Dimensional Analyses)

## CONCLUSIONS

Based upon the analyses reported herein the following conclusions can be reached:

- 1) The TEXGAP-3D code appears to be highly applicable to the analysis of stresses and strains in regions of complex geometrics. It is definitely a user oriented code and would be adaptive as a design tool.
- 2) Along with the attributes described above, the code also appears to be quite efficient from an economic standpoint, based upon the computer run times of the analyses reported.



## REFERENCES

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2. E. B. Becker and R. S. Dunham, "TEXGAP-3D - A User Oriented Three-Dimensional Static Linear Elastic Stress Analysis Program", Vol. I, March 1977.
3. E. B. Becker and R. S. Dunham, "TEXGAP-3D - A User Oriented Three-Dimensional Static Linear Elastic Stress Analysis Program", Vol. II, March 1977.

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